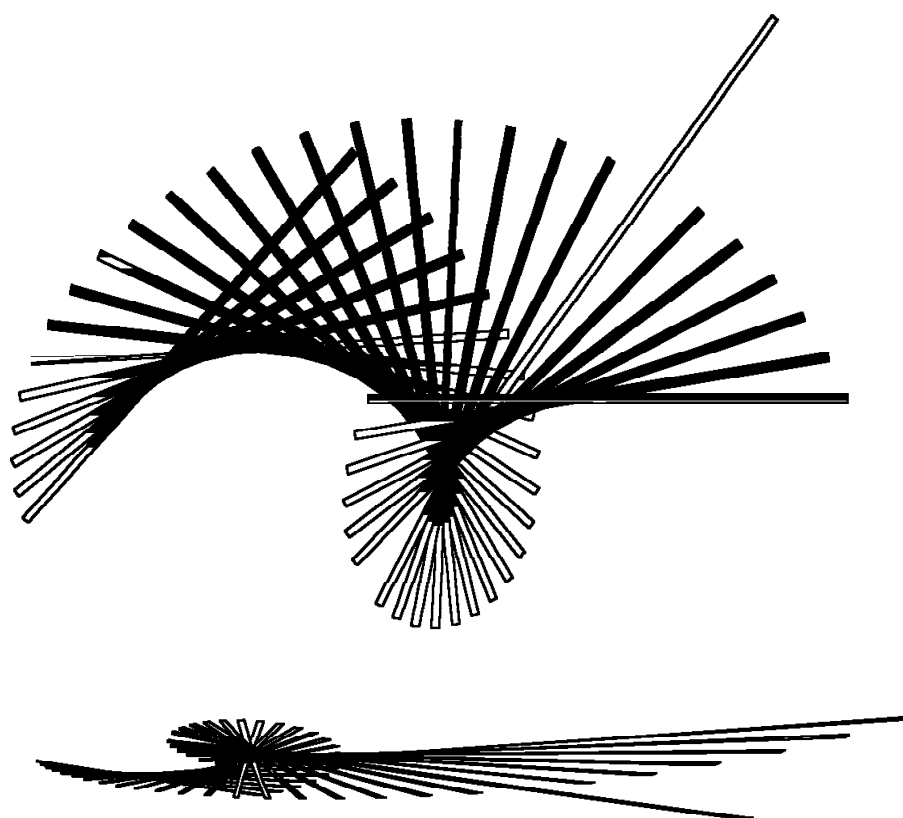


3745 Communication Controller  
Models 130, 150, 160, and 170



# Service Functions





3745 Communication Controller  
Models 130, 150, 160, and 170



# Service Functions

**Note!**

Before using this information and the product it supports, be sure to read the general information under "Notices" on page v.

**Fourth Edition (April 1992)**

The information contained in this manual is subject to change from time to time. Changes have been made throughout this edition, and this manual should be read in its entirety.

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## About This Book

This section defines the audience of the book, provides general information on how to use the book, and indicates where you may find additional information.

---

## Who Should Use This Book

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

Chapter 1 contains the procedure to access the MOSS screen starting from the initial panel. It also contains general information and the description of the machine status area (MSA), common to all screens.

Some chapters start with a *road map*. Its purpose is to help the user navigate in the corresponding part:

1. Select the line corresponding to the action you want to perform.
2. Select the column corresponding to the part of the machine.

The intersection points to the place where the procedure is described.

The operator panel procedures are not given in this manual.

---

## 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, 160, and 170 Maintenance Information Procedures (MIP)*, SY33-2070.

A 3745 Models 130/150/160/170 Service Documentation Bibliography is provided in "Bibliography" on page X-1.

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

- *3745 Advanced Operations Guide*, SA33-0097
- *3745 Basic Operations Guide*, SA33-0098
- *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 Intregation Guide*, SA33-0141
- *3745 Maintenance Information Procedures (MIP)*, SY33-2070
- *3745 Hardware Maintenance Reference (HMR)*, SY33-2066
- *3745 Parts Catalog*, S135-2012
- *3745 Principles of Operations*, SA33-0102
- *3745 Problem Determination Guide*, SA33-0096
- *3745 Console Setup Guide*, SA33-0158
- *3745 IBM Products Safety Handbook*, GA33-0126
- *3745 IBM Service Manual Index*, SY33-2079.

---

## Summary of Changes

The following changes have been made in this book:

- The functions related to the Ethernet adapter have been added. The main impact is on Chapters 4 (TSS Functions) and 9 (CDF Functions), and to a lesser extent Chapters 3 (Diagnostics) and 12 (Miscellaneous Functions).

**Note:** Some panels have been modified to add the new adapter in the procedures. Depending on the microcode level of your machine, some panels may differ slightly from those described but this does not affect the procedures.

- The information related to the Model 160 have been added. The main impact is on Chapter 9 (CDF Functions),



---

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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	--	--	--	--	--
ESS	9	--	--	--	9	4	--	--	4	--	9	--
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	--	--	--

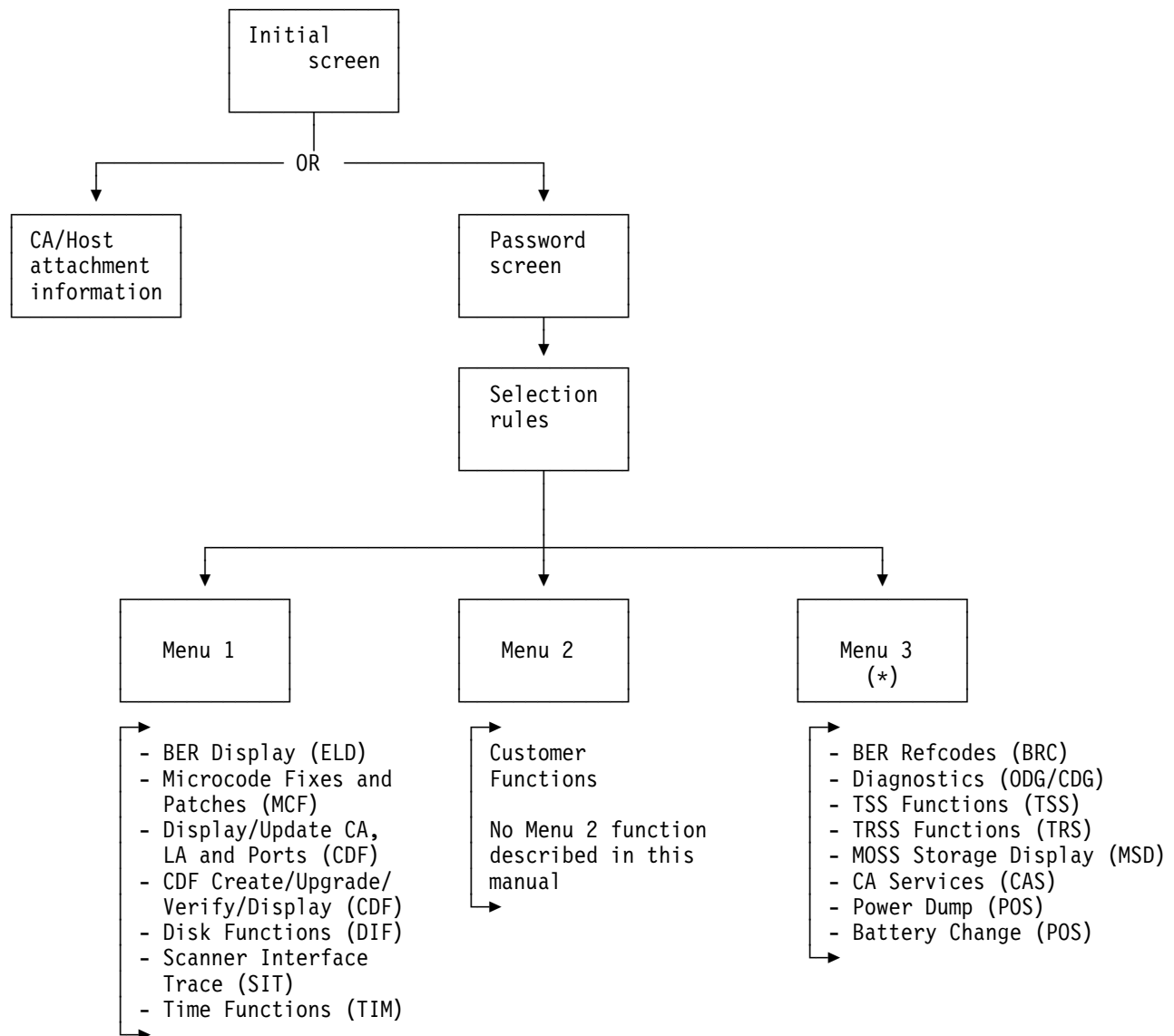
More detailed 'Road Maps' are provided at the beginning of chapters 4, 5, and 9.

---

## Where to Go

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

## 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

CA INTERFACE DISPLAY

INTERFACE NUMBER	CHANGE E/D REQ	E/D REQUEST	INTERFACE STATUS	HOST OR SWITCH UNIT	CHANNEL ADDRESS	NSC ADDRESS
1A		-				
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>B</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		
<b>ENTER PASSWORD</b>	====>	<b>1</b>
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).

<b>C</b> <b>FUNCTION SELECTION RULES</b>	
- 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: 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		-				
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 1-4. Channel Adapter Status Screen

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

To update the **CA parameters**, refer to "Display/Update Channel Adapters" on page 9-17.

**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)	==> <b>1</b>	==> <b>3</b>
CHANNEL ADDRESS OR CHPID (8 CHARACTERS MAX)	==> <b>2</b>	==> <b>4</b>

====>

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

<b>CUSTOMER ID</b>	Customer identification, permanently displayed (16 characters). This information is entered by the customer, using the <b>password management</b> function.
<b>MACHINE TYPE</b>	<b>3745-xxx</b> where xxx indicates the model.
<b>SERIAL NUMBER</b>	Machine serial number of the 3745 (7 characters). Permanently displayed. This information is entered by manufacturing, or when formatting a new disk.
<b>MACHINE STATUS AREA</b>	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 ( <b>not the actual configuration of your machine</b> ), according to the model. You may refer to "General Information" in the <i>Hardware Maintenance Information</i> for a description of the different models.
<b>FUNCTION ON SCREEN</b>	When a function is displayed, the name of the function is written next to it.
<b>FUNCTION PENDING</b>	When a function is pending, its name is written next to it.
<b>FUNCTION AREA</b>	Function display and operator input. This area includes the different menus (customer and FE/CE).
<b>MESSAGE AREA</b>	Operator control and function messages are displayed in that area.
<b>ALARM AREA</b>	The first alarm is displayed and the following ones are queued (up to five alarms can be queued). <ul style="list-style-type: none"> <li>• When there is no alarm, the word <b>ALARM</b> does not appear.</li> <li>• When there is more than one alarm, the word <b>ALARM</b> is blinking.</li> <li>• Pressing <b>F3</b> displays the next alarm.</li> </ul> <p>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 <i>3745 Problem Determination</i> manual, SA33-0145.</p>
<b>F KEY LINE</b>	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

<b>OFF (Log OFF)</b>	Disconnection from MOSS.  <b>Note:</b> You <b>cannot</b> use <b>OFF</b> while a function is active or pending; press <b>F1</b> to terminate it.
<b>F1 (END)</b>	If a function is running, pressing <b>F1</b> terminates that function. The previous screen is displayed.
<b>F3 (ALARM)</b>	<ol style="list-style-type: none"><li>1. Erases the displayed alarm (if any) from the alarm area.</li><li>2. Displays the next alarm still in queue.</li></ol> <b>Note:</b> Please note all information, especially the reference code, before erasing the alarm. This information can still be found by displaying the BERs.
<b>F6 (QUIT)</b>	Return to the previous screen, in the same function. Not available in the first screen of a function; in this case, use F1: END.
<b>F7 (FORWARD)</b>	Allows going to the next screen
<b>F8 (BACKWARD)</b>	Allows going back to the previous screen  <b>Note:</b> 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:

<b>SEND</b>	The key pressed to confirm the data just typed in. Sometimes known as the <b>ENTER</b> key.
<b>BREAK</b>	The key pressed to interrupt the automatic transmission, in order to communicate directly with the system (also known as <b>ATTN</b> or <b>INTER-RUPT</b> key). This key is also used to stop the refresh of the MSA.
<b>Fn</b>	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

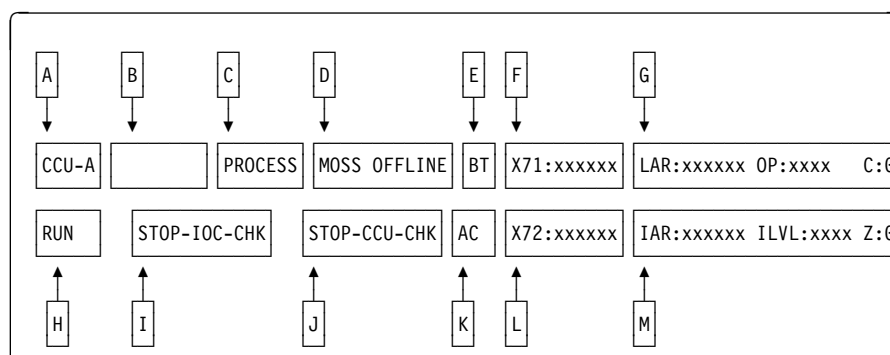


Figure 1-9. Fields of the CCU Information in the MSA

**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 <b>online</b>	X'000'
MOSS IML	MOSS <b>alone</b> if CP is not loaded MOSS <b>offline</b> if CP is loaded	X'F0E' X'F0F'
CCU/scanner IPL	MOSS <b>online</b>	X'000'
Step-by-step IPL	MOSS <b>online</b>	X'000'
Bypass phase 1 IPL	MOSS <b>online</b>	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.

<b>STOP-BT</b>	The control program stopped because the branch trace function initiated with CCU stop has become deactivated.
<b>STOP-PGM</b>	The control program stopped because you initiated the CCU stop or set I-STEP function.
<b>STOP-X70</b>	The control program stopped on an output X'70' instruction executed by the control program.

**Field I**

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

**Field J**

CCU check mode:

<b>BYP-CCU-CHK</b>	You initiated the function set bypass CCU check so the system will not stop on a CCU check.
<b>STOP-CCU-CHK</b>	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:

<b>AC HIT</b>	(highlighted) A single-address compare or double-address compare was successful.
<b>AC HIT12</b>	(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.

<b>X72=xxxxxx</b>	Contents of CCU X'72' output register.
<b>X72=00xxxx</b>	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).
<b>X72=ERROR</b>	Error when accessing the register. Register contents cannot be displayed.

**Field M**

See field 'G' description.

### MSA Field Definition (Scanner Information)

CUSTOMER ID:	3745	SERIAL NUMBER:
CCU-A	PROCESS MOSS OFFLINE	
RUN	BYP-IOC-CHK STOP-CCU-CHK	
SCANNER 3	INITIALIZED	

Figure 1-10. MSA Example with TSS Information

CUSTOMER ID: 3745 SERIAL NUMBER:

CCU-A PROCESS MOSS OFFLINE  
RUN BYP-IOC-CHK STOP-CCU-CHK

SCANNER 3 INITIALIZED

↑

N

↑

O

↑

P

↑

Q

↑

R

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** yyyyyyyyyyyy Where xx is the number of the selected scanner (1 to 12), and yyyyyyyyyyyy 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

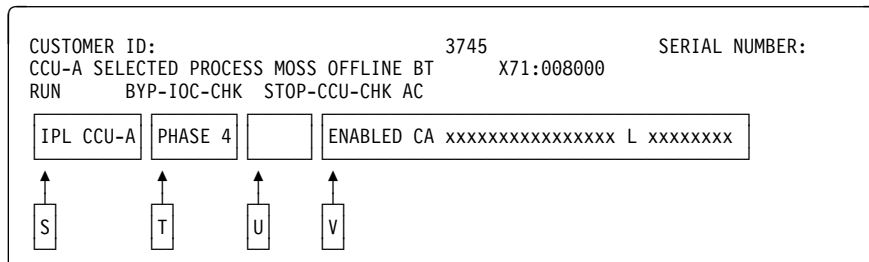


Figure 1-14. Fields of the IPL Information in the MSA

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** Unusable 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. xxxxxxxx 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

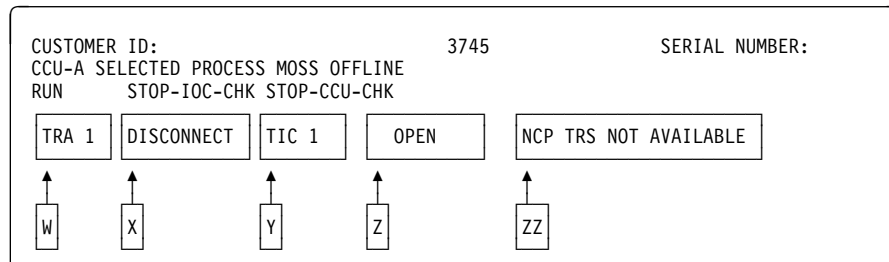


Figure 1-16. Fields of the TRSS Information in the MSA

**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.



<b>RESET</b>	Reset by the NCP but not yet initialized.
<b>INITIALIZED</b>	Initialized but not yet <b>open</b> or <b>disabled</b> . Initialization parameters have been passed to the TIC by the NCP.
<b>OPEN</b>	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.
<b>CLOSED</b>	The TIC has been opened since initialization, but has since been closed (by the host).
<b>FROZEN</b>	An error was detected by the NCP and the following actions were taken by the NCP: <ul style="list-style-type: none"> <li>• Interrupts from this TIC are disabled.</li> <li>• DMA from this TIC is disabled.</li> <li>• The TIC is reset.</li> </ul>
<b>DISABLED</b>	The associated TRA has been disconnected by the MOSS. The NCP will send no PIO to this TIC.
<b>(blank)</b>	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:

<i>Table 1-1. TIC Mode and MAC Status</i>	
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) and an Ethernet\*\* subsystem (ESS).

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 up to two millions bps in speed.

The ESS includes up to 2 Ethernet LAN adapters (ELA) also called line adapters (LA). One ELA is composed of a communication scanner processor (CSP) and an Ethernet adapter card (EAC). The ESS is for lines up to 10 millions bps in speed.

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.

## 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.

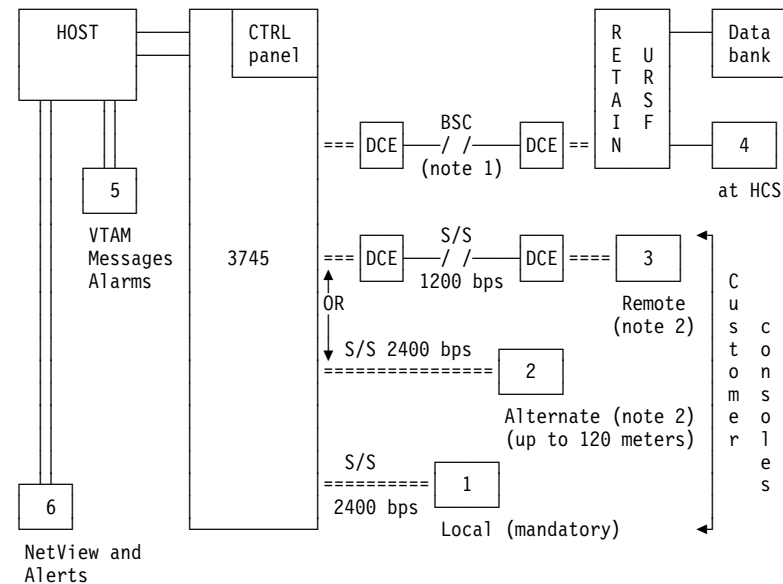


Figure 1-17. Possible Console Connection on the 3745

- 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.



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## 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.
- 08** NCP events related to the ESS 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

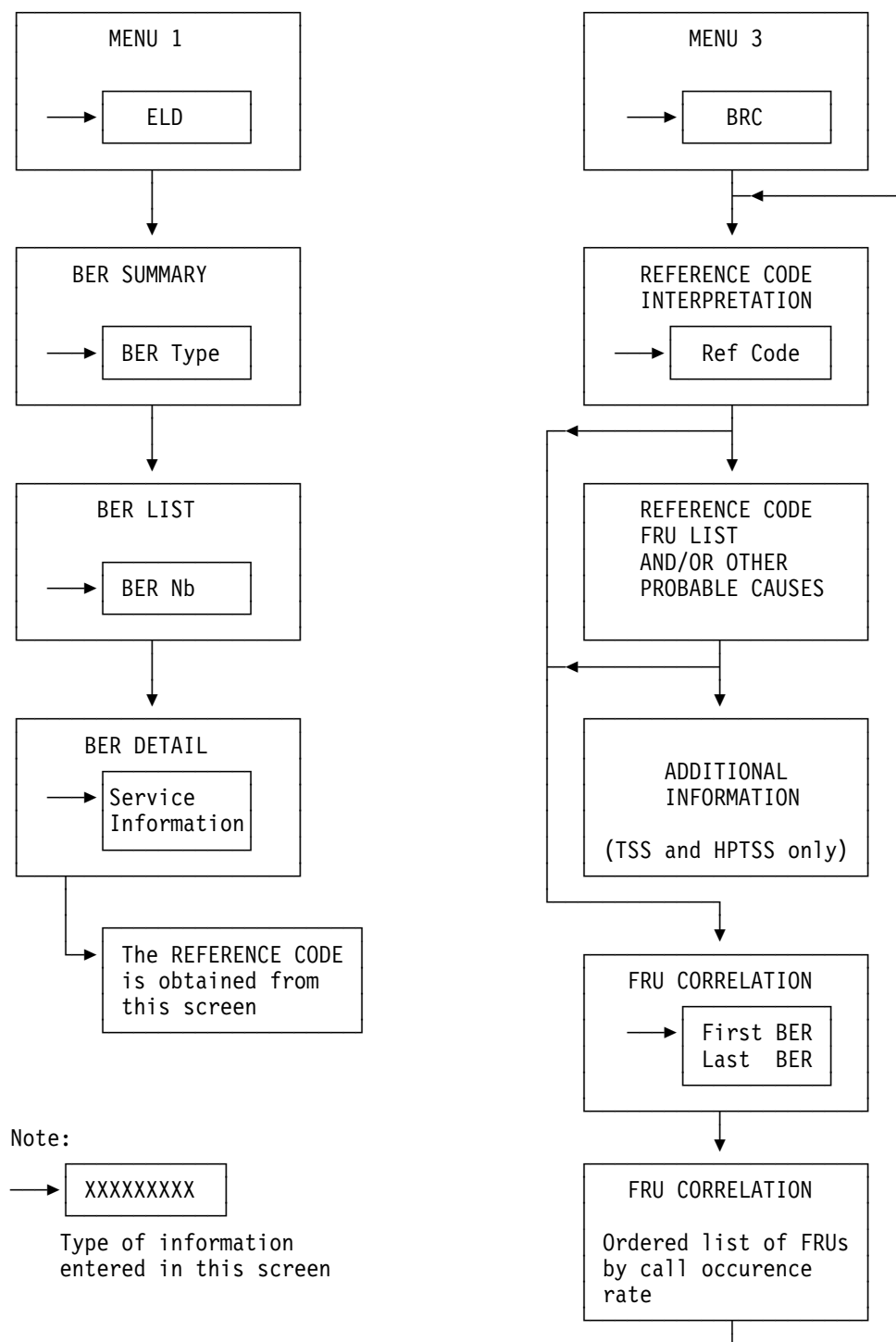


Figure 2-1. BER Display and Handling

# BER Display Procedure

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

Screen **B** is displayed.

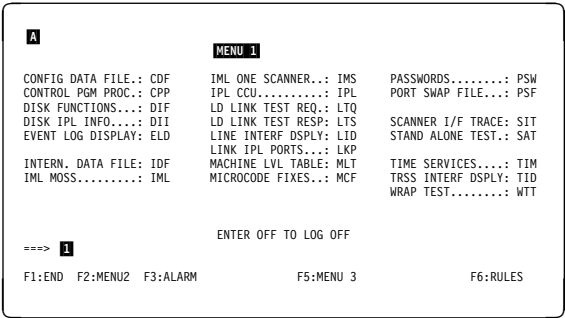


Figure 2-2. Menu 1 Screen

## 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.

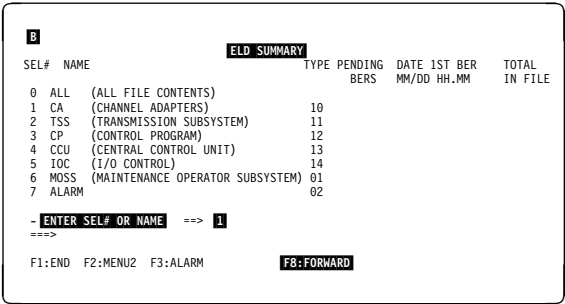


Figure 2-3. ELD Summary Screen 1

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**.

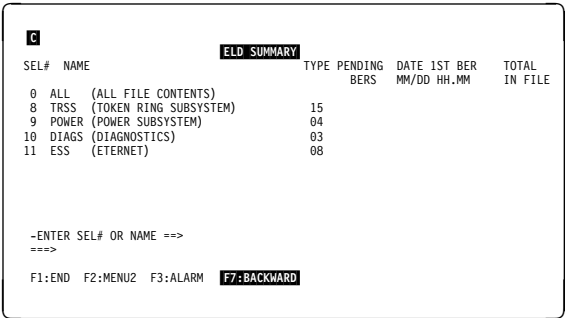


Figure 2-4. ELD Summary Screen 2

(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.

D						
				CA LIST		
SEL#	DATE/TIME	FLAG	NAME	TYPE ID	EVENT DESCRIPTION	TOTAL:4
770	12/02 06:53	CA5		10 B2	UNRESOLVED DATA /STATUS INTERRUPT	
766	12/02 07:23	CA5		10 B2	UNRESOLVED DATA /STATUS INTERRUPT	
761	12/02 07:53	CA5		10 B2	UNRESOLVED DATA /STATUS INTERRUPT	
757	12/02 08:21	CA5		10 B2	UNRESOLVED DATA /STATUS INTERRUPT	
*** END OF FILE ***						
- ENTER SEL# OR NAME ==> 1						
F1:END F2:MENUE2 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.

E						
ELD DETAIL						
SEL# 770	FLAG 00	DATE:12/02	TIME:06:53	TYPE:10	ID:B2	
CA5	UNRESOLVED DATA /STATUS INTERRUPT					BAB2xxxx
X77:0000	X7F:0000	X0:00F3	X1:****	X2:****	X3:****	X4:****
X6:****	X7:****	X8:****	XC:****	XF:****		
CAB:*****	*****	*****	*****	*****	*****	*****
CAC:****	TA:**	CAVT:****				
==>						
F1:END F2:MENUE2 F3:ALARM F4:SUMMARY F5:LIST F7:PREVIOUS F8:NEXT						

Figure 2-6. 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**.

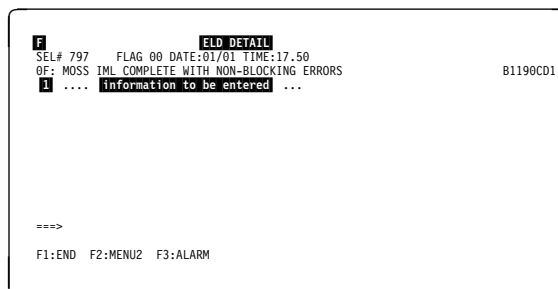


Figure 2-7. Alarm BER Screen (Example)

---

### 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.

### 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.
5. Alarm BERs are not taken into account in the correlation process.

## BER Reference Code Interpretation

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

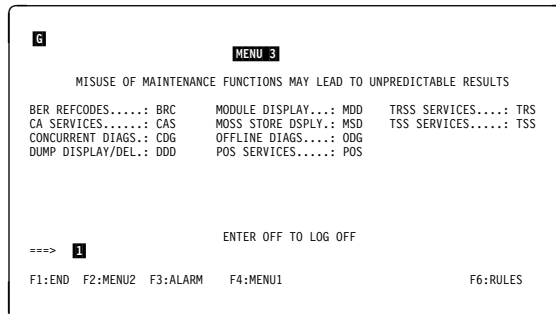


Figure 2-8. Menu 3 (Maintenance) Screen

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".)

**Note:** 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).

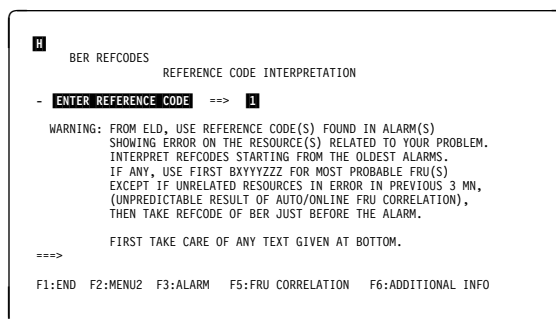


Figure 2-9. Reference Code Interpretation Selection



## 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, HPTSS, and ESS: Press **F6** to display additional information (screen **M** on page 2-12). If you press F6 for a non-TSS/HPTSS/ESS reference code, this message is displayed:

NO ADDITIONAL INFORMATION AVAILABLE

This also happens every time the CDF is empty for the suspected TSS, HPTSS, or ESS 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**.

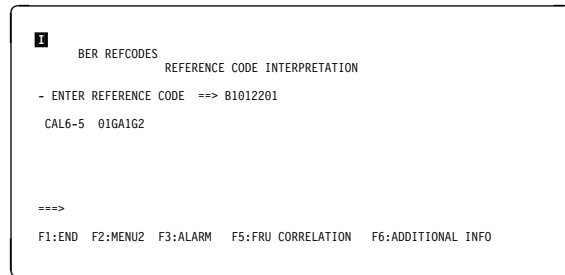


Figure 2-10. RCI FRU List Screen (Example 1)

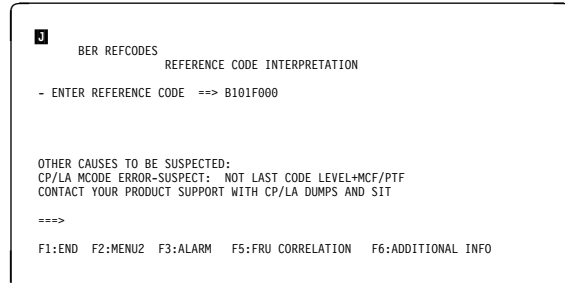


Figure 2-11. RCI FRU List Screen (Example 2)

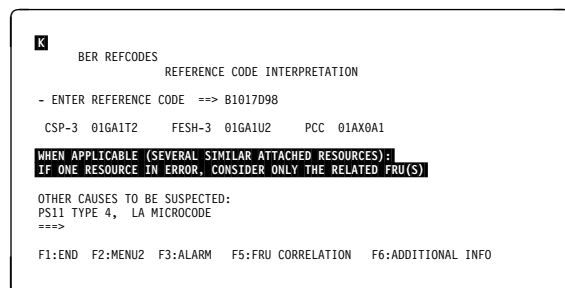


Figure 2-12. RCI FRU List Screen (Example 3)

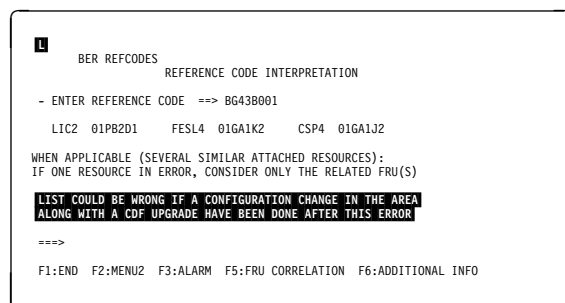


Figure 2-13. Reference Code Interpretation FRU List Screen (Example 4: BG/RG Type)

### Additional Information for TSS, HPTSS, or ESS 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  01GA1L2
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:MENUE2 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.

