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Systems

OS/VS2 Release 3 Guide

Program Number 5752-VS2

VS2 Release 3

IBM

Second Edition (May, 1975)

This is a reprint of GC28-0700-0 incorporating changes released in the following Technical Newsletter:

GN28-2595 (dated March 3, 1975)

This edition with Technical Newsletter GN28-2595 applies to Release 3 of OS/VS2. Periodically changes are made to the information herein; before using this publication in connection with the operation of IBM systems, consult the lastest *Virtual Storage Supplement to IBM System/360 and System/370 Bibliography*, GC20-0001, for the editions that are applicable and current.

Mass Storage System information contained in this publication is for planning purposes only until the availability of the product.

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Preface

This publication describes OS/VS2 Release 3 features and enhancements, special system generation and programming considerations, change activity, and ordering and distribution procedures. It also contains lists and charts depicting the OS/VS2 Release 3 publication library, and mappings of OS/MVT and OS/VS2 Release 1.0/1.6 publications into their OS/VS2 Release 3 counterparts.

The information in this book is for assisting installation managers, system programmers, and IBM Field Engineering personnel in planning for OS/VS2 Release 3. It is divided into the following four sections:

"Functional Summary" gives a brief description of OS/VS2 Release 3 features and enhancements.

"System Generation and Programming Considerations" contains special system generation and programming notes for the OS/VS2 Release 3 user. This chapter also has information about programming procedures and system restrictions to the OS/VS2 Release 3 system.

"Change Activity" lists the APARs fixed and PTFs resolved for OS/VS2 Release 3.

"Ordering, Distribution, and Publication Support" provides the user with ordering and distribution procedures, and contains the starter operating system, basic, and optional material lists. This chapter has notes on the minimum hardware engineering change and microcode levels. It also indicates the publication support for OS/VS2 Release 3 and shows mappings of OS/MVT and OS/VS2 Release 1.0/1.6 publications into their OS/VS2 Release 3 counterparts.

Contents

Figures

This Technical Newsletter provides:

- Minor changes have been made throughout this publication to add new information and correct technical errors.
- Approximate storage size changes from OS/VS2 Release 2 to OS/VS2 Release 3 have been included.
- Programming notes and system restrictions have been updated to reflect the most recent system knowledge.
- Information on the SMP COMPRESS function has been added.
- The APAR and PTF lists have been updated.
- An EC requirement has been added for running VTAM Level 1.1 on the Model 155 II.

Chapter 1: Functional Summary

The following information is contained in this chapter:

OS/VS2 Release 3 Features

EVENTS Macro Instruction

The events function allows the user to identify posted event control blocks (ECBs) by checking an events table. With the events function (unlike the WAIT ECBLIST macro instruction), the user need not scan the entire list of ECBs to identify those that have completed.

The EVENTS macro instruction performs the following functions:

- Creates and deletes events tables.
- Initializes and maintains a list of completed ECBs.
- Permits single or multiple ECB processing.

Publication Support – The publications that support the EVENTS macro instruction are:
OS/VS2 Supervisor Services and Macro Instructions, GC28-0683
OS/VS2 System Programming Library: Supervisor, GC28-0628
OS/VS2 Scheduler and Supervisor Logic, SY28-0625

Fast Dump Scan

The AMDPRDMP service aid includes a feature called fast dump scan. Fast dump scan allows the user to display specific locations of DSS dumps, stand-alone dumps, and SVC dumps quickly and conversationally on either a TSO terminal or the system console. A maximum of 256 bytes per command may be displayed.

Publication Support – The publications that support the fast dump scan feature are:
OS/VS2 Service Aids Reference Summary, GX23-0002
OS/VS2 System Programming Library: Service Aids, GC28-0674
OS/VS2 Service Aids Logic, SY28-0643

JES2 Multi-Access Spool

JES2 with the Multi-Access Spool capability allows from two to seven OS/VS2 Release 3 systems to share the JES2 input, job, and output queues through the use of shared DASD. The operation of each MVS system (uniprocessor or multiprocessor) is mostly independent and includes all the functions for single JES2 systems. That is, each system can read jobs from local and remote card readers, schedule jobs for conversion and execution under MVS initiators, print and punch results at local and remote output devices, and communicate with operators and TSO users. However, all spool volumes and the volume containing the JES2 checkpoint data set (SYS1.HASPCKPT) are shared by all the systems using JES2 with the Multi-Access Spool capability.

Because these systems share one JES2 job queue, jobs can be executed on any system that has an available initiator with the correct class and print or punch, on any system that has an available device with the correct class, routing, setup, etc.

Each processor operates asynchronously within the multi-system configuration. Therefore, any operative system can recover (warmstart) the workload of any inoperative system. Only the work in process on the inoperative system is interrupted.

The JES2 Multi-Access Spool capability also allows for system affinity. That is, different jobs can be routed to a particular system or systems for special processing, such as emulation or testing.

Publication Support – The publications that support the JES2 Multi-Access Spool capability are:

Operator's Library: OS/VS2 Reference (JES2), GC38-0210
OS/VS2 System Programming Library: Initialization and Tuning Guide, GC28-0681
OS/VS2 System Programming Library: Job Management, GC28-0627
OS/VS2 System Programming Library: System Generation Reference, GC26-3792
OS/VS2 JES2 Logic, SY28-0622

Model 168 MP Channel Reconfiguration Hardware (CRH) Support

Channel Reconfiguration Hardware (CRH) support is available only on a model 168 multiprocessor system. It is a RAS (reliability, availability and serviceability) facility that is activated when a hardware failure on one CPU causes the Alternate CPU Recovery (ACR) function to take the failing CPU offline. CRH enables the operative CPU to access the channels on the inoperative CPU so that all devices in the configuration will remain accessible. That is, through CRH, the user can continue to run critical jobs that require those devices whose only online paths are through the inoperative CPU.

Publication Support – The publications that support the Channel Reconfiguration Hardware (CRH) are:

OS/VS2 System Programming Library: System Generation Reference, GC26-3792
OS/VS2 System Programming Library: SYS1.LOGREC Error Recording, GC28-0677
OS/VS2 I/O Supervisor Logic, SY26-3823
OS/VS2 Recovery Management Support (RMS) Logic, SY27-7250
OS/VS2 Scheduler and Supervisor Logic, (Volume 1), SY28-0624

Subsystem Support Services (SSS)

Subsystem Support Services (SSS) provides centralized installation and maintenance services for various IBM industry or application subsystems. SSS and industry-unique host programs process all of the input to a subsystem.

Each subsystem has a control and data collection unit, called a controller, which contains control information necessary to the operation of all terminals and components attached to it. The primary purpose of SSS is to put this control information on the disk file that resides in the subsystem controller, and to provide a means for maintaining that data.

SSS accomplishes this by building and maintaining, at the System/370 host processor, a library of all IBM-provided controller data required to operate an industry subsystem. By maintaining a central library at the host processor, SSS also provides the user with the capability for installing and updating several subsystems of the same industry type through a single control facility.

Basic services performed by SSS are:

- Generating industry-unique host programs (through the INDGEN macro).
- Reading and editing input data.
- Building the subsystem library.
- Building the subsystem controller definition records.
- Transmitting data to the controller.
- Maintaining data at the controlier.
- Writing error and information reports.

Publication Support – The publications that support SSS are:

DOS/VS and OS/VS SSS User's Guide, GC30-3022
DOS/VS and OS/VS SSS Logic, SY30-3017

Telecommunications Access Method (TCAM) Level 8

TCAM Level 8 provides the facilities of previous levels of TCAM to the user of the Virtual Telecommunications Access Method (VTAM) Level 1.1. OS/VS2 Release 3 TCAM users must convert to TCAM Level 8. All terminals or stations attached to a 3704 or 3705 Communications Controller, operating in Network Control Program (NCP) mode, are supported by TCAM only through VTAM. TCAM's support of terminals attached through the 2701, 2702, 2703, or 3705, operating in emulator program (EP) mode, is unchanged.

TCAM Level 8 users can share terminals attached through VTAM with other users of VTAM. They can also specify whether TCAM Level 8 should support a local 3270 Information Display System directly or through VTAM.

For information on the functional differences between TCAM Level 6 and TCAM Level 8, refer to "TCAM Level 8 Considerations" in Chapter 2 of this book.

Publication Support – The publications that support TCAM Level 8 are:

Operator's Library: OS/VS2 TCAM, GC30-2046
OS/VS TCAM Concepts and Facilities, GC30-2042
OS/VS TCAM User's Guide, GC30-2045
OS/VS2 TCAM Programmer's Guide, GC30-2041
OS/VS2 TCAM Logic, SY30-2040

Teleprocessing Online Test Executive Program (TOLTEP)

TOLTEP is the interface between the Virtual Telecommunications Access Method (VTAM) Level 1.1 and online tests (OLTs). TOLTEP controls the selection and execution of the OLTs used for testing specific teleprocessing devices supported by VTAM. TOLTEP is included in the system when VTAM is generated and is started and stopped with VTAM.

Publication Support – The publications that support TOLTEP are:

DOS/VS and OS/VS TOLTEP for VTAM, GC28-0663
DOS/VS and OS/VS TOLTEP Logic, SY28-0664

TSO Enhancements

The following OS/VS2 Release 3 enhancements to TSO provide for better storage usage and more flexible terminal dialog:

Command Consistency

Keywords, subcommand names, and messages that were in varying forms among the TSO command processors are now consistent with each other and also with JCL.

Command Procedures

Command procedure (CLIST) facilities now include a set of statements, variables, and built-in functions that extend the scope and flexibility of command procedures. Compiler-like statements provide capabilities similar to those of a high-level language. These statements assign values, set controls, select options, and control the conditions under which the procedures execute. They include statements such as GOTO, SET, CONTROL, READ, WRITE, ERROR, and the IF-THEN-ELSE and DO-WHILE-END sequences.

In addition, labels are allowed to provide target addresses for branching purposes. Symbolic substitution is dynamic; that is, the values for symbolic parameters are substituted during statement or command execution. Control variables, which may appear on any command procedure statement, contain information about the user and his current environment. These variables thus provide the procedures with control information such as the return code from the most recently executed command, the current date and time, the user's identification, and the LOGON procedure name.

ALLOCATE Command

- New keyword operands:

  BLKSIZE – may be used interchangeably with BLOCK.

  DDNAME – may be used interchangeably with FILE.

  DSNAME – may be used interchangeably with DATASET.

  MSVGP – specifies virtual volume groups for allocation purposes.

TSO Enhancements (continued)

EDIT Command

- New keyword operands:

  BLKSIZE – may be used interchangeably with BLOCK.

  LRECL – may be used interchangeably with LINE.

- New subcommands:

  COPY – copies data from one area to another area within the same data set.

  EXEC – invokes command procedures while running under the EDIT command processor.

  MOVE – moves data from one area to another area within the same data set.

  UNNUM – removes line numbers from a numbered data set.

- New keyword operands of subcommands of EDIT:

  ALLOCATE

  BLKSIZE – may be used interchangeably with BLOCK.
  DDNAME – may be used interchangeably with FILE.
  DSNAME – may be used interchangeably with DATASET.
  MSVGP – specifies virtual volume groups for allocation purposes.

  END

  SAVE – saves the data set being edited.
  NOSAVE – deletes the data set being edited.

  SAVE

  RENUM – changes line numbers for specified lines of a numbered data set.
  UNNUM – removes line numbers from a numbered data set.

- The SUBMIT subcommand allows specification of a data set list instead of only processing the data set being edited.

- The automatic line prompting function of EDIT now includes a blank between the line number and the input for line-numbered data sets.

EXEC Command/Subcommand

- EXEC now operates in either command or subcommand (of EDIT) mode. An extended, implicit form of EXEC is also available to limit command procedure file search to SYSPROC.

- Command procedure (CLIST) facilities now include control statements, built-in functions, arithmetic and logical operators, control variables, concatenation, and dynamic symbolic substitution.

TSO Enhancements (continued)

FREE Command

- New keyword operands:

  DDNAME – may be used interchangeably with FILE.

  DSNAME – may be used interchangeably with DATASET.

LISTCAT Command

- New keyword operands:

  CREATION (days) – specifies that entries are listed only if they were created no later than that number of days ago.

  EXPIRATION (days) – specifies that entries are to be listed only if they will expire no later than that number of days from now.

  HISTORY – specifies that name, owner identification, creation date, and expiration date of the entries are to be listed.

TEST Command

- The DELETE subcommand alias is changed from D to DEL for command consistency.
- The WHERE subcommand can now specify the offset from the entry point of a module.

Publication Support – The publications that support these TSO enhancements are:

OS/VS2 System Programming Library: TSO, GC28-0629
OS/VS2 Terminal User's Guide, GC28-0645
OS/VS2 TSO Command Language Reference, GC28-0646
OS/VS2 TSO Command Language Reference Summary, GX28-0647
OS/VS2 TSO Guide to Writing a Terminal Monitor Program or Command Procedure, GC28-0648
OS/VS2 Terminal Monitor Program and Service Routines Logic, SY28-0650
OS/VS2 TSO Command Processor Logic, Volume I: ACCOUNT, SY28-0651
OS/VS2 TSO Command Processor Logic, Volume II: EDIT, SY33-8548
OS/VS2 TSO Command Processor Logic, Volume IV, SY28-0652
OS/VS2 TSO Terminal Messages Directory, SY28-0654

Virtual Telecommunications Access Method (VTAM) Level 1.1

VTAM Level 1.1 directs transmission of data between application programs in the central computer and devices, such as terminals, in a telecommunication network. Because VTAM operates with the 3704 and 3705 Communications Controllers, communication lines and communications controllers need not be considered in coding application programs.

Basic services performed by VTAM include:

- Establishing, controlling, and terminating access between application programs and devices.
- Moving data between application programs and devices.
- Permitting application programs to share communication lines, communications controllers, and telecommunication devices.
- Permitting the telecommunication network to be monitored and altered.

VTAM complements advanced hardware and software, including System/370 virtual storage, 3704 and 3705 Communications Controllers, OS/VS2, and the Virtual Storage Access Method (VSAM). In addition to its primary role of data transmission, VTAM has features that establish it as a base for building telecommunication systems of any size. Those features are:

- Sharing of network resources, which can reduce line costs and make the network more efficient.
- Concurrent execution of TCAM and VTAM application programs using the same telecommunication network.
- Services required for interactive applications (online inquiries and updates).
- Operation with the 3704 and 3705 Communications Controllers to reduce the number of functions performed in the central computer for remote devices.
- Reconfiguration of the network without regenerating the system.
- Flexibility in packaging for tailoring to user needs.
- Support of many different terminals.
- Support of several IBM industry-oriented products, such as the 3600 Finance Communication System.
- Reliability, availability, and serviceability aids to assist in maintenance.

Publication Support – The publications that support VTAM Level 1.1 are:

Introduction to VTAM, GC27-6987
OS/VS Operator's Library: VTAM Network Operating Procedures, GC27-6997
OS/VS2 System Programming Library: System Generation Reference, GC26-3792
OS/VS2 System Programming Library: VTAM, GC28-0688
VTAM Concepts and Planning, GC27-6998
VTAM Macro Language Guide, GC27-6994
VTAM Macro Language Reference, GC27-6995
Introduction to VTAM Logic, SY27-7256
OS/VS2 VTAM Data Areas, SY27-7267
OS/VS2 VTAM Logic, SY28-0621

3540 Diskette Input/Output Unit Support

The 3540 Diskette Input/Output Unit is supported under OS/VS2 Release 3 in the following ways:

- As a system input device, via the diskette reader program.
- As a system output device, via the diskette writer program.
- As a diskette maintenance device, via the diskette maintenance program.

When using the 3540 for system input, the diskette reader processes JCL and data from diskettes. The diskette reader merges the JCL and data and passes it to the internal reader of the job entry subsystem for normal SYSIN processing. The data can then be accessed by using sequential-access-method (SAM) instructions.

When using the 3540 for system output, the diskette writer requests each SYSOUT data set from the job entry subsystem. Each data set is then spooled on an intermediate device until the diskette writer writes it as a distinct diskette data set.

The diskette maintenance program allows the user to perform maintenance functions on a diskette or to create a backup copy of a diskette.

Note: The 3540 is supported only by the three programs IEBDKRDR, IEBDKWTR, and IEBDISKT. It is not functionally supported by system access methods or subsystem spooling routines.

Publication Support – The publications that support the 3540 Diskette Input/Output Unit are:

OS/VS2 IBM 3540 Programmer's Reference, GC24-5111
OS/VS2 System Programming Library: System Generation Reference, GC26-3792
OS/VS2 Logic for the IBM 3540 Diskette Input/Output Unit, SY24-5167

3600 Finance Communication System Support

The 3600 Finance Communication System performs various data processing transactions for the finance industry. It consists of three major parts:

(1) controller and terminals,
(2) communication link, and
(3) central computing system.

OS/VS2 Release 3 supports the following 3600 Finance Communication System controller and terminals:

- The 3601 Finance Communication Controller which can be programmed to direct the operation of terminals and to communicate with the central computing system. It attaches as devices:
  - The 3604 Keyboard Display which assists tellers and administrative personnel in handling customers' deposits, withdrawals, and account inquiries.
  - The 3610 Document Printer which prints customer transaction records and keeps transaction journals.
  - The 3612 Passbook and Document Printer which has all the capabilities of the 3610 printer and, in addition, updates customers' passbooks.
  - The 3618 Administrative Line Printer which prints trial balances and other similar reports.
- The 3614 Consumer Transaction Facility (under control of an application program in the 3601 controller or the central computing system) which allows customers to handle many financial transactions without the assistance of a teller.

The communication link consists of a telecommunication line, a pair of modems, and a 3704 or 3705 Communications Controller. It allows data transmission between the 3601 Finance Communication Controller or the 3614 Consumer Transaction Facility and the central computing system.

The central computing system consists of a System/370 central processing unit (CPU). It processes financial transactions in coordination with the 3601 Finance Communication Controller and the 3614 Consumer Transaction Facility.

Publication Support – The publications that support the 3600 Finance Communication System are:

The Programming Installation Guide for the 3600 Finance Communication System, GC27-0009

IBM 3600 Finance Communication System Configurator, GA27-2762

IBM 3600 Finance Communication System: Installation Manual-Physical Planning, GA27-2766

IBM 3600 Finance Communication System: Instructions and Macros Reference, GC27-0003

IBM 3600 Finance Communication System: Management Planning Guide, GA27-2765

IBM 3600 Finance Communication System: Programmer's Guide and Component Descriptions, GC27-0004

IBM 3600 Finance Communication System: Programmer's Reference Digest, GX27-0007

IBM 3600 Finance Communication System: System Summary, GC27-0001

Introducing the IBM 3600 Finance Communication System, GA27-2764

Operating Guide for the IBM 3600 Finance Communication System, GA27-2766

IBM 3600 Finance Communication System: Host Service Programs Reference, GY27-0005

IBM 3600 Finance Communication System: 3614 Programmer's Guide, GC27-0010

OS/VS2 System Programming Library: System Generation Reference, GC26-3792

IBM 3600 Finance Communication System: Host Service Programs Logic, SY27-7261

3850 Mass Storage System (MSS) Support*

The 3850 Mass Storage System (MSS) extends the concept of virtual storage to direct access devices and volumes. The system is composed of two major subsystems: the new 3851 Mass Storage Facility (MSF) and the existing 3333/3330 Disk Storage Series.

The prime function of the 3851 MSF is to provide the storage facility for data. Each 3851 MSF can contain from 35 to 236 x 10^9 bytes of data. Two 3851 MSFs may be included within the same 3850 Mass Storage System to provide up to 472 x 10^9 bytes of data under system control.

Data is written on a new magnetic medium which is contained in compact cartridges. These cartridges are stored in storage cells within the 3851 MSF. Also included in the 3851 MSF are the following:

- Controllers and read/write units to make the data available to the 3333/3330 Disk Storage for processing.
- A cartridge access station for entry and removal of cartridges.
- Access mechanisms for the movement of cartridges within the 3851 MSF.
- The Mass Storage Control (MSC) facility for controlling the Mass Storage System.

The prime function of the 3333/3330 Disk Storage Series is to make the data available to the System/370 for processing.

Publication Support – The publications that support the 3850 Mass Storage System (MSS) are:

Introduction to the IBM 3850 Mass Storage System (MSS), GA32-0028
OS/VS Mass Storage Control Table Create, GC35-0013
OS/VS Mass Storage System (MSS) Planning Guide, GC35-0011
OS/VS Mass Storage System (MSS) Services for MSS Space Management, GC35-0012
OS/VS Mass Storage Control Table Create Logic, SY35-0016
OS/VS Mass Storage Control Trace Reports Logic, SY35-0014
OS/VS Mass Storage System (MSS) Services Logic, SY35-0015
OS/VS2 Mass Storage System Communicator (MSSC) Logic, SY35-0013
OS/VS2 System Programming Library: System Generation Reference, GC26-3792
OS/VS2 System Programming Library: SYS1.LOGREC Error Recording, GC28-0677
OS/VS2 SYS1.LOGREC Error Recording Logic, SY28-0678

*MSS cannot be activated at this time. This information is for planning purposes only until the product becomes available.

3890 Queued Sequential Access Method (QSAM) Exit Routine

An exit routine has been added to the QSAM support for the 3890 Document Processor. This exit routine enables a user-supplied routine to execute while the application program of the 3890 waits for document data.

QSAMEX, a new parameter of the DCB macro instruction, is used to specify the address of the user routine to be given control if the application program is waiting for document data. When the user routine has finished executing, it returns to QSAM's 3890 support to determine whether the 3890 is still waiting for document data. If it is, QSAM's 3890 support issues a WAIT macro instruction and allows task switching to occur. If, however, document data is available, the 3890 application program continues executing.

Note: When using multiple 3890s with parallel processing, each 3890 has a QSAM exit routine. Even if user-routine addresses are specified on the DCB macro instruction, they will not be entered if a GET TYPE=P macro instruction is issued. The GET routine for parallel processing always waits until one DCB is ready and then enters its GET routine.

Publication Support – The publications that support the 3890 QSAM exit routine are:

IBM 3890 Document Processor Machine and Programming Description, (programming section), GA24-3612

OS/VS Logic for the IBM 3890 Document Processor, SY24-5163

OS/VS2 Release 3 Enhancements

Catalog Enhancements

The three parameters HISTORY, CREATION, and EXPIRATION have been added to the LISTCAT command. These parameters can be used to print selected information from the VSAM catalog.

Creation and expiration dates for non-VSAM data sets are now supported by VSAM.

Publication Support – The publication that supports these catalog enhancements is:
OS/VS2 Access Method Services, GC26-3841

Checkpoint/Restart Facility Enhancements

Two features have been added to the Checkpoint/Restart facility: the checkpoint list utility and the checkpoint at end-of-volume (EOV).

The checkpoint list utility reads checkpoint data sets to identify the tape data sets that were in use when a checkpoint was taken. If the tape data sets are multi-volume data sets, this new utility also identifies the specific volumes that were in use at the time of checkpoint.

The checkpoint at EOV feature allows the user to invoke the Checkpoint/Restart facility at EOV via the JCL parameter CHKPT=EOV. This feature can be used in place of the user-provided EOV exit currently supporting checkpoint/restart processing.

Publication Support – The publications that support these Checkpoint/Restart facility enhancements are:
OS/VS Checkpoint/Restart, GC26-3784
OS/VS2 Access Method Services, GC26-3841
OS/VS Checkpoint/Restart Logic, SY26-3820
OS/VS2 Access Method Services Logic, SY35-0010

Unit Control Block (UCB) Limit Extension

The storage area available for unit control blocks (UCBs) has been extended from the first 32K bytes to the first 64K bytes of real storage. This extension increases the maximum number of UCBs that can be generated into one system from 768 to 1023. Note, however, that the actual number of UCBs that can be contained in the first 64K bytes of real storage depends on the size of each UCB needed to support its corresponding device. Also note that the length of the addresses for UCBs located between the first 32K and 64K bytes of real storage is 16 bits. These UCB addresses must not be referenced as halfword operands because the high-order bits would be treated as arithmetic signs.

Publication Support – The publications that support the UCB limit extension are:
OS/VS2 System Programming Library: Storage Estimates, GC28-0604
OS/VS2 System Programming Library: System Generation Reference, GC26-3792
OS/VS2 Data Areas, SYB8-0606

Vary Storage Enhancements

OS/VS2 Release 3 changes in support of reconfigurability include:

- The RSU parameter has been added to specify the number of reconfigurable storage units to be used for the non-preferred area. The system will attempt to preserve these specified units for reconfigurability of real storage.
- The Display Matrix command has been changed to display the real storage range of the non-preferred area.
- The Real Storage Manager has been changed to perform additional steps to prevent assigning long-term resident pages to real storage frames in the non-preferred area. If such additional steps are not successful in locating a useable preferred area frame, a non-preferred area frame (if available) will be used to contain the long-term resident page. The entire storage unit containing this non-preferred area frame will then be converted from a non-preferred to a preferred status in order to provide additional preferred area frames for long-term resident pages.
- Message IEA988I has been added to notify the operator of the first occurrence of the conversion of status from non-preferred to preferred storage.

