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**IBM 3330 Series Disk Storage
Model 1 to Model 11
Customer Conversion Guide**

IBM

PREFACE

This manual is intended to guide the IBM customer in planning a field conversion of the 3330 Series Disk Storage Model 1 to a 3330 Series Disk Storage Model 11.

This manual is organized into two distinct categories: hardware and programming considerations. The hardware considerations cover topics concerning bills

of material, power and cabling requirements, configuration requisites, and conversion times.

The programming considerations define programming support and list the available programs. Also included are procedures for making programming updates to provide for the 3330 Model 11.

Second Edition (December 1974)

This publication replaces and makes *IBM 3330 Series Disk Storage Model 1 to Model 11 Customer Conversion Guide*, Order No. GA26-1630-0 obsolete.

Significant changes or additions to the specifications contained in this publication are continually being made. Before using this publication in connection with the operation of IBM equipment, contact the local IBM Branch Office for revisions.

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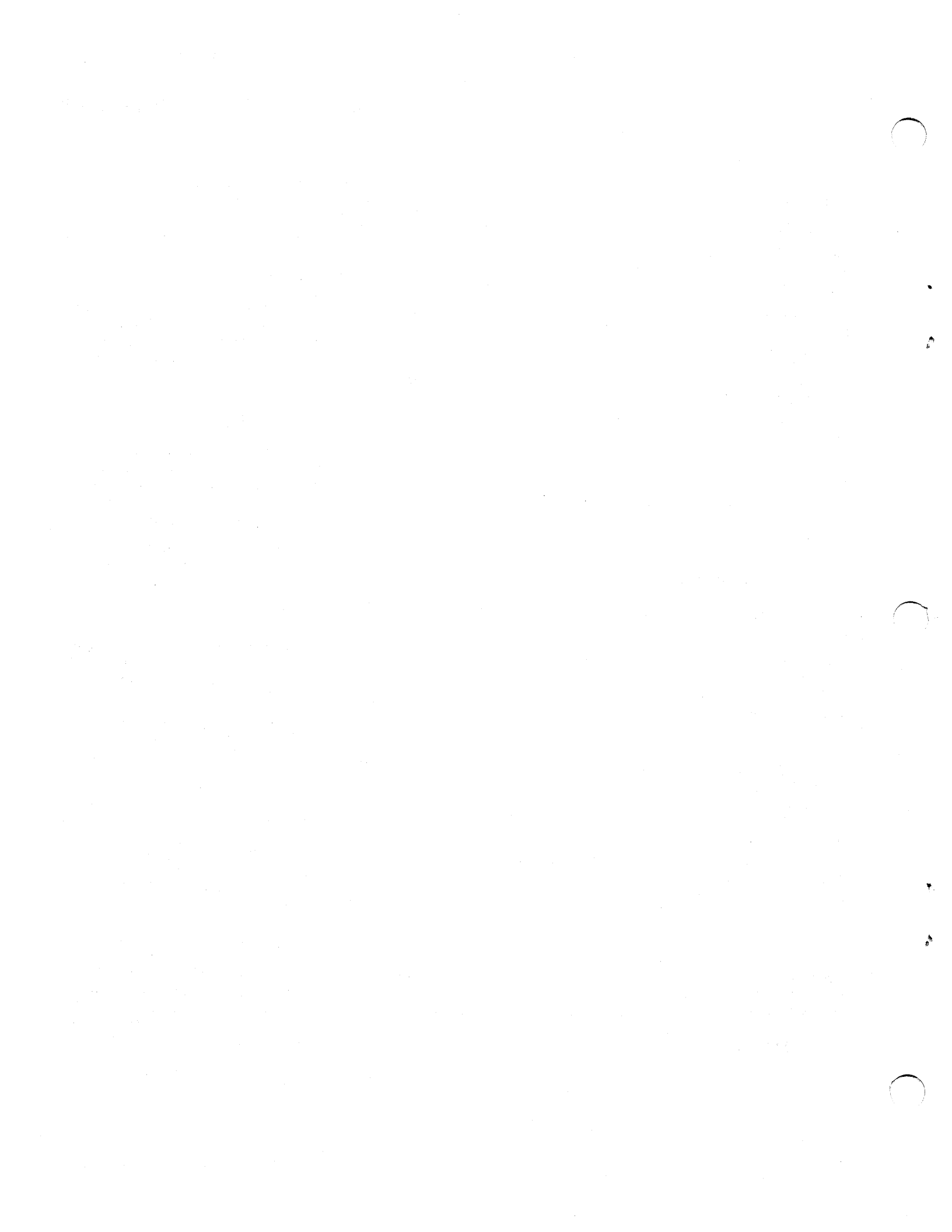
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HARDWARE PLANNING CONSIDERATIONS

The successful conversion of a 3330 Model 1 drive to a Model 11 requires careful planning.