**Note:** Remember that BER 03 (diagnostics) and alarm BERs are not taken into account by this function.

```

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:MENUE2 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) or **alarm BERs**.

- 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:MENUE2 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				
		TYPE	PENDING BERS	DATE 1ST BER	TOTAL IN FILE	
0	ALL (ALL FILE CONTENTS)			MM/DD HH.MM		
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				
-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				TOTAL
		TYPE	PENDING BERS	DATE 1ST BER	MM/DD HH.MM	IN FILE
0	ALL (ALL FILE CONTENTS)					
8	TRSS (TOKEN RING SUBSYSTEM)	15				
9	POWER (POWER SUBSYSTEM)	04				
10	DIAGS (DIAGNOSTICS)	03				
11	ESS (ETHERNET)	08				
-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

SEL#	DATE/TIME	FLAG	NAME	CA TYPE ID	LIST EVENT DESCRIPTION	TOTAL:01
770	12/02 06:53		CA5	10 B2	UNRESOLVED DATA /STATUS INTERRUPT	
*** END OF FILE ***						
-ENTER SEL# OR NAME ==>						
====>						
F1:END F2:MENUE2 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:**** XB:**** 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/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

---

## Chapter 3. Diagnostics

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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.

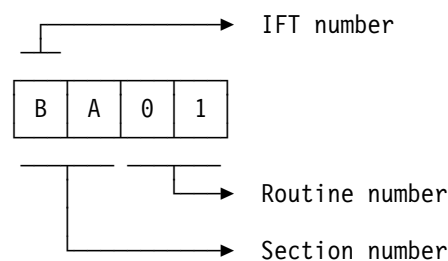
Diagnostics must be run during the installation of the machine, and before and after an EC or an MES is installed on the machine.

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 "Diagnostic 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
ESS	2 - 10	U: 2 - 10
HPTSS	2 - 10	V: 2 - 10
<b>Note:</b> <ul style="list-style-type: none"><li>• Total run 'all' = 50 minutes (minimum) to xxx minutes (maximum)</li><li>• The values given in the second column are for one unit.</li><li>• For IOCB, n in 1*n is the number of TSS, HPTSS, or ESS scanners; the value of n can be from 0 (configuration with TRSS only) to 32.</li></ul>		

#### 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.

---

## Diagnostic 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.

Diagnostic Selection Overview

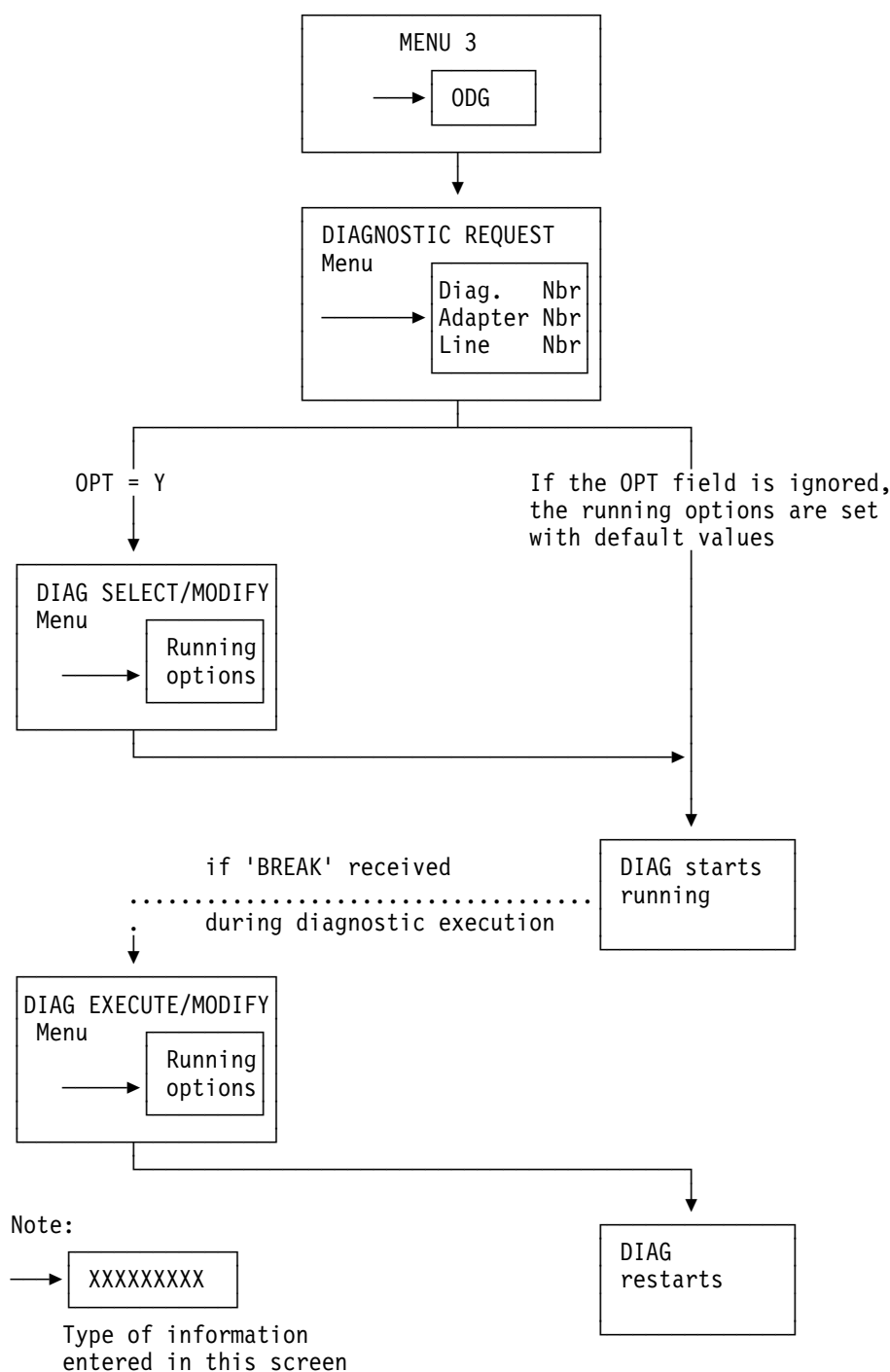


Figure 3-1. Diagnostic Selection Overview

## Diagnostic 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**.

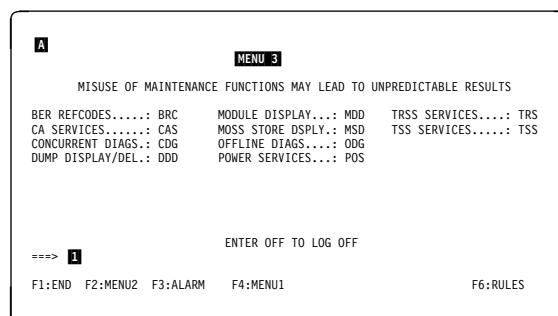


Figure 3-2. Maintenance Menu (Menu 3) Screen

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**.

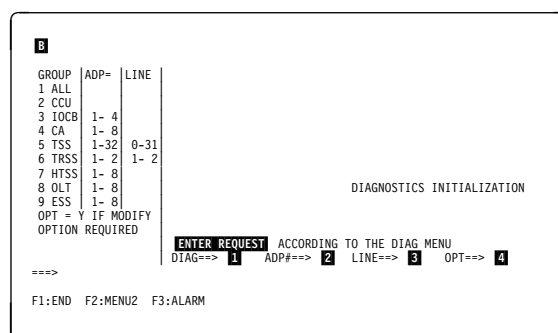


Figure 3-3. Diagnostic Request Menu Screen

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

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.

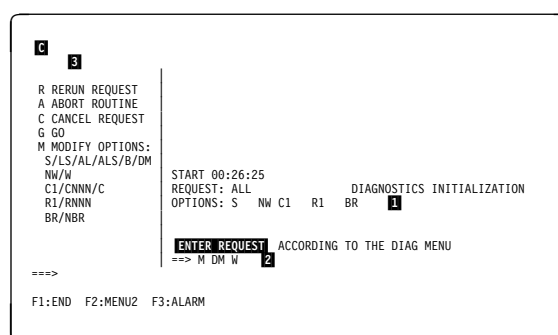


Figure 3-4. Diagnostic Selection Modify Screen

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 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 |  
9 ESS | 1- 8 |  
OPT = Y IF MODIFY  
OPTION REQUIRED

DIAGNOSTICS INITIALIZATION  
  
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 3-4 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/DM  
NW/W  
C1/CNNN/C  
R1/RNNN  
BR/NBR

REQUEST: TSS 1  
OPTIONS: S NW C1 R1 BR  
TSS DIAG RUNNING  
ROUTINE PA04 ADP 01  
  
**BREAK RECEIVED**  
ENTER REQUEST ACCORDING TO THE DIAG MENU  
==> G  
  
F1:END F2:MENU2 F3:ALARM

Figure 3-5. 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, ESS, 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.

## Selection of a CCU Function during Diagnostics

1. Press the **BREAK** key to initiate a break.
2. After a short wait, you receive the 'BREAK RECEIVED' message. (See the screen on Figure 3-5 on page 3-7.)
3. Press **F2**, to access **MENU 2** screen ( **G** )

A diagnostic is running.

```

F
START hh:mm:ss
REQUEST: TSS 1
OPTIONS: S  NW C1  R1  BR      TSS  DIAG RUNNING
                                ROUTINE PA04 ADP 01

==>

F1:END  F2:MENU2  F3:ALARM

```

1. In **1**, type the acronym corresponding to the selected CCU function.
2. Press **SEND**. The selected CCU function will run ( **H** ).

```

G
                                MENU 2
BYPASS CCU CHECK.: BCK      MOSS OFFLINE.....: MOF      SET ADDR COMPARE.: SAC
BYPASS IOC CHECK.: BIK      MOSS ONLINE.....: MON      SET BRANCH TRACE.: SBT
COND BRANCH TRACE: CBT      RESET ADDR COMP.: RAC      STOP ON CCU CHECK: SCK
CA INTERF DISPLAY: CID      RESET BRCH TRACE.: RBT      STOP ON IOC CHECK: SIK
CCU NORMAL MODE.: CNM      RESET CCU CHECK.: RCK      SET I-STEP.....: SIP
CCU STATUS.....: CST      RESET CCU/LSSD.: RCL      STOP CCU.....: STP
DISPLAY/ALTER....: DAL      REPAIRED CCU.....: REP      START CCU.....: STR
DATA EXCHANGE....: DEX      RESET IOC.....: RIO
DISPLAY LONG.....: DLO      RESET I-STEP.....: RIS
                                ENTER OFF TO LOG OFF

==> 1

F1:END  F2:MENU1  F3:ALARM      F5:MENU 3      F6:RULES

```

Figure 3-6. Menu 2 Screen

1. Press **F2** to return to the DCF application
2. Enter G (for go).
3. Press **SEND**.

```

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

```

Figure 3-7. Example of CCU Function While Running Diagnostics

## Diagnostic Screen Areas Description

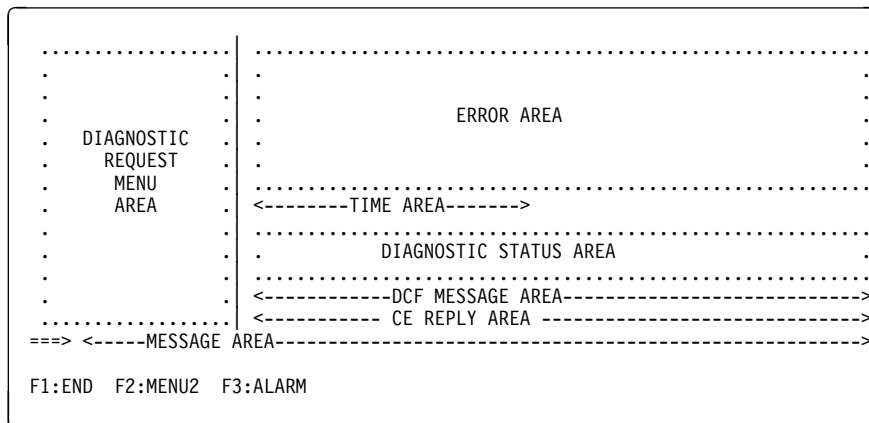


Figure 3-8. Diagnostic Screen Areas

### Diagnostic Request Menu Area

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

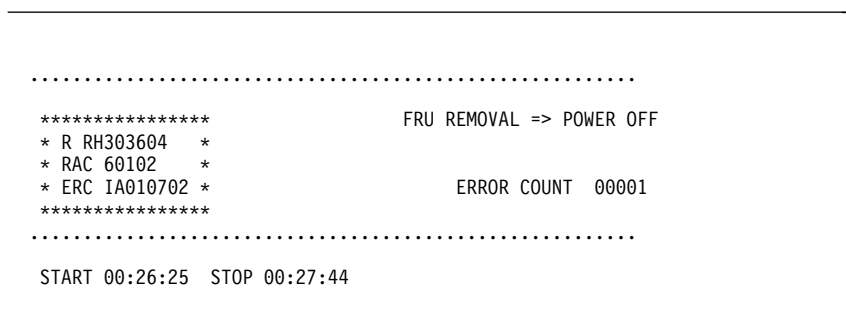


Figure 3-9. Diagnostic Screen Error Area

**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:

Diag Type	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 or HPTSS	RAC (FRU list)	TSS or HPTSS number	LIC number (0 to 31)	MUX number
ESS	RAC (FRU list)	ESS number	Not used	Not used
CA, CSS, or 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 3-10. Diagnostic Screen Status Area

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

**OPTIONS** Last running options selected (see Figure 3-4 on page 3-6).

**DIAG RUN STATUS** xxxx DIAG yyyyyyyy and ROUTINE nnnn ADP ll of Figure 3-10, where:

- xxxx can be: CCU, IOCB, CA, TSS, TRSS, HTSS, ESS, or OLT
- yyyyyyyy can be:
  - RUN INIT (DCF initialization phase)
  - CCU INIT (CCU initialization phase)
  - RUNNING
  - RERUNNING

**ROUTINE**    I A 0 1                  ADP 01 L 20

↓                      ↓

**Routine number**

↓                      ↓

**Section (IA)**                  **Scanner or CA number**  
**IFT (I)**

→ Line address 20 in scanner

## DCF Message Area

### Messages issued by the DCF

Input zone for initial request, commands, answers to diagnostic message.

Output zone for diagnostic messages, for example:

### 3-12 IBM 3745 Models 130, 150, 160, and 170: Service Functions

## 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	
9 ESS	1- 8	

DIAGNOSTICS INITIALIZATION

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.

### 9 ESS      Run the ESS diagnostics.

## 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 or ESS 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 3-4 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

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

Figure 3-11. 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 3-5 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 3-4 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 3-5 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 3-5 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 3-5 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.

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 3-9 on page 3-10), when the diagnostic detects an error in the element being tested.
2. Diag/DCF unexpected error (see Figure 3-13 on page 3-19 and Figure 3-14 on page 3-20), 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 *  
* RAC 60102 *  
* ERC IA010702 *  
*****  
*****  
FRU REMOVAL => POWER OFF  
ERROR COUNT 00001  
.....  
START 00:26:25 STOP 00:27:44
```

Figure 3-12. 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)

```
***** ABEND *****
F1 : RETURN TO
  MAIN MENU

*****
*RC 3040641 * ORIGIN: MOSS<-IFT FRU REMOVAL=> POWER OFF
*          * LEVEL : X'01'
*RAC 641    * LVLMSK: X'00'
*          * ROUTINE IA01
*****
***** ADDIT INFO:
          ERROR IN: CHGMACAC
          V:0004 X:0000 Z:0D01
START 00:04:50 STOP 00:05:54
                                IOCB DIAG UNEXPECTED ERROR
                                ROUTINE IA01 ADP 01

==>
UNEXPECTED ERROR

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

Figure 3-13. Diagnostic Unexpected Error Display Screen

## DCF Unexpected Error Display

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.)

```
***** ABEND *****
F1 : RETURN TO
  MAIN MENU

***** ORIGIN: MOSS<-DCM
*RM 3050541 * LEVEL : X'01'
*RAC 541    * LVLMSK: X'00'
*          *
***** ADDIT INFO:
          MAC I/O RC=X'1162'
          ON MACRO KO OFS=058C
START 00:07:40 STOP 00:08:01
                      DIAG HUNG

==> UNEXPECTED ERROR

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

Figure 3-14. DCF Unexpected Error Display Screen

## Description of Unexpected DCF RACs

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**.

These RACs may be requested by any DCF component:

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

During the investigation of an unexpected error, as a last possibility, you should suspect a software error in the DCF.

Table 3-2 (Page 1 of 2). DCF Unexpected RACs	
RAC Number	Meaning
<b>500-50F</b>	<b>Common RACs</b>
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
<b>510-51F</b>	<b>RAC related to disk operation</b>

<i>Table 3-2 (Page 2 of 2). DCF Unexpected RACs</i>	
<b>RAC Number</b>	<b>Meaning</b>
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)
<b>520-52F</b>	<b>RAC related to data transfer (MOSS/CCU)</b>
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
<b>530-54F</b>	<b>RAC related to AMAC operations</b>
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
<b>550-55F</b>	<b>Unused</b>
<b>560-56F</b>	<b>RAC related to scanner operations</b>
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**.

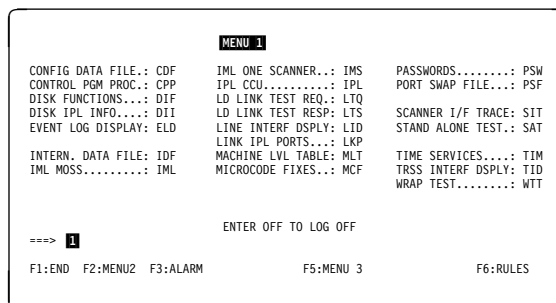


Figure 3-15. Menu 1 Screen

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

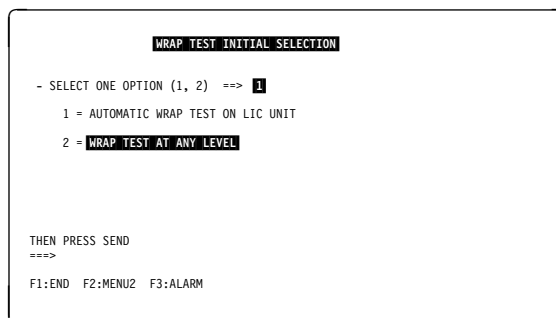


Figure 3-16. Wrap Test Initial Selection Screen

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:

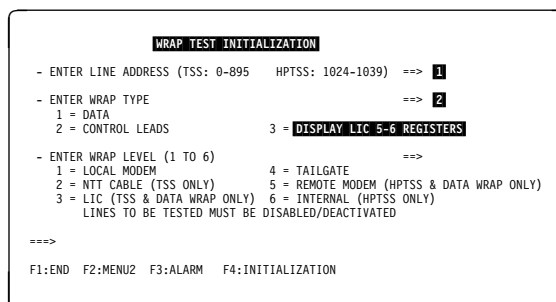


Figure 3-17. Wrap Test Initialization Screen

**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 1B 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 xx

===>

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

*Figure 3-18. Display LIC 5-6 Data*

---

### 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.





---

## Chapter 4. Transmission Subsystem (TSS) Functions

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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/ESS Indirect XREGs Picocode RAM		4-20 4-22 4-21				4-20 4-22 4-21				
Scanner	--	--	4-8	--	4-8	--	4-6	4-7	4-5	4-5
Scanner address compare	4-16	--	--	4-16	--	--	--	--	--	--
Scanner: Blocks Control storage LSRs XREGs		4-11 4-10 4-13 4-15				4-11 4-10 4-13 4-15				

## Important Information

### Possible Disruption

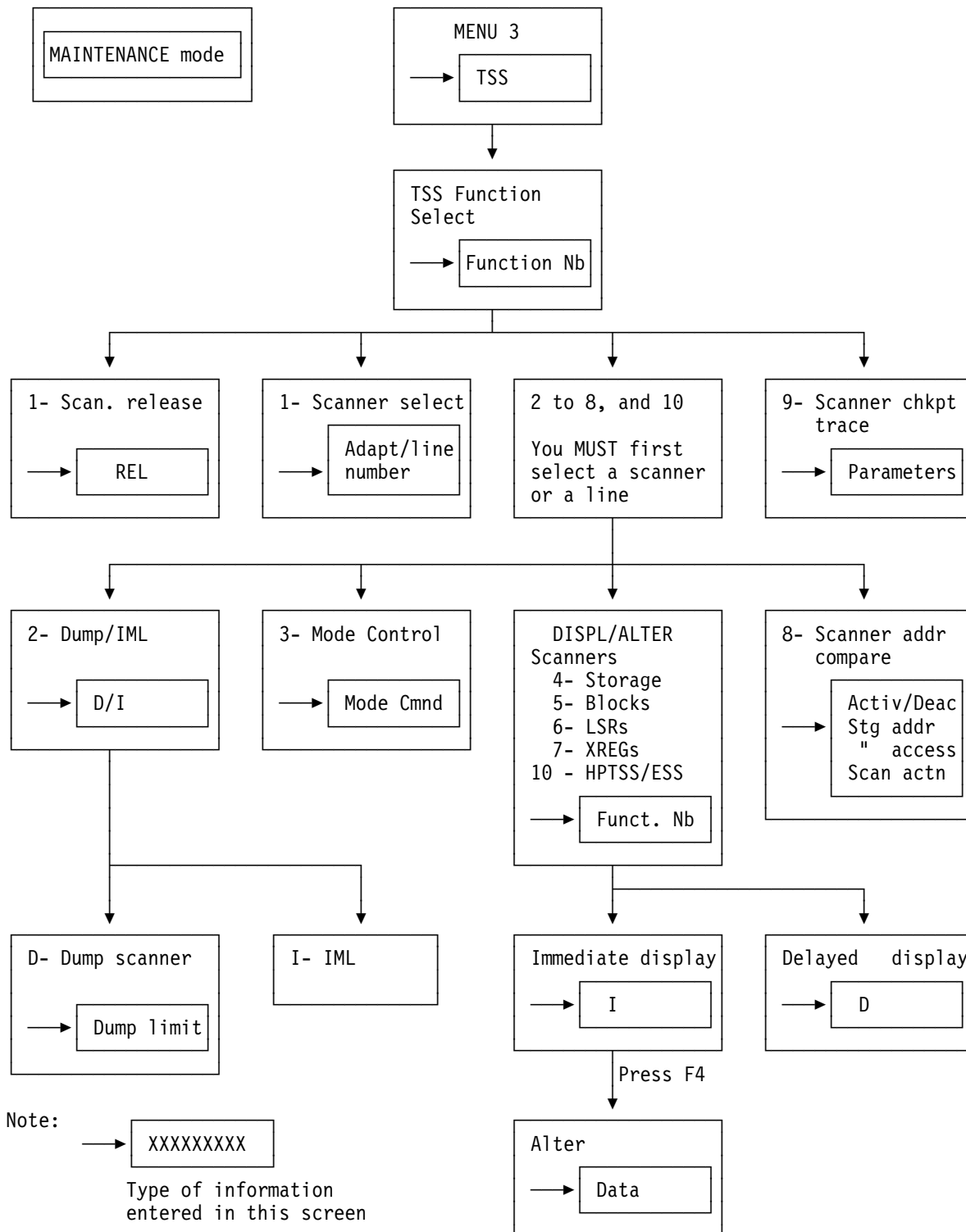
Using of the TSS functions may disrupt communications on the lines attached to the selected scanner. Before using a disruptive function, ask the customer to disable the affected lines.

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/ESS: 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.

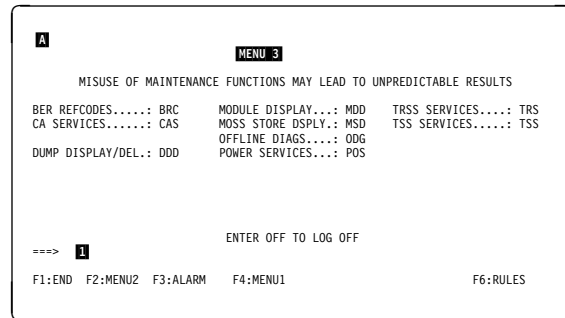


Figure 4-1. Menu 3 (Maintenance) Screen

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:

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

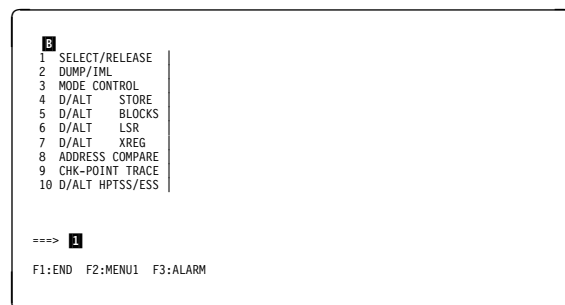


Figure 4-2. TSS Function Selection Screen

## 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.

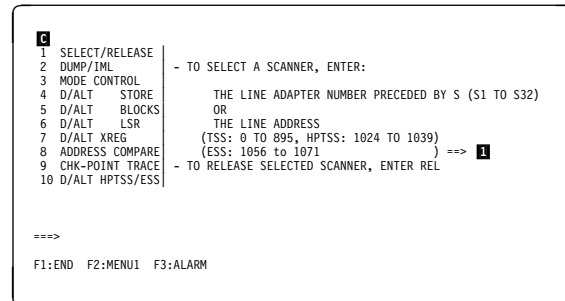


Figure 4-3. Scanner Selection/Release Screen

### 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'.

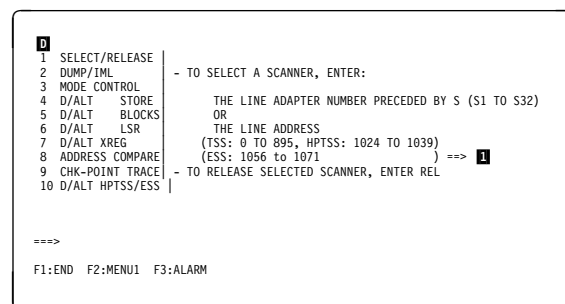


Figure 4-4. Scanner Selection/Release Screen

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.

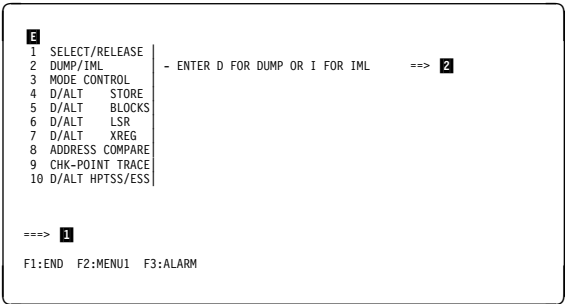


Figure 4-5. Dump or IML Selection Screen

- 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**.

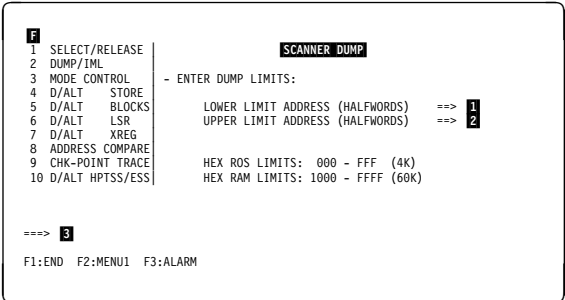


Figure 4-6. Scanner Dump Limits Screen

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.

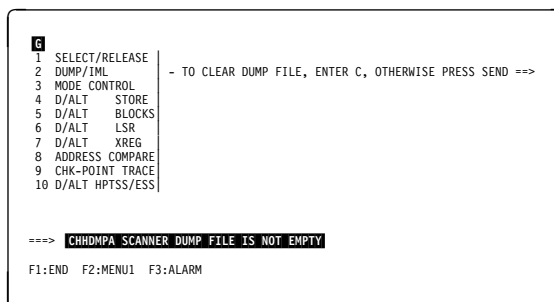


Figure 4-7. Clear Scanner Dump File Screen

## 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 4-23).

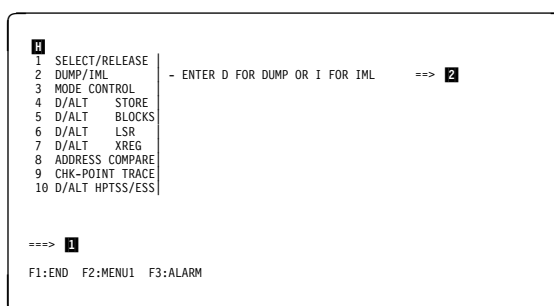


Figure 4-8. Dump or IML Selection Screen

## 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.

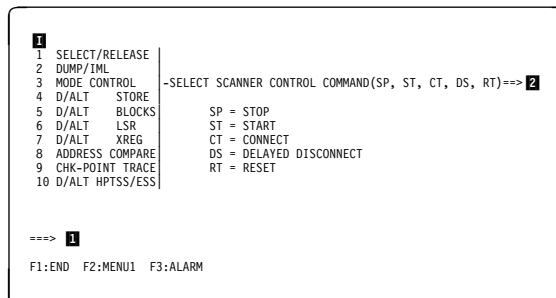


Figure 4-9. Scanner Mode Function Selection Screen

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.

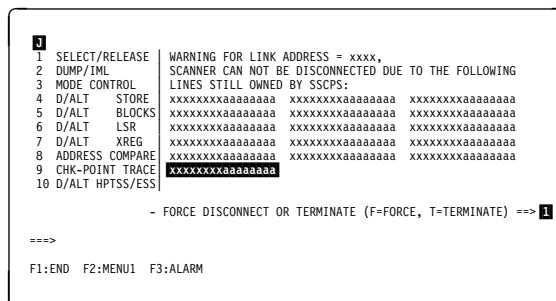


Figure 4-10. Scanner Delayed Disconnect Screen 1

Where, for each SSCP:

- xxxxxxxx = name of the SSCP given by the user.
- aaaaaaaa = 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.

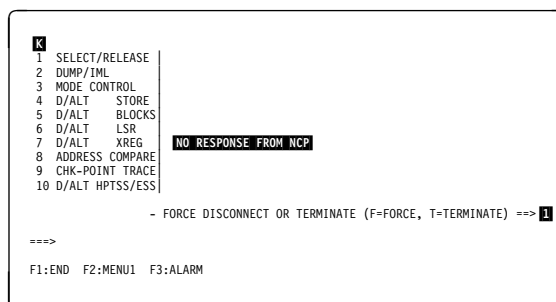


Figure 4-11. Scanner Delayed Disconnect Screen 2



## 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 **M** is displayed.

Default values: 32 halfwords, I (immediate).

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

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

- ENTER HALFWORD STORAGE ADDRESS ==> **1**  
ROS: 000 TO FFF - RAM: 1000 TO FFFF  
- ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32) ==> **2**  
- ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> **3**

==> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY  
F1:END F2:MENUI 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  
2 DUMP/IML  
3 MODE CONTROL  
4 D/ALT STORE  
5 D/ALT BLOCKS  
6 D/ALT LSR  
7 D/ALT XREG  
8 ADDRESS COMPARE  
9 CHK-POINT TRACE  
10 D/ALT HPTSS/ESS

- ENTER HALFWORD STORAGE ADDRESS ==>  
ROS: 000 TO FFF - RAM: 1000 TO FFFF  
- ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32) ==>  
- ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==>  
aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
aaaa xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
aaaa xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

==>  
F1:END F2:MENUI 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  
2 DUMP/IML  
3 MODE CONTROL  
4 D/ALT STORE  
5 D/ALT BLOCKS  
6 D/ALT LSR  
7 D/ALT XREG  
8 ADDRESS COMPARE  
9 CHK-POINT TRACE  
10 D/ALT HPTSS/ESS

- ENTER HALFWORD STORAGE ADDRESS ==>  
ROS: 000 TO FFF - RAM: 1000 TO FFFF  
- ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32) ==>  
- ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> **1**

aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx  
aaaa xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx  
aaaa xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx

==> TO DELAY ALTER, ENTER NEW DATA; CHANGE I TO D, PRESS SEND  
F1:END F2:MENUI 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).

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

\* 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.

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

\* 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 overwrite 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.

