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## Systems

# IBM Virtual Machine Facility/370: Release 6 Guide

### | Release 6 PLC 1

This publication contains information about the scope and content of the IBM Virtual Machine Facility/370 (VM/370). It provides planning and implementation information for installation managers, system programmers, and IBM system hardware and software support personnel. This publication describes:

- New and changed VM/370 features, components, and requirements
- Module summary for CP, CMS, IPCS, and RSCS
- Changes to commands, macro instructions, and service programs
- Changes to VM/370 publications
- Ordering and distribution procedures
- Changes to VM/370 restrictions
- APARS integrated into this release
- Maintaining compatibility with supported hardware and software

The Release Guide does not contain detailed information on VM/370 Extensions, and related program products, or the devices that support them exclusively. However, these Extensions, program products, and devices may be available at the same time as the VM/370 release base. For information on VM/370 System Extensions and VM/370 Basic System Extensions, refer to the appropriate General Information Manual for this release.

#### Prerequisite Publications

*IBM Virtual Machine Facility/370:*

*Introduction*, Order No. GC20-1800

*Planning and System Generation*, Order No. GC20-1801



First Edition (March 1979)

This edition, GC20-1834-0, corresponds to Release 6 PLC 1 (Program Level Change) of the IBM Virtual Machine Facility/370, and to all subsequent modifications unless otherwise indicated in new editions or Technical Newsletters.

Changes are periodically made to the information herein; before using this publication in connection with the operation of IBM systems, consult the latest IBM System/370 Bibliography, Order No. GC20-0001, for the editions that are applicable and current.

Publications are not stocked at the address given below; requests for copies of IBM publications should be made to your IBM representative or to the IBM branch office serving your locality.

A form for readers' comments is provided at the back of this publication. If the form has been removed, comments may be addressed to IBM Corporation, VM/370 Publications, Dept. D58, Bldg. 706-2, P.O. Box 390, Poughkeepsie, New York 12602. IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation whatever. You may, of course, continue to use the information you supply.

## Preface

This publication reflects the content and status of the IBM Virtual Machine Facility/370 (VM/370) Release 6. It provides installation managers, system programmers, and IBM hardware and software support personnel with information useful for planning and implementing the release. In order to maintain a concurrent history of the VM/370 endeavor, retain all previous editions of the Release Guide.

This publication has eight sections:

- Section 1 is a summary of changes to the VM/370 system for this release.
- Section 2 contains a module directory and status lists of all modules in the system.
- Section 3 contains charts showing changes and additions to the VM/370 commands, macro instructions, and service programs as well as changes to ABEND codes and WAIT states.
- Section 4 lists the deletions and additions to the VM/370 library. It also contains a chart that lists the base publications and the corresponding TNLs and/or supplements to those publications. Another chart shows the deletion or addition of duplicate information within each publication. This chart shows the publications where this information is deleted and the publications where this information has been retained or added.
- Section 5 contains ordering and distribution procedures for the program material shipped with the release and for the available optional material.
- Section 6 contains modifications to the list of VM/370 restrictions. Only amendments and changes of major significance are included in this section.
- Section 7 lists the APARs (Authorized Program Analysis Reports) that this release corrects and integrates.
- Section 8 discusses changes that must be made to the system to maintain compatibility with hardware and software this release supports.

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| Information on the Directory Maintenance program product (Program No. 5748-XE4) is for planning purposes only until the availability of that product. |
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### PREREQUISITE PUBLICATIONS

IBM Virtual Machine Facility/370:

Introduction, Order No. GC20-1800

Planning and System Generation Guide, Order No. GC20-1801

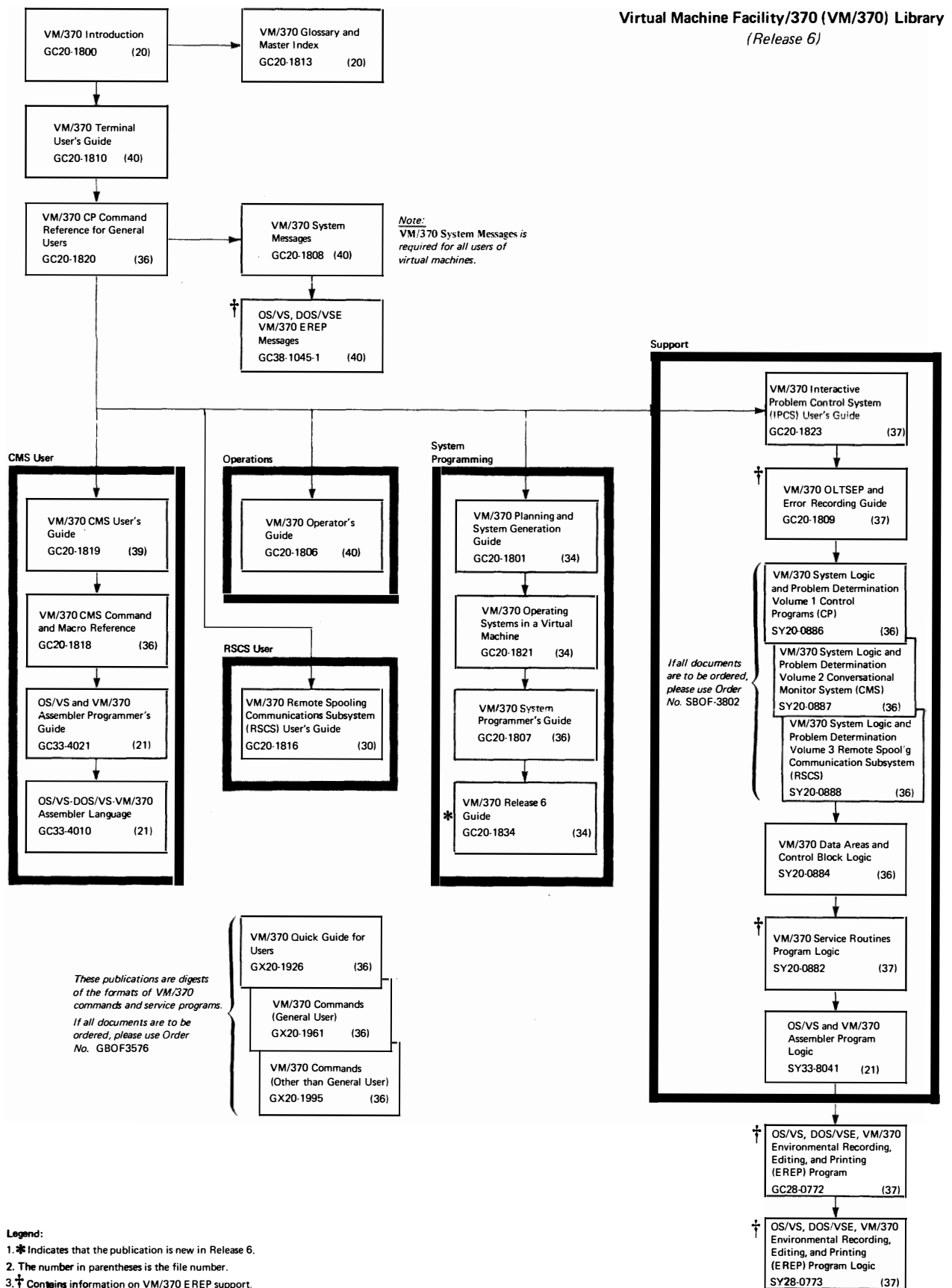


Figure 0-1. The IBM Virtual Machine Facility/370 Library (Release 6)

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# Section 1. Summary of Changes to the VM/370 System

This section discusses the changes made to the VM/370 system for this release. It also contains information on programs and devices that can use the VM/370 environment or a restricted VM/370 environment without incompatibilities to existing program or device support.

## Highlights

The following is a list of new function and new device support for VM/370 Release 6:

- 3031 Attached Processor Complex Support
- 12 and 16 Megabyte Available Processor Storage Capability
- 4331 and 4341 Processor Support
- 3203 Model 5 Printer Support
- 3800 Printing Subsystem Support
- 3850 Mass Storage System (MSS) Extended Support
- VM/370 Measurement Facility (Monitor)
- Trace Table Size Change
- Shared Segment Modifications
- Multiple Alternate Consoles Support
- LOGON/AUTOLOG/LINK Journaling Option
- Password-On-The-Command-Line Suppression Option
- Remote Spooling Communications Subsystem (RSCS) Networking Program Product
- Special Message Facility
- Modification to DIAGNOSE X'8' Interface
- Directory Update-In-Place Support
- Directory Program Fast I/O Support
- Support for Message No Header (MSGNOH) Command
- Read Inhibit Support
- Automatic Reinitialization Support
- DL/1 in a CMS/DOS Environment

## 3031 Attached Processor Complex Support

VM/370 Release 6 supports the 3031 Attached Processor Complex which consists of a 3031 processor, a 3041 attached processor, a 3036 console with dual displays, and two 3017 power units.

Main storage as well as channel and I/O functions are provided by the 3031 processor. The 3041 attached processor contains an instruction execution function and a buffer control function. This enhances the total system's ability to handle machine language instructions, reduces the effective data storage access time, and speeds processing. The support of this processor requires no code changes to VM/370.

### PROGRAM LOGIC PUBLICATIONS

The following publication contains information on VM/370 support of the 3031 Attached Processor Complex:

SY20-0884 Data Areas and Control Block Logic

## **12 and 16 Megabyte Available Processor Storage Capability**

VM/370 supports the 3033 processor whose available processor storage capability is 12 and 16 megabytes. The support of this increased available processor storage capacity requires no code changes to VM/370.

## 4331 and 4341 Processor Support

The IBM 4300 processors, supported by this release, combine System/370 compatibility with large scale integration (LSI) technology.

The 4331 processor offers processor storage and high speed control storage to accommodate standard functions as well as optional features requiring control storage capability. Current System/370 users and new customers can now use interactive and data base/data communications applications. One half megabyte of processor storage is standard on the 4331 with the option of expanding to one megabyte. A wide variety of current I/O devices can be attached to the 4331 processor in addition to new I/O devices that are supported when the VM/370 Basic System Extensions Program Product is installed.

The 4341 processor also offers virtual storage and SCP support with System/370 compatibility. This processor has versatility in applications usage as a commercial, scientific, data acquisition, teleprocessing, or general purpose system. As with the 4331, the 4341 can also use a wide variety of currently available I/O devices, tape units, and display units in addition to the new devices that function only when the installation is running with the VM/370 Basic System Extensions Program Product. Two megabytes of processor storage are standard on the 4341 with the option of expanding to four megabytes.

Release 6 of VM/370 is compatible with ECPS:VM/370 Level 19 on the 4331 and 4341 processors. This support is included in the initial shipment of these processors.

No fixed or I/O extended machine check logout area and no fixed or I/O extended channel check logout area exist for the 4331 and 4341 and no region code (model dependent information) is available. Independent machine checks and channel checks are recorded as they are now. If any dependent machine or channel check occurs, it is recorded on diskette which only customer authorized service personnel can access using a standalone program.

The 3278 Model 2A display station is used as the system console for the 4331 and 4341 processors. The 3278 Model 2A is supported the same as a 3277 with the following differences for the new display station:

- Screen layout differences. 20 lines (80 characters per line) of the 25-line display are used for operator communication. CP and CMS recognize the smaller screen size.

- The addition of six national usage characters in input and output data streams.

| <u>National Usage Designation</u> | <u>Graphic</u>       | <u>EBCDIC (Hex)</u> |
|-----------------------------------|----------------------|---------------------|
| NU3                               | broken vertical line | 6A                  |
| NU4                               | \ grave accent       | 79                  |
| NU9                               | ~ tilde              | A1                  |
| NU10                              | { open brace         | C0                  |
| NU11                              | } close brace        | D0                  |
| NU12                              | \ reverse slant      | E0                  |

Since the 3277 logical tab value X'6A' is now a displayed character on the 3278 Model 2A, the tab function is changed to allow the operator to specify another character as the logical tab. This is done through the use of a new operand of the TERMINAL command. The new operand and its parameters are TABCHAR {ON|OFF|char}. The operator may also query the setting of the logical tab via the QUERY TERMINAL command. CP returns as part of its response to the command, TABCHAR {ON|OFF|char}.

- Keyboard changes. The REQ and CNCL keys on the 3278 Model 2A perform the same functions as the PA1 and PA2 keys on the 3277. No PA3 and CLEAR keys exist on the 3278 Model 2A.

When generating the device type for the 3278 Model 2A, specify DEVTYPE=3278 and MODEL=2A in the RDEVICE macro instruction and the CUTYPE=3272 in the RCTLUNIT macro instruction.

The 3287 Model 1 or 2 printer is used with the 4331 and 4341 processors as the system hardcopy device. When generating the device type for the 3287 Model 1 or 2, specify DEVTYPE=3287 in the RDEVICE macro instruction.

#### SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on VM/370 support of the 4331 and 4341 processors including the 3278 Model 2A and the 3287 Model 1 or 2:

GC20-1801 Planning and System Generation Guide

GC20-1807 System Programmer's Guide

GC20-1809 OLTSEP and Error Recording Guide

GC20-1818 CMS User's Guide

GC20-1819 CMS Command and Macro Reference

GC20-1820 CP Command Reference for General Users

SY20-0884 Data Areas and Control Block Logic

SY20-0886 System Logic and Problem Determination Guide, Vol. 1

## 3203 Model 5 Printer Support

The 3203 Model 5 printer is a channel attached version of the 3203 Model 4 printer. VM/370 supports the new model in the same way that it supports the Model 4 version. Note that the DEVTYPE=3203 and MODEL=5 operands of the RDEVICE macro instruction must be specified to generate support of the device.

### SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on VM/370 support of the 3203 Model 5 printer (wherever Model 4 appears, Model 5 is added):

GC20-1801 Planning and System Generation Guide

GC20-1807 System Programmer's Guide

SY20-0886 System Logic and Problem Determination Guide, Vol. 1

SY20-0884 Data Areas and Control Block Logic

## 3800 Printing Subsystem Support

VM/370 Release 6 supports the 3800 printing subsystem which is a high speed, non-impact, general purpose printer that uses electrophotographic and laser technology to achieve printing speeds up to 20,040 lines of copy per minute.

The following features highlight the 3800 printer:

- FORMS CONTROL permits the user to select the amount of vertical space between printed lines. Lines can be vertically spaced 6, 8, or 12 lines per inch. Different spacings can be mixed on the same page except in the case when the 3800 printer is used as a spooling device.
- FORMS OVERLAY permits photographing of predefined data (forms) on one or more pages. The 3800 printer supports the creation of a form on a page and the immediate printing of data on that form.
- PREDEFINED CHARACTER SETS permit the user to select predefined character sets that contain up to 64 characters each. Different character sets can provide different character types and sizes, and horizontal spacings between characters. The 3800 printer supports the simultaneous use of two character sets and optionally supports the use of two additional character sets. The user can mix characters from different character sets on a single page. These characters are referenced within the 3800 printer through the use of translate tables. Up to four translate tables may be loaded at any one time.
- CHARACTER SET MODIFICATION permits the user to modify and/or extend character sets.
- COPY MODIFICATION permits the printing of predefined data (for example, printing the same header on each page) or the suppression of printing of selected data.
- PRINTING MULTIPLE COPIES permits multiple copies of files and datasets to be printed and/or collated without the use of multiple-ply paper. Multiple copies of a single 3800 buffer load can also be printed.

### DEDICATED 3800 PRINTER SUPPORT

VM/370 allows virtual machines, including virtual VM/370, to attach the 3800 printer as a dedicated I/O device. When attached, the full capability of the 3800 is available to the virtual machine. All the functions previously described are available when the 3800 is used as a dedicated device. Support for the 3800 printer is generated by the RDEVICE macro instruction which defines the 3800 device at system generation time.

### SUPPORT OF THE 3800 AS A REAL VM/370 SPOOLING DEVICE

Virtual machines can print spool files on the 3800 printer. With two exceptions, all previously mentioned features are supported. These two exceptions are the use of more than one translate table for printing a

given file, and the mixing of different vertical spacings on the same page or file. With regard to translate tables and character sets, once the user starts to print a spool file with particular character sets, he must print the entire file with those character sets. The RDEVBLK, SFBLK, SPLINK, and VSPXBLK copy blocks allow storage of information necessary for the operation of the 3800 printer. In addition, the BACKSPAC, CHANGE, QUERY, SPOOL, and START commands for CP now support the features of the 3800 printer.

#### ADDITIONAL VM/370 SUPPORT OF THE 3800 PRINTING SUBSYSTEM

The values that control feature selection and printing on the 3800 printer are stored in tables and modules. VM/370 provides a capability, via CP commands, to display the symbolic name of the library where they are stored.

Before printing a spool file, VM/370 initializes the 3800 printer by loading it with the tables that control feature selection and printing. VM/370 provides a capability to purge spool files that cause errors when they are loaded into the 3800 printer.

#### CREATING CONTROL INFORMATION FOR THE 3800 PRINTER

Two new service programs, GENIMAGE and IMAGELIB, construct or modify the tables and modules that control feature selections and printing on the 3800 printer. These service programs save the control tables and control modules as a named system.

#### NAMED SYSTEM SUPPORT

A new DIAGNOSE X'74' instruction provides a capability to save or to load a named system that contains the control tables and control modules for the 3800 printer. The new NAME3800 macro instruction allows named systems to be specified in the same manner as the NAMENCP macro instruction, except that the CPTYPE operand is not used. A new copy file, NPRTBL copy, supports the NAME3800 macro instruction.

#### USING THE 3800 PRINTER WITH STANDALONE UTILITIES OR WITH A VM/370 STARTER SYSTEM

Release 6 supports the use of the 3800 printer with either standalone utilities or with a VM/370 starter system.

## REFERENCE MATERIAL

The following publications detail information on the 3800 printing subsystem:

- GA26-1635 Reference Manual for the IBM 3800 Printing Subsystem
- GC20-1775 Concepts of the IBM 3800 Printing Subsystem
- GC20-3829 Introducing the IBM 3800 Printing Subsystem and Its Programming
- GC20-3846 IBM 3800 Printing Subsystem Programmer's Guide, OS/VS1, OS/VS2

## SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on VM/370 support of the 3800 printing subsystem:

- GC20-1800 Introduction
- GC20-1801 Planning and System Generation Guide
- GC20-1806 Operator's Guide
- GC20-1808 System Messages
- GC20-1807 System Programmer's Guide
- GC20-1820 CP Command Reference for General Users
- GC20-1821 Operating Systems in a Virtual Machine
- SY20-0882 Service Routines Program Logic Manual
- SY20-0884 Data Areas and Control Block Logic
- SY20-0886 System Logic and Problem Determination Guide, Vol. 1

## 3850 Mass Storage System (MSS) Extended Support

VM/370 Release 6 extends the initial dedicated support available for the 3850 Mass Storage System (MSS). The 3850 MSS allows system control of very large data capacities (from 35 billion bytes to 472 billion bytes).

MSS enhances operational efficiency by:

- Eliminating the time to manually pick DASD packs or tape reels from a data library
- Reducing pack change/tape change time
- Shortening the cycle time of a volume through a library system since all volumes are mounted and demounted under the control of the system
- Increasing data security by automatic volume mounting, storing and retrieving via system control
- Reducing space considerations for data libraries and computer rooms
- Reducing operational costs since the installation can place large amounts of present tape and DASD shelf data under direct control of the system.

Under Release 5, VM/370 provided dedicated MSS 3330V volumes. For Release 6, MSS minidisk support has been added. Under Release 6 an installation may now:

- Define virtual machine minidisks on MSS 3330V volumes allowing the VM/370 control program to dynamically mount and demount the volumes as needed. The term 3330V refers to a DASD device address on which an MSS volume may be mounted and whose address is known to either the VM/370 control program or to a guest virtual machine.
- Dedicate or attach an MSS 3330V device address to a 3330-1 virtual device such that the virtual machine needs no MSS support. If the 3330V is specified as a 3330-1, the VM/370 control program intercepts and processes all I/O operations to that device. The virtual machine accesses the 3330V as if it were a 3330-1. The control program handles all error recovery procedures unique to 3330V's.
- Specify that the VM/370 control program is to select any available 3330V device address and mount the required MSS volume as part of the VM/370 dedicate or attach processing.
- Dedicate or attach a 3330V device to a virtual machine as a virtual 3330V device. The virtual machine then handles all error recovery procedures directly.
- Utilize the modified cylinder fault processing available in the most recent MSS machine implemented levels. With this processing, an MSS 3330V device address is not in a busy state while data is being staged from an MSS cartridge to DASD to resolve a cylinder fault condition.

An MSS communicator program that runs in a virtual machine under OS/VS1 or MVS forms the interface between VM/370 and the mass storage control (MSC). This program mounts the requested volume and returns information to CP that the volume has been mounted.

The extended Mass Storage System support is packaged as two items although both must be present for full MSS support. Both are packaged and distributed along with the Release 6 base package for 3850 MSS support:

- Modification to the control program component of VM/370 such that VM/370 recognizes and utilizes the MSS for online DASD allocation.
- The MSS communicator program which runs in a virtual machine under OS/VS1 or MVS and communicates with both the VM/370 control program and the mass storage control (MSC) of the MSS, so that orders are passed from the control program to the MSC.

#### SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on VM/370 support of the 3850 Mass Storage System (MSS):

- GC20-1800 Introduction
- GC20-1801 Planning and System Generation Guide
- GC20-1806 Operator's Guide
- GC20-1807 System Programmer's Guide
- GC20-1808 System Messages
- GC20-1821 Operating Systems in a Virtual Machine
- SY20-0882 Service Routines Program Logic Manual
- SY20-0884 Data Areas and Control Block Logic
- SY20-0886 System Logic and Problem Determination Guide, Vol. 1

## VM/370 Measurement Facility (Monitor)

The VM/370 measurement facility (monitor) extends the data collection and recording capabilities of the monitor. These capabilities include:

- The gathering of additional data related to the utilization of channels, devices, storage, alternate I/O paths, and AP/UP processing.
- The capability for the system programmer to select devices for which seek information is to be collected
- Extensions to the capability of the system programmer to specify when the VM/370 monitor is to close the monitor spool file

The following modifications have been made to the VM/370 measurement facility:

### CHANNEL AND DEVICE UTILIZATION

The VM/370 monitor gathers additional data related to the utilization of channels, control units, and devices. A high frequency sampler gathers utilization data which itself is sampled by the LASTAP class of data collection.

### STORAGE UTILIZATION

During CP initialization, VM/370 informs the system operator of the partitioning of storage used by VM/370. The message sent to the operator specifies the size of the nucleus, the size of the initial dynamic area, the size of the trace table, and the amount of available free storage. The VM/370 monitor also records this information in the header record of the VM/370 monitor spool file.

### ALTERNATE PATH STATISTICS

The VM/370 monitor now gathers data that provides information about the use of alternate I/O paths. The monitor collects and records:

- The number of times an SIO instruction was issued on an alternate path
- The number of times a related I/O block was queued or dequeued
- The number of times a related I/O block stack was depleted

## AP/UP USAGE

During initialization on the VM/370 monitor, VM/370 stores the logical address of the processor and the logical address of the attached processor into the VM/370 monitor spool file header record. When sampling the USER class of data, the VM/370 monitor now records the logical address of the last processor to service the user. The VM/370 monitor also records this information in the monitor record for the SCHEDULE class at queue drop time.

## SELECTIVE SEEKS

An installation that uses the VM/370 monitor can now specify the DASD device for which seek related information is to be collected, or the DASD devices for which no seek information is desired. Two new options, INCLUDE and EXCLUDE, have been added to the CP MONITOR SEEKS command to reflect this enhancement.

## MONITOR-TO-DISK SUPPORT FOR REAL TIME

The system programmer can now request that the VM/370 monitor close the monitor spool file after a specified number of monitor samples has been made; he does this via the LIMIT operand of the SYSMON macro instruction which has been updated. Similarly changed is the LIMIT option of the CP MONITOR command. In addition, the minimum sample interval for the PERFORM, USER, and DASTAP monitor classes is reduced from 30 seconds to 5 seconds. This new support enables more frequent and regular real time data reduction of the monitor spool file.

## SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the VM/370 measurement facility (monitor):

GC20-1801 Planning and System Generation Guide

GC20-1806 Operator's Guide

GC20-1807 System Programmer's Guide

GC20-1808 System Messages

SY20-0884 Data Areas and Control Block Logic

SY20-0886 System Logic and Problem Determination Guide, Vol. 1

## Shared Segment Modifications

The following modifications have been made to shared segments:

### ELIMINATION OF AUTOMATIC UNSHARE

A shared segment is defined as reentrant, read-only code. Prior to Release 6, a user who modified a shared segment was unshared from the shared copy of that segment and given a private copy of the segment with his change intact. VM/370 gave other users of that segment access to a fresh copy of that segment.

Under Release 6, if a user modifies a shared segment, except by means of the CP ADSTOP, TRACE, or STORE commands, VM/370 places the user in console function mode and returns the modified page(s) to free storage. The next reference to that page causes a fresh copy to be paged in from backing storage.

When a user of a shared segment causes a page of that segment to be altered by issuing an ADSTOP, TRACE, or STORE command, the user is unshared from that shared segment and given his own copy of that segment. Other users of the segment continue to operate with an unchanged copy of that segment.

### UNPROTECTED SHARED SEGMENTS

Installations that use shared segments have the option, under Release 6, of running without protection against changes to these segments. If a shared segment is specified to be unprotected, a change made by the user of that shared segment is seen by all other users of that shared segment.

This option, when selected, eliminates the need for VM/370 to scan for changed shared pages in both AP and UP modes. In AP mode, a gain in pageable storage is achieved because VM/370 need not switch page table pointers and need not maintain duplicate copies of shared segments. The NAMESYS system generation macro instruction has been modified to support this option. Note that shared segment protection is the default specification. Installations that choose to employ the unprotected shared segments option should do so with caution and discretion.

## **SRL AND PROGRAM LOGIC PUBLICATIONS**

The following publications contain information on modifications to shared segments:

GC20-1800 Introduction

GC20-1801 Planning and System Generation Guide

GC20-1806 Operator's Guide

GC20-1807 System Programmer's Guide

GC20-1808 System Messages

GC20-1820 CP Command Reference for General Users

SY20-0884 Data Areas and Control Block Logic

SY20-0886 System Logic and Problem Determination Guide

## Trace Table Size Change

This support allows an installation to specify during system generation time the size of the VM/370 trace table. The size is specified in 4K increments in the SYSCOR macro instruction which has been updated to reflect this support. If the size is not specified, or if the specified size is less than the default value, the default trace table size is used.

### SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on VM/370 support of the trace table size change:

GC20-1801 Planning and System Generation Guide

GC20-1807 System Programmer's Guide

SY20-0884 Data Areas and Control Block Logic

## Multiple Alternate Consoles Support

This support provides an installation with the capability to specify multiple alternate consoles to be searched for availability during VM/370 system initialization in an attempt to find an operational system console when the primary console is unavailable.

This support can improve availability. Prior to Release 6, only one console could be specified as an alternate system console. If both the primary and alternate consoles were unavailable at system initialization, VM/370 entered a disabled wait state. With more than one alternate console available for use as a system console, the ability of VM/370 to find a ready and available console that can be used as a system console is improved. The ALTCONS= operand of the RIOPEN macro instruction now accepts the list of alternate console device addresses.

### SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on multiple alternate consoles support:

GC20-1801 Planning and System Generation Guide

GC20-1806 Operator's Guide

GC20-1807 System Programmer's Guide

SY20-0884 Data Areas and Control Block Logic

## LOGON/AUTOLOG/LINK Journaling Option

LOGON/AUTOLOG/LINK journaling is a system generation option that records all unsuccessful LOGON attempts and all LINK attempts using different possible passwords. LINK journaling records all linking (successful and unsuccessful) including directory links to protected minidisks -- those whose password for the type link being attempted is anything except ALL.

LOGON/AUTOLOG/LINK journaling is provided by generation of new types of accounting records (types 04, 05, and 06). These record types are generated whenever a user reaches an installation defined threshold of invalid passwords in attempting to issue LOGON/AUTOLOG and LINK commands. Additionally, an installation defined userid is notified when a second threshold is reached. Accounting routines that expect only previously defined record types and fail if they encounter any other type, will also fail if the journaling option is chosen since the accounting records generated are new.

This option modifies the current mechanism that limits invalid LOGON/AUTOLOG and LINK commands to a fixed value before disabling those commands. LOGON/AUTOLOG and LINK commands are disabled when an installation defined threshold now specified via the new SYSJRL macro instruction is reached and journaling is set on.

Messages generated when the threshold for consecutive incorrect LOGON/AUTOLOG and LINK passwords has been reached or exceeded are sent to the userid specified in the SYSJRL macro instruction. The system administrator is also notified of unsuccessful uses of the LOGON and LINK commands.

The new JOURNAL operand has been added to the CP QUERY and SET commands to reflect support of LOGON/AUTOLOG/LINK journaling. The QUERY JOURNAL command is used to question the status of the journaling option while the SET JOURNAL command turns LOGON/AUTOLOG/LINK journaling on or off.

To support the LOGON/AUTOLOG/LINK journaling option, two additional control blocks are added:

PWDIBLOK (Password Invalid Block)

JPSCBLOK (Journaling and Password Suppression Control Block)

## SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the LOGON/AUTOLOG/LINK journaling option:

GC20-1800 Introduction  
GC20-1801 Planning and System Generation Guide  
GC20-1806 Operator's Guide  
GC20-1807 System Programmer's Guide  
GC20-1808 System Messages  
GC20-1813 Glossary and Master Index  
GC20-1819 CMS User's Guide  
GC20-1820 CP Command Reference for General Users  
GX20-1926 Quick Guide Pocket Reference  
SY20-0884 Data Areas and Control Block Logic  
SY20-0886 System Logic and Problem Determination Guide, Vol. 1

## Password-On-The-Command-Line Suppression Option

VM/370 supports the password-on-the-command-line suppression system generation option through which an installation may now prevent disclosure of virtual machine and minidisk passwords to unauthorized personnel. This is accomplished by disallowing passwords entered on the same line as LOGON/AUTOLOG and LINK commands. When this option is selected, passwords must be entered so that they are not displayed (as is the case with the 3270 display family) or so that they are typed upon a mask (as is the case with the 2741 terminal). If this option is chosen, installation users are not able to include passwords on the same line as their LOGON/AUTOLOG and LINK commands.

A virtual machine may also request CP to perform this same service for LINK and AUTOLOG commands passed to CP from a virtual machine via the DIAGNOSE X'8' instruction by turning on the high order bit in R9 (the length register). CMS has also been modified to request suppression of passwords for LINK and AUTOLOG commands entered at the terminal. Password suppression is not required by CMS for LINK or AUTOLOG commands entered from a module or EXEC.

The password-on-the-command-line suppression option is specified at system generation time by the new SYSJRL macro instruction. No facility exists to allow the operator to query, set, or alter the system generated value.

Messages generated when the password is entered on the same line as a LOGON or LINK command are sent to the issuer of that command.

VMBLOCK COPY has been modified to reflect support of the password-on-the-command-line suppression option. A new control block, JPSCBLOC, is used to control this option.

### SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the password-on-the-command-line suppression option:

GC20-1800 Introduction  
GC20-1801 Planning and System Generation Guide  
GC20-1806 Operator's Guide  
GC20-1807 System Programmer's Guide  
GC20-1808 System Messages  
GC20-1813 Glossary and Master Index  
GC20-1819 CMS User's Guide  
GC20-1820 CP Command Reference for General Users  
GX20-1926 Quick Guide Pocket Reference  
SY20-0884 Data Areas and Control Block Logic  
SY20-0886 System Logic and Problem Determination Guide, Vol. 1

## **Remote Spooling Communications Subsystem (RSCS) Networking Program Product**

The Remote Spooling Communications Subsystem Networking program product (Program Number 5748-XP1) is the successor to the current RSCS component of VM/370 and the VM/370 Networking (VNET) Programming PRPQ P09007 (Program Number 5799-ATA). The RSCS Networking program product provides Remote Job Entry into a VM/370 system and allows a VM/370 system to participate in a network of computer systems that use the Network Job Interface/Network Job Entry (NJI/NJE) protocol.

Phased migration to the RSCS Networking program product is possible because RSCS Networking is a superset of either the RSCS component of VM/370 or the VNET PRPQ. RSCS Networking is compatible with both of these facilities, except that the RSCS operator will see minor parameter incompatibilities in the TRACE, QUERY, and CMD commands. The RSCS Networking program product can coexist on the same processor with the RSCS component of VM/370 Release 6 provided that each has its own separate DASD space.

For more detailed information on the RSCS Networking program product, refer to the following list of publications:

GH24-5004 General Information Manual  
SH24-5005 Program Reference and Operations Manual  
LY24-5203 Logic Manual  
SX24-5119 Reference Summary Card

### **SRL PUBLICATIONS**

The following publications contain information on the RSCS Networking program product:

GC20-1800 Introduction  
GC20-1801 Planning and System Generation Guide  
GC20-1807 System Programmer's Guide

## Special Message Facility

The special message facility is a method of transferring special messages from a user to a specially programmed receiving virtual machine for processing. The sender of the message need only issue the new CP command, SMSG, rather than having to establish authorization with the receiving virtual machine.

CP, through its message and Virtual Machine Communication Facility (VMCF) modules, acts as a virtual machine on behalf of the issuer of the SMSG command. The receiving virtual machine must issue an AUTHORIZE and set on the SMSG flag if it wishes to receive special messages. The SMSG flag is set on by issuing the SET SMSG command or by setting the flag in the VMCF parameter list when issuing the AUTHORIZE control subfunction (DIAGNOSE X'68').

The receiving virtual machine is also responsible for accepting and processing the special message that is defined in form and content by the installation. For example, the receiving virtual machine might be programmed to accept only messages containing commands to process user files being sent to remote locations. Existing means and paths of communication and data transfer remain intact. The user still has the CP command, MESSAGE, available to him and he can still exchange data with other virtual machines via mutual authorization.

In addition to the SMSG command, two other CP commands have been modified to reflect support of this facility. The SMSG operand has been added to the SET command to indicate if the receiving virtual machine is to receive special messages. The QUERY SET command is now modified to include a response indicating the special message status, either ON or OFF.

### SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the special message facility:

GC20-1800 Introduction

GC20-1801 Planning and System Generation Guide

GC20-1807 System Programmer's Guide

GC20-1808 System Messages

GC20-1818 CMS Command and Macro Reference

GC20-1819 CMS User's Guide

GC20-1820 CP Command Reference for General Users

SY20-0884 Data Areas and Control Block Logic

SY20-0886 System Logic and Problem Determination Guide, Vol. 1

## Modification to the DIAGNOSE X'8' Interface

The CP DIAGNOSE X'8' instruction has been modified to allow any user to receive his DIAGNOSE X'8' response in a user specified virtual storage location. The response to any CP command is now available in machine readable form in the user's virtual storage at the completion of the command. The interface which allows a user to receive DIAGNOSE X'8' responses at his console remains intact.

### SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the modification to the DIAGNOSE X'8' interface:

GC20-1807 System Programmer's Guide

SY20-0886 System Logic and Problem Determination Guide, Vol. 1

## Directory Update-In-Place Support

This facility supports the Directory Maintenance program product (Program No. 5748-XE4). It provides the capability for virtual machines with privilege class B to update the CP object directory without running the directory (DMKDIR) program. The CP directory exists in two forms:

- a. Source directory - consists of the set of entries that defines all virtual machines in a VM/370 system. Each virtual machine is defined by a set of statements known as an entry that varies according to the machine specifications desired.
- b. Object directory - consists of the same information as contained in the source directory but in a condensed control block, machine readable format.

Prior to Release 6, the directory program was invoked to translate the entire source directory to the object directory and write the object directory to a system DASD device for each directory change. Given the large number of directory entries consisting of vast numbers of statements, this manner of directory updating was neither time nor resource efficient. By the introduction of the new DIAGNOSE X'84' instruction selected data fields in an online object directory are updated without a full directory program compile run, thereby providing an efficient alternative to running of the directory program. The selected data fields are among those that do not require a change in the object directory size when they are updated. The directory program must still be run, however, when updating requires either an expansion or a contraction of the object directory entries.

Two new copy control blocks, UCNTRL and UIPARMS, are used in the new module DMKUDU to perform directory updating.

For more detailed information on the Directory Maintenance program product (Program No. 5748-XE4), refer to the following publications:

|           |                                                                                            |
|-----------|--------------------------------------------------------------------------------------------|
| GC20-1835 | Licensed Program Design Objectives                                                         |
| GC20-1836 | General Information Manual                                                                 |
| GC20-1837 | Licensed Program Specifications                                                            |
| SC20-1839 | VM/370 Directory Maintenance Program Product Guide for General Users                       |
| SC20-1840 | VM/370 Directory Maintenance Program Product Installation and System Administrator's Guide |
| LY20-0889 | VM/370 Directory Maintenance Program Product Program Logic Manual                          |

### SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on directory update-in-place support:

|           |                                                      |
|-----------|------------------------------------------------------|
| GC20-1807 | System Programmer's Guide                            |
| GC20-1821 | Operating Systems in a Virtual Machine               |
| SY20-0884 | Data Areas and Control Block Logic                   |
| SY20-0886 | System Logic and Problem Determination Guide, Vol. 1 |

## Directory Program Fast I/O Support

This support enhances the performance of the directory program (DMKDIR) when run under CMS by using blocking factors during reading and writing of the directory source copy. Without blocking, one 80-byte source record is read at a time resulting in time and resource inefficiency. Through blocking, the amount of I/O required to process the complete file has been reduced, thereby yielding both processor and elapsed time savings.

### SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the directory program fast I/O support:

GC20-1807 System Programmer's Guide

SY20-0884 Data Areas and Control Block Logic

## Support for the MSGNOH (Message No Header) Command (CP)

VM/370 now allows a service virtual machine with privilege class B to send unformatted messages to other users of the system. CP neither prefixes these unformatted messages with the standard messenger header (time stamp plus source identifier) nor inserts blank lines between consecutive lines of output. The result is a more efficient method of communication between a VM/370 user and a VM/370 service virtual machine.

### SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on VM/370 support of the MSGNOH command:

GC20-1806 Operator's Guide

GC20-1807 System Programmer's Guide

SY20-0884 Data Areas and Control Block Logic

SY20-0886 System Logic and Problem Determination Guide, Vol. 1

## Real Inhibit Support

This support adds to CP the capability of handling a read inhibit from a virtual machine when entering passwords and other security data. The read inhibit facility provides the capability for entering data so that it is not displayed or so that it is typed upon a mask. The CCW command code 0E in a virtual channel program is used to communicate a request for a read inhibit from a virtual machine to CP. The determination of terminal device type and the way in which to inhibit a read is now handled by CP. A virtual machine may now prompt a user to input his password during some transaction processing without revealing the password on the display screen or on a spooled printer output copy, thereby enhancing security.

### SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on the read inhibit facility:

GC20-1807 System Programmer's Guide

SY20-0884 Data Areas and Control Block Logic

## Automatic Reinitialization Support

This support allows a CMS virtual machine to specify that control be given to a reinitialization program as an alternative to entering a disabled wait state after an abend. This support enables the virtual machine to check in the CMS nucleus for a new field, AUSERRST, which is the address of the restart routine. If a valid address is present, control is passed to it. This routine could issue an abend dump and then issue the CP IPL PARM command with the new AUTO CR option. This would enable a CMS virtual machine to automatically execute its PROFILE EXEC after an IPL command is issued.

### SRL AND PROGRAM LOGIC PUBLICATIONS

The following publications contain information on automatic reinitialization support:

GC20-1807 System Programmer's Guide

GC20-1820 CP Command Reference for General Users

SY20-0884 Data Areas and Control Block Logic

SY20-0887 System Logic and Problem Determination Guide, Vol. 2

## **DL/I in a CMS/DOS Environment**

DL/1 batch application programs can be written and tested in the CMS/DOS environment.

### **PUBLICATIONS**

The following publication contains information about DL/1:

GH20-1246 DL/1, DOS/VS General Information Manual

## Section 2. CP, CMS, RSCS, and IPCS Module Summary

This section lists the modules that have been resequenced, split, changed, deleted, or added during the preparation of this release. It also lists those modules that are used only in attached processor mode.

### Resequenced Modules--Release 6

#### CP

|        |        |        |        |
|--------|--------|--------|--------|
| DMKAPI | DMKCQY | DMKFMT | DMKPRG |
| DMKCCW | DMKCSO | DMKPRE | DMKPRV |
| DMKCFS | DMKCSQ | DMKHVD | DMKSCN |
| DMKCKP | DMKCSU | DMKIOE | DMKVDA |
| DMKCPI | DMKCSV | DMKIOS | DNJVEC |
| DMKCP5 | DMKDDR | DMKLOG | DMKVMA |
| DMKCPU | DMKDEF | DMKMCD | DMKVSI |
| DMKCQH | DMKDIR | DMKPAG | DMKVSC |

#### CMS

|        |        |        |        |
|--------|--------|--------|--------|
| DMSARE | DMSDLK | DMSIFC | DMSUPD |
| DMSBOP | DMSERR | DMSNCP | CMSXCP |
| DMSBWR | DMSGIO | DMSSCR | DMSZAP |

#### IPCS

DMMDIR  
DMMDSC  
DMMEDM  
DMMFED  
DMMHAP  
DMMREG  
DMMVMB

#### RSCS

DMTSMI

## Split Modules--Release 6

### CP

DMKATS (Function now in DMKVMA and DMKATS)  
DMKCQH (Function now in DMKCQG and DMKCQH)  
DMKCSQ (Function now in DMKCSP and DMKCSQ)  
DMKCSV (Function now in DMKCSU and DMKCSV)  
DMKVSQ (Function now in DMKVSP and DMKVSQ)

### CMS

none

### IPCS

none

### RSCS

none

## Attached Processor (AP) Only Modules--Release 6

### CP

DMKAPI  
DMKCLK  
DMKCPU  
DMKEXT  
DMKLOK  
DMKMCT

### CMS

none

### IPCS

none

### RSCS

none

## Changed Modules--Release 6

### CP

|         |        |          |        |
|---------|--------|----------|--------|
| DMKACO  | DMKCQY | DMKIOF   | DMKRGa |
| DMKALG  | DMKCSB | DMKIOG   | DMKRSE |
| DMKAPI  | DMKCSO | DMKIOS   | DMKRSP |
| DMKBLD  | DMKCSP | DMKLD00E | DMKSAV |
| DMKCCCH | DMKCST | DMKLNK   | DMKSEP |
| DMKCCW  | DMKCSU | DMKLOG   | DMKSPL |
| DMKCDM  | DMKDDR | DMKMCC   | DMKSSP |
| DMKCDS  | DMKDEF | DMKMCD   | DMKSVC |
| DMKCFC  | DMKDGD | DMKMCH   | DMKSYM |
| DMKCFD  | DMKDIA | DMKMCT   | DMKTMR |
| DMKCFG  | DMKDIR | DMKMIA   | DMKTRC |
| DMKCFH  | DMKDMP | DMKMNI   | DMKTRD |
| DMKCFP  | DMKDRD | DMKMON   | DMKTRM |
| DMKCFS  | DMKDSB | DMKMSG   | DMKUSC |
| DMKCFT  | DMKDSP | DMKMSW   | DMKVAT |
| DMKCKP  | DMKEMA | DMKNES   | DMKVCN |
| DMKCKS  | DMKEMB | DMKNLD   | DMKVCA |
| DMKCNS  | DMKEMC | DMKNLE   | DMKVLC |
| DMKCPB  | DMKENT | DMKOPR   | DMKVDR |
| DMKCPI  | DMKFMT | DMKPAG   | DMKVDS |
| DMKCPS  | DMKFRE | DMKPGS   | DMKVMA |
| DMKCPU  | DMKGFR | DMKPRG   | DMKVMC |
| DMKCPV  | DMKHVC | DMKPRV   | DMKVSI |
| DMKCQG  | DMKHVD | DMKPSA   | DMKVSP |
| DMKCQP  | DMKIOC | DMKPTR   | DMKWRM |
| DMKCQR  | DMKIOE | DMKQCN   | VRSIZE |

### CMS

|        |        |        |        |
|--------|--------|--------|--------|
| DMSASM | DMSERR | DMSMOD | DMSSEE |
| DMSAUD | DMSEXT | DMSNUC | DMSTIO |
| DMSCPF | DMSINA | DMSOLD | DMSUPL |
| DMSEDI | DMSINS | DMSSCR | DMSZAP |
| DMSIDX | DMSLDR |        |        |

### IPCS

DMMCPA  
DMMEDM

### RSCS

DMTAXS

## New Modules--Release 6

### CP

DMKGRT  
DMKGRW  
DMKIMG

DMKJRL  
DMKMSS  
DMKNMT

DMKSSS  
DMKTCS

DMKUDU

### CMS

none

### IPCS

none

### RSCS

none

## Deleted Modules--Release 6

### CP

none

### CMS

none

### IPCS

none

### RSCS

none

## Section 3. Command, Macro Instruction and Service Program Summary

This section presents the names of commands, macro instructions, and service programs that have been added or changed for this release. Each chart identifies the command, macro instruction, or service program that has been changed or added, and the line item support causing the change or addition. Also included in this section are changes and additions to system ABEND codes and WAIT states.

