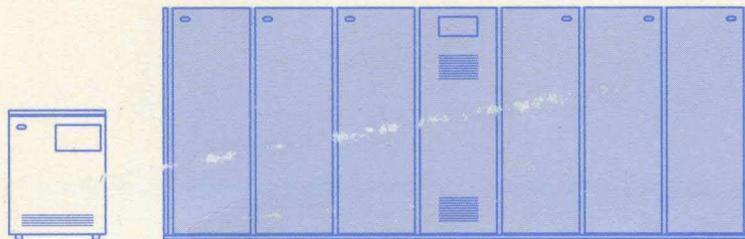


Service Functions



3745

3745

3745

3745



IBM 3745 Communication Controller
Models 210, 310, 410, and 610

SY33-2055-6

IBM 3746 Expansion Unit
Models A11, A12, L13, L14, and L15

Service Functions

Note!

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

Seventh Edition (August 1991)

The information contained in this manual is subject to change from time to time. Any such changes will be reported in subsequent revisions. 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 210, 310, 410, and 610 Maintenance Information Procedures (MIP)*, SY33-2054.

A 3745 Models 210, 310, 410, and 610 Service Documentation Bibliography is provided on page X-15 at the end of this manual.

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*, SY33-2059

- *3745 Installation Guide*, SY33-2057
- *3745 Introduction*, GA33-0092
- *3745 Connection and Integration Guide*, SA33-0129
- *3745 Maintenance Information Procedures (MIP)*, SY33-2054
- *3745 Maintenance Information Reference (MIR)*, SY33-2056
- *3745 Parts Catalog*, S135-2010
- *3745 Principles of Operations*, SA33-0102
- *3745 Problem Determination Guide*, SA33-0096
- *3745 Telecommunication Products Safety Handbook*, GA33-0126
- *3745 Console Setup Guide*, SA33-0158
- *3745 Service Master Index*, SY33-2080.

Summary of Changes

The following changes have been made in this book:

- The panels related to the CCU display in the CDF (Chapter 9) have been modified to account for a new CCU type.
- The concurrent maintenance (CACM) function has been modified in Chapter 10. Shutdown (SHT) and restore (RST) commands are now the only allowed commands in service mode.
- 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 slightly differ from those described but this does not affect the procedures.

- The layout of the book has been modified to make the procedures easier.
- Quick information retrieval helps have been added at the beginning of the chapters covering complex functions. They consist mainly in *Road Maps*, and synoptics. *Road Maps* are dual-entry tables telling you where to go according to what you want to do and the part of the 3745 you are working on.

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This chapter gives general information on how to use the MOSS screens and provides a *road map* to navigate within the various functions available to fulfill the maintenance tasks.

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
Air Filters	--	--	--	--	12		--	--	--	--	--	12
BER	--	--	--	--	2	--	2	--	--	--	--	--
CDF	--	--	--	9	9	--	9	--	--	--	--	9
Channel Adapters	9	9	--	--	9	--	--	--	--	--	10	9
Diagnostics	--	--	--	--	--	--	3	--	--	3	3	--
Disk / diskette	--	--	--	--	--	--	11	--	11	--	--	--
Dump files	--	--	--	--	6	--	6	--	--	--	--	--
ESS	9	--	--	--	9	4	--	--	4	--	9	--
HPTSS	9	--	--	--	9	4	--	--	4	--	9	9
LIC	9	--	--	--	9	--	--	--	--	--	--	--
Line Adapters	9	9	--	--	9	--	--	--	--	--	9	9
MCF	--	--	7	--	7	--	--	7	--	--	--	--
MUX	9	--	--	--	--	--	--	--	--	--	--	9
Patch	--	8	8	8	8	--	--	8	--	--	--	--
Power	--	--	--	12	12		--	--	--	--	--	12
Scanners	--	4	--	--	9	4	--	4	4	--	4	--
TRA	9	5	--	--	9	5	--	--	5	--	5	--
TRSS	9	5	--	--	9	5	--	--	5	--	5	--
TSS	9	4	--	--	9	4	--	--	4	--	4	--

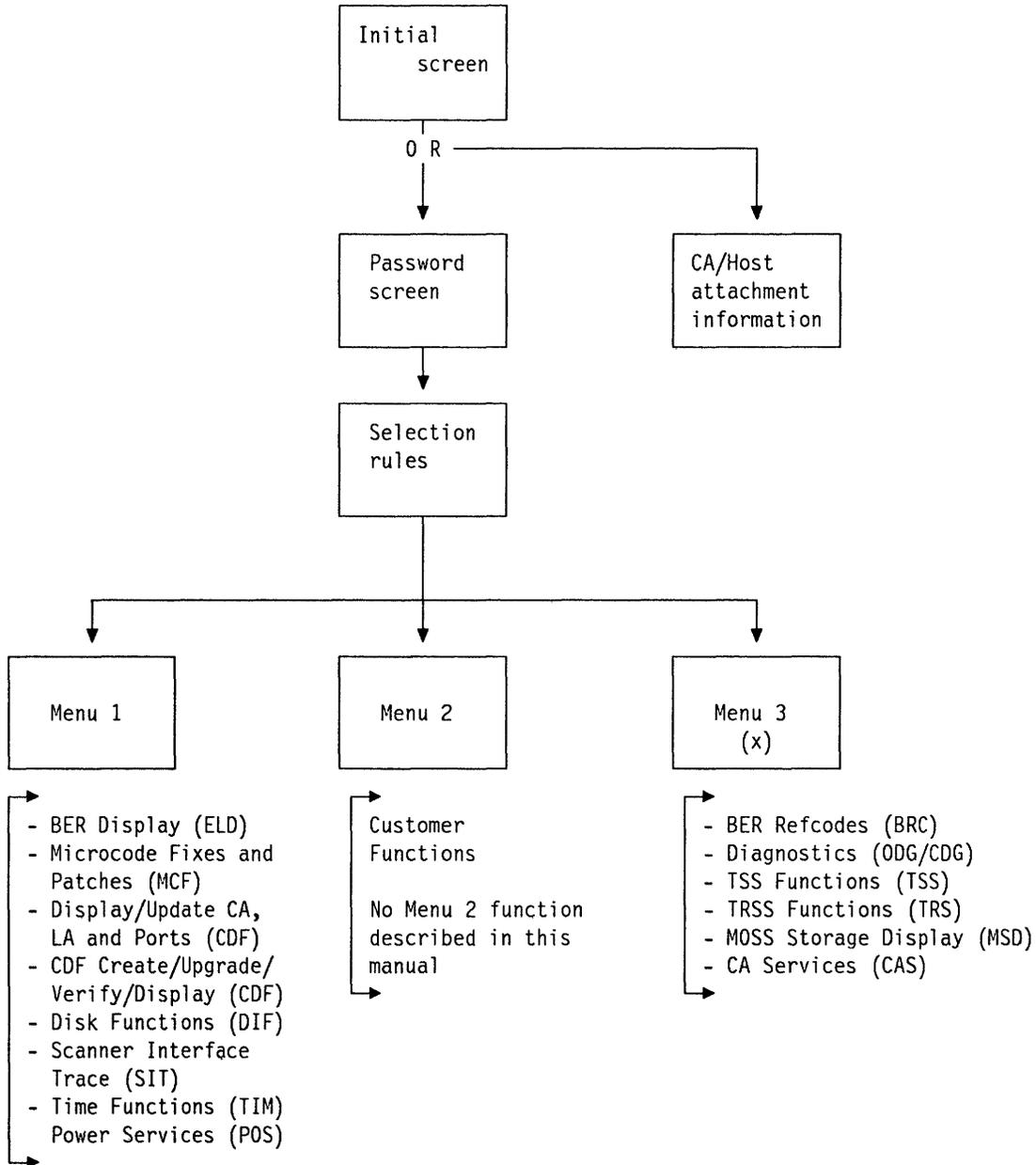
More detailed 'Road Maps' are provided at the beginning of Chapter 4, Chapter 5, and Chapter 9.

Where to Go

Where to go if you want to:

Task to perform	Function	Chapter
BER (box event record) screens description		Chapter 2
BER refcodes interpretation	BRC	Chapter 2
CA services handling	CAS	Chapter 10
CDF (configuration data file) handling (create, upgrade, and display/update)	CDF	Chapter 9
Change and analyze the MOSS disk		Chapter 11
Connect to MOSS and access MOSS Function Menu		Chapter 1
Delete dump files or the BER file	DDD	Chapter 6
Display storage, dumps and modules (hexadecimal)	DDD	Chapter 6
Dump or IML a scanner, or scanner address compare	TSS	Chapter 4
Format the MOSS disk		Chapter 11
FRU correlation	BRC	Chapter 2
Install an engineering change (EC)		Chapter 11
IPL in maintenance mode	IPL	Chapter 12
Know how to use this manual	--	Chapter 1
Know your console and understand MOSS screens	--	Chapter 1
Microcode fixes handling (install or restore) (MCF)	MCF	Chapter 7
Microcode patches handling (create, modify, or apply)	MCF	Chapter 8
Power Services usage	POS	Chapter 12
Repaired CCU function usage	REP	Chapter 12
Restore the MOSS disk	DIF	Chapter 11
Run diagnostics from the console and OLTs	ODG/CDG	Chapter 3
Run the scanner interface trace	SIT	Chapter 12
Save the MOSS disk	DIF	Chapter 11
Scanner control storage and registers (display or alter)	TSS	Chapter 4
Start scanner checkpoint trace	TSS	Chapter 4
Time services usage	TIM	Chapter 12
Token-ring registers, storage, and parameter blocks, handling (display, alter, or dump)	TRS	Chapter 5

Initial Screen and Menu Screens



(x) 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 the 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-x10 SERIAL NUMBER:

A 3745 MICROCODE (C) COPYRIGHT IBM CORP: 1987

CA INTERFACE DISPLAY

INTERFACE NUMBER	CHANGE F/D REQ	E/D REQUEST	INTERFACE STATUS	HOST OR SWITCH UNIT	CHANNEL ADDRESS	NSC ADDRESS
1A	1 ==>	E	DISABLED			26
2A	==>	E	DISABLED			21
3A		-				
4A		-				
5A	==>	D	DISABLED			25
6A	==>	E	DISABLED			26
7A	==>	E	DISABLED			27
8A	==>	D	DISABLED			10

- 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 menu 3, or some maintenance options of the customer functions.

F Keys action

F4 Return to screen **A**

CUSTOMER ID: 3745 SERIAL NUMBER:

B 3745 MICROCODE (C) COPYRIGHT IBM CORP: 1987

ENTER PASSWORD ==> **1**

F4:CHANNEL INTERFACE DISPLAY

Figure 1-2. Password Screen

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

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

C **FUNCTION SELECTION RULES**

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

==>

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

Figure 1-3. Function Selection Rules Screen

CA/Host Attachment Information

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

Enable or disable a CA

1. Type **E** (Enable) or **D** (Disable) in 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..

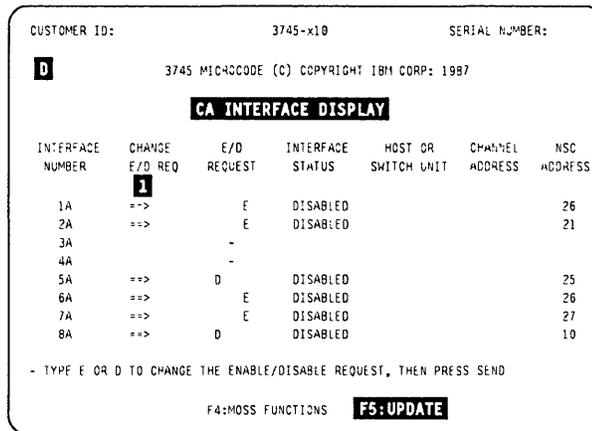


Figure 1-4. Channel Adapter Status Screen

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 9-19.

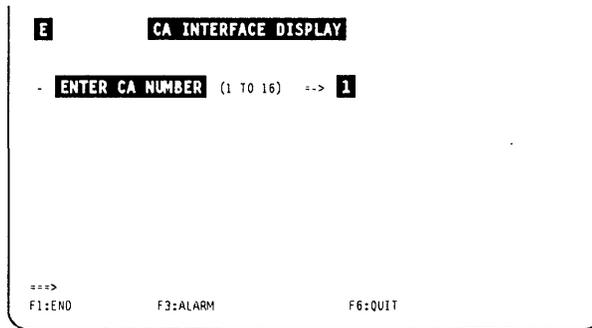


Figure 1-5. CA Number Selection Screen

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**.

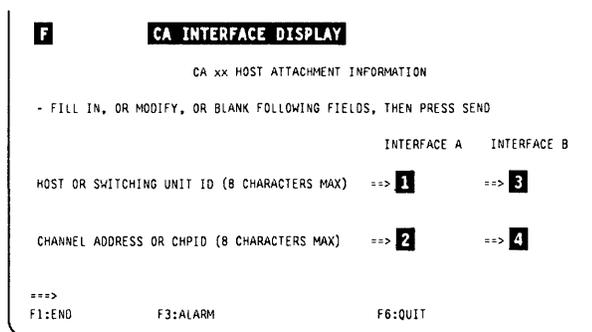


Figure 1-6. CA Host Attachment Information Screen

MOSS Console Screen Layout

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

CUSTOMER ID: xxxxxxxxxxxxxx	3745-x10	SERIAL NUMBER: nnnnnnn	1
.....			
CCU-A			2
RESET			3
	MSA (Machine Status Area) lines 2 to 7		4
CCU-B			5
RESET			6
-----mm/dd/yy hh:mm			7
.....			
FUNCTION ON SCREEN:		FUNCTION PENDING:	8
			9
			.
	FUNCTION area (lines 8 to 21)		.
			.
			20
			21
.....			
===> <.....	MESSAGE area	>.....	22
<.....	ALARM area	>.....	23
F1:END F2:MENU1 F3:ALARM	<.....	F KEY line	24
<.....CONSOLE TERMINAL INFORMATION			25

Figure 1-7. 3745 Console Screen Main Areas

CUSTOMER ID	Customer identification, permanently displayed (16 characters). This information is entered by the customer, using the password management function.
MACHINE TYPE	3745-xxx where xxx indicates the model.
SERIAL NUMBER	Machine serial number of the 3745 (7 characters). Permanently displayed. This information is entered by manufacturing, or when formatting a new disk.
MACHINE STATUS AREA	Current status of the CCU(s) and scanners, token-ring/TIC or IPL progression.
FUNCTION ON SCREEN	When a function is displayed, the name of the function is written next to it.
FUNCTION PENDING	When a function is pending, its name is written next to it.
FUNCTION AREA	Function display and operator input. This area includes the different menus (customer and FE/CE).
MESSAGE AREA	Operator control and function messages are displayed in that area.
ALARM AREA	The first alarm is displayed and the following ones are queued (up to five alarms can be queued). <ul style="list-style-type: none"> • When there is no alarm, the word ALARM does not appear. • When there is more than one alarm, the word ALARM is blinking. • Pressing F3 displays the next alarm. <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, SA33-0096.</p>
F KEY LINE	Lists all the defined F keys (Only the available F keys are shown).
CONSOLE TERMINAL INFORMATION	Gives information on the communication between the console and the MOSS.

Common Commands and F Keys Description

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

Keyboard Differences and Terminology

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

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

SEND	The key pressed to confirm the data just typed in. Sometimes known as the ENTER key.
BREAK	The key pressed to interrupt the automatic transmission, to communicate directly with the system (also known as ATTN or INTERRUPT key). This key is also used to stop the refresh of the MSA.
Fn	Any function key (F1-F8) of the keyboard.

For operation information, refer to the console documentation.

Machine Status Area

The 3745 status is permanently displayed on lines 2 to 7 of the operator console screen. Those lines are called the machine status area (MSA).

- Lines 2 and 3 are used for CCU A information.
- Line 4 is used for CCU A, IPL, scanner or token-ring/TIC information.
- Lines 5 and 6 are used for CCU B information. When only one CCU is installed, these lines are blanked out.
- Line 7 is used for CCU B, IPL, scanner or token-ring/TIC information, or displays dashes, date and time.

-The MSA is updated every 500 ms.

In the next pages, each screen is followed by a grid. The grid areas, identified by a letter, correspond to the screen areas. The letter refers to the explanation following the figure.