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

\* 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/IML	- ENTER HALFWORD TO DISPLAY FIRST	==>
3	MODE CONTROL	- ENTER NBR OF HALFWORDS TO DISPLAY (OPTIONAL)	==>
4	D/ALT STORE	- ENTER BLOCK IDENTIFICATION (1 TO 12)	==> 9
5	D/ALT BLOCKS	*1=ICB 3=LIB 5=RAMA 7=RAMC 9=LIC 11=FLR	
6	D/ALT LSR	*2=PSA *4=LCB 6=RAMB 8=ICF 10=FPS 12=FMR	
7	D/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	D/ALT HPTSS/ESS		

\* 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:

<b>ICB</b>	interface control block
<b>PSA</b>	parameter/status area
<b>LIB</b>	line interface buffer
<b>LCB</b>	line control block
<b>RAMA</b>	random access memory A
<b>RAMB</b>	random access memory B
<b>RAMC</b>	random access memory C
<b>ICF</b>	internal clock function
<b>LIC</b>	line interface card
<b>FPS</b>	FES parameter/status
<b>FLR</b>	FES line registers
<b>FMR</b>	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 D/ALT STORE (FOR ALL LSRS OF THE PAGE, ENTER NOTHING)
5 D/ALT BLOCKS
6 D/ALT LSR - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> 3
7 D/ALT XREG
8 ADDRESS COMPARE
9 CHK-POINT TRACE
10 D/ALT HPTSS/ESS

===> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY
F1:END F2:MENU2 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 D/ALT STORE (FOR ALL LSRS OF THE PAGE, ENTER NOTHING)
5 D/ALT BLOCKS
6 D/ALT LSR - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> I
7 D/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 D/ALT HPTSS/ESS

===> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY
F1:END F2:MENU2 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 over-write 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 D/ALT STORE (FOR ALL LSRS OF THE PAGE, ENTER NOTHING)
5 D/ALT BLOCKS
6 D/ALT LSR - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> 1
7 D/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 D/ALT HPTSS/ESS

===> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY
F1:END F2:MENU2 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	D/ALT STORE	(FOR ALL LSRS OF THE PAGE, ENTER NOTHING)	
5	D/ALT BLOCKS		
6	D/ALT LSR	- ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED	==> I
7	D/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	D/ALT HPTSS/ESS		

==> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY

F1:END F2:MENU2 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      - ENTER NUMBER OF XREGS TO DISPLAY ==> 2
3 MODE CONTROL
4 D/ALT STORE
5 D/ALT BLOCKS
6 D/ALT LSR      - ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> 3
7 D/ALT XREG
8 ADDRESS COMPARE
9 CHK-POINT TRACE
10 D/ALT HPTSS/ESS

===> 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.

```

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

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

XREG 00 01 02 03 04 05 07 08 0A 0B 0C
DATA xx xx xx xx xx xx ** xx xx ** xx xx ** ** **
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

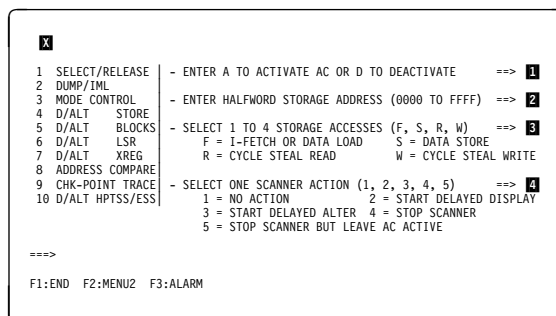


Figure 4-26. Scanner Address Compare Selection Screen

### 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.

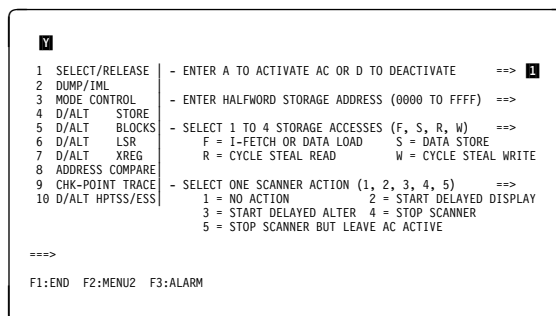


Figure 4-27. Deactivate Scanner Address Compare



## Field Explanation for the Scanner Address Compare Screen

<b>Y</b>		
1 SELECT/RELEASE	- ENTER A TO ACTIVATE AC OR D TO DEACTIVATE	==>
2 DUMP/IML		
3 MODE CONTROL	- ENTER HALFWORD STORAGE ADDRESS (0000 TO FFFF)	==>
4 D/ALT STORE		
5 D/ALT BLOCKS	- SELECT 1 TO 4 STORAGE ACCESSES (F, S, R, W)	==>
6 D/ALT LSR	F = I-FETCH OR DATA LOAD      S = DATA STORE	
7 D/ALT XREG	R = CYCLE STEAL READ          W = CYCLE STEAL WRITE	
8 ADDRESS COMPARE		
9 CHK-POINT TRACE	- SELECT ONE SCANNER ACTION (1, 2, 3, 4, 5)	==>
10 D/ALT HPTSS/ESS	1 = NO ACTION                  2 = START DELAYED DISPLAY	
	3 = START DELAYED ALTER      4 = STOP SCANNER	
	5 = STOP SCANNER BUT LEAVE AC ACTIVE	
====>		
F1:END F2:MENU2 F3:ALARM		

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.

## Address Compare

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

Three options are given in this function:

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

## Display HPTSS or ESS 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.

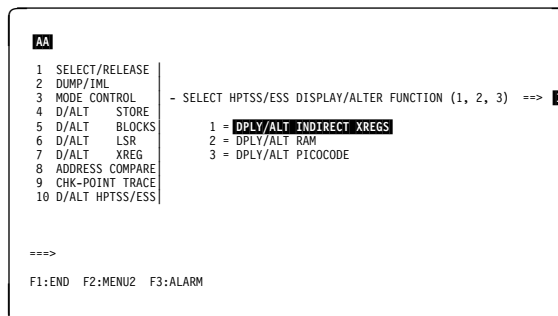


Figure 4-30. Display/Alter HPTSS/ESS Indirect Selection Screen

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**.

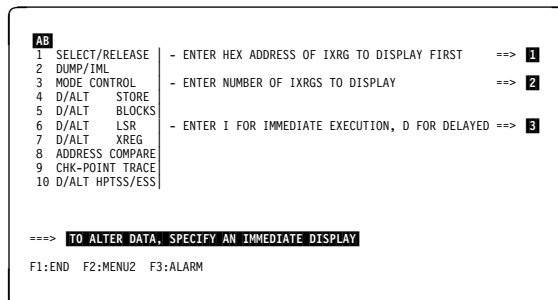


Figure 4-31. Display/Alter HPTSS/ESS Indirect XREG Screen

## Alter HPTSS or ESS 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.

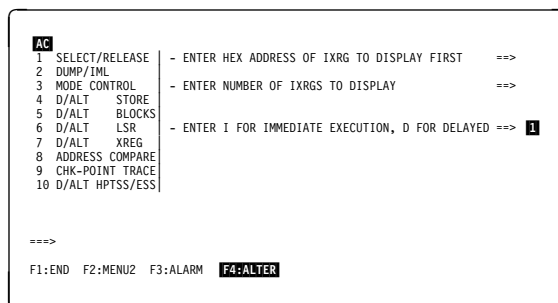


Figure 4-32. Display/Alter HPTSS/ESS Indirect XREG

## 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.

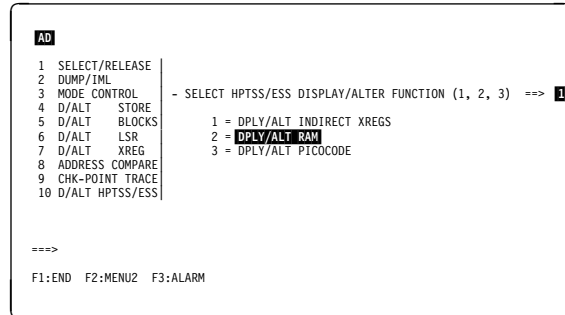


Figure 4-33. Display/Alter HPTSS/ESS Indirect Selection Screen

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

**xxxx** Maximum RAM address:  
 FFF for HPTSS  
 FFFF for ESS

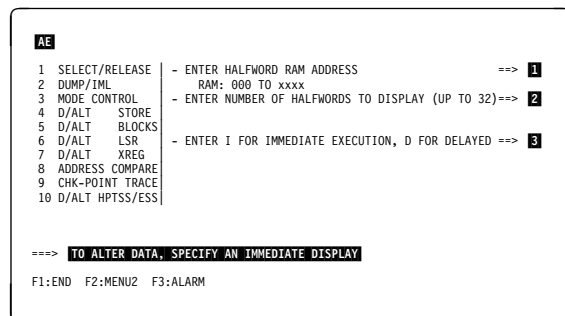


Figure 4-34. Display/Alter RAM (HPTSS or ESS Only)

## 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**.

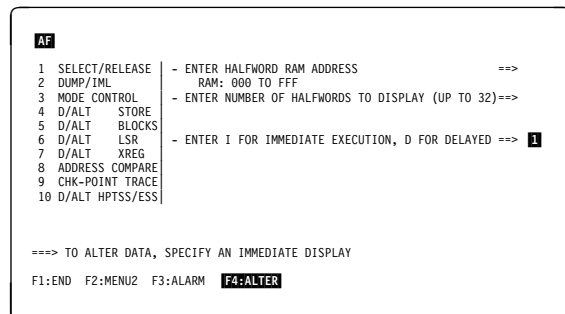


Figure 4-35. Display/Alter RAM (HPTSS or ESS)

## Display/Alter 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/ESS DISPLAY/ALTER FUNCTION (1, 2, 3) ==> 1
4 D/ALT STORE
5 D/ALT BLOCKS
6 D/ALT LSR
7 D/ALT XREG
8 ADDRESS COMPARE
9 CHK-POINT TRACE
10 D/ALT HPTSS/ESS
1 = DPLY/ALT INDIRECT XREGS
2 = DPLY/ALT RAM
3 = DPLY/ALT PICOCODE

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

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

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

**xxxx** is the maximum picocode address. It varies according to the adapter type (HPTSS or ESS).

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

==> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY
F1:END F2:MENU2 F3:ALARM
```

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

### Alter Picocode

1. Display the picocode.
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**.

```
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 D/ALT STORE
5 D/ALT BLOCKS
6 D/ALT LSR
7 D/ALT XREG
8 ADDRESS COMPARE
9 CHK-POINT TRACE
10 D/ALT HPTSS/ESS
- ENTER I FOR IMMEDIATE EXECUTION, D FOR DELAYED ==> 1

==> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY
F1:END F2:MENU2 F3:ALARM F4:ALTER
```

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

## 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.



**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-IML 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.

**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 without having selected a scanner.

**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.



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## Chapter 5. TRSS Functions

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## Your Road Map in the TRSS Functions

**Note:** This chapter describes all the service procedures called by the 'TRSS Services (TRS)' function in Menu 3. To display status and activity information on a selected TIC, or to allow the 'activate link' command, refer to the 'TRSS Interface Display (TID)' function in the *3745 Advanced Operations Guide*, SA33-0097. Refer also to "Token-Ring Interconnection (TRI) Problems" in the *Problem Determination Guide*, SA33-0096.

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

## TRSS Function Resources

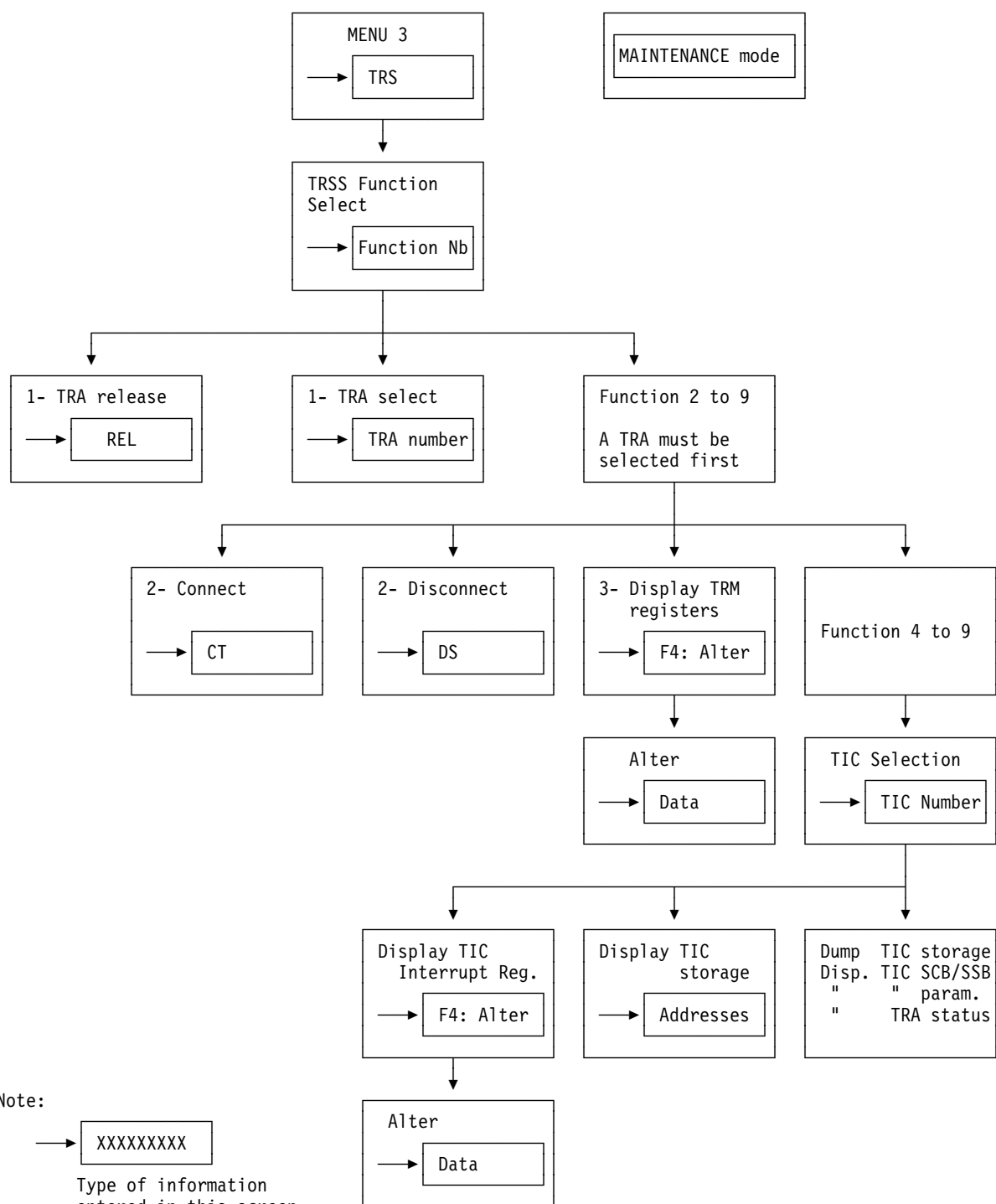
The following table summarizes the conditions needed for each TRSS function:

<i>Table 5-1. Conditions Needed for TRSS Functions</i>				
<b>FUNCTION</b>	<b>TRM</b>	<b>TIC</b>	<b>NCP Init</b>	<b>MOSS Online</b>
Select (note 1)				
Connect	Yes		Yes	Yes
Disconnect (note 2)	Yes		Yes	Yes
TRM Regs	Yes			
TIC interrupt register	Yes	Yes		
Display storage	Yes	Yes		
Dump	Yes	Yes	Yes	
Display SCB, SSB			Yes	
Parm blocks			Yes	
Error status	Yes	Yes	Yes	
Display dump	Yes		Yes	
<b>Note:</b> <ul style="list-style-type: none"> <li>• Select cannot be used before CDF create.</li> <li>• 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).</li> </ul>				

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

**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.

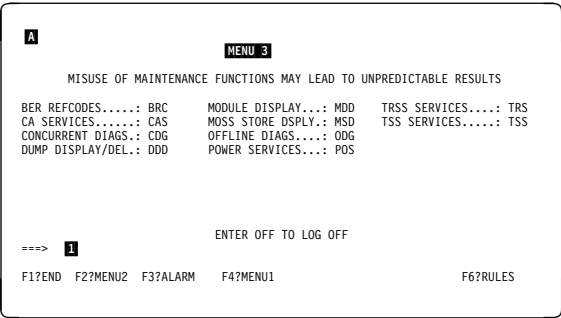


Figure 5-1. Menu 3 (Maintenance) Screen

**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:

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

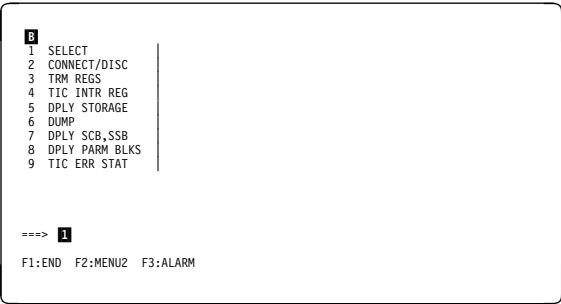


Figure 5-2. TRSS Function Selection Screen

# 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.

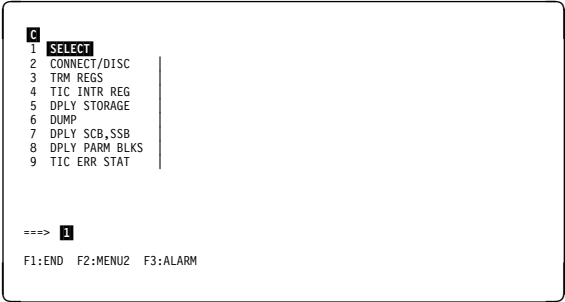


Figure 5-3. TRSS Function Selection Screen

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

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

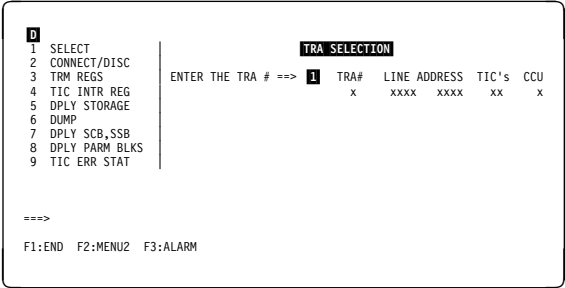


Figure 5-4. TRA Selection Screen

## 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).

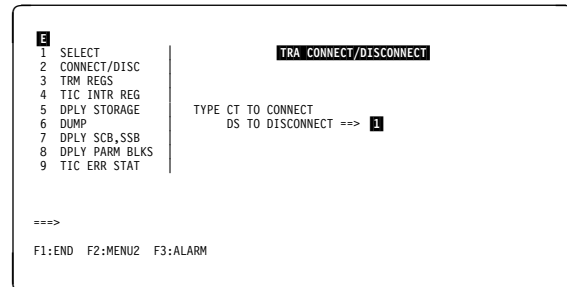


Figure 5-5. TRA Connect/Disconnect Selection Screen

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.

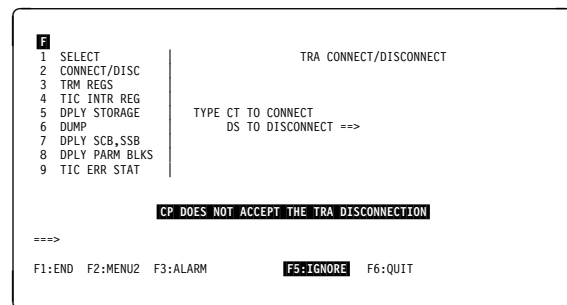


Figure 5-6. TRA Force Disconnect Screen

### TRA Status Explanation

- |                   |  |
|-------------------|--|
| <b>Connect</b>    | 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).<br><br>The PIO disable and disconnect bits in the TRM level 1 error status are OFF.                       |
| <b>Disconnect</b> | 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.<br><br>The PIO disable and disconnect bits in the TRM level 1 error status are OFF. |
| <b>Unknown</b>    | 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.

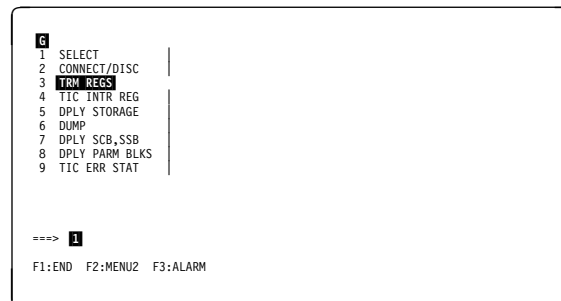


Figure 5-7. TRSS Function Selection Screen

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.

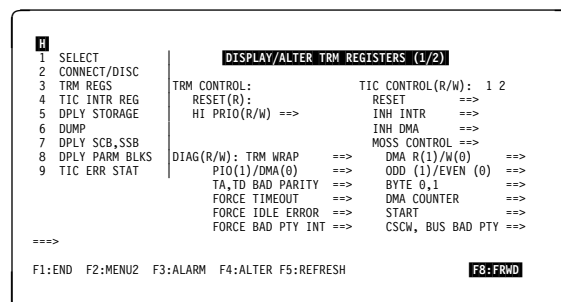


Figure 5-8. Display/Alter TRM Registers (1) Selection Screen

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

Register	Read	Write	Detail
TRM state control	Yes	Yes	Yes
TIC state control	Yes	Yes	Yes
Level 1 error status	Yes	No	No
LID base register	Yes	Yes	No
IR/BR	Yes	Yes	Yes
Diag register	Yes	Yes	Yes
Data buffer register	Yes	Yes	No
CSCW	Yes	No	Yes

- Read** Display function available
- Write** Alter (write) function available and preceded by a warning.
- Detail** Contents are shown in bit format.

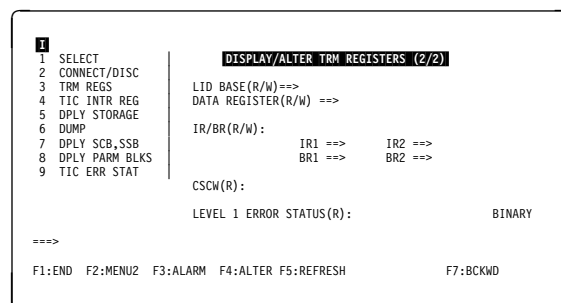


Figure 5-9. Display/Alter TRM Registers (2) Selection Screen

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.

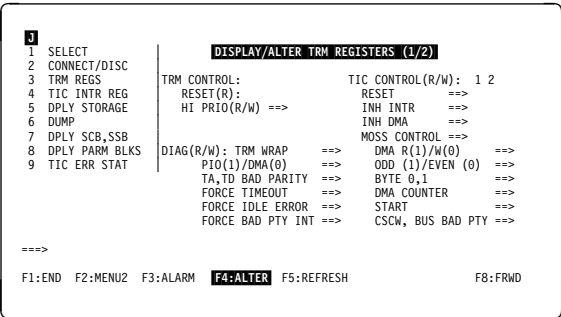


Figure 5-10. Display/Alter TRM Registers (1) Selection Screen

## Select 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.

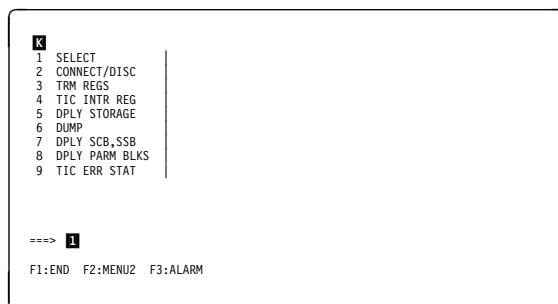


Figure 5-11. TRSS Function Selection Screen

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:

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

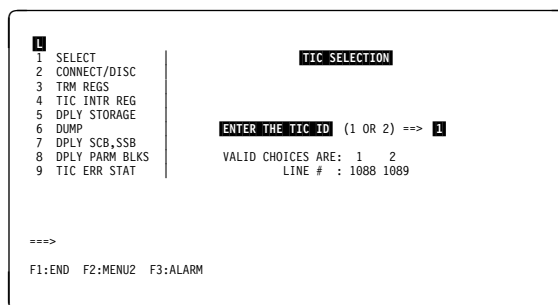


Figure 5-12. TIC Selection Screen

## 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.

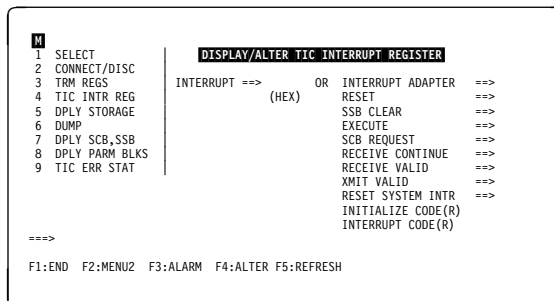


Figure 5-13. Display/Alter TIC Interrupt Register Selection Screen

## 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.

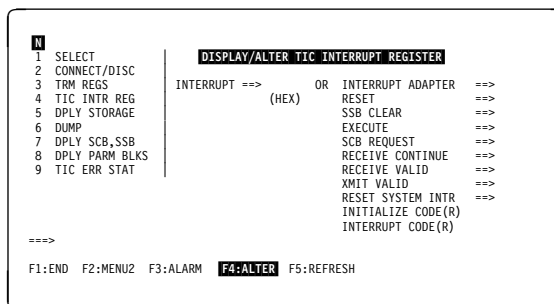


Figure 5-14. Display/Alter TIC Interrupt Register Selection Screen

## 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.

**Note:** If the TIC is a TIC2, the screen shows 'RAM: 0 TO FFFF'.

6. In **1**, enter the starting address (hexadecimal halfword, 0 to FFF for a TIC1, 0 to FFFF for a TIC2).

This address must be an even address, otherwise it is rounded to the next even address, and a message is displayed.

7. In **2**, enter the number of halfwords to be displayed (1 to 48).
8. Press **SEND**.

The contents of the selected TIC RAM are displayed (screen **P**).

```

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

DISPLAY TIC STORAGE

- ENTER ADDRESS OF START OF DISPLAY ==> 1 (HEX)
(RAM: 0 TO FFF)
- ENTER NBR OF HALFWORDS TO DPLY (UP TO 48) ==> 2

==>

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

DISPLAY TIC STORAGE

- ENTER ADDRESS OF START OF DISPLAY ==> 0 (HEX)
(RAM: 0 TO FFF)
- ENTER NBR OF HALFWORDS TO DPLY (UP TO 48) ==> 48

0000 8288C8D 840E4F4E 8D120F10 920E0F91 B...D...K...J
0010 94360D0D 95128584 B8304706 CE244302 M...N.ED.....
0020 00778000 EFFE0300 EC9107FE D222F5CB .....J..K..5.
0030 E78C9764 701A0150 00000000 E7960100 X.P....&....X0..
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).

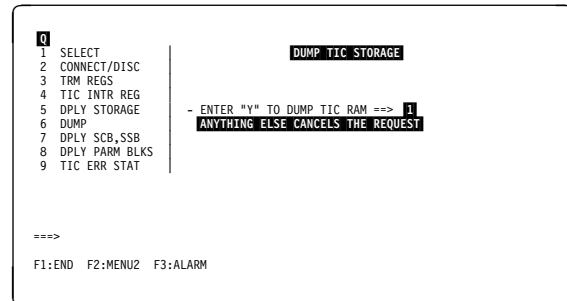


Figure 5-17. Dump TIC Storage Screen

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.

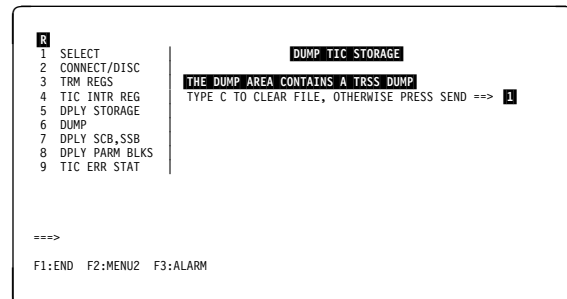


Figure 5-18. TIC Dump Areas Full Screen (Example)

## 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:

Sector	
0	
1	TRSS dump header
129	
130	TRA 1 - TIC 1 dump (RAM)
258	
259	TRA 1 - TIC 1 header
387	
388	TRA 1 - TIC 2 dump (RAM)
516	
517	TRA 1 - TIC 2 header
645	
646	TRA 2 - TIC 1 dump (RAM)
774	
775	TRA 2 - TIC 1 header
903	
904	TRA 2 - TIC 2 dump (RAM)
1032	
1033	TRA 2 - TIC 2 header

**Note:** The TIC types TIC1 and TIC2 have a different dump file size. The dump header contains the actual size of the dump.

Depending on the TIC type, the dump area may not be full.

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.

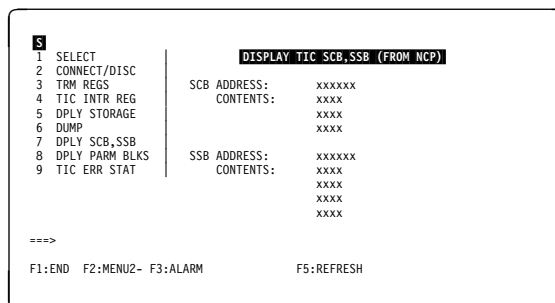


Figure 5-19. Display TIC SCB and SSB Screen

## 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.

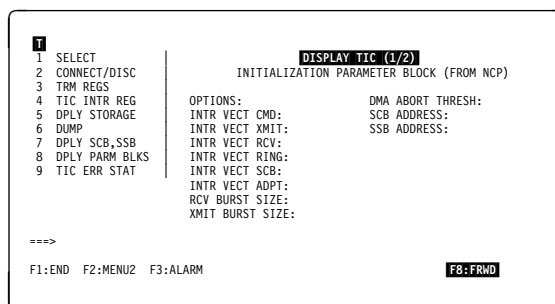


Figure 5-20. Display TIC Initialize Parameter Block Screen

Press **F7** to return to screen **T**.

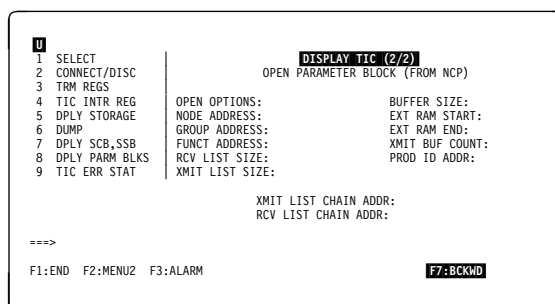


Figure 5-21. Display TIC Open Parameter Block Screen

### 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.

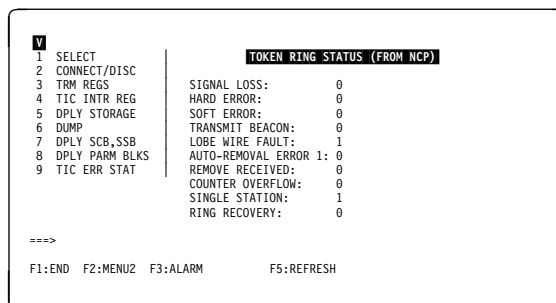


Figure 5-22. Token-Ring Status Screen

---

## 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.

**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 (000-FFF for a TIC1, 0000-FFFF for a TIC2).

**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.

**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.



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## Chapter 6. Displaying Dumps, Storage and Modules, and Deleting Files

Dump Display Function Selection . . . . .	6-2
MOSS Dump Display . . . . .	6-3
Scanner Dump Display . . . . .	6-4
TRSS/TIC Dump Display . . . . .	6-5
CA Dump Display . . . . .	6-6
CCU Dump Display . . . . .	6-6
Power Dump Display . . . . .	6-6
MOSS Storage Display . . . . .	6-7
Modules Display . . . . .	6-8
Delete a File from the MOSS Disk . . . . .	6-9
TRSS/TIC Dump Delete . . . . .	6-10
Display/Delete Messages . . . . .	6-11

## Dump Display Function Selection

1. You must be in **maintenance mode**.
2. In MENU 3, type **DDD** in **1**.
3. Press **SEND**.
4. Screen **3** is displayed.

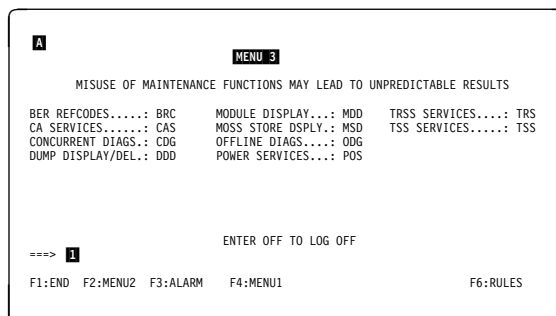


Figure 6-1. Maintenance Menu (Menu 3)

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:

<b>MOSS dump display</b>	Page 6-3
<b>TSS/HPTSS/ESS dump display</b>	Page 6-4
<b>TRSS dump display</b>	Page 6-5
<b>CA dump display</b>	Page 6-6
<b>CCU dump display</b>	Page 6-6
<b>Power dump display</b>	Page 6-6
<b>Delete file</b>	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.

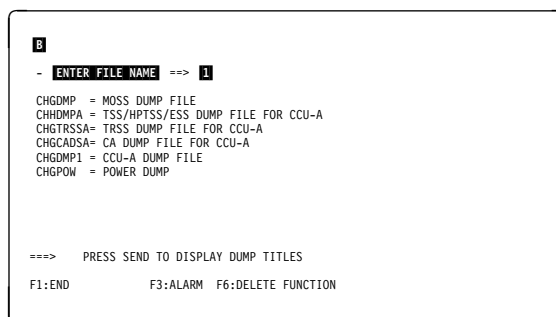


Figure 6-2. Dump Display/Delete Selection

## 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**.

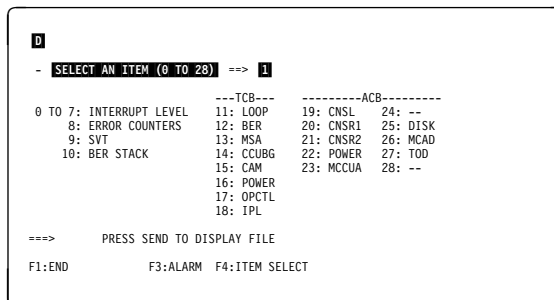


Figure 6-3. MOSS Dump Area Selection Screen

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.

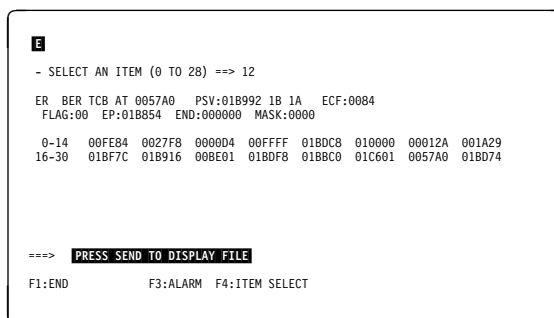


Figure 6-4. MOSS Storage Area Screen (BER Example)

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.

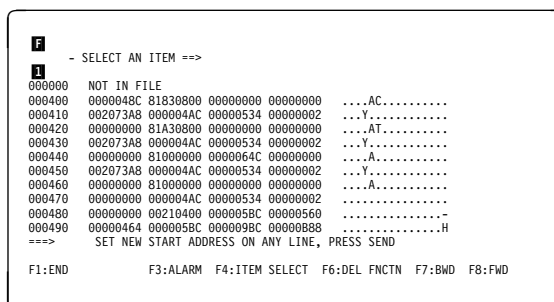


Figure 6-5. MOSS Storage Dump Screen

### Scanner Dump Display

Display of a TSS/HPTSS/ESS 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.

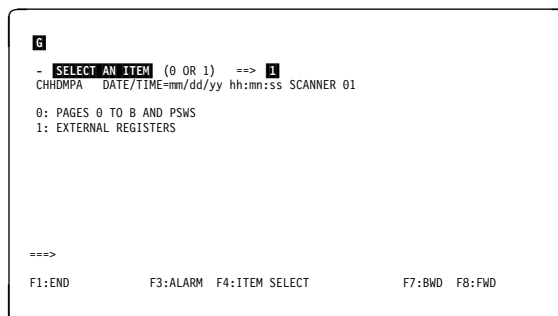


Figure 6-6. Scanner Dump Area Selection Screen

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**.

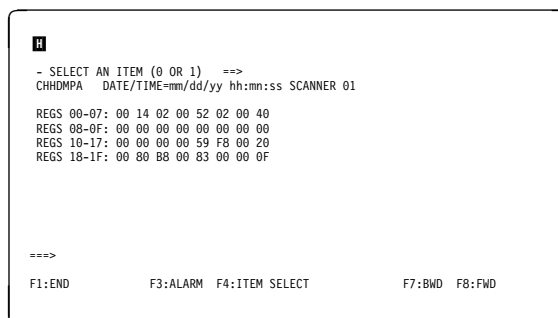


Figure 6-7. Scanner Dump Area Screen

## 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.

```

1
- SELECT AN ITEM (0 TO 7) ==> 1
CHGTRSSx TRSS DUMP FILE

0: TRA 1 TIC 1 RAM CCUX DATE/TIME:dd/mm/yy hh:mm:ss
1: EMPTY
2: EMPTY
3: EMPTY
4: EMPTY
5: EMPTY
6: EMPTY
7: EMPTY

==>
F1:END F3:ALARM F4:ITEM SELECT

```

Figure 6-8. TRSS/TIC Dump Selection Screen

Press **SEND** to display the MOSS storage dump (screen **K**).

```

J
- SELECT AN ITEM (0 TO 7) ==>
CHGTRSSx TRSS DUMP FILE
TRA:05 TIC:2 CCUID:12034567
TIME:mm/dd/yy hh:mm:ss LID:3220
BUFFER:0CA000 CONTROL:0110
DIAG:0000 IR/BR:00
LIERR:0000 INTR:0000
IPB:FF00010203042010004000400505
000C9902000C99080PB:048000000021
1093000000000000000001A001A0070
000000000107000C6030
CHKSTAT:0000000000000000
RINGSTAT:0040
==> PRESS SEND TO DISPLAY FILE
F1:END F3:ALARM F4:ITEM SELECT

```

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.