For more information on these Vary Storage enhancements, refer to "Varying Storage Offline in a 158 MP or 168 MP OS/VS2 System" in Chapter 2 of this book.

Chapter 2: System Generation and Programming Considerations

The following information is included in this chapter:

OS/VS2 Release 3 System Generation Considerations
OS/VS2 Release 3 Programming Notes, Procedures, and Restrictions

OS/VS2 Release 3 System Generation Considerations

Before installing OS/VS2 Release 3, contact your IBM representatives for the latest restrictions, APARs, PTFs, and EC requirements.

OS/VS2 Release 3 Procedure for Loading the Distribution Library Tape(s) to a Direct-Access Volume(s)

The following procedure should be used to load the contents of the distribution library tape(s) to a direct-access volume(s).

1. Mount the distribution library tape.
2. Issue the START RDR,xxx command to the first file to read in the load procedures.
3. Enter the appropriate load command, as shown below, to copy the distribution libraries from the distribution library tape(s) to the direct-access volume(s).

   After the appropriate load command has been entered, the IEBCOPY utility program, contained in the LOAD cataloged procedure in the starter system's PROCLIB, will copy the distribution libraries to a direct-access volume and catalog them in the master catalog of the generating system (in this case, the starter system's master catalog). *Note:* If the distribution library data sets have already been cataloged from a previous system generation, issue the START DLIBDLTE command to uncatalog them.

   The underscored values in the description that follows are default values. All parameters are optional.

```
S LOD31600   [,DLIB1 = {DLIB01 | XXXXXX}] [,DLIB2 = {DLIB01 | YYYYYY}]

   OR

S LOD36250   [,U = {2400 | '3400-6'}*] [,BLOCK = {1680 | ZZZZ}]
```

where:

XXXXXX	the volume serial number of the first distribution library volume.
YYYYYY	the volume serial number of the second distribution library volume, if such a volume is needed or desired.
3400-6	the 3420 (dual density) 1600 or 6250 BPI tape.
ZZZZ	indicates a change in the block size of the macro library; ZZZZ must be a multiple of 80.
*	the default for LOD31600 is 2400 the default for LOD36250 is 3400-6

The following are examples of various types of load commands:

Example: To load a single distribution library volume (with a volume serial number of DLIB01) from one distribution library tape (9-track, 6250 BPI), enter:

```
S LOD36250
```

Example: To load a two-volume direct-access distribution library with volume serial numbers of DLIB01 and DLIB02, enter:

```
S LOD36250, DLIB2=DLIB02
```

Example: To load a two-volume direct-access distribution library (with volume serial numbers VS2201 and VS2202) from two distribution library tapes (9-track, 1600 BPI), enter:

```
S LOD31600, DLIB1=VS2201, DLIB2=VS2202
```

Example: When no other direct-access device is available, systems using the 3330-1 starter system can use the following command to put the distribution libraries on the volumes with serial numbers START1 and SPOOL0:

```
S LOD31600, DLIB1=START1,DLIB2=SPOOL0
```

Notes:

- When you use these load commands, you must insure that the minimum amount of direct-access space needed for the volume unload is available.

Device	Required Keywords	Minimum Number of Direct-Access Volumes Required
2314	DLIB2=	2
3340/35	DLIB2=	2
3340/70		1
3330		1
3330-1		1

- Be sure that the direct-access volumes that are to contain the distribution libraries are mounted with a use attribute of PRIVATE during the load procedures described in step 3.
- If the MVS distribution libraries are already cataloged in the master catalog of the generating system, you must ensure that they are cataloged correctly for the current distribution library volume.

After the appropriate load command has been entered, the IEBCOPY utility program will be used to load the distribution libraries from tape(s) to a direct-access volume(s). When this procedure is executed, it will allocate space to each of the distribution libraries and catalog them in the master catalog of the generating system (in this case, the starter system's master catalog.)

Completion of the preceding steps provides operational direct-access volumes and backup tapes.

System Generation Macro Instructions

The OS/VS2 system generation macro instructions that have changed for Release 3 are:

CTRLPROG – WARN parameter has been added for Power Warning Feature (PWF) support.

CRH can be coded in OPTIONS parameter for Channel Reconfiguration Hardware (CRH) support.

DATAMGT – IND parameter has been added for industry subsystem support.

VTAM can be coded in ACSMETH parameter for Virtual Telecommunications Access Method (VTAM) Level 1.1 support.

DATASET – VTAMLIB and INDMAC can be specified for the system data set parameter.

IODEVICE – AP parameter has been added for Power Warning Feature (PWF) support.

UNIT parameter can include the following: 3330V, 3851, 3540, and CTC.

SHAREDUP feature may be specified.

OPTCHAN parameter may specify the alternate channel or subchannel for a maximum of 1023 devices.

For more information about these macro instructions, refer to the *OS/VS2 System Programming Library: System Generation Reference,* GC26-3792

Sample Storage Values

The following example can be used as a guide in estimating your storage requirements for OS/VS2 Release 3 test systems running with VTAM level 1.1. Note that this is only an example and that each installation's storage requirements will differ according to its own needs.

On an eight megabyte 168 MP, several test runs were made with the following system load:

- Support for most options and devices specified at SYSGEN
- No support for 3850 Mass Storage System
- 30 active initiators
- JES2 buffer size of 1960 bytes
- A maximum of 20 internal readers (JES2)
- 100 TSO users communicating via TCAM level 8 interfacing with a 370x in emulator program (EP) mode:
  - TSO buffers (TIOC) defaulted to 6 buffers of 64 bytes each
- 2 VTAM application programs running the following simulated network:
  - 2 BSC lines with two 3270 clusters (totaling 10 terminals)
  - 10 SDLC lines with forty-five 3600 clusters (totaling 90 logical units)

The test runs used the following storage allocation parameters:

```
SQA=7
CSA=3000
```

For the test runs, it is possible that the SQA size was exceeded and overflowed into the CSA. However, the CSA size was never exceeded and usually contained a considerable safety margin. The amount of both SQA storage and CSA storage is very sensitive to system load. The size of the CSA is especially sensitive to VTAM parameters and configuration. Since the initial over-allocation of these areas will not require a matching allocation of real storage, they should be over-allocated until both VTAM and system usage has been established.

Figure A lists the data set allocations that IBM used in the test runs. All allocations are for 3330 devices. The headings "Free Tracks" and "Free Directory Blocks" are as given by the IEHLIST utility. Figure A does not include all possible system data sets; the following data sets, which may be found in *OS/VS2 System Programming Library: Storage Estimates,* are excluded:

- Subsystem Support Services (SSS) data sets (3)
- Checkpoint/Restart data set
- TCAM level 8 message queue data set
- TCAM level 8 checkpoint data set
- SYS1.INDMAC (3600 Finance Communication System)
- SYS1.WARNA/WARNB (Power Warning Feature support)
- 3850 Mass Storage System (MSS) data sets (2)

Name (SYS1.)	Notes*	Allocation	Free Tracks	Free Directory Blocks
"Page Space"	1,2	CYL,(877)	–	–
"Spool"	2,3	CYL,(1168)	–	–
"Master Catalog"	2	CYL,(50,5)	–	–
"SMPCDS"	4	CYL,(14,2,1000)	0	264
"SMPHLDS"	2	CYL,(1,1)	–	–
"SMPPTS"	2	CYL,(1,1,100)	–	–
BRODCAST	2	CYL,(1)	–	–
CMDLIB		CYL,(3,1,80)	7	51
DCMLIB		TRK,(5,,5)	3	4
DSSVM		4096,(150)	–	–
DUMP00		CYL,(5)	–	–
HASPCKPT	5	CYL,(5)	–	–
HELP		CYL,(3,1,10)	13	5
IMAGELIB		TRK,(10,,10)	6	4
LINKLIB	4	CYL,(35,2,300)	34	135
LOGREC	2	TRK,(71)	–	–
LPALIB	4	CYL,(27,2,300)	31	36
MACLIB	4	CYL,(38,1,50)	16	13
MANX/MANY	2	CYL,(15)	–	–
NUCLEUS		CYL,(15,,30)	86	23
PARMLIB		CYL,(10,,40)	186	38
PASSWORD	2	TRK,(6)	–	–
PROCLIB		CYL,(5,1,75)	90	72
SAMPLIB		CYL,(7,1,10)	3	8
STGINDEX	2	CYL,(50)	–	–
SVCLIB		CYL,(2,,30)	20	19
TELCMLIB		TRK,(35,5,30)	5	5
UADS	2	TRK,(45,2,85)	2	48
VTAMLIB	5	CYL,(10,5,50)	177	48
VTAMLST	5	CYL,(5,1,25)	51	23
VTAMOBJ	5	CYL,(1,1,20)	7	19

**Notes:*

1. The 877 cylinder page space allocation was assigned as follows:
   - 400 for PLPA, which left 21,789 unused slots or 358 unused cylinders
   - 100 for system duplexed areas, which left 4,263 unused slots or 73 unused cylinders
   - 377 for user pool paging, which gave 20,850 slots (About 50% of these slots were used at peak load.)
2. The sizes of the data sets varied depending on options and usage. Their sizes should be about the same as for OS/VS2 Release 2.
3. For these test runs, the highest spool utilization observed was about 20%. Note that this percentage may be exceeded.
4. These data sets have appreciable size increases over OS/VS2 Release 2.
5. These data sets are new for OS/VS2 Release 3.

Figure A. Data Set Allocation

Storage Size Changes from OS/VS2 Release 2 to OS/VS2 Release 3

The OS/VS2 Release 2 user should note the following storage size changes in converting to OS/VS2 Release 3. Figure B represents approximate storage increases that the user might need in converting from OS/VS2 Release 2 to OS/VS2 Release 3 running with or without VTAM Level 1.1. The storage values given in Figure B do not include support for the 3850 Mass Storage System. It should also be noted that the values are not precise due to simplification; for more precise information, refer to *OS/VS2 System Programming Library: Storage Estimates.*

In Figure B, the upper end of a range represents a "reasonable" high value rather than a theoretical upper limit. Similarly, the lower end of a range represents a theoretical lower limit rather than a low support level.

Storage Areas	Approximate Additional Bytes Needed to Convert From:	
	OS/VS2 Release 2 to OS/VS2 Release 3 Without VTAM Level 1.1	**OS/VS2 Release 3 to OS/VS2 Release 3 With VTAM Level 1.1**
Fixed Storage	20K to 32K	40K to 88K[1]
SQA	8K	No major change
CSA	No major change	124K to 624K[2]
Data Sets	In Figure A, see data sets with notes 4 and 5	In Figure A, see VTAMLIB, VTAMLST, and VTAMOBJ

[1]This range allows 28K bytes to support the following:

- 10 local 3270 terminals (700 bytes each)
- 45 clusters with 90 logical units (150 bytes for each remote terminal, terminal component, dial-up port, control unit, or cluster controller)

[2]This range allows 412K bytes to support the configuration in footnote 1. For larger configurations, add 3.5K bytes for each cluster controller, 1830 bytes for each remote device, and 2380 bytes for each local device. (This additional storage for devices includes two times an assumed PPBUF size of 240 bytes)

Figure B. Storage Size Changes from OS/VS2 Release 2 to OS/VS2 Release 3

OS/VS2 Release 3 Programming Notes, Procedures, and Restrictions

The following are programming notes, procedures, and system restrictions for the OS/VS2 Release 3 user.

Programming Notes

Access Method Services

The CYL abbreviation of the CYLINDER keyword on the DEFINE cluster is no longer accepted from the foreground.

Allocation

If you perform system generation using a tape as shared (OFFLINE=NO), the tape will be unloaded at VARY OFFLINE time.

Alternate Channel Paths

In an MVS sysgen, the OPTCHAN parameter of the IODEVICE macro permits only one alternate channel path for 2305, 2314, 2401, 2420, 3330, 3330-11, and 3420 devices. OS/VS2 Release 1 allowed up to three alternate channel paths for 2314 and 3330 devices, and OS/MVT allowed up to three alternate channel paths for 2314, 2401, 3330, and 3420 devices in a uniprocessor configuration.

Automatic Volume Recognition (AVR)

The display unit (D U) command may not show all of the premounted tapes. The system, however, will properly recognize premounted tapes when they are required.

BQKFORMT Format Program

The format program BQKFORMT does not replace the modules in the BQBLIBI library. Modules to be replaced must first be deleted.

Channel Reconfiguration Hardware (CRH) Support

- CRH is activated when one of the following conditions occurs:
  1) A hardware failure on one CPU causes the Alternate CPU Recovery (ACR) facility to take the failing CPU offline.
  2) The operator issues the first VARY Channel Online command for a channel attached to an offline CPU.
- CRH is deactivated when one of the following conditions occurs:
  1) The inoperative CPU is varied online.
  2) The operator issues the VARY Channel Offline command for the last channel attached to the inoperative CPU.
- When used through CRH, the channels attached to the inoperative CPU have a lower priority than the channels attached to the operative CPU. Devices that are symmetrically attached to the 168 MP are accessed through CRH only if the paths through the operative CPU are busy or offline.

CVOL Maintenance

The maintenance of CVOL data sets must be accomplished through the use of OS/MVT and OS/VS2 Release 1 operating systems and utility programs. For details, refer to *OS/VS2 Using OS Catalog Management with the Master Catalog: CVOL Processor,* GC35-0010.

Data Management

- STOW, SYNADAF, and SAM OPEN Executors are link-edited together and are not in the LPA packing lists. Therefore, any user-built fixed LPA list (IEAFIXxx), LPA directory load list (IEALOD00), or LPA packing list (IEAPAK00) should not contain these modules.

- The defaults for SAM data sets are BUFNO=5 and chained scheduling. In MVS, chained scheduling is also supported in a virtual address.

Error Recovery Routines (ERPs)

(Notes for converting ERPs from OS/VS2 Release 1 to MVS)

- On entry to an ERP, register 1 points to an IOSB rather than an IOB. The IOSB may point to an EWA for some errors; it always points to an EWA for unit check. On return from the ERP via SVC15 or SVC3, register 1 again points to the IOSB rather than the IOB.
- When the ERP is entered, the IOB has not been updated. The ERP must test the status and sense information in the IOSB and the EWA.
- IOSEX and IOSERR replace IOBEX and IOBERR and have the same meaning.
- In MVS, the channel program is not retranslated on exit from the ERP as it was in OS/VS2 Release 1. If the ERP is to modify the channel program, it must modify the translated copy pointed to by the IOSVST and IOSRST.
- To restart at a different CCW, change the IOSRST to the correct real address. Do not change the IOSVST. The IOSVST should always be the virtual address of the first CCW.
- The ERPIB and the statistics-update areas are now in the EWA and do not have to be searched for.
- For EXCP requests, the IOSUSE points to a dummy RQE from which you can find the DEB/DCB/IOB.
- There are no size restrictions on ERPs.
- ERPs reside in the PLPA (pageable link pack area).
- ERPs must be reenterable.

IEAVSY50

In MVS, there no longer exists support for the POST branch entry at IGC002+6 (IGC002 is located in CSECT IGC001, module IEAVSY50, which is link-edited in the nucleus).

INDGEN Macro

When assembling the industry macro INDGEN, the data set SYS1.AFINMAC must be concatenated to SYS1.MACLIB.

JES2 Multi-Access Spool

When using the JES2 Multi-Access Spool capability, the CPU clocks (both time and date) of each system must be synchronized during JES2 generation. The user may specify the maximum time difference allowed between two systems by the $SYNCTOL parameter (default is 150 seconds). If one CPU (CPU A) finds another CPU's (CPU B) clock ahead of its own by more than the $SYNCTOL value, CPU A assumes CPU B to be inoperative.

JES2 Support for the IBM 1403 and 3211 Printers

UCS: Alias names

The system assigns an alias for each installation-standard print chain not actually defined on a given printer. This provides JES2 with flexibility in scheduling printers for SYSOUT data sets. For example, a request for the 1403 TN train would be assigned the T11 train, if the data set were printed on a 3211. The assigned alias names, which follow the naming conventions currently used in SYS1.IMAGELIB, are:

IMAGE	ALIAS
UCS1AN	UCS1A11
UCS1HN	UCS1H11
UCS1PN	UCS1P11
UCS1TN	UCS1T11
UCS2A11	UCS2AN
UCS2H11	UCS2HN
UCS2P11	UCS2PN, UCS2RN, UCS2QN
UCS2T11	UCS2TN

The image and alias names are included in SYS1.IMAGELIB at system generation. (See DATAMGT macro in *OS/VS2 System Programming Library: System Generation Reference,* GC26-3792.)

Some trains, such as SN and G11 do not have aliases because neither has an equivalent train on the other printer. An installation can assign an alias, if it so chooses. (See *OS/VS Linkage Editor and Loader,* GC26-3813, for details about the ALIAS statement.) If an alias is supplied, JES2 will use it. If an alias is not supplied, an installation-defined SYSOUT class or a printer routing code (specified via the DEST parameter) should be used to assign the data set to the correct printer. If a SYSOUT class or a printer routing code is not used, and JES2 is directed to print a data set on a printer for which the proper image is not supplied, JES2 notifies the operator. The operator can then print the data set with a valid train or redirect the data set to the proper printer via the '$E' command.

If an installation defines a new train, it can supply an alias name for that train via the linkage editor ALIAS statement, when including the image in SYS1.IMAGELIB.

3211 Indexing Feature

JES2 supports the 3211 Indexing Feature in two ways:

1. Specification of the INDEX parameter on the /*OUTPUT card.
2. The extended FCB image:

   JES2 supplies two special FCBs: FCB26 for 6 lines/inch and FCB28 for 8 lines/inch (specified as FCB=6 and FCB=8, respectively). These FCBs contain a channel 1 indication in position 1, a special index flag in the third byte, and the number of lines/inch in the fourth byte of the image.

The special index flag in the third byte of FCB26 and FCB28 contains X'80' plus a binary index value, in the range 1-32 (default=1). The index value sets the left-hand margin (1 indicates flush-left position; other values cause indentation of the print line by N-1 positions).

If any other FCB images are to be used by JES2, they must specify channel 1 in position 1; otherwise JES2 incorrectly positions the forms in the printer. (STD1 and STD2 do not specify channel 1 in position 1 and therefore must not be specified, unless altered, for JES2.)

If the third byte of any other FCB image contains a data character (specifying the number of lines/inch) other than X'80', JES2 uses that specification and supplies an index value of 1.

Master Catalog and Page Data Set Names

The names of the master catalog and the page data sets on the starter system can be obtained by executing the Access Method Services (IDCAMS) routine and using the LISTCAT function. These names cannot be the same as the master catalog and page data set names for the system that is being generated.

Master Catalog Size

The size of the master catalog can be dynamically extended subject to the following conditions:

- The master catalog must be on a single volume. Therefore, there must be enough free space for expansion on the volume (especially if the volume is shared with other data sets).
- Secondary allocation must be specified for the master catalog either via the Access Method Services DEFINE command or the system generation DATASET macro instruction.

If either of these conditions is not met, the user must initially allocate sufficient size for the master catalog. For more information on determining the size of the catalog, refer to the *OS/VS2 System Programming Library: Storage Estimates,* GC28-0604.

OS/VS Control Consoles

OS/VS control consoles do not default to display job numbers when job names are being referenced. JES2 remote work-station consoles do default to display these job numbers. The JES2 command that causes the job number to be displayed on these OS/VS consoles is $T OSCn (where n is the number of the console).

Page Data Sets

Page data sets for MVS can only be defined with MVS Access Method Services (IDCAMS) utilities and VSAM while these utilities and VSAM are running on an MVS system.

QSAM Exchange Buffering

Requests for exchange buffering in QSAM are changed to requests for move mode. There are no changes to the documented interface.

SMP

The SMP control data set (CDS) can be used by SMP only if it is created with the record format: blocksize = 80, logical record size = 80.

SYS1.DUMP

If (TA,xxx) is specified during IPL for the SYS1.DUMP data set, a non-labeled (NL) tape must be used.

SYS1.LPALIB

When creating SYS1.LPALIB, message IEW0461 with condition code 004 is issued for module IKJEFLD. This message should be ignored.

SYS1.MACLIB Space Consideration

If VTAM is not specified at sysgen time, VTAM macros will still be copied to SYS1.MACLIB. Until this condition is corrected, VTAM macros should be included in space calculations.

SYS1.VTAMOBJ

The SYS1.VTAMOBJ data set is required for VTAM Level 1.1.

Teleprocessing Devices

For multiprocessing systems only, teleprocessing devices must be online at IPL time or varied online before TCAM is started. With a 3705 Emulation Program, the devices must be varied online after the emulation program has been loaded and before TCAM is started. These procedures are necessary in order to establish the correct path for asymmetric teleprocessing devices.

TSO

- TSO users cannot execute authorized programs interactively. This includes the following OS/VS utility programs: IEHDASDR, IEBCOPY, IEHMOVE, IEHATLAS, IEHINITT, and IEHPROGM.
- TSO users should always use the LOGOFF command, as specified in *OS/MVT and OS/VS2 TSO Terminals,* to end a TSO terminal session. TSO users on remotely attached 3270s through TCAM to VTAM should not use a power off to cause logoff because powering off the terminal does not always result in a logoff.

Unresolved Address Constants

When VTAM Level 1.1 is not included in the system at sysgen time, there will be unresolved address constants for the modules ISTZFMAA and ISTZFMAB. This is a normal condition.

Virtual Input/Output (VIO)

VIO does not support EXCPVR.

Virtual Storage Access Method (VSAM)

A VSAM catalog cannot be deleted unless all entries in the catalog have been deleted.

Volume Attribute Processor

A maximum of 300 unique VATLST entries can be processed by the volume attribute processor during an IPL.

VS TRACE

The default for the number of entries in the VS TRACE table is 400 decimal or 190 hexadecimal. To change the number of trace entries, use the AMASPZAP service aid (see *OS/VS2 System Programming Library: Service Aids,* GC28-0674). For example, you would use the following control cards to decrease the number of trace entries from 400 to 100:

```
NAME    IEANUC01    IEAVNIP0
VER       2BC8        0190
REP       2BC8        0064
```

3330/3333 Model 11

When specifying the 3330 Disk Storage Model 11 or the 3333 Disk Storage and Control Model 11 in a parameter that requires a device type, always specify 3330-1. If you specify 3330, the MVS system assumes that you are specifying the 3330 Disk Storage Model 1 or 2, or the 3333 Disk Storage and Control Model 1. There is, however, one exception to this rule, which pertains to the UNIT and MODEL parameters of the system generation IODEVICE macro. When you are specifying the Model 11 of the 3330 or 3333 in the IODEVICE macro, always specify it as UNIT=3330, MODEL=11.

3600 Finance Communication System

To facilitate readability of the assembly listings for those 3600 users who plan to do a CPGEN assembly, the following superzap can be applied:

```
NAME    IFOX51    IFNX5D00
VER     094A 4590, 8F4E, 04CD, 0000
REP     094A 0700, 0700, 0700, 0700
```

This superzap prevents the assembler from issuing a warning message after every Y-Constant during the CPGEN assembly.

VTAM Level 1.1

The installation should provide guidelines for the operator for detecting and handling the following situations:

1) When data transmission between the VTAM application program and a terminal has stopped.

2) When an error occurs and VTAM is unable to successfully terminate the application program.

The following procedure can be used as an outline for establishing your guidelines for the operator:

- Upon a terminal user's notification that there is no data transmission between the VTAM application program and his terminal, issue the command:

  DISPLAY NET,ID=application program identification name

- If the resulting display indicates that the user's application program is active (connected to VTAM), consult the terminal user and/or your installation system programmer. They will let you know whether you should cancel and then restart the program.
- If the display indicates that the program is inactive, the terminal user and/or your installation system programmer will decide whether you should restart the program.

Note: In either case, if the restart fails, the installation should decide whether to closedown the VTAM network, and then restart both the network and the application program. (They should be aware that the closedown of the VTAM network requires the termination of other active application programs.) If this procedure also fails, they should consider whether or not to reinitalize OS/VS2.

Programming Procedures

LISTCVOL Installation Procedure

LISTCVOL, a program distributed in SYS1.SAMPLIB, provides support for listing the entries in CVOL data sets. LISTCVOL must be link-edited into the user's SYS1.LINKLIB using the following linkage-editor control statements.

```
//Jobname   JOB . . .
//          EXEC PGM=IEWL,PARM='LET,DC'
//SYSPRINT  DD SYSOUT=A
//SYSUT1    DD UNIT=SYSDA,SPACE=(TRK,(10,1))
//SYSLMOD   DD DSN=SYS1.LINKLIB,DISP=OLD
//SYSLIN    DD DSN=SYS1.SAMPLIB(LISTCVOL),DISP=SHR
/*
```

Execute the LISTCVOL program by using the DD and control statements that are required for the IEHLIST utility program. These control statements are described in *OS/VS Utilities,* GC35-0005.