MSA (CCU Information)

MSA Field Definitions (CCU Information)

CUSTOMER ID:	3745-x10	SERIAL NUMBER:	
CCU-A	SELECTED	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
CCU-B	PROCESS	MOSS ONLINE	BT
READY	BYP-IOC-CHK	BYP-CCU-CHK	AC
	X71:xxxxxx	LAR:xxxxxx	OP:xxxx C:0
	X72:xxxxxx	IAR:xxxxxx	ILVL:xxxx Z:0
FUNCTION ON SCREEN:		FUNCTION PENDING:	
mm/dd/yy 10:20			

Figure 1-8. MSA Example with CCU Information

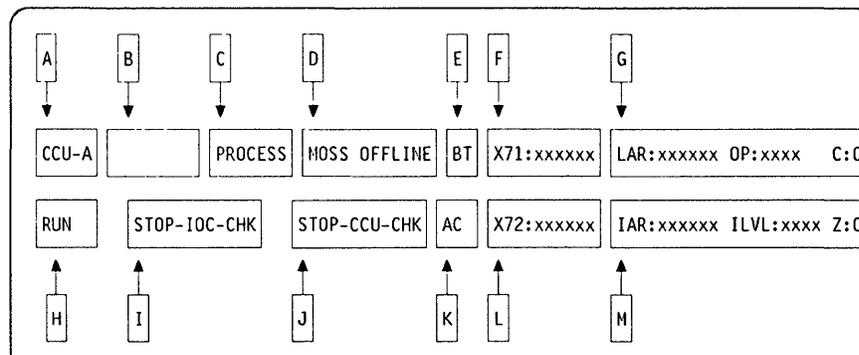


Figure 1-9. Fields of the CCU Information in the MSA

This figure shows the breakdown of the CCU information fields in lines 2-3 (CCU A) or 5-6 (CCU B).

Field A

CCU name: can be CCU-A or CCU-B.

Field B

Shows if the CCU is selected or not.

SELECTED The CCU has been selected by using the CSR function.
blank The CCU is not selected.

Field C

Displays the CCU mode:

PROCESS Normal processing.
I-STEP Instruction step.

Field D

Shows 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 no longer 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 CCU OFF, and wait for about 10 seconds.

2. Power the CCU ON.
3. Wait for the end of IML.

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

The following table gives the MOSS status after the different types of IMLs and IPLs.

After	MOSS Status	Control Panel Hex Display
Initialization (general IPL)	MOSS ONLINE	X'000'
MOSS IML	MOSS ALONE if CP is not loaded MOSS OFFLINE if CP is loaded	X'F0E' X'F0F'
CCU/Scanner IPL	MOSS ONLINE	X'000'
Step by step IPL	MOSS ONLINE	X'000'
Bypass phase 1 IPL	MOSS ONLINE	X'000'

Note: For a machine with two CCUs, the code displayed on the control panel reflects the last operation executed.

Field E

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

Field F

Updated each time an output X'71' instruction is executed, by the control program, for example, when using the CCU data exchange function or the control program procedures, or during 3745 initialization.

Output X'71' contents are buffered. If the buffers are overrun because of intensive output, 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=xyyzz

where 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- or link-attached 3745.
- 21** Control program loader/dump abend on a load/dump request detected on a link-attached 3745.

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- 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.

where yyzz shows the IPL port address. This encoded address is displayed in decoded form in field V, preceded by CA or L (see field V in "MSA Field Definitions (IPL Information)" on page 1-17).

except when xx = 00, in which case:

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

Field G (and Field M)

Field 'G' is displayed, along with field 'M', 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).
- After a fallback.
- While performing some utility programs (service personnel only) to prevent interference with the utility program. All communications between the CCU and MOSS are delayed. For example, 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, and service personnel intervention is necessary.
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 on the 3745 function menu or press F6=CCU START or F6=S if displayed on the screen.
IPL-REQ	A CCU IPL was requested and is in progress.
PWR-DOWN	The related CCU power supply is down.
READY	The CCU is operational and can be used immediately (IML completed).
RESET	The control program stopped since 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 that you initiated with CCU STOP (CCU ACTION=S) is successful.
STOP-BT	The control program stopped because the branch trace function that you initiated with CCU STOP has become deactivated.
STOP-PGM	The control program stopped because you initiated the CCU STOP or SET I-STEP function.
STOP-X70	The control program stopped on an output X'70' instruction executed by the control program.

Field I

Shows whether the 3745 will stop on an IOC check.

BYP-IOC-CHK	The system will not stop on an IOC check. (default or after a RESET IOC CHECK STOP).
STOP-IOC-CHK	You initiated the SET IOC CHECK STOP function to force the system stop on an IOC check.

Field J

CCU check mode:

BYP-CCU-CHK	You initiated the SET BYPASS CCU CHECK function so the system will not stop on a CCU check.
STOP-CCU-CHK	The system will stop on a CCU check (default or after the RESET BYPASS CCU CHECK function).

Field K

Information on the CCU address compare (SAC) function:

AC	(highlighted). The address compare function is active. If you selected MOSS INTERRUPT=Y and/or CCU STOP=Y when defining the address compare, the following is displayed:
AC HIT	(highlighted). A single- or double-address compare is successful.

MSA (CCU Information)

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

Field L

Updated each time an output X'72' instruction is executed by the control program. For example, when using the CCU data exchange function, the control program procedures, or the 3745 initialization.

The **Output X'72'** contents are buffered. If the buffers are overrun because of intensive output, some data may be lost; however, the last value outputted will be displayed.

X72=xxxxxx Contents of CCU X'72' output register.

X72=00xxxx Control program load/dump (CLDP) abend code (refer to the IPL/IML chapter of the Maintenance Information Reference manual, SY33-2056, for abend codes list).

X72=ERROR Error when accessing the register. Register contents cannot be displayed.

Field M

Field 'M' is displayed along with field "G" when the CCU is in the STOP state. (See field 'G' description).

MSA (Scanner Information)

Field O

Scanner option:

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 in 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

Scanner address compare function :

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

Fields P and Q

Display the scanner address compare parameters that you specified:

AC xxxx yyyy zzzzzz where:

xxxx Is the address.
yyyy Is the type of access:
F for I-fetch or data-fetch
S for data store
R for cycle steal read
W for cycle steal write

One of the four types will be displayed when AC is reached, and according to the type of access selected in Figure 4-25 on page 4-17.

zzzzzz is the action: DISPLAY, ALTER, STOP, or OP-MSG (no action).

Fields Q and R

Display the function for the execution of which you requested a delay (scanner display/alter functions): DELAYED-ALTER or DELAYED-DISPLAY.

MSA Field Definitions (IPL Information)

```

CUSTOMER ID:                               3745-x10          SERIAL NUMBER:
CCU-A SELECTED PROCESS HOSS OFFLINE BT     X71:008000
RUN      BYP-IOC-CHK  STOP-CCU-CHK AC
IPL CCU-A PHASE 4      ENABLED CA xxxxxxxxxxxxxxxxx L xxxxxxxx

----- mm/dd/yy 10:20
FUNCTION ON SCREEN:                          FUNCTION PENDING:

```

Figure 1-13. MSA Example with IPL Information

CCU/scanner IPL information is displayed on line 4 for CCU-A, and on line 7 for CCU-B.

A short time after successful completion of the IPL, these lines are cleared and line 7 is filled with dashes plus the date and time.

```

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

S      T      U      V

```

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

This figure shows the breakdown of the IPL information fields in line 4 (CCU A IPL) or 7 (CCU B IPL).

Field S

IPL CCU-x (x can be A or B). 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).

SUSPEND An automatic IPL has been requested on a CCU, while IPL was not yet completed on the other one. From a MOSS standpoint, the latter CCU is frozen, until the other reaches phase 3 or 4, depending on the moment the request was received.

All fields are frozen, except 'F' and 'L'.

Field U

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

Field V

Displays 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 The control program is loaded.

CP SAVE ON DISK IN PROGRESS The control program save on disk is in progress.

DUMP IN PROGRESS ON CA xx A control program dump is being taken on a channel-attached 3745. The progression of the dump is indicated in MSA field F which displays the control program storage addresses. xx is the channel adapter number.

DUMP IN PROGRESS ON L xxxx A control program dump is being taken on a link-attached 3745. The progression of the dump is indicated in MSA field F which displays the control program storage addresses. xxxx is the decimal telecommunication line address.

DUMP ON MOSS DISK IN PROGRESS A control program dump is being taken on the MOSS. The progression of the dump is indicated in MSA field F which displays the control program storage addresses.

ENABLED CA xxxxxxxxxxxxxxxx L xxxxxxxx Shows which channel adapters or link IPL ports are enabled. x can be Y, N, or U for channel adapters (CA). x can be Y or N for link IPL ports (L).

- In the CA field, Ys show which channel adapters are enabled, Ns which channel adapters are not enabled, and Us which channel adapters are unusable. The positions of the Ys, Ns, and Us give the channel adapter number.
- In the L field, Ys show which link IPL ports are enabled, and Ns which link IPL ports are not enabled. The positions of the Ys and Ns give the position of the Link IPL port in the link IPL port table.

FALLBACK CANCELLED The 3745 fallback is cancelled by:

- The operator (immediate terminate function).
- Operator console power-OFF when the FBK was requested from the console.
- The operator console switching from normal mode to test mode.

FALLBACK CHECK Fxx The fallback ends abnormally. The check code (Fxx) is also displayed on the hex display of the control panel.

FALLBACK COMPLETE The fallback is successfully completed.

FALLBACK COMPLETE + ERRORS: The fallback is complete although an error has occurred. The 3745 should run normally.

FALLBACK IN PROGRESS The fallback operation is in progress.

IPL CANCELLED The 3745 initialization is cancelled by:

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

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

IPL CHECK F1B CLDP ABEND xxxx The IPL ends abnormally. xxxx is the hexadecimal CLDP abend code (refer to the "IML/IPL" chapter of the Maintenance Information Reference Manual, SY33-2056, for the list of abend codes).

IPL COMPLETE The IPL is successfully completed.

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

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

IPL IN PROGRESS The IPL operation is in progress. The progression of the IPL is indicated in MSA field F 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. The progression of the load is indicated in MSA field F where the CCU storage addresses are displayed. x is the channel adapter number.

LOAD IN PROGRESS ON L xxxx The control program is being loaded on a link-attached 3745. The progression of the load is indicated in MSA field F where the CCU storage addresses are displayed. xxxx is the decimal telecommunication line address.

RPO DETECTED ON L xxxx The remote power OFF (RPO) command is detected on telecommunication line xxxx. xxxx is the decimal telecommunication line address.

SCANNER(S) NOT IMLED: xxxxxxxx Indicates that one or more scanners are not IMLed. xxxxxxxx consists of eight hexadecimal digits (32 bits). Each bit corresponds to a scanner (CS) number.

SWITCHBACK CANCELLED The switchback operation is cancelled by:

- The operator (immediate terminate function).
- Operator console power-OFF when the IPL was requested from the console.
- The operator console switching from normal mode to test mode.

SWITCHBACK CHECK Fxx The switchback ends abnormally. The check code (Fxx) is also displayed on the hexadecimal display of the control panel.

SWITCHBACK COMPLETE The switchback is successfully completed.

SWITCHBACK COMPLETE + ERRORS The switchback is complete, although an error has occurred. The 3745 should run normally.

SWITCHBACK IN PROGRESS The switchback operation is in progress.

TEST CANCELLED During IPL of the active CCU, and at IPL completion, the test of the standby CCU has been cancelled by pressing F1.

TEST CHECK Fxx During IPL of the active CCU, and at IPL completion, the test of the standby CCU ends abnormally. The check code (Fxx) is also displayed on the hexadecimal display of the control panel.

TEST COMPLETE During IPL of the active CCU, and at IPL completion, the test of the standby CCU has been successfully completed.

TEST IN PROGRESS During IPL of the active CCU, and at IPL completion, the test of the standby CCU is in progress.

MSA Field Definitions (Token-Ring/TIC Information)

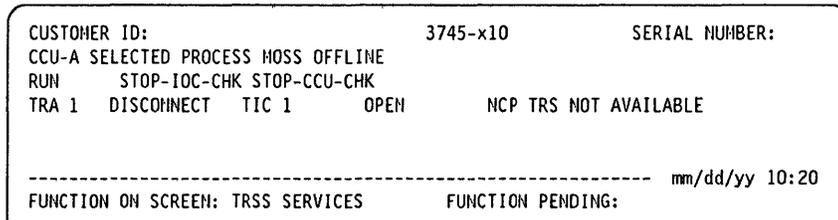


Figure 1-15. MSA Example with TRSS Information

Token-ring information is displayed on line 4 for CCU-A, and on line 7 for CCU-B.

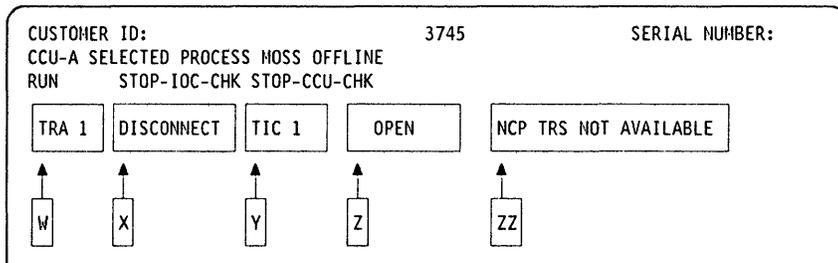


Figure 1-16. Fields of the TRSS Information in the MSA

This figure shows the breakdown of the token-ring information fields in line 4 (CCU A) or 7 (CCU B).

Field W

TRA number (1, 2, 5 or 6). Indicates that the TRA has been selected (TRS or TID function).

Field X

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

Note: If field F 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 if there is 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.

MSA (Token-Ring/TIC Information)

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

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 the *3745 Advanced Operations Guide*).

The TIC must be in one of the seven following modes (as reported by the NCP):

IDLE: The TIC has not yet been reset by the NCP.

RESET: The TIC has been reset by the NCP but has not yet been initialized.

INITIALIZED: The TIC has been initialized but has not yet been open or disabled. Initialization parameters have been passed to the TIC by the NCP.

OPEN: The TIC has been inserted into the token-ring and is in normal operation. Open parameters have been passed, and receive and transmit operations have been started.

CLOSED: The TIC has been opened since initialization, but has since been closed (by the host).

FROZEN: An error was detected by the NCP and the following actions were taken by the NCP:

- Interrupts from this TIC are disabled.
- DMA from this TIC is disabled.
- The TIC is reset.

DISABLED: The associated TRA has been disconnected by the MOSS. The NCP will send no PIO to this TIC.

(blank): There is no TIC mode if the NCP is not online.

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

Medium Access Control (MAC) Status	TIC Mode
Idle	Idle
TIC resetting hard	Idle
TIC resetting soft	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:

Indicates that:

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

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

Otherwise, the 'ZZ' field is blank.

Short Description of the 3745

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

- Controller subsystem (CSS)
- Transmission subsystem (TSS)
- Maintenance and operator subsystem (MOSS)
- Power control subsystem (PCSS).

Controller Subsystem

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

Transmission Subsystem

The transmission subsystem can contain the transmission subsystem (called TSS), a token ring subsystem (TRSS), a high-performance transmission subsystem (HPTSS), and an Ethernet** subsystem (ESS).

The TSS includes up to 32 low-speed scanners (LSS) also called line adapters (LA). Each LSS is composed of a communication scanner processor (CSP) and a front-end low-speed scanner (FESL), and is for lines up to 256 kbps in speed.

The HPTSS includes up to eight high-speed scanners (HSS) also called line adapters (LA). Each HSS is composed of a communication scanner processor (CSP) and a front-end high-speed scanner (FESH), and is for lines up to two millions bps in speed.

The ESS includes up to eight 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), and is for lines up to 10 millions bps in speed.

The TRSS includes up to four token-ring adapters (TRA). Each TRA is composed of a token-ring multiplexor card (TRM) and two token-ring interface couplers (TICs). The TICs can operate at speeds of either four millions bps, or sixteen millions bps.

MOSS

The MOSS communicates with the CCU(s), and gives access to a disk, a diskette, and the operator console. It also controls the switching of IOC and DMA buses, and the enabling/disabling of CAs.

Power Control Subsystem

The power control subsystem is made up of the power logic card (PLC) and power analog card (PAC). The PLC card is linked to the secondary power control card of each power supply via a power control bus (PCB). The PLC also links the control panel to the MPC card of the MOSS.

