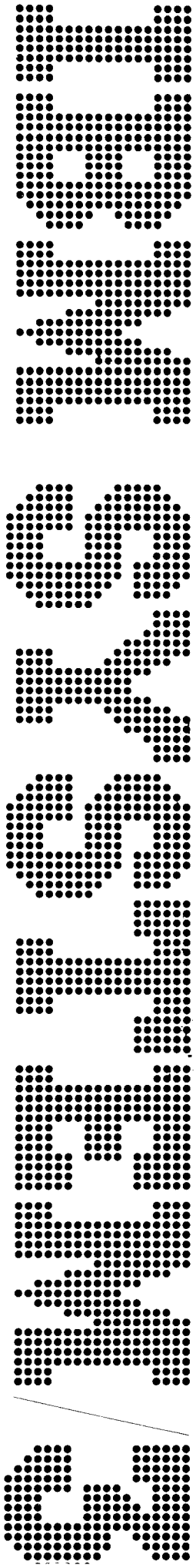
IBM System/3
Model 15
Communications Control Program
System Operator's Guide

Program Numbers:

5704-SC1
5704-SC2

Feature 6011/6012/6033/6070/6071

GC21-7619-4
File No. S3-36



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Fifth Edition (September 1980)

This is a major revision of, and makes obsolete, GC21-7619-3. Changes or additions to the text and illustrations are indicated by a vertical line to the left of the change or addition.

This edition applies to version 8, modification 0 of IBM System/3 Model 15 System Control Program (Program 5704-SC1); version 5, modification 0 of IBM System/3 Model 15 System Control Program (Program 5704-SC2); and to all subsequent versions and modifications until otherwise indicated in new editions or technical newsletters.

Changes are periodically made to the information herein; these changes will be reported in technical newsletters or in new editions of this publication.

Use this publication only for the purposes stated in the *Preface*.

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This publication contains information about using the IBM System/3 Model 15 Communications Control Program (CCP). You should be familiar with the operating procedures for the Model 15 before operating the CCP.

This publication describes generation and assignment in general terms. It gives the operating procedures for startup, CCP execution, and shutdown. A glossary is provided to define the important terms. The sample printouts of the commands available to the system operator, debugging aid programs, and online testing information are also given.

Prerequisite Publications

You should be familiar with the information contained in the following system control program publications:

- *IBM System/3 Model 15 Operator's Guide,* GC21-5075
- *IBM System/3 Model 15 System Messages,* GC21-5076
- *IBM System/3 Model 15 System Control Programming Concepts and Reference Manual,* GC21-5162 (for 5704-SC2).
- *IBM System/3 Model 15 System Control Programming Reference Manual,* GC21-5077 (for 5704-SC1)

Related Publications

The following publications contain additional information about the CCP:

- *IBM System/3 Model 15 Communications Control Program System Reference Manual,* GC21-7620
- *IBM System/3 Communications Control Program Programmer's Reference Manual,* GC21-7579
- *IBM System/3 Communications Control Program Terminal Operator's Guide,* GC21-7580
- *IBM System/3 Communications Control Program General Information Manual,* GC21-7578
- *IBM System/3 Communications Control Program Messages Manual,* GC21-5170
- *IBM System/3 Communications Control Program System Design Guide,* GC21-5165

The following publications contain System/3 teleprocessing information:

- *Data Communication Concepts,* GC21-5169
- *IBM System/3 Multiline/Multipoint Binary Synchronous Communications Reference Manual,* GC21-7573
- *IBM System/3 Multiple Line Terminal Adapter RPQ Program Reference and Component Description Manual,* GC21-7560
- *IBM System/3 Models 8, 10, 12, and 15 Components Reference Manual,* GA21-9236

CCP is the Communications Control Program for the IBM System/3 Model 15. You, the CCP system operator, require a better understanding of the system than the operator of a batch system. You must make decisions on your own in a variety of situations. Many of these decisions require a thorough understanding of the method of operation of the CCP. You have the ability to display and modify the current status of the CCP; therefore, you must understand the effect of your actions on the CCP and on the information processing system as a whole.

Try to be involved as early as possible in planning for installation of the CCP. The *IBM System/3 Communications Control Program General Information Manual,* GC21-7578, provides a general description of the CCP. Reading it will help you better understand a communications-based system. Prior to operating the system, you should become acquainted with the functions of the application programs in the system and with the files used by each program. You must be familiar with the configuration of the system and with the current status of the system.

Someone else at your installation, an alternate or backup operator, should also be familiar with the operation of the CCP system in the event you are absent. The backup operator should be kept informed of any changes that are made to the system.

Note: This manual makes references to BSCA and/or BSCC and to BSCA/BSCC lines 1, 2, 3, and 4. Program number 5704-SC1 supports BSCA lines 1 and 2; program number 5704-SC2 supports BSCA lines 1 and 2 as well as BSCC lines 3 and 4.

WHAT IS CCP

What is CCP

The Communications Control Program (CCP) is a feature of System/3 Model 15 that allows the Model 15 to support an online network of terminals. CCP enables terminals to call application programs as needed and permits those programs to access a common set of disk files. Several application programs are permitted to execute concurrently, though independently of one another, when sufficient main storage is available. CCP controls the environment in which these application programs run.

ESTABLISHING THE CCP

Where to find the assignment procedures

Establishing the CCP in your installation is basically a process of tailoring the distributed CCP to your installation requirements. This process is accomplished in two stages: generation and assignment. The following descriptions of these stages are provided for your overall understanding of CCP. As system operator, you may not be required to perform CCP generation and assignment. However, if you are, you can find the operating procedures in *IBM System/3 Model 15 CCP System Reference Manual,* GC21-7620.

Generation

Generation

Generation is a process of creating a set of CCP object modules and subroutines that satisfies the requirements of your installation. During generation, the maximum capabilities of the CCP and certain optional features, such as password security and 3270 Display Format Facility, are specified.

Display Format Facility

Display Format Facility for 3270

The IBM 3270 Display Format Facility (DFF) is a function of CCP that can be selected during CCP generation. DFF allows programs written in RPG II, COBOL, FORTRAN IV, and Basic Assembler to more easily control the display format for the 3270 Information Display System.

The DFF is composed of the display format generator, printer format generator, and the display format control routine. The generators process special DFF specifications, build display or printer formats, and store the display or printer formats in an object library. The control routine processes requests for DFF services issued by application programs running under the CCP.

Instructions for using the display format generator and printer format generator are given in *IBM System/3 CCP Programmer's Reference Manual,* GC21-7579.

Assignment

The *assignment* stage consists of running the assignment build program to describe an operating environment in more detail. *Assignment* is the process of defining one or more *sets* of terminals, files, programs, and system environments that will be available to the CCP. These assignment sets are recorded in the disk file $CCPFILE, which was created during the generation stage. The CCP runs under one of the assignment sets; that is, the CCP has access to a particular group of terminals, files, and programs. You can vary these resources by specifying a different assignment set or by modifying/suppressing certain items within an assignment set during startup. Therefore, you can control which programs are eligible to be called during a particular run, or you can restrict the use of certain files during a run.

The information defined within an assignment set during the assignment stage is valid for any number of CCP runs. If a terminal, program, or file must be added or removed from the set or when aspects of the system environment change, the contents of the assignment set can be modified by repeating the assignment run, without performing generation again.

Assignment list

Assignment information is printed using the assignment list program, $CCPAL. Procedures for running this program are given in *IBM System/3 CCP System Reference Manual,* GC21-7620.

OPERATING THE CCP

Operational stage

Once the CCP is established, you are ready to operate it. Operating the CCP includes:

- Startup – During startup, you load the generated CCP and are allowed to change certain specifications within an assignment set.

- Control – When startup logs 000 CCP STARTED, the CCP is ready to communicate with the terminals and application programs. You may exercise control over the system during this stage. You can determine if the system should accept new requests from terminal operators. While the system is in operation, you can initiate certain system actions, determine the system status, and alter the set of terminals permitted to access the system. You must also make decisions when exceptional situations (such as error conditions) are detected.

- Shutdown – When you tell the CCP to stop processing, the application programs are allowed to complete processing.

COMMUNICATION WITH CCP

CRT/Keyboard

Your communication with the CCP is through the 3277 Display Station and Operator Console Keyboard (referred to as the *console* in this manual). Messages from the system are displayed on the console; some messages require responses from you. Those messages requiring responses are preceded by an asterisk.

Responding to messages

During startup and during the last part of the operational stage of CCP, you may respond to messages issued by the CCP by pressing the PF12 key. When CCP is ready, the cursor is situated at the response position of the most recent message and ENTER RESPONSE is displayed on the lower line of the display. You may then enter that response or adjust the cursor to the response position of any unresponded message you desire.

Entering commands

At any time during CCP execution, you may command a system action. Commands, and the procedure for entering commands, are described in *Chapter 3. Controlling the CCP after Startup.* Messages are described in *IBM System/3 CCP Messages*, GC21-5170.

TERMINALS USING CCP

Communicating with terminals

When terminals are communicating with the CCP, you will receive messages on the console indicating what is happening. For instance, you are notified each time a terminal operator attempts to sign-on. In some instances, the CCP does not automatically tell you what is happening, but you have commands that you can use to request information about the operation of the system. For example, you have commands available to:

- Tell you the current status of terminals on the system (see index entry *display terminals command*).
- Tell you the current status of active CCP user tasks (see index entry *display users command*).
- Tell you the current symbolic name and identifier of terminals on the system (see index entry *display terminal assignments command*).

SYSTEM AND PROGRAM INFORMATION

Current system information and information about each application to be run on the system should be supplied to you by your data processing personnel. The following example sheets illustrate the type of information you need to run the system.

Current System Information

System information

1. General information about the system

   Terminals attached to the system _____
   Lines available on the system _____
   Files available _____

2. Schedule of work

   Work performed by each terminal _____
   Work performed by system operator _____
   Total work schedule _____

3. What is the current password or other security information _____

4. What are the current data mode escape characters _____

5. What assignment set should be used during startup _____

6. What is the current default for signing-off each terminal. Hold or drop. _____

7. What error recovery procedures are to be followed for certain terminal errors or while specific programs are running _____

Keep a copy of the assignment set listing near the console for reference to the assignment set configurations.

Program Information

Application _____ Date _____

Program Name _____ Number _____ Programmer _____

1. Symbolic name of the program _____

2. Function of the program _____

3. System resources used by the program

Files	How Used
_____	_____
_____	_____
_____	_____

Terminal ID	Symbolic name	Location
_____	_____	_____
_____	_____	_____
_____	_____	_____

4. Main storage required _____

5. Typical operating time _____

6. Can input data be entered with the program request _____

7. What input is expected _____

8. End message will be sent to terminal Yes _____ No _____

9. Special considerations

   Program restricted in any way _____

   Potential problems in suspending or cancelling the program before it has finished _____

10. Under what conditions can programs be cancelled _____

STARTUP

Responding to startup prompts

Startup is the initiation of the resident CCP. The startup procedure consists of a sequence of prompts (messages) displayed on the console that allow you to temporarily change specifications within an assignment. By answering the prompt with YES or Y, you are telling the CCP that you are requesting further prompting for individual changes. By entering an appropriate keyword (with a value if required), a change is made without further prompting. Keywords and values may be entered (one keyword and value at a time) until the ENTER key is pressed without any keyed input. By entering NO or N or by pressing the ENTER key, you are indicating that the value is to remain unchanged.

What you can change at startup

The assignment specifications you change during startup remain changed only during the current CCP run and do not permanently alter the values given during generation and assignment. The specifications you can change and the keyword used are:

Keyword	Purpose
UNIT–xx	Specify location (disk unit) of $CCPFILE
SET–c	Specify the ID character of an appropriate assignment set
MINUPA–nnK	Specify the minimum user program area size
MINTPBUF–nnnnn	Specify the number of bytes of main storage to be used for teleprocessing hold buffer
PASSWORD–cccccc	Change the CCP security password (valid if option was selected during CCP generation)
TRACEMLTA–{n | A}	Specify use of the tracing routine within MLTA control routines: n Enter a specific line number 1-8. Keyword can be repeated for different line numbers. A Enter A to use trace for all line numbers.
TRACEMLMP	Specify use of the tracing routine within BSCA control routines to trace for both lines
TRACEMLMP–{n | A}	(5704-SC2 only) Specify use of the tracing routine within BSCA control routines: n Enter a specific line number 1 or 2. A Enter A to use trace for both line numbers.

Keyword	Purpose
TRACEBSCC–{n | A}	(5704-SC2 only) Specify use of the tracing routine within BSCC control routines: n Enter a specific line number 3 or 4. A Enter A to use trace for both line numbers.
BSCCBLK–{1 / 24}	(5704-SC2 only) Number of 256-byte blocks to be allocated for the use of the BSCC trace routine. Default is 1, maximum is 24 (6K).
SUPPRESS	Suppress use of the following facilities, specified in the assignment set, for the current CCP run: – Specific disk data files – Specific file reference-names (symbolic file names) – Specific programs – Specific BSC (1-4) and/or MLTA (1-8) lines – Specific DFF buffers (5704-SC2 only) – Specific terminals – Program request count – Use of specific terminals until later in the CCP run
OFFLINE	Place a terminal offline (not available) until later in the CCP run

Before startup, the following operations must have been performed (see *IBM System/3 Model 15 CCP System Reference Manual,* GC21-7620 for descriptions of the procedures for these operations):

- CCP has been generated.
- At least one assignment set must have been entered into $CCPFILE.
- If user sign-on security is being employed, $CCPAU has been executed to load the user security information.
- All CCP application programs that may be requested during the CCP run have been compiled (or assembled) and have all been stored as specified in the assignment set, on either the CCP program pack or the DSM system pack as permanent members in the object library. Program 5704-SC2 allows CCP application programs to reside in an object library in any of the disk simulation areas. An exception to this is if EXECFIND-YES is specified in the PROGRAM assignment statement (5704-SC2 only).
- All existing files to be used during the CCP run must be online prior to startup.
- If the display format facility is to be used, all formats required during the CCP run must be generated and must be online on the correct disk unit, prior to startup. An exception to this is if CCPFMT is to be used to find the format during CCP execution (5704-SC2 only).

- If you want a CCP trace, $TRACE must be loaded with TYPE-CCP prior to startup. (For 5704-SC2 only, an OCC-loadable trace is available that provides the same function and which may be initiated after startup.)

- MLTERFIL (error file) has been initialized on the system pack (this operation is required for MLTA and for BSCA/BSCC control station only). For BSCC (5704-SC2 only), MLTERFIL must be two tracks.

Startup when more than one partition is active

The CCP can be run in any program partition, but not in more than one partition concurrently. If multiple partitions are to be active, CCP should normally be run in the highest priority partition in the system.

The non-CCP partition(s) may be active during CCP startup. However, the following programs must not be executing in that partition:

- User security data program ($CCPAU)
- Main storage dump to printer program ($CCPDD)
- Assignment build program ($CCPAS)[1]
- Assignment list program ($CCPAL)
- Initialize assignment file build program ($CC1BF)
- CCP ($CCP)
- Any CCP generation stage program
- Any program that modifies programs or display formats that are used by CCP during its operation or that run under control of the CCP for this assignment set.

The CRT/Keyboard, a card reader, or an online 3741 may be used to read OCL for the non-CCP partition.

Options taken to Model 15 halts

In addition to the messages issued during startup (see *IBM System/3 CCP Messages Manual,* GC21-5170), any one of the halts issued by the System/3 Model 15 may occur. The information needed to recover from these halts is provided in *IBM System/3 Model 15 System Messages,* GC21-5076. If you take option 2 (controlled cancel) or 3 (immediate cancel) to a halt, that action is performed and CCP is terminated. Also, if the keyword CANCEL is used in response to startup messages SU011 or SU025, the CCP startup is terminated immediately.

Canceling CCP during startup

The CANCEL (CN) command can also be used to cancel the CCP partition. However, this statement is not allowed while disk files are being opened.

Format of startup message

The format of the startup message is:

*SUnnnbbtext?

where:

- * Indicates that the message or a group of messages requires a reply; otherwise the first character is blank.
- SU Indicates a startup message.

[1] $CCPAS does not update $CCPFILE but provides diagnostics while CCP is in startup.

nnn Is a reference number used for clarification of the text that follows.

¢¢ Separates the reference number from the text.

text Is the startup message.

? Indicates that CCP startup is waiting for your reply. After pressing the PF12 key, you may enter YES, Y, NO, or N; enter a keyword; or press the ENTER key. The ENTER key can be pressed to retain the current information in all cases.

A startup error message is indicated by *ERROR* as the first word of text followed by a blank and the remainder of the text.

Startup Procedure

Complete startup procedure

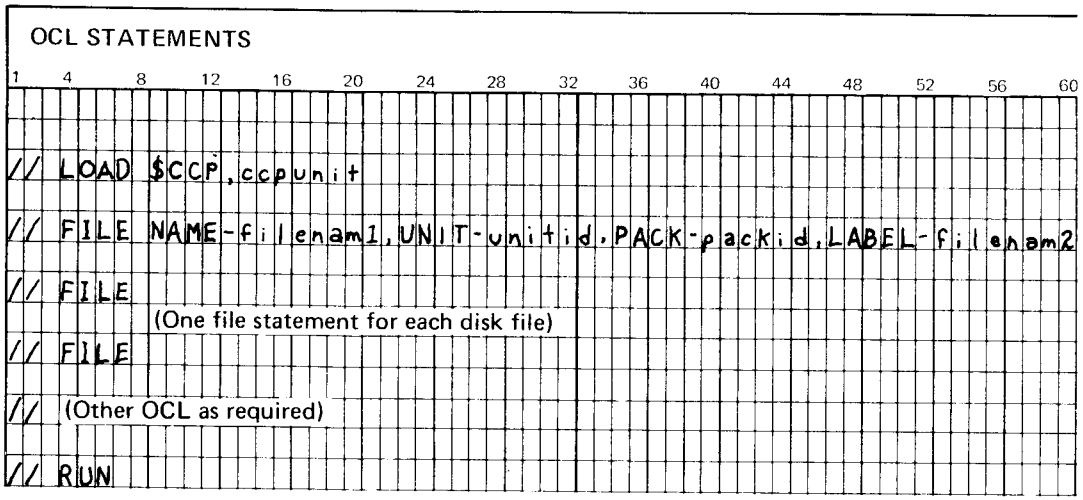
1. Ensure that the disk packs containing disk files referred to by the OCL are online, unless the files are suppressed during startup. Also ensure that disk packs containing the object libraries in which display formats (if DFF is used) and CCP user programs reside are online.

2. Enter the IDELETE command if you do not wish to respond to I type messages (see *IBM System/3 Model 15 Operator's Guide,* GC21-5075, for a description of IDELETE).

3. Enter a SET command prior to loading CCP if you wish to override the partition size specified during Model 15 generation.

OCL statements

4. Enter the OCL statements to load $CCP. The OCL statements to be entered from the system input device to the appropriate program partition are:



Notes Concerning the OCL

- *ccpunit* is the disk unit (R1, F1, R2, F2) on which the CCP production pack is mounted.

