

Appendixes

Appendix A. Console Messages and Wait State Codes

System Initialization and Generation Messages

This section lists the console messages that may be received from MUSIC during system initialization or system generation. They are listed in numerical order.

M001 ACCOUNTING FILE ERROR *x*. RE-IPL TO RETRY. USE =RESET SPECIAL OPTION AS LAST RESORT

Explanation: An error has occurred when the system is processing the accounting data set. The code *x* further identifies the problem:

- 1 Blocksize is not 4096 bytes.
- 2 Accounting file not at least two records long.
- 3 The first record on the accounting file is incorrect. This record contains header information.
- 4 The accounting data set has changed size since last =RESET operation. (This message is issued by module DSINIT.)

Procedure: Reload MUSIC to retry. If error persists, inform system support personnel. The =RESET option will clear the file.

M002 AVAILABLE DISK DRIVES ARE:

Explanation: Self-explanatory. (This message is issued by module HELLO.)

M003 BAD BITMAP IN SAVE LIB DATA SET - LIB NO.=nnn

Explanation: The bitmap integrity check failed or bitmap's length was incorrect. As a result no user will be able to allocate space in this part of the Save Library. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel. The bitmap's length is in block 1, the bitmap starts at block 2, and can be up to 7 blocks in length.

M004 BAD FORMAT-4 DSCB - DRIVE=*cuu* VOL=*vvvvvv*

Explanation: The volume on drive *cuu* has a bad VTOC. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M005 CARD ALREADY DELETED - card image

Explanation: System response to a second request to delete the same card during a catalog edit. (This message is issued by module DSINIT.)

Procedure: None.

M006 CARD ALREADY DELETED DUE TO FORMAT ERROR - card image

Explanation: On catalog edit, card specified for deletion already been deleted due to a format error. (This message is issued by module DSINIT.)

Procedure: None.

M007 CARD DELETED-card image

Explanation: On catalog edit, the displayed card has been deleted. (This message is issued by module DSINIT.)

Procedure: None.

M008 CARD NOT FOUND IN CATALOG

Explanation: On catalog edit, the card requested for display or deletion could not be found. (This message is issued by module DSINIT.)

Procedure: Specify correct label for card to be listed or deleted.

M009 CATALOG CONTAINS NO ENTRIES

Explanation: No entries could be found in the system catalog data set. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M010 CATALOG DATA SET NOT FOUND - VOL=vvvvvv DRIVE=cuu DSN=dsn

Explanation: Catalog data set could not be found on the named volume. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M011 CATALOG TOO LARGE FOR WORKSPACE

Explanation: Catalog data set entries cannot all fit in the work area inside the module DSINIT. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M012 DATA SET NOT FOUND - VOL=vvvvvv DSN=dsn

Explanation: SYS1.MUSIC.NUCLEUS data set could not be located on the IPL volume. (This message is issued by module MFETCH and module WMON.)

Procedure: Retry. If the error persists, inform the system support personnel.

**M013 DATA SET NOT FOUND - VOL=vvvvvv DSN=dsn
SYSTEM CANNOT RUN**

Explanation: The named data set could not be found on the specified volume. If the second portion of the message does not appear, the system will attempt to run without it. The catalog entry referring to this data set may be in error, or the data set may not exist. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M014 DATA SET WILL NOT BE USED

Explanation: This is issued in conjunction with other Save Library error messages. (This message is issued by module DSINIT.)

Procedure: None.

M017 DO YOU WISH TO REPEAT THE EDIT PROCEDURE?

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Affirmative reply is 'YES'. Negative reply is 'NO' or blank line.

M018 DUPLICATE CATALOG ENTRY FOR system data set name

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

**M019 DUPLICATE CATALOG ENTRY FOR SAVE LIB DATA SET -
LIB NO.=nnn**

Explanation: Two entries in the system catalog refer to the same Save Library extent number. (This message is issued by module DSINIT.)

Procedure: Reload MUSIC. Use the catalog edit procedure to fix the incorrect entry.

**M020 DUPLICATE PSEUDO DEVICE CARDS FOUND -
PSEUDO TYPE=xxx**

Explanation: Two catalog pseudo device entries specify the same pseudo device type. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

**M021 DUPLICATE VOLUME LABEL -
vvvvvv PACK ON DRIVE cuu NOT PROCESSED**

Explanation: Two disk packs have the same volume name. The volume on named drive will not be used by the system. (This message is issued by module DSINIT.)

Procedure: If pack not processed had been mounted by mistake, no action is needed. Otherwise, stop the processing unit, mount the correct disk packs, and reload MUSIC.

M022 EDIT COMPLETE

Explanation: The system catalog edit operation has ended. (This message is issued by module DSINIT.)

Procedure: None.

M023 ENABLE THE INTERVAL TIMER

Explanation: Self-explanatory. (This message is issued by module HELLO.)

Procedure: Enable the interval timer.

M024 ENABLE TOD CLOCK TO CONTINUE

Explanation: The system is waiting for the switch on the processing unit to be placed in the 'ENABLE TOD' clock position. (This message is issued by module HELLO.)

Procedure: Perform the required operation.

M025 ENTER ADDITIONAL CATALOG CARDS (AS SHOWN BELOW), OR BLANK LINE LABEL... XNNN NN XXX NNN VVVVVV DATA.SET.NAME.....

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Enter card image or blank line if no additions are to be made to the system catalog.

M026 ENTER CARD LABELS TO BE DISPLAYED OR "ALL" OR BLANK LINE

Explanation: System response to request to edit the catalog. (This message is issued by module DSINIT.)

Procedure: Enter labels of catalog entries to displayed, or 'ALL' if all catalog entries are to be displayed on the system console.

M027 ENTER CARDS TO BE DELETED OR BLANK LINE

Explanation: Self-explanatory message issued during catalog edit. (This message is issued by module DSINIT.)

Procedure: Enter labels of entries to be deleted if any, or blank line if none are to be deleted.

**M029 ERROR DURING DSCB SEARCH -
VOL=vvvvvv DRIVE=cuu DSN=dsn**

Explanation: An error has occurred during a search of the VTOC of volume mounted on specified drive for the displayed data set name. Other explanatory messages may be issued. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M030 ERROR IN CATALOG CARD(S)

Explanation: Errors have been found in one or more catalog entries. Other explanatory messages precede this one. (This message is issued by module DSINIT.)

Procedure: Re-enter correct cards if known, otherwise, retry, and if error persists, Inform system support personnel.

M031 ERROR ON SYSTEM DEVICE - DRIVE=cuu

Explanation: An error has occurred on the system residence device on the named drive. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel and hardware support personnel.

M032 ERROR READING F-4 DSCB - DRIVE=cuu VOL=vvvvvv

Explanation: An error has occurred during an attempt to read the VTOC of the pack on the named drive. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M033 ERROR READING LABEL - DRIVE=cuu

Explanation: An error has occurred during an attempt to read the volume label of the pack on named drive. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M034 ERROR READING LOAD LIBRARY DATA SET

Explanation: An I/O error has occurred during an attempt to read the directory in the Load Library data set. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M035 ERROR...RE-ENTER

Explanation: The time or date is incorrect. Year must be in the range of 1980 to 2010. (This message is issued by module HELLO.)

Procedure: Correct the time or date and if necessary consult a calendar for the correct day of the week.

**M037 INSUFFICIENT CATALOG ENTRIES FOR system data set name
MINIMUM=nnn**

Explanation: The specified data set type requires at least nnn catalog entries. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M038 INSUFFICIENT MAIN STORAGE TO INITIALIZE SYSTEM.

Explanation: Insufficient main storage for terminals, functions and devices. (This message is issued by module DSINIT.)

Procedure: Rerun the NUCGEN Utility with corrected configuration cards.

M039 INSUFFICIENT MAIN STORAGE FOR LOAD LIBRARY DIRECTORY

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Decrease main storage requirement of MUSIC.

M040 INSUFFICIENT MAIN STORAGE FOR RESIDENT PROGRAM TABLE

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Decrease main storage requirement of MUSIC.

**M041 INVALID BLKSIZE IN SAVE LIB DATA SET -
LIB NO.=nnn BLKSIZE=bbbbbb SHOULD BE 512**

Explanation: The blocksize of the Save Library data set was not 512 bytes. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

**M042 INVALID BLKSIZE IN SAVE LIB INDEX DATA SET -
BLKSIZE=nnnnn SHOULD BE 512**

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M044 MUSIC REQUIRES ECMODE ON VM

Explanation: Self-explanatory. (This message is issued by module HELLO.)

Procedure: Use the VM "SET ECMODE ON" command or change MUSIC'S VM directory entry to

specify ECMODE.

M045 USING NEW CATALOG DATASET

Explanation: The =CATxxxx special option has been used. (This message is issued by module HELLO.)

Procedure: None.

M046 INVALID DISK DEVICE TYPE - DRIVE=cuu

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Rerun the NUCGEN Utility with corrected configuration cards.

M047 INVALID FORMAT-4 DSCB

Explanation: The VTOC of the IPL volume is invalid. (This message is issued by module MFETCH and module WMON.)

Procedure: Retry. If the error persists, inform the system support personnel.

M048 INVALID VOLUME LABEL

Explanation: The volume label of the IPL volume is invalid. (This message is issued by module MFETCH and module WMON.)

Procedure: Retry. If the error persists, inform the system support personnel.

M049 INVALID HEADER IN LOAD LIBRARY DATA SET

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M050 INVALID LABEL IN SAVE LIB DATA SET - LIB NO.=nnn LABEL=label

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M051 INVALID LABEL IN SAVE LIB INDEX DATA SET - LABEL=label

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

**M052 INVALID TIME/DATE STAMP IN SAVE LIB DATA SET -
LIB NO.=nnn TIME=hh.mm.ss DATE=ddmmmyy**

Explanation: The date stamp on the Save Library index does not match that on all the extents. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M053 INVALID VTOC EXTENT

Explanation: MUSIC system disk pack VTOC's must occupy only one cylinder. Probably caused by specifying incorrect specifications when the pack was initialized. It is most unlikely that this error will result for any other reason. (This message is issued by module MFETCH and module WMON.)

Procedure: Retry. If the error persists, inform the system support personnel. The system support personnel will have to run the DSF utility to correct this error.

M054 I/O ERROR

Explanation: Self-explanatory. Issued in conjunction with other messages. (This message is issued by module DSINIT.)

Procedure: None.

M056 I/O ERROR READING FORMAT-4 DSCB

Explanation: Self-explanatory. (This message is issued by module MFETCH and module WMON.)

Procedure: Retry. If the error persists, inform the system support personnel.

M057 I/O ERROR READING VOLUME LABEL

Explanation: Self-explanatory. (This message is issued by module MFETCH and module WMON.)

Procedure: Retry. If the error persists, inform the system support personnel.

M058 I/O ERROR SEARCHING VTOC

Explanation: An I/O error occurred while searching for the SYS1.NUCLEUS data set on the IPL volume. (This message is issued by module MFETCH and module WMON.)

Procedure: Retry. If the error persists, inform the system support personnel.

M059 I/O ERROR WRITING DATA SET NAME LIST TO SYSRES IGNORED

Explanation: Self-explanatory. System will still run. (This message is issued by module DSINIT.)

Procedure: None, the system support personnel should be notified of this message.

M060 MISSING CATALOG ENTRY FOR system data set name

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

**M061 MISSING CATALOG ENTRY FOR SAVE LIB DATA SET -
LIB NO.=nnn**

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Reload MUSIC and edit the catalog to provide the missing entry.

M062 MISSING INDEX DATA SET FOR SAVE LIBRARY

Explanation: Self-explanatory. Probably caused by a system disk pack not available. (This message is issued by module DSINIT.)

Procedure: Make the required disk available and reload MUSIC.

M063 MISSING SAVE LIB DATA SET - LIB NO.=nnn

Explanation: Self-explanatory. Probably caused by a system disk pack not available. (This message is issued by module DSINIT.)

Procedure: Make the required disk available and reload MUSIC. If not possible, MUSIC will run but some user files will not be available. It is not recommended to run in this fashion.

M064 MORE THAN ONE EXTENT - VOL=vvvvvv DRIVE=cuu DSN=dsn

Explanation: Specified data set occupies more than one extent on the named volume. System data sets must only occupy one extent. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

**M065 NEW SAVE LIB DATA SET HAS NONZERO DATE STAMP - NOT ADDED.
LIB NO.=nnn**

Explanation: During initialization, the system found a new Save Library data set in the catalog, which, according to its number, should be a new data set. However, the time/date stamp in block 1 of the data set was not zero, which indicates that the data set is not a new data set. The data set was not added to the library. (This message is issued by module DSINIT.)