Programming Support

The control program that runs in the CCU(s) 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 the 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:

Several 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 autober analysis running in the MOSS to generate a reference code.
4. Error notification to the customer through alarm and alert messages.
5. 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).
6. Remote problem analysis by service personnel in HCS, using the information provided by the customer.
7. On-site FRU replacement, repair, and verification.

Concurrent Maintenance

The maintenance package efficiency is based on error detection and failure isolation through the diagnostics, autober analysis in the MOSS, and reporting.

Most components or subsystems of the 3745 can be diagnosed and repaired while the customer continues to run his system in partially degraded mode.

The modularity of the power supplies, the LIC/DMUX hot pluggability, allow concurrent repair per subsystem (CCU, MOSS), or per group of two adapters (TSS, HPTSS, ESS, TRSS, CA).

Repair Action in Case of Solid 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 on 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.

Intermittent Error

If an intermittent error is not confirmed by the diagnostics, the generated BER is automatically analyzed (autober analysis), compressed as a reference code, and included in an Alarm/Alert on threshold.

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 there is a solid failure on the MOSS disk 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 are 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

3745 Consoles Summary

For details about the types of console used on the 3745, refer to the *3745 Installation Guide, SY33-2057*.

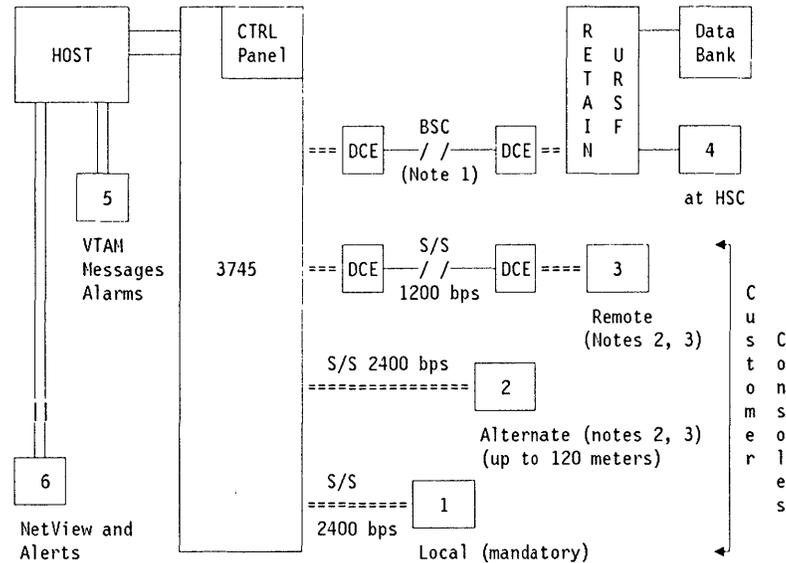


Figure 1-17. Remote and On-site Service By the CE

- 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, 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 need 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.

Menu Screens

The first eight lines of the MOSS screen (MSA) are not shown on the menu screens. Refer to "Machine Status Area" on page 1-9 for details of that area.

Menu 1 Screen

```

                                MENU 1

CONFIG DATA FILE.: CDF      IML ONE SCANNER..: IHS      PASSWORDS.....: PSW
CONTROL PGM PROC.: CPP      IPL CCU(S).....: IPL      PORT SWAP FILE...: PSF
DISK FUNCTIONS...: DIF      LD LINK TEST REQ.: LTQ      POWER SERVICES...: POS
DISK IPL INFO....: DII      LD LINK TEST RESP: LTS      SCANNER I/F TRACE: SIT
EVENT LOG DISPLAY: ELD      LINE INTERF DSPLY: LID      STAND ALONE TEST.: SAT
FALLBACK.....: FBK        LINK IPL PORTS...: LKP      SWITCHBACK.....: SBK
                                MACHINE LVL TABLE: HLT      TIME SERVICES....: TIM
IML MOSS.....: IML        MICROCODE FIXES..: MCF      TRSS INTERF DSPLY: TID
                                ESS INTERF DSPLY.: EID      WRAP TEST.....: WTT

                                ENTER OFF TO LOG OFF

===>

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

Figure 1-18. Menu 1 Screen

Notes:

1. The F5 key (maintenance functions) is present only if you are in maintenance mode.
2. Fallback (FBK) and switchback (SBK) appear only if CCU-A and CCU-B are present.

Menu 2 Screen

```

                                MENU 2

AC/BT PARAMETERS.: ABP      DISPLAY LONG.....: DLO      RESET IOC(S).....: RIO
BYPASS CCU CHECK.: BCK      MOSS OFFLINE.....: NOF      RESET I-STEP.....: RIS
BYPASS IOC CHECK.: BIK      MOSS ONLINE.....: MON      SET ADDR COMPARE.: SAC
CA INTERF DISPLAY: CID      REPAIRED CCU.....: REP      SET BRANCH TRACE.: SBT
CCU LVL3 INTERRUPT: IL3     RESET ADDR COMP...: RAC      SET I-STEP.....: SIP
CCU NORMAL MODE..: CNM      RESET BRCH TRACE.: RBT      START CCU.....: STR
CCU SEL/RELEASE..: CSR      RESET CCU.....: RST        STOP CCU.....: STP
CCU STATUS.....: CST        RESET CCU CHECK...: RCK      STOP ON CCU CHECK: SCK
DATA EXCHANGE....: DEX      RESET CCU/LSSD...: RCL      STOP ON IOC CHECK: SIK
DISPLAY/ALTER....: DAL

                                ENTER OFF TO LOG OFF

===>

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

Figure 1-19. Menu 2 Screen

Notes:

1. The F5 key (maintenance functions) is present only if you are in maintenance mode.
2. Repaired CCU (REP) is present only if you are in maintenance mode.
3. CCU SEL/RELEASE (CSR) appears only if CCU-A and CCU-B are present.

Menu 3 Screen

This menu (maintenance functions) can be accessed only if you are in service mode.

```

                                MENU 3
                                .
                                MISUSE OF MAINTENANCE FUNCTIONS MAY LEAD TO UNPREDICTABLE RESULTS
BER REFCODES.....: BRC      MODULE DISPLAY...: MDD      TSS SERVICES.....: TSS
CA SERVICES.....: CAS      MOSS STORE DSPLY.: HSD
CONCURRENT DIAGS.: CDG     OFFLINE DIAGS....: ODG
DUMP DISPLAY/DEL.: DDD     TRSS SERVICES....: TRS

                                ENTER OFF TO LOG OFF
====>

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

Figure 1-20. Menu 3 (Maintenance) Screen

3745 Function Descriptions

The following tables show in which manual the 3745 functions are described (AOG stands for the *3745 Advanced Operations Guide*, SA33-0097, and SF for this Service Functions manual):

Menu 1 Functions

Command	Functions	Described in
CDF	Configuration data file	AOG/SF
CPP	Control program procedures	AOG
DIF	Disk functions	AOG/SF
DII	Disk IPL info	AOG
EID	ESS interface display	AOG
ELD	Event log display	AOG/SF
FBK	Fallback (not displayed if only one CCU)	AOG
IML	IML MOSS	AOG
IMS	IML one scanner	AOG
IPL	IPL CCU(s)	AOG
LID	Line interface display	AOG
LKP	Link IPL ports	AOG
LTQ	Load link test requester	AOG
LTS	Load link test responder	AOG
MLT	Machine level table	AOG
MCF	Microcode fixes	AOG/SF
PSW	Passwords	AOG
PSF	Port swap file	AOG
POS	Power services	AOG/SF
SIT	Scanner interface trace	AOG/SF
SAT	Stand alone test	AOG
SBK	Switchback (not displayed if only one CCU)	AOG
TIM	Time services	AOG/SF
TID	TRSS interface display	AOG
WTT	Wrap test	AOG

Menu 2 Function

Command	Functions	Described in
ABP	AC/BT parameters	AOG
BCK	Bypass CCU check	AOG
BIK	Bypass IOC check	AOG
CID	Channel interface display	AOG
CNM	CCU normal mode	AOG
CSR	CCU sel/release (not displayed if only one CCU)	AOG
CST	CCU status	AOG
DEX	Data exchange	AOG
DAL	Display/alter	AOG
DLO	Display long	AOG
IL3	CCU level 3 interrupt	AOG
MOF	MOSS offline	AOG
MON	MOSS online	AOG
RAC	Reset address compare	AOG
RBT	Reset branch trace	AOG
RCK	Reset CCU check	AOG
RCL	Reset CCU/LSSD	AOG
REP	Repaired CCU	SF
RIO	Reset IOC(s)	AOG
RIS	Reset I-step	AOG
RST	Reset CCU	AOG
SAC	Set address compare	AOG
SBT	Set branch trace	AOG
SCK	Stop on CCU check	AOG
SIK	Stop on IOC check	AOG
SIP	Set I-step	AOG
STP	Stop CCU	AOG
STR	Start CCU	AOG

Menu 3 (Maintenance) Functions

Command	Functions	Described in
BRC	BER refcodes	SF
CAS	CA services	SF
CDG	Concurrent diagnostics	SF
DDD	Dump display/delete	SF
MDD	Module display	SF
MSD	MOSS store display	SF
ODG	Offline diagnostics	SF
TRS	TRSS services	SF
TSS	TSS services	SF

Chapter 2. Analyzing BERs (Box Event Records)

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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 for information (for example IML or IPL complete). BERs are handled by a set of functions that:

- Count the event occurrences
- Time stamp the BER
- Record the BER on a MOSS disk data file
- Generate an event signal (such as alert or alarm).

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 not operational, the NCP/EP stores the event information in the check record pool (CRP) located in main storage until the MOSS comes 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

When necessary this MOSS function translates 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 to be transmitted to the service representative 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 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, in 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 MOSS when MOSS 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 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 software). |
| 13 | NCP CCU-related events when 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 recorded the error/event.

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

BER

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

Where to Find More BER Information

Detailed and complete information concerning BERs can be found in the "Error Logging" Chapter of the Maintenance Information Reference manual, SY33-2056.

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	"Maintenance Information Reference", Chapter "Error Logging".
BER save and purge	Chapter 6 in this manual.

BER Display Sequence

There are three kinds of BER display screens:

- BER summary
- BER list
- BER detail.

When troubleshooting, you should normally display the BER summary, then the BER list, and lastly the BER detail(s) appropriate to the fault.

BER Display and Handling Summary

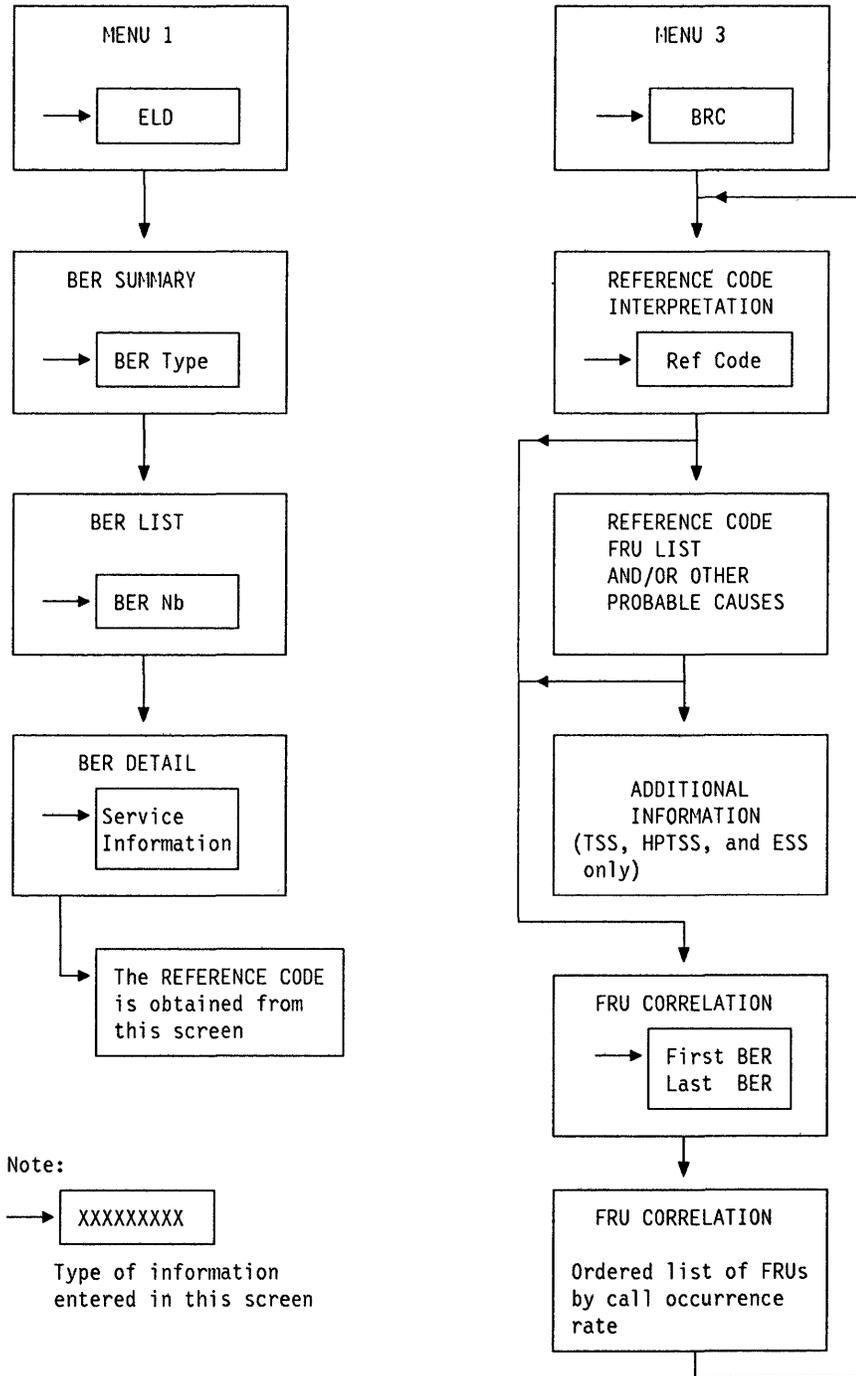


Figure 2-1. BER Display and Handling

BER Display Procedure

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

Screen **B** is displayed.

