

CA MICS® Resource Management

Accounting and Chargeback Option User Guide

Release 12.9



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Chapter 1: OVERVIEW

CA MICS Accounting and Chargeback Option is a revenue management and resource consumption control system designed to meet the accountability requirements of information systems (IS) organizations. You can apply CA MICS Accounting and Chargeback Option to the following primary areas:

- o Cost Allocation--You can measure the resources consumed by specific user groups or business functions and compute the dollar value of those resources so that you can allocate data processing costs appropriately.
- o Software and Hardware Acquisition--You can track revenues and expenses to evaluate the purchase of proposed hardware and software upgrades. Being aware of current revenues and expenses allows you to better analyze the affordability of additions and upgrades and, if necessary, adjust your acquisition plans.
- o Budgeting--You can manually enter budgets for each accounting month and then display any variances from budgeted amounts on the invoices. Management can use this information to monitor system usage from a monetary perspective. Budget projection reports also provide input for estimating future expenditures for IS services.
- o Capacity Planning and Performance--CA MICS Accounting and Chargeback Option puts performance and capacity issues in financial terms. You can assess the effects of improved throughput and latent system demand from the perspective of revenue increases or decreases brought about by system configuration changes.

- o Client Invoicing--CA MICS Accounting and Chargeback Option produces a consolidated invoice report that includes multi-site consolidation and quantifies a user's or user group's total expenditures. It gives cost center management an accurate accounting of the quantity of each individual billable item consumed during the accounting period, the rate of charge, and the corresponding charges incurred.
- o Enterprise IS Financial Reporting--Enterprise IS Financial Reporting is a comprehensive framework to help you analyze how enterprise investments in IS technology are being used. The information is organized in five management impact areas and is presented either as a mainframe report, such as an invoice, or on a workstation where you can look at the information in graphic and tabular form.

ABOUT THIS GUIDE

This guide is for the person responsible for:

- o Installing CA MICS Accounting and Chargeback Option
- o Setting appropriate parameters for your installation
- o Processing accounting data

If you are not familiar with CA MICS Accounting and Chargeback Option and want to learn more about it, start by reading Chapter 1. Pay particular attention to Section 1.3 if you are responsible for installing CA MICS Accounting and Chargeback Option, specifying charges for data sources, and tailoring the product for your installation. Section 1.3 provides an overview of these tasks and refers you to Chapter 2 which has checklists to help you plan and carry them out.

OTHER GUIDES YOU NEED

If you are not familiar with the major features or key concepts used in CA MICS Accounting and Chargeback Option, you should review the material in Chapter 1 of the CA MICS Accounting and Chargeback Option Concepts and Overview Guide. You can view it in CA MICS Document Access.

If you are installing CA MICS Accounting and Chargeback Option in a CA MICS complex or unit, consult the CA MICS PIOM. The planning checklist in Chapter 2 of this guide directs you to the appropriate place in the PIOM. You can view it in CA MICS Document Access. Your CA MICS administrator also has a copy.

PRODUCT PREREQUISITES

CA MICS Accounting and Chargeback Option runs in a CA MICS environment that operates under z/OS.

The following sections contain more overview information about CA MICS Accounting and Chargeback Option:

- 1 - Reporting and Inquiry Functions
- 2 - Using the Online Panels
- 3 - Overview of Tailoring CA MICS Accounting and Chargeback Option

This section contains the following topics:

[1.1 Reporting and Inquiry Functions](#) (see page 13)

[1.2 Using the Online Panels](#) (see page 26)

[1.3 Overview of Tailoring CA MICS Accounting and Chargeback Option](#) (see page 29)

1.1 Reporting and Inquiry Functions

CA MICS Accounting and Chargeback's Enterprise IS Financial Reporting is grouped into five management impact areas:

- o Invoicing
- o Client Support
- o IS Financial Management
- o Enterprise IS Financial Management
- o Accounting Administration

The information is presented as a mainframe report or in graphic and tabular form at your workstation.

You can view additional information by running predefined MICF inquiries. These inquiries are described at the end of this section.

INVOICING

The Invoicing management impact area produces the following reports:

Report	Description

Consolidated Invoice Report	Provides a summary of charges invoiced to a cost center during the accounting period. You can produce the report at three levels of summarization: Computation Code line items, Invoice Category line items, or Cost Center (total) line items. The invoice shows the charges incurred at the chosen level with several options for additional information including quantities consumed and rates charged, and comparison to budget or year-to-date charges. Installations with multiple sites can produce a consolidated multi-site invoice at the central site.
Zero Balance Report	Shows the accounting month's charges for each value of the highest-level cost center and lists the adjustment amounts and revised charges that result from calculating a zero balance.
Repeat Invoice	An invoice run from a prior accounting period.

Month-to-Date Invoice	An invoice run from the current month cycle of the ledger, debit and credit files and the active cycle of the budget file. Any recurring debits and credits are included. Year-to-date amounts through the previous month can be shown.
Multi-site Invoice	A consolidated multi-site invoice run from the 01 (prior month) cycle of the Multi-site Financial Recap file. The invoice is created from the central and remote site Financial Recap files.
Multi-site Repeat Invoice	A multi-site invoice run from a prior accounting period. You can reprint an invoice from any existing Multi-site Financial Recap file cycle.
Invoice Credit Supplement Report	Provides a detailed listing of the credits applied to a given cost center's bill. When detailed information is required, this report supplements the credit total printed on the invoice.
Trial Balance Invoice	Provides a trial balance invoice for the previous month's cycle before all the monthly closeout jobs (MONTHLY/MONTHACT and CLOSETBL) are run.

CLIENT SUPPORT

The Client Support management impact area focuses on the needs of the users of IS computer services and their management in keeping track of how their IS expenses are being consumed. It provides information in graphic and tabular form at your workstation and in a mainframe report as described below:

Report	Description
User IS Expense Analysis	Presented at your workstation, this information focuses on monthly charges for the current and prior year and, if you have six or more month's data, projects charges through the end of the current year. You can view a subset of the information by department, by application, or by invoice category.
User Expense Summary Report	This is a report of charges for a specific user, or for all users at a specific cost center level, in any defined invoice format.

IS FINANCIAL MANAGEMENT

The IS Financial Management impact area focuses on the needs of IS management in providing computer services to the enterprise. It provides information in graphic and tabular form on a workstation and in a series of mainframe reports as described below:

Report	Description
IS Revenue Analysis	Presented at your workstation, this information provides IS management with several views of the fiscal health of the IS organization by looking at IS revenue. It focuses on monthly revenue for the current and prior year for up to twenty-six months of data and, if you have six or more month's data, projects revenue through the end of the current year.
Budgetary	Provides a summary of the charges invoiced to

Analysis Report	cost centers within the accounting period compared to their budgets for that period. The report gives upper management a concise method of determining which cost centers are over or under budget and the amount of discrepancy. It is also useful as an "early warning" mechanism for clients whose charges increase significantly during the course of a billing cycle. You can also produce a year-to-date version.
Revenue Area Analysis Report	Lists, by invoice category, a summary of charges incurred during the accounting period. This report allows cost center management to determine the dollar expenditure for each resource and allows data center management to determine if charges are distributed appropriately. You can also produce a year-to-date version.
User Revenue Distribution Report	Shows the percentage of total revenue accrued by each value of the highest level cost center. This report gives management a concise way of determining the relative ranking of data processing charges. You can also produce a year-to-date version.
Credit Area Analysis Report	Shows, by individual credit category, a summary of the charges credited during the accounting period. This report allows data center management to determine which resource is being credited, and helps to determine processing inefficiencies and the resulting amount of lost revenue. You can also produce a year-to-date version.
User Credit Distribution Report	Provides a summary of the percentage of total credits accounted for by each value of the highest level cost center. This report gives management a rapid method of determining relative ranking of cost center credits. You can also produce a year-to-date version.

Revenue/ Credit Trend Analysis Report	Lists a one-year history of charges and credits for a given cost center compared to its budget. This report allows management to analyze the credits applied to a cost center in relation to its expenditures, which may indicate cost center operational problems.
Surcharge Summary Report	Provides a summary of the surcharge amounts for each cost center invoiced. This report gives management a concise view of surcharges for tax reporting and other purposes. You can also produce a year-to-date version.
Invoice Summary Report	Lists the total charges, credits, discounts, zero balance adjustments, surcharges, and a grand total for each cost center invoiced. This report provides management with a quick overview of the invoices for tax reporting and other purposes. You can also produce a year-to-date version.
Budget Summary Report	Provides a listing of all budget amounts by cost center and type of budget.
Cost Reconciliation Report	Lists the difference between costs and charges, in order by cost center, invoice category, or computation code, to help management determine the effectiveness of its rate-setting structure.
IS Revenue Analysis and Rate Projection	Presented on the workstation, this information provides the accounting administrator, and other IS management, with an in-depth analysis of current utilization and revenue and forecasts future trends. You can analyze the effects of new rates and workloads on present and future enterprise utilization and revenues. It focuses on the data for the last 12 accounting periods and forecasts utilization and revenue trends for the next 12 accounting periods.

ENTERPRISE IS FINANCIAL MANAGEMENT

The Enterprise IS Financial Management impact area focuses on the needs of enterprise management in tracking how the enterprise's IS expenses are being consumed. It provides information in graphic and tabular form at your workstation and a mainframe report as described below:

Report	Description
Application IS Expense Analysis	Presented on a workstation, this information focuses on monthly charges for the top ten business applications for the current and prior year at the selected cost center level. You can select an application and compare actual and projected charges to budgeted charges. You can also view charges by month, by designated cost center level, and by invoice category.
Application Expense Summary Report	This is a report of charges, in any defined invoice format, for each application or other information contained in a specified cost center level.

ACCOUNTING ADMINISTRATION

The Accounting Administration impact area focuses on the needs of the accounting administrator in monitoring the status of accounting processing and determining rates. It provides information in graphic and tabular form at your workstation and in a series of mainframe reports as described below:

Report	Description
Journal Run Status Logs	These logs retain information about the journal files created by daily processing, such as the run time stamp when they were created by the DAY199 step of the DAILY job, or the external journal file update job, and the charges for each computation code. They are viewed online and provide a convenient way for you to check on the daily update of CA MICS Accounting and Chargeback files.
Daily IS Revenue Analysis	Presented on the workstation, this information focuses on daily charges for the past 35 days. A breakdown is provided of the charges for the top ten applications, at the selected cost center level, with detail by invoice category or charging element.
Daily Charges Summary	Provides a daily and a month-to-date summary of the total charges incurred within each invoice category by each high level cost center. This report provides an additional way for the accounting administrator to check on the daily update of CA MICS Accounting and Chargeback files.

Audit Report	Provides a detail listing of individual charges, the date and time they were incurred, and the specific work unit involved. You can produce a complex-level report or a unit-level report.
Cost Center Attributes File Recap	Produces a listing of the special billing attributes for each cost center. It includes personalized addressing information, billable status (billable/non-billable), budget printing information, whether this user is entitled to a lump sum or a flat percentage discount and, if so, the amount involved.
Invoice Sequence Number File Recap	Lists the serial number of the next invoice that will be produced.
Credit File Recap	Lists individual standard and recurring credit entries for each cost center in a format compatible with the data entry format used to maintain the file.
Debit File Recap	Lists individual standard and recurring debit entries for each cost center in a format compatible with the data entry format used to maintain the file.

Budget File Recap	Lists individual budget entries for each cost center in a format compatible with the data entry format used to maintain the file.
Effective/ Simulated Rate Comparison Report	Lists the percentage of difference between currently effective rates and proposed rates for each computation code so that you can compare the projected percentage of change in revenue produced by other rate simulation reports.
Rate Simulation Revenue Area Effects Report	Lists the amount of revenue that would have been generated by each invoice category had it been billed at the simulated rate. It shows the actual charges, the simulated charges, the percentage of difference between the charges, the original and simulated percentage distribution of the charges, and the percentage of change in the distribution.
Rate Simulation Cost Center Effects Report	Shows the percentage of simulated total revenue that would have been incurred by each cost center compared to that actually incurred, which helps you assess the effects that a proposed rate change would have on charges incurred by a cost center.
Rate Simulation Billing Element Effects Report	Shows the percentage of simulated total revenue that would have been incurred by each charging element compared to that actually incurred. This report helps you to assess the effect that a proposed rate change would have on the relationship between the charge for a given resource and its actual cost.

Journal Files Rate Report	Provides a complete listing of the charging algorithms in effect for a portion of the CA MICS database. For each journal file, it lists the applicable rate for each charging element in order by system identifier, subsystem (such as CICS or TS0), subtype, and cost center. It is produced automatically when the CA MICS Algorithm Generator is run, or you may generate it as a stand-alone report.
Complex-Level External Files Rate Report	Produces a complete listing of the complex-level external file charging algorithms. For each complex-level external file, it lists the applicable rate for each charging element, in order, by system identifier, subsystem, subtype, and cost center. It is produced automatically when the External File Generation job is run, or you may generate it as a standalone report.

MICF INQUIRIES

The following describes predefined MICF inquiries that are delivered with the system. You can run these inquiries on an as-needed basis. You can also use them as templates for designing your own inquiries. They are located in MICF's Finance Catalog Group.

Inquiry Name	Function
Net Revenue by Cost Center	Produces a pie chart that depicts how revenue, less any cost center credits, is distributed to the various high-level cost centers. Each slice represents a cost center's relative contribution to total revenue.
Budgeted vs. Actual	Produces a vertical bar chart for selected high-level cost centers. Each bar represents either the actual charges or the budgeted amount for a cost center, which helps you to see how well the cost centers are staying within their budgets.

Monthly Charges by Invoice Category	Produces a pie chart depicting how revenue, less any credits, is distributed to the various invoice categories, where the categories are broadly defined along the lines of CPU, DASD, Print, Tape, etc. Each slice represents a category's relative contribution to total revenue. You can produce the graph for any or all high-level cost centers.
Invoice Category Charges by Cost Center	Produces a stacked vertical bar chart that shows each invoice category's charges for the preceding month. Each bar is composed of the charges for each high-level cost center. You can produce the chart for any or all high-level cost centers.
Invoice Credits by Cost Center	Produces a pie chart depicting how credits are distributed to the various high-level cost centers. Each slice represents a cost center's relative share of the total credits.
Cost Center Charges by Invoice Category	Produces a stacked vertical bar chart that shows the preceding month's charges for any or all high-level cost centers. Each bar depicts charges applicable to the different invoice categories.
Invoice Discounts by Cost Center	Produces a pie chart that shows how discounts are distributed to the various high-level cost centers. Each slice represents a cost center's relative share of the total discounts issued during the preceding month.

Monthly Net Revenue Summary	Produces a vertical bar chart that represents net revenue for a selected number of months for any or all high-level cost centers.
Monthly Invoice Credit/Discount Summary	Produces a stacked vertical bar chart depicting the credits and discounts provided each month over a specified period of months for any or all high-level cost centers. Each shows the relative share of credits and discounts.
Weekly Processing Charges Summary	Produces a vertical bar chart showing the total charges processed during the preceding seven days for any or all high-level cost centers. Each bar represents one day's charges.
Weekly Charges by Invoice Category	Produces a vertical bar chart showing the total charges processed during the preceding seven days for any or all high-level cost centers. Each bar represents one day's charges.
Daily Revenue Ranking	Produces three ranked lists that show charging activity for the previous day for specified high-level cost centers, invoice categories, and computation codes (types of charges within an invoice category). The first list shows the top ten charges; the second shows the top five charges in each invoice category; the third shows the top five charges in each high-level cost center.

1.2 Using the Online Panels

You can access CA MICS Accounting and Chargeback through the CA MICS Workstation Facility (MWF) by selecting option 4;2 on the MWF main menu.

You can use the CA MICS Accounting and Chargeback online panels to run a job, change an installation parameter, or enter data.

The Installation Accounting Primary Options Menu is illustrated below:

```
----- Installation Accounting Primary Options Menu -----
Option ==>

1 - Application Database Data Entry
    Debits and credits, cost center attributes, budgets,
    invoice sequence number
2 - Month End Processing
    Submit end of month installation accounting jobs
3 - Parameter Specification and Generation
    Specify Installation Accounting Component parameters
4 - Enterprise IS Financial Reporting
    Access reports and workstation applications by impact area
5 - Year End Processing
    Submit Special Accounting Dates Yearly Processing
S - Special Requirements
    Modify shipped menus, journal file definitions, and utilities
T - Tutorial
    General information
```

Figure 1-1. Accounting Primary Options Menu

If, for example, you want to change the definition of your cost center structure, you would select option 3, Parameter Specification and Generation, on the Installation Accounting Primary Options Menu. Then you would select option 1, Cost Center Definition, and then option 1, Cost Center Structure, from the submenus.

USING ONLINE HELP

Each of the CA MICS Accounting and Chargeback online panels

have tutorials that explain how to use the panel and provide data entry instructions, where appropriate.

When using a CA MICS Accounting and Chargeback panel, press the HELP key, typically F1, to get help. If you entered a command incorrectly, a short explanatory message displays in the upper left corner of the panel, below the Command line. Press the HELP key again to display the panel's tutorial.

Each tutorial has navigation instructions. If there are additional panels, it will tell you to press ENTER to continue. Frequently, there are related topics that you can browse by selecting an option number. When you are finished browsing the tutorial, press the END key to return to the original panel.

For example, suppose you are using the Debits and Credits Data Entry panel, Figure 1-2, to enter debits and credits.

```
----- WORK      Debits and Credits Data Entry ----- Row 1 of 5
Command ==>

Cost center values:
1 ==> AT                      2 ==> DEPT
3 ==> _____            4 ==> _____
5 ==> _____            6 ==> _____

Debit/Credit      ==> D (D or C)  Standard/Recurring ==> R (S or R)
Month/Day/Year    ==> ** / ** / **

Invoice/credit category ==> 1200  CHANNELS
Computation code      ==> 0022  JOB CPU TIME CONSUMED

Quantity           ==> 9.000          TCB SRB SECONDS
Rate               ==> 10.0000
Amount            ==> 90.0000

Workunit           ==> _____
Billing timestamp ==> _____ SYSID ==> ____
Reason            ==> _____
```

Figure 1-2. Debits and Credits Data Entry Panel

If you press HELP, the following tutorial panel displays:

Tutorial {-} Debit and Credit Data Entry {-} Tutorial
Command ==>

Use this panel to add, change, or delete entries in the Debit and Credit table. Existing entries display one at a time. Each entry is a row in the Debit and Credit table.

Primary Commands :

If all required fields have values: ADD, ADJWHO, BOTTOM, CANCEL, DELETE,
DOWN, DUP, END, FIND, RETURN, SAVE,
TOP, UP, RFIND

If all required fields do not have values: CANCEL, DELETE

The following topics will be presented only if selected by number:

- 1 - Data Entry Instructions
- 2 - Primary Commands
- 3 - Special Instructions for the Find Command

Figure 1-3. Debits and Credits Data Entry Tutorial Panel

Notice that you can select from one of three options to view more help about using this panel.

1.3 Overview of Tailoring CA MICS Accounting and Chargeback Option

This section tells you how to customize the CA MICS Accounting and Chargeback Option. You use different specifications to tailor the CA MICS Accounting and Chargeback Option to meet the charging requirements of your data center. Some of the specifications are required for accounting to take place; others are optional.

You enter the specifications using ISPF panels in the CA MICS Workstation Facility (MWF). The appropriate panels are identified in Chapter 4, Customization.

REQUIRED SPECIFICATIONS

You must specify the following:

- o Who is to be charged (the cost centers)?
- o What is to be charged for (the charging elements)?
- o The charging rate.
- o What cost center levels are to be invoiced?
- o The formats of the invoices.
- o The number of positions to round charges on invoices.
- o Whether to carry zero charges on invoices.
- o How much information to store in the journal run status log.

Note: In many cases, you can use the default specifications provided by the CA MICS Accounting and Chargeback Option.

OPTIONAL SPECIFICATIONS

You can specify the following optional information:

- o New or modified charging elements or invoice categories.
- o Names and addresses for cost centers that will receive invoices or supplemental reports.

- o Adjustments to charges including discounts and surcharges, differential charges, debits, and credits.
- o Invoice formats, discounts, and surcharges for individual cost centers, overriding the global specifications.
- o Charges for non-CA MICS data using external files.
- o An accounting calendar.
- o Prorated charges.
- o Zero balancing.
- o Accounting for multiple sites.
- o Journal file definitions.
- o Budgets.
- o Batch input of ISPF data using utility jobs.
- o Modifications to menus.

Review the following sections for an overview of the specifications and determine those that you need to make. Then follow the planning checklist in Section 2.1 to guide you through planning the installation. (Worksheets and detailed information are in Chapter 4.) Finally, follow the installation checklist in Section 2.2 to make the actual specifications on the ISPF panels.

- 1 - Cost Center Specifications
- 2 - Charging Element and Invoice Category Specifications
- 3 - Rate Table Specifications
- 4 - External File Specifications
- 5 - Invoicing Specifications
- 6 - Accounting Calendar Specifications
- 7 - Journal Run Status Log Specifications
- 8 - Prorating Specifications
- 9 - Charging Adjustment Specifications
- 10 - Additional Charging Option Specifications
- 11 - Zero Balancing Specifications
- 12 - Multi-Site Accounting Specifications
- 13 - Journal File Eligibility Specifications
- 14 - Budget Specifications
- 15 - Batch Data Entry Utility Job Specifications
- 16 - Menu Modification Specifications
- 17 - Define Currency Type Money Format

1.3.1 Cost Center Specifications

Cost Center specifications include:

- o Defining your cost center structure using the COSTCTR and COSTRTE parameters
- o Creating optional cost center validation tables
- o Providing names and addresses for individual cost centers

THE COST CENTER STRUCTURE

The cost center structure specifies your organizational hierarchy and any other information that you want carried as summarization keys (COSTCTR1 - COSTCTRn) in the CA MICS Accounting and Chargeback files. You can define up to nine cost center levels in the structure.

COSTCTR Parameter

You define your cost center structure in the COSTCTR parameter. This is where you specify the number of levels in your cost center hierarchy, the meaning of each level, and the length of the corresponding COSTCTR variables. The COSTCTR variables are used as keys for most of the CA MICS Accounting and Chargeback files.

COSTRTE Parameter

This is a SAS routine that you modify to specify what data is to be assigned to the COSTCTR variables. This routine is invoked for each data source being charged (SMF, IMS, DB2, etc.), and you specify the assignments separately for each data source.

The assignments can be made from any data source variables that are input or computed by the CA MICS Data Integration Applications or external file input routines.

COST CENTER VALIDATION TABLES

These are optional tables of valid values for each cost center level. If present, these tables are checked when cost

center values are entered online and during batch data entry for utility jobs, but they are NOT used to validate the values assigned by the COSTRTE during journal file or external file processing. If you need this type of validation, you should provide for it in the COSTRTE.

NAMES AND ADDRESSES

You can specify names and addresses for cost centers in the Cost Center Attributes Identification panels. The names and addresses will appear on the invoices and supplemental reports, so you will probably want to specify them at least for your invoice level cost centers.

1.3.2 Charging Element and Invoice Category Specifications

All charging elements used in the Rate Table must be defined in the Charging Element Table and be associated with an invoice category in the Invoice Category Table.

Each Charging Element Table entry specifies:

- o A computation code
- o A description of the computation code
- o The name of the variable in the data source that contains the quantity to be charged
- o The unit of measurement of the quantity

CA MICS Accounting and Chargeback comes with a default table of invoice categories and a default table of computation codes associated with these invoice categories. These tables should be sufficient to meet most needs, but you may want to create additional computation codes or invoice categories to define charging elements or load centers not in the tables.

For example, you might want to charge different CPU time rates based on zone and print a different description for each zone on the invoice. You could create a different computation code for each zone. Each computation code would charge for CPU time, but would have a different description. Then you would use control variable charging in Rate Table to associate each zone with a different computation code and rate.

1.3.3 Rate Table Specifications

You use the rate tables to indicate which journal files will be charged for and how to charge for the work in each file.

There is one rate table for each CA MICS Accounting and Chargeback unit and one for complex-level external files. You must activate the journal files to be charged for by defining journal file specifications and at least one charging algorithm for each journal file.

A charging algorithm is a set of computation codes and rates. If you define more than one charging algorithm for a journal file, you must use algorithm qualification to indicate which data to charge with each algorithm.

You can also specify a journal file exit if you need to provide for special processing.

JOURNAL FILE SPECIFICATIONS

Journal file specifications include the following:

- o The number of journal file cycles to be kept
- o Whether to use data compression
- o Whether to use zone charging
- o Whether to use priority charging
- o Whether to use journal file prorating
- o An effective date time stamp variable, usually start or end time stamp. If you associate rates with effective dates in your charging algorithm, this identifies the variable whose contents will be compared to the current time stamp at run time to determine the rate to use.

ALGORITHM SPECIFICATION

This is where you define your charging algorithms. You can define a single charging algorithm to apply to all work in the journal file, or you can define multiple algorithms for different subsets of the work.

In each charging algorithm, you specify each charging element

to be used. Normally, you specify one computation code and rate for each charging element, but you can also use "control variable charging" to vary the computation code and/or rate based on the value of a control variable. For example, you might charge different rates for print lines depending on the form number.

You can associate a date with each charging element to indicate when it will be used. This is called the effective date. For example, if you want to change your rates effective January 1, 1996, you might enter each computation code and rate twice, once with no effective date and once with an effective date of 1/1/96.

You can use special computation codes to implement a minimum charge or a surcharge for each unit of work.

ALGORITHM QUALIFICATION

This is where you indicate which charging algorithms to use for which subsets of the data being charged. You do this by specifying the SYSID, SUBSYSID, SUBTYPE, COSTCTR, and WORKUNIT values that identify the work to be charged by each algorithm.

SUBSYSID, SUBTYPE, and WORKUNIT have different meanings for each journal file. You control their meanings using the Journal File Eligibility panel, or the Complex-Level External File panel. Refer to Sections 1.3.4 and 1.3.13 for more information about these specifications.

QUALIFICATION GROUPS

If you have lists of SYSID, SUBSYSID, SUBTYPE, COSTCTR, or WORKUNIT values that you need to specify for an algorithm, you can use the Qualification Groups panel to create lists of values and name each list. Then you can specify the name of the list in algorithm qualification each time that you need to refer to the list of values that it contains.

1.3.4 External File Specifications

You can charge for non-CA MICS data sources using external files. You can also charge for CA MICS data sources outside of CA MICS DAILY processing. For example, you can charge for the data from a CA MICS file summarized to a higher timespan than the DETAILS timespan.

External files can be charged for at the complex or at the unit level. In either case, you create a SAS input routine and submit a generated job to compute the charges as often as you want, normally once or twice a month. (If the data must be processed daily, consider creating a CA MICS field-developed application instead of an external file.)

External journal files are processed just like standard journal files except there is no associated CA MICS DAILY processing to create the journal files. Instead, they are created as follows:

- o You create a CA MICS unit with only Accounting and Chargeback installed. This is called an external file unit.
- o You use Journal File Eligibility to define a journal file for each external file to be processed.
- o You use the Rate Table panels to code an input routine and activate the journal files in the external file unit. You submit the MAGRUN job to generate a update job for each external file.
- o You submit the update job for each external file to create the associated journal file and update the ledger file.
- o You submit the normal CA MICS MONTHLY job to age the ledger file.

Because the CA MICS scheduling facility does not support the external file update jobs, it cannot submit a backup job automatically when each one runs. You should submit the backup job manually or with your own scheduling facility.

Complex-level external files have no associated journal, ledger, or audit files and they do not update the Journal Run Status Log. Instead, charges are output to the Debit File, one record per charging element. They are created using the External File Definition panels.

1.3.5 Invoicing Specifications

Use invoicing specifications to specify the invoice level, the invoice formats, the invoice sequence numbers, and language translations of invoice category computation code descriptions.

INVOICE LEVEL

When invoices are produced, charges are summarized to a particular cost center level. This is called the invoice level and any cost center at this level is called an invoice level cost center.

You must specify a default invoice level and you can also specify other invoice levels for different parts of your organization.

For example, assume a cost center structure of Division, Department, and Project. You might set a default invoice level of 1 and override it to 2 for certain divisions. Then charges to those divisions would be invoiced at the department (COSTCTR2) level, while charges for all other divisions would be invoiced at the division (COSTCTR1) level.

The invoice level is important even if you do not actually produce invoices. It also controls the cost center level at which discounts, surcharges, and zero balance adjustments are computed, and the level at which cost centers are classified as billable or non-billable.

You set the default invoice level in the Accounting Options panel and can override it for particular cost centers in the Cost Center Attributes panel.

INVOICE FORMATS

Invoice formats control the level of summarization of the line items on the invoice (computation code, invoice category, or cost center) and the columns shown on each line (charge, budget, YTD information). They also include options for subtotals, footers, language translation, and supplemental reports.

These options give you a high degree of flexibility in defining your invoice formats. You can also create your own format routine in SAS if you have special requirements.

A table of basic invoice formats is shipped with CA MICS Accounting and Chargeback. It contains one format for each level of summarization and one user format. You can use these shipped formats to create your own format entries in the table with different values for the options.

You must specify which format will be used as the default. You can also specify other formats for different parts of your organization.

You set the default invoice format in the Accounting Options panel and can override it for particular cost centers in the Cost Center Attributes panel.

LANGUAGE TRANSLATION

You can create translation tables for invoice category descriptions, computation code descriptions, and computation code units and have the translations appear on your invoices.

You can create translation tables for multiple languages and then specify which translation table to use for which invoices. For example, some of your invoices might have descriptions in French and others might have descriptions in English.

You create the translation tables using the Language Translation Table panel and specify the translation to use in the invoice format in the Accounting Options panel.

INVOICE SEQUENCE NUMBERS

Each invoice has a unique sequence number. You specify the starting sequence number. This is done in the Invoice Sequence Number panel.

This number is used for the first invoice each time that invoices are produced. It is not incremented from run to run. If, for example, it is set to 1 for June and 1000 invoices are produced that month, the first invoice for July will also begin with 1 unless you reset the invoice sequence number to 1001.

1.3.6 Accounting Calendar Specifications

Each record in the CA MICS Accounting and Chargeback Journal, Ledger, Debit, Credit, and Financial Recap files contains a date in the CA MICS calendar and a date in the accounting calendar. These dates are carried in the DAY, MONTH, YEAR, ACTDAY, ACTMONTH, and ACTYEAR variables, depending on the level of summarization. For example, DAY is not kept in the MONTHS and YEARS timespans, and MONTH is not kept in the YEARS timespan.

Normally, files are aged according to the CA MICS calendar date, but you can override this and specify that they should be aged by the accounting calendar dates instead. This is called the "Special Accounting Dates" option.

The default accounting calendar is the same as the CA MICS calendar, but you can override this and define your own accounting calendar.

You specify the Accounting Calendar Specifications in the Accounting Options panel.

1.3.7 Journal Run Status Log Specifications

This log contains information on the most recent journal file updates. There is one log for each unit. You can browse the logs using the Journal Run Status Log panel.

You must specify the number of DAY199 runs to retain in the logs.

Cost center values are not kept in the log, but you can specify the contents of an application unit field (ACTAPU) which is used as a summarization key for each record.

Records are also summarized by billing status, normally BILL or NOBILL. This is derived from specifications for invoice level cost centers in the Cost Center Attributes file. You can also categorize work as UNIDENTIFIED by specifying a COSTCTR1 value that indicates that the user for the work is unknown. You would set this special COSTCTR1 value in the COSTRTE whenever a workunit with unexpected account code information was encountered.

Finally, you can specify the name of the SAS format to use to print the charge amounts in your local currency. You must create and test this format using the SAS FORMAT procedure. You can base it off of the MONEY format routine shipped in sharedprefix.MICS.SOURCE.

You specify these Journal Run Status Log options in the Accounting Options panel.

1.3.8 Prorating Specifications

You can use prorating to distribute charges from one cost center to one or more other cost centers based on a specified percentage. The original cost center is called the "prorate from" cost center and defaults to the COSTCTR1 value. The new cost center is called the "prorate to" cost center and also defaults to a COSTCTR1 value. Prorating options and exits allow you to override these defaults if necessary.

Prorating can be performed when the journal file is created, or at the end of the month after the ledger file is created. For complex-level external files, it is performed when the charges are written to the Debit File.

In any case, you must create a table that specifies which records to prorate, the new cost center values, and the percentage of the original charges each new record is to receive. For example:

Old Value	New Value	Percent
-----	-----	-----
OVHD	DEPT1	50.0
OVHD	DEPT2	50.0
SALES	NEWDEPT	100.0

You create the prorating table in the Prorating panel. The other prorating options are specified in the Accounting Options, Rate Table, and Complex-Level External File panels.

1.3.9 Charging Adjustment Specifications

Adjustments to charges include discounts, surcharges, minimum charges, and zone and priority differential charges.

DISCOUNTS AND SURCHARGES

Discounts and most surcharges are adjustments to charges that are computed for invoice level cost centers when the Financial Recap File is created. They appear at the bottom of invoices. Workunit surcharges are handled differently.

You can specify several types of discounts:

- o Volume discounts based on a table of thresholds and discount amounts may be defined and apply to all invoice level cost centers.
- o Invoice category discounts may be specified globally or for individual invoice level cost centers.
- o Fixed percentage discounts may be specified for individual invoice level cost centers.
- o Lump sum discounts may be specified for individual invoice level cost centers.

You can also specify several types of surcharges:

- o Fixed percentage surcharges may be specified globally and overridden for specified invoice level cost centers.
- o Invoice category surcharges may be specified globally and overridden for specified invoice level cost centers.
- o Workunit surcharges may be specified for all workunits charged with a particular algorithm by using the SURC computation code and the specifying the surcharge percentage as the rate. They are treated as a special charging element and appear on the invoice as line items.

You specify discounts and most surcharges using the Accounting Options and Cost Center Attributes panels. You specify workunit surcharges in the Rate Table panel.

MINIMUM CHARGES

You can specify a minimum charge that will apply to each unit of work that will be charged with a particular algorithm by using the JMIN computation code and specifying the minimum charge as a rate. Minimum charges are treated as a special computation code and appear on the invoices as line items.

You specify minimum charges in the Rate Table panel.

ZONE AND PRIORITY DIFFERENTIAL CHARGES

You can adjust charges based on zone and/or priority and apply them to all units in a particular journal file. These adjustments are treated as special computation codes and appear on the invoices as line items.

You must specify the zone or priority charge differentials in the CA MICS ZONE or JOBGROUP parameters and then request zone or priority charging for the journal file in the Rate Table panel.

You can use control variable charging as an alternative to this feature if you want to apply the differential charges to one particular charging element (such as CPU time) rather than to all charging elements for a workunit.

1.3.10 Additional Charging Specifications

In addition to the charging adjustments discussed in Section 1.3.9, you can also specify the number of positions to round charges and whether to write records with zero charges.

NUMBER OF POSITIONS TO ROUND CHARGES

When charges are computed and written to journal files, they are rounded to the number of positions that you specify, from 0 to 6.

This is important because lack of precision may result in lost charges and may also increase rounding errors.

When records are summarized to the Ledger and Financial Recap Files, quantity and charge are summarized. (Charge is not recomputed from quantity and rate.) Then charge is rounded to two positions in the Financial Recap File. If the charge is not precise enough, the likelihood increases that the product of quantity and rate will not equal the charge.

You specify this option in the Accounting Options panel.

ZERO CHARGES

Only journal file records where at least one charged quantity is non-zero are written to the Ledger File. When the records are written, they are split into one section for each charging element. Only those sections with a non-zero charge are written to the Ledger File unless the carry zero charge option for the Ledger File is set to YES.

Records with zero charges from complex-level external files are not included in the Debit File unless the carry zero charge option for complex-level external files is set to YES.

Records with zero charges are dropped when the Financial Recap File is created unless the carry zero charge option for the Financial Recap file is set to YES.

Records with zero charges are dropped when invoices are created unless the carry zero charge option for invoices is set to YES.

You specify these options in the Accounting Options panel.

1.3.11 Zero Balancing Specifications

With zero balancing, you can adjust total net charges, or the net charges for a computation code or an invoice category, to match a target value.

You specify zero balancing in the Accounting Options panel.

If you specify zero balancing, each month you enter the target value for total net charges (or the total net charges for each computation code or invoice category) in the ZEROBAL parameter prior to creating the Financial Recap file.

The zero balance adjustments will be created for each invoice level cost center when the Financial Recap file is created, and a report of the adjustments will be produced. If any modifications are necessary, you can change the targets and create the Financial Recap file again.

1.3.12 Multi-Site Accounting Specifications

If you have CA MICS Accounting and Chargeback installed at multiple sites, you can use Multi-Site Accounting to produce a consolidated Financial Recap File and invoice covering all sites.

Each remote site specifies a JCL DD statement which is used to unload the appropriate SAS files. Each month, the remote site runs an unload job and transmits the unloaded data to the central site.

The central site specifies the remote site inputs and runs a job to create a Multi-Site Financial Recap file and invoice.

You make the Multi-Site Accounting Specifications in the Accounting Options panel.

1.3.13 Journal File Eligibility Specifications

CA MICS Accounting and Chargeback has a table defining the standard journal files. This is called the Journal File Eligibility Table because each journal file must be defined in it before it can be used in a Rate Table.

You can modify some of the definitions for the standard journal files such as the contents of the WORKUNIT, SUBSYSID, and SUBTYPE fields. You can also create new journal files for unit-level external files or field-developed applications.

You make these specifications in the Journal File Eligibility panel.

1.3.14 Budget Specifications

You can enter budgets for individual cost centers. Each budget entry specifies the budgets for each period of the year and is associated with a date when the entire record will become effective. The budgets can be the amount of charges to the cost center, an invoice category, or a computation code. They can also be the amount of units for a computation code.

You enter budgets using the Budget panels.

Budgets can be compared with the corresponding charges on invoices as specified for the invoice format using the Accounting Options panels. A warning will be printed at the bottom of each page if total charges for the cost center exceed its total budget by an amount greater than a fuzz value. You specify the global fuzz value on the Accounting Options panel, and you can override it for individual cost centers in Cost Center Attributes.

1.3.15 Batch Data Entry Utility Job Specifications

CA MICS Accounting and Chargeback provides standard utility jobs that you can use to enter machine readable data files into the appropriate panel tables instead of entering the data online. For example, if you have, or can create, a file containing your prorating or cost center attribute specifications, you can use one of the utility jobs to batch load it into the appropriate ISPF table.

You must define each utility job by coding an input routine for your data and specifying an input DD statement. Then you generate the job that you will run to input your data and write it to the appropriate ISPF table.

You make these specifications in the Utility Jobs panels.

1.3.16 Menu Modification Specifications

If you have any jobs that you want to run each month as part of the normal closing of the financial period, you can add these jobs to one of the CA MICS Accounting and Chargeback menus using the Menu Modification panel. For example, you might add some of your own report jobs to the Month End Reports Menu. This will make it convenient to submit them at the same time that you submit the monthly Accounting and Chargeback reports.

1.3.17 Define Currency Type Money Format

CA MICS provides a MONEY format for writing monetary values in output reports. The MONEY format displays monetary values as U.S. dollars. All data elements defined in the CA MICS database, such as the xxxCOST fields, use this format.

The MONEY format is in `sharedprefix.MICS.SOURCE(MONEY)`. To update the MONEY member, see the sample SAS formats in `sharedprefix.MICS.SOURCE(MONEYSMP)`. MONEYSMP contains the same format as MONEY and also contains a format example that can easily be adapted to represent various European currency notations.

Note: Do NOT modify the MONEYSMP member. It receives maintenance from CA and must therefore remain static.

In addition to the MONEY format, the MONEY member also contains the MONEYR format, which is used to print rates. Member MONEYB in `sharedprefix.MICS.SOURCE` contains the MONEYB format, which is used to print budget amounts for certain invoice formats.

The difference between the formats is explained below.

SINGLE-CURRENCY DISPLAY MODE

In single-currency display mode, the invoices use these SAS formats:

MONEY	Used to display charges and certain other monetary amounts. By default, they print in US dollars.
MONEYB	Used to print budget amounts for certain invoice formats. Displays no decimal places. By default, they print in US dollars.
MONEYR	Used to print rates. Displays four decimal places. By default, they print in US dollars.
MONEYX	Used only in the detail-level reports to print four digits to the right of the decimal.

DUAL-CURRENCY DISPLAY MODE

CA MICS provides dual-currency support for euros. To learn more about activating euro support and about using the euro MONEYE formats, see Appendix C.

LOCATION OF THE FORMATS

The formats are located in the following members:

MONEY	sharedprefix.MICS.SOURCE(MONEY)
MONEYR	sharedprefix.MICS.SOURCE(MONEY)
MONEYB	sharedprefix.MICS.SOURCE(MONEYB)
MONEYC	sharedprefix.MICS.SOURCE(MONEYE)
MONEYBC	sharedprefix.MICS.SOURCE(MONEYE)
MONEYX	sharedprefix.MICS.SOURCE(MONEYX)
MONEYRT	sharedprefix.MICS.SOURCE(MONEYRT)

Note: MONEYRT is only for user-defined reports. It allows them to print six digits to the right of the decimal.

GENERATING THE SAS FORMATS

The MONEY, MONEYX, and MONEYR formats can be generated by running a prefix.MICS.CNTL(BASPGEN) in any unit.

The MONEYB, MONEYC, and MONEYBC formats can also be generated by constructing a SAS job with a DD of MCOLIB pointing to your sharedprefix.MICS.MCOLIB, and with the SYSIN DD pointing to the appropriate member.

Note: Some tailoring of the formats may be necessary, especially if your national currency uses more or less than the two decimal places required for euro-currency display.

Chapter 2: INSTALLATION

This chapter describes how to:

- o Plan your installation and install Accounting and Chargeback in a CA MICS complex and CA MICS unit
- o Activate charging for a CA MICS Analyzer, a field-developed application, an external file at the complex or unit level, and the CA-I/S Inventory and Assets Manager (CA-IAM)
- o Determine the number of tracks of DASD space required for Accounting and Chargeback and input the data for CA MICS database space modeling

Accounting and Chargeback must be installed in each unit containing CA MICS Analyzers that you want to use for charging. Do not begin the installation until you have thoroughly reviewed the material in Chapter 4, Customization and completed the planning checklist in Section 2.1. Then, follow the steps indicated in Chapter 3 of the PIOM.

If you are installing Accounting and Chargeback for the first time in your complex or in one of the units, use Section 2.1 to plan for the installation; then follow the checklist in Section 2.2. Use the checklists in Section 2.3 after Accounting and Chargeback has been installed in your complex and units to activate charging for a CA MICS Analyzer, a field-developed application, an external file, or CA-IAM.

Do not use these checklists to apply maintenance when Accounting and Chargeback is already installed. Instead, apply maintenance using the Product Support Program (PSP).

This section contains the following topics:

[2.1 Planning Checklist](#) (see page 52)

[2.2 Installation Checklist](#) (see page 64)

[2.3 Activating Accounting for Data Sources](#) (see page 82)

[2.4 Database Space Modeling \(DBMODEL\)](#) (see page 125)

2.1 Planning Checklist

Follow the steps in this checklist to plan the installation of CA MICS Accounting and Chargeback Option in a CA MICS complex or unit.

- 1. Review the account code structures defined in the various CA MICS Analyzers that you will be using for input to CA MICS Accounting and Chargeback Option.

Review the Analyzers' PARMs members and ensure that you understand the account code definitions used by each. Optionally, you can use the account code structure of the CA MICS Analyzers to derive the cost center structure of CA MICS Accounting and Chargeback Option. If the charges are derived from the DAYS file exit of a CA MICS Analyzer, ensure that the sequence variables, such as the account codes, have been established to allow creation of the cost center structure.

NOTE: If you change the account code structure, you must run cccGEN for the corresponding Analyzer. You may also need to retrofit the database files as described in the System Modification Guide.

+-----+		
	Reference(s):	
	In the CA MICS Space Analyzer Option Guide	
	Review VCAACCT and VCAACRT parameters	
	In the Batch and Operations Analyzer Guide	
	Review ACCOUNT and ACCTRTE parameters	
	In the CA MICS Analyzer Option for CICS Guide	
	Review CICACCT and CICACRT parameters	
	In the CA MICS Analyzer Option for DB2 Guide	
	Review DB2ACCT and DB2ACRT parameters	
	In the CA MICS Analyzer Option for CA IDMS Guide	
	Review IDMACCT and IDMACRT parameters	
	In the CA MICS Analyzer Option for IMS Guide	
	Review IMSACCT and IMSACRT parameters	
	In the CA MICS Network Analyzer Option Guide	
	Review SNTACCT and SNTACRT parameters	
	In the Analyzer for CA TSO Mon Guide	
	Review TSOACCT and TSOACRT parameters	
	In the CA MICS Analyzer Option for VM CMS Guide	
	Review VMCACCT and VMCACRT parameters	
	In the CA MICS Analyzer Option for VSE POWER	
	Guide	
	Review PWRACCT and PWRACRT parameters	
	In the CA MICS Analyzer Option for VAX VMS Guide	
	Review DEXACCT and DEXACRT parameters	
	In the CA MICS Analyzer Option for MeasureWare	
	Guide	
	Review AUMAPU, AUMACCT and AUMACRT parms	
	In the CA MICS Analyzer for MQSeries Guide	
	Review MQSACCT and MQSACRT parms	
	In the CA MICS Web Analyzer Option Guide	
	Review WEBACCT and WEBACRT parms	
	In the CA MICS Tape Analyzer Option Guide	
	Review TLMACCT and TLMACRT parms	
+-----+		

- ___ 2. Define the organization's cost center structure by completing the worksheets for the cost center structure and cost center exit routine (COSTRTE). The cost center structure must reflect the manner in which costs are attributed to user groups within the organization. You will code the cost center exit routine to translate the various account codes used by the product files in the CA MICS database to a common cost center coding system.

+-----+
| Reference(s): Sections 4.1.1 and 4.1.3 |
+-----+
- ___ 3. Determine the number of cost center levels that may have names, addresses, and invoice options defined. You will specify this, the cost center Identification Number, during installation.

+-----+
| Reference(s): Section 4.1.5 |
+-----+
- ___ 4. Determine whether you want to use a cost center validation table for each cost center level for which specific values are known. Once created, only values contained in the table may be entered at that level for cost center identification and budgets.

+-----+
| Reference(s): Section 4.1.6 |
+-----+
- ___ 5. Review the discussion in Sections 4.1.7 and 4.1.8 to determine the information that you need for the Cost Center Attributes File. This information will print on the invoices and reports.
- ___ 6. Review the Table of Default Charging Elements and complete the Charging Element Worksheet so that it contains the elements required to satisfy the algorithms that you will define in Step 12.

If you want to charge your Systems Managed Storage (SMS) data sets by Storage Class and Management Class, consult your DASD Space Administrator or Systems Programmer to determine the values used at your installation. You will need to modify the Units and Description fields for the SMS charging elements (1830-1836 and 1840-1850) to reflect these values.

```
+-----+
| Reference(s): Sections 4.2 through 4.2.1.3      |
|                                                  |
| Chapters 2 and 3 of the CA MICS Accounting and  |
| Chargeback Option Concepts and Overview Guide  |
+-----+
```

- ___ 7. Review the Table of Default Invoice Categories and complete the Invoice Category Worksheet so that the proper descriptions appear on invoices and reports.

```
+-----+
| Reference(s): Sections 4.2.2 through 4.2.2.3    |
+-----+
```

- ___ 8. Review the Table of Default Credit Categories and complete the Credit Category Worksheet so that the proper descriptions appear on invoices and reports.

```
+-----+
| Reference(s): Sections 4.2.3 through 4.2.3.3    |
+-----+
```

- ___ 9. Ensure that all standard data elements to be used in the algorithms are defined as active in the CA MICS database, or are available as temporary variables to the processing. If they are not active and you want to be able to refer to them in the CA MICS database files, mark the data elements active in the Analyzer's applicable GENIN member (cccGENIN). Record any elements that you marked as active. When you use the checklists in Chapter 3 of the PIOM, you are notified to modify the cccGENIN member and run the corresponding cccCGEN.

```
+-----+
| Reference(s): System Modification Guide,        |
| Sections 6.2.1 through 6.2.1.2.3                |
+-----+
```

- ___ 10. If you are using external data from a non-CA MICS

file, you must decide whether to charge for it at the unit or the complex level. Refer to the discussion in Section 1.3.4.

- __ 11. If you want CA MICS Accounting and Chargeback Option to process field-developed applications, or external data at the unit level, complete the Journal File Eligibility Worksheet for each journal file that you want to create.

```
+-----+
| Reference(s): Sections 4.13.1 through 4.13.2 |
+-----+
```

- __ 12. Complete the rate table worksheets as follows:

- o Review the discussion of the rate table so that you will be familiar with its purpose and the different specifications that need to be made.

```
+-----+
| Reference(s): Section 4.3.1 |
+-----+
```

- o Determine which journal files will be used and complete the Component and File Selection Worksheet.

```
+-----+
| Reference(s): Sections 4.3.1.1 - 4.3.1.1.2 |
+-----+
```

- o Complete the Journal File Specifications Worksheet for each journal file that will be used.

```
+-----+
| Reference(s): Sections 4.3.1.2 - 4.3.1.2.2 |
+-----+
```

- o To use different charging algorithms for different groups of SYSID, Subsysid, Subtype, Cost Center 1, or Workunit values, complete the Qualification Groups Worksheet.

```
+-----+
| Reference(s): Sections 4.3.2 - 4.3.2.2 |
+-----+
```

- o Complete the Algorithm Specification Worksheet for

each journal file that will be used.

```
+-----+
| Reference(s):  Section 4.3.1.4 - 4.3.1.4.2  |
+-----+
```

- o Complete the Algorithm Qualification Worksheet for each journal file.

```
+-----+
| Reference(s):  Section 4.3.1.5 - 4.3.1.5.2  |
+-----+
```

- o Complete the Journal File Exit Worksheet for each journal file for which an exit is needed.

```
+-----+
| Reference(s):  Sections 4.3.1.3 - 4.3.1.3.2  |
+-----+
```

___ 13. If you defined any external journal files in Step 11, complete the following additional rate table worksheets:

- o Complete the External Journal File Update Job Worksheet.

```
+-----+
| Reference(s): Sections 4.3.1.6 - 4.3.1.6.2 |
+-----+
```

- o Complete the External Journal File Input Routine Worksheet.

```
+-----+
| Reference(s): Sections 4.3.1.7 - 4.3.1.7.2 |
+-----+
```

- o If you want to preprocess the data from your external file before the data is read in with the external journal file input routine, complete the External File Preprocessing Exit Worksheet.

```
+-----+
| Reference(s): Sections 4.3.1.8 - 4.3.1.8.2 |
+-----+
```

___ 14. If you plan to use priority differential accounting or zone differential accounting, review the following members:

- o prefix.MICS.PARMS(ZONE) for differential ZONE accounting
- o prefix.MICS.PARMS(JOBGROUP) for SMF priority accounting
- o prefix.MICS.PARMS(NETGROUP) for SNT priority accounting
- o prefix.MICS.PARMS(PWRGROUP) for PWR priority accounting

You may need additional ZONEs, JOBGROUPs, or NETGROUPs to support your accounting. Record all necessary changes for later entry and activation.

```
+-----+
| Reference(s):                               |
+-----+
```

	PIOM:	
	Section 2.3.2.3	
	Batch and Operations Analyzer Guide:	
	Review JOBGROUP parameter	
	CA MICS Network Analyzer Option Guide:	
	Review NETGROUP parameter	
	CA MICS Analyzer Option for VSE POWER Guide:	
	Review PWRGROUP parameter	
	This guide:	
	Sections 1.3.9 and 4.9.7	
	CA MICS Accounting and Chargeback Option Concepts	
	and Overview Guide:	
	Section 1.2, see Differential Charging under	
	Pricing Strategies Support	

- __ 15. If you will be charging for external data at the complex level, review the external file discussion and complete the external file worksheets as follows:
- o Review the discussion of complex-level external file charging so that you will be familiar with its purpose and the different specifications that need to be made.
 - o Complete the Complex-Level External File Specifications Worksheet for each complex-level external file that will be used.
 - o Complete the Complex-Level External File Input Routine Worksheet for each complex-level external file that will be used.
 - o Complete the Complex-Level External File Algorithm Specifications Worksheet for each complex-level external file that will be used.
 - o Complete the Complex-Level External File Algorithm Qualification Worksheet for each complex-level external file for which you have defined more than one charging algorithm.
 - o Complete the Complex-Level External File Exit Worksheet for each complex-level external file for which an exit is needed.

- o Complete the Cost Center Look-Up Table Worksheet for each complex-level external file for which a look-up table is needed.

```
+-----+
| Reference(s): Sections 4.4 through 4.4.5.2 |
+-----+
```

- __ 16. Review the information in Section 4.5.1 and decide what cost center level will be the default (global) level for invoices. (You can override this value for a specific cost center by specifying an alternate value.)
- __ 17. Decide the default invoice format. Determine the type of invoice that you want to use:
 - o Computation Code
 - o Invoice Category
 - o Cost Center
 - o User-defined

Complete the appropriate worksheet:

- o Computation Code Invoice Options Worksheet, Section 4.5.2.1
- o Invoice Category Invoice Options Worksheet, Section 4.5.2.2
- o Cost Center Invoice Options Worksheet, Section 4.5.2.3
- o User Invoice Options Worksheet, Section 4.5.2.4

Note: If you choose a user-defined invoice format, you will have to develop a SAS routine to implement that format and store it in a member of sharedprefix.MICS.SOURCE.

To print invoices with charging element and invoice category descriptions in different languages, use the Computation Code or Invoice Category Invoice Option. Fill in the Language option on the appropriate worksheet.

```
+-----+
| Reference(s): Sections 4.5.2 through 4.5.2.4 |
+-----+
```

- __ 18. Review the discussion in Section 4.6 and determine whether you are going to use a special accounting calendar. If you are going to use a special accounting calendar, complete the following worksheets:
 - o Accounting Calendar Control Definitions Worksheet, Section 4.6.1
 - o Accounting Month Names Worksheet, Section 4.6.2
 - o One of the following worksheets:
 - Accounting Calendar Panels Worksheet, Section 4.6.3--Use this worksheet if you are going to use the online panels to define the accounting calendar.
 - Accounting Calendar Macros Worksheet, Section 4.6.4--Use this worksheet if you are going to use your SAS coding for the ACTDAY, ACTWEEK, ACTMONTH, and ACTYEAR variables.

- ___ 19. Determine the Journal Run Status Log options that you will use to specify the information that will be stored in the Journal Run Status Log files (ACTRSJ). Complete the worksheet in Section 4.7.1.

```
+-----+
| Reference(s):  Sections 4.7.1 and 4.7.2          |
+-----+
```

- ___ 20. To use prorating, review the prorating discussion and complete the prorating worksheets in Section 4.8.1.1 and 4.8.2.1.

```
+-----+
| Reference(s):  Sections 4.8 through 4.8.2.2, 4.8.5|
+-----+
```

- ___ 21. Decide what discounts and surcharges you want to apply and complete the appropriate worksheets.
 - o For volume discounts, complete the Volume Discount Specifications Worksheet in Section 4.9.1.
 - o For invoice category discounts, complete the Invoice Category Discount Worksheet in Section 4.9.2.
 - o For fixed percentage and lump sum discounts, complete the Fixed Percentage/Lump Sum Discounts Worksheet in Section 4.9.3.
 - o For global invoice category surcharges, complete the Invoice Category Surcharge Worksheet in Section 4.9.4.
 - o For invoice category surcharges for specified cost centers, complete the Cost Center Invoice Category Surcharge worksheet in Section 4.9.4.

- ___ 22. Decide how you want to handle the following adjustments to charges and complete the worksheet in the referenced section:
 - o The number of positions to round charges, Section 4.10.1
 - o Whether to carry zero charges, Section 4.10.2

- o Whether to make HSM data sets available to the VCA DAA and _VS journal files, Section 4.10.3
 - __ 23. Decide whether to use zero balance accounting by reviewing the discussion in Section 4.11. If you are going to use zero balance accounting, complete the worksheet.
 - __ 24. Decide whether to use multi-site accounting. If you are going to use multi-site accounting, complete the Multi-Site Accounting Remote Site Worksheet or the Multi-Site Accounting Central Site Worksheet.
- +-----+
- | Reference(s): Sections 4.12 through 4.12.2.2 |
- +-----+
- __ 25. If you want to enter budgets for your cost centers, read the information in Section 4.14 and complete the budget worksheet.
- __ 26. To use the standard utility jobs to update the standard ISPF/DM tables with a batch job, review and complete the Utility Job Worksheets for each job.

+-----+

| Reference(s): Sections 4.15 through 4.15.3.2 |

+-----+

2.2 Installation Checklist

Follow this checklist to install CA MICS Accounting and Chargeback Option in:

- o A CA MICS complex and one or more of its database units
- o An additional unit when CA MICS Accounting and Chargeback Option is already installed in a CA MICS complex

Before you can install CA MICS Accounting and Chargeback Option, you must define a CA MICS database complex and generate at least one database unit by following the checklists in Chapter 3 of the PIOM.

INSTALLATION CHECKLIST

Use this checklist after you complete the planning indicated in Section 2.1. Use the worksheet information from that section to help you specify the necessary parameters.

To activate charging for a CA MICS analyzer, a field-developed application (FDA), a complex- or unit-level external file, or the I/S Inventory and Assets Manager, use the appropriate checklist in Section 2.3.

The recommended approach is to use a test database unit to validate the accounting definitions and exits before placing CA MICS Accounting and Chargeback Option into a production database unit.

- ___ 1. Review the value of the ACCTMGDG parameter in `sharedprefix.MICS.PARMS(JCLDEFC)`. The ACCTMGDG parameter specifies the number of generations of monthly audit files to be maintained in the monthly generation data group. If you want to maintain complex-level audit files, make sure the ACCTMGDG parameter is set to any numeric value greater than zero. If you do not want to maintain complex-level audit files, make sure the ACCTMGDG parameter is set to zero. If no ACCTMGDG parameter is specified, the default is set to 85, meaning 85 generations will be kept.

If you change the ACCTMGDG parameter, you must regenerate the GDGSGENC job as follows for the new parameter value to take effect.

- o Edit `sharedprefix.MICS.PARMS(JCLGENUC)` so that it

contains the following line:

```
GDGSGENC
```

- o Regenerate GDGSGENC by submitting JCLGENUC.

```
SUB 'sharedprefix.MICS.CNTL(JCLGENUC)'
```

```
+-----+
| Reference(s): Section 6.5.1.4 and 7.4 |
+-----+
```

```
*****
* NOTE: Skip Step 2 if the ACCTMGDG parameter *
* was set to zero in this step. *
*****
```

- ___ 2. If you want to maintain complex-level audit files, run the GDGSGENC job in sharedprefix.MICS.CNTL. The use of generation data groups requires a special index in the control volume (or VSAM) catalog. The GDGSGENC job generates the statements to create this index at the complex level.

```
SUB 'sharedprefix.MICS.CNTL(GDGSGENC)'
```

It is common for the first IDCAMS step to complete with a condition code of 4, while the second IDCAMS step completes with a condition code of 8.

- ___ 3. If you are installing CA MICS Accounting and Chargeback Option in a complex, create the complex-level JCL jobs for Accounting by submitting the job JCLGEN1:

```
SUB 'sharedprefix.MICS.CNTL(JCLGEN1)'
```

```
+-----+
| Reference(s): Section 2.3.3.1.1 in the PIOM |
+-----+
```

- ___ 4. If you are installing CA MICS Accounting and Chargeback Option in a complex, or if you change one or more of the money formats to reflect your local currency instead of dollars, you must submit the BASPGEN job.

```
SUB 'prefix.MICS.CNTL(BASPGEN)'
```

NOTES: If you plan to use differential zone accounting, you may need to run the BASPGEN job. If so, you can wait and run the BASPGEN as instructed in Step 6.

The formats which can be changed to your local currency are MONEY, MONEYR, MONEYB, and MONEYX. MONEYB is used exclusively by CA MICS Accounting and Chargeback Option to print budget amounts on an invoice using a nine-digit integer format. MONEYX is used exclusively by CA MICS Accounting and Chargeback Option in the detail level reports to print four digits to the right of the decimal. MONEYRT is intended to be used in user-defined report to print six digits to the right of the decimal. These members are stored in sharedprefix.MICS.SOURCE.

```
+-----+
| Reference(s): Section 3.3.5 in the PIOM |
+-----+
```

- __ 5. If you plan to use priority accounting, update the standard CA MICS PARMS member as necessary.
 - o prefix.MICS.PARMS(JOBGROUP) for the CA MICS Batch and Operations Analyzer
 - o prefix.MICS.PARMS(NETGROUP) for the CA MICS Network Analyzer Option
 - o prefix.MICS.PARMS(PWRGROUP) for the VSE/POWER Analysis Product

If you revise any of the above parameters, submit the following job to regenerate the coding:

```
prefix.MICS.CNTL(cccPGEN)
```

```
+-----+
| Reference(s): |
| In the Batch and Operations Analyzer Guide, |
| see JOBGROUP parameter |
| |
| In the CA MICS Network Analyzer Option, |
| see NETGROUP parameter |
| |
```

In the VSE/POWER Analysis Product Guide, see PWRGROUP parameter
In the CA MICS Accounting and Chargeback Option Concepts and Overview Guide, Section 1.2, see Differential Charging under Pricing Strategies Support

- ___ 6. If you plan to use differential zone accounting, update and regenerate (in all units) the ZONE member in prefix.MICS.PARMS as needed. Update:

```
prefix.MICS.PARMS(ZONE)
```

If you revise the ZONE member, submit:

```
prefix.MICS.CNTL(BASPGEN)
```

Reference(s): Section 2.3.2.3 in the PIOM Section 4.9.7 of this guide CA MICS Accounting and Chargeback Option Concepts and Overview Guide, Section 1.2, see Differential Charging under Pricing Strategies Support

- ___ 7. Change the Authorization Assignments of the CA MICS Workstation Facility (MWF) to accommodate CA MICS Accounting and Chargeback Option by doing the following:

- o Invoke the CA MICS Workstation Facility (MWF).
- o Select Option 5, CA MICS Administrator Facility (MAF), on the MWF menu.
- o Select Option 3, Authorization Assignment, on the MAF menu.

The Authorization Assignment panel has three authorization flag indicators that are used for CA MICS Accounting and Chargeback Option. The flag indicators are in positions 14, 15, and 16. The flags control access to the various accounting panels and should be changed to meet your needs. Review the online tutorial information associated with the

Authorization Assignment panel for an explanation of each flag indicator.

Return to the CA MICS Workstation Facility (MWF) menu.

- ___ 8. In the following steps, you will be using the CA MICS Accounting and Chargeback Option online panels to specify your parameters. To reach the panels, you will select the appropriate option number from the Parameter Specification and Generation menu. Display the Parameter Specification and Generation menu as follows:
 - o Select Option 4, CA MICS Management Support Applications (APPL), from the MWF Menu.
 - o Select Option 2, Accounting and Chargeback, from the CA MICS Management Support Applications Menu.
 - o Select Option 3, Parameter Specification and Generation, from the Installation Accounting Primary Options Menu.
- ___ 9. If you are installing CA MICS Accounting and Chargeback Option in a complex and need to modify the Cost Center Structure (COSTCTR) and Cost Routine (COSTRTE), complete that task. Select Option 1, Cost Center Definition, from the Parameter Specification and Generation menu to enter this information.

If you modify the COSTCTR member, you must run the component generation job:

```
SUB 'sharedprefix.MICS.CNTL(ACTCGEN)'
```

Modifying the COSTRTE member does not require you to run a component generation job.

Optionally, you may want to change the Cost Center Identification Number or establish Cost Center Validation Tables.

Enter END twice to return to the Installation Accounting Primary Options Menu.

```
+-----+
| Reference(s): Sections 4.1.1, 4.1.3, 4.1.5, 4.1.6 |
+-----+
```

- __ 10. If you are installing CA MICS Accounting and Chargeback Option in a complex, initialize the accounting files in the TABLES data set by submitting the job ACTINITT:

```
SUB 'sharedprefix.MICS.CNTL(ACTINITT)'
```

- __ 11. If you have FDAs or unit-level external files that you want CA MICS Accounting and Chargeback Option to process, proceed as follows:
- o Select Option 5, Special Requirements, to display the Special Requirements Menu.
 - o Select Option 2, Journal File Eligibility, to display the File Selection panel.
 - o Use the Insert line command to add the FDA or external journal files that you want to create. The File Specifications panel displays for data entry. When you finish entering data, enter END to return to the File Selection panel.
 - o Enter END on the File Selection panel to return to the Special Requirements Menu. You are notified to run the CA MICS Algorithm Generation job (MAGRUN). However, you do not need to run the job because you will run it in Step 19.
 - o Enter END on the Special Requirements Menu to return to the Installation Accounting Primary Options Menu. Select Option 3, Parameter Specification and Generation to return to the Parameter Specification and Generation Menu.

```
+-----+
| Reference(s): Sections 4.13 through 4.13.2 |
+-----+
```

- __ 12. Select Option 2, Accounting Options, from the Parameter Specification and Generation menu to display the Accounting Options Menu. Proceed as follows to enter accounting parameters. Use the information you entered in the worksheets when you completed the planning checklist in Section 2.1.
- o Select Option 1, General Installation Accounting Specifications, and specify the parameters on the

panel.

Enter END to return to the Accounting Options Menu.

```
+-----+
| Reference(s): Sections 4.8.2.1,      |
| 4.10 through 4.10.3                 |
+-----+
```

- o Select Option 2, the Financial Recap File Specifications Menu. Perform each of the following steps, as necessary.
 - Select Option 1, Invoice Level, and specify the default cost center level for invoicing.

Enter END to return to the Financial Recap File Specifications Menu.

```
+-----+
| Reference(s): Section 4.5.1         |
+-----+
```

- If you want to use volume discounts, select Option 2, Volume Discounts, and specify the parameters.

Enter END to return to the Financial Recap File Specifications Menu.

```
+-----+
| Reference(s): Section 4.9.1         |
+-----+
```

- If you want to use invoice category discounts, select Option 3, Invoice Category Discounts, and specify the parameters.

Enter END to return to the Financial Recap File Specifications Menu.

```
+-----+
| Reference(s): Section 4.9.2         |
+-----+
```

- If you want to use global invoice category surcharges, select Option 4, Surcharges, and specify the parameters.

Enter END twice to return to the Accounting Options Menu.

```
+-----+
| Reference(s):  Section 4.9.4      |
+-----+
```

- o If you want to use special accounting dates, select Option 3, Account Dates Specifications Menu, and specify the parameters to define your accounting calendar or use the option that allows you to code your ADAY, AWEEK, AMONTH, and AYEAR routines. If you activate the special accounting dates for aging, you can also provide special month names to be used on your accounting reports.

Enter END to return to the Accounting Options Menu.

```
+-----+
| Reference(s):  Sections 4.6 through 4.6.4  |
+-----+
```

- o If you want to do multi-site accounting, select Option 4, Multi-Site Invoicing Specifications Menu, and select and complete either the Remote Site or the Central Site parameter specifications.

Enter END to return to the Accounting Options Menu.

```
+-----+
| Reference(s):  Sections 4.12 through 4.12.2.2|
+-----+
```

- o Select Option 5, Invoice Format Option Specifications and specify the parameters for the selected invoice format. If you chose a user-defined invoice format, develop a SAS routine to implement that format and store it in a member of sharedprefix.MICS.SOURCE.

Enter END to return to the Accounting Options Menu.

```
+-----+
| Reference(s):  Sections 4.5.2 through 4.5.3  |
+-----+
```

- o Select Option 6, Journal Run Status Log option, and specify what information will be stored in the logs in the Journal Run Status File.

Enter END to return to the Accounting Options Menu.

```
+-----+
| Reference(s): Sections 4.7 through 4.7.2 |
+-----+
```

- o Enter END from the Accounting Options Menu. If this is your first installation of CA MICS Accounting and Chargeback Option, or if you have made any changes, you are automatically requested to submit the proper accounting options generation job when you END from the Accounting Options Menu.

There are two versions of this job: If you have not changed multi-site accounting specifications, you will submit ACTXOPTS; if you have changed multi-site accounting specifications, you will submit ACTXOPTM.

You can also submit the accounting options generation job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(ACTXOPTS)'
```

or

```
SUB 'sharedprefix.MICS.CNTL(ACTXOPTM)'
```

Return to the Option 3, Parameter Specification and Generation Menu, on the Installation Accounting Primary Options Menu.

- ___ 13. If you will be using different charging algorithms for different groups of SYSID, Subsysid, Subtype, Cost Center 1, or Workunit values:

- o Select Option 9, Qualification Groups, from the Parameter Specification and Generation menu.
- o Insert a Group ID and Description line for each group that you want to create on the Group Selection panel.

- o Select the line for each group and enter the values that comprise the group on the Group Specification panel.

```
+-----+
| Reference(s): Sections 4.3.2 through 4.3.2.2 |
+-----+
```

Submit the Qualification Group Generation job (CHRGROUP). If you added, deleted, or changed any groups, you are automatically requested to submit the job when you END from the Group Selection panel. You may submit the job at this point, or you may enter CANCEL because the Qualification Group Generation will be performed by the MAGRUN job that you will run in Step 19.

You can also submit the CHRGROUP job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(CHRGROUP)'
```

- __ 14. Select Option 3, Invoice Category Definition, from the Parameter Specification and Generation menu and make any invoice category additions or modifications that you require.

```
+-----+
| Reference(s): Sections 4.2.2 through 4.2.2.3 |
+-----+
```

If you added, deleted, or changed any invoice categories, you are automatically requested to submit the Invoice Category Generation job when you END from the Invoice Category Definition panel. You may submit the job at this point, or you may enter CANCEL because the Invoice Category Generation will be performed by the MAGRUN job that you will run in Step 19.

- __ 15. Select Option 4, Credit Category Definition, from the Parameter Specification and Generation menu and make any credit category additions or modifications that you require.

```
+-----+
| Reference(s): Sections 4.2.3 through 4.2.3.3 |
+-----+
```

If you made any changes to the credit categories, you are automatically requested to submit the Credit Category Generation (CREDCAT) job when you END from the Credit Category Definition panel.

The CREDCAT job can also be submitted from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(CREDCAT)'
```

- ___ 16. Select Option 5, Charging Element Definition, from the Parameter Specification and Generation menu to display the Charging Element Selection panel. You must define any charging elements you have for your FDAs, complex-level external files, and unit-level external files not based on a standard CA MICS file. Use the Insert and Select line commands, respectively, to add or modify any charging elements. Both of these line commands cause the Charging Element Specifications panel to display for data entry.

```
+-----+
| Reference(s): Sections 4.2.1 through 4.2.1.3 |
+-----+
```

If you added, deleted, or changed any charging elements, you are automatically requested to submit the Charging Element Generation job when you END from the Charging Element Selection panel. You may submit the job at this point, or you may enter CANCEL because the Charging Element Generation will be performed by the MAGRUN job that you will run in Step 19.

```
*****
* NOTE: Repeat Steps 17 and 18 for each journal *
*       file that you want to activate.         *
*****
```

- __ 17. Select Option 6, Rate Table, from the Parameter Specification and Generation menu to display the Component and File Selection panel. If CA MICS Accounting and Chargeback Option is installed in more than one database unit, the Unit Selection panel will be displayed prior to the Component and File Selection panel. Select the unit in which you want to set the Rate Table parameters. You must specify Rate Table parameters for each unit in which you want to use CA MICS Accounting and Chargeback Option.

The Component and File Selection panel shows each journal file that you can activate in the selected database unit. To activate a journal file, use the Select line command to display the Rate Table File Options Menu.

When you select a standard CA MICS journal file for the first time, the default rate table for that file is copied into your rate table with all rates set to 0, and the journal file is marked ACTIVE. All of the charges will be zero unless you change one or more to a non-zero value.

Proceed as follows:

- o Select Option 1, Journal File Specifications, to specify the number of journal file cycles, prorating, and zone charging information.

```
+-----+
| Reference(s): Sections 4.3.1.2 through |
| 4.3.1.2.2                             |
+-----+
```

- o If you wish to code a SAS exit that will be taken immediately before the output of each journal file observation, select Option 2, Journal File Exit.

```
+-----+
| Reference(s): Sections 4.3.1.3 through |
| 4.3.1.3.2                             |
+-----+
```

- o Select Option 3, Algorithm Selection and Specification, to create one or more sets of charging algorithms to be used for the journal file. Each algorithm consists of a set of

computation codes and rates. Insert a line for each algorithm and enter an algorithm identifier and a description on the Algorithm Selection panel. Then use the Select line command to display the Algorithm Specification panel and enter the computation codes and rates for the algorithm.

```
+-----+
| Reference(s): Sections 4.3.1.4 through |
| 4.3.1.4.2                             |
+-----+
```

- o Select Option 4, Algorithm Qualification. Use Algorithm Qualification to specify the work to which each algorithm applies.

```
+-----+
| Reference(s): Sections 4.3.1.5 through |
| 4.3.1.5.2                             |
+-----+
```

- __ 18. If you selected an external journal file in Step 17, there are three additional options on the Rate Table File Options Menu:

- o Select Option 5, External Journal File Specifications. Specify whether duplicate data checking should be performed when the external journal file update job runs and the input DD statement to input your external file.

```
+-----+
| Reference(s): Sections 4.3.1.6 through |
| 4.3.1.6.2                             |
+-----+
```

- o Select Option 6, External Journal File Input Routine. Enter the SAS code for your external journal file input routine.

```
+-----+
| Reference(s): Sections 4.3.1.7 through |
| 4.3.1.7.2                             |
+-----+
```

- o Optionally, select Option 7, External Journal File Preprocessing Exit. Enter the SAS code for an exit to preprocess the data from your external

file before it is read in by the external journal
file input routine.

```
+-----+
| Reference(s): Sections 4.3.1.8 through |
| 4.3.1.8.2                             |
+-----+
```

- 19. After you activate all the desired journal files for
a unit, submit the MAGRUN job. If you made any
changes, you are automatically requested to submit
the job when you END from the Rate Table Component
and File Selection panel.

You can also submit the MAGRUN job from TSO as
follows:

```
SUB 'prefix.MICS.CNTL(MAGRUN)'
```

- __ 20. If you will be processing any complex-level external file data, select Option 7, Complex-Level External File Definition, from the Parameter Specification and Generation menu to display the Complex-Level External File Selection panel.

You must insert a line for each complex-level external file that you want to process, and enter a file name and a description. Then use the Select line command to display the File Options menu and proceed as follows:

- o Select Option 1, External File Specifications, to specify prorating, Subsysid, and Subtype information and to code the INPUTACT DD statement.

```
+-----+
| Reference(s): Sections 4.4.1 through 4.4.1.2|
+-----+
```

- o Select Option 2, External File Input Routine, and enter the SAS code that will be used to input the external file.

```
+-----+
| Reference(s): Sections 4.4.2 through 4.4.2.2|
+-----+
```

- o Select Option 3, Algorithm Selection and Specification, to create one or more sets of charging algorithms to be used for the external file. Each algorithm consists of a set of computation codes and rates. Insert a line for each algorithm and enter an algorithm identifier and a description on the Algorithm Selection panel. Then use the Select line command to display the Algorithm Specification panel and enter the computation codes and rates for the algorithm.

```
+-----+
| Reference(s): Section 4.4.3,          |
| 4.3.1.4 through 4.3.1.4.2          |
+-----+
```

- o Select Option 4, Algorithm Qualification. Use Algorithm Qualification to specify the work to which each algorithm applies.

```

+-----+
| Reference(s):  Section 4.4.3,          |
| 4.3.1.5 through 4.3.1.5.2          |
+-----+

```

- o If you wish to code a SAS exit that will be taken immediately prior to the output of each external file observation, select Option 5, External File Exit.

```

+-----+
| Reference(s):  Sections 4.4.4 through 4.4.4.2|
+-----+

```

- o If you wish to use a cross reference table to translate or create COSTCTR values for each external file observation, select Option 6, Cost Center Look Up Table.

```

+-----+
| Reference(s):  Sections 4.4.5 through 4.4.5.2|
+-----+

```

- o Submit the External File Generation job. If you have made any changes, you are automatically requested to submit the job when you END from the External File Selection panel.

You can also submit the External File Generation job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(EXTFILE)'
```

- __ 21. If you will be prorating any charges, select Option 8, Prorating, on the Parameter Specification and Generation menu to display the Prorating Menu.

Select either complex-level or unit-level prorating. Note the following:

- o Prorating specifications for complex-level external files are always made at the complex level.
- o Journal and ledger file prorating specifications are made at the unit level unless "Always use complex level prorating table" has been specified as YES.

- o If you chose to prorate from the unit-level table in Step 12 and CA MICS Accounting and Chargeback Option is installed in more than one database unit, the unit selection panel will be displayed. You must enter prorating specifications for each unit.

When you select an option, the Prorating Percent Specifications panel will display. The lines you insert on this panel specify an old value, which identifies a record to prorate; a new value, which identifies the new Cost Center 1 value; and a percent, which indicates the percent of the original charge the new Cost Center 1 value will receive.

```
+-----+
| Reference(s): Sections 4.8 through 4.8.5.3 |
+-----+
```

Submit the Prorating Generation job. There is a unit-level and a complex-level job. If you have made any changes, you are automatically requested to submit the proper job when you END from the Prorating Percent Specifications panel.

The Prorating Generation jobs can also be submitted from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(PRORATE)'
```

or

```
SUB 'prefix.MICS.CNTL(PRORATEU)'
```

If you are doing journal file prorating, this job must complete before the next CA MICS DAILY job is run or the journal file charges will not be prorated.

- __ 22. Select Option 10, Accounting Active, on the Parameter Specification and Generation menu to display the EXECDEF member of prefix.MICS.PARMS. If CA MICS Accounting and Chargeback Option is installed in more than one database unit, the unit selection panel will be displayed.

For each unit in which CA MICS Accounting and Chargeback Option is installed, code either:

ACCOUNTING ACTIVE

or

ACCOUNTING INACTIVE

ACCOUNTING ACTIVE activates CA MICS Accounting and Chargeback Option in the unit and ACCOUNTING INACTIVE inactivates CA MICS Accounting and Chargeback Option in the unit.

WARNING: If you specify ACCOUNTING INACTIVE, the CA MICS Accounting and Chargeback Option code will still be executed, but no observations will be created in the journal or ledger files. This could result in SAS errors in your CA MICS DAILY job if your code is incorrect.

- __ 23. If you are installing CA MICS Accounting and Chargeback Option in a complex, review the Application Database Data Entry panels. At a minimum, you must make one entry into the Cost Center Attributes File (ACTCCA) for later processing.

Select Option 1, Application Database Data Entry, on the Installation Accounting Primary Options Menu. Select Option 1, Cost Center Attributes, from this menu and select Option 1, Identification, from the subsequent menu. If the table is empty, the data entry panel will display, which you must use to make at least one entry (otherwise a cost center selection list will be presented).

- __ 24. If you will be using an FDA in CA MICS Accounting and Chargeback Option that was generated at a pre-BAS4600 level, you must revise the FDA code to provide the interface between the two. See Section 2.3.5 in this guide for further information on coding changes to your pre-BAS4600 level FDA for the accounting interface.
- __ 25. Continue with the next step of the installation checklist in the PIOM.

```
+-----+
| Reference(s): Chapter 3 in the CA MICS PIOM |
+-----+
```

NOTE: Execute CA MICS Accounting and Chargeback Option on a test basis and carefully verify the calculated charges, journal files, and reports.

2.3 Activating Accounting for Data Sources

The checklists in this section describe how to activate accounting for the following data sources:

- o CA MICS Analyzers
- o Field-developed applications
- o External files
- o CA MICS I/S Inventory and Assets Manager (CA MICS IAM)

Before following the checklists in this section, you must:

- o Define a CA MICS database complex and generate at least one database unit by following the checklists in Chapter 3 of the PIOM.
- o For external file at unit level, complete the checklist in Section 2.3.4 of this guide.

Use these checklists when CA MICS Accounting and Chargeback Option is installed for one of the data sources listed above.

This section contains the following checklists:

- 1 - Activating Accounting for Unit-Level Data Sources
- 2 - Activating Accounting for a Complex-Level Ext. File
- 3 - Activating Accounting for NSM AND CA-IAM
- 4 - External Journal File in Accounting only unit

2.3.1 Activating Accounting for Unit-Level Data Sources

Before following the checklists in this section, you must do the following:

- o Define a CA MICS database complex and generate at least one database unit by following the checklists in Chapter 3 of the PIOM.
- o Complete the checklist in Section 2.2 of this guide.

Use this checklist when CA MICS Accounting and Chargeback Option is:

- o Installed in a unit and you want to start charging for a CA MICS Analyzer or a field-developed application (FDA). You cannot activate accounting for a CA MICS Analyzer or an FDA unless both CA MICS Accounting and Chargeback Option and the CA MICS Analyzer or FDA are installed in the unit.
- o Installed in an external file unit and you want to start charging for an external file at the unit level.

You can only activate accounting for CA MICS Analyzers that support CA MICS Accounting and Chargeback Option. To review a list of those products and their journal files, refer to the Journal File Eligibility - File Selection panel. You can access it by selecting MWF;4;2;S;2.

Make sure you use a test database unit to validate the accounting definitions and exits before activating this component for accounting in a production database unit.

- 1. If you want to activate accounting for the Batch and Operations Analyzer, the CA MICS Network Analyzer Option, or the VSE/POWER Analysis Product and plan to use priority accounting, update the appropriate CA MICS PARMS member as necessary.
 - o prefix.MICS.PARMS(JOBGROUP) for the Batch and Operations Analyzer
 - o prefix.MICS.PARMS(NETGROUP) for the CA MICS Network Analyzer Option
 - o prefix.MICS.PARMS(PWRGROUP) for the VSE/POWER Analysis Product

If you revise any of these, submit the indicated job to regenerate the coding:

prefix.MICS.CNTL(cccPGEN)

```
+-----+
| Reference(s):                                     |
|   In the Batch and Operations Analyzer Guide     |
|       Review JOBGROUP parameter                 |
|   In the CA MICS Network Analyzer Option        |
|       Review NETGROUP parameter                 |
|   In the VSE/POWER Analysis Product Guide       |
|       Review PWRGROUP parameter                 |
|-----|
| CA MICS Accounting and Chargeback Option Concepts |
| and Overview Guide, Section 1.2, see Differential |
| Charging under Pricing Strategies Support        |
+-----+
```

- ___ 2. If you plan to use differential zone accounting, update and regenerate the standard CA MICS ZONE PARMS member, if necessary. Update:

prefix.MICS.PARMS(ZONE)

If you revise the ZONE member, submit:

prefix.MICS.CNTL(BASPGEN)

```
+-----+
| Reference(s):  Section 2.3.2.3 in the PIOM       |
|-----|
| This, the CA MICS Accounting and Chargeback Option |
| User Guide, Section 4.9.7                         |
|-----|
| CA MICS Accounting and Chargeback Option Concepts |
| and Overview Guide, Section 1.2, see Differential |
| Charging under Pricing Strategies Support        |
+-----+
```

- ___ 3. In the following steps, you will be using the CA MICS Accounting and Chargeback Option online panels to specify your parameters. You will reach the panels by selecting the parameter's option number from the Parameter Specification and Generation menu. Display the Parameter Specification and Generation menu as follows:
 - o Invoke the CA MICS Workstation Facility (MWF) in

the manner specified for your installation.
 Select Option 4, Management Support Applications,
 from the MWF Menu.

- o Select Option 2, Installation Accounting, from the Management Support Applications menu.
- o Select Option 3, Parameter Specification and Generation, from the Installation Accounting Primary Options Menu.

- ___ 4. Select Option 1, Cost Center Definition, from the Parameter Specification and Generation menu and revise the Cost Routine (COSTRTE) parameter as necessary for the CA MICS Analyzer, FDA, or external file that you are activating. You must provide unique SAS coding for each data source.

Each CA MICS Analyzer and FDA that supports accounting will have an account structure. Review the account code structure member in sharedprefix.MICS.PARMS and ensure that you understand the code definition used in it.

```
+-----+
| Reference(s): Section 4.1.3 and 4.1.4 |
+-----+
```

- ___ 5. For CA MICS Analyzers, review the Journal File Eligibility parameter specifications that were shipped with the product. If necessary, you can override the specifications for the variables to be assigned to Workunit, Billing Time Stamp, Workarea, Subtype, and Subsysid.

For FDAs and unit-level external files, create Journal File Eligibility parameter specifications for each journal file that you wish to create.

Enter END on the Parameter Specification and Generation menu to return to the Installation Accounting Primary Options Menu and proceed as follows:

- o Select Option 5, Special Requirements, to display the Special Requirements Menu.
- o Select Option 2, Journal File Eligibility, to display the File Selection panel.

Use the Insert line command to add journal files for a CA MICS Analyzer, FDA, or unit-level external file. This causes the File Specifications panel to be displayed for data entry.

```
+-----+
| Reference(s): Sections 4.13 through 4.13.2 |
+-----+
```

- o Enter END on the File Selection panel to return to the Special Requirements Menu. You are notified to run the CA MICS algorithm generation job (MAGRUN). However, you do not need to run the job because you will run it in Step 11.
- o Enter END on the Special Requirements menu to return to the Installation Accounting Primary Options Menu. Select Option 3, Parameter Specification and Generation, to return to the display of the Parameter Specification and Generation menu.

___ 6. If you will be using different charging algorithms for different groups of SYSID, Subsysid, Subtype, Cost Center 1, or Workunit values:

- o Select Option 9, Qualification Groups, from the Parameter Specification and Generation menu.
- o Insert a Group ID and Description line for each group that you want to create on the Group Selection panel.
- o Select the line for each group and enter the values that comprise the group on the Group Specification panel.

```
+-----+
| Reference(s): Section 4.3.2 through 4.3.2.2 |
+-----+
```

Submit the Qualification Group Generation (CHRGROUP) job. If you have added, deleted, or changed any cost center groups, you are automatically requested to submit the job when you END from the Group Selection panel. You may submit the job at this point, or you may enter CANCEL because the Qualification Group

Generation will be performed by the MAGRUN job that you will run in Step 11.

You can also submit the CHRGROUP job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(CHRGROUP)'
```

- ___ 7. Select Option 3, Invoice Category Definition, from the Parameter Specification and Generation menu and make any invoice category additions or modifications that you require.

```
+-----+
| Reference(s): Section 4.2.2 through 4.2.2.3 |
+-----+
```

If you have added, deleted, or changed any invoice categories, you are automatically requested to submit the Invoice Category Generation job when you END from the Invoice Category Definition panel. You may submit the job at this point, or you may enter CANCEL because the Invoice Category Generation will be performed by the MAGRUN job that you will run in Step 11.

Return to the Parameter Specification and Generation menu.

- ___ 8. For CA MICS Analyzers, review the provided charging elements to determine the ones you wish to charge for. If necessary, you may add new charging elements.

For FDAs and external journal files not based on a standard CA MICS file, you must add the charging elements that you wish to use.

- o Select Option 5, Charging Element Definition, from the Parameter Specification and Generation menu to display the Charging Element Selection panel. Use the Insert and Select line commands, respectively, to make any charging element additions or modifications you require. Both of these line commands cause the Charging Element Specifications panel to be displayed for data entry. For an FDA or external journal file, you must insert new charging elements in your charging element table. We recommend that you add the elements in the

8000-9999 range. The new charging elements must begin with the 'Uxx' or 'Zxx' file identifier that is assigned to the new file you are adding.

- o If you added, deleted, or changed any charging elements, you are automatically requested to submit the Charging Element Generation job when you END from the Charging Element Selection panel. You may submit the job at this point, or you may enter CANCEL because the Charging Element Generation will be performed by the MAGRUN job that you will run in step 11.

```
+-----+
| Reference(s):  Section 4.2.1 through 4.2.1.3      |
+-----+
```

```
*****
* NOTE: Repeat Steps 9 and 10 for each journal      *
*           file that you want to activate.          *
*****
```

- ___ 9. Select Option 6, Rate Table, from the Parameter Specification and Generation menu to display the Component and File Selection panel. If CA MICS Accounting and Chargeback Option is installed in more than one database unit, the Unit Selection panel will be displayed prior to the Component and File Selection panel. Select the unit in which you want to set the Rate Table parameters. You must specify Rate Table parameters for each unit in which you want to use CA MICS Accounting and Chargeback Option.

The Component and File Selection panel shows each journal file that you can activate in the selected database unit. To activate a journal file, use the Select line command to display the Rate Table File Options Menu.

When you select a standard CA MICS journal file for the first time, the default rate table for that file is copied into your rate table with all rates set to 0, and the journal file is marked ACTIVE. All of the charges will be zero unless you change one or more to a non-zero value.

Proceed as follows:

- o Select Option 1, Journal File Specifications, to

specify the number of journal file cycles, prorating, and zone charging information.

```
+-----+
| Reference(s): Sections 4.3.1.2 through |
| 4.3.1.2.2                             |
+-----+
```

- o If you wish to code a SAS exit that will be taken immediately before the output of each journal file observation, select Option 2, Journal File Exit.

```
+-----+
| Reference(s): Sections 4.3.1.3 through |
| 4.3.1.3.2                             |
+-----+
```

- o Select Option 3, Algorithm Selection and Specification, to create one or more sets of charging algorithms to be used for the journal file. Each algorithm consists of a set of computation codes and rates. Insert a line for each algorithm and enter an algorithm identifier and a description on the Algorithm Selection panel. Then use the Select line command to display the Algorithm Specification panel and enter the computation codes and rates for the algorithm.

```
+-----+
| Reference(s): Sections 4.3.1.4 through |
| 4.3.1.4.2                             |
+-----+
```

- o Select Option 4, Algorithm Qualification. Use Algorithm Qualification to specify the work to which each algorithm applies.

```
+-----+
| Reference(s): Sections 4.3.1.5 through |
| 4.3.1.5.2                             |
+-----+
```

- __ 10. If you selected an external journal file in Step 9, there are three additional options on the Rate Table File Options Menu:

- o Select Option 5, External Journal File

Specifications. Specify whether duplicate data checking should be performed when the external journal file update job runs and the input DD statement to input your external file.

```
+-----+
| Reference(s): Sections 4.3.1.6 through |
| 4.3.1.6.2                             |
+-----+
```

- o Select Option 6, External Journal File Input Routine. Enter the SAS code for your external journal file input routine.

```
+-----+
| Reference(s): Sections 4.3.1.7 through |
| 4.3.1.7.2                             |
+-----+
```

- o Optionally, select Option 7, External Journal File Preprocessing Exit. Enter the SAS code for an exit to preprocess the data from your external file before it is read in by the external journal file input routine.

```
+-----+
| Reference(s): Sections 4.3.1.8 through |
| 4.3.1.8.2                             |
+-----+
```

- __ 11. After you activate all the desired journal files for a unit, submit the MAGRUN job. If you made any changes, you are automatically requested to submit the job when you END from the Rate Table Component and File Selection panel.

You can also submit the MAGRUN job from TSO as follows:

```
SUB 'prefix.MICS.CNTL(MAGRUN)'
```

- __ 12. If you will be prorating any charges, select Option 8, Prorating, on the Parameter Specification and Generation menu to display the Prorating Menu.

Select either complex or unit-level prorating. Note the following:

- o Journal and ledger file prorating specifications

are made at the unit level unless "Always use complex level prorating table" has been specified as YES. (To check, look at the General Installation Accounting Specifications panel. Select Option 2, Accounting Options, from the Parameter Specification and Generation Menu and then select Option 1, General Installation Accounting Specifications, from the Accounting Options Menu.)

- o If you chose to prorate from the unit-level table and CA MICS Accounting and Chargeback Option is installed in more than one database unit, the unit selection panel will be displayed. You must enter prorating specifications for each unit.

When you select an option, the Prorating Percent Specifications panel will display. The lines you insert on this panel specify an old value, which identifies a record to prorate, a new value, which identifies the new Cost Center 1 value, and a percent, which indicates the percent of the original charge the new Cost Center 1 value will receive.

```
+-----+
| Reference(s): Sections 4.8 through 4.8.5.3 |
+-----+
```

Submit the Prorating Generation job. There is a unit level job and a complex level job. If you have made any changes, you are automatically requested to submit the proper job when you END from the Prorating Percent Specifications panel.

The Prorating Generation jobs can also be submitted from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(PRORATE)'
```

or

```
SUB 'prefix.MICS.CNTL(PRORATEU)'
```

If you select journal file prorating for a standard CA MICS journal file or FDA, complete this step for each unit in which CA MICS Accounting and Chargeback Option is installed before the next CA MICS DAILY job (or update job for external journal files) is run for the unit or the journal file charges will not be

prorated.

- __ 13. If you will be using an FDA in CA MICS Accounting and Chargeback Option that was generated at a pre-BAS4600 level, you must revise the FDA coding to provide the interface between the two. See Section 2.3.4 for further information on coding changes to your pre-BAS4600 level FDA for the accounting interface.

2.3.2 Activating Accounting for a Complex-Level Ext. File

Before following the checklists in this section, you must do the following:

- o Define a CA MICS database complex and generate at least one database unit by following the checklists in Chapter 3 of the PIOM.
- o Complete the checklist in Section 2.2 of this guide.

Use this checklist to start charging for an external file at the complex level. You can also charge for an external file at the unit level by creating an external journal file. See Section 2.3.1 for the checklist to activate accounting for an external file at the unit level.

When you add a complex-level external file, you must provide external file parameters. You must fill in the file specifications, input routine, charging algorithms or algorithm qualifications, and, optionally, an exit for an external file.

Each computation code used in an External File Rate Table must be defined in the Charging Element definition.

After you add the external file parameters, you must run the EXTFILE job in the sharedprefix.MICS.CNTL library. This job executes the Charging Element generation and then generates the following items:

- o #ACTXfff in sharedprefix.MICS.SOURCE--One module is generated for each external file that you added (where fff is the external file ID). Each module contains SAS code to compute the charges for the external file.
- o \$ACTVaaa in sharedprefix.MICS.MCOLIB--One format is generated for each external file control variable charging algorithm (where aaa is the algorithm ID). Each format relates a control variable name and value to a computation code and rate.
- o ACTffffTB in sharedprefix.MICS.CNTL--One job is generated for each external file that you have selected (where fff is the external file ID). Each job uses the code in the #ACTXfff module to input the external file and output charges to the Debit File. Run the ACTffffTB jobs at the end of each billing period by selecting Option 1, External File Update, from the Month End Close Out Jobs menu.

Follow this checklist to add a new external file to accounting.

- __ 1. Review the discussion of external file charging so that you will be familiar with its purpose and the different specifications that need to be made.

```
+-----+
| Reference(s):  Section 4.4          |
+-----+
```

- o Complete the Complex-Level External File Specifications Worksheet for each external file that will be used.

```
+-----+
| Reference(s):  Sections 4.4.1 through 4.4.1.2 |
+-----+
```

- o Complete the Complex-Level External File Input Routine Worksheet for each external file that will be used.

```
+-----+  
| Reference(s): Sections 4.4.2 through 4.4.2.2 |  
+-----+
```

- o Complete the Complex-Level Algorithm Specifications Worksheet for each external file that will be used.

```
+-----+  
| Reference(s): Sections 4.3.1.4 through 4.3.1.4.2|  
+-----+
```

- o Complete the Complex-Level Algorithm Qualifications Worksheet for each external file that has more than one charging algorithm.

```
+-----+
| Reference(s): Sections 4.3.1.5 through 4.3.1.5.2 |
+-----+
```

- o Complete the Complex-Level External File Exit Worksheet for each external file for which an exit is needed.

```
+-----+
| Reference(s): Sections 4.4.4 through 4.4.4.2. |
+-----+
```

- ___ 2. If you will be using different charging algorithms for different groups of SYSID, Subsysid, Subtype, Cost Center 1, or Workunit values, Select Option 9, Qualification Groups, from the Parameter Specification and Generation menu. On the Group Selection panel, insert a Group ID and Description line for each group that you want to create. Then, on the Group Specification panel, select the line for each group and enter the values that comprise the group.

```
+-----+
| Reference(s): Sections 4.3.2 through 4.3.2.2 |
+-----+
```

Submit the Qualification Group Generation job. If you have added, deleted, or changed any qualification groups, you are automatically requested to submit the job when you END from the Group Selection panel. You may submit the job at this point, or you may enter CANCEL because the Invoice Category Generation will be performed by the External File Generation job that you will run in step 5.

You can also submit the CHRGROUP job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(CHRGROUP)'
```

- ___ 3. Select Option 3, Invoice Category Definition, from the Parameter Specification and Generation menu and make any invoice category additions or modifications

that you require.

```
+-----+
| Reference(s): Sections 4.2.2 through 4.2.2.2 |
+-----+
```

If you have added, deleted, or changed any invoice categories, you are automatically requested to submit the Invoice Category Generation job when you END from the Invoice Category Definition panel. You may submit the job at this point, or you may enter CANCEL because the Invoice Category Generation will be performed by the External File Generation job that you will run in step 5.

Return to the Parameter Specifications menu.

- ___ 4. Select Option 5, Charging Element Definition, from the Parameter Specification and Generation menu to display the Charging Element Selection panel. Use the Insert and the Select line commands, respectively, to make any charging element additions or modifications that you require. Both of these line commands cause the Charging Element Specifications panel to be displayed for data entry. Insert the charging elements for the external file into your charging element table. We recommend that you add the elements in the 8000-9999 range. The new external file charging elements must begin with the 'Uxx' or 'Zxx' file identifier that is assigned to the new external file you are adding.

```
+-----+
| Reference(s): Sections 4.2.1 through 4.2.1.2 |
+-----+
```

If you have added, deleted, or changed any charging elements, you are automatically requested to submit the Charging Element Generation job when you END from the Charging Element Selection panel. You may submit the job at this point, or you may enter CANCEL because the Charging Element Generation will be performed by the External File Generation job that you will run in step 5.

- ___ 5. Select Option 7, Complex-Level External File Definition, on the Parameter Specification and Generation menu to display the External File Selection panel.

You must insert a line for each external file that you want to process, and enter a file name and a description. The file name must match the file name entered for the charging elements added in step 4. Then use the Select line command to display the File Options menu and proceed as follows:

- o Select Option 1, External File Specifications, to specify prorating, Subsysid, and Subtype information and to code the INPUTACT DD statement.

```
+-----+
| Reference(s): Sections 4.4.1 through 4.4.1.2 |
+-----+
```

- o Select Option 2, Complex-Level External File Input Routine, and enter the SAS code that will be used to input the external file. You must provide or fill in values for the MONTH, YEAR, COSTCTRs, ENDTS, and charging quantity in this routine as shown in Section 4.4.2.2.

```
+-----+
| Reference(s): Sections 4.4.2 through 4.4.2.2 |
+-----+
```

- o Select Option 3, Algorithm Selection and Specification, to create one or more sets of charging algorithms to be used for the external file. Each algorithm consists of a set of computation codes and rates. Insert a line for each algorithm, and enter an algorithm identifier and a description on the Algorithm Selection panel. Then use the Select line command to display the Algorithm Specification panel and enter the computation codes and rates for the algorithm.

```
+-----+
|Reference(s): Sections 4.3.1.4 through 4.3.1.4.2|
+-----+
```

- o If you have defined more than one charging algorithm for the external file, select Option 4, Algorithm Qualification. Use the Algorithm Qualification panel to specify the work to which each algorithm applies.

```
+-----+
|Reference(s): Sections 4.3.1.5 through 4.3.1.5.2|
+-----+
```

- o If you wish to code a SAS exit that will be taken immediately prior to the output of each external file observation, select Option 5, External File Exit.

```
+-----+
| Reference(s): Sections 4.4.4 through 4.4.4.2 |
+-----+
```

- o If you wish to use a cross reference table to translate or create COSTCTR values for each external file observation, select Option 6, Cost Center Look Up Table.

```
+-----+
| Reference(s): Sections 4.4.5 through 4.4.5.2|
+-----+
```

- o Submit the External File Generation job. If you have made any changes, you are automatically requested to submit the job when you END from the External File Selection panel.

You can also submit the External File Generation job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(EXTFILE)'
```

- ___ 6. If you will be doing external file prorating, select Option 8, Prorating, on the Parameter Specification and Generation menu to display the Prorating Menu. Select Option 2, Complex Level Prorating. When you select the option, the Prorating Percent Specifications panel will be displayed. The lines you insert on this panel specify an old value, which identifies a record to prorate; a new value, which identifies the new Cost Center 1 value; and a percent, which indicates the percent of the original charge the new Cost Center 1 value will receive.

Complex-level external file prorating specifications are made at the complex level. The prorating specification will be used for all complex-level external files that are being prorated.

```
+-----+
| Reference(s): Sections 4.8, 4.8.5, and 4.8.5.3 |
+-----+
```

Submit the Prorating Generation job. If you have made any changes, you are automatically requested to submit the proper job when you END from the Prorating Percent Specifications panel.

You can also submit the Prorating Generation job for external file prorating from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(PRORATE)'
```

Return to the Installation Accounting Primary Options Menu.

- ___ 7. Review the new job that has been created to process the external file. It will add records to the Debit File (ACTSDT00). Test this job by processing your external file and adding the output records to a test data set instead of to your production data set. Catalog a test data set with the same attributes as the sharedprefix.MICS.TABLES data set to allow your test job to have an output data set.
 - o Select Option 2, Month End Processing, from the Primary Options menu.
 - o Select Option 1, Month End Close Out Jobs, from the Month End Processing menu.
 - o Select Option 1, External File Update, from the Month End Close Out Jobs menu.
 - o If you have both complex-level and unit-level external files defined, the External File Update menu will appear. Select Option 1, Complex-level External Files.
 - o Select the new job, ACTfffTB, that you have created. Check the input data set name for accuracy. Modify the JCL to use a test output data set in place of the standard output data set sharedprefix.MICS.TABLES. Then submit the job.
 - o After you have submitted the job, CANCEL from the PDF EDIT function to avoid a permanent change to the JCL.

- o After the External File Update job has finished, validate the records in your ACTSDT00 file in your test data set. You can use the MSAS option of the CA MICS Workstation Facility (MWF) to interactively review the file, or use a batch SAS job to do a PROC PRINT of the ACTSDT00 file.
- 8. Notify your Production Control Group or the group responsible for the production use of this external file processing job that it is now available.

2.3.3 Activating Accounting for NSM AND CA-IAM

Do NOT use these checklists unless you followed the checklist in Chapter 3 of the PIOM to install CA MICS Accounting and Chargeback Option in your complex and then completed the checklist in Section 2.2 of this guide.

Once CA MICS Accounting and Chargeback Option is installed, use these checklists if you wish to charge for CA I/S Inventory and Assets Manager (CA-IAM), NSM NT resource Accounting (NTA), NSM Asset Management Option (AMO), and NSM UNIX resource Accounting (NIX).

Review the discussion of external file charging so that you will be familiar with its purpose and the different specifications that need to be made. For more information, see section 4.4.

When you activate charging for CA-IAM, NTA, NIX or for AMO you must fill in the file specifications and review the default charging algorithm and its algorithm qualifications. You may optionally code an exit for these special external files.

Each computation code used in an External File Rate Table must be defined in the Charging Element definition. We have predefined the computation codes in the 2100-2105 range for CA-IAM, 2801-2826 for NTA, 2900-2930 for NIX and 2120-2125 for AMO. The default computation code is 2100 for inventory and assets charging, 2801 for NT resource accounting, 2120 for Asset Management option and 2900 for UNIX resource accounting.

You can use a default charging strategy to bring in your CA-IAM, NTA, NIX or AMO charges. This default strategy uses:

- o Direct charging with the TYPE variable
- o A rate of 1.0
- o One algorithm
- o No algorithm qualification
- o Computation code 2100, 2120, 2900 and 2801
- o Invoice category 2120, 2110, 1750 and 1800
- o Invoice category description
 - "I/S Inventory and Assets"
 - "NT Systems"
 - "UNIX Resource Accounting"
 - "NSM Asset Management"

Using the default strategy, all of the inventory and assets

charges accumulate on one reporting line in the standard reports.

There are two checklists below:

- o Use the default strategy checklist to activate the default strategy.
- o Use the alternate checklist to design your own charging strategy.

DEFAULT STRATEGY CHECKLIST

Follow the steps in this checklist to use the default strategy to activate accounting for CA-IAM, AMO, NT resource accounting and UNIX resource accounting data.

In the steps that follow, you will use CA MICS Accounting and Chargeback Option online panels to specify your parameters. To access the panels for a parameter, select the appropriate option number on the Parameter Specifications and Generation menu. To display the Parameter Specification and Generation menu, proceed as follows:

- o Invoke the CA MICS Workstation Facility (MWF) and select option 4, Management Support Applications, from the MWF menu.
- o Select Option 2, Accounting and Chargeback, from the Management Support Applications menu.
- o Select Option 3, Parameter Specification and Generation from the Installation Accounting Primary Options Menu.

- ___ 1. Select Option 7, External File Definition, on the Parameter Specification and Generation menu to display the External File Selection panel.

We have predefined the UMAIAM, UAMAMO, UAMNTA and UNXNIX files to process charges from CA-IAM, AMO, NT resource accounting and UNIX resource accounting data.

Select line command to display the External File Definition - File Options panels and proceed as follows:

- o Select Option 1, External File Specifications, to code the INPUTACT DD statement. Provide the name of the data set that contains the charge records. You must enter the INPUTACT DD statement for each file on the External File Specifications panel. The JCL that is generated includes the DD statement.
- o The input data set for NT and UNIX resource accounting created by NSM Systems Performance. The input data set for AMO is created by the AMO EXTRACT program delivered with CA MICS

The input data set for the I/S Inventory and Assets Manager is created by the ChargeBack (Bill To) Detail Report (#180A).

```
+-----+
| Reference(s): Sections 4.4.1, 4.4.1.2 and |
| 4.4.6                                     |
+-----+
```

- o For CA-IAM, select Option 6, Cost Center Look Up Table, to optionally add the RSCACCT values from the I/S Inventory and Assets Manager that you want translated to COSTCTRs. The entries on this panel will be placed in a SAS PROC FORMAT called \$ACTUIAM. You can use this PROC FORMAT member in sharedprefix.MICS.PARMS(COSTRTE) to assign values to your COSTCTR1-9 fields based on the RSCACCT values entered on this panel as the ORIGINAL VALUE.

```
+-----+
| Reference(s): Section 4.4.5. through 4.4.5.2|
+-----+
```

- o Submit the External File Generation job. If you made any changes to the external file parameter, you are automatically requested to submit the job when you END from the External File Selection panel.

You can also submit the External File Generation job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(EXTFILE)'
```

Return to the Installation Accounting Primary Options Menu.

- __ 2. Modify the Cost Center Derivation Routine (COSTRTE) to create your COSTCTR1-9 values for CA-IAM, AMO, NTA and for NIX charges. Complete the following:

- o Select Option 1, Cost Center Definition, from the Parameter Specification and Generation menu.
 - o Select Option 2, Cost Routine, on the Cost Center Definition Menu to add SAS code and to assign values to your COSTCTR1-9 variables. The variable ROUTINE supports the following values:

IAMINPUT - Process I/S Inventory and Assets
Manager records
AMINPUT - Process Asset Manager records
NTAINPUT - Process NSM NT records
NIXINPUT - Process NSM UNIX records

You can use the PROC FORMAT \$ACTUIAM, \$ACTUAMO, \$ACTUNIX or FORMAT \$ACTUNTA in your coding if you filled in the table in step 1. Review the sample COSTRTE member in sharedprefix.MICS.HOLD.PARMS for coding hints.

```
+-----+  
| Reference(s): Sections 4.1.3 through 4.1.3.2 |  
+-----+
```

- o Return to the Installation Accounting Primary Options Menu after performing the prior steps.
- __ 3. Review the new job that has been created to process the UMAIAM, UAMAMO, UNXNIX OR the UAMNTA file. It will add records to the Standard Debit File (ACTSDT00). Test this job by processing your external file and adding the output records to a test data set instead of to your production data set. Catalog a test data set with the same attributes as sharedprefix.MICS.TABLES to allow your test job to have an output data set.
- o Select Option 1, Month End Close Out Jobs, from the Installation Accounting Primary Options Menu.
 - o Select Option 1, External File Update, from the Month End Close Out Jobs menu.

- o If you have both complex-level and unit-level external files defined, the External File Update menu will appear. Select Option 1, Complex-level External Files.
- o Select the new job, ACTffffTB, that you created. Check the input data set name for accuracy. Modify the JCL to use a test output data set in place of the standard output data set sharedprefix.MICS.TABLES. Then submit the job.
- o After you have submitted the job, CANCEL from the PDF EDIT function to avoid a permanent change to the JCL.
- o After the External File Update job has finished, validate the records in your ACTSDT00 file in your test data set. You can use the MSAS option of the CA MICS Workstation Facility (MWF) to interactively review the file.

For UMAIAM file, review the report that is produced as part of the output of this job for accuracy and compare it to the Charge Back/Bill to Detail Report (#180A) in the I/S Inventory and Assets Manager.

- __ 4. Notify your Production Control Group, or the group responsible for the production use of this external file processing job, that it is now available.

ALTERNATE STRATEGY CHECKLIST

Follow this checklist to design your own charging strategy for CA-IAM, AMO, NT and UNIX resource accounting data.

- __ 1. If you plan to use different charging algorithms for different groups of SYSID, Subsysid, Subtype, Cost Center 1, or Workunit values; Select Option 9, Qualification Groups, from the Parameter Specification and Generation menu. On the Group Selection panel, insert a group ID and description line for each group that you want to create. Then, on the Group Specification panel, select the line for each group and enter the values that comprise the group.

```
+-----+
| Reference(s): Sections 4.3.2 through 4.3.2.2 |
```

+-----+

Submit the Qualification Group Generation job. If you added, deleted, or changed any cost center groups, you are automatically requested to submit the job when you END from the Group Selection panel. You may submit the job at this point, or you may CANCEL because the Qualification Group Generation job will be performed by the External File Generation job that you will run in step 4.

You can also submit the Qualification Group Generation job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(CHRGROUP)'
```

- ___ 2. Select Option 3, Invoice Category Definition, from the Parameter Specification and Generation menu and make any invoice category additions or modifications that you require.

+-----+
| Reference(s): Sections 4.2.2 through 4.2.2.2 |
+-----+

If you added, deleted, or changed any invoice categories, you are automatically requested to submit the Invoice Category Generation job when you END from the Invoice Category Definition panel. You may submit the job at this point, or you may CANCEL because the Invoice Category Generation job will be performed by the External File Generation job that you will run in step 4.

Return to the Parameter Specification and Generation menu.

- ___ 3. Select Option 5, Charging Element Definition, from the Parameter Specification and Generation menu to display the Charging Element Definition - Element Selection panel. Use the Insert and Select line commands, respectively, to add or modify charging elements. Both of these line commands cause the Charging Element Specifications panel to be displayed for data entry. If you are activating a standard CA MICS product, you can display the Master Charging Element Table and copy the charging elements for the product into your charging element table.

We have predefined the following charging elements:

```
CA-IAM - 2100-2105
AMO    - 2120-2123
NT      - 2801-2803, 2806-2809, 2815, 2816,
          2820-2822, 2825, and 2826
UNIX    - 2900, 2905, 2906, 2910, 2911, 2915, 2916,
          2920, 2922, and 2925
```

We recommend that you add new elements in the 8000-9999 range.

```
+-----+
| Reference(s): Sections 4.2.1 through 4.2.1.2 |
+-----+
```

If you added, deleted, or changed any charging elements, you are automatically requested to submit the Charging Element Generation job when you END from the Charging Element Selection panel. You may submit the job at this point, or you may CANCEL because the Charging Element Generation job will be performed by the External File Generation job that you will run in step 4.

- ___ 4. Select Option 7, External File Definition, on the Parameter Specification and Generation menu to display the External File Selection panel.

We have predefined the UMAIAM, UAMAMO, UAMNTA and UNXNIX files to process charges from the CA I/S Inventory and Asset Manager (CA-IAM), from Asset Management option (AMO), from NSM NT resource (NTA) and from NSM UNIX resource (NIX). Use the Select line command to display the External File Definition - File Options menu, and proceed as follows:

- o Select Option 1, External File Specifications, to specify prorating, SUBSYSID, and SUBTYPE information and to code the INPUTACT DD statement. (For example, If you qualify your UMAIAM file charging algorithms by SUBSYSID or SUBTYPE (that is, you use the SUBSYSID or SUBTYPE keyword with a value other than *ALL) on the Algorithm Qualification panel, you must ensure that the specifications for the SUBSYSID or SUBTYPE variables are appropriate. LOCATION is the default for SUBSYSID and TYPE is the default for SUBTYPE.)

If you want to do prorating, change the External File Specifications panel options as follows:

The Prorating option must be YES.

You must enter the INPUTACT DD statement for your Uxxxxff file on the External File Specifications panel. This DD will be included in the generation of ACTffffTB job and it will be used to input the external file.

- o The input data set for NT and UNIX resource accounting is created by NSM Systems Performance. The input data set for AMO is created by the AMO EXTRACT program delivered with CA MICS.

The input data set for the I/S Inventory and Assets Manager is created by the ChargeBack (Bill To) Detail Report (#180A).

```
+-----+
| Reference(s): Sections 4.4.1, 4.4.1.2 and |
| 4.4.6                                     |
+-----+
```

- o Select Option 3, Algorithm Selection and Specification, on the External File Definition - File Options menu. Select the algorithm shown on the Algorithm Selection panel to review the computation codes and rates. The default computation codes are:

```
CA-IAM - 2100
AMO    - 2120
NT      - 2801
UNIX    - 2900
```

You can use any of the new external file computation codes or assign any computation codes you defined. See CA MICS Accounting and Chargeback Option section 4.2.1.3 for list of the computation codes. The default algorithm is using VARIABLE VALUE with the TYPE variable as the qualifier to allow you to have different computation codes based on the value of TYPE from the input records. A rate of 1.0 is used to indicate the input quantity.

You can insert a line if you want another algorithm, then enter an algorithm identifier and a description on the Algorithm Selection panel. Then use the Select line command to display the Algorithm Specification panel and enter the computation codes and rates for the algorithm.

```
+-----+
| Reference(s): Sections 4.3.1.4 through 4.3.1.4.2|
+-----+
```

- o If you defined more than one charging algorithm for the external file, select Option 4, Algorithm Qualification. Use the Algorithm Qualification panel to specify the work to which each algorithm applies.

```
+-----+
| Reference(s): Sections 4.3.1.5 through 4.3.1.5.2|
+-----+
```

- o If you wish to code a SAS exit for use immediately prior to the output of each external file observation, select Option 5, External File Exit.

```
+-----+
| Reference(s): Section 4.4.4 through 4.4.4.2 |
+-----+
```

- o Select Option 6 to optionally build a table to look up a cost center value based on the value of a variable in a external file.

For CA-IAM, as an example you can optionally add the RSCACCT values from the I/S Inventory and Assets Manager that you want translated to COSTCTRs. The entries on this panel will be placed in a SAS PROC FORMAT called \$ACTUIAM. You can use this PROC FORMAT member in sharedprefix.MICS.PARMS (COSTRTE) to assign values to your COSTCTR1-9 fields based on the RSCACCT values entered on this panel as the ORIGINAL VALUE.

```
+-----+
| Reference(s): Section 4.4.5 through 4.4.5.2 |
+-----+
```

- o Submit the External File Generation job. If you made any changes to the external file parameter,

you are automatically requested to submit the job when you END from the External File Selection panel.

You can also submit the External File Generation job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(EXTFILE)'
```

- ___ 5. If you plan to prorate the UMAfff file on the Parameter Specification and Generation menu, select Option 8 to display the Prorating Menu. Select Option 2, Complex-Level External File Prorating. When you select the option, the Prorating Percent Specifications panel will be displayed. The lines you insert on this panel specify an old value, which identifies a record to prorate; a new value, which identifies the new Cost Center 1 value; and a percent, which indicates the percent of the original charge the new Cost Center 1 value will receive.

Prorating specifications for complex-level external files are made at the complex level. These specifications will be used for all complex-level external files that are being prorated.

```
+-----+
| Reference(s): Section 4.8, 4.8.5, and 4.8.5.3 |
+-----+
```

Submit the Prorating Generation job. If you made any changes, you are automatically requested to submit the proper job when you END from the Prorating Percent Specifications panel.

You can also submit the Prorating Generation job for external file prorating from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(PRORATE)'
```

Return to the Installation Accounting Primary Options Menu.

- ___ 6. Modify the Cost Center Derivation Routine (COSTRTE) to create your COSTCTR1-9 values for the external files. Complete the following:
 - o Select Option 1, Cost Center Definition, from the Parameter Specification and Generation menu.

- o Select Option 2, Cost Routine, on the Cost Center Definition Menu to add SAS code and to assign values to your COSTCTR1-9 variables. The variable ROUTINE has a value of IAMINPUT to denote processing of I/S Inventory and Assets Manager records, AMOINPUT to denote processing Asset Management Options, NTAINPUT to indicate processing NSM NT records and NIXINPUT denote NSM UNIX records. You can use the PROC FORMAT \$ACTUIAM, \$ACTUAMO, \$ACTUNIX or FORMAT \$ACTUNTA in your coding if you filled in the table in step 1. Review the sample COSTRTE member in sharedprefix.MICS.HOLD.PARMS for coding hints.

```
+-----+  
| Reference(s): Section 4.1.3 through 4.1.3.2 |  
+-----+
```

- o Return to the Parameter Specification and Generation menu.

- ___ 7. Review the new job that has been created to process the Uxxxxx file. It will add records to the Debit File (ACTSDT00). Test this job by processing your external file and adding the output records to a test data set instead of to your production data set. Catalog a test data set with the same attributes as sharedprefix.MICS.TABLES to allow your test job to have an output data set.
 - o Select Option 2, Month End Processing, from the Primary Options menu.
 - o Select Option 1, Month End Close Out Jobs, from the Month End Processing menu.
 - o Select Option 1, External File Update, from the Month End Close Out Jobs menu.
 - o If you have both complex-level and unit-level external files defined, the External File Update menu will appear. Select Option 1, Complex-level External Files.
 - o Select the new job, ACTffftB, that you created. Check the input data set name for accuracy. Modify the JCL to use a test output data set in place of the standard output data set sharedprefix.MICS.TABLES. Then submit the job.
 - o After you submit the job, CANCEL from the EDIT function to avoid a permanent change to the JCL.
 - o After the External File Update job has finished, validate the records in your ACTSDT00 file in your test data set. You can use the MSAS option of the CA MICS Workstation Facility (MWF) to interactively review the file.

For UMAIAM file, review the report that is produced as part of the output of this job for accuracy and compare it to the Charge Back/Bill to Detail Report (#180A) in the I/S Inventory and Assets Manager.
- ___ 8. Notify your Production Control Group, or the group responsible for the production use of this external file processing job, that it is now available.

2.3.4 External Journal File in Accounting-Only Unit

The procedures in this section are used to define and activate a unit intended only for external file accounting. The section is divided into three parts:

- o Build an Accounting-Only Unit
- o Review Complex-Level Accounting Parameters
- o Finalize and Activate the Accounting-Only Unit

Build an Accounting-Only Unit

Use the Generate the New Database Unit checklist, Section 3.8.1.4, in the PIOM to build your accounting-only unit. While following the checklist, make the following modifications:

- o PIOM Section 3.8.1.4, Step 4

When you define JCLDEF in prefix.MICS.PARMS:

- Use only the ACT component in the COMPONENT statement.
 - Leave the SMFRECORDING statement blank.
 - Specify NO for the three ARCHIVE statements.
 - Delete or comment out the BACKUP FREQ statement.
- Neither the DAILY or the WEEKLY job will be run.

- o PIOM Section 3.8.1.4, Step 23

When you define EXECDEF in prefix.MICS.PARMS, set the three REPORT MBO statements to none.

- o PIOM Section 3.8.1.4, Steps 28 through 30

Skip steps 28 through 30. These steps are not required for an accounting-only unit.

Review Complex-Level Accounting Parameters

Review the value of the ACCTMGDG parameter in sharedprefix.MICS.PARMS(JCLDEFC). The ACCTMGDG parameter specifies the number of generations of monthly audit files to be maintained in the monthly generation data group:

- o If you want to maintain complex-level audit files, ensure the ACCTMGDG parameter is set to any numeric value greater than zero.
- o If you do not want to maintain complex-level audit files,

ensure the ACCTMGDG parameter is set to zero.

If no ACCTMGDG parameter is specified, the default is set to 85, meaning 85 generations will be kept.

```
+-----+
| Reference(s):  PIOM Section 2.3.1.6      |
+-----+
```

If you change the ACCTMGDG parameter, you must regenerate the GDGSGENC job as follows for the new parameter value to take effect:

- __ 1. Edit sharedprefix.MICS.PARMS(JCLGENUC) so that it contains the following line:

```
GDGSGENC
```

- __ 2. Regenerate GDGSGENC by submitting the following job:

```
SUB 'sharedprefix.MICS.CNTL(JCLGENUC)'
```

Finalize and Activate the Accounting-Only Unit

To finalize and activate the accounting-only unit, you must define an accounting journal file, specify the external file data source, define rates, and so on. Complete the following steps using the CA MICS Workstation Facility (MWF):

- __ 1. Specify the journal file
 - o Select Option S, Special Requirements (MWF;4;2;S), to display the Special Requirements menu.
 - o Select Option 2, Journal File Eligibility (MWF;4;2;S;2), to display the File Selection panel.
 - o Use the insert line command to add the FDA or external journal files that you want to create.

When you have finished typing, press the END key to return to the Journal File Eligibility panel. Press END again to return to the Special Requirements menu. You will be prompted to run the CA MICS algorithm generation job (MAGRUN).

- o Press END on the Special Requirements menu to

return to the Installation Accounting Primary Options menu.

- o Select Option 3, Parameter Specification and Generation (MWF;4;2;3), to specify data center accounting component parameters.

```
+-----+
| Reference(s): Sections 4.13 through 4.13.2 |
+-----+
```

__ 2. Optionally update invoice category table

A default invoice category table is distributed with the system. To provide maximum flexibility, you can make additions or changes so that the reporting structure is consistent with your data center's requirements.

- o Select Option 3, Invoice Category Definition (MWF 4;2;3;3), on the Parameter Specification and Generation menu to display the Invoice Category Definition panel and make necessary changes.

```
+-----+
| Reference(s): Sections 4.2.2 through 4.2.2.2 |
+-----+
```

- ## __ 3. If you will be using different charging algorithms for different groups of SYSID, Subsysid, Subtype, Cost Center 1, or Workunit values, Select Option 9, Qualification Groups, from the Parameter Specification and Generation menu. On the Group Selection panel, insert a Group ID and Description line for each group that you want to create. Then, on the Group Specification panel, select the line for each group and enter the values that comprise the group.

```
+-----+
| Reference(s): Sections 4.3.2 through 4.3.2.2 |
+-----+
```

Submit the Qualification Group Generation job. If you have added, deleted, or changed any qualification groups, you are automatically requested to submit the job when you END from the Group Selection panel. You may submit the job at this point, or you may enter CANCEL because the Invoice Category Generation will

be performed by the External File Generation job that you will run in step 4.

You can also submit the CHRGROUP job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(CHRGROUP)'
```

__ 4. Optionally define charging elements

Select Option 5, Charging Element Definition (MWF;4;2;3;5), on the Parameter Specification and Generation menu to display the Charging Element Definition panel. Use the select line command to change the specifications for a charging element.

```
+-----+
| Reference(s): Sections 4.2.1 through 4.2.1.2 |
+-----+
```

__ 5. Specify Journal File Rate Table Parameters

- o Select Option 6, Rate Table (MWF;4;2;3;6), from the Parameter Specification and Generation menu to display the Component and File Selection panel. If Accounting and Chargeback is installed in more than one database unit, the Unit Selection panel will be displayed prior to the Component and File Selection panel. Select the unit in which you want to set the Rate Table parameters. You must specify Rate Table parameters for each unit in which you want to use Accounting and Chargeback.

The Component and File Selection panel shows each journal file that you can activate in the selected database unit. To activate a journal file, use the Select line command to display the Rate Table File Options menu.

- o Select Option 1, Journal File Specifications (MWF;4;2;3;6;1), to specify the number of journal file cycles, prorating, and zone charging information.

```
+-----+
| Reference(s): Sections 4.3.1.2 through 4.3.1.2.2 |
+-----+
```

- o Select Option 2, Journal File Exit (MWF;4;2;3;6;2),

to invoke a user exit that will be taken immediately before the output of each journal file observation.

```
+-----+
| Reference(s): Sections 4.3.1.3 through 4.3.1.3.2 |
+-----+
```

- o Select Option 3, Algorithm Selection and Specification (MWF;4;2;3;6;3), to create one or more sets of charging algorithms to be used for the journal file. Each algorithm consists of a set of computation codes and rates. Insert a line for each algorithm and enter an algorithm identifier and a description on the Algorithm Selection panel. Then use the Select line command to display the Algorithm Specification panel and enter the computation codes and rates for the algorithm.

For example, the Linux journal file ACTJLX is delivered with the default algorithm identifier LNX and associated computation codes.

Note that when a standard CA MICS journal file is selected for the first time, the default rate table for that file is copied into your rate table with all rates set to zero and the journal file marked ACTIVE. All of the charges will be zero unless you change one or more to a non-zero value.

```
+-----+
| Reference(s): Sections 4.3.1.4 through 4.3.1.4.2 |
+-----+
```

- o Select Option 4, Algorithm Qualification (MWF;4;2;3;6;4), to specify the work to which each algorithm applies.

```
+-----+
| Reference(s): Sections 4.3.1.5 through 4.3.1.5.2 |
+-----+
```

- o Select Option 5, External Journal File Specifications (MWF;4;2;3;6;5), to identify the external file dataset name and to specify whether date range validation should be performed when the external journal file update job runs.

Option 5 is used for non-Linux external files. For

Linux external files using the ACTJLX journal file, specify the external file dataset using Option 8.

The non-Linux external Journal File ddname must always be INPUTACT. This DD statement will be included in the generated ACTfffTB job for the file, where fff represents the last three characters of the external file name.

On the Option 5 panel is the prompt:

Date Range Validation ==> (YES or NO)

You should code YES if you want the update job to eliminate input records whose ENDTS values come before the last datetime in the checkpoint.

- o Select Option 6, External Journal File Input Routine (MWF;4;2;3;6;6), to define the SAS routine used to input the external file data. This selection contains a sample SAS routine that inputs Linux process-level data generated by the Linux accounting ACCT command.
- o Select Option 7, External Journal File Preprocessing Exit (MWF;4;2;3;6;7), if you require SAS code to preprocess the data from your external file before it is read in by the external journal file input routine previously specified with Option 6.
- o If you need to sort the input in such a way that duplicate observations are removed, the basic input and the sort should be coded in the preprocessing exit of Option 7. The output of the sort should be accessed in the Option 6 code. Here is an outline of this process:

In the Preprocessing Exit (MWF;4;2;3;6;7), code

```
DATA INPUTSRT;  
  INFILE INPUTACT;  
  INPUT var1 var2 ... ENDTS ;  
  FORMAT ENDTS DATETIME20.2;  
PROC SORT DATA=INPUTSRT NODUP;  
  BY var1 var2 ... ENDTS;
```

The variable names on the INPUT statement are whatever you need. The ENDTS is included here

since it will likely be an important part of the sort sequence that removes duplicate observations. Note that this exit will be saved in member prefix.MICS.USER.SOURCE(ACTUfffr).

Go into Option 6 (MWF;4;2;3;6;6). Enter the line

```
SET INPUTSRT END=ACTEOF;
```

This is all that is necessary to make the chargeback to work if you have coded all of the needed variables in the Preprocessing Exit. Otherwise you should add any other statements or variable definitions that you need after this SET statement. Note that "END=ACTEOF" is required on the SET statement since this is the code for Option 6.

- o Select Option 8, Linux Option Specification Member (MWF;4;2;3;6;8), to specify Linux external file dataset names and other Linux specific parameters. This option is used in conjunction with the Linux ACTJLX journal file.