### New CP Commands

| Priv.<br>Class | Command | Operand            | Description                                                                                                                                                         | Line<br>Item<br>Support        |
|----------------|---------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| B              | MSGNOH  | userid<br>msgtxt   | Allows a service virtual machine to send unformatted messages to other users of the system                                                                          | MSGNOH                         |
| G              | SMSG    | userid *<br>msgtxt | Used for sending special messages to a virtual machine programmed to accept and process special messages. The userid of the receiving virtual machine is specified. | Special<br>Message<br>Facility |

## Changes to CP Commands

| Priv.<br>Class. | Command  | Operand                  | Description                                                                                                                                                                                                                                                                                        | Line Item<br>Support          |
|-----------------|----------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| A               | ATTACH   | valid                    | rdev SYSTEM volser - If the rdev is a 3330V, the MSS volume (volser) is mounted before the rdev is attached as a system device.                                                                                                                                                                    | 3850<br>MSS                   |
|                 |          | 3330V                    | rdev userid cuu volser 3330V - MSS volume (volser) is mounted at a real address (rdev) and the rdev is attached to the userid virtual machine as a virtual device (cuu). If 3330V is specified, the virtual device is a 3330V rather than a 3330-1.                                                | 3850<br>MSS                   |
| D               | BACKSPAC | [file]<br>[pages]<br>[1] | The EOF option in new. If EOF is specified, page counting is started from the end of the last DASD buffer of the spool file instead of from the end of the current buffer.                                                                                                                         | 3800<br>Printing<br>Subsystem |
| G,D             | CHANGE   | PRT                      | The FLASH option with the name of the overlay is used to generate forms flashing and the flash count. If specified as nn, the first nn copies are flashed and the rest are not.                                                                                                                    | 3800<br>Printing<br>Subsystem |
|                 |          |                          | MODIFY option used with copy modification name is used to specify the name of the module used for printing a file.                                                                                                                                                                                 | 3800<br>Printing<br>Subsystem |
|                 |          |                          | CHARS option with translate table name is used to specify the name of the character arrangement table used for printing a file.                                                                                                                                                                    | 3800<br>Printing<br>Subsystem |
|                 |          |                          | FCB option with appropriate FCB name is used to specify the number of lines per inch to print. The proper FCB to load is calculated by VM/370.                                                                                                                                                     | 3800<br>Printing<br>Subsystem |
|                 |          |                          | COPY option - if the number of copies is preceded by an asterisk, a file is transmitted to the 3800 only once with the 3800 doing the replication internally one page at a time. Otherwise, the file is transmitted once for each copy desired with VM/370 indicating the copy number to the 3800. | 3800<br>Printing<br>Subsystem |

| Priv. Class. | Command | Operand       | Description                                                                                                                                    | Line Item Support           |
|--------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| B            | DEFINE  | SYSVIRT       | Alters the use of the 3330V and reserves it for CP. It cannot be dedicated or attached to a virtual machine.                                   | 3850 MSS                    |
|              |         | VIRTUAL       | Alters the use of the 3330V device so that the device can be dedicated or attached to a virtual machine. It cannot be used as a system volume. | 3850 MSS                    |
| G            | IPL     | PARM          | The AUTOOCR option enables a carriage return simulation after the CP IPL command is complete. The option also causes a PROFILE EXEC execution. | Automatic Reinitialization  |
| A,E          | MONITOR | LIMIT n,      | The SAMPLE option enables the user to specify that a spool file be closed after n samples of data are taken.                                   | VM/370 Measurement Facility |
|              |         | SEEKS         | INclude raddr...defines a list of real device addresses for which the SEEKS class of data collection is activated.                             | VM/370 Measurement Facility |
|              |         |               | EXclude raddr...defines a list of real device addresses for which data is not collected when the SEEKS class of data collection is activated.  | VM/370 Measurement Facility |
|              |         |               | DELeTe option specifies that the most recent EXclude or INclude option is deleted. This deletes the list of real device addresses.             | VM/370 Measurement Facility |
|              |         |               | DISPlay option displays the current device list.                                                                                               | VM/370 Measurement Facility |
| A            | QUERY   | JOURNAL LOGON | Allows the status of the journaling option to be interrogated for LINK and LOGON commands.                                                     | LOGON/AUTOLOG/LINK          |
|              |         | JOURNAL LINK  |                                                                                                                                                | Journaling                  |
| G,D          | QUERY   | PRT           | The TBL option gives new information for the spool file.                                                                                       | 3800 Printing Subsystem     |
| B            | QUERY   | PRT raddr     | Gives the forms name and image library name.                                                                                                   | 3800 Printing Subsystem     |

| Priv. Class. | Command  | Operand   | Description                                                                                                                                    | Line Item Support        |
|--------------|----------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| G            | QUERY    | PRT vaddr | Gives the tables name on a virtual printing device.                                                                                            | 3800 Printing Subsystem  |
| B            | QUERY    | DASD      | The SYSVIRT option displays the address of the system 3330V volume. The VIRTUAL option displays the address of a virtual machine 3330V device. | 3850 MSS                 |
| G            | QUERY    | TERMINAL  | Displays current settings of functions controlled by the terminal command. A new (added) response is for the logical tab character.            | 4331, 4341 Processors    |
| G            | QUERY    | SET       | No change in the command itself. Response now includes status of SMSG (ON or OFF).                                                             | Special Message Facility |
| G            | SET      | SMSG      | Controls whether or not a virtual machine is to receive special messages via the ON or OFF options.                                            | Special Message Facility |
| G            | SPOOL    | PRT       | The same new options listed for the CHANGE command are applicable for the SPOOL command.                                                       | 3800 Printing Subsystem  |
| D            | START    | PRT       | The FLASH option gives the flash overlay loaded into the 3800.                                                                                 | 3800 Printing Subsystem  |
|              |          |           | The CHARS option gives the character arrangement table to use for the separator pages.                                                         | 3800 Printing Subsystem  |
|              |          |           | The FCB option generates the FCB used for separator pages (6, 8, or 12).                                                                       | 3800 Printing Subsystem  |
|              |          |           | The IMAGE option generates the named system image library used for tables.                                                                     | 3800 Printing Subsystem  |
|              |          |           | The PURGE option purges all files with load errors. Default is to HOLD.                                                                        | 3800 Printing Subsystem  |
| G            | TERMINAL | TABCHAR   | Allows the user to specify his own logical tab character.                                                                                      | 4331, 4341 Processors    |

## New VM/370 System Generation Macro Instructions

| Macro<br>Instruc-<br>tion | Operand                                           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Line Item<br>Support                     |
|---------------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| SYSJRL                    | <u>,JOURNAL=NO</u><br><u>,JOURNAL=YES</u>         | Specifies whether or not the journaling function is to be operative in the system being system generated.                                                                                                                                                                                                                                                                                                                                                                  | LOGON/<br>AUTOLOG/<br>LINK<br>Journaling |
|                           | <u>,STQUERY=NO</u><br><u>,STQUERY=YES</u>         | Specifies whether or not the user wishes to SET or QUERY the journaling function.                                                                                                                                                                                                                                                                                                                                                                                          | LOGON/<br>AUTOLOG/<br>LINK<br>Journaling |
|                           | <u>,LOGUID=OPERATOR</u><br><u>,LOGUID=userid</u>  | Specifies the userid to which a message is sent indicating that the usr has reached or exceeded an invalid logon password count.                                                                                                                                                                                                                                                                                                                                           | LOGON/<br>AUTOLOG/<br>LINK<br>Journaling |
|                           | <u>,LOGLMT=(2,3,4)</u><br><u>,LOGLMT=(m,n,o)</u>  | Specifies the invalid LOGON/AUTOLOG password thresholds. The m specifies the value after which a type 04 accounting record is generated for each succeeding LOGON/AUTOLOG command containing an invalid password. The n specifies a value after which a message is sent to the user specified for each succeeding LOGON/AUTOLOG command with an invalid password. The o specifies a value after which the LOGON/AUTOLOG command is disabled for the current logon session. | LOGON/<br>AUTOLOG/<br>LINK<br>Journaling |
|                           | <u>,LNKUID=OPERATOR</u><br><u>,LNKUID=userid</u>  | Specifies the userid to which a message is sent indicating that the user has reached or exceeded an invalid link password count.                                                                                                                                                                                                                                                                                                                                           | LOGON/<br>AUTOLOG/<br>LINK<br>Journaling |
|                           | <u>,LNKLMT=(2,5,10)</u><br><u>,LNKLMT=(m,n,o)</u> | Specifies the invalid LINK password thresholds. The m specifies a value after which a type 06 accounting record is generated for each succeeding LINK containing an invalid password. The n specifies a value after which a message is sent to the userid specified in LNKUID for each succeeding link being attempted. The o specifies a value after which the LINK command is disabled for the current logon session.                                                    | LOGON/<br>AUTOLOG/<br>LINK<br>Journaling |

| Macro<br>Instruc-<br>tion | Operand                   | Description                                                                                                                                                                                                                                                   | Line Item<br>Support                                              |
|---------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| SYSJRL                    | ,PSUPRS=NO<br>,PSUPRS=YES | Specifies whether or not the<br>password-on-the-command-line<br>suppression option should be<br>enabled.                                                                                                                                                      | Password-<br>On-The-<br>Command-<br>Line<br>Suppression<br>Option |
| NAME3800                  |                           | Allows a 3800 named system to be<br>specified at system generation<br>time. Its format is identical to<br>the NAMENCP macro instruction<br>except the CPTYPE= operand is<br>not used and the chain of named<br>systems is contained in the<br>DMKONTBL csect. | 3800<br>Printing<br>Subsystem                                     |

## Changes to VM/370 System Generation Macro Instructions

| Macro Instruction | Option                                 | Function Type of Action and Description                                                                                                                                                                                                                                                                                                                                                      | Line Item Support                 |
|-------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| NAMESYS           | PROTECT=<br>OFF<br>ON                  | Specified for the named system;<br>when specified, this option<br>sets an indicator in SHRTABLE.<br>If PROTECT=OFF, only one set<br>of page and swap tables is built<br>for this shared segment and no<br>scanning is done for changed shared<br>pages. If PROTECT=ON, (or no protect<br>keyword is specified), scanning<br>is done for changed shared pages.<br>Any changes are disallowed. | Shared<br>Segments                |
| RCTLUNIT          | CUTYPE=<br>3272                        | Must be specified when a 3278<br>Model 2A is specified in the<br>RDEVICE macro instruction.                                                                                                                                                                                                                                                                                                  | 4331,<br>4341<br>Processors       |
| RDEVICE           | DEVTYPE=<br>3278                       | New device type and model number<br>permits generation of the 3278<br>Model 2A as a system console for<br>the 4331 and 4341 processors.                                                                                                                                                                                                                                                      | 4331,<br>4341<br>Processors       |
|                   | DEVTYPE=<br>3278                       | Permits specification of a 3278<br>as a real printer (to be supported<br>the same way as a 3284/3286).                                                                                                                                                                                                                                                                                       | 4331,<br>4341<br>Processors       |
|                   | DEVTYPE=<br>3203                       | Permits specification of a 3203<br>Model 5 printer as a real printer.<br>If MODEL is not specified, the<br>default is MODEL=4.                                                                                                                                                                                                                                                               | 3203<br>Model 5<br>Processors     |
|                   | DEVTYPE=<br>3800<br>Feature=<br>4WCGMS | Generates support of a dedicated<br>3800 printer as a unit record<br>output device.                                                                                                                                                                                                                                                                                                          | 3800<br>Printing<br>Subsystem     |
|                   | FEATURE=<br>SYSVIRT<br>VIRTUAL         | Used to specify the allowed usage<br>of a 3330V device address.                                                                                                                                                                                                                                                                                                                              | 3850<br>MSS                       |
| RIOGEN            | ALTCONS=<br>(cuu...<br>cuu)            | Option now accepts a list of<br>alternate console device addresses.                                                                                                                                                                                                                                                                                                                          | Multiple<br>Alternate<br>Consoles |
| SYSCOR            | TRACE=nnn                              | Specifies the number of 4K pages<br>used to set up the trace table.                                                                                                                                                                                                                                                                                                                          | Trace Table<br>Size Change        |
| SYSMON            | ,LIMIT=                                | 50000, NOSTOP<br>limit, STOP NOSTOP<br>limit, SAMPLE<br>Specifies that the spool file<br>be closed after a specified number<br>of data samples is taken.                                                                                                                                                                                                                                     | VM/370<br>Measurement<br>Facility |

## New and Changed VM/370 Service Programs

| Service Program | Control Statement                     | Description                                                                                                                                                                                                                                                       | Line Item Support             |
|-----------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| DEDICATE        | ccu rdev                              | The real device (rdev) is dedicated to a virtual machine as the virtual device (cuu). CP assumes that the virtual machine is accessing address cuu as a 3330-1.                                                                                                   | 3850<br>MSS                   |
|                 | cuu rdev 3330V                        | The real device (rdev) is dedicated to the virtual machine as a virtual device (cuu). CP assumes that the virtual machine has MSS 3330V support. All cylinder faults and associated attention interruptions on the real device are passed to the virtual machine. | 3850<br>MSS                   |
|                 | cuu volser                            | CP selects an available 3330V device and causes volume (volser) to be mounted by MSS. The real device is dedicated to the virtual machine as its virtual 3330-1 device cuu.                                                                                       | 3850<br>MSS                   |
|                 | cuu rdev volser                       | CP mounts the MSS volume (volser) on the real 3330V address (rdev). The real device is dedicated to the virtual machine as a 3330-1 device address (cuu).                                                                                                         | 3850<br>MSS                   |
|                 | cuu rdev volser<br>3330V              | Processed the same as cuu rdev volser except that the virtual device becomes a 3330V.                                                                                                                                                                             | 3850<br>MSS                   |
| DMKMSS          |                                       | A new program that runs under OS/VS1 and MVS in a virtual machine. It is a communications interface between VM/370 CP and mass storage control (MSC).                                                                                                             | 3850<br>MSS                   |
| GENIMAGE        | [fn] [ft] [fm]<br>([sfn] [sft] [sfm]) | Accepts IEBIMAGE control cards and creates a load module suitable for loading into a 3800. This module is saved as a TEXT file on the user's disk.                                                                                                                | 3800<br>Printing<br>Subsystem |

| Service Program | Control Statement | Description                                                                                                                                                                                                  | Line Item Support             |
|-----------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| IMAGELIB        | namedsys          | This program creates or changes the named system 'namedsys' which contains a series of load modules suitable for loading into a 3800. The list of load modules is contained in a file called namedsys CNTRL. | 3800<br>Printing<br>Subsystem |

## Changes to System ABEND Codes and WAIT States

### Changes to System Abend Codes

The following new abend codes have been added to support VM/370 elimination of automatic unshare:

ATS001  
ATS002  
ATS003  
ATS004  
ATS005  
ATS006  
ATS007

These abend codes replace VMA001 through VMA007 and VMA009. For more detailed explanation of abend codes, refer to VM/370 System Messages, Order No. GC20-1808.

### Changes to System Wait States

None



## Section 4. VM/370 Publications

This section describes the publications that have been deleted or added to the VM/370 library, and includes the current status of, and any changes to, VM/370 publications.

### The VM/370 Library

Figure 0-1, following the preface, shows the structure of the VM/370 library. Essentially, the content and structure of the VM/370 library are unchanged from the previous release with the following exceptions listed in this section.

#### DELETED PUBLICATIONS

GC20-1831-0 Release 5 Guide

#### NEW PUBLICATIONS

GC20-1834-0 Release 6 Guide

#### CURRENT STATUS OF VM/370 PUBLICATIONS AND TNLS

Use the following list to guarantee that all VM/370 publications are current for this release.

| <u>TNL Number</u> | <u>Order Number</u> | <u>Abbreviated Title</u>                                              |
|-------------------|---------------------|-----------------------------------------------------------------------|
|                   | GC20-1800-9         | Introduction                                                          |
|                   | GC20-1801-9         | Planning and System Generation Guide                                  |
|                   | GC20-1806-9         | Operator's Guide                                                      |
|                   | GC20-1807-7         | System Programmer's Guide                                             |
|                   | GC20-1808-9         | System Messages                                                       |
|                   | GC20-1809-7         | OLTSEP and Error Recording Guide                                      |
|                   | GC20-1810-8         | Terminal User's Guide                                                 |
|                   | GC20-1813-5         | Glossary and Master Index                                             |
|                   | GC20-1816-2         | RSCS User's Guide                                                     |
|                   | GC20-1818-2         | CMS Command and Macro Reference                                       |
|                   | GC20-1819-2         | CMS User's Guide                                                      |
|                   | GC20-1820-3         | CP Command Reference for General Users                                |
|                   | GC20-1821-3         | Operating Systems in a Virtual Machine                                |
|                   | GC20-1823-3         | IPCS User's Guide                                                     |
|                   | GC20-1834-0         | Release 6 Guide                                                       |
|                   | GBOF-3573           | Use this number to order the following three publications as a group: |
|                   | GX20-1926-6         | Quick Guide for Users                                                 |
|                   | GX20-1961-4         | Commands (General Users)                                              |
|                   | GX20-1995-1         | Commands (Other than General Users)                                   |

| <u>TNL Number</u> | <u>Order Number</u> | <u>Abbreviated Title</u>                                                 |
|-------------------|---------------------|--------------------------------------------------------------------------|
|                   | SY20-0882-4         | Service Routines Program Logic                                           |
|                   | SY20-0884-3         | Data Areas and Control Block Logic                                       |
|                   | SBOF-3802           | Use this number to order the following<br>three publications as a group: |
|                   | SY20-0886-1         | System Logic and Problem Determination Guide<br>Vol. 1 (CP)              |
|                   | SY20-0887-1         | System Logic and Problem Determination Guide<br>Vol. 2 (CMS)             |
|                   | SY20-0888-0         | System Logic and Problem Determination Guide<br>Vol. 3 (RSCS)            |

#### EREP PUBLICATIONS

These publications are needed to install and use EREP with VM/370:

| <u>TNL Number</u> | <u>Order Number</u> | <u>Abbreviated Title</u>                                                                      |
|-------------------|---------------------|-----------------------------------------------------------------------------------------------|
|                   | GC28-0772-2         | OS/VS, DOS/VSE, VM/370 Environmental<br>Recording, Editing, and Printing (EREP) Program       |
|                   | SY28-0773-2         | OS/VS, DOS/VSE, VM/370 Environmental Recording,<br>Editing, and Printing (EREP) Program Logic |
|                   | GC38-1045-1         | OS/VS, DOS/VSE, VM/370 EREP Messages                                                          |

## Changes to VM/370 Publications

Changes to the content of VM/370 publications are shown in the following chart. The changes reflect the elimination of duplicate information. The chart shows the publications that no longer contain this information and the publications where this information is either retained or added. Also shown are enhancements to material presently in the publications.

| Content                                          | Publication                                                         | Status                            |
|--------------------------------------------------|---------------------------------------------------------------------|-----------------------------------|
| Logon Procedure                                  | Introduction                                                        | Enhanced                          |
| Shared Segments                                  |                                                                     | Enhanced                          |
| 3850 MSS                                         |                                                                     | Enhanced                          |
| Terminal Model Numbers                           | Terminal User's Guide                                               | Deleted                           |
| Journaling Modules                               | Data Areas & Cntrl Elc                                              | Enhanced                          |
| Directory Service Program                        | Op Guide<br>Plan and Sys Gen                                        | Deleted<br>Added                  |
| CMS Batch                                        | Op Guide<br>CMS User's Guide                                        | Deleted<br>Added                  |
| General Information for a VM/370 Virtual Machine | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| VM/370 Performance Considerations                | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Virtual Machine Assist                           | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Extended Control Program Support                 | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Virtual=Real Option                              | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Locked Pages Option                              | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Reserved Pages Option                            | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Priority                                         | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Favored Execution Option                         | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| INDICATE Command for General Users               | Op Sys in a Virt Mach<br>Sys Prog Guide<br>CP Com Ref for Gen Users | Deleted<br>Unchanged<br>Unchanged |
| INDICATE Command for System Analysts             | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| MONITOR Command for System Analysts              | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |

| Content                                                     | Publication                                       | Status           |
|-------------------------------------------------------------|---------------------------------------------------|------------------|
| System Operator's Virtual Machine (OPERATOR)                | Op Sys in a Virt Mach<br>Plan and Sys Gen         | Deleted<br>Added |
| Virtual Machine to Receive System Dumps (OPERATNS)          | Op Sys in a Virt Mach<br>Plan and Sys Gen         | Deleted<br>Added |
| Virtual Machines for Updating and Supporting VM/370 (VMSYS) | Op Sys in a Virt Mach<br>Plan and Sys Gen         | Deleted<br>Added |
| A Hardware Virtual Machine (SERV)                           | Op Sys in a Virt Mach<br>Plan and Sys Gen         | Deleted<br>Added |
| Controlling a Terminal Session                              | Op Sys in a Virt Mach<br>CP Com Ref for Gen Users | Deleted<br>Added |
| Controlling Input/Output Function                           | Op Sys in a Virt Mach<br>CP Com Ref for Gen Users | Deleted<br>Added |
| Controlling the Virtual Machine                             | Op Sys in a Virt Mach<br>CP Com Ref for Gen Users | Deleted<br>Added |
| Testing/Debugging of Programs                               | Op Sys in a Virt Mach<br>CP Com Ref for Gen Users | Deleted<br>Added |
| Processor Model and Channel Model Dependencies              | Op Sys in a Virt Mach                             | Enhanced         |
| 3850 MSS                                                    | Op Sys in a Virt Mach                             | Enhanced         |
| IEBIMAGE Interface Program                                  | Service Routines PLM                              | Added            |
| MSS Communicator                                            |                                                   | Added            |
| CP ABEND Codes                                              | Sys Logic and Prob. Det<br>Guide, Volume 1        | Deleted          |
|                                                             | System Messages                                   | Unchanged        |

## Minor Additions to Other Publications Since Their Publication

A release guide is the last publication to be printed in support of a release. As such, information for other publications that is worthy of note but was released too late for inclusion in other publications is documented in this section.

System Logic and Problem Determination Guide, Vol. 1 (CP), SY20-0886-1.

The CP abend codes which were previously documented in this publication are now included only in VM/370 System Messages, GC20-1808-9. This change eliminates duplication of the information within the VM/370 library.

## Section 5. Ordering And Distribution Procedures

This section tells the user how to order the VM/370 System Control Program and contains information on the material distributed. To order VM/370, the user should contact his IBM salesman or his local IBM branch office. An initial order includes the base program and available features.

|                                                               |
|---------------------------------------------------------------|
| VM/370 is distributed on<br>1600 and 6250 bpi magnetic tapes. |
|---------------------------------------------------------------|

### Basic Program Material

The VM/370 program number is 5749-010. The basic program material consists of:

- A starter system
- VM/370 source files
- The current Release 6 PLC tape. (The Memo to Users file is the second file on the PLC tape).

### Machine Readable Material

The feature numbers that should be specified when ordering the basic program machine readable material are given in Figure 5-1.

| Restore<br>Unit | 1600 bpi          |       | 6250 bpi          |       |
|-----------------|-------------------|-------|-------------------|-------|
|                 | Feature<br>Number | Tapes | Feature<br>Number | Tapes |
| 2314            | #5014             | 3     | #5018             | 3     |
| 3330            | #5015             | 3     | #5019             | 3     |
| 3340            | #5016             | 3     | #5020             | 3     |
| 3350            | #5017             | 3     | #5021             | 3     |

Figure 5-1. Machine Readable Material for VM/370

## Documentation

Beginning with Release 6, no documentation is shipped with the basic program material. However, the following publications contain information pertinent to the basic program material. Copies can be obtained through the user's IBM representative or local IBM branch office, or they can be ordered directly from SLSS (Mechanicsburg).

| <u>Order<br/>Number</u> | <u>Title</u>                                                                            |
|-------------------------|-----------------------------------------------------------------------------------------|
|                         | IBM Virtual Machine Facility/370:                                                       |
| GC20-1834               | Release 6 Guide                                                                         |
| GC20-1801               | Planning and System Generation Guide                                                    |
| GC20-1806               | Operator's Guide                                                                        |
| GC20-1807               | System Programmer's Guide                                                               |
| GC20-1808               | System Messages                                                                         |
| CG20-1818               | CMS Command and Macro Reference                                                         |
| GC20-1819               | CMS User's Guide                                                                        |
| GC20-1820               | CP Command Reference for General Users                                                  |
| GC28-0772               | OS/VS, DOS/VSE, VM/370 Environmental Recording,<br>Editing, and Printing (EREP) Program |
| GC38-1045               | OS/VS, DOS/VSE, VM/370 EREP Messages                                                    |

## **Optional Program Material**

The optional program material associated with VM/370 consists of machine readable material and documentation.

### Optional Machine Readable Material

The feature numbers that should be specified when ordering the optional machine readable material are given in Figure 5-2.

| Option                          | 1600 bpi          |       | 6250 bpi          |       |
|---------------------------------|-------------------|-------|-------------------|-------|
|                                 | Feature<br>Number | Tapes | Feature<br>Number | Tapes |
| CP Assembly Listings            | #7700             | 3     | #7701             | 3     |
| CMS Assembly Listings           | #7702             | 2     | #7703             | 2     |
| Assembler Source and Listings   | #7704             | 1     | #7705             | 1     |
| RSCS and IPCS Assembly Listings | #7706             | 1     | #7707             | 1     |
| CP (AP) Assembly Listings       | #7708             | 2     | #7709             | 2     |

Figure 5-2. Optional Machine Readable Material for VM/370

## Documentation

No documentation is provided with the optional program material. For other related documentation, see "Additional Publications."