```

A                                MENU 1
CONFIG DATA FILE.: CDF      IML ONE SCANNER.: IMS      PASS-ORDS.....: PSW
CONTROL PGM PROC.: CPP      IPL CCJ(S).....: IPL      PORT SWAP FILE.: PSF
DISK FUNCT:ONS....: DIF      LD LINK TEST REQ.: LTQ     POWER SERVICES.: POS
DISK IPL INFO....: DII      LD LINK TEST RESP.: LTS    SCANNER I/F TRACE: SIT
EVENT LOG DISPLAY: ELD      LINE INTERF DSPLY: LID     STAT'D ALONE TEST.: SAT
FACLBCK.....: FBK          LINK IPL PORTS....: LKP     SWITCH-BACK.....: SBK
IML MOSS.....: IML          *MACHINE LVL TABLE: MLT   TIME SERVICES....: TIM
                                MICROCODE FIXES...: MCF     *RSS INTERF DSPLY: TID
                                ESS INTERF DSP.Y.: EID     WRAP TEST.....: WTT

                                ENTER OFF TO LOG OFF

==== 1

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

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** (press F8 if you want to display the second part of the BER list. Screen **C** is displayed).
2. Press SEND.
3. Screen **D** is displayed.

```

B                                ELD SUMMARY
SEL# NAME                                TYPE PENDING DATE 1ST BER TOTAL
                                BERS MM/DD HH.MM IN FILE
0 ALL (ALL FILE CONTENTS)
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 ==> 1
-->

F1:END  F2:MENU2  F3:ALARM          F8:FORWARD
    
```

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**.

```

C                                ELD SUMMARY
SEL# NAME                                TYPE PENDING DATE 1ST BER TOTAL
                                BERS 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 2-4. 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 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.

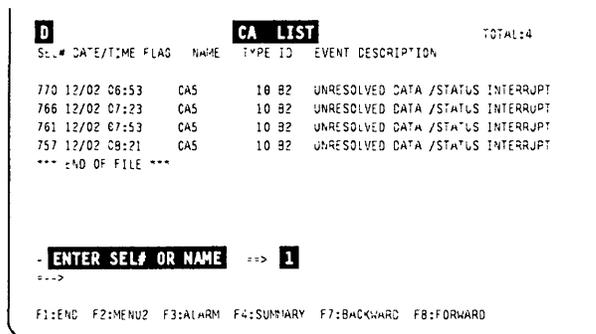


Figure 2-5. BER List Screen (CA Example)

(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.

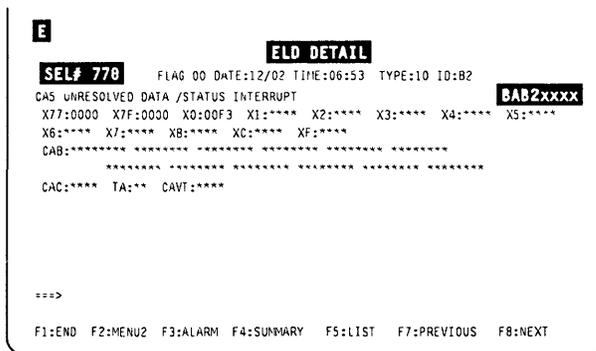


Figure 2-6. BER Detail Screen (CA Example)

In the example given here **BAB2xxxx** is the reference code number you would enter in the BRC function (see page 2-9).

This screen contains the coded service information appropriate to the type of BER (for field details, refer to the "Error Logging" chapter of the *Maintenance Information 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. You cannot display the details of BER type 03.

Updating the Service Information Field in Alarm BERs

You may enter some comments in an alarm BER record. Those 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**.

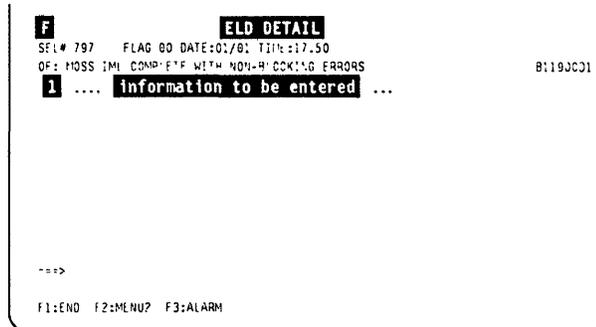


Figure 2-7. Alarm BER Screen (Example)

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 historical 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 2-13 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) 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, because the result would be meaningless.

BER Reference Code Interpretation

1. In MENU 3, type **BRC** in **1**.
2. Press **SEND**. Screen **H** is displayed.

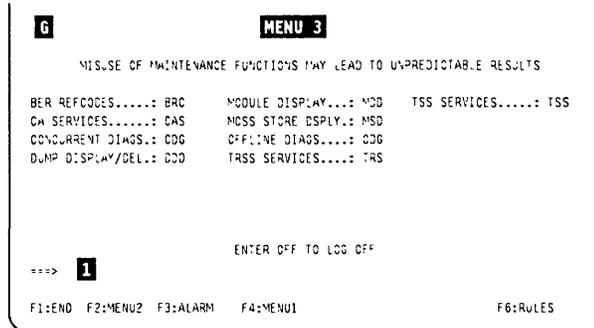


Figure 2-8. Menu 3 (Maintenance) Screen

1. Enter the **reference code** in **1**.
2. Press **SEND**. Screen **I** is displayed.

If the reference code interpretation has led to unsuccessful repair, press **F5** to go to the FRU correlation screen. Screen **K** is then displayed (Figure 2-12 on page 2-11).

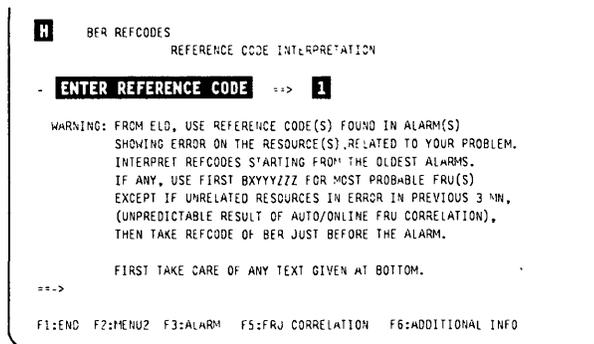


Figure 2-9. Reference Code Interpretation Selection

Reference Code Interpretation FRU List

- **Only for TSS, HPTSS, and ESS:** Press **F6** to display additional information (screen **J** on page 2-11). If you press **F6** for a non-TSS/HPTSS reference code, this message is displayed:

NO ADDITIONAL INFORMATION AVAILABLE

This also happens every time the CDF is empty for the suspected TSS or HPTSS component (for example, no MUX or LIC attached).

- If the listed FRUs lead to an unsuccessful repair, press **F5** to go to the FRU correlation screen (**K**).

The 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.

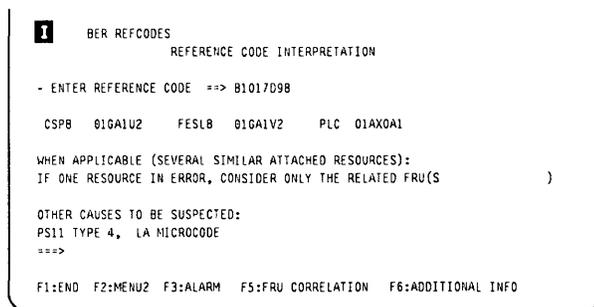


Figure 2-10. RCI FRU List Screen

Messages That Can Be Displayed

Depending on the case, various combinations of the following messages can be displayed on the reference code interpretation FRU list screen:

- At the bottom of the screen, one or two lines called
OTHER CAUSES TO BE SUSPECTED
can be displayed to give more information.
- If multiple FRUs are suspected the following message is displayed:
WHEN APPLICABLE (SEVERAL SIMILAR ATTACHED RESOURCES):
IF ONE RESOURCE IN ERROR, CONSIDER ONLY THE RELATED FRU(S)
This message is applicable when several similar resources are attached.
- For BG or RG type reference code the following message is displayed:
LIST COULD BE WRONG IF A CONFIGURATION CHANGE IN THE AREA
ALONG WITH A CDF UPGRADE HAVE BEEN DONE AFTER THIS ERROR

Additional Information for TSS, HPTSS, or ESS FRUs

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

```

J          ADDITIONAL INFORMATION FOR TSS FRUS
SUSPECTED FRU :   CSP4  01GALL2
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 ASSOCIAT:D
LINES  0 - 15  DRIVEN BY LA 3  ARE ASSOCIAT:D

====>

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

```

Figure 2-11. Additional Information for TSS FRUs Screen (Example)

BER Range FRU Correlation

1. You must be in the *BRC* function (see page 2-10). From this function, press **F5**. Screen **K** is displayed
2. Enter in **1** the SEL# of the **most recent** BER in the range you have selected.
3. Enter in **2** the SEL# of the **oldest** BER in the range.
4. Press **SEND**. Screen **L** is displayed.

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

```

K          BER REFCODES          FRU CORRELATION
- ENTER LATEST BER NUMBER ==> 1
- ENTER OLDEST BER NUMBER ==> 2

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

====>

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

```

Figure 2-12. FRU Correlation Selection Screen

FRU Correlation

- The number of times that each FRU has been called is given between 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).

```
L BER REF CODES
- ENTER LATEST BER NUMBER ==> xxx
- ENTER OLDEST BER NUMBER ==> yyy
BER CORRELATION RESULTS
FRU(S) ORDERED LIST

DIAGNOSTIC ERROR BERs ARE EXCLUDED FROM CORRELATION RESULTS
CSC4 01A-R ( 3) PUC 01G-V ( 1) TERMI 01G2A/2B ( 1)

==>

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

Figure 2-13. FRU Correlation Result Screen (Example)

BER Display Screens

ELD Summary Screen Field Description

SEL# NAME		ELD SUMMARY		PENDING	DATE 1ST BER	TOTAL
		TYPE	BERS	MM/DD HH.MM	IN FILE	
0	ALL (ALL FILE CONTENTS)					
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 2-14. ELD Summary Screen 1

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

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. Since this flag is not used, the value is always 00. Pending BERS are not used.

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

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

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

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

SEL# NAME		ELD SUMMARY		PENDING	DATE 1ST BER	TOTAL
		TYPE	BERS	MM/DD HH.MM	IN FILE	
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 2-15. ELD Summary Screen 2

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:MENU2 F3:ALARM F4:SUMMARY							

Figure 2-16. ELD List Screen

- 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:MENU2 F3:ALARH F4:SUHMARY F5:LIST F7:PREVIOUS F8:NEXT

```

Figure 2-17. ELD Detail Screen

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

Name	Stored	Details
IML checkout	On disk	See the "IML/IPL" chapter of the <i>Maintenance Information Reference</i> manual (MIR), SY33-2056.
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.

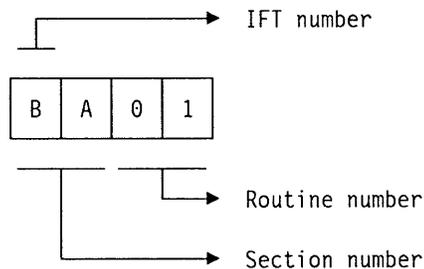
Diagnostics must be run during the installation of the machine, and before and after an EC or an MES is installed on the machine.

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 3-6.

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
Note: <ul style="list-style-type: none"> • Total run 'all' = 50 minutes (minimum) to xxx minutes (maximum) • The values given in the second column are for one unit. For example 38 mn are for one CCU; for 2 CCUs it takes 76mn. • 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. 		

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 *Maintenance Information Reference* manual.
2. For details on CCU, IOCB, CA, TSS, TRSS, ESS, and HPTSS diagnostics, see the corresponding chapter of the *3745 Diagnostic Descriptions* manual, SY33-2059.

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 historical purposes.

All the diagnostic routines are explained in the *3745 Diagnostic Descriptions* manual.

How to Run Offline Diagnostics

Before Running Offline or Concurrent Diagnostics

- For **offline** diagnostics, ask the customer to de-activate the 3745 and all connected resources. Also, before entering the procedure, set all the channel adapters to 'disabled', and wait for the 'all CAs disabled' indicator to come ON at the control panel.
- For **concurrent** diagnostics, ask the customer to disconnect the related resources. For CA, refer to "Concurrent Maintenance Function (CACM)" on page 10-9. Otherwise, there is a risk of cancelling them, or that the request will not be accepted.
- When there are **two CCUs** installed, if for any reason the IOSW or DMSW cards are removed from one CCU, this CCU must be powered OFF before starting the diagnostics (ODG or CDG) on the other CCU. If this procedure is not followed, false error detection or DCF/Diag ABEND may occur.

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

All the diagnostic groups run while the customer is using the rest of the machine (concurrent diagnostic mode, function CDG), except for some routines. This is defined in the *Diagnostic Descriptions* manual.

If you are in **twin-dual** mode with one CCU running and the other CCU just powered ON (not IPLed), you cannot run the diagnostics on any adapter or IOC connected to the idle CCU. In this case, you must IPL this CCU to the end of phase 1, then start the concurrent diagnostics. End of phase 1 is indicated by the IPL CCU-x PHASE 2 STOP message in a step-by-step IPL (this message is displayed after phase 1 IPL completion). Refer to "MSA Field Definitions (IPL Information)" on page 1-17 and "IPL In Maintenance Mode" on page 12-22 for details on IPL.

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

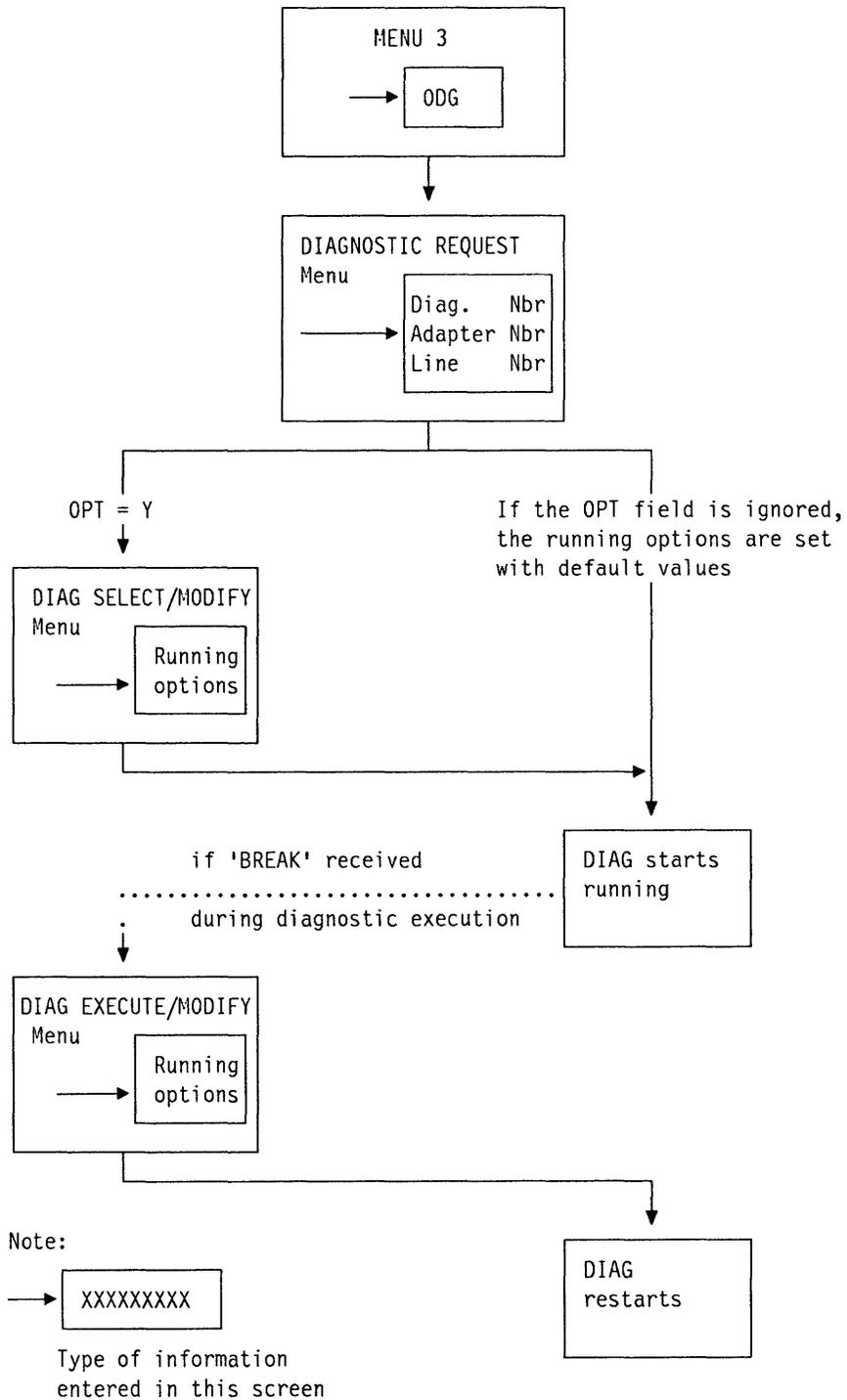


Figure 3-1. Diagnostic Selection Overview

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 1-5).
2. In MENU 3, type **ODG** or **CDG** in **1**.
3. Press **SEND**.

```

A                               MENU 3
                                     MISUSE OF MAINTENANCE FUNCTIONS MAY LEAD TO UNPREDICTABLE RESULTS
BFR REFCODES.....: BRC      MODULE DISPLAY...: MDD      TSS SERVICES.....: TSS
CM SERVICES.....:  CWS      MOSS STORE DPLY.: MSD
CONCURRENT DIAGS.: CDG      OFFLINE DIAGS.....: ODG
DUMP DISPLAY/DEL.: DDD      TRSS SERVICES.....: TRS

                                     ENTER OFF TO LOG OFF

---> 1

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

```

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

For details about this screen, refer to “Diagnostic Request Menu Screen Description” on page 3-14.

```

B
GROUP |ADP= |LINE |
1 ALL |  |  |
2 CCU | A- B|  |
3 IOCB| 1- 4|  |
4 CA  | 1-16|  |
5 TSS | 1-32| 0-31|
6 TRSS| 1- 6| 1- 2|
7 HTSS| 1- 8|  |
8 DLT | 1-16|  |
9 ESS | 1- 8|  |
OPT = Y IF MODIFY |
OPTION REQUIRED |
| ENTER REQUEST ACCORDING TO THE DIAG MENU
| DIAG==> 1 ADP#==> 2 LINE==> 3 OPT==> 4
====
F1:END  F2:MENU2  F3:ALARM

```

Figure 3-3. Diagnostic Request Menu Screen

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

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

M DM W

2. Press **SEND**.

The details about the options are given in “Diagnostic Selection Modify Screen Description” on page 3-16.