```

K
- ENTER FILE NAME ==> 1
CHGTRSSx TRSS DUMP FILE
000000 82088C8D 840E4F4E 8D12BF10 920E8F11 B...D...+...K...
000010 94360D0D 95128504 B9424746 CE244302 M...N.E...
000020 00778000 EFFE0300 253FDEB3 D222F5C8 .....K.5.
000030 E78C88CC 701A0150 00000000 E7960100 X...&...X0..
000040 01004000 FFFF7340 00020600 B5760120 .....
000050 02FE02C0 0000AE7C 9C340000 02040970 .....
000060 01000000 7FBF7FBF 80A60000 03EAB000 .....M...
000070 BAFE8900 03EC000C 99080000 013802A4 .....R...U
000080 8040001A 06FF8000 00000000 03700000 .....
000090 00660000 0368C10C 9AD20000 00000000 .....A..K...
0000A0 00B5001A 06080028 00000000 00000000 .....
==> SET NEW START ADDRESS ON ANY LINE, THEN PRESS SEND
F1:END F3:ALARM F4:ITEM SELECT F6:DEL FNCTN F7:BWD F8:FWD

```

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.

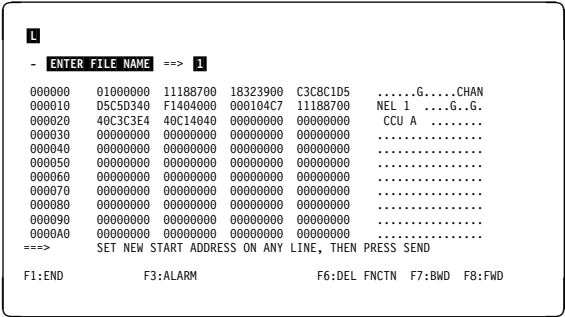


Figure 6-11. CA Dump Screen

# 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.

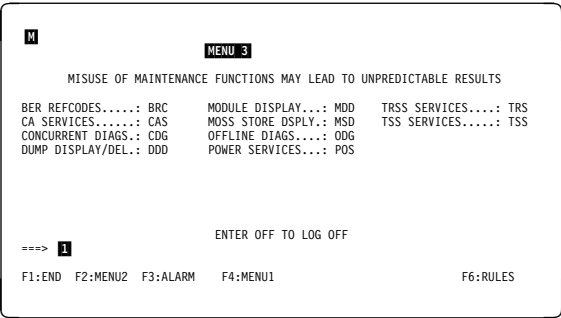


Figure 6-12. Maintenance Menu (Menu 3) Screen

- 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.

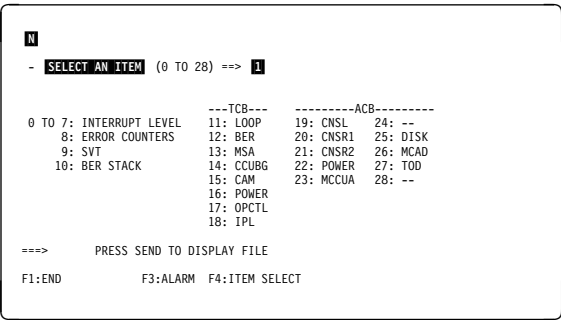


Figure 6-13. MOSS Storage Area Selection Screen

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.

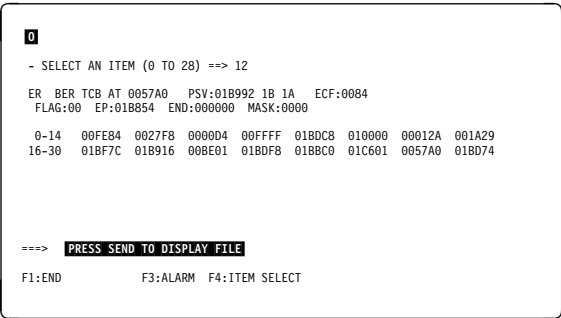


Figure 6-14. MOSS Storage Area Screen (BER Example)

### 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.

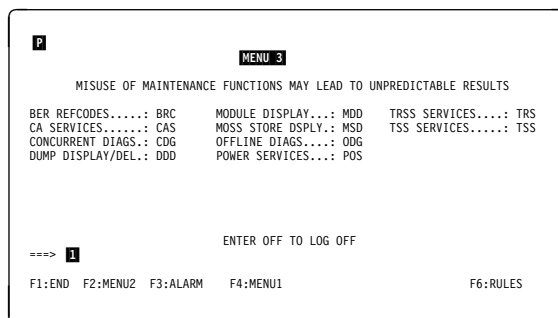


Figure 6-15. Maintenance Menu (Menu 3) Screen

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.

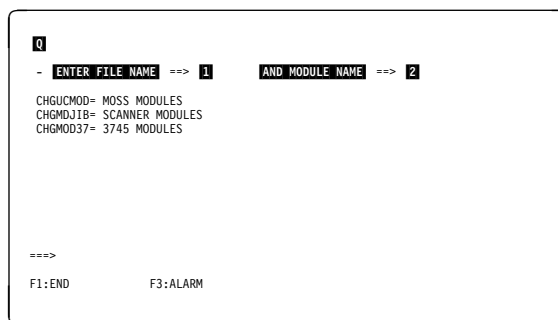


Figure 6-16. Module Display Selection Screen



## 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.

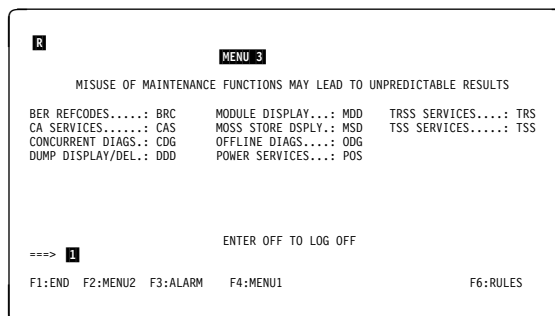


Figure 6-17. Maintenance Menu (Menu 3) Screen

Press **F6**. Screen **T** is displayed.

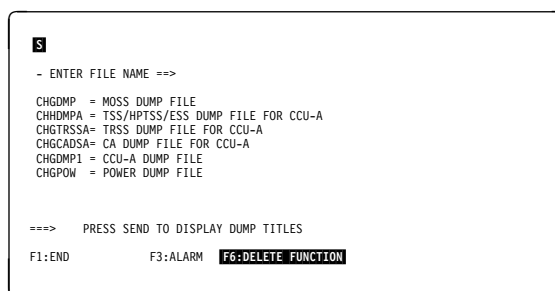


Figure 6-18. Dump Display/Delete Selection Screen

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**.

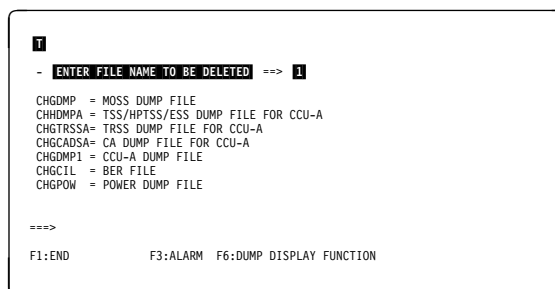


Figure 6-19. Dump Delete Selection Screen

## 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.

```
U
- 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.

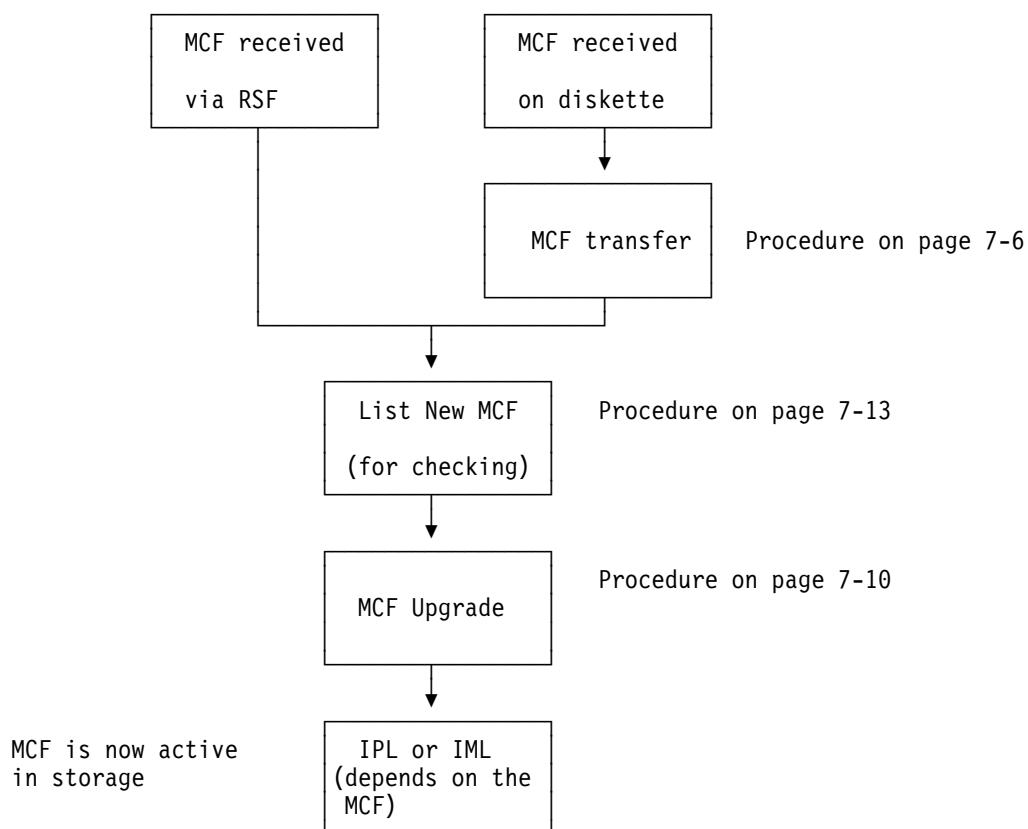


Figure 7-1. MCF Installation Sequence

## MCF Functions Overview

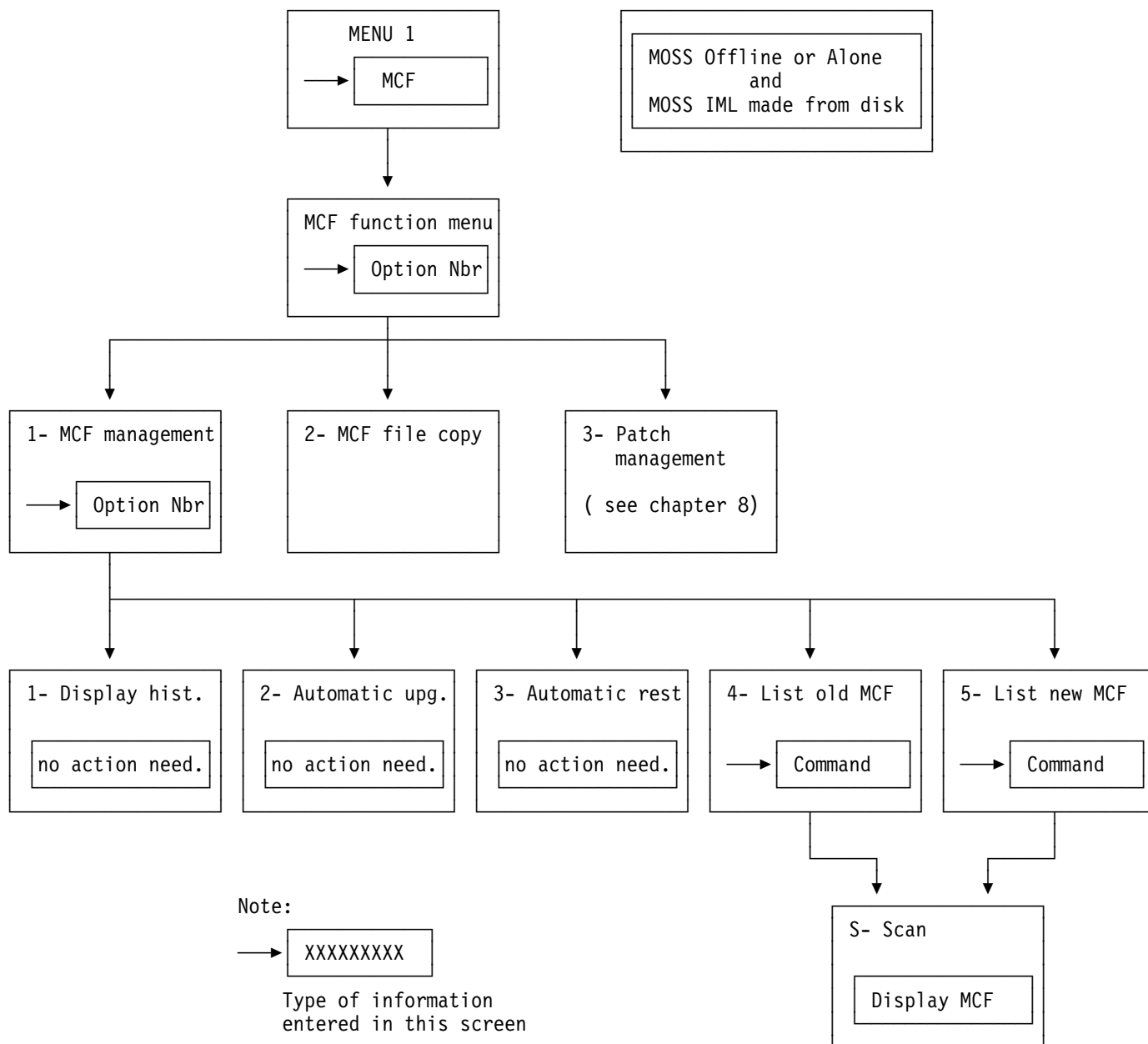


Figure 7-2. Microcode Fix Flow



## 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.

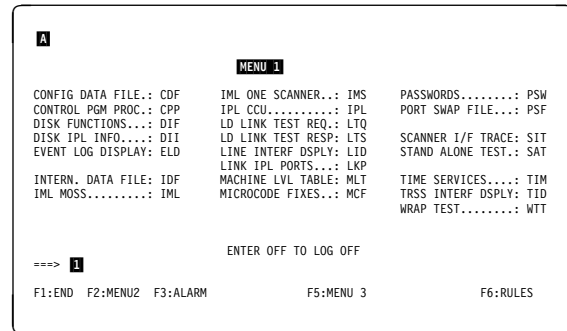


Figure 7-3. Menu 1 Screen

This screen displays the EC level of the MOSS microcode.

The procedures are described in:

<b>MCF transfer</b>	Page 7-6
<b>Display history</b>	Page 7-9
<b>MCF upgrade</b>	Page 7-10
<b>MCF restore</b>	Page 7-11
<b>List old/new MCF</b>	Page 7-13
<b>Patch management</b>	See Chapter 8

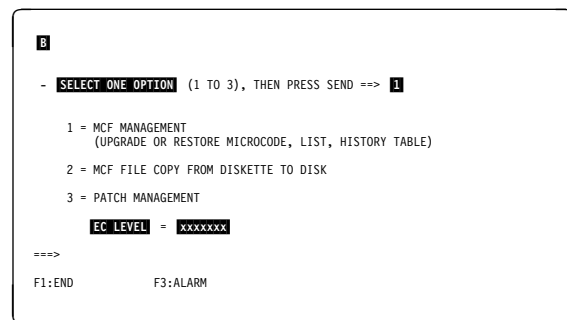


Figure 7-4. MCF/Patch Selection Screen

### 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.

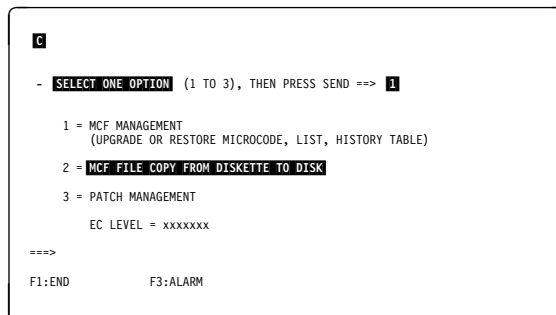


Figure 7-5. MCF/Patch Selection Screen

Install the second diskette, and press **SEND** as indicated on the screen.

Screen **E** is displayed.

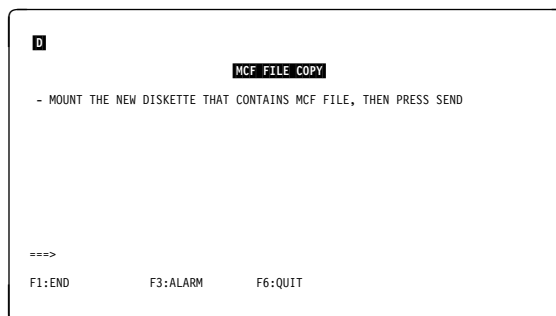


Figure 7-6. MCF File Copy Mount Diskette Screen

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

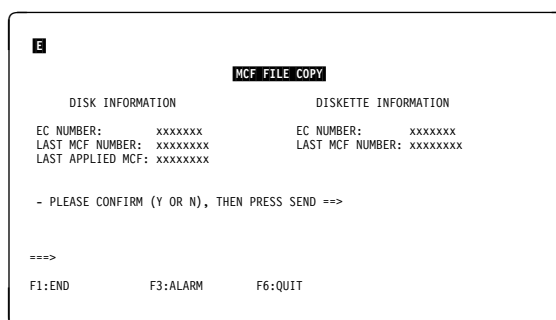


Figure 7-7. MCF File Copy Information Screen

### 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 ob 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 **G** is displayed.

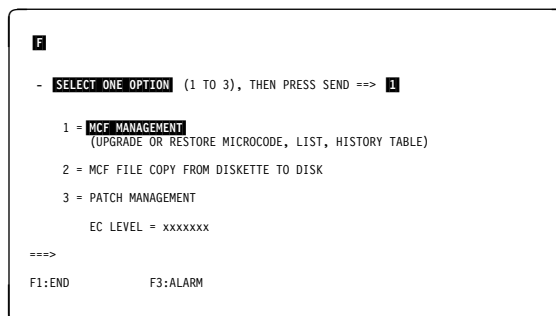


Figure 7-8. MCF/Patch Selection Screen

The procedures are described in:

<b>Display history</b>	Page 7-9
<b>MCF upgrade</b>	Page 7-10
<b>MCF restore</b>	Page 7-11
<b>List old/new MCF</b>	Page 7-13

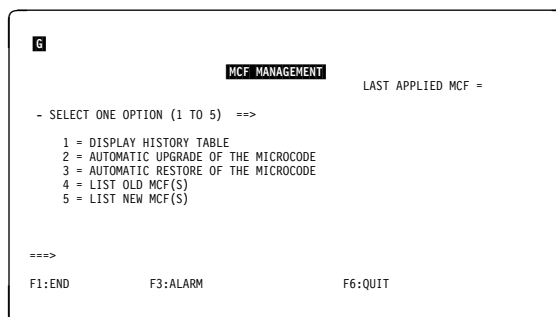


Figure 7-9. MCF Function Selection Screen

## 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 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.

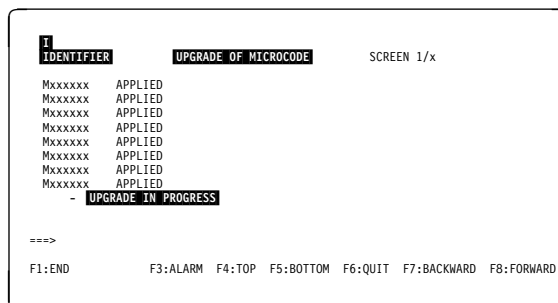


Figure 7-11. MCF Upgrade of Microcode (Upgrade in Progress)

1. At the completion of the MCF microcode upgrade, you see this screen.
2. Press **SEND**, to terminate the function.

**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.

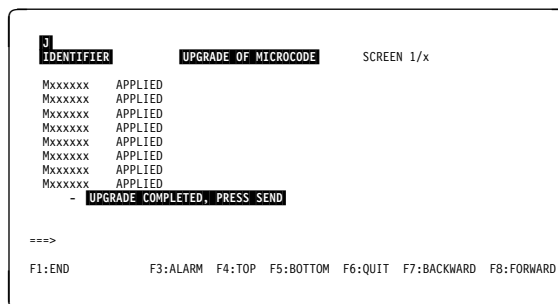


Figure 7-12. MCF Upgrade of Microcode (Upgrade Completed)

### 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).

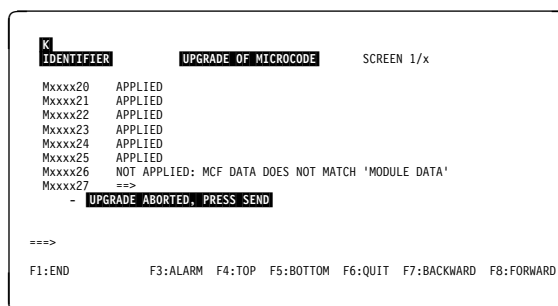


Figure 7-13. Data Error during MCF Upgrade (Example 1)

The microcode is restored to its previous state (roll-back).

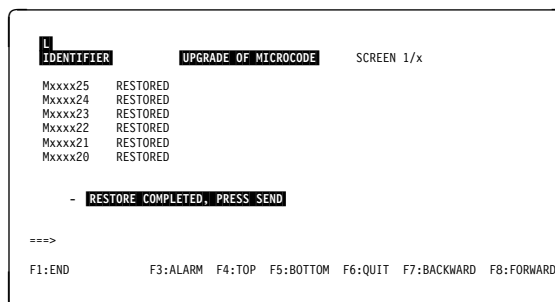


Figure 7-14. Data Error during MCF Upgrade (Example 2)

## 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.

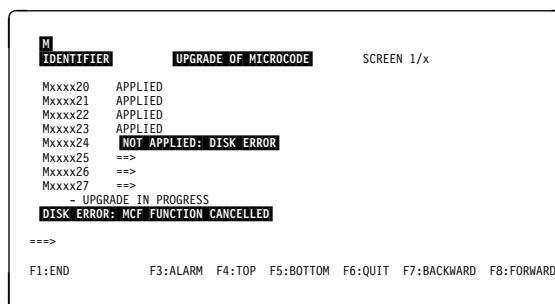


Figure 7-15. Disk Error during MCF Upgrade (Example)

## 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.

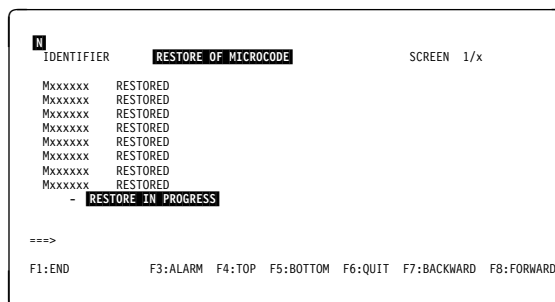


Figure 7-16. MCF Restore of Microcode (Restore in Progress)

## MCF Restore

At the completion of the MCF microcode restore, this screen is displayed.

Press **SEND**, to terminate the function.

A screenshot of a terminal window titled "RESTORE OF MICROCODE" and "SCREEN 1/x". The window shows a list of identifiers (Mxxxxx) and their status (RESTORED). Below the list, a message reads "- RESTORE COMPLETED, PRESS SEND". At the bottom, there are function keys: F1:END, F3:ALARM, F4:TOP, F5:BOTTOM, F6:QUIT, F7:BACKWARD, and F8:FORWARD.

```
0 IDENTIFIER RESTORE OF MICROCODE SCREEN 1/x
Mxxxxx RESTORED
Mxxxxx RESTORED
Mxxxxx 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.

A screenshot of a terminal window titled "RESTORE OF MICROCODE" and "SCREEN 1/x". The window shows a list of identifiers (Mxxxxx) and their status. Some are RESTORED, while others are NOT RESTORED: DISK ERROR. Below the list, a message reads "- RESTORE IN PROGRESS" and "DISK ERROR: MCF FUNCTION CANCELLED". At the bottom, there are function keys: F1:END, F3:ALARM, F4:TOP, F5:BOTTOM, and F6:QUIT.

```
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 **G** 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**).

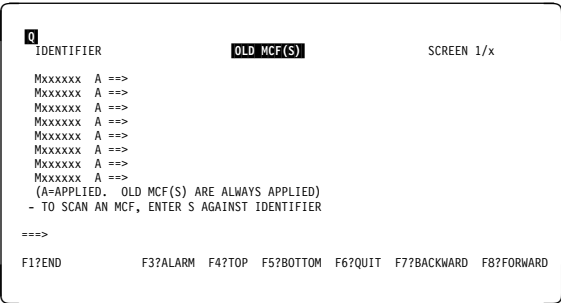


Figure 7-19. Old MCF List Screen

MCF Scan Procedure

- 1. Display the old/new MCF (see procedure above).
- 2. Enter **S** in **1**.
- 3. Press **SEND**.

Screen **S** is displayed.

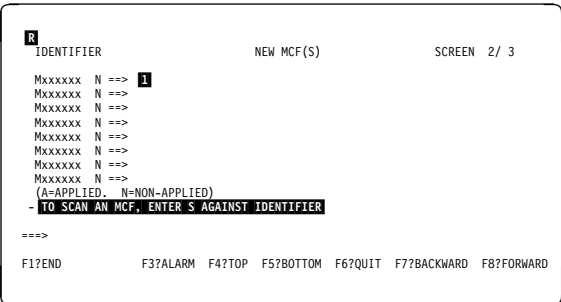


Figure 7-20. Selection of an MCF to Be Scanned (Example)

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.

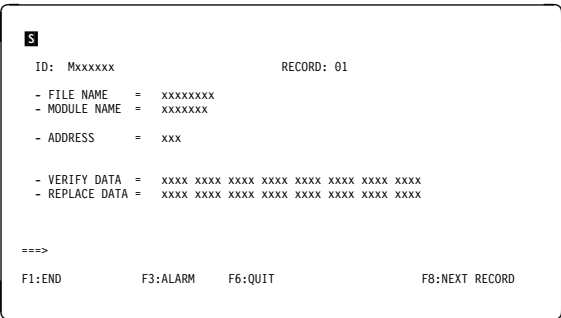


Figure 7-21. MCF Scan Display Screen (Example)

---

### 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 8-14).
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.

Procedure on page 8-6

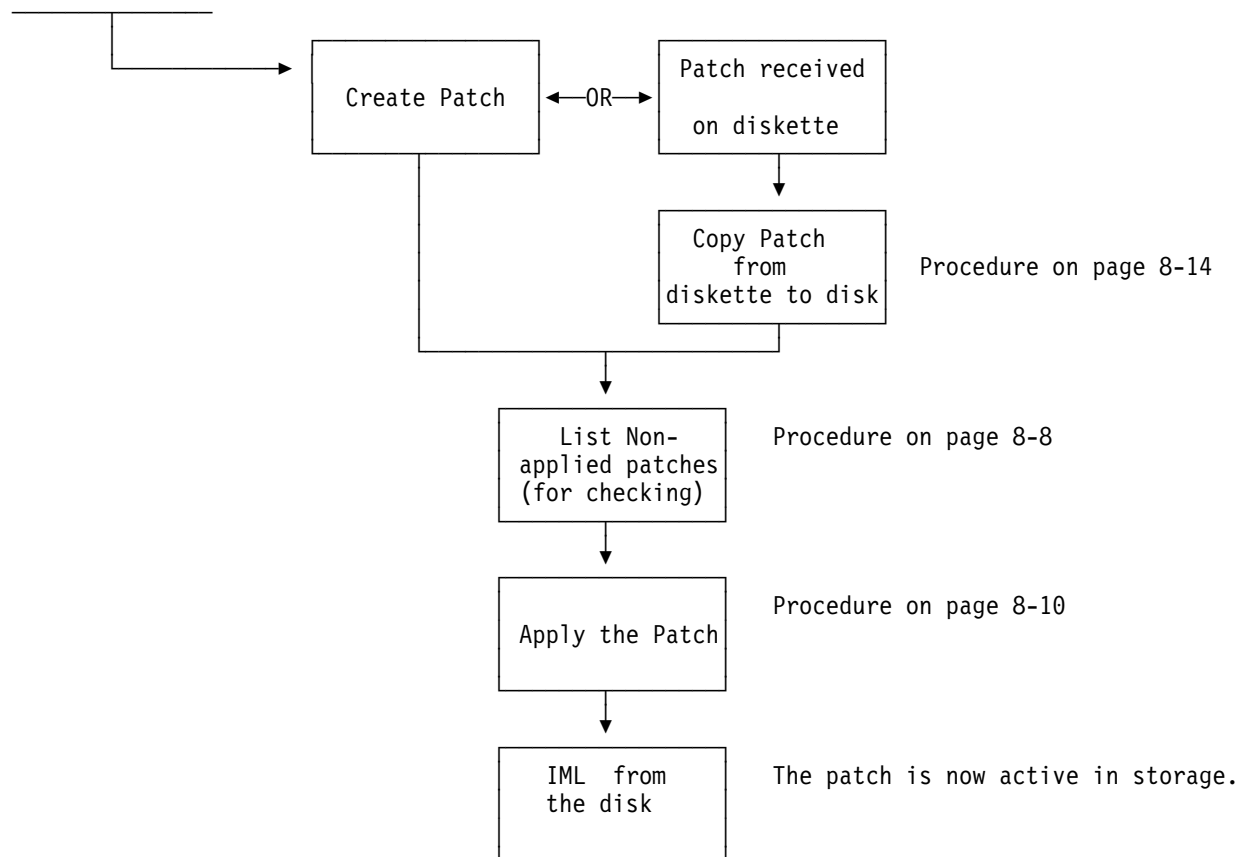


Figure 8-1. Patch Installation Sequence

## Patch Function Overview

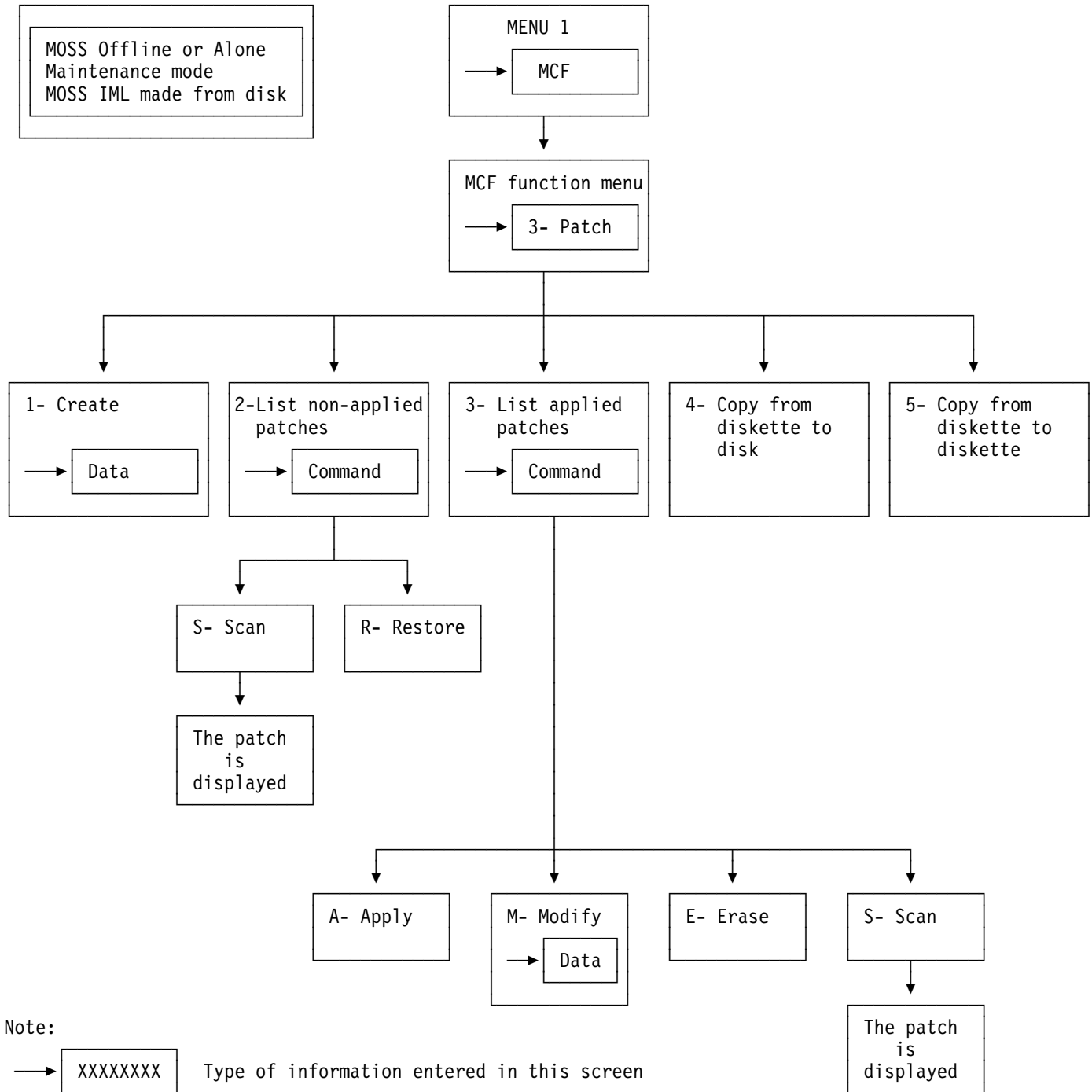


Figure 8-2. Microcode Patch Flow

## 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.

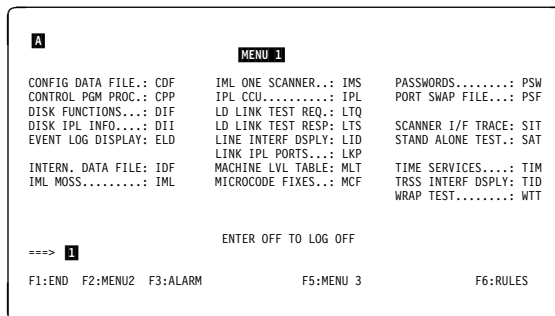


Figure 8-3. Menu 1 Screen

1. Type **3** in **1**.
2. Press **SEND**.
3. Screen **C** is displayed.

EC LEVEL: EC level of the MOSS microcode.

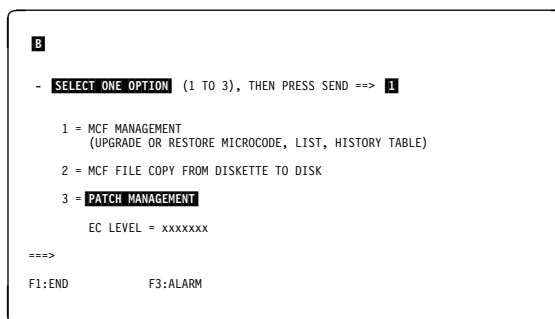


Figure 8-4. MCF/Patch Selection Screen

1. Enter the selected option in **1**.
2. Press **SEND**.

This is the starting panel for all the procedures described in this chapter.