Procedure: Verify that the catalog is correct. If the data set actually is new, verify that it was formatted (via the FORMAT utility) and initialized (via the ULINIT utility) correctly. Make any necessary corrections and re-IPL.

M066 MUSIC/SP, LEVEL=aaaa

Explanation: Informative message. The level identification is that set when the nucleus generation

procedure (NUCGEN) was performed. (This message is issued by module HELLO.)

M067 NEW SAVE LIB DATA SET ADDED - LIB NO.=nnn

Explanation: Informative message indicating a new extent has been added to the Save Library. (This message is issued by module DSINIT.)

Procedure: None.

**M068 NEW SAVE LIB INDEX DATA SET INITIALIZED -
DATE=ddmmmyy TIME=hh.mm.ss**

Explanation: Informative message. (This message is issued by module DSINIT.)

Procedure: None.

**M069 NO ATTEMPT TO ALLOC SPACE WILL BE MADE ON
THIS LIB EXTENT**

Explanation: Informative message. Issued in conjunction with other messages. (This message is issued by module DSINIT.)

Procedure: None.

M070 NO DISK DRIVES ARE AVAILABLE FOR MOUNTS.

Explanation: Informative message. (This message is issued by module HELLO.)

M071 NOT ENOUGH MAIN STORAGE FOR CONFIGURED SYSTEM.

Explanation: Insufficient main storage for terminals, functions, and devices. (This message is issued by module HELLO.)

Procedure: Rerun the NUCGEN Utility with corrected configuration cards.

M073 TEMPORARY WORKFILE DATA SET AVAILABLE

Explanation: Self-explanatory. System will run, but in a degraded mode. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M074 NO TERMINALS WILL BE STARTED

Explanation: Response to a =NOTERM request (This message is issued by module HELLO.)

Procedure: None. To start terminals at a later time issue the /ADD console command.

M075 NO VOLUMES ARE PERMANENT.

Explanation: Self-explanatory. (This message is issued by module HELLO.)

Procedure: None

M076 (c) Copyright 1989-19xx, McGill University, Montreal, Canada

Explanation: Copyright message. For full text of copyright message see file \$SUB:COMUC.S as well as other locations in the system. (This message is issued by module HELLO.)

Procedure: None

M077 ENTER OPERATOR ID OR SPECIAL OPTIONS OR HELP

Explanation: Self-explanatory. (This message is issued by module HELLO.)

Procedure: Enter operator ID. The ID is not checked but must be non-blank. Possible special options are =CATxxxx, =RESET, =NOTERM, =EDIT, and =CONFIG. Entry of all blanks means that all the default options will be used. Refer to *Chapter 3 - Loading the System* for further information.

M078 PSEUDO DEVICE TYPE=xxx NEEDED FOR DSN=dsn

Explanation: Catalog entry for listed data set name requires pseudo device type xxx. There is no entry for this pseudo device type, or pseudo device type requested is incorrect. (This message is issued by module DSINIT.)

Procedure: Correct catalog entry.

M080 REQUIRED DATA SET NOT FOUND ON IPL VOLUME - DSN=dsn

Explanation: Required data sets named cannot be found on the IPL volume. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M081 REQUIRED IPL VOLUME DATA SET - IMPROPER FORMAT - DSN=dsn

Explanation: Format of required IPL volume data set is incorrect. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M082 REQUIRED VOLUME NOT MOUNTED - VOL=vvvvvvv

Explanation: A catalog VOLUME card specified that this named volume was to be mounted at IPL time. (This message is issued by module DSINIT.)

Procedure: Mount the named volume, if required, and perform an IPL operation.

**M086 SAVE LIB DATA SET IS TOO SMALL -
LIB NO.=nnn NREC=xxxxx**

Explanation: Self-explanatory. This error is most likely caused by having a 3330 pack mounted on a device address that was defined to MUSIC as a 2314 or similar mismatch of device types. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel. The system support personnel can use the reconfiguration option at IPL time to correct any device type mismatches and then rerun the NUCGEN utility to permanently correct the problem.

M087 SAVE LIB INDEX DATA SET IS TOO SMALL - NREC=nnnnn

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

**M088 NO GOOD SWAP DATA SET FOUND--
NO USER REGION SWAPPING WILL BE DONE**

Explanation: Self-explanatory. System errors will result. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M089 SWAP DATA SETS MUST HAVE BLOCKSIZE OF 4096 BYTES

Explanation: Self-explanatory. The following M106 message will identify the incorrect data set. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M090 CONFIGURATION INCORRECT: NO DISK DRIVES DEFINED

Explanation: Self-explanatory. (This message is issued by module HELLO.)

Procedure: Rerun the nucleus generation program (NUCGEN).

M091 DEVICE NOT OPERATIONAL OR I/O ERROR - DRIVE=cuu

Explanation: Problems accessing the disk on the specified device. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel and hardware support personnel.

M092 SYSTEM INITIALIZATION COMPLETING.

Explanation: Informative message to indicate initialization completing. This message is given when the startup routines (HELLO and DSINIT) have finished their work and are passing control to the main MUSIC resident supervisor. At this time the JOBONE job is started to perform some more initialization

functions such as the loading of the PLPA area. The system will be ready to run normal user jobs as soon as either M300 BATCH IDLE message is given or the M306 message is printed to show the /ID of the first batch job. (This message is issued by module HELLO.)

Procedure: None

M093 SYSTEM INITIALIZATION TERMINATED

Explanation: Summary message. System initialization could not be accomplished. (This message is issued by module DSINIT.)

Procedure: Follow procedure for messages issued prior to this one.

M094 SYSTEM INITIALIZATION TERMINATED DUE TO MISSING DATA SETS OR VOLUMES

Explanation: System initialization could not be accomplished because required data sets or volumes could not be found. (This message is issued by module DSINIT.)

Procedure: Follow procedure for messages preceding this one.

M095 IPLD DEVICE OF uuu NOT IN I/O CONFIGURATION

Explanation: The disk drive from which the system was loaded was not defined in the MUSIC nucleus. (This message is issued by module HELLO.)

Procedure: Mount the system residence pack (MUSICX) on a disk drive defined in the nucleus or use the re-configuration (=CONFIG) feature at IPL time to allow for this address.

M096 THE FOLLOWING SYSTEM DATA SETS WILL BE USED

Explanation: Informative message. Following this message, all data set names for which logging has been requested in their catalog entries will be listed on the system console. (This message is issued by module DSINIT.)

Procedure: None.

M097 THE FOLLOWING VOLUMES ARE PERMANENT:

Explanation: All permanently disk volumes are listed. (This message is issued by module HELLO.)

Procedure: None

M098 PAGE DATA SETS MUST HAVE BLOCKSIZE OF 4096 BYTES

Explanation: Self-explanatory. The following M106 message will identify the incorrect data set. (This message is issued by module DSINIT.)

Procedure: Inform system support personnel.

M099 PAGE DATA SETS MUST BE AT LEAST 8 PAGES LONG

Explanation: Self-explanatory. The following M106 message will identify the incorrect data set. (This message is issued by module DSINIT.)

Procedure: Inform system support personnel.

M100 TWO OR MORE FORMAT-4 DSCBS - DRIVE=cuu VOL=vvvvvv

Explanation: Named volume has a bad VTOC. Alternately, it is a VM pack. In either case, the volume will not be used by MUSIC. (This message is issued by module DSINIT.)

Procedure: Ignore this message if the pack is not required for MUSIC. Otherwise, retry, and if error persists, inform system support personnel.

M101 UNABLE TO LOAD PROGRAM x. REASON=rrr

Explanation: Problems were encountered trying to load the named program from the system load library. This message is given when the system is loading the FLPA and PLPA areas. The reason field identifies the cause of the problem. Reasons are attempting to load a non-reentrant program into the PLPA area, program not found on the load library, the page data set is full, I/O error during load and insufficient main storage to hold the program. (This message is issued by module DSINIT.)

Procedure: The system will keep running. Inform the system support personnel.

M102 VM COMMAND ERROR. RC=rrr

Explanation: VM detected error in one of the /CP commands in the MUSIC catalogue. The command in error was printed in the last M103 message. The VM return code is printed as part of the message. (This message is issued by module DSINIT.)

Procedure: Inform system support personnel.

M103 VM COMMAND ISSUED: command

Explanation: The listed VM command was issued. This command from the system catalog. (This message is issued by module DSINIT.)

Procedure: None.

M104 VM TIME OF DAY CLOCK LOOKS BAD

Explanation: The date obtained from VM was not in the range 1980-2010. This message will also be given when the STORE TOD CLOCK (STCK) did not get an acceptable condition code under VM. (This message is issued by module HELLO.)

Procedure: Either reload VM with the correct date or you may enter the time and date to MUSIC in the usual fashion.

M105 vvvvvv ON UNIT nnn

Explanation: Informative message. Follows M097 and lists the disk volumes by name and address. Additional information may be shown. SYS means that the volume contains some MUSIC system data sets, UDS means that the volume does not contain active MUSIC system data sets, NDS means that users can allocate new UDS files on this volume, PRV means that users cannot refer to data sets on this volume even when the data set naming convention is followed. R/O means the volume is accessed in read-only mode. The NDS, R/O and PRV attributes are taken from the VOLUME card specified in the MUSIC system catalog. (This message is issued by module HELLO.)

M106 VOL=vvvvvv DSN=dsn

Explanation: Issued in conjunction with other messages. (This message is issued by module DSINIT.)

Procedure: Follow procedure (if any) for messages issued in conjunction with this one.

M107 VTOC CI TOO BIG FOR MUSIC

Explanation: The VTOC has a control interval of greater than 1024 bytes. This message is issued for FBA disks only. (This message is issued by module DSINIT.)

Procedure: Inform the system support personnel.

M108 SWAP DATA SETS TOO SMALL TO HOLD EVEN ONE SWAP SET

Explanation: A swap set consists of 10 blocks of 4096 bytes. The following M106 message will identify the incorrect data set. (This message is issued by module DSINIT.)

Procedure: Inform system support personnel.

M109 NO GOOD PAGE DATA SETS FOUND--NO PAGING WILL BE DONE.

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Inform system support personnel.

M110 WRONG HASH NUMBERS IN SAVE LIB INDEX DATA SET

Explanation: Integrity check failed. (This message is issued by module DSINIT.)

Procedure: Retry. If the error persists, inform the system support personnel.

M111 2314	ON nnn
3340	ON nnn
2305.1	ON nnn
2305.2	ON nnn
3350	ON nnn
3375	ON nnn
3380	ON nnn
F512	ON nnn

Explanation: The device type and the physical address of an available disk drive is displaced in the message. This drive may be used by batch programs for mountable User Data Set (UDS) volumes. (This message is issued by module HELLO.)

Procedure: None.

M112 DISK I/O ERROR

Explanation: An I/O error was detected while attempting to read in the MUSIC system nucleus. (This message is issued by module MFETCH and module WMON.)

Procedure: Retry. If error persists, rewrite system nucleus.

M113 BATCH NOT AVAILABLE. NO DISK SPACE ALLOCATED

Explanation: No spooling space has been allocated for batch. (This message is issued by module HELLO.)

Procedure: None.

M115 TEMPORARY SYSTEM I/O RE-CONFIGURATION. ENTER ALL ADDRESSES IN THE FORM 'CUU'

Explanation: The =CONFIG special option has been selected. (This message is issued by module HELLO.)

Procedure: Follow the prompt messages that will be printed.

M116 INVALID BLOCKSIZE FOR SPOOL DATA SET

Explanation: The batch spooling data sets must have a blocksize of 512 bytes. (This message is issued by module DSINIT.)

Procedure: Change the blocksize of the data set.

M117 DATA SET NOT ON 32 BLOCK BOUNDARY. DSN=dsn

Explanation: All MUSIC data sets to be used by MUSIC must begin on 32 block boundaries on FBA disks. (This message is issued by module DSINIT.)

Procedure: Correct the incorrect data set.

M118 PREPARING TO RESET (WIPEOUT) ACCOUNTING DATA SET

Explanation: Operator has used =RESET special option. This message warns the operator that the accounting data set will be cleared. (This message is issued by module DSINIT.)

Procedure: None, if the reset is to be performed. If the reset is not wanted, do another IPL.

M119 INVALID RESIDENCE AREA

Explanation: An internal table describing the layout of the MUSIC nucleus is invalid. (This message is issued by module MFETCH.)

Procedure: Rewrite system nucleus.

M123 MUSIC RUNNING V=R, NOTRAN SET ON

Explanation: MUSIC has detected a V=R environment and has set NOTRAN on. CCW translation will be bypassed. (This message is issued by module HELLO.)

Procedure: None.