```
+-----+
| Reference(s): Sections 2.3.4.1 through 2.3.4.2 |
+-----+
```

- o The COSTCTRn definitions should be made at this time and should be based on the variables that are defined in Options 6 through 8. Lines should be added to sharedprefix.MICS.PARMS(COSTRTE) as follow:

```
IF ROUTINE = 'fffINPUT' THEN DO;
/* SET COST CENTER FOR fff */
  COSTCTR1=var1;
  COSTCTR2=var2;
  COSTCTR3=var3;
END;
```

See section 4.1.3 - Assigning Cost Center Values.

For information on setting COSTCTRn values by looking up values in a table, see section 4.4.5 - Entering Cost Center Look Up Table Values.

- o After completing the journal file specification and activation activities listed above, submit the

MAGRUN job. MAGRUN will generate the unit-level external job in prefix.MICS.CNTL under the name ACTULXTB. This external update job will include the ddname and the dataset names specified in Step 4, option 5 or 8 above.

If you make any changes to the journal file specifications, you are automatically prompted to submit MAGRUN when you press the END key to exit from the Rate Table Component and File Selection panel.

You can also submit the MAGRUN job manually. It is located in prefix.MICS.CNTL(MAGRUN).

2.3.4.1 Linux Process Accounting Journal File

The ACTJLX journal file is used to account for process activity captured as log data using the Linux ACCT command.

The Linux Option Specification Member (MWF;4;2;3;6;8) is used to specify the ddnames, dataset names, and other information about the Linux data to be processed by an accounting-only unit. Accounting-only unit external files are processed like standard CA MICS journal files, except the associated external journal file is created by a generated job instead of by the CA MICS DAILY job.

When you select the ACTJLX journal file and then select the Linux Option Specification Member (MWF;4;2;3;6;8), you enter an ISPF EDIT session for dataset prefix.MICS.PARMS(LINUXP). This is where you describe the Linux data to be processed by the unit.

prefix.MICS.PARMS(LINUXP) contains comments that explain the rules for updating the member. Those rules are as follows:

- o Lines that begin with an asterisk (*), are ignored.
- o Two line types are supported:
 - GLOBAL Statements
 - Dataset Description Statement

These statements are described in detail below.

GLOBAL Statement

There are two types of GLOBAL statements supported: GLOBAL PLATFORM and GLOBAL TIMESHIFT.

o GLOBAL PLATFORM

Linux systems running on Intel platforms use a method of numeric data value representation known as "little endian." Those running on mainframe platforms, such as z/VM, represent numeric data using "big endian." You must identify the platform so that CA MICS knows how to input and interpret the raw measurement data.

The Dataset Description statements allow you to specify the platform associated with each ddname, but to save time and coding, you can simply enter a GLOBAL PLATFORM statement ahead of the Dataset Description statements that describe data generated on a specific platform.

The GLOBAL PLATFORM statement is coded as follows:

GLOBAL PLATFORM=p

where p can be I (INTEL) or M (Mainframe)

o GLOBAL TIMESHIFT

Linux systems record process level accounting data time and date fields in Greenwich Mean Time (GMT). If you want CA MICS to convert GMT to local time, you must supply the timeshift (number of hours) that you need to add or subtract from GMT to convert to your local time.

The Dataset Description statements allow you to specify the timeshift associated with each ddname, but to save time and coding, you can simply enter a GLOBAL TIMESHIFT statement ahead of the Dataset Description statements that describe data generated in a particular timezone.

GLOBAL TIMESHIFT=+/- nn

where + means "add"

- means "subtract"

nn hours convert GMT to local time

GLOBAL statements may appear anywhere in the input stream. When encountered, a GLOBAL statement will override any

previous GLOBAL statement for the same function (PLATFORM or TIMESHIFT).

To minimize usage of the P= and T= Dataset Description statement parameters, discussed below, it is useful to group DDs and timezones for the same platform together and precede the statement groups with the appropriate GLOBAL statements.

Dataset Description Statement

A Dataset Description statement line supports five parameters as follows:

DDNAME DSN SYSID P=I/M T=+/-nn

where the following are required:

DDNAME - 1-8 characters
DSN - 1-44 characters
SYSID - 1-4 characters

Note: If you define a new SYSID, you must add the new SYSID in prefix.MICS.PARMS(sysid) and submit prefix.MICS.CNTL(BASPGEN).

A fourth parameter is required if GLOBAL PLATFORM is not specified, where:

P=I means INTEL
P=M means Mainframe

If coded, it overrides GLOBAL PLATFORM.

The fifth parameter is optional, where:

T=+5 means add 5 hours to GMT value
T=-3 means subtract 3 hours from GMT value

If coded, it overrides GLOBAL TIMESHIFT. If neither GLOBAL TIMESHIFT nor T= is specified, the data will reflect GMT.

Example 1

GLOBAL TIMESHIFT=4
GLOBAL PLATFORM=M
DDNAME1 ABC.LINUX.FB.DATA.INTEL.JULY10
DDNAME2 ABC.LINUX.DATA.PACCT.USILGPAX P=I

Example 1 results in JCL generation for two datasets:

```
//DDNAME1 DD DSN=ABC.LINUX.FB.DATA.INTEL.JULY10 etc.  
//DDNAME2 DD DSN=ABC.LINUX.DATA.PACCT.USILGPAX etc.
```

CA MICS will add 4 hours to date/time metrics for each of these datasets due to the GLOBAL TIMESHIFT=4 statement.

CA MICS will treat the numeric data from DDNAME1 as "big endian" due to the GLOBAL PLATFORM=M statement.

CA MICS will treat the numeric data from DDNAME2 as "little endian" due to the P=I parameter on the Dataset Description statement for DDNAME2, which overrides the GLOBAL PLATFORM statement.

Example 2

```
DDNAME1 ABC.LINUX.FB.DATA.INTEL.JULY10 T=-6 P=I  
DDNAME2 ABC.LINUX.DATA.PACCT.USILGPAX T=3 P=M  
DDNAME3 ABC.LINUX.DATA.PACCT.INF3TTY T=3 P=M
```

Example 2 results in JCL generation for three datasets:

```
//DDNAME1 DD DSN=ABC.LINUX.FB.DATA.INTEL.JULY10 etc.  
//DDNAME2 DD DSN=ABC.LINUX.DATA.PACCT.USILGPAX etc.  
//DDNAME3 DD DSN=ABC.LINUX.DATA.PACCT.INF3TTY etc.
```

CA MICS will subtract 6 hours from date/time metrics for the DDNAME1 dataset due to the T=-6 parameter on the Dataset Description statement.

CA MICS will treat the numeric data from DDNAME1 as "little endian" due to the P=I parameter on the Dataset Description statement.

CA MICS will add 3 hours to date/time metrics for the DDNAME2 and DDNAME3 datasets due to the T=3 parameter on the Dataset Description statements.

CA MICS will treat the numeric data from the DDNAME2 and DDNAME3 datasets as "big endian" due to the P=M parameter on the Dataset Description statements.

GLOBAL statements could have been used in Example 2 to achieve the same results for DDNAME2 and DDNAME3 as follows:

```
DDNAME1 ABC.LINUX.FB.DATA.INTEL.JULY10 T=-6 P=I  
GLOBAL TIMESHIFT=3  
GLOBAL PLATFORM=M
```

```
DDNAME2 ABC.LINUX.DATA.PACCT.USILGPAX
DDNAME3 ABC.LINUX.DATA.PACCT.INF3TTY
```

Note that P= and T= parameters are not required for DDNAME2 and DDNAME3 because the GLOBAL statement provides the platform and timeshift information.

2.3.4.2 Downloading Linux data

Linux Process Accounting data can be transported into CA MICS using File Transfer Protocol (FTP) via the mainframe or PC.

The following steps can be used to perform a FTP transfer of Linux Process Accounting data from a Linux session to a z/OS host system:

- ___ 1. Allocate a data set on the host with the following attributes:

```
Blksize=256 Lrecl=256 Recfm=FB Dsorg=PS
```

- ___ 2. Begin the FTP program using the following command:

```
FTP <hostname>
```

where <hostname> is the machine name or the IP address of the z/OS system.

Supply the host userid and password as prompted.

- ___ 3. Set binary transfer mode by entering the following command (in lower case):

```
binary
```

- ___ 4. Set the local directory name of the Linux directory (in lower case):

```
lcd <directory>
```

where <directory> is a directory on Linux which contains Process Accounting data.

- ___ 5. Once the transfer is complete, exit the FTP session by entering the following command:

```
quit
```

2.4 Database Space Modeling (DBMODEL)

This section describes the information required to define the Analyzer to the Database Space Modeling Facility. Specifically, the user must provide values for the cycle (data retention) definitions. The special considerations for defining the FILE input statements to the Database Space Modeling facility are discussed.

Section 2.3.4 of the PIOM, Database Space Modeling Facility, explains how these values are used in estimating the DASD requirements of the database, and how the user can input these values to the modeling facility.

This section covers the following topics:

- 1 - Data Retention Specifications (FILE Statements)
- 2 - DBMODEL Input Statements

2.4.1 Data Retention Specifications (FILE Statements)

Data retention specifications tell the CA MICS database how many cycles of each file to save, in each supported timespan, both online and in archive mode. Figure 2-1 is the worksheet for collecting this information.

The worksheet is organized by information area. Each file in the area is listed by name. For each file, a line is formatted to allow six definitions in the online database and two in the archive database:

- o The online database files quantify the number of cycles of data that is maintained in the DETAIL, DAYS, WEEKS, MONTHS, and YEARS timespans and the TABLES data area.
- o The two definitions for the archive database files quantify the number of cycles of data to be retained, up to the cutoff limit defined. The archive definitions have no impact on the size of the database and can be specified whether the weekly and/or monthly archive history files have actually been activated (see Section 2.3.3, CA MICS JCL Planning and Parameters, of the PIOM).

The worksheet formats provide an underscored area for the user's definition, followed by the recommended value, shown within parentheses. If the underscored area contains a value of 00, the file is not supported for the indicated timespan. To add support, perform database tailoring as described in Section 6.2, Tailoring the Database, of the System Modification Guide (SMG).

When specifying a retention limit, remember that the number may never be zero if the file has been defined to be active in the timespan.

EXAMPLE

The FILE statements listed below illustrate how to enter the information. The Accounting and Chargeback journal files, ACTJxx, and the audit files, ACTAUDIT, are not part of the normal retention of CA MICS. They are described in Chapter 7 of this guide.

```
FILE ACT  ACTLGR 00 02 00 03 02 00 000 000
FILE ACT  ACTRCP 00 00 00 00 00 18 000 000
FILE ACT  ACTSCT 00 00 00 00 00 06 000 000
FILE ACT  ACTSDT 00 00 00 00 00 06 000 000
FILE ACT  ACTBGT 00 00 00 00 00 02 000 000
```

```

FILE ACT  ACTCCA 00 00 00 00 00 01 000 000
FILE ACT  ACTSEQ 00 00 00 00 00 01 000 000
FILE ACT  ACT_YR 00 00 00 00 00 01 000 000
FILE ACT  ACT_RC 00 00 00 00 00 01 000 000
FILE ACT  ACT_YT 00 00 00 00 00 01 000 000
FILE ACT  ACT_SC 00 00 00 00 00 01 000 000
FILE ACT  ACT_CA 00 00 00 00 00 01 000 000

```

WARNING! Do NOT change the retention specifications given as zero.

+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
INSTALLATION PREPARATION WORKSHEET: Database Data Retention Definitions									
PARMs Library Member is DBMODEL									
Reference Sections: 2.4.1									
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
		Online Database Retention					Archive Cutoff		
File	DETAIL	DAYS	WEEKS	MONTHS	YEARS	TABLES	WEEKS	MONTHS	
Name	__(NA)	__(NA)	__(NA)	__(NA)	__(NA)	__(NA)	__(NA)	__(NA)	
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
ACTLGR	00(00)	__(02)	00(00)	__(03)	_(2)	00(00)	___ (000)	___ (000)	
ACTRCP	00(00)	00(00)	00(00)	00(00)	0(0)	__(18)	000 (000)	000 (000)	
ACTSCT	00(00)	00(00)	00(00)	00(00)	0(0)	__(03)	000 (000)	000 (000)	
ACTSDT	00(00)	00(00)	00(00)	00(00)	0(0)	__(03)	000 (000)	000 (000)	
ACTBGT	00(00)	00(00)	00(00)	00(00)	0(0)	__(02)	000 (000)	000 (000)	
ACTCCA	00(00)	00(00)	00(00)	00(00)	0(0)	01(01)	000 (000)	000 (000)	
ACTSEQ	00(00)	00(00)	00(00)	00(00)	0(0)	01(01)	000 (000)	000 (000)	
ACT_YR	00(00)	00(00)	00(00)	00(00)	0(0)	01(01)	000 (000)	000 (000)	
ACT_RC	00(00)	00(00)	00(00)	00(00)	0(0)	01(01)	000 (000)	000 (000)	
ACT_YT	00(00)	00(00)	00(00)	00(00)	0(0)	01(01)	000 (000)	000 (000)	
ACT_SC	00(00)	00(00)	00(00)	00(00)	0(0)	01(01)	000 (000)	000 (000)	
ACT_CA	00(00)	00(00)	00(00)	00(00)	0(0)	01(01)	000 (000)	000 (000)	
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
...5...10...15...20...25...30...35...40...45...50...55...60...65...70..									
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									

Figure 2-1. Data Retention Specifications Worksheet

2.4.2 DBMODEL Input Statements

The DBMODEL member of prefix.MICS.PARMS provides the input to the Database Space Modeling Facility.

Update the DBMODEL member using the information collected on the worksheet in Figure 2-1. To actually perform the space modeling, submit the jobs as described in Section 2.3.4.2 of the PIOM.

Chapter 3: IMPLEMENTATION

This chapter addresses approaches to implementing the accounting strategies discussed in Chapter 2 of the CA MICS Accounting and Chargeback Concepts and Overview Guide. It explains how to charge for particular resources and how to avoid charging twice for the same resource (duplicate charging).

This section contains the following topics:

- [3.1 Strategies for DASD Accounting](#) (see page 130)
- [3.2 Strategies for DB2 Accounting](#) (see page 146)
- [3.3 Strategies for UNIX Accounting](#) (see page 155)
- [3.4 Avoiding SMF Duplicate Charging](#) (see page 159)
- [3.5 Avoiding CICS Duplicate Charging](#) (see page 169)
- [3.6 Avoiding IMS Duplicate Charging](#) (see page 172)
- [3.7 Avoiding SNT Duplicate Charging](#) (see page 179)
- [3.8 Implementing Client/Server Accounting](#) (see page 187)
- [3.9 Avoiding VSE/POWER Duplicate Charging](#) (see page 189)
- [3.10 Implementing MQSeries Accounting](#) (see page 190)
- [3.11 Implementing Web Accounting](#) (see page 195)
- [3.12 Implementing Tape Accounting](#) (see page 197)
- [3.13 Avoiding IDMS Duplicate Charging](#) (see page 200)

3.1 Strategies for DASD Accounting

This section discusses charging for three types of data sets: those that reside on active DASD volumes (primary storage), those that have been migrated to migration levels 1 or 2 by DFHSM, and backup versions. See Section 2.7, DASD/DFHSM/SMS Storage Accounting, in the CA MICS Accounting and Chargeback Option Concepts and Overview Guide.

CHARGING FOR ACTIVE DATA SETS ON PRIMARY STORAGE

CA MICS Accounting and Chargeback Option supports both SMS and traditional device dependent algorithms for DASD charging. This allows you to charge your SMS data sets by Storage Class and Management Class while you continue to charge your non- SMS data sets by device dependent measurements.

If you are currently using traditional algorithms to charge for SMS data sets, you can continue to do so, or you can implement Storage Class and Management Class algorithms for your SMS data sets without affecting the charges for non-SMS data sets.

CA MICS Accounting and Chargeback Option also supports VSAM accounting from either the VTOC or ICF catalog. See Section 2.7.5, VSAM Accounting, in the CA MICS Accounting and Chargeback Option Concepts and Overview Guide.

CA MICS Accounting and Chargeback Option provides the following features to support both SMS and traditional DASD charging:

- o The ACTJDA journal file for charging data sets by device type or other traditional algorithms. You should always activate this journal file if you are charging for DASD.

VSAM data sets can be charged from this file based on the information available in the VTOCs; this is the default. If you prefer, however, you can charge your VSAM data sets based on the ICF catalog information by activating the ACTJVS journal file described next.

- o The ACTJVS journal file for charging VSAM data sets by device type or other traditional algorithms. You only need to activate this journal file if you want to charge for VSAM data sets based on the information available in the ICF catalogs. The default is to charge for VSAM data sets

in the ACTJDA file described above.

- o The ACTJHF journal file for charging HFS and zFS data set by device type or other traditional algorithms. You only need to activate this journal file if you want to charge for HFS and zFS data sets. The default is to charge for HFS and zFS data set in the ACTJDA file.
- o The ACTJMS journal file for charging SMS data sets by Storage Class and Management Class algorithms. You need to activate this journal file only if you want to charge your SMS data sets by SMS algorithms. If you do not activate this journal file, your SMS data sets will be charged in the ACTJDA journal file (and in the ACTJVS journal file if it is active).

If this file is active, it will contain all charges for SMS data sets, both VSAM and non-VSAM, based on the information available in the VTOCs.

NOTE: Managed data sets are identified by a non-blank value in the VCA Storage Class (STORSTGC) variable.

- o A special SMS Storage Class invoice category (7230) that contains one charging element for each Storage Class and also a default charging element (computation codes 1830-1836). These charging elements can be used in the SMS journal file and allow you to have a different rate for each Storage Class, if necessary.
- o A special SMS Management Class invoice category (7240) that contains one charging element for each Management Class and also a default charging element (computation codes 1840-1850). These charging elements can be used in the SMS journal file and allow you to have a different rate for each Management Class, if necessary.
- o Device dependent and megabyte-hour charging elements for use in the non-VSAM and VSAM journal files (computation codes 1800-1804, 1811-1814, and 1820).
- o Sample SMS charging algorithms are shipped with the SMS non-VSAM and VSAM journal files.
- o Support for DASD accounting from the VCA Analyzer files at either the DETAIL or DAYS timespan.

The content of the journal files depends on which ones you

have activated for charging as follows:

- o If only the ACTJDA journal file is active, all data sets, VSAM and non-VSAM, SMS and non-managed, are charged in that file.

ACTJDA Journal File

```
-----  
|      SMS data sets  (VSAM and non-VSAM)      |  
|  Non-managed data sets (VSAM and non-VSAM)  |  
-----
```

- o If the ACTJDA and ACTJMS journal files are active, all non-managed data sets are charged in the ACTJDA file, and all SMS data sets are charged in the ACTJMS file.

ACTJDA Journal File

```
-----  
|  Non-managed data sets (VSAM and non-VSAM)  |  
-----
```

ACTJMS Journal File

```
-----  
|  SMS data sets  (VSAM and non-VSAM)          |  
-----
```

This is the approach that we recommend.

- o If the ACTJDA, ACTJHF, ACTJMS, and ACTJVS journal files are all active, non-managed non-VSAM data sets are charged in the ACTJDA file, all HFS and zFS data sets are charged in the ACTJHF file, all SMS data sets (VSAM and non-VSAM) are charged in the ACTJMS file, and non-managed VSAM data sets are charged in the ACTJVS file.

ACTJDA Journal File

```
-----  
|  Non-managed data sets (non-VSAM only)        |  
-----
```

ACTJHF Journal File

```
-----  
|  HFS and zFS data set                        |  
-----
```

ACTJMS Journal File

SMS data sets (VSAM and non-VSAM)

ACTJVS Journal File

Non-managed data sets (VSAM only)

- o If only the ACTJDA and ACTJVS journal files are active, all non-VSAM data sets (both SMS and non-managed) are charged in the ACTJDA file and all VSAM data sets (both SMS and non-managed) are charged in the ACTJVS file.

ACTJDA Journal File

Non-VSAM data sets (SMS and non-managed)

ACTJVS Journal File

VSAM data sets (SMS and non-managed)

- o If only the ACTJDA and ACTJHF journal files are active, all HFS and zFS data sets are charged in the ACTJHF file and all non-managed non-VSAM data sets are charged in the ACTJDA file.

ACTJDA Journal File

Non-VSAM data sets (SMS and non-managed)

ACTJHF Journal File

HFS and zFS data set

IMPLEMENTING SMS CHARGING ALGORITHMS

See Section 3.1.1 for instructions on how to implement SMS Charging Algorithms.

CHARGING FOR MIGRATED DATA SETS

CA MICS Accounting and Chargeback Option supports charging for migrated data sets with the ACTJMG Migrated Data Journal file. This journal file is derived from the HSMMIG file and contains information on migrated data sets from the DFHSM Migration Control Data Set (MCDS).

The ACTJMG journal file allows you to charge different rates for data sets based on the migration level of the data, level 1 or 2. This can be done using control variable charging based on the HSMLEVEL variable, or using algorithm qualification based on SUBTYPE. See Section 4.3.1.4, Specifying Algorithms, and Section 4.3.1.5, Qualifying Algorithms, for more information on control variable charging and algorithm qualification.

You can also charge different rates based on the SMS Management Class value by using control variable charging based on the MGMTCLAS variable, or by using Algorithm Qualification based on SUBSYSID.

Thus, used in conjunction with the VCA primary storage journal files discussed in the previous section, the ACTJMG journal file allows you to implement the rate pyramid shown in Section 2.7.3 of the CA MICS Accounting and Chargeback Option Concepts and Overview Guide.

NOTE: If you activate this journal file, you must specify NO for the Accounting Options parameter that indicates whether HSM data sets will be passed to the VCA DAA and _VS journal files. Otherwise, duplicate charging may occur. See Section 4.15, Specifying Whether HSM Data is Available, for more information on this specification.

CHARGING FOR BACKUP VERSIONS

CA MICS Accounting and Chargeback Option supports charging for backup versions of data sets via the ACTJBC Backup Data Journal file. This journal file is derived from the HSBBAC file and contains information on backup versions of data sets

from the DFHSM Backup Control Data Set (BCDS).

The SMS Management Class is often used to indicate the backup frequency of the data set and the number of backup versions that must be kept. Because data sets that are backed up more frequently, or require an extensive number of backup copies require more space and thus have a higher cost than do those with less stringent requirements, the ACTJBC journal file allows you to charge different rates for data sets based on the SMS Management Class value by using control variable charging based on the MGMTCLAS variable, or via Algorithm Qualification based on SUBSYSID.

See Section 4.3.1.4, Specifying Algorithms, and Section 4.3.1.5, Qualifying Algorithms, for more information on control variable charging and algorithm qualification.

Thus, used in conjunction with the VCA primary storage journal files discussed in the earlier section, the ACTJBC journal file allows you to implement the rate pyramid shown in Section 2.7.4 of the CA MICS Accounting and Chargeback Option Concepts and Overview Guide.

NOTE: An alternate approach to using the ACTJBC journal file to charge for backup versions of data sets would be to have proportional rates for data sets on primary storage based on their backup requirements (frequency and number of versions kept). Since the size of the backup versions will be proportional to the size of the data set on primary storage, if you charge for megabyte hours based on Management Class, and if you can identify the data set's backup requirements based on its Management Class value, this should provide a reasonable approximation of its backup costs.

The following sections provide additional strategic information to help you account for DASD usage:

- 1 - Implementing SMS Accounting
- 2 - Auditing DASD Charges
- 3 - Avoiding VCA Duplicate Charging

3.1.1 Implementing SMS Accounting

Follow this checklist to implement resource usage charges for SMS (System Managed Storage) using the CA MICS VCA Analyzer and CA MICS Accounting and Chargeback.

- ___ 1. Ensure that CA MICS Accounting and Chargeback is installed in each CA MICS unit that contains the VCA Analyzer.

If you are using CA MICS Accounting and Chargeback in a production environment, we recommend that you implement your SMS algorithm in a test unit before modifying your production CA MICS unit(s).

- ___ 2. Consult your DASD Administrator or Systems Programmer to determine the SMS Storage Class and Management Class values in use at your installation. You will need to be informed if these values change. Verify that the VTOCs of all packs containing data sets to be charged are scanned and input to the CA MICS DASD Space Analyzer.

WARNING: CA MICS Accounting and Chargeback uses the Storage Class field to determine if a data set is managed by SMS or not. Normally, all non-managed data sets have a blank value for Storage Class. If your installation uses an exit or other means to populate Storage Class for non-managed data sets, they will be charged in the ACTJMS SMS journal file, according to your SMS algorithm, if it is active.

- ___ 3. Determine the rates per megabyte hour to be used for each Storage Class and for each Management Class.
- ___ 4. Determine whether you wish to charge from the VCA Analyzer files at the DETAIL or at the DAYS timespan. Modify prefix.MICS.PARMS(VCAOPS) so that it contains one of the following statements:

ACCOUNTING DETAIL

or

ACCOUNTING DAYS

The DSNAME, DSNODE, and VOLSER variables are only

present if you use the DETAIL timespan. If you do not need to reference these variables in your COSTRTE exit, and if you do not need a separate record for each data set in the journal files, you can use the DAYS timespan.

Submit prefix.MICS.CNTL(VCAPGEN) and ensure that it completes with condition code 0.

Perform this step for each CA MICS unit that contains both the VCA Analyzer and CA MICS Accounting and Chargeback.

- ___ 5. Select Option 5, Charging Element Definition, from the Accounting Parameter Specification and Generation Menu.

Locate the SMS computation codes (1830-1836 and 1840-1850). Codes 1831-1836 and 1841-1850 are shipped with the phrase "Value n" in the Description and Unit fields. Select each computation code that you will use and modify the Description and Units fields to specify a Storage or Management Class value used at your installation.

For example, suppose your installation uses two Storage Class values, Specific and Standard, and three Management Class Values, LARGE, STANDARD, and CRITICAL. You would need to modify the Storage Class computation codes 1831 and 1832, and the Management Class computation codes 1841, 1842, and 1843 to reflect these values instead of the phrase "Value n".

HINT: Once you select a computation code, you can scroll DOWN (or UP) to position the display to the next (or previous) code.

You do not need to submit the CHRGELEM generation job at this point. It will be run when you submit the MAGRUN job in the next step.

- ___ 6. Select Option 6, Rate Table, from the Accounting Parameter Specification and Generation Menu, and select the desired unit database.

Select the ACTJDA VCA journal file and make sure that it contains the algorithm(s) (computation codes and rates) that you will use to charge any non-managed data sets.

HINT: After you select the journal file, choose Option 3 from the Journal File Options menu and a list of algorithms will be displayed. Select each algorithm to review or modify it. If you have more than one algorithm, you will need to use Option 4 to qualify them.

Select the ACTJMS VCA journal file. Review the sample Journal File Specifications (Option 1) and the sample SMS algorithm (Option 3). The algorithm contains the following two lines:

Comp Code	Rate	Control Variable	Comp Code Description
1830	0	STORCLAS	CHARGE FOR DEFAULT STORAGE CLASS
1840	0	MGMTCLAS	CHARGE FOR DEFAULT MANAGEMENT CLASS

This means that each SMS data set will be charged as follows:

Data set charge = megabyte hours * Storage Class rate
+
megabyte hours * Management Class rate

NOTE: CA MICS Accounting and Chargeback uses the variables STORCLAS and MGMTCLAS as the control variables in this algorithm. These variables are assigned from the VCA variables STORSTGC and STORMGTC, respectively.

Specify the rate for default storage class on the STORCLAS line. Then select this line to display the Variable Values Specifications panel. Enter a rate for each computation code you are using and delete any other rows.

For example, if you are using computation codes 1831 and 1832 for Storage Class values of SPECIFIC and STANDARD, you will modify the rates on these lines and delete the lines for computation codes 1833 and 1834. The default computation code and rate will be used to charge any other Storage Class values that are encountered.

Now specify the rate for default management class on the MGMTCLAS line. Then select this line to display the Variable Values Specifications panel. Enter a

rate for each computation code you are using and delete any other rows.

Submit the MAGRUN job when you END from the Rate Table and ensure that it completes with condition code 0. Review the MICSLOG to ensure that it ends with the BAS00172I message GENERATION PROCESS COMPLETED SUCCESSFULLY.

Review the Schedule of Rates report produced by the MAGRUN to verify your computation codes and rates for the VCA journal files.

Perform this step for each CA MICS unit that contains both the VCA Analyzer and CA MICS Accounting and Chargeback.

- ____ 7. This completes the implementation of your SMS charging algorithm. The ACTJMS journal file will be created in the next CA MICS DAILY run; you should review the Journal Run Status Log (MWF;4;2;4;5;1;1) to validate the charges.

You can also refer to the Daily Charges Summary Report by submitting `prefix.MICS.CNTL(BGTCNTL)`. The Storage Class charges are reported under invoice category 7230, and the Management Class charges are reported under invoice category 7240.

Refer to Section 3.1.2 for information on how to audit your DASD charges.

3.1.2 Auditing DASD Charges

CA MICS Accounting and Chargeback Option draws data from the CA MICS Space Analyzer Option's VCADAA file and, optionally, from the VCA_VS file or HFSDIR. The VCADAA file contains both VSAM and non-VSAM data sets. The data is based on information obtained from the VTOCs. The VCA_VS file also contains VSAM data sets, but the data in this file is obtained from the ICF VSAM catalogs. Both files contain SMS data sets as well as non-managed data sets. The HFSDIR file is obtained from IBM's OS/390 UNIX Systems Services HFS File System.

The VCA data is charged in one or more of the following four CA MICS Accounting and Chargeback Option journal files:

- o ACTJDA (DASD Journal File)
- o ACTJMS (SMS Journal File)
- o ACTJVS (VSAM Journal File)
- o ACTJHF (HFS Journal File)

The journal files are created from the VCA files at either the DETAIL or DAYS timespan as determined by the ACCOUNTING DETAIL or ACCOUNTING DAYS statement in the VCAOPS member of prefix.MICS.PARMS.

The ACTJDA and ACTJMS journal files are always derived from the VCADAA file. The ACTJVS journal file is derived from the VCA_VS file and the ACTJHF journal file is derived from HFSDIR file.

HSM (Hierarchical Storage Manager) migrated data sets can be excluded from the ACTJDA and ACTJVS journal files using the HSM option on the General Installation Accounting Specifications panel. HSM data sets are identified by a value of 'HS' or 'HV' in the DAADSTYP variable.

This section explains how to audit the journal files that you are using against the VCADAA, VCA_VS, and HFSDIR FILES.

- o If only the ACTJDA DASD journal file is active:
 - All data is obtained from the VCADAA file, but any observations in which all quantities being charged are less than or equal to zero are dropped from the journal file. The following SAS code can be used to audit the

ACTJDA file against the VCADAA file.

```
%INCLUDE SOURCE(#ACTOPTS);
DATA WORK.JDA;
SET &dVCat..VCADAA01;    (where d is the unit identifier,
                        and t is either DETAIL or DAYS)

IF DAADSTYP NE: "&HSMOPT";
IF quantity > 0;          (where quantity is the name of the
                        charging element)

RUN;
```

The WORK.JDA file should contain the same number of observations as the DETAIL.ACTJDA01 journal file, unless you are doing journal file prorating on this file.

- o If the ACTJDA DASD and the ACTJMS SMS journal files are active:

- All data is obtained from the VCADAA file. Any observations in which all quantities being charged are less than or equal to zero are dropped from the journal files. SMS data sets are charged in the ACTJMS journal file and non-managed data sets are charged in the ACTJDA journal file. The following SAS code can be used to audit the journal files against the VCADAA file.

```
%INCLUDE SOURCE(#ACTOPTS);
DATA WORK.JDA WORK.JMS;
SET &dVCat..VCADAA01;    (where d is the unit identifier,
                        and t is either DETAIL or DAYS)

IF quantity > 0;          (where quantity is the name of the
                        charging element)

IF STORSTGC = ' ' THEN DO;
    IF DAADSTYP NE: "&HSMOPT" THEN OUTPUT WORK.JDA;
END;
ELSE OUTPUT WORK.JMS;
RUN;
```

The WORK.JDA and WORK.JMS files should contain the same number of observations as the DETAIL.ACTJDA01 and the DETAIL.ACTJMS01 journal files, respectively, unless you are doing journal file prorating on these files.

- o If the ACTJDA DASD, the ACTJMS SMS, and the ACTJVS VSAM

journal files are active:

- The data in the ACTJDA and ACTJMS journal files is obtained from the VCADAA file. The data in the ACTJVS journal file is obtained from the VCA_VS file. Any observations in which all quantities being charged are less than or equal to zero are dropped from the journal files.

SMS data sets (VSAM and non-VSAM) are charged in the ACTJMS journal file; non-managed non-VSAM data sets are charged in the ACTJDA journal file, and non-managed VSAM data sets are charged in the ACTJVS journal file. The following SAS code can be used to audit the journal files against the VCADAA and VCA_VS files.

```
%INCLUDE SOURCE(#ACTOPTS);
DATA WORK.JDA WORK.JMS;
SET &dVCAat..VCADAA01;    (where d is the unit identifier,
                           and t is either DETAIL or DAYS)

IF quantity > 0;          (where quantity is the name of the
                           charging element)

IF STORSTGC NE ' ' THEN OUTPUT WORK.JMS;
ELSE IF (DAADSTYP = 'OS') OR (DAADSTYP = 'HS') THEN DO;
  IF DAADSTYP NE: "&HSMOPT" THEN OUTPUT WORK.JDA;
END;
RUN;

DATA WORK.JVS;
SET &dVCAat..VCA_VS01;    (where d is the unit identifier,
                           and t is either DETAIL or DAYS)

IF quantity > 0;          (where quantity is the name of the
                           charging element)

IF DAADSTYP NE: "&HSMOPT";
IF STORSTGC = ' ' THEN OUTPUT WORK.JVS;
RUN;
```

The WORK.JDA, WORK.JMS, and WORK.JVS files should contain the same number of observations as the DETAIL.ACTJDA01, the DETAIL.ACTJMS01, and the DETAIL.ACTJVS01 journal files, respectively, unless you are doing journal file prorating on these files.

- o If the ACTJDA DASD and the ACTJVS VSAM journal files are active:

- The data in the ACTJDA journal files is obtained from the VCADAA file. The data in the ACTJVS journal file is obtained from the VCA_VS file. Any observations in which all quantities being charged are less than or equal to zero are dropped from the journal files.

Non-VSAM data sets are charged in the ACTJDA journal file, and VSAM data sets are charged in the ACTJVS journal file. The following SAS code can be used to audit the journal files against the VCADAA and VCA_VS files.

```
%INCLUDE SOURCE(#ACTOPTS);
DATA WORK.JDA;
SET &dVCAat..VCADAA01;    (where d is the unit identifier,
                           and t is either DETAIL or DAYS)

IF quantity > 0;          (where quantity is the name of the
                           charging element)

IF (DAADSTYP = 'OS') OR (DAADSTYP = 'HS') THEN DO;
  IF DAADSTYP NE: "&HSMOPT" THEN OUTPUT WORK.JDA;
END;
RUN;

DATA WORK.JVS;
SET &dVCAat..VCA_VS01;    (where d is the unit identifier,
                           and t is either DETAIL or DAYS)

IF quantity > 0;          (where quantity is the name of the
                           charging element)
IF DAADSTYP NE: "&HSMOPT";

OUTPUT WORK.JVS;
RUN;
```

The WORK.JDA and the WORK.JVS files should contain the same number of observations as the DETAIL.ACTJDA01 and the DETAIL.ACTJVS01 journal files, respectively, unless you are doing journal file prorating on these files.

- o If the ACTJHF HFS journal file is active:

- All data is obtained from the HFSDIR file, but any observations in which all quantities being charged are

less than or equal to zero are dropped from the journal file. The following SAS code can be used to audit the ACTJHF file against the HFSDIR file.

```
%INCLUDE SOURCE(#ACTOPTS);
DATA WORK.JHF;
SET &dHFSt..HFSDIR01;    (where d is the unit identifier,
                        and t is either DETAIL or DAYS)

IF DAADSTYP NE: "&HSMOPT";
IF quantity > 0;        (where quantity is the name of the
                        charging element)

RUN;
```

The WORK.JHF file should contain the same number of observations as the DETAIL.ACTJHF01 journal file, unless you are doing journal file prorating on this file.

NOTE: Although the CA MICS Accounting and Chargeback Option product supports HFS data for billing, we strongly discourage the use of the HFSDIR file for accounting due to the following:

- 1) Only mounted file systems are scanned and contribute file information to the HFSDIR file.
- 2) The space allocated for individual file(s) and/or directory(ies) does not account for the unused but allocated space in the file system.

An alternative for HFS file system accounting is the VCADAA file. It contains a single record for each HFS data set (both mounted and unmounted) that contains the total space allocated to the file system.

3.1.3 Avoiding VCA Duplicate Charging

- Avoiding HSM/VCA Duplicate Charging

Duplicate charging for migrated data sets can occur between HSM and VCA if Stage 1 migrated data sets reside on the volumes scanned by the CA MICS Space Collector Option.

If you charge from the HSM Migrated Data Journal File and also from the VCA DAA or VSAM Resource Journal Files, then you must take care to avoid duplicate charging.

HOW TO AVOID HSM/VCA DUPLICATE CHARGING

You can prevent HSM migrated data sets from being passed to the VCA DAA and VSAM Resource Journal Files by specifying NO for "Pass HSM data to DAA and _VS journal files" in Accounting Options General Installation Accounting Specifications and running the ACTXOPTS job.

Display this panel by selecting Option 3;2;1 on the Installation Accounting Primary Options Menu.

- Avoiding File System Duplicate Charging

The Data Set Allocation (VCADAA) and VSAM Data Set Allocation (VCA_VS) files contains a single CA MICS observation for each z/OS data set including UNIX System Services (USS) data sets. The USS Directory Entry (HFSDIR) file contains a single CA MICS observation for each directory entry in file system data sets. With CA MICS Accounting and Chargeback Option, you can charge for file system data sets at either the single file image (VCADAA/VCA_VS) level or the directory entry (DIR) level. If you have activated the ACTJHF (HFS Resource) journal file to charge for file system data sets at the directory entry level, CA MICS will prevent duplicate charging from any other VCA files.

NOTE: Although the CA MICS Accounting and Chargeback Option product supports USS file systems data for billing, we strongly discourage the use of the HFSDIR file for accounting due to the following:

- 1) Only mounted file systems are scanned and contribute file information to the HFSDIR file.
- 2) The space allocated for individual file(s)

and/or directory(ies) does not account for the unused but allocated space in the file system.

A better alternative for USS file system accounting is the VCADAA file. It contains a single record for each USS file system data set (both mounted and unmounted) that contains the total space allocated to the file system.

3.2 Strategies for DB2 Accounting

This section addresses approaches to implementing the DB2 accounting strategy discussed in Section 2.10 of the CA MICS Accounting and Chargeback Concepts and Overview Guide. It explains how to charge for DB2 usage and how to avoid duplicate charging for DB2 CPU time.

The information is presented in the following sections:

- 1 - Implementing DB2 Accounting
- 2 - Avoiding DB2 Duplicate Charging

3.2.1 Implementing DB2 Accounting

The following checklist will help you to implement resource usage charges for your DB2 applications using the CA MICS DB2 Analyzer and CA MICS Accounting and Chargeback.

- ___ 1. Verify the account code structure and derivation routine defined for DB2.

During the process of installing the CA MICS DB2 Analyzer, you define the account code structure and the derivation routine that is used for the DB2DSU file. The DB2DSU file is the basis for the DB2 Resource Accounting Journal File (ACTJDS). The values in the account fields determine the level of granularity available for charging and will be used to assign cost center values for the accounting records.

The account code structure is defined in member `sharedprefix.MICS.PARMS(DB2ACCT)`. The recommended Account Code fields are:

- o Authorization ID--user or application identifier
- o DB2 Plan--application area
- o Environment--based on the DB2 connection identifier which usually contains the VTAM application name
- o Distributed Thread Type--Remote call indicator

The derivation routine is a SAS language routine that assigns values to the account fields from the DB2 statistics variables. It is defined in member `sharedprefix.MICS.PARMS(DB2ACRT)`. It should define the account field values as follows:

```
DB2ACT1=DB2AUTH;  
DB2ACT2=DB2PLAN;  
DB2ACT3=DB2CONN;  
DB2ACT4=DB2THDTY;
```

Refer to Chapter 7 of the CA MICS DB2 Analyzer Guide for additional information.

- ___ 2. Verify and optionally update the cost routine for DB2.

The COSTRTE routine is SAS code that assigns values to your installation's defined cost center variables as each record is processed by the CA MICS system. It is stored in member `sharedprefix.MICS.PARMS(COSTRTE)`.

Edit the COSTRTE member and update or add code to assign the appropriate cost center values from the DB2ACTn fields. The ROUTINE value for DB2 data is DYDB2FMT.

In addition to assigning the COSTCTRn values, the code should assign a temporary variable called ACTDB2FG a value of 1 if the DB2 statistical record contains TCB CPU time that should be charged.

Using the recommended strategy, only remote data requests, and CICS transactions (at older release levels) should be charged CPU time from the DB2 statistical file.

If you are running CICS CTS Version 2.2 (or higher) and DB2 Version 6 (or higher) then you should NOT charge for CICS CPU time, and instead ONLY charge for remote data request CPU time. The code should read as follows:

```
IF DB2ACT4=1 THEN ACTDB2FG = 1;
ELSE ACTDB2FG = 0;
```

If you are running CICS CTS Version 2.1 (or earlier) or DB2 Version 5 (or earlier), then you should charge for both CICS CPU time and remote data request CPU time. The code should read as follows:

```
IF DB2ACT3 =: 'CIC' OR DB2ACT4=1 THEN ACTDB2FG=1;
ELSE ACTDB2FG = 0;
```

This code can be copied from the sample COSTRTE in `sharedprefix.MICS.HOLD.PARMS`.

The ACTDB2FG variable is used as a control variable in the sample rate table for the ACTJDS DB2 journal file, and must be assigned in COSTRTE or it will have a missing value.

Refer to Section 4.1.3, Assigning Cost Center Values, and Section 3.2.2, Avoiding DB2 Duplicate Charging, for additional information.

___ 3. Update the CA MICS Accounting and Chargeback Rate Table.

You must assign a rate to each charging element that you wish to use for DB2 applications. The sample rate table contains rates of 0 for computation code 1205, Class 2 TCB CPU time, based on the ACTDB2FG control variable.

If you also want to charge DB2 users an add-on cost for using DB2 services, you must enter another computation code and rate as well.

The following are instructions for modifying the sample ACTJDS rate table. This sample is copied into your Rate Table the first time that the ACTJDS file is selected.

- o Using the MWF online panels for CA MICS Accounting and Chargeback, select the DB2 journal file, ACTJDS, on the Journal File Specification panel (MWF;4;2;3;6).
- o Select Option 3, Algorithm Specification, from the File Options menu, and select the sample JDS algorithm.

The ACTDB2FG control variable used with computation code 1205 is the temporary variable assigned in Step 2 that selects only CICS and remote calls for charging. Leave the default rate with a value of zero. Select computation code 1205 to display the Variable Value Specifications panel and modify the 0 rate shown for value 1. This will cause the Class 2 TCB time to be charged only when ACTDB2FG has a value of 1.

Press END to return to the Algorithm Specification panel.

If you wish to implement charges to DB2 users for DB2 overhead, the recommended computation code is 1212, DSUSGPGR, the getpage buffer requests for DB2 calls. It should be charged to all applications.

If you also want to charge DB2 resource usage, we recommend that you use computation code 1205, DSUTC2TM, the DB2 TCB CPU Time Consumed(Class 2).

Refer to Section 4.3.1, Defining the Rate Table, for additional information.

- ___ 4. Submit the MAGRUN job to activate charging for DB2 resources.

When you END from the Rate Table Journal File Selection panel, you will be prompted to submit the MAGRUN batch job. Submit the job and ensure that it completes normally to apply the changes you have made and activate chargeback for DB2 applications.

3.2.2 Avoiding DB2 Duplicate Charging

Duplicate charging for CPU time can occur in DB2 when the calling region is TSO, BATCH, or IMS because the CPU time will be reported in the calling region as well as in DB2.

Special consideration must be given to charging for DB2 CPU time when the calling region is CICS.

- For DB2 Version 6 (and higher) and CICS CTS Version 2.2 (and higher), duplicate charging can occur for CICS. Beginning with CTS 2.2, CICS regions exploit the IBM open transaction environment (OTE) to connect with DB2; the DB2 CPU time is reported in the CICS transaction record as well as in DB2.
- For DB2 Version 5 (or lower) or CICS CTS 2.1 (or lower), there is no issue with duplicate charging for CICS because the DB2 CPU time is NOT reported back to CICS calling regions.

If you charge for DB2 resource utilization from the ACTJDS DB2 Resource Journal File and also charge for TSO, batch, CICS, and/or IMS resource utilization from the journal files associated with those components, then you must take care to avoid duplicate charging for CPU times.

The standard computation codes whose associated data elements contain DB2 CPU time follow.

Comp Code	Data Element	Description
----	-----	-----
1201	DSUTCBTM	TCB Time
1203	DSUCPUTM	Accumulated CPU Time
1206	DSUCPODB	CPU Time Only on a DB2 TCB

WARNING: Beginning with DB2 Version 6, DB2 no longer records SRB CPU time for DB2 transactions. Since DB2 Version 6, DSUTCBTM and DSUCPUTM are equal. Therefore, you should, never select both computation codes 1201 and 1203 for charging.

In addition, for DSU file observations where the DB2PTASK data element has a value of ACUMAC, CHILD, or ROLLUP, or data element DSUCATYP has a value of 7,8, or 12, DSUCPUTM and DSUCPUTM contain the save value.

When you select both computation codes 1203 and 1206 for charging, only apply charges for computation code 1206 in the following circumstance:

- o When the DB2PTASK value is not ACUMAC, CHILD, or ROLLUP
 - o and DSUCATYP has a value other than 7, 8, or 12.
- Otherwise you will incur duplicate charging.

AVOIDING DUPLICATE CPU TIME CHARGES IN AN ENVIRONMENT WITH SPECIAL PROCESSORS

There are two types of IBM special processors, zSeries Application Assist Processor (zAAP) and z9 Integrated Information Processor (zIIP).

For DB2 transactions, the portion of CPU time spent executing on special processors (zIIP) is kept separate from the portion of CPU time used by the transaction while it is executing on a standard processor. The CA MICS data element that contains the special processor CPU time is:

DSUCPUZ1 Accumulated CPU Time Consumed on zIIP

There are no duplicate charging issues for special processor CPU times.

The CPU time spent by a transaction that could have executed on a special processor, but executed on a standard CP because a special processor was not available, is considered special processor eligible CPU time.

Special processor eligible CPU time is a subset of TCB CPU Time (DSUTCBTM) or CPU Time (DSUCPUTM). The CA MICS data element that contains special processor eligible CPU time is:

DSUELGZP Accumulated CPU Time zIIP-Eligible Work

The potential exists for duplicate charging for special processor eligible CPU time if you want to use a different rate for eligible CPU time than the rate that is used for work that had to run on the standard processors. It is important to understand, that if you charge for both special processor eligible CPU time and either the TCB or CPU time, you will be charging for the special processor eligible CPU time twice.

If you want to charge the same rate for special processor eligible CPU time as the rate for TCB CPU time, we recommend that you use the COMP codes for DSUTCBTM or DSUCPUTM.

If you want to charge different rates for special processor eligible CPU time and non-special processor eligible CPU time or non-special processor eligible TCB time, use the following computation codes:

o Special Processor Eligible CPU Time

COMP CODE	Element	Label
1261	DSUELGZP	Accumulated CPU Time zIIP-Eligible Work

o CPU Time Excluding Special Processor Eligible CPU Time

COMP CODE	Element	Label
1262	DSUXSPTM	CPU Time Excluding Special CPU Time

The computation of DSUXSPTM is:

$$DSUXSPTM = DSUCPUTM - DSUELGZP$$

WARNING: Beginning with DB2 Version 10.1, supported by product change DB26790, the raw data used to populate data element DSUELGZP is no longer collected by DB2, so data element DSUELGZP is set to zero by CA MICS.

Prior to DB2 Version 10.1, data element DSPXSPTM contained total CPU time (DSUCPUTM) minus specialty processor eligible CPU time (DSUELGZP).

Beginning with DB2 Version 10.1, DSUCPUTM and DSUXSPTM will always be equal. To avoid duplicate charging, you should not charge for both the 1262 (DSUXSPTM) and 1203 (DSUCPUTM) computation codes.

HOW TO AVOID DUPLICATE CHARGING

You can avoid duplicate charging for DB2 CPU time by using a zero rate when the connection identifier (DB2CONN) is TSO, BATCH, CICS (see notes above), or an IMS identifier.

This can be accomplished in Rate Table Algorithm

Specification by using control variable charging as follows:

- 1) Assign DB2CONN to a DB2ACTn variable in sharedprefix.MICS.PARMS(DB2ACRT).

Assigning DB2CONN to a DB2ACTn variable causes it to be available in the DAYS timespan, where charging occurs.

- 2) Select Rate Table (Option 3;6 on the Installation Accounting Primary Options Menu), select the DB2 unit if necessary, and select the ACTJDS DB2 Resource Journal File.
- 3) If you have not previously done so, select Option 1 and enter the file specifications.
- 4) Select Algorithm Specification, Option 3, from the File Options menu and select each algorithm in turn.
- 5) Enter DB2ACTn (where n is the number of the account code that contains DB2CONN) in the Control Variable column for the CPU time computation code.
- 6) Enter the normal rate in the Rate column.
- 7) Select the row to display the Variable Value Specifications panel.
- 8) Enter rows with control variable values of TSO, BATCH, IMS (and CICS CTS Version 2.2 or higher and if DB2 Version 6 or higher) identifiers, respectively, and rates of 0.
- 9) END from Rate Table and submit MAGRUN when requested.
- 10) Repeat steps 1 through 9 for each additional DB2 unit.

3.3 Strategies for UNIX Accounting

This section addresses approaches to implementing the UNIX accounting strategies discussed in Section 2.9 of the Concepts and Overview Guide. It explains how to charge for use of your UNIX operating systems and how to avoid duplicate charging for UNIX activity.

The information is presented in the following sections:

- 1 - Implementing UNIX/MeasureWare Accounting
- 2 - Avoiding MeasureWare Duplicate Charging

3.3.1 Implementing UNIX/PCS Accounting

The following checklist will help you to implement usage charges for your UNIX systems using the CA MICS Analyzer for HP PCS and CA MICS Accounting and Chargeback. The CA MICS Analyzer for HP PCS, CA MICS Accounting and Chargeback, and HP PCS must be installed before performing these steps.

___ 1. Define the PCS parameters.

The application names that you will use for charging must be defined in the scopeux program startup parameters for PCS.

If you will be charging from the UNIX/PCS Process Data Journal, you will need metrics for all processes in the PCS Process Log. You will probably need to add the "Short-lived" startup parameter. By default, PCS does not collect metrics for short-lived processes in the PCS Process Log.

See "Using scopeux and Related Programs" in the HP Performance Collection Software User's Manual for additional information about the PCS startup parameters.

___ 2. Update the cost routine for UNIX/PCS.

The COSTRTE routine is SAS code that assigns values to your installation's defined cost center variables as each record is processed by the CA MICS system. It is stored in member sharedprefix.MICS.PARMS(COSTRTE). The COSTRTE member in sharedprefix.MICS.HOLD.PARMS includes sample code to assign cost centers for UNIX/PCS data. Notice that the sample code illustrates charging from either the UNIX Application Performance File (AUCAPL) or the UNIX Process Activity File (AUCKPR). The elements available to populate the cost centers differ depending on the file.

Edit the COSTRTE member in sharedprefix.MICS.PARMS and update or add code to correctly assign the UNIX/PCS cost center variables for your installation. The ROUTINE value for UNIX/PCS data is DYAUFCMT.

Refer to Section 4.1.3, Assigning Cost Center Values, for additional information.

___ 3. Define qualification group(s).

If you will be charging for many applications in the same way based on application number, define one or more Subsysid qualification groups, each containing the application numbers to be charged by a single algorithm (an algorithm is a set of charging elements and associated rates).

Note that the same application number cannot appear in more than one group because this would allow the application to be charged more than once.

___ 4. Update the CA MICS Accounting and Chargeback Rate Table to define your UNIX/PCS charging strategy.

You must define rates for each charging element that you wish to use for UNIX/PCS systems. The recommended computation codes are 2501 and 2516 in the UNIX/PCS Application Data Journal (ACTJXA) and 2551 and 2563 in the UNIX/PCS Process Data Journal (ACTJXP). When computation code 2516 is not available for a UNIX system, use computation codes 2512 and 2513, logical read and write I/Os, to charge for I/O usage. Likewise, when computation code 2563 is not available, use computation code 2562.

Use algorithm qualification to specify the work to be charged by each algorithm if either of the following conditions is true:

- o You are charging from both UNIX/PCS journal files.
- o You have defined more than one algorithm for either of the UNIX/PCS journal files. You might need multiple algorithms if you were charging differently based on system or application.

On the Algorithm Qualification panel, use the qualification group name(s) defined in Step 3 to simplify data entry.

Refer to Section 4.3.1, Defining the Rate Table, for additional information.

___ 5. Submit the MAGRUN job to activate charging for UNIX/PCS resources.

When you finish editing the rate table as directed in

Step 4, you will be prompted to submit the MAGRUN batch job. Submit the job and ensure that it completes normally to apply the changes and activate charging for your UNIX/PCS systems.

3.3.2 Avoiding UNIX/PCS Duplicate Charging

Duplicate charging can occur if both the UNIX/PCS Application Data Journal File (ACTJXA) and the UNIX/PCS Process Data Journal File (ACTJXP) are active because you can charge for the same activity from both files. This is because data on CPU and disk I/O activity is passed to both journal files from their database component files but measured in different ways.

The UNIX Application Performance File (AUCAPL), the source of the data in ACTJXA, is interval driven; it reports on application activity in regular intervals. The UNIX Process Activity File (AUCKPR), the source of the data in ACTJXP, is event driven; it reports on application processes as they complete. So, although the data is different, if you charge for the same applications using both journal files, you will have duplicate charging.

HOW TO AVOID DUPLICATE CHARGING

To avoid duplicate charging, either use only one of the two available journal files, or use one journal file to charge for some of the applications and the other journal file to charge for the others.

One approach is to use ACTJXA to charge for applications 2 through 32; and to use ACTJXP to charge for application 1, Other. To use this approach, you should define a Subsysid group that includes applications 2 through 32. Then use this Subsysid group for the ACTJXA charging algorithms. To define a Subsysid group, select Qualification Groups, Option 9 on the Parameter Specification and Generation Menu (MWF;4;2;3;9).

3.4 Avoiding SMF Duplicate Charging

Duplicate charging for batch jobs and started tasks can occur between SMF, IMS, CICS, DB2, and MQSeries because resource utilization for regions is reported by SMF type 30 records which populate the SMF journal files and by specific record types which populate journal files for CICS, DB2, IMS, and MQSeries.

Within SMF itself, duplicate charging can occur by billing the same unit of work from both the Batch Job Journal (ACTJBJ) and Batch Program Journal (ACTJBP) files or by billing APPC work from the APPC Journal (ACTJTP) file and the Batch Job or the Batch Program Journal files. Also, duplicate charging can occur if print/punch output is charged from both the Batch Spool Journal (ACTJBS) and the Batch Job Journal (ACTJBJ) files.

In contrast, it is normal to charge for the same work from the MULC (Measured Usage License Charging) Address Space Journal File (ACTJBM) and any of the other SMF journal files. You can use the ACTJBM journal file to surcharge users of MULC registered products. Any charges from this journal file are added to charges for the work from the other Batch and Operations Analyzer journal files.

Avoiding Duplicate Charging Within the SMF Component

The Rate Table ISPF dialogs prevent duplicate charging within SMF by not allowing you to activate both the Batch Job and the Batch Program Journal Files if the same units of work are being charged in each. For example, you can charge batch from the Batch Program Journal File and TSO from the Batch Job Journal File, but you cannot charge batch and TSO work from both journal files.

In addition, the dialogs does not allow you to activate the APPC TP Resource Journal File and the Batch Job or the Batch Program Journal File if APPC work is being charged in either of the latter two files.

Avoiding Duplicate Charges from SMF and from Other Sources

If you charge for CPU time from the batch job or batch program files and also charge for CICS, IMS, DB2, or TSO CPU time in their corresponding journal files, then you must take care to charge from one or the other source file in each case. Here is a list of the other source files, their CPU charging elements, and their journal files.

Comp Code	Source File	Journal File	Charging Element	Description
-----	-----	-----	-----	-----
1004	IMISISU	ACTJIS	ISUCPUTM	IMS Total CPU Time
1009	IMISISU	ACTJIS	ISUDB2TM	IMS DB2 CPU Time
1010	IMISISU	ACTJIS	ISUDBOTM	DL/I, Buffer, Open/Close CPU Time
1201	DB2DSU	ACTJDS	DSUTCBTM	DB2 TCB CPU Time Class 1
1203	DB2DSU	ACTJDS	DSUCPUTM	DB2 CPU Time Class 1
1411	TS0TSU	ACTJTU	TSUCPUTM	TS0 CPU Time consumed
1412	TS0TSU	ACTJTU	TSUTCBTM	TS0 TCB CPU Time consumed
1504	CICCSU	ACTJCS	CSUCPUTM	CICS Task CPU Time
1505	CICCSU	ACTJCS	CSUCPRTM	CICS Task CPU Real Time
1508	CICCSU	ACTJCS	CSUTCBTM	CICS TCB CPU Time
2702	MQAMMA	ACTJMQ	MMACPUTM	MQS CPU Time Used
2730	MQATAA	ACTJTA	TAACPUTM	MQS Total CPU Time
2738	MQAQAA	ACTJQA	QAAQCPTM	MQS Total Queue CPU Time
2740	MQBMFA	ACTJMF	MFACTM	MQSeries Message Flow Total CPU Time

To see more details on each of these other possible charging algorithms, review the following sections of this guide:

- 3.2.2 Avoiding DB2 Duplicate Charging
- 3.5 Avoiding CICS Duplicate Charging
- 3.6 Avoiding IMS Duplicate charging
- 3.7.2 Avoiding MQSeries Duplicate Charging

HOW TO AVOID DUPLICATE CHARGING

Do not charge for spool, print, or punch output in the Batch Job Journal (ACTJBJ) file if you also charge from the Batch Spool Journal (ACTJBS) file.

You can use Rate Table Algorithm Qualification to exclude the IMS control region, MPP, DBCTL programs, CICS regions, DB2 regions, or MQSeries regions from SMF charging based on their job or program names.

If you are not familiar with Algorithm Qualification, read section 4.3.1.5 - Qualifying Algorithms. Avoid specifying Algorithm Qualification by listing specific job or Program. If it is required to test many program names, use Qualification Groups instead.

If you are charging for TS0 from the TSOMON ACTJTU Resource Journal File, then you can use Rate Table Algorithm

Qualification to prevent the TSO sessions from being charged in SMF by explicitly specifying the SUBSYSIDs (@BAT, @STC, @TP, @OEM and @SAS) to be charged. That is, the @TSO is omitted from the list of qualifiers for SUBSYSID.

The following instructions tell you how to use Rate Table Algorithm Qualification to exclude the desired work.

- 1) If you are charging from the Batch Job Journal File and want to exclude IMS, CICS, or DB2 regions, determine the job names of these regions. Your installation should have a naming convention that allows you to identify these jobs or started tasks.

If you are charging from the Batch Program Journal File and want to exclude IMS, CICS, or DB2 programs, determine the names of the programs to be excluded.

- 2) Select Rate Table (Option 3;6 on the Installation Accounting Primary Options Menu), select the SMF unit if necessary, and select the ACTJBJ Batch Job or ACTJBP Batch Program Journal File.
- 3) If you have not previously done so, select Options 1 and 3 and enter the file and algorithm specifications.
- 4) Select Algorithm Qualification, Option 4, from the File Options menu.

TSO sessions charges with each algorithm that has a SUBSYSID value of *ALL, *DEF, or @TSO. You can prevent TSO sessions from being charged as follows:

- o Change each SUBSYSID value of *ALL to @BAT. Then use the I line command to create extra rows with values of @STC, @TP, @OEM, and @SAS.
- o Change each SUBSYSID value of *DEF to explicitly specify the work to be charged: @BAT, @STC, @TP, @OEM, or @SAS. Use the I line command to create extra rows if necessary.
- o Delete any rows with a SUBSYSID value of @TSO.

You can exclude IMS and CICS work from charging as follows:

- o For each algorithm that is used to charge batch or started tasks, enter an E in the S/E column and the job

or program name to be excluded in the Workunit column.
Enter the job name in the ACTJBJ Batch Job
Journal File and the program name in the ACTJBP Batch
Program Journal File.

- o The exclude comparisons are generic. For example, a value of ISMM excludes all workunits whose names begin with ISMM, such as ISMM1, ISMM2, and so on.
- o Use the I line command to create extra rows to exclude more workunit names.
- o As an alternative to listing jobnames or program names or their generic wildcards, you could employ Qualification Groups as described in section 4.3.1.5. Qualification Groups have an advantage when there are many jobnames or program names that are used in qualifying.

5) END from Rate Table and submit MAGRUN when requested.

6) Repeat steps 1 through 5 for each extra SMF unit.

A sample qualification panel that excludes all jobs beginning with IMS or CICS follows:

```
----- Algorithm Qualification ----- ROW 3 FROM 22
Command ==>                               Scroll ==> CSR

Unit: I - COST MANAGEMENT SMF UNIT
Journal file: Batch Job Journal File

Line Commands: I Insert  D Delete SCROLL RIGHT TO VIEW COMPLETE WORKUNIT COLUMN

Use groups for SYSID   ==> NO   Subsysid ==> NO   Subtype ==> NO
                COSTCTR1 ==> NO   Workunit ==> NO

Alg SYS-
Cmd ID  ID   Subsysid Subtype  COSTCTR1          S Partial
          E Workunit
-----
-  JBJ *ALL *ALL   *ALL   *ALL          E IMS_
-  JBJ *ALL *ALL   *ALL   *ALL          E CICS_
-----
```

Figure 3-1. Sample Algorithm Qualification Panel

A sample qualification panel that excludes all jobs beginning with IMS or CICS and does not charge for the TS0 sessions follows:

```

----- Algorithm Qualification ----- ROW 3 FROM 22
Command ==>                               Scroll ==> CSR

Unit: I - COST MANAGEMENT SMF UNIT
Journal file: Batch Job Journal File

Line Commands: I Insert  D Delete SCROLL RIGHT TO VIEW COMPLETE WORKUNIT COLUMN

Use groups for SYSID   ==> NO   Subsysid ==> NO   Subtype ==> NO
                COSTCTR1 ==> NO   Workunit ==> NO

      Alg SYS-
Cmd ID  ID   Subsysid Subtype  COSTCTR1          S Partial
      ID   ID   Subsysid Subtype  COSTCTR1          E Workunit
-----
- JBJ *ALL @BAT   *ALL   *ALL          E IMS
- JBJ *ALL @BAT   *ALL   *ALL          E CICS
- JBJ *ALL @STC   *ALL   *ALL          E IMS
- JBJ *ALL @STC   *ALL   *ALL          E CICS
- JBJ *ALL @TP    *ALL   *ALL          E IMS
- JBJ *ALL @TP    *ALL   *ALL          E CICS
- JBJ *ALL @OEM   *ALL   *ALL          E IMS
- JBJ *ALL @OEM   *ALL   *ALL          E CICS
- JBJ *ALL @SAS   *ALL   *ALL          E IMS
- JBJ *ALL @SAS   *ALL   *ALL          E CICS
-----

```

Figure 3-2. Sample Algorithm Qualification Panel

AVOIDING DUPLICATE CPU TIME CHARGES IN AN ENVIRONMENT WITH SPECIAL PROCESSORS

There are two types of IBM special processors, zSeries Application Assist Processor (zAAP) and z9 Integrated Information Processor (zIIP).

For address spaces, the portion of CPU time that is spent by an address space executing on a special processor is kept separate from the portion of CPU time that is spent by the same address space while it executed on a standard processor. The CA MICS data elements that contain the special processor CPU times are the following:

JOBZPNTM and PGMZPNTM - Normalized zAAP CPU Time
JOBSPNTM and PGMSPTM - Normalized zIIP CPU Time

```
* * * * *
*
* In the CA MICS/DB2 option, the Accum CPU Time Used on
* z/OS Spec Eng (DSUCPUZ1) element is the charging
* element for normalized zIIP and zAAP CPU time. Since
* there would be overlap with the JOBZPNTM, JOBSPNTM,
* PGMZPNTM, and PGMSPTM elements, the normalized
* specialty engine CPU time can be charged from the
* SMF or from the DB2 component but not from both.
* See section 3.2.2 - Avoiding DB2 Duplicate Charging.
*
* * * * *
```

The CPU time that is spent by an address space that could have executed on a special processor, but executed on a standard CP because a special processor was not available, is considered special processor eligible CPU time. Special processor eligible CPU time is a subset of TCB CPU Time (JOBTCBTM and PGMTCBTM) and TCB+SRB CPU Time (JOBPUTM and PGMCPUTM). The CA MICS data elements that contain special processor eligible CPU time are the following:

JOBZACTM and PGMZACTM - zAAP Eligible CPU Time on a CPU
JOBSUCTM and PGMSUCTM - zIIP Eligible CPU Time on a CPU

```
* * * * *
*
* In the CA MICS/DB2 option, the Accumulated CPU Time
* zIIP Eligible Work (DSUELGPZ) is the charging element
*
* * * * *
```

```

* for the computation code 1261. Since there is overlap *
* between this element and the JOBSUCTM and PGMSUCTM    *
* elements, one must take care to avoid duplicate      *
* charges. Also be aware that DSUELGZP is no longer    *
* populated beginning with DB2 v10.1. Thus any attempt *
* to have special rates for zIIP or zAAP eligible CPU   *
* CPU time can be confined to the BATJOB or BATPGM     *
* elements listed previous.                             *
*                                                       *
* * * * *

```

There is a potential for duplicate charging for special processor eligible CPU time if you want to use a different rate for eligible CPU time that used for work that had to run on the standard processors. Understand, that if you charge for both special processor eligible CPU time and the standard TCB time or CPU time, you are charging for the special processor eligible CPU time twice.

If you want to charge the same rate for special processor eligible CPU time as TCB CPU time, it is recommended you use the computation codes for PGMTCBTM or PGMCPUTM, and JOBTCBTM or JOBCPUTM.

STEP LEVEL

At the step or interval level, if you want to charge a different rate for special processor eligible CPU time, and non-special processor eligible TCB+SRB CPU time, or non-special processor eligible TCB CPU time, use the following computation codes:

o Special Processor Eligible CPU Time

COMP CODE	Element	Label
0406	PGMZACTM	zAAP Eligible CPU Time on a CP
0431	PGMSUCTM	zIIP Eligible CPU Time on a CP

o CPU Time Excluding Special Processor Eligible CPU Time

COMP CODE	Element	Label
0409	PGMXCSTM	CPU Time without zAAP/zIIP Eligible

The computation of PGMXCSTM is:

$PGMCPUTM = (PGMZACTM + PGMSUCTM)$

Note - PGMCPUTM is the sum of PGMTCBTM and PGMSRBTM.

o Non-special Processor Eligible TCB CPU Time

COMP CODE	Element	Label
0416	PGMXTSTM	TCB time without zIIP/zAAP Eligible

The computation of PGMXTSTM is:

$PGMTCBTM = (PGMZACTM + PGMSUCTM)$

Note: If you want to charge for non-special processor eligible CPU time, you must choose either 0409 or 0416.

JOB LEVEL

At the job level, if you want to charge different rates for special processor eligible CPU time, and non-special processor eligible TCB+SRB CPU time, or non-special processor eligible TCB CPU time, use the following computation codes:

o Special Processor Eligible CPU Time

COMP CODE	Element	Label
0350	JOBZACTM	zAAP Eligible CPU Time on a CP
0370	JOBSUCTM	zIIP Eligible CPU Time on a CP

o Non-special Processor Eligible TCB+SRB CPU Time

COMP CODE	Element	Label
0359	JOBXCSTM	CPU Time without zAAP/zIIP Eligible

o Non-special Processor Eligible TCB CPU Time

COMP CODE	Element	Label
0360	JOBXTSTM	TCB time without zIIP/zAAP Eligible

Note: At the job-level, if you want to charge for

non-special processor eligible CPU time, select 0359 or 0360.

CPU Time Usage from Service Units

With z/OS 1.10(plus 0A26832) and higher, the number of Service Unit fields in the Performance section of SMF Type 30 record was expanded to 8-bytes fields equivalent to the existing 4 bytes. This solution is to use Service units because they provide finer granularity of CPU time usage for chargeback.

Job LEVEL

At the Job level, if you want to charge CPU Time from the Service Units use the following computation codes:

o CPU Time from Service Units (Job Level)

Comp Code	Charging Element	Label
-----	-----	-----
0050	JOBSRSTM	Job SRB CPU Time from Service Units
0051	JOBTCSTM	Job TCB CPU Time from Service Units
0052	JOBCPSTM	Job TCB+SRB CPU Time from Service Units

Note: If you are planning to charge CPU Time usage out of Service units at Job level, to avoid duplicate CPU TIME charging, ensure computation codes 0022, 0023, and 0024 are not selected.

STEP LEVEL

At the step or interval level, if you want to charge CPU Time from the Service Units use the following computation codes:

o CPU Time from Service Units (Step Level)

Comp Code	Charging Element	Label
-----	-----	-----
0450	PGMSRSTM	Step SRB CPU Time from Service Units
0451	PGMTCSTM	Step TCB CPU Time from Service Units
0452	PGMCPSTM	Step TCB+SRB CPU Time from Service Units

Note: If you are planning to charge CPU Time usage out of Service units at Step level, to avoid duplicate CPU TIME

charging, ensure computation codes 0422, 0423, and 0424 are not selected.

3.5 Avoiding CICS Duplicate Charging

Duplicate charging for CICS can occur for any of the following reasons:

- Resource utilizations are reported in the SMF type 110 or in the ASG TMON (TCE) records for CICS or in the SMF type 30 records.
- For CICS/TS Version 2.2 and higher, CICS regions exploit the IBM Open Transaction Environment (OTE) to connect with DB2. Much of the resource utilization that is reported in DB2 is also reported in CICS.
- For CICS/TS Version 3.2 and higher, CICS regions exploit OTE to connect with MQSeries. When this happens, resource utilization reported for MQSeries overlaps with that reported for CICS.
- If Database Control (DBCTL) monitoring is active in CICS, then CICS transactions that initiate IMS activity report resource utilization for IMS in the DBCTL user area of the type 110 record. For ASG-TMON (TCE) version 2.0 and above, the thread TCB CPU Time (CSUDBTCB, CAUDBTCB) elements report CPU time for IMS.

Details on each of these overlapping possibilities are provided below.

Duplicate Charging for CICS in SMF Type 30 Records

If you charge for CICS resource utilization from the CICS Resource Journal File (ACTJCS) and also charge for batch, TSO, or STC processing from the Batch Job Journal (ACTJBJ) or Batch Program Journal (ACTJBP) files, then you must take care to avoid duplicate charging for CICS regions by excluding CICS regions from charging in SMF. This can be handled by Algorithm Qualification as described in section 3.4 - Avoiding SMF Duplicate Charging.

Duplicate Charging in CICS and DB2 CPU Time

For CICS/TS Version 2.2 and above and DB2 Version 6 and higher, CPU charges in the DB2 Resource Journal (ACTJDS) file can overlap with CPU charges in the CICS Resource journal (ACTJCS) file. This duplication can be avoided by following

the checklist at the end of section 3.2.2 - Avoiding DB2 Duplicate Charging. Using this checklist, charges for CPU in the ACTJDS file will be assigned zero when the DB2 activity is executed on the same Task Control Block as the initiating CICS transaction.

Duplicate Charging for CICS and MQSeries CPU Time

For CICS/TS Version 3.2 and above, CPU times reported in MQSeries files are included in the CPU times reported in the Task CPU Real Time (CSUCPRTM), Task CPU Time (CSUCPUTM), and TCB CPU Time (CSUTCBTM) elements in the CA MICS CICS option. If you are charging from journal files for both CICS and MQSeries, you should follow the checklist on how to avoid duplicate charging in section 3.7.2 - Avoiding MQSeries Duplicate Charging. In this way charges will be assigned zero in MQSeries journal files when the activity is identified as CICS.

Duplicate Charging for IMS CPU Time in DBCTL User Area

If you activate DBCTL monitoring in CMF, then you should charge for it in CICS and exclude DBCTL programs from IMS and SMF charging. The CICS data elements derived from the CMF DBCTL user area are listed below:

Data Element	Description
-----	-----
CSUDBIO	Number of Database I/O (DBCTL)
CSUDBGU	Database GU Calls (DBCTL)
CSUDBGN	Database GN Calls (DBCTL)
CSUDBGNP	Database GNP Calls (DBCTL)
CSUDBGHU	Database GHU Calls (DBCTL)
CSUDBGHN	Database GHN Calls (DBCTL)
CSUDBGHP	Database GHNP Calls (DBCTL)
CSUDBISR	Database ISRT Calls (DBCTL)
CSUDBDLT	Database DLET Calls (DBCTL)
CSUDBREP	Database REPL Calls (DBCTL)
CSUDBTOT	Total DL/I Database Calls (DBCTL)
CSUTENQ	Test Enqueues (DBCTL)
CSUTENQW	Test Enqueue Waits (DBCTL)
CSUTSDQ	Test Dequeues (DBCTL)
CSUENQ	Update Enqueues (DBCTL)
CSUENQW	Update Enqueue Waits (DBCTL)
CSUUPDQ	Update Dequeues (DBCTL)
CSUEXEQ	Exclusive Enqueues (DBCTL)
CSUEXEQW	Exclusive Enqueue Waits (DBCTL)

CSUEXDQ	Exclusive Dequeues (DBCTL)
CSUUDQUE	Update Dequeues (DBCTL)
CSUDEDB	DEDB Calls (DBCTL)
CSUDEDBR	DEDB Read Operations (DBCTL)
CSUOVBUF	Overflow Buffers Used (DBCTL)
CSUUOWC	UOW Contentions (DBCTL)
CSUBFWT	Waits for DEDB Buffers (DBCTL)
CSUDBTCB	Thread TCB CPU Time (DBCTL)

WARNING: These data elements are shipped turned off (inactive) and are not part of the standard charging elements for CICS. You must use file tailoring to activate them and then create computation codes for them in CA MICS Accounting and Chargeback before you can use them in your CICS charging algorithms.

Since DBCTL is already being charged in the ACTJCS file, it should not be charged in either IMS or SMF journal files. To avoid charging for it in IMS, see section 3.6 - Avoiding IMS Duplicate Charging. To avoid charging for it in SMF, see section 3.4 - Avoiding SMF Duplicate Charging.

3.6 Avoiding IMS Duplicate Charging

Duplicate charging for the IMS regions can occur because their resource utilizations are reported in both IMS and SMF. In addition, duplicate charging for the IMS DBCTL regions can occur between IMS and CICS.

If you charge for IMS resource utilization from the ACTJIS IMS Resource Journal File and charge for batch processing from the ACTJBJ Batch Job, or ACTJBP Batch Program Journal File, or if you charge DBCTL from CICS, then you must take care to avoid duplicate charging for the IMS control region and for IMS dependent regions.

If you charge IMS control regions from IMS, you can exclude them from charging in SMF.

For IMS dependent regions, the type of program that generated the IMS transaction determines where it can be charged. The types of programs are:

- o BMP
- o APPC
- o MPP
- o DBCTL

BMP programs can be charged from SMF because it contains the total resource utilization for the program, not only the IMS part.

APPC programs are not charged in SMF, so charge these programs in IMS.

Charge MPP programs from IMS.

Charge DBCTL programs from CICS because the user who issued the transaction cannot be determined from IMS.

Note: DBCTL resources are not automatically charged from CICS. Activate the appropriate data elements and create computation codes for them and then use the computation codes in your charging algorithms. For more information, see Section 3.5, Avoiding CICS Duplicate Charging.

HOW TO AVOID DUPLICATE CHARGING

- Use the Rate Table Algorithm Qualification to exclude the IMS control region and the MPP and DBCTL programs from SMF

charging. For more information see, Section 3.4, Avoiding SMF Duplicate Charging.

Use Journal File Eligibility and Rate Table Algorithm Qualification to cause BMP and DBCTL transactions to be charged with 0 rates in IMS as follows:

- 1) Assign ISUITYPE (initial transaction type) to an IMSACTn variable in sharedprefix.MICS.SOURCE(IMSACRT).

ISUITYPE is a work variable that indicates the type of program that generated the transaction. Assigning it to an IMSACTn variable causes it to be available in the DAYS timespan, where charging occurs.

Transactions generated by BMP and DBCTL programs will have ISUITYPE values of B and D respectively.

- 2) Select Journal File Eligibility (Option S;2 on the Installation Accounting Primary Options Menu) and select the ACTJIS IMS Resource Journal File.

Enter IMSACTn (where n is the number of the account code that contains ISUITYPE) in the "Subtype variable" and "Workarea variable 1" fields.

END from Journal File Eligibility.

- 3) Select Rate Table (Option 3;6 on the Installation Accounting Primary Options Menu), select the IMS unit if necessary, and select the ACTJIS IMS Resource Journal File.

- 4) If you have not previously done so, select Option 1 and enter the file specifications.

- 5) Select Algorithm Specification, Option 3, from the File Options menu.

If you have not previously done so, insert your charging algorithms.

Insert a new "dummy" charging algorithm for BMP and DBCTL regions and select it. Enter any IMS computation code and a rate of 0.

END back to the File Options menu.

- 6) Select Algorithm Qualification, Option 4, from the File

Options menu.

Enter a Subtype value of B for the "dummy" BMP/DBCTL algorithm.

Use the I line command to create another row for the "dummy" algorithm with a Subtype value of D.

Enter a Subtype value of *DEF for all other algorithms.

This causes the "dummy" algorithm to be used for BMP /DBCTL transactions, and the normal algorithms to be used for all other IMS work.

7) END from Rate Table and submit MAGRUN when requested.

8) Repeat steps 3 through 7 for each IMS unit.

A sample qualification panel follows with a standard IMS algorithm called JIS and the dummy algorithm called DUM:

```
----- Algorithm Qualification ----- ROW 3 FROM 22
Command ==>                               Scroll ==> CSR

Unit: I - COST MANAGEMENT IMS UNIT
Journal file:  IMS Resource Journal File

Line Commands: I Insert  D Delete SCROLL RIGHT TO VIEW COMPLETE WORKUNIT COLUMN

Use groups for SYSID   ==> NO   Subsysid ==> NO   Subtype ==> NO
                  COSTCTR1 ==> NO   Workunit ==> NO

Alg SYS-
Cmd ID  ID   Subsysid Subtype  COSTCTR1          S Partial
-----
- JIS *ALL *ALL   *DEF    *ALL              - -----
- DUM *ALL *ALL   B       *ALL              - -----
- DUM *ALL *ALL   D       *ALL              - -----
-----
```

Figure 3-3. Sample Algorithm Qualification Panel

- If you charge CPU time for the IMS resource utilization, you must take care to avoid duplicate charging. With IMS version 12.0 and Mainview for IMS Version 4.6, more charging elements were added to the IMSISU file. These data elements contain the amount of CPU time that is consumed on CP, zIIP, and zAAP engines for dependent regions, respectively.

The standard computation codes whose associated data elements contain or are related to IMS CPU time follow.

Comp Code	Data Element	Description
----	-----	-----
1001	ISUCPUNI	IMS Instructions Executed
1002	ISUKSRU	IMS System Resource Units
1003	ISUPETTM	IMS Pseudo Elapsed Time
1004	ISUCPUTM	IMS Total CPU Time
1005	ISUTMDCP	IMS Dependent Region Processing Time
1006	ISUTMCDL	IMS DL/I CPU Time
1007	ISUTMDDL	IMS Dependent Region DL/I Time
1008	ISURESTM	IMS Fast Path Application Time
1009	ISUDB2TM	IMS DB2 CPU Time
1010	ISUDBOTM	IMS DL/I, Buffer, Open/Close CPU Time
1020	ISUTMCP	IMS Dependent Region CP time
1021	ISUTMZAP	IMS Dependent Region zIIP/zAAP Time
1025	ISUSUCTM	IMS Dep Reg zIIP Eligible CPU on a CP
1026	ISUZACTM	IMS Dep Reg zAAP Eligible CPU on a CP
1027	ISUXCSTM	IMS CP Time Minus zIIP/zAAP Eligible

The total CPU time on a general processor (CP) is contained in data element ISUCPUTM (1004).

This IMS Resource CPU time on CP processors is a composite of several different metrics:

$$\text{ISUCPUTM (1004)} = \text{ISUTMDCP (1005)} + \text{ISUDBOTM (1010)}$$

$$\begin{aligned} \text{ISUDBOTM (1010)} = & \text{ISUTMCBF} + \text{ISUTMCDL (1006)} + \\ & \text{ISUTMDBF} + \text{ISUTMDDL (1007)} + \\ & \text{ISUTMDOC} \end{aligned}$$

$$\text{ISUTMDCP (1005)} = \text{ISUTMCP (1020)} + \text{ISUZACTM (1025)} + \text{ISUSUCTM (1026)} + \text{ISUXCSTM (1027)}$$

$$\text{ISUTMCP (1020)} = \text{ISUZACTM (1025)} + \text{ISUSUCTM (1026)} + \text{ISUXCSTM (1027)}$$

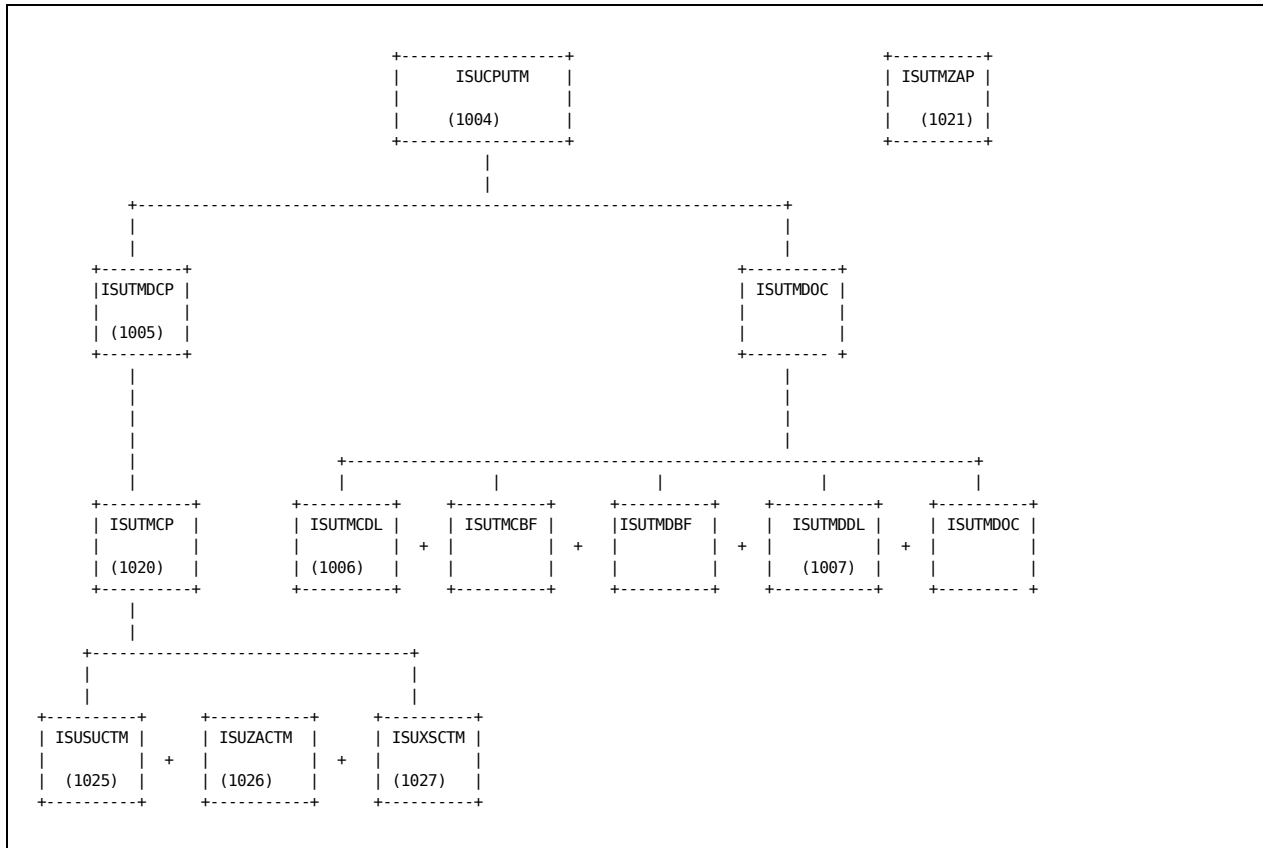


Figure 3-4. IMS CPU time on CP processor

The following table shows you how to avoid duplicate charging for CP processor CPU time based on the computation codes you select to use:

AVOIDING DUPLICATE CHARGES:

If you charge for COMP CODE:		You should not charge for:	
COMP CODE	Associated Data element	COMP CODE	Associated Data element
1004	ISUCPUTM	1005	ISUTMDCP
		1006	ISUTMCDL
		1007	ISUTMDDL
		1010	ISUDBOTM
		1020	ISUTMCP
		1025	ISUSUCTM
		1026	ISUZACTM
		1027	ISUXCSTM
1005	ISUTMDCP	1004	ISUCPUTM
		1020	ISUTMCP
		1025	ISUSUCTM
		1026	ISUZACTM
		1027	ISUXCSTM
1006	ISUTMCDL	1004	ISUCPUTM
1007	ISUTMDDL	1004	ISUCPUTM
1010	ISUDBOTM	1004	ISUCPUTM
		1006	ISUTMCDL
		1007	ISUTMDDL
1020	ISUTMCP	1004	ISUCPUTM
		1005	ISUTMDCP
		1025	ISUSUCTM
		1026	ISUZACTM
		1027	ISUXCSTM
1025	ISUSUCTM	1004	ISUCPUTM
		1005	ISUTMDCP
		1020	ISUTMCP
1026	ISUZACTM	1004	ISUCPUTM
		1005	ISUTMDCP
		1020	ISUTMCP

1027	ISUXCSTM	1004	ISUCPUTM
		1005	ISUTMDCP
		1020	ISUTMCP

3.7 Avoiding SNT Duplicate Charging

CA MICS Accounting and Chargeback Option supports the following CA MICS Network Analyzer Option files for chargeback processing:

- o NCP Network Accounting (SNTNAC) File
- o NetSpy Terminal (SNTNSS) File
- o NPM User Activity (SNTPSU) File
- o NLDM Session Accounting (NVSNSA) File
- o NLDM Session Connectivity (NVSNSC) File
- o NLDM Response Time (NVSRTM) File

The NCP Network Accounting File is built from Network Session Accounting (NSA) and Network Gateway Accounting (NGA) data, from either CA NetSpy or IBM's NetView Performance Monitor (NPM). The NPM User Activity File is built from NPM Session data. The NLDM files are built using data from either IBM's NetView Session Monitor/NLDM or NetMaster Network Management for SNA. The NetSpy Terminal File is built from NetSpy's VTAM interface data.

Since there may be overlap between data from these sources, CA MICS Accounting and Chargeback Option prevents the use of both NPM and NetView Session Monitor/NLDM files concurrently for billing. Should you require the ability to implement chargeback using both NPM and NetView Session Monitor/NLDM or both NPM and CA NetMaster sources, we recommend that you call CA Technical Support for assistance.

HOW TO AVOID DUPLICATE CHARGING

NetSpy and NPM may collect NSA data on both the secondary (SLU) and primary (PLU) side of a session. To prevent collection of duplicate accounting data, collect NSA data on the secondary side of a session only. For information on how to restrict NCP NSA accounting collection, refer to the accounting parameters in the NCP BUILD Statement in the IBM NCP Resource Definition Guide. If your site collects NSA data on both the primary and secondary sides of a session, CA MICS data element NACCOLPT, NCP Collection Point (Primary or Secondary), can help you detect and eliminate duplicate NSA data.

Similarly, NetSpy and NPM may collect duplicate NGA data for sessions that traverse multiple gateway NCPs. To aid in the detection and elimination of this duplicate data, collect all NGA data at a single NetSpy or NPM collection host. NetSpy

automatically discards duplicate NGA data. It only accepts NGA data for a given session from the first gateway NCP to send data for that session.

NPM provides a user exit for detecting and discarding duplicate NGA data. See the NPM Installation and Customization Guide. CA MICS data elements NACANPLU (Adjacent Network ID PLU Side), NACANSLU (Adjacent Network ID SLU Side), and USESSIDC (Unique Session ID) may also be used to detect and eliminate duplicate NGA data.

3.7.1 Avoiding Web Duplicate Charging

With the Web Analyzer, duplicate charging can occur by billing the same unit of work from both the Server Access Log (SAL) and Server Activity File (SAF) journal files.

The Rate Table ISPF dialogs prevent duplicate charging across Web Analyzer files by not allowing you to activate both the SAL (ACTJWB) and the SAF (ACTJSF) Journal Files if the same units of work are being charged in each.

AVOIDING DUPLICATE CPU TIME CHARGES IN AN ENVIRONMENT WITH SPECIAL PROCESSORS

There are two types of IBM special processors, zSeries Application Assist Processors (zAAPs) and z9 Integrated Information Processors (zIIPs).

For address spaces, the portion of CPU time spent by an address space executing on a special processor is kept separate from the portion of CPU time that is spent by the same address space while it executed on a standard processor. The CA MICS data elements that contain the special processor CPU times are the following:

WRAZPNTM - Normalized zAAP CPU Time
WRASPNTM - Normalized zIIP CPU Time

The CPU time spent by an address space that could have executed on a special processor, but executed on a standard CP because a special processor was not available, is considered special processor eligible CPU time. Special processor eligible CPU time is a subset of CP CPU Time (WRACPUTM). The CA MICS data elements that contain special processor eligible CPU time are the following:

WARZACTM - zAAP Eligible CPU Time on a CP
WARSUCTM - zIIP Eligible CPU Time on a CP

There is a potential for duplicate charging for special processor eligible CPU time if you want to use a different rate for eligible CPU time than that used for work that had to run on the standard processors. It is important to understand, that if you charge for both special processor eligible CPU time and the total CP CPU time, you will be charging for the special processor eligible CPU time twice.

If the desire is to charge the same rate for special processor eligible CPU time as CP CPU time, it is recommended you use the computation codes 3037 for WRACPUTM.

If you want to charge a different rate for special processor eligible CPU time that ran on a CP processor, versus the portion of CP processor CPU time that had to execute on CP processors, use the following computation codes:

o CP CPU Time that was Eligible to Run on Special Processors

COMP CODE	Element	Label
3035	WRAZACTM	zAAP Eligible CPU Time on a CP
3032	WRASUCTM	zIIP Eligible CPU Time on a CP

o CP CPU Time that was not Eligible to Run on Special Processors

COMP CODE	Element	Label
3036	WRAXCSTM	CPU Time without zAAP/zIIP Eligible

The computation of WRAXCSTM is:

$$\text{WRAXCSTM} = \text{WRACPUTM} - (\text{WRASUCTM} + \text{WRAZACTM})$$

3.7.2 Avoiding MQSeries Duplicate Charging

There are two ways you can incur duplicate charges for MQSeries. One is by charging for the same activity twice using the MQSeries journal files. The second is by charging for MQSeries CPU time from MQSeries files as well as from log or transaction records from connecting address spaces.

The MQSeries files that can be used for Accounting and Chargeback are:

MQAMMA - Message Manager Accounting File
 MQATAA - Task Accounting File
 MQAQAA - Queue Activity File
 MQBMFA - Message Flow Accounting File

The journal files and standard computation codes for MQSeries CPU time are listed here:

Comp Code	MQS File	Journal File	Data Element	Description
2702	MQAMMA	ACTJMQ	MMACPUTM	CPU Time Used
2730	MQATAA	ACTJTA	TAACPUTM	Total CPU Time
2738	MQAQAA	ACTJQA	QAAQCPTM	Total Queue CPU Time
2740	MQBMFA	ACTJMF	MFACTM	MQSeries Message Flow Total CPU Time

Avoiding Duplicate Charging within the MQSeries Component

If you charge for WebSphere MQ using two or more of the journal files listed above, you must make sure that you are not charging for the same activity twice. If two different versions of MQSeries are running, there might be a need to charge from both the MQAMMA and MQATAA files. Since only the MQAMMA file was available at MQSeries Version 2.1, only the ACTJMQ journal file would have been used for that version. Since all four files are available at version 5.2 and higher, it is possible to charge for activity from any of the four journal files. Refer to section 3.10 for more information about these four data sources and their journal files.

Avoiding Duplicate Charging Between CA MICS Components

Duplicate charging can occur for WebSphere MQ when a connecting address space is TSO, Batch, or IMS because the MQSeries CPU time is reported in both the MQSeries

transaction records as well as in the type 30 or transaction records from the the connecting address spaces. If you are charging for CPU usage for TSO, Batch, or IMS from other journal files, then you should not be charging for CPU usage from a MQSeries file.

For CICS releases below CICS/TS 3.2, there is no duplication between WebSphere MQ CPU time as reported for CICS in the MQSeries records and as reported in the CICS transaction records. However, beginning with CICS/TS 3.2, CICS transaction records report the same CPU time that is reported in the MQSeries records. Thus the following elements from the CICS User Activity (CICCSU) file duplicate CPU activity reported for MQSeries:

- CSUCPRTM - Task CPU Real Time
- CSUCPUTM - Task CPU Time
- CSUTCBTM - TCB CPU Time

For all CICS releases, the CPU time reported in SMF type 30 address space records for CICS regions overlaps with the CPU time reported in MQSeries transaction records.

Charging for Message Processing in the MQ CHIN Channel

Another activity for possible chargeback is the message processing handled by the WebSphere MQ CHIN channel address space. The CHIN address space processes messages to and from applications outside the z/OS environment. The CPU time used to process each message is recorded in task and queue records where MQSATYP=6 (channel activity). This CPU activity is also recorded in the CHIN SMF type 30 address space record, but the individual task and queue records are more suitable for chargeback because the specific channel name is available for identification purposes.

HOW TO AVOID DUPLICATE CHARGING

You can avoid duplicate charging for MQSeries CPU time by using a zero rate when the connection type is TSO, Batch, or IMS. When the connection type is CICS/TS 3.2 and above, also use a zero rate. To identify connection types, use the Type of Connection (MQSATYP) element, which has the following possible values:

- 1 - CICS
- 2 - Batch or TSO

- 3 - IMS Control Region
- 4 - IMS, MPP, or BMP
- 5 - Command Server
- 6 - Channel Initiator
- 7 - Resource Recovery Services (RRS) Batch
- 8 - Intra-Group Queuing (IGQ) Agent

The following checklist should be followed so that you can use Control Variable Charging to avoid duplicate charges.

- 1) Select Rate Table (Option 3;6 on the Installation Accounting Primary Options Menu), select the MQS unit if necessary, and select the MQSeries journal file you want to use for chargeback.
- 2) If you have not previously done so, select Option 1 and enter the file specifications.
- 3) Select Algorithm Specification, Option 3, from the File Options menu and select each algorithm in turn.
- 4) Enter a Control Variable data element for the CPU time computation codes that you are using. There would be a Control Variable only in those cases where you know that the CPU time is being charged outside of MQSeries.
 - The MQSATYP element can be used directly as the Control Variable. Select each computation code and assign a zero rate for each MQSATYP value that will have a duplicate charge in another algorithm. You would likely assign a rate of zero to the following MQSATYP values:
 - 1 (CICS/TS 3.2 and above)
 - 2 (Batch or TSO)
 - 3 (IMS Control Region)
 - 4 (IMS, MPP, OR BMP)
 - 6 (Channel Initiator)
 - As an alternative, you can create an element that has a value of one (1), meaning charge, or zero (0), meaning don't charge. The example shown in `sharedprefix.MICS.HOLD.PARMS(COSTRTE)` creates a data element ACTMQSFG that assigns a one or zero based on MQSATYP. If you used this sample code, ACTMQSFG would be your Control Variable data element. Be aware that the sample code in the COSTRTE should also include a reference to CICS for CICS/TS 3.2 and above. Therefore, the code in COSTRTE should be changed to the following:

```
IF MQSATYP=1 OR MQSATYP=2 OR MQSATYP=3 OR MQSATYP=4
THEN ACTMQSFG=0;
ELSE ACTMQSFG=1;
```

Also, if you are charging for CPU time from the CHIN SMF type 30 record, then you need to include MQSATYP=6 as part of the condition (IF) in the above expression. If you are using ACTMQSFG as the Control Variable then assign a rate of 0 to all observations that have the following value:

0 (All non-billable records)

```
*****
**  Make sure you set the rate to zero for each row  **
**  entered for the Charging Element.                **
*****
```

- 5) Enter the normal rate in the Rate column for the row that displays the computation code. This rate will be applied in all cases that are not covered by the Control Variable.
- 6) END from Rate Table and submit MAGRUN when requested.
- 7) Repeat steps 1 through 6 for each additional MQS unit.

3.8 Implementing Client/Server Accounting

The following is a general checklist for implementing the accounting strategy recommended in Section 2.8 of the CA MICS Accounting and Chargeback Concepts and Overview Guide.

- ___ 1. Identify the service tiers and the rate for each tier.

Determine if there will be one or more than one basic rate for connected workstations. There should be distinct differences between groups of users if more than one basic rate is used. Next, identify the premium service tiers and their associated rates.

The cost basis for each rate includes the hardware software, support personnel and overhead of providing service.

- ___ 2. Identify the data sources for charges.

If possible, you should use existing data sources to create the charges for LAN services. This eliminates manual data entry and ensures that charges are current each month. With CA MICS Accounting and Chargeback, you can define external file sources that are used for charging.

The following are some potential sources of data files that might be used to create the charge records:

- o The user-registry files for the LAN or electronic mail system.
- o Databases created by discovery products. Discovery products are software packages that create a census of LAN users, their hardware and software.
- o Inventory databases used for financial or help desk applications that include users and equipment.

The data source must contain information that can identify the cost center to be charged and you must be able transport the data to the system where CA MICS Accounting Chargeback runs. If there is no data source to provide the basis for charges, you may

either create the subscription file to be used as the data source or manually create debit entries (see Step 5).

___ 3. Define the charging elements to be used.

You must define a charging element for each service tier to be charged. The charging element definition must include the following:

Computation Code: A number that you assign to identify each charging element. User-added computation codes must be in the 8000 - 9999 range.

Invoice Category: An invoice category of 2400 is suggested for LAN/Internet charges. Or you may add your own invoice category.

External File, File Name and Element Name: You must define the element as coming from an external file source even if charges will actually be entered as debits.

If the charges will be entered as debits, enter SDT for standard or recurring debits in the File Name field, and enter SDTQNT in the Element Name field. Otherwise, enter the ID of the external file and the external file variable that contains the quantity to be charged.

Refer to Section 4.2.1, Defining Charging Elements, for additional information on charging elements.

___ 4. Define external file sources.

This must be done if the data identifying the users and service tiers will be read from a file rather than entered manually.

You must assign an ID for each external file, specify the computation codes and rates to be charged, and generate the JCL that you will run to create the charges. You can charge for external files at the complex level and the unit level. Refer to Section 4.4.1, Specifying Complex-Level External File Characteristics, or Section 4.3.1.2, Specifying Journal File Characteristics for additional information.

___ 5. Enter debits for additional charges.

Enter standard or recurring debits for any charges that cannot be generated from external file sources. Each entry should specify the cost center to be charged, the computation code that identifies the service tier, and the rate. You must enter one debit for each cost center and service level combination that is not charged from an external file.

Note that standard debits must be entered each billing period, while recurring debits remain in effect until they are deleted.

3.9 Avoiding VSE/POWER Duplicate Charging

Within VSE/POWER, duplicate charging can occur by billing the same unit of work from both the Job and Program journal files.

The Rate Table ISPF dialogs prevent duplicate charging within VSE/POWER by not allowing you to activate both the Job and the Program Journal Files if the same units of work are being charged in each.

3.10 Implementing MQSeries Accounting

CA MICS Accounting and Chargeback supports the following CA MICS MQSeries Analyzer files for chargeback processing:

- * MQSeries Message Manager Accounting (MQAMMA) file
 - * MQSeries Task Accounting (MQATAA) file
 - * MQSeries Queue Activity (MQAQAA) file
 - * MQSeries Message Flow Accounting (MQBMFA) file
- * - Available only after WebSphere MQ Version 5 Release 2

All CA MICS MQSeries analyzer files are produced from SMF records generated by IBM's WebSphere MQ (MQSeries) messaging system.

The Message Manager Accounting (MQAMMA) file is derived from the SMF type 116 subtype 0 record.

The Task Accounting (MQATAA) file is derived from the SMF type 116 subtype 1 and 2 (continuation) records. The MQATAA file provides accounting information on individual application usage.

The Queue Activity (MQAQAA) file is derived from the Queue segments of SMF type 116 subtype 1 and 2 (continuation) records. The MQAQAA file provides information on activity within individual WebSphere MQ queues.

The Message Flow Accounting (MQBMFA) file is derived from the SMF type 117 record (subtypes 1 and 2). The MQBMFA file provides Message Broker statistics on message flow execution.

CA MICS Accounting and Chargeback allows you to bill from any of these files. These three resource files contain the same resource utilization information, but at different levels of detail and from different perspectives.

For example, both the MQAMMA and MQATAA files are task oriented--but are generated based on different trace levels set for WebSphere MQ accounting. The SMF record used to build the MQATAA file is more detailed than the one used to build the MQAMMA file.

The MQAQAA file is queue oriented--the resource utilization is attributable to a particular WebSphere MQ queue that may have been used by many different tasks.

The CA MICS Accounting and Chargeback journal files

associated with these MQSeries Analyzer files are:

MQSeries Analyzer File	MACT Journal File	Journal File Label
MQAMMA	ACTJMQ	MQSeries Message Manager Journal File
MQATAA	ACTJTA	MQSeries Task Accounting Journal File
MQAQAA	ACTJQA	MQSeries Queue Activity Journal File
MQBMFA	ACTJMF	MQSeries Message Flow Accounting Journal File

Both the MQAMMA and MQATAA files contain task level information, however, the MQAMMA file is lower volume than the MQATAA file. If the MQAMMA file contains resource utilization information suitable for your site, you should use the corresponding ACTJMQ journal file for chargeback purposes. This will result in faster processing due to the lower record volume.

The following checklist will help you to implement usage charges for your MQSeries activity using the CA MICS MQSeries Analyzer and CA MICS Accounting and Chargeback. The CA MICS MQSeries Analyzer and CA MICS Accounting and Chargeback must be installed before performing these steps.

- ___ 1. Verify the account code structure and derivation routine defined for MQSeries.

MQSACCT

The account code structure is defined in member `sharedprefix.MICS.PARMS(MQSACCT)`. The recommended Account Code fields are:

- o Type Of Connection
- o Connection Name
- o Task name/User ID/Channel Name

Changes to the MQSACCT account code structure definition, however, do require product regeneration using the `sharedprefix.MICS.CNTL(MQSCGEN)` job.

MQSACRT

The account code derivation routine is defined in

`sharedprefix.MICS.PARMS(MQSACRT)`. The derivation routine is coded in the SAS language and assigns values to the account fields (MQSACT1-MQSACTn) based on the contents of identification type data elements such as MQSATYP, MQSCONNM, and MQSUSID.

Please refer to the sample code in `sharedprefix.MICS.HOLD.PARMS(MQSACRT)` for an example of account field assignment.

Note that changes to the MQSACRT account code derivation routine do not require product generation to take effect.

Refer to Chapter 7 of the CA MICS MQSeries Analyzer Guide for additional information about the account code definition and derivation routines.

___ 2. Update the cost routine for MQSeries data.

The `COSTRTE` routine is SAS code used to assign values to your installation's defined cost center variables as each record is processed by the CA MICS system. It is defined in member `sharedprefix.MICS.PARMS(COSTRTE)`.

The `COSTRTE` member in `sharedprefix.MICS.HOLD.PARMS` includes sample code to assign cost centers for MQSeries data. The information available for use in cost center assignment is different based on the connecting system type. Additionally, decisions on whether or not to charge for CPU time may be based on connecting system type.

The sample `COSTRTE` member in `sharedprefix.MICS.HOLD.PARMS` sets a single data element, `ACTMQSFG`, to one (1) if CPU charges should be incurred and zero (0) if not. The sample avoids (sets `ACTMQSFG` to 0) charges when the connecting address space is batch, TS0, or IMS.

You might need to modify the code that assigns values to `ACTMQSFG` depending on whether charges are made to another journal file or not. Also, CICS was not part of the original sample. However, beginning with CICS/TS 3.2, charges applied to `CSUCPUTM`, `CSUCPRTM`, or `CSUTCBTM` are also applied to `MMACPUTM`, `TAACPUTM`, `QAAQCPTM`, and `MFACTM` on the MQSeries side. Therefore,

one might need to add a check for MQSATYP to the IF statement as in:

```
IF MQSATYP=1 OR MQSATYP=2 OR MQSATYP=3 OR MQSATYP=4
THEN ACTMQSFG=0;
ELSE ACTMQSFG=1;
```

This is also explained under the title "How to Avoid Duplicate Charging" in section 3.7.2.

Edit the COSTRTE member in sharedprefix.MICS.PARMS and update or add code to correctly assign the MQSeries cost center variables for your installation. The ROUTINE value for the MQSeries data is DYMQSfmt.

Refer to Sections 4.1.3, Assigning Cost Center Values, and 3.7.2, Avoiding MQSeries Duplicate Charging, for additional information.

___ 3. Define qualification group(s).

If you will be charging for many systems in the same way, define one or more Sysid qualification groups, each containing the Sysids to be charged by a single algorithm (an algorithm is a set of charging elements and associated rates).

Use the Algorithm Qualification Worksheet in Section 4.3.1.5.1 to identify which groups are to be used for a given algorithm. Enter this information on the Algorithm Qualification panel (MWF;4;2;3;6;4).

Select Option 9, Qualification Groups, on the Parameter Specifications menu (MWF;4;2;3;9) to display the Group Selection panel. Use the Insert and Delete line commands to add or delete Qualification Group IDs. Use the Select line command to enter the values that comprise a group.

Submit the job CHRGROUP from sharedprefix.MICS.CNTL. If you made any changes, you are automatically asked to submit this job when you END from the Group Selection panel.

___ 4. Update the CA MICS Accounting and Chargeback Rate Table to define your MQSeries charging strategy.

You must define rates for each charging element that you wish to use for MQSeries chargeback. The recommended computation codes are:

MQSeries Message Manager Journal (ACTJMQ).
- Comp codes: 2702 and 2712

MQSeries Task Accounting Journal (ACTJTA).
- Comp codes: 2730, 2731 and 2732

MQSeries Queue Activity Journal File (ACTJQA).
- Comp codes: 2736, 2737 and 2738

MQSeries Message Flow Accounting Journal File (ACTJMF).
- Comp codes: 2740 and 2741

Use algorithm qualification to specify the work to be charged by each algorithm if either of the following is true.

- o You wish to charge for only selected systems or connection types or regions from a single algorithm.
- o You have defined more than one algorithm for the a journal file. You might need multiple algorithms if you charge differently based on system or connection type or region-id.

On the Algorithm Qualification panel, use the qualification group name(s) defined in Step 2 to simplify data entry.

Refer to Section 4.3.1, Defining the Rate Table, for additional information.

- ___ 5. Submit the MAGRUN job to activate charging for MQSeries resources.

When you finish editing the rate table as directed in Step 3, you will be prompted to submit the MAGRUN batch job. Submit the job and ensure that it completes normally to apply the changes and activate charging for your MQSeries activity.

3.11 Implementing Web Accounting

The following checklist will help you to implement usage charges for your Internet traffic using the CA MICS Web Analyzer and CA MICS Accounting and Chargeback. The CA MICS Web Analyzer and CA MICS Accounting and Chargeback must be installed before performing these steps.

___ 1. Update the cost routine for Web data.

The COSTRTE routine is SAS code that assigns values to your installation's defined cost center variables as each record is processed by the CA MICS system. It is stored in member `sharedprefix.MICS.PARMS(COSTRTE)`. The COSTRTE member in `sharedprefix.MICS.HOLD.PARMS` includes sample code to assign cost centers for Web data. The information available for use in assigning cost centers differs by type of Web port. This may require your COSTRTE code to interrogate the element WEBPORT, (Web Server Port address), and assign the cost centers accordingly.

Edit the COSTRTE member in `sharedprefix.MICS.PARMS` and update or add code to correctly assign the Web cost center variables for your installation. The ROUTINE value for the Web data is DYWEBFMT.

Refer to Section 4.1.3, Assigning Cost Center Values, for additional information.

___ 2. Define qualification group(s).

If you will be charging for many systems in the same way, you can use one charging algorithm to charge for many SYSID, Cost Center 1, or Workunit values by creating an algorithm qualification group name and defining the group values. An algorithm is a set of charging elements and associated rates.

Refer to Section 4.3.2, Defining Qualification Group for additional information.

___ 3. Update the CA MICS Accounting and Chargeback Rate Table to define your Web charging strategy.

You must define rates for each charging element that you wish to use for Web chargeback. The recommended computation codes are 3000, 3010, 3020, 3040, 3050 and 3060 in the Analyzer data Accounting Journal

(ACTJWB) and in WebSphere Application Server Journal (ACTJSF).

Use algorithm qualification to specify the work to be charged by each algorithm if either of the following is true.

- o You wish to charge for only selected systems or IP address or file path from a single algorithm.
- o You have defined more than one algorithm for the Web Analyzer data Accounting journal file. You might need multiple algorithms if you charge differently based on system or IP address or file path.

On the Algorithm Qualification panel, use the qualification group name(s) defined in Step 2 to simplify data entry.

Refer to Section 4.3.1, Defining the Rate Table, for additional information.

- ___ 4. Submit the MAGRUN job to activate charging for Web resources.

When you finish editing the rate table as directed in Step 3, you will be prompted to submit the MAGRUN batch job. Submit the job and ensure that it completes normally to apply the changes and activate charging for your Internet traffic.

3.12 Implementing Tape Accounting

Follow this checklist to implement resource usage charges for Tape Data Set using the CA MICS Tape Analyzer and CA MICS Accounting and Chargeback.

- ___ 1. Ensure that CA MICS Accounting and Chargeback is installed in each CA MICS unit that contains the Tape Analyzer.

If you are using CA MICS Accounting and Chargeback in a production environment, we recommend that you implement your Tape algorithm in a test unit before modifying your production CA MICS unit(s).

- ___ 2. Determine whether you wish to charge from the TLM Analyzer files at the DETAIL or at the DAYS timespan. Modify prefix.MICS.PARMS(TLMOPS) so that it contains one of the following statements:

ACCOUNTING DETAIL

or

ACCOUNTING DAYS

The default is ACCOUNTING DAYS. ACCOUNTING DAYS causes the TLM component to account for tape data sets at the DAYS summarization level. At the DAYS summarization level, tape data set name, VOLSER, and other detailed information is not available. Instead, each observation represents the total tape/megabyte hours used by a group of tape data sets, aggregated together, using the sequence/summary keys for the TMCTMD file at the DAYS timespan.

If you need exception level charging based on either VOLSER or DSNAME (or any other character data element not in the SORT key of the DAYS timespan), you have two choices:

- 1) Specify ACCOUNTING DETAIL instead of ACCOUNTING DAYS in prefix.MICS.PARMS(TLMOPS). The downside to this approach is the high volume of journal records generated; one for each tape data set segment (multiple data set segments exist for tape data sets that span tape volumes).
- 2) Specify ACCOUNTING DAYS, but populate the VOLGROUP and/or one or more account code variables (TLMACT1-9) with data values that can be used to apply differential rates. VOLGROUP and the account code variables are summarization keys, so that unique values in these elements will result in separate DAYS timespan observations. The VOLGROUP data element and the routine used to populate it is discussed extensively in section 7.1.3.2 of the CA MICS Tape Analyzer Option guide.

Submit prefix.MICS.CNTL(TLMPGEN) and ensure that it completes with condition code 0.

Perform this step for each CA MICS unit that contains both the Tape Analyzer and CA MICS Accounting and Chargeback.

- ___ 4. Select Option 6, Rate Table, from the Accounting Parameter Specification and Generation Menu, and select the desired unit database.

Select the ACTJTV Tape Data Set Journal File that contains the algorithm id JTV and computation code 3300, and set the desired rate.

HINT: After you select the journal file, choose Option 3 from the Journal File Options menu and a list of algorithms will be displayed. Select each algorithm to review or modify it. If you have more than one algorithm, you will need to use Option 4 to qualify them.

Submit the MAGRUN job when you END from the Rate Table and ensure that it completes with condition code 0. Review the MICSLOG to ensure that it ends with the BAS00172I message GENERATION PROCESS

COMPLETED SUCCESSFULLY.

Review the Schedule of Rates report produced by the MAGRUN to verify your computation code and rate for the Tape journal file.

Perform this step for each CA MICS unit that contains both the Tape Analyzer and CA MICS Accounting and Chargeback.

- ___ 5. This completes the implementation of your Tape charging algorithm. The ACTJTV journal file will be created in the next CA MICS DAILY run; you should review the Journal Run Status Log (MWF;4;2;4;5;1;1) to validate the charges.

You can also refer to the Daily Charges Summary Report by submitting `prefix.MICS.CNTL(BGTCNTL)`.

3.13 Avoiding IDMS Duplicate Charging

Duplicate charging can occur when multiple computation codes are selected for charging IDMS CPU time.

The standard computation codes whose associated data elements contain IDMS CPU time follow:

Comp Code	Data Element	Description
1902	SUASYSMT	IDMS Task CPU System Time
1903	SUAUSRTM	IDMS Task CPU User Time
1904	SUACPUTM	IDMS Total Task CPU Time
1905	SUASUCTM	IDMS zIIP Eligible CPU Time on a CP
1906	SUASPNTM	IDMS Normalized zIIP CPU Time
1907	SUAXCSTM	IDMS CPU Time Without zIIP Eligible

The total CPU time on a general processor (CP) is contained in data element SUACPUTM (1904).

This total CPU time on CP processors is broken down in two different ways:

- 1) SUASYSMT (1902) + SUAUSRTM (1903) = SUACPUTM (1904)
- 2) SUAXCSTM (1907) + SUASUCTM (1905) = SUACPUTM (1904)

With number 1 - You can charge differently for User time versus System time.

With number 2 - You can charge differently for work that had to run on a CP engine versus work that could have run on a zIIP processor if it had been available.

The following table shows you how to avoid duplicate charging for CP processor CPU time based on the computation codes you use:

AVOIDING DUPLICATE CHARGES:

+-----+			
If you charge for		You should not	
COMP CODE:		charge for:	
+-----+			
COMP	Associated	COMP	Associated
CODE	Data element	CODE	Data element
=====			
1902	SUASYSMT	1904	SUACPUTM

		1905	SUASUCTM
		1907	SUAXCSTM
1903	SUAUSRTM	1904	SUACPUTM
		1905	SUASUCTM
		1907	SUAXCSTM
1904	SUACPUTM	1902	SUASYSTM
		1903	SUAUSRTM
		1905	SUASUCTM
		1907	SUAXCSTM
1905	SUASUCTM	1902	SUASYSTM
		1903	SUAUSRTM
		1904	SUACPUTM
1907	SUAXCSTM	1902	SUASYSTM
		1903	SUAUSRTM
		1904	SUACPUTM

Chapter 4: CUSTOMIZATION

This chapter explains how to set all of the parameters available in Accounting and Chargeback to tailor the product for your installation.

You need to decide how you want to set many of these parameters in order to install Accounting and Chargeback in a complex. Review the planning checklist in Section 2.1 to understand what decisions you need to make. Use this chapter to plan the installation by reviewing the information in this chapter and entering your decisions on the worksheets provided. Following this approach will make the installation go more smoothly.

This section contains the following topics:

- [4.1 Defining Cost Centers](#) (see page 204)
- [4.2 Defining Charging Elements, Invoice/Credit Categories](#) (see page 234)
- [4.3 Specifying Rates](#) (see page 284)
- [4.4 Accounting for Complex-Level External Files](#) (see page 346)
- [4.5 Defining Invoices](#) (see page 385)
- [4.6 Defining the Accounting Calendar](#) (see page 396)
- [4.7 Specifying the Journal Run Status Log Options](#) (see page 411)
- [4.8 Prorating Charges](#) (see page 415)
- [4.9 Specifying Adjustments to Charges](#) (see page 437)
- [4.10 Specifying Additional Charging Options](#) (see page 455)
- [4.11 Implementing Monthly Zero Balancing](#) (see page 459)
- [4.12 Accounting for Multiple Sites \(Multi-Sites\)](#) (see page 464)
- [4.13 Defining Journal Files](#) (see page 472)
- [4.14 Entering Budgets](#) (see page 482)
- [4.15 Defining and Submitting Utility Jobs](#) (see page 487)
- [4.16 Modifying Menus](#) (see page 506)
- [4.17 Activating/Deactivating the ACTYEAR4 element.](#) (see page 513)

4.1 Defining Cost Centers

CA MICS Accounting and Chargeback Option uses cost centers to determine how data is sorted and summarized for record keeping and invoicing. You must define the cost center levels, COSTCTR1- COSTCTR9, to describe the operating units in your organization. Cost Centers are defined using the Cost Center Definition option on the Parameter Specification and Generation Menu (MWF;4;2;3;1).

To define the cost center levels, you must define the Cost Center structure and code the Cost Routine. The Cost Center structure contains the number of cost center levels that you wish to use and a description of each level. The Cost Routine contains a SAS routine to assign data to each cost center level.

You can specify a Cost Center Identification Number to control the number of cost center levels that can be entered on the Cost Center Attribute Identification Data Entry Panel.

You can define Cost Center Validation Tables that can be used to enter a list of valid values at a particular cost center level (COSTCTRn).

Optionally, you can use the CA MICS Analyzer account codes to define your cost centers. CA MICS Analyzers sequence and summarize stored data based on user-defined key fields called account codes. These account codes usually take the form of cccACT1-cccACT9, where ccc is the CA MICS product identifier. An exception is the CA MICS Batch and Operations Analyzer (SMF), which uses ACCTN01-ACCTN09.

The following sections explain how to define your cost centers:

- 1 - Defining the Cost Center Structure
- 2 - Modifying the Cost Center Structure
- 3 - Assigning Cost Center Values
- 4 - Modifying Cost Center Values
- 5 - Specifying the Center Identification Number
- 6 - Cost Center Validation Tables
- 7 - Entering Cost Center Names and Addresses
- 8 - Specifying the Cost Center Billing Status

4.1.1 Defining the Cost Center Structure

The cost center structure is defined using the Cost Center Structure option on the Cost Center Definition Menu (MMF;4;2;3;1;1).

How the cost center structure is defined is critical because CA MICS Accounting and Chargeback organizes all of its accounting information based primarily on the cost center fields. That is, the cost center fields occupy the highest position in the sort key of the accounting files.

COST CENTER FIELDS

Cost center fields have data element names of the form COSTCTRn, where n is an integer between 1 and 9. The number and length of the cost center fields are defined uniquely by each installation to meet its needs. To define your cost center structure, you have to determine how your installation needs its accounting information organized and translate those requirements into the cost center structure.

INVESTIGATING YOUR INSTALLATION'S COST CENTER REQUIREMENTS

The tasks required to investigate your installation's cost center requirements include the following:

- o Identify the financial information breakdowns (report subsets) and the set of sequence variables required to define those breakdowns. Unless a suitable cross reference table exists, your reporting sequence variables must be a part of the cost center structure.

Potential information breakdowns include:

- Organizational structure, such as department, project, and employee.
- Internal IS management identifiers that may be directly or indirectly related to charging, such as application name, test, or production status.
- External classification information, such as general ledger account codes. Since the data processing department is often required to provide charges organized by the corporate chart of accounts as input to the general ledger system, a substantial amount of

translation effort can be eliminated by including these codes in the cost center structure.

- Indicators of special billing requirements. Since CA MICS Accounting and Chargeback allows separate charging algorithms to be specified at the COSTCTR1 level, some special rate considerations may be addressed in this way.

- o Identify how the codes are specified.

Once you have determined the cost center structure, you must decide how you want it expressed in the database. You must settle on the number of cost center levels (CA MICS supports 1 through 9) and what will be placed in them. Because the cost center fields are part of the sort key of the files in which they exist, there will exist at least one record for each unique combination of values, and because there are other fields in the keys, there may exist more than one record for each unique combination of values.

WHERE THE COST CENTER STRUCTURE IS STORED

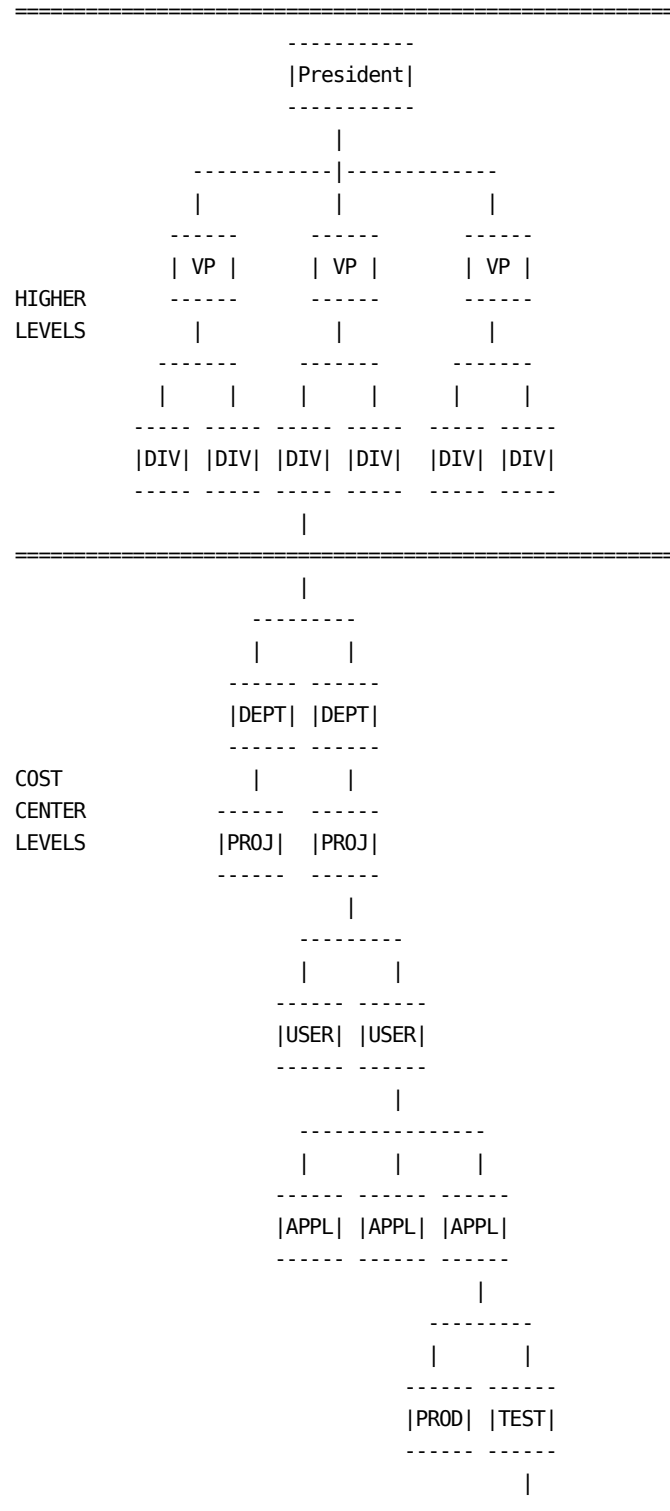
The cost center structure is stored in the COSTCTR member in sharedprefix.MICS.PARMS.

USABILITY CONSIDERATIONS

The System Administrator should be aware of usability and space considerations, as described below.

An elaborate cost center structure tends to be difficult to develop and maintain. If the cost center structure properly identifies the different business groups of the firm, any higher level groupings used for reporting can be derived as needed. Since a separate cost center level is not required for each reporting group, we recommend a comprehensive, yet simple, definition of the structure.

The following diagram illustrates an organization structure with the cost center levels beginning at the department level. Each department is unique within the organization.



EXTERNAL
LEVELS

-----|-----
| GL | | GL | | GL |

The cost center structure allows standard reporting as well as any additional ad hoc reporting. The relationship between the entities of a hierarchical structure (for example, a department within a division) can be easily defined via a set of user-specified parameters.

This cost center structure also provides for internal IS information that may not be directly utilized for charging. In this case, the cost center structure retains the application identification and whether the mode of operation was production or testing.

External reporting requirements were also considered, although they were not explicitly incorporated into the cost center structure. In this case, an installation-developed translation table will be used to convert certain cost center levels into general ledger account codes as required for input into the corporate accounting system.

SPACE CONSIDERATIONS

You must determine the number of cost centers and their values. Because cost centers are part of the key of the files in which they exist, there will exist at least one record for each unique combination of values. Because the key contains other fields as well, more than one record may exist for each cost center value. The greater the number of unique values, the greater the number of observations each file will contain and the greater the amount of DASD the file will require. A large number of unique values will also limit the amount of summarization that will occur at higher timespans.

The following sections describe how to complete the cost center structure:

- 1 - Cost Center Structure Worksheet
- 2 - Cost Center Structure Example

4.1.1.1 Cost Center Structure Worksheet

Figure 4-1 is the Cost Center Structure Worksheet.

COST CENTER STRUCTURE WORKSHEET

Level	Length	Cost Center Name
1	----	-----
2	----	-----
3	----	-----
4	----	-----
5	----	-----
6	----	-----
7	----	-----
8	----	-----
9	----	-----

Figure 4-1. Cost Center Structure Worksheet

Use the worksheet to define the following parameters:

1. LEVEL

Description: The level of importance of each element is specified, where Level 1 is the most important (major field) and the highest level number is the least important (minor field). A cost center data element is built for each cost center level that is defined. For example, if the reporting needs for Accounting and Chargeback include five levels, then the accounting files in the CA MICS database would have the following data elements:

COSTCTR1 COSTCTR2 COSTCTR3 COSTCTR4 COSTCTR5

Default: None

Values: Numeric, from 1-9. Cost center numbers must be defined sequentially with no gaps between levels. However, values do not have to be defined for all nine cost center levels.

NOTE: Unlike other CA MICS product files, in which SYSID is the highest, COSTCTR is the highest level of the sort key of accounting files.

2. LENGTH

Description: The length of the specified element.

Default: None

Values: Numeric, from 1 to 30.

3. COST CENTER NAME

Description: The name that describes the cost center level. This will be the SAS label associated with the variable COSTCTR_x and can be used in SAS reporting.

Default: None

Values: Character, length 40, enclosed in single quotes.

4.1.1.2 Cost Center Structure Example

The sample installation needs three account codes to accommodate its accounting and chargeback needs. The structure is as follows:

COSTCTR1 represents the department and is derived from the first three characters of the job name from SMF data.

COSTCTR2 represents the project and is derived from the second three characters of the job name from SMF data.

COSTCTR3 represents the user and is derived from the first twenty characters of the programmer name field from SMF data.

To set up the cost centers, code the following:

```

-----
+-----+
| Date: __/__/__           Administrator: _____ |
+-----+
Level    Length    Cost Center Name
-----
1        __3      _ 'DEPARTMENT' _____
2        __3      _ 'PROJECT'   _____
3        _20      _ 'USER'     _____
-----

```

Figure 4-2. Cost Center Example

The site has three fields. The first two each contain three characters of information and the last can contain twenty characters.

4.1.3.1 Cost Center Derivation Worksheet

Figure 4-3 is the Cost Center Derivation Worksheet.

Follow the guidelines for implementing CA MICS exits in Section 2.3.1.5, Notes on Coding CA MICS Parameters, in the PIOM to write the routine.

[illegible]

Figure 4-3. Cost Center Derivation Worksheet

4.1.3.2 Cost Center Derivation Example

Figure 4-4 shows the SAS coding that supports the cost center example shown in Section 4.1.1.2.

```

-----
+-----+
| Date: __/__/__      Administrator: _____ |
+-----+
Cost Center Derivation Exit (COSTRTE):
/*
    CCI'S COST CENTER DERIVATION EXIT

    DEPARTMENT IS BUILT FROM POSITIONS 1-3 OF THE JOBNAME.
    PROJECT IS TAKEN FROM POSITIONS 4-6 OF THE JOBNAME.
    USER NAME IS TAKEN FROM POSITIONS 1-20 OF THE PROGRAMMER
    NAME FIELD.

    IF THE DEPARTMENT IS NOT DEV, PRD, OR TST,
    IT IS INVALID AND THE COST CENTERS ARE SET TO
    THOSE OF THE INSTALLATION OVERHEAD ACCOUNT, "****".

    IF NO JOB CARD DATA (PROGRAMMER NAME FIELD) IS PRESENT,
    THE USER CODE IS SET TO BLANKS.
*/
.
.
IF ROUTINE = 'DYSMFFMT' THEN DO;
    COSTCTR1=SUBSTR(JOB,1,3) ;
    IF COSTCTR1='DEV' OR COSTCTR1='PRD'
    OR COSTCTR1='TST' THEN DO;
        COSTCTR2=SUBSTR(JOB,4,3) ;
        COSTCTR3=JOBPRGMN;
    END;
    ELSE DO;
        COSTCTR1='****' ;
        COSTCTR2='****' ;
        COSTCTR3='****' ;
    END;
END;
ELSE IF ROUTINE = 'DYcccFMT' THEN DO;
.
END;

```

Figure 4-4. Cost Center Derivation Example

4.1.2 Modifying the Cost Center Structure

When you change the number of cost center levels or the length or description of a cost center level, you must modify the cost center structure.

Run the ACTCGEN job in sharedprefix.MICS.CNTL after changing the cost center structure. This job generates the ACTACCT and ACTCLEN macros in sharedprefix.MICS.MACAUTOS. The macros contain SAS LABEL, LENGTH, and KEEP information. If you change the number of cost center levels or decrease the length of a cost center level, you must also retrofit the month-to-date and year-to-date Ledger Files and the TABLES Files.

STEPS TO MODIFY THE COST CENTER STRUCTURE

Follow the checklist below to modify the cost center structure:

- 1. Suspend operation of CA MICS Accounting and Chargeback in each database unit in which it is installed. Mark the Checkpoint File in each unit "non-updatable" by setting B=900 to B=999 in the first record of each unit's prefix.MICS.CHECKPT.DATA.
- 2. Select Option 1, Cost Center Definition, on the Parameter Specifications menu.

Select Option 1, Cost Center Structure, on the Cost Center Definition Menu. This places you in ISPF Edit of sharedprefix.MICS.PARMS(COSTCTR). Modify the definition as required.

- 3. Submit the job ACTCGEN in sharedprefix.MICS.CNTL. If you have changed the cost center structure, you are automatically asked to submit this job when you END from the Cost Center Definition Menu.

You can also submit this job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(ACTCGEN)'
```

NOTE: The online panels will not recognize the new cost center structure until the ACTCGEN completes. If you are in the Workstation Facility (MWF), you must exit and re-enter MWF.

- ___ 4. If you need to change the contents of any cost center level, follow the checklist in Section 4.1.4, Modifying Cost Center Values.
- ___ 5. Run the unit level MAGRUN job from TSO for units that have accounting installed:

SUB 'prefix.MICS.CNTL(MAGRUN)'

- ___ 6. If you changed the number of cost center levels or decreased the length of a cost center level, you must retrofit the files listed below. The files must be retrofitted even if they do NOT contain observations, because the SAS file directory has the length values.

MONTHS - ACTLGRnn
YEARS - ACTLGRnn
TABLES - ACTRCPnn
 ACTSCTnn
 ACTSDTnn
 ACTBGTnn
 ACTCCAnn
 ACTCNVnn
 ACT_YRnn
 ACTHOLD
 ACT_RCnn
 ACT_SCnn
 ACT_YTnn
 ACT_YTH

NOTES: It is not necessary to retrofit the journal files and DAYS Ledger Files. They will be aged and deleted in normal processing.

ACTHOLD and ACT_YTH have the same format as the Year-to-Date Financial Recap File (ACT_YR). They are used to hold the current versions of the Year-to-Date Financial Recap File (ACT_YR) and the Multi-Site Year-to-Date Financial Recap File (ACT_YT).

- a. Back up the files before and after the retrofit.
- b. Before attempting to retrofit any of the files, refer to Sections 6.3.2 and 6.3.3 of the System Modification Guide for information on retrofitting files.

- c. Develop the retrofit code for the online database. Be aware of the following potential dangers:
 - o Specify the length of the new or changed cost center levels with either a LENGTH statement or an assignment statement with the correct length. The standard CA MICS macro '%xxxLEN(TS=sss)' gives the generated length statements, where xxx is the file identifier.
 - o If the values in the cost centers change, be sure to add the sort.

Sample code to retrofit the month-to-date Ledger File follows:

```
DATA WORK.ACTLGR00 (KEEP=%LGRKEEP(TS=MONTHS));
%LGRLEN(TS=MONTHS);
%LGRLBL;
SET &ACTM..ACTLGR00;
... add retrofit code here ...
RUN;
PROC SORT DATA=WORK.ACTLGR00 OUT=&ACTM..ACTLGR00;
  BY %LGRSEQ(TS=MONTHS);
RUN;
```

NOTE: You should test the retrofit logic on one file and print a PROC CONTENTS of the resulting file to ensure the correct placement and size of the cost center fields by using the following coding:

```
PROC CONTENTS DATA=&ACTM..ACTLGR00;
```

For the TABLES files the TS option is APPL. For example, the ACTSDT00 file retrofit code would use a %SDTLEN(TS=APPL) macro to reset the lengths in the file.

- d. Run the job(s) to retrofit all of the online databases that you constructed in step c.