## Additional Publications

The VM/370 user can obtain the following manuals through his IBM representative or local IBM branch office, or order them directly from SLSS (Mechanicsburg).

| <u>Order<br/>Number</u> | <u>Title</u>                                                                                  |
|-------------------------|-----------------------------------------------------------------------------------------------|
|                         | IBM Virtual Machine Facility/370:                                                             |
| GC20-1800               | Introduction                                                                                  |
| GC20-1809               | OLTSEP and Error Recording Guide                                                              |
| GC20-1810               | Terminal User's Guide                                                                         |
| GC20-1813               | Glossary and Master Index                                                                     |
| GC20-1816               | Remote Spooling Communication Subsystem<br>(RSCS) User's Guide                                |
| GC20-1821               | Operating Systems in a Virtual Machine                                                        |
| GC20-1823               | Interactive Problem Control System (IPCS)<br>User's Guide                                     |
| GBOF-3573               | Use to order the following group                                                              |
| GX20-1926               | Quick Guide for Users                                                                         |
| GX20-1961               | Commands (General Users)                                                                      |
| GX20-1995               | Commands (Other than General Users)                                                           |
| SY20-0882               | Service Routines Program Logic                                                                |
| SY20-0884               | Data Areas and Control Block Logic                                                            |
| SBOF-3802               | Use to order the following group                                                              |
| SY20-0886               | System Logic and Problem Determination Vol. 1<br>Control Program (CP)                         |
| SY20-0887               | System Logic and Problem Determination Vol. 2<br>Conversational Monitor System (CMS)          |
| SY20-0888               | System Logic and Problem Determination Vol. 3<br>Remote Spool. Comm. Subsys. (RSCS)           |
| GC28-0772               | OS/VS Environmental Recording, Editing, and<br>Printing (EREP) Program                        |
| GC33-4010               | OS/VS, DOS/VS, and VM/370 Assembler Language<br>Manual                                        |
| GC33-4021               | OS/VS, DOS/VS, and VM/370 CMS Assembler<br>Programmer's Guide                                 |
| GC38-1000               | OS/VS Message Library: Mass Storage System<br>(MSS) Messages                                  |
| SY28-0773               | OS/VS, DOS/VSE, VM/370 Environmental Recording,<br>Editing, and Printing (EREP) Program Logic |
| SY33-8041               | OS/VS and VM/370 CMS Assembler Logic Manual                                                   |

Note: A program logic manual is not available for VM/370 IPCS; refer to VM/370 Service Routines Program Logic.

## Microfiche

VM/370 program listings are available on microfiche. The listings are the equivalent of output listings produced by assembling each of the source programs. CP listings reflect macro expansion for the uniprocessor mode of operation (AP=0 or not attached processor) attached processor where applicable. In addition, the attached processor listings (AP=1) are also available.

| <u>Order No.</u> | <u>Title</u>                                                |
|------------------|-------------------------------------------------------------|
| SYB0-0900        | CP Listings and CP Label Cross-References<br>Microfiche     |
| SYB0-0901        | CMS Listings and CMS Label Cross-Reference<br>Microfiche    |
| SYC0-9000        | RSCS Listing and RSCS Label Cross-Reference<br>Microfiche   |
| SYC0-9001        | IPCS Listing and IPCS Label Cross-Reference<br>Microfiche   |
| SYC0-9002        | CP (AP) Listings and CP label Cross-Reference<br>Microfiche |

Note: Microfiche for linkage editor and EREP support under Release 6 is not provided under the VM/370 Microfiche order number but can be ordered using the following number:

Linkage Editor Component ID 5741-SC1-04  
Microfiche Order SJD2-2068

OS/VS2 EREP Listings Component Level 3.8  
Microfiche Order SJD2-2156-00 TNL No. SNC8-0007

## Program Materials List

### BASIC SYSTEM TAPES

#### VM/370 CP Starter System Tape

The starter system tape format is:

|                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------|
| DMKFMT<br>(Format Service Program)                                                                                                    |
| EOF/TM                                                                                                                                |
| DMKDDR<br>(DASD Dump Restore Service Program)                                                                                         |
| EOF/TM                                                                                                                                |
| VM/370 Starter System<br>consists of:                                                                                                 |
| <ul style="list-style-type: none"> <li>• CP nucleus</li> <li>• CP libraries</li> <li>• CMS system</li> <li>• CMS libraries</li> </ul> |
| EOF/TM                                                                                                                                |

### VM/370 Source Tape

The VM/370 source tape consists of source files and macro instructions. It contains four files. These files are created by the VMFPLC2 module, which exists as a service tool on the CMS system disk (MAINT 190) on the starter system. The operands of the VMFPLC2 command are the same as the CMS TAPE command. This command is also used to create all VM/370 service tapes.

The format of the VM/370 source tape is:

|                   |
|-------------------|
| CP Source Files   |
| EOF/TM            |
| CMS Source Files  |
| EOF/TM            |
| IPCS Source Files |
| EOF/TM            |
| RSCS Source Files |
| EOF/TM            |

The following four files should be read left to right across columns.

The first file contained on the tape:

|          |       |          |       |          |       |
|----------|-------|----------|-------|----------|-------|
| ACCOUNT  | COPY  | ACCTOFF  | COPY  | ACCTON   | COPY  |
| ALLOC    | COPY  | BSCBLOKS | COPY  | BTUCMD   | COPY  |
| CCHREC   | COPY  | CCPARM   | COPY  | CONBUF   | COPY  |
| CORE     | COPY  | CPEXBLOK | COPY  | DDRREC   | COPY  |
| DEVTYPE  | COPY  | DMPBLOKS | COPY  | EQU      | COPY  |
| ERRBLOK  | COPY  | IOBLOKS  | COPY  | IOER     | COPY  |
| LOCAL    | COPY  | MCHAREA  | COPY  | MCRECORD | COPY  |
| MDRREC   | COPY  | MICBLOK  | COPY  | MIHREC   | COPY  |
| MONBLOKS | COPY  | MONCOM   | COPY  | MSSCOM   | COPY  |
| NCPTBL   | COPY  | NETWORK  | COPY  | NPRTBL   | COPY  |
| OBRREC   | COPY  | OPTIONS  | COPY  | PGBLOK   | COPY  |
| PWDIBLOK | COPY  | RBLOKS   | COPY  | RECPAG   | COPY  |
| SAVE     | COPY  | SAVTABLE | COPY  | SDRBLOK  | COPY  |
| SHRTABLE | COPY  | SPOOL    | COPY  | SYSTBL   | COPY  |
| TIMER    | COPY  | TNSREC   | COPY  | TREXT    | COPY  |
| UCNTRL   | COPY  | UDIRECT  | COPY  | UIPARMS  | COPY  |
| VBLOKS   | COPY  | VCTCA    | COPY  | VMBLOK   | COPY  |
| VMCBLOKS | COPY  | XINTBLOK | COPY  | ABEND    | MACRO |
| CALL     | MACRO | CHARGE   | MACRO | CLRIO    | MACRO |
| CLUSTER  | MACRO | COUNT    | MACRO | CPF      | MACRO |
| DECHX    | MACRO | ENTER    | MACRO | EXIT     | MACRO |
| GOTO     | MACRO | GRTBLOK  | MACRO | HEXDEC   | MACRO |
| JPSCBLOK | MACRO | LOCK     | MACRO | MAXDV    | MACRO |
| MSG      | MACRO | NAMENCP  | MACRO | NAMESYS  | MACRO |
| NAME3800 | MACRO | PAGTBL   | MACRO | PSA      | MACRO |
| RCHANNEL | MACRO | RCTLUNIT | MACRO | RDEVICE  | MACRO |

|          |          |          |          |         |          |
|----------|----------|----------|----------|---------|----------|
| RDVTBL   | MACRO    | RELOC    | MACRO    | RIOGEN  | MACRO    |
| SIGNAL   | MACRO    | SWITCH   | MACRO    | SWTCHVM | MACRO    |
| SYM      | MACRO    | SYSOR    | MACRO    | SYSJRL  | MACRO    |
| SYSLOCS  | MACRO    | SYSMON   | MACRO    | SYSOPR  | MACRO    |
| SYSOWN   | MACRO    | SYSRES   | MACRO    | SYSTEM  | MACRO    |
| SYSTIME  | MACRO    | TERMINAL | MACRO    | TRACE   | MACRO    |
| TRANS    | MACRO    | VMBLK    | MACRO    | DMKACO  | ASSEMBLE |
| DMKALG   | ASSEMBLE | DMKAPI   | ASSEMBLE | DMKATS  | ASSEMBLE |
| DMKBLD   | ASSEMBLE | DMKBOX   | ASSEMBLE | DMKBSC  | ASSEMBLE |
| DMKCCCH  | ASSEMBLE | DMKCCW   | ASSEMBLE | DMKCDB  | ASSEMBLE |
| DMKCDM   | ASSEMBLE | DMKCDS   | ASSEMBLE | DMKCFC  | ASSEMBLE |
| DMKCFD   | ASSEMBLE | DMKCFG   | ASSEMBLE | DMKCFH  | ASSEMBLE |
| DMKCFM   | ASSEMBLE | DMKCFO   | ASSEMBLE | DMKCFP  | ASSEMBLE |
| DMKCFS   | ASSEMBLE | DMKCFT   | ASSEMBLE | DMKCKP  | ASSEMBLE |
| DMKCKS   | ASSEMBLE | DMKCLK   | ASSEMBLE | DMKCNS  | ASSEMBLE |
| DMKCPB   | ASSEMBLE | DMKCPE   | ASSEMBLE | DMKCPI  | ASSEMBLE |
| DMKCP5   | ASSEMBLE | DMKCPU   | ASSEMBLE | DMKCPV  | ASSEMBLE |
| DMKCQG   | ASSEMBLE | DMKCQH   | ASSEMBLE | DMKCQP  | ASSEMBLE |
| DMKCQR   | ASSEMBLE | DMKCQY   | ASSEMBLE | DMKCSB  | ASSEMBLE |
| DMKCSO   | ASSEMBLE | DMKCSP   | ASSEMBLE | DMKCSQ  | ASSEMBLE |
| DMKCST   | ASSEMBLE | DMKCSU   | ASSEMBLE | DMKCSV  | ASSEMBLE |
| DMKCVT   | ASSEMBLE | DMKDAS   | ASSEMBLE | DMKDDR  | ASSEMBLE |
| DMKDEF   | ASSEMBLE | DMKDGD   | ASSEMBLE | DMKDIA  | ASSEMBLE |
| DMKDIB   | ASSEMBLE | DMKDIR   | ASSEMBLE | DMKDMP  | ASSEMBLE |
| DMKDRD   | ASSEMBLE | DMKDSB   | ASSEMBLE | DMKDSP  | ASSEMBLE |
| DMKEIG   | ASSEMBLE | DMKEMA   | ASSEMBLE | DMKEMB  | ASSEMBLE |
| DMKEMC   | ASSEMBLE | DMKENT   | ASSEMBLE | DMKERM  | ASSEMBLE |
| DMKEXT   | ASSEMBLE | DMKFCB   | ASSEMBLE | DMKFMT  | ASSEMBLE |
| DMKPRE   | ASSEMBLE | DMKGIO   | ASSEMBLE | DMKGRF  | ASSEMBLE |
| DMKGRT   | ASSEMBLE | DMKGRW   | ASSEMBLE | DMKHVC  | ASSEMBLE |
| DMKHVD   | ASSEMBLE | DMKING   | ASSEMBLE | DMKIOC  | ASSEMBLE |
| DMKIOE   | ASSEMBLE | DMKIOF   | ASSEMBLE | DMKIOG  | ASSEMBLE |
| DMKIOS   | ASSEMBLE | DMKISM   | ASSEMBLE | DMKJRL  | ASSEMBLE |
| DMKLD00E | ASSEMBLE | DMKLNK   | ASSEMBLE | DMKLOC  | ASSEMBLE |
| DMKLOG   | ASSEMBLE | DMKLOH   | ASSEMBLE | DMKLOK  | ASSEMBLE |
| DMKMCC   | ASSEMBLE | DMKMCD   | ASSEMBLE | DMKMCH  | ASSEMBLE |
| DMKMCT   | ASSEMBLE | DMKMIA   | ASSEMBLE | DMKMID  | ASSEMBLE |
| DMKMNI   | ASSEMBLE | DMKMON   | ASSEMBLE | DMKMSG  | ASSEMBLE |
| DMKMSW   | ASSEMBLE | DMKNEM   | ASSEMBLE | DMKNES  | ASSEMBLE |
| DMKNET   | ASSEMBLE | DMKNLD   | ASSEMBLE | DMKNLE  | ASSEMBLE |
| DMKNMT   | ASSEMBLE | DMKOPR   | ASSEMBLE | DMKPAG  | ASSEMBLE |
| DMKPER   | ASSEMBLE | DMKPGS   | ASSEMBLE | DMKPGT  | ASSEMBLE |
| DMKPRG   | ASSEMBLE | DMKPRV   | ASSEMBLE | DMKPSA  | ASSEMBLE |
| DMKPTR   | ASSEMBLE | DMKQCN   | ASSEMBLE | DMKRG   | ASSEMBLE |
| DMKRGB   | ASSEMBLE | DMKRND   | ASSEMBLE | DMKRNH  | ASSEMBLE |
| DMKRPA   | ASSEMBLE | DMKRSE   | ASSEMBLE | DMKRSP  | ASSEMBLE |
| DMKSAV   | ASSEMBLE | DMKSCH   | ASSEMBLE | DMKSCN  | ASSEMBLE |
| DMKSEP   | ASSEMBLE | DMKSEV   | ASSEMBLE | DMKSIX  | ASSEMBLE |
| DMKSNC   | ASSEMBLE | DMKSPL   | ASSEMBLE | DMKSSP  | ASSEMBLE |
| DMKSSS   | ASSEMBLE | DMKSTK   | ASSEMBLE | DMKSVC  | ASSEMBLE |
| DMKSYM   | ASSEMBLE | DMKTAP   | ASSEMBLE | DMKTBL  | ASSEMBLE |
| DMKTBM   | ASSEMBLE | DMKTCS   | ASSEMBLE | DMKTDK  | ASSEMBLE |
| DMKTHI   | ASSEMBLE | DMKTMR   | ASSEMBLE | DMKTRA  | ASSEMBLE |
| DMKTRC   | ASSEMBLE | DMKTRD   | ASSEMBLE | DMKTRK  | ASSEMBLE |
| DMKTRM   | ASSEMBLE | DMKUCB   | ASSEMBLE | DMKUCC  | ASSEMBLE |
| DMKUCS   | ASSEMBLE | DMKUDR   | ASSEMBLE | DMKUDU  | ASSEMBLE |
| DMKUNT   | ASSEMBLE | DMKUSO   | ASSEMBLE | DMKVAT  | ASSEMBLE |
| DMKVCA   | ASSEMBLE | DMKVCH   | ASSEMBLE | DMKVCN  | ASSEMBLE |
| DMKVDA   | ASSEMBLE | DMKVDC   | ASSEMBLE | DMKVDD  | ASSEMBLE |
| DMKVDE   | ASSEMBLE | DMKVDR   | ASSEMBLE | DMKVDS  | ASSEMBLE |
| DMKVER   | ASSEMBLE | DMKVIO   | ASSEMBLE | DMKVMA  | ASSEMBLE |
| DMKVMC   | ASSEMBLE | DMKVMI   | ASSEMBLE | DMKVSI  | ASSEMBLE |
| DMKVSP   | ASSEMBLE | DMKVSQ   | ASSEMBLE | DMKWRM  | ASSEMBLE |
| VRSIZE   | ASSEMBLE |          |          |         |          |

The second file contained on the tape:

|           |          |          |          |          |          |
|-----------|----------|----------|----------|----------|----------|
| ADT       | MACRO    | ADTGEN   | MACRO    | ADTSECT  | MACRO    |
| AFT       | MACRO    | AFTSECT  | MACRO    | BATLIMIT | MACRO    |
| CMSAVE    | MACRO    | CMSCB    | MACRO    | CMSCVT   | MACRO    |
| COMPSWT   | MACRO    | CORG     | MACRO    | DBGSECT  | MACRO    |
| DEVGEN    | MACRO    | DEVSECT  | MACRO    | DEVTAB   | MACRO    |
| DIOSECT   | MACRO    | DISPW    | MACRO    | DMSABN   | MACRO    |
| DMSABW    | MACRO    | DMSCCB   | MACRO    | DMSDM    | MACRO    |
| DMSERR    | MACRO    | DMSERT   | MACRO    | DMSEXS   | MACRO    |
| DMSFREE   | MACRO    | DMSFRES  | MACRO    | DMSFRET  | MACRO    |
| DMSFREX   | MACRO    | DMSFRT   | MACRO    | DMSFRY   | MACRO    |
| DMSFST    | MACRO    | DMSKEY   | MACRO    | DMSLN    | MACRO    |
| DMSLNC    | MACRO    | DMSLND   | MACRO    | DMSLNP   | MACRO    |
| DMSLNU    | MACRO    | DMSLNY   | MACRO    | DMSLNZ   | MACRO    |
| DMSPID    | MACRO    | DMSTMS   | MACRO    | EDCB     | MACRO    |
| EQUATES   | MACRO    | EXTSECT  | MACRO    | FCB      | MACRO    |
| FSCB      | MACRO    | FSCBD    | MACRO    | FSCLOSE  | MACRO    |
| FSENTR    | MACRO    | FSErase  | MACRO    | FSOPEN   | MACRO    |
| FSPOINT   | MACRO    | FSREAD   | MACRO    | FSSTATE  | MACRO    |
| FSTB      | MACRO    | FSTD     | MACRO    | FSWRITE  | MACRO    |
| FVS       | MACRO    | GETADT   | MACRO    | GETFST   | MACRO    |
| HNDEXT    | MACRO    | HNDINT   | MACRO    | HND SVC  | MACRO    |
| IO        | MACRO    | IOSECT   | MACRO    | KEYSECT  | MACRO    |
| KXCHK     | MACRO    | LDM      | MACRO    | LDRST    | MACRO    |
| LINEEDIT  | MACRO    | NUCON    | MACRO    | OSFST    | MACRO    |
| OVSECT    | MACRO    | PDSSECT  | MACRO    | PGMSECT  | MACRO    |
| PRINTL    | MACRO    | PUNCHC   | MACRO    | RDCARD   | MACRO    |
| RD TAPE   | MACRO    | RDTERM   | MACRO    | REGEQU   | MACRO    |
| REL PAGES | MACRO    | STD M    | MACRO    | STRINIT  | MACRO    |
| SUBSECT   | MACRO    | SVCENT   | MACRO    | SVCSAVE  | MACRO    |
| SVCSECT   | MACRO    | SYSLOAD  | MACRO    | SYSNAMES | MACRO    |
| TAPECTL   | MACRO    | TSOBLKS  | MACRO    | TSOGET   | MACRO    |
| USE       | MACRO    | USERSECT | MACRO    | WAITD    | MACRO    |
| WAITT     | MACRO    | WRTAPE   | MACRO    | WRTERM   | MACRO    |
| ABTAB     | MACRO    | ANCHTAB  | MACRO    | BBOX     | MACRO    |
| BGCOM     | MACRO    | CCB      | MACRO    | COMRG    | MACRO    |
| CPMOD     | MACRO    | DOSAVE   | MACRO    | DOSCB    | MACRO    |
| DOSCON    | MACRO    | DTFCP    | MACRO    | EOJ      | MACRO    |
| EXCP      | MACRO    | EXCPW    | MACRO    | FCHTAB   | MACRO    |
| FICL      | MACRO    | IKQACB   | MACRO    | IKQEXLST | MACRO    |
| IKQRPL    | MACRO    | LUBTAB   | MACRO    | MAPPUE   | MACRO    |
| NICL      | MACRO    | OPENR    | MACRO    | PCTAB    | MACRO    |
| PIBTAB    | MACRO    | PIB2TAB  | MACRO    | PUBOWNER | MACRO    |
| PUBTAB    | MACRO    | STXIT    | MACRO    | SYS COM  | MACRO    |
| SYSIR     | MACRO    | DMSABN   | ASSEMBLE | DMSACC   | ASSEMBLE |
| DMSACF    | ASSEMBLE | DMSACM   | ASSEMBLE | DMSALU   | ASSEMBLE |
| DMSAMS    | ASSEMBLE | DMSARD   | ASSEMBLE | DMSARE   | ASSEMBLE |
| DMSARN    | ASSEMBLE | DMSARX   | ASSEMBLE | DMSASD   | ASSEMBLE |
| DMSASM    | ASSEMBLE | DMSASN   | ASSEMBLE | DMSAUD   | ASSEMBLE |
| DMSBAB    | ASSEMBLE | DMSBOP   | ASSEMBLE | DMSBRD   | ASSEMBLE |
| DMSBTB    | ASSEMBLE | DMSBTP   | ASSEMBLE | DMSBWR   | ASSEMBLE |
| DMSCAT    | ASSEMBLE | DMSCIO   | ASSEMBLE | DMSCIT   | ASSEMBLE |
| DMSCLS    | ASSEMBLE | DMSCMP   | ASSEMBLE | DMSCPF   | ASSEMBLE |
| DMSCPY    | ASSEMBLE | DMSCRD   | ASSEMBLE | DMSCWR   | ASSEMBLE |
| DMSCWT    | ASSEMBLE | DMSDBD   | ASSEMBLE | DMSDBG   | ASSEMBLE |
| DMSDIO    | ASSEMBLE | DMSDLB   | ASSEMBLE | DMSDLK   | ASSEMBLE |
| DMSDMP    | ASSEMBLE | DMSDOS   | ASSEMBLE | DMSDSK   | ASSEMBLE |
| DMSDSL    | ASSEMBLE | DMSDSV   | ASSEMBLE | DMSEDC   | ASSEMBLE |
| DMSEDF    | ASSEMBLE | DMSEDI   | ASSEMBLE | DMSEDX   | ASSEMBLE |
| DMSERR    | ASSEMBLE | DMSERS   | ASSEMBLE | DMSEXC   | ASSEMBLE |
| DMSEXT    | ASSEMBLE | DMSFCH   | ASSEMBLE | DMSFET   | ASSEMBLE |
| DMSFLD    | ASSEMBLE | DMSFNC   | ASSEMBLE | DMSFNS   | ASSEMBLE |
| DMSFOR    | ASSEMBLE | DMSFRE   | ASSEMBLE | DMSGIO   | ASSEMBLE |

|        |          |         |          |         |          |
|--------|----------|---------|----------|---------|----------|
| DMSGLB | ASSEMBLE | DMSGND  | ASSEMBLE | DMSGRN  | ASSEMBLE |
| DMSHDI | ASSEMBLE | DMSHDS  | ASSEMBLE | DMSIFC  | ASSEMBLE |
| DMSINA | ASSEMBLE | DMSINI  | ASSEMBLE | DMSINM  | ASSEMBLE |
| DMSINS | ASSEMBLE | DMSINT  | ASSEMBLE | DMSIOW  | ASSEMBLE |
| DMSITE | ASSEMBLE | DMSITI  | ASSEMBLE | DMSITP  | ASSEMBLE |
| DMSITS | ASSEMBLE | DMSLAD  | ASSEMBLE | DMSLAF  | ASSEMBLE |
| DMSLBH | ASSEMBLE | DMSLBT  | ASSEMBLE | DMSLDR  | ASSEMBLE |
| DMSLDS | ASSEMBLE | DMSLFS  | ASSEMBLE | DMSLGT  | ASSEMBLE |
| DMSLIB | ASSEMBLE | DMSLIO  | ASSEMBLE | DMSLKD  | ASSEMBLE |
| DMSLLU | ASSEMBLE | DMSLOA  | ASSEMBLE | DMSLSE  | ASSEMBLE |
| DMSLST | ASSEMBLE | DMSLSY  | ASSEMBLE | DMSMDP  | ASSEMBLE |
| DMSMOD | ASSEMBLE | DMSMVE  | ASSEMBLE | DMSNCP  | ASSEMBLE |
| DMSNUC | ASSEMBLE | DMSN33  | ASSEMBLE | DMSOLD  | ASSEMBLE |
| DMSOPL | ASSEMBLE | DMSOPT  | ASSEMBLE | DMSOR1  | ASSEMBLE |
| DMSOR2 | ASSEMBLE | DMSOR3  | ASSEMBLE | DMSOVR  | ASSEMBLE |
| DMSOVS | ASSEMBLE | DMSPIO  | ASSEMBLE | DMSPNT  | ASSEMBLE |
| DMSPRT | ASSEMBLE | DMSPRV  | ASSEMBLE | DMSPUN  | ASSEMBLE |
| DMSQRY | ASSEMBLE | DMSRDC  | ASSEMBLE | DMSREA  | ASSEMBLE |
| DMSRNE | ASSEMBLE | DMSRNM  | ASSEMBLE | DMSROS  | ASSEMBLE |
| DMSRRV | ASSEMBLE | DMSSAB  | ASSEMBLE | DMSSBD  | ASSEMBLE |
| DMSSBS | ASSEMBLE | DMSSCN  | ASSEMBLE | DMSSCR  | ASSEMBLE |
| DMSSCT | ASSEMBLE | DMSSSE  | ASSEMBLE | DMSSSE  | ASSEMBLE |
| DMSSST | ASSEMBLE | DMSSLN  | ASSEMBLE | DMSSMN  | ASSEMBLE |
| DMSSOP | ASSEMBLE | DMSSQS  | ASSEMBLE | DMSSRT  | ASSEMBLE |
| DMSSRV | ASSEMBLE | DMSSSK  | ASSEMBLE | DMSSTG  | ASSEMBLE |
| DMSSST | ASSEMBLE | DMSSVN  | ASSEMBLE | DMSSVT  | ASSEMBLE |
| DMSSYN | ASSEMBLE | DMSS33  | ASSEMBLE | DMSTIO  | ASSEMBLE |
| DMSTMA | ASSEMBLE | DMSTPD  | ASSEMBLE | DMSTPE  | ASSEMBLE |
| DMSTQQ | ASSEMBLE | DMSTRK  | ASSEMBLE | DMSTYP  | ASSEMBLE |
| DMSUPD | ASSEMBLE | DMSVAN  | ASSEMBLE | DMSVAS  | ASSEMBLE |
| DMSVIB | ASSEMBLE | DMSVIP  | ASSEMBLE | DMSVPD  | ASSEMBLE |
| DMSVSR | ASSEMBLE | DMSVVN  | ASSEMBLE | DMSVVS  | ASSEMBLE |
| DMSV33 | ASSEMBLE | DMSXCP  | ASSEMBLE | DMSZAP  | ASSEMBLE |
| DMSZAT | ASSEMBLE | DMSZIT  | ASSEMBLE | DMSZNR  | ASSEMBLE |
| DMSZUS | ASSEMBLE | VMFDATE | ASSEMBLE | VMFLOAD | ASSEMBLE |