M124 PRINTER BUFFERS WILL BE LOADED

Explanation: Issued as a response when the =LOADPRT option is specified at IPL time. (This message is issued by module HELLO.)

Procedure: The system will prompt for further information later in the initialization sequence.

M125 ENTER FCB NAME

Explanation: The operator is requested to enter a four character name of the FCB to be loaded into the printer. (This message is issued by module DSINIT.)

Procedure: Enter the FCB name. See the topic on "Initializing the Printer" in *Chapter 3* for valid responses.

M126 PRINTER SPOOLED, UTILIZE VM LOADBUEF COMMAND

Explanation: =LOADPRT was specified at IPL time but the printer is a spooled device under the control of VM. (This message is issued by module DSINIT.)

Procedure: Printer should be initialize using facilities offered by VM. See *Chapter 2 - Running MUSIC/SP under VM* for details on the VM LOADBUEF command.

M127 NO FCB WILL BE LOADED

Explanation: A blank line was entered in response to message M125. (This message is issued by module DSINIT.)

Procedure: None, unless the blank line was entered accidentally, in which case the IPL procedure should be repeated.

M128 FCB IMAGE NOT FOUND, RE-ENTER

Explanation: The response to M125 was not a valid FCB name. (This message is issued by module DSINIT.)

Procedure: Enter a valid FCB name. See Chapter 3, the topic on "Initializing the Printer" for valid responses.

M129 ERROR ON BUFFER LOAD

Explanation: An error occurred while loading the printer buffer. The IPL sequence will continue since terminals can function without the printer. (This message is issued by module DSINIT.)

Procedure: Correct the problem with the printer and re-try the buffer load operation. The buffer can be loaded using the SETBUF program, or by an IPL.

M130 ENTER UCS NAME

Explanation: The operator is requested to enter a four character name of the UCS to be loaded into the printer. (This message is issued by module DSINIT.)

Procedure: Enter the UCS name. See Chapter 3, topic "Initializing the Printer" for valid responses.

M131 NO UCS WILL BE LOADED

Explanation: A blank line was entered in response to message M130. (This message is issued by module DSINIT.)

Procedure: None, unless the blank line was entered accidentally, in which case the IPL procedure should be repeated.

M132 UCS IMAGE NOT FOUND, RE-ENTER

Explanation: The response to M130 was not a valid UCS name. (This message is issued by module DSINIT.)

Procedure: Enter a valid UCS name. See Chapter 3, topic "Initializing the Printer" for valid responses.

M133 UNKNOWN PRINTER TYPE - NOTHING LOADED

Explanation: The printer is not supported by MUSIC. (This message is issued by module DSINIT.)

Procedure: Inform the systems personnel. For a list of supported printers, see Chapter 3, the topic on "Initializing the Printer".

M134 WRONG UCS FOR THIS PRINTER, RE-ENTER

Explanation: The UCS name specified as a response to M130 is not valid for this type of printer. (This message is issued by module DSINIT.)

Procedure: Enter a valid UCS name. See Chapter 3, the topic on "Initializing the Printer" for valid responses.

M135 FOLD OPTION ON BUFFER LOAD - YES/NO (DEFAULT NO)

Explanation: The operator is asked if the FOLD option is to be used while loading the printers buffer. The FOLD option causes lower case characters to be printed as upper case. (This message is issued by module DSINIT.)

Procedure: Respond YES or NO as required. A blank line is treated as NO.

M136 UNRECOVERABLE PRINTER ERROR NOTHING LOADED

Explanation: Printer is not operational. The IPL will continue since terminals still function without it. (This message is issued by module DSINIT.)

Procedure: Fix the problem with the printer.

M137 PRINTER NOT READY, READY DEVICE AND RESPOND GO

Explanation: The printer was not ready during the buffer load. (This message is issued by module DSINIT.)

Procedure: Ready the printer and reply GO.

M138 KEYS ARE NOT SUPPORTED ON DISKS aaa

Explanation: Data sets with keys are not supported on MUSIC. (This message is issued by module DSINIT.)

Procedure: None.

M139 STORAGE SIZE xxxxK. PAGEABLE STORAGE nnnnK

Explanation: The size of the main storage size available to MUSIC is shown. Also given is the amount of main storage that can be dynamically assigned to user programs. (This message is issued by module HELLO.)

Procedure: None.

M140 MAXMPL= nn, MAXRRS= nnnk, NUM RCBS= nnn

Explanation: At IPL time, the system sets a number of items based on the available storage. This message displays some of these items.

The maximum multi-programming level (MAXMPL) number is the number of concurrently active jobs the system will handle. The maximum real region size (MAXRRS) shows the maximum real storage size the system will dynamically assign to any active job. The number of Region Control Blocks (RCBS) is also shown. The system uses the RCBS to contain information of jobs that are actively running or are in inactive status and are resident in main storage (i.e. not swapped out). (This message is issued by module HELLO.)

Procedure: None.

M141 NOT ENOUGH MAIN STORAGE LEFT FOR USER REGIONS.

Explanation: The size of the main storage size available to MUSIC is insufficient to run jobs. (This message is issued by module HELLO.)

Procedure: Give MUSIC more storage or remove items from the FLPA.

**M142 WARNING: SAVE LIBRARY INDEX OVERFLOW AREA ALMOST FULL.
NUM FREE BLOCKS=nnnn**

Explanation: Self-explanatory. (This message is issued by module DSINIT.)

Procedure: Inform system support personnel. They can run the following cleanup programs: \$PGM:LIBINDEX.CLEAN1.S and \$PGM:LIBINDEX.CLEAN2.S.

M143 Batch internal reader has been turned off

Explanation: Informative message in response to the =RDROFF IPL option.

Procedure: None.

M144 Starting RAM DISK load

Explanation: The RAM DISK area in memory is being loaded. This is issued by JOBONE at startup time if a RAM DISK area is defined. It is also issued when you run the RAMDLD utility.

M145 RAM DISK load finished

Explanation: The RAM DISK area has been loaded.

M146 Cannot open file nnnnnn

Explanation: The file nnnnnn could not be opened during the RAM DISK load. Check that the file exists.

M147 No space left to load file nnnnnn

Explanation: There is not enough RAM DISK space left to load the file nnnnnn. Increase the RAMDSK parameter in the NUCGEN if you want to load more files. The system will attempt to load subsequent files in the list and will issue this message for each file that is too big to fit.

M148 Error reading file nnnnnn

Explanation: An error occurred while loading the file nnnnnn into the RAM DISK area. The most likely cause of this is that the RAMDLD utility is being used to load the disk but VIP has not been turned on. (VIP is required to read the directory blocks of the files)

M149 RAM DISK is too small to use

Explanation: A RAM DISK area has been defined in the NUCGEN but it is too small to be of any use. The RAMDSK parameter should be at least 32K.

M150 Cannot open RAMDISK.LIST

Explanation: A RAM DISK area has been defined in the NUCGEN but the RAMDISK.LIST file cannot be opened. This file should contain the list of files that are to be loaded into the RAM DISK area. Check that the file exists.

M151 Error reading RAMDISK.LIST

Explanation: A file error occurred reading the file RAMDISK.LIST during the RAM DISK load. Check that the file exists and is readable.

M152 RAM DISK index area is filled

Explanation: The memory reserved for the RAM DISK index is filled. Increase the RAMDSK parameter in the NUCGEN if you want to add more files.

M153 Starting TEMP file cleanup

Explanation: Issued by JOBONE at startup time. The system scans the file index and deletes any temporary files that were perhaps left allocated due to a system failure or sudden shutdown.

M155 Loading PLPA

Explanation: Issued by JOBONE at startup time. This informs you that the Pagable Link Pack Area (PLPA) is being loaded. Selected modules are copied from the Load Library to the Page Datasets.

Terminal I/O Messages

M200 I/O ERROR ADDR=020 CAW=xx CC=y CSW=zzzz SI=ss OPCD=oo

Explanation: An I/O error occurred on the specified terminal address. The channel address word (CAW), sense information byte (SI), the channel status word (CSW) are given if available. The condition code associated with the SIO is given in the CC portion. The op code of the failing CCW is identified in the OPCD portion. This message may be followed by a DROPPED message. (This message is issued by module TCS.)

For non-3270 terminals, the sense bit meanings are as follows:

- 80 Command Reject. Invalid CCW command(s) issued by MUSIC to a terminal. The sequence of events causing the error should be reported to the system administrator.
- 40 Intervention Required. A telecommunications data set has become not ready either due to the telephone connection being severed or by the data set being powered off. This is not an unusual condition unless it happens very often on a particular line or many lines simultaneously.
- 20 Bus Out Parity Error. This is a hardware error and should be reported to the service personnel.
- 10 Equipment Check. An error has occurred within the 270x or 370x communications controller. Report this occurrence to the service personnel.
- 08 Data Check. Errors were detected in the data being transmitted to or from remote terminals. The error was probably caused due to noise on the communications channel.
- 04 Overrun. The computer could not handle the data as fast as it was being received. Report this problem to the service personnel as it is probably caused by hardware malfunction or configuration error.
- 02 Lost Data. Data was received from a terminal when MUSIC was not expecting any. Most likely caused by typing input at a terminal which has not requested any input.
- 01 Timeout. A reply was expected from a terminal within a specific time but was not received. This can be caused by a user failing to sign on within the allowed 30 second limit. This error may also be caused by a terminal being powered off or a malfunction of the remote terminal.
- 00 Probably reading paper tape and no tape off character after the line end signal.
- FF Not Operational. The telecommunications control unit has become non-operational. If the control unit was not intentionally disabled, then this should be treated as a hardware malfunction.

For 3270 terminals, the sense bit meanings are as follows:

- 80 Command Reject. Invalid CCW command(s) issued by MUSIC to a terminal. The sequence of events causing the error should be reported to the system administrator.
- 40 Intervention Required. The device is in *not ready* status.
- 20 Bus Out Check. A parity check was detected. This is a hardware error and should be reported to the service personnel.
- 10 Equipment Check. This is a hardware error. Check the device for a blown fuse, etc.
- 08 Data Check. A cursor or parity check was detected.
- 04 Unit Specify. Indicates a hardware error. It might just be a transient condition. It might also require that the control unit be powered off and then on.
- 02 Control Check. The terminal failed to respond in a specified time. This may indicate a hardware error or that the device is in test mode.
- 01 Operation Check. The terminal received invalid data such as an incorrect buffer address in a data stream. It can also be caused by incorrect double byte character sequence used with a DBCS language such as Japanese.

M201 TERMINAL nnn DROPPED, ADDR=xxx

Explanation: See the above discussion. (This message is issued by module TCS.)

Procedure: See the above discussion.

M202 INVALID 3270 DATA STREAM FROM DEVICE xx

Explanation: An invalid 3270 data stream has been received from the specified device. An example of such an error is the data stream ending in the middle of the 2 byte field location. (This message is issued by module FSIO.)

Procedure: Report this to your system support personnel.

M203 TERMINAL AT xxx IS NOT OPERATIONAL

Explanation: This message is issued if a 3270 type terminal is detected to be not operational when the line is enabled. This situation could arise if the control unit is not on, if the terminal is not defined under VM. MUSIC will retry when the device becomes available. (This message is issued by module TCS.)

Procedure: Investigate why the terminal is not operational.

Batch Processing Messages

M300 BATCH IDLE

Explanation: All batch jobs have been processed and all output has been printed and the card reader is inactive. (This message is issued by module SPAM.)

Procedure: None.

M301 DISK ERROR, JOB SKIPPED

Explanation: Disk error occurred while writing on batch input area. (This message is issued by module SPAM.)

Procedure: Rerun the job. If the error continues, follow installation procedures.

M303 EXCESSIVE INPUT, JOB SKIPPED

Explanation: Batch job input has exceeded the allocated disk spooling space. (This message is issued by module SPAM.)

Procedure: Advise user. The disk spooling space can be enlarged by the system support personnel if the current size presents a problem. He needs enlarge the data set SYS1.MUSIC.BATCHIN.

M304 FLUSHING PURGE JOB

Explanation: A job has been read that contains a /PURGE card and the switch has been set to ignore such jobs. (This message is issued by module SPAM.)

Procedure: If the job that contained the /PURGE command should be allowed, then allow purge jobs by using the /CTL PURGE console command and re-read the job. The console command /CTL NOPURGE should be typed if you wish to return to the condition that purge jobs from batch will be ignored.