Notify your IBM Field Engineering representative early in the planning stages of the conversion. An early conference with him will be helpful to both of you.

Many of the preliminary methods and procedures explained in this manual will aid in developing a plan tailored to your specific installation.

ATTACHMENT

Attachment of the 3330 Model 11 to a System/370 requires previous installation of one of the following:

- 3830-2 Storage Control
- Integrated File Adapter (Model 135)
- Integrated Storage Control (Model 145, 158, or 168)

Installation of these attachments should be made prior to the 3330 Model 1 to Model 11 conversion. Each of these attachments requires a 3333 at the beginning of each string of 3330 drives.

If any additional features are to be added, such as string switch, two channel switch additional, etc., these too should be installed prior to 3330 conversion to avoid confusion.

Note: *A 3333 or 3340-A2 with the string switch feature (No. 8150) cannot be used on a 3830-2, or an IFA, or an ISC unless the string switch attachment feature (No. 9841) is also installed.*

When attachment of the 3330 Model 11 involves the 3850 Mass Storage System, refer to *Introduction to IBM 3850 Mass Storage System (MSS)*, Order No. GN22-2018, for details.

PREREQUISITE BILLS OF MATERIAL

Confirm with your IBM Field Engineering representative that all disk drives have prerequisite bills of material installed. If there are any outstanding bills of material, additional installation time is required before the 3330 Model 1 to 11 conversion can be performed.

POWER REQUIREMENTS

The 3333/3330 Model 11 has the same power requirements as the 3333/3330 Model 1.

CABLE REQUIREMENTS

The existing Model 1 cables should be adequate for the Model 11 conversion. However, if DASD subsystem rearrangement is planned, new cables may be required. Cables for the new installation may be obtained through your IBM Marketing representative.

DASD ATTACHMENT CONFIGURATIONS

Current DASD subsystems contain many interdependencies between disk drives and attachments. If configuration changes are made concurrently with the Model 1 to 11 conversion, use the following tables to check the feature and specification requirements.

A separate table is shown for each attachment and each lists 3330 and 3340 device-mix variations.

How To Use Tables

1. Select the table that describes your installation. (For example, if you have a 3830/3330 installation, go to the page headed 3830-2 Storage Control).
2. After determining the configuration desired, go to the single horizontal row that matches your requirements. (For example, if you desire to have string switch and more than 16 drives, use row eight, adjacent to the 3330 Series Only).
3. From the checkmarks in the columns on the row to the right, determine the requirements for the 3830. For the example above, you would need: Control Storage (No. 2150), String Switch (No. 9841), 32 Drive Addressing (No. 9845), and 3330 Attached (No. 9313).

Note: *Care must be exercised when configuring the string switch feature. This feature by itself does not require Control Storage Extension (No. 2150). However, by attaching the drive strings, the total configuration may require 32 drive addressing (No. 9845) or the intermix feature (No. 9135), which makes control storage extension a necessity.*

S/370 Models 158/168 ISC

Configuration Requirements

1. After selecting appropriate configuration, choose the single horizontal row that matches your requirements.

2. Determine the required attachment specifications by the checkmarks in the associated row.

Attachment Specification Requirements (See Note 3)

String Switch (See Note 2)
Two Channel Switch
More than 16 drives on either ISC path

Control Storage Extension, No. 2150
String Switch, No. 9841
Two Channel Switch, No. 7905
32 Drive Addressing, No. 9845
3330 Attached, No. 9313
3340 Attached, No. 9314
3330/3340 Attached, No. 9315