- *filenam1* is the name of a disk file as actually referenced by a program running under the CCP. If symbolic files are used, this is the actual-name from the associated // DISKFILE assignment statement.

- *unitid* is the disk unit (R1, R2, F1, F2, D1, D2, D3, or D4) on which the user file resides (or is being allocated). With a 3344, the following disk units are also valid: D31, D32, D33, D34, D41, D42, D43, and D44.

- *packid* is the disk pack name for the file.

- *filenam2* is the actual filename on disk, specified when filenam1 is not the actual name on the disk.

FILE statement

- The maximum number of // FILE statements allowed is 40 for 5704-SC1, and 192 for 5704-SC2.

- No // FILE statement is entered for $CCPFILE or $CCPDUMP.

- An appropriate RETAIN parameter may be included on a // FILE statement.

- TRACKS, RECORDS, and LOCATION parameters may be included in the // FILE statements.

  If files to be loaded during the current CCP run are old files (built during a previous run), the LOCATION parameter and either the TRACKS or RECORDS parameter from the original OCL must be given to avoid creating a separate copy of the file.

LOG statement

- The CCP partition logs all messages to the CRT/Keyboard, regardless of where the system log device has been assigned. If multiple partitions are active, the non-CCP partition may also log to the CRT/Keyboard.

BSCA statement

- A // BSCA statement may be required among the OCL statements used to load $CCP. This statement is used to change all BSCA line specifications in CCP to either line 1 or line 2, when one of the BSCA lines will not be available during CCP execution and the terminals for that line have been switched to the line that will be used.

Note: Additional information about the OCL statements and OCC commands is contained in the following publications:

- *IBM System/3 Model 15 System Control Programming Reference Manual,* GC21-5077 (for 5704-SC1)

- *IBM System/3 Model 15 System Control Programming Concepts and Reference Manual,* GC21-5162 (for 5704-SC2)

- *IBM System/3 Model 15 Operator's Guide,* GC21-5075

The remainder of startup is a series of prompts, in message format, whereby you can make temporary changes to an assignment set. The complete procedure is given on the following pages.

Common startup procedure

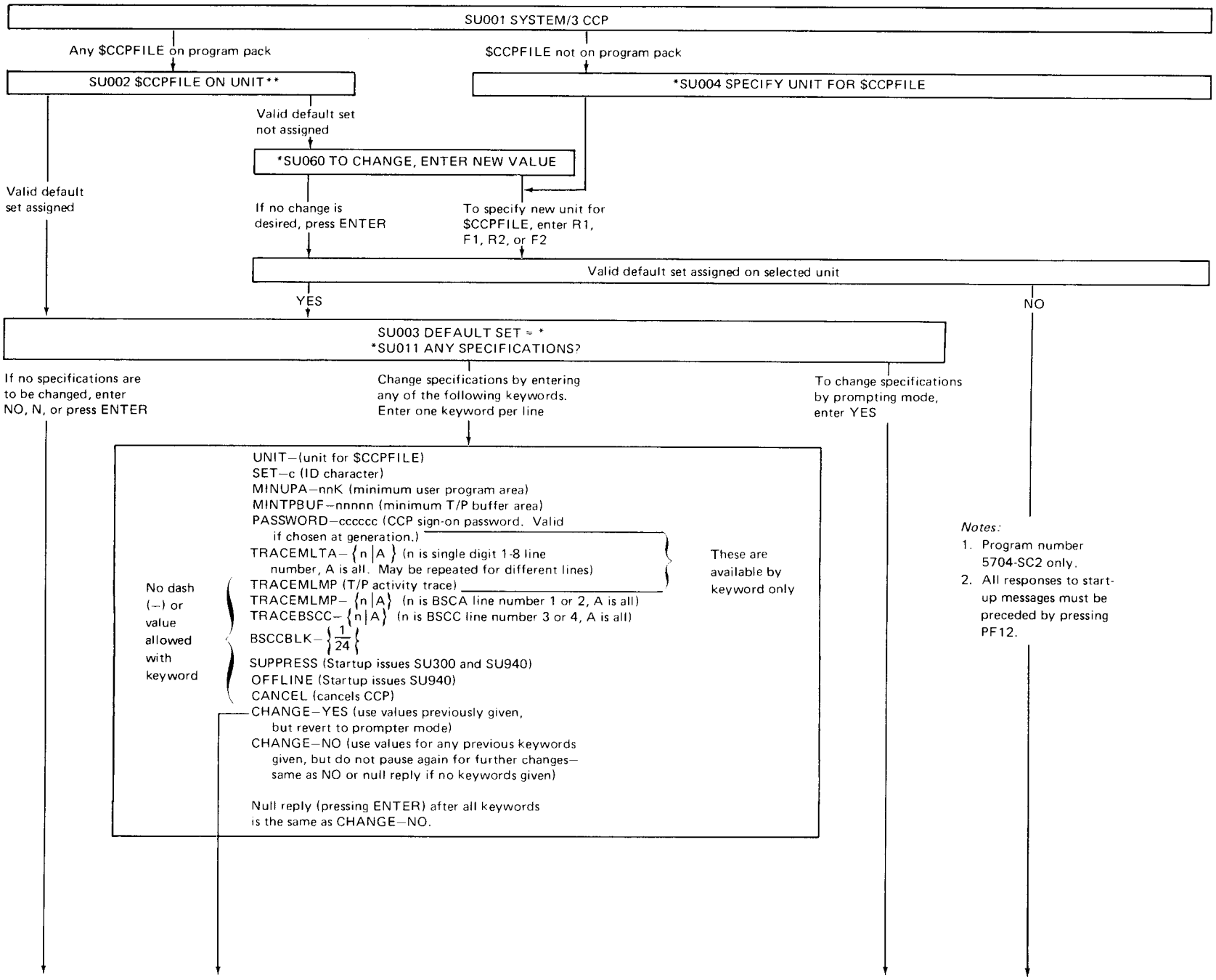
Performing Startup—No Changes Required

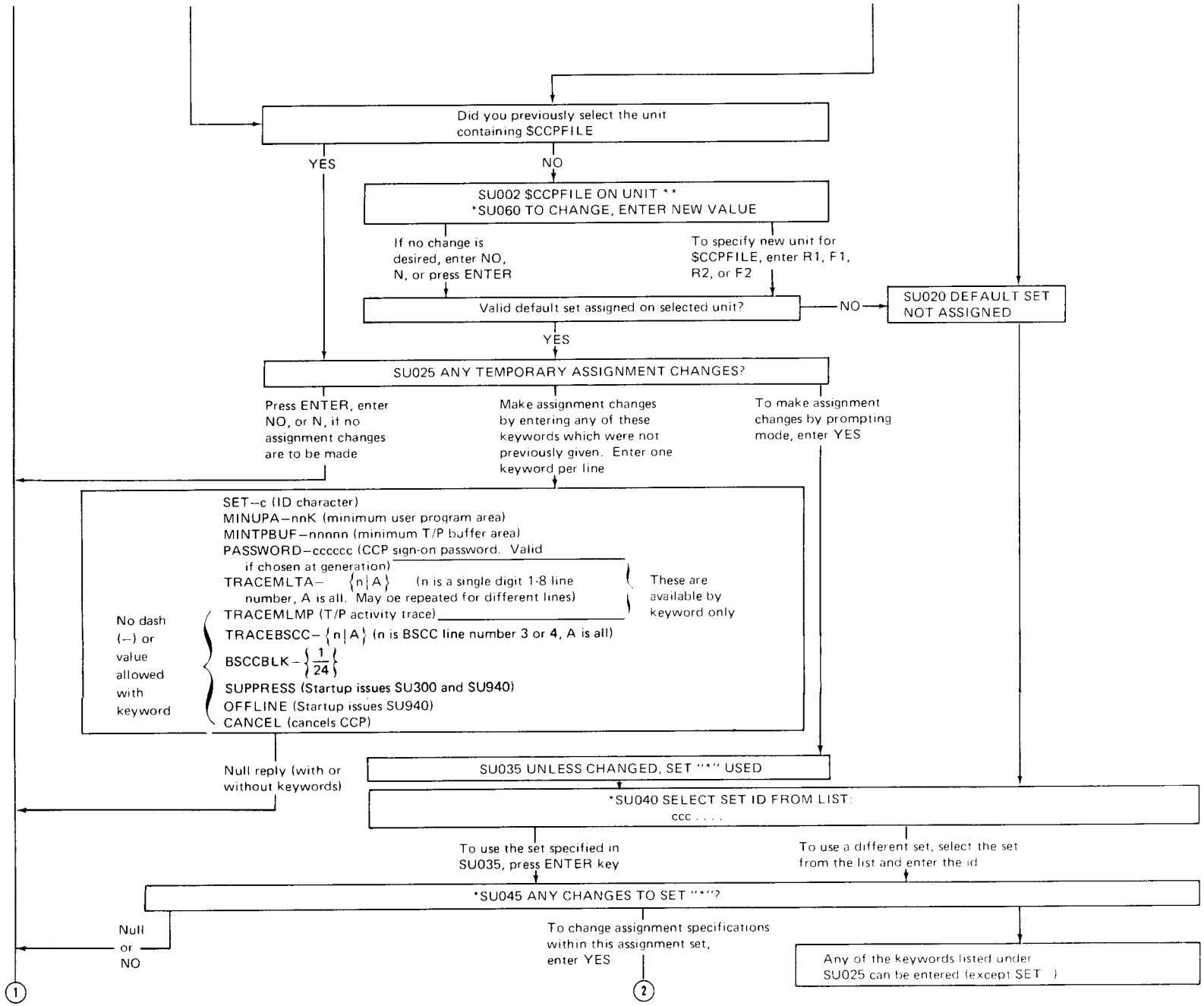
If you do not wish to make temporary changes to the current assignment set, you may perform the preceding startup procedure and, when CCP prompts the following message, press PF12 and either key in NO or press the ENTER key:

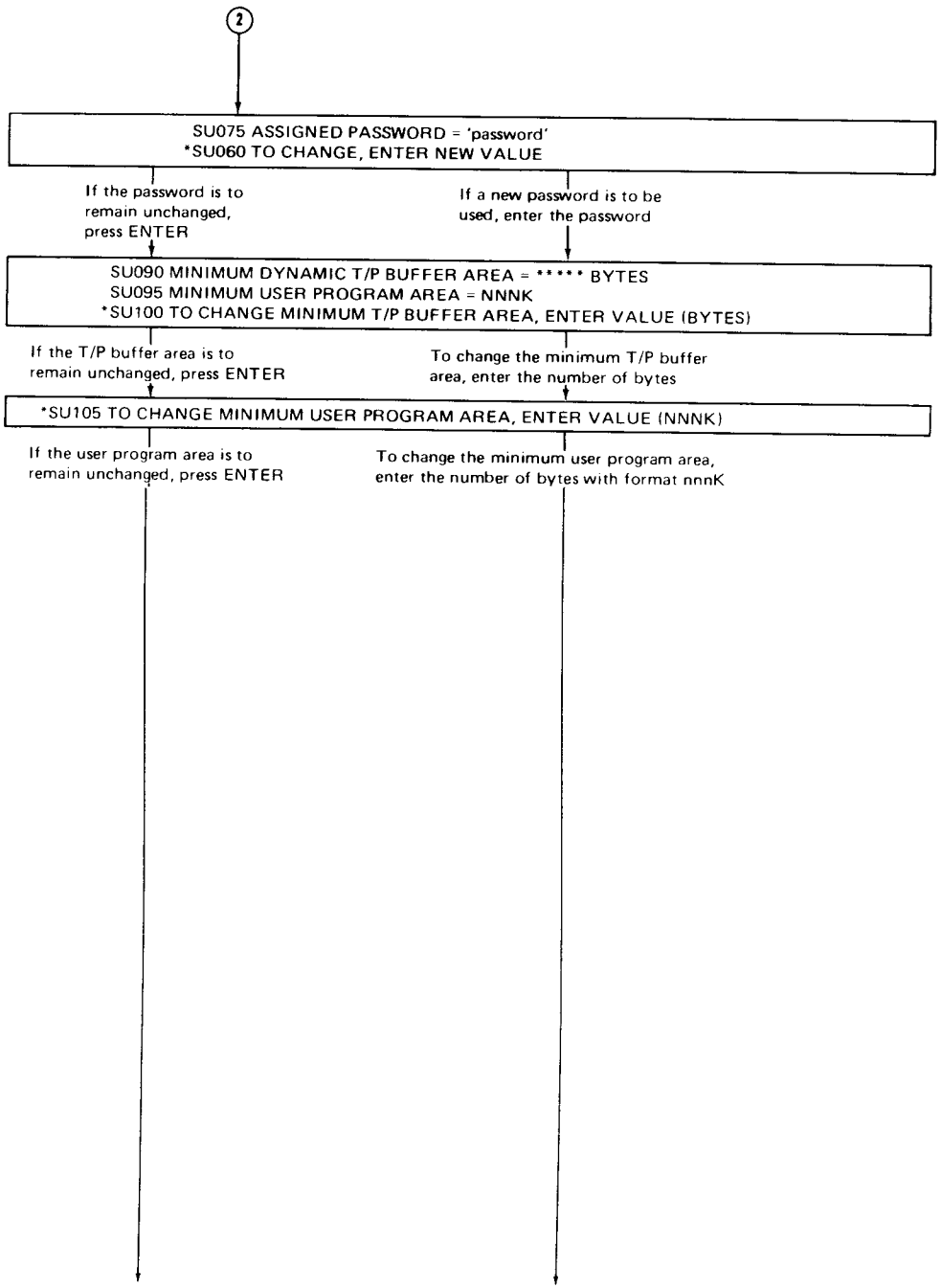
```
*SU011 ANY SPECIFICATIONS?
```

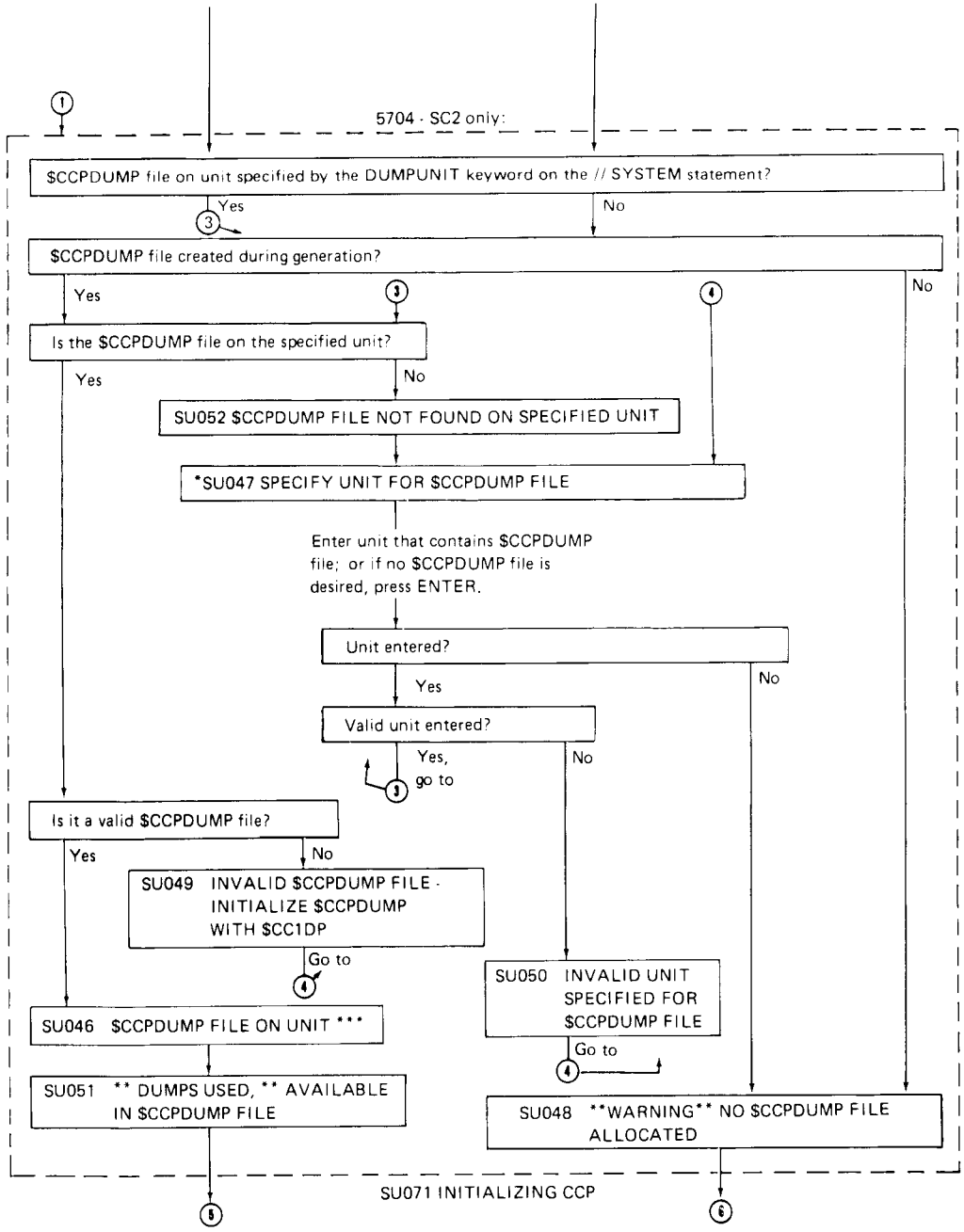
CCP startup then issues the following messages (no response required):