```

C                               3
R RERUN REQUEST |
A ABORT ROUTINE |
C CANCEL REQUEST |
G GO            |
M MODIFY OPTIONS: |
S/LS/AL/ALS/B/DM |
NH/W           | START 00:26:25
CI/CNHW/C     | REQUEST: ALL      DIAGNOSTICS INITIALIZATION
R1/RNNH      | OPTIONS: S  NW CI  R1  BR  1
BR/NBR       |
|
| ENTER REQUEST ACCORDING TO THE DIAG MENU
| ==> M DM W 2
====
F1:END  F2:MENU2  F3:ALARM

```

Figure 3-4. Diagnostic Selection Modify Screen

Diagnostic Selection

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 IADP= ILINE I
1 ALL I I I
2 CCU I A- B! I
3 ICCBI 1- 4! I
4 CA I 1-16! I
5 TSS I 1-32! 0-31!
6 TRSSI 1- 6! 1- 2!
7 HTSSI 1- 8! I
8 OLT I 1-16! I
9 ESS I 1- 8! I
OPT = Y I? MODIFY I
OPTION REQUIRED I
DIAGNOSTICS INITIALIZATION
I ENTER REQUEST ACCORDING TO THE DIAG MENU
I 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 3-7 (screen **C**).

```
E
R RERUN REQUEST I
A ABORT ROUTINE I
C CANCEL REQUEST I
G GO I
M MODIFY OPTIONS: I
S/LS/AL/ALS/B/DM I
NM/M I
C1/CRNN/C I REQUEST: TSS 1 TSS DIAG RUNNING
RI/RNNN I OPTIONS: S NW C1 RI BR ROUTINE PA04 ADP 01
BR/NBR I
I BREAK RECEIVED
I ENTER REQUEST ACCORDING TO THE DIAG MENU
I ==> 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, 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 Functions 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 the 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. While a diagnostic is running 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 3-8).
3. Press **F2**, to access **MENU 2** screen (**G**)

A diagnostic is running.

```

F
-----
          S*ART hh:mm:ss
          REQUEST: TSS 1
          TSS DIAG RUNNING
          OPTIONS: S  NW C1  R1  BR  ROUTINE PAQ4 ACP 01
          -----
====>
          F1:END  F2:MENU2  F3:ALARM
  
```

Figure 3-6. CCU Function Selection during Diagnostics

1. In **1**, type the acronym corresponding to the selected CCU function.
2. Press **SEND**. The selected CCU function will run (screen **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: CIO  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 3-7. Menu 2 Screen

This screen is an example of running a CCU function (here BCK) while a diagnostic is running.

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

```

H
FUNCTION ON SCREEN: BYPASS CCU CHECK  FUNCTION PENDING: OFFLINE DIAGS

====>  CCU WILL BYPASS CCU CHECK
          F1:END  F2:MENU2  F3:ALARM
  
```

Figure 3-8. Example of CCU Function While Running Diagnostics

Diagnostic Screen Areas Description

The following figure shows the different areas of a diagnostic screen. Those areas are described in the next paragraphs.

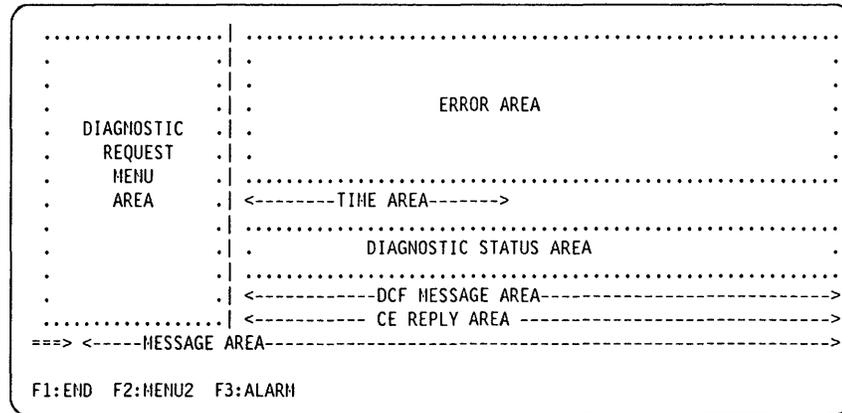


Figure 3-9. Diagnostic Screen Areas

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 3-7 and Figure 3-4 on page 3-7.

For details, refer to “Diagnostic Request Menu Screen Description” on page 3-14 and “Diagnostic Selection Modify Screen Description” on page 3-16.

Error Area

The following screen is only an example, and cannot be used for troubleshooting.

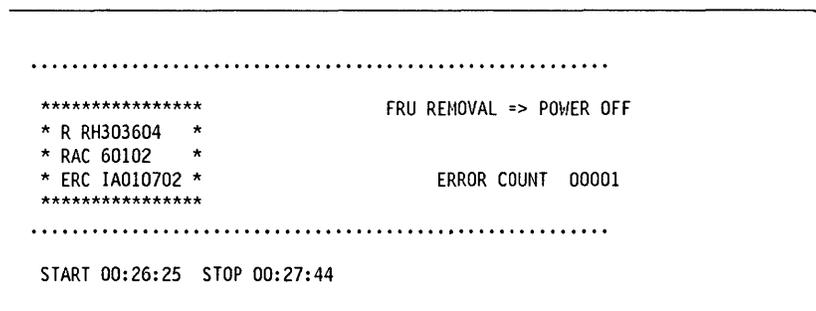


Figure 3-10. Diagnostic Screen Error Area

R Gives the reference code (here RH303604) used by automaint to give the FRU list to be replaced.

RAC Repair action code (here 60102).

Gives the type of error detected by the diagnostics and the address of the suspected resource.

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

Screen Descriptions

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).

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

Time Area

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

Diagnostic Status Area

```

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

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

F3:ALARM

```

Figure 3-11. Diagnostic Screen Status Area

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

OPTIONS Last running options selected (see Figure 3-4 on page 3-7).

DIAG RUN STATUS xxxx *DIAG* yyyyyyyy and *ROUTINE* nnnn *ADP* ll of Figure 3-11, 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
 - CANCELED
 - ENDED
 - UNXPTD.ERR
 - HUNG

Diagnostic Request Menu Screen Description

```

GROUP |ADP= |LINE |
1 ALL |   |   |
2 CCU | A- B|   |
3 IOCB| 1- 4|   |
4 CA  | 1-16|   |
5 TSS | 1-32| 0-31|
6 TRSS| 1- 6| 1- 2|
7 HTSS| 1- 8|   |
8 OLT | 1-16|   |
9 ESS | 1- 8|   |
OPT = Y IF MODIFY
OPTION REQUIRED
                                     DIAGNOSTICS INITIALIZATION
                                     N
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* 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 complete diagnostic group (see “Diagnostic Request Menu Screen Description” on page 3-14).
- 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 (1 to 16) for CA and OLT
- TSS number (1 to 32)
- HPTSS or ESS number (1 to 8)
- TRSS number (1 to 6), but only four are available: 1, 2, 5, and 6.

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 3-7) 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 3-16 lists all possible options, and how they can be modified.

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

Diagnostic Selection Modify Screen Description

```

R RERUN REQUEST
A ABORT ROUTINE
C CANCEL REQUEST
G GO
M MODIFY OPTIONS:
S/LS/AL/ALS/B/DH
NW/W
C1/CNHN/C
R1/RNNN
BR/HBR

START 00:26:25
REQUEST: ALL           DIAGNOSTICS INITIALIZATION
OPTIONS: S  NW C1  R1  BR

ENTER REQUEST ACCORDING TO THE DIAG MENU
==> M DM W

===>

F1:END  F2:MENU2  F3:ALARM

```

Figure 3-12. 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 the 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). However, 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.

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 3-8).

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 3-7).

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 3-8)

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

Diagnostic Options

is to press the **BREAK** (ATTN) key. (refer to the procedure in Figure 3-5 on page 3-8.)

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 3-8)

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 in the menu (A, G, C, R, or M). Entering G (for go) starts the next routine in sequence.

Cycle Option C1/CNNN/C

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.

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.

Repeat Option R1/Rnnn

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.

Rnnn REPEAT EACH ROUTINE nnn TIMES

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

BER Recording Option

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

Errors during Diagnostics

There are two types of error:

1. Diag error reporting (see Figure 3-10 on page 3-11), when the diagnostic detects an error in the element being tested.
2. Diag/DCF unexpected error (see Figure 3-14 on page 3-21 and Figure 3-15 on page 3-22), when an error occurs anywhere in an area which is not under test.

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

Diag Error Reporting Display

```
.....  
*****  
* R RH303604 *          FRU REMOVAL => POWER OFF  
* RAC 60102 *  
* ERC IA010702 *          ERROR COUNT 00001  
*****  
.....  
  
START 00:26:25  STOP 00:27:44
```

Figure 3-13. 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 3-16.) 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.

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

====>
UNEXPECTED ERROR

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

Figure 3-15. 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 3). DCF Unexpected RACs	
RAC Number	Meaning
500-50F	Common RACs
501	Received event rejected by DCM
502	Received event rejected by CP
503	Routine not found by CP
504	SST access rejected by CP
505	Routine signature list end not known by DCF
507	CP CSP time out (no CP CSP answer to DCM)
508	IOCBUS time out (no TSS answer to DCM)
509	Unexpected scanner received event detected
510-51F	RAC related to disk operation
510	Invalid loading request
511	DCF load module
512	CDF data set

Table 3-2 (Page 2 of 3). DCF Unexpected RACs	
RAC Number	Meaning
514	IFT load module in MOSS
515	IFT data set
516	RLOAD IFT load module
517	RLOAD IFT data set
518	CP MOSS load module
519	CP data set (CCU or CSP)
520-52F	RAC related to data transfer (MOSS/CCU)
521	IFT data set (bad transfer between MOSS and CCU)
522	RLOAD IFT data set
523	CP data set
524	DCF CDS entry
525	DCF SST table
526	DCF reply to RWTOR
527	TSS aids data
52A	Any CCU read data
530-54F	RAC related to AMAC operations
530	Disable MOSS from any interrupts but TIMER
531	Write LSSD
532	High-speed buffer data array mode
533	High-speed buffer normal mode
534	Disable CCUI
535	Enable PU interrupts
536	Disable interrupt levels 1 and 4
537	Enable interrupt levels 1 and 4
538	Local store init
539	SCTL normal mode
53A	Storage init
53B	Enable cycle steal
53C	Stop CCU
53D	CCU mailbox IN
53E	Disable cycle steal
53F	Set MOSS operative
540	Enable scanner interrupts
541	Reset scanner
542	Run scanner checkouts
543	Get scanner checkouts
544	Set MOSS area address
545	Storage key init
546	ROS mailbox IN and scanner IPL
547	Scanner GET command completion
548	Scanner initialization
549	CHGMACAC request
54A	CHGMCAD request

Errors during Diagnostics

Table 3-2 (Page 3 of 3). DCF Unexpected RACs	
RAC Number	Meaning
54B	CHGPOWER request
54C	Disable from PU and CSP interrupts
54D	High-speed buffer disable and bypass
54E	ECC and SCTL disable
550-55F	RAC related to SWAD operations
550	Disconnect SWLs
551	Reset adapter bit
552	Reset disconnect line
553	Reset DIAG2 register
554	Set adapter rest IOC bit
555	Connect switch on primary
556	Connect switch on secondary
557	CHGSWAD user request
558	Reset SWAD adapter
559	Reset MOSS INOP DISC register
55A	Enable interrupt in B-status register
55B	Connect switch all (MPS)
55C	Reset SWL
560-56F	RAC related to scanner operations
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 on this page with the wrap test (WTT) chapter of the *Advanced Operations Guide*, to display additional information about the LIC being tested.

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

```

MENU 1
CCP-IG DATA FILE.: CDF      IML ONE SCANNER.: IMS      PASSWORDS.....: PSW
CONTROL PGM PROC.: CPP      IPL CCU(S).....: IPL      PORT SWAP FILE.: PSF
DISK FUNCTIONS...: DIF      LD LINK TEST REQ.: LTQ     POWER SERVICES...: POS
DISK IPL INFO...: DII       LD LINK TEST RESP.: LTS    SCANNER I/F TRACES: SIT
EVENT LOG DISPLAY: ELD      LINE INTERF DPLY.: LID    STAND ALONE TEST.: SAT
FALLBACK.....: FBK        LINK IP. PORTS...: LXP     SWITCHBACK.....: SBK
IML MOSS.....: IML        MACHINE LVL TABLE: MLT    TIME SERVICES...: TIM
                        MICROCODE FIXES...: MCF    TRSS INTERF DPLY.: TID
                        ESS INTERF DPLY.: EID    WRAP TEST.....: WTT

                                ENTER OFF TO LOG OFF

= > 1
F1:END  F2:MENU2  F3:ALARM          F5:MENU 3          F6:RULES

```

Figure 3-16. Menu 1 Screen

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

```

WRAP TEST INITIAL SELECTION

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

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

THEN PRESS SEND
===>

F1:END  F2:MENU2  F3:ALARM

```

Figure 3-17. Wrap Test Initial Selection Screen

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

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

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

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

```

WRAP TEST INITIALIZATION

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

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

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

===>

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

```

Figure 3-18. Wrap Test Initialization Screen

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

```
LINE ADDRESS: xxx          DISPLAY LIC 5-6 DATA
EXPD: FD 18 2E 50 FF 00 01 00 1A FF 01 02 03 04 05 06 07 08 09
RCVD: XX XX
EXPD: 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
RCVD: 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 3-19. Display LIC 5-6 Data

Diagnostic Messages

Note: This section gives **only** 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.

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.

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.

SECTION ID NOT ALPHABETIC

Cause: Second letter of the request is not alphabetic.

Action: Enter a correct section Id.