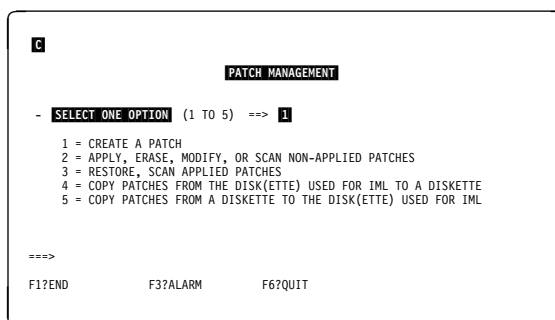


Figure 8-5. Patch Function Selection Screen

### 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 (60 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 xxxx xxxx xxxx xxxx xxxx
- REPLACE DATA ==> 5 xxxx xxxx xxxx xxxx xxxx

==>
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.

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).

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.

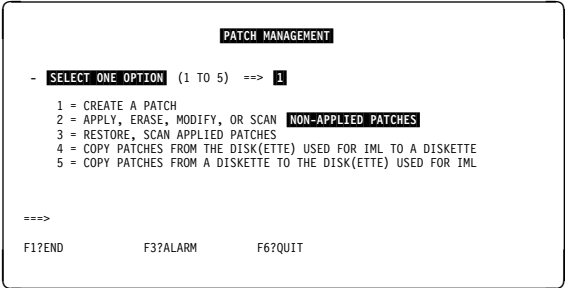


Figure 8-10. Patch Function Selection Screen

- 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.

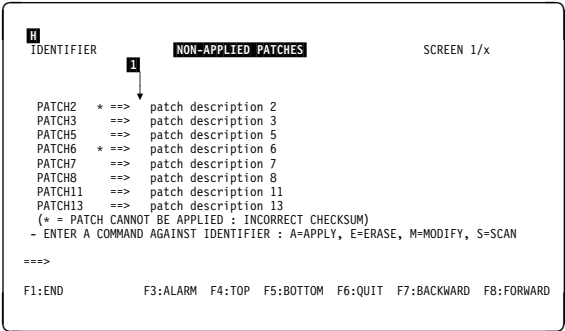


Figure 8-11. Non-Applied Patch List Screen

## 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.

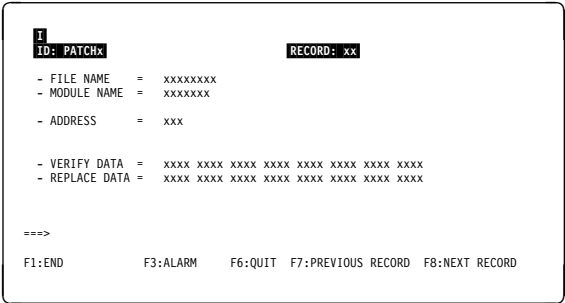


Figure 8-12. Patch Scan Display Screen (Sample)

## 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
```

```

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  ==> patch description 11
PATCH11 ==> patch description 13
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)

### 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.

## 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: PATCH#                                RECORD: xx

- FILE NAME      = xxxxxxxx
- MODULE NAME    = xxxxxxxx

- ADDRESS        = xxx

- VERIFY DATA   = xxx xxx xxx xxx xxx xxx xxx xxx
- REPLACE DATA  = xxx xxx xxx xxx xxx xxx xxx xxx

- 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.

```
L
IDENTIFIER                                NON-APPLIED PATCHES                SCREEN 1/x
PATCH2  * NOT APPLIED: INCORRECT CHECKSUM
PATCH3  ==> patch description 3
PATCH5  APPLIED
PATCH6  * NOT APPLIED: INCORRECT CHECKSUM
PATCH7  ==> patch description 7
PATCH8  APPLIED
PATCH11 NOT APPLIED: MCF DATA DOES NOT MATCH 'MODULE DATA'
PATCH13 APPLIED
(* = PATCH CANNOT BE APPLIED : INCORRECT CHECKSUM)
- APPLY COMPLETED, PRESS SEND

==>
F1:END          F3:ALARM F4:TOP  F5:BOTTOM F6:QUIT  F7:BACKWARD F8:FORWARD
```

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

```
IDENTIFIER                                NON-APPLIED PATCHES                SCREEN 1/x
PATCH2  * NOT APPLIED: INCORRECT CHECKSUM
PATCH3  ==> patch description 3
PATCH5  NOT APPLIED: DISK ERROR
PATCH6  * ==> A patch description 6
PATCH7  ==> A patch description 7
PATCH8  ==> A patch description 8
PATCH11 ==> A patch description 11
PATCH13 ==> A patch description 13
(* = PATCH CANNOT BE APPLIED : INCORRECT CHECKSUM)
- APPLY IN PROGRESS
DISK(ETTE) ERROR: MCF FUNCTION CANCELED

==>
F1:END          F3:ALARM F4:TOP  F5:BOTTOM F6:QUIT  F7:BACKWARD F8:FORWARD
```

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**.

```
N
PATCH5  APPLIED

APPLY COMPLETED, PRESS SEND  RECOVERY OF A CANCELED APPLY

==>
F1:END          F3:ALARM F4:TOP  F5:BOTTOM F6:QUIT  F7:BACKWARD F8:FORWARD
```

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.

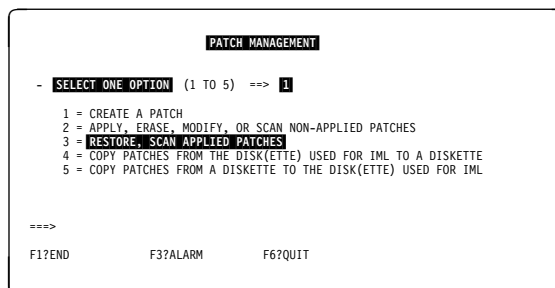


Figure 8-18. Patch Function Selection Screen

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.

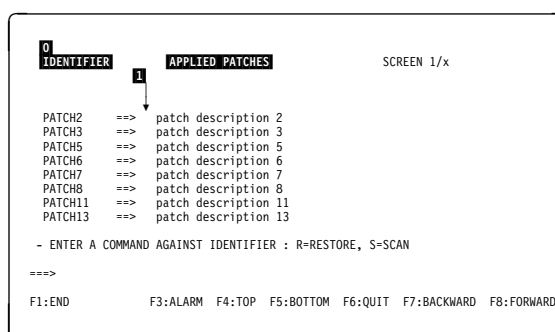


Figure 8-19. Applied Patch List Screen

### 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.

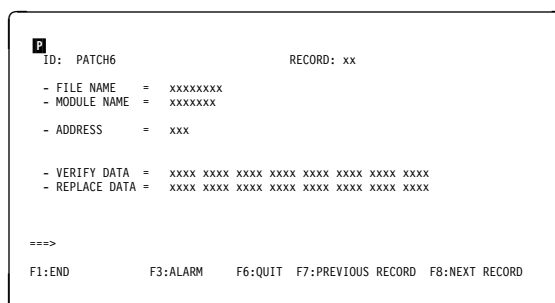


Figure 8-20. Patch Scan Display Screen (Sample)

### 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**.

```
0 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.

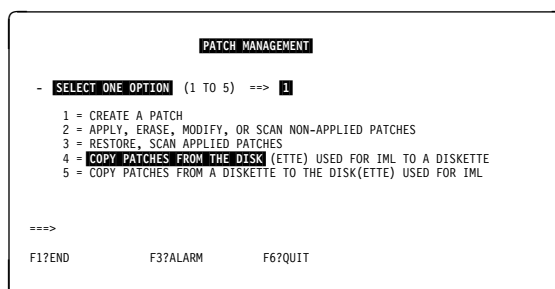


Figure 8-23. Patch Function Selection Screen

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.

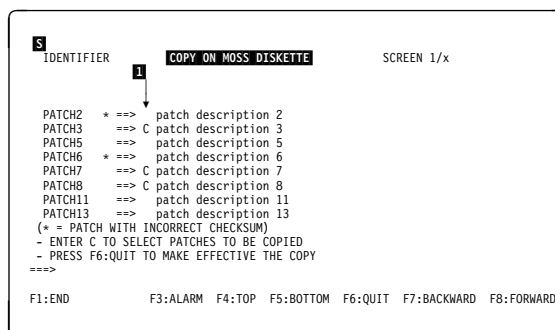


Figure 8-24. Patch Copy to MOSS Diskette Selection Screen

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)

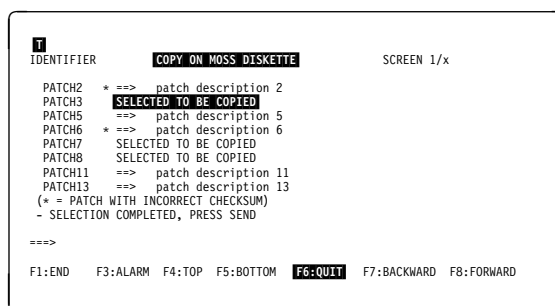


Figure 8-25. Patch Copy to MOSS Diskette Execution Screen

## 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.

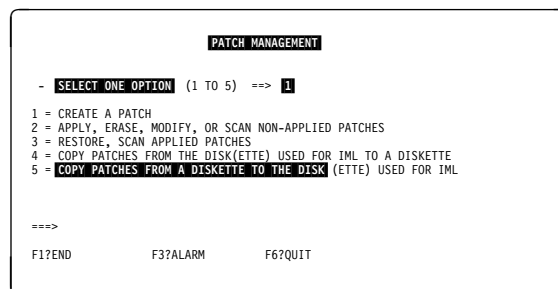


Figure 8-26. Patch Function Selection Screen

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.

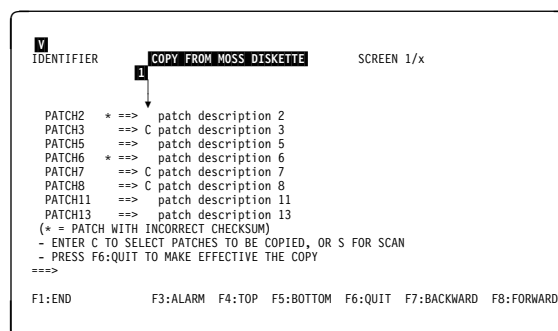


Figure 8-27. Patch Copy from MOSS Diskette Selection Screen

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)

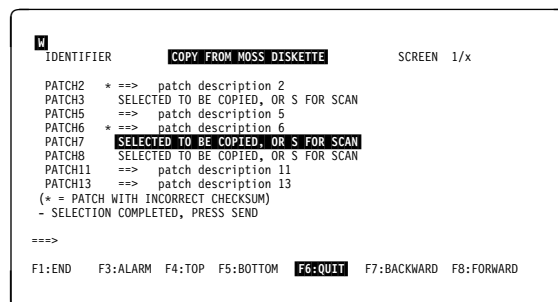


Figure 8-28. Patch Copy from MOSS Diskette Execution Screen



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## 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.



---

## Chapter 9. Configuration Data File (CDF)

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## Your Road Map in the CDF

You Are Working On	You Want To						
	Add or Delete	Create	Display	Display FRU Level	Update	Upgrade	Verify
CCU	--	--	--	9-15	--	--	9-12
CDF	--	9-9	9-14	9-15	9-14	9-10	9-11
Channel Adapters	9-26	--	9-17	9-15	9-20	--	9-12
Extend	9-33	--	9-27	--	--	--	9-12
FRU Level	--	--	9-15	9-15	--	--	9-11
LIC	9-32	--	9-27	9-16	9-32	--	9-13
Line Adapters <ul style="list-style-type: none"> <li>• HPTSS</li> <li>• ESS</li> <li>• TRSS</li> <li>• TSS</li> </ul>	9-31	--	9-28 9-29 9-28 9-28	9-16	9-32 <ul style="list-style-type: none"> <li>• 9-34</li> <li>• --</li> <li>• --</li> <li>• --</li> </ul>	--	9-12 9-12 9-12 9-12
MOSS	--	--	--	9-15	--	--	9-11
MUX	9-33	--	--	9-16	9-31	--	9-12
Ports <ul style="list-style-type: none"> <li>• HPTSS</li> <li>• ESS</li> <li>• TRSS</li> <li>• TSS</li> </ul>	--	--	9-35 9-36 9-35 9-36	--	9-35 -- 9-36	--	9-13 -- 9-13 --
TIC	9-31	--	9-28	--	--	--	9-13
TPS	9-26	--	9-17	--	9-20	--	9-12

## 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.

This function must be used carefully because in some circumstances it may disturb the user's operation.

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 Capabiliy 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.

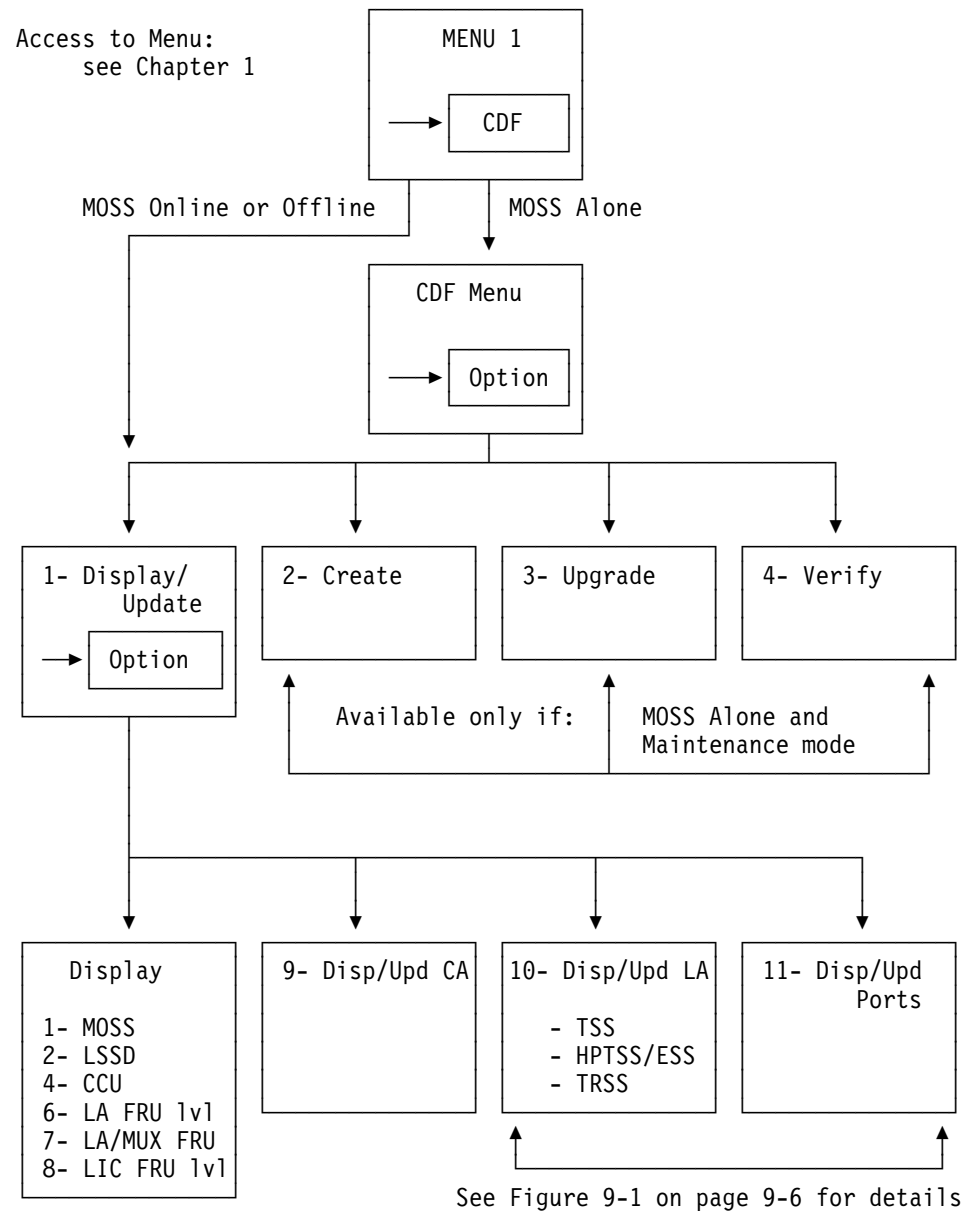
Adapter Type	Action	MOSS			Comments
		Alone	Online	Offline	
CA	Update	X	X	X	
CA	Add/Delete	X	NO	NO	Hw change: pwr OFF + CDF upgrade
LA					
LA TSS	Add/del/repl LIC	NO	X	X	Depends on adapter status
LA HPTSS	Update	X	X	X	
LA TRSS	Display only	X (*)	X (*)	X (*)	
TSS Port	Update	X	X	X	
Other Ports: no update		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 DPLY: LID      TIME SERVICES....: TIM
INTERN. DATA FILE: IDF     LINK IPL PORTS...: LKP      TRSS INTERF DPLY: TID
IML MOSS.....: IML         MACHINE LVL TABLE: MLT      WRAP TEST.....: WTT
                           MICROCODE FIXES...: MCF

====> 1
F1:END  F2:MENU2  F3:ALARM          F5:MENU 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 9-14

**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 9-14.

```

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**.

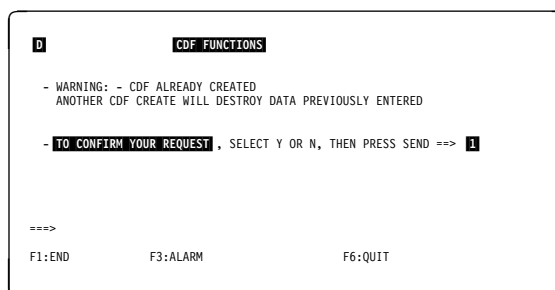


Figure 9-5. CDF Create Checking Screen

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

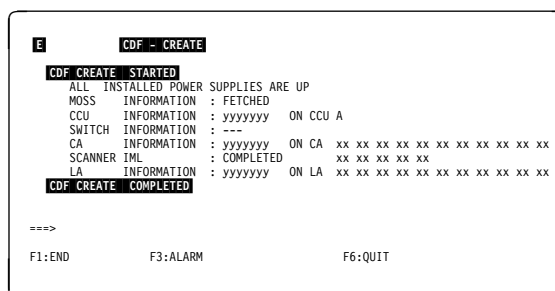


Figure 9-6. CDF Create Screen (Example)

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

**Note:** This function must be used carefully because in some circumstances it may disturb the user's operation.

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.

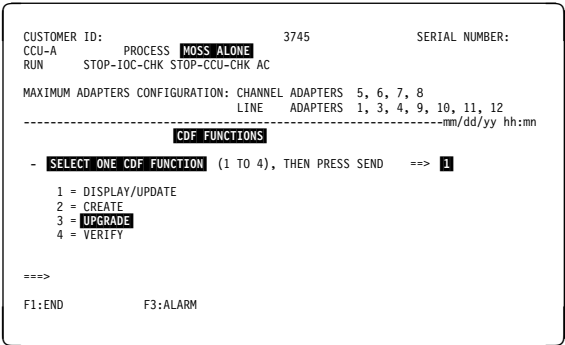


Figure 9-7. CDF Functions Selection Screen

- 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.

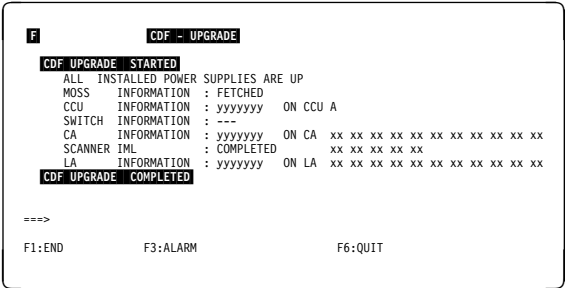


Figure 9-8. CDF Upgrade Screen

## 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

Contact your local support structure.

### Presence or type discrepancy

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 xx
SCANNER IML : COMPLETED
LA INFORMATION : yyyyyyy ON LA xx 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 THERE IS A DIFFERENCE BETWEEN CDF FILE AND MACHINE IN MOSS SENSED DATA
- 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 : xxxxxxxxxxxx :
MCF LEVEL : xxxxxxxx :

==>
F1:END F3:ALARM F6:QUIT

```

Figure 9-11. CDF Verify (MOSS Differences)

## 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

**PRESENCE** Y (yes), or N (no)

**TYPE** TSS, HPTSS, ESS, or TRSS

**CSC** Used with TSS

**FESH** Used with HPTSS.

**EAC** Used with ESS

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	:
EAC FRU LEVEL	: xx	:

====>

F1:END
F3:ALARM
F6:QUIT

Figure 9-14. CDF Verify (LA Differences)

## 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.

**L**  
THERE IS A DIFFERENCE BETWEEN CDF FILE AND MACHINE IN **LA xx SENSED DATA**  
ABOUT THE **MUX xx OF THIS LA**  
- SELECT AN OPTION (1 OR 2), THEN PRESS SEND ==>

	CDF DATA (1)	MACHINE DATA (2)
MUX PRESENCE	: x	:
EXTEND PRESENCE	: x	:
DMUX FRU LEVEL	: xx	:
SMUX FRU LEVEL	: xx	:
MUX NUMBER	: xx	:
LIC BOARD	: LIBx	:

====>

F1:END
F3:ALARM
F6:QUIT

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*).

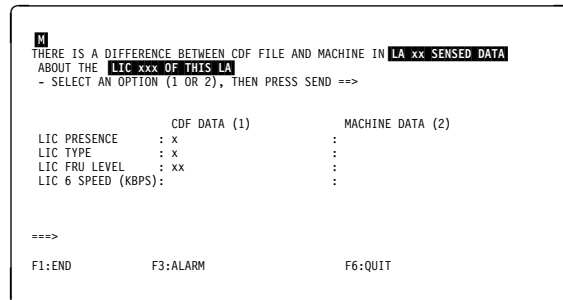


Figure 9-16. CDF Verify (LA Differences - LIC)

## CDF Verify (LA Differences - TIC)

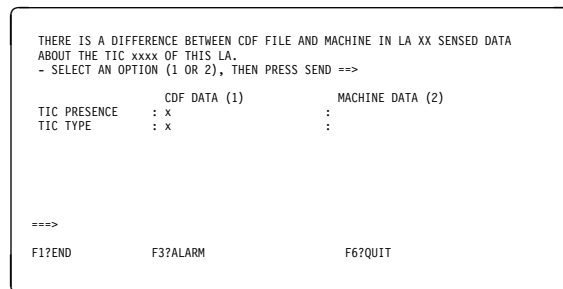


Figure 9-17. CDF Verify (LA Differences - TIC)

## HPTSS Port Differences

### PORT CABLE ID

- Not present
- 1 Wrap block
- 4 Modem-attached
- 5 Direct-attached

INTERFACE TYPE V35 or X21.

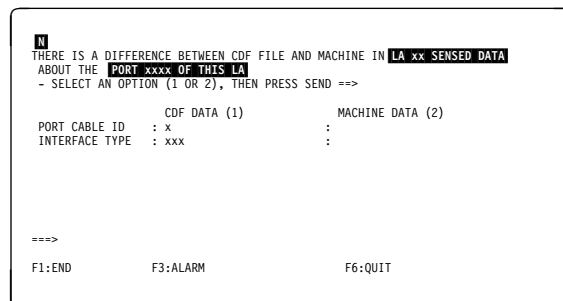


Figure 9-18. CDF Verify (LA Differences - HPTSS)

## TRSS Port Differences

PORT PRESENCE Y (yes), or N (no).

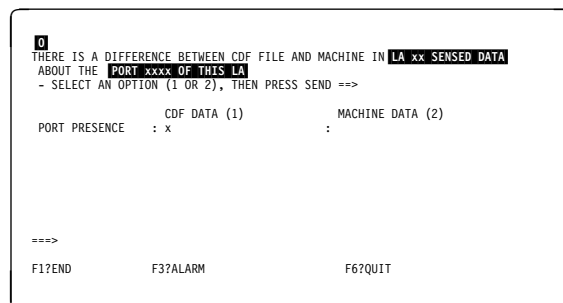


Figure 9-19. CDF Verify (LA Differences - TRSS)

## 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.

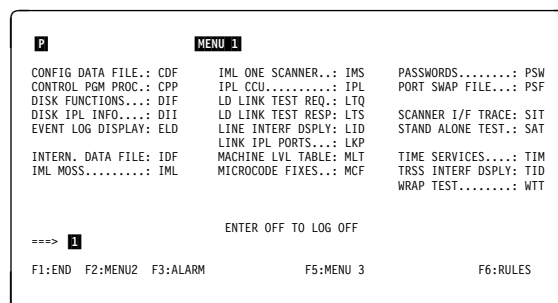


Figure 9-20. Menu 1 Screen

## Maintenance Mode and MOSS Alone

1. Type **1** in **1**.
2. Press **SEND**.
3. The procedure continues with the next screen (**R**).

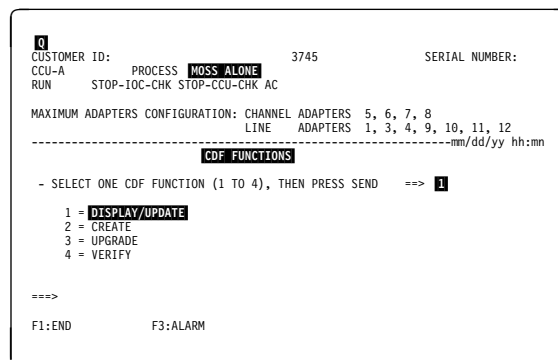


Figure 9-21. CDF Functions Selection Screen

## 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:

<b>All display options</b>	See from page 9-15 to page 9-16.
<b>Display/update CA</b>	See page 9-17.
<b>Display/update LA</b>	See page 9-27.
<b>Display/update ports</b>	See page 9-35.

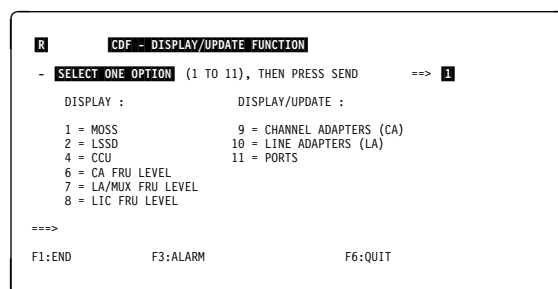


Figure 9-22. CDF Display/Update Menu Screen



## Display MOSS

1. You must be in the CDF Display/update function (see page 9-14).
2. In the display/update function screen ( **R** ), page 9-14, select option 1.
3. Screen **S** is displayed.

```
S
                                CDF - DISPLAY : MOSS
STORAGE SIZE : xxxxK  DISKETTE SIZE : xxMB  DISK SIZE : xxxMB
PS ID       : --      MOSS MICROCODE EC LEVEL : xxxxxxxxxxxx
                                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 9-14).
2. In the display/update function screen ( **R** ), page 9-14, select option 2.
3. Screen **T** is displayed.

**Note:** Only the PE can use the information displayed by this option.

```
T
                                CDF - DISPLAY : LSSD
0000 00 03 04 07 08 0B 0C 0F 10 13 14 17 18 1B 1C 1F
0020 .....
0040 .....
0060 .....
0080 .....
00A0 .....
00C0 .....
00E0 .....

==>
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 9-14).
2. In the display/update function screen ( **R** ), page 9-14, 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 9-14).
2. In the display/update function screen ( **R** ), page 9-14, select option 6.
3. Screen **V** is displayed.

```
V
                                CDF - DISPLAY : CHANNEL ADAPTERS FRU LEVEL
CA NUMBER    1   2   3   4   5   6   7   8
CAL          --- --- --- --- 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 9-14).
- 2. In the display/update function screen ( **R** ), page 9-14, select option **7**.
- 3. Screen **W** is displayed.

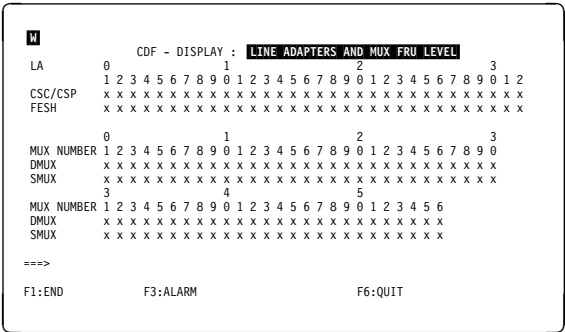


Figure 9-27. CDF Display LA/MUX FRU Level

# Display LIC FRU Level

- 1. You must be in the CDF display/update function (see page 9-14).
- 2. In the display/update function screen ( **R** ), page 9-14, 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

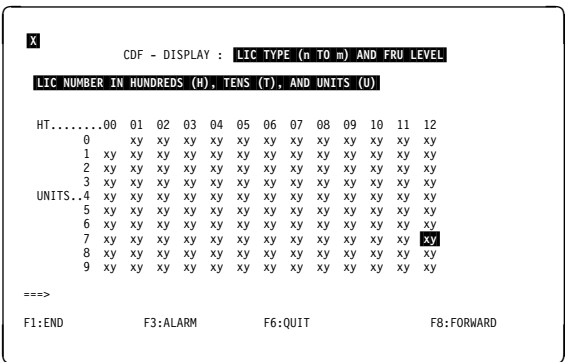


Figure 9-28. CDF Display LIC FRU Levels

## Display/Update Channel Adapters

1. You must be in the CDF display/update function (see page 9-14).
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**

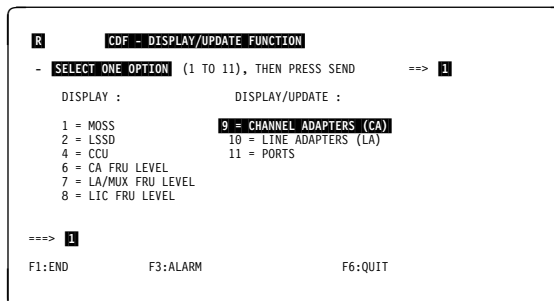


Figure 9-29. CDF Display/Update Menu Screen

## Display All Channel Adapters

1. Enter **0**, in **1**.
2. Press **SEND**. Screen **Z** is displayed.

You cannot update a CA in this screen.

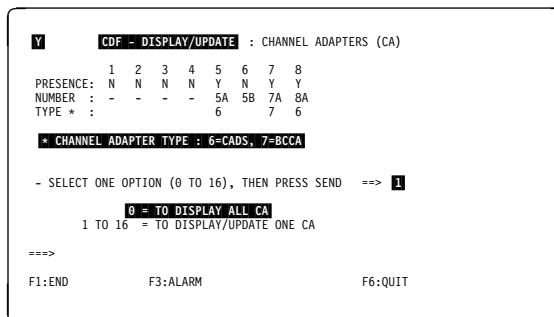


Figure 9-30. CDF Display/Update Channel Adapters Screen

<b>TYPE</b>	CADS or BCCA
<b>ADDRESS</b>	Physical address of the CA on the IOC bus
<b>PRESENCE</b>	Y (yes) or N (no)
<b>TPS</b>	Y (yes) or N (no)
<b>NSC</b>	NSC address
<b>ESCL</b>	ESC low address (CADS only)
<b>ESCH</b>	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.

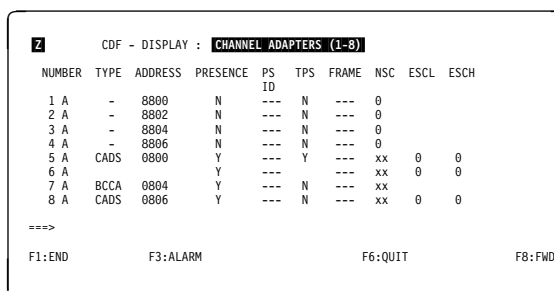


Figure 9-31. Display Channel Adapters

## 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.

```

AA      CDF - DISPLAY/UPDATE : CHANNEL ADAPTERS (CA)

      1  2  3  4  5  6  7  8
PRESENCE: N  N  N  N  Y  N  Y  Y
NUMBER  : -  -  -  -  5A 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 9-32. CDF Display/Update Channel Adapters Screen

Press **F8**, to display the CA parameters (screen **AB**). Refer to “CA Display Field Explanations” on page 9-23 for details.

If you want to **update** the CA, go to page 9-20.

**note** This line is displayed only if the TPS feature is installed. Remember: it can be installed only on an odd numbered CA.

```

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) : note

====>
F1:END      F3:ALARM      F5:UPDATE      F6:QUIT      F7:PREVIOUS CA      F8:FWD
    
```

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 9-24.

```

AC      CDF - DISPLAY : CA xx

      CHANNEL BURST LENGTH (4 TO 254) : xxx      INTERFACE A      INTERFACE B
      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      F5:UPDATE      F6:QUIT      F7:BWD      F8:NEXT CA
    
```

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 9-26.)

```

AD      CDF - DISPLAY/UPDATE : CA xx

SWITCH : --      CAB : --      PS ID : --      ADDR : xxxx
IOC     : 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
IOC   : 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 9-14).
2. Display the CA (see “Display/Update Channel Adapters” on page 9-17), 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 9-23.
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: 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 - DISPLAY/UPDATE : CA xx

SWITCH : -- CAB : -- PS ID : -- ADDR : xxxx
IOC : 1 GROUP : x CCU : A TYPE : xxxx

- SELECT I/O ERROR ALERT (Y OR N) ==> 1
- SELECT TWO PROCESSOR SWITCH MODE (TPS OR TCS) ==> 2
- PRESS SEND

==>

F1:END F3:ALARM F6:QUIT F7:PREVIOUS CA F8: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 9-24 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) INTERFACE A INTERFACE B
CHANNEL PRIORITY (L=LOW,H=HIGH) ==> xxx ==>
NSC ADDRESS (00 TO FF) ==> x ==>
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 9-38. Update a CA (Second Part)

## Procedure with MOSS Online

1. You must be in the CDF Display/update function (see page 9-14).
2. Display the CA (see “Display/Update Channel Adapters” on page 9-17), 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 **AJ**).

```

AI CDF - DISPLAY/UPDATE : CA xx

SWITCH : -- CAB : -- PS ID : -- ADDR : xxxxx
IOC : 1 GROUP : x CCU : A TYPE : xxxxx

- 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 9-24 for details.)
  2. Press **SEND**.
  3. The following message is displayed:  
UPDATE OF THE CDF FILE SUCCESSFUL

```

AJ CDF - UPDATE : CA xx

CHANNEL BURST LENGTH (4 TO 254) INTERFACE A ==> XXX INTERFACE B ==>
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)

## Procedure with MOSS Offline

### TPS Feature Installed

1. You must be in the CDF Display/update function (see page 9-14).
2. Display the CA (see “Display/Update Channel Adapters” on page 9-17), 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 9-24 for details).
2. Press **SEND**.

```

AL CDF - UPDATE : CA xx

CHANNEL BURST LENGTH (4 TO 254) INTERFACE A ==> 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 9-14).
2. Display the CA (see “Display/Update Channel Adapters” on page 9-17), 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 9-24 for details.)
5. Press **SEND**.