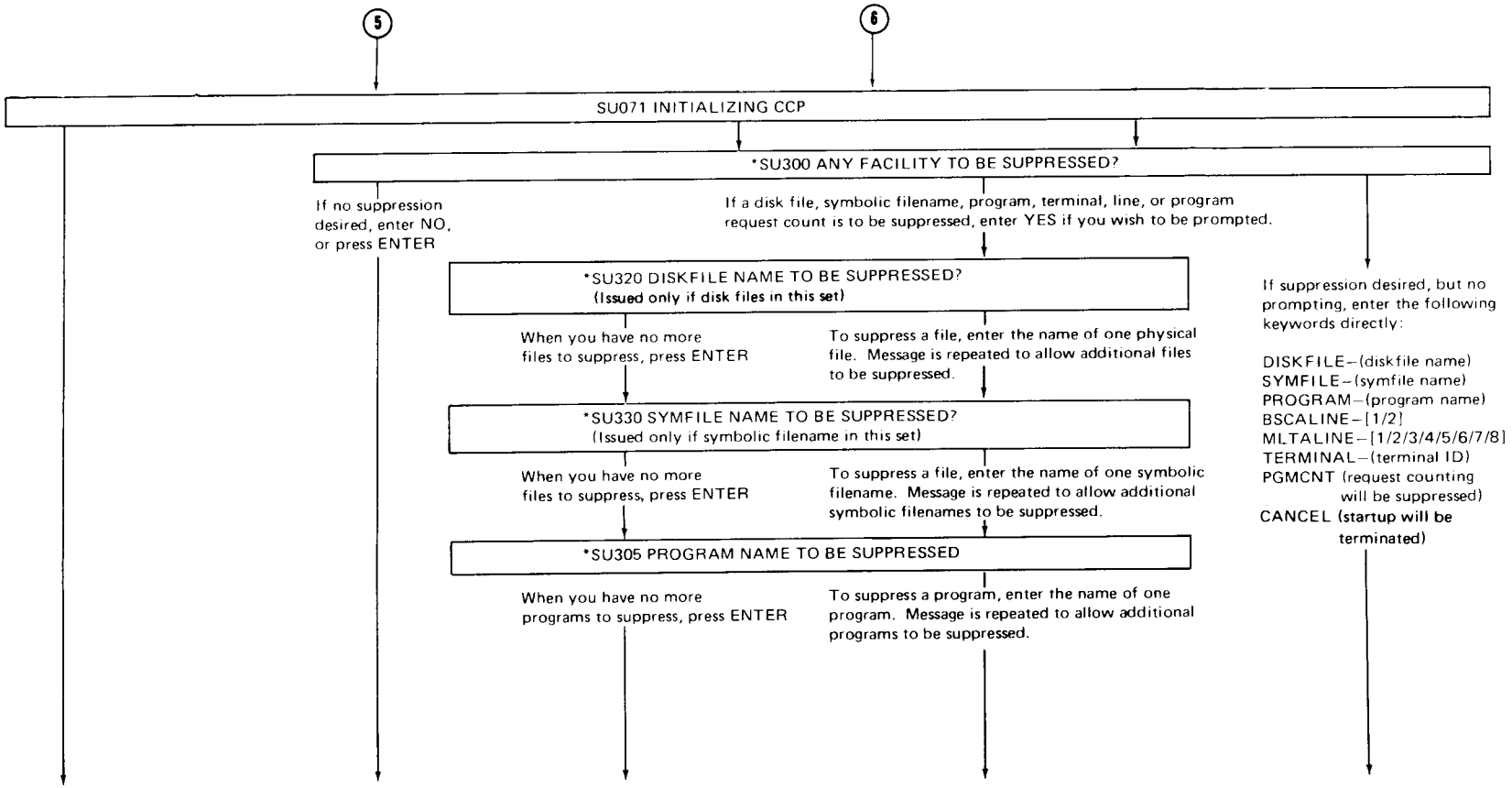
```
SU071  INITIALIZING CCP
SU753  OPENING DISK FILES
SU965  T/P BUFFER IS ****** BYTES, USER PROGRAM AREA IS ***K
000    CCP STARTED
```

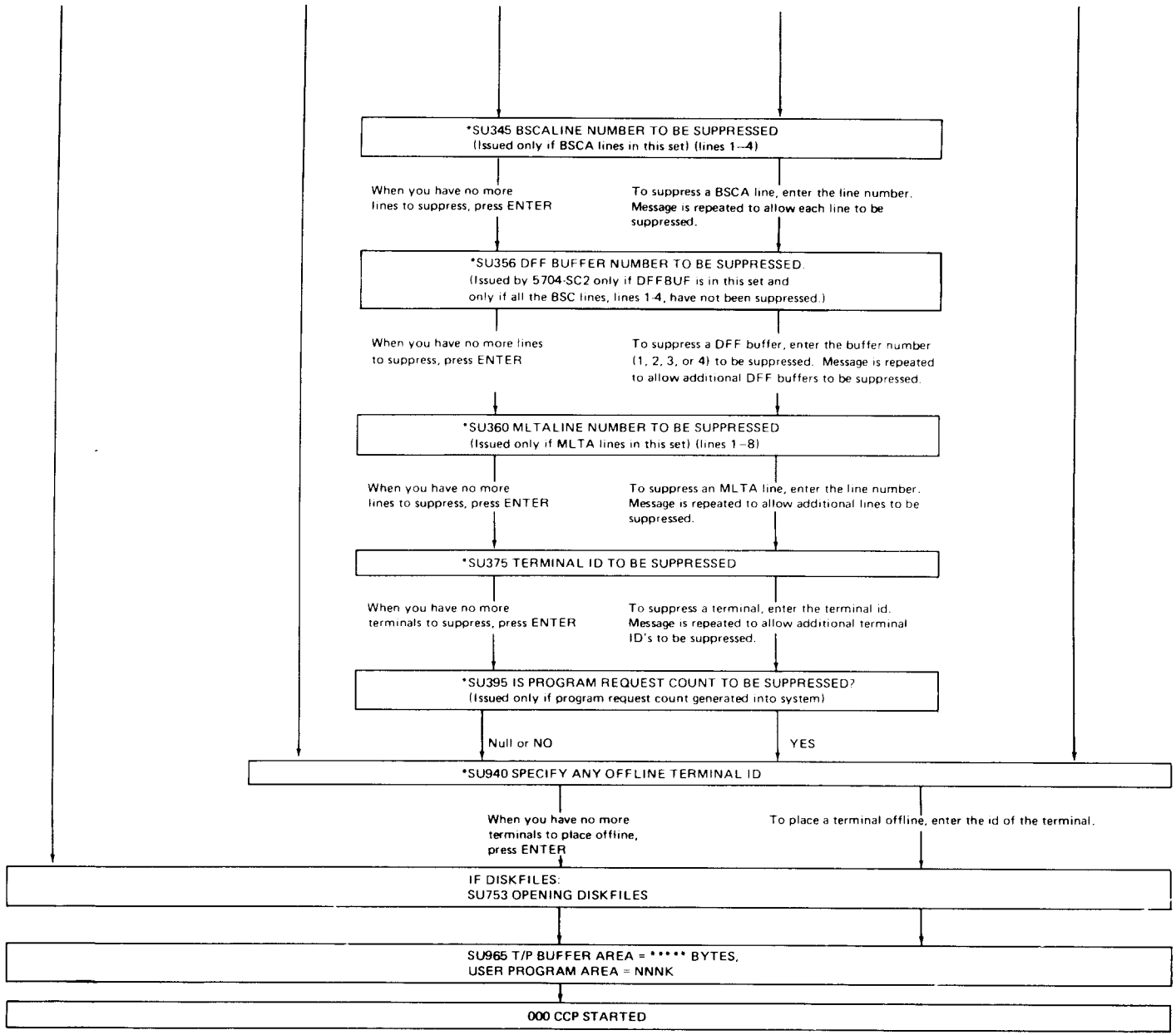

SU001 SYSTEM/3 CCP
Any $CCPFILE on program pack
$CCPFILE not on program pack
SU002 $CCPFILE ON UNIT**
*SU004 SPECIFY UNIT FOR $CCPFILE
Valid default set not assigned
*SU060 TO CHANGE, ENTER NEW VALUE
Valid default set assigned
If no change is desired, press ENTER
To specify new unit for $CCPFILE, enter R1, F1, R2, or F2
Valid default set assigned on selected unit
YES
NO
SU003 DEFAULT SET = *
*SU011 ANY SPECIFICATIONS?
If no specifications are to be changed, enter NO, N, or press ENTER
Change specifications by entering any of the following keywords. Enter one keyword per line
To change specifications by prompting mode, enter YES
UNIT—(unit for $CCPFILE)
SET—c (ID character)
MINUPA—nnK (minimum user program area)
MINTPBUF—nnnnn (minimum T/P buffer area)
PASSWORD—cccccc (CCP sign-on password. Valid if chosen at generation.)
TRACEMLTA—{n|A} (n is single digit 1-8 line number, A is all. May be repeated for different lines)
TRACEMLMP (T/P activity trace)
TRACEMLMP—{n|A} (n is BSCA line number 1 or 2, A is all)
TRACEBSCC—{n|A} (n is BSCC line number 3 or 4, A is all)
BSCCBLK—{1/24}
SUPPRESS (Startup issues SU300 and SU940)
OFFLINE (Startup issues SU940)
CANCEL (cancels CCP)
CHANGE—YES (use values previously given, but revert to prompter mode)
CHANGE—NO (use values for any previous keywords given, but do not pause again for further changes—same as NO or null reply if no keywords given)
Null reply (pressing ENTER) after all keywords is the same as CHANGE—NO.
No dash (—) or value allowed with keyword
These are available by keyword only
Notes:
1. Program number 5704-SC2 only.
2. All responses to start-up messages must be preceded by pressing PF12.


Did you previously select the unit containing $CCPFILE
YES
NO
SU002 $CCPFILE ON UNIT **
*SU060 TO CHANGE, ENTER NEW VALUE
If no change is desired, enter NO, N, or press ENTER
To specify new unit for $CCPFILE, enter R1, F1, R2, or F2
Valid default set assigned on selected unit?
NO
SU020 DEFAULT SET NOT ASSIGNED
YES
SU025 ANY TEMPORARY ASSIGNMENT CHANGES?
Press ENTER, enter NO, or N, if no assignment changes are to be made
Make assignment changes by entering any of these keywords which were not previously given. Enter one keyword per line
To make assignment changes by prompting mode, enter YES
SET–c (ID character)
MINUPA–nnK (minimum user program area)
MINTPBUF–nnnnn (minimum T/P buffer area)
PASSWORD–cccccc (CCP sign-on password. Valid if chosen at generation)
TRACEMLTA– {n|A} (n is a single digit 1-8 line number, A is all. May oe repeated for different lines)
TRACEMLMP (T/P activity trace)
These are available by keyword only
No dash (–) or value allowed with keyword
TRACEBSCC– {n|A} (n is BSCC line number 3 or 4, A is all)
BSCCBLK– {1/24}
SUPPRESS (Startup issues SU300 and SU940)
OFFLINE (Startup issues SU940)
CANCEL (cancels CCP)
Null reply (with or without keywords)
SU035 UNLESS CHANGED, SET "*" USED
*SU040 SELECT SET ID FROM LIST:
ccc . . . .
To use the set specified in SU035, press ENTER key
To use a different set, select the set from the list and enter the id
SU045 ANY CHANGES TO SET ""?
Null or NO
To change assignment specifications within this assignment set, enter YES
Any of the keywords listed under SU025 can be entered (except SET)
1
2


2
SU075 ASSIGNED PASSWORD = 'password'
*SU060 TO CHANGE, ENTER NEW VALUE
If the password is to remain unchanged, press ENTER
If a new password is to be used, enter the password
SU090 MINIMUM DYNAMIC T/P BUFFER AREA = ***** BYTES
SU095 MINIMUM USER PROGRAM AREA = NNNK
*SU100 TO CHANGE MINIMUM T/P BUFFER AREA, ENTER VALUE (BYTES)
If the T/P buffer area is to remain unchanged, press ENTER
To change the minimum T/P buffer area, enter the number of bytes
*SU105 TO CHANGE MINIMUM USER PROGRAM AREA, ENTER VALUE (NNNK)
If the user program area is to remain unchanged, press ENTER
To change the minimum user program area, enter the number of bytes with format nnnK


1
5704 - SC2 only:
$CCPDUMP file on unit specified by the DUMPUNIT keyword on the // SYSTEM statement?
Yes
3
No
$CCPDUMP file created during generation?
Yes
3
4
No
Is the $CCPDUMP file on the specified unit?
Yes
No
SU052 $CCPDUMP FILE NOT FOUND ON SPECIFIED UNIT
*SU047 SPECIFY UNIT FOR $CCPDUMP FILE
Enter unit that contains $CCPDUMP file; or if no $CCPDUMP file is desired, press ENTER.
Unit entered?
Yes
No
Valid unit entered?
Yes, go to 3
No
Is it a valid $CCPDUMP file?
Yes
No
SU049 INVALID $CCPDUMP FILE - INITIALIZE $CCPDUMP WITH $CC1DP
Go to 4
SU050 INVALID UNIT SPECIFIED FOR $CCPDUMP FILE
Go to 4
SU046 $CCPDUMP FILE ON UNIT ***
SU051 ** DUMPS USED, ** AVAILABLE IN $CCPDUMP FILE
SU048 **WARNING** NO $CCPDUMP FILE ALLOCATED
SU071 INITIALIZING CCP
5
6


5
6
SU071 INITIALIZING CCP
*SU300 ANY FACILITY TO BE SUPPRESSED?
If no suppression desired, enter NO, or press ENTER
If a disk file, symbolic filename, program, terminal, line, or program request count is to be suppressed, enter YES if you wish to be prompted.
If suppression desired, but no prompting, enter the following keywords directly:
DISKFILE–(diskfile name)
SYMFILE–(symfile name)
PROGRAM–(program name)
BSCALINE–[1/2]
MLTALINE–[1/2/3/4/5/6/7/8]
TERMINAL–(terminal ID)
PGMCNT (request counting will be suppressed)
CANCEL (startup will be terminated)
*SU320 DISKFILE NAME TO BE SUPPRESSED?
(Issued only if disk files in this set)
When you have no more files to suppress, press ENTER
To suppress a file, enter the name of one physical file. Message is repeated to allow additional files to be suppressed.
*SU330 SYMFILE NAME TO BE SUPPRESSED?
(Issued only if symbolic filename in this set)
When you have no more files to suppress, press ENTER
To suppress a file, enter the name of one symbolic filename. Message is repeated to allow additional symbolic filenames to be suppressed.
*SU305 PROGRAM NAME TO BE SUPPRESSED
When you have no more programs to suppress, press ENTER
To suppress a program, enter the name of one program. Message is repeated to allow additional programs to be suppressed.


*SU345 BSCALINE NUMBER TO BE SUPPRESSED
(Issued only if BSCA lines in this set) (lines 1–4)
When you have no more lines to suppress, press ENTER
To suppress a BSCA line, enter the line number. Message is repeated to allow each line to be suppressed.
*SU356 DFF BUFFER NUMBER TO BE SUPPRESSED.
(Issued by 5704-SC2 only if DFFBUF is in this set and only if all the BSC lines, lines 1-4, have not been suppressed.)
When you have no more lines to suppress, press ENTER
To suppress a DFF buffer, enter the buffer number (1, 2, 3, or 4) to be suppressed. Message is repeated to allow additional DFF buffers to be suppressed.
*SU360 MLTALINE NUMBER TO BE SUPPRESSED
(Issued only if MLTA lines in this set) (lines 1–8)
When you have no more lines to suppress, press ENTER
To suppress an MLTA line, enter the line number. Message is repeated to allow additional lines to be suppressed.
*SU375 TERMINAL ID TO BE SUPPRESSED
When you have no more terminals to suppress, press ENTER
To suppress a terminal, enter the terminal id. Message is repeated to allow additional terminal ID's to be suppressed.
*SU395 IS PROGRAM REQUEST COUNT TO BE SUPPRESSED?
(Issued only if program request count generated into system)
Null or NO
YES
*SU940 SPECIFY ANY OFFLINE TERMINAL ID
When you have no more terminals to place offline, press ENTER
To place a terminal offline, enter the id of the terminal.
IF DISKFILES:
SU753 OPENING DISKFILES
SU965 T/P BUFFER AREA = ***** BYTES,
USER PROGRAM AREA = NNNK
000 CCP STARTED

SHUTDOWN

Shutdown

CCP shutdown begins when you enter the SHUTDOWN command. (See *How to Stop the CCP System* in Chapter 3.) CCP informs application programs that a SHUTDOWN command has been entered and the programs should terminate as soon as possible. Shutdown allows all application programs including CCP distributed programs ($CCPCL, $CCPOP, and $CCPDD) that are currently running under the CCP to complete processing. Each application program should recognize the fact that CCP is shutting down and must perform the necessary termination action.

Allowing programs to complete

Note: You may cancel CCP user programs individually after you have entered the shutdown command. See index entry *canceling one program.*

Waiting for EJ halt

Shutdown also allows queued programs to be initiated when other programs terminate and if the resources are available. The time required for the partition to complete processing after a SHUTDOWN command varies, depending on how many programs are executing, how many programs are on queue, and the number and size of indexed files that have had records added to them. You can learn what is happening during this time by using the display commands (see index entry) to determine the number of queued program requests, the programs still in use, and the terminals still in use. These and other system operator commands can be entered until the last user program has completed processing. At that time, shutdown begins its final processing and no additional input to CCP is allowed.

Note: If an online test is running when the SHUTDOWN command is entered, shutdown does not begin until data is entered on the terminal running the test.

If CCP/Disk Sort is running when SHUTDOWN is entered, the sort continues executing until EJ. If a task chain sequence is running when SHUTDOWN is entered, all tasks in the sequence are allowed to execute until EJ.

A shutdown delay feature, provided with 5704-SC2 only, allows the system operator to enter a time interval (in minutes) parameter with the SHUTDOWN command. The terminal operators are notified that a shutdown is pending, but the actual shutdown process does not begin until the specified time interval has elapsed. If the interval timer is not supported, a shutdown delay command will send the shutdown pending notice to the terminal operators. But the actual shutdown process will not begin until the system operator enters a SHUTDOWN command without a delay parameter.

Cancel

Cancel

The cancel operation begins when you enter the CANCEL command. (See *How to Cancel CCP, an Application Program, or Program Request* in Chapter 3.) CCP cancel causes all user programs to immediately cease processing and causes CCP to go through shutdown.

Not allowing programs to complete

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Chapter 3. Controlling the CCP after Startup

You control the system during the operational stage of the CCP. During its operation you can do the following:

- Enable/disable telecommunications lines and terminals.
- Initiate programs.
- Close and reopen disk files.
- Find programs and formats in the CCP object libraries (5704-SC2 only).
- Reassign symbolic terminal names.
- Respond to specific messages on the console from command terminals, user programs, CCP, or system control program support routines.
- Request the status of the CCP, including:
  - Status of a specific terminal or of all terminals
  - Status of active and queued user programs
  - Allocation of resources for a program
  - Symbolic names and physical identifiers of terminals
- Request online terminal tests.
- Suspend and resume requests/execution/initiation of user programs.
- Shutdown CCP in a controlled manner: accepting no new program requests, but honoring completely all those accepted to this point.
- Schedule a CCP shutdown to begin after a specified interval of time has expired (5704-SC2 only).
- Cancel a currently executing or queued application program.
- Cancel the system immediately; only the transmission of any messages currently being sent or received is completed.
- Send messages to a specific terminal or all terminals.
- Change interval polling times.
- Activate or deactivate automatic retries to terminals in error recovery; also alter the time interval at which these retries are done (5704-SC2 only).

- Initiate error recovery procedures for a terminal in CCP error recovery.
- Activate or deactivate TRACE facilities (5704-SC2 only).
- Build the $CCPDUMP file using program $CC1DP (5704-SC2 only).

  You can have multiple $CCPDUMP files but they must be on different packs.
- Keysort an indexed file at task termination (5704-SC2 only).
- Build, delete, and/or modify assignment sets using $CCPAS in another partition (5704-SC2 only).

  Notes:
  1. Modifications of the active CCP assignment set in $CCPFILE do not take effect until subsequent shutdown and startup.
  2. Modification of the active CCP assignment set in $CCPFILE will cause loss of current program request counts (if option was selected).
- List assignment set using $CCPAL in another partition (5704-SC2 only).

