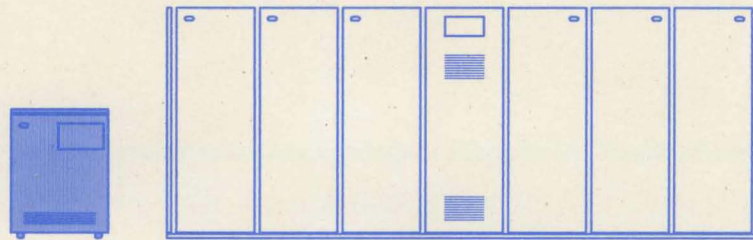




Service Functions



3745
3745
3745
3745



IBM 3745 Communication Controller

Models 130, 150, and 170

SY33-2069-2

Service Functions

Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

For Canada, Canadian Department of Communication Statement GX27-3883 applies.

Third Edition (September 1990)

This major revision obsoletes SY33-2069-1. Extensive changes have been made throughout this edition, and this manual should be read in its entirety.

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About This Book

Who Should Use This Book

This manual is addressed to the service representatives who maintain the IBM 3745 Communication Controllers.

Primary audience: Product Trained (PT) CE

Secondary audience: Product Support Trained (PST) CE, Program Service Representative (PSR), Product Engineering (PE)

How To Use This Book

This manual describes how the service functions that are specifically for the CE, and not intended for customer, are used from the operator console.

The operator panel procedures are not given in this manual.

This manual must be used in conjunction with the 3745 bibliography.

Where to Find More Information

For a complete list of the 3745 customer and service information manuals, see the bibliography in the *3745 Models 130/150/170 Maintenance Information Procedures (MIP)*, SY33-2070.

A 3745 Models 130/150/170 Service Documentation Bibliography is provided on page X-1 at the end of this manual.

The following 3745 publications can be used in connection with this manual.

- *3745 Advanced Operations Guide*, SA33-0097 (from dash 3)
- *3745 Basic Operations Guide*, SA33-0146
- *3745 Channel Adapter On-Line Tests*, D99-3745A
- *3745 Diskette Configurator Guide*, GA33-0093
- *3745 Diagnostic Descriptions*, SY33-2076
- *3745 Installation Guide*, SY33-2067
- *3745 Introduction*, GA33-0138
- *3745 Connection and Integration Guide*, SA33-0141
- *3745 Maintenance Information Procedures (MIP)*, SY33-2070
- *3745 Hardware Maintenance Reference (HMR)*, SY33-2066
- *3745 Original Equipment Manufacturers Information*, SA33-0099
- *3745 Parts Catalog*, S135-2012

- *3745 Principles of Operations*, SA33-0102
- *3745 Problem Determination Guide*, SA33-0145
- *3745 Console Setup Guide*, SA33-0158
- *3745 IBM Products Safety Handbook*, GA33-0126
- *3745 IBM Service Manual Index*, SY33-2079.

Chapter 1. How to Use the MOSS Function Screens

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About Examples

Every time a screen, used to illustrate a procedure, shows the MSA (machine status area), the displayed configuration corresponds to a 3745-170.

Your Road Map in the Service Functions

The following table indicates the **chapter** containing the type of information you are looking for.

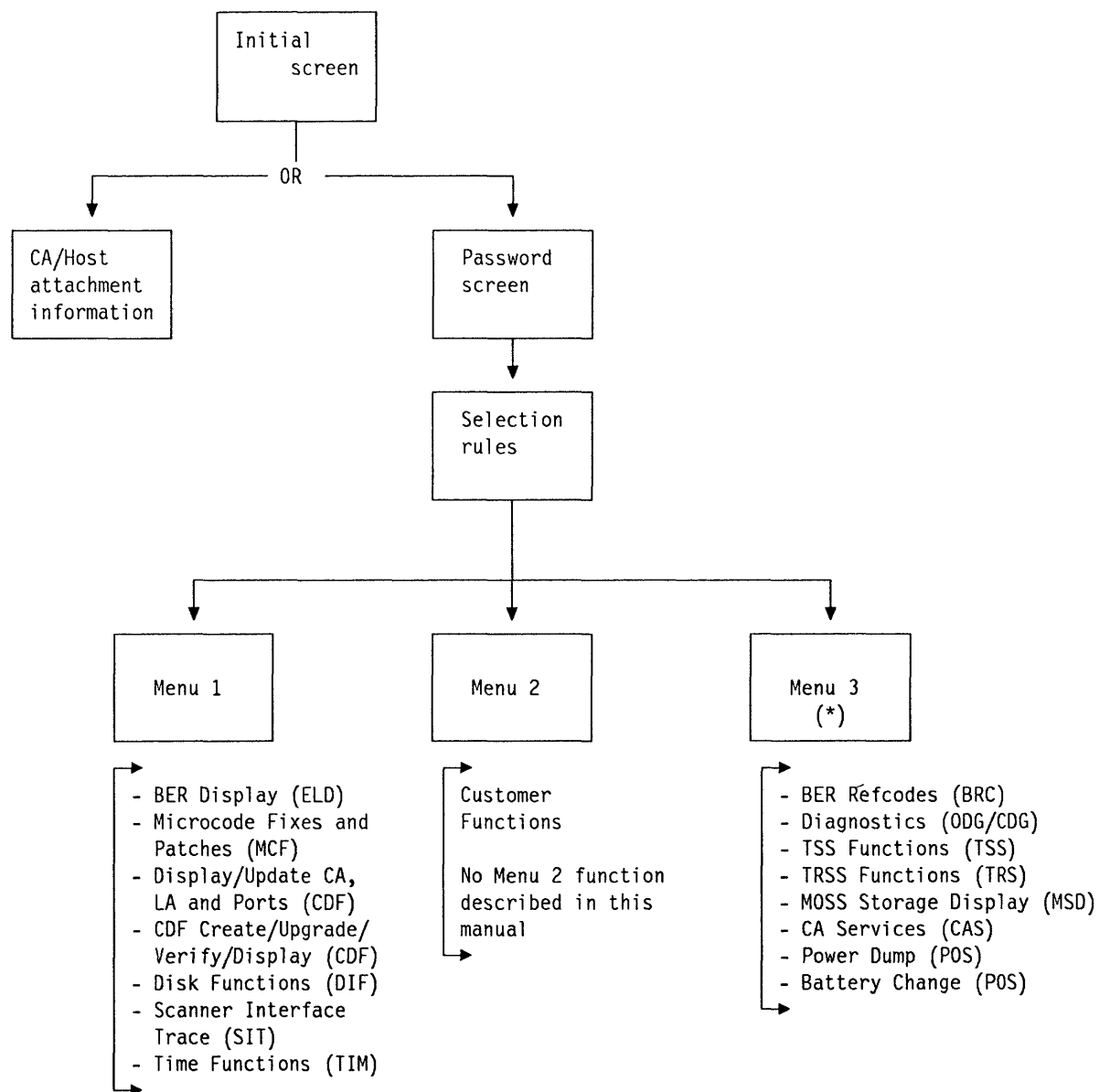
You are Working On	You Want To											
	Add	Alter	Apply	Create	Display	Dump	Inform	IpL/IML	Restore	Run	Select	Update
BER	--	--	--	--	2	--	2	--	--	--	--	--
CDF	--	--	--	9	9	--	9	--	--	--	--	9
Channel Adapters	9	9	--	--	9	--	--	--	--	--	10	--
Diagnostics	--	--	--	--	--	--	3	--	--	3	3	--
Disk / diskette	--	--	--	--	--	--	11	--	11	--	--	--
Dump files	--	--	--	--	6	--	6	--	--	--	--	--
HPTSS	9	--	--	--	9	4	--	--	4	--	9	--
LIC	9	--	--	--	9	--	--	--	--	--	--	--
Line Adapters	9	9	--	--	9	--	--	--	--	--	9	--
MCF	--	--	7	--	7	--	--	7	--	--	--	--
MUX	--	--	--	--	--	--	--	--	--	--	--	--
Patch	--	8	8	8	8	--	--	8	--	--	--	--
Scanners	--	4	--	--	9	4	--	4	4	--	--	--
TRA	9	5	--	--	9	5	--	--	5	--	--	--
TRSS	9	4	--	--	9	4	--	--	4	--	--	--
TSS	9	4	--	--	9	4	--	--	4	--	--	--

More detailed 'Road Maps' are provided at the beginning of chapters 4, 5 and 9.

Where to Go

Display BERs Correlate BERs Interpret a refcode	Chapter 2
Run diagnostics from the console and OLTs	Chapter 3
Select/release a TSS or HPTSS scanner Display/alter scanner control storage and registers Dump or IML a scanner Modify the scanner mode Perform a scanner address compare Start scanner checkpoint trace.	Chapter 4
Select/release a TRA Display/alter token-ring storage, registers or parameter blocks Dump a TRA Connect/disconnect a TRA Perform a scanner address compare Start scanner checkpoint trace.	Chapter 5
Display storage, dumps and modules Delete Dump files or the BER file	Chapter 6
Apply or restore microcode fixes Display the MCF history List the old or new MCF	Chapter 7
Create, modify, or apply microcode patches	Chapter 8
Create, upgrade, verify, or display the CDF (CDF: configuration data file) Display/update CA, LA, or ports	Chapter 9
Shutdown/restore a CA Connect/disconnect a CA Insert/remove CA in/from ASC/CSCG chain	Chapter 10
Save, restore, format, change and analyze the MOSS disk Install an engineering change (EC)	Chapter 11
Run the scanner interface trace (SIT) Change the battery Dump the power subsystem storage Handle the time services (TIM)	Chapter 12

Initial Screen and Menu Screens



(*) Available only if the MAINTENANCE password was entered

The next page tells you how to sign ON and gain access to the menu screens.

How to Go from Initial Screen to Menu Screens

Sign ON Procedure

This is the first screen displayed after IML. It gives the status of channel adapters.

You must sign ON before gaining access to the menu screens.

1. Ask the customer to give you the maintenance password.
2. If this screen is not already displayed, logoff from MOSS (after customer approval) by typing 'OFF'.
3. When this screen is displayed, press **F4**.
4. Screen **B** is displayed.

CUSTOMER ID: 3745 SERIAL NUMBER:

A 3745 MICROCODE (C) COPYRIGHT IBM CORP: 1987

MAXIMUM ADAPTER CONFIGURATION: CHANNEL ADAPTERS 5, 6, 7, 8
LINE ADAPTERS 1, 3, 4, 9, 10, 11, 12 mm/dd/yy hh:mm

INTERFACE NUMBER	CHANGE E/D REQ	E/D REQUEST	INTERFACE STATUS	HOST OR SWITCH UNIT	CHANNEL ADDRESS	NSC ADDRESS
1A	1	-				
2A		-				
3A		-				
4A		-				
5A	==>	E	DISABLED			26
6A	==>	E	DISABLED			21
7A		-	DISABLED			00
8A		-	DISABLED			00

TYPE E OR D TO CHANGE THE ENABLE/DISABLE REQUEST, THEN PRESS SEND

F4:MOSS FUNCTIONS F5:UPDATE

Figure 1-1. Channel Adapter Status Screen

1. Enter the password in **1**.
2. Press **SEND**.
3. Screen **C** is displayed.

You must use the **maintenance password** to access the menu 3, or some maintenance options of the customer functions.

F Keys action

F4 Return to screen **A**

CUSTOMER ID: 3745 SERIAL NUMBER:

B 3745 MICROCODE (C) COPYRIGHT IBM CORP: 1987

MAXIMUM ADAPTER CONFIGURATION: CHANNEL ADAPTERS 5, 6, 7, 8
LINE ADAPTERS 1, 3, 4, 9, 10, 11, 12 mm/dd/yy hh:mm

ENTER PASSWORD ==> **1**

F4:CHANNEL INTERFACE DISPLAY

Figure 1-2. Password Screen

Go to the desired MENU screen by pressing any of the following F keys

- F2** Menu 2 screen
- F4** Menu 1 screen
- F5** Menu 3 screen (Available only if the maintenance password was entered)

C **FUNCTION SELECTION RULES**

- TO SELECT ONE OF THE MENUS, PRESS THE APPROPRIATE KEY
- TO SELECT A FUNCTION, ENTER ITS 3-CHARACTER NAME THEN PRESS SEND
- ONCE YOU HAVE SELECTED A FUNCTION FROM ONE MENU, YOU MAY SELECT A FUNCTION FROM THE OTHER
- TO END THE FUNCTION ON SCREEN, PRESS F1
- TO RETURN TO THE PENDING FUNCTION, PRESS F2
- TO LOGOFF, ENTER OFF THEN PRESS SEND

==>

F1:END F2:MENU2 F3:ALARM F4:MENU1 F5:MENU 3

Figure 1-3. Function Selection Rules Screen

CA/Host Attachment Information

No password is necessary to use this screen.
You may:

Enable or disable a CA

1. Type **E** (Enable) or **D** (Disable) in the column **1**, in front of the selected interface number.
2. Press **SEND**.
3. You keep the same screen.

Change the CA/host attachment parameters

1. Press **F5**. Screen **E** is displayed..

CUSTOMER ID: 3745 SERIAL NUMBER:

D 3745 MICROCODE (C) COPYRIGHT IBM CORP: 1987

MAXIMUM ADAPTER CONFIGURATION: CHANNEL ADAPTERS 5, 6, 7, 8
LINE ADAPTERS 1, 3, 4, 9, 10, 11, 12 mm/dd/yy hh:mm

CA INTERFACE DISPLAY

INTERFACE NUMBER	CHANGE E/D REQ	E/D REQUEST	INTERFACE STATUS	HOST OR SWITCH UNIT	CHANNEL ADDRESS	NSC ADDRESS
1A	1	-				
2A		-				
3A		-				
4A		-				
5A	==>	E	DISABLED			26
6A	==>	E	DISABLED			21
7A		-	DISABLED			08
8A		-	DISABLED			00

- TYPE E OR D TO CHANGE THE ENABLE/DISABLE REQUEST, THEN PRESS SEND

F4:MOSS FUNCTIONS **F5:UPDATE**

Figure 1-4. Channel Adapter Status Screen

1. Type a CA number in **1**.
2. Press **SEND**.
3. Screen **E** is displayed.

To update the **CA parameters**, refer to "Display/Update Channel Adapters" on page 9-19.

E **CA INTERFACE DISPLAY**

ENTER CA NUMBER (1 TO 16) ==> **1**

==>

F1:END F3:ALARM F6:QUIT

Figure 1-5. CA Number Selection Screen

1. Enter parameter(s) in **1** and **2** (interface A only), or in **1** to **4** (if both interface A and B are present).
2. Press **SEND**.
3. Press **F6** to return to screen **E**.

F **CA INTERFACE DISPLAY**

CA xx HOST ATTACHMENT INFORMATION

- FILL IN, OR MODIFY, OR BLANK FOLLOWING FIELDS, THEN PRESS SEND

	INTERFACE A	INTERFACE B
HOST OR SWITCHING UNIT ID (8 CHARACTERS MAX)	==> 1	==> 3
CHANNEL ADDRESS OR CHPID (8 CHARACTERS MAX)	==> 2	==> 4

==>

F1:END F3:ALARM F6:QUIT

Figure 1-6. CA Host Attachment Information Screen

MOSS Console Screen Layout

For information on the console and keyboard, refer to the documentation supplied with the console.

CUSTOMER ID: xxxxxxxxxxxx	3745-1x0	SERIAL NUMBER: nnnnnnn 1	
.....			
CCU-A			2
RESET			3
	MSA (Machine Status Area) lines 2 to 7		4
MAXIMUM ADAPTERS CONFIGURATION: CHANNEL ADAPTERS	5, 6, 7, 8		5
LINE ADAPTERS	1, 3, 4, 9, 10, 11, 12		6
-----	mm/dd/yy hh:mm		7
.....			
FUNCTION ON SCREEN:	FUNCTION PENDING:		8
			9
			.
			.
	FUNCTION area (lines 8 to 21)		.
			.
			20
			21
.....			
==> <.....	MESSAGE area		22
<.....	ALARM area		23
F1:END F2:MENU1 F3:ALARM	<..... F KEY line		24
<.....	CONSOLE TERMINAL INFORMATION		25

Figure 1-7. 3745 Console Screen Main Areas

CUSTOMER ID Customer identification, permanently displayed (16 characters). This information is entered by the customer, using the **password management** function.

MACHINE TYPE **3745-1x0** (1x0 can be 130, 150 or 170)

SERIAL NUMBER Machine serial number of the 3745 (7 characters). Permanently displayed. This information is entered by manufacturing, or when formatting a new disk.

MACHINE STATUS AREA Current status of the CCU and scanners, token-ring/TIC or IPL progression.

Lines 5 and 6 permanently display the maximum configuration possible on your 3745 (**not the actual configuration of your machine**), according to the model. You may refer to "General Information" in the *Hardware Maintenance Information* for a description of the different models.

FUNCTION ON SCREEN When a function is displayed, the name of the function is written next to it.

FUNCTION PENDING When a function is pending, its name is written next to it.

FUNCTION AREA Function display and operator input. This area includes the different menus (customer and FE/CE).

MESSAGE AREA Operator control and function messages are displayed in that area.

ALARM AREA The first alarm is displayed and the following ones are queued (up to five alarms can be queued).

- When there is no alarm, the word **ALARM** does not appear.
- When there is more than one alarm, the word **ALARM** is blinking.
- Pressing **F3** displays the next alarm.

The alarms give the probable cause, the area of the error, and a reference code that may lead to an FRU list. All alarms are listed in the *3745 Problem Determination* manual, SA33-0145.

F KEY LINE Lists all the defined F keys (Only the available F keys are shown).

CONSOLE TERMINAL INFORMATION Gives information on the communication between the console and the MOSS.

Common Commands and F Keys Description

OFF (Log OFF) Disconnection from MOSS.

Note: You **cannot** use **OFF** while a function is active or pending; press **F1** to terminate it.

F1 (END) If a function is running, pressing **F1** terminates that function. The previous screen is displayed.

F3 (ALARM)

1. Erases the displayed alarm (if any) from the alarm area.
2. Displays the next alarm still in queue.

Note: Please note all information, especially the reference code, before erasing the alarm. This information can still be found by displaying the BERs.

F6 (QUIT) Return to the previous screen, in the same function. Not available in the first screen of a function; in this case, use **F1: END**.

F7 (FORWARD) Allows going to the next screen

F8 (BACKWARD) Allows going back to the previous screen

Note: Depending of the amount of information displayed or requested, or the step of the procedure, any (or both) of the **F7/F8** key(s) may be present (or not) on the screen.

Keyboard Differences and Terminology

Because different types of consoles may be installed, the keyboards used may vary, from country to country, and from customer to customer.

For standardization, we use specific terminology when referring to some keys of the keyboard:

SEND The key pressed to confirm the data just typed in. Sometimes known as the **ENTER** key.

BREAK The key pressed to interrupt the automatic transmission, in order to communicate directly with the system (also known as **ATTN** or **INTERRUPT** key). This key is also used to stop the refresh of the MSA.

Fn Any function key (**F1-F8**) of the keyboard.

For operation information, refer to the console documentation.

Machine Status Area

The 3745 status is permanently displayed (and updated every 500 ms) on lines 2 to 7 of the operator console screen, called the machine status area (MSA). Different types of information are displayed in the MSA.

Lines 2 and 3 CCU information.

Line 4 CCU, IPL, scanner or token-ring/TIC information

Lines 5 and 6 Adapters hardware configuration.

MSA Fields Definition (CCU Information)

CUSTOMER ID:		3745	SERIAL NUMBER:			
CCU-A	PROCESS	MOSS	OFFLINE	BT	X71:xxxxxx	LAR:xxxxxx OP:xxxx C:0
RUN	STOP-IOC-CHK	STOP-CCU-CHK	AC	X72:xxxxxx	IAR:xxxxxx	ILVL:xxxx Z:0

Figure 1-8. MSA Example with CCU Information

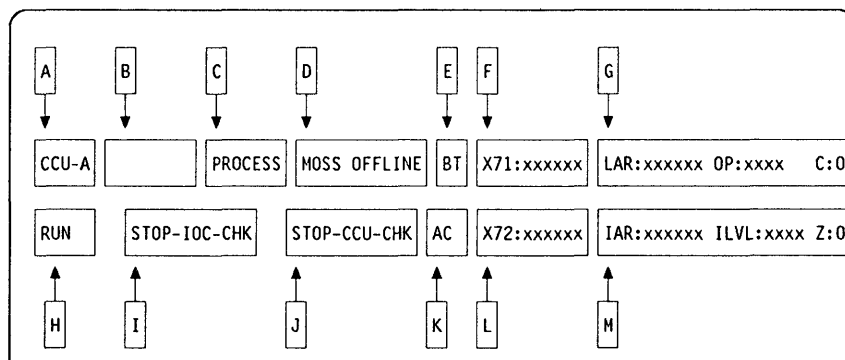


Figure 1-9. Fields of the CCU Information in the MSA

Field A Always: CCU-A

Field B Unused

Field C CCU mode:

PROCESS Normal processing.

I-STEP Instruction step.

Field D Indicates whether MOSS is connected to the CCU control program:

MOSS-ONLINE MOSS is connected to the CCU control program.

MOSS-OFFLINE MOSS is not connected to the CCU control program.

MOSS-ALONE MOSS is operational while the CCU control program is not loaded or not operational.

To put MOSS alone, when it is online or offline, you may:

- Perform CCU **RST** function (see *Advanced Operations Guide*), or
- Perform the following actions:

1. Power the machine OFF, and wait for about 10 seconds.
2. Power the machine ON.
3. Wait for the end of IML.

SERVICE-MODE MOSS is in maintenance mode (service personnel only).

Status of the MOSS after the different IMLs and IPLs:

After	MOSS Status	Control Panel Hex Display
Initialization (general IPL)	MOSS online	X'000'
MOSS IML	MOSS alone if CP is not loaded MOSS offline if CP is loaded	X'F0E' X'F0F'
CCU/scanner IPL	MOSS online	X'000'
Step-by-step IPL	MOSS online	X'000'
Bypass phase 1 IPL	MOSS online	X'000'

Field E

Displays BT (highlighted) when the branch trace function is active.

Field F

It is updated each time an output X'71' instruction is executed.

Output X'71' contents are buffered. If, due to intensive output, the buffers are overrun, some data may be lost; however, the last value in output will be displayed.

X71=xxxxxx Contents of CCU X'71' output register.

X71=ERROR Error when accessing the register. Register contents cannot be displayed.

At initialization time, field 'F' displays:

X71=xyyyzz

xx are the 3745 initialization flags with the following meaning:

- 01** Load/dump request detected on a link-attached 3745.
- 02** Load/dump request detected on a channel-attached 3745.
- 05** Dump in progress on a link-attached 3745.
- 06** Dump in progress on a channel-attached 3745.
- 09** Control program load in progress on a link-attached 3745.
- 0A** Control program load in progress on a channel-attached 3745.
- 11** Remote power OFF (RPO) command is detected.
- 20** Control program loader/dump abend before a load/dump request detected on a channel-attached or link-attached 3745.
- 21** Control program loader/dump abend on a load/dump request detected on a link-attached 3745.
- 22** Control program loader/dump abend on a load/dump request detected on a channel-attached 3745.
- 25** Control program loader/dump abend on a link-attached 3745 dump.
- 26** Control program loader/dump abend on a channel-attached 3745 dump.
- 29** Control program loader/dump abend on a link-attached 3745 control program.

- 2A** Control program loader/control program abend on a channel-attached 3745 control program.
- 40** Load dump request from disk.
- 44** Dump to disk in progress.
- 48** Control program load from disk in progress.
- 60** Control program loader/dump request from disk abend.
- 64** Control program loader/dump from disk abend.
- 68** Control program loader/control program from disk abend.

yyzz indicates the IPL port address. This encoded address is displayed in decoded form in field D of the IPL information, except when **xx** = 00, in which case:

- **yy** indicates the link ports defined in the link IPL port table.
- **zz** indicates the link IPL ports that are presently enabled.

Fields G and M

They are displayed when the CCU status is STOP X'70', STOP PGM, STOP BT, STOP AC, or HARDSTOP (see field H).

LAR=xxxxxx OP=xxxx C=x (field G)
IAR=xxxxxx ILVL=xxxx Z=x (field M)

LAR=xxxxxx Address of the last executed instruction.
OP=xxxx Last executed instruction.
C=x Value of the C-latch (0 or 1).
IAR=xxxxxx Address of the next instruction to be executed.
ILVL=xxxx Active CCU interrupt levels (1 to 4).
Z=x Value of the Z-latch (0 or 1).

CCU INTERRUPTS DISABLED (field G)
nothing displayed (field M)

No interrupts can be received from the CCU:

- During a MOSS IML from the control panel, just after power ON.
- While performing CCU IPL to avoid automatic CCU re-IPL in case of hardcheck (see field G).
- While mounting a new diskette (service personnel only).
- While performing some utility programs (service personnel only) to prevent interference. All communications between the CCU and MOSS are delayed (a BER generated by the control program is kept until the utility program ends and MOSS is back online).

CCU REGISTERS (in field G)
NOT ACCESSIBLE (in field M)

Appropriate registers cannot be read, so it is impossible to display LAR, OP, C, IAR, ILVL, and Z information.

Field H

CCU status:

DOWN A hardware error occurred on the CCU.
HARDCHK The control program stopped on a hardcheck error. An automatic re-IPL is attempted. In certain cases however, (for example if the hardcheck occurs during a general IPL) there is no re-IPL.
HARDSTOP You selected the CCU check reset function to reset the CCU check condition. To restart, select the CCU start function in the 3745 function menu or press F6 (CCU start, or S) if displayed on the screen.
IPL-REQ A CCU IPL was requested and is in progress.

READY	The CCU is operational and can be used immediately (IML completed).
RESET	The control program stopped because you initiated the reset CCU function; to restart the CCU, perform an IPL.
RUN	Instructions are being executed or data is being transferred.
STOP-AC	The control program stopped because the address compare function initiated with CCU stop was successful.
STOP-BT	The control program stopped because the branch trace function initiated with CCU stop has become deactivated.
STOP-PGM	The control program stopped because you initiated the CCU stop or set I-STEP function.
STOP-X70	The control program stopped on an output X'70' instruction executed by the control program.

Field I

BYP-IOC-CHK	The system will not stop on an IOC check. (Default or after a reset IOC check stop.)
STOP-IOC-CHK	You initiated the set IOC check stop function to force the system stop on an IOC check.

Field J

CCU check mode:

BYP-CCU-CHK	You initiated the function set bypass CCU check so the system will not stop on a CCU check.
STOP-CCU-CHK	The system will stop on a CCU check (default or after function reset bypass CCU check).

Field K

Information on the CCU address compare (SAC) function:

AC (highlighted) The address compare function is active.

If you selected MOSS interrupt=Y and/or CCU stop=Y when defining the address compare, the following is displayed:

AC HIT (highlighted) A single-address compare or double-address compare was successful.

AC HIT12 (highlighted) Two single-address compare were successful on the first and second address.

Field L

Updated each time an output X'72' instruction is executed by the control program. Output X'72' contents are buffered. If the buffers are overrun due to intensive output, some data may be lost; however, the last output value is displayed.

X72=xxxxxx	Contents of CCU X'72' output register.
X72=00xxxx	Control program load/dump (CLDP) abend code (refer to the IPL/IML chapter of the <i>Hardware Maintenance Reference</i> manual SY33-2066, for abend codes list).
X72=ERROR	Error when accessing the register. Register contents cannot be displayed.

Field M

See field 'G' description.

MSA Field Definition (Scanner Information)

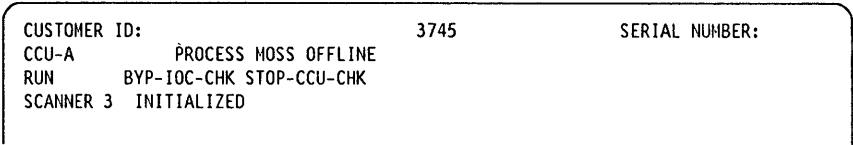


Figure 1-10. MSA Example with TSS Information

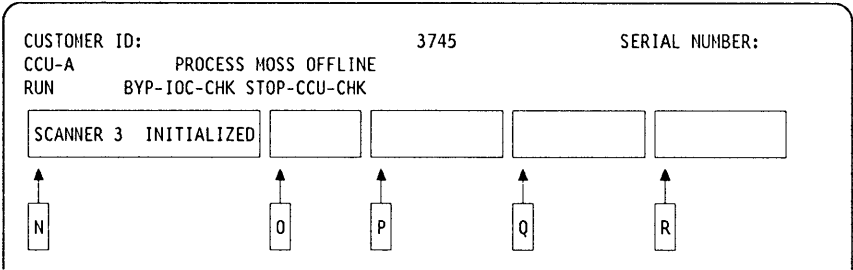


Figure 1-11. Fields of the TSS Information in the MSA

Field N

Information on the selected scanner:

NO SCANNER SELECTED You selected a scanner function before selecting a scanner.

SCANNER XX yyyyyyyyyyy Where xx is the number of the selected scanner (1 to 12), and yyyyyyyyyyy is any of the following:

- CONNECTED** The scanner is operational and under control of the CCU control program.
- DISCTD-GO** You entered the GO command while in status DISCTD/STOP. The scanner remains disconnected but control code execution continues.
- DISCTD-STOP** The control code is not under the control of the CCU control program, either after a STOP command or after a scanner address compare hit.
- INITIALIZED** The control code is loaded and the front-end adapter is operational.
- INOPERATIVE** The scanner is inoperative, or the CCU is not in run status.
- RESET** You entered the RESET command, and you may initiate an IML or a dump.
- UNKNOWN-MODE** The scanner is selected but it is impossible to identify its status.

Field O

DUMP A dump is in progress.

IML A scanner IML is being started.

SST abcde One or more snapshot traces have been started (up to five).

The status of the traces is given by the following table:

a b c d e	Meaning
1	Trace 1 active
. 1 . . .	" 2 "
. . 1 . .	" 3 "
. . . 1 .	" 4 "
. . . . 1	" 5 "
E	Trace 1 failed
. E . . .	" 2 "
. . E . .	" 3 "
. . . E .	" 4 "
. . . . E	" 5 "

Figure 1-12. SST Field Meaning

Field P

The result of the scanner address compare function is:

HIT-FS Successful on I-fetch, load, or store.
HIT-RW Successful on read or write.
ERROR Successful but an error was encountered while performing the action you specified.

Fields P and Q

Selected scanner address compare parameters:

AC xxxx yyyy zzzzzzz

xxxx Address.
yyyy Type of access:
 F I-fetch or data-fetch
 S Data store
 R Cycle steal read
 W Cycle steal write

One of the four types is displayed when AC is reached, according to the type of access selected in Figure 4-26 on page 4-16.

zzzzzzz Action:
 DISPLAY
 ALTER
 STOP
 OP-MSG (no action)

Fields Q and R

Delayed execution function (scanner display/alter functions):

DELAYED-ALTER
 or
 DELAYED-DISPLAY

MSA Fields Definition (IPL Information)

```

CUSTOMER ID:                3745                SERIAL NUMBER:
CCU-A SELECTED PROCESS MOSS OFFLINE BT      X71:008000
RUN      BYP-IOC-CHK  STOP-CCU-CHK AC
IPL CCU-A  PHASE 4      ENABLED CA xxxxxxxxxxxxxxxx L xxxxxxxx

```

Figure 1-13. MSA Example with IPL Information

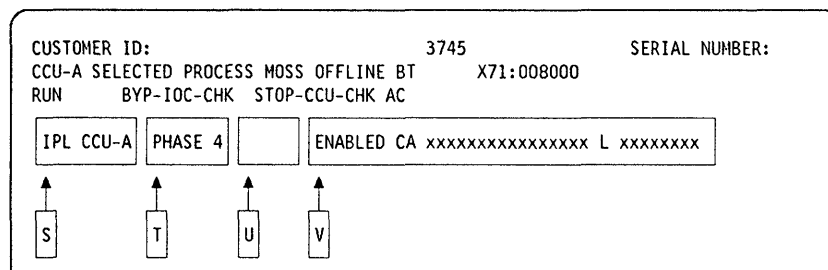


Figure 1-14. Fields of the IPL Information in the MSA

A short time after successful completion of the IPL, this line is cleared.

Field S

IPL CCU-A CCU IPL is started.

Field T

PHASE 1 Start of phase 1 (CCU test and initialization).
PHASE 2 Start of phase 2 (load from the disk and start the control program dump loader (CLDP)).
PHASE 3 Start of phase 3 (load and initialize the scanners).
PHASE 4 Start of phase 4 (load/dump from the host or disk, and initialize the control program).

Field U

STOP The IPL stopped at the beginning of the phase indicated in field 'T' (step-by-step IPL), or on operator's request (F4=STOP) during that same phase.

Field V

Can be one of the following

CA IPL DETECTED ON CA xx The control program loading/dumping is started on a channel-attached 3745. xx is the channel adapter number.

CONTROL PROGRAM LOADED

CP SAVE ON DISK IN PROGRESS

DUMP IN PROGRESS ON CA xx A control program dump is being taken on a channel-attached 3745. xx is the channel adapter number.

DUMP IN PROGRESS ON L xxxx A control program dump is being taken on a link-attached 3745. xxxx is the decimal telecommunication line address.

DUMP ON MOSS DISK IN PROGRESS A control program dump is being taken on the MOSS.

Note: The progress of the dump is indicated in **MSA field F** of

the 'CCU information', which displays the control program storage addresses.

ENABLED CA xxxxxxxxxxxxxxxx L xxxxxxxx

CA = channel adapters (x = Y, N, or U)

L = link IPL ports (x = Y or N)

Y Enabled CAs or links

N Non-enabled CAs or links

U Usable CAs

The position of the Ys, Ns, and Us gives the corresponding CA number or link IPL port number.

IPL CANCELLED The 3745 initialization can be cancelled by:

- The operator (immediate terminate function).
- An operator console power OFF when the IPL was requested from the console.
- The operator console switching from normal mode to test mode.
- An automatic MOSS re-IML during a CCU/scanner step-by-step IPL
- Two automatic MOSS re-IMLs during a CCU/scanner IPL.

IPL CHECK Fxx Abnormal IPL end. The check code (Fxx) is also displayed on the hex display of the control panel.

IPL CHECK F1B CLDP ABEND xxxx Abnormal IPL end. xxxx is the hexadecimal CLDP abend code (refer to the "IML/IPL" Chapter of the *Hardware Maintenance Reference* manual, SY33-2066, for the list of abend codes).

IPL COMPLETE IPL successfully completed.

IPL COMPLETE + ERRORS The IPL is complete, although an error has been encountered. Alarm D1 is displayed. The 3745 runs with some restrictions.

IPL FROM MOSS DISK IN PROGRESS The IPL from MOSS disk is in progress.

IPL IN PROGRESS The progress of the IPL is indicated in **MSA field F** of the 'CCU information', which displays the control program storage addresses.

LINK IPL DETECTED ON L xxxx The control program loading/dumping is started on a link-attached 3745.

LINK TEST PROGRAM ABEND A hardware error occurred at phase 3, while loading the stand-alone link test.

LINK TEST PROGRAM LOADED The link test program is loaded.

LOAD IN PROGRESS ON CA xx The control program is being loaded on a channel-attached 3745. xx is the channel adapter number.

LOAD IN PROGRESS ON L xxxx The control program is being loaded on a link-attached 3745. xxxx is the decimal telecommunication line address.

Note: The progress of the load is indicated in **MSA field F** of the 'CCU information', where the CCU storage addresses are displayed.

SCANNER(S) NOT IMLED: xxxxxxxx One or more scanners are not IMLED.

xxxxxxx consists of eight hexadecimal digits (32 bits). Each bit corresponds to a scanner (CS) number.

MSA Field Definition (Token-Ring/TIC Information)

CUSTOMER ID:		3745		SERIAL NUMBER:	
CCU-A SELECTED PROCESS MOSS OFFLINE					
RUN STOP-IOC-CHK STOP-CCU-CHK					
TRA 1	DISCONNECT	TIC 1	OPEN	NCP TRS NOT AVAILABLE	

Figure 1-15. MSA Example with TRSS Information

CUSTOMER ID:		3745		SERIAL NUMBER:	
CCU-A SELECTED PROCESS MOSS OFFLINE					
RUN STOP-IOC-CHK STOP-CCU-CHK					
TRA 1	DISCONNECT	TIC 1	OPEN	NCP TRS NOT AVAILABLE	
↑	↑	↑	↑	↑	
W	X	Y	Z	ZZ	

Figure 1-16. Fields of the TRSS Information in the MSA

Field W

The TRA has been selected (TRS or TID function).

Field X

TRA mode, updated after TRA selection (option 1 in **TRSS function selection** screen, page 5-5).

Note: If field **F** in the CCU information part indicates 'CCU INTERRUPTS DISABLED', the TRA mode has no meaning.

The possible modes are:

- CONNECT** The TRA is operational and is under NCP control. The control program handles all interrupts (except in the case of an MIOH error).
- The PIO disable and the disconnect bits in the TRM level 1 error status are OFF.
- DISCONNECT** The TRA does not run under the control of the control program but under the control of the MOSS microcode. MOSS handles all interrupts and PIOs to/from the TIC.
- The PIO disable and the disconnect bits in the TRM level 1 error status are OFF.
- UNKNOWN** A non-recoverable error occurred during the connection/disconnection process, or an MIOC/IOC error occurred while getting level 1 error status during TRA selection. Connect/Disconnect may be re-tried.

Field Y

Selected TIC number.

TIC n Selected TIC number (1 or 2), updated after a TIC selection (see **TRA Functions** screen, page 5-6).

Field Z

Current mode of the selected TIC, updated after a TIC selection or a refresh of the screen display. (see TID functions in *3745 Advanced Operations Guide*).

The TIC is in one of the following modes, as reported by the NCP:

IDLE	Not yet reset by the NCP.
RESET	Reset by the NCP but not yet initialized.
INITIALIZED	Initialized but not yet open or disabled . Initialization parameters have been passed to the TIC by the NCP.
OPEN	The TIC has been inserted into the token-ring and is in normal operation. Open parameters have been passed, and receive and transmit operations have been started.
CLOSED	The TIC has been opened since initialization, but has since been closed (by the host).
FROZEN	An error was detected by the NCP and the following actions were taken by the NCP: <ul style="list-style-type: none"> • Interrupts from this TIC are disabled. • DMA from this TIC is disabled. • The TIC is reset.
DISABLED	The associated TRA has been disconnected by the MOSS. The NCP will send no PIO to this TIC.
(blank)	There is no TIC mode if the NCP is not online.

The TIC mode is derived from the NCP MAC layer status obtained from the NCP. The following table gives the correspondence:

Table 1-1. TIC Mode and MAC Status	
Medium Access Control (MAC) Status	TIC Mode
Idle	Idle
Hardware TIC reset	Idle
Software TIC reset	Idle
Initialization list transfer	Reset
Initialized	Initialized
Open started	Initialized
Receive initialization	Initialized
Transmit initialization	Initialized
Started	Open
Transmit in progress	Open
Close in progress	Open
Closed	Closed
Frozen	Frozen
Disconnected	Disabled

Field ZZ

NCP TRS NOT AVAILABLE indicator:

- The TRSS was not available at the IPL of the NCP, and did not pass the necessary TRSS information to the MOSS, or
- An error has occurred when trying to access the NCP control blocks needed by the TRSS services.

Several functions which depend upon the NCP are not available. This field is updated after each function selection of the TRSS secondary menu. (See **TRSS function selection** screen, page 5-5).

Otherwise, this field is blank.

Short Description of the 3745

The IBM 3745 Communication Controller is composed of four main functional units:

1. Controller subsystem (CSS)
2. Transmission subsystem (TSS)
3. Maintenance and operator subsystem (MOSS)
4. Power control card (PCC).

You may refer to "General Information" in the *Hardware Maintenance Information* for a description of the different models.

Controller Subsystem

The controller subsystem contains the CCU with its associated memory and storage control (SCTL), the direct memory access (DMA), the DMA bus, the IOC bus, and the channel adapter(s) with data streaming possibility.

Transmission Subsystem

The transmission subsystem can contain the transmission subsystem (called TSS), and/or a token-ring subsystem (TRSS), and/or a high-performance transmission subsystem (HPTSS).

The TSS includes up to 6 low-speed scanners (LSS). Each LSS is composed of one communication scanner card (CSC), which includes the functions of communication scanner processor (CSP), and of a front-end low-speed scanner (FESL). The line speed can be up to 256 kbps.

The HPTSS includes up to 2 high-speed scanners (HSS). Each HSS is composed of a communication scanner processor (CSP) and of a front-end high-speed scanner (FESH). The HSS is for lines with speeds of up to two millions bps.

The TRSS contains up to 2 token-ring adapters (TRA). The TRA is composed of a token-ring multiplexor card (TRM) and two token-ring interface couplers (TICs).

MOSS

The MOSS communicates with the CCU, and gives access to a disk, a diskette, and the operator console. It also controls the enabling/disabling of CAs.

Power Control Subsystem

The power system is under the control of a microcoded PCC card. The PCC monitors the power system status and conditions; it also controls the power

ON/OFF and the display of codes on the control panel. The PCC communicates with the MOSS via the MMIO bus.

Programming Support

The control program that runs in the CCU may be:

- ACF/NCP*:

Advanced Communication Functions for Network Control Program (ACF/NCP) (simply called the NCP in this manual) is an IBM licensed program product.

The NCP provides major capabilities for SNA user application networks with SDLC. However, the NCP is not limited to SDLC devices, and existing start-stop and binary synchronous networks can be migrated to the 3745.

The NCP works with ACF/VTAM.

The NCP supports the communication network management concept when operating with NetView* program, a network management product which integrates: NCCF, NPDA, NDLM, VCNA, and NMPF.

- Partitioned Emulation Programming (PEP):

The PEP is the NCP and EP (Emulation Program) merged into one program (EP is not available in stand-alone).

- Programming support for the host:

A number of IBM System Support Programs (SSPs) are available. These SSPs are executed in the host and are used to generate the control programs and load them into the controller, dump the controller storage on the host printer, and transfer disk files to the host.

Maintenance Philosophy

The maintenance of the 3745 is based on:

1. Error detection by hardware and software.
2. Error collection by the control program and the MOSS through BERs.
3. Error analysis, with the automatic BER analysis (autoBER), running in the MOSS to generate a reference code.
4. Error notification to the customer through alarm and alert messages.
5. Maintenance must start with the **refcodes** contained in alarm(s) and alert(s), and preferably with refcodes BXnnnyyy, if any.
6. Problem determination by the customer at the host and controller sites allowing to call the appropriate service personnel (reference code, hexadecimal code, or verbal/visual symptom).
7. Remote problem analysis by the service personnel in HCS, using the information provided by the customer.
8. On-site FRU(s) replacement, repair, and verification.

3745 Description

Repair Action in Case of Error

A failing FRU may be indicated by the following error information:

- Reference code resulting from the autober analysis or from an alarm message.
- Reference codes given by the diagnostics at the operator console.
- Error codes given by the IML/IPL checkout programs on the control panel's hexadecimal display.

Any error indication points to a list of suspected FRUs and the replacement procedures are described in the 3745 MIP.

No FRU Isolation

Errors not isolated by the maintenance package, and design errors on hardware, microcode, or diagnostics, are handled:

- Remotely via URSF
- If required, by the support CE on site, or by the product engineer (PE).

Diskette Mode

If the MOSS disk has a solid failure, the 3745 can continue to work in degraded mode. This means that the IML must be done from the primary back-up diskette, and that some functions are not available or reduced. For example, there is no BER recording, no diagnostics available (see "MOSS Disk/Diskettes Organization" on page 11-2 for diskette contents).

MOSS Operator Consoles

Figure 1-17 shows how the various users of MOSS functions can be connected to the MOSS of the 3745.

For details about the types of consoles used on the 3745, refer to the *3745 Installation Guide, SY33-2067*.

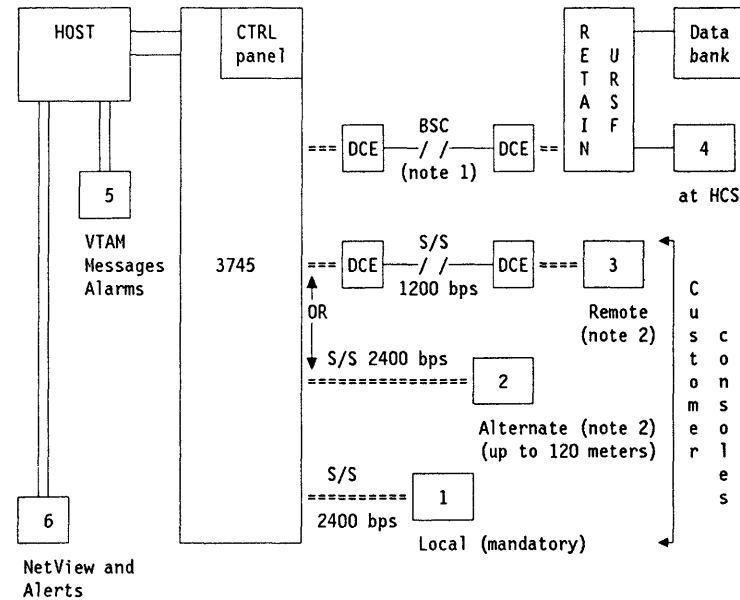


Figure 1-17. Possible Console Connection on the 3745

- Console 1 is the local customer console (mandatory).
- Console 2 is the alternate customer console (direct-attached within 120 meters).
- Console 3 is the remote customer console.
- Console 4 is the IBM URSF (RETAIN) console.
- Consoles 5 and 6 are the customer's VTAM and NetView consoles.

Notes:

1. RETAIN link speed is 1200 or 2400 bps (country-dependent).
2. The local console is mandatory and all the other consoles shown in Figure 1-17 may not be present, depending on the customer's installation.
3. The alternate and remote consoles are exclusive. The customer can have only one of them.
4. A console switch (the IBM 7427) may be installed. It allows the local or alternate console to communicate with several 3745s.

Chapter 2. BER (Box Event Records) Analysis

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BER General Information

Box Event Record Generation

Each BER occurrence, either in case of failure or in case of a 3745 initialization (controller re-IPL), is processed by the event logging procedure of the MOSS.

Event Logging Procedure

Some BERs are only informational (for example: IML, or IPL complete). BERs are handled by a set of functions that:

- Count the event occurrences.
- Time stamp the BER.
- Analyze the BER automatically.
- Record the BER on a MOSS disk data file.
- Generate a message to the customer's operator (alert/alarm), when appropriate.

The BERs are created from event information supplied either by the NCP, by the MOSS itself, or during IFTs by the DCM.

Notes:

1. If the MOSS is offline or is inoperative, the NCP/EP stores the event information in the check record pool (CRP) located in main storage until the MOSS becomes online.
2. When the disk is not operational, the MOSS keeps the BERs in the MOSS RAM buffer.
3. No BER logging takes place in degraded mode (IML from diskette).

Automatic BER Analysis

This MOSS function translates, when necessary, the issued BER into a specific eight-digit reference code that characterizes the 3745 hardware failure, the environment anomaly, or a potential microcode error.

If there is an alarm or alert, this reference code is included in it in order to be transmitted to the service personnel by the customer.

MOSS Composite BER

MOSS code packs I/O-related BERs into a single BER: (Type 01, ID 85).

Composite BER Example: If a MOSS level 0 occurs during a disk I/O operation related to a load request from an application, a BER 01-85 is logged (assume for this example that it is SEL# 233). This BER contains:

- SEL# 233.3 BER 0111, disk adapter
- SEL# 233.2 BER 0103, CAC
- SEL# 233.1 BER 0100, level 0.

A selection number for a BER 01-85 is displayed with the event description related to the latest BER put into BER 01-85. You may scroll on the BER detail screen to display the other BERs contained in the BER 01-85 using F7 (previous).

In the example above, the event description first displayed on the BER detail screen for SEL# 233 refers to SEL# 233.3 BER 01-11. Pressing F7 displays SEL# 233.2 BER 01-03. Pressing F7 a second time displays SEL# 233.1 BER 01-00. If you scroll forward to SEL# 233 from SEL# 232 using F8 (next), the next detail displayed will be SEL# 233.3. You must then use F7 to display SEL# 233.2 and 233.1 as described above.

BER 01-85 applies to the following accesses:

- File access
- NCP/EP access (mailboxes)
- CCU access
- Display/keyboard access.

BER Storage on Disk

The MOSS stores the BERs, prepared in the MOSS RAM, on the wraparound BER file on disk in their order of arrival. The BER file can contain an average of 250 BERs.

When the BER file is full, the next BER to arrive overwrites the oldest BER (or BERs) in the BER file.

BER Type and ID

All BERs are characterized by a **type** and an **ID**.

• BER Type

The type points to the general area of BER occurrence:

- 01** MOSS-related events (plus errors/events recorded by the MOSS when it takes control of the box or operations such as CCU hardcheck, LA events, and so on).
- 02** Alarms
- 03** Events related to diagnostics (BER details not displayable).
- 04** Events related to the power control operations.
- 10** NCP events related to channel adapter operations.
- 11** NCP events related to transmission subsystem (including HPTSS) operations.
- 12** NCP control program exceptions (software events detected by the hardware, or hardware events corrupting the software).
- 13** NCP CCU-related events when the NCP/EP has control (excluding the CCU hardcheck).
- 14** NCP IOC bus-related events (when not possible to isolate them to a specific adapter).
- 15** NCP events related to token-ring subsystem operations.

- **BER ID**

When the BER is created by the NCP/EP, the ID identifies the most probable cause of event (control program, hardware, or microcode) and the program level that created the error/event record.

When the BER is created by the MOSS, the ID identifies the origin of the error or the event (MOSS interrupt level, disk support, and so on).

For MOSS BERs, the event categories are found in another field called MOSS CHECK code or ERROR code.

Where to Find More BER Information

The Error Logging chapter of the *Hardware Maintenance Reference* manual, SY33-2066, gives detailed information concerning the BERs, including all possible BER contents and layouts.

Information about	Described in
Host print request for BERs	ACF/NCP SSP for the 3745 Diagnosis Guide, chapter "Printing NCP, MOSS, or CSP Dump".
BER format	<i>Hardware Maintenance Reference</i> , chapter "Error Logging".
BER save and purge	"Displaying Dumps, Storage, and Modules; and Deleting Files" chapter of this manual.

BER Display and Handling Summary

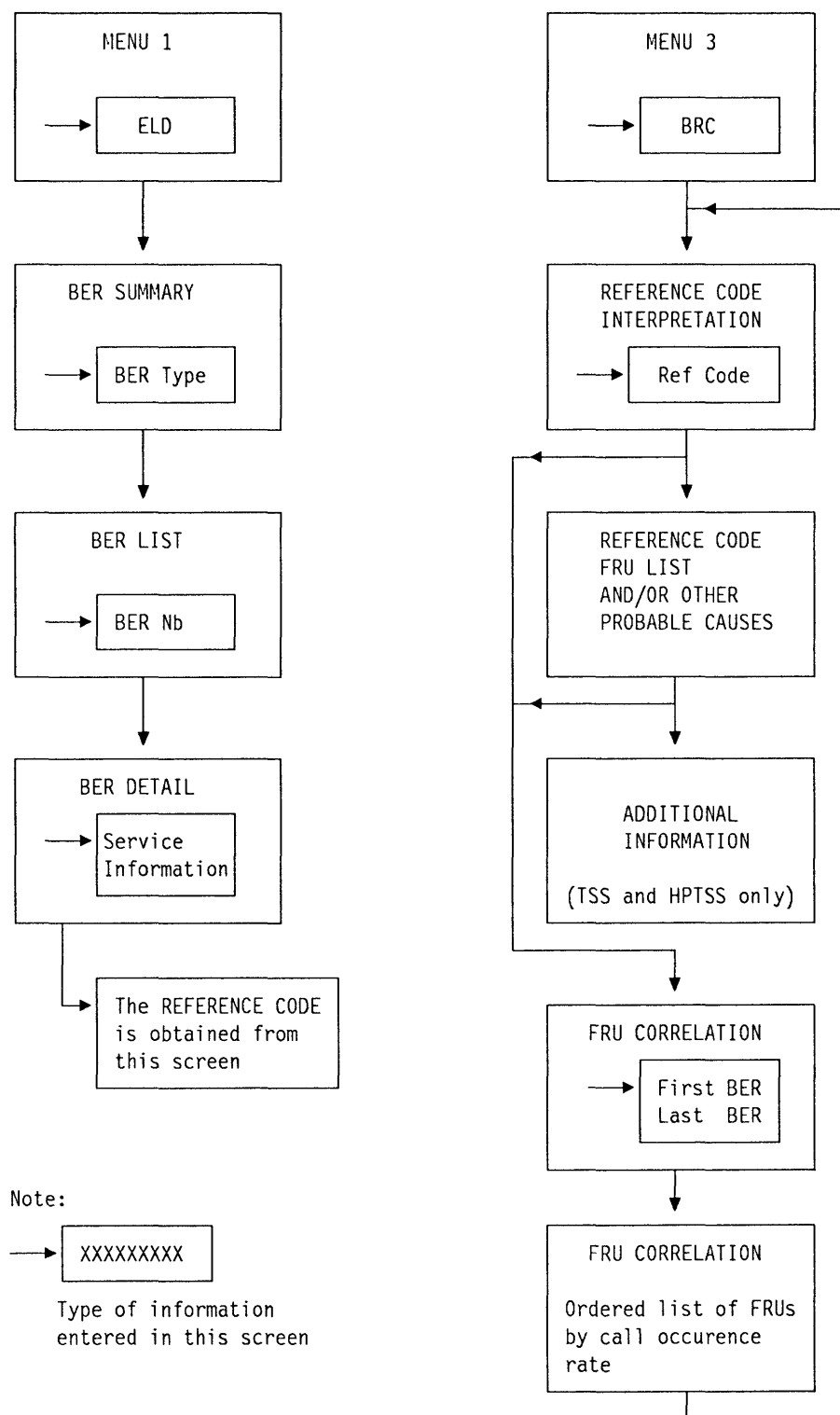


Figure 2-1. BER Display and Handling

BER Display Procedure

- 1. In MENU 1, type ELD in **1**.
- 2. Press SEND.

Screen **B** is displayed.

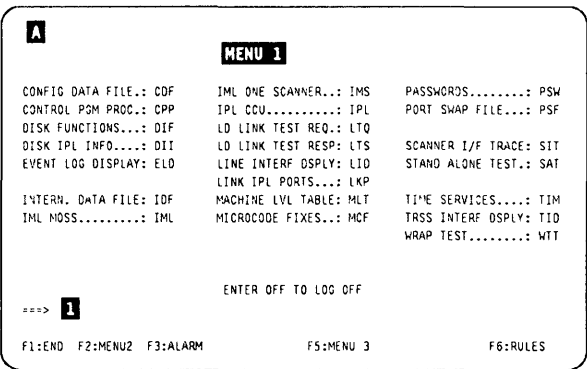


Figure 2-2. Menu 1 Screen

BER List Selection

- 1. Enter the SEL# number or the NAME of the selected type of BER in **1**.
- 2. Press SEND.
- 3. Screen **D** is displayed.
- 4. Press F8 if you want to display the second part of the BER list selection.

Screen **C** is displayed.

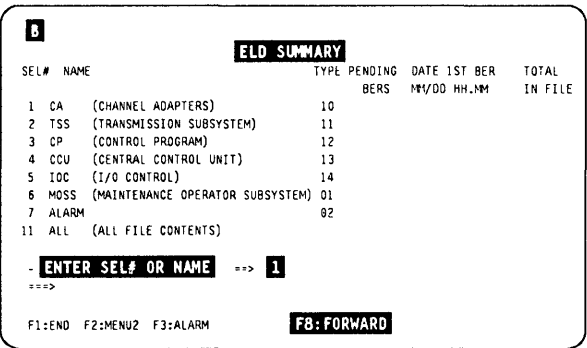


Figure 2-3. ELD Summary Screen 1

The ELD summary list is given on two screens: the first allows you to select one of the first eight entries (screen **B**), the second the following entries (screen **C**).

Press F7 if you want to return to screen **B**

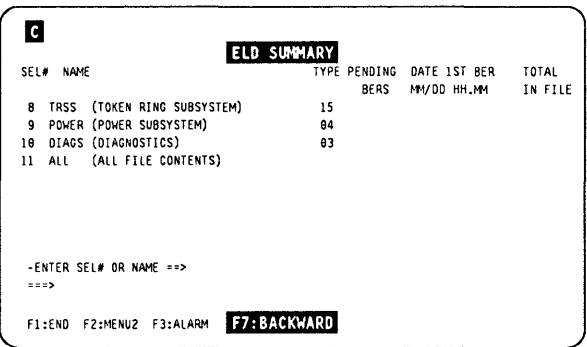


Figure 2-4. ELD Summary Screen 2

(in this example, SEL# 1, or CA was entered in screen **B**)

1. In **1**, enter the SEL# of the BER to display.
2. Press **SEND**.
3. Screen **E** is displayed.

If you cannot display the ELD detail, press **F1** (END) and restart from the beginning.

In this screen **D**, you may press:

- F4** To go to ELD summary (screen **B**)
- F7** To scroll backwards, 10 BERs at a time, for the same component.
- F8** To scroll forwards, 10 BERs at a time for the same component.

CA LIST							TOTAL:4
SEL#	DATE/TIME	FLAG	NAME	TYPE	ID	EVENT DESCRIPTION	
770	12/02 06:53	CAS		10	B2	UNRESOLVED DATA /STATUS INTERRUPT	
766	12/02 07:23	CAS		10	B2	UNRESOLVED DATA /STATUS INTERRUPT	
761	12/02 07:53	CAS		10	B2	UNRESOLVED DATA /STATUS INTERRUPT	
757	12/02 08:21	CAS		10	B2	UNRESOLVED DATA /STATUS INTERRUPT	
*** END OF FILE ***							
- ENTER SEL# OR NAME ==> 1							
F1:END F2:MENU2 F3:ALARM F4:SUMMARY F7:BACKWARD F8:FORWARD							

Figure 2-5. BER List Screen (CA Example)

(In this example, SEL# 770 value was entered from screen **D**)

In this screen, you may press:

- F4** To go to ELD summary (screen **B**)
- F5** To go to ELD list (screen **D**)
- F7** To display the previous BER (SEL# -1)
- F8** To display the next BER (SEL# +1)

If an ELD detail screen shows anomalies, such as a blank screen or unformatted hexadecimal characters, this means that the BER file is full and cannot number the BERs correctly.

To correct this problem, press **F5**. This produces a new, correct BER list.

ELD DETAIL						
SEL# 770	FLAG 00	DATE:12/02	TIME:06:53	TYPE:10	ID:02	
CAS UNRESOLVED DATA /STATUS INTERRUPT						
X77:0000 X7F:0000 X8:00F3 X1:**** X2:**** X3:**** X4:**** X5:****						BAB2xxxx
X6:**** X7:**** X8:**** X9:**** XA:**** XB:****						
CAB:*****						
CAC:**** TA:**** CAVT:****						
F1:END F2:MENU2 F3:ALARM F4:SUMMARY F5:LIST F7:PREVIOUS F8:NEXT						

Figure 2-6. BER Detail Screen (CA Example)

BAB2xxxx is the reference code number to be entered in the BRC function.

This screen contains the coded service information appropriate to the type of BER (for field details, refer to the "Error Logging" chapter of the *Hardware Maintenance Reference* manual).

Notes:

1. If you are in customer mode, the displayed screen does not contain the coded service information. Only the event description line is displayed.
2. The details of BER type 03 are not displayable.

Updating the Service Information Field in Alarm BERs

You may enter some comments in an alarm BER record. These comments are stored in the BER file, and will be displayed the next time the BER detail is displayed.

1. Display the **BER detail** screen corresponding to the alarm for which you want to record comments.
2. Place the cursor at the beginning of the first empty line **1**.
3. Type up to 40 characters of information.
4. Press **SEND**.

The screenshot shows a terminal window titled "ELD DETAIL". At the top left is a function key "F". Below it, the text "SEL\$ 797" and "FLAG 00 DATE:01/01 TIME:17.50" is displayed. To the right of this is the identifier "B1190C01". Below the date/time, it says "OF: MOSS IML COMPLETE WITH NON-BLOCKING ERRORS". The main area of the screen shows a line with a cursor at the beginning, labeled "1", followed by the text ".... information to be entered ...". At the bottom of the screen, there is a status bar with "===>" and "F1:END F2:MENU2 F3:ALARM".

Figure 2-7. Alarm BER Screen (Example)

Erase the BER File

The entire BER file can be erased using the 3745 function DDD (Dump Display/Del), see "Delete a File from the MOSS Disk" on page 6-9.

You should **NOT** erase the BER file, **except** in exceptional cases, because:

1. It is not possible to erase individual BERs in the file, but only the entire BER file.
2. The service personnel might need old BERs for history purposes.
3. The BER file, when full, writes the most recent BERs on the disk space used by the oldest BERs (wraparound file). When the BER file is erased, a BER is logged in the file, to indicate it.

Manual BER Reference Code Interpretation and FRU Correlation

These two functions allow the service personnel to display:

- For a reference code, its associated FRU list or other potential cause(s) of error.
- For a range of BERs, all suspected FRUs that have been associated to the BERs and the number of times they were suspected.

The BER reference codes **FRU correlation list** screen displays an ordered list of all FRUs that were involved by the BERs defined in the BER range (see Figure 2-16 on page 2-12). This list also gives the number of times each FRU has been suspected.

Read this before using manual correlation:

1. Manual correlation must be attempted only when the exchange of FRUs given by the initial reference code found in the alarm has been unsuccessful. Manual correlation can then point out some additional potentially failing FRU(s) called by BERs without an associated alarm.
2. The automatic correlation process performed by **automaint** at each alarm generation, can lead to a specific reference code BX... giving only the most probable FRUs.
3. Carefully select the BER range (same time frame or error type), in order to avoid overlapping different failure sources.
4. BERs type 03 are not taken into account in the correlation process, because the result would be meaningless.

BER Reference Code Interpretation

- 1. In MENU 3, type **BRC** in **1**.
- 2. Press **SEND**. Screen **H** is displayed. (See Figure 2-9.)

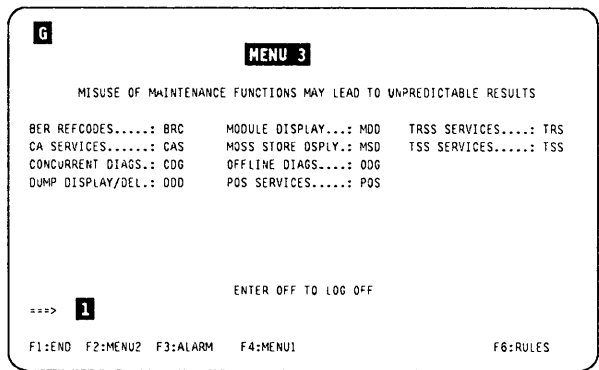


Figure 2-8. Menu 3 (Maintenance) Screen

- 1. Enter the **reference code** in **1**.
 - 2. Press **SEND**. Depending on the reference code type, screen **I**, **J**, **K**, or **L** may be displayed. (See "Reference Code Interpretation FRU List" on page 2-11".)
-
- 3. If the reference code interpretation has led to unsuccessful repair, press **F5** to go to the FRU correlation screen. Screen **N** is displayed (Figure 2-15 on page 2-12).

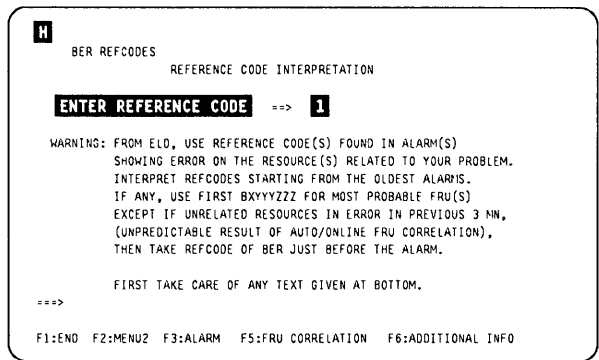


Figure 2-9. Reference Code Interpretation Selection

Reference Code Interpretation FRU List

- At bottom of the screen, one or two lines called **OTHER CAUSES TO BE SUSPECTED** can be displayed to give more information. This appears only if applicable.
- The following text (**highlighted** on screen **K**) is displayed if multiple FRUs are suspected. This message is applicable when several similar resources are attached.
WHEN APPLICABLE (SEVERAL SIMILAR ATTACHED RESOURCES):
IF ONE RESOURCE IN ERROR, CONSIDER ONLY THE RELATED FRU(S)
- The following text (**highlighted** on screen **L**) is displayed for BG or RG type reference code:
LIST COULD BE WRONG IF A CONFIGURATION CHANGE IN THE AREA
ALONG WITH A CDF UPGRADE HAVE BEEN DONE AFTER THIS ERROR
- Only for TSS and HPTSS:* Press **F6** to display additional information (screen **H** on page 2-12). If you press **F6** for a non-TSS/HPTSS reference code, this message is displayed:
NO ADDITIONAL INFORMATION AVAILABLE
This also happens every time the CDF is empty for the suspected TSS or HPTSS component (for example, no MUX or LIC attached).
- Message **CSP64 INVALID** is displayed if:
 - There is a mismatch between the CDF and the machine, or
 - The hardware, called by the reference code you have entered, is not present on the machine.
- To go to the FRU correlation screen, press **F5**.

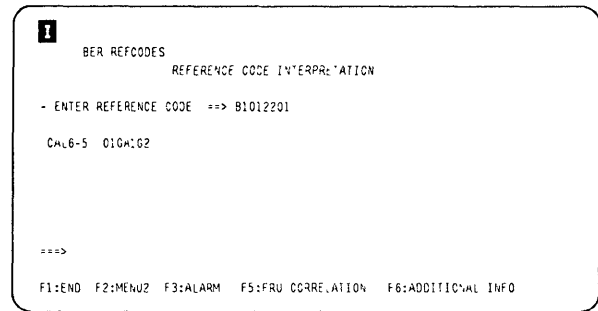


Figure 2-10. RCI FRU List Screen (Example 1)

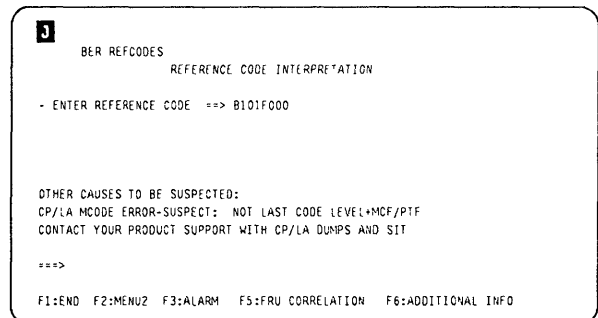


Figure 2-11. RCI FRU List Screen (Example 2)

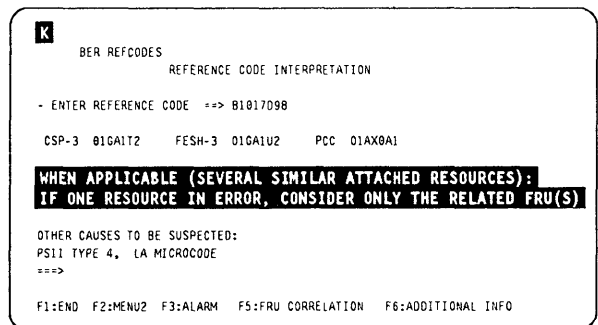


Figure 2-12. RCI FRU List Screen (Example 3)

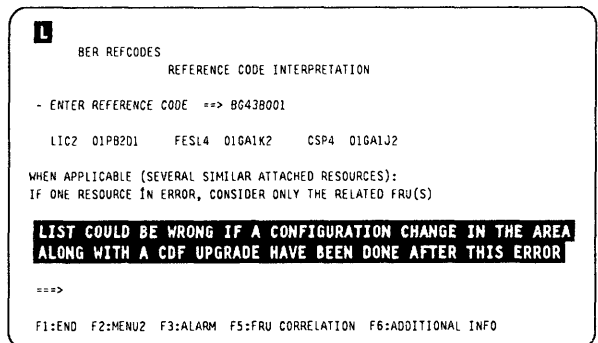


Figure 2-13. Reference Code Interpretation FRU List Screen (Example 4: BG/RG Type)

Additional Information for TSS/HPTSS FRUs

- Press **F7** to return to the reference code interpretation (screen **H** on page 2-10).