The third file contained on the tape:

|          |          |         |          |         |          |
|----------|----------|---------|----------|---------|----------|
| DMMSAVE  | COPY     | EXCONST | COPY     | INTSECT | COPY     |
| MSGCNTRL | COPY     | SYMSECT | COPY     | MSGP    | MACRO    |
| DMMCPA   | ASSEMBLE | DMMDIR  | ASSEMBLE | DMMDSC  | ASSEMBLE |
| DMMEDM   | ASSEMBLE | DMMFED  | ASSEMBLE | DMMFEX  | ASSEMBLE |
| DMMGET   | ASSEMBLE | DMMGRC  | ASSEMBLE | DMMHEX  | ASSEMBLE |
| DMMIDM   | ASSEMBLE | DMMINI  | ASSEMBLE | DMMINT  | ASSEMBLE |
| DMMIOB   | ASSEMBLE | DMMLOC  | ASSEMBLE | DMMMAB  | ASSEMBLE |
| DMMMOD   | ASSEMBLE | DMMPRG  | ASSEMBLE | DMMPRM  | ASSEMBLE |
| DMMPRO   | ASSEMBLE | DMMREG  | ASSEMBLE | DMMRMV  | ASSEMBLE |
| DMMSCR   | ASSEMBLE | DMMSEA  | ASSEMBLE | DMMSTA  | ASSEMBLE |
| DMMSUM   | ASSEMBLE | DMMTRC  | ASSEMBLE | DMMTRN  | ASSEMBLE |
| DMMVMB   | ASSEMBLE | DMMWRT  | ASSEMBLE |         |          |

The fourth file contained on the tape:

|          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|
| ASYNE    | COPY     | AXSROUTE | COPY     | FREEE    | COPY     |
| GIVEE    | COPY     | IOE      | COPY     | IOTABLE  | COPY     |
| LINKTABL | COPY     | RSSEQU   | COPY     | SVECTORS | COPY     |
| TAG      | COPY     | TAREA    | COPY     | TASKE    | COPY     |
| ROUTE    | COPY     | DIAG     | MACRO    | FREEZE   | MACRO    |
| GENLINE  | MACRO    | GENLINK  | MACRO    | GENQ     | MACRO    |
| GENROUTE | MACRO    | GENTAGQ  | MACRO    | RSCSMMSG | MACRO    |
| DMTAK    | ASSEMBLE | DMTASK   | ASSEMBLE | DMTASY   | ASSEMBLE |
| DMTAXS   | ASSEMBLE | DMTCMX   | ASSEMBLE | DMTCOM   | ASSEMBLE |
| DMTCRE   | ASSEMBLE | DMTDSP   | ASSEMBLE | DMTEXT   | ASSEMBLE |
| DMTGIV   | ASSEMBLE | DMTINI   | ASSEMBLE | DMTIOM   | ASSEMBLE |
| DMTLAX   | ASSEMBLE | DMTMAP   | ASSEMBLE | DMTMGX   | ASSEMBLE |
| DMTMSG   | ASSEMBLE | DMTNPT   | ASSEMBLE | DMTPST   | ASSEMBLE |
| DMTQRQ   | ASSEMBLE | DMTREX   | ASSEMBLE | DMTSIG   | ASSEMBLE |
| DMTSML   | ASSEMBLE | DMTSTO   | ASSEMBLE | DMTSVC   | ASSEMBLE |
| DMTSYS   | ASSEMBLE | DMTVEC   | ASSEMBLE | DMTWAT   | ASSEMBLE |

#### VM/370 PLC Tape

The PLC tape contains all source updates, text decks, modules, macro instructions, and macro instruction libraries, as well as procedures required to build the latest level of CP, CMS, RSCS, and IPCS. The "Memo to Users" file, the second file on the PLC tape, describes the layout of the PLC tape and contains the installation instructions.

## OPTIONAL TAPES

### Assembler Tapes

The optional XF assembler tape contains three files. This tape is created with the VMFPLC2 command.

The format of the assembler tapes is:

|                        |
|------------------------|
| Assembler Source Files |
| EOF/TM                 |
| Assembler Copy Files   |
| EOF/TM                 |
| Assembler Listings     |
| EOF/TM                 |

Files contained on the first tape:

|        |          |        |          |        |          |
|--------|----------|--------|----------|--------|----------|
| IFNX1A | ASSEMBLE | IFNX4S | ASSEMBLE | IFNX6B | ASSEMBLE |
| IFNX1J | ASSEMBLE | IFNX4T | ASSEMBLE | IFNX6C | ASSEMBLE |
| IFNX1K | ASSEMBLE | IFNX4V | ASSEMBLE | IFOX0A | ASSEMBLE |
| IFNX1S | ASSEMBLE | IFNX5A | ASSEMBLE | IFOX0B | ASSEMBLE |
| IFNX2A | ASSEMBLE | IFNX5C | ASSEMBLE | IFOX0C | ASSEMBLE |
| IFNX3A | ASSEMBLE | IFNX5D | ASSEMBLE | IFOX0D | ASSEMBLE |
| IFNX3B | ASSEMBLE | IFNX5F | ASSEMBLE | IFOX0E | ASSEMBLE |
| IFNX3K | ASSEMBLE | IFNX5L | ASSEMBLE | IFOX0F | ASSEMBLE |
| IFNX3N | ASSEMBLE | IFNX5M | ASSEMBLE | IFOX0G | ASSEMBLE |
| IFNX4D | ASSEMBLE | IFNX5P | ASSEMBLE | IFOX0H | ASSEMBLE |
| IFNX4E | ASSEMBLE | IFNX5V | ASSEMBLE | IFOX0I | ASSEMBLE |
| IFNX4M | ASSEMBLE | IFNX6A | ASSEMBLE | IFOX0J | ASSEMBLE |
| IFNX4N | ASSEMBLE |        |          |        |          |

Files contained on the second tape:

|          |        |         |      |          |      |
|----------|--------|---------|------|----------|------|
| XFMACS   | MACLIB | GENERR  | COPY | JCSECT   | COPY |
| XFMACS   | EXEC   | GENOP   | COPY | JDUMP    | COPY |
| ASM      | COPY   | GENTAB  | COPY | JENTRY   | COPY |
| BMDSECTS | COPY   | GOIF    | COPY | JERMSGCD | COPY |
| CONTAINS | COPY   | GOIF1   | COPY | JERRCD   | COPY |
| CONTENTS | COPY   | GOIF3   | COPY | JEXTRN   | COPY |
| DBV      | COPY   | GOTO    | COPY | JFIND    | COPY |
| DCDSWORK | COPY   | ICOMMON | COPY | JFLEBLK  | COPY |
| DSW      | COPY   | IEZBITS | COPY | JFRECORE | COPY |
| EDSECT   | COPY   | IEZIOB  | COPY | JGEN     | COPY |
| ERMS     | COPY   | JCALL   | COPY | JGENERR  | COPY |
| EVALWORK | COPY   | JCHECK  | COPY | JGENIN   | COPY |
| GENCOM   | COPY   | JCOMMON | COPY | JGETCORE | COPY |

|          |      |         |      |         |      |
|----------|------|---------|------|---------|------|
| JGETL    | COPY | JPRINT  | COPY | OP      | COPY |
| JHEAD    | COPY | JPUNCH  | COPY | RSYMRCD | COPY |
| JINCOM   | COPY | JPUTL   | COPY | RXLPMTS | COPY |
| JINPUT   | COPY | JPUTM   | COPY | SFT     | COPY |
| JINST    | COPY | JREAD   | COPY | TBLGEN  | COPY |
| JMODID   | COPY | JRELS   | COPY | XDCDS   | COPY |
| JNOTE    | COPY | JRETURN | COPY | XDICT   | COPY |
| JNOTELB  | COPY | JSAVE   | COPY | XEVAL   | COPY |
| JOUTCOM  | COPY | JTEXT   | COPY | XFOUR   | COPY |
| JPARM    | COPY | JTMTXT  | COPY | XSTBL   | COPY |
| JPATCH   | COPY | JTPRINT | COPY | X5COM   | COPY |
| JPOINT   | COPY | JTRUNC  | COPY | X5ERRL  | COPY |
| JPOINTLB | COPY | JWRITE  | COPY |         |      |

Files contained on the third tape:

|        |         |        |         |        |         |
|--------|---------|--------|---------|--------|---------|
| IFNX1A | LISTING | IFNX4S | LISTING | IFNX6B | LISTING |
| IFNX1J | LISTING | IFNX4T | LISTING | IFNX6C | LISTING |
| IFNX1K | LISTING | IFNX4V | LISTING | IFNX0A | LISTING |
| IFNX1S | LISTING | IFNX5A | LISTING | IFNX0B | LISTING |
| IFNX2A | LISTING | IFNX5C | LISTING | IFNX0C | LISTING |
| IFNX3A | LISTING | IFNX5D | LISTING | IFNX0D | LISTING |
| IFNX3B | LISTING | IFNX5F | LISTING | IFNX0E | LISTING |
| IFNX3K | LISTING | IFNX5L | LISTING | IFNX0F | LISTING |
| IFNX3N | LISTING | IFNX5M | LISTING | IFNX0G | LISTING |
| IFNX4D | LISTING | IFNX5P | LISTING | IFNX0H | LISTING |
| IFNX4E | LISTING | IFNX5V | LISTING | IFNX0I | LISTING |
| IFNX4M | LISTING | IFNX6A | LISTING | IFNX0J | LISTING |
| IFNX4N | LISTING |        |         |        |         |

#### CP, CMS, RSCS and IPCS Tapes

To selectively print a given listing, use the CMS TAPE command to forward space the tape to the given file. Then use the following CMS commands to print the listing:

```
FILEDEF INMOVE TAP1 (BLOCK 8107 LRECL 121 DEN 16001 RECFM FB PERM
FILEDEF OUTMOVE PRINTER (BLOCK 121 LRECL 121 RECFM FA PERM
MOVEFILE
```

Note: The tape to be printed must be attached as 181.

The CP and CMS assembly listing tapes contain 121-character records with a blocksize of 8107.

---

<sup>1</sup>If 6250 bpi tapes are being used, change the density to 6250.

## CP Listings Without the Attached Processor Option

Files contained on the first tape:

|         |         |        |         |        |         |
|---------|---------|--------|---------|--------|---------|
| DMKACO  | LISTING | DMKCFP | LISTING | DMKCSO | LISTING |
| DMKALG  | LISTING | DMKCFS | LISTING | DMKCSP | LISTING |
| DMKATS  | LISTING | DMKCFT | LISTING | DMKCSQ | LISTING |
| DMKBLD  | LISTING | DMKCKP | LISTING | DMKCST | LISTING |
| DMKBOX  | LISTING | DMCKKS | LISTING | DMKCSU | LISTING |
| DMKBSC  | LISTING | DMKCNS | LISTING | DMKCSV | LISTING |
| DMKCCB  | LISTING | DMKCPB | LISTING | DMKCVT | LISTING |
| DMKCCW  | LISTING | DMKCPE | LISTING | DMKDAS | LISTING |
| DMKCDDB | LISTING | DMKCPI | LISTING | DMKDER | LISTING |
| DMKCDM  | LISTING | DMKCPS | LISTING | DMKDEF | LISTING |
| DMKCDMS | LISTING | DMKCPV | LISTING | DMKDGD | LISTING |
| DMKCFC  | LISTING | DMKCQG | LISTING | DMKDIA | LISTING |
| DMKCFD  | LISTING | DMKCQH | LISTING | DMKDIE | LISTING |
| DMKCFG  | LISTING | DMKCQP | LISTING | DMKDIR | LISTING |
| DMKCFH  | LISTING | DMKCQR | LISTING | DMKDMP | LISTING |
| DMKCFM  | LISTING | DMKCQY | LISTING | DMKDRD | LISTING |
| DMKCFO  | LISTING | DMKCSB | LISTING |        |         |

Files contained on the second tape:

|        |         |          |         |        |         |
|--------|---------|----------|---------|--------|---------|
| DMKDSB | LISTING | DMKIOF   | LISTING | DMKNES | LISTING |
| DMKDSP | LISTING | DMKIOG   | LISTING | DMKNET | LISTING |
| DMKEIG | LISTING | DMKIOS   | LISTING | DMKNLD | LISTING |
| DMKEMA | LISTING | DMKISM   | LISTING | DMKNLE | LISTING |
| DMKEMB | LISTING | DMKJRL   | LISTING | DMKNMT | LISTING |
| DMKEMC | LISTING | DMKLD00E | LISTING | DMKOPR | LISTING |
| DMKENT | LISTING | DMKLNK   | LISTING | DMKPAG | LISTING |
| DMKERM | LISTING | DMKL0C   | LISTING | DMKPER | LISTING |
| DMKFCB | LISTING | DMKLOG   | LISTING | DMKPGS | LISTING |
| DMKFMT | LISTING | DMKLOH   | LISTING | DMKPGT | LISTING |
| DMKPRE | LISTING | DMKMCC   | LISTING | DMKPRG | LISTING |
| DMKGIO | LISTING | DMKMCD   | LISTING | DMKPRV | LISTING |
| DMKGRF | LISTING | DMKMCH   | LISTING | DMKPSA | LISTING |
| DMKGRT | LISTING | DMKMIA   | LISTING | DMKPTR | LISTING |
| DMKGRV | LISTING | DMKMID   | LISTING | DMKQCN | LISTING |
| DMKHVC | LISTING | DMKMNI   | LISTING | DMKRGA | LISTING |
| DMKHVD | LISTING | DMKMON   | LISTING | DMKRGE | LISTING |
| DMKIMG | LISTING | DMKMSG   | LISTING | DMKRND | LISTING |
| DMKIOC | LISTING | DMKMSW   | LISTING | DMKRNH | LISTING |
| DMKIOE | LISTING | DMKNEM   | LISTING |        |         |

Files contained on the third tape:

|        |         |        |         |        |         |
|--------|---------|--------|---------|--------|---------|
| DMKRPA | LISTING | DMKTCS | LISTING | DMKVCH | LISTING |
| DMKRSE | LISTING | DMKTDK | LISTING | DMKVCN | LISTING |
| DMKRSP | LISTING | DMKTHI | LISTING | DMKVDA | LISTING |
| DMKSAV | LISTING | DMKTMR | LISTING | DMKVDC | LISTING |
| DMKSCN | LISTING | DMKTRA | LISTING | DMKVDD | LISTING |
| DMKSCN | LISTING | DMKTRC | LISTING | DMKVDE | LISTING |
| DMKSEP | LISTING | DMKTRD | LISTING | DMKVDR | LISTING |
| DMKSEV | LISTING | DMKTRK | LISTING | DMKVDS | LISTING |
| DMKSIX | LISTING | DMKTRM | LISTING | DMKVER | LISTING |
| DMKSNC | LISTING | DMKUCB | LISTING | DMKVIO | LISTING |
| DMKSPL | LISTING | DMKUCC | LISTING | DMKVMA | LISTING |
| DMKSSS | LISTING | DMKUCS | LISTING | DMKVMC | LISTING |
| DMKSSP | LISTING | DMKUDR | LISTING | DMKVMI | LISTING |
| DMKSTK | LISTING | DMKUDU | LISTING | DMKVSI | LISTING |
| DMKSVC | LISTING | DMKUNT | LISTING | DMKVSP | LISTING |
| DMKSYM | LISTING | DMKUSO | LISTING | DMKVSQ | LISTING |
| DMKTAP | LISTING | DMKVAT | LISTING | DMKWRM | LISTING |
| DMKTBL | LISTING | DMKVCA | LISTING | VRSIZE | LISTING |
| DMKTBM | LISTING |        |         |        |         |

#### CP Listings With the Attached Processor Option

The following are the module listings only for those modules that differ as a result of implementing the attached processor option. For other CP modules, use the listings under "CP Listings Without the Attached Processor Option."

Files contained on the first tape:

|        |         |        |         |        |         |
|--------|---------|--------|---------|--------|---------|
| DMKACO | LISTING | DMKCPV | LISTING | DMKLOG | LISTING |
| DMKALG | LISTING | DMKCSO | LISTING | DMKLOH | LISTING |
| DMKAPI | LISTING | DMKCSU | LISTING | DMKLOK | LISTING |
| DMKATS | LISTING | DMKCSV | LISTING | DMKMCH | LISTING |
| DMKBLD | LISTING | DMKDAS | LISTING | DMKMCT | LISTING |
| DMKBSC | LISTING | DMKDIA | LISTING | DMKMIA | LISTING |
| DMKCCH | LISTING | DMKDSB | LISTING | DMKMID | LISTING |
| DMKCPD | LISTING | DMKDSP | LISTING | DMKMON | LISTING |
| DMKCFP | LISTING | DMKENT | LISTING | DMKMSG | LISTING |
| DMKCFT | LISTING | DMKEXT | LISTING | DMKMSW | LISTING |
| DMKCKS | LISTING | DMKFRE | LISTING | DMKNES | LISTING |
| DMKCLK | LISTING | DMKGRF | LISTING | DMKNET | LISTING |
| DMKCNS | LISTING | DMKIOE | LISTING | DMKNLD | LISTING |
| DMKCPI | LISTING | DMKIOG | LISTING | DMKNLF | LISTING |
| DMKCPS | LISTING | DMKIOS | LISTING | DMKPAG | LISTING |
| DMKCPU | LISTING | DMKJRL | LISTING | DMKPRG | LISTING |

Files contained on the second tape:

|        |         |        |         |        |         |
|--------|---------|--------|---------|--------|---------|
| DMKPRV | LISTING | DMKSPL | LISTING | DMKVCA | LISTING |
| DMKPSA | LISTING | DMKSTK | LISTING | DMKVCH | LISTING |
| DMKPTR | LISTING | DMKSVC | LISTING | DMKVDA | LISTING |
| DMKQCN | LISTING | DMKSYM | LISTING | DMKVDD | LISTING |
| DMKRGA | LISTING | DMKTAP | LISTING | DMKVDE | LISTING |
| DMKRGB | LISTING | DMKTCS | LISTING | DMKVDR | LISTING |
| DMKRNH | LISTING | DMKTMR | LISTING | DMKVDS | LISTING |
| DMKRSE | LISTING | DMKTRK | LISTING | DMKVMA | LISTING |
| DMKRSP | LISTING | DMKTRM | LISTING | DMKVMC | LISTING |
| DMKSCN | LISTING | DMKUSO | LISTING | DMKVSI | LISTING |
| DMKSEP | LISTING | DMKVAT | LISTING |        |         |

## CMS Listings

### Files contained on the first tape:

|        |         |        |         |        |         |
|--------|---------|--------|---------|--------|---------|
| DMSABN | LISTING | DMSDOS | LISTING | DMSLAD | LISTING |
| DMSACC | LISTING | DMSDSK | LISTING | DMSLAF | LISTING |
| DMSACF | LISTING | DMSDSL | LISTING | DMSLBM | LISTING |
| DMSACH | LISTING | DMSDSV | LISTING | DMSLET | LISTING |
| DMSALU | LISTING | DMSEDC | LISTING | DMSLDR | LISTING |
| DMSAMS | LISTING | DMSEDF | LISTING | DMSLDS | LISTING |
| DMSARD | LISTING | DMSEDI | LISTING | DMSLFS | LISTING |
| DMSARE | LISTING | DMSEDX | LISTING | DMSLGT | LISTING |
| DMSARN | LISTING | DMSERR | LISTING | DMSLIB | LISTING |
| DMSARX | LISTING | DMSERS | LISTING | DMSLIO | LISTING |
| DMSASD | LISTING | DMSEXC | LISTING | DMSLKD | LISTING |
| DMSASM | LISTING | DMSEXT | LISTING | DMSLLU | LISTING |
| DMSASN | LISTING | DMSFCH | LISTING | DMSLOA | LISTING |
| DMSAUD | LISTING | DMSFET | LISTING | DMSLSE | LISTING |
| DMSBAB | LISTING | DMSFLD | LISTING | DMSLST | LISTING |
| DMSBOP | LISTING | DMSFNC | LISTING | DMSLSY | LISTING |
| DMSERD | LISTING | DMSFNS | LISTING | DMSMDP | LISTING |
| DMSBTB | LISTING | DMSFOR | LISTING | DMSMOD | LISTING |
| DMSBTP | LISTING | DMSFRE | LISTING | DMSMVE | LISTING |
| DMSBWR | LISTING | DMSGIO | LISTING | DMSNCP | LISTING |
| DMSCAT | LISTING | DMSGLB | LISTING | DMSNUC | LISTING |
| DMSCIO | LISTING | DMSGND | LISTING | DMSN33 | LISTING |
| DMSCIT | LISTING | DMSGRN | LISTING | DMSOLD | LISTING |
| DMSCLS | LISTING | DMSHDI | LISTING | DMSOPL | LISTING |
| DMSCHP | LISTING | DMSHDS | LISTING | DMSOPT | LISTING |
| DMSCPF | LISTING | DMSIFC | LISTING | DMSOR1 | LISTING |
| DMSCPY | LISTING | DMSINA | LISTING | DMSOR2 | LISTING |
| DMSCRD | LISTING | DMSINI | LISTING | DMSOR3 | LISTING |
| DMSCLR | LISTING | DMSINM | LISTING | DMSOVR | LISTING |
| DMSCW  | LISTING | DMSINS | LISTING | DMSOVS | LISTING |
| DMSD   | LISTING | DMSINT | LISTING | DMSPIO | LISTING |
| DMSDBD | LISTING | DMSIOW | LISTING | DMSPNT | LISTING |
| DMSDBG | LISTING | DMSITE | LISTING | DMSPR  | LISTING |
| DMSDIO | LISTING | DMSITI | LISTING | DMSPRV | LISTING |
| DMSDLB | LISTING | DMSITP | LISTING | DMSPUN | LISTING |
| DMSDLK | LISTING | DMSITS | LISTING | DMSQRY | LISTING |
| DMSDMP | LISTING |        |         |        |         |