M305 HELP ddd aaa SI=ss

Explanation: Device type d (RDR, PRT, PCH) requires operator assistance. The device address is given in the *a* field of the message with the sense information in the *s* portion. (A "Help RDR" message will occur immediately after the system has been initialized if no batch reader is empty.) This message can also occur if the unit has become unavailable to the processing unit due to the fact it has been switched off the channel. Common sense bit patterns follow:

- 00 Device is not operational. Its address does not currently exist on the channel.
- 40 Intervention required. The device is in the not ready status either because the stop key has been depressed or the device is out of paper or a jam condition has occurred.
- 20 Bus-out check. Hardware service personnel should be notified.
- 10 Equipment check. Hardware service personnel should be notified.
- 04 On the printer means a UCS parity check. Reload the UCS buffer. If the error persists after this has been done, then the hardware service personnel should be notified.
- 02 No channel found. The printer's form control buffer does not have the required skip channel identi-

fied. (MUSIC uses channels 1 and 12.)

(This message is issued by module MIOX.)

Procedure: Ready the designated unit after correcting the error. The system will automatically resume input or output.

M306 /ID . . .

Explanation: Compressed listing of the /ID read from batch reader. Note some /ID's may not print if the jobs are being read in faster than the console can print. (This message is issued by module SPAM.)

Procedure: None

M308 LOADING UCS FOR *uuu* LOADING FCB FOR *fff*

Explanation: These messages report that either the UCS or the FCB buffer has been loaded for the batch printer. The UCS buffer is normally loaded when the print chain is changed. The FCB (FORMS CONTROL BUFFER) indicates the length of the form on the printer and is normally loaded if a different size paper stock is to be used.

Procedure: Issue the "/REPLY 0" command once the correct chain or paper has been loaded on the printer.

M309 M *nnn,xxxxxx* D *nnn,xxxxxx*

Explanation: M means mount, D dismount. *nnn* is the physical device address of the unit. *xxxxxx* is the volume name of the disk pack or tape that should be mounted or dismounted. (This message is issued by module MOUNT.)

Procedure: Mount or dismount specified volume. You should never mount a tape before the system specifically asks for it.

M310 /PAUSE *text*

Explanation: Batch job being run has a /PAUSE card for operator intervention. (This message is issued by module SPAM.)

Procedure: Follow instructions printed, then type /GO when ready to continue. Type /NOGO to resume batch processing and to cancel the job that has this control card in it.

M311 PUNCHING CARDS FOR *xxxxxxx*

Explanation: Job currently being run for user *xxxxxxx* has punched output. (This message is issued by module SPAM.)

Procedure: Remove cards from stacker when done.

M312 JOB DELETED DUE TO SYSTEM I/O ERROR

Explanation: Some I/O error was detected on either batch's input or output spooling areas. The batch job has been cancelled. (This message is issued by module USRSVC.)

Procedure: An I/O error message has also been printed. Follow the procedure associated with that message.

M313 BATCH JOB - CODE xxxxxxxx NOT AUTHORIZED

Explanation: The code on the batch job being read is not authorized, or the code has expired, or the code is not allowed to run batch jobs (batch time limit = 0), or it requires the operator command "/CTL CD-ON". The job will not be run. (This message is issued by module CKCDE.)

Procedure: None.

M314 PUT UNIT ONLINE THEN TYPE "/VARY xxx ON" CANCEL JOB WITH "/CAN"

Explanation: The specified unit was was offline. (This message is issued by module MOUNT.)

Procedure: Put it online. This may involve issuing a VM "ATTACH aaa TO MUSIC xxxx" command.

M315 responses to /BATCH command

Explanation: The time on batch refers to the length between the /ID was read and the current time. The time is in terms of hours and minutes. (This message is issued by module CAR.)

Procedure: None.

M316 /ID COMMAND NOT SUPPORTED FROM CONSOLE

Explanation: You cannot sign on to MUSIC from the operator console. (This message is issued by module CAR.)

Procedure: None.

System Console Log and User Messages

MUSIC writes log messages on the console each time a user signs on. Other messages such as the occurrence of someone entering an incorrect password are also printed. No direct operator action is required for any of these messages.

M400 BAD PASSWORD: uuuuuuuu, UAD=uuu, TCB=ttt, RDEV=xxxxxxxx

Explanation: A user has specified an incorrect password for the code given in the *u* field. The *n* portion of the message is the terminal number and the *x* field is the terminal identification from the /ID line. (This message is issued by module SIGNON.)

M401 STAT BUFFER DUMPED uuu

Explanation: The hardware statistical log on device *uuu* has been dumped by the program BUFLOG. (This message is issued by module DIOEX.)

M402 SIGN-ON: uuuuuuuu, UAD=aaa, TCB=ttt

Explanation: A user has signed on with the code *uuuuuuuu* on unit address *aaa* on terminal control block (tcb) *ttt*. Some sign-on messages may be lost if the console cannot keep up with the printing of these messages. (This message is issued by module SIGNON.)

M404 nn uuuuuuuu xx ... message from the user... *****

Explanation: A message has been sent from a remote terminal to the machine room operator. The code of the user is given in the u-field and the terminal identification specified on the user's /ID line is given in the x-field. Use the terminal number given in the n-field if it is required to send a message back to that terminal. (This message is issued by module TCS.)

M405 idno message from WTO

Explanation: SVC \$WTO from user region. (This message is issued by module USRSVC.)

M406 STAT INFO uuu ... hexadecimal information ...

Explanation: The device at address *u* has sent a record of statistical information to the processing unit regarding such things as the number of seeks and the amount of data transfer. This message requires no operator action. The hexadecimal informal are usually the first 24 bytes returned in the sense command. For 8809 tape drives, they are the 24 bytes starting at the 8'th byte of the sense. (This message is issued by module DIOEX.)

M407 SIGN OFF: uuuuuuuu, UAD=aaa, TCB=ttt, RDEV=xxxxxxxx

Explanation: The user on the indicated terminal has signed off or has been forced off by the operator or an I/O error.

M408 CMD FROM ttt uuuuuuuu: ccc...

Explanation: A console command has been issued from the Auxiliary Console Facility.

System Error Messages

M500 DISK REQ ERR aaaaaaaaa vvvv DETECTED AT DIOEX+xxxxxx

Explanation: An invalid disk I/O request has been issued by some system module or by a user with system programmer privileges. The *a* field gives the address of the request block and the *v* field gives the contents. The *x* field gives the location within the module DIOEX at which the error was discovered. This can be used to determine the type of error. (This message is issued by module DIOEX.)

Procedure: Follow installation procedures.

M501 SYS ERR n TERMINATED JOB RUN BY uuuuuu FROM TERM ttt

Explanation: An error has been detected by the system in connection with the operation of a system utility. The system has terminated that job. (This message is issued by module USRSVC.)

Procedure: Note this occurrence for the MUSIC system support personnel.

M502 ABEOJ OF USER uuuuuuu. CAUSE=cccccc

Explanation: A user's job has been terminated by the system due to an unusual condition. The user code and cause fields are shown. The user gets the message shown in the cause field. The reason for the failure could be entirely the user's fault. For example it could be the user was attempting to do an SVC which is not supported in MUSIC. On the other hand it could be an error in the SVC handler. (This message is issued by module USRSVC.)

Procedure: If these message occur very often with different user codes, then the system support personnel should be informed.

M503 OUT OF SWAP SPACE

Explanation: The system has run out of swap areas. The current job is cancelled. (This message is issued by module SWAPER.)

Procedure: No immediate action is necessary. Make sure that the systems administrator is informed so that this condition can be avoided in the future. The system data set(s) SYS1.MUSIC.SWAP1, SWAP2, etc. should be enlarged. See *Chapter 19 - Direct Access Storage* for further information.

M504 P.I. HANDLING JOB REQ j, PSW=hhhhhhhhhhhh, PICODE=pppp. TERM tt xxxxxxxxxxxxxxxxx

Explanation: P.I. (program interruption) has occurred in a system utility such as sign-on, save etc. The job is cancelled. The PICODE contains two parts: the first part contains the instruction length code, the second part contains the PI code. See message M508 for PI code meanings. The information following TERM is the terminal identification, user code, and the file name. The job request field identifies the system utility according to the following table:

- 1 /exec
- 2 /update
- 3 /save
- 4 /purge
- 5 initialization job 'jobone'
- 6 /display or /list
- 7 /id
- 8 /rename
- 9 /input

(This message is issued by module PITRAP.)

Procedure: Follow installation procedures. The SVC numbers are listed in *Appendix C. SVC Table*.

M506 SYSIN ABNORMAL COND xx USER uuuu TERM ttt FILE f

Explanation: Some error has been detected during the reading of a Save Library, or input file. (This error message comes from the module SIOCS that handles the reading from MUSIC I/O unit 5.) The condition is identified in the *xx* portion of this message. The user's code is printed in the *u* field, the terminal number in the *ttt* field, and the file name in the *f* field. This message is often accompanied by an M517 message. This other message contains further information about the error. (This message is issued by module SIOCS.)

Procedure: Inform the system support personnel. If this error persists, with different file names, it might indicate that a section Save Library has been destroyed.

M507 SYSIN SECURITY VIOLATION USER u TERM t FILE f

Explanation: The user identified in the *u* field has tried to access the file *f*. The file is not accessible to the user due to the fact that it has been saved with the PRIVATE or EXECUTE-ONLY attribute. (This message is issued by module SIOCS.)

Procedure: If this message re-occurs often for the same user, and particularly, if different file names appear in the message, it could mean that the user is deliberately trying to violate the system security.

M508 MUSIC DOWN. PI IN SUPV. PSW=h. PICODE=pppp. TERM tt xxxxxxxxxxxxxxxxx

Explanation: A serious program interruption (PI) has occurred in MUSIC. System is automatically shut down. Information following TERM is the terminal number, user code, and file being read of the current active user. The error may not have been related to this user, however. The PICODE contains two parts: the first part contains the instruction length code, the second part contains the PI code. (This message is issued by module PITRAP.)

Common PI code meanings:

- 01 PSW points to invalid instruction
- 04 Instruction violates storage protection
- 05 Instruction refers to an address too large
- 06 Specification exception

Consult the manual *IBM System/370 Principles of Operation* (GA22-7000) for more information on program interruption codes.

Procedure: Take a main storage dump and then re-IPL MUSIC. Refer to the topic "System Errors and Restart Procedures" in Chapter 4 for details of how to do this.

**M510 UNRECOVERABLE ERROR xx DETECTED AT MODULE mod+xxxxxx.
MUSIC IS SHUT DOWN.**

Explanation: A system routine has encountered a condition for which no recovery can be taken. The system is immediately halted. Note the module name and the error number fields for the system support personnel. (This message is issued by module XSTOP.)

Procedure: Take a main storage dump and then re-IPL MUSIC. Refer to the topic "System Errors and Restart Procedures" in Chapter 4 for details of how to do this.

M512 uuu OFFLINE

Explanation: The unit is not available to the processing unit due to the fact that it has been switched off the channel or the device address has been incorrectly specified when the MUSIC nucleus was generated (NUCGEN). (This message is issued by module DIOEX.)

Procedure: Determine the cause of the problem and if it is a tape drive use the /VARY command to retry.

**M513 ACCOUNTING FILE IS FULL. RE-IPL AND
RUN ACTDMP PGM TO CLEAR IT.**

Explanation: The accounting data set (SYS1.MUSIC.ACCT) is full. The system will ignore accounting information until the file is emptied by running the ACTDMP utility program. (This message is issued by module DICDOC.)

Procedure: IPL MUSIC, specifying the =NOTERM special option, then run the accounting program ACTDMP. After ACTDMP has completed, do an IPL to reload MUSIC. Your system support personnel can increase the size of this data set to avoid the problem in the future.

M514 SYSTEM HUNG. WAITING FOR INTERRUPT ON UNIT=xxx

Explanation: The system is waiting for a disk or tape operation to end. Normally these operations take a fraction of a second. This message is printed after the system has waited for 30 seconds. (This message is issued by module DIOEX.)

Procedure: This condition can be caused by a job attempting to read a blank tape. The tape drive's SELECT light will be on solidly (no blinking). If this is the case, the operator should hit the RESET button on the tape drive whose address appears in the message.

Under VM, this message can occur when VM is waiting for an interrupt to come back from a device whose address is lower in value than the address shown in this message. The only way to determine the actual address in this case is to look at VM control blocks.

If none of the above, suspect a hardware error and report the problem to your hardware/software support personnel.

If this problem does not clear itself within a short time, it may be necessary to re-IPL MUSIC.

M515 uuuu NOT READY

Explanation: Self-explanatory. (This message is issued by module DIOEX.)

Procedure: Ready the device. This message will also be issued if a tape mount has been requested and the job was cancelled before the mount was done. In this case, ignore the message.

Procedure: Refer to procedure with disk I/O error that was also issued.