M

ADDITIONAL INFORMATION FOR TSS FRUS

SUSPECTED FRU : CSP4 010A1L2
 LINES 368 - 383 DRIVEN BY LA 4 ARE ASSOCIATED
 LINES 0 - 15 DRIVEN BY LA 3 ARE ASSOCIATED
 SUSPECTED FRU : FESL4 01GAIM2
 LINES 368 - 383 DRIVEN BY LA 4 ARE ASSOCIATED
 LINES 0 - 15 DRIVEN BY LA 3 ARE ASSOCIATED

====>

F1:END F2:MENU2 F3:ALARM F7:REFERENCE CODE INTERPRETATION

Figure 2-14. Additional Information for TSS FRUs Screen (Example)

BER Range FRU Correlation

- Enter in **1** the SEL# of the most recent BER in the range you have selected.
- Enter in **2** the SEL# of the oldest BER in the range.
- Press **SEND**. Screen **0** is displayed.

N

BER REFCODES

FRU CORRELATION

- ENTER LATEST BER NUMBER ==> **1**
 - ENTER OLDEST BER NUMBER ==> **2**

WARNING: USE ONLY IF UNSUCCESSFUL REPAIR BY REFCODE INTERPRETATION.
 (CAN SHOW ADDITIONAL CALLED FRUS THRU BERS WITH NO ALARM).
 DIAGNOSTIC ERROR BERS ARE EXCLUDED FROM CORRELATION RESULT.
 SELECT THE BER RANGE CAREFULLY ACCORDING TO THE PROBLEM:
 DON'T MIX BERS UNRELATED WITH YOUR RESOURCE(S) IN ERROR.
 THE OLDEST BER SHOULD BE THE FIRST ONE OCCURRING IN TIME.
 THE LAST MUST BE IN THE SAME TIME FRAME (WITHIN 2 MN).
 AVOID INCLUDING MOSS BER TYPE 01 WITH OTHER TYPES.
 IF IMPOSSIBLE THEN DIRECTLY INTERPRET REFCODES OF BERS.

====>

F1:END F2:MENU2 F3:ALARM F5:REFERENCE CODE INTERPRETATION

Figure 2-15. FRU Correlation Selection Screen

- The number of times that each FRU has been called is given in brackets.
- If the result of the FRU correlation is not successful, this message is displayed:

NO FRU INVOLVED IN THIS RANGE

This also happens **every time** you attempt an FRU correlation over a range of **type 03 BERS** (diagnostic events).

- Press **F5** to return to the reference code interpretation (screen **H** on page 2-10).

0

BER REFCODES

- ENTER LATEST BER NUMBER ==>
 - ENTER OLDEST BER NUMBER ==>

FRU CORRELATION RESULTS

DIAGNOSTIC ERROR BERS ARE EXCLUDED FROM CORRELATION RESULTS

CSC4 01A-R (3) PUC 01G-V (1) TERMI 01G2A/2B (1)

====>

F1:END F2:MENU2 F3:ALARM F5:REFERENCE CODE INTERPRETATION

Figure 2-16. FRU Correlation Result Screen (Example)

BER Display Screens

ELD Summary Screen Fields Description

SEL# NAME		ELD SUMMARY		PENDING	DATE 1ST BER	TOTAL
		TYPE		BERS	MM/DD HH.MM	IN FILE
1	CA (CHANNEL ADAPTERS)	10				
2	TSS (TRANSMISSION SUBSYSTEM)	11				
3	CP (CONTROL PROGRAM)	12				
4	CCU (CENTRAL CONTROL UNIT)	13				
5	IOC (I/O CONTROL)	14				
6	MOSS (MAINTENANCE OPERATOR SUBSYSTEM)	01				
7	ALARM	02				
11	ALL (ALL FILE CONTENTS)					
-ENTER SEL# OR NAME ==>						
====>						
F1:END F2:MENU2 F3:ALARM				F8:FORWARD		

Figure 2-17. ELD Summary Screen 1 (Description)

Note: ELD summary screen 1 and screen 2 fields are identical.

SEL# A number, which may be typed at the cursor position, to select the appropriate ELD list.

NAME An acronym, which may be typed at the cursor position, in place of SEL# to select the appropriate ELD list.

TYPE The number that categorizes the BER by its origin.

PENDING BERS: BERs that contain a flag with value 00. This flag being not used, the value is always 00. Pending BERs are not used.

DATE 1ST BER: The time and date of the oldest pending BER in this category.

TOTAL IN FILE: The total number of BERs of this category in the BER file.

Use the data in this screen to help you select the BER list.

Note: If you already know the precise origin of the fault (such as LA3), you can type this at the cursor position instead of SEL# or NAME. For example, typing LA3 displays only those BERs associated with LA3.

SEL# NAME		ELD SUMMARY		PENDING	DATE 1ST BER	TOTAL
		TYPE		BERS	MM/DD HH.MM	IN FILE
8	TRSS (TOKEN RING SUBSYSTEM)	15				
9	POWER (POWER SUBSYSTEM)	04				
10	DIAGS (DIAGNOSTICS)	03				
11	ALL (ALL FILE CONTENTS)					
-ENTER SEL# OR NAME ==>						
====>						
F1:END F2:MENU2 F3:ALARM F7:BACKWARD						

Figure 2-18. ELD Summary Screen 2 (Description)

ELD List Screen Fields Description

				CA	LIST	TOTAL:01
SEL#	DATE/TIME	FLAG	NAME	TYPE	ID	
770	12/02 06:53		CA5	10	B2	UNRESOLVED DATA /STATUS INTERRUPT
*** END OF FILE ***						
-ENTER SEL# OR NAME ==>						
===>						
F1:END F2:MENU2 F3:ALARM F4:SUMMARY						

Figure 2-19. ELD List Screen (Description)

xxxxx LIST The criterion xxxxx of selection from the ELD summary, or from the previous ELD list (xxxxx = CA in the above screen).

TOTAL The number of BERs corresponding to the selection from the ELD summary.

SEL# The sequence number of the BER in the BER file. BERs are numbered in ascending order from the oldest to the most recent. (compare with DATE 1ST BER in ELD summary).

Enter this SEL# when you want the corresponding **ELD detail** screen. The detail screen gives additional service information concerning a BER.

Note: The BER file is not frozen while you work. New BERs may be logged while you are troubleshooting, but they do not appear on the screen. These new BERs (with a new BER number) will appear the next time you request an ELD LIST display.

DATE Four digits defining month and day.

TIME Four digits defining hour and minute.

FLAG This field is not used.

NAME More precise information about the origin of a BER (for example, CS, line, or channel number). The NAME may be typed at the cursor position to obtain the appropriate ELD list. The NAME is repeated in the event description line of the **ELD detail** screen.

TYPE The number that categorizes the BER.

ID Two hex digits that give more precision as to the origin of the BER.

EVENT DESCRIPTION: Up to 40 characters that describe the event.

ELD Detail Display

```

                                ELD DETAIL
SEL# 770   FLAG 00 DATE:12/02 TIME:06:53 TYPE:10 ID:B2
CA5 UNRESOLVED DATA /STATUS INTERRUPT (Event Description)      BAB2XXXX
X77:0000 X7F:0000 X0:00F3 X1:**** X2:**** X3:**** X4:**** X5:****
X6:**** X7:**** X8:**** XC:**** XF:****
CAB:***** ***** ***** ***** ***** *****
***** ***** ***** ***** ***** *****
CAC:**** TA:** CAVT:****

===>

F1:END F2:MENUE2 F3:ALARM F4:SUMMARY F5:LIST F7:PREVIOUS F8:NEXT

```

Figure 2-20. ELD Detail Screen (Description)

This screen contains necessary error data appropriate to the type/ID of BER (for field details, refer to the 'Error Logging' chapter of the *Hardware Maintenance Reference* manual).

Common Fields in Header Lines (First Two Lines)

In each detail screen, the two top lines and the bottom line always have the same format.

BAB2XXXX Reference code number produced by autoBER to be entered in the BRC function.

SEL# Three digits (from 1 to 999) identifying the BER# (BER sequence number in the BER file). You may display another BER by typing another SEL# in this area.

FLAG This field is not used.

DATE Four digits defining month and day.

TIME Four digits defining hour and minute. Same as in the **BER list** screen.

TYPE Two-digit hexadecimal number that categorizes the BER.

ID Two-digit hexadecimal number that specifies the origin of the BER (BER identifier).

LOST Three digits defining the number of BERs that have been lost after creation of this BER. This field is displayed only when BERs have been lost. This field applies only to CP BERs.

CP-ABEND Four hexadecimal digits defining the abend code (this field does not apply to MOSS BERs). The field is displayed only when there is an abend code.

EVENT DESCRIPTION: One line giving a description of the event (CA5 UNRESOLVED DATA /STATUS INTERRUPT in the previous screen).

BER Messages

BER/BRC Messages

BER FILE IS UPDATED

Cause: Self-explanatory.

Action: None.

NO ADDITIONAL INFORMATION AVAILABLE

Cause: You have requested additional information, by pressing PF6, when a non-TSS reference code interpretation FRU list screen was displayed.

Action: None.

THIS BER IS NO LONGER IN THE BER FILE

Cause: The BER is not in the BER file, and has been previously deleted.

Action: None.

Refer to the 3745 Advanced Operations Guide, SA33-0097, for explanation of the following messages which are common to customers and the CE:

- DISKETTE ERROR: REQUEST IGNORED
- FILE IN USE: RETRY LATER
- INVALID SEL#
- SEL# RANGE LIMITED TO n
- THE FILE IS EMPTY: NO BER DATA

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What Are 3745 Diagnostics

Table 3-1. Different Types of Diagnostics		
Name	Stored	Details
IML checkout	On disk	See the "IML/IPL" chapter of the <i>Hardware Maintenance Reference</i> manual (HMR), SY33-2066.
Online (CDG) Offline (ODG)	On disk	Next pages
Channel adapter OLTs OLT responder	In the host On disk	
ST370 and ST4300	In the host	System tests. Refer to host system documentation

The diagnostic programs are run to detect solid failures caused by the hardware in the 3745, and to isolate the field-replaceable unit (FRU) that caused the failure. They are also run after a repair is performed to check that the controller is working correctly.

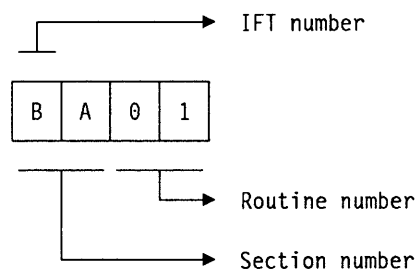
Diagnostics must be run during the installation of the machine, and before and after an EC or an MES is installed on the machine.

When you suspect a discrepancy between the machine configuration and the CDF, run the CDF function 'VERIFY'.

Diagnostic Structure and Identification

The diagnostics are arranged in groups, internal functional tests (IFTs), sections, and routines.

- Group** Set of IFTs that test a 3745 subsystem (the TSS group for example).
- IFT** Internal functional test that is often divided into sections that can be loaded and executed one at a time.
- Section** Set of routines that tests a particular adapter, or a component of a subsystem.
- Routine** The shortest executable test.



For specific IFT, section, or routine selection, see "Diagnostics Selection Overview" on page 3-5.

List and Duration of Diagnostics

IFT type	Time (mn)	Running Time by Section (mn)
CCU	38	A: 14 B: 6 D: 1 E: 5 F: 5 G: 4 H: 3
IOCB	3 - 5	I,J: 2 - 3 K: 1*n
CA	2	L: 2
TSS	2 - 10	P: 1 - 5 Q: 0.2 - 0.5 R: 0.5 - 1
TRSS	1 - 5	T: 1 - 5
HPTSS	2 - 10	V: 2 - 10
Total run 'all' = 50 minutes (minimum) to xxx minutes (maximum)		

Figure 3-1. Duration of the Diagnostics

- The values given in the second column are for one unit.
- For IOCB, n in 1*n is the number of TSS or HPTSS scanners; the value of n can be from 0 (configuration with TRSS only) to 32.

Notes:

1. The MOSS diagnostics are not part of the offline diagnostics. The MOSS is diagnosed while running MOSS IML (For details on MOSS IML, see the "IML/IPL" chapter of the *Hardware Maintenance Reference* manual.
2. For details on CCU, IOCB, CA, TSS, TRSS, and HPTSS diagnostics, see the corresponding chapter of the *3745 Diagnostic Descriptions* manual.

Error during Diagnostics

When a diagnostic program detects a failure, it displays a reference code, an error return code (ERC), a repair action code (RAC) and error messages on the console screen. In this case, a BER type 03, ID 03 is logged by the DCM, for history purpose.

All the diagnostic routines are explained in the *3745 Diagnostic Descriptions* manual, SY33-2076.

How to Run Offline Diagnostics

Before running offline diagnostics

Ask the customer to de-activate the 3745 and all connected resources. Also, before entering the following procedure, set all the channel adapters to 'disabled', and wait for the 'all CAs disabled' indicator ON at the control panel.

Diagnostics Monitoring

The diagnostic control monitor (DCM) automatically restricts the diagnostic testing to the elements defined in the configuration data file (CDF).

- Offline diagnostics

The **MOSS must be initialized with its microcode (IML)**. The offline diagnostics are selected by the function 'ODG' in the maintenance menu.

- Concurrent diagnostics

Some diagnostic groups (TSS, HPTSS, CA) run while the customer is using the rest of the machine (concurrent diagnostic mode, function CDG), with the exception of some routines.

Manual Routines

Manual Routines Are:

- Manually invoked routines, that is, **routines that do not run during diagnostics unless they are specifically requested**. These manually invoked routines are:
 - **AR04**, CCU storage protect key RAM for data retention.
 - **BF03**, Cache data array for data retention.
 - **LG02**, Initial selection and miscellaneous sense registers.
 - **LI03**, Host interface sequence I/O error alert.
 - **LI04**, Request In management.
 - **LJ03**, Tag In management.
 - **LK02**, ESC address compare.
 - **RC01**, TSS wrap test routine

For details on these routines, refer to the *3745 Diagnostic Descriptions* manual.

Note: Before running any Lx section, you must run the LA section.

- Manual intervention routines, that is, **routines which in some circumstances, require manual intervention**, such as removing a card or installing a wrap plug on 3745 components. These manual intervention routines are:
 - **AT05**, Network power OFF (NPO) test.
 - **LO01**, External wrap test for CA. (BUS and TAG terminators must be plugged on the 'OUT' connectors.) Refer to "How to Run the Channel Wrap Test" in the *Maintenance Information Procedures*.
 - **RC01**, TSS wrap test routine for Worldwide. Refer to "How to Run the 3745 Diagnostics" in the *Maintenance Information Procedures*.
 - **RD01, RD02, RD03**, TSS wrap test routines for Japan only. They are specific to the Nippon Telegraph Telephone (NTT) administration.
 - **RH59**, TSS Loop-3 wrap test with line wrap block. Refer to "How to Run the 3745 Diagnostics" in the *Maintenance Information Procedures*.
 - **WA01**, IOC bus scoping routine.

Diagnostics Selection Overview

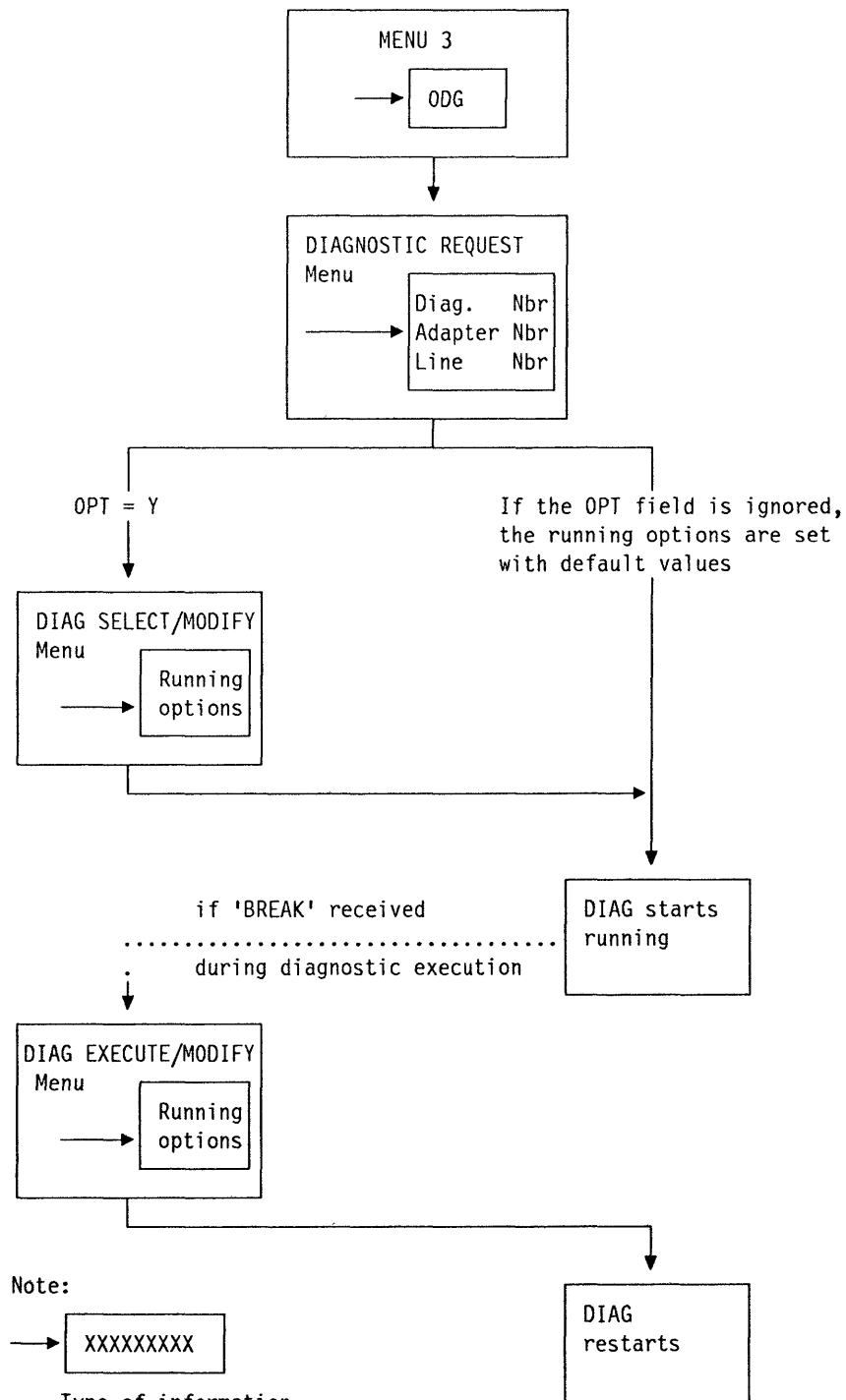


Figure 3-2. Diagnostics Selection Overview

Diagnostics Selection Procedure

Before running the diagnostics, refer to the "Diagnostic Requirements" section of the **start** chapter of the *Maintenance Information Procedures*.

1. You must be in **maintenance mode** to have access to Menu 3 (Refer to "Sign ON Procedure" on page 1-6 and Figure 1-2 on page 1-6).
2. In MENU 3, type **ODG** in **1**.
3. Press **SEND**.

Figure 3-3. Maintenance Menu (Menu 3) Screen

1. In **1**, enter the number (1 to 8) of the diagnostic group.
2. In **2**, enter the adapter number (the range is given in the column **ADP** of the screen).
3. In **3**, enter the line number (the range is given in the the **LINE** column of the screen).
4. In **4**, enter **Y** if you want to modify the options selection. Then you get screen **C**, otherwise you go to screen **D**.
5. Press **SEND**.

For details about this screen, refer to "Diagnostic Request Menu Screen Description" on page 3-13.

Figure 3-4. Diagnostic Request Menu Screen

1. On line **2**, type **R** (rerun request), **A** (abort routine), **C** (cancel request), **G** (start execution), or **M** (modify the options).

If you enter **M**, you must then enter one or more of the options listed on part **3** of the screen, with a space between each option, for example:

M DM W

2. Press **SEND**.

The details about the options are given in "Diagnostic Selection Modify Screen Description" on page 3-15.

Figure 3-5. Diagnostic Selection Modify Screen

A diagnostic may require you to enter parameters. If not applicable, this step is skipped. The request is displayed on message line **5**, for example:

ENTER LEVEL YOU WANT: 01, 02, 03, 04, 05

You **must** enter **Rxx** (where **xx** is the value of the parameters).

In this example, if you want to run the routine on CCU interrupt level 2, you must enter **R02** and press **SEND**.

The diagnostic starts running.

```

D
GROUP |ADP= |LINE |
1 ALL | | |
2 CCU | | |
3 ITCB | 1- 4 | |
4 CA | 1- 8 | |
5 TSS | 1-32 | 0-31 |
6 TRSS | 1- 2 | 1- 2 |
7 HTSS | 1- 8 | |
8 OLT | 1- 8 | |
OPT = Y IF MODIFY |
OPTION REQUIRED |
| ENTER REQUEST ACCORDING TO THE DIAG MENU
| DIAG==> ADP==> LINE==> OPT==>
==> 5
F1:END F2:MENU2 F3:ALARM

```

Interrupt a Diagnostic

Press the **BREAK** key while the diagnostic is running.

Note: The request is accepted only at the end of the current routine. You may have to wait for several minutes.

This screen is displayed when the break has been received by the control program.

The procedure is identical to the one in Figure 3-5 on page 3-6 (screen **C**).

```

E
R RERUN REQUEST |
A ABORT ROUTINE |
C CANCEL REQUEST |
G GO |
M MODIFY OPTIONS: |
S/LS/AL/ALS/B/DH |
NM/M |
C1/CNNN/C | REQUEST: TSS 1 TSS DIAG RUNNING
R1/RNNN | OPTIONS: S NW C1 R1 BR ROUTINE PA04 ADP 01
BR/NBR |
| BREAK RECEIVED
| ENTER REQUEST ACCORDING TO THE DIAG MENU
| ==> G
==>
F1:END F2:MENU2 F3:ALARM

```

Figure 3-6. Diagnostic Execution Modify Screen

Use of CCU (Menu 2) Functions with Diagnostics

When running CCU diagnostics or 'RUN ALL', you can use the CCU (menu 2) functions, but unpredictable results may occur.

When running TSS, HPTSS, TRSS, CA diagnostics, the CCU is not used as a processor.

Only the last 10K of CCU storage are used as 'scanner mailbox' for data exchange between the DCM in the MOSS and the CP-and-IFTs in the TSS. There is no need to use the CCU functions when running TSS diagnostics, except if you wish to display the 'scanner mailbox'. Setting an address compare, for example, has no meaning.

Restrictions of CCU Function Use with Diagnostics

The following CCU functions may lead to unpredictable results:

- CID (channel interface display)
- RCL (reset CCU/LSSD)
- IL3 (CCU level 3 interrupt)
- RIO (reset IOC).

To use address compare and branch trace, the CCU must first be initialized. The setting of these two functions remains active as long as the CCU is not re-initialized (indicated by 'RESET' on the MSA).

Note: For branch trace, local storage X'7D' **must** contain X'10000' (address of the branch trace buffer), and local storage X'7C' **must** contain X'6000' (length of branch trace buffer). Check the local storages for these values, and set them to the correct values when required.

D

-



- D



```

H
CUSTOMER ID:                3745                SERIAL NUMBER:

3745 MICROCODE (C) COPYRIGHT IBM CORP: 1987

MAXIMUM ADAPTER CONFIGURATION: CHANNEL ADAPTERS 5, 6, 7, 8
                                LINE  ADAPTERS 1, 3, 4, 9, 10, 11, 12
                                ----- mm/dd/yy hh:mm
FUNCTION ON SCREEN: BYPASS CCU CHECK      FUNCTION PENDING: OFFLINE DIAGS

====>    CCU WILL BYPASS CCU CHECK

F1:END  F2:MENU2  F3:ALARM

```

Chapter 3. Diagnostics **3-9**

Diagnostic Screen Areas Description

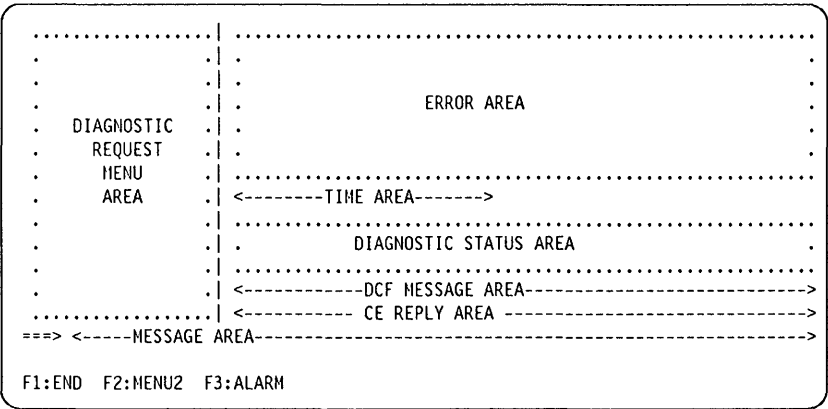


Figure 3-9. Diagnostic Screen Areas

Diagnostic Request Menu Area

This area gives the diagnostics selection (group, adp and line), or the commands/options selection made from Figure 3-4 on page 3-6 and Figure 3-5 on page 3-6.

For details, refer to "Diagnostic Request Menu Screen Description" on page 3-13 and "Diagnostic Selection Modify Screen Description" on page 3-15.

Error Area

The following screen is only an example, and cannot be used for trouble-shooting.

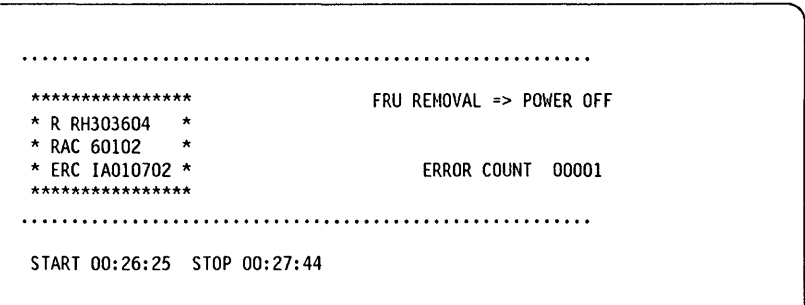


Figure 3-10. Diagnostic Screen Error Area

- R** Gives the reference code (here RH303604) used by automaint to give the FRU list to be replaced.
- RAC** Repair action code (here 60102).
- Gives the type of error detected by the diagnostics and the address of the suspected resource.

The RAC field displayed can be from three to nine digits long according to the diagnostic:

RAC (digits)	1 - 3	4 - 5	6 - 7	8 - 9
IOCB	RAC (FRU list)	IOC bus number	Field x of FRU list (CSPx)	Field y of FRU list (CSPy)
TSS HPTSS	RAC (FRU list)	TSS or HPTSS nbr	LIC number (0 to 31)	MUX number
CA CSS TRSS	RAC (FRU list)	CA Number	Not used	Not used

ERC

Error reference code (here IA010702).

Indicates whether you are working on the same fault or on a new one (after an FRU replacement for example). It enables you to loop on one specific error only, disregarding all others or new ones, if any. The first four digits show the IFT number, section number, and routine number. The last four digits indicate the error number.

Time Area

- Indicates the initial time.
- Indicates the time of every stop (for stop on error, request complete, or request canceled).

Diagnostic Status Area

```

START 00:26:25  STOP 00:27:44
.....
REQUEST: IA          xxxx DIAG yyyyyyy .
OPTIONS: S  NW C1  R1  NBR          ROUTINE IA01 ADP 01 .
.....

ENTER REQUEST ACCORDING TO THE DIAG MENU
==>
*** ERROR FOUND ***

F3:ALARM

```

Figure 3-11. Diagnostic Screen Status Area

REQUEST Last request entered (group, IFT, section or routine).

OPTIONS Last running options selected (see Figure 3-5 on page 3-6).

DIAG RUN STATUS xxxx *DIAG yyyyyyyy* and *ROUTINE nnnn ADP ll* of Figure 3-11, where:

Diagnostic Request Menu Screen Description

GROUP	ADP=	LINE	
1 ALL			
2 CCU			
3 IOCB	1- 4		
4 CA	1- 8		
5 TSS	1-32	0-31	
6 TRSS	1- 2	1- 2	
7 HTSS	1- 8		
8 OLT	1- 8		
OPT = Y IF MODIFY			DIAGNOSTICS INITIALIZATION
OPTION REQUIRED			
			ENTER REQUEST ACCORDING TO THE DIAG MENU
			DIAG==> ADP#==> LINE==> OPT==>
====>			
F1:END F2:MENU2 F3:ALARM			

- 1 ALL** Run the diagnostics without manual intervention.
- The offline diagnostics run in a mandatory sequence. The diagnostic status area is updated every time a new routine is entered. CCU, IOCB, CA, LA, and telecommunication lines are all tested in turn, if present in the 3745 CDF.
- The OLTs and the manual routines are not run when the option ALL is selected.
- 2 CCU** Run the CCU diagnostics.
- 3 IOCB** Run the IOCB diagnostics.
- 4 CA** Run the CA diagnostics. You may select a channel adapter in the given range. If you do not select a channel adapter, they are all tested in turn, up to the last one defined in the 3745 CDF.
- 5 TSS**
- ADP** Scanner number.
LINE Line number on a scanner.
- If **ADP** and **LINE** fields are left blank, all the lines on every scanner are tested if defined in the 3745 CDF.
 - If you enter an **ADP** number without a **LINE** number, all the lines attached to the selected scanner are tested.
 - If you enter **both** an **ADP** and a **LINE** value, only that line, on that scanner is tested.
- 6 TRSS** Run the TRSS diagnostics.
- 7 HTSS** Run the HPTSS diagnostics.
- 8 OLT** Loads the channel adapter responder program into CCU storage, and responds to the requests of the host OLTs. You **must** select a channel adapter defined in the 3745 CDF.

Selection Line Details

DIAG == > The diagnostic group (1 to 8), IFT, section, or routine that you want to run (refer to the *Diagnostic Descriptions* SY33-2076, for details).

You may run a complete diagnostic group, an IFT, a section of an IFT or a routine of a section of an IFT, by entering:

- 1 through 8 to select all the diagnostics or a whole diagnostic group (see "Diagnostic Request Menu Screen Description" on page 3-13).
- The letter corresponding to a specific IFT (for example P for the FES IFT P).
- The value corresponding to a specific section of an IFT (for example PA for section A of FES IFT P).
- The value corresponding to a specific routine of a section of an IFT (for example PA10 for routine 10 of section A of FES IFT P).

If you select an individual routine, you must previously run all preceding routines in sequence.

It is recommended to run the complete diagnostic group, otherwise the results can be unpredictable.

ADP# == > The adapter number:

- Channel number (5 to 8) for CA and OLT
- TSS number (3, 4, or 9 to 12)
- HPTSS number (3, 4)
- TRSS number (1).

LINE == > The number of a specific line (0 to 31) attached to a TSS or a specific line (1 to 2) attached to a TRSS. You **must** then specify the corresponding adapter number in the ADP# field.

OPT == > Enter **Y** to display the diagnostic selection modify screen (see Figure 3-5 on page 3-6) from which you may modify the options. The default value is **N** (no modification).

The default running options are:

S Stop on first error
NW No wait before the execution of each routine
C1 Cycle = 1
R1 Repeat each routine once
BR BER recording

"Diagnostic Selection Modify Screen Description" on page 3-15 lists all possible options, and how they can be modified.

"List and Duration of Diagnostics" on page 3-3 gives the list of all IFTs together with their duration estimates.

Diagnostic Selection Modify Screen Description

R RERUN REQUEST	
A ABORT ROUTINE	
C CANCEL REQUEST	
G GO	
M MODIFY OPTIONS:	
S/LS/AL/ALS/B/DM	
NW/W	START 00:26:25
C1/CNNN/C	REQUEST: ALL
R1/RNNN	DIAGNOSTICS INITIALIZATION
BR/NBR	OPTIONS: S NW C1 R1 BR
	ENTER REQUEST ACCORDING TO THE DIAG MENU
	==> M DM W
====>	
F1:END F2:MENU2 F3:ALARM	

Figure 3-13. Diagnostic Selection Modify Screen

The menu to the left of the screen lists the following set of commands:

R RERUN: The current request will run again.

A ABORT routine

C CANCEL: The current request is canceled, allowing a new request. The current set of options is reset.

G GO

- Selection modify menu:

After your request is entered on the screen, GO starts the execution.

- Execution modify menu:

After your request is entered on the screen, GO resumes the execution.

M MODIFY OPTIONS

All the available options are listed, separated by a slash (/). On a given line, the options are mutually exclusive. You may select several options, one per line of the menu. For example:

M C5 DM

will cause your request to cycle 5 times, and display multiple errors.

However, if you select more than one option for the same line, only the last one is accepted.

If you do not select any option, the following defaults are set:

S NW C1 R1 BR

See "Diagnostic Selection Modify Screen Description" for explanation of all the options.

To leave the modify option (M), enter any command (A, C, G, or R).

Diagnostic Options

Stop Option S/LS/AL/ALS/B/DM

S STOP ON FIRST ERROR

This is the default option. The diagnostic request is executed. On detection of the first error, testing stops and the error information is displayed.

If you type G (go), the execution resumes from the error, until a second error is detected. The error information is displayed and the request stops again.

LS LOOP ON FIRST ERROR WITH STOP

The diagnostic request is executed until the first error is detected. The DCF then displays this error and stops. Entering G (go) causes the DCF to loop on the error, and to stop and display when the same error is detected again.

The loop is maintained on this error display whether the error which initiated the loop remains. If a new error appears inside the loop, it is displayed as **N ERC** (new ERC). Nevertheless, the loop is maintained on the first error detected.

At each display stop, you may enter one of the commands of the menu (A, G, C, R, or M).

AL AUTOMATIC LOOP ON ERROR

The diagnostic request is executed until the first error is detected. The DCF displays this error and starts looping on the error automatically. The loop is maintained on this error whether the error which initiated the loop remains. If a new error appears inside the loop, it is displayed as **N ERC** (new ERC) and **N RAC** (new RAC), but even then, the loop is maintained on the first error detected.

In order to regain control once the loop has been initiated, you must press the **BREAK** (ATTN) key. (refer to the procedure in Figure 3-6 on page 3-7.)

ALS AUTOMATIC LOOP ON ERROR WITH NEW ERROR STOP

The diagnostic request is executed until the first error is detected. The DCF displays this error and begins to loop on the error automatically. The loop is maintained on this error display, whether the error that initiated the loop remains. If a new error appears inside the loop, it is displayed as **N ERC** (new ERC) and **N RAC** (new RAC); the DCF stops on this display.

You may now enter any command of the 'execution modify' menu (refer to Figure 3-5 on page 3-6).

If no **N ERC** or **N RAC** occurs, the only way to regain control is to press the **BREAK** (ATTN) key. (refer to the procedure in Figure 3-6 on page 3-7)

B BYPASS ERROR STOPS

The diagnostic request is executed until an error is detected. On detection of the error, the DCF displays the error information; testing then

resumes automatically until another error is detected or until the request is complete. The only way to regain control before the end of the request is to press the **BREAK** (ATTN) key. (refer to the procedure in Figure 3-6 on page 3-7.)

DM DISPLAY MULTIPLE ERRORS

The diagnostic request is executed until an error is detected. On detection of the error, the DCF displays the error information, aborts the routine, and automatically starts the next routine. Thus, only the first error detected in each routine is displayed. Execution then continues automatically until the request is complete. You have no way to regain control before the end of the request other than to press the **BREAK** (ATTN) key. (refer to the procedure in Figure 3-6 on page 3-7)

Wait Option NW/W

NW NO WAIT BEFORE EXECUTION OF EACH ROUTINE

This is the default option. It cancels the W option. There is no stop before routine execution.

W WAIT BEFORE EXECUTION OF EACH ROUTINE

The execution of the diagnostic request stops before each routine.

The message ROUTINE READY TO START appears, the request is stopped, and you may then enter one of the commands of the menu (A, G, C, R, or M). Entering G (for go) starts the next routine in sequence.

Cycle Option C1/CNNN/C

C CYCLE ON REQUEST

The DCM executes the entire request, and then automatically restarts it.

It continues indefinitely until you press the **BREAK** (ATTN) key and change the option to C1.

C1 CYCLE = 1

This is the default option. The request is executed once, and ends with the REQUEST COMPLETE message.

Cnnn CYCLE nnn TIMES

The request is executed nnn times (nnn from 1 to 255), then the request ends and the message REQUEST COMPLETE is displayed.

Repeat Option R1/Rnnn

Rnnn REPEAT EACH ROUTINE nnn TIMES

Each routine is executed nnn times (nnn from 1 to 255) before the next routine is executed.

R1 REPEAT EACH ROUTINE ONCE:

This is the default option. Each routine is executed once.

Diagnostic Options

If you have selected Rnnn and want to return to the default option, modify Rnnn to R1.

BER Recording Option

- BR** This is the default value. The DCM will record a BER for each report of error.
- NBR** Prevent the DCM from recording any BER.

Errors during Diagnostics

There are two types of error:

1. Diag error reporting (see Figure 3-10 on page 3-10), when the diagnostic detects an error in the element being tested.
2. Diag/DCF unexpected error (see Figure 3-15 on page 3-21 and Figure 3-16 on page 3-21), when an error occurs anywhere in a part which is not under test.

Those screens are examples, and should not be used for troubleshooting.

Diag Error Reporting Display

```
.....
*****
* R RH303604 *          FRU REMOVAL => POWER OFF
* RAC 60102 *
* ERC IA010702 *          ERROR COUNT 00001
*****
.....

START 00:26:25  STOP 00:27:44
```

Figure 3-14. Diagnostic Error Screen

This screen is displayed after an error has been found by the diagnostic, if **stop on error** was selected. (see "Diagnostic Selection Modify Screen Description" on page 3-15.) This is only an example, because there can be many different screens, according to the type of error. In the next paragraph, you will find an explanation of every field which may appear on the various error screens.

Note: Fields having characters and dots (for example, LOOP COUNT...) are displayed only when necessary.

Field Description for Diagnostic Errors

ERC Error reference code

RAC Repair action code

Note: You may find: N ERC and N RAC if you loop on the error.

EXP DATA: Data expected by the diagnostic

RCV DATA: Data actually received

ERR BIT: 0004 0000

MASK: 0FFF 0000

These four lines of information work together: any discrepancy between the expected data and the received data is taken into account if the corresponding mask bit is ON.

The ERR BIT can also be displayed alone. In this case, the EXP DATA, RCV DATA and MASK fields are not displayed.

ADDIT INFO: Means additional information. The meaning varies with the routine that displays the additional information.

LOOP COUNT: Is incremented by 1 prior to the execution of a routine when looping on an error. The displayed value is incremented every time the loop is entered, whether the error occurs. The loop count is reset at the beginning of a request, at the start of a routine, or at any loop option change.

LOOP ERR CNT: Means loop error count. The displayed value is incremented only when the referenced error (first error) occurs in the loop. The loop error count is reset at the beginning of a request, at the start of a routine, or at any loop option change. Comparing LOOP COUNT and LOOP ERR CNT values helps determine the number of intermittent error occurrences.

ERROR COUNT: Indicates the count of all errors encountered while a request is running. A new request resets the error count. The displayed value is updated while the diagnostic is running.

CYCLE COUNT: Indicates the current count of the Cnnn option you specified. The displayed value is updated while the diagnostic is running.

REPEAT COUNT: Indicates the current count of the Rnnn option you specified. Modifying the option or starting a new request resets the repeat count.

Diagnostic Unexpected Error Display

This screen is displayed after an unexpected error has been found by the diagnostic. This is a **major** error; the diagnostic run cannot continue.

Note: NEW REQUEST is proposed, with the following options:

- END (F1)
- MENU 2 (F2)
- ALARM (F3)

Figure 3-15. Diagnostic Unexpected Error Display Screen

This screen is displayed after an unexpected error has been found by the DCF. This is a **major** error; the diagnostic run cannot continue. (The following screen is only an example, and should not be used for troubleshooting).

Figure 3-16. DCF Unexpected Error Display Screen

In catastrophic cases, such as erroneous logical status, or return code not null after an I/O operation, the diagnostic control facility (DCF) displays a panel containing a special repair action code (RAC) referring to an **unexpected error**.

DCM	Diagnostic control monitor
CP MOSS	Command processor - MOSS
CP CCU	Command processor - CCU
CP CSP	Command processor - CSP

Chapter 3. Diagnostics **3-21**

Table 3-2 (Page 1 of 2). DCF Unexpected RACs	
RAC Number	Meaning
500-50F	Common RACs
501	Received event rejected by DCM
502	Received event rejected by CP
503	Routine not found by CP
504	SST access rejected by CP
505	Routine signature list end not known by DCF
507	CP CSP time out (no CP CSP answer to DCM)
508	IOCBUS time out (no TSS answer to DCM)
509	Unexpected scanner received event detected
510-51F	RAC related to disk operation
510	Invalid loading request
511	DCF load module
512	CDF data set
514	IFT load module in MOSS
515	IFT data set
516	RLOAD IFT load module
517	RLOAD IFT data set
518	CP MOSS load module
519	CP data set (CCU or CSP)
520-52F	RAC related to data transfer (MOSS/CCU)
521	IFT data set (bad transfer between MOSS and CCU)
522	RLOAD IFT data set
523	CP data set
524	DCF CDS entry
525	DCF SST table
526	DCF reply to RWTOR
527	TSS aids data
52A	Any CCU read data
530-54F	RAC related to AMAC operations
530	Disable MOSS from any interrupts but TIMER
531	Write LSSD
532	High-speed buffer data array mode
533	High-speed buffer normal mode
534	Disable CCUI
535	Enable PU interrupts
536	Disable interrupt levels 1 and 4
537	Enable interrupt levels 1 and 4
538	Local store init
539	SCTL normal mode
53A	Storage init
53B	Enable cycle steal
53C	Stop CCU
53D	CCU mailbox IN
53E	Disable cycle steal
53F	Set MOSS operative
540	Enable scanner interrupts
541	Reset scanner
542	Run scanner checkouts
543	Get scanner checkouts
544	Set MOSS area address
545	Storage key init
546	ROS mailbox IN and scanner IPL
547	Scanner GET command completion
548	Scanner initialization
549	CHGMACAC request
54A	CHGMCAD request
54B	CHGPOWER request
54C	Disable from PU and CSP interrupts
54D	High-speed buffer disable and bypass
54E	ECC and SCTL disable
550-55F	Unused
560-56F	RAC related to scanner operations

Table 3-2 (Page 2 of 2). DCF Unexpected RACs

RAC Number	Meaning
561	Scanner ROS checkout KO
562	ROS IPL failing on CP CSP loading)
563	Get command completion KO on scanner IPL
564	Scanner Power ON/Reset KO

LIC 5/6 Wrap Test Data Display

Use the function in this page in conjunction with the wrap test (WTT) chapter of the *Advanced Operations Guide*, to display additional information about the LIC being tested.

1. The control program must be loaded, and MOSS Online.
2. You must log on with the **maintenance password**.
3. In **1** of 'MENU 1', enter **WTT** and press **SEND**.

```

MENU 1

CONFIG DATA FILE.: CDF      IML ONE SCANNER...: IMS      PASSWORDS.....: PSW
CONTROL PGM PROC.: CPP      IPL CCU.....: IPL        PORT SWAP FILE...: PSF
DISK FUNCTIONS...: DIF      LD LINK TEST REQ.: LTQ      SCANNER I/F TRACE: SIT
DISK IPL INFO....: DII      LD LINK TEST RESP.: LTS      STAND ALONE TEST.: SAT
EVENT LOG DISPLAY: ELD      LINE INTERF DSPLY: LID      LINK IPL PORTS...: LKP
INTERN. DATA FILE: IDF      MACHINE LVL TABLE: MLT      TIME SERVICES....: TIM
IML MOSS.....: IML         MICROCODE FIXES...: MCF      TRSS INTERF DSPLY: TID
                                           WRAP TEST.....: WTT

===== 1 =====
ENTER OFF TO LOG OFF

F1:END  F2:MENU2  F3:ALARM          F5:MENU 3          F6:RULES
  
```

Figure 3-17. Menu 1 Screen

1. Select option 2 (wrap test at any level).
2. Press **SEND**. The next screen is displayed.

```

WRAP TEST INITIAL SELECTION

- SELECT ONE OPTION (1, 2) ==> 1

1 = AUTOMATIC WRAP TEST ON LIC UNIT
2 = WRAP TEST AT ANY LEVEL

THEN PRESS SEND
==>

F1:END  F2:MENU2  F3:ALARM
  
```

Figure 3-18. Wrap Test Initial Selection Screen

1. Select the line address in **1**.
2. Select the wrap type 3 option (displayed in service mode only), in **2**.
3. Press **SEND**.

The wrap level is forced to 'local modem', and the wrap starts automatically with a default pattern.

4. The 'WRAP TEST START' screen is displayed. Like any other wrap, this test may be stopped by pressing the **BREAK** key.

5. On wrap test completion, the next screen is displayed:

```

WRAP TEST INITIALIZATION

- ENTER LINE ADDRESS (TSS: 0-895  HPTSS: 1024-1039) ==> 1

- ENTER WRAP TYPE ==> 2
1 = DATA
2 = CONTROL LEADS      3 = DISPLAY LIC 5-6 REGISTERS

- ENTER WRAP LEVEL (1 TO 6) ==>
1 = LOCAL MODEM          4 = TAILGATE
2 = NTT CABLE (TSS ONLY)  5 = REMOTE MODEM (HPTSS & DATA WRAP ONLY)
3 = LIC (TSS & DATA WRAP ONLY)  6 = INTERNAL (HPTSS ONLY)
LINES TO BE TESTED MUST BE DISABLED/DEACTIVATED

==>

F1:END  F2:MENU2  F3:ALARM  F4:INITIALIZATION
  
```

Figure 3-19. Wrap Test Initialization Screen

Note: The details about steps 1 and 2 can be found in the "Wrap Test (WTT)" chapter of the AOG.

```

LINE ADDRESS: xxx          DISPLAY LIC 5-6 DATA

EXPD: FD 18 2E 50 FF 00 01 00 1A FF 01 02 03 04 05 06 07 08 09
RCVD: XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX

EXPD: 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
RCVD: XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX

EXPD: 29 30 31 32 33 34 35 36 37
RCVD: XX XX XX XX XX XX XX XX

--->

F1:END  F2:MENU2  F3:ALARM  F4:INITIALIZATION

```

Figure 3-20. Display LIC 5-6 Data

Diagnostic Messages

Diagnostic Messages

Note: This section **only** gives the messages associated to the **diagnostic requests or the diagnostic selection**.

For specific information on diagnostic routines, refer to the *Diagnostic Descriptions*.

BREAK RECEIVED

Cause: The BREAK key has been pressed.

Action: None.

CHECK RPO PROCEDURE, PRESS SEND TO CONTINUE, OR C TO CANCEL

Cause: Manual routine AT05 has been called.

Action: BE CAREFUL: If you press SEND, the machine will be powered OFF.

RUN IPL PHASE 1 ON ASSOCIATED CCU, THEN TRY AGAIN

Cause: You tried to run the concurrent diagnostics on an idle CCU.

Action: IPL the CCU, then cancel the IPL when it reaches phase 1.

IFT ID NOT ALPHABETIC

Cause: The first letter of your request is not alphabetic.

Action: Enter the correct IFT Id.

INVALID REPLY

Cause: A reply other than A, C, R, G, or M has been entered, or the M option is invalid, when an error is found by diagnostics.

Action: Enter a valid reply.

INVALID REQUEST

Cause: The requested diagnostic cannot run in this environment, or does not exist.

Action: Enter a valid request.

INV. REQ. PARM.

Cause: A wrong parameter (ADP, LINE) has been entered.

Action: Enter a valid parameter.

INV. REQ. PARM. 2 xx - NOT INSTALLED OR PWR OFF

Cause: The selected adapter is not installed.

Action: Select a valid adapter.

INV. OPT. PARM.

Cause: A wrong option has been entered.

Action: Enter a valid option.

NOT IN ALLOWED RANGE

Cause: Parameter not in range.

Action: Enter a valid parameter.

NOT INSTALLED

Cause: Selected adapter or line not installed.

Action: Enter a valid adapter or line.

RFC... CANNOT BE REPORTED... CHJGDOVG LOADING FAILED

Cause: Program loading not possible (disk/DFA error).

Action: refer to RAC code.

ROUTINE ID NOT HEXA VALUE

Cause: Requested routine not in hexadecimal value.

Action: Enter with correct hexadecimal value.

ROUTINE READY TO START

Cause: DCF has initialized and loaded diagnostics.

Action: Select an action.

SECTION ID NOT ALPHABETIC

Cause: Second letter of the request is not alphabetic.

Action: Enter a correct section id.

UNEXPECTED ERROR

Cause: Error detected by DCF/diagnostics.

Action: Refer to the reference code.

UNKNOWN GROUP

Cause: Group not in range.

Action: Enter a correct value (1 to 8).

UNKNOWN IFT ID

Cause: The IFT entered does not exist.

Action: Refer to the *Diagnostic Descriptions* manual.

UNKNOWN SECTION ID

Cause: The section entered does not exist.

Action: Refer to *Diagnostic Descriptions* manual.

***** ERROR FOUND *****

Cause: An error has been detected by the diagnostics.

Action: Refer to the reference code.

***** REQUEST CANCELLED *****

Cause: The running diagnostic has been cancelled.

Action: None.

***** REQUEST COMPLETE *****

Cause: The request has been terminated.

Action: None.

***** RERUN REQUEST ACCEPTED *****

Cause: The last request will be run again.

Action: None.

Diagnostic Messages

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Your Road Map in the TSS Functions

You are Working On	You Want To									
	Activate	Alter	Connect	Deactivate	Disconnect	Display	Dump	IML	Release	Select
Checkpoint trace	4-19	--	--	--	--	--	--	--	--	--
HPTSS										
Indirect XREGs		4-21				4-20				
Picocode		4-23				4-22				
RAM		4-22				4-21				
Scanner	--	--	4-8	--	4-8	--	4-6	4-7	4-5	4-5
Scanner address compare	4-16	--	--	4-17	--	--	--	--	--	--
Scanner:										
Blocks		4-11				4-11				
Control storage		4-10				4-10				
LSRs		4-13				4-13				
XREGs		4-15				4-15				

Important Information

Possible Disruption

Using of the TSS functions may disrupt communications on the lines attached to the selected scanner.

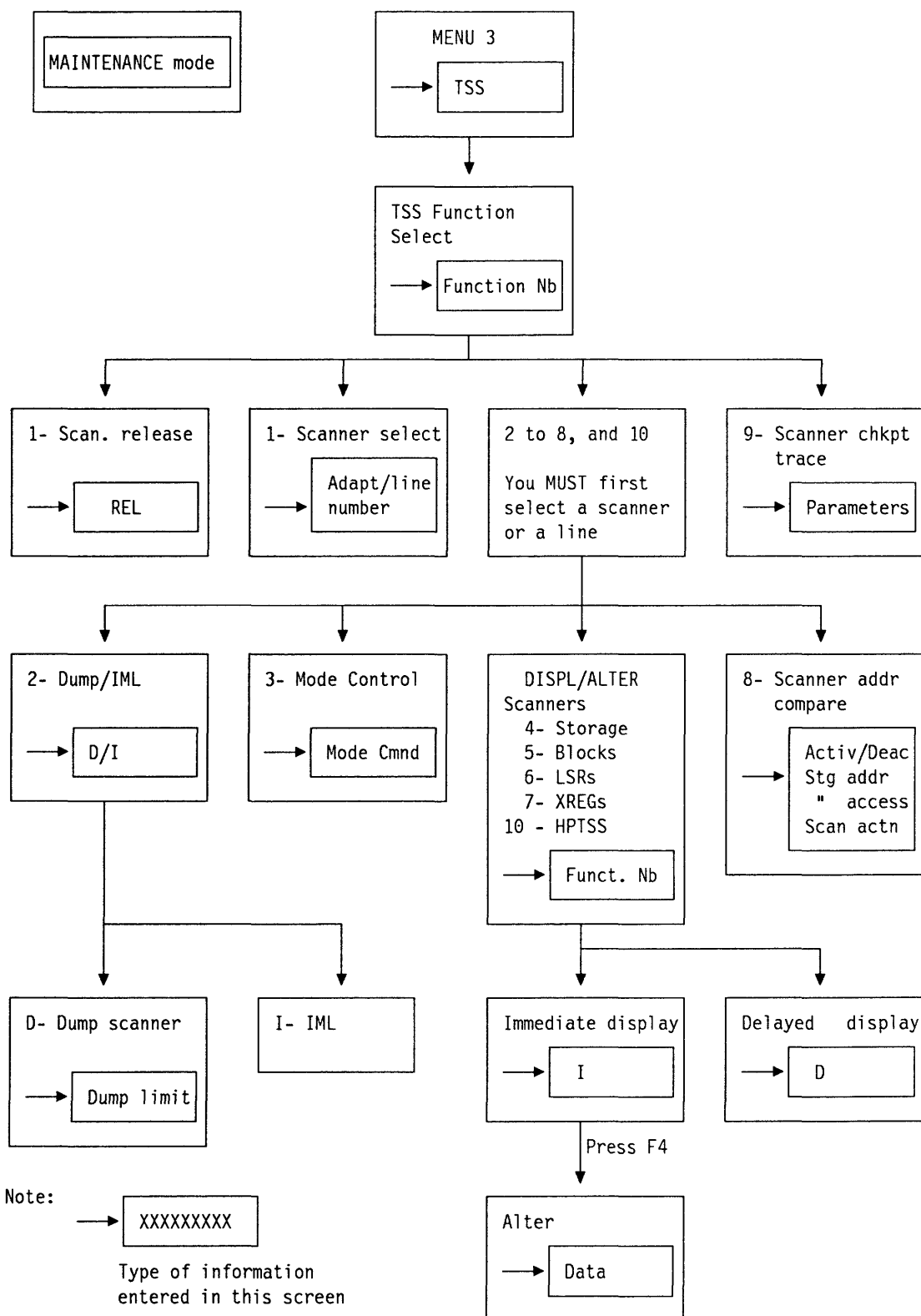
Before using a disruptive function, ask the customer to disable the affected lines.

The following table identifies the potential risks:

Function	Disruptive
2 - Dump a scanner or IML a scanner	Always
3 - Stop and reset scanner mode control	Always
4 - Display/alter scanner control store	Possibly
5 - Display/alter control blocks	Possibly
6 - Display/alter local store registers	Possibly
7 - Display/alter external registers	Possibly
8 - Scanner address compare	Possibly
9 - Scanner microcode checkpoint trace	Never
10 - HPTSS: alter indirect XREG, display/alter RAM or picocode	Always

Note: The first eight lines of the MOSS screen (general information and MSA) are not shown on the screens described in this chapter. For details, refer to "MSA Field Definition (Scanner Information)" on page 1-14.

TSS Functions Overview



TSS Functions Selection

Before you call any TSS function you must select a scanner, and when you leave the TSS function, release that scanner. The scanner mode (connected or disconnected) is displayed on line 4 of the MSA (details in "MSA Field Definition (Scanner Information)" on page 1-14).

1. In MENU 3, type **TSS** in **1**.
2. Press **SEND**. Screen **B** is displayed.

A

MENU 3

MISUSE OF MAINTENANCE FUNCTIONS MAY LEAD TO UNPREDICTABLE RESULTS

BER REFCODES.....: BRC MODULE DISPLAY...: MOD TRSS SERVICES.....: TRS
CA SERVICES.....: CAS MOSS STORE DSPLY.: MSD TSS SERVICES.....: TSS
DUMP DISPLAY/DEL.: DDD OFFLINE DTAGS.....: ODG POWER SERVICES....: POS

====> **1** ENTER OFF TO LOG OFF

F1:END F2:MENU2 F3:ALARM F4:MENU1 F6:RULES

Figure 4-1. Menu 3 (Maintenance) Screen

1. In **1**, enter the number of the selected function.
2. Press **SEND**.
3. The selected function is highlighted.

The procedures are described in the following pages:

Select/Release	Page 4-5
Dump/IML	Page 4-6
Mode control	Page 4-8
Display/Alter storage	Page 4-10
Dply/Alt blocks	Page 4-11
Dply/Alt LSR	Page 4-13
Dply/Alt XREG	Page 4-15
Address compare	Page 4-16
Chk-point trace	Page 4-19
Dply/Alt HPTSS	Page 4-20

B

1 SELECT/RELEASE |
2 DUMP/IML |
3 MODE CONTROL |
4 DPLY/ALT STORE |
5 DPLY/ALT BLOCKS |
6 DPLY/ALT LSR |
7 DPLY/ALT XREG |
8 ADDRESS COMPARE |
9 CHK-POINT TRACE |
10 DPLY/ALT HPTSS |

====> **1**

F1:END F2:MENU1 F3:ALARM

Figure 4-2. TSS Function Selection Screen

Select/Release a Scanner

Select Scanner

1. You must be in the TSS function (see 4-4).
2. Select function 1 (details page 4-4).
3. In **1**, type the entry according to the instructions on the screen.
4. Press **SEND**.

A line address selection produces the message:

LINE ADDRESS xxx IS IN SELECTED SCANNER xx.

A scanner selection produces the message:

SCANNER xx SELECTED: LOOK AT MSA FOR SCANNER MODE
(see "MSA Field Definition (Scanner Information)"
on page 1-14 for details).

Note: When you have selected a scanner (option 1), you **must not** leave the TSS functions before using another option, because leaving the TSS functions releases the scanner.

```

C
1 SELECT/RELEASE |
2 DUMP/IML      | - TO SELECT A SCANNER, ENTER:
3 MODE CONTROL  |
4 DPLY/ALT STORE | THE LINE ADAPTER NUMBER PRECEDED BY S (S1 TO S32)
5 DPLY/ALT BLOCKS| OR
6 DPLY/ALT LSR  | THE LINE ADDRESS
7 DPLY/ALT XREG | (TSS: 0 TO 895, HPTSS: 1024 TO 1039) ==> 1
8 ADDRESS COMPARE| - TO RELEASE SELECTED SCANNER, ENTER REL
9 CHK-POINT TRACE|
10 DPLY/ALT HPTSS|

```

==>

F1:END F2:MENU1 F3:ALARM

Figure 4-3. Scanner Selection/Release Screen

Release Scanner

1. You must be in the TSS function (see 4-4).
2. Select function 1 (details page 4-4).
3. In **1**, type **REL**.
4. Press **SEND**.

This message is displayed:

SCANNER RELEASED BUT CURRENT MODE KEPT.

The MSA indicates: 'NO SCANNER SELECTED'.

```

D
1 SELECT/RELEASE |
2 DUMP/IML      | - TO SELECT A SCANNER, ENTER:
3 MODE CONTROL  |
4 DPLY/ALT STORE | THE LINE ADAPTER NUMBER PRECEDED BY S (S1 TO S32)
5 DPLY/ALT BLOCKS| OR
6 DPLY/ALT LSR  | THE LINE ADDRESS
7 DPLY/ALT XREG | (TSS: 0 TO 895, HPTSS: 1024 TO 1039) ==> 1
8 ADDRESS COMPARE| - TO RELEASE SELECTED SCANNER, ENTER REL
9 CHK-POINT TRACE|
10 DPLY/ALT HPTSS|

```

==>

F1:END F2:MENU1 F3:ALARM

Figure 4-4. Scanner Selection/Release Screen

Dump/IML a Scanner

Possible Disruption

IML and dump functions are always disruptive to the selected scanner.

When the function is executed, the scanner is automatically disconnected (if not already so).

Dump a Scanner

1. You must be in the TSS function (see 4-4).
2. The scanner must be selected (details in "Select Scanner" on page 4-5).
3. In **1**, enter **2** (dump/IML).
4. In **2**, type **D**.
5. Press **SEND**.
6. Screen **F** is displayed.

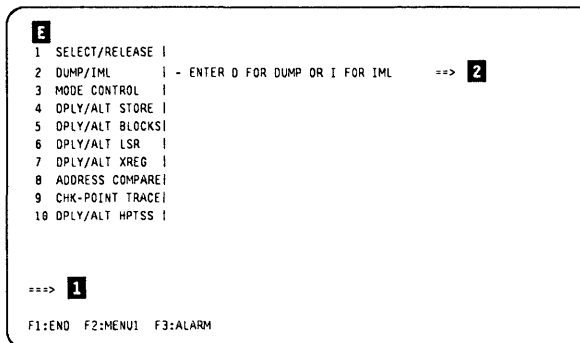


Figure 4-5. Dump or IML Selection Screen

1. In **1**, type the hexadecimal starting address of the dump (default value X'0000').
 2. In **2**, type the hexadecimal ending address of the dump (default value X'FFFF').
- The **ROS** and **RAM** dump limits are displayed.
3. Press **SEND**.

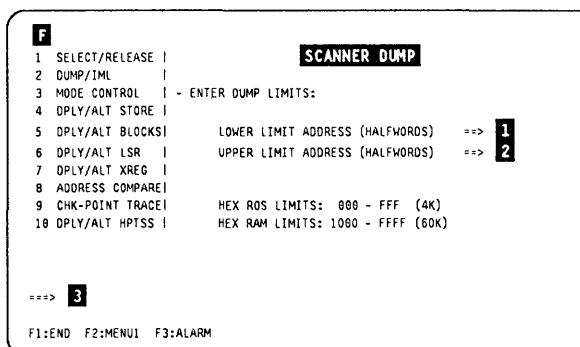


Figure 4-6. Scanner Dump Limits Screen

If the CHHDMPA file on the MOSS disk is empty, the scanner dump is immediately taken and filed in the CHHDMPA, and these messages are displayed in **3** of screen **F**

SCANNER DUMP STARTED

then

DUMP FILED IN CHHDMPA. READY TO BE TRANSFERRED

Clear a Dump File

If the CHHDMPA dump file already contains a previous dump, this message is displayed:

CHHDMPA SCANNER DUMP FILE IS NOT EMPTY

The screen instructions are self-explanatory

If you clear the dump file, the new dump is immediately taken. If you keep the dump, you may either display it at the operator console, transfer it to the host, or transfer it to a support function, using a remote support facility.

```

G
1 SELECT/RELEASE |
2 DUMP/IML      | - TO CLEAR DUMP FILE, ENTER C, OTHERWISE PRESS SEND ==>
3 MODE CONTROL  |
4 DPLY/ALT STORE|
5 DPLY/ALT BLOCKS|
6 DPLY/ALT LSR  |
7 DPLY/ALT XREG |
8 ADDRESS COMPARE|
9 CHK-POINT TRACE|
10 DPLY/ALT HPTSS|

===> CHHDMPA SCANNER DUMP FILE IS NOT EMPTY
F1:END F2:MENU1 F3:ALARM

```

Figure 4-7. Clear Scanner Dump File Screen

IML a Scanner

1. The scanner must be selected (details in "Select Scanner" on page 4-5).
2. In **1**, enter **2** (dump/IML).
3. In **2**, type **I**.
4. Press **SEND**. This message is displayed:

IML FOR SCANNER xx IN PROGRESS

When the IML is complete, this message is displayed:

IML FOR SCANNER XX COMPLETE - SCANNER CAN BE CONNECTED

You may now connect the scanner to the control program (details in "Scanner Mode Control" on page 4-8).

If an error prevents the IML of a scanner, a message is displayed (details in "TSS Messages" on page 4-24).

```

H
1 SELECT/RELEASE |
2 DUMP/IML      | - ENTER D FOR DUMP OR I FOR IML ==> 2
3 MODE CONTROL  |
4 DPLY/ALT STORE|
5 DPLY/ALT BLOCKS|
6 DPLY/ALT LSR  |
7 DPLY/ALT XREG |
8 ADDRESS COMPARE|
9 CHK-POINT TRACE|
10 DPLY/ALT HPTSS|

===> 1
F1:END F2:MENU1 F3:ALARM

```

Figure 4-8. Dump or IML Selection Screen

Scanner Mode Control

Possible Disruption

The **DISCONNECT**, **STOP** and **RESET** commands are always disruptive to the selected scanner.

1. You must be in the TSS function (see 4-4).
2. The scanner must be selected (details in "Select Scanner" on page 4-5).
3. In **1**, select function 3 (details page 4-4).
4. In **2**, type the command, according to the menu.
5. Press **SEND**.

The details about the commands are given in Table 4-1 on page 4-9.

```

1
1 SELECT/RELEASE |
2 DUMP/IML |
3 MODE CONTROL | -SELECT SCANNER CONTROL COMMAND(SP, ST, CT, DS, RT)==> 2
4 DPLY/ALT STORE |
5 DPLY/ALT BLOCKS| SP = STOP
6 DPLY/ALT LSR | ST = START
7 DPLY/ALT XREG | CT = CONNECT
8 ADDRESS COMPARE| DS = DELAYED DISCONNECT
9 CHK-POINT TRACE| RT = RESET
10 DPLY/ALT HPTSS |

====> 1
F1:END F2:MENUI F3:ALARM

```

Figure 4-9. Scanner Mode Function Selection Screen

When using the DS command, the NCP may answer:

'Resources to be disconnected still owned by SSCPs'

1. In **1**, type F or T, according to the instructions on the screen.
2. Press **SEND**.

F a stop command is used to disconnect.
T the disconnect function is cancelled.

```

3
1 SELECT/RELEASE | WARNING FOR LINK ADDRESS = xxxx,
2 DUMP/IML | SCANNER CAN NOT BE DISCONNECTED DUE TO THE FOLLOWING
3 MODE CONTROL | LINES STILL OWNED BY SSCPS:
4 DPLY/ALT STORE |
5 DPLY/ALT BLOCKS|
6 DPLY/ALT LSR |
7 DPLY/ALT XREG |
8 ADDRESS COMPARE|
9 CHK-POINT TRACE|
10 DPLY/ALT HPTSS |

- FORCE DISCONNECT OR TERMINATE (F=FORCE, T=TERMINATE) ==> 1

====>
F1:END F2:MENUI F3:ALARM

```

Figure 4-10. Scanner Delayed Disconnect Screen 1

Where, for each SSCP:

- xxxxxxxx = name of the SSCP given by the user.
- aaaaaaaaaa = subarea address or zeros.

Link address is an NCP control block. For software information related to NCP/PEP, please refer to the associated software documentation.

A maximum of 16 entries may be displayed.

If there is no NCP answer, this screen is displayed.

The procedure is the same as in the previous case.