### Files contained on the second tape:

|        |         |        |         |         |         |
|--------|---------|--------|---------|---------|---------|
| DMSRDC | LISTING | DMSSQS | LISTING | DMSVAN  | LISTING |
| DMSREA | LISTING | DMSSRT | LISTING | DMSVAS  | LISTING |
| DMSRNE | LISTING | DMSSRV | LISTING | DMSVIB  | LISTING |
| DMSRNM | LISTING | DMSSSK | LISTING | DMSVIP  | LISTING |
| DMSROS | LISTING | DMSSTG | LISTING | DMSVPD  | LISTING |
| DMSRRV | LISTING | DMSSTT | LISTING | DMSVSR  | LISTING |
| DMSSAB | LISTING | DMSSVN | LISTING | DMSVVN  | LISTING |
| DMSSBD | LISTING | DMSSVT | LISTING | DMSVVS  | LISTING |
| DMSSBS | LISTING | DMSSYN | LISTING | DMSV33  | LISTING |
| DMSSCN | LISTING | DMSS33 | LISTING | DMSXCP  | LISTING |
| DMSSCR | LISTING | DMSTIO | LISTING | DMSZAP  | LISTING |
| DMSSCT | LISTING | DMSTMA | LISTING | DMSZAT  | LISTING |
| DMSSCB | LISTING | DMSTPD | LISTING | DMSZIT  | LISTING |
| DMSSCB | LISTING | DMSTPE | LISTING | DMSZNR  | LISTING |
| DMSSCB | LISTING | DMSTQQ | LISTING | DMSZUS  | LISTING |
| DMSSCB | LISTING | DMSTRK | LISTING | VMFDATE | LISTING |
| DMSSCB | LISTING | DMSTYP | LISTING | VMFLOAD | LISTING |
| DMSSCB | LISTING | DMSUPD | LISTING |         |         |

## IPCS and RSCS Listings

Files contained on this tape:

|        |         |        |         |        |         |
|--------|---------|--------|---------|--------|---------|
| DMMCPA | LISTING | DMMREG | LISTING | DMTEXT | LISTING |
| DMMDIR | LISTING | DMMRMV | LISTING | DMTGIV | LISTING |
| DMMDSC | LISTING | DMMSCR | LISTING | DMTINI | LISTING |
| DMMEDM | LISTING | DMMSEA | LISTING | DMTIOM | LISTING |
| DMMFED | LISTING | DMMSTA | LISTING | DMTLAX | LISTING |
| DMMFEX | LISTING | DMMSUM | LISTING | DMTHAP | LISTING |
| DMMGET | LISTING | DMMTRC | LISTING | DMTMGX | LISTING |
| DMMGRC | LISTING | DMMTRN | LISTING | DMTMSG | LISTING |
| DMMHEX | LISTING | DMMVMB | LISTING | DMTNPT | LISTING |
| DMMIDM | LISTING | DMMWRT | LISTING | DMTPST | LISTING |
| DMMINI | LISTING | DMTAKE | LISTING | DMTQRQ | LISTING |
| DMMINT | LISTING | DMTASK | LISTING | DMTRES | LISTING |
| DMMIOB | LISTING | DMTASY | LISTING | DMTSIG | LISTING |
| DMMLOC | LISTING | DMTAXS | LISTING | DMTSHL | LISTING |
| DMMMAP | LISTING | DMTCMX | LISTING | DMTSTO | LISTING |
| DMMMOD | LISTING | DMTCOM | LISTING | DMTSVC | LISTING |
| DMMPRG | LISTING | DMTCRE | LISTING | DMTVEC | LISTING |
| DMMPRM | LISTING | DMTDSP | LISTING | DMTWAT | LISTING |
| DMMPRO | LISTING |        |         |        |         |



## **Section 6. Changes to VM/370 Restrictions**

A virtual machine created by VM/370 is capable of running in an IBM System/360 or System/370 operating system with certain VM/370 restrictions. The complete list of virtual machine restrictions and certain execution characteristics are contained in VM/370 System Messages, GC20-1808, and in VM/370 Planning and System Generation Guide, GC20-1801.

Significant changes to the VM/370 restrictions are defined in this section.

### **Dynamically Modified Channel Programs**

No changes from the previous release.

### **Minidisk Restrictions**

No changes from the previous release.

### **Timing Dependencies**

No changes from the previous release.

### **Processor Model Dependent Functions**

No changes from the previous release.

### **Channel Model Dependent Functions**

No changes from the previous release.

### **Virtual Machine Characteristics**

No changes from the previous release.

### **CMS Restrictions**

No changes from the previous release.

## MSS Restrictions

1. There are two OS/VS system data sets associated with the 3850 Mass Storage System:
  - a. The mass storage volume inventory
  - b. The mass storage volume control journal

There is only one copy of each data set per Mass Storage System, not necessarily one per operating system. If more than one OS/VS system (running in either native mode or in a virtual machine) is connected to a common Mass Storage System, then the OS/VS systems must share a common inventory and journal.

2. When a real 3330V device is dedicated to a virtual machine as a virtual 3330V, the programming support in the virtual machine must recognize and access the virtual device as a 3330V.
3. The following must be compatible:
  - a. The definition of 3330V addresses in the MSC table
  - b. The DMKRIO module
  - c. The IOGEN for any OS/VS system running in a virtual machine with a dedicated MSC port.

The reason for maintaining compatibility and the way to ensure it is explained in VM/370 System Programmer's Guide, GC20-1807.

4. Each active volume in the MSS must have a unique volume number. If the user wishes to have two or more user volumes having the same volume serial (such as different versions of an OS/VS2 system residence volume both having a volume serial of VS2037), then he must create two MSS volumes having different volume serials and allocate the user volumes as minidisks.
5. Mass Storage System volumes may not be used for VM/370 residence, paging, spooling, or temporary disk space.
6. The user must not change the volume of a real 3330V volume (the volume serial as known by the MSC) except by using the OS/VS access method services utilities. If, for example, cylinder 0 of a 3330V is dedicated to a virtual machine, and that virtual machine alters the volume serial using DDR, then the volume cannot be mounted.

## Miscellaneous Restrictions

The following new restrictions have been added:

1. VM/370 System Extensions Program Product Release 1 Modification Level 0 and Release 1 Modification Level 1 as well as VM/370 Basic System Extensions Program Product Release 1 applicable to Release 5 do not function on Release 6.

However, VM/370 System Extensions Program Product Release 2 and VM/370 Basic System Extensions Program Product Release 2 function on Release 6 but not on Release 5. These release levels contain all the function of VM/370 Extensions applicable to Release 5 as well as new function for Release 6.

2. When using the SPOOL, DEDICATE, and SPECIAL directory control statements to define virtual devices, the user must specify virtual addresses that do not conflict or contend with the virtual control unit interface. This conflict or contention occurs because devices can require special I/O interface protocol from control units such as shared and nonshared subchannel operations. Putting devices that require different read control units on the same virtual control unit can result in a hung or busy condition. To avoid this problem, the user must define (and separate) devices within their own control unit range. For example, if the directory entries specify:

SPOOL 102 3211

SPECIAL 103 3270

the control unit 0 on channel 1 controls both a nonshared device (the 3211 printer) and a shared device (the 3270 display unit). Processing of channel programs involving these two devices can result in a hung or busy condition.



## Section 7. APAR List

The following APARs have been incorporated into this release.

### APARs Affecting CP

|          |          |          |          |
|----------|----------|----------|----------|
| Z7166DMK | Z7705DMK | Z7846DMK | Z7984DMK |
| Z7438DMK | Z7735DMK | Z7862DMK | Z8015DMK |
| Z7575DMK | Z7777DMK | Z7880DMK | Z8038DMK |
| Z7652DMK | Z7807DMK | Z7902DMK | Z8059DMK |
| Z7665DMK | Z7834DMK | Z7936DMK | Z8077DMK |
| Z7702DMK | Z7843DMK | Z7979DMK | Z8104DMK |
| Z7728DMK | Z7861DMK | Z8012DMK | Z8135DMK |
| Z7775DMK | Z7875DMK | Z8037DMK | Z8167DMK |
| Z7801DMK | Z7899DMK | Z8055DMK | Z8187DMK |
| Z7832DMK | Z7933DMK | Z8075DMK | Z8223DMK |
| Z7842DMK | Z7972DMK | Z8102DMK | Z8241DMK |
| Z7860DMK | Z8010DMK | Z8129DMK | Z8275DMK |
| Z7866DMK | Z8031DMK | Z8161DMK | Z8305DMK |
| Z7888DMK | Z8054DMK | Z8186DMK | Z8346DMK |
| Z7932DMK | Z8073DMK | Z8222DMK | Z8365DMK |
| Z7963DMK | Z8101DMK | Z8237DMK | Z8381DMK |
| Z8002DMK | Z8126DMK | Z8267DMK | Z8398DMK |
| Z8030DMK | Z8156DMK | Z8299DMK | Z8415DMK |
| Z8051DMK | Z8184DMK | Z8336DMK | Z8434DMK |
| Z8072DMK | Z8218DMK | Z8361DMK | Z8494DMK |
| Z8098DMK | Z8236DMK | Z8380DMK | Z8521DMK |
| Z8121DMK | Z8266DMK | Z8394DMK | Z8547DMK |
| Z8143DMK | Z8291DMK | Z8413DMK | Z8590DMK |
| Z8180DMK | Z8317DMK | Z8433DMK | Z8614DMK |
| Z8204DMK | Z8356DMK | Z8481DMK | Z8676DMK |
| Z8235DMK | Z8379DMK | Z8517DMK | Z8683DMK |
| Z8263DMK | Z8392DMK | Z8544DMK | Z8698DMK |
| Z8286DMK | Z8412DMK | Z8576DMK | Z8732DMK |
| Z8311DMK | Z8431DMK | Z8613DMK | Z8753DMK |
| Z8355DMK | Z8462DMK | Z8670DMK | Z8805DMK |
| Z8376DMK | Z8513DMK | Z8682DMK | Z8851DMK |
| Z8387DMK | Z8540DMK | Z8697DMK | Z8899DMK |
| Z8405DMK | Z8573DMK | Z8730DMK | Z7271DMK |
| Z8425DMK | Z8605DMK | Z8747DMK | Z7534DMK |
| Z8454DMK | Z8667DMK | Z8800DMK | Z7635DMK |
| Z8511DMK | Z8681DMK | Z8841DMK | Z7662DMK |
| Z8528DMK | Z8695DMK | Z8890DMK | Z7699DMK |
| Z8568DMK | Z8728DMK | Z7264DMK | Z7711DMK |
| Z8602DMK | Z8745DMK | Z7519DMK | Z7763DMK |
| Z8643DMK | Z8787DMK | Z7613DMK | Z7798DMK |
| Z8680DMK | Z8840DMK | Z7661DMK | Z7822DMK |
| Z8691DMK | Z8872DMK | Z7690DMK | Z7837DMK |
| Z8721DMK | Z7221DMK | Z7710DMK | Z7851DMK |
| Z8735DMK | Z7505DMK | Z7752DMK | Z7864DMK |
| Z8777DMK | Z7600DMK | Z7788DMK | Z7885DMK |
| Z8830DMK | Z7655DMK | Z7816DMK | Z7922DMK |
| Z8858DMK | Z7684DMK | Z7836DMK | Z7951DMK |
| Z7171DMK | Z7708DMK | Z7849DMK | Z7988DMK |
| Z7447DMK | Z7751DMK | Z7863DMK | Z8017DMK |
| Z7585DMK | Z7779DMK | Z7884DMK | Z8042DMK |
| Z7653DMK | Z7810DMK | Z7906DMK | Z8060DMK |
| Z7681DMK | Z7835DMK | Z7949DMK | Z8085DMK |

|          |          |          |          |
|----------|----------|----------|----------|
| Z8113DMK | Z8677DMK | Z7859DMK | Z8351DMK |
| Z8139DMK | Z8687DMK | Z7865DMK | Z8375DMK |
| Z8169DMK | Z8708DMK | Z7887DMK | Z8385DMK |
| Z8188DMK | Z8733DMK | Z7931DMK | Z8404DMK |
| Z8228DMK | Z8754DMK | Z7955DMK | Z8419DMK |
| Z8245DMK | Z8817DMK | Z7990DMK | Z8439DMK |
| Z8276DMK | Z8853DMK | Z8029DMK | Z8508DMK |
| Z8306DMK | Z8903DMK | Z8043DMK | Z8527DMK |
| Z8350DMK | Z7437DMK | Z8064DMK | Z8567DMK |
| Z8367DMK | Z7568DMK | Z8088DMK | Z8600DMK |
| Z8384DMK | Z7645DMK | Z8119DMK | Z8639DMK |
| Z8402DMK | Z7663DMK | Z8140DMK | Z8679DMK |
| Z8417DMK | Z7700DMK | Z8177DMK | Z8689DMK |
| Z8438DMK | Z7715DMK | Z8189DMK | Z8717DMK |
| Z8496DMK | Z7769DMK | Z8229DMK | Z8734DMK |
| Z8525DMK | Z7800DMK | Z8261DMK | Z8768DMK |
| Z8555DMK | Z7831DMK | Z8278DMK | Z8818DMK |
| Z8599DMK | Z7840DMK | Z8310DMK | Z8855DMK |
| Z8623DMK |          |          |          |

## APARs Affecting CMS

|          |          |          |          |
|----------|----------|----------|----------|
| Z7040DMS | Z7978DMS | Z7442DMS | Z8020DMS |
| Z7458DMS | Z8045DMS | Z7488DMS | Z8061DMS |
| Z7507DMS | Z8082DMS | Z7538DMS | Z8117DMS |
| Z7569DMS | Z8136DMS | Z7605DMS | Z8149DMS |
| Z7625DMS | Z8182DMS | Z7636DMS | Z8246DMS |
| Z7654DMS | Z8280DMS | Z7692DMS | Z8328DMS |
| Z7754DMS | Z8343DMS | Z7762DMS | Z8357DMS |
| Z7783DMS | Z8383DMS | Z7792DMS | Z8400DMS |
| Z7852DMS | Z8493DMS | Z7861DMS | Z8626DMS |
| Z7903DMS | Z8663DMS | Z7910DMS | Z8756DMS |
| Z7942DMS | Z8806DMS | Z7964DMS | Z8832DMS |
| Z7970DMS | Z7429DMS | Z8061DMS | Z7457DMS |
| Z8044DMS | Z7463DMS | Z8053DMS | Z7501DMS |
| Z8068DMS | Z7537DMS | Z8112DMS | Z7551DMS |
| Z8132DMS | Z7597DMS | Z8142DMS | Z7612DMS |
| Z8168DMS | Z7632DMS | Z8226DMS | Z7647DMS |
| Z8259DMS | Z7669DMS | Z8298DMS | Z7737DMS |
| Z8342DMS | Z7758DMS | Z8353DMS | Z7771DMS |
| Z8378DMS | Z7787DMS | Z8391DMS | Z7824DMS |
| Z8492DMS | Z7854DMS | Z8542DMS | Z7900DMS |
| Z8662DMS | Z7909DMS | Z8706DMS | Z7921DMS |
| Z8798DMS | Z7950DMS | Z8831DMS | Z7968DMS |
| Z8934DMS | Z7981DMS | Z7444DMS | Z8024DMS |
| Z7374DMS | Z8048DMS | Z7500DMS | Z8062DMS |
| Z7460DMS | Z8107DMS | Z7550DMS | Z8125DMS |
| Z7510DMS | Z8141DMS | Z7610DMS | Z8152DMS |
| Z7588DMS | Z8214DMS | Z7638DMS | Z8248DMS |
| Z7631DMS | Z8294DMS | Z7707DMS | Z8338DMS |
| Z7660DMS | Z8352DMS | Z7764DMS | Z8371DMS |
| Z7755DMS | Z8388DMS | Z7793DMS | Z8407DMS |
| Z7785DMS | Z8538DMS | Z7886DMS | Z8655DMS |
| Z7853DMS | Z8704DMS | Z7914DMS | Z8758DMS |
| Z7908DMS | Z8808DMS | Z7966DMS | Z8901DMS |
| Z7944DMS |          |          |          |

## **APARs Affecting RSCS**

|          |          |          |          |
|----------|----------|----------|----------|
| Z7451DMT | Z8633DMT | Z8219DMT | Z8751DMT |
| Z8171DMT | Z7697DMT | Z8725DMT | Z8094DMT |
| Z8578DMT | Z8193DMT | Z7773DMT | Z8288DMT |
| Z7621DMT | Z8636DMT | Z8251DMT | Z8779DMT |
| Z8191DMT | Z7770DMT |          |          |

## **APARs Affecting IPCS**

|          |          |          |          |
|----------|----------|----------|----------|
| Z8003DMM | Z8707DMM | Z8111DMM | Z8369DMM |
| Z8574DMM | Z8089DMM | Z8869DMM | Z8569DMM |
| Z8047DMM | Z8731DMM |          |          |



## Section 8. Maintaining Compatibility with Supported Hardware and Software

This section defines updates that must be made to hardware products and to programs to ensure that these hardware products and programs remain compatible with this release of VM/370.

### VM/370 ECPS Compatibility

1. The Extended Control Program Support (ECPS) installed in the 4331 and 4341 processors must be VM/370 Release 6 level. The ECPS:VM/370 on the 4331 is a subset of that provided on the 4341. The ECPS:VM/370 and the ECPS:VS1 are mutually exclusive on the 4341. The ECPS:VS1 is not available on the 4331.
2. Release 6 of VM/370 is compatible with ECPS:VM/370 Level 18 on the 135-3, 138, 145-3, and 148 processors. The appropriate ECPS:VM/370 support is provided by the following ECs:
  - EC# 149136 and later for the 135-3 processor
  - EC# 149136 and later for the 138 processor
  - EC# 356901 and later for the 145-3 processor
  - EC# 147710 and later for the 148 processor

VM/370 Release 6 executes on these System/370 processors at other earlier EC levels, but the hardware assist is not used.

### Programs Utilizing Protected Shared Segments

Programs utilizing protected shared segments must not make changes to these segments and expect the changes to be preserved. If the VM/370 control program encounters a change in a protected shared segment, the changed page is returned to free storage and the violator is placed in console function mode.

### Spool File Incompatibility

A Release 6 VM/370 system containing spool files created by VM/370 Release 5 cannot be WARM started. The new Release VM/370 system must be COLD started.

|                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------|
| There are no other known compatibility problems <br> between VM/370 Release 6 and other supported  <br> programs and hardware products. |
|-----------------------------------------------------------------------------------------------------------------------------------------|



File No. S370-34  
Order No. GC20-1834-0

## Systems

# IBM Virtual Machine Facility/370: Release 6 Guide

### Release 6 PLC 4

This publication contains information about the scope and content of the IBM Virtual Machine Facility/370 (VM/370). It provides planning and implementation information for installation managers, system programmers, and IBM system hardware and software support personnel. This publication describes:

- New and changed VM/370 features, components, and requirements
- Module summary for CP, CMS, IPCS, and RSCS
- Changes to commands, macro instructions, and service programs
- Changes to VM/370 publications
- Ordering and distribution procedures
- Changes to VM/370 restrictions
- APARS integrated into this release
- Maintaining compatibility with supported hardware and software

The Release Guide does not contain detailed information on VM/370 Extensions, and related program products, or the devices that support them exclusively. However, these Extensions, program products, and devices may be available at the same time as the VM/370 release base. For information on VM/370 System Extensions and VM/370 Basic System Extensions, refer to the appropriate General Information Manual for this release.

#### Prerequisite Publications

*IBM Virtual Machine Facility/370:*

*Introduction*, Order No. GC20-1800

*Planning and System Generation*, Order No. GC20-1801



First Edition (March 1979)

This edition (GC20-1834-0), together with Technical Newsletter GN25-0486, dated August 1, 1979, applies to Release 6 PLC 4 (Program Level Change) of the IBM Virtual Machine Facility/370, and to all subsequent releases unless otherwise indicated in new editions or Technical Newsletters. Technical changes and additions to text and illustrations are indicated by a vertical bar to the left of the change.

Changes are periodically made to the information herein; before using this publication in connection with the operation of IBM systems, consult the latest IBM System/370 Bibliography, Order No. GC20-0001, for the editions that are applicable and current.

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A form for readers' comments is provided at the back of this publication. If the form has been removed, comments may be addressed to IBM Corporation, VM/370 Publications, Dept. D58, Bldg. 706-2, P.O. Box 390, Poughkeepsie, New York 12602. IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation whatever. You may, of course, continue to use the information you supply.

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Summary of Amendments  
for GC20-1834-0  
updated by GN25-0486  
VM/370 Release 6 PLC 4

#### CP DUMP SERVICES FOR VIRTUAL MACHINES

New: Program and Documentation

VM/370 Release 6 PLC 4 supports the VMDUMP command to dump the virtual machine storage. The dump must be processed by the VM/IPCS Extension Program Product, or by a user written routine.

#### CHANNEL-SET SWITCHING

New: Program and Documentation

The use of Channel-set Switching by VM/370 to increases processor recoverability and availability. Channel-set Switching permits a set of channels to be switched from one processor to another.

#### MULTIPLE SERVICE RECORDS FILES (SRFS)

New: Program and Documentation

New support is provided to allow VM/370 initialization processing to read frames from multiple SRF devices.

#### 3031 AP EXTENDED CONTROL PROGRAM SUPPORT

Changed: Program and Documentation

The Extended Control-Program Support for VM/370 (ECPS:VM/370) now supports a 3031 processor in an attached processor environment.

#### THE 4331 COMMUNICATIONS ADAPTER SYNCHRONOUS DATA LINK CONTROL PRODUCT

New: Program and Documentation

VM/370 supports the Synchronous Data Link Control (SDLC) feature of the communications adapter on the 4331 system. It provides the 4331 Communications Adapter with the capability to operate its TP lines in SDLC mode.

#### 3880 STORAGE CONTROL, MODEL 1

New: Program and Documentation

VM/370 supports 333X/3350 attachment via a 3880 Storage Control Model 1 for the 4341, System 370, or 303X Processors.

#### MISCELLANEOUS

Changed: Documentation only

Several minor literary and editorial changes have been made to this document.

Aug. 1, 1979



# Technical Newsletter

This Newsletter No. GN25-0800  
Date April 11, 1980

Base Publication No. GC20-1834-0  
File No. S370-34 (VM/370  
Release 6 PLC 4)

Prerequisite Newsletter GN25-0486

## IBM Virtual Machine Facility/370: Release 6 Guide

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This Technical Newsletter contains replacement pages for VM/370 Release 6 Guide to support Service Level 604 of IBM Virtual Machine Facility/370.

Before inserting any of the attached pages into the VM/370 Release 6 Guide, read carefully the instructions on this cover. They indicate when and how you should insert pages.

Pages to  
be Removed  
None

Attached Pages  
to be Inserted\*  
3-4.1 - 3-4.2

\*If you are inserting pages from different Newsletters/Supplements and identical page numbers are involved, always use the pages with the latest date (shown in the slug at the top of the page). The page with the latest date contains the most complete information.

Changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

### Summary of Amendments

This Technical Newsletter incorporates changes reflecting missing pages inadvertently omitted from the previous TNL.

Note: Please file this cover letter at the back of the base publication to provide a record of changes.

| Priv.<br>Class. | Command  | Operand | Description                                                                            | Line Item<br>Support          |
|-----------------|----------|---------|----------------------------------------------------------------------------------------|-------------------------------|
| D               | START    | PRT     | The FLASH option gives the flash overlay loaded into the 3800.                         | 3800<br>Printing<br>Subsystem |
|                 |          |         | The CHARS option gives the character arrangement table to use for the separator pages. | 3800<br>Printing<br>Subsystem |
|                 |          |         | The FCB option generates the FCB used for separator pages (6, 8, or 12).               | 3800<br>Printing<br>Subsystem |
|                 |          |         | The IMAGE option generates the named system image library used for tables.             | 3800<br>Printing<br>Subsystem |
|                 |          |         | The PURGE option purges all files with load errors. Default is to HOLD.                | 3800<br>Printing<br>Subsystem |
| G               | TERMINAL | TABCHAR | Allows the user to specify his own logical tab character.                              | 4331,<br>4341<br>Processors   |

April 11, 1980



# Technical Newsletter

This Newsletter No. GN25-0486  
Date August 1, 1979

Base Publication No. GC20-1834-0  
File No. S370-34 (VM/370  
Release 6 PLC 4)

Prerequisite Newsletters/  
Supplements None

## IBM Virtual Machine Facility/370: Release 6 Guide

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This Technical Newsletter contains replacement pages for VM/370 Release 6 Guide to support Release 6 PLC 4 of IBM Virtual Machine Facility/370.