Configuration	String Switch	Two Channel Switch	More than 16 drives on either ISC path	Control Storage Extension, No. 2150	String Switch, No. 9841	Two Channel Switch, No. 7905	32 Drive Addressing, No. 9845	3330 Attached, No. 9313	3340 Attached, No. 9314	3330/3340 Attached, No. 9315
3330 Series Only (See Note 1)	•			★	✓		★	✓		
		•				✓		✓		
			•	✓		✓	✓			
	•	•		★	✓	✓	★	✓		
	•		•	✓	✓		✓	✓		
		•	•	✓		✓	✓	✓		
	•	•	•	✓	✓	✓	✓	✓		
3340 Series Only (See Note 1)	•			★	✓		★		✓	
		•				✓		✓		
			•	✓		✓		✓		
	•	•		★	✓	✓	★		✓	
	•		•	✓	✓		✓	✓		
		•	•	✓		✓	✓	✓		
	•	•	•	✓	✓	✓	✓	✓		
3330 and 3340 Devices on Same Attachment (See Note 1)				✓						✓
	•			✓	✓		★			✓
		•		✓		✓				✓
			•	✓		✓				✓
	•	•		✓	✓	✓	★			✓
	•		•	✓	✓		✓			✓
		•	•	✓		✓	✓			✓
•	•	•	✓	✓	✓	✓			✓	

Note 1: 3333 or 3340-A2 must specify attachment to 158 ISC, No. 9584; or 168 ISC, No. 9585.

Note 2: 3333 or 3340-A2 must specify string switch, No. 8150 and attachment to:

3830-2, No. 9591 or 135 IFA, No. 9592
145 ISC, No. 9593 or 158 ISC, No. 9594
168 ISC, No. 9595

Note 3: The 158/168 ISC is available as feature No. 4650.

★ These features may be required as a result of the string switch feature between attachments. Check your configuration closely.

S/370 Model 145 ISC

Configuration Requirements				Attachment Specification Requirements (See Note 3)												
1. After selecting appropriate configuration, choose the single horizontal row that matches your requirements. 2. Determine the required attachment specifications by the checkmarks in the associated row.				Word Buffer, No. 8810 Control Storage Extension, No. 2150 String Switch, No. 9841 Two Channel Switch, No. 8100 32 Drive Addressing, No. 9845 3330 Attached, No. 9313 3340 Attached, No. 9314 3330/3340 Attached, No. 9315												
														String Switch (See Note 2)	Two Channel Switch	More Than 16 Drives
3330 Series Only (See Note 1)	•			†						✓						
		•		†	★	✓			★	✓						
			•	†			✓			✓						
				†	✓					✓	✓					
	•	•		†	★	✓	✓		★	✓						
	•		•	†	✓	✓			✓	✓						
		•	•	†	✓		✓		✓	✓						
	•	•	•	†	✓	✓	✓	✓	✓	✓						
3340 Series Only (See Note 1)				✓												✓
	•			✓	★	✓			★							✓
		•		✓			✓									✓
			•	✓	✓				✓							✓
	•	•		✓	★	✓	✓		★							✓
	•		•	✓	✓	✓			✓							✓
		•	•	✓	✓		✓		✓							✓
	•	•		✓	✓	✓	✓	✓	✓							✓
3330 and 3340 Devices on Same Attachment (See Note 1)				✓	✓											✓
	•			✓	✓	✓			★							✓
		•		✓	✓		✓									✓
			•	✓	✓				✓							✓
	•	•		✓	✓	✓	✓		★							✓
	•		•	✓	✓	✓			✓							✓
		•	•	✓	✓		✓		✓							✓
	•	•	•	✓	✓	✓	✓	✓	✓							✓

Note 1: 3333 or 3340-A2 must specify No. 9583, or No. 9588 for attachment to 145 ISC.

Note 2: 3333 or 3340-A2 must specify string switch, No. 8150 and attachment to:

3830-2, No 9591 or 135 IFA, No. 9592
 145 ISC, No. 9593 or 158 ISC, No. 9594
 168 ISC, No. 9595

Note 3: The 145 ISC is available as either feature No. 4660 on 145-2, or as a 3345 Model 3, 4, or 5.

★ These features may be required as a result of the string switch feature between attachments. Check your configuration closely.

† Recommended.

DISK PACKS

The 3336 Model 1 disk pack cannot be mounted on the 3330 Model 11 drive because the Model 1 and Model 11 disk packs are not interchangeable. All IBM 3336 Model 1 disk packs may be converted to Model 11 disk packs at the San Jose plant.