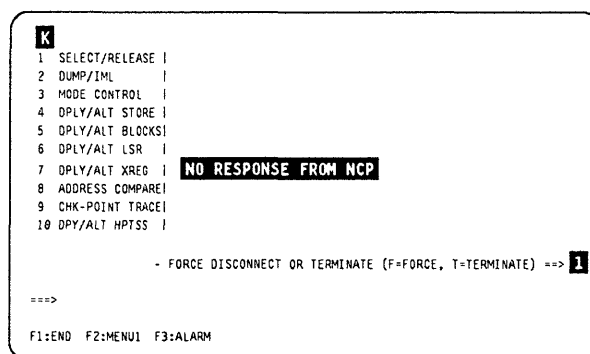


Figure 4-11. Scanner Delayed Disconnect Screen 2

Scanner Mode Control Commands Details

Connected The scanner runs under the control of the control program. The errors on the CCU I/O instructions are reported to the control program, and the errors on the MOSS I/O instructions are reported to the MOSS.

Disconnected The scanner does not run under the control of the control program but under the control of the MOSS microcode. Only the MOSS I/O instructions are executed. Any instruction from the CCU is rejected (IOC time out), or not answered.

Table 4-1. Scanner Mode Control Commands		
Current Mode	Possible Scanner Commands	Resulting Mode
CONNECTED	STOP DISCONNECT RESET DUMP IML	DISCTD-STOP DISCTD-STOP RESET RESET INITIALIZED
DISCTD-GO	STOP RESET DUMP IML	DISCTD-STOP RESET RESET INITIALIZED
DISCTD-STOP	START RESET DUMP IML	DISCTD-GO RESET RESET INITIALIZED
RESET (or UNKNOWN mode)	RESET DUMP IML	RESET RESET INITIALISED
INITIALISED	STOP CONNECT RESET IML DUMP	DISCTD-STOP CONNECTED RESET INITIALIZED RESET
INOPERATIVE	RESET DUMP IML	RESET RESET INITIALIZED

Display/Alter Scanner Control Storage

1. You must be in the TSS function (see 4-4).
2. The scanner must be selected (details in "Select Scanner" on page 4-5).
3. Select function 4 (details page 4-4).
4. In **1**, **2** and **3** type the values according to the instructions on the screen.
5. Press **SEND**.
6. Screen **H** is displayed.

Default values: 32 halfwords, I (immediate).

Note: Option **D** delays the execution for an address compare (details page 4-16).

L

1	SELECT/RELEASE	- ENTER HALFWORD STORAGE ADDRESS	==>	1
2	DUMP/IML	ROS: 000 TO FFF - RAM: 1000 TO FFFF		
3	MODE CONTROL	- ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32) ==>		2
4	DPLY/ALT STORE			
5	DPLY/ALT BLOCKS			
6	DPLY/ALT LSR	- ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==>		3
7	DPLY/ALT XREG			
8	ADDRESS COMPARE			
9	CHK-POINT TRACE			
10	DPLY/ALT HPTSS			

====> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY

F1:END F2:MENU1 F3:ALARM

Figure 4-12. Display/Alter Scanner Storage Selection Screen

aaaa Storage address
xxxx Storage data

Alter the Scanner Control Storage

Possible Disruption

Any **ALTER** may be disruptive.

Press **F4**. Screen **N** is displayed.

M

1	SELECT/RELEASE	- ENTER HALFWORD STORAGE ADDRESS	==>	
2	DUMP/IML	ROS: 000 TO FFF - RAM: 1000 TO FFFF		
3	MODE CONTROL	- ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32) ==>		
4	DPLY/ALT STORE			
5	DPLY/ALT BLOCKS			
6	DPLY/ALT LSR	- ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==>		
7	DPLY/ALT XREG			
8	ADDRESS COMPARE	aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx		
9	CHK-POINT TRACE	aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx		
10	DPLY/ALT HPTSS	aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx		

====>

F1:END F2:MENU2 F3:ALARM **F4:ALTER** F5:REFRESH F7:BACKWARD F8:FORWARD

Figure 4-13. Scanner Storage Display Screen

1. Move the cursor to the data you wish to modify.
2. Modify the data.
3. When you have altered all desired data, type **D** or **I** in **1** and press **SEND**.

All displayed data, altered or not, is transmitted to the scanner.

To cancel the alter, press **F6** at any time before **SEND**. The modifications you have already entered on the screen are ignored.

N

1	SELECT/RELEASE	- ENTER HALFWORD STORAGE ADDRESS	==>	
2	DUMP/IML	ROS: 000 TO FFF - RAM: 1000 TO FFFF		
3	MODE CONTROL	- ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32) ==>		
4	DPLY/ALT STORE			
5	DPLY/ALT BLOCKS			
6	DPLY/ALT LSR	- ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==>		1
7	DPLY/ALT XREG			
8	ADDRESS COMPARE	aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx		
9	CHK-POINT TRACE	aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx		
10	DPLY/ALT HPTSS	aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx		

====> TO DELAY ALTER, ENTER NEW DATA; CHANGE I TO D, PRESS SEND

F1:END F2:MENU2 F3:ALARM F6:IGNORE ALTER

Figure 4-14. Scanner Storage Alter Screen

Display/Alter Scanner Blocks

1. You must be in the TSS function (see 4-4).
2. The scanner must be selected (details in "Select Scanner" on page 4-5).
3. Select function 5 (details page 4-4).
4. In **1** to **5**, type values (see "Display/Alter Scanner Blocks Fields" on page 4-12 for details).
5. Press **SEND**.

Note: option **D**, delays the execution for an address compare (see "Scanner Address Compare" on page 4-16).

0
1

1	SELECT/RELEASE - ENTER HEX LINE INTERFACE ADDRESS (0 TO 3F)	==>	
2	DUMP/IML - ENTER HALFWORD TO DISPLAY FIRST	==>	2
3	MODE CONTROL - ENTER NBR OF HALFWORDS TO DISPLAY (OPTIONAL)	==>	3
4	DPLY/ALT STORE - ENTER BLOCK IDENTIFICATION (1 TO 12)	==>	4
5	DPLY/ALT BLOCKS *1=ICB 3=LIB 5=RAMA 7=RAMC 9=LIC 11=FLR		
6	DPLY/ALT LSR *2=PSA *4=LCB 6=RAMB 8=ICF 10=FPS 12=FMR		
7	DPLY/ALT XREG		
8	ADDRESS COMPARE - ENTER 1 FOR IMMEDIATE EXECUTION, 0 FOR DELAYED	==>	5
9	CHK-POINT TRACE		
10	DPLY/ALT HPTSS		

* CONTROL BLOCKS COMMON TO TSS AND HPTSS
 ==> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY.

F1:END F2:MENU2 F3:ALARM

Figure 4-15. Display/Alter Scanner Blocks Selection Screen

The first four characters of each line give:

- The address of the ICB, PSA, LIB, LCB, or FPS block, or
- The name of the RAMA, RAMB, RAMC, ICF, LIC, FLR, or FMR block.

Alter Scanner Blocks

Possible Disruption

Any **ALTER** may be disruptive.

P
3

1	SELECT/RELEASE - ENTER HEX LINE INTERFACE ADDRESS (0 TO 3F)	==>	
2	DUMP/IML - ENTER HALFWORD TO DISPLAY FIRST	==>	
3	MODE CONTROL - ENTER NBR OF HALFWORDS TO DISPLAY (OPTIONAL)	==>	
4	DPLY/ALT STORE - ENTER BLOCK IDENTIFICATION (1 TO 12)	==>	9
5	DPLY/ALT BLOCKS *1=ICB 3=LIB 5=RAMA 7=RAMC 9=LIC 11=FLR		
6	DPLY/ALT LSR *2=PSA *4=LCB 6=RAMB 8=ICF 10=FPS 12=FMR		
7	DPLY/ALT XREG		
8	ADDRESS COMPARE - ENTER 1 FOR IMMEDIATE EXECUTION, 0 FOR DELAYED	==>	1
9	CHK-POINT TRACE LIC XXXX XXXX XXXX XXXX XXXX XXXX XXXX		
10	DPLY/ALT HPTSS		

* CONTROL BLOCKS COMMON TO TSS AND HPTSS
 ==> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY.

F1:END F2:MENU2 F3:ALARM **F4:ALTER** F5:REFRESH

Figure 4-16. Display/Alter Scanner Blocks Screen (Example)

Press **F4**. Screen **Q** is displayed.

1. Move the cursor to the data to alter, and over-write it.
2. Type **D** or **I** in **1**, and press **SEND**.

To cancel the alter, press **F6** at any time **before** **SEND**. The modifications you have already entered on the screen are ignored.

Q
3

1	SELECT/RELEASE - ENTER HEX LINE INTERFACE ADDRESS (0 TO 3F)	==>	
2	DUMP/IML - ENTER HALFWORD TO DISPLAY FIRST	==>	
3	MODE CONTROL - ENTER NBR OF HALFWORDS TO DISPLAY (OPTIONAL)	==>	
4	DPLY/ALT STORE - ENTER BLOCK IDENTIFICATION (1 TO 12)	==>	9
5	DPLY/ALT BLOCKS *1=ICB 3=LIB 5=RAMA 7=RAMC 9=LIC 11=FLR		
6	DPLY/ALT LSR *2=PSA *4=LCB 6=RAMB 8=ICF 10=FPS 12=FMR		
7	DPLY/ALT XREG		
8	ADDRESS COMPARE - ENTER 1 FOR IMMEDIATE EXECUTION, 0 FOR DELAYED	==>	1
9	CHK-POINT TRACE LIC XXXX XXXX XXXX XXXX XXXX XXXX XXXX		
10	DPLY/ALT HPTSS		

* CONTROL BLOCKS COMMON TO TSS AND HPTSS
 ==> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY.

F1:END F2:MENU2 F3:ALARM F4:ALTER F5:REFRESH **F6:IGNORE**

Figure 4-17. Display/Alter Scanner Blocks Screen (Example)

Display/Alter Scanner Blocks Fields

1 SELECT/RELEASE	- ENTER HEX LINE INTERFACE ADDRESS (0 TO 3F)	==> 3
2 DUMP/INL	- ENTER HALFWORD TO DISPLAY FIRST	==>
3 MODE CONTROL	- ENTER NBR OF HALFWORDS TO DISPLAY (OPTIONAL)	==>
4 DPLY/ALT STORE	- ENTER BLOCK IDENTIFICATION (1 TO 12)	==> 9
5 DPLY/ALT BLOCKS	*1=ICB 3=LIB 5=RAMA 7=RAMC 9=LIC 11=FLR	
6 DPLY/ALT LSR	*2=PSA *4=LCB 6=RAMB 8=ICF 10=FPS 12=FMR	
7 DPLY/ALT XREG		
8 ADDRESS COMPARE	- ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED	==> I
9 CHK-POINT TRACE	LIC xxxx xxxx xxxx xxxx xxxx xxxx xxxx	
10 DPLY/ALT HPTSS		

* CONTROL BLOCKS COMMON TO TSS AND HPTSS
 ==> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY.

F1:END F2:MENU2 F3:ALARM F4:ALTER F5:REFRESH

Figure 4-18. Display/Alter Scanner Blocks Screen (Example)

LINE INTERFACE ADDRESS: Self-explanatory.

HALFWORD TO DISPLAY FIRST: The halfword from which the block will be displayed. Default value: block displayed from its first halfword.

NBR OF HALFWORDS: Number of halfwords to display, starting from the one specified in the previous line. The message *INVALID INPUT* is displayed if the value is incorrect (for example, 0).

The size of the ICF block is fixed, and you may ignore this request.

The default values are set to the size of each block:

ICB=16	LIB=32	RAMA=4	RAMC=4	LIC=7	FLR=32
PSA=16	LCB=32	RAMB=4	ICF=3	FPS=32	FMR=10

BLOCK IDENTIFICATION: The block that you want to display:

ICB	interface control block
PSA	parameter/status area
LIB	line interface buffer
LCB	line control block
RAMA	random access memory A
RAMB	random access memory B
RAMC	random access memory C
ICF	internal clock function
LIC	line interface card
FPS	FES parameter/status
FLR	FES line registers
FMR	FES/MUX registers

Refer to the NCP and EP software documentation for a detailed description of these blocks.

IMMEDIATE/DELAYED: Self-explanatory

Display/Alter Scanner LSR

1. You must be in the TSS function (see 4-4).
2. The scanner must be selected (details in "Select Scanner" on page 4-5).
3. Select function 6 (details page 4-4).
4. In **1**, **2** and **3** type values according to the instructions on the screen.
5. Press **SEND**.

Default value: I (immediate).

Note: Option **D** delays the execution for an address compare (see "Scanner Address Compare" on page 4-16).

```

R
1 SELECT/RELEASE | - ENTER HEXADECIMAL PAGE NUMBER      ==> 1
2 DUMP/IML      |
3 MODE CONTROL  | - ENTER ADDRESS OF LSR TO DISPLAY (0 TO 7) ==> 2
4 DPLY/ALT STORE | (FOR ALL LSRS OF THE PAGE, ENTER NOTHING)
5 DPLY/ALT BLOCKS|
6 DPLY/ALT LSR  | - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> 3
7 DPLY/ALT XREG |
8 ADDRESS COMPARE|
9 CHK-POINT TRACE|
10 DPLY/ALT HPTSS|

===> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY

F1:END F2:MENUE2 F3:ALARM
  
```

Figure 4-19. Display/Alter Scanner LSR Screen

LSR LSR number
DATA LSR contents

Alter Scanner LSR

Possible Disruption

Any **ALTER** may be disruptive.

Press **F4**. Screen **T** is displayed.

```

S
1 SELECT/RELEASE | - ENTER HEXADECIMAL PAGE NUMBER      ==>
2 DUMP/IML      |
3 MODE CONTROL  | - ENTER ADDRESS OF LSR TO DISPLAY (0 TO 7) ==>
4 DPLY/ALT STORE | (FOR ALL LSRS OF THE PAGE, ENTER NOTHING)
5 DPLY/ALT BLOCKS|
6 DPLY/ALT LSR  | - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> I
7 DPLY/ALT XREG |
8 ADDRESS COMPARE|LSR  0 1 2 3 4 5 6 7 8 9 A B C D E F
9 CHK-POINT TRACE|DATA  XXXX XXXX XXXX XXXX XXXX XXXX XXXX
10 DPLY/ALT HPTSS|

===> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY

F1:END F2:MENUE2 F3:ALARM F4:ALTER F5:REFRESH
  
```

Figure 4-20. Display/Alter Scanner LSR Selection Screen (Example)

1. Move the cursor to the data to alter, and overwrite it.
2. Type **D** or **I** in **1**, and press **SEND**.

The following message is displayed:

xx BYTES ALTERED

To cancel the alter, press **F6** at any time before **SEND**. The modifications you have already entered on the screen are ignored.

```

T
1 SELECT/RELEASE | - ENTER HEXADECIMAL PAGE NUMBER      ==>
2 DUMP/IML      |
3 MODE CONTROL  | - ENTER ADDRESS OF LSR TO DISPLAY (0 TO 7) ==>
4 DPLY/ALT STORE | (FOR ALL LSRS OF THE PAGE, ENTER NOTHING)
5 DPLY/ALT BLOCKS|
6 DPLY/ALT LSR  | - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> 1
7 DPLY/ALT XREG |
8 ADDRESS COMPARE|LSR  0 1 2 3 4 5 6 7 8 9 A B C D E F
9 CHK-POINT TRACE|DATA  XXXX XXXX XXXX XXXX XXXX XXXX XXXX
10 DPLY/ALT HPTSS|

===> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY

F1:END F2:MENUE2 F3:ALARM F4:ALTER F6:IGNORE
  
```

Figure 4-21. Display/Alter Scanner LSR Selection Screen (Example)

Field Explanation for Display/Alter Scanner LSRs

1	SELECT/RELEASE		- ENTER HEXADECIMAL PAGE NUMBER	==>
2	DUMP/IML			
3	MODE CONTROL		- ENTER ADDRESS OF LSR TO DISPLAY (0 TO 7)	==>
4	DPLY/ALT STORE		(FOR ALL LSRS OF THE PAGE, ENTER NOTHING)	
5	DPLY/ALT BLOCKS			
6	DPLY/ALT LSR		- ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED	==> I
7	DPLY/ALT XREG			
8	ADDRESS COMPARE		LSR 0 1 2 3 4 5 6 7 8 9 A B C D E F	
9	CHK-POINT TRACE		DATA xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx	
10	DPLY/ALT HPTSS			

====> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY

F1:END F2:MENUE2 F3:ALARM F4:ALTER F5:REFRESH

Figure 4-22. Display/Alter Scanner LSR Selection Screen (Example)

PAGE NUMBER

(0 through F) to select one of the 16 LSR pages (one LSR page = 8 one-byte registers).

ADDRESS OF LSR

Enter the address of the register to be displayed, or press **SEND**.

- If you enter a register address, a single even/odd register pair is displayed. The least significant bit of the register address is ignored.
- If you press **SEND**, and if the page number entered was even, all 16 registers of the even/odd pages are displayed, numbered 0 through F.
- If you press **SEND**, and the page number entered was odd, only the eight registers of the odd page are displayed, numbered 0 through 7.

IMMEDIATE/DELAYED

- **D** delays the execution of the display (see "Scanner Address Compare" on page 4-16).
- **I** executes an immediate display.

Display/Alter Scanner XREG

1. You must be in the TSS function (see 4-4).
2. Select a scanner (details in "Select/Release a Scanner" on page 4-5).
3. Select function 7 (details page 4-4).
4. Enter the address in **1**. If omitted the display starts from the first XREG.
5. Enter the number in **2**. If omitted, all 32 XREGs are displayed.
6. Enter **D**, or **I**, in **3**.
7. Press **SEND**.

U

```

1 SELECT/RELEASE | - ENTER HEX ADDRESS OF XREG TO DISPLAY FIRST ==> 1
2 DUMP/IML      |
3 MODE CONTROL  | - ENTER NUMBER OF XREGS TO DISPLAY ==> 2
4 DPLY/ALT STORE |
5 DPLY/ALT BLOCKS|
6 DPLY/ALT LSR   | - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> 3
7 DPLY/ALT XREG  |
8 ADDRESS COMPARE|
9 CHK-POINT TRACE|
10 DPLY/ALT HPTSS|

====> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY

F1:END F2:MENU2 F3:ALARM

```

Figure 4-23. Display/Alter Scanner XREG Selection Screen

XREG XREG number
DATA XREG contents
****** No XREG present

Alter Scanner XREG

Possible Disruption

Any **ALTER** may be disruptive.

Press **F4**. Screen **W** is displayed.

V

```

1 SELECT/RELEASE | - ENTER HEX ADDRESS OF XREG TO DISPLAY FIRST ==>
2 DUMP/IML      |
3 MODE CONTROL  | - ENTER NUMBER OF XREGS TO DISPLAY ==>
4 DPLY/ALT STORE |
5 DPLY/ALT BLOCKS|
6 DPLY/ALT LSR   | - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==>
7 DPLY/ALT XREG  |
8 ADDRESS COMPARE| XREG 00 01 02 03 04 05 07 08 0A 0B 0C
9 CHK-POINT TRACE| DATA xx xx xx xx xx xx ** xx xx ** xx xx xx ** **
10 DPLY/ALT HPTSS|

XREG 10 12 13 14 15 16 17 19 1A 1B 1C 1D 1E 1F
DATA xx ** xx xx xx xx xx ** xx xx xx xx xx xx

====>

F1:END F2:MENU2 F3:ALARM F4:ALTER F5:REFRESH

```

Figure 4-24. Display/Alter Scanner XREG Selection Screen (Example for FESL)

1. Move the cursor to the data to modify.
2. Type the new value (overwriting the old one).
3. Repeat steps 1 and 2 for all data to modify.
4. Enter **I**, or **D**, in **1**.
5. Press **SEND**.

Note: Independently of the register specified, or of the number of registers displayed, the display always starts from an even register and ends on an odd register.

To cancel the alter, press **F6** at any time before **SEND**. The modifications you have already entered on the screen are ignored.

W

```

1 SELECT/RELEASE | - ENTER HEX ADDRESS OF XREG TO DISPLAY FIRST ==>
2 DUMP/IML      |
3 MODE CONTROL  | - ENTER NUMBER OF XREGS TO DISPLAY ==>
4 DPLY/ALT STORE |
5 DPLY/ALT BLOCKS|
6 DPLY/ALT LSR   | - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> 1
7 DPLY/ALT XREG  |
8 ADDRESS COMPARE| XREG 00 01 02 03 04 05 07 08 0A 0B 0C
9 CHK-POINT TRACE| DATA xx xx xx xx xx xx ** xx xx ** xx xx xx ** **
10 DPLY/ALT HPTSS|

XREG 10 12 13 14 15 16 17 19 1A 1B 1C 1D 1E 1F
DATA xx ** xx xx xx xx xx ** xx xx xx xx xx xx

====>

F1:END F2:MENU2 F3:ALARM F6:IGNORE ALTER

```

Figure 4-25. Alter Scanner XREG (Example for FESL)

Scanner Address Compare

It forces the scanner to perform an action, when a storage address detected during a specific access operation matches the contents of a register.

Possible Disruption

The address compare function with action STOP is always disruptive.

Activate Scanner Address Compare

- 1. You must be in the TSS function (see 4-4).
- 2. Select a scanner (details in "Select/Release a Scanner" on page 4-5).
- 3. Select function 8 (details page 4-4).
- 4. In **1**, enter **A**
- 5. In **2**, enter the selected address.
- 6. In **3**, enter any combination of the proposed options.
- 7. In **4**, enter the selected action.
- 8. Press **SEND**.

The result of the selection is reflected in the MSA.

When AC is reached, this message is displayed:

LOOK AT MSA FOR ADDRESS COMPARE STATUS

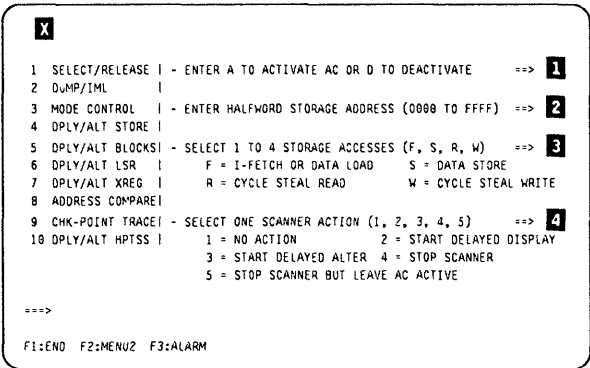


Figure 4-26. Scanner Address Compare Selection Screen

Deactivate Scanner Address Compare

- ACTION 1, 2, 3, or 4 was selected:

The successful completion of an address compare automatically deactivates the function.

- ACTION 5 was selected:

Type **D**, then press **SEND**.

- To deactivate the scanner address compare function **before** completion of the address compare, proceed according to the type of selected scanner address compare action:

- Action 1, 4, or 5: type **D**, then press **SEND**.
- Action 2 or 3: press **BREAK** (ATTN).

If the address compare screen is no longer displayed:

1. Call the scanner address compare function again (see the beginning of this section).
2. Type **D** in **1**.
3. Press **SEND**.

The scanner address compare is also deactivated when you release the scanner.

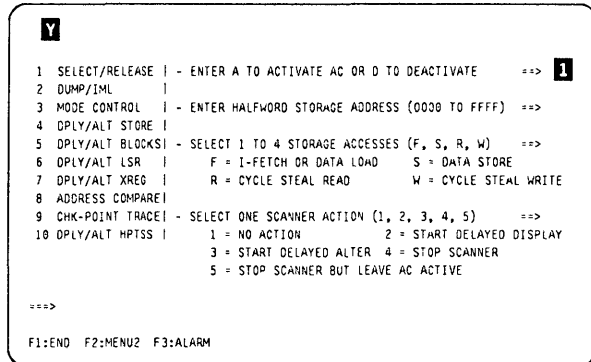


Figure 4-27. Deactivate Scanner Address Compare

Field Explanation for the Scanner Address Compare Screen

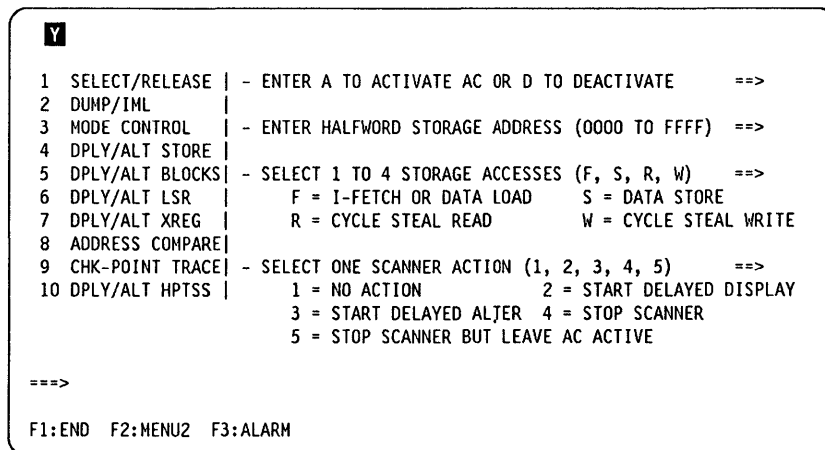


Figure 4-28. Deactivate Scanner Address Compare

STORAGE ACCESSES: When the storage address specified on the screen is detected during the operation selected among the following, the address compare is successful.

- F** Address detected during I-fetch or load
- S** Address detected during store
- R** Address detected during cycle steal read

W Address detected during cycle steal write

The specified **scanner action** is executed immediately after the execution of the storage access operation (F, S, R, W).

SCANNER ACTION: You can specify only one scanner action:

- **NO ACTION:** The MSA will display the completion of the address compare.

After completion, the address compare is automatically deactivated.

- **START DELAYED DISPLAY:** The delayed display that you specified in a display/alter function, is performed when the address compare is successfully completed, and the address compare is automatically deactivated. The keyboard is locked until the address compare is successfully completed.

To unlock the keyboard, press **BREAK** (ATTN). This action also deactivates the address compare.

- If you specified a delayed display, the MSA shows **DELAYED-DISPLAY**.
- If you forgot to specify a delayed display, you receive the message:

NO DELAYED DISPLAY. SPECIFY IT IN A DISP/ALT FUNCTION

- **START DELAYED ALTER:** The delayed alter that you specified in a display/alter function, is executed when the address compare is successfully completed, and the address compare is automatically deactivated.

The keyboard is locked until the address compare is successfully completed. To unlock the keyboard, press **BREAK** (ATTN). This action also deactivates the address compare.

- If you specified a delayed alter, the MSA shows **DELAYED-ALTER**.
- If you forgot to specify a delayed alter, you receive the message:

NO DELAYED ALTER. SPECIFY IT IN A DISP/ALT FUNCTION

- **STOP SCANNER:** The scanner is put in the **disconnected/stop** state when the address compare is successfully completed, and the address compare is automatically deactivated.
- **STOP SCANNER BUT LEAVE AC ACTIVE:** The scanner is put in the **disconnected/stop** state when the address compare is successfully completed, but the address compare remains active.

To restart the scanner, use the scanner **START** command. (see "Scanner Mode Control" on page 4-8).

Scanner Checkpoint Trace

The checkpoint trace is always ready to start at the same time as the SIT trace. Use the SIT function to stop the checkpoint trace.

1. You must be in the TSS function (see 4-4).
2. Select function 9 (details page 4-4).
3. Enter the values in **1**, **2**, and **3**.
4. Press **SEND**.

The screen gives all the details about the entries. No 'Screen Description' is provided for this procedure.

2

```

1 SELECT/RELEASE I
2 DUMP/IML I
3 MODE CONTROL I - ENTER A DECIMAL LINE ADDRESS FROM 0 TO 1039 ==> 1
4 DPLY/ALT STORE I (TSS: 0 TO 895, HPTSS: 1024 TO 1039)
5 DPLY/ALT BLOCKS I
6 DPLY/ALT LSR I - ENTER T FOR TRANSMIT, R FOR RECEIVE ==> 2
7 DPLY/ALT XREG I
8 ADDRESS COMPARE I
9 CHK-POINT TRACE I - ENTER ON OR OFF ==> 3
10 DPLY/ALT HPTSS I

ON - CHECKPOINT TRACE WILL START WITH
    SCANNER INTERFACE TRACE (SIT)
OFF - CHECKPOINT TRACE NOT EFFECTIVE

==> ENTER ANY INTERFACE:RELEASE/SELECT SCANNER IS AUTOMATIC

F1:END F2:MENU2 F3:ALARM
  
```

Figure 4-29. Scanner Checkpoint Trace Selection Screen

Display/Alter HPTSS

Three options are given in this function:

Display/Alter Indirect XREGs	Page 4-20
Display/Alter RAM	Page 4-21
Display/Alter picocode	Page 4-22

Display HPTSS Indirect XREG

1. You must be in the TSS function (see 4-4).
2. Select a scanner (details in "Select/Release a Scanner" on page 4-5).
3. Select function 10 (details page 4-4).
4. In **1**, type 1.
5. Press **SEND**.
6. Screen **AB** is displayed.

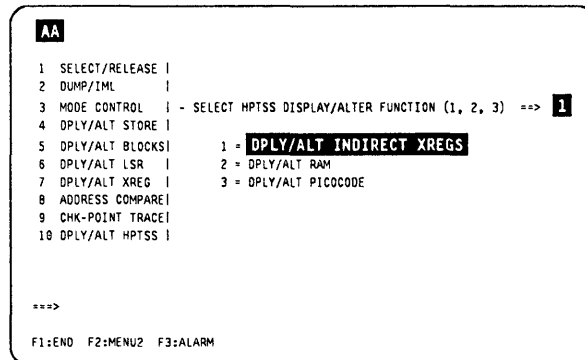


Figure 4-30. Display/Alter HPTSS Indirect Selection Screen

1. In **1**, enter an hexadecimal address (from 0 to 11).
2. In **2**, enter the number of IXREGs to display (maximum total length: 18 bytes).
3. In **3**, enter I or D.
4. Press **SEND**.

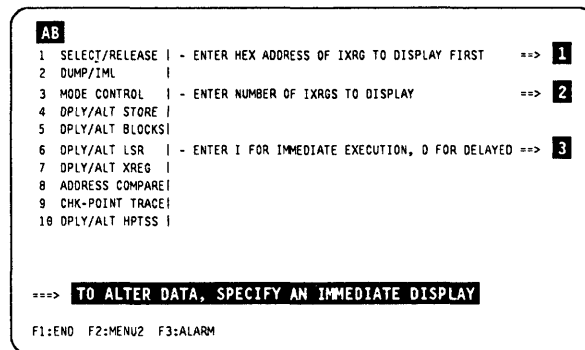


Figure 4-31. Display/Alter HPTSS Indirect XREG Screen

Alter HPTSS Indirect XREG

Possible Disruption

Any ALTER may be disruptive.

1. Display the XREG contents.
2. Press **F4**.
3. Move the cursor to the data to alter, and over-write it.
4. Type **D** or **I** in **1**, and press **SEND**.

Refer to the HPTSS chapter of the *Hardware Maintenance Reference* manual for additional information on XREG data.

```

AC
1 SELECT/RELEASE | - ENTER HEX ADDRESS OF IXRG TO DISPLAY FIRST ==>
2 DUMP/IML |
3 MODE CONTROL | - ENTER NUMBER OF IXRGs TO DISPLAY ==>
4 DPLY/ALT STORE |
5 DPLY/ALT BLOCKS|
6 DPLY/ALT LSR | - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> 1
7 DPLY/ALT XREG |
8 ADDRESS COMPARE|
9 CHK-POINT TRACE|
10 DPLY/ALT HPTSS |

===>

F1:END F2:MENU2 F3:ALARM F4:ALTER

```

Figure 4-32. Display/Alter HPTSS Indirect XREG

Display/Alter RAM

Possible Disruption

This function is disruptive.

1. You must be in the TSS function (see 4-4).
2. Select a scanner (details in "Select/Release a Scanner" on page 4-5).
3. Select function 10 (details page 4-4).
4. In **1**, type 2.
5. Press **SEND**.
6. Screen **AE** is displayed.

```

AD
1 SELECT/RELEASE |
2 DUMP/IML |
3 MODE CONTROL | - SELECT HPTSS DISPLAY/ALTER FUNCTION (1, 2, 3) ==> 1
4 DPLY/ALT STORE |
5 DPLY/ALT BLOCKS| 1 = DPLY/ALT INDIRECT XREGS
6 DPLY/ALT LSR | 2 = DPLY/ALT RAM
7 DPLY/ALT XREG | 3 = DPLY/ALT PICOCODE
8 ADDRESS COMPARE|
9 CHK-POINT TRACE|
10 DPLY/ALT HPTSS |

===>

F1:END F2:MENU2 F3:ALARM

```

Figure 4-33. Display/Alter HPTSS Indirect Selection Screen

1. Enter the required parameters in **1**, **2**, and **3**.
2. Press **SEND**.
3. Screen **AF** is displayed.

```

AE
1 SELECT/RELEASE | - ENTER HALFWORD RAM ADDRESS ==> 1
2 DUMP/IML | RAM: 000 TO FFF
3 MODE CONTROL | - ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32) ==> 2
4 DPLY/ALT STORE |
5 DPLY/ALT BLOCKS|
6 DPLY/ALT LSR | - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> 3
7 DPLY/ALT XREG |
8 ADDRESS COMPARE|
9 CHK-POINT TRACE|
10 DPLY/ALT HPTSS |

===> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY

F1:END F2:MENU2 F3:ALARM

```

Figure 4-34. Display/Alter RAM (HPTSS Only)

Display/Alter HPTSS

Alter RAM

1. Display the RAM contents.
2. Press **F4**.
3. Move the cursor to the data to alter, and overwrite it.
4. Type **D** or **I** in **1**, and press **SEND**.

```
AF
1 SELECT/RELEASE | - ENTER HALFWORD RAM ADDRESS ==>
2 DUMP/IML | RAM: 000 TO FFF
3 MODE CONTROL | - ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32) ==>
4 DPLY/ALT STORE |
5 DPLY/ALT BLOCKS|
6 DPLY/ALT LSR | - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> 1
7 DPLY/ALT XREG |
8 ADDRESS COMPARE|
9 CHK-POINT TRACE|
10 DPLY/ALT HPTSS |

==> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY

F1:END F2:MENU2 F3:ALARM F4:ALTER
```

Figure 4-35. Display/Alter RAM (HPTSS)

Display/Alter Picocode

Possible Disruption

This function is disruptive.

1. You must be in the TSS function (see 4-4).
2. Select a scanner (details in "Select/Release a Scanner" on page 4-5).
3. Select function 10 (details page 4 4).
4. In **1**, type 3.
5. Press **SEND**.
6. Screen **AH** is displayed.

```
AG
1 SELECT/RELEASE |
2 DUMP/IML |
3 MODE CONTROL | - SELECT HPTSS DISPLAY/ALTER FUNCTION (1, 2, 3) ==> 1
4 DPLY/ALT STORE |
5 DPLY/ALT BLOCKS| 1 = DPLY/ALT INDIRECT XREGS
6 DPLY/ALT LSR | 2 = DPLY/ALT RAM
7 DPLY/ALT XREG | 3 = DPLY/ALT PICOCODE
8 ADDRESS COMPARE|
9 CHK-POINT TRACE|
10 DPLY/ALT HPTSS |

==>

F1:END F2:MENU2 F3:ALARM
```

Figure 4-36. Display/Alter HPTSS Indirect Selection Screen

1. Enter the required parameters in **1**, **2**, and **3**.
2. Press **SEND**.

```
AH
1 SELECT/RELEASE | - ENTER HALFWORD PICOCODE ADDRESS ==> 1
2 DUMP/IML | PICOCODE: 0000 TO 17FF
3 MODE CONTROL | - ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32) ==> 2
4 DPLY/ALT STORE |
5 DPLY/ALT BLOCKS|
6 DPLY/ALT LSR | - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> 3
7 DPLY/ALT XREG |
8 ADDRESS COMPARE|
9 CHK-POINT TRACE|
10 DPLY/ALT HPTSS |

==> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY

F1:END F2:MENU2 F3:ALARM
```

Figure 4-37. Display/Alter Picocode (HPTSS Only)

Alter Picocode

1. Display the picocode.
2. Press **F4**.
3. Move the cursor to the data to alter, and over-write it.
4. Type **D** or **I** in **1**, and press **SEND**.

AI	
1 SELECT/RELEASE	- ENTER HALFWORD PICOCODE ADDRESS ==>
2 DUMP/IML	PICOCODE: 0000 TO 17FF
3 MODE CONTROL	- ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32) ==>
4 DPLY/ALT STORE	
5 DPLY/ALT BLOCKS	
6 DPLY/ALT LSR	- ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> 1
7 DPLY/ALT XREG	
8 ADDRESS COMPARE	
9 CHK-POINT TRACE	
10 DPLY/ALT HPTSS	
==> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY	
F1:END F2:MENUE2 F3:ALARM F4:ALTER	

Figure 4-38. Display/Alter Picocode (HPTSS)

TSS Messages

A DELAYED DISPLAY OR ALTER HAS BEEN SPECIFIED

Cause: The delayed operation that you entered has been validated and recorded. It can be used with address compare or snapshot trace functions.

Action: None

A SCANNER IS ALREADY SELECTED: RELEASE TO SELECT ANOTHER

Cause: You tried to select a scanner while one was already selected.

Action: Release the scanner currently selected, then retry the selection.

ADDRESS COMPARE ALREADY SET: CANCEL IT OR WAIT FOR HIT

Cause: You tried to define an address compare operation while one was already set in the scanner.

Action: Cancel the current address compare, or wait for hit which cancels the current address compare (except if the action is 'STOP SCANNER AND LEAVE AC'.

ADDRESS COMPARE ANOMALY: CANCEL ADDRESS COMPARE AND RETRY

Cause: An abnormal situation has been detected in the address compare mechanism.

Action: Cancel the address compare and set it again. If the error persists, run diagnostics to isolate the error.

ADDRESS COMPARE CANCELED ON OPERATOR REQUEST

Cause: You canceled the address compare operation.

Action: None.

AUTOMATIC DISPLAY OWING TO ADDRESS COMPARE HIT

Cause: You specified a delayed display which just appeared on the screen due to an address compare hit.

Action: None.

CCU/MOSS ERROR : DISCONNECT ASSUMED

Cause: The function that you selected cannot be performed because of:

1. MOSS not ONline (check in MSA), or
2. A MOSS-to-CCU hardware error.

Action:

1. If cause number 1: put MOSS ONline, or
2. If cause number 2: retry, and if not successful, use the MIP to start the trouble analysis.

CCU/MOSS ERROR: FUNCTION NOT PERFORMED

Cause: The function that you selected cannot be performed because of a MOSS-to-CCU hardware error. A BER is created: Type 01, ID 02.

Action: Retry, and if not successful, use the MIP to start the trouble analysis.

CDF RETURN CODE KO: SCANNER NOT AVAILABLE

Cause: You requested to select a scanner and the CDF returned an error.

Action: Check the CDF.

CHECKPOINT TRACE SET xxx FOR LINE ADDRESS yyyy LLLLLLLL

Cause: (xxx is either ON or OFF, yyyy is the line address, LLLLLLLL is either transmit or receive). You specified or removed (OFF) the checkpoint option to the scanner interface trace for the line interface address specified. This option becomes effective (only ON) when the corresponding scanner interface trace is started from the host.

Action: None.

CHHDMPA SCANNER DUMP FILE IS NOT EMPTY

Cause: The CHHDMPA dump file is already occupied by a previous dump.

Action: Clear or keep the scanner dump.

COMMAND INCOMPATIBLE WITH SCANNER MODE: LOOK AT MSA

Cause: You specified a command that cannot be executed when the scanner is in the mode 'displayed on MSA'.

Action: As requested by the message.

DELAYED ALTER PERFORMED OWING TO ADDRESS COMPARE HIT

Cause: You specified a delayed display which just appeared on the screen due to an address compare hit.

Action: None.

DISCONNECT THE SCANNER FIRST

Cause: You tried to IML a scanner which is connected to the NCP.

Action: Disconnect the scanner first.

DISCREPANCY BETWEEN CDF AND SCANNER (MUX ADD OR BYPASS)

Cause: The MUX address or the bypass presence bit returned by the scanner on completion of the **init** command does not match the MUX address or the Bypass presence bit contained in the CDF for that scanner.

Action: Check the CDF.

DISK ERROR: FUNCTION NOT AVAILABLE

Cause: An error occurred on disk when you requested a function.

Action: Retry the function.

DISK ERROR : SCANNER DUMP MAY BE INCOMPLETE

Cause: A disk hardware error occurred during the scanner dump: the dump has been truncated.

Action: Use the dump display functions to look at the dump and determine its real upper limits.

DISK ERROR : SCANNER DUMP NOT AVAILABLE

Cause: A disk hardware error occurred at the beginning of scanner dump. The dump is not available.

Action: Terminate the function.

DUMP FILE BEING TRANSFERRED: TRY LATER

Cause: You requested a scanner dump while the current dump file on the disk was being transferred on host request.

Action: Try later.

DUMP FILED IN CHHDMPA. READY TO BE TRANSFERRED

Cause: The scanner dump you requested is complete and ready to be transferred on host request.

Action: Notify the host operator.

ENTER ANY INTERFACE : RELEASE/SELECT SCANNER IS AUTOMATIC

Cause: You selected the checkpoint trace function and no scanner is selected.

Action: Enter a line address as requested.

ERROR IN FRONT END SCANNER PROCESSOR

Cause: An operation failed on the FES, or an internal error, or a check error occurred. A BER 11A2 is created.

Action: Terminate the function, by pressing F1.

ERROR IN SCANNER DURING COMMAND PROCESSING

Cause: A scanner hardware error is detected. The function cannot be performed. A BER is created: Type 01, ID 05.

Action: Terminate the function.

IML FOR SCANNER xx COMPLETED

Cause: The scanner IML that you requested is complete. The scanner is initialized but cannot be set operational because MOSS is not in the **online** status. MSA field **n** displays: 'SCANNER xx INITIALIZED'.

Action: Set MOSS **online** if appropriate, then go to TSS functions.

IML FOR SCANNER xx COMPLETED: SCANNER CAN BE CONNECTED

Cause: The scanner IML that you requested is complete. The scanner is initialized but not yet operational. MSA field **n** displays: 'SCANNER xx INITIALIZED'.

Action: Use function 3 to logically connect the scanner to the CCU control program.

IML FOR SCANNER xx COMPLETED: SCANNER IS CONNECTED

Cause: The scanner is operational and under control of the CCU control program. MSA field **n** displays: 'SCANNER xx CONNECTED'.

Action: None.

IML FOR SCANNER xx IN PROGRESS

Cause: The IML of scanner xx is being processed normally.

Action: None.

INVALID ALTER REQUEST ON READ-ONLY STORAGE

Cause: You tried an alter operation on an ROS address in the scanner.

Action: None.

INVALID CMD TO CCU OR FALLBACK : REJECT

Cause: The control program rejected the mail box sent by the MOSS. The command is not processed.

Action: Check with the host operator.

INVALID INPUT

Cause: The data you just entered is invalid.

Action: Enter valid data.

TSS Messages

INVALID LINE ADDRESS

Cause: The line address that you entered is not within the range 0 to 1039.

Action: Check the line address and enter the proper one.

INVALID OPTION ENTERED

Cause: You selected checkpoint trace and the entered option is not 'ON' or 'OFF'.

Action: Enter the correct option.

INVALID SCANNER ADDRESS

Cause: The scanner address sent to the control program via a mailbox is found invalid by the control program.

Action: Call the PE.

IOC / SCANNER ERROR: FUNCTION NOT PERFORMED

Cause: A hardware error is detected either in the scanner or in the IOC bus. The MOSS command cannot be performed. A BER is created: Type 01, ID 05.

Action: Terminate the function.

LINE ADDRESS xxxx IS IN SELECTED SCANNER yy

Cause: You selected a scanner (yy) using a line number (xxxx).

Action: None.

LINE ADDRESS DOES NOT BELONG TO AN INSTALLED SCANNER

Cause: There is no installed scanner corresponding to the line address that you entered.

Action: Check the line address and enter the proper one.

LINE NOT INSTALLED

Cause: The selected scanner is either not present or power OFF.

Action: Check CDF and power.

LOOK AT MSA FOR ADDRESS COMPARE STATUS

Cause: The address compare operation you specified is now set. The MSA displays the status of the operation.

Action: None.

NO ANSWER FROM CONTROL PROGRAM: FUNCTION NOT PERFORMED

Cause: You tried to connect a scanner to the control program and the control program did not send an answer.

Action: Check if the CCU was IPLed correctly.

NO DELAYED ALTER. SPECIFY IT IN A DISP/ALT FUNCTION

Cause: You forgot to specify a delayed alter action during the address compare selection.

Action: Set the scanner action to 3.

NO DELAYED DISPLAY. SPECIFY IT IN A DISP/ALT FUNCTION

Cause: You forgot to specify a delayed display action during the address compare selection.

Action: Set the scanner action to 2.

NO SCANNER SELECTED

Cause: You tried to release a scanner but no scanner is selected.

Action: None.

PRESS BREAK TO CANCEL ADDRESS COMPARE

Cause: You specified an address compare operation with the delayed display or alter action.

Action: Wait for a hit which cancels the current address compare, or press BREAK to force AC cancel.

REFRESH MODE: PRESS BREAK TO STOP REFRESH

Cause: You requested the refresh mode of the currently displayed data.

Action: Press BREAK to stop.

REQUEST IGNORED: CCU NOT INITIALIZED

Cause: You requested the TSS services and the CCU is not initialized.

Action: IPL the CCU.

SCANNER AC HIT BUT REQUESTED ACTION NOT PERFORMED

Cause: An address compare hit occurred for the operation that you specified, but the requested action did not take place because of scanner error. A BER is created: Type 01, ID 05

Action: Terminate the function.

SCANNER CANNOT BE CONNECTED: MOSS IS NOT ONLINE

Cause: Self explanatory.

Action: Set MOSS online and re-IPL the scanner.

SCANNER CONNECTED TO CCU CONTROL PROGRAM

Cause: The scanner is now operational and the CCU control program can use it.

Action: None.

SCANNER CONNECTION REJECTED BY CCU CONTROL PROGRAM

Cause: The scanner that you IMLed is not recognized by the CCU control program (the scanner is not operational). A BER is created: Type 01, ID 05

Action: Terminate the function.

SCANNER DUMP STARTED

Cause: The scanner dump function found an empty dump file and started dump processing.

Action: None

SCANNER IN DISCONNECTED/GO MODE

Cause: The start command is now processed. The scanner has resumed the microcode execution but stays unavailable to the CCU control program.

Action: None.

SCANNER IN DISCONNECTED/STOP MODE

Cause: The stop command is now processed. The scanner microcode execution is suspended. The scanner becomes unavailable to the CCU control program and 'listens' for the next MOSS request.

Action: None.

SCANNER IN RESET MODE

Cause: The reset command is performed. The scanner is ready to be IMLed or dumped.

Action: None.

SCANNER NOT ATTACHED ON RIGHT CCU

Cause: There is a discrepancy between MOSS and the CCU about the scanner connection.

Action: Check the CDF and contact the host operator.

SCANNER NOT INSTALLED

Cause: There is a discrepancy between MOSS and the CCU about the scanner installation.

Action: Check the CDF.

SCANNER NOT PRESENT OR POWER BLOCK NOT OK

Cause: The selected scanner is not present.

Action: Check the CDF.

SCANNER PROCESSING RESUMED THEN STOPPED ON AC HIT

Cause: The start command has been executed. The scanner resumed the microcode execution but this execution has been stopped by an address compare hit.

Action: None.

SCANNER PROCESSING RESUMED BUT SCANNER MODE IS UNKNOWN

Cause: The start command is complete but MOSS is not able to determine the scanner mode.

Action: Release the scanner and re-select.

SCANNER RELEASED BUT CURRENT MODE KEPT

Cause: You released the selected scanner which is left in its current mode.

Action: None.

SCANNER SELECTED BUT NO STATUS RECEIVED

Cause: The scanner you selected is not able to indicate its current mode to MOSS.

Action: None.

SCANNER SELECTED BUT STATUS UNKNOWN

Cause: The scanner you selected provided MOSS with an unknown status.

Action: Re-IML or proceed according to the function you want to perform.

SCANNER xx SELECTED: LOOK AT MSA FOR SCANNER MODE

Cause: The scanner that you want to select is already selected. Its current mode is displayed in MSA.

Action: None.

SCANNER xx AUTOMATIC DUMP IN PROGRESS

Cause: An automatic dump has been started, due to a BER generated by the control program.

Action: Wait for the completion message. Then transfer it to the host as indicated by the completion code.

TSS Messages

SCROLL IGNORED

Cause: You either requested a scroll forward and the displayed data is at the end of the storage, or you requested a scroll backward and the displayed data is at the top of the storage.

Action: None.

SELECT A SCANNER

Cause: You selected a TSS function reserved to HPTSS and the selected scanner is a TSS.

Action: Select a scanner.

SELECTED SCANNER IS NOT A HPTSS: REQUEST IGNORED.

Cause: You selected a TSS function reserved to HPTSS and the selected scanner is a TSS.

Action: Release the scanner and select an HPTSS.

SPECIFY A DELAYED ALTER

Cause: You requested an address compare function with action **start delayed alter**, but did not specify the delayed alter operation.

Action: Specify the delayed alter operation and resume address compare.

SPECIFY A DELAYED DISPLAY

Cause: You requested an address compare function with action **start delayed display**, but did not specify the delayed display operation.

Action: Specify the delayed display operation and resume address compare.

TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY

Cause: You selected a display alter function. If you want to alter data, you must first display it.

Action: None.

TO DELAY ALTER, ENTER NEW DATA, CHANGE I TO D, PRESS SEND

Cause: You selected the alter subfunction.

Action: As requested by the message.

UNKNOWN NCP COMPLETION CODE

Cause: The control program returned an unknown completion code after a mailbox was sent by the MOSS.

Action: Terminate the function

UNEXPECTED SCANNER INTERRUPT: PRESS SEND TO RETRY

Cause: MOSS received a scanner interrupt on a command where no interrupt is expected. A BER is created: Type 01, ID 05.

Action: Retry the command.

WARNING: LIC NOT ENABLED, DATA MAY BE ERRONEOUS

Cause: You want to display a control block (RAMA, RAMB, RAMC, ICF, LIC, FPS, FLR, or LHR) when the LIC is in disable status (no line active).

Action: None.

XX BYTES ALTERED

Cause: You specified an immediate alter operation in scanner/control storage, control blocks, local storage, or external registers. All displayed data, altered or not, is transmitted to the scanner. "xx" corresponds to the size of the display, **not** to the number of bytes you have altered.

Action: None.

Chapter 5. TRSS Functions

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Your Road Map in the TRSS Functions

You Are Working On	You Want To						
	Alter	Connect	Discon- nect	Display	Dump	Release	Select
TIC	--	--	--	--	--	5-10	5-10
TIC	--	--	--	--	--	--	
• Dump	5-11			5-11	--		
• Inter. reg	--			5-15	--		
• Parameter blocks	--			5-15	--		
• SCB/SSB	--			5-12	5-13		
• Storage	--						
Token-ring status	--	--	--	5-16	--	--	--
TRA	--	5-7	5-7	--	--	5-6	5-6
TRM registers	5-9	--	--	5-8	--	--	--

TRSS Function Resources

The following table summarizes the conditions needed for each TRSS function:

Table 5-1. Conditions Needed for TRSS Functions				
FUNCTION	TRM	TIC	NCP Init	MOSS Online
Select				
Connect	X		X	X
Disconnect	X		X	X
TRM Regs	X			
TIC intr reg	X	X		
Display storage	X	X		
Dump	X	X	X	
Display SCB, SSB			X	
Parm blocks			X	
Error status	X	X	X	
Display dump	X		X	

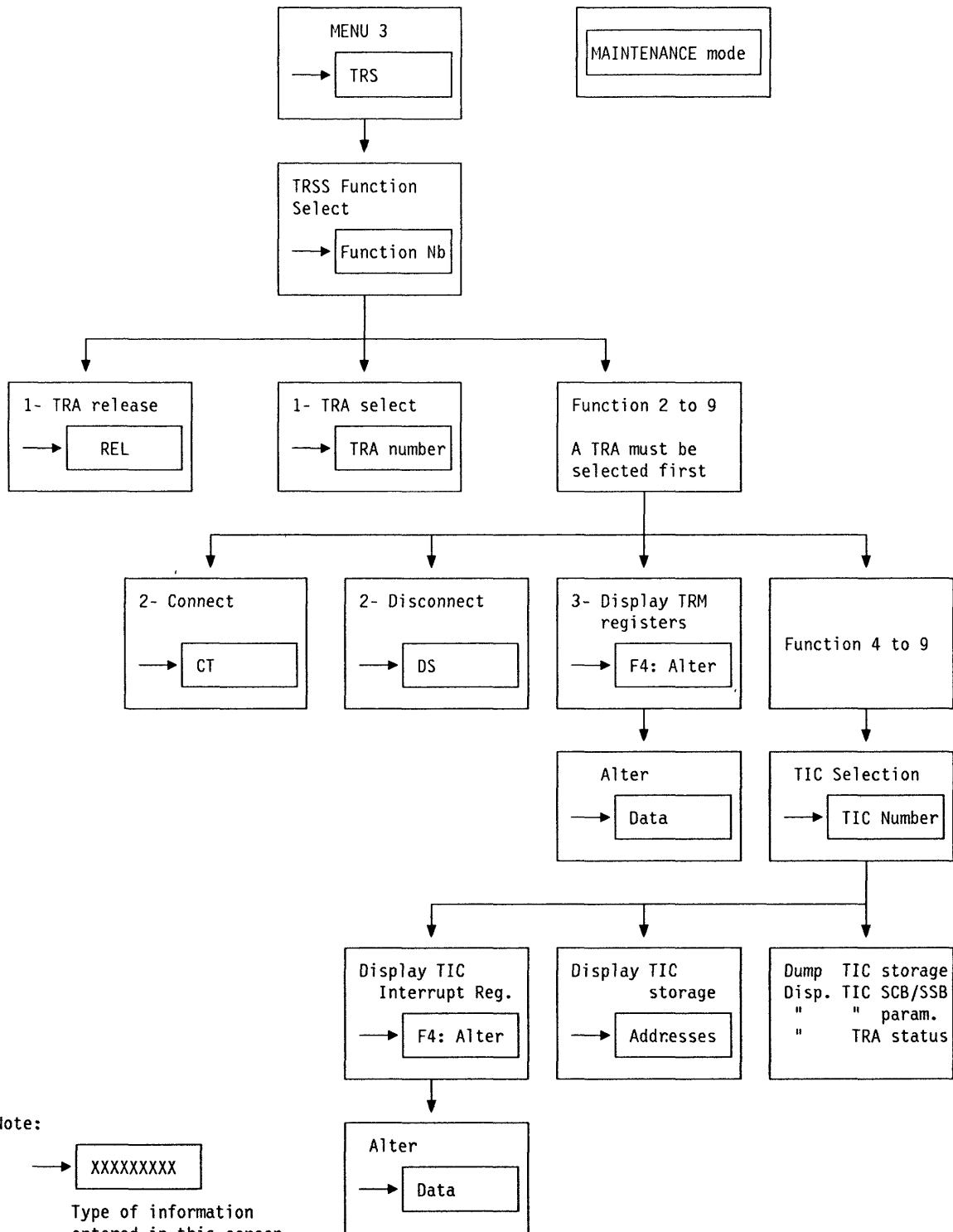
Refer to Chapter 6, "Displaying Dumps, Storage and Modules, and Deleting Files" on page 6-1 to use the display dump function.

Notes:

1. Select cannot be used before CDF create.
2. Disconnect must be requested by the NCP. If the NCP answer is yes, then you can disconnect. Otherwise, if the answer is no or the NCP is down, you have the possibility to force disconnect (see Figure 5-6 on page 5-7).

Note: The first eight lines of the MOSS screen (general information and MSA) are not shown on the screens described in this chapter. For information on the MSA, refer to the Chapter 1 of this manual.

TRSS Functions Overview



TRSS Function Selection

1. In the menu 3 screen, type **TRS** in **1**, then press **SEND**.
2. The TRSS function selection screen (**B**) is displayed.

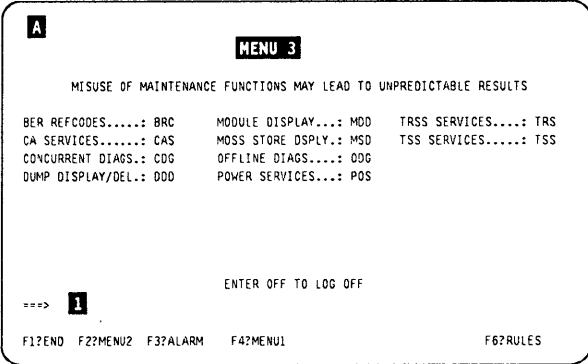


Figure 5-1. Menu 3 (Maintenance) Screen

Note: When you have selected a TRA (option 1), you **must not** leave the TRSS function before using another option, because leaving the TRSS function releases the TRA.

1. In **1**, enter the number of the selected function.
2. Press **SEND**.
3. The selected function is highlighted.

The procedures are described in the following pages:

Select	Page 5-6
Connect/Disc	Page 5-7
TRM regs	Page 5-8
TIC intr reg	Page 5-11
Dply storage	Page 5-12
Dump	Page 5-13
Dply SCB, SSB	Page 5-15
Dply parm blks	Page 5-15
TIC err stat	Page 5-16

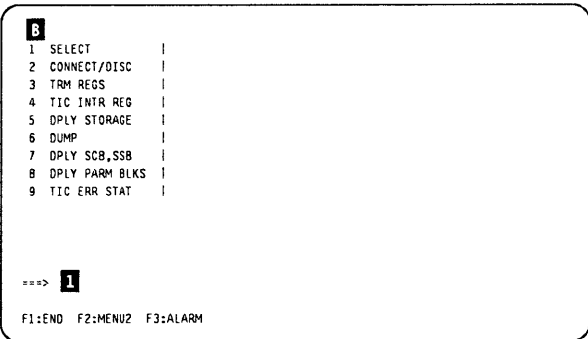


Figure 5-2. TRSS Function Selection Screen

Select TRA

Select a Token-Ring Adapter (TRA)

Before you call any TRSS function you must select a token-ring adapter, and when you leave the TRSS function, release that token-ring adapter. The TRA mode (connected or disconnected) is displayed on line 4 of the MSA (see "MSA Field Definition (Token-Ring/TIC Information)" on page 1-18).

1. You must be in the TRS function (see page 5-5).
2. In **1**, type 1.
3. Press **SEND**.
4. The selected function is highlighted, and screen **D** is displayed.

```
C
1 SELECT
2 CONNECT/DISC |
3 TRM REGS      |
4 TIC INTR REG  |
5 DPLY STORAGE  |
6 DUMP          |
7 DPLY SCB,SSB  |
8 DPLY PARM BLKS|
9 TIC ERR STAT  |

==> 1

F1:END F2:MENU2 F3:ALARM
```

Figure 5-3. TRSS Function Selection Screen

1. In **1**, enter the TRA number.
2. Press **SEND**.

TRA #	TRA number
LINE ADDRESS	Address of the TIC(s) or blank (TIC not present)
TIC	Y or N for each TIC of the TRA
CCU	Always A.

```
D
1 SELECT          |
2 CONNECT/DISC    |
3 TRM REGS        | ENTER THE TRA # ==> 1
4 TIC INTR REG    | TRA#  LINE ADDRESS  TIC's  CCU
5 DPLY STORAGE    | X    XXXX   XXXX   XX   X
6 DUMP            |
7 DPLY SCB,SSB    |
8 DPLY PARM BLKS  |
9 TIC ERR STAT    |

==>

F1:END F2:MENU2 F3:ALARM
```

Figure 5-4. TRA Selection Screen

Connect or Disconnect a TRA

1. You must be in the TRS function (see page 5-5).
2. Select the TRA as explained on page 5-6.
3. Type 2 in the TRSS function selection screen (see Figure 5-2 on page 5-5), then press **SEND**.
4. The TRA connection and disconnection screen (**E**) is displayed
5. In **1**, enter **CT** (connect), or **DS** (disconnect).
6. The new status of the TRA is reflected in the MSA (see "MSA Field Definition (Token-Ring/TIC Information)" on page 1-18).

```

E
1 SELECT |
2 CONNECT/DISC |
3 TRM REGS |
4 TIC INTR REG |
5 DPLY STORAGE | TYPE CT TO CONNECT
6 DUMP | DS TO DISCONNECT ==> 1
7 DPLY SCB,SSB |
8 DPLY PARM BLKS |
9 TIC ERR STAT |

===>
F1:END F2:MENU2 F3:ALARM
  
```

Figure 5-5. TRA Connect/Disconnect Selection Screen

If the control program does not accept the disconnection, this screen is displayed. It may be necessary to force the disconnection, if you want to obtain a dump, or a display, of the registers:

- Press **F5** to ignore the message and force a disconnect, or
- Press **F6** to quit, if you do not want to force the disconnection.

Warning: TRA disconnect is required after every power OFF/ON procedure before running the TRSS diagnostics, if not TAOA fails.

```

F
1 SELECT |
2 CONNECT/DISC |
3 TRM REGS |
4 TIC INTR REG |
5 DPLY STORAGE | TYPE CT TO CONNECT
6 DUMP | DS TO DISCONNECT ==>
7 DPLY SCB,SSB |
8 DPLY PARM BLKS |
9 TIC ERR STAT |

CP DOES NOT ACCEPT THE TRA DISCONNECTION

===>
F1:END F2:MENU2 F3:ALARM F5:IGNORE F6:QUIT
  
```

Figure 5-6. TRA Force Disconnect Screen

TRA Status Explanation

- | | |
|-------------------|--|
| Connect | The TRA is running under the control of the control program. The control program handles all interrupts (except in the case of an MIOH error).

The PIO disable and disconnect bits in the TRM level 1 error status are OFF. |
| Disconnect | The TRA does not run under the control of the control program but under the control of the MOSS microcode. The MOSS handles all interrupts and PIOs to/from the TIC.

The PIO disable and disconnect bits in the TRM level 1 error status are OFF. |
| Unknown | A non-recoverable error occurred during the connection/disconnection process, or an MIOC/IOC error occurred while getting level 1 error status during TRA selection. Connect/disconnect may be retried. |

Display/Alter TRM Registers

- 1. You must be in the TRS function (see page 5-5).
- 2. Select the TRA as explained on page 5-6.
- 3. In **1**, type **3**.
- 4. Press **SEND**.
- 5. The selected function is highlighted, and screen **H** is displayed.

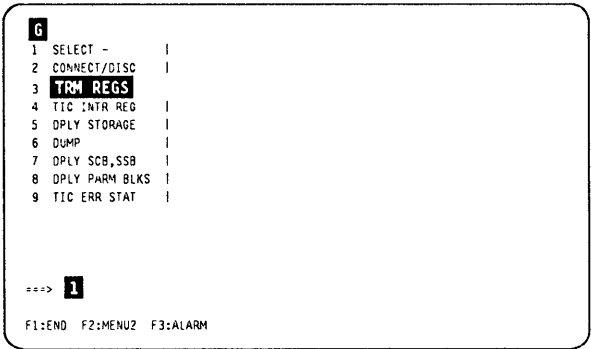


Figure 5-7. TRSS Function Selection Screen

- 1. Press **F8** to display screen 2 (**I**).
- 2. Press **SEND** to refresh the display (not in alter mode).
- 3. Press **F5** to refresh the screen automatically.
- 4. Press **BREAK** (or **ATTN**) to stop refresh mode.

The next page gives more details about the registers you can display or update.

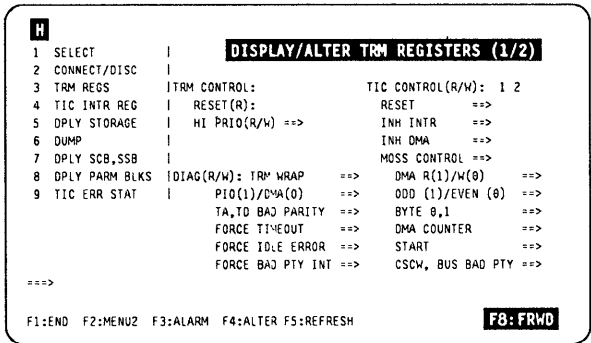


Figure 5-8. Display/Alter TRM Registers (1) Selection Screen

This table shows the TRM registers which may be displayed or altered:

Register	Read	Write	Detail
TRM state control	x	x	x
TIC state control	x	x	x
Level 1 error status	x		
LID base register	x	x	
IR/BR	x	x	x
Diag register	x	x	x
Data buffer register	x	x	
CSCW	x		x

Read Display function available

Write Alter (write) function available and preceded by a warning.

Detail Contents are shown in bit format.

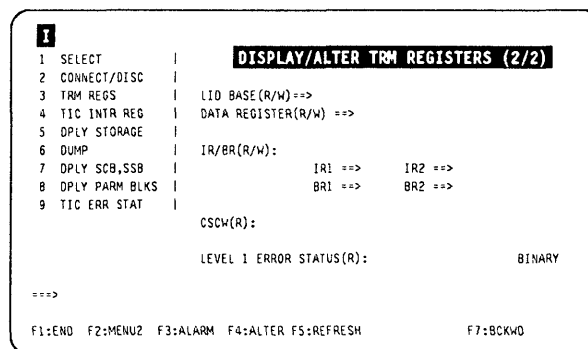


Figure 5-9. Display/Alter TRM Registers (2) Selection Screen

Alter TRM Registers

Possible Disruption

Any alter may be disruptive.

1. Display the screen (**H** or **I**) containing the register(s) to alter.
2. Press **F4**.
3. The following message is displayed:
UNPREDICTABLE RESULTS -
4. Press **F4** again, to confirm the request. The alterable fields are highlighted.
5. Overwrite the contents of the register(s) you want to update.
6. Press **SEND** to complete the alter, or **F6** to ignore the alter.
7. After the alter is complete, the contents of the registers are read and displayed again.

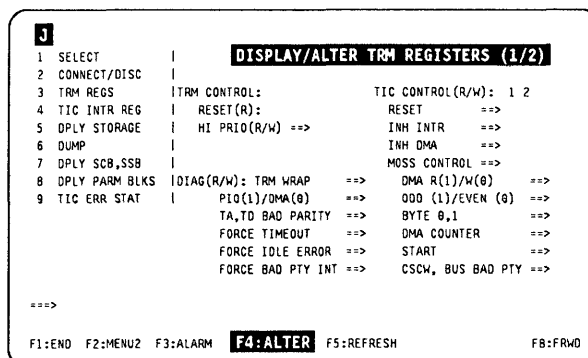


Figure 5-10. Display/Alter TRM Registers (1) Selection Screen

Select TIC

Select a TIC

All the TRSS functions described after this page require a TIC selection.