M517 FILE I/O UNUSUAL COND n AT x USER u HDRLOC d

Explanation: The file system has detected an unusual condition. The *x* field points to the code within the file system module (MFIO) that found the problem. The code of the user is shown in the *u* field of the message. The pointer to the file's header is given in the *d* field of the message. The *n* field is explained below.

- 50 File not online. User tried to access a file that was in a part of the Save Library that was not online at IPL.
- 51 Not enough free space exists on the Save Library to satisfy the user's request for space. The system support personnel should add additional space.
- 52 Not enough free space in the Save Library index. The index and its overflow area are full.
- 60 Read I/O error in file.
- 61 Write I/O error in file.
- 62 Read I/O error in the index or header portion of the file.
- 63 Write I/O error in the index or header portion of the file.
- 64 The index contains incorrect information.
- 65 The file's header contains incorrect information.
- 66 The allocation maps contain incorrect information.
- 67 The index entry for a file does not point to a header that contains the same file name.
- 70 The file system has encountered an unusual situation. This can happen if the system enqueue table is full.

(This message is issued by module MFIO.)

Procedure: No action needed be taken immediately. Report the problem to the system support personnel.

M518 FATAL I/O ERROR ON ACCOUNTING FILE

Explanation: An I/O error occurred while writing to the accounting data set SYS1.MUSIC.ACCT. A system shutdown has been initiated. (This message is issued by module DICDOC.)

Procedure: Restart system.

M519 I/O ERROR ON VTOC OR VOLUME LABEL: UNIT=u VOL=v

Explanation: Self-explanatory. (This message is issued by module SPEP.)

Procedure: Consult the console listing for the accompanying message M600 for details of the error.

M520 I/O ERROR ON SCRATCH AREA BIT MAP

Explanation: Self-explanatory. (This message is issued by module SPEP.)

Procedure: Consult the console listing for the accompanying message M600 for details of the error. The scratch map is on the data set called SYS1.MUSIC.SCRATCH.

M521 ACCOUNTING IS DISABLED, RUN ACTDMP AND RE-IPL.

Explanation: The system has detected that the accounting file is full during the IPL sequence and disabled accounting. No accounting will be done, though batch and terminals can run. (This message is issued by module DICDOC.)

Procedure: Run the ACTDMP program to clear the accounting file and re-IPL.

M522 OUT OF PAGING SPACE

Explanation: Self-explanatory. (This message is issued by module PAGER.)

Procedure: The system may be working in a degraded fashion. Your system support personnel should allocate more space in the MUSIC/SP page data sets.

M523 IGNORING QUEIT #n REQ FROM uuuuuu. ALREADY IN Qm

Explanation: Informational message about an unusual scheduler request. (This message is issued by module URMON.)

Procedure: None required.

M524 BAD BUFFER CHAIN POINTER

Explanation: Self-explanatory. (This message is issued by module DSPOOL.)

Procedure: The system will attempt to recover automatically from this situation.

M525 FREE PAGE AT aaaaa HAS INCORRECT KEY OF kk

Explanation: Self-explanatory. (This message is issued by module PAGER.)

Procedure: None. This message is used for system debugging activities.

M526 USER AT TERM ADDRESS aaaa HAS NONZERO SWAP INFO OF xxxxxxxxxxxxxxxx JREQ=

Explanation: This message is normally not issued. When it is, the information is for use by the system support personnel. (This message is issued by module URMON.)

Procedure: None. This message is used for system debugging activities.

M527 DUMP OK

Explanation: The stand-alone system dump program has successfully written the storage dump to disk.

M528 DS FULL

Explanation: The storage dump did not fit in the disk dataset (\$PGM\$DMP). What has been written may be of some use.

Procedure: Increase the size of the dump dataset by following the procedure in *Chapter 6 - System Reconfiguration*.

M529 DUMP DID NOT ALL FIT ON DISK

Explanation: The storage dump did not fit in the disk dataset (\$PGM\$DMP). What has been written may be of some use.

Procedure: Increase the size of the dump dataset by following the procedure in *Chapter 6 - System Reconfiguration*.

M530 BAD BUFFER QUEUE HEADER. LOC=aaaaaaa, HDR=hhhhhhhhhhhhhhhh

Explanation: The Buffer queue chain has been corrupted. (This message is issued by the module DSPPOOL.)

Procedure: The system will attempt to recover by abending the job that caused the problem to occur. If the problem occurs often it should be reported to the system support personnel.

M531 ACCOUNTING BUFFER OVERFLOW, WAITING FOR I/O, SOME RECORDS MAY BE LOST.

Explanation: This message is issued by module DICDOC.

Procedure: None required.

Hardware Error Messages

M600 I/O ERROR xxx DEB ddd

CAW aaaaaaaa CSW xxxxxxxxxxxxxxxx

REQ=nnn SEEK sssssssrrrrrrr SENSE dddddddd

Explanation: A disk or tape I/O error has occurred. The unit address, channel address word, and channel status word are given. The internal DEB number is also shown. If a disk drive caused the error, the cylinder and head of the track (4 hex digits each) involved are shown in *ssssssss*. If an alternate track seek was done, its cylinder and head are given in the *r* field. (The seek address field will be 0 for FBA disks.) Sense information follows. Either 5 or 24 bytes are printed, depending on device type. The REQ field displays the storage location that contained the I/O request block. The first two bytes of the sense information can be used to determine the general nature of the error. The following is a summary of the more common ones.

- 8100 An incorrect seek address was generated by MUSIC.
- 8000 Either the disk module has been incorrectly switched to 'READ-ONLY' status or an invalid CCW has been issued by MUSIC.
- 2000 A hardware error has occurred. Report this problem to the service personnel.
- 1000 Treat the same as 2000 above.
- 0800 A data check has occurred. It means that the unit cannot interpret the data on the drive either because it was recorded with the wrong density or it has been physically destroyed or deteriorated since its creation.
- 0200 Flagged track. MUSIC does not support flagged tracks on 2314 and 3340 devices.
- 0100 The hardware was unable to correctly perform a seek operation. Report this problem to the service personnel.
- 0008 A search command was performed for a record which was not there. Such would be the case if an attempt was made to search for the second record on a track which contains only one record. Certain MUSIC utility programs which can only be run by users with special system privileges can cause this error if used incorrectly. This error will also occur if, for example, a 2314 device has been defined as a 3330 drive in the MUSIC nucleus. This message can also be given when a User Data Set (UDS) file has been created in a portion of the disk volume that has not been preformatted.
- 0002 Same causes as 8000 above. Under VM, a minidisk in read-only status will also give this error code if a write is attempted.

(This message is issued by module DIOEX.)

Procedure: Note the physical location of the drive which had the error and the pack or tape reel that was mounted there. Then follow installation procedure.

M601 >>SERIOUS MCH CK xxxxxxxx, mmmmmmmmm MUSIC DOWN...CLEAR CORE...RESTART MUSIC

Explanation: An unrecoverable machine check has occurred on the system or too many soft machine checks have been recorded. The system has shutdown. The *m* field is the S/370 machine check interrupt code stored by the processing unit at location E8 (hex). The *x* field is the displacement into the MUSIC system module MCHINT at the point where it decided to abort the system. (This message is issued by module MCHINT.)

Procedure: Press the stop button on the processing unit to stop the messages from printing. If an IBM FE or CE is on site, then have the FE check the error condition. It is a good practice to run the IBM program EREP or an equivalent program to record the error condition for later study. (This model dependent program can be obtained through your local IBM FE office). Clear main storage after the error is recorded and IPL MUSIC to re-IPL the system. If the error persists, it will be necessary to call for service on your machine.

**M602 >>CHAN CK UNIT=uuu, CSW=xxxxxxxxxxxxxxxx, LCL=ssssssss
MUSIC DOWN...CLEAR CORE...RESTART MUSIC**

Explanation: A channel check has occurred on unit *uuu* or the channel connected to it. The error was detected by the presence of certain bits in the CSW field. Consult the *IBM System/370 Principles of Operations* (GA22-7000) manual for description of these status bits in the CSW. The LCL (for limited channel logout) reflects the contents of main storage field location B0 (hex). The LCL field is stored only on certain models of S/370 processing units and if this field is printed as all 00's (hex) or all FF's (hex), then the LCL was not stored. On some processing unit models this error will be preceded by the 'SOFT MCH CK' message. On others, channel checks might be always logged by the processing unit as a machine checks. (This message is issued by module MCHINT.)

Procedure: Press the stop button to stop the messages from printing. Determine if the error was caused by accidentally powering off control units while still on the channel or similar situations. If so, then re-IPL MUSIC after the problem is fixed. If not caused by the above, then follow the procedure specified under the 'SERIOUS MCH CK' message above.

M603 >>SOFT MCH CK mmmmmmmm,xxxxxxxxxxxxxxxx,tt,pppppppp,ff

Explanation: A recoverable machine check has occurred on the system. The *m* field forms the S/370 machine check interrupt code, the *x* field forms the machine check old PSW. The current user of the swap region has a sign-on code *p* and this user's TCB number (hex) is printed in the *f* field. The phase flag associated with the swap region is printed in the *t* field. The system will shut down if these errors occur too often. On certain processing unit models, the occurrence of soft machine checks may indicate that the processing unit internal circuitry is working in a degraded fashion. (This message is issued by module MCHINT.)

Procedure: Record the occurrence of the error and report it to the IBM service personnel. The *m* field in the message can be used to determine the general location of the error. Refer to the *IBM System/370 Principles of Operations* (GA22-7000) for a description of this field.

M604 >>HARD MCH CK mmmmmmmm,xxxxxxxxxxxxxxxx,tt,pppppppp,ff

Explanation: A machine check has occurred such that the error has been localized to a specific user's job and that the particular job has been terminated abnormally. MUSIC will attempt to keep running after this condition to allow other jobs to run successfully. See the explanation under 'SOFT MCH CK' message for the description of the variable fields in this message. (This message is issued by module MCHINT.)

Procedure: Verify that the system is still functioning normally. This can be done by typing in any

console command such as '/Q'. If the system does not respond to the request, then it is conceivable that other machine checks have occurred but the system is unable to print on the console. If the system appears to be working, then follow the procedure under 'SOFT MCH CK' message above, otherwise follow the procedure given under the 'SERIOUS MCH CK' message.

M605 >>CHANNEL CHECK ON A TERMINAL.

Explanation: A channel check has been detected by the terminal handler. The terminal has been dropped. Look at the CSW bits printed. (This message is issued by module TCS.)

Procedure: Report this problem to your hardware support personnel.

M607 >>CCW AREA OVERFLOW IN TM3270, DEVICE=xxx

Explanation: The module TM3270 has attempted to create a channel program larger than the area available in the IOCB. The unfinished channel program is used in the I/O operation to the terminal resulting in missing output.

Procedure: Report this as a system problem.

M608 >>INITIAL TAPE ERROR...

Explanation: This message is put out by the module DIOEX on some systems, to indicate a tape error occurred, before any error recovery is attempted. If error recovery is NOT successful, an M600 message will follow.

Procedure: Report this as a system problem.

Nucleus Generation Messages

M700 ERROR IN ABOVE RECORD

Explanation: Used to indicate a bad configuration item. (This message is issued by module SYGEN2.)

M701 ERROR ON INPUT DEVICE, CORRECT PROBLEM THEN PRESS EXT KEY

Explanation: Reader error, feed stop, or unexpected end of file. To continue, correct error condition, ready card reader, and depress processing unit console interrupt (external) key. (This message is issued by module SYGEN1.)

M702 NUCLEUS GENERATION TERMINATED

Explanation: Correct errors shown by the other messages. (This message is issued by module SYGEN2.)

M703 DATA SET NOT FOUND

Explanation: This message indicates that a required data set cannot be found on the system residence volume being generated. If it is issued at the very start of the generation, it is SYS1.MUSIC.GENLOAD that is missing. If issued just after the configuration cards have been processed, it is SYS1.MUSIC.NUCLEUS which is missing. (This message is issued by module SYGEN1.)

M704 VTOC CI EXCEEDS LEN OF 1024

Explanation: The VTOC has a control interval of greater than 1024 bytes. This message is issued for FBA disks only. (This message is issued by module SYGEN1.)

M705 DUPLICATE CONTROL SECTION OR ENTRY

Explanation: Self-explanatory. (This message is issued by module SYGEN1.)

M706 ERROR READING NUCLEUS GENERATION INPUT

Explanation: Reader error, feed stop, or unexpected end of file. If the input was from a tape, then remake the tape. If card reader, correct error condition, ready card reader, and depress processing unit console interrupt (external) key. (This message is issued by module SYGEN2.)

M707 INVALID CARD

Explanation: Self-explanatory. (This message is issued by module SYGEN1.)

M708 INVALID ESD CARD

Explanation: ESD card contains invalid type code (This message is issued by module SYGEN1.)