```

AM CDF - UPDATE : CA xx

CHANNEL BURST LENGTH (4 TO 254) INTERFACE A ==> 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

<b>AB</b>		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 detection of 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 9-24.

## 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:

- With **all** buffered devices on the byte channel: 64 with CADS, or 254 with BCCA.
- With any **unbuffered** device 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 9-20, 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 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

```

AO
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 9-14).
2. In the display/update function screen ( **R** ), page 9-14, 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	160	170
TSS (type 1)	none	9	9, 10	3 (note) 4 (note) 9, 10, 11, 12
HPTSS (type 2)	3, 4	3	3 (note) 4 (note)	3 (note) 4 (note)
TRSS (type 3)	1, 2	1	1	1
ESS (type 5)	3, 4	3	3 (note) 4 (note)	3 (note) 4 (note)
<b>Note:</b> Either address 3 or 4 can be used by TSS or HPTSS, or ESS.				

<b>AQ</b>	CDF - DISPLAY/UPDATE :																<b>LINE ADAPTERS</b>	
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 * :	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<b>* LINE ADAPTER TYPE</b> : 1=TSS, 2=HPTSS, 3=TRSS, 4=RSRVD, 5=ESS																		
- TO DISPLAY/UPDATE LA, SELECT ITS NUMBER (1-32), THEN PRESS SEND ==> <b>1</b>																		
====>																		
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, ESS, or TRSS.

This explanation is valid for all the following LA screens.

<b>AR</b>	CDF - DISPLAY : LA xx			
SWITCH : --	LAB : --	PS ID : --	ADDR : xx	
IOC : 1	GROUP : x	CCU : A	TYPE : xxxxx	
<b>LA NOT INSTALLED</b>				
- 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 9-32 for LIC positions).

For description of this screen refer to “LA TSS Display Field Explanations” on page 9-29.

- 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.

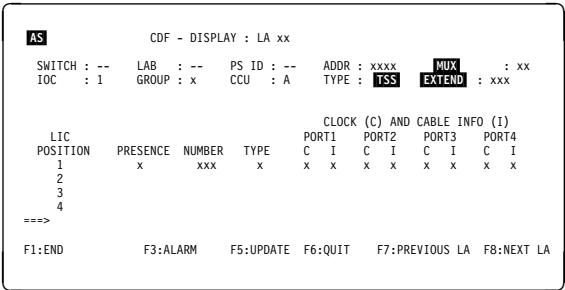


Figure 9-53. Display an LA TSS Installed

## LA TRSS

**Presence** Y (yes), or N (no)  
**Port number** Address (from 1088 to 1095)  
**Type** TIC type (1 or 2)

When F5: UPDATE is displayed you **must ignore** it because it is not available, even when displayed. Pressing the F5 key while displaying an LA TRSS will result in the message:

FUNCTION NOT SUPPORTED BY THIS MODEL

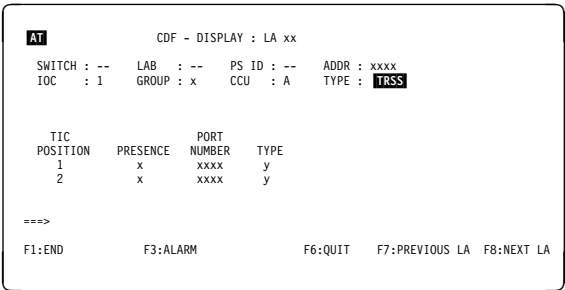


Figure 9-54. Display an LA TRSS Installed

## 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.

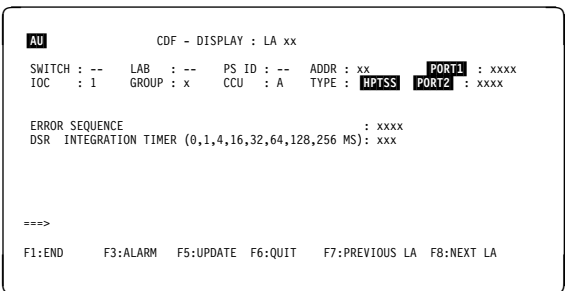


Figure 9-55. Display an LA HPTSS Installed

## LA ESS

**PORT x** Port number.

When F5: UPDATE is displayed you **must ignore** it because it is not available, even when displayed. Pressing the F5 key while displaying an LA ESS will result in the message:

FUNCTION NOT SUPPORTED BY THIS MODEL

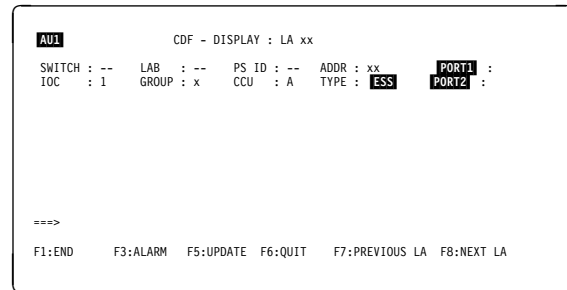


Figure 9-56. Display an LA ESS Installed

## LA TSS Display Field Explanations

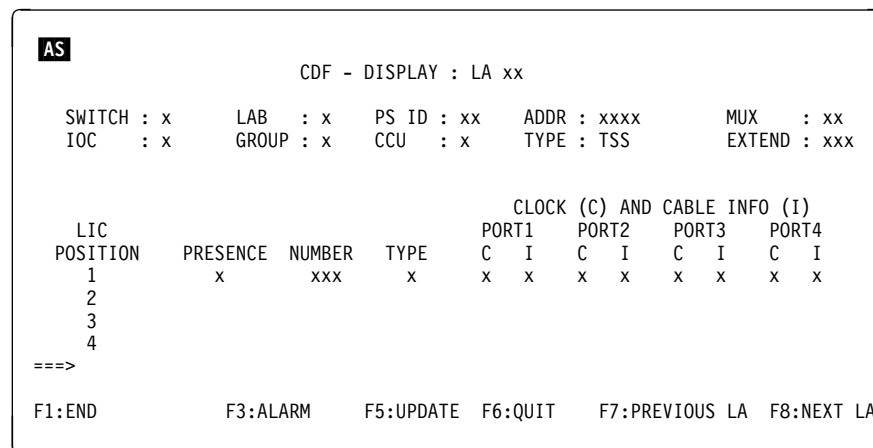


Figure 9-57. Display an LA TSS

- 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 9-32,
  - HPTSS, go to 9-34,
 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 :  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 xx
LA    INFORMATION :  yyyyyyy  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 9-58. 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

```

AM                                     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 9-59. 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 9-14).
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 9-27 is displayed.
4. Press F5. This screen **AX** is displayed.
5. Select the appropriate option and press **SEND**. The screen **AY** is displayed.

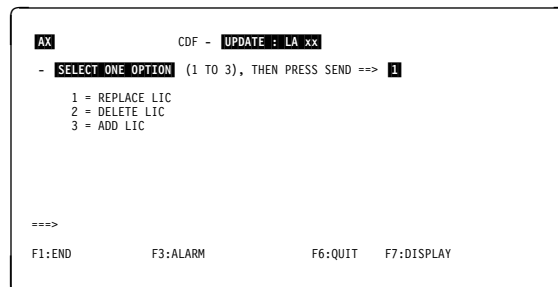


Figure 9-60. Add a LIC, MOSS Offline or Online, and Adapter Operative

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

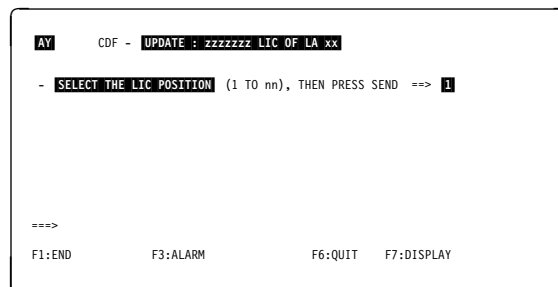


Figure 9-61. Add or Replace or Delete a LIC

This screen reflects the progress of the operation. At the end, a message indicates whether the change is completed or aborted.

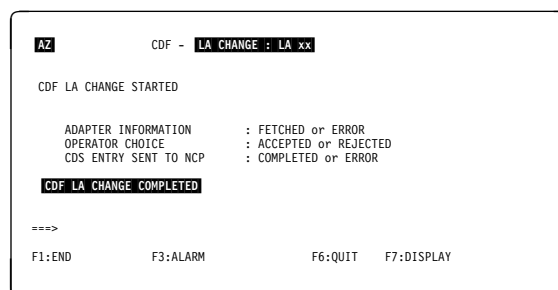


Figure 9-62. LA Status Change Screen

## 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

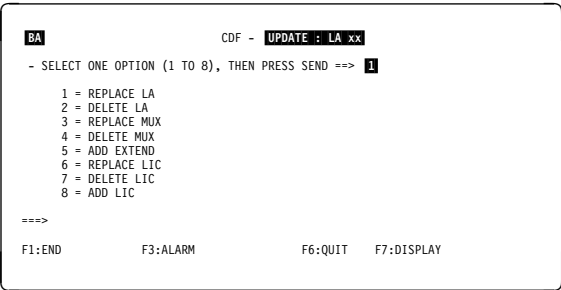


Figure 9-63. Update an LA TSS Menu Screen

## 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

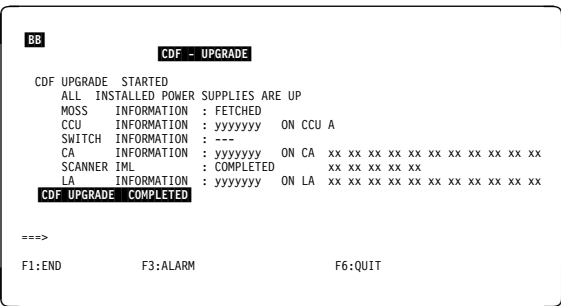


Figure 9-64. CDF Upgrade Screen

# Update an LA HPTSS

## MOSS Online and Adapter Inoperative

1. You must be in the CDF display/update function (see page 9-14).
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 9-27).
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

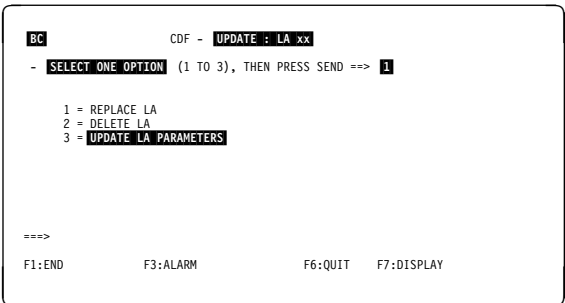


Figure 9-65. Update an LA HPTSS

## Adapter Operative

1. You must be in the CDF Display/update function (see page 9-14).
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 9-27).
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.

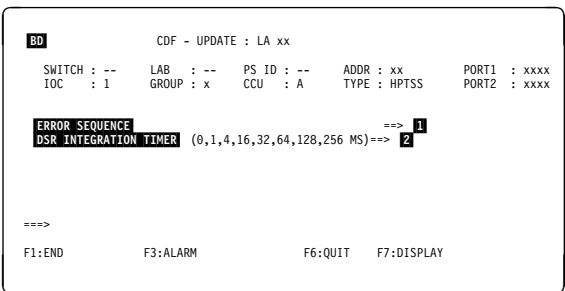


Figure 9-66. Update Parameters of an LA HPTSS

## Display/Update Ports

1. You must be in the CDF display/update function (see page 9-14).
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.

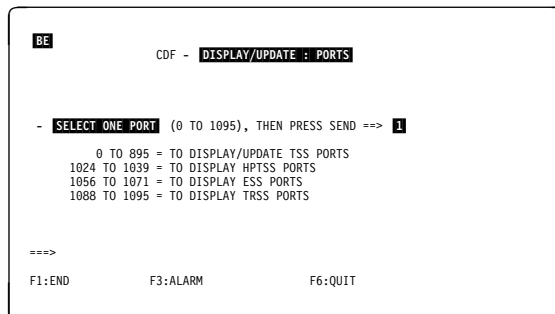


Figure 9-67. CDF Display/Update Ports Selection Screen

## Display TRSS Port

A TRSS port cannot be updated.

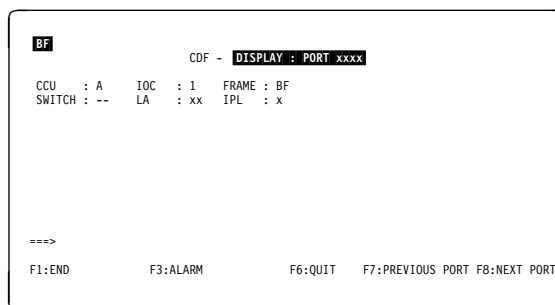


Figure 9-68. Display TRSS Port

## 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

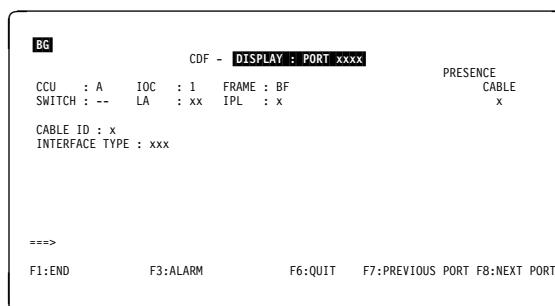


Figure 9-69. Display HPTSS Port

Display ESS Port

An ESS port cannot be updated. If the port is not present the following message is displayed:  
PORT NOT INSTALLED

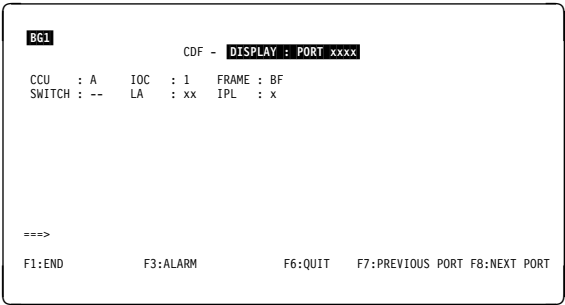


Figure 9-70. Display ESS Port

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.

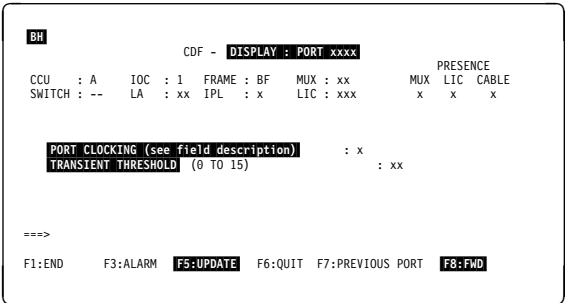


Figure 9-71. Display TSS Port (First Part)

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.

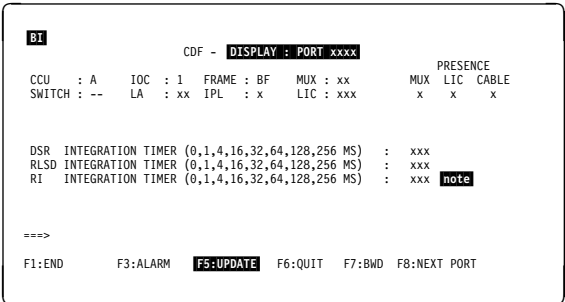


Figure 9-72. Display TSS Port (Second Part)

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 9-37 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.

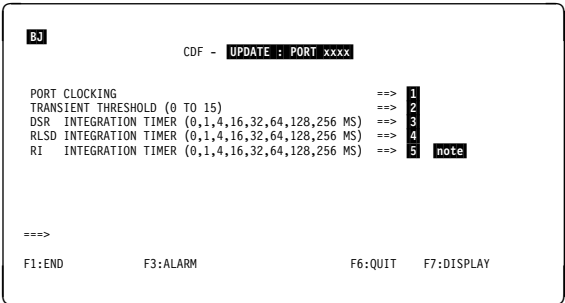


Figure 9-73. Update TSS Port

## 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 9-74. Update TSS Port (Field Description)

Fields LA, MUX, LIC, IPL, and PRESENCE are related to the upper part of screen **BI**, 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 9-76).

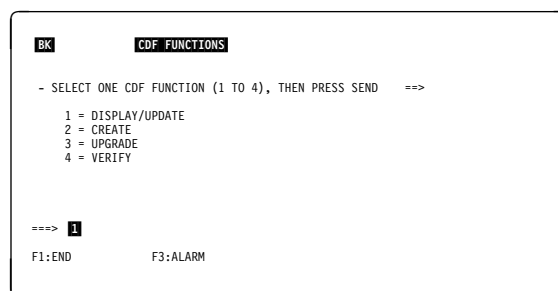


Figure 9-75. CDF Functions Selection Screen

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

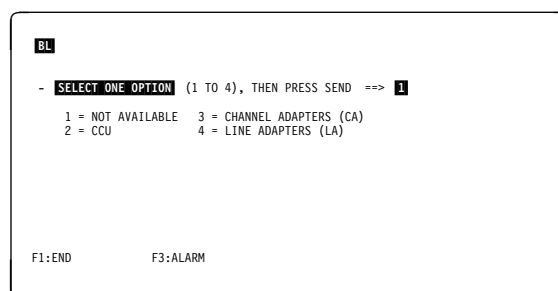


Figure 9-76. CDF Functions Selection Screen



## 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 9-77. 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 9-78. 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.

```
B0
      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 9-79. 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 9-80. 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.

**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.

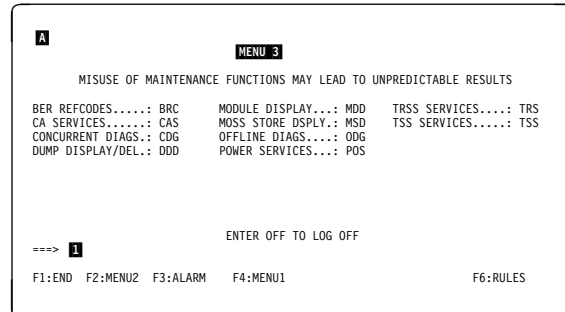


Figure 10-1. Maintenance Menu (Menu 3) Screen

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.

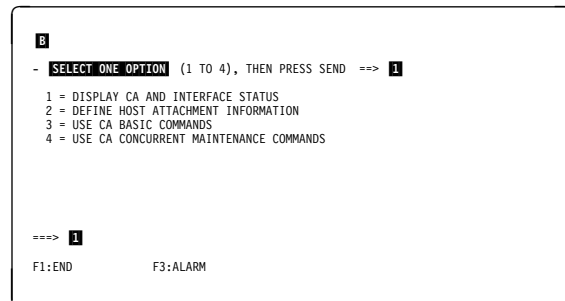


Figure 10-2. CA Services Function Selection 1 Screen

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

The selected CA must be present.

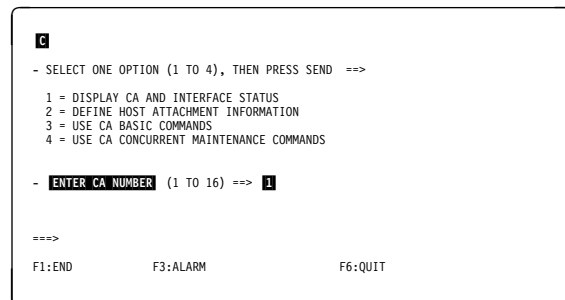


Figure 10-3. CA Services Function Selection 2 Screen



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.

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.

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.

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.

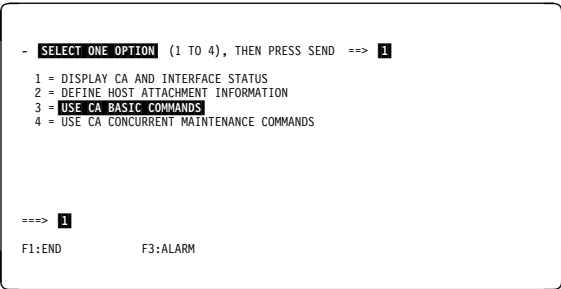


Figure 10-8. CA Services Function Selection 1 Screen

- 1. In 1, enter the CA number.
- 2. Press SEND.
- 3. Screen F is displayed.

The selected CA must be present.

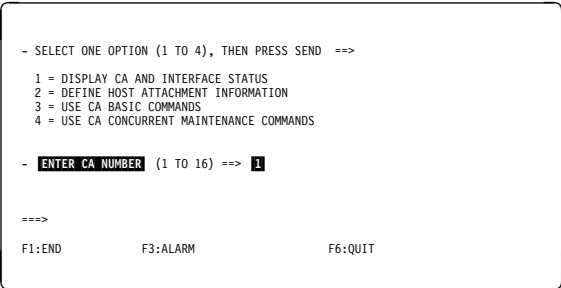


Figure 10-9. CA Services Function Selection 2 Screen

- 1. In 1, enter one of the commands listed on the screen. See 'CA Commands' in the next pages for explanations.
- 2. Press SEND.

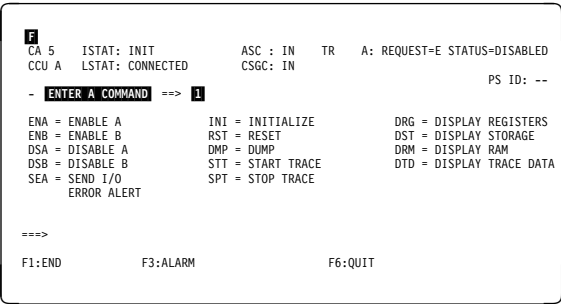


Figure 10-10. CA Command Screen

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).
ASC	Auto select chain: IN, OUT, or *** (unknown).
CSGC	Cycle steal grant chain: IN, OUT, or *** (unknown).
TR	Present when the trace is active.

## CA Basic Commands

- A** Interface A. In case of TPS, interface B is displayed on the following line.
- 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).

**Note:** From NCP V5R2.1, the CA trace is also automatically and independently started/stopped with the MOSS data exchange (DEX) function.

### STOP TRACE (SPT)

Stops an active trace. (See the note above.)

## 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.

```

6
CA 5  ISTAT: INIT      ASC : IN      A: REQUEST=D  STATUS= DISABLED
CCU A  LSTAT: --      CSGC: 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 80 13 99 80 26 00 88 80 00 00
X'18' TO X'1F'  S030  00 18 89 99 89 99 82 00 80 00 81 60 00 00 00 00

X'20' TO X'27'  S040  00 00 00 00 00 20 00 00 F1 00 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 60 00

X'30' TO X'37'  S060  00 00 00 00 00 20 00 00 F1 00 00 00 00 00 00 00
X'38' TO X'3F'  S070  00 00 04 00 54 1C 00 00 00 00 00 54 00 00 60 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.

```

8
CA 5  ISTAT: INIT      ASC : IN  TR  A: REQUEST=D  STATUS= DISABLED
CCU A  LSTAT: --      CSGC: IN      PS ID: --

- ENTER ADDRESS (100 TO 7FF) ==> 1 (DATA BUFFER FROM 400 TO 4FF)

STORAGE  S340  80402010  8040201  00000000  00000000
          S350  80200802  80204001  00000000  00000000
          S360  80200802  80204001  00000000  00000000
          S370  40100401  10000800  00000000  00000000
          S380  80000020  00201000  10000000  00000C60
          S390  808031F1  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.

```

1
CA 5  ISTAT: INIT      ASC : IN  TR  A: REQUEST=D  STATUS= DISABLED
CCU A  LSTAT: --      CSGC: IN      PS ID: --

- ENTER ADDRESS (0 TO FFF) ==> 1

RAM       340  0000 0400 0200 0100 0080 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.

```

3
CA 5  ISTAT: INIT      ASC : IN      A: REQUEST=E  STATUS=DISABLED
CCU A  LSTAT: --      CSGC: IN      PS ID: --

TRACE DATA - SCREEN 3/4

80 3D 00 80 88 70 10 40 38 30 00 00 10 00 07 01
00 3D 00 80 88 70 10 40 38 30 00 00 10 00 07 01
00 3D 00 80 88 70 10 40 38 30 00 00 10 00 07 01
00 3D 00 80 88 70 10 40 38 30 00 00 10 00 07 01
00 3D 00 80 88 70 10 40 38 30 00 00 10 00 07 01
00 3D 00 80 88 78 A0 A0 38 30 00 00 00 00 07 01
00 3D 00 80 8C F8 00 00 38 30 00 00 00 00 07 01

==>

F1?END      F3?ALARM      F6?QUIT  F7?BACKWARD  F8?FORWARD

```

Figure 10-14. Display Trace Data Screen

## Concurrent Maintenance Function (CACM)

### Function Availability

The CACM function is available only from NCP V5R2.

- The CACM function should not be used in stand-alone mode. It involves several MOSS functions, such as CDF, POS, CAS, diagnostics.
- Before entering CACM mode on a given CA, all traffic must be stopped on that resource. It is the customer's responsibility to perform a VARY INACT for the channel resource from **every** host/VTAM that has this NCP active.
- MOSS and the CP are in CACM mode, when the **shutdown** command is entered.

1. You must be in the CAS function (see page 10-2).
2. In **1**, enter option **4**.
3. In **2**, enter the **CA number**.
4. Press **SEND**.
5. Screen **L** is displayed.

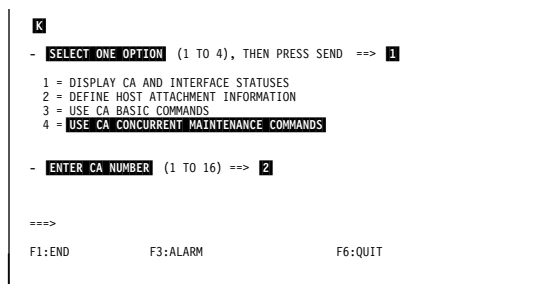


Figure 10-15. CA Services Function Selection 2 Screen

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.

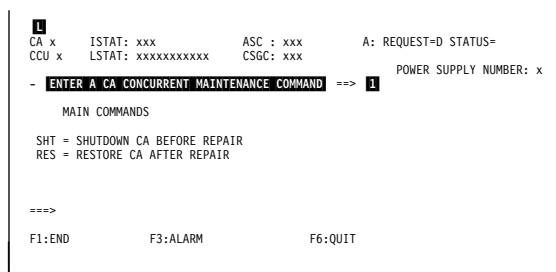


Figure 10-16. CACM Commands Screen

## SHT - Shutdown CA before Repair

### Before Issuing SHT

All traffic must be stopped on the CA. Therefore, the operator must perform a “VARY INACT” for the channel resource from **every** host/VTAM that has this NCP active (an active transmission group using this channel link could exist).

```

M
CA 2  ISTAT: INIT      ASC : IN      A: REQUEST=D STATUS= DISABLED
CCU A  LSTAT: CONNECTED  CSGC: IN
ASSOCIATED CA                      PS ID: 4
CA 1  ISTAT: INIT      ASC : IN      A: REQUEST=E STATUS= ENABLED
CCU A  LSTAT: CONNECTED  CSGC: IN

"SHUTDOWN" COMMAND SELECTED

- ENSURE THE HOST HAS DEACTIVATED ALL THE TRAFFIC OVER THAT CA
- TO STOP TRAFFIC, NOTIFY THE OPERATOR FOR THE CA TO BE SERVICED,
  THEN PRESS SEND

==>

F1:END      F3:ALARM      F6:QUIT

```

Figure 10-17. Shutdown Command Screen

SHT is a command that:

- Disconnects the CA,
- Removes the CA from ASC chain, and
- Removes the CA from CSGC chain.

The following statuses of the CA become:

**LSTAT**                Disconnected  
**ASC**                 Out  
**CSGC**               Out  
**Interface status**    Disabled.

That CA is now in CACM mode.

## RES - Restore CA After Repair

RES is a command that:

- Resets the CA (RST)
- Initializes the CA (INI)
- Inserts the CA in the ASC chain
- Inserts the CA in the CSGC chain
- Connects the CA.

The following statuses of the CA become:

**ISTAT**        Init  
**LSTAT**        Connected  
**ASC**          In  
**CSGC**        In.

That CA is now available for normal use.

```

M
CA 2  ISTAT: ***      ASC : OUT      A: REQUEST=D STATUS= DISABLED
CCU A  LSTAT: DISCONNECTED  CSGC: OUT
ASSOCIATED CA                      PS ID: 4
CA 1  ISTAT: INIT      ASC : IN      A: REQUEST=E STATUS= ENABLED
CCU A  LSTAT: CONNECTED  CSGC: IN

"RESTORE" COMMAND SELECTED

==>

F1:END      F3:ALARM      F6:QUIT

```

Figure 10-18. Restore Command Screen

---

## 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 10-13 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.

### **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 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:

<b>X'8000' (CC = 00)</b>	Request completed
<b>X'8000' (CC = other value)</b>	Request OK or not OK (see CC explanation table)
<b>X'40xx' (CC = 00)</b>	Request is rejected. The field xx can be:
<b>X'40'</b>	Function not supported
<b>X'20'</b>	Invalid command
<b>X'08'</b>	Invalid parameters specified.

- The CC field values are explained in the next table:

Table 10-1 (Page 1 of 2). Return Codes	
CC	Explanation
<b>UPDATE CDS</b>	
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
<b>DISCONNECT CA</b>	
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	Power block failure detected by L1
0A	ASCF detected by L1
<b>CONNECT CA</b>	
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

## Return Codes

<i>Table 10-1 (Page 2 of 2). Return Codes</i>	
<b>CC</b>	<b>Explanation</b>
07	Invalid CA state: CA found interface enabled
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	Power block failure detected by L1
0C	IOHF, threshold reached at L1
0D	ASCF detected by L1
<b>CA CHAIN UPDATE</b>	
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	Power block failure detected by L1

---

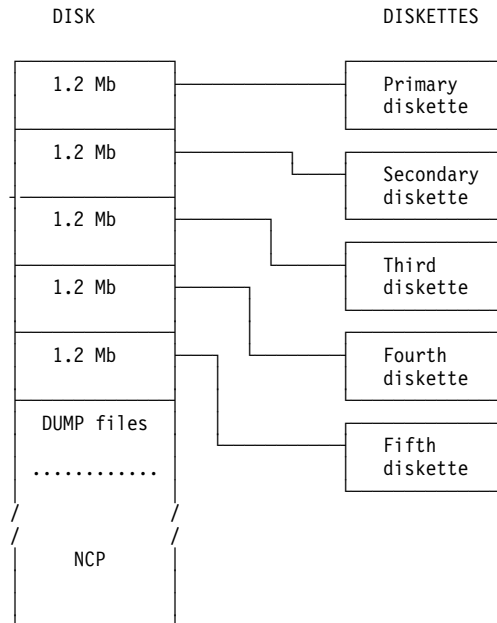
## Chapter 11. Disk-Diskette Management Functions

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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.

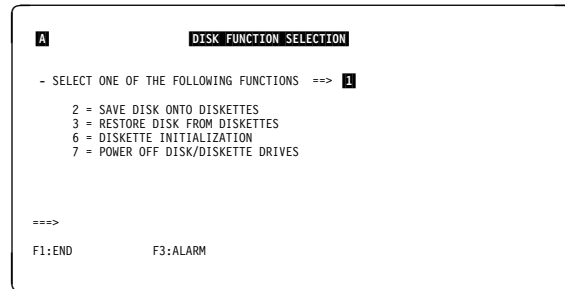


Figure 11-1. Disk Function Selection Screen (IML from Disk)

**Note:** The disk initialization (5) and the power OFF disk/diskette (7) functions are **not** available to the customer.

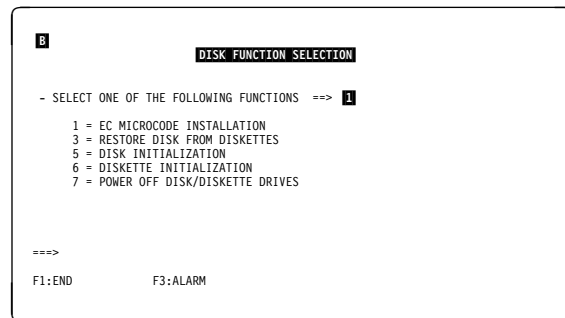


Figure 11-2. Disk Function Selection Screen (IML from Diskette)

**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.**

### 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.

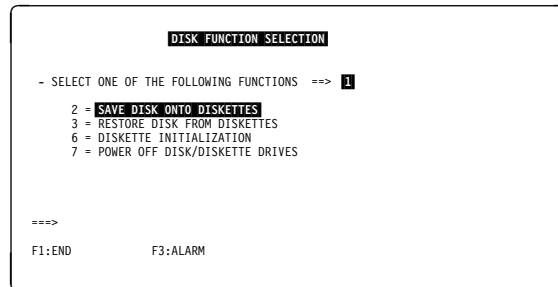


Figure 11-3. Disk Function Selection Screen (IML from Disk)

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.

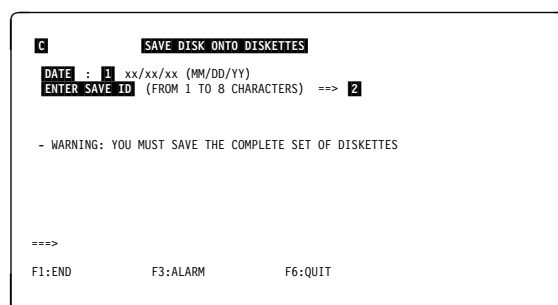


Figure 11-4. Disk Save Function Screen

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**.

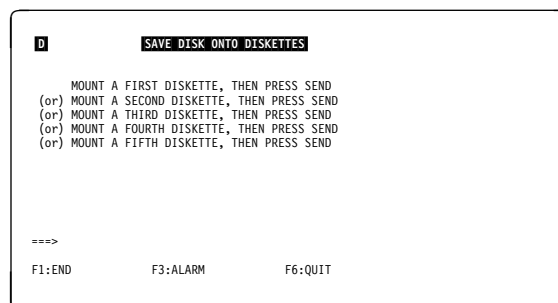


Figure 11-5. Save Disk Function Mount Diskette Screen

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**.