1. You must be in the TRS function (see page 5-5).
2. Select the TRA as explained on page 5-6.
3. In **1**, type the number (4 to 9) corresponding to the TRSS function you want to use.
4. Press **SEND**.
5. The selected function is highlighted, and the TIC selection screen **L** is displayed.

```
K
1 SELECT |
2 CONNECT/DISC |
3 TRM REGS |
4 TIC INTR REG |
5 DPLY STORAGE |
6 DUMP |
7 DPLY SCB,SSB |
8 DPLY PARM BLKS |
9 TIC ERR STAT |

==== 1
F1:END F2:MENU2 F3:ALARM
```

Figure 5-11. TRSS Function Selection Screen

1. Enter the TIC identifier (1 or 2) in **1**, then press **SEND**.

Note: If a TIC has been selected during the current TRSS session, the identifier (1 or 2) of the last TIC selected is displayed in **1**. You may enter a new TIC number or use the previous one.

2. The screen corresponding to the selected TRSS function is displayed in page:

TIC intr reg	Page 5-11
Dply storage	Page 5-12
Dump	Page 5-13
Dply SCB, SSB	Page 5-15
Dply parm blks	Page 5-15
TIC err stat	Page 5-16

```
L
1 SELECT |
2 CONNECT/DISC |
3 TRM REGS |
4 TIC INTR REG |
5 DPLY STORAGE |
6 DUMP |
7 DPLY SCB,SSB |
8 DPLY PARM BLKS |
9 TIC ERR STAT |

TIC SELECTION

ENTER THE TIC ID (1 OR 2) ==> 1
VALID CHOICES ARE: 1 2
LINE # : 1088 1089

====
F1:END F2:MENU2 F3:ALARM
```

Figure 5-12. TIC Selection Screen

Display/Alter TIC Interrupt Register

1. You must be in the TRS function (see page 5-5).
2. Select the TRA (see page 5-6).
3. Select function 4 and TIC identifier (see page 5-10).
4. This screen **M** is displayed. The register contents are shown in bit format.
5. Press **SEND** to refresh the display (not in alter mode).
6. Press **F5** to refresh the screen automatically.
7. Press **ATTN** (or **BREAK**) to stop refresh mode.

M				DISPLAY/ALTER TIC INTERRUPT REGISTER	
1	SELECT				
2	CONNECT/DISC				
3	TRM REGS		INTERRUPT ==>	OR INTERRUPT ADAPTER ==>	
4	TIC INTR REG		(HEX)	RESET	==>
5	DPLY STORAGE			SSB CLEAR	==>
6	DUMP			EXECUTE	==>
7	DPLY SCB,SSB			SCB REQUEST	==>
8	DPLY PARM BLKS			RECEIVE CONTINUE	==>
9	TIC ERR STAT			RECEIVE VALID	==>
				XMIT VALID	==>
				RESET SYSTEM INTR	==>
				INITIALIZE CODE(R)	==>
				INTERRUPT CODE(R)	==>
==>					
F1:END F2:MENU2 F3:ALARM F4:ALTER F5:REFRESH					

Figure 5-13. Display/Alter TIC Interrupt Register Selection Screen

Alter TIC Interrupt Register

Possible Disruption

Any alter may be disruptive.

1. Display the screen containing the register(s) to alter.
2. Press **F4**.
3. The following message is displayed:
UNPREDICTABLE RESULTS -
4. Press **F4** again, to confirm the request. The alterable fields are highlighted.
5. Overwrite the contents of the register(s) you want to update.
6. Press **SEND** to complete the alter, or **F6** to ignore the alter.
7. After the alter is complete, the contents of the registers are read and displayed again.

N				DISPLAY/ALTER TIC INTERRUPT REGISTER	
1	SELECT				
2	CONNECT/DISC				
3	TRM REGS		INTERRUPT ==>	OR INTERRUPT ADAPTER ==>	
4	TIC INTR REG		(HEX)	RESET	==>
5	DPLY STORAGE			SSB CLEAR	==>
6	DUMP			EXECUTE	==>
7	DPLY SCB,SSB			SCB REQUEST	==>
8	DPLY PARM BLKS			RECEIVE CONTINUE	==>
9	TIC ERR STAT			RECEIVE VALID	==>
				XMIT VALID	==>
				RESET SYSTEM INTR	==>
				INITIALIZE CODE(R)	==>
				INTERRUPT CODE(R)	==>
==>					
F1:END F2:MENU2 F3:ALARM F4:ALTER F5:REFRESH					

Figure 5-14. Display/Alter TIC Interrupt Register Selection Screen

Display TIC Storage

1. You must be in the TRS function (see page 5-5).
2. Select the TRA (see page 5-6).
3. Disconnect the TRA (see page 5-7). The NCP cannot work with both TICs of that TRA.
4. Select function **5** and TIC identifier (see page 5-10).
5. This screen **0** is displayed.

This address must be an even address, otherwise it is rounded to the next even address, and a message is displayed.

6. In **2**, enter the number of halfwords to be displayed (1 to 48).
7. Press **SEND**.

The contents of the selected TIC RAM are displayed (screen **P**).

```

0
1 SELECT |
2 CONNECT/DISC |
3 TRM REGS | - ENTER ADDRESS OF START OF DISPLAY ==> 1 (HEX)
4 TIC INTR REG | (RAM: 0 TO FFF)
5 DPLY STORAGE | - ENTER NBR OF HALFWORDS TO DPLY (UP TO 48) ==> 2
6 DUMP |
7 DPLY SCB,SSB |
8 DPLY PARM BLKS |
9 TIC ERR STAT |

===>
F1:END F2:MENU2 F3:ALARM
  
```

Figure 5-15. Display TIC Storage Selection Screen

You may repeat steps 5 to 7, if you want to display other parts of the TIC storage.

In some cases (starting address less than 060 or pressing F7 while the first address is less than 100), you may obtain a display starting from address 000. In this case, just press F8 to display the next screen(s), containing the address you want.

```

P
1 SELECT |
2 CONNECT/DISC |
3 TRM REGS | - ENTER ADDRESS OF START OF DISPLAY ==> 0 (HEX)
4 TIC INTR REG | (RAM: 0 TO FFF)
5 DPLY STORAGE | - ENTER NBR OF HALFWORDS TO DPLY (UP TO 48) ==> 48
6 DUMP |
7 DPLY SCB,SSB |
8 DPLY PARM BLKS |
9 TIC ERR STAT |

0000 02000C00 040E4F4E 00120F10 920E0F91 8...D...K..J
0010 94360000 95120504 00304706 CE244302 M...N.ED.....
0020 00770000 EFFE0300 EC9107FE 0222F5C8 .....J..K..S.
0030 E78C9764 701A0150 00000000 E7960100 X.P....&....XO..
0040 01000000 FFFF0000 00020000 00000000 .....
0050 000002C0 00000000 00000000 00000000 .....

===>
F1:END F2:MENU2 F3:ALARM F8:FRWD
  
```

Figure 5-16. Display TIC Storage Screen (Example)

Dump TIC Storage

1. You must be in the TRS function (see page 5-5).
2. Select the TRA (see page 5-6).
3. Disconnect the TRA (see page 5-7).
4. Select function 6 and TIC identifier (see page 5-10).
5. This screen (**Q**) is displayed.
6. In **1**, enter **Y**, then press **SEND**. The following messages are displayed:

DUMP IN PROGRESS
DUMP COMPLETE

7. The dump is sent to the MOSS disk in CHGTRSSA.

A TIC dump may be examined or deleted by using the dump display/delete (DDD) function (see Chapter 6, "Displaying Dumps, Storage and Modules, and Deleting Files" on page 6-1).

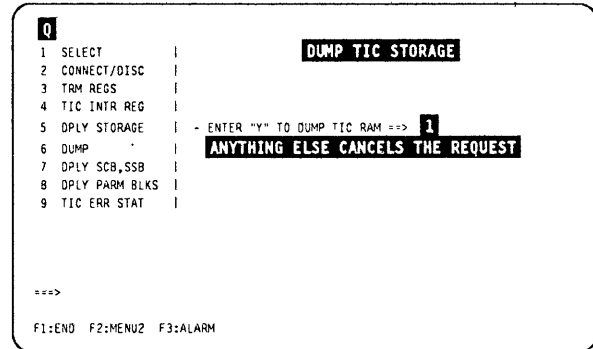


Figure 5-17. Dump TIC Storage Screen

If the corresponding TIC dump area in CHGTRSSA is not empty, this screen is displayed:

- If you want to clear the dump file, enter **C** in **1**.
- If you **do not want** to clear the dump file, just press **SEND**. The dump request is then canceled.

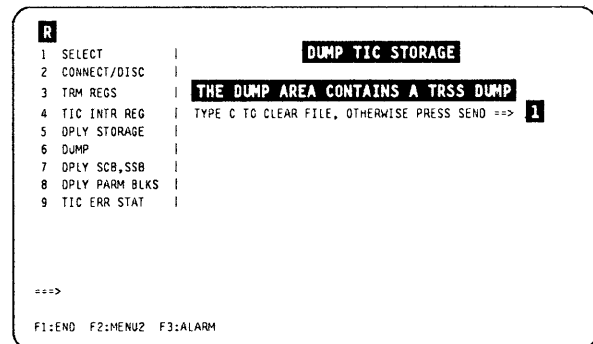


Figure 5-18. TIC Dump Areas Full Screen (Example)

TIC Dump Area

This function dumps the whole RAM of the selected TIC. But only one specific dump can be taken per TIC and CCU. The following information is also provided:

- Related TRM registers (LID base, data buffer, TIC state, diagnostics, IR/BR, level 1 status error).
- TIC interrupt register.
- Init and open parameter blocks.
- TIC token-ring status.
- TIC adapter check status.

Display/Alter TIC

Eight TIC dumps may be stored in the CHGTRSSA file on the disk. The CHGTRSSA dump file organization is shown as follows:

The TRSS dump header is necessary to indicate the presence, time-stamp, and location of a TIC dump within CHGTRSSA.

Display TIC SCB and SSB

The TRA must be connected to the NCP. If the NCP is offline, this message is displayed:

NCP TRS SUPPORT NOT AVAILABLE: FUNCTION IGNORED

1. You must be in the TRS function (see page 5-5).
2. Select the TRA (see page 5-6).
3. Select function 7 and TIC identifier (see page 5-10).
4. The TIC SCB, SSB screen is displayed.
5. Press **F5** to refresh the screen automatically.
6. Press **ATTN** (or **BREAK**) to stop refresh mode.

Refer to NCP manuals for details about the fields displayed in this screen.

S		DISPLAY TIC SCB,SSB (FROM NCP)	
1 SELECT		SCB ADDRESS:	XXXXXX
2 CONNECT/DISC		CONTENTS:	XXXX
3 TRM REGS			XXXX
4 TIC INTR REG			XXXX
5 DPLY STORAGE		SSB ADDRESS:	XXXXXX
6 DUMP		CONTENTS:	XXXX
7 DPLY SCB,SSB			XXXX
8 DPLY PARM BLKS			XXXX
9 TIC ERR STAT			XXXX
====			
F1:END F2:MENU2- F3:ALARM		F5:REFRESH	

Figure 5-19. Display TIC SCB and SSB Screen

Display TIC Parameter Blocks

The TRA must be connected to the NCP. If the NCP is offline, this message is displayed:

NCP TRS SUPPORT NOT AVAILABLE: FUNCTION IGNORED

1. Select the TRA (see page 5-6).
2. Select function 8 and TIC identifier (see page 5-10).
3. The display TIC initialize parameter block screen is displayed (screen **T**).

Press **F8** to display the TIC open parameter block (screen **U**).

Refer to the *Problem Determination Guide*, SA33-0145 or to the NCP manuals for details about the fields displayed on this screen.

T		DISPLAY TIC (1/2)	
		INITIALIZATION PARAMETER BLOCK (FROM NCP)	
1 SELECT		OPTIONS:	DMA ABORT THRESH:
2 CONNECT/DISC		INTR VECT CMD:	SCB ADDRESS:
3 TRM REGS		INTR VECT XMIT:	SSB ADDRESS:
4 TIC INTR REG		INTR VECT RCV:	
5 DPLY STORAGE		INTR VECT RING:	
6 DUMP		INTR VECT SCB:	
7 DPLY SCB,SSB		INTR VECT ADPT:	
8 DPLY PARM BLKS		RCV BURST SIZE:	
9 TIC ERR STAT		XMIT BURST SIZE:	
====			
F1:END F2:MENU2 F3:ALARM		F8:FRWD	

Figure 5-20. Display TIC Initialize Parameter Block Screen

Display/Alter TIC

Press **F7** to return to screen **T**.

U		DISPLAY TIC (2/2)	
1 SELECT		OPEN PARAMETER BLOCK (FROM NCP)	
2 CONNECT/DISC			
3 TRM REGS			
4 TIC INTR REG		OPEN OPTIONS:	BUFFER SIZE:
5 DPLY STORAGE		NODE ADDRESS:	EXT RAM START:
6 DUMP		GROUP ADDRESS:	EXT RAM END:
7 DPLY SCB,SSB		FUNCT ADDRESS:	XMIT BUF COUNT:
8 DPLY PARM BLKS		RCV LIST SIZE:	PROD ID ADDR:
9 TIC ERR STAT		XMIT LIST SIZE:	
		XMIT LIST CHAIN ADDR:	
		RCV LIST CHAIN ADDR:	
===>			
F1:END F2:MENU2 F3:ALARM		F7:BCKWD	

Figure 5-21. Display TIC Open Parameter Block Screen

Display Token-Ring Status

The TRA must be connected to the NCP. If the NCP is offline, this message is displayed:

NCP TRS SUPPORT NOT AVAILABLE: FUNCTION IGNORED

1. You must be in the TRS function (see page 5-5).
2. Select the TRA (see page 5-6).
3. Select function **9** and TIC identifier (see page 5-10).
4. The token-ring status screen is displayed.
5. Press **F5** to refresh the screen automatically.
6. Press **ATTN** (or **BREAK**) to stop refresh mode.

Refer to the *Problem Determination Guide*, SA33-0145 or to the NCP manuals for details about the fields displayed on this screen.

V		TOKEN RING STATUS (FROM NCP)	
1 SELECT			
2 CONNECT/DISC			
3 TRM REGS		SIGNAL LOSS:	0
4 TIC INTR REG		HARD ERROR:	0
5 DPLY STORAGE		SOFT ERROR:	0
6 DUMP		TRANSMIT BEACON:	0
7 DPLY SCB,SSB		LOBE WIRE FAULT:	1
8 DPLY PARM BLKS		AUTO-REMOVAL ERROR 1:	0
9 TIC ERR STAT		REMOVE RECEIVED:	0
		COUNTER OVERFLOW:	0
		SINGLE STATION:	1
		RING RECOVERY:	0
===>			
F1:END F2:MENU2 F3:ALARM		F5:REFRESH	

Figure 5-22. Token-Ring Status Screen

TRSS Messages

ALTER COMPLETE

Cause: A register has been altered.

Action: None.

AUTODUMP IN PROGRESS FOR TRA x TIC y

Cause: An NCP BER has requested a TIC dump.

Action: None.

CCU/MOSS ERROR

Cause: The function you selected cannot be performed because of a MOSS-to-CCU hardware error.

Action: Retry, and if not successful, run the diagnostics.

CDF FILE IS NOT INITIALIZED

Cause: Self-explanatory.

Action: Run CDF.

DISK ERROR: CLOSE NOT PERFORMED

Cause: Disk failure during close operation. The disk is inoperative.

Action: Change the disk.

DISK ERROR: DUMP FUNCTION NOT AVAILABLE

Cause: Disk failure during open, read, write, or close operation. The disk is inoperative.

Action: Change the disk.

DISK ERROR: DUMP MAY BE INCOMPLETE

Cause: Disk failure during open, read, write, or close operation. The disk is inoperative.

Action: Change the disk.

DISK ERROR: FUNCTION NOT PERFORMED

Cause: Disk failure during open, read, write, or close operation. The disk is inoperative.

Action: Change the disk.

DISPLAY START ADDRESS MODIFIED TO xxxx

Cause: An odd display TIC storage address was entered. Only even addresses are valid. The odd address is rounded down to the nearest even address.

Action: None.

DUMP CANCELLED AS REQUESTED

Cause: The operator did not answer affirmatively to a dump TIC storage screen prompting.

Action: Function not completed.

DUMP COMPLETE

Cause: The TIC dump has been completed.

Action: None.

DUMP FILE BEING TRANSFERRED: TRY LATER

Cause: The TRSS dump CHGTRSSA is being transferred to the host.

Action: Try the dump TIC function later.

DUMP FILED IN CHGTRSS: TO PRINT DUMP, TRANSFER IT TO HOST

Cause: The TIC auto-dump has been completed.

Action: None.

DUMP IN PROGRESS

Cause: The TIC dump is being taken.

Action: None.

EXPECTED INTERRUPT NOT RECEIVED: FUNCTION CANCELLED

Cause: An interrupt that was expected as the result of an MIOH was not received.

Action: Run diagnostics.

INVALID ADDRESS: RANGE IS 0 TO xxxx (HEX)

Cause: The requested TIC storage address was outside of the indicated range. (xxxx = FFF for TIC1, and FFFF for TIC2.)

Action: Enter a valid address.

TRSS Messages

INVALID INPUT

Cause: The entered input is invalid.

Action: Enter a valid input.

INVALID INPUT: RE-ENTER FIELDS IN ERROR

Cause: An input field is in error during alter.

Action: Correct the field.

INVALID INTERRUPT RECEIVED FROM TRA: FUNCTION CANCELLED

Cause: An interrupt was expected as the result of an MIOH but the expected interrupt bit was found to be ON in the TCB (should have been reset by MOSS level 4).

Action: Run diagnostics.

INVALID NUMBER OF HALFWORDS: RANGE IS 1-48

Cause: The requested amount of halfwords to display was out of range.

Action: Enter a valid number of halfwords.

INVALID F KEY

Cause: Self-explanatory.

Action: Use a valid F key.

IOC/TRA ERROR: DUMP MAY BE INCOMPLETE

Cause: According to the function being processed, an MIOH error occurred during an MIOH processing.

Action: Retry, and if not successful, run the diagnostics.

IOC/TRA ERROR: FUNCTION NOT PERFORMED

Cause: According to the function being processed, an MIOH error occurred during an MIOH processing.

Action: Retry, and if not successful, run the diagnostics.

IOC/TRA ERROR: MODE NOW UNKNOWN

Cause: According to the function being processed, an MIOH error occurred during an MIOH processing.

Action: Retry, and if not successful, run the diagnostics.

IOC/TRA ERROR: NOT CONNECTED

Cause: According to the function being processed, an MIOH error occurred during an MIOH processing.

Action: Retry, and if not successful, run the diagnostics.

IOC/TRA ERROR: TIC MODE NOT REPORTED

Cause: According to the function being processed, an MIOH error occurred during an MIOH processing.

Action: Retry, and if not successful, run the diagnostics.

IOC/TRA ERROR: TRA INTERRUPTS NOT ENABLED

Cause: According to the function being processed, an MIOH error occurred during an MIOH processing.

Action: Retry, and if not successful, run the diagnostics.

MOSS/TIC ERROR: FUNCTION CANCELLED

Cause: An interrupt was not answered to MOSS during the disconnect process.

Action: Run diagnostics.

NCP/MOSS ERROR: FUNCTION CANCELLED

Cause: A MOSS interface table (MIT) was not found for the selected TIC. Since the NCP is needed, the current function is cancelled.

Action: Verify NCP generation.

NCP/MOSS ERROR: PRESS SEND TO CONTINUE

Cause: A MOSS interface table (MIT) was not found for the selected TIC. The NCP is set not supporting TRSS. The function continues after SEND is pressed.

Action: Verify NCP generation.

NCP TRS SUPPORT NOT AVAILABLE: FUNCTION IGNORED

Cause: NCP generation does not support TRSS.

Action: None.

NO ACKNOWLEDGE FROM TRA: MODE NOW UNKNOWN

Cause: The TRM did not respond with an interrupt to MOSS during the disconnect process.

Action: Run diagnostics.

NO ANSWER FROM CONTROL PROGRAM: MODE NOW UNKNOWN

Cause: Mailbox to NCP was never answered during the connect process.

Action: Check if CP is running.

NO ANSWER TO ERROR STATUS REQUEST DURING ERROR RECOVERY

Cause: MOSS level 4 found an error after interrupt received.

Action: Run diagnostics.

NO TRA'S INSTALLED OR SWITCH ERROR: FUNCTION CANCELLED

Cause: There is no TRA present in the CDF. initialized.

Action: Run CDF.

REFRESH MODE: PRESS ATTN TO STOP REFRESH

Cause: Refresh mode is active.

Action: Self-explanatory.

SCROLL IGNORED

Cause: An attempt was made to scroll backward (F7) or forward (F8) beyond the limits of TIC storage

Action: None.

SELECT A TRA

Cause: A function was chosen before a TRA was selected.

Action: Select the TRA first.

SELECTED TIC NOT AVAILABLE: REQUEST REJECTED

Cause: The selected TIC is not shown installed in CDF.

Action: User error.

TIC DUMP ALREADY EXISTS: AUTODUMP CANCELLED

Cause: A TIC already exists for the TIC that is to be autodumped.

Action: Erase or transfer the TIC dump to free the TIC dump area.

TRA ALREADY CONNECTED: FUNCTION IGNORED

Cause: The selected TRA is already in connect mode.

Action: None.

TRA ALREADY DISCONNECTED: FUNCTION IGNORED

Cause: The selected TRA is already in disconnect mode.

Action: None.

TRA CANNOT BE CONNECTED: MOSS IS NOT ONLINE

Cause: The TRA cannot be connected, MOSS is not online.

Action: Set MOSS online.

TRA CANNOT BE DISCONNECTED: MOSS IS ALONE.

Cause: Switch is not initialized yet, or interrupt LA is not allowed yet.

Action: IPL up to phase 3.

TRA CANNOT BE DISCONNECTED: MOSS IS NOT ONLINE

Cause: When the CP is running, MOSS has to be online.

Action: Set MOSS **online**.

TRA CANNOT BE SELECTED: CCU CONNECTION UNKNOWN

Cause: Switch not initialized yet.

Action: Run IPL phase 1A.

TRA CONNECTED

Cause: The connection has been made.

Action: None.

TRA CONNECTION REJECTED BY CONTROL PROGRAM

Cause: The connect request was rejected by the NCP (TRA already connected).

Action: None.

TRA DISCONNECTED

Cause: The disconnect request is successful.

Action: None.

TRSS Messages

TRA DISCONNECTED BUT NO CP ACKNOWLEDGE

Cause: The TRA is physically disconnected (bit in level 1 error status is ON) but MOSS had to provide the get level 1 error status request during the disconnect process.

Action: Verify if the CP is running properly.

TRA DISCONNECTED BUT ERROR RESETTING TRM STATUS REGS

Cause: An MIOC error occurred when trying to read the TRM level 2 error status registers.

Action: Run diagnostics.

TRA DISCONNECTED BUT SOME TICS COULD NOT BE RESET

Cause: An MIOC/IOC error occurred during the setting of the TIC address register to X'00AA', or while writing to the TIC control register during the disconnect process.

Action: Run diagnostics.

TRA DISCONNECTED WITH UNEXPECTED STATUS

Cause: The MOSS level 4 detected an unexpected status condition in the get command of the disconnect interrupt. The MOSS bit was ON and none of the MOSS control bits were ON in the TIC control register.

Action: Run diagnostics.

TRA NOT DISCONNECTED: FUNCTION IGNORED

Cause: The selected function requires that the TRA be disconnected.

Action: Disconnect the TRA or ignore.

TRA SELECTED IS NOT INSTALLED: REQUEST REJECTED

Cause: The selected TRA is not present in the CDF.

Action: User error.

TRA x SELECTED: LOOK IN MSA FOR MODE

Cause: The selection was successful.

Action: None.

UNABLE TO SET TIC STORAGE BOUNDARY

Cause: The TIC did not correctly set the requested TIC's 2 kbyte storage boundary.

Action: Suspect TIC microcode.

UNDEFINED F KEY

Cause: Self-explanatory.

Action: Use a valid F key.

UNEXPECTED TRA INTERRUPT RECEIVED: KEYBOARD INPUT IGNORED

Cause: A TRA interrupt was received before or during the last send/receive. The interrupt may not be related to the last keyboard input.

Action: If transient error do nothing. Otherwise, run diagnostics.

UNPREDICTABLE RESULTS - F4 AGAIN TO CONFIRM ELSE SEND

Cause: Warning message when alter function is requested before writing to TIC or TRM register.

Action: None.

UPDATE HIGHLIGHTED FIELDS: PRESS SEND

Cause: The operator has to update the highlighted fields that have to be altered, and to press SEND.

Action: Self-explanatory.

Chapter 6. Displaying Dumps, Storage and Modules, and Deleting Files

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Dump Display Function Selection

1. You must be in **maintenance mode**.
2. In MENU 3, type **DDD** in **1**.
3. Press **SEND**.
4. Screen **B** is displayed.

A

MENU 3

MISUSE OF MAINTENANCE FUNCTIONS MAY LEAD TO UNPREDICTABLE RESULTS

BER REFCODES.....: BRC	MODULE DISPLAY...: MOD	TRSS SERVICES.....: TRS
CA SERVICES.....: CAS	MOSS STORE DSPLY.: MSD	TSS SERVICES.....: TSS
CONCURRENT DIAGS.: CDG	OFFLINE DIAGS.....: ODG	
DUMP DISPLAY/DEL.: DDD	POWER SERVICES...: POS	

ENTER OFF TO LOG OFF

==> **1**

F1:END F2:MENU2 F3:ALARM F4:MENU1 F6:RULES

Figure 6-1. Maintenance Menu (Menu 3)

1. In **1**, enter one of the file names displayed on the screen.
2. Press **SEND**

The corresponding selection screen is displayed.
The procedures are given in:

MOSS dump display	Page 6-3
TSS/HPTSS dump display	Page 6-4
TRSS dump display	Page 6-5
CA dump display	Page 6-6
CCU dump display	Page 6-6
Power dump display	Page 6-6
Delete file	Page 6-9

Note: If you press **SEND** without any file name in the file name area, a summary list of the dump files is displayed with the date and time of the dump (if it exists) and the reasons for taking the dump.

B

ENTER FILE NAME ==> 1

CHGDMP = MOSS DUMP FILE
 CHHDMPA = TSS/HPTSS DUMP FILE FOR CCU-A
 CHGTRSSA = TRSS DUMP FILE FOR CCU-A
 CHGCADSA = CA DUMP FILE FOR CCU-A
 CHGDMP1 = CCU-A DUMP FILE
 CHGPOM = POWER DUMP

==> PRESS SEND TO DISPLAY DUMP TITLES

F1:END F3:ALARM F6:DELETE FUNCTION

Figure 6-2. Dump Display/Delete Selection

MOSS Dump Display

Display of a previously created MOSS dump (function 2 on the panel). Refer to *Maintenance Information Procedure* ("How to Perform Control Panel Operations") for dump procedure.

1. Select the MOSS dump file (CHGDMP) in "Dump Display Function Selection" on page 6-2 (see Figure 6-3).
2. In **1**, enter an item number according to the part you want to dump.

If you don't enter anything, the full dump file will be displayed.

3. Press **SEND**.

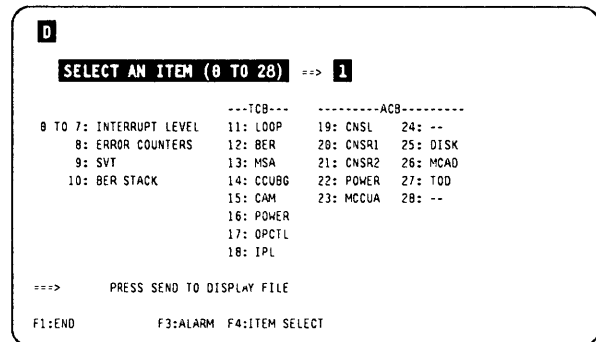


Figure 6-3. MOSS Dump Area Selection Screen

In this screen, you may:

- Press **SEND** to display screen **F**.
- Press **F4** to return to screen **D**.

Address restriction

MOSS addresses from 0 to 400 are reserved.

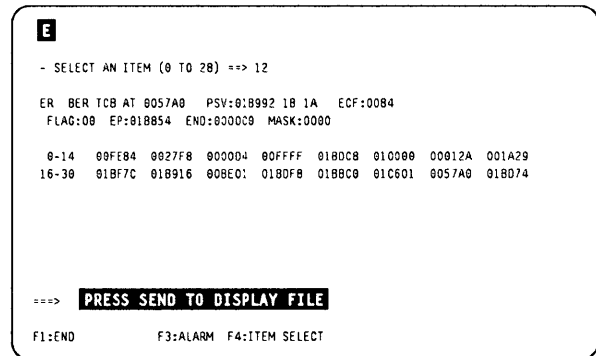


Figure 6-4. MOSS Storage Area Screen (BER Example)

You may

- Press **F4** to return to screen **D**.
- Press **F6** to go to the **dump delete** section.
- Press **F7** or **F8** to scroll.
- Overwrite any address (above 400), in column **1** by a new address, and press **SEND**. The corresponding part of the dump is displayed, starting from the part where you have entered the new address.

Scrolling (F7 or F8), affects only the new part so displayed.

Note: The information displayed on that screen is mainly for support people.

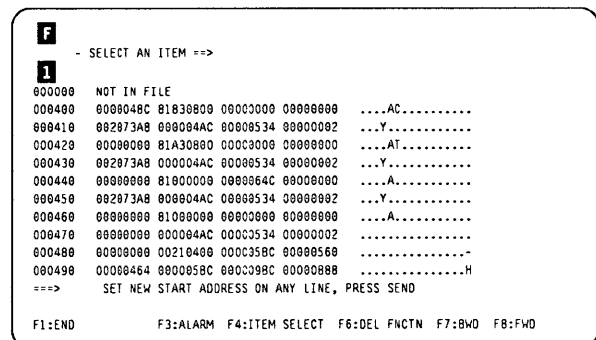


Figure 6-5. MOSS Storage Dump Screen

Scanner Dump Display

Display of a TSS/HPTSS dump previously created from the TSS services function (TSS) (see Chapter 4, "Transmission Subsystem (TSS) Functions" on page 4-1).

1. Select the scanner dump file (CHHDMPA) in "Dump Display Function Selection" on page 6-2.
2. Type **0**, or **1** in **1**.
(If you leave field **1** blank, the full dump is displayed.)
3. Press **SEND**.
4. Screen **H** is displayed.

G
SELECT AN ITEM (0 OR 1) ==> **1**

CHHDMPA DATE/TIME=mm/dd/yy hh:mm:ss SCANNER 01

0: PAGES 0 TO 8 AND PSWS
1: EXTERNAL REGISTERS

==>

F1:END
F3:ALARM F4:ITEM SELECT
F7:END F8:FWD

Figure 6-6. Scanner Dump Area Selection Screen

In this screen, you may:

- Press **F7**, or **F8**, to scroll.
- Press **SEND**, to display the next part of the dump.
- Press **F4**, to return to screen **G**.

H
- SELECT AN ITEM (0 OR 1) ==>

CHHDMPA DATE/TIME=mm/dd/yy hh:mm:ss SCANNER 01

REGS 00-07: 00 14 02 00 52 02 00 40
REGS 08-0F: 00 00 00 00 00 00 00 00
REGS 10-17: 00 00 00 00 59 F8 00 20
REGS 18-1F: 00 00 00 00 03 00 00 0F

==>

F1:END
F3:ALARM F4:ITEM SELECT
F7:END F8:FWD

Figure 6-7. Scanner Dump Area Screen

TRSS/TIC Dump Display

Display of a TRSS/TIC dump previously created from the TRSS services function (TRS) (see Chapter 5, "TRSS Functions" on page 5-1).

1. Select the TRSS/TIC dump file (CHGTRSSA) in "Dump Display Function Selection" on page 6-2.

If a TIC dump is present, its identification (time and date) is displayed, otherwise 'EMPTY' is displayed.

2. In **1**, enter the number of the dump you want to display.
3. Press **SEND**.
4. Screen **J** is displayed.

Figure 6-8. TRSS/TIC Dump Selection Screen

Press **SEND** to display the MOSS storage dump (screen **K**).

Figure 6-9. TRSS/TIC Dump Area Screen

From this screen, you may:

- Press **F7**, or **F8**, to scroll.
- Press **F4** to return to screen **I**.
- Press **F6**, to go to the **dump delete selection** screen (see Figure 6-19 on page 6-9).
- Type a file name in **1**, and press **SEND**, to display another dump.

Figure 6-10. TRSS/TIC RAM Contents Screen

CA Dump Display

Display of a CA dump previously created from the CA services function (CAS). (see Chapter 10, "CA Services" on page 10-1).

1. Select the CA dump file (CHGCADSA) in "Dump Display Function Selection" on page 6-2.

From this screen, you may:

- Press **F7**, or **F8**, or **SEND**, to scroll.
- Press **F6**, to display the **dump delete selection** screen.
- Type a file name in **1**, and press **SEND**, to display another dump.

L
- **ENTER FILE NAME** ==> **1**

000080	01000000	11188700	18323900	C3C8C105G.....CHAN
000810	05C50340	F1494800	890184C7	11188700	NEL 1G..G.
000020	40C3C3E4	48C14840	80000000	00000000	CCU A
000030	00000000	00000000	00000000	00000000
000040	00000000	00000000	00000000	00000000
000050	00000000	00000000	00000000	00000000
000060	00000000	00000000	00000000	00000000
000070	00000000	00000000	00000000	00000000
000080	00000000	00000000	00000000	00000000
000090	00000000	00000000	00000000	00000000
0000A0	00000000	00000000	00000000	00000000

==> SET NEW START ADDRESS ON ANY LINE, THEN PRESS SEND

F1:END
F3:ALARM
F6:DEL FNCTN F7:8WD F8:FWD

Figure 6-11. CA Dump Screen

CCU Dump Display

Display of a CCU dump previously created from an NCP abend.

The procedure is identical to the CA dump display, except that you select file CHGDMP1.

Power Dump Display

Display of a power dump previously created from the POS functions.

The procedure is identical to the CA dump display, except that you select file CHGPOW.

MOSS Storage Display

1. You must be in **maintenance mode**.
2. In MENU 3, type **MSD** in **1**.
3. Press **SEND**.
4. Screen **N** is displayed.

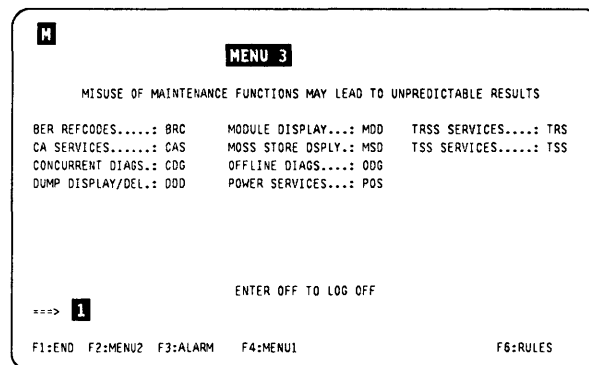


Figure 6-12. Maintenance Menu (Menu 3) Screen

1. In **1**, enter an item number, according to the part you want to display.
If you don't enter anything, the full MOSS storage will be displayed.
2. Press **SEND**.

Address restriction

MOSS addresses from 0 to 400 are reserved.

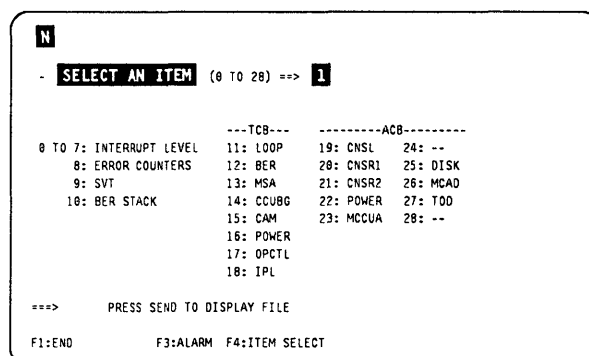


Figure 6-13. MOSS Storage Area Selection Screen

Press **SEND** to display the full MOSS storage screen, in which you may:

- Press **F7**, **F8**, or **SEND**, to scroll.
- Press **F4**, to return to screen **N**.

Note: This MOSS storage display function is identical to the MOSS dump function (see "MOSS Dump Display" on page 6-3), except that the MOSS storage data is the current data, when the MOSS dump data is coming from a previous event and stored in the MOSS dump file.

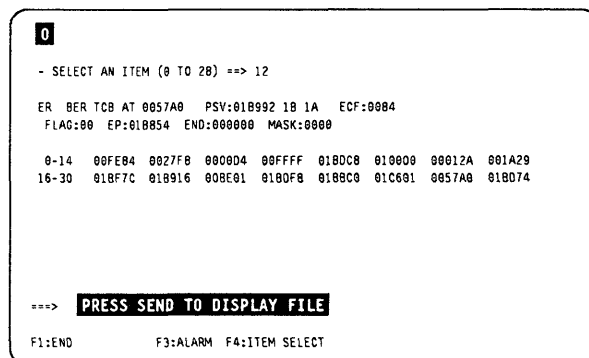


Figure 6-14. MOSS Storage Area Screen (BER Example)

Module Display

Modules Display

Display of a CCU, TSS (including HPTSS), TRSS, or MOSS module.

1. You must be in **maintenance mode**.
2. In MENU 3, type **MDD** in **1**.
3. Press **SEND**.
4. Screen **Q** is displayed.

P

MENU 3

MISUSE OF MAINTENANCE FUNCTIONS MAY LEAD TO UNPREDICTABLE RESULTS

BER REFCODES.....: BRC	MODULE DISPLAY...: MDD	TRSS SERVICES.....: TRS
CA SERVICES.....: CAS	MOSS STORE DSPLY.: MSD	TSS SERVICES.....: TSS
CONCURRENT DIAGS.: CDG	OFFLINE DIAGS.....: ODG	
DUMP DISPLAY/DEL.: DDD	POWER SERVICES...: POS	

ENTER OFF TO LOG OFF

==> **1**

F1:END F2:MENU2 F3:ALARM F4:MENU1 F6:RULES

Figure 6-15. Maintenance Menu (Menu 3) Screen

1. In **1**, enter the name of the file containing the module.
2. In **2**, enter the module name.
3. Press **SEND**.

Note: This function is mainly used at the PE's request who, when necessary, provides the module names.

Q

ENTER FILE NAME ==> **1** AND MODULE NAME ==> **2**

CHGCMOD= MOSS MODULES

CHGMDI8= SCANNER MODULES

CHGMD037= 3745 MODULES

==>

F1:END F3:ALARM

Figure 6-16. Module Display Selection Screen

Delete a File from the MOSS Disk

Before Deleting a File

There is no way to access a file after deleting that file.

1. You must be in **maintenance mode**.
2. In MENU 3, type **DDD** in **1**.
3. Press **SEND**.
4. Screen **S** is displayed.

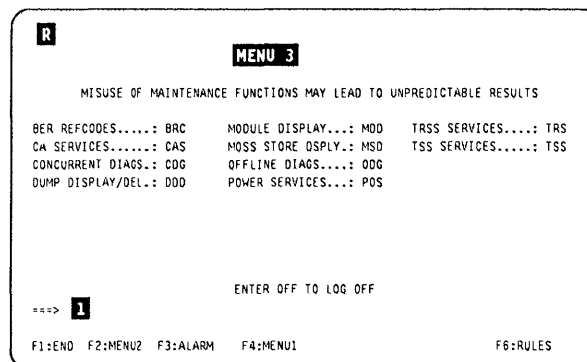


Figure 6-17. Maintenance Menu (Menu 3) Screen

Press **F6**. Screen **T** is displayed.

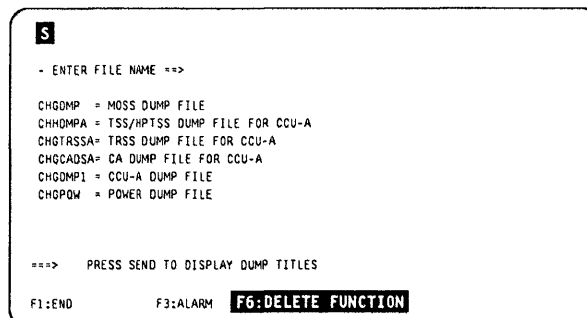


Figure 6-18. Dump Display/Delete Selection Screen

1. In **1**, type the name of the file you wish to delete from the MOSS disk.
2. Press **SEND**.

The file is deleted from the disk (except for the TRSS/TIC dump, see "TRSS/TIC Dump Delete" on page 6-10), and an acknowledgment message is displayed.

Press **F6**, to return to screen **S**.

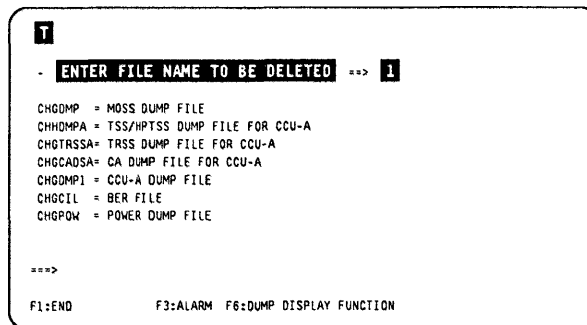


Figure 6-19. Dump Delete Selection Screen

File Delete

TRSS/TIC Dump Delete

If you type CHGTRSSA in screen **T** and press **SEND**, this screen is displayed.

1. In **1**, enter the number of the TIC dump you want to delete.
2. Press **SEND**.

When the delete is completed, the message:

TIC x DUMP NOW EMPTY

is displayed.

Note: 'EMPTY' is displayed in front of the item(s) without dump.

```
0
- SELECT AN ITEM (0 TO 7) ==> 1

0: TRA 1 TIC 1
1: TRA 1 TIC 2
2: TRA 2 TIC 1
3: TRA 2 TIC 2
4: TRA 5 TIC 1
5: TRA 5 TIC 2
6: TRA 6 TIC 1
7: TRA 6 TIC 2

==>

F1:END      F3:ALARM      F6:QUIT
```

Figure 6-20. TRSS/TIC Dump Delete Screen

Display/Delete Messages

DELETE NOT ALLOWED FOR THIS FILE

Cause: The operator tried to delete a file not in the delete list of files obtained by pressing F6.

Action: None.

DISK ERROR

Cause: A physical disk error occurred when attempting to access a given file.

Action: Change the disk.

EMPTY

Cause: The associated file contains no data. This can occur only with dump files.

Action: None.

END OF DATA

Cause: The microcode attempted to read/write the last sector plus one of the file (to complete the screen data).

Action: None.

END OF FILE

Cause: The microcode attempted to read/write the last sector of the file.

Action: None.

FILE NOT FOUND

Cause: The operator specified a file name which does not exist.

Action: Check the file name entered against the file names listed, and retry.

INVALID INPUT

Cause: The operator specified a wrong item number (out of the window specified on the screen), or a data address which is not a hexadecimal string.

Action: Enter a valid item number, or a valid hexadecimal string.

MODULE NOT FOUND

Cause: The operator specified a module name which does not exist.

Action: Check for module name validity.

OUT OF FILE

Cause: The operator specified a data address out of the file limit.

Action: Specify a data address inside the file limit.

REFRESH MODE, PRESS BREAK TO STOP

Cause: The operator has entered 'refresh' mode by pressing SEND twice.

Action: Press the BREAK (or ATTN) key to leave 'refresh' mode. Take care to press this key when the console is unlocked (between two data refreshes).

SELECT A FILE

Cause: The operator has not entered a file name, but has pressed SEND.

Action: Enter a valid file name and press SEND again.

TOP OF FILE

Cause: The operator has pressed F7 (backward), or has entered a data address which reaches the top of the file.

Action: None.

UNDEFINED F KEY

Cause: The operator has pressed a key not specified as active on the screen.

Action: None.

The following messages are for internal use only. If you receive one of them, contact the PE:

- ALREADY OPENED
- BAD A(AREA)
- BAD COUNT
- BAD MODULE TYPE
- BAD PLIST
- BUF OVFLW
- INPUT ONLY

- IN USE
- NOT OPENED
- OUTPUT ONLY
- PROTECTED
- TRUNCATED

Chapter 7. Applying and Displaying Microcode Fixes (MCF)

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What Are Microcode Fixes and Patches

The MCF function has **three distinct parts**:

MCF management Allows installing, or restoring MCF, and displaying the MCF history file.

MCF transfer Allows transferring MCF(s) from diskette to disk.

Patch management Used by **IBM Product Engineering (PE)** to make code changes to the MOSS microcode files. The procedure is given in Chapter 8.

The customer, and service personnel, can use the MCF function (upgrade, restore, and display).

MCF File

The MCFs, once on the MOSS disk, are in a file that contains **all** the MCFs created since the last EC. This file is sorted in chronological order of MCF creation, so that new MCFs are appended.

The MCF file contains two types of MCF:

- The old MCFs, which have been applied in an earlier upgrade of the microcode, and which are now part of the code.
- The new MCFs, which have just been transferred to the MCF file.

You may individually scan (display) old and new MCFs, but new MCFs are considered as a burst of MCFs that may be applied completely or not at all.

Terminology notes

Upgrade The procedure by which the set of MCFs will be applied to modify the existing microcode.

Restore A procedure to come back to the previous microcode state. It restores the microcode as it was before the previous **upgrade**.

Roll-back If an upgrade cannot be terminated, all new MCFs that have just been applied are restored.

MCF History Table

It records:

- All upgrade and restore functions that have been executed.
- For each of these functions, the last MCF applied and the execution date.

How to Install Microcode Fixes (MCFs)

You obtain the microcode fixes by:

- Transferring the MCFs to the MOSS disk via RSF, through RETAIN
- Receiving a microcode diskette (the secondary diskette) that contains the latest MCFs. Refer to "MCF Transfer" on page 7-6 to apply that diskette.

If the MCFs are on diskette, they must be transferred to the MOSS disk before installation.

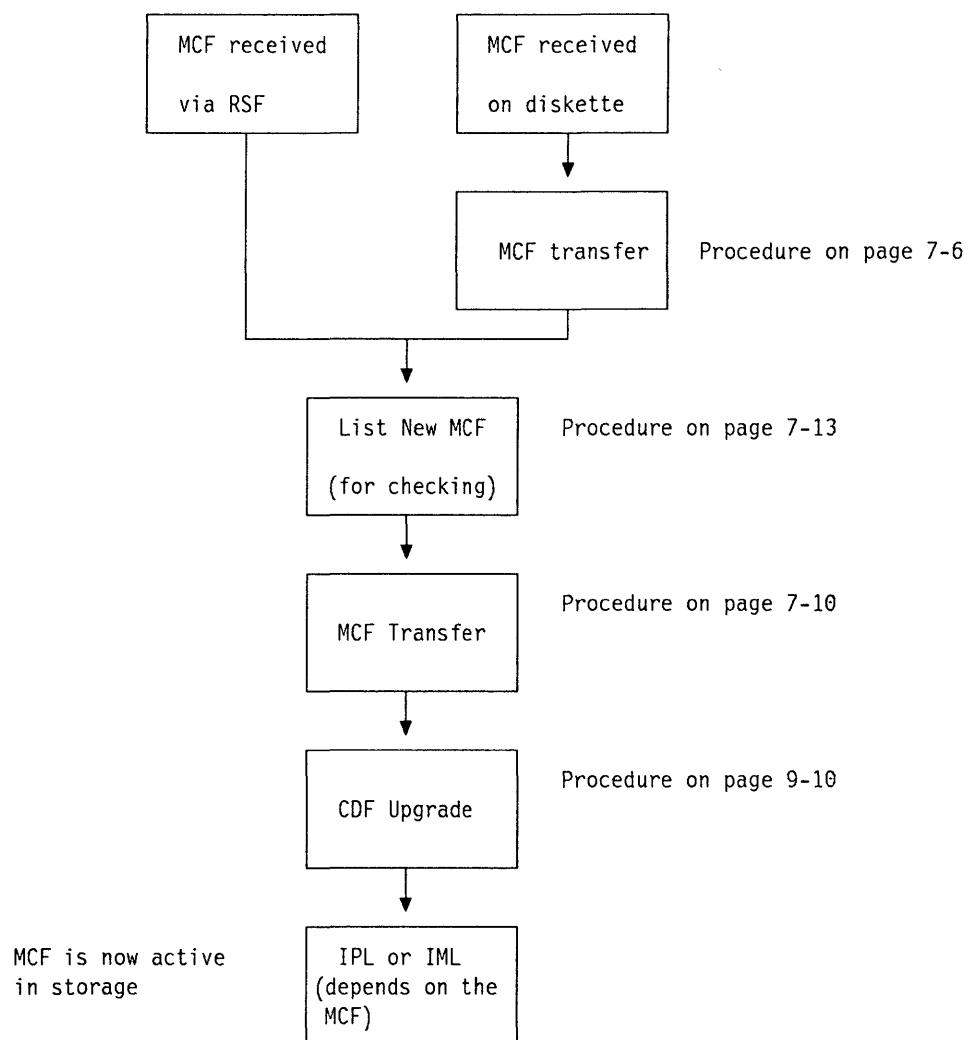


Figure 7-1. MCF Installation Sequence

MCF Functions

MCF Functions Overview

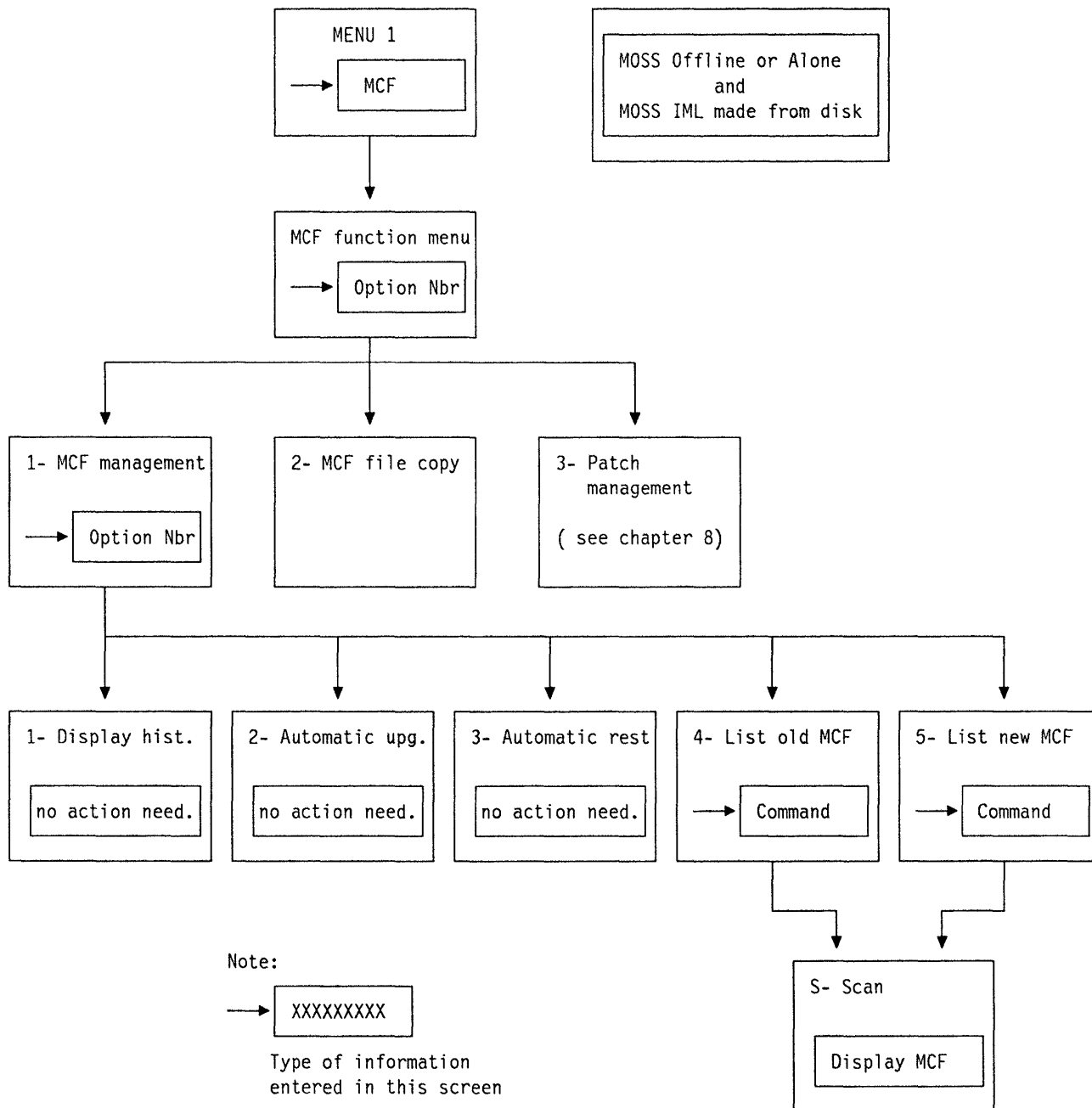


Figure 7-2. Microcode Fix Flow

MCF Function Selection

1. The MOSS must be **offline**, or **alone**.
2. In MENU 1, type **MCF** in **1**.
3. Press **SEND**.

Screen **B** is displayed.

A

MENU 1

CONFIG DATA FILE.: CDF	IML ONE SCANNER.: IMS	PASSWORDS.....: PSW
CONTROL PGM PROC.: CPP	IPL CCU.....: IPL	PORT SWAP FILE.: PSF
DISK FUNCTIONS...: DIF	LD LINK TEST REQ.: LTQ	
DISK IPL INFO...: DII	LD LINK TEST RESP.: LTS	SCANNER I/F TRACE: SIT
EVENT LOG DISPLAY: ELD	LINE INTERF DSPLY: LID	STAND ALONE TEST.: SAT
	LINK IPL PORTS...: LKP	
INTERN. DATA FILE: IDF	MACHINE LVL TABLE: MLT	TIME SERVICES.....: TIM
IML MOSS.....: IML	MICROCODE FIXES.: MCF	TRSS INTERF DSPLY: TID
		WRAP TEST.....: WTT

ENTER OFF TO LOG OFF

==== **1**

F1:END F2:MENUE2 F3:ALARM F5:MENUE3 F6:RULES

Figure 7-3. Menu 1 Screen

This screen displays the EC level of the MOSS microcode.

The procedures are described in:

MCF transfer	Page 7-6
Display history	Page 7-9
MCF upgrade	Page 7-10
MCF restore	Page 7-11
List old/new MCF	Page 7-13
Patch management	See Chapter 8

B

SELECT ONE OPTION (1 TO 3), THEN PRESS SEND ==> **1**

1 = MCF MANAGEMENT
(UPGRADE OR RESTORE MICROCODE, LIST, HISTORY TABLE)

2 = MCF FILE COPY FROM DISKETTE TO DISK

3 = PATCH MANAGEMENT

EC LEVEL = **xxxxxxx**

====

F1:END F3:ALARM

Figure 7-4. MCF/Patch Selection Screen

MCF Transfer

You must use this procedure when you receive the MCF on diskette. This procedure transfers the MCF from the diskette to the MOSS disk. You may then use the **MCF upgrade** procedure to install the corresponding MCF.

- The MOSS must be **offline** or **alone**.
- The MOSS IML must have been made from the disk.

1. You must be in the MCF function (see 7-5).
2. Enter **2** in **1**.
3. Press **SEND**.

Screen **D** is displayed.

```

C
- SELECT ONE OPTION (1 TO 3), THEN PRESS SEND ==> 1

1 = MCF MANAGEMENT
  (UPGRADE OR RESTORE MICROCODE, LIST, HISTORY TABLE)

2 = MCF FILE COPY FROM DISKETTE TO DISK

3 = PATCH MANAGEMENT

EC LEVEL = XXXXXXXX

==>

F1:END      F3:ALARM
  
```

Figure 7-5. MCF/Patch Selection Screen

Install the second diskette, and press **SEND** as indicated on the screen.

Screen **E** is displayed.

```

D
MCF FILE COPY

- MOUNT THE NEW DISKETTE THAT CONTAINS MCF FILE, THEN PRESS SEND

==>

F1:END      F3:ALARM      F6:QUIT
  
```

Figure 7-6. MCF File Copy Mount Diskette Screen

1. Check if the information displayed is correct (diskette level higher than disk level).
2. If OK, press **SEND** (otherwise press **F6**).
3. If you press **SEND**, the MCF file is copied from the diskette to the MOSS disk.

When the copy is successfully completed, this message is displayed:

MCF FILE COPIED ON DISK

```

E
MCF FILE COPY

DISK INFORMATION          DISKETTE INFORMATION

EC NUMBER:      XXXXXXXX    EC NUMBER:      XXXXXXXX
LAST MCF NUMBER: XXXXXXXX    LAST MCF NUMBER: XXXXXXXX
LAST APPLIED MCF: XXXXXXXX

- PLEASE CONFIRM (Y OR N), THEN PRESS SEND ==>

==>

F1:END      F3:ALARM      F6:QUIT
  
```

Figure 7-7. MCF File Copy Information Screen

MCF File Copy Screen Field Description

EC NUMBER: EC level of the microcode.

LAST MCF NUMBER: Number of the last MCF on the file (disk or diskette).

LAST APPLIED MCF: Number of the last MCF applied on the MOSS disk file.

Some Common MCF Transfer Errors

Refer to *Advanced Operations Guide* for action needed by these messages.

- If the MCF file of the diskette is empty, this message is displayed:
FUNCTION CANCELED: THERE IS NO NEW MCF IN FILE ON DISKETTE
- If the file does not exist, this message is displayed:
DISK(ETTE) ERROR: MCF FUNCTION CANCELED
- If the last MCF number of the diskette is not sequential with the last applied MCF number on disk, this message is displayed:
FUNCTION CANCELED: DISKETTE MCF NOT SEQUENTIAL WITH LAST DISK MCF
- If the physical size of the diskette is greater than the available size of the disk, this message is displayed:
FUNCTION CANCELED: DISKETTE SIZE GREATER THAN DISK SIZE
- If a previous apply or restore MCF could not be successfully completed, this message is displayed:
FUNCTION CANCELLED: UPGRADE/RESTORE RECOVERY PENDING

You must restart and complete the MCF apply or restore operation that failed, before transferring a new MCF file.
- If the EC levels of the diskette and of the MOSS disk are different, this message is displayed:
DISK AND DISKETTE EC NUMBERS ARE DIFFERENT

until the correct diskette is mounted.

To leave the function, type 'N', or press F1 or F6.
- If the last MCF number of the diskette is lower than or equal to that of the MOSS disk, this message is displayed:
DISKETTE MCF NUMBER NOT GREATER THAN DISK MCF NUMBER

until the correct diskette is mounted.

To leave the function, type 'N', or press F1, or F6.

Accessing the MCF Management Functions

1. You must be in the MCF function (see 7-5).
2. Enter 1 in **1**.
3. Press **SEND**.

Screen **6** is displayed.

```

6

SELECT ONE OPTION (1 TO 3), THEN PRESS SEND ==> 1

1 = MCF MANAGEMENT
    (UPGRADE OR RESTORE MICROCODE, LIST, HISTORY TABLE)

2 = MCF FILE COPY FROM DISKETTE TO DISK

3 = PATCH MANAGEMENT

    EC LEVEL = XXXXXXXX

==>

F1:END          F3:ALARM
  
```

Figure 7-8. MCF/Patch Selection Screen

The procedures are described in:

Display history	Page 7-9
MCF upgrade	Page 7-10
MCF restore	Page 7-11
List old/new MCF	Page 7-13

```

6

MCF MANAGEMENT          LAST APPLIED MCF =

- SELECT ONE OPTION (1 TO 5) ==>

1 = DISPLAY HISTORY TABLE
2 = AUTOMATIC UPGRADE OF THE MICROCODE
3 = AUTOMATIC RESTORE OF THE MICROCODE
4 = LIST OLD MCF(S)
5 = LIST NEW MCF(S)

==>

F1:END          F3:ALARM          F6:QUIT
  
```

Figure 7-9. MCF Function Selection Screen

Microcode State

The microcode state is identified with the last applied MCF.

The MCFs are not independent: each MCF file contains all old MCFs, plus the new ones.

The last applied MCF displayed corresponds to the identifier of the last MCF applied (either by means of an engineering change (EC), or by means of an MCF upgrade).

MCF File Checking

The MCF file is checked for validity. If it is not correct, the customer cannot use the MCF management, and the following message is displayed:

INCORRECT MCF FILE: CONTACT SERVICE REPRESENTATIVE

MCF History Table Display

The MCF history table is a trace of modifications brought to the microcode through upgrade and restore of MCFs.

This table displays the identifier of the last MCF applied by the upgrade or restore function, and the date of execution.

1. You must have selected the MCF management function (see page 7-8).
2. Type **1** in screen **G** of the "Accessing the MCF Management Functions" on page 7-8, and press **SEND**.
3. The **MCF history** screen is displayed.
4. Additional screens can be necessary to display the MCF history table. Press **F8**, to display them.

MCF HISTORY			SCREEN 1/x
MM/DD/YY		LEVEL	
xx/xx/xx	CODE UPGRADED TO LEVEL	Mxxxxxx	
xx/xx/xx	CODE UPGRADED TO LEVEL	Mxxxxxx	
xx/xx/xx	CODE UPGRADE/RESTORE FAILED		
xx/xx/xx	CODE RESTORED TO LEVEL	Mxxxxxx	
xx/xx/xx	CODE UPGRADED TO LEVEL	Mxxxxxx	
xx/xx/xx	CODE UPGRADED TO LEVEL	Mxxxxxx	
xx/xx/xx	CODE UPGRADED TO LEVEL	Mxxxxxx	
xx/xx/xx	CODE UPGRADED TO LEVEL	Mxxxxxx	
xx/xx/xx	CODE RESTORED TO LEVEL	Mxxxxxx	

==>

F1:END F3:ALARM F4:TOP F5:BOTTOM F6:QUIT F7:BACKWARD F8:FORWARD

Figure 7-10. MCF History Table Screen

MCF Microcode Upgrade

Allows you to include all the MCFs contained in the MCF set (that is, all the MCFs released since the last EC).

1. You must have selected the MCF management function (see page 7-8).
2. Type 2 in screen **G** of the "Accessing the MCF Management Functions" on page 7-8, and press **SEND**.
3. If it is the first time, you are requested to enter the date.
4. The **upgrade of microcode** screen is displayed.

No other action is needed. The progress of the upgrade is displayed on the screen.

```

I
IDENTIFIER      UPGRADE OF MICROCODE      SCREEN 1/x

Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
- UPGRADE IN PROGRESS

==>

F1:END      F3:ALARM  F4:TOP  F5:BOTTOM  F6:QUIT  F7:BACKWARD  F8:FORWARD
  
```

Figure 7-11. MCF Upgrade of Microcode (Upgrade in Progress)

1. At the completion of the MCF microcode upgrade, you see this screen.
2. Press **SEND**, to terminate the function.
3. Perform a CDF upgrade (refer to page 9-10) to bring the machine up to the right level.

Note: If you want to use the new microcode, you must execute a MOSS, and/or scanner re-IML, according to the updated part of the microcode. The new code is then loaded, from the disk to the storage.

```

J
IDENTIFIER      UPGRADE OF MICROCODE      SCREEN 1/x

Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
Mxxxxx  APPLIED
- UPGRADE COMPLETED, PRESS SEND

==>

F1:END      F3:ALARM  F4:TOP  F5:BOTTOM  F6:QUIT  F7:BACKWARD  F8:FORWARD
  
```

Figure 7-12. MCF Upgrade of Microcode (Upgrade Completed)

Error During MCF Upgrade

DATA ERROR

If one of the MCFs contained in the set cannot be applied (perhaps due to a conflicting local patch applied), the upgrade function is stopped, and all applied MCFs are restored (undone).

```

K
IDENTIFIER      UPGRADE OF MICROCODE      SCREEN 1/x

Mxxxx20  APPLIED
Mxxxx21  APPLIED
Mxxxx22  APPLIED
Mxxxx23  APPLIED
Mxxxx24  APPLIED
Mxxxx25  APPLIED
Mxxxx26  NOT APPLIED: MCF DATA DOES NOT MATCH 'MODULE DATA'
Mxxxx27  ==>
- UPGRADE ABORTED, PRESS SEND

==>

F1:END      F3:ALARM  F4:TOP  F5:BOTTOM  F6:QUIT  F7:BACKWARD  F8:FORWARD
  
```

Figure 7-13. Data Error During MCF Upgrade (Example 1)

The microcode is restored to its previous state (roll-back).

L IDENTIFIER		UPGRADE OF MICROCODE	SCREEN 1/x
Mxxxx25	RESTORED		
Mxxxx24	RESTORED		
Mxxxx23	RESTORED		
Mxxxx22	RESTORED		
Mxxxx21	RESTORED		
Mxxxx20	RESTORED		
- RESTORE COMPLETED, PRESS SEND			
====>			
F1:END	F3:ALARM	F4:TOP	F5:BOTTOM F6:QUIT F7:BACKWARD F8:FORWARD

Figure 7-14. Data Error During MCF Upgrade (Example 2)

DISK ERROR

When a disk error occurs during an upgrade, the MCF function is canceled. The next time you re-enter the MCF function, the MCFs applied during the canceled function will be restored to their previous levels.

There is no roll-back in this case, since it is not a logical error but a hardware error, which must be corrected before anything else.

H IDENTIFIER		UPGRADE OF MICROCODE	SCREEN 1/x
Mxxxx20	APPLIED		
Mxxxx21	APPLIED		
Mxxxx22	APPLIED		
Mxxxx23	APPLIED		
Mxxxx24	NOT APPLIED: DISK ERROR		
Mxxxx25	==>		
Mxxxx26	==>		
Mxxxx27	==>		
- UPGRADE IN PROGRESS			
DISK ERROR: MCF FUNCTION CANCELLED			
====>			
F1:END	F3:ALARM	F4:TOP	F5:BOTTOM F6:QUIT F7:BACKWARD F8:FORWARD

Figure 7-15. Disk Error During MCF Upgrade (Example)

MCF Microcode Restore

Restores the microcode to its status before the last MCF upgrade.

1. You must have selected the MCF management function (see page 7-8).
2. Enter the date (MM/DD/YY).
3. Type 3 in screen **G** of the "Accessing the MCF Management Functions" on page 7-8, and press **SEND**. This screen is displayed.

Once requested, the restore is done automatically, and the progress of the restore is displayed on the screen.

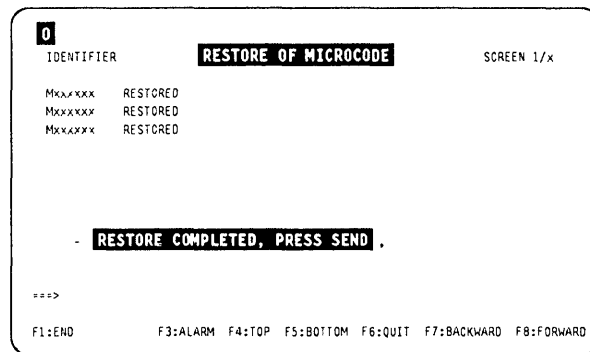
N IDENTIFIER		RESTORE OF MICROCODE	SCREEN 1/x
Mxxxxxx	RESTORED		
Mxxxxxx	RESTORED		
Mxxxxxx	RESTORED		
Mxxxxxx	RESTORED		
Mxxxxxx	RESTORED		
Mxxxxxx	RESTORED		
Mxxxxxx	RESTORED		
Mxxxxxx	RESTORED		
- RESTORE IN PROGRESS			
====>			
F1:END	F3:ALARM	F4:TOP	F5:BOTTOM F6:QUIT F7:BACKWARD F8:FORWARD

Figure 7-16. MCF Restore of Microcode (Restore in Progress)

MCF Restore

At the completion of the MCF microcode restore, this screen is displayed.