Diagnostic Messages

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

Your Road Map in the TSS Functions	4-2
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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	4-20	--	--	--	--	--	--	--	--	--
HPTSS/ESS										
Indirect XREGs		4-21				4-21				
Picocode		4-23				4-23				
RAM		4-22				4-22				
Scanner	--	--	4-8	--	4-8	--	4-6	4-7	4-5	4-5
Scanner address compare	4-17	--	--	4-18	--	--	--	--	--	--
Scanner:										
Blocks		4-12				4-12				
Control storage		4-11				4-11				
LSRs		4-14				4-14				
XREGs		4-16				4-16				

Important Information

Possible Disruption

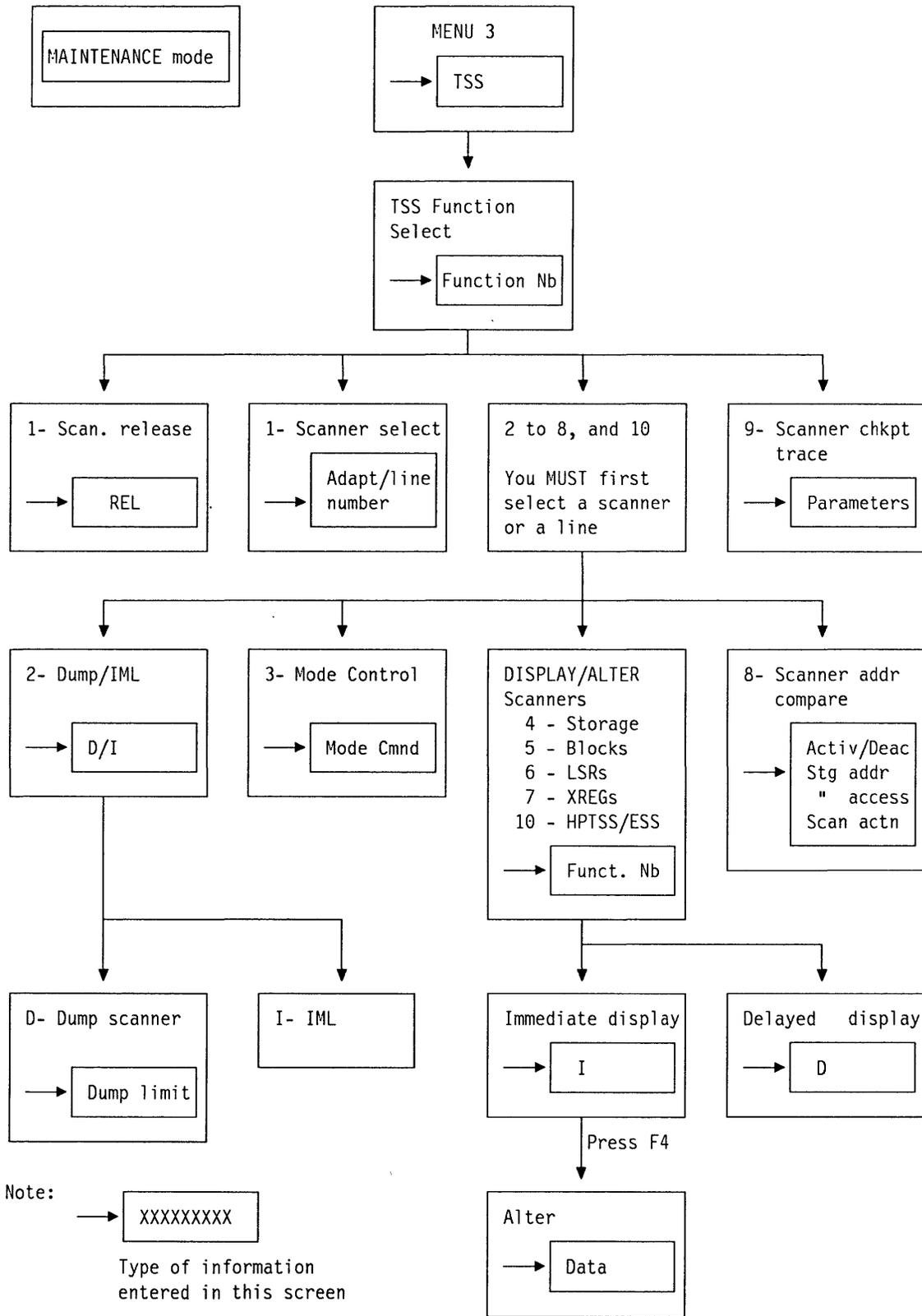
Using the TSS functions may disrupt communications on the lines attached to the selected scanner. Before using a disruptive function, ask the customer to disable the affected lines.

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 1-15.

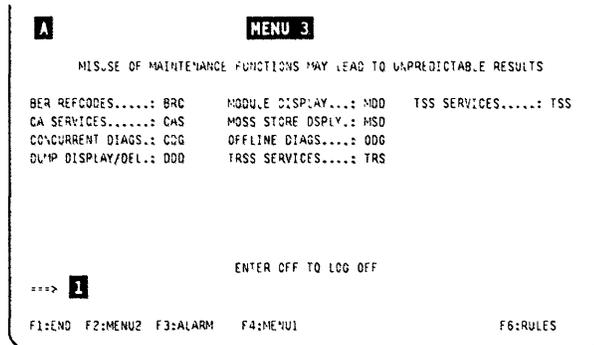
TSS Functions Overview



TSS Function 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 1-15).

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



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

The procedures are described in the following pages:

Select/Release	Page 4-5
Dump/IML	Page 4-6
Mode control	Page 4-8
Display/Alter storage	Page 4-11
D/Alt blocks	Page 4-12
D/Alt LSR	Page 4-14
D/Alt XREG	Page 4-16
Address compare	Page 4-17
Chk-point trace	Page 4-20
D/Alt HPTSS/ESS	Page 4-21

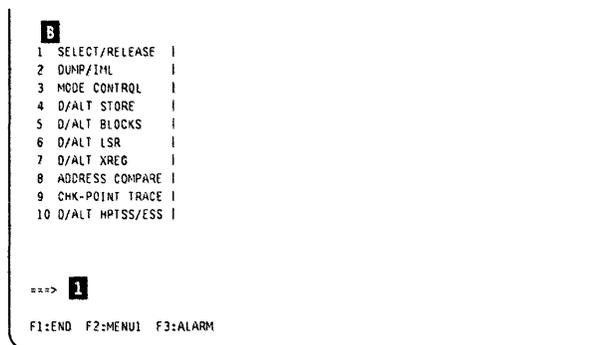


Figure 4-1. TSS Function Selection Screen

Select/Release a Scanner

Select Scanner

1. You must be in the TSS function (see page 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 1-15 for details).

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

```

C
1 SELECT/RELEASE |
2 DUMP/IML      | - TO SELECT A SCANNER, ENTER:
3 MODE CONTROL  |
4 D/ALT STORE   | THE LINE ADAPTER NUMBER PRECEDED BY S (S1 TO S32)
5 D/ALT BLOCKS  | OR
6 D/ALT LSR     | THE LINE ADDRESS
7 D/ALT XREG    | (TSS: 0 TO 895, HPTSS: 1024 TO 1039)
8 ADDRESS COMPARE| (ESS: 1056 to 1071 ) ==> 1
9 CHK-POINT TRACE| - TO RELEASE SELECTED SCANNER, ENTER REL
10 D/ALT HPTSS/ESS|

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

```

Figure 4-2. Scanner Selection/Release Screen

Release Scanner

1. You must be in the TSS function (see page 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 shows: 'NO SCANNER SELECTED .

```

D
1 SELECT/RELEASE |
2 DUMP/IML      | - TO SELECT A SCANNER, ENTER:
3 MODE CONTROL  |
4 D/ALT STORE   | THE LINE ADAPTER NUMBER PRECEDED BY S (S1 TO S32)
5 D/ALT BLOCKS  | OR
6 D/ALT LSR     | THE LINE ADDRESS
7 D/ALT XREG    | (TSS: 0 TO 895, HPTSS: 1024 TO 1039)
8 ADDRESS COMPARE| (ESS: 1056 to 1071 ) ==> 1
9 CHK-POINT TRACE| - TO RELEASE SELECTED SCANNER, ENTER REL
10 D/ALT HPTSS/ESS|

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

```

Figure 4-3. Scanner Selection/Release Screen

Dump/IML a Scanner

Possible Disruption

IML and **DUMP** functions are always disruptive on 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 page 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.

```

E
1 SELECT/RELEASE |
2 DUMP/IML | - ENTER D FOR DUMP OR I FOR IML ==> 2
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|

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

Figure 4-4. 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**.

```

F
1 SELECT/RELEASE |
2 DUMP/IML |
3 MODE CONTROL | - ENTER DUMP LIMITS:
4 D/ALT STORE |
5 D/ALT BLOCKS | LOWER LIMIT ADDRESS (HALFWORDS) ==> 1
6 D/ALT LSR | UPPER LIMIT ADDRESS (HALFWORDS) ==> 2
7 D/ALT XREG |
8 ADDRESS COMPARE|
9 CHK-POINT TRACE| HEX ROS LIMITS: 000 - FFF (4K)
10 D/ALT HPTSS/ESS| HEX RAM LIMITS: 1000 - FFFF (60K)

==> 3
F1:END F2:MENU1 F3:ALARM
    
```

Figure 4-5. Scanner Dump Limits Screen

If the CHHDMPx (x stands for A or B according to the CCU) file on the MOSS disk is empty, the scanner dump is immediately taken and filed in the CHHDMPx, and these messages are displayed in **3** of screen **F**

```

SCANNER DUMP STARTED
then
DUMP FILED IN CHHDMPx. READY TO BE TRANSFERRED
    
```

Clear a Dump File

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

```
CHHDMPx 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.

```

6
1 SELECT/RELEASE |
2 DUMP/IML      | - TO CLEAR DUMP FILE, ENTER C, OTHERWISE PRESS SEND ==>
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/ESSI

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

```

Figure 4-6. Clear Scanner Dump File Screen

IML a Scanner

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

```
IML FOR SCANNER xx IN PROGRESS
```

When the IML is complete, this message is displayed:

```
IML FOR SCANNER xx COMPLETE - SCANNER CAN BE CONNECTED
```

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

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

```

8
1 SELECT/RELEASE |
2 DUMP/IML      | - ENTER 0 FOR DUMP OR 1 FOR IML      --> 2
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/ESSI

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

```

Figure 4-7. Dump or IML Selection Screen

Scanner Mode Control

Possible Disruption

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

1. You must be in the TSS function (see page 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 4-2 on page 4-9.

```

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

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

Figure 4-8. 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.

```

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

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

====
F1:END F2:MENU1 F3:ALARM
    
```

Figure 4-9. Scanner Delayed Disconnect Screen 1

Where, for each SSCP:

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

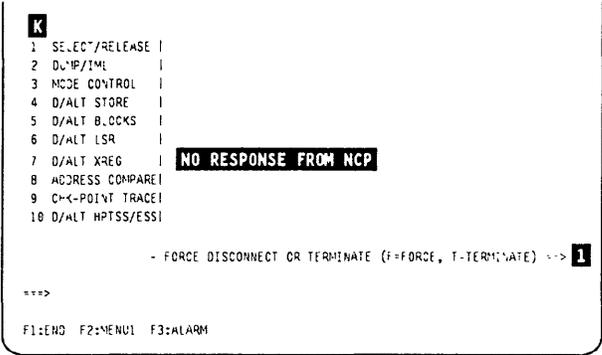


Figure 4-10. Scanner Delayed Disconnect Screen 2

Scanner Mode Control Commands Details

- START (ST)** Sent to the scanner to go from disconnected/stop mode to disconnected/go mode.
- CONNECT (CT)** Sent to the NCP to make the scanner available to the NCP.
- RESET (RT)** Put the scanner in reset mode, which allows using IML and DUMP commands.
- STOP (SP)** An unconditional disconnect command is sent to the NCP via a mail box, then a stop command is sent to the scanner.
- DELAYED DISCONNECT (DS)** Sent to the NCP to request a conditional disconnection.

Table 4-1. Commands Availability According To MOSS State

Command	MOSS Alone	MOSS Offline
Dump	Yes	Yes
IML	Yes	Yes
Reset	Yes	Yes
Start	No	Yes
Stop	Yes	No

Table 4-2 (Page 1 of 2). 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

Mode Control

Table 4-2 (Page 2 of 2). Scanner Mode Control Commands		
Current Mode	Possible Scanner Commands	Resulting Mode
RESET (or UNKNOWN mode)	RESET DUMP IML	RESET RESET INITIALIZED
INITIALIZED	STOP CONNECT RESET IML DUMP	DISCTD-STOP CONNECTED RESET INITIALIZED RESET
INOPERATIVE	RESET DUMP IML	RESET RESET INITIALIZED

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.

Display/Alter Scanner Control Storage

1. You must be in the TSS function (see page 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 halfword, I (immediate).

Note: Option **D** delays the execution for an address compare (details page 4-17).

```

L
1 SELECT/RELEASE | - ENTER HALFWORD STORAGE ADDRESS      ==> 1
2 DUMP/IML      |   ROS: 000 TO FFF - RAM: 1000 TO FFFF
3 MODE CONTROL  | - ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32)--> 2
4 D/ALT STORE   |
5 D/ALT BLOCKS  |
6 D/ALT LSR     | - ENTER I FOR IMMEDIATE EXECUTION, 0 FOR DELAYED ==> 3
7 D/ALT XREG    |
8 ADDRESS COMPARE|
9 C-K-POINT TRACE|
10 D/ALT HPTSS/ESS|

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

F1:END F2:MENU1 F3:ALARM
    
```

Figure 4-11. Display/Alter Scanner Storage Selection Screen

aaaa Storage address
xxxx Storage data

Alter the Scanner Control Storage

Possible Disruption

Any **ALTER** may be disruptive.

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

```

M
1 SELECT/RELEASE | - ENTER HALFWORD STORAGE ADDRESS      ==>
2 DUMP/IML      |   ROS: 000 TO FFF - RAM: 1000 TO FFFF
3 MODE CONTROL  | - ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32)-->
4 D/ALT STORE   |
5 D/ALT BLOCKS  |
6 D/ALT LSR     | - ENTER I FOR IMMEDIATE EXECUTION, 0 FOR DELAYED ==>
7 D/ALT XREG    |
8 ADDRESS COMPARE| aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx
9 C-K-POINT TRACE| aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx
10 D/ALT HPTSS/ESS| aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx
                    aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx

===>

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

Figure 4-12. Scanner Storage Display Screen

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

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

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

```

N
1 SELECT/RELEASE | - ENTER HALFWORD STORAGE ADDRESS      ==>
2 DUMP/IML      |   ROS: 000 TO FFF - RAM: 1000 TO FFFF
3 MODE CONTROL  | - ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32)-->
4 D/ALT STORE   |
5 D/ALT BLOCKS  |
6 D/ALT LSR     | - ENTER I FOR IMMEDIATE EXECUTION, 0 FOR DELAYED ==> 1
7 D/ALT XREG    |
8 ADDRESS COMPARE| aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx
9 C-K-POINT TRACE| aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx
10 D/ALT HPTSS/ESS| aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx
                    aaaa xxxx xxxx xxxx xxxx xxxx xxxx xxxx

===> TO DELAY ALTER, ENTER NEW DATA; CHANGE I TO 0, PRESS SEND

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

Figure 4-13. Scanner Storage Alter Screen

Display/Alter Scanner Blocks

1. You must be in the TSS function (see page 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 4-13 for details).
5. Press **SEND**.

Note: option **D**, delays the execution for an address compare (see page 4-17).

```

Q
1 SELECT/RELEASE | - ENTER HEX LINE INTERFACE ADDRESS (0 TO 1F) ==> 1
2 DUMP/IML | - ENTER HALFWORD TO DISPLAY FIRST ==> 2
3 MODE CONTROL | - ENTER NBR OF HALFWORDS TO DISPLAY (OPTIONAL) ==> 3
4 D/ALT STORE | - ENTER BLOCK IDENTIFICATION (1 TO 12) ==> 4
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 1 FOR IMMEDIATE EXECUTION, 0 FOR DELAYED ==> 5
9 CHK-POINT TRACE | LIC XXXX XXXX XXXX XXXX XXXX XXXX
10 D/ALT HPTSS/ESS |

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

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

Figure 4-14. 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.

For block IDs 5, 6, 7, 8, 9, and 11 of a LIC which has no active line (or if all the lines of that LIC become inactive during the display), the displayed data may be invalid. The message WARNING: LIC NOT ENABLED; DATA MAY BE ERRONEOUS is then displayed.

```

P
1 SELECT/RELEASE | - ENTER HEX LINE INTERFACE ADDRESS (0 TO 1F) ==> 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 1 FOR IMMEDIATE EXECUTION, 0 FOR DELAYED ==> I
9 CHK-POINT TRACE | LIC XXXX XXXX XXXX XXXX XXXX XXXX
10 D/ALT HPTSS/ESS |

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

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

Figure 4-15. Display/Alter Scanner Blocks Screen (Example)

Alter Scanner Blocks

Possible Disruption

Any **ALTER** may be disruptive.

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.