M709 INVALID FORMAT-4 DSCB

Explanation: The F4 DSCB of the new system residence pack is not correct. (This message is issued by module SYGEN1.)

M710 INVALID VOLUME LABEL

Explanation: The volume label of the new system residence pack is not correct. (This message is issued by module SYGEN1.)

M711 EXPECTING SEQ FIELD OF nnn WHEN THE FOLLOWING RECORD WAS FOUND

Explanation: Sequence check failed when processing object decks. All object decks must have sequence numbers incrementing by 1. (This message is issued by module SYGEN1.)

M712 INVALID SLC OR ICS CARD

Explanation: Name must be specified on SLC and ICS cards. (This message is issued by module SYGEN1.)

M713 INVALID VTOC EXTENT

Explanation: Disk pack VTOC does occupy only one cylinder. (This message is not issued on FBA devices.) (This message is issued by module SYGEN1.)

M714 I/O ERROR READING FORMAT-4 DSCB

Explanation: An I/O error has occurred while reading the F4 DSCB. (This message is issued by module SYGEN1.)

M715 I/O ERROR READING VOLUME LABEL

Explanation: An I/O error has occurred while reading the volume label. (This message is issued by module SYGEN1.)

M716 I/O ERROR SEARCHING VTOC

Explanation: An I/O error has occurred while searching for the data set. (See message "DATA SET NOT FOUND".) (This message is issued by module SYGEN1.)

M717 LOADER WORKFILE OVERFLOW...LOADING ABANDONED

Explanation: System exceeds loader workfile capacity. Probably due to too many CSECTS, ENTRY or EXTRN statements. (This message is issued by module SYGEN1.)

M718 MINIMUM MUSIC SYSTEM REQUIRES DISK, AND CONSOLE DEVICE SPECIFICATIONS

Explanation: Add missing device specifications and recreate the nucleus. (This message is issued by module SYGEN2.)

M719 MISSING PARAMETER ON DISK OR TAPE DEVICE CARD

Explanation: Self-explanatory. (This message is issued by module SYGEN2.)

M720 MODULE OR ENTRY POINT (xxxxxx) MISSING

Explanation: Undefined external reference. (This message is issued by module SYGEN1.)

M721 NEW MUSIC NUCLEUS IS NOW ON DISK

Explanation: Indicates normal completion of the nucleus write operation. (This message is issued by module SYGEN1.)

M722 NUCLEUS DATA SET TOO SMALL

Explanation: SYS1.MUSIC.NUCLEUS data set is too small. (This message is issued by module WMON.)

M723 OBJECT PROGRAM TOO LARGE

Explanation: System object program exceeds allocated storage size. (This message is issued by module SYGEN1.)

M724 MUSIC NUCLEUS GENERATION ABANDONED

Explanation: Inconsistencies encountered in system nucleus deck. (This message is issued by module SYGEN1.)

M725 NUCLEUS GENERATION PARAMETER MISSING

Explanation: Required machine configuration card missing. (This message is issued by module SYGEN1.)

M726 SYSTEM STORAGE BOUNDARY ERROR

Explanation: The initialization routines (HELLO, DSINIT) have grown to the point that they overlap

the storage used by the system generation loader (SYGEN1). It can also mean that the number of CSECT and ENTRY point names has exceeded the maximum allowed by the table in SYGEN1. (This message is issued by module SYGEN1.)

M727 INVALID CHARACTER IN NUMBER OR ADDRESS FIELD

Explanation: Self-explanatory. (This message is issued by module SYGEN1.)

M728 TOO MANY DISK AND/OR TAPE UNITS DESCRIBED

Explanation: Number of tapes and disks exceeds system maximum of 64. (This message is issued by module SYGEN2.)

M729 TOO MANY TERMINAL DEVICES DESCRIBED

Explanation: Number of terminals exceeds system maximum of 250. (This message is issued by module SYGEN2.)

M730 UNRECOVERABLE DISK ERROR...LOADING ABANDONED

Explanation: Error reading or writing loader workfile. (This message is issued by module SYGEN1.)

M731 INVALID OR DUPLICATE UNIT ADDRESS

Explanation: Self-explanatory. (This message is issued by module SYGEN2.)

M732 DISK ADDRESS OFFLINE

Explanation: The disk address specified in the nucleus is not available. (The SIO returned the not operational status.) (This message is issued by module SYGEN1.)

Procedure: Correct the situation and retry.

M733 NUCLEUS DATA SET IS TOO SMALL

Explanation: Self-explanatory. (This message is issued by module WMON.)

Procedure: Increase size of SYS1.MUSIC.NUCLEUS data set.

M734 TABLE EXCEEDED IN MODULE WMON

Explanation: The table referred to is the one that contains the disk locations of where to write the nucleus. (This message is issued by module WMON.)

Procedure: Consult the module WMON to see how to resolve the problem.

M735 VTOC CI EXCEEDS LEN OF 1024

Explanation: The VTOC control internal size exceeds 1024 bytes. (This message is issued by module WMON.)

Procedure: Remake the VTOC on the IPL volume using an acceptable control interval size.

MFIO Error Messages and Codes

A number of error messages can originate from the MUSIC file I/O interface routine MFIO. (The actual text of the messages is in the \$MCM:SYSMSG.M file.) These error codes and messages may appear when application utilities are running. Some programs report only the error code number.

```
1  END OF DATA SET ENCOUNTERED
2  INCORRECT LENGTH
10 INVALID REQ
11 INVALID REQ PARAMETER
12 FILE NAME INVALID
19 INVALID ARGUMENTS IN CALL TO SERVICE SUBROUTINE
20 TOO MANY OPEN FILES
21 NOT YOUR LIBRARY
22 NOT YOUR FILE
23 VIOLATION OF WRITE RULE
24 ATTEMPT TO READ BEYOND END OF WRITTEN INFO
25 WRITE THEN READ SEQ INVALID
26 YOUR USERID CANNOT CREATE FILES ACCESSIBLE BY OTHERS
27 YOUR USERID CANNOT CREATE FILES IN THE COMMON INDEX
30 FILE NOT FOUND
31 DDNAME NOT FOUND (see also error 35)
   (For CALL OPNFIL to define a ddname, error 31 means
   there is no more room in the ddname table.)
32 FILE ALREADY EXISTS
33 FILE IN USE
34 COMMON NAME USED BY SOMEONE ELSE
35 UNIT NUMBER NOT DEFINED
   (or ddname is undefined by user request such as by
   specifying UNDEF on a /FILE statement)
36 SUBDIRECTORY DOES NOT EXIST
40 SPACE QUOTA EXCEEDED FOR THIS USERID
41 SPACE QUOTA EXCEEDED FOR THIS FILE
42 CANNOT ADD SPACE TO THIS FILE
43 REQUESTED ACCESS OR OPERATION NOT ALLOWED
44 REQ BEYOND EXTENT OF FILE
45 FILE RECFM NOT DEFINED
46 FILE CANNOT BE READ SEQUENTIALLY
47 INSUFFICIENT SPACE FOR BUFFER ALLOC
48 MIN RECORD LEN IS 80 FOR THIS FILE TYPE
50 FILE NOT ON-LINE
51 NOT ENOUGH FREE DISK SPACE
52 NOT ENOUGH FREE DISK SPACE (IDX)
60 RD I/O ERROR IN FILE
61 WR I/O ERROR IN FILE
62 RD I/O ERROR IN SYSTEM AREA
63 WR I/O ERROR IN SYSTEM AREA
64 INDEX IN ERROR
65 HEADER IN ERROR
66 MAP INTEGRITY ERROR
67 INDEX/HEADER MISMATCH
70 SYSTEM FILE ERROR
```

Wait State Codes

MUSIC will enter the WAIT state when it cannot continue processing. Usually, a message is issued just before it enters this state. Sometimes this is not possible. This could happen, for example, if the console was not working.

This topic lists some of the wait states possible. The WAIT state is entered by loading a PSW with the WAIT bit on as explained in *Chapter 18 - System Internals*. The address portion (last 3 bytes) of the PSW form the *wait state code*.

Starter System Restore Program Wait Codes

FFFFFF	Normal end of restore of starter pack.
EEEEEE	Waiting for operator to press 'request' on console device.
0002FF	Unexpected SVC interrupt.
0003FF	Unexpected program interrupt, or attempt to run on System/360 or under VM with ECMODE off.
0004FF	Machine check interrupt.
0006FF	Condition code 1 from SIO (CSW stored).
0007FF	Condition code 2 from SIO (busy).
0008FF	Condition code 3 from SIO (device not operational).
0009FF	Error bit on in CSW unit status byte.
000AFF	Error bit on in CSW channel status byte.
000BFF	Insufficient main storage to load core image.
000CFF	Unable to find an unused disk UCB (Unit Control Block).

IPLable Main Storage Dump Program Wait Codes

00FF00	Main storage has been correctly written to the dump data set.
00FF01	Main storage did not all fit in the dump data set. As much as possible of main storage was written to the data set.
00FF04	The disk has become not operational.
00FF05	Some I/O error has been detected while trying to write the dump information to disk. Look at the CSW at location 40 (hex) for the ending status bits that indicated the error.
000003	An unexpected program interrupt occurred.
00FF0F	An unexpected program interrupt occurred.

MUSIC System Wait Codes

FFFFFF	System waiting for work in the user region. This wait state is normal during daily operation and is no cause for alarm. The system will automatically come out of this state when there is work to do.
FF00FF	All user regions are waiting for some I/O to complete. This wait state is normal during daily operation but should only occur for a fraction of a second.
EEEEFx	Some problem was experienced when the MUSIC system module MFETCH attempted to read the rest of the system from disk at IPL time (x is usually from 1 to 9). An error message is usually printed to explain the exact reason. It could also happen as a result of a machine check detected during the IPL of MUSIC (x=A). No message would be given in this case.
AAAAAA	Normal end after IPL to install a new MUSIC nucleus. This wait state is preceded by the message :M721 New MUSIC Nucleus is now on disk".
BBBBB1	Error after IPL to install a new MUSIC nucleus. This is preceded by an error message on the console.
F0F0F0	The system was shut down by the console command /STOP or /SYSTOP. This code can also occur during nucleus generation, when an error is detected in the device specification records.
000BAD	Some I/O error was detected during the MUSIC IPL operation. Consult the CSW at location 40 (HEX) for details.
00FF01	The system could not complete initialization correctly. A message is also given to state the reason.
00FF02	The system was shut down by an SVC 80 issued by one of the system modules.
00FF03	The system was shut down by a program check occurring in supervisor state.
00FF04	The system was shut down by a machine check.
00FF05	An SVC was detected that was greater than 255. The hardware (or VM) must have set location 8A (hex) to a non-zero value. This is a hardware or VM error. (The wait is issued by the module SYSSVC.)

Appendix B: System Module Descriptions

Resident Modules

APLTRN: APL 3270 Translate Table

This module contains the 3270 APL translate tables.

CAR: Console Handler

This routine performs the I/O to and from the processing unit console. Messages from other system modules are sent out and requests from the keyboard are interpreted and processed.

CDSRCH: User Code Table Search Routine

This routine performs a search of the User Code Table for a given code. If the code is found, the routine returns the complete code table entry. This routine can also provide the caller with general information about the table structure and its location on disk.

CHKPFK: Process Program Function Keys

TM3270 calls this module after a read to perform whatever processing is required due to the pressing of a program function key. Multi-session requests, the retrieve key, and any user defined function key operations are processed here. This module also contains the system default PF key definitions.

CKCDE: Batch User Code Verification

This routine verifies user codes for jobs submitted via the batch card reader. CDSRCH is called by SPAM to access the code table record. TCB and XTCB fields are filled in for the batch TCB.

COMAND: Terminal Command Processor

This module scans command lines entered from terminals. It is called from various points within TCS. The command table is included in this module.

DEFPFK: Define Program Function Keys

This module processes the /DEFINE command. It is called from COMAND if the command is issued from the terminal, or from USRSVC if the NXTCMD subroutine is used. The first time this routine is invoked for a user, a buffer is acquired from DSPPOOL and the system default definitions copied from the module CHKPFK. This buffer will remain allocated to the user for the rest of the session.

DICDOC: System Accounting Routine

This routine handles the accounting for the system. When a job is started or terminated, this routine records the terminal number and the elapsed time used on the accounting data set. Entries are also made at sign-on and sign-off time and when a job's output at the terminal is complete.

DIOEX: Selector Channel Input/Output Executor

This routine handles the actual I/O execution on the selector channel(s). It will handle tape and disk, read and write requests, and special purpose functions. Most requests require that disk channel programs be constructed using information from the caller's request block, and the appropriate Unit Control Block (UCB) and Data Extent Block (DEB). DIOEX also performs the I/O interrupt handling for selector channels, including error detection, correction and logging.