Procedure for Using the Linkage Editor Against a Shared Device Under TSO

In a TSO environment, any use of the linkage editor against a shared device, either directly or through the LINK command, should be monitored closely to prevent excessive device-reserved time.

When a CPU, which is sharing a device, issues a LINK against an output module library, the linkage editor issues a RESERVE against this data set for the duration of the link. Then, if this link cannot complete for any reason, serious degradation, even lockout, can occur in the other CPUs that are sharing the device when they attempt to reserve the data set.

To avoid this problem:

- Do not direct sizable print output to the terminal (typewriter or screen-type). Instead, direct this output to the LINKLIST data set and examine or list this data set after the link has completed.
- Respond promptly to the full screen condition on screen-type terminals.
- Respond promptly to an abend in a link-edit by entering another command.
- Avoid entering linkage-editor control statements from the terminal.
- Avoid using the ATTENTION command during the link edit without following this promptly with another valid command except TIME.

SMP Procedure for JES2

The following procedure should be used to install a JES2 PTF in conjunction with the SMP (System Modification Program) service aid. For additional information concerning the SMP procedures, see *OS/VS System Modification Program (SMP),* GC28-0673.

1. The PTF should be put into the JES2 source library, SYS1.AOSH2, using the SMP RECEIVE procedure. If this procedure is not successful, the PTF should be withdrawn using the SMP REJECT procedure.

2. If the RECEIVE procedure appears successful, the PTF should be applied using the SMP APPLY procedure.

3. The JES2 subsystem should then be generated again using the following JCL statements:

```
//HASPGEN   JOB . . .
//HASPGEN   EXEC HASPGEN
//HASPxxxx  EXEC HASPASM,MODULE=HASPxxxx
//HASPyyyy  EXEC HASPASM,MODULE=HASPyyyy
//HASPzzzz  EXEC HASPASM,MODULE=HASPzzzz
//HASPLNK   EXEC HASPLNK or HASPLPA (as indicated with each PTF)
```

   Notes to the user:

   - The actual modules that are to be reassembled, and specified above, will be indicated with each PTF.
   - The libraries required for JES2 generation must be mounted during this procedure. (See *OS/VS2 System Programming Library: System Generation Reference,* GC26-3792.)

4. If the generation procedure fails and the PTF appears to be the cause of the failure, the PTF should be removed using the SMP RESTORE procedure.

5. When there is adequate evidence that the PTF application has been successful, the PTF should be integrated into the system using the SMP ACCEPT procedure.

Special Messages at IPL Time

At IPL time, the user might possibly see the following message (or series of such messages):

"IEA363I name NOT FOUND IN LPA"

where name is either:

1. A user SVC that is specified in the system generation options, but is not yet included in the LPALIB, or

2. A module name that is not yet included in the system because certain system generation options were not specified.

In either case, the message(s) will not affect the running of the system. However, if the user wishes to remove these messages, he should put the IEFBR14 module in the LPALIB, with the name or alias of the missing module (the one that he received the message on).

The following JCL cards can be inserted to remove the message(s).

```
//LINK      JOB  MSGLEVEL=1
//EXEC      PGM=IEWL,PARM='LET,LIST,NCAL,XREF,RENT,REUS'
//SYSPRINT  DD   SYSOUT=A
//SYSUT1    DD   UNIT=SYSDA,SPACE=(7294,(10,10))
//SYSLMOD   DD   DSN=SYS1.LPALIB,DISP=SHR
//SYSLIN    DD   *
          INCLUDE    SYSLMOD(IEFBR14)
          ALIAS      NAME1,NAME2    etc.
          NAME       DUMMY
/*
```

System Restrictions

Allocation Recovery

When an address space abnormally terminates, the allocation recovery manager attempts to unallocate all UCBs allocated to the address space. It will unallocate the following types of UCBs:

- Tape
- Unit record
- Teleprocessing
- Non-shareable, direct-access

The allocation recovery manager *cannot* unallocate ***shareable, direct-access*** UCBs because they might be allocated to more than one address space. Therefore, shareable, direct-access UCBs are unallocated during the next IPL of the system.

Auxiliary Storage Manager (ASM)

The 2305 Fixed Head Storage Model 1 cannot be used as a secondary paging device.

ASM/IOS

Dynamic device reconfiguration (DDR) cannot swap active paging packs.

Channel Reconfiguration Hardware (CRH) Support

- Since CRH relies in part on the hardware of the failing or offline CPU, specific portions of that CPU cannot be powered off while CRH is active. The system mode switch for configuring to a uniprocessor or multiprocessor must be in MP mode, and the inoperative or offline CPU must be in STOPPED state.
- If a maintenance subsystem is required to run diagnostics on the inoperative CPU or its channels, CRH must be deactivated.
- The Dynamic Support System (DSS) cannot be activated while CRH is active in the system, nor can CRH be activated while DSS is active in the system.
- Pending interruptions for the inoperative CPU's channels must be solicited by CRH. The frequency of the CRH "polling" is largely dependent on the rate of interruptions being received by the operative CPU from its own channels. Therefore, when nearly all of the I/O in the system is using devices attached only to the inoperative CPU, it may be advisable to restart the system. Because of this condition, support for some highly time-dependent I/O devices such as the 1419 check sorter cannot be guaranteed.

Data Management

- Reading the last record of an input data set that spans a volume may result in an ABEND
- Any record that spans more than one volume cannot be updated.

IEHUCAT

IEHUCAT supports only base generation data group (GDG) entries. The user must explicitly catalog GDG levels above the base.

JES2

Private catalogs cannot refer to data sets containing JES2 procedures.

Operator Commands

If a printer is varied to console mode, or from console mode to any other mode, and the printer or card reader is not physically ready, then the system may enter an enabled wait state.

Scheduler

At the termination of multi-step jobs, the message NOT DELETED appears for passed data sets that have been deleted in previous steps.

Stand-Alone DUMP (SADMP)

- The Model 158 integrated console (3277) is supported as a console for SADMP only in the printer-keyboard mode.
- SADMP cannot process address spaces for which the swap-out operation has begun, but has not yet completed.

TCAM

- For a 2741 dial terminal, running in emulator program mode, a carrier return following the initial keyboard unlock prior to logon causes the loss of the terminal and requires a re-dial.
- When TSO is used on a 1050 lease-line terminal, all "attentions" issued while on the time-delay queue will be ignored.

VTAM Level 1.1

- The VTAM trace facility might not trace all disconnects on the in-bound path for recovery situations.
- A cluster containing a remote 3270 will fail if unsolicited data is entered into the remote 3270.

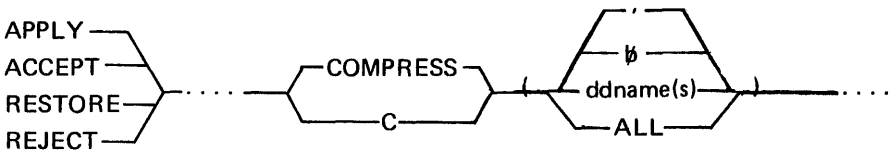
3600 Finance Communication System

The 3600 Post List Processor is not supported by assembler H.

SMP COMPRESS Function

The SMP COMPRESS function deletes certain modules from the operating system and distribution libraries and subsequently recovers the freed direct-access space using IEBCOPY.

This function is initiated by specifying the optional keyword COMPRESS on the APPLY, ACCEPT, RESTORE, or REJECT control statement. The data sets to be processed are listed as options of the COMPRESS keyword:



- The COMPRESS function should *not* be performed upon the running (IPLed) operating system; an alternate operating system, such as the Starter System, should be used as the running system.
- When ALL is specified (it must be the only option when used), all partitioned data sets affected by the SMP job are processed. In addition, the SMPPTS and any SMPMAC data sets specified in the JCL are compressed.
- Any operating system data sets or distribution library partitioned data sets affected by the SMP job are eligible for COMPRESS. The ddname is used. COMPRESS will *not* process keyed or unmovable data sets. The SMPCDS and SMPACDS are keyed.
- The modules eligible for deletion during COMPRESS processing are:
  - For APPLY or RESTORE – those operating system load modules that were copied at SYSGEN, reside in the data sets specified in the COMPRESS keyword, and are being affected by the PTF(s) involved in the APPLY or RESTORE run.
  - For ACCEPT – all distribution library load modules that are being replaced by PTF(s) in the ACCEPT run and reside in the data sets specified in the COMPRESS keyword.
  - For REJECT – no load modules are deleted. Only the IEBCOPY COMPRESS function is performed on the indicated data sets.
- IEBCOPY is invoked for each data set after all (if any) deletions have been completed for the data set. A data set may be specified by COMPRESS even if it is not affected by any PTF(s) in the run; in this case, only the IEBCOPY COMPRESS processing will be performed on the data set.

The following messages have been modified:

- HMA224I SUCCESSFULLY DELETED LOAD MODULE mod FROM THE lib LIBRARY.

  Explanation: mod is the load module name, lib is the ddname of the operating system or distribution library data set. The named module was successfully deleted from the named data set.

- HMA238I COPY PROCESSING COMPLETED FOR lib (COMPRESS) – RETURN CODE = rc.

  Explanation: lib is the data set ddname, rc is the return code from IEBCOPY. An execution of IEBCOPY for COMPRESS has completed without serious error. If any load modules were deleted from the named data set, HMA224I will precede this message.

- HMA239I COPY FAILED FOR lib (COMPRESS) – RETURN CODE = rc.

  Explanation: lib is the data set ddname, rc is the IEBCOPY return code. A code greater than 4 was returned from IEBCOPY during the execution of a COMPRESS function.

  System Action: All further SMP processing in the jobstep is cancelled.

  Programmer Response: Check the output from IEBCOPY to determine the error. Correct the error and re-submit the job. *Note:* Some load modules may have been successfully deleted from the named libraries; this will not prevent re-running of the job.

- HMA274I IO ERROR ATTEMPTING TO DELETE mod FROM THE lib LIBRARY.

  Explanation: mod is the load module name, lib is the data set ddname. An IO error occurred when SMP attempted to execute a STOW DELETE operation for the named load module from the named data set.

  System Action: During COMPRESS processing all further SMP function is cancelled.

  Programmer Response: Correct the error and re-submit the job.

The following message has been added:

HMA285I lib REFERENCES AN UNMOVABLE DATA SET.

Explanation: The data set lib is flagged in the DSCB as unmovable. It will not be compressed in place because it may contain location dependent data.

System Action: COMPRESS processing for the named data set is bypassed. Processing continues with the next data set.

Programmer Response: Verify the data set attributes (FORMAT1 DSCB).

EXAMPLE 1

To indicate COMPRESS for specific data sets, the following method can be used:

```
//STEP1     EXEC  PGM=HMASMP
//SMPOUT    DD    SYSOUT=A
//SMPLOG    DD    DSN=SMPLOG,DISP=MOD
//SMPCDS    DD    DSN=SMPCDS,DISP=OLD
//LINKLIB   DD    DSN=SYS1.LINKLIB,DISP=OLD
//SMPPTS    DD    DSN=SMPPTS,DISP=OLD
//SYSPRINT  DD    SYSOUT=A
//SYSUT1    DD    DISP=(,DELETE),UNIT=SYSDA,SPACE=(CYL,(2,1))
//SYSUT2    DD    DISP=(,DELETE),UNIT=SYSDA,SPACE=(CYL,(2,1))
//SYSUT3    DD    DISP=(,DELETE),UNIT=SYSDA,SPACE=(CYL,(2,1))
//SMPCNTL   DD    *
  APPLY     S     (MM00001)  COMPRESS(LINKLIB SMPPTS).
/*
```

In this example the user wants to have eligible load modules (copied at SYSGEN), if any, deleted from LINKLIB, then LINKLIB and SMPPTS to be compressed using IEBCOPY.

EXAMPLE 2

To have all possible data sets processed by COMPRESS, use the following example:

```
//STEP1     EXEC  PGM=HMASMP
//SMPMAC1   DD    DSN=SYS1.MODGEN,DISP=OLD
//SVCLIB    DD    DSN=SYS1.SVCLIB,DISP=OLD
//SMPOUT    DD    SYSOUT=A
//SMPLOG    DD    DSN=SMPLOG,DISP=MOD
//SMPCDS    DD    DSN=SMPCDS,DISP=OLD
//LINKLIB   DD    DSN=SYS1.LINKLIB,DISP=OLD
//SMPPTS    DD    DSN=SMPPTS,DISP=OLD
//SYSPRINT  DD    SYSOUT=A
//SYSUT1    DD    DISP=(,DELETE),UNIT=SYSDA,SPACE=(CYL,(2,1))
//SYSUT2    DD    DISP=(,DELETE),UNIT=SYSDA,SPACE=(CYL,(2,1))
//SYSUT3    DD    DISP=(,DELETE),UNIT=SYSDA,SPACE=(CYL,(2,1))
//SMPCNTL   DD    *
  RESTORE   S     (MM00001, MM00002, MM00003) C (ALL).
/*
```

Eligible load modules will be deleted from all of the data sets affected by the indicated PTFs. These data sets along with SMPPTS and SMPMAC1 will then be compressed by IEBCOPY.

TCAM Level 8 Considerations

Certain functional differences exist between OS/VS TCAM Level 6 (which directly supports the 3704/3705 communications controller in network-control mode) and TCAM Level 8 (which operates in a shared environment with VTAM). These functional differences fall into four categories:

1) TCAM Level 6 functions that are not available in a shared VTAM/TCAM environment.
2) TCAM Level 6 operator-control functions that have altered meanings in a shared VTAM/TCAM environment.
3) TCAM Level 6 operator-control functions that are replaced with similar VTAM functions which are available only from a system console.
4) TCAM Level 6 operator awareness messages that are replaced with VTAM messages which are routed to a system console.

These categories are discussed in the following paragraphs:

1) The following functions supported by TCAM Level 6 for the 3704/3705 Network Control Program (NCP) are not available in a shared VTAM/TCAM network:
   - The following items (which are checkpointed by TCAM Level 6 for warm start of the NCP after host and NCP failure) are not checkpointed in the VTAM/TCAM shared network:

     Line and terminal status
     Service seeking pause
     Session limit
     Negative response limit
     Block-handler sets
     Transmission limit
     Modifications to dial digits, polling characters, and addressing characters made as a result of the TCHNG macro issued in TCAM application programs

     VTAM restart after host failure requires a re-IPL and a cold start of the NCP.

   - For 3704/3705 failure without host failure, VTAM provides warm start of the 3704/3705; however, VTAM does not provide for warm start of changes made via TCAM's TCHNG macro and the Modify BH Set operator command. These changes can be reestablished after the 3704/3705 restart by a user-written TCAM application program. Such a program would maintain a record of the changes and make the changes after operator notification that the NCP has been restarted.

- The TCAM Level 6 operator commands not supported in a VTAM/TCAM shared system are:

  Change Dial Mode – VTAM allows the user to specify the dial mode of a switched line at network-generation time.

  Set 3705 Time and Date – VTAM provides this function at NCP load time.

  Display 3705 Storage.

  Activate 3705 Backup, Switch 3705 Backup, and Switch 3705s – The VTAM user can manually switch between two 3704/3705s with appropriate physical switching equipment and the use of VTAM's Vary command. With VTAM, restart in the backup controller is a cold start.

  Switch 3705 Channel Adapter – The VTAM user can start a new system in the backup CPU, and re-IPL the 3704/3705 through the second Type 2 Channel Adapter. Operator-initiated switching through a second channel to the same CPU via a toggle switch on the 3704/3705 is still available in the shared network. For more information on this feature, refer to the *OS/VS TCAM Programmer's Guide.*

  Activate General Poll and Deactivate General Poll – VTAM always uses general polling for 3270 Information Display Systems.

- The CUTOFF and MSGLIMIT Message Handler macros are not applicable for stations managed by VTAM. The CUTOFF operand of the NCP's LINE macro can be used.

- The "Read Full Buffer" support available in TCAM Level 6 for locally-attached 3270 Information Display Systems is not available for locally-attached 3270 stations managed by VTAM. Users who require this support, which is described in the *OS/VS TCAM Programmer's Guide,* should use the IOS local support option available with TCAM.

- The input data from a remote 3270 managed by VTAM does not contain the control unit or station addresses. The input format is the same for a local 3270 and a remote 3270.

2) The TCAM Level 6 operator commands and macros that are modified as a result of VTAM's physical control over the network are:

   Commands

   Activate Station to Receive and Transmit
   Activate Station to Transmit
   Deactivate Station for Receive and Transmit
   Deactivate Station for Receive
   Start Line Transmission
   Stop Line Transmission
   Suspend Transmission
   Release Intercepted Station

   Macros

   HOLD
   MRELEASE

For lines and stations associated with TCAM through VTAM, these commands and macros are effective only for message traffic that is being handled by TCAM. If a line or terminal in the VTAM/TCAM shared network is used only by TCAM, the operator command or macro has the same effect it does in TCAM Level 6. If, however, the resource is shared, data that is not handled by TCAM can still reach a station for which data flow has been inhibited by a TCAM function.

- VTAM itself provides facilities for activating and deactivating terminals and lines from a system console only. These commands can be used to prevent all data flow to or from a station.
- In a shared TCAM/VTAM network, the following TCAM Level 6 operator commands will display only the stations and lines activated or deactivated by TCAM for TCAM data. These commands do not display the status of lines and stations activated or deactivated by VTAM commands.

  Display Active Stations
  Display Station Status and Message Numbers
  Display Intercepted Stations
  Display Inactive Line Entries
  Display Inactive Open Lines
  Display Line Status and Message Error Record

3) The following TCAM Level 6 operator-control functions are replaced in the VTAM/TCAM shared environment by VTAM functions that are available only from a system console:

   Display 3705 Status
   Activate a 3705
   Deactivate 3705 Line and Terminal
   Dump 3705 Storage
   IPL a 3705
   PEP Switch Line Mode
   Start/Stop BTU Trace
   Change NCP Load Module
   Change Session Limit
   Change 3705 Transmission Limit
   Activate/Deactivate Line Trace
   Change Polling Delay Duration

4) In a VTAM/TCAM shared network, VTAM awareness messages replace TCAM Level 6 operator awareness messages. VTAM awareness messages are always directed to a system console and deal with channel operations, NCP status, and/or line and terminal errors.

Notes:

1. The following TCAM Level 6 operator commands and macros still exercise some degree of physical control over the VTAM/TCAM network, and their effect on the VTAM portion of the network should be considered before they are issued:

   Change 3705 Line Speed
   Switch 3705 Backup
   TCHNG

2. NCP APAR IR00705 is required on the 3705 for TSO.

Varying Storage Offline in a 158 MP or 168 MP OS/VS2 Release 3 System

I. Introduction

The VARY subsystem OFFLINE command is used, along with other operating system commands and operator actions, to separate a subsystem (CPU, storage, and I/O) from a running 158 MP or 168 MP system without interrupting the work being processed on that running system. The separation (or partitioning) is typically done to provide subsystems for maintenance purposes, or to provide a stand-alone system for other operating system uses.

However, before an installation uses the VARY STORAGE OFFLINE command, it must take into account the recommendations and guidelines presented in the subsequent sections:

II. Recommended List of Actions
III. Subsystem Maintenance Requirements for a 158 MP or 168 MP System
IV. Programming Guidelines
    A. Preferred Storage Area
    B. Setting Reconfigurable Storage Units Size
    C. Operational Example
    D. Guidelines for Customer Programs
    E. Performance Considerations
    F. Verification of Estimated Fixed Storage Requirements

II. Recommended List of Actions

Each installation planning to install a 158 MP or 168 MP under OS/VS2 Release 3 must fully evaluate the ability of its planned configuration to create subsystems and to meet its availability requirements. There is no guarantee that a required maintenance or user subsystem can always be created. However, if an installation follows the recommendations presented in this section and the guidelines in sections III and IV, the probability that a subsystem can be created will be increased.

Specifically, each installation should:

1. Review the need for using the OS/VS2 commands to create the necessary subsystems. Subsystems are typically created on a planned basis and can be created either through the use of the OS/VS2 commands or by stopping and re-IPLing the system. Thus, an installation can choose to create all subsystems through the use of OS/VS2 commands, create all the subsystems by a re-IPL, or create some by commands and some by a re-IPL. The choice to be made will be influenced by the amount of storage available, the ability of an installation to defer diagnostic or repair actions on the hardware, and the ability of an installation to tolerate an IPL for that purpose.

2. Review the size of the subsystems required. For maintenance purposes, an installation should review section III; for non-maintenance purposes, an installation must assess the need and size of the subsystems. In any event, an installation must know the maximum amount of storage that it can expect to vary offline using OS/VS2 commands.

3. An installation should then calculate the fixed storage requirements of its planned OS/VS2 Release 3 system. See section IV.

   Based on the preceding recommendations, an installation can determine that:

   a. The fixed areas can be contained in X (X=1, 2, 3, . . .) less than the total number of configurable storage elements. In this case, a subsystem containing one or more storage elements could be created using OS/VS2 commands. For example, assume a 4 megabyte 158 MP system. If X=1, 512K of storage can be varied offline; if X=2, 1024K of storage can be varied offline; etc. Such storage element subsystems can be used for diagnostic purposes but not for all maintenance/repair actions.

   b. Enough storage does not exist to create a subsystem containing even one storage element. This will always be true on a 1 megabyte 158 MP system or a 2 megabyte 168 MP system, and may be true on larger systems depending on the fixed storage requirements for that installation. Therefore, any maintenance activity or other subsystem usage will impact availability since the necessary storage is not available to contain the pages necessary for an operable backup system.

   If enough storage exists to create any desired subsystem, an installation should experience few problems. If enough storage does not exist to create all subsystems, an installation may need to add storage to provide an acceptable level of availability.

III. Subsystem Maintenance Requirements for a 158 MP or 168 MP System

Subsystems are required for maintenance purposes for two basic reasons:

(1) to enable the running of diagnostic programs either to identify a failing component or to verify repair actions; or

(2) to effect a repair action, engineering change, or feature change. The second use differs from the first in that it often requires powering down the unit to which the repair or change is to be made.

158 MP Subsystem Maintenance Requirements

1. **Diagnostics**: Most of the CPU diagnostics (80–90%) require the CPU and any configurable element of storage (512K or 1.0 MB). Most of the remaining diagnostics (mainly related to the storage control function) require that one side of the MP system be partitioned out. It is possible that certain failures will require the entire system for diagnostics.

2. **Repair Action or Engineering Change**: Power-down repair actions require that one side of the MP system be partitioned out, including all storage native to the CPU being repaired. This means that repair/change activity on a CPU whose native storage contains the system fixed area or the preferred storage area will result in an unscheduled IPL.

168 MP Subsystem Maintenance Requirements

1. **Diagnostics**: Generally, diagnostics require any 1.0 MB of storage along with the rest of the CPU complex (console, power distribution unit, CPU). There is the possibility that a failure could occur which would require the entire system for diagnostics.

A maintenance subsystem may be composed of CPU, storage, channel, I/O, power and cooling, or some combination of these, up to and including one-half (one side) of an MP system.

In the event that storage required for a maintenance subsystem cannot be varied offline, an installation may elect to do a re-IPL to obtain the storage. However, if a re-IPL cannot be tolerated at that particular time, an installation may elect to defer the maintenance activity to a more suitable time.

2. **Repair Action or Engineering Change**: The following information indicates the subsystem requirements for repair purposes and the required subsystem components.

Repair Unit	*Subsystem Requirement*
a. Processor	Processor only (no native storage)
b. Channel	Channel only
c. Integrated storage control (ISC)	ISC only
d. Storage	All storage physically installed on that side*
e. 3067 (power distribution unit/ coolant distribution unit (PDU/CDU) or other power areas	That side of the MP system*
f. Half 3068 multisystem communication unit (MCU)	That side of the MP system*

IV. Programming Guidelines

The OS/VS2 Release 3 system has been designed to allow an installation to vary storage offline to remove storage elements not containing long-term resident pages from use by the operating system. These storage elements can then be used with other necessary system components to form a maintenance subsystem or to run another operating system. The minimum MP system which can be partitioned is a 2 megabyte 158 MP system or a 3 megabyte 168 MP system, because smaller storage systems will always contain fixed, operating system pages in every configurable storage element. The VARY STORAGE OFFLINE command will cause pages to be paged out or swapped out of the storage element. All short-term fixed pages of nonswappable jobs will remain until the operation requiring the page is completed. The storage will go offline when system activity no longer requires the page. Long-term fixed pages of nonswappable jobs and other fixed pages (for example, SQA, nonswappable LSQA) cannot be swapped out of a storage element. Therefore, storage elements to be varied offline must be free of pages which have been fixed by the operating system.

*Repair activity will result in an unscheduled IPL if the storage to be powered down contains any system fixed area or preferred storage area.

A. Preferred Storage Area

To allow an installation to keep SQA, nonswappable LSQA, and nonswappable, long-term fixed pages together, a Preferred Storage Area has been defined. OS/VS2 Release 3 will place those pages in the preferred storage area as long as space is available in the area. In this way, storage elements outside the preferred storage area can be varied offline. (The preferred area is the storage area that is not defined by the RSU parameter which indicates how much storage should be designated for reconfiguration.)