An adequate supply of new or converted disk packs must be available for Model 11 conversion. Have your IBM Information Records Division representative handle arrangements for either the acquisition of new disk packs or the conversion of present Model 1 disk packs.

UNIQUE DRIVE IDENTIFICATION

All Model 1 drives have manufacturing differences unique to each serially numbered unit. Each MES (conversion Bill of Material) is structured for a specific serially numbered unit and, therefore, must be installed on that device.

Position designators for the 3330 Model 1 may require changes as part of the conversion to Model 11; these can be made by notifying the MES Department in San

Jose through your local IBM representative. Unless otherwise noted on the MES order form, the parts shipped for conversion from 3330 Model 1 to Model 11 do not include any position designator changes. Have your IBM Marketing Representative review any position designator changes required for your installation.

CONVERSION TIME

Approximately 23 man-hours are required to convert a 3330 Model 1 to a Model 11. This includes one hour of system time that is required for machine checkout. Some time variations should be expected because of local working conditions.

After the first 3330 unit is converted, the data storage capacity is two 3330 Model 1s. By immediately capitalizing on the increased capacity, subsequent conversions to the Model 11 can be planned with minimum impact to the existing operations.

Careful planning is required between you and your local FE Manager.

PROGRAMMING PLANNING CONSIDERATIONS

OPERATING SYSTEM SUPPORT

Model 11 drives are supported in OS/VS1, OS/VS2, and VM/370. They may also be used, with a few restrictions, with systems running OS/MFT/MVT if Field Developed Program (FDP) 5798-BCE is installed. Before installation, order the correct level of the operating system and/or FDP from PID:

OS/VS1	Release 3
OS/VS2	Release 1.6 with the ICR. Release 2
VM/370	Release 2
OS	Release 21.6/21.7 with FDP 5798-BCE. See manuals, Order Nos. GB21-1291 and SB21-1292, for additional information.

PROGRAM PRODUCT AND USER-PROGRAM SUPPORT

The 3330 Model 11 is supported by user programs that support the 3330 Model 1 or 2 and 3333 Model 1, and use OS/VS1 Release 3 and OS/VS2 Release 1.6 and 2.0 standard access methods (device-independent use).

User-written programs that use the EXCP macro or actual addresses in BDAM macros to access disk data sets that have been moved to Model 11 packs may have to be modified to reflect the larger number of cylinders.

User-written programs that create JCL should be checked for UNIT parameters that may require changing. For example, additional changes may be required to volume parameters, separation/affinity statements, and space parameters because of movement of data sets.

IBM program support for the Model 11 is listed below. The IBM programs supported under VM/370 and user programs operated under VM/370 also support the Model 11.

Program products that support the Model 11 are:

Program Name	Program Number	Support Dates		
		VS1	VS2 Rel. 1.6	VS2 Rel. 2
CICS/OS/VS	5740-XX1	11/74	3/75	Not Supported
IMS/VS	5740-XX2	— Now Available —		
GIS/2 ***	5734-XX1	↓	↓	↓
GIS/2 DL/1 ***	5734-XX1	↓	↓	↓

Check Proc.		— Now Available —		
Ctrl. Sys*	5734-F11	↓	↓	↓
Alpha Search				
Inquiry Sys.	5736-N14			
DMS 11 OS/VS	5734-XC4			
IQF IMS	5734-XX6			
OS/VS Sort/Merge	5740-SM1			
Sort/Merge**	5734-SM1			

* Operation under VM/370 and multiprocessing is not supported.

** Supports files for Input/Output, but not for sort work areas. This restriction is removed when running under OS if FDP 5798-BCE is applied.

*** JCL may be generated that requires unit parameter changes.

The following IBM programs, previously announced as supported under OS/VS also support the Model 11:

Program Name	Program Number
Assembler H	5734-AS1
Code and Go FORTRAN	5734-F01
Full ANS COBOL - V3	5734-CB1
Full ANS COBOL - V4 and Library	5734-CB2
Full ANS COBOL - V4 Library	5734-LM2
FORTRAN IV G1 Compiler	5734-F02
FORTRAN IV H Ext. Compiler	5734-F03
FORTRAN IV Library M1	5734-LM1
FORTRAN IV Library M2	5734-LM3
S/7 FORTRAN IV S/370 Host	
Compiler and Library	5734-F04
PL/1 Checkout Compiler	5734-PL2
PL/1 Optimizing Compiler	5734-PL1
PL/1 Resident Library	5734-LM4
PL/1 Transient Library	5734-LM5
PL/1 Optimizing Compiler and Libraries	5734-PL3
Capacity Planning - Finite	5734-M54
CFO II	5736-N13
Coursewriter III - V3	5734-E13
EPIC:SOCRATES	5735-E91
EPIC:FAST	5735-E92
EPIC:Budget/Finance	5735-E93
EPIC:Student	5735-E94
GPSS V †	5735-XS2
Interactive Training System	5734-XXC
Inventory Control	5734-M52
Proc Library - Math	5734-XM3
PSG II	5734-XT1

Continued

Program Name	Program Number
Requirements Planning	5734-M51
SL-MATH	5736-XM7
Shop Floor Control	5734-M31
AML/7	5707-LM1
APG/7	5734-XC3
VIDEO/370	5734-RC5
COBOL Interactive Debug (TSO)	5734-CB4
FORTRAN Interactive Debug (TSO)	5734-F05
TSO Assembler Prompter	5734-CP2
TSO COBOL Prompter	5734-CP1
TSO Data Utilities	5734-UT1
TSO FORTRAN Prompter	5734-CP3
TSO ITF BASIC	5734-RC4
TSO ITF PL/1	5734-RC2
Business Analysis Basic ITF (TSO)	5734-XMB
MATH/BASIC ITF (TSO)	5734-XM8
STAT/BASIC ITF (TSO)	5734-XA3
CSMP III and Graphic Feature	5734-XS9
APT-BP	5740-M51
APT-IC	5740-M52
APT-AC	5740-M53
COBOL to OS ANS COBOL LCP	360C-CV-713
HPPF II	5744-AF1 (SCP)
MPSX	5734-XM4
PMS IV ††	5734-XP4

† GPSS V-OS Auxiliary Storage does not support the Model 11.

†† Sort/Merge (5734-SM1) Dependent.

IBM programs not explicitly supporting the Model 11:

Program Name	Program Number
COBOL F	360S-CB-524
COBOL F Library	360S-LM-525
Full ANS COBOL V2	360S-CB-545
Full ANS COBOL V2 Library	360S-LM-546
FORTRAN G	360S-FO-520
FORTRAN H	360S-FO-500
FORTRAN Syntax Checker	360S-FO-550
PL/1	360S-NL-511
PL/1 F Library	360S-LM-512
PL/1 Syntax Checker	340S-PL-552
COGS-Allocation	5734-D32
COGS-Forecasting	5734-D33
Retail Impact Fashion System	360A-DR-04X
Retail Impact Staple System	360A-DR-05X
Wholesale Impact	350A-DW-05X
FORTRAN G and H Library	360S-LM-501
CICS/V2	5734-XX7
OS FASTER MT	5734-G21
PSP	5736-U12
STAIRS	5734-XR3
OS ITF PL/1	5734-RC1
OS ITF BASIC	5734-RC3
Business Analysis BASIC ITF	5734-XMB
LEARN ATS	5734-XX8
MATH/BASIC ITF	5734-XM8
STAT/BASIC ITF	5734-XA3
CALL/OS	360A-CX-42X
ATS	360A-CX-19X
AD-APT/Autospot	360A-CN-12X
APT	360A-CN-1-X
VSPX	5734-XM5
HCS/ECG	5734-H11
1288 BURS	5734-UT3
CSS II	5734-XS5
Data Set Utilities - ASCII	5734-UT2
Sort/Merge	360S-SM-023
IMS-BOMP Bridge	5734-XX9

SYSTEM GENERATION—OS/VS1/VS2

A system generation to incorporate the Model 11 in an installation requires changes to the IODEVICE macro and possibly the UNITNAME, GENERATE, and DATASET macros.

The 3330 Model 11 is specified in the IODEVICE macro as UNIT=3330, MODEL = 11. If only some 3330 Model 1s are to be converted to Model 11s, the installation-assigned "esoteric" group names defined via the UNITNAME macro should be inspected and possibly changed. *Note that with the exception of the IODEVICE macro the Model 11 is specified to the system as 3330-1 in all other device-dependent parameters.*

If the Model 11 is to be used for systems residence, the device type parameter in the GENERATE and DATASET macros must be changed.