- 7. Run the following jobs IN THE ORDER THEY ARE LISTED to recreate the ISPF tables. The jobs are located in sharedprefix.MICS.CNTL.

```
ACTBGTL0
ACTBGTL1
```

ACTCCALD
ACTADJLD*

* You must run ACTADJLD twice, once for cycle 00 and once for cycle 01. After running the job the first time, edit the job and change the SYSPARM from "CYCLE=00" to "CYCLE=01". Then run the job again.

- ___ 8. If you use cost center validation tables, review them using the Cost Center Validation Tables option (MWF;4;2;3;1;4) and change them, if necessary. If you make a change to the validation tables, you will be prompted to run the ACTXCCC job in sharedprefix.MICS.CNTL.
- ___ 9. If you decreased the number of cost center levels, you must delete the validation tables for the levels you are no longer using. Delete the member ACTCCn, in sharedprefix.MICS.ISPTLIB, where "n" is the cost center level 1-9.
- ___ 10. If you changed the length of your COSTCTR1 level, review any COSTCTR1 values used in Rate Table Algorithm Qualification (MWF;4;2;3;6;4) and in any COSTCTR1 qualification groups (MWF;4;2;3;9).
- ___ 11. Review the number of levels of invoice reporting in the Accounting Options panel. Review the Rate Table, External File definition, Prorating, and Qualification Group definitions for any references to specific cost centers that need to be changed.
- ___ 12. Resume normal processing in each database unit in which CA MICS Accounting and Chargeback is installed. Mark the Checkpoint File in each database unit "updatable" by resetting B=999 to B=900 in the first record of the prefix.MICS.CHECKPT.DATA file in each unit.
- ___ 13. If you changed the number of cost center levels, optionally, reprint Appendix B, the Data Dictionary. Each file's Sequence/Summary Data Element list will have the updated COSTCTRn data elements.

4.1.3 Assigning Cost Center Values

Once you have defined the cost center fields to be kept in the CA MICS Accounting and Chargeback Option files, you must code an exit in SAS that will assign values to these fields. You store this exit routine in the `COSTRTE` member of the `sharedprefix.MICS.PARMS` library. Use the `COSTRTE` member to assign values when the CA MICS database records and the external file records are being processed. To code the routine, select the Cost Routine option on the Cost Center Definition Menu (MWF;4;2;3;1;2).

The appropriate CA MICS program uses `COSTRTE` for each work unit processed. The exit routine must assign values to all cost center levels defined in `sharedprefix.MICS.PARMS(COSTCTR)`, even if the values are blank. This routine **MUST** be correct or the wrong user groups will accrue the charges. Because of this, we recommend that you test the routine.

There is a sample routine delivered with CA MICS Accounting and Chargeback Option in member `COSTRTE` in `sharedprefix.MICS.HOLD.PARMS`.

Your cost center derivation exit has available to it each of the account code fields of the products used in charging (for example, `ACCTN01-n`, `IMSACT1-n`, and `CICACT1-n`, for the CA MICS Batch and Operations Analyzer (SMF), IMS Analyzer, and CICS Analyzer, respectively), as well as the fields that are documented in the CA MICS Data Dictionary for the products.

IMPORTANT: You cannot assign any characters less than hexadecimal '40', the representation of blank, to your cost centers. If any characters less than hexadecimal '40' are assigned, invoice level and billing status may not be assigned correctly when the Financial Recap File is created at the end of accounting period.

CODING CONSIDERATIONS

In coding the cost routine (`COSTRTE`), you must build the cost center fields for all CA MICS data that you will use in CA MICS Accounting and Chargeback Option. You must have an IF statement testing the `ROUTINE` variable for each product for which you are charging. The value of `ROUTINE` is `DYcccFMT`, where `ccc` is the product identifier, for CA MICS Analyzers and Field Developed Applications. For external files, the

value of ROUTINE is fffINPUT, where fff is the last three characters of the external file name. Each section of code must specify the cost center values appropriate for the product. This is important because different data is available for each product being processed.

If you have the CA MICS Analyzer for MeasureWare OS Agents installed, use an IF WRKNAME= statement in the section for ROUTINE DYAUFORMAT to test whether the Application Performance File (AUMAPP) or UNIX Process Activity File (AUMKPS) is being processed. The elements available to populate the cost centers differ depending upon which file is being processed. In particular, the AUMAPU element is only available from the AUMAPP file and the AUMACTn elements are only available from the AUMKPS file. Refer to the sample COSTRTE member for an example.

The routine must be a valid SAS routine with no embedded DATA or PROC statements. Do not use SAS labels in the COSTRTE, because the CA MICS code includes this routine multiple times. Any label would cause a 'duplicate SAS label' error. In addition, do not use a RETURN or DELETE statement in the COSTRTE. They cause records to be dropped or deleted from all files.

For charging from CA MICS files, your Cost Center Derivation exit can use any of the data elements contained in the CA MICS database files. In addition, the exit can make use of some data elements (such as ACTFLD1-5 for SMF) that are not written to the database, but are temporarily available at the time of the exit. If the COSTCTR1-n values are derived directly from the ACTFLD1-5 fields in the DYSMFFMT routine, you must check the I_AUDIT or the J_AUDIT indicator to determine whether either of these records is present before valid ACTFLD1-5 values are available.

Many installations derive the COSTCTR1 values from a SAS PROC FORMAT built in a previous job. You can store SAS PROC FORMATS in your sharedprefix.MICS.MCOLIB library on a periodic basis to reflect any new elements that may be chargeable. The binary search used by SAS in these tables makes this coding technique very efficient. The instruction in the COSTRTE to search the previously built SAS PROC FORMAT should be in the following form:

```
COSTCTR1 = PUT(JOB,$USRFMT.);
```

The \$USRFMT FORMAT contains each possible JOB with its corresponding COSTCTR1 value. A value of OTHER is placed in

the PROC FORMAT as a default value in case there is not a match. If you use a PROC FORMAT, then you must code a SAS RETAIN statement at the start of the COSTRTE to initialize the search elements (for example, JOB, USERID, RSCACCT); otherwise, a SAS error will occur. If you code a RETAIN statement for one or more COSTCTR variables, you must ensure that these variables are assigned values for each record to prevent the values from propagating from previous records.

Review the PIOM or the CA MICS product guides to compare other coding techniques for the various account routines in relationship to the COSTRTE coding.

The following codes the COSTRTE member for the cost center structure example shown in Section 4.1.1.2:

```
/* SAS coding example of the COSTRTE member */
IF ROUTINE = 'DYSMFFMT' THEN DO;
  COSTCTR1 = SUBSTR(JOB,1,3);
  COSTCTR2 = SUBSTR(JOB,4,3);
  COSTCTR3 = JOBPRGNM;
END;
```

Considerations for Complex-Level External Files

For complex-level external files, you can code a statement in your external file input routine to invoke the Cost Center Derivation Exit. The statement is:

```
%INCLUDE SHRPARMS(COSTRTE);
```

Coding this statement is optional and is not necessary if you have assignment statements for the COSTCTRs as part of your complex-level external file input routine.

For CA MICS-supplied external file interfaces, such as NSM Asset Management Option (AMO), NT resource accounting data (NTA), and CA IAM, the COSTRTE routine is called as each input record is processed, and the cost center values are derived based on the code that you supply in COSTRTE.

For the AMO interface, you can use any data fields that are read from the input record in coding the COSTRTE routine. The default set of variables that can be used to derive cost center values include:

DOMAIN	- The domain in which the asset is defined.
U_NAME	- The unit name of the asset. In AMO, a unit

identifies a single computer.

U_ID	- The unit id corresponding to the unit name.
AREA	- The AMO area. In AMO, an area identifies a number of units that can be managed together.

For the NTA interface, you can use any data fields that are read from the input record in coding the COSTRTE routine. The default set of variables that can be used to derive cost center values include:

MACHINE	- The name of the NT machine
USERID	- User ID. This is the login name for which the data has been collected.

Optionally, you can create a SAS format for each of your complex-level external files by using the Cost Center Look Up Table panel. The format's name is \$ACTUfff, where fff is the last three characters of the external file name. This facility allows you to translate the input fields into meaningful account code values. You can use the format in your COSTRTE routine in place of numerous IF statements. See Section 4.4.5, Entering Cost Center Look Up Table Values, to determine how to create the SAS format.

The following provides a sample COSTRTE routine for NT resource accounting data (NTA):

```
/* SAS coding example of the COSTRTE member */
IF ROUTINE = 'NTAINPUT' THEN DO;
  COSTCTR1 = SUBSTR(MACHINE,1,4);
  COSTCTR2 = USERID;
END;
```

If you use the Cost Center Table Look Up feature to build a SAS format for translation, you can use the format in your routine as follows:

```
IF ROUTINE = 'NTAINPUT' THEN DO;
  RETAIN MACHINE USERID;
  COSTCTR1 = PUT(MACHINE,$ACTUNTA.);
  IF COSTCTR1='NONE' THEN COSTCTR1= MACHINE;
  COSTCTR2 = PUT(USERID,$ACTUNTA.);
  IF COSTCTR2='NONE' THEN COSTCTR2= USERID;
END;
```

The following sections describe how to complete the derivation:

- 1 - Cost Center Derivation Worksheet
- 2 - Cost Center Derivation Example

4.1.4 Modifying Cost Center Values

You must modify the cost routine when you change the contents of one or more of your cost centers. If you are adding or deleting a cost center level, or if the length of one or more of your cost centers is changing, use the checklist in Section 4.1.2, Modifying the Cost Center Structure.

Use this checklist only if the length or number of your cost centers does not change. For example, if you want to start charging for a CA MICS product, you must code SAS statements to assign data to each of your cost center levels for that product. If your Cost Center Structure does not change, you need to modify only your cost routine and you may use this checklist.

You do not need to run a generation job after changing the cost routine. The cost routine is dynamically included in the accounting processing for each CA MICS product.

STEPS TO MODIFY THE COST ROUTINE

- 1. Create a backup copy of the sharedprefix.MICS.PARMS member COSTRTE.
- 2. Suspend operation of CA MICS Accounting and Chargeback in each database unit in which it is installed. Mark the Checkpoint File for each unit "non-updatable" by setting B=900 to B=999 in the first record of each unit's prefix.MICS.CHECKPT.DATA file.
- 3. Select Option 1, Cost Center Definition, on the Parameter Specifications menu.

Select Option 2, Cost Routine, on the Cost Center Definition Menu. This places you in ISPF Edit in sharedprefix.MICS.PARMS(COSTRTE). Modify the SAS code as required.

- 4. Test the routine by running a Daily job in a test database unit or with Interactive SAS.

If you do not have a test unit, you can test the COSTRTE by coding and executing a SAS program to invoke it from a batch job or online using the MWF MSAS facility. For example, to test the cost center

assignments for SMF, you could use the following routine:

```
DATA TEST;  
ROUTINE = 'DYSMFFMT';  
/* ASSIGN ALL VARIABLES REFERENCED FOR SMF HERE */  
%INCLUDE SHRPARMS(COSTRTE);  
RUN;  
PROC PRINT;  
RUN;
```

- 5. Resume normal processing in each database unit in which CA MICS Accounting and Chargeback is installed. Mark the Checkpoint File in each database unit "updatable" by resetting the B=999 to B=900 in each unit's prefix.MICS.CHECKPT.DATA file.

4.1.5 Specifying the Cost Center Identification Number

The Cost Center Identification Number specifies the number of cost center levels to be used for data entry of cost center name and address information (Cost Center Attributes) and the number of levels that can have invoice options defined. For example, you may have seven cost center levels defined for your organization, but you only send invoices to cost centers at levels 1 through 4. With the Cost Center Identification Level set to 4, you can only specify attributes and invoice options for cost centers at levels 1 through 4. The valid Cost Center Identification Number values are 1 through 9. The default value is 1.

The Cost Center Identification Number is important because it controls the number of COSTCTR fields on the Identification Data Entry panel. It should normally be set to the lowest cost center level (1 > 9) at which you will produce invoices.

The Cost Center Identification Number can be changed at any time. Changing the number affects only data entry functions; it does not delete previously entered cost center attribute data. For example, if you set the number to 4 and entered attributes and invoice options for a cost center at level 4, the attribute and option data would remain unchanged if you subsequently changed the Cost Center Identification Number to 3. However, only the values for COSTCTR1- COSTCTR3 would be displayed on the Identification Data Entry panel.

The Cost Center Identification Number allows you to enter budgets for lower level cost centers without specifying a name for each unique combination of COSTCTR values. Thus, it affects the way that budget data is accessed and displayed. The Budgets Selection panel displays individual cost centers by the name associated with that set of COSTCTR values on the Cost Center Identification panel. Budgets for cost centers at levels below the ID number are accessed by selecting the parent cost center at the ID level or higher.

For example, if the Cost Center Identification Number is 3, budgets for cost centers at levels 4 through 9 would be accessed from the parent cost center at level 3 or above (3 - 1).

When you select a cost center name on the Budgets Cost Center Selection panel, the values of the corresponding COSTCTR variables at or above the ID number will be displayed in browse. The COSTCTR values below the ID number can be modified. If data is entered into a subordinate level and

the ID number is subsequently made equal to or greater than that level, a name must be associated with the subordinate cost center before its budgets can be accessed from the Budgets Selection panel. Therefore, if the ID number is changed to a larger number (lower in the hierarchy), names should immediately be supplied for cost centers at the newly included levels.

STEPS TO SPECIFY THE COST CENTER IDENTIFICATION NUMBER

- ___ 1. Select Option 1, Cost Center Definition, on the Parameter Specifications menu.

Select Option 3, Cost Center Identification Number, on the Cost Center Definition Menu. Change the identification number to the value required.
- ___ 2. If you have increased the Identification Number, you may wish to create a corresponding Cost Center Validation Table.
- ___ 3. If you have budget entries and you want to automatically create any required name entries in the Cost Center Attributes Identification Table, do the following:
 - o Submit ACTXBGT0 and ACTXBGT1 from sharedprefix.MICS.CNTL to generate the ACTBGT00 and ACTBGT01 SAS files from your ISPF budget tables. This is to ensure that these files reflect the current contents of the budget tables.
 - o Submit ACTBGT0 and ACTBGT1 from sharedprefix.MICS.CNTL to load the ISPF budget tables from the SAS files and to create name entries in the Cost Center Attributes Identification Table (ACTCID) for any "orphan" budget records.
- ___ 4. If you have decreased the Cost Center Identification number (that is, made it smaller), you should display the Identification Cost Center Selection panel (MMF;4;2;1;1) and enter CLEANUP on the Command line. This will delete any name entries for cost centers at levels higher than the Cost Center Identification number.

4.1.6 Cost Center Validation Tables

Cost Center Validation Tables provide a method for ensuring that erroneous data is not entered into the Budgets, Debits and Credits, or Cost Center Attributes tables. This may be significant for installations in which online data entry is not performed by individuals who are intimately familiar with the cost center codes. In addition, initialization of a Validation Table for a given cost center level automatically provides selection list entry support for that level. That is, if you are unsure of the proper code to enter, you can enter a question mark and the contents of the validation table is displayed as a selection list. An entry selected from this list will replace the question mark in the original field.

The validation tables are also used if the online Cost Center Attributes ISPF table is loaded from the SAS file (ACTCCA01) by the ACTCCALD job.

Descriptions entered on a cost center validation table can optionally be used on invoices instead of the actual cost center values.

The following sections explain how to define or print your Cost Center Validation Tables:

- 1 - Defining Cost Center Validation Tables
- 2 - Printing Cost Center Validation Tables

4.1.6.1 Defining Cost Center Validation Tables

You can create a Cost Center Validation Table for each cost center level. Each table contains a list of all valid cost center values for that cost center level. You can enter a description for each cost center value. Once a table is initialized, only values contained in the table can be entered at that level for online or batch data entry.

You can type the cost center values in an empty validation table or populate the new table with the values already entered on the Cost Center Attributes table. Alternatively, you can update the table in batch using the batch update utility jobs under the Special Requirements menu option (MWF;4;2;S;3 and MWF;4;2;S;4). Subsequent table maintenance can be performed by adding, changing, or deleting entries on the panel.

The SAS PROC FORMATS \$ACTnCC, where n is 1-9, are created from these tables by the ACTXCCC generation job. These formats are used by the CA MICS Accounting and Chargeback invoice reports if you specify that the validation descriptions should be used on the invoice instead of the cost center values. They are also available for user-written reports.

STEPS TO DEFINE COST CENTER VALIDATION TABLES

Changes to the Cost Center Validation Tables become effective immediately, but the ACTXCCC generation job should be run to generate the SAS PROC FORMATS \$ACT1CC - \$ACT9CC.

- 1. Select Option 1, Cost Center Definition, on the Parameter Specifications menu.

Select Option 4, Cost Center Validation Tables, on the Cost Center Definition Menu.
- 2. Specify whether or not to use the cost center validation descriptions from the Cost Center Validation table on invoices instead of the cost center values.
- 3. Select the desired cost center level from the selection list.
- 4. If you are creating a Validation Table for this cost center level for the first time, either start with an

empty table or populate the new table with the values already entered in the Cost Center Attributes table and budget files.

- ___ 5. Submit the job ACTXCCC in sharedprefix.MICS.CNTL.
- ___ 6. If you wish to discontinue validation for a cost center level, you can (a.) delete all of the values in the validation table for that cost center level or (b.) delete the member.
 - a. Delete all of the values in the validation table, using the Cost Center Validation Table panel (MWF;4;2;3;1;4) or the Cost Center Validation dialog.
 - b. Delete member ACTCCn, where "n" is the cost center level, in sharedprefix.MICS.ISPTLIB.

In either case, submit the job ACTXCCC in sharedprefix.MICS.CNTL.

4.1.6.2 Printing Cost Center Validation Tables

The Cost Center Validation Tables can be printed in two ways: by the ACTXCCC generation job, and the ACTCCCPT report job. The ACTXCCC generation job is run when the validation tables are defined, either through the panels or through a batch load utility. The ACTCCCPT job simply reports on the contents of the Cost Center Validation Tables. Both the ACTXCCC and the ACTCCCPT jobs can be found in `sharedprefix.MICS.CNTL`.

By default, the ACTCCCPT job prints the contents of all defined Cost Center Validation Tables. However, you can use the `CCLVL SYSPARM` parameter to restrict the report to a single validation table. For more details, see the following checklist.

STEPS TO PRINT THE COST CENTER VALIDATION TABLES

Note that the ACTCCCPT job does not report on the Cost Center Validation Tables directly from ISPTLIB. It reports instead on the SAS formats created from the validation tables by the ACTXCCC generation job.

- __ 1. Edit `sharedprefix.MICS.CNTL` member `ACTCCCPT`.
- __ 2. If you want to restrict the report to one Cost Center validation Table, include `CCLVL=n` in the `SYSPARM` value defined on the `EXEC` statement, where `n` is the number of the cost center whose validation table you want to print.

For example, to restrict the report to the validation table for cost center 1, change the `EXEC` statement from:

```
//ACTCCCPT EXEC MICSCOM,SYSPARM='NODB'
```

to:

```
//ACTCCCPT EXEC MICSCOM,SYSPARM='NODB,CCLVL=1'
```

- __ 3. Submit the ACTCCCPT job.

4.1.7 Entering Cost Center Names and Addresses

Enter cost center names and addresses using Option 1, Identification, on the Cost Center Attributes Menu (MMF;4;2;1;1;1). You can enter a cost center name and address for any unique combination of cost center values. For example, you can enter a name and address for DIVISION1/DEPT1 and another for DIVISION1/DEPT2.

NAMES AND ADDRESSES ON INVOICES

To print on invoices, the name and address entries must be at the cost center level being invoiced. For example:

If the invoice level is 2:

- o Enter a name and address for every cost center 1/cost center 2 combination, such as DIVISION 1/DEPT 1, DIVISION 1/DEPT 2, and DIVISION 1/DEPT 3, and leave the other cost center values blank.

If the invoice level is 3:

- o Enter a name and address for every cost center 1/cost center 2/cost center 3 combination, such as DIVISION 1/DEPT 1/LOCATION 1, DIVISION 1/DEPT 1/LOCATION 2, and DIVISION 1/DEPT 1/LOCATION 3, and leave the other cost center values blank.

NAMES AND ADDRESSES ON SUPPLEMENTAL REPORTS

Cost center names and addresses on supplemental reports are based on the name and address entries at the lowest level in the cost center hierarchy. For example, if names and addresses are entered at DIVISION 1/DEPT 1 (cost center level 2) and at DIVISION 1/DEPT 1/LOCATION 1 (cost center level 3), the names and addresses on the supplemental reports would be based on the latter. For example, a supplemental report for DIVISION 1/DEPT 1/LOCATION 1/PROJECT 1 would derive its name and address from the entry for DIVISION 1/DEPT 1/LOCATION 1.

4.1.8 Specifying the Cost Center Billing Status

Use Option 2, Invoice Options, on the Cost Center Attributes Menu (MWF;4;2;1;1;2), to specify a cost center's billing status on invoices. You can, optionally, print all invoices or only those with a billing status of BILL or NOBILL. Refer to the Monthly Processing Checklist in Section 5.2, Running Monthly Processes.

Billing status for lower level cost centers is derived from the cost center to which they are invoiced. If, for example, projects (cost center level 3) are invoiced to departments (cost center level 2), the billing status of each project is determined by the entry for the department to which it is being billed. If no entry exists for the department, its status defaults to BILL.

CHANGES TO BILLING STATUS DURING THE YEAR

If you change the billing status during the year, the year-to-date charges that are summarized in the Year-to-Date Financial Recap File, and on the invoice, are separated out by billing status. You can cause the information to be resummarized, using the current billing status, by running the ACTYTDRF job in sharedprefix.MICS.CNTL.

4.2 Defining Charging Elements, Invoice/Credit Categories

Charging elements represent resources or items charged for, such as CPU time, transactions, or terminals. Each charging element must be associated with a computation code before it can be used in a Rate Table charging algorithm. Each computation code must be associated with an invoice category. And each credit that you issue must be associated with a credit category.

CA MICS Accounting and Chargeback is delivered with default charging elements, invoice categories, and credit categories already defined in tables. You can modify these tables to suit your installation.

The following sections provide more information to help you define charging elements, invoice categories, and credit categories:

- 1 - Defining Charging Elements
- 2 - Defining Invoice Categories
- 3 - Defining Credit Categories

4.2.1 Defining Charging Elements

Charging elements identify:

- o The data elements that are to be billed
- o The computation codes associated with the charging elements
- o The invoice categories in which they will be reported
- o The units in which they are measured
- o Whether or not the element resides discretely in the database or must be calculated from other data elements

You should research each element that is used for charging.

Some charging elements are not carried permanently in the CA MICS product files. These elements may be computed from other elements or they may be created by user exits. CA MICS Accounting and Chargeback can charge for these elements.

Because each charging element must be associated with a computation code, the terms are often used synonymously. However, the same charging element can be associated with more than one computation code.

For example, you might want to charge CPU time by zone and see a separate line item and description on the invoice for each zone. To do this, you would define multiple computation codes associated with CPU time, each having a different description. Then, in the Rate Table, you would specify a different computation code and rate to be used for each zone (using control variable charging).

Although charging elements must be defined in the Charging Element Table before they can be used in a charging algorithm, this does not cause the element to actually be used for charging. For it to be used for charging, you must specify the computation code associated with the charging element in a Rate Table charging algorithm.

A default charging element table is distributed with the system. However, to provide maximum flexibility, you may make additions or changes so that the reporting structure is consistent with installation requirements. Typically, user computation codes are added to define new charging elements for debits, field-developed applications, or external files; or to provide for more granularity of descriptions as in the

earlier example. You should use a computation code above 8000 for any computation codes that you add.

Before you can delete a computation code that has been used in a rate table, you must delete the computation code from all charging algorithms in which it has been used. This is the case even if the computation code has been used for a journal file that is currently not active.

If you delete a computation code that was used at one time, but is no longer present in any of the charging algorithms, the associated description will be deleted. Consequently, any reports from previously created files containing that computation code will not show its description.

You must run the CHRGEM job in sharedprefix.MICS.CNTL after changing the Charging Element Definition. This job executes the Invoice Category generation and then generates the following formats in sharedprefix.MICS.MCOLIB:

\$ACTCOMP--This format relates each computation code to its charging element name and indicates whether the charging element needs to be computed.

\$ACTCMPF--This format relates each computation code to its description.

\$ACTCICF--This format relates each computation code to an invoice category.

\$ACTCPUF--This format relates each computation code to its units description.

\$ACTCSRC--This format relates each computation code to its data source.

STEPS TO DEFINE CHARGING ELEMENTS

- ___ 1. Select Option 5, Charging Element Definition, on the Parameter Specifications menu to display the Charging Element Definition panel and make the changes that you need. Use the Select line command to change the specifications for a charging element.
- ___ 2. Submit the job CHRGEM in sharedprefix.MICS.CNTL. If you made any changes, you are automatically asked to submit this job when you END from the Charging Element Definition panel.

You can also submit this job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(CHRGELEM)'
```

- 3. If you changed the element name of a charging element that is being used in the Rate Table Definition for a unit, you must submit the MAGRUN job for the unit.

You can submit this job from TSO as follows:

```
SUB 'prefix.MICS.CNTL(MAGRUN)'
```

Use the following sections to define charging elements:

- 1 - Charging Element Worksheet
- 2 - Charging Element Example
- 3 - Table of Default Charging Elements

4.2.1.1 Charging Element Worksheet

Figure 4-5 is the Charging Element Worksheet.

Date: ____/____/____

Administrator: _____

CHARGING ELEMENT WORKSHEET

Comp Code	Inv. Catgy	Complex-Level External File (Y/N)	Element File	Element Name	Units	Description	Computation Routine
----	----	----	----	-----	-----	-----	-----
----	----	----	----	-----	-----	-----	-----
----	----	----	----	-----	-----	-----	-----
----	----	----	----	-----	-----	-----	-----
----	----	----	----	-----	-----	-----	-----
----	----	----	----	-----	-----	-----	-----
----	----	----	----	-----	-----	-----	-----
----	----	----	----	-----	-----	-----	-----
----	----	----	----	-----	-----	-----	-----
----	----	----	----	-----	-----	-----	-----
----	----	----	----	-----	-----	-----	-----
----	----	----	----	-----	-----	-----	-----
----	----	----	----	-----	-----	-----	-----
----	----	----	----	-----	-----	-----	-----

Figure 4-5. Charging Element Worksheet

Use the worksheet to define the following parameters:

1. COMPUTATION CODE

Description: Uniquely identifies this charging element to CA MICS Accounting and Chargeback Option.

Default: None

Values: Character, length 4, 0 - 9, A - F

NOTE: User-defined computation codes should be in the range of 8000 and above.

2. INVOICE CATEGORY

Description: The Invoice Category provides a way to map the detailed charging elements referenced by the computation code into categories more easily understood by the user. In some cases, there may be one-to-one correspondence between the computation code and the invoice category; in others, many computation codes may be reported in one invoice category.

Default: None

Values: Alphanumeric, length 4

NOTE: This must be a valid entry in the Invoice Category Table.

3. COMPLEX-LEVEL EXTERNAL FILE ELEMENT

Description: This field indicates whether the charging element belongs to a complex-level external file.

Default: NO

Values: Character, length 3

NOTE: For the standard and recurring debit and credit files, specify YES and refer to the directions for FILE and ELEMENT NAME.

4. FILE

Description: The CA MICS Analyzer file in which the

charging element resides.

Default: None

Values: Character, length 3

NOTE: If the source of the data element is a non-CA MICS (external) file, code the external file identifier (the last three characters of the external file name). For debit and credit files, specify SDT or SCT, as appropriate.

5. ELEMENT NAME

Description: The value of this data element will be multiplied by the rate to calculate the charge. If the database discretely retains the charging element, you must specify the element name that is listed in the CA MICS Data Dictionary. If you want to calculate the element, specify an unused element name.

Default: None

Values: Character, length 8

NOTES: This name must follow CA MICS naming conventions (the first three characters must be the same as the file name). For example, if the source of the data is the BATJOB file, code JOB as the first three characters of the element name.

For the Debit and Credit Files, specify SDTQNT or SCTQNT, as appropriate.

6. MEASURED UNITS

Description: A description (up to 16 characters) of the units (for example, seconds) in which the charging element was measured.

Default: None

Values: Character, length 16. You cannot use the single quote character in this field.

NOTE: This text will appear on the invoice.

7. CHARGING ELEMENT DESCRIPTION

Description: A label that describes the charging element.

Default: None

Values: Character, length 40. You cannot use the single quote character in this field.

8. COMPUTATION ROUTINE

Description: The appropriate CA MICS program uses the computation routine to calculate the value of the charging element. Testing the routine is your responsibility. If the element is already computed, leave this field blank.

Default: None

Values: See NOTE

NOTE: Your computation routine can use any of the data elements that the CA MICS database files contain. The CA MICS Data Dictionary documents these elements. In addition, the exit can make use of some data elements (such as ACTFLD1-5 in the CA MICS Batch and Operations Analyzer (SMF) files) that are not written to the database.

COMPUTATION ROUTINE CODING CONSIDERATIONS

In coding the computation routine, observe the following conventions:

- o The routine must be a valid SAS routine with no embedded DATA or PROC statements.
- o Do not use SAS labels because you may include the routine in the CA MICS code multiple times and any label could cause a "duplicate SAS label" error.
- o Do not use a RETURN or DELETE command. The invoking routine may not make a single pass through the DATA step for each observation.

4.2.1.2 Charging Element Example

In the example in Figure 4-6, the installation wants to add computation codes for tape and DASD volumes that will be brought in through the complex-level external file interface processing. The data from the complex-level external file interface is brought into the Debit File.

CHARGING ELEMENT WORKSHEET							
Comp Code	Inv. Catgy	Complex- Level External File Element File (Y/N)	Element Name	Units	Description	Computation Routine	
8001	7100	Y	USR	USRTAP	Reel Days	Tape Volumes	_____
8002	7200	Y	USR	USRDSO	Volume Days	DASD Volumes	_____

Figure 4-6. Charging Element Example

4.2.1.3 Table of Default Charging Elements

The tables shown in Figures 4-7a through 4-7v illustrate the default charging elements shipped with this product.

The column labeled FI is the Formula Indicator flag. It contains one of the following three values:

- 0 standard charging element
- 1 computed charging element
- C continuation of a computed charging element
 computation routine

The elements shown in these tables are eligible for charging, but only elements used in the Rate Table are actually charged.

Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
0001	1100	Job Resource Unit Charges				
		Job MVS Service Units	1000 MVS SUS	1	JOBKSU	JOBSERVU / 1000
0002	1100	Job System Resource Units	1000 SRUs	1	JOBKSRU	JOBWSRU / 1000
		Job CPU Charges				
0021	1100	Job CPU Instructions Executed	1 Million	0	JOBCPUNI	
0022	1100	Job CPU Time Consumed	TCB+SRB Seconds	0	JOBCPUTM	
0023	1100	Job TCB CPU Time Consumed	TCB Seconds	0	JOBTCBTM	
0024	1100	Job SRB CPU Time Consumed	SRB Seconds	0	JOBSRBTM	
0025	1200	Job I/O CPU Time Consumed	Seconds	1	JOBIOCTM	(JOBEXCPS * _IOCTM)
				C		/* _IOCTM MACRO must be defined in */
				C		/* #ACTEXIT by the user. */
0026	1100	Job Hipspace CPU Time	Seconds	0	JOBHIPTM	
0027	1100	Job I/O Interrupt CPU Time	Seconds	0	JOBIOITM	
0028	1100	Job Region Control Task CPU Time	Seconds	0	JOBRCTTM	
0029	1100	Job Vector Utilization CPU Time	Seconds	0	JOBVUTM	
0030	1100	Job Vector Affinity CPU Time	Seconds	0	JOBVATM	
		Job Memory Charges				
0041	1100	Job Real Memory Occupancy	Kcore-Hours	0	JOBRKHRS	
0042	1100	Job Virtual Memory Occupancy	Kcore-Hours	0	JOBVKHRS	
		Job Data Transfer Charges				
0061	2300	Job Communications Data Transferred	1000 Bytes	1	JOBKBCOM	JOBDCOMM / 1000
0062	1500	Job DASD Data Transferred	1000 Bytes	1	JOBKBDAS	JOBDSDASD / 1000
0063	1500	Job MSS Data Transferred	1000 Bytes	1	JOBKBMSS	JOBDMSS / 1000
0064	1400	Job Tape Data Transferred	1000 Bytes	1	JOBKBTAP	JOBDTAPE / 1000
0065	3100	Job Unit Record Data Transferred	1000 Bytes	1	JOBKBURE	JOBDUREC / 1000
0066	1100	Job VIO Data Transferred	1000 Bytes	1	JOBKBVIO	JOBDVIO / 1000
0067	3165	Job Graphics Data Transferred	1000 Bytes	1	JOBKBGRA	JOBDGRAF / 1000
0068	1100	Job APPC Data Sent	1000 Bytes	1	JOBKDATS	JOBDATAS / 1000
0069	1100	Job APPC Data Received	1000 Bytes	1	JOBKDATR	JOBDATAR / 1000
		Job Device I/O Charges				
0091	2300	Job Communication EXCPs	1000 EXCPs	1	JOBKECOM	JOBECOMM / 1000
0092	1500	Job DASD EXCPs	1000 EXCPs	1	JOBKEDAS	JOBEDASD / 1000
0093	1500	Job MSS EXCPs	1000 EXCPs	1	JOBKEMSS	JOBEMSS / 1000
0094	1400	Job Tape EXCPs	1000 EXCPs	1	JOBKETAP	JOBETAPE / 1000
0095	3100	Job Unit Record EXCPs	1000 EXCPs	1	JOBKURE	JOBEUREC / 1000
0096	1100	Job Virtual I/O EXCPs	1000 EXCPs	1	JOBKEVIO	JOBEVIO / 1000
0097	1200	Job Total EXCPs	1000 EXCPs	1	JOBKEXCP	JOBEXCPS / 1000
0098	3165	Job Graphics EXCPs	1000 EXCPs	1	JOBKEGRA	JOBEGRAF / 1000
		Job Elapsed Charges				
0121	1100	Job Elapsed Execution Time	Seconds	0	JOBEXCTM	
0122	1100	Job Pseudo Elapsed Execution Time	Seconds	0	JOBWPETM	

Figure 4-7a. Job Level Charging Elements (Part 1 of 3)

Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
0131	1100	Job Data Set Allocation Charges				
		Job Total Data Set Allocations	Data Sets	1	JOBATOTL	JOBADASD+JOBATAPE+JOBAMSS+JOBACOMM+JOBAUREC+JOBABVIO
0132	1500	Job DASD Data Set Allocations	Data Sets	0	JOBADASD	
0133	1400	Job Tape Data Set Allocations	Data Sets	0	JOBATAPE	
0134	1500	Job MSS Data Set Allocations	Data Sets	0	JOBAMSS	
0135	2300	Job Communication Data Set Allocations	Data Sets	0	JOBACOMM	
0136	3100	Job Unit Record Data Set Allocations	Data Sets	0	JOBAUREC	
0137	1100	Job VIO Data Set Allocations	Data Sets	0	JOBABVIO	
0138	3165	Job Graphics Data Set Allocations	Data Sets	0	JOBAGRAF	
		Job Device Allocation Charges				
0161	1500	Job DASD Device Allocations	Devices	0	JOBNDASD	
0162	1500	Job DASD Mountable Device Allocations	Devices	0	JOBMDASD	
0163	1400	Job Tape Device Allocations	Devices	0	JOBNTAPE	
0164	1500	Job MSS Device Allocations	Devices	0	JOBNMSS	
0165	2300	Job Communication Device Allocations	Devices	0	JOBNCOMM	
0166	3100	Job Unit Record Device Allocations	Devices	0	JOBNUREC	
0167	1100	Job VIO Device Allocations	Devices	0	JOBNVIO	
0168	3165	Job Graphics Device Allocations	Devices	0	JOBNGRAF	
		Job Device Occupancy Charges				
0191	1500	Job DASD Occupancy Time (Hours)	Hours	0	JOBDOHRS	
0192	1400	Job Tape Occupancy Time (Hours)	Hours	0	JOBTCHRS	
0193	1200	Job Channel Path Hours	Hours	0	JOBCPHRS	
0194	1200	Job Total I/O Hours	Hours	0	JOBTIHR	
0195	1200	Job Used I/O Hours	Hours	0	JOBTIHR	
0196	1500	Job DASD Occupancy Time (Minutes)	Minutes	1	JOBDMNS	JOBDOHRS * 60
0197	1400	Job Tape Occupancy Time (Minutes)	Minutes	1	JOBTOMNS	JOBTCHRS * 60
0198	1200	Job Channel Path Minutes	Minutes	1	JOBCPMNS	JOBCPHRS * 60
0199	1200	Job Total I/O Minutes	Minutes	1	JOBTIMNS	JOBTIHR * 60
0200	1200	Job Used I/O Minutes	Minutes	1	JOBTIMNS	JOBTIHR * 60
		Job Spool Charges				
0221	3100	Spool Output Processed (Total)	1000 Lines	1	JOBNLRL	JOBNLRL / 1000
0222	3100	Job Lines Printed (Local Impact)	1000 Lines	1	JOBNLRI	JOBNLRI / 1000
0223	3100	Job Printed (Remote)	1000 Lines	1	JOBNLRR	JOBNLRR / 1000
0224	3110	Job Lines Printed (Local Laser)	1000 Lines	1	JOBNLRL	JOBNLRL / 1000
0225	3100	Job Lines Printed (Local COMM)	1000 Lines	1	JOBNLRC	JOBNLRC / 1000
0226	3130	Job Cards Punched (Local Punch)	1000 Cards	1	JOBNLRP	JOBNLRP / 1000
0227	3100	Job Items Processed (User defined)	1000 Lines	1	JOBNLRU	JOBNLRU / 1000
0228	3110	Job 3800 Pages Printed	Pages	1	JOBPGE1	JOBNLRL / 50
0229	3100	Job Lines Written to Spool	1000 Lines	1	JOBKXPR	JOBKXPR / 1000
0230	3130	Job Card Images Written to Spool	1000 Cards	1	JOBKXPU	JOBKXPU / 1000
0231	3120	Job Cards Images Read by Reader	1000 Cards	1	JOBSYSN	JOBSYSIN / 1000
0232	3120	Job Cards Read from Spool	1000 Cards	1	JOBKXRD	JOBKXRD / 1000
0233	3110	Job Feet Printed by PSF	Feet	0	JOBFEE	

Figure 4-7a. Job Level Charging Elements (Part 2 of 3)

Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
0251	1100	Job Minimum Charges				
0252	1100	Job Executions	Jobs	0	JOBCOUNT	
0253	1100	Job Step Executions	Steps	0	JOBSTEPS	
0254	1100	Job JCL Errors	JCL Errors	0	JOBJCLER	
0254	1100	TSO Sessions	Sessions	0	JOBCOUNT	
		Job Operator Mount Charges				
0271	1500	Job Specific DASD Mount	Mounts	0	JOBSDMT	
0272	1500	Job Specific MSS Mount	Mounts	0	JOBSMMT	
0273	1400	Job Specific Tape Mount	Mounts	0	JOBSTMT	
0274	1500	Job Non-Specific DASD Mount	Mounts	0	JOBNSDMT	
0275	1500	Job Non-Specific MSS Mount	Mounts	0	JOBNMMT	
0276	1400	Job Non-Specific Tape Mount	Mounts	0	JOBNSTMT	
0277	1500	Job Total DASD Mounts	Mounts	1	JOBTDMT	JOBSDMT + JOBNSDMT
0278	1500	Job Total MSS Mounts	Mounts	1	JOBTMMT	JOBSMMT + JOBNMMT
0279	1400	Job Total Tape Mounts	Mounts	1	JOBTMT	JOBSTMT + JOBNSTMT
		Job TSO Terminal Charges				
0301	2100	Job Terminal Connect Time	Hours	1	JOBEHRS	JOBEHCTM / 3600
0302	2100	Job Terminal (TGET/TPUT) I/O	Terminal I/Os	1	JOBTTERIO	JOBTGETS + JOBTPUTS
		Job Device Connect Charges				
0321	1500	Job DASD Device Connect Time	Seconds	0	JOBCDASD	
0322	1400	Job Tape Device Connect Time	Seconds	0	JOBCTAPE	
0323	1500	Job MSS Device Allocations	Seconds	0	JOBCMSS	
0324	2300	Job Communications Device Connect Time	Seconds	0	JOBCCOMM	
0325	3100	Job Unit Record Device Connect Time	Seconds	0	JOBCUREC	
0326	3165	Job Graphics Device Connect Time	Seconds	0	JOBCGRAF	
0327	1200	Job Total Device Connect Time	Seconds	0	JOBTCNT	
		Multisystem Enclaves				
0340	1100	Dependent Enclave CPU Time	Seconds	0	RENCPTDM	
0341	1100	Independent Enclave CPU Time	Seconds	0	RENCPTIM	
0345	1100	Multisystem Dep Enclave Serv Units	Seconds	0	RENREDSU	
0346	1100	Multisystem Indep Enclave Serv Units	Seconds	0	RENREISU	
		zAAP CPU Time				
0350	1100	Job zAAP Eligible CPU Time on a CP	Seconds	0	JOBZACTM	
0353	1100	Actual zAAP CPU Time	Seconds	0	JOBZAPTM	
0357	1100	Normalized zAAP CPU Time	Seconds	0	JOBZPNTM	
0359	1100	CPU time without zIIP/zAAP Eligible	Seconds	0	JOBXCSMT	
0360	1100	TCB time without zIIP/zAAP Eligible	Seconds	0	JOBTXTMT	
		zIIP CPU Time				
0370	1100	Job zIIP Eligible CPU Time on a CP	Seconds		JOBSUCTM	
0371	1100	Actual zIIP CPU Time	Seconds	0	JOBSPTMT	
0372	1100	Normalized zIIP CPU Time	Seconds	0	JOBSPTMT	

Figure 4-7a. Job Level Charging Elements (Part 3 of 3)

Comp Code	Inv Catg	Charging Element Description	Measured Units	F	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		Step Resource Unit Charges				
0401	1100	Step Service Units	1000 SUS	1	PGMKSU	PGMSERVU / 1000
0402	1100	Step TCB CPU Service Units	1000 SUS	1	PGMKTCBU	PGMTCBSU / 1000
0403	1100	Step SRB CPU Service Units	1000 SUS	1	PGMKSRBU	PGMSRBSU / 1000
0404	1100	Step I/O Service Units	1000 SUS	1	PGMKIOU	PGMIOSU / 1000
0405	1100	Step Main Storage Service Units	1000 SUS	1	PGMKMSOU	PGMMSOSU / 1000
		zAAP CPU Time				
0406	1100	zAAP Eligible CPU Time on CP	Seconds	0	PGMZACTM	
0409	1100	CPU time without zIIP/zAAP Eligible	Seconds	0	PGMXCSTM	
0410	1100	Actual zAAP CPU Time	Seconds	0	PGMZAPT	
0414	1100	Normalized zAAP CPU Time	Seconds	0	PGMZPNTM	
0416	1100	TCB time without zIIP/zAAP Eligible	Seconds	0	PGMXTSTM	
		Step CPU Charges				
0421	1100	Step CPU Instructions Executed	1 Million	0	PGMCPUNI	
0422	1100	Step CPU Time Consumed	TCB+SRB Seconds	0	PGMCPUTM	
0423	1100	Step TCB CPU Time Consumed	TCB Seconds	0	PGMTCBTM	
0424	1100	Step SRB CPU Time Consumed	SRB Seconds	0	PGMSRBTM	
0425	1100	Step I/O CPU Time Consumed	Seconds	1	PGMIOCTM	(PGMEXCPS * _IOCTM)
				C		/* _IOCTM MACRO must be defined in */
0426	1100	Step Hiperspace CPU Time	Seconds	0	PGMHIPTM	
0427	1100	Step I/O Interrupt CPU Time	Seconds	0	PGMIOITM	
0428	1100	Step Region Control Task CPU Time	Seconds	0	PGMRCTTM	
0429	1100	Step Vector Utilization CPU Time	Seconds	0	PGMVUTM	
0430	1100	Step Vector Affinity CPU Time	Seconds	0	PGMVATM	
		zIIP CPU Time				
0431	1100	zIIP Eligible CPU Time on CP	Seconds	0	PGMSUCTM	
0433	1100	Actual zIIP CPU Time	Seconds	0	PGMSUPTM	
0434	1100	Normalized zIIP CPU Time	Seconds	0	PGMSPNTM	
		Step Memory Charges				
0441	1100	Step Real Memory Occupancy	Kcore-Hours	0	PGMRKHRS	
0442	1100	Step Virtual Memory Occupancy	Kcore-Hours	0	PGMKVHRS	
		Step Data Transfer Charges				
0461	2300	Step Communications Data Transferred	1000 Bytes	1	PGMKBCOM	PGMDCOMM / 1000
0462	1500	Step DASD Data Transferred	1000 Bytes	1	PGMKBDAS	PGMDDASD / 1000
0463	1500	Step MSS Data Transferred	1000 Bytes	1	PGMKBMSS	PGMDMSS / 1000
0464	1400	Step Tape Data Transferred	1000 Bytes	1	PGMKBTAP	PGMDTAPE / 1000
0465	3100	Step Unit Record Data Transferred	1000 Bytes	1	PGMKBURE	PGMDUREC / 1000
0466	1100	Step VIO Data Transferred	1000 Bytes	1	PGMKBVIO	PGMDVIO / 1000
0467	3165	Step Graphics Data Transferred	1000 Bytes	1	PGMKBGRA	PGMDGRAF / 1000
0468	1100	Step APPC Data Sent	1000 Bytes	1	PGMKDATS	PGMDATAS / 1000
0469	1100	Step APPC Data Received	1000 Bytes	1	PGMKDATR	PGMDATAR / 1000

Figure 4-7b. Step Level Charging Elements (Part 1 of 3)

4.2 Defining Charging Elements, Invoice/Credit Categories

Comp Code	InvC Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		Step Device I/O Charges				
0491	2300	Step Communication EXCPs	1000 EXCPs	1	PGMKECOM	PGMECOMM / 1000
0492	1500	Step DASD EXCPs	1000 EXCPs	1	PGMKEDAS	PGMEDASD / 1000
0493	1500	Step MSS EXCPs	1000 EXCPs	1	PGMKEMSS	PGMEMSS / 1000
0494	1400	Step Tape EXCPs	1000 EXCPs	1	PGMKETAP	PGMETAPE / 1000
0495	3100	Step Unit Record EXCPs	1000 EXCPs	1	PGMKEURE	PGMEUREC / 1000
0496	1100	Step Virtual I/O EXCPs	1000 EXCPs	1	PGMKEVIO	PGMEVIO / 1000
0497	1200	Step Total EXCPs	1000 EXCPs	1	PGMKEXCP	PGMEXCPS / 1000
0498	3165	Step Graphics EXCPs	1000 EXCPs	1	PGMKEGRA	PGMEGRAF / 1000
		Step Elapsed Charges				
0521	1100	Step Elapsed Execution Time	Seconds	0	PGMEXCTM	
0522	1100	Step Pseudo Elapsed Execution Time	Seconds	0	PGMWPETM	
		Step Data Set Allocation Charges				
0531	1100	Step Total Data Set Allocations	Data Sets	1	PGMATOTL	PGMADASD+PGMATAPE+PGMAMSS+PGMACOMM+PGMAUREC+PGMAVIO+PGMAGRAF
0532	1500	Step DASD Data Set Allocations	Data Sets	0	PGMADASD	
0533	1400	Step Tape Data Set Allocations	Data Sets	0	PGMATAPE	
0534	1500	Step MSS Data Set Allocations	Data Sets	0	PGMAMSS	
0535	2300	Step Comm Data Set Allocations	Data Sets	0	PGMACOMM	
0536	3100	Step Unit Record Data Set Allocations	Data Sets	0	PGMAUREC	
0537	1100	Step VIO Data Set Allocations	Data Sets	0	PGMAVIO	
0538	3165	Step Graphics Data Set Allocations	Data Sets	0	PGMAGRAF	
		Step Device Allocation Charges				
0561	1500	Step DASD Device Allocations	Devices	0	PGMNDASD	
0562	1500	Step DASD Mountable Device Allocations	Devices	0	PGMMDASD	
0563	1400	Step Tape Device Allocations	Devices	0	PGMNTAPE	
0564	1500	Step MSS Device Allocations	Devices	0	PGMNMSS	
0565	2300	Step Communication Device Allocations	Devices	0	PGMNCOMM	
0566	3100	Step Unit Record Device Allocations	Devices	0	PGMNUREC	
0567	1100	Step VIO Device Allocations	Devices	0	PGMNVIO	
0568	3165	Step Graphics Device Allocations	Devices	0	PGMNGRAF	
		Step Device Occupancy Charges				
0591	1500	Step DASD Occupancy Time (Hours)	Hours	0	PGMDOHRS	
0592	1400	Step Tape Occupancy Time (Hours)	Hours	0	PGMTOHRS	
0593	1200	Step Channel Path Hours	Hours	0	PGMCPHRS	
0594	1200	Step Total I/O Hours	Hours	0	PGMTIHRS	
0595	1200	Step Used I/O Hours	Hours	0	PGMUIHRS	
0596	1500	Step DASD Occupancy Time (Minutes)	Minutes	1	PGMDOMNS	PGMDOHRS * 60
0597	1400	Step Tape Occupancy Time (Minutes)	Minutes	1	PGMTOMNS	PGMTOHRS * 60
0598	1200	Step Channel Path Minutes	Minutes	1	PGMCPMNS	PGMCPHRS * 60
0599	1200	Step Total I/O Minutes	Minutes	1	PGMTIMNS	PGMTIHRS * 60
0600	1200	Step Used I/O Minutes	Minutes	1	PGMUIMNS	PGMUIHRS * 60

Figure 4-7b. Step Level Charging Elements (Part 2 of 3)

0651	1100	Step Minimum Charges Program Steps Encountered	Steps	0	PGMCOUNT	
Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
0671	1500	Step Operator Mount Charges				
0672	1500	Step Specific DASD Mount	Mounts	0	PGMSDMT	
0673	1400	Step Specific MSS Mount	Mounts	0	PGMSMMT	
0674	1500	Step Specific Tape Mount	Mounts	0	PGMSTMT	
0675	1500	Step Non-Specific DASD Mount	Mounts	0	PGMNSDMT	
0676	1500	Step Non-Specific MSS Mount	Mounts	0	PGMNSMMT	
0677	1400	Step Non-Specific Tape Mount	Mounts	0	PGMNSTMT	
0678	1500	Step Total DASD Mounts	Mounts	1	PGMTSDMT	PGMSDMT + PGMNSDMT
0679	1500	Step Total MSS Mounts	Mounts	1	PGMTSMMT	PGMSMMT + PGMNSMMT
0670	1400	Step Total Tape Mounts	Mounts	1	PGMTSTMT	PGMSTMT + PGMNSTMT
0701	2100	Step TSO Terminal Charges				
0702	2100	Step Terminal Connect Time	Hours	1	PGMEXHRS	PGMEXCTM / 3600
0702	2100	Step Terminal (TGET/TPUT) I/O	Terminal I/O	1	PGMTTERIO	PGMTGETS + PGMTPUTS
0721	1500	Step Device Connect Charges				
0722	1400	Step DASD Device Connect Time	Seconds	0	PGMCDASD	
0723	1500	Step Tape Device Connect Time	Seconds	0	PGMCTAPE	
0724	1500	Step MSS Device Connect Time	Seconds	0	PGMCMSS	
0725	2300	Step Communication Device Connect Time	Seconds	0	PGMCCOMM	
0726	3100	Step Unit Record Device Connect Time	Seconds	0	PGMCUREC	
0727	3165	Step Graphics Device Connect Time	Seconds	0	PGMCGRAF	
0727	1200	Step Total Device Connect Time	Seconds	0	PGMTCNT	

Figure 4-7b. Step Level Charging Elements (Part 3 of 3)

Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
0901	1100	APPC TP Resource Charges				
0902	1100	Total Bytes of Data Sent by TP	1000 Bytes	1	ATPKDATS	ATPDATAS / 1000
0903	1100	Total Bytes of Data Received by TP	1000 Bytes	1	ATPKDATR	ATPDATAR / 1000
0904	1100	TCB Time Used by TP	Seconds	0	ATPTCBTM	
0905	1100	SRB Time Used by TP	Seconds	0	ATPSRBTM	
0906	1100	Total CPU Time Used by TP	Seconds	0	ATPCPUTM	
0907	1200	Total Blocks Transferred by TP	1000 EXCPS	1	ATPKBLKS	ATPBLKTR / 1000
0907	1200	Total Device Connect Time Used by TP	Seconds	0	ATPTCNT	

Figure 4-7c. APPC TP Resource Level Charging Elements

Comp Code	Inv Code	Charging Element Description	Measured Units	F	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		Special Spool Charges				
0821	3100	Spool Output Processed (Total)	1000 Lines	1	SPLKNLR	SPLNLR / 1000
0822	3100	Spool Lines Printed (Local Impact)	1000 Lines	1	SPLKNLRI	IF XNLRI=1 THEN SPLKNLRI=SPLNLR / 1000;
0823	3100	Spool Printed (Remote)	1000 Lines	1	SPLKNLRR	IF ROUTE > 0 THEN SPLKNLRR=SPLNLR / 1000;
0824	3110	Spool Lines Printed (Local Laser)	1000 Lines	1	SPLKNLRL	IF XNLRL=1 THEN SPLKNLRL=SPLNLR / 1000;
0825	3100	Spool Lines Printed (Local COMM)	1000 Lines	1	SPLKNLRC	IF XNLRC=1 THEN SPLKNLRC=SPLNLR / 1000;
0826	3130	Spool Cards Punched (Local Punch)	1000 Cards	1	SPLKNLRP	IF XNLRP=1 THEN SPLKNLRP=SPLNLR / 1000;
0827	3100	Spool Items Processed (User defined)	1000 Lines	1	SPLKNLRU	IF XNLRU=1 THEN SPLKNLRU=SPLNLR / 1000;
0828	3110	Spool 3800 Pages Printed	Pages	1	SPLPGE1	IF XNLRL=1 THEN SPLPGE1=SPLNLR / 50;
0833	3110	Spool Feet Printed by PSF	Feet	0	SPLFEET	
0839	3110	Spool 6670 Pages Printed	Pages	1	SPLPGE2	IF ROUTE=255 THEN SPLPGE2=SPLNLR / 50;
0840	3110	Spool Special Forms Charges	Pages	1	SPLPGE3	IF FORMNUM='xxxx' THEN SPLPGE3=SPLNLR / 50;

Figure 4-7d. Spool Level Charging Elements

Comp Code	Inv Code	Charging Element Description	Measured Units	F	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		Product CPU Charges				
0980	1100	Product CPU Time Consumed	TCB+SRB Seconds	0	MUACPUTM	
0981	1100	Product TCB CPU Time Consumed	TCB Seconds	0	MUATCBTM	
0982	1100	Product SRB CPU Time Consumed	SRB Seconds	0	MUASRBTM	

Figure 4-7e. Measured Usage Address Space Charging Elements

Comp Code	InvC Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.

		IMS TRANSACTION ACCOUNTING				
1000	1100	IMS Transaction Executions	Transaction	0	IACTRANS	
		IMS RESOURCE ACCOUNTING				
		IMS CPU Charges				
1001	1100	IMS Instructions Executed	1 Million	0	ISUCPUNI	
1002	1100	IMS System Resource Units	1000 SRUs	1	ISUKSRU	ISUSRU / 1000
1003	1100	IMS Pseudo Elapsed Time	Seconds	0	ISUPETTM	
1004	1100	IMS Total CPU Time	Seconds	0	ISUCPUTM	
1005	1100	IMS Message Region CPU Time	Seconds	0	ISUTMDCP	
1006	1100	IMS DL/I CPU Time	Seconds	0	ISUTMCDL	
1007	1100	IMS Message Region CPU Time	Seconds	0	ISUTMDDL	
1008	1100	IMS Fast Path Application Time	Seconds	0	ISURESTM	
1009	1100	IMS DB2 CPU Time	Seconds	0	ISUDB2TM	
1010	1100	IMS DL/I, Buffer, Open/Close CPU Time	Seconds	0	ISUDBOTM	
1020	1100	IMS Dependent Region CP time	seconds	0	ISUTMCP	
1021	1100	IMS Dependent Region zAAP time	seconds	0	ISUTMZAP	
1025	1100	IMS Dep Reg zIIP Eligible CPU on a CP	seconds	0	ISUSUCTM	
1026	1100	IMS Dep Reg zAAP Eligible CPU on a CP	seconds	0	ISUZACTM	
1027	1100	IMS CP Time Minus zIIP/zAAP Eligible	seconds	0	ISUXCSTM	
		IMS Transaction Charges				
1011	1100	IMS Conv. Transactions Processed	Transaction	0	ISUCTRPN	
1012	1100	IMS Long Transactions Processed	Transaction	0	ISULTRPN	
1013	1100	IMS Medium Transactions Processed	Transaction	0	ISUMTRPN	
1014	1100	IMS Short Transactions Processed	Transaction	0	ISUSTRPN	
1015	1100	IMS Excessive Transactions Processed	Transaction	0	ISUETRPN	
1016	1100	IMS Total Transactions Processed	Transaction	0	ISUTRANS	
		IMS Queue Logical I/O Charges				
1031	1100	IMS Msg Get Unique Count	1000 Messages	1	ISUKMSGU	ISUMSGGU / 1000
1032	1100	IMS Msg Get Next Count	1000 Messages	1	ISUKMSGN	ISUMSGGN / 1000
1033	1100	IMS Msg Insert Count	1000 Messages	1	ISUKMSIS	ISUMSGIS / 1000
1034	1100	IMS Msg Other Count(Serv, Ckpt, Stats)	1000 Messages	1	ISUKMSOT	ISUMSGOT / 1000
1035	1100	IMS Msg Purge Count	1000 Messages	1	ISUKMSGP	ISUMSGPG / 1000
1036	1100	IMS Total Number Of Message Calls	1000 Messages	1	ISUKMSTT	ISUMSTOT / 1000
1037	1100	IMS Number Of Input Messages	1000 Messages	1	IACIMMSG	IACIMSGS / 1000

Figure 4-7f. IMS Level Charging Elements (Part 1 of 2)

Comp Code	InvC Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
-----+-----+-----+-----+-----+-----+-----						
		IMS Data Base Logical I/O Charges				
1051	1200	IMS Total Number Of Data Base Calls	1000 Calls	1	ISUKDBTT	ISUDBTOT / 1000
1052	1200	IMS Data Base Deletes	1000 Calls	1	ISUKDBDL	ISUDBDLT / 1000
1053	1200	IMS Data Base Get Nexts	1000 Calls	1	ISUKDBGN	ISUDBGN / 1000
1054	1200	IMS Data Base Get Uniques	1000 Calls	1	ISUKDBGU	ISUDBGU / 1000
1055	1200	IMS Data Base Inserts	1000 Calls	1	ISUKDBIS	ISUDBIST / 1000
1056	1200	IMS Data Base Replaces	1000 Calls	1	ISUKDBRE	ISUDBREP / 1000
1057	1200	IMS Other Data Base Calls(Sys Service)	1000 Calls	1	ISUKDBOT	ISUDBOTH / 1000
				C		ISUDBDLT,ISUDBOTH) / 1000
1059	1200	IMS Fast Path DEDB Calls	1000 Calls	1	ISUKDEC	ISUFPDEC / 1000
1060	1200	IMS Fast Path DEDB Puts(I/Os)	1000 I/Os	1	ISUKDEP	ISUFPDEP / 1000
1061	1200	IMS Fast Path DEDB Reads(I/Os)	1000 I/Os	1	ISUKDER	ISUFPDER / 1000
1062	1200	IMS Fast Path MSDB Calls	1000 Calls	1	ISUKMSC	ISUFPMSC / 1000
1063	1200	IMS Fast Path DEDB Total Logical I/Os	1000 FP I/Os	1	ISUKFPIO	(ISUFPDEP + ISUFPDER) / 1000
-----+-----+-----+-----+-----+-----+-----						
		IMS Data Base Actual I/O Charges				
1081	1100	IMS ISAM/KSDS Key Reads Issued	1000 I/Os	1	ISUKKYRD	ISUKEYRD / 1000
1082	1100	IMS ISAM/KSDS Key Writes Issued	1000 I/Os	1	ISUKKYWT	ISUKEYWT / 1000
1083	1100	IMS OSAM/ESDS Non-Key Reads Issued	1000 I/Os	1	ISUKNKYR	ISUNKEYR / 1000
1084	1100	IMS OSAM/ESDS Non-Key Writes Issued	1000 I/Os	1	ISUKNKYW	ISUNKEYW / 1000
1085	1200	IMS Total DL/I I/O	1000 I/Os	1	ISUTDLIO	(ISUKEYRD+ISUKEYWT+ISUNKEYR+ISUNKEYW) / 1000
				C		
1086	1200	IMS Key I/O	1000 I/Os	1	ISUKEYIO	(ISUKEYRD+ISUKEYWT) / 1000
1087	1200	IMS Nonkey DL/I I/O	1000 I/Os	1	ISUNKYIO	(ISUNKEYR+ISUNKEYW) / 1000
-----+-----+-----+-----+-----+-----+-----						
		IMS Terminal Charges				
1101	2100	IMS Terminal Input Message Count	1000 Messages	1	ISUKIMSG	ISUIMSGS / 1000
1102	2100	IMS Terminal Output Message Count	1000 Messages	1	ISUKOMSG	ISUOMSGS / 1000
1103	2100	IMS Terminal I/O	1000 I/Os	1	ISUTERIO	(ISUIMSGS+ISUOMSGS) / 1000
1104	1200	IMS Terminal Input Character Count	1000 Bytes	1	ISUKINCH	ISUINCH / 1000
1105	1200	IMS Terminal Output Character Count	1000 Bytes	1	ISUKOUTC	ISUOUTCH / 1000
1106	1200	IMS Characters Transferred	1000 Bytes	1	ISUTCHAR	(ISUINCH+ISUOUTCH) / 1000
-----+-----+-----+-----+-----+-----+-----						

Figure 4-7f. IMS Level Charging Elements (Part 2 of 2)

Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		DB2 RESOURCE ACCOUNTING				
		DB2 CPU Charges				
1200	1100	DB2 Instructions Executed	1 Million	0	DSUCPUNI	
1201	1100	DB2 TCB CPU Time Consumed(Class 1)	Seconds	0	DSUTCBTM	
1203	1100	DB2 CPU Time Consumed(Class 1)	Seconds	0	DSUCPUTM	
1204	1100	DB2 Elapsed Time	Seconds	0	DSUELPTM	
1205	1100	DB2 TCB CPU Time Consumed(Class 2)	Seconds	0	DSUTC2TM	
1206	1100	CPU Time Only on a DB2 TCB	Seconds	0	DSUCPODB	
		DB2 Actual I/O Charges				
1210	1200	DB2 Synchronous Read I/Os	I/Os	0	DSUSSRIO	
1211	1200	DB2 I/O Elapsed Time	Seconds	0	DSUIOETM	
1212	1200	DB2 Total Get Page Requests	Page Requests	0	DSUSGPGR	
		DB2 Logical I/O Charges				
1220	1200	DB2 Insert Statements	Statements	0	DSUINSRT	
1221	1200	DB2 Update Statements	Statements	0	DSUUPDTE	
1222	1200	DB2 Delete Statements	Statements	0	DSUDELET	
1223	1200	DB2 Describe Statements	Statements	0	DSUDESC	
1224	1200	DB2 Prepare Statements	Statements	0	DSUPREP	
1225	1200	DB2 Open Statements	Statements	0	DSUOPEN	
1226	1200	DB2 Close Statements	Statements	0	DSUCLOSE	
1227	1200	DB2 Create Table Statements	Statements	0	DSUCRTAB	
1228	1200	DB2 Create Index Statements	Statements	0	DSUCRINX	
1229	1200	DB2 Create Tablespace Statements	Statements	0	DSUCTABS	
1230	1200	DB2 Create Synonym Statements	Statements	0	DSUCRSYN	
1231	1200	DB2 Create Database Statements	Statements	0	DSUCRDAB	
1232	1200	DB2 Create Stogroup Statements	Statements	0	DSUCRSTG	
1233	1200	DB2 Create View Statements	Statements	0	DSUDEFVU	
1234	1200	DB2 Drop Index Statements	Statements	0	DSUDRPIX	
1235	1200	DB2 Drop Table Statements	Statements	0	DSUDRPTA	
1236	1200	DB2 Drop Tablespace Statements	Statements	0	DSUDRPTS	
1237	1200	DB2 Drop Database Statements	Statements	0	DSUDRPDB	
1238	1200	DB2 Drop Synonym Statements	Statements	0	DSUDRPSY	
1239	1200	DB2 Drop Stogroup Statements	Statements	0	DSUDRPST	
1240	1200	DB2 Drop View Statements	Statements	0	DSUDRPVU	
1241	1200	DB2 Alter Stogroup Statements	Statements	0	DSUALTST	
1242	1200	DB2 Alter Tablespace Statements	Statements	0	DSUALTTS	
1243	1200	DB2 Alter Table Statements	Statements	0	DSUALTTA	
1244	1200	DB2 Alter Index Statements	Statements	0	DSUALTIX	
1245	1200	DB2 Comment On Statements	Statements	0	DSUCMTON	
1246	1200	DB2 Lock Table Statements	Statements	0	DSULOCK	
1247	1200	DB2 Grant Statements	Statements	0	DSUGRANT	
1248	1200	DB2 Revoke Statements	Statements	0	DSUREVOK	
1249	1200	DB2 Fetch Statements	Statements	0	DSUFETCH	
1250	1200	DB2 Select Statements	Statements	0	DSUSELCT	
		DB2 zIIP CPU Time				
1260	1100	Accumulated CPU Time Consumed on zIIP	Seconds	0	DSUCPUZ1	
1261	1100	Accumulated CPU Time zIIP-Eligible Work	Seconds	0	DSUELGZP	
1262	1100	CPU Time Excluding Special CPU Time	Seconds	0	DSUXSPTM	
		DB2 IDAA CPU Time				
1270	1100	DB2 IDAA TCP/IP CPU TIME	Seconds	0	DSUXTCPU	
1272	1100	DB2 IDAA CPU TIME	Seconds	0	DSUXACPU	

Figure 4-7g. DB2 Level Charging Elements

TSO Level Charging Elements						
Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		TSO TRANSACTION ACCOUNTING FROM TSOTSC				
1400	1100	TSO Command Count	Commands	0	TSCCOUNT	
		TSO RESOURCE ACCOUNTING				
		TSO CPU Charges				
1405	1100	TSO Service Units	1000 SUs	1	TSUKSU	TSUSERVU / 1000
1410	1100	TSO Instructions Executed	1 Million	0	TSUCPUNI	
1411	1100	TSO Total CPU Time Consumed	TCB+SRB Seconds	0	TSUCPUTM	
1412	1100	TSO TCB CPU Time Consumed	TCB Seconds	0	TSUTCBTM	
1413	1100	TSO SRB CPU Time Consumed	SRB Seconds	0	TSUSRBTM	
		TSO Command Processing				
1430	1100	TSO Long Commands Processed	Commands	0	TSULCOM	
1431	1100	TSO Medium Commands Processed	Commands	0	TSUMCOM	
1432	1100	TSO Short Commands Processed	Commands	0	TSUMCOM	
1435	1100	TSO Total Commands Processed	Commands	0	TSUSCOM	
		TSO Input/Output Charges				
1420	1500	TSO I/O (EXCPS) Generated	1000 Excps	1	TSUKEXCP	TSUEXCPS / 1000
1440	2100	TSO Terminal TGET I/O	Terminal I/Os	0	TSUTGETS	
1441	2100	TSO Terminal TPUT I/O	Terminal I/Os	0	TSUTPUTS	
1442	2100	TSO Total Terminal (TGET/TPUT) I/O	Terminal I/Os	1	TSUTERIO	TSUTGETS + TSUTPUTS
1450	2100	TSO Terminal TGET Characters	1000 Characters	1	TSUKGETS	TSUGETCH / 1000
1451	2100	TSO Terminal TPUT Characters	1000 Characters	1	TSUKPUTS	TSUPUTCH / 1000
1452	2100	TSO Total Terminal (TGET/TPUT) Chars	1000 Characters	1	TSUKCHAR	(TSUPUTCH + TSUGETCH) / 1000
		TSO Time				
1455	2100	TSO Connect Time	Hours	1	TSUEXTM	TSUCONTM / 3600
		TSO Sessions				
1456	1100	TSO Number of Logons	Logons	0	TSUNOLOG	
		TSO TRANSACTION ACCOUNTING FROM TSOTSI				
1480	1100	TSO number of Executions	Transactions	0	TSIN0EXS	

Figure 4-7h. TSO Level Charging Elements

Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library).
-----+-----+-----+-----+-----+-----+-----						
		CICS TRANSACTION ACCOUNTING				
1500	1100	CICS Transaction Executions	Transaction	0	CACTRANS	
		CICS RESOURCE ACCOUNTING				
		CICS CPU Charges				
1501	1100	CICS Instructions Executed	1 Million	0	CSUCPUNI	
1502	1100	CICS Service Units	1000 SUs	1	CSUSERVU	CSUSERVU / 1000
1503	1100	CICS System Resource Units	1000 SRUs	1	CSUKSRU	CSUSRU / 1000
1504	1100	CICS Task CPU Time (elapsed)	Seconds	0	CSUCPUTM	
1505	1100	CICS Task CPU Real Time	Seconds	0	CSUCPRTM	
1506	1100	CICS Pseudo Elapsed Time	Seconds	0	CSUPETTM	
1507	1100	CICS SRB CPU Time	Seconds	0	CSUSRBTM	
1508	1100	CICS TCB CPU Time	Seconds	0	CSUTCBTM	
		CICS Terminal Charges				
1521	1200	CICS Access Method Calls (SIO Count)	1000 SIOs	1	CSUSIO	CSUSIOCT / 1000
1522	1200	CICS Input Messages Issued	1000 Messages	1	CSUKIMSG	CSUIMSGS / 1000
1523	1200	CICS Output Messages Issued	1000 Messages	1	CSUKOMSG	CSUOMSGS / 1000
1525	1200	CICS Input Message Character Traffic	1000 Characters	1	CSUKINCH	CSUINCH / 1000
1526	1200	CICS Output Message Character Traffic	1000 Characters	1	CSUKOUTC	CSUOUTCH / 1000
1527	1200	CICS Number Of Input Messages	1000 Messages	1	CACKIMSG	CACIMSGS / 1000
		CICS Transaction Charges				
1541	1100	CICS Conv. Transactions Processed	Transaction	0	CSUCTRNR	
1542	1100	CICS Long Transactions Processed	Transaction	0	CSULTRNR	
1543	1100	CICS Medium Transactions Processed	Transaction	0	CSUMTRNR	
1544	1100	CICS Short Transactions Processed	Transaction	0	CSUSTRNR	
1545	1100	CICS Excessive Transactions Processed	Transaction	0	CSUETRNR	
1546	1100	CICS Transactions Processed	Transaction	0	CSUTRANS	
-----+-----+-----+-----+-----+-----+-----						

Figure 4-7i. CIC Level Charging Elements (Part 1 of 2)

CIC Level Charging Elements (continued)						
Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library).
		CICS Resource Units				
1561	1100	CICS BMS Calls	1000 Calls	1	CSUKBMOP	CSUBMOPS / 1000
1562	1100	CICS File Control Calls	1000 Calls	1	CSUKFCOP	CSUFCOPS / 1000
1563	1100	CICS Interval Control Calls	1000 Calls	1	CSUKICOP	CSUICOPS / 1000
1564	1100	CICS Journal Control Calls	1000 Calls	1	CSUKJCOP	CSUJCOPS / 1000
1565	1100	CICS Program Control Calls	1000 Calls	1	CSUKPCOP	CSUPCOPS / 1000
1566	1100	CICS Storage Control Calls	1000 Calls	1	CSUKSCOP	CSUSCOPS / 1000
1567	1100	CICS Synch Point Calls	1000 Calls	1	CSUKSPOP	CSUSPOPS / 1000
1568	1100	CICS Transient Data Calls	1000 Calls	1	CSUKTDOP	CSUTDOPS / 1000
1569	1100	CICS Temp Storage Calls	1000 Calls	1	CSUKTSOP	CSUTSOPS / 1000
1570	1100	CICS Calls (Total)	1000 Calls	1	CSUKTLOP	CSUTLOPS / 1000
1571	1100	CICS Total File Requests	1000 Requests	1	CSUKFCT	CSUFCTOT / 1000
		CICS Database DL/I Logical I/O Charges				
1601	1100	CICS DL/I Calls - Get Unique	1000 Calls	1	CSUKPCT1	CICPCT01 / 1000
1602	1100	CICS DL/I Calls - Get Next	1000 Calls	1	CSUKPCT2	CICPCT02 / 1000
1603	1100	CICS DL/I Calls - Get Next (Par)	1000 Calls	1	CSUKPCT3	CICPCT03 / 1000
1604	1100	CICS DL/I Calls - Get Hold Unique	1000 Calls	1	CSUKPCT4	CICPCT04 / 1000
1605	1100	CICS DL/I Calls - Get Hold Next	1000 Calls	1	CSUKPCT5	CICPCT05 / 1000
1606	1100	CICS DL/I Calls - Get Hold Next (Par)	1000 Calls	1	CSUKPCT6	CICPCT06 / 1000
1607	1100	CICS DL/I Calls - Insert	1000 Calls	1	CSUKPCT7	CICPCT07 / 1000
1608	1100	CICS DL/I Calls - Delete	1000 Calls	1	CSUKPCT8	CICPCT08 / 1000
1609	1100	CICS DL/I Calls - Replace	1000 Calls	1	CSUKPCT9	CICPCT09 / 1000
1611	1100	CICS DL/I Calls (THE MONITOR)	1000 Calls	1	CSUKDLIC	CICDLICC / 1000
		CICS Memory Charges				
1631	1100	Memory Usage	Kcore	1	CSUKMEM	CSUMEMRC / 1024

*The availability of some of these data elements is dependent on your operating environment and on which monitors you have. For a detailed description of the data elements available for various operating environments supported by CA MICS, see the data dictionary.

Figure 4-7i. CIC Level Charging Elements (Part 2 of 2)

Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		VM RESOURCE ACCOUNTING				
1701	1100	VM Instructions Executed	1 Million	0	CMUCPUNI	
1702	1100	VM Total CPU Time	Seconds	0	CMUTTIME	
1703	1100	VM Virtual CPU Time	Seconds	0	CMUVTIME	
1706	1100	VM Session Time	Minutes	1	CMUEXMIN	CMUSESTM / 60
1707	1100	VM Overhead CPU Time	Seconds	0	CMUOTIME	
1720	1100	Linux Process Total CPU Time	Seconds	0	LXPTTIME	
1724	1100	Linux Process User CPU Time	Seconds	0	LXPVTIME	
1731	1500	VM DASD Space for Permanent DASD/CKD	Cylinders	1	DACSTMP1	IF DEVCLASS=: 'DASD/CKD' AND DACATYPE=: 'PERM' THEN DACSTMP1=DACSPACE; ELSE DACSTMP1=0
1732	1500	VM DASD Space for Temporary DASD/CKD	Cylinders	1	DACSTMP2	IF DEVCLASS=: 'DASD/CKD' AND DACATYPE=: 'T-DISK' THEN DACSTMP2=DACSPACE; ELSE DACSTMP2=0
1733	1500	VM DASD Space for Permanent DASD/FBA	Blocks	1	DACSTMP3	IF DEVCLASS=: 'DASD/FBA' AND DACATYPE=: 'PERM' THEN DACSTMP3=DACSPACE; ELSE DACSTMP3=0
1734	1500	VM DASD Space for Temporary DASD/FBA	Blocks	1	DACSTMP4	IF DEVCLASS=: 'DASD/FBA' AND DACATYPE=: 'T-DISK' THEN DACSTMP4=DACSPACE; ELSE DACSTMP4=0
1735	1500	VM Disk Usage	Megabyte Hour	1	DACMBNRS	IF DEVCLASS=: 'DASD' THEN DACMBHRS=DACMBYTS*(DACCONTM/3600); ELSE DACMBNRS=0
1741	1400	VM Tape Allocations	Count	1	DACNRTAP	IF DEVCLASS=: 'TAPE' THEN DACNRTAP=DACNRALC; ELSE DACNRTAP=0
1742	1500	VM DASD Allocations	Count	1	DACNRDAS	IF DEVCLASS=: 'DASD' AND DACATYPE=: 'PERM' THEN DACNRDAS=DACNRALC; ELSE DACNRDAS=0
1743	1550	VM Temporary Disk Allocations	Count	1	DACNRTDS	IF DEVCLASS=: 'DASD' AND DACATYPE=: 'T-DISK' THEN DACNRTDS=DACNRALC; ELSE DACNRTDS=0

Figure 4-7j. VMC Level Charging Elements (Part 1 of 2)

Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
1744	2200	VM Comm Allocations	Count	1	DACNRCOM	IF DEVCLASS=: 'TERM' OR DEVCLASS=: 'GRAP' OR DEVCLASS=: 'SPEC' THEN DACNRCOM=DACNRALC; ELSE DACNRCOM=0
1745	3100	VM Unit Record Allocations	Count	1	DACNRURC	IF DEVCLASS=: 'URI' OR DEVCLASS=: 'URO' THEN DACNRURC=DACNRALC; ELSE DACNRURC=0
1746	1100	VM Total Allocations	Count	0	DACNRALC	
1752	1200	VM Non-Spooled SIOs	1000 SIOs	1	CMUKIO	CMUSIO/1000
1753	1400	VM Tape Occupancy Time	Seconds	1	DACTAPTM	IF DEVCLASS=: 'TAPE' THEN DACTAPTM=DACCONTM; ELSE DACTAPTM=0
1754	1500	VM DASD Occupancy Time	Seconds	1	DACDASTM	IF DEVCLASS=: 'DASD' AND DACATYPE=: 'PERM' THEN DACDASTM=DACCONTM; ELSE DACDASTM=0
1755	1550	VM Temporary Disk Occupancy Time	Seconds	1	DACDSTM	IF DEVCLASS=: 'DASD' and DACATYPE=: 'T-DISK' THEN DACDSTM=DACCONTM ELSE DACDSTM=0
1756	2200	VM Comm Occupancy Time	Seconds	1	DACCONTM	IF DEVCLASS=: 'TERM' OR DEVCLASS=: 'GRAP' OR DEVCLASS=: 'SPEC' THEN DACCONTM=DACCONTM; ELSE DACCONTM=0
1757	3100	VM Unit Record Occupancy Time	Seconds	1	DACURCTM	IF DEVCLASS=: 'URI' OR DEVCLASS=: 'URO' THEN DACURCTM=DACCONTM; ELSE DACURCTM=0
1759	1200	VM Device Connect Time	Seconds	0	DACCONTM	
1760	1200	VM Successful Non-Spooled SIOs	1000 SIOs	1	CMUKIOX	CMUSIOX/1000
1771	3120	VM Cards Read	1000 Cards	1	CMUKCRD	CMUCRD / 1000
1772	3130	VM Cards Punched	1000 Cards	1	CMUKPUN	CMUPUN / 1000
1773	3100	VM Lines Printed	1000 Lines	1	CMUKPRT	CMUPRT / 1000
1780	3100	VM RSCS Records in File	1000 Records	1	VRANKLR	VRANLR/1000;
1790	2200	VM VTAM Input Request Units	Request Units	0	NTUNRRUR	
1791	2200	VM VTAM Input Characters	Characters	0	NTUNRCHR	
1792	2200	VM VTAM Output Request Units	Request Units	0	NTUNRRUS	
1793	2200	VM VTAM Output Characters	Characters	0	NTUNRCHS	
1794	2200	VM VTAM Console Output Lines	Lines	0	NTUNRCOL	
1795	2200	VM VTAM Copy Requests	Requests	0	NTUNRCPY	
1796	2200	VM VTAM Total Request Units	Request Units	1	NTUTRU	(NTUNRRUR + NTUNRRUS) / 1000
1797	2200	VM VTAM Total Characters	1000 Characters	1	NTUTCHAR	(NTUNRCHR + NTUNRCHS) / 1000

Figure 4-7j. VMC Level Charging Elements (Part 2 of 2)

Comp Code	Inv Code	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		VCA RESOURCE ACCOUNTING				
		VCA Permanent Disk Space Allocation				
1800	7200	VCA Disk Space Allocation	Megabyte Hour	1	DAAMBHR	DAAMBHR / 1000
1801	7200	NON-VSAM 3330 DASD Space	3330 Track Day	1	DAATKDAY	IF DEVTYPE =:'3330'
				C		THEN DAATKDAY = DAATKHR / 24;
				C		ELSE DAATKDAY = 0
1802	7200	NON-VSAM 3350 DASD Space	3350 Track Day	1	DAATKDAY	IF DEVTYPE =:'3350'
				C		THEN DAATKDAY = DAATKHR / 24;
				C		ELSE DAATKDAY = 0
1803	7200	NON-VSAM 3380 DASD Space	3380 Track Day	1	DAATKDAY	IF DEVTYPE =:'3380'
				C		THEN DAATKDAY = DAATKHR / 24;
				C		ELSE DAATKDAY = 0
1804	7200	NON-VSAM 3390 DASD Space	3390 Track Day	1	DAATKDAY	IF DEVTYPE =:'3390'
				C		THEN DAATKDAY = DAATKHR / 24;
				C		ELSE DAATKDAY = 0
1811	7200	VSAM 3330 DASD Space	3330 Track Day	1	DAATKDAY	IF DEVTYPE =:'3330'
				C		THEN DAATKDAY = DAATKHR / 24;
				C		ELSE DAATKDAY = 0
1812	7200	VSAM 3350 DASD Space	3350 Track Day	1	DAATKDAY	IF DEVTYPE =:'3350'
				C		THEN DAATKDAY = DAATKHR / 24;
				C		ELSE DAATKDAY = 0
1813	7200	VSAM 3380 DASD Space	3380 Track Day	1	DAATKDAY	IF DEVTYPE =:'3380'
				C		THEN DAATKDAY = DAATKHR / 24;
				C		ELSE DAATKDAY = 0
1814	7200	VSAM 3390 DASD Space	3390 Track Day	1	DAATKDAY	IF DEVTYPE =:'3390'
				C		THEN DAATKDAY = DAATKHR / 24;
				C		ELSE DAATKDAY = 0

Figure 4-7k. VCA Level Charging Elements (Part 1 of 2)

Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
-----+-----+-----+-----+-----+-----+-----						
		VCA Allocation in Space-Time				
1820	7200	Megabyte Hours Utilized	Megabyte Hours	0	DAADURSP	
1830	7230	Charge for Default Storage Class	Megabyte Hours	0	DAADURSP	
1831	7230	Charge for Storage Class Value 1	Megabyte Hours	0	DAADURSP	
1832	7230	Charge for Storage Class Value 2	Megabyte Hours	0	DAADURSP	
1833	7230	Charge for Storage Class Value 3	Megabyte Hours	0	DAADURSP	
1834	7230	Charge for Storage Class Value 4	Megabyte Hours	0	DAADURSP	
1835	7230	Charge for Storage Class Value 5	Megabyte Hours	0	DAADURSP	
1836	7230	Charge for Storage Class Value 6	Megabyte Hours	0	DAADURSP	
1840	7240	Charge for Default Management Class	Megabyte Hours	0	DAADURSP	
1841	7240	Charge for Management Class Value 1	Megabyte Hours	0	DAADURSP	
1842	7240	Charge for Management Class Value 2	Megabyte Hours	0	DAADURSP	
1843	7240	Charge for Management Class Value 3	Megabyte Hours	0	DAADURSP	
1844	7240	Charge for Management Class Value 4	Megabyte Hours	0	DAADURSP	
1845	7240	Charge for Management Class Value 5	Megabyte Hours	0	DAADURSP	
1846	7240	Charge for Management Class Value 6	Megabyte Hours	0	DAADURSP	
1847	7240	Charge for Management Class Value 7	Megabyte Hours	0	DAADURSP	
1848	7240	Charge for Management Class Value 8	Megabyte Hours	0	DAADURSP	
1849	7240	Charge for Management Class Value 9	Megabyte Hours	0	DAADURSP	
1850	7240	Charge for Management Class Value 10	Megabyte Hours	0	DAADURSP	
-----+-----+-----+-----+-----+-----+-----						
		VCA Permanent Disk Data Sets				
1821	7200	VCA Disk Data Sets Allocated	Data Set Count	0	DAADSNNO	
-----+-----+-----+-----+-----+-----+-----						
		HSM RESOURCE ACCOUNTING				
-----+-----+-----+-----+-----+-----+-----						
		HSM Migrated Data				
1860	7200	Megabyte Hours Utilized	Megabyte Hours	0	MIGDURSP	
-----+-----+-----+-----+-----+-----+-----						
		HSM Backup Data				
1865	7200	Megabyte Hours Utilized	Megabyte Hours	0	BACDURSP	
-----+-----+-----+-----+-----+-----+-----						
		HFS Allocation in Space-Time				
1870	7200	Megabyte Hours Utilized	Megabyte Hours	0	DIRDURSP	
1875	7200	Kilobyte Hours Utilized	Kilobyte Hours	0	DIRKBHR	
-----+-----+-----+-----+-----+-----+-----						

Figure 4-7k. VCA Level Charging Elements (Part 2 of 2)

Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		IDMS TRANSACTION ACCOUNTING				
1900	1100	IDMS Transactions Executions	Transactions	0	SACTTRAN	
		IDMS RESOURCE ACCOUNTING				
		IDMS CPU Charges				
1901	1100	IDMS Instructions Executed	1 Million	0	SUACPUNI	
1902	1100	IDMS Task CPU System Time	Seconds	0	SUASYSMT	
1903	1100	IDMS Task CPU User Time	Seconds	0	SUAUSRMT	
1904	1100	IDMS Total Task CPU Time	Seconds	0	SUACPUTM	
1905	1100	IDMS zIIP Eligible CPU Time on a CP	Seconds	0	SUASUCTM	
1906	1100	IDMS Normalized zIIP CPU Time	Seconds	0	SUASPNTM	
1907	1100	IDMS CPU Time Without zIIP Eligible	Seconds	0	SUAXCSTM	
		IDMS Transaction Charges				
1911	1100	IDMS Conversational Transactions	Transactions	0	SUACTRAN	
1912	1100	IDMS Excessive Transactions	Transactions	0	SUAETRAN	
1913	1100	IDMS Short Transactions	Transactions	0	SUASTRAN	
1914	1100	IDMS Medium Transactions	Transactions	0	SUAMTRAN	
1915	1100	IDMS Long Transactions	Transactions	0	SUALTRAN	
1916	1100	IDMS User Transactions	Transactions	0	SUAUTRAN	
1917	1100	IDMS Total Transactions	Transactions	0	SUATTRAN	
		IDMS Terminal Charges				
1921	1100	IDMS Terminal Reads	1000 Messages	1	SUAKMSGR	SUATREAD / 1000
1922	1100	IDMS Terminal Writes	1000 Messages	1	SUAKMSGW	SUATWRIT / 1000
1923	1100	IDMS Total Terminal Reads/Writes	1000 Messages	1	SUAKMSGG	(SUATREAD + SUATWRIT) / 1000
		IDMS Data Base Logical I/O Charges				
1931	1100	IDMS Total Data Base Calls	1000 Calls	1	SUAKCALL	SUADBCLS / 1000
		IDMS Resource Units				
1941	1100	IDMS Programs Called	Programs	0	SUAPCALL	
1942	1100	IDMS Programs Loaded	Programs	0	SUAPLOAD	
1951	1100	IDMS Number of Buffers/ADSO	1000 I/Os	1	SUAKBUFS	SUARBFB / 1000
1961	1100	IDMS Levels of Data Base Work/ADSO	Levels	0	SUADBLVL	
		IDMS Memory Charges				
1971	1100	IDMS Storage Used(Active)	1000 Bytes	1	SUAKUSED	SUAUSDS / 1000
1972	1100	IDMS Storage Kept	1000 Bytes	1	SUAKKEPT	SUAKPTS / 1000
		IDMS Actual I/O Charges				
1981	1100	IDMS Pages Read	1000 I/Os	1	SUAKREAD	SUAPREAD / 1000
1982	1100	IDMS Pages Written	1000 I/Os	1	SUAKWRIT	SUAPWRIT / 1000
1983	1100	IDMS Total Pages(Read/Write)	1000 I/Os	1	SUAKIO	(SUAPREAD + SUAPWRIT) / 1000
1991	1100	IDMS Pages Requested	1000 Requests	1	SUAKPREQ	SUAPREQ / 1000
1992	1100	IDMS Records Requested	1000 Requests	1	SUAKRECR	SUARECR / 1000

Figure 4-71. IDMS Level Charging Elements

SNT Level Charging Elements						
Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
SNA NETWORK RESOURCE ACCOUNTING						
2000	2200	NPM Characters Received	1000 Character	1	PSUKNRR	PSUNRNFR / 1000
2001	2200	NPM Characters Sent	1000 Character	1	PSUKNRS	PSUNRNFS / 1000
2002	2200	NPM Characters Overhead Received	100 Character	1	PSUKOVHR	PSUNRFMR / 100
2003	2200	NPM Characters Overhead Sent	100 Character	1	PSUKOVHS	PSUNRFMS / 100
2009	2200	NPM Total Characters	1000 Character	1	PSUKNRCH	PSUNRTCH / 1000
2010	2200	NPM FM PIUs Sent	100 Requests	1	PSUKPIUS	PSUNRPFS / 100
2011	2200	NPM FM PIUs Received	100 Requests	1	PSUKPIUR	PSUNRPFR / 100
2012	2200	NPM Non-FM PIUs Sent	100 Requests	1	PSUKPUS	PSUNRPNS / 100
2013	2200	NPM Non-FM PIUs Received	100 Requests	1	PSUKPUR	PSUNRPNR / 100
2030	2200	NPM Response Event Count(Host)	100 Events	1	PSUKHEVT	PSUHRESC / 100
2031	2200	NPM Response Event Count(NET)	100 Events	1	PSUKNEVT	PSUNRESC / 100
2032	2200	NPM Total Response Event Count	100 Events	1	PSUKTEVT	PSUTRESC / 100
2040	2200	NetSpy Characters Received	1000 Character	1	NSSKBYR	NSSNRBYR / 1000
2041	2200	NetSpy Characters Sent	1000 Character	1	NSSKBYS	NSSNRBYS / 1000
2043	2200	NetSpy Total Characters	1000 Character	1	NSSKTBYT	NSSNRTBY / 1000
2045	2200	NetSpy Connect Time	Minutes	1	NSSMNCN	NSSCONTM / 60
2047	2200	NetSpy Number of Total Responses	100 Events	1	NSSKHEVT	NSSNRESC / 100
2048	2200	NetSpy Number of Outputs	100 Outputs	1	NSSKNEVT	NSSNROUT / 100
2050	2200	NLDM Characters Received	1000 Character	1	NSAKNRR	NSANRTBR / 1000
2051	2200	NLDM Characters Sent	1000 Character	1	NSAKNRS	NSANRTBS / 1000
2052	2200	NLDM Character Overhead Received	1000 Character	1	NSAKOVHR	NSANRCBR / 1000
2053	2200	NLDM Character Overhead Sent	1000 Character	1	NSAKOVHS	NSANRCBS / 1000
2059	2200	NLDM Total Characters	1000 Character	1	NSAKNRCH	NSANRTBY / 1000
2060	2200	NLDM Control PIUs Sent	100 Requests	1	NSAKCPS	NSANRCPS / 100
2061	2200	NLDM Control PIUs Received	100 Requests	1	NSAKCPR	NSANRCPR / 100
2062	2200	NLDM Text PIUs Sent	100 Requests	1	NSAKTPS	NSANRTPS / 100
2063	2200	NLDM Text PIUs Received	100 Requests	1	NSAKTPR	NSANRTPR / 100
2070	2200	NLDM Connect Time	Minutes	1	NSAHRCON	NSACONTM / 60
2080	2200	NLDM Session Connect Time	Minutes	1	NSCHRCON	NSCCONTM / 60
2081	2200	NLDM Session Characters Transmitted	1000 Character	1	NSCKNRCH	NSCNRTBY / 1000
2090	2200	NLDM Total Response Event Count	100 Events	1	RTMKHEVT	RTMTRESC / 100
2300	2200	NCP Control Characters Received	1000 Character	1	NACKNRR	NACNRCBR / 1000
2301	2200	NCP Control Characters Sent	1000 Character	1	NACKNRS	NACNRCBS / 1000
2302	2200	NCP Text Characters Received	1000 Character	1	NACKTXTR	NACNRTBR / 1000
2303	2200	NCP Text Characters Sent	1000 Character	1	NACKXTS	NACNRTBS / 1000
2309	2200	NCP Total Characters	1000 Character	1	NACKNRCH	NACNRTBY / 1000
2310	2200	NCP Control PIUs Received	100 Requests	1	NACKCPR	NACNRCPR / 100
2311	2200	NCP Control PIUs Sent	100 Requests	1	NACKCPS	NACNRCPS / 100
2312	2200	NCP Text PIUs Received	100 Requests	1	NACKTPR	NACNRTPR / 100
2313	2200	NCP Text PIUs Sent	100 Requests	1	NACKTPS	NACNRTPS / 100
2319	2200	NCP Total PIUs	100 Requests	1	NACKTXTP	NACNRTPI / 100
2320	2200	NCP Connect Time	Minutes	1	NACHRCON	NACCONTM / 60

Figure 4-7m. SNT Level Charging Elements

I/S Inventory and Assets Charging Elements						
Comp Code	Inv Code	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		I/S Inventory and Assets Accounting				
2100	2120	I/S Asset Management Units	IAM Units	0	IAMUNITS	
2101	2100	I/S Asset Management Terminals	IAM Terminals	0	IAMUNITS	
2102	2130	I/S Asset Management Modems	IAM Modems	0	IAMUNITS	
2103	2160	I/S Asset Management Control Units	IAM Cntl Units	0	IAMUNITS	
2104	2200	I/S Asset Management Communication Line	IAM Comm Lines	0	IAMUNITS	
2105	3100	I/S Asset Management Printers	IAM Printers	0	IAMUNITS	

Figure 4-7n. I/S Inventory and Assets Level Charging Elements

Comp Code	Inv Code	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		VSE/POWER RESOURCE ACCOUNTING				
		JOB CPU Charges				
2201	1100	POWER JOB CPU Instructions Executed	1 Million	0	PJBCPUNI	
2202	1100	POWER JOB CPU Overhead Instructions	1 Million	0	PJB0VHNI	
2203	1100	POWER JOB CPU Processor Time	CPU Seconds	0	PJB0CPUTM	
2204	1100	POWER JOB CPU Overhead Time	CPU Seconds	0	PJB0VHTM	
		JOB Device Occupancy Charges				
2210	1400	POWER JOB Tape Occupancy Time	Hours	0	PJBTOHRS	
		JOB Memory Charges				
2211	1100	POWER JOB Virtual KCore Hours	KCore Hours	0	PJBVKHRS	
		JOB Device I/O Charges				
2220	1500	POWER JOB DASD SIOs Issued	1000 SIOs	1	PJBKDSIO	PJBDSIO / 1000
2221	1200	POWER JOB Other SIOs Issued	1000 SIOs	1	PJBKOSIO	PJBOSIO / 1000
2222	1400	POWER JOB Tape SIOs Issued	1000 SIOs	1	PJBKTSIO	PJBTSIO / 1000
2223	1200	POWER JOB Spool SIOs Issued	1000 SIOs	1	PJBKSSIO	PJBSSIO / 1000
2224	1200	POWER JOB TOTAL SIOs Issued	1000 SIOs	1	PJBKSIO	PJBBSIO / 1000
		JOB Spool Charges				
2230	3100	POWER JOB Lines Spooled	1000 Lines	1	PJBKSPPR	PJBSPPR / 1000
2231	3130	POWER JOB Cards Spooled	Cards	0	PJBSPPU	
2232	3100	POWER JOB Pages Spooled	Pages	0	PJBSPPG	
2240	3120	POWER JOB INPUT Cards Read	Cards	0	PJBSSYSIN	
		Step CPU Charges				
2251	1100	POWER STEP CPU Instructions Executed	1 Million	0	PPGCPUNI	
2252	1100	POWER STEP CPU Overhead Instructions	1 Million	0	PPGOVHNI	
2253	1100	POWER STEP CPU Processor Time	CPU Seconds	0	PPGCPUTM	
2254	1100	POWER STEP CPU Overhead Time	CPU Seconds	0	PPGOVHTM	
		Step Device Occupancy Charges				
2260	1400	POWER STEP Tape Occupancy Time	Hours	0	PPGTOHRS	
		Step Memory Charges				
2261	1100	POWER STEP Virtual KCore Hours	KCore Hours	0	PPGVKHRS	

Figure 4-7o. PWR Level Charging Elements (Part 1 of 2)

Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
-----+-----+-----+-----+-----+-----+-----						
		Step Device I/O Charges				
2270	1500	POWER STEP DASD SIOs Issued	1000 SIOs	1	PPGKDSIO	PPGDSIO / 1000
2271	1200	POWER STEP Other SIOs Issued	1000 SIOs	1	PPGKOSIO	PPGOSIO / 1000
2272	1400	POWER STEP Tape SIOs Issued	1000 SIOs	1	PPGKTSIO	PPGTSIO / 1000
2273	1200	POWER STEP Spool SIOs Issued	1000 SIOs	1	PPGKSSIO	PPGSSIO / 1000
2274	1200	POWER STEP TOTAL SIOs Issued	1000 SIOs	1	PPGKSIO	PPGSIO / 1000
-----+-----+-----+-----+-----+-----+-----						
		Step Spool Charges				
2280	3100	POWER STEP Lines Spooled	1000 Lines	1	PPGKSPPR	PPGSPPR / 1000
2281	3130	POWER STEP Cards Spooled	Cards	0	PPGSPPU	
2282	3120	POWER STEP Pages Spooled	Pages	0	PPGSPPG	
-----+-----+-----+-----+-----+-----+-----						
		Special Spool Charges				
2290	3120	POWER SPOOL Control Logical Records	Records	0	POACNLR	
2291	3120	POWER SPOOL Extra Pages Printed	Pages	0	POAEPGE	
2292	3120	POWER SPOOL Pages Printed	Pages	0	POAPGE	
2293	3120	POWER SPOOL Tracks or Blocks Storage	Trks or Blocks	0	POATKOB	
2294	3120	POWER SPOOL Extra Logical Writer Rec	Records	0	POAENLR	
2295	3120	POWER SPOOL Logical Writer Records	Records	0	POANLR	
-----+-----+-----+-----+-----+-----+-----						

Figure 4-7o. PWR Level Charging Elements (Part 2 of 2)

DEX Level Charging Elements						
Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
-----+-----+-----+-----+-----+-----+-----						
		VAX/VMS RESOURCE ACCOUNTING				
-----+-----+-----+-----+-----+-----+-----						
2401	1100	VAX/VMS Process CPU Instructions	1 Million	0	PRCCPUNI	
2402	1100	VAX/VMS Process CPU Time	CPU Seconds	0	PRCCPUTM	
2410	1500	VAX/VMS Process Direct I/O	1000 I/O	1	PRCKDIO	PRCDIRIO / 1000
2411	2100	VAX/VMS Process Buffered I/O	1000 I/O	1	PRCKBIO	PRCBUFIO / 1000
2420	7850	VAX/VMS Process Volumes Mounted	Mounts	0	PRCVOLS	
2430	1100	VAX/VMS Image Count	Count	0	IMGIMAGE	
2441	1100	VAX/VMS Image CPU Instructions	1 Million	0	IMGCPUUNI	
2442	1100	VAX/VMS Image CPU Time	CPU Seconds	0	IMGCPUTM	
2450	1500	VAX/VMS Image Direct I/O	1000 I/O	1	IMGKDIO	IMGDIRIO / 1000
-----+-----+-----+-----+-----+-----+-----						
2451	2100	VAX/VMS Image Buffered I/O	1000 I/O	1	IMGKBIO	IMGBUFIO / 1000
2460	7850	VAX/VMS Image Volumes Mounted	Mounts	0	IMGVOLS	
2470	3100	VAX/VMS Pages Printed	Pages	0	PRQPAGES	
2471	3100	VAX/VMS Print I/O	Print I/O	0	PRQPIOS	
2480	1500	VAX/VMS Mega-Bytes Hours Allocated	Megabyte Hours	0	DKUMBHA	
2481	1500	VAX/VMS Mega-Bytes Hours Used	Megabyte Hours	0	DKUMBHU	
-----+-----+-----+-----+-----+-----+-----						

Figure 4-7p. DEX Level Charging Elements

Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
-----+-----+-----+-----+-----+-----+-----						
		UNIX/MW APPLICATION ACCOUNTING				
2601	1700	UNIX/MW Appl Total CPU Time	CPU Seconds	0	APPCPUTM	
2602	1700	UNIX/MW Appl System CPU Time	CPU Seconds	0	APPSYSTM	
2603	1700	UNIX/MW Appl User CPU Time	CPU Seconds	0	APPUSRTM	
2604	1700	UNIX/MW Appl Nice CPU Time	CPU Seconds	0	APPNICTM	
2605	1700	UNIX/MW Appl Real Time CPU Time	CPU Seconds	0	APPRTMTM	
2606	1700	UNIX/MW Appl Normal CPU Time	CPU Seconds	0	APPNORTM	
2611	1700	UNIX/MW Appl Physical Disk I/O	1000 I/O	1	APPKDIO	APPSDKIO / 1000
2612	1700	UNIX/MW Appl Logical Disk Reads	1000 I/O	1	APPKLRD	APPLRDCT / 1000
2613	1700	UNIX/MW Appl Logical Disk Writes	1000 I/O	1	APPKLWT	APPLWTCT / 1000
2614	1700	UNIX/MW Appl Physical Disk Reads	1000 I/O	1	APPKPRD	APPPRDCT / 1000
2615	1700	UNIX/MW Appl Physical Disk Writes	1000 I/O	1	APPKPWT	APPPWTCT / 1000
2616	1700	UNIX/MW Appl I/O Transfer Count	Kilobytes	0	APPPKBCT	
2617	1700	UNIX/MW Appl Logical Disk I/O	1000 I/O	1	APPKLIO	APPLIOCT / 1000
		UNIX/MW PROCESS ACCOUNTING				
2651	1700	UNIX/MW Process Total CPU Time	CPU Seconds	0	KPSCPUTM	
2661	1700	UNIX/MW Process Physical Disk I/O	1000 I/O	1	KPSKDIO	KPSDSKIO / 1000
2662	1700	UNIX/MW Process Logical Disk I/O	1000 I/O	1	KPSKLDK	KPSLDKCT / 1000
2663	1700	UNIX/MW Process I/O Transfer Count	Kilobytes	0	KPSPKBCT	
-----+-----+-----+-----+-----+-----+-----						
*The availability of some of these data elements is dependent on your operating environment. For a description of the data elements available for various UNIX operating environments supported by CA MICS, see the CA MICS Analyzer Option for MeasureWare.						

Figure 4-7q. UNIX/MeasureWare Charging Elements

Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
MESSAGE MANAGER ACCOUNTING						
2701	1100	MMA CPU Instructions Executed	1 million	0	MMACPUNI	
2702	1100	MMA CPU Time Consumed	TCB+SRB Seconds	0	MMACPUTM	
2711	1100	MMA Total number of MQPUT messages	Messages Sent	0	MMATMPUT	
2712	1100	MMA Total number of MQGET messages	Messages Rec'd	0	MMATMGET	
TASK ACCOUNTING						
2730	1100	MQSeries Task Activity Total CPU Time	Seconds	0	TAACPUTM	
2731	1100	MQSeries Task Activity Kilobytes(GET)	1000 Bytes	1	TAAKGET	TAAGETB / 1000
2732	1100	MQSeries Task Activity Kilobytes(PUT)	1000 Bytes	1	TAAKPUT	TAAPUTB / 1000
QUEUE ACTIVITY						
2736	1100	MQSeries Queue Activity Kilobytes(GET)	1000 Bytes	1	QAAKGET	QAAGETB / 1000
2737	1100	MQSeries Queue Activity Kilobytes(PUT)	1000 Bytes	1	QAAKPUT	QAAPUTB / 1000
2738	1100	MQSeries Queue Activity Total Queue CPU Time	Seconds	0	QAAQCPTM	
MESSAGE FLOW ACCOUNTING						
2740	1100	MQSeries Message Flow Total CPU Time	Seconds	0	MFACTM	
2741	1100	MQSeries Message Flow Total Elapsed Time	Seconds	0	MFAETM	

Figure 4-7r. MQSeries Charging Elements

Asset Management						
Comp Code	Inv Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
Asset Management						
2120	2110	ASSET MANAGEMENT OPTION UNITS	AMO Units	0	AMOUNITS	
2121	2110	ASSET MANAGEMENT OPTION CPUS	AMO Cpu	0	AMOCPU	
2122	2110	ASSET MANAGEMENT OPTION TERMINAL	AMO Terminal	0	AMOTERM	
2123	2110	ASSET MANAGEMENT OPTION PRINTERS	AMO Printers	0	AMOPRT	

Figure 4-7s. AMO Level Charging Elements

NT Resource Accounting						
Comp Code	Invc Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		NT Resource Accounting				
2801	1800	Total Cpu Time	Seconds	1	NTACPUTM	TOTAL KERNAL + TOTAL USER TIME
2802	1800	Total Kernal Time	100 ns intervals	0	NTAKNLTM	NTAKNL CONVERTED TO SECONDS
2803	1800	Total User Time	100 ns intervals	0	NTAUSRTM	NTAUSR CONVERTED TO SECONDS
2806	1800	Byte Reads	Bytes	1	NTAKBRD	NTABRD / 1024
2807	1800	Number of Reads	Units	1	NTAKRD	NTARD / 1000
2808	1800	Bytes Writes	Bytes	1	NTAKBWT	NTABWT / 1024
2809	1800	Number of Writes	Units	1	NTAKWT	NTAWT / 1000
2815	1800	Total Duration all process	100 ns intervals	0	NTADURTM	NTADUR converted to seconds
2816	1800	Number of Proc Created	Units	0	NTAPROC	
2820	1800	Total Printed Jobs	Num of Jobs	0	NTAJPRT	
2821	1800	Total Pages Printed	Num of Pages	1	NTAKPPT	NTAPPT /1000
2822	1800	Total Printed Bytes	Bytes	1	NTAKBPT	NTABPT /1024
2825	1800	Virtual Size User	Bytes	1	NTAMVSU	NTAVSU /1024000
2826	1800	Working Set Size User	Bytes	0	NTAMWSU	

Figure 4-7t. NTA Level Charging Elements

WEB Level Charging Elements						
Comp Code	Invc Catg	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		WEB ANALYZER DATA ACCOUNTING				
3000	1100	Bytes Transferred	Bytes	0	SALBYTET	
3010	1100	KiloBytes Transferred	Kilo Bytes	0	SALKBYTT	
3020	1100	MegaBytes Transferred	Mega Bytes	0	SALMBYTT	
		Web Request Activity				
3030	1100	Web zIIP CPU Time	Seconds	0	WRASUPTM	
3031	1100	Web Normalized zIIP CPU Time	Seconds	0	WRASPNTM	
3032	1100	Web zIIP Eligible CPU Time on CP	Seconds	0	WRASUCTM	
3033	1100	Web zAAP CPU Time	Seconds	0	WRAZAPTM	
3034	1100	Web Normalized zAAP CPU Time	Seconds	0	WRAZPNTM	
3035	1100	Web zAAP Eligible CPU Time on CP	Seconds	0	WRAZACTM	
3036	1100	Web CP CPU Time Minus zIIP/zAAP Eligible	Seconds	0	WRAXCSTM	
3037	1100	Web CP CPU Time	Seconds	0	WRACPUTM	
		WebSphere Application Server ACCOUNTING				
3040	1100	Total Bytes Transferred	Bytes	0	SAFBYTET	
3050	1100	Total Bytes Transferred (Kilobytes)	Kilo Bytes	0	SAFKBYTT	
3060	1100	Total Bytes Transferred (Megabytes)	Mega Bytes	0	SAFMBYTT	
		Web Asynch Activity				
3070	1100	Web CP CPU Time	Seconds	0	WAACPUTM	
3072	1100	Web Normalized zIIP/zAAP CPU Time	Seconds	0	WAANZZTM	
3074	1100	Web zIIP/zAAP CPU Time	Seconds	0	WAAAZZTM	

Figure 4-7u. WEB Level Charging Elements

Linux Accounting						
Comp Code	Inv Code	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		Linux Accounting				
3100	1850	Accounting User Time	Seconds	0	ULXUTIME	
3101	1850	Accounting System Time	Seconds	0	ULXSTIME	
3102	1850	Accounting Elapsed Time	Seconds	0	ULXETIME	
3103	1850	Accounting Average Memory usage	Kbytes	0	ULXMEM	
3104	1850	Accounting Bytes Transferred	Bytes	1	ULXIOT	ULXIO / 1000
3105	1850	Accounting Blocks read or write	Blocks	0	ULXRW	

Figure 4-7v. Linux Accounting Charging Elements

Tandem Accounting						
Comp Code	Inv Code	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		TANDEM Accounting				
3201	1100	CPU Busy Time	Seconds	0	PRSCBSTM	
3202	1100	Sent Bytes	Seconds	0	PRSNRCHS	
3203	1100	Received Bytes	Seconds	0	PRSNRCHR	

Figure 4-7w. Tandem level Charging Elements

Tape Management						
Comp Code	Inv Code	Charging Element Description	Measured Units	F I	Charging Element	Element Derivation. The calculations are in the sharedprefix.MICS.SOURCE library.
		Tape Management				
3300	7100	Megabyte Hours Utilized	Megabyte-Hours	0	TMDDURSP	

Figure 4-7x. Tape level Charging Elements

4.2.2 Defining Invoice Categories

Charges are computed at the individual charging element level. Since this level may be too technical and/or detailed for meaningful reporting, charges are reported by general, user-defined groups called invoice categories.

A default Invoice Category Table is distributed with the system. However, to provide maximum flexibility, you may make additions or changes so that the reporting structure is consistent with your installation's requirements.

Since the only invoice categories that appear on the invoice are those that are associated with the Rate Table's charging element computation codes, we recommend that you do not delete any of the standard invoice categories.

STEPS TO DEFINE INVOICE CATEGORIES

- 1. Select Option 3, Invoice Category Definition, on the Parameter Specifications menu to display the Invoice Category Definition panel and make the changes that you need.
- 2. Submit the INVCCAT job in sharedprefix.MICS.CNTL. This job generates the \$ACTIVCF format in sharedprefix.MICS.MCOLIB. This format relates each invoice category to its description and is used in printing the invoice. If you have made any changes, you are automatically asked to submit this job when you END from the Invoice Category Definition panel.

You can also submit this job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(INVCCAT)'
```

Use the following sections to define invoice categories:

- 1 - Invoice Category Worksheet
- 2 - Invoice Category Example
- 3 - Table of Default Invoice Categories

4.2.2.1 Invoice Category Worksheet

Figure 4-8 is the Invoice Category Worksheet.

[illegible]

Figure 4-8. Invoice Category Worksheet

Use the worksheet to define the following parameters:

1. INVOICE CATEGORY

Description: The unique, four-digit invoice category number used to report charges incurred against a group of billable elements.

Default: Refer to the Table of Default Invoice Categories, Section 4.2.2.3.

Values: Alphanumeric, 1000 to 8999 or 1XXX to 8XXX

NOTE: The first digit in the invoice category number denotes a general classification and the next three digits denote a subgroup. All four digits together constitute a detail invoice category. Both general classification invoice categories (nXXX) and detail invoice categories (nnnn) are shown on the invoice.

Invoice categories greater than 8999 are reserved for CA MICS internal use. User-defined invoice categories should be in the range of n950 - n999, where n is 1 thru 8.

2. DESCRIPTION

Description: The description of this invoice category, which will be printed on the invoice and financial reports.

Default: Refer to the Table of Default Invoice Categories, Section 4.2.2.3.

Values: Character, length 40

NOTE: When adding a completely new category type, you should also add a general classification invoice category (nXXX) to the table.

4.2.2.2 Invoice Category Example

The example shown in Figure 4-9 assumes that the printing of labels constitutes a large part of the installation's printer activity. This category is to be added and assigned the invoice category of 7003.

INVOICE CATEGORY WORKSHEET	
Invoice	
Category	Description
7953	Labels

Figure 4-9. Invoice Category Example

4.2.2.3 Table of Default Invoice Categories

Figure 4-10 lists the default invoice categories that are distributed with CA MICS Accounting and Chargeback.

INVOICE CATEGORY	DESCRIPTION
1XXX	Processor Hardware
1100	Central Processor(s)
1110	Processor Storage
1200	Channels
1300	Control Units
1400	Tape Drives
1500	Direct Access Storage Devices
1550	Mass Storage Devices
1600	Minicomputers
1650	Microcomputers
1700	UNIX Systems
1750	UNIX Resource Accounting
1800	NT Systems
2XXX	Teleprocessing Equipment
2100	Terminals
2110	NSM Asset Management
2120	I/S Inventory and Assets
2130	Modems
2150	Multiplexors
2160	Control Units
2200	Communications Lines
2300	Communications processors
2400	Local-Area Network Equipment
2500	Microwave Transmission Equipment
2600	Satellite Earth Stations
2800	Voice Communications Equipment
2900	Video-Conferencing Equipment
3XXX	Hard-Copy I/O Devices
3100	Mechanical Printers

3110	Laser Printers
3120	Card Readers
3130	Card Punches
3135	Interpreters
3140	Sorters
3141	Collators
3142	Bursters
3143	Deleavers
3144	Paper Cutters
3150	OCR Readers
3151	MICR Readers
3152	Microfilm Printers
3153	Aperture Card Equipment
3160	Plotters
3165	Graphics Equipment
3170	Data Conversion Units
3200	Paper Copiers
3250	Microfilm Copiers
3300	Offset Printing
3400	Keypunches
3410	Key to Tape/Disk Units

4XXX	Support Equipment

4001	Tape Cleaner Unit
4002	Tape Certification Unit
4003	Pack Examiner
4100	Oscilloscopes
4210	Datascopes
4220	Patch Panel Equipment
4230	Network Control Systems
4500	Hardware Monitors

INVOICE CATEGORY	DESCRIPTION

5XXX	Software

51XX	System Software
	Purchase/Lease Costs
	Development Cost
	Documentation Costs
	Training Costs
	Maintenance Cost
55XX	Application Software
	Purchase/Lease Costs
	Development Cost

	Documentation Costs
	Training Costs
	Maintenance Cost
58XX	Communication Software
	Purchase/Lease Costs
	Development Cost
	Documentation Costs
	Training Costs
	Maintenance Cost
6XXX	Personnel
6001	Administrative
6100	Systems Programmers
6200	Applications Programmers
6300	Systems Analysts
6400	Operators
6410	I/O Personnel
6420	Schedulers
6430	Data Control Personnel
6440	Tape Librarians
6450	DASD Manager
6500	Data Entry
6600	Education and Training
6700	Hardware Installation and Support
6800	Clerical
6900	Facilities Maintenance

INVOICE CATEGORY	DESCRIPTION
7XXX	Inventories
7001	Paper
7002	Cards
7100	Tape Volumes
7200	Disk Volumes
7230	SMS Storage Class
7240	SMS Management Class
7250	Mass Storage Cartridges
7300	Printer Ribbons
7800	Reference Manuals
7850	Library Volumes
7900	Expendables

8XXX	Facilities
8001	Furniture and Fixtures
8050	Floor Space
8100	Environmental Control
8110	Heat
8120	Light
8130	Power
8140	Air Conditioning
8200	Transportation
8300	General Office Machines
8400	Security
8450	Fire Control
8500	Auxiliary Power Supply
9XXX	Reserved for CA MICS Use

Figure 4-10. Default Invoice Categories

4.2.3 Defining Credit Categories

You may make adjustments to a cost center's charges in the form of credits for problems and malfunctions that occur in processing the cost center's work. To facilitate analysis and reporting, a coding system is provided for categorizing the reason for a credit. These codes are called credit categories.

A default table of credit categories is distributed with CA MICS Accounting and Chargeback. However, to provide maximum flexibility, you may make additions or changes so that the reporting structure is consistent with your installation's requirements.

STEPS TO DEFINE CREDIT CATEGORIES

- __ 1. Select Option 4, Credit Category Definition, on the Parameter Specifications menu to display the Credit Category Definition panel and make the changes that you need.
- __ 2. Submit the job CREDCAT in sharedprefix.MICS.CNTL. This job generates the \$ACTCRED format in sharedprefix.MICS.MCOLIB, which is used in the Invoice Credit Supplement Report to relate each credit category to its description. If you made any changes, you are automatically asked to submit this job when you END from the Credit Category Definition panel.

You can also submit this job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(CREDCAT)'
```

The following sections will help you decide how to define the credit categories:

- 1 - Credit Category Worksheet
- 2 - Credit Category Example
- 3 - Table of Default Credit Categories

4.2.3.1 Credit Category Worksheet

Figure 4-11 is the Credit Category Worksheet.

[illegible]

Figure 4-11. Credit Category Worksheet

Use the worksheet to define the following parameters:

1. CREDIT CATEGORY

Description: The unique, four-digit credit category number used to report credits given for a specific type of outage or error.

Default: Refer to the Table of Default Credit Categories, Section 4.2.3.3.

Values: Alphanumeric, 1000 to 9999 or 1XXX to 9XXX

NOTE: The first digit in the credit category number denotes a general classification and the next three digits denote a subgrouping. All four digits together constitute a detail credit category. User-defined credit categories should be in the range of n950 - n999, where n is 1 thru 8. This corresponds to the range of invoice categories reserved for users.

2. DESCRIPTION

Description: The description of this credit category, which will be printed on the standard financial reports.

Default: Refer to the Table of Default Credit Categories, Section 4.2.3.3.

Values: Character, length 40, any character string

NOTE: When adding a completely new category type, you should also add a general classification invoice category (nXXX).

4.2.3.2 Credit Category Example

The example in Figure 4-12 assumes that the installation wishes to add DB2 malfunctions as a credit category.

+-----+

| Date: __/__/__ Administrator: _____ |

+-----+

Credit

Category Description

5950 DB2

5951 DB2 Malfunction

Figure 4-12. Credit Category Example

4.2.3.3 Table of Default Credit Categories

Figure 4-13 illustrates the default credit categories that are distributed with CA MICS Accounting and Chargeback.

CREDIT CATEGORY	DESCRIPTION
1XXX	Processor Hardware
1100	Central Processor Malfunction
1110	Processor Storage Malfunction
1200	Channel Malfunction
1300	Control Unit Malfunction
1400	Tape Drive Malfunction
1500	DASD Storage Device Malfunction
1550	Mass Storage Device Malfunction
1600	Minicomputer Malfunction
1650	Microcomputer Malfunction
1700	UNIX Systems Malfunction
2XXX	Teleprocessing Equipment
2100	Terminal Inoperative
2130	Modem Malfunction
2150	Multiplexor Malfunction
2160	Control Unit Malfunction
2200	Communications Line Outage
2300	Communications Processor Error
2400	Local-Area Network Malfunction
2500	Microwave Transmission Malfunction
2600	Satellite Earth Station Malfunction
2700	Voice Communications Malfunction
2800	Video-Conferencing Malfunction
3XXX	Hard-Copy I/O Devices
3100	Mechanical Printer Malfunction
3110	Laser Printer Malfunction
3120	Card Reader Malfunction
3130	Card Punch Malfunction
3135	Interpreter Malfunction

3140	Sorter Malfunction
3141	Collator Malfunction
3142	Burster Malfunction
3143	Deleaver Malfunction
3144	Paper Cutter Malfunction
3150	OCR Reader Malfunction
3151	MICR Reader Malfunction
3152	Microfilm Printer Malfunction
3153	Aperture Card Device Malfunction
3160	Plotter Malfunction
3165	Graphics Equipment Malfunction
3170	Data Conversion Unit Malfunction
3200	Paper Copier Malfunction
3300	Microfilm Copier Malfunction
3400	Offset Printing Malfunction
3500	Key punch Malfunction
3510	Key to Tape/Disk Unit Malfunction

CREDIT CATEGORY	DESCRIPTION
5XXX	System Software
5100	SCP System Software
5110	Master Scheduler Malfunction
5200	Sub-System Malfunction
5210	JES2 Malfunction
5220	JES3 Malfunction
5230	HSM Malfunction
5240	TSO Malfunction
5300	Communications Malfunction
5310	VTAM Malfunction
5320	TCAM Malfunction
5330	SNA Malfunction
5340	NCP Malfunction
5350	NCCF Malfunction
5400	DBMS Malfunction
5410	IMS
5411	IMS/DB Malfunction
5412	IMS/DC Malfunction
5420	CICS
5421	CICS Malfunction
5422	CICS/DL1 Malfunction
5500	Interactive Systems
5510	APL Malfunction
5520	IPCS Malfunction
5530	ISPF Malfunction
5540	IIS Malfunction

5550	VSPC Malfunction
5560	Session Manager Malfunction
5600	Program Products
5610	RACF Malfunction
5620	SMP Malfunction
5630	VPSS Malfunction
5640	Compiler Malfunction
5650	SAS Malfunction
5900	System Utilities
5910	AMS Malfunction
5920	Catalog Malfunction

CREDIT	
CATEGORY	DESCRIPTION
6XXX	Personnel
6100	Systems
6110	Systems Programmer Error
6120	Applications Programmer Error
6130	Systems Analyst Error
6200	Operations
6210	Master Console Operator Error
6220	I/O Operator Error
6230	Scheduler Error
6240	Data Control Error
6250	Tape Librarian Error
6300	Controls
6310	DASD Manager Error
6400	Support Services
6510	Data Entry Error
6520	Clerical Error
6530	Delivery Error
6600	Hardware
6610	Hardware Installation Error
6620	Hardware Maintenance Error
8XXX	Environmental
8100	Environmental
8110	Heating Malfunction
8120	Lighting Malfunction
8130	Power Malfunction
8140	Air Conditioning Malfunction
8150	Auxiliary Power Supply Malfunction
8200	Damage Control
8210	Security Problem

8220 Fire Control Problem

Figure 4-13. Default Credit Categories

4.3 Specifying Rates

After your charging elements are defined and assigned computation codes (refer to Section 4.2.1), you must assign rates to the computation codes to charge for system use.

The following sections guide you through the process of specifying journal file characteristics and assigning rates.

- 1 - Defining the Rate Table
- 2 - Defining Qualification Groups

4.3.1 Defining the Rate Table

The rate tables establish:

- o Which journal files will be used for charging
- o The types of accounting procedures that will be employed
- o The computation codes and rates used to calculate the charges
- o The range of input data to which a specific calculation will apply

There is one rate table for each CA MICS unit in which Accounting and Chargeback is installed, including external file units, and one for complex-level external files. This section describes how to define a rate table for standard CA MICS products, external files in external file units, and field-developed applications. Rate tables for external files at the complex level are described in Section 4.4.

A set of computation codes and rates is called a charging algorithm. Charging algorithms must be defined for each journal file to be used. As many charging algorithms as needed may be defined for each journal file. If only one algorithm is defined, it will be used to compute the charges for all records in the file. If more than one algorithm is defined, the records to which each applies must be established. This is called algorithm qualification, because each algorithm is qualified by the records to which it applies.

When you select a journal file for the first time on the Rate Table - Component and File Selection panel, a default (or sample) rate table for that file is copied into your rate table with all rates set to 0, and the journal file is marked ACTIVE. This activates the journal file for charging when the next MAGRUN job is run. However, the charges in the journal file observations will all be zero unless rates are changed to a non-zero value. If one or more rates for the journal file are changed to a non-zero value, it will be activated for charging by the next MAGRUN job, and journal file records containing the specified rates will be produced for invoicing.

When you change the specifications for a journal file, code or modify a journal file exit, or add, delete, or modify a charging algorithm or its qualification, you must modify the

Rate Table parameter.

Each computation code used in a Rate Table must be defined in the table of default charging elements.

Figure 4-14 depicts the process to define the rate table.

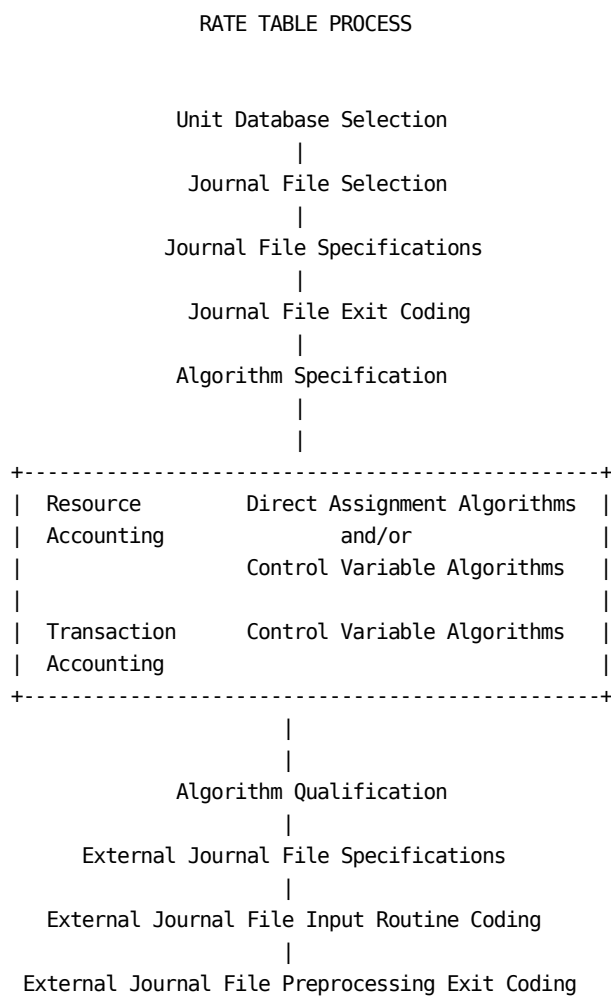


Figure 4-14. Rate Table Process

STEPS TO DEFINE THE RATE TABLE

Follow the steps in this checklist to define the rate table:

1. Identify the CA MICS database units in which

Accounting and Chargeback is (or will be) installed. It must be installed in each unit containing a CA MICS analyzer or field-developed application you want to charge for. In addition, if you are charging for external files at the unit level, you must have a unit with only Accounting and Chargeback installed in it.

- ___ 2. On the Rate Table Component and File Selection Worksheet, Figure 4-15, mark an "S" next to each journal file that you wish to use for charging in the unit.
- ___ 3. Fill out the Journal File Specifications Worksheet, Figure 4-17, for each journal file that you selected for charging in the unit.

Journal file specifications are made for each journal file for which charges will be computed. These specifications determine the types of accounting procedures that will be employed for all charges derived from information in a single CA MICS analyzer file. These procedures include zone (shift) differential accounting, priority surcharging, and journal prorating.

- ___ 4. Fill out the Rate Table - Direct Assignment Algorithm Worksheet, Figure 4-21, for each resource accounting journal file that you have selected in the unit. This worksheet is sufficient if your algorithm is simple, with only one rate and one computation code for each charging element. If you want to use different rates and/or computation codes for one or more charging elements, you must also use the Rate Table - Control Variable Algorithm Worksheet, Figure 4-22.

In addition, fill out the Rate Table - Control Variable Algorithm Worksheet for each transaction accounting journal file you have selected in the unit.

- ___ 5. Fill out an Algorithm Qualification Worksheet, Figure 4-25, for each journal file for which you have specified more than one charging algorithm.

Within the information from a given CA MICS product file, the scope (span of application) of an algorithm may be limited to specific mainframe processors (SYSIDs), applications (SUBSYSIDs), types of work (SUBTYPES), user-defined organizational units (COSTCTRs), and work units. Algorithm qualification

defines the portion of the file to which each algorithm applies.

- ___ 6. If you want to code a SAS exit for processing immediately prior to the output of each record, fill out the Journal File Exit Worksheet, Figure 4-29.