The following guidelines are given to assist an installation in determining the value of the RSU parameter and in using the VARY STORAGE OFFLINE command.

B. Setting Reconfigurable Storage Units Size

Preferred and non-preferred areas are defined to the system by the value specified in the RSU parameter. This value is the number of configurable storage units that will be required for reconfiguration.

Beginning with the second-highest online storage unit, the number of storage units specified by the RSU parameter are designated as non-preferred (not eligible for long-term resident page assignments). All offline units encountered are designated as non-preferred but are not included in the RSU count. Any storage unit containing nucleus or V=R area frames is not designated as non-preferred.

All storage units that were not designated as non-preferred are then designated as preferred. If the value specified in the RSU parameter exceeds the available processor storage units, the maximum number of storage units possible will be designated as non-preferred and the IPL will continue.

C. Operational Example

Use of vary storage (within the context of configuring a subsystem) can be seen in the following example. It is assumed in this example that:

1. There are six processor storage units.
2. RSU=2 was specified.
3. Nucleus and V=R area are contained in unit 0.

The result would be the following designations (see Figure 1):

1. Units 0, 1, 2, and 5 are designated as preferred.
2. Units 3 and 4 are designated as non-preferred.

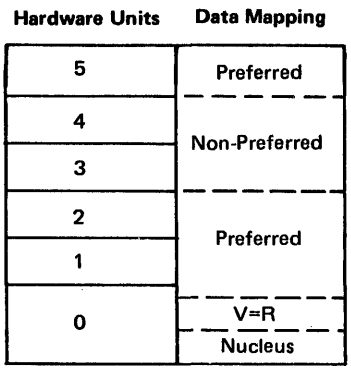


Figure 1. IPL Designation of Processor Storage Units with RSU=2

The command and action sequence would be:

Specify RSU=2 in addition to other system parameters
⋮ (processing)
VARY STORAGE (3m,5m), OFFLINE
⋮ (Allow to Complete)
– VARY CPU(1),OFFLINE
⋮ (Allow to Complete)
– Change storage address on 3-4 Meg rotary from 3-4 Meg to 0-1 Meg
– Change storage address on 4-5 Meg rotary from 4-5 Meg to 1-2 Meg
– Disable this storage range to CPU A [CPU(0)]
– Disable all other storage addresses to CPU B [CPU(1)]
– Set mode switch from MP to UP
– Press Enter Configuration button

You may now begin to configure the I/O requirements of CPU B, ensuring that:

a. All enabled switches on control units to remain attached to CPU A are disabled to CPU B – if not desired to be shareable.
b. Any necessary I/O units attached to CPU A to be used only by CPU B should be varied off via the appropriate vary commands – for example, VARY OFFLINE, VARY PATH.
c. All enable switches on control units to be used on CPU B should be disabled to CPU A – if not desired to be shareable.

To reverse the process:

a. Insure CPU B is in manual state (that is, press STOP).
b. Reconfigure the I/O making all previously symmetric devices enabled to both CPUs.
c. Change the storage addresses enabled to CPU B from 0-1 Meg to 3-4 Meg and from 1-2 Meg to 4-5 Meg.
   – Enable all storage switches to both sides.
   – Set mode switch to MP.
   – Press Enter Configuration buttons.

d. VARY CPU(1),ONLINE
VARY STORAGE, (3m, 5m), ONLINE
Enter *DM* to verify your configuration

D. Guidelines for Customer Programs

1. If a nonswappable authorized program does a long-term page fix to a page which has been short-term fixed, that page will not be moved to the preferred storage area because of the "real" storage dependencies at the time of the short-term fix. This will prevent the varying offline of the configurable element in which the fixed page resides.
2. An installation that has authorized programs which are required to be nonswappable can set the nonswappable attribute in the Program Properties Table. The Program Properties Table (PPT) is contained in:

   Module: IEFSD060
   CSECT: IEFSDPPT

   If the attribute field (offset 8 in the entry) contains a X'20', the program is authorized as nonswappable.

E. Performance Considerations

Varying storage offline will affect the performance of the system as available resources (for example, storage) are reduced. In addition, the adjustment to the new level of resources does not take effect immediately; instead the SRM readjusts gradually. As a result, it is not recommended that an installation vary offline when performance levels must be maintained. An installation should assume that "moderate workload" is identical with its moderate IPS specification. When an installation attempts to vary offline, its system should be at a low workload level, since that "low" level may prove to be a "moderate" workload level for the new system.

F. Verification of Estimated Fixed Storage Requirements

The Page Frame Table (PFT) can be used to determine the actual fixed storage requirements for a given workload. (See the PFTE in *OS/VS2 System Programming Library: Debugging Handbook,* GC28-0632, for a description of the fields within each entry.)

To find the PFT from the console, use the operator command DISPLAY and:

1. Display the pointer to the CVT (X'10').
2. Display the pointer to the Page Vector Table (CVT + X'164').
3. Display the pointer to the PFT (PVT + X'C').
4. Find the beginning of the PFT by adding the number in the halfword at PVT+X'10' to the origin of the PFT.
5. Find the end of the PFT by adding the number in the halfword at PVT + X'12' to the origin of the PFT. Add X'10' to this address to get the end of the PFT.
6. Use the operator dump command and dump from the beginning of the PFT to the end.

Note: If power might be turned off for one CPU in a 158 MP system, all of the high-address storage units except the highest unit must be assigned to that CPU. (The highest unit contains data necessary to the operation of the MVS system.) For example, in a system with eight storage units (0-7), units 3-6 should be attached to the CPU that might have power turned off. See Figure 2.

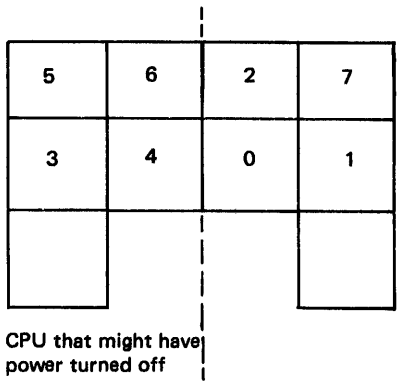


Figure 2. Sample Model 158 Unit Assignment

Also note that for the model 158, EC level 264757 and REA 201738 are required.

Chapter 3: Change Activity

The following information is included in this chapter:

APAR List (containing 1367 fixed APARs)
PTF List (containing 268 resolved PTFs)

APAR Identifiers

The following APARs are listed in columns of two numbers. The first APAR number is the MVS number, whose character identifier is OZ. The second number represents the APAR or PTM for the same problem found in another system. The character identifiers of each of these systems are as follows:

OS – OS APAR
OX – VS1 APAR
OY – VS2 Release 1 APAR
AS – VS1 PTM
VS – VS2 Release 2 PTM

PTF Identifiers

Program Temporary Fix (PTF) numbers for MVS have the two character identifier UZ.

Note: To avoid confusion, it is recommended that local modifications, made using the System Modification Program (SMP), not use S, X, Y, or Z as the second character of their identifiers.

APAR List

OZ 00002	OS 70248	OZ 00096		OZ 00218	VS 09111		
OZ 00004	OS 70554	OZ 00097		OZ 00219	VS 07192		
OZ 00005	OS 70775	OZ 00098	VS 08486	OZ 00220	OS 70313		
OZ 00006	OS 69280	OZ 00099	VS 08862	OZ 00221	VS 09113		
OZ 00007	OS 69324	OZ 00101		OZ 00222	OS 70192		
OZ 00008	OS 70609	OZ 00102		OZ 00223	OS 70195		
OZ 00009	OS 70834	OZ 00103		OZ 00224	OY 04887		
OZ 00010	OY 04137	OZ 00104		OZ 00225			
OZ 00011	OS 70404	OZ 00105		OZ 00226			
OZ 00012	OS 70399	OZ 00106		OZ 00227	VS 08277		
OZ 00013	OS 67515	OZ 00107		OZ 00228	OS 69973		
OZ 00014	VS 08080	OZ 00108		OZ 00229	OS 68228		
OZ 00015	OX 05597	OZ 00109		OZ 00233	OX 03967		
OZ 00016	OS 69181	OZ 00111		OZ 00234			
OZ 00017		OZ 00112		OZ 00235			
OZ 00018		OZ 00113		OZ 00236	OY 04894		
OZ 00019		OZ 00114		OZ 00237			
OZ 00020	OS 68943	OZ 00115		OZ 00238			
OZ 00021	VS 07869	OZ 00116		OZ 00239	OS 70665		
OZ 00022	OS 69182	OZ 00117		OZ 00240	OS 70674		
OZ 00023	OS 69408	OZ 00119		OZ 00241	OS 70682		
OZ 00024	OX 05143	OZ 00120	VS 08051	OZ 00242	OS 70889		
OZ 00025	OX 06132	OZ 00121		OZ 00243	OX 05285		
OZ 00052	VS 08425	OZ 00122		OZ 00244	OX 05300		
OZ 00053	VS 08449	OZ 00123		OZ 00245	OX 05319		
OZ 00054	VS 08669	OZ 00124	VS 08801	OZ 00246	OX 05322		
OZ 00055	VS 08197	OZ 00125	VS 05846	OZ 00247	OY 04380		
OZ 00056	VS 08433	OZ 00126		OZ 00248	OY 04395		
OZ 00057	VS 08426	OZ 00127		OZ 00249	OY 04902		
OZ 00058		OZ 00128		OZ 00250	VS 08472		
OZ 00059	OX 04709	OZ 00129	VS 08056	OZ 00251			
OZ 00060	VS 08814	OZ 00130	VS 05833	OZ 00252			
OZ 00061	VS 08685	OZ 00131		OZ 00253			
OZ 00062	VS 08806	OZ 00132		OZ 00261			
OZ 00063	VS 08355	OZ 00133		OZ 00262			
OZ 00064	OY 04059	OZ 00134		OZ 00263			
OZ 00065	OY 03819	OZ 00135		OZ 00330	OS 64355		
OZ 00066		OZ 00136		OZ 00331	OS 69091		
OZ 00068	VS 08686	OZ 00137		OZ 00332	OS 69658		
OZ 00069	VS 08108	OZ 00138	VS 09100	OZ 00400	OX 05053		
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OZ 00071	VS 08687	OZ 00140		OZ 00402	VS 08403		
OZ 00072	VS 08164	OZ 00141		OZ 00403	VS 08406		
OZ 00073		OZ 00142	VS 08096	OZ 00404			
OZ 00074	VS 08683	OZ 00143		OZ 00405			
OZ 00075	VS 08463	OZ 00144	VS 08467	OZ 00406			
OZ 00076		OZ 00145		OZ 00407	VS 08402		
OZ 00077	OZ 00077	OZ 00200	VS 07193	OZ 00408	OS 71279		
OZ 00078	VS 08451	OZ 00201	VS 07194	OZ 00409	OY 04192		
OZ 00079	VS 08442	OZ 00202	VS 07197	OZ 00410			
OZ 00080	VS 08481	OZ 00203	VS 08083	OZ 00413			
OZ 00081	VS 06575	OZ 00204	VS 08332	OZ 00415			
OZ 00082	VS 08484	OZ 00205	VS 09104	OZ 00419	OS 73007		
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OZ 00092	VS 08649	OZ 00214	VS 08852	OZ 00432	OS 71853		
OZ 00093		OZ 00215	VS 08854	OZ 00433			
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OZ 00095		OZ 00217	VS 09112	OZ 00438			

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OZ 00443  OX 05490
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OZ 00452
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OZ 00455
OZ 00500  VS 08809
OZ 00501  VS 08471
OZ 00503
OZ 00504
OZ 00506  VS 08452
OZ 00507  OY 04057
OZ 00508
OZ 00509
OZ 00510
OZ 00511  OY 02667
OZ 00512  VS 08875
OZ 00513
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OZ 00543  OS 66398
OZ 00544  OS 62752
OZ 00545  OY 03976
OZ 00546  OY 03986
OZ 00547  OY 04091
OZ 00548  OS 70024
OZ 00549  OS 70068
OZ 00550  VS 05245
OZ 00551  VS 08811
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OZ 00656
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OZ 00658
OZ 00700  VS 08828
OZ 00701  VS 09201
OZ 00702  VS 08825
OZ 00703  VS 07187
OZ 00704  OS 71368
OZ 00705  VS 30119
OZ 00706  VS 08867
OZ 00707  OS 71358
OZ 00715  OS 69261
OZ 00717  OX 05656
OZ 00718  OX 05743
OZ 00719  OY 05040
OZ 00720  OX 05783
OZ 00721  OX 05132
OZ 00722  OY 03165
OZ 00723  OX 06144
OZ 00724  OS 68823
OZ 00725  OS 69925
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OZ 00728  OS 69920
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OZ 00732  OY 05013
OZ 00733  OY 05014
OZ 00734  OS 69847
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OZ 00738  OY 05184
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OZ 00741  OS 71344
OZ 00742  OS 70819
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OZ 00744  OY 02845
OZ 00745  OX 04283
OZ 00746  OY 03199
OZ 00747  OX 03728
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OZ 00749
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OZ 00809
OZ 00813  VS 08883
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OZ 00823  OY 04247
OZ 00824  VS 08877
OZ 00825
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OZ 00836		OZ 00935	OX 05958	OZ 01071	OS 68025
OZ 00838	VS 30128	OZ 00936	OS 71536	OZ 01072	OS 70205
OZ 00841		OZ 00937	OY 05117	OZ 01073	OS 70001
OZ 00842		OZ 00938	OS 71272	OZ 01074	OS 69652
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OZ 00861	OX 05697	OZ 00946	OS 71764	OZ 01082	OS 71669
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OZ 00863	VS 08457	OZ 00948	OS 71752	OZ 01084	OS 64382
OZ 00864	VS 08460	OZ 00950	OX 03610	OZ 01085	OX 02619
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Chapter 4: Ordering, Distribution, and Publication Support

The following information is included in this chapter:

Ordering Procedures

An OS/VS2 Release 2 starter system is required for initial system generation. Users who do not already have the OS/VS2 Release 2 starter system must order it as well as the distribution library.

If additional features are desired after your order has been received, you may order them through your IBM representative or the local IBM branch office.

System control programs, such as the emulator programs, that are not shipped in the distribution libraries are available to VS2 users at no additional cost. They may be ordered separately. To order these, or for additional information, contact your IBM representative or the local IBM branch office.

Distribution Procedures

OS/VS2 Release 3 is distributed only on magnetic tape. The number of user tape volumes required is specified in the basic and optional material lists which follow.

The distribution libraries are distributed as unloaded partitioned data sets. These can be loaded to various direct-access devices using the IEBCOPY utility program.

Material for Starter Operating System

You get one copy of machine-readable material containing a starter operating system for restoring to a 2314/2319, 3330, 3330-11, or 3340 direct-access device. Order the basic material by selecting one of the following feature numbers:

Feature Number	Residence	Track Density	Number of Tape Volumes
6001	2314/2319	9 track/1600 BPI tape	2
6002	2314/2319	9 track/6250 BPI tape	2
6004	3330	9 track/1600 BPI tape	3
6005	3330	9 track/6250 BPI tape	2
6007	3330-11	9 track/1600 BPI tape	3
6008	3330-11	9 track/6250 BPI tape	2
6010	3340	9 track/1600 BPI tape	2
6011	3340	9 track/6250 BPI tape	2
6999	No starter operating system is needed.		

Basic Program Material List

You get one copy of machine readable material consisting of OS/VS2 Distribution Libraries. Order the basic program material by selecting one of the following feature numbers.

Feature Number	Track/Density	Number of Tape Volumes
9029	9 track/1600 BPI tape	2
9031	9 track/6250 BPI tape	1

Note: To initially generate the system, an OS/VS2 Release 2 Starter System is required.

The following is a list of data sets contained on the unloaded distribution library tapes:

SYS1.ACDS	SYS1.AOS12	SYS1.AOSD0
SYS1.ACMDLIB	SYS1.AOS20	SYS1.AOSD7
SYS1.AFINMAC	SYS1.AOS21	SYS1.AOSD8
SYS1.AGENLIB	SYS1.AOS24	SYS1.AOSG0
SYS1.AHELP	SYS1.AOS25	SYS1.AOSH1
SYS1.ALPALIB	SYS1.AOS26	SYS1.AOSH2
SYS1.AMACLIB	SYS1.AOSA0	SYS1.AOST3
SYS1.AMODGEN	SYS1.AOSA1	SYS1.AOST4
SYS1.AOS00	SYS1.AOSB0	SYS1.AOSU0
SYS1.AOS03	SYS1.AOSB3	SYS1.APARMLIB
SYS1.AOS04	SYS1.AOSC2	SYS1.APROCLIB
SYS1.AOS05	SYS1.AOSC5	SYS1.ASAMPLIB
SYS1.AOS06	SYS1.AOSC6	SYS1.ATCAMMAC
SYS1.AOS07	SYS1.AOSCA	SYS1.ATSOMAC
SYS1.AOS10	SYS1.AOSCD	SYS1.AUADS
SYS1.AOS11	SYS1.AOSCE	

Optional Program Material List

The Optional Program Material (Source Libraries) is available from DP-PID on 9-track 1600 or 6250 BPI tapes.

Any assemblies that are performed utilizing OS/VS2 SYMBOLICS must have SYS1.AMODGEN concatenated to SYS1.AMACLIB, SYS1.APVTMACS, and SYS1.ATSOMAC.

An assembly of the source code may result in object code which is not the same byte for byte as the object code in the distribution libraries. This is due to differences in macro expansion which do not affect the execution of the modules.

The machine readable material contains the system control program source code in SYSIN format. The system control program source code is divided into nine component groups. These nine groups are listed in the matrix below; the system control components that are included in these nine groups are listed on the following pages.

Order the optional material by selecting one or more of the feature numbers that are listed in the matrix below.

	9-track/1600 BPI	**9-track/6250 BPI**
Component Group	**Feature Number (Number of Tape Volumes)**	**Feature Number (Number of Tape Volumes)**
Installation Processors	7802 (1)	7803 (2)
Utilities		
Data Management	7806 (3)	
BTAM/ISAM/VSAM/VTAM	7814 (6)	7804 (3)
Problem Determination/Diagnostics	7818 (2)	
Control Program	7822 (7)	7807 (3)
Private Macros		
TSO	7826 (2)	7811 (1)
TCAM/Graphics/DSS	7830 (2)	

Component Summary

The following lists illustrate the relationship between the system control program components and the nine component groups.

Note: Where there is a conflict between the information found in the following lists and that found in the "Component Summary" portion of Section 7 in the *OS/VS2 System Programming Library: Debugging Handbook,* GC28-0632-2, the information in the following lists should be regarded as accurate.

Group	Component	Component ID	Microfiche Order Number	Primary PLM
Installation Processors	Assembler XF	5752-SC1-03	SJD2-5150	SY33-8041
	Linkage Editor	5752-SC1-04	SJD2-5160	SY26-3815
	Loader	5752-SC1-05	SJD2-5170	SY26-3814
Utilities	IBCDMPRS	5752-SC1-I0	SJD2-4830	SY35-0005
	IBCDASDI	5752-SC1-I1	SJD2-4840	SY35-0005
	ICAPRTBL	5752-SC1-I2	SJD2-4850	SY35-0005
	IEHDASDR	5752-SC1-U0	SJD2-5030	SY35-0005
	IEHLIST	5752-SC1-U2	SJD2-5040	SY35-0005
	IEHPROGM	5752-SC1-U3	SJD2-5050	SY35-0005
	IEBCOPY	5752-SC1-U6	SJD2-5060	SY35-0005
	IEBGENER	5752-SC1-U7	SJD2-5070	SY35-0005
	IEBUPDTE	5752-SC1-U8	SJD2-5080	SY35-0005
	IEBEDIT	5752-SC1-U9	SJD2-5090	SY35-0005
	IEBPTPCH	5752-SC1-UA	SJD2-4930	SY35-0005
	IEHMOVE	5752-SC1-UC	SJD2-4940	SY35-0005
	IEHINITT	5752-SC1-UD	SJD2-4950	SY35-0005
	IEHSTATR	5752-SC1-UE	SJD2-4960	SY35-0005
	IEHATLAS	5752-SC1-UF	SJD2-4970	SY35-0005
	IEBTCRIN	5752-SC1-UG	SJD2-4980	SY35-0005
	IEBISAM	5752-SC1-UH	SJD2-4990	SY35-0005
	IEBDG	5752-SC1-UJ	SJD2-5000	SY35-0005
	IEBCOMPR	5752-SC1-UK	SJD2-5010	SY35-0005
	IEHUCAT	5752-SC1-UY	SJD2-5020	SY35-0005
Data Management	Block Processor	5752-SC1-DA	SJD2-4620	SY26-3825
	SAM Subsystem Interface	5752-SC1-DB	SJD2-4630	SY26-3832
	Password Protect	5752-SC1-DC	SJD2-4640	SY26-3827
	3505/3525 Reader/Punch	5752-SC1-DD	SJD2-4650	SY26-3832
	3890 Document Processor	5752-SC1-DF	SJD2-4670	SY24-5163
	VBP (Virtual Block Processor)	5752-SC1-DG	SJD2-4680	SY26-3834
	Catalog Controller 3	5752-SC1-DH	SJD2-4690	SY35-0011
	Window Intercept	5752-SC1-DJ	SJD2-4700	SY26-3834
	Access Method Services	5752-SC1-DK	SJD2-4710	SY35-0010
	IBM 3886 OCR	5752-SC1-DL	SJD2-4720	SY24-5162
	IBM 3540	5752-SC1-DN	SJD2-5360	SY24-5167
	Subsystem Communicator	5752-SC1-DP	SJD2-5370	SY35-0013
	DSMTC	5752-SC1-DQ	SJD2-5440	SY35-0016
	VVIC	5752-SC1-DR	SJD2-5380	SY35-0013
	Subsystem Data Analyzer	5752-SC1-DS	SJD2-5390	SY28-0678
	MSS Trace Reports	5752-SC1-DT	SJD2-5400	SY35-0014
	MSS Services	5752-SC1-DU	SJD2-5410	SY35-0015
	SAM	5752-SC1-D0	SJD2-4730	SY26-3832

Group	Component	Component ID	Microfiche Order Number	Primary PLM
Data Management (continued)	Open/Close/EOV	5752-SC1-D1	SJD2-4740	SY26-3827
	PAM	5752-SC1-D2	SJD2-4750	SY26-3832
	DADSM	5752-SC1-D4	SJD2-4770	SY26-3828
	OCR	5752-SC1-D5	SJD2-4780	GY21-0013
	MICR	5752-SC1-D6	SJD2-4790	GY21-0012
	DAM	5752-SC1-D7	SJD2-4800	SY26-3831
BTAM/ISAM/VSAM/VTAM	BTAM	5752-SC1-20	SJD2-5290	SY27-7246
	VTAM	5752-SC1-23	SJD2-5320	SY28-0621
	ISAM	5752-SC1-D8	SJD2-4810	SY26-3833
	VSAM/VSAM Catalog	5752-SC1-DE	SJD2-4660	SY26-3825 SY26-3826
Problem Determination/Diagnostics	OLTEP	5752-SC1-06	SJD2-5180	SY28-0676
	TOLTEP	5752-SC1-0C	SJD2-5420	SY28-0664
	GTF	5752-SC1-11	SJD2-5220	SY28-0643
	AMASPZAP	5752-SC1-12	SJD2-5230	SY28-0643
	AMDPRDMP	5752-SC1-13	SJD2-5240	SY28-0643
	AMBLIST	5752-SC1-14	SJD2-5250	SY28-0643
	AMDSADMP	5752-SC1-15	SJD2-5260	SY28-0643
	AMAPTFLE	5752-SC1-16	SJD2-5270	SY28-0643
	AMDPRDMP/EDIT	5752-SC1-18	SJD2-5280	SY28-0643
	SMP	5752-SC1-30	SJD2-5330	SY28-0685
Control Program	JES2	5752-SC1-BH	SJD2-4230	SY28-0622
	External Writer	5752-SC1-B2	SJD2-4240	SY28-0622
	Scheduler Restart	5752-SC1-B3	SJD2-4250	SBOF-8210
	Allocate/Unallocate	5752-SC1-B4	SJD2-4260	SBOF-8210
	SWA Manager	5752-SC1-B5	SJD2-4270	SBOF-8210
	Initiator	5752-SC1-B6	SJD2-4280	SBOF-8210
	Master Scheduler Commands	5752-SC1-B8	SJD2-4300	SBOF-8210
	Converter/Interpreter	5752-SC1-B9	SJD2-4310	SBOF-8210
	SMF Scheduler	5752-SC1-00	SJD2-5120	SBOF-8210
	SMF (System Management Facility)	5752-SC1-02	SJD2-5140	SBOF-8210
	Checkpoint/Restart	5752-SC1-09	SJD2-5200	SY26-3820
	Power Warning Feature	5752-SC1-0E	SJD2-5110	SY27-7250
	3600 Host Support	5752-SC1-24	SJD2-5430	SY27-7261
	DASD ERP	5752-SC1-CA	SJD2-4320	SY26-3823
	Unit Record ERP	5752-SC1-CB	SJD2-4330	SY26-3823
	Tape ERP/VES	5752-SC1-CC	SJD2-4340	SY26-3823
	OBR/EREP/RDE	5752-SC1-CD	SJD2-4350	SY28-0678
	RMS (Recovery Management Support)	5752-SC1-CE	SJD2-4360	SY27-7250
	Extended SVC Router	5752-SC1-CF	SJD2-4370	SBOF-8210
	SVC 109	5752-SC1-CG	SJD2-4380	SBOF-8210
	Virtual Storage Management	5752-SC1-CH	SJD2-4390	SBOF-8210
	MSC ERP	5752-SC1-CI	SJD2-5460	none
	Contents Supervisor	5752-SC1-CJ	SJD2-4400	SBOF-8210
	Communications Task	5752-SC1-CK	SJD2-4410	SBOF-8210
	Task Management	5752-SC1-CL	SJD2-4420	SBOF-8210
	Recovery Termination	5752-SC1-CM	SJD2-4430	SBOF-8210
	Extended Precision Floating Point Service	5752-SC1-CP	SJD2-4440	SBOF-8210
	MF/1 (System Activity Measurement Facility)	5752-SC1-CQ	SJD2-4450	SBOF-8210
	Real Storage Management	5752-SC1-CR	SJD2-4460	SBOF-8210
	Region Control Task	5752-SC1-CU	SJD2-4470	SBOF-8210