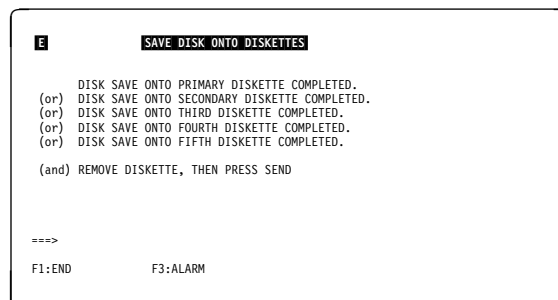


Figure 11-6. Save Disk Function Diskette Copy End Screen

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.

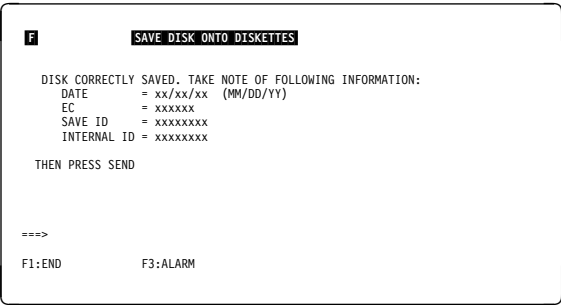


Figure 11-7. Save Disk Function End Screen

## 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.

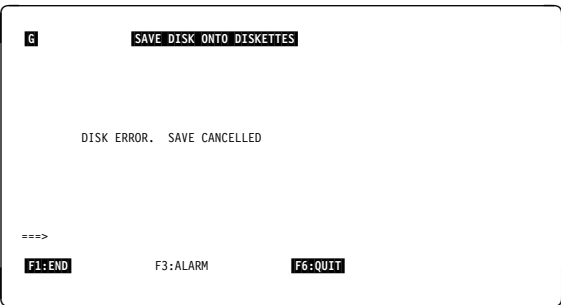


Figure 11-8. Save Disk Function Mount Diskette Screen

---

### 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.

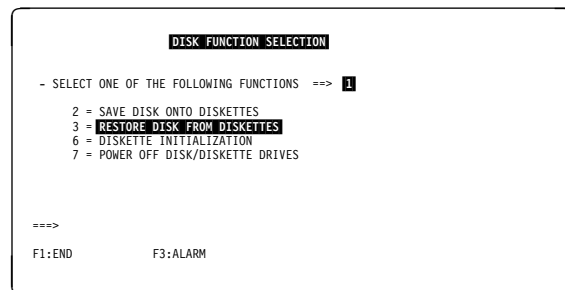


Figure 11-9. Disk Function Selection Screen (IML from Disk)

---

### 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.

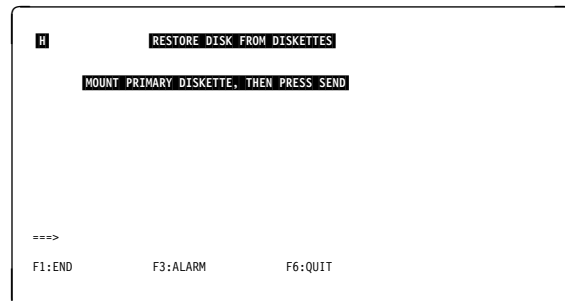


Figure 11-10. Restore Disk Function Mount Primary Diskette Screen

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.

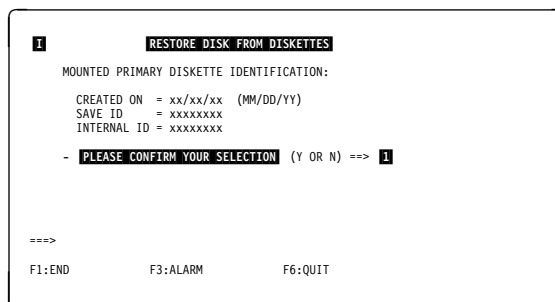


Figure 11-11. Restore Disk Function, Diskette Identification Screen

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.

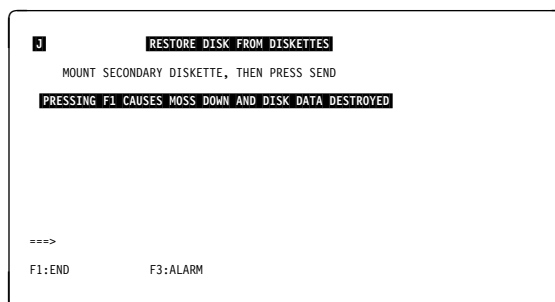


Figure 11-12. Restore Disk Function, Mount Secondary Diskette Screen

## 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.

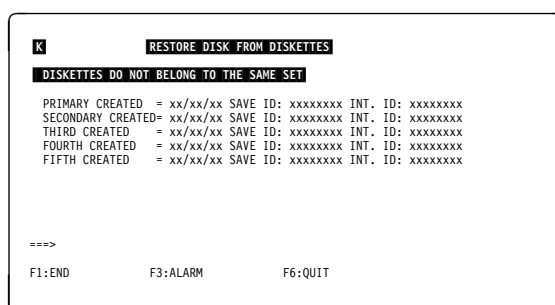


Figure 11-13. Restore Disk Function, Unmatched in Diskette Identification Screen

## 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 COM-  
PLETED

(xxxxxxx can be: PRIMARY, SECONDARY,  
THIRD, FOURTH, or FIFTH).

4. Repeat this step for the five diskettes.
5. Screen **M** is displayed.

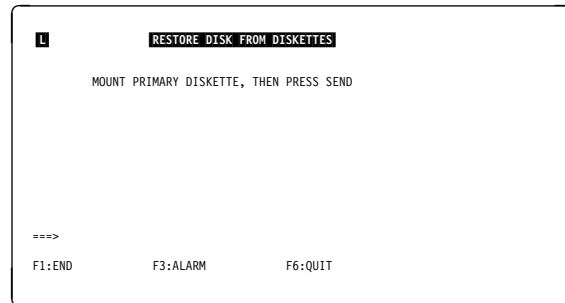


Figure 11-14. Restore Disk Function, Mount Primary Diskette Screen

#### 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.

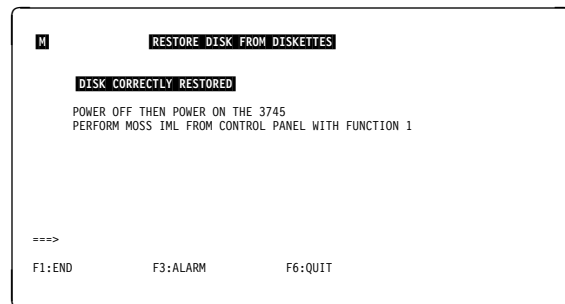


Figure 11-15. End of Restore Disk Function Screen

### 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.

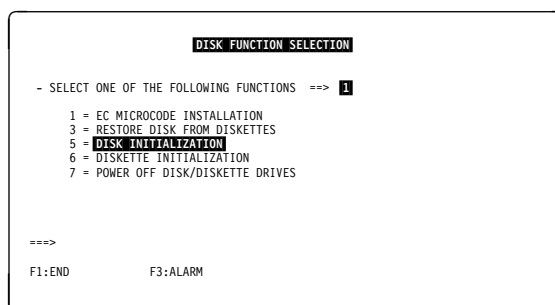


Figure 11-16. Disk Function Selection Screen (IML from Diskette)

1. In **1**, enter 1.
2. Press **SEND**.
3. Screen **0** is displayed.

If you select option 2, screen **Q** is displayed.

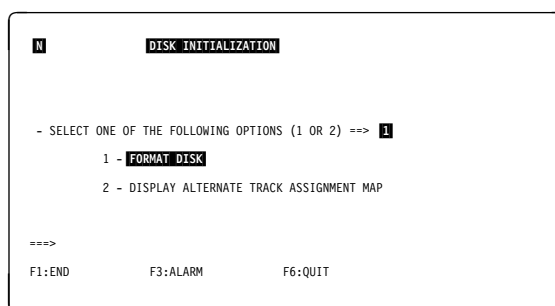


Figure 11-17. Disk Initialization Selection Screen

1. Enter the **machine serial number** in **1**.
  2. Press **SEND**.
- Screen **P** is displayed.

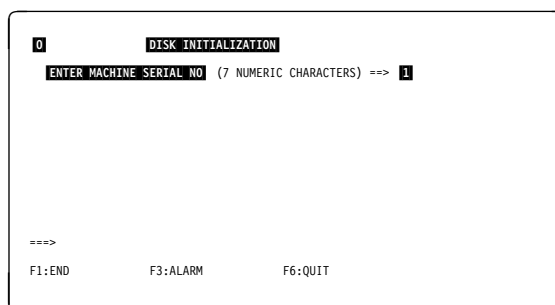


Figure 11-18. Disk Initialization Screen

Initialize Disk

- 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 COM-  
PLETED; NO DEFECTIVE TRACK : ALTERNATE  
ASSIGNMENT MAP EMPTY

or

FORMAT COMPLETED, xx DEFECTIVE TRACK

**Note:** If defective track have been found (last message), screen **Q** is displayed.

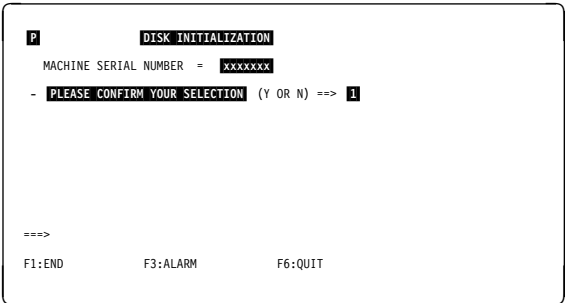


Figure 11-19. Disk Initialization Confirmation Screen

**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.

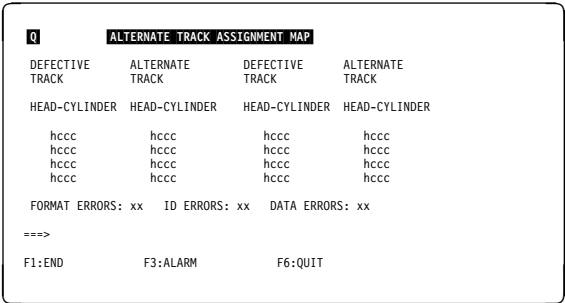


Figure 11-20. Disk Initialization Alternate Track Assignment Screen



## 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.

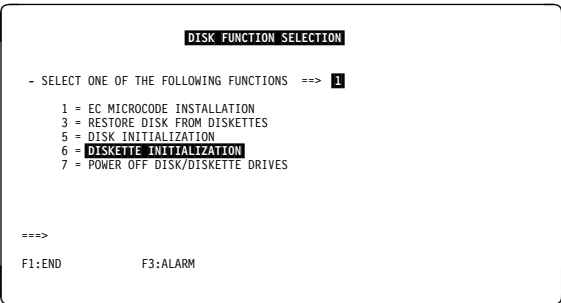


Figure 11-21. Disk Function Selection Screen (IML from Diskette)

1. Enter **Y** or **N** in **1**. (If you enter **Y**, screen **S** is displayed).
2. Press **SEND**.

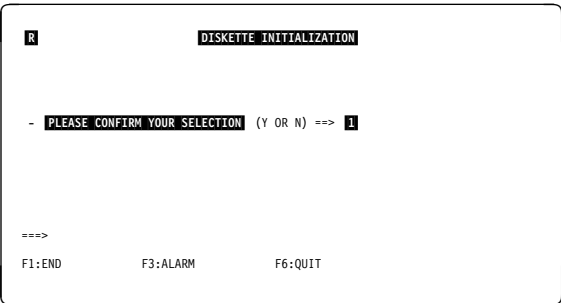


Figure 11-22. Diskette Initialization Screen

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.

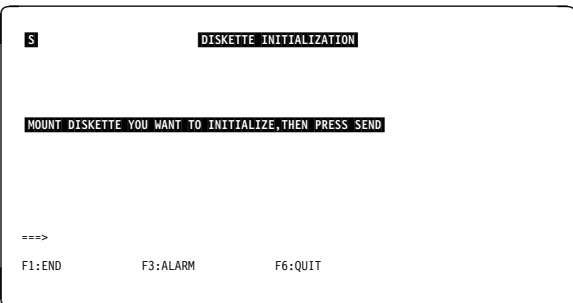


Figure 11-23. Diskette Initialization Mount Screen

## Initialize Diskettes

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 COM-
PLETED

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

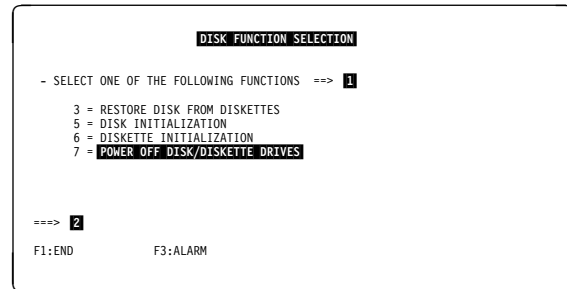


Figure 11-24. Disk Function Selection Screen (IML from Diskette)

## 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 **T** is displayed (Figure 11-26).

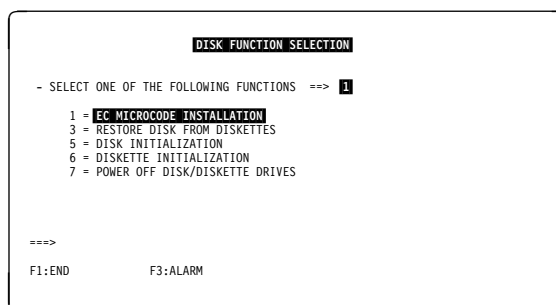


Figure 11-25. Disk Function Selection Screen (IML from Diskette)

- Disregard this message (you already inserted the EC primary diskette).
- Press **SEND**.

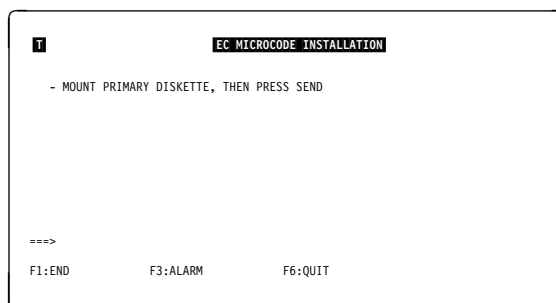


Figure 11-26. EC Installation, Mount Primary Diskette Screen

## Step 1: Check the Diskettes

1. Check the primary diskette identification.
2. If OK, enter **Y** in **1**.
3. Press **SEND**.

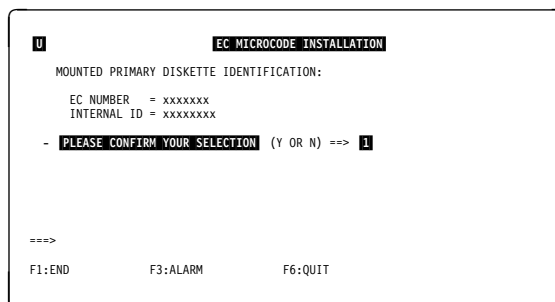


Figure 11-27. EC Installation, Diskette Identification Screen

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.

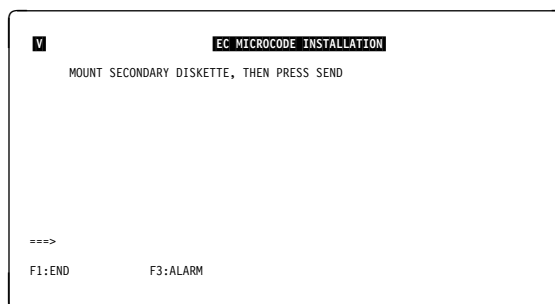


Figure 11-28. EC Installation, Mount Secondary Diskette Screen

## 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.

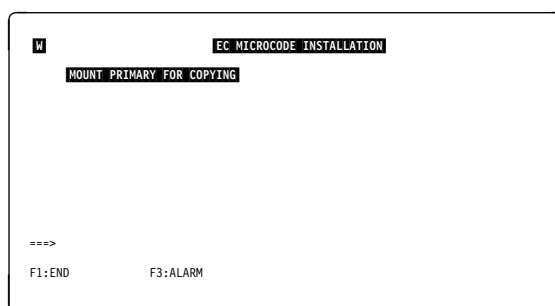


Figure 11-29. Restore Disk Function, Mount Secondary Diskette Screen

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.

## Install EC

**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 verify (refer to page 9-11).
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.

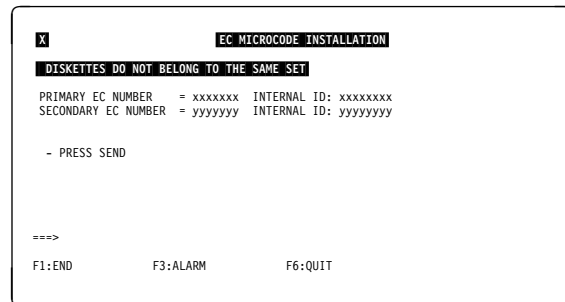


Figure 11-30. EC Installation, Unmatch in Diskette Installation Screen

## 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 micro-code (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



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## 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 12-7).

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.

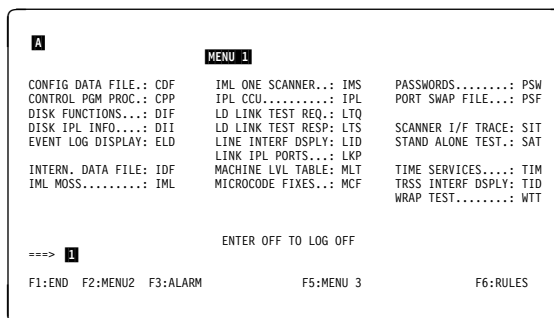


Figure 12-1. Menu 1 Screen

---

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**.

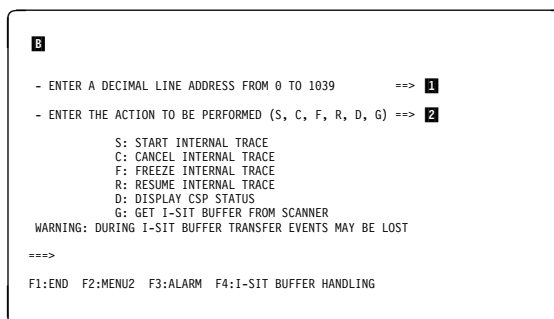


Figure 12-2. SIT Function Selection Screen

---

## 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

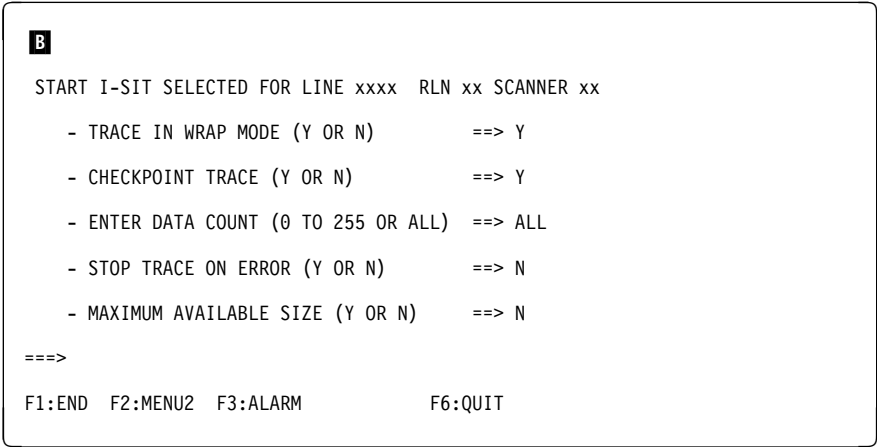


Figure 12-5. Start Internal Trace Screen

This screen shows the default values.

<b>WRAP MODE</b>	Allows tracing in wraparound mode or stopping the trace when the buffer is full.
<b>CHECKPOINT</b>	Allows recording checkpoint entries (refer to “Scanner Checkpoint Trace” on page 4-19 for additional information).
<b>DATA COUNT</b>	Is the size of the data record you want to keep trace of, starting from byte one (40 bytes maximum traced for HPTSS).
<b>STOP ON ERROR</b>	Allows stopping the trace (or not) after an error occurs.
<b>SIZE</b>	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 <b>Y</b> , 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

```
D
- 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.

```
E

CSP xx TRACE STATUS
LINE xxxx - I-SIT ACTIVE
LINE xxxx - I-SIT FROZEN
LINE xxxx - E-SIT ACTIVE
LINE xxxx - I-SIT ACTIVE

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

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).

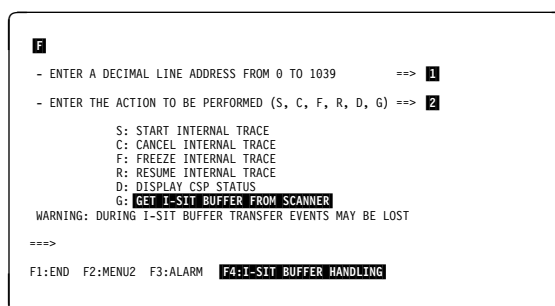


Figure 12-8. SIT Function Selection Screen

1. Enter your selection in **1**.
2. Press **SEND**.

The available functions are described in the next paragraphs.

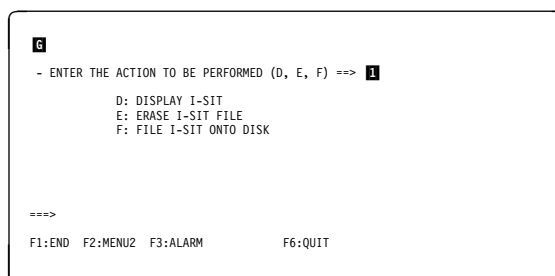


Figure 12-9. I-SIT Buffer Handling Screen

---

## 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 following message is displayed:

THE BUFFER AND THE DISK ARE EMPTY

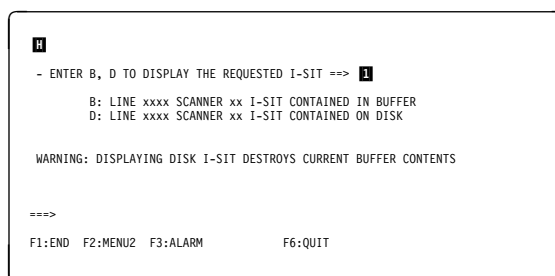


Figure 12-10. Display Buffer or File Selection Screen

## Procedure for TSS

1. Enter the options in **1** and **2**.
2. Press **SEND**.
3. Screen **F** is displayed.

```

1
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 or ESS

1. Enter the options in **1** and **2**.
2. Press **SEND**.
3. Screen **F** is displayed.

```

2
DISPLAY I-SIT EVENTS
- ENTER A, I, C, S, P, X, R, E, O, V, W, TO SELECT DISPLAY OPTION ==> 1
  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) ==> 2

==>
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 **Lhhhhhhhhh** in **2**.  
**hhhhhhhhh** 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      000036001007F59C0B58000004041F0B
0002 STAT SET MODE CMND COMPLETE 44010000C00003030000
0003 PARM      010036001007F59C0B58000004041F0B
0004 STAT ENABLE CMND COMPLETE 4402009EC00003830000
0005 IOH SET MODE 22100116
0006 CHKPT A6B501A0
0007 XDATA AA3232328244
0008 XDATA C2C27F7F8344
==>
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 .....5.....
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.

```

N
LINE xxxx  SCANNER xx                ENTER H FOR HEXADECIMAL 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