COMMANDS USED TO CONTROL THE CCP

You can enter most commands in either full length versions or abbreviated versions. In some instances the commands require you to enter additional information. The commands are as follows:

System operator commands

Command	Abbreviation	Description
ASSIGN	A	Assign a name to a terminal
AUTOERP	AE	Control automatic error recovery facility (5704-SC2 only)
CANCEL	CN	Cancel a program or CCP
CLOSE	–	Close a BSCA line
DISPLAY TERMID	DØA	Display terminal assignment
DISPLAY TERMINALS	DØT	Display terminal status
DISPLAY USERS	DØU	Display user program status
ERP	–	Recover from a terminal's error
MSG	M	Send a message
OPEN	–	Open a BSCA line
POLTIME	PT	Change interval polling times
RESUME	RES	Resume program(s)/initiation/ terminal commands
SHUTDOWN	–	Shutdown CCP
SUSPEND	SUS	Suspend program(s)/initiation/ terminal commands
TEST	–	Perform an online test
TRACE	E	Enable/disable system trace
VARY	V	Change a terminal's status

Entering a command

To enter a command, press the PF10 key. When ENTER is displayed on the screen, enter the command. The entire command must be entered on a single line. Refer to *Appendix B. Sample Commands* for examples of the commands.

The following pages explain each of the commands and describe how to issue them. The format of the commands are illustrated using the following conventions.

- Braces { } indicate you must choose one of the entries.
- Brackets [ ] indicate that the enclosed entry is optional.
- Capitalized letters are to be entered exactly as shown.
- Small letters represent information you must supply.
- Apostrophes must be entered when shown.

MSG (Message) command

HOW TO SEND A MESSAGE TO A TERMINAL

Use this command to send a message to a command terminal operator who is currently online but not under control of an application program. You must enter the command, the terminal identification, and the message to be sent on a single line. After you enter the command, the CCP informs you whether or not the message was sent.

Command		Additional Information
{ MSG / M }	ß	{ symbolic terminal name 1 / 'terminal physical ID' 2 / ALL 3 }, message text

1 The name is defined during the CCP assignment run.

2 The 2-character ID of the terminal is assigned during the CCP assignment.

3 The keyword ALL sends the same message to each online terminal that is available to receive messages.

DISPLAY TERMINALS command

HOW TO DISPLAY THE STATUS OF TERMINALS

Use this command to tell the CCP to list status information about either a specific terminal/port[1] or about all terminals/ports[1] on the CCP system. Use this command to determine:

- The current operational status of terminals
- The names and 2-character IDs of terminals
- Which task is controlling a terminal
- If or when there appears to be a problem with a terminal

Command		Additional Information
{ DISPLAY / D }	ß	{ TERMINALS / T } { , 'terminal ID' / ,symbolic terminal name 1 / blank 2 }

Status information

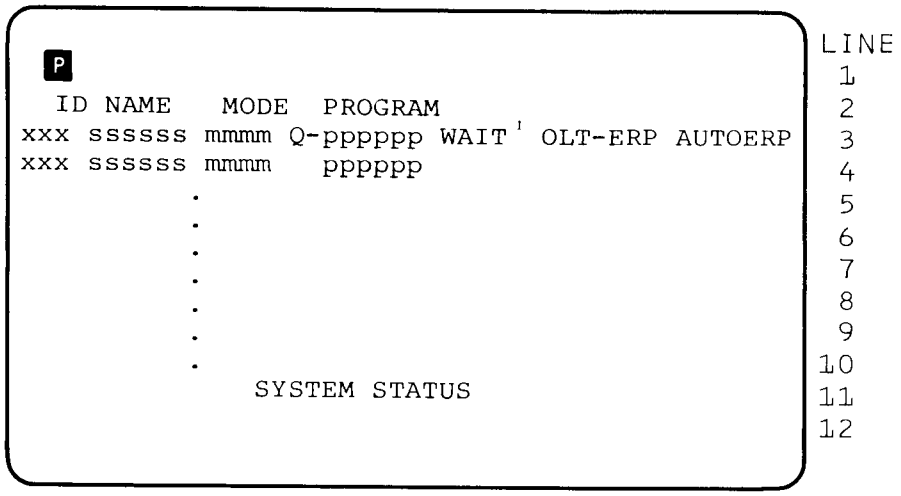
The CCP reacts to the command with status information about:

1 A specific terminal (specified by the terminal ID or symbolic terminal name)

2 All terminals defined to the CCP (second operand is blank)

[1] 5704-SC2 only

The screen appears as follows:



xxx — The 2-character terminal ID or (5704-SC2 only) the 3-character port ID. The first position of the 3-character port ID indicates the type of port. The characters and their meanings are:

P	SIOC port
T	Task-to-task port
1	BSCA line 1 port
2	BSCA line 2 port
3	BSCC line 1 port
4	BSCC line 2 port

The last two positions of the 3-character port ID indicate whether the port is acquirable (IDs 01 to 49) or nonacquirable (IDs 51 to 99).

ssssss — The symbolic name currently in use by the terminal.

mmmm — The operating mode of the terminal (see *Appendix A. Glossary* for definitions of the operating modes):

CMD	Command
CMDI	Command interrupt
DATA	Data
INIT	Initial
STBY	Standby
OFF	Offline

[1] 5704-SC2 only

ppppppp Q-ppppppp	The name of the user program that is currently in control of the terminal. *Q* in front of the program name indicates the terminal is queued to a program for one of the following reasons: • The terminal is queued as a program requestor (has entered a /Q command) and is waiting for the necessary system resources to be allocated to the program: – Main storage to execute the program – An available task control block (If a task control block is not available, then the maximum number of CCP tasks established during system generation are currently executing.) • The terminal is queued to a program that supports multiple requesting terminals (MRT program), but which is already supporting its maximum number.
WAIT[1]	TP buffer is required before the operation can be started.
OLT-ERP AUTOERP	An indicator of whether the terminal is in online test, error recovery or automatic error recovery.

If an unknown terminal ID or symbolic terminal name is entered with the command, the status information for all terminals will be displayed.

Default option prompt

The character in line 1, position 1 of the display (see **P** in the previous screen format) is a default option prompt. This character can be C, F, or R. The meaning of the prompt is:

C – Cancel the display; cancel the DISPLAY TERMINALS command.

F – Page forward to another display "page", because not all of the information could be contained in a single display.

R – Return to, or repeat, the first page of the display.

CCP displays a default option with each screen. You elect to use this option simply by pressing the ENTER key. If you want to select a different option, you must enter the appropriate character in place of the default prompt before pressing ENTER.

Printing the current display

In addition to the options described above, you can request a printout of the current display on the 1403 or 3284 printer by specifying P1403 or P3284, respectively.

Note: Before entering P3284 or P1403, you must ensure that the printer is available. If the printer is already in use, its operation is interrupted and the screen contents are immediately printed.

If you enter any character other than C, F, or R, or if you enter P without designating a printer, the first page of the display is repeated.

[1] 5704-SC2 only

HOW TO DISPLAY THE TERMINAL ASSIGNMENTS

DISPLAY TERMID (terminal assignment) command

Use this command to tell the CCP to list the symbolic name and terminal ID of a specified terminal/port[1] or each terminal/port[1] defined to the system. The symbolic name is the currently active name (doing-business-as name) of the terminal/port[1].

Currently assigned name

You can use this command when you need to know to which terminal ID a name is currently assigned. For example, you can use this command before or after an ASSIGN command to change the terminal that is actually addressed by a specific symbolic name.

Command		Additional Information	
{DISPLAY / D}	⌀	{TERMID / A}	{,symbolic terminal name 1 / blank 2}

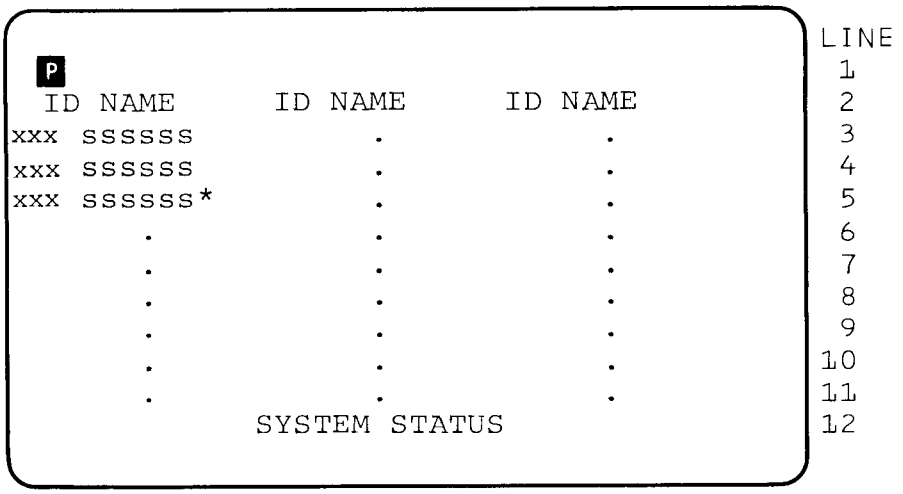
The CCP reacts to this command with the name and corresponding ID of a specific terminal or of all terminals defined to the CCP, as follows:

1 The 2-character terminal ID or (5704-SC2 only) 3-character port ID and symbolic terminal name are displayed for the specific terminal named in the command.

2 The 2-character terminal IDs or (5704-SC2 only) 3-character port IDs and symbolic terminal names of all terminals defined to the CCP system are displayed.

[1] 5704-SC2 only

The screen appears as follows:



xxx — The 2-character terminal ID or (5704-SC2 only) the 3-character port ID. The first position of the 3-character port ID indicates the type of port as follows:

P	SIOC port
T	Task-to-task port
1	BSCA line 1 port
2	BSCA line 2 port
3	BSCC line 1 port
4	BSCC line 2 port

The last two positions of the 3-character port ID indicate whether the port is acquirable (IDs 01 to 49) or nonacquirable (IDs 51 to 99).

ssssss — The symbolic name associated with this terminal.

An * following the symbolic name indicates that although this symbolic name is associated with this terminal, it is not the symbolic name that this terminal is currently doing business under. (See index entry *doing-business-as name.*)

Line 1, position 1 of the display contains the default option prompt character—C, F, or R (see **P** in the previous screen format). See the DISPLAY TERMINALS command for an explanation of the use of this screen position.

HOW TO DISPLAY THE STATUS OF TASKS AND PROGRAMS

DISPLAY USERS command

Use this command to cause the CCP to display the status of user tasks that are currently active. You may also use this command to obtain information about a specific user task.

Command		Additional Information
{ DISPLAY / D }	⊬	{ USERS / U }

As a result of the DISPLAY USERS command, the CCP displays the following primary screen format:

Primary screen format

```
P [1] TERMNL.PROGRM  LOC SIZE STATUS                    LINE
   CCPTRC.TBL-mm nnnK  nnK sss,sss,sss[3]                  1
x-tttttt.pppppp nnnK  nnK sss                             2
x-tttttt.pppppp nnnK  nnK sss                             3
                .                                         4
                .                                         5
                .                                         6
                .                                         7
LARGEST FREE SPACE - nnnK[2]                              8
LARGEST UPA=nnnK[3]   TP BUF=nnnnn,mmmmm[3]               9
            SYSTEM STATUS                                10
                                                         11
                                                         12
```

The information displayed for each active task is:

x	Task ID
CCPTRC.TBL-mm[3]	Size of the trace table loaded in the UPA. CCP trace is active in the UPA.
tttttt	Name of the requesting terminal or, for 5704-SC2, the requesting program if loaded via a task chain request. Also, for 5704-SC2, the field may be blank if the program is in allocation or termination status.
pppppp	Name of the user program.
LOC-nnnK	Start address in main storage of the user program (physical address).
SIZE-nnK	Amount of main storage required for the user program.
STATUS-sss	The current operating status of the user program:

AL	In process of allocation
TRM	In process of termination
SPD	In a suspended state, as the result of a SUSPEND command
QUE	Queued to CCP, pending allocation
ACT	Active, running under the CCP
CCP[3]	Tracing CCP entries only
ALL[3]	Tracing all trace entries
DISK[3]	Trace to disk is active

LARGEST FREE SPACE=nnnK[2]	The largest portion of the CCP user program area that is free for allocation to a user program.

[1] REQSTR for 5704-SC2
[2] 5704-SC1 only
[3] 5704-SC2 only

LARGEST UPA= nnnK[1]	The largest portion of the CCP user program area that is free for allocation to a user program.
TP BUF=nnnnn, mmmmm[1]	The current free areas in the TP buffer: nnnnn - largest free block of buffer mmmmm - total of all free blocks of buffer

If the CCP trace is active, information about the trace table size and location is displayed.[1]

Options to primary screen

You may enter one of the following characters in line 1, position 1 of the primary screen format:

C, F, R	Same as the DISPLAY TERMINALS command. See that command for an explanation.
3-9, E, G, H, V-Z (5704-SC1) 4-9, E, G, H, U-Z (5704-SC2)	This is a task ID, selected from the primary screen format. Entering a task ID causes the CCP to display a secondary screen format, containing more information about the specified task. If an invalid task ID is entered (for example, a task that has gone to end of job), the previous page is redisplayed.

Secondary screen format

If a task ID is entered as a response to the primary screen format, a secondary format is displayed, as follows:

```
P                                                    LINE
                                                       1
    TASK-x        NAME-tttttt.pppppp                   2
ATTR-NEP,MRT(nn),DFF,NONE,SORT[1],CHAIN[1]             3
U/R-uuuu,uuuu,uuuu                                     4
TERMINALS-xxx,ssssss,mmmm,WAIT[1],INVITE               5
          xxx,ssssss,mmmm                              6
DISK FILES-dddddddd,dddddddd,dddddddd,                 7
           dddddddd                                    8
                                                       9
                                                      10
                                                      11
             SYSTEM STATUS                            12
```

[1] 5704-SC2 only

The secondary display format contains the following information about the specified task:

- The task ID (x), requesting terminal's name (tttttt), and user program name (pppppp). For 5704-SC2, requesting program is displayed in place of requesting terminal if the user program was loaded via a task chain request.

- Attributes of the user program:

  NEP — Never-ending program (see *Appendix A. Glossary* for a definition).

  MRT(nn) — Multiple requesting terminal program (see *Appendix A. Glossary*). nn = The maximum number of concurrent requesters the program can handle.

  DFF — 3270 Display Format Facility used by the program (see index entry *display format facility*).

  SORT — CCP/Disk Sort Program.

  CHAIN — Program was requested via a chain task request.

  NONE — None of the preceding attributes apply.

- Device name of each unit record device allocated to the program where uuuu is the name of a unit record device; otherwise, NONE if no unit record device is allocated.

- Information about each terminal allocated to the program (NONE, if no terminals are allocated):

  xxx — two-character terminal ID or (5704-SC2 only) 3-character port ID. The first position of the 3-character port ID indicates the type of port as follows:

P	SIOC port
T	Task-to-task port
1	BSCA line 1 port
2	BSCA line 2 port
3	BSCC line 1 port
4	BSCC line 2 port

  The last two positions of the 3-character port ID indicate whether the port is acquirable (IDs 0 to 49) or nonacquirable (IDs 51 to 99).

  ssssss — symbolic terminal name

  mmmm — operating mode (DATA—data mode; CMDI—command interrupt mode)

WAIT[1] TP buffer is required before the operation can be started.

INVITE displayed if input is scheduled from the terminal

- File label on disk (ddddddd) of each disk file required by the program (not necessarily the file name used in the program).

Options to secondary display

You may enter one of the characters C, F, or R in line 1, position 1 of the display. CCP displays a default prompt which you can select by pressing the ENTER key. The display options are explained under the index entry *display terminals command.*

Special messages

CCP displays one of the following messages when the requested display cannot be prepared:

CCP NOT ACTIVE — Issued in response to the DISPLAY USERS command when shutdown has cleared all user tasks. Any response you make cancels the command.

NO TASKS ACTIVE — Issued in response to the DISPLAY USERS command when CCP is running, but there are no active tasks. Enter *C* in line 1, position 1 to cancel the command. Any other entry redisplays the message.

Note: You may want to use the DISPLAY USERS command, even when no tasks are active, to determine the size of the user program area.

TASK IN ALLOCATION — The specified task is in an allocation stage; information about it cannot be displayed at this time. Your options are:

C Cancel the display
R Return to the primary display

Any other entry causes this message to be displayed again.

TASK IN TERMINATION — The specified task is in a termination stage; information about it cannot be displayed at this time. Your options are:

C Cancel the display
R Return to the primary display

Any other entry causes this message to be displayed again.

Note: If an I/O error occurs while the file labels part of the display is being prepared, the message *I/O ERROR* appears in the disk label line and the display is shown as it exists at that time.

[1] 5704-SC2 only

HOW TO SUSPEND REQUESTS/EXECUTION/INITIATION OF PROGRAMS

SUSPEND command

Use this command to:

- Suspend execution of all application programs.
- Suspend execution of one application program.
- Prevent initiation of additional application programs or, for 5704-SC2, prevent initiation of a particular application program.
- Prevent accepting commands from terminal operators.

Command		Additional Information
SUSPEND SUS	b	USERS 1 task ID, program name 2 INIT [,program name] 3 COMMANDS 4

1 Suspends the processing of all application programs and prevents new programs from being initiated. This command could be used if CCP appears to be malfunctioning and you want to suspend operations to examine the system status. The display users, display terminals, or display terminal ID commands can be used to examine the system status.

Suspend all programs

2 Suspends a particular application program when that program appears to be holding control of the system or otherwise malfunctioning.

Suspend one program

3 Prevents initiation of further requests for application programs. Programs that are on queue waiting for main storage or an available task control block remain on queue. Programs that are on queue waiting for other resources will execute when those resources become available. This command can be used to prevent a program(s) from being initiated but to still allow terminal operators to enter commands. Under 5704-SC2 only, an individual program initiation can be suspended if changes are being made to it or to its files.

Prevent program initiation

4 a. Prevents terminal operators from entering commands when their terminal is in initial or command mode. Command interrupt mode terminals are allowed to enter commands.
b. Prevents the console operator from entering terminal-type commands (/Q, /NOQ, /FILE).

Prevent terminal commands

If the last executing user program is terminated by your issuing the CANCEL command while the SUSPEND USERS command is in effect, the SUSPEND USERS command is automatically cleared by program termination. However, the SUSPEND INIT command is still in effect and must be cleared via the RESUME INIT command.

Care should be used when suspending programs that are currently communicating over a BSCA line. If resumption does not occur within a specific period of time (specified during assignment on the BSCALINE statement or the maximum delay count specified for the terminal, whichever is less), a T/P error may occur preventing further communication by the program using that line. This program must then be terminated or issue its own error retry to resume execution.

Use caution suspending program on BSCA line

HOW TO RESUME REQUESTS/EXECUTION/INITIATION OF PROGRAMS

RESUME command

When a SUSPEND command has previously been issued, use a RESUME command to:

- Resume execution of all application programs.
- Resume execution of one application program.
- Permit initiation of additional application programs or, for 5704-SC2, permit initiation of a particular application program.
- Permit accepting commands from terminal operators.