To use the Model 11 for a Page Data Set in VS1, VS2.1 and VS2.2, perform the following functions:

Program	Action
VS1	Change the device type to Model 11 in the PAGE SYSGEN macro.
VS2.1	Define the Page Data Set (defined by a unit address) as a Model 11 in an IODEVICE macro.
VS2.2	Change the VOL parameter of the DATASET macros that define the Page Data Set.

Refer to *OS/VS1 Systems Generation Reference*, Order No. GC26-3791, or *OS/VS2 System Programming Library: Systems Generation Reference*, Order No. GC26-3792, for additional information.

GRADUAL FIELD CONVERSION FOR OS/VS1/VS2.1

Note: *Device Allocation for VS2.2 has been completely redesigned, so the following procedure is not applicable to VS2.2. In addition, the Device Mask Table is no longer used for device allocation. As a result, an I/O device generation must be performed when the devices are converted.*

When planning a lengthy field conversion to the Model 11 where two spindles are simultaneously placed offline, converted, and returned to the system, special consideration must be given to the operating system. It is unrealistic to perform an I/O device generation after each device is converted; however, the system

control program must reflect the actual DASD hardware capability at any point during the conversion.

If at least one Model 11 has been specified in the system generation to provide an entry in the Device Mask Table, the SUPERZAP service program may be used to update the system as each module is converted. After converting a 3330, and before placing the units back online, run the SUPERZAP program to:

1. Convert the UCBTYP field to describe the new device.
2. Modify the Device Mask Table to reflect the new device in the appropriate generic and esoteric name entries.

The system generation process uses information supplied in the IODEVICE and UNITNAME macros to build internal tables used in the device allocation function. These tables are:

- Unit Control Block (UCB)
- UCB Lookup Table
- Device Mask Table.

Unit Control Block

One unit control block is built for each device. The UCBTYP field within the UCB describes the device type. A disk UCBTYP field contains:

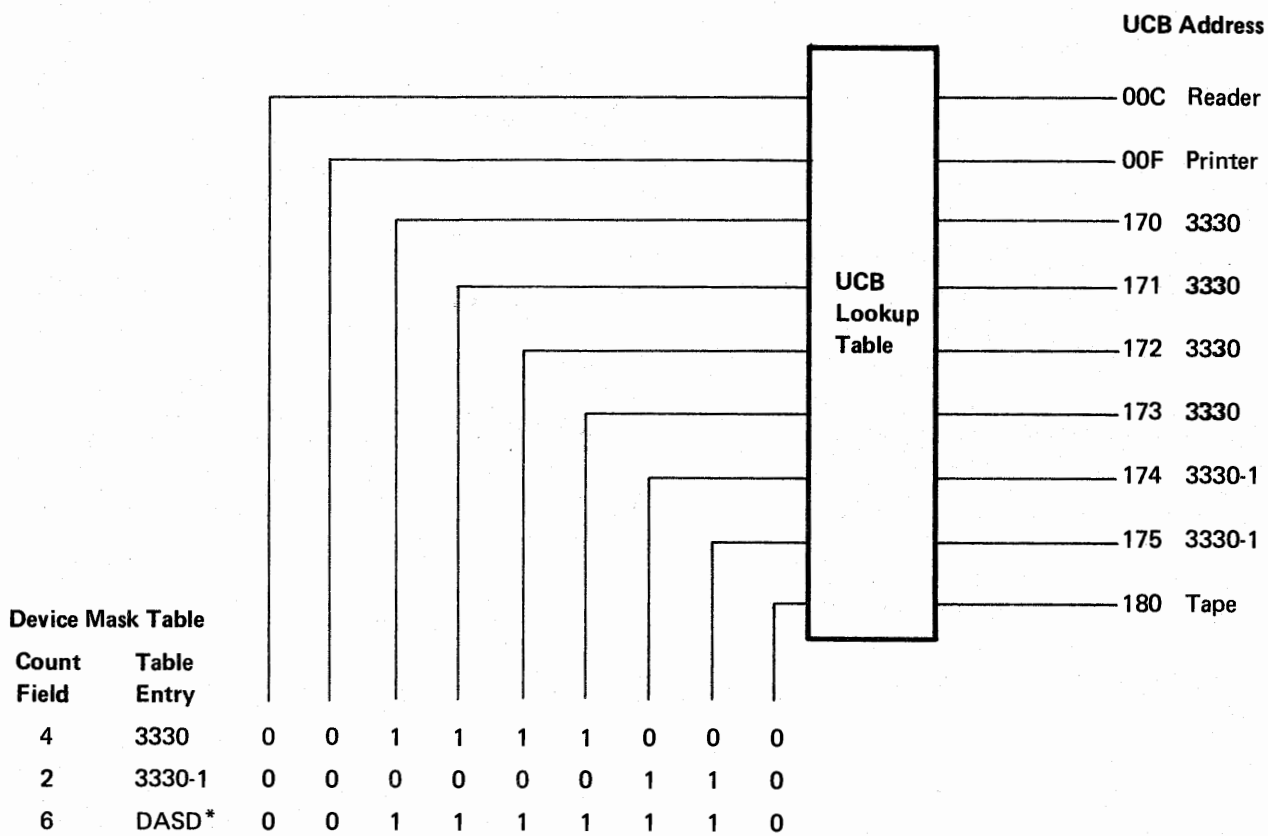
UCB + 16	Byte 1	IOS Flags/Model Code
. . . 1		Burst Mode
. . . 1		Data Chaining
. . . . 0 0 0 0		Model Code
UCB + 17	Byte 2	Optional Features
. 1		Track Overflow
. . 1		Shared
. . . 1		RPS
UCB + 18	Byte 3	Device Class
0 0 1 0 0 0 0 0		Direct Access Storage
UCB + 19	Byte 4	Unit Type
0 0 0 0 1 0 0 1		3330 Model 1 (or 2) and 3333 Model 1
0 0 0 0 1 1 0 1		3330 Model 11 and 3333 Model 11