```

Q
1 SELECT/RELEASE | - ENTER HEX LINE INTERFACE ADDRESS (0 TO 1F) ==> 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 1 FOR IMMEDIATE EXECUTION, 0 FOR DELAYED ==> 1
9 CHK-POINT TRACE | LIC XXXX XXXX XXXX XXXX XXXX XXXX
10 D/ALT HPTSS/ESS |

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

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

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

Display/Alter Scanner Blocks Fields

```

1 SELECT/RELEASE | - ENTER HEX LINE INTERFACE ADDRESS (0 TO 1F)    ==> 3
2 DUHP/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=FHR
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, HPTSS, AND ESS
====> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY.

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

```

Figure 4-17. 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=9

```

BLOCK IDENTIFICATION: The block that you want to display:

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

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

IMMEDIATE/DELAYED: Self-explanatory

Display/Alter Scanner LSR

1. You must be in the TSS function (see page 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 4-17).

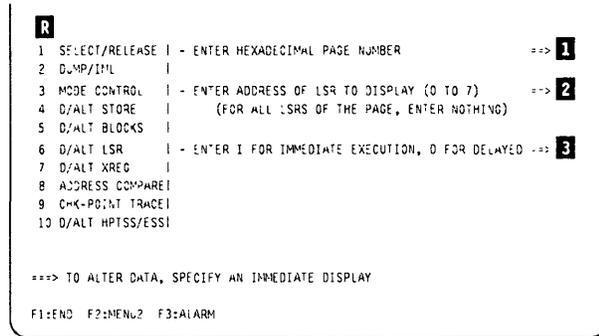


Figure 4-18. Display/Alter Scanner LSR Screen

LSR LSR number
DATA LSR contents

Alter Scanner LSR

Possible Disruption

Any **ALTER** may be disruptive.

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

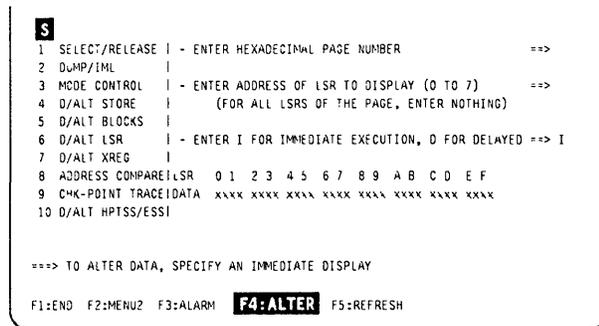


Figure 4-19. Display/Alter Scanner LSR Selection Screen (Example)

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

The following message is displayed:

xx BYTES ALTERED

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

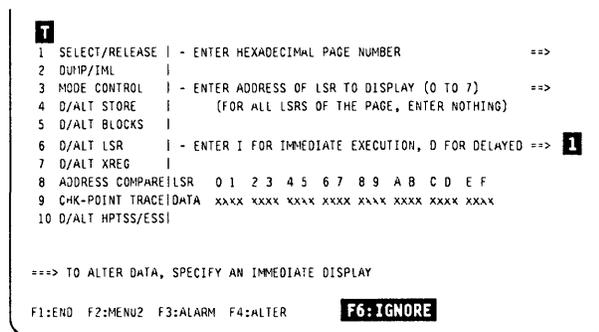


Figure 4-20. Display/Alter Scanner LSR Selection Screen (Example)

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 4-21. 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 4-17).
- **I** executes an immediate display.

Display/Alter Scanner XREG

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

```

U
1 SELECT/RELEASE | - ENTER HEX ADDRESS OF XREG TO DISPLAY FIRST ==> 1
2 DUMP/IML      |
3 MODE CONTROL  | - ENTER NUMBER OF XREGS TO DISPLAY ==> 2
4 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/ESSI|

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

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

Figure 4-22. Display/Alter Scanner XREG Selection Screen

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

Alter Scanner XREG

Possible Disruption

Any **ALTER** may be disruptive.

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

```

V
1 SELECT/RELEASE | - ENTER HEX ADDRESS OF XREG TO DISPLAY FIRST ==>
2 DUMP/IML      |
3 MODE CONTROL  | - ENTER NUMBER OF XREGS TO DISPLAY ==>
4 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| XREG 00 01 02 03 04 05 07 08 0A 0B 0C
9 CHK-POINT TRACE| DATA xx xx xx xx xx xx ** xx xx ** xx xx ** ** **
10 D/ALT HPTSS/ESSI|

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 4-23. Display/Alter Scanner XREG Selection Screen (Example for FESL)

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

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

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

```

W
1 SELECT/RELEASE | - ENTER HEX ADDRESS OF XREG TO DISPLAY FIRST ==>
2 DUMP/IML      |
3 MODE CONTROL  | - ENTER NUMBER OF XREGS TO DISPLAY ==>
4 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| XREG 00 01 02 03 04 05 07 08 0A 0B 0C
9 CHK-POINT TRACE| DATA xx xx xx xx xx xx ** xx xx ** xx xx ** ** **
10 D/ALT HPTSS/ESSI|

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 4-24. 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 page 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 address compare is reached, this message is displayed:

LOOK AT MSA FOR ADDRESS COMPARE STATUS

```

X
1 SELECT/RELEASE | - ENTER A TO ACTIVATE AC OR D TO DEACTIVATE ==> 1
2 DUMP/IML      |
3 MODE CONTROL  | - ENTER HALFWORD STORAGE ADDRESS (0000 TO FFFF) ==> 2
4 D/ALT STORE   |
5 D/ALT BLOCKS  | - SELECT 1 TO 4 STORAGE ACCESSSES (F, S, R, W) ==> 3
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) ==> 4
10 D/ALT HPTSS/ESSI | 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 4-25. Scanner Address Compare Selection Screen

Address Compare

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.

Field Explanation for the Scanner Address Compare Screen

```
Y
1 SELECT/RELEASE | - ENTER A TO ACTIVATE AC OR D TO DEACTIVATE ==>
2 DUMP/INL      |
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 4-27. 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

```
Y
1 SELECT/RELEASE | - ENTER A TO ACTIVATE AC OR D TO DEACTIVATE ==> 1
2 DUMP/INL      |
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 4-26. Deactivate Scanner Address Compare

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

SCANNER ACTION: You can specify only one scanner action:

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

After completion, the address compare is automatically deactivated.

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

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

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

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

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

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

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

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

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

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

Scanner Checkpoint Trace

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

1. You must be in the TSS function (see page 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 1071 ==> 1
4 D/ALT STORE   | (TSS: 0 TO 895, HPTSS: 1024 TO 1039)
5 D/ALT BLOCKS  | (ESS: 1056 to 1071 )
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:MENU F3:ALARM
```

Figure 4-28. Scanner Checkpoint Trace Selection Screen

Display/Alter HPTSS or ESS

Three options are given in this function:

- Display/Alter Indirect XREGs Page 4-21
- Display/Alter RAM Page 4-22
- Display/Alter picocode Page 4-23

Display HPTSS or ESS Indirect XREG

1. You must be in the TSS function (see page 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.

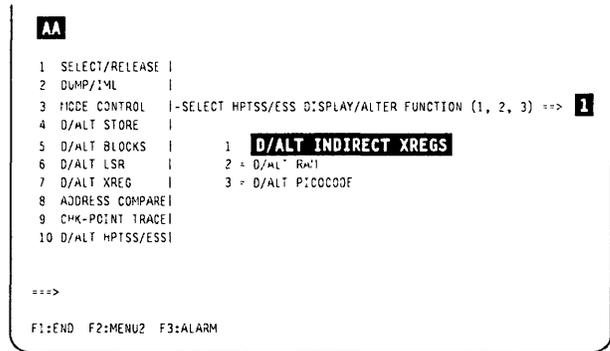


Figure 4-29. Display/Alter HPTSS/ESS Indirect Selection Screen

1. In **1**, enter a 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**.

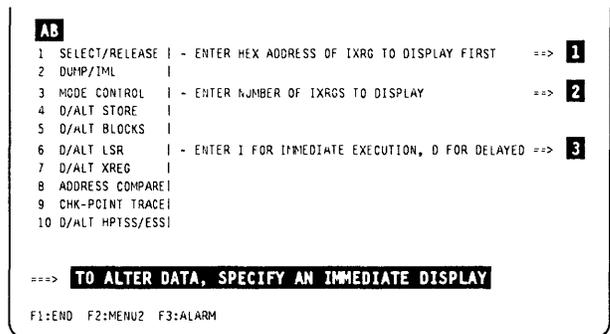


Figure 4-30. Display/Alter HPTSS/ESS Indirect XREG Screen

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 overwrite it.
4. Type **D** or **I** in **1**, and press **SEND**.

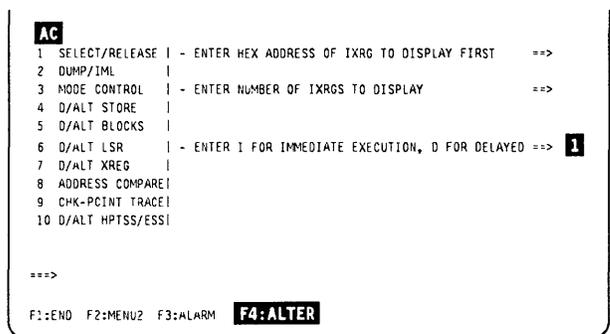


Figure 4-31. Display/Alter HPTSS/ESS Indirect XREG

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

Display/Alter HPTSS/ESS

Display/Alter RAM

Possible Disruption

This function is disruptive.

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

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

==>

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

Figure 4-32. 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

```
AE
1 SELECT/RELEASE | - ENTER HALFWORD RAM ADDRESS ==> 1
2 DUMP/IML      |      RAM: 000 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     | - 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 4-33. 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**.

```
AF
1 SELECT/RELEASE | - ENTER HALFWORD RAM ADDRESS ==>
2 DUMP/IML      |      RAM: 000 TO xxxx
3 MODE CONTROL  | - ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32) ==>
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|

==> TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY

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

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

Display/Alter Picocode

Possible Disruption

This function is disruptive.

1. You must be in the TSS function (see page 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.

```

A6
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  |          1 = D/ALT INDIRECT XREGS
6 D/ALT LSR     |          2 = D/A T RAM
7 D/ALT XREG    |          3 D/ALT PICOCODE
8 ADDRESS COMPARE|
9 CHK-POINT TRACE|
10 D/ALT HPTSS/ESS|

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

Figure 4-35. 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     | - 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 4-36. 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 xxxx
3 MODE CONTROL  | - ENTER NUMBER OF HALFWORDS TO DISPLAY (UP TO 32) ==>
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|

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

Figure 4-37. 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 because of 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 Type 01, ID 02 is created.

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.

CHHDMPx SCANNER DUMP FILE IS NOT EMPTY

Cause: The CHHDMPx (x stands for A or B according to the CCU) 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 because of 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 CHHDMPx. 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 Type 01, ID 05 is created.

Action: Terminate the function.

IML FOR SCANNER xx COMPLETED

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

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

IML FOR SCANNER xx COMPLETED: SCANNER CAN BE CONNECTED

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

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

IML FOR SCANNER xx COMPLETED: SCANNER IS CONNECTED

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

Action: None.

IML FOR SCANNER xx IN PROGRESS

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

Action: None.

INVALID ALTER REQUEST ON READ-ONLY STORAGE

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

Action: None.

INVALID CMD TO CCU OR FALLBACK: REJECT

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

Action: Check with the host operator.

INVALID INPUT

Cause: The data you just entered is invalid.

Action: Enter valid data.

TSS Messages

INVALID LINE ADDRESS

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

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

INVALID OPTION ENTERED

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

Action: Enter the correct option.

INVALID SCANNER ADDRESS

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

Action: Call the PE.

IOC/SCANNER ERROR: FUNCTION NOT PERFORMED

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

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 Type 01, ID 05 is created.

Action: Terminate the function.

SCANNER CANNOT BE CONNECTED: MOSS IS NOT ONLINE

Cause: Self explanatory.

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

SCANNER CONNECTED TO CCU CONTROL PROGRAM

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

Action: None.

SCANNER CONNECTION REJECTED BY CCU CONTROL PROGRAM

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

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, because of a BER generated by the control program.

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

TSS Messages

SCROLL IGNORED

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

Action: None.

SELECT A SCANNER

Cause: You selected a TSS function 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 Type 01, ID 05 is created.

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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Your Road Map in the TRSS Functions

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*.

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 Chapter 1.

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

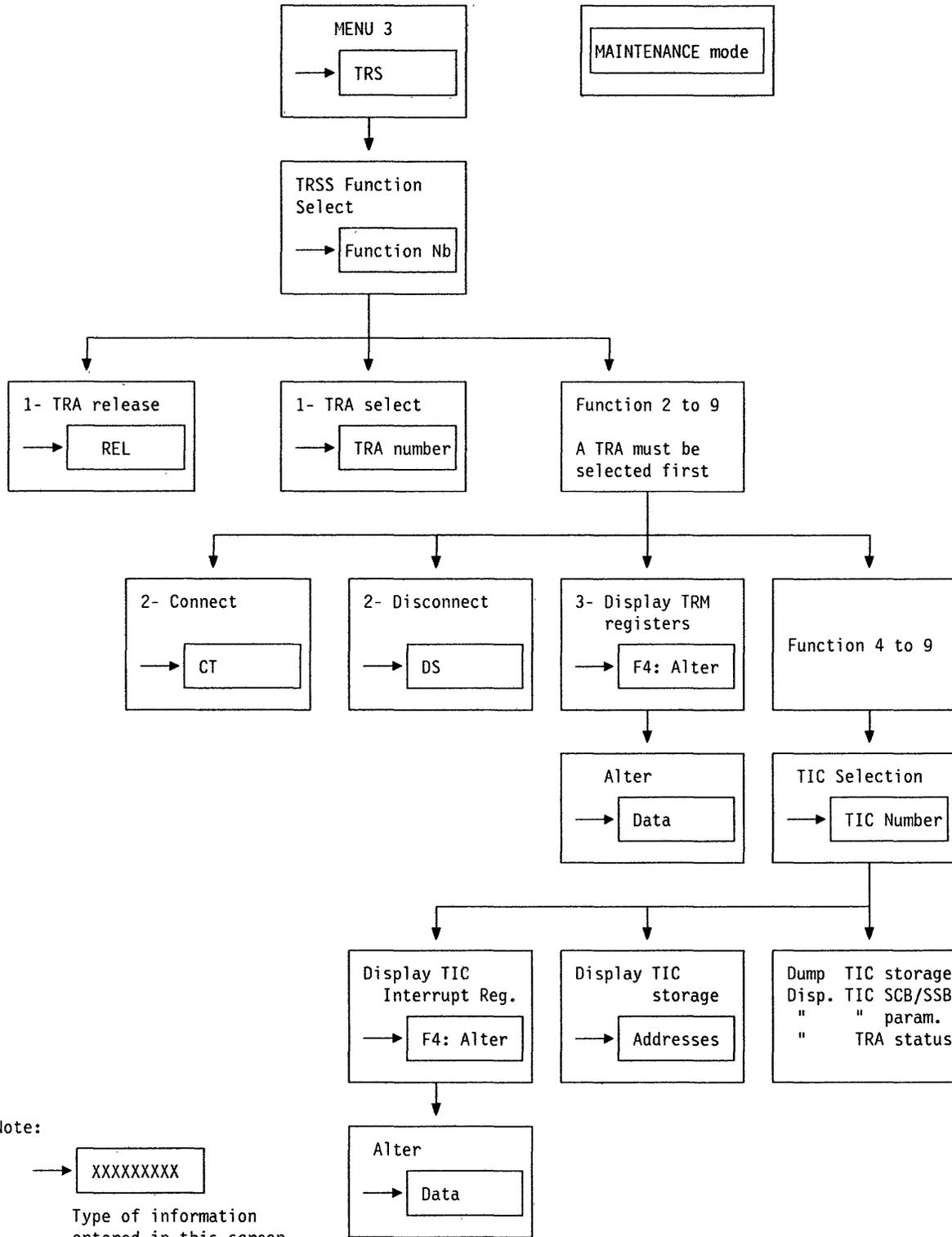
TRSS Function Resources

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

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

Refer to Chapter 6 to use the display dump function.

TRSS Functions Overview



TRSS Function Selection

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

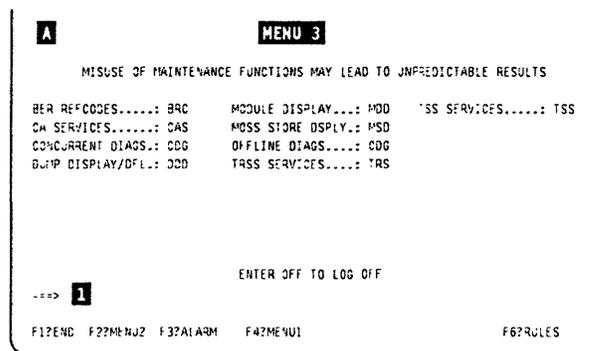


Figure 5-1. Menu 3 (Maintenance) Screen

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

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

The procedures are described in the following pages:

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

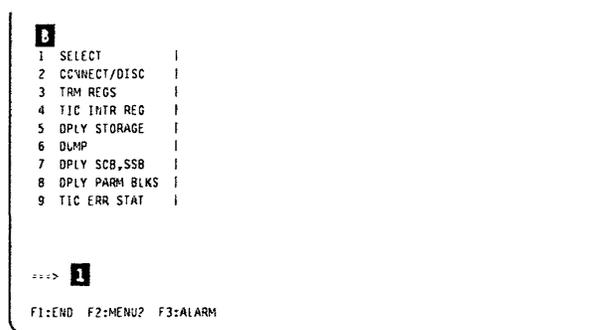


Figure 5-2. TRSS Function Selection Screen

Select 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 Definitions (Token-Ring/TIC Information)” on page 1-21).

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.

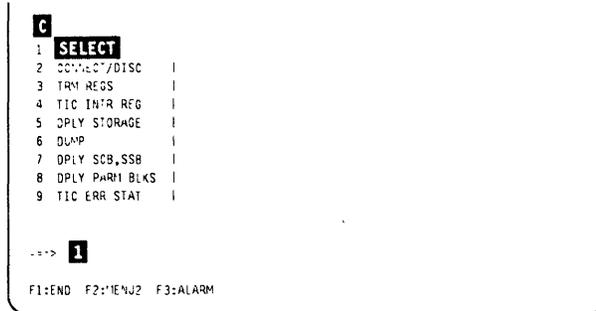


Figure 5-3. TRSS Function Selection Screen

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

TRA # TRA number (1, 2, 5, or 6)
LINE ADDRESS Address of the TIC(s) or blank (TIC not present)
TIC Y or N for each TIC of the TRA
CCU Always A.

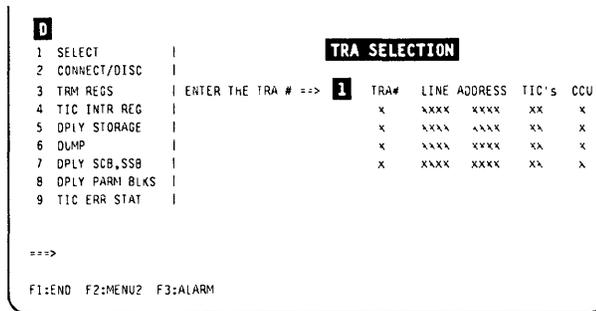


Figure 5-4. TRA Selection Screen

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 Definitions (Token-Ring/TIC Information)" on page 1-21).