Command		Additional Information
{ RESUME / RES }	b	{ USERS / task ID, program name / INIT [,program name] / COMMANDS } **1** **2** **3** **4**

Resume all programs

1 Resume execution of all suspended application programs and allow new program requests to be initiated.

Note: If both a SUSPEND USERS command and a SUSPEND INIT command have been entered, the RESUME command negates both of those commands, but not the SUSPEND INIT,progname command.

Resume one program

2 Resume execution of one particular suspended application program.

Allow program initiation

3 Allows program initiation to resume. However, if a SUSPEND USERS command is in effect, you must either:

- Specifically resume or cancel each suspended program, or
- Enter a RESUME USERS command.

Otherwise a RESUME INIT command will be rejected by CCP.

Program 5704-SC2 allows initiation of a particular application program to resume.

Permit terminal commands

4 Permits all command-capable terminals not currently in use by an application program to enter commands or program requests.

HOW TO CHANGE THE INTERVAL POLLING TIME

POLTIME command

Use this command to change:

- The number of seconds that CCP polls terminals continuously (upon negative response) before entering a wait state if interval polling is generated into the CCP system.
- The number of seconds to wait before repolling.

Command		Additional Information
POLTIME (PT)	Ø	1 { ttt,ww } 2 { NO } 3 [,BSCA ,BSCC]

1 ttt is the time in seconds to poll continuously before initiating interval polling. ww is the time in seconds to wait before repolling.

2 NO, the default, cancels interval polling.

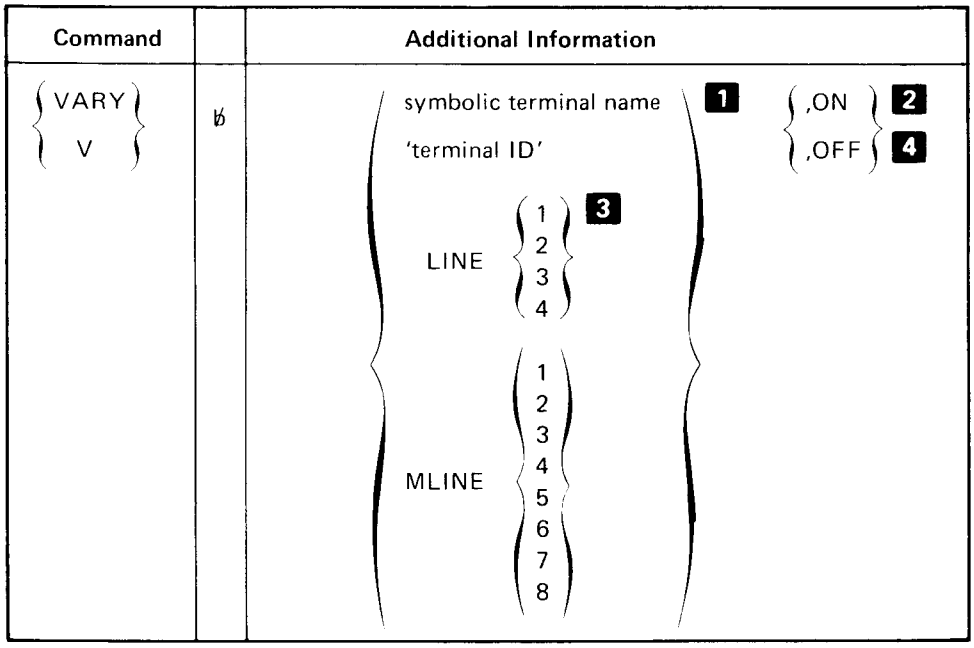
3 BSCA or BSCC specifies if time should apply to BSCA lines 1 and 2 or to BSCC lines 3 and 4.

VARY command

Use this command to change the status of a terminal from online to offline or from offline to online. The CCP sends a message informing the terminal operator of the change in status of the terminal. This message is sent only to command-capable terminals on a nonswitched line. The message is never sent to CPUs. The CCP does not accept this command if the terminal is under control of an application program.

If a non-command-capable terminal is online, it is available for use by application programs. If it is offline, it is not available for use. CCP does not communicate with an online, non-command-capable terminal except at the direction of an application program.

If a command-capable terminal is online and not currently being used by an application program, CCP allows input from that terminal. If the terminal is offline, input is not allowed nor is the terminal available for use by an application program.



1 Specifies the terminal (or all terminals on a line) to be placed online or offline.

2 The specified terminal is placed online. The terminal is enabled for initial mode input if it is capable of entering commands. Use ON when a terminal is offline and you want to allow communication with it.

3 The LINEn operand applies to BSC lines only. For MLTA lines, use the MLINEn operand.

4 The specified terminal is placed offline. Communication with the terminal is terminated. In addition, if the terminal is on a switched line, the line is disconnected; if there are any online command terminals on the switched line, the line is re-enabled to allow a terminal to call in.

If a vary offline is issued to a command-capable terminal, the processing of the terminal to offline status begins with an attempt to stop any outstanding invite input operations previously issued by CCP to the terminal. Offline processing completes only when the invite input request is canceled or the input operation is completed. For certain terminals, the hardware makes it difficult to stop the invite input operation. For the following terminals, the terminal remains in the process of being varied offline until the input operation completes:

2741	Basic
2741D	Dial
2740DT	Dial with Transmit Control Feature
2740DTC	Dial with Transmit Control and Longitudinal Redundancy Checking

HOW TO CHANGE THE NAME OF A TERMINAL

ASSIGN command

Assign alternate terminal

Use this command to assign another symbolic terminal name to a terminal. The newly assigned name must be taken from the group of terminal names defined in the current assignment set (TERMNAME statements) that either are not assigned to a specific terminal or are assigned to a like terminal. You can use this command to assign an alternate terminal when a particular terminal is inoperative.

Doing-business-as name

If the terminal is a data terminal, the new name becomes the doing-business-as name of the terminal. If the terminal is a command terminal in command mode, the new name becomes an available name that can be used to refer to the terminal. The doing-business-as name is controlled by the terminal operator's use of the name command (see *IBM System/3 CCP Terminal Operator's Guide,* GC21-7580). When the terminal operator uses a name command to change the doing-business-as name of the terminal, CCP prints a message on the console informing you of the name change.

Note: If the specified terminal is a command terminal in initial mode, the new name becomes the doing-business-as name of the terminal, as with a data terminal. However, if the terminal operator signs on the command terminal, the doing-business-as name reverts to the original name.

Command		Additional Information
{ ASSIGN / A }	ƀ	**1** symbolic terminal name, **2** 'terminal ID'**3** [,stt index number]

1 A terminal can be referenced by one or more symbolic names. This command does not cancel any symbolic names; it provides an additional name that can be used to reference a terminal.

Note: If the last assigned name of an offline terminal is reassigned while that terminal is offline, a name must be assigned to that terminal before it is varied online.

2 This command is rejected if you try to assign a name to different types of terminals. For example, you cannot assign a symbolic name to a BSCA terminal if the same name is being used by an MLTA terminal. Examples of invalid combinations are:

MLTA terminal	BSCA terminal
Switched line terminal	Nonswitched line terminal
1050	Non-1050
3270M1* (3277M1 or 3275M1)	3270M2* (3277M2, 3275M2, or 328x printer)
3270	3735
CPU	3270

*M1 (small screen), M2 (large screen)

Telephone number

3 The STT (Switched Terminal Table) index number is used to change telephone numbers for terminals on a switched line. Each STT index number refers to a telephone number defined during assignment. See the output from the assignment list program to determine which STT index number to use.

HOW TO RECOVER FROM TERMINAL ERRORS

ERP command

Use this command to tell the CCP what additional error recovery procedures to take when a terminal is in CCP error recovery.

Your action depends on whether or not the terminal is under control of an application program. If the terminal is under control of an application program, you will receive a message issued by the IOCS and CCP indicating the application program has the responsibility of determining what action to take. If the terminal is not under control of an application program, you will receive an IOCS message and a message from the CCP indicating you may take some action. You can respond to the CCP message using this command.

Command		Additional Information
ERP	↓	'terminal ID' { ,RETRY 1 / ,BYPASS 2 } LINE { 1 2 3 4 } 3 MLINE { 1 2 3 4 5 6 7 8 }

1 Tells the CCP to reissue the failing operation to the terminal. If the failing operation was on input, then the message S12 TP ERROR ON INPUT is sent to the terminal by CCP before the failing operation is reissued. If the LINEx operand is used, all terminals on the line are affected if they are in error recovery.

Reissue failing operation

2 Tells the CCP to proceed to the next operation and bypass the failing operation. If the failing operation was on input, then the message S12 TP ERROR ON INPUT is sent to the terminal by CCP before continuing with the next operation.

Bypass failing operation

3 The LINEn operand applies to BSC lines only. For MLTA lines, use the MLINEn operand.

Whenever CCP detects that an error occurred while communicating with a terminal, a message is displayed at the console informing you of the error. In addition, if the terminal does not currently belong to an application program, the terminal is placed in CCP error recovery. You are informed of this with the message:

416 'xx' IN CCP ERROR RECOVERY

While in CCP error recovery, no input or output data transfer is allowed to the terminal. Therefore, there can be no communication to or from the terminal until you respond to the error condition.

Responding to error conditions

If you do not wish to attempt error recovery, you may:

1. Issue a vary command to place the terminal offline.

2. Issue a test command to initiate an online test to the terminal to further analyze the error condition at the terminal (see *How to Perform System Operator Initiated MLTA Online Tests*).

If CCP is the calling station on a switched line (auto or manual) and the remote station (called terminal) disconnects the line without sending the disconnect sequence, the CCP connection with the line remains intact. Error recovery attempts under CCP will result in the following message until the line connection to CCP is broken:

411 [INPUT/OUTPUT] ERROR-10 ON'xx'

It is suggested that after three such retries the line be disconnected from CCP and a new connection be established with the terminal.

HOW TO CONTROL THE AUTOMATIC ERROR RECOVERY FACILITY (5704-SC2 ONLY)

Use this command to activate or deactivate automatic error recovery procedures or to change the time interval at which such procedures are performed.

Certain terminals in the current assignment set may be defined as supporting the automatic error recovery facility. CCP provides automatic error recovery procedures for those terminals whenever the facility is active and such a terminal is in error recovery. You can use this command to control the recovery procedures performed at those terminals by CCP.

Command		Additional Information
{AUTOERP / AE}	b	{ON / OFF} **1** / **2** [,nn] **3**

1 Tells CCP to activate automatic error recovery procedures for those terminals that support the facility.

2 Deactivates the facility.

3 nn is a one- or two-digit decimal number that specifies, in minutes, the time interval at which error recovery procedures are to be executed.

This command will not be accepted by CCP after a SHUTDOWN command has been accepted.

HOW TO SAVE TRACE TABLE INFORMATION

TRACE command

Use this command to:

- Enable or disable DSM system trace.
- Turn on the in-storage MLTA/BSCA/BSCC trace. If the MLTA, BSCA, or BSCC IOCS detects a permanent error on a T/P line while the MLTA, BSCA, or BSCC trace is on, the contents of the in-storage trace table are written to the system printer.
- Turn on the CCP trace. The CCP trace entries are the same as those produced by $TRACE for TYPE-CCP or TYPE-ALL. The CCP trace module is loaded into the UPA via an operator command under CCP. The 4K trace module and the trace table reside in the UPA for the duration of the tracing activity. When CCP trace is terminated, the main storage occupied by trace in the UPA is released.

Solve hardware or program problems

This command may be used when there are hardware or program problems and you or the IBM customer engineer are attempting to solve the problem. When MLTA/BSCA/BSCC trace is active and spool is also active, the spool task must be a lower priority than CCP. If spool was a higher priority it would not gain control after a snap dump was printed.

Command		Additional Information
{ TRACE / E }	ø	{ ON 1 / OFF 2 } { ,SYSTEM / ,MLTA / ,BSCA / ,BSCC / ,CCP [,nn / ,08] [,DISK / ,ø] / ,ALL [,nn / ,08] [,DISK / ,ø] } 3 4[1]

1 ON activates the appropriate trace.

2 OFF turns off the appropriate trace.

3 Specifies which one of the traces you want to turn on. In order to specify TRACE ON for MLTA, BSCA, and/or BSCC, you must have specified TRACEMLTA, TRACEMLMP, and/or TRACEBSCC keywords during startup, in response to startup message SU011, SU025, or SU045 (see startup procedure in Chapter 2).

[1] 5704-SC2 only

4 Specifies that CCP trace functions will be initiated:

ALL	indicates that the trace TYPE-ALL will be used
CCP	indicates that the trace TYPE-CCP will be used
nn	is the size of the trace table in K bytes; it ranges from 04 to 32 in 4K increments
DISK	indicates that the trace to the CCP dump file ($CCPDUMP) will be used

When turning trace OFF, it is not necessary to specify the table size or DISK operand.

HOW TO PERFORM SYSTEM OPERATOR INITIATED MLTA ONLINE TESTS

TEST command — MLTA terminal tests for 1050, 2740/2741, and CMCST

Use this command to initiate an MLTA terminal online test. If a terminal operator suspects that his terminal is not operating correctly, he can ask you to initiate an MLTA terminal online test. When starting a test, you must specify that either all tests are to be run or a specific test number is to be run. After the test, the terminal operator can compare the actual results with the correct test data to identify the problem. See *Appendix D. Online Tests* for a description of the tests.

Command		Additional Information
TEST	⌀	{ symbolic terminal name / 'terminal ID' } { ,n **1** / ,ALL **2** / ,STOP **3** } [,LOOP **4**]

MLTA test number

1 Specifies the test number to be run (n = 2 through 6).

All MLTA tests

2 Indicates that all tests for a particular terminal are to be run.

Stop MLTA test

3 Tells the CCP to stop a looping test currently being run on the specified terminal.

Run MLTA test continuously

4 Indicates that the test for the particular terminal is to be run continuously, until another TEST command is entered specifying stop. If loop is specified, only a single test may be run (ALL is not valid). An error on the terminal will stop any online test including a looping test.

Note: The MLTA online test can only be initiated to a command terminal that is signed on and not in communication with an application program; that is, the terminal is either in command mode or command interrupt mode. (See *Appendix A. Glossary* for definitions of these terms.)

HOW TO PERFORM SYSTEM OPERATOR INITIATED BSC ONLINE TESTS

TEST command–BSCA/BSCC CPU

Use this command to initiate a BSC online test to another CPU. When starting a test, you must specify the test number, the message, and the number of times you want the message to be repeated. See *Appendix D. Online Tests* for a description of the tests.

Command		Additional Information
TEST	⊬	{ symbolic terminal name / 'terminal ID' } , { 1 n } , { 2 cc } 3 ,msg

1 Specifies the test number to be run. The valid entries for n are 0, 1, 6, or 14.

BSC test number

2 The number of times the message is to be transmitted or received. The valid entries for cc are 01 through 99.

BSC message transmitted

3 The message text to be transmitted for test 0 or received for test 1.

BSC message test

Note: The entire TEST command, including the message, must be entered on a single line.

When performing these tests (which can run only to CPUs), you must assume that the program on the remote CPU handles the 0, 1, 6, or 14 online tests.

Notes:

1. When CCP is the control station, only test 0 is valid for the CPU tributaries.
2. The test message may not contain commas or embedded blanks.
3. The BSC online test can be initiated only to a command terminal that is signed-on and not in communication with an application program; that is, the terminal must either be in command mode or command interrupt mode. (See *Appendix A. Glossary* for definitions of these terms.)

HOW TO PERFORM A SYSTEM OPERATOR INITIATED BSCC WRAP TEST

Use this command to initiate a wrap test of the BSCC attachment when problems are occurring on line 3 or line 4. This test does not include the interface cables.

Command		Additional Information
TEST	b	LINE3 LINE4 **1**

1 Specifies the BSCC line attachment on which the test should be run. You must enter either LINE3 or LINE4; there is no default.

After the test is performed, a message giving the test results is displayed on the system operator's console.

If the wrap test is successful, the cause of the problem is probably in the teleprocessing line, the interface cable, or the modem(s) and not in the BSCC. If the test is unsuccessful, the problem is in the BSCC; contact IBM for hardware support.

Wrap Test Results

A message with the following format is sent to the system operator console to report the results of a wrap test:

IB YT xx I

TEST OF LINE {3 / 4} WAS {SUCCESSFUL / UNSUCCESSFUL}

DATA FIELD STATUS = zzzz

where:

xx is 00 for a successful test or
10 for an unsuccessful test

zzzz is 0002 for a successful test or a four-digit value indicating the reason for failure if the test was unsuccessful. These codes are described in the *IBM System/3 CCP Data Areas and Diagnostic Aids,* SY21-0040.

HOW TO CLOSE OR OPEN A BSCA LINE

Use this command to close a BSCA line under CCP and make it available to another partition, or to reopen a BSCA line under CCP that was previously closed by the CLOSE command.

To Close a BSCA Line

CLOSE command

Prior to closing the line, you must successfully VARY the line off. Close the line by entering the commands in the following sequence and format (where n is 1 or 2):

Command		Additional Information
VARY	⍽	LINE^{n},OFF
CLOSE	⍽	LINE^{n}

To Open a BSCA Line

OPEN command

Once the OPEN command is completed, you must VARY the line on before processing on the line can begin. Open the line by entering the commands in the following format (where n is 1 or 2):

Command		Additional Information
OPEN	⍽	LINE^{n}
VARY	⍽	LINE^{n},ON

HOW TO CANCEL CCP, AN APPLICATION PROGRAM, OR PROGRAM REQUEST

CANCEL command

Use this command only when the CCP or an application program (user task) appears to be malfunctioning, or when you wish to cancel a queued program request.

To Cancel CCP or an Application Program

Enter a command in the following format to (1) immediately terminate CCP and all CCP user tasks or (2) immediately terminate a particular CCP user task.

Command		Additional Information
{CANCEL / CN}	b	1 2 3 CCP [,taskID,program name] [,DUMP]

Cancel CCP

1 Immediately stops processing of all application programs; the CCP then terminates itself by performing a controlled cancel.

Canceling one program

2 Immediately stops all processing for one program and frees the resources allocated to it. Some application programs allow multiple copies of the program to reside in main storage at the same time. Therefore, you must enter the task ID and the program name to cancel the correct application program task. You may have to issue the DISPLAY USERS command to determine the task ID and the program name prior to issuing this command.

Dumping a canceled program

3 When you are canceling CCP or a specific program, you can specify that a main storage dump of the canceled program be written in $CCPFILE ($CCPDUMP for program number 5704-SC2).

When you cancel a specific program, all disk files open for the program are pseudo-closed by CCP. They are not finally closed by the system control program until either the SHUTDOWN command or the CANCEL CCP command are entered. CCP cancels all pending communications I/O operations prior to terminating a program.

Notes:

1. CCP distributed programs ($CCPCL, $CCPOP, $CCPDD) that begin with a $ sign cannot be cancelled once they are executing. An attempt to cancel a $ program name results in an invalid name message.
2. If a number of programs are queued for execution or a large indexed file has had records added to it (causing a key sort), a significant amount of time may elapse between the CANCEL CCP command and end of job for CCP.
3. If another partition is trying to open/close a file and an error occurs, CANCEL waits until that error is responded to before trying to close CCP files.
4. CCP distributed program $HACCP can be called from the system console only.