```
*****
* Complete steps 7 through 9 for each of your      *
* external journal files, in an external file      *
* unit. If you do not have any external journal    *
* files, skip to step 10.                          *
*****
```

- ___ 7. Fill out the External Journal File Update Job Worksheet, Figure 4-27, for each of your external journal files. You will specify whether to use duplicate data checking when the external journal file update job runs and will write the input DD statement to input your external file.
- ___ 8. Fill out the input routine for each of your external journal files on the External Journal File Input Routine Worksheet, Figure 4-29.
- ___ 9. Optionally, fill out a preprocessing exit for each of your external journal files on the External Journal File Preprocessing Exit Worksheet, Figure 4-31. This exit preprocesses your external file before the file is read in.
- ___ 10. Select Option 6, Rate Table, on the Parameter Specifications menu to display the Component and File Selection panel. If Accounting and Chargeback is installed in more than one database unit, the unit selection panel will be displayed prior to the Component and File Selection panel, and you must select a unit.

Select a journal file for which you want to modify the Rate Table on the Component and File Selection panel. The File Options menu will be displayed for you to select the option(s) that you need to modify. If you select an external file unit, three additional options, discussed in steps 7 through 9, appear on the File Options menu.

- ___ 11. Submit the job Rate Table generation job, MAGRUN, in prefix.MICS.CNTL. If you made any changes, you are

automatically asked to submit this job when you END from the Component and File Selection panel.

You can also submit this job from TSO as follows:

```
SUB 'prefix.MICS.CNTL(MAGRUN)'
```

The MAGRUN job executes the Charging Element generation and then generates the following items:

#ACTMSTR--in prefix.MICS.USER.SOURCE. This module contains SAS macros to support charging for each journal file that you have selected in the unit.

#ACTXfff--in prefix.MICS.USER.SOURCE. One module is generated for each journal file in the unit (where fff is the file ID of the associated CA MICS product file). For active journal files, the module contains SAS code to compute the charges for the journal file.

#LGRDSUM--in prefix.MICS.USER.SOURCE. This module contains SAS code to summarize the Ledger File in the DAYS timespan.

ACTAUDIT--in prefix.MICS.USER.SOURCE. This module contains SAS code to create the Audit File for a unit.

\$ACTVaaa--in prefix.MICS.MUOLIB. One format is generated for each control variable charging algorithm in the unit (where aaa is the algorithm ID). Each format relates a control variable name and value to a computation code, rate, and rate effective date.

\$ACTRaaa--in prefix.MICS.MUOLIB. One format is generated for each algorithm in the unit (where aaa is the algorithm ID). Each format relates a computation code to a rate and the rate effective date.

For external journal files, MAGRUN also generates:

ACTfffTB--in prefix.MICS.CNTL. One job is generated for each external journal file in the unit (where fff is the file identifier of the

associated file). This is the job you will run to load data into the external journal file.

The sections below discuss the sequence of specifications that you must follow to define the rate table parameter in a unit database. Sections 6 through 8 are only for external file units.

- 1 - Selecting a Journal File
- 2 - Specifying Journal File Characteristics
- 3 - Defining a Journal File Exit
- 4 - Specifying Algorithms
- 5 - Qualifying Algorithms
- 6 - Specifying Ext. File Input Job Characteristics
- 7 - Specifying an Ext. Journal File Input Routine
- 8 - Specifying an Ext. Journal File Preprocessing Exit
- 9 - Input Record Selection Exit (USRACT)
- 10 - Actual Date Selection Exit (USRRCP)

4.3.1.1 Selecting a Journal File

The following sections discuss the Rate Table - Component and File Selection Worksheet and present an example:

- 1 - Component and File Selection Worksheet
- 2 - Component and File Selection Example

4.3.1.1.1 Component and File Selection Worksheet

Figure 4-15 shows a Rate Table - Component and File Selection Worksheet.

Date: ____/____/____ Administrator: _____							
RATE TABLE - COMPONENT AND FILE SELECTION WORKSHEET							
DATABASE UNIT IDENTIFIER: _____							
CA MICS Database Component	Select Files	Journal File ID	Journal File Description	CA MICS Database Component	Select Files	Journal File ID	Journal File Description
CIC	—	ACTJCS	CICS Resource	SNT	—	ACTJPS	NPM Resource
	or	ACTJCA	CICS Transaction		(or select ONE of the following)	—	ACTJNP
	—				—	ACTJNS	NETSPY Resource
	—				—	ACTJNA	NLDM Resrc/NVSNNA
	—				—	ACTJNC	NLDM Resrc/NVSNNA
	—				—	ACTJRT	NLDM Resrc/NVSRM
DB2	—	ACTJDS	DB2 Resource				
DEX	—	ACTJPC	VAX/VMS Resource/DEAPRC	TSO	—	ACTJTU	TSO Resource
	—	ACTJIM	VAX/VMS Resource/DEAIMG		—	ACTJTC	Command Usage
	—	ACTJPQ	VAX/VMS Resource/DEAPRQ		—	ACTJTI	Interactive Usage
	—	ACTJDK	VAX/VMS Disk Storage				
IDM	—	ACTJSU	IDMS Resource	VCA	—	ACTJDA	Non-VSAM Resource
	or	ACTJSA	IDMS Transaction		—	ACTJMS	SMS Resource
	—				—	ACTJVS	VSAM Resource
	—				—	ACTJHF	HFS Resource
IMS	—	ACTJIA	IMS Transaction	HSM	—	ACTJMG	Migrated Data
	or	ACTJIS	IMS Resource		—	ACTJBC	Backup Data
	—	ACTJIX	IMS Fast Path				
PWR	—	ACTJPJ	VSE/POWER Job	VMC	—	ACTJCM	VMC Resource/VMCCMU
	—	ACTJPP	VSE/POWER Program		—	ACTJDC	VM Service/VMCDAC
	—				—	ACTJVR	VMC RSCS Spool
	—	ACTJPO	VSE/POWER Spool		—	ACTJNT	VM Network/VMCNTU
	—			—	ACTJLN	LINUX Resrc/LNXLXP	
SMF	—	ACTJBJ	Batch Job	AUM	—	ACTJMA	UNIX/MW Application
	—	ACTJBP	Batch Program		—	ACTJMP	UNIX/MW Process
	—	ACTJBS	Batch Spool				
	—	ACTJTP	APPC/MVS TP Resource	MQS	—	ACTJMQ	Message Manager
	—	ACTJBM	MULC Address Space		—	ACTJTA	Task Accounting
	—	ACTJRN	Multisystem Enclaves		—	ACTJQA	Queue Activity
	—			—	ACTJMF	Flow Accounting	
WEB	—	ACTJWB	WEB Resource TDM	TDM	—	ACTJTD	Process Activity
	—	ACTJSF	WebSphere Appl. Server				
	—	ACTJWA	Web Asynch Activity				
	—	ACTJWR	Web Request Activity				
TAP	—	ACTJTV	Tape Management				
External Files				Field-Developed Applications			
EXT	—	ACTJLX	Linux Journal File	_____	—	ACTJ_____	_____
EXT	—	ACTJ_____	_____	_____	—	ACTJ_____	_____

Figure 4-15. Rate Table - Component and File Selection Worksheet

Use the worksheet to define the following parameters:

1. DATABASE UNIT IDENTIFIER

Description: The one-character CA MICS database unit identifier.

Default: None

Values: Character, length 1

NOTES: Fill in this information only for field-developed applications.

You may not have all of the CA MICS components shown on the worksheet installed at your installation.

2. CA MICS DATABASE COMPONENT

Description: The three-character CA MICS component identifier or EXT for external files.

Default: None

Values: Character, length 3

NOTE: Fill in this information only for field-developed applications.

3. SELECT FILES

Description: Identifies which journal files will be utilized for accounting.

Default: None

Values: Selection only

NOTE: Entries separated by "or" in the CA MICS database component file name column are mutually exclusive (you can select only one). For some components, such as SMF and TSO, you may select multiple files. For others, you may use only one FILE statement. You may use both the BATJOB and BATPGM files at the same time; however, you should not charge for the same activity (for

example, batch jobs or steps) from both.

4. JOURNAL FILE IDENTIFIER

Description: The two-character suffix that is appended to ACTJ to construct the journal file name.

Default: None

Values: Character, length 2. Usually, the fourth and fifth positions of the CA MICS product file name indicated above are used. The journal file identifier must be unique. If the fourth and fifth positions of the file name conflict with another journal file identifier, you must use a different two characters.

NOTE: Fill in this information for field-developed applications and external journal files. You cannot change the standard CA MICS products' journal file identifiers.

5. JOURNAL FILE DESCRIPTION

Description: The text description of the journal file.

Default: None

Values: Character, length 40

4.3.1.1.2 Component and File Selection Example

The example in Figure 4-16 shows the selection of the Batch Job Journal File, the CICS Resource Journal File, and the DB2 Resource Journal File.

Date: ____/____/____				Administrator: _____			
RATE TABLE - COMPONENT AND FILE SELECTION WORKSHEET							
DATABASE UNIT IDENTIFIER: _____							
CA MICS Database Component	Select Files	Journal File ID	Journal File Description	CA MICS Database Component	Select Files	Journal File ID	Journal File Description
CIC	S	ACTJCS	CICS Resource	SNT	-	ACTJPS	NPM Resource
	or	ACTJCA	CICS Transaction		(or select ONE of the following)		
	-				-	ACTJNP	NCP Resource
					-	ACTJNS	NETSPY Resource
					-	ACTJNA	NLDM Resrc/NVNSA
					-	ACTJNC	NLDM Resrc/NVNSC
					-	ACTJRT	NLDM Resrc/NVSRM
DB2	S	ACTJDS	DB2 Resource				
DEX	-	ACTJPC	VAX/VMS Resource/DEAPRC				
	-	ACTJIM	VAX/VMS Resource/DEAIMG	TSO	-	ACTJTU	CA TSO/MON PM Res.
	-	ACTJPQ	VAX/VMS Resource/DEAPRQ		-	ACTJTC	Command Usage
	-	ACTJDK	VAX/VMS Disk Storage		-	ACTJTI	Interactive Usage
IDM	-	ACTJSU	IDMS Resource	VCA	-	ACTJDA	Non-VSAM Resource
	or	ACTJSA	IDMS Transaction		-	ACTJMS	SMS Resource
					-	ACTJVS	VSAM Resource
					-	ACTJHF	HFS Resource
IMS	-	ACTJIA	IMS Transaction				
	or	ACTJIS	IMS Resource	HSM	-	ACTJMG	Migrated Data
	-	ACTJIX	IMS Fast Path		-	ACTJBC	Backup Data
PWR	-	ACTJPJ	VSE/POWER Job	VMC	-	ACTJCM	VMC Resource/VMCCMU
	-	ACTJPP	VSE/POWER Program		-	ACTJDC	VM Service/VMCDAC
					-	ACTJVR	VMC RSCS Spool
					-	ACTJNT	VM Network/VMCNTU
		ACTJPO	VSE/POWER Spool		-	ACTJLN	LINUX Resrc/LNXLXP
SMF	S	ACTJBJ	Batch Job	AUM	-	ACTJMA	UNIX/MW Application
	-	ACTJBP	Batch Program		-	ACTJMP	UNIX/MW Process
	-	ACTJBS	Batch Spool				
	-	ACTJTP	APPC/MVS TP Resource	MQS	-	ACTJMQ	Message Manager
	-	ACTJBM	MULC Address Space		-	ACTJTA	Task Accounting
	-	ACTJRN	Multisystem Enclaves		-	ACTJQA	Queue Activity
					-	ACTJMF	Flow Accounting
WEB	-	ACTJWB	WEB Resource	TDM	-	ACTJTD	Process Activity
	-	ACTJSF	WebSphere Appl. Server				
	-	ACTJWR	Web Request Activity				
	-	ACTJWA	Web Asynch Activity				
TAP	-	ACTJTV	Tape Management				
External Files				Field-Developed Applications			
EXT	-	ACTJLX	Linux Journal File	_____	-	ACTJ_____	_____
EXT	-	ACTJ____	_____	_____	-	ACTJ_____	_____

Figure 4-16. Rate Table - Component and File Selection Example

4.3.1.2 Specifying Journal File Characteristics

Each journal file has unique characteristics that are defined in the Rate Table. You define the special types of calculations that will be performed for each observation in the CA MICS product file or unit-level external file. These can correspond to the various supported types of accounting methodologies, including zone differential accounting, priority accounting, and prorating. For zone differential accounting, you can specify the time stamp variable used to determine the zone, normally ENDTS. For prorating, you can specify the variable whose contents determine which records will be prorated, normally COSTCTR1.

In addition, you specify the number of cycles of the journal file to be retained, whether or not to compress the journal file, and which time stamp variable to use for effective dates.

You must use the Journal File Specifications option to compress journal files. Do not edit the journal file statements in the prefix.MICS.PARMS(COMPRESS) member, because the changes will be lost when the next MAGRUN job is run. If you change the compression specification for any journal file, submit prefix.MICS.CNTL(CYCLEGEN) after the MAGRUN job completes. This will regenerate cycle specifications for all files listed in prefix.MICS.PARMS(DBMODEL) and it will regenerate compression specifications for all files in the unit, including the journal files.

The following sections discuss the Journal File Specifications Worksheet and present an example.

- 1 - Journal File Specifications Worksheet
- 2 - Journal File Specifications Example

4.3.1.2.1 Journal File Specifications Worksheet

Figure 4-17 shows a Journal File Specifications Worksheet.

JOURNAL FILE SPECIFICATIONS WORKSHEET								
DATA BASE UNIT IDENTIFIER: _____								
Journal File	Number of Cycles	Compress File (YES/NO)	Zone Charging (YES/NO)	Zone Timestamp	Prorating (YES/NO)	Prorate From Variable	Priority Charging (YES/NO)	Effective Date Timestamp Variable
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____
ACTJ__	_____	_____	_____	_____	_____	_____	_____	_____

Figure 4-17. Journal File Specifications Worksheet

Use the worksheet to define the following parameters:

1. DATABASE UNIT IDENTIFIER

Description: The one-character CA MICS database unit identifier.

Default: None

Values: Character, length 1

2. JOURNAL FILE

Description: The journal files in the unit. Specify the two-character suffix of the journal file names.

Default: None

Values: Character, length 6.

3. NUMBER OF CYCLES

Description: Specifies the number of cycles of the journal file that will be kept in the DETAIL timespan of the CA MICS database.

Default: 02

Values: Numeric, length 2

4. COMPRESS FILE

Description: Specifies whether or not to compress this journal file.

Default: NO

Values: Character, length 3, YES, NO, Y, or N

5. ZONE CHARGING

Description: Specifies whether or not to use zone differential charging for this journal file.

Default: NO

Values: Character, length 3, YES, NO, Y, or N

NOTE: If this field is YES, you must specify service factors in the prefix.MICS.PARMS(ZONE) parameter for the unit. Refer to the discussion on service factors in Section 2.3.2.3.1 of the Planning Installation, Operation, and Maintenance Guide.

6. ZONE TIMESTAMP

Description: The data element used to compute the zone for zone differential charging.

Default: ENDTS (if Zone Charging is YES)

Values: Character, length 8, any SAS datetime data element appearing on the CA MICS product file from which this journal file is derived.

NOTE: This specification is not applicable unless zone differential charging is being used in this journal file. ENDTS, STARTTS, or RDRTS are the usual choices, but some products make available other values that may be preferable in some environments.

7. PRORATING

Description: This field specifies whether the data for this journal file will be prorated when the journal file is created. Prorating causes the charges for a single record to be distributed to one or more different Cost Center 1 values.

Default: NO

Values: Character, length 3, YES or NO

NOTE: If this field is YES, you must use the prorating facility to specify how the charges are to be distributed. Refer to Section 4.8, Prorating Charges.

8. PRORATE FROM VARIABLE

Description: The data element that is compared to the list of Old Values in the prorating definition to determine whether a journal file record is to be

prorated.

Default: Blank if Prorating is NO; COSTCTR1 if Prorating is YES.

Values: Character, length 8, any data element appearing on the CA MICS product file from which this journal file is derived. Since you use a single prorating table for all journal files in a database unit, you should specify the same variable for all journal files that are using prorating in this unit.

9. PRIORITY CHARGING

Description: Specifies whether or not priority accounting surcharges are to be applied to charges derived from this file.

Default: None

Values: Character, length 3, YES, NO, Y, or N

NOTE: You can perform priority charging only on files defined as priority charging files in the Journal File Eligibility panels. Refer to Section 4.13 for more information on journal file eligibility. You must specify service factors in the appropriate CA MICS product parameter.

10. EFFECTIVE DATE TIMESTAMP VARIABLE

Description: Specifies the variable that will be compared with the effective date to determine the rate that will be used to compute the charge amount.

Default: ENDTS

Values: Character, length 8, ENDTS, or BILLTS

4.3.1.2.2 Journal File Specifications Example

In the example shown in Figure 4-18, the following is specified:

- Charging will be done for batch jobs (ACTJBJ journal file).
- Two cycles will be kept.
- The ACTJBJ journal file will be compressed.
- Zone surcharges will be done based on the value of ENDTS.
- Prorating will be done based on the value of COSTCTR1.
- The effective date time stamp variable is ENDTS.

Journal File	Number of Cycles	Compress File (YES/NO)	Zone Charging (YES/NO)	Zone Timestamp	Prorating (YES/NO)	Prorate From Variable	Priority Charging (YES/NO)	Effective Date Timestamp Variable
ACTJBJ	2	YES	YES	ENDTS	YES	COSTCTR1	NO	ENDTS

Figure 4-18. Journal File Specifications Example

4.3.1.3 Defining a Journal File Exit

If you do not need journal file exit code, you can skip this section.

Each journal file has an exit. Control is passed to the exit routine during algorithm generation, after all of the generated calculations have been performed and just prior to the output of each journal file record. The exit is, therefore, able to reference any values contained within the journal file or the associated CA MICS file or read in from the external file. Elements for CA MICS product files are documented in the Data Dictionary appendix (usually Appendix B) for that product. Exits for external journal files not based on a CA MICS file can reference any element read by the external file input routine. In addition, the exit can make use of some data elements (such as ACTFLD1-5 in the CA MICS Batch and Operations Analyzer SMF files) that are not written to the database.

If you specified journal file prorating, all prorating are calculations made after the journal file output exit is taken.

To activate a journal file exit, code a SAS routine in the `prefix.MICS.USER.SOURCE` data set in member `ACTUJjj` where `jj` is the journal file identifier.

To do this, select Option 2, Journal File Exit, on the Rate Table - File Options Menu, or edit the member directly with ISPF edit. Then submit `prefix.MICS.CNTL(MAGRUN)`.

CAUTION: If the `ACTUJjj` member exists in `prefix.MICS.USER.SOURCE` during `MAGRUN`, the exit will be taken. You must delete the member and run `MAGRUN` to deactivate the exit.

CODING CONSIDERATIONS

In coding the journal file exit, observe the following conventions:

- o Reference any data elements contained within the journal file or the associated CA MICS file or read from the external file.
- o Modify only the data elements contained within the journal file, the `ffwCOST` variable (where `fff` is the file ID of

the associated CA MICS file), or the NONZERO variable.

- o If the journal file record is to be written, set the NONZERO variable to 1. To prevent a journal file record from being written, set the NONZERO variable to 0.
- o Do not use a RETURN or a DELETE statement. The invoking routine may not make a single pass through the DATA step for each observation.

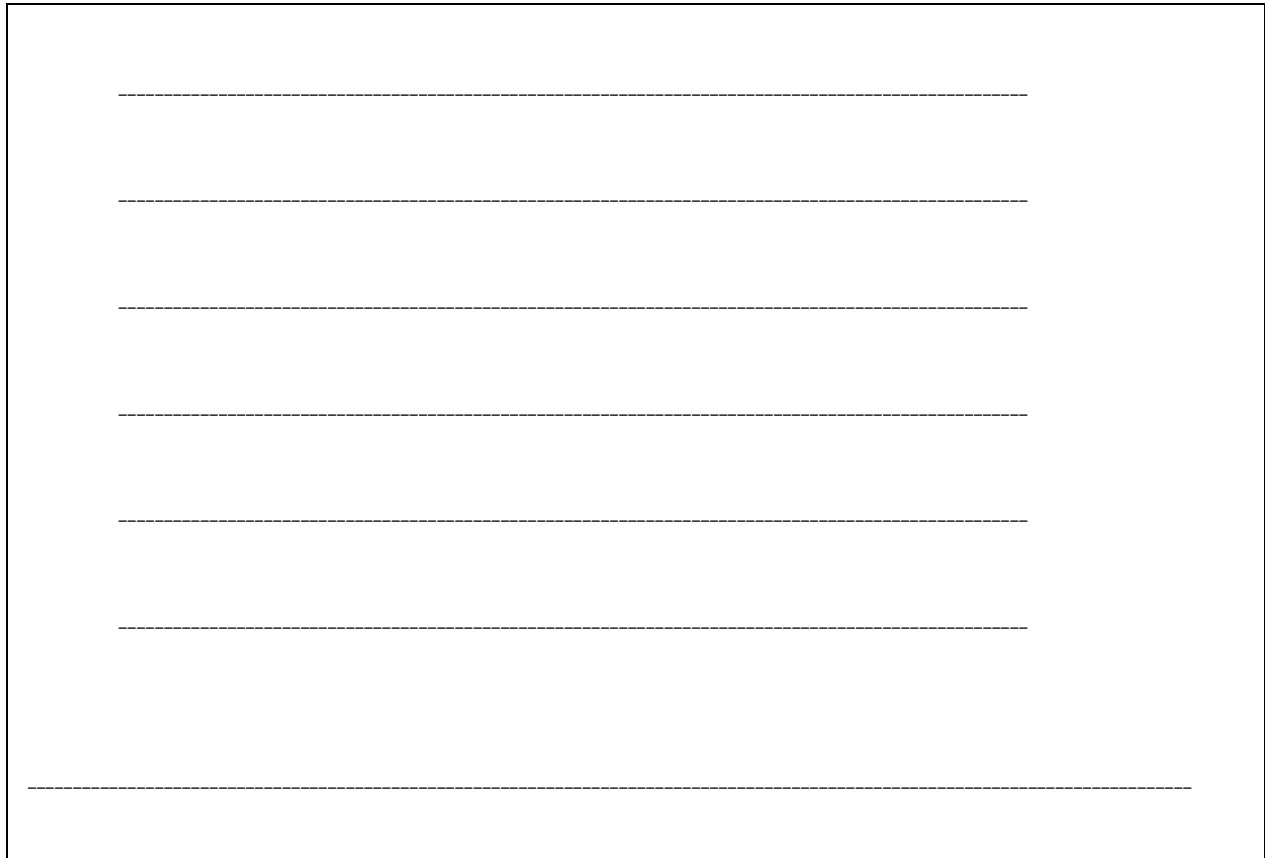
The following sections describe the Journal File Exit Worksheet and present an example.

- 1 - Journal File Exit Worksheet
- 2 - Journal File Exit Example

4.3.1.3.1 Journal File Exit Worksheet

Figure 4-19 is the Journal File Exit Worksheet.

+-----+	
Date: ____/____/____	Administrator: _____
+-----+	
JOURNAL FILE EXIT WORKSHEET	
DATA BASE UNIT IDENTIFIER: _____	



A worksheet form for a Journal File Exit. It consists of a large rectangular box with a solid black border. Inside this box, there are seven horizontal dashed lines for writing. The first six lines are grouped together in the upper half of the box, and the seventh line is positioned near the bottom of the box.

Figure 4-19. Journal File Exit Worksheet

4.3.1.3.2 Journal File Exit Examples

The following examples show methods to exclude charges for certain variables.

Example 1, batch job charges are to be excluded for jobs cancelled by the operator. These observations are not to be written to the ACTJBJ Journal File. The JOBWCOST variable contains the charges for the job and must be set to 0 since the job is excluded from charging.

```
/* operator cancels not selected for charging.      */
/* NONZERO is set to false.                          */
IF TERMCODE EQ ' 222' THEN DO;
    NONZERO = 0;
    JOBWCOST = 0;
END;
```

Example 2, zero out charges for specific compcode based on the COSTCTRn value. In this example the charges will be zero when the compcode is equal to 1500 and when COSTCTR4 has a value of 'XXXXXX'.

```
/* loop through Journal file compcode segments.      */
/* the array name references are maintained by        */
/* CA MICS Accounting code prior to the exit invocation. */
/*
IF COSTCTR4 = 'xxxxxx' THEN
DO UIX=1 TO DIM(AJFCPC);
    /* FIND COMPCODE TO ZERO OUT ITS CHARGE */
    IF AJFCPC(UIX) = '1500' THEN DO;
        fffWCOST = SUM(fffWCOST, -AJFCHG(UIX));
        /* ZERO OUT THE CHARGE AND QUANTITY */
        AJFCHG(UIX) = 0;
        AJFQNT(UIX) = 0;
    END;
END;
```

Figure 4-20. Journal File Exits Example

4.3.1.4 Specifying Algorithms

You must specify which charging elements (such as CPU time or print lines) you want to charge for and the rates at which they will be billed. Since charging elements are identified by computation codes, an algorithm consists of a list of computation codes with their associated rates. Since different rates and/or computation codes may be required to account for different situations (such as mainframe processors, application subsystems, and cost centers), you may specify as many algorithms as you need for each journal file.

Each algorithm is specified by listing its computation codes and their associated rates. These lists are identified and referred to by a unique user-defined algorithm identifier. Each algorithm can specify the computation codes and rates for only a single file.

You can specify the date at which the rate associated with a computation code is effective. If a different effective date is used for each specification, each computation code can be specified twice in the algorithm.

Normally, each charging element in an algorithm is associated with a single computation code and rate. In some cases, however, the rate or computation code to be used is a function of the specific value of a control variable. This is the basis of transaction accounting in which the value of the Application Unit (APU) variable (such as the IMSAPU variable for IMS transaction charging) determines the rate. The APU variable is, in this case, the control variable. Another example is special forms charging, when the computation code and rate charged for print lines varies depending on the form number. In this case, form number is the control variable.

CA MICS Accounting and Chargeback Option supports control variable charging to handle such situations. Additional specifications are required to define the control variable and the rates and/or computation codes to be associated with the charging element in these cases.

As discussed above, there are two methods to specify the computation code and rate to be used to charge a charging element:

- o A direct assignment of one computation code and rate to a particular charging element.

- o An assignment of different computation codes and/or rates to a particular charging element based on the value contained in a control variable.

Resource accounting algorithms can use both the direct assignment and control variable methods. All transaction accounting algorithms use only the control variable method. Both Direct Assignment and Control Variable Algorithm Worksheets are provided in the sections that follow to allow you to address each case.

The standard journal files are predesignated by CA MICS as either resource accounting or transaction accounting journal files. The transaction accounting journal files are:

CA MICS Product	Journal Files
-----	-----
Analyzer Option for CICS	ACTJCA
Analyzer Option for IMS	ACTJIA
Analyzer Option for CA IDMS	ACTJSA
Analyzer for TSO	ACTJTC and ACTJTI

The following sections provide algorithm specification worksheets and examples:

- 1 - Algorithm Specification Worksheets
- 2 - Algorithm Specification Examples

4.3.1.4.1 Algorithm Specification Worksheets

DIRECT ASSIGNMENT ALGORITHM WORKSHEET

Use the Rate Table - Direct Assignment Algorithm Worksheet shown in Figure 4-21 for resource accounting algorithms only. If your algorithm is simple, with only one rate and one computation code for each charging element, this worksheet is sufficient for resource algorithms. If you need to use different computation codes and/or rates for one or more charging elements, use this worksheet and the Rate Table - Control Variable Algorithm Worksheet in Figure 4-22.

RATE TABLE - DIRECT ASSIGNMENT ALGORITHM WORKSHEET						
DATA BASE UNIT IDENTIFIER: _____						
Journal File	Algorithm ID	Description	Comp Code	Rate	Effective Date	Charging Element Description
_____	_____	_____	_____	_____	_____	_____
			_____	_____	_____	_____
			_____	_____	_____	_____
			_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
			_____	_____	_____	_____
			_____	_____	_____	_____
			_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
			_____	_____	_____	_____
			_____	_____	_____	_____
			_____	_____	_____	_____

Figure 4-21. Rate Table - Direct Assignment Algorithm Worksheet

1. DATABASE UNIT IDENTIFIER

Description: The one-character CA MICS database unit identifier.

Default: None

Values: Character, length 1

2. JOURNAL FILE

Description: The name of the journal file to be charged with this algorithm.

Default: None

Values: Character, length 6. The journal file must be one selected for charging (see Section 4.3.1.1).

Note: You must code at least one algorithm for each file selected. You can code more than one algorithm for each file if you need to use different computation codes and/or rates for different mainframe processors (SYSIDs), application subsystems (SUBSYSIDs), type of work (SUBTYPE), or cost centers.

3. ALGORITHM IDENTIFIER

Description: A user-defined unique code that refers to this list of computation codes and their associated rates.

Default: None

Values: Character, length 3

Note: The identifier must be unique across all journal files in the database unit.

4. DESCRIPTION

Description: A description of the use or application of this specific algorithm.

Default: None

Values: Character, length 40

Note: This field is for your information only.

5. COMPUTATION CODE

Description: The computation code defining the charging element to which the rate will be applied.

Default: None

Values: Character, length 4. Use a defined computation code or one of the special computation codes JMIN and SURC. Use JMIN to establish a minimum charge for each work unit to be charged with this algorithm. Use SURC to establish a work unit surcharge. You can associate them with any journal file.

Note: Elements whose computation codes are specified are kept in the accounting files but not necessarily in the corresponding CA MICS file. Check the component's GENIN member in sharedprefix.MICS.GENLIB to see if the data element will be kept.

6. RATE

Description: The rate at which the element identified by the computation code will be charged.

Default: None

Values: Character, length 8, may contain up to six decimal positions

7. EFFECTIVE DATE

Description: The date when the rate specified for the computation code takes effect. You can specify two effective dates for each charging element in an algorithm. You can use different effective dates to preassign a rate change for a future date. In addition, you can begin charging for a new resource by using a future date.

Default: Blank (interpreted as 01/01/60)

Values: Date, length 8, specified as MM/DD/YY; year must be 80 or greater.

Note: When the journal file records are created during the CA MICS daily job, this date is compared to the date in the Effective Date Timestamp Variable, BILLTS or ENDTS. If no effective rate is found, a rate of missing is used, and the computation code and rate will not appear in the Ledger File. If all the rates in the journal file record are missing, the record is not written to the journal file. To cause the rate to be carried in the journal file, use a rate of zero (0) with an effective date of blank.

8. CHARGING ELEMENT DESCRIPTION

Description: The description of the charging element.

Default: None

Values: Character, length 40

Note: This field is for your information only.

CONTROL VARIABLE ALGORITHM WORKSHEET

Use the Rate Table - Control Variable Algorithm Worksheet in Figure 4-22 for all transaction accounting algorithms and for resource accounting algorithms that require different computation codes and/or rates.

Figure 4-22. Rate Table - Control Variable Algorithm Worksheet

1. DATABASE UNIT IDENTIFIER

Description: The one-character CA MICS database unit identifier.

Default: None

Values: Character, length 1

2. JOURNAL FILE

Description: The name of the journal file to be charged with this algorithm.

Default: None

Values: Character, length 6. The journal file must be one selected for charging (see Section 4.3.1.1).

Note: You must code at least one algorithm for each file selected. More than one algorithm can be coded for each file if different computation codes and/or rates need to be used for different mainframe processors (SYSIDs), application subsystems (SUBSYSIDs), type of work (SUBTYPE), or cost centers.

3. ALGORITHM IDENTIFIER

Description: A user-defined unique code that refers to this list of computation codes and their associated rates.

Default: None

Values: Character, length 3

Note: The identifier must be unique across all journal files in the database unit.

4. EFFECTIVE DATE

Description: The date on which the computation codes and rates specified take effect.

Default: Blank (interpreted as 01/01/60)

Values: Date, length 8, specified as MM/DD/YY; year must be 80 or greater.

Note: When the journal file records are being created during the CA MICS daily job, this date is compared to the date in the Effective Date Timestamp Variable, BILLTS or ENDTS. If no effective rate is found, a rate of missing is used, and the computation code and rate will not appear in the Ledger File. If all the rates in the journal file record are missing, the record is not written to the journal file. To cause the rate to be carried in the journal file, use a rate of zero (0) with an effective date of blank.

5. CONTROL VARIABLE NAME

Description: The data element upon which value the computation code, and/or rate depends.

Default: CICAPU for the ACTJCA CICS Transaction Journal File; IMSAPU for the ACTJIA IMS Transaction Journal File; IDMAPU for the ACTJSA IDMS Transaction Journal File; and TSOAPU for the ACTJTC and ACTJTI CA TSO/MON PM Transaction Journal Files. No default for resource journal files.

Values: Character, length 8

Note: This field is preset for transaction journal files and normally should not be changed. The IMSAPU, CICAPU, IDMAPU, and TSOAPU values are user-defined using SAS coding in the cccAURT member for the respective product.

6. DEFAULT COMPUTATION CODE

Description: The computation code that will be used for values of the control variable not specified in item 9 below.

Default: 1500 for the ACTJCA CICS Transaction Journal File; 1000 for the ACTJIA IMS Transaction Journal File, 1400 for the ACTJTC CA TSO/MON PM Command Transaction Journal File, 1900 for the ACTJSA IDMS Transaction Journal File, and 1480 for the ACTJTI CA TSO/MON PM Interactive Transaction Journal File. No default for resource journal files.

Values: Character, length 4. Use a computation code defined in the Charging Element Table.

Note: This field is preset for transaction journal files and should not normally be changed.

7. DEFAULT RATE

Description: The rate that will be used for values of the control variable specified in item 5. This rate is used unless specific values and rates are entered in items 9, 10, and 11.

Default: None

Values: Character, length 8, may contain up to six decimal positions

Note: If you enter a value of zero, any control variable values that are NOT specified below will have a zero charge.

8. VARIABLE FORMAT

Description: The SAS format associated with the control variable in the CA MICS product generation step.

Default: \$12

Values: Character, length 12, any valid SAS format

Note: This field is used to "PUT" the control variable value in order to look up its computation code and rate at charging algorithm execution time during CA MICS daily processing.

9. CONTROL VARIABLE VALUE

Description: A specific value of the control variable with which a computation code and rate, discussed below in items 10 and 11, will be associated. Omit this item as well as items 10 and 11 for any control variable values that you want to charge with the default computation code and rate.

Default: None

Values: Character, length 12, any valid value of the

control variable (see Variable Format in item 7 above)

Note: The normal daily processing of the CA MICS product will place values into all variables kept in its files. If the control variable is not kept on the product file from which this journal file is derived, and if standard CA MICS processing does not place values in it, you must write exit code to assign values to it. This exit code should be placed in the USRUfff macro in `sharedprefix.MICS.SOURCE(#cccEXIT)`, where fff is the CA MICS product file ID and ccc is the CA MICS product ID. Do not use the accounting journal file exit for this purpose. Each value can be charged with a different computation code and/or rate.

10. COMPUTATION CODE

Description: The computation code that is to be used for this specific value of the control variable.

Default: None

Values: Character, length 4

Note: This must be a valid computation code in the Charging Element Table, and must be associated with the CA MICS product file from which this journal file is derived. It must be associated with the same charging element as the default computation code, and it must have the same compute status as the default computation code. If it references a derived (computed) element, it must have the same computation routine (ACTF member) as the default computation code. Only the computation routine for the default computation code will be included in the generated code.

11. RATE

Description: The rate that is to be used for this specific value of the control variable.

Default: None

Values: Character, length 8, may contain up to six decimal positions.

4.3.1.4.2 Algorithm Specification Examples

DIRECT ASSIGNMENT ALGORITHM EXAMPLE

In the example shown in Figure 4-23, the three CPUs that are in use are to be charged differently because each processor operates at a different speed. The Batch Job Journal File is being used. The rate for EXCPs changes from \$0.10 to \$0.15 on 01/01/96.

RATE TABLE - DIRECT ASSIGNMENT ALGORITHM EXAMPLE						
DATA BASE UNIT IDENTIFIER: P_____						
Journal File	Algorithm ID	Description	Comp Code	Rate	Effective Date	Charging Element Description
ACTJBJ_____	CPA_____	CPUA Algorithm_____	0022_____	.03_____	_____	Job CPU Time Consumed_____
			0097_____	.10_____	_____	Job Total EXCPs_____
			0097_____	.15_____	01/01/96_	Job Total EXCPs_____
ACTJBJ_____	CPB_____	CPUB Algorithm_____	0022_____	.0035_____	_____	Job CPU Time Consumed_____
			0097_____	.10_____	_____	Job Total EXCPs_____
			0097_____	.15_____	01/01/96_	Job Total EXCPs_____
ACTJBJ_____	CPC_____	CPUC Algorithm_____	0022_____	.04_____	_____	Job CPU Time Consumed_____
			0097_____	.10_____	_____	Job Total EXCPs_____
			0097_____	.15_____	01/01/96_	Job Total EXCPs_____

Figure 4-23. Direct Assignment Algorithm Example

CONTROL VARIABLE ALGORITHM EXAMPLE

In the example shown in Figure 4-24, it is assumed that transaction accounting is to be done for CICS running on two processors. Since it must be charged differently for each processor, two algorithms, ATM and CIF, are used.

The control variable for both systems is CICAPU. CICAPU is assigned from the CICS Analyzer TRANCODE variable in the CICAURT routine. All CICAPU values listed in the example will be charged at the indicated rates. All values not listed will be charged at the default rate. The rates for both algorithms will change on 01/01/96.

```

+-----+
| Date: ____/____/____ Administrator: _____ |
+-----+
          RATE TABLE - CONTROL VARIABLE ALGORITHM EXAMPLE
DATA BASE UNIT IDENTIFIER: P_____

Journal Algorithm Effective Control Default Default Control Variable
File ID Date Variable Comp Code Rate Format Value /Comp Code /Rate

ACTJCA ATM_____ CICAPU_____ 1500_____ .10_____ $12.____
                                         INQDDA____/1500_____.08_____
                                         INQDTA____/1500_____.05_____
                                         INQBCD____/1500_____.11_____
                                         TRANSFER____/1500_____.20_____
                                         DEPOSIT____/1500_____.15_____
                                         WITHDRAW____/1500_____.25_____

```

ACTJCA ATM_____	01/01/96_	CICAPU_____	1500_____	.12_____	\$12._	INQDDA____/1500_____/	.10_____
						INQDTA____/1500_____/	.06_____
						INQBCD____/1500_____/	.13_____
						TRANSFER____/1500_____/	.22_____
						DEPOSIT____/1500_____/	.17_____
						WITHDRAW____/1500_____/	.28_____
ACTJCA CIF_____		CICAPU_____	1500_____	.50_____	\$12._	INQDDA____/1500_____/	.08_____
						SUBSET____/1500_____/	1.00_____
						CORRELATE____/1500_____/	2.00_____
						LIST____/1500_____/	.30_____
ACTJCA CIF_____	01/01/96_	CICAPU_____	1500_____	.70_____	\$12._	INQDDA____/1500_____/	.10_____
						SUBSET____/1500_____/	1.20_____
						CORRELATE____/1500_____/	2.40_____
						LIST____/1500_____/	.35_____

Figure 4-24. Control Variable Algorithm Example

4.3.1.5 Qualifying Algorithms

When multiple algorithms (lists of computation codes and their associated rates) are defined, they must be associated with the appropriate subsets of data (such as mainframe processors, application subsystems, cost centers). Such association is called "algorithm qualification."

Separate charging algorithms can be established for different mainframe processors (SYSIDs), applications (SUBSYSIDs), types of work (SUBTYPEs), and/or cost centers.

If you defined only one algorithm for a journal file, algorithm qualification is not necessary. If you defined more than one algorithm, there must be a qualification for each one.

The following sections discuss the Algorithm Qualification Worksheet and present an example.

- 1 - Algorithm Qualification Worksheet
- 2 - Algorithm Qualification Example

Figure 4-25. Algorithm Qualification Worksheet

Use the worksheet to define the following parameters:

1. DATABASE UNIT IDENTIFIER

Description: The one-character CA MICS database unit identifier.

Default: From Algorithm Specification panel

Values: Character, length 1

2. JOURNAL FILE

Description: The name of the journal file whose algorithms are being qualified.

Default: From Algorithm Specification panel

Values: Character, length 6. Selecting a journal file for charging is discussed in Section 4.3.1.1.

3. USE GROUPS FOR: SYSID, SUBSYSID, SUBTYPE, COSTCTR1,
WORKUNIT

Description: Indicates whether the entries in the SYSID, Subsysid, Subtype, COSTCTR1, or Workunit fields are actual values or represent a group. To use a group, it must be defined on the Qualification Groups panel (MMF;4;2;3;9). See Section 4.3.2 for information on defining qualification groups.

Default: NO

Values: Character, Y, N, YES, or NO

4. ALGORITHM IDENTIFIER

Description: The unique code used to refer to this list of computation codes and their associated rates.

Default: From Algorithm Specification panel

Values: Character, length 3

NOTE: This must be a value specified on one of the algorithm specification worksheets described in

Section 4.3.1.4.1. There must be a qualification for each algorithm defined for this file.

5. SYSID

Description: The logical CA MICS system identifier (the SYSID) that uniquely identifies the mainframe processor to which this algorithm applies (if "Use groups for SYSID" is NO) or the group name of CA MICS system identifiers (if "Use groups for SYSID" is YES).

Default: *ALL

Values: Character, length 4. Valid values are *ALL, *DEF, a valid SYSID value for this unit, or a valid SYSID group name.

NOTE: If the algorithm applies to all SYSIDs, enter a value of *ALL for SYSID. If the algorithm applies to all SYSIDs that are not explicitly listed, enter a value of *DEF for SYSID.

6. SUBSYSID

Description:

- For CICS, DB2, IDMS, or IMS Analyzer files, Subsysid is the identifier of the CICS, DB2, IDMS, or IMS system to which this algorithm applies.
- For SNT, Subsysid is the Primary Logical Unit (PLU).
- For the Batch and Operations Analyzer, the VM and CMS Analyzer, the Space Analyzer, and the VAX/VMS Analyzer, its contents vary depending on the file being charged.
- For the Analyzer for MeasureWare OS Agents, Subsysid is the application number (1 through 32) as defined in the MeasureWare configuration parameters.
- For the Analyzer for MQSeries, Subsysid is the MQSeries connection type.

If "Use groups for Subsysid" is YES, then a group name is entered in the Subsysid field.

The value of the SUBSYSID variable is carried in the Journal File WORKAREA Variable 2 field and can be

modified using the Journal File Eligibility feature (MWF;4;2;S;2). Refer to the WORKAREA Variable 2 column in Figure 7-3 in Section 7.1.1 for the standard SUBSYSID variables.

The Subsysid comparison is generic for most Subsysid variables. For example, if you specify a value of IMS, it will match any data value that begins with IMS: IMS1, IMS2, and so on.

However, if the Subsysid variable is application number, the Subsysid comparison is exact. If you specify a value of 1, it will match only application number 1.

Default: *ALL

Values: Character, length 8. Valid values are *ALL, *DEF, a Subsysid value, or a Subsysid group name. Valid values are determined by the Subsysid Validation Table defined in Journal File Eligibility for journal files. If there is no table, all values are valid. All values are valid for complex-level external files.

NOTE: If the algorithm applies to all Subsysids, enter a value of *ALL for Subsysid. If the algorithm applies to all Subsysids that are not explicitly listed, enter a value of *DEF for Subsysid.

Subsysid has a special meaning when specified in conjunction with the batch program file (step level accounting) or the batch job file (job level accounting). In both of these cases, it is used to distinguish between the batch, TSO, started task, APPC, UNIX System Services and system address space workloads. The values are @BAT, @TSO, @STC, @TP, @OEM, and @SAS, respectively. *ALL is also a valid specification in all cases.

When specified for the Batch Spool file, Subsysid refers to the subsystem identifier (for example, BNDL, JES2, JES3, PSF, or XWTR).

For the MULC Address Space Journal File (ACTJBM), Subsysid is the first eight bytes of the Software Product Name (MUPROD) so you can use different charging algorithms by product name and version (see Subtype below).

Subsysid also has a special meaning when specified

in conjunction with the CA MICS Space Analyzer Option files. It denotes device type for the VSAM and non-VSAM journal files, and the Systems Managed Storage (SMS) storage class for the SMS journal file. This allows you to charge your non-SMS data sets by device type, and to charge your SMS data sets by storage class. Subsysid also denotes storage class for the Migrated Data journal file and for the Backup Data journal file.

When specified in conjunction with the CA MICS Network Analyzer Option, Subsysid distinguishes between the PLU types (for example, IMS0, IMS1) that are being used. The APPLID parameter in the VTAM GEN establishes the value of the PLU. You should read the Data Dictionary definition of PLU and consult the VTAM system programmer prior to using this parameter for the CA MICS Network Analyzer Option. This allows you to charge at a different rate for the application systems utilized. *ALL is also a valid specification in all cases.

When specified in conjunction with the IMS, CICS, DB2, or IDMS Analyzers, you can use Subsysid for files of these products to distinguish between the different systems (for example, IMSID, CICSID, DB2ID, or IDMSID). This allows you to charge different rates for the various systems utilized. Any Subsysid that is not explicitly indicated will not be used in the chargeback system unless *DEF has been used. *ALL is a valid specification to indicate all systems and all activity.

Subsysid can be used with three files of the VM and CMS Analyzer:

- o For the VMCCMU file, Subsysid denotes the Virtual Machine Execution Mode as specified by the CMUXMODE variable. Its valid values are BATCH, ONLINE, and GUEST.
- o For the VMCDAC file, Subsysid denotes the Device Class as specified by the DEVCLASS variable. Its valid values are DASD/CKD, DASD/FBA, and TAPE.
- o For the VMCVRA file, Subsysid denotes the VRA Accounting Subsysid, as specified by the

VRASBSYS variable. Its values are user-defined, and you should review the Data Dictionary entry for more information on its contents.

Subsysid can be used with the VAX/VMS Analyzer's DEAPRC and DEAIMG files to denote process type as specified by the PRCTYPE and IMGTYPE variables, respectively. Review the Data Dictionary entries for these variables for more information on their contents.

Subsysid can be used with the Analyzer for MQSeries to charge differently for each MQSeries connection type. The element, MQSATYP, has a value which ranges between 1 and 6, with these integers having the following meanings:

1 = CICS	4 = IMS,MPR,or BMP
2 = MVS/TSO	5 = Command server
3 = IMS Control region	6 = Channel initiator

7. SUBTYPE

Description:

- For IDMS, Subtype is the IDMS Task Type.
- For SNT, Subtype is the Logical Device Type.
- For DB2, a default variable is not shipped. The suggested variable is DB2CONN, the connection identifier. If you use DB2CONN, make sure it is a sequence element in the DAYS level DB2DSU file. Alternatively, you can assign Subtype to an account code using the Journal File Eligibility - File Specification panel.
- For the CA MICS Space Analyzer Option, Subtype can be used with the SMS journal file to qualify algorithms by the SMS management class values, or with the MIG journal file to qualify algorithms by HSMLEVEL, which contains the indicator of the DFHSM migration level.
- For APPC, Subtype is the TP type.
- For the Analyzer for MeasureWare OS Agents, Subtype is AUMOPSYS, the operating system.
- For the Analyzer for MQSeries, Subtype is the MQSeries

subsystem name, MQMSSI.

The value of the Subtype variable is carried in the Journal File WORKAREA Variable 1 field and can be modified using the Journal File Eligibility feature (MMF;4;2;S;2). Refer to the WORKAREA Variable 1 column in Figure 7-3 in Section 7.1.1 for the standard Subtype variables.

The Subtype comparison is generic. For example, if you specify a value of IMS, it will match any data value that begins with IMS: IMS1, IMS2, and so on.

Default: *ALL

Values: Character, length 8, valid values are *ALL, *DEF, a valid Subtype value, or a valid Subtype group name. The valid values are determined by the Subtype Validation Table defined in Journal File Eligibility for journal files. If there is no table, all values are valid. All values are valid for complex-level external files.

NOTE: If the algorithm applies to all Subtypes, enter a value of *ALL for Subtype. If the algorithm applies to all Subtypes that are not explicitly listed, enter a value of *DEF for Subtype.

Subtype has a special meaning for IDMS. The IDMTYPE value can be used with this parameter to charge differently for the activity (noted by B for Batch, C for CICS, or O for online).

Subtype can be used to qualify CA MICS Network Analyzer Option charging by using a value of L for Local, R for Remote, A for Application-to-Application, and O for Other. These values are in the PSULDEV, NSSLDEV, NACLDEV, or NSCLDEV variables of the CA MICS Network Analyzer Option.

When specified for the BATATP file, Subsysid refers to the subsystem identifier (for example, ASCH for APPC/MVS ASCH scheduled TPs).

For the MULC Address Space Journal File (ACTJBM), Subtype is the Software Product Version (MUPROD) so you can use different charging algorithms by product name (see Subsysid above) and version.

Subtype has a special meaning for APPC. The ATPTYPE value can be used to charge differently for standard and multitrans TPs. It can also determine if a multitrans TP is a TP that can be charged to a specific account or the multitrans shell, which must be charged as an overhead.

8. COSTCTR1

Description: The Cost Center 1 value to which the algorithm applies (if "Use groups for COSTCTR1" is NO) or the Cost Center 1 group name (if "Use groups for COSTCTR1" is YES).

Default: *ALL

Values: Character, length 30, valid values are *ALL, *DEF, a valid COSTCTR1 value, or a valid Cost Center 1 group name.

NOTE: If the algorithm applies to all Cost Center 1 values, enter a value of *ALL for COSTCTR1. If the algorithm applies to all Cost Center 1s that are not explicitly listed, enter a value of *DEF for COSTCTR1.

9. S/E

Description: Indicates whether the work unit specified below is to be Selected For or Excluded From charging.

Default: (blank)

Values: Character, length 1, S, E, or blank

NOTE: Leave this field blank unless the algorithm has specific work unit dependencies.

10. WORKUNIT

Description: Contains the value of the accounting Workunit variable or Workunit group name that is to be Selected For or Excluded From charging.

The Workunit comparison is generic. For example, if you specify a Workunit value of IMS, it will match any data value that begins with IMS: IMS1, IMS2, and so on.

Default: Blank

Values: Character, length 44. Use the scroll option to enter a Workunit value of more than 12 characters.

NOTE: Leave this field blank unless the algorithm has specific workunit dependencies. Either define a workunit group, or use multiple lines to select or exclude multiple workunits.

4.3.1.5.2 Algorithm Qualification Example

In the example shown in Figure 4-26, CICS is being charged from the CICS Transaction Journal File (ACTJCA) and two algorithms have been defined: ATM and CIF. Only the ATM algorithm is used for CPU1. The CIF algorithm is used for CPU2 (which is primarily used for development), unless the cost center is PRD (production). Then the ATM algorithm is used.

```

+-----+
| Date: ____/____/____ Administrator: _____ |
+-----+

ALGORITHM QUALIFICATION EXAMPLE

Unit: P
Journal File: ACTJCA
Use groups for SYSID: No Subsysid: No Subtype: No
COSTCTR1: No Workunit: No

Alg
ID  SYSID  Subsysid  Subtype  COSTCTR1  S/E  Partial/Complete
-----
ATM  CPU1    *ALL      *ALL      *ALL      -   -----
ATM  CPU2    *ALL      *ALL      PRD        -   -----
CIF  CPU2    *ALL      *ALL      *DEF       -   -----

```

Figure 4-26. Algorithm Qualification Example

4.3.1.6 Specifying Ext. File Update Job Characteristics

This section only applies if you are specifying options for an external journal file in an external file unit.

To create an external journal file and update the ledger file, you submit an external journal file update job. You must specify two characteristics of the update job using Option 5 on the Rate Table File Options Menu (MWF;4;2;3;6;5):

1. Whether duplicate data checking should be performed when the external journal file update job runs.
2. The input DD statement to input your external file.

If you specify duplicate data checking, the same data checking performed for standard CA MICS files is performed for your external journal file. The external journal file update job checks the ENDTS of each record input against the timestamp information retained in the unit's checkpoint file, prefix.MICS.CHECKPT.DATA. Data that falls within the range in the checkpoint file is deleted. You should use duplicate data checking only if each of your input records has a unique ENDTS.

The following sections contain a worksheet and example you can use to specify the characteristics of the update job:

- 1 - External Journal File Update Job Worksheet
- 2 - External Journal File Update Job Example

4.3.1.6.1 External Journal File Update Job Worksheet

Figure 4-27 is the External Journal File Update Job Worksheet.

+-----+ Date: ____/____/____ Administrator: _____ +-----+	
EXTERNAL JOURNAL FILE UPDATE JOB WORKSHEET	
External Journal File Name	ACTJ_____
Description	_____
Duplicate Data Checking	_____ (YES or NO)
External File DD Statement - DDNAME must be INPUTACT	
/** Code the JCL DD statement to read your external file	

Figure 4-27. External Journal File Update Job Worksheet
Use the worksheet to define the following parameters:

1. EXTERNAL JOURNAL FILE NAME

Description: The name of the external journal file.

Default: None

Values: Character, length 6

2. DESCRIPTION

Description: A description of the external journal file; for information purposes only.

Default: None

Values: Character, length 40

3. DUPLICATE DATA CHECKING

Description: Specifies whether duplicate data checking should be performed when the external journal file update job runs.

Default: NO

Values: YES or NO.

4. INPUTACT DD STATEMENT

Description: The JCL DD statement used to input the external file.

Default: None

Values: Character, length 72

NOTE: The DDname must always be INPUTACT. This DD statement will be included in the generated ACTfffTB job for the file, where fff is the last three characters of the external file name.

4.3.1.6.2 External Journal File Update Job Example

In the example in Figure 4-28, the MONTHS timespan of the CA MICS BATJOB file is input with duplicate data checking turned on.

External Journal File Name	ACTJUA
Description	Based on the MONTHS BATJOB
Duplicate Data Checking	YES
External File DD Statement - DDNAME must be INPUTACT	
/* Code the JCL DD statement to read your external file	
//INPUTACT DD DSN=prefix.MICS.MONTHS,DISP=SHR	

Figure 4-28. External Journal File Update Job Example

4.3.1.7 Specifying an Ext. Journal File Input Routine

This section only applies if you are specifying options for an external journal file in an external file unit.

The external journal file input routine contains the SAS code to read the unit-level external file. This SAS routine is required. Write the routine by selecting Option 6 on the Rate Table File Options Menu (MWF;4;2;3;6;6). The routine is automatically placed in the ACTUjjjI member in your prefix.MICS.USER.SOURCE data set, where "jjj" is the external journal file name. ACTUjjjI is created if it does not exist.

CODING GUIDELINES

- o Assign either YEAR, MONTH, ACTYEAR, and ACTMONTH or assign ENDTS and YEAR, MONTH, ACTYEAR, and ACTMONTH will be set automatically based on ENDTS and your CA MICS and Accounting calendars.
- o Assign SYSID and SUBSYSID if you are using system or subsystem algorithm qualification.
- o Quantities used for charging must be read from the input file.
- o COSTCTR variables must be assigned in the COSTRTE member in the sharedprefix.MICS.PARMS data set. In COSTRTE, you can test variable ROUTINE for the value of fffINPUT where "fff" is the external file name.
- o If you are using duplicate data checking for this external journal file:
 - Assign the unique time stamp to the ENDTS element.
 - Put END=ACTEOF on the SET or INFILE statement. If you do not do this, the update job will abend.

The following sections contain a worksheet and example to help you write the external journal file input routine:

- 1 - External Journal File Input Routine Worksheet
- 2 - External Journal File Input Routine Example

4.3.1.7.1 External Journal File Input Routine Worksheet

Figure 4-29 is the External Journal File Input Routine Worksheet.

Date: ____/____/____	Administrator: _____

EXTERNAL JOURNAL FILE INPUT ROUTINE WORKSHEET

SAS Statements:

Figure 4-29. External Journal File Input Routine Worksheet

4.3.1.7.2 External Journal File Input Routine Example

In the example in Figure 4-30, the CA MICS BATJOB file is read in at the MONTHS timespan. Because duplicate data checking will be performed for this external journal file, the routine specifies END=ACTEOF in the SET statement.

```
-----  
__SET INPUTACT.BATJOB01 END=ACTEOF;_____  
-----
```

Figure 4-30. External Journal File Input Routine Example

4.3.1.8 Specifying an Ext. Journal File Preprocessing Exit

This section only applies if you are specifying options for an external journal file in an external file unit.

You can write an optional exit to preprocess the data from your external file. The data set you create in this preprocessing exit is the data set that should be input (SET) in the external journal file input routine. The preprocessing exit is called prior to the SAS DATA step that reads in the data.

Write the exit by selecting Option 7 on the Rate Table File Options Menu (MWF;4;2;3;6;7). The exit is automatically placed in the ACTUJjjR member in your prefix.MICS.USER.SOURCE data set where "jjj" is the external journal file name. ACTUJjjR is created if it does not exist.

You may want to write a preprocessing exit if your external file contains detailed data that you want to summarize before it is read into the external journal file. For example, if your external file contained detailed processing records from a tape management system, you could summarize the data by user and total tapes mounted for the period.

CODING GUIDELINES

The code in this exit must be a complete SAS DATA or PROC step or a series of SAS DATA or PROC steps.

The following sections contain a worksheet and example to help you write the external journal file preprocessing exit:

- 1 - External Journal File Preprocessing Exit Worksheet
- 2 - External Journal File Preprocessing Exit Example

4.3.1.8.1 Ext. Journal File Preprocessing Exit Worksheet

Figure 4-31 is the External Journal File Preprocessing Exit Worksheet.

+-----+ Date: ____/____/____ Administrator: _____ +-----+	
EXTERNAL JOURNAL FILE PREPROCESSING EXIT WORKSHEET	
SAS Statements:	

Figure 4-31. External Journal File Preprocessing Exit Worksheet

4.3.1.8.2 Ext. Journal File Preprocessing Exit Example

In the example in Figure 4-32, the tape management system has an observation for each tape mounted. This preprocessing exit summarizes the observations to one record per user.

```

-----
DATA WORK.TMS;                                00030000
  INFILE INPUTACT;                             00031000
  INPUT COSTCTR1 $4. @6 COSTCTR2 $1. @8 COSTCTR3 $5. @14 VOLSER $6.; 00040000
  TAPECNT=1;                                   00050000
PROC SORT;                                     00060000
  BY COSTCTR1 COSTCTR2 COSTCTR3;               00070000
PROC MEANS DATA=WORK.TMS NOPRINT;             00080000
  BY COSTCTR1 COSTCTR2 COSTCTR3;               00090000
  VAR TAPECNT;                                 00100000
  OUTPUT OUT=WORK.TMSSUM SUM=TAPECNT;          00110000
-----

```

Figure 4-32. External Journal File Preprocessing Exit Example

4.3.1.9 Input Record Selection Exit (USRACT)

This exit allows modification of journal observations before they are presented for further processing by the DAY199 process. Control is passed to this exit immediately after reading each observation in the journal file.

All elements in journal files and/or CA MICS global variables are available during this exit.

NOTE: This exit can be defined at the complex level in `sharedprefix.MICS.SOURCE(#ACTEXIT)` or at the unit level in `prefix.MICS.USER.SOURCE(#ACTEXIT)`. The `_USRACT` exit may be used to process future data into the DAY199 step. If, for example, you want to process SYSID 'XE44' data from across the International Date Line as one day ahead, code your `_USRACT` macro like this:

```

MACRO _USRACT
IF SYSID = 'XE44' THEN DO;
  RUN_DT = TODAY() +1;
  END;
%
```

4.3.1.10 - Actual Date Selection Exit (USRRCP)

Exit USRRCP is invoked immediately prior to the output of the Financial Recap (ACTRCP) file. This output user exit lets you keep the actual date value of MONTH, ACTMONTH, YEAR, and ACTYEAR in the Financial Recap (ACTRCP) file.

By default, when ACTRCP is created, the data elements MONTH, ACTMONTH, YEAR, and ACTYEAR are populated from the current date. The option ACTUAL='YES' lets you carry the actual date value in the Financial Recap file from the Ledger (ACTLGR01) file, Debit (ACTSDT01) file, Credit (ACTSCT01) file, and Budget (ACTBGT01) file. An informational message is posted in the MICSLOG indicating that ACTUAL='YES' was selected.

This exit can be defined at the complex level in `sharedprefix.MICS.SOURCE(#ACTEXIT)`.

4.3.2 Defining Qualification Groups

You can use one charging algorithm to charge for many SYSID, Subsysid, Subtype, Cost Center 1, or Workunit values by creating an algorithm qualification group name and defining the group values. You then enter the group name on the Rate Table Algorithm Qualification panel instead of entering each value in the group.

Use the Qualification Groups Worksheet in Section 4.3.2.1 to define the groups you want to use for algorithm qualification and identify the values in each group.

When a Subsysid or Subtype group is used in rate table algorithm qualification for a journal file that has a corresponding validation table, the values on the qualification group are validated against the validation table.

You can associate a new Subsysid or Subtype qualification group with a journal file that has a corresponding validation table when you create the qualification group. This validates the values you use to create the group. Otherwise, the values will not be validated until you use the group in rate table algorithm qualification.

Use the Algorithm Qualification Worksheet in Section 4.3.1.5.1 to identify which groups are to be used for a given algorithm. Enter this information on the Algorithm Qualification panel (MWF;4;2;3;6;4).

STEPS TO DEFINE QUALIFICATION GROUPS

- __ 1. Select Option 9, Qualification Groups, on the Parameter Specifications menu (MWF;4;2;3;9) to display the Group Selection panel. Use the Insert and Delete line commands to add or delete Qualification Group IDs. Use the Select line command to enter the values that comprise a group.
- __ 2. Submit the job CHRGROUP from sharedprefix.MICS.CNTL. If you made any changes, you are automatically asked to submit this job when you END from the Group Selection panel.

You can also submit the job from TSO as follows:

```
SUB 'sharedprefix.MICS.CNTL(CHRGROUP)'
```

The CHRGROUP job generates an \$ACTCggg format for each qualification group (where ggg is the qualification group ID). This format associates each Group ID with the values that comprise the group. The job also produces the Qualification Groups Report which provides a listing of all of the qualification groups and the values defined within each.

The following sections contain the Qualification Groups worksheet and example:

- 1 - Qualification Groups Worksheet
- 2 - Qualification Groups Example

4.3.2.1 Qualification Groups Worksheet

Figure 4-33 is the Qualification Groups Worksheet.

Date: ____/____/____Administrator: _____

QUALIFICATION GROUPS WORKSHEET

Group ID	Type (SYSID, Subsysid, (Subtype, COSTCTR, Workunit)	Description	Values
----	-----	-----	----- ----- ----- -----
----	-----	-----	----- ----- ----- -----
----	-----	-----	----- ----- ----- -----
----	-----	-----	----- ----- ----- -----
----	-----	-----	----- ----- ----- -----
----	-----	-----	----- ----- ----- -----

Figure 4-33. Qualification Groups Worksheet

Use the worksheet to define the following parameters:

1. GROUP ID

Description: The qualification group identifier that is used in place of an individual value in Rate Table Algorithm Qualification.

Default: None

Values: Character, length 3

2. GROUP TYPE

Description: The type of qualification group for which values are being defined (SYSID, Subsysid, Subtype, COSTCTR1, or Workunit).

Default: None

Values: SYSID, SUBSYSID, SUBTYPE, COSTCTR, or WORKUNIT

3. DESCRIPTION

Description: Any descriptive name used to clarify the contents of the qualification group.

Default: None

Values: Character, length 40

NOTE: This field is for user information only.

4. VALUES

Description: The list of individual values that make up the group.

Default: None

Values: Character, maximum length 40. COSTCTR1 values cannot exceed the length specified for the COSTCTR1 variable in Cost Center Definition.

4.3.2.2 Qualification Groups Example

The example in Figure 4-34 assumes that the installation bills internal and external users differently. Internal users are Information Systems, Operating Departments, and Administration. External users are Company A, Company B, and Company C.

+-----+

Date: __/__/__		Administrator: _____	
+-----+			
Group ID	Type	Description	Values
INT	COSTCTR	All internal users	INFOSYS OPS ADMIN
EXT	COSTCTR	All external users	COMPANY A COMPANY B COMPANY C

Figure 4-34. Qualification Groups Example

4.4 Accounting for Complex-Level External Files

CA MICS Accounting and Chargeback supports input from data sources other than CA MICS products (for example, TMS and ASM2) using external files:

- At the complex level, through a system of additional debit entries. CA MICS-supplied, or user-written, routines create records in the 00 cycle of the Debit File. These records are included in the Financial Recap File and on the invoice.
- At the unit level, by creating a CA MICS unit and installing only CA MICS Accounting and Chargeback (this is an "external file unit") and creating external journal files. The external journal files are processed just like standard journal files, except there is no associated CA MICS DAILY processing to create the journal file. Instead, you submit the MAGRUN to generate an update job for each external file and then submit the update job to create the associated journal file and update the ledger file. Refer to Section 4.3 for information about specifying options for external journal files.

ACCOUNTING FOR COMPLEX-LEVEL EXTERNAL FILES

The standard CA MICS-supplied routines require you to periodically run operational jobs to add records to the ACTSDT file. You must define parameters for each of your external data sources. The operational jobs are created based on your parameter definitions. If you define more than one charging algorithm for an external file, you must use algorithm qualification to specify the external file records to which each algorithm applies.

You specify rates for external file charging at the complex level in the External File Rate Table. Code will be generated to compute the charges and add the records to the Debit File. Since the file's input format is not known to CA MICS Accounting and Chargeback, the code invokes a user-coded macro to input the data. Any number of external files can be supported.

STEPS TO ACCOUNT FOR COMPLEX-LEVEL EXTERNAL FILES

The external file parameters are defined using Option 1, External File Specifications, on the External File

Definition - File Options menu (MWF;4;2;3;7;1).

Based on the parameters you specify, the external file parameter generation job, EXTFILE in sharedprefix.MICS.CNTL, generates the following items:

#ACTXfff--in sharedprefix.MICS.SOURCE. One module is generated for each external file that you have selected (where fff is the external file ID). Each module contains SAS code to compute the charges for the external file. This member refers to the ACTUfffI macro to read the file, and contains source code to assign computation codes and rates and compute charges. The generation also creates a member ACTffftb in sharedprefix.MICS.CNTL for each external file. ACTffftb contains the JCL used to actually perform the external file charging. It includes the INPUTACT DD that defines the file.

\$ACTBaaa--in sharedprefix.MICS.MCOLIB. One format is generated for each external file control variable charging algorithm (where aaa is the algorithm ID). Each format relates a control variable name and value to a computation code, rate, and rate effective date.

\$ACTAaaa--in sharedprefix.MICS.MCOLIB. One format is generated for each algorithm (where aaa is the algorithm ID). Each format relates a computation code to a rate and rate effective date.

\$ACTUfff--in sharedprefix.MICS.MCOLIB. One format can be generated for each external file (where fff is last three positions of filename). The format relates the original value to the new cost center values that were entered on the Cost Center Look Up Table panel.

ACTffftb--in sharedprefix.MICS.CNTL. One job is generated for each external file that you have selected (where fff is the external file ID). Each job inputs the external file and outputs charges to the Debit File using the code in the #ACTXfff module (where fff is the external file ID). Run the ACTffftb jobs at

the end of each billing period by selecting Option 1, Complex-Level External Files, from the External File Update menu. You can run this job multiple times but it must be run prior running the CLOSETBL job.

You can review the external file update jobs after the generation process is done by selecting option 1, Complex-Level External Files, from the External File Update menu (MWF;4;2;2;1;1).

At the end of the month, submit the ACTffffTB job (where fff is the last three characters of the external file name) for each file from the sharedprefix.MICS.CNTL library (MWF;4;2;2;1;1).

The following sections guide you through the process of accounting for complex-level external files.

- 1 - Specifying Complex-Level Ext. File Characteristics
- 2 - Defining the Complex-Level Ext. File Input Routine
- 3 - Specifying and Qualifying External File Algorithms
- 4 - Defining a Complex-Level External File Exit
- 5 - Entering Cost Center Look Up Table Values
- 6 - CA MICS AMO Extract (MICSAMO)

4.4.1 Specifying Complex-Level Ext. File Characteristics

You specify complex-level external file characteristics using Option 1, External File Specifications, on the External File Definition - File Options Menu (MWF;4;2;3;7;1). (Refer to Section 4.3.1.2 for instructions to specify characteristics for external journal files at the unit level.)

The following sections contain a worksheet and example to help you define complex-level external file characteristics:

- 1 - Complex-Level External File Specification Worksheet
- 2 - Complex-Level External File Specification Example

4.4.1.1 Complex-Level Ext. File Specifications Worksheet

Figure 4-35 is the Complex-Level External File Specifications Worksheet.

+-----+ Date: ____/____/____ Administrator: _____ +-----+	
COMPLEX-LEVEL EXTERNAL FILE SPECIFICATIONS WORKSHEET	
External File Name	
Description	
Subsysid Variable	
Subtype Variable	
Effective Date Variable	(ENDTS or SDTENTTS)
Prorating	(YES or NO)
If yes:	
Prorate from variable	
External File DD Statement - DDNAME must be INPUTACT /* Code the JCL DD statement to read your external file ----- ----- ----- ----- ----- -----	

Figure 4-35. Complex-Level External File Specifications Worksheet
Use the worksheet to define the following parameters:

1. EXTERNAL FILE NAME

Description: The name of the external file.

Default: None

Values: Character, length 6, must begin with U or Z.
The fourth character must be either U or Z; the
combination of the last three characters must be unique.

2. DESCRIPTION

Description: A description of the external file; for
information purposes only.

Default: None

Values: Character, length 40

3. SUBSYSID VARIABLE

Description: The external file variable containing
subsystem identification information.

Default: Blank

Values: Character, length 8

NOTE: If this field is left blank, *ALL is the only
SUBSYSID value that you may use on the Algorithm
Qualification Worksheet for this file.

4. SUBTYPE VARIABLE

Description: The external file variable containing type
of work identification information.

Default: Blank

Values: Character, length 8

NOTE: If this field is left blank, *ALL is the only
SUBTYPE value that you may use on the Algorithm
Qualification Worksheet for this file.

5. EFFECTIVE DATE VARIABLE

Description: The external file variable that will be compared with the current date to determine the effective rates.

Default: ENDTS

Values: Character, length 8, ENDTS or SDTENTTS

6. PRORATING

Description: Specifies whether the data for this external file is to be prorated. Prorating causes the charges for a single record to be distributed to one or more different cost centers.

Default: NO

Values: Character, length 3, Y, N, YES, or NO

NOTE: If this field is YES, you must use prorating to specify how the charges are to be distributed (refer to Section 4.8.1, Defining Prorating Charges).

7. PRORATE FROM VARIABLE

Description: The variable that controls whether prorating will be performed for a particular record.

Default: COSTCTR1 if Prorating is YES; otherwise, blank

Values: Character, length 8

NOTE: If you do not want to prorate, leave this field blank.

8. INPUTACT DD STATEMENT

Description: The JCL DD statement used to input the external file.

Default: None

Values: Character, length 72

NOTE: The DDname must always be INPUTACT. This DD statement will be included in the generated ACTfffTB job for the file, where fff is the last three characters of the external file name.

4.4.1.2 Complex-Level External File Specifications Example

In the example in Figure 4-36, complex-level external file data consists of entries in a tape management system catalog. It does not contain SUBSYSID data. The effective date variable is SDTENTTS, and no prorating is desired. The file is cataloged to the SYS1.TMSCAT data set.

```
-----  
  
+-----+  
| Date: __/__/__           Administrator: _____ |  
+-----+  
  
External file ==> A description of the external file  
  
Subsysid Variable           ==>  
  
Subtype Variable           ==>  
  
Effective Date Variable     ==> SDTENTTS (ENDTS or  
                               SDTENTTS)  
  
Prorating                   ==> NO      (YES or NO)  
If yes:  
  Prorate from variable     ==>  
  
External File DD Statement - DDNAME must be INPUTACT  
  
/* Code the JCL DD statement to read your external file  
/*INPUTACT DD DSN=SYS1.TMSCAT,DISP=SHR_____  
-----
```

Figure 4-36. External File Example

4.4.2 Defining the Complex-Level Ext. File Input Routine

The complex-level external file input routine contains the SAS code used to read the external data source. The routine is stored in the member ACTUfffI in sharedprefix.MICS.SOURCE, where "fff" is the last three characters of the external file name defined in Section 4.4.1.1. It is invoked when external file charging is performed.

CODING CONSIDERATIONS

- o The routine must be a valid SAS routine with no embedded DATA or PROC statements.
- o The routine must either set YEAR, MONTH, ACTYEAR, and ACTMONTH or set ENDTS. If the routine does not set the YEAR, MONTH, ACTYEAR, and ACTMONTH variables, they will be derived from the ENDTS. This prevents inconsistencies between YEAR and MONTH compared to ACTYEAR and ACTMONTH which can cause problems with external file aging.
- o The routine must set the variables SYSID and SUBSYSID if you are using system or subsystem algorithm qualification.
- o The quantities to be used for charging must be read from the input file.
- o The COSTCTR variables must be assigned. This can be done in your external file input routine or in sharedprefix.MICS.PARMS(COSTRTE). If you place the code in COSTRTE:
 - All cost center assignments can be done by a centralized routine.
 - You must test the variable ROUTINE for the value fffINPUT, where "fff" is the last three characters of the external file name. Code the following SAS statement in your input routine:

```
%INCLUDE SHRPARMS(COSTRTE);
```

The following sections contain a worksheet and example to help you write the complex-level external file input routine:

- 1 - Complex-Level Ext. File Input Routine Worksheet
- 2 - Complex-Level Ext. File Input Routine Example

[illegible]

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4.4.2.2 Complex-Level Ext. File Input Routine Example

In the example in Figure 4-38, the values of COSTCTR1 (Department) and COSTCTR2 (Project) are set from the OWNER input field. COSTCTR3 is always blank. The tape creation date is read into the variable CDATE, from which YEAR and MONTH are computed. The tape expiration date is read into the variable EXPDT. The number of tapes to be charged is in the variable UTPTAPE. The first three characters of any element in the quantity field must start with the file identifier UTP. The ENDTS variable is built from the MONTH and YEAR to provide the time stamp for the Special Accounting Dates feature.

```

-----
+-----+
| Date: __/__/__           Administrator: _____ |
+-----+

__ INFILE INPUTACT;
__ INPUT @10 OWNER $CHAR6.
__      @20 VOLSER $CHAR6.
__      @30 CDATE  PIB4.
__      @40 EXPDT  PIB4.
__      @50 UTPTAPE 8.;
__ COSTCTR1 = SUBSTR(OWNER,1,1);
__ COSTCTR2 = SUBSTR(OWNER,4,3);
__ COSTCTR3 = ' ';
__ CDATE = PUT(CDATE,$DATE.);
__ YEAR = YEAR(CDATE)-1900;
__ MONTH = MONTH(CDATE);
__ /* If you are using the Special Accounting Dates: */
__ /* Optionally assign a value to the ENDTS variable.*/
__ /* Otherwise the default system date will be used. */
__
__ ENDTS = DHMS(MDY(MONTH,1,YEAR),0,0,0);
__
__
__
-----

```

Figure 4-38. Complex-Level External File Input Routine Example

4.4.3 Specifying and Qualifying External File Algorithms

The charging algorithms determine which resources, defined by the information contained in this external file, will be charged and which cost centers will be billed.

Complex-level external file algorithms are specified and qualified in the same way as journal files. Refer to Sections 4.3.1.4 and 4.3.1.5 for information on completing these specifications. When a journal file name is referenced, use the complex-level external file name instead.

4.4.4 Defining a Complex-Level External File Exit

Each complex-level external file has an output exit point available. Standard complex-level external file processing inputs the records in the external file and outputs one Debit File record for each computation code specified in the External File Rate Table. Control is passed to the exit after all of the generated calculations have been performed and just prior to the output of each record to the Debit File so that you can make any changes you may require.

If you have specified external file prorating, all prorating calculations are made after the external file output exit is taken. Refer to Section 4.8.5 for information on prorating.

You can reference any data elements contained within the external file or the Debit File. You can modify only the data elements contained within the Debit File or the NONZERO variable. If the Debit File record is to be output, NONZERO is set to 1; otherwise, it is set to 0. If the total charges for the computation code are zero, the NONZERO variable will have a value of 0 when the exit is taken.

Activate an external file exit by coding a SAS routine in `sharedprefix.MICS.SOURCE(ACTUeee)`, where "eee" is the external file identifier. This is done by selecting Option 5, External File Exit, on the Complex-Level External File Options Menu, or directly through ISPF Edit. Then submit the job `EXTFILE` in `sharedprefix.MICS.CNTL`.

CAUTION: If the `ACTUeee` member exists in `sharedprefix.MICS.SOURCE` when `EXTFILE` is processing, the exit will be taken. You must delete the member and submit `EXTFILE` to deactivate the exit.

CODING CONSIDERATIONS

In coding the complex-level external file exit, observe the following conventions:

- o The exit must be a valid SAS routine with no embedded DATA or PROC statements.
- o You can only modify data elements in the Debit File and the NONZERO element.
- o Do not use a RETURN or a DELETE statement. The invoking routine may not make a single pass through the DATA step

for each observation.

The following sections contain a worksheet and example to help you write the complex-level external file exit.

- 1 - Complex-Level External File Exit Worksheet
- 2 - Complex-Level External File Exit Example

4.4.4.1 Complex-Level External File Exit Worksheet

Figure 4-39 is the Complex-Level External File Exit Worksheet.

[illegible]

Figure 4-39. Complex-Level External File Exit Worksheet

4.4.4.2 Complex-Level External File Exit Example

In the example in Figure 3-40, tape volumes created and scratched in the same day will not be charged.

```

-----
+-----+
| Date: __/__/__           Administrator: _____ |
+-----+

_____IF CDATE EQ EXPDT THEN NONZERO = 0;_____
-----

```

Figure 3-40. Complex-Level External File Exit Example

4.4.5 Entering Cost Center Look Up Table Values

The Accounting & Chargeback product provides a facility that allows you to translate the value of an input variable into something meaningful for setting COSTCTRs. For example, your external input file contains information about NT resource usage by user IDs and machine name. You can use the Accounting & Chargeback feature 'Cost Center Look Up Table' to associate the user IDs with a group, and the machine names with a department.

A SAS format is built from the entries you enter in the Cost Center Look Up Table panel. You can use this format in the Cost Center Derivation routine (COSTRTE) documented in Section 4.1.3 to set the cost center values.

Each external file has a unique format associated with it. The format name is \$ACTUfff, where fff is the last three characters in the external file name.

Using the previous NT resource file as an example, where the input data contains the variables MACHINE and USERID, you can use the Cost Center Look Up facility to assign USERIDs to groups and MACHINES to departments. Assuming COSTCTR1 identifies departments and COSTCTR2 identifies groups, you can then use the generated SAS format in the cost center routine as follows:

```
COSTCTR1=PUT(MACHINE,$ACTUfff);  
IF COSTCTR1=MACHINE THEN COSTCTR1='unknown dept';  
COSTCTR2=PUT(USERID,$ACTUfff);  
IF COSTCTR2=USERID THEN COSTCTR2='unknown group';
```

where fff is the last three characters of the external file name.

This facility is optional if you activate CA MICS-provided interface for NSM Asset Management Option (AMO), NT resource accounting data (NTA), and CA-IAM. For your own external file definition, you must enter the original value (complex-level external file input record value) and the cost center value (translated value). You can assign multiple input values with a cost center value. You can also assign values for multiple cost centers as discussed above.

The following sections contain a worksheet and example to help you complete the Cost Center Look Up Table:

- 1 - Cost Center Look Up Table Worksheet

4.4.5.1 Cost Center Look Up Table Worksheet

Figure 4-41. Cost Center Look Up Table Worksheet

Use the worksheet to define the following parameters:

1. ORIGINAL VALUE

Description: A predetermined set of values that come in from the external file records. Every external file may have a different set of values based on a specific variable in the external file.

Default: None

Values: Character, length 24

NOTE: This value normally represents the contents of account field in the input record. You have the ability to translate the input value to a different value with this feature.

2. COST CENTER VALUE

Description: The COSTCTR value(s) in which the charges associated with the original value will be recorded.

Default: None

Values: Character, length 30

NOTE: A single new value may be specified for a single original value. However, both the original value and cost center value may consist of multiple variables that you can parse in your SAS coding in the Cost Center Derivation (COSTRTE) routine.

4.4.5.2 Cost Center Look Up Table Example

In the example in Figure 4-42, charges in the external file from the I/S Inventory and Assets Manager use the RSCACCT variable values to determine the COSTCTR1 variable.

```

-----
+-----+
| Date: __/__/__           Administrator: _____ |
+-----+

      Original Value      Cost Center Value
IAMVALUE1_____  DEPT1_____
IAMVALUE2_____  DEPT2_____
_____
_____
_____
_____

```

Figure 4-42. Cost Center Look Up Table Example

4.5.2.1 Defining the Format for Computation Code Invoices

The Computation Code invoice type provides individual line items summarized to the computation code (individual billing element) and rate level.

A worksheet for specifying the Computation Code Invoice Options is shown in Figure 4-43.

```

-----
+-----+
| Date: __/__/__      Administrator: _____ |
+-----+

      Format Options for Computation Code Invoices

Format name          ==> _____

Format description ==> _____

Supplemental reports ==> _____

      If ROLLUP, number of levels of reporting ==> _

Line item format ==> _____

Print subtotals at cost center level          ==> ____
Print invoice category subtotals              ==> ____
Print year-to-date amounts at bottom of invoices ==> ____
Print budget information at bottom of invoices ==> ____
Print totals in euro and national currency    ==> ____

Language ==>

Print footnote as shown below:

-----
-----

```

Figure 4-43. Computation Code Invoice Options Worksheet

Use the worksheet to define the following parameters:

o **FORMAT NAME**

Description: The name of this invoice format entry. Accounting and Chargeback stores the options you select as a set that can be referenced by its format name. You can produce invoices with these same options by specifying this format name.

Default: None

Values: Character, length 8

Note: This is a required field.

o **FORMAT DESCRIPTION**

Description: A short description identifying this invoice format.

Default: None

Values: Character, length 30

o **SUPPLEMENTAL REPORTS**

Description: This option specifies the type of supplemental charge reports that will be produced for subordinate cost centers. DETAIL reports list the charges incurred by each individual cost center. ROLLUP reports summarize charges by cost center level.

Default: None

Values: NONE, DETAIL, and ROLLUP

o **NUMBER OF LEVELS OF REPORTING**

Description: This entry is valid only for ROLLUP supplemental reports. It specifies the last COSTCTRn value for which intermediate invoice summary pages will be printed. Specify a higher COSTCTRn value than the invoice level specified in the Cost Center Attributes file. For example, if you are invoicing at COSTCTR2, specify ROLLUP at COSTCTR3 or higher.

Default: 1

Values: Numeric, 1 to 9

o LINE ITEM FORMAT

Description: The format in which invoice line items will be printed. Valid values are INVCCAT, COMPCODE, BUDGET, YTD, BUDYTD, BUDGETU, and BUDYTDU. Refer to Sections 6.1.1 and 6.1.1.1 for additional information.

INVCCAT: This format provides lines designated by invoice category descriptions with values at the individual billing element (COMPCODE) level. The columns are major invoice category (nXXX), invoice category code, invoice category description, computation code, billed quantity, rate, units of measure, and charge.

COMPCODE This format provides lines designated by computation codes and their associated descriptions. The columns are invoice category code, computation code, computation code description, billed quantity, rate, units of measure, and charge.

BUDGET This format adds a budgeted amount and a variance from budget column to the COMPCODE format.

YTD This format adds a year-to-date billed quantity and a year-to-date charge column to the COMPCODE format.

BUDYTD This utilizes the basic COMPCODE format but combines the BUDGET and YTD options. Because of space limitations, no current month quantity billed or rate columns are shown. The columns are current month charges, current month budget, variance from current month budget, year-to-date charges, year-to-date budget, and variance from year-to-date budget.

BUDGETU This format displays the same information as the BUDGET option, but the BUDGET column is in units instead of dollars.

BUDYTDU This format displays the same information as

the BUDYTD option, but the BUDGET column is in units instead of dollars.

Default: INVCCAT

Values: INVCCAT, COMPCODE, BUDGET, YTD, BUDYTD, BUDGETU and, BUDYTDU

Note: The INVCCAT value specifies an invoice in the same format as pre-ACT4600 systems provided.

o PRINT SUBTOTALS AT COST CENTER LEVEL

Description: This option specifies whether subtotals will be printed at a specified cost center level.

Default: blank (for no subtotals)

Values: Numeric, 1 to 9

o PRINT INVOICE CATEGORY SUBTOTALS

Description: This option specifies whether subtotals will be printed for each invoice category.

Default: NO

Values: YES and NO

o PRINT YEAR-TO-DATE AMOUNTS AT BOTTOM OF INVOICES

Description: This option specifies whether year-to-date amounts will be printed at the bottom of invoices.

Default: NO

Values: YES and NO

Note: This option has no effect if the YTD, BUDYTD, or BUDYTDU line item format has been specified. Year-to-date information is always printed for these formats.

o PRINT BUDGET INFORMATION AT BOTTOM OF INVOICES

Description: This option specifies whether budget information will be printed at the bottom of invoices.

Default: YES

Values: YES and NO

Note: This option has no effect if the BUDGET, BUDGETU, BUDYTD, or BUDYTDU line item format has been specified. Budget information is always printed for these formats.

o PRINT TOTALS IN EURO AND NATIONAL CURRENCY

Description: This option allows you to specify that totals are to be printed in both the euro and national currency. See Appendix C, Section 1 for instructions on enabling this option.

Default: NO

Values: YES and NO

Note: Should one or more invoices in the run specify that totals are to be printed in both the euro and national currency, the grand total page will reflect both currencies.

o LANGUAGE

Description: This option allows you to specify that the charging element units and charging element descriptions and the invoice category descriptions on the invoices are to be taken from a language translation table created using the Special Requirements Language Translation Tables option.

Default: The descriptions in the Charging Elements Table.

Values: The one-character identifier of a language translation table created using the Special Requirements Language Translation Tables option.

o PRINT FOOTNOTE AS SHOWN BELOW

Description: This option allows you to enter a one- or two-line footnote that will print at the bottom of each invoice.

Default: None

Values: Any alphanumeric characters. Two lines maximum.

The example shown in Figure 4-44 specifies an invoice format named DEFAULT. It utilizes the INVCCAT line item format, which will produce an invoice equivalent to the pre-ACT4600 level. No supplemental reports or invoice category subtotals were requested. Subtotals will print at cost center level three (defined as DEPARTMENT in the example). Budget information and year-to-date amounts will be printed at the bottom of the invoice. Refer to Figures 6-1a and 6-1b for an example of an invoice printed using these options.

```

-----
+-----+
| Date: __/__/__      Administrator: _____ |
+-----+

      Format Options for Computation Code Invoices

Format name      ==> DEFAULT

Format description ==> INVCCAT

Supplemental reports ==> NONE

      If ROLLUP, number of levels of reporting ==> _

Line item format ==> INVCCAT

Print subtotals at cost center level      ==> 3
Print invoice category subtotals          ==> NO_
Print year-to-date amounts at bottom of invoices ==> YES
Print budget information at bottom of invoices ==> YES
Print totals in euro and national currency ==> NO

Language ==>

Print footnote as shown below:

-----
-----

```

Figure 4-44. Computation Code Invoice Options Example

4.5.2.2 Defining the Format for Invoice Category Invoices

The Invoice Category invoice type provides individual line items summarized to the invoice category level. This type does not show individual billed items, so no rates are shown.

Figure 4-45 is a worksheet to specify the format for Invoice Category invoices.

```

-----
+-----+
| Date: __/__/__      Administrator: _____ |
+-----+

      Format Options for Invoice Category Invoices

Format name      ==> _____
Format description ==> _____
Supplemental reports ==> _____

      If ROLLUP, number of levels of reporting ==> _

Line item format ==>

Print subtotals at cost center level      ==> ____
Print invoice category group subtotals    ==> ____
Print year-to-date amounts at bottom of invoices ==> ____
Print budget information at bottom of invoices ==> ____
Print totals in euro and national currency ==> ____

Language ==>

Print footnote as shown below:

-----
-----

```

Figure 4-45. Invoice Category Invoice Options Worksheet

Use the worksheet to define the following parameters:

o **FORMAT NAME**

Description: The name of this invoice format entry. Accounting and Chargeback stores the options you select as a set that can be referenced by its format name. You can produce invoices with these same options by specifying this format name.

Default: None

Values: Character, length 8

Note: This is a required field.

o **FORMAT DESCRIPTION**

Description: A short description identifying this invoice format.

Default: None

Values: Character, length 30

o **SUPPLEMENTAL REPORTS**

Description: This option specifies the type of supplemental charge reports that will be produced for subordinate cost centers. DETAIL reports list the charges incurred by each individual cost center. ROLLUP reports summarize charges by cost center level.

Default: NONE

Values: NONE, DETAIL, and ROLLUP

o **NUMBER OF LEVELS OF REPORTING**

Description: This entry is valid only for ROLLUP supplemental reports. It specifies the last COSTCTRn value for which intermediate invoice summary pages will be printed. Specify a higher COSTCTRn value than the invoice level specified in the Cost Center Attributes file. For example, if you are invoicing at COSTCTR2, specify ROLLUP at COSTCTR3 or higher.

Default: 1

Values: Numeric, 1 to 9

o LINE ITEM FORMAT

Description: The format in which invoice line items will be printed. Valid values are CHARGE, BUDGET, YTD and BUDYTD. Refer to Sections 6.1.1 and 6.1.1.1 for additional information.

CHARGE	This format provides lines designated by invoice category codes and their associated descriptions. The columns are invoice category code, invoice category description, and charge.
BUDGET	This format adds a monthly budgeted amount and a variance from budget column to the CHARGE format.
YTD	This format adds a year-to-date billed quantity and a year-to-date charge column to the CHARGE format.
BUDYTD	This utilizes the basic CHARGE format but combines the BUDGET and YTD options. The columns are current month charges, current month budget, variance from current month budget, year-to-date charges, year-to-date budget, and variance from year-to-date budget.

Default: CHARGE

Values: CHARGE, BUDGET, YTD and BUDYTD

o PRINT SUBTOTALS AT COST CENTER LEVEL

Description: This option specifies whether subtotals will be printed at a specified cost center level.

Default: blank (for no subtotals)

Values: Numeric, 1 to 9

o PRINT INVOICE CATEGORY SUBTOTALS

Description: This option specifies whether subtotals

will be printed for each invoice category group (nXXX).

Default: NO

Values: YES and NO

o PRINT YEAR-TO-DATE AMOUNTS

Description: This option specifies whether year-to-date amounts will be printed at the bottom of invoices.

Default: NO

Values: YES and NO

Note: This option has no effect if the YTD or BUDYTD line item format has been specified. Year-to-date information is always printed for these formats.

o PRINT BUDGET INFORMATION

Description: This option specifies whether budget information will be printed at the bottom of invoices.

Default: YES

Values: YES and NO

Note: This option has no effect if the BUDGET or BUDYTD line item format has been specified. Budget information is always printed for these formats.

o PRINT TOTALS IN EURO AND NATIONAL CURRENCY

Description: This option allows you to specify that totals are to be printed in both the euro and national currency. See Appendix C, Section 1 for instructions on enabling this option.

Default: NO

Values: YES and NO

Note: Should one or more of the invoices in the run specify that totals are to be printed in both the euro and national currency, the grand total page will reflect both currencies.

o LANGUAGE

Description: This option allows you to specify that the charging element units and charging element descriptions and the invoice category descriptions on the invoices are to be taken from a language translation table created using the Special Requirements Language Translation Tables option.

Default: The descriptions in the Charging Elements Table.

Values: The one-character identifier of a language translation table created using the Special Requirements Language Translation Tables option.

o PRINT FOOTNOTE AS SHOWN BELOW

Description: This option provides a place to enter a one- or two-line footnote that will print at the bottom of invoices.

Default: None

Values: Any alphanumeric characters. Two lines maximum.

The example shown in Figure 4-46 specifies an invoice format named DEFAULTI. This format will print line items at the invoice category level in the CHARGE line item format. DETAIL supplemental reports will be produced. Invoice category group subtotals will be shown. The footnote entered will appear at the bottom of the invoice. Refer to Figure 6-2 for an example of an invoice printed using these options.

```

-----
+-----+
| Date: __/__/__           Administrator: _____ |
+-----+
  
```

Format Options for Invoice Category Invoices

Format name ==> DEFAULTI

Format description ==> Invoice Category Format

Supplemental reports ==> DETAIL__

If ROLLUP, number of levels of reporting ==> _

Line item format ==> CHARGE

Print subtotals at cost center level ==>
Print invoice category group subtotals ==> YES
Print year-to-date amounts at bottom of invoices ==> YES
Print budget information at bottom of invoices ==> YES
Print totals in euro and national currency ==> NO

Language ==>

Print footnote as shown below:

Note: Your charges are in dollars. You may pay in dollars
or in francs.

Figure 4-46. Invoice Category Invoice Options Example

4.5.2.3 Defining the Format for Cost Center Invoices

The Cost Center invoice type provides individual line items summarized to the specified cost center level.

Figure 4-47 is a worksheet to specify the format for Cost Center invoices.

+-----+	
Date: __/__/__	Administrator: _____
+-----+	
Format Options for Cost Center Invoices	
Format name	==> _____
Format description	==> _____
Cost center level of line items	==> _
Line item format	==> _____
Print subtotals at cost center level	==> _
Print year-to-date amounts at bottom of invoices	==> ____
Print budget information at bottom of invoices	==> ____
Print totals in euro and national currency	==> ____
Print footnote as shown below:	

Figure 4-47. Cost Center Invoice Options Worksheet

Use the worksheet to define the following parameters:

o **FORMAT NAME**

Description: The name of this invoice format entry. Accounting and Chargeback will store the options you select as a set that can be referenced by its format name. You can produce invoices with these same options by specifying this format name.

Default: None

Values: Character, length 8

Note: This is a required field.

o **FORMAT DESCRIPTION**

Description: A short description identifying this invoice format.

Default: None

Values: Character, length 30

o **COST CENTER LEVEL OF LINE ITEMS**

Description: This field defines the cost center level to which line items will be summarized on the invoice.

Default: 1

Values: Numeric, 1 to 9

Note: This is a required field.

o **LINE ITEM FORMAT**

Description: The format in which invoice line items will be printed. Valid values are CHARGE, BUDGET, YTD, and BUDYTD. Refer to Sections 6.1.1 and 6.1.1.1 for additional information.

CHARGE This format provides lines designated by the specified cost center level. The columns are cost center value and charge.

BUDGET This format adds a monthly budgeted amount and a variance from budget column to the CHARGE format.

YTD This format adds a year-to-date billed quantity and a year-to-date charge column to the CHARGE format.

BUDYTD This utilizes the basic CHARGE format but combines the BUDGET and YTD options. The columns are current month charges, current month budget, variance from current month budget, year-to-date charges, year-to-date budget, and variance from year-to-date budget.

Default: CHARGE

Values: CHARGE, BUDGET, YTD and BUDYTD

o **PRINT SUBTOTALS AT COST CENTER LEVEL**

Description: This option specifies the cost center level at which line item subtotals will be produced. No subtotals will be produced if it is left blank.

Default: blank (for no subtotals)

Values: Numeric, 1 to 9.

o **PRINT YEAR-TO-DATE AMOUNTS AT BOTTOM OF INVOICES**

Description: This option specifies whether year-to-date amounts will be printed at the bottom of invoices.

Default: NO

Values: YES and NO

Note: This option has no effect if the YTD or BUDYTD line item format has been specified. Year-to-date information is always printed for these formats.

o **PRINT BUDGET INFORMATION AT BOTTOM OF INVOICES**

Description: This option specifies whether budget information will be printed at the bottom of invoices.

Default: YES

Values: YES and NO

Note: This option has no effect if the BUDGET or BUDYTD line item format has been specified. Budget information is always printed for these formats.

o PRINT TOTALS IN EURO AND NATIONAL CURRENCY

Description: This option allows you to specify that totals are to be printed in both the euro and national currency. See Appendix C, Section 1 for instructions on enabling this option.

Default: NO

Values: YES and NO

Note: Should one or more of the invoices in the run specify that totals are to be printed in both the euro and national currency, the grand total page will reflect both currencies.

o PRINT FOOTNOTE AS SHOWN BELOW

Description: This option provides a place to enter a one- or two-line footnote that will print at the bottom of invoices.

Default: None

Values: Any alphanumeric characters. Two lines maximum.

The example shown in Figure 4-48 specifies an invoice format named DEFAULTC. This format will print line items at cost center level 3 (APPLICATION) and subtotals at cost center level 2 (DEPARTMENT). The BUDYTD line item format will be used. No year-to-date amounts or budget information will be printed at the bottom of the invoice. Refer to Figure 6-3 for an example of an invoice printed using these options.

```

-----
+-----+
| Date: __/__/__      Administrator: _____ |
+-----+

```

Format Options for Cost Center Invoices

Format name ==> DEFAULTC

Format description ==> Cost Center Invoice Format

Cost center level of line items ==> 3

Line item format ==> BUDYTD

Print subtotals at cost center level ==> 2

Print year-to-date amounts at bottom of invoices ==> NO

Print budget information at bottom of invoices ==> NO

Print totals in euro and national currency ==> NO

Print footnote as shown below:

Figure 4-48. Cost Center Invoice Options Example

4.5.2.4 Defining the Format for User Invoices

The User invoice type allows the installation to design its own customized invoice and implement it by developing a SAS routine. These options provide the standard interface between Accounting and that routine.

Figure 4-49 is a worksheet for specifying the User Invoice Format Options.

+-----+	
Date: __/__/__	Administrator: _____
+-----+	
Format Options for Cost Center Invoices	
Format name	==> _____
Format description	==> _____
Name of user-written invoice routine	==> _____
Name of model invoice format	==> _____

Figure 4-49. User Invoice Options Worksheet

Use the worksheet to define the following parameters:

1. FORMAT NAME

Description: The name of this invoice format entry. CA MICS Accounting and Chargeback will store the options you select as a set that can be referenced by its format name. If you subsequently want to produce invoices with these same options, you can do so by specifying the appropriate format name.

Default: None

Values: Character, length 8

NOTE: This is a required field.

2. FORMAT DESCRIPTION

Description: A short description identifying this invoice format.

Default: None

Values: Character, length 30

NOTE: This is a required field.

3. NAME OF USER-WRITTEN ROUTINE

Description: The name of the invoice format routine member in sharedprefix.MICS.SOURCE.

Default: None

Values: Character, length 8, must begin with USR.

NOTE: This is a required field. It is your responsibility to code and thoroughly test this routine. Refer to Section 4.5.3 for more information on coding this routine.

4. NAME OF MODEL INVOICE FORMAT

Description: The name of an existing COMPCODE, INVCCAT or COSTCTR invoice format. The format options contained

in the model will be merged with the data to be printed by this user format and used to print the invoice. Specify this field only if your user format is similar to one of the standard invoice types and you will base your user-written format routine on the standard MNACTRPT invoice code. If your user-written format routine deviates significantly from the standard MNACTRPT code, it may not support the format options in the model.

Default: None

Values: Character, length 8.

The example shown in Figure 4-50 specifies an invoice format named DEFAULTU. The SAS routine to produce it is contained in the member sharedprefix.MICS.SOURCE(USRFMTI). The format is modeled on the COMPCODE invoice type.

```

-----
+-----+
| Date: __/__/__           Administrator: _____ |
+-----+

Format Options for Cost Center Invoices

Format name           ==> DEFAULTU

Format description ==> XYZ Corporation's Custom Invoice

Name of user-written invoice routine ==> USRFMTI

Name of model invoice format ==> COMPCODE
-----

```

Figure 4-50. Invoice Category Invoice Options Example

4.4.6 CA MICS AMO Extract (MICSAMO)

MICSAMO is a CA-supplied utility that extracts data from the NSM Asset Management Database and creates a CSV file that can be transferred to a data set on the host where CA MICS resides by the MICSXFR program for further processing.

MICSAMO requires:

- o Pentium class PC capable of running NSM
- o Microsoft Windows NT 4.0
- o 10M of hard disk space
- o NSM Version 2.1 or later with Asset Management Option 3.0 or later installed.

To install a copy of MICSAMO on your workstation, complete the following checklist:

- ___ 1. Download MICSAM0Z from sharedprefix.MICS.BIN.

To use FTP (File Transfer Protocol) to transfer MICSAM0Z to your Microsoft Windows Workstation, perform the following steps in order:

- ___ a. Open a DOS command window.
- ___ b. Start the FTP program using the following:

FTP <hostname>

where <hostname> is the machine name or the IP address of the OS/390 system.

Supply the host userid and password as prompted.

- ___ c. Set binary transfer mode by entering the following command (in lower case):

binary

```
*****
* NOTE: This FTP command and those to follow      *
*          must be entered in lower case.          *
*****
```

- ___ d. Set the name of the host data set with the following:

```
cd 'sharedprefix.MICS.BIN'
```

- ___ e. Set the directory name of the workstation directory to hold MICSAMOZ with the following command:

```
lcd <directory>
```

where <directory> is a directory on the workstation which will contain MICSAMOZ. Generally, this is a temporary or working directory (e.g. C:\TEMP).

- ___ f. Transfer the MICSAMOZ to the workstation with the following command:

```
get MICSAMOZ MICSAMOZ.EXE
```

This will copy MICSAMOZ to the directory specified in step e and rename it to MICSAMOZ.EXE.

- ___ g. Once the transfer is complete, exit FTP by entering:

```
quit
```

While this example uses FTP to perform the actual transfer, other utilities (such as IND\$FILE) can be used. Whichever program will be used, it must be able to transfer from the host to the workstation without performing any character translation (i.e. EBCDIC to ASCII).

- ___ 2. Run MICSAMOZ.EXE. This starts the self-extracting process. You will be prompted for a location in which to store the unzipped files.
- ___ 3. In the directory chosen in Step 2, you will find a sub directory named MICSAMO_Install_Disk. Within this directory you will find the SETUP.EXE program. Run SETUP.EXE to install the CA MICS AMO Extract program.
- ___ 4. Once you have successfully installed MICSAMO, you can delete the MICSAMO_Install_Disk directory.

The CA MICS AMO Extract program includes an online help system which you can consult for additional information. The online help describes the processing details regarding selecting data for transfer, running in batch mode and implementation considerations.

4.5 Defining Invoices

This section explains how to define:

- o The default invoice cost center level
- o The format of the invoices
- o Your own user invoice format routine
- o In what language the charging element units, charging elements, and invoice categories appear on the invoice
- o The sequence number that appears on the invoice
- o The euro conversion parameters to be used by the dual currency display invoice options and by the Euro Rate Table Conversion Utility

This information is contained in the following subsections:

- 1 - Specifying the Invoice Level
- 2 - Defining Invoice Format Options
- 3 - Defining the User Invoice Format Exit
- 4 - Defining Invoice Language Translation
- 5 - Specifying an Invoice Sequence Number
- 6 - Specifying Euro Conversion Parameters

4.5.1 Specifying the Invoice Level

The invoice level specifies the cost center level number that will be used as the default level for invoices, discounts, and surcharges. Valid values are 1 through n, where n is the number of levels defined in the Cost Center Structure. The default value is 1. To specify the invoice level, select option 1 on the Financial Recap File Specifications menu (MWF;4;2;3;2;2).

To override this value for specific cost centers, specify an alternate value for the cost center(s) in the Invoice Options selection of the Cost Center Attributes menu (MWF;4;2;1;1;2).

If you change the invoice level during the year, the year-to-date charges that are summarized in the Year-to-Date Financial Recap File, and on the invoice, are separated out by invoice level. You can cause the information to be resummarized, using the current invoice level, by running the ACTYTDRF job in sharedprefix.MICS.CNTL.

4.5.2 Defining Invoice Format Options

Define invoice formats using the Invoice Format Options selection on the Accounting Options Menu (MWF;4;2;3;2;5). You can override, for a particular cost center, the default format in the Cost Center Attributes file using the Invoice Options selection on the Cost Center Attributes Menu (MWF;4;2;1;1;2).

The format of the invoice is specified using four categories of options:

INVOICE TYPE:	Specifies the summarization level of the information in each line item.
LINE ITEM FORMAT:	Specifies what information will be presented in each column of the invoice.
SUBTOTALS:	Specifies whether or not line item subtotals will be included.
FOOTER FORMAT:	Specifies whether or not year-to-date and budget information will be presented at the bottom of the invoice.

In addition, you can specify the summarization level of any supplemental reports produced with the invoice.

The combination of these options allows for a large number of variations in invoice formats, many of which differ only slightly. Therefore, the discussion of the options has been grouped by basic format in the following sections.

- 1 - Defining the Format for Computation Code Invoices
- 2 - Defining the Format for Invoice Category Invoices
- 3 - Defining the Format for Cost Center Invoices
- 4 - Defining the Format for User Invoices

4.5.3 Defining the User Invoice Format Exit

The standard invoice format routine presents a logical invoice page for each unique cost center and offers three summarization levels and several line-item formats. If none of these standard formats meet your requirements, you may develop your own invoice format routine and have it invoked automatically for the appropriate cost centers (or as the default).

User format invoices will be printed after any invoices using the standard format facilities. A Grand Total page will be printed for each set of invoices using the same user format.

Your invoice format routine(s) must reside in a member named `sharedprefix.MICS.SOURCE(USRnnnnn)`, where `nnnnn` are any characters.

You can use Cost Center Attributes Invoice Options to associate the format name with particular invoice level cost centers. Or you can specify the format name as the default format on the Invoice Format Options panel.

If your format closely resembles one of the standard formats, follow the instructions below under Modifying the Standard Format Routine. Otherwise, follow the instructions under Creating a New Format Routine. In either case, complete the checklist under Steps to Define the User Invoice Format Exit.

MODIFYING THE STANDARD FORMAT ROUTINE

Copy the standard format routine from `SOURCE(MNACTRPT)` to your `USR` routine. Make the necessary modifications, but do not change any of the `SET` statements which input the `INVOICE` work files. Make as few modifications to the standard routine as possible.

Specify the name of any defined invoice format in the "Name of model invoice format" field on the Format Options for User Invoices panel. This will cause the standard work file routines to be invoked to perform the necessary summarization. The format options associated with the model format will be used to print your user invoice.

CREATING A NEW FORMAT ROUTINE

Create your `USR` routine as an independent SAS data step. It

should input the SAS data set named WORK.USRDATA and print the records in the desired format.

The records in the WORK.USRDATA data set contain the Financial Recap File data elements plus Year-to-Date Financial Recap File data elements (resulting from a SAS merge). The records also contain invoicing cost centers, named INVCTRn, which indicate the cost center to which this record should be invoiced (as indicated in the Cost Center Attributes). The data set is sorted in cost center (COSTCTR1...COSTCTRn) order only.

The format routine does not have to perform any subsetting of the input data set. This data set will contain only the records for the cost centers for which this invoice format was specified in the Cost Center Attributes file (or for all cost centers for which another invoice format was NOT specified in the event this format was defined as the default). However, the input data set may contain data for multiple cost centers and the format routine will have to identify and correctly process cost center changes. Using the variables FIRST. and LAST. will likely help.

STEPS TO DEFINE THE USER INVOICE FORMAT EXIT

Follow the steps in this checklist to define the user invoice format exit. The Financial Recap File, described in Section 7.3, is the basis for the input to the format routine.

1. Use `MMF;4;2;3;2;5` to display the Invoice Format Options Panel. Use the R line command to repeat the USER format and display the Format Options for User Invoices panel. Specify the Format name and description, and the name of the user-written format routine. The format routine name must begin with USR.

If you are modeling the invoice after an existing standard invoice format, fill in the format name, COMPCODE, INVCCAT, or COSTCTR, in the "Name of model invoice format" field. If you are not modeling the invoice after an existing standard invoice format, leave the "Name of model invoice format" field blank.

If this user format will be used to print all or most of your invoices, enter its name in the "Default format" field at the top of the Invoice Format Options panel. Otherwise, follow step 2 below to

specify the cost centers whose invoices are to be printed with this user format.

END back to the Parameter Specification and Generation Menu and submit the ACTXOPTS job when requested.

- __ 2. Access the Invoice Options Cost Center Selection panel (MWF;4;2;1;1;2). For each cost center to which the special format applies, enter the appropriate format name in the format column.
- __ 3. Code the invoice format exit routine in `sharedprefix.MICS.SOURCE(USRnnnnn)` and test it thoroughly.
- __ 4. Create a copy of the new invoice format routine in IEBUPDTE format and save it in the `sharedprefix.MICS.LOCALMOD.CNTL` library as an audit trail.

4.5.4 Defining Invoice Language Translation

Language Translation Tables allow you to print invoices for different customers with descriptions for charging element units, charging elements, and invoice categories in different languages. This is accomplished by creating a set of translation tables for each language that you want to use and then referencing the appropriate set in Invoice Format Options (MWF;4;2;3;2;5).

Language Translation Tables is option 4 on the Special Requirements Menu. Use this option to create translation tables for charging element units and descriptions, invoice category descriptions, and credit category descriptions. The translations can be used on invoices instead of the descriptions in the default Charging Element, Invoice Category, and Credit Category tables.

Each set of tables is associated with a language identifier. You specify the language identifier on the Accounting Options Invoice Format Options panel to cause the invoices printed with the formats to use the charging element and invoice category translations that you entered for the associated language.

The translations are generated to SAS PROC FORMATS named \$ACTTRnx, where n is 1 - 4 (1 refers to charging element units, 2 to charging element descriptions, 3 to invoice category descriptions, and 4 to credit category descriptions) and x is the language identifier.

The credit category translations are not used on the standard invoices, but the generated \$ACTTR4x (where x is a language identifier) formats are available for you to use in your own programs.

The following sections contain a worksheet to help you prepare to use the language translation feature and an example of a completed worksheet.

- 1 - Invoice Language Translation Worksheet
- 2 - Invoice Language Translation Example

4.5.4.1 Invoice Language Translation Worksheet

+-----+-----+	
Date: __/__/__ Administrator: _____	
+-----+-----+	
Language Identifier	Description
-	-----
Charging Element	Translation
----	-----
----	-----
----	-----
Charging Element Unit (Comp Code)	Translation
----	-----
----	-----
----	-----
Invoice Category	Translation
----	-----
----	-----
----	-----
Credit Category	Translation
----	-----
----	-----
----	-----
+-----+-----+	

Figure 4-51. Invoice Language Translation Worksheet

Use the worksheet to make the following decisions:

1. LANGUAGE IDENTIFIER

Description: A one-character identifier for the language to be added to the Language Translation Tables - Language Selection panel.

Default: None

Values: One alphanumeric character.

2. LANGUAGE DESCRIPTION

Description: A description of the language to be added to the Language Translation Tables - Language Selection panel.

Default: None

Values: A maximum of thirty alphanumeric characters.

3. CHARGING ELEMENT DESCRIPTION

Description: The description of each charging element to be translated.

Default: None

Values: A maximum of forty alphanumeric characters.

4. CHARGING ELEMENT UNIT

Description: The description of each charging element unit to be translated.

Default: None

Values: A maximum of sixteen alphanumeric characters.

5. INVOICE CATEGORY DESCRIPTION

Description: The description of each invoice category to be translated.

Default: None

Values: A maximum of forty alphanumeric characters.

6. CREDIT CATEGORY DESCRIPTION

Description: The description of each credit category to be translated.

Default: None

Values: A maximum of forty alphanumeric characters.

4.5.4.2 Invoice Language Translation Example

+-----+	
Date: __/__/__	Administrator: _____
+-----+	
Language Identifier	Description
E	Espanol
Charging Element	Translation
1200	DB2 Instrucciones Ejecutadas
Charging Element	Translation
Unit (Comp Code)	
0025	Segundos
Invoice Category	Translation
6001	Administration
Credit Category	Translation
8210	Problema de Seguridad

Figure 4-52. Invoice Language Translation Example

4.5.5 Specifying an Invoice Sequence Number

You can specify an invoice sequence number to be used on the next invoice printed by the batch invoice job. The value entered is not incremented by the batch invoice job. Valid values are 0 through 99999999. The default value is 1.

To specify an invoice sequence number, select MWF;4;2;1;4 and enter the number on the Invoice Sequence Number panel. If you changed the invoice sequence number, you are automatically asked to submit the job ACTXSEQ in sharedprefix.MICS.CNTL when you end from the Invoice Sequence Number panel.

4.5.6 Specifying Euro Conversion Parameters

You can specify euro conversion parameters using the Euro Conversion Specifications panel (MWF 4;2;3;2;7). This panel allows you to specify the lead currency (the currency in which the charges are calculated) and the target currency (the currency to which the charges will be converted). The associated conversion rate will automatically be filled in.

The euro conversion parameters are used by the invoice job, if the dual currency invoice option is selected. They are also used by the Rate Table Conversion Utility.

Note: Selecting a national currency as the lead or target currency automatically selects the euro as the other currency. It is therefore impossible to select national currencies as both the lead and target currencies.

4.6 Defining the Accounting Calendar

Financial reports are usually based on a fiscal period. The relationship between the financial period and the normal calendar year falls into one of three categories:

- o The financial year and month is the same as the calendar year and month
- o The financial year does not begin and end on the same dates as the calendar year, but financial months begin and end on the same dates as calendar months
- o Financial months do not begin and end on the same dates as calendar months

To ensure reports adhere to the installation's accounting calendar, CA MICS supports accounting date variables called ACTDAY, ACTWEEK, ACTMONTH, and ACTYEAR. These variables are carried in the accounting files in the appropriate timespans. They are set by the ADAY, AWEEK, AMONTH, and AYEAR macros. These macros are shipped with ADAY=DAY, AWEEK=WEEK, AMONTH=MONTH, and AYEAR=YEAR so that the accounting calendar corresponds to the CA MICS calendar. An accounting calendar of 1 to 14 months is supported.

You can define your own accounting calendar either by modifying the code in these macros or by using the Accounting Calendar panels. If you use the panels, the macros will be replaced by generated code that defines your calendar.

Note that using this feature affects your ability to audit the accounting files because the data in the CA MICS database files will no longer correspond directly to the data in the accounting files.

The accounting date variables are carried in the accounting files, but are not used unless the Special Accounting Dates option is active. The ACTDAY, ACTWEEK, ACTMONTH, and ACTYEAR variables are sequence variables in the Accounting and Chargeback files; any modification of the shipped macro code that defines them will result in more records and increased file sizes.

When the special accounting dates option is active, ACTYEAR is used to age the CA MICS Accounting and Chargeback files. If the financial months do not begin and end on the same dates as calendar months, ACTMONTH is also used for aging.

You can assign values to the ACTDAY, ACTWEEK, ACTMONTH, and ACTYEAR variables in the sharedprefix.MICS.MACAUTOS members ADAY, AWEEK, AMONTH, and AYEAR. Refer to Section 4.6.3 for more information on using the online panels to define your accounting calendar.

Make changes to your accounting calendar at month-end. You can activate the Special Accounting Dates option at any time during the month. It will affect the next month-end process.

If you activate the Special Accounting Dates feature, in addition to the normal CA MICS YEARLY job, run prefix.MICS.CNTL(YEARACT) for each unit in which CA MICS Accounting and Chargeback is installed. Run this job after the year's financial period has ended, as defined by your assignment of the ACTYEAR variable.

If your accounting months do not have the same boundaries as the CA MICS months, in addition to the normal CA MICS MONTHLY job, run prefix.MICS.CNTL(MONTHACT) for each unit in which CA MICS Accounting and Chargeback is installed. (You should run this job after your financial period has ended, as defined by your assignment of the ACTMONTH variable.)

STEPS TO IMPLEMENT SPECIAL ACCOUNTING DATES

Complete the checklist below to implement Special Accounting Dates:

- 1. Optionally, specify that Special Accounting Dates are active for aging.
 - o Select Option 2, Accounting Options, on the Parameter Specifications and Generation menu.
 - o Select Option 3, Account Dates Specification Menu, on the Accounting Options Menu.
 - o Select Option 1, Accounting Calendar Control Definitions, on the Account Dates Specification Menu.

Activate Special Accounting Dates aging by specifying YES on the "Activate Special Accounting Dates for file aging" line.
- 2. Use the "Define the accounting calendar via panels" line on the Accounting Calendar Control Definitions

panel to specify which method you will be using to create your accounting calendar. Specify:

YES to use Option 3, Define Accounting Calendar via Panels, on the Account Dates Specification Menu.

NO to use Option 5, Define Accounting Calendar Via Macros, on the Account Dates Specification Menu.

- ___ 3. Define your accounting calendar using the method selected in the previous step.
 - o If you are using Option 3, Define Accounting Calendar Via Panels, complete the Accounting Calendar Panels worksheet in Section 4.6.3 to define your entries.
 - o If you are using Option 5, Define Accounting Calendar via Macros, on the Account Dates Specification Menu, complete the Accounting Calendar Macros worksheet in Section 4.6.4 to define your entries.
- ___ 4. Optionally, define the special month names for the special accounting calendar. If you have activated the accounting dates for aging, you can use special month names in your accounting reports that will be different from the standard CA MICS month names.
 - o Use Option 2, Accounting Month Names, on the Account Dates Specification Menu. Complete the Accounting Month Names Worksheet in Section 4.6.2 to define your entries.
- ___ 5. Submit the job ACTXOPTS in sharedprefix.MICS.CNTL.
- ___ 6. Do the following for each unit in the CA MICS complex that has accounting installed:
 - o Set the prefix.MICS.PARMS(JCLGENU) member to read:

MONTHLY MONTHACT YEARLY YEARACT
 - o Regenerate the JCL for the MONTHLY, MONTHACT, YEARLY, and YEARACT jobs by submitting prefix.MICS.CNTL(JCLGENU).

The following sections provide worksheets for you to specify

the accounting calendar control definitions, to name the accounting months, and to define your accounting calendar either through macro coding or the online panels. Examples are included with each worksheet.

- 1 - Specifying Accounting Calendar Control Definitions
- 2 - Specifying the Accounting Month Names
- 3 - Defining the Accounting Calendar Using Online Panels
- 4 - Defining the Accounting Calendar Using Macros

4.6.1 Specifying Accounting Calendar Control Definitions

Figure 4-53 is the Accounting Calendar Control Definitions worksheet. If you want to use the defaults indicated to the right of each data entry field on the worksheet, you do not need to use this worksheet.

+-----+
| Date: ____/____/____ Administrator: _____ |
+-----+

ACCOUNTING CONTROL DEFINITIONS WORKSHEET

Activate Special Accounting Dates for file aging (YES,NO) _____ (NO)

IF YES, do accounting months have the same boundaries as MICS months (YES,NO) _____ (NO)

Number of months in accounting year (1-14) _____ (12)

Define the accounting calendar via panels (YES,NO) _____ (NO)

Week start day (SUN/MON/TUE/WED/THU/FRI/SAT) _____ (SUN)

Figure 4-53. Accounting Calendar Control Definitions Worksheet

Use the worksheet to define the following parameters:

1. ACTIVATE SPECIAL ACCOUNTING DATES FOR FILE AGING

Description: If this option is YES, the CA MICS Accounting and Chargeback files will be aged by ACTYEAR instead of the CA MICS YEAR variable. The YEARACT job must be run in addition to the CA MICS YEARLY job to accomplish this.

Default: NO

Values: Character, length 3, YES or NO

NOTE: If this option is active, the data in the accounting files will not correspond to the data in the CA MICS product files from which it was derived, which affects the audit process. For this reason, you should carefully consider use of this option.

2. DO ACCOUNTING MONTHS HAVE THE SAME BOUNDARIES AS CA MICS MONTHS

Description: If this option is NO, the CA MICS Accounting and Chargeback files will be aged by ACTMONTH instead of the CA MICS MONTH variable. The MONTHACT job must be run in addition to the CA MICS MONTHLY job to accomplish this.

If this option is YES, the CA MICS Accounting and Chargeback files will be aged by the CA MICS MONTH variable, and no special monthly processing is necessary. This is because when the Accounting and CA MICS months have the same boundaries, the CA MICS Accounting and Chargeback files will age the same way whether ACTMONTH or MONTH is used.

Default: NO

Values: Character, length 3, YES or NO

2. NUMBER OF ACCOUNTING MONTHS IN A YEAR

Description: The number of months in the accounting calendar year.

Default: 12

Values: Numeric, length 2, 1 - 14

3. DEFINE THE ACCOUNTING CALENDAR VIA PANELS

Description: Specifies whether the accounting calendar panels will be used to generate the ADAY, A WEEK, AMONTH, and AYEAR macros.

Default: NO

Values: Character, length 3, YES or NO

NOTE: If this option is YES, you must use the worksheet in Section 4.6.3 to define your accounting calendar. Otherwise, use the worksheet in Section 4.6.4 to define your calendar using macro coding.

4. WEEK START DAY

Description: Specifies the name of the day on which the accounting calendar week starts.

Default: SUN

Values: Character, length 3, SUN, MON, TUE, WED, THU, FRI, SAT

NOTE: You specify this option only if the Accounting Calendar Panels option is YES.

EXAMPLE

Figure 4-54 is an example of a Accounting Calendar Control Definitions Worksheet.

```
-----
+-----+
| Date: __/__/__      Administrator: _____ |
+-----+
```

Activate Special Accounting Dates for file aging ==> NO

Number of months in accounting year ==> 13

Define the accounting calendar via panels ==> YES

Week start day ==> SUN

Figure 4-54. Accounting Calendar Control Definitions Example

4.6.2 Defining the Accounting Month Names

Figure 4-55 is the Accounting Month Names Worksheet. The accounting month names appear on reports only if the Special Accounting Dates option is active. If this option is not active, or if you want to use the defaults shown to the right of each data entry field on the worksheet, you do not need to use this worksheet.

ACCOUNTING MONTH NAMES WORKSHEET	
Month	Accounting Month Name
1	(JANUARY)
2	(FEBRUARY)
3	(MARCH)
4	(APRIL)
5	(MAY)
6	(JUNE)
7	(JULY)
8	(AUGUST)
9	(SEPTEMBER)
10	(OCTOBER)
11	(NOVEMBER)
12	(DECEMBER)
13	(USER DEFINED)
14	(USER DEFINED)

Figure 4-55. Accounting Month Names Worksheet

ACCOUNTING MONTH NAME

Description: The name of each of the months in the accounting year.

Default: JANUARY - DECEMBER for months 1-12, USER-DEFINED for months 13 and 14

Values: Character, length 40

EXAMPLE

Figure 4-56 is an example Accounting Month Names Worksheet:

```

+-----+
| Date: __/__/__      Administrator: _____ |
+-----+

Month      Accounting Month Name
--      -----
1      JANUARY
2      FEBRUARY
3      MARCH
4      APRIL
5      MAY
6      JUNE
7      JULY
8      AUGUST
9      SEPTEMBER
10     OCTOBER
11     NOVEMBER
12     DECEMBER
13     MONTH 13
14     MONTH 14

```

Figure 4-56. Accounting Month Names Example

4.6.3 Defining the Accounting Calendar Using Online Panels

If your accounting calendar corresponds to your CA MICS calendar, your accounting calendar is defined automatically and you can skip this section. If your accounting calendar does NOT correspond to your CA MICS calendar, you can define your accounting calendar using the Accounting Calendar online panels as discussed in this section. If you prefer to use your own macro coding instead of the online panels, refer to Section 4.6.4.

Figure 4-57 is the Accounting Calendar Panels Worksheet.

+-----+ Date: ____/____/____ Administrator: _____ +-----+															
ACCOUNTING CALENDAR PANELS WORKSHEET															
Start of accounting calendar:															
Actual calendar year (1980-2020) _____															
Actual calendar month (1-14) _____															
Actual calendar day (1-31) _____															
Accounting Year	Month of year:	1	2	3	4	5	6	7	8	9	10	11	12	13	14
-----	Weeks/month:	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	-OR-														
	Days/month:	---	---	---	---	---	---	---	---	---	---	---	---	---	---
-----	Weeks/month:	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	-OR-														
	Days/month:	---	---	---	---	---	---	---	---	---	---	---	---	---	---
-----	Weeks/month:	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	-OR-														
	Days/month:	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Figure 4-57. Accounting Calendar Panels Worksheet

Use the worksheet to define the following parameters:

1. START OF ACCOUNTING CALENDAR - ACTUAL CALENDAR YEAR

Description: The actual calendar year in which the first year of the accounting calendar begins.

Default: None

Values: Numeric, length 4, 1980 - 2020

2. START OF ACCOUNTING CALENDAR - ACTUAL CALENDAR MONTH

Description: The actual calendar month in which the first year of the accounting calendar begins.

Default: None

Values: Numeric, length 2, 1 - 12

3. START OF ACCOUNTING CALENDAR - ACTUAL CALENDAR DAY

Description: The actual calendar day on which the first year of the accounting calendar begins.

Default: None

Values: Numeric, length 2, 1 - 31

4. ACCOUNTING YEAR

Description: The accounting calendar year.

Default: None

Values: Numeric, length 4, 1980 - 2020

NOTE: The accounting years must be numbered consecutively.

5. WEEKS/MONTH

Description: The number of weeks in the accounting month.

Default: None

Values: Numeric, length 1, 1 - 9

NOTE: Either the number of weeks or days, but not both, must be specified for each month in the accounting calendar.

6. DAYS/MONTH

Description: The number of days in the accounting month.

Default: None

Values: Numeric, length 2, 1 - 99

NOTE: Either the number of weeks or days, but not both, must be specified for each month in the accounting calendar.

EXAMPLE

In the example shown in Figure 4-58, accounting months correspond to calendar months, but the fiscal year begins on July 1 and ends on June 30. The first year of the accounting calendar is 1995.

+-----+
+-----+
| Date: __/__/__ Administrator: _____ |
+-----+
+-----+

Start of accounting calendar:

Actual calendar year (1980-2020) 1995__

Actual calendar month (1-14) 07_____

Actual calendar day (1-31) 01_____

Acct Year	Month of year:	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1996	Weeks/month:	__	__	__	__	__	__	__	__	__	__	__	__	__	__
	-OR-														
	Days/month:	31	31	30	31	30	31	31	29	31	30	31	30	__	__
1997	Weeks/month:	__	__	__	__	__	__	__	__	__	__	__	__	__	__
	-OR-														
	Days/month:	31	31	30	31	30	31	31	28	31	30	31	30	__	__
1998	Weeks/month:	__	__	__	__	__	__	__	__	__	__	__	__	__	__
	-OR-														
	Days/month:	31	31	30	31	30	31	31	28	31	30	31	30	__	__

Figure 4-58. Accounting Calendar Panels Example

4.6.4 Defining the Accounting Calendar Using Macros

If your accounting calendar corresponds to your CA MICS calendar, your accounting calendar is defined automatically and you can skip this section. If your accounting calendar does NOT correspond to your CA MICS calendar, you can define your accounting calendar using the Accounting Calendar online panels as discussed in Section 4.6.3. This section is only for those persons that prefer to define their accounting calendar using macros instead of the panels.

Figure 4-59 is the Accounting Calendar Macros Worksheet:

[illegible]

Figure 4-59. Accounting Calendar Macros Worksheet

Description: Code the SAS routines to assign values to the ACTDAY, ACTWEEK, ACTMONTH, and ACTYEAR variables according to your calendar. Testing and maintaining these routines is your responsibility.

Default: None

Values: See the following NOTE:

NOTE: The following are samples of macro routines for each of the three cases defined in Section 4.6:

FINANCIAL YEAR-MONTH CORRESPONDS TO CALENDAR
YEAR-MONTH

The default macros shipped with CA MICS Accounting and Chargeback Option set the accounting date variables to the corresponding CA MICS calendar date variables. The actual contents of the macros are listed below:

```
%MACRO ADAY;  
ACTDAY = DAY;  
%MEND ADAY;
```

```
%MACRO AWEEK;  
ACTWEEK = WEEK;  
%MEND AWEEK;
```

```
%MACRO AMONTH;  
ACTMONTH = MONTH;  
%MEND AMONTH;
```

```
%MACRO AYEAR;  
ACTYEAR = YEAR;  
%MEND AYEAR;
```

ACCOUNTING MONTHS CORRESPOND TO CALENDAR MONTHS

For example, if the fiscal year begins on July 1 and ends on June 30, but the corresponding months have the same number of days, the following routines could be used to set the accounting date variables:

```
%MACRO ADAY;
ACTDAY = DAY;
%MEND ADAY;

%MACRO AWEEK;
ACTWEEK = WEEK;
%MEND AWEEK;

%MACRO AMONTH;
WRKMONTH = MONTH(DATEPART(ENDTS));
IF WRKMONTH LT 7 THEN ACTMONTH = WRKMONTH + 6;
ELSE ACTMONTH = WRKMONTH - 6;
%MEND AMONTH;

%MACRO AYEAR;
WRKYEAR = YEAR(DATEPART(ENDTS));
IF MONTH(DATEPART(ENDTS)) LT 7 THEN
  ACTYEAR = WRKYEAR - 1900;
ELSE ACTYEAR = WRKYEAR - 1899;
%MEND AYEAR;
```

ACCOUNTING MONTHS DIFFER FROM CALENDAR MONTHS

If there is little correspondence between calendar dates and accounting dates, we recommend that you use the accounting calendar to sequence all CA MICS files.

You can revise the standard `_DAY`, `_MONTH`, and `_YEAR` Macros for all of the CA MICS files by specifying the `13MONTHYEAR` option in `prefix.MICS.PARMS(SITE)`. This method is referred to as the Thirteen Month Fiscal Year Option and is documented in Section 2.3.2.4 of the PIOM.

NOTE: Implementing this change on an existing CA MICS system is likely to cause previous `WEEKS` and `MONTHS` cycles to contain different amounts of data than those created following the change. You must take this into consideration when doing capacity planning, auditing, or any other process that requires historical information.

EXAMPLE

In the example shown in Figure 4-60, accounting months correspond to calendar months, but the fiscal year begins on

July 1 and ends on June 30.

```

-----
+-----+
| Date: __/__/__      Administrator: _____ |
+-----+

%MACRO ADAY;
ACTDAY = DAY;
%MEND ADAY;

%MACRO AWEEK;
ACTWEEK = WEEK;
%MEND AWEEK;

%MACRO AMONTH;
WRKMONTH = MONTH(DATEPART(ENDTS));
IF WRKMONTH LT 7 THEN ACTMONTH = WRKMONTH + 6;
ELSE ACTMONTH = WRKMONTH - 6;
%MEND AMONTH;

%MACRO AYEAR;
WRKYEAR = YEAR(DATEPART(ENDTS));
IF MONTH(DATEPART(ENDTS)) LT 7 THEN
    ACTYEAR = WRKYEAR - 1900;
ELSE ACTYEAR = WRKYEAR - 1899;
%MEND AYEAR;

```

Figure 4-60. Accounting Calendar Macros Example

4.7 Specifying the Journal Run Status Log Options

Use the Journal Run Status Log options (MWF;4;2;3;2;6) to specify what information is stored in the logs in the Journal Run Status Log File (ACTRSJ).

The following sections contain a worksheet to help you prepare to enter the Journal Run Status Log options and an example of a completed worksheet.

- 1 - Journal Run Status Log Worksheet
- 2 - Journal Run Status Log Example

4.7.1 Journal Run Status Log Worksheet

```
+-----+
| Date: __/__/__      Administrator: _____ |
+-----+

Number of runs to retain: __

Categorize charges to unknown users as unidentified: _____

If YES, the COSTCTR1 value that represents
unknown users: _____

Edit APU calculation routine: ___

SAS format for charges display: _____

-----
```

Figure 4-61. Journal Run Status Log Worksheet

Use the worksheet to make the following decisions:

1. NUMBER OF RUNS TO RETAIN

Description: The number of DAY199 runs that will be retained in the log.

Default: 45 runs

Values: Numeric, 1 to 99

2. CATEGORIZE CHARGES TO UNKNOWN USERS AS UNIDENTIFIED

Description: Charges in the log are categorized as BILL unless they were incurred by a cost center being invoiced to a NOBILL cost center as specified in Cost Center Attributes. If you want charges to unknown users categorized as UNIDENTIFIED instead of BILL or NOBILL, enter YES in this field.

Default: NO

Values: YES or NO

3. IF YES, THE COSTCTR1 VALUE THAT REPRESENTS UNKNOWN USERS

Description: The COSTCTR1 value used to identify unknown

users. Blank is a valid value. This field will be ignored unless the above option is YES.

Default: None

Values: Alphanumeric characters, 1 to 30

4. EDIT APU CALCULATION ROUTINE

Description: If you enter YES in this field, you will be put into EDIT on the sharedprefix.MICS.PARMS(ACTAURT) routine used to assign values to the ACTAPU variable kept for each record in the log.

Default: NO

Values: YES or NO

5. SAS FORMAT FOR CHARGES DISPLAY

Description: This is the SAS format in which all charges will display in the Journal Run Status Log.

Default: If you leave this field blank, the following defaults are used:

- In the "Billable Charges," "Non-Billable Charges," and "Unidentified Charges" fields, the default is DOLLAR13.2 unless the figure is greater than 9,999,999. In that case, it is DOLLAR13.
- On the detail panel for a selected journal file, in the "Total Charges for displayed rows" field, the default is DOLLAR20.4. In the "Charge" field, the default is MONEYX unless the figure is greater than 999,999. In that case, it is DOLLAR13.

NOTE: If the formatted value of the charges is greater than the size of the field, the word OVERFLOW will appear instead of the actual charges. All fields that display charges have a field length of 13 characters, with the exception of the "Total charges for displayed rows" field on the panel that details charges for a selected journal file.

4.7.2 Journal Run Status Log Example

Figure 4-62 is an example of a completed Journal Run Status Log worksheet. In the example, we elected to edit the ACTAURT routine. Figure 4-63 is a sample ACTAURT routine.