Before inserting any of the attached pages into the VM/370 Release 6 Guide, read carefully the instructions on this cover. They indicate when and how you should insert pages.

| Pages to<br><u>be Removed</u>  | Attached Pages<br><u>to be Inserted*</u> |
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| 7-1 - 7-2                      | 7-1 - 7-2                                |

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Changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

### SUMMARY OF AMENDMENTS

This Technical Newsletter incorporates changes reflecting the following support:

- The 4331 Communications Adapter Synchronous Data Link Control support
- CP Dump Services for Virtual Machines
- CMS Support for IPCS
- Channel-set Switching
- Multiple Service Record Files
- 3031 AP Extended Control Program Support
- 3880 Storage Control, Model 1

Note: Please file this cover letter at the back of the base publication to provide a record of changes.



## Section 1. Summary of Changes to the VM/370 System

This section discusses the changes made to the VM/370 system for this release. It also contains information on programs and devices that can use the VM/370 environment or a restricted VM/370 environment without incompatibilities to existing program or device support.

### HIGHLIGHTS

The following is a list of new function and new device support for VM/370 Release 6:

- 3031 Attached Processor Complex Support
- 12 and 16 Megabyte Available Processor Storage Capability
- 4331 and 4341 Processor Support
- 3203 Model 5 Printer Support
- 3800 Printing Subsystem Support
- 3850 Mass Storage System (MSS) Extended Support
- VM/370 Measurement Facility (Monitor)
- Trace Table Size Change
- Shared Segment Modifications
- Multiple Alternate Consoles Support
- LOGON/AUTOLOG/LINK Journaling Option
- Password-On-The-Command-Line Suppression Option
- Remote Spooling Communications Subsystem (RSCS) Networking Program Product
- Special Message Facility
- Modification to DIAGNOSE X'8' Interface
- Directory Update-In-Place Support
- Directory Program Fast I/O Support
- Support for Message No Header (MSGNOH) Command
- Read Inhibit Support
- Automatic Reinitialization Support
- DL/1 in a CMS/DOS Environment

## **3031 Attached Processor Complex Support**

VM/370 Release 6 supports the 3031 Attached Processor Complex which consists of a 3031 processor, a 3041 attached processor, a 3036 console with dual displays, and two 3017 power units.

Main storage as well as channel and I/O functions are provided by the 3031 processor. The 3041 attached processor contains an instruction execution function and a buffer control function. This enhances the total system's ability to handle machine language instructions, reduces the effective data storage access time, and speeds processing. The support of this processor requires no code changes to VM/370.

### **PROGRAM LOGIC PUBLICATIONS**

The following publication contains information on VM/370 support of the 3031 Attached Processor Complex:

SY20-0884 Data Areas and Control Block Logic

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- | • CP Dump Services for Virtual Machines
- | • The 4331 Communications Adapter Synchronous Data Link Control Support
- | • 3031 AP Extended Control Program Support
- | • Channel-set Switching
- | • Multiple Service Record Files
- | • CMS Support for IPCS
- | • 3880 Storage Control, Model 1

Aug. 1, 1979

## **12 and 16 Megabyte Real Storage Capability**

VM/370 supports the 3033 processor whose available processor storage capability is 12 and 16 megabytes. The support of this increased available processor storage capacity requires no code changes to VM/370.

## 4331 and 4341 Processor Support

The IBM 4300 processors, supported by this release, combine System/370 compatibility with large scale integration (LSI) technology.

The 4331 processor offers processor storage and high speed control storage to accommodate standard functions as well as control storage capability required by optional features. Current System/370 users and new customers can now use interactive and data base/data communications applications. One half megabyte of processor storage is standard on the 4331 with the option of expanding to one megabyte. A wide variety of current I/O devices can be attached to the 4331 processor in addition to new I/O devices that are supported when the VM/370 Basic System Extensions Program Product is installed.

The 4341 processor also offers virtual storage and SCP support with System/370 compatibility. This processor has versatility in applications usage as a commercial, scientific, data acquisition, teleprocessing, or general purpose system. As with the 4331, the 4341 can also use a wide variety of currently available I/O devices, tape units, and display units in addition to the new devices that function only when the installation is running with the VM/370 Basic System Extensions Program Product. Two megabytes of processor storage are standard on the 4341 with the option of expanding to four megabytes.

Release 6 of VM/370 is compatible with ECPS:VM/370 Level 19 on the 4331 and 4341 processors. This support is included in the initial shipment of these processors.

No fixed or I/O extended machine check logout area and no fixed or I/O extended channel check logout area exist for the 4331 and 4341 and no region code (model dependent information) is available. Independent machine checks and channel checks are recorded as they are now. If any dependent machine or channel check occurs, it is recorded on diskette which only customer authorized service personnel can access using a standalone program.

The 3278 Model 2A display station is used as the system console for the 4331 and 4341 processors. The 3278 Model 2A is supported the same as a 3277 with the following differences for the new display station:

- Screen layout differences. 20 lines (80 characters per line) of the 25-line display are used for operator communication. CP and CMS recognize the smaller screen size.

Aug. 1, 1979

## **DL/I in a CMS/DOS Environment**

DL/1 batch application programs can be written and tested in the CMS/DOS environment.

### **PUBLICATIONS**

The following publication contains information about DL/1:

GH20-1246 DL/1, DOS/VS General Information Manual

## | Channel-set Switching

| The VM/370 support of the Channel-set Switching feature of the 3033 Attached Processor provides increased processor availability and recoverability on this system.

| The Channel-set Switching feature allows the main (I/O) processor to be taken offline (via the VARY command). The system continues to run in uniprocessor mode with the I/O capability switched to the attached processor, thus increasing system availability during main processor preventive maintenance.

| Also, the Channel-set Switching feature allows CP to perform Automatic Processor Recovery in the case of a Time-of-Day clock error on the main processor (provided the main processor was in problem state at the time of the failure). The system converts to uniprocessor mode and continues to run with the Channel-set connected to the attached processor. This increases system recoverability and availability over a main processor failure and servicing.

| For a more detailed discussion, refer to VM/370 Planning and System Generation Guide.

| There are two new instructions provided to support Channel-set Switching. They are:

- | • Disconnect Channel-set
- | • Connect Channel-set

| On a 3033 Attached Processor system, all online channels comprise the Channel-set.

| At initialization time, CP determines whether or not the Channel-set Switching feature is available by executing a connect Channel-set instruction. If the instruction executes successfully the feature is available. CP then records this in the PSAs (a bit is set on) along with the address of the Channel-set of the initiated device. CP tests this bit before attempting to VARY the main processor offline and before attempting to recover from a hardware failure on the main processor. CP uses the Channel-set address in the disconnect and connect Channel-set instructions.

| Note: An '016' disabled wait state will be loaded when the disconnect or connect Channel-set instruction does not work. If this wait state occurs, contact your IBM support personnel.

### | SRL AND PROGRAM LOGIC PUBLICATIONS

| The following publications contain information on VM/370 support for Channel Set Switching:

| GC20-1800 Introduction

| GC20-1801 Planning and System Generation Guide

| GC20-1806 Operator's Guide

| GC20-1808 System Messages

- | GC20-1809 OLTSEP and Error Recording Guide
- | SY20-1884 Data Areas and Control Block Logic
- | SY20-1886 System Logic and Problem Determination Guide -- Volume 1

## | Multiple Service Record File

| The Service Record File (SRF) device (7443 diskette) supported by VM/370 allows the enhanced CPEREPE program to be independent of processor model and EC level for the 3031, 3032, and 3033 processors. Each 303X processor has a 3036 console. The 3036 console has two operating stations, designated as the operator's console and the service support console. Each operating station contains an SRF device. The SRF contains "frames" that consist of format and conversion information used to display machine or channel dependent logout data on the service support console or on the EREP Edit output. CPEREPE uses the frames to format MCH and CCH records for the 3031, 3032, and 3033 Processors. The frames are read from the SRF device by VM/370, formatted as records, and placed at the beginning of VM's error recording cylinders.

| For a detailed description of CPEREPE's use of SRF frames, refer to the VM/370 OLTSEP and Error Recording Guide.

| A 3033 Attached Processor configuration has two 3036 consoles. Each of the four operating stations contains an SRF device. VM/370 will support the specification of multiple SRF devices at system generation on the RIOGEN macro. Each time the VM/370 error recording cylinders are formatted, an attempt will be made to access each SRF in the list, and to read frames from the device and place them on the error recording cylinders. CPEREPE processing will match the error records generated on the main or attached processor with the frame records from that processor's SRF device. It is recommended that the SRF addresses specified be those of the SRFs in the service support consoles. All SRF devices may be specified. However, CP processing will ignore inaccessible SRF devices.

| For a detailed description of the system generation definition of SRF devices, refer to VM/370 Planning and System Generation Guide.

### | SRL AND PROGRAM LOGIC PUBLICATIONS

| The following publications contain information on VM/370 support of Multiple SRFs:

| GC20-1801 Planning and System Generation Guide

| GC20-1808 System Messages

| GC20-1809 OLTSEP and Error Recording Guide

| GC20-1821 Operating Systems in a Virtual Machine

| SY20-1884 Data Areas and Control Block Logic

| SY20-1886 System Logic and Problem Determination Guide -- Volume 1

## | 3031 AP Extended Control Program Support

| The Extended Control-Program Support for VM/370 (ECPS:VM/370) supports  
| the 3031 main processor and the 3031 attached processor environment.  
| This function is a subset of the same as the previous ECPS: VM/370  
| currently available on the processors.

| At initialization, the machine implemented instruction level of the  
| two processors in a 3031 attached processor system is tested. If the  
| levels of these two processors are different, the CP Assist and Extended  
| Virtual Machine Assist portions of the ECPS subset for the 3031 is  
| disabled on both the main and attached processor. Otherwise, the  
| special 3031 ECPS package is activated.

| The specific subset of functions supported are:

| • Control Program Assist

|       |            |
|-------|------------|
| FREE  | RETURN     |
| FRET  | SHAREDPAGE |
| LINK  | STECPSVM   |
| PTRLK | TRANBRNG   |
| PTRUL | TRANLOCK   |

| • Extended Virtual Machine Assist

|      |     |
|------|-----|
| STPT | TCH |
|------|-----|

| • Virtual Interval Timer

| There are changes to the SET CPASSIST command and the QUERY CPASSIST  
| command for attached processor support. The SET command now allows  
| processor distinction in the 3031 attached processor environment. The  
| QUERY response indicates which processor (main or attached) has the  
| function enabled. Trace table entries are also modified to reflect  
| instructions assisted by ECPS (bit 0) and whether the assist occurred on  
| the main or attached processor (bit 1).

### | SRL AND PROGRAM LOGIC PUBLICATIONS

| The following publications contain information on VM/370 support for  
| 3031 AP Extended Control Program.

| GC20-1801 Planning and System Generation Guide

| GC20-1806 Operator's Guide

| GC20-1807 System Programmer's Guide

| GC20-1821 Operating Systems in a Virtual Machine

| SY20-1884 Data Areas and Control Block Logic

| SY20-1886 System Logic and Problem Determination Guide -- Volume 1

## **| The 4331 Communications Adapter Synchronous Data Link Control Support**

| VM/370 supports the Synchronous Data Link Control (SDLC) feature of the  
| communications adapter on the 4331 system. It provides the 4331  
| Communications Adapter with the capability to operate its TP lines in  
| SDLC mode.

### **| SRL AND PROGRAM LOGIC PUBLICATIONS**

| The following publications contain information on the SDLC feature of  
| the 4331 Communications Adapter:

| GC20-1801 Planning and System Generation Guide

| SY20-1884 Data Areas and Control Block Logic

## | CP Dump Services for Virtual Machines

| VM/370 Release 6 PLC 4 supports a new Class G command, VMDUMP, to dump  
| virtual machine storage. This new command can be invoked by the  
| following methods:

| • A virtual machine issues (via the DIAGNOSE X'08' instruction) A  
| VMDUMP command. CP then processes the command, picks up the  
| parameter list, and passes control to the Dump Services for  
| processing.

| • A user can invoke the Dump Services on a virtual machine failure by  
| issuing the VMDUMP command from his terminal.

| The dump that results from using the VMDUMP command must be processed by  
| the VM/IPCS Extension program product or by a user written routine.

### | SRL AND PROGRAM LOGIC PUBLICATIONS

| The following publications contain information on the VMDUMP command:

| GC20-1801 Planning and System Generation Guide

| GC20-1807 System Programmer's Guide

| GC20-1808 System Messages

| GC20-1820 CP Command Reference for General Users

| SY20-1884 Data Areas and Control Block Logic

| SY20-1886 System Logic and Problem Determination Guide -- Volume 1

## | 3880 Storage Control, Model 1

| VM/370 Release 6 PLC 4 supports 333X/3350 attachment via a 3880 Storage  
| Control Model 1 for the following:

- | • 4341 Processor
- | • System 370
- | • 303X Processors

| A 3880 is generated as if it were a 3830.

### | SRL AND PROGRAM LOGIC PUBLICATIONS

| The following publication contains information on the 3880 attachment of  
| 333X/3350:

| GC20-1801 Planning and System Generation

| SY20-1884 Data Areas and Control Block Logic

## | CMS Support for IPCS

| The CMS extensions allow guest machines to utilize functions that have  
| previously been limited to CP. Problem determination capability is  
| improved. CMS will provide the following support:

- | • During abend processing the last message issued prior to the abend  
| message is saved.
- | • The NUCON is modified.

### | SRL AND PROGRAM LOGIC PUBLICATIONS

| The following publication contains information on CMS support for IPCS:

- | GC20-1806 Operator's Guide
- | SY20-1883 Service Routines
- | SY20-1884 Data Areas and Control Block Logic

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## Section 3. Command, Macro Instruction, and Service Program Summary

This section presents the names of commands, macro instructions, and service programs that have been added or changed for this release. Each chart identifies the command, macro instruction, or service program that has been changed or added, and the line item support causing the change or addition. Also included in this section are changes and additions to system ABEND codes and WAIT states.

### NewCPCommands

| Priv. Class | Command | Operand                                                                                                     | Description                                                                                                                                                         | Line Item Support        |
|-------------|---------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| B           | MSGNOH  | userid<br>msgtxt                                                                                            | Allows a service virtual machine to send unformatted messages to other users of the system                                                                          | MSGNOH                   |
| G           | SMSG    | userid *<br>msgtxt                                                                                          | Used for sending special messages to a virtual machine programmed to accept and process special messages. The userid of the receiving virtual machine is specified. | Special Message Facility |
| G           | VMDUMP  | hexloc1<br>hexloc2<br>bytecount<br>END<br>TO *<br>TO userid<br>SYSTEM<br>FORMAT<br>vmtype<br>DSS<br>*dumpid | Used to create a dump on a guest virtual machine that can be processed by VM/IPCS Extension program product or a user written routine.                              | VMDUMP                   |

## Changes to CP Commands

| Priv.<br>Class. | Command  | Operand                  | Description                                                                                                                                                                                                                                                                                        | Line Item<br>Support          |
|-----------------|----------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| A               | ATTACH   | valid                    | rdev SYSTEM volser - If the rdev is a 3330V, the MSS volume (volser) is mounted before the rdev is attached as a system device.                                                                                                                                                                    | 3850<br>MSS                   |
|                 |          | 3330V                    | rdev userid cuu volser 3330V - MSS volume (volser) is mounted at a real address (rdev) and the rdev is attached to the userid virtual machine as a virtual device (cuu). If 3330V is specified, the virtual device is a 3330V rather than a 3330-1.                                                | 3850<br>MSS                   |
| D               | BACKSPAC | [file]<br>[pages]<br>[1] | The EOF option in new. If EOF is specified, page counting is started from the end of the last DASD buffer of the spool file instead of from the end of the current buffer.                                                                                                                         | 3800<br>Printing<br>Subsystem |
| G,D             | CHANGE   | PRT                      | The FLASH option with the name of the overlay is used to generate forms flashing and the flash count. If specified as nn, the first nn copies are flashed and the rest are not.                                                                                                                    | 3800<br>Printing<br>Subsystem |
|                 |          |                          | MODIFY option used with copy modification name is used to specify the name of the module used for printing a file.                                                                                                                                                                                 | 3800<br>Printing<br>Subsystem |
|                 |          |                          | CHARS option with translate table name is used to specify the name of the character arrangement table used for printing a file.                                                                                                                                                                    | 3800<br>Printing<br>Subsystem |
|                 |          |                          | FCB option with appropriate FCB name is used to specify the number of lines per inch to print. The proper FCB to load is calculated by VM/370.                                                                                                                                                     | 3800<br>Printing<br>Subsystem |
|                 |          |                          | COPY option - if the number of copies is preceded by an asterisk, a file is transmitted to the 3800 only once with the 3800 doing the replication internally one page at a time. Otherwise, the file is transmitted once for each copy desired with VM/370 indicating the copy number to the 3800. | 3800<br>Printing<br>Subsystem |

| Priv. Class. | Command | Operand       | Description                                                                                                                                     | Line Item Support                            |
|--------------|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| B            | DEFINE  | SYSVIRT       | Alters the use of the 3330V and reserves it for CP. It cannot be dedicated or attached to a virtual machine.                                    | 3850<br>MSS                                  |
|              |         | VIRTUAL       | Alters the use of the 3330V device so that the device can be dedicated or attached to a virtual machine. It cannot be used as a system volume.  | 3850<br>MSS                                  |
| G            | IPL     | PARM          | The AUTOOCR option enables a carriage return simulation after the CMS IPL command is complete. The option also causes a PROFILE EXEC execution. | Auto-<br>matic<br>Reinit-<br>ializa-<br>tion |
| A,E          | MONITOR | LIMIT n,      | The SAMPLE option enables the user to specify that a spool file be closed after n samples of data are taken.                                    | VM/370<br>Measure-<br>ment<br>Facility       |
|              |         | SEEKS         | INclude raddr...defines a list of real device addresses for which the SEEKS class of data collection is activated.                              | VM/370<br>Measure-<br>ment<br>Facility       |
|              |         |               | EXclude raddr...defines a list of real device addresses for which data is not collected when the SEEKS class of data collection is activated.   | VM/370<br>Measure-<br>ment<br>Facility       |
|              |         |               | DELEte option specifies that the most recent EXclude or INclude option is deleted. This deletes the list of real device addresses.              | VM/370<br>Measure-<br>ment<br>Facility       |
|              |         |               | DISPlay option displays the current device list.                                                                                                | VM/370<br>Measure-<br>ment<br>Facility       |
| A,B,C,D,F    | QUERY   | CPASSIST      | Indicates the CP Assist and EVMA portions of ECPS: VM/370 is either active or inactive for both processors in a 3031 AP environment.            | VM/370:<br>ECPS<br>Extension                 |
| A            | QUERY   | JOURNAL LOGON | Allows the status of the journaling option to be interrogated for LINK and LOGON commands.                                                      | LOGON/<br>AUTOLOG/<br>LINK                   |
|              |         | JOURNAL LINK  |                                                                                                                                                 | Journal-<br>ing                              |

| Priv. Class. | Command | Operand                                                                     | Description                                                                                                                                    | Line Item Support                        |
|--------------|---------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| G,D          | QUERY   | PRT                                                                         | The TBL option gives new information for the spool file.                                                                                       | 3800<br>Printing<br>Subsystem            |
| B            | QUERY   | PRT<br>raddr                                                                | Gives the forms name and image library name.                                                                                                   | 3800<br>Printing<br>Subsystem            |
| G            | QUERY   | PRT<br>vaddr                                                                | Gives the tables name on a virtual printing device.                                                                                            | 3800<br>Printing<br>Subsystem            |
| B            | QUERY   | DASD                                                                        | The SYSVIRT option displays the address of the system 3330V volume. The VIRTUAL option displays the address of a virtual machine 3330V device. | 3850<br>MSS                              |
| G            | QUERY   | TERMINAL                                                                    | Displays current settings of functions controlled by the terminal command. A new (added) response is for the logical tab character.            | 4331,<br>4341<br>Processors              |
| G            | QUERY   | SET                                                                         | No change in the command itself. Response now includes status of SMSG (ON or OFF).                                                             | Special<br>Message<br>Facility           |
| G            | SET     | SMSG                                                                        | Controls whether or not a virtual machine is to receive special messages via the ON or OFF options.                                            | Special<br>Message<br>Facility           |
| A            | SET     | JOURNAL<br>LOGON<br>{ON }<br>{OFF}<br><br>JOURNAL<br>LINK<br>{ON }<br>{OFF} | The SET command sets LOGON or LINK journaling via the ON or OFF options.                                                                       | AUTOLOG,<br>LOGON,<br>LINK<br>Journaling |
| A,B,C        | SET     | CPASSIST<br>{ON }<br>{OFF}<br><br>[[PROC]nn]                                | Controls the use of CP Assist and Extended Virtual Machine Assist by processor in a 3031 AP environment.                                       | VM/370:<br>ECPS<br>Extension             |
| G            | SPOOL   | PRT                                                                         | The same new options listed for the CHANGE command are applicable for the SPOOL command.                                                       | 3800<br>Printing<br>Subsystem            |

## Changes to VM/370 System Generation Macro Instructions

| Macro Instruction | Option                         | Function Type of Action and Description                                                                                                                                                                                                                                                                                                                        | Line Item Support                 |
|-------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| NAMESYS           | PROTECT=OFF<br>ON              | Specified for the named system; when specified, this option sets an indicator in SHRTABLE. If PROTECT=OFF, only one set of page and swap tables is built for this shared segment and no scanning is done for changed shared pages. If PROTECT=ON, (or no protect keyword is specified), scanning is done for changed shared pages. Any changes are disallowed. | Shared Segments                   |
| RCTLUNIT          | CUTYPE=3272                    | Must be specified when a 3278 Model 2A is specified in the RDEVICE macro instruction.                                                                                                                                                                                                                                                                          | 4331,<br>4341<br>Processors       |
| RDEVICE           | DEVTYPE=3278                   | New device type and model number permits generation of the 3278 Model 2A as a system console for the 4331 and 4341 processors.                                                                                                                                                                                                                                 | 4331,<br>4341<br>Processors       |
|                   | DEVTYPE=3287                   | Permits specification of a 3287 as a real printer (to be supported the same way as a 3284/3286).                                                                                                                                                                                                                                                               | 4331,<br>4341<br>Processors       |
|                   | DEVTYPE=3203                   | Permits specification of a 3203 Model 5 printer as a real printer. If MODEL is not specified, the default is MODEL=4.                                                                                                                                                                                                                                          | 3203<br>Model 5<br>Printer        |
|                   | DEVTYPE=3800<br>Feature=4WCGMS | Generates support of a dedicated 3800 printer as a unit record output device.                                                                                                                                                                                                                                                                                  | 3800<br>Printing<br>Subsystem     |
|                   | FEATURE=SYSVIRT<br>VIRTUAL     | Used to specify the allowed usage of a 3330V device address.                                                                                                                                                                                                                                                                                                   | 3850<br>MSS                       |
|                   | CLASS=                         | This option is not valid when specifying the 7443 diskette as an SRF device in a 303X attached processor environment.                                                                                                                                                                                                                                          | Multiple<br>SRF                   |
| RIOGEN            | ALTCONS=(cuu,..., cuu)         | Option now accepts a list of alternate console device addresses.                                                                                                                                                                                                                                                                                               | Multiple<br>Alternate<br>Consoles |
|                   | SRF=(cuu,..., cuu)             | Option now accepts a list of service record file device addresses.                                                                                                                                                                                                                                                                                             | Multiple<br>SRF                   |

| Macro<br>Instruc-<br>tion | Option    | Function Type of Action and<br>Description                                                                                                               | Line Item<br>Support              |
|---------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| SYSCOR                    | TRACE=nnn | Specifies the number of 4K pages<br>used to set up the trace table.                                                                                      | Trace Table<br>Size Change        |
| SYSMON                    | ,LIMIT=   | 50000, NOSTOP<br>limit, STOP NOSTOP<br>limit, SAMPLE<br>Specifies that the spool file<br>be closed after a specified number<br>of data samples is taken. | VM/370<br>Measurement<br>Facility |

## New and Changed VM/370 Service Programs

| Service Program | Control Statement                     | Description                                                                                                                                                                                                                                                       | Line Item Support             |
|-----------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| DEDICATE        | ccu rdev                              | The real device (rdev) is dedicated to a virtual machine as the virtual device (cuu). CP assumes that the virtual machine is accessing address cuu as a 3330-1.                                                                                                   | 3850<br>MSS                   |
|                 | ccu rdev 3330V                        | The real device (rdev) is dedicated to the virtual machine as a virtual device (cuu). CP assumes that the virtual machine has MSS 3330V support. All cylinder faults and associated attention interruptions on the real device are passed to the virtual machine. | 3850<br>MSS                   |
|                 | ccu volser                            | CP selects an available 3330V device and causes volume (volser) to be mounted by MSS. The real device is dedicated to the virtual machine as its virtual 3330-1 device cuu.                                                                                       | 3850<br>MSS                   |
|                 | ccu rdev volser                       | CP mounts the MSS volume (volser) on the real 3330V address (rdev). The real device is dedicated to the virtual machine as a 3330-1 device address (cuu).                                                                                                         | 3850<br>MSS                   |
|                 | ccu rdev volser<br>3330V              | Processed the same as cuu rdev volser except that the virtual device becomes a 3330V.                                                                                                                                                                             | 3850<br>MSS                   |
| DMKMSS          |                                       | A new program that runs under OS/VS1 and MVS in a virtual machine. It is a communications interface between VM/370 CP and mass storage control (MSC).                                                                                                             | 3850<br>MSS                   |
| GENIMAGE        | [fn] [ft] [fm]<br>([sfn] [sft] [sfm]) | Accepts IEBIMAGE control cards and creates a load module suitable for loading into a 3800. This module is saved as a TEXT file on the user's disk.                                                                                                                | 3800<br>Printing<br>Subsystem |

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| Service<br>Program | Control<br>Statement | Description                                                                                                                                                                                                  | Line Item<br>Support          |
|--------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| IMAGELIB           | namedsys             | This program creates or changes the named system 'namedsys' which contains a series of load modules suitable for loading into a 3800. The list of load modules is contained in a file called namedsys CNTRL. | 3800<br>Printing<br>Subsystem |

## Changes to System Abend Codes and Wait State Codes

### Changes to System Abend Codes

The following new abend codes have been added to support VM/370 elimination of automatic unshare:

ATS001  
ATS002  
ATS003  
ATS004  
ATS005  
ATS006  
ATS007

These abend codes replace VMA001 through VMA007 and VMA009. For more detailed explanation of abend codes, refer to VM/370 System Messages, Order No. GC20-1808.