The UCBs are on the SYS1.NUCLEUS data set and can be located in the last system generation or I/O device generation listing.

The first two bytes of the UCBTYP field are used to describe device features. For all models of the 3333/3330, these bytes are either X'3050' or X'3070' for unshared or shared devices, respectively. The third byte describes the device class and contains X'20' for all DASD devices. The fourth byte, at UCB±19, describes the unit type and contains X'09' for 3333/3330 Models 1 and 2, or X'0D' for 3333/3330 Model 11. This is the only byte in the UCB that needs to be changed.

UCB Lookup Table

One section of the UCB Lookup Table (Figure 1) has a 2-byte entry for each device (built sequentially by channel and unit address) containing the address of the associated UCB. This provides the I/O Supervisor interrupt handler routine with the ability to quickly locate the UCB for the device causing the interrupt. This lookup table is also used during allocation, together with the Device Mask Table.



* DASD locates all disks

Figure 1. UCB Lookup and Device Mask Tables

Device Mask Table

The Device Mask Table (Figure 1) contains an entry for each group of units described by a generic (IBM-supplied) name and each group of units described by an esoteric (user-defined) name.

Each entry in the Device Mask Table contains an 8-byte header describing the device types and a count field containing the number of devices in the group. The header is followed by a bit map in which each bit corresponds to an entry in the UCB Lookup Table (Figure 1). If the bit is on, the corresponding UCB address is for a unit (device) included in the group.

When changing a UCB from a Model 1 to a Model 11, the appropriate bit must be turned off in the 3330 generic name group and turned on in the 3330-1 (3330 Model 11) generic name group. A similar change may be made to installation-defined esoteric name groups, if appropriate.

To locate the appropriate group entries:

1. Use the SUPERZAP program to dump the Device Mask Table (DEVMSK on SYS1.LINKLIB).
2. Find the 3330 entry (30502009 in bytes 4-7) and the 3330-1 entry (3050200D in bytes 4-7).
3. Bytes 2 and 3 are a halfword field containing the number of UCBs for this device type. Decrement the number of UCBs for the 3330 entry and increment the number of UCBs for the 3330-1 entry by the number of units to be converted.
4. The bit map starts in byte 8. The easiest way to find the correct bit(s) to alter is to find the desired UCB in the UCB Lookup Table. If the UCB address entry is the tenth entry in the UCB address portion of the UCB Lookup Table, the tenth bit in the Device Mask Table bit pattern must be updated. (The CVT offset X'28', points to the UCB address portion of the UCB Lookup Table.)