DSINIT: System Data Set Initialization Routine

At IPL time, DSINIT locates and reads the system catalog, and allows the operator to modify it. It scans all ready disk packs, locates necessary system data sets and constructs the Data Extent Blocks, Pseudo Device Blocks and Statistics Blocks. It performs miscellaneous other data set initialization functions.

DSPOOL: Data Spool Manager

This routine handles the buffer pool that is dynamically used by the process that transfers data between terminals and the user regions.

ENQRTN: Enqueue and Dequeue Processor

ENQRTN 'Resident System Module' This routine provides the facility of reserving resources. These resources can be requested on a shared or exclusive basis. If the resource is busy, a return code is set. This processor is used to reserve resources such as Save Library files, User Data Sets, and the User Code Table (during updates.)

FIOCS: File Input/Output Control

FIOCS 'Resident System Module' FIOCS is the execution time I/O control program for sequential User Data Sets. It supplies all necessary file manipulation functions (READ, WRITE, BACKSPACE, ENDFILE, REWIND) as well as handling all blocking and de-blocking of logical records.

FMSG: Format Message Routine

Subroutine called by system routines to format a message by plugging in variables according to the given prototype. Used by USRSVC when formatting user error messages.

FSIO: Full Screen 3270 Interface

This is responsible for interpreting full screen requests, buffer allocation and moving data from user region to system buffers. It receives control from the conversational read routines in MFIO.

HELLO: System Initialization Module

This module is responsible for initialization of the system. The following functions are among those performed. Main storage size and processing unit type are determined. Time and date is set. Free storage is zeroed and protection keys are set. I/O device Unit Control Blocks and Terminal Control Blocks are created. The Accounting File is initialized. If a system restart is being done, user's input and output files are preserved. Additionally, on a System/370, the machine check handling routines are initialized. Flags are set-up at this time specifying whether the processing unit is a S/370 and what optional instructions it has and if running under VM it also determines if it is in a V=R region. HELLO prints informative messages to the system operator concerning time, date and disk drive utilization. If any unusual conditions are found, appropriate error messages are issued and initialization is halted.

IOBUFR: Generalized I/O Buffering Routines

This routine contains generalized I/O buffering and deblocking routines used by several resident system modules.

LODSVC: Dynamic Load Processor

This module dynamically loads the specified load module usually from the system data set SYS1.MUSIC.LOADLIB. If the phase is resident in the Link pack area, then appropriate action is taken.

LOGO: MUSIC Logo

This csect contains the MUSIC logo suitable for display on 3270 terminals. This logo is displayed when a 3270 terminal is connected to MUSIC and not signed on.

LOOKUP: Privileged Program Module

This module is called by MFIO when an execute-only Save Library file is read at the beginning of a user's job. It checks to see if the name is one of the special system names stored in this module. If so, flags are set in CKSAV which will be inspected by EXTSVC when certain types of SVCs are done. Should neither the user nor the program name have special privileges then the job will be aborted by the system if it attempts to perform certain privileged functions.

This module allows programs which require special privileges for execution (such as the User Profile program) to be run by non-privileged users.

MCHINT: Machine Check Handler

This routine is given control in the event of a machine check or a channel check. It logs the error. The action taken depends on the type of error. If it was a soft machine check, the system is allowed to continue if the error counts have not been exceeded. If the error was a hard machine check that can be localized to a specific user's job, then only that job is terminated. Otherwise, the system is shut down.

MFETCH: Monitor Fetch Routine

MFETCH is entered immediately following IPL from a CKD disk. It locates and loads the supervisor from the IPL device and transfers control to the system initialization module HELLO. (From FBA devices, the MFETCH function is handled by coding found in the WMON module.)

MFIO: User I/O Interface

This routine provides the interface to the Save Library and most I/O from the user region. It contains routines to OPEN, CLOSE, ALLOCATE, and do I/O to Save Library files.

MIOX: Multiplexer Input/Output Controller

This routine schedules the physical I/O for the Unit Record devices (console, reader, punch, printer), checks for errors and unusual conditions, and sends appropriate messages to the processing unit console.

MOUNT: Tape Mount Monitor

Handles the mounting and dismounting of magnetic tapes.

NEWTCB: Multi-Session Control Block Manager

This module manages the extra sets of control blocks used by the multi-session support and provides entry points to add, delete, and switch sessions.

PAGER: Paging Supervisor

This module is the paging supervisor. It can handle specific requests from other modules to do specific functions such as loading a module in the PLPA. It also resolves paging exceptions that are implicit paging requests. This module receives control on all program checks so that it can filter out the ones to do with paging. It passes the other program checks to PITRAP.

PAGE0: First 4k of Main Storage

This module resides in main storage starting at location zero. It contains all the data which must necessarily occupy storage that is accessible without using base registers. PAGE0 occupies the area corresponding to both System Locore and User Locore.

PITRAP: Program Interrupt Trap Module

This routine handles program interrupts that are not due to paging exceptions. On an error within the system, the entire system is halted. On any other program check, appropriate messages are issued to the processing unit console (if a serious error) and also the terminal user concerned.

A section of this module, XERMON, is used to service program interrupts from jobs in execution. It contains routines to fix up the floating-point registers for program checks due to floating-point underflows or overflows.

PROTND: Protected Main Storage End

A dummy module indicating the end of fetch-protected system main storage ended at the 2K boundary before or at this address.

PROTST: Protected Main Storage Start

A dummy module indicating the start of fetch-protected system main storage.

SIOCS: System Input/Output Control System

This routine processes SYSIN, SYSOUT, and SYSPCH requests. It is entered directly by various supervisor routines and via SVC's from transient system routines. For batch jobs, page and card counting is performed. Jobs are terminated if limits (set on the /ID card) are exceeded.

SIOCS also refers to a set of control blocks used by many system routines on a terminal (or batch) user's behalf. These control blocks are contained in the module URSRVA.

SPAM: Batch Spooling Monitor

This routine handles the I/O to the disk from the reader, and from the disk to the printer and punch. CKCDE is called to process /ID cards. After a job is read in, it is queued for execution (or save activity if a /SAVE card was entered). SPAM will also process input from a magnetic tape unit instead of a card reader.

SPEP: Device Allocation

SPEP performs pre-execution and post-execution device allocation/de-allocation for jobs using execution-time User Data Sets or tapes. It ensures that tapes and disks are mounted. This routine invokes transient modules PRE and PST to perform disk data set allocation and de-allocation.

STATS: System Statistics

This module contains tables used to maintain system statistics and use counts.

SWAPER: Swapping Control Module

This routine is used to write the user region to disk and to read it back in again. If the system disk and channel configuration allow it, the area is swapped in two or three segments, each on different disk packs, which can be on different channels.

SYGEN1: System Generation - Phase 1

This module is used during nucleus generation to read the system object decks from the card reader or magnetic tape, and to load (and link) these object decks. SYGEN2 is then called to configure the system. WMON is used to place the new system on the System Residence disk.

SYGEN2: System Generation - Phase 2

During nucleus generation, this routine processes system specification and configuration cards. The cards are checked for validity and converted into internal form for use by HELLO during system initialization.

SYMTBL: Symbol Table

This module contains symbol names and locations for use by certain command processors in the console handler CAR.

SYSSVC: System Mode SVC Processor

This module gains control on all SVCs. User mode SVCs are passed to USRSVC for action. System mode SVCs are processed in this routine or branched to from this routine.

TABCMD: Tab Command Processor

This routine is called by TCS to process /TABIN and /TABOUT commands from terminals. It translates the values on the commands into internal form and places them into the appropriate TCB.

TABSET: Output Tab Executor

TABSET is called by TCS to insert tab characters (and idle characters) in lines to be sent to a terminal. It uses the terminal's current tabs to ensure that the time needed to print program output is minimized.

TCS: Terminal Control System

This module supervises all terminal communications. Included in its functions are terminal spooling and code translation.

TCS calls the terminal device dependent modules TERMIO (for 2741, 1050, and TTY) and TM3270 (for 3270) to perform device dependent functions such as CCW construction and I/O interrupt handling. The actual I/O operations are processed by the internal subroutine called SMART.

Facilities are provided to allow both the running programs and the terminal user to specify certain terminal handling options. Such options as suppressing carriage returns, compressing output lines, and no output translation are available.

TERMIO: Term I/O Handler (all but 3270)

This routine handles the device dependent I/O functions for all terminal devices except 3270-type terminals.

TM3270: Term I/O Handler (3270 only)

This routine handles the device dependent I/O functions for all 3270-type terminals.

TRACE: System Trace Routine

TRACE intercepts all SVC interrupts, I/O interrupts and external interrupts. Before transferring control to the appropriate interrupt processor, it places an entry in the system trace table noting the type of event and information relevant to it, including time of day.

TRANTB: Translate Table

This module contains the terminal translate tables.

TRMCTL: Terminal Specifications

This module contains information about the characteristics of the different types of supported terminals. Refer to *Chapter 7 - Terminal Configuration and Tailoring* for further information.

URIO: User Region I/O Processor

This module receives disk and tape I/O requests in a similar fashion to DIOEX. The I/O request came from a user region which uses dynamic paging. Therefore this routine must lock pages and set up channel programs that use indirect addresses.

URMON: User Region Monitor, Dispatcher and Scheduler

Contains the user region monitor. Also includes the user region dispatcher and the job scheduler. It also supervises the timer and maintains a real-time clock.

URSRVA: User Region Service Area

This module defines an area at the top of the user's virtual storage. It contains buffers for Save Library I/O, SVC work areas, etc. No actual code is in this module as this module is not located in real storage.

USRSVC: User Mode SVC Processor

This module gets control from SYSSVC when an SVC occurs in user mode.

WMON: Write Monitor Routine

WMON is used at nucleus generation time to write the entire resident system to disk. If the nucleus is written to an FBA device, then coding in this module gains control at IPL time to load in the supervisor and then transfers control to the module HELLO.

XSTOP: System Dead Stop Routine

This routine types a message on the processing unit console and puts the machine into a *dead wait*. It is entered from either resident or transient system routines if error conditions are encountered for which no correction is possible.

XTCB: Terminal Control Block

This module contains a prototype Terminal Control Block TCB and several constants related to the number and type of TCB's. Each TCB contains information pertaining to the status of the terminal.

XTXT: Text Manipulation Module

This module contains routines to pack a card image into internal form, unpack a card, and convert a packed message into a printable form.

Note: Modules DSINIT, HELLO and MFETCH are resident only until the end of system initialization. Modules SYGEN1, SYGEN2, and WMON are used only at system generation time.

Transient Modules

CTL: Control Statement Processor

CTL processes control statements for jobs at execution time. This includes analysis of /FILE cards and allocation of special data sets for some /LOAD cards. Initial buffer allocation is performed for some language processors.

JOBONE: Initialization Job

This module is run by the system just after the system has been IPL'd and before any user job runs. Its function is to scan the Save Library and remove temporary files that may exist if the system was shutdown while jobs were running. It also loads the pageable link pack area from information the module DSINIT has set up at IPL time.

LIBCMD: /LIBRARY Processor

This module is called by CTL when a /LIBRARY command is encountered. This module runs in time sliced execution just like a problem program. It has the ability to directly read the Save Library index.

LIST: List/Display Processor

This routine displays a user's Input File or Save Library file. It is invoked from a terminal via the /LIST or /DISPLAY command.

PRE: Pre-Execution Allocation Module

This routine is loaded by SPEP to perform any UDS disk space allocation (temporary or permanent data sets) necessary for job execution.

PST: Post-Execution Module

PST is invoked after execution by SPEP if any UDS disk file de-allocation is needed.

PURGE: Purge Processor

This module processes the /PURGE command.

RENAME: Rename Processor

This module processes the /RENAME command.

SAVE: Save Processor

This module processes the /SAVE, /SV and /REPLACE commands.

SIGNON: Terminal Sign-On Processor

This module is called when a user first connects to the system or when a /ID command is entered. After checking that the sign-on is valid, SIGNON initializes the user's control blocks, displays any daily messages, and starts the user's auto program if this is required.

UPDATE: Update Module

This routine updates the file specified by the user. It can delete or replace existing records and insert new records. The file modified can be either the input file or a Save Library file.

Appendix C. SVC Table

Below is a list of MUSIC/SP SVCs. Most SVC's can only be done under certain conditions or from certain locations in the system.

Certain processors, such as those running under the OS/MUSIC Interface, intercept SVC's coming from the user area and may in turn issue one of the SVC's listed below. This is done during the compilation and execution of COBOL, Assembler, and APL jobs.