To Cancel a Queued Program Request

Canceling a queued request

In certain situations, you can cancel a program request that has been queued by CCP. The program request may have been made either by you or by a terminal operator. In order to determine whether a queued request can be canceled, proceed as follows:

1. Issue a DISPLAY USERS command to determine the task ID and status of the requested program. If the program request has been queued either because a terminal is temporarily unavailable or because of contention with another program for a nonsharable disk file, the program's status will be AL (awaiting allocation). You can then issue a CANCEL command in the following form to cancel the queued request:

Command		Additional Information
{ CANCEL / CN }	⍽	CCP,task ID,program name

2. If the DISPLAY USERS command does not show the status of the program, issue a DISPLAY TERMINALS command to determine if the program request has been queued (indicated by a *Q* preceding the program name) for one of the following reasons:

   - If there is currently insufficient space in the user program area to load the program
   - If the maximum number of tasks established during the generation of your CCP system are already running.

   In either of these cases, you can cancel the request by entering a CANCEL command in the following form:

Command		Additional Information
{ CANCEL / CN }	⍽	CCP,0,terminal ID

The DISPLAY TERMINALS command will also show a Q preceding the program name when the request is for a program that supports multiple requesting terminals (MRT program) but is already handling the maximum number of requesters. In this case, however, the request cannot be canceled.

Note: Remember that the program execution environment under CCP is dynamic; therefore, it may be necessary to repeat the DISPLAY commands to get the current status. For example, a program's status may change from queued to active.

HOW TO CLOSE A DISK FILE

Use this facility when included in the current assignment set to:

- Prevent the allocation or queueing of program requests that use a particular file.
- Merge added records with the original records of an add file.

To close a disk file, first press the PF9 key. When you are prompted, press PF12 and enter the close request in the following form:

Program		Additional Information
$CCPCL	⍉	filename **1**

1 Specifies the name of the file to be closed (the NAME parameter on the CCP startup OCL // FILE statement).

If the file is not currently in use, it is marked closed and is unavailable to programs running under CCP. Another partition, if it exists, is able to process the file, including records previously added by CCP programs. A non-CCP partition cannot add to this file. A message to the system operator indicates if the file is currently used by the system control program or CCP. Then $CCPCL goes to EJ. For multivolume files, all volumes will be closed.

Note: In order to utilize this facility, program $CCPCL must be included in the current assignment set. (See the description of the NAME parameter for the PROGRAM assignment statement in *IBM System/3 Model 15 CCP System Reference Manual,* GC21-7620.)

HOW TO REOPEN A DISK FILE

Use this facility when included in the current assignment set to allow the allocation and queueing of program requests which require a previously closed file.

To reopen a disk file, first press the PF9 key. When you are prompted, press PF12 and enter the open request in the following form:

Program		Additional Information
$CCPOP	⍉	filename **1**

1 Specifies the name of the file to be reopened (the NAME parameter on the CCP startup OCL // FILE statement).

Note: In order to utilize this facility, program $CCPOP must be included in the current assignment set. (See the description of the NAME parameter for the PROGRAM assignment statement in *IBM System/3 Model 15 CCP System Reference Manual,* GC21-7620.)

HOW TO FIND A DFF FORMAT (5704-SC2 ONLY)

Use this facility when a new or modified DFF format has been cataloged to the DFF pack to:

- Update DFFSFDT (Function 1).
- Find the format for future use (Function 2).
- Both of the above (Function 3).

To find a DFF format, press the PF9 key. When you receive a prompt from the system, press the PF12 key and enter your request in the following format.

Function	Program		Additional Information
1	CCPFMT	⍉	prog-n[,prog-n] . . . [,prog-n]
2	CCPFMT	⍉	$Zname[,$Zname] . . . [,$Zname]
3	CCPFMT	⍉	$Zname, prog-n . . .

where:

prog = program name

n = DFFSFDT value[1]

$Zname = DFF format name in the object library

Note: The numbers listed under *Function* identify the functions previously mentioned; they are not entries.

Normally, the result of action by CCPFMT to update DFFSFDT values in an assignment set in $CCPFILE will remain in effect until the assignment set is recompiled, or until CCPFMT is run to change those values again. In the case of 5704-SC2, an exception results when a currently executing assignment set is replaced or deleted while CCP is in operation. This exception is that the update of DFFSFDT values by CCPFMT is effective only for the current execution of CCP (until shutdown).

[1] Described under PROGRAM assignment statement in the *IBM System/3 Model 15 CCP System Reference Manual,* GC21-7620, or under format find routine in the *IBM System/3 CCP Programmer's Reference Manual,* GC21-7579.

HOW TO FIND A PROGRAM (5704-SC2 ONLY)

Use this facility when EXECFIND or PGMFIND programs have been revised and are permanently cataloged to a CCP-accessible pack. This facility allows future requests for those programs to be handled as efficiently as possible, and allows application programs to be revised.

To find a program, press the PF9 key. When you receive a prompt from the system, press the PF12 key and enter your request in one of the following formats:

```
   CCPPGM name[,name. . .,name]
or
   CCPPGM name-unit[,name-unit. . .,name-unit]
or
   CCPPGM name[,name-unit]. . . .
```

where:

name = program name

unit = unit that contains the program:

PROGRAM, SYSTEM, P, S,
R1, F1, R2, F2,
D1A, D1B, D1C, D1D, D2A, D2B, D2C, D2D,
D3A, D3B, D3C, D3D, D3E, D3F, D3G, D3H,
D4A, D4B, D4C, D4D, D4E, D4F, D4G, D4H

CCPPGM name finds the program on the pack from which it is currently loaded.

CCPPGM name-unit finds the program on the specified pack.

HOW TO STOP THE CCP SYSTEM

SHUTDOWN command

This command tells CCP to terminate after the application programs have completed processing and, if used, after the optional delay time has expired.

Command	Additional Information
SHUTDOWN	[nn]

For 5704-SC2, a time value entered with the SHUTDOWN command causes the start of shutdown execution to be delayed from 1-99 minutes (a time value of 0 is invalid).

---

[1] The source for the assignment set will now logically differ with the contents of the set on $CCPFILE. A program found by CCPPGM will remain defined as EXECFIND-NO on $CCPFILE until the assignment set is replaced with another assignment build of the set. An exception to this results when a currently executing assignment set is replaced or deleted while CCP is in operation. In this case, the action of CCPPGM in converting EXECFIND-YES programs to EXECFIND-NO programs is only in effect for the current execution of CCP (until shutdown).

When the command has been accepted, CCP will not accept commands or program requests from terminal operators unless the terminal is in command interrupt mode. All currently running programs are notified about the shutdown and allowed to complete processing unless you cancel them. Any programs that are on queue are loaded and processed when resources become available.

It is the responsibility of each application program to recognize that a shutdown indication has been given to it after the command has been entered. Long running programs should check for this condition or should not be running when the command is entered.

Each program queued for execution is notified of the shutdown request when it does its initial T/P I/O operation after it has been loaded and control has been given to it initially.

You can enter other commands as long as the CCP is running. You can enter the DISPLAY USERS and DISPLAY TERMINALS commands to determine the number of programs waiting to be initiated and the terminals in use.

When all processing of application programs is complete, CCP terminates itself and the system is then ready for the CCP to be reloaded or for other System/3 programs to be run.

Notes:

1. If a number of programs are queued for execution or a large indexed file has had records added to it (causing a key sort) a significant amount of time may elapse between the SHUTDOWN command and end of job for CCP.
2. A command mode terminal that is in error recovery when you enter the SHUTDOWN command is taken out of error recovery in order to receive the shutdown message.
3. If another partition is trying to open/close a file and an error occurs, shutdown waits until that error is responded to before trying to close CCP files.
4. The CCP shutdown phase is not yet completely finished when the SHUTDOWN COMPLETED message appears on the system console. Do not cancel the partition in which CCP is executing or do another IPL until the partition end-of-job message appears.
5. Entering a time value (5704-SC2 only) causes a SHUTDOWN PENDING message to be sent to all command-capable terminals. Operators of terminals using PRUF screens will know that they should finish quickly and not start a new series.
6. If the interval timer (5704-SC2 only) is not supported on your system, entering a time value will still cause the SHUTDOWN PENDING messages to be sent; but shutdown will not proceed until the SHUTDOWN command without a delay parameter is entered.
7. If, after entry of a delayed SHUTDOWN command (5704-SC2 only), another SHUTDOWN command is entered with a different time value, the new value is used. If the new SHUTDOWN command is not a delayed SHUTDOWN command, a normal shutdown is scheduled.
8. If $CCPAS or $CCPAL is running in another partition, SHUTDOWN will not be allowed.

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Chapter 4. Entering Terminal Operator Commands and Program Requests from the Console

The commands available to you when using the console as a command terminal are:

program request commands
/FILE
/Q (queue)
/NOQ (no-queue)

When the console is used for these operations:

- The console is always signed on and does not need to be signed off.
- The symbolic terminal name of the console is always CONSOL.
- The console does not need a data mode escape facility because the system operator can always enter commands to the system.

When entering a program request, file command, no-queue command, or queue command, you will get the same responses from CCP as a terminal operator. These messages are documented in the *IBM System/3 CCP Messages Manual,* GC21-5170. You should be familiar with these messages.

Specific messages for the system operator resulting from the commands and program requests are also documented in the *Messages Manual.*

PROGRAM REQUEST

Program request

To enter a program request from the console, first press the PF9 key. When you are prompted, press PF12 and enter the program request in the following form:

Program Name		Additional Information
program-name	¢	input-data

After a program name is entered, three possible actions can occur:

- The program is started immediately.
- The program is placed on a queue (waiting list) until the system resources that it requires are available.
- The program request is rejected.

Request queued

If the program request is queued, the console is still available to you to enter system operator commands, to receive messages from CCP, user programs, or terminals, and to respond to outstanding reply requests.

After you have entered the program request, CCP will not accept another program request, /Q command, /NOQ command, or /FILE command until one of the following events occurs:

- The requested program starts running.
- The input data has been read by the program (if input data was allowed with the program request).
- The request from the queue has been canceled (if the request was queued). (See index entry *canceling a queued request*.)

/FILE COMMAND

/FILE command

Enter this command only when you must specify which disk data file should be used by a program you will request.

File Reference Names

File reference names

The programs you request typically reference data files stored on a magnetic disk. Programs generally reference specific disk data files, and do not need an indication of which files to use.

Example of using the /FILE command

Some programs, however, are written to access information in one of several similar disk files. You are expected to specify which file to access on a particular run. Suppose, for example, you work in a school district office. The system you use has a separate file for each school in the district; each file contains information about the students in that school. If you request a program from the console, it accesses one of those files in order to list the students who are absent from school that day. Since the program can access any one of the files, it expects you to specify which school's file to use. If you do not specify a file, the program cannot know what information to access, and the CCP rejects your request for that program.

The /FILE command is used to associate the file name used in the program (reference-name or symbolic file name; see the description of the SYMFILE assignment statement in *IBM System/3 Model 15 CCP System Reference Manual*, GC21-7620) with the name of the disk file to be used for a particular run of the program (actual-name). The run procedure for the program will tell you the file reference-name, the actual-names that may be chosen, and when you should select one actual-name as opposed to another.

Note: While the program is running, using the particular file you have selected, any messages you receive concerning the file refer to the actual-name of the file, not the reference-name.

When task chaining (5704-SC2 only), the /FILE specification that may be present for the requester is not valid for the requested program. When running a sort program, do not try to use the /FILE command to place the output file over the input file.

Associating File Names

Before requesting a program that needs this information, you specify which disk file to use by associating a file reference-name with the actual-name of a file. To do this, you use a command of the following format:

Command		Additional Information
/FILE	⊘	reference-name,actual-name

A /FILE command remains in effect for the next program requested as well as for other programs that require a file specification and that make use of the same file reference-name. The reference-name/actual-name association is canceled only when:

- Another /FILE command is entered associating the same reference-name with a different actual-name.
- A /FILE command is entered using the same reference-name, but no actual-name (see *Canceling a File Name Association*).
- A /FILE command is entered that specifies neither a reference-name nor an actual-name (see *Canceling All File Name Associations*).

Because you may have to request a number of programs that need a file specification, and because each of those programs might use a different file reference-name, multiple /FILE commands may be entered. That is, you can have multiple file name associations in effect at the same time, each one associating a different reference-name with the actual-name of a disk file.

Canceling a File Name Association

Cancel one file

You can cancel the association between a file reference-name and an actual-name by entering a command of the following format:

Command		Additional Information
/FILE	⊘	reference-name

A command of this form causes the association between this reference-name and any actual-name to be cancelled. When this form of the /FILE command has been entered, the file reference-name used no longer refers to any specific file.

Canceling All File Name Associations

Cancel /FILE command

You can cause all previous reference-names and actual-names to be canceled by entering a command of the following format:

Command	Additional Information
/FILE	none

QUEUE COMMAND

/Q (queue) command

Use this command to indicate that you are willing to wait for programs that cannot start immediately. CCP will then place your request on a waiting list, or queue.

Unavailable Resources

Unavailable resources

When you request a program, and that program cannot start immediately because resources it needs are being used by other programs, CCP will normally reject your program request. Certain resources may be completely unavailable, and if your program needs one of these, CCP will *always* reject your request. But often, resources needed by the program you request may be only temporarily unavailable, and in this case CCP will reject your request *unless* you have previously entered a queue command.

When you enter this command, you are indicating that if a program you request cannot start because resources are only temporarily unavailable to it, you wish to wait for those resources to become available so that your program can run. If the program does not have to wait for resources, it starts immediately.

You cannot enter another program request, /Q command, /NOQ command, or /FILE command while you are waiting for a program to begin. However, you may enter other commands and responses as necessary.

You can cancel your program request from the queue. (See index entry *canceling a queued request*.)

Entering the Queue Command

To indicate you are willing to wait for programs to start when resources are temporarily unavailable, enter a command of the following format:

Command	Additional Information
/Q	none

Until you have entered this command, CCP rejects a program request if the resources it requires are not immediately available. Once you have entered this command, it remains in effect until a no-queue command is entered.

Note: If you request a program that uses a punched card device or an online 3741, and those devices are not immediately available to the program, your request will be rejected, whether or not a /Q command is in effect.

NO-QUEUE COMMAND

/NOQ (no-queue) command

Use this command to cancel the effect of a queue command. If you have previously entered a queue command, but you are no longer willing to wait for programs to start when resources are temporarily unavailable, you can cancel the effect of the queue command by entering a command of the following format:

Command	Additional Information
/NOQ	none

When you have entered this command, any program request you make will be rejected if resources are even temporarily unavailable.

During operation of the CCP, the system operator can receive messages from the following sources:

Message sources

- User programs (CCP user tasks)
- CCP
- Command terminals
- Model 15 system control program routines

All messages issued during CCP operation are issued through Model 15 system logging facilities. Message formats, therefore, are consistent with the format described in *IBM System/3 Model 15 System Messages,* GC21-5076. (See that manual for descriptions of all Model 15 system messages.)

CCP component code CP

U– halt

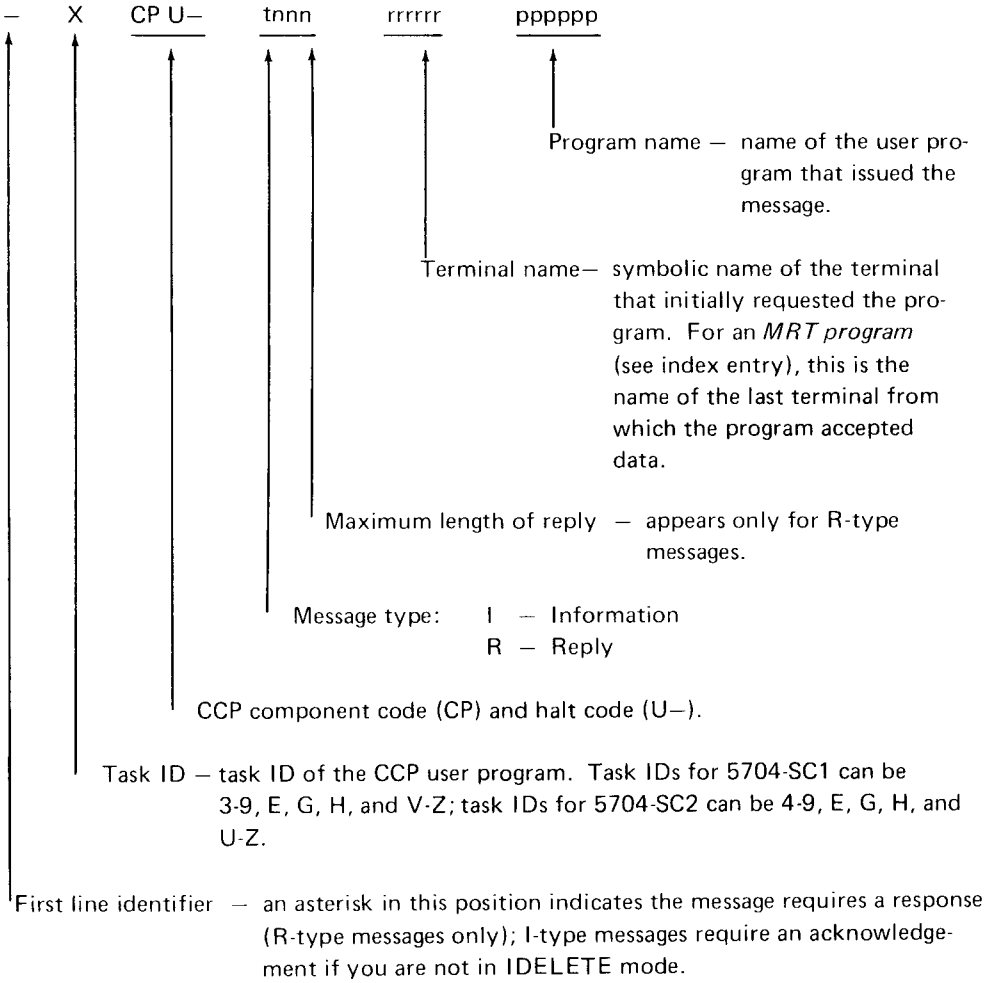
Messages issued by CCP system tasks and CCP user tasks have a component code CP and the halt code U– (U dash). As a general rule, the subhalt code is not used. (See *IBM System/3 Model 15 System Messages*, GC21-5076, for descriptions of all U– subhalts.)

IDELETE mode

IDELETE mode is generally recommended when running CCP because of the large number of I-type messages issued by CCP (see *IDELETE command* in *IBM System/3 Model 15 Operator's Guide,* GC21-5075). However, you may not wish to use IDELETE if CCP user tasks are issuing I-type messages, because you may want to acknowledge each message. If you are using IDELETE and user tasks are issuing I-type messages, you can display the system history area to see messages that no longer are displayed on the screen.