```
+-----+
| Date: __/__/__      Administrator: _____ |
+-----+

Number of runs to retain: 45

Categorize charges to unknown users as unidentified: YES

If YES, the COSTCTR1 value that represents
unknown users: UNKNOWN

Edit APU calculation routine: YES

SAS format for charges display: DOLLAR13.2

-----
```

Figure 4-62. Journal Run Status Log Example

```
-----
IF INJBJ THEN ACTAPU = 'SMF';
ELSE IF INJDA THEN ACTAPU = 'DAA';
ELSE ACTAPU = ' ';
-----
```

Figure 4-63. Sample ACTAURT Routine

4.8 Prorating Charges

In CA MICS Accounting and Chargeback, you can use prorating to distribute charges from one cost center to other cost centers based upon a set of predefined percentages. Consider using prorating when a unit of work (for example, job, IMS transaction, or CICS transaction) is used by multiple areas.

Charges can be prorated when the journal file is created if you know the distribution percentages in advance. This is called journal file prorating. Charges can be prorated at the end of each month after the ledger file has been aged. This is called ledger file prorating. Ledger file prorating can replace the original ledger file or can create a new "special" ledger file. Refer to Section 4.8.5 for a discussion of the advantages and disadvantages of each method.

Charges for unit-level external files can be prorated by either the journal or ledger file methods. Charges for complex-level external files can be prorated when they are written to the Debit File.

The following sections explain how to prorate. Review the first four sections and fill out the worksheets. Then use the checklists in Section 4.8.5 to implement prorating.

- 1 - Defining Prorating Charges
- 2 - Specifying Prorating Options
- 3 - Prorating to Cost Centers Other Than COSTCTR1
- 4 - Prorating From More Than One Data Element
- 5 - Implementing Prorating
- 6 - Printing Prorate Tables

4.8.1 Defining Prorating Charges

The purpose of prorating is to allow work that was originally run in one cost center to be charged to other cost centers. This is accomplished by identifying the percentage of the original quantities and their associated charges that are to be charged to new cost centers.

For each cost center to be prorated, you must specify the original (old) cost center value and the prorated (new) cost center value along with a percentage value. That percentage of the amounts occurring in the old cost center is charged to the new cost center. This is called the prorating definition.

The prorating definition for journal and ledger files, including external journal files, can be made at the complex or unit level. The prorating definition for complex-level external files is always made at the complex level.

The following sections explain how to complete the prorating definition:

- 1 - Prorating Worksheet
- 2 - Prorating Example

4.8.1.1 Prorating Worksheet

Figure 4-64 is the Prorating Percent Worksheet.

Date: ____/____/____

Administrator: _____

PRORATING PERCENT WORKSHEET

UNIT: _____

Original Value -----	New Value -----	Percent -----
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----

Figure 4-64. Prorating Percent Worksheet

Use the worksheet to define the following parameters:

1. ORIGINAL VALUE

Description: The Prorate From value. This is a COSTCTR1 value unless you have specified that another data element be used. Refer to Section 4.8.2, Specifying Prorating Options, to specify the Prorate From data element for Ledger File prorating, or refer to Section 4.3.1.2, Specifying Journal File Characteristics, or Section 4.4.1, Specifying External File Characteristics, to specify the Prorate From data element for these files.

Default: None

Values: Character, length 30

NOTE: Any value matching this prorate from value is selected for prorating. Unselected records are output in their original state.

2. NEW VALUE

Description: The COSTCTR1 value(s) in which the quantities and charges associated with the original value will be recorded.

Default: None

Values: Character, length 30

NOTE: Any number of new values may be specified for a single original value. The Prorate To exit must be used if the contents of this field do not represent a Cost Center 1 value. Refer to Section 4.8.3 for more information on the Prorate To exit.

3. PERCENT

Description: The percentage of the original charges that are to be allocated to the new COSTCTR1 value.

Default: None

Values: Numeric, length 7, range is .1 to 100.0, four decimal digits are allowed

NOTE: The sum of the percentages for a given original value must total 100. Therefore, if a portion of the original charges are to remain in the original value COSTCTR1, the original value must also be coded as a new value.

It is possible to transfer all of the charges from one work unit to a different COSTCTR1 by coding 100 as the percent.

4.8.1.2 Prorating Example

In the example in Figure 4-65, charges incurred for development are to be associated with production, but prorated at 75%. The remaining 25% is to remain as development's charge.

+-----+

| Date: __/__/__ Administrator: _____ |

+-----+

Original Value	New Value	Percent
DEV_____	PRD_____	_75.0
DEV_____	DEV_____	_25.0
_____	_____	____.0
_____	_____	____.0
_____	_____	____.0
_____	_____	____.0
_____	_____	____.0

Figure 4-65. Prorating Example

4.8.2 Specifying Prorating Options

You can use the Prorating Options Worksheet, Figure 4-66, to specify the following:

- o Whether ledger file prorating will be done.
- o For Ledger file prorating--Whether to create a special Ledger File that will contain the prorated amounts, or replace the standard Ledger File. In addition, you can override the standard "Prorate From" variable, COSTCTR1.
- o Whether a complex-level prorating table will be used for journal and ledger file prorating

Refer to the worksheets for Journal File Specifications, Section 4.3.1.2.1, and External File Specifications, Section 4.4.1.1, for additional journal file and complex-level external file prorating options.

The following sections contain a worksheet and example to help you specify prorating options:

- 1 - Prorating Options Worksheet
- 2 - Prorating Options Example

4.8.2.1 Prorating Options Worksheet

Figure 4-66 is the Prorating Options Worksheet:

+-----+ Date: __/__/__ Administrator: _____ +-----+	
Ledger file prorating?	---
If YES, create special ledger file?	---
If YES, prorate from variable?	---
Always use complex level prorating table?	---

Figure 4-66. Prorating Options Worksheet

Use the worksheet to define the following parameters:

1. LEDGER FILE PRORATING

Description: Charges may be distributed from the cost center in which they were initially entered into the system to another cost center or cost centers. This may be done either after all the charges for a billing period have been entered into the system (Ledger File) or as the charges are being entered into the system (Journal File). The ledger prorating option is activated by specifying YES and deactivated by specifying NO. An additional job must be run each financial period for every unit to perform the ledger prorating function. Journal file prorating is activated as part of Rate Table Journal File Specifications.

Default: NO

Values: Y, N, YES, or NO

NOTE: Ledger File prorating is usually done when the proration percentages are not known at the start of a billing period. This is usually the result of calculations based on some measures that are accumulated during the billing period. If you know the percentages in advance, consider using journal file prorating.

2. IF YES, CREATE SPECIAL LEDGER FILE

Description: The Ledger File prorating method allows both the unprorated and the prorated charges to be retained, if desired. In this case, the prorated charges are retained in a special Ledger File. The special Ledger File takes additional disk storage, but provides an audit trail. This option is activated by specifying YES or deactivated by specifying NO.

Default: YES

Values: Y, N, YES, NO, or N/A

NOTE: This option is always N/A if the value of ledger file prorating is NO.

3. IF YES, PRORATE FROM VARIABLE

Description: The name of the Ledger File variable that controls whether prorating will be performed for a particular record. A warning message will be displayed if it does not name a defined COSTCTR variable.

Default: COSTCTR1

Values: Character, length 8, COSTCTR1 - COSTCTR9

NOTE: This option is always left blank if the value of Ledger File prorating is NO.

4. ALWAYS USE COMPLEX LEVEL PRORATING TABLE

Description: This field indicates whether the complex level prorating table should be used for journal and Ledger File prorating. If this field is specified as YES, the complex level table must be defined and will be used for Journal and Ledger File prorating in lieu of the unit level prorating table.

Default: NO

Values: Y, N, YES, or NO

4.8.2.2 Prorating Options Example

Figure 4-67 is an example of a completed Prorating Options Worksheet:

+-----+

| Date: __/__/__ Administrator: _____ |

+-----+

Ledger file prorating ==> NO

If YES, create special ledger file ==> N/A

If YES, prorate from variable ==> _____

Always use complex level prorating table? ==> NO

Figure 4-67. Prorating Options Worksheet Example

In this example, ledger file prorating will not be used. (Journal file prorating was activated on the Journal File specification panel.) A complex level prorating table will not be used in lieu of the unit level prorating table.

4.8.3 Prorating to Cost Centers Other Than COSTCTR1

With standard prorating, you can only change the values of the COSTCTR1 variable in the prorated records. If you need to change the values of other cost centers, you can use exit code. The exit macros are as follows:

```
USROJRN   Journal file macro
USROLGR   Ledger file macro
USROEXT   Complex-Level external file macro
```

Code the journal and ledger file macros in:

```
prefix.MICS.USER.SOURCE(#ACTEXIT)
```

Code the complex-level external file macro in:

```
sharedprefix.MICS.SOURCE(#ACTEXIT)
```

The exit macros are invoked immediately prior to the output of the respective files. Multiple new records with the prorating percentages applied are made available to the exit macro.

To use the macro for a particular prorating method, you need to code all of the cost center values that you wish to change in the new value field of the prorating parameter. For example, suppose you wish to prorate 50% of the charges for journal file records with a COSTCTR1 value of AAA to a record with a COSTCTR1 value of BBB and a COSTCTR2 value of CCC. The entry in the prorating parameter would have an old value field of AAA, a new value field of BBBCCC, and a percent field of 50. You specify the parameter information by making entries into the Prorating Menu after you select Option 3;8 from the Installation Accounting Primary Options Menu.

The macro for each method is invoked immediately after COSTCTR1 has been assigned in the prorated record. The macro code must use the SAS SUBSTR function on the variable RULE1, beginning in position 7, to assign the new cost center values. The first six positions of RULE1 contain the percent. For example, the journal file macro to support the prorating situation described above would be coded as follows:

```
%MACRO USROJRN;
COSTCTR1 = SUBSTR(RULE1,7,3);
COSTCTR2 = SUBSTR(RULE1,10,3);
%MEND USROJRN;
```


A temporary variable `COSTCTRY`, which contains the original `COSTCTR1` value, is available to these exit macros. If you do NOT want the `COSTCTR1` value replaced, you can code the following in your exit:

```
COSTCTR1 = COSTCTRY;
```

4.8.4 Prorating From More Than One Data Element

With standard prorating, you can only prorate from one COSTCTR data element. If you need to prorate from more than one cost center element, you can use exit code. The exit macros are as follows:

USRPJRN	Journal file macro
USRPLGR	Ledger file macro
USRPEXT	Complex-level external file macro

Code the journal and ledger file macros in:

```
prefix.MICS.USER.SOURCE(#ACTEXIT)
```

Code the complex-level external file macro in:

```
sharedprefix.MICS.SOURCE(#ACTEXIT)
```

The exit macros are taken immediately before the COSTCTR variable is input to the prorating format. COSTCTR is assigned from the Prorate From variable, normally COSTCTR1. You can use the exit to override the COSTCTR assignment and create a Prorate From variable based on more than one data element.

For example, suppose prorating is to be based on the contents of Cost Center 1 and Cost Center 2. Use the concatenation of Cost Center 1 and Cost Center 2 in the Old Value column on the Prorating Percent Specifications panel (MWF;4;2;3;8). Then code the USRPxxx macro in #ACTEXIT to assign the concatenation of Cost Center 1 and Cost Center 2 to the COSTCTR variable as follows:

```
%MACRO USRPxxx;  
  COSTCTR = COSTCTR1 || COSTCTR2;  
%MEND USRPxxx;
```

By concatenating cost centers together, it is possible to have embedded blanks in the resulting COSTCTR field. The Old Value as specified on the Prorating Percent Specifications panel must reflect the presence of any embedded blanks. Otherwise, the value will not match, and prorating for that cost center combination will not take effect.

4.8.5 Implementing Prorating

Prorating is done with either of two primary methods: the journal file method or the ledger file method. A third method, for use with complex-level external files, is also available (refer to Section 4.8.5.3).

With both the journal and ledger file methods, the ledger files reflect the prorated charges. The journal file method performs the prorating in the journal (DETAIL) files as they are being built. The ledger file method reprocesses the Ledger (summary) files to accomplish the prorating. The ledger file method can either create a new special Ledger File or replace the original standard Ledger File.

PRORATING CONSIDERATIONS

If you want to prorate your charges, you must first decide which of the primary methods to implement at your installation.

The journal file method is easier to implement and can be used in the following circumstances:

- o If you do not need to preserve the original cost center charge allocations in the Accounting and Chargeback files.
- o If you can predetermine the prorating allocation percents. However, if you need to run reports or invoices from the original data to determine the allocation percentages, you must use the ledger file method.

Some of the tradeoffs between the two primary prorating methods, the ledger file method and the journal file method, are discussed below:

- o With the ledger file method, if you replace the existing MONTHS timespan Ledger File, the Ledger Files are not supported in the YEARS timespan.
- o The ledger file method uses less CPU time than the journal file method because it uses a summarized file as input and runs only once a month.
- o The ledger file method has the flexibility of keeping both the original and the revised files.
- o Because journal files are at the detail level, you need

more disk storage for your records if you use the journal file method.

- o Implementing the ledger file method is more complex because you must run an additional prorate job each billing period. The journal file method is automatic and does not require this additional job.
- o The ledger file method provides a better audit trail.
- o Since reports can be run from either the standard Ledger File or the special Ledger File, the ledger file method can be complex.
- o Changes to the prorate parameters for the journal file method take effect when the next CA MICS DAILY job is run are normally made at the start of a billing period. Changes to the prorate parameters for the ledger file method do not take effect until the ledger file prorating job runs at the end of the month so you can make them at any time prior to that.
- o If you use the ledger file method and you replace the standard Ledger File, we recommend that you create a backup of the original file. If you keep this backup online, however, more DASD storage is used.
- o The journal file method maintains consistency between the journal and ledger files.
- o If the prorating specifications are erroneous, and you use the journal file method, you must restore the CA MICS database and rerun the CA MICS DAILY job after correcting the specifications. With the ledger file method, if you use a special Ledger File, you only need to rerun the Ledger File prorating program.

The basic strategy used by all the methods is to have a SAS PROC FORMAT called \$PRORATC or \$PRORATE, which relates an original work unit to a new COSTCTR1 value and a percentage value that indicates what portion of the charges should go to the new COSTCTR1. The original work unit is identified by a variable called the "Prorate From" variable. This is usually COSTCTR1, but may be changed through parameter specifications as described in the following sections.

The following sections describe the steps to use the three prorating methods:

- 1 - Prorating From Journal Files Checklist
- 2 - Prorating From Ledger Files Checklist
- 3 - Prorating From Complex-Level External Files Checklist

4.8.5.1 Prorating From Journal Files Checklist

The journal file prorating method performs the prorating as the accounting journal files are built in the CA MICS DAILY run. Each journal file, for which prorating has been specified, includes multiple observations for each work unit selected for prorating. If it was prorated to one or more new COSTCTRLs, the original observation will not appear in the journal file. Since the Ledger File is summed from the journal files, it also reflects the prorating. The standard CA MICS files are not affected.

Follow these steps to prorate from journal files:

- ___ 1. If you want to prorate all units from a complex level set of prorating specifications, specify YES for "Always use complex level prorating table" on the General Installation Accounting Specifications panel (MWF;4;2;3;2;1). Otherwise, specify NO.

Refer to Section 4.8.2 for more information about these specifications.

- ___ 2. Submit the accounting options generation job, ACTXOPTS, in sharedprefix.MICS.CNTL. You are automatically placed into ISPF Edit on ACTXOPTS each time you enter or change the General Installation Accounting Specifications.

- ___ 3. If you are using the complex level prorating table, select Option 2, Complex Level Prorating, on the Prorating Menu (MWF;4;2;3;8;2) to specify the prorating parameter.

Otherwise, select Option 1, Unit Level Prorating, on the Prorating Menu (MWF;4;2;3;8;1). Specify the prorating parameter for each unit in which you want prorating performed.

- ___ 4. If you are using the complex level prorating table, run the complex level prorating generation job, PRORATE, in sharedprefix.MICS.CNTL to create the \$PRORATC format.

Otherwise, run the unit level prorating generation job, PRORATEU, in prefix.MICS.CNTL to create the \$PRORATE format. You must run this job in each unit for which you specified a prorating parameter.

You are automatically placed into ISPF Edit on the correct job when you enter or change the prorating parameter.

- 5. If you need to prorate from more than a single data element, or if you need to prorate to cost center levels other than COSTCTR1, code the appropriate macros in sharedprefix.MICS.SOURCE(#ACTEXIT) as discussed in Sections 4.8.3 and 4.8.4.
- 6. For each journal file that you want to prorate, specify YES for Journal Prorating on the Rate Table Journal File Specifications panel. If you want to prorate from a variable other than COSTCTR1, specify it as the Prorate From variable. Otherwise, COSTCTR1 is used. Refer to Section 4.3.1.2 for more information about these specifications.
- 7. Submit the Rate Table generation job, MAGRUN, in prefix.MICS.CNTL. If you change any parameter specifications, you are automatically placed into ISPF Edit on this member each time you END from the Rate Table parameter.

Prorating will begin with the next execution of the CA MICS DAILY job following the MAGRUN.

4.8.5.2 Prorating From Ledger Files Checklist

The ledger file method inputs the Ledger File (ACTLGR01, which is created by the CA MICS monthly job), performs prorating as specified by the \$PRORATC or \$PRORATE format, and either creates a SAS special Ledger File (ACTSPC01) or replaces the standard Ledger File (ACTLGR01). Prefix.MICS.CNTL(ACTLGRSP) performs the prorating and creates or replaces the Ledger File. The output file has the same elements as the original ACTLGR01 file and is used in the creation of the Financial Recap file.

Follow these steps to prorate from ledger files:

- __ 1. Specify YES for Ledger File Prorating on the General Installation Accounting Specifications panel.
 - o If you want to replace the standard Ledger File with the prorated Ledger File, specify NO for "Create Special Ledger File". Otherwise, this option defaults to YES, and a special Ledger File will be created.
 - o If you want to prorate from a variable other than COSTCTR1, specify it as the Prorate From variable; otherwise, COSTCTR1 will be used.

If you want to prorate all units from a complex level set of prorating specifications, specify YES for "Always use complex level prorating table." Otherwise, specify NO.

Refer to Section 4.8.2 for more information on these specifications.

- __ 2. Submit the accounting options generation job, ACTXOPTS, in sharedprefix.MICS.CNTL. You are automatically placed into ISPF Edit on this member each time you enter or change the General Installation Accounting Specifications.
- __ 3. If you are using the complex level prorating table, select Option 2, Complex Level Prorating, on the Prorating Menu (MWF;4;2;3;8;2) to specify the prorating parameter.

Otherwise, select Option 1, Unit Level Prorating, on the Prorating Menu.

- o If you are creating a special Ledger File, you must specify the prorating parameter for each unit in which CA MICS Accounting and Chargeback is installed. If you do not actually want to prorate a particular unit's Ledger File, code a dummy specification (one with a Prorate From that will not be found in the Ledger File).
- o If you are replacing the standard Ledger File, you only need to specify the prorating parameter for the units in which you will perform prorating.

- ___ 4. If you are using the complex level prorating table, run the complex level prorating generation job, PRORATE, in sharedprefix.MICS.CNTL to create the \$PRORATC format.

Otherwise, run the unit level prorating generation job, PRORATEU, in prefix.MICS.CNTL to create the \$PRORATE format. You must run this job in each unit for which you specified a prorating parameter.

You are automatically placed into ISPF Edit on the correct job when you enter or change the prorating parameter.

- ___ 5. If the standard Ledger File ACTLGR01 is being replaced, turn off the YEARS timespan for the Ledger File by changing it on the FILE LGR statement in sharedprefix.MICS.GENLIB(ACTGENIN). Refer to Section 6.2.2.1 of the CA MICS System Modification Guide for instructions. Change DBMODEL to specify 0 cycles for the Ledger File in the YEARS timespan. Then submit the ACTCGEN job in sharedprefix.MICS.CNTL and the CYCLEGEN job in prefix.MICS.CNTL. The YEARS timespan cannot be supported because the data on the YEARS ACTLGR would not be prorated.
- ___ 6. If you need to prorate from more than a single data element, or if you need to prorate to cost center levels other than COSTCTR1, code the appropriate macros in sharedprefix.MICS.SOURCE(#ACTEXIT) as discussed in Sections 4.8.3 and 4.8.4.
- ___ 7. After the CA MICS monthly job has completed, submit the job ACTLGRSP in prefix.MICS.CNTL.
 - o If you are not creating a special ledger file,

submit the job only for the units in which you want to perform prorating.

- o If you are creating a special ledger file, you must submit the job for each unit in which CA MICS Accounting and Chargeback is installed.

It will perform the prorating using the complex or unit level format and create a special Ledger File or replace the standard Ledger File. In either case, the prorated Ledger File will be read by the INVOICE and FINRECAP jobs that create the Financial Recap File.

4.8.5.3 Prorating From Complex-Level Ext. Files Checklist

The complex-level external file prorating method performs the prorating as charges are computed for the external file records and outputs the prorated changes to the Debit File.

Follow these steps to prorate from complex-level external files:

- ___ 1. Select Option 2, Complex Level Prorating, on the Prorating Menu (MWF;4;2;3;8;2) to specify the External Files prorating parameter.
- ___ 2. Run the complex-level prorating generation job, PRORATE, in sharedprefix.MICS.CNTL to create the \$PRORATC format. You are automatically placed into ISPF edit in this member each time you enter or change the external file prorating parameter specifications.
- ___ 3. If you need to prorate from more than a single data element, or if you need to prorate to cost center levels other than COSTCTR1, code the appropriate macros in sharedprefix.MICS.SOURCE(#ACTEXIT) as discussed in Sections 4.8.3 and 4.8.4.
- ___ 4. For each complex-level external file that you want to prorate, specify YES for Prorating on the External File Specifications panel. If you want to prorate from a variable other than COSTCTR1, specify it as the Prorate From variable. Otherwise, COSTCTR1 is used. Refer to Section 4.4.1.1 for more information about these specifications.
- ___ 5. Submit the external file generation job, EXTFILE, in sharedprefix.MICS.CNTL. You are automatically placed into ISPF Edit on this member each time you enter or change the external file parameter specifications.
- ___ 6. Prorating begins with the next execution of the ACTffffTB job (where fff is the last three characters of the external file name) for the external file.

4.8.6 Printing Prorate Tables

Two reports are available to enable you to print your prorate tables: the Complex Prorate Table Report and the Unit Prorate Table Report.

The Complex Prorate Table Report is produced by `sharedprefix.MICS.CNTL(PRORATTB)`. This report shows the complex-level prorate table in an easy-to-read format.

The Unit Prorate Table Report is produced by `prefix.MICS.CNTL(PRORTUTB)`. This report shows the prorate table used for unit-level prorating in an easy-to-read format. If you have chosen to use the complex-level prorate table for your journal and ledger prorating, this report shows the complex-level prorate table. Otherwise, it shows the unit-level prorate table. The report page heading indicates the prorate table shown.

4.9 Specifying Adjustments to Charges

You can specify the following adjustments to charges:

DISCOUNTS

- o Volume discounts to be applied to all cost centers
- o Invoice Category discounts to be applied to all cost centers and to specified cost centers
- o Fixed percentage and lump sum discounts to be applied to specified cost centers

All discounts are written to the Financial Recap File, when it is created, for each invoice level cost center to which they apply.

SURCHARGES

- o Invoice Category surcharges to be applied to all cost centers and to specified cost centers
- o Fixed percentage surcharges to be applied to all cost centers and to specified cost centers
- o Surcharges to be applied to a unit of work

All surcharges are written to the Financial Recap File, when it is created, for each invoice level cost center to which they apply.

MINIMUM CHARGES

- o Minimum charges to be applied to a unit of work

DIFFERENTIAL CHARGES

- o Priority and zone charges to be applied to a unit of work.

DEBITS AND CREDITS

- o Standard and recurring debits and credits to be applied to specified cost centers.

The following sections explain how to define these adjustments:

- 1 - Specifying Volume Discounts
- 2 - Specifying Invoice Category Discounts
- 3 - Specifying Fixed Percentage and Lump Sum Discounts
- 4 - Specifying Invoice Category Surcharges
- 5 - Specifying Fixed Percentage Surcharges
- 6 - Specifying Work Unit Surcharges and Minimum Charges
- 7 - Specifying Differential Charges
- 8 - Specifying Debits and Credits

4.9.1 Specifying Volume Discounts

You can use volume discounts to reduce a given cost center's charges by a fixed percentage when those charges exceed a threshold amount. Specify volume discounts on the Volume Discounts Specification panel (MWF;4;2;3;2;2;2).

Use the Volume Discount Worksheet, Figure 4-68, to specify the volume (charge) thresholds and their associated percentages which are used to compute the discount. The percentage specified is subtracted from the cost center invoice if the net charge exceeds the threshold amount. The computation is performed according to the method specified (Maximum, Piecewise, or Accumulative).

+-----+ Date: __/__/__ Administrator: _____ +-----+		
Computation Method: _____		
Qualifying Amount (\$)	Discount Percentage	Cost Center Level
-----	-----	-----
-----	---'.----	-
-----	---'.----	-
-----	---'.----	-
-----	---'.----	-
-----	---'.----	-

Figure 4-68. Volume Discount Worksheet

Use this worksheet to define the following parameters:

1. COMPUTATION METHOD

Description: The method used for computing the threshold. Valid values are MAXIMUM, PIECEWISE, and ACCUMULATIVE. The computations are made as follows:

MAXIMUM	Only the discount associated with the highest qualifying level amount is applied.
PIECEWISE	Each discount percentage is applied to that portion of the total charge that is greater than the threshold and less than the next highest qualifying level.
ACCUMULATIVE	Each discount percentage is applied to that total charge and subtracted from the total prior to computing the next highest discount amount.

2. QUALIFYING AMOUNT AND DISCOUNT PERCENTAGE

Description: The associated percentage of the total charges will be subtracted from the total for amounts in excess of the applicable qualifying amount. The applicable qualifying amount differs with the computation method.

Default: None

Values: Qualifying Amount: Numeric, 0 - 99999999
Discount Percentage: Numeric, 0 - 99.9999

3. COST CENTER LEVEL

Description: The cost center level with which the qualifying amount and percentage are associated. Volume discounts are only computed for cost centers which are invoiced. Any volume discounts specified for cost center levels not invoiced will be ignored.

Default: 1

Values: Qualifying Amount - Numeric, 0 - 99999999

EXAMPLE

In the example shown in Figure 4-69, cost centers whose total charges exceed \$10,000 receive a 10% discount and an additional 30 percent discount on total charges exceeding \$50,000. Both of these specifications apply to charges invoiced to cost centers at level 1.

Computation Method: ACCUMULATIVE

Qualifying Amount (\$)	Discount Percentage	Cost Center Level
-----	-----	-
10000	10	1
50000	30	1

Figure 4-69. Volume Discount Example

4.9.2 Specifying Invoice Category Discounts

You can specify invoice category discounts at the global level, so they apply to all cost centers, and at the cost center level, so they apply to a specified cost center. Any specifications for individual cost centers override the global specifications.

To specify global invoice category discounts, select the Invoice Category Discounts option on the Financial Recap File Specification Menu (MWF;4;2;3;2;2;3). To specify invoice category discounts for a specific cost center, select Invoice Options on the Cost Center Attributes menu (MWF;4;2;1;1;2).

Figure 4-70 is the Global Invoice Category Discount Worksheet. Use this worksheet to define global invoice category discounts.

[illegible]

Figure 4-70. Global Invoice Category Discount Worksheet

Use the worksheet to define the following parameters:

INVOICE CATEGORY

Description: The invoice category to which the discount percentage will be applied.

Default: N/A

Values: Numeric, 0 - 8999

INVOICE CATEGORY DESCRIPTION

Description: The descriptive name of the invoice category. (For your use only. This information is automatically displayed on the Invoice Category Discounts panel when you enter an Invoice Category.)

DISCOUNT PERCENT

Description: The discount percentage that will be applied to this Invoice Category for all cost centers.

Default: N/A

Values: Numeric, 0 - 100

NOTE: Decimal positions are allowed, but the total length of the field is restricted to 8.

EXAMPLE--GLOBAL INVOICE CATEGORY DISCOUNT

The example shown in Figure 4-71 shows a 10% discount for invoice category 1100, Central Processor(s), and a 5% discount for invoice category 1200, Channels.

Invoice Category	Description	Discount Percent
1100	CENTRAL PROCESSOR(S)	10
1200	CHANNELS	5

Figure 4-71. Global Invoice Category Discount Example

Figure 4-72 is the Cost Center Invoice Category Discount Worksheet. Use this worksheet to define invoice category discounts for specified cost centers.

+-----+
| Date: __/__/__ Administrator: _____ |
+-----+

Cost Center Name _____

Invoice Category _____

Invoice Category Description _____

Invoice Category Discount _____ (0 - 100)

Figure 4-72. Cost Center Invoice Category Discount Worksheet

Use the worksheet to define the following parameters:

COST CENTER NAME

Description: The name of the cost center. (For your use only. You will select the cost center on the Cost Center Selection panel.)

INVOICE CATEGORY

Description: The invoice category to which the discount percentage will be applied.

NOTE: The invoice category discount is computed before any lump sum discount or fixed percentage discount is computed for the total invoice amount.

Default: None

Values: 4-digit Invoice Category number

INVOICE CATEGORY DESCRIPTION

Description: The descriptive name of the invoice category. (For your use only. This information is automatically displayed on the Cost Center Attributes panel when you enter an Invoice Category.)

DISCOUNT

Description: The discount percentage that will be applied to the invoice category for this cost center.

Default: None

Values: 0 to 100. Up to 6 decimal positions.

EXAMPLE--INVOICE CATEGORY DISCOUNT FOR A SPECIFIED COST CENTER

In the example in Figure 4-73, a 10 percent discount will be

Figure 4-74. Fixed Percentage/Lump Sum Discounts Worksheet

Use the worksheet to define the following:

COST CENTER NAME

Description: The name of the cost center. (For your use only. You will select the cost center on the Cost Center Selection panel.)

FIXED PERCENTAGE DISCOUNT

Description: A discount percentage applied to the total invoice amount for the cost center.

Default: None

Values: 0 to 100. Up to 4 decimal positions.

LUMP SUM DISCOUNT

Description: A discount amount applied to the total invoice amount for the cost center.

Default: None

Values: 0 to 999,999. Up to 2 decimal positions.

NOTE: If both fixed percentage and lump sum discount percentages are defined, the fixed percentage will be applied first, before the lump sum amount.

EXAMPLE

In the example in Figure 4-75 a two percent discount will be applied to the total amount of the invoice for the Eastern Region cost center. Then, a lump sum discount of ten dollars will be applied to the discounted total amount of the invoice for the Eastern Region cost center.

Cost Center Name EASTERN REGION

Fixed percentage discount	2	(0 - 100)
Lump sum discount	10	(0 - 999,999)

Figure 4-75. Fixed Percentage/Lump Sum Discounts Example

4.9.4 Specifying Invoice Category Surcharges

You can specify invoice category surcharges at the global level, so they apply to all cost centers, and at the cost center level, so they apply to a specified cost center. Any specifications for individual cost centers override the global specifications.

To specify global invoice category surcharges, select the Surcharges option on the Financial Recap File Specification Menu (MWF;4;2;3;2;4). To specify invoice category surcharges for a specific cost center, select Invoice Options on the Cost Center Attributes menu (MWF;4;2;1;1;2).

Figure 4-76 is the Global Invoice Category Surcharges Worksheet. Use this worksheet to define global invoice category surcharges.

[illegible]

Figure 4-76. Global Invoice Category Surcharges Worksheet

Use the worksheet to define the following parameters:

INVOICE CATEGORY

Description: The invoice category to which the surcharge percentage will be applied.

Default: N/A

Values: Numeric, 0 - 8999

INVOICE CATEGORY DESCRIPTION

Description: The descriptive name of the invoice category. (For your use only. This information is automatically displayed on the Surcharges panel when you enter an Invoice Category.)

SURCHARGE PERCENT

Description: The surcharge percentage that will be applied to this Invoice Category for all cost centers.

Default: N/A

Values: Numeric, 0 - 100

NOTE: Decimal positions are allowed, but the total length of the field is restricted to 8.

EXAMPLE--GLOBAL INVOICE CATEGORY SURCHARGE

The example shown in Figure 4-77 shows a 10% surcharge for Invoice Category 1100, Central Processor(s), and a 5% surcharge for Invoice Category 1200, Channels.

Invoice	Surcharge

Figure 4-78. Cost Center Inv. Category Surcharge Worksheet

Use the worksheet to define the following parameters:

COST CENTER NAME

Description: The name of the cost center. (For your use only. You will select the cost center on the Cost Center Selection panel.)

INVOICE CATEGORY

Description: The invoice category to which the surcharge percentage will be applied.

NOTE: The invoice category surcharge is computed before any fixed percentage surcharge is computed for the total invoice amount.

Default: None

Values: 4-digit Invoice Category number

INVOICE CATEGORY DESCRIPTION

Description: The descriptive name of the invoice category. (For your use only. This information is automatically displayed on the Cost Center Attributes panel when you enter an Invoice Category.)

SURCHARGE

Description: The surcharge percentage that will be applied to the invoice category for this cost center.

Default: None

Values: 0 to 100. Up to 6 decimal positions.

EXAMPLE--INVOICE CATEGORY SURCHARGE FOR A SPECIFIED COST CENTER

In the example in Figure 4-79, a 10 percent surcharge will be

applied to Invoice Category 1100, Central Processor(s), for the Eastern Region cost center, overriding any global surcharge specified for Invoice Category 1100.

```
-----  
Cost Center Name  EASTERN REGION  
  
Invoice Category  1100  
  
Invoice Category Description CENTRAL PROCESSOR(S)  
  
Invoice Category Surcharge 10                (0 - 100)  
-----
```

Figure 4-79. Example Cost Center Invoice Category Surcharge

4.9.5 Specifying Fixed Percentage Surcharges

Using Invoice Options on the Cost Center Attributes menu (MMF;4;2;1;1;2), you can specify fixed percentage surcharges for individual cost centers.

Figure 4-80 is the Fixed Percentage Surcharges Worksheet:

+-----+	
Date: __/__/__	Administrator: _____
+-----+	
Cost Center Name _____	
Fixed Percentage Surcharge _____	(0 - 100)

Figure 4-80. Fixed Percentage Surcharges Worksheet

Use the worksheet to define the following:

COST CENTER NAME

Description: The name of the cost center. (For your use only. You will select the cost center on the Cost Center Selection panel.)

FIXED PERCENTAGE SURCHARGE

Description: A surcharge percentage applied to the total invoice amount for the cost center.

Default: None

Values: 0 to 100. Up to four decimal positions.

EXAMPLE

In the example in Figure 4-81 a two percent surcharge will be applied to the total amount of the invoice for the Eastern Region cost center.

Cost Center Name EASTERN REGION

Fixed percentage surcharge 2 (0 - 100)

Figure 4-81. Fixed Percentage Surcharge Example

4.9.6 Specifying Work Unit Surcharges and Minimum Charges

You can apply a surcharge or a minimum charge to an individual unit of work in a journal file algorithm.

To specify a surcharge, use SURC as the computation code and the surcharge percentage as its associated rate.

To specify a minimum charge, use JMIN as the computation code and the minimum charge as its associated rate.

Refer to Section 4.3.1.4.1 and enter this information on the Rate Table - Direct Assignment Algorithm Worksheet, Figure 4-21.

Surcharges and minimum charges may not be appropriate for journal files associated with the following CA MICS products because each record has been summarized to the DAYS time-span and thus does not represent a single unit of work: CICS, DB2, IDMS, IMS, and VCA. There is an option to bill for VCA at the DETAIL level.

4.9.7 Specifying Differential Charging

You can apply zone and priority differential charging to a unit of work. Zone and priority charging are specified during rate setting on the Journal File Specification panel (MMF;4;2;3;6;1). Refer to Section 4.3.1.2.1 for the Journal File Specifications Worksheet. Refer to Section 1.2 of the CA MICS Accounting and Chargeback Concepts and Overview Guide for a discussion of differential charging.

To use zone or priority charging, you must update certain members in prefix.MICS.PARMS. Refer to the Installation Checklist in Section 2.2.

4.9.8 Specifying Debits and Credits

Use Option 3, Debits and Credits, on the Application Database Data Entry menu (MWF;4;2;1;3) to specify any standard (one-time) and recurring debits or credits by cost center in the Debits and Credits Table.

Debits and credits are normally entered and updated in the Work cycle (00), the default, and moved or copied to the Active cycle (01) by the month-end CLOSETBL job. The Work cycle contains standard debits and credits for future accounting periods, such as next month, and all recurring debits and credits.

Standard debits and credits are moved based on their MONTH and YEAR values, unless Special Accounting Dates are being used. In that case, they are moved based on their ACTMONTH and ACTYEAR values.

All recurring debits and credits are copied from the Work cycle to the Active cycle.

Alternatively, you can enter debits and credits in the Active cycle (01). The Active cycle contains standard debits and credits for the last accounting period and all recurring debits and credits. The debits and credits in the Active cycle are included in the Financial Recap File and appear on invoices.

NOTE: If you change a recurring entry in the Active cycle you MUST also change the same entry in the Work cycle. If you do not update the Work cycle, your changes will be lost when the CLOSETBL job is run.

4.10 Specifying Additional Charging Options

There are three additional charging options you can specify on the General Installation Accounting Specifications panel (MWF;4;2;3;2;1). They are discussed in the following sections:

- 1 - Specifying Number of Positions to Round Charges
- 2 - Specifying Whether to Carry Zero Charges
- 3 - Specifying Whether HSM Data is Available

4.10.1 Specifying Number of Positions to Round Charges

You can specify, on the General Installation Accounting Specifications panel (MWF;4;2;3;2;1), the number of positions to round charges on the journal and ledger files. (Charges on the Financial Recap File are always rounded to two positions.)

This option can affect the amount of your total charges. Very small charges may round to zero, and effectively be canceled. Increasing the number of positions to round charges makes this less likely.

Figure 4-82 is the Rounding Charges Worksheet:

```
-----
+-----+
| Date: __/__/__      Administrator: _____ |
+-----+

      Number of positions to round charges ==> __  (0 - 6)

-----
```

Figure 4-82. Rounding Charges Worksheet

Use this worksheet to define the following:

NUMBER OF POSITIONS TO ROUND CHARGES

Description: The number of decimal positions to which journal and ledger file charges will be rounded.

Default: 2

Values: Numeric, 0 - 6

4.10.2 Specifying Whether to Carry Zero Charges

You can specify, on the General Installation Accounting Specifications panel (MWF;4;2;3;2;1), whether to carry charges with zero amounts on the ledger files, external files, invoices, and Financial Recap File.

Figure 4-83 is the Carry Zero Charges Worksheet:

```

-----
+-----+
| Date: __/__/__      Administrator: _____ |
+-----+

Carry zero charges on:

          Ledger files      ==> ___
          External files    ==> ___
          Financial Recap File ==> ___
          Invoices          ==> ___
-----

```

Figure 4-83. Carry Zero Charges Worksheet.

Use this worksheet to define the following:

CARRY ZERO CHARGES ON LEDGER FILES, EXTERNAL FILES, THE
FINANCIAL RECAP FILE, AND INVOICES

Description: These fields indicate whether charges with zero amounts will be carried on the specified file or deleted from the file.

If YES is specified for Invoices, then all files must be YES also. If YES is specified for the Financial Recap File, then external and ledger files must also be YES.

Default: NO

Values: Y, N, YES, or NO

4.10.3 Specifying Whether HSM Data is Available

You can specify, on the General Installation Accounting Specifications panel (MWF;4;2;3;2;1), whether HSM migrated data sets are to be made available to the VCA DAA and _VS journal files, ACTJDA and ACTJVS. You can also charge migrated data sets from the VCA MIG journal file, ACTJMG, so this option may be used to prevent duplicate charging.

Figure 4-84 is the HSM Data Availability Worksheet.

```
-----  
  
+-----+  
| Date: __/__/__ Administrator: _____ |  
+-----+  
  
Pass HSM data to DAA and _VS journal files? ==> ____  
  
-----
```

Figure 4-84. HSM Data Availability Worksheet

Use this worksheet to define the following:

PASS HSM DATA TO DAA AND _VS JOURNAL FILES

Description: DFHSM migrated data sets will be passed to the VCA DAA and _VS journal files if this option is YES.

If this option is NO, any DFHSM migrated data sets will not be presented to the DAA and _VS journal files. This allows you to charge migrated data sets from the DFHSM MIG file instead, or to exclude them from charging altogether.

Default: NO

Values: Y, N, YES, or NO

4.11 Implementing Monthly Zero Balancing

Zero balance accounting is the process by which an IS organization recovers its monthly costs by distributing the costs among that month's users of its services. It is one of the least expensive forms of computer charge-out to administer because the normal rate determination process is grossly simplified. This simplicity may produce a number of undesirable side effects, one of which is possible distortion of the true cost of providing services.

The CA MICS approach to zero balancing employs standard costing throughout the month to determine the actual, or real, charges that users have incurred. At month end, special analysis is performed to determine how the actual charges must be adjusted by credit or debit entries to conform to a zero balance charging process. This approach enables management to realize the simplicity of monthly zero balancing. At the same time, it also maintains the actual costs of services rendered, thus providing a more realistic and consistent set of accounting numbers for short-term cost analysis, trending, and budgeting.

Generally, the use of zero balance accounting is based on the enterprise policy that a data center's charges to its users will be the same as the data center expenditure amount. The actual expenditures of a computer center for a month are usually not known to computer center management until the following month. Therefore, the charges distributed to the users of computer center services in the zero balance process will probably be based on the preceding month's expenditures.

We recommend the following costing approach if zero balance accounting is required:

- o Establish a standard set of costs (rates) that you use on a continuing basis to establish a consistent base for cost accounting. These are the costs that are used in the standard daily costing processes in CA MICS.
- o At the end of each month, apply an adjustment to each user's costs so that the sum of all users' net costs equals the installation's monthly recovery target.
- o Review and adjust the rates periodically (for example, quarterly) to reflect the cost of providing services.

STANDARD PROCESSING

To understand the CA MICS implementation of zero balancing, you must know what standard processing is already performed by CA MICS Accounting and Chargeback.

Each DAILY run of CA MICS can create journal and ledger records. The journal records are created for each unit of work. These records have the applicable cost value calculated for the various chargeable elements.

The ledger records are accumulated every day from the journal records. There is one Ledger File record for each invoice category and charging element rather than for each unit of work (for example, TSO session). At the end of an accounting month, the Ledger File contains the CA MICS-generated computer center charges, summarized into the Ledger File sequence.

The Ledger Files are input into the monthly reports (for example, invoice). Because of the existence of multiple database units, with one Ledger File per database unit, multiple Ledger Files may be used as input to the invoice statements.

In addition to ledger charge records, you may manually enter credit or debit entries to adjust charges or add charges that are not processed by the CA MICS daily job. The combination of the ledger charges, extra debits, and credits are the ingredients of the invoice statements.

CA MICS ZERO BALANCE PROCESSING

CA MICS Accounting and Chargeback implements zero balance accounting by processing all ledger files charges, debits, credits, discounts, and surcharges for a given month. The combination of these charging records is compared to the actual expenses that are to be recovered. Based on this comparison, the zero balance program generates offsetting adjustments so that the total charges to computer center users equal the total expense amount.

Any cost centers that are entered into the ACTCCA file with a NOBILL status (Invoice Options Cost Center Selection, MWF;4;2;1;1;2) are excluded from the zero balance process. Consequently, the total of the charging records reflects all COSTCTRs that have a BILL status or that have not been entered into the ACTCCA file.

There are three ways to apply the expenditures and create zero balancing entries. Only one of these methods can be used during a monthly run.

Method 1: Total Amount--This method uses one expenditure amount as input and distributes to the various COSTCTRs based on their original set of charges.

Method 2: INVCCAT Amounts--This method allows an expenditure amount to be entered for each INVCCAT category and to be distributed to the COSTCTRs based on the original set of charges for each INVCCAT. Certain INVCCAT categories can be excluded from zero balancing in this method.

Method 3: COMPCODE Amounts--This method allows expenditure amounts to be entered for each COMPCODE category and to be distributed to the COSTCTRs based on the original set of charges for each COMPCODE. Certain COMPCODE categories can be excluded from zero balancing in this method.

NOTE: The zero balance adjustments records are created for each cost center invoiced in the current accounting period. They have an RCPTYPE value of 60 and contain invoice categories and/or computation codes if the INVCCAT or COMPCODE methods were used. The zero balance adjustment is shown at the bottom of each invoice.

RATE SETTING CONSIDERATIONS

The rates used to calculate the original charges play a significant role in determining how the actual expenditures are actually spread.

It is the charges, not the quantities, that determine the proportion by which expenditures are distributed to the cost centers. Inequities in the rate structure will therefore translate into inequities in expenditure distribution.

PERFORMING ZERO BALANCING

Zero balancing processing is requested on the General Installation Accounting Options panel (MWF;4;2;3;2;1). If zero balance processing is requested, zero balancing is performed whenever the Financial Recap File is created. This

occurs when the FINRECAP or INVOICE job is run. The zero balancing process computes the appropriate credits and/or debits to adjust the input charge amounts and adds them to the Financial Recap File. A report is produced at the same time, showing the adjustments that were made.

Because zero balance processing occurs as an integral part of the Financial Recap File creation, the ZEROBAL member in sharedprefix.MICS.PARMS must be updated each month with the target expenditure amounts, prior to running the FINRECAP or INVOICE jobs. The format of the ZEROBAL member has either a TOTAL, INVCCAT, or COMPCODE keyword starting in column 1 of each record. Only one of these keywords may be used during the zero balance processing. The TOTAL keyword is followed by a total expenditure amount (for example, TOTAL 50000.00). The INVCCAT keyword is followed by the invoice category number and then the expenditure amount for that category (for example, INVCCAT 1100 2000.00). The COMPCODE keyword is followed by a computation code number and the expenditure amount for that category (for example, COMPCODE 0021 30.00). A sample is provided in the ZEROBAL member in sharedprefix.MICS.HOLD.PARMS.

After creating the Financial Recap File, inspect the Zero Balance Report to audit the effect of the zero balancing process. A sample report is shown in Section 6.1.1.4. If you need to make changes, adjust the ZEROBAL member and rerun the job to create the Financial Recap File. If you are unsure whether the contents of ZEROBAL is accurate, run FINRECAP and avoid creating the invoice print lines.

Figure 4-85 is the Zero Balancing Worksheet.

```
+-----+
| Date: __/__/__      Administrator: _____ |
+-----+

Create zero balance adjustments when the financial recap
file is created? ==> ____
```

Figure 4-85. Zero Balancing Worksheet.

Use the worksheet to make the following decision:

CREATE ZERO BALANCE ADJUSTMENTS WHEN THE FINANCIAL RECAP
FILE IS CREATED?

Description: This field specifies whether zero balance
adjustments will be created when the Financial Recap
File is created.

Default: NO

Values: Y, N, YES, or NO

NOTE: If YES is specified, you MUST define the zero
balance parameter in the member ZEROBAL in
sharedprefix.MICS.PARMS each financial period
PRIOR to running the INVOICE or FINRECAP jobs.

4.12 Accounting for Multiple Sites (Multi-Sites)

Installations that run accounting at multiple, physically separated sites have the option of producing their invoices at a single site. Each remote site can run a standard job to create an output file for use at the central site. The central site runs a job to merge the remote site files into one file. The merged files are used at the central site in its standard reporting. To accomplish this, appropriate options must be selected for the remote and the central sites.

REMOTE SITE INSTRUCTIONS

To use multi-site accounting, each remote site must specify the files that are to be transmitted to the central site. The Financial Recap File is always transmitted. The Standard Credit File may also be transmitted.

Each remote site must also code a TAPEFMT DD statement on the Remote Site Specifications panel (MWF;4;2;3;2;4;1). This DD statement defines the SAS data set to which the specified files are copied. Refer to Section 4.12.1 for more information on coding the remote site specification parameters.

The ACTMSULD job is generated by the Accounting Options generation process, ACTXOPTM, whenever remote site specifications are entered or changed. At the end of each accounting period, each remote site submits sharedprefix.MICS.CNTL(ACTMSULD) to copy the specified files to the data set defined by the TAPEFMT DD. Refer to the online help for the Remote Site Transmit Files Creation panel (MWF;4;2;2;4;1) for more information on submitting ACTMSULD. It is each remote site's responsibility to transmit the data set to the central site. The output data set created by the ACTMSULD job is in SAS tape format. This type of data set gives you maximum flexibility in your transmission method. The data set can be written to either tape or disk. The output data set defined in the TAPEFMT DD statement can be either a GDG (Generation Data Group), cataloged by you, or it can be a permanently cataloged data set. If you choose to use a permanent data set, you must make provisions to clear out the data set prior to the submission of the ACTMSULD job.

NOTE: Only charge, budget, and credit records are used at the central site; all discounts, surcharges, and zero balance adjustments are made on the basis of the

parameters specified by the central site.

In addition, invoices will be created based on the central site's invoice level specification and the contents of its Cost Center Attributes file. This may require some additional coordination between the remote and central sites to ensure synchronization between the remote data and the central site parameters.

CENTRAL SITE INSTRUCTIONS

The central site must code an input data set name for each remote site that creates accounting information by running the ACTMSULD job (see REMOTE SITE INSTRUCTIONS above) on an input panel. Each panel statement defines a data set containing the files transmitted from a remote site. These specifications are made in the Central Site Specifications panel (MWF;4;2;3;2;4;2). Refer to Section 4.12.2 for more information on coding the central site specification parameters.

The ACTMG TAB job is generated by the Accounting Options generation process, ACTXOPTM, whenever central site specifications are entered or changed. At the end of each accounting period, after all of the remote site data sets have been received at the central site, the central site must submit sharedprefix.MICS.CNTL(ACTMG TAB), which copies the remote site files to the Installation Accounting application database (sharedprefix.MICS.TABLES) to create consolidated files. Refer to the online help for the Central Site Merger of Remote Site Files panel (MWF;4;2;2;4;2) for more information on submitting ACTMG TAB. The central site can then submit the Multi-Site Consolidated Invoice job, INVOICEM, in sharedprefix.MICS.CNTL. Refer to the online help for the Central Site Consolidated Invoice Report panel (MWF;4;2;2;4;3) for information on submitting this report.

The following sections describe how to specify your multi-site specifications:

- 1 - Defining Remote Site Specifications
- 2 - Defining Central Site Specifications

4.12.1 Defining Remote Site Specifications

Remote site users must specify a DD statement to identify the data set to be transmitted to the central site.

Remote site users can specify whether or not they want to transmit the Credit File to the central site for use in the Invoice Credit Supplement Report. This option does not affect whether credits appear on the invoice because they are included in the monthly Financial Recap File, which is always transmitted.

The following sections describe how to indicate remote site specifications:

- 1 - Remote Site Worksheet
- 2 - Remote Site Example

4.12.1.1 Remote Site Worksheet

Figure 4-86 is the Remote Site Worksheet.

+-----+-----+	
Date: ____/____/____	Administrator: _____
+-----+-----+	

REMOTE SITE WORKSHEET

Process Credit File (Y/N) _____

Transmit File DD Statement

//TAPEFMT DD _____

// _____

// _____

// _____

// _____

// _____

Figure 4-86. Remote Site Worksheet

Use the worksheet to define the following parameters:

1. PROCESS CREDIT FILE

Description: Specifies whether the Credit File at this site will be used for multi-site invoicing.

Default: NO

Values: YES, NO, Y, or N

NOTE: If you are providing central credit reporting with the invoice credit supplement report, this file must be transmitted.

2. TRANSMIT FILE DD STATEMENT

Description: Allows specification of the JCL DD statement for the transmitted files.

Default: None

Values: Character, length 72 per line

NOTE: The ddname must always be TAPEFMT. You must provide the transmission facility to send this file to your central site. The file can be a previously cataloged data set or it can be created each time the job is run. If a previously cataloged data set is used, it should have the same DCB attributes as the sharedprefix.MICS.TABLES data set. If the data set is created by the job, the DCB attributes can be omitted, as they will default to the input data set attributes.

4.12.1.2 Remote Site Example

The example in Figure 4-87 assumes that the installation wants to transmit the Credit File (as well as the Financial Recap File, which is always sent) to the central site for invoicing. The data set to be transmitted has been previously cataloged.

```
-----  
+-----+  
| Date: __/__/__      Administrator: _____ |  
+-----+  
  
Process Credit file          ==> YES  
  
Transmit File DD Statements  
  
//TAPEFMT DD DISP=OLD,DSN=MICS.EAST.ACT.TRANSMIT____  
//_____  
//_____  
//_____  
//_____  
//_____
```

Figure 4-87. Remote Site Example

4.12.2 Defining Central Site Specifications

Central site users must provide the names of the data sets that contain the transmitted accounting files from each remote site.

The following sections describe how to specify data set names for a central site:

- 1 - Central Site Worksheet
- 2 - Central Site Example

[illegible]

Figure 4-88. Central Site Worksheet

The following parameters appear on the worksheet:

1. REMOTE SITE ID

Description: The identifier for the remote site.

Default: None

Values: Character, length 1 to 8

NOTE: The value for this field is chosen by the central site. It is for descriptive purposes only.

2. DATA SET NAME

Description: The name of the data set that will contain the information transmitted from the remote site.

Default: None

Values: Character, length 44

NOTE: The data set name must be a valid OS data set name and the specified data set must be cataloged. In addition, it is your responsibility to ensure that the following items are implemented to support multi-site accounting:

- o Run an unload job at each remote site.
- o Transmit the data set from each remote site to the central site.
- o Catalog the OS data sets from each remote site into the central site catalog.

4.12.2.2 Central Site Example

The example shown in Figure 4-89 assumes that accounting is being run in two remote sites, EAST and WEST. Central site invoicing is to be done. The information transmitted from the remote sites will be retained locally in the cataloged data sets named MICS.remotesiteid.ACT.TRANSMIT.

The central site may choose the data set names. No standard CA MICS convention is enforced. These data set names become part of the generated JCL used to gather all of your remote site data sets.

+-----+	
Date: __/__/__	Administrator: _____
+-----+	
Remote Site ID	Data Set Name
-----	-----
EAST	MICS.EAST.ACT.TRANSMIT
WEST	MICS.WEST.ACT.TRANSMIT

Figure 4-89. Central Site Example

4.13 Defining Journal Files

Use the Journal File Eligibility option (MWF;4;2;S;2) to add new journal files for external journal files and field-developed applications (FDAs) and to override the specifications for the standard CA MICS journal files. Refer to the Data Dictionary, Appendix B.2, for a list of the standard CA MICS journal files.

STEPS TO DEFINE JOURNAL FILES

Complete the checklist below to add journal files or change journal file specifications:

- __ 1. Select Option S, Special Requirements, from the Installation Accounting Primary Options Menu to display the Special Requirements Menu, and select Option 2, Journal File Eligibility. The Journal File Eligibility - File Selection panel will be displayed.

Use the Select line command to modify the specifications for an existing journal file. Use the Insert line command to add a new journal file for an external journal file or an FDA. In both cases, the File Specifications panel will be displayed.

- __ 2. Submit the job MAGRUN from prefix.MICS.CNTL for each database unit containing a journal file that you added or changed. The MAGRUN job uses information from the Journal File Eligibility parameter to perform the Rate Table generation. You can also submit the job from TSO as follows:

```
SUB 'prefix.MICS.CNTL(MAGRUN)'
```

The following sections describe the specifications needed to define journal files. If you do not need to add any journal files or modify any of the specifications for the standard CA MICS journal files, skip these sections.

- 1 - Journal File Eligibility Worksheet
- 2 - Journal File Eligibility Example

4.13.1 Journal File Eligibility Worksheet

Figure 4-90 is the Journal File Eligibility Worksheet:

Date: ____/____/____

Administrator: _____

JOURNAL FILE ELIGIBILITY - FILE SPECIFICATIONS WORKSHEET

Journal File ID

ACTJ_____

Journal File Description

Component ID

Source Component File ID

Source Component File Timespan

_____ (DETAIL or DAYS)

Workunit Variable

Billing Timestamp Variable

Workarea Variable 1

Workarea Variable 2

Subsysid Variable

Subtype Variable

Single File Data Step

_____ (YES/NO)

Priority charging

_____ (YES/NO)

Priority variable

Format

ID

Figure 4-90. Journal File Eligibility Worksheet

Use the worksheet to define the following parameters:

1. JOURNAL FILE ID

Description: The journal file identifier.

Default: None

Values: Character, length 6. It must begin with ACTJ. For external journal files or FDA journal files, you must use U or Z in the fifth position to avoid conflict with standard CA MICS journal files.

NOTE: This value must be unique across all journal files.

2. JOURNAL FILE DESCRIPTION

Description: A descriptive long name for the journal file.

Default: None

Values: Character, length 40

NOTE: The long name will appear on the rate table parameter panels.

3. COMPONENT ID

Description: The identifier of the database component, external journal file, or FDA associated with the journal file (for example, SMF for the CA MICS Batch and Operations Analyzer). Use EXT for external journal files.

Default: None

Values: Character, length 3

NOTE: There must be an entry for the CA MICS component or FDA in the MICF Information Area Table. An entry in this table is automatically created as part of the component or FDA generation process.

4. SOURCE COMPONENT FILE ID

Description: The identifier of the CA MICS database component file, external file, or FDA file from which the journal file is derived (for example, JOB from the BATJOB file).

Default: None

Values: Character, length 3. This is the last three characters of the six-character file name. For external files not based on a CA MICS database component file, the first character must begin with U or Z.

NOTE: There must be an entry in the MICF File Definition Table for a CA MICS component file or for an FDA file. An entry in this table is automatically created as part of the generation process.

5. SOURCE COMPONENT FILE TIMESPAN

Description: The timespan of the CA MICS component file, external file, or FDA file from which the journal file is derived.

Default: None

Values: Character, length 7--For standard CA MICS journal files and FDAs, use DETAIL or DAYS. For external journal files not based on a CA MICS database component file, leave this area blank. For external journal files based on a higher timespan of a CA MICS component file, use the file's timespan.

NOTE: The file must be active in this timespan. This field is used by the online Charging Element Table and Rate Table parameter processing to determine which data elements exist in the file.

6. WORKUNIT VARIABLE

Description: The name of the variable to be assigned to the Workunit variable.

Default: None

Values: Character, length 8

NOTE: If the variable name is not an active variable in the CA MICS component or FDA file from which this

journal file is derived, a warning message is displayed.

If you change this variable, it is very important that you re-examine the Workunit values in algorithm qualification and any Workunit qualification groups used with this journal file. Failure to do so could result in lost charges. No validation is done for external journal files not based on a CA MICS database component file.

7. BILLING TIMESTAMP VARIABLE

Description: The name of the variable to be assigned to BILLTS.

Default: None

Values: Character, length 8

NOTE: If the variable name is not contained in the CA MICS component or FDA file from which this journal file is derived, a warning message is displayed. No validation is done for external journal files not based on a CA MICS database component file.

8. Workarea VARIABLE 1

Description: The name of the variable to be assigned to the Workarea variable in positions 1-8.

Default: Blank

Values: Character, length 8

NOTE: This field is optional. If it is left blank, no assignment will be made. If the variable name is not contained in the CA MICS component or FDA file from which this journal file is derived, a warning message is displayed. No validation is done for external journal files not based on a CA MICS database component file.

9. Workarea VARIABLE 2

Description: The name of the variable to be assigned to the Workarea variable in positions 9-16.

Default: Blank

Values: Character, length 8

NOTE: This field is optional. If it is left blank, no assignment will be made. If the variable name is not contained in the CA MICS component or FDA file from which this journal file is derived, a warning message is displayed. No validation is done for external journal files not based on a CA MICS database component file.

10. SUBSYSID VARIABLE

Description: The name of the variable that contains the SUBSYSID value.

Default: Blank

Values: Character, length 8

NOTE: This field is optional. If it is left blank, *ALL is the only SUBSYSID value that may be used during Rate Table Algorithm Qualification. If the variable name is not contained in the CA MICS component or FDA file from which this journal file is derived, a warning message is displayed. No validation is done for external journal files not based on a CA MICS database component file.

If you change this variable, it is very important that you re-examine the SUBSYSID values in algorithm qualification and any SUBSYSID qualification groups used with this journal file. Failure to do so could result in lost charges.

A validation table may be entered for any SUBSYSID variable. This table will be used in the algorithm qualification and qualification groups panels to prevent invalid values from being entered. Invalid values could result in lost charges.

Validation tables have been delivered for default SUBSYSID variables wherever possible. These may be edited, and new ones created, by specifying YES in the "Edit validation table" field that follows the "SUBSYSID variable" field on the panel. Note that there is one validation table

per SUBSYSID variable per component. If two journal files in the same component use the same variable for SUBSYSID, they will also use the same validation table.

11. SUBTYPE VARIABLE

Description: The name of the variable that contains the Subtype value.

Default: Blank

Values: Character, length 8

NOTE: This field is optional. If it is left blank, *ALL is the only Subtype value that may be used during Rate Table Algorithm Qualification. If the variable name is not contained in the CA MICS component or FDA file from which this journal file is derived, a warning message is displayed. No validation is done for external journal files not based on a CA MICS database component file.

If you change this variable, it is very important that you re-examine the Subtype values in algorithm qualification and any Subtype qualification groups used with this journal file. Failure to do so could result in lost charges.

A validation table may be entered for any Subtype variable. This table will be used in the algorithm qualification and qualification groups panels to prevent invalid values from being entered. Invalid values could result in lost charges.

Validation tables have been delivered for default Subtype variables wherever possible. These may be edited, and new ones created, by specifying YES in the "Edit validation table" field that follows the "Subtype variable" field on the panel. Note that there is one validation table per Subtype variable per component. If two journal files in the same component use the same variable for Subtype, they will also use the same validation table.

12. SINGLE FILE DATA STEP

Description: Indicates whether this is the only journal file created in the CA MICS database component SAS data step.

Default: YES

Values: Character, length 3--For standard CA MICS journal files and external journal files, you cannot change this field. (This field is always set to YES for external journal files.)

For FDA journal files, enter YES if this journal file is the only journal file created in the user component SAS data step. Otherwise, enter NO to indicate that at least one other journal file is created.

13. PRIORITY CHARGING

Description: Indicates whether the priority charging can be used with the journal file.

Default: NO

Values: Character, length 3, YES or NO

14. PRIORITY VARIABLE

Description: The name of the variable that contains the priority value.

Default: Blank

Values: Character, length 8

NOTE: If this is not a priority charging file, leave this field blank. If the variable name is not contained in the CA MICS component or FDA file from which this journal file is derived, a warning message is displayed. No validation is done for external journal files not based on a CA MICS database component file.

15. PRIORITY FORMAT

Description: The name of the SAS PROC FORMAT that specifies the service factors for the priority values.

Default: Blank

Values: Character, length 8

NOTE: If this is not a priority charging file, leave this field blank. The charge for a work unit run at a particular priority is multiplied by the corresponding service factor. The service factors are specified in a data source component (for example, Batch and Operations Analyzer) parameter, and the PROC FORMAT is created by the component's PGEN job.

16. PRIORITY ID

Description: The character that will be used for the first position of the computation code. The rest of the computation code will contain the priority charged.

Default: Blank

Values: Character, length 1

NOTE: If this is not a priority charging file, leave this field blank.

4.13.2 Journal File Eligibility Example

The example in Figure 4-91 shows the specifications for the standard CA MICS journal file ACTJCS, the CICS Resource Journal File.

```

-----
+-----+
| Date: __/__/__           Administrator: _____ |
+-----+

Journal File ID           ==> ACTJCS
Journal File Description  ==> CICS Resource Jrnl File
Component ID             ==> CIC
Source Component File ID  ==> CSU
Source Component File Time-span==> DAYS   (DETAIL or DAYS)
Workunit Variable         ==> CICSID
Billing Timestamp Variable ==> STARTTS
Workarea Variable 1       ==>
Workarea Variable 2       ==> CICSID
Subsysid Variable        ==> CICSID
Subtype Variable         ==>
Single File Data Step     ==> YES       (YES/NO)

Priority charging          ==> NO       (YES/NO)
Priority variable ==> Priority format ==> Priority ID ==>
-----

```

Figure 4-91. Journal File Eligibility Example

4.14 Entering Budgets

You can enter budgets for cost centers using Option 2, Budgets, on the Application Database Data Entry menu (MMF;4;2;1;2). You select a cost center from the list shown to enter budgets for it or for cost centers below it in the hierarchy. The cost centers shown on the list are those that have been entered in the Cost Center Attributes File. Refer to the tutorial for the Budgets Cost Center Selection panel for information on how the Cost Center Identification Number affects the selection of cost centers for budgets.

Once you select a cost center, you enter budget amounts for each period of the year. You can enter multiple sets of budgets for each cost center by associating each set with an effective date.

TYPES OF BUDGETS

You can enter four types of budgets for each cost center:

- o Computation code budgets--Each computation code budget specifies the amount that can be spent for that computation code, and can be compared to its charges on invoices.
- o Unit budgets--Each unit budget specifies the amount of resources (such as CPU seconds) that can be consumed for that computation code, and can be compared to the units actually consumed on invoices.
- o Invoice category budgets--Each invoice category budget specifies the amount that can be spent for that invoice category, and can be compared to its charges on invoices.
- o Cost center budget--One cost center budget can be entered to specify the amount that can be spent for that cost center, and can be compared to its charges on invoices.

Most installations only use one type of budget, but you can use as many types as you need. If you use more than one type, the computation code budgets sum to the corresponding invoice category budget, and the invoice category budgets sum to the cost center budget.

For example, assume that the following budgets were entered for Department A:

Computation code budget for 0023 (Job TCB CPU Time): 1,000

Computation code budget for 0024 (Job SRB CPU Time): 500
Invoice category budget for 1100 (Central Processors): 750
Cost center budget: 1,500

Then, since computation codes 0023 and 0024 are in invoice category 1100, the total amount that could be spent for invoice category 1100 would be 2,250. And the total amount that could be spent for Department A would be 3,750.

CYCLE WHERE BUDGETS ARE ENTERED

Budgets are normally entered in the 00 cycle of the Budget File. They are moved to the 01 cycle by the month-end Close Tables (CLOSETBL) job based on the Budget Effective Date.

HOW LONG BUDGETS REMAIN IN EFFECT

A budget remains in effect until a budget with a more recent effective date is encountered, or until you delete it from the 01 cycle.

HOW BUDGETS EFFECTIVE DATES ARE USED

Budget effective dates are used at the end of each accounting period when the CLOSETBL job ages the budgets work (00) cycle to the active (01) cycle.

All budget entries with effective dates less than or equal to the current date (the date CLOSETBL is run) are copied to the active cycle. They replace any matching entries with earlier dates. CLOSETBL will not delete any work budget entries. Obsolete work entries should be deleted using the Budget data entry panels.

The budget entries for the accounting period being closed are copied from the active cycle into the new Financial Recap file created by the INVOICE or FINRECAP job. Budgets for other accounting periods are ignored.

BUDGET COMPARISON REPORTING

Budgets in the 01 cycle are compared to actual charges in the Consolidated Invoice and Budgetary Analysis Reports.

SPECIFYING THE BUDGET OVERRUN FUZZ VALUE

You can specify, on the General Installation Accounting Specifications panel (MWF;4;2;3;2;1), the amount by which a cost center's charges must exceed its budget for the cost center to be flagged as "over budget" on the invoice. Differences of less than the fuzz value between actual charges and the budget amount do not cause the "over budget" message to print.

The Budget Overrun Fuzz Value is a global default value. To override it for specific cost centers, select Option 1, Identification, on the Cost Center Attributes menu (MWF;4;2;1;1;1).

Figure 4-92 is the Budget Worksheet. Enter the budgets for each cost center on a copy of this worksheet.

Date: ____/____/____ Administrator: _____			
BUDGET WORKSHEET			
Cost Center Name _____ Cost Center Level _____			
Effective date _____ (MM/DD/YY)		Effective date _____ (MM/DD/YY)	
Budget Amount -----		Budget Amount -----	
JANUARY	-----	JANUARY	-----
FEBRUARY	-----	FEBRUARY	-----
MARCH	-----	MARCH	-----
APRIL	-----	APRIL	-----
MAY	-----	MAY	-----
JUNE	-----	JUNE	-----
JULY	-----	JULY	-----
AUGUST	-----	AUGUST	-----
SEPTEMBER	-----	SEPTEMBER	-----
OCTOBER	-----	OCTOBER	-----
NOVEMBER	-----	NOVEMBER	-----
DECEMBER	-----	DECEMBER	-----
USER-DEFINED MONTH	-----	USER-DEFINED MONTH	-----
USER-DEFINED MONTH	-----	USER-DEFINED MONTH	-----
TOTAL AMOUNT	-----	TOTAL AMOUNT	-----

Figure 4-92. Budget Worksheet
EXAMPLE

Figure 4-93 is an example of two budgets entered for the Mid-Atlantic Cost Center. The first budget is effective January 1, 1994; the second budget is effective January 1, 1995.

BUDGET WORKSHEET					
Cost Center Name MID-ATLANTIC			Cost Center Level 1		
Effective date	01/01/94	(MM/DD/YY)	Effective date	01/01/95	(MM/DD/YY)
	Budget Amount			Budget Amount	
	-----			-----	
JANUARY	\$2,000		JANUARY	\$2,100	
FEBRUARY	\$2,000		FEBRUARY	\$2,100	
MARCH	\$2,200		MARCH	\$2,300	
APRIL	\$2,200		APRIL	\$2,300	
MAY	\$2,200		MAY	\$2,300	
JUNE	\$2,000		JUNE	\$2,000	
JULY	\$2,000		JULY	\$2,000	
AUGUST	\$1,900		AUGUST	\$2,000	
SEPTEMBER	\$2,000		SEPTEMBER	\$2,100	
OCTOBER	\$2,100		OCTOBER	\$2,100	
NOVEMBER	\$2,100		NOVEMBER	\$2,100	
DECEMBER	\$2,000		DECEMBER	\$2,000	
TOTAL AMOUNT	\$24,700		TOTAL AMOUNT	\$25,400	

Figure 4-93. Budget Example

4.15 Defining and Submitting Utility Jobs

With CA MICS Accounting and Chargeback, you can enter certain types of data online using the ISPF dialogs and tables provided. These data types include debits, credits, budgets, cost center attributes, cost center groups, external file cost center lookup tables, cost center validation tables, charge element tables, and prorating tables.

If you have any of this data available in your own files, you may prefer to enter the data in batch instead of online, using your files as input. You can do this with the Define Utility Jobs and Submit Utility Jobs options.

CA MICS Accounting and Chargeback provides the following standard utilities. In addition, you can create your own.

- ADJ Debit and Credits
- BGT Budgets
- CCA Cost Center Attributes
- CCG Cost Center Groups
- CCL External File Cost Center Lookup Table
- CC1 Cost Center 1 Validation Table
(through)
- CC9 Cost Center 9 Validation Table
- PRO Prorating Table
- ELM Charge Element Table

THE ADJ UTILITY

The ADJ utility replaces all debits and credits in the online table and the Debit and Credit Files. It uses the macro %ACTJADJO to do this. This macro is invoked and documented in sharedprefix.MICS.SOURCE(ACTJADJO) and passed three arguments:

- FUNCTION=REPLACE to indicate that the entire contents of the table are replaced rather than updated.
- DBCR=BOTH to indicate that both debits and credits are to be entered.
- ENTRY=BOTH to indicate that both standard and recurring entries are to be made.

THE CCG UTILITY

The CCG utility only updates the ISPF table cost center groups that are contained in your specified input data set. No other groups are changed and the ISPF table is not replaced.

If you have validation tables for the cost center groups that you are updating, the values in your input data set are validated using the validation tables.

THE ELM UTILITY

The ELM utility is used to update charge element ISPF table with comma-separated value(CSV) input file. This utility allows users to add new user-defined computation codes in CSV file format.

STEPS TO DEFINE AND SUBMIT A CHARGE ELEMENT UTILITY JOB

- __ 1. Select the Define Utility Jobs panel (Option 3 on the Special Requirements Menu--MWF;4;2;S;3).

- o Select Job ID ELM 'CHARGE ELEMENT UPDATE TABLE' on the Utility Selection panel.
 - o Select Option 1 on the Options Menu to define Charge element utility by specifying the name of the CSV file.

The input variables to read the input CSV file should be in this order.

ELMCCODE - Computation Code
ELMICAT - Invoice Category
ELMXTRN - Complex-Level External File Element
(YES or NO)
ELMFILE - component file ID
ELMNAME - Element Name
ELMUNIT - Units Description
ELMDESC - Text describing the charging element

The input record layout is documented in sharedprefix.MICS.SOURCE(ACTJELMI).

- o Run the ACTUTILG job to generate the utility job(s) that you defined to sharedprefix.MICS.CNTL.

- __ 2. The charge element utility job will process the CSV

file using the DSD (Delimiter-Sensitive Data) parameter on the INFILE statement. This parameter automatically sets the default delimiter to comma, although the DLM(delimiter) can be overridden as a single character or as a hexadecimal value. Another common delimiter is the tab that is denoted by `dlim='09'x`. When a space character is used for the delimiter, enclose the fields in quotes. To override the delimiter character, update the DLM value in `sharedprefix.MICS.CNTL(ACTJELM0)` under the DDname `SYSIN`.

- o Submit the generated utility jobs called `ACTJELM0`, using the Submit Utility Jobs panel (Option 4 on the Special Requirements Menu, `MWF;4;2;S;4`).

OR

Submit `sharedprefix.MICS.CNTL(ACTJELM0)`.

The utility job does the following:

- o Reads the specified input CSV file using the `ACTJELMI` input routine.
- o Replaces the contents of the charge element ISPF table and corresponding SAS files or PROC FORMATS.

STEPS TO CREATE A UTILITY JOB

If you need to replace just debits or credits, or just standard or recurring entries, or if you want to add entries to the ISPF table rather than replace it, you can make your own utility and use the `%ACTJADJO` macro in your output routine.

- ___ 1. Select Option 3, Define Utility Jobs, on the Special Requirements Menu (`MWF;4;2;S;3`).
 - o Use the I line command to insert a new utility ID.
- ___ 2. Select Option 1 on the Options Menu and specify your input data set name on the Utility Control Specification panel.
 - o Enter `ACTXADJ` for the generation source member name. If you do not enter `ACTXADJ`, your utility will not generate the debit and credit SAS files in the

TABLES database.

- ___ 3. Select Option 2 on the Options Menu and code your input routine. You can copy an example from `sharedprefix.MICS.SOURCE(ACTJADJI)`.
- ___ 4. Select Option 3 on the Options Menu and copy your output routine from `sharedprefix.MICS.SOURCE(ACTJADJO)`. Modify the `%ACTJADJO` macro to specify what you want to do.

For example, if you want to replace all standard credit entries you would code:

```
%ACTJADJO(FUNCTION=REPLACE,DBCRC=C,ENTRY=S);
```

If you want to add standard and recurring debit entries you would code:

```
%ACTJADJO(FUNCTION=UPDATE,DBCRC=D,ENTRY=BOTH);
```

WARNING! You can only invoke this macro once per utility because it will read your entire input file.

- ___ 5. END from Utilities and submit the ACTUTILG job to generate your utility when prompted.

The following sections describe the parameters and SAS code that you need to define the utility jobs.

- 1 - Specifying Utility Job Control Characteristics
- 2 - Defining the Utility Job Input Routine
- 3 - Defining the Utility Job Processing Routine

4.15.1 Specifying Utility Job Control Characteristics

For each utility job, you must specify parameters to define such things as the input data set name and, optionally, the generator process name. Each one of the standard utility jobs has a unique verification panel associated with it. The panels provide you with a means to enter the parameters. You are prompted to submit generation jobs after the specifications are completed. For any new job, you can use one of the three standard verification panels or define a new unique panel.

The following sections describe the control parameters that are needed to make these utility jobs functional. If you do not need these utilities, skip these sections.

- 1 - Utility Job Control Specifications Worksheet
- 2 - Utility Job Control Specifications Example

4.15.1.1 Utility Job Control Specifications Worksheet

Figure 4-94 is the Utility Job Control Specifications Worksheet.

Job Identifier	Panel Identifier	External File Name	Unit Identifier	Generator Member
_____	_____	_____	_____	_____
Description ==>		_____		
Input Data Set ==>		_____		
_____	_____	_____	_____	_____
Description ==>		_____		
Input Data Set ==>		_____		
_____	_____	_____	_____	_____
Description ==>		_____		
Input Data Set ==>		_____		
_____	_____	_____	_____	_____
Description ==>		_____		
Input Data Set ==>		_____		

Figure 4-94. Utility Job Control Specifications Worksheet
Use the worksheet to define the following parameters:

1. JOB IDENTIFIER

Description: Three characters that are part of the utility job name. The job names are in the form ACTJjid0, where jid is the job identifier.

Default: None

Values: Character, length 3

Note: This entry must begin with a U or Z for the jobs you add.

2. PANEL IDENTIFIER

Description: Three characters that are part of the panel names used to verify the job information. The panel names are in the form ACTPpid, where pid is the panel identifier. These members are in the standard sharedprefix.MICS.ISPPLIB library. For new jobs, you can use one of our standard panel identifiers or code a new member into the ISPPLIB library, following the same naming convention.

Default: None

Values: Character, length 3, the last three positions of the CA MICS ISPPLIB member names. The three standard members in the ISPPLIB library are ACTPCPX, ACTPEXT, and ACTPUNT.

Note: The ACTPCPX panel is used for complex job information. The ACTPEXT panel is used for external file job information. The ACTPUNT panel is used for unit-level job information, but can also be used for complex jobs when the unit identifier is blank.

3. EXTERNAL FILE NAME

Description: This is optional. If the job performs functions associated with one of your defined external file names, provide the file name.

Default: None

Values: Character, length 6, any external file name defined in your external file definition

Note: The only standard utility job that requires an external file name is the CCL job identifier.

4. UNIT IDENTIFIER

Description: Specifies the identifier associated with a unit database. This identifier is optional.

Default: NO

Values: Character, length 2

Note: The only standard utility job that can use a unit identifier is the PRO job identifier. If a unit identifier is not used, then the PRO job updates the complex level ISPF prorate table.

5. GENERATOR PROCESS MEMBER

Description: The name of a SOURCE member that performs additional processing, such as generating SAS PROC FORMATS.

Default: None

Values: Character, length 8

6. DESCRIPTION

Description: Specifies a description for the utility job.

Default: None

Values: Character, length 44

7. INPUT DATA SET

Description: Specifies the name of the input data set.

Default: NO

Values: Character, length 44

4.15.1.2 Utility Job Control Specifications Example

The example in Figure 4-95 shows some of the standard jobs shipped with CA MICS Accounting and Chargeback. Sample data set names and a unit identifier have been entered. You can add your own jobs on this worksheet.

Job Identifier	Panel Identifier	External File Name	Unit Identifier	Generator Member
CCG_____	CPX____	_____	_____	CHRGROUP__
Description ==> Cost Center Group Table Update_____				
Input Data Set ==> CCGROUP.DATA_____				
CCL_____	EXT____	UMAIAM__	_____	EXTFILE__
Description ==> External File Cost Center Lookup Table Update_____				
Input Data Set ==> EXT.DATA_____				
PRO_____	UNT____	_____	C_____	ACTPRORT__
Description ==> Prorating Table Update_____				
Input Data Set ==> PRO.DATA_____				
ELM_____	CPX____	_____	_____	ACTCHBUT__
Description ==> Charge Element Table Update_____				
Input Data Set ==> CSV File_____				
_____	_____	_____	_____	_____
Description ==> _____				
Input Data Set ==> _____				

Figure 4-95. Utility Job Control Specifications Example

4.15.2 Defining the Utility Job Input Routine

For each utility job, you must provide SAS code to read your file. The input can be a SAS file or any type of OS file that can be read with SAS. The standard utility jobs require you to assign values to particular variables. Refer to the sample input routines shipped with the standard utility jobs for the names of these variables. The CA MICS Accounting and Chargeback panels use ISPF Edit to allow you to revise the input routine for each job. The names of the input routine members are in the form ACTJjidI, where jid is the job identifier.

The routine must be a valid SAS routine with no embedded DATA or PROC statements.

The following sections describe the input routines that are needed to make these utility jobs functional. If you do not need these utilities, skip these sections.

- 1 - Utility Job Input Routine Worksheet
- 2 - Utility Job Input Routine Example

4.15.2.1 Utility Job Input Routine Worksheet

Figure 4-96 is the Utility Job Input Routine Worksheet.

+-----+ Date: ____/____/____ Administrator: _____ +-----+	
UTILITY JOB INPUT ROUTINE WORKSHEET	
SAS Statements:	

Figure 4-96. Utility Job Input Routine Worksheet

4.15.2.2 Utility Job Input Routine Example

In the example in Figure 4-97, the value of PROOLD, PRONEW, and PROPER are read from the input file. The input file has the prorating information. If you want to create the ISPF/DM MAF\$PR table records, these are the three variables that must be read from the input. The following coding is an example of defining the input routine for the Prorating Table Update. The input in this example is an OS sequential file.

```
+-----+
|
|Date: ____/____/____      Administrator: _____|
+-----+

          UTILITY JOB INPUT ROUTINE EXAMPLE

SAS Statements:

          /*-----*/
          /** ENTER THE NECESSARY SAS CODING TO READ THE VARIABLES FROM YOUR **/
          /** INPUT FILE. THE THREE VARIABLES ARE TO BE CALLED 'PROOLD', **/
          /** 'PRONEW' AND 'PROPER'. THE 'PROPER' IS THE PRORATE PERCENTAGE.**/
          /** THE PERCENTAGE CANNOT EXCEED 100. THE TOTAL OF THE PERCENTAGE **/
          /** FOR ANY 'PROOLD' MUST BE 100 PERCENT. A MAXIMUM OF 4 DECIMAL **/
          /** POSITIONS CAN BE READ INTO THE PERCENTAGE FIELD(IE. 50.1111). **/
          /** SAMPLE CODING IS SHOWN AFTER THE NEXT LINE. **/
          /**-----*/
          INFILE INPUTACT MISSEVER LS=80 COLUMN=COLUMN END=ENDIT;
          INPUT INDATA $ 1-80 +BACK80 @;
          PUT INDATA;
          IF INDATA =: '*' OR INDATA =: '/' OR INDATA=:BLANKS THEN RETURN;
          INPUT PROOLD : $ PRONEW : $ PROPER : 4.;
```

Figure 4-97. Utility Job Input Routine Example

4.15.3 Defining the Utility Job Processing Routine

For each standard utility job, there is a standard processing routine to verify selected fields of the input data and then update the associated ISPF/DM table. You do not need to modify any of the standard processing routines.

You do need to code a processing routine for a new utility, however. These processing routines are named ACTJjid0, where jid is the job identifier. They are kept in the sharedprefix.MICS.SOURCE library. Use the Edit the SAS Processing Routine option (MWF;4;2;S;3;3) to code the processing routine.

The following sections describe the processing routines used to make these utility jobs functional. If you are not adding a new utility, skip these sections.

- 1 - Utility Job Processing Routine Worksheet
- 2 - Utility Job Processing Routine Example
- 3 - Accounting Table Maintenance Utility

4.15.3.1 Utility Job Processing Routine Worksheet

Figure 4-98 is the Utility Job Processing Routine Worksheet.

Date: ____/____/____	Administrator: _____

UTILITY JOB PROCESSING ROUTINE WORKSHEET

SAS Statements:

Figure 4-98. Utility Job Processing Routine Worksheet

4.15.3.2 Utility Job Processing Routine Example

The example shown in Figure 4-99 verifies the prorate percentage, checks to ensure that all of the PROOLD percentages total 100, and writes records to the MAF\$PRu, where u is unit identifier. If the unit identifier is not provided, the MAF\$PR table is updated for complex level prorating. This routine includes the ACTJPROI member that contains the input routine SAS coding.

```
+-----+
|
|Date: ____/____/____      Administrator: _____|
+-----+

          UTILITY JOB PROCESSING ROUTINE EXAMPLE

SAS Statements:

%INCLUDE SOURCE(#BASMSTR);
/*-----*/
/** ENTER THE NECESSARY SAS CODING TO PROCESS YOUR INPUT FILE. THE **/
/** FUNCTION OF THIS UTILITY PROGRAM IS USER DEFINED.  THE PROCESS **/
/** IN THIS PROGRAM, IF THE SAME CONCEPT IS USED AS SHOWN IN THE **/
/** OTHER UTILITIES, IS TO READ AN INPUT FILE AND CREATE OR UPDATE **/
/** AN ISPF/DM TABLE. REVIEW THE CODING IN THE UTILITY MEMBERS THAT**/
/** ARE SHIPPED WITH THE PRODUCT FOR FURTHER INFORMATION.          **/
/*****/

/* ISPF/DM TABLE UPDATE FOR PRORATING */
DATA INFILE;
RETAIN BACK80 -80 BLANKS ' ';
%PROROOT;
/* USER CODED INPUT ROUTINE FOLLOWS */
%INCLUDE SOURCE(ACTJPROI);
PROOLD = UPCASE(PROOLD);
PRONEW = UPCASE(PRONEW);
IF PROOLD =: 'NOPRO' THEN DO;
  PROPER = 100.0;
  PRONEW = 'NOPRORATE';
END;
IF ((PROPER>=0) AND (PROPER<=100.0)) THEN;
ELSE DO;
  CALL MICSLOG ('ACT2238');
  ABORT ABEND 998;
END;
/* Code continues in SOURCE(ACTJPRO0) member */
+-----+
```

Figure 4-99. Utility Job Processing Routine Example

4.15.3.3 Accounting Table Maintenance Utility

This Accounting Table utility is used to apply maintenance to the following production accounting ISPF tables:

- o Invoice categories table
- o Credit categories table
- o Charging elements table
- o Journal files table
- o Menu item table

The utility supports the following functions:

- 1) add - allows for the adding of new rows to the specified table. If the row to be added already exists in the table then the add function can be requested to perform the add with a rename option. This will result in the row being added under a new name.
- 2) modify - allows for the verify and update of existing rows in the specified table. The verification consists of specification of a field in the row to be updated and its corresponding value. If the row does contain the specified field and if the value is correct, then the verified value is replaced with the corresponding value from the master version of the specified table. If the verification fails, a force option can be specified which results in the update being performed without the verification check.

The utility performs the above two functions based on a control file. The control file is comprised of the following statements:

- o \$TABLE - specifies the names of the tables to be updated. Up to five tables can be specified. The statement has the following format:

```
$TABLE table_name1 table_name2 ...
```

where,

table_name is the name of the table to be updated.

Valid table names are:

MAF\$INVC - Invoice categories table

MAF\$CRED - Credit categories table
MAF\$ELEM - Charging elements table
MAF\$JOUR - Journal files table
MAF\$STP - Menu item table

- o \$ADDLN - specifies the table and the name of a row to be added. The row to be added is specified by giving the name and the value of the control variable for the row. The statement has the following format:

```
$ADDLN table_name cntl_var value rename new_value
```

where,

table_name is the name of the table to be updated and must have been specified on the preceding \$table statement.

cntl_var is the name of the control variable for the row to be added.

value is the value of the control variable for the row to be added.

rename indicates that the row is to be added with a new value for the control variable if the original row to be added already exists.

new_value is the value to be used for the control variable in the event a rename is required.

- o \$MODLN - specifies the table and the name of a row to be updated. The row to be updated is specified by giving the name and the value of the control variable for the row. The statement has the following format:

```
$modln table_name cntl_var value ver_var ver_value force
```

where,

table_name is the name of the table to be updated and must have been specified on the preceding \$table statement.

cntl_var is the name of the control variable for the row to be updated.

value is the value of the control variable for the

row to be updated.

ver_var	is the name of a variable in the specified row to be used to verify the state of the row prior to update.
ver_value	is the value of the verify variable. the value of the verify variable in the specified row must match this value in order for the update to be performed.
force	indicates that the row is to be updated even if the verification fails.

Within the scope of a \$table statement no tables are actually updated until all statements are processed. Because a single \$table statement can specify all accounting tables, this utility provides a method for ensuring that no table is updated unless all modifications are successful.

If there is an error, the job does not update any tables. You must correct the error by choosing one of the following options and rerun the ACTnnnnA job:

- o Place an asterisk (*) in column 1 of the control statement in the ACTnnnnA job that is causing the conflict. Any statement that has an asterisk (*) in column 1 is ignored.

If you choose this option, the item will not be added, and you will not be able to use it.

- o Using the CA MICS Workstation Facility Accounting and Chargeback panels, rename or delete the item that is causing the conflict.

It may be necessary to revise your rate table if you are using user-defined computation codes in a rate table. User-defined computation codes should be in the 8000-9999 range.

- o Change the identifier (computation code, invoice, or credit category) for the item being added in the ACTnnnnA control statements.

For example, to change computation code 1870, add RENAME nnnn to the end of the \$ADDLN statement for ELMCCODE 1870, where nnnn is the computation code that you wish to use. User-added computation codes should

be in the 8000-9999 range. An example follows:

```
$ADDLN ELMCCODE 1870 RENAME nnnn
```

After you have resolved the conflicts and resubmitted the ACTnnnnA job, examine the ISPL0G and MICSL0G for error messages. Ensure that the job completes with a condition code of zero.

4.16 Modifying Menus

You can use the Menu Modification option (MWF;4;2;S;1) to add your own jobs to CA MICS Accounting and Chargeback menus.

The main purpose of modifying menus is to add an installation's own month-end jobs or reports to the appropriate menus. If you do not need to modify any menus, you can skip these sections.

STEPS TO MODIFY A MENU

Complete the checklist below to modify a menu:

- 1. Select Option S, Special Requirements, from the Installation Accounting Primary Options Menu to display the Special Requirements Menu, and select Option 1, Menu Modification. The Menu Item Selection panel will be displayed.

The Menu Item Selection panel presents a scrollable list of menu items. The menu to which each item belongs is indicated by the Type column. The Option number for the item is indicated by the Number column. The types are:

- C - Month End Complex Level Reports
- E - Enterprise IS Financial Management
- I - Invoicing
- J - Month End Close Out Jobs
- L - Process Control
- M - IS Financial Management
- P - Parameter Specification and Generation
- R - Rate Tracking
- T - Client Support
- U - Month End Unit Level Reports
- Y - Year End Processing

Use the Insert line command to add an item to a menu. The Menu Item Specifications panel will be displayed. In most cases, leave the Logic field blank and specify YES for the Edit field to indicate that selection of the new menu option will place the user into ISPF Edit of the partitioned data set member containing the job to be run.

- 2. Create the JCL for the job just added to the menu in either the sharedprefix.MICS.CNTL library or the

prefix.MICS.CNTL library.

NOTE: You do not have to run a generation job after modifying a menu.

The following sections describe the specifications needed for

- 1 - Menu Modification Worksheet
- 2 - Menu Modification Example

4.16.1 Menu Modification Worksheet

Figure 4-100 is the Menu Modification Worksheet.

Date: ____/____/____ Administrator: _____ MENU MODIFICATION WORKSHEET Type _ Number __ Title _____ Description _____ Logic _____ OR Edit? _____ Data Set _____ (CNTL, SORC, or PARM) Member _____ Level _____ Edit Title _____ Help Panel Name _____			

Figure 4-100. Menu Modification Worksheet

Use the worksheet to define the following parameters:

1. TYPE

Description: The menu type identifier.

Default: None

Values: Character, length 1. The types are:

C	Complex Level Reports Menu
E	Enterprise IS Financial Management Menu
I	Invoicing Menu
J	Month End Close Out Jobs Menu
L	Process Control Menu
M	IS Financial Management Menu
P	Parameter Specifications Menu
R	Rate Tracking Menu
T	Client Support Menu
U	Month End Unit Level Reports Menu
Y	Year End Processing Menu

2. NUMBER

Description: The menu selection option number for the new item.

Default: None

Values: Numeric, length 2. User-added items must have numbers in the range 50-99 to avoid conflict with standard CA MICS Accounting and Chargeback items.

NOTE: This number appears on the menu to the left of the item title and is used to select the item from the menu.

3. TITLE

Description: The title of the menu item.

Default: None

Values: Character, length 61

NOTE: This title appears on the menu.

4. DESCRIPTION

Description: The description of the menu item.

Default: None

Values: Character, length 61

NOTE: This description appears on the menu below the item number and title line.

5. LOGIC

Description: The ISPF logic to be performed when the menu item is selected.

Default: Blank

Values: Character, length 61. It must contain valid ISPF Dialog Management Service commands coded in CAs' Dialog Assist syntax.

NOTE: This field is used only if the selection of the menu item does not invoke ISPF Edit of a library member. It will normally be blank for user-added items. Consult CA Technical Support if you need to code this field.

6. EDIT

Description: Indicates whether the selection of the menu item will invoke ISPF Edit of a library member.

Default: YES

Values: Character, length 3, YES or NO

NOTE: When Edit is YES, no additional information is needed to invoke the menu item, so the logic field (see item 5 above) must be left blank. When this field is NO, you must code the logic field.

7. DATA SET

Description: The type of CA MICS data set to be edited: Control, Source, or Parameter.

Default: None

Values: Character, length 4, CNTL, SORC, or PARM

NOTE: If the Edit field (see item 6 above) is NO, leave this field blank. When the menu item is selected, you will be placed into ISPF Edit of the CA MICS library specified by this field.

8. MEMBER NAME

Description: The member name to be edited.

Default: Blank

Values: Character, length 8. User member names should begin with UACT to avoid conflict with standard CA MICS members.

NOTE: If the Edit field (see item 6 above) is NO, leave this field blank. If the Edit field is YES, it is your responsibility to create this member and place it in the appropriate library.

9. LEVEL

Description: The level, complex or unit, of the data set to be edited.

Default: Blank

Values: Character, length 1, X for Complex or U for Unit

NOTE: If the Edit field (see item 6 above) is NO, leave this field blank.

10. EDIT TITLE

Description: The title to be placed on the Edit panel under the command line.

Default: Blank

Values: Character, length 64

NOTE: If the Edit field (see item 6 above) is YES, this field is optional. If the Edit field is NO, you must leave this field blank.

11. HELP PANEL

Description: The name of the HELP panel associated with the edit.

Default: Blank

Values: Character, length 8. To avoid conflict with standard CA MICS members, the panel name should begin with UACT.

NOTE: This field is optional if the Edit field (see item 6 above) is YES; otherwise, leave it blank. It is your responsibility to create this panel and place it in the sharedprefix.MICS.ISPHLIB library.

4.16.2 Menu Modification Example

In the example in Figure 4-101, the installation wants to submit its own general ledger report from the CA MICS Accounting and Chargeback Complex Level Reports menu. The JCL to run the report is member UACTGLGR in the sharedprefix.MICS.CNTL library. No Help panel will be created.

```
-----  
  
+-----+  
| Date: __/__/__      Administrator: _____ |  
+-----+  
  
Type C      Number 50  
  
Title  General Ledger Report_____  
  
Description  
  
Print general ledger information for last month_____  
  
Logic  _____  
  
Edit YES      Data set CNTL      Member UACTGLGR      Level X  
  
Edit Title  Submit the General Ledger Report_____  
  
Help Panel  _____  
  
-----
```

Figure 4-101. Menu Modification Example

4.17 Activating/Deactivating the ACTYEAR4 element.

ACTYEAR4 is the four digit accounting year. This element is available for client reporting purposes only and is not a sequence / summary element in any of the accounting files. It is entirely the option of each CA MICS site as to whether to activate the element. Activating this element does not require the file(s) to be retrofitted.

The files in which the ACTYEAR4 can be activated in are:

FILE(s): ACTJff - Accounting Journal Files
 ACTLGR - Consolidated Ledger File
 ACTSDT - Debit File
 ACTSCT - Credit File
 ACT_SC - Multi-Site Credit File
 ACTBGT - Budget File
 ACTRCP - Financial Recap File
 ACT_RC - Multi-Site Financial Recap File
 ACT_YR - YTD Financial Recap File
 ACT_RR - Repeat YTD Financial Recap File
 ACT_YT - Multi-Site YTD Financial Recap
 ACT_RT - Repeat Multi-Site YTD Financial Recap

This section contains the following checklists:

- 1 - Activating the ACTYEAR4 Element
- 2 - Deactivating the ACTYEAR4 Element

4.17.1 Activating the ACTYEAR4 element.

Activating ACTYEAR4 requires making edits to NAME statements in the AJFGENIN and/or ACTGENIN members of sharedprefix.MICS.GENLIB.

Refer to Section 4.2.4.3.3 of the CA MICS System Modification Guide for more information on the structure of the NAME statement.

___ 1. To activate ACTYEAR4 in a journal file:

Edit the AJFGENIN member in sharedprefix.MICS.GENLIB.
Locate the NAME statement for the ACTYEAR4 element.

Activate ACTYEAR4 by changing the NAME statement
from:

```
NAME ACTYEAR4 99 N N N N N .
```

to:

```
NAME ACTYEAR4 99 0 N N N N .
```

___ 2. To activate ACTYEAR4 in a ledger file:

Edit the ACTGENIN member in sharedprefix.MICS.GENLIB.
Locate the NAME statement for the ACTYEAR4 element in
the ledger file.

Activate ACTYEAR4 by changing the NAME statement
from:

```
NAME ACTYEAR4 99 N N N N N .
```

to:

```
NAME ACTYEAR4 99 N 0 N 0 N .
```

___ 3. To activate ACTYEAR4 in any of the
sharedprefix.MICS.TABLES files ACTRCP, ACT_YR,
ACTSCT, ACTSDT, ACTBGT, ACT_RR, ACT_RC, ACT_YT,
ACT_SC, ACT_RT:

Edit the ACTGENIN member in sharedprefix.MICS.GENLIB.
For each file in which you wish to activate the
element, locate the NAME statement for the ACTYEAR4
element.

Activate ACTYEAR4 by changing the NAME statement
from:

```
NAME ACTYEAR4 99 N N N N N .
```

to:

```
NAME ACTYEAR4 99 0 N N N N .
```

- ___ 4. Submit sharedprefix.MICS.CNTL(ACTCGEN). Ensure that the job terminates with a RC=0 and that there are no error messages in either ISPL0G nor in the CA MICS Log.
- ___ 5. If you activated ACTYEAR4 in the journal file(s), submit prefix.MICS.CNTL(MAGRUN) in each unit that contains CA MICS Accounting and Chargeback. Ensure that the job terminates with a RC=0 and that there are no error messages in the CA MICS Log.

4.17.2 Deactivating the ACTYEAR4 element.

Deactivating ACTYEAR4 requires making edits to NAME statements in the AJFGENIN and/or ACTGENIN members of sharedprefix.MICS.GENLIB.

Refer to Section 4.2.4.3.3 of the CA MICS System Modification Guide for more information on the structure of the NAME statement.

- ___ 1. To deactivate ACTYEAR4 in a journal file:

Edit the AJFGENIN member in sharedprefix.MICS.GENLIB.
Locate the NAME statement for the ACTYEAR4 element.

Deactivate ACTYEAR4 by changing the NAME statement
from:

```
NAME ACTYEAR4 99 0 N N N N .
```

to:

```
NAME ACTYEAR4 99 N N N N N .
```

- ___ 2. To deactivate ACTYEAR4 in a ledger file:

Edit the ACTGENIN member in sharedprefix.MICS.GENLIB.
Locate the NAME statement for the ACTYEAR4 element in
the ledger file.

Deactivate ACTYEAR4 by changing the NAME statement
from:

```
NAME ACTYEAR4 99 N 0 N 0 N .
```

to:

```
NAME ACTYEAR4 99 N N N N N .
```

- ___ 3. To deactivate ACTYEAR4 in any of the
sharedprefix.MICS.TABLES files ACTRCP, ACT_YR,
ACTSCT, ACTSDT, ACTBGT, ACT_RR, ACT_RC, ACT_YT,
ACT_SC, ACT_RT:

Edit the ACTGENIN member in sharedprefix.MICS.GENLIB.
For each file in which you wish to deactivate the
element, locate the NAME statement for the ACTYEAR4
element.

Deactivate ACTYEAR4 by changing the NAME statement
from:

```
NAME ACTYEAR4 99 0 N N N N .
```

to:

```
NAME ACTYEAR4 99 N N N N N .
```

- ___ 4. Submit sharedprefix.MICS.CNTL(ACTCGEN). Ensure that the job terminates with a RC=0 and that there are no error messages in either ISPL0G nor in the CA MICS Log.
- ___ 5. If you deactivated ACTYEAR4 in the journal file(s), submit prefix.MICS.CNTL(MAGRUN) in each unit that contains CA MICS Accounting and Chargeback. Ensure that the job terminates with a RC=0 and that there are no error messages in the CA MICS Log.

Chapter 5: PROCESSING

Accounting and Chargeback's standard processing encompasses all of the steps necessary to compute charges from the information managed by CA MICS products. This includes all of the CA MICS products' daily update steps, Accounting and Chargeback's daily and monthly update steps, any processing required for manual adjustments (credits and debits), and production of the invoice reports.

Standard processing does not include any of the processing steps required by Accounting and Chargeback options such as prorating and zero-balancing. These processes are discussed in Chapter 4, Customization.

HOW UNIT-LEVEL LIBRARIES ARE ALLOCATED FOR COMPLEX-LEVEL ACCOUNTING JOBS

Some information, such as the number of file cycles retained, is stored at the unit level. This means that complex level jobs sometimes need to allocate unit level libraries containing Accounting and Chargeback. The following discussion explains how a unit is allocated.

The search order used to allocate unit-level libraries for complex level accounting jobs such as CLOSETBL and INVOICE is determined by the logic in the MNACTCOM routine.

Unit-level libraries are allocated in the following order:

DBType	Unit ID (if ACT installed)
-----	-----
1. PRIMARY	any
2. UNIT	A-Z then 0-9 (in ascending order)
3. SPECIAL	A-Z then 0-9 (in ascending order)
4. TEST	A-Z then 0-9 (in ascending order)

This means that the primary unit is used if it contains Accounting and Chargeback. Otherwise, the first standard unit (in alphanumeric order by unit ID) that contains Accounting and Chargeback is used.

The following sections describe the standard Accounting and Chargeback processes and has checklists to aid you in planning, scheduling, and tracking accounting processing.

- 1 - Running Daily Processes
- 2 - Running Monthly Processes
- 3 - Running Yearly Processes
- 4 - Producing Audit Reports
- 5 - Recovering from Processing Problems

This section contains the following topics:

- [5.1 Running Daily Processes](#) (see page 521)
- [5.2 Running Monthly Processes](#) (see page 527)
- [5.3 Running Yearly Processes](#) (see page 538)
- [5.4 Producing Audit Reports](#) (see page 541)
- [5.5 Recovering from Processing Problems](#) (see page 543)

5.1 Running Daily Processes

CA MICS Accounting and Chargeback daily processing starts with the daily update for the first CA MICS product in the unit for which accounting has been activated. It ends with the DAY199 step after the month-to-date ledger, audit, and journal run status files have been written. The processing spans several product update steps.

Although you do not usually run external journal file update jobs, much of this section also applies to them because they are processed like standard journal files except that the data source is read in by the external file processing routine instead of a CA MICS product format routine.

DATA FLOW

The generated accounting algorithm selects specific data elements and their associated rates for accounting. The algorithm is generated on a CA MICS product file-by-file basis as a part of the installation process. When the algorithm is invoked, it creates an accounting journal file. To avoid passing the input data twice, the journal file is created concurrently with the CA MICS product file. The major steps in the data flow are as follows:

1. The raw data source (for example, SMF or the monitor log file) is read by the product format routine (DYccccFMT).
2. The format routine performs date range checking on an input record-by-record basis utilizing the time stamp information retained in the unit's Checkpoint data set. This checking ensures that data that was previously input cannot inadvertently update the database again.
3. Data element range checking is performed on specific data elements where the maximum and/or minimum allowable values are known to ensure their validity. Invalid values are changed to missing values.
4. The generated accounting algorithm (#ACTXfff) is activated by a file-specific exit just prior to the output of the CA MICS product. The algorithm outputs a journal file observation for each CA MICS product file observation that meets the algorithm qualification criteria specified in the Rate Table. No observation

is output for work units when all quantities charged are less than or equal to zero or when all rates are missing.

5. When the last CA MICS product update step for the unit has completed, the CA MICS Accounting and Chargeback daily update step (DAY199) is initiated. This step completes the daily accounting processing as follows:
 - o The contents of each journal file is written to the month-to-date audit file (DAY1). A second copy of this file (DAY2) is made to allow the to-date file to be restored in the event of a failure during the DAY199 step processing.

Refer to Sections 7.4.1 through 7.4.3 for more information on the DAY1 and DAY2 audit files. Refer to Section 5.4, Producing Audit Reports, for instructions on printing the unit level audit report.

- o The journal files are combined and summarized to a single ledger file in the DAYS timespan of the unit. The ledger file retains cost center information but loses the identification of the individual unit of work (job, session, etc.).
- o The DAYS timespan ledger file is further summarized into a month-to-date file in the MONTHS timespan.
- o The Journal Run Status Log File is updated.

OBJECTIVE

The accounting administrator's objective for daily processing is to ensure the data is valid and complete. This consists of:

- o Confirming the accounting daily update process completed normally.
- o Reviewing the Journal Run Status Log (MWF;4;2;4;5;1;1) to ensure that all expected journal files were created and that the charges for each are within reason.
- o Reviewing the Daily Charges Summary Report produced from the Accounting Administration Process Control menu, (MWF;4;2;4;5;1;3), or from JCL prefix.MICS.CNTL(BGTCNTL)

member for the target trial balance amounts established by your organization.

- o Checking that no unusual amounts of data were deleted for content or format reasons, such as short records, out of date range, or invalid data.

Rapidly identifying problems with the input data reduces the amount of time spent in reprocessing and adjustments.

HOW TO IDENTIFY PROBLEMS

Use the Journal Run Status Logs to identify the journal files created by the daily run and review the total billable, non-billable, and unidentified charges in each one. For more detailed information, select each journal file created and review the charges by bill date, SYSID, APU, and computation code. A quick way to spot charging element problems is to use the SHOW command to display all records with 0 charges:
SHOW 8 \$0.0000

Use the Daily Charges Summary Report to review the charges by customer (COSTCTR1) and invoice category.

The CA MICS administrator should resolve problems with data volume or content.

Figure 5-1 is a diagram of the daily update flow.

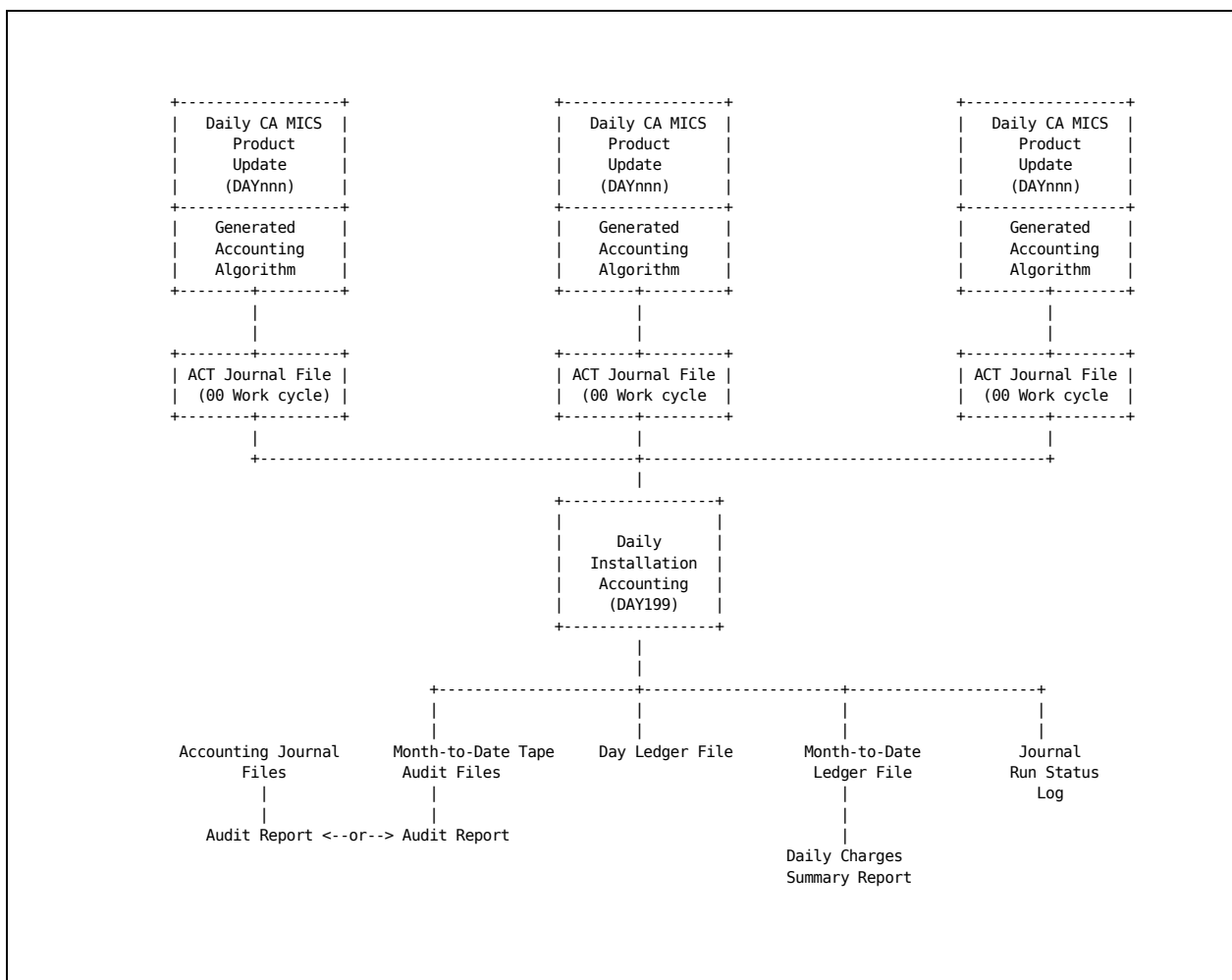


Figure 5-1. Daily Accounting System Flow
DAILY PROCESSING CHECKLIST

Follow this checklist to ensure that standard daily processing was successful.

- ___ 1. Ensure that the daily update ended normally. If the DAILY job abends, refer to Section 5.5, Recovering From Processing Problems, for instructions on restoring the database.

```
+-----+
| Reference(s): Section 4.2.5 in the CA MICS      |
| Planning, Installation, Operation and Maintenance |
| Guide                                           |
+-----+
```

- ___ 2. Review the Journal Run Status Log and the Daily Charges Summary Report to verify the results of the daily processing. You may also want to use Daily IS Revenue Analysis to verify that the journal entries for the previous day are consistent with the normal processing volume.

Review the Journal Run Status Log, Option 5;1;1 on the Enterprise IS Financial Reporting Menu.

The Daily Charges Summary Report can be produced by selecting Option 5;1;3 on the Enterprise IS Financial Reporting Menu or by entering the following TSO command:

```
SUB 'prefix.MICS.CNTL(BGTCNTL)'
```

- ___ 3. You do not have to run the update job for external journal files on a daily basis. However, when you run it, review the Journal Run Status Log and the Daily Charges Summary Report, as described in Step 2, to verify the processing results.
- ___ 4. At any time during the month you may need to review the entries within the Application Database files (for example, Debits and Credits). You can create the reports in Sections 6.5.1.5.1 through 6.5.1.5.5 by selecting Option 5;1;5 from the Enterprise IS Financial Reporting Menu or by entering the following TSO command:

SUB 'sharedprefix.MICS.CNTL(PRINTTBL)'

5.2 Running Monthly Processes

The month-to-date Ledger file is split during CA MICS monthly processing. CA MICS Accounting and Chargeback Option processing closes the Debit, Credit, and Budget files, creates the Financial Recap file, and produces the invoice.

DATA FLOW

The monthly split and aging of the Ledger files is accomplished in the MONTH199 step of the MONTHLY job. However, if the Special Accounting Dates feature has been activated and your month boundaries differ from standard boundaries, you must run the MONTHACT job to split the Ledger files. Once the monthly update for all database units has completed successfully and the Debit, Credit, and Budget files have been closed with the CLOSETBL job, you can run the INVOICE job to create the Financial Recap file and produce the invoice. The major steps are as follows:

1. Following the end of the month, run the MONTHLY and, optionally, the ACTMONTH update job for each unit independently. The current month is compared to the month values of each observation in the month-to-date Ledger file. All observations with month values lower than the current month are written to the 01 (month just completed) cycle. The remainder of the data is written to the new month-to-date cycle. Aging is based on the MONTH variable unless the Special Accounting Dates feature has been activated, in which case it is based on the ACTMONTH variable. The job also splits the DAY1 audit file in the same way that the month-to-date Ledger file is split. Observations for prior months are written to a new generation of the MONTHS audit file; all other observations are written to a new generation of the DAY1 file and a new DAY2 backup file is created.
2. Make all manual adjustments to the data, including both standard and recurring credits and debits.
3. Capture any complex-level external file input by running the complex-level external interface job(s). (See Section 4.4.)
4. If you are charging for external files at the unit level, make sure you have created your external journal files (MWF;4;2;2;1;1).

5. Close the application database for the month by submitting the Close Application database files (CLOSETBL) job (MWF;4;2;2;1;2).

The Debit, Credit, and Budget files are split from the 00 to the 01 versions. See Section 4.14, Entering Budgets, for information on how effective dates are used to split the budget files.

The Financial Recap file is aged from the 01 to the 02 version during this job. The new 01 version of the Financial Recap file is created during invoice processing by the INVOICE or the FINRECAP job, as described in Step 6.

A new generation of the complex level audit file is cataloged.

6. Create the Financial Recap file. You would normally use the INVOICE job, which also produces an invoice, to create this file. However, you can also use the FINRECAP job to create the Financial Recap file without producing an invoice (MWF;4;2;2;1;6).

NOTE: Any discounts and/or zero balance adjustments are computed when the Financial Recap file is created either by the INVOICE or the FINRECAP job.

This step updates the optional complex-level audit file if you have the ACCTMGDG keyword set to any value other than zero. See Sections 7.4.1 through 7.4.3 for more information on the complex-level audit files. See Section 5.4, Producing Audit Reports, for instructions on printing the complex-level audit report.

7. Produce the invoice and financial reports.
8. If you are using multi-site accounting, create central site or remote site files and run the Multi-Site Accounting Invoice job (MWF;4;2;2;4).

OBJECTIVES

The accounting administrator's objectives for monthly processing are to ensure the data is valid and complete and to schedule the manual portions of the monthly process. This

consists of the following:

- o Confirming that the accounting monthly update completed for each unit in which CA MICS Accounting and Chargeback Option is installed
- o Ensuring that all manual adjustments are made
- o Submitting any external file update jobs
- o Submitting the Close Application database files job (CLOSETBL)
- o Creating the Financial Recap file and producing the invoice (MWF;4;2;2;1)

CONSIDERATIONS

You can run the complex-level external file interface jobs any time during the month, but be careful if you run them multiple times because there are no duplicate-data-checking capabilities. All of the data present in the complex-level external file is added to the 00 cycle of the Debit file each time these jobs are run.

You can run the CLOSETBL job only once during an accounting period because it ages the files in the application database.

The Consolidated Invoice job (INVOICE) creates the Financial Recap file and produces the invoice. You can run this job multiple times if necessary. You can use the INVOICER job to rerun the invoice without recreating the Financial Recap file. Sites that do not use the Consolidated Invoice can run the FINRECAP job to create the Financial Recap file without producing the invoice.

If you run the INVOICE or FINRECAP job before running the MONTH199 or MONTHACT job, performing ledger file prorating, and running the CLOSETBL job, the INVOICE or FINRECAP job will abend with a MICSLOG message. You can force the INVOICE or FINRECAP job to run by coding FORCE in the SYSPARM.

Figure 5-2 is a diagram of the monthly update flow.

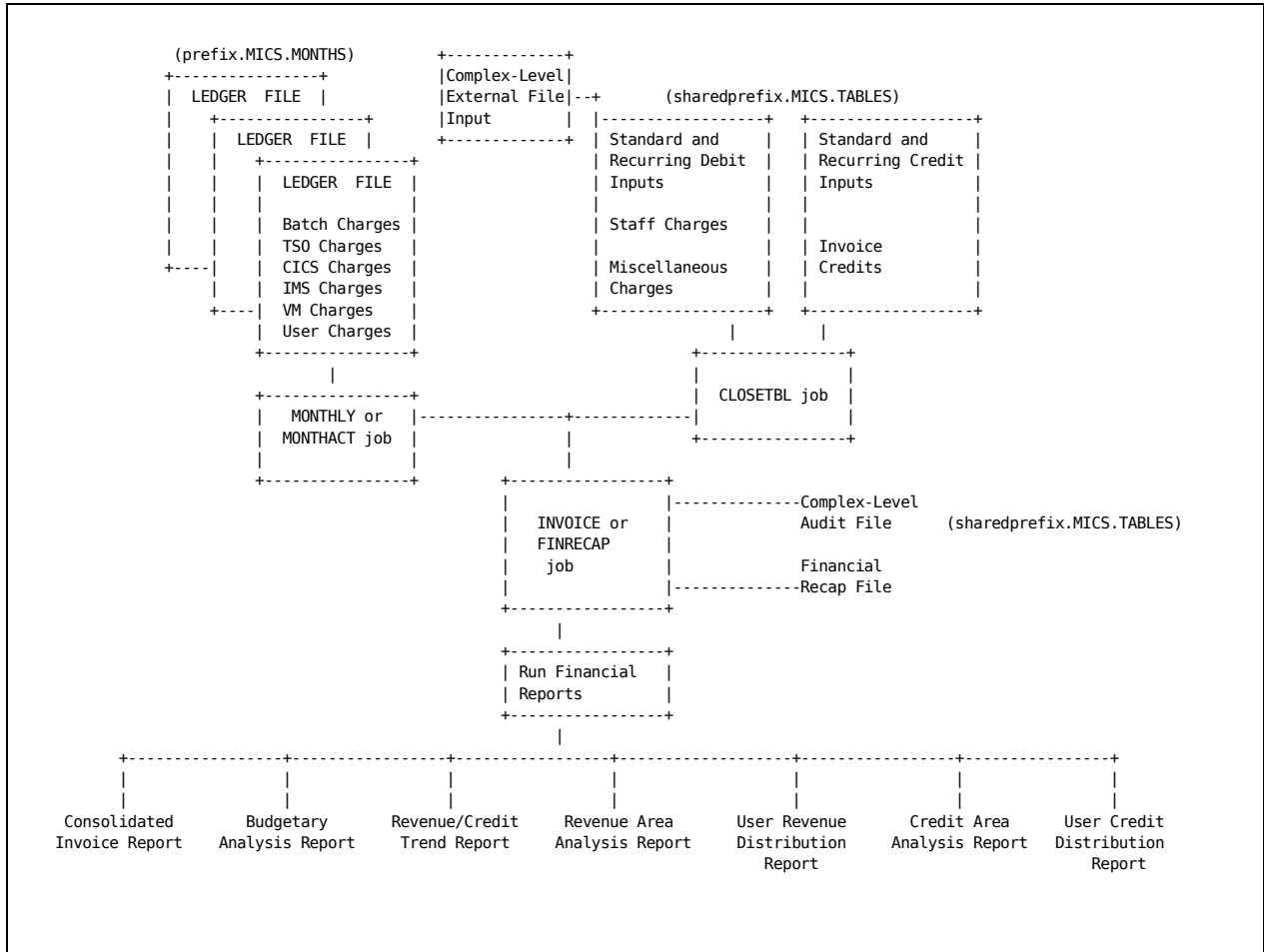


Figure 5-2. Monthly Accounting System Flow
MONTHLY PROCESSING CHECKLIST

Follow this checklist to ensure that standard monthly processing was successful.

1. Ensure that all external journal file update jobs have been submitted by selecting option 2;1;1 on the Installation Accounting Primary Options menu or by entering the following TSO command:

```
SUB 'prefix.MICS.CNTL(ACTfffTB)'
```

where fff is the last three characters of the external file name.

2. Ensure that the monthly update completed successfully for all databases in which CA MICS Accounting and Chargeback Option is installed. This is normally accomplished by the monthly job that is submitted by the CA MICS System Administrator.

If you activated the Special Accounting Dates feature, and your accounting calendar months do not have the same boundaries as the CA MICS months:

- o Submit prefix.MICS.CNTL(MONTHACT) using option 2;1;3 from the Installation Accounting Primary Options Menu. Run the job after the special accounting period closes. This job ages the Ledger Files when you are using a special accounting period.

It is not necessary for the CA MICS monthly job to run before month-end accounting processing can proceed through step 9 of this checklist. Do NOT go past step 9 until either the MONTHLY or MONTHACT jobs have been run for all units.

CA MICS Accounting and Chargeback Option must be fully installed in a unit to be able to create the reports in this checklist. A partial installation of CA MICS Accounting and Chargeback Option in a unit will result in INVOICE report errors. Follow the checklist in Section 3.8 of the PIOM for complete installation instructions.

+-----+

```
| Reference(s): Section 4.3.3.2.3 in the PIOM. |
+-----+
```

- 3. Ensure that all credits (standard and recurring) and debits (standard and recurring) for the accounting period were entered. Select Option 1, Application Database Data Entry, from the Installation Accounting Primary Options Menu to access the Debit and Credit data entry screens (MWF;4;2;1;3).
- 4. If you are planning to prorate charges for non-CA MICS files or for the Ledger files, review the prorating specifications. If "Always use complex level prorating table" in Accounting Options is NO, select Option 3;8;1 from the Installation Accounting Primary Options Menu for each unit in which CA MICS Accounting and Chargeback Option is installed and make any necessary changes. For each database unit where the specifications are changed, you will automatically be requested to:

```
SUB 'prefix.MICS.CNTL(PRORATEU)'
```

If "Always use complex level prorating table" in Accounting Options is YES, select Option 3;8;2 from the Installation Accounting Primary Options Menu and make any necessary changes. If the specifications are changed, you will automatically be requested to:

```
SUB 'sharedprefix.MICS.CNTL(PRORATE)'
```

```
+-----+
| Reference(s): Section 4.8 |
+-----+
```

- 5. Ensure that all data from complex-level external files are added to the Debit file.

NOTE: If you want to prorate the charges that go into the Debit file, the complex-level external file parameter must specify Prorate YES and you must have run the EXTFILE generation job. In addition, you must have specified the prorating information and run the PRORATE generation job (see Step 4).

```
+-----+
| Reference(s): Section 4.8.5.3 |
+-----+
```

Add charges from external data sources by selecting Option 2;1;1 on the Installation Accounting Primary Options Menu or by entering the following TSO command:

```
SUB 'sharedprefix.MICS.CNTL(ACTfffTB)'
```

where fff is the last three characters of the external file name.

- 6. Make any required changes to the Budget file using the accounting ISPF data entry process. Select Option 1, Application Database Data Entry, from the Installation Accounting Primary Options Menu.

```
+-----+
| Reference(s): Section 4.14 |
+-----+
```

- 7. Run the month-end accounting job, which ages the Debit, Credit, Budget, and Financial Recap files.

Submit the month end accounting job by selecting Option 2;1;2 on the Installation Accounting Primary Options Menu or by entering the following TSO command:

```
SUB 'sharedprefix.MICS.CNTL(CLOSETBL)'
```

CAUTION: You are prevented from running the CLOSETBL job more than one time during any accounting month. If you try, the job willabend. This job ages the files within the TABLES data set and multiple executions could cause data loss or synchronization problems between the TABLES and Ledger files.

If you must run the job again, you must first run the RSTRTBLS job in your primary unit 'prefix.MICS.CNTL' to restore the SAS files in the TABLES database. You must also run the RSTRTLIB job in the same data set and insert the following JCL to restore the ISPF Debit and Credit table cycles:

```
//SYSIN DD *
  S M=(ACTADJ00,ACTADJ01)
/*
```

You can then submit the CLOSETBL job again.

If the CLOSETBL job abends, you can resubmit the job, after correcting the problem, without running the RSTRBLS or the RSTRLIB job, unless the CLOSETBL job abends during the aging process. In that case, you must first run the RSTRBLS job as described above, and then resubmit the CLOSETBL job.

- 8. If you plan to prorate charges for the Ledger files at the end of the month, do the following:
 - a. If this is the first time that you are using Ledger file prorating, review Sections 4.8.5 and 4.8.5.2 for additional information and checklist items.
 - b. Make sure you have reviewed your prorating specifications as described in Step 4.
 - c. Run the ACTLGRSP job for the database units where prorating is necessary. Run the job by selecting Option 2;1;4 on the Installation Accounting Primary Options Menu or by entering the following TSO command:

```
SUB 'prefix.MICS.CNTL(ACTLGRSP)'
```

- 9. To do zero-balance accounting, complete the following:
 - a. Determine which method of zero-balancing applies to your installation (TOTAL, INVCCAT, or COMPCODE). You can use only one method.
 - b. Determine the target expenditure amount (for example, cost of doing business) for the method that you select.
 - c. Update sharedprefix.MICS.PARMS(ZEROBAL) with the method and amount. Selecting Option 2;1;5 from the Installation Accounting Primary Options Menu places you into ISPF Edit of this member.

```
+-----+
| Reference(s): Section 4.11 |
```

- __ 10. If you use the multi-site accounting feature, do the following:

- a. Create the Financial Recap file for your complex without producing the invoice by selecting Option 2;1;6 from the Installation Accounting Primary Options Menu or by entering the following TSO command:

```
SUB 'sharedprefix.MICS.CNTL(FINRECAP)'
```

- b. If your site is a remote site, verify that your remote site parameter specifications are correct by selecting Option 3;2;4;1 from the Installation Accounting Primary Options Menu. If you make changes, submit the required generation job, sharedprefix.MICS.CNTL(ACTXOPTM).

```
+-----+
| Reference(s):  Section 4.12.1          |
+-----+
```

Submit sharedprefix.MICS.CNTL(ACTMSULD) to unload your accounting files and to make them ready for transmitting to your central site by selecting Option 2;4;1 from the Installation Accounting Primary Options Menu or by entering the following TSO command:

```
SUB 'sharedprefix.MICS.CNTL(ACTMSULD)'
```

- c. If your site is the central site, verify that your central site parameter specifications are correct by selecting Option 3;2;4;2 from the Installation Accounting Primary Options Menu. If you make changes, submit the required generation job, sharedprefix.MICS.CNTL(ACTXOPTM).

```
+-----+
| Reference(s):  Section 4.12.2          |
+-----+
```

Submit sharedprefix.MICS.CNTL(ACTMG TAB) after you receive the files from all of your remote sites. You can submit this job by selecting Option 2;4;2 from the Installation Accounting Primary Options Menu or by entering the following TSO command:

SUB 'sharedprefix.MICS.CNTL(ACTMGTAB)'

- __ 11. Make any required changes to cost center attributes. Select Option 1;1 from the Installation Accounting Primary Options Menu.

```
+-----+
| Reference(s): Sections 4.1.7, 4.1.8, 4.9.3, 4.9.5|
+-----+
```

- __ 12. If necessary, adjust the starting invoice sequence number. Select Option 1;4 from the Installation Accounting Primary Options Menu.

```
+-----+
| Reference(s): Section 4.5.5 |
+-----+
```

- __ 13. If you want to produce invoices at the same time you generate the Financial Recap file, run the INVOICE job. Do this by selecting Option 2;2;1 from the Installation Accounting Primary Options Menu or by entering the following TSO command:

SUB 'sharedprefix.MICS.CNTL(INVOICE)'

Alternatively, to generate the Financial Recap file without producing invoices, run the FINRECAP job. Do this by selecting Option 2;1;6 from the Installation Accounting Primary Options Menu or by entering the following TSO command:

SUB 'sharedprefix.MICS.CNTL(FINRECAP)'

You can run the INVOICE or FINRECAP jobs multiple times without any loss of data because the 01 version of the Financial Recap file is replaced each time. The CLOSETBL job performs the aging of the Financial Recap file.

NOTE: The INVOICE or FINRECAP job will abend with a MICSLOG message if it is run before the MONTH199 or MONTHACT job is run in each unit, ledger file prorating is run in each unit, and the CLOSETBL job is run. You can force the INVOICE or FINRECAP job to run by coding FORCE in the SYSPARM.

- __ 14. You can produce the following optional invoices:

- o A repeat invoice from the most recent Financial

Recap file

To produce this invoice, select Option 4;1;2 from the Installation Accounting Primary Options Menu or enter the following TSO command:

```
SUB 'sharedprefix.MICS.CNTL(INVOICER)'
```

o A unit level invoice

To produce this invoice, select Option 2;3;1 from the Installation Accounting Primary Options Menu or enter the following TSO command:

```
SUB 'prefix.MICS.CNTL(INVOICEU)'
```

This job produces the invoice report as well as the Invoice Credit Supplement report. You can specify BILL, NOBILL, or BOTH in the EXEC statement SYSPARM to cause the invoice to be produced for billable, non-billable, or all cost centers.

- __ 15. If you are using the multi-site accounting feature and your site is the central site, submit the Multi-Site Invoice job by selecting Option 2;4;3 from the Installation Accounting Primary Options Menu or by entering the following TSO command:

```
SUB 'sharedprefix.MICS.CNTL(INVOICEM)'
```

- __ 16. Run the complex-level financial reports by selecting Option 2;2;2 from the Installation Accounting Primary Options Menu or by entering the following TSO command:

```
SUB 'sharedprefix.MICS.CNTL(FINRPT)'
```

or

Produce a unit level report by selecting Option 2;3;2 from the Installation Accounting Primary Options Menu or by entering the following TSO command:

```
SUB 'prefix.MICS.CNTL(FINRPTU)'
```

You can specify BILL, NOBILL, or BOTH in the EXEC statement SYSPARM to cause the reports to be produced for billable, non-billable, or all cost centers.

5.3 Running Yearly Processes

The yearly split and aging of the Ledger File is accomplished in each database unit at the same time that the yearly CA MICS product files are split. However, if the Special Accounting Dates feature has been activated, you must run the YEARACT job to split the Ledger Files. Other than use of the YEARLY or YEARACT jobs, there are no major steps to follow at year end. The items that follow are for your information:

- o The Year-to-Date Financial Recap File is aged during the second accounting period when the CLOSETBL job is submitted from the sharedprefix.MICS.CNTL library.
- o The Budget File (ACTBGT00) records are transferred to the ACTBGT01 file based on the Budget Effective Date variable (BGTDAT) value. When the date is reached, the records are transferred when the CLOSETBL job is submitted from the sharedprefix.MICS.CNTL library.
- o You can use IS Revenue Projection and Rate Analysis to download the current year's data to the workstation and project next year's revenue and budgets.

OBJECTIVES

The accounting administrator's objectives for yearly processing are to perform the following:

- o Confirm that the new budgets are entered into the Budget File (ACTBGT00) with a BGTDAT value that allows the CLOSETBL job to transfer them to the ACTBGT01.
- o When the second accounting period is reached, ensure that the year-to-date charges for the new fiscal year are on the reports that show year-to-date charges.
- o If you change rates at year end, make sure the new rates are placed in effect at year end.

Figure 5-3 is a diagram of the yearly update flow.

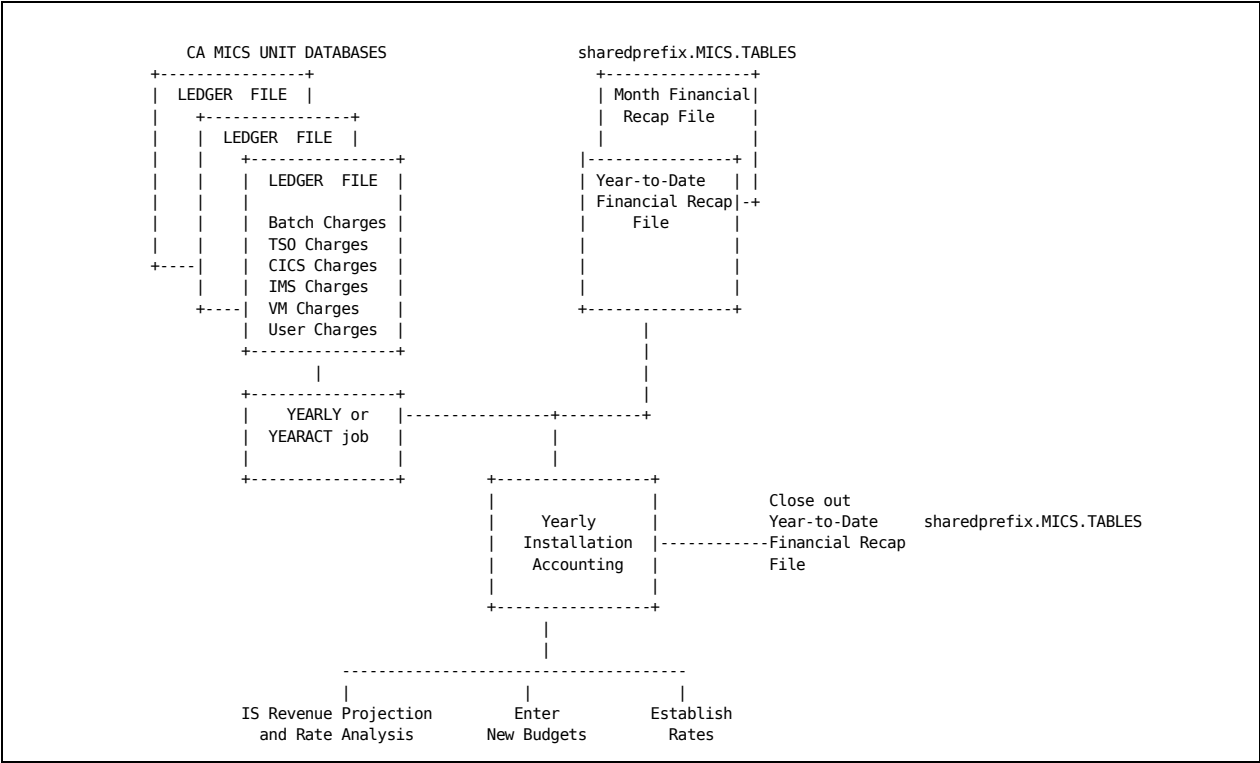


Figure 5-3. Yearly Accounting System Flow
YEARLY PROCESSING CHECKLIST

Follow this checklist to ensure that standard yearly processing was successful.

- 1. Ensure that the yearly update completed successfully for all databases in which CA MICS Accounting and Chargeback is installed. This is normally accomplished by the YEARLY job that is submitted by the CA MICS System Administrator. However, if you activated the Special Accounting Dates feature:
 - o Submit prefix.MICS.CNTL(YEARACT) by using Option 5;1 from the Installation Accounting Primary Options Menu. Run the job after the special accounting period closes. This job ages the Ledger Files when you are using a special accounting period.

It is not necessary for the CA MICS YEARLY job to run before year-end accounting processing can proceed.