Group	Component	Component ID	Microfiche Order Number	Primary PLM
Control Program (continued)	Timer Supervisor	5752-SC1-CV	SJD2-4480	SBOF-8210
	Auxiliary Storage Management	5752-SC1-CW	SJD2-4490	SY35-0009
	System Resources Manager	5752-SC1-CX	SJD2-4500	SBOF-8210
	Radix Partition Tree Service	5752-SC1-CY	SJD2-4510	none
	MP Configuration	5752-SC1-CZ	SJD2-4520	SBOF-8210
	Overlay Supervisor	5752-SC1-C2	SJD2-4540	SBOF-8210
	IOS	5752-SC1-C3	SJD2-4550	SY26-3823
	DIDOCS	5752-SC1-C4	SJD2-4560	SBOF-8210
	Supervisor Control	5752-SC1-C5	SJD2-4570	SBOF-8210
	EXCP	5752-SC1-C6	SJD2-4580	SY26-3823
	FETCH	5752-SC1-C7	SJD2-4590	SBOF-8210
	NIP	5752-SC1-C8	SJD2-4600	SY28-0623
	IPL	5752-SC1-C9	SJD2-4610	SY28-0623
	Host Support SSS	5752-SC1-SS	SJD2-5450	SY30-3017
Private Macros	Private Macros	5752-SC1-PV	none	
TSO	TSO EDIT	5752-SC1-T0	SJD2-4860	SY33-8548
	TSO TEST	5752-SC1-T1	SJD2-4870	SY35-0004
	TSO Utilities	5752-SC1-T2	SJD2-4880	SY28-0652
	TSO TIOC	5752-SC1-T3	SJD2-4890	SY30-2059
	TSO Scheduler	5752-SC1-T4	SJD2-4900	SBOF-8210 SY28-0651
	Link/Loadgo Prompter	5752-SC1-T5	SJD2-4910	SY28-0652
TCAM/Graphics/DSS	GSP	5752-SC1-07	SJD2-5190	SY27-7242
	TCAM	5752-SC1-21	SJD2-5300	SY30-2059
	GAM	5752-SC1-G0	SJD2-4820	SY27-7260
	TSO TCAM Subroutines	5752-SC1-T8	SJD2-4920	SY30-2059
	DSS	5752-SC1-10	SJD2-5210	SY28-0679
	Mapping Common Supervisor Macros*	5752-SC1-01	SJD2-5130	SYB8-0606
Reference Tools			SJD2-4200 SJD2-4201	

*Only microfiche is available for this component

Hardware Engineering Change and Microcode Level Notes

In addition to the minimum OS/VS2 Release 2 engineering change (EC) and microcode levels, the following minimum EC and microcode levels are required to support OS/VS2 Release 3.

IBM 3600 Finance Communication System

Microcode 741181

IBM 3704/3705 Network Control Program (Version 3, Modification Level 1)

- To operate half-duplex SDLC on a Type 2 Communication Scanner on a 3704: EC 311138 or REA 23-13434
- If a remote 3704 with a Type 2 Communication Scanner: EC 311138 or REA 23-13434
- To operate half-duplex SDLC on a Type 2 Communication Scanner on a 3705: EC 311283 or REA 23-13007
- If a remote 3705 with a Type 2 Communication Scanner: EC 311283 or REA 23-13007
- To operate the NCP on a 3705 in PEP mode with the NCP sharing the Type 1 Channel with the EP: EC 311279 or REA 23-11872
- To operate a Type 2 Channel on a 3705: EC 311262
- If the 3704 is remote: EC 311134
- If the 3705 is remote: EC 311278
- To use 2400 BPS modems using SDLC on the following line sets on a 3704:
  - Line Set 1L or 1M: REA 23-13462
  - Line Set 1P or 1Q: REA 23-13472
- To use 2400 BPS modems using SDLC on the following line sets on a 3705:
  - Line Set 5A or 5B: REA 23-13463
  - Line Set 6A or 7: REA 23-13473
- To use 3872 modems for SDLC: REA 23-13470

VTAM Level 1.1

To run VTAM Level 1.1 on the Model 155 II: EC 267361

Publications Support of OS/VS2 Release 3

	Base Order Number	Applicable TNLs
Planning and Implementing a VS2 System		
Introduction to OS/VS2 Release 2	GC28-0661-1	None
OS/VS2 Planning Guide for Release 2	GC28-0667-1	None
OS/VS2 Release 3 Guide	GC28-0700-0	None
OS/VS2 System Programming Library: Storage Estimates	GC28-0604-3	None (TNL available later)
OS/VS2 System Programming Library: System Generation Reference	GC26-3792-4	None
OS/VS2 System Programming Library: Initialization and Tuning Guide	GC28-0681-1	None
OS/VS Virtual Storage Access Method (VSAM) Planning Guide	GC26-3799-2	None
OS/VS VSAM Options for Advanced Applications	GC26-3819-1	None
OS/VS System Management Facilities (SMF)	GC35-0004-6	None
OS/VS Checkpoint/Restart	GC26-3784-5	None
OS/VS2 System Programming Library: Data Management	GC26-3830-1	None
OS/VS Tape Labels	GC26-3795-2	None
OS/VS TCAM Concepts and Facilities	GC30-2042-0	None
OS/VS2 Using OS Catalog Management with the Master Catalog: CVOL Processor	GC35-0010-0	None
OS/VS Dynamic Support System	GC28-0640-1	GN28-2573
OS/VS DSS Command Language Reference Summary	GX28-0690-1	None
OS/VS Mass Storage System (MSS) Planning Guide	GC35-0011-0	None
OS/VS2 System Programming Library: Job Management	GC28-0627-0	None
OS/VS2 System Programming Library: Supervisor	GC28-0628-0	None
Introduction to VTAM	GC27-6987-3	None
VTAM Concepts and Planning	GC27-6998-1	None
Operating a VS2 System		
Operator's Library: OS/VS2 Reference (JES2)	GC38-0210-2	None
Operator's Library: OS/VS Console Configurations	GC38-0120-3	None
Operator's Library: OS/VS2 Display Consoles	GC38-0260-1	None
Operator's Library: OS/VS2 TCAM	GC30-2046-0	None
Operator's Library: OS/VS2 Remote Terminals	GC38-0225-0	None
Operator's Library: OS/VS2 (JES2) Command Language Reference Summary	GX38-0227-1	None
Operator's Library: VTAM Network Operating Procedures	GC27-6997-2	None
Programming in VS2		
OS/VS2 JCL	GC28-0692-1	None
OS/VS Data Management Services Guide	GC26-3783-4	None
OS/VS Data Management Macro Instructions	GC26-3793-4	None
OS/VS2 Supervisor Services and Macro Instructions	GC28-0683-0	GN28-2589
OS/VS-DOS/VS-VM/370 Assembler Language	GC33-4010-3	GN33-8185
OS/VS-VM/370 Assembler Programmer's Guide	GC33-4021-2	GN33-8186
OS/VS Linkage Editor and Loader	GC26-3813-2	GN26-0774
OS/VS Utilities	GC35-0005-4	None
OS/VS2 Access Method Services	GC26-3841-0	None
OS/VS Virtual Storage Access Method (VSAM) Programmer's Guide	GC26-3838-0	None
Introduction to the 3270 Information Display System	GA27-7256-0	None
OS/VS Mass Storage System (MSS) Services for Space Management	GC35-0012-0	None
OS/VS Mass Storage Control Table Create	GC35-0013-0	None
OS/VS2 IBM 3540 Programmer's Reference	GC24-5111-0	None
Introduction to Programming the 3270	GC27-6999-0	None
OS and OS/VS Programming Support for the IBM 3505 Card Reader and the IBM 3525 Card Punch	GC21-5097-1	None

	Base Order Number	Applicable TNLs
Teleprocessing Applications		
OS/VS BTAM	GC27-6980-3	GN27-1477
OS/VS2 TCAM Programmer's Guide	GC30-2041-0	None
OS/VS TCAM User's Guide	GC30-2045-0	None
IBM 3704/3705 Communications Controllers NCP/VS Generation and Utilities Guide and Reference Manual (for TCAM Users)	GC30-3007-0	None
IBM 3704/3705 Communications Controllers NCP/VS Generation and Utilities Guide and Reference Manual (for VTAM Users)	GC30-3008-1	None
IBM 3735 Programmer's Guide (OS, DOS and VS Systems)	GC30-3001-4	None
VTAM Macro Language Reference	GC27-6995-2	None
VTAM Macro Language Guide	GC27-6994-0	GN27-1469,
OS/VS2 System Programming Library: VTAM	GC28-0688-0	None
DOS/VS and OS/VS SSS User's Guide	GC30-3022-2	None
OCR/MICR Applications		
OS Data Management Services and Macro Instructions for IBM 1419/1275	GC21-5006-4	None
OS Data Management Services and Macro Instructions for IBM 1285/1287/1288	GC21-5004-3	None
OS/VS IBM 3886 Optical Character Reader Model 1 Reference	GC24-5101-0	None
IBM 3890 Document Processor, Machine and Programming Description	GA24-3612-1	GN24-0712
Graphics Applications		
OS/VS Graphic Programming Services (GPS) for IBM 2250 Display Unit	GC27-6971-0	GN27-1391, GN27-1437
OS/VS Graphic Programming Services (GPS) for IBM 2260 Display Station (Local Attachment)	GC27-6972-0	GN27-1392
OS/VS Graphic Subroutine Package (GSP) for FORTRAN IV, COBOL, and PL/1	GC27-6973-0	GN27-1393
TSO Applications		
OS/VS2 System Programming Library: TSO	GC28-0629-0	None
OS/VS2 TSO Terminal User's Guide	GC28-0645-2	None
OS/VS2 TSO Command Language Reference	GC28-0646-2	None
OS/VS2 TSO Command Language Reference Summary	GX28-0647-2	None
OS/MVT and OS/VS2 TSO Terminals	GC28-6762-2	None
OS/VS2 TSO Guide to Writing a Terminal Monitor Program or a Command Processor	GC28-0648-1	GN28-2578
Problem Determination		
OS/VS Message Library: VS2 System Messages	GC38-1002-3	None
OS/VS Message Library: VS2 System Codes	GC38-1008-2	None
OS/VS Message Library: Service Aids and OLTEP Messages	GC38-1006-3	GN25-0106
OS/VS Message Library: Utilities Messages	GC38-1005-4	None
OS/VS Message Library: Linkage Editor and Loader Messages	GC38-1007-4	None
OS/VS Problem Determination Aids and Messages and Codes for GPS and GSP	GC27-6974-0	GN27-1438, GN27-1394, GN27-1473
OS/VS Message Library: Routing and Descriptor Codes	GC38-1004-5	None
OS/VS Message Library: Mass Storage System Messages	GC38-1000-0	None
OS/VS Message Library: Subsystem Support Services Messages	GC38-1011-0	None
DOS/VS and OS/VS TOLTEP for VTAM	GC28-0663-0	GN28-2561, GN28-2588
OS/VS2 System Programming Library: Service Aids	GC28-0674-0	GN25-0105
OS/VS2 Service Aids Reference Summary	GX23-0002-0	None
OS/VS2 System Programming Library: Debugging Handbook	GC28-0632-2	None
OS/VS2 System Programming Library: OLTEP	GC28-0675-0	GN25-0107
OS/VS2 System Programming Library: SYS1.LOGREC Error Recording	GC28-0677-0	GN25-0109
OS/VS System Modification Program (SMP)	GC28-0673-1	None
OS SMP Reference Summary	GX28-0684-1	None

	Base Order Number	Applicable TNLs
IBM 3600 Finance Communication System		
The Programming Initialization Guide for the 3600 Finance Communication System	GC27-0009-1	None
IBM 3600 Finance Communication System Configurator	GA27-2762-1	GN31-0046
IBM 3600 Finance Communication System: Installation Manual — Physical Planning	GA27-2766-1	GN31-0045
IBM 3600 Finance Communication System: Instructions and Macros Reference	GC27-0003-1	GN27-1454
IBM 3600 Finance Communication System: Management Planning Guide	GA27-2765-1	None
IBM 3600 Finance Communication System: Programmer's Guide and Component Descriptions	GC27-0004-1	None
IBM 3600 Finance Communication System: System Summary	GC27-0001-3	None
IBM 3600 Finance Communication System: Programmer's Reference Digest	GX27-0007-0	None
Introducing the IBM 3600 Finance Communication System	GA27-2764-1	None
Operating Guide for the IBM 3600 Finance Communication System	GA27-2776-0	None
IBM 3600 Finance Communication System: Host Service Programs Reference	GC27-0005-1	GN27-1471
IBM 3600 Finance Communication System: 3614 Programmer's Guide	GC27-0010-0	GN27-1472
Maintaining and Modifying a VS2 System (Program Logic)		
Control Program Logic		
OS/VS2 Scheduler and Supervisor Logic, Volume 1 of 3	SY28-0624-0*	SN28-2583
Volume 2 of 3	SY28-0625-0*	SN28-2584
Volume 3 of 3	SY28-0626-0*	SN28-2585
OS/VS2 System Initialization Logic	SY28-0623-0	SN28-2580
OS/VS2 JES2 Logic	SY28-0622-1	SN25-0116
OS/VS2 Checkpoint/Restart Logic	SY26-3820-3	None
OS/VS2 Data Areas (microfiche)	SYB8-0606-2	None
OS/VS2 Auxiliary Storage Management Logic	SY35-0009-0	None
Data Management Logic		
OS/VS2 SAM Logic	SY26-3832-1	None
OS/VS2 ISAM Logic	SY26-3833-0	None
OS/VS2 BDAM Logic	SY26-3831-0	SN26-0786
OS/VS2 I/O Supervisor Logic	SY26-3823-3	None
OS/VS2 Open/Close/EOV Logic	SY26-3827-1	None
OS/VS2 DADSM Logic	SY26-3828-1	None
OS/VS2 Catalog Management Logic	SY26-3826-1	None
OS BSAM Logic for IBM 1419/1275	GY21-0012-2	None
OS Data Management Macro Logic for IBM 1285/1287/1288	GY21-0013-2	None
OS/VS2 VIO Logic	SY26-3834-0	None
OS/VS2 Virtual Storage Access Method (VSAM) Logic	SY26-3825-0	SN26-0782
OS/VS2 CVOL Processor Logic	SY35-0011-0	SN26-0785
OS/VS2 VSAM Cross Reference (microfiche)	SYB6-3842-0	None
OS/VS2 Catalog Management Cross Reference (microfiche)	SYB6-3843-0	None
OS/VS IBM 3886 Optical Character Reader Model 1 Logic	SY24-5162-0	None
OS/VS Logic for the IBM 3890 Document Processor	SY24-5163-0	SN25-5502
OS/VS2 Mass Storage System Communicator Logic	SY35-0013-0	None
OS/VS Mass Storage System (MSS) Services Logic	SY35-0015-0	None
OS/VS Mass Storage Control Table Create Logic	SY35-0016-0	None
OS/VS Mass Storage Control Trace Reports Logic	SY35-0014-0	None
OS/VS2 Logic for the IBM 3540 Diskette Input/Output Unit	SY24-5167-0	None

*To order all three volumes, specify SBOF-8210.

	Base Order Number	Applicable TNLs
Teleprocessing Logic		
OS/VS BTAM Logic	SY27-7246-2	None
OS/VS2 TCAM Logic	SY30-2040-0	None
IBM 3735 Programmable Buffered Terminal: Form Description Macro Instructions and Form Description Utility Logic (OS, DOS, and VS Systems)	GY30-3000-0	GY30-3500, GY30-3501, GY30-3504
IBM 3704/3705 Communications Controller NCP/VS Program Logic Manual	SY30-3013-0	SN30-2583
Introduction to VTAM Logic	SY27-7256-1	None
OS/VS2 VTAM Data Areas	SY27-7267-0	None
OS/VS2 VTAM Logic	SY28-0621-0	None
DOS/VS and OS/VS SSS Logic	SY30-3017-2	None
RAS Logic		
OS/VS2 Recovery Management Support Logic	SY27-7250-1	None
OS/VS2 Service Aids Logic	SY28-0643-2	None
OS/VS2 OLTEP Logic	SY28-0676-0	SN25-0108
OS/VS2 SYS1.LOGREC Error Recording Logic	SY28-0678-1	None
OS/VS2 Dynamic Support System Logic	SY28-0679-0	None
OS/VS System Modification Program (SMP) Logic	SY28-0685-1	None
DOS/VS and OS/VS TOLTEP Logic	SY28-0664-0	None
Graphics Logic		
OS/VS2 Graphics Access Method Logic	SY27-7260-0	SN27-1465
OS/VS Graphics Problem Oriented Routines Logic	SY27-7241-0	None
OS/VS Graphic Subroutine Package (GSP) for FORTRAN IV, COBOL, and PL/1 Logic	SY27-7242-0	SN27-1390
Support Program Logic		
IBM 3600 Finance Communication System: Host Service Programs Logic	SY27-7261-0	None
OS/VS-VM/370 Assembler Logic	SY33-8041-1	None
OS/VS Linkage Editor Logic	SY26-3815-0	SN26-0770, SN26-8020, SN26-8033
OS/VS Loader Logic	SY26-3814-0	SN26-8022, SN26-8032, SN26-0771
OS/VS Utilities Logic	SY35-0005-2	SN26-0784
OS/VS2 Access Method Services Logic	SY35-0010-1	None
TSO Logic		
OS/VS2 TSO Terminal Monitor Program and Service Routines Logic	SY28-0650-2	None
OS/VS2 TSO Command Processor Logic Volume I — ACCOUNT	SY28-0651-1	SN28-2579
OS/VS2 TSO Command Processor Logic Volume II — EDIT	SY33-8548-2	None
OS/VS2 TSO Command Processor Logic Volume III — TEST	SY35-0004-1	None
OS/VS2 TSO Command Processor Logic Volume IV	SY28-0652-2	None
OS/VS2 TSO Terminal Messages Directory	SY28-0654-1	None

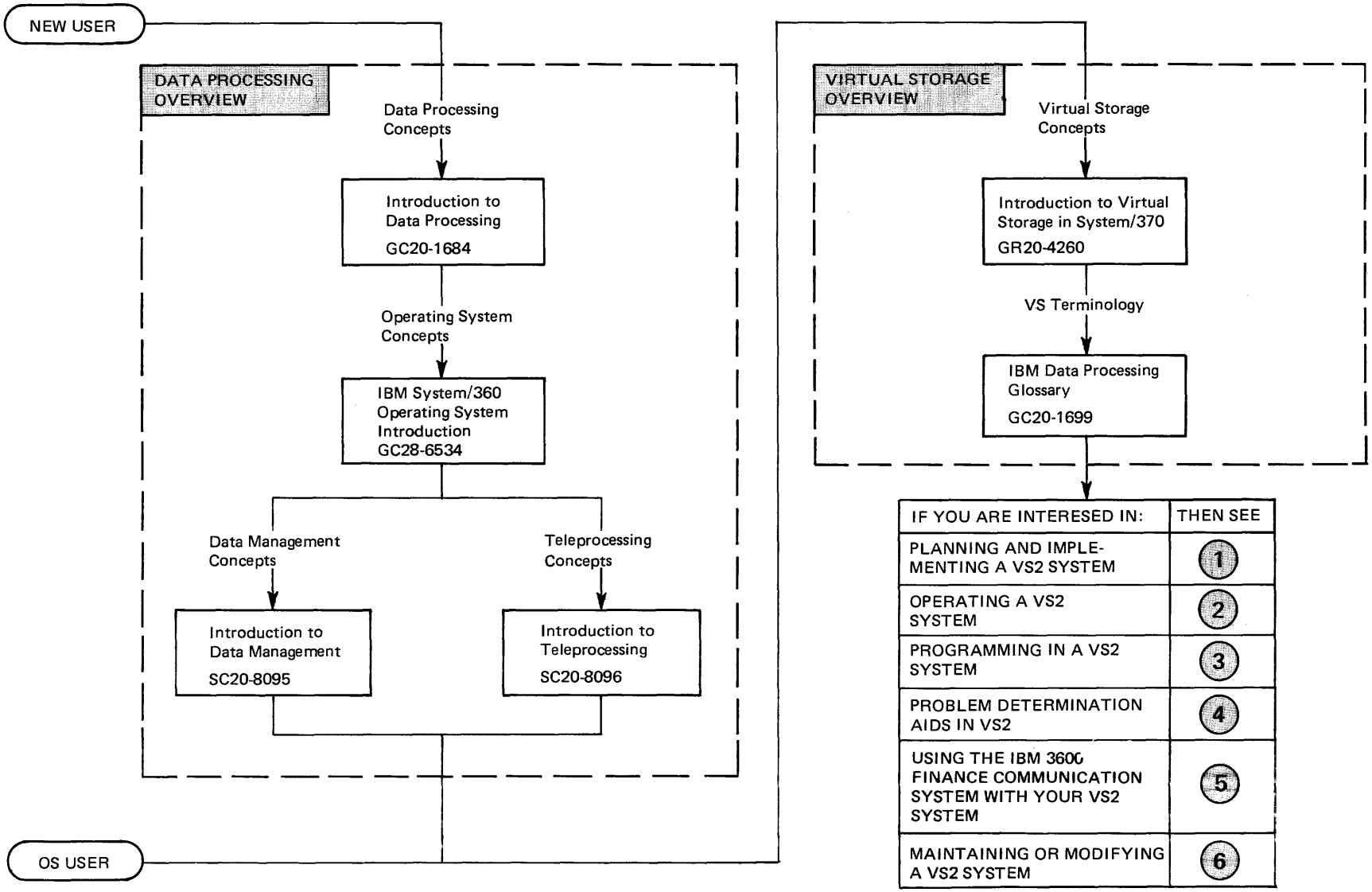

Figure 3 Publications Support of OS/VS2 Release 3 (Part 1 of 13)