Esoteric name entries in the Device Mask Table are similar, although the contents of bytes 4-7 differ. Bytes 4 and 5 contain a number, starting from 1, which corresponds to the position of the entry UNITNAME macro in the system generation input. The count field and bit map are in the same locations and must be incremented/decremented and the correct bits set on/off as appropriate.

JCL CHANGES

Data Definition(DD) statements specify the I/O requirements for a job step. The DD cards UNIT parameter contains the necessary information for DASD allocation. The UNIT parameter may specify:

1. Unit Address Physical unit address, UNIT=180.
2. Device Type UNIT=3330 3330/3333 Model 1
UNIT=3330-1 3330/3333 Model 11
3. Group Name A user-defined esoteric name, such as UNIT=DISK. At system generation, this name is equated by the UNITNAME macro to list of device addresses.

The JCL for most uncataloged data sets must be changed as a result of Model 11 installation/upgrades. All DD cards for data sets moved to Model 11 drives, which use a generic name (device type), have to be changed. Those that use a group name must be changed unless all devices in the group are upgraded. DD statements specifying unit address must be changed if the device is no longer the correct type or included on the configuration.

An FDP (5798-AJU), *OS/360/370 Job Control Language Device Dependent Parameter Conversion and Replacement* may be useful in minimizing the manual effort involved in making the JCL changes. See FDP 360-370, DDPREP, Order No. SB21-0575, for additional information.

DATA SET CONVERSION

Data sets currently residing on 3330 Model 1 drives can be converted to Model 11 packs by one of the following methods:

1. Normal update processing – old master in (3330 Model 1) and new master out (on 3330 Model 11).
2. OS Utility Programs – IEHMOVE, IEBISAM, etc.
3. Via OS/VS and standalone DUMP/RESTORE utility programs to permit restoring a 3330 Model 1 dump tape to the first 404 cylinders of the 3336 Model 11 pack. Data sets to reside in the last 404 cylinders must be moved using Method 1 or 2. Cataloged data sets moved to Model 11 drives must be recataloged.

VM/370 USER PROGRAMMING CONSIDERATIONS

When the 3330 Model 1 is converted to the higher-capacity Model 11, the VM/370 Real I/O Configuration Deck requires updating and reassembly. The assembly is not time consuming and should be performed as each Model 11 is put online. To construct a new DMKRIO, each RDEVICE macro must specify MODEL=1 or 11, as well as DEVTYPE=3330 or DEVTYPE=3333.

VM/370 cylinder extents may be moved to the Model 11 by the VM/370 SYSGEN Service Programs

DMKDIR, DMKDDR, and DMKFMT. Use of these programs requires the appropriate 3330 series model specification in control cards as 3330-11 or 3330-1.

VM/370 support for the Model 11 is contained in Release 2 of VM/370.

All commands and control cards that specify 3330 Series devices should be checked to be sure that they reflect the proper model for your installation. *The IBM Virtual Machine Facility/370: Planning and System Generation Guide*, Order No. GC20-1801, should be consulted for details.

CONVERSION CHECKLIST

- Check for user programs that use BDAM or EXCP macros, or that generate JCL; modify if necessary.
- Review program products and, if required, order the correct versions.
- Ensure that companion features and/or MESs for disk attachments are ordered to coincide with Model 11 delivery or conversion.
- Convert from 3830-1 to 3830-2 before installing the 3330 Model 11.
- Order the appropriate VS system or ICR from PID.
- Generate the new system including Model 11 drives.
- Dump 3336 Model 1 packs to tape. Label all reels. Approximately four reels are required for each disk pack. (A 3336 Model 1 disk pack can be dumped directly to the first 404 cylinders of a 3336 Model 11 disk pack if both models are available to the CPU.)
- Install new Model 11 units.
- Change the appropriate JCL to reference Model 11 drives. Change catalog to reference Model 11 drives.
- Restore dump tapes to the 3336 Model 11 disk packs using the correct level of the dump/restore utility (IEHDASDR or IBCDMPRS).
- (Optional) Use OS/VS utility to consolidate data.
- Start new system.

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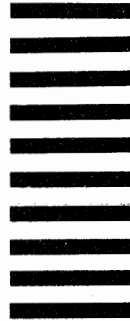
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