USER PROGRAM MESSAGES

CCP user programs (user tasks) issue messages to the system operator by issuing CCP output operations to the terminal *CONSOL*. The first line of the message has the standard Model 15 message format (see the *IBM System/3 Model 15 System Messages,* GC21-5076, for a description of the standard Model 15 message format). The succeeding line(s) contains the message text—if any—issued by the application program. The first line of the message issued by an application program will always have the following format:



Your response

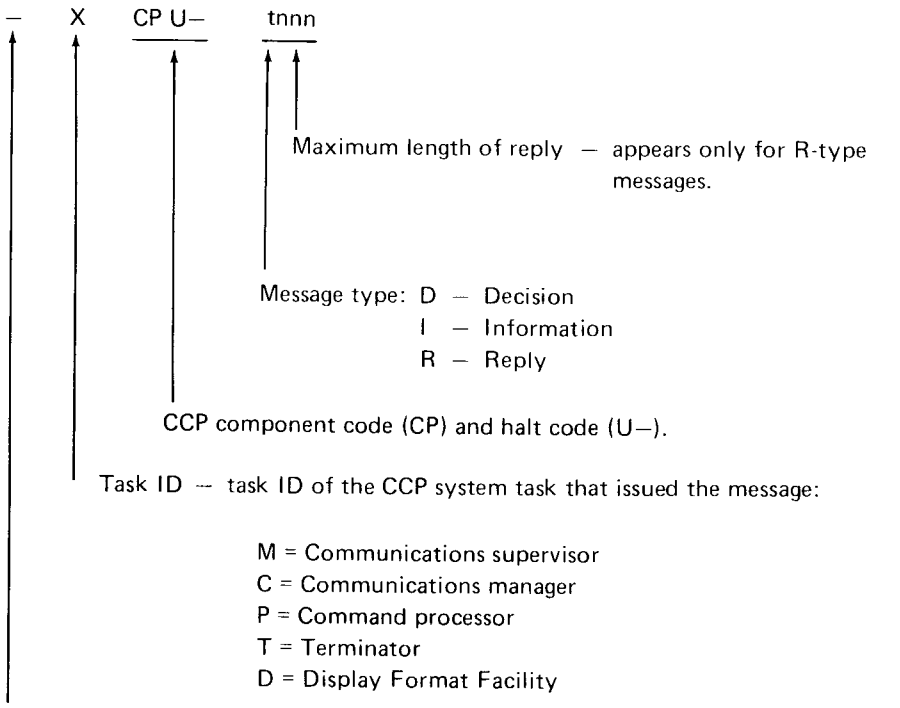
If a user program message requires a response, the response is determined either by the content of the message or by your program run procedures. To respond, press PF12, enter your response, and press ENTER.

Note: When a user task goes to EJ, all messages it has written to the console are removed from the display. As a result, you may not see all messages or a message may disappear before you have responded. All messages are available for your review on either the log device (if any) or the system history area. If you are expecting messages, you should occasionally refer to the log or display the system history area to review messages.

CCP MESSAGES

Messages to the system operator issued by CCP are in the standard Model 15 message format (see *IBM System/3 Model 15 System Messages,* GC21-5076). The second line of the message contains the reference number and text of the CCP message. See the *IBM System/3 CCP Messages Manual,* GC21-5170, for descriptions of all messages issued by CCP.

The first line of a CCP message always has the following format:



MESSAGES FROM COMMAND TERMINALS

Message 900

Messages from operators of command terminals are issued as CCP messages, with message number 900. The format of the first message line is described in the preceding topic (*CCP Messages*). The format of the second message line is:

900 FROM 'xx': text

xx — Terminal ID of the sending terminal
text — Text of the message sent by the terminal operator

The terminal operator can send up to 75 characters of text to you. Because of a Model 15 constraint, if the terminal operator sends a message of exactly 21 characters or exactly 57 characters, the last character of the message will not be visible to you.

MLTA MESSAGE

Permanent Error Message

MLTA permanent error message

All permanent line and terminal errors that are logged as messages on the console are also logged in the MLTA error file. Complete descriptions of the MLTA messages are contained in the *IBM System/3 Multiple Line Terminal Adapter RPQ Program Reference and Component Description Manual,* GC21-7560. This kind of message is issued as a CCP message (see *CCP Messages* earlier in this chapter). The text of the message has the following format:

ML {LN / TM} LL,TTT,OO,SSSSSS EEEEEEEEE EEEEEEEEE

ML	Indicates an MLTA error.
{LN / TM}	Indicates the error type: LN is line error TM is terminal error
LL	The line number in decimal.
TTTT	The terminal address characters in hexadecimal. If the line is not polled, this field contains '0000'. Otherwise, it contains the terminal address characters.
OO	Operation code in hexadecimal.
SSSSSS	The status bytes in hexadecimal (HDB positions 0, 6, and 7).

EEEEEEEEE EEEEEEEEE One or two abbreviated error messages.

First Message Area	Second Message Area
LOOP FAIL	MOD NRDY
INST NOOP	LINE NRDY
TIMEOUT	RCV ABRT
DATA CHECK	XMIT ABRT
OVERRUN	SDR ERROR
TERM INTR	
LOST DATA	
XMIT ABRT	
RCV ABRT	
ABNL RESP	
SDR ERROR	

The abbreviated error message meanings are:

Abbreviation	Message
LOOP FAIL	Loop test failure
DATA CHK	Data check
TIMEOUT	Timeout
OVERRUN	Overrun
XMIT ABRT	Transmission aborted
RCV ABRT	Reception aborted
LOST DATA	Lost data
ABNL RESP	Abnormal response
MOD NRDY	Modem not ready
LINE NRDY	Line not ready
INST NOOP	Instruction no-op
TERM INTR	Terminal interrupt
SDR ERROR	Terminal address not found in SDR table (error not logged in OBR)

ONLINE TEST WRITE ERROR MESSAGE

Online test write error message

If a permanent error occurs when the requested test message is sent to the terminal, the following actions are taken.

1. A message is sent by the IOCS to the system operator. This message is issued as a CCP message (see *CCP Messages* earlier in this chapter). The text of the message has the following format:

   MLOLbLL,TTTT,CC

   ML Indicates an MLTA error.

   OL Indicates an online test write error.

   b Blank.

   LL Line number in decimal.

   TTTT The terminal address characters in hexadecimal. If the line is not polled, this field contains '0000'. Otherwise, it contains the terminal address characters.

   CC Completion code for the write error.

2. The CCP makes a second attempt to write to the terminal if it is a 1050.

BSCA/BSCC MESSAGE

BSCA/BSCC message

Completion codes are logged on the console. They are issued as a CCP message (see *CCP Messages* earlier in this chapter); the text of the message has the following format:

BSC { A1, A2, C3, C4 } CODE cc–(description), TERMINAL ADDRESS–(characters)

cc = Completion code
characters = Polling or addressing characters
terminal address = Printed for control stations only

Completion codes are described in the *IBM System/3 Multiline/Multipoint Binary Synchronous Communications Reference Manual,* GC21-7573, and in the *IBM System/3 CCP Data Areas and Diagnostic Aids,* SY21-0040.

BSCA/BSCC ONLINE TEST RESULTS

BSCA/BSCC test results

Test results are logged on the system log device. Results are logged in a format depending on the test results.

Test Message Transmitted

Message transmitted

This message is issued as a CCP message (see *CCP Messages* earlier in this chapter). The text of the message has the following format:

* BSC ONLINE TEST, LINE {1, 2, 3, or 4} {TERMINAL ADDR HEX hex / POINT-TO-POINT}

MESSAGE TYPE tt, MESSAGE COUNT cc

ACK RCVD	NAK RCVD	TIMEOUT	INVLD MSG
xx	xx	xx	xx

* END ONLINE TEST

TERMINAL ADDR HEX hex identifies the terminal to which the test message was sent if the logging station is a control station.

POINT-TO-POINT indicates the BSC line is a point-to-point line.

tt identifies the test message type.

cc is the number of times the test message was to be transmitted.

ACK RCVD xx is the number of times ACK was received as a reply to the test message.

NAK RCVD xx is the number of times NAK was received as a reply to the test message.

TIMEOUT xx is the number of 3-second receive timeouts recorded during the online test by the BSCA/BSCC.

INVLD MSG xx is the number of invalid replies received in response to test messages sent.

Note: If the terminal receiving the test message is a 328X printer, XX will be 00 in all cases and the success or failure of the test must be determined by an inspection of the terminal output.

Message received

This message is issued as a CCP message (see *CCP Messages* earlier in this chapter). The text of the message has the following format:

```
* BSC ONLINE TEST, LINE {1, 2, 3, or 4} {TERMINAL ADDR HEX hex}
                                         {POINT-TO-POINT     }

MESSAGE TYPE tt, MESSAGE COUNT cc

TXT RCVD      DATA CHK      TIMEOUT      INVLD MSG

   xx            xx            xx           xx

* END ONLINE TEST
```

TERMINAL ADDR HEX hex identifies the terminal that transmitted the test message if the logging station is a control station.

POINT-TO-POINT indicates the BSC line is a point-to-point line.

tt identifies the test message type.

cc is the number of times the test message was to be transmitted.

TXT RCVD xx is the number of times the test message was received correctly.

DATA CHK xx is the number of data checks recorded during the online test by the BSCA/BSCC.

TIMEOUT xx is the number of 3-second received timeouts recorded during the online test by the BSCA/BSCC.

INVLD MSG xx is the number of test messages received incorrectly for which a data check or timeout was not recorded.

Note: This message will appear only if the requesting terminal is a tributary CPU requesting test types 01, 06, or 14.

Test Failure

This message is issued as a CCP message (see *CCP Messages* earlier in this chapter). The text of the message has the following format:

*BSC ONLINE TEST, LINE { 3 / 4 } { TERMINAL ADDR HEX hex / POINT-TO-POINT }

MESSAGE TYPE tt, MESSAGE COUNT cc

[Variable text (see below)]

*END ONLINE TEST

TERMINAL ADDR HEX hex identifies the terminal to which the test message was directed.

POINT-TO-POINT indicates the BSC line is a point-to-point line.

Variable Text

NO RESPONSE TO SELECTION—The terminal to which the test message was directed did not respond to the address selection.

RVI RECEIVED TO SELECTION—The terminal to which the test was directed was unavailable for selection.

NEGATIVE RESPONSE TO SELECTION—The terminal to which the test was directed responded negatively to selection.

INVALID RESPONSE TO SELECTION—The terminal to which the test was directed has responded with an invalid response.

ENQ TRANSMITTED 25 TIMES—The terminal to which the test was directed has transmitted WACK 25 times. The test has failed.

LOST CONNECTION—The connection was lost during execution of the test.

NO CONNECTION—A point-to-point connection could not be established.

Invalid Request for Test

If an invalid request for test is detected, a system message is sent to the system log device and written to the operator console as follows:

IB YT XX I

INVALID ON-LINE TEST

where XX is a two-digit code indicating the reason the request was invalid. These codes are described in *IBM System/3 Communications Control Program Data Areas and Diagnostic Aids*, SY21-0040, and *IBM System/3 Model 15 System Messages*, GC21-5076.

Glossary

BSCA. The Binary Synchronous Communications Adapter is a special feature that allows the system to function as a point-to-point or multipoint processor terminal. Operation is half duplex; synchronous; and serial by bit, serial by character over either nonswitched or switched voice grade or better two-wire, four-wire, or wide band communication facilities.

BSCC. The Binary Synchronous Communications Controller is a special feature that allows the system to function as a multipoint processor. Operation is half duplex; synchronous; and serial-by-bit, serial-by-character over nonswitched voice grade or better two-wire, four-wire, or wide-band communication facilities.

command interrupt mode. The operating mode of a terminal following data mode escape until the program execution is resumed by a RUN command (the terminal reenters data mode) or until the program is canceled by a CANCEL command (terminal enters command mode).

command mode. The operating mode of a terminal following a successful sign-on, up to and including the program request. Following program termination, a terminal returns to command mode until another program request is made or until signoff.

command terminal. A terminal that is capable of commanding CCP services related to requesting a program. Terminals are designated command or data terminals at assignment time.

data mode. The operating mode of a terminal when it is under control of an application program, until the program terminates, until the terminal is released by the program, or until the data mode escape characters are entered. While in data mode, a terminal is not in direct communication with the CCP.

data mode escape. A special CCP function, initiated by a unique string of six characters entered at a terminal while the terminal is in data mode. The data mode escape function interrupts the execution of the application program and places the terminal in command interrupt mode.

data terminal. A terminal that is not capable of commanding CCP services. A data terminal is always either in stand-by mode (not polled for input by the CCP) or in data mode (under control of an application program).

display adapter. An IBM device that converts the binary data stream from the device buffer into signals on the communication line, and vice versa.

initial mode. The operating mode of a command terminal before sign-on at the terminal has been accepted by the CCP.

MLTA. The Multiple Line Terminal Adapter is a special feature that allows the system to function as a processor on a point-to-point and multipoint network. Operation is asynchronous over either nonswitched or switched voice grade or better communication facilities.

MRT program. (Multiple Requesting Terminals program) — A program written to handle additional requests for it from command terminals while it is still processing an earlier request.

never-ending program (NEP). A user application program which, after it has been initiated, normally remains in main storage and does not go to end of job until the CCP is shut down, or the program is canceled by the system operator.

nonswitched line. A connection between a remote terminal and a computer that does not have to be established by dialing.

offline. Pertains to terminals that are not under control of the CCP system.

online. Pertains to terminals that are under control of the system and are allowed to interact with CCP.

port.[1] A communication area used by PORTLINE operations. (Refer to *CCP Programmer's Reference Manual*, GC21-7579, for a description of the PORTLINE function.)

stand-by mode. The mode of a data (noncommand) terminal not under control of a user program.

switched line. A communication line in which the connection between the computer and a remote station is established by dialing. Synonymous with dial line.

symbolic terminal name. The identification of a terminal used by the CCP and the system operator to refer to a specific terminal. A user defined symbolic terminal name is assigned to each terminal during the CCP assignment stage using the TERMNAME statement. The symbolic terminal name CONSOL refers to the 3277 CRT/keyboard. A symbolic terminal name of blanks refers to the one and only requesting terminal of an application program (not MRT program).

system task. A unit of work for the processing unit from the standpoint of the CCP, consisting of a CCP function (as opposed to a user application, or user task) that must be performed by the CCP, such as communications management.

task chaining. The process of requesting initiation of a CCP task from within a currently executing CCP task, without requiring system or operator action.

task ID. Each program running in the system has an internal ID associated with it called a task ID. Because multiple copies of the same program may run concurrently, each copy will have a different task ID assigned to it.

[1] 5704-SC2 only

terminal ID. The two-character identification assigned to an actual terminal assignment.

terminal session. The duration of time that a terminal operator is communicating with the CCP. It begins at sign-on and ends at sign-off.

user task. A unit of work for the processing unit from the standpoint of the CCP, consisting of a user program (as opposed to a system function, or system task) that must be executed by CCP.

work session. The duration of time that the terminal operator is permitted to communicate with CCP. It begins when you start CCP and ends when you shut-down the CCP.

Appendix B. Sample Commands

This appendix contains examples of the CCP system operator commands and the CCP responses to the commands. Both the commands and the responses are shown here, although in practice the commands are no longer visible when the responses appear. The system operator commands are described in Chapter 3. *Controlling the CCP after Startup.*

Assign Symbolic Name and Terminal Physical Identification — ASSIGN command

```
ASSIGN SECDRY,'M2'
375 NAME ASSIGNED,'M2' NAME IS NOW SECDRY
```

Activate the Automatic Error Recovery Facility — AUTOERP command

```
AUTOERP ON
408 OK
```

Activate the Automatic Error Recovery Facility and/or Change the Time Interval

```
AUTOERP ON,05
408 OK
```

Deactivate the Automatic Error Facility

```
AUTOERP OFF
408 OK
```

Cancel Using Task Identification and Program Name — CANCEL commands

```
CANCEL CCP,3,MRRPG1
480 CANCEL OK
526 MRRPG1 TASK-3 CODE-2A DUMP#-3
```

Cancel CCP

```
CN CCP
480 CANCEL OK
502 CANCEL STARTED
503 CCP CANCEL COMPLETED
```

CLOSE command

Close BSCA Line (5704-SC2 only)

```
CLOSE LINE1
310 LINE CLOSED
```

OPEN command

Open BSCA Line (5704-SC2 only)

```
OPEN LINE2
312 LINE OPEN, READY TO BE VARIED ON
```

DISPLAY commands

Display Terminals

```
DISPLAY TERMINALS (or D T)
```

First page

```
**********************************************
* F                                          *
*  ID NAME   MODE  PROGRAM                   *
* M3 N272CA DATA Q-MRCOB1                    *
* B0 N32102 INIT                             *
* B1 N32112 INIT                             *
* B2 N32121 INIT                             *
* B3 N32132 STBY                             *
* B4 N32142 CMD                              *
* B6 N32202 OFF                              *
* B7 N32221 OFF                              *
* B8 N32212 OFF                              *
* ENTER DISPLAY REQUEST   MSG NOT RSP 09     *
**********************************************
```

Second page

```
**********************************************
* R                                          *
*  ID NAME   MODE  PROGRAM                   *
* B9 N32302 OFF                              *
* M1 N37SA  CMDI  MRCOB1                     *
* M2 N37SX  INIT                  OLT ERP    *
* M5 N105X  INIT                             *
* M4 N272CX DATA  MRCOB1                     *
* M6 N27C   DATA  MRCOB1                     *
* M7 N2741  INIT                             *
* M8 N2741D INIT                             *
* M9 N27DC  DATA  MRCOB1                     *
* ENTER DISPLAY REQUEST   MSG NOT RSP 09     *
**********************************************
```

Display Terminal Assignments

```
 DISPLAY TERMID (or D A)
*****************************************
* R                                     *
*  ID NAME     ID NAME      ID NAME     *
* M5 N105X     B1 N32112    M2 N37SX    *
* M6 N27C      B2 N32121       SCNDRY   *
* M9 N27DC     B3 N32132                *
* M3 N272CA    B4 N32142                *
* M4 N272CX    B6 N32202                *
* M7 N2741     B8 N32212                *
* M8 N2741D    B7 N32221                *
* B5 N32002    B9 N32302                *
* B0 N32102    M1 N37SA                 *
* ENTER DISPLAY REQUEST   MSG NOT RSP 09 *
*****************************************
```

Display Users

```
DISPLAY USERS (or D U)
*****************************************
* 5                                     *
*   TERMNL.PROGRM  LOC SIZE STATUS      *
* 6-N37SX.MRCOB1  108K   4K ACT         *
* 5-N272CA.DCPFRC  92K  12K ACT         *
* 4-N272CX.CCPIVP 104K   4K ACT         *
*                                       *
*                                       *
*                                       *
*                                       *
* LARGEST FREE SPACE   12K[2]           *
* LARGEST UPA=12K   TP BUF=296, 842[3]  *
* ENTER DISPLAY REQUEST   MSG NOT RSP 09 *
*****************************************
```