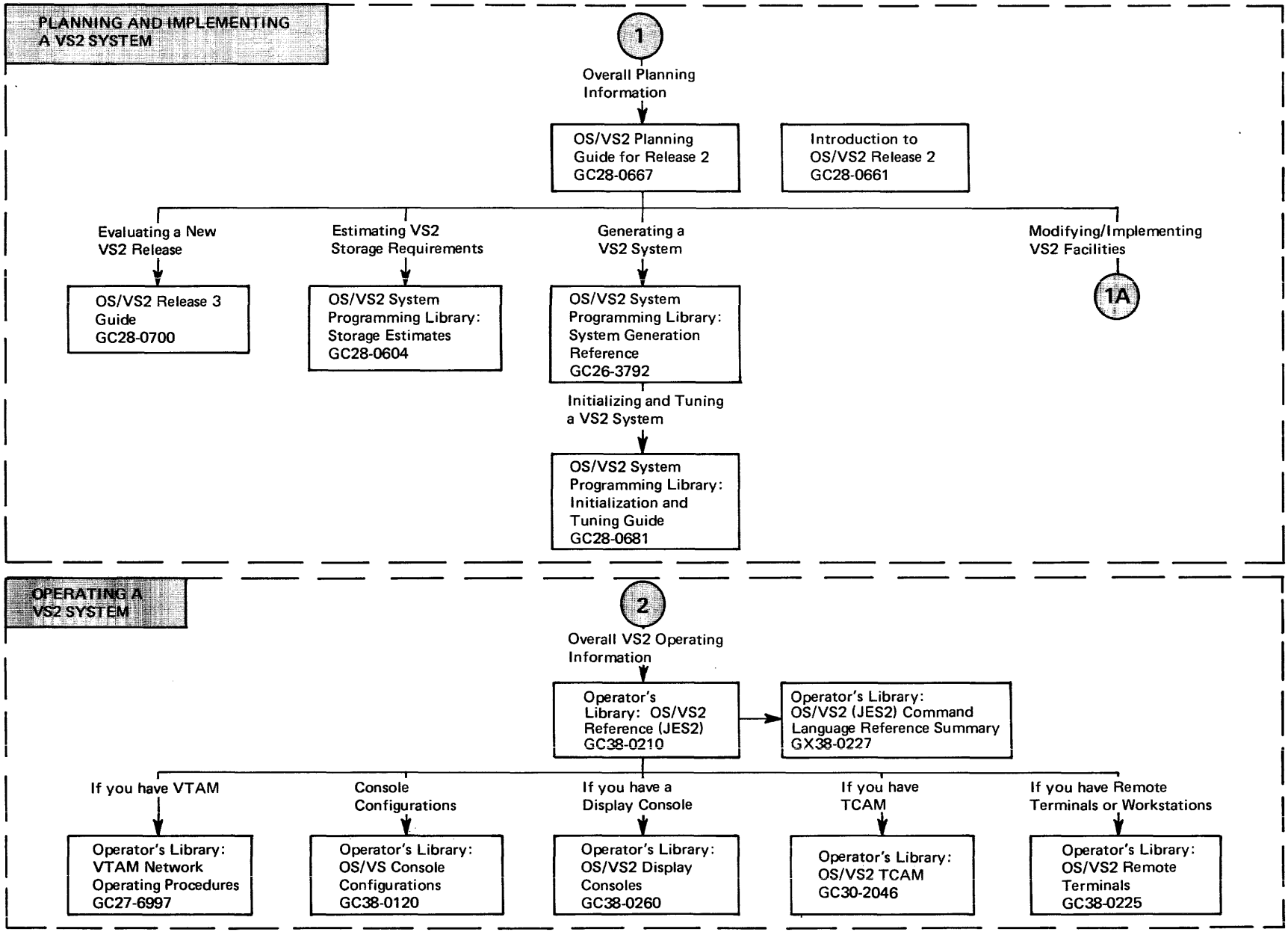

Figure 3. Publications Support of OS/VS2 Release 3 (Part 2 of 13)

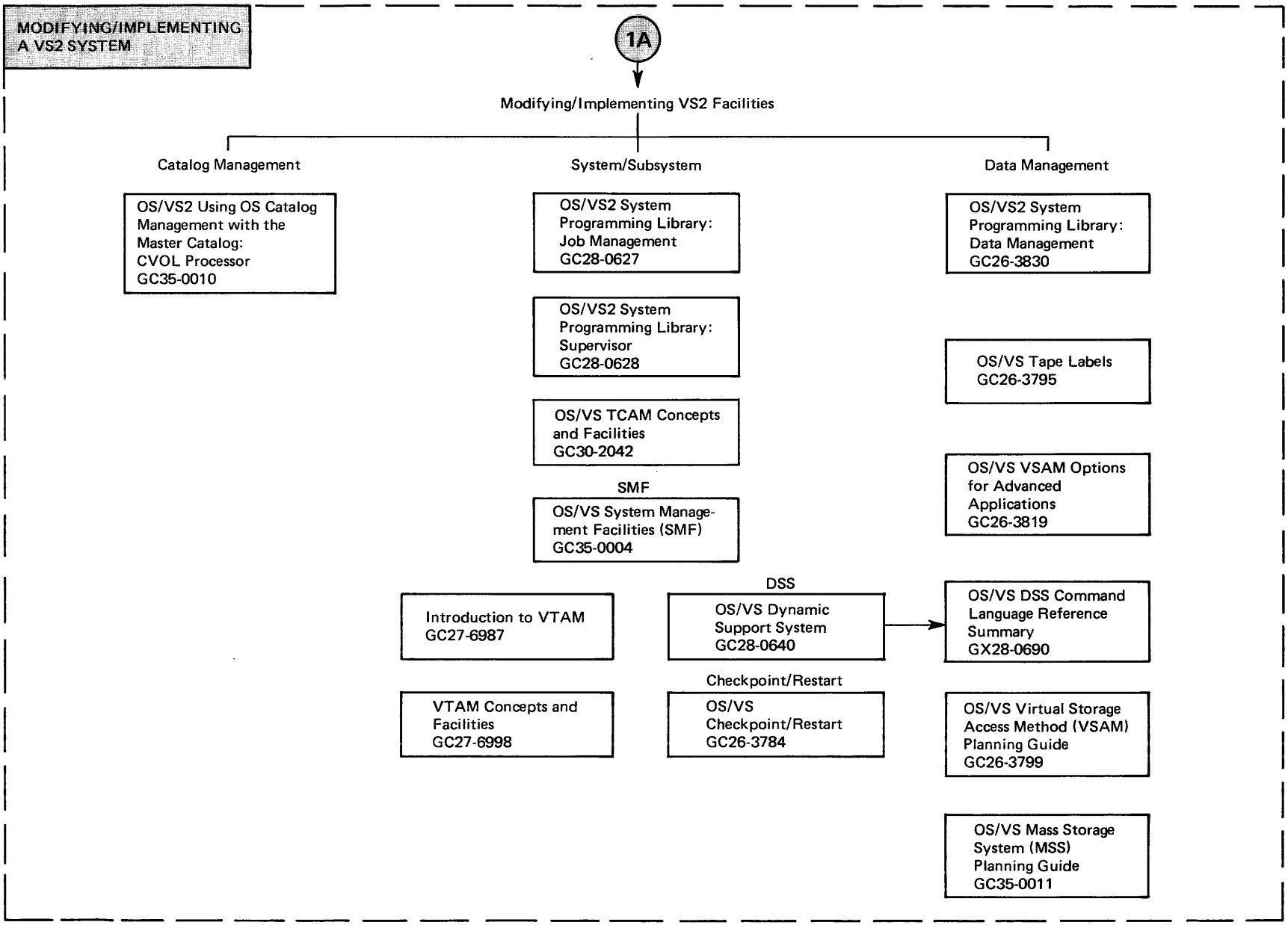

Figure 3. Publications Support of OS/VS2 Release 3 (Part 3 of 13)

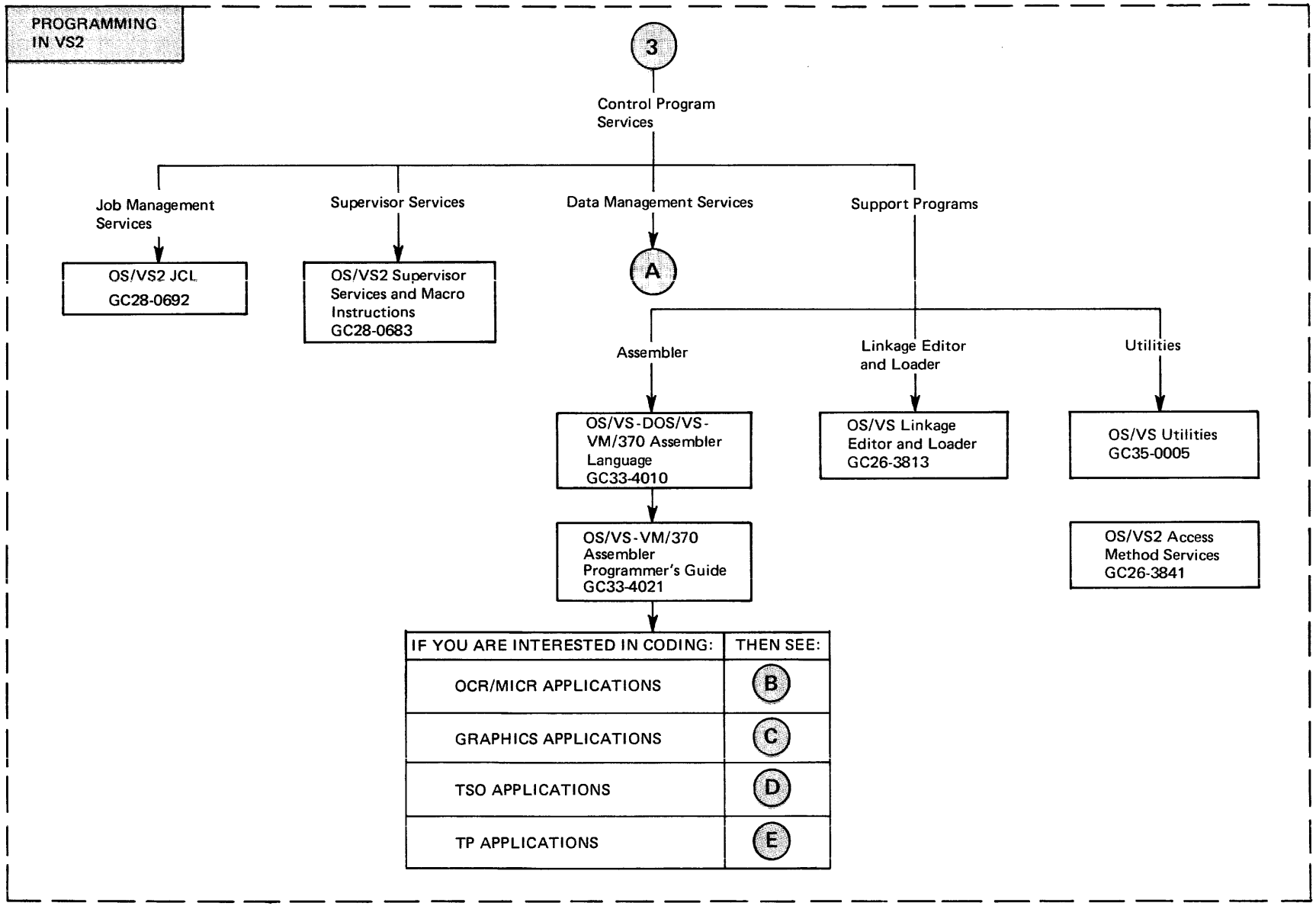

Figure 3. Publications Support of OS/VS2 Release 3 (Part 4 of 13)

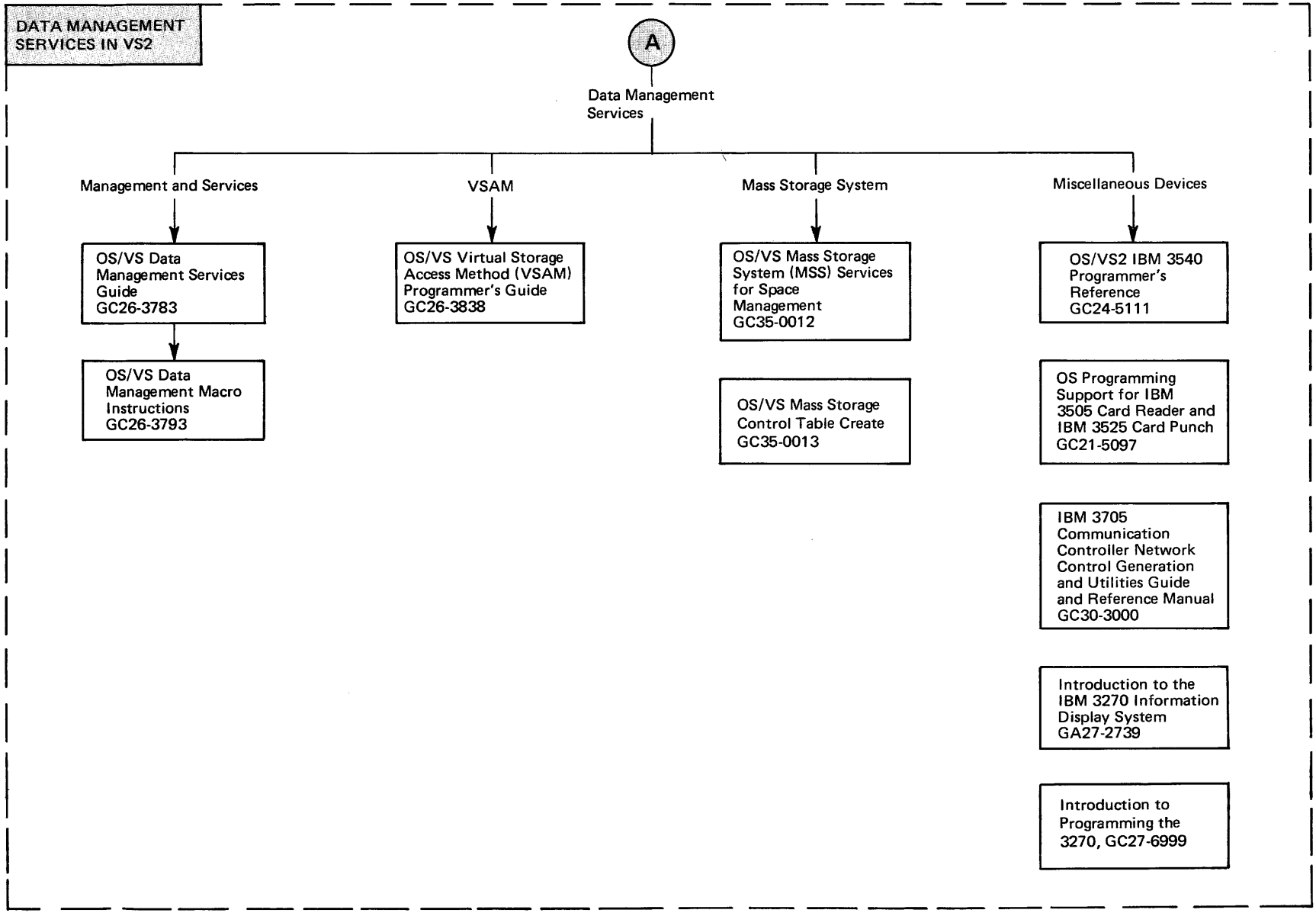

Figure 3. Publications Support of OS/VS2 Release 3 (Part 5 of 13)

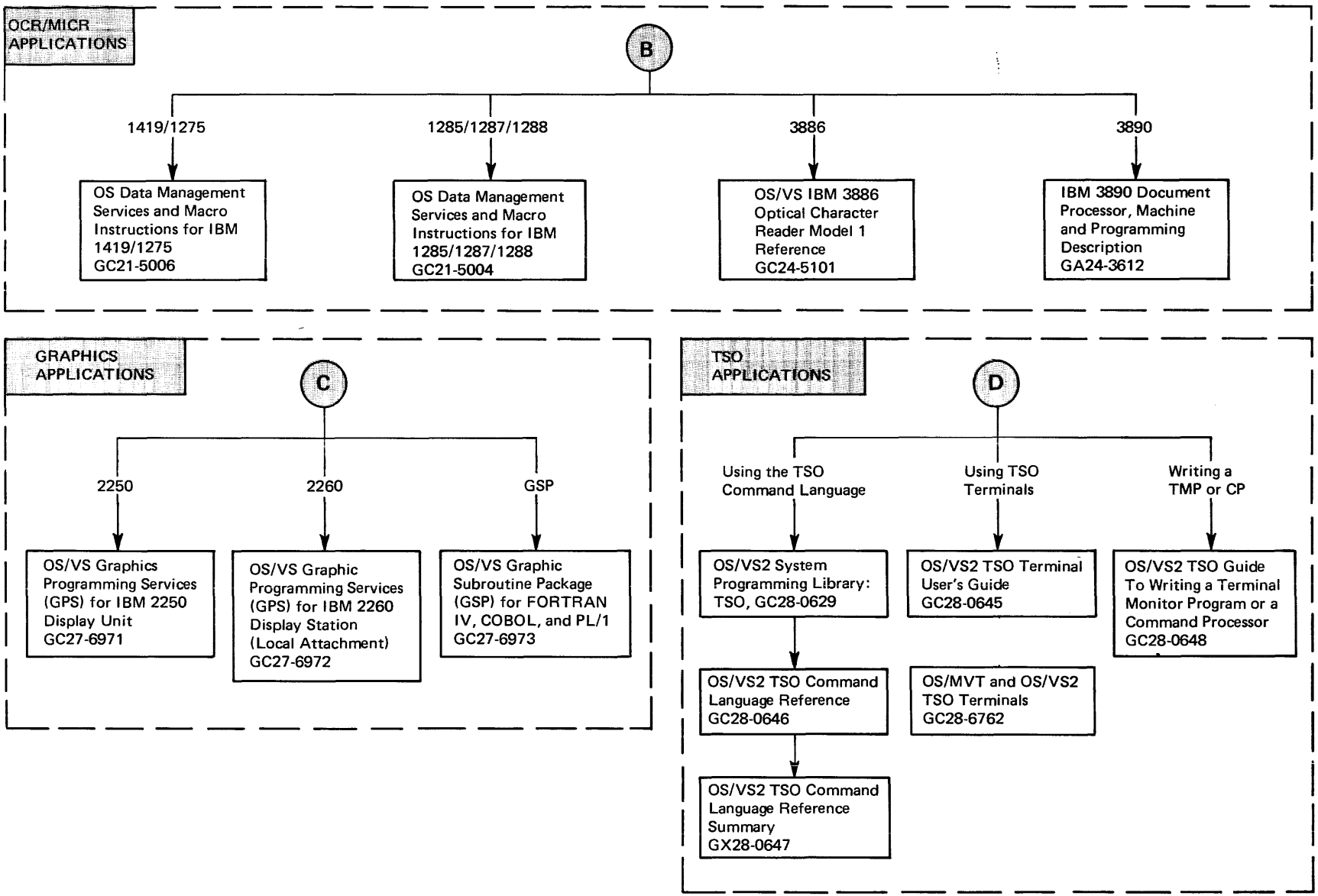

Figure 3. Publications Support of OS/VS2 Release 3 (Part 6 of 13)

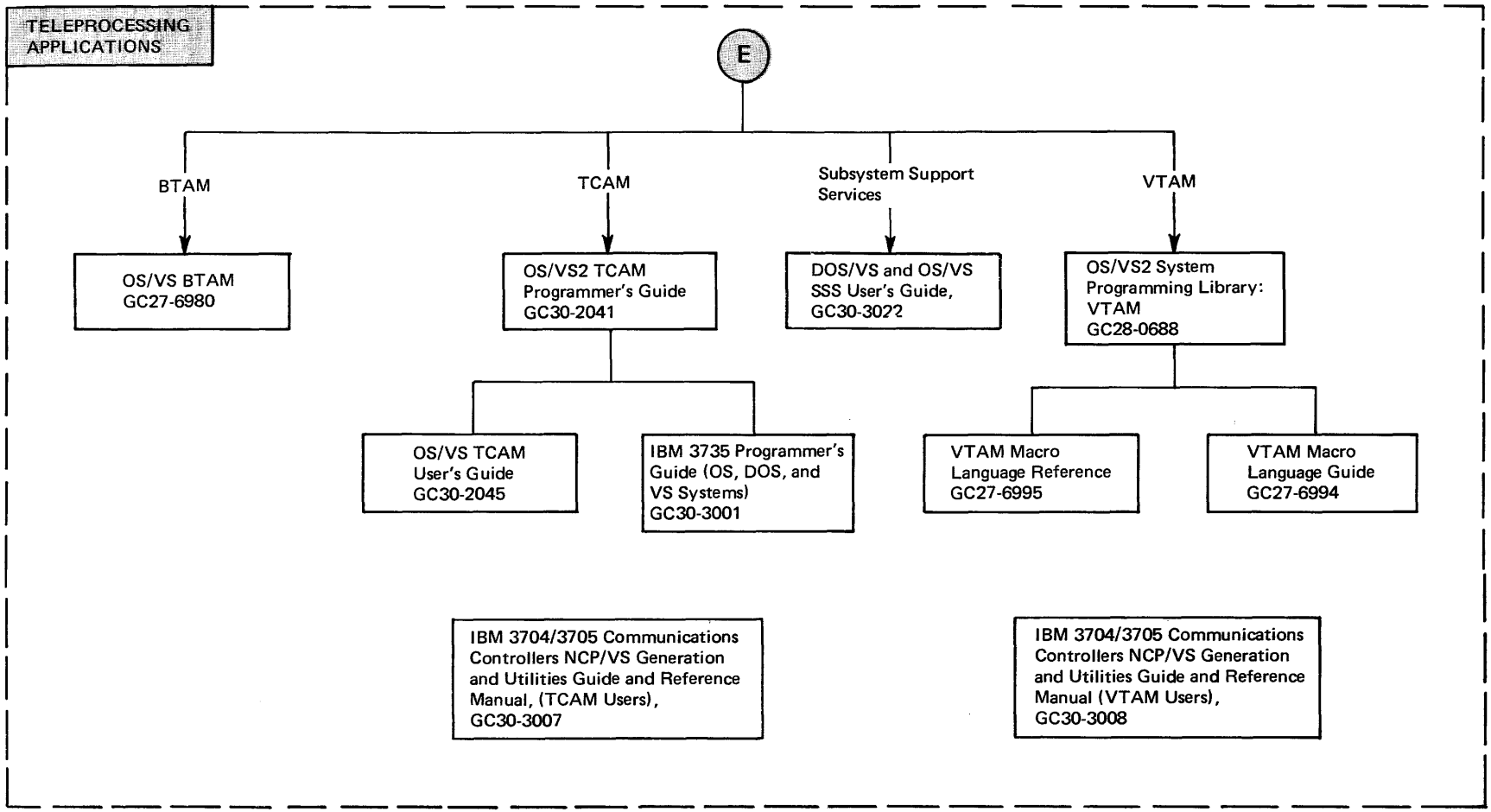

Figure 3. Publications Support of OS/VS2 Release 3 (Part 7 of 13)

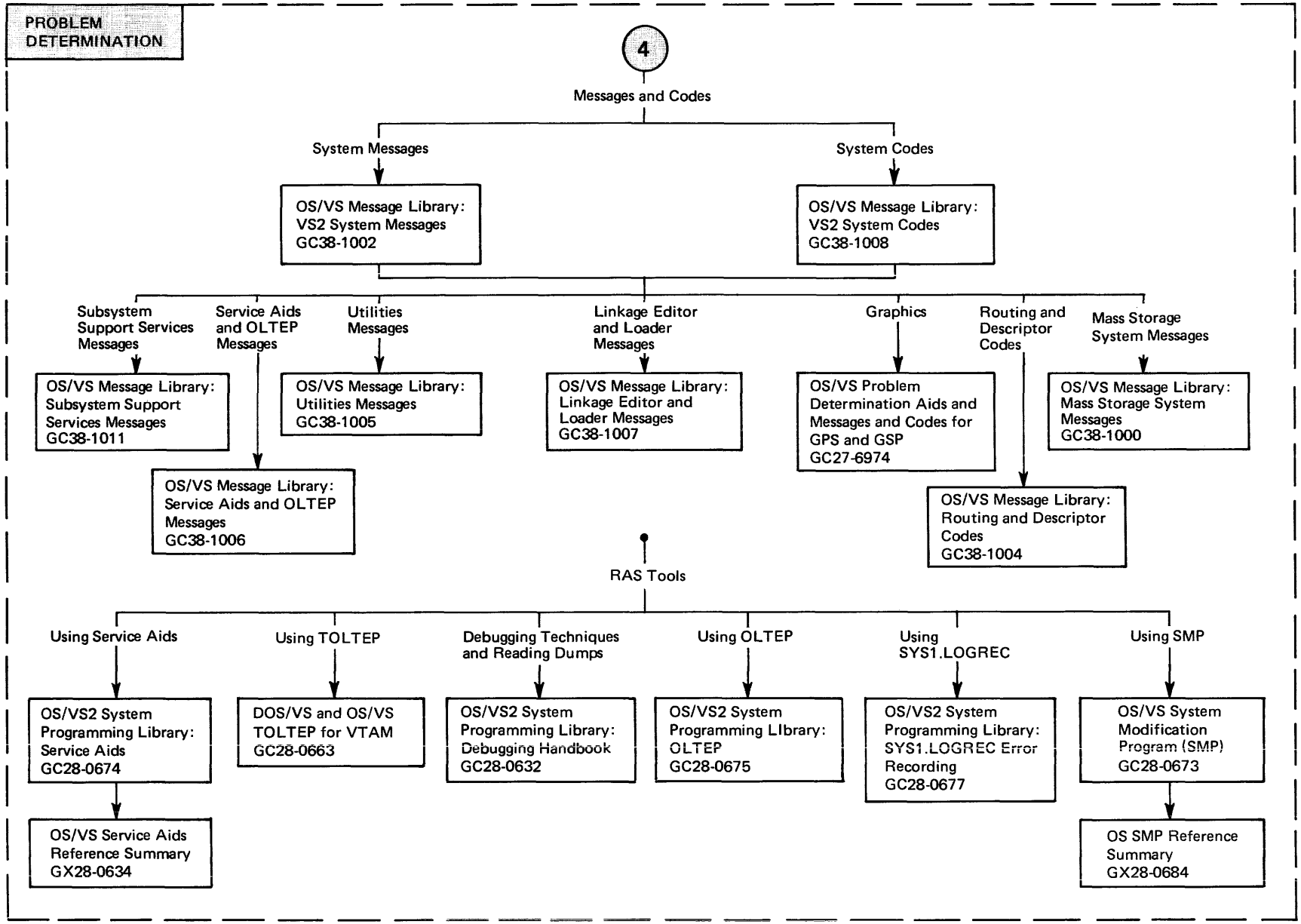

Figure 3. Publications Support of OS/VS2 Release 3 (Part 8 of 13)