```
+-----+
| Reference(s): Section 4.3.3 in the Planning, |
| Installation, Operation, and Maintenance Guide |
+-----+
```

- 2. If this is the final reporting period for the year, you must update the Budget File (ACTBGT) prior to the end of the next accounting period. Select Option 1;3 from the Installation Accounting Primary Options menu.

```
+-----+
| Reference(s): Section 4.14 |
+-----+
```

- 3. If this is the final reporting period for the year, you may want to use IS Revenue Projection and Rate Analysis to project your revenue for the next financial year. Extract the data for the workstation by selecting Option 4;5;1;2 from the Installation Accounting Primary Options Menu.

5.4 Producing Audit Reports

This section contains two checklists:

- o Follow the first checklist, Unit-Level Audit Reporting Checklist, to produce the unit-level Audit Report described in Section 6.5.1.3.
- o Follow the second checklist, Complex-Level Audit Reporting Checklist, to produce the complex-level Audit Report described in Section 6.5.1.3.

UNIT-LEVEL AUDIT REPORTING CHECKLIST

- ___ 1. Select Option 4;5;1;4;1 from the Installation Accounting Primary Options Menu and select a unit on which to report.
- ___ 2. Determine whether you wish to view a report from one of the journal files (for example, ACTJBJ) or one of the monthly audit files (AD). Determine whether you want the entire file or only selected portions.
- ___ 3. If you want to report on information from a journal file, edit the JCL and change the SYSPARM as follows:

```
//AUDITRPT EXEC MICSSHRx,SYSPARM='xx DETAIL cycle=nn'  
|  
Unit Database Indicator | | |  
| | |  
Two-character journal file ID ----+ | |  
(BJ,BP,BS,CS,CA,IS,IA,IX,CM,DA,VS,MI,MN)| | |  
or field-developed application | | |  
is USER=yy -----+ | |  
(Where yy is user file ID of Journal) | | |  
| | |  
DETAIL to print zero charge fields----+ | |  
| | |  
Two-digit cycle of the journal file | | |  
to be used as input -----+ | |
```

Default values: AD and zero-suppression

There are various parameters to select portions of the data from the files (refer to Section 6.5.1.3).

- ___ 4. When the AD SYSPARM option is used, change the

ACTAUDIT DD statement to refer to the appropriate file. Edit the JCL and code the SYSPARM as follows:

```
//AUDITRPT EXEC MICSSHRx,SYSPARM='AD DETAIL'
                                     |
Unit Database Indicator             |
                                     |
DETAIL to print zero charge fields----+

Default values: AD and zero-suppression
```

There are various parameters to select portions of the data from the files (refer to Section 6.5.1.3).

- __ 5. Submit the job.

COMPLEX-LEVEL AUDIT REPORTING CHECKLIST

- __ 1. Select Option 4;5;1;4;2 from the Installation Accounting Component Primary Options Menu.
- __ 2. Edit the JCL and change the SYSPARM as follows:

```
//AUDITRPT EXEC MICSCOM,SYSPARM='AD DETAIL'
                                     |
                                     |
                                     |
Audit tape ID (must be AD)-----+
                                     |
DETAIL to print zero charge fields----+

Default values: zero-suppression
```

There are various parameters to select portions of the data from the files (refer to Section 6.5.1.3).

- __ 3. Change the ACTAUDIT DD statement to refer to the appropriate file.
- __ 4. Submit the job.

5.5 Recovering from Processing Problems

This section explains how to recover from the following processing problems:

- o An abend occurred in the DAY199 or MONTH199 step
- o The DAY1 Audit File is corrupted
- o An entire database is corrupted
- o The sharedprefix.MICS.TABLES data set is corrupted or must be restored to run the CLOSETBL job

RECOVERING FROM AN ABEND IN THE DAY199 OR MONTH199 STEP

- ___ 1. Determine the reason for the abend. Check the MICSLOG and SAS log for abend messages.
- ___ 2. If the abend occurred in the DAY199 step, determine whether it occurred before or after the post to the checkpoint data set. To do this, look at the D=nnn field on the first line of prefix.MICS.CHECKPT.DATA.
 - a. If D=199, the DAY199 step abended after the post. This means that all the files and tapes were created properly. Because the step abended, however, the DAY2 tape would have been uncataloged. Make a copy of the DAY1 tape using IEBGENER and catalog the copy as the current DAY2 GDG.

In addition, the Journal Run Status Log ISPF table was not updated.

- To update the Journal Run Status Log ISPF table, enter the following TSO command:

```
SUB 'prefix.MICS.CNTL(ACTRSJLD)
```

- b. If D=nnn, where nnn is a number less than 199, the DAY199 step abended before the post. Restore the ACTAUDIT DAY1 file to its original condition prior to restarting the step. Restore the DAY1 file by entering the following TSO command:

```
SUB 'prefix.MICS.CNTL(ACTDAY1R)'
```

This job restores the '0' generation of the

ACTAUDIT DAY2 into the '0' generation of the DAY1 file. If your DAY1 tape file is not usable (for example, damaged tape), you must modify the ACTDAY1R JCL to create a new output DAY1 GDG or use the ACTINITA job in the 'prefix.MICS.CNTL' library to catalog a new DAY1 GDG prior to running the ACTDAY1R.

NOTE: If an abend occurs in the MONTH199 step, it is not necessary to restore any file unless the input DAY1 file is damaged.

- ___ 3. Restart the DAILY job, the external journal file update job, or the MONTHLY job using the normal CA MICS restart procedure.
 - o Restart the DAILY job in the DAY199 step if it abended before the post and in the DAY200 step if it abended after the post.
 - o Restart the external journal file update job in the DAY199 step if it abended before the post and in the EXT900 step if it abended after the post.

```
+-----+
| Reference(s): Section 4.2.5 in the CA MICS      |
| Planning, Installation, Operation, and        |
| Maintenance Guide                            |
+-----+
```

RESTORING A CORRUPTED DAY1 AUDIT FILE

- ___ 1. Enter the following TSO command to restore the DAY1 file:

```
SUB 'prefix.MICS.CNTL(ACTDAY1R)'
```

This job restores the '0' generation of the ACTAUDIT DAY2 into the '0' generation of the DAY1 file. If your DAY1 tape file is not usable (for example, damaged tape), you must modify the ACTDAY1R JCL to create a new output DAY1 GDG or use the ACTINITA job in the 'prefix.MICS.CNTL' library to catalog a new DAY1 GDG prior to running the ACTDAY1R.

RESTORING A DATABASE FOR ACCOUNTING

If you need to restore a database due to a problem such as corrupted data, you must perform the following additional steps for accounting:

- ___ 1. Restore the database using the standard database restore job by entering the following command:

```
SUB 'prefix.MICS.CNTL(RESTORE)'
```

- ___ 2. Restore the ACTAUDIT DAY1 file to the same condition as the database status by submitting the following TSO command:

```
SUB 'prefix.MICS.CNTL(ACTDAY1R)'
```

This job restores the '0' generation of the ACTAUDIT DAY2 into the '0' generation of the DAY1 file. If your DAY1 tape file is not usable (for example, damaged tape), you must modify the ACTDAY1R JCL to create a new output DAY1 GDG or use the ACTINITA job in the 'prefix.MICS.CNTL' library to catalog a new DAY1 GDG prior to running the ACTDAY1R. If you want to restore an older GDG than the '0' version of the DAY2 file, you will have to modify the ACTDAY1R JCL to read -1 or an older version of the DAY2 file.

NOTE: You must ensure that sufficient GDG versions of the DAY2 file have been saved to support recovery. This is a JCLDEF option.

- ___ 3. Resume running daily or monthly jobs.

```
+-----+
| Reference(s): Section 4.2.5 in the CA MICS      |
| Planning, Installation, Operation, and        |
| Maintenance Guide                             |
+-----+
```

RESTORING THE SHAREDPREFIX.MICS.TABLES DATA SET

Before restoring sharedprefix.MICS.TABLES data set, consider the following issues:

- o When was the last backup taken of the files?

NOTE: The standard BACKUP job of the primary unit database makes a backup of the data set.

- o Has anyone added or changed records since the last backup?
- o If you run the restore job, will anyone be locked out of the data set?

- ___ 1. Restore the TABLES data set using the standard restore job, RSTRTBLS. Submit the job as follows from the primary unit library:

```
SUB 'prefix.MICS.CNTL(RSTRTBLS)'
```

```
+-----+
| Reference(s): Section 4.3.3.2.11 in the CA MICS |
| Planning, Installation, Operation, and         |
| Maintenance Guide                             |
+-----+
```

- ___ 2. Because the TABLES files are generated from ISPF tables, you may also need to restore the ISPTLIB members as these are used to regenerate the files in the TABLES data set. This is necessary only if you are restoring the TABLES database in order to rerun the CLOSETBL job or if the ISPTLIB data set was corrupted in addition to the TABLES data set.

- a. Make a copy of the RSTRTLIB job in the prefix.MICS.CNTL data set in the primary unit and change the SYSIN DD section of the JCL to read as follows:

```
//SYSIN DD *
COPY INDD=((BKUPTLIB,R)),OUTDD=OUTTLIB
S M=(ACTADJ00,ACTADJ01,ACTBGT00,ACTBGT01)
S M=(ACTCID,ACTSEQ,ACT$IVF)
/*
```

The member ACTSEQ should be coded as part of the list only if an Invoice Sequence Number has been entered. See section 4.5.5 of the CA MICS Accounting and Chargeback User Guide.

- b. Submit the job.

Chapter 6: REPORTS

Enterprise IS Financial Reporting is a comprehensive framework to help you analyze how corporate investments in IS technology are being used. It provides information from a variety of perspectives to address the needs of various members of the enterprise including corporate management, IS management, IS user management, and accounting administrators.

The information is organized in five management impact areas:

- o Invoicing
- o Client Support
- o IS Financial Management
- o Enterprise IS Financial Management
- o Accounting Administration

Enterprise IS Financial Reporting provides information either as a mainframe report, such as an invoice, or on a workstation where you can look at the information in graphic and tabular form.

The information on the workstation is presented in five subject areas:

- o User IS Expense Analysis
- o IS Revenue Analysis
- o Application IS Expense Analysis
- o Daily IS Revenue Analysis
- o IS Revenue Projection and Rate Analysis

Because each subject area is from a different perspective, each one is especially useful for different members of the enterprise. For example, User IS Expense Analysis takes the perspective of IS users by looking at their IS expenses. It can help IS user management look for trends and problems with their IS usage. On the other hand, IS Revenue Analysis takes the perspective of IS by looking at IS revenue. IS management can use it to analyze the fiscal health of the IS organization.

The workstation information is presented so that you can view it from a variety of views and levels. You can look at summary information in a graph and then view more detailed data in tabular form. You can also look at a subset of the information in either a graph or a table. For example, with User IS Expense Analysis, you can look at a summary of IS charges by month in a graph and then in more detail in a table. You can view a breakdown of these charges by other cost center levels, such as department or application, or by invoice category. This provides the flexibility to analyze the information and focus on specific areas that may require further investigation.

TERMINOLOGY

The terms listed below are used in Enterprise IS Financial Reporting to mean the following:

Cost center structure	Defines the enterprise's hierarchy for reporting and billing. Each enterprise's cost center structure is different. An example of a cost center structure includes division, department, and application. Each node in the hierarchy is identified by a unique set of COSTCTRn values, where n is 1 through 9, and can be assigned a name for easy reference.
Cost center level	A specific level within an enterprises' cost center structure, such as division.
Application	A way of classifying the major IS workloads in your enterprise. It is important to identify application in one of the levels of your cost center structure to fully use the information provided on the workstation. This applies especially to Application IS Expense Analysis which focuses on monthly charges by application.
Charging element	The most detailed level of charging information. It is synonymous with computation code (or comp code) and represents a resource such as CPU time or print lines.
Invoice category	A grouping of charging elements for reporting purposes.

Enterprise IS Financial Reporting is Option 4 on the Accounting Primary Options mainframe menu. The management impact areas are listed as menu options on the Enterprise IS Financial Reporting menu. Each management impact area has

its own submenu of information options. Depending on your selection, you can enter your specifications and submit a job to run a report or create a file for downloading to the workstation.

This chapter is organized by Enterprise IS Financial Reporting management impact area. Mainframe reports and workstation subject areas are described in the applicable sections:

- 1 - Invoicing
- 2 - Client Support
- 3 - IS Financial Management
- 4 - Enterprise IS Financial Management
- 5 - Accounting Administration
- 6 - The EISFR Workstation Application
- 7 - Extracting Data for the Workstation
- 8 - MICF Inquiries

This section contains the following topics:

[6.1 Invoicing](#) (see page 551)

[6.2 Client Support](#) (see page 576)

[6.3 IS Financial Management](#) (see page 578)

[6.4 Enterprise IS Financial Management](#) (see page 602)

[6.5 Accounting Administration](#) (see page 604)

[6.6 MICF Inquiries](#) (see page 642)

6.1 Invoicing

The Invoicing management impact area provides notification of the charges incurred by IS customers during an accounting period. Invoices can be created from different perspectives: by resource, by invoice category, or by cost center level such as application. Invoices can be used for billing, informal reporting of IS usage, or to create a line item for the general ledger. You can tailor the invoices to address your enterprise's needs via invoice format options. Invoices for different customers can have different formats. Invoices and supporting information are provided in the form of mainframe reports.

The reports are discussed in detail in the following sections:

- 1 - Consolidated Invoice Report
- 2 - Repeat Invoice
- 3 - Month-to-Date Invoice
- 4 - Multi-Site Invoice
- 5 - Multi-Site Repeat Invoice
- 6 - Invoice Credit Supplement Report
- 7 - Trial Balance Invoice

6.1.1 Consolidated Invoice Report

The Consolidated Invoice Report summarizes the utilization and corresponding charges incurred by a cost center during an accounting period. This report is designed primarily to provide an accurate accounting to cost center management. For installations performing multi-site accounting, a Multi-Site Invoice, which combines information recorded by multiple CA MICS Accounting systems, can be produced by the central site.

Because installations have different requirements in terms of both the content and level of detail they report, the Consolidated Invoice has a number of summarization and format options that offer considerable flexibility. Essentially, the report consists of three areas: a fixed-format heading, an optional footing, and a body with individual line items at one of three levels of summary. In addition, the line items can be produced in several different formats.

HEADING CONTENTS

The report title contains the installation name and the report name and date (for example, Monthly Invoice for September, 2002).

The center heading of the report shows the cost center levels for which the report was produced. If they were provided in the Cost Center Attributes File, the name and address associated with the cost center values (the invoice recipient) will be printed in the upper left corner of the invoice.

For reference, the right side of the report heading shows the invoice number, billing date, page number, and status field.

FOOTING CONTENTS

The summary portion of the report lists the total charges, total credits, discounts, surcharges, and net charges (total charges minus credits, discounts, and surcharges). If budget information was requested, the budget amount for the reporting period is listed, the variance from budget (budget minus net charges) is calculated, and, if applicable, the "Budget Exceeded" message is printed. A year-to-date option prints the year-to-date charges. A footnote option can be used to print a one or two line footnote.

BODY CONTENTS

The body of the report consists of a series of line items that are summarized to one of three levels: Computation Code, Invoice Category, or Cost Center. The individual lines are produced in one of the formats listed below:

- INVCCAT:** This format provides columns for Quantity, Rate, Units, and Charges. It applies only to the Computation Code summary level. Line items are at the computation code level and are designated by major invoice category (nXXX), invoice category code, invoice category description, and computation code.
- COMPCODE:** This format provides columns for Quantity, Rate, Units, and charges. It only applies to the Computation Code summary level. Line items are at the computation code level and are designated by invoice category code, computation code, and computation code description.
- CHARGE:** This format provides a column for Charges. It applies only to the Invoice Category and Cost Center summary levels. At the Invoice Category summary level, line items are designated by major invoice category (nxxx), invoice category code, and invoice category description. At the Cost Center summary level, line items are designated by cost center value.
- BUDGET:** This format adds a Budgets column and a variance column to the INVCCAT, COMPCODE, or CHARGE formats.
- YTD:** This format adds a year-to-date charges column to the INVCCAT, COMPCODE, or CHARGE formats. It also adds a year-to-date quantity column to the INVCCAT or COMPCODE format.
- BUDYTD:** This format provides columns for Charges, Budget, Variance %, YTD Budget, and YTD Variance %. It is available at each of the summary levels (Computation Code, Invoice Category, or Cost Center). Line items are

designated according to the summary level.

BUDGETU This format displays the same information as the BUDGET option, but the BUDGET column is in units instead of dollars. It applies only to the computation code summary level.

BUDYTDU This format displays the same information as the BUDYTD option, but the BUDGET column is in units instead of dollars. It applies only to the computation code summary level.

The following sections provide additional detail about the Consolidated Invoice Report:

- 1 - Consolidated Invoice Report Features
- 2 - Sample Consolidated Invoice Reports
- 3 - Running the Consolidated Invoice Report
- 4 - Zero Balance Report

6.1.1.1 Consolidated Invoice Report Features

Because invoice reporting is usually a major focus of an installation's IS accounting and chargeback effort, CA MICS Accounting and Chargeback provides a number of features to increase the report's flexibility. The major features are discussed below.

o Cost Center Level of Invoices

CA MICS Accounting and Chargeback allows you to specify up to nine levels of cost centers: COSTCTR1 through COSTCTR9. The cost center level at which invoices are produced is specified by the Invoice Level option from the Financial Recap File Specifications Menu of Accounting Options (MWF;4;2;3;2;1).

By default, all charges will be invoiced at this cost center level unless they were incurred by a cost center at a higher level in the hierarchy than the invoice level. For example, assume level one is division, level two is department, and the default invoice level is two. Any charges incurred at the division level (COSTCTR2-COSTCTR9 have blank values) will be invoiced to the appropriate division.

This default can be overridden for individual cost centers using Cost Center Attributes Invoice Options (MWF;4;2;1;1;2).

For example, you could set the default invoice level to 1 and override it to 2 for certain COSTCTR1 values.

o Format Table

CA MICS Accounting and Chargeback provides you with a "format table" that you can view and modify online (using MWF;4;2;3;2;5). You can use the format table to set particular values for various format options and assign each set of values a unique format name. Refer to a particular set of option values by its associated format name.

Four standard format names are shipped: COMPCODE, INVCCAT, COSTCTR, and USER. The first three names refer to the invoice type, which is by summarization level, not to the line item format. For example, the shipped COMPCODE format uses the INVCCAT line item format.

The COMPCODE, INVCCAT, and COSTCTR invoice types summarize the line items at different levels. The COMPCODE invoice type summarizes line items at the computation code (individual billing element) and rate level. The INVCCAT invoice type summarizes line items at the invoice category level, so individual billed items are not shown. The COSTCTR invoice type summarizes line items by specified cost center.

You can use the USER format to code your own format routine. Refer to Section 4.5.3 for information on defining the user invoice format exit.

You can modify the options associated with the shipped format names, or you can "repeat" any format to create a new format name of that type with different choices for the format options. So you can have many sets of format options and use different options to print invoices for different customers.

The default format name is specified in Invoice Format Options on the Accounting Options menu (MWF;4;2;3;2;5). It can be overridden for individual cost centers using Cost Center Attributes Invoice Options (MWF;4;2;1;1;2).

o Format Options

The following format options are provided:

- Line item format
- Supplemental reports
- Subtotals
- Budget information
- Year-to-date information
- Language Translation
- Footnotes

o Line Item Formats

Invoices can be produced at the Computation Code, Invoice Category, or Cost Center summary level in several line item formats. The summary level is called the invoice type: COMPCODE, INVCCAT, or COSTCTR.

The line item formats control the number and content of the invoice columns and are named INVCCAT, COMPCODE, CHARGE, BUDGET, YTD, BUDYTD, BUDGETU, and BUDYTDU. Some of the line item formats can only be used at a particular summary level, while others apply to all of the summary levels. For example, the INVCCAT and COMPCODE formats can only be used at the Computation Code summary level, while the BUDGET format applies to all of the summary levels. The line item formats are discussed in more detail in the previous section.

- o Supplemental Reports

Computation Code or Invoice Category summary level invoices can be followed by either DETAIL or ROLLUP supplemental reports (or by no supplemental reports). DETAIL supplemental reports produce a report for each cost center that incurred charges. ROLLUP supplemental reports summarize charges to lower level cost centers. The Supplemental Reports format option is specified using Invoice Format Options on the Accounting Options menu (MWF;4;2;3;2;5).

- o Invoice Category and Cost Center Subtotals

These options specify whether subtotals will be printed for each line item grouping. The Subtotal format options are specified using Invoice Format Options on the Accounting Options menu (MWF;4;2;3;2;5).

- o Budget Information

If budgets have been entered, budget and variance from actual can be displayed on the invoices at the line item level or as a single line at the bottom of the invoices.

Use the BUDGET, BUDYTD, BUDGETU, or BUDYTDU line item formats to display budget and variance at the line item level.

Or use the Budget format option to display budget and variance at the bottom of the invoice. The following warning message will be printed if net charges exceed budget:

*** NOTE: BUDGET AUTHORIZATION HAS BEEN EXCEEDED ***

You can use the Fuzz Value feature discussed later on in

this section to prevent the warning from printing for small variations.

The Budget format option is specified using Invoice Format Options on the Accounting Options menu (MWF;4;2;3;2;5).

o Year-to-Date Information

Year-to-date information can be displayed on the invoices at the line item level or as a single line at the bottom of the invoices.

Use the YTD or BUDYTD line item formats to display year-to-date information at the line item level.

Or use the Year-to-date format option to display year-to-date charges at the bottom of the invoice. If the Budget format option is YES (see Budget Information, above), year-to-date budget amounts will also be shown.

The Year-to-date format option is specified using Invoice Format Options on the Accounting Options menu (MWF;4;2;3;2;5).

o Language Translation

You can print the descriptions for charging element units, charging elements, and invoice categories in different languages on different invoices by specifying a language identifier using the Language Translation option. The identifier must be associated with a translation table created using the Special Requirements Language Translation Tables option (MWF;4;2;5;5).

The Language Translation format option is specified using Invoice Format Options on the Accounting Options menu (MWF;4;2;3;2;5).

o Footnotes

You can print a one or two line footnote on invoices by using the Footnote format option. It is specified using Invoice Format Options on the Accounting Options menu (MWF;4;2;3;2;5).

o Billing Status (BILL or NOBILL)

The billing status of each cost center is set when the Financial Recap file is created. It is derived from the

Cost Center Attributes Invoice Options entry for the cost center being invoiced and defaults to BILL.

For example, assume projects (cost center level 3) are invoiced to departments (cost center level 2). Then the billing status of each project is determined from the entry for the department to which it is being billed. If no entry exists for the department, its status defaults to BILL.

o Cost Center Selection and Billing Status

You can produce invoices for all billable cost centers, all non-billable cost centers, or both. Specifying a SYSPARM parameter of STATUS=BILL, STATUS=NOBILL, or STATUS=BOTH in the INVOICE job JCL determines which cost center appears on the invoice. The default is BOTH.

o Personalized Invoice

If you define the name and address of the cost centers to be invoiced in the Cost Center Attributes File, they will print on the invoice.

The Cost Center Attribute entries should be made at the same cost center level being invoiced. For example, if the invoice level is one, create a name and address entry for each COSTCTR1 value, and leave the other COSTCTRn values blank. If it is two, create a name and address entry for each COSTCTR1/COSTCTR2 combination, and leave the other COSTCTRn values blank.

Names and addresses on supplemental reports are based on the highest COSTCTRn level entered in the Cost Center Attributes (CCA) file. For example, if there are no COSTCTRn values greater than two in the CCA file and you created a name and address entry for a DIVISION 1/DEPT A combination, then the supplemental reports for DIVISION 1/DEPT A/PROJECT C would contain the name and address from the DIVISION 1/DEPT A CCA file entry.

Refer to Section 4.1.5 and the online tutorial for information on how to use the Cost Center Identification Number to limit the number of COSTCTR levels which can be entered in the Cost Center Attributes file.

o Fuzz Value

If the Budget format option is YES, an OVER BUDGET message

prints when the charges vary from the budgeted amount. Use the Fuzz Value feature to specify the amount of tolerance allowed before the OVER BUDGET message is produced. The default Fuzz Value is \$1000, which means that differences of less than \$1000 between the charges and the budgeted amount are ignored.

Fuzz Value is defined in General Installation Accounting Specifications on the Accounting Options menu (MWF;4;2;3;2;1) and can be overridden for particular cost centers in Cost Center Attributes Identification Data Entry (MWF;4;2;1;1;1).

o Credits

Credits reflect deductions from amounts charged. They are entered online using MWF;4;2;1;3 and are associated with credit categories defined in the Credit Category table. You can modify this table using the Credit Category Definition panel, Option 4 on the Parameter Specification and Generation menu. Refer to Section 4.2.3, Defining Credit Categories, for additional information.

o Surcharges

Surcharges allow you to add a fixed percentage to an invoiced amount. They can be computed at the computation code, invoice category, or cost center level. They appear as separate line items on the invoice at the appropriate level of summary following any subtotals.

Default cost center and invoice category surcharge percentages are entered by selecting the Surcharge option from the Financial Recap File Specifications Menu and can be overridden in the Cost Center Attributes file.

Computation code surcharges apply a surcharge percent to a unit of work and are entered in the Rate Table using the SURC computation code.

o Discounts

A discount is a deduction from the cost center's charges. Three types of discounts are available:

Volume discounts are specified on the Volume Discounts panel of the Financial Recap File Specifications Menu.

Invoice Category discounts are specified on the Invoice

Category Discounts panel of the Financial Recap File Specifications Menu.

Cost center discounts, either lump sum or fixed percentage, are entered into the Cost Center Attributes File via the Application Database Data Entry panel of the Installation Accounting Primary Options Menu.

o Heading Date

You can modify the date on the report heading by coding a SYSPARM parameter of DATE=MMYY in the INVOICE job JCL, where MM is month and YY is year.

o Unit Budgets

You can produce a COMPCODE invoice that shows unit budgets instead of money budgets. This is specified using the BUDGETU or BUDYTDU line item format on the Format Options for Computation Code Invoices panel which is accessed from the Accounting Options menu (MMF;4;2;3;2;5).

6.1.1.2 Sample Consolidated Invoice Reports

The figures in this section show samples of the Consolidated Invoice Report in each of the three summary types: computation code, invoice category, and cost center. In addition, each sample has been produced with a different set of options (including line item formats) which are described in the accompanying text.

COMPUTATION CODE INVOICE

The Computation Code Invoice presents line items at the individual billing element level. This is the most detailed pricing level provided by CA MICS Accounting and Chargeback.

The INVCCAT line item format provides lines designated by invoice category descriptions with values at the individual billing element (COMPCODE) level. The columns are: major invoice category (nXXX), invoice category code, invoice category description, computation code (in parenthesis), billed quantity, rate, units of measure, and charge. This sample invoice also utilizes the cost center subtotal option and several footing options including budget information and year-to-date totals. Refer to Figure 4-44 for an illustration of the options used to create this sample.

COMPLEX REPORT						INVOICE
MONTHLY INVOICE FOR JUNE 2002						INVOICE NO. - 3
DIVISION: ACME						PAGE NO. - 1
TO: MR. JOHN SMITH, GROUP VP						BILL DATE - 07/30/02
ACME PRODUCTS DIVISION						STATUS: BILL
CATEGORY	RESOURCE UTILIZED	QUANTITY	RATE	UNITS	CHARGES	
1XXX	PROCESSOR HARDWARE					
	RESEARCH					
	1100 CENTRAL PROCESSOR(S)	(0023)	759.760	\$0.1000	TCB SECONDS	\$75.98
	1100 CENTRAL PROCESSOR(S)	(0041)	100.000	\$0.2500	KCORE HOURS	\$25.00
	DEPARTMENT TOTAL					\$100.98
	SALES					
	1100 CENTRAL PROCESSOR(S)	(0023)	911.200	\$0.1000	TCB SECONDS	\$91.12
	1100 CENTRAL PROCESSOR(S)	(0041)	200.000	\$0.2500	KCORE HOURS	\$50.00
	DEPARTMENT TOTAL					\$141.12
	1100 VALUE-ADDED TAX (VAT)		242.100	%0.1000	DOLLARS	\$24.21
	RESEARCH					
	1200 CHANNELS	(0097)	200.000	\$0.2500	1000 EXCPS	\$50.00
	DEPARTMENT TOTAL					\$50.00
	SALES					
	1200 CHANNELS	(0097)	400.000	\$0.2500	1000 EXCPS	\$100.00
	DEPARTMENT TOTAL					\$100.00
	1200 INVOICE CATEGORY DISCOUNT		150.000	(%0.0500)	DOLLARS	(\$7.50)
7XXX	INVENTORIES					
	RESEARCH					
	7200 DISK VOLUMES	(1820)	291.355	\$1.0000	MEGABYTE HOUR	\$291.36
	DEPARTMENT TOTAL					\$291.36
	SALES					
	7200 DISK VOLUMES	(1820)	301.633	\$1.0000	MEGABYTE HOUR	\$301.63
	DEPARTMENT TOTAL					\$301.63
	7200 VALUE-ADDED TAX (VAT)		592.990	%0.1000	DOLLARS	\$59.30

Figure 6-1a. Computation Code Invoice in INVCCAT Format (Part 1 of 2)

9XXX DIFFERENTIAL CHARGES		
RESEARCH		
9400 MINIMUM CHARGE	(JMIN)	\$620.04
DEPARTMENT TOTAL		----- \$620.04
SALES		
9400 MINIMUM CHARGE	(JMIN)	\$434.00
DEPARTMENT TOTAL		----- \$434.00
RESEARCH		
9500 ZONE DIFF CHARGE	(ZDIF)	(\$157.50)
DEPARTMENT TOTAL		----- (\$157.50)
SALES		
9500 ZONE DIFF CHARGE	(ZDIF)	(\$221.45)
DEPARTMENT TOTAL		----- \$221.45
TOTAL CHARGES		\$1,736.19
VOLUME DISCOUNT		(\$120.07)
SUBTOTAL		----- \$1,616.12
5.00% VAT		\$80.80
SUBTOTAL		----- \$1,696.92
NET CHARGES		----- \$1,696.92
		=====
BUDGET AUTHORIZATION		\$2,000.00
VARIANCE AMOUNT		\$303.08
YEAR-TO-DATE CHARGES		\$7,434.27
YEAR-TO-DATE BUDGET AUTHORIZATION		\$17,700.00
YEAR-TO-DATE VARIANCE AMOUNT		\$10,265.73
NET CHARGES		----- \$1,696.92
ZERO BALANCE ADJUSTMENT		\$10.83
ADJUSTED CHARGES		----- \$1,707.75
		=====
YTD CHARGES		\$7,434.27
YTD ZERO BALANCE ADJUSTMENT		\$100.10
ADJUSTED YTD CHARGES		----- \$7,534.37
		=====

Figure 6-1b. Computation Code Invoice in INVCCAT Format (Part 2 of 2)

Figure 6-1b. Computation Code Invoice in INVCCAT Format (Part 2 of 2)

INVOICE CATEGORY INVOICE

The Invoice Category Invoice presents a single line item for each invoice category (individual billing elements have been summarized to their associated invoice categories). The lines are designated by invoice category codes and their associated descriptions. Thus, the invoice category type invoice is one "level" less detailed than the Computation Code type.

The CHARGE line item format prints the following columns: invoice category code, invoice category description, and charge. This sample invoice also utilizes the invoice category group subtotal option and several footing options including budget information, year-to-date totals, and a footnote. Refer to Figure 4-46 for an illustration of the options used to create this sample.

6.1 Invoicing

COMPLEX REPORT						INVOICE
MONTHLY INVOICE FOR JUNE 2002						INVOICE NO. - 3
DIVISION: ACME						PAGE NO. - 1
TO: MR. JOHN SMITH, GROUP VP						BILL DATE - 07/30/02
ACME PRODUCTS DIVISION						STATUS: BILL
CATEGORY	RESOURCE UTILIZED		QUANTITY	RATE	UNITS	CHARGES
1XXX	PROCESSOR HARDWARE					
	RESEARCH					
	1100 CENTRAL PROCESSOR(S)	(0023)	759.760	\$0.1000	TCB SECONDS	\$75.98
	1100 CENTRAL PROCESSOR(S)	(0041)	100.000	\$0.2500	KCORE HOURS	\$25.00
	DEPARTMENT TOTAL					\$100.98
	SALES					
	1100 CENTRAL PROCESSOR(S)	(0023)	911.200	\$0.1000	TCB SECONDS	\$91.12
	1100 CENTRAL PROCESSOR(S)	(0041)	200.000	\$0.2500	KCORE HOURS	\$50.00
	DEPARTMENT TOTAL					\$141.12
	1100 VALUE-ADDED TAX (VAT)		242.100	%0.1000	DOLLARS	\$24.21
	RESEARCH					
	1200 CHANNELS	(0097)	200.000	\$0.2500	1000 EXCPS	\$50.00
	DEPARTMENT TOTAL					\$50.00
	SALES					
	1200 CHANNELS	(0097)	400.000	\$0.2500	1000 EXCPS	\$100.00
	DEPARTMENT TOTAL					\$100.00
	1200 INVOICE CATEGORY DISCOUNT		150.000	(%0.0500)	DOLLARS	(\$7.50)
7XXX	INVENTORIES					
	RESEARCH					
	7200 DISK VOLUMES	(1820)	291.355	\$1.0000	MEGABYTE HOUR	\$291.36
	DEPARTMENT TOTAL					\$291.36
	SALES					
	7200 DISK VOLUMES	(1820)	301.633	\$1.0000	MEGABYTE HOUR	\$301.63
	DEPARTMENT TOTAL					\$301.63
	7200 VALUE-ADDED TAX (VAT)		592.990	%0.1000	DOLLARS	\$59.30
9XXX	DIFFERENTIAL CHARGES					
	RESEARCH					
	9400 MINIMUM CHARGE	(JMIN)				\$620.04
	DEPARTMENT TOTAL					\$620.04
	SALES					
	9400 MINIMUM CHARGE	(JMIN)				\$434.00
	DEPARTMENT TOTAL					\$434.00
	RESEARCH					
	9500 ZONE DIFF CHARGE	(ZDIF)				(\$157.50)
	DEPARTMENT TOTAL					(\$157.50)
	SALES					
	9500 ZONE DIFF CHARGE	(ZDIF)				(\$221.45)
	DEPARTMENT TOTAL					\$221.45
	TOTAL CHARGES					\$1,736.19
	VOLUME DISCOUNT					(\$120.07)
	SUBTOTAL					\$1,616.12
	5.00% VAT					\$80.80
	SUBTOTAL					\$1,696.92
	NET CHARGES					\$1,696.92
	BUDGET AUTHORIZATION					\$2,000.00
	VARIANCE AMOUNT					\$303.08

YEAR-TO-DATE CHARGES	\$7,434.27
YEAR-TO-DATE BUDGET AUTHORIZATION	\$17,700.00
YEAR-TO-DATE VARIANCE AMOUNT	\$10,265.73

NET CHARGES	\$1,696.92
ZERO BALANCE ADJUSTMENT	\$10.83
ADJUSTED CHARGES	\$1,707.75
=====	
YTD CHARGES	\$7,434.27
YTD ZERO BALANCE ADJUSTMENT	\$100.10
ADJUSTED YTD CHARGES	\$7,534.37
=====	

Figure 6-2. Invoice Category Invoice in CHARGE Format

COST CENTER INVOICE

The Cost Center Invoice presents line items summarized across invoice categories to the cost center level specified in the Invoice Format Options. A line item is provided for each unique cost center value for which charges were incurred (in the sample report, line items are specified for the cost center level titled "APPLICATION"). Subtotals may be requested at another cost center level (in the sample report, subtotals are provided for the cost center level titled "DEPARTMENT"). Note that the cost center levels specified do not have to be either contiguous or in numerical order, however, some combinations may produce "meaningless" reports.

The BUDYTD line item format provides both budget and year-to-date information for each line item. The columns are: current month charges, current month budget, variance from current month budget, year-to-date charges, year-to-date budget, and variance from year-to-date budget. Refer to Figure 4-48 for an illustration of the options used to create this sample.

COMPLEX REPORT				INVOICE		
MONTHLY INVOICE FOR JUNE 2002						
TO: MR. JOSEPH DOKES, GENERAL MGR. AMALGAMATED MECHANISMS, LTD.				INVOICE NO. - 4		
DIVISION: AMALGAMATED				PAGE NO. - 1		
				BILL DATE - 07/31/02		
				STATUS: BILL		
DEPARTMENT / APPLICATION	MONTH CHARGES	MONTH BUDGET	VAR %	YTD CHARGES	YTD BUDGET	VARIANCE
DEVELOPMENT						
BATCH	\$125.00	\$5,700	97.8	\$250.00	\$11,400	97.8
TSO	\$317.50	\$5,000	93.6	\$3,728.57	\$17,000	78.1
DEPARTMENT SUBTOTAL	\$442.50	\$10,700	95.9	\$3,978.57	\$28,400	86.0
PRODUCTION						
CICS	\$232.82			\$3,663.43		
DEPARTMENT SUBTOTAL	\$232.82			\$3,663.43		
TOTAL CHARGES	\$675.32			\$7,642.00		
INVOICE CATEGORY DISCOUNTS	.			(\$5.59)		
SUBTOTAL	\$675.32			\$7,636.41		
INVOICE CATEGORY SURCHARGES	\$10.10			\$649.34		
SUBTOTAL	\$685.42			\$8,285.75		
VOLUME DISCOUNT	.			(\$520.07)		
SUBTOTAL	\$685.42			\$7,765.68		
5.00% VAT	\$34.27			\$388.28		
SUBTOTAL	\$719.69			\$8,153.96		
NET CHARGES	\$719.69			\$8,153.96		
TOTAL BUDGET AUTHORIZATION		\$10,700			\$28,400	
VARIANCE AMOUNT AND %	\$9,980.31		93.3	\$20,246.04		71.3
NET CHARGES	\$719.69			\$8,153.96		
ZERO BALANCE ADJUSTMENT	\$45.82			\$46.65		
ADJUSTED CHARGES	\$765.51			\$8,200.61		

Figure 6-3. Cost Center Invoice in BUDYTD Format

6.1.1.3 Running the Consolidated Invoice Report

The Consolidated Invoice Report is run from the Invoicing option of the Enterprise IS Financial Reporting menu (MWF;4;2;2;1). You are asked to submit the job after editing the JCL in the sharedprefix.MICS.CNTL(INVOICE) member.

6.1.1.4 Zero Balance Report

The Zero Balance Report shows any adjustments to be made to each of the invoiced cost centers as a result of the zero-balance process. Figure 6-4 shows a sample of this report. This report is produced when the Financial Recap File is created if Zero Balancing has been requested in the General Installation Accounting Specifications.

The report heading contains the installation name and the report name (for example, Monthly Zero Balance Report).

The report lists the charges for the accounting month for each invoiced cost center by name (specified in the Cost Center Attributes File) and the adjustment amounts and revised charges for each of these cost centers that result from calculating a zero balance. All cost centers that have been designated as NOBILL in the ACTCCA file are excluded from this report and from processing.

If the method of zero balancing is either INVCCAT or COMPCODE, the report will show the INVCCAT or COMPCODE.

Refer to Section 4.11, Implementing Monthly Zero Balancing, for more information about this report.

REPORT OPTIONS

The available options for this report are:

- o Zero Balance Amount

Before running the report, you should enter the zero balance amounts in `sharedprefix.MICS.PARMS(ZEROBAL)`. You can specify them as total amounts for the entire data center, by invoice category, or by computation code (charging element).

RUNNING THE REPORT

This report is produced automatically when the Financial Recap File is created by the INVOICE or FINRECAP jobs.

COMPLEX REPORT INVCCAT ZERO BALANCE REPORT			
REPORT DATE: 07/30/91	INVOICE CATEGORY 1100		PAGE NO. - 1
COST CENTER NAME	ORIGINAL MONTHLY CHARGES	ADJUSTMENT AMOUNT	REVISED MONTHLY CHARGES
ADMINISTRATION	\$1,100.00	(\$442.34)	\$657.66
HUMAN RESOURCES	\$110.00	(\$44.23)	\$65.77
SALES GROUP 1	\$111.08	(\$44.67)	\$66.41
SALES GROUP 1 - TELEMARKETING	\$111.08	(\$44.67)	\$66.41
SALES GROUP 1 - TELEMARKETING - TEAM 1	\$111.08	(\$44.67)	\$66.41
PRODUCT REWORK	\$0.02	(\$0.01)	\$0.01
FIELD SERVICES	\$0.02	(\$0.01)	\$0.01
SALVAGE	\$0.02	(\$0.01)	\$0.01
MARKETING	\$247.06	(\$99.35)	\$147.71
MARKETING - CONSUMER PRODUCTS	\$247.06	(\$99.35)	\$147.71
MARKETING - CP - HOUSEWARES	\$247.06	(\$99.35)	\$147.71
AUSTIN PLANT NO. 1	\$1,100.00	(\$442.34)	\$657.66
PLANT 1 - RECEIVING	\$1,100.00	(\$442.34)	\$657.66
P1 - RECV - DOCK RECEIVING	\$1,100.00	(\$442.34)	\$657.66
INVENTORY CONTROL	\$2,072.23	(\$833.29)	\$1,238.94
SOFTWARE DEVELOPMENT	\$0.59	(\$0.24)	\$0.35
UNKNOWN	\$44.81	(\$18.02)	\$26.79
UNKNOWN	\$573.41	(\$230.58)	\$342.83
UNKNOWN	\$27.76	(\$11.16)	\$16.60
UNKNOWN	\$59.66	(\$23.99)	\$35.67
TOTALS	\$8,362.94	(\$3,362.96)	\$4,999.98

Figure 6-4. Monthly Accounting Zero-Balance Report

6.1.2 Repeat Invoice

You can run an invoice from a prior accounting period. This option allows you to produce an invoice from any existing Financial Recap file cycle. The menu allows you to select the Financial Recap file cycle to be used and submit the report.

If the ACT_RR file is active, the year-to-date information will be the same as when the original invoice was run. If the ACT_RR is not active, the year-to-date information will be the current year-to-date amounts.

RUNNING THE REPORT

Run the invoice from the Repeat Invoice option of the Invoicing menu (MMF;4;2;4;1;2). You are asked to submit the job from an edit of the JCL. The JCL is created by reading sharedprefix.MICS.CNTL(INVOICER) into a temporary file and adding the requested cycle number.

6.1.3 Month-to-Date Invoice

You can produce an invoice from the current month cycle of the Ledger, Debit, and Credit files and the active cycle of the Budget file. Any recurring debits and credits are included. Year-to-date amounts through the previous month can be shown. If you specified any ledger file prorating, it will be performed, however no zero balance adjustments will be created.

RUNNING THE REPORT

Run the invoice from the Month-to-Date Invoice option of the Invoicing menu (MWF;4;2;4;1;3). You will be asked to submit the job from an edit of the JCL in `sharedprefix.MICS.CNTL(INVOICED)`.

6.1.4 Multi-Site Invoice

You can, from the central site, produce a Multi-site Consolidated Invoice from the 01 (prior month) cycle of the Multi-site Financial Recap file. The invoice is created from the central and remote site Financial Recap files.

RUNNING THE REPORT

Run the invoice from the Multi-site Invoice option of the Invoicing (MWF;4;2;4;1;4). You will be asked to submit the job from an edit of the JCL in `sharedprefix.MICS.CNTL(INVOICEM)`.

6.1.5 Multi-Site Repeat Invoice

You can run an invoice from a prior accounting period. This option allows you to produce an invoice from any existing Multi-site Financial Recap file cycle.

Note that if year-to-date information is shown, it will reflect the current year-to-date amounts, not the amounts when the original invoice was run.

RUNNING THE REPORT

Run the invoice from the Multi-site Repeat Invoice option of the Invoicing menu (MMF;4;2;4;1;5). You will be asked to submit the job from an edit of the JCL. The JCL is created by reading `sharedprefix.MICS.CNTL(INVOICER)` into a temporary file and adding a cycle number.

6.1.6 Invoice Credit Supplement Report

The Invoice Credit Supplement Report is a detailed listing of the credits applied to a given cost center's bill. This report supplements the credit total printed on the invoice in those situations where detailed credit information is desired. Figure 6-5 shows a sample Invoice Credit Supplement Report.

The report heading includes the installation name and the report title (for example, Invoice Credit Supplement Report).

The report lists each individual credit amount for a given value of a high-level cost center, with an intermediate total for each subordinate cost center.

RUNNING THE REPORT

Run this report from the Invoice Credit Supplement Report option of the Invoicing menu (MWF;4;2;4;1;6). You will be asked to submit the job from an edit of the JCL. The JCL is in `sharedprefix.MICS.CNTL(ACTCRDPT)`.

COMPLEX REPORT						
INVOICE CREDIT SUPPLEMENT REPORT						
DIVISION : DUNSMILL						
REPORT DATE: 07/30/91					PAGE NO. - 1	
CREDIT						
CATEGORY	DESCRIPTION	BILLING TIME STAMP	YEAR MONTH	ZONE	ACCOUNTING YEAR MONTH	CREDIT AMOUNT
1100	CENTRAL PROCESSOR MALFUNCTION.		91	6	91 6	\$1.00
1100	CENTRAL PROCESSOR MALFUNCTION.		91	8	91 8	\$1.00
1100	CENTRAL PROCESSOR MALFUNCTION.		91	9	91 9	\$1.00
SUBTOTAL FOR USER :						\$3.00
SUBTOTAL FOR REGION :						\$3.00
SUBTOTAL FOR PROJECT :						\$3.00
SUBTOTAL FOR APPLICATION :						\$3.00
SUBTOTAL FOR DEPARTMENT :						\$3.00
TOTALS FOR : DIVISION : CA1						\$3.00
YOUR COMPANY NAME						
INVOICE CREDIT SUPPLEMENT REPORT						
DEPARTMENT : OPERATIONS						
REPORT DATE: 10/06/87						
PAGE NO. - 1						
CREDIT						
CATEGORY	DESCRIPTION	BILLING TIME STAMP	YEAR MONTH	ZONE	ACCOUNTING YEAR MONTH	CREDIT AMOUNT
1100	CENTRAL PROCESSOR MALFUNCTION	26SEP87:09:21:27.36	87	09	87 09	\$5,000.00
1110	PROCESSOR STORAGE MALFUNCTION	26SEP87:09:21:27.36	87	09	87 09	\$2,046.42
3110	LASER PRINTER MALFUNCTION	26SEP87:09:21:27.36	87	09	87 09	\$600.21
SUBTOTAL FOR USER-JOB : ORDER1						\$7,646.42
SUBTOTAL FOR PROJECT : TRACKING						\$7,646.42
1100	CENTRAL PROCESSOR MALFUNCTION	26SEP87:11:21:27.36	87	09	87 09	\$127.25
1110	PROCESSOR STORAGE MALFUNCTION	26SEP87:11:21:27.36	87	09	87 09	\$81.04
SUBTOTAL FOR USER-JOB : TRIALBAL						\$208.29
SUBTOTAL FOR PROJECT : AUDIT						\$208.29
TOTALS FOR : DEPARTMENT : 100						\$7,854.71

Figure 6-5. Invoice Credit Supplement Report

6.1.7 Trial Balance Invoice

You can produce a trial balance invoice for the previous month's cycle before you run all the CA MICS unit MONTHLY or MONTHACT jobs and the CLOSETBL job.

The trial balance invoice contains all of the previous month's data from the unit Ledger Files and from the standard debit and credit files. This data is reflected in the invoice regardless of whether the CA MICS unit MONTHLY (or MONTHACT) jobs have been run or whether the CLOSETBL job has been run.

Ledger File prorating is performed if you specified it in General Accounting Options.

RUNNING THE REPORT

Run the invoice from the Trial Balance Invoice option of the Invoicing menu (MMF;4;2;4;1;7). You will be asked to submit the job from an edit of the JCL in `sharedprefix.MICS.CNTL(INVOICEL)`.

6.2 Client Support

The Client Support management impact area provides an understanding of how IS expenditures are being consumed by the client, the "user" of IS services. This information is presented on the mainframe by the User Expense Summary Report, and is discussed in detail in the following section:

- 1 - User Expense Summary Report

6.2.1 User Expense Summary

The User Expense Summary is a report of charges for a specific user, or for all users at a specific cost center level, in any defined invoice format. It enables IS user management to review charges for their users. Figure 6-6 is a sample of the User Expense Summary report.

RUNNING THE REPORT

Run the report from the User Expense Summary option of the Client Support menu (MWF4;2;4;2;2). Review the online tutorial for information on specifying the run time parameters. You are asked to submit the job from an edit of the JCL. The JCL is created by reading sharedprefix.MICS.CNTL(ACTEXPU) into a temporary file and adding a cycle number.

COMPLEX REPORT						USER EXPENSE SUMMARY
USER EXPENSE SUMMARY FOR JANUARY 2002						INVOICE NO. - 1
DIVISION: SALES						PAGE NO. - 1
TO: SALES						BILL DATE - 02/13/02
CA						STATUS: BILL
2291 WOOD OAK DRIVE						CHARGES
HERNDON, VA.						
CATEGORY	RESOURCE UTILIZED		QUANTITY	RATE	UNITS	
1XXX	PROCESSOR HARDWARE					
	1100 CENTRAL PROCESSOR(S)	(0023)	125.580	\$0.1000	TCB SECONDS	\$12.56
	1100 CENTRAL PROCESSOR(S)	(0023)	125.580	\$0.1200	TCB SECONDS	\$15.07
	1100 CENTRAL PROCESSOR(S)	(0252)	19.000	\$5.0000	STEPS	\$95.00
	1100 INVOICE CATEGORY DISCOUNT		122.630	(%0.1000)	DOLLARS	(\$12.26)
	1200 CHANNELS	(0097)	48.969	\$0.1100	1000 EXCPS	\$5.38
	1200 INVOICE CATEGORY SURCHARGE		5.380	%0.0500	DOLLARS	\$0.27
TOTAL CHARGES						\$116.02
NO BUDGET AMOUNT SPECIFIED FOR THIS COST CENTER						

Figure 6-6. User Expense Summary Report

6.3 IS Financial Management

The IS Financial Management impact area provides IS management with an understanding of IS revenue and resource use. Although labeled as "revenue," this information is useful to IS management whether or not the IS organization actually charges for IS services. The information is presented by a series of mainframe reports. These are discussed in the following sections:

- 1 - Financial Reports
- 2 - Year-to-Date Financial Reports
- 3 - Budget Summary Report
- 4 - Cost Reconciliation

6.3.1 Financial Reports

You can produce the following financial reports from the Financial Recap File:

- 1 - Budgetary Analysis Report
- 2 - Budget Threshold Report
- 3 - Revenue Area Analysis Report
- 4 - User Revenue Distribution Report
- 5 - Credit Area Analysis Report
- 6 - User Credit Distribution Report
- 7 - Revenue/Credit Trend Report
- 8 - Surcharge Summary Report
- 9 - Invoice Summary Report

6.3.1.1 Budgetary Analysis Report

The Budgetary Analysis Report summarizes the charges invoiced to the cost centers within the accounting period, compared to their specified budgets for the same period. This report lets you see which cost centers are over or under budget and the amount of the discrepancy. You can also run a Year-to-Date Budgetary Analysis Report that lists year-to-date amounts.

Figure 6-7 shows a sample of the Budgetary Analysis Report. The report heading contains the data center name, the report name (for example, Budgetary Analysis), and the accounting period (for example, June 2005).

The body of the report lists the cost center's name (as specified in the Cost Center Attributes File), (for example, Acme Products Division), the Over Budget status (if applicable), the budget amount for the accounting period, the actual charges for the accounting period, and the variance (budget amount minus charges). Negative values of the variance are shown in parentheses.

Because zero balanced amounts are not compared to budgets, the "Net Charges" column amounts do not reflect any zero balance adjustments.

The budget amounts and charges are totaled and the variance and status for the total are calculated.

REPORT OPTIONS

The available options for this report are:

- o Fuzz Value

An OVER BUDGET message prints when the charges vary from the budgeted amount. By specifying a Fuzz Value, some tolerance is allowed before the OVER BUDGET message is produced. The default Fuzz Value is \$1000, so that differences of less than \$1000 between the charges and the budgeted amount are ignored.

- o Cost Center Selection

You can run this report for all billable customers (cost centers), all non-billable customers, or both. The STATUS

variable in the Financial Recap File (derived from Billing Status in the Cost Center Attributes File) indicates whether a cost center is billable. Specifying a SYSPARM parameter of STATUS=BILL, STATUS=NOBILL, or STATUS=BOTH determines which cost centers appear on the report. The default is BOTH.

RUNNING THE REPORT

Run the Budgetary Analysis Report from the Financial Reports option of the IS Financial Management menu (MWF;4;2;4;3;2). The JCL for this report is in the sharedprefix.MICS.CNTL(FINRPT) member.

Run the Year-to-Date Budgetary Analysis Report from the Year to Date Financial Reports option IS Financial Management menu (MWF;4;2;4;3;3). The JCL for this report is in the sharedprefix.MICS.CNTL(FINRPTY) member.

YOUR COMPANY NAME				
BUDGETARY ANALYSIS				
ACCOUNTING PERIOD: JUNE ,2005				
REPORT DATE: 07/26/05			PAGE NO. - 1	
COST CENTER NAME	STATUS	BUDGET	NET CHARGES	VARIANCE
ACME PRODUCTS DIVISION	OVER BUDGET	\$0.00	\$6,038.02	(\$6,038.02)
AUSTIN PLANT 1	OVER BUDGET	\$0.00	\$1,107.97	(\$1,107.97)
DUNSMILL	OVER BUDGET	\$0.00	\$5,779.14	(\$5,779.14)
FIELD SERVICES	OVER BUDGET	\$0.00	\$1,400,734.36	(\$1,400,734.36)
MARKETING	OVER BUDGET	\$0.00	\$2,041,334.22	(\$2,041,334.22)
SALES		\$3,649,421.61	\$196,419.77	\$3,453,001.84
	TOTAL OVER BUDGET	\$3,649,421.61	\$3,651,413.48	(\$1,991.86)
	=====	=====	=====	=====

Figure 6-7. Budgetary Analysis Report

6.3.1.2 Budget Threshold Report

The Budget Threshold Report lists the percentage of the budget that has been expended. This report is produced when actual month-to-date charges in the ledger file exceed the percentage of the budget allocated for each month, as specified in user-defined thresholds. When you produce this report, one of the options allows you to activate alerting through an interface with the ServicePlus Service Desk when the thresholds have been exceeded.

The report is generated by executing MICF inquiry ACTSVD. We recommend that you schedule this MICF inquiry weekly in production reporting so you can use it to adjust the budget.

BODY CONTENTS

The report title contains the data center name and the report name and date (for example, Budgetary Threshold Report August, 2005).

The center heading of the report shows the cost centers for which the report was produced. If they were provided in the Cost Center Attributes File, the names and addresses associated with the cost center values (the report recipient) are printed in the upper left corner of the report. The upper right corner of the report shows the format type (computation code/cost center), the bill date, the status (billable/non-billable cost centers), and the percent of the budget that was used.

REPORT OPTIONS

The available options for this report are as follows:

- o Threshold Alerting YES|NO

If the option is set to YES, the ServicePlus Service Desk will be alerted when the percent of the budget actually used exceeds the threshold specified by the Percent Budget Amount Threshold option. The default value is NO.

For more information on using the ServicePlus Service Desk alert facility, see Section 4.9 of the PIOM.

- o Report Format COMPCODE | COSTCTR

Computation code format prints line items that are

summarized by computation code and rate. Cost center format prints line items that are summarized at the cost center level. The default value is COMPCODE.

- o Cost Center Level 1 | 2 | 3

This field defines the cost center level at which line items will be summarized on the report. Valid values are 1 to 3. The default value is 1.

- o Percent Budget Amount Threshold 0-999

This field defines the threshold. Use it to specify what percent of the budget is allocated for each month. The Budget Threshold Report will be produced when the percent of the budget actually used exceeds this threshold.

- o Budget Table Work | Active

The active budget table contains budgeted amounts for the last accounting period. The active budget is referred to as (01).

The work budget table contains all the budgeted amounts in the active table, plus budgeted amounts for future accounting periods, such as next month or next fiscal year. Budgeted amounts are copied from the work table to the active table by the CLOSETBL batch job when they become effective. The work budget table is referred to as (00).

The default value is WORK.

USAGE CONSIDERATIONS

This inquiry provides a user exit that you can use to perform additional data selection from the CA MICS database. To invoke this exit, you must first copy the shared inquiry into your private MICF catalog; then select it for modification. Finally code SAS statements in the SELECT macro, bracketed by the %MACRO and %MEND statements.

The default for the SELECT macro is null. This macro is invoked when the observations are read from the specified CA MICS files. You can use it to delete observations from the data as it is selected. For example, in a system activity study, you could select the cost centers that start with A. You would then code the following:

```
%MACRO SELECT;
IF COSTCTR1 =:'A';
%MEND SELECT;
```

Note that you do not have to code the %MACRO and %MEND statements; they are already provided for you.

COMPLEX REPORT CA MICS IS Management Support System Budget Threshold Report DEVELOPMENT: Security T0: Security 1034 Wood Oak DR. Reston, VA. 21234 FMT: Computation Code PAGE NO. - 1 BILL DATE - 08/16/07 STATUS: BILL Budget Used: 25%						
CATEGORY	RESOURCE / UNITS	QUANTITY	RATE	CHARGES	BUDGET	% BUDGET EXPENDED
1100	CENTRAL PROCESSOR(S)					
	(0023) TCB SECONDS	7687.799	\$3.0000	\$23,063.40	\$50,000	46.13
	(0024) SRB SECONDS	491.690	\$4.0000	\$1,966.76	\$7,000	28.10
	(0252) STEPS	18744.000	\$6.0000	\$112,464.00	\$150,000	74.98
1200	CHANNELS					
	(0097) 1000 EXCPS	11624.121	\$5.0000	\$58,123.79	\$75,000	77.50

Figure 6-7a Budget Threshold Report

6.3.1.3 Revenue Area Analysis Report

The Revenue Area Analysis Report summarizes the charges incurred during the accounting period by individual invoice category (INVCCAT). This report allows data center management to determine the dollar expenditure for data processing services for each resource and to determine whether the charges are appropriately distributed among the resources. You can also run a Year-to-Date Revenue Area Analysis Report that lists year-to-date amounts. Figure 6-8 shows a sample Revenue Area Analysis Report.

The report heading contains the installation name, the report name (for example, Revenue Area Analysis), and the accounting period (for example, September, 2002).

The body of the report lists the invoice category (INVCCAT), the resource name associated with it, the charge incurred, and the percentage of the total charges for the accounting period represented by this resource.

REPORT OPTION

The available option for this report is:

o Cost Center Selection

You can run this report for all billable customers (cost centers), all non-billable customers, or both. The STATUS variable in the Financial Recap File (derived from Billing Status in the Cost Center Attributes File) indicates whether a cost center is billable. Specifying a SYSPARM parameter of STATUS=BILL, STATUS=NOBILL, or STATUS=BOTH determines which cost centers appear on the report. The default is BOTH.

RUNNING THE REPORT

Run the Revenue Area Analysis Report from the Financial Reports option of the IS Financial Management menu (MWF;4;2;4;3;2). The JCL for this report is in the sharedprefix.MICS.CNTL(FINRPT) member.

Run the Year-to-Date Revenue Area Analysis Report from the Year-to-Date Financial Reports option of the IS Financial Management menu (MWF;4;2;4;3;3). The JCL for this report is

in the sharedprefix.MICS.CNTL(FINRPTY) member.

YOUR COMPANY NAME			
REVENUE AREA ANALYSIS			
ACCOUNTING PERIOD: JUNE, 2002			
REPORT DATE - 07/26/02		Page No. - 1	
INVOICE CATEGORY	DESCRIPTION	CHARGES	PERCENTAGE
1100	CENTRAL PROCESSOR(S)	\$288,459.46	23.15
1110	PROCESSOR STORAGE	\$12,126.23	.97
1200	CHANNELS	\$30,162.43	2.42
1300	CONTROL UNITS	\$27,143.89	2.18
1400	TAPE DRIVES	\$15,184.00	1.22
1500	DIRECT ACCESS STORAGE DEVICES	\$62,392.00	5.01
1550	MASS STORAGE DEVICES	\$20,104.03	1.61
2100	TERMINALS	\$120,219.21	9.65
2200	COMMUNICATIONS LINES	\$160,126.00	12.85
2600	SATELLITE EARTH STATIONS	\$11,114.34	.89
3100	MECHANICAL PRINTERS	\$11,567.98	.90
3110	LASER PRINTERS	\$98,975.57	7.95
5840	DOCUMENTATION COSTS	\$35,125.33	2.82
6100	SYSTEMS PROGRAMMERS	\$254,485.54	20.42
6420	SCHEDULERS	\$12,326.00	.99
6430	DATA CONTROL PERSONNEL	\$21,556.00	1.74
7100	TAPE VOLUMES	\$5,179.55	.42
7200	DISK VOLUMES	\$58,011.83	4.66
TOTAL		\$1,244,259.39	100.00

Figure 6-8. Revenue Area Analysis Report

6.3.1.4 User Revenue Distribution Report

The User Revenue Distribution Report summarizes the percentage of total revenue that each invoiced cost center accrued during the accounting period. This report allows management to determine the relative ranking of cost center data processing expenditures. You can also run a Year-to-Date User Revenue Distribution Report that lists year-to-date amounts. Figure 6-9 shows a sample User Revenue Distribution Report.

The report heading contains the installation name, the report name (for example, User Revenue Distribution), and the accounting period (for example, September, 2002).

The body of the report lists the cost center's name (as specified in the Cost Center Attributes File), the resource name associated with the code, the cost center charges for the accounting period, and its percentage of the total revenue.

REPORT OPTION

The available option for this report is:

o Cost Center Selection

You can run this report for all billable customers (cost centers), all non-billable customers, or both. The STATUS variable in the Financial Recap File (derived from Billing Status in the Cost Center Attributes File) indicates whether a cost center is billable. Specifying a SYSPARM parameter of STATUS=BILL, STATUS=NOBILL, or STATUS=BOTH determines which cost centers appear on the report. The default is BOTH.

RUNNING THE REPORT

Run the User Revenue Distribution Report from the Financial Reports option of the IS Financial Management menu (MWF;4;2;4;3;2). The JCL for this report is in the sharedprefix.MICS.CNTL(FINRPT) member.

Run the Year-to-Date User Revenue Distribution Report from the Year-to-Date Financial Reports option of the IS Financial Management menu (MWF;4;2;4;3;3). The JCL for this report is

in the sharedprefix.MICS.CNTL(FINRPTY) member.

YOUR COMPANY NAME HERE		
USER REVENUE DISTRIBUTION		
ACCOUNTING PERIOD: JUNE ,2002		
REPORT DATE: 07/26/02		PAGE NO. - 1
COST CENTER NAME	CHARGES	PERCENTAGE
-----	-----	-----
ACME PRODUCTS DIVISION	\$6,038.02	0.115
AUSTIN PLANT 1	\$1,107.97	0.021
DUNSMILL	\$5,779.14	0.110
FIELD SERVICES	\$1,427,307.36	27.181
MARKETING	\$2,045,161.52	38.947
SALES	\$1,765,795.06	33.627
-----	-----	-----
	\$5,251,189.00	100.000
TOTAL	=====	=====

Figure 6-9. User Revenue Distribution Report

6.3.1.5 Credit Area Analysis Report

The Credit Area Analysis Report summarizes the amounts credited during the accounting period by individual credit category. This report allows data center management to determine which resources are being credited, where processing inefficiencies exist, and the resulting revenue loss due to those inefficiencies. A year-to-date version of this report is also available. Figure 6-10 shows a sample Credit Area Analysis Report.

The heading contains the installation name, the report name (for example, Credit Area Analysis), and the accounting period (for example, September, 2002).

The body of the report lists the credit category number and description, the number of credits in this category during the accounting period, the amount credited in this category, and the percentage of the total credits caused by this category.

REPORT OPTION

The available option for this report is:

o Cost Center Selection

You can run this report for all billable customers (cost centers), all non-billable customers, or both. The STATUS variable in the Financial Recap File (derived from Billing Status in the Cost Center Attributes File) indicates if a cost center is billable. Specifying a SYSPARM parameter of STATUS=BILL, STATUS=NOBILL, or STATUS=BOTH determines which cost centers appear on the report. The default is BOTH.

RUNNING THE REPORT

Run the Credit Area Analysis Report from the Financial Reports option of the IS Financial Management menu (MWF;4;2;4;3;2). The JCL for this report is in the sharedprefix.MICS.CNTL(FINRPT) member.

Run the Year-to-Date Credit Area Analysis Report from the Year-to-Date Financial Reports option of the IS Financial Management menu (MWF;4;2;4;3;3). The JCL for this report is in the sharedprefix.MICS.CNTL(FINRPTY) member.

YOUR COMPANY NAME				
CREDIT AREA ANALYSIS				
ACCOUNTING PERIOD: JUNE , 2002				
REPORT DATE - 7/26/02			Page No. - 1	
CREDIT CATEGORY	DESCRIPTION	NUMBER	CREDITS	PERCENTAGE
1100	CENTRAL PROCESSOR MALFUNCTION	12	\$21,127.46	37.21
1110	PROCESSOR STORAGE MALFUNCTION	1	\$126.23	.22
1300	CONTROL UNIT MALFUNCTION	1	43.89	.08
1400	TAPE DRIVE MALFUNCTION	2	\$1,234.76	2.17
1550	MASS STORAGE DEVICE MALFUNCTION	1	\$104.03	.18
2100	TERMINAL INOPERATIVE	31	\$6,019.21	10.60
2130	MODEM MALFUNCTION	1	\$64.00	.11
2160	CONTROL UNIT MALFUNCTION	1	\$9.37	.02
2300	COMMUNICATIONS PROCESSOR ERROR	1	\$189.46	.33
3110	LASER PRINTER MALFUNCTION	4	\$992.65	1.75
5100	SCP SYSTEM SOFTWARE	6	\$2,334.12	4.11
6120	APPLICATION PROGRAMMING ERROR	37	\$24,536.88	43.22
TOTAL		98	\$56,782.06	100.00

Figure 6-10. Credit Area Analysis Report

6.3.1.6 User Credit Distribution Report

The User Credit Distribution Report is a management-level summary showing the percentage of total credits that were accounted for by each invoiced cost center for the accounting period. This report allows data center management to rapidly determine the relative ranking of cost center credits. A year-to-date version of this report is also available. Figure 6-11 shows a sample User Credit Distribution Report.

The report heading contains the installation name, the report name (for example, User Credit Distribution), and the accounting period (for example, September, 2002).

The body of the report lists the cost center name (as specified in the Cost Center Attributes File), the cost center's total credits for the accounting period, and the percentage of the total credits incurred by the cost center.

REPORT OPTION

The available option for this report is:

o Cost Center Selection

You can run this report for all billable customers (cost centers), all non-billable customers, or both. The STATUS variable in the Financial Recap File (derived from Billing Status in the Cost Center Attributes File) indicates if a cost center is billable. Specifying a SYSPARM parameter of STATUS=BILL, STATUS=NOBILL, or STATUS=BOTH determines which cost centers appear on the report. BOTH is the default.

RUNNING THE REPORT

Run the Year-to-Date User Credit Distribution Report from the Financial Reports option of the IS Financial Management menu (MWF4;2;4;3;2). The JCL for this report is in `sharedprefix.MICS.CNTL(FINRPT)`.

Run the Year-to-Date User Credit Distribution Report from the Year-to-Date Financial Reports option of the IS Financial Management menu (MWF4;2;4;3;3). The JCL for this report is in `sharedprefix.MICS.CNTL(FINRPTY)`.

YOUR COMPANY NAME		
USER CREDIT DISTRIBUTION		
ACCOUNTING PERIOD: JUNE ,2002		
REPORT DATE: 07/26/02	PAGE NO. - 1	
COST CENTER NAME	CREDITS	PERCENTAGE
-----	-----	-----
MARKETING	\$26,573.00	87.411
SALES	\$3,827.30	12.590
-----	-----	-----
	\$30,400.30	100.000
TOTAL	=====	=====

Figure 6-11. User Credit Distribution Report

6.3.1.7 Revenue/Credit Trend Analysis Report

The Revenue/Credit Trend Analysis Report presents a monthly history for the year, up to the previous month, of the charges and credits for a given cost center compared to its budget. This report allows management to analyze the amount of credits applied to a given cost center in relation to its expenditures. This may be a key indicator of cost center operational problems. Figure 6-12 shows a sample Revenue/Credit Trend Analysis Report.

The report heading contains the installation name, the name of the cost center (Middle-Atlantic Department), the report name (Revenue/Credit Trend Analysis), and the accounting period (June, 2002).

The body of the report lists the charges, credits, and net charges for the cost center for the last 12 months. For reference, the report also shows the monthly budget and variance from budget (budget amount minus net charges).

REPORT OPTIONS

The available option for this report is:

o Cost Center Selection

You can run this report for all billable customers (cost centers), all non-billable customers, or both. The STATUS variable in the Financial Recap File (derived from Billing Status in the Cost Center Attributes File) indicates whether a cost center is billable. Specifying a SYSPARM parameter of STATUS=BILL, STATUS=NOBILL, or STATUS=BOTH determines which cost centers appear on the report. The default is BOTH.

RUNNING THE REPORT

Run the Revenue/Credit Trend Analysis Report from the Financial Reports option of the IS Financial Management Menu (MWF;4;2;4;3;2). The JCL for this report is in sharedprefix.MICS.CNTL(FINRPT).

YOUR COMPANY NAME REVENUE/CREDIT TREND ANALYSIS ACCOUNTING PERIOD: JUNE, 2002						
REPORT DATE - 07/26/02		DEPARTMENT: MIDDLE-ATLANTIC			Page No. - 1	
MONTH	JAN	FEB	MAR	APR	MAY	JUN
CHARGES	128,276	118,312	142,196	138,789	156,867	152,554
CREDITS	8,234	6,543	1,975	1,472	9,927	5,768
NET CHARGES	120,042	111,769	140,221	137,317	146,940	146,786
BUDGET	140,000	112,000	140,000	140,000	140,000	140,000
VARIANCE	19,958	231	(221)	2,683	(6,940)	(6,786)
MONTH	JUL	AUG	SEP	OCT	NOV	DEC
CHARGES	155,831	171,608	178,825	.	.	.
CREDITS	274	3,246	11,699	.	.	.
NET CHARGES	155,557	168,362	167,126	.	.	.
BUDGET	170,000	170,000	170,000	170,000	170,000	170,000
VARIANCE	14,443	1,638	2,874	.	.	.

Figure 6-12. Revenue/Credit Trend Analysis Report

6.3.1.8 Surcharge Summary Report

The Surcharge Summary Report shows the total surcharge amount for each cost center invoiced. It provides management with a concise view of surcharges for tax reporting or other purposes. A year-to-date version of this report is also available. Figure 6-13 shows a sample Surcharge Summary Report.

The heading contains the installation name, the report name (for example, Surcharge Summary Report), and the accounting period (for example, September, 2002).

The body of the report lists the name of each cost center invoiced (as specified in the Cost Center Attributes File) and the total amount of surcharges invoiced to the cost center.

REPORT OPTION

The available option for this report is:

o Cost Center Selection

You can run this report for all billable customers (cost centers), all non-billable customers, or both. The RCPSTAT variable in the Financial Recap File (derived from Billing Status in the Cost Center) Attributes File indicates if a cost center is billable. Specifying a SYSPARM parameter of STATUS=BILL, STATUS= NOBILL, or STATUS=BOTH determines which cost centers appear on the report. The default is BOTH.

RUNNING THE REPORT

Run the Surcharge Summary Report from the Financial Reports option of the IS Financial Management menu (MWF;4;2;4;3;2). The JCL for this report is in sharedprefix.MICS.CNTL(FINRPT).

Run the Year-to-Date Surcharge Summary Report from the Year-to-Date Financial Reports option of the IS Financial Management menu (MWF;4;2;4;3;3). The JCL for this report is in the sharedprefix.MICS.CNTL(FINRPTY) member.

YOUR COMPANY NAME	
ACCOUNTING PERIOD: JULY ,2002	
SURCHARGE SUMMARY REPORT	
	TOTAL SURCHARGE
-----	-----
ACME PRODUCTS DIVISION	\$287.52
-----	-----
AUSTIN PLANT 1	\$52.76
-----	-----
DUNSMILL	\$275.20
-----	-----
FIELD SERVICES	\$66,701.71
-----	-----
MARKETING	\$97,206.61
-----	-----
SALES	\$9,353.33
-----	-----
	\$173,877.13

Figure 6-13. Surcharge Summary Report

6.3.1.9 Invoice Summary Report

The Invoice Summary Report shows the total charges, credits, discounts, surcharges, and zero balance adjustments for each cost center invoiced. It provides management with a quick overview of the invoices. A year-to-date version of this report is also available. Figure 6-14 shows a sample Invoice Summary Report.

The heading contains the installation name, the report name (for example, Invoice Summary Report), and the accounting period (for example, September, 2002).

The body of the report produces one page for each cost center invoiced and gives the cost center values and the cost center name (as specified in the Cost Center Attributes file). It lists the total charges, credits, discounts, surcharges, zero balance adjustments, and the grand total invoiced.

REPORT OPTION

The available option for this report is:

o Cost Center Selection

You can run this report for all billable customers (cost centers), all non-billable customers, or both. The RCPSTAT variable in the Financial Recap File (derived from Billing Status in the Cost Center) Attributes File indicates if a cost center is billable. Specifying a SYSPARM parameter of STATUS=BILL, STATUS= NOBILL, or STATUS=BOTH determines which cost centers appear on the report. The default is BOTH.

RUNNING THE REPORT

Run the Invoice Summary Report from the Financial Reports option of the IS Financial Management menu (MWF;4;2;4;3;2). The JCL for this report is in the sharedprefix.MICS.CNTL(FINRPT) member.

Run the Year-to-Date Invoice Summary Report from the Year-to-Date Financial Reports option of the IS Financial Management menu (MWF;4;2;4;3;3). The JCL for this report is in the sharedprefix.MICS.CNTL(FINRPTY) member.

YOUR COMPANY NAME		
ACCOUNTING PERIOD: JULY ,2002		
SUMMARY INVOICE		
DIVISION: CORPORATE DEPARTMENT: SALES		
NAME: SALES		

TOTAL CHARGES:		\$206,546.89
TOTAL CREDITS:		(\$3,827.30)
TOTAL DISCOUNTS:		(\$15,653.15)
SURCHARGES:		\$9,353.33

SUBTOTAL:		\$196,419.77
ZERO BALANCE ADJUSTMENTS:		\$0.00

GRAND TOTAL:		\$196,419.77

Figure 6-14. Invoice Summary Report

6.3.2 Year-to-Date Financial Reports

You can produce the following year-to-date financial reports from the Year-to-date Financial Recap File:

- Budgetary Analysis
- Revenue Area Analysis
- User Revenue Distribution
- Credit Area Analysis
- User Credit Distribution
- Surcharge Summary
- Invoice Summary

Refer to Section 6.3.1 for a review of these reports.

6.3.3 Budget Summary Report

The Budget Summary Report lists each budget entered for a cost center in thousands, fourteen budget periods per line. It provides an overview of budget amounts for the fiscal year.

Figure 6-15 shows a sample Budget Summary Report. The heading contains the data center name, the report name (for example, Budget Summary Report), and the accounting period (for example, September, 2005).

The body of the report lists the name of each cost center budgeted (as specified in the Cost Center Attributes File), the cost center values, the type of budget (COSTCTR, INVCCAT, COMPCODE, or UNITS), the invoice category or computation code description, and the budget amount for each financial period. A total amount is shown for each period and for each type of budget.

RUNNING THE REPORT

Run the report from the Budget Summary Report option of the IS Financial Management menu (MWF;4;2;4;3;4). The JCL for this report is in sharedprefix.MICS.CNTL(ACTBGTSM).

COMPLEX REPORT															
ACCOUNTING BUDGET CYCLE 01 SUMMARY															
REPORT DATE: 09/20/05															
FINANCIAL PERIOD BUDGET AMOUNTS IN THOUSANDS															
DIVISION: CORPORATE: DEPARTMENT: SALES															
NAME: SALES															
EFFECTIVE DATE: 01JAN05															
TYPE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	TOTAL
COSTCTR															
	50	50	50	50	50	50	50	50	50	50	50	50	50	50	700
INVCCAT CENTRAL PROCESSOR(S)	25	25	25	25	25	25	25	25	25	25	25	25	25	25	350
INVCCAT DIRECT ACCESS STORAGE DEVICES	12	12	12	12	12	12	12	12	12	12	12	12	12	12	168
COMPCODE JOB TCB CPU TIME CONSUMED	25	25	25	25	25	25	25	25	25	25	25	25	25	25	350
COMPCODE JOB DASD DATA TRANSFERRED	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
TOTALS	114	114	114	114	114	114	114	114	114	114	114	114	114	114	1,596
UNITS JOB TCB CPU TIME CONSUMED	100	100	100	100	100	100	150	150	150	150	150	150	.	.	1,500
UNITS JOB DASD DATA TRANSFERRED	10	10	10	10	10	10	10	10	10	10	10	10	0	0	120

Figure 6-15. Budget Summary Report

6.3.4 Cost Reconciliation Report

The Cost Reconciliation Report lists the difference between costs and charges by cost center, invoice category, or charging element. It allows management to determine the effectiveness of the rate setting. Figure 6-16 shows a sample of the cost center version of the Cost Center Reconciliation Report. The report excludes all Cost Center 1s that are designated as NOBILL in the ACTCCA file.

The report heading contains the installation name and the report name (for example, Cost Reconciliation Report).

REPORT OPTIONS

The available options for this report are:

o Data Center Costs

Before running the report, you should enter data center costs in `sharedprefix.MICS.PARMS(COSTREC)`. You can specify them as total costs for the entire data center, by invoice category, or by computation code (charging element).

o Number of Input Cycles

At the time of execution, the number of cycles of the Monthly Financial Recap File to be used as input is specified as `SYSPARM=ACTn`, where `n` is the number of cycles. The job is shipped with `ACT12` to indicate that you are to use 12 cycles. If you omit the `ACTn` parameter, the default is 1.

RUNNING THE REPORT

Run the report from the Cost Reconciliation Report option from the IS Financial Management menu (`MWF;4;2;4;3;5`). The JCL for this report is in `sharedprefix.MICS.CNTL(ACTCOSTR)`.

YOUR COMPANY NAME			
COST RECONCILIATION REPORT			
	CHARGES	COST	DIFFERENCE
	SUM	SUM	SUM
GRAND TOTAL	1187477.33	1499999.60	312522.27
COST CENTER NAME			
NEW ENGLAND	112459.46	142056.76	29597.30
MIDDLE-ATLANTIC	167126.23	211110.84	43984.61
SOUTHEAST	46235.78	58404.21	12168.43
NORTH CENTRAL	276043.89	348693.67	72649.78
MIDWEST	249234.76	314828.86	65594.10
SOUTHERN	86589.41	109378.18	22788.77
NORTHWEST	24104.03	30447.78	6343.75
PLAINS	36919.21	46635.68	9716.47
SOUTHWEST	188764.56	238443.99	49679.43

Figure 6-16. Cost Reconciliation Report

6.4 Enterprise IS Financial Management

The Enterprise IS Financial Management impact area presents IS revenues as a business expense. It allows corporate management to consider IS services as another component of the business, similar to raw materials or labor, and to evaluate IS charges by the same criteria as other investments. It provides corporate and IS management with an understanding of how the IS organization and IS user departments are performing financially in comparison to plan. Information provided includes:

- o What IS resources customers are buying
- o How the corporation is investing its IS expense dollars, comparing the amount spent to support existing systems to the amount invested in new applications

This information is presented on the mainframe by the Application Expense Summary Report. This is discussed in detail in the following section:

- 1 - Application Expense Summary Report

6.4.1 Application IS Expense Analysis

The Application Expense Summary is a report of charges, in any defined invoice format, for each application or any other information contained in a specified cost center level. It enables enterprise management to obtain reports of charges summarized for any cost center level. Figure 6-17 is a sample of the report.

RUNNING THE REPORT

Run the report from the Application Expense Summary option of the Enterprise IS Financial Management menu (MWF;4;2;4;4;2). Review the online tutorial for information on specifying the run time parameters. You are asked to submit the job from an edit of the JCL. The JCL is created by reading sharedprefix.MICS.CNTL(ACTEXPA) into a temporary file and adding a cycle number.

COMPLEX REPORT				APPL EXPENSE SUMMARY	
APPLICATION EXPENSE SUMMARY FOR JANUARY 2002					
TO:				INVOICE NO. - 1	
				PAGE NO. - 1	
				BILL DATE - 02/13/02	
				STATUS: BILL	
CATEGORY	RESOURCE / DESCRIPTION	QUANTITY	RATE	UNITS	CHARGES
1200	CHANNELS				
	(0097) JOB TOTAL EXCPS	2056.719	\$0.1100	1000 EXCPS	\$226.17
	INVOICE CATEGORY SUBTOTAL				\$226.17
	TOTAL CHARGES				\$226.17
=====					
NO BUDGET AMOUNT SPECIFIED FOR THIS COST CENTER					

Figure 6-17. Application Expense Summary

6.5 Accounting Administration

The Accounting Administration impact area provides the accounting administrator with information on the system's status including daily revenue, accounting processing, and rates and allows you to do rate simulation. This is discussed in detail in the following sections:

- 1 - Process Control
- 2 - Rate Tracking

6.5.1 Process Control

Process Control allows you to examine the results of daily processing and application database data entry.

Detail is provided in the following sections:

- 1 - Journal Run Status Logs
- 2 - Daily Charges Summary Report
- 3 - Audit Report
- 4 - Print Application Database Files

6.5.1.1 Journal Run Status Logs

The Journal Run Status Logs retain information about the creation of the journal files. It includes such information as:

- o The run time stamp; that is, when they were created by the DAY199 step of the DAILY job or external file update job.
- o The billing timestamp.
- o Charges for each computation code.

COSTCTR values are not kept in the log, but the charges are categorized by billing status and an application unit identifier can be assigned to each record. Figure 6-18 is a sample Journal Run Status Log for a selected journal file and run time stamp. The SHOW command can be used to display the charges for a particular SYSID, APU, or computation code.

There is one log for each unit stored as a SAS file in DAYS.ACTRSJ01 and also in the ACTRSJu, where u is a unit id, ISPF table. The logs can be displayed from the Enterprise IS Financial Reporting Accounting Administration Process Control menu (4;5;1). They provide an easy way for the Accounting Administrator to review the results of CA MICS DAY199 processing.

Options that affect the contents of the Journal Run Status Logs are accessed from the Accounting Options Menu Journal Run Status Log Options (3;2;6).

Journal Run Status Log - ACTJDA							
Command ==>							
SHOW ALL							
VCA DAA Resource Journal File				20JAN93:20:30:03.96			
Total charges for displayed rows:				\$13,791.96			
Bill Date	SYSID	APU	Status	Comp Code	Quantity	Rate	Charge
19JAN93	S008	DAA	B	1820	34395.577	\$0.2000	\$6,879.1200
19JAN93	S008	DAA	U	1820	84.315	\$0.2000	\$16.8600
19JAN93	S008	DAA	B	1820	34395.577	\$0.2000	\$6,879.1200
19JAN93	S008	DAA	U	1820	84.315	\$0.2000	\$16.8600

Figure 6-18. Journal Run Status Log

6.5.1.2 Daily Charges Summary Report

The Daily Charges Summary Report provides daily and month-to-date summaries of the total charges incurred within each invoice category by each value of the highest level cost center (Cost Center 1). These reports give the CA MICS System Administrator a simple check on the daily update of the CA MICS Accounting and Chargeback files. Figure 6-19 shows a sample Daily Charges Summary Report.

The report heading contains the installation name, the report name (for example, Daily Charges Summary Report), and the date (for example, October 6, 2002).

The body of the report lists the cost center code and name, the invoice category code and name, and the charges for the cost center's use of the invoice category. The listing also contains a subtotal of each cost center's charges and a grand total of all charges. In addition to a recap of the daily charges, the Daily Charges Summary Report also shows the MTD (Month-to-Date) charges.

RUNNING THE REPORT

The Daily Charges Summary Report is produced from the Accounting Administration Process Control menu, (MWF;4;2;4;5;1;3). The JCL for this report is in the prefix.MICS.CNTL(BGTCNTL) member. You can use MICF Production Reporting to schedule the 'Daily Charges Summary Report' to be produced automatically after DAY199 step is completed.

YOUR COMPANY NAME				
DAILY CHARGES SUMMARY REPORT				
JANUARY 6, 2002				
DEPARTMENT	DESCRIPTION	INVOICE CATEGORY		COST CENTER CHARGES
100	NEW ENGLAND	1100	CENTRAL PROCESSOR(S)	\$2,472.96
		2100	TERMINALS	\$1,221.50
		3110	LASER PRINTERS	\$765.00
			SUBTOTAL	\$4,459.46
200	MIDDLE-ATLANTIC	1100	CENTRAL PROCESSOR(S)	\$4,074.63
		2100	TERMINALS	\$1,656.60
		3110	LASER PRINTERS	\$395.00
			SUBTOTAL	\$6,126.23
300	SOUTHEAST	1100	CENTRAL PROCESSOR(S)	\$512.38
		2100	TERMINALS	\$508.22
		3110	LASER PRINTERS	\$215.18
			SUBTOTAL	\$1,235.78
400	NORTH CENTRAL	1100	CENTRAL PROCESSOR(S)	\$3,270.50
		2100	TERMINALS	\$2,332.20
		3110	LASER PRINTERS	\$441.19
			SUBTOTAL	\$6,043.89
500	MIDWEST	1100	CENTRAL PROCESSOR(S)	\$4,851.09
		2100	TERMINALS	\$3,005.51
		3110	LASER PRINTERS	\$1,378.16
			SUBTOTAL	\$9,234.76
600	SOUTHERN	1100	CENTRAL PROCESSOR(S)	\$1,676.09
		2100	TERMINALS	\$705.22
		3110	LASER PRINTERS	\$208.10
			SUBTOTAL	\$2,589.41
700	NORTHWEST	1100	CENTRAL PROCESSOR(S)	\$485.74
		2100	TERMINALS	\$145.29
		3110	LASER PRINTERS	\$173.00
			SUBTOTAL	\$804.03
800	PLAINS	1100	CENTRAL PROCESSOR(S)	\$1,032.00
		2100	TERMINALS	\$577.10
		3110	LASER PRINTERS	\$310.11
			SUBTOTAL	\$1,919.21
900	SOUTHWEST	1100	CENTRAL PROCESSOR(S)	\$4,439.18
		2100	TERMINALS	\$1,744.18
		3110	LASER PRINTERS	\$581.20
			SUBTOTAL	\$6,764.56
TOTAL				\$39,177.33

Figure 6-19. Daily Charges Summary Report

6.5.1.3 Audit Report

The Audit Report lists individual charges, the date and time they were incurred, and the work unit involved. Thus, it shows the quantity of resources consumed and the associated charges at the most detailed level of transactions. Use the Audit Report as a diagnostic and tracking tool when you suspect there is a billing error, or to verify the amount of credit owed to a user. There is a complex level and a unit level version of the report.

The complex level audit report is a recap of the complex level audit file. This file is created from the 01 cycles of the Debit File (ACTSDT) and Credit File (ACTSCT) and contains both standard and recurring debit and credit data. The complex level audit file is updated when the INVOICE or FINRECAP job is run.

The unit level report is a recap of the daily or monthly unit level audit file. This file is created from the 01 cycles of the Accounting journal files. Optionally, you can create the unit level report from one of the journal files. Figure 6-20 shows a sample unit level Audit Report created from the Batch Job Journal File (ACTJBJ).

The report heading contains the installation name, the Audit Report label (for example, Accounting Audit Report for Unit: P), and the date on which the report was run.

The first page of the report identifies the source of the data. That is, the input file(s). For a complex level report, this is the complex level audit file. For a unit level report, this is the daily or monthly unit level audit file or a journal file.

The report contains the following information:

COST CENTER VALUE--The Cost Center identifier.

WORKUNIT VALUE--The work unit (job, user, etc.).

WORKAREA--The contents of the work area field of the Audit File record (for example, job group requested and received for batch jobs).

BILLSTAT--The billing status. B=Bill, N=No Bill.

FILE--The original source of the data. On the complex

level audit report the FILE names are:

EXT--External File
SDT--Debit File
SCT--Credit File

On the unit level audit report the FILE names are the journal file identifiers. For example, JBJ--Batch Job Journal File.

SYSID--The system identifier.

RUN or END TIMESTAMP--The RUN time stamp from the audit file indicating when the audit file was updated with the record, or, if the report was run from a journal file, the END time stamp from the journal file. All records added to the audit file by a single DAILY or external file update job will have exactly the same run time stamp value. Manually entered debits and credits will have run time stamps based on the entry date and time.

BILLING TIMESTAMP--The date and time the transaction was billed. The source of the billing time stamp differs depending on the record. It is user-defined on the Journal File Eligibility panel. By default, if the record is from the Batch Job Journal File, the source is RDRTS. For other journal files, it is ENDTS. If the record is from the Debit or Credit file, the billing time stamp is entered manually.

YEAR/MONTH/DAY--The CA MICS date that the transaction occurred. This is based on the ENDTS of the original data record. For reports run from a journal file, this is the date of the record in the journal file.

AYEAR/AMONTH/ADAY--The accounting date that the transaction occurred.

INVC CTGY--The user-assigned invoice category, which identifies the resource consumed.

COMP CODE--The computation code, which was assigned via the Algorithm Specification panel and the Rate Table parameter, and identifies the charging element used to measure the usage.

QUANTITY--The measured quantity of the charging element.

RATE--The rate at which the charging element was billed.

CHARGE--The amount the user was charged.

The report also shows a total charge by SYSID and a grand total for all charges contained in the report.

Because the report is so long, you should not run it on a daily basis unless you need to track a particular item daily. If you need a full report, run it on microfiche rather than paper.

RUNNING THE REPORT

Run the complex level or unit level Audit Report by following the directions in Section 5.4, Producing Audit Reports. You can select the complex or unit level report from the Audit Reports menu (MWF;4;2;4;5;1;4).

You can also run a smaller report by specifying keyword values to limit the number of transactions included in the report.

The necessary control cards must be read in via a //SELECTIN DD statement that is contained in the AUDITRPT member in sharedprefix.MICS.CNTL (complex level) or prefix.MICS.CNTL (unit level). Each control card must have a keyword beginning in column one followed by the qualifying values, each separated by a space. The keywords and the maximum number of possible qualifying values that can be read into the program are as follows:

Keyword	Maximum Number of Occurrences
-----	-----
COSTCTR1-9	25
COMPCODE	99
INVCCAT	99
SYSID	25
BILLDATE	25
FROMDATE	1
TODATE	1
RUNTS	25
FRRUNTS	1
TORUNTS	1
RUNDT	25
FRRUNDT	1
TORUNDT	1
WORKAREA	25
WIAREA	25

W2AREA	25
WORKUNIT	25
ZONE	9

Keyword Notes:

- o At the complex level, use the WORKAREA keyword to specify values from the Reason field of the Debits and Credits Data Entry panel.
- o Use the BILLDATE keyword to specify values from the BILLTS field.
- o BILLDATE, FROMDATE, and TODATE are read in with a DATE9. format. The following is a control card example for BILLDATE:

BILLDATE 12SEP2002

- o Use BILLDATE to specify up to 25 Billing Time Stamps to include in the report. Use FROMDATE to include any date later than or equal to the specified date. Use TODATE to include any date prior to or equal to the specified date. Use FROMDATE and TODATE together to specify a range of dates to include in the report.
- o RUNDT, FRRUNDT, and TORUNDT are read in with a DATE9. format. The following is a control card example for RUNDT:

RUNDT 12SEP2002

- o Use RUNDT to specify up to 25 Run Date Time Stamps to include in the report. Use FRRUNDT to include any date later than or equal to the specified date. Use TORUNDT to include any date prior to or equal to the specified date. Use FRRUNDT and TORUNDT together to specify a range of dates to include in the report.
- o RUNTS is read in with a DATETIME21.2 format. The following is a control card example for RUNTS:

01SEP2002:01:19:08.17

- o Use RUNTS to specify up to 25 Run Time Stamps to include in the report (date is ignored). Use FRRUNTS to specify the earliest time to include in the report. Use TORUNTS to specify the latest time to include in the report. Use FRRUNTS and TORUNTS together to specify a time range to include in the report.

- o W1AREA selects on bytes 1-8 of the WORKAREA field.
- o W2AREA selects on bytes 9-16 of the WORKAREA field.
- o Values containing embedded blanks can be read by coding the keyword followed immediately by an '=' and the value. For example, a control card to select COSTCTR1 values of 'AAA BBB' (three embedded blanks) would be coded as follows:

COSTCTR1=AAA BBB

YOUR COMPANY NAME				17:07 WEDNESDAY, DECEMBER 1, 2002		1
ACCOUNTING AUDIT REPORT FOR UNIT: P						
THE FOLLOWING INPUT FILE(S) WERE USED FOR THIS REPORT:						

DETAIL.ACTJB01						

YOUR COMPANY NAME				17:07 WEDNESDAY, DECEMBER 1, 2002		2
ACCOUNTING AUDIT REPORT FOR UNIT: P						
COST CENTER VALUE(S)	WORKUNIT VALUE	INVC COMP CTGY CODE	QUANTITY	RATE	CHARGE	

AS	CJ1LH60	1100 0023	3.0600	\$0.2200	\$0.6700	
C	WORKAREA/BILLSTAT: 199@TSO /B					
TSO	FILE/SYSID: JBJ/S008					
000-000	END TIMESTAMP: 01SEP2002:01:19:08.17					
J	BILLING TIMESTAMP: 31AUG2002:21:47:27.10					
CJ1LH60	YEAR/MONTH/DAY: 02/09/01					
	AYEAR/AMONTH/ADAY: 02/09/01					

SUB TOTAL					\$0.6700	
	MINIMUM	9400 JMIN		\$2.0000	\$2.0000	
	ZONE DIFF	9500 ZDIF		\$3.0000	\$3.0000	
	SURCHARGE	9600 SURC		\$4.0000	\$4.0000	
	PRIORITY	9700 PRIX		\$5.0000	\$5.0000	

SUB TOTAL					\$14.0000	

TOTAL FOR RECORD	1:				\$14.6700	
=====						

Figure 6-20. Unit Level Audit Report

6.5.1.4 Print Application Database Files

This option allows you to print reports on the contents of the Application Database Files. The following reports are discussed in detail:

- 1 - Accounting Cost Center Attributes File Recap
- 2 - Accounting Budget File Recap
- 3 - Accounting Debit File Recap
- 4 - Accounting Credit File Recap
- 5 - Accounting Invoice Sequence Number File Recap

6.5.1.4.1 Accounting Cost Center Attributes File Recap

The Accounting Cost Center Attributes File Recap provides a listing of the special billing attributes specified for each cost center. It is designed to aid the CA MICS System Administrator in maintaining the file. Figure 6-21 shows a sample Accounting Cost Center Attributes File Recap.

The report heading contains the installation name and the report name (for example, Accounting Cost Center Attributes File Recap).

RUNNING THE REPORT

Run the Cost Center Attributes File Recap from the Print Application Database Files option of the Accounting Administration Process Control menu (MWF;4;2;4;5;1;5). The JCL for this report is in sharedprefix.MICS.CNTL(PRINTTBL).

COMPLEX REPORT		
ACCOUNTING COST CENTER ATTRIBUTES FILE RECAP		
REPORT DATE: 07/02/93	PAGE NO. - 1	
COSTCTRS	ADDRESS	ATTRIBUTES
ACME PRODUCTS DIVISION	MR. JOHN SMITH, GROUP VP ACME PRODUCTS DIVISION	NAME: ALL STARS (30 OF THEM) BILLING STATUS: BILL FUZZ VALUE: . INVOICE FORMAT: DISCOUNT AMOUNT: \$0.00 DISCOUNT PERCENT: 0.00 % SURCHARGE PERCENT: . SURCHARGE TITLE: LAST USER/DATE: DXB024 01AUG91:16:55:00.00
INFORMATION SYSTEMS	BUILDING A, 4TH FLOOR	NAME: AAA BILLING STATUS: BILL FUZZ VALUE: . INVOICE FORMAT: CPCCX0N DISCOUNT AMOUNT: \$0.00 DISCOUNT PERCENT: 0.00 % SURCHARGE PERCENT: . SURCHARGE TITLE: LAST USER/DATE: DXB024 01AUG91:16:55:00.00
INVCCAT: 1200	SURCHARGE PERCENT: .	DISCOUNT PERCENT: 0.00 %
INFORMATION SYSTEMS DEVELOPMENT BATCH	BUILDING A, 4TH FLOOR	NAME: AAA DEVELOPEMENT BATCH BILLING STATUS: BILL FUZZ VALUE: . INVOICE FORMAT: CPCCX0N DISCOUNT AMOUNT: \$0.00 DISCOUNT PERCENT: 0.00 % SURCHARGE PERCENT: . SURCHARGE TITLE: LAST USER/DATE: DXB024 01AUG91:16:55:00.00
INFORMATION SYSTEMS PRODUCTION CICS	BUILDING A, 4TH FLOOR	NAME: AAA PRODUCTION CICS BILLING STATUS: BILL FUZZ VALUE: . INVOICE FORMAT: CPCCX0N DISCOUNT AMOUNT: \$0.00 DISCOUNT PERCENT: 0.00 % SURCHARGE PERCENT: . SURCHARGE TITLE: LAST USER/DATE: DXB024 01AUG91:16:55:00.00

Figure 6-21. Accounting Cost Center Attributes File Recap

6.5.1.4.2 Accounting Budget File Recap

The Accounting Budget File Recap is a formatted listing of the Budget File. It is designed to help users in adding, updating, or verifying budget entries. Figure 6-22 shows a sample Accounting Budget File Recap.

The report title contains the installation name and the report name (for example, Accounting Budget File Recap).

RUNNING THE REPORT

Run the Budget File Recap from the Print Application Database Files option of the Accounting Administration Process Control menu (MWF;4;2;4;5;1;5). The JCL for this report is in `sharedprefix.MICS.CNTL(PRINTTBL)`.

COMPLEX REPORT									
ACCOUNTING BUDGET CYCLE 01 FILE RECAP									
REPORT DATE: 08/20/05					PAGE NO. - 1				
FINANCIAL PERIOD BUDGET AMOUNTS									
DIVISION: CORPORATE DEPARTMENT: SALES					EFFECTIVE DATE:01JAN05				
NAME: SALES									
TYPE	CODE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	
COSTCTR		\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
INVCCAT	1100	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
COMPCODE	0023	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
INVCCAT	1500	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
COMPCODE	0062	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
TOTALS:		\$114,000	\$114,000	\$114,000	\$114,000	\$114,000	\$114,000	\$114,000	\$114,000
TYPE	CODE	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	13	14	
COSTCTR		\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
INVCCAT	1100	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
COMPCODE	0023	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
INVCCAT	1500	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
COMPCODE	0062	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
TOTALS:		\$114,000	\$114,000	\$114,000	\$114,000	\$114,000	\$114,000	\$114,000	\$114,000
TYPE	CODE	LAST USER	DATE/TIME						
COSTCTR		DXB024	20AUG05:15:35:00.00						
INVCCAT	1100	DXB024	20AUG05:15:36:00.00						
COMPCODE	0023	DXB024	20AUG05:15:36:00.00						
INVCCAT	1500	DXB024	20AUG05:15:38:00.00						
COMPCODE	0062	DXB024	20AUG05:15:38:00.00						
TYPE	CODE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	
UNITS	0023	100,000	100,000	100,000	100,000	100,000	100,000	150,000	
UNITS	0062	10,000	10,000	10,000	10,000	10,000	10,000	10,000	
TYPE	CODE	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	13	14	
UNITS	0023	150,000	150,000	150,000	150,000	150,000	.	.	
UNITS	0062	10,000	10,000	10,000	10,000	10,000	0	0	
TYPE	CODE	LAST USER	DATE/TIME						
UNITS	0023	DXB024	15AUG05:09:52:00.00						
UNITS	0062	DXB024	15AUG05:09:53:00.00						

Figure 6-22. Accounting Budget File Recap

6.5.1.4.3 Accounting Debit File Recap

The Accounting Debit File Recap is a formatted listing of the Debit File. It is designed to help users in adding, updating, or verifying standard and recurring debit entries. Figure 6-23 shows a sample Accounting Debit File Recap.

The report heading contains the installation name and the report name (for example, Accounting Debit File 01 Recap).

The report shows a listing of the Debit File that is used in the invoicing job stream in the month-end processing for accounting.

RUNNING THE REPORT

Run the Accounting Debit File Recap from the Print Application Database Files option of the Accounting Administration Process Control menu (MWF;4;2;4;5;1;5). The JCL for this report is in sharedprefix.MICS.CNTL(PRINTTBL).

COMPLEX REPORT			PAGE NO. - 30
ACCOUNTING DEBIT FILE 01 RECAP			
REPORT DATE: 06/07/95			
AUSTIN PLANT1	TYPE: RECURRING	SYSID:	
PRODUCTION CONTROL	YEAR: 95 MONTH: 3 DAY: 24	ZONE:	
EQUIPMENT	RATE: \$3.5000 QUANTITY: 25.000		
	ACCOUNTING MONTH: 3 AND YEAR: 95		
	BILLING TIMESTAMP: .		
	DEBIT CATEGORY: 1100 COMPCODE:		
	DEBIT AMOUNT: \$87.5000		
	WORKUNIT:		
	ENTRY TIMESTAMP: 16FEB95:17:11:00.00		
	REASON FOR DEBIT:		
DUNSMILL	TYPE: STANDARD	SYSID:	
CUSTOMER SUPPORT	YEAR: 95 MONTH: 2 DAY: .	ZONE:	
EQUIPMENT	RATE: \$1.0000 QUANTITY: 12.500		
	ACCOUNTING MONTH: 2 AND YEAR: 95		
	BILLING TIMESTAMP: 21MAR95:14:04:44.93		
	DEBIT CATEGORY: 2120 COMPCODE: 2100		
	DEBIT AMOUNT: \$12.5000		
	WORKUNIT:		
	ENTRY TIMESTAMP: 21MAR95:00:00:00.00		
	REASON FOR DEBIT: IAM-SP1007		-
ADMINISTRATION	TYPE: STANDARD	SYSID:	
PUBLIC RELATIONS	YEAR: 95 MONTH: 2 DAY: .	ZONE:	
EQUIPMENT	RATE: \$1.0000 QUANTITY: 12.000		
	ACCOUNTING MONTH: 2 AND YEAR: 95		
	BILLING TIMESTAMP: 21MAR95:14:04:44.94		
	DEBIT CATEGORY: 2120 COMPCODE: 2100		
	DEBIT AMOUNT: \$12.0000		
	WORKUNIT:		
	ENTRY TIMESTAMP: 21MAR95:00:00:00.00		
	REASON FOR DEBIT: IAM-IRMA000		-

Figure 6-23. Accounting Debit File Recap

6.5.1.4.4 Accounting Credit File Recap

The Accounting Credit File Recap is a formatted listing of the Credit File. It is designed to help users in adding, updating, or verifying standard and recurring credit entries. Figure 6-24 shows a sample Accounting Credit File Recap.

The report heading contains the installation name and the report name.

RUNNING THE REPORT

Run the Accounting Credit File Recap from the Print Application Database Files option of the Accounting Administration Process Control menu (MWF;4;2;4;5;1;5). The JCL for this report is in sharedprefix.MICS.CNTL(PRINTTBL).

COMPLEX REPORT		
ACCOUNTING CREDIT FILE 00 RECAP		
REPORT DATE: 06/07/95		PAGE NO. - 1
COST CENTERS	CREDIT INFORMATION	
-----	-----	
DUNSMILL	TYPE: RECURRING SYSID:	
	YEAR: . MONTH: . DAY: . ZONE:	
	RATE: \$35.0000 QUANTITY: 40.000	
	ACCOUNTING MONTH: . AND YEAR: .	
	BILLING TIMESTAMP: .	
	CREDIT CATEGORY: 6400 COMPCODE:	
	CREDIT AMOUNT: \$1,400.0000	
	WORKUNIT:	
	ENTRY TIMESTAMP: 16FEB95:17:15:00.00	
	REASON FOR CREDIT: STANDARD CREDIT FOR SUPPORT	
AUSTIN PLANT 1	TYPE: STANDARD SYSID: S008	
	YEAR: 95 MONTH: 3 DAY: 1 ZONE:	
	RATE: . QUANTITY: .	
	ACCOUNTING MONTH: 3 AND YEAR: 95	
	BILLING TIMESTAMP: .	
	CREDIT CATEGORY: 1100 COMPCODE: 0023	
	CREDIT AMOUNT: \$68.0000	
	WORKUNIT:	
	ENTRY TIMESTAMP: 16FEB95:17:13:00.00	
	REASON FOR CREDIT: MARCH CREDIT	

Figure 6-24. Accounting Credit File Recap

6.5.1.4.5 Accounting Invoice Sequence Number File Recap

The Accounting Invoice Sequence Number File Recap lists the sequence number that will be given to the next invoice produced. The report is used to verify changes to the sequence number if it is changed by the CA MICS System Administrator. Figure 6-25 shows a sample Accounting Invoice Sequence Number File Recap.

The report heading contains the installation name and the report name (for example, Accounting Invoice Sequence Number File Recap).

RUNNING THE REPORT

Run the Invoice Sequence Number File Recap from the Print Application Database Files option of the Accounting Administration Process Control menu (MWF;4;2;4;5;1;5). The JCL for this report is in sharedprefix.MICS.CNTL(PRINTTBL).

YOUR COMPANY NAME		
ACCOUNTING INVOICE SEQUENCE NUMBER FILE RECAP		
REPORT DATE: 06/08/95		PAGE NO. - 1
THE CONSOLIDATED INVOICES PRODUCED BY CA MICS ACCOUNTING AND CHARGEBACK PRODUCT ARE NUMBERED CONSECUTIVELY. EACH TIME THE INVOICE PROGRAM IS RUN, THE FIRST INVOICE PRODUCED WILL BE GIVEN THE NUMBER BELOW:		

Figure 6-25. Accounting Invoice Sequence Number File Recap

6.5.2 Rate Tracking

You can use the Rate Tracking option to perform simulation and to produce reports of the current journal file and complex-level external file rates.

Detail is presented in the following sections:

- 1 - Rate Simulation
- 2 - Journal Files Rate Report
- 3 - Complex-Level External Files Rate Report

6.5.2.1 Rate Simulation

CA MICS Accounting and Chargeback provides rate simulation to reduce the manual effort required to determine the magnitude of rate changes. This facility has no provisions for calculating optimal rates, but can calculate the effect of a proposed rate change.

The rate simulation facility recalculates charges by multiplying the existing quantities from generation 0 of the ACTAUDIT DAY1 file by the new rates you supply. Since the ACTAUDIT file is built from the journal files, no new billable elements (COMPCODE statements) may be input to the simulation process. Also, the effect of using the SELECT, EXCLUDE, SYSID, SUBSYSID, and COSTCTR statements as input to the simulation depends on the way these statements are specified in the rate table that creates the journal files used as a basis for the simulation.

For example, if a given work unit is excluded from charging via the EXCLUDE statement when the ACTAUDIT files are created, removing it from the EXCLUDE list for the simulation will have no effect because no data for that work unit is present on the ACTAUDIT file. Similarly, if a site has four systems, but only three of them are specified via SYSID statements (no SYSID *ALL statement was present), coding a SYSID *ALL statement for the simulation will not take into account the effects of the system that was initially excluded. Conversely, because the prerequisite data is present on the ACTAUDIT file, if a SYSID *ALL statement is specified when the ACTAUDIT files are created, each system can be charged separately in the simulation by supplying the appropriate SYSID and COMPCODE statements.

The following steps are required to perform a rate simulation:

- o Enter the Rate Simulation parameters. Refer to the online tutorial for the Rate Simulation panel (MWF;4;2;4;5;2;1) for help coding the parameters.

NOTE: The rates in the Current Rate column must match the rates in the Audit file or the simulated rates will not be used.

- o Submit prefix.MICS.CNTL(ACTRTSIM). You are automatically placed into ISPF Edit when the rate simulation parameter is entered or modified. You can modify the JCL to use an ACTAUDIT file other than the default DAY1 file.

This procedure produces the reports discussed in the following sections:

- 1 - Effective/Simulated Rate Comparison Report
- 2 - Rate Simulation Cost Center Effects Report
- 3 - Rate Simulation Revenue Area Effects Report
- 4 - Rate Simulation Billing Element Effects Report

6.5.2.1.1 Effective/Simulated Rate Comparison Report

The Effective/Simulated Rate Comparison Report provides a listing of the percentage difference between the currently effective rates and the proposed rates for each charging element. This percentage can then be compared to the projected percentage change in revenue produced by other rate simulation reports. Figure 6-26 shows a sample Effective/Simulated Rate Comparison Report.

The report heading contains the installation name and the report name (for example, Effective/Simulated Rate Comparison Report).

The report lists the currently effective rate of a charging element, the simulated rate for that element, and the percentage difference between them by invoice category, system, subsystem, and high-level cost center.

RUNNING THE REPORT

Run the Effective/Simulated Rate Comparison Report from the Rate Simulation option of the Accounting Administration Rate Tracking menu (MWF;4;2;4;5;2;1). The JCL for this report is in the prefix.MICS.CNTL(ACTRTSIM) member.

YOUR COMPANY NAME EFFECTIVE/SIMULATED RATE COMPARISON REPORT SIMULATION FOR SELECTED AUDIT FILE IN UNIT: P								
REPORT DATE: 07/27/93						PAGE NO. -1		
INVOICE CATEGORY	SYSID	SUBSYSID	COST CENTER	COMPUTATION CODE	DESCRIPTION	EFFECTIVE RATE	SIMULATED RATE	PERCENTAGE CHANGE
1100	*ALL	*ALL	*ALL	1631	MEMORY USAGE RUNNING COUNT	\$1.5000	\$1.5000	0.00 %
1100	*ALL	*ALL	*ALL	2104	TOTAL CPU TIME	\$1.0000	\$1.0000	0.00 %
1100	*ALL	*ALL	*ALL	2206	TOTAL TRANSACTION EXECUTIONS	\$1.1000	\$1.1000	0.00 %
1100	*ALL	*ALL	*ALL	2207	NUMBER OF TRANSACTION OCCURRENCES	\$1.0000	\$1.0000	0.00 %
1100	*ALL	*ALL	*ALL	2306	TOTAL NUMBER OF MESSAGE CALLS	\$1.2000	\$1.2000	0.00 %
1100	*ALL	*ALL	*ALL	3104	TASK CPU TIME (ELAPSED)	\$1.0000	\$1.0000	0.00 %
1100	*ALL	*ALL	*ALL	3306	TRANSACTIONS PROCESSED	\$0.5000	\$0.5000	0.00 %
1100	*ALL	*ALL	*ALL	3307	NUMBER OF TRANSACTION OCCURRENCES	\$1.0000	\$1.0000	0.00 %
1100	*ALL	*ALL	*ALL	4100	CPU TIME CONSUMED	\$0.5000	\$0.5000	0.00 %
1100	*ALL	*ALL	*ALL	4300	VIRTUAL MEMORY OCCUPANCY	\$0.7500	\$0.7500	0.00 %
1100	*ALL	*ALL	*ALL	4600	VIRTUAL I/O EXCPS	\$1.9500	\$1.9500	0.00 %
1100	*ALL	*ALL	*ALL	5600	STEP EXECUTIONS	\$0.3500	\$0.3500	0.00 %
1100	*ALL	*ALL	000	4100	CPU TIME CONSUMED	\$0.6800	\$0.5000	-26.47 %
1100	*ALL	*ALL	000	4300	VIRTUAL MEMORY OCCUPANCY	\$0.7800	\$0.7500	-3.84 %
1100	*ALL	*ALL	000	4600	VIRTUAL I/O EXCPS	\$1.3500	\$1.9500	44.44 %
1100	*ALL	*ALL	000	5600	STEP EXECUTIONS	\$0.3500	\$0.3500	0.00 %
1100	*ALL	*ALL	11	4100	CPU TIME CONSUMED	\$0.6250	\$0.6250	0.00 %
1100	*ALL	*ALL	11	4300	VIRTUAL MEMORY OCCUPANCY	\$0.8250	\$0.8250	0.00 %
1100	*ALL	*ALL	11	4600	VIRTUAL I/O EXCPS	\$1.2500	\$1.2000	-4.00 %
1100	*ALL	*ALL	11	5600	STEP EXECUTIONS	\$0.3125	\$0.3125	0.00 %
1100	*ALL	*ALL	26	4100	CPU TIME CONSUMED	\$0.6800	\$0.5000	-26.47 %
1100	*ALL	*ALL	26	4300	VIRTUAL MEMORY OCCUPANCY	\$0.7800	\$0.7000	-10.25 %
1100	*ALL	*ALL	26	4600	VIRTUAL I/O EXCPS	\$1.3500	\$1.3500	0.00 %
1100	*ALL	*ALL	26	5600	STEP EXECUTIONS	\$0.3500	\$0.3500	0.00 %
1110	*ALL	*ALL	*ALL	4200	REAL MEMORY OCCUPANCY	\$5.0500	\$5.0500	0.00 %
1110	*ALL	*ALL	000	4200	REAL MEMORY OCCUPANCY	\$4.0500	\$5.0500	24.69 %
1110	*ALL	*ALL	11	4200	REAL MEMORY OCCUPANCY	\$3.7500	\$3.7000	-1.33 %
1110	*ALL	*ALL	26	4200	REAL MEMORY OCCUPANCY	\$4.0500	\$4.0000	-1.23 %
1200	*ALL	*ALL	*ALL	1524	I/O (EXCPS) GENERATED	\$10.0000	\$10.0000	0.00 %
1200	*ALL	*ALL	*ALL	2401	TOTAL NUMBER OF DATA BASE CALLS	\$1.3000	\$1.3000	0.00 %
1200	*ALL	*ALL	*ALL	2408	TOTAL LOGICAL I/O	\$1.4000	\$1.4000	0.00 %
1200	*ALL	*ALL	*ALL	2505	TOTAL DL/I I/O	\$1.5000	\$1.5000	0.00 %
1400	*ALL	*ALL	*ALL	4500	TAPE EXCPS	\$3.1500	\$3.1500	0.00 %
1400	*ALL	*ALL	*ALL	5000	TAPE OCCUPANCY TIME	\$0.6100	\$0.6100	0.00 %
1400	*ALL	*ALL	*ALL	5500	TOTAL TAPE MOUNTS	\$2.0000	\$2.0000	0.00 %
1400	*ALL	*ALL	000	4500	TAPE EXCPS	\$3.0500	\$3.1500	3.27 %
1400	*ALL	*ALL	000	5000	TAPE OCCUPANCY TIME	\$0.8100	\$0.6100	-24.69 %
1400	*ALL	*ALL	000	5500	TOTAL TAPE MOUNTS	\$2.0300	\$2.0000	-1.47 %

Figure 6-26. Effective/Simulated Rate Comparison Report

6.5.2.1.2 Rate Simulation Cost Center Effects Report

The Rate Simulation Cost Center Effects Report shows the percentage of simulated total revenue that would have been incurred by each cost center compared to that actually incurred by the cost center. This report is useful in assessing the effect of a proposed rate change on the charges incurred by a given cost center.

Revenue can be simulated only for charging elements that were previously billed, even if they were billed at a zero rate. (The ACTAUDIT file, which has the input data for this report, contains only the data for the charging elements that are billed.) Figure 6-27 shows a sample Rate Simulation Cost Center Effects Report.

The report heading contains the installation name and the report name (for example, Rate Simulation Cost Center Effects).

The body of the report lists the cost center's name, the cost center's actual charges for the accounting period, its simulated charges for the accounting period, the percentage difference between the charges, the percentage distribution of the actual charges, the percentage distribution of the simulated charges, and the difference between the percentage distributions.

RUNNING THE REPORT

Run the Rate Simulation Cost Center Effects Report from the Rate Simulation option of the Accounting Administration Rate Tracking menu (MWF;4;2;4;5;2;1). The JCL for this report is in the prefix.MICS.CNTL(ACTRTSIM) member.

YOUR COMPANY NAME RATE SIMULATION COST CENTER EFFECTS SIMULATION FOR SELECTED AUDIT FILE IN UNIT: P						
REPORT DATE: 07/27/93			PAGE NO. - 1			
DESCRIPTION	ACTUAL CHARGES	SIMULATED CHARGES	PERCENTAGE DIFFERENCE	ACTUAL PERCENTAGE DISTRIBUTION	SIMULATED PERCENTAGE DISTRIBUTION	PERCENTAGE DIFFERENCE OF DISTRIBUTIONS
BDA0086A	\$12.30	\$10.68	-13.11 %	0.02 %	0.01 %	-0.00 %
BDF0050B	\$103.28	\$95.08	-7.94 %	0.17 %	0.16 %	-0.00 %
BFH0068A	\$368.45	\$339.30	-7.91 %	0.61 %	0.58 %	-0.02 %
BFW0007S	\$308.31	\$303.75	-1.47 %	0.51 %	0.52 %	0.01 %
BKK0018A	\$263.99	\$246.03	-6.80 %	0.44 %	0.42 %	-0.01 %
BKL0014A	\$103.19	\$98.21	-4.82 %	0.17 %	0.17 %	-0.00 %
DCS1388A	\$267.51	\$254.26	-4.95 %	0.44 %	0.44 %	-0.00 %
DCW1503B	\$221.06	\$179.65	-18.73 %	0.36 %	0.31 %	-0.05 %
EAM2192A	\$262.42	\$258.88	-1.35 %	0.43 %	0.44 %	0.01 %
EBA2423A	\$3.63	\$3.53	-2.51 %	0.00 %	0.00 %	0.00 %
ED INT	\$10,038.85	\$9,493.30	-5.43 %	16.78 %	16.48 %	-0.29 %
EGA2252B	\$22.60	\$20.34	-10.02 %	0.03 %	0.03 %	-0.00 %
ENC2857A	\$837.35	\$776.55	-7.26 %	1.40 %	1.34 %	-0.05 %
ENE2809A	\$197.21	\$187.21	-5.07 %	0.32 %	0.32 %	-0.00 %
ENJ2820A	\$474.45	\$429.11	-9.55 %	0.79 %	0.74 %	-0.04 %
EPC2198S	\$162.65	\$146.44	-9.96 %	0.27 %	0.25 %	-0.01 %
EPR2079A	\$104.83	\$99.50	-5.08 %	0.17 %	0.17 %	-0.00 %
FCX1324S	\$12.52	\$12.10	-3.40 %	0.02 %	0.02 %	0.00 %
FHK1391G	\$242.87	\$231.18	-4.81 %	0.40 %	0.40 %	-0.00 %
FHK1764G	\$215.72	\$200.40	-7.10 %	0.36 %	0.34 %	-0.01 %
FH01610G	\$1,266.58	\$1,163.30	-8.15 %	2.11 %	2.02 %	-0.09 %
FSB1582S	\$513.64	\$476.51	-7.22 %	0.85 %	0.82 %	-0.03 %
FSB1585S	\$30.05	\$28.10	-6.47 %	0.05 %	0.04 %	-0.00 %
FSB1642S	\$80.38	\$77.16	-4.01 %	0.13 %	0.13 %	-0.00 %
FTH1657A	\$207.30	\$198.84	-4.08 %	0.34 %	0.34 %	-0.00 %
FTJ1323S	\$17.73	\$15.98	-9.82 %	0.02 %	0.02 %	-0.00 %
FTL1749S	\$1.97	\$1.91	-3.13 %	0.00 %	0.00 %	0.00 %
GAP0324G	\$184.16	\$167.89	-8.83 %	0.30 %	0.29 %	-0.01 %
GCF0789A	\$194.38	\$180.36	-7.21 %	0.32 %	0.31 %	-0.01 %
HQ INT	\$23.88	\$19.48	-18.40 %	0.03 %	0.03 %	-0.00 %
SHR0685S	\$499.85	\$422.72	-15.42 %	0.83 %	0.73 %	-0.10 %
WD INT	\$74.26	\$72.45	-2.42 %	0.12 %	0.12 %	0.00 %
000	\$17,408.09	\$17,590.02	1.04 %	29.11 %	30.55 %	1.44 %
DEFAULT CENTER	\$3,945.78	\$3,613.46	-8.42 %	6.59 %	6.27 %	-0.32 %
11	\$6.20	\$6.20	0.00 %	0.01 %	0.01 %	0.00 %
26	\$916.70	\$916.65	-0.00 %	1.53 %	1.59 %	0.05 %
TOTAL	\$59,796.26	\$57,571.71	-3.72 %	99.99 %	100.00 %	

Figure 6-27. Rate Simulation Cost Center Effects Report

6.5.2.1.3 Rate Simulation Revenue Area Effects Report

The Rate Simulation Revenue Area Effects Report lists the amount of revenue that would have been generated by each invoice category had it been billed at the simulated rate.

Revenue can be simulated only for charging elements that were previously billed, even if they were billed at a zero rate. (The ACTAUDIT file, which has the input data for this report, contains only the data for the charging elements that are billed.) Figure 6-28 shows a sample Rate Simulation Revenue Area Effects Report.

The report heading contains the installation name and the report name (Rate Simulation Revenue Area Effects).

The body of the report lists the invoice category and the resource name associated with it, the original charge incurred, the simulated charge, the percentage difference between the charges, the original and simulated percentage distribution of the charges, and the percentage change in the distribution.

RUNNING THE REPORT

Run the Rate Simulation Revenue Area Analysis Report from the Rate Simulation option of the Accounting Administration Rate Tracking menu (MWF;4;2;4;5;2;1). The JCL for this report is in the prefix.MICS.CNTL(ACTRTSIM) member.

YOUR COMPANY NAME RATE SIMULATION REVENUE AREA EFFECTS SIMULATION FOR SELECTED AUDIT FILE IN UNIT: P							
REPORT DATE: 07/27/93				PAGE NO. - 1			
INVOICE CATEGORY	DESCRIPTION	ACTUAL CHARGES	SIMULATED CHARGES	PERCENTAGE DIFFERENCE	ACTUAL PERCENTAGE DISTRIBUTION	SIMULATED PERCENTAGE DISTRIBUTION	PERCENTAGE DIFFERENCE OF DISTRIBUTIONS
1100	CENTRAL PROCESSOR(S)	\$32,299.27	\$30,777.71	-4.71 %	54.01 %	53.45 %	-0.55 %
1200	CHANNELS	\$364.20	\$364.04	-0.04 %	0.60 %	0.63 %	0.02 %
1400	TAPE DRIVES	\$1,190.36	\$1,164.68	-2.15 %	1.99 %	2.02 %	0.03 %
1500	DIRECT ACCESS STORAGE DEVICES	\$5,463.04	\$4,785.90	-12.39 %	9.13 %	8.31 %	-0.82 %
2100	TERMINALS	\$25.17	\$25.24	0.28 %	0.04 %	0.04 %	0.00 %
3100	MECHANICAL PRINTERS	\$621.12	\$621.03	-0.01 %	1.03 %	1.07 %	0.03 %
3120	CARD READERS	\$644.15	\$644.15	-0.00 %	1.07 %	1.11 %	0.04 %
9700	JOB GROUP PRIORITY CHARGE	\$19,188.90	\$19,188.90	0.00 %	32.09 %	33.33 %	1.23 %
TOTAL		\$59,796.26	\$57,571.71	-3.72 %	99.99 %	100.00 %	

Figure 6-28. Rate Simulation Revenue Area Effects Report

6.5.2.1.4 Rate Simulation Billing Element Effects Report

The Rate Simulation Billing Element Effects Report shows the percentage of simulated total revenue that would have been contributed by each charging element compared to that actually incurred by the element. This report is useful in assessing the effect of a proposed rate change on the relation between the charge and the actual costs of a given resource. Figure 6-29 shows a sample Rate Simulation Billing Element Effects Report.

The report heading contains the installation name and the report name (for example, Rate Simulation Billing Element Effects).

The body of the report lists the computation code and the description of the charging element associated with it, the actual charges for the element during the accounting period, its simulated charges for the accounting period, the percentage difference between the charges, the percentage distribution of the actual charges, the percentage distribution of the simulated charges, and the change in percentage distribution.

RUNNING THE REPORT

Run the Rate Simulation Billing Element Effects Report from Rate Simulation option of the Accounting Administration Rate Tracking menu (MWF;4;2;4;5;2;1). The JCL for this report is in the prefix.MICS.CNTL(ACTRTSIM) member.

YOUR COMPANY NAME RATE SIMULATION BILLING ELEMENT EFFECTS SIMULATION FOR SELECTED AUDIT FILE IN UNIT: P							
REPORT DATE: 07/27/93				PAGE NO. - 1			
COMP CODE	DESCRIPTION	ACTUAL CHARGES	SIMULATED CHARGES	PERCENTAGE DIFFERENCE	ACTUAL PERCENTAGE DISTRIBUTION	SIMULATED PERCENTAGE DISTRIBUTION	PERCENTAGE DIFFERENCE OF DISTRIBUTIONS
J12	J12	\$747.72	\$747.72	0.00 %	1.25 %	1.29 %	0.04 %
J13	J13	\$4,363.72	\$4,363.72	0.00 %	7.29 %	7.57 %	0.28 %
J14	J14	\$2,489.14	\$2,489.14	0.00 %	4.16 %	4.32 %	0.16 %
J15	J15	\$3,600.95	\$3,600.95	0.00 %	6.02 %	6.25 %	0.23 %
J199	J199	\$0.00	\$0.00	.	0.00 %	0.00 %	0.00 %
J3	J3	\$250.35	\$250.35	0.00 %	0.41 %	0.43 %	0.01 %
J33	J33	\$4.14	\$4.14	0.00 %	0.00 %	0.00 %	0.00 %
J4	J4	\$1,663.26	\$1,663.26	0.00 %	2.78 %	2.88 %	0.10 %
J5	J5	\$5,404.31	\$5,404.31	0.00 %	9.03 %	9.38 %	0.34 %
J51	J51	\$141.74	\$141.74	0.00 %	0.23 %	0.24 %	0.00 %
J52	J52	\$19.77	\$19.77	0.00 %	0.03 %	0.03 %	0.00 %
J53	J53	\$66.50	\$66.50	0.00 %	0.11 %	0.11 %	0.00 %
J54	J54	\$163.68	\$163.68	0.00 %	0.27 %	0.28 %	0.01 %
J6	J6	\$85.13	\$85.13	0.00 %	0.14 %	0.14 %	0.00 %
0829	UNITS	\$340.00	\$340.00	0.00 %	0.56 %	0.59 %	0.02 %
1631	KCORE	\$7,512.93	\$7,512.93	0.00 %	12.56 %	13.04 %	0.48 %
2104	SECONDS	\$581.20	\$581.18	-0.00 %	0.97 %	1.00 %	0.03 %
2206	TRANSACTIONS	\$4,003.99	\$4,004.00	0.00 %	6.69 %	6.95 %	0.25 %
2207	TRANSACTIONS	\$3,640.00	\$3,640.00	0.00 %	6.08 %	6.32 %	0.23 %
2306	1000 MSGS	\$18.86	\$18.93	0.36 %	0.03 %	0.03 %	0.00 %
2401	1000 CALLS	\$57.76	\$57.75	-0.03 %	0.09 %	0.10 %	0.00 %
2505	1000 I/OS	\$244.22	\$244.09	-0.05 %	0.40 %	0.42 %	0.01 %
3306	TRANSACTIONS	\$364.00	\$364.00	0.00 %	0.60 %	0.63 %	0.02 %
3307	TRANSACTIONS	\$546.00	\$728.00	33.33 %	0.91 %	1.26 %	0.35 %
4100	TCB SECONDS	\$4,980.11	\$3,662.70	-26.45 %	8.32 %	6.36 %	-1.96 %
4300	KBYTE-HOURS	\$10,011.54	\$9,621.34	-3.89 %	16.74 %	16.71 %	-0.03 %
4400	1000 EXCPS	\$2,477.04	\$2,523.05	1.85 %	4.14 %	4.38 %	0.23 %
4600	1000 EXCPS	\$8.00	\$11.56	44.44 %	0.01 %	0.02 %	0.00 %
4900	HOURS	\$2,898.11	\$2,182.76	-24.68 %	4.84 %	3.79 %	-1.05 %
5000	HOURS	\$192.69	\$145.11	-24.69 %	0.32 %	0.25 %	-0.07 %
5100	1000 LINES	\$621.12	\$621.03	-0.01 %	1.03 %	1.07 %	0.03 %
5300	1000 CARDS	\$304.15	\$304.15	-0.00 %	0.50 %	0.52 %	0.01 %
5400	MOUNTS	\$87.87	\$80.08	-8.87 %	0.14 %	0.13 %	-0.00 %
5500	MOUNTS	\$227.35	\$224.00	-1.47 %	0.38 %	0.38 %	0.00 %
5600	STEPS	\$623.25	\$623.70	0.07 %	1.04 %	1.08 %	0.04 %
TOTAL		\$59,796.26	\$57,571.71	-3.72 %	99.99 %	100.00 %	

Figure 6-29. Rate Simulation Billing Element Effects Report

6.5.2.2 Complex Accounting Status, Journal Files and Computation Code Report

The Complex Accounting Status, Journal and Computation report provides a complete picture of the CA MICS Accounting and Chargeback Option implementation for a CA MICS complex. The report contains the following four sections:

REPORT DESCRIPTION

Section 1 - Accounting Status Section

This is a one page report that shows all the units that have CA MICS Accounting and Chargeback Option installed. For each unit, the unit database name, type, and prefix.PARM data set name are listed. In addition, the accounting status is listed as well which can be ACTIVE or INACTIVE.

Section 2 - Journal File Section

This report lists each database unit with CA MICS Accounting and Chargeback Option installed. For each unit, each component using accounting is listed along with the journal files (name and description) that are used by the component.

Section 3 - Currently Effective Rates Section

This report generates detailed information for each journal file used across the complex. The report is organized by unit and component within the unit. For each active journal file within a component, a page is generated that describes all information available about the journal file such as the number of online cycles, prorating, zone, and priority charging status, SYSID, SUBSYSID, SUBTYPE COSTCTR, and WORKUNIT groups, and algorithm ID. For each COMPCODE used by the journal file, the invoice category, rate, control variable, effective date, and compcode description are listed. Finally, the algorithm qualification choices for the journal file are listed. The report sample (Figures 6-30a) shows just one journal file described. An actual report will contain a page for each journal file used in your CA MICS complex.

Section 4 - Computation Code Section

The Unit Level Computation Code report shows all of the computation codes used by each unit. The report is structured by unit. For each unit, the components using accounting are listed, along with the selected journal files, COMPCODEs, rates, control variables, control variable COMPCODEs, control variable values, control variable rates, and the effective dates.

RUNNING THE REPORT

The Complex Accounting Status and Journal Report is produced within the CA MICS Workstation Facility (MWF) by selecting the Enterprise IS Financial Reporting, Accounting Administration, and Rate Tracking panel. You can also run the report from the sharedprefix.MICS.CNTL(ACTADMIN).

COMPLEX REPORT Unit Level Accounting Status July 19, yyyy				
Database Unit id	Accounting Status	Database Name	Database Type	Prefix PARM data set name
A	INACTIVE	ACCT	UNIT	MDI.Y2ACT.PARMS
D	INACTIVE	Y2DPF	UNIT	MDI.Y2DPF.PARMS
L	ACTIVE	CPMPROD	UNIT	MDI.Y2LJR.PARMS
P	ACTIVE	FORALL	PRIMARY	MDI.Y2PUN.PARMS
Z	ACTIVE	PATSUNIT	UNIT	MDI.Y2PAD.PARMS
8	ACTIVE	Y2AXI	UNIT	MDI.Y2AXI.PARMS

Status Definitions:

ACTIVE: This means 'ACCOUNTING ACTIVE' is currently specified in prefix.MICS.PARMS(EXECDEF)

INACTIVE: This means that accounting is inactive in the unit because either 'ACCOUNTING INACTIVE' is currently specified in prefix.MICS.PARMS(EXECDEF) or there is no 'ACCOUNTING' keyword specified in prefix.MICS.PARMS(EXECDEF)

Figure 6-29a. Unit Level Accounting Status Report

COMPLEX REPORT Unit Level Journal Files July 19, yyyy			
Database Unit id	Component	Journal File	Journal Description
A	CIC	ACTJCS	CICS Resource Journal File
	VMC	ACTJVR	VMC RSCS Accounting Journal File
	VMC	ACTJCM	VMC Resource Journal File/VMCCMU
L	IDM	ACTJSA	IDMS Transaction Journal File
	MQS	ACTJMQ	Message Manager Accounting Journal File
	MQS	ACTJQA	MQSeries Queue Activity Journal File
	PWR	ACTJPJ	VSE/POWER Job Journal File
P	PWR	ACTJPO	VSE/POWER Output Journal File
	SMF	ACTJBJ	Batch Job Journal File
	SMF	ACTJRN	Multisystem Enclaves Journal File
Z	SMF	ACTJBJ	Batch Job Journal File
	SMF	ACTJBM	MULC Address Space Journal File
	SMF	ACTJBP	Batch Program Journal File
	SMF	ACTJBS	Batch Spool Journal File
	SMF	ACTJRN	Multisystem Enclaves Journal File
	SMF	ACTJTP	APPC TP Resource Journal File
	VMC	ACTJCM	VMC Resource Journal File/VMCCMU
	VMC	ACTJDC	VMC Device Accounting Journal File
	VMC	ACTJNT	VMC Network Terminal Usage Journal File
	VMC	ACTJVR	VMC RSCS Accounting Journal File
	SNT	ACTJNA	SNT NLDM Resource Journal File/NVSNSA
	SNT	ACTJNC	SNT NLDM Resource Journal File/NVSNCS
	SNT	ACTJNP	SNT NCP Resource Journal File
	SNT	ACTJNS	SNT NETSPY Resource Journal File
	SNT	ACTJRT	SNT NLDM Resource Journal File/NVSRM
	VCA	ACTJDA	VCA DAA Resource Journal File
8	VCA	ACTJHF	VCA HFS RESOURCE JOURNAL
	VCA	ACTJMS	VCA System Managed Storage Journal File
	VCA	ACTJVS	VCA VSAM (ICF) Resource Journal File
	WEB	ACTJSF	WebSphere Appl. Server Journal File

Figure 6-29b. Unit Level Journal Files Report

COMPLEX REPORT Unit level Computation Code September 2, yyyy										
				Database Unit ID: A						
CCC	Journal File	COMP CODE	DESCRIPTION	Rate	Control Variable	Cont VCPC	Variable Value	Control Var Rate	Effective Date	Algorithm ID
CIC	ACTJCS	1507	CICS SRB CPU TIME	0.55						JCS
		1508	CICS TCB CPU TIME	0.45						
		1501	CICS INSTRUCTIONS EXECUTED	1.00						JDC
VCA	ACTJDA	1820	MEGABYTE HOURS UTILIZED	0.65						JDA
		1870	Megabyte Hours Utilized	1.00						JHF
		1875	Kilobyte Hours Utilized	1.00						
		1830	CHARGE FOR DEFAULT STORAGE CLASS	0.15	*default			0.15	08/31/10	SMS
					STORCLAS	1831	DBPROD	1.25		
					STORCLAS	1832	HRPROD	1.50		
					STORCLAS	1833	DBMIG3	0.98		
					STORCLAS	1834	VALUE4	0.80		
	ACTJVS	1820	MEGABYTE HOURS UTILIZED	1.05						JVS

Figure 6-29c. Unit Level Computation Code Report

The information listed under each report column heading is described below:

Report Heading	Description
CCC	The identifier of the database component
Journal File	The name of the journal file
COMP CODE	This field identifies the computation code to be charged.
DESCRIPTION	This field displays the description associated with the charging element.
Rate	This field contains the rate at which the resource associated with the computation code is to be charged. If a control variable has been specified for a computation code, this is the default (*default) rate to be used.
Control Variable	A variable (SAS data element) whose value is used to qualify how a specific measurement is charged.
Cont VCPC	Computation code used for values of the Control Variable.
Variable Value	This field contains a value for the Control Variable.
Control Var Rate	The rate to be used for a specific Control Variable value. This rate will be used if the value of the Control Variable at charging time matches the variable value.
Effective Date	This field contains the date at which the rate begins to be used for charging.
Algorithm ID	Name used to identify a specific group of computation codes and rates for a journal file.

6.5.2.2.1 Unit Level Journal Report

The Journal Files Rate Report is a listing of the journal file charging algorithms (that is, the computation codes and their associated rates) in a unit. For each journal file, the report lists the applicable rate for each charging element by system identifier, subsystem, subtype, and cost center. This report is designed to document each charging element and its associated rate for user reference. The report can be used to verify rates prior to running the MAGRUN job, which executes Rate and Charging Element generation.

To avoid charging twice for the same resource, additional report will be generated at the end of the Current Rate Report when the same charging element is used in multiple computation codes. This report lists the journal file name, computation codes, and the charging elements that are used in multiple computation codes.

If you have changed any rates, but not yet run the MAGRUN job, the Journal Files Rate Report produces two separate reports:

- CURRENTLY EFFECTIVE RATES
- PROPOSED RATES

Once you have verified the accuracy of the proposed rates, and executed the MAGRUN job, the Journal Files Rate Report only produces one report:

- CURRENTLY EFFECTIVE RATES

It is recommended that MAGRUN job be executed once rates have been verified to ensure generation of the supporting code. Remember that even though proposed rates have been entered, the daily update runs will not use them until the MAGRUN job is successfully executed!

Figure 6-30 shows a sample Journal Files Rate Report.

The report heading contains the installation name, the report name (for example, CURRENTLY EFFECTIVE RATES), and the date on which the report was run. This example report also show that there were charging elements used in multiple comp codes, and the report lists the journal file name, comp codes, and the charging elements that are used in multiple comp codes.

RUNNING THE REPORT

The Journal File Rate Report (CURRENTLY EFFECTIVE RATES) is produced automatically whenever you run the Algorithm Generator job in prefix.MICS.CNTL(MAGRUN). You can also run the report from the Journal Files Rate Report option of the Accounting Administration Rate Tracking menu (MMF;4;2;4;5;2;2). The JCL for this report is in the prefix.MICS.CNTL(RATERPT) member.

COMPLEX REPORT							
CA MICS IS Management Support System							
CURRENTLY EFFECTIVE RATES							
January 24, yyyy							
UNIT:	P						
COMPONENT:	SMF		PRORATING:	NO		ZONE CHARGING:	NO
FILE:	ACTJBP		PRORATE FROM VARIABLE:			ZONE TIMESTAMP VARIABLE:	
CYCLES:	02					PRIORITY CHARGING:	NO
SYSID GROUPS:	NO		SUBSYSID GROUPS:	NO		SUBTYPE GROUPS:	NO
COSTCTR GROUPS:	NO		WORKUNIT GROUPS:	NO			
ALGORITHM ID:	JBP						
INVCAT	COMPCODE	RATE	CONTROL VARIABLE/ VARIABLE VALUE	EFFECTIVE DATE	COMPCODE DESCRIPTION	CHANGE DATE	USERID
----	-----	-----	-----	-----	-----	-----	-----
1100	0531	.50			STEP TOTAL DATA SET ALLOCATIONS	01/24/yy	HABME01
1500	0532	.75			STEP DASD DATA SET ALLOCATIONS	01/24/yy	HABME01
1400	0533	.95			STEP TAPE DATA SET ALLOCATIONS	01/24/yy	HABME01
SYSID	SUBSYSID	SUBTYPE	COSTCTR		SEL/EXCL	WORKUNIT	
----	-----	-----	-----	-----	-----	-----	-----
*ALL	@TS0	*ALL	*ALL				
*** *WARNING* *** *WARNING* *** *WARNING* *** *WARNING* *** *WARNING* *** *WARNING* *** * You have selected two or more Comp Codes that are using the same Charging Element, * * which can cause duplicate charging. Each line below lists the Journal file, Standard / Computed * * Comp Codes, and the Charging Element used by both Comp Codes. * * NOTE: This section of the report does not include external * * Journal files. * *** *WARNING* *** *WARNING* *** *WARNING* *** *WARNING* *** *WARNING* *** *WARNING* ***							
	Journal	Computed	Standard	Charging			
	File	Comp Code	Comp Code	Element			
	-----	-----	-----	-----			
	ACTJBP	0531	0532	PGMADASD			
	ACTJBP	0531	0533	PGMATAPE			

Figure 6-30a. Journal Files Rate Report (Currently Effective Rates)

COMPLEX REPORT									
CA MICS IS Management Support System									
PROPOSED RATES									
January 24, yyyy									
UNIT:	P								
COMPONENT:	SMF	PRORATING:	NO	ZONE CHARGING:	NO				
FILE:	ACTJBP	PRORATE FROM VARIABLE:		ZONE TIMESTAMP VARIABLE:					
CYCLES:	02			PRIORITY CHARGING:	NO				
SYSID GROUPS:	NO	SUBSYSID GROUPS:	NO	SUBTYPE GROUPS:	NO				
COSTCTR GROUPS:	NO	WORKUNIT GROUPS:	NO						
ALGORITHM ID:	JBP								
INVCAT	COMPCODE	RATE	CONTROL VARIABLE/ VARIABLE VALUE	EFFECTIVE DATE	COMPCODE DESCRIPTION	CHANGE DATE	USERID		
----	----	-----	-----	-----	-----	-----	-----		
1500	0532	.75			STEP DASD DATA SET ALLOCATIONS	01/24/yy	HABME01		
1400	0533	.95			STEP TAPE DATA SET ALLOCATIONS	01/24/yy	HABME01		
SYSID	SUBSYSID	SUBTYPE	COSTCTR		SEL/EXCL	WORKUNIT			
----	-----	-----	-----		-----	-----			
*ALL	@TSO	*ALL	*ALL						

* NOTE - MAGRUN REQUIRED TO ACTIVATE THESE RATES *									

Figure 6-30b. Journal Files Rate Report (Proposed Rates)

6.5.2.3 Complex-Level External Files Rate Report

The Complex-Level External Files Rate Report is a listing of the complex-level external file charging algorithms (that is, the computation codes and their associated rates). This report documents each charging element and its associated rate to ensure that complex-level external file generation was performed correctly. It also is a convenient way to refer to the rate table for the complex-level external files. Figure 6-31 shows a sample Complex-Level External Files Rate Report.

The report heading contains the installation name, the report name (for example, Schedule of Rates External File), and the date on which the report was run (for example, June 7, 2002). For each complex-level external file, the report lists the applicable rate for each charging element by system identifier, subsystem, subtype, and cost center.

RUNNING THE REPORT

The Complex-Level External Files Rate Report is produced automatically when you run the CA MICS External File Generation job. You can also run the report from the Complex-Level External Files Rate Report option of the Accounting Administration Rate Tracking menu (MMF;4;2;4;5;2;3). The JCL for this report is in `sharedprefix.MICS.CNTL(RATERPTE)`.

COMPLEX REPORT									
CA MICS IS Management Support System									
CURRENTLY EFFECTIVE RATES									
EXTERNAL FILE									
May 22, yyyy									
COMPONENT:	EXT	PRORATING:		NO	ZONE CHARGING:		N/A		
FILE:	UMEUME	PRORATE FROM VARIABLE:			ZONE TIMESTAMP VARIABLE:		N/A		
CYCLES:					PRIORITY CHARGING:		N/A		
SYSID GROUPS:		SUBSYSID GROUPS:			SUBTYPE GROUPS:				
COSTCTR GROUPS:		WORKUNIT GROUPS:							
ALGORITHM ID: UME									
INVCAT	COMPCODE	RATE	CONTROL VARIABLE/ VARIABLE VALUE	EFFECTIVE DATE	COMPCODE DESCRIPTION	CHANGE DATE		USERID	
----	-----	-----	-----	-----	-----	-----		-----	
1100	8001	2.0			TCB + SRB CPU TIME	05/22/01		HABME01	
SYSID	SUBSYSID	SUBTYPE	COSTCTR		SEL/EXCL	WORKUNIT			
----	-----	-----	-----		-----	-----			
*ALL	*ALL	*ALL	*ALL						

Figure 6-31. External Files Rate Report

6.5.2.4 Qualification Groups Report

The Qualification Groups Report documents each qualification group defined. Figure 6-32 shows a sample Qualification Groups Report.

The report heading contains the installation name, the report name (for example, Qualification Groups Report), and the date on which the report was run (for example, July 12, 1998). For each qualification group defined, the report lists the associated values.

RUNNING THE REPORT

If you add or update a qualification group definition in MWF;4;2;3;9 you are automatically prompted with the job sharedprefix.MICS.CNTL(CHRGROUP). This job generates the formats used to represent the qualification group(s) and also produces the qualification report. The report lists all groups defined in the CA MICS complex.

The report is also produced by the sharedprefix.MICS.CNTL jobs EXTFILE and RATERPTE if qualification groups have been used in any external file algorithm qualification. In this situation the report only lists those groups used in external file algorithm qualification. Similarly the report is produced by the prefix.MICS.CNTL jobs MAGRUN and RATERPT when groups are used in algorithm qualification for a journal. Only those groups used in algorithm qualification in the unit will be listed.

COMPLEX REPORT LIST OF QUALIFICATION GROUPS July 12, 1998													
GROUP TYPE: SUBTYPE GROUP NAME: DAS													
096	097	098	100	101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	118	119	120	121	122	123	124	125
126	128	129	130	131	132	133	134	135	136	138	139	140	141
142	143	144	145	146	148	149	150	151	152	153	154	155	156
158	159	160	161	162	163	164	165	166	168	169	170	171	172
173	174	175	176	178	179	180	181	182	183	184	185	186	188
189	210	211	212	213	214	220	222	223	224	230	232	233	234
240	242	243	244	250	252	253	254	300	301	302	303	304	305
307	311	312	314	320	321	322	323	351	352	353	354	355	356
357	360	370	371	372	373	374	375	376	380	381	382	383	384
385	390	391	392	400	401	402	403	404	410	411	412	413	419
420	421	422	423	480	481	482	483	484	485	486	487	488	490
500	501	502	503	510	511	520	521	522	523	529	530	531	532
539	550	551	552	553	554	555	556	557	558	559	561	562	570
571	572	573	579	580	581	591	595	596	597	598	599	600	601
602	603	604	605	606	607	608	609	610	611	612	613	614	615
616	617	618	619	620	621	622	623	624	625	626	627	628	629
630	631	632	633	634	635	636	637	638	639	640	641	642	643
644	645	646	647	648	649	650	651	652	653	654	655	656	657
658	659	660	661	662	663	664	665	666	667	668	669	670	671
672	673	674	675	676	677	678	679	680	681	682	683	684	685
686	687	688	689	695	696	697	700	701	702	703	704	705	706
707	708	709	710	711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730	731	732	733	734
735	736	737	738	739	740	741	742	743	744	745	750	751	752
753	754	800	801	802	803	804	805	806	807	808	809	810	811
812	813	814	815	816	817	818	819	820	821	822	823	824	825
826	827	828	829	845	846	850	860	861	862	863	864	865	866
867	868	869	870	871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	900	901	902	903	904	905	907	910	921
922	923	924	925	926	927	949							

Figure 6-32. Qualification Groups Report

6.6 MICF Inquiries

The CA MICS Information Center Facility (MICF) allows you to access and manipulate data in the CA MICS database. MICF minimizes your need to write SAS code and, since you write less code, minimizes SAS syntax errors. MICF also provides automatic validation procedures that prevent you from attempting to analyze data elements that do not exist in the files you request.

The MICF inquiries provided with the CA MICS Accounting and Chargeback are listed in Figure 6-33.

MICF Distributed Inquiries				
Report Class	Report Name	Report Identifier		
		Color Graphics	List	Printer Graphics
FINANCE	Net Revenue by Cost Center	ACTCM1		
	Budgeted and Actual Charges	ACTCM2		
	Monthly Charges by Invoice Category	ACTCM3		
	Invoice Category Charges by Cost Center	ACTCM4		
	Invoice Credits by Cost Center	ACTCM5		
	Cost Center Charges by Invoice Category	ACTCM6		
	Invoice Discounts by Cost Center	ACTCM7		
	Monthly Net Revenue Summary	ACTCM8		
	Monthly Invoice Credit/Discount Summary	ACTCM9		
	Weekly Processing Charges Summary	ACTCW1		
	Weekly Charges by Invoice Category	ACTCW2		
	Daily Revenue Ranking		ACTLD1	
	Net Revenue by Cost Center			ACTPM1
	Budgeted and Actual Charges			ACTPM2
	Monthly Charges by Invoice Category			ACTPM3
	Invoice Category Charges by Cost Center			ACTPM4
	Invoice Credits by Cost Center			ACTPM5
	Cost Center Charges by Invoice Category			ACTPM6
	Invoice Discounts by Cost Center			ACTPM7
	Monthly Net Revenue Summary			ACTPM8
	Monthly Invoice Credit/Discount Summary			ACTPM9
	Weekly Processing Charges Summary			ACTPW1
	Weekly Charges by Invoice Category			ACTPW2
	Generate CSV File from Financial Recap		ACTRCP	
	Budget Threshold Report		ACTSVD	

Figure 6-33. MICF Distributed Inquiries

If you want to run the Financial MICF inquiries, access them through the database inquiries option of MICF, which is part of the CA MICS Workstation Facility (MWF).

The CA MICS Accounting and Chargeback MICF inquiries are described in the following sections:

- 1 - Net Revenue by Cost Center
- 2 - Budgeted and Actual Charges
- 3 - Monthly Charges by Invoice Category
- 4 - Invoice Category Charges by Cost Center
- 5 - Invoice Credits by Cost Center
- 6 - Cost Center Charges by Invoice Category
- 7 - Invoice Discounts by Cost Center
- 8 - Monthly Net Revenue Summary
- 9 - Monthly Invoice Credit/Discount Summary
- 10 - Weekly Processing Charges Summary
- 11 - Weekly Charges by Invoice Category
- 12 - Daily Revenue Ranking
- 13 - Net Revenue by Cost Center
- 14 - Budgeted and Actual Charges
- 15 - Monthly Charges by Invoice Category
- 16 - Invoice Category Charges by Cost Center
- 17 - Invoice Credits by Cost Center
- 18 - Cost Center Charges by Invoice Category
- 19 - Invoice Discounts by Cost Center
- 20 - Monthly Net Revenue Summary
- 21 - Monthly Invoice Credit/Discount Summary
- 22 - Weekly Processing Charges Summary
- 23 - Weekly Charges by Invoice Category
- 24 - Generate CSV file from Financial Recap
- 25 - Budget Threshold Report

6.6.1 Net Revenue by Cost Center (Color)

The Net Revenue by Cost Center (Color) inquiry produces a pie chart that depicts how revenue, less any cost center credits, is distributed to the various high-level cost centers. Each slice represents a cost center's relative contribution to total revenue.

INTENDED USE:

The pie chart shows the Financial Recap Charge for various high-level cost centers.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

RCPTYPE - Financial Recap type BUDGET
COSTCTRn - User-Defined Cost Center Codes

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTCM1, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTCM1 - Net Revenue by Cost Center |
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 01 - _____ |
+-----+
```