```

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

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

```

Figure 5-5. TRA Connect/Disconnect Selection Screen

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

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

Before Running TRSS Diags

You must perform a TRA disconnect after every power OFF/ON procedure, before running the TRSS diagnostics. Otherwise TA0A will fail.

```

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

CP DOES NOT ACCEPT THE TRA DISCONNECTION

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

```

Figure 5-6. TRA Force Disconnect Screen

TRA Status Explanation

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

Display/Alter TRM Registers

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

```

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

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

Figure 5-7. TRSS Function Selection Screen

1. Press **F8** to display screen 2 (**1**).
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.

```

H
1 SELECT | DISPLAY/ALTER TRM REGISTERS (1/2)
2 CONNECT/DISC |
3 TRM REGS | TRM CONTROL: TIC CONTROL(R/W): 1 2
4 TIC INTR REG | RESET(R): RESET ==>
5 DPLY STORAGE | HI PRIO(R/W) ==> INH INTR ==>
6 DUMP | INH DMA ==>
7 DPLY SCB,SSB | MOSS CONTROL ==>
8 DPLY PARM BLKS | DIAG(R/W): TRM WRAP ==> DMA R(1)/W(0) ==>
9 TIC ERR STAT | PIO(1)/DMA(0) ==> ODD (1)/EVEN (0) ==>
| TA,TD BAD PARITY ==> BYTE 0,1 ==>
| FORCE TIMEOUT ==> DMA COUNTER ==>
| FORCE IDLE ERROR ==> START ==>
| FORCE BAD PTY INT ==> CSCW, BUS BAD PTY ==>

-->>
F1:END F2:MENU2 F3:ALARM F4:ALTER F5:REFRESH F8:FRWD
    
```

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

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

Register Name	Display	Alter	Detail
TRM state control	Yes	Yes	Yes
TIC state control	Yes	Yes	Yes
Level 1 error status	Yes	No	No
LID base	Yes	Yes	No
IR/BR	Yes	Yes	Yes
Diag	Yes	Yes	Yes
Data buffer	Yes	Yes	No
CSCW	Yes	No	Yes
Note: Detail column indicates that contents are given in bit format.			

```

I
1 SELECT | DISPLAY/ALTER TRM REGISTERS (2/2)
2 CONNECT/DISC |
3 TRM REGS | LID BASE(R/W)==>
4 TIC INTR REG | DATA REGISTER(R/W) ==>
5 DPLY STORAGE |
6 DUMP | IR/BR(R/W):
7 DPLY SCB,SSB | IR1 ==> IR2 ==>
8 DPLY PARM BLKS | BR1 ==> BR2 ==>
9 TIC ERR STAT |
| CSCW(R):
|
| LEVEL 1 ERROR STATUS(R): BINARY

===>
F1:END F2:MENU2 F3:ALARM F4:ALTER F5:REFRESH F7:BACKD
    
```

Figure 5-9. Display/Alter TRM Registers 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 cancel the alter.
7. After the alter is complete, the contents of the registers are read and displayed again.

```

J
1 SELECT |
2 CD:VECT/O:SC |
3 TRM REGS |TRM CONTROL: TIC CONTROL(R/W): 1 2
4 TIC INTR REG | RESE*(R): RESET ==>
5 DPLY STORAGE | HI PRIQ(R/W) ==> INH INTR ==>
6 DUMP | IVM DMA ==>
7 DPLY SCB,SSB | MOSS CONTROL ==>
8 DPLY PARM BLKS |DIAG(R/W): TRM WRAP ==> DMA R(1)/W(0) ==>
9 TIC ERR STAT | P:O(1)/D:M(0) ==> ODD (1)/EVEN (0) ==>
| TA,TC BAD PARITY ==> BYTE 0,1 ==>
| FORCE TIMEOUT ==> DMA COUNTER - ->
| FORCE IDLE FRAGR ==> START - ->
| FORCE BAD PTY INT ==> CSCW, BUS BAD PTY ==>

==>
F1:END F2:MENU2 F3:ALARM F4:ALTER F5:REFRESH F6:FRWD
    
```

Figure 5-10. Display/Alter TRM Registers 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.

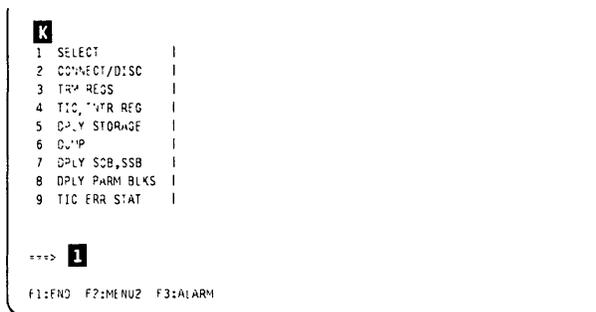


Figure 5-11. TRSS Function Selection Screen

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:

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

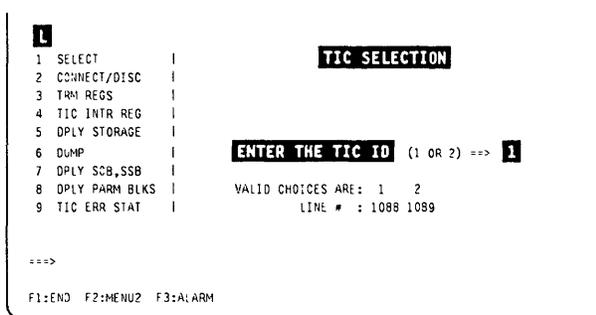


Figure 5-12. TIC Selection Screen

Display/Alter TIC Interrupt Register

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

```

M
1 SELECT | DISPLAY/ALTER TIC INTERRUPT REGISTER
2 CONNECT/DISC |
3 TRM REGS | INTERRUPT ==> OR INTERRUPT ADAPTER ==>
4 TIC INTR REG | (HEX) RESET ==>
5 DPLY STORAGE | SSB CLEAR ==>
6 DUMP | EXECUTE ==>
7 DPLY SCR,SSB | SCB REQUEST ==>
8 DPLY PARM BLKS | RECEIVE CONTINUE ==>
9 TIC ERR STAT | RECEIVE VALID ==>
| XMIT VALID ==>
| RESET SYSTEM INTR ==>
| INITIALIZE CODE(R) ==>
| INTERRUPT CODE(R)
====
F1:END F2:MENU2 F3:ALARM F4:ALTER F5:REFRESH
    
```

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

Alter TIC Interrupt Register

Possible Disruption
Any alter may be disruptive.

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

```

N
1 SELECT | DISPLAY/ALTER TIC INTERRUPT REGISTER
2 CONNECT/DISC |
3 TRM REGS | INTERRUPT ==> OR INTERRUPT ADAPTER ==>
4 TIC INTR REG | (HEX) RESET ==>
5 DPLY STORAGE | SSB CLEAR ==>
6 DUMP | EXECUTE ==>
7 DPLY SCR,SSB | SCB REQUEST ==>
8 DPLY PARM BLKS | RECEIVE CONTINUE ==>
9 TIC ERR STAT | RECEIVE VALID ==>
| XMIT VALID ==>
| RESET SYSTEM INTR ==>
| INITIALIZE CODE(R) ==>
| INTERRUPT CODE(R)
====
F1:END F2:MENU2 F3:ALARM F4:ALTER F5:REFRESH
    
```

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

Display TIC Storage

1. You must be in the TRS function (see page 5-5).
2. Select the TRA (see page 5-6).
3. Disconnect the TRA (see page 5-7). The NCP cannot work with both TICs of that TRA.
4. Select function 5 and TIC identifier (see page 5-10).
5. This screen **0** is displayed.

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
1 SELECT | DISPLAY TIC STORAGE
2 CONNECT/DISC |
3 TRM RECS | | - ENTER ADDRESS OF START OF DISPLAY ==> 1 (HEX)
4 TIC INTR REG | | (RAM: 0 TO FFF)
5 DPLY STORAGE | | - ENTER NBR OF HALFWORDS TO DPLY (UP TO 48) ==> 2
6 DUMP |
7 DPLY SCB,SSB |
8 DPLY PARM BLKS |
9 TIC ERR STAT |

==>

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

Figure 5-15. Display TIC Storage Selection Screen

You may repeat steps 5 to 7, if you want to display other parts of the TIC storage.

In some cases (starting address less than 060 or pressing F7 while the first address is less than 100), you may obtain a display starting from address 000. In that case, just press F8 to display the next screen(s), containing the address you want.

```

P
1 SELECT | DISPLAY TIC STORAGE
2 CONNECT/DISC |
3 TRM RECS | | - ENTER ADDRESS OF START OF DISPLAY ==> 0 (HEX)
4 TIC INTR REG | | (RAM: 0 TO FFF)
5 DPLY STORAGE | | - ENTER NBR OF HALFWORDS TO DPLY (UP TO 48) ==> 8
6 DUMP |
7 DPLY SCB,SSB | 1000 8288C8D 840E4FAE 8D128F10 920E0F91 B...D...K...J
8 DPLY PARM BLKS | 10010 9436000D 95128584 88304706 CE244302 M...N.ED.....
9 TIC ERR STAT | 10020 00778008 EFFE0300 EC9107FE D222F5CB .....J..K..S.
| 0030 E78C9764 701A0150 00080008 E7960100 X.P...&...XO..
| 0040 01008000 FFFF0000 00028008 00000000 .....
| 0050 000082C0 00080000 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 (for CCU-A) or CHGTRSSB (for CCU-B).

A TIC dump may be examined or deleted by using the dump display/delete (DDD) function (see Chapter 6).

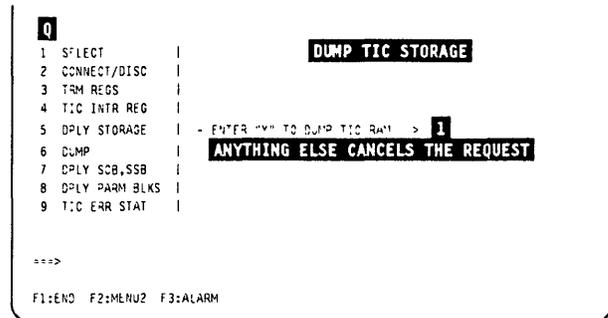


Figure 5-17. Dump TIC Storage Screen

If the corresponding TIC dump area in CHGTRSSA (CCU-A) or CHGTRSSB (CCU-B) 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.

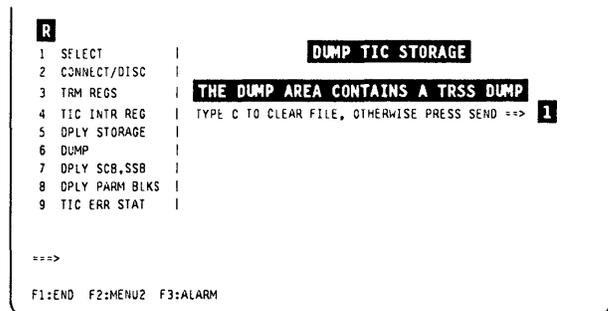


Figure 5-18. TIC Dump Areas Full Screen (Example)

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.

Eight TIC dumps may be stored in the CHGTRSSA or CHGTRSSB files on the disk. The CHGTRSSx dump file organization is shown as follows:

Dump TIC Storage

Sector	Content
0	TRSS dump header
1	TRA 1 - TIC 1 dump (RAH)
129	TRA 1 - TIC 1 header
130	TRA 1 - TIC 2 dump (RAH)
258	TRA 1 - TIC 2 header
259	TRA 2 - TIC 1 dump (RAH)
387	TRA 2 - TIC 1 header
388	TRA 2 - TIC 2 dump (RAH)
516	TRA 2 - TIC 2 header
517	TRA 5 - TIC 1 dump (RAH)
645	TRA 5 - TIC 1 header
646	TRA 5 - TIC 2 dump (RAH)
774	TRA 5 - TIC 2 header
775	TRA 6 - TIC 1 dump (RAH)
903	TRA 6 - TIC 1 header
904	TRA 6 - TIC 2 dump (RAH)
1032	TRA 6 - TIC 2 header
1033	

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 indicates the presence of a TIC dump in CHGTRSSx and provides the corresponding time-stamp and location.

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 CHGTRSSx (x=A for CCU-A, B for CCU-B) 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 the indicated range. (xxxx = FFF for TIC1, and FFFF for TIC2.)

Action: Enter a valid address.

TRSS Messages

INVALID INPUT

Cause: The entered input is invalid.

Action: Enter a valid input.

INVALID INPUT: RE-ENTER FIELDS IN ERROR

Cause: An input field is in error during alter.

Action: Correct the field.

INVALID INTERRUPT RECEIVED FROM TRA: FUNCTION CANCELLED

Cause: An interrupt was expected as the result of an MIOH but the expected interrupt bit was found to be ON in the TCB (should have been reset by MOSS level 4).

Action: Run diagnostics.

INVALID NUMBER OF HALFWORDS: RANGE IS 1-48

Cause: The requested amount of halfwords to display was out of range.

Action: Enter a valid number of halfwords.

INVALID F KEY

Cause: Self-explanatory.

Action: Use a valid F key.

IOC/TRA ERROR: DUMP MAY BE INCOMPLETE

Cause: According to the function being processed, an MIOH error occurred during an MIOH processing.

Action: Retry, and if not successful, run the diagnostics.

IOC/TRA ERROR: FUNCTION NOT PERFORMED

Cause: According to the function being processed, an MIOH error occurred during an MIOH processing.

Action: Retry, and if not successful, run the diagnostics.

IOC/TRA ERROR: MODE NOW UNKNOWN

Cause: According to the function being processed, an MIOH error occurred during an MIOH processing.

Action: Retry, and if not successful, run the diagnostics.

IOC/TRA ERROR: NOT CONNECTED

Cause: According to the function being processed, an MIOH error occurred during an MIOH processing.

Action: Retry, and if not successful, run the diagnostics.

IOC/TRA ERROR: TIC MODE NOT REPORTED

Cause: According to the function being processed, an MIOH error occurred during an MIOH processing.

Action: Retry, and if not successful, run the diagnostics.

IOC/TRA ERROR: TRA INTERRUPTS NOT ENABLED

Cause: According to the function being processed, an MIOH error occurred during an MIOH processing.

Action: Retry, and if not successful, run the diagnostics.

MOSS/TIC ERROR: FUNCTION CANCELLED

Cause: An interrupt was not answered to MOSS during the disconnect process.

Action: Run diagnostics.

NCP/MOSS ERROR: FUNCTION CANCELLED