Primary display

```
*****************************************
*R                                      *
*     TASK-5       NAME-N272CA.DCPFRC   *
*ATTR-MRT(  1)                          *
*U/R-NONE                               *
*TERMINALS- M3,N272CA,DATA,INVITE       *
*DISK FILES-INXORD45,DIRORD45           *
*                                       *
*                                       *
*                                       *
*                                       *
* ENTER DISPLAY REQUEST   MSG NOT RSP 09 *
*****************************************
```

Secondary display (task ID=5)

---

[1] REQSTR for 5704-SC2
[2] 5704-SC1 only
[3] 5704-SC2 only

ERP Using Physical Terminal Identification and Retry

```
MLTM 02,AF02,23,008002 TIMEOUT
410 OUTPUT ERROR ON 'M3'
416 'M3' IN CCP ERROR RECOVERY
ERP 'M3',RETRY
400 ERP ACCEPTED
```

ERP Using Physical Terminal Identification and Bypass

```
MLTM 02,AF02,23,008002 TIMEOUT
410 OUTPUT ERROR ON 'M3'
416 'M3' IN CCP ERROR RECOVERY
ERP 'M3',BYPASS
400 ERP ACCEPTED
```

ERP Using Line Number and Retry (5704-SC2 only)

```
MLTM 02,AF02,23,008002 TIMEOUT
410 OUTPUT ERROR ON 'M3'
416 'M3' IN CCP ERROR RECOVERY
ERP LINE2,RETRY
400 ERP ACCEPTED
```

ERP Using Line Number and Bypass (5704-SC2 only)

```
MLTM 02,AF02,23,008002 TIMEOUT
410 OUTPUT ERROR ON 'M3'
416 'M3' IN CCP ERROR RECOVERY
ERP LINE2,BYPASS
400 ERP ACCEPTED
```

Message

MESSAGE command

```
MSG 'M3', TEST MESSAGE TO TERMINAL 'M3'
```

Resume Users

RESUME commands

```
RESUME USERS
460 OK
```

Resume Using Task Identification and Program Name

```
R 1,MRRPG1
460 OK
```

Resume Initiation

```
RESUME INIT
460 OK
```

Resume Initiation by Program (5704-SC2 only)

```
RESUME INIT,MRRPG1
460 OK
```

Resume Commands

```
RESUME COMMANDS
460 OK
```

Shutdown CCP

SHUTDOWN commands

```
SHUTDOWN
500 SHUTDOWN ACCEPTED
502 SHUTDOWN STARTED
503 CCP SHUTDOWN COMPLETED
```

```
SHUTDOWN 5                          (5704-SC2 only)
509 SHUTDOWN IS PENDING
(After a delay of 5 minutes)
500 SHUTDOWN ACCEPTED
502 SHUTDOWN STARTED
503 CCP SHUTDOWN COMPLETED
```

SUSPEND commands

Suspend Users

```
SUSPEND USERS
440 OK
```

Suspend Using Task Identification and Program Name

```
SUSPEND 1,MRRPG1
440 OK
```

Suspend Initiation

```
SUSPEND INIT
440 OK
```

Suspend Initiation by Program (5704-SC2 only)

```
SUSPEND INIT,MRRPG1
440 OK
```

Suspend Commands

```
SUSPEND COMMANDS
440 OK
```

TEST commands

Test Using Symbolic Terminal Name and Test Number

```
T N272CA,'2'
378 START TEST ON 'M3'
390 'M3' ONLINE TEST ENDED
```

Test Using Symbolic Terminal Name and Loop

```
TEST N272CA,'2',LOOP
378 START TEST ON 'M3'-LOOP
```

Test Using Symbolic Terminal Name and Stop

```
TEST N272CA,STOP
379 STOP LOOP TEST ON 'M3'
C/390 'M3' ONLINE TEST ENDED
```

Test Using Physical Terminal Identification and Test Number

```
T 'M3','2'
378 START TEST ON 'M3'
390 'M3' ONLINE TEST ENDED
```

Test Using Physical Terminal Identification and Loop

```
TEST 'M3','2',LOOP
378 START TEST ON 'M3'-LOOP
```

Test Using Physical Terminal Identification and Stop

```
TEST 'M3',STOP
379 STOP LOOP TEST ON 'M3'
390 'M3' ONLINE TEST ENDED
```

Test Using Symbolic Terminal Name, Test Number, and Times Sent

```
TEST N32102,6,01
378 START TEST ON 'B0'
390 'B0' ONLINE TEST ENDED
```

Test Using Symbolic Terminal Name, Test Number, Times Sent, and Message

```
T N32101,0,02,MESSAGE
378 START TEST ON 'B0'
390 'B0' ONLINE TEST ENDED
```

Test Using Physical Terminal Identification, Number and Times Sent

```
TEST 'B0',14,01
378 START TEST ON 'B0'
390 'B0' ONLINE TEST ENDED
```

Test Using Physical Terminal Identification, Test Number, Times Sent, and Message

```
T 'B0',0,04,MESSAGE
378 START TEST ON 'B0'
390 'B0' ONLINE TEST ENDED
```

Trace On

```
TRACE ON,MLTA
420 OK
TRACE ON,BSCA
420 OK
TRACE ON,CCP,,DISK
432 DISK TRACE ON
TRACE OFF,CCP
432 DISK TRACE OFF
E ON,ALL,32,DISK
432 DISK TRACE ON
TRACE ON,CCP
430 TRACE ON
```

Vary Online Using Symbolic Terminal Name

```
V N27SA,ON
320 'M1' VARIED ONLINE AS N27SA
```

Vary Offline Using Symbolic Terminal Name

```
V N1050X,OFF
321 TERMINAL BEING VARIED OFFLINE
```

Vary Online Using Terminal Physical Identification

```
V 'M1',ON
320 'M1' VARIED ONLINE AS N27SA
```

Vary Offline Using Terminal Physical Identification

```
V 'M1',OFFLINE
321 TERMINAL BEING VARIED OFFLINE
```

Vary Online Using Line Number (5704-SC2 only)

```
V LINE3,ON

320 'B0' VARIED ONLINE AS N275A
320 'B1' VARIED ONLINE AS N275B
320 'B4' VARIED ONLINE AS N275D
```

Vary Offline Using Line Number (5704-SC2 only)

```
V LINE4,OFF

321 TERMINAL BEING VARIED OFFLINE
```

$CCPDD FOR 5704-SC1

Print storage dumps

$CCPDD is used to print main storage dumps that have been written in $CCPFILE (the assignment file) during a CCP run. $CCPDD can be executed at either of the following times:

When to run $CCPDD

- During CCP operation, when $CCPDD is run as a user task. In this case, $CCPDD must be described by a // PROGRAM statement in the current assignment set. The following parameters are required on the // PROGRAM statement: NAME-$CCPDD,PRINTER-YES, and PGMDATA-NO. If the printer is not available when $CCPDD is called, the pointers are reset and the dumps are not accessible until after CCP shutdown.

- Immediately after a CCP run and before any system manipulation of $CCPFILE such as a COPY or a MOVE. (Any such system manipulation of $CCPFILE could invalidate the disk pointers within the $CCPFILE directory.

$CCPDD cannot be run in the non-CCP partition while CCP or any CCP component (such as assignment build or assignment list) are active.

Control statement

When $CCPDD is run as a CCP user task, it always prints all dumps from $CCPFILE. If it is run after CCP shutdown, it is controlled by a // DUMP control statement that is entered with the OCL for the program. The // DUMP control statement allows you to:

- Print a specific storage dump

- Print all storage dumps

- Print the failing user task from a specific storage dump

Multiple // DUMP control statements are accepted. The format of the // DUMP control statement is:

```
// DUMP {n [,USER]}
        {ALL      }
```

n	The one- or two-digit number of the specific dump being requested. This number is given in CCP message 526 when a user program terminates abnormally.
ALL	Indicates all storage dumps are to be printed.
USER	Indicates that only the user task portion of the specified storage dump (n) is to be printed.

OCL for Running $CCPDD (5704-SC1)

The following OCL statements are required to run $CCPDD under 5704-SC1:

// LOAD $CCPDD,unit	unit = F1, R1, F2, or R2
// FILE NAME-$CCPFILE,UNIT-unit, PACK-name	unit = Location of disk containing $CCPFILE name = Name of disk pack
// RUN	
* (optional comment statement)	
// DUMP (see statement format)	
/*	

$CCPDD FOR 5704-SC2

When $CCPDD is run as a user task or in batch mode, several options are available via a control statement. One control statement per load of $CCPDD is allowed, with up to three options selected.

The control statement format is

```
xx-yyyy,xx-yyyy,xx-yyyy
```

where

xx = 01-99 Select that specific dump
= AL Print all dumps from $CCPDUMP file
= CL Clear all dumps from $CCPDUMP file (yyyy option not applicable)
= TR Print trace data from $CCPDUMP file (yyyy option not applicable)
= ØØ A blank control statement defaults to a FULL option for all dumps in the file

yyyy = CCPR Print the resident CCP
= CEFE Print a CEFE-type dump with real addresses
= DIAG Print these diagnostic areas as a debugging aid:

- System COMMON
- Transient area descriptor
- TCBs and associated RBs
- IOS queues
- System error task queue
- $CCCOM
- Share DTF address list
- TUBs
- Queue of TUBs on AUTOERP queue
- Queue of active TP requests
- Active share DTFs and associated FSQEs
- Failing task and termination code
- ATRs and storage protect table of failing task
- Registers of the failing task

= EPIL Print the external pointer list
= FAIL Print the failing task and its registers only
= FSAL Print the file share area
= FULL Includes DIAG, SPVR, CCPR, USER, and FSAL
= SPVR Print the supervisor
= TCBC Print the communication processor TCB mapped in addresses
= TCBD Print the display format facility TCB mapped in addresses
= TCBL Print the CCP TCB logical mapped in addresses
= TCBM Print the BSC communication scheduler TCB mapped in addresses
= TCBP Print the command processor TCB mapped in addresses
= TCBT Print the termination TCB logical mapped in addresses
= TPBF Print the TP buffer
= USER Print all user tasks and their registers

The yyyy option is not allowed with xx options CL and TR.

OCL for Running $CCPDD (5704-SC2)

Batch

// LOAD $CCPDD,unit	unit	=	F1, R1, F2, or R2
// FILE NAME-$CCPDUMP,UNIT-unit, PACK-name	unit	=	Location of $CCPDUMP file (D1, D2, D3, D4)
// RUN	name	=	Name of disk pack

Control statement

/*

CCP

Use a program request followed by control statement information as program data, in the following format:

$CCPDD xx-yyyy,xx-yyyy,xx-yyyy

Online tests

The online tests enable you to test a line connection without interrupting data transfer on other lines. The tests consist of sending a known message over a line, then determining whether or not the message was received correctly. Test results for BSCA are logged on the device assigned as system logging device when the test is completed.

What to do in case of errors

An online test only indicates line conditions existing at the time of the test. If the test reveals the presence of line problems, you must decide whether or not the probability of successful transmission is great enough to justify continued transmission over the line.

Compare online test results in conjunction with the terminal statistics as logged in the MLTA error file (MLTERFIL) to discover significant trends in the appearance of line problems.

MLTA online tests

MLTA ONLINE TESTS FOR THE 1050, 2740/2741, AND CMCST TERMINALS

Use the TEST command to initiate an online test for an MLTA terminal. You must supply the test number when issuing the command. The following chart shows the test title, test number, and description of the test.

Test Title	Number	Description
All Characters Test	2	Prints the standard character set for check-out of the terminal
Tilt Test	3	Checks the IBM SELECTRIC® print mechanism
Rotate Test	4	Checks the IBM SELECTRIC® print mechanism
Twist Test	5	Checks the IBM SELECTRIC® print mechanism
SELECTRIC® Analyzer Test	6	Analyzes the carrier return mechanism to determine if it performs within specifications

BSC test—CPU only

BSC ONLINE TESTS

Use the TEST command to initiate an online test for a BSC terminal. You must supply the test number when issuing the command. The following chart shows the test number and description of the tests.

Test Number	Description
0	The remote station receives and acknowledges the test message the specified number of times. The test message must fit on one line.
1	The remote station transmits the test message the specified number of times. The formatted test request must fit on one line.
6	The remote station transmits 36 alphameric characters, A-Z and 0-9, the specified number of times. The characters are transmitted in ASCII (ASCII adapter only).
14	The remote station transmits 36 alphameric characters, A-Z and 0-9, the number of times specified. The characters are transmitted in EBCDIC (EBCDIC adapter only).

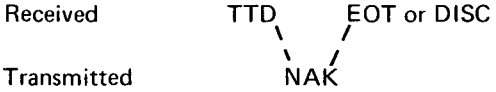
BSC Counters

Device Counter Logout program $$BSDL

BSC counters and statistics are recorded in main storage during execution and logged to disk when a BSC file is closed or before an online test. After CCP has terminated, BSC counters and statistics can be displayed by the Device Counter Logout program ($$BSDL). For a description of the operating procedures required to display the statistics, see the *IBM System/3 Model 15 Operator's Guide,* GC21-5075.

MLMP compiles the following statistics as it monitors receive and transmit operations:

1. Number of text blocks sent successfully.
2. Number of text blocks received successfully.
3. Number of negative acknowledgements (NAK) received in response to text sent.
4. Number of data checks that occurred on text received.
5. Number for forward aborts received. A forward abort received is:



6. Number of EOTs ($BCERR completion code) received in response to data transmitted.

7. Number of adapter checks that occurred while transmitting.

8. Number of adapter checks that occurred while receiving.

9. Number of invalid responses received to text transmitted.

10. Number of inquiries (ENQ) sent in response to positive acknowledgements (ACK).

11. Number of blocks received from which data was lost.

12. Number of disconnect timeouts and abortive (cancel) disconnects.

13. Number of timeouts that occurred while receiving text.

For multipoint control stations, the following statistics are also recorded.

1. Number of unsuccessful transmissions for each terminal address.

2. Number of successful transmissions for each terminal address.

$CCPCO FOR 5704-SC2 ONLY

A program to close/open the CCP files is distributed with CCP, but executes in a batch partition. This program, called $CCPCO, gives the user the ability to close any existing main data area disk file specified during startup, without shutting down CCP. Once this program has been executed (and the specified file closed), the user in the batch partition can sort the file, enlarge it, reorganize it, delete records, create as null, and so on. This program can then be used to reopen the file for CCP access.

Control Statements

```
// CLOSE FILE-filename
// OPEN FILE-filename
```

The CLOSE statement names the file to be closed from the CCP partition. The OPEN statement names the file to be reopened for CCP access.

Keyword	Description
FILE	The FILE keyword must be followed by the filename specified on the OCL FILE statement. The FILE statement in $CCPCO and the CCP startup OCL FILE statement must reference the same file.

Sample OCL

```
// LOAD $CCPCO,F1
// FILE NAME-INV,UNIT-D1,PACK-VOLD1
// FILE NAME-TRANS,LABEL-DEC78,UNIT-D2,PACK-VOLD2,DATE-030478
// FILE NAME-MULTI,UNIT-'D1,D2',PACK-'VOLD1,VOLD2'
// RUN
// CLOSE FILE-INV
// OPEN FILE-TRANS
// CLOSE FILE-MULTI
// END
```

Explanation:

The first CLOSE statement will cause the file INV specified in the FILE keyword to be removed from the CCP partition and closed.

The OPEN statement will cause the file DEC78 with DATE-030478 (previously closed by $CCPCO) to be restored and reopened in the CCP partition.

The last CLOSE statement will cause the multivolume file FILE-MULTI to be closed on D1 and D2.

After the file is opened or closed, the appropriate message will be displayed on the log device.

Single volume file:

FILE 'filename' {OPENED / CLOSED}

Multivolume file:

FILE 'filename' {OPENED / CLOSED} Vol '# '

Programming Considerations

- Only one copy of $CCPCO can be executing in the system at a time.
- Files opened as output under CCP cannot be closed or opened by $CCPCO. In order to be processed, these files must be created as null files and processed with add access under CCP.
- When $CCPCO requests a file that is being used by a CCP task, a message will be issued. The operator will be given three options:
  - Ignore the request (option 0).
  - Retry the request (option 1). If the file is in use by another batch partition, the 1 option is not allowed.
  - Terminate $CCPCO (option 2).
- $DCOPY/$COPY/$FCOMP cannot move or backup data areas where files have been closed by $CCPCO.

$HACCP FOR 5704-SC2 ONLY

The System History Area Copy Program, $HACCP, is used to copy the current portion of the System History Area (SHA) to a user-defined disk file. This program runs only under control of CCP.

$HACCP is designed to be automatically invoked when the SHA is nearly full, but it can also be manually invoked by the system operator at any time (using the PF9 key). $HACCP cannot be invoked from a terminal.

Note: The $HIST program can also be used to save the contents of the SHA. However, $HIST requires a batch partition and cannot be automatically invoked.

User Requirements

The user must define on a main data area, a file, named $SHAFILE, with a record length of 128. The format of the records written to $SHAFILE is the same as the format of the records that $HIST writes to the $HISTORY file.

$SHAFILE must also be defined in the CCP assignment set as having consecutive add (CA) data management. This allows subsequent executions of the program to add new records to those already existing in the file. To access the information in $SHAFILE, a user-written program is required.

To use $HACCP, you must have these statements in your CCP assignment set:

```
// DISKFILE NAME-$SHAFILE,ORG-C,RECL-128
// PROGRAM NAME-$HACCP,PACK-PROGRAM,PGMDATA-NO,
   FILES-'$SHAFILE/CA'
```

If $HACCP is to be automatically invoked when the history area is nearly full, then the following statement must also be in the assignment set:

```
// SYSTEM MAXCHAIN-nn
```

$HACCP requires 8K of the CCP user program area.

Operating Considerations

The SHA halt status can be changed by means of the HALT SHA or NOHALT SHA commands. If $HACCP is to be automatically invoked, the following OCC must be entered:

HALT SHA,CCP [,TRACKS-n] [1]

This condition remains in effect until IPL is performed or until a HALT SHA or NOHALT SHA command is entered.

To permanently establish automatic invocation, the Configuration Record Program ($CNFIG) can be used to set the automatic function with the following statement:

// SHA HALT-CCPAUTO [,TRACKS-n] [1]

For further information on how to establish automatic execution, see $CNFIG in the *IBM System/3 Model 15 System Control Programming Concepts and Reference Manual,* GC21-5162.

After each exectuion of $HACCP, an information message is issued giving the number of records added to $SHAFILE and the number of records left in $SHAFILE before it fills. If $SHAFILE is filled while the program is copying to it, a decision message is issued, and the file must be emptied before $HACCP can be successfully run again.

If CCP terminates abnormally, the $HAFILE will not be closed and records could, as a result, be lost. For more information on recovery procedures, see that section in the *IBM System/3 CCP System Design Guide,* GC21-5165.

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[1] The TRACKS parameter can be any integer value up to 10, but not greater than half the size of the SHA. This parameter is used to set the wraparound warning point of the SHA, and is not required unless a warning point of 0 is currently in effect.

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