A new abend code VMD001 has been added to support CP Dump Services.

### Changes to System Wait State Codes

Wait State X'016' has been added for Channel-set Switching support.

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## Section 4. VM/370 Publications

This section describes the publications that have been deleted or added to the VM/370 library, and includes the current status of, and any changes to, VM/370 publications.

### The VM/370 Library

Figure 0-1, following the preface, shows the structure of the VM/370 library. Essentially, the content and structure of the VM/370 library are unchanged from the previous release with the following exceptions listed in this section.

#### DELETED PUBLICATIONS

GC20-1831-0 Release 5 Guide

#### NEW PUBLICATIONS

GC20-1834-0 Release 6 Guide

#### CURRENT STATUS OF VM/370 PUBLICATIONS AND TNLS

Use the following list to guarantee that all VM/370 publications are current for this release.

| TNL Number | Order Number | Abbreviated Title                                                     |
|------------|--------------|-----------------------------------------------------------------------|
| GN25-0489  | GC20-1800-9  | Introduction                                                          |
| GN25-0490  | GC20-1801-9  | Planning and System Generation Guide                                  |
| GN25-0491  | GC20-1806-9  | Operator's Guide                                                      |
| GN25-0492  | GC20-1807-7  | System Programmer's Guide                                             |
| GN25-0485  | GC20-1808-10 | System Messages                                                       |
| GN25-0493  | GC20-1809-7  | OLTSEP and Error Recording Guide                                      |
|            | GC20-1810-8  | Terminal User's Guide                                                 |
|            | GC20-1813-5  | Glossary and Master Index                                             |
|            | GC20-1816-2  | RSCS User's Guide                                                     |
|            | GC20-1818-2  | CMS Command and Macro Reference                                       |
|            | GC20-1819-2  | CMS User's Guide                                                      |
| GN25-0494  | GC20-1820-3  | CP Command Reference for General Users                                |
| GN25-0495  | GC20-1821-3  | Operating Systems in a Virtual Machine                                |
|            | GC20-1823-3  | IPCS User's Guide                                                     |
| GN25-0486  | GC20-1834-0  | Release 6 Guide                                                       |
|            | GBOF-3573    | Use this number to order the following three publications as a group: |
|            | GX20-1926-6  | Quick Guide for Users                                                 |
|            | GX20-1961-4  | Commands (General Users)                                              |
|            | GX20-1995-1  | Commands (Other than General Users)                                   |

| TNL Number | Order Number | Abbreviated Title                                                     |
|------------|--------------|-----------------------------------------------------------------------|
| SN25-0496  | SY20-0882-4  | Service Routines Program Logic                                        |
| SN25-0497  | SY20-0884-3  | Data Areas and Control Block Logic                                    |
|            | SBOF-3802    | Use this number to order the following three publications as a group: |
| SN25-0488  | SY20-0886-1  | System Logic and Problem Determination Guide Vol. 1 (CP)              |
|            | SY20-0887-1  | System Logic and Problem Determination Guide Vol. 2 (CMS)             |
|            | SY20-0888-0  | System Logic and Problem Determination Guide Vol. 3 (RSCS)            |

#### EREP PUBLICATIONS

These publications are needed to install and use EREP with VM/370:

| TNL Number | Order Number | Abbreviated Title                                                                          |
|------------|--------------|--------------------------------------------------------------------------------------------|
|            | GC28-0772-2  | OS/VS, DOS/VSE, VM/370 Environmental Recording, Editing, and Printing (EREP) Program       |
|            | SY28-0773-2  | OS/VS, DOS/VSE, VM/370 Environmental Recording, Editing, and Printing (EREP) Program Logic |
|            | GC38-1045-1  | OS/VS, DOS/VSE, VM/370 EREP Messages                                                       |

## Changes to VM/370 Publications

Changes to the content of VM/370 publications are shown in the following chart. The changes reflect the elimination of duplicate information. The chart shows the publications that no longer contain this information and the publications where this information is either retained or added. Also shown are enhancements to material presently in the publications.

| Content                                          | Publication                                                         | Status                            |
|--------------------------------------------------|---------------------------------------------------------------------|-----------------------------------|
| Logon Procedure                                  | Introduction                                                        | Enhanced                          |
| Shared Segments                                  |                                                                     | Enhanced                          |
| 3850 MSS                                         |                                                                     | Enhanced                          |
| Terminal Model Numbers                           | Terminal User's Guide                                               | Deleted                           |
| Journaling Modules                               | Data Areas & Cntrl Blk                                              | Enhanced                          |
| Directory Service Program                        | Op Guide<br>Plan and Sys Gen                                        | Deleted<br>Added                  |
| CMS Batch                                        | Op Guide<br>CMS User's Guide                                        | Deleted<br>Added                  |
| General Information for a VM/370 Virtual Machine | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| VM/370 Performance Considerations                | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Virtual Machine Assist                           | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Extended Control Program Support                 | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Virtual=Real Option                              | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Locked Pages Option                              | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Reserved Pages Option                            | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Priority                                         | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| Favored Execution Option                         | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| INDICATE Command for General Users               | Op Sys in a Virt Mach<br>Sys Prog Guide<br>CP Com Ref for Gen Users | Deleted<br>Unchanged<br>Unchanged |
| INDICATE Command for System Analysts             | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |
| MONITOR Command for for System Analysts          | Op Sys in a Virt Mach<br>Sys Prog Guide                             | Deleted<br>Unchanged              |

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| Content                                                     | Publication                                       | Status           |
|-------------------------------------------------------------|---------------------------------------------------|------------------|
| System Operator's Virtual Machine (OPERATOR)                | Op Sys in a Virt Mach<br>Plan and Sys Gen         | Deleted<br>Added |
| Virtual Machine to Receive System Dumps (OPERATNS)          | Op Sys in a Virt Mach<br>Plan and Sys Gen         | Deleted<br>Added |
| Virtual Machines for Updating and Supporting VM/370 (VMSYS) | Op Sys in a Virt Mach<br>Plan and Sys Gen         | Deleted<br>Added |
| A Hardware Virtual Machine (SERV)                           | Op Sys in a Virt Mach<br>Plan and Sys Gen         | Deleted<br>Added |
| Controlling a Terminal Session                              | Op Sys in a Virt Mach<br>CP Com Ref for Gen Users | Deleted<br>Added |
| Controlling Input/Output Function                           | Op Sys in a Virt Mach<br>CP Com Ref for Gen Users | Deleted<br>Added |
| Controlling the Virtual Machine                             | Op Sys in a Virt Mach<br>CP Com Ref for Gen Users | Deleted<br>Added |
| Testing/Debugging of Programs                               | Op Sys in a Virt Mach<br>CP Com Ref for Gen Users | Deleted<br>Added |
| Processor Model and Channel Model Dependencies              | Op Sys in a Virt Mach                             | Enhanced         |
| 3850 MSS                                                    | Op Sys in a Virt Mach                             | Enhanced         |
| IEBIMAGE Interface Program                                  | Service Routines PLM                              | Added            |
| MSS Communicator                                            |                                                   | Added            |
| CP ABEND Codes                                              | Sys Logic and Prob. Det<br>Guide, Volume 1        | Deleted          |
|                                                             | System Messages                                   | Unchanged        |

## Minor Additions to Other Publications Since Their Publication

A release guide is the last publication to be printed in support of a release. As such, information for other publications that is worthy of note but was released too late for inclusion in other publications is documented in this section.

System Logic and Problem Determination Guide, Vol. 1 (CP), SY20-0886-1.

The CP abend codes which were previously documented in this publication are now included only in VM/370 System Messages, GC20-1808-9. This change eliminates duplication of the information within the VM/370 library.

### Documentation

No documentation is provided with the optional program material. For other related documentation, see "Additional Publications."

### Additional Publications

The VM/370 user can obtain the following manuals through his IBM representative or local IBM branch office, or order them directly from SLSS (Mechanicsburg).

| <u>Order<br/>Number</u> | <u>Title</u>                                                                                  |
|-------------------------|-----------------------------------------------------------------------------------------------|
|                         | IBM Virtual Machine Facility/370:                                                             |
| GC20-1800               | Introduction                                                                                  |
| GC20-1809               | OLTSEP and Error Recording Guide                                                              |
| GC20-1810               | Terminal User's Guide                                                                         |
| GC20-1813               | Glossary and Master Index                                                                     |
| GC20-1816               | Remote Spooling Communication Subsystem<br>(RSCS) User's Guide                                |
| GC20-1821               | Operating Systems in a Virtual Machine                                                        |
| GC20-1823               | Interactive Problem Control System (IPCS)<br>User's Guide                                     |
| GBOF-3573               | Use to order the following group                                                              |
| GX20-1926               | Quick Guide for Users                                                                         |
| GX20-1961               | Commands (General Users)                                                                      |
| GX20-1995               | Commands (Other than General Users)                                                           |
| SY20-0882               | Service Routines Program Logic                                                                |
| SY20-0884               | Data Areas and Control Block Logic                                                            |
| SBOF-3802               | Use to order the following group                                                              |
| SY20-0886               | System Logic and Problem Determination Vol. 1<br>Control Program (CP)                         |
| SY20-0887               | System Logic and Problem Determination Vol. 2<br>Conversational Monitor System (CMS)          |
| SY20-0888               | System Logic and Problem Determination Vol. 3<br>Remote Spool. Comm. Subsys. (RSCS)           |
| GC33-4010               | OS/VS, DOS/VS, and VM/370 Assembler Language<br>Manual                                        |
| GC33-4021               | OS/VS, DOS/VS, and VM/370 CMS Assembler<br>Programmer's Guide                                 |
| GC38-1000               | OS/VS Message Library: Mass Storage System<br>(MSS) Messages                                  |
| SY28-0773               | OS/VS, DOS/VSE, VM/370 Environmental Recording,<br>Editing, and Printing (EREP) Program Logic |
| SY33-8041               | OS/VS and VM/370 CMS Assembler Logic Manual                                                   |

Note: A program logic manual is not available for VM/370 IPCS; refer to VM/370 Service Routines Program Logic.

### Microfiche

VM/370 program listings are available on microfiche. The listings are the equivalent of output listings produced by assembling each of the source programs. CP listings reflect macro expansion for the uniprocessor mode of operation (AP=0 or not attached processor) attached processor where applicable. In addition, the attached processor listings (AP=1) are also available.

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| <u>Order No.</u> | <u>Title</u>                                                |
|------------------|-------------------------------------------------------------|
| SYB0-0900        | CP Listings and CP Label Cross-References<br>Microfiche     |
| SYB0-0901        | CMS Listings and CMS Label Cross-Reference<br>Microfiche    |
| SYC0-9000        | RSCS Listing and RSCS Label Cross-Reference<br>Microfiche   |
| SYC0-9001        | IPCS Listing and IPCS Label Cross-Reference<br>Microfiche   |
| SYC0-9002        | CP (AP) Listings and CP label Cross-Reference<br>Microfiche |

Note: Microfiche for linkage editor and EREP support under Release 6 is not provided under the VM/370 Microfiche order number but can be ordered using the following number:

Linkage Editor Component ID 5741-SC1-04  
Microfiche Order SJD2-2068

OS/VS2 EREP Listings Component Level 3.8  
Microfiche Order SJD2-2156-00 TNL No. SNC8-0007

## Program Materials List

### BASIC SYSTEM TAPES

#### VM/370 CP Starter System Tape

The starter system tape format is:

|                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DMKFMT<br>(Format Service Program)                                                                                                                                     |
| EOF/TM                                                                                                                                                                 |
| DMKDDR<br>(DASD Dump Restore Service Program)                                                                                                                          |
| EOF/TM                                                                                                                                                                 |
| VM/370 Starter System<br>consists of: <ul style="list-style-type: none"><li>• CP nucleus</li><li>• CP libraries</li><li>• CMS system</li><li>• CMS libraries</li></ul> |
| EOF/TM                                                                                                                                                                 |

## Section 7. APAR LIST

| The following APARs (listed in alphmeric order) have been incorporated into this release.

### APARs Affecting CP

|          |          |          |          |
|----------|----------|----------|----------|
| Z7166DMK | Z7816DMK | Z8030DMK | Z8241DMK |
| Z7171DMK | Z7822DMK | Z8031DMK | Z8245DMK |
| Z7221DMK | Z7831DMK | Z8037DMK | Z8261DMK |
| Z7264DMK | Z7832DMK | Z8038DMK | Z8263DMK |
| Z7271DMK | Z7834DMK | Z8042DMK | Z8266DMK |
| Z7437DMK | Z7835DMK | Z8043DMK | Z8267DMK |
| Z7438DMK | Z7836DMK | Z8051DMK | Z8275DMK |
| Z7447DMK | Z7837DMK | Z8054DMK | Z8276DMK |
| Z7505DMK | Z7840DMK | Z8055DMK | Z8278DMK |
| Z7519DMK | Z7842DMK | Z8059DMK | Z8286DMK |
| Z7534DMK | Z7843DMK | Z8060DMK | Z8291DMK |
| Z7568DMK | Z7846DMK | Z8064DMK | Z8299DMK |
| Z7575DMK | Z7849DMK | Z8072DMK | Z8305DMK |
| Z7585DMK | Z7851DMK | Z8073DMK | Z8306DMK |
| Z7600DMK | Z7859DMK | Z8075DMK | Z8310DMK |
| Z7613DMK | Z7860DMK | Z8077DMK | Z8311DMK |
| Z7635DMK | Z7861DMK | Z8085DMK | Z8317DMK |
| Z7645DMK | Z7862DMK | Z8088DMK | Z8336DMK |
| Z7652DMK | Z7863DMK | Z8098DMK | Z8346DMK |
| Z7653DMK | Z7864DMK | Z8101DMK | Z8350DMK |
| Z7655DMK | Z7865DMK | Z8102DMK | Z8351DMK |
| Z7661DMK | Z7866DMK | Z8104DMK | Z8355DMK |
| Z7662DMK | Z7875DMK | Z8113DMK | Z8356DMK |
| Z7663DMK | Z7880DMK | Z8119DMK | Z8361DMK |
| Z7665DMK | Z7884DMK | Z8121DMK | Z8365DMK |
| Z7681DMK | Z7885DMK | Z8126DMK | Z8367DMK |
| Z7684DMK | Z7887DMK | Z8129DMK | Z8375DMK |
| Z7690DMK | Z7888DMK | Z8135DMK | Z8376DMK |
| Z7699DMK | Z7899DMK | Z8139DMK | Z8379DMK |
| Z7700DMK | Z7902DMK | Z8140DMK | Z8380DMK |
| Z7702DMK | Z7906DMK | Z8143DMK | Z8381DMK |
| Z7705DMK | Z7922DMK | Z8156DMK | Z8384DMK |
| Z7708DMK | Z7931DMK | Z8161DMK | Z8385DMK |
| Z7710DMK | Z7932DMK | Z8167DMK | Z8387DMK |
| Z7711DMK | Z7933DMK | Z8169DMK | Z8392DMK |
| Z7715DMK | Z7936DMK | Z8177DMK | Z8394DMK |
| Z7728DMK | Z7949DMK | Z8180DMK | Z8398DMK |
| Z7735DMK | Z7951DMK | Z8184DMK | Z8402DMK |
| Z7751DMK | Z7955DMK | Z8186DMK | Z8404DMK |
| Z7752DMK | Z7963DMK | Z8187DMK | Z8405DMK |
| Z7763DMK | Z7972DMK | Z8188DMK | Z8412DMK |
| Z7769DMK | Z7979DMK | Z8189DMK | Z8413DMK |
| Z7775DMK | Z7984DMK | Z8204DMK | Z8415DMK |
| Z7777DMK | Z7988DMK | Z8218DMK | Z8417DMK |
| Z7779DMK | Z7990DMK | Z8222DMK | Z8419DMK |
| Z7788DMK | Z8002DMK | Z8223DMK | Z8425DMK |
| Z7798DMK | Z8010DMK | Z8228DMK | Z8431DMK |
| Z7800DMK | Z8012DMK | Z8229DMK | Z8433DMK |
| Z7801DMK | Z8015DMK | Z8235DMK | Z8434DMK |
| Z7807DMK | Z8017DMK | Z8236DMK | Z8438DMK |
| Z7810DMK | Z8029DMK | Z8237DMK | Z8439DMK |

|          |          |          |          |
|----------|----------|----------|----------|
| Z8454DMK | Z8576DMK | Z8683DMK | Z8754DMK |
| Z8462DMK | Z8590DMK | Z8687DMK | Z8768DMK |
| Z8481DMK | Z8599DMK | Z8689DMK | Z8777DMK |
| Z8494DMK | Z8600DMK | Z8691DMK | Z8787DMK |
| Z8496DMK | Z8602DMK | Z8695DMK | Z8800DMK |
| Z8508DMK | Z8605DMK | Z8697DMK | Z8805DMK |
| Z8511DMK | Z8613DMK | Z8698DMK | Z8817DMK |
| Z8513DMK | Z8614DMK | Z8708DMK | Z8818DMK |
| Z8517DMK | Z8623DMK | Z8717DMK | Z8830DMK |
| Z8521DMK | Z8639DMK | Z8721DMK | Z8840DMK |
| Z8525DMK | Z8643DMK | Z8728DMK | Z8841DMK |
| Z8527DMK | Z8667DMK | Z8730DMK | Z8851DMK |
| Z8528DMK | Z8670DMK | Z8732DMK | Z8853DMK |
| Z8540DMK | Z8676DMK | Z8733DMK | Z8855DMK |
| Z8544DMK | Z8677DMK | Z8734DMK | Z8858DMK |
| Z8547DMK | Z8679DMK | Z8735DMK | Z8872DMK |
| Z8555DMK | Z8680DMK | Z8745DMK | Z8890DMK |
| Z8567DMK | Z8681DMK | Z8747DMK | Z8899DMK |
| Z8568DMK | Z8682DMK | Z8753DMK | Z8903DMK |
| Z8573DMK |          |          |          |

## APARs Affecting CMS

|          |          |          |          |
|----------|----------|----------|----------|
| Z7040DMS | Z7707DMS | Z7978DMS | Z8328DMS |
| Z7374DMS | Z7737DMS | Z7981DMS | Z8338DMS |
| Z7429DMS | Z7754DMS | Z8020DMS | Z8342DMS |
| Z7442DMS | Z7755DMS | Z8024DMS | Z8343DMS |
| Z7444DMS | Z7758DMS | Z8044DMS | Z8352DMS |
| Z7457DMS | Z7762DMS | Z8045DMS | Z8353DMS |
| Z7458DMS | Z7764DMS | Z8048DMS | Z8357DMS |
| Z7460DMS | Z7771DMS | Z8053DMS | Z8371DMS |
| Z7463DMS | Z7783DMS | Z8061DMS | Z8378DMS |
| Z7488DMS | Z7785DMS | Z8061DMS | Z8383DMS |
| Z7500DMS | Z7787DMS | Z8062DMS | Z8388DMS |
| Z7501DMS | Z7792DMS | Z8068DMS | Z8391DMS |
| Z7507DMS | Z7793DMS | Z8082DMS | Z8400DMS |
| Z7510DMS | Z7824DMS | Z8107DMS | Z8407DMS |
| Z7537DMS | Z7852DMS | Z8112DMS | Z8492DMS |
| Z7538DMS | Z7853DMS | Z8117DMS | Z8493DMS |
| Z7550DMS | Z7854DMS | Z8125DMS | Z8538DMS |
| Z7551DMS | Z7861DMS | Z8132DMS | Z8542DMS |
| Z7569DMS | Z7886DMS | Z8136DMS | Z8626DMS |
| Z7588DMS | Z7900DMS | Z8141DMS | Z8655DMS |
| Z7597DMS | Z7903DMS | Z8142DMS | Z8662DMS |
| Z7605DMS | Z7908DMS | Z8149DMS | Z8663DMS |
| Z7610DMS | Z7909DMS | Z8152DMS | Z8704DMS |
| Z7612DMS | Z7910DMS | Z8168DMS | Z8706DMS |
| Z7625DMS | Z7914DMS | Z8182DMS | Z8756DMS |
| Z7631DMS | Z7921DMS | Z8214DMS | Z8758DMS |
| Z7632DMS | Z7942DMS | Z8226DMS | Z8798DMS |
| Z7636DMS | Z7944DMS | Z8246DMS | Z8806DMS |
| Z7638DMS | Z7950DMS | Z8248DMS | Z8808DMS |
| Z7647DMS | Z7964DMS | Z8259DMS | Z8831DMS |
| Z7654DMS | Z7966DMS | Z8280DMS | Z8832DMS |
| Z7660DMS | Z7968DMS | Z8294DMS | Z8901DMS |
| Z7669DMS | Z7970DMS | Z8298DMS | Z8934DMS |
| Z7692DMS |          |          |          |

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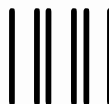
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