User mode SVCs are those that are issued in a user region and therefore are synchronized with the user job processing function. A number of system utilities such as the SIGNON phase runs in a user region but is recognized as special so that it can issue many SVCs that would not otherwise be allowed. User mode SVCs are initially processed by the module USRSVC.

System mode SVCs are those whose function is not synchronized with the processing of jobs in the user regions. These handle disk queueing and scheduling functions. System mode SVCs are initially processed by the module SYSSVC.

The flags in the description field in the following table indicate in which environment the SVC may be processed. The flags have the following meaning:

U	Valid in user mode
*U	Valid in user mode only when SUTIL is in control
S	Valid in system mode
OBS	Obsolete

<u>DEC</u>	<u>HEX</u>	<u>Name</u>	<u>Description</u>
0	00	OKEOJ	NORMAL EOJ (U)
4	04	SYSRIT	WRITE (U)
17	11	LDREXT	LOADER EXIT (U)
18	12	IBCRD	IBCOM READ (U)
19	13	IBCRIT	IBCOM WRITE (U)
64	40	PSTART	START BATCH PRT, PUN AND RDR (S)
65	41	CSTART	START BATCH READER (S)
66	42	QUEIT	ADD JOB REQUEST TO QUEUE (S)
67	43	DOIT	EXEC IN MASKED KEY 0 (*U)
68	44	DICDOC	MAKE ACCOUNTING ENTRY (*U/S)
71	47	DIOEX	DISK/TAPE REQUEST (*U/S)
73	49	OUTFUL	OUT OF DISK SPOOL SPACE (*U)
76	4C	SHUTDN	START SYSTEM SHUTDOWN (OBS)
79	4F	TRMSTR	START A TERMINAL (S)
80	50	STOP	ABORT THE SYSTEM (S)
81	51	ABEOC	ABNORMAL END OF COMPILE (U)
82	52	RD1052	READ FROM CONSOLE (S)
83	53	NORMEJ	NORM EOJ (SAME AS SVC 255) (U)
84	54	SYIERR	ERROR DURING SYSIN READ (OBS)
85	55	SYOERR	ERROR DURING SYSOUT WRITE (OBS)
86	56	TMW	SEND MSG TO TERMINAL (*U/S)
87	57	BEC	CONVERSION (S)
88	58	CMW	WRITE MSG ON CONSOLE (S)
90	5A	NORMEC	NORMAL END OF COMPILE (U)

91	5B	ABEOJ	ABNORMAL END OF JOB (U)
93	5D	JOBSTR	START OFF JOB (*U)
94	5E	PMSG	USER MSG FMTED WITH DMSG (*U)
95	5F	CMSG	CONSOLE MSG FMTED WITH DMSG (S)
126	7E	LODSVC	LOAD A PROGRAM (U)
127	7F	TODSVC	GET TIME OF DAY (U/S)
128	80	SIMSV	SIMULATE ANOTHER SVC (U)
129	81	MFREQ	UL FILE REQ SVC (U)
202	CA	CMS202	RESERVED SVC NUMBER
203	CB	CMS203	RESERVED SVC NUMBER
214	D6	UDICDC	ACCOUNTING REC FROM USER PROG (U)
215	D7	CETI	CETI SVC (U)
216	D8	DEBUG	DEBUG SVC (U)
217	D9	TRACE	PUT ENTRY IN TRACE TABLE (U/S)
218	DA	VMPRT	READ VM PRINTER SPOOL FILE (U)
219	DB	SYSIN	INTERFACE TO SIOCS (SYSINR) (U)
220	DC	SETOPT	SET USER OPTION BIT (U)
221	DD	EXREQ	SET /EXEC REQUEST (U)
222	DE	ENQDEQ	ENQUE/DEQUE (U/S)
223	DF	VMSP	VM SPOOL PUN INTERFACE (U)
224	E0	USTIMR	USER 'STIMER' FACILITY (U)
225	E1	CLEAR	CLEAR CORE BETWEEN LIMITS (U/S)
226	E2	VMDIAG	DO DIAG INSTR TO VM (U)
227	E3	SYSDA	DO I/O ON A SYSTEM DATA SET (U)
228	E4	WTO	TERM WRITE TO OPERATOR (U)
229	E5	XWAIT	TERM WAIT (U)
230	E6	GETCRB	GET CONV READ BUFFER CONTENTS (U)
231	E7	GETCOD	CODE TABLE SEARCH (U/S)
232	E8	SETCOR	PUT LAST LOC USED IN XFCB (U)
233	E9	GETSER	MUSIC SER/MCH CK INTERFACE (U)
235	EB	CLSOUT	CLOSE SYSOUT (U)
236	EC	SETOP4	MISC FUNCTIONS (U)
237	ED	SETSAV	SET /SAVE REQUEST (U)
238	EE	SETABI	SET INPUT TABS (U)
239	EF	PSTCOD	FETCH AND ZERO POST CODE (U)
240	F0	IOWAIT	WAIT FOR LOCK OR I/O (U/S)
241	F1	SETBUF	SET UCS/FCB BUFFERS IN SPAM (U)
242	F2	DLYEXC	DELAY EXECUTION (U)
243	F3	BRTRAP	BRANCH AND SET SVC TRAP BIT (U)
244	F4	COUNTM	UPDATE A STAT COUNTER (U/S)
245	F5	SETABO	SET OUTPUT TABS (U)
246	F6	PWRDIX	ALL POWERFUL DIOEX (U)
247	F7	SETOP0	SET TCB OPT 0 (U)
248	F8	DAIO	DIRECT ACCESS REQUEST (U)
249	F9	UDIOEX	USER DIOEX (U)
251	FB	FETCH	FETCH CORE INTO USER REGION (U)
252	FC	XTIME	JOB TIME (U)
253	FD	BRANCH	BRANCH USING NO REGISTERS (U)
254	FE	ABEND	ABEND JOB (U)
255	FF	EOJ	NORM EOJ (U)

Appendix D. MUSIC TCP/IP for VM TCP/IP Version 1

A number of programs are provided with MUSIC to support TCP/IP Version 1. This section is for sites who do not run TCP/IP Version 2. It is better to use TCP/IP Version 2 since that support does not use CMS sessions to access TCP/IP, resulting in better performance and usability features.

These programs rely on access to the VM TCP/IP Version 1 through a set of CMS service machine. You must create entries in the VM directory that define the virtual machines that are used by MUSIC to access TCP/IP.

The two basic services currently supported by MUSIC are TELNET and FTP. When a MUSIC user starts one of these, a CMS session is started through logical device support on one of the virtual machines reserved for MUSIC TCP/IP support. In the case of TELNET, the CMS TELNET client application is started and the terminal session is turned over to the control of the user.

In the case of FTP, the CMS FTP client application is started, however the MUSIC interface remains in place between the user and CMS, acting as a command filter and handling the file transfer functions between MUSIC and CMS as they are required.

Setting Up to Use TCP/IP

1. Define the virtual machines for MUSIC TCP/IP in the VM directory.
 - One is required for each simultaneous TCP/IP user. Depending on usage, usually a pool of five or six will be sufficient for all your MUSIC users.
 - Each should be configured like a standard CMS user.
 - A 191 disk is required. If only TELNET is to be used this need only be big enough to hold the profile exec and can be read only. The FTP support uses the 191 disk as a staging area in the file transfer process and the size of this disk limits the size of the files that can be transferred. (It is possible to use T-Disk for this. See note later on.)
2. The IBM 3270 File Transfer Program is used to transfer files from MUSIC to CMS. If FTP is to be used, Version 1.1.1 of this program must be installed on CMS. It must be loaded as a nucleus extension before the FTP client application is started. This can be done by a profile exec. (Versions prior to 1.1.1 cannot run as nucleus extensions and will cause the FTP application to abend). Contact the MUSIC support centre for information about the exact PTF level that the 3270 File Transfer program must be at.
3. Create the profile execs for the virtual machines. The profile exec should establish access to the TCPIP program disk and load the file transfer program as a nucleus extension if required. The following is an example.

```
/* Profile exec for TCPIP MUSIC machine */

/* Access the TCPIP disk */
CP LINK TCPMAINT 592 592 RR
'ACCESS 592 T/A'

/* Load 3270 file transfer program as nucleus extension */
NUCXLOAD IND$FILE
```

4. Add the USERIDs of the virtual machines to MUSIC's shared CMS ID table. The entries to be used for TELNET or FTP should use the application name TCPIP. ADMIN (4 10 10) allows you to change the table. The following shows some sample entries.

```

*
* Userid      Password Application
* |           |           |
TCP0          password TCPIP
TCP1          password TCPIP
TCP2          password TCPIP
TCP3          password TCPIP
TCP4          password TCPIP
TCP5          password TCPIP

```

Using TCP/IP

NET

The program NET displays a list of network nodes and allows the user to TELNET or FTP to a selected node. This list is from the file \$PVM:NET.LIST. The distributed file is intended only as a sample and contains a list of about 100 internet nodes that allow anonymous FTP. You should replace this list with one more pertinent to your site.

The format of this file is straightforward. The first field in each record contains the network address that is used on the TELNET or FTP command. The rest should contain some sort of description, identifying the particular node and perhaps listing services that are available there. The network address can be either the numeric internet address or the symbolic node name.

When users runs NET, they can page up and down through the list or use the LOCATE command to locate the computer they want to talk to. They then select either TELNET or FTP by entering a T or F in the margin beside the selected entry. NET then issues a TELNET or FTP command with the selected network address. When the TELNET or FTP session finishes, the user is returned to NET.

TELNET

The TELNET command selects an available CMS userid from the pool of userids defined for TCPIP access in the shared userid table and logs on to a CMS session using that userid. A CMS TELNET command is issued and control of the CMS session is turned over to the MUSIC user. When the CMS TELNET session is finished, the CMS session is automatically logged off and the user returned to the MUSIC session. The format of the TELNET command is:

```
TELNET net_address
```

where *net_address* is the network address of the target computer.

FTP

The FTP command selects an available CMS userid from the pool of userids defined for TCPIP access in the shared userid table and logs on to a CMS session using that userid. A CMS FTP command is issued to start the FTP client program on CMS. Unlike TELNET, direct control of the CMS session is not turned over to the user. MUSIC's FTP interface remains in control. It intercepts output from CMS and displays it on the user's screen. Input from the keyboard is filtered and passed to the FTP application on CMS.

When the user issues a PUT command, the interface transfers the file from MUSIC to the CMS 191 mini disk and then issues a PUT command to the FTP application on CMS.

When the user issues a GET command, the interface sends it to the FTP application on CMS. This gets the file from the remote computer and puts it on the 191 mini disk. When this operation has completed the MUSIC interface automatically transfers the file from CMS to MUSIC.

Some commands are simply passed straight to CMS. Others are not supported at all. For example MGET and MPUT are not supported due the difficulties of implementing them with CMS acting as a surrogate for the MUSIC session.

When the CMS FTP session is finished, the CMS session is automatically logged off and the user returned to the MUSIC session. The format of the FTP command is:

```
FTP net_address
```

where *net_address* is the network address of the target computer.

Tailoring the FTP and TELNET Connection

Both the TELNET and FTP interfaces are written in REXX and use the SIGNON subroutine (\$PGM:LDEV.REX) to make the logical device connection with the CMS virtual machines. There are a number of parameters in this routine that you may wish to modify. Full details of the calling sequence for this routine are in the Administrators Reference.

LOCAL The second parameter is a positional parameter and specifies where the service CMS machine is. The default is set to LOCAL, meaning on the same CPU as the MUSIC system. You could access TCP/IP services on another CPU through PVM by changing LOCAL to PVM(node), where "node" is the PVM node of the system in question. This is not recommended however, since the CMS to MUSIC file transfer will have to be done over the relatively slow PVM link.

MSG(n) Specifies the types of message that will be displayed during the connection process. By default this is set to zero and displays a minimum of messages. If you set it to 3, the entire connection process will be echoed on the users terminal.

TDISK This can be used to create TDISK space for use by FTP. see the next section for details.

Using TDISKS for FTP

You may not want to reserve permanent 191 mini-disks for your FTP users. If this is the case it is possible to use TDISKS. The only problem is the additional overhead during startup in allocating and formatting the disks. To use TDISKS you must modify the FTP program.

Edit \$PVM:FTP and enter the following commands:

```
L SIGNON
I 'TDISK(nnnn,291,A)',
FILE
```

The value "nnnn" is the number of block of TDISK space that you want to allocate for the FTP session.

Note that a PROFILE EXEC is still required to access the TCP/IP disk and load IND\$FILE as a nucleus extension. If TDISKS are used, this PROFILE EXEC could be on a small 191 mini disk that's shared in read only mode between the virtual machines.

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