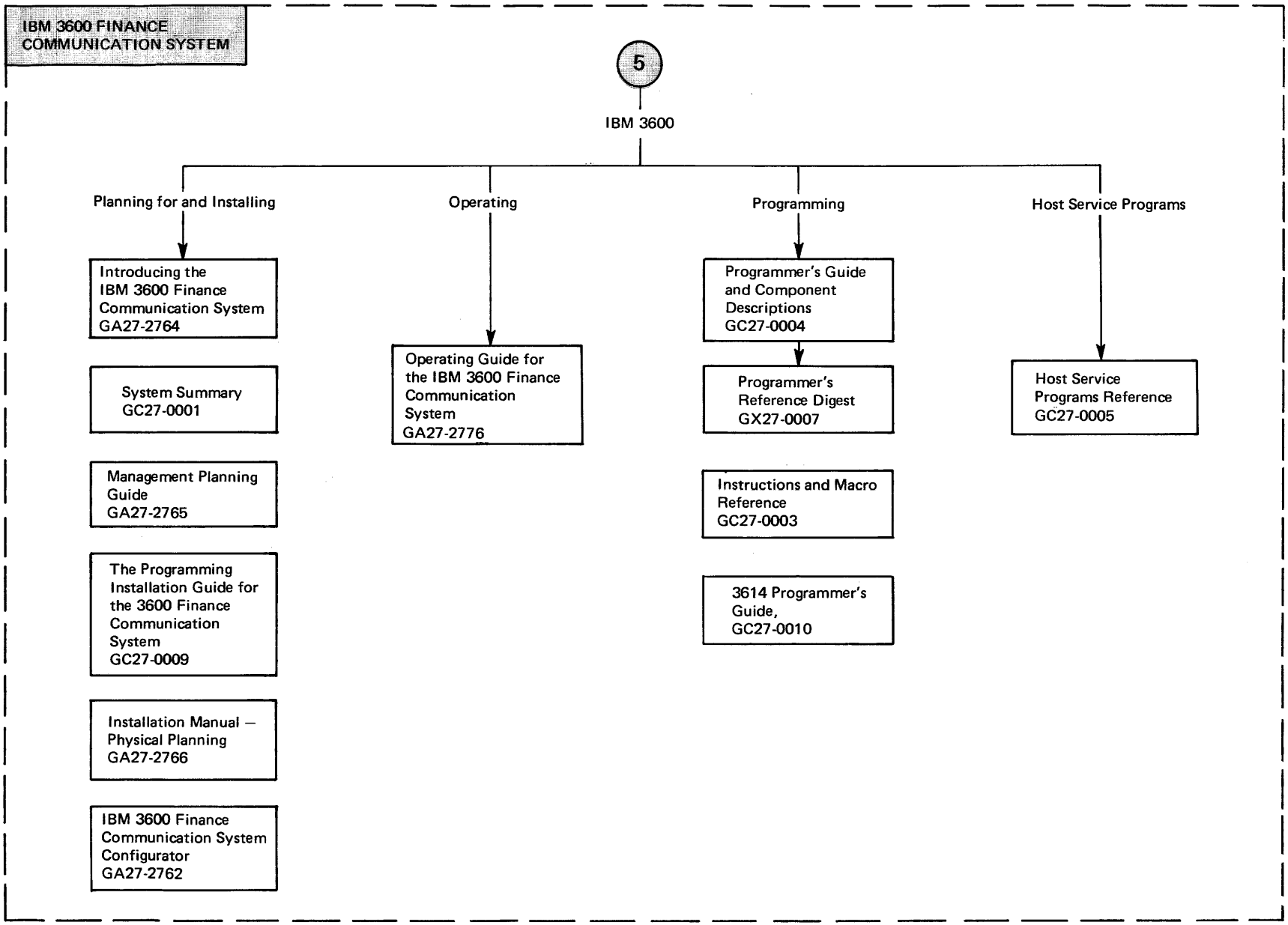

Figure 3. Publications Support of OS/VS2 Release 3 (Part 9 of 13)

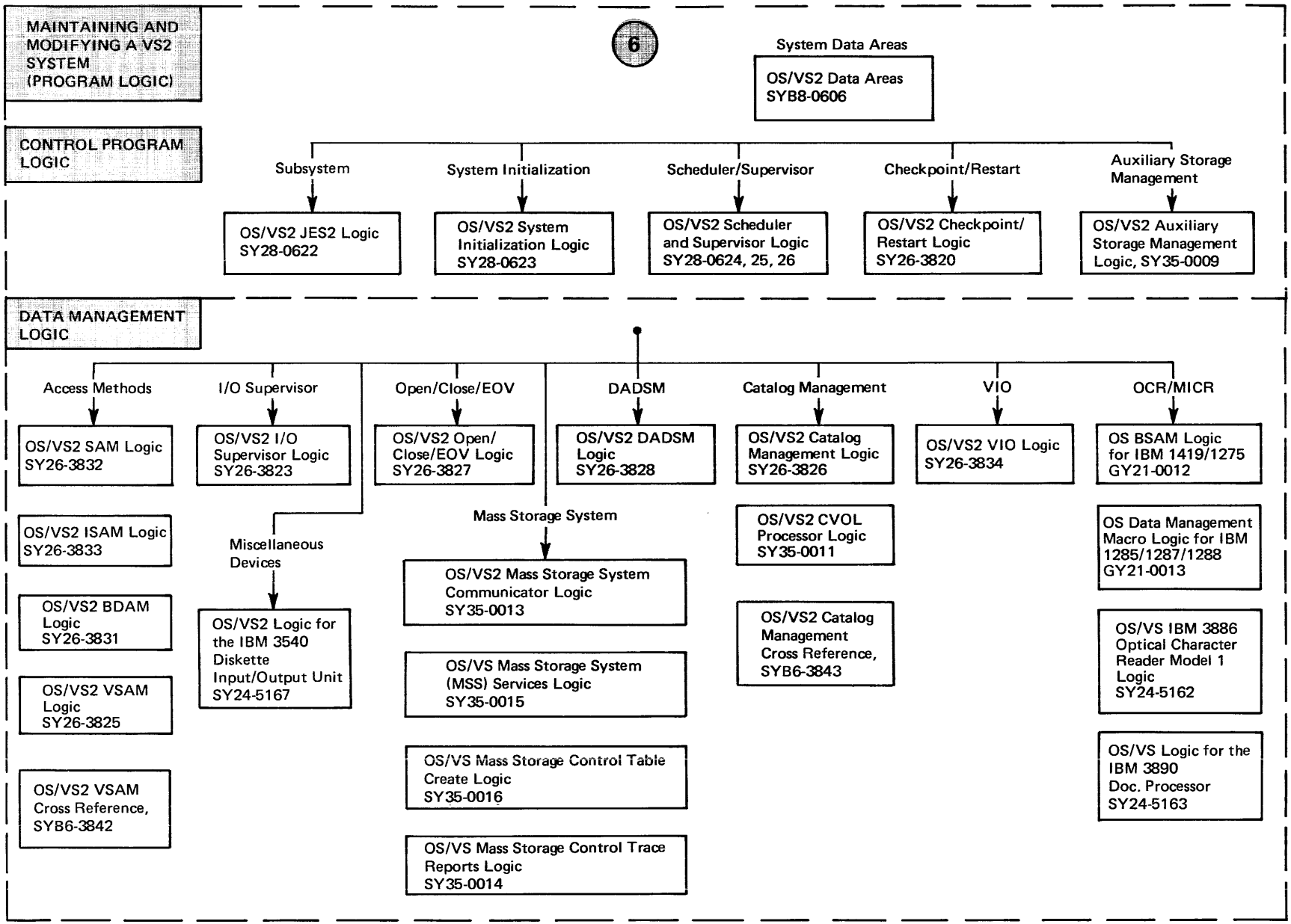

Figure 3. Publications Support of OS/VS2 Release 3 (Part 10 of 13)

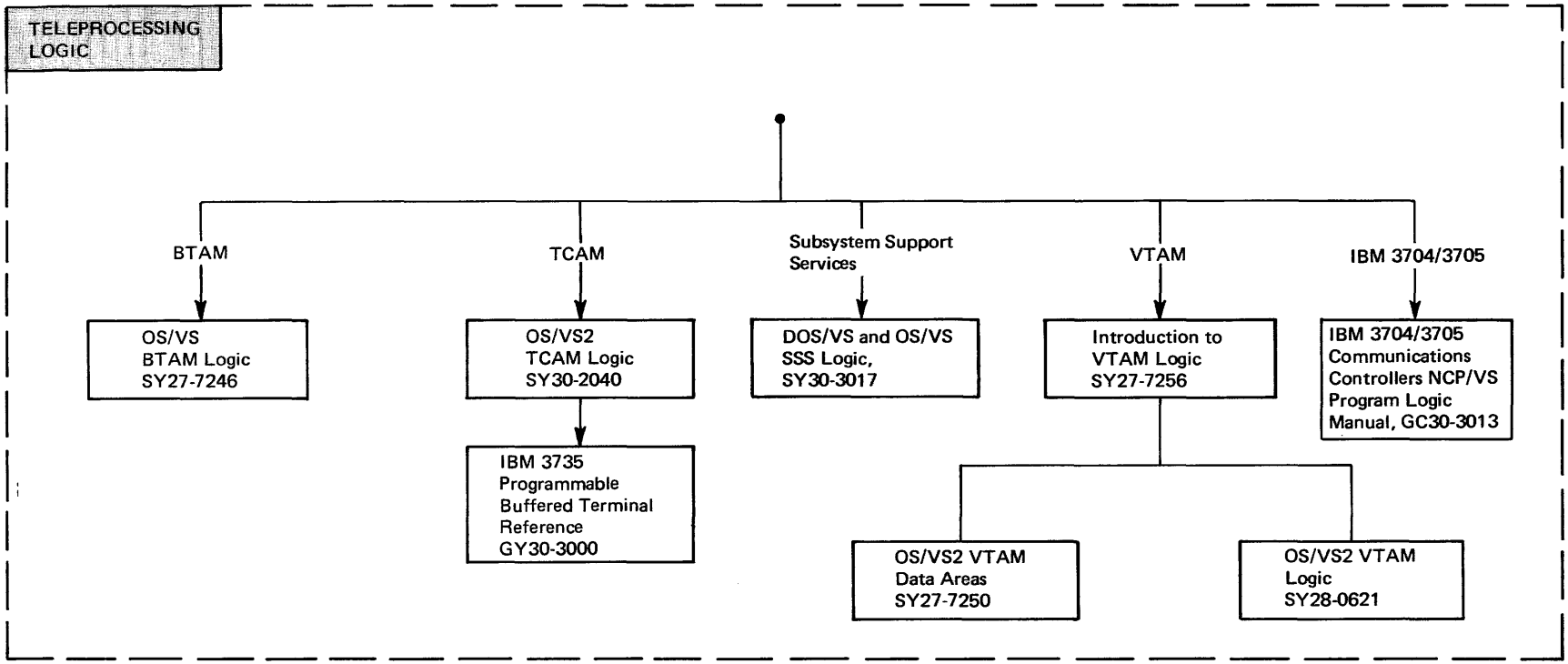

Figure 3. Publications Support of OS/VS2 Release 3 (Part 11 of 13)

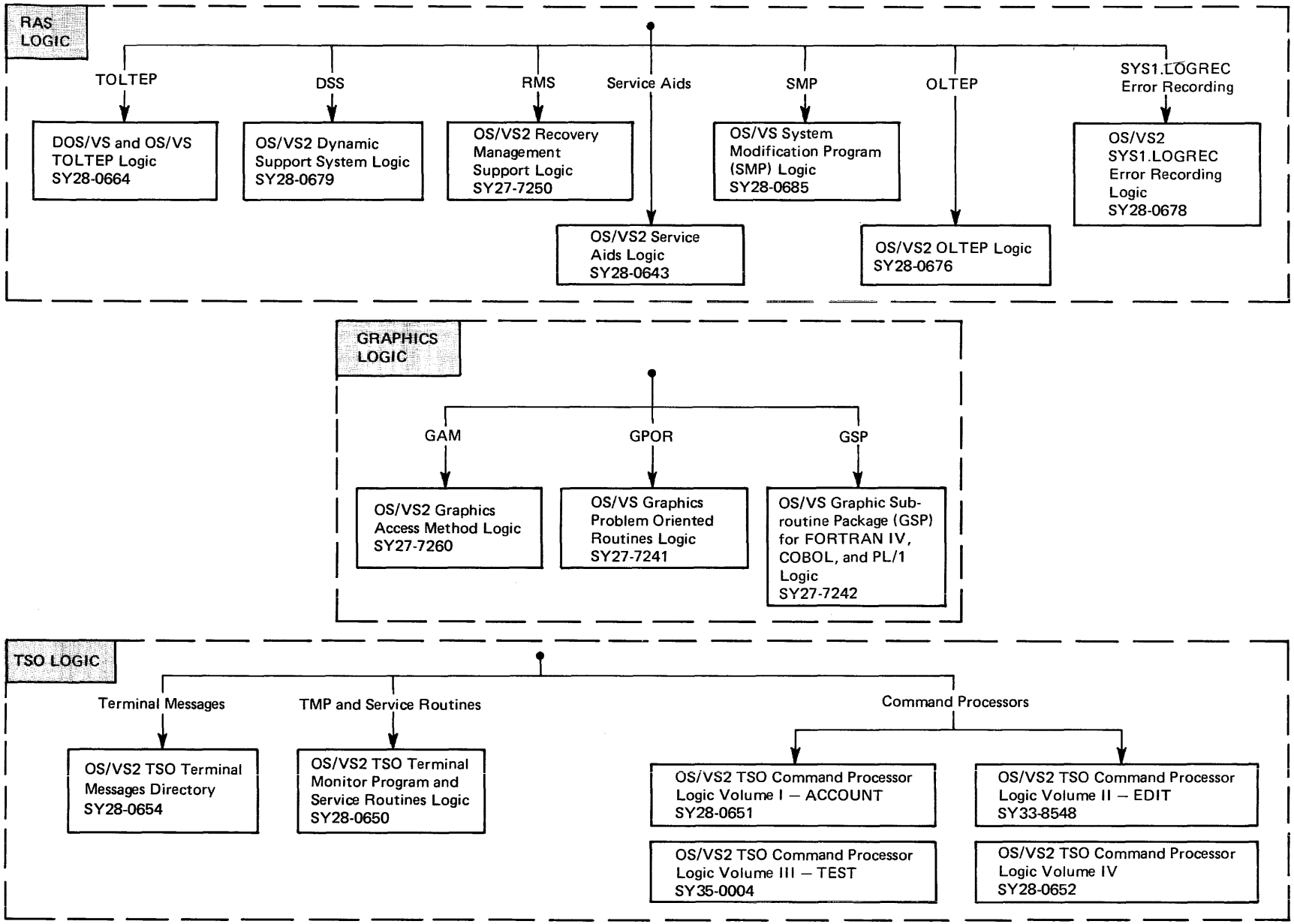

Figure 3. Publications Support of OS/VS2 Release 3 (Part 12 of 13)

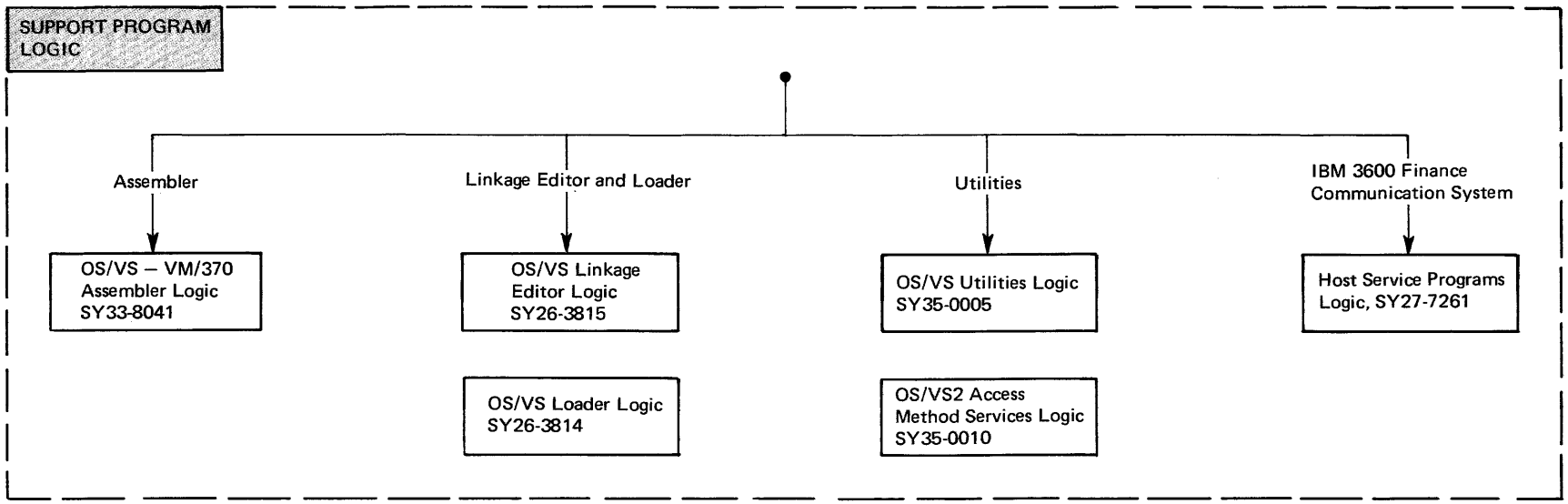

Figure 3. Publications Support of OS/VS2 Release 3 (Part 13 of 13)

Mapping of OS/MVT and OS/VS2 Release 1.0/1.6 Publications Into Their OS/VS2 Release 3 Counterparts

The first series of matrices that follows maps OS/MVT publications into their VS2 Release 3 counterparts. The second series maps OS/VS2 Release 1.0/1.6 publications into their VS2 Release 3 counterparts.

Where the title and form number of the publication are centered between the second and third columns, the book and its form number pertain to both systems that are listed in the heading. Where the words "Not Applicable" appear in one column, the book and form number that appear in the opposite column pertain only to the system that is listed in the heading of that column.

Mapping of OS/MVT Publications into their OS/VS2 Release 3 Counterparts

Subject Code	OS/MVT Edition	OS/VS2 Release 3 Counterpart
20 — General Information	Introduction, GC28-6534	Introduction to OS/VS2 Release 2, GC28-0661
	Master Index of Logic, GY28-6717	Master Index of Logic, GY28-0694
	SRL Master Index, GC28-6644	SRL Master Index, GC28-0693
21 — Assembler	Assembler Language, GC28-6514	Assembler Language, GC33-4010
	Assembler (64K) Program Logic Manual, GY26-3700	Assembler Logic, SY33-8041
	Assembler Programmer's Guide, GC26-3756	Assembler Programmer's Guide, GC33-4021
30 — Access Methods, Data Management, I/O Control Programs	BDAM Logic, GY28-6617	BDAM Logic, SY26-3831
	BSAM Logic for IBM 1419/1275, GY21-0012	
	BTAM, GC30-2004	BTAM, GC27-6980
	BTAM Logic, GC30-2001	BTAM Logic, SY27-7246
	Catalog Management Logic, GY28-6606	Catalog Management Logic, SY26-3826
	Conversion Guide from QTAM or BTAM to TCAM, GC30-2026	Not Applicable
	DADSM Logic, GY28-6607	DADSM Logic, SY26-3828
	Data Management for System Programmers, GC28-6550	System Programming Library: Data Management, GC26-3830
	Data Management Macro Instructions, GC26-3794	Data Management Macro Instructions, GC26-3793
	Data Management Macro Logic for IBM 1285/1287/1288, GY21-0013	
	Data Management Services, GC26-3746	Data Management Services Guide, GC26-3783
	Data Management Services and Macro Instructions for IBM 1285/1287/1288, GC21-5004	
	Data Management Services and Macro Instructions for IBM 1419/1275, GC21-5006	
	Graphics Access Method Logic, GY27-7113	Graphics Access Method Logic, SY27-7260
	Graphic Programming Service for 2280 and 2282 Film Units, GC27-6927	Not Applicable
	Graphic Programming Services for IBM 2250 Display Unit, GC27-6909	Graphic Programming Services for IBM 2250 Display Unit, GC27-6971
	Graphic Programming Services for 2260 Display Station (Local Attachment), GC27-6912	Graphic Programming Services for IBM 2260 Display Station (Local Attachment), GC27-6972
	Graphic Subroutine Package for FORTRAN IV, COBOL, and PL/1, GC27-6932	Graphic Subroutine Package for FORTRAN IV, COBOL, and PL/1, GC27-6973
	Graphic Subroutine Package for FORTRAN IV, COBOL, and PL/1 Logic, GY27-7152	Graphic Subroutine Package for FORTRAN IV, COBOL, and PL/1 Logic, SY27-7242
	Graphics Problem Oriented Routines Logic, GY27-7110	Graphics Problem Oriented Routines Logic, SY27-7241
	IBM 3704/3705 Communication Controllers NCP/VS Generation and Utilities Guide and Reference Manual (for OS/MFT and OS/MVT TCAM Users), GC30-3000	IBM 3704/3705 Communication Controllers NCP/VS Generation and Utilities Guide and Reference Manual (for OS/VS TCAM Users), GC30-3008
	Not Applicable	IBM 3704/3705 Communication Controllers NCP/VS Generation and Utilities Guide and Reference Manual (for OS/VS and DOS/VS VTAM Users), GC30-3007
	IBM 3705 Communications Controller NCP, Program Logic Manual, SY30-3003	IBM 3704/3705 Communications Controller NCP/VS Program Logic Manual, SY30-3013
	IBM 3735 Programmable Buffered Terminal: Form Description Macro Instructions and Form Description Utility Logic (OS, DOS, and VS Systems), GY30-3000	
	IBM 3735 Programmer's Guide (OS, DOS, and VS Systems), GC30-3001	
	I/O Supervisor Logic, GY28-6616	I/O Supervisor Logic, SY26-3823

Figure 4. Mapping of OS/MVT Publications into their OS/VS2 Release 3 Counterparts (Part 1 of 6)

Subject Code	OS/MVT Edition	OS/VS2 Release 3 Counterpart
30 — Access Methods, Data Management, I/O Control Programs (continued)	I/O Support Open/Close/EOV Logic, GY28-6609	Open/Close/EOV Logic, SY26-3827
	ISAM Logic, GY28-6618	ISAM Logic, SY26-3833
	OS and OS/VS Programming Support for the IBM 3505 Card Reader and IBM 3525 Card Punch, GC21-5097	
	Planning for TCAM with the 3705 Communications Controller, GC30-2028	Not Applicable
	QTAM Logic, GY30-2002	Not Applicable
	QTAM Message Control Program, GC30-2005	
	QTAM Message Processing Programs, GC30-2003	
	SAM Logic, GY28-6604	SAM Logic, SY26-3832
	Tape Labels, GC28-6680	Tape Labels, GC26-3795
	TCAM Concepts and Facilities, GC30-2022	TCAM Concepts and Facilities, GC30-2042
	TCAM Logic, GY30-2029	TCAM Logic, SY30-2040
	TCAM Programmer's Guide and Reference Manual, GC30-2024	TCAM Programmer's Guide, GC30-2041
	TCAM Serviceability Aids Logic, GY30-2027	TCAM User's Guide, GC30-2045
	TCAM User's Guide, GC30-2025	
	1130 Subroutine Library, GC26-5929	Not Applicable
	Not Applicable	Access Method Services, GC26-3841
		Access Method Services Logic, SY35-0010
		Auxiliary Storage Management Logic, SY35-0009
		Catalog Management Cross Reference, SYB6-3843 (microfiche)
		CVOL Processor Logic, SY35-0011
		Logic for the IBM 3540 Diskette Input/Output Unit, SY24-5167
		IBM 3540 Programmer's Reference, GC24-5111
		IBM 3705 Communication Controller Network Control Generation and Utilities Guide and Reference Manual, GC30-3000
		IBM 3886 Logic, SY24-5162
		IBM 3886 Reference, GC24-5101
		IBM 3890 Document Processor Reference, GA24-3612
		Introduction to Programming the 3270, GC27-6999
		Introduction to the IBM 3270 Information Display System, GA27-2739
		Introduction to VTAM, GC27-6987
		Introduction to VTAM Logic, SY27-7256
		Logic for the IBM 3890 Document Processor, SY24-5163
		Mass Storage Control Table Create, GC35-0013
		Mass Storage Control Trace Reports Logic, SY35-0014
		Mass Storage System Communicator Logic, SY35-0013