Press **SEND**, to terminate the function.



0 IDENTIFIER RESTORE OF MICROCODE SCREEN 1/X

Mxxxxxx	RESTORED
Mxxxxxx	RESTORED
Mxxxxxx	RESTORED

- RESTORE COMPLETED, PRESS SEND .

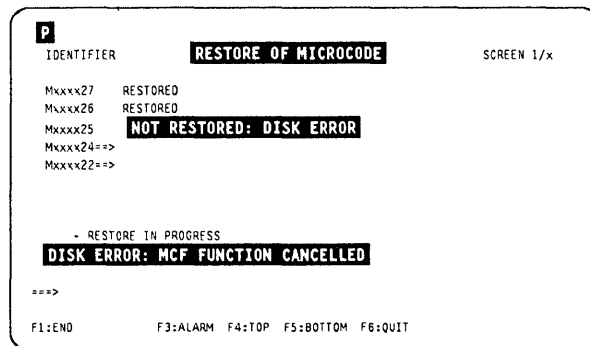
==>

F1:END F3:ALARM F4:TOP F5:BOTTOM F6:QUIT F7:BACKWARD F8:FORWARD

Figure 7-17. MCF Restore of Microcode (Restore Completed)

Error during MCF Restore

When a disk error occurs during a restore, the MCF function is canceled. The next time you enter the MCF function, the restored MCFs during the canceled function will be put back to their previous levels.



P IDENTIFIER RESTORE OF MICROCODE SCREEN 1/X

Mxxxx27	RESTORED
Mxxxx26	RESTORED
Mxxxx25	NOT RESTORED: DISK ERROR
Mxxxx24=>	
Mxxxx22=>	

- RESTORE IN PROGRESS

DISK ERROR: MCF FUNCTION CANCELLED

==>

F1:END F3:ALARM F4:TOP F5:BOTTOM F6:QUIT

Figure 7-18. Disk Error During MCF Restore (Example)

List the Old and New MCFs

1. You must have selected the MCF management function (see page 7-8).
2. Type **4** (old MCF), or **5** (new MCF), in screen **6** of the "Accessing the MCF Management Functions" on page 7-8, and press **SEND**.

This screen is displayed (new MCF screen is similar).

You may then scan an MCF (see screen **R**).

Q IDENTIFIER OLD MCF(S) SCREEN 1/x

```

MXXXXX A ==>
MXXXXX A ==>
MXXXXX A ==>
MXXXXX A ==>
MXXXXX A ==>
MXXXXX A ==>
MXXXXX A ==>
MXXXXX A ==>
MXXXXX A ==>
MXXXXX A ==>
(A=APPLIED. OLD MCF(S) ARE ALWAYS APPLIED)
- TO SCAN AN MCF, ENTER S AGAINST IDENTIFIER

==>
F1?END F3?ALARM F4?TOP F5?BOTTOM F6?QUIT F7?BACKWARD F8?FORWARD

```

Figure 7-19. Old MCF List Screen

MCF Scan Procedure

1. Display the old/new MCF (see procedure above).
2. Enter **S** in **1**.
3. Press **SEND**.

Screen **S** is displayed.

R IDENTIFIER NEW MCF(S) SCREEN 2/ 3

```

MXXXXX N ==> 1
MXXXXX N ==>
MXXXXX N ==>
MXXXXX N ==>
MXXXXX N ==>
MXXXXX N ==>
MXXXXX N ==>
MXXXXX N ==>
MXXXXX N ==>
MXXXXX N ==>
(A=APPLIED. N=NON-APPLIED)
TO SCAN AN MCF, ENTER S AGAINST IDENTIFIER

==>
F1?END F3?ALARM F4?TOP F5?BOTTOM F6?QUIT F7?BACKWARD F8?FORWARD

```

Figure 7-20. Selection of an MCF to be Scanned (Example)

This screen displays the first record of the selected MCF. Press **F8** to display the next records.

VERIFY DATA is the old data.

REPLACE DATA is the new data.

S ID: MXXXXX RECORD: 01

```

- FILE NAME = XXXXXXXX
- MODULE NAME = XXXXXXXX
- ADDRESS = XXX

- VERIFY DATA = XXXX XXXX XXXX XXXX XXXX XXXX XXXX
- REPLACE DATA = XXXX XXXX XXXX XXXX XXXX XXXX XXXX

==>
F1:END F3:ALARM F6:QUIT F8:NEXT RECORD

```

Figure 7-21. MCF Scan Display Screen (Example)

MCF Messages

Refer to the 3745 Advanced Operations Guide, SA33-0097, for explanation of the following messages which are common to customers and CE:

- ALL OR PART OF 'VERIFY DATA' IS OUTSIDE MODULE
- CCU FUNCTION NOT ALLOWED
- CCU/MOSS ERROR: FUNCTION CAN NOT BE PERFORMED
- CODE ALREADY RESTORED
- CODE ALREADY UPGRADED
- DESTINATION DISK(ETTE) ERROR: FUNCTION CAN NOT BE PERFORMED
- DISK AND DISKETTE EC NUMBERS ARE DIFFERENT
- DISK(ETTE) ERROR: MCF FUNCTION CANCELED
- DISKETTE MCF NBR NOT GREATER THAN DISK MCF NBR
- FUNCTION CANCELED: DISKETTE MCF NOT SEQUENTIAL WITH LAST DISK MCF
- FUNCTION CANCELED: DISKETTE SIZE GREATER THAN DISK SIZE
- FUNCTION CANCELED: THERE IS NO MCF FILE ON DISKETTE
- FUNCTION CANCELED: THERE IS NO NEW MCF IN FILE ON DISKETTE
- FUNCTION CANCELED: UPGRADE/RESTORE RECOVERY PENDING
- FUNCTION CAN NOT BE PERFORMED WHEN MOSS IS ONLINE
- FUNCTION NOT ALLOWED IN DISKETTE MODE
- FUNCTION TERMINATION NOT ALLOWED: COMPLETE FUNCTION
- INCORRECT DISKETTE, IT MUST BE A PRIMARY AT SAME EC
- INCORRECT DISKETTE, YOU MUST MOUNT THE IML DISKETTE
- INCORRECT MCF FILE: CONTACT SERVICE REPRESENTATIVE
- INPUT CHECKSUM DOES NOT MATCH COMPUTED ONE
- INVALID DATE
- INVALID FILE NAME
- INVALID INPUT
- INVALID MODULE NAME
- MCF FILE IS EMPTY
- MCF FILE COPIED ON DISK
- MIXED COMMANDS ARE NOT ALLOWED
- MOUNT CORRECTLY THE DISKETTE, THEN PRESS SEND
- NO NEW MCF IN FILE
- NO OLD MCF IN FILE
- ONLY ONE SCAN OR MODIFY ON SAME SCREEN
- RECOVERY OF A CANCELED APPLY
- RECOVERY OF A CANCELED RESTORE
- RECOVERY OF A CANCELED UPGRADE
- SOURCE DISK(ETTE) ERROR: FUNCTION CAN NOT BE PERFORMED
- THE HISTORY TABLE IS EMPTY
- UNDEFINED F KEY
- 'VERIFY DATA' AND 'REPLACE DATA' HAVE DIFFERENT LENGTHS
- 'VERIFY DATA' DOES NOT MATCH 'MODULE DATA'

Chapter 8. Handling Patches to Microcode

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What Are Microcode Fixes and Patches

The MCF function has two parts:

- The microcode fix (MCF), described in Chapter 7.
- The microcode patch (referred to as patch). A patch:
 - Corrects or bypasses a single microcode design defect.
 - Is a response to a high-severity problem.
 - Has minimal test requirement.
 - Has a very limited distribution.

The patch management function is normally used by the **IBM Product Engineering (PE)**, or sometimes by the CE to make changes in the MOSS microcode, TSS (including HPTSS) microcode, CLDP. These changes are made on the MOSS disk.

Patch Installation Sequence

1. Create the patch(es) (see "Create a Patch" on page 8-6), or obtain a diskette that contains the patch(es).
2. Transfer the patches to the MOSS disk, if they are not there already (see "Copying Microcode Patches from a Diskette to the MOSS Disk" on page 8-15).
3. Apply the patches that are on the MOSS disk (see "Apply a Patch" on page 8-10).
4. Terminate the patch function.
5. Set the 3745 back to normal mode.
6. IML from disk.

The storage now contains the updated version of the microcode.

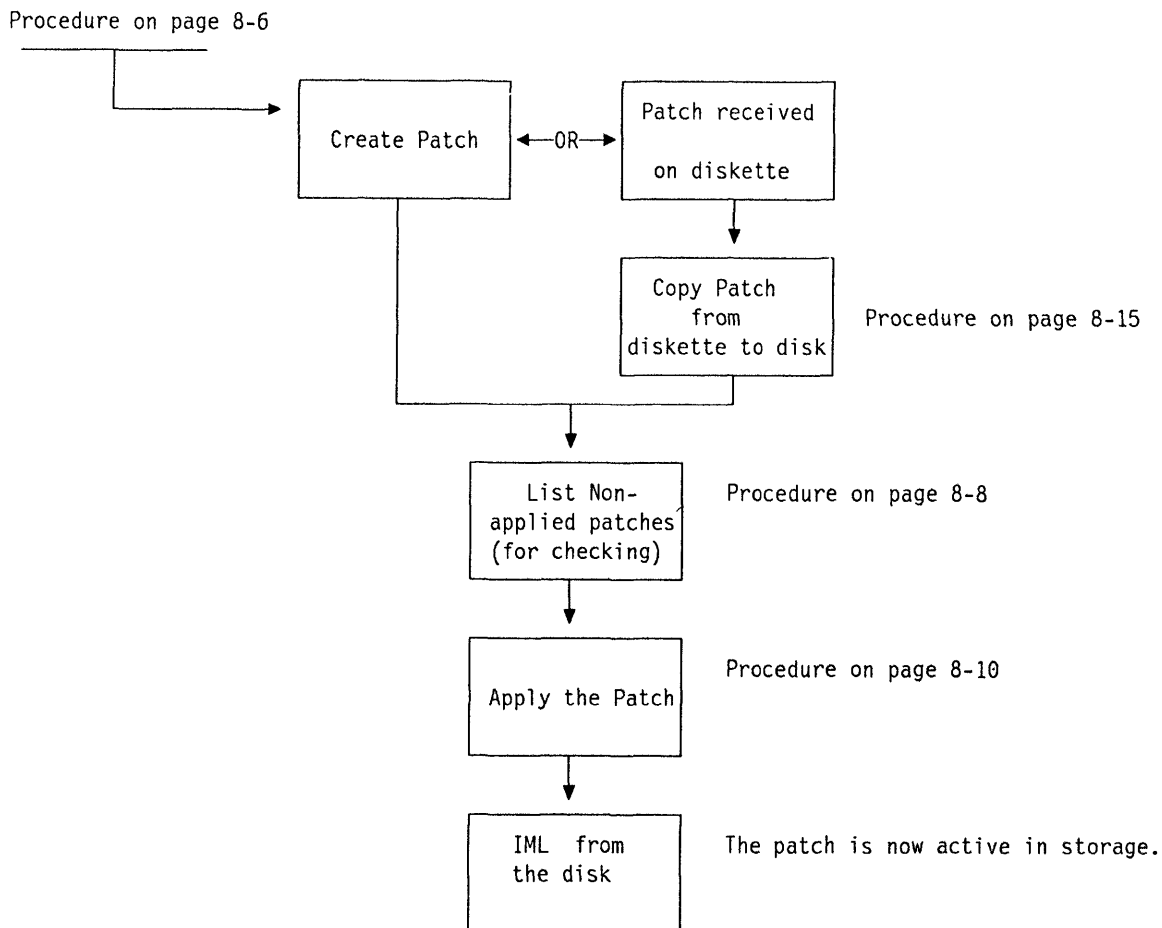


Figure 8-1. Patch Installation Sequence

Patch Function Overview

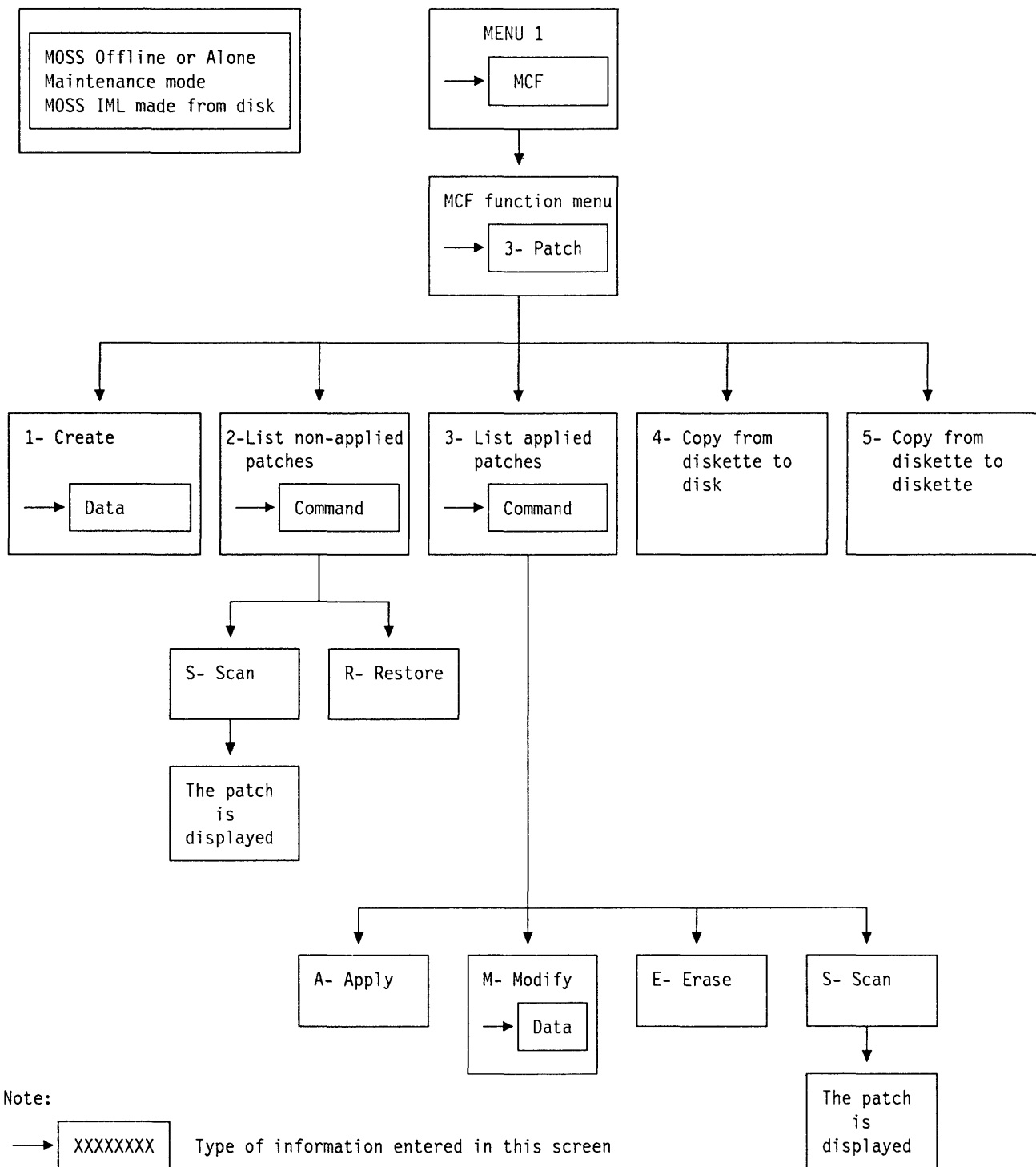


Figure 8-2. Microcode Patch Flow

Accessing the Patch Management Function

1. The MOSS must be **offline** or **alone**.
2. The IML must have been made from the disk.
3. The 3745 must be in **maintenance** mode (see "Sign ON Procedure" on page 1-6).
4. In MENU 1, type **MCF** in **1**.
5. Press **SEND**.

Screen **B** is displayed.

```

A
MENU 1
CONFIG DATA FILE.: CDF      IML ONE SCANNER.: IMS      PASSWORDS.....: PSW
CONTROL PGM PROC.: CPP      IPL CCU.....: IPL        PORT SWAP FILE.: PSF
DISK FUNCTIONS...: DIF      LD LINK TEST REQ.: LTQ     SCANNER I/F TRACE: SIT
DISK IPL INFO....: DII      LD LINK TEST RESP.: LTS    STAND ALONE TEST.: SAT
EVENT LOG DISPLAY: ELD      LINE INTERF DSPLY: LID     LINK IPL PORTS...: LKP
INTERN. DATA FILE: IDF     MACHINE LVL TABLE: MLT    TIME SERVICES....: TIM
IML MOSS.....: IML         MICROCODE FIXES...: MCF    TRSS INTERF DSPLY: TID
                                     WRAP TEST.....: WTT

===== 1 =====
ENTER OFF TO LOG OFF

F1:END  F2:MENU2  F3:ALARM          F5:MENU 3          F6:RULES

```

Figure 8-3. Menu 1 Screen

1. Type **3** in **1**.
2. Press **SEND**.
3. Screen **C** is displayed.

EC LEVEL: EC level of the MOSS microcode.

```

B
- SELECT ONE OPTION (1 TO 3), THEN PRESS SEND ==> 1

1 = MCF MANAGEMENT
   (UPGRADE OR RESTORE MICROCODE, LIST, HISTORY TABLE)

2 = MCF FILE COPY FROM DISKETTE TO DISK

3 = PATCH MANAGEMENT

   EC LEVEL = xxxxxxxx

====>

F1:END          F3:ALARM

```

Figure 8-4. MCF/Patch Selection Screen

1. Enter the selected option in **1**.
2. Press **SEND**.

This is the starting panel for all the procedures described in this chapter.

```

C
PATCH MANAGEMENT

- SELECT ONE OPTION (1 TO 5) ==> 1

1 = CREATE A PATCH
2 = APPLY, ERASE, MODIFY, OR SCAN NON-APPLIED PATCHES
3 = RESTORE, SCAN APPLIED PATCHES
4 = COPY PATCHES FROM THE DISK(ETTE) USED FOR IML TO A DISKETTE
5 = COPY PATCHES FROM A DISKETTE TO THE DISK(ETTE) USED FOR IML

====>

F1?END          F3?ALARM          F6?QUIT

```

Figure 8-5. Patch Function Selection Screen

Create a Patch

Before Starting

Before installing a patch, you **must** have all the elements listed here.

Check if you have:

- File name
- Module name
- Address
- Verify data
- Replace data
- Checksum.

1. Select option **1** in the screen of Figure 8-5 on page 8-5. Screen **D** is displayed.
2. In **1**, type the **Patch ID**.
3. In **2**, type a short description of the patch.
4. Press **SEND**.
5. Screen **E** is displayed.

```

D
- ENTER PATCH ID (1 TO 8 CHARACTERS) ==> 1
- DESCRIBE THE PATCH (68 CHARACTERS MAX)
  ==> 2

====> ENTER PATCH IDENTIFICATION

F1:END      F3:ALARM    F6:QUIT
  
```

Figure 8-6. Patch Creation Header Screen

1. In **1**, type the file name.
2. In **2**, type the module name.
3. In **3**, type the starting address of the data.
4. In **4**, type the verify data (the data that currently exists at the selected address).
5. In **5**, type the replace data (the new data that is going to replace the data currently existing).
6. Press **SEND**.

```

E
ID: xxxxxxxx      RECORD : 01

- FILE NAME ==> 1
- MODULE NAME ==> 2
- ADDRESS ==> 3
- VERIFY DATA ==> 4
- REPLACE DATA ==> 5

====>

F1:END      F3:ALARM    F6:QUIT    F7:CHANGE IDENTIFIER
  
```

Figure 8-7. Patch Creation Record Screen

1. Another patch creation record screen is displayed.
 - The file name and module name are kept, but the address, verify data, and replace data are blanked.
 - The record number is increased by one.
 - F keys are modified (F5: FILE, and F7: PREVIOUS RECORD).
2. Continue to enter the **verify**, and **replace** data, until the end of the patch.
3. Press **SEND** every time you need a new screen.

Note: If you are on record 01, you may press **F7** to return to screen **D**, to modify the patch identification or the patch description.

Checks Performed

A message is displayed, if any of the following occurs:

- File name unknown
- No such module in the file
- Address outside module limits
- Verify data different from current data
- Length of verify data and replace data are different.

Filing a Patch

When you have entered all the records for the patch (record $n + 1$ is displayed), and pressed **SEND** to validate the data:

1. Press **F7** (optional step) to return to the previous record, which becomes the last record of the patch.
2. Press **F5** to file the patch. Screen **G** is displayed.

```

F
ID: XXXXXXXX          RECORD: 01
- FILE NAME ==> XXXXXXXX
- MODULE NAME ==> XXXXXXXX
- ADDRESS ==> XXXXX
- VERIFY DATA ==> XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
- REPLACE DATA ==> XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

===>
F1:END      F3:ALARM  F5:FILE  F6:QUIT  F7:PREVIOUS RECORD
  
```

Figure 8-8. Patch Creation Record Screen

1. In **1**, enter the checksum (given with the patch).
2. Press **SEND**.

If the checksum is incorrect, this message is displayed:

INPUT CHECKSUM DOES NOT MATCH COMPUTED ONE

F4 Redisplay the patch previously entered (check patch).

F5 File the patch with the incorrect checksum.

You cannot apply this patch, but you may try to get the correct checksum, and then modify the patch (refer to "Modify a Patch" on page 8-9).

```

G
PATCH ID

- ENTER CHECKSUM (4 CHARACTERS) ==> 1

===>
F3:ALARM  F4:CHECK PATCH  F5:FILE WITH INCORRECT CHECKSUM
  
```

Figure 8-9. Patch Management Checksum Screen

Handling of Non-applied Patches

Listing Non-applied Patches

1. You must be in the "Patch Management" function (see 8-5).
2. Select option 2 in this screen.
3. Press **SEND**. Screen **H** is displayed.

```

PATCH MANAGEMENT

SELECT ONE OPTION (1 TO 5) ==> 1

1 = CREATE A PATCH
2 = APPLY, ERASE, MODIFY, OR SCAN NON-APPLIED PATCHES
3 = RESTORE, SCAN APPLIED PATCHES
4 = COPY PATCHES FROM THE DISK(ETTE) USED FOR IML TO A DISKETTE
5 = COPY PATCHES FROM A DISKETTE TO THE DISK(ETTE) USED FOR IML

==>

F1?END      F3?ALARM    F6?QUIT
  
```

Figure 8-10. Patch Function Selection Screen

1. Enter a command (see details in the next paragraphs) in column **1**, in front of the selected patch.
2. Press **SEND**.

This is the starting point for the apply patch, scan, modify, and erase procedures, described in the next paragraphs.

```

H IDENTIFIER NON-APPLIED PATCHES SCREEN 1/X

1
PATCH2 * ==> patch description 2
PATCH3 ==> patch description 3
PATCH5 ==> patch description 5
PATCH6 * ==> patch description 6
PATCH7 ==> patch description 7
PATCH8 ==> patch description 8
PATCH11 ==> patch description 11
PATCH13 ==> patch description 13
(* = PATCH CANNOT BE APPLIED : INCORRECT CHECKSUM)
- ENTER A COMMAND AGAINST IDENTIFIER : A=APPLY, E=ERASE, M=MODIFY, S=SCAN

==>

F1:END      F3:ALARM  F4:TOP  F5:BOTTOM  F6:QUIT  F7:BACKWARD  F8:FORWARD
  
```

Figure 8-11. Non-Applied Patch List Screen

Scan a Patch

1. Type the **S** command in screen **H**. This screen displays the first record of the patch selected.
2. Use the F keys (F8: FORWARD, F7: BACKWARD), to display the other records.

```

I ID: PATCHx RECORD: xx

- FILE NAME = xxxxxxxx
- MODULE NAME = xxxxxxxx
- ADDRESS = xxx

- VERIFY DATA = xxxx xxxx xxxx xxxx xxxx xxxx xxxx
- REPLACE DATA = xxxx xxxx xxxx xxxx xxxx xxxx xxxx

==>

F1:END      F3:ALARM    F6:QUIT  F7:PREVIOUS RECORD  F8:NEXT RECORD
  
```

Figure 8-12. Patch Scan Display Screen (Sample)

Erase a Patch

1. Type the **E** command in screen **H**. This screen is displayed, with a confirmation request in front of the patch to erase (**1**).
2. These messages are displayed.

CONFIRM ERASE (Y/N)
ERASE IN PROGRESS

3. Enter **Y**, or **N**, in **1**.
4. Press **SEND**. This message is displayed:

ERASE COMPLETED - PRESS SEND

Notes:

1. You can use the erase command for several lines on **one** screen.
2. The patches to be erased are marked.
3. When you press **SEND**, all marked patches are erased and disappear from the displayed list.

```

J
IDENTIFIER          NON-APPLIED PATCHES          SCREEN 1/x

PATCH2  * ERASED
PATCH3  ==> patch description 3
PATCH5  ERASED
PATCH6  * NOT ERASED: NO CONFIRMATION
PATCH7  ==> patch description 7
PATCH8  CONFIRM ERASE (Y/N) ==> 1
PATCH11 ==> patch description 11
PATCH13 ==> E patch description 13
(* = PATCH CANNOT BE APPLIED : INCORRECT CHECKSUM)
- ERASE IN PROGRESS

==>

F1:END      F3:ALARM F4:TOP  F5:BOTTOM F6:QUIT F7:BACKWARD F8:FORWARD

```

Figure 8-13. Patch Erase Confirmation Screen (Sample)

Modify a Patch

1. Type the **M** command in screen **H**. Screen **K** displays the first record of the selected patch.
2. Select the record (F key **F8**).
3. In **1**, enter one of the following commands:
 - A** Alter any part of the displayed record.
 - D** Delete the displayed record.
 - I** Insert an additional record.

To **alter**, or **insert** a record, refer to "Create a Patch" on page 8-6.

4. Press **F5** to file the modified patch.

```

K
ID: PATCHx          RECORD: xx

- FILE NAME   = xxxxxxxx
- MODULE NAME = xxxxxxxx

- ADDRESS     = xxx

- VERIFY DATA = xxxx xxxx xxxx xxxx xxxx xxxx xxxx
- REPLACE DATA = xxxx xxxx xxxx xxxx xxxx xxxx xxxx

- AVAILABLE COMMANDS: A=ALTER, D=DELETE, I=INSERT ==> 1

==>

F1:END      F3:ALARM F5:FILE F6:QUIT F7:CHANGE IDENTIFIER F8:NEXT RECORD

```

Figure 8-14. Patch Modify Execution Screen (Sample)

Non-applied Patch

Apply a Patch

1. In **1** of screen **H**, enter **A** in front of every patch to apply.
2. Press **SEND**.
3. After applying all the patches, screen **L** is displayed. The status (**applied**, or **not applied**) is indicated in front of every patch you wanted to apply.
4. Press **SEND** to display the non-applied patch list screen.

Notes:

1. You can use the apply command for several lines on **one** screen.
2. The verify data is checked again for validity.
3. A patch with a bad checksum **cannot** be applied.
4. A MOSS or scanner IML is required to make the patch effective.

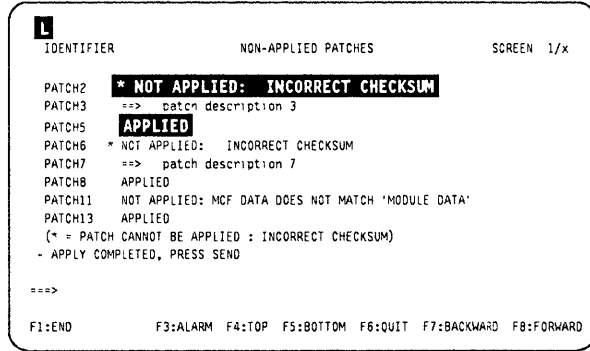


Figure 8-15. Patch Apply Completed Screen (Sample)

Disk Error While a Patch Is Being Applied

If a disk error occurs during an apply, the MCF function is canceled, and the patch in error is marked for later recovery.

NOT APPLIED: DISK ERROR

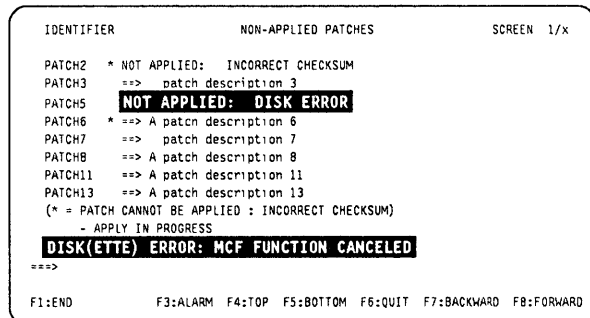


Figure 8-16. Patch Apply Disk Error Screen (Sample)

Disk Error Recovery

Once the disk error has been corrected, request the patch management function again:

1. The failing patch will be applied again.
2. The **patch recovery** screen is displayed for a termination request. Press **SEND**.

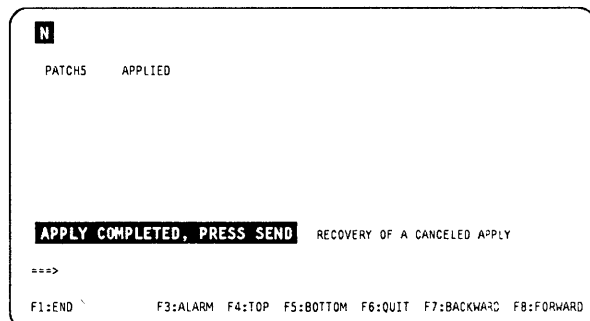


Figure 8-17. Patch Apply Recovery Screen (Sample)

Handling Applied Patches

List the Applied Patches

1. You must be in the "Patch Management" function (see 8-5).
2. Select option 3 in this screen.
3. Press **SEND**. Screen 0 is displayed.

```

PATCH MANAGEMENT

SELECT ONE OPTION (1 TO 5) ==> 1

1 = CREATE A PATCH
2 = APPLY, ERASE, MODIFY, OR SCAN NON-APPLIED PATCHES
3 = RESTORE, SCAN APPLIED PATCHES
4 = COPY PATCHES FROM THE DISK(ETTE) USED FOR IML TO A DISKETTE
5 = COPY PATCHES FROM A DISKETTE TO THE DISK(ETTE) USED FOR IML

==>

F1?END      F3?ALARM      F6?QUIT
  
```

Figure 8-18. Patch Function Selection Screen

1. Enter a command (see details in the next paragraphs) in column **1**, in front of the selected patch.
2. Press **SEND**.

This is the starting point for the restore and scan procedures, described in the next paragraphs.

```

0 IDENTIFIER APPLIED PATCHES SCREEN 1/x

1
  ↓
PATCH2 ==> patch description 2
PATCH3 ==> patch description 3
PATCH5 ==> patch description 5
PATCH6 ==> patch description 6
PATCH7 ==> patch description 7
PATCH8 ==> patch description 8
PATCH11 ==> patch description 11
PATCH13 ==> patch description 13

- ENTER A COMMAND AGAINST IDENTIFIER : R=RESTORE, S=SCAN

==>

F1:END      F3:ALARM  F4:TOP  F5:BOTTOM  F6:QUIT  F7:BACKWARD  F8:FORWARD
  
```

Figure 8-19. Applied Patch List Screen

Scan the Applied Patches

1. Type the **S** command in screen 0. This screen displays the first record of the patch selected.
2. Use the F keys (F8: FORWARD, F7: BACKWARD), to display the other records.

```

P
ID: PATCH6 RECORD: xx

- FILE NAME = xxxxxxxx
- MODULE NAME = xxxxxxxx

- ADDRESS = xxx

- VERIFY DATA = xxxx xxxx xxxx xxxx xxxx xxxx xxxx
- REPLACE DATA = xxxx xxxx xxxx xxxx xxxx xxxx xxxx

==>

F1:END      F3:ALARM      F6:QUIT  F7:PREVIOUS RECORD  F8:NEXT RECORD
  
```

Figure 8-20. Patch Scan Display Screen (Sample)

Applied Patch

Restore an Applied Patch

This function is the opposite of the apply function. It will undo the microcode modification requested by the applied patch (that is, restore the microcode to the previous code).

1. In **1** of screen **0**, enter **R** in front of every patch to restore, then press **SEND**.

At the end of the restore, this screen is displayed.

2. Press **SEND**.

```
Q
IDENTIFIER      APPLIED PATCHES      SCREEN 1/x

PATCH2  RESTORED
PATCH3  ==> patch description 3
PATCH5  RESTORED
PATCH6  RESTORED
PATCH7  ==> patch description 7
PATCH8  RESTORED
PATCH11 ==> patch description 11
PATCH13 RESTORED

RESTORE COMPLETED, PRESS SEND FOR NON-APPLIED PATCH MGT

===>

F1:END      F3:ALARM F4:TOP  F5:BOTTOM F6:QUIT  F7:BACKWARD F8:FORWARD
```

Figure 8-21. Patch Restore Execution Screen (Sample)

You obtain a non-applied patches screen, displaying the patch(es) you have just restored. You may modify, scan, or erase them.

Press **SEND** to switch to non-applied patch management.

```
R
IDENTIFIER      APPLIED PATCHES      SCREEN 1/x

PATCH2  * ==> patch description 2
PATCH3  ==> patch description 3
PATCH5  ==> patch description 5
PATCH6  * ==> patch description 6
PATCH7  ==> patch description 7
PATCH8  ==> patch description 8
PATCH11 ==> patch description 11
PATCH13 ==> patch description 13

(* = PATCH CANNOT BE APPLIED : INCORRECT CHECKSUM)
- ENTER A COMMAND AGAINST IDENTIFIER : A=APPLY, E=ERASE, M=MODIFY, S=SCAN

===>

F1:END      F3:ALARM F4:TOP  F5:BOTTOM F6:QUIT  F7:BACKWARD F8:FORWARD
```

Figure 8-22. Non-Applied Patch List Screen

Copy Microcode Patches to the MOSS Diskette

This function permits collecting the patches developed on one 3745, and transferring and installing them in another 3745.

F1 Use

F1 use is not allowed during a copy function.

Copy a Patch Onto MOSS Diskette

1. You must be in the "Patch Management" function (see 8-5).
2. Select option 4 in this screen.
3. Press **SEND**.
4. This message is displayed:
MOUNT PRIMARY DISKETTE
5. Mount the diskette, and press **SEND**.
6. The 'patch copy to MOSS diskette selection' screen **S** is displayed.

Figure 8-23. Patch Function Selection Screen

1. This screen lists only the patches that are on the MOSS disk but not on the MOSS diskette.
2. In **1**, enter **C** in front of every patch to copy, then press **SEND**.
3. Screen **T** is displayed.

Figure 8-24. Patch Copy to MOSS Diskette Selection Screen

Copy Patch

1. The selected patches are copied in the storage area reserved for the destination diskette.
2. Press **SEND** again.

You obtain the next screen with patches to be copied.

3. Repeat the operation in all screens that contain patches to be copied. Use **F8** (forward) and **F7** (backward) to scroll through the list.
4. After the last patch, press **F6** (QUIT) to make the copy effective.

When finished, this message is displayed:

SELECTED PATCH COPIED ON DISK(ETTE)

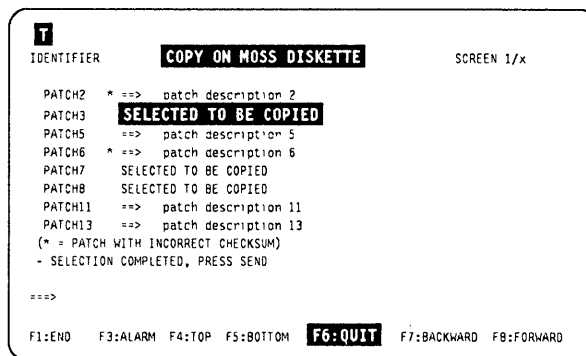


Figure 8-25. Patch Copy to MOSS Diskette Execution Screen

Copying Microcode Patches from a Diskette to the MOSS Disk

This function permits collecting the patches developed on one 3745, and transferring and installing them in another 3745.

F1 Use

F1 use is not allowed during a copy function.

1. You must be in the "Patch Management" function (see 8-5).
2. Select option 5 in this screen.
3. Press **SEND**.
4. A message is displayed, asking you to mount the source diskette from which patches are to be copied.
5. Mount the diskette, and press **SEND**.
6. The 'patch copy from MOSS diskette' selection screen **V** is displayed.

```

PATCH MANAGEMENT

SELECT ONE OPTION (1 TO 5) ==> 1

1 = CREATE A PATCH
2 = APPLY, ERASE, MODIFY, OR SCAN NON-APPLIED PATCHES
3 = RESTORE, SCAN APPLIED PATCHES
4 = COPY PATCHES FROM THE DISK(ETTE) USED FOR IML TO A DISKETTE
5 = COPY PATCHES FROM A DISKETTE TO THE DISK (ETTE) USED FOR IML

====>

F1?END      F3?ALARM    F6?QUIT
  
```

Figure 8-26. Patch Function Selection Screen

1. This screen lists only the patches that are on the source diskette, but not on the MOSS disk.
2. In **1**, enter **C** in front of every patch to copy, then press **SEND**.
3. You may also scan a patch (display its contents) before copying it. Refer to "Scan a Patch" on page 8-8.

```

V
IDENTIFIER      COPY FROM MOSS DISKETTE      SCREEN 1/X

1
↓
PATCH2 * ==> patch description 2
PATCH3 ==> C patch description 3
PATCH5 ==> patch description 5
PATCH6 * ==> patch description 6
PATCH7 ==> C patch description 7
PATCH8 ==> C patch description 8
PATCH11 ==> patch description 11
PATCH13 ==> patch description 13
(* = PATCH WITH INCORRECT CHECKSUM)
- ENTER C TO SELECT PATCHES TO BE COPIED, OR S FOR SCAN
- PRESS F6:QUIT TO MAKE EFFECTIVE THE COPY
====>

F1:END      F3:ALARM  F4:TOP  F5:BOTTOM  F6:QUIT  F7:BACKWARD  F8:FORWARD
  
```

Figure 8-27. Patch Copy from MOSS Diskette Selection Screen

Copy Patch

1. This screen is displayed. The selected patches are copied in the storage area reserved for the disk.
2. Press **SEND** again.

The next screen with patches to be copied is displayed.

3. Repeat the previous steps, from step 5, for all screens that contain patches to be copied. Use **F8** (forward) and **F7** (backward) to scroll through the list.
4. After the last patch, press **F6** (QUIT) to make the copy effective.

When finished, this message is displayed:

SELECTED PATCH COPIED ON DISK(ETTE)

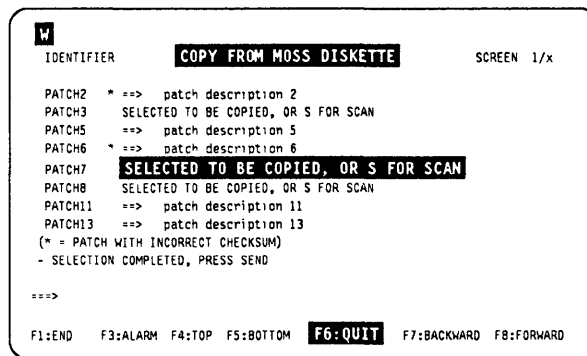


Figure 8-28. Patch Copy from MOSS Diskette Execution Screen

Patch Messages

ENTER PATCH IDENTIFICATION

Cause: During the creation of a patch, you are requested to enter the patch identification.

Action: Enter the patch identification.

INPUT CHECKSUM DOES NOT MATCH COMPUTED ONE

Cause: The checksum entered does not match the computed one.

Action: Verify and enter the correct checksum.

NO 'APPLIED' PATCHES IN FILE

Cause: There are no applied patches to be listed.

Action: None.

NO 'NON-APPLIED' PATCHES IN FILE

Cause: All non-applied patches, if any, have already been applied.

Action: None.

NOT APPLIED: FILE NOT FOUND

Cause: The filename entered during the creation of the patch cannot be found.

Action: Verify the filename and enter the correct one.

NOT APPLIED: MODULE NOT FOUND

Cause: The module name entered during the creation of the patch cannot be found.

Action: Verify the module name and enter the correct one.

PATCH ALREADY EXISTS

Cause: The patch identification already exists in the file.

Action: Change the patch identification.

PATCH AREA IS NOW FULL

Cause: No other patches can be entered in the file after this one.

Action: Verify the non-applied patches and delete the useless ones.

PATCH ERASED BECAUSE IT CONTAINS NO MORE RECORD

Cause: All records of the patch being modified have been deleted.

Action: None.

PATCH FILED

Cause: The created patch has been filed successfully.

Action: None.

REFUSED: MAXIMUM NUMBER OF PATCHES REACHED

Cause: The maximum number of patches is reached.

Action: Verify the non-applied patches and delete the useless ones.

REFUSED: NOT ENOUGH SPACE IN PATCH AREA

Cause: No other patches can be entered in the file.

Action: Verify the non-applied patches and delete the useless ones.

REFUSED: PATCHES ARE ALREADY ON DISK(ETTE)

Cause: The same patch identification is already on disk(ette).

Action: Verify and change the new patch identification.

SELECTED PATCHES, IF ANY, ARE COPIED ON DISK(ETTE)

Cause: The selected patches are copied on disk(ette).

Action: None.

Refer to "MCF Messages" on page 7-14 for the patch messages which are common to the MCF messages.

Patch Messages



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Your Road Map in the CDF

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	Add or Delete	Create	Display	Display FRU Level	Update	Upgrade	Verify
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FRU Level	--	--	9-17	9-17	--	--	9-11
LIC	9-33	--	9-29	9-18	9-33	--	9-13
Line Adapters <ul style="list-style-type: none"> • HPTSS • TRSS • TSS 	9-32	--	<ul style="list-style-type: none"> • 9-30 • 9-30 • 9-30 	9-18	9-33 <ul style="list-style-type: none"> • 9-35 • -- • -- 	--	<ul style="list-style-type: none"> • 9-12 • 9-12 • 9-12
MOSS	--	--	--	9-17	--	--	9-11
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Ports <ul style="list-style-type: none"> • HPTSS • TRSS • TSS 	--	--	<ul style="list-style-type: none"> • 9-36 • 9-36 • 9-37 	--	<ul style="list-style-type: none"> • 9-36 • -- • 9-37 	--	<ul style="list-style-type: none"> • 9-14 • 9-14 • --
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CDF Functions Description

CDF/NCP Discrepancy

A discrepancy between the CDF and the NCP generation may be the cause of NCP problems. When updating the CDF, make sure the corresponding change is reflected in the NCP generation, if applicable.

The CDF function allows the user to create, display, verify, and modify the configuration data file (CDF) located on the MOSS disk.

The CDF contains the machine configuration, and can be:

- Manually updated from the keyboard (when authorized).
- Easily retrieved by an application running in a MOSS environment, such as diagnostics, IPLs, MOSS applications.
- Selectively displayed.

The available CDF functions are:

- Display/update
- Create
- Upgrade
- Verify.

Each time there is a hardware change, the CDF must be updated in order to reflect this change.

What Can You Do, According to MOSS State

- Global hardware sensing

The create, upgrade, and verify functions allow performing a global hardware sensing. This corresponds to hardware changes performed while no control program is running (MOSS **alone** state).

— Create

The create function is available only to the CE (3745 in maintenance mode). The MOSS must be in the MOSS **alone** state.

At the end of the hardware sensing, all the information previously entered manually is **lost** and set to the initial default value (as for the first create).

— Upgrade

The upgrade function is available to the CE and the customer. The MOSS must be in the MOSS **alone** state.

When the function has completed, the information previously entered manually is kept (manual fields are not updated). Use the display/update function to check and update the manual information as required. For example, if you added a channel adapter, manually enter the NSC address and the other required CA information.

- **Verify**

The verify function is available only to the CE (3745 in maintenance mode). The MOSS must be in the MOSS **alone** state. When the function has completed without error, the CDF file and the machine level are identical. Otherwise, select the right option (CDF data, or machine data).

- Selective hardware sensing

- The display/update performs a selective hardware sensing. This selective hardware sensing allows the update of the CDF while the control program is running.
- This can be done only on the LICs, which may be added, removed, or replaced by hot plugging them.

- **Display/Update**

The display/update is partially available to the customer. Refer to the Chapter "CDF" of the *Advanced Operations Guide* to obtain details on the CDF run in customer mode.

The LA selective upgrade can be executed only in MOSS **online** or MOSS **offline** state.

Note: The first eight lines of the MOSS screen (general information and MSA) are not shown on the screens described in this chapter. They are not dedicated to CDF, and are explained in Chapter 1.

Update Capability According to MOSS State

Some CDF functions may not be available, depending on:

- The MOSS state (online, offline, alone)
- The adapter status (operative, or not operative)
- The mode (customer or maintenance).

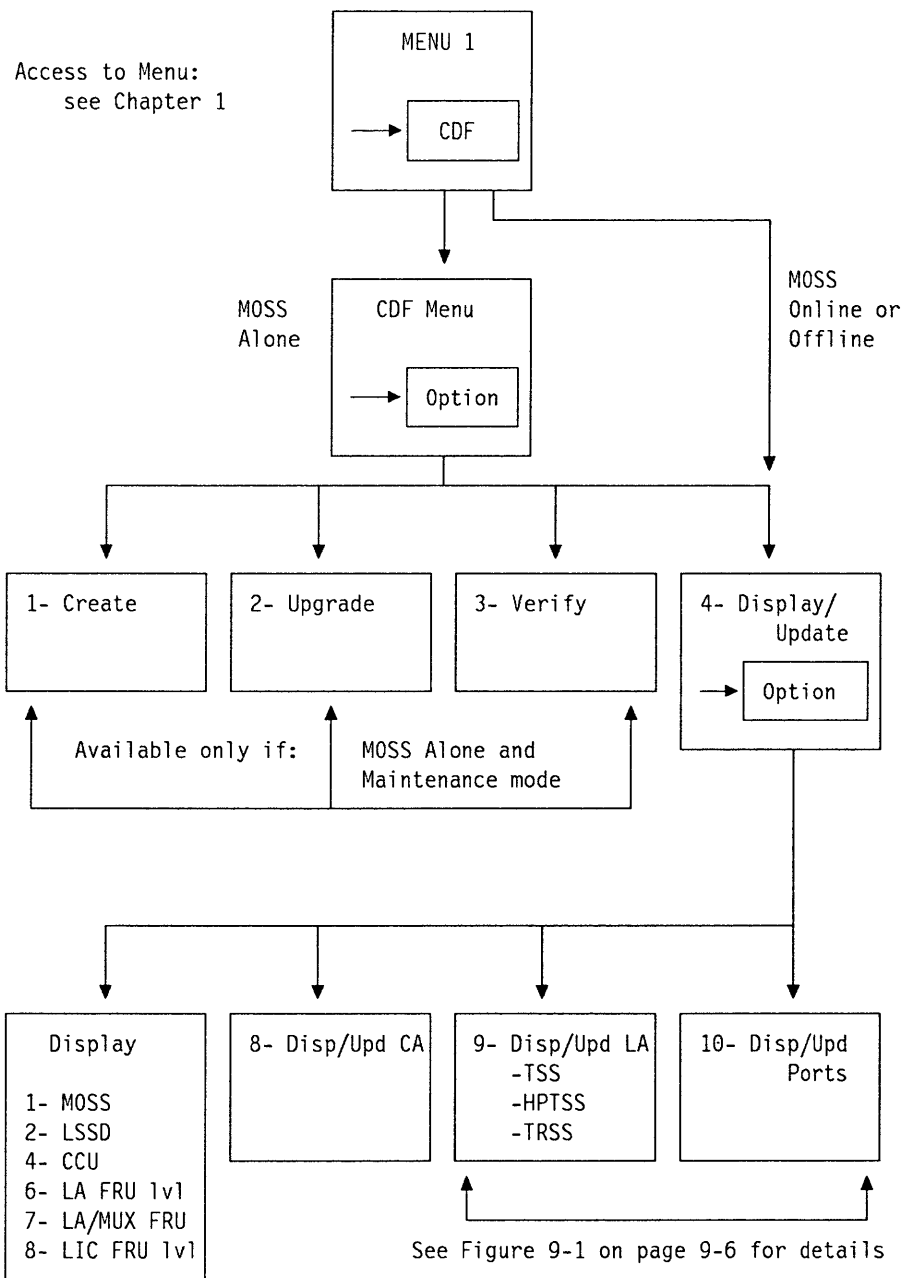
The next table gives the MOSS state needed to use the CDF functions. The details are given in the corresponding procedures in this chapter.

Adapter Type	Action	MOSS			Comments
		Alone	Online	Offline	
CA	Update	X	X	X	
CA	Add/Delete	X	NO	NO	Hw change: pwr OFF + CDF upgrade
LA					
LA TSS	Add/del/repl LIC	NO	X	X	Depends on adapter status
LA HPTSS	Update	X	X	X	
LA TRSS	Display only	X (*)	X (*)	X (*)	
TSS Port	Update	X	X	X	
Other Ports: no update		X (*)	X (*)	X (*)	Display only

(*) Not modifiable with CDF update function. Display only.

Figure 9-1. Update Capability According to MOSS State

CDF Functions Overview



Note:

→ XXXXXXXX

Type of information entered in this screen

CDF Functions Access Procedure

1. In MENU 1, enter CDF in **1**.

2. Press **SEND**:

- If you are in **MOSS alone** and **maintenance mode**, screen **B** is displayed.
- If you are in **maintenance mode** and **MOSS not alone**, the CDF function is only partially available; screen **C** is displayed.

A **MENU 1**

CONFIG DATA FILE.: CDF	IML ONE SCANNER.: IMS	PASSWORDS.....: PSW
CONTROL PGM PROC.: CPP	IPL CCU.....: IPL	PORT SWAP FILE....: PSF
DISK FUNCTIONS....: DIF	LD LINK TEST REQ.: LTQ	SCANNER I/F TRACE: SIT
DISK IPL INFO.....: DII	LD LINK TEST RESP.: LTS	STAND ALONE TEST.: SAT
EVENT LOG DISPLAY: ELD	LINE INTERF DSPLY: LID	LINK IPL PORTS....: LKP
INTERN. DATA FILE: IDF	MACHINE LVL TABLE: MLT	TIME SERVICES.....: TIM
IML MOSS.....: IML	MICROCODE FIXES...: MCF	TRSS INTERF DSPLY: TID
		WRAP TEST.....: WTT

ENTER OFF TO LOG OFF

==> **1**

F1:END F2:MENUE2 F3:ALARM F5:MENUE 3 F6:RULES

Figure 9-2. Menu 1 Screen

Maintenance Mode and MOSS Alone

In this screen, or in screen **C**, enter your selection in **1**, then press **SEND**.

Display/Update See page 9-15

Create See page 9-9

Upgrade See page 9-10

Verify See page 9-11

B

CUSTOMER ID: 3745 SERIAL NUMBER:

CCU-A PROCESS **MOSS ALONE**

RUN STOP-IOC-CHK STOP-CCU-CHK AC

MAXIMUM ADAPTERS CONFIGURATION: CHANNEL ADAPTERS 5, 6, 7, 8
LINE ADAPTERS 1, 3, 4, 9, 10, 11, 12

-----mm/dd/yy hh:mm

CDF FUNCTIONS

- **SELECT ONE CDF FUNCTION** (1 TO 4), THEN PRESS SEND ==> **1**

1 = DISPLAY/UPDATE
2 = CREATE
3 = UPGRADE
4 = VERIFY

==>

F1:END F3:ALARM

Figure 9-3. CDF Functions Selection Screen

Maintenance Mode and MOSS Not Alone

Display/Update is the only available function. The procedure is described in page 9-15.

C **CDF - DISPLAY/UPDATE FUNCTION**

- **SELECT ONE OPTION**, THEN PRESS SEND ==> **1**

DISPLAY : DISPLAY/UPDATE :

1 = MOSS	9 = CHANNEL ADAPTERS (CA)
2 = LSSD	10 = LINE ADAPTERS (LA)
4 = CCU	11 = PORTS
6 = CA FRU LEVEL	
7 = LA/MUX FRU LEVEL	
8 = LIC FRU LEVEL	

==>

F1:END F3:ALARM F6:QUIT

Figure 9-4. CDF Display/Update Screen

CDF Create

Use of Create

The create function should be used only at installation time. The information previously entered manually is erased and must be re-entered manually.

1. You must be in MOSS **alone**.
2. In the CDF function selection screen **B** (page 9-8), type **2**, and press SEND:
 - If it is not the first create, this screen is displayed.
 - a. Enter **Y**, or **N** in **1**.
 - b. Press **SEND**.
 - Y displays screen **E**.
 - N puts you back to the CDF functions selection screen **B**.
 - Otherwise, you obtain screen **E**.

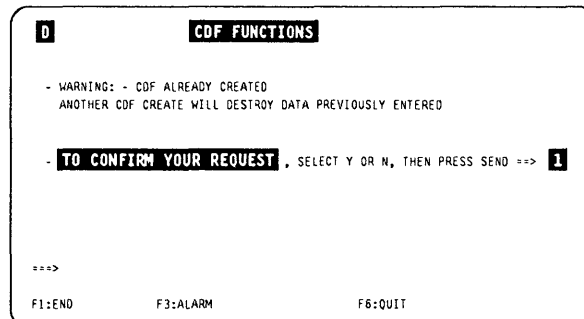


Figure 9-5. CDF Create Checking Screen

No action is required.

1. The following message is displayed:
CDF CREATE STARTED
2. Then, the next lines are displayed (one at a time), showing the progress of the operation.
3. The end of the operation is indicated by:
CDF CREATE COMPLETED

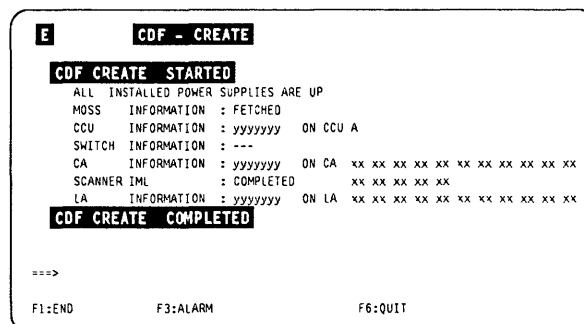


Figure 9-6. CDF Create Screen (Example)

If the CCU information is in error, the CDF function is aborted.

If an error occurred, go to the corresponding display screen (see next pages) in order to obtain additional information.

Note: When the function is aborted, it is strongly recommended to power OFF, then ON again, and re-IML the MOSS.

CDF Upgrade

You must be in MOSS **alone**.

1. You must be in the CDF function (see 9-8).
2. In **1** of this screen, type **3**, and press **SEND**.
3. Screen **F** is displayed.

You cannot perform a CDF upgrade if you have previously canceled an IPL in phase 1.

```

CUSTOMER ID: 3745 SERIAL NUMBER:
CCU-A PROCESS MOSS ALONE
RUN STOP-IOC-CHK STOP-CCU-CHK AC

MAXIMUM ADAPTERS CONFIGURATION: CHANNEL ADAPTERS 5, 6, 7, 8
LINE ADAPTERS 1, 3, 4, 9, 10, 11, 12
-----mm/dd/yy hh:mm

CDF FUNCTIONS

- SELECT ONE CDF FUNCTION (1 TO 4), THEN PRESS SEND ==> 1

1 = DISPLAY/UPDATE
2 = CREATE
3 = UPGRADE
4 = VERIFY

==>
F1:END F3:ALARM
  
```

Figure 9-7. CDF Functions Selection Screen

1. No action is needed.
 - The process, on the screen, is similar to the CDF create.
 - All the information entered manually is kept.
 - If the CCU information is in error, the function is aborted.

```

F CDF - UPGRADE

CDF UPGRADE STARTED
ALL INSTALLED POWER SUPPLIES ARE UP
MOSS INFORMATION : FETCHED
CCU INFORMATION : yyyyyy ON CCU A
SWITCH INFORMATION : ---
CA INFORMATION : yyyyyy ON CA xx xx xx xx xx xx xx xx xx
SCANNER IML : COMPLETED xx xx xx xx
LA INFORMATION : yyyyyy ON LA xx xx xx xx xx xx xx xx xx

CDF UPGRADE COMPLETED

==>
F1:END F3:ALARM F6:QUIT
  
```

Figure 9-8. CDF Upgrade Screen

CDF Create/Upgrade/Verify Field Explanations

yyyyyy Fetched or error.

CA or LA xx xx represents the CA or LA number.

FETCHED The sensing step is terminated and no error has been found.

COMPLETED The sensing step for scanner IML is terminated and no error has been found, or the function is terminated with or without error.

ERROR An error has been found during the sensing step. Check through the display/update function.

ABORTED An error has been found while sensing the CCU information. Check through the display/update function, then re-IML the MOSS.

CDF Verify

This function compares the contents of the CDF on the MOSS disk with the information gathered from the sensing of the installed hardware elements. Any discrepancy produces a message for acknowledgement or updating:

FRU level problem

Presence or type discrepancy

Contact your local support structure.

Make a physical check on the machine, and refer to the details given in the next pages.

You must be in MOSS **alone**.

1. You must be in the CDF function (see 9-8).
2. In **1** of this screen, type **4**, and press **SEND**.
3. Screen **G** is displayed.

```

CUSTOMER ID:                               3745                SERIAL NUMBER:
CCU-A      PROCESS MOSS ALONE
RUN        STOP-IOC-CHK STOP-CCU-CHK AC

MAXIMUM ADAPTERS CONFIGURATION: CHANNEL ADAPTERS 5, 6, 7, 8
                                LINE  ADAPTERS 1, 3, 4, 9, 10, 11, 12
                                -----mm/dd/yy hh:mm

CDF FUNCTIONS

- SELECT ONE CDF FUNCTION (1 TO 4), THEN PRESS SEND ==> 1

1 = DISPLAY/UPDATE
2 = CREATE
3 = UPGRADE
4 = VERIFY

====
F1:END      F3:ALARM
  
```

Figure 9-9. CDF Functions Selection Screen

- The process, on screen, is similar to the CDF create.
- If no difference is found, no further action is needed.
- If a difference is found between the CDF information and the machine status, one of the screens from **H** to **O** is displayed.

Note: Some parameters (such as **bypass card**) are not checked during the verify function. To check them, run the display/update function.

```

G      CDF - VERIFY

CDF VERIFY STARTED
ALL INSTALLED POWER SUPPLIES ARE UP
MOSS INFORMATION : FETCHED
CCU INFORMATION : yyyyyyy ON CCU A
SWITCH INFORMATION : ---
CA INFORMATION : yyyyyyy ON CA xx xx xx xx xx xx xx xx xx
SCANNER IML : COMPLETED xx xx xx xx
LA INFORMATION : yyyyyyy ON LA xx xx xx xx xx xx xx xx xx
CDF VERIFY COMPLETED

====
F1:END      F3:ALARM      F6:QUIT
  
```

Figure 9-10. CDF Verify Screen

MOSS Differences

1. Decide whether the **CDF data**, or the **machine data** is the correct one.
2. Enter your choice (**1**, or **2**) in **1**.
3. Press **SEND**.
4. The process resumes (screen **G**).

The procedure is the same for all the CDF difference screens.

```

H      MOSS SENSED DATA
THERE IS A DIFFERENCE BETWEEN CDF FILE AND MACHINE IN
- SELECT ONE OPTION (1 OR 2), THEN PRESS SEND ==> 1

CDF DATA (1)      MACHINE DATA (2)

PCC FRU LEVEL      : xx      :
PCC MICROCODE EC LEVEL : xx      :

MSC FRU LEVEL      : xx      :
MCC FRU LEVEL      : xx      :
DFA FRU LEVEL      : xx      :
MICROCODE LEVEL    : xxxxxxxxxx :
MCF LEVEL          : xxxxxxxxxx :

====
F1:END      F3:ALARM      F6:QUIT
  
```

Figure 9-11. CDF Verify (MOSS Differences)

CDF Verify

CCU Differences

If the CCU information is in error, the CDF function is aborted.

Note: There is no STO FRU level displayed (no sensing available).

PRESENCE Y (yes), or N (no).

I
THERE IS A DIFFERENCE BETWEEN CDF FILE AND MACHINE IN **CCU A SENSED DATA**
- SELECT AN OPTION (1 OR 2), THEN PRESS SEND ==>

	CDF DATA (1)	MACHINE DATA (2)
PRESENCE	: x	:
STORAGE SIZE	: x MB	:
CCU FRU LEVEL	: xx	:
SCTL FRU LEVEL	: xx	:

==>

F1:END F3:ALARM F6:QUIT

Figure 9-12. CDF Verify (CCU Differences)

CA Differences

PRESENCE Y (yes), or N (no)

TYPE CADS or BCCA

CADR-B Used with TPS.

J
THERE IS A DIFFERENCE BETWEEN CDF FILE AND MACHINE IN **CA xx SENSED DATA**
- SELECT AN OPTION (1 OR 2), THEN PRESS SEND ==>

	CDF DATA (1)	MACHINE DATA (2)
PRESENCE	: x	:
TYPE	: xxxx	:
TPS PRESENCE	: x	:
CAL FRU LEVEL	: xxxx	:
CADR-A FRU LEVEL	: x	:
CADR-B FRU LEVEL	: x	:
MICROCODE LEVEL	: xx	:

==>

F1:END F3:ALARM F6:QUIT

Figure 9-13. CDF Verify (CA Differences)

LA Differences (Part 1)

PRESENCE Y (yes), or N (no)

TYPE TSS, HPTSS, or TRSS

CSC Used with TSS

FESH Used with HPTSS.

There are no TIC or TRM FRU levels displayed (no sensing available).

K
THERE IS A DIFFERENCE BETWEEN CDF FILE AND MACHINE IN **LA xx SENSED DATA**
- SELECT AN OPTION (1 OR 2), THEN PRESS SEND ==>

	CDF DATA (1)	MACHINE DATA (2)
PRESENCE	: x	:
TYPE	: xxxxx	:
FES PRESENCE	: x	:
CSC FRU LEVEL	: xx	:
CSP FRU LEVEL	: xx	:
FESH FRU LEVEL	: xx	:

==>

F1:END F3:ALARM F6:QUIT

Figure 9-14. CDF Verify (LA Differences - Part 1)

LA Differences (MUX)

The LIBx (LIC board) can be:

LIB1 LIC type 1, 3, 4

LIB2 LIC type 5, 6

Note: On 3745-150, for LIC type 1, 3, 4 the LIC board is a LIB3. Nevertheless, the screen will display LIB1.

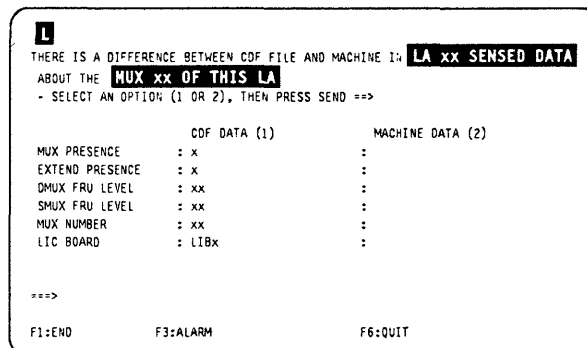


Figure 9-15. CDF Verify (LA Differences - MUX)

LA Differences (LIC)

The following line:

LIC 6 SPEED (KBPS)

is displayed only in case of LIC 6 speed problem. The speed displayed correspond to switch setting on the LIC 6 (see the 'Transmission Subsystem (TSS)' chapter in the *Hardware Maintenance Reference*).

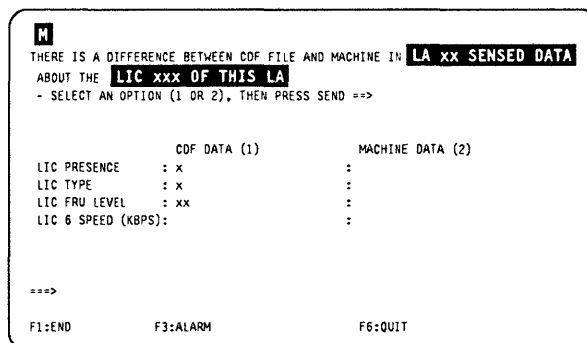


Figure 9-16. CDF Verify (LA Differences - LIC)

CDF Verify (LA Differences - TIC)

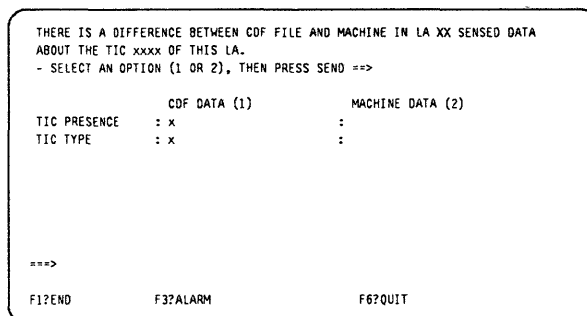


Figure 9-17. CDF Verify (LA Differences - TIC)

CDF Verify

HPTSS Port Differences

PORT CABLE ID

- Not present
- 1 Wrap block
- 4 Modem-attached
- 5 Direct-attached

INTERFACE TYPE V35 or X21.

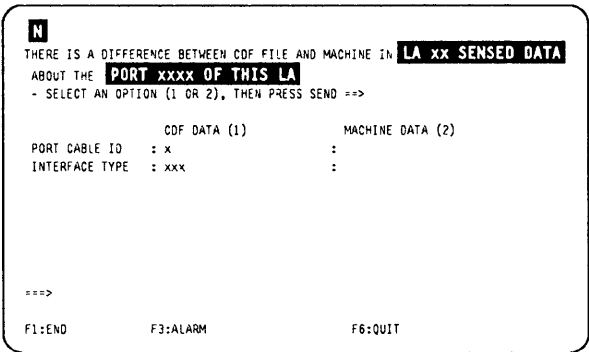


Figure 9-18. CDF Verify (LA Differences - HPTSS)

TRSS Port Differences

PORT PRESENCE Y (yes), or N (no).

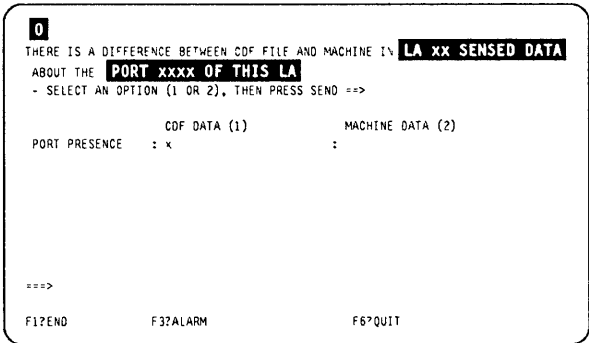


Figure 9-19. CDF Verify (LA Differences - TRSS)

Display/Update the CDF

Dump transfer requested

Make sure that there is no dump transfer requested by the host when the CDF update function is used. Otherwise, the dump transfer may fail with a 081C sense code.

This function allows displaying the selective information from the CDF, or adding, modifying, or deleting information on the current CDF.

This function can be used whether the NCP is running. However, if the NCP is not running, some update functions are not available.

1. In menu1, type **CDF** in **1**.
2. Press **SEND**.
3. If you are in:
 - Maintenance mode and MOSS alone, screen **Q** is displayed.
 - MOSS not alone, any mode, screen **R** is displayed.

P **MENU 1**

CONFIG DATA FILE.: CDF	IML ONE SCANNER.: IMS	PASSWORDS.....: PSW
CONTROL PGM PROC.: CPP	IPL CCU.....: IPL	PORT SWAP FILE....: PSF
DISK FUNCTIONS....: DIF	LD LINK TEST REQ.: LTQ	SCANNER I/F TRACE: SIT
DISK IPL INFO.....: DII	LD LINK TEST RESP: LTS	STAND ALONE TEST.: SAT
EVENT LOG DISPLAY: ELD	LINE INTERF DSPLY: LID	
	LINK IPL PORTS....: LKP	
INTERN. DATA FILE: IDF	MACHINE LVL TABLE: MLT	TIME SERVICES.....: TIM
IML MOSS.....: IML	MICROCODE FIXES...: MCF	TRSS INTERF DSPLY: TID
		WRAP TEST.....: WTT

ENTER OFF TO LOG OFF

==> **1**

F1:END F2:MENU2 F3:ALARM F5:MENU 3 F6:RULES

Figure 9-20. Menu 1 Screen

Maintenance Mode and MOSS Alone

1. Type **1** in **1**.
2. Press **SEND**.
3. The procedure continues with the next screen (**R**).

Q

CUSTOMER ID: 3745 SERIAL NUMBER:

CCU-A PROCESS **MOSS ALONE**

RUN STOP-IOC-CHK STOP-CCU-CHK AC

MAXIMUM ADAPTERS CONFIGURATION: CHANNEL ADAPTERS 5, 6, 7, 8
LINE ADAPTERS 1, 3, 4, 9, 10, 11, 12

-----mm/dd/yy hh:mm

CDF FUNCTIONS

- SELECT ONE CDF FUNCTION (1 TO 4), THEN PRESS SEND ==> **1**

1 = **DISPLAY/UPDATE**
2 = CREATE
3 = UPGRADE
4 = VERIFY

==>

F1:END F3:ALARM

Figure 9-21. CDF Functions Selection Screen

CDF Display/Update

MOSS Not Alone

1. In **1**, enter the selected option.
2. Press **SEND**.
3. The corresponding procedures are described in front of screens **S** to **BH**, in the following pages:

All display options	See from page 9-17 to page 9-18.
Display/update CA	See page 9-19.
Display/update LA	See page 9-29.
Display/update ports	See page 9-36.

R **CDF - DISPLAY/UPDATE FUNCTION**

SELECT ONE OPTION (1 TO 11), THEN PRESS SEND ==> **1**

DISPLAY : **DISPLAY/UPDATE :**

1 = MOSS 9 = CHANNEL ADAPTERS (CA)
2 = LSSD 10 = LINE ADAPTERS (LA)
4 = CCU 11 = PORTS
6 = CA FRU LEVEL
7 = LA/MUX FRU LEVEL
8 = LIC FRU LEVEL

====>

F1:END F3:ALARM F6:QUIT

Figure 9-22. CDF Display/Update Menu Screen

Display MOSS

1. You must be in the CDF Display/update function (see page 9-15).
2. In the display/update function screen (**R**), page 9-16, select option 1.
3. Screen **S** is displayed.

```

S
CDF - DISPLAY : MOSS

STORAGE SIZE : xxxxx DISKETTE SIZE : xxMB DISK SIZE : xxxMB

PS ID      : -- MOSS MICROCODE EC LEVEL : xxxxxxxxxx
MCF LEVEL  : xxxxxxxx

FRU LEVEL

MCC : xx MSC : xx PCC : xx
DFA : xx PCC MICROCODE : xx

===>

F1:END      F3:ALARM      F6:QUIT

```

Figure 9-23. CDF Display MOSS

Display LSSD

1. You must be in the CDF Display/update function (see page 9-15).
2. In the display/update function screen (**R**), page 9-16, select option 2.
3. Screen **T** is displayed.

Note: Only the PE can use the information displayed by this option.

```

T
CDF - DISPLAY : LSSD

00 03 04 07 08 08 0C 0F 10 13 14 17 18 1B 1C 1F
0800 .....
0820 .....
0840 .....
0860 .....
0880 .....
08A0 .....
08C0 .....
08E0 .....

===>

F1:END      F3:ALARM      F6:QUIT      F8:FWD

```

Figure 9-24. CDF Display LSSD

A second screen is available to display the addresses from 0100 to 01FF.

Display CCU

1. You must be in the CDF Display/update function (see page 9-15).
2. In the display/update function screen (**R**), page 9-16, select option 4.
3. Screen **U** is displayed.

```

U
CDF - DISPLAY : CCU

CCU-A

PRESENCE : Y
PS ID : --
STORAGE SIZE : x MB
PUC FRU LEVEL : xx
SCTL FRU LEVEL : xx

===>

F1:END      F3:ALARM      F6:QUIT

```

Figure 9-25. CDF Display CCU

Display CA FRU Level

1. You must be in the CDF display/update function (see page 9-15).
2. In the display/update function screen (**R**), page 9-16, select option 6.
3. Screen **V** is displayed.

		CDF - DISPLAY : CHANNEL ADAPTERS FRU LEVEL							
CA NUMBER		1	2	3	4	5	6	7	8
CAL	---	---	---	---	---	XXXX	XXXX	XXXX	XXXX
CADR-A	-	-	-	-	-	X	X	X	X
CADR-B	-	-	-	-	-	X	X	X	X
MICROCODE	--	--	--	--	--	XX	XX	XX	XX
CA NUMBER		9	10	11	12	13	14	15	16
CAL	---	---	---	---	---	---	---	---	---
CADR-A	-	-	-	-	-	-	-	-	-
CADR-B	-	-	-	-	-	-	-	-	-
MICROCODE	--	--	--	--	--	--	--	--	--
==>									
F1:END		F3:ALARM				F6:QUIT			

Figure 9-26. CDF Display CA FRU Levels

Display LA/MUX FRU Level

1. You must be in the CDF display/update function (see page 9-15).
2. In the display/update function screen (**R**), page 9-16, select option 7.
3. Screen **W** is displayed.

W		CDF - DISPLAY : LINE ADAPTERS AND MUX FRU LEVEL																																
LA	0	1									2									3														
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2		
CSC/CSP	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
FESH	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
MUX NUMBER	0	1									2									3														
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2		
DMUX	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
SMUX	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
MUX NUMBER	1	2									3									4														
	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3		
DMUX	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
SMUX	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
==>																																		
F1:END										F3:ALARM										F6:QUIT														

Figure 9-27. CDF Display LA/MUX FRU Level

Display LIC FRU Level

1. You must be in the CDF display/update function (see page 9-15).
2. In the display/update function screen (**R**), page 9-16, select option 8.
3. Screen **X** is displayed.
4. Display the next, or previous, LICs by pressing F8, or F7.

Hundreds, tens, and units, identify the LIC number

- x** LIC type
y LIC FRU level

		CDF - DISPLAY : LIC TYPE (n TO m) AND FRU LEVEL												
		LIC NUMBER IN HUNDREDS (H), TENS (T), AND UNITS (U)												
HT.....		00	01	02	03	04	05	06	07	08	09	10	11	12
0		xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy
1		xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy
2		xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy
3		xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy
UNITS..4		xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy
5		xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy
6		xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy
7		xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy
8		xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy
9		xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy	xy
==>														
F1:END		F3:ALARM					F6:QUIT					F8:FORWARD		

Figure 9-28. CDF Display LIC FRU Levels

Display/Update Channel Adapters

1. You must be in the CDF display/update function (see page 9-15).
2. In **1**, enter **9**.
3. Press **SEND**. Screen **Y** is displayed.

You may display:

All CAs Screens **Y** and **Z**
One CA Screens **AA** to **AE**

```

R      CDF - DISPLAY/UPDATE FUNCTION
- SELECT ONE OPTION (1 TO 11), THEN PRESS SEND ==> 1

DISPLAY :          DISPLAY/UPDATE :
1 = MOSS          9 = CHANNEL ADAPTERS (CA)
2 = LSSD          10 = LINE ADAPTERS (LA)
4 = CCU           11 = PORTS
6 = CA FRU LEVEL
7 = LA/MUX FRU LEVEL
8 = LIC FRU LEVEL

==> 1

F1:END          F3:ALARM          F6:QUIT

```

Figure 9-29. CDF Display/Update Menu Screen

Display All Channel Adapters

1. Enter **0**, in **1**.
2. Press **SEND**. Screen **Z** is displayed.

You cannot update a CA in this screen.

```

Y      CDF - DISPLAY/UPDATE : CHANNEL ADAPTERS (CA)

1 2 3 4 5 6 7 8
PRESENCE: N N N N Y N Y Y
NUMBER : - - - - SA 5B 7A 8A
TYPE * :      6 7 6

* CHANNEL ADAPTER TYPE : 6=CADS, 7=BCCA

- SELECT ONE OPTION (0 TO 16), THEN PRESS SEND ==> 1

0 = TO DISPLAY ALL CA
1 TO 16 = TO DISPLAY/UPDATE ONE CA

==>

F1:END          F3:ALARM          F6:QUIT

```

Figure 9-30. CDF Display/Update Channel Adapters Screen

TYPE	CADS or BCCA
ADDRESS	Physical address of the CA on the IOC bus
PRESENCE	Y (yes) or N (no)
TPS	Y (yes) or N (no)
NSC	NSC address
ESCL	ESC low address (CADS only)
ESCH	ESC high address (CADS only)

Note: Fields ESCL and ESCH are blank if the CA is a BCCA, or if the CA is not present.

```

Z      CDF - DISPLAY : CHANNEL ADAPTERS (1-8)

NUMBER TYPE ADDRESS PRESENCE PS TPS FRAME NSC ESCL ESCH
ID
1 A - 8800 N --- N --- 0
2 A - 8802 N --- N --- 0
3 A - 8804 N --- N --- 0
4 A - 8806 N --- N --- 0
5 A CADS 8808 Y --- Y --- xx 0 0
6 A BCCA 0804 Y --- N --- xx 0 0
7 A CADS 0804 Y --- N --- xx 0 0
8 A CADS 0806 Y --- N --- xx 0 0

==>

F1:END          F3:ALARM          F6:QUIT          F8:FWD

```

Figure 9-31. Display Channel Adapters

Display One Channel Adapter

- 1. You have selected option 9.
- 2. In **1**, enter a CA number (according to the range displayed in MSA), then press **SEND**.
- 3. The result depends on the status of the CA.
 - If the CA is installed, screen **AB** is displayed.
 - If the CA is not installed, screen **AD**, or **AE** is displayed.

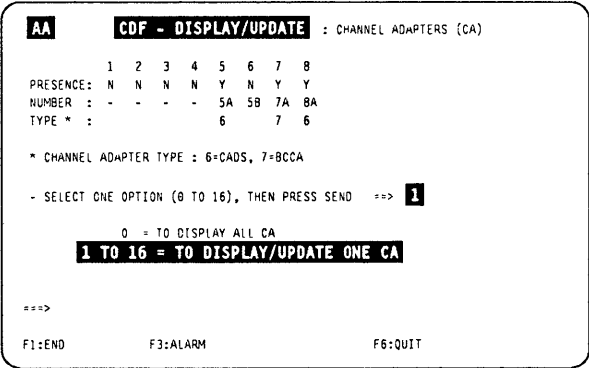


Figure 9-32. CDF Display/Update Channel Adapters Screen

Press **F8**, to display the CA parameters (screen **AC**). Refer to “CA Display Field Explanations” on page 9-25 for details.

If you want to **update** the CA, go to page 9-22.

note This line is displayed only if the TPS feature is installed. Remember: it can be installed only on an odd numbered CA.

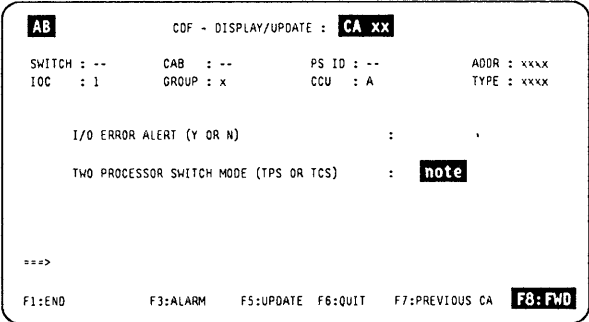


Figure 9-33. CA Display Screen

- INTERFACE B information is displayed only if TPS is installed.
- The ESC address range parameter is not present if the CA is of type 7 (BCCA).

For a description of the parameters, refer to “CA Parameters Explanation” on page 9-26.

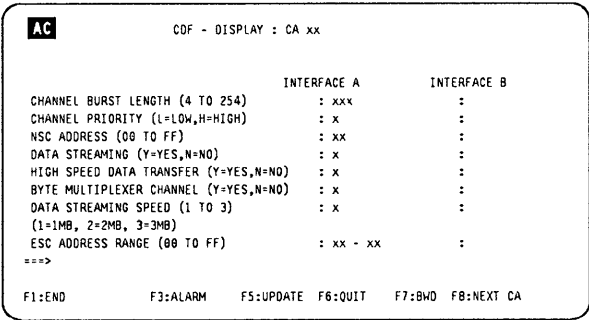


Figure 9-34. CA Display Screen (Second Part)

CA Not Installed

If you are in MOSS **online**, the following message is displayed:

TO ADD THIS CA INTO THE CDF, PRESS F5.
IF CA TYPE 7 (BCCA): NO PEP SUPPORT, ANY PEP ACCESS LEADS TO
A CP ABEND. USE NON-BUFFER CHAINING MODE WITH NCP DOWN LEVEL.

(See "Add/Delete a CA or a TPS" on page 9-28.)

AD CDF - DISPLAY/UPDATE : CA xx

SWITCH : --	CAB : --	PS ID : --	ADDR : xxxx
IDC : 1	GROUP : x	CCU : A	TYPE : xxxx

CA NOT INSTALLED

==>

F1:END F3:ALARM F6:QUIT F7:PREVIOUS CA F8:NEXT CA

Figure 9-35. Display a CA Not Installed

CA Not Installed Special Case

If you display an even CA, and either:

- The TPS feature is not installed on the previous CA.
- Or the next present CA has the TPS feature,
- Or there are no CAs in the next positions,
- Or its status is equal to **assumed bypass card** or **hole defined by the operator** (select bypass card = no),

this screen is displayed:

If the bypass card is installed, the answer must be Y (yes), otherwise it must be N (no).

AE CDF - DISPLAY/UPDATE : CA xx

SWITCH : --	CAB : --	PS ID : --	ADDR : xxxx
IDC : 1	GROUP : x	CCU : A	TYPE : xxxx

CA NOT INSTALLED

SELECT BYPASS CARD (Y OR N), THEN PRESS SEND ==>

==>

F1:END F3:ALARM F6:QUIT F7:PREVIOUS CA F8:NEXT CA

Figure 9-36. Display an Even CA not Installed

Update Channel Adapter

Always check the MOSS state in the MSA (refer to page 1-10), because the procedure is different, depending on the MOSS state.

Procedure with MOSS Alone

- 1. You must be in the CDF Display/update function (see page 9-15).
- 2. Display the CA (see "Display/Update Channel Adapters" on page 9-19), then press **F5**.
- 3. This screen (**AF**) is displayed.
- 4. Enter the required parameters in **1**, and in **2** if applicable (TPS feature installed); see "CA Display Field Explanations" on page 9-25.
- 5. Press **SEND**.
- 6. The message:

UPDATE OF THE CDF FILE SUCCESSFUL

is displayed.
- 7. Press **F8** to update the other parameters (screen **AG**).

AF

CUSTOMER ID:3745SERIAL NUMBER:

CCU-APROCESS**MOSS ALONE**

RUNSTOP-IOC-CHKSTOP-CCU-CHKAC

MAXIMUM ADAPTERS CONFIGURATION: CHANNEL ADAPTERS 5, 6, 7, 8
LINE ADAPTERS 1, 3, 4, 9, 10, 11, 12
-----mm/dd/yy hh:mm
CDF - DISPLAY/UPDATE : CA xx

SWITCH : --CAB : --PS ID : --ADDR : XXXX

IOC : 1GROUP : XCCU : ATYPE : XXXX

- **SELECT I/O ERROR ALERT** (Y OR N) ==> **1**

- **SELECT TWO PROCESSOR SWITCH MODE** (TPS OR TCS)==> **2**

- PRESS SEND

====>

F1:ENDF3:ALARMF6:QUITF7:PREVIOUS CAF8:FWD

Figure 9-37. Update a CA

- INTERFACE B information is displayed only if TPS is installed.
 - The ESC address range parameter is not present if the CA is of type 7 (BCCA).
- 1. Update the desired fields, under INTERFACE A, and INTERFACE B. (Refer to "CA Parameters Explanation" on page 9-26 for details.)
 - 2. Press **SEND**.
 - 3. The following message is displayed:

UPDATE OF THE CDF FILE SUCCESSFUL

AG

CDF - UPDATE : CA xx

CHANNEL BURST LENGTH (4 TO 254) ==> XXX ==>

CHANNEL PRIORITY (L=LOW,H=HIGH) ==> X ==>

NSC ADDRESS (00 TO FF) ==> XX ==>

DATA STREAMING (Y=YES,N=NO) ==> X ==>

HIGH SPEED DATA TRANSFER (Y=YES,N=NO) ==> X ==>

BYTE MULTIPLEXER CHANNEL (Y=YES,N=NO) ==> X ==>

DATA STREAMING SPEED (1 TO 3) ==> X ==>

(1=1MB, 2=2MB, 3=3MB)

ESC ADDRESS RANGE (00 TO FF) ==> XX - XX ==>

====>

F1:ENDF3:ALARMF6:QUITF7:BWDF8:FWD

Figure 9-38. Update a CA (Second Part)

Procedure with MOSS Online

1. You must be in the CDF Display/update function (see page 9-15).
2. Display the CA (see "Display/Update Channel Adapters" on page 9-19), then press **F5**.
3. This screen (**AH**) is displayed.
4. Enter 3 in **1**.
5. Press **SEND**.
 - If the TPS is installed, screen **AI** is displayed.
 - If the TPS is not installed, screen **AJ** is displayed.

If the CA number is even, only options 1 to 3 are displayed.

```

AH
CUSTOMER ID: 3745 SERIAL NUMBER:
CCU-A PROCESS MOSS ONLINE
RUN STOP-IOC-CHK STOP-CCU-CHK AC

MAXIMUM ADAPTERS CONFIGURATION: CHANNEL ADAPTERS 5, 6, 7, 8
LINE ADAPTERS 1, 3, 4, 9, 10, 11, 12
-----mm/dd/yy hh:mm
CDF - UPDATE : CA xx

- SELECT ONE OPTION (1 TO 4), THEN PRESS SEND ==> 1

1 = DELETE CA
2 = REPLACE CA
3 = UPDATE CA PARAMETERS
4 = ADD TWO PROCESSOR SWITCH

IF CA TYPE 7 (BCCA): NO PEP SUPPORT, ANY PEP ACCESS LEADS TO A CP ABEND
USE NON-BUFFER CHAINING MODE WITH NCP DOWN LEVEL.

====
F1:END F3:ALARM F6:QUIT F7:DISPLAY
  
```

Figure 9-39. Update a CA (Menu Screen)

1. Enter the selected mode in **1**.
2. Press **SEND**.
3. Press **F8** to update the other CA parameters (screen **AI**).

```

AI CDF - DISPLAY/UPDATE : CA xx

SWITCH : -- CAB : -- PS ID : -- ADDR : xxxx
IOC : 1 GROUP : X CCU : A TYPE : xxxx

SELECT TWO PROCESSOR SWITCH MODE (TPS OR TCS)==> 1
- PRESS SEND

====
F1:END F3:ALARM F6:QUIT F7:DISPLAY F8:FWD
  
```

Figure 9-40. Update a CA

- INTERFACE B information is displayed only if TPS is installed.
- The ESC address range parameter is not present if the CA is of type 7 (BCCA).

1. Update the desired fields, under INTERFACE A, and INTERFACE B. (Refer to "CA Parameters Explanation" on page 9-26 for details.)
2. Press **SEND**.
3. The following message is displayed:

UPDATE OF THE CDF FILE SUCCESSFUL

```

AJ CDF - UPDATE : CA xx

INTERFACE A INTERFACE B
CHANNEL BURST LENGTH (4 TO 254) ==> xxx ==>
CHANNEL PRIORITY (L=LOW,H=HIGH) ==> x ==>
NSC ADDRESS (00 TO FF) ==> xx ==>
DATA STREAMING (Y=YES,N=NO) ==> x ==>
HIGH SPEED DATA TRANSFER (Y=YES,N=NO) ==> x ==>
BYTE MULTIPLEXER CHANNEL (Y=YES,N=NO) ==> x ==>
DATA STREAMING SPEED (1 TO 3) ==> x ==>
(1=1MB, 2=2MB, 3=3MB)
ESC ADDRESS RANGE (00 TO FF) ==> xx - xx ==>
====
F1:END F3:ALARM F6:QUIT F7:BWD
  
```

Figure 9-41. Update a CA (Second Part)

Display/Update CA

Procedure with MOSS Offline

TPS Feature Installed

1. You must be in the CDF Display/update function (see page 9-15).
2. Display the CA (see "Display/Update Channel Adapters" on page 9-19), then press **F5**.
3. This screen (**AK**) is displayed.
4. Enter the selected mode in **1**.
5. Press **SEND**.
6. Press **F8** to update the other CA parameters (screen **AL**).

```
AK
CUSTOMER ID: 3745 SERIAL NUMBER:
CCU-A PROCESS MOSS OFFLINE
RUN STOP-IOC-CHK STOP-CCU-CHK AC

MAXIMUM ADAPTERS CONFIGURATION: CHANNEL ADAPTERS 5, 6, 7, 8
LINE ADAPTERS 1, 3, 4, 9, 10, 11, 12
-----mm/dd/yy hh:mm
CDF - DISPLAY/UPDATE : CA xx

SWITCH : -- CAB : -- PS ID : -- ADDR : xxxx
IOC : 1 GROUP : x CCU : A TYPE : xxxx

SELECT TWO PROCESSOR SWITCH MODE (TPS OR TCS) ==> 1
- PRESS SEND

==>

F1:END F3:ALARM F6:QUIT F7:DISPLAY F8:FWD
```

Figure 9-42. Update a CA

The ESC address range parameter is not present if the CA is of type 7 (BCCA).

1. Update the desired fields, under INTERFACE A, and INTERFACE B (refer to "CA Parameters Explanation" on page 9-26 for details).
2. Press **SEND**.

```
AL
CDF - UPDATE : CA xx

CHANNEL BURST LENGTH (4 TO 254) ==> xxx
CHANNEL PRIORITY (L=LOW,H=HIGH) ==> x
NSC ADDRESS (00 TO FF) ==> xx
DATA STREAMING (Y=YES,N=NO) ==> x
HIGH SPEED DATA TRANSFER (Y=YES,N=NO) ==> x
BYTE MULTIPLEXER CHANNEL (Y=YES,N=NO) ==> x
DATA STREAMING SPEED (1 TO 3) ==> x
(1=1MB, 2=2MB, 3=3MB)
ESC ADDRESS RANGE (00 TO FF) ==> xx - xx
==>

F1:END F3:ALARM F6:QUIT F7:BWD
```

Figure 9-43. Update a CA (Second Part)

TPS Not Installed

1. You must be in the CDF Display/update function (see page 9-15).
2. Display the CA (see "Display/Update Channel Adapters" on page 9-19), then press **F8**. The CA parameters are displayed. The ESC address range parameter is not present if the CA is of type 7 (BCCA).
3. Press **F5**. This screen is displayed.
4. Update the desired fields, under INTERFACE A. (Refer to "CA Parameters Explanation" on page 9-26 for details.)
5. Press **SEND**.

```
AM
CDF - UPDATE : CA xx

CHANNEL BURST LENGTH (4 TO 254) ==> xxx
CHANNEL PRIORITY (L=LOW,H=HIGH) ==> x
NSC ADDRESS (00 TO FF) ==> xx
DATA STREAMING (Y=YES,N=NO) ==> x
HIGH SPEED DATA TRANSFER (Y=YES,N=NO) ==> x
BYTE MULTIPLEXER CHANNEL (Y=YES,N=NO) ==> x
DATA STREAMING SPEED (1 TO 3) ==> x
(1=1MB, 2=2MB, 3=3MB)
ESC ADDRESS RANGE (00 TO FF) ==> xx - xx
==>

F1:END F3:ALARM F6:QUIT F7:BWD
```

Figure 9-44. Update a CA (Second Part)

CA Display Field Explanations

AB		CDF - DISPLAY/UPDATE : CA xx	
SWITCH : --	CAB : --	PS ID : --	ADDR : xxxx
IOC : 1	GROUP : x	CCU : A	TYPE : xxxx
I/O ERROR ALERT (Y OR N)		:	
TWO PROCESSOR SWITCH MODE (TPS OR TCS)		:	
===>			
F1:END	F3:ALARM	F5:UPDATE	F6:QUIT
		F7:PREVIOUS CA	F8:FWD

Figure 9-45. CA Display Screen

GROUP Address of a pair of CAs (1 to 4). For details, refer to the HMR (Chapter "Buses").

ADDR CA address on the IOC bus.

TYPE CADS or BCCA.

I/O ERROR ALERT

Allows to detect a malfunction in a CA. This feature is available on all IBM hosts supporting the 3745. If a non-IBM host is attached, check if the I/O error alert feature is present on that host.

If both interfaces are connected to two different hosts (TPS feature installed), I/O error alert can be set to YES, only if these two hosts support the I/O error alert feature.

TWO PROCESSOR SWITCH MODE

TPS Mode: Interfaces A and B are connected to **the same host** and can be enabled at the same time.

TCS Mode: Interfaces A and B are connected to **two different hosts** and cannot work at the same time.

The CA parameters are described on page 9-26.

CA Parameters Explanation

The choice of the CA parameters depends on the machine configuration and the NCP generation, as well as the host processors. Discuss these parameters with the customer before you set them.

AC
CDF - UPDATE : CA xx

	INTERFACE A	INTERFACE B
CHANNEL BURST LENGTH (4 TO 254)	==> xxx	==>
CHANNEL PRIORITY (L=LOW,H=HIGH)	==> x	==>
NSC ADDRESS (00 TO FF)	==> xx	==>
DATA STREAMING (Y=YES,N=NO)	==> x	==>
HIGH SPEED DATA TRANSFER (Y=YES,N=NO)	==> x	==>
BYTE MULTIPLEXER CHANNEL (Y=YES,N=NO)	==> x	==>
DATA STREAMING SPEED (1 TO 3) (1=1MB, 2=2MB, 3=3MB)	==> x	==>
ESC ADDRESS RANGE (00 TO FF)	==> xx - xx	==>
====>		
F1:END	F3:ALARM	F6:QUIT F7:BWD

Figure 9-46. CA Parameters (CA installed with TPS)

CHANNEL BURST LENGTH

Length of the burst which can be transferred between the CA and the host. Enter an even number, from 4 to 254.

- For a block multiplexer or selector channel, the recommended value is 64 with CADS and 254 with BCCA to allow a better CA throughput.
- For a byte multiplexer channel, check for the host byte transfer rate, and select the burst length accordingly.

For a better throughput the recommended values are:

1. With buffered devices on the byte channel: 64 with CADS and 254 with BCCA.
2. Without buffered devices on the byte channel:
 - 308X or 309X: 32
 - 4381 or 4341: 16
 - 4361: 8

Note: Value 254 may be used on a byte multiplexer channel if the user wants to optimize the efficiency (connect time) instead of the throughput on the byte multiplexer channel.

CHANNEL PRIORITY

L (low) or H (high). Priority to be given to the CA among the other units attached to the channel.

NSC ADDRESS

Address of the native subchannel for the NCP or PEP. Enter a hexadecimal number between 00 and FF.

ESC ADDRESS RANGE

Address range of the emulation subchannel for the PEP when the emulation subchannel is used. (These ESC low and high addresses must be left blank for a channel adapter in TPS mode.)

This parameter is not present if the CA is of type 7 (BCCA).

Two numbers between 00 and FF must be entered only when ESC is used.

- If **byte multiplexer** is equal to N, then the ESC range must be left blank.
- If the TPS feature is installed and TPS mode is equal to TPS, then the ESC address range must be left blank.

DATA STREAMING

Feature on a host (for block multiplexer or selector channel). Its value can be 'Y' (yes), or 'N' (no).

HOST TYPE	DATA STREAMING	DATA STREAMING SPEED	HIGH-SPEED DATA XFER	BYTE MULTIPLEX CHANNEL
43xx	N	Blank	See next table	Y or N according to channel type
308x	N			
3044 as channel extend.	N			
Other	Y	1, 2, 3 Mb (or higher) according to host chl speed	N	N

Figure 9-47. CA Parameters Combinations

DATA STREAMING SPEED

See table above. This value corresponds to the host channel speed. It is **not** the actual transfer rate.

BYTE MULTIPLEXER CHANNEL

See table above.

HIGH-SPEED DATA TRANSFER

A basic feature installed on a host channel according to the following table (Enter 'Y' or 'N'):

HOST TYPE	BYTE CHANNEL	BLOCK CHANNEL	SELECTOR CHANNEL
308x	YES	YES	NO
309x	YES	YES	NO
4341	YES	YES	YES
4361	YES	YES	NO
4381	YES	YES	NO
937x	NO	YES	NO

Add/Delete a CA or a TPS

1. Power the machine OFF.
2. Install, or remove, the CA or the TPS card.
3. Power the machine ON, and wait for the end of the IML. 'MOSS ALONE' is then displayed in the MSA.
4. Perform a CDF upgrade (see procedure on page 9-10). This message is displayed:

CDF UPGRADE COMPLETED

5. Go to "Update Channel Adapter" on page 9-22, and enter the parameters of the new CA.

```

AN
CDF - UPGRADE

CDF UPGRADE STARTED
ALL INSTALLED POWER SUPPLIES ARE UP
MOSS INFORMATION : FETCHED
CCU INFORMATION : yyyyyy ON CCU A
SWITCH INFORMATION : ---
CA INFORMATION : yyyyyy ON CA XX XX XX XX XX XX XX XX XX
SCANNER IML : COMPLETED XX XX XX XX XX
LA INFORMATION : yyyyyy ON LA XX XX XX XX XX XX XX XX XX
CDF UPGRADE COMPLETED XX XX XX XX XX XX XX XX XX

====>
F1:END F3:ALARM F6:QUIT

```

Figure 9-48. CDF Upgrade Screen

If you display a CA not installed, this screen is displayed. You **must ignore** the instruction given on this screen. Pressing the F5 key will lead to the message:

CCU PROGRAM IS NOT AWARE OF THIS CA INSTALLATION

```

A0
CDF - DISPLAY/UPDATE : CA xx

SWITCH : -- CAB : -- PS ID : -- ADDR : xxxx
IOC : 1 GROUP : x CCU : A TYPE : xxxx

CA NOT INSTALLED

- TO ADD THIS CA INTO THE CDF, PRESS F5
IF CA TYPE 7 (BCCA): NO PEP SUPPORT, ANY PEP ACCESS LEADS TO A CP ABEND
USE NON-BUFFER CHAINING MODE WITH NCP DOWN LEVEL.

====>
F1:END F3:ALARM F5:UPDATE F6:QUIT F7:PREVIOUS CA F8:NEXT CA

```

Figure 9-49. Display a CA not Installed, MOSS Online

You must **not** use options 1, 2, and 4 of this menu screen. They are not supported on this model.

```

AP
CDF - UPDATE : CA xx

- SELECT ONE OPTION (1 TO 4), THEN PRESS SEND ==>

1 = DELETE CA
2 = REPLACE CA
3 = UPDATE CA PARAMETERS
4 = ADD TWO PROCESSOR SWITCH

====>
F1:END F3:ALARM F6:QUIT F7:DISPLAY

```

Figure 9-50. Update a CA, MOSS Online Menu Screen

Display Line Adapters

Display LA

1. You must be in the CDF Display/update function (see page 9-15).
2. In the display/update function screen (**R**), page 9-16, select option 10.
3. This screen (**AQ**) is displayed.
4. Enter the LA number in **1**.
5. Press **SEND**. Depending on the status, or type of LA, one of the screens **AR** to **AU** is displayed.

The valid LA addresses are:

	Model		
	130	150	170
TSS (type 1)	none	9	3 (*) 4 (*) 9, 10, 11, 12
HPTSS (type 2)	3-4	3	3 (*) 4 (*)
TRSS (type 3)	1-2	1	1

(*) Either address 3 or 4 can be used by TSS or HPTSS.

```

AQ      CDF - DISPLAY/UPDATE : LINE ADAPTERS

NUMBER   : 1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
PRESENCE : Y  Y  Y  Y  Y  Y  Y  Y  N  N  N  N  N  N  N  N
LA TYPE * : 3  -  2  2  -  -  -  -  -  -  -  -  -  -  -  -

NUMBER   : 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
PRESENCE : N  N  N  N  N  N  N  N  N  N  N  N  N  N  N  N
LA TYPE * : -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -

- LINE ADAPTER TYPE : 1=TSS, 2=HPTSS, 3=TRSS

- TO DISPLAY/UPDATE LA, SELECT ITS NUMBER (1-32), THEN PRESS SEND ==> 1
==>

F1:END      F3:ALARM      F6:QUIT

```

Figure 9-51. CDF Display/Update (Line Adapters)

LA Not Installed

The message:

TO ADD THIS LA INTO THE CDF, PRESS F5

is displayed only if:

- MOSS is **online** and the
- Adapter is inoperative.

GROUP Address of a pair of LAs (1 to 8). Refer to the HMR (Chapter "Buses") for details.

ADDR LA address on the IOC bus

TYPE TSS, HPTSS, or TRSS

This explanation is valid for all the following LA screens.

```

AR      CDF - DISPLAY : LA xx

SWITCH : --   LAB : --   PS ID : --   ADDR : xx
IOC      : 1   GROUP : x   CCU : A   TYPE : xxxxx

LA NOT INSTALLED

- TO ADD THIS LA INTO THE CDF, PRESS F5

==>

F1:END      F3:ALARM      F5:UPDATE  F6:QUIT      F7:PREVIOUS LA  F8:NEXT LA

```

Figure 9-52. Display an LA Not Installed

Display LA

LA TSS

If EXTEND is present:

- Screen **AS** displays: F8: EXTEND.
- Press **F8** to display the EXTEND (same screen, see table in page 9-33 for LIC positions).

For description of this screen refer to “LA TSS Display Field Explanations” on page 9-31.

- PORT1 to PORT4 displayed for LIC types 1-4
- PORT1 and PORT2 displayed for LIC types 5-6.

If the MUX is not installed, the following message is displayed:

MUX IS NOT PRESENT

The information about the LIC and MUX is not displayed.

AS

CDF - DISPLAY : LA xx

SWITCH : -- LAB : -- PS ID : -- ADDR : xxxx

IOC : 1 GROUP : x CCU : A TYPE : TSS

MUX : xx

EXTEND : xxxx

LIC POSITION

PRESENCE

NUMBER

TYPE

CLOCK (C) AND CABLE INFO (I)

PORT1

PORT2

PORT3

PORT4

1

x

xxx

x

x

x

x

x

x

x

2

3

4

====>

F1:END

F3:ALARM

F5:UPDATE

F6:QUIT

F7:PREVIOUS LA

F8:NEXT LA

Figure 9-53. Display an LA TSS Installed

LA TRSS

Presence Y (yes), or N (no)
Port number Address (from 1088 to 1095)
Type TIC type (always 2)

AT

CDF - DISPLAY : LA xx

SWITCH : -- LAB : -- PS ID : -- ADDR : xxxx

IOC : 1 GROUP : x CCU : A TYPE : TRSS

TIC POSITION

PRESENCE

PORT NUMBER

TYPE

1

x

xxxx

y

2

x

xxxx

y

====>

F1:END

F3:ALARM

F6:QUIT

F7:PREVIOUS LA

F8:NEXT LA

Figure 9-54. Display an LA TRSS Installed

LA HPTSS

ERROR SEQUENCE Pattern sent in case of error (default value: 7FFF).
DSR Adjustable confirmation delay when the data set ready (DSR) level changes (default value: 16).
PORTx Port number.

AU

CDF - DISPLAY : LA xx

SWITCH : -- LAB : -- PS ID : -- ADDR : xx

IOC : 1 GROUP : x CCU : A TYPE : HPTSS

PORT1 : xxxx

PORT2 : xxxx

ERROR SEQUENCE : xxxx

DSR INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS): xxx

====>

F1:END

F3:ALARM

F5:UPDATE

F6:QUIT

F7:PREVIOUS LA

F8:NEXT LA

Figure 9-55. Display an LA HPTSS Installed

LA TSS Display Field Explanations

```

AS
CDF - DISPLAY : LA xx

SWITCH : x   LAB : x   PS ID : xx   ADDR : xxxx   MUX : xx
IOC : x   GROUP : x   CCU : x   TYPE : TSS   EXTEND : xxx

          CLOCK (C) AND CABLE INFO (I)
LIC      PRESENCE  NUMBER  TYPE      PORT1  PORT2  PORT3  PORT4
POSITION
1         x        xxx     x        x  x   x  x   x  x   x  x
2
3
4
===>

F1:END      F3:ALARM   F5:UPDATE  F6:QUIT   F7:PREVIOUS LA  F8:NEXT LA

```

Figure 9-56. Display an LA TSS

- Ports 1 to 4 are displayed for LIC 1 and 4
- Ports 1 and 2 are displayed for LIC 3 and 5
- Port 1 is displayed for LIC6.

MUX MUX number (1 to 56) (refer to 'Locations' in the *Maintenance Information Procedures* to obtain its location).

EXTEND Yes or no.

- If EXTEND = NO, F8 key is F8:FWD
- If EXTEND = YES, F8 key is F8:EXTEND.

PRESENCE Y (yes) or N (no)

NUMBER Logical LIC number (1 to 159).

TYPE LIC type: 1, 3, 4, 5 or 6

C (clock)

- Not present
- 1 Internal
- 2 External
- 3 Local (also called direct attachment, or 3745 mode).

You may find additional information about clocking in the "Transmission Subsystem (TSS)" Chapter of the *Hardware Maintenance Information*.

I (cable info)

- Not present
- 1 Wrap block for LIC 1 and 4
- 2 Wrap cable for LIC 3
- 3 Integrated modem (LIC 5)
- 4 Modem-attached
- 5 Direct-attached
- 6 Autocall
- 7 Integrated modem (LIC 6)

Add/Delete/Replace an LA (All Types)

When you modify an LA configuration, you must take the following actions:

- The CCU program must have a SYSGEN supporting the hardware configuration changes.
- Deactivate the lines of the LA (via a network operator command).
- Obtain the total machine (all lines of network stopped).
- Perform the numbered steps below.
- Return the machine to the customer to reload the NCP and start the network.

1. Power the machine OFF.
2. Install, or remove the LA card.
3. Power the machine ON and wait for the end of the IML.
4. 'MOSS ALONE' is then displayed in the MSA.
5. Perform a CDF upgrade (see procedure on page 9-10). This message is displayed:

CDF UPGRADE COMPLETED

6. If you have added a:
 - TSS, go to 9-33,
 - HPTSS, go to 9-35,
 and enter the parameters of the new LA TSS or HPTSS.

```

AV
CDF - UPGRADE

CDF UPGRADE STARTED
ALL INSTALLED POWER SUPPLIES ARE UP
MOSS INFORMATION : FETCHED
CCU INFORMATION : yyyyyy ON CCU A
SWITCH INFORMATION : ---
CA INFORMATION : yyyyyy ON CA XX XX XX XX XX XX XX XX XX
SCANNER IML : COMPLETED XX XX XX XX XX
LA INFORMATION : yyyyyy ON LA XX XX XX XX XX XX XX XX XX
CDF UPGRADE COMPLETED XX XX XX XX XX XX XX XX XX

===>
F1:END F3:ALARM F6:QUIT
  
```

Figure 9-57. CDF Upgrade Screen

If you display an LA not installed, this screen is displayed. You **must ignore** the instruction given on this screen. Pressing the F5 key will lead to a menu screen, then to the message:

FUNCTION NOT SUPPORTED BY THIS MODEL

```

AV
CDF - DISPLAY : LA XX

SWITCH : -- LAB : -- PS ID : -- ADDR : XX
IOC : 1 GROUP : x CCU : A TYPE : XXXXX

LA NOT INSTALLED

- TO ADD THIS LA INTO THE CDF, PRESS F5

===>
F1:END F3:ALARM F5:UPDATE F6:QUIT F7:PREVIOUS LA F8:NEXT LA
  
```

Figure 9-58. Display of an LA Not Installed

Update an LA TSS

Add/Delete/Replace a LIC or a TSS Cable

MOSS Online or Offline

1. You must be in the CDF display/update function (see page 9-15).
2. The adapter must be in status 'Connected'.
 - For information about the adapter status, and the way to modify it, refer to Chapter 4, "Transmission Subsystem (TSS) Functions" on page 4-1.
 - The adapter (scanner) status is displayed in the MSA (see "MSA Field Definition (Scanner Information)" on page 1-14).
3. Display the selected LA. Screen **AS** in "Display LA" on page 9-29 is displayed.
4. Press F5. This screen **AX** is displayed.
5. Select the appropriate option and press **SEND**. The screen **AY** is displayed.

Figure 9-59. Add a LIC, MOSS Offline or Online, and Adapter Operative

1. In **1**, enter the LIC position (refer to the next table for LIC position range).
2. Press **SEND**.

LIC type	EXTEND	Nb of LICs (nn)
1 to 4	YES	8
	NO	4
5 or 6	YES	16
	NO	8

Figure 9-60. Add or Replace or Delete a LIC

This screen reflects the progress of the operation. At the end, a message indicates whether the change is completed or aborted.

Figure 9-61. LA Status Change Screen

MOSS Online and Adapter Inoperative

The function is not available. Nevertheless, a menu screen is displayed, but every selection will give the message:

FUNCTION NOT SUPPORTED BY THIS MODEL

```
BA                                CDF - UPDATE : LA xx
- SELECT ONE OPTION (1 TO 8), THEN PRESS SEND ==> 1

1 = REPLACE LA
2 = DELETE LA
3 = REPLACE MUX
4 = DELETE MUX
5 = ADD EXTEND
6 = REPLACE LIC
7 = DELETE LIC
8 = ADD LIC

==>

F1:END      F3:ALARM      F6:QUIT      F7:DISPLAY
```

Figure 9-62. Update an LA TSS Menu Screen

MOSS Alone

The LA TSS update is not allowed (F5 is not available in the LA TSS display screen).

Add/Delete a MUX or an EXTEND

1. Power the machine OFF.
2. Install or remove the MUX or the EXTEND.
3. Power the machine ON, and wait for the end of the IML. 'MOSS ALONE' is then displayed in the MSA.
4. Perform a CDF upgrade (see procedure on page 9-10).
5. At the end, this message is displayed:

CDF UPGRADE COMPLETED

```
BB                                CDF - UPGRADE

CDF UPGRADE STARTED
ALL INSTALLED POWER SUPPLIES ARE UP
MOSS INFORMATION : FETCHED
CCU INFORMATION : yyyyyyy ON CCU A
SWITCH INFORMATION : ---
CA INFORMATION : yyyyyyy ON CA xx xx xx xx xx xx xx xx xx xx
SCANNER IML : COMPLETED xx xx xx xx xx
LA INFORMATION : yyyyyyy ON LA xx xx xx xx xx xx xx xx xx xx

CDF UPGRADE COMPLETED

==>

F1:END      F3:ALARM      F6:QUIT
```

Figure 9-63. CDF Upgrade Screen

Update an LA HPTSS

MOSS Online and Adapter Inoperative

1. You must be in the CDF display/update function (see page 9-15).
2. The adapter must not be connected.
 - For information about the adapter status and the way to modify it, refer to Chapter 4, "Transmission Subsystem (TSS) Functions" on page 4-1.
 - The adapter (scanner) status is displayed in the MSA (see "MSA Field Definition (Scanner Information)" on page 1-14).
3. Display the selected LA (see "Display LA" on page 9-29).
4. Press **F5**. This screen is displayed.
 - Select option 3. Screen **BD** is displayed.

Note that options 1 and 2 lead to the message:

FUNCTION NOT SUPPORTED BY THIS MODEL

```
BC          CDF - UPDATE : LA xx
- SELECT ONE OPTION (1 TO 3), THEN PRESS SEND ==> 1

1 = REPLACE LA
2 = DELETE LA
3 = UPDATE LA PARAMETERS

====
F1:END      F3:ALARM      F6:QUIT      F7:DISPLAY
```

Figure 9-64. Update an LA HPTSS

Adapter Operative

1. You must be in the CDF Display/update function (see page 9-15).
2. The adapter must be connected.
 - For information about the adapter status, and the way to modify it, refer to Chapter 4, "Transmission Subsystem (TSS) Functions" on page 4-1.
 - The adapter (scanner) status is displayed in the MSA (see "MSA Field Definition (Scanner Information)" on page 1-14).
3. Display the selected LA (see "Display LA" on page 9-29).
4. Press **F5**. Screen **BD** is displayed.

1. Enter the required values in **1** and **2**.
2. Press **SEND**.
3. The following message is displayed:

UPDATE OF THE CDF FILE SUCCESSFUL

ERROR SEQUENCE Pattern sent in case of error (default value: 7FFF).

DSR Adjustable confirmation delay when the data set ready (DSR) level changes (default value: 16).

PORTx Port number.

```
BD          CDF - UPDATE : LA xx

SWITCH : -- LAB : -- PS ID : -- ADDR : xx PORT1 : xxxx
IOC : 1 GROUP : x CCU : A TYPE : HPTSS PORT2 : xxxx

ERROR SEQUENCE ==> 1
DSR INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS) ==> 2

====
F1:END      F3:ALARM      F6:QUIT      F7:DISPLAY
```

Figure 9-65. Update Parameters of an LA HPTSS

Display/Update Ports

1. You must be in the CDF display/update function (see page 9-15).
2. Select option 11 (ports) in the CDF display/update screen **C** (see Figure 9-4 on page 9-8). This screen is displayed.
3. Enter a PORT number in **1**.
4. Press **SEND**.

According to the selected value, one of the following screens is displayed.

Figure 9-66. CDF Display/Update Ports Selection Screen

Display TRSS Port

A TRSS port cannot be updated.

Figure 9-67. Display TRSS Port

Display/Update HPTSS Port

You must use the **upgrade** function to update HPTSS ports for cable change, or other modifications.

CABLE ID

- Not present
- 1 Wrap block
- 4 Modem-attached
- 5 Direct-attached

INTERFACE TYPE

X21 or V35

Figure 9-68. Display HPTSS Port

Display/Update TSS Port

Press F8, to display the second screen (**BI**).

Notes:

1. The 'Cable Presence' field is **always 'Y'** for **LICs type 5 or 6**.
2. If the port is not installed, the message:

PORT NOT INSTALLED

appears on the screen.

BH

CDF - **DISPLAY : PORT xxxx**

CCU : A	IOC : 1	FRAME : BF	MUX : xx	MUX LIC CABLE
SWITCH : --	LA : xx	IPL : x	LIC : xxx	X X X

PRESENCE

PORT CLOCKING (see field description) : x

TRANSIENT THRESHOLD (0 TO 15) : xx

==>

F1:END F3:ALARM **F5:UPDATE** F6:QUIT F7:PREVIOUS PORT **F8:FWD**

Figure 9-69. Display TSS Port (First Part)

Update TSS Port

1. Press **F5** in either screen **BH** or **BI**.
2. Screen **BJ** is displayed.

note Displayed only for LIC type 1 to 4.

BI

CDF - **DISPLAY : PORT xxxx**

CCU : A	IOC : 1	FRAME : BF	MUX : xx	MUX LIC CABLE
SWITCH : --	LA : xx	IPL : x	LIC : xxx	X X X

PRESENCE

DSR INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS) : xxx

RLSD INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS) : xxx

RI INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS) : xxx **note**

==>

F1:END F3:ALARM **F5:UPDATE** F6:QUIT F7:BWD F8:NEXT PORT

Figure 9-70. Display TSS Port (Second Part)

Update TSS Port

1. Press **F5** from either screen **BH** or **BI** before.
2. Update fields **1** to **5** (See "TSS Port Field Description" on page 9-38 for the field description).
3. Press **SEND**.
4. The following message is displayed:

UPDATE OF THE CDF FILE SUCCESSFUL

note Displayed only for LICs type 1 to 4.

BJ

CDF - **UPDATE : PORT xxxx**

PORT CLOCKING ==> **1**

TRANSIENT THRESHOLD (0 TO 15) ==> **2**

DSR INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS) ==> **3**

RLSD INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS) ==> **4**

RI INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS) ==> **5** **note**

==>

F1:END F3:ALARM F6:QUIT F7:DISPLAY

Figure 9-71. Update TSS Port

TSS Port Field Description

BJ
CDF - UPDATE : PORT xxxx

PORT CLOCKING
==>

TRANSIENT THRESHOLD (0 TO 15)
==>

DSR INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS)
==>

RLSD INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS)
==>

RI INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS)
==>

===>

F1:END
F3:ALARM
F6:QUIT
F7:DISPLAY

Figure 9-72. Update TSS Port (Field Description)

Fields LA, MUX, LIC, IPL, and PRESENCE are related to the upper part of screen **BT**, on previous page.

LA LA number (1 to 32)
MUX MUX number (1 to 32) (refer to the "Locations" chapter in the MIP to know its location)
LIC Logical LIC number (1 to 128)
IPL Y (yes) or N (no). Indicates if it is an IPL port or not
PRESENCE Y (yes) or N (no) for MUX, LIC, CABLE
PORT CLOCKING

- Not present (*)
- 1 Internal
- 2 External (*)
- 3 Local (also called direct attachment, or 3745 mode):
 You may find additional information about clocking in the "Transmission Subsystem (TSS)" Chapter of the *Hardware Maintenance References*.

(*) If LIC type 5/6, values can be only - or 2 (default value = 2).

TRANSIENT THRESHOLD

Maximum number of consecutive transient errors received before generating a solid error (default value: 3)

DSR Adjustable confirmation delay when the data set ready (DSR) level changes (default value: 16)
RLSD Adjustable confirmation delay when the receive line signal detector (RLSD) level changes (default value: 16)
RI Adjustable confirmation delay when the ring indicator (RI) level changes (default value: 16). Used only with LICs type 1 to 4.

CDF Modification for Troubleshooting Purpose (S Function)

Use of this function:

The use of this function is reserved for people having at least the product-support-trained CE level of training, and an in-depth knowledge of the CDF. Improper use of this function may disturb the machine operation.

This function allows modifying the CDF without using the CDF upgrade or create:

- You may add or remove an adapter, in case of IOC bus problem, in order to force the run of a diagnostic.
- This function is **not** displayed on the menu.

USAGE RESTRICTIONS

1. Available only in **maintenance mode** and **MOSS alone**.
2. Before changing any adapter information on the CDF screen, note all the values related to this adapter.

Removing an adapter from the CDF destroys **all** the information about this adapter.
3. When you remove an LA from the CDF with this function, you must unplug the corresponding card; if not, the IOC bus IFT fails and indicates the removed LA.
4. Restore the adapter information, using the values retained at the beginning of this procedure.
5. You must perform a CDF upgrade to restore the CDF to its original configuration.

1. In **1**, type **S**.
2. Press **Enter**.

Screen **BL** is displayed (Figure 9-74 on page 9-40).

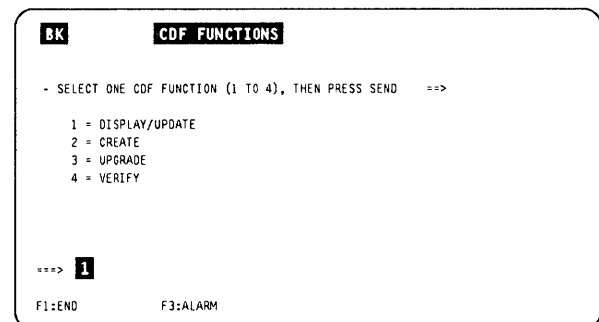


Figure 9-73. CDF Functions Selection Screen

1. In **1**, type the selected option.
2. Press **Enter**.

One of the following screens is displayed, according to the selection:

- BM** Option 2
- BN** Option 3
- BP** Option 4

BL

SELECT ONE OPTION (1 TO 4), THEN PRESS SEND ==> **1**

1 = NOT AVAILABLE 3 = CHANNEL ADAPTERS (CA)
2 = CCU 4 = LINE ADAPTERS (LA)

F1:END F3:ALARM

Figure 9-74. CDF Functions Selection Screen

Modify CCU

1. Press **F5** to allow updating.
2. Modify the desired fields.
3. Press **Enter**.

The message

UPDATE OF THE CDF SUCCESSFULL

is displayed.

BM

	CCU-A	CCU-B	
PRESENCE	: Y	: N	(Y : PRESENT, N : NOT PRESENT)
CONFIG STATUS	: V	: I	(V : VALID, I : INVALID)
STORAGE SIZE	: 4	:	(2, 4, 6, 8 MEGABYTES)

==>

F1:END F3:ALARM F5:UPDATE F6:QUIT

Figure 9-75. CDF Modify CCU

Modify CA

1. In **1**, type the CA number you want to modify.
2. Press **Enter**.

Screen **B0** is displayed.

BN

TO DISPLAY/UPDATE CA, SELECT ITS NUMBER (1-16) then PRESS SEND ==> **1**

==>

F1:END F3:ALARM F6:QUIT

Figure 9-76. CDF Display/Update Channel Adapters Screen

1. Press **F5** to allow updating.
2. Modify the desired fields.
3. Press **Enter**.

The message

UPDATE OF THE CDF SUCCESSFULL

is displayed.

```

BO
CA xx

PRESENCE      : Y      (Y : PRESENT, N : NOT PRESENT)
CONFIG STATUS : V      (V : VALID, I : INVALID)
TPS PRESENCE  : Y      (Y : PRESENT, N : NOT PRESENT)
BYPASS CARD   : 0      (0 to 6)
CA TYPE       : X      (6 : CADS, 7 : BCCA)

====>

F1:END      F3:ALARM      F5:UPDATE      F6:QUIT

```

Figure 9-77. CDF Modify CA

Modify LA

1. In **1**, type the LA number you want to modify.
2. Press **Enter**.

Another screen is displayed, containing prompts for the updatable parameters.

```

BP

TO DISPLAY/UPDATE LA, SELECT ITS NUMBER (1-32) then PRESS SEND ==> 1

====>

F1:END      F3:ALARM      F6:QUIT

```

Figure 9-78. CDF Display/Update Line Adapters Screen

CDF Messages

ADAPTER NOT INSTALLED

Cause: During a hardware change, the adapter appears as not installed.

Action: Run an upgrade or verify.

CA ALREADY INSTALLED

Cause: During the last step of a hardware change, a CA appears to be already installed.

Action: Run an upgrade or verify.

CA CAN NOT BE BYPASSED FROM BOTH ASC AND CSCG

Cause: After a 'delete CA' hardware change, the CA is still present.

Action: Remove the proper CA.

CA IS ALWAYS PRESENT

Cause: After a 'delete CA' hardware change, the CA is still present.

Action: Remove the proper CA.

CA IS NOT PRESENT

Cause: After a 'replace or add CA', the CA is not present.

Action: Install the CA at the proper location.

CA NOT REMOVED FROM CHAIN

Cause: During the last step of the hardware change, the CA is not removed from the chain.

Action: Run the REA or REC command of the CAS function.

CACM MODE NOT ESTABLISHED

Cause: The environment is not supporting the concurrent maintenance mode.

Action: Run option 4 (CACM) of the CAS function first.

CCU-A INITIALIZATION IN ERROR

Cause: There is a problem at CCU initialization.

Action: Power-OFF, then power-ON the 3745, and IPL. If the problem is still present, run the CCU diagnostics.

CCU PROGRAM IS NOT AWARE OF THIS CA INSTALLATION

Cause: The CA to be installed is not in the **under inst** state.

Action: Run the INS command of the CAS function.

DISCREPANCY BETWEEN OPERATOR AND SENSED LA TYPE

Cause: The type chosen by the operator does not match the type detected during hardware sensing.

Action: Check and enter the correct type.

DISCREPANCY BETWEEN OPERATOR AND SENSED MUX NUMBER

Cause: The MUX number chosen by the operator does not match the MUX number detected during hardware sensing.

Action: Check and enter the correct MUX number.

DISCREPANCY BETWEEN OPERATOR AND SENSED EXTEND VALUE

Cause: The operator has chosen the **no extend** option, and the **extend** has not been sensed (or vice-versa).

Action: Check and enter the correct option.

DISCREPANCY BETWEEN CDF AND SENSED TPS VALUE

Cause: The CDF TPS value does not match the TPS value sensed during a hardware change.

Action: Run an upgrade.

DISCREPANCY BETWEEN OPERATOR AND SENSED TPS VALUE

Cause: The operator has chosen the TPS option, and the TPS has not been sensed (or vice-versa).

Action: Check and enter the correct option.

ERROR WHILE SENDING MAILBOX TO NCP : ACK = xxxx CC = xx

Cause: Wrong data has been sent or wrongly processed by the NCP.

Action: Call the PE for investigation.

ESC RANGE MUST BE BLANK IN TPS MODE

Cause: The operator has entered a wrong ESC range.

Action: Keep the ESC range blank.

EXTEND NOT ACCEPTED

Cause: The next MUX is already attached.

Action: Select the correct option without extend.

EXTEND PRESENCE MANDATORY, SELECT Y OR N

Cause: The operator did not enter Y or N.

Action: Retry with the correct input (Y or N).

FUNCTION ALREADY PERFORMED

Cause: During a hardware change, the same function was already performed.

Action: None.

FUNCTION NOT SUPPORTED ON THIS MODEL

Cause: Self-explanatory

Action: None

INSTALL MODE NOT ESTABLISHED

Cause: During a CA hardware change, that CA is attached, not installed, and install is not in progress. The sequence of commands was invalid.

Action: Restart a valid sequence of commands.

INVALID EXTEND PRESENCE, ENTER Y OR N

Cause: During an LA hardware change, the operator did not enter Y (yes) or N (no).

Action: Enter Y or N.

INVALID MUX NUMBER, ENTER 1 TO 32

Cause: The operator has entered a MUX number which is not in the range from 1 to 32.

Action: Retry with a correct value.

INVALID PORT RANGE

Cause: The operator has entered a port range which is not in the range from 0 to 1095.

Action: Retry with a correct value.

LA IS ALWAYS PRESENT

Cause: The operator has started a hardware change (DELETE LA), but that LA is still present.

Action: Remove the proper LA.

LA IS NOT PRESENT

Cause: After an **add** or **replace** LA, that LA is not present.

Action: Plug the proper LA in.

LA IS OPERATIVE

Cause: The operator started a hardware change while the LA was operative.

Action: Disconnect the LA through the TSS function.

MUX ATTACHED TO A LIC TYPE 5 OR 6 SHOULD BE ODD

Cause: The MUX attached is not in an odd position.

Action: Install the MUX in a correct position.

MUX HAVE BEEN REPLACED

Cause: The MUX has been replaced during a hardware change.

Action: None.

MUX IS ALWAYS PRESENT

Cause: After a DELETE MUX, that MUX is still present.

Action: Remove the proper MUX.

MUX IS NOT PRESENT

Cause: After an ADD or REPLACE MUX, that MUX is not present.

Action: Plug the proper MUX in.

MUX NUMBER MANDATORY, SELECT 1 TO 32

Cause: The operator has entered a MUX number which is not in the range from 1 to 32.

Action: Retry with a correct value.

MUX NUMBER ATTACHED TO ANOTHER LA

Cause: The operator has specified a MUX number which already belongs to another LA.

Action: Retry with a correct MUX number.

CDF Messages

OPTION REFUSED: CDF IS NOT CREATED

Cause: The operator has tried to run an upgrade or verify, but the CDF was not created yet.

Action: Create the CDF first.

PERFORM MOSS IML WITH POWER ON RESET BEFORE TO RESTART CDF FUNCTION

Cause: Multiple errors have been found on the same IOC bus.

Action: Self-explanatory.

PORT CURRENTLY DEFINED IN CDS

Cause: During an LA hardware change (ADD LA or ADD MUX), some or all ports of the port range are already assigned to another LA. The sequence of commands was invalid.

Action: Restart a valid sequence of commands.

STORAGE SIZE REQUEST FAILED FOR CCU-A

Cause: It was impossible to get the storage size during a create, upgrade, or verify. The function has aborted.

Action: Power OFF, then ON the 3745, then IPL.

STORAGE SIZE UNKNOWN FOR CCU A

Cause: The memory size is unknown during a create, upgrade, or verify. The function has aborted.

Action: Power OFF, then ON the 3745, then IPL.

THE FOLLOWING MUX IS NOT FREE

Cause: The operator wants to add a MUX with EXTEND, and the following MUX is not free.

Action: Select a correct MUX.

THE MOSS IS ALONE, YOU CAN NOT BEGIN THE HARDWARE CHANGE

Cause: The operator tried to start a hardware change but MOSS is not **online**.

Action: Run the upgrade.

THE MOSS IS OFFLINE, YOU CAN NOT BEGIN THE HARDWARE CHANGE

Cause: The operator tried to start a hardware change but MOSS is not **online**.

Action: Run the MON function (menu 2) or IPL phase 4 to put MOSS **online**.

THIS CA HAS NOT BEEN DISCONNECTED

Cause: The CA has not been disconnected before starting the hardware change.

Action: Disconnect the CA.

THIS CA HAS NOT BEEN REMOVED FROM ASC CHAIN

Cause: The operator started a hardware change. The CA is disconnected, but not removed from the ASC chain.

Action: Remove the CA from the ASC chain by using CACM.

THIS CA HAS NOT BEEN REMOVED FROM CSGC CHAIN

Cause: The operator started a hardware change. The CA is disconnected, removed from the ASC chain, but not from the CSGC chain.

Action: Remove the CA from the CSGC chain by using CACM.

56 KBPS LIC(S)6 MISPLUGGED: PLUG IN ODD POSITION

Cause: One or several 56 kbps LIC6 plugged in even position(s). They have been ignored by the CDF.

Action: Plug the LIC(s) in odd position(s). The affected LIC(s) will stay ignored by the CDF until you perform another LIC add/replace operation in the CDF.

Refer to the 3745 Advanced Operations Guide, SA33-0097 (from dash 3), for explanation of the following messages which are common to customers and CE.

- ADAPTER CONFIG STATUS IS INVALID
- DISK ERROR DURING WRITING PROCESS
- ERROR DURING CALL ACCESS FUNCTION
- ERROR DURING IPL, WARNING LKP
- ERROR DURING IPL, WARNING LKP AND PORT SWAP
- ERROR DURING IPL, WARNING PORT SWAP
- ERROR DURING IPL PROCESS
- ERROR DURING LOADING OF A MODULE
- ERROR DURING PORT SWAP PROCESS
- ERROR DURING PORT SWAP, WARNING LKP
- ERROR DURING WRITING CDF FILE ON THE DISK
- ERROR IN OPERATOR CHOICE

- FIELD MUST BLANKED WHEN BYTE MULTIPLEXER CHANNEL = N
- IGNORED, NO REAL CHANGE
- INCOMPATIBLE WITH DATA STREAMING
- INPUT OK AND FILLED
- INVALID CHANGE (MOSS NOT ALONE)
- INVALID INPUT
- INVALID LIC NUMBER
- LIC ALREADY PRESENT
- LIC DOES NOT EXIST
- LIC IS NOT PRESENT
- LIC NUMBER MANDATORY
- LIC IS STILL PRESENT
- MANDATORY INPUT
- REFUSED: ENABLE IS ALREADY REQUESTED ON BOTH INTERFACES
- SPEED MUST BE BLANK WHEN DATA STREAMING = N
- SPEED MUST BE PROVIDED WHEN DATA STREAMING = Y
- THIS CA CAN NOT EXIST
- TYPE NOT ALLOWED
- UPDATE OF THE CDF FILE SUCCESSFUL
- WARNING: ABEND PROCEDURE



Chapter 10. CA Services

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Selecting CAS Functions

Note: The first eight lines of the MOSS screen (general information and MSA) are not shown on the screens described in this chapter. They are not dedicated to CAS, and are explained in Chapter 1.

- 1. In **1**, of the MENU 3 screen, type **CAS**.
- 2. Press **SEND**.

Screen **B** is displayed.

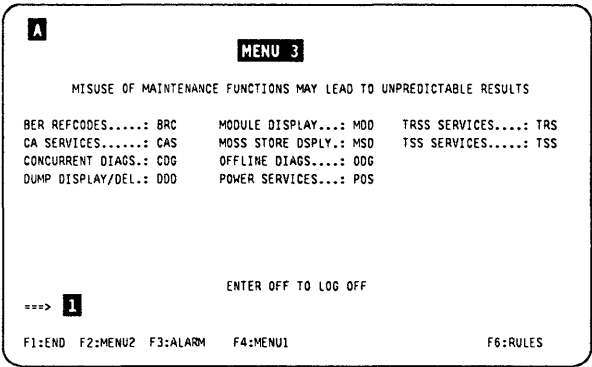


Figure 10-1. Maintenance Menu (Menu 3) Screen

- 1. In **1**, enter the selected option.
- 2. Press **SEND**.

This is the starting point for all the procedures described in this chapter.

Note: If you select options 2, or 3, screen **C** (enter the CA number to be serviced) is displayed.

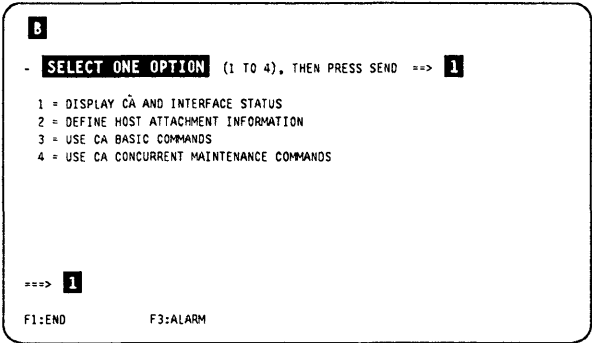


Figure 10-2. CA Services Function Selection 1 Screen

- 1. In **1**, enter the **CA number**.
- 2. Press **SEND**.

The selected CA must be present.

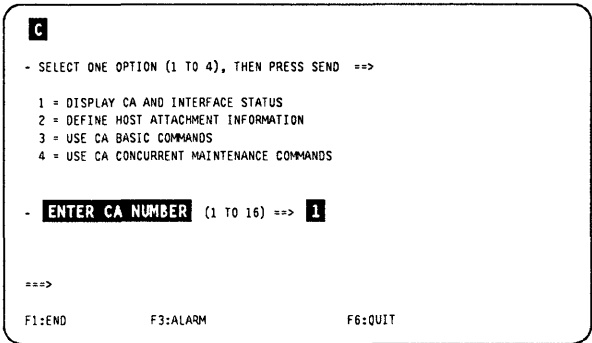


Figure 10-3. CA Services Function Selection 2 Screen

Display CA and Interface Status

CA and Interface Display

In screen **B** of "Selecting CAS Functions" on page 10-2, select 1. This screen is displayed.

CA NBR	INTERNAL STATUS	LOGICAL STATUS	TRACE ACTIVE	INTERFACE NUMBER	E/D REQUEST	INTERFACE STATUS
1	-			1A	-	
2	-			2A	-	
3	-			3A	-	
4	-			4A	-	
5	INIT	DISCONNECTED	YES	5A	E	ENABLED
6	RESET	CONNECTED		6A	E	DISABLED
7	ERRCKOUT	INOPERATIVE		7A	D	DISABLED
8	INIT	CONNECTED	YES	8A	E	ENABLED
====>						
F1?END		F3?ALARM		F6?QUIT		

Figure 10-4. CA and Interface Status Screen

CA Statuses

INTERNAL STATUS

-	CA not present or TPS installed.
RESET	The CA has been reset by a 'Power ON/reset' signal and the result of the checkout is OK.
ERRCKOUT	The checkout result after a 'power ON/reset' signal is not OK.
ERRINIT	An error occurred during the CA initialization.
ERRCHAIN	An error occurred during CA chaining process at IPL time.
ERRTPS	TPS conflict between CDF and hardware.
INIT	The CA has been successfully initialized.
***	The status is unknown.

LOGICAL STATUS

(CA status from the control program point of view)	
NA	The control program is not loaded.
INOPERATIVE	At IPL time, and due to an internal status of OFF or ERRxxxxx, this CA will be indicated as inoperative to the control program.
CONNECTED	At IPL time, and when the internal status is INIT, this CA will be indicated as operative to the control program.
DISCONNECTED	The CA is now owned by the MOSS.
DOWN	An error occurred during a normal operation.
***	The status is unknown.

Define Host Attachment Information

1. You must be in the CAS function (see 10-2).
2. Enter 2 in **1**.
3. Press **SEND**.
4. The next screen is displayed.

- **SELECT ONE OPTION** (1 TO 4), THEN PRESS SEND ==> **1**

1 = DISPLAY CA AND INTERFACE STATUS
2 = DEFINE HOST ATTACHMENT INFORMATION
 3 = USE CA BASIC COMMANDS
 4 = USE CA CONCURRENT MAINTENANCE COMMANDS

==> **1**

F1:END F3:ALARM

Figure 10-5. CA Services Function Selection 1 Screen

1. In **1**, enter the **CA number**.
2. Press **SEND**.
3. Screen **E** is displayed.

The selected CA must be present.

- SELECT ONE OPTION (1 TO 4), THEN PRESS SEND ==>

1 = DISPLAY CA AND INTERFACE STATUS
 2 = DEFINE HOST ATTACHMENT INFORMATION
 3 = USE CA BASIC COMMANDS
 4 = USE CA CONCURRENT MAINTENANCE COMMANDS

- **ENTER CA NUMBER** (1 TO 16) ==> **1**

==>

F1:END F3:ALARM F6:QUIT

Figure 10-6. CA Services Function Selection 2 Screen

1. Enter parameter(s) in **1** and **2** (if TPS is not present), or in **1** to **4** (if TPS is present).
2. Press **SEND**.

The information is saved on disk. It is displayed on the first screen after local console power ON (see Figure 1-4 on page 1-7), or can be displayed by using the CID function (see details in the *Advanced Operations Guide*).

When TPS is not present, the 'INTERFACE B' data area is not displayed.

E **CA xx HOST ATTACHMENT INFORMATION**

- FILL IN, OR MODIFY, OR BLANK FOLLOWING FIELDS, THEN PRESS SEND

	INTERFACE A	INTERFACE B
HOST OR SWITCHING UNIT ID (8 CHARACTERS MAX)	==> 1	==> 3
CHANNEL ADDRESS OR CHPID (8 CHARACTERS MAX)	==> 2	==> 4

==>

F1:END F3:ALARM F6:QUIT

Figure 10-7. CA Host Attachment Information Screen

Use CA Basic Commands Function

1. You must be in the CAS function (see 10-2).
2. Enter 3 in **1**.
3. Press **SEND**.
4. The next screen is displayed.

```

- SELECT ONE OPTION (1 TO 4), THEN PRESS SEND ==> 1

1 = DISPLAY CA AND INTERFACE STATUS
2 = DEFINE HOST ATTACHMENT INFORMATION
3 = USE CA BASIC COMMANDS
4 = USE CA CONCURRENT MAINTENANCE COMMANDS

===> 1

F1:END          F3:ALARM

```

Figure 10-8. CA Services Function Selection 1 Screen

1. In **1**, enter the **CA number**.
2. Press **SEND**.
3. Screen **F** is displayed.

The selected CA must be present.

```

- SELECT ONE OPTION (1 TO 4), THEN PRESS SEND ==>

1 = DISPLAY CA AND INTERFACE STATUS
2 = DEFINE HOST ATTACHMENT INFORMATION
3 = USE CA BASIC COMMANDS
4 = USE CA CONCURRENT MAINTENANCE COMMANDS

- ENTER CA NUMBER (1 TO 16) ==> 1

===>

F1:END          F3:ALARM          F6:QUIT

```

Figure 10-9. CA Services Function Selection 2 Screen

1. In **1**, enter one of the commands listed on the screen. See 'CA Commands' in the next pages for explanations.
2. Press **SEND**.

```

F
CA 5   ISTAT: INIT      ASC : IN   TR   A: REQUEST=E STATUS=DISABLED
CCU A   LSTAT: CONNECTED  CSGC: IN                                PS ID: --

- ENTER A COMMAND ==> 1

ENA = ENABLE A      INI = INITIALIZE      DRG = DISPLAY REGISTERS
ENB = ENABLE B      RST = RESET           DST = DISPLAY STORAGE
OSA = DISABLE A     DMP = DUMP            DRM = DISPLAY RAM
DSB = DISABLE B     STT = START TRACE     DTO = DISPLAY TRACE DATA
SEA = SEND I/O      SPT = STOP TRACE
                     ERROR ALERT

===>

F1:END          F3:ALARM          F6:QUIT

```

Figure 10-10. CA Command Screen

Description of the First Two Lines of the Screen

CA xx	CA number.
ISTAT	Internal status (see "CA Statuses" on page 10-3 for details).
LSTAT	Logical status (see "CA Statuses" on page 10-3 for details).

CA Basic Commands

ASC	Auto select chain: IN, OUT, or *** (unknown).
CSGC	Cycle steal grant chain: IN, OUT, or *** (unknown).
TR	Present when the trace is active.
A	Interface A. In case of TPS, interface B is displayed on the following line. <ul style="list-style-type: none">• REQUEST: E (for Enable), D (Disable), or *** (unknown).• STATUS: DISABLED or ENABLED.

CA Commands

In functional mode, and to avoid possible disturbances, the DST command is not available, some registers (DRG command, option 1) are not displayable, and some RAM positions (DRM command) are not readable.

‘Functional mode’ means that the following three conditions are met:

1. The control program is running in the CCU.
2. The CA is initialized.
3. The CA is connected.

ENABLING/DISABLING (ENA/ENB/DSA/DSB)

Send an **enable** or **disable** request to the CA. (ENA/DSA are for interface A, and ENB/DSB are for interface B.)

SEND I/O ERROR ALERT (SEA)

Requests the CA to send an **I/O error alert** to the connected host. This command is accepted only if **I/O error alert = Y** has been specified in the CDF

INITIALIZE (INI)

Initializes the CA. It is accepted only if the CA is in the **reset** state, and should be used only with the concurrent maintenance option.

RESET (RST)

Generates a **power ON/reset** signal. After execution of the command, the status can become **reset** or **errckout**.

This command should be used only if the CA is out of chains, otherwise the chain will become DOWN and unpredictable results may occur on the other CAs of the bus.

DUMP (DMP)

This command allows dumping the CA RAM into the CHGCADSA file. It has no impact on the status.

START TRACE (STT)

The trace will be recorded in the CA RAM, in wraparound mode. It can be retrieved either by the display trace data command (DTD), or by the display RAM storage (DST).

STOP TRACE (SPT)

Stops an active trace.

DISPLAY REGISTERS (DRG)

1. You must be in the CAS functions (see screen **F**).
2. In **1**, enter the option corresponding to the set of registers you want to display:
 - 1, for registers '1x' + '2x' + '3x'.
 - 2, for registers '0x' + '4x' + '5x'.
 - 3, for registers '6x' + '7x'.
3. Press **SEND**.

Note: Some registers are not displayable.

```

G
CA 5  ISTAT: INIT      ASC : IN      A: REQUEST=0 STATUS= DISABLED
CCU A  LSTAT: --      CSOC: IN
PS ID: --

- ENTER OPTION ==> 1 (1 = REG 1X,2X,3X  2 = REG 0X,4X,5X  3 = REG 6X,7X)

X'10' TO X'17'  S020  E0 38 00 00 00 00 00 13 99 00 26 00 00 00 00
X'18' TO X'1F'  S030  00 18 00 99 09 99 02 00 00 00 01 60 00 00 00

X'20' TO X'27'  S040  00 00 00 00 00 20 00 00 F1 00 00 00 00 00 00
X'28' TO X'2F'  S050  00 00 04 00 54 18 00 00 00 00 00 54 00 00 00

X'30' TO X'37'  S060  00 00 00 00 00 20 00 00 F1 00 00 00 00 00 00
X'38' TO X'3F'  S070  00 00 04 00 54 1C 00 00 00 00 54 00 00 00 00
==>  "... MEANS REGISTER NOT READABLE IN FUNCTIONAL MODE

F1?END      F3?ALARM      F6?QUIT

```

Figure 10-11. Display Hardware Registers With Option 1 ('1X' + '2X' + '3X') Screen

DISPLAY STORAGE (DST)

1. You must be in the CAS functions (see screen **F**).
2. In **1**, enter the starting address of the storage part you want to display.
3. Press **SEND**.

This function is not available in functional mode.

```

H
CA 5  ISTAT: INIT      ASC : IN      TR  A: REQUEST=0 STATUS= DISABLED
CCU A  LSTAT: --      CSOC: IN
PS ID: --

- ENTER ADDRESS (100 TO 7FF) ==> 1 (DATA BUFFER FROM 400 TO 4FF)

STORAGE  S340  00402010  00040201  00000000  00000000
          S350  00200002  00204001  00000000  00000000
          S360  00200002  00204001  00000000  00000000
          S370  40100401  10000000  00000000  00000000
          S380  00000020  00201000  10000000  00000000
          S390  000031F1  13F19F00  0000FF37  45014000
          S3A0  00000000  00000000  00000000  00000000
          S3B0  00000000  00000000  506F0300  00000000

==>

F1?END      F3?ALARM      F6?QUIT  F7?BACKWARD  F8?FORWARD

```

Figure 10-12. Display Storage Screen

DISPLAY RAM (DRM)

1. You must be in the CAS functions (see screen **F**).
2. In **1**, enter the starting address of the RAM part you want to display.
3. Press **SEND**.

This command allows displaying the RAM on a halfword basis.

```

I
CA 5  ISTAT: INIT      ASC : IN      TR  A: REQUEST=0 STATUS= DISABLED
CCU A  LSTAT: --      CSOC: IN
PS ID: --

- ENTER ADDRESS (0 TO FFF) ==> 1

RAM      340  0000 0400 0200 0100 0000 0040 0020 0010
          348  0000 0000 0000 0000 0000 0000 0000 0000
          350  0000 0200 0000 0020 0000 0200 0400 0010
          358  0000 0000 0000 0000 0000 0000 0000 0000
          360  0000 0200 0000 0020 0000 0200 0400 0010
          368  0000 0000 0000 0000 0000 0000 0000 0000
          370  0400 0100 0040 0010 0100 0000 0000 0000
          378  0000 0000 0000 0000 0000 0000 0000 0000

==>

F1?END      F3?ALARM      F6?QUIT  F7?BACKWARD  F8?FORWARD

```

Figure 10-13. Display RAM Screen

DISPLAY TRACE DATA (DTD)

You must be in the CAS functions (see screen **F**).

The last recorded events of the trace data are displayed first.

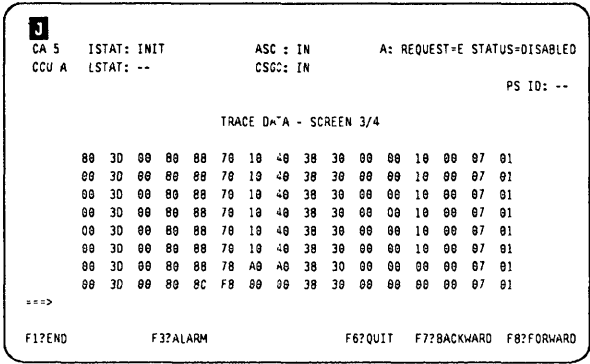


Figure 10-14. Display Trace Data Screen

Concurrent Maintenance Function (CACM)

Note: The CACM function involves several MOSS functions, such as CDF, CAS, diagnostics.

Before entering CACM mode on a given CA, the traffic must be stopped on that resource. It is the customer's responsibility to send the 'vary inact' command to the control program (CP).

The MOSS and the CP are in CACM mode when the first CACM command is entered. This command must be shutdown or disconnect.

1. You must be in the CAS function (see 10-2).
2. In **1**, enter option 4.
3. In **2**, enter the CA number.
4. Press **SEND**.
5. Screen **L** is displayed.

```

K
- SELECT ONE OPTION (1 TO 4), THEN PRESS SEND ==> 1

1 = DISPLAY CA AND INTERFACE STATUSES
2 = DEFINE HOST ATTACHMENT INFORMATION
3 = USE CA BASIC COMMANDS
4 = USE CA CONCURRENT MAINTENANCE COMMANDS

- ENTER CA NUMBER (1 TO 16) ==> 2

==>
F1:END      F3:ALARM      F6:QUIT
  
```

Figure 10-15. CA Services Function Selection 2 Screen

1. In **1**, enter one of the commands listed on the screen, and press **SEND**.
2. When the selected command is completed, press **F6** to come back to this CACM commands screen (**L**).

See the next pages for a description of the commands.

```

L
CA X      ISTAT: XXX      ASC : XXX      A: REQUEST=D STATUS=
CCU X     LSTAT: XXXXXXXXXX CSOC: XXX      POWER SUPPLY NUMBER: X

- ENTER A CA CONCURRENT MAINTENANCE COMMAND ==> 1

MAIN COMMANDS                                SPECIAL COMMANDS

SHT = SHUTDOWN CA BEFORE REPAIR              DSC = DISCONNECT CA
RES = RESTORE CA AFTER REPAIR                 CNT = CONNECT CA
CCM = CANCEL CONCURRENT MAINTENANCE            REA = REMOVE CA FROM ASC CHAIN
INS = NOT USED                                INA = INSERT CA IN ASC CHAIN
DEL = NOT USED                                REC = REMOVE CA FROM CSOC CHAIN
CAN = NOT USED                                INC = INSERT CA IN CSOC CHAIN

==>
F1:END      F3:ALARM      F6:QUIT
  
```

Figure 10-16. CACM Commands Screen

Concurrent Maintenance

SHT - Shutdown CA Before Repair

SHT is a global command that consists in an automatic chaining of the following elementary commands:

- Disconnect (DSC)
- Remove CA from ASC chain (REA)
- Remove CA from CSGC chain (REC).

The following statuses of the CA become:

LSTAT	Disconnected
ASC	Out
CSGC	Out
Interface status	Disabled.

That CA is now in CACM mode.

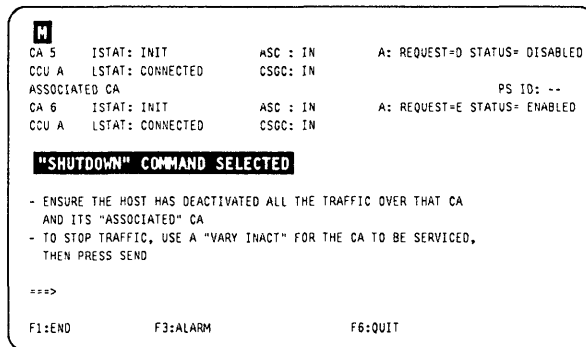


Figure 10-17. Shutdown Command Screen

RES - Restore CA After Repair

RES is a global command that consists in an automatic chaining of the following elementary commands:

- Reset (RST)
- Initialize (INI)
- Insert CA in ASC chain (INA)
- Insert CA in CSGC chain (INC)
- Connect CA (CNT).

The following statuses of the CA become:

ISTAT	Init
LSTAT	Connected
ASC	In
CSGC	In.

That CA is now available for normal use.

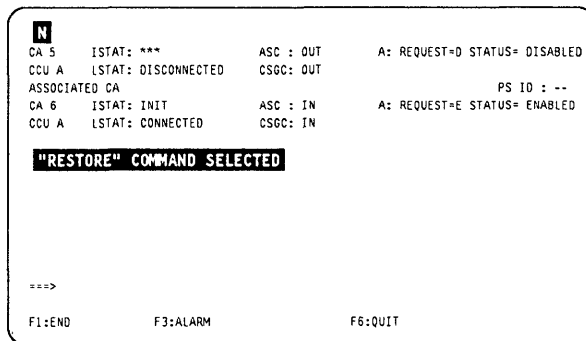


Figure 10-18. Restore Command Screen

CCM - Cancel Concurrent Maintenance

This command allows you to cancel a concurrent maintenance procedure in progress on a CA, and to leave CACM mode. The CA will be down and will not be used by the CP. The following statuses of the CA become:

ISTAT	No change
LSTAT	Down
ASC and CSGC	Both out or in.

After a CCM command, the CE may leave the CA in the down state, or make it available with SHT and RES commands.

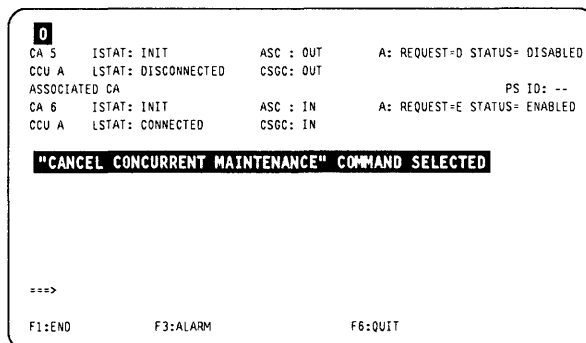


Figure 10-19. Cancel Concurrent Maintenance Command Screen

DSC - Disconnect CA

- This command allows you to start any CACM procedure. It allows MOSS to become the owner of the given CA.
- The logical status becomes **disconnected** (indicated in MSA).
- The next step must be to disconnect its associated CA (if any), and remove the CA from chains.

P			
CA 5	ISTAT: INIT	ASC : IN	A: REQUEST=D STATUS= DISABLED
CCU A	LSTAT: CONNECTED	CSGC: IN	
ASSOCIATED CA			PS ID: --
CA 6	ISTAT: INIT	ASC : IN	A: REQUEST=E STATUS= ENABLED
CCU A	LSTAT: CONNECTED	CSGC: IN	
"DISCONNECT" COMMAND SELECTED			
- ENSURE THE HOST HAS DEACTIVATED ALL THE TRAFFIC OVER THAT CA AND ITS "ASSOCIATED" CA			
- TO STOP TRAFFIC, USE A "VARY INACT" FOR THE CA TO BE SERVICED, THEN PRESS SEND			
====>			
F1:END	F3:ALARM	F6:QUIT	

Figure 10-20. Disconnect Command Screen

CNT - Connect CA

- This command allows ending any CACM procedure. The related CA is given back to the control program (CP).
- The CA statuses must be:
Init and **disconnected**.
- At the completion of the CNT command, the logical status of the given CA becomes:
Connected.

Q			
CA 5	ISTAT: INIT	ASC : IN	A: REQUEST=D STATUS= DISABLED
CCU A	LSTAT: DISCONNECTED	CSGC: IN	
ASSOCIATED CA			PS ID: --
CA 6	ISTAT: INIT	ASC : IN	A: REQUEST=E STATUS= DISABLED
CCU A	LSTAT: DISCONNECTED	CSGC: IN	
"CONNECT" COMMAND SELECTED			
====>			
F1:END	F3:ALARM	F6:QUIT	

Figure 10-21. Connect Command Screen

REA - Remove CA from ASC

This command allows removing the CA from the hardware auto select chain (ASC).

- The logical status must be: **disconnected**.
- The ASC status becomes: **out**.

INA - Insert CA in ASC

This command allows inserting the CA in the hardware auto select chain (ASC).

- The logical status must be: **disconnected** and **init**.
- The ASC status becomes: **in**.

REC - Remove CA from CSGC

This command allows removing the CA from the hardware cycle steal grant chain (CSGC).

- The logical status must be: **disconnected**.
- The CSGC status becomes: **out**.

Concurrent Maintenance

INC - Insert CA in CSGC

This command allows inserting the CA in the hardware cycle steal grant chain (CSGC).

- The logical status must be: **disconnected** and **init**.
- The CSGC status becomes: **in**.

CA Messages

CDF ERROR: CA INITIALIZATION PARAMETERS NOT AVAILABLE

Cause: The initialization of the specified CA cannot be performed due to a disk error or a damaged CDF file.

Action: Verify if the CA is initialized in the CDF.

COMMAND COMPLETED

Cause: The entered command has been successfully completed.

Action: None.

COMMAND FAILED: CCU/MOSS ERROR

Cause: The command failed due to an error on the MOSS-to-CCU boundary. A BER has been created.

Action: Refer to the BER.

COMMAND FAILED: CP RETURN CODE : ACK = xxxx CC = xx

Cause: The entered command failed. The reason is indicated by the ACK and CC fields of the message (refer to "Return Code" on page 10-16 for details).

Action: Refer to the return code.

COMMAND FAILED: DISK ERROR

Cause: The CA dump cannot be taken due to a disk error.

Action: Retry the action, then if not successful, IML for disk checking.

COMMAND FAILED: INIT STEP IN ERROR

Cause: The restore command failed due to an error occurring during CA initialization.

Action: Use the basic command 'INI' to get more information about the error.

COMMAND FAILED: RESET STEP IN ERROR

Cause: The restore command failed due to a bad reset of the CA. This is an internal CA error.

Action: Retry, then if not successful, call support.

COMMAND FAILED: TPS CONFLICT BETWEEN CDF AND HARDWARE

Cause: The init command cannot be performed because a discrepancy was found between the information held by the CDF and the information reported by the CA concerning the presence of the TPS feature. This can be due to a CA failure, a damaged CDF file, or a missing CDF update.

Action: Stop the concurrent maintenance mode, then run the CDF verify.

COMMAND FAILED: VERIFY ERROR

Cause: The initialization of the specified CA cannot be considered successful because an error was detected when verifying the written data. This can be due to a CA failure.

Action: Repair the CA.

COMMAND NOT AVAILABLE IN FUNCTIONAL MODE

Cause: The DST command is not allowed in functional mode because there is a risk of disturbing CA operations.

Action: Use the DRM command.

COMMAND REFUSED: CA IS ALREADY DISCONNECTED

Cause: The disconnect command is rejected since the CA is already disconnected.

Action: None.

COMMAND REFUSED: CA IS ALREADY SHUTDOWN

Cause: The shutdown command is rejected because the CA is already shutdown, that is, disconnected and out of the AS and CSG chains.

Action: None.

COMMAND REFUSED: CA IS NOT IN BOTH CHAINS

Cause: A CA cannot be connected if it does not belong to the AS and CSG chains.

Action: None.

COMMAND REFUSED: CA IS NOT IN CONCURRENT MAINTENANCE MODE

Cause: The entered command can be accepted only if the CA is in concurrent maintenance, that is, if its logical status is disconnected.

Action: Use the shutdown or disconnect command.

CA Messages

COMMAND REFUSED: CA IS NOT INITIALIZED

Cause: The entered command is accepted only if the CA is correctly initialized (internal status should be init).

Action: None.

COMMAND REFUSED: CA IS NOT INSTALLED

Cause: The entered command or option cannot be accepted for a CA which is not installed.

Action: None.

COMMAND REFUSED: CA-CCU CONNECTION UNKNOWN

Cause: The entered command or option cannot be accepted because the CCU to which the specified CA is connected is unknown. The connections are established during IPL phase 1A and fallback.

Action: The CA will be known at the next IPL.

COMMAND REFUSED: DUMP FILE FULL

Cause: No dump can be taken since the dump file is full. To empty it, either use the dump display/delete command (DDD), or perform a host transfer of MOSS files.

Action: Purge previous dump.

COMMAND REFUSED: INTERFACE E/D REQUEST(S) MUST BE 'D'

Cause: The reset command is accepted only if the interface request is 'D' for interface A and interface B (if it exists).

Action: Change request to 'D'.

COMMAND REFUSED: I/O ERROR ALERT NOT SUPPORTED

Cause: The SEA command is rejected because it has been specified in the CDF in which the 'I/O error alert' feature was not available for the specified CA.

Action: Run the CDF update.

COMMAND REFUSED: START WITH 'INA' COMMAND FIRST

Cause: A CA must be inserted first in the auto-select chain, then in the cycle steal grant chain.

Action: Self-explanatory.

COMMAND REFUSED: TRACE FEATURE NOT INSTALLED

Cause: No trace can be started on this CA not equipped with the trace feature.

Action: None.

COMMAND REFUSED: TRACE IS ACTIVE OR ITS STATUS IS UNKNOWN

Cause: The traced data can be displayed only if the trace is stopped.

Action: Use the stop trace command (STP) to stop it.

CONCURRENT MAINTENANCE NOT SUPPORTED BY THE CNTRL PGM OWNING THIS CA

Cause: The specified CA is connected to a CCU which is running a control program not supporting concurrent maintenance. The concurrent maintenance is supported by NCP V5R2.

Action: None.

DATA HAVE BEEN SAVED

Cause: The host attachment information has been successfully updated on the disk.

Action: None.

DISK ERROR: CA INTERNAL DATA NOT AVAILABLE

Cause: The initialization of the specified CA cannot be performed due to a disk error.

Action: Retry, then if not successful, repair the disk.

DISK ERROR: DATA CANNOT BE RETRIEVED

Cause: It is impossible, due to a disk error, to retrieve the host attachment information that could have been saved previously.

Action: Retry, then if not successful, repair the disk.

DISK ERROR: DATA NOT SAVED

Cause: The host attachment information could not be updated due to a disk error.

Action: Retry, then if not successful, repair the disk.

ERROR WHILE TRANSMITTING THE COMMAND

Cause: The command could not be transmitted due to hardware error. A BER has been created.

Action: Refer to the BER.

INIT COMMAND REFUSED: THE CA MUST BE IN THE RESET STATUS

Cause: Self-explanatory.

Action: Issue the reset command first.

INTERFACE B DOES NOT EXIST

Cause: The ENB or DSB command has been issued on a CA which does not have the TPS feature (interface B does not exist).

Action: None.

NO TRACE ACTIVE

Cause: The stop trace command has been issued but no trace was active.

Action: None.

NO TRACE DATA

Cause: No data has been traced. Either no trace has been started or no activity occurred in the CA while the trace was active.

Action: None.

OPTION REFUSED: CA IS NOT INSTALLED

Cause: Self-explanatory.

Action: None.

OPTION REFUSED: CONNECTION CA-CCU UNKNOWN

Cause: The connected CCU is unknown.

Action: Re-IPL.

OPTION REFUSED: MOSS IS NOT ONLINE

Cause: No CACM is allowed if MOSS is not online.

Action: Use the MON command.

REQUEST SUCCESSFULLY TRANSMITTED

Cause: Self-explanatory.

Action: None.

REQUEST SUCCESSFULLY TRANSMITTED BUT NOT SAVED DUE TO A DISK ERROR

Cause: The entered enable or disable command has been successfully executed but it was impossible to save the request on the disk.

Action: Retry, then if not successful, repair the disk.

"...." MEANS RAM NOT READABLE IN FUNCTIONAL MODE

Cause: The specified CA is initialized and connected to a control program which is actually running. To avoid disturbing CA operations, the RAM positions (indicated by "....") were not read.

Action: None.

"...." MEANS REGISTER NOT IMPLEMENTED

Cause: The registers of categories 2 and 3 are mapped in the CA storage. "...." indicates that no specific value has been assigned to the corresponding storage position.

Action: None.

".." MEANS REGISTER NOT READABLE IN FUNCTIONAL MODE

Cause: The specified CA is initialized and connected to a control program which is actually running. To avoid any disturbance on the CA operations, some registers (indicated by "..") were not read.

Action: None.

Return Codes

Return Code

In the message, which is available only in concurrent maintenance,

COMMAND FAILED: CP RETURN CODE: ACK = xxxx CC = xx

- The ACK field can be:

X'8000' (CC = 00)	Request completed
X'8000' (CC = other value)	Request OK or not OK (see CC explanation table)
X'40xx' (CC = 00)	Request is rejected. The field xx can be:
X'40'	Function not supported
X'20'	Invalid command
X'08'	Invalid parameters specified

- The CC field values are explained in the next table:

Table 10-1 (Page 1 of 2). Return Codes	
CC	Explanation
UPDATE CDS	
00	Update CDS complete
01	CA or LA not attached
02	CA or LA not installed
03	CA or LA currently operative
12	Unused
20	CA not CACM mode disconnected
21	CA not bypassed from both ASC/CSCG
22	CA not 'Install in progress'
23	CA currently installed
24	Function already performed
25	CA cannot be bypassed from both ASC/CSCG
DISCONNECT CA	
00	Disconnect CA complete
02	CA not attached
03	CA not installed
04	Function already performed
05	Disable already in progress (normal)
06	Disable already in progress (CA ERP inop detected)
07	Disable initiated
08	CA in use by NCP/EP
09	PBF detected by L1
0A	ASCF detected by L1
CONNECT CA	
00	Connect CA complete
02	CA not attached
03	CA not installed
04	CA not inserted into ASC and CSCG
05	CA not CACM mode disconnected
06	Invalid CA state: pending L3 found active
07	Invalid CA state: CA found interface enabled

Table 10-1 (Page 2 of 2). Return Codes	
CC	Explanation
08	Invalid CA state: L1/L3 CA enable failure
09	CA is in either ASC or CSCG, but not both
0A	CA is not operative
0B	PBF detected by L1
0C	IOHF, threshold reached at L1
0D	ASCF detected by L1
CA CHAIN UPDATE	
00	CA chain update complete
02	CA not attached
03	CA not installed
04	Function already performed
05	CA not CACM mode disconnected
06	CA cannot be inserted into ASC
07	CA cannot be bypassed from ASC
08	CA cannot be inserted into CSCG
09	CA cannot be bypassed from CSCG
0A	CA is not operative
0B	IOHF, threshold reached at L1, perform selective POR
0C	IOHF, threshold reached at L1, CA in ASC or CSCG
0D	PBF detected by L1

Return Codes

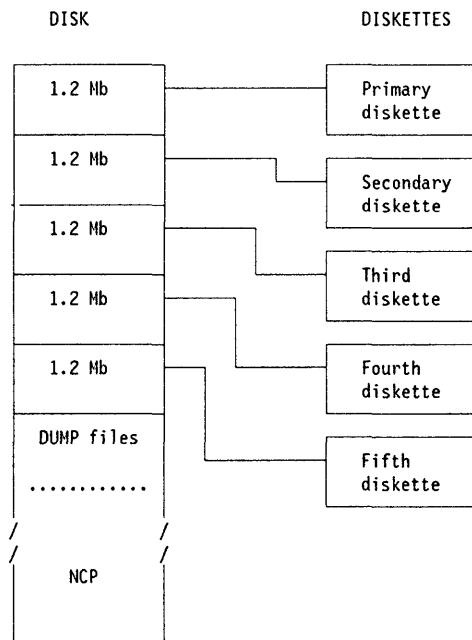
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MOSS state

Before selecting the disk functions, set the MOSS **offline** (use the **MOF** function of the **MENU 2** screen).

MOSS Disk/Diskettes Organization



The main files on the diskettes are:

Primary diskette:

VPD of the diskette (first record)
 UCMOD (some MOSS modules)
 MOD37 (some CCU modules)
 MDJIB (some scanner modules)
 CDF (data only)
 PATCH (function and data)
 PSFIL (port swap)

Secondary diskette:

VPD of the diskette (first record)
 UCMOD (other MOSS modules)
 HFMOD (SSP host formatter)
 MCF (data)
 CIL (BER) (data only)
 TAV (threshold availability)
 CPP (control program procedure)

Third diskette:

VPD of the diskette (first record)
All BER analysis modules
All BER analysis data sets

Fourth diskette:

VPD of the diskette (first record)
DCF
Diagnostics (other than CCU running in MOSS)

Fifth diskette:

VPD of the diskette (first record)
Diagnostics (CCU diagnostics running in MOSS)

Disk Management Functions Access Procedure

- If the IML was made from the diskette, (function 9 at the control panel in **service** mode 1 or 2) the screen **B** is displayed.
- If the IML was made from the disk, select option **DIF** in the **MENU 1** screen. Screen **A** is displayed.

1. In either case, enter the selected function in **1** (screen **A** or **B**).
2. Press **SEND**.

Note: Options 2, 3, and 6 of menu **A** may be performed in customer or maintenance mode.

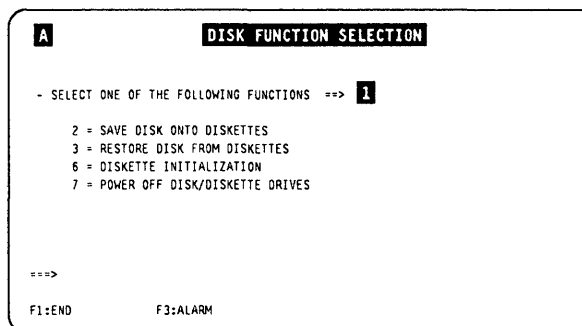


Figure 11-1. Disk Function Selection Screen (IML from Disk)

Note: The disk initialization (5) and the power OFF disk/diskette (7) functions are **not** available to the customer.

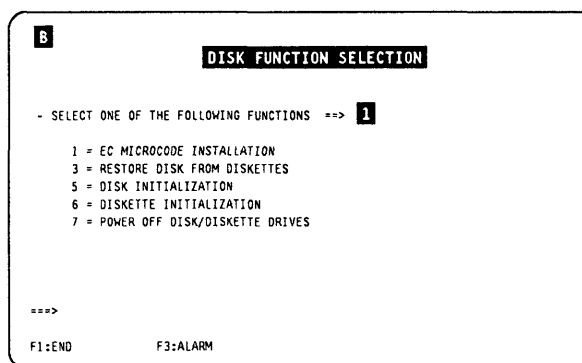


Figure 11-2. Disk Function Selection Screen (IML from Diskette)

Note: Available only in **maintenance mode**.

Save Disk Contents on Diskettes

This function should be performed by the customer.

The *3745 Advanced Operations Guide* gives the detailed procedure.

This function should be used:

- To create a backup copy of the diskettes at installation
- To copy the MOSS disk files after new MCFs have been installed
- To copy the disk when the followings have been modified:
 - Configuration data file (CDF)
 - or IPL port tables
 - or control program procedures.
- At regular intervals to keep the backup diskettes at the latest disk level.

The reason for this copy is to allow a later restore from the diskettes to the disk, either because the data of the disk is not valid, or the disk is physically damaged (bad tracks).

Save complete disk

You must save the complete disk contents on the five backup diskettes. You cannot save only part of the disk.

Diskette Terminology

- The word **mount**, used either on the console screens or in the text that follows, means:
 1. Insert the diskette into the diskette drive.
 2. Close the diskette drive (by turning or pulling the door latch).
- All original diskettes (either initial installation or new EC) come in two sets:

Normal	Five diskettes (primary, secondary, third, fourth, and fifth).
Backup	A duplicate set of the above five diskettes.
- When saving the contents of the MOSS disk on the diskettes, the prompt will refer to mount **FIRST**, **SECOND**, **THIRD**, **FOURTH**, or **FIFTH** diskette respectively (you can use any diskette; they will be overwritten).

Once the contents of the MOSS disk are saved on the diskettes, the prompt will refer to **PRIMARY**, **SECONDARY**, **THIRD**, **FOURTH**, or **FIFTH** diskette respectively.

They are now **specific diskettes**. Do not forget to label the diskettes and diskette covers accordingly.

Save Disk

Disk-to-diskette Procedure

1. You must be in the DIF function (see 11-4).
2. Enter **2** in **1**.
3. Press **SEND**. Screen **C** is displayed.

DISK FUNCTION SELECTION

- SELECT ONE OF THE FOLLOWING FUNCTIONS ==> **1**

2 = **SAVE DISK ONTO DISKETTES**
3 = RESTORE DISK FROM DISKETTES
6 = DISKETTE INITIALIZATION
7 = POWER OFF DISK/DISKETTE DRIVES

==>
F1:END F3:ALARM

Figure 11-3. Disk Function Selection Screen (IML from Disk)

1. Enter the date in **1**.
2. Enter an ID of your choice (1 to 8 characters) in **2**.
3. Press **SEND**.

The **date** and **ID** are recorded on the diskettes and used for checking purposes during a disk restore from diskettes.

C SAVE DISK ONTO DISKETTES

DATE : **1** XX/XX/XX (MM/DD/YY)
ENTER SAVE ID (FROM 1 TO 8 CHARACTERS) ==> **2**

- WARNING: YOU MUST SAVE THE COMPLETE SET OF DISKETTES

==>
F1:END F3:ALARM F6:QUIT

Figure 11-4. Disk Save Function Screen

1. This screen is displayed, with the message MOUNT A xxxxx DISKETTE, THEN PRESS SEND (xxxxx can be FIRST, SECOND, ..., or FIFTH, according to the step of the procedure.)
2. Insert a diskette.
3. Close the diskette drive.
4. Press **SEND**.

D SAVE DISK ONTO DISKETTES

MOUNT A FIRST DISKETTE, THEN PRESS SEND
(or) MOUNT A SECOND DISKETTE, THEN PRESS SEND
(or) MOUNT A THIRD DISKETTE, THEN PRESS SEND
(or) MOUNT A FOURTH DISKETTE, THEN PRESS SEND
(or) MOUNT A FIFTH DISKETTE, THEN PRESS SEND

==>
F1:END F3:ALARM F6:QUIT

Figure 11-5. Save Disk Function Mount Diskette Screen

1. When the disk-save on a diskette is completed, you get the message:
DISK SAVE ONTO xxxxxxxx DISKETTE COMPLETED.
2. Remove the diskette.
3. Press **SEND**.
4. You return to screen **D**, to create the next diskette.
5. After the **fifth** diskette, you go to screen **F**.



Figure 11-6. Save Disk Function Diskette Copy End Screen

1. Take note of the date and identifiers.
Write them on the diskette or diskette cover for later identification.
2. Press **SEND**.
3. You return to screen **D**.

Note: The 'INTERNAL ID' field is an identification entered at the creation of the diskette, and is used for checking during a restore.

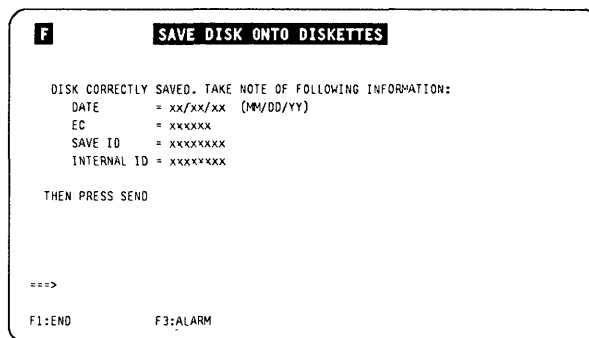


Figure 11-7. Save Disk Function End Screen

Disk Save Error Message

If an error occurs, this message is displayed:
DISK ERROR. SAVE CANCELLED

1. Press **F6** or **F1**.
2. Refer to "Hard Disk Trouble Analysis and Replacement" on page 11-19 for further action.



Figure 11-8. Save Disk Function Mount Diskette Screen

Restore the Disk from Diskettes

- This function restores the disk to the level of the diskettes, either because the data on the disk is no longer valid or because the disk has just been initialized.
- The format of the primary, secondary, third, fourth, and fifth diskettes must be compatible with the MOSS disk format.

You may use **only** those diskettes that you have created in a previous MOSS disk save or the backup diskettes (last installation or last EC).

- The prompts refer to the PRIMARY, SECONDARY, THIRD, FOURTH, and FIFTH diskette.

These are respectively the first, second, third, fourth, and fifth diskettes you used during the disk saving function.

Diskette-to-disk Procedure

1. You must be in the DIF function (see 11-4).
2. Enter 3 in **1**.
3. Press **SEND**. Screen **H** is displayed.

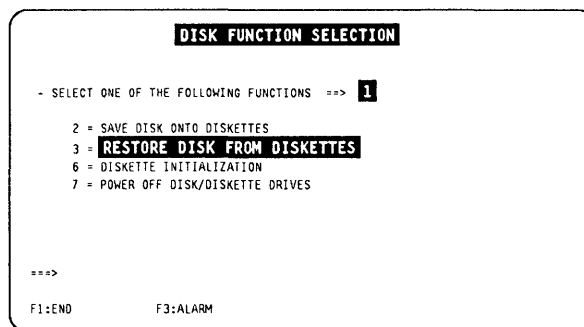


Figure 11-9. Disk Function Selection Screen (IML from Disk)

Step 1: Diskettes Checking

1. This screen displays the message:
MOUNT PRIMARY DISKETTE, THEN PRESS SEND
2. Insert a primary diskette.
3. Close the diskette drive.
4. Press **SEND**.
5. Screen **I** is displayed.



Figure 11-10. Restore Disk Function Mount Primary Diskette Screen

This screen displays the primary diskette identification. This is to check that the five diskettes are the correct ones, and that they belong to the same quintet.

- If OK:
 1. Type **Y** in **1**, and press **SEND**.
 2. Screen **J** is displayed.
- If NOT OK:
 1. Type **N** in **1**, and press **SEND**.
 2. You return to screen **H**.
 3. Insert the correct diskette and restart the procedure.

```

I RESTORE DISK FROM DISKETTES

MOUNTED PRIMARY DISKETTE IDENTIFICATION:

CREATED ON = xx/xx/xx (MM/DD/YY)
SAVE ID = xxxxxxxx
INTERNAL ID = xxxxxxxx

- PLEASE CONFIRM YOUR SELECTION (Y OR N) ==> 1

==>

F1:END      F3:ALARM      F6:QUIT
  
```

Figure 11-11. Restore Disk Function, Diskette Identification Screen

1. Insert the secondary diskette and close the diskette drive.
2. Press **SEND**.
3. The secondary diskette identifier is checked against the primary diskette identifier. If they match, you repeat this step with the third, fourth, and fifth diskettes (each one is checked against the previous one).
4. In case of mismatch, screen **K** is displayed.
5. If OK, screen **L** is displayed.

```

J RESTORE DISK FROM DISKETTES

MOUNT SECONDARY DISKETTE, THEN PRESS SEND

PRESSING F1 CAUSES LOSS DOWN AND DISK DATA DESTROYED

==>

F1:END      F3:ALARM
  
```

Figure 11-12. Restore Disk Function, Mount Secondary Diskette Screen

Diskette Mismatch

This screen displays the identification of the diskettes already checked.

For example, if a mismatch is detected between the **secondary** and the **third** diskette, the lines related to the fourth and fifth diskette are **not** displayed.

1. Press **SEND**; you return to screen **J**.
2. Mount the correct diskette and resume the procedure.

```

K RESTORE DISK FROM DISKETTES

DISKETTES DO NOT BELONG TO THE SAME SET

PRIMARY CREATED = xx/xx/xx SAVE ID: xxxxxxxx INT. ID: xxxxxxxx
SECONDARY CREATED= xx/xx/xx SAVE ID: xxxxxxxx INT. ID: xxxxxxxx
THIRD CREATED   = xx/xx/xx SAVE ID: xxxxxxxx INT. ID: xxxxxxxx
FOURTH CREATED  = xx/xx/xx SAVE ID: xxxxxxxx INT. ID: xxxxxxxx
FIFTH CREATED   = xx/xx/xx SAVE ID: xxxxxxxx INT. ID: xxxxxxxx

==>

F1:END      F3:ALARM      F6:QUIT
  
```

Figure 11-13. Restore Disk Function, Unmatched in Diskette Identification Screen

Restore Disk

Step 2: Copy the Diskettes

1. Mount the **primary** diskette.
2. Press **SEND**.
3. The following messages are displayed:

RESTORE DISK FROM xxxxxxxx DISKETTE IN
PROGRESS

then

RESTORE DISK FROM xxxxxxxx DISKETTE COMPLETED

(xxxxxxx can be: PRIMARY, SECONDARY,
THIRD, FOURTH, or FIFTH).

4. Repeat this step for the five diskettes.
5. Screen **M** is displayed.



Figure 11-14. Restore Disk Function, Mount Primary Diskette Screen

Use of F1

If you press **F1** before getting that screen, you set MOSS down, and the disk contents will not be valid.

This screen is displayed when the five diskettes have been successfully checked (they bear the same ID) and restored on the disk.

1. Power the 3745 OFF, then ON.
2. Refer to the *3745 Installation Guide*, SY33-2067, to perform the following actions:
 - a. IML the MOSS from the disk, at the control panel.

If you have used a "virgin" set of backup diskettes, perform the next steps; otherwise, stop here.

- b. Enter the customer password. (All default passwords are IBM3745, but the maintenance password is not defined.)
 - c. Update and activate the maintenance password.
3. Ask the customer to update the password(s), as needed.

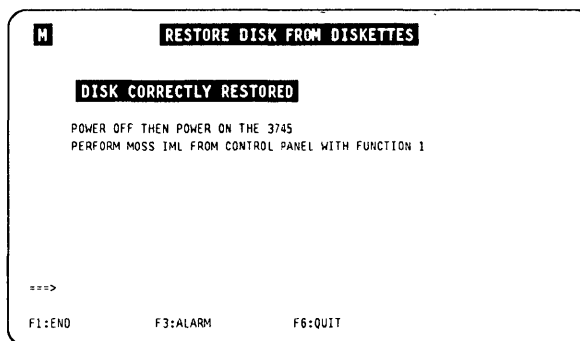


Figure 11-15. End of Restore Disk Function Screen

Disk Restore Error

DISK ERROR. FUNCTION CANCELLED

1. Press **F1**.
2. Refer to "Hard Disk Trouble Analysis and Replacement" on page 11-19 for further action.

Initialize the Disk

This function:

- Formats the disk.
- Writes the machine serial number on the first sector of the disk.

It should be used in the case of I/O errors on disk (see "Hard Disk Trouble Analysis and Replacement" on page 11-19).

Disk Initialization Procedure

- The IML must have been made from the diskette (function 9 at the control panel).
 - You must be in **service** mode 1 or 2 at the control panel.
1. The DIF function screen is displayed (see 11-4).
 2. Enter **5** in **1**.
 3. Press **SEND**. Screen **N** is displayed.

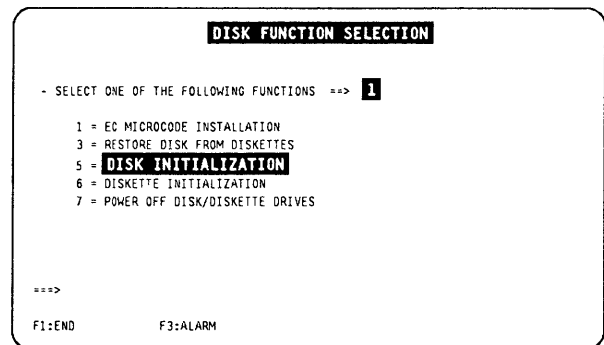


Figure 11-16. Disk Function Selection Screen (IML from Diskette)

1. In **1**, enter **1**.
2. Press **SEND**.
3. Screen **0** is displayed.

If you select option 2, screen **Q** is displayed.

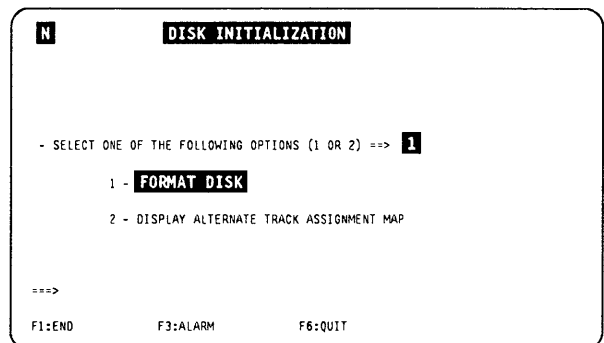


Figure 11-17. Disk Initialization Selection Screen

Initialize Disk

1. Enter the **machine serial number** in **1**.
2. Press **SEND**.

Screen **P** is displayed.

```
0      DISK INITIALIZATION
ENTER MACHINE SERIAL NO (7 NUMERIC CHARACTERS) ==> 1

====>
F1:END      F3:ALARM      F6:QUIT
```

Figure 11-18. Disk Initialization Screen

1. Check for correct machine serial number.
2. Enter the answer **Y**, or **N** in **1**.
3. Press **SEND**.
4. If you confirm, this sequence of messages is displayed:

DISK FORMATTING IN PROGRESS - PLEASE WAIT
SEVERAL MINUTES

READ CHECKING IN PROGRESS - PLEASE WAIT
SEVERAL MINUTES

FORMAT COMPLETED; NO DEFECTIVE TRACK : ALTER-
NATE ASSIGNMENT MAP EMPTY

or

FORMAT COMPLETED, xx DEFECTIVE TRACK

```
P      DISK INITIALIZATION
MACHINE SERIAL NUMBER = XXXXXXXX
- PLEASE CONFIRM YOUR SELECTION (Y OR N) ==> 1

====>
F1:END      F3:ALARM      F6:QUIT
```

Figure 11-19. Disk Initialization Confirmation Screen

Note: If defective track have been found (last message), screen **Q** is displayed.

Note: Most of the track errors during the disk initialization procedure lead to an alternate track assignment. But some types of error are not recoverable, and this alternate track assignment cannot be used (even if some alternate tracks are free). In that case, this message is displayed:

FORMAT COMMAND FAILED. CHANGE DISK

or

DISK ERROR. FUNCTION CANCELLED

Refer to "Hard Disk Trouble Analysis and Replacement" on page 11-19 for further action.

```
Q      ALTERNATE TRACK ASSIGNMENT MAP

DEFECTIVE TRACK    ALTERNATE TRACK    DEFECTIVE TRACK    ALTERNATE TRACK
HEAD-CYLINDER      HEAD-CYLINDER      HEAD-CYLINDER      HEAD-CYLINDER

hccc               hccc               hccc               hccc
hccc               hccc               hccc               hccc
hccc               hccc               hccc               hccc
hccc               hccc               hccc               hccc

FORMAT ERRORS: xx  ID ERRORS: xx  DATA ERRORS: xx

====>
F1:END      F3:ALARM      F6:QUIT
```

Figure 11-20. Disk Initialization Alternate Track Assignment Screen

Initialize the Diskettes

This function initializes the diskettes to a specific format required by the MOSS.

Diskette type

You must use double-sided, high-capacity diskettes (P/N 6109660 or equivalent).

Diskette Initialization Procedure

1. You must be in the DIF function (see 11-4).
2. Enter 6 in **1**.
3. Press **SEND**. Screen **R** is displayed.

Note: This example shows the menu given after an IML from the diskette. Nevertheless, the function is also available after an IML from disk.

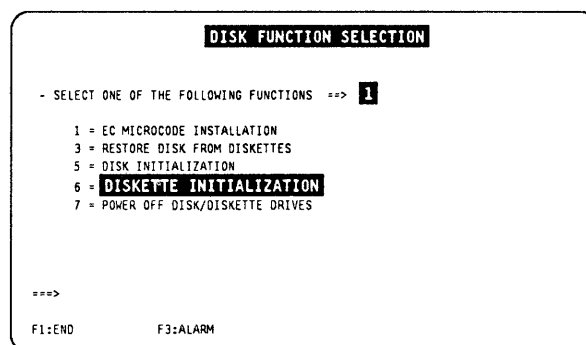


Figure 11-21. Disk Function Selection Screen (IML from Diskette)

1. Enter Y or N in **1**. (If you enter Y, screen **S** is displayed).
2. Press **SEND**.

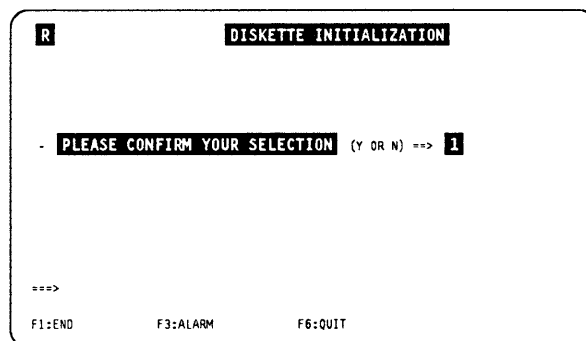


Figure 11-22. Diskette Initialization Screen

Initialize Diskettes

1. Insert a diskette in the diskette drive.
2. Close the diskette drive.
3. Press **SEND**.

Repeat the procedure for every diskette you want to initialize.

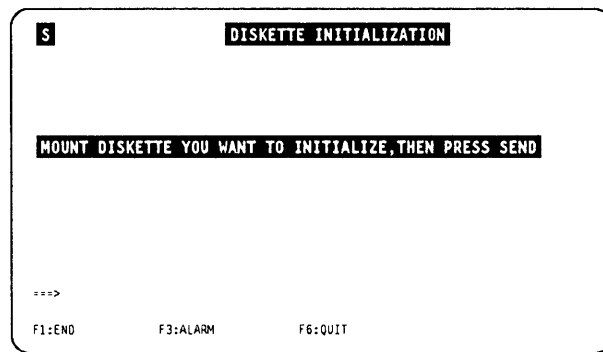


Figure 11-23. Diskette Initialization Mount Screen

During diskette initialization, these messages are successively displayed:

DISKETTE FORMATTING IN PROGRESS
then
DISKETTE CHECKING IN PROGRESS
DISKETTE INITIALIZATION SUCCESSFULLY COMPLETED

If defective tracks have been found, these messages are displayed:

DISKETTE INITIALIZATION UNSUCCESSFULLY COMPLETED
NUMBER OF TRACKS IN ERROR WHILE FORMATTING: xxxx
NUMBER OF TRACKS IN ERROR WHILE CHECKING: xxxx
WARNING: DO NOT USE THIS DISKETTE TO SAVE YOUR DISK

Power OFF a Disk/Diskette Drive

You must be in the DIF function (see page 11-4) with **service** mode 1 or 2 selected from the control panel.

1. Enter **7** in **1**.
2. Press **SEND**.

One of the following two messages is displayed in **2**, indicating the result of the operation

POWER OFF SUCCESSFUL. CONCURRENT MAINTENANCE
ACCEPTED

POWER OFF UNSUCCESSFUL. CONCURRENT MAINTENANCE
REJECTED

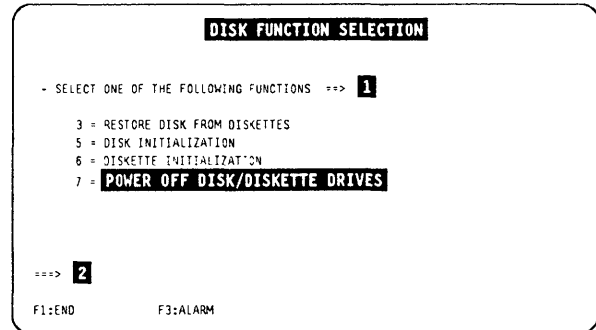


Figure 11-24. Disk Function Selection Screen (IML from Diskette)

Power ON

Any action from the console will power ON the disk/diskette, issuing the following message:

DISK STARTING

Installing an Engineering Change (EC)

Note: In the customer's documentation, the EC is referred to as a microcode change.

- Before starting a new EC installation, ensure that the disk contents have been saved to a current set of backup diskettes. These diskettes will be used to restore the disk if the installation of the new EC failed or disturbed applications.
- You receive ten diskettes. These are two sets of diskettes that contain the engineering change (EC) that must be installed on this 3745:
 - Five 'normal' (primary, secondary, third, fourth, and fifth)
 - Five 'backup' (primary, secondary, third, fourth, and fifth)
- This EC, when installed, will modify the 3745 microcode to the latest level, that is, with all microcode fixes issued since the last EC.

EC Installation Sequence

The installation of a new EC can be done **only in diskette mode** (you cannot start from the DIF function that works in disk mode). IML is made from the diskette in maintenance mode (service mode 1 or 2).

1. Ensure that the local console is powered on.
2. At the diskette drive, insert the primary diskette, labeled 'normal', that you have received for the new EC installation, and close the diskette drive.
3. At the control panel, select **Service Mode = 1** or 2, and press the **Validate** key.
4. Select **Function = 9**, and press the **Validate** key.
5. Press the **Power ON** key. A MOSS IML from diskette is started.
6. At the IML end, you should be in the DIF function (automatic with diskette IML, see page 11-4 and Figure 11-25).
7. Enter **1** in **1**.
8. Press **SEND**. Screen **1** is displayed (Figure 11-26).

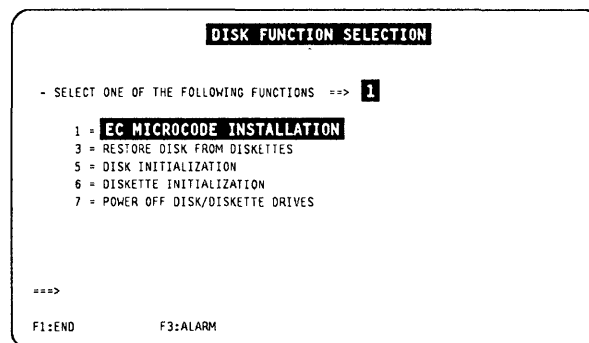


Figure 11-25. Disk Function Selection Screen (IML from Diskette)

- Disregard this message (you already inserted the EC primary diskette).
- Press **SEND**.

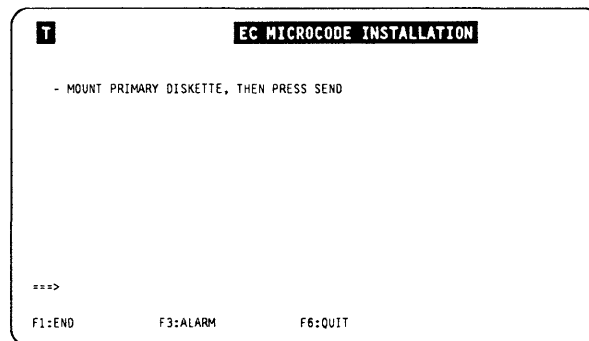


Figure 11-26. EC Installation, Mount Primary Diskette Screen

Step 1: Check the Diskettes

1. Check the primary diskette identification.
2. If OK, enter **Y** in **1**.
3. Press **SEND**.

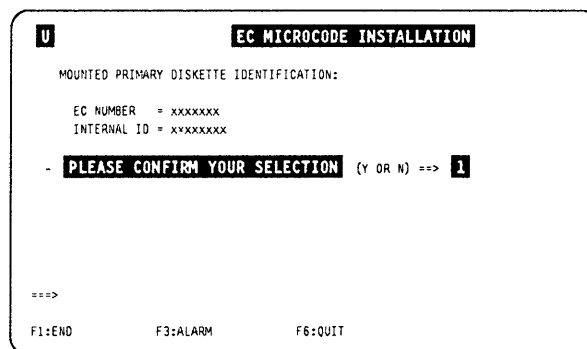


Figure 11-27. EC Installation, Diskette Identification Screen

1. Mount the secondary diskette, then press **SEND**.
2. The ID of the secondary diskette is checked against the ID of the primary.
 - If they match, the same screen is displayed, with the message about the third, fourth, and fifth diskette. If they are all OK (same ID), screen **W** is displayed.
 - If they do not match, screen **X** is displayed.

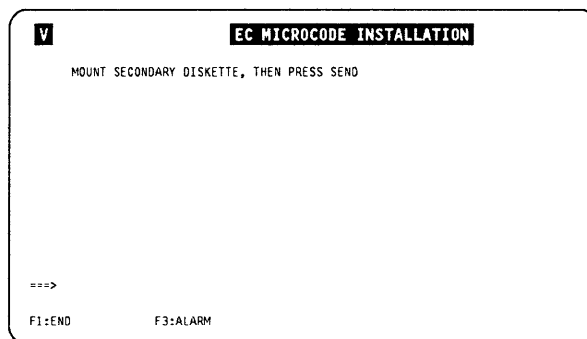


Figure 11-28. EC Installation, Mount Secondary Diskette Screen

Step 2: Copy the Diskettes

1. Mount the primary diskette, and press **SEND**.
2. Then, you obtain the message:
 MOUNT xxxxxxxxx FOR COPYING
 WARNING: PRESSING F1 CAUSES MOSS DOWN AND DISK DATA DESTROYED
 (xxxxxxx can be secondary, third, fourth, or fifth).
3. Repeat this step for each of the five diskettes.

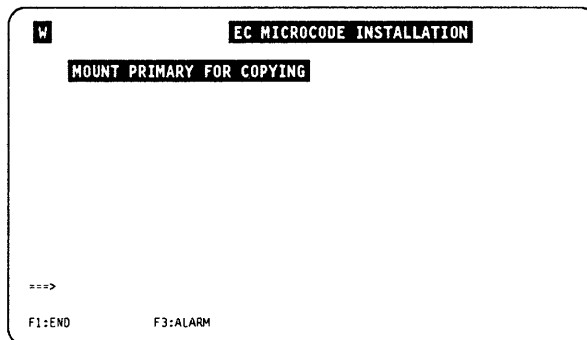


Figure 11-29. Restore Disk Function, Mount Secondary Diskette Screen

Install EC

When the five diskettes have been successfully copied to the MOSS disk, this message is displayed:

EC xxxxxxxx CORRECTLY INSTALLED
POWER OFF THEN POWER ON THE 3745
PERFORM MOSS IML FROM CONTROL PANEL WITH FUNCTION 1

Use of F1

If you press **F1** before these messages, you set MOSS down, and the disk contents will not be valid.

Note: After correct validation of the diskette set, the customer files such as the CDF, are automatically copied from the MOSS disk to the primary diskette.

1. Remove the diskette from the diskette drive.
2. Power the 3745 OFF.
3. After about ten seconds, power the 3745 ON.
4. IML the MOSS from the control panel.
5. If some MCFs have to be applied, refer to Chapter 7, "Applying and Displaying Microcode Fixes (MCF)" on page 7-1.
6. Perform a CDF upgrade (refer to page 9-10).
7. Before giving the 3745 back to the customer, **do not forget** to set the 3745 to customer mode.
8. Ask the customer to save the disk contents, using the procedure described in the *3745 Advanced Operations Guide*, SA33-0097.

If the EC numbers and identifiers of the secondary and primary diskettes **do not match**, the screen displays both diskette identifiers.

You obtain the same kind of display for the other diskettes. The IDs of the diskettes already checked are then displayed.

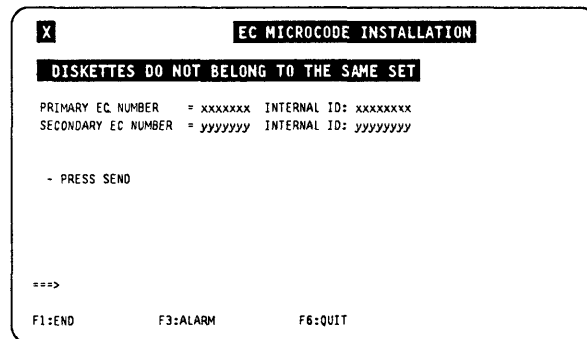


Figure 11-30. EC Installation, Unmatch in Diskette Installation Screen

EC Installation Error Messages

DISKETTE ERROR. FUNCTION CANCELED or DISK ERROR. FUNCTION CANCELED

Press **F6** or **F1**.

- If diskette error, use the set of backup diskettes.
- If disk error, or if IML MOSS from the control panel not successful, go to "Hard Disk Trouble Analysis and Replacement" on page 11-19.

DISK UNUSABLE. EC NOT INITIALIZED

- During an EC install with IML from diskette, the disk does not contain a version of the microcode.
- If attempting to install a back level EC with regard to the disk current level EC.

Perform a **disk restore**.

Hard Disk Trouble Analysis and Replacement

This section describes the procedures that should be used when the MOSS signals an I/O error on the disk.

Two different procedures may be followed:

1. The backup copies of the primary, secondary, third, fourth, and fifth diskettes are valid and up-to-date.
 - You have saved the MOSS disk recently,
 - You have a valid backup copy of the last EC installed, or
 - You have a valid backup copy of the initial installation,and the CDF has not been modified since.

Use the 'backup' diskettes and follow **procedure 1**.

2. The backup copies of the primary, secondary, third, fourth, and fifth diskettes are not valid or not up-to-date, or the installation is not successfully completed.
 - You have not saved the MOSS disk recently,
 - You have an invalid backup copy of the last EC installed,
 - You have an invalid backup copy of the initial installation, or
 - The installation is not successfully completed,
 - The CDF has been modified since the last copy has been made.

Use the 'normal' diskettes and follow **procedure 2**.

Procedure 1

You have a valid and up-to-date set of backup diskettes.

STEP 1

1. Set the 3745 in service mode 1 or 2 at the control panel.
2. Mount the primary 'backup' diskette.
3. IML in diskette mode (function 9 at the control panel).
4. Re-initialize the current disk. Refer to "Initialize the Disk" on page 11-11.

Note: You must enter the serial number of the 3745.

- STEP 2** Restore the disk from the backup diskettes, that is, the primary, secondary, third, fourth, and fifth diskettes that contain the latest version of the microcode and the current CDF.

Use the RESTORE DISK option (3) of the 'DIF' function that is on the **3745 function menu 1** screen. See "Restore the Disk from Diskettes" on page 11-8.

If the restore is successful, you have completed the procedure. Restart the job that previously failed.

If the restore fails because of an I/O error, go to STEP 3.

- STEP 3** Replace the disk file adapter card (DFA). Refer to the *Maintenance Information Procedures* manual that explains the DFA replacement procedure.

After DFA replacement, try to restore the disk from the diskettes again (see STEP 2).

- If the restore is successful, you have completed the procedure. Restart the job that previously failed.

- If the restore fails because of an I/O error, go to STEP 4.

STEP 4 Check disk voltages, PS2, using the YZ pages. If the disk voltages are correct, go to step 5. Otherwise, use the *Maintenance Information Procedures* manual for troubleshooting.

STEP 5 Exchange the disk.

1. Replace (exchange) the hard disk (refer to "HDD Exchange Procedure" in the MIP manual).
2. Initialize the new disk, as explained in "Initialize the Disk" on page 11-11.

Note: You must enter the serial number of the 3745.

After disk initialization, try to restore the disk from the diskette again (see STEP 2).

If the restore is successful, you have completed the procedure. Restart the job that previously failed.

If the problem persists, call higher support.

Procedure 2

Your latest set of backup diskettes is either invalid or not up-to-date. You will use the 'normal' primary, secondary, third, fourth, and fifth diskettes (from the latest set of diskettes: initial installation or latest EC).

STEP A

1. Set the 3745 in service mode 1 or 2 at the control panel.
2. Mount the primary 'backup' diskette.
3. IML in diskette mode (function 9 at the control panel).
4. Re-initialize the current disk, as explained in "Initialize the Disk" on page 11-11.

Note: You must enter the serial number of the 3745.

STEP B Restore the disk from 'normal' primary, secondary, third, fourth, and fifth diskettes, that is, the primary, secondary, third, fourth, and fifth diskettes containing the latest version of the microcode (initial installation or latest EC).

Use the **restore disk** option (3) of the 'DIF' function on the **3745 function menu 1** screen. See "Restore the Disk from Diskettes" on page 11-8.

- If the restore is successful, go to STEP F.
- If the restore fails because of an I/O error, go to STEP C.

STEP C Replace the disk file adapter card (DFA). Refer to the *Maintenance Information Procedures* manual that explains the DFA replacement procedure.

After DFA replacement, try to restore the disk from the diskette again (see STEP B).

- If the restore is successful, go to step F.
- If the restore fails because of an I/O error, go to STEP D.

STEP D Check disk voltages, PS2, using the YZ pages. If the disk voltages are correct, go to step E. Otherwise, use the *Maintenance Information Procedures* manual for troubleshooting.

STEP E Exchange the disk.

1. Replace (exchange) the hard disk (refer to 'HDD exchange procedure' in the MIP manual).
2. Initialize the new disk, as explained in "Initialize the Disk" on page 11-11.

Note: You must enter the serial number of the 3745.

After disk initialization, try to restore the disk from the diskette again (see STEP B).

- If the restore is successful, go to STEP F.
- If the problem persists, call higher support.

STEP F Run a CDF create and have the customer run a CDF update if modifications have been made to the machine and its features.

STEP G Apply the MCFs that were included in the diskettes (see "MCF Microcode Upgrade" on page 7-10).

STEP H Run the MOSS IML from disk to check the hardware.

STEP I Ask the customer to save the contents of the MOSS disk using the **disk save** option of the 'DIF' function (see "Save Disk Contents on Diskettes" on page 11-5).

Note: If the backup copies are not readable, the customer must order new diskettes and format them using the **diskette initialization** option of the 'DIF' function (see "Initialize the Diskettes" on page 11-13).

DIF Messages

ALTERNATE TRACK ASSIGNMENT MAP FULL. CHANGE DISK

Cause: Maximum number of alternate tracks reached.

Action: Change the disk.

ERROR ON TRACK 0. CHANGE DISK

Cause: An error has been detected on track 0.

Action: Change the disk.

ERROR WHILE FLAGGING BAD TRACK. CHANGE DISK

Cause: It is not possible to flag a bad track.

Action: Change the disk.

FORMAT COMMAND FAILED. CHANGE DISK

Cause: A disk error has been detected during disk format.

Action: Change the disk.

NO DEFECTIVE TRACK: ALTERNATE TRACK ASSIGNMENT MAP EMPTY

Cause: No defective track detected during initialization of the hard disk.

Action: None

Refer to the *3745 Advanced Operations Guide*, SA33-0097, for an explanation of the following messages which are common to the customer and the CE:

- CCU FUNCTIONS NOT ALLOWED
- CCU/MOSS ERROR: DISK FUNCTIONS CAN NOT BE PERFORMED. PRESS SEND
- DISK DIRECTORY CAPACITY EXCEEDED: MOSS DOWN
- DISK ERROR: FUNCTION CANCELED. PRESS SEND
- DISK ERROR: MOSS DOWN
- DISK ERROR: SAVE CANCELED
- DISK FUNCTIONS CAN NOT BE PERFORMED WHEN MOSS IS ONLINE
- DISK NOT INITIALIZED
- DISK UNUSABLE. EC NOT INITIALIZED
- DISKETTE ERROR: FUNCTION CANCELED. PRESS SEND
- DISKETTE ERROR: MOSS DOWN
- DISKETTE ERROR. MOUNT A NEW ONE. THEN PRESS SEND
- DISKETTE NOT READY
- EC INSTALLATION FROM FIFTH DISKETTE IN PROGRESS
- EC INSTALLATION FROM FOURTH DISKETTE IN PROGRESS
- EC INSTALLATION FROM PRIMARY DISKETTE IN PROGRESS
- EC INSTALLATION FROM SECONDARY DISKETTE IN PROGRESS
- EC INSTALLATION FROM THIRD DISKETTE IN PROGRESS
- FIFTH DISKETTE CHECKING IN PROGRESS
- FIFTH DISKETTE IS NOT THE ONE ALREADY CHECKED
- FILE CHGxxxx NOT FOUND ON DISK: FUNCTION CANCELED. PRESS SEND
- FILE CHGxxxx NOT FOUND ON DISKETTE: FUNCTION CANCELED. PRESS SEND
- FILE CHGxxxx SMALLER ON DISKETTE: FUNCTION CANCELED. PRESS SEND
- FOURTH DISKETTE CHECKING IN PROGRESS
- FOURTH DISKETTE IS NOT THE ONE ALREADY CHECKED
- FUNCTION NOT YET AVAILABLE
- INVALID INPUT
- MOSS DOWN BECAUSE YOU SELECTED F1
- MOUNTED DISKETTE IS NOT A FIFTH ONE
- MOUNTED DISKETTE IS NOT A FOURTH ONE
- MOUNTED DISKETTE IS NOT A PRIMARY
- MOUNTED DISKETTE IS NOT A SECONDARY

- MOUNTED DISKETTE IS NOT A THIRD ONE
- PRIMARY DISKETTE CHECKING IN PROGRESS
- PRIMARY DISKETTE IS NOT THE ONE ALREADY CHECKED
- RESTORE DISK FROM FIFTH DISKETTE IN PROGRESS
- RESTORE DISK FROM FOURTH DISKETTE IN PROGRESS
- RESTORE DISK FROM PRIMARY DISKETTE IN PROGRESS
- RESTORE DISK FROM SECONDARY DISKETTE IN PROGRESS
- RESTORE DISK FROM THIRD DISKETTE IN PROGRESS
- RESTORE NOT AUTHORIZED FROM THIS DISKETTE. PRESS SEND
- SECONDARY DISKETTE CHECKING IN PROGRESS
- SECONDARY DISKETTE IS NOT THE ONE ALREADY CHECKED
- THIRD DISKETTE CHECKING IN PROGRESS
- THIRD DISKETTE IS NOT THE ONE ALREADY CHECKED
- UNABLE TO LOAD MODULE: FUNCTION CANCELED
- UNDEFINED F KEY
- UNRECOVERABLE ERROR: PLEASE RE-FORMAT
- WRITE ERROR ON SECTOR 1 OR 2. CHANGE DISK
- WRITE PROTECTED DISKETTE
- YOU MUST NOW PERFORM AN IML FROM DISK

DIF Messages

Chapter 12. SIT, POS, TIM, IPL Functions

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Scanner Interface Trace (SIT)

The scanner interface trace (SIT) function is used to collect the events that occurred on a given line and the checkpoint entries.

These events are recorded in a TSS internal buffer and can be sent to the MOSS via the CCU storage area dedicated to MOSS/TSS communications.

The SIT is similar to the SIT available in the host. The 3745 SIT is called internal SIT (I-SIT), and the host SIT is called external SIT (E-SIT).

The main differences are:

- For the E-SIT, the contents of the buffer are continuously sent to the host.
- For the I-SIT, the buffer normally works in wraparound mode and is transferred to the MOSS only on request. If you are not in wraparound mode, and when the buffer is full, the trace is frozen (the trace is stopped but the buffer is not released).
- In the host you can print the trace on 132 characters, this means hexadecimal and translated data are visible at the same time.

In the MOSS console you can only display hexadecimal or translated data at one time (see "Display I-SIT Buffer or File" on page 12-9).

The restrictions are:

- The buffer size is 8KB maximum.
- A maximum of four traces per scanner can be started according to the line speed:
 - High-speed line (from 230 kbps for TSS and 1.5 Mbps for HPTSS - maximum speed for HPTSS is 2.048 Mbps): only one trace in a buffer of 8 kbytes.
 - A 56 kbps line trace takes all the possible buffer space. Therefore, no other SIT can be started after a 56 kbps line SIT.
 - Low-speed line (below 56 kbps): four traces in four buffers of 2KB each.
- If an E-SIT is running for a given line, an I-SIT can not be started on this line (or vice-versa).

How to use the host SIT and SIT field details is described in the *ACF/TAP* manual, SC30-3143.

SIT Function Selection Procedure

1. Type **SIT** in **1**.
2. Press **SEND**.

Screen **B** is displayed.

A

MENU 1

CONFIG DATA FILE.: CDF	IML ONE SCANNER.: IMS	PASSWORDS.....: PSW
CONTROL PGM PROC.: CPP	IPL CCU.....: IPL	PORT SWAP FILE...: PSF
DISK FUNCTIONS...: DIF	LD LINK TEST REQ.: LTO	
DISK IPL INFO....: DII	LD LINK TEST RESP.: LTS	SCANNER I/F TRACE: SIT
EVENT LOG DISPLAY: ELD	LINE INTERF DSPLY: LID	STAND ALONE TEST.: SAT
	LINK IPL PORTS...: LKP	
INTERN. DATA FILE: IDF	MACHINE LVL TABLE: MLT	TIME SERVICES....: TIM
IML MOSS.....: IML	MICROCODE FIXES...: MCF	TRSS INTERF DSPLY: TID
		WRAP TEST.....: WTT

ENTER OFF TO LOG OFF

==> **1**

F1:END F2:MENUE2 F3:ALARM F5:MENUE 3 F6:RULES

Figure 12-1. Menu 1 Screen

This screen is the starting point for all the **SIT** procedures described in this chapter. You must:

1. Enter the line address in **1**.
2. Select the action in **2**.
3. Press **SEND**.

B

- ENTER A DECIMAL LINE ADDRESS FROM 0 TO 1039 ==> **1**

- ENTER THE ACTION TO BE PERFORMED (S, C, F, R, D, G) ==> **2**

S: START INTERNAL TRACE
C: CANCEL INTERNAL TRACE
F: FREEZE INTERNAL TRACE
R: RESUME INTERNAL TRACE
D: DISPLAY CSP STATUS
G: GET I-SIT BUFFER FROM SCANNER

WARNING: DURING I-SIT BUFFER TRANSFER EVENTS MAY BE LOST

==>

F1:END F2:MENUE2 F3:ALARM F4:I-SIT BUFFER HANDLING

Figure 12-2. SIT Function Selection Screen

Start Internal Trace

A 56 kbps line trace takes all the available buffer space. Therefore, no other SIT can be started after a 56 kbps line SIT.

1. You must be in the SIT function (see 12-3).
2. Enter the line address in **1**.
3. Enter **S** in **2**.
4. Press **SEND**.
5. Screen **C** is displayed.

```
- ENTER A DECIMAL LINE ADDRESS FROM 0 TO 1039 ==> 1

- ENTER THE ACTION TO BE PERFORMED (S, C, F, R, D, G) ==> 2

S: START INTERNAL TRACE
C: CANCEL INTERNAL TRACE
F: FREEZE INTERNAL TRACE
R: RESUME INTERNAL TRACE
D: DISPLAY CSP STATUS
G: GET I-SIT BUFFER FROM SCANNER

WARNING: DURING I-SIT BUFFER TRANSFER EVENTS MAY BE LOST

==>

F1:END F2:MENU2 F3:ALARM F4:I-SIT BUFFER HANDLING
```

Figure 12-3. SIT Function Selection Screen

1. Enter the required selections in **1** to **5**.
You may skip any of these selections.
Defaults, displayed on the screen, are then used.
2. Press **SEND**.

The SIT function selection screen (previous screen) is displayed, with the message:

I-SIT STARTED ON LINE xxx SCANNER xx

```
C

START I-SIT SELECTED FOR LINE xxxx RLN xx SCANNER xx

- TRACE IN WRAP MODE (Y OR N) ==> 1
- CHECKPOINT TRACE (Y OR N) ==> 2
- ENTER DATA COUNT (0 TO 255 OR ALL) ==> 3
- STOP TRACE ON ERROR (Y OR N) ==> 4
- MAXIMUM AVAILABLE SIZE (Y OR N) ==> 5

==>

F1:END F2:MENU2 F3:ALARM F6:QUIT
```

Figure 12-4. Start Internal Trace Screen

Start Internal Trace Screen Fields Description

B

START I-SIT SELECTED FOR LINE xxxx RLN xx SCANNER xx

- TRACE IN WRAP MODE (Y OR N) ==> Y
- CHECKPOINT TRACE (Y OR N) ==> Y
- ENTER DATA COUNT (0 TO 255 OR ALL) ==> ALL
- STOP TRACE ON ERROR (Y OR N) ==> N
- MAXIMUM AVAILABLE SIZE (Y OR N) ==> N

==>

F1:END F2:MENU2 F3:ALARM F6:QUIT

Figure 12-5. Start Internal Trace Screen

This screen shows the default values.

WRAP MODE	Allows tracing in wraparound mode or stopping the trace when the buffer is full.
CHECKPOINT	Allows recording checkpoint entries (refer to "Scanner Checkpoint Trace" on page 4-19 for additional information).
DATA COUNT	Is the size of the data record you want to keep trace of, starting from byte one (40 bytes maximum traced for HPTSS).
STOP ON ERROR	Allows stopping the trace (or not) after an error occurs.
SIZE	Size of the buffer you want for that trace. Two, four, or eight kbytes are the default sizes according to the line speed. If you select Y , no further trace can be started.

Cancel Internal Trace

Allows stopping an active trace. The buffer is released and no longer available (its contents are lost).

1. Select **C** in screen **B** of the "SIT Function Selection Procedure" on page 12-3.
2. The trace stops and this message is displayed:

I-SIT CANCELED ON LINE xxx SCANNER xx

Freeze Internal Trace

Allows stopping a trace temporarily. The buffer in use for that trace is not released, but the events occurring during the 'freeze' time are lost.

1. Select **F** in screen **B** of the "SIT Function Selection Procedure" on page 12-3.
2. The trace stops, and this message is displayed:

I-SIT FROZEN FOR LINE xxx SCANNER xx

Resume Internal Trace

Allows restarting a trace previously stopped by a freeze action.

1. Select **R** in screen **B** of the "SIT Function Selection Procedure" on page 12-3.
2. The trace restarts, and this message is displayed:

I-SIT RESUMED ON LINE xxx SCANNER xx

Display CSP Status

Allows displaying the status of the active and frozen I-SIT(s) or E-SIT(s) for a specific scanner.

1. In **1**, enter any line address of the scanner you want to display the status of.
2. Enter **D** in **2**.
3. Press **SEND**. The result can be either:
 - a. Screen **E** is displayed, or
 - b. If there is no SIT active or frozen, the following message is displayed:

REQUEST IGNORED ON LINE xxx SCANNER xx:
NO I-SIT ACTIVE OR FROZEN

0

- ENTER A DECIMAL LINE ADDRESS FROM 0 TO 1039 ==> **1**

- ENTER THE ACTION TO BE PERFORMED (S, C, F, R, D, G) ==> **2**

S: START INTERNAL TRACE
C: CANCEL INTERNAL TRACE
F: FREEZE INTERNAL TRACE
R: RESUME INTERNAL TRACE
D: DISPLAY CSP STATUS
G: GET I-SIT BUFFER FROM SCANNER

WARNING: DURING I-SIT BUFFER TRANSFER EVENTS MAY BE LOST

====>

F1:END F2:MENU2 F3:ALARM F4:I-SIT BUFFER HANDLING

Figure 12-6. SIT Function Selection Screen

The number of lines displayed depends on the number of I-SIT(s) active or frozen.

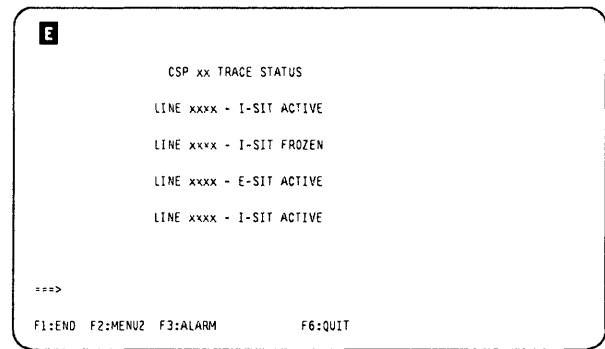


Figure 12-7. Display CSP Status Screen

Get I-SIT Buffer from Scanner

Allows transferring the MOSS storage to the buffer attached to the selected line.

This message is displayed:

I-SIT AVAILABLE FOR LINE xxx SCANNER xx

1. You must be in the SIT function (see 12-3).
2. Enter in **1** the line address.
3. Enter **G** in **2**.
4. Press **SEND**.
5. Press **F4**.

If there is no SIT active or frozen, the following message is displayed:

REQUEST IGNORED ON LINE xxx SCANNER xx: NO I-SIT
ACTIVE OR FROZEN

If you press F4 before selecting action 'G', you display the I-SIT previously saved on the disk file (if any).

F

- ENTER A DECIMAL LINE ADDRESS FROM 0 TO 1039 ==> **1**

- ENTER THE ACTION TO BE PERFORMED (S, C, F, R, D, G) ==> **2**

S: START INTERNAL TRACE
C: CANCEL INTERNAL TRACE
F: FREEZE INTERNAL TRACE
R: RESUME INTERNAL TRACE
D: DISPLAY CSP STATUS
G: **GET I-SIT BUFFER FROM SCANNER**

WARNING: DURING I-SIT BUFFER TRANSFER EVENTS MAY BE LOST

==>

F1:END F2:MENU2 F3:ALARM **F4:I-SIT BUFFER HANDLING**

Figure 12-8. SIT Function Selection Screen

1. Enter your selection in **1**.
2. Press **SEND**.

The available functions are described in the next paragraphs.

G

- ENTER THE ACTION TO BE PERFORMED (D, E, F) ==> **1**

D: DISPLAY I-SIT
E: ERASE I-SIT FILE
F: FILE I-SIT ONTO DISK

==>

F1:END F2:MENU2 F3:ALARM F6:QUIT

Figure 12-9. I-SIT Buffer Handling Screen

Display I-SIT Buffer or File

Allows displaying the I-SIT in a format similar to that of the ACF/TAP. One screen displays eight records. You may display their data part either in hexadecimal or in translated form. You may select the current buffer or the disk file.

1. You must be in the SIT function (see 12-3).
2. In screen **G**, select option **D**.
 - If an I-SIT for that line is already on disk, this screen is displayed.
 - a. In **1**, enter **B** or **D**.
 - b. Press **SEND**. Screen **I** or **J** is displayed, according to the type of line.
 - If the disk file is empty, the display event selection screen is displayed. (See Figure 12-11 on page 12-9 for TSS or Figure 12-12 on page 12-9 for HPTSS.)

```

I
- ENTER B, D TO DISPLAY THE REQUESTED I-SIT ==> 1

      B: LINE xxxx SCANNER xx I-SIT CONTAINED IN BUFFER
      D: LINE xxxx SCANNER xx I-SIT CONTAINED ON DISK

WARNING: DISPLAYING DISK I-SIT DESTROYS CURRENT BUFFER CONTENTS

====>

F1:END  F2:MENU2  F3:ALARM          F6:QUIT

```

Figure 12-10. Display Buffer or File Selection Screen

Procedure for TSS

1. Enter the options in **1** and **2**.
2. Press **SEND**.
3. Screen **F** is displayed.

```

I
DISPLAY I-SIT EVENTS

- ENTER A, I, C, S, P, X, R, E, O.      TO SELECT DISPLAY OPTION ==> 1

A : ALL      EVENTS      O : OVERRUN EVENTS
I : IOH      EVENTS
C : CHECKPOINT EVENTS
S : STATUS   EVENTS
P : PARAMETERS EVENTS
X : XDATA    EVENTS
R : RDATA    EVENTS
E : SCF + SES + LCS :   ENTER HEX VALUE (6 DIGITS) ==> 2

====>

F1:END  F2:MENU2  F3:ALARM          F6:QUIT

```

Figure 12-11. Display Event Selection Screen (TSS)

Procedure for HPTSS

1. Enter the options in **1** and **2**.
2. Press **SEND**.
3. Screen **F** is displayed.

```

J
DISPLAY I-SIT EVENTS

- ENTER A, I, C, S, P, X, R, E, O, V, W. TO SELECT DISPLAY OPTION ==>

A : ALL      EVENTS      O : OVERRUN EVENTS
I : IOH      EVENTS      V : XMIT CW EVENTS
C : CHECKPOINT EVENTS      W : RCV  CW EVENTS
S : STATUS   EVENTS
P : PARAMETERS EVENTS
X : XDATA    EVENTS
R : RDATA    EVENTS
E : SCF + SES + LCS :   ENTER HEX VALUE (6 DIGITS) ==>

====>

F1:END  F2:MENU2  F3:ALARM          F6:QUIT

```

Figure 12-12. Display Event Selection Screen (HPTSS)

- To display translated data:

1. Enter **T** in **1**.
2. Press **SEND**.
3. Screen **L** is displayed.

- To locate a byte:

1. Enter **Lhhhhhhh** in **2**.
hhhhhhh can be 2, 4, 6, or 8 hexadecimal digits.
2. Press **SEND**.
3. Screen **M** is displayed.

```

K

LINE xxxx  SCANNER xx

ENTER T FOR TRANSLATED DATA ==> 1
OR Lhhhhhhh FOR LOCATE =====> 2

0001 PARM                000036001007F59C005000004041F0B
0002 STAT SET MODE CMND COMPLETE 44010000C0003030000
0003 PARM                010036001007F59C005000004041F0B
0004 STAT ENABLE CMND COMPLETE 4402009EC0003030000
0005 IOH SET MODE        22100116
0006 CHKPT              A60501A0
0007 XDATA              AA3232320244
0008 XDATA              C2C27F7FB344
====>

F1:END F2:MENU2 F3:ALARM F4:TOP F5:BOTTOM F6:QUIT F7:BACKWARD F8:FORWARD

```

Figure 12-13. Display Hexadecimal Data Example Screen (All Events)

This screen is displayed when you have selected **T** in screen **K**. To return to screen **K**:

1. Enter **H** in **1**.
2. Press **SEND**.

```

L

LINE xxxx  SCANNER xx

ENTER H FOR HEXADECEMAL DATA ==> 1

0001 PARM                .....5.....
0002 STAT SET MODE CMND COMPLETE .....
0003 PARM                .....5.....
0004 STAT ENABLE CMND COMPLETE .....CC.....
0005 IOH SET MODE        ....
0006 CHKPT              Y...
0007 XDATA              ...B.
0008 XDATA              BB""C.
====>

F1:END F2:MENU2 F3:ALARM F4:TOP F5:BOTTOM F6:QUIT F7:BACKWARD F8:FORWARD

```

Figure 12-14. Display Translated Data Example Screen (All Events)

The search is made byte-by-byte. If you enter **LF4** with **F4** not on a byte boundary (for example **BF46**), you get the message:

NO VALID RECORD FOUND

If there is more than one occurrence of the selected record, the display starts with the first occurrence. Another selection is necessary to put the next occurrence on the first line of the display.

```

M

LINE xxxx  SCANNER xx

ENTER H FOR HEXADECEMAL DATA ==> 1

0001 PARM                .....5.....
0002 STAT SET MODE CMND COMPLETE .....
0003 PARM                .....5.....
0004 STAT ENABLE CMND COMPLETE .....CC.....
0005 IOH SET MODE        ....
0006 CHKPT              Y...
0007 XDATA              ...B.
0008 XDATA              BB""C.
====>

F1:END F2:MENU2 F3:ALARM F4:TOP F5:BOTTOM F6:QUIT F7:BACKWARD F8:FORWARD

```

Figure 12-15. Display Translated Data Example Screen (All Events)

Erase I-SIT File

Allows erasing the I-SIT file, when it exists, from the disk.

1. You must be in the SIT function (see 12-3).
2. Enter **E** in **1**.
3. Press **SEND**.
4. This message is displayed:

DISK FILE IS NOW EMPTY

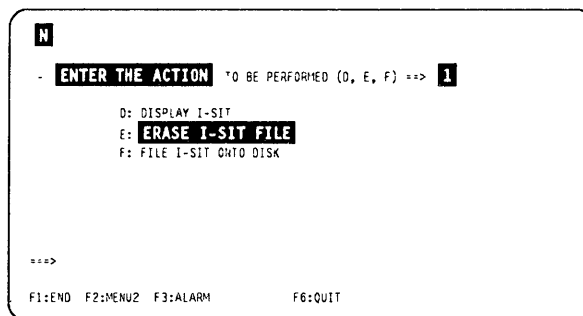


Figure 12-16. I-SIT Buffer Handling Screen

Save I-SIT Buffer To Disk

1. Enter **F** in **1**.
2. Press **SEND**.
 - If the disk file is empty, this message is displayed:
I-SIT SAVED TO DISK
 - If the disk file is not empty, the following message asks you if you want to erase the file before saving the buffer:

I-SIT ALREADY ON DISK, PRESS 'E' BEFORE SAVING

(refer to "Erase I-SIT File")

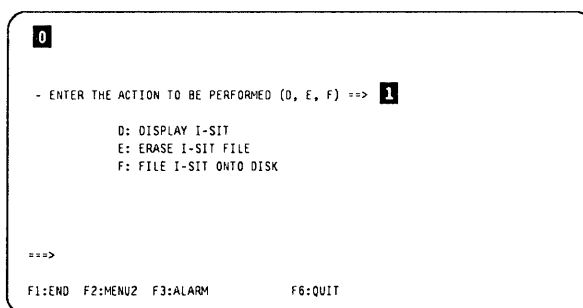


Figure 12-17. I-SIT Buffer Handling Screen

SIT Messages

Refer to the *3745 Advanced Operations Guide*, SA33-0097, for an explanation of the following messages which are common to customers and CE:

- CANCEL IGNORED ON LINE xxx SCANNER xx: E-SIT ACTIVE
- CANCEL I-SIT FAILED ON LINE xxx SCANNER xx
- DISK ERROR: I-SIT NOT SAVED ONTO DISK
- DISK ERROR: THE DISK CONTENTS CANNOT BE DISPLAYED
- DISK ERROR WHILE OPENING FILE
- DISK FILE NOT FOUND
- DISK FILE NOW EMPTY
- E-SIT ALREADY ACTIVE ON LINE xxx SCANNER xx
- FREEZE IGNORED ON LINE xxx SCANNER xx: E-SIT ACTIVE
- FREEZE IGNORED ON LINE xxx SCANNER xx: NO I-SIT ACTIVE
- I-SIT ACTIVE ON LINE xxx SCANNER xx, BUT NO EVENTS
- I-SIT ALREADY ON DISK, PRESS 'E' BEFORE SAVING
- I-SIT AVAILABLE FOR LINE xxx SCANNER xx
- I-SIT CANCELED ON LINE xxx SCANNER xx
- I-SIT FROZEN FOR LINE xxx SCANNER xx
- I-SIT NOT ALLOWED ON LINE xxx: SCANNER xxTRACE COMPLETE
- I-SIT NOT STARTED ON LINE xxx SCANNER xx
- I-SIT RESUMED ON LINE xxx SCANNER xx
- I-SIT SAVED ONTO DISK
- I-SIT STARTED ON LINE xxx SCANNER xx
- NO CABLE INSTALLED FOR THIS LINE ADDRESS
- NO RECORD FOUND FOR THE SELECTED OPTION
- NO TRACE ACTIVE FOR LINE xxx SCANNER xx
- NO VALID RECORDS FOUND
- REQUEST IGNORED ON LINE xxx SCANNER xx: NO I-SIT ACTIVE OR FROZEN
- REQUEST IGNORED ON LINE xxx SCANNER xx: E-SIT ACTIVE
- REQUEST REJECTED: NO I-SIT BUFFER AVAILABLE
- RESUME IGNORED ON LINE xxx SCANNER xx: E-SIT ACTIVE
- RESUME IGNORED ON LINE xxx SCANNER xx: NO I-SIT FROZEN
- START NOT ALLOWED ON LINE xxx SCANNER xx: TRACE IS FROZEN
- THE BUFFER AND THE DISK ARE EMPTY

Power Services (POS)

The power services (POS) function is used to dump the power microcode or to acknowledge the change of the battery.

POS Function Selection Procedure

1. You must be in **maintenance mode**.
2. In menu 3, type **POS** in **1**.
3. Press **SEND**.

Figure 12-18. Maintenance Menu (Menu 3) Screen

Power Dump

1. Enter **1** in **1**, then press **SEND**.
2. This message is displayed:
POWER DUMP STARTED
3. Then, when the dump is finished:
POWER DUMP COMPLETE : TO PRINT DUMP, TRANSFER IT TO HOST

To display the dump, refer to "Dump Display Function Selection" on page 6-2.

Note: Every power dump request generates a BER 04-30 and an alarm AB.

Figure 12-19. Power Dump Selection Screen

Battery Change Procedure

In normal cases, the battery should not be replaced.

1. In screen **B**, select option **2**.
2. This screen is displayed.
3. If you enter **Y**, a BER is logged in order to record the event. The daily alarm for battery change is then stopped.

Figure 12-20. Battery Change Confirmation Screen

POS Messages

POWER DUMP STARTED

POWER DUMP COMPLETE : TO PRINT DUMP, TRANSFER IT TO HOST

DUMP ALREADY EXISTING. TRANSFER, OR DELETE DUMP

Cause: The power dump file is not empty. The new dump cannot be started.

Action: Transfer the power dump file to the host (if you want to keep that dump) and use a delete file command (in function **DDD**) to clear the power dump file.

Time Services (TIM)

Ask Customer

Time services (TIM) is a customer function. No TIM information must be changed without customer permission.

The time services function is used to:

- Set or modify the date and time.
- Define scheduled power-ON times (only once a day).
- Activate or deactivate the scheduling function.
- Display the state of the scheduling function (activated or deactivated).

The date and time are permanently displayed on line 7 of the MSA (any screen).

TIM Function Selection Procedure

1. Type **TIM** in **1**.
2. Press **SEND**.

Screen **B** is displayed.

A

MENU 1

CONFIG DATA FILE.: CDF	IML ONE SCANNER.: IMS	PASSWORDS.....: PSW
CONTROL PGM PROC.: CPP	IPL CCU.....: IPL	PORT SWAP FILE....: PSF
DISK FUNCTIONS...: DIF	LD LINK TEST REQ.: LTQ	
DISK IPL INFO....: DI1	LD LINK TEST RESP.: LTS	SCANNER I/F TRACE: SIT
EVENT LOG DISPLAY: ELD	LINE INTERF DSPLY: LID	STAND ALONE TEST.: SAT
	LINK IPL PORTS...: LKP	
INTERN. DATA FILE: IOF	MACHINE LVL TABLE: MLT	TIME SERVICES....: TIM
IML MOSS.....: IML	MICROCODE FIXES...: MCF	TRSS INTERF DSPLY: TID
		WRAP TEST.....: WTT

ENTER OFF TO LOG OFF

==> **1**

F1:END F2:MENU2 F3:ALARM F5:MENU 3 F6:RULES

Figure 12-21. Menu 1 Screen

1. Enter your selection in **1**.
2. Press **SEND**.

B

- SELECT ONE OPTION (1 OR 2), THEN PRESS SEND ==> **1**

1 = SET/MODIFY DATE AND/OR TIME

2 = DISPLAY/UPDATE "SCHEDULED POWER-ON" DATA

==>

F1:END F3:ALARM

Figure 12-22. TIM Function Selection Screen

Set/Modify Date and/or Time

1. Select **1** in screen **B**.
2. Enter the date, time, and day in **1**, **2**, and **3**.
3. Press **SEND**.
4. This message is displayed:
DATA SUCCESSFULLY TRANSMITTED
5. Press **F1** to leave the function.

C

- FILL IN APPROPRIATE FIELDS, THEN PRESS SEND

DATE (MM/DD/YY) ==> **1**

TIME (HH:MM) ==> **2**

DAY (1 TO 7) ==> **3**

1= SUNDAY, 2= MONDAY, 3=TUESDAY, 4=WEDNESDAY

5= THURSDAY, 6=FRIDAY, 7=SATURDAY

==>

F1:END F3:ALARM F6:QUIT

Figure 12-23. Set/Modify Date and/or Time Screen

Display/Update Scheduled Power-ON Data

1. Select **2** in screen **B**.
2. Enter the scheduled power-ON time in front of the appropriate day.
3. Enter **Y** or **N** in **1**.
4. Press **SEND**.
5. This message is displayed:
DATA SUCCESSFULLY TRANSMITTED
6. Press **F1** to leave the function.

Note: Do not forget to set:

POWER CONTROL = 2 (network)

at the control panel to enable the scheduled power-ON.

D

SCHEDULED POWER-ON DATA

- FILL IN, MODIFY, OR BLANK APPROPRIATE FIELDS, THEN PRESS SEND

SUNDAY (HH:MM) ==>

MONDAY (HH:MM) ==>

TUESDAY (HH:MM) ==>

WEDNESDAY (HH:MM) ==>

THURSDAY (HH:MM) ==> **07:30**

FRIDAY (HH:MM) ==>

SATURDAY (HH:MM) ==>

SCHEDULING ACTIVE (Y=YES, N=NO) ==> 1

==>

F1:END F3:ALARM F6:QUIT

Figure 12-24. Display/Update Scheduled Power-ON Data Screen

TIM Messages

Refer to the *3745 Advanced Operations Guide*, SA33-0097, for an explanation of the following messages which are common to customers and CE:

- DATA SUCCESSFULLY TRANSMITTED .
- ERROR WHILE TRANSMITTING DATA
- INVALID DATE
- INVALID INPUT
- OPERATION SUCCESSFULLY COMPLETED
- UNDEFINED F KEY

IPL In Maintenance Mode

In 'MENU 1', enter IPL in **1**. Screen **B** is displayed.

A

MENU 1

CONFIG DATA FILE.: CDF	IML ONE SCANNER.: IMS	PASSWORDS.....: PSW
CONTROL PGM PROC.: CPP	IPL CCU.....: IPL	PORT SWAP FILE...: PSF
DISK FUNCTIONS...: DIF	LD LINK TEST REQ.: LTO	
DISK IPL INFO...: DII	LD LINK TEST RESP.: LTS	SCANNER I/F TRACE: SIT
EVENT LOG DISPLAY: ELD	LINE INTERF DSPLY: LIO	STAND ALONE TEST.: SAT
	LINK IPL PORTS...: LKP	
INTERN. DATA FILE: IOF	MACHINE LVL TABLE: MLT	TIME SERVICES.....: TIM
IML MOSS.....: IML	MICROCODE FIXES...: MCF	TRSS INTERF DSPLY: TID
		WRAP TEST.....: WTT

ENTER OFF TO LOG OFF

==> **1**

F1:END F2:MENU2 F3:ALARM F5:MENU 3 F6:RULES

Figure 12-25. Menu 1 Screen

In **1**, enter 1 or 2 according to the following description:

- Normal mode** Normal customer mode as described in the *Advanced Operations Guide* manual.
- Step-by-step** The IPL will stop at the beginning of each phase (1, 2, 3, 4). 'STOP' is displayed in the MSA (next to the IPL phase field). To resume, press F5.

B

- SELECT AN IPL OPTION (1 TO 2) ==> **1**

1 = NORMAL
2 = STEP-BY-STEP

==>

F1:END F2:MENU2 F3:ALARM

Figure 12-26. IPL Function Screen (Maintenance Mode)

IPL



3745 Models 130, 150, and 170 Service Documentation

Product-Trained CE

Installation Guide SY33-2067 *	Provides instruction to install or relocate a 3745
--	--

Service Functions SY33-2069 *	Describes the MOSS functions used from a 3745 console
---	---

Maintenance Information Procedures SY33-2070 *	Provides procedures to isolate and fix a 3745 problem
---	---

Parts Catalog S135-2012 *	Provides reference information to order 3745 parts
----------------------------------	--

Channel Adapter OLTs D99-3745A	Provides procedures to run the CA OLTs on a 3745
--	--

Product-Support-Trained CE

Hardware Maintenance Reference SY33-2066 *	Provides in-depth hardware reference information
---	--

Diagnostic Descriptions SY33-2076	Describes the 3745 diagnostic programs
---	--

External Cable References SY33-2075 *	Provides references to console and line cables used for connecting a 3745
--	--

Service Master Index SY33-2079 *	Provides references to 3745 models 130, 150, and 170 shipping group documentation
---	---

* This manual is part of the shipping group.

List of Abbreviations

A	ampere	BPC2	bus propagation card to replace the TRM card
abend	abnormal end of task	bps	bits per second
AC	1) abandon call 2) address compare 3) alternating current	BR	bus request
ACB	adapter control block	BSC	binary synchronous communication
ACF	Advanced Communications Function	BT	branch trace
ACK	affirmative acknowledgment (BSC)	BTAM	Basic Telecommunications Access Method
ACR	1) add character register (instruction) 2) abandon call request	BTAM-ES	BTAM extended support
ACU	automatic calling unit	BZL	branch on Z latch (instruction)
AE	address exception	C	1) Celsius 2) control (X.21 signal)
AEK	address exception key	CA	channel adapter
AFD	airflow detector	CAB	channel adapter board
AGC	automatic gain control (signal)	CAC	common adapter code
AHR	add halfword register (instruction)	CACM	channel adapter concurrent maintenance
AIO	adapter-initiated operation	CAL	channel adapter logic card
ALC	Airlines Line Control	CADR	channel adapter driver receiver card
ALU	arithmetic and logic unit	CADRUk	channel adapter driver receiver type UK card
AMD	air moving device	CADS	channel adapter with data streaming
AR	add register (instruction)	CATPS	channel adapter with two-processor switch
ARI	add register immediate (instruction)	CB	circuit breaker
AS	autoselection chain	CCITT	Comite Consultatif International Telegraphique et Telephonique
ASCII	American National Standard Code for Information Interchange	CCMD	current command (storage)
AXB	adapter expansion block	CCN	communications controller node
B	branch (instruction)	CCR	compare character register (instruction)
BAL	branch and link (instruction)	CCU	central control unit
BALR	branch and link register (instruction)	CCW	channel command word
BB	branch on bit (instruction)	CD	carrier detector (signal)
BCC	block check character (BSC)	CDF	configuration data file
BCCA	buffer chaining channel adapter	CDG	concurrent diagnostic
BCCW	bit clock control word	CDS	configuration data set (NCP/EP)
BCD	binary-coded decimal notation	CE	customer engineer
BCL	branch on C latch (instruction)	CEPT	Comite Europeen des Postes et Telecommunications
BCT	branch on count (instruction)	CHCW	channel control word
BER	box event record	CHPID	channel path identification
B/M	bill of material		
BPC1	bus propagation card to replace the CAL card		

CHR	compare halfword register (instruction)	DB	data byte
CI	calling indicator (signal)	DC	1) data chaining (channel status) 2) direct current
CLDP	controller load/dump program	DCE	data circuit-terminating equipment
CMOS	complementary metal oxide semiconductor	DCF	diagnostic control function
CNM	communication network management	DCM	diagnostic control monitor
CNMI	communication network management interface	DCRLSD	data channel receive line signal detector (same as CD)
CNSL	console	DE	device end (channel status)
CONFWS	configuration switch	DFA	disk file adapter card
CP	1) communication processor, control program 2) circuit protector	DFI	defect-free installation
CPIT	control program information table	DIFF	differentiator
CPM	connection point manager	DLE	data link escape character
CPT	checkpoint trace	DLO	data line occupied (signal)
CR	1) compare register (instruction) 2) call request (signal)	DMA	direct memory access
CRC	cyclic redundancy check character	DMSW	direct memory access switch card
CRI	compare register immediate (instruction)	DMUX	double multiplex card for board on LIC unit 1
CRP	check record pool	DOI	duration of interrupt
CRQ	call request	DP	digit present (signal)
CRU	customer replaceable unit	DPR	digit present request
CS	1) cycle steal 2) communication scanner	DRA	duration of repair action
CSA	common subassembly	DRS	data rate select
CSCW	cycle steal control word	DRV	driver
CSG	cycle steal grant	DSC	distant station connected
CSGH	cycle steal grant high	DSR	data set ready (signal)
CSGL	cycle steal grant low (card)	DSRS	data signaling rate selection (signal)
CSP	communication scanner processor	DSU	data service unit (DCE-like for high-speed communication lines)
CSR	cycle steal request	DTE	data terminal equipment
CSRH	cycle steal request high	DTER	DMA bus terminator
CSRL	cycle steal request low	DTR	data terminal ready (signal)
CSS	control subsystem	DVB	device block
CSU	1) customer setup 2) customer service unit (DCE-like for high-speed communication lines)	DX	duplex
CSW	channel status word	EBCDIC	extended binary-coded decimal interchange code
CTS	clear to send (signal)	EC	engineering change
CW	control word	ECC	error checking and correction
CZ	carry/zero (latch)	EDE	elementary data exchange
DAF	destination address field (SNA)	ED/FI	error detection/fault isolation
		EIA	Electronic Industries Association
		EIB	error intermediate block
		ELCS	extended line communication status

EMEA	Europe, Middle East, Africa	hex	hexadecimal
ENQ	enquiry (BSC)	hh	hexadecimal value hh
EOT	end of transmission (BSC)	HLIR	high-level interrupt request
EP	emulation program	HLU	highest logical unit (largest CPU in an establishment)
EPO	emergency power-off	HPTSS	high-performance transmission sub-system
ERC	error reference code	HSB	high-speed buffer
EREP	environmental recording, editing, and printing (program)	HSC	high-speed channel
ERP	error recovery procedure	HSS	high-speed scanner
ESC	emulation subchannel (address)	HW	hardware
ESCH	emulation subchannel high (address)	Hz	Hertz
ESCL	emulation subchannel low (address)	I	indication (signal)
ESD	electrostatic discharge	IACK	interrupt acknowledgement
ETB	end-of-transmission block character (BSC)	IAR	instruction address register
ETX	end-of-text character (BSC)	IBE	internal box error
EXP	expected	IC	insert character (instruction)
FAC	flag address control (SDLC frame)	ICA	integrated communication adapter
FCC	Federal Communications Commission	ICB	interface control block (storage)
FCPS	final call progress signals (X.21)	ICF	internal clock function
FCS	frame check sequence	ICT	insert character and count (instruction)
FDD	flexible disk drive	ICW	interface control word
FDS	flat distribution system	ID	identifier
FDX	full-duplex (synonym for duplex)	IFT	internal function test
FE	field engineering	IMB	in mailbox (MOSS)
FEIS	field engineering information system	IML	initial microcode load
FERR	FESA error register	in.	inch
FES	front-end scanner	IN	input (instruction)
FESA	front-end scanner adapter	INN	intermediate network node
FESH	front-end scanner (high-speed)	INOP	inoperative (line, modem, or terminal)
FESL	front-end scanner (low-speed)	INS	information network system
FID4	format identification 4	IOC	input/output control
FM	frequency modulation	IO	input/output
FPS	FES parameter/status	IOCB	input/output control bus
FRU	field-replaceable unit	IOCS	input/output control system
ft	foot	IOH	input/output halfword (instruction)
GPR	general purpose register	IOHI	input/output halfword immediate (instruction)
GPT	generalized PIU trace	IOIRR	input/output interrupt request register
GTF	generalized trace facility	IOSW	input/output switch (card)
HCS	Hardware Central Service	IPF	instruction pre-fetch
HDD	hard disk drive	IPL	initial program load
HDX	half-duplex		

IPR	isolated pacing response (SNA)	LLB	local loopback
IR	interrupt request	LLIR	low-level interrupt request
IRR	interrupt request removed	LL2	link level 2 test
ISDN	integrated service digital network	LNVT	line vector table
ISL	inbound serial link	LOR	load with offset register (instruction)
ITB	intermediate text block (BSC)	LPDA	Link Problem Determination Aid
ITER	IOC bus terminator	LR	load register (instruction)
IVT	isolation verification tests	LRC	longitudinal redundancy check
K	1024 (bytes or words)	LRI	load register immediate (instruction) local storage
KBD	keyboard	LRU	least-recently used
kbps	kilobits per second	LS	local storage
kg	kilogram	LSAR	local storage address register
kHz	kilohertz	LSI	large scale integration
ko	not ok	LSR	local storage register (CSP)
L	load (instruction)	LSS	low-speed scanner
LA	1) load address (instruction) 2) line adapter	LSSD	level-sensitive scan design
LAB	line adapter board	LT	local test
LAN	local area network	LU	logical unit
LAP	line adapter processor	m	meter
LAR	lagging address register	mA	milliampere
LCB	line control block (storage)	MAC	MOSS adapter card
LCD	line control definer (storage)	MAP	maintenance analysis-procedure
LCOR	load character with offset register (instruction)	Mb	megabyte; 1 048 576 bytes
LCR	load character register (instruction)	MCA	MOSS console adapter card
LCS	line communication status (storage)	MCPC	machine check/program check
LDF	line description file	MCC	MOSS control card
LED	light-emitting diode	MCF	microcode fix
LERR	line error register/driver check	MCT	machine configuration table
LH	load halfword (instruction)	MDOR	MOSS data operand register
LHOR	load halfword with offset register (instruction)	MDR	miscellaneous data record
LHR	load halfword register (instruction)	MERR	MUX error
LIB	line interface buffer	MES	miscellaneous equipment specification
LIB1	LIC board type 1 for LICs 1, 3, and 4	MFM	modified frequency modulation
LIC	line interface coupler card	MHz	megahertz
LIC1	line interface coupler type 1 (card)	MICB	MOSS interface control block
LIC3	line interface coupler type 3 (card)	MIM	Maintenance Information Manual
LIC4	line interface coupler type 4 (card)	min	minute
LID	line interface display	MIO	MOSS input/output
LIU	line interface coupler unit	MIOC	MOSS I/O control bus
LIU1	LIC unit 1 for LICs type 1, 3, and 4	MIOH	MOSS input/output halfword

MIOHI	MOSS input/output halfword immediate	NS	new sync (signal)
MIP	Maintenance Information Procedures	ns	nanosecond
MIR	Maintenance Information Reference	NSC	native subchannel (address)
MIT	MOSS interface table	NTO	Network Terminal Option
MLC	machine level control	NTT	Nippon Telegraph and Telephone (Japanese PTT)
MLT	machine load table	oc	overcurrent
mm	millimeter	OCR	OR character register
MMIO	memory mapped input/output	ODG	offline diagnostic
MOD	modifier	OEM	original equipment manufacturer
MOSS	maintenance and operator subsystem	OEMI	original equipment manufacturer's interface
MPC	MOSS processor card	OHR	OR halfword register
MPS	multiple port sharing	OLT	online test
ms	millisecond	OLTEP	online test executive program
MSA	machine status area	OLTSEP	online test stand-alone execution (program)
MSA	multistation access unit	OLTS	online test system
MSC	MOSS storage card	OLTT	online terminal test
MSD	machine status display	OMB	out mailbox
MUX	multiplex function	OP	operation decode
mV	millivolt	OR	OR register (instruction)
NAK	negative acknowledgment character (BSC)	ORI	OR register immediate (instruction)
NCCF	Network Communications Control Facility	OS	Operating System
NCP	Network Control Program	OSL	outbound serial link
NCR	AND character register (instruction)	OUT	output (instruction)
NCTE	network communication terminal equip- ment	ov	overvoltage
NHR	AND halfword register (instruction)	PAC	power analog card
NLDM	Network Logical Data Manager	PAP	previous adapter present
NMPF	network management program facilities	PAR	problem analysis and repair
NMVT	network management vector transport	PC	personal computer
NO-OP	no-operation instruction	PCB	power control bus
NOSP	network operation support program (VTAM) <D> Use storage	PCF	primary control field (storage)
NPDA	Network Problem Determination Appli- cation	PCI	program-controlled interrupt
NPM	NetView performance monitor	PCR	power check reset
NPSI	network packet switching interface	PCSS	power control subsystem
NR	AND register (instruction)	PCW	processor control word
NRI	AND register immediate (instruction)	PCWC	power control wrap card
NRZI	see NRZ-1	PD	problem determination
NRZ-1	non return-to-zero change on ones recording	PDAID	problem determination aids
		PDB	power distribution board
		PDF	parallel data field (storage)

PE	Product Engineering	REQMS	request for maintenance statistics
PEP	partitioned emulation program	RETAIN	Remote Technical Assistance Information Network
PF	programmable function	RFS	ready for sending (signal) (or clear to send CTS)
PFAR	prefetch address register	RH	request/response header
PI	power indication (signal)	RI	1) register to immediate operand (instruction) 2) ring indicator (same as CI)
PIO	program-initiated operation	RIM	request initialization mode (SDLC)
PIRR	program interrupt request register	RLSD	receive line signal detector
PIU	pass information unit	RNIO	OS/VS VTAM IO trace
PLC	power logic card	ROK	read-only key
P/N	part number	ROS	read-only storage
PND	present next digit (signal)	ROSAR	read-only storage address register
POPR	prefetch operation register	rpm	revolutions per minute
POR	power-on reset	RPO	remote power-off
PROM	programable read-only memory	RPQ	request for price quotation
PS	power supply	RR	register-to-register (instruction)
PSA	program status area	RS	register-to-storage (instruction)
PSS	power subsystem	RSA	register-to-storage with addition (instruction)
PSTCE	product support trained CE	RSET	receive signal element timing (same as RC)
PSTY	power supply type	RSF	remote support facility
PSV	program status vector	RTC	retry count (X.21)
PSW	program status word	RTM	retry timer (X.21)
PSx	power supply type x	RTS	request to send (signal)
PTCE	product-trained CE	RU	request/response unit (SNA)
PTER	power bus terminator	RVI	reverse interrupt (BSC)
PTF	program temporary fix	R/W	read/write
PTT	Post, Telephone and Telegraph (agency)	s	second
PTX	phototransistor	SAC	storage and control board assembly
PU	physical unit	SACL	storage and control lower assembly
PV	parity valid (signal)	SACU	storage and control upper assembly
QAM	quadrature amplitude modulation	SALT	stand-alone link test
RA	repair action	SAR	storage address register
RAC	repair action code	SCB	scanner control block (storage)
RAS	reliability, availability, and serviceability	SCF	secondary control field (storage)
RC	receive clock	SCP	signal converter product (or DCE)
RCDB	reference code data base	SCR	1) subtract character register (instruction) 2) serial clock receive (signal)
RCV	receive	SCT	serial clock transmit (signal)
RD	receive data (signal)		
RDB	reference code data base		
RECFMS	record formatted maintenance statistics		
RECMS	record maintenance statistics		

SCTL	storage control card	STO	storage (card)
SD	send data (signal)	STX	start of text (BSC)
SDF	serial data field (storage)	SVC	supervisor call
SDLC	Synchronous Data Link Control	SW	switch
SE	system engineer	SYN	synchronous idle (BSC)
SES	secondary status (storage)	SYSGEN	system generation
SET	signal element timing (signal)	T	transmit (signal)
SHM	short hold mode	TA	tag address
SHR	subtract halfword register (instruction)	TAP	trace analysis program
SIDI	serial in data in	TAR	temporary address register
SIM	set initialization mode (SDLC)	TB	terminator block
SIO	start input/output	TC	transmit clock
SIT	scanner internal trace	TCAM	Telecommunications Access Method
SKA	storage key address	TCB	task control block
SKDR	storage-protect key data register	TCC	trace correlation counter (storage)
SL	serial link	TCM	thermally-controlled module
SMPS	switching module power supply	TCP	test connector pin
SMUXA	single multiplex card for lower board on LIC 2	TCS	two-channel switch
SMUXB	single multiplex card for upper board on LIC 2	TCTR	transient error counter
SNA	Systems Network Architecture	TD	1) tag data 2) transmitted data (signal)
SNRM	set normal response mode (SDLC)	TERM	terminator
SODO	serial out data out	TG	transmission group
SOH	start of heading (BSC)	TH	transmission header
SP	storage protect	TI	test indicator (signal)
SPAE	storage protect/ address exception	TICB	trace interface control block
SPK	storage protect key	TIO	test I/O
SR	subtract register (instruction)	TLNVT	trace line vector table
SRI	subtract register immediate (instruction)	TOD	time of day
SRL	shift register latch	TPS	two-processor switch
SS	start-stop	TPSA	trace parameter status area
SSB	system status block	TRA	token-ring adapter
SSCP	system services control point	TRM	1) token-ring multiplexer card that controls up to two TICs 2) test register under mask (instruction)
SSP	system support programs	TRSS	token-ring subsystem
ST	store (instruction)	TRU	trace record unit
STC	store character (instruction)	TSET	transmitter signal element timing (signal, same as TC)
STCT	store character and count (instruction)	TSS	transmission subsystem
STER	switch terminator	TTA	translate table area
STH	store halfword (instruction)	TTD	temporary text delay (BSC)
STG	storage		

T1	US service for very high speed transmissions at 1.5 million bps	VTAM	Virtual Telecommunications Access Method
UA	unnumbered acknowledgment (SDLC)	V.24	CCITT V.24 recommendation
UC	universal controller	V.25	CCITT V.25 recommendation
UCW	unit control word	V.28	CCITT V.28 recommendation
UE	unit exception (channel status)	V.35	CCITT V.35 recommendation
UEPO	unit emergency power-off	W	watt
UK	United Kingdom	WACK	wait before transmit positive acknowledgment (BSC)
UKA	user key address	WB	wrapback (signal)
UKP	user key program	WKR	work register
UKDR	user key data register	WSDR	wide storage data register
UKL	user key level interrupt	XI	X.25 SNA interconnection
URSF	universal remote support facility	XID	exchange identification
USASCII	(see ASCII)	XCR	exclusive OR character register (instruction)
us	microsecond	XHR	exclusive OR halfword register (instruction)
uv	undervoltage	XOR	exclusive OR
V	volt	XR	exclusive OR register (instruction)
VB	valid byte (signal)	XREG	external registers
Vac	volts, alternating current	XRI	exclusive OR register immediate (instruction)
VCNA	VTAM node control application	X.21	CCITT X.21 recommendation
V dc	volts, direct current	X.25	CCITT X.25 recommendation
VFO	variable frequency oscillator	YZxxx	wiring diagram
VH	valid halfword (signal)	ZI	zero insert
VPD	vital product data	ZREG	Z register
VRC	vertical redundancy check		
VS	virtual storage		

Glossary

This glossary defines all new terms used in this manual. It also includes terms and definitions from the *IBM Dictionary of Computing*, GC20-1699.

adapter-initiated operation (AIO). A transfer of up to 256 bytes between an adapter (CA or LA) and the CCU storage. The transfer is initiated by an IOH/IOHI instruction, and is performed in cycle stealing via the IOC bus.

addressing. A technique where the control station selects, among the DTEs that share a transmission line, the DTE to which it is going to send a message.

alarm. A message sent to the MOSS console. In case of an error a reference code identifies the nature of the error.

alert. A message sent to the host console. In case of an error a reference code identifies the nature of the error.

asynchronous transmission. Transmission in which each character is individually synchronized, usually by the use of start and stop elements. The start-stop link protocol, for example, uses asynchronous transmission. Contrast with *synchronous transmission*.

auto-answer. A machine feature that allows a DCE to respond automatically to a call that it receives over a switched line.

auto-call. A machine feature that allows a DCE to initiate a call automatically over a switched line.

autoBER. A program to automatically analyse a BER file.

automaint. A function that uses autoBER to isolate failing FRUs.

availability. The degree to which a system or resource is ready when needed to process data.

Bell 212A. Bell recommendations on transmission interface

binary synchronous communication (BSC). A uniform procedure, using standardized set of control characters and character sequences, for synchronous transmission of binary-coded data between stations.

box event record (BER). Information about an event detected by the controller. It is recorded on the disk/diskette and can be displayed on the operator console for event analysis.

block multiplexer channel. A multiplexer channel that interleaves blocks of data. See also *byte multiplexer channel*. Contrast with *selector channel*.

buffer chaining channel adapter (BCCA). A channel adapter operating in data streaming protocol that handles buffer chaining in write channel program, and both buffer chaining and PIU chaining in read channel program. BCCA supports only the NCP data traffic. The EP lines under PEP are not supported.

byte multiplexer channel. A multiplexer channel that interleaves bytes of data. See also *block multiplexer channel*. Contrast with *selector channel*.

cache. A high-speed buffer storage that contains frequently accessed instructions and data; it is used to reduce access time.

central control unit (CCU). In the 3745, the controller hardware unit that contains the circuits and data flow paths needed to execute instructions and to control its storage and the attached adapters.

channel. A one-way path between a host and the controller.

channel adapter (CA). A communication controller hardware unit used to attach the controller to a host processor.

channel interface. The interface between the controller and the host processors.

clear channel. Mode of data transmission where the data passes through the DCE and network, and arrives at the receiving communication controller (for example, the IBM 3745) unchanged from the data transmitted. The DCE or network can modify the data during transmission because of certain network restrictions, but must ensure the received data stream is the same as the transmitted data stream.

command list. In NetView, a sequential list of commands and control statements that is assigned a name. When the name is invoked (as a command) the commands in the list are executed.

communication common carrier. In the USA and Canada, a public data transmission service that provides the general public with transmission service facilities. For example, a telephone or telegraph company (see also *Post Telephone and Telegraph* for countries outside the USA and Canada).

communication controller. A communication control unit that is controlled by one or more programs

stored and executed in the unit. Examples are the IBM 3705, IBM 3725/3726, IBM 3720, and IBM 3745.

communication network management (CNM) application program. An ACF/VTAM application program authorized to issue formatted management services request units containing physical-unit-related requests and to receive formatted management services request units containing information from physical units.

communication scanner. See *scanner*.

communication scanner processor (CSP). The processor of a scanner.

communication subsystem. The part of the controller that controls the data transfers over the transmission interface.

configuration data file (CDF). A MOSS file that contains a description of all the hardware features (presence, type, address, and characteristics).

control panel. A panel that contains switches and indicators for the use of the customer's operator and service personnel.

control program. A computer program designed to schedule and to supervise the execution of programs of the controller.

control subsystem (CSS). The part of the controller that stores and executes the control program, and monitors the data transfers over the channel and transmission interfaces.

customer engineer (CE). See *IBM service representative*

cyclic redundancy check. A system of error checking performed at both the sending and receiving station after a block check character has been accumulated.

cyclic redundancy check character (CRC). A character used in a modified cyclic code for error detection and correction.

data circuit-terminating equipment (DCE). The equipment installed at the user's premises that provides all the functions required to establish, maintain, and terminate a connection, and the signal conversion and coding between the data terminal equipment (DTE) and the line. For example, a modem is a DCE (see *modem*.)

Note: The DCE may be separate equipment or an integral part of other equipment.

data communication channel. See *channel*.

data host. A host running application programs only.

data terminal equipment (DTE). That part of a data station that serves as a data source, data link, or both, and provides for the data communication control function according to protocols.

DIN. Technology of connector contacts.

direct attachment. The attachment of a DTE to another DTE without a DCE.

direct-current interlock (DCI). A mode of data transfer over an I/O interface to enable communication between data processing systems through a channel.

diskette. A thin, flexible magnetic disk, and its protective jacket, that records diagnostics, microcode, and 3745 files.

diskette drive. A mechanism that reads and writes diskettes.

DOS/VS. Disk Operating System/Virtual Storage.

duplex transmission. Data transmission in both directions at the same time. Contrast with *half-duplex*.

Emulation Program (EP). An IBM licensed program that allows a channel-attached communication controller to emulate the functions of an IBM 2701 Data Adapter Unit, an IBM 2702 Transmission Control, or an IBM 2703 Transmission Control.

error recovery procedure (ERP). A procedure designed to help isolate and, where possible, to recover from errors in equipment. The procedures are often used in conjunction with programs that record the information on machine malfunctions.

front-end scanner (FES). A circuit that scans the transmission lines, serializes and deserializes the transmitted characters, and manages the line services. It is part of the scanner.

FRU level. A value (used by PE) indicating the level of the FRU

half-duplex. Data transmission in either direction, one direction at a time. Contrast with *duplex*.

high-performance transmission subsystem (HPTSS). The part of the controller that controls the data transfers over the high-speed transmission interface (speed up to 2 million bps).

high-speed scanner. Line adapter for lines up to 2 million bps, composed of a communication scanner processor (CSP) and a front-end high-speed scanner (FESH).

high-speed transfer. A mode of high-speed data transmission over an I/O interface to enable communication between data processing systems through a channel.

hit. In cache operation, indicates that the information is in the cache storage.

host processor. (1) A processor that controls all or part of a user application network. (2) In a network, the processing unit in which the access method for the network resides. (3) In an SNA network, the processing unit that contains a system services control point (SSCP). (4) A processing unit that executes the access method for attached communication controllers. Also called *host*.

IBM service representative. An individual in IBM who performs maintenance services for IBM products or systems.

initial microcode load (IML). The process of loading the microcode into a scanner or into MOSS.

initial program load (IPL). The initialization procedure that causes 3745 control program to commence operation.

input/output control (IOC). The circuit that controls the input/output from/to the channel adapters and scanners via the IOC bus.

internal clock function. A LIC function that provides a transmit clock for sending data, and retrieves a receive clock from received data, when the modem does not provide those timing signals. When the terminal is connected in direct-attach mode (without modem) the ICF also provides the transmit and receive clocks to the terminal, via the LIC card.

internal function test (IFT). A set of diagnostic programs designed and organized to detect and isolate a malfunction.

LIC module. A group of four adjacent LICs.

LIC unit. A line interface coupler unit (LIU) consisting of:

- One power supply (PS) associated with
- Two line interface boards (LIBs), housing
- Multiplex cards (DMUX, SMUXA, or SMUXB), and
- Line interface coupler cards (LICs)

line. See *transmission line*.

line adapter (LA). The part of the TSS, HPTSS, or TRSS that scans and controls the transmission lines. Also called *scanner*.

For the TSS the line adapters are low-speed scanners (LSSs).

For the HPTSS the line adapters are high-speed scanners (HSSs).

For the TRSS the line adapters are token-ring adapters (TRAs).

line interface coupler (LIC). A circuit that attaches up to four transmission cables to the controller.

Link Problem Determination Aid (LPDA). A set of test facilities resident in the IBM 386X/586X modems and activated from the control program in the controller and from host.

link protocol. The set of rules by which a logical data link is established, maintained, and terminated, and by which data is transferred across the link.

Logrec. Error logging program managed via the operating system.

longitudinal redundancy check (LRC). A system of error checking performed at the receiving station after a block check character has been accumulated.

low-speed scanner. Line adapter for lines up to 256 kbps, composed of a communication scanner processor (CSP) and a front-end low-speed scanner (FESL).

maintenance and operator subsystem (MOSS). The part of the controller that provides operating and servicing facilities to the customer's operator and the IBM service representative.

microcode. A program, that is loaded in a processor (for example, the MOSS processor) to replace a hardware function. The microcode is not accessible to the customer.

miss. In cache operation, indicates that the information is not in the cache storage.

modem (modulator-demodulator). A functional unit that transforms logical signals from a DTE into analog signals suitable for transmission over telephone lines (modulation), and conversely (demodulation). A modem is a DCE. It may be integrated in the DTE.

MOSS input/output control (MIOC). The circuit that controls the input/output from/to the MOSS.

multiplexer channel. A channel designed to operate with a number of I/O devices simultaneously. Several I/O devices can transfer records at the same time by

interleaving items of data. See also *byte multiplexer*, *block multiplexer*.

multiplexing. In data transmission, a function that permits two or more data sources to share a common transmission medium so that each data source has its own channel.

multipoint connection. A connection established for data transmission among more than two data stations. The connection may include switching facilities.

NetView. An IBM licensed program used to monitor a network, manage it, and diagnose its problems.

network. See *user application network*.

Network Control Program (NCP). An IBM licensed program that provides communication controller support for single-domain, multiple-domain, and inter-connected network capability.

nonswitched line. A connection between systems or devices that does not have to be made by dialing. The connection can be point-to-point or multipoint. The line can be leased or private. Contrast with *switched line*.

online tests. Testing of a remote data station concurrently with the execution of the user's programs (that is, with only minimal effect on the user's normal operation).

Operating System/Virtual Storage (OS/VS). A family of operating systems that control IBM System/360 and System/370 computing systems. OS/VS includes VS1, VS2, MVS/370, and MVS/XA:

operator console. The IBM Operator Console that is used to operate and service the 3745 through the MOSS. A local console must be located within 7 m of the 3745. Optionally an alternate console may be installed up to 120 m from the 3745, or a remote console may be connected to the 3745 through the switched network.

owning host. A host which can IPL a 3745 and also run application programs.

partitioned emulation programming (PEP) extension. A function of a network control program that enables a communication controller to operate some telecommunication lines in network control mode while simultaneously operating others in emulation mode.

phototransistor. An electronic part used to sense the light of a light-emitting diode.

point-to-point connection. A connection established between two data stations for data transmission. The connection may include switching facilities.

polling. The process whereby remote stations are invited, one at a time, to transmit.

post telephone and telegraph (PTT). A generic term for the government-operated common carriers in countries other than the USA and Canada. Examples of the PTT are British Telecom in the United Kingdom, Deutsche Bundespost in Germany, and Nippon Telephone and Telegraph Public Corporation in Japan.

program-initiated operation (PIO). A transfer of four bytes between a general register in the CCU and an adapter (channel or scanner). The transfer is initiated by IOH/IOHI instruction and is executed via the IOC bus.

reliability. The ability of a functional unit to perform a required function under stated conditions, for a stated period of time.

scanner. A device that scans and controls the transmission lines. Also called *line adapter*.

selector channel. An I/O channel designed to operate with only one I/O device at a time. Once the I/O device is selected, a complete record is transferred one byte at a time. Contrast with *block multiplexer channel*, *multiplexer channel*.

services. A set of functions designed to facilitate the maintenance of a device or system.

serviceability. The capability to perform effective problem determination, diagnosis, and repair on a data processing system.

single. Configuration with one CCU.

start-stop. A data transmission system in which each character is preceded by a start signal and is followed by a stop signal.

switched line. A transmission line with which the connections are established by dialing, only when data transmission is needed. The connection is point-to-point and uses a different transmission line each time it is established. Contrast with *nonswitched line*.

Synchronous Data Link Control (SDLC). A discipline conforming to subsets of the Advanced Data Communication Control Procedures (ADCCP) of the American National Standards Institute (ANSI) and High-level Data Link Control of the International Organization for Standardization, for managing synchronous, code-transparent, serial-by-bit information transfer over a link connection. Transmission exchanges may be duplex or half-duplex over switched or nonswitched links. The configuration of the link connection may be point-to-point, multipoint, or loop.

synchronous transmission. Data transmission in which the sending and receiving instruments are operating continuously at substantially the same frequency and are maintained, by means of correction, in a desired phase relationship. Contrast with *asynchronous transmission*.

Systems Network Architecture (SNA). The description of the logical structure, formats, protocols, and operational sequences for transmitting information through a user application network. The structure of SNA allows the users to be independent of specific telecommunication facilities.

time out. The time interval allotted for certain operations to occur.

token-ring subsystem (TRSS). The part of the controller that controls the data transfers over an IBM Token-Ring Network.

The TRSS consists of up to four token-ring adapters (TRAs).

token-ring adapter (TRA). Line adapter for an IBM Token-Ring Network, composed of one token-ring multiplexer card (TRM), and two token-ring interface couplers (TICs).

The TRSS consists of up to four token-ring adapters (TRAs).

transmission interface. The interface between the controller and the user application network.

transmission line. The physical means for connecting two or more DTEs (via DCEs). It can be nonswitched or switched. Also called *line*.

transmission subsystem (TSS). The part of the controller that controls the data transfers over low- and medium-speed, switched and non switched transmission interfaces.

The TSS consists of:

- Up to 8 low-speed scanners (LSSs) associated with
- LIC units (LIUs), through
- Serial links (SLs).

TSST board. Line adapter board for token-ring adapters.

two-processor switch (TPS). A feature of the channel adapter that connects a second channel to the same adapter.

user application network. A configuration of data processing products, such as processors, controllers, and terminals, for the purpose of data processing and information exchange. This configuration may use circuit-switched, packet-switched, and leased-circuit services provided by carriers or the PTT. Also called *user network*.

vertical redundancy check (VRC). An odd parity check performed on each character of a block as the block is received.

V.24,25,35. EIA/CCITT recommendations on transmission interfaces.

X.20 bis, 21, 21 bis, 21 native, 25. CCITT recommendations on transmission interfaces.



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