NOTE: Because this is a color graphics chart, no sample of the chart is provided.

6.6.2 Budgeted vs. Actual Charges (Color)

The Budgeted vs. Actual Charges (Color) inquiry produces a vertical bar chart for selected high-level cost centers. Each bar represents either the actual charges or the budgeted amount for a cost center.

INTENDED USE:

This report can be used to see how well the cost centers are staying within their budgets.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

RCPTYPE - Financial Recap Type

COSTCTRn - User-Defined Cost Center Codes

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTCM2, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

+-----+-----+	
Command ==>	Scroll ==> PAGE
Executing CA MICS Inquiry: ACTCM2 - Budgeted and Actual Charges	

Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed.	
01	- -----
Specify the Cost Centers to be reported or leave blank to report all.	

+-----+-----+	

NOTE: Because this is a color graphics chart, no sample of the chart is provided.

6.6.3 Monthly Charges by Invoice Category (Color)

The Monthly Charges by Invoice Category (Color) inquiry produces a pie chart depicting how revenue, less any credits, is distributed to the various invoice categories, where the categories are broadly defined along the lines of CPU, DASD, Print, Tape, etc. Each slice represents a category's relative contribution to total revenue.

INTENDED USE:

The pie chart shows the Financial Recap Charge for various high-level cost centers.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

RCPTYPE - Financial Recap Type

COSTCTRn - User-Defined Cost Center Codes

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTCM3, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

+-----+-----+	
Command ==>	Scroll ==> PAGE
Executing CA MICS Inquiry: ACTCM3 - Monthly Charges by Invoice Category	

Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed.	
01	-

Specify the Cost Centers to be reported or leave blank to report all.	
-----	-

+-----+-----+	

NOTE: Because this is a color graphics chart, no sample of the chart is provided.

6.6.4 Invoice Category Charges by Cost Center (Color)

The Invoice Category Charges by Cost Center (Color) inquiry produces a stacked vertical bar chart that shows each invoice category's charges for the preceding month. Each bar is composed of the charges for each high-level cost center.

INTENDED USE:

The bar chart shows the Invoice Category Charges for various high-level cost centers.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes

INVCCAT - Invoice Categories

RCPTYPE - Financial Recap Type

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTCM4, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTCM4 - Invoice Category Charges by Cost Center |
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 01                               - |
|-----|
| Specify the Cost Centers to be reported or leave blank to report all. |
|                               - |
|-----|
+-----+
```

NOTE: Because this is a color graphics chart, no sample of the chart is provided.

6.6.5 Invoice Credits by Cost Center (Color)

The Invoice Credits by Cost Center inquiry (Color) produces a pie chart depicting how credits are distributed to the various high-level cost centers.

INTENDED USE:

In the bar chart, each slice represents a cost center's relative share of the total credits.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes

INVCCAT - Invoice Categories

RCPTYPE - Financial Recap Type

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTCM5, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTCM5 - Invoice Credits by Cost Center |
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 01      - _____ |
| Specify the Cost Centers to be reported or leave blank to report all. |
| _____ - _____ |
+-----+
```

NOTE: Because this is a color graphics chart, no sample of the chart is provided.

6.6.6 Cost Center Charges by Invoice Category (Color)

The Cost Center Charges by Invoice Category (Color) inquiry produces a stacked vertical bar chart that shows the preceding month's charges for any or all high-level cost centers.

INTENDED USE:

In the chart, each bar depicts charges applicable to the different invoice categories.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes

INVCCAT - Invoice Categories

RCPTYPE - Financial Recap Type

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTCM6, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTCM6 - Cost Center Charges by Invoice Category |
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 01 - _____ |
| Specify the Cost Centers to be reported or leave blank to report all. |
| _____ - _____ |
|-----+-----|
```

NOTE: Because this is a color graphics chart, no sample of the chart is provided.

6.6.7 Invoice Discounts by Cost Center (Color)

The Invoice Discounts by Cost Center (Color) inquiry produces a pie chart depicting how credits are distributed to the various high-level cost centers.

INTENDED USE:

In the chart, each slice represents a cost center's relative share of the total credits.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes

RCPTYPE - Financial Recap Type

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTCM7, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)


```
+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTCM7 - Invoice discounts by Cost Center |
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 01 - _____ |
| Specify the Cost Centers to be reported or leave blank to report all. |
| _____ - _____ |
+-----+
```

NOTE: Because this is a color graphics chart, no sample of the chart is provided.

6.6.8 Monthly Net Revenue Summary (Color)

The Monthly Net Revenue Summary (Color) inquiry produces a vertical bar chart that represents net revenue for a selected number of months for any or all high-level cost centers.

INTENDED USE:

The bar chart shows monthly revenue for each month at high-level cost centers.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes

RCPTYPE - Financial Recap Type

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTCM8, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
| ----- Execution-Time Parameters ----- |
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTCM8 - Monthly Net Revenue Summary |
| ----- |
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 12                               - 01 |
| Specify the Cost Centers to be reported or leave blank to report all. |
| _____ - _____ |
+-----+
```

NOTE: Because this is a color graphics chart, no sample of the chart is provided.

6.6.9 Monthly Invoice Credit/ Discount Summary (Color)

The Monthly Invoice Credit/ Discount Summary (Color) inquiry produces a stacked vertical bar chart depicting the credits and discounts provided each month over a specified period of months for any or all high-level cost centers.

INTENDED USE:

The bar chart shows the relative share of credits and discounts for each month at any level of cost center.

DATA SOURCE (file/timespan):

ACTLGR - Ledger File at the MONTHS timespan.

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes
INVCCAT - Invoice Categories
LGRCHG - Amount Billed
RCPTYPE - Financial Recap Type

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTCM9, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTCM9 - Monthly Invoice Credit/Discount Summary |
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 12                               - 01 |
| Specify the Cost Centers to be reported or leave blank to report all. |
|----- - -----|
+-----+
```

NOTE: Because this is a color graphics chart, no sample of the chart is provided.

6.6.10 Weekly Processing Charges Summary (Color)

The Weekly Processing Charges by Summary (Color) inquiry produces a vertical bar chart showing the total charges processed during the preceding seven days for any or all high-level cost cost centers.

INTENDED USE:

The bar chart shows each day charges for any high-level cost centers.

DATA SOURCE (file/timespan):

ACTLGR - Ledger File at the DAYS timespan.

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes

INVCCAT - Invoice Categories

LGRCHG - Amount Billed

RCPTYPE - Financial Recap Type

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTCW1, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> CSR |
|-----|
| Executing CA MICS Inquiry: ACTCW1 - Weekly Processing Charges Summary |
|-----|
| Enter the Data Base ID. (1 character) for the Data Base to be processed. |
|-----|
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 07                               - 01 |
|-----|
| Specify the Cost Centers to be reported or leave blank to report all. |
|-----|
|-----|
+-----+
```

NOTE: Because this is a color graphics chart, no sample of the chart is provided.

6.6.11 - Weekly Processing Charges by Invoice Category (Color)

The Weekly Processing Charges by Invoice Category (Color) inquiry produces a vertical bar chart showing the total charges processed during the preceding seven days for any or all high-level cost centers.

INTENDED USE:

The bar chart shows each day's charges for any high-level cost centers by Invoice Category.

DATA SOURCE (file/timespan):

ACTLGR - Ledger File at the DAYS timespan.

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes

INVCCAT - Invoice Categories

LGRCHG - Amount Billed

RCPTYPE - Financial Recap Type

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTCW2, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

----- Execution-Time Parameters -----

Command ==> Scroll ==> CSR

Executing CA MICS Inquiry: ACTCW2 - Weekly Charges by Invoice Category

Enter the Data Base ID. (1 character) for the Data Base to be processed.

Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed.
07 - 01

Specify the Cost Centers to be reported or leave blank to report all.

Specify the invoice categories to be reported or blank to report all.

NOTE: Because this is a color graphics chart, no sample of the chart is provided.

6.6.12 Daily Revenue Ranking

The Daily Revenue Ranking inquiry produces three ranked lists that show charging activity for the previous day for specified high-level cost centers, invoice categories, and computation codes (types of charges within an invoice category). Figure 6-34 is a sample of the reports.

INTENDED USE:

The report shows the top ten charges, the top five charges in each invoice category and the top five charges in each high-level cost center.

DATA SOURCE (file):

ACTLGR - Ledger File at DAYS timespan

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes

INVCCAT - Invoice Category

LGRPCPC - Ledger Computation Code

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTLD1, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```

+-----+-----+
|-----+-----+ Execution-Time Parameters +-----+
| Command ==>                               Scroll ==> CSR |
|-----+-----+
| Executing CA MICS Inquiry: ACTLD1 - Daily Revenue Ranking |
|-----+-----+
| Enter the Data Base ID. (1 character) for the Data Base to be processed. |
|-----+-----+
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 01 -----+-----+ |
|-----+-----+
| Specify the Cost Centers to be reported or blank to report all. |
|-----+-----+
|-----+-----+
| Specify the invoice categories to be reported or blank to report all. |
|-----+-----+
|-----+-----+
| Specify the computation codes to be reported or blank to report all. |
|-----+-----+
|-----+-----+
+-----+-----+

```

Daily Revenue Ranking - Top 10 Charges
CA

INQUIRY: ACTLD1 FOR: December 7, yyyy RUN DATE: 08DECyy

Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	Cost Center
\$18,023.00	0097	3605	\$5.0000	1	1200	UNK
\$16,769.00	0097	3354	\$5.0000	15	1200	STO
\$13,312.00	0097	2662	\$5.0000	16	1200	STO
\$12,360.00	0097	2472	\$5.0000	15	1200	UNK
\$11,711.00	0097	2342	\$5.0000	16	1200	UNK
\$9,453.00	0023	3151	\$3.0000	9	1100	EJM
\$9,004.00	0097	1801	\$5.0000	5	1200	IIS
\$8,896.00	0097	1779	\$5.0000	16	1200	STO
\$8,412.00	0252	1402	\$6.0000	15	1100	MFB
\$7,871.00	0097	1574	\$5.0000	0	1200	IIS

Figure 6-34. Daily Revenue Ranking (Part 1 of 6)

Daily Revenue Ranking - Top 5 Charges by Invoice Category						
CA						
FOR: December 7, yyyy						
INQUIRY: ACTLD1			RUN DATE: 08DECyy			
----- Invoice Category=CENTRAL PROCESSOR(S) -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Cost Center	
\$9,453.00	0023	3151	\$3.0000	9	EJM	
\$8,412.00	0252	1402	\$6.0000	15	MFB	
\$7,360.00	0023	2453	\$3.0000	16	UNK	
\$6,954.00	0023	2318	\$3.0000	15	UNK	
\$6,402.00	0252	1067	\$6.0000	15	MFB	
----- Invoice Category=CHANNELS -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Cost Center	
\$18,023.00	0097	3605	\$5.0000	1	UNK	
\$16,769.00	0097	3354	\$5.0000	15	STO	
\$13,312.00	0097	2662	\$5.0000	16	STO	
\$12,360.00	0097	2472	\$5.0000	15	UNK	
\$11,711.00	0097	2342	\$5.0000	16	UNK	

Figure 6-34. Daily Revenue Ranking (Part 2 of 6)

Daily Revenue Ranking - Top 5 Charges by Cost Center						
CA						
FOR: December 7, yyyy						
INQUIRY: ACTLD1			RUN DATE: 08DECyy			
----- Cost Center=ALF -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$1,236.00	0252	206	\$6.0000	15	1100	
\$455.00	0097	91	\$5.0000	14	1200	
\$450.00	0252	75	\$6.0000	13	1100	
\$396.00	0252	66	\$6.0000	18	1100	
\$342.00	0252	57	\$6.0000	15	1100	
----- Cost Center=CPT -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$726.00	0252	121	\$6.0000	19	1100	
\$164.00	0097	33	\$5.0000	19	1200	
\$78.00	0252	13	\$6.0000	18	1100	
\$32.00	0023	11	\$3.0000	19	1100	
\$30.00	0252	5	\$6.0000	23	1100	
----- Cost Center=CTO -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$4,830.00	0252	805	\$6.0000	15	1100	
\$1,026.00	0097	205	\$5.0000	15	1200	
\$504.00	0252	84	\$6.0000	14	1100	
\$204.00	0097	41	\$5.0000	14	1200	
\$157.00	0023	52	\$3.0000	15	1100	
----- Cost Center=CTS -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$36.00	0252	6	\$6.0000	17	1100	
\$24.00	0252	4	\$6.0000	20	1100	
\$24.00	0252	4	\$6.0000	7	1100	
\$18.00	0252	3	\$6.0000	1	1100	
\$18.00	0097	4	\$5.0000	20	1200	

Figure 6-34. Daily Revenue Ranking (Part 3 of 6)

Daily Revenue Ranking - Top 5 Charges by Cost Center						
CA						
FOR: December 7, yyyy						
INQUIRY: ACTLD1			RUN DATE: 08DECyy			
----- Cost Center=EJM -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$9,453.00	0023	3151	\$3.0000	9	1100	
\$1,254.00	0252	209	\$6.0000	12	1100	
\$852.00	0252	142	\$6.0000	10	1100	
\$714.00	0252	119	\$6.0000	12	1100	
\$458.00	0097	92	\$5.0000	10	1200	
----- Cost Center=FIN -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$55.00	0097	11	\$5.0000	2	1200	
\$7.00	0023	2	\$3.0000	2	1100	
\$6.00	0252	1	\$6.0000	2	1100	
\$6.00	0252	1	\$6.0000	2	1100	
\$6.00	0252	1	\$6.0000	2	1100	
----- Cost Center=GIS -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$18.00	0252	3	\$6.0000	23	1100	
\$18.00	0252	3	\$6.0000	23	1100	
\$18.00	0252	3	\$6.0000	23	1100	
\$2.00	0097	0	\$5.0000	23	1200	
\$1.00	0097	0	\$5.0000	23	1200	
----- Cost Center=IIS -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$9,004.00	0097	1801	\$5.0000	5	1200	
\$7,871.00	0097	1574	\$5.0000	0	1200	
\$6,614.00	0097	1323	\$5.0000	7	1200	
\$3,072.00	0097	614	\$5.0000	4	1200	
\$3,032.00	0097	606	\$5.0000	7	1200	

Figure 6-34. Daily Revenue Ranking (Part 4 of 6)

Daily Revenue Ranking - Top 5 Charges by Cost Center						
CA						
FOR: December 7, yyyy						
INQUIRY: ACTLD1			RUN DATE: 08DECyy			
----- Cost Center=MFB -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$8,412.00	0252	1402	\$6.0000	15	1100	
\$6,402.00	0252	1067	\$6.0000	15	1100	
\$2,298.00	0252	383	\$6.0000	13	1100	
\$1,822.00	0097	364	\$5.0000	0	1200	
\$1,500.00	0252	250	\$6.0000	11	1100	
----- Cost Center=OSY -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$6,383.00	0097	1277	\$5.0000	23	1200	
\$5,641.00	0097	1128	\$5.0000	17	1200	
\$5,615.00	0097	1123	\$5.0000	18	1200	
\$2,031.00	0097	406	\$5.0000	23	1200	
\$947.00	0097	189	\$5.0000	17	1200	
----- Cost Center=SPT -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$1,196.00	0097	239	\$5.0000	20	1200	
\$992.00	0097	198	\$5.0000	13	1200	
\$930.00	0252	155	\$6.0000	9	1100	
\$715.00	0097	143	\$5.0000	9	1200	
\$714.00	0252	119	\$6.0000	1	1100	
----- Cost Center=STO -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$16,769.00	0097	3354	\$5.0000	15	1200	
\$13,312.00	0097	2662	\$5.0000	16	1200	
\$8,896.00	0097	1779	\$5.0000	16	1200	
\$4,854.00	0097	971	\$5.0000	11	1200	
\$2,820.00	0252	470	\$6.0000	21	1100	

Figure 6-34. Daily Revenue Ranking (Part 5 of 6)

Daily Revenue Ranking - Top 5 Charges by Cost Center						
CA						
FOR: December 7, yyyy						
INQUIRY: ACTLD1			RUN DATE: 08DECyy			
----- Cost Center=TST -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$72.00	0252	12	\$6.0000	16	1100	
\$54.00	0252	9	\$6.0000	15	1100	
\$54.00	0252	9	\$6.0000	17	1100	
\$48.00	0252	8	\$6.0000	8	1100	
\$45.00	0097	9	\$5.0000	14	1200	
----- Cost Center=UNC -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$4,668.00	0023	1556	\$3.0000	3	1100	
\$3,672.00	0097	734	\$5.0000	1	1200	
\$3,299.00	0023	1099	\$3.0000	9	1100	
\$2,377.00	0097	475	\$5.0000	5	1200	
\$2,324.00	0097	465	\$5.0000	4	1200	
----- Cost Center=UNK -----						
Amount Billed	Comp. Code	No. Items	Billing Rate	Hour	Inv. Cat.	
\$18,023.00	0097	3605	\$5.0000	1	1200	
\$12,360.00	0097	2472	\$5.0000	15	1200	
\$11,711.00	0097	2342	\$5.0000	16	1200	
\$7,360.00	0023	2453	\$3.0000	16	1100	
\$6,954.00	0023	2318	\$3.0000	15	1100	

Figure 6-34. Daily Revenue Ranking (Part 6 of 6)

6.6.13 Net Revenue by Cost Center

The Net Revenue by Cost Center inquiry produces a pie chart that depicts how revenue, less any cost center credits, is distributed to the various high-level cost centers. Each slice represents a cost center's relative contribution to total revenue. Figure 6-35 shows a sample Net Revenue by Cost Center.

INTENDED USE:

The pie chart shows the Financial Recap Charge for various high-level cost centers.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

RCPTYPE - Financial Recap Type BUDGET
COSTCTRn - User-Defined Cost Center Codes
RCPCHG - Amount Billed (format MONEY is used for this chart. If RCPCHG value is large you can modify the format to meet your need (e.g.; format BEST.)

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTPM1, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTPM1 - Net Revenue by Cost Center |
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 01 - _____ |
+-----+
```

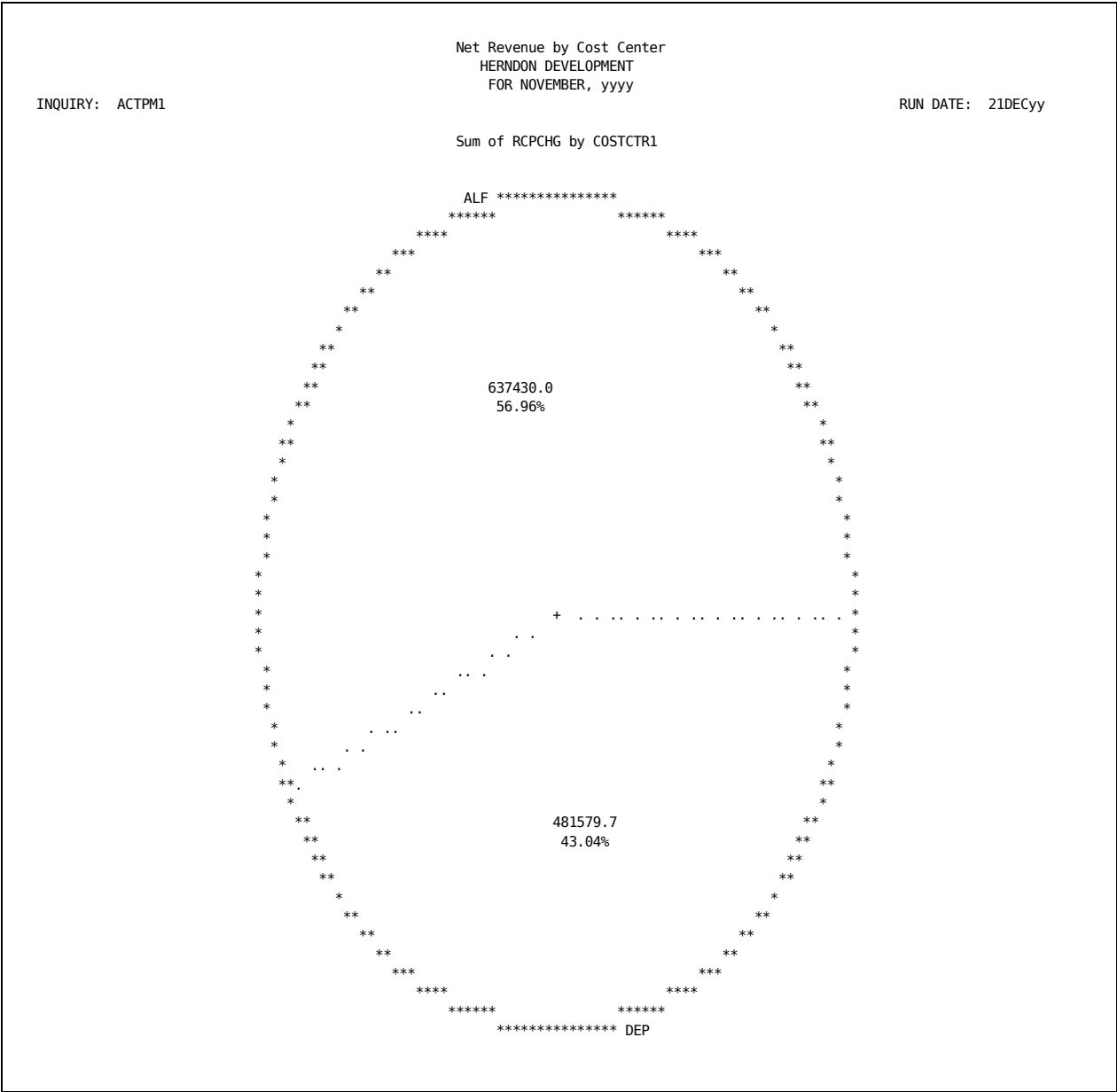


Figure 6-35. Net Revenue by Cost Center

6.6.14 Budgeted and Actual Charges

The Budgeted and Actual Charges inquiry produces a vertical bar chart for selected high-level cost centers. Each bar represents either the actual charges or the budgeted amount for a cost center. Figure 6-36 is a sample of the chart.

INTENDED USE:

This report can be used to see how well the cost centers are staying within their budgets.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

RCPTYPE - Financial Recap Type BUDGET
COSTCTRn - User-Defined Cost Center Codes

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTPM2, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

6.6.15 Monthly Charges by Invoice Category

The Monthly Charges by Invoice Category inquiry produces a pie chart depicting how revenue, less than any credits, is distributed to the various invoice categories, where the categories are broadly defined along the lines of CPU, DASD, Print, Tape, etc. Each slice represents a category's relative contribution to total revenue. Figure 6-37 is a sample of the chart.

INTENDED USE:

The pie chart shows the Financial Recap Charge for various high-level cost centers by Invoice Category.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

RCPTYPE - Financial Recap Type

RCPCHG - Amount Billed (format MONEY is used for this chart. If RCPCHG value is large you can modify the format to meet your need (e.g.; format BEST.)

COSTCTRn - User-Defined Cost Center Codes

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTPM3, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTPM3 - Monthly Charges by Invoice Category |
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 01 - _____ |
| Specify the Cost Centers to be reported or leave blank to report all. |
| _____ - _____ |
|-----+
+
```

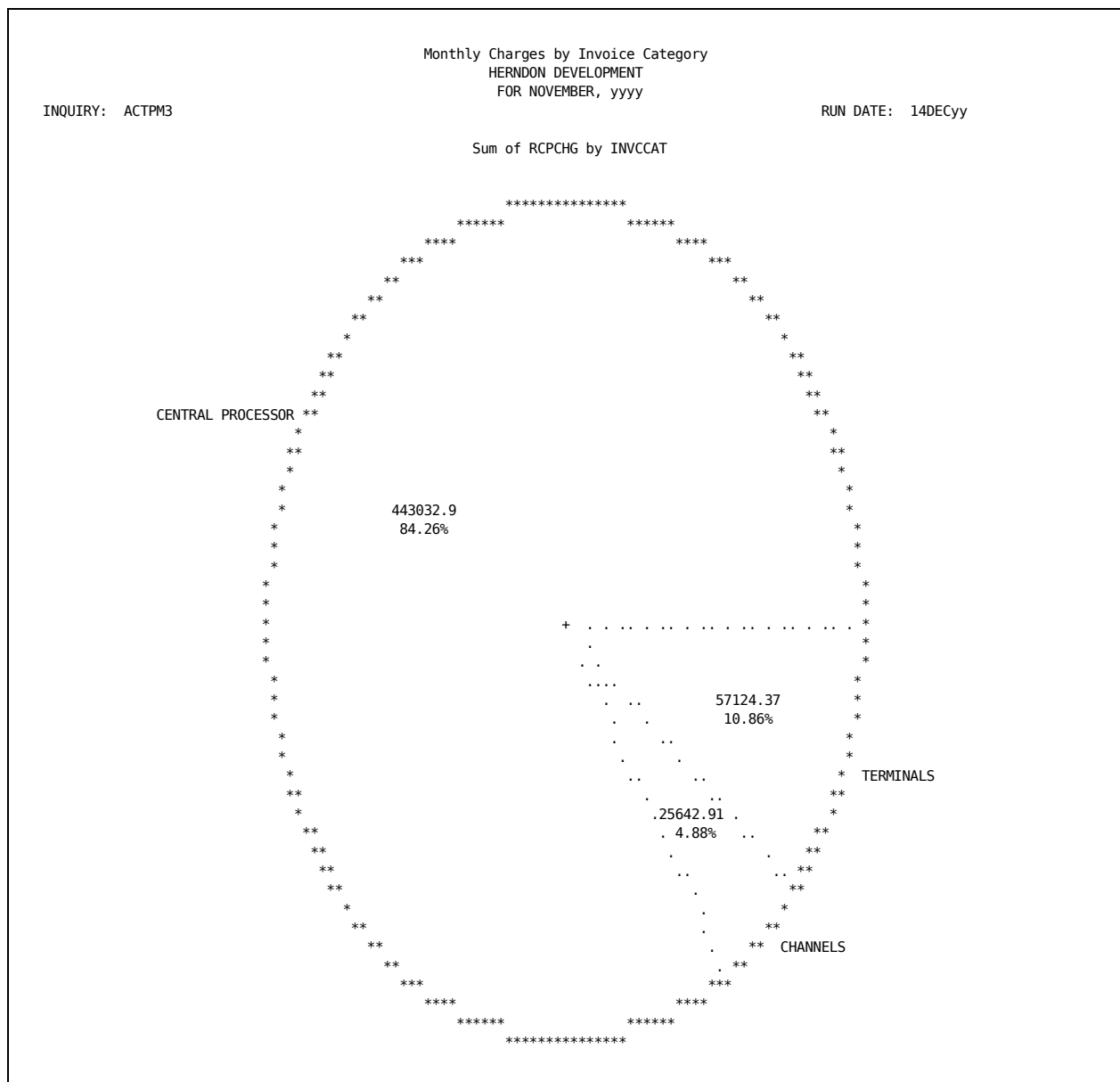


Figure 6-37. Monthly Charges by Invoice Category

6.6.16 Invoice Category Charges by Cost Center

The Invoice Category Charges by Cost Center inquiry produces a stacked vertical bar chart that shows each invoice category's charges for the preceding month. Each bar is composed of the charges for each high-level cost center. Figure 6-38 is a sample of the chart.

INTENDED USE:

The bar chart shows the Invoice Category Charges for various high-level cost centers.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes
INVCCAT - Invoice Categories
RCPTYPE - Financial Recap Type
(Charges, Credits, zero balance adjustments)

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTPM4, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTPM4 - Invoice Category Charges by Cost Center |
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 01 - _____ |
| Specify the Cost Centers to be reported or leave blank to report all. |
| _____ - _____ |
|-----+-----+
+-----+
```

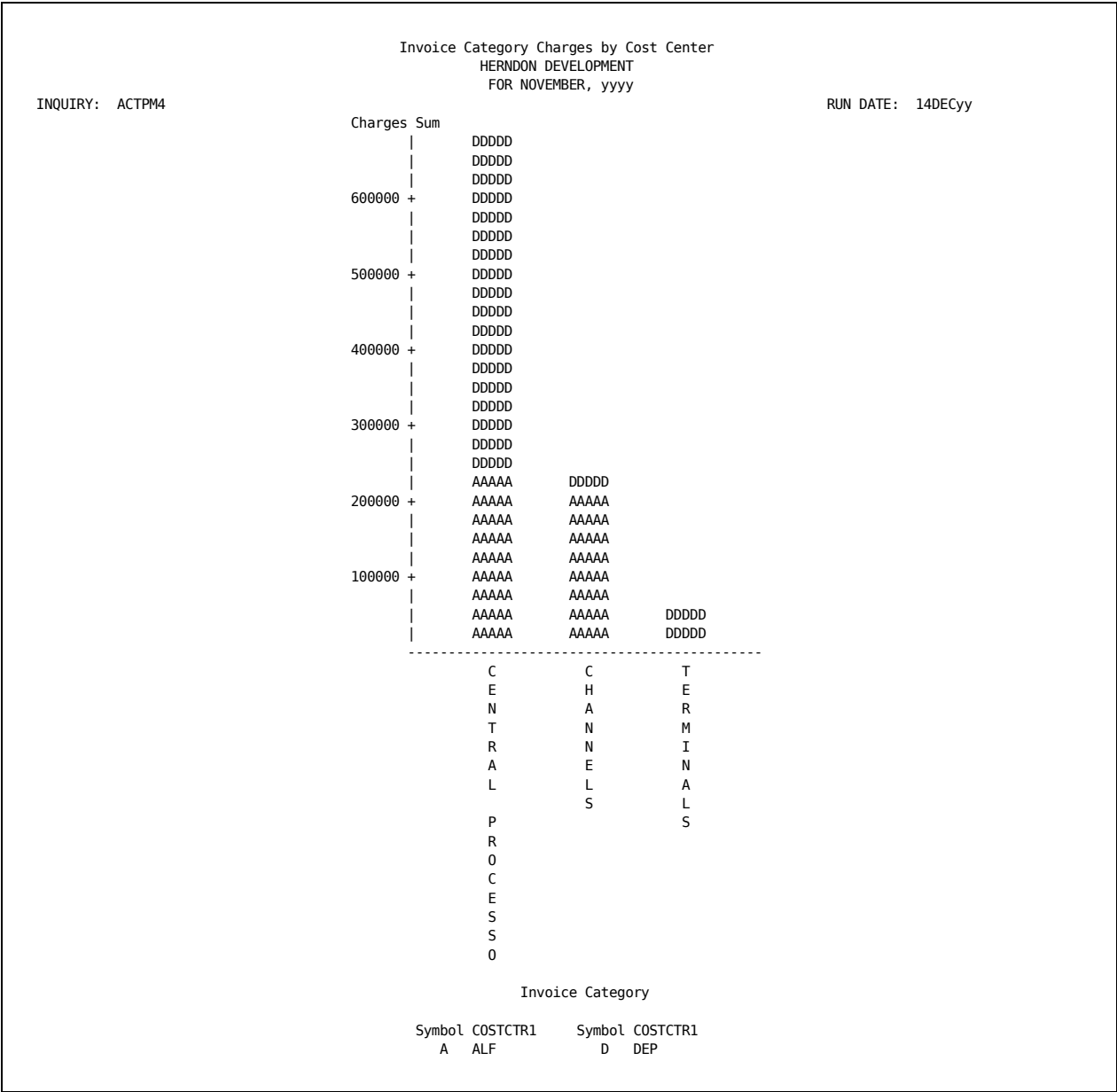


Figure 6-38. Invoice Category Charges by Cost Center

6.6.17 Invoice Credits by Cost Center

The Invoice Credits by Cost Center inquiry produces a pie chart depicting how credits are distributed to the various high-level cost centers. Figure 6-39 is sample of the chart.

INTENDED USE:

The bar chart shows that each slice represents a cost center's relative share of the total credits.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes
INVCCAT - Invoice Categories
RCPTYPE - Financial Recap Type
RCPCHG - Amount Billed (format MONEY is used for this chart. If RCPCHG value is large you can modify the format to meet your need (e.g. format BEST.)

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTPM5, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTCM5 - Invoice Credits by Cost Center |
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 01 - _____ |
| Specify the Cost Centers to be reported or leave blank to report all. |
| _____ - _____ |
|-----+
+-----+
```

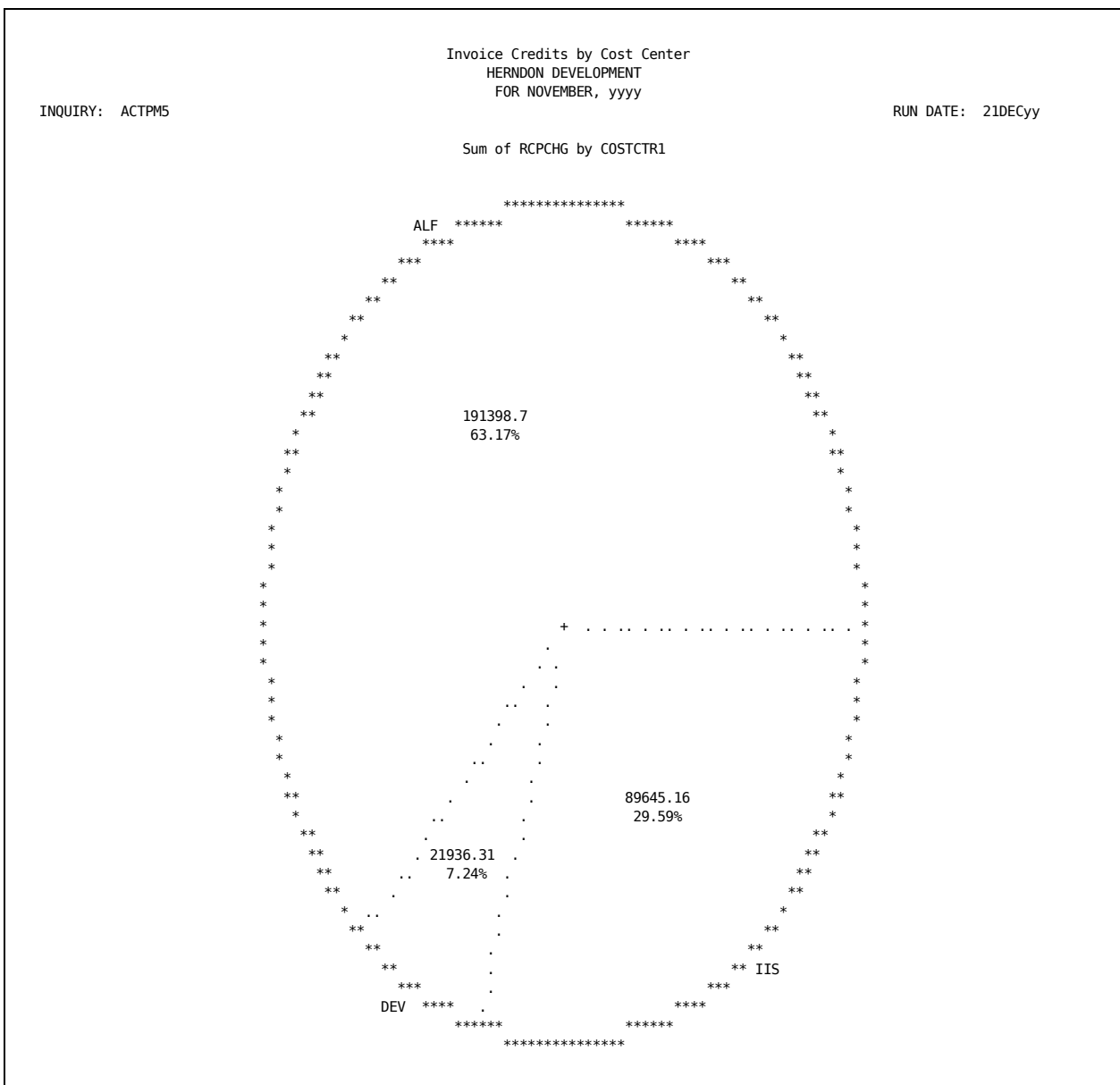


Figure 6-39. Invoice Credits by Cost Center

6.6.18 Cost Center Charges by Invoice Category

The Cost Center Charges by Invoice Category inquiry produces a stacked vertical bar chart that shows the preceding month's charges for any or all high-level cost centers. Figure 6-40 is sample of the chart.

INTENDED USE:

The chart shows that each bar depicts charges applicable to the different invoice categories.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes
INVCCAT - Invoice Categories
RCPTYPE - Financial Recap Type
(Charges, Credits, discounts, surcharges,
zero balance adjustments)

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTPM6, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTCM6 - Cost Center Charges by Invoice Category |
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 01                               - |
|-----|
| Specify the Cost Centers to be reported or leave blank to report all. |
|                               - |
|-----|
+-----+
```


6.6.19 Invoice Discounts by Cost Center

The Invoice Discounts by Cost Center inquiry produces a pie chart depicting how credits are distributed to the various high-level cost centers. Figure 6-41 is sample of the chart.

INTENDED USE:

The chart shows that each slice represents a cost center's relative share of the total credits.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes
RCPTYPE - Financial Recap Type
RCPCHG - Amount Billed (format MONEY is used for this chart. If RCPCHG value is large you can modify the format to meet your need (e.g. format BEST.)

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTPM7, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTPM7 - Invoice discounts by Cost Center |
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 01      - _____ |
| Specify the Cost Centers to be reported or leave blank to report all. |
| _____ - _____ |
+-----+
```

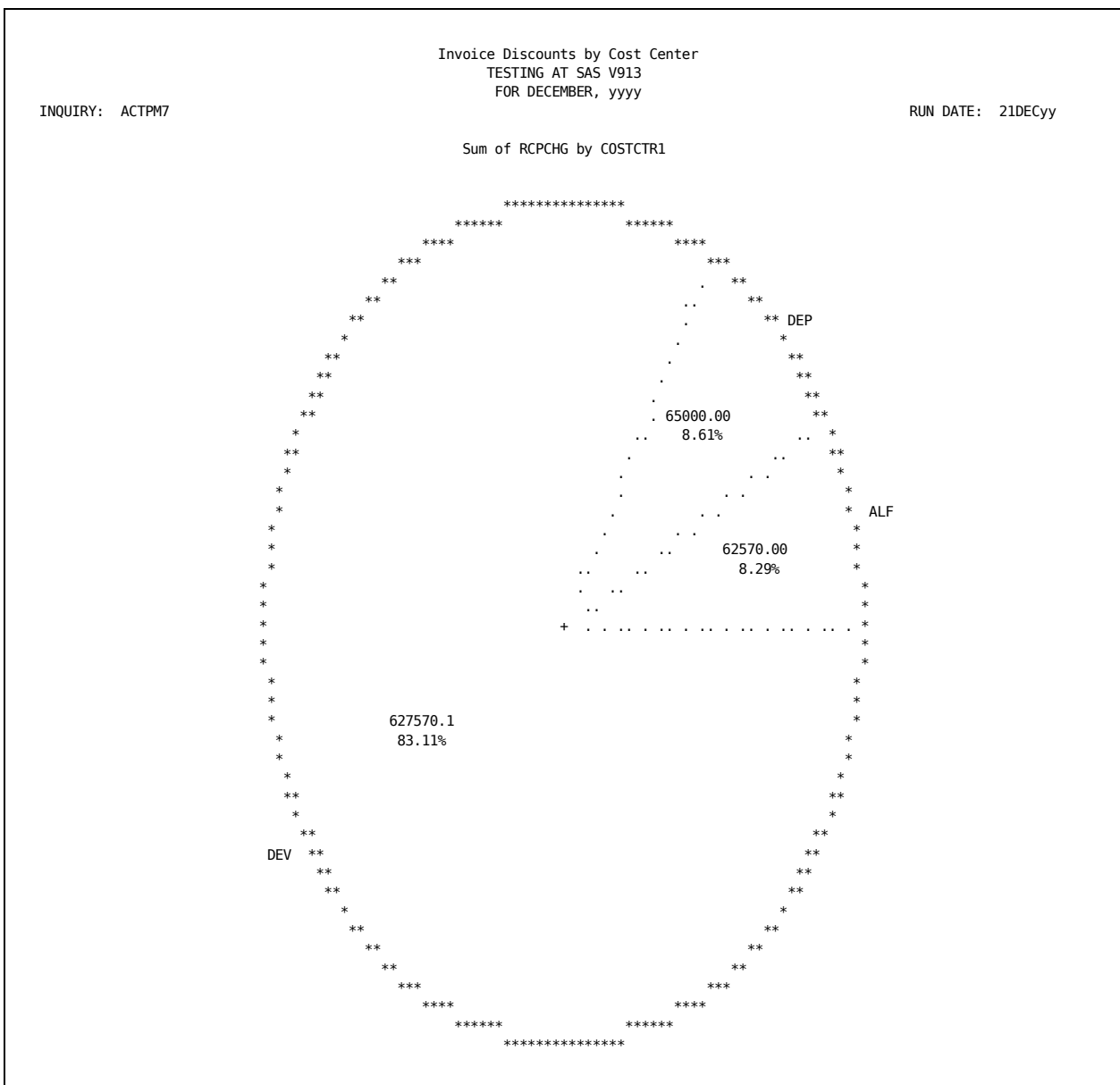


Figure 6-41. Invoice Discounts by Cost Center

6.6.20 Monthly Net Revenue Summary

The Monthly Net Revenue Summary inquiry produces a vertical bar chart that represents net revenue for a selected number of months for any or all high-level cost centers. Figure 6-42 is sample of the chart.

INTENDED USE:

The bar chart shows monthly revenue for each month at high-level cost centers.

DATA SOURCE (file):

ACTRCP - Financial Recap File

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes

RCPTYPE - Financial Recap Type
(Charges, Credits, discounts, surcharges,
zero balance adjustments)

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTPM8, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```

+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTPM8 - Monthly Net Revenue Summary |
|-----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 12                               - 01 |
| Specify the Cost Centers to be reported or leave blank to report all. |
|-----|
+-----+

```

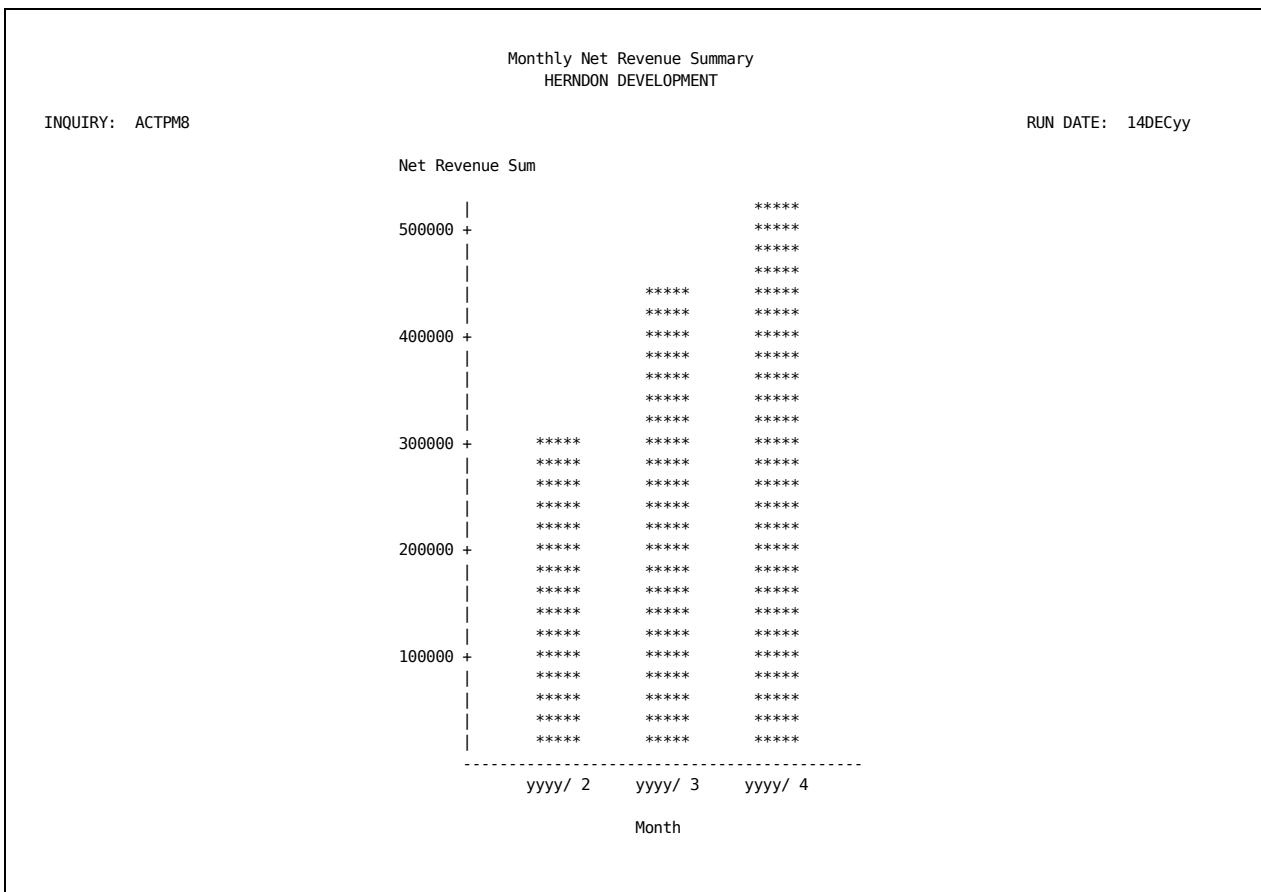


Figure 6-42. Monthly Net Revenue Summary

6.6.21 Monthly Invoice Credit/ Discount Summary

The Monthly Invoice Credit/ Discount Summary inquiry produces a stacked vertical bar chart depicting the credits and discounts provided each month over a specified period of months for any or all high-level cost centers. Figure 6-43 is sample of the chart.

INTENDED USE:

The bar chart shows the relative share of credits and discounts for each month at any level of cost center.

DATA SOURCE (file/timespan):

ACTLGR - Ledger File at the MONTHS timespan.

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes
INVCCAT - Invoice Categories
LGRCHG - Amount Billed
RCPTYPE - Financial Recap Type
(Charges, Credits, discounts, surcharges,
zero balance adjustments)

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTPM9, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
| ----- Execution-Time Parameters ----- |
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTPM9 - Monthly Invoice Credit/Discount Summary |
| ----- |
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 12                               - 01 |
| Specify the Cost Centers to be reported or leave blank to report all. |
| ----- |
+-----+
```

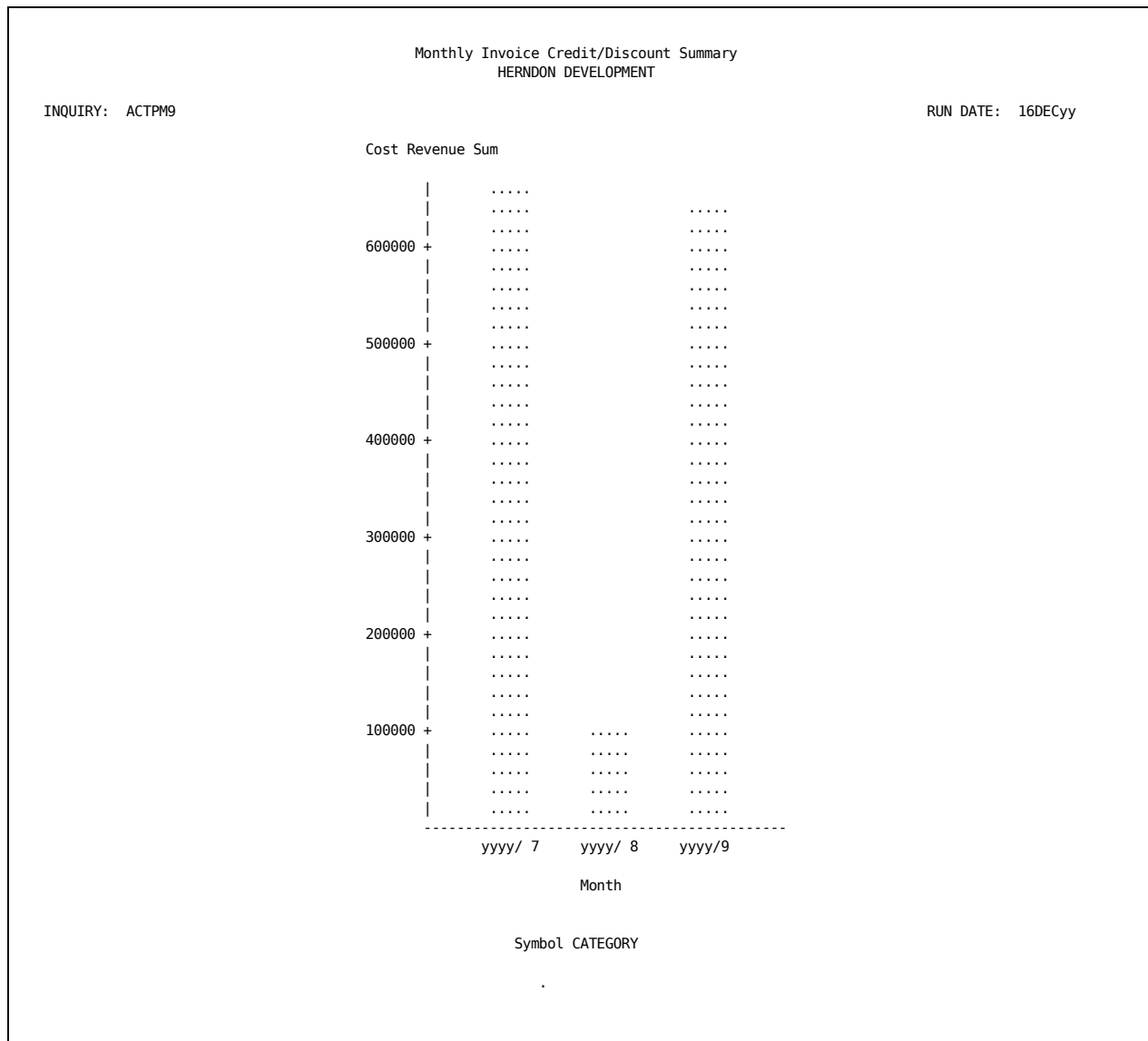



Figure 6-43. Monthly Invoice Credit/ Discount Summary

6.6.22 Weekly Processing Charges Summary

The Weekly Processing Charges Summary inquiry produces a vertical bar chart showing the total charges processed during the preceding seven days for any or all high-level cost centers. Figure 6-44 is sample of the chart.

INTENDED USE:

The bar chart shows each day charges for any high-level cost centers.

DATA SOURCE (file/timespan):

ACTLGR - Ledger File at the DAYS timespan.

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes

INVCCAT - Invoice Categories

LGRCHG - Amount Billed

RCPTYPE - Financial Recap Type (Charges ,Credits, discounts, surcharges, zero balance adjustments)

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTPW1, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
|----- Execution-Time Parameters -----|
| Command ==>                               Scroll ==> CSR |
| Executing CA MICS Inquiry: ACTPW1 - Weekly Processing Charges Summary |
|-----|
| Enter the Data Base ID. (1 character) for the Data Base to be processed. |
|----- - -----|
| Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed. |
| 07                               - 01 |
| Specify the Cost Centers to be reported or leave blank to report all. |
|----- - -----|
+-----+
```

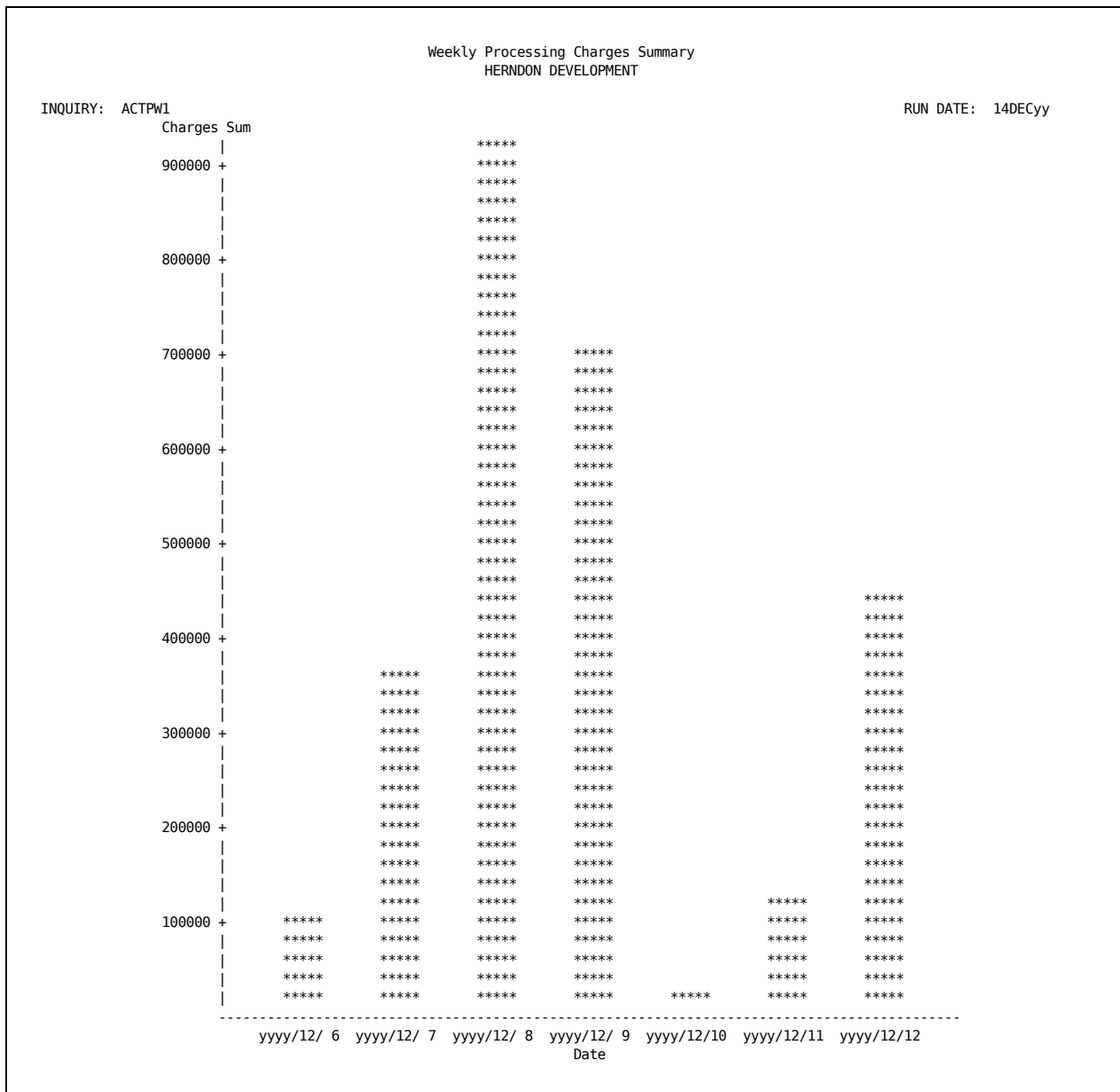


Figure 6-44. Weekly Processing Charges Summary

6.6.23 Weekly Processing Charges by Invoice Category

The Weekly Processing Charges by Invoice Category inquiry produces a vertical bar chart showing the total charges processed during the preceding seven days for any or all high-level cost centers. Figure 6-45 is sample of the chart.

INTENDED USE:

The bar chart shows each day's charges for any high-level cost centers by Invoice Category.

DATA SOURCE (file/timespan):

ACTLGR - Ledger File at the DAYS timespan.

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes
INVCCAT - Invoice Categories
LGRCHG - Amount Billed
RCPTYPE - Financial Recap Type
(Charges, Credits, discounts, surcharges,
zero balance adjustments)

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTPW2, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
|----- Execution-Time Parameters -----|
|Command ==>                               Scroll ==> CSR|
|-----|
|Executing CA MICS Inquiry: ACTCW2 - Weekly Charges by Invoice Category|
|-----|
|Enter the Data Base ID. (1 character) for the Data Base to be processed.|
|-----|
|Enter the range of MICS File Cycles (e.g., 01 - 04) to be processed.|
|07                               - 01|
|-----|
|Specify the Cost Centers to be reported or leave blank to report all.|
|-----|
|Specify the invoice categories to be reported or blank to report all.|
|-----|
+-----+
```

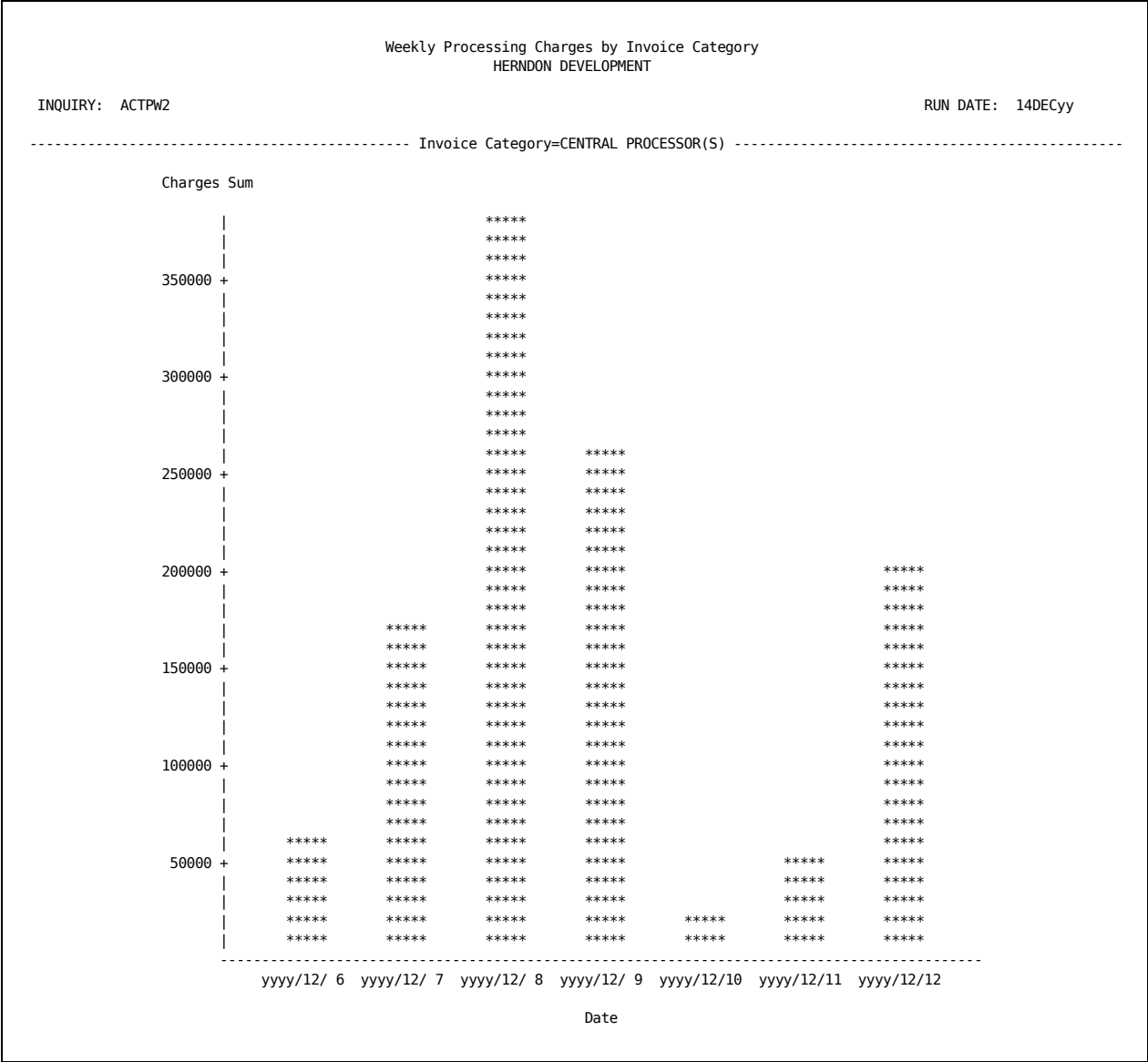


Figure 6-45a. Weekly Processing Charges by Invoice Category (Part 1 of 2)

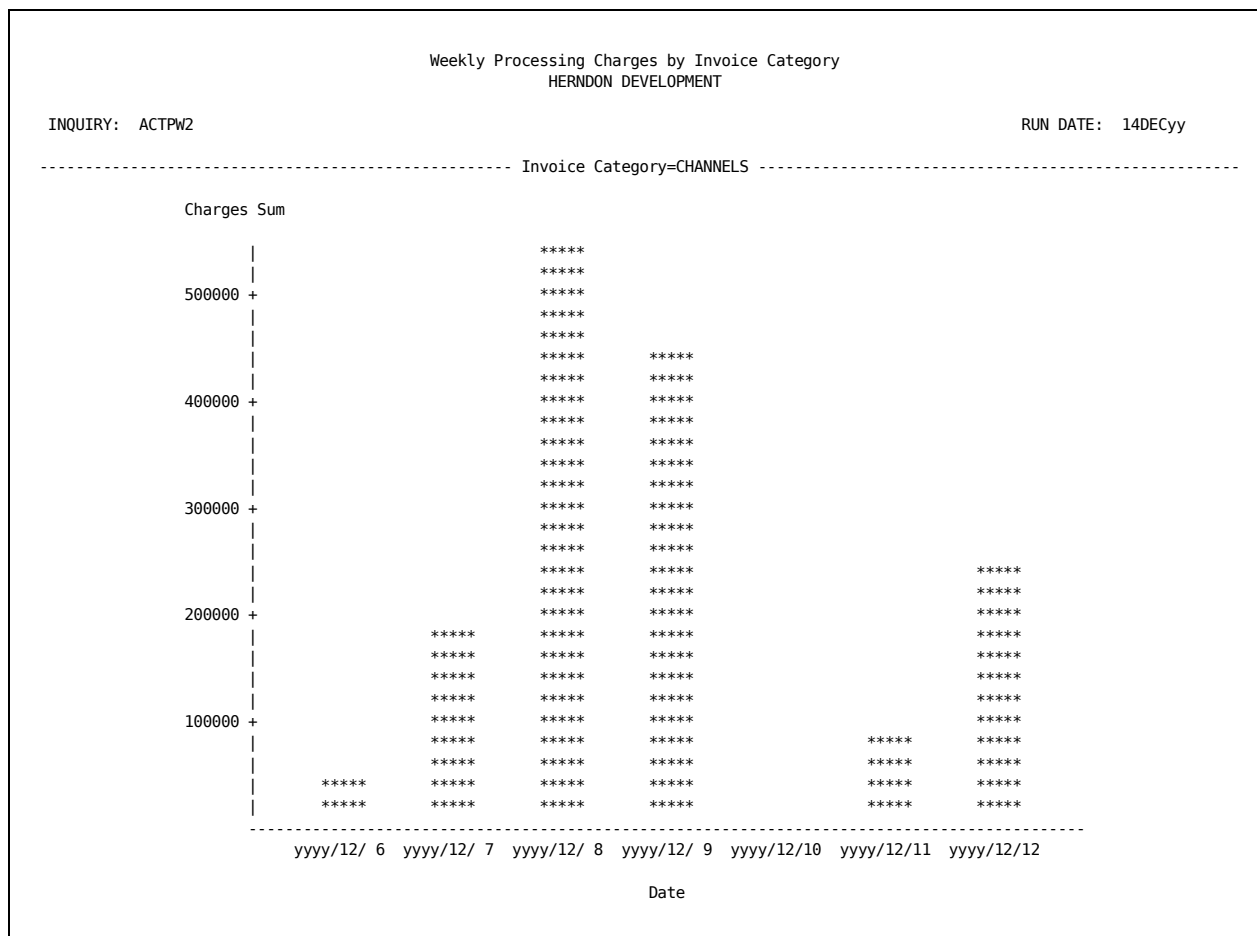


Figure 6-45b. Weekly Processing Charges by Invoice Category (Part 2 of 2)

6.6.24 Generate CSV file from Financial Recap

This Inquiry enables you to generate a Comma Separated Value (CSV) file extracted from the Accounting Financial Recap file. The ACTRCP inquiry also creates a Data Transfer Profile that provides descriptive information about the CSV file metrics. Data Transfer Profiles are used by the iCan Provider Suite when processing CSV files.

INTENDED USE:

Generated CSV file that will allow the iCan chargeback solution to utilize data from CA MICS Accounting and Chargeback.

DATA SOURCE (file/timespan):

ACTRCP - Financial Recap file at the MONTHS/TABLES timespan.

DATA ELEMENTS USED:

COSTCTRn	- User-Defined Cost Center Codes
RCPCHG	- Amount Billed
ACTINVTs	- Invoice Timestamp
ACTMONTH	- Accounting Month
ACTYEAR	- Accounting Year
DATASRC	- Data Source (Component or File ID)
INVCCAT	- Invoice Category
INVCAT	- Invoice Category (Description)
MONTH	- Month of Year
RCPCLVL	- Cost Center Level
RCP CPC	- Billable Computation Code
COMPCODE	- Billable Computation code(Description)
RCPILVL	- Invoice Level
RCPQNT	- Number of Billable Items
RCPRAT	- Billing Rate
RCPSTAT	- Billing Status
RCPSTYPE	- Record Sub-type
RCPTYPE	- Record Type
SYSID	- System Identifier
YEAR	- Year of Century

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTRCP, whose Catalog Group is FINANCE.
- o Complete the Execution-Time Parameters panel illustrated below. (If you are not familiar with MICF, see the CA MICS MICF Reference Guide.)

```
+-----+
| ----- Execution-Time Parameters ----- |
| Command ==>                               Scroll ==> PAGE |
| Executing CA MICS Inquiry: ACTRCP - Generate CSV file from Financial Recap |
| ----- |
| Enter range of CA MICS online file cycles or enter ARCHIVE for archive files. |
| 01 - _____ |
+-----+
```

6.6.25 Budget Threshold Report

The Budget Threshold Report lists the percentage of the budget that has been expended. This report is produced when actual month-to-date charges in the ledger file exceed the percentage of the budget allocated for each month, as specified in user-defined thresholds. One of the options when you produce this report is to activate alerting through an interface with the ServicePlus Service Desk when the thresholds have been exceeded.

The report is generated by executing MICF inquiry ACTSVD. We recommend that you schedule this MICF inquiry weekly in production reporting so you can use it to adjust the budget. Figure 6-46 is sample of the report.

INTENDED USE:

One of the options when you produce this report is to activate alerting through an interface with the ServicePlus Service Desk when the thresholds have been exceeded.

DATA SOURCE (file/timespan):

ACTRCP - Current Ledger File at the MONTHS timespan.

DATA ELEMENTS USED:

COSTCTRn - User-Defined Cost Center Codes
INVCCAT - Invoice Category
RCPCHG - Amount Billed
RCP CPC - Billable Computation Code
RCPRAT - Billing Rate
RCPSTAT - Billing Status

HOW TO PRODUCE THE REPORT:

- o Enter the CA MICS Workstation Facility (MWF).
- o Choose option 2, CA MICS Information Center Facility (MICF).
- o Choose option 2, Database Inquiries.
- o Select ACTSVD, whose Catalog Group is FINANCE.

o Select options for Budget Threshold Report

```
+-----+
|----- Budget Threshold Report -----|
| Command ==>                           |
| Threshold Alerting ==> YES (YES/NO)    |
| Report format name ==> COSTCTR (COSTCTR/COMPCODE) |
| Cost center level of line items ==> 1 (1 - 3 ) |
| Generate report when budget amount exceed percent ==> 25_ (0-999) |
| threshold                               |
| Budget Table number ==> 01 (00 = Work or 01 = Active) |
| Press ENTER to validate, END to run, or CANCEL to terminate execution. |
+-----+
```

Threshold Alerting - YES|NO. Defaults to NO.

If the option is set to YES, the ServicePlus Service Desk will be alerted when the percent of the budget actually used exceeds the threshold specified by the Percent Budget Amount Threshold option.

For more information on using the ServicePlus Service Desk alert facility, see Section 4.9 of the PIOM.

Report Format - COMPCODE | COSTCTR. Defaults to COMPCODE.

Computation code format prints line items that are summarized by computation code and rate. Cost center format prints line items that are summarized at the cost center level.

Cost Center Level - 1 | 2 | 3. Defaults to 1.

This field defines the cost center level at which line items will be summarized on the report. Valid values are 1 to 3.

Percent Budget Amount Threshold - 0-999. Defaults to 0.

This field defines the threshold. Use it to specify what percent of the budget is allocated for each month. The Budget Threshold Report will be produced when the percent of the budget actually used exceeds this threshold.

Budget Table - Work | Active. Defaults to Work.

The active budget table contains budgeted amounts for the last accounting period. The active budget is referred to as (01).

The work budget table contains all the budgeted amounts in the active table, plus budgeted amounts for future accounting periods, such as next month or next fiscal year. Budgeted amounts are copied from the work table to the active table by the CLOSETBL batch job when they become effective. The work budget table is referred to as (00).

USAGE CONSIDERATIONS

This inquiry provides a user exit that you can use to perform additional data selection from the CA MICS database. To invoke this exit, you must first copy the shared inquiry into your private MICF catalog; then select it for modification. Finally code SAS statements in the SELECT macro, bracketed by the %MACRO and %MEND statements.

The default for the SELECT macro is null. This macro is invoked when the observations are read from the specified CA MICS files. You can use it to delete observations from the data as it is selected. For example, in a system activity study, you could select the cost centers that start with A. You would then code the following:

```
%MACRO SELECT;
IF COSTCTR1 =:'A';
%MEND SELECT;
```

Note that you do not have to code the %MACRO and %MEND statements; they are already provided for you.

COMPLEX REPORT CA MICS IS Management Support System Budget Threshold Report DEVELOPMENT: Security T0: Security 1034 Wood Oak DR. Reston, VA. 21234 FMT: Computation Code PAGE NO. - 1 BILL DATE - 08/16/07 STATUS: BILL Budget Used: 25%						
CATEGORY	RESOURCE / UNITS	QUANTITY	RATE	CHARGES	BUDGET	% BUDGET EXPENDED
1100	CENTRAL PROCESSOR(S)					
	(0023) TCB SECONDS	7687.799	\$3.0000	\$23,063.40	\$50,000	46.13
	(0024) SRB SECONDS	491.690	\$4.0000	\$1,966.76	\$7,000	28.10
	(0252) STEPS	18744.000	\$6.0000	\$112,464.00	\$150,000	74.98
1200	CHANNELS					
	(0097) 1000 EXCPS	11624.121	\$5.0000	\$58,123.79	\$75,000	77.50

Figure 6-46. Budget Threshold Report

Chapter 7: FILES

This chapter describes all of the files in the Accounting and Chargeback Information Area and provides usage guidelines.

Refer to Appendix B, the Data Dictionary for the Accounting Information Area, for information on the data elements in each of the files including how you sort data elements in each applicable timespan and the level at which the data elements are summarized.

Figure 7-1 identifies the individual database files and categorizes them by the information area to which they belong. Preceding the database files in the list are the journal files that are available when you use the CA MICS products that can interface to Accounting and Chargeback for charging.

For each file the following information is provided:

XDWMYT - This entry defines the timespans in which the file is supported. A nonblank indicates that the file is supported. A period (.) indicates that the file is not supported. The timespans indicated by XDWMYT are as follows:

- X - DETAIL
- D - DAYS
- W - WEEKS
- M - MONTHS
- Y - YEARS
- T - TABLES AREA

File - The SAS name used to access this file.

File Name - The descriptive label for the file.

Accounting Component			Date Generated:
Information Area			Tue, May 12, 2009
XDWMYT			File
			File Name
X.....	ACTJBJ	Batch Job Journal File	
X.....	ACTJBP	Batch Program Journal File	
X.....	ACTJBS	Batch Spool Journal File	
X.....	ACTJRN	Multisystem Enclaves Journal File	
X.....	ACTJBM	MULC Address Space Journal File	
X.....	ACTJTP	APPC TP Resource Journal File	
X.....	ACTJCS	CICS Resource Accounting Journal File	
X.....	ACTJCA	CICS Transaction Accounting Journal File	
X.....	ACTJDS	DB2 Resource Accounting Journal File	
X.....	ACTJSU	IDMS Resource Accounting Journal File	
X.....	ACTJSA	IDMS Transaction Accounting Journal File	
X.....	ACTJIS	IMS Resource Accounting Journal File	
X.....	ACTJIA	IMS Transaction Accounting Journal File	
X.....	ACTJIX	IMS Resource Fast Path Accounting Journal File	
X.....	ACTJNS	SNA NetSpy Resource Accounting Journal File	
X.....	ACTJNP	SNA NCP Resource Accounting Journal File	
X.....	ACTJPS	SNA NPM Resource Accounting Journal File	
X.....	ACTJNA	SNA NLDM Resource Accounting Journal File from NVNSA	
X.....	ACTJNC	SNA NLDM Resource Accounting Journal File from NVNSC	
X.....	ACTJRT	SNA NLDM Resource Accounting Journal File from NVSRTM	
X.....	ACTJTU	TSO Resource Accounting Journal File	
X.....	ACTJTC	TSO Transaction Accounting Journal File from TSOTSC	
X.....	ACTJTI	TSO Transaction Accounting Journal File from TSOTSI	
X.....	ACTJPC	VAX/VMS Resource Accounting Journal File from DEAPRC	
X.....	ACTJIM	VAX/VMS Resource Accounting Journal File from DEAIMG	
X.....	ACTJPQ	VAX/VMS Resource Accounting Journal File from DEAPRQ	
X.....	ACTJDK	VAX/VMS Disk Resource Journal File	
X.....	ACTJDA	VCA Non-VSAM Resource Accounting Journal File	
X.....	ACTJMS	VCA Systems Managed Storage Journal File	

	X.....	ACTJVS	VCA VSAM Resource Accounting Journal File	
	X.....	ACTJHF	VCA HFS Resource Accounting Journal File	
	X.....	ACTJMG	HSM Migrated Data Accounting Journal File	
	X.....	ACTJBC	HSM Backup Data Accounting Journal File	
	X.....	ACTJCM	VM Resource Accounting Journal File	
			from VMCCMU	
	X.....	ACTJDC	VM Service Accounting Journal File	
			from VMCDAC	
	X.....	ACTJNT	VM Network Terminal Accounting Journal	
			File from VMCNTU	
	X.....	ACTJVR	VM RSCS Spool Accounting Journal File	
			from VMCVRA	
	X.....	ACTJPJ	VSE/Power Job Accounting Journal File	
	X.....	ACTJPP	VSE/Power Program Accounting Journal File	
	X.....	ACTJPO	VSE/Power Spool Accounting Journal File	
	X.....	ACTJMA	UNIX/MeasureWare Application Journal File	
	X.....	ACTJMP	UNIX/MeasureWare Process Journal File	
	X.....	ACTJMQ	MQSeries Message Manager Journal File	
	X.....	ACTJTA	MQSeries Task Accounting Journal File	
	X.....	ACTJQA	MQSeries Queue Activity Journal File	
	X.....	ACTJWB	WEB Analyzer data Accounting Journal File	
	X.....	ACTJSF	WebSphere Application Server Journal File	
	X.....	ACTJLX	Linux Accounting Journal File	
	X.....	ACTJMF	MQSeries Message Broker Accounting Journal	
			File	
	X.....	ACTJTD	Tandem Process Activity Accounting Journal	
			File	
	X.....	ACTJLN	VMC Linux Process Journal File	
	T	ACT_CA	MULTI-SITE COST CENTER ATTRIBUTES FILE	
	T	ACT_RC	MULTI-SITE FINANCIAL RECAP FILE	
	T	ACT_RR	REPEAT YTD FINANCIAL RECAP FILE	
	T	ACT_RT	REPEAT MULTI-SITE YTD RECAP FILE	
	T	ACT_SC	MULTI-SITE CREDIT FILE	
	T	ACT_YR	YTD FINANCIAL RECAP FILE	
	T	ACT_YT	MULTI-SITE YTD FINANCIAL RECAP FILE	
	T	ACTBGT	BUDGET FILE	
	T	ACTCCA	COST CENTER ATTRIBUTES FILE	
	T	ACTCNV	COST CENTER INVOICE CATEGORY FILE	
	T	ACTCPC	COMPUTATION CODE DESCRIPTIONS	
	T	ACTCRD	CREDIT CATEGORY DESCRIPTIONS	
	T	ACTIVC	INVOICE CATEGORY DESCRIPTIONS	
	T	ACTIVF	INVOICE FORMAT FILE	
	.D.MY.	ACTLGR	CONSOLIDATED LEDGER FILE	
	T	ACTRCP	FINANCIAL RECAP FILE	
	.D....	ACTRSJ	JOURNAL RUN STATUS LOG FILE	
	T	ACTSCT	CREDIT FILE	
	T	ACTSDT	DEBIT FILE	
	T	ACTSEQ	INVOICE SEQUENCE FILE	

	T	ACTSUB	FILE NAME	
	T	ACTTYP	FINANCIAL RECAP RECORD TYPES	
+-----+				

Figure 7-1. Accounting Files' Active Timespan

This section contains the following topics:

- [7.1 Accounting Journal Files \(ACTJxx\)](#) (see page 716)
- [7.2 Ledger File \(ACTLGR\)](#) (see page 721)
- [7.3 Financial Recap File \(ACTRCP\)](#) (see page 722)
- [7.4 Audit File](#) (see page 724)
- [7.5 Credit File \(ACTSCT\)](#) (see page 736)
- [7.6 Debit File \(ACTSDT\)](#) (see page 737)
- [7.7 Budget File \(ACTBGT\)](#) (see page 738)
- [7.8 Cost Center Attributes File \(ACTCCA\)](#) (see page 739)
- [7.9 Invoice Sequence Number File \(ACTSEQ\)](#) (see page 740)
- [7.10 Year-to-Date Financial Recap File \(ACT_YR\)](#) (see page 741)
- [7.11 Multi-Site Financial Recap File \(ACT_RC\)](#) (see page 744)
- [7.12 Multi-Site Credit File \(ACT_SC\)](#) (see page 745)
- [7.13 Multi-Site Cost Center Attributes File \(ACT_CA\)](#) (see page 746)
- [7.14 Multi-Site Year-to-Date Financial Recap File \(ACT_YT\)](#) (see page 747)
- [7.15 Invoice Format File \(ACTIVEF\)](#) (see page 749)
- [7.16 Cost Center Attributes Invoice Category File \(ACTCNV\)](#) (see page 749)
- [7.17 Journal Run Status Log File \(ACTRSJ\)](#) (see page 750)
- [7.18 Repeat Year-to-Date Financial Recap File \(ACT_RR\)](#) (see page 751)
- [7.19 Repeat Multi-Site YTD Financial Recap File \(ACT_RT\)](#) (see page 752)

7.1 Accounting Journal Files (ACTJxx)

The accounting journal files (ACTJxx) quantify the amount of each billable item (CPU, I/O, etc.) that an individual work unit (job, TSO session, etc.) consumed, the amount that was charged, and the rate at which the charge was calculated.

Unlike the other files described in this chapter, there are multiple accounting journal files, based on the number of unique accounting processes and data sources required. The number and type of journal files that are maintained are a function of the CA MICS Accounting and Chargeback algorithm generation options that are defined in the Accounting and Chargeback installation process. The standard set of accounting journal files is shown in Figure 7-1.

The following sections describe the file's organization and provide usage considerations:

- 1 - File Organization
- 2 - Usage Considerations

7.1.1 File Organization

DETAIL.ACTJxx contains a record for each WORKUNIT (job, session, and so on) that was processed. Each record contains all of the billing information for the WORKUNIT:

- o AJFIVC (Invoice Category)
- o AJFQNT (Quantity)
- o AJFRAT (Rate)
- o AJFCPC (Computation Code)
- o AJFCHG (Amount Charged)

This is accomplished by constructing five arrays (the AJFCPC, AJFQNT, AJFRAT, AJFIVC, and AJFCHG) containing these values. The values have the same relative position in each array (for example, AJFQNT01 is billed at AJFRAT01 and referenced by AJFIVC01 and AJFCPC01). The ACTJxx files are not supported in the WEEKS, MONTHS, or YEARS timespans.

Figure 7-2 shows the layout of the journal files.

+-----+-----+-----+-----+-----+					
R		COSTCTR1			
E		COSTCTR2		COST	
C	S	COSTCTR3		CENTER	
O	O			DEFINITION	
R	R	COSTCTRn			
+-----+-----+-----+-----+-----+					
D	T	SYSID		SYSTEM IDENTIFIER	
+-----+-----+-----+-----+-----+					
H		YEAR		COMMON	
E	K	MONTH		DATE-TIME	
A	E	DAY		ELEMENTS	
D	Y				
+-----+-----+-----+-----+-----+					
E		BILLTS		BILLING TIME STAMP	
R		ACTYEAR		ACCOUNTING YEAR	
		ACTMONTH		ACCOUNTING MONTH	
		ACTDAY		ACCOUNTING DAY	
		WORKUNIT		TRANSACTION	
		ENDTS		END TIME STAMP	
		WORKAREA		SUBSYSID & SUBTYPE	
		ZONE		COMMON ELEMENT	
+-----+-----+-----+-----+-----+					
D	AJFIVC01	AJFQNT01	AJFRAT01	AJFCPC01	AJFCHG01
A	AJFIVC02	AJFQNT02	AJFRAT02	AJFCPC02	AJFCHG02
T	AJFIVC03	AJFQNT03	AJFRAT03	AJFCPC03	AJFCHG03
A					
A					
R					
E					
A	AJFIVCnn	AJFQNTnn	AJFRATnn	AJFCPCnn	AJFCHGnn
+-----+-----+-----+-----+-----+					

Figure 7-2. Layout of Journal Files

The following chart shows, by accounting journal file identifier, the default content of the WORKUNIT, WORKAREA, and BILLTS variables. The values of the WORKUNIT and WORKAREA variables depend on the data source used for each. You can change these values at your site with the Journal File Eligibility option of the Special Requirements Menu. Refer to Appendix B, the Data Dictionary, for information on the values listed in the chart.

Accounting Journal File Name/Name of Source File	WORKUNIT Value	WORKAREA Variable 1 Position n-n	WORKAREA Variable 1 Position n-n	WORKAREA Variable 2 Position n-n	BILLTS Value
ACTJBJ / BATJOB	JOB or TSO user ID	Job Group Requested (1-3)	JOBGRPRC (5-7)	SUBSYSID (9-12)	RDRTS
ACTJBP / BATPGM	PROGRAM or TSO User ID			SUBSYSID (9-12)	STARTTS
ACTJBS / BATSPL	JOB			SUBSYSID (9-12)	RDRTS
ACTJRN / BATREN	JOB			SUBSYSID (9-12)	RDRTS
ACTJBM / BATMUA	PROGRAM	MUVER (1-8)		MUPROD (9-16)	ENDTS
ACTJTP / BATATP	ATPAPU	ATPTYPE(1-8)		SUBSYSID (9-16)	RDRTS
ACTJCS / CICCSC	CICSID			CICSID (9-12)	STARTTS
ACTJCA / CICCAC	CICAPU			CICSID (9-12)	ENDTS
ACTJDS / DB2DSU				DB2ID (9-13)	STARTTS
ACTJSU / IDMSUA	IDMSID			IDMSID (9-13) IDMTYPE (14)	STARTTS
ACTJSA / IDMSAC	IDMAPU			IDMSID (9-13) IDMTYPE (14)	STARTTS
ACTJTU / TS0TSU	USER	USER (1-8)			ENDTS
ACTJTC / TS0TSC	USER	TSOAPU (1-16)			ENDTS
ACTJTI / TS0TSU	USER	TSOAPU (1-16)			ENDTS

Figure 7-3. Contents of WORKUNIT, WORKAREA, and BILLTS Variables (Part 1 of 3)

Accounting Journal File Name /Name of Source File	WORKUNIT Value	WORKAREA Variable 1 Position n-n	WORKAREA Variable 1 Position n-n	WORKAREA Variable 2 Position n-n	BILLTS Value
ACTJIS / IMSISU	IMSID			IMSID (9-12)	STARTTS
ACTJIA / IMSIAC	IMSAU			IMSID (9-12)	STARTTS
ACTJIX / IMS_IS	IMSID			IMSID (9-12)	STARTTS
ACTJCM / VMCCMU	USER	VMCANT (1-8)		CMUXMODE (9-16)	STARTTS
ACTJDC / VMCDAC	USER	VMCANT (1-8)		DEVCLASS (9-16)	STARTTS
ACTJNT / VMCNTU	USER	VMCANT (1-8)			STARTTS
ACTJVR / VMCVRA	USER	VMCANT (1-8)			STARTTS
ACTJLN / LNXLXP	LNXLGID				STARTTS
ACTJDA / VCADAA	SYSID			DEVTYPE (9-16)	ENDTS
ACTJMS / VCADAA	SYSID	MGMTCLAS (1-8)		STORCLAS (9-16)	ENDTS
ACTJVS / VCA_VS	SYSID			DEVTYPE (9-16)	ENDTS
ACTJHF / HFSDIR	SYSID			DEVTYPE (9-16)	ENDTS
ACTJMG / HSMMIG	SYSID	HSMLEVEL (1-8)		MGMTCLAS (9-16)	ENDTS
ACTJBC / HSBAC	SYSID			MGMTCLAS (9-16)	ENDTS
ACTJPC / DEAPRC	DEXUSER			PRCTYPE (9-16)	ENDTS
ACTJIM / DEAIMG	DEXUSER			IMGTYPE (9-16)	ENDTS
ACTJPQ / DEAPRQ	DEXUSER				ENDTS

Figure 7-3. Contents of WORKUNIT, WORKAREA, and BILLTS Variables (Part 2 of 3)

7.1 Accounting Journal Files (ACTJxx)

Accounting Journal File Name /Name of Source File	WORKUNIT Value	WORKAREA Variable 1 Position n-n	WORKAREA Variable 1 Position n-n	WORKAREA Variable 2 Position n-n	BILLTS Value
ACTJDK / DESDKU	SYSID				ENDTS
ACTJPJ / PWRPJB	JOB	JOBGROUP (1)			RDRTS
ACTJPP / PWRPPG	PROGRAM	PROGRAM (1-8)		JOB (9-16)	STARTTS
ACTJPO / PWRPOA	JOB	FORMNUM (1-8)			STARTTS
ACTJPS / SNTPSU	SLU	PSULDEV (1-8)		PLU (9-16)	ENDTS
ACTJNP / SNTNAC	SLU	NACLDEV (1-8)		PLU (9-16)	ENDTS
ACTJNS / SNTNSS	SLU	NSSLDEV (1-8)		PLU (9-16)	ENDTS
ACTJNA / NVNSA	SLU	NSCLDEV (1-8)		PLU (9-16)	ENDTS
ACTJNC / NVNSC	SLU	NSCLDEV (1-8)		PLU (9-16)	ENDTS
ACTJRT / NVSRM	SLU	NSCLDEV (1-8)		PLU (9-16)	ENDTS
ACTJXA / AUCAPL	AUCAPU	AUCOPSYS (1-8)		APPLNUMX (9-16)	STARTTS
ACTJXP / AUCKPR	AUCPROG	AUCOPSYS (1-8)		APPLNUMX (9-16)	STARTTS
ACTJMA / AUMAPP	AUMAPU	AUMOPSYS (1-8)		MAPPNUMX (9-16)	STARTTS
ACTJMP / AUMKPS	AUMPROG	AUMOPSYS (1-8)		MAPPNUMX (9-16)	STARTTS
ACTJMQ / MQAMMA	Connection Name or CICS tranid	MQMSSI (1-8)		MQSATYP (9-16)	STARTTS
ACTJQA / MQAQAA	Base Queue Name	MQMSSI (1-8)		MQSATYP (9-16)	ENDTS
ACTJTA / MQATAA	Connection Name or CICS tranid	MQMSSI (1-8)		MQSATYP (9-16)	ENDTS
ACTJMF / MQBMFA	MQBBKID				ENDTS
ACTJWB / WLGSAL	WEBIP				STARTTS
ACTJSF / WASSAF	WEBIP				STARTTS
ACTJLX (EXT JOURNAL)	COMMAND				ULXBTIME (STARTTS)
ACTJTD	SYSID				ENDTS
ACTJTV	SYSID	TAPELIB (1-8)		STORMGTC (9-16)	ENDTS

ACTJWA / WEBWAA	WEBSRVNM				STARTTS
ACTJWR / WEBWRA	WEBSRVNM				STARTTS

Figure 7-3. Contents of WORKUNIT, WORKAREA, and BILLTS Variables (Part 3 of 3)

7.1.2 Usage Considerations

Note the following special considerations or techniques related to using an accounting journal file (ACTJxx):

1. Normally the AJFCHG variable is computed by multiplying AJFQNT by AJFRAT ($AJFCHG = AJFQNT * AJFRAT$). Exceptions to this algorithm are the AJFQNT variables for the priority and zone computation codes, JPRI and ZDIF. For these two computation codes, AJFCHG is computed by the algorithm $AJFCHG = (AJFQNT * AJFRAT) - fffWCOST$, where fffWCOST contains the total charge for the job before application of priority and zone charges.
2. AJFQNT also contains the base total charge. For a job whose base charge is \$100.00 and to which a priority factor of 2.0 applies, the computation would be as follows:

$$AJFCHG = (\$100.00 * 2.0) - \$100.00$$

This results in a JPRI charge of \$100.00, which is added to the base charge of \$100.00, making the total job charge equal \$200.00.

7.2 Ledger File (ACTLGR)

The Ledger File (ACTLGR) quantifies the total amount of each billable item, the rate at which it was billed, and the charge associated with it for each user-defined cost center. It is derived from the summarization of all the journal files in the unit. A Ledger File will be in each unit that has Accounting and Chargeback activated. This file is usually maintained in the DAYS, MONTHS, and YEARS timespans.

7.3 Financial Recap File (ACTRCP)

The Financial Recap File (ACTRCP) quantifies the total amount of debits, credits, discounts, surcharges, and budgets in dollars and cents for each user-defined cost center combination. Quantities and rates are carried for debits and credits. All of the summarized entries from every monthly Ledger File (ACTLGR01) in every unit, except for test units, are part of this file. In addition, the entries from the Debit File (ACTSDT01), Credit File (ACTSCT01), and Budget File (ACTBGT01) are part of the Financial Recap File.

USAGE CONSIDERATIONS

Note the following special considerations or techniques related to using the Financial Recap File (ACTRCP):

1. The Financial Recap File contains complete information on all debits, credits, discounts, zero-balance adjustment, surcharges and budgets for one month. It is normally produced when the invoice is run, but can also be produced without an invoice by submitting sharedprefix.MICS.CNTL(FINRECAP) from the Create Financial Recap File option on the Month End Close Out Jobs menu.
2. The type of data contained in each observation (debit, credit, discount, surcharge, budget, or zero-balance adjustment) is indicated by the RCPTYPE and RCPSTYPE variables as shown in the table below. The RCPCHG variable always contains the amount of the item in dollars and cents. The value of RCPCHG may be either positive or negative.

Data Type	RCPTYPE	RCPSTYPE	Data Detail
-----	-----	-----	-----
Charges	10	D	Debit
			Complex-Level
Charges	10	E	External File
Charges	10	L	Ledger
Credits	20	blank	n/a
Discounts	30	DFPC	Fixed Percent
Discounts	30	DLSA	Lump Sum Amount
Discounts	30	DVOL	Volume
Surcharges	40	blank	n/a

Budgets	50	C	Cost Center
Budgets	50	I	Invoice Category
Budgets	50	M	Computation Code
Budgets	50	U	Units
Zero Balance			
Adjustments	60	blank	n/a

3. The INVCCAT variable contains the invoice category in those observations in which it is meaningful, specifically: charges, invoice category discounts, invoice category surcharges, computation code or invoice category budgets, and computation code or invoice category zero-balance adjustments. INVCCAT also contains the credit category in credit observations (RCPTYPE = 20). It is blank in all other observations.
4. The RCP CPC variable contains the value of computation code for those observations in which it is meaningful. Specifically: charges, credits, computation code budgets, and computation code zero-balance adjustments. It is blank in all other observations.
5. The RCPQNT variable specifies the quantity of the item billed for charges, the number of credits issued (SCTCOUNT) for credits, and the net charge for invoice category discounts, fixed percentage cost center discounts, surcharges, and zero-balance adjustments. It carries a missing value in all other cases.
6. The RCP RAT variable contains the billing rate for charges and the discount percentage (divided by 100, that is, decimal format) for invoice category discounts, fixed percentage cost center discounts, surcharges, and zero-balance adjustments. It carries a missing value in all other cases.
7. The RCP STAT variable carries the billing status of the item (BILL or NOBILL) as derived from the Cost Center Attributes File. A default of BILL is used if a value is not present in this file.
8. The value of RCP CHG may be either positive or negative for charges or zero-balance adjustments. It is always negative for credits or discounts.

7.4 Audit File

The unit-level Audit File level file contains combined information from all of the accounting journal files. The complex-level Audit File contains combined information from the Credit File (ACTSCT01) and the Debit File (ACTSDT01). It is designed for long-term, offline archiving of chargeback information to meet auditing requirements.

The following sections describe the file's organization, the file creation and update process, and provide usage hints:

- 1 - File Organization
- 2 - File Creation and Update Process
- 3 - Usage Considerations

7.4.1 File Organization

The Audit File is an OS variable-blocked file maintained in a generation data group. The unit-level files are referenced by the names:

```
tapeprefix.MICS.ACCT.DAY1  
tapeprefix.MICS.ACCT.DAY2  
tapeprefix.MICS.ACCT.MONTH
```

The complex-level file is referenced by the name:

```
tsharedpref.MICS.ACCT.MONTHC
```

Each of the unit-level audit files contain the DETAIL data from all the journal files for a database unit. The DAY1 file contains data for the current month to-date. The DAY2 file is a backup copy of the DAY1 file. The MONTH file contains a complete month of data for a previous month.

The complex-level file contains the data from the Credit File (ACTSCT01) and the Debit File (ACTSDT01) which includes recurring as well as standard debits and credits. It contains all the debits and credits used to create the Financial recap File.

The complex-level audit file is not created if the ACCTMGDG parameter in sharedprefix.MICS.PARMS(JCLDEFC) is zero.

The unit-level audit files may contain records in three different formats:

- o Prior to Product Change ACT4450, the records were written in the ACTAUDIT format shown in Figure 7-4 (Part 1 of 3).
- o Beginning with ACT4450, the records were written in the NEWAUDIT format shown in Figure 7-4 (Part 2 of 3).
- o Beginning with ACT6100, the records are written in the ACT6100 format shown in Figure 7-4 (Part 3 of 3).

The complex-level audit files will contain records in the ACT6100 format.

```

PRE-ACT4450
+-----+
| Name | Format | Description |
+-----+
|-----+
|FORMAT | $8. | 'ACTAUDIT' |
+-----+
|COSTCTRn| $w. | Cost Center Code (user-defined) |
+-----+
|SYSID | $4. | System Identifier |
+-----+
|WORKUNIT| $8. | Discrete Billable Unit of Work |
+-----+
|BILLTS | RB8. | Billing Time Stamp |
+-----+
|YEAR | 2. | Year of Century |
+-----+
|MONTH | 2. | Month of the Year |
+-----+
|ZONE | $1. | Time Zone |
+-----+
|DAY | 2. | Day of the Month |
+-----+
|WORKAREA| $16. | User Work Area |
+-----+
|FILEID | $3. | Record Identifier-Journal ID |
+-----+
|UCODE | PIB3. | Numeric Code to Insure Uniqueness|
+-----+
|AUXCOUNT| PIB3. | Segment Count |
+-----+
| For each billable element there is an entry |
| containing the following five variables: |
| | | |
|INVCCAT | $4. | Invoice Category |
|COMPCODE| $4. | Computation Code |
|QUANT | RB8.-12.3 | Number of Billable Units |
|RATE | RB8.-8.4 | Rate at Which the Item Was Billed|
|CHARGE | RB8.-11.2 | Amount Billed for This Item |
+-----+

```

Figure 7-4. Audit File Record Formats (Part 1 of 3)

ACT4450 (PRE-ACT6100)		
Name	Format	Description
FORMAT	\$8.	'NEWAUDIT'
n	2.	Number of Cost Centers
L1	2.	Length of Each Cost Center
-		(n fields)
Ln	2.	
COSTCTRn	\$w.	Cost Center Code (user-defined)
SYSID	\$4.	System Identifier
WORKUNIT	\$8.	Discrete Billable Unit of Work
BILLTS	RB8.	Billing Time Stamp
YEAR	2.	Year of Century
MONTH	2.	Month of the Year
ZONE	\$1.	Time Zone
DAY	2.	Day of the Month
WORKAREA	\$16.	User Work Area
FILEID	\$3.	Record Identifier-Journal ID
UCODE	PIB3.	Numeric Code to Insure Uniqueness
AUXCOUNT	PIB3.	Segment Count
For each billable element there is an entry containing the following five variables:		
INVCAT	\$4.	Invoice Category
COMPCODE	\$4.	Computation Code
QUANT	RB8.-12.3	Number of Billable Units
RATE	RB8.-8.4	Rate at Which the Item Was Billed
CHARGE	RB8.-11.2	Amount Billed for This Item

Figure 7-4. Audit File Record Formats (Part 2 of 3)

ACT6100 AND LATER		
Name	Format	Description
FORMAT	\$8.	'ACT6100 '
YEAR	PIB1.	Year of Century
MONTH	PIB1.	Month of the Year
DAY	PIB1.	Day of the Year
ACTYEAR	PIB1.	Accounting Year
ACTMONTH	PIB1.	Accounting Month
ACTDAY	PIB1.	Accounting Day
SYSID	\$4.	System Identification
BILLTS	RB8.	Billing Time Stamp
RUNTS	RB8.	Run Time Stamp
ZONE	\$1.	Time Zone
BILLSTAT	\$1.	Billing Status
UCODE	PIB3.	Numeric Code to Insure Uniqueness
n	PIB1.	Number of Cost Centers
L1	PIB1.	Length of Cost Center
COSTCTR1	\$w.	Cost Center Code
-		(n field pairs, user defined)
Ln	PIB1.	Length of Cost Center
COSTCTRn	\$VARYING30.	Cost Center Code (user-defined)
WUL	PIB1.	Length of Workunit Field
WORKUNIT	\$VARYING44.	Discrete Billable Unit of Work
WAL	PIB1.	Length of Workarea Field
WORKAREA	\$VARYING16.	User Work Area
FILEID	\$3.	Record Identifier-Journal ID
AUXCOUNT	PIB3.	Segment Count
ACT6100 AND LATER (CONTINUED)		
For each billable element there is an entry containing the following five variables:		
INCCAT	\$4.	Invoice Category
COMPCODE	\$4.	Computation Code
QUANTITY	RB8.-12.3	Number of Billable Units
RATE	RB8.-8.4	Rate at Which the Item Was Billed
CHARGE	RB8.-11.2	Amount Billed for This Item

Figure 7-4. Audit File Record Formats (Part 3 of 3)

7.4.2 File Creation and Update Process

Unit-Level Audit File

The unit-level audit file is updated as follows:

DAILY PROCESSING

1. The accounting journal files are combined and converted into the OS variable length format.
2. A segment is created from each new invoice category, computation code, quantity, and rate (that is, each time the COSTCTRn, SYSID, YEAR, or MONTH changes). A running count of the number of segments created is kept and added to the record header.
3. At the control break, the record is added to the end (DISP=MOD) of the existing month-to-date audit file DAY1. One generation of the DAY1 file is created each month.
4. A duplicate copy of the audit file is made by an assembler language routine when the update is completed. This is the DAY2 file; a new generation is created daily.

MONTHLY PROCESSING

During monthly aging, an assembler language routine is attached to split the audit file in the same logical manner that the ledger file was split. Records for the current month are written to a new generation of the DAY1 file; all other records are written to a new generation of the MONTH file. This processing is required because the delay in the monthly update causes several days of the new month's data to be added to the file.

SPECIAL PROCESSING

To restore the DAY1 tape/disk file, use the job in prefix.MICS.CNTL(ACTDAY1R). The DAY199 step of the daily CA MICS job may not be updated due to the MOD adding of data to the DAY1 file. Review the JCL of the restore job to ensure that the generation of the DAY2 tape/disk being copied to the DAY1 tape/disk fits your situation.

Complex-Level Audit File

The complex-level audit file is updated as follows:

MONTHLY PROCESSING

1. The CLOSETBL job catalogs a new generation of the complex-level audit file.
2. The INVOICE and FINRECAP jobs uncatalog the last generation and catalog a new generation. This is done because these jobs can be run multiple times in the same accounting period, and only the audit file from the last run in a single accounting period should be kept.

Because both the uncatalog and catalog occur in the same job, the generation number increases by one each time that INVOICE or FINRECAP is run. For example, CLOSETBL catalogs G0001, INVOICE uncatalogs G0001 and catalogs G0002. This does not affect the number of generations kept.

3. INVOICE and FINRECAP write the contents of the ACTSCT01 and ACTSDT01 files, the standard and recurring debits and credits, to the new generation.

7.4.3 Usage Considerations

Note the following special considerations or techniques related to using the audit files:

1. The audit files are generation data groups and are, by default, created on tape. Optionally the DAY1 and the DAY2 audit files can be written to disk using the following JCLDEF parameters.

ACCTDAY1PARM

The ACCTDAY1PARM parameter is used to generate the unit-level DAY1 audit file on disk. This parameter includes both keyword parameters and keyword=value specifications. The general form of the ACCTDAY1PARM statement is the keyword ACCTDAY1PARM followed by one or more ACCTDAY1PARM parameters.

ACCTDAY2PARM

The ACCTDAY2PARM parameter is used to generate the unit-level DAY2 audit file on disk. This parameter includes both keyword parameters and keyword=value specifications. The general form of the ACCTDAY2PARM statement is the keyword ACCTDAY2PARM followed by one or more ACCTDAY2PARM parameters.

The following describes each of the ACCTDAY1PARM and ACCTDAY2PARM parameters:

- o DISK

Required if you want the DAY1 or DAY2 audit file written to a disk device. If not specified, the file is written to tape and other parameters on the ACCTDAY1PARM/ACCTDAY2PARM statements have no effect.

- o SPACE=spacedef

Default: No SPACE parameter specified.

Defines the space allocation parameter for the DAY1 and/or DAY2 audit file on disk. Specify this parameter according to JCL language syntax.

- o UNIT=unitname

Default: No UNIT parameter specified

The generic unit name to be used for the DAY1 and/or DAY2 audit file on disk. Specify this parameter according to JCL language syntax. The default will be the value used in DASDUNIT.

- o VOLSER=volser

Default: No VOLSER parameter specified.

Define the VOLSER parameter if you want the DAY1 and/or DAY2 audit file written onto a specific disk. Specify this parameter according to JCL language syntax.

Note: If you chose to write the DAY1 and/or DAY2 audit file to disk, the following unit jobs must be regenerated:

- ACTDAY1R - ACT Daily Audit File Recovery Job
- ACTEXTU - Accounting External Files Job
- ACTINITA - ACT DAY1 Audit File Initialization Job
- ACTRTSIM - ACT Rate Simulation of Charges Job
- AUDITRPT - ACT Component Audit Report Job
- DAILY - Database Daily Job
- MONTHACT - Special Accounting Dates Monthly Update Job
- MONTHLY - Standard Monthly Update Job

ACCTDAY1SMSPARM

Optional parameter for specifying System Managed Storage (SMS) keywords (e.g., STORCLAS=storclas) to be used for the DAY1 audit file disk/tape data set allocations. Specify one or more SMS parameters according to JCL language syntax. There is no default and continuation is not allowed. This statement is used to generate daily audit jobs at a unit level.

ACCTDAY2SMSPARM

Optional parameter for specifying System Managed Storage (SMS) keywords (e.g., STORCLAS=storclas) to be used for the DAY2 audit file disk/tape data set allocations. Specify one or more SMS parameters according to JCL language syntax. There is no default and continuation is not allowed. This statement is used to generate daily audit jobs at a unit level.

2. The generation of the DAY1 file containing the

month-to-date data is the most current GDG version (that is, 0) and is modified each day in the daily CA MICS job stream. The prior month's audit information is contained on previous GDGs.

3. The reports show the information in this file can be produced from the Audit Reports option of the Process Control Menu (MWF;4;2;4;5;1). Use the selection options on the panel to select a subset of the information from the file.
4. The DAY1 audit file may be recreated from the DAY2 tape/disk by submitting ACTDAY1R from prefix.MICS.CNTL.
5. Since the DAY1 audit file is a "MOD" GDG, the tape is reused every day in the DAY199 step. It may be beneficial to change the DAY199 JCL to have the DAY1 Audit File written to a disk or a mass storage GDG to avoid tape-handling problems. If this file is switched to disk, you may need to change the DAY1 blocksize. To write the DAY1 file to disk instead of to tape, you must also change the MONTH199 JCL.
6. Use the ACTAUDRD macro in sharedprefix.MICS.MACAUTOS to read in the ACTAUDIT, NEWAUDIT, and ACT6100 format audit tapes.
7. A new, empty, generation of the complex-level audit tape is created each month by the CLOSETBL job. The INVOICE and FINRECAP jobs delete the most recent generation and write ACTSDT01 and ACTSCT01 to a new generation. This means that there will be gaps in the generation numbers. These gaps do not affect either the number of generations kept or the retention period.
8. In sharedprefix.MICS.PARMS(JCLDEFC), the ACCTMGDG parameter determines whether audit files are maintained at the complex level in the monthly generation data group. If audit files are maintained, it determines how many generations are maintained.

If, after installation, you want to start or stop maintaining complex-level audit files or change the number of generations maintained, follow these steps:

- ___ a. Edit the ACCTMGDG parameter value in sharedprefix.MICS.PARMS(JCLDEFC). To turn off the complex-level audit file, change the value to zero. To change the number of generations

maintained in the monthly generation data group, change the value to any numeric value other than zero. If no ACCTMGDG parameter is specified, it will default to a value of 85.

- ___ b. Regenerate the GDGSGENC job as follows for the new parameter value to take effect.

- Edit sharedprefix.MICS.PARMS(JCLGENUC) so that it contains the following line:

```
GDGSGENC
```

- Regenerate GDGSGENC by submitting JCLGENUC.

```
SUB 'sharedprefix.MICS.CNTL(JCLGENUC)'
```

- ___ c. Run GDGSGENC.