Figure 4. Mapping of OS/MVT Publications Into their OS/VS2 Release 3 Counterparts (Part 2 of 6)

Subject Code	OS/MVT Edition	OS/VS2 Release 3 Counterpart
30 — Access Methods, Data Management, I/O Control Programs (continued)	Not Applicable	Mass Storage Control Table Create Logic, SY35-0016
		Mass Storage System (MSS) Planning Guide, GC35-0011
		Mass Storage System (MSS) Services for Space Management, GC35-0012
		Mass Storage System (MSS) Services Logic, SY35-0015
		System Programming Library: VTAM, GC28-0688
		SSS Logic, SY30-3017
		SSS User's Guide, GC30-3022
		TCAM Concepts and Facilities, GC30-2042
		Using OS Catalog Management with the Master Catalog: CVOL Processor, GC35-0010
		VIO Logic, SY26-3834
		Virtual Storage Access Method (VSAM) Planning Guide, GC26-3799
		VSAM Cross Reference, SYB6-3842 (microfiche)
		VSAM Logic, SY26-3825
		VSAM Options for Advanced Applications, GC26-3819
		VSAM Programmer's Guide, GC26-3838
		VTAM Concepts and Planning, GC27-6998
		VTAM Data Areas, SY27-7250
		VTAM Logic, SY28-0621
		VTAM Macro Language Guide, GC27-6994
		VTAM Macro Language Reference, GC27-6995
31 — Support Programs	Linkage Editor and Loader, GC28-6583	Linkage Editor and Loader, GC26-3813
	Linkage Editor and Loader Reference Summary, GX20-1739	Not Applicable
	Linkage Editor Logic, GY28-6667	Linkage Editor Logic, SY26-3815
	Loader Logic, GY28-6714	Loader Logic, SY26-3814
	Machine Check Handler for S/360 Model 65 Logic, GY27-7155	Not Applicable
	Machine Check Handler for S/360 Model 85 Logic, GY27-7184	
	Maintenance Program, GC27-6918	
	Update Analysis Program Logic, GY28-7106	
	Not Applicable	The Programming Installation Guide for the 3600 Finance Communication System, GC27-0009
		IBM 3600 Finance Communication System Configurator, GA27-2762
		IBM 3600 Finance Communication System: Host Service Programs Logic, SY27-7261
		IBM 3600 Finance Communication System: Host Service Programs Reference, GC27-0005
		IBM 3600 Finance Communication System: Installation Manual — Physical Planning, GA27-2766

Figure 4. Mapping of OS/MVT Publications into their OS/VS2 Release 3 Counterparts (Part 3 of 6)

Subject Code	OS/MVT Edition	OS/VS2 Release 3 Counterpart
31 – Support Programs (continued)	Not Applicable	IBM 3600 Finance Communication System: Instructions and Macros Reference, GC27-0003
		IBM 3600 Finance Communication System: Management Planning Guide, GA27-2765
		IBM 3600 Finance Communication System: Programmer's Guide and Component Descriptions, GC27-0004
		IBM 3600 Finance Communication System: Programmer's Reference Digest, GX27-0007
		IBM 3600 Finance Communication System: System Summary, GC27-0001
		IBM 3600 Finance Communication System: 3614 Programmer's Guide, GC27-0010
		Introducing the IBM 3600 Finance Communication System, GA27-2764
		Operating Guide for the IBM 3600 Finance Communication System, GA27-2776
32 – Utilities	Utilities, GC28-6586	Utilities, GC35-0005
	Utilities Logic, GC28-6614	Utilities Logic, SY35-0005
34 – System Planning, Generation, Installation, SMF	Feature Guide, GC28-6716	Not Applicable
	MVT Guide, GC28-6720	Planning Guide for VS2 Release 2, GC28-0667
	Release 21.8 Guide, GC28-6730	Release 3 Guide, GC28-0700
	Storage Estimates, GC28-6551	System Programming Library: Storage Estimates, GC28-0604
	System Generation, GC28-6554	System Programming Library: System Generation Reference, GC26-3792
	System Management Facilities, GC28-6712	System Management Facilities (SMF), GC35-0004
	Not Applicable	System Programming Library: Initialization and Tuning Guide, GC28-0681
36 – Control Program	Advanced Checkpoint/Restart, GC28-6708	Checkpoint/Restart, GC26-3784
	Graphic Job Processor Support Logic, GY27-7159	Not Applicable
	Introduction to Main Storage Hierarchy Support for 2361 Models 1 and 2, GC27-6942	
	IPL and NIP Logic, GY28-6661	System Initialization Logic, SY28-0623
	JCL Reference, GC28-6704	JCL, GC28-0692
	Job Control Language Syntax Reference Summary, GX28-6783	Not Applicable
	Not Applicable	System Programming Library: Job Management, GC28-0627
		System Programming Library: Supervisor, GC28-0628
	MVT Job Management Logic, GY28-6660	Scheduler and Supervisor Logic, SBOF-8210
	MVT Supervisor Logic, GY28-6659	Checkpoint/Restart Logic, SY26-3820
	OS Power Warning Feature (PWF) Support ICR Guide, GC28-6792	System Programming Library: System Generation Reference, GC26-3792
		System Programming Library: Supervisor, GC28-0628
		RMS Logic, SY27-7250
	S/360 and 1130 Disk Monitor System Job Processing from a Remote 1130/2250 Subsystem Logic, GY27-7166	Not Applicable

Figure 4. Mapping of OS/MVT Publications into their OS/VS2 Release 3 Counterparts (Part 4 of 6)

Subject Code	OS/MVT Edition	OS/VS2 Release 3 Counterpart
36 – Control Program (Continued)	Supervisor Services and Macro Instructions, GC28-6646	Supervisor Services and Macro Instructions, GC28-0683
	System Control Blocks, GC28-6628	Data Areas, SYB8-0606 (microfiche)
	Not Applicable	JES2 Logic, SY28-0622
37 – RAS	Machine Check Handler for S/370 Models 155, 158, 165, 168 Logic, GY27-7198	RMS Logic, SY27-7250
	Machine Check Handler for S/370 Models 135, and 145, GY27-7237	
	OLTEP, GC28-6650	System Programming Library: OLTEP, GC28-0675
	OLTEP Logic, GY28-6651	OLTEP Logic, SY28-0676
	Programmer's Guide to Debugging, GC28-6670	System Programming Library: Debugging Handbook, GC28-0632
	RDE Guide, GC28-6747	System Programming Library: SYS1.LOGREC Error Recording, GC28-0677
	Service Aids, GC28-6719	System Programming Library: Service Aids, GC28-0674
	Service Aids Logic, GY28-6721	Service Aids Logic, SY28-0643
		SYS1.LOGREC Error Recording Logic, SY28-0678
	Service Aids Reference Card, GX28-6749	Service Aids Reference Summary, GX23-0002
	SMP Reference Summary, GX28-0684	
	System Modification Program (SMP), GC28-6791	System Modification Program (SMP), GC28-0673
		System Modification Program (SMP) Logic, SY28-0685
	TESTRAN, GC28-6648	Not Applicable
	TESTRAN Logic, GY28-6611	
	TESTRAN System Information, GC26-3796	
	Not Applicable	DSS Command Language Reference Summary, GX28-0690
		DSS Logic, SY28-0679
		Dynamic Support System, GC28-0640
		TOLTEP for VTAM, GC28-0663
		TOLTEP Logic, SY28-0664
38 – Remote Job Entry	Conversational RJE Concepts and Facilities, GC30-2012	Not Applicable
	Conversational RJE System Programmer's Guide, GC30-2016	
	Conversational RJE Terminal User's Guide, GC30-2014	
	RJE, GC30-2006	
	RJE Logic, GY30-2005	
39 – Time Sharing	TSO Catalog Management Logic, GY28-6745	Access Method Services Logic, SY35-0010
	TSO Command Language Reference, GC28-6732	TSO Command Language Reference, GC28-0646
	TSO Command Language Reference Summary, GX28-6781	TSO Command Language Reference Summary, GX28-0647
	TSO Command Processor Logic Vols. 1-7, GY28-6771 – GY28-6777	TSO Command Processor Logic Vols. 1-4, SY28-0651, SY33-8548, SY35-0004, and SY28-0652

Figure 4. Mapping of OS/MVT Publications into their OS/VS2 Release 3 Counterparts (Part 5 of 6)

Subject Code	OS/MVT Edition	OS/VS2 Release 3 Counterpart
39 – Time Sharing (Continued)	TSO Control Program Logic, GY27-7199	Scheduler and Supervisor Logic, SBOF-8210
		TCAM Logic, SY30-2059
	TSO Guide, GC28-6698	System Programming Library: TSO, GC28-0629
	TSO Guide to Writing a Terminal Monitor Program or a Command Processor, GC28-6764	TSO Guide to Writing a Terminal Monitor Program or a Command Processor, GC28-0648
	TSO Terminal Monitor Program and Service Routines Logic, GY28-6770	TSO Terminal Monitor Program and Service Routines Logic, SY28-0650
	TSO Terminal User's Guide, GC28-6763	TSO Terminal User's Guide, GC28-0645
	TSO Terminals, GC28-6762	
	Not Applicable	TSO Terminal Messages Directory, SY28-0654
40 – System Operation	Operator's Guide for Display Consoles, GC27-6949	Operator's Library: OS/VS2 Display Consoles, GC38-0260
	Operator's Procedures, GC28-6692	Operator's Library: VS2 Reference (JES2), GC38-0210
	Operator's Reference, GC28-6691	
		Operator's Library: OS/VS2 TCAM, GC38-2046
	OS/360 Messages and Codes, GC28-6631	Message Library: Linkage Editor and Loader Messages, GC38-1007
		Message Library: Routing and Descriptor Codes, GC38-1004
		Message Library: Service Aids and OLTEP Messages, GC38-1006
		Message Library: Utilities Messages, GC38-1005
		Message Library: VS2 System Codes, GC38-1008
		Message Library: VS2 System Messages, GC38-1002
		Problem Determination Aids and Messages and Codes for GPS and GSP, GC27-6974
	Not Applicable	Message Library: Subsystem Support Services Messages, GC38-1011
		Message Library: Mass Storage System Messages, GC38-1000
		Operator's Library: OS/VS Console Configurations, GC38-0120
		Operator's Library: OS/VS2 (JES2) Command Language Reference Summary, GX38-0227
		Operator's Library: VS2 Remote Terminals, GC38-0225
		Operator's Library: VTAM Network Operating Procedures, GC27-6997

Figure 4. Mapping of OS/MVT Publications into their OS/VS2 Release 3 Counterparts (Part 6 of 6)

Mapping of OS/VS2 Release 1.0/1.6 Publications into their OS/VS2 Release 3 Counterparts

Subject Code	OS/VS2 Release 1.0/1.6 Edition	OS/VS2 Release 3 Counterpart
20 — General Information	Master Index of Logic, GY28-0603	Master Index of Logic, GY28-0694
	SRL Master Index, GC28-0602	SRL Master Index, GC28-0693
	Not Applicable	Introduction to OS/VS2 Release 2, GC28-0661
21 — Assembler	Assembler Language, GC33-4010	
	Assembler Logic, SY33-8041	
	Assembler Programmer's Guide, GC33-4021	
30 — Access Methods, Data Management, I/O Control Programs	Access Method Services, GC35-0009	Access Method Services, GC26-3841
	Access Method Services Logic, SY35-0008	Access Method Services Logic, SY35-0010
	BDAM Logic, SY26-3789	BDAM Logic, SY26-3831
	BSAM Logic for IBM 1419/1275, GY21-0012	
	BTAM, GC27-6980	
	BTAM Logic, SY27-7246	
	VSAM Logic, SY26-3817	Catalog Management Logic, SY26-3826
	DADSM Logic, SY26-3787	DADSM Logic, SY26-3828
	Data Management for System Programmers, GC28-0631	System Programming Library: Data Management, GC26-3830
	Data Management Macro Instructions, GC26-3793	
	Data Management Macro Logic for IBM 1285/1287/1288, GY21-0013	
	Data Management Services and Macro Instructions for IBM 1419/1275, GC21-5006	
	Data Management Services and Macro Instructions for IBM 1285/1287/1288, GC21-5004	
	Data Management Services Guide, GC26-3783	
	Graphic Programming Services (GPS) for IBM 2250 Display Unit, GC27-6971	
	Graphic Programming Services (GPS) for IBM 2260 Display Station (Local Attachment), GC27-6972	
	Graphic Subroutine Package (GSP) for FORTRAN IV, COBOL, and PL/1, GC27-6973	
	Graphic Subroutine Package (GSP) for FORTRAN IV, COBOL, and PL/1 Logic, SY27-7242	
	Graphics Access Method Logic, SY27-7240	Graphics Access Method Logic, SY27-7260
	Graphics Problem Oriented Routines Logic, SY27-7241	
	IBM 3735 Programmable Buffered Terminal: Form Description Macro Instructions and Form Description Utility Logic (OS, DOS, and VS Systems), GY30-3000	
	IBM 3735 Programmer's Guide (OS, DOS, and VS Systems), GC30-3001	
	I/O Supervisor Logic, SY26-3823	
	ISAM Logic, SY26-3786	ISAM Logic, SY26-3833
	Open/Close/EOV Logic, SY26-3785	Open/Close/EOV Logic, SY26-3827
	OS and OS/VS Programming Support for the IBM 3505 Card Reader and IBM 3525 Card Punch, GC21-5097	
	Problem Determination Aids and Messages and Codes for GPS and GSP, GC27-6974	
	SAM Logic, SY26-3788	SAM Logic, SY26-3832
	Tape Labels, GC26-3795	
	TCAM Concepts and Facilities, GC30-2022	TCAM Concepts and Facilities, GC30-2042
	TCAM Logic, SY30-2039	TCAM Logic, SY30-2040
	TCAM Programmer's Guide, GC30-2034	TCAM Programmer's Guide, GC30-2041
	TCAM User's Guide, GC30-2025	TCAM User's Guide, GC30-2045
	Virtual Storage Access Method (VSAM) Planning Guide, GC26-3799	

Figure 5. Mapping of OS/VS2 Release 1.0/1.6 Publications into their OS/VS2 Release 3 Counterparts (Part 1 of 5)

Subject Code	OS/VS2 Release 1.0/1.6 Edition	OS/VS2 Release 3 Counterpart
30 — Access Methods, Data Management, I/O Control Programs (continued)	VSAM Logic, SY26-3817	VSAM Logic, SY26-3825
	VSAM Options for Advanced Applications, GC26-3819	
	VSAM Programmer's Guide, GC26-3818	VSAM Programmer's Guide, GC26-3838
	Not Applicable	Auxiliary Storage Management Logic, SY35-0009
		Catalog Management Cross Reference, SYB6-3843 (microfiche)
		CVOL Processor Logic, SY35-0011
		Logic for the IBM 3540 Diskette Input/Output Unit, SY24-5167
		IBM 3540 Programmer's Reference, GC24-5111
		IBM 3704/3705 Communications Controllers NCP/VS Generation and Utilities Guide and Reference Manual for OS/VS TCAM Users, GC30-3007
		IBM 3704/3705 Communications Controllers NCP/VS Generation and Utilities Guide and Reference Manual (for OS/VS, DOS/VS VTAM Users), GC30-3008
		IBM 3704/3705 Communications Controllers NCP/VS Program Logic Manual, SY30-3013
		IBM 3886 Optical Character Reader Model 1 Logic, SY24-5162
		IBM 3886 Optical Character Reader Model 1 Reference, GC24-5101
		IBM 3890 Document Processor Reference, GA24-3612
		Introduction to Programming the 3270, GC27-6999
		Introduction to the IBM 3270 Information Display System, GA27-2739
		Introduction to VTAM, GC27-6987
		Introduction to VTAM Logic, SY27-7256
		Logic for the IBM 3890 Document Processor, SY24-5163
		Mass Storage Control Table Create, GC35-0013
		Mass Storage Control Trace Reports Logic, SY35-0014
		Mass Storage System Communicator Logic, SY35-0013
		Mass Storage Control Table Create Logic, SY35-0016
		Mass Storage System (MSS) Planning Guide, GC35-0011
		Mass Storage System (MSS) Services for Space Management, GC35-0012
		Mass Storage System (MSS) Services Logic, SY35-0015
		SSS Logic, SY30-3017
		SSS User's Guide, GC30-3022
		System Programming Library: VTAM, GC28-0688

Figure 5. Mapping of OS/VS2 Release 1.0/1.6 Publications into their OS/VS2 Release 3 Counterparts (Part 2 of 5)

Subject Code	OS/VS2 Release 1.0/1.6 Edition	OS/VS2 Release 3 Counterpart
30 — Access Methods, Data Management, I/O Control Program (continued)	Not Applicable	Using OS Catalog Management with the Master Catalog: CVOL Processor, GC35-0010
		VIO Logic, SY26-3834
		VSAM Cross Reference, SYB6-3842 (microfiche)
		VTAM Concepts and Planning, GC27-6998
		VTAM Data Areas, SY27-7250
		VTAM Logic, SY28-0621
		VTAM Macro Language Guide, GC27-6994
		VTAM Macro Language Reference, GC27-6995
31 — Support Programs	Linkage Editor and Loader, GC26-3813	
	Linkage Editor Logic, SY26-3815	
	Loader Logic, SY26-3814	
	Message Library: Linkage Editor and Loader Messages, GC38-1007	
	Not Applicable	The Programming Installation Guide for the 3600 Finance Communication System, GC27-0009
		IBM 3600 Finance Communication System Configurator, GA27-2762
		IBM 3600 Finance Communication System: Host Service Programs Logic, SY27-7261
		IBM 3600 Finance Communication System: Host Service Programs Reference, GC27-0005
		IBM 3600 Finance Communication System: Installation Manual — Physical Planning, GA27-2766
		IBM 3600 Finance Communication System: Instructions and Macros Reference, GC27-0003
		IBM 3600 Finance Communication System: Management Planning Guide, GA27-2765
		IBM 3600 Finance Communication System: Programmer's Guide and Component Descriptions, GC27-0004
		IBM 3600 Finance Communication System: Programmer's Reference Digest, GX27-0007
		IBM 3600 Finance Communication System: System Summary, GC27-0001
		IBM 3600 Finance Communication System: 3614 Programmer's Guide, GC27-0010
		Introducing the IBM 3600 Finance Communication System, GA27-2764
		Operating Guide for the IBM 3600 Finance Communication System, GA27-2776
32 — Utilities	Message Library: Utilities Messages, GC38-1005	
	Utilities, GC35-0005	
	Utilities Logic, SY35-0005	
34 — System Planning, Generation, Installation, SMF	Planning and Use Guide, GC28-0600	Planning Guide for VS2 Release 2, GC28-0667
		System Programming Library: Job Management, GC28-0627
		System Programming Library: Supervisor, GC28-0628

Figure 5. Mapping of OS/VS2 Release 1.0/1.6 Publications into their OS/VS2 Release 3 Counterparts (Part 3 of 5)

Subject Code	OS/VS2 Release 1.0/1.6 Edition	OS/VS2 Release 3 Counterpart
34 – System Planning, Generation, Installation, SMF (continued)	Release Guide, GC28-0601	Release Guide, GC28-0700
	Storage Estimates, GC28-0604	System Programming Library: Storage Estimates, GC28-0604
	System Generation Introduction, GC26-3790	System Programming Library: System Generation Reference, GC26-3792
	System Generation Reference, GC26-3792	
	System Management Facilities (SMF), GC35-0004	
	Not Applicable	System Programming Library: Initialization and Tuning Guide, GC28-0681
36 – Control Program	Checkpoint/Restart, GC26-3784	
	Checkpoint/Restart Logic, SY26-3820	
	HASP Logic, GY27-7255	JES2 Logic, SY28-0622
	HASP Operator's Guide, GC27-6993	Operator's Library: VS2 Reference (JES2), GC38-0210
	HASP System Programmer's Guide, GC27-6992	System Programming Library: Job Management, GC28-0627
	IPL and NIP Logic, SY27-7243	System Initialization Logic, SY28-0623
	JCL Reference, GC28-0618	JCL, GC28-0692
	JCL Services, GC28-0617	
	JCL Syntax Reference Summary, GX28-0619	
	Job Management Logic, SY28-0620	Scheduler and Supervisor Logic, SBOF-8210
	Power Warning Feature (PWF) Support ICR Guide, GC28-0686	System Programming Library: System Generation Reference, GC26-3792
		System Programming Library: Supervisor, GC28-0628
	Power Warning Feature (PWF) Support Logic ICR Guide, SY28-0687	RMS Logic, SY27-7250
	Programmer's Reference Digest, GC24-5091	System Programming Library: Debugging Handbook, GC28-0632
	Supervisor Logic, SY27-7244	Scheduler and Supervisor Logic, SBOF-8210
	Supervisor Services and Macro Instructions, GC27-6979	Supervisor Services and Macro Instructions, GC28-0683
	System Data Areas, SY28-0606	Data Areas, SYB8-0606 (microfiche)
37 – RAS	Debugging Guide, GC28-0632	System Programming Library: Debugging Handbook, GC28-0632
	DSS, GC28-0640	
	DSS Command Language Reference Summary, GX28-0690	
	DSS Logic, SY28-0641	DSS Logic, SY28-0679
	OLTEP Logic, SY28-0637	OLTEP Logic, SY28-0676
	OLTEP SRL, GC28-0636	System Programming Library: OLTEP, GC28-0675
	RMS Logic (Release 1.0), SY27-7252	RMS Logic, SY27-7250
	RMS Logic (Release 1.6), SY27-7239	
	Service Aids Logic, SY28-0643	
	Service Aids Reference Summary, GX28-0634	Service Aids Reference Summary, GX23-0002
	Service Aids SRL, GC28-0633	System Programming Library: Service Aids, GC28-0674

Figure 5. Mapping of OS/VS2 Release 1.0/1.6 Publications into their OS/VS2 Release 3 Counterparts (Part 4 of 5)

Subject Code	OS/VS2 Release 1.0/1.6 Edition	OS/VS2 Release 3 Counterpart
37 – RAS (continued)	System Modification Program (SMP), GC28-0673	
	System Modification Program (SMP) Logic, SY28-0685	
	SMP Reference Summary, GX28-0684	
	SYS1.LOGREC Error Recording Logic, SY28-0639	SYS1.LOGREC Error Recording Logic, SY28-0678
	SYS1.LOGREC Error Recording SRL, GC28-0638	System Programming Library: SYS1.LOGREC Error Recording, GC28-0677
	Not Applicable	TOLTEP for VTAM, GC28-0663
		TOLTEP Logic, SY28-0664
39 – Time Sharing	Message Library: TSO Messages, GC38-1009	Message Library: VS2 System Messages, GC38-1002
	Operator's Library: TSO, GC38-0220	Operator's Library: VS2 Reference, (JES2), GC38-0210
	TSO Command Language Reference, GC28-0646	
	TSO Command Language Reference Summary, GX28-0647	
	TSO Command Processor Logic Vol. I – ACCOUNT, SY28-0651	
	TSO Command Processor Logic Vol. II – EDIT, SY33-8548	
	TSO Command Processor Logic Vol. III – TEST, SY35-0004	
	TSO Command Processor Logic Vol. IV, SY28-0652	
	TSO Control Program Logic, SY28-0649	Scheduler and Supervisor Logic, SBOF-8210
		TCAM Logic, SY30-2059
	TSO Guide, GC28-0644	System Programming Library: TSO, GC28-0629
	TSO Guide to Writing a Terminal Monitor Program or a Command Processor, GC28-0648	
	TSO Terminal Monitor Program and Service Routines Logic, SY28-0650	
	TSO Terminal User's Guide, GC28-0645	
	TSO Terminals, GC28-6762	
	Not Applicable	TSO Terminal Messages Directory, SY28-0654
40 – System Operation	Message Library: Routing and Descriptor Codes, GC38-1004	
	Message Library: Service Aids and OLTEP Messages, GC38-1006	
	Message Library: VS2 System Codes, GC38-1008	
	Message Library: VS2 System Messages, GC38-1002	
	Not Applicable	Message Library: Mass Storage System Messages, GC38-1000
		Message Library: Subsystem Support Services Messages, GC38-1011
	Operator's Library: OS/VS Console Configurations, GC38-0120	
	Operator's Library: OS/VS TCAM, GC38-0305	Operator's Library: OS/VS2 TCAM, GC30-2046
	Operator's Library: OS/VS2 Display Consoles, GC38-0260	
	Operator's Library: OS/VS2 Reference, GC38-0210	Operator's Library: VS2 Reference, (JES2), GC38-0210
	Not Applicable	Operator's Library: OS/VS2 (JES2) Command Language Reference Summary, GX38-0227
		Operator's Library: OS/VS2 Remote Terminals, GC38-0225
		Operator's Library: VTAM Network Operating Procedures, GC27-6997

Figure 5. Mapping of OS/VS2 Release 1.0/1.6 Publications into their OS/VS2 Release 3 Counterparts (Part 5 of 5)

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