```

N
- 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 12-16. 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”)

```

D
- 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 12-17. 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**.

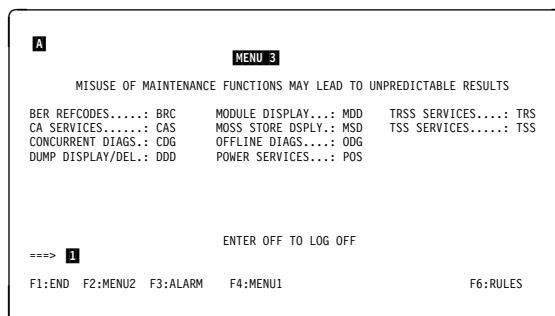


Figure 12-18. Maintenance Menu (Menu 3) Screen

### 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.

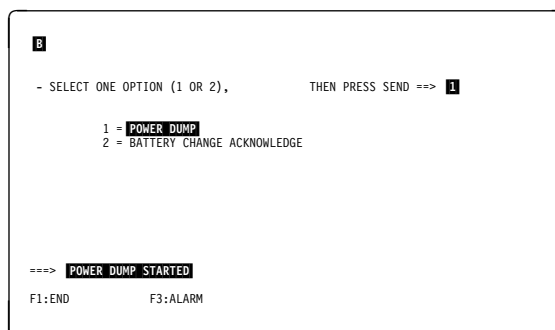


Figure 12-19. Power Dump Selection Screen

### 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.

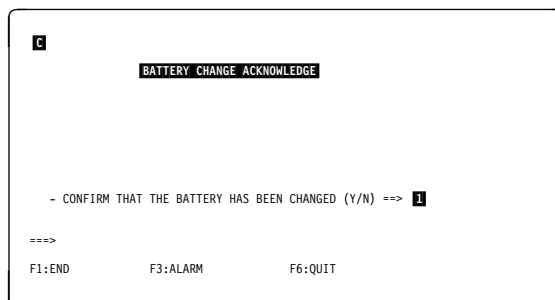


Figure 12-20. Battery Change Confirmation Screen

---

## 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.

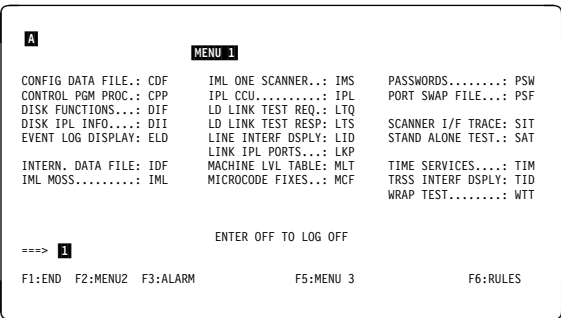


Figure 12-21. Menu 1 Screen

1. Enter your selection in **1**.
2. Press **SEND**.

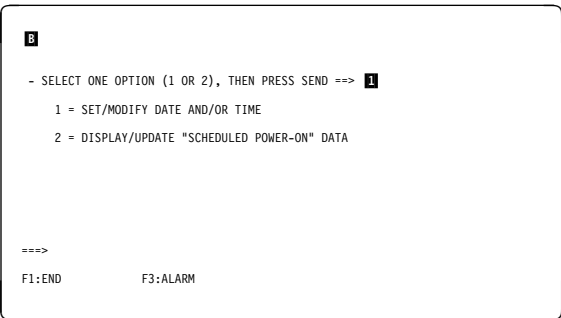


Figure 12-22. TIM Function Selection Screen

## 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.

**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

**Note:** Do not forget to set:

POWER CONTROL = 2 (network)

at the control panel to enable the scheduled power-ON.

## 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.

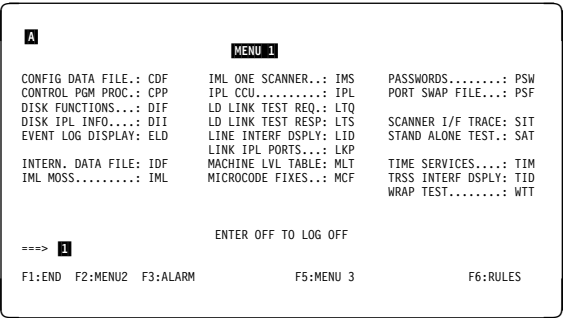


Figure 12-25. Menu 1 Screen

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.

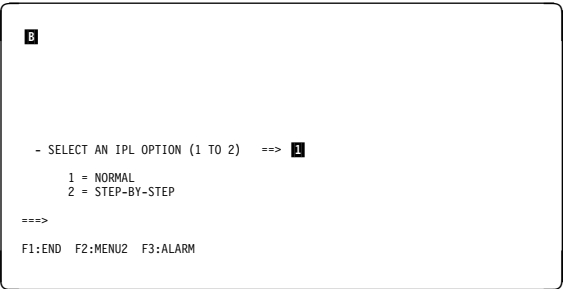


Figure 12-26. IPL Function Screen (Maintenance Mode)

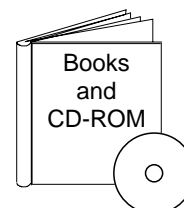
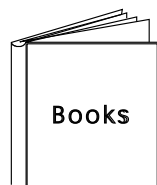


# Bibliography

## Service Documentation for the 3745 (Models 130, 150, 160, 170, and 17A) and 3746 (Model 900)

Table X-1 (Page 1 of 4). Service Documentation for the 3745 Models 1x0 and 17A, and 3746 Model 900

This service documentation has the following formats:



### 3745 Models A and 3746 Books

Starting with engineering change (EC) F12380, all of the books in the 3745 Models A and 3746 library are available on the CD-ROM that contains the Licensed Internal Code (LIC) for this EC.



SY33-2079

#### **IBM 3745 Communication Controller Models 130, 150, 160, 170, and 17A**

##### **Service Master Index<sup>1</sup>**

Provides references for finding information in the IBM 3745 Models 1X0 and 17A shipping group documentation.



SY33-2067

#### **IBM 3745 Communication Controller Models 130, 150, 160, 170, and 17A**

##### **Installation Guide<sup>1</sup>**

Provides instructions for installing or relocating the IBM 3745 Models 1X0 and 17A.



SY33-2114

#### **IBM 3746 Nways Multiprotocol Controller Model 900**

##### **Installation Guide<sup>2</sup>**

Provides instructions for installing or relocating the IBM 3746 Model 900.



SY33-2116

#### **IBM 3746 Nways Multiprotocol Controller Model 900**

##### **Service Guide<sup>2</sup>**

Provides procedures for isolating and fixing the IBM 3746 Model 900 problems.










SY33-2069

#### **IBM 3745 Communication Controller Models 130, 150, 160, and 170**

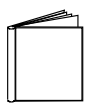
##### **Service Functions<sup>1</sup>**

Describes MOSS functions using the IBM 3745 Models 1X0 and 17A consoles.

Table X-1 (Page 2 of 4). Service Documentation for the 3745 Models 1x0 and 17A, and 3746 Model 900

	SY33-2070	<p><b>IBM 3745 Communication Controller Models 130 to 17A</b></p> <p><b>Maintenance Information Procedures<sup>1</sup></b></p> <p>Provides procedures for isolating and fixing the IBM 3745 Models 1X0 and 17A problems.</p>
	SY33-2115	<p><b>IBM 3745 Communication Controller Models A<sup>3</sup></b>  <b>IBM 3746 Expansion Unit Model 900</b>  <b>IBM 3746 Nways Multiprotocol Controller Model 950</b></p> <p><b>Service Processor Installation and Maintenance<sup>4</sup></b>  <b>(Based on the 7585, 3172, 9585, or 9577)</b></p> <p>Provides information on installing and maintaining the service processor based on PS/2 Types 7585, 3172, 9585, or 9577.  Can be for systems with microcode that has up to and including EC D46130 (any level) installed.</p>
	SY33-2120	<p><b>IBM 3745 Communication Controller Models A<sup>3</sup></b>  <b>IBM 3746 Expansion Unit Model 900</b>  <b>IBM 3746 Nways Multiprotocol Controller Model 950</b></p> <p><b>Service Processor Installation and Maintenance<sup>4</sup></b>  <b>(Based on the 7585, 3172, or 9585)</b></p> <p>Provides information on installing and maintaining the service processor based on PS/2 Types 7585, 3172, or 9585.  Can be for systems with microcode EC F12380 or higher installed.</p>
	SY33-2118	<p><b>IBM 3746 Nways Multiprotocol Controller Models 900 and 950</b></p> <p><b>Multiaccess Enclosure Installation and Maintenance<sup>4</sup></b></p> <p>Provides information on installing and maintaining the Multiaccess Enclosure (MAE).</p>
	SY33-2112	<p><b>IBM 3746 Nways Multiprotocol Controller Models 900 and 950</b></p> <p><b>Network Node Processor Installation and Maintenance<sup>4</sup></b>  <b>(Based on the 7585 or 3172)</b></p> <p>Provides information on installing and maintaining the network node processor based on the PS/2 Type 7585 or 3172.</p>
	SY33-2066	<p><b>IBM 3745 Communication Controller Models 130, 150, 160, and 170</b></p> <p><b>Hardware Maintenance Reference<sup>1</sup></b></p> <p>Provides in-depth hardware reference information on the IBM 3745 Models 1X0 and 17A. Also valid for the 3745 Model 17A.</p>
	SY33-2075	<p><b>IBM 3745 Communication Controller All Models<sup>6</sup></b></p> <p><b>External Cable References<sup>1</sup></b></p> <p>Provides references to console and line cables used for connecting the IBM 3745 Models 130 to 61A.</p>

*Table X-1 (Page 3 of 4). Service Documentation for the 3745 Models 1x0 and 17A, and 3746 Model 900*



SY33-2117

***IBM 3746 Nways Multiprotocol Controller  
Models 900 and 950***

***External Cable Reference<sup>7</sup>***

Provides references to console and line cables used for connecting the IBM 3746 Models 900 and 950.

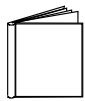


S135-2015

***IBM 3746 Nways Multiprotocol Controller  
Models 900 and 950***

***Parts Catalog<sup>7</sup>***

Provides reference information for ordering parts for the IBM 3746 Models 900 and 950.



S135-2012

***3745 Communication Controller  
Models 130 to 17A***

***Parts Catalog<sup>1</sup>***

Provides reference information for ordering IBM 3745 Models 1X0 and 17A parts.



S135-2014

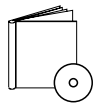
***IBM Controller Expansion***

***Parts Catalog***

Provides reference information for ordering parts for the controller expansion attached to the IBM 3746 Model 900 and 950.

Table X-1 (Page 4 of 4). Service Documentation for the 3745 Models 1x0 and 17A, and 3746 Model 900

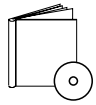
**CD-ROM Bibliography**



ZK2T-8214

**IBM Networking  
Softcopy Collection Kit**

Allows service manuals consulting via CD-ROM viewer. EMEA version.



ZK2T-8187

**IBM Networking  
Softcopy Collection Kit**

Allows service manuals consulting via CD-ROM viewer. US version.

<sup>1</sup> Documentation shipped with the 3745.

<sup>2</sup> Documentation shipped with the 3746-900.

<sup>3</sup> 3745 Models 17A to 61A.

<sup>4</sup> Documentation shipped with the processor.

<sup>5</sup> Product integrated information.

<sup>6</sup> 3745 Models 130 to 61A.

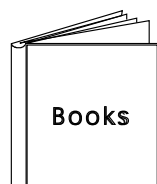
<sup>7</sup> Documentation shipped with the 3746 Models 900 and 950.



# Customer Documentation for the 3745 (Models 130, 150, 160, 170, and 17A) and 3746 (Model 900)

Table X-2 (Page 1 of 3). Customer Documentation for the 3745 Models 130 to 17A and 3746 Model 900

This customer documentation has the following formats:



## Finding Information

### 3745 Models A and 3746 Books

Starting with engineering change (EC) F12380, all of the books in the 3745 Models A and 3746 library are available on the CD-ROM that contains the Licensed Internal Code (LIC) for this EC.



SA33-0142

### **IBM 3745 Communication Controller Models 130, 150, 160, 170, and 17A IBM 3746 Expansion Unit Model 900**

#### **Customer Master Index<sup>1</sup>**

Provides references for finding information in the customer documentation library.

## Evaluating and Configuring



GA33-0138

### **IBM 3745 Communication Controller Models 130, 150, and 170**

#### **Introduction**

Gives an introduction about the IBM Models 130 to 170 capabilities, including Model 160.

For Model 17A refer to the *Overview*, GA33-0180.



GA33-0180

### **IBM 3745 Communication Controller Models A<sup>2</sup> IBM 3746 Nways Multiprotocol Controller Models 900 and 950**

#### **Overview**

Gives an overview of connectivity capabilities within SNA, APPN, and IP networking.



GA33-0457

### **IBM 3745 Communication Controller Models A<sup>2</sup> IBM 3746 Expansion Unit Model 900 Models 900 and 950**

#### **Planning Guide**

Planning for:

- Field upgrades
- Service processor and alert management configuration
- Network integration (NCP, APPN, and IP control)
- Physical installation.

## Preparing Your Site

Table X-2 (Page 2 of 3). Customer Documentation for the 3745 Models 130 to 17A and 3746 Model 900






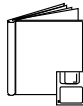









	GC22-7064	<p><b>IBM System/360, System/370, 4300 Processor</b></p> <p><b>Input/Output Equipment Installation Manual-Physical Planning</b> (Including Technical News Letter GN22-5490)</p> <p>Provides information on physical installation for the 3745 Models 130 to 610. For 3745 Models A and 3746 Model 900, refer to the <i>Planning Guide</i>, GA33-0457.</p>
	GA33-0140	<p><b>IBM 3745 Communication Controller</b> <b>Models 130, 150, 160, and 170</b></p> <p><b>Preparing for Connection</b></p> <p>Helps for preparing the 3745 Models 130 to 170 cable installation. For 3745 Model 17A refer to the <i>Connection and Integration Guide</i>, SA33-0129.</p>
<b>Preparing for Operation</b>		
	GA33-0400	<p><b>IBM 3745 Communication Controller All Models<sup>3</sup></b> <b>IBM 3746 Nways Multiprotocol Controller</b> <b>Models 900 and 950</b></p> <p><b>Safety Information<sup>1</sup></b></p> <p>Provides general safety guidelines.</p>
	SA33-0129	<p><b>IBM 3745 Communication Controller All Models<sup>3</sup></b> <b>IBM 3746 Nways Multiprotocol Controller Model 900</b></p> <p><b>Connection and Integration Guide<sup>1</sup></b></p> <p>Contains information for connecting hardware and integrating network of the 3745 and 3746-900 after installation.</p>
	SA33-0416	<p><b>Line Interface Coupler Type 5 and Type 6</b> <b>Portable Keypad Display</b></p> <p><b>Migration and Integration Guide</b></p> <p>Contains information for moving and testing LIC types 5 and 6.</p>
	SA33-0158	<p><b>IBM 3745 Communication Controller All Models<sup>3</sup></b> <b>IBM 3746 Nways Multiprotocol Controller Model 900</b></p> <p><b>Console Setup Guide<sup>1</sup></b></p> <p>Provides information for:</p> <ul style="list-style-type: none"> <li>• Installing local, alternate, or remote consoles for 3745 Models 130 to 610</li> <li>• Configuring user workstations to remotely control the service processor for 3745 Models A and 3746 Model 900, using: <ul style="list-style-type: none"> <li>– DCAF program</li> <li>– Telnet Client program.</li> </ul> </li> </ul>
<b>Customizing Your Control Program</b>		
	SA33-0178	<p><b>Guide to Timed IPL and Rename Load Module</b></p> <p>Provides VTAM procedures for:</p> <ul style="list-style-type: none"> <li>• Scheduling an automatic reload of the 3745</li> <li>• Getting 3745 load module changes transparent to the operations staff.</li> </ul>
<b>Operating and Testing</b>		
	SA33-0098	<p><b>IBM 3745 Communication Controller</b> <b>All Models<sup>4</sup></b></p> <p><b>Basic Operations Guide<sup>1</sup></b></p> <p>Provides instructions for daily routine operations on the 3745 Models 130 to 610.</p>

Table X-2 (Page 3 of 3). Customer Documentation for the 3745 Models 130 to 17A and 3746 Model 900

	SA33-0177	<p><b>IBM 3745 Communication Controller Models A<sup>2</sup></b>  <b>IBM 3746 Nways Multiprotocol Controller Model 900</b></p> <p><b>Basic Operations Guide<sup>1</sup></b></p> <p>Provides instructions for daily routine operations on the 3745 Models 17A to 61A and 3746 Model 900 operating as an SNA node (using NCP), APPN/HPR Network Node, and IP Router.</p>
	SA33-0097	<p><b>IBM 3745 Communication Controller</b>  <b>All Models<sup>3</sup></b></p> <p><b>Advanced Operations Guide<sup>1</sup></b></p> <p>Provides instruction for advanced operations and testing, using the 3745 MOSS console.</p>
	On-line Information	<p><b>Controller Configuration and Management Application</b></p> <p>Provides a graphical user interface for configuring and managing a 3746 APPN/HPR Network Node and IP Router, and its resources.  Is also available as a stand-alone application, using an OS/2 workstation.  Defines and explains all the 3746 Network Node and IP Router configuration parameters through its on-line help.</p>
	SH11-3081	<p><b>IBM 3746 Nways Multiprotocol Controller</b>  <b>Models 900 and 950</b></p> <p><b>Controller Configuration and Management: User's Guide<sup>5</sup></b></p> <p>Explains how to use CCM and gives examples of the configuration process.</p>
<b>Managing Problems</b>		
	SA33-0096	<p><b>IBM 3745 Communication Controller</b>  <b>All Models<sup>3</sup></b></p> <p><b>Problem Determination Guide<sup>1</sup></b></p> <p>A guide to performing problem determination on the 3745 Models 130 to 61A.</p>
	On-line Information	<p><b>Problem Analysis Guide</b></p> <p>An on-line guide to analyze alarms, events, and control panel codes on:</p> <ul style="list-style-type: none"> <li>• IBM 3745 Communication Controller Models A<sup>2</sup></li> <li>• IBM 3746 Nways Multiprotocol Controller Models 900 and 950.</li> </ul>
	SA33-0175	<p><b>IBM 3745 Communication Controller Models A<sup>2</sup></b>  <b>IBM 3746 Expansion Unit Model 900</b>  <b>IBM 3746 Nways Multiprotocol Controller Model 950</b></p> <p><b>Alert Reference Guide</b></p> <p>Provides information about events or errors reported by alerts for:</p> <ul style="list-style-type: none"> <li>• IBM 3745 Communication Controller Models A<sup>2</sup></li> <li>• IBM 3746 Nways Multiprotocol Controller Models 900 and 950.</li> </ul>
<p><sup>1</sup> Documentation shipped with the 3745.  <sup>2</sup> 3745 Models 17A to 61A.  <sup>3</sup> 3745 Models 130 to 61A.  <sup>4</sup> Except 3745 Models A.  <sup>5</sup> Documentation shipped with the 3746-900.</p>		



# List of Abbreviations

<b>A</b>	ampere	<b>BPC2</b>	bus propagation card to replace the TRM card
<b>abend</b>	abnormal end of task	<b>bps</b>	bits per second
<b>AC</b>	1) abandon call 2) address compare 3) alternating current	<b>BR</b>	bus request
<b>ACB</b>	adapter control block	<b>BSC</b>	binary synchronous communication
<b>ACF</b>	Advanced Communications Function	<b>BT</b>	branch trace
<b>ACK</b>	affirmative acknowledgment (BSC)	<b>BTAM</b>	Basic Telecommunications Access Method
<b>ACR</b>	1) add character register (instruction) 2) abandon call request	<b>BTAM-ES</b>	BTAM extended support
<b>ACU</b>	automatic calling unit	<b>BZL</b>	branch on Z latch (instruction)
<b>AE</b>	address exception	<b>C</b>	1) Celsius 2) control (X.21 signal)
<b>AEK</b>	address exception key	<b>CA</b>	channel adapter
<b>AFD</b>	airflow detector	<b>CAB</b>	channel adapter board
<b>AGC</b>	automatic gain control (signal)	<b>CAC</b>	common adapter code
<b>AHR</b>	add halfword register (instruction)	<b>CACM</b>	channel adapter concurrent maintenance
<b>AIO</b>	adapter-initiated operation	<b>CAL</b>	channel adapter logic card
<b>ALC</b>	Airlines Line Control	<b>CADR</b>	channel adapter driver receiver card
<b>ALU</b>	arithmetic and logic unit	<b>CADRUk</b>	channel adapter driver receiver type UK card
<b>AMD</b>	air moving device	<b>CADS</b>	channel adapter with data streaming
<b>AR</b>	add register (instruction)	<b>CATPS</b>	channel adapter with two-processor switch
<b>ARI</b>	add register immediate (instruction)	<b>CB</b>	circuit breaker
<b>AS</b>	autoselection chain	<b>CCITT</b>	Comite Consultatif International Telegraphique et Telephonique
<b>ASCII</b>	American National Standard Code for Information Interchange	<b>CCMD</b>	current command (storage)
<b>AXB</b>	adapter expansion block	<b>CCN</b>	communications controller node
<b>B</b>	branch (instruction)	<b>CCR</b>	compare character register (instruction)
<b>BAL</b>	branch and link (instruction)	<b>CCU</b>	central control unit
<b>BALR</b>	branch and link register (instruction)	<b>CCW</b>	channel command word
<b>BB</b>	branch on bit (instruction)	<b>CD</b>	carrier detector (signal)
<b>BCC</b>	block check character (BSC)	<b>CDF</b>	configuration data file
<b>BCCA</b>	buffer chaining channel adapter	<b>CDG</b>	concurrent diagnostic
<b>BCCW</b>	bit clock control word	<b>CDS</b>	configuration data set (NCP/EP)
<b>BCD</b>	binary-coded decimal notation	<b>CE</b>	customer engineer
<b>BCL</b>	branch on C latch (instruction)	<b>CEPT</b>	Comite Europeen des Postes et Telecommunications
<b>BCT</b>	branch on count (instruction)	<b>CHCW</b>	channel control word
<b>BER</b>	box event record	<b>CHPID</b>	channel path identification
<b>B/M</b>	bill of material	<b>CHR</b>	compare halfword register (instruction)
<b>BPC1</b>	bus propagation card to replace the CAL card		

<b>CI</b>	calling indicator (signal)	<b>DC</b>	1) data chaining (channel status) 2) direct current
<b>CLDP</b>	controller load/dump program	<b>DCE</b>	data circuit-terminating equipment
<b>CMOS</b>	complementary metal oxide semiconductor	<b>DCF</b>	diagnostic control function
<b>CNM</b>	communication network management	<b>DCM</b>	diagnostic control monitor
<b>CNMI</b>	communication network management interface	<b>DCRLSD</b>	data channel receive line signal detector (same as CD)
<b>CNSL</b>	console	<b>DE</b>	device end (channel status)
<b>CONFWS</b>	configuration switch	<b>DFA</b>	disk file adapter card
<b>CP</b>	1) communication processor, control program 2) circuit protector	<b>DFI</b>	defect-free installation
<b>CPIT</b>	control program information table	<b>DIFF</b>	differentiator
<b>CPM</b>	connection point manager	<b>DLE</b>	data link escape character
<b>CPT</b>	checkpoint trace	<b>DLO</b>	data line occupied (signal)
<b>CR</b>	1) compare register (instruction) 2) call request (signal)	<b>DMA</b>	direct memory access
<b>CRC</b>	cyclic redundancy check character	<b>DMSW</b>	direct memory access switch card
<b>CRI</b>	compare register immediate (instruction)	<b>DMUX</b>	double multiplex card for board on LIC unit 1
<b>CRP</b>	check record pool	<b>DOI</b>	duration of interrupt
<b>CRQ</b>	call request	<b>DP</b>	digit present (signal)
<b>CRU</b>	customer replaceable unit	<b>DPR</b>	digit present request
<b>CS</b>	1) cycle steal 2) communication scanner	<b>DRA</b>	duration of repair action
<b>CSA</b>	common subassembly	<b>DRS</b>	data rate select
<b>CSCW</b>	cycle steal control word	<b>DRV</b>	driver
<b>CSG</b>	cycle steal grant	<b>DSC</b>	distant station connected
<b>CSGH</b>	cycle steal grant high	<b>DSR</b>	data set ready (signal)
<b>CSGL</b>	cycle steal grant low (card)	<b>DSRS</b>	data signaling rate selection (signal)
<b>CSP</b>	communication scanner processor	<b>DSU</b>	data service unit (DCE-like for high-speed communication lines)
<b>CSR</b>	cycle steal request	<b>DTE</b>	data terminal equipment
<b>CSRH</b>	cycle steal request high	<b>DTER</b>	DMA bus terminator
<b>CSRL</b>	cycle steal request low	<b>DTR</b>	data terminal ready (signal)
<b>CSS</b>	control subsystem	<b>DVB</b>	device block
<b>CSU</b>	1) customer setup 2) customer service unit (DCE-like for high-speed communication lines)	<b>DX</b>	duplex
<b>CSW</b>	channel status word	<b>EBCDIC</b>	extended binary-coded decimal interchange code
<b>CTS</b>	clear to send (signal)	<b>EC</b>	engineering change
<b>CW</b>	control word	<b>ECC</b>	error checking and correction
<b>CZ</b>	carry/zero (latch)	<b>EDE</b>	elementary data exchange
<b>DAF</b>	destination address field (SNA)	<b>ED/FI</b>	error detection/fault isolation
<b>DB</b>	data byte	<b>EIA</b>	Electronic Industries Association
		<b>EIB</b>	error intermediate block
		<b>ELCS</b>	extended line communication status

<b>EMEA</b>	Europe, Middle East, Africa
<b>ENQ</b>	enquiry (BSC)
<b>EOT</b>	end of transmission (BSC)
<b>EP</b>	emulation program
<b>EPO</b>	emergency power-off
<b>ERC</b>	error reference code
<b>EREP</b>	environmental recording, editing, and printing (program)
<b>ERP</b>	error recovery procedure
<b>ESC</b>	emulation subchannel (address)
<b>ESCH</b>	emulation subchannel high (address)
<b>ESCL</b>	emulation subchannel low (address)
<b>ESD</b>	electrostatic discharge
<b>ETB</b>	end-of-transmission block character (BSC)
<b>ETX</b>	end-of-text character (BSC)
<b>EXP</b>	expected
<b>FAC</b>	flag address control (SDLC frame)
<b>FCC</b>	Federal Communications Commission
<b>FCPS</b>	final call progress signals (X.21)
<b>FCS</b>	frame check sequence
<b>FDD</b>	flexible disk drive
<b>FDS</b>	flat distribution system
<b>FDX</b>	full-duplex (synonym for duplex)
<b>FE</b>	field engineering
<b>FEIS</b>	field engineering information system
<b>FERR</b>	FESA error register
<b>FES</b>	front-end scanner
<b>FESA</b>	front-end scanner adapter
<b>FESH</b>	front-end scanner (high-speed)
<b>FESL</b>	front-end scanner (low-speed)
<b>FID4</b>	format identification 4
<b>FM</b>	frequency modulation
<b>FPS</b>	FES parameter/status
<b>FRU</b>	field-replaceable unit
<b>ft</b>	foot
<b>GPR</b>	general purpose register
<b>GPT</b>	generalized PIU trace
<b>GTF</b>	generalized trace facility
<b>HCS</b>	Hardware Central Service
<b>HDD</b>	hard disk drive
<b>HDX</b>	half-duplex

<b>hex</b>	hexadecimal
<b>hh</b>	hexadecimal value hh
<b>HLIR</b>	high-level interrupt request
<b>HLU</b>	highest logical unit (largest CPU in an establishment)
<b>HPTSS</b>	high-performance transmission sub-system
<b>HSB</b>	high-speed buffer
<b>HSC</b>	high-speed channel
<b>HSS</b>	high-speed scanner
<b>HW</b>	hardware
<b>Hz</b>	Hertz
<b>I</b>	indication (signal)
<b>IACK</b>	interrupt acknowledgement
<b>IAR</b>	instruction address register
<b>IBE</b>	internal box error
<b>IC</b>	insert character (instruction)
<b>ICA</b>	integrated communication adapter
<b>ICB</b>	interface control block (storage)
<b>ICF</b>	internal clock function
<b>ICT</b>	insert character and count (instruction)
<b>ICW</b>	interface control word
<b>ID</b>	identifier
<b>IFT</b>	internal function test
<b>IMB</b>	in mailbox (MOSS)
<b>IML</b>	initial microcode load
<b>in.</b>	inch
<b>IN</b>	input (instruction)
<b>INN</b>	intermediate network node
<b>INOP</b>	inoperative (line, modem, or terminal)
<b>INS</b>	information network system
<b>IOC</b>	input/output control
<b>IO</b>	input/output
<b>IOCB</b>	input/output control bus
<b>IOCS</b>	input/output control system
<b>IOH</b>	input/output halfword (instruction)
<b>IOHI</b>	input/output halfword immediate (instruction)
<b>IOIRR</b>	input/output interrupt request register
<b>IOSW</b>	input/output switch (card)
<b>IPF</b>	instruction pre-fetch
<b>IPL</b>	initial program load

<b>IPR</b>	isolated pacing response (SNA)	<b>LIU1</b>	LIC unit 1 for LICs type 1, 3, and 4
<b>IR</b>	interrupt request	<b>LLB</b>	local loopback
<b>IRR</b>	interrupt request removed	<b>LLIR</b>	low-level interrupt request
<b>ISDN</b>	integrated service digital network	<b>LL2</b>	link level 2 test
<b>ISL</b>	inbound serial link	<b>LNV</b>	line vector table
<b>ITB</b>	intermediate text block (BSC)	<b>LOR</b>	load with offset register (instruction)
<b>ITER</b>	IOC bus terminator	<b>LPDA</b>	Link Problem Determination Aid
<b>IVT</b>	isolation verification tests	<b>LR</b>	load register (instruction)
<b>K</b>	1024 (bytes or words)	<b>LRC</b>	longitudinal redundancy check
<b>KBD</b>	keyboard	<b>LRI</b>	load register immediate (instruction) local storage
<b>kbps</b>	kilobits per second	<b>LRU</b>	least-recently used
<b>kg</b>	kilogram	<b>LS</b>	local storage
<b>kHz</b>	kilohertz	<b>LSAR</b>	local storage address register
<b>ko</b>	not ok	<b>LSI</b>	large scale integration
<b>L</b>	load (instruction)	<b>LSR</b>	local storage register (CSP)
<b>LA</b>	1) load address (instruction) 2) line adapter	<b>LSS</b>	low-speed scanner
<b>LAB</b>	line adapter board	<b>LSSD</b>	level-sensitive scan design
<b>LAN</b>	local area network	<b>LT</b>	local test
<b>LAP</b>	line adapter processor	<b>LU</b>	logical unit
<b>LAR</b>	lagging address register	<b>m</b>	meter
<b>LCB</b>	line control block (storage)	<b>mA</b>	milliampere
<b>LCD</b>	line control definier (storage)	<b>MAC</b>	MOSS adapter card
<b>LCOR</b>	load character with offset register (instruction)	<b>MAP</b>	maintenance analysis-procedure
<b>LCR</b>	load character register (instruction)	<b>Mb</b>	megabyte; 1 048 576 bytes
<b>LCS</b>	line communication status (storage)	<b>MCA</b>	MOSS console adapter card
<b>LDF</b>	line description file	<b>MCPC</b>	machine check/program check
<b>LED</b>	light-emitting diode	<b>MCC</b>	MOSS control card
<b>LERR</b>	line error register/driver check	<b>MCF</b>	microcode fix
<b>LH</b>	load halfword (instruction)	<b>MCT</b>	machine configuration table
<b>LHOR</b>	load halfword with offset register (instruction)	<b>MDOR</b>	MOSS data operand register
<b>LHR</b>	load halfword register (instruction)	<b>MDR</b>	miscellaneous data record
<b>LIB</b>	line interface buffer	<b>MERR</b>	MUX error
<b>LIB1</b>	LIC board type 1 for LICs 1, 3, and 4	<b>MES</b>	miscellaneous equipment specification
<b>LIC</b>	line interface coupler card	<b>MFM</b>	modified frequency modulation
<b>LIC1</b>	line interface coupler type 1 (card)	<b>MHz</b>	megahertz
<b>LIC3</b>	line interface coupler type 3 (card)	<b>MICB</b>	MOSS interface control block
<b>LIC4</b>	line interface coupler type 4 (card)	<b>MIM</b>	Maintenance Information Manual
<b>LID</b>	line interface display	<b>min</b>	minute
<b>LIU</b>	line interface coupler unit	<b>MIO</b>	MOSS input/output
		<b>MIOC</b>	MOSS I/O control bus



<b>MIOH</b>	MOSS input/output halfword	<b>NS</b>	new sync (signal)
<b>MIOHI</b>	MOSS input/output halfword immediate	<b>ns</b>	nanosecond
<b>MIP</b>	Maintenance Information Procedures	<b>NSC</b>	native subchannel (address)
<b>MIR</b>	Maintenance Information Reference	<b>NTO</b>	Network Terminal Option
<b>MIT</b>	MOSS interface table	<b>NTT</b>	Nippon Telegraph and Telephone (Japanese PTT)
<b>MLC</b>	machine level control	<b>oc</b>	overcurrent
<b>MLT</b>	machine load table	<b>OCR</b>	OR character register
<b>mm</b>	millimeter	<b>ODG</b>	offline diagnostic
<b>MMIO</b>	memory mapped input/output	<b>OEM</b>	original equipment manufacturer
<b>MOD</b>	modifier	<b>OEMI</b>	original equipment manufacturer's inter- face
<b>MOSS</b>	maintenance and operator subsystem	<b>OHR</b>	OR halfword register
<b>MPC</b>	MOSS processor card	<b>OLT</b>	online test
<b>MPS</b>	multiple port sharing	<b>OLTEP</b>	online test executive program
<b>ms</b>	millisecond	<b>OLTSEP</b>	online test stand-alone execution (program)
<b>MSA</b>	machine status area	<b>OLTS</b>	online test system
<b>MSA</b>	multistation access unit	<b>OLTT</b>	online terminal test
<b>MSC</b>	MOSS storage card	<b>OMB</b>	out mailbox
<b>MSD</b>	machine status display	<b>OP</b>	operation decode
<b>MUX</b>	multiplex function	<b>OR</b>	OR register (instruction)
<b>mV</b>	millivolt	<b>ORI</b>	OR register immediate (instruction)
<b>NAK</b>	negative acknowledgment character (BSC)	<b>OS</b>	Operating System
<b>NCCF</b>	Network Communications Control Facility	<b>OSL</b>	outbound serial link
<b>NCP</b>	Network Control Program	<b>OUT</b>	output (instruction)
<b>NCR</b>	AND character register (instruction)	<b>ov</b>	overvoltage
<b>NCTE</b>	network communication terminal equip- ment	<b>PAC</b>	power analog card
<b>NHR</b>	AND halfword register (instruction)	<b>PAP</b>	previous adapter present
<b>NLDM</b>	Network Logical Data Manager	<b>PAR</b>	problem analysis and repair
<b>NMPF</b>	network management program facilities	<b>PC</b>	personal computer
<b>NMVT</b>	network management vector transport	<b>PCB</b>	power control bus
<b>NO-OP</b>	no-operation instruction	<b>PCF</b>	primary control field (storage)
<b>NOSP</b>	network operation support program (VTAM) <D> Use storage	<b>PCI</b>	program-controlled interrupt
<b>NPDA</b>	Network Problem Determination Applica- tion	<b>PCR</b>	power check reset
<b>NPM</b>	NetView performance monitor	<b>PCSS</b>	power control subsystem
<b>NPSI</b>	network packet switching interface	<b>PCW</b>	processor control word
<b>NR</b>	AND register (instruction)	<b>PCWC</b>	power control wrap card
<b>NRI</b>	AND register immediate (instruction)	<b>PD</b>	problem determination
<b>NRZI</b>	see NRZ-1	<b>PDAID</b>	problem determination aids
<b>NRZ-1</b>	non return-to-zero change on ones recording	<b>PDB</b>	power distribution board
		<b>PDF</b>	parallel data field (storage)

<b>PE</b>	Product Engineering	<b>RETAIN</b>	Remote Technical Assistance Information Network
<b>PEP</b>	partitioned emulation program	<b>RFS</b>	ready for sending (signal) (or clear to send CTS)
<b>PF</b>	programmable function	<b>RH</b>	request/response header
<b>PFAR</b>	prefetch address register	<b>RI</b>	1) register to immediate operand (instruction) 2) ring indicator (same as CI)
<b>PI</b>	power indication (signal)	<b>RIM</b>	request initialization mode (SDLC)
<b>PIO</b>	program-initiated operation	<b>RLSD</b>	receive line signal detector
<b>PIRR</b>	program interrupt request register	<b>RNIO</b>	OS/VS VTAM IO trace
<b>PIU</b>	pass information unit	<b>ROK</b>	read-only key
<b>PLC</b>	power logic card	<b>ROS</b>	read-only storage
<b>P/N</b>	part number	<b>ROSAR</b>	read-only storage address register
<b>PND</b>	present next digit (signal)	<b>rpm</b>	revolutions per minute
<b>POPR</b>	prefetch operation register	<b>RPO</b>	remote power-off
<b>POR</b>	power-on reset	<b>RPQ</b>	request for price quotation
<b>PROM</b>	programable read-only memory	<b>RR</b>	register-to-register (instruction)
<b>PS</b>	power supply	<b>RS</b>	register-to-storage (instruction)
<b>PSA</b>	program status area	<b>RSA</b>	register-to-storage with addition (instruction)
<b>PSS</b>	power subsystem	<b>RSET</b>	receive signal element timing (same as RC)
<b>PSTCE</b>	product support trained CE	<b>RSF</b>	remote support facility
<b>PSTY</b>	power supply type	<b>RTC</b>	retry count (X.21)
<b>PSV</b>	program status vector	<b>RTM</b>	retry timer (X.21)
<b>PSW</b>	program status word	<b>RTS</b>	request to send (signal)
<b>PSx</b>	power supply type x	<b>RU</b>	request/response unit (SNA)
<b>PTCE</b>	product-trained CE	<b>RVI</b>	reverse interrupt (BSC)
<b>PTER</b>	power bus terminator	<b>R/W</b>	read/write
<b>PTF</b>	program temporary fix	<b>s</b>	second
<b>PTT</b>	Post, Telephone and Telegraph (agency)	<b>SAC</b>	storage and control board assembly
<b>PTX</b>	phototransistor	<b>SACL</b>	storage and control lower assembly
<b>PU</b>	physical unit	<b>SACU</b>	storage and control upper assembly
<b>PV</b>	parity valid (signal)	<b>SALT</b>	stand-alone link test
<b>QAM</b>	quadrature amplitude modulation	<b>SAR</b>	storage address register
<b>RA</b>	repair action	<b>SCB</b>	scanner control block (storage)
<b>RAC</b>	repair action code	<b>SCF</b>	secondary control field (storage)
<b>RAS</b>	reliability, availability, and serviceability	<b>SCP</b>	signal converter product (or DCE)
<b>RC</b>	receive clock	<b>SCR</b>	1) subtract character register (instruction) 2) serial clock receive (signal)
<b>RCDB</b>	reference code data base	<b>SCT</b>	serial clock transmit (signal)
<b>RCV</b>	receive	<b>SCTL</b>	storage control card
<b>RD</b>	receive data (signal)		
<b>RDB</b>	reference code data base		
<b>RECFMS</b>	record formatted maintenance statistics		
<b>RECMS</b>	record maintenance statistics		
<b>REQMS</b>	request for maintenance statistics		

<b>SD</b>	send data (signal)	<b>SVC</b>	supervisor call
<b>SDF</b>	serial data field (storage)	<b>SW</b>	switch
<b>SDLC</b>	Synchronous Data Link Control	<b>SYN</b>	synchronous idle (BSC)
<b>SE</b>	system engineer	<b>SYSGEN</b>	system generation
<b>SES</b>	secondary status (storage)	<b>T</b>	transmit (signal)
<b>SET</b>	signal element timing (signal)	<b>TA</b>	tag address
<b>SHM</b>	short hold mode	<b>TAP</b>	trace analysis program
<b>SHR</b>	subtract halfword register (instruction)	<b>TAR</b>	temporary address register
<b>SIDI</b>	serial in data in	<b>TB</b>	terminator block
<b>SIM</b>	set initialization mode (SDLC)	<b>TC</b>	transmit clock
<b>SIO</b>	start input/output	<b>TCAM</b>	Telecommunications Access Method
<b>SIT</b>	scanner internal trace	<b>TCB</b>	task control block
<b>SKA</b>	storage key address	<b>TCC</b>	trace correlation counter (storage)
<b>SKDR</b>	storage-protect key data register	<b>TCM</b>	thermally-controlled module
<b>SL</b>	serial link	<b>TCP</b>	test connector pin
<b>SMPS</b>	switching module power supply	<b>TCS</b>	two-channel switch
<b>SMUXA</b>	single multiplex card for lower board on LIC 2	<b>TCTR</b>	transient error counter
<b>SMUXB</b>	single multiplex card for upper board on LIC 2	<b>TD</b>	1) tag data 2) transmitted data (signal)
<b>SNA</b>	Systems Network Architecture	<b>TERM</b>	terminator
<b>SNRM</b>	set normal response mode (SDLC)	<b>TG</b>	transmission group
<b>SODO</b>	serial out data out	<b>TH</b>	transmission header
<b>SOH</b>	start of heading (BSC)	<b>TI</b>	test indicator (signal)
<b>SP</b>	storage protect	<b>TIC1</b>	token-ring interface coupler type 1 card (4 Mb)
<b>SPAE</b>	storage protect/ address exception	<b>TIC2</b>	token-ring interface coupler type 2 card (16 Mb)
<b>SPK</b>	storage protect key	<b>TICB</b>	trace interface control block
<b>SR</b>	subtract register (instruction)	<b>TIO</b>	test I/O
<b>SRI</b>	subtract register immediate (instruction)	<b>TLNVT</b>	trace line vector table
<b>SRL</b>	shift register latch	<b>TOD</b>	time of day
<b>SS</b>	start-stop	<b>TPS</b>	two-processor switch
<b>SSB</b>	system status block	<b>TPSA</b>	trace parameter status area
<b>SSCP</b>	system services control point	<b>TRA</b>	token-ring adapter
<b>SSP</b>	system support programs	<b>TRM</b>	1) token-ring multiplexer card that controls up to two TICs 2) test register under mask (instruction)
<b>ST</b>	store (instruction)	<b>TRSS</b>	token-ring subsystem
<b>STC</b>	store character (instruction)	<b>TRU</b>	trace record unit
<b>STCT</b>	store character and count (instruction)	<b>TSET</b>	transmitter signal element timing (signal, same as TC)
<b>STER</b>	switch terminator	<b>TSS</b>	transmission subsystem
<b>STH</b>	store halfword (instruction)	<b>TTA</b>	translate table area
<b>STG</b>	storage		
<b>STO</b>	storage (card)		
<b>STX</b>	start of text (BSC)		

<b>TTD</b>	temporary text delay (BSC)	<b>VTAM</b>	Virtual Telecommunications Access Method
<b>T1</b>	US service for very high speed transmissions at 1.5 million bps	<b>V.24</b>	CCITT V.24 recommendation
<b>UA</b>	unnumbered acknowledgment (SDLC)	<b>V.25</b>	CCITT V.25 recommendation
<b>UC</b>	universal controller	<b>V.28</b>	CCITT V.28 recommendation
<b>UCW</b>	unit control word	<b>V.35</b>	CCITT V.35 recommendation
<b>UE</b>	unit exception (channel status)	<b>W</b>	watt
<b>UEPO</b>	unit emergency power-off	<b>WACK</b>	wait before transmit positive acknowledgment (BSC)
<b>UK</b>	United Kingdom	<b>WB</b>	wrapback (signal)
<b>UKA</b>	user key address	<b>WKR</b>	work register
<b>UKP</b>	user key program	<b>WSDR</b>	wide storage data register
<b>UKDR</b>	user key data register	<b>XI</b>	X.25 SNA interconnection
<b>UKL</b>	user key level interrupt	<b>XID</b>	exchange identification
<b>URSF</b>	universal remote support facility	<b>XCR</b>	exclusive OR character register (instruction)
<b>USASCII</b>	(see <i>ASCII</i> )	<b>XHR</b>	exclusive OR halfword register (instruction)
<b>us</b>	microsecond	<b>XOR</b>	exclusive OR
<b>uv</b>	undervoltage	<b>XR</b>	exclusive OR register (instruction)
<b>V</b>	volt	<b>XREG</b>	external registers
<b>VB</b>	valid byte (signal)	<b>XRI</b>	exclusive OR register immediate (instruction)
<b>Vac</b>	volts, alternating current	<b>X.21</b>	CCITT X.21 recommendation
<b>VCNA</b>	VTAM node control application	<b>X.25</b>	CCITT X.25 recommendation
<b>V dc</b>	volts, direct current	<b>YZxxx</b>	wiring diagram
<b>VFO</b>	variable frequency oscillator	<b>ZI</b>	zero insert
<b>VH</b>	valid halfword (signal)	<b>ZREG</b>	Z register
<b>VPD</b>	vital product data		
<b>VRC</b>	vertical redundancy check		
<b>VS</b>	virtual storage		

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# 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 communi-

cation 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 interconnected 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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## Readers' Comments — We'd Like to Hear from You

**3745 Communication Controller**

**Models 130, 150, 160, and 170**

**Service Functions**

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