```
SUB 'sharedprefix.MICS.CNTL(GDGSGENC)'
```

9. In the JCL parameters at the complex or unit level, you can optionally override individual TAPE parameter specifications using accounting parameter statements that apply to specific types of audit tape files. This gives you the option to establish a common set of defaults, which you override, as needed, for specific tape applications.

The following are JCL parameters:

ACCTMTAPEPARM

The general form of the ACCTMTAPEPARM statement is the keyword ACCTMTAPEPARM, followed by one or more ACCTMTAPEPARM parameters. The ACCTMTAPEPARM parameters are used to generate complex-level or unit-level monthly audit jobs. The parameters include both keyword parameters and keyword=value specifications. You can specify the ACCTMTAPEPARM statement as many times as you want in order to specify all of the tape data set definitions you require. (This statement can be used at the complex or unit level.)

ACCTMTAPESMSPARM

Optional parameter for specifying System Managed Storage (SMS) keywords (e.g., STORCLAS=storclas) to be used as the default for CA MICS tape data set allocations. Specify one or more SMS parameters according to JCL language syntax. There is no default

and continuation is not allowed. This statement is used to generate monthly audit jobs at the complex or unit level.

ACCTDTAPEPARM

The general form of the ACCTDTAPEPARM statement is the keyword ACCTDTAPEPARM, followed by one or more ACCTDTAPEPARM parameters. The ACCTDTAPEPARM parameters are used to generate unit-level daily audit jobs. The parameters include both keyword parameters and keyword=value specifications. You can specify the ACCTDTAPEPARM statement as many times as you want in order to specify all of the tape data set definitions you require.

ACCTDTAPESMSPARM

Optional parameter for specifying System Managed Storage (SMS) keywords (e.g., STORCLAS=storclas) to be used as the default for tape data set allocations. Specify one or more SMS parameters according to JCL language syntax. There is no default and continuation is not allowed. This statement is used to generate daily audit jobs at a unit level.

All keywords used on the TAPEPARM parameter can also be used on the accounting tape specification parameters. See the Planning, Installation, Operation, and Maintenance Guide, Sections 2.3.1.6, 2.3.1.6.4, 2.3.3.2.1, and 2.3.3.2.1.5, for details.

7.5 Credit File (ACTSCT)

The Credit File (ACTSCT) contains adjustments to the charges calculated by CA MICS Accounting and Chargeback.

For each credit, you enter a credit category that corresponds to the invoice category of the original debit.

If you also enter a computation code value, the credit will be subtracted from any amounts invoiced to the same COSTCTR values, invoice category, computation code, and rate, and the result treated as a line item on the invoice. The credit will still be carried as a separate item in the Financial Recap file, however.

Any credits for which no computation code is entered will be summarized together and reported on a single line at the bottom of the invoice.

The Invoice Credit Supplement Report printed with the Consolidated Invoice provides a detailed list of all credits for the invoice period.

USAGE CONSIDERATIONS

Note the following special considerations or techniques related to using the Credit File (ACTSCT):

1. You can use Application Data Base Data Entry (MWF;4;2;1) to update the information in an ISPF table. You are then automatically prompted to submit the generation job to update the file. This is the usual approach taken to update the file. You can also use the Utility Jobs (MWF;4;2;S;3 and MWF;4;2;S;4) to batch load information into the ISPF tables and the file.
2. You can obtain a report showing the information in this file and the other TABLES files by submitting the sharedprefix.MICS.CNTL(PRINTTBL) job from the Print Application Data Base Files option of the Accounting Administration Process Control menu.

7.6 Debit File (ACTSDT)

The Debit File (ACTSDT) contains adjustments to the charges calculated by CA MICS Accounting and Chargeback.

USAGE CONSIDERATIONS

Note the following special considerations or techniques related to using the Debit File (ACTSDT):

1. You can use Application Data Base Data Entry (MWF;4;2;1) to update the information in an ISPF table. You are then automatically prompted to submit the generation job to update the file. This is the usual approach taken to update the file. You can also use the Utility Jobs (MWF;4;2;S;3 and MWF;4;2;S;4) to batch load information into the ISPF tables and the file.
2. You can obtain a report showing the information in this file and the other TABLES files by submitting the sharedprefix.MICS.CNTL(PRINTTBL) job from the Print Application Data Base Files option of the Accounting Administration Process Control menu.

7.7 Budget File (ACTBGT)

The Budget File (ACTBGT) allows the budget for a given cost center to be compared to the charges calculated by CA MICS Accounting and Chargeback.

USAGE CONSIDERATIONS

Note the following special considerations or techniques related to using the Budget File (ACTBGT):

1. You can use Application Data Base Data Entry (MWF;4;2;1) to update the information in an ISPF table. You are then automatically prompted to submit the generation job to update the file. This is the usual approach taken to update the file. You can also use the Utility Jobs (MWF;4;2;S;3 and MWF;4;2;S;4) to batch load information into the ISPF tables and the file.
2. You can obtain a report showing the information in this file and the other TABLES files by submitting the sharedprefix.MICS.CNTL(PRINTTBL) job from the Print Application Data Base Files option of the Accounting Administration Process Control menu.
3. BGTKIND indicates the type of budget as follows:
 - 1 - Cost center
 - 2 - Invoice category
 - 3 - Computation code
 - 4 - Units

7.8 Cost Center Attributes File (ACTCCA)

The Cost Center Attributes File (ACTCCA) contains required billing information that is specific to an individual cost center. The parameters specified include personalized heading information and information specifying whether the cost center is billable, whether you wish to have this cost center's budget information printed on the invoice, and whether the cost center should be given a special discount.

USAGE CONSIDERATIONS

Note the following special considerations or techniques related to using the Cost Center Attributes File (ACTCCA):

1. You can use Application Data Base Data Entry (MMF;4;2;1) to update the information in an ISPF table. You are then automatically prompted to submit the generation job to update the file. This is the usual approach taken to update the file. You can also use the Utility Jobs (MMF;4;2;S;3 and MMF;4;2;S;4) to batch load information into the ISPF tables and the file.
2. You can obtain a report showing the information in this file and the other TABLES files by submitting the sharedprefix.MICS.CNTL(PRINTTBL) job from the Print Application Data Base Files option of the Accounting Administration Process Control menu.

7.9 Invoice Sequence Number File (ACTSEQ)

The invoices produced by CA MICS Accounting and Chargeback are sequence numbered for reference purposes. The sequence number in this file, which is the number on the first invoice of each period, is initially set at installation. You can reset using the Invoice Sequence Number option under Application Database Data Entry.

USAGE CONSIDERATIONS

Note the following special considerations or techniques related to using the Invoice Sequence Number File (ACTSEQ):

1. You can use Application Data Base Data Entry (MWF;4;2;1) to update the information in an ISPF table. You are then automatically prompted to submit the generation job to update the file. This is the usual approach taken to update the file. You can also use the Utility Jobs (MWF;4;2;S;3 and MWF;4;2;S;4) to batch load information into the ISPF tables and the file.
2. You can obtain a report showing the information in this file and the other TABLES files by submitting the sharedprefix.MICS.CNTL(PRINTTBL) job from the Print Application Data Base Files option of the Accounting Administration Process Control menu.

7.10 Year-to-Date Financial Recap File (ACT_YR)

The Year-to-Date Financial Recap File (ACT-YR) quantifies the year-to-date amount of debits, credits, discounts, and budgets in monetary units for each user-defined cost center combination that you defined when you installed this product. Quantities and rates, as summarized from the original data source, are carried for debits and credits.

USAGE CONSIDERATIONS

Note the following special considerations or techniques related to using the Year-to-Date Financial Recap File (ACT_YR).

1. The Year-to-Date Financial Recap File contains information on all debits, credits, discounts, zero-balance adjustments, surcharges, and budgets for one year. Normally, it is updated when you run the INVOICE job, which can be run from the Create Financial Recap File option of the Month End Close Out Jobs menu.
2. Cycle 00 contains information for the current year to date. Higher cycles contain information for previous years. The Year-to-Date Financial Recap File is aged once a year during the CLOSETBL run during the second month of your fiscal year.
3. The type of data contained in each observation (debit, credit, discount, surcharge, budgets, or zero-balance adjustment) is indicated by the RCPTYPE and RCPSTYPE variables as shown in the table below. The RCPCHG variable always contains the amount of the item in dollars and cents. The value of RCPCHG may be either positive or negative.

Data Type	RCPTYPE	RCPSTYPE	Data Detail
-----	-----	-----	-----
Charges	10	D	Debit
Charges	10	C	External Entry
Charges	10	L	Ledger
Credits	20	blank	n/a
Discounts	30	DFPC	Fixed Percent
Discounts	30	DLSA	Lump Sum Amount
Discounts	30	DVOL	Volume

Surcharges	40	blank	n/a
Budgets	50	C	Cost Center
Budgets	50	I	Invoice Category
Budgets	50	M	Computation Code
Zero Balance			
Adjustments	60	blank	n/a

4. The INVCCAT variable contains the invoice category in those observations in which it is meaningful, specifically charges, invoice category discounts, invoice category surcharges, computation code or invoice category budgets, computation code or invoice category zero-balance adjustments. INVCCAT also contains the credit category in credit observations (RCPTYPE = 20). It is blank in all other observations.
5. The RCP CPC variable contains the value of computation code for those observations in which it is meaningful, specifically charges, credits, computation code budgets, and computation code zero-balance adjustments. It is blank in all other observations.
6. The RCPQNT variable specifies the quantity of the item billed for charges, the number of credits issued (SCTCOUNT) for credits, and the net charge for invoice category discounts, fixed percentage cost center discounts, surcharges, and zero-balance adjustments. It carries a missing value in all other cases.
7. The RCP RAT variable contains the billing rate for charges and the discount percentage (divided by 100, that is, decimal format) for invoice category discounts, fixed percentage cost center discounts, surcharges, and zero-balance adjustments. It carries a missing value in all other cases.
8. The RCP STAT variable carries the billing status of the item (BILL or NOBILL) as derived from the Cost Center Attributes File. A default of BILL is used if a value is not present in the product's file.
9. The value of RCP CHG may be either positive or negative for charges or zero-balance adjustments. It is always negative for credits or discounts.
10. If the Invoice Level, RCP ILVL, or Billing Status, RCP STAT, is changed during the year, year-to-date charges

are separated by Invoice Level or Billing Status, depending on which was changed, because Invoice Level and Billing Status are summarization keys. You can cause the information to be summarized again by running the ACTYTDRF job, in sharedprefix.MICS.CNTL.

11. Complete the checklist below when you do NOT want the Year-to-date Financial Recap File (ACT_YR) to have observations. The file will still be part of the sharedprefix.MICS.TABLES data set; however, no observations will be in it. By deactivating the ACT_YR file, you will not be able to do YTD reporting.

- ___ a. Change the file type in the FILE statement for the _YRRCP file in sharedprefix.MICS.GENLIB(ACTGENIN) from 51 to 50 as shown below:

```
FILE _YRRCP 50 1 N N N N N N N YTD Financial Recap File
```

- ___ b. Submit 'sharedprefix.MICS.CNTL(ACTCGEN)'. Review the MICSLOG for error messages and ensure that the job ends with a condition code of zero.

7.11 Multi-Site Financial Recap File (ACT_RC)

The Multi-Site Financial Recap File (ACT_RC) quantifies the total amount of debits, credits, discounts, and budgets in dollars and cents for all central and remote site cost center combinations used in multi-site accounting. Quantities are carried for debits and credits, and rates are carried for debits.

USAGE CONSIDERATIONS

Note the following special considerations or techniques related to using the Multi-Site Financial Recap File (ACT_RC):

1. The type of data contained in each observation (debit, credit, discount, surcharge, budgets or zero-balance adjustment) is indicated by the RCPTYPE and RCPSTYPE variables as shown in the table below. The RCPCHG variable always contains the amount of the item in dollars and cents. The value of RCPCHG may be either positive or negative.

Data Type	RCPTYPE	RCPSTYPE	Data Detail
-----	-----	-----	-----
Charges	10	D	Debit
Charges	10	C	External Entry
Charges	10	L	Ledger
Credits	20	blank	n/a
Discounts	30	DFPC	Fixed Percent
Discounts	30	DLSA	Lump Sum Amount
Discounts	30	DVOL	Volume
Surcharges	40	blank	n/a
Budgets	50	C	Cost Center
Budgets	50	I	Invoice Category
Budgets	50	M	Computation Code
Zero Balance			
Adjustments	60	blank	n/a

2. The INVCCAT variable contains the invoice category in those observations in which it is meaningful, specifically: charges, invoice category discounts, invoice category surcharges, computation code or invoice

category budgets, computation code or invoice category zero-balance adjustments. INVCCAT also contains the credit category in credit observations (RCPTYPE = 20). It is blank in all other observations.

3. The RCPCPC variable contains the value of computation code for those observations in which it is meaningful, specifically: charges, computation code budgets, and computation code zero-balance adjustments. It is blank in all other observations.
4. The RCPQNT variable specifies the quantity of the item billed for charges, the number of credits issued (SCTCOUNT) for credits, and the net charge for invoice category discounts, fixed percentage cost center discounts, surcharges, and zero-balance adjustments. It carries a missing value in all other cases.
5. The RCPRAT variable contains the billing rate for charges and the discount percentage (divided by 100, that is, decimal format) for invoice category discounts, fixed percentage cost center discounts, surcharges, and zero-balance adjustments. It carries a missing value in all other cases.
6. The RCPSTAT variable carries the billing status of the item (BILL or NOBILL) as derived from the Cost Center Attributes File. A default of BILL is used if a value is not present in the product's file.
7. The value of RCPCHG may be either positive or negative for charges or zero-balance adjustments. It is always negative for credits or discounts.

7.12 Multi-Site Credit File (ACT_SC)

The Multi-Site Credit File (ACT_SC) allows adjustments to the charges calculated by CA MICS Accounting and Chargeback. The charges retained in the credit file will be subtracted from the total cost calculated for all central and remote site cost center combinations when multi-site accounting is used. The invoice category allows you to indicate and track the reason for the credit.

7.13 Multi-Site Cost Center Attributes File (ACT_CA)

The Multi-Site Cost Center Attributes File (ACT_CA) is not used by the Accounting and Chargeback Product after Product Change ACT4600. Cost Center Attributes information for all sites, central and remote, is maintained in the Cost Center Attributes file at the central site.

7.14 Multi-Site Year-to-Date Financial Recap File (ACT_YT)

The Multi-Site Year-to-Date Financial Recap File (ACT_YT) quantifies the year-to-date amount of debits, credits, discounts, surcharges, and budgets in monetary units for all central and remote site cost center combinations used in multi-site accounting. Quantities and rates, as summarized from the original data source, are carried for debits and credits.

USAGE CONSIDERATIONS

Note the following special considerations or techniques related to using the Multi-Site Year-to-Date Financial Recap File (ACT_YT):

1. The Multi-Site Year-to-Date Financial Recap File contains all debits, credits, discounts, zero-balance adjustments, surcharges, and budgets applied to all central and remote cost centers for one year. It is created when the ACTMG TAB job is run.
2. Cycle 00 contains information for the current year to date, and higher cycles contain information for previous years. The Multi-Site Year-to-Date Financial Recap File is not aged. It is recreated every time the ACTMG TAB job is run.
3. The type of data contained in each observation (debit, credit, discount, surcharge, budget or zero-balance adjustment) is indicated by the RCPTYPE and RCPSTYPE variables as shown in the table below. The RCPCHG variable always contains the amount of the item in dollars and cents. The value of RCPCHG may be either positive or negative.

Data Type	RCPTYPE	RCPSTYPE	Data Detail
-----	-----	-----	-----
Charges	10	D	Debit
Charges	10	C	External Entry
Charges	10	L	Ledger
Credits	20	blank	n/a
Discounts	30	DFPC	Fixed Percent
Discounts	30	DLSA	Lump Sum Amount
Discounts	30	DVOL	Volume

Surcharges	40	blank	n/a
Budgets	50	C	Cost Center
Budgets	50	I	Invoice Category
Budgets	50	M	Computation Code
Zero Balance			
Adjustments	60	blank	n/a

4. The INVCCAT variable contains the invoice category in those observations in which it is meaningful, specifically: charges, invoice category discounts, invoice category surcharges, computation code or invoice category budgets, and computation code or invoice category zero-balance adjustments. INVCCAT also contains the credit category in credit observations (RCPTYPE = 20). It is blank in all other observations.
5. The RCPCPC variable contains the value of computation code for those observations in which it is meaningful, specifically: charges, credits, computation code budgets, and computation code zero-balance adjustments. It is blank in all other observations.
6. The RCPQNT variable specifies the quantity of the item billed for charges and credits, and the net charge for invoice category discounts, fixed percentage cost center discounts, surcharges, and zero-balance adjustments. It contains a missing value in all other cases.
7. The RCPRAT variable contains the billing rate for charges and discounts and the discount percentage (in decimal format, divided by 100) for invoice category discounts, fixed percentage cost center discounts, surcharges, and zero-balance adjustments. It contains a missing value in all other cases.
8. The RCPSTAT variable carries the billing status of the item (BILL or NOBILL) as derived from the Cost Center Attributes File. A default of BILL is used if a value is not present in the product's file.
9. The value of RCPCHG may be either positive or negative for charges or zero-balance adjustments. It is always negative for credits or discounts.

7.15 Invoice Format File (ACTIVF)

The Invoice Format File (ACTIVF) contains entries that describe the available invoice formats. An invoice format is referred to by its name; the entry in the Invoice Format File with that name is then referenced to determine the correct format options. Changes to these options are made using the online panels; the file is used only to store the formats.

USAGE CONSIDERATIONS

Typically, the Invoice Format File (ACTIVF01) will not be accessed by the installation. This file is generated by the Accounting options generation job and is accessed by the invoice program.

7.16 Cost Center Attributes Invoice Category File (ACTCNV)

The Cost Center Attributes Invoice Category File (ACTCNV) contains the discount and surcharge percentages for each unique cost center and invoice category combination you specified. This file is used by CA MICS Accounting and Chargeback to create the Financial Recap File.

USAGE CONSIDERATIONS

Typically, the Cost Center Attributes Invoice Category File will not be accessed by the installation. Changes to this file are made automatically as a result of entering discounts or surcharges on the appropriate panels; the file is accessed during the creation of the Financial Recap File to implement those specifications. Information on the invoice category discounts and surcharges contained in this file is provided by the PRINTTBL job.

7.17 Journal Run Status Log File (ACTRSJ)

The Journal Run Status Log Files retain information about the journal files created by daily processing, such as the run time stamp when they were created by the DAY199 step of the DAILY job, and the billing timestamp and charges for each computation code.

COSTCTR values are not kept in the log, but the charges are categorized by billing status and an application unit identifier can be assigned to each record.

There is one log for each unit stored as a SAS file in DAYS.ACTRSJ01 and also in the ACTRSJu, where u is a unit id, ISPF table.

USAGE CONSIDERATIONS

The Journal Run Status Log File contains information about the journal files created by the DAILY processing job. This information is used to create ISPF tables which can be viewed online from the Enterprise IS Financial Reporting Process Control Menu (MWF;4;2;4;5;1;1).

Options that affect the contents of the Journal Run Status Logs are accessed from the Accounting Options Menu Journal Run Status Log Options (MWF;4;2;3;2;6).

7.18 Repeat Year-to-Date Financial Recap File (ACT_RR)

The Repeat Year-to-Date Financial Recap File (ACT_RR) quantifies, for each previous month, the year-to-date amount of debits, credits, discounts, and budgets, in monetary units, for each user-defined cost center combination. Quantities, as summarized from the original data source, are carried for debits and credits, and rates are carried for debits.

Each cycle contains the year-to-date amounts for a prior month and corresponds to a cycle of the Financial Recap File. For example, ACT_RR02 contains the year-to-date amounts for the month before last month and ACTRCP02 contains the amounts for the month before last month. Note that there is no 01 cycle of ACT_RR because last month's year-to-date amounts are in ACT_YR00.

USAGE CONSIDERATIONS

Note the following special considerations or techniques related to using the Repeat Year-to-Date Financial Recap File (ACT_RR).

1. This file is delivered inactive. To activate the file, change the file type in the FILE statement in shareprefix.MICS.GENLIB(ACTGENIN) from 50 to 51 as shown below:

```
FILE _RRRCP 51 1 N N N N N N N Repeat YTD Fin. Recap File
```

2. This file is only used if you run a Repeat Invoice for a previous month.

7.19 Repeat Multi-Site YTD Financial Recap File (ACT_RT)

The Repeat Multi-Site Year-to-Date Financial Recap File (ACT_RT) quantifies, for each previous month, the year-to-date amount of debits, credits, discounts, surcharges, and budgets, in monetary units, for all central and remote site cost center combinations used in multi-site accounting. Quantities, as summarized from the original data source, are carried for debits and credits, and rates are carried for debits.

Each cycle contains the year-to-date amounts for a prior month and corresponds to a cycle of the Financial Recap File. For example, ACT_RT02 contains the year-to-date amounts for the month before last month and ACTRCP02 contains the amounts for the month before last month. Note that there is no 01 cycle of ACT_RT because last month's year-to-date amounts are in ACT_YT00.

USAGE CONSIDERATIONS

Note the following special considerations or techniques related to using the Repeat Multi-Site Year-to-Date Financial Recap File (ACT_RT):

1. This file is delivered inactive. To activate the file, change the file type in the FILE statement in shareprefix.MICS.GENLIB(ACTGENIN) from 50 to 51 as shown.

```
FILE _RTRCP 51 1 N N N N N N N Repeat Multi-Site YTD Recap File
```

2. This file is only used if you run a Multi-Site Repeat Invoice for a previous month.

Appendix A: MESSAGES

Messages

This appendix lists all messages that are generated by CA MICS Accounting and Chargeback and printed in the MICSL0G data set. Some messages are generated during the processing of the control statements, while others are caused by various conditions in the data. The messages are listed in ascending numerical sequence and include the full text of the message, the type, the reason for the message, appropriate user action, and applicable document references.

The following type codes are used to categorize the messages:

Information	A note to the user that documents an Accounting and Chargeback option or potentially important feature in the data.
Warning	A condition of either the data or the control statements that does not affect the Accounting and Chargeback operation but that may lead to unexpected results.
Error	A problem with a control statement that will prevent a successful run of the product. Execution is stopped after all control statements are processed.
Termination	A critical problem with the data that requires the product to terminate processing immediately.

The message texts often include references to information contained in a control statement, or values of variables from temporary Accounting and Chargeback work files. In these cases, the message text contains a blank line indicating that a value will be substituted into the text at execution time. For example, message ACT00108 reads as follows:

THE PANEL DEFINED STARTING DAY OF THE WEEK
IS INVALID. THE INVALID DAY VALUE IS:

_____.

+-----+
| ACT00100 |
+-----+

TEXT: GENERATION PROCESS COMPLETED

TYPE: Information

REASON: The generation process has successfully
completed.

ACTION: None

REFERENCES: None

+-----+
| ACT00101 |
+-----+

TEXT: EITHER NO TYPE D ROW WAS FOUND IN THE ACTACT
TABLE OR DISCOUNT TYPE _____ IS INVALID.
DISCOUNT = 0 GENERATED.

TYPE: Error

REASON: The TYPE D, or discount, row of the ACTACT table
was not found or the discount type displayed in
the message is invalid.

ACTION: This message refers to volume discounting. The
valid discount types are:

ACCUMULATIVE
MAXIMUM

PIECEWISE

Review the references below and determine the correct specifications needed for the type of discounting desired. Reenter the required specifications and rerun the job. If the discount type is specified correctly, or if the error persists, contact CA Technical Support for assistance.

Note: Lump sum discounts and fixed percentage discounts are not valid options here.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 4.9.1, Specifying Volume Discounts, and Section 4.9.3, Specifying Fixed Percentage and Lump Sum Discounts.

```
+-----+
| ACT00102 |
+-----+
```

TEXT: NO TYPE 0 ROW WAS FOUND IN THE ACTACT TABLE.

TYPE: Error

REASON: The ACTXOPTS job was unable to access the accounting options information, the type 0 row, that was entered into CA MICS earlier using MWF.

ACTION: Reenter the options using MWF and then rerun the ACTXOPTS job. Contact CA Technical Support if the error recurs.

REFERENCES: Refer to the specific accounting option in Chapter 4 of this guide. For example, for invoice level refer to Section 4.5.1.

```
+-----+
| ACT00103 |
+-----+
```

TEXT: _____ TABLE OPEN FAILED. RC = ____.

TYPE: Error

REASON: The attempt to open the table identified in the message text failed. The ISPF return code is included in the text of the message.

ACTION: An ISPF return code of 12 indicates that the table is in use by another user and could not be opened. Rerun the job at another time when the table is available. Contact CA Technical Support for assistance in resolving any other ISPF return codes.

REFERENCES: None

```
+-----+  
| ACT00104 |  
+-----+
```

TEXT: _____ TABLE IS EMPTY.

TYPE: Termination

REASON: The table identified in the message text is empty.

ACTION: An entry is required in the table and either the table was not migrated correctly while applying maintenance or the table entries have been deleted. Recreate the table and rerun the job.

Contact CA Technical Support if you do not know how to recreate the table. If the loss of the table resulted from the application of maintenance, be sure to contact CA Technical Support before attempting to reapply it.

REFERENCES: None

```
+-----+  
| ACT00105 |  
+-----+
```

TEXT: ACCOUNTING IS INACTIVE. TO ACTIVATE, SPECIFY A VALUE OF ACTIVE IN PREFIX.MICS.PARMS(EXECDEF).

TYPE: Warning

REASON: Accounting was not on. Accounting and

Chargeback will be executed but no observations will be written to the journal or ledger files for this unit.

ACTION: Specify a line with "ACCOUNTING ACTIVE" in prefix.MICS.PARMS(EXECDEF). You can do this online using the CA MICS Workstation Facility.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 2.3.1.

\$SCOL

```
+-----+  
| ACT00106 |  
+-----+
```

TEXT: YOU MUST DEFINE YOUR ACCOUNTING CALENDAR VIA PANELS. THE _____ TABLE DID NOT HAVE D ROWS TO SUPPORT THE CALENDAR DEFINITION.

TYPE: Error

REASON: The option to use panels to define the special Accounting and Chargeback calendar was chosen. No calendar records exist in the ACT\$AD table.

ACTION: Specify the accounting calendar by using the online method to define it.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 4.6.3.

```
+-----+  
| ACT00107 |  
+-----+
```

TEXT: YOU MUST MODIFY YOUR ACCOUNTING CALENDAR DEFINITION. THE CALENDAR DOES NOT HAVE AN ENTRY FOR JULIAN DATE: _____.

TYPE: Error

REASON: The online definition of your accounting calendar does not contain the date that is in your input records.

ACTION: Modify the accounting calendar by using the online method to update your calendar for the

missing month.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 4.6.3.

+-----+
| ACT00108 |
+-----+

TEXT: THE PANEL DEFINED STARTING DAY OF THE WEEK
IS INVALID. THE INVALID DAY VALUE IS:
_____.

TYPE: Error

REASON: The online definition of your accounting
calendar specified a start of week that is not
valid.

ACTION: Modify the accounting week start day by using
the online panels to specify a valid week start
day.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 4.6.3.

+-----+
| ACT00109 |
+-----+

TEXT: THE ACCOUNTING DATE VARIABLES--ACTMONTH,
ACTYEAR, AND ACTDAY--WILL HAVE THE SAME VALUES
AS THE STANDARD CA MICS DATE VARIABLES UNLESS
SPECIAL CODING HAS BEEN PLACED IN THE AYEAR,
AMONTH, AND ADAY MACROS.

TYPE: Warning

REASON: You must supply user coding in the AYEAR,
AMONTH, AWEEK, and ADAY macro members; otherwise
assignments such as ACTMONTH=MONTH will be used.

ACTION: Modify the accounting date macros by using the
online panels to specify your SAS coding
assignments.

REFERENCES: CA MICS Accounting and Chargeback User Guide,

Section 4.6.3.

```
+-----+  
| ACT00110 |  
+-----+
```

TEXT: THE ACCOUNTING DATE MACROS--AYEAR, AMONTH, AWEEK, AND ADAY--MUST BE MODIFIED TO TAKE OUT THE GENERATED CODING. USE YOUR SAS CODING IN THE MACROS TO DERIVE THE ACCOUNTING DATES.

TYPE: Error

REASON: Your panel parameters indicate that you do NOT want to use panels to define the accounting calendar. The panel parameters previously indicated that panels were to be used to define the accounting calendar. If this panel revision is made, you must modify the four macros to take out the coding that was previously generated into these members.

ACTION: Modify the accounting date macros using the online panels to specify your SAS coding assignments instead of our generated SAS coding.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 4.6.3.

```
+-----+  
| ACT00300 |  
+-----+
```

TEXT: #ACTMSTR NOT REGENERATED BY LATEST MAGRUN DUE TO ERROR. CORRECT AND RESUBMIT MAGRUN BEFORE RESTARTING THE DAILY.

TYPE: Error

REASON: Errors that would not allow the regeneration of #ACTMSTR were detected in the MAGRUN.

ACTION: Scan MICSLOG for any errors. Correct the errors by following the instructions for each error message in this appendix. When all errors have been corrected, resubmit the MAGRUN.

+-----+
| ACT00301 |
+-----+

TEXT: EMPTY #ACTMSTR GENERATED BECAUSE THE RATE TABLE
 DID NOT HAVE ANY SELECTED JOURNAL FILES. NO
 JOURNAL FILES WILL BE CREATED DURING DAILY
 PROCESSING FOR THIS UNIT.

TYPE: Error

REASON: All journal files in the rate table are marked
 EXCLUDED.

ACTION: Use MWF 4;2;3;6 to select at least one journal
 file in the rate table. You can use MWF
 4;2;3;10 to specify ACCOUNTING INACTIVE.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
 Section 4.3.1.1.

+-----+
| ACT01001 |
+-----+

TEXT: NOTE: INPUT LISTING OF _____.

TYPE: Information

REASON: A listing of the table or other data identified
 in the message is being written to the MICSLOG
 for informational purposes. This message is
 followed by one or more ACT01002 messages that
 list the actual data records.

ACTION: None

REFERENCES: MICSLOG message ACT01002.

+-----+
| ACT01002 |
+-----+

TEXT: _____

TYPE: Information

REASON: This message is used with message ACT01001 to create a listing of data for informational purposes. The text of this message is the actual data being listed.

REFERENCES: MICSLOG message ACT01001.

\$SCOL

```
+-----+  
| ACT01003 |  
+-----+
```

TEXT: KEYWORD NOT RECOGNIZED. KEYWORD=_____.

TYPE: Error

REASON: The keyword identified in the message is not a valid keyword for this process.

ACTION: The valid keywords for this job are:

COSTCTR1	COSTCTR6	BILLDATE	TOBILLDT
COSTCTR2	COSTCTR7	COMPCODE	WORKAREA
COSTCTR3	COSTCTR8	FRBILLDT	WORKUNIT
COSTCTR4	COSTCTR9	INVCCAT	ZONE
COSTCTR5		SYSID	

ACTION: Correct the error and resubmit the job.

REFERENCES: MICSLOG messages ACT01004, ACT01018, and ACT01019.

```
+-----+  
| ACT01004 |  
+-----+
```

TEXT: NO VALUE SPECIFIED WITH A KEYWORD OF _____.

TYPE: Error

REASON: The keyword shown in the message text identifies a data item, such as a cost center or date, for which information was to be selected and reported on. However, data could not be selected because no value was given for the data item.

ACTION: Provide the value for the data item and resubmit the job. You can use the CA MICS Workstation Facility (MMF) to do this.

REFERENCES: MICSLOG messages ACT01003, ACT01018, and ACT01019.

\$SCOL

```
+-----+  
| ACT01005 |  
+-----+
```

TEXT: NOTE: DEFAULT SYSPARM VALUES ARE IN EFFECT.
ZERO CHARGES WILL NOT BE PRINTED.
THE AUDIT FILE WILL BE PRINTED.

TYPE: Warning

REASON: No SYSPARM information was provided. The report program will use the audit tape as the default file and will not print zero charge values on the report.

ACTION: None

REFERENCES: None

```
+-----+  
| ACT01006 |  
+-----+
```

TEXT: THE INDICATED FILE IS EMPTY _____.

TYPE: Error

REASON: The file named in the message text is empty.

ACTION: Find the file named in the message in the list below and take the action for that file.

ACTINPUT Identifies a file of user-supplied data used as input for the standard and recurring debits or credits, budget amounts, or cost center attributes. Determine the type of run being made and supply the appropriate data.

ACTJxxxx Identifies a journal file that contains no observations. This message appears in conjunction with message ACT01030. See message ACT01030.

ACTAUDIT Identifies an audit tape used as input to the audit report. There were no records in the tape file. Use the correct tape and rerun the job.

BUDGTPRO Supply the budget projection parameters and rerun the job.

COSTREC Supply the cost reconciliation data and rerun the job.

RATE SIMULATION Identifies an audit tape used as input to the audit report. There were no records in the tape file. Use the correct tape and rerun the job.

ZEROBAL Supply the zero balance parameters and rerun the job.

ZERO BALANCE ADJUSTMENTS There were no adjustments in this file. Check the zero balance parameters in the sharedprefix.MICS.PARMS member ZEROBAL. Ensure that both the zero balance method and target amount are correctly specified.

REFERENCES: CA MICS Accounting and Chargeback User Guide:

- Section 6.5.1.3 discusses the Audit Reports.
- Section 6.3.5 discusses the Cost Reconciliation Report.
- Section 6.1.1.4 discusses the Zero Balance Report.

\$SCOL

```
+-----+  
| ACT01007 |  
+-----+
```

TEXT: _____ PROCESSING STARTED.

TYPE: Information

REASON: This message indicates that all preliminary
parameter checking is complete and that the
processing of data has begun.

ACTION: None

REFERENCES: None

+-----+
| ACT01008 |
+-----+

TEXT: INSUFFICIENT INPUT DATA SPECIFY _____.

TYPE: Error

REASON: The input data provided to the program could not
be processed. One or more data items were
omitted or incorrectly specified.

ACTION: This message is used to list the contents of the
erroneous input record. Message ACT01020 is
printed in conjunction with this message.
Message ACT01020 identifies the data item for
which information was incorrect or not provided.

REFERENCES: MICSLOG message ACT01020.

+-----+
| ACT01009 |
+-----+

TEXT: NOTE: END OF INPUT DATA, _____ FILE WILL BE
UPDATED.

TYPE: Information

REASON: The input data to the job was verified and the
file identified in the message will be updated
with the verified data.

ACTION: None

REFERENCES: None

```
+-----+  
| ACT01012 |  
+-----+
```

TEXT: SYSPARM VALUE MUST BE _____.

TYPE: Error

REASON: The SYSPARM for the job was specified incorrectly.

ACTION: The value 'ACT01-99' in the message text indicates that the SYSPARM in the JCL for the cost reconciliation job was specified incorrectly. The parameter ACTxx, where xx is a number in the range of 01 to 99, indicates the number of cycles of the Financial Recap File that are to be included as input to the report. Use the CA MICS Workstation Facility to correct the SYSPARM and to resubmit the job.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 6.3.5.

```
+-----+  
| ACT01013 |  
+-----+
```

TEXT: A COMBINATION OF TWO INPUT TYPES IS INVALID.

TYPE: Error

REASON: More than one reporting method was requested.

ACTION: Use MWF to specify either the TOTAL, INVCCAT, or COMPCODE method of reporting. You can also use MWF to resubmit the job.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 6.3.5, Cost Reconciliation Report Section 6.1.1.4, Zero Balance Report.

\$SCOL

+-----+
| ACT01014 |
+-----+

TEXT: INVALID INPUT PARAMETER TO THE REPORT WAS
 SPECIFIED. VALID TYPES ARE: TOTAL, INVCCAT, OR
 COMPCODE.

TYPE: Error

REASON: An invalid reporting method was requested.

ACTION: Use MWF to correct the method being requested
 and to resubmit the job.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
 Section 6.3.5, Cost Reconciliation Report
 Section 6.1.1.4, Zero Balance Report.

+-----+
| ACT01015 |
+-----+

TEXT: INV, CPC, RAT ARRAY SIZES EXCEEDED.

TYPE: Error

REASON: The invoice category, computation code, and rate
 array sizes have been exceeded.

ACTION: Contact CA Technical Support.

REFERENCES: None

\$SCOL

+-----+
| ACT01016 |
+-----+

TEXT: COST CENTER ATTRIBUTES FILE IS NOT INITIALIZED.
 CHECK THE ACCOUNTING & CHARGEBACK INSTALLATION
 PROCEDURES.

TYPE: Error

REASON: The Cost Center Attributes File is used to
 define cost centers to CA MICS. A minimum of one
 entry must be made to the file. The file

contains descriptive information about the cost center, which includes the name and address of the cost center, its billing status, invoice format, and discounting data.

ACTION: Use MWF to set up the cost center attributes.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Sections 4.1 through 4.1.6.

+-----+
| ACT01017 |
+-----+

TEXT: THE REVENUE/CREDIT TREND REPORT WILL HAVE TO BE MODIFIED. THE SPECIAL ACCOUNTING CALENDAR IS NOT SUPPORTED IN THIS REPORT.

TYPE: Error

REASON: The Revenue/Credit Trend Report program detected an accounting calendar with more than 13 months.

ACTION: Modify the report program in order to use this special accounting calendar.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 6.3.2.6.

+-----+
| ACT01018 |
+-----+

TEXT: SYSID IS > 4 CHARACTERS IN LENGTH. SYSID=___.

TYPE: Error

REASON: The value for SYSID, shown in the message text, is greater than four characters in length.

ACTION: Correct the value of the SYSID in the SYSID selection record. The SYSID selection record is found in the SELECTIN input file of the job. Resubmit the job after correcting the SYSID.

REFERENCES: MICSLOG messages ACT01003, ACT01004, and ACT01019.

+-----+
| ACT01019 |
+-----+

TEXT: SELECTIN DEFINITION IS IN ERROR. CORRECT THE
ERROR AND RUN AGAIN.

TYPE: Error

REASON: Errors were detected in one or more of the
control records for the selection of data to be
used for reporting.

ACTION: This message will appear in conjunction with
messages ACT01003, ACT01004, and/or ACT01018.
See these messages for the identification and
correction of the specific errors encountered.

REFERENCES: MICSLOG messages ACT01003, ACT01004, and
ACT01018.

+-----+
| ACT01020 |
+-----+

TEXT: INSUFFICIENT INFORMATION SPECIFIED FOR UPDATE OF
-----.

TYPE: Error

REASON: This message identifies the data item that
could not be updated because either it was
incorrectly specified or it was not provided.

ACTION: This message appears in conjunction with one or
more ACT01008 messages. The ACT01008 messages
list the data items from the record in error.
Correct the erroneous data item and resubmit the
job.

REFERENCES: MICSLOG message ACT01008.

+-----+
| ACT01021 |
+-----+

TEXT: POSSIBLE ERRORS IN INVOICE. CHECK SAS LOG FOR SPECIFIC MESSAGES.

TYPE: Error

REASON: Errors were detected while creating the invoices. An error flag was set and processing continued until all data was processed. Once all data was processed, the job was terminated with a USER 0998 abend code.

ACTION: Check the SAS Log for errors. Correct the errors and rerun the job.

REFERENCES: None

+-----+
| ACT01022 |
+-----+

TEXT: ALLOCATION FAILED FOR DATASET _____.
ERROR CODE- _____, INFO_CD-_____.

TYPE: Error

REASON: The dynamic allocation failed for the data set identified in the message.

ACTION: The error codes and information reason codes are displayed on the SAS Log. See the SAS Log for more information on the failure.

REFERENCES: None

+-----+
| ACT01023 |
+-----+

TEXT: ACT COMPONENT ACTIVE IN _____ UNIT.
ALLOCATION COMPLETED FOR DATASET- _____.
ALLOCATION TO DDNAME- _____.

TYPE: Information

REASON: This is an informational message that indicates that accounting is active in the unit shown in

the message and that the dynamic allocation of the data set, also identified in the message, was successful.

ACTION: None

REFERENCES: None

```
+-----+  
| ACT01024 |  
+-----+
```

TEXT: ACT COMPONENT NOT ACTIVE IN _____ UNIT.

TYPE: Warning

REASON: CA MICS Accounting and Chargeback has not been activated in the unit identified in the message.

ACTION: Ensure that the job is pointing to the correct unit. If it is not, correct the JCL and rerun the job. If it is, turn on Accounting and Chargeback by specifying a value of "ACCOUNTING ACTIVE" in the prefix.MICS.PARMS(EXECDEF) member. Activation can be done using MWF.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 2.3.1.

```
+-----+  
| ACT01025 |  
+-----+
```

TEXT: NO UNITS ARE TEST, UNIT OR PRIMARY.
CHECK THE #CPLXLST MEMBER.

TYPE: Error

REASON: No units have been defined as UNIT, TEST, or PRIMARY for this complex.

ACTION: The #CPLXLST member of sharedprefix.MICS.SOURCE contains no units defined as PRIMARY, UNIT, or TEST. The units are defined at the time of installation. Using the reference below, properly define the units.

REFERENCES: PIOM, Section 2.3.1.4.3, which indicates additional references.

```
+-----+  
| ACT01026 |  
+-----+
```

TEXT: UNABLE TO PARSE ACTACCT MACRO.

TYPE: Error

REASON: The values obtained by parsing the ACTACCT macro were invalid.

ACTION: Check the ACTACCT macro as generated in the sharedprefix.MICS.MACAUTOS library to determine that the parameter specifications contained in the macro are correct. If you are in doubt as to the contents of the ACTACCT macro, contact CA Technical Support for assistance.

REFERENCES: None

```
+-----+  
| ACT01027 |  
+-----+
```

TEXT: COSTCTR LEVEL NOT BETWEEN 1 AND 9. COSTCTR1 ASSUMED.

TYPE: Warning

REASON: The cost reconciliation cost center level was not specified or it was specified incorrectly as part of the input TOTAL parameter record. A cost center level of one is assumed.

ACTION: None, if cost center one is the desired level. If it is not, use the CA MICS Workstation Facility to correct the TOTALn keyword, where n represents cost center level 1-9. Then resubmit the job.

REFERENCES: Refer to the online tutorial for the Cost Reconciliation Parameters panel (MWF;4;2;2;2;4;1).

\$SCOL

+-----+
| ACT01028 |
+-----+

TEXT: REPORTKEY HAS INVALID VALUE _____. SUBSTITUTED-
DEFAULT, CORRECT AND RERUN.

TYPE: Error

REASON: The GROUP2 value on the REPORTKEY control
statement for the Generalized High Level Report
contains a value other than COSTCTR1-9, SYSID,
or EXTERNAL. The invalid value is shown in the
message.

ACTION: Use the online facilities of MWF to correct and
resubmit the report.

REFERENCES: None

+-----+
| ACT01029 |
+-----+

TEXT: REPORTKEY HAS INVALID VALUE- _____.
SUBSTITUTED- COSTCTR1, CORRECT AND RERUN.

TYPE: Error

REASON: The GROUP1 value on the REPORTKEY control
statement for the Generalized High Level Report
contains a value other than COSTCTR1-9 or SYSID.
The invalid value is shown in the message.

ACTION: Use the online facilities of MWF to correct and
resubmit the report job.

REFERENCES: None

+-----+
| ACT01030 |
+-----+

TEXT: JOURNAL FILE _____ EXISTS IN THE CA MICS DATA
BASE, BUT DOES NOT CONTAIN ANY OBSERVATIONS.

TYPE: Error

REASON: The journal file identified in the message text was found but there were no observations in the file.

ACTION: Determine whether the file accessed is the one desired. If it is, then determine the cause of the missing observations and correct the file before attempting to rerun this job. If the wrong file was accessed, change the SYSPARM parameters in the JCL and resubmit the job.

REFERENCES: None

```
+-----+  
| ACT01031 |  
+-----+
```

TEXT: JOURNAL FILE _____ DOES NOT EXIST IN THE
CA MICS DATA BASE. REVIEW THE SYSPARM VALUE IN
THE JCL FOR A VALID 2 CHARACTER JOURNAL ID.

TYPE: Error

REASON: The database accessed does not contain the selected file.

ACTION: Determine which file should be accessed, change the SYSPARM of the JCL, and resubmit the job.

REFERENCES: None

```
+-----+  
| ACT02000 |  
+-----+
```

TEXT: NOTE: PROC MAACTCPY NOTE:
NOTE: ACTAUDT1 DSNAME IS _____.
NOTE: ACTAUDMN DSNAME IS _____.
NOTE: ACTAUDD1 DSNAME IS _____.
NOTE: ACTAUDD2 DSNAME IS _____.
NOTE: ACTAUDD2 DSNAME IS _____.

TYPE: Information

REASON: This message consists of two parts. The first

line indicates that the MAACTCPY procedure is being executed. The next four lines identify the data set names associated with each of the ddnames listed. Message ACT02001 is printed in conjunction with this message.

ACTION: None

REFERENCES: MICSLOG message ACT02001.

```
+-----+  
| ACT02001 |  
+-----+
```

TEXT: NOTE: _____ LINES WERE READ FROM INFILE
ACTAUDT1.
NOTE: _____ LINES WERE WRITTEN TO FILE ACTAUDD1.
NOTE: _____ LINES WERE WRITTEN TO FILE ACTAUDD2.
NOTE: _____ LINES WERE WRITTEN TO FILE ACTAUDMN.

TYPE: Information

REASON: This message shows the number of lines read from the ACTAUDT1 file and the number of lines written to the other files.

ACTION: The sum of the lines written to the ACTAUDD1 and the ACTAUDMN files should equal the number of lines read from the ACTAUDT1. The number of lines written to the ACTAUDD2 file should be the same as was written to the ACTAUDD1 file.

REFERENCES: MICSLOG message ACT02000.

```
+-----+  
| ACT02002 |  
+-----+
```

TEXT: END FILE ON FT15F001.

TYPE: Error

REASON: The program failed to dynamically produce the SAS code that was to be executed within this job step.

ACTION: Contact CA Technical Support.

REFERENCES: None

```
+-----+  
| ACT02003 |  
+-----+
```

TEXT: NUMBER OF BYTES READ = _____.

TYPE: Information

REASON: This message is produced by the MAACTCPY and the MAACTGNR procedures when an I/O error is encountered. The message indicates the number of bytes read from the file experiencing the I/O error.

ACTION: Determine the cause of the I/O error and correct it. Then rerun the abending step.

REFERENCES: None

```
+-----+  
| ACT02005 |  
+-----+
```

TEXT: NOTE: PROC MAACTGNR
NOTE: ACTAUDT1 DSNAME IS _____
NOTE: ACTAUDT2 DSNAME IS _____

TYPE: Information

REASON: The first line of this message indicates that the MAACTGNR procedure is being executed. The next two lines identify the data set names associated with the ddnames ACTAUDT1 and ACTAUDT2. Informational message ACT02006 will be displayed along with this message.

ACTION: None

REFERENCES: None

```
+-----+  
| ACT02006 |  
+-----+
```

TEXT: NOTE: _____ LINES WERE READ FROM INFILE
 ACTAUDT1
 NOTE: _____ LINES WERE WRITTEN TO FILE ACTAUDT2

TYPE: Information

REASON: This message lists the number of records read
 from the input file ACTAUDT1 and the number of
 records written to the output file ACTAUDT2.
 Message ACT02005 accompanies this message to
 identify the data set names associated with the
 ddnames ACTAUDT1 and ACTAUDT2.

ACTION: The number of records read and written should be
 the same.

REFERENCES: None

+-----+
| ACT02007 |
+-----+

TEXT: THE ACTDATE OPTION HAS BEEN CHANGED AND THE JCL
 HAS NOT BEEN UPDATED. REGENERATE THE MONTHLY,
 MONTHACT, YEARLY, AND YEARACT JOBS WITH JCLGENU.
 RESTART THIS JOB AFTER REGENERATION OF THE JCL.

TYPE: Error

REASON: The monthly split has detected that a change in
 the specification of the ACTDATE option has
 occurred without the required regeneration of
 the JCL for the MONTHLY, MONTHACT, YEARLY, and
 YEARACT jobs.

ACTION: Determine that the current specification for
 ACTDATE is correct. If it is correct, and the
 special accounting dates are requested, then
 regenerate the JCL for the jobs named in the
 message and restart the abending job in the same
 step. Also, read the references below and be
 sure to follow the instructions for the running
 of the MONTHACT job at the appropriate time.

 If the current ACTDATE specification is not
 correct, respecify the ACTDATE option and run
 the ACTXOPTS job. Restart the abending job in

the abending step.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Sections 4.6 through 4.6.1.

```
+-----+  
| ACT02200 |  
+-----+
```

TEXT: _____ NOT RECOGNIZED. ACCEPTED VALUES ARE:
"\$TABLE", "\$ADDLN", OR "\$MODLN"

TYPE: Error

REASON: The update type identified in the message is not
valid. The three valid update types are listed
in the message. A print of the error record
image immediately follows message ACT02200 on
the MICSLOG in message ACT02230.

ACTION: Contact CA Technical Support for assistance with
this error. Have the MICSLOG listing available
for reference when you call.

REFERENCES: MICSLOG message ACT02230.

SPECIAL NOTE FOR ALL ACT022xx MESSAGES:

The ACT022xx series of messages are produced by
an ISPF table maintenance utility used during
the apply of CA MICS Accounting and Chargeback
product changes. This utility uses the ACTTBUTL
member of the sharedprefix.MICS.SOURCE library.

A comment block at the beginning of the member
explains which ISPF tables it will update,
explains which update functions are available,
and describes the control statements used as
input to the utility. This information should
help you to understand some of the terminology
used in the messages, as well as the
functionality of the utility in general.

The control statements processed by the ACTTBUTL
utility are provided as part of the product
change. The control statements cause revision
or additions to your production ISPF tables for
CA MICS and should not normally create any

conflicts when you run the utility job. However, it is possible that someone in your data center might have created an invoice, credit category, or a charging element that might conflict with the provided updates and thus cause one of the ACT022xx error message conditions to exist.

The product change text, which accompanies the maintenance, will point out areas in which these conflicts might occur. The product change text will also contain specific instructions for changing or eliminating any of the control statements that might be causing the error. Therefore, you should be familiar with the product change text and have it available as a reference when attempting to resolve any of the ACT022xx error messages.

As always, in situations in which you are unsure of the action to be taken to resolve the error, or if the action you took did not resolve the error, contact CA Technical Support for assistance. When you call, have available for reference both the change text that you are using and all output from the job producing the error.

```
+-----+
| ACT02201 |
+-----+
```

TEXT: _____ NOT RECOGNIZED. "RENAME" WAS EXPECTED.

TYPE: Error

REASON: The type of update shown in the message is not valid. The program expected a rename instead. The record image of the statement causing the error is listed immediately after this message on the MICSLOG as message ACT02230.

ACTION: Contact CA Technical Support for assistance with this error. Have the MICSLOG listing available for reference when you call.

REFERENCES: MICSLOG message ACT02230.

See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

+-----+
| ACT02202 |
+-----+

TEXT: _____ NOT RECOGNIZED. "FORCE" WAS EXPECTED.

TYPE: Error

REASON: The requested update function was recognized by
the program. The program was expecting an
update type of FORCE. The entire update
record is shown in message ACT02230, which
immediately precedes this message on the
MICSLOG.

ACTION: Contact CA Technical Support for assistance.

REFERENCES: MICSLOG message ACT02230.

See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

+-----+
| ACT02203 |
+-----+

TEXT: CONTROL DATA SET CONTAINS INSUFFICIENT DATA.

TYPE: Error

REASON: There are no control records in the control data
set.

ACTION: Change the JCL for the job so that the control
records are available for processing. This may
mean inserting the records directly into the
job stream or changing the JCL to point to the
data set containing the control records.

REFERENCES: None

See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

```
+-----+  
| ACT02204 |  
+-----+
```

TEXT: MASTER TABLE _____ DOES NOT CONTAIN CONTROL
VARIABLE _____ WITH VALUE: _____

TYPE: Error

REASON: The master table, identified in the message,
does not contain an entry for the control
variable with the value as shown in the message.

ACTION: Contact CA Technical Support for assistance.

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

\$SCOL

```
+-----+  
| ACT02205 |  
+-----+
```

TEXT: CONTROL VARIABLE _____ IS ALREADY IN TABLE
_____ WITH VALUE: _____

TYPE: Error

REASON: The control variable and its indicated value
already exist in the identified user table.

ACTION: Contact CA Technical Support for assistance.

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

```
+-----+  
| ACT02206 |  
+-----+
```

TEXT: RENAME CONTROL VARIABLE _____ IS ALREADY IN
TABLE _____ WITH VALUE: _____

TYPE: Error

REASON: The control variable already exists in the

table. The table, the control variable, and the value of the control variable are shown in the message.

ACTION: Contact CA Technical Support for assistance.

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES in the reference section of message ACT02200.

+-----+
| ACT02207 |
+-----+

TEXT: \$ADDLN FAILED FOR CONTROL VARIABLE _____ WITH AN
ISPF CODE OF _____.

TYPE: Error

REASON: The \$ADDLN, add operation, failed for the named control variable with the ISPF return code shown in the message.

ACTION: An ISPF return code of 08 indicates that a row with the same key already exists in the table. See the product change text for possible instructions as to what to do in this situation. If there are no instructions in the product change text for this situation, or if you are unsure of what action to take, contact CA Technical Support for assistance with this or any other ISPF return codes.

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES in the reference section of message ACT02200.

+-----+
| ACT02208 |
+-----+

TEXT: TABLE _____ DOES NOT CONTAIN CONTROL VARIABLE
_____ WITH VALUE: _____.

TYPE: Error

REASON: The element is not in the table. The table and the control variable with its value are shown in the message.

ACTION: Contact CA Technical Support for assistance.

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

+-----+
| ACT02209 |
+-----+

TEXT: \$MODLN FAILED FOR CONTROL VARIABLE _____ BECAUSE
VALUE FOR ELEMENT _____ IS NOT AS EXPECTED.
SPECIFIED VALUE: _____ ACTUAL VALUE: _____

TYPE: Error

REASON: The element value in the update does not match
that found in the table. The control variable
and the element name are shown in the message,
along with the specified value of the element
name and the actual value found in the table.

ACTION: Contact CA Technical Support for assistance.

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

+-----+
| ACT02210 |
+-----+

TEXT: \$MODLN FAILED FOR CONTROL VARIABLE _____ WITH AN
ISPF CODE OF _____.

TYPE: Error.

REASON: The update for the control variable failed with
the ISPF return code shown in the message.

ACTION: An ISPF return code of 08 indicates that the
update statement key does not match the key in
the table. See the product change text for
possible instructions as to what to do in this
situation. If there are no instructions in the
product change text for this situation, or if
you are unsure of what action to take, contact
CA Technical Support for assistance with this or

any other ISPF return codes.

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

```
+-----+  
| ACT02211 |  
+-----+
```

TEXT: UPDATE FOR CONTROL VARIABLE _____ WILL "BE
FORCED BECAUSE VALUE FOR ELEMENT _____ IS NOT AS
EXPECTED. SPECIFIED VALUE: _____ ACTUAL
VALUE: _____

TYPE: Warning

REASON: The update for the indicated control variable
will be forced. The value of the element in the
table did not match the verification value found
in the update record. The verification value
and the actual value found in the table are
shown in the message.

ACTION: None

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

```
+-----+  
| ACT02213 |  
+-----+
```

TEXT: _____ IS NOT VALID. NO PRECEDING \$TABLE
STATEMENT HAS BEEN SPECIFIED.'

TYPE: Error

REASON: The update type indicated in the message is not
valid because a table control statement was not
present in the input. The entire record is
printed on the MICSLOG in message ACT02230,
which immediately precedes this message.

ACTION: Contact CA Technical Support for assistance with
this error. Have the MICSLOG listing available
for reference when you call.

REFERENCES: MICSLOG message ACT02230.

See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

+-----+
| ACT02214 |
+-----+

TEXT: _____ IS NOT VALID. NAMED TABLE _____
 WAS NOT SPECIFIED ON PRECEDING \$TABLE STATEMENT.

TYPE: Error

REASON: The update type indicated in the message is not
 valid because the table named in the message was
 not listed in the preceding table control
 statement. The entire record is printed on the
 MICSLOG in message ACT02230, which immediately
 precedes this message.

ACTION: Contact CA Technical Support for assistance with
 this error. Have the MICSLOG listing available
 for reference when you call.

REFERENCES: MICSLOG message ACT02230.

See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

+-----+
| ACT02215 |
+-----+

TEXT: _____ STATEMENT CONTAINS EXTRANEOUS
 INFORMATION. INFO IS _____.

TYPE: Error

REASON: The control statement contains more information
 than is required for an update of this type.
 The type of update and the "extra" information
 are shown in the message. Message ACT02230
 displays the entire control statement and is
 printed on the MICSLOG immediately before this
 message.

ACTION: Contact CA Technical Support for assistance with this error. Have the MICSLOG listing available for reference when you call.

REFERENCES: MICSLOG message ACT02230.

See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES in the reference section of message ACT02200.

```
+-----+  
| ACT02216 |  
+-----+
```

TEXT: SORT FAILED FOR TABLE _____. REASON FOLLOWS.

TYPE: Error

REASON: The sort failed for the table identified in the message. Message BAS00472 immediately follows this message and contains the return code to assist in resolving the problem.

ACTION: Contact CA Technical Support for assistance with this error. Have the MICSLOG listing available for reference when you call.

REFERENCES: MICSLOG message BAS00472.

See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES in the reference section of message ACT02200.

```
+-----+  
| ACT02220 |  
+-----+
```

TEXT: \$MODLN COMPLETED FOR CONTROL VARIABLE _____
WITH VALUE _____.

TYPE: Information

REASON: A table row, identified in the message by the control variable name and its value, was successfully scanned and was found to be free of errors. If all other updates for the table are error-free and this execution of the utility is not a test, the row will be added to the table.

ACTION: None

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

+-----+
| ACT02221 |
+-----+

TEXT: \$ADDLN COMPLETED FOR CONTROL VARIABLE _____
WITH VALUE: _____

TYPE: Information

REASON: An add statement for the table row, identified
in the message by the control variable name and
its value, was successfully scanned and was
found to be free of errors. If all other
updates for the table are error-free and this
execution of the utility is not a test, the row
will be added to the table.

ACTION: None

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

+-----+
| ACT02222 |
+-----+

TEXT: TEST OPTION SPECIFIED. NO UPDATES WILL BE
PERFORMED.

TYPE: Information

REASON: The TEST option allows the updates to be scanned
for errors but does not allow the updates to the
tables to be made. This allows new updates to
be checked out without jeopardizing the tables.

ACTION: No action is required for this message.
However, the MICSLOG should be reviewed for any
other errors or messages pertaining to the
updates.

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES
in the reference section of message ACT02200.

```
+-----+  
| ACT02223 |  
+-----+
```

TEXT: _____ SUCCESSFULLY UPDATED.

TYPE: Information

REASON: The table identified in the message was
 successfully updated.

ACTION: None

REFERENCES: None

```
+-----+  
| ACT02224 |  
+-----+
```

TEXT: _____ TO BE PROCESSED FOR UPDATE.

TYPE: Information

REASON: The updates for the table identified in the
 message have been processed and the table will
 now be updated.

ACTION: None

REFERENCES: None

\$SCOL

```
+-----+  
| ACT02225 |  
+-----+
```

TEXT: ACCOUNTING TABLE MAINTENANCE UTILITY

TYPE: Information

REASON: This is an informational message that indicates
 that the accounting table maintenance utility
 program is being executed. This message also
 acts as a header to help identify any messages

that follow as being issued by the ACTTBUTL program.

ACTION: None for this message. Carefully review any messages that follow it.

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES in the reference section of message ACT02200.

+-----+
| ACT02230 |
+-----+

TEXT: CONTROL STMT - _____.

TYPE: Information

REASON: This message lists the input control statement that is being processed. Any errors pertaining to the statement will be listed as a separate message following this one.

ACTION: None, for this message. See the error message immediately following this one.

REFERENCES: MICSLOG messages ACT02200, ACT02201, ACT02202, ACT02213, ACT02214, and ACT02215.

See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES in the reference section of message ACT02200.

+-----+
| ACT02233 |
+-----+

TEXT: ERRORS ENCOUNTERED. ABEND 998 ISSUED. NO TABLE UPDATES PERFORMED. CORRECT ERRORS AND RERUN.

TYPE: Error

REASON: The Accounting Table Maintenance Utility program does not allow the production tables to be updated unless the entire file of updates is found to be free of errors. If any errors are detected in the update records, the utility terminates abnormally with a user abend 998.

ACTION: Correct the errors identified on the MICSLOG and rerun the job.

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES in the reference section of message ACT02200.

+-----+
| ACT02234 |
+-----+

TEXT: NO \$TABLE CONTROL STATEMENT FOUND. ABORT ABEND.

TYPE: Error

REASON: The Accounting Table Maintenance Utility program does not allow the update to run unless a \$TABLES control statement is present in the SYSIN.

ACTION: Correct the errors identified on the MICSLOG and rerun the job.

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES in the reference section of message ACT02200.

+-----+
| ACT02235 |
+-----+

TEXT: INVALID TABLE ____ IN \$TABLES STATEMENT. ABORT ABEND.

TYPE: Error

REASON: The Accounting Table Maintenance Utility program does not allow the update to run unless a \$TABLES control statement has one of the valid tables names in SYSIN.

ACTION: Correct the errors identified on the MICSLOG and rerun the job.

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES in the reference section of message ACT02200.

+-----+

| ACT02236 |

+-----+

TEXT: UNKNOWN TABLE NAME _____ FOUND. ABORT ABEND.

TYPE: Error

REASON: The Accounting Table Maintenance Utility program does not allow the update to run unless a \$TABLES control statement has one of the valid tables names in SYSIN.

ACTION: Correct the errors identified on the MICSLOG and rerun the job.

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES in the reference section of message ACT02200.

+-----+

| ACT02237 |

+-----+

TEXT: ACT_____ UPDATE COMPLETED FOR TABLE _____.
_____ ROWS ADDED. _____ ROWS MODIFIED.

TYPE: Information

REASON: The Accounting Table Maintenance Utility program will use the completed table update message to indicate that the update completed successfully.

ACTION: None

REFERENCES: See the SPECIAL NOTE FOR ALL ACT022xx MESSAGES in the reference section of message ACT02200.

+-----+

| ACT02238 |

+-----+

TEXT: INPUT PERCENT VALUE IS INVALID FOR -- _____.
VALUE. IS NOT BETWEEN 0-100. VALUE IS
_____.

TYPE: Error

REASON: The percent values in the input records are not

in the 0 to 100 range.

ACTION: Validate the input record percentages. If the prorating utility is being used for the first time, ensure that the prorating input routine is coded correctly.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 4.15.2.

+-----+
| ACT02239 |
+-----+

TEXT: PRORATE TOTALS FOR COST CENTER--_____. DO NOT SUM TO 100. ACTUAL SUM IS _____.

TYPE: Error

REASON: The percent values in the input records do not add up to 100 percent for the indicated cost center.

ACTION: Validate the input record percentages. If the prorating utility is being used for the first time, ensure that the prorating input routine is coded correctly.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 4.15.2.

+-----+
| ACT02240 |
+-----+

TEXT: A DUPLICATE _____ HAS BEEN ENCOUNTERED. THE DUPLICATE HAS BEEN DROPPED. VALUE IS _____.

TYPE: Information

REASON: The COSTCTR1 value is associated with multiple cost center groups. It can only be in one group.

ACTION: Validate the input record COSTCTR1 values. If this utility is being used for the first time, ensure that the utility input routine is coded

correctly.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 4.15.2.

+-----+
| ACT02241 |
+-----+

TEXT: UPDATE COMPLETED FOR TABLE _name_ _number_ ROWS
ADDED.'

TYPE: Information

REASON: The table named has been successfully updated.

ACTION: None

REFERENCES: None

+-----+
| ACT02242 |
+-----+

TEXT: OPEN SUCCESSFUL FOR TABLE _name_

TYPE: Information

REASON: The CA MICS dialog processor has opened the
named table for input or update.

ACTION: None

REFERENCES: None

+-----+
| ACT02243 |
+-----+

TEXT: TABLE _name_ NOT FOUND.'

TYPE: Information

REASON: The table named could not be found in
sharedprefix.MICS.ISPTLIB. This message is
issued when a cost center validation table is

not found. The last character of the table named is the cost center level of the validation values.

ACTION: None, unless a validation table has been created for this cost center level. In this case, contact CA Technical Support.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 4.15.2.

+-----+
| ACT02244 |
+-----+

TEXT: INVOICE FORMAT _format_ SPECIFIED FOR COSTCTR1
cost center value NOT FOUND IN ACTIVF01 FILE.
ABORT ISSUED.

TYPE: Error

REASON: The Cost Center Attributes entry for a cost center with the COSTCTR1 value shown in the message specifies the name of a format that has not been defined.

ACTION: Define the format name via the Accounting Options Invoice Formats panel.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Sections 4.5.2 through 4.5.2.4.

+-----+
| ACT02248 |
+-----+

TEXT: RETROFIT OF YTD FILE TO CURRENT INVOICE LEVELS
COMPLETED SUCCESSFULLY.

TYPE: Information

REASON: The ACTYTDRF job successfully completed the retrofit of the year-to-date Financial Recap File.

ACTION: None

REFERENCES: None

```
+-----+  
| ACT02249 |  
+-----+
```

TEXT: %OLDMOD IS OBSOLETE. USE MWF;4;2;1 TO
UPDATE THE ISPF DATA TABLE ONLINE AND RUN THE
GEN. OR YOU CAN USE THE BATCH UPDATE UTILITY
TO UPDATE THE SAS FILE AND ISPF DATA TABLE.

TYPE: Error

REASON: The module named is no longer supported.

ACTION: Use the specified job to update the ISPF table.

REFERENCES: None

```
+-----+  
| ACT02250 |  
+-----+
```

TEXT: INVALID VALUE FOR _cost center level_ = _value_
UPDATE WILL BE ABENDED. USE MWF;4;2;3;1;4 TO
UPDATE THE COST CENTER VALIDATION TABLE.

TYPE: Error

REASON: You have attempted to update the Applications
Database files with a COSTCTRn value that is
not contained in the cost center validation
table for the cost center level specified in the
message.

ACTION: Either change the cost center validation table
to include the cost center values that are in
your update data, or edit your update data prior
to attempting the update.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 4.1.6.

```
+-----+  
| ACT02252 |  
+-----+
```

+-----+

TEXT: MONTHS LEDGER FILES ACTLGR01 FOR ALL UNITS
ARE EMPTY. CHECK THAT CA MICS MONTHLY RAN
CORRECTLY IN ALL ACCOUNTING AND CHARGEBACK
UNITS.

TYPE: Warning

REASON: None

ACTION: Check that CA MICS monthly ran correctly in
all Accounting and Chargeback units.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 5.2.

+-----+

| ACT02253 |

+-----+

TEXT: MONTHS LEDGER FILES ACTLGR01 AND STANDARD
DEBIT FILE ACTSDT01 ARE EMPTY. ABORT ISSUED.

TYPE: Error

REASON: There are no observations in the ledger and
debit files.

ACTION: Check that CA MICS monthly and the table
update ran correctly in all Accounting and
Chargeback units.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 5.2.

+-----+

| ACT02254 |

+-----+

TEXT: ACCOUNTING ADJUSTMENT TABLE LOAD STARTED

TYPE: Information

REASON: This message indicates that all preliminary
parameter checking is complete and that the
adjustment table loading has begun.

ACTION: None

REFERENCE: None

```
+-----+  
| ACT02255 |  
+-----+
```

TEXT: VALIDATION ERROR FOR INPUT RECORD _____

TYPE: Error

REASON: The input record _____ should have the value D or C for ADJDBCR, and S or R for ADJENTRY. Both quantity and rate are required if the amount is missing. Predefined or valid COMPUTATION CODE, INVOICE CATEGORY, and CREDIT CATEGORY values must be used.

ACTION: Correct all flagged errors and resubmit.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 1.2.

\$SCOL

```
+-----+  
| ACT02256 |  
+-----+
```

TEXT: RECORD _____ NOT ADDED BECAUSE OF PREVIOUS ERRORS.

TYPE: Error

REASON: Previously flagged errors in the control stream resulted in the termination of this run.

ACTION: Correct all flagged errors and resubmit.

REFERENCES: A print of the error record image immediately follows message ACT02255 on the MICSLOG.

```
+-----+  
| ACT02257 |  
+-----+
```

TEXT: INPUT RECORD VALIDATION COMPLETED
RECORDS INPUT=____, RECORDS ACCEPTED=____

TYPE: Information

REASON: This number of records were validated and
accepted from the adjustment table.

ACTION: None

REFERENCE: None

+-----+
| ACT02258 |
+-----+

TEXT: UPDATE COMPLETE FOR TABLE _____ REPLACE
FUNCTION STARTED WITH _____ ROWS ADJDBCR
DELETE CRITERIA=(_ _) ADJENTRY DELETE
CRITERIA=(_ _) ____ ROWS WERE DELETED FROM THE
TABLE'

TYPE: Information

REASON: None

ACTION: None

REFERENCES: None

+-----+
| ACT02259 |
+-----+

TEXT: INVALID PARAMETER(S) PASSED TO ACTJADJO MACRO
%MSG1
%MSG2
%MSG3
ADJUSTMENT TABLE LOAD PROCESS ABORTED

TYPE: Error

REASON: An incorrect parameter value was specified to
update the adjustment table.

ACTION: Correct the error and resubmit the job.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 4.15.

+-----+
| ACT02265 |
+-----+

TEXT: SYSID is not defined for Linux input file.

TYPE: Error

REASON: SYSID is not specified in
prefix.MICS.PARMS(LINUXP). SYSID must be four
characters in length.

ACTION: Review and correct the SYSID specification in
members LINUXP of prefix.MICS.PARMS and rerun
MAGRUN.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 2.3.4.1.

+-----+
| ACT02266 |
+-----+

TEXT: SYSID is greater than four characters in length

TYPE: Error

REASON: SYSID in prefix.MICS.PARMS(LINUXP) must be four
characters in length.

ACTION: Review and correct the SYSID specification in
member LINUXP of prefix.MICS.PARMS and rerun
MAGRUN.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 2.3.4.1.

+-----+
| ACT02267 |
+-----+

TEXT: DSN IS GREATER THAN 44 CHARACTERS IN LENGTH.

TYPE: Error

REASON: DSN in prefix.MICS.PARMS(LINUXP) must be 44 characters in length or less.

ACTION: Review and correct the DSN specification in member LINUXP of prefix.MICS.PARMS, and rerun MAGRUN.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 2.3.4.1.

+-----+
| ACT02268 |
+-----+

TEXT: DDNAME is greater than 8 characters in length.

TYPE: Warning

REASON: The ddname in prefix.MICS.PARMS(LINUXP) must be 8 characters in length or less.

ACTION: Review and correct the ddname specification in member LINUXP of prefix.MICS.PARMS, and rerun MAGRUN.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 2.3.4.1.

+-----+
| ACT02269 |
+-----+

TEXT: Global must be PLATFORM and/or TIMESHIFT.

TYPE: Error

REASON: Global option in prefix.MICS.PARMS(LINUXP) must be PLATFORM and/or TIMESHIFT.

ACTION: Review and correct the global specification in member LINUXP of prefix.MICS.PARMS, and rerun MAGRUN.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 2.3.4.1.

+-----+
| ACT02270 |
+-----+

TEXT: Global Platform must be I or M

TYPE: Error

REASON: Global Platform option in
prefix.MICS.PARMS(LINUXP) must be PLATFORM
and/or TIMESHIFT.

ACTION: Review and correct the global specification in
member LINUXP of prefix.MICS.PARMS, and rerun
MAGRUN.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 2.3.4.1.

+-----+
| ACT02271 |
+-----+

TEXT: TIMESHIFT must be between -12 and 12 hours

TYPE: Error

REASON: TIMESHIFT option in prefix.MICS.PARMS(LINUXP)
must be between -12 and 12 hours.

ACTION: Review and correct the TIMESHIFT specification
in member LINUXP of prefix.MICS.PARMS, and rerun
MAGRUN.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 2.3.4.1.

+-----+
| ACT02272 |
+-----+

TEXT: Fourth or fifth DD statement keyword
must be P= or T=.
Correct the statement specification in
prefix.MICS.PARMS(LINUXP) and rerun the MAGRUN.

TYPE: Error

REASON: Fourth or fifth DD statement in
prefix.MICS.PARMS(LINUXP) must be P= or T=.

ACTION: Review and correct the TIMESHIFT or the PLATFORM
specification in member LINUXP of
prefix.MICS.PARMS, and rerun MAGRUN.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 2.3.4.1.

+-----+
| ACT02273 |
+-----+

TEXT: Multiple PLATFORM/TIMESHIFT settings on same DD
Correct the statement specification in
prefix.MICS.PARMS(LINUXP) and rerun the MAGRUN.

TYPE: Error

REASON: Only one PLATFORM and TIMESHIFT setting can be
specified for each input data set.

ACTION: Review and correct the TIMESHIFT or the PLATFORM
specification in member LINUXP of
prefix.MICS.PARMS, and rerun MAGRUN.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 2.3.4.1.

+-----+
| ACT02274 |
+-----+

TEXT: Duplicate DDNAME or DSN or SYSID found.
Correct the statement specification in
prefix.MICS.PARMS(LINUXP) and rerun the MAGRUN.

TYPE: Error

REASON: Duplicate ddname, DSN, or SYSID STATEMENTS were
specified in member LINUXP of prefix.MICS.PARMS,
and rerun MAGRUN.

ACTION: Review and correct the duplicate ddname or DSN
or SYSID value in member LINUXP of

prefix.MICS.PARMS, and rerun MAGRUN.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 2.3.4.1.

+-----+
| ACT03000 |
+-----+

TEXT: ACTUALLO macro invoked with the following
parameters:
UNITS=_____ LIBS=_____
REALLOC=_____ FM TSR=_____ DB=_____
DBDISP=_____ EXIT=_____ FREE=_____
DBLIST=_____

TYPE: Information

REASON: None

ACTION: None

REFERENCES: None

+-----+
| ACT03001 |
+-----+

TEXT: ACTUALLO macro could not find any units with
Accounting installed. ACTUALLO is abending

TYPE: Error

REASON: This message lists the database unit ID,
database name, and database type.

ACTION: Check prefix.MICS.PARMS JCLDEF member for list
of components.

REFERENCES: Section 2.3.3.2.1 in the PIOM.

+-----+
| ACT03002 |
+-----+

+-----+

TEXT: ACTUALL0 macro will allocate the following
unit(s):

TYPE: Information

REASON: This informational message lists the database
unit IDs.

ACTION: None

REFERENCES: None

+-----+

| ACT03003 |

+-----+

TEXT: %ID(%NAME/%TYPE)

TYPE: Information

REASON: This informational message lists the database
unit IDs, database name, and database type.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 5.

+-----+

| ACT03004 |

+-----+

TEXT: ACTUALL0 allocated DDN=_____
DSN=_____

TYPE: Information

REASON: This informational message lists the allocated
ddnames and each allocated unit's data set name.

ACTION: None

REFERENCES: None

+-----+
| ACT03005 |
+-----+

TEXT: ACTUALLO freed DDN=_____

TYPE: Information

REASON: This informational message lists the ddnames
that are no longer allocated.

ACTION: None

REFERENCES: None

+-----+
| ACT03010 |
+-----+

TEXT: ACTCTCUP macro starting execution Checkpoint
function=_____ Checkpoint
Year/Month=_____/_____ Current
Year/Month=_____/_____

TYPE: Information

REASON: None

ACTION: None

REFERENCES: None

+-----+
| ACT03011 |
+-----+

TEXT: CLOSETBL has already been successfully executed
in the current accounting period.
ACTCTCUP macro aborting.

TYPE: Error

REASON: The CLOSETBL job runs only once during an
accounting period because it ages the files in
the application database.

ACTION: CLOSETBL can be resubmitted after correcting the problem, without running the RSTRBLS or the RSTRLIB job, unless the CLOSETBL job abends during the aging process. In that case, you must first run the RSTRBLS job as described above, and then resubmit the CLOSETBL job.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 5.2.

+-----+
| ACT03012 |
+-----+

TEXT: _____ completed successfully

TYPE: Information

REASON: The identified process completed successfully.

ACTION: None

REFERENCES: None

+-----+
| ACT03013 |
+-----+

TEXT: CLOSETBL did not successfully complete in the previous accounting period.

TYPE: Error

REASON: The CLOSETBL status in ACTCTC01 file is showing incomplete, due to an error from the previous run.

ACTION: Contact CA Technical Support for assistance with this error. Have the MICSLOG listing available for reference when you call.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 5.2.

+-----+
| ACT03019 |
+-----+

TEXT: ACTCTCUP macro successfully completed

TYPE: Information

REASON: The message indicates that the macro ACTCTCUP
was invoked and completed successfully.

ACTION: None

REFERENCES: None

+-----+
| ACT03032 |
+-----+

TEXT: _____ has been run in the current accounting
period.

TYPE: Information

REASON: The identified task has been run in the current
accounting period.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 5.2.

+-----+
| ACT03033 |
+-----+

TEXT: _____ has not been run in the current
accounting period

TYPE: Information

REASON: The identified task has not run in the current
accounting period.

ACTION: Run the identified task.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 5.2.

+-----+
| ACT03034 |
+-----+

TEXT: _____ input is ____.

TYPE: Informational

REASON: The message indicates the type of input used for
this job.

ACTION: None

REFERENCES: None

+-----+
| ACT03035 |
+-----+

TEXT: ____ will be prorated.

TYPE: Informational

REASON: This message lists the type of input file that
is prorated. Message ACT03034 accompanies this
message to identify the input file.

ACTION: None

REFERENCES: MICSLOG message ACT03034
CA MICS Accounting and Chargeback User Guide,
Section 4.8.

+-----+
| ACT03036 |
+-----+

TEXT: YTD _____ input is ____.

TYPE: Informational

REASON: The message indicates the type of input used for

year-to-date.

ACTION: None

REFERENCES: None

+-----+
| ACT03037 |
+-----+

TEXT: Ledger file _____ in _____ does not contain
any observations.

TYPE: Warning

REASON: The ledger file identified in the message text
is empty.

ACTION: Check that CA MICS monthly ran correctly in
all Accounting and Chargeback units.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 5.1 and 5.2.

+-----+
| ACT03038 |
+-----+

TEXT: Ledger file _____ does not exist in _____.

TYPE: Error

REASON: This ledger file does not exist in the
indicated ddname. Message ACT03039 accompanies
this message to identify the database unit ID.

ACTION: Check that CA MICS monthly ran correctly in
all Accounting and Chargeback units.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 5.1 and 5.2.

+-----+
| ACT03039 |
+-----+

TEXT: Database is _____.
TYPE: Error
REASON: This message lists the types of jobs that have not run in the current accounting period. Message ACT03033 accompanies this message to identify the jobs.
ACTION: Run the flagged jobs.
REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 5.2.

+-----+
| ACT03040 |
+-----+

TEXT: Monthly Complex Audit Tape Generation Started.
TYPE: Informational
REASON: None
ACTION: None
REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 7.4.

+-----+
| ACT03041 |
+-----+

TEXT: Monthly Complex Audit Tape Generation Bypassed.
TYPE: Informational
REASON: None
ACTION: None
REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 7.4.

+-----+

| ACT03042 |
+-----+

TEXT: _____ records written to _____

TYPE: Informational

REASON: This shows the number of records written to the
 audit file.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide,
 Section 7.4.

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+-----+
| ACT03043 |
+-----+

TEXT: Trial Balance invoice processing for _____
 _____ starting.

TYPE: Informational

REASON: The Accounting trial balance invoice processing
 start for the month prior to CLOSETBL is run.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide,
 Section 6.1.7.

+-----+
| ACT03044 |
+-----+

TEXT: Ledger prorating has not been specified in
 Accounting Options.

TYPE: Error

REASON: The Ledger File Prorating option was not
 selected on the General Installation Accounting
 Specifications panel.

ACTION: The ledger prorating option is activated by
 specifying YES on the General Installation

Accounting Specifications panel
(MWF;4;2;3;2;1).

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 4.8.2.

+-----+
| ACT03058 |
+-----+

TEXT: Generation completed for journal file _____.

TYPE: Information

REASON: The selected journal file process is completed.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 4.3.1.1.

+-----+
| ACT03059 |
+-----+

TEXT: Both external and standard journal files are
active in this unit. External journal files
are not allowed in units with standard journal
files. MAGRUN abending. Contact CA Technical
Support.

TYPE: ERROR

REASON: Standard journal files and external journal
files must be activated in two different
units.

ACTION: Activate the standard and external files in
separate units.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Section 2.3.4.

+-----+
| ACT03060 |

+----- -+

TEXT: External file update job abending because this is not an external file unit. The unit contains components other than MACT. See prefix.MICS.PARMS(JCLDEF).

TYPE: ERROR

REASON: Unit-level external files can only contain the Accounting component.

ACTION: Remove the component other than ACT in prefix.MICS.PARMS(JCLDEF); then run JCLGENx job.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 2.3.4.
PIOM, Section 2.3.3.2.1.

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+----- -+

| ACT03062 |

+----- -+

TEXT: Unit type has changed since the last MAGRUN was run. Unit type at MAGRUN: _____. Current unit type: _____. Contact CA Customer Support.

TYPE: ERROR

REASON: MAGRUN generated #ACTMSTR member with unit type EXT for external journal files or unit type DIA for the standard journal files.

ACTION: Update the journal file selection for the unit, and run MAGRUN.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 4.3.1.

+-----+

| ACT03063 |

+-----+

TEXT: External file input routine must have END=ACTEOF specified on the INFILE or SET

statement when duplicate date range checking has been requested. External file update job abending.

TYPE: Error

REASON: The date range validation option is turned on, but the routine does not specify END=ACTEOF on the INFILE or SET statement.

ACTION: When duplicate data checking is on for the external journal file, you must do this:

1. Assign the unique timestamp to the ENDTS element.
2. Put end=acteof on the set or INFILE statement.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 4.3.1.7.2 .

+-----+
| ACT03064 |
+-----+

TEXT: Empty #ACTMSTR was generated because the Rate Table did not have any selected journal files. All external file update jobs will abend in this unit.

TYPE: Error

REASON: At lease one journal file has to be selected in the Rate Table in order to generate the #ACTMSTR member in prefix.MICS.user.source

ACTION: Activate at least one journal and submit MAGRUN.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 4.3.1.

+-----+
| ACT03065 |
+-----+

TEXT: You have requested duplicate date-range checking. You must assign a unique ENDTS value in your input routine.

TYPE: Error

REASON: The date range validation option is turned on, but the routine does not specify ENDTS on the INFILE or SET statement.

ACTION: When duplicate data checking is on for the external journal file, you must assign the unique timestamp to the ENDTS element.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 4.3.1.7.2.

+-----+
| ACT03082 |
+-----+

TEXT: Journal file _____ ignored - component ___ is not installed in this unit.

TYPE: Warning

REASON: The listed journal files are not installed in the unit.

ACTION: Check prefix.MICS.PARMS JCLDEF member for a list of components.

REFERENCES: Section 2.3.3.2.1 in the PIOM.

+-----+
| ACT03083 |
+-----+

TEXT: Euro conversion parameters have not been defined.

USE MWF;4;2;3;2;7 to define them and rerun.

TYPE: Error

REASON: The lead and target currencies have not been defined to enable currency conversion.

ACTION: To specify the required parameters, use the MWF Euro Conversion Specifications panel (MWF 4;2;3;2;7).

Review the references below and determine the correct specifications. Enter the required specifications and rerun the job.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 4.5.6.

\$SCOL

```
+-----+  
| ACT03084 |  
+-----+
```

TEXT: Euro conversion parameters have been defined as:
Lead currency: _____ Target currency: _____
Conversion factor: _____

TYPE: Information

REASON: These values will be used by the Euro Rate Table Conversion Utility.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide, Appendix C.3.

```
+-----+  
| ACT03085 |  
+-----+
```

TEXT: Invalid value specified for the REPPARM option:

Specify REPLACE or NOREPLACE and rerun.

TYPE: Error

REASON: An incorrect value was specified for the REPPARM option used by the Euro Rate Table Conversion Utility.

ACTION: To specify a valid option, edit the REPPARM data definition in the Euro Rate Table Conversion Utility. Rerun the job.

REFERENCES: CA MICS Accounting and Chargeback User Guide,

Appendix C.3.

```
+-----+  
| ACT03086 |  
+-----+
```

TEXT: REPPARM option was not specified. It defaults to
NOREPLACE.

Rate tables will not be replaced.

TYPE: Information

REASON: Because you did not specify a parameter for the
Euro Rate Table Conversion Utility's REPPARM
option, the default (NOREPLACE) will be used.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Appendix C.3.

```
+-----+  
| ACT03087 |  
+-----+
```

TEXT: REPPARM parameter specified as ____.

TYPE: Information

REASON: You specified a parameter for the Euro Rate
Table Conversion Utility's REPPARM option. It
controls whether the converted rate tables are
saved.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Appendix C.3.

```
+-----+  
| ACT03088 |  
+-----+
```

TEXT: Converting Rate Table for ____.

TYPE: Information

REASON: Tells you which rate table is being converted to euros.

ACTION: None

REFERENCES: None

```
+-----+  
| ACT03089 |  
+-----+
```

TEXT: Replacing Rate Table for __.

TYPE: Information

REASON: Tells you which rate table is being replaced.
In order for a converted rate table to replace the existing rate table, the REPPARM option must be specified as REPLACE.

ACTION: None

REFERENCES: None

```
+-----+  
| ACT03090 |  
+-----+
```

TEXT: No unit list specified. Rate tables of all units with accounting installed will be converted.

The complex-level rate table will be converted if it exists.

TYPE: Information

REASON: You did not specify a parameter for the Euro Rate Table Conversion Utility's UNITLIST option. Therefore, all units with accounting installed will have their rate tables converted. The complex-level rate table will also be converted, if it exists.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Appendix C.3.

```
+-----+  
| ACT03091 |  
+-----+
```

TEXT: Unit list specified as _____.

TYPE: Information

REASON: You specified a parameter for the Euro Rate
Table Conversion Utility's UNITLIST option. The
rate tables for these units will be converted.

If the list includes a \$, the complex-level rate
table will be converted.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Appendix C.3.

```
+-----+  
| ACT03092 |  
+-----+
```

TEXT: Invalid unit id: _

No conversion for this unit id will be
attempted.

TYPE: Warning

REASON: The unit specified does not currently exist.

ACTION: The unit identifier must be a one-character
alphanumeric. Correct the unit identifier and
rerun the Euro Rate Table Conversion utility.

Use a \$ to identify the complex-level rate
table.

REFERENCES: None

```
+-----+  
| ACT03093 |  
+-----+
```

TEXT: A rate has been reduced to zero as a result of conversion:

component _journal_ _algorithm_ _compcode_
_effective_date_

TYPE: Warning

REASON: Rates can have a maximum of six decimal places. This message indicates that the rate for this compcode is 0 after conversion and rounding.

ACTION: If a rate of 0 is not desired, change it.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Appendix C.3.

```
+-----+  
| ACT03094 |  
+-----+
```

TEXT: A rate is too large, after conversion, to fit in the rate field

component _journal_ _algorithm_ _compcode_
_effective_date_

The rate table for this unit cannot be converted until this rate is reduced

TYPE: Error

REASON: The converted rate will not fit in the eight-character rate field. Therefore, this converted rate table cannot be saved.

If the REPPARM option is NOREPLACE, an after-conversion rate report will be printed with OVERFLOW displayed in the rate field. If the REPPARM option is REPLACE, the utility will abend.

ACTION: Reduce the rate for the compcode in question and rerun utility.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Appendix C.3.

```
+-----+  
| ACT03095 |  
+-----+
```

TEXT: No conversion date was specified.

Specify a conversion date using the CONVDATE DD.
It must be in the form MM/DD/YY. Then rerun.

TYPE: Error

REASON: You did not provide the required CONVDATE value.

ACTION: Edit the CONVDATE data definition and enter a
CONVDATE value using the MM/DD/YY format and
rerun the utility

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Appendix C.3.

```
+-----+  
| ACT03096 |  
+-----+
```

TEXT: Invalid value specified for the conversion date:

Specify a conversion date in the form MM/DD/YY
and rerun

TYPE: Error

REASON: An invalid CONVDATE parameter value was
specified.

ACTION: To specify a valid value, edit the CONVDATE data
definition in the Euro Rate Table Conversion
Utility. The format is MM/DD/YY.

REFERENCES: CA MICS Accounting and Chargeback User Guide,
Appendix C.3.

```
+-----+  
| ACT03097 |  
+-----+
```

TEXT: Conversion date specified as: _____

TYPE: Information

REASON: You specified a value for the Euro Rate Table Conversion Utility's CONVDATE parameter. It controls the date when conversion rates will take effect.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide, Appendix C.3.

```
+-----+  
| ACT03098 |  
+-----+
```

TEXT: The following algorithm specifications are being dropped from the rate table:

component _journal_ _algorithm_ _compcode_
_effective_date_

TYPE: Information

REASON: This message documents the actions of the Euro Rate Table Conversion Utility. There is a limit of two rows per compcode. These rows are not being charged currently, and are being dropped to make room for the conversion specifications.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide, Appendix C.3.

```
+-----+  
| ACT03099 |  
+-----+
```

TEXT: The following algorithm specifications are being converted in place:

component _journal_ _algorithm_ _compcode_
_effective_date_

TYPE: Information

REASON: This message documents the actions of the Euro Rate Table Conversion Utility. The following rows contain effective dates that are after the conversion date. The rates for those rows are being converted in place, with the effective date left unchanged.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide, Appendix C.3.

```
+-----+
| ACT03100 |
+-----+
```

TEXT: The following algorithm specifications are being converted with additional rows, effective _tempdate_:

TYPE: Information

REASON: This message documents the actions of the Euro Rate Table Conversion Utility. The following rows contain no effective dates, or effective dates that are before the conversion date. Additional rows are being added for these compcodes, with converted rates, and effective dates set to the conversion date.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide, Appendix C.3.

```
+-----+
| ACT03101 |
+-----+
```

TEXT: _component_ _journal_ _algorithm_ _compcode_
_effective_date_

TYPE: Information

REASON: This message lists the characteristics of the rate table rows being processed by the Euro Rate Table Conversion Utility.

ACTION: None

REFERENCES: CA MICS Accounting and Chargeback User Guide, Appendix C.3.

```
+-----+  
| ACT03210 |  
+-----+
```

TEXT: The following Cost Centers have expended Budget amounts and exceeded the user defined __% Threshold.

COST CENTER

-- _____

No Cost Center exceeded the user defined __% Threshold. Report was not generated

TYPE: Information

REASON: This message lists the costs centers whose budgeted amount exceeds the user-defined percent threshold.

ACTION: This Budget Threshold Report can be very useful in determining if the budget amount exceeds the percent threshold.

REFERENCES: CA MICS Accounting and Chargeback User Guide, Section 6.3.2.1.2.

Appendix B: DATA DICTIONARY

The Data Dictionary is only available at your site, where it has been customized to your configuration and your product change level.

To see the Data Dictionary at your site, follow the instructions under Document Browse in the Document Access guide.

Appendix C: USING THE EURO

The euro became the single currency for participating Member States of the European Union on January 1, 1999. This appendix describes the facilities and procedures available within CA MICS Accounting and Chargeback to help you use euros:

- o Invoice format options let you display invoice totals in both the national currency and in euros. These dual-currency display options can be used both before and after you convert CA MICS Accounting and Chargeback to euros.
- o The CA MICS Accounting and Chargeback Conversion Procedure converts CA MICS Accounting and Chargeback to the euro.
- o The Euro Rate Table Conversion Utility, a stand-alone job, converts your rate tables to euros. Parameters allow you to specify the currencies, conversion date, and, optionally, a list of units to convert. The utility runs in two modes, report mode and replace mode, so you can examine the utility's results before replacing your existing rate tables with the converted ones.

This section contains the following topics:

[C.1 Enabling Dual Currency Display on Invoices](#) (see page 828)

[C.2 Converting Accounting and Chargeback to Euros](#) (see page 834)

[C.3 Euro Rate Table Conversion Utility](#) (see page 849)

[C.4 Considerations When Performing Euro Conversion](#) (see page 855)

C.1 Enabling Dual Currency Display on Invoices

The dual-currency option lets you display invoice totals in both your national currency and euros. This can be done both before and after converting to euros.

If the option is selected, invoice totals are converted from the lead currency (the currency in which the charges are calculated) to the target currency as the invoices are printed. The converted amounts are not retained in any file. The conversion is done according to the conversion and rounding rules, using the official euro conversion rates.

The selection of the lead and target currencies is done through MWF. This selection determines the conversion rate and conversion algorithm used in the invoice process. The lead and target currencies, and the associated conversion rate, are not retained as part of the financial recap file. When an invoice is printed, the currency specifications defined at that time are used.

Note: Care must be taken AFTER conversion. For example, when reprinting invoices that were calculated BEFORE conversion, the currency specifications will have been reversed by the conversion process. This would cause the wrong calculations to be made on financial recap files created before conversion.

The dual currency option is available for each of the three standard invoice formats. It affects how total amounts are printed at the bottom of the invoices. It does not affect the individual line items in the body of the invoice.

When the dual currency option is enabled, all total amounts that appear at the bottom of the invoice are printed in both the national currency and euros. These totals may include budgets and year-to-date amounts, depending on the other invoice options selected, as well as charges. The amounts in the lead currency appear as they do normally; the corresponding amounts in the target currency appear in the next line directly underneath the lead currency amounts.

Important! One of the euro conversion rounding rules states that an amount that is exactly halfway between two euro cents must be rounded up. Ensuring that this occurs is not as simple as it might seem. In SAS, running on an IBM mainframe, all numbers are stored in floating point representation in hexadecimal. This means that certain numbers cannot be represented exactly, which can cause problems in rounding.

The rounding routine developed for the dual currency display option has rounded up consistently in our tests, but there may be certain numbers for which it does not. Therefore, it is essential that you manually check the conversion of your charges.

There are three tasks in enabling dual currency display on invoices:

- o Turning on the dual currency option in the appropriate invoice formats.
- o Defining the lead and target currencies.
- o Defining the appropriate SAS formats.

The first two tasks are accomplished easily through CA MICS WorkStation Facility (MWF), and will be discussed in more detail in the checklists below. Defining the appropriate SAS formats, though, may require some explanation.

SAS FORMAT USED IN SINGLE CURRENCY DISPLAY MODE

In single currency display mode, the invoices use these SAS formats:

MONEY	Used to display charges and certain other monetary amounts. By default, they print in US dollars.
MONEYB	Used to print budget amounts for certain invoice formats. Displays no decimal places. By default, they print in US dollars.
MONEYR	Used to print rates. Displays four decimal places. By default, they print in US dollars.
MONEYX	Used only in the detail-level reports to print four digits to the right of the decimal.

Note: To have the monetary values in your database formatted in the euro currency notation, you must update the above formats in `sharedprefix.MICS.SOURCE`. The changes that are made take effect when `BASPGEN` or `ALLPGEN` is executed. The euro currency sign fonts are included in the AFP Font Collection version 2, program product 5648-B33.

SAS FORMAT USED IN DUAL CURRENCY DISPLAY MODE

In dual currency display mode, the `MONEY`, `MONEYB` and `MONEYR`

formats are used to display amounts in the lead currency. Two formats are used to display figures in the target currency:

MONEYC The target currency version of MONEY. By default, they print in euros. The monetary value in this format is delivered with hex '85' (lowercase "e").

MONEYBC The target currency version of MONEYB. By default, they print in euros. The monetary value in this format is delivered with hex '85' (lowercase "e").

DEFINING THE SAS FORMATS

When enabling dual-currency display, you are responsible for defining SAS formats to match your lead and target currencies. Examine each format, change it if necessary, and regenerate it.

The MONEYE format, a currency format for printing in euros, is defined in sharedprefix.MICS.SOURCE(MONEYE). The monetary value in this format is delivered with hex '85'(lowercase "e"). To display the euro symbol, change the hex value or the code point, depending on the code page your site is using. For more information on the euro symbol, see AFP Font Collection version 2, program product 5648-B33. You can use the MONEYE format as a model in modifying the following formats:

The formats are located in the following members:

MONEY sharedprefix.MICS.SOURCE(MONEY)

MONEYR sharedprefix.MICS.SOURCE(MONEY)

MONEYB sharedprefix.MICS.SOURCE(MONEYB)

MONEYC sharedprefix.MICS.SOURCE(MONEYE)

MONEYBC sharedprefix.MICS.SOURCE(MONEYE)

MONEYX sharedprefix.MICS.SOURCE(MONEYX)

MONEYRT sharedprefix.MICS.SOURCE(MONEYRT) MONEYRT is used exclusively for user-defined reports to print six digits to the right of the decimal. Note this format is intended to be used only in user-defined report.

GENERATING THE SAS FORMATS

The MONEY, MONEYX and MONEYR formats can be generated by running a prefix.MICS.CNTL(BASPGEN) in any unit.

The MONEYB, MONEYC and MONEYBC formats can also be generated by constructing a SAS job with a DD of MCOLIB pointing to your sharedprefix.MICS.MCOLIB and with the SYSIN DD pointing to the appropriate member. A sample SAS job can be found in this section under item 4.

Note: Some tailoring of the formats may be necessary, especially if your national currency uses more or less than the two decimal places required for euro currency display.

ENABLING DUAL CURRENCY INVOICE DISPLAY BEFORE EURO CONVERSION

Note: Before enabling dual-currency invoice displays, the conversion utility member ACTEUROC must be in the sharedprefix.MICS.CNTL library. If this member is not in sharedprefix.MICS.CNTL library, you must complete these two steps:

- o Edit sharedprefix.MICS.PARMS(JCLGENUC) so that it contains the following:

ACTEUROC

Submit the job in sharedprefix.MICS.CNTL(JCLGENUC). Ensure that there are no error messages in MICSLOG or SYSTSPRT, that the MICSLOG contains the normal termination message, BAS10999I, and that the job completes with a condition code of zero.

- o Generate the product by submitting the job in sharedprefix.MICS.CNTL(ACTCGEN). Ensure that there are no error messages in ISPLLOG and MICSLOG, that MICSLOG contains the normal termination messages, BAS20999I, and that the job completes with a condition code of zero.

Submit the job in sharedprefix.MICS.CNTL(ACTXOPTS). Ensure that there are no error messages in MICSLOG or SYSTSPRT, that the last message is the normal termination message, BAS00171I, and that the job completes with a condition code of zero.

Follow these steps:

1. Use MWF 4;2;3;2;5 to access the invoice format options.

Select each invoice format used and specify YES for the "Print totals in euro and national currency" option.

Reference: Sections 4.5.2.1, 4.5.2.2, and 4.5.2.3.

2. Use MWF 4;2;3;2;7 to define your euro conversion parameters. Specify the lead and target currencies:

- o Set the lead currency to your national currency.

- o Set the target currency to the euro.

Setting these correctly is essential for the target conversion to be done properly.

Reference: Section 4.5.6.

3. Run sharedprefix.MICS.CNTL(ACTXOPTS) as prompted, upon exit from CA MICS WorkStation Facility (MWF). Make sure the job finishes with RC=0.
4. Define and generate the SAS formats:
 - o MONEY, MONEYR and MONEYB formats are generated by running prefix.MICS.CNTL(BASPGEN).
 - o MONEYC and MONEYBC must display in euros and these formats can be generated by constructing a SAS job that point to the sharedprefix.MICS.MCOLIB.

The following sample job can be used to generate these formats.

```
//BLDFMT EXEC SAS609,OPTIONS='S=72'  
//MCOLIB DD DSN=sharedprefix.MICS.MCOLIB,  
//          DISP=OLD  
//SYSIN DD DSN=sharedprefix.MICS.SOURCE(MONEYE),  
//          DISP=SHR  
//          DD DSN=sharedprefix.MICS.SOURCE(MONEYB),  
//          DISP=SHR
```

ENABLING DUAL CURRENCY INVOICE DISPLAY AFTER EURO CONVERSION

Follow these steps:

1. Use MWF 4;2;3;2;5 to access the invoice format options. Select each invoice format used and specify YES for the "Print totals in euro and national currency" option.

Reference: Sections 4.5.2.1, 4.5.2.2, and 4.5.2.3.

2. Use MWF 4;2;3;2;7 to define your euro conversion parameters. Specify the lead and target currencies:
 - a) Set the lead currency to euros.
 - b) Set the target currency to the national currency.

Setting these correctly is essential for the target conversion to be done properly.

Reference: Section 4.5.6.

3. Run sharedprefix.MICS.CNTL(ACTXOPTS) as prompted, upon exit from CA MICS WorkStation Facility (MWF). Make sure the job finishes with a RC of 0.
4. Define and generate the SAS formats:
 - o MONEY, MONEYR and MONEYB must display in euros.
 - o MONEYC and MONEYBC must display in the national currency.

MONEY, MONEYR and MONEYB formats can be defined and generated with prefix.MICS.CNTL(BASPGEN), and MONEYC MONEYBC formats can be generated using the following sample SAS job.

```
//BLDFMT EXEC SAS609,OPTIONS='S=72'  
//MCOLIB DD DSN=sharedprefix.MICS.MCOLIB,  
//      DISP=OLD  
//SYSIN DD DSN=sharedprefix.MICS.SOURCE(MONEYE),  
//      DISP=SHR  
//      DD DSN=sharedprefix.MICS.SOURCE(MONEYB),  
//      DISP=SHR
```

C.2 Converting Accounting and Chargeback to Euros

What does the euro conversion mean for I/S accounting?

- o Prices, charges, and other amounts currently expressed in the national currency must be converted to euros.
- o Euro conversion and rounding rules must be followed.
- o Euro-based charges cannot be combined with national currency-based charges.
- o Euro-based charges cannot be compared to national currency-based charges.
- o Historical data can be maintained in the national currency in which it was originally produced, or it can be converted to euros for easier comparison to future data.

The procedure for converting CA MICS Accounting and Chargeback Option to the euro is built on one fundamental principle:

```
*****
*  CA MICS ACCOUNTING AND CHARGEBACK OPTION MUST BE      *
*  CONVERTED TO EUROS AT THE BEGINNING OF A NEW ACCOUNTING *
*  YEAR.                                                    *
*****
```

Except for the dual-currency support for euros, CA MICS Accounting and Chargeback Option is a single-currency system. There is no facility for distinguishing between charges calculated in one currency and those calculated in another. Therefore, changing the base currency must be done at the beginning of a new accounting month and year, so that the monthly and yearly files only contain charges in one currency.

If you are doing multi-site accounting, the remote and central sites MUST convert to euros at the same time. This will prevent the multi-site financial recap file from being corrupted by charges in two currencies in the same file.

The conversion procedure is straightforward. Its five steps are discussed in detail throughout this procedure:

- o Convert all rates to euros.
- o Convert all amounts now held in national currency to euros.

These include budgets, recurring debits and credits, and lump sum discounts.

- o Change the various currency formats to print in euros.
- o Change reports to print in euros, or in euros and national currency.
- o Convert historical information into euros, if desired.

The most critical aspect of this process is timing. In order for the monthly and yearly files to be created correctly, certain steps must be done at certain times. Therefore, the procedure is organized by time frame:

TASKS THAT CAN BE DONE AHEAD OF TIME

- o Add rates in euros using the effective date feature.
- o Create budgets in euros using the effective date feature.
- o Change the "Number of positions to round charges" option, if necessary.
- o Compile a list of standard reports for testing; create reports to display data in both currencies, if desired.
- o Evaluate the timing of your last national currency MONTHLY or MONTHACT job in your SMF unit.

TASKS THAT MUST BE DONE IMMEDIATELY AFTER THE CLOSE OF THE LAST NATIONAL CURRENCY MONTH

- o Remove all national currency rates; remove the effective dates from the euro rate entries.
- o Confirm that all rates in the 00 cycle of the MONTHS ledger are in euros.

TASKS THAT MUST BE DONE BETWEEN THE CLOSE OF THE LAST NATIONAL CURRENCY MONTH AND THE CLOSE OF THE FIRST EURO MONTH

- o Convert recurring debits and credits to euros.
- o Convert volume discounts to euros.
- o Convert cost center lump sum discounts to euros.

- o Convert default budget overrun fuzz value to euros.
- o Change the euro conversion specifications settings in MWF.
- o Change the various currency formats to euros.
- o Produce month-to-date invoices.
- o Distribute the month-to-date invoices, if desired.

TASKS TO BE DONE AFTER THE CONVERSION

- o Test your standard reports.
- o Convert historical data, if desired.
- o Review the currency change effects on the Journal Run Status Log panels.

The following sections describe these tasks in detail by time frame.

TASKS THAT CAN BE DONE AHEAD OF TIME

1. Add rates in euros using the Effective Date feature.

You can do this manually or use the Euro Rate Table Conversion Utility, which will convert the rates and add them to the rate table with an effective date set to the changeover date. See Section C.3 for a complete description of this utility.

Note: If you use the Euro Rate Table Conversion Utility, you must still perform steps e) and f) as described below.

If you do NOT use the Euro Rate Table Conversion Utility:

Use the effective date feature of the Algorithm Specification panels to ensure that the euro rates take effect only at the beginning of a new accounting month and year. Set the effective date to the changeover date. In this way you can set the euro rates ahead of time, with plenty of time to review and confirm them, and without corrupting the data for the current accounting month and year.

Note that there is a limit of two effective dates per

compcode per algorithm. If you already have two effective dates defined for a compcode, you will have to delete one to make room for the new row. Take care when selecting the row to delete: do not delete the row that is being used to charge current data.

a) Go to MWF Algorithm Specification panels (MWF 4;2;3;6;3 and 4;2;3;7;3).

b) Create a new line for each compcode, except for the special compcode SURC.

SURC, a unit-of-work surcharge, is specified in percentage terms and does not need to be converted.

c) Enter the rate in euros.

d) Set the effective date to the changeover date. Any work that occurs after this date will be charged in euros.

The following steps must be executed whether the rates were changed manually or by the Euro Rate Table Utility.

e) Run a MAGRUN in every affected unit to put the new rates into effect. A MAGRUN can be run when you finish setting the rates for that unit. The effective date will prevent the new rates from being used ahead of time.

- o Submit prefix.MICS.CNTL(MAGRUN)

- o Examine the Journal File Rate Report produced as part of the MAGRUN. Ensure that all of the rates have been specified correctly.

f) If complex-level external files are being used, run EXTFILE to put their new rates into effect. The EXTFILE job can be run when you finish setting the rates for your complex-level external files. The effective date will prevent the new rates from being used ahead of time.

- o Submit sharedprefix.MICS.CNTL(EXTFILE)

- o Examine the External Files Rate Report produced as part of the EXTFILE job. Ensure that all of the rates have been specified correctly.

2. Create budgets in euros using the Effective Date feature.

Budgets can be converted to euros ahead of time by creating new budgets in euros, and setting their effective dates. The effective date should be set to the first day of the second month of the new accounting year, NOT to the changeover date.

The effective date for budgets is set differently than that for charging elements because it works differently. Budgets are aged by the CLOSETBL job, and a budget takes effect when its effective date is less than or equal to the date the CLOSETBL job is run. The budget for the month being closed is taken from the new budget.

For example, if you run a CLOSETBL on January 6, 2008 to close December 2007, and there is a budget with an effective date of January 1, 2008, that budget will become effective, and its December figure will be associated with the December being closed.

You do not want the euro budgets to take effect with the first CLOSETBL of the accounting year. The first CLOSETBL of the accounting year closes the last month of the prior accounting year, and you do not want the euro budget to be applied to that month. Therefore, you need to set the budget's effective date so the budget will only take effect at the second CLOSETBL of the accounting year. The earliest this CLOSETBL can be run is the first day of the second month of the new accounting year.

- a) Use MWF 4;2;1;2 and edit cycle 00.
 - b) Select each cost center for which budgets have been defined.
 - c) Use the insert primary command to create a new budget.
 - d) Set the effective date to the first day of the second month of the new accounting year.
 - e) Enter the budget in euros.
 - f) Run the sharedprefix.MICS.CNTL(ACTXBG0) job as prompted.
- ### 3. Change the "Number of Positions to Round Charges" option, if necessary.

This controls the number of decimal places to which to round charges in the journal and ledger files. Charges are always rounded to two decimal places in the recap file.

- a) Go to MWF General Installation Accounting Specifications panel (MWF 4;2;3;2;1).
 - b) Run the sharedprefix.MICS.CNTL(ACTXOPTS) job as prompted.
 - c) This will take effect with the next DAILY run.
4. Compile a list of standard reports for testing; create reports to display data in both currencies, if desired.
- Before conversion, make a list of the financial reports your site uses each accounting month and year. Every report on this list should be reviewed to see if it needs modification to work properly after conversion. Some possible issues are the following:
- o Any references to national currency, either in column headings or in monetary format, will have to be changed to euros.
 - o Reports that bring in data across an accounting year boundary will have to be changed to avoid summing national currency amounts with euro amounts, unless you plan to convert your historical data to euros.
 - o Reports that print previous data using current invoice formats will have to be changed to use a national currency format, unless you plan to convert your historical data to euros.
 - o Reports that use the fffCOST element from higher timespans of the CA MICS resource files will give invalid or misleading results if your CA MICS Accounting calendar does not match your CA MICS calendar.

For more information on the pros and cons of converting your historical data to euros, and the effect this can have on your reports, see the information on converting historical data in the section, Tasks to Be Done After the Conversion.

Invoices can display totals in both currencies, if

desired. See Section C.1 for more information on enabling dual currency display on invoices.

Your site may have other critical reports on which you want to display both currencies during the transitional period. You will need two versions: one that converts national currency charges to euros, the other that converts euro currency charges to national currency units. These reports can be developed, and the first type used, before you convert your complex to euros.

The MONEYE SAS format is provided to display monetary amounts in euros. It is located in `sharedprefix.MICS.SOURCE(MONEYE)`. Note that this member also includes the MONEYC and MONEYBC formats for use with the dual currency invoice options.

5. Evaluate the timing of your last national currency MONTHLY or MONTHACT job in your SMF Unit.

If you are charging from the Batch Job journal file (ACTJBJ), you may want to review when the MONTHLY or MONTHACT job will run in that unit.

Jobs are charged from the Batch Job journal file when the job is purged from the system, and a purge record cut, or when the job reaches its suspend limit and leaves the suspend file. Jobs processed by CA MICS after the last MONTHLY or MONTHACT job splits and ages the month-to-date ledger file must be charged in euros, no matter when the work was done. Therefore, you may want to postpone running this last MONTHLY or MONTHACT job for a few days to allow long running jobs to work their way through the system and into the month-to-date ledger before this ledger is split and aged.

The same issues exist for charging for started tasks from the Batch Job journal file.

Note that this only applies to charging from the Batch Job journal file. Charging from the Batch Program journal file is done when the step ends, or when the interval ends, if interval accounting is turned on.

TASKS THAT MUST BE DONE IMMEDIATELY AFTER THE CLOSE OF THE LAST NATIONAL CURRENCY MONTH

1. Remove all national currency rates; remove the effective dates from the euro rate entries.


```
*****
* This must be done after the MONTHLY or MONTHACT job *
* and before the next DAILY job! This timing is      *
* EXTREMELY important!                               *
*****
```

When the MONTHLY job is run to close the last national currency month, work for that month in the 00 cycle of the ledger will be aged to the 01 cycle of the ledger. From this point on, any work from that month that is loaded into CA MICS will remain with the work for the first euro month and will be aged with it when the first euro month is closed. This can happen, for example, with batch jobs run in the prior month but purged after the month is closed. Since this work will become part of the financial recap file for the first euro month, it must be charged in euros. This will not happen unless the national currency rate is removed and the effective date removed from the euro currency rate entry.

- a) MWF Algorithm Specification panels (MWF 4;2;3;6;3 and 4;2;3;7;3).
- b) Remove the lines containing the national currency rates.
- c) Remove the effective date from the lines containing the euro rates.
- d) Run a MAGRUN in every affected unit. A unit's MAGRUN can be run when you finish editing the rates for that unit.
 - o Submit prefix.MICS.CNTL(MAGRUN)
 - o Examine the Journal File Rate Report produced as part of the MAGRUN. Ensure that no national currency rates remain, and that no euro rates have effective dates.
- e) If complex-level external files are being used, run EXTFILE. The EXTFILE job can be run when you finish editing the rates for your complex-level external files.
 - o Submit sharedprefix.MICS.CNTL(EXTFILE)
 - o Examine the External File Rate Report produced as

part of the EXTFILE job. Ensure that no national currency rates remain, and that no euro rates have effective dates.

2. Confirm that ALL rates in the 00 Cycle of the MONTHS Ledger are in euros.

It is strongly recommended that you run a report at this point to confirm that all rates in the 00 cycle of the MONTHS ledger are in euro. It can be as simple as a PROC FREQ on compcode (LGRCPD) and rate (LGRRT). Confirm that all the rates are euro rates by comparing them with the rates on the Journal File Rate Report from the unit's MAGRUN.

Verifying that all is well as soon as possible will minimize the amount of time and effort required to correct any omissions or mistakes.

TASKS THAT MUST BE DONE BETWEEN THE CLOSE OF THE LAST NATIONAL CURRENCY MONTH AND THE CLOSE OF THE FIRST EURO MONTH

The optional items discussed in this section are specified as currency amounts, and must be converted to euros before the close of the first euro month. Follow the instructions for those items that apply to your environment.

Do not change any of these items until you have run the FINRECAP or INVOICE job to produce the "final" invoice for the last national currency month. Up to this point, your last national currency month is not closed.

1. Convert recurring debits and credits to euros.

This must be done before running the CLOSETBL job for the first euro month.

- a) Use MWF 4;2;1;3 to edit cycle 00 for recurring entries.
- b) If the entry contains a quantity and rate, replace the rate with the euro rate and press Enter; the new charge will be calculated.
- c) If the entry only contains a charge, enter the converted charge.
- d) Run the sharedprefix.MICS.CNTL(ACTXADJ) job as prompted.

2. Convert volume discounts to euros

This must be done before running the FINRECAP or INVOICE job for the first euro month.

- a) Use MWF 4;2;3;2;2 to display the list of volume discounts.
- b) Enter the converted discounts.
- c) Run the sharedprefix.MICS.CNTL(ACTXOPTS) job as prompted.
- d) Note that invoice category discounts and all surcharges are specified in percentages, so no conversion is necessary.

3. Convert cost center lump sum discounts to euros.

This must be done before running the FINRECAP or INVOICE job for the first euro month.

- a) Use MWF 4;2;1;1;2 to display a list of cost centers.
- b) Access the discounts for each cost center using the T line command.
- c) Enter the new lump sum discount.
- d) Run the sharedprefix.MICS.CNTL(ACTXCCA) job as prompted.

Note that invoice category discounts and all surcharges are specified in percentage terms, so no conversion is necessary.

4. Convert "Default Budget Overrun Fuzz Value" to euros.

This must be done before running the FINRECAP or INVOICE job for the first euro month.

- a) Use MWF 4;2;3;2;1 to display the General Installation Accounting Specifications panel.
- b) Convert the fuzz value to euros.
- c) Run the sharedprefix.MICS.CNTL(ACTXOPTS) job as prompted.

5. Change the euro conversion specifications in MWF.

The Euro Conversion Specifications are used by the invoice process for the dual currency display option, as well as by the Euro Rate Table Conversion Utility. Even if you are not currently using the dual currency invoice option, it is best to set this correctly now.

- a) Use MWF 4;2;3;2;7 to display the Euro Conversion Specifications panel.
- b) Set the lead currency to euros.
- c) Set the target currency to the national currency.
- d) Run `sharedprefix.MICS.CNTL(ACTXOPTS)` as prompted.

6. Change the various currency formats to euros.

This can only be done after the last set of invoices in the national currency has been printed. It must be done before printing the first set of invoices in euros.

The MONEYE format, a currency format for printing in euros, is defined in `sharedprefix.MICS.SOURCE(MONEYE)`. You can use this as a model in modifying the following formats:

- a) The MONEY format is used to print charges, and is defined in `sharedprefix.MICS.SOURCE(MONEY)`.
- b) The MONEYR format is used to print rates, and is also defined in `sharedprefix.MICS.SOURCE(MONEY)`.
- c) Run `prefix.MICS.CNTL(BASPGEN)` in one unit to generate the MONEY and MONEYR formats.
- d) The MONEYB format is used to print budget amounts, and is defined in `sharedprefix.MICS.SOURCE(MONEYB)`.
- e) There is no delivered job to regenerate the MONEYB format. Construct a SAS job with a DD of MCOLIB pointing to your `sharedprefix.MICS.MCOLIB`, and the SYSIN pointing to `sharedprefix.MICS.SOURCE(MONEYB)`.

If you have already enabled, or would like to enable, the dual currency display on invoices, refer to ENABLING DUAL CURRENCY INVOICE DISPLAY AFTER EURO CONVERSION in Section

C.1 for instructions.

7. Produce month-to-date invoices.

It is recommended that you produce a set of month-to-date invoices after you have changed the above options, and before closing your first euro month. This confirms that all of the necessary items have been properly converted to euros. Running this job and verifying the resulting invoices will minimize the time required for you to produce correct invoices for the first euro month. The month-to-date invoice job is in `sharedprefix.MICS.CNTL(INVOICED)`.

8. Distribute the month-to-date invoices, if desired.

TASKS TO BE DONE AFTER THE CONVERSION

1. Test your standard reports.

Test each of the standard reports on the list you compiled earlier. Make additional changes as required and move them into production.

2. Decide whether to convert historical data.

Whether or not to convert historical data is something you must determine for your environment. Auditing requirements may demand that data be kept in the original form from which the charges were generated, especially if invoices have been issued. Converting all accounting files to euros is not a trivial task. In addition, records may not sum the same way after conversion: the monthly financial recap files will probably no longer sum to the year-to-date financial recap file, for example. On the other hand, if you habitually incorporate data from previous accounting years in your reports, you may want them on the same currency base as your current data.

It is recommended that you keep your historical data in the national currency. If your site does reporting on previous accounting years' data, and you want these data available in euros, make a copy of `sharedprefix.MICS.TABLES` and retrofit the financial recap and year-to-date financial recap files.

a) If you do not convert the financial recap files:

If you do not convert the financial recap files to

euros, you must evaluate the standard reports that you run to ensure that the results are correct. Remember that any report that brings in data across an accounting year boundary, or that uses current invoice formats to print out previous data, will need modification to avoid invalid or misleading results.

The delivered euro-specific invoice format options enable you to print data from previous months in both euros and national currency. Even when using these invoice formats, you must take care that the invoice prints the charges in the correct currency. You should not, for example, use the repeat invoice program (`sharedprefix.MICS.CNTL(INVOICER)`) to reprint invoices from a previous accounting year: the national currency charges will be printed in euros because the `MONEY` format will have been changed by the conversion process.

Other reports, like the Budget Projection Report (`sharedprefix.MICS.CNTL(ACTYRBGT)`), may sum together the past 12 cycles of debits, credits, and financial recap files. Once you begin charging in euros, the euro data is summed with national currency data, yielding invalid results.

b) If you do convert the financial recap files:

If you decide to retrofit your financial recap and year-to-date financial recap files, be aware of the following:

A retrofitted financial recap file will no longer sum to the retrofitted year-to-date financial recap file because of cumulative rounding differences. Records within the financial recap file may no longer add up, due to rounding differences. In particular, records calculated during the financial recap creation, like zero-balance records, may not retain the relationship to the other recap records that they had when originally created.

You will need to convert the `RCPRAT` and `RCPCHG` values, following the established euro conversion and rounding rules. There are multiple versions of the financial recap and year-to-date financial recap files. Your site has at least the first two, and perhaps the others, depending on how your system is configured:

- o sharedprefix.MICS.TABLES(ACTRCPnn) Financial recap file
 - o sharedprefix.MICS.TABLES(ACT_Yrnn) Year-to-date financial recap file
 - o sharedprefix.MICS.TABLES(ACT_RCnn) Multi-site financial recap file
 - o sharedprefix.MICS.TABLES(ACT_Ytnn) Multi-site year-to-date financial recap file
 - o sharedprefix.MICS.TABLES(ACT_RRnn) Repeat year-to-date financial recap file
 - o sharedprefix.MICS.TABLES(ACT_RTnn) Repeat multi-site year-to-date financial recap file
3. Review the currency change effects on the Journal Run Status Log panels.

The Journal Run Status Log panels help you keep an eye on your total charges per journal file on a daily basis. They are accessed through MWF (MWF 4;2;4;5;1;1). The Journal Run Status Log Summary panel displays total charges per journal file per run. The number of runs for which information is kept defaults to 45; this can be changed by the user. The Detailed Charges panel displays total charges by billing date, SYSID, APU, billing status, compcode and rate for the same number of runs. The charges on both panels are displayed using an output format. This defaults to dollars, but can be changed by the user.

Because the Summary panel sums charges for each journal file by DAILY run, the charges displayed on this panel will be invalid on days in which data from both before and after the changeover date is processed in the same run. This should only be a concern for the first few days after changeover. It is not a problem on the Detailed Charges panel: since this panel breaks down charges by rate, the national currency and euro figures will appear on separate lines.

All charges are displayed using an output format as discussed above. Because the panels maintain information for many runs, and because the format for displaying the charges does not vary from line-to-line, the currency change will cause some charges to be displayed with the

wrong format. For some period of time, depending on when you change the format, either charges in euros will be displayed in the national currency, or vice versa.

To avoid the confusion this will cause, you can clear out the file that contains the log data once your last national currency month has been closed. The file will be rebuilt by future DAILY jobs, and will only contain data in euros. You can then change the output format to euros. By doing this, your Journal Run Status Log display will be correct and consistent; however, you will no longer be able to see information about runs prior to your clearing out the log file.

To reset the Journal Run Status Log display after the last national currency month has been closed:

- a) Delete the ACTRSJ01 file from the DAYS timespan in every unit.
- b) Change the format of the charges display to euros:
 - o MWF 4;2;3;2;6
 - o Change "SAS format for charges display" option.
- c) Run the sharedprefix.MICS.CNTL(ACTXOPTS) job as prompted.

If your site does not use the Journal Run Status Log panels, you may choose to leave the DAYS.ACTRSJ01 file alone. Eventually, the national currency runs will age off. You can then change the output format to the euro format.

C.3 Euro Rate Table Conversion Utility

The Euro Rate Table Conversion Utility converts rate tables from a lead currency, the currency in which the charges are currently calculated, to a target currency. Typically, the conversion will be from the national currency to euros.

The utility:

- o Follows euro conversion and rounding rules.
- o Does not affect current charging.
- o Handles pre-existing effective dates.
- o Operates in Report and Replace modes.
- o Converts all rate tables or a specified list.
- o Prints before-conversion and after-conversion rate reports.
- o Posts all changes to the MICSLLOG.

Follows Euro Conversion and Rounding Rules

The conversion utility uses the euro conversion and rounding rules to convert the rates from the lead to the target currency. The rates are rounded to four decimal places after the conversion, in accordance with the rate table's limits.

If a rate rounds to zero after conversion, a warning message, ACT03093, will be printed to the MICSLLOG. Note that this message will not be printed for rates that were 0 to begin with, but only for those that rounded to 0 as a result of conversion.

If a rate is too large, after conversion, to fit in the rate table's eight-character field, an error message, ACT03094, will be printed to the MICSLLOG. Further action will depend on whether the utility is running in report or replace mode:

- o In report mode, the rate appears as OVERFLOW in the after-conversion rate report.
- o In replace mode, the job abends.

Does Not Affect Current Charging

The conversion utility can be run as soon as you decide on the conversion date. It uses this date in conjunction with the rate table effective date feature so that the converted rates will take effect on the conversion date and not before. Currently charged items will be unaffected by running the utility. This allows you plenty of time to review the results before the conversion date arrives.

While charging for current items is unaffected by the utility, the utility may impact your ability to charge for older data that might be forced into CA MICS. Under certain circumstances, described below, charging items that have been superseded by a more recent effective date are dropped from the rate table in order to make room for the converted rates. In this case, the older rate is no longer available for charging older data, and if such data is forced in, it will not be charged.

Handles Pre-existing Effective Dates

Each row is examined to see if its effective date is before or after the conversion date:

- o If the effective date is blank, or before the conversion date, an additional row is added for that compcode, with a converted rate, and the effective date set to the conversion date.
- o If the effective date is after the conversion date, the rate for that row is converted in place, with the effective date left unchanged.

If the number of effective dates that could be defined per compcode was unlimited, all rows in the rate table would have been handled in this way. However, there is a limit of two effective dates per compcode per charging algorithm. Therefore, the utility has been written to handle situations in which two effective dates have already been defined for a charging element:

- o If either of the rows is currently being charged, the utility replaces the other row with a conversion row, converting the current rate and setting the effective date to the conversion date.

Note that this may affect the charging of older data that might be forced in after the conversion utility is run. If the rate that would have been used with that data has been

dropped, the data will not be charged for that item.

- o If neither of the rows is currently being charged, but one of the rows will be in effect by the conversion date, the utility keeps that row and replaces the other row with a conversion row, converting the kept row's rate and setting the effective date to the conversion date.
- o If both the rows will take effect after the conversion date, the rows will be converted in place, with their effective dates left unchanged.

Operates in Report and Replace Modes

When the utility is run in report mode, the entire conversion process is carried out, but the results are not saved. Before- and after-conversion rate reports are printed, but the original rate tables are not changed. This is the default mode.

When the utility is run in replace mode, the reports are printed, and the original rate tables are replaced by their converted counterparts. Copies of the original rate tables are saved as MAF\$RTu0, that is, the existing rate table name with an 0 appended to the name. The original complex-level rate table is saved as MAF\$RT\$0.

Converts All Rate Tables or a Specified List

By default, the utility converts the rate tables for every unit that contains accounting, as well as the complex-level rate table, if it exists.

You can also specify a list of unit IDs to the utility, in which case it converts only the specified rate tables.

Prints Before- and After-Conversion Rate Reports

As each rate table is converted, a rate report is printed both before and after conversion.

Used with the utility's report mode, these reports enable you to examine the converted rate tables ahead of time. This is especially helpful if your rate tables make extensive use of the effective date feature, since converting such rate tables may involve changing the available rows.

Used with the utility's replace mode, the reports are a convenient reference for the new rate table's contents.

Please note that the rate reports will not include information on currently inactive journal files. However, the algorithms for these inactive journal files will be converted.

Posts All Changes to the MICSLOG

All changes are posted to the MICSLOG, organized by type of change: dropped rows first, followed by modified rows and added rows.

RUNNING THE EURO RATE TABLE CONVERSION UTILITY

The Euro Rate Table Conversion Utility is run from member `sharedprefix.MICS.CNTL(ACTEUROC)`.

Running the Euro Rate Table Conversion Utility requires defining lead and target currencies and a conversion date. There are also two options you may define: the REPPARM option and the UNITLIST option.

LEAD AND TARGET CURRENCY SPECIFICATION

The lead and target currencies will determine the conversion rate and method. You define the lead and target currencies in the Euro Conversion Specifications panel of MWF. See Section 4.5.6 for more information on this panel.

CONVERSION DATE SPECIFICATION

The conversion date is a required parameter. It is used as the effective date for the converted rates.

You specify the conversion date via the CONVDATE data definition of the ACTEUROC JCL. It must be specified in an mm/dd/yy format. This example defines a conversion date of January 31, 1999:

```
//CONVDATE DD *  
01/31/99
```

REPPARM OPTION

The REPPARM option is used to put the utility in report or replace mode. As discussed above, report mode converts the rate tables, prints before- and after-conversion rate reports, but does not save the converted tables. Replace mode replaces the original tables with the converted ones. A copy of the original tables is saved under another name.

The REPPARM option has two valid values:

NOREPLACE Puts the utility in report mode. This is the default.

REPLACE Puts the utility in replace mode.

You specify the REPPARM option via the REPPARM data definition of the ACTEUROC JCL. This example places the utility in report mode:

```
//REPPARM DD *  
NOREPLACE
```

UNITLIST OPTION

By default, the conversion utility converts the rate tables for all units in which Accounting is currently installed, as well as the complex-level rate table if it exists. Rate tables that exist in ISPTLIB for units that no longer exist, or that no longer have Accounting installed, will NOT be converted. You can override this behavior using the UNITLIST option.

The UNITLIST option lets you specify a list of rate tables to convert. These units' rate tables will be converted if they exist. The utility does not confirm that Accounting is installed in the unit before converting its rate table.

You specify the UNITLIST option via the UNITLIST data definition of the ACTEUROC JCL. Enter the one-character unit IDs of the units whose rate tables you want to convert. Use a dollar sign (\$) to select the complex-level rate table. Enter all the unit IDs in one line, separated by blanks. This example converts the complex-level rate table and the rate tables for units A and B:

```
//UNITLIST DD *  
$ A B
```

To run the utility:

1. Specify your lead and target currencies following the instructions in Section 4.5.6.

Note: The utility will abend if these have not been specified at run time.

2. Specify the conversion date via the CONVDATE data definition in `sharedprefix.MICS.CNTL(ACTEUROC)`.

Note: The utility will abend if this is not specified.

3. Specify the REPPARM option to put the utility in report or replace mode. Use the REPPARM data definition in `sharedprefix.MICS.CNTL(ACTEUROC)`.
4. Specify the UNITLIST option, if desired.
5. Run `sharedprefix.MICS.CNTL(ACTEUROC)`.

C.4 Considerations When Performing Euro Conversion

VALIDITY OF fffCOST AFTER EURO CONVERSION

Converting at the beginning of a new accounting year is essential to protecting the validity of your CA MICS Accounting and Chargeback files. However, there is one element in some of the CA MICS resource files that this procedure cannot protect. This element is fffCOST, where fff is the CA MICS file designation. At the DETAIL timespan, this element contains the sum of the charges associated with the unit of work to which the observation refers. At higher timespans, it is the sum of the charges for the units of work summarized into that observation.

If your CA MICS Accounting calendar does not match your CA MICS calendar, you may be converting from national currency to euros in the middle of a CA MICS month. In this case, the fffCOST element at the higher timespans will be the sum of charges calculated in both your national currency and euros; therefore it will be corrupt.

Note: The fffCOST elements are not used by CA MICS Accounting and Chargeback in any way. They exist for your convenience. You will have to evaluate the reports used at your site to see how you may be affected by this. This is discussed in more detail in Section C.1.2.

EURO CONVERSION AND ROUNDING RULES

The following conversion and rounding rules have been established for the euro conversion process. You will need to follow these rules when converting your rates and other amounts from your national currency to euros.

- o Conversion rates will be defined in terms of one euro to each of the participating Member State's currencies. The rates will be defined with six significant digits.
- o Conversion rates cannot be rounded or truncated.
- o You cannot use the inverse of the defined rate to convert in the other direction. In other words, to convert an amount from a national currency unit to the euro unit, you must divide the amount by the conversion rate. To convert an amount from the euro unit to a national currency unit, you must multiply the amount by the conversion rate.

- o Converting between two national currencies must be done as follows:
 - Convert from the first national currency unit to the euro unit. The result has to be calculated to at least three decimal places.
 - Convert the euro amount to the second national currency unit.
 - Alternative methods of calculation can be used as long as they produce the same results as the above algorithm.
- o Charges must be rounded up or down to the nearest cent.
 - Intermediate amounts calculated as part of another calculation do not have to be rounded to the nearest cent.
 - If a conversion results in a euro figure exactly halfway between two cents, the figure must be rounded up.

ROUNDING PROBLEMS

One of the euro conversion rounding rules states that an amount that is exactly halfway between two euro cents must be rounded up. Ensuring that this occurs is not as simple as it might seem. In SAS, running on an IBM mainframe, all numbers are stored in floating point representation in hexadecimal. This means that certain numbers cannot be represented exactly, which can cause problems in rounding.

Note that the SAS ROUND function does not always round up numbers that are exactly between two cents. The results depend on the magnitude of the number. Therefore, when assessing your conversion code, you must evaluate a wide range of numbers to be sure that the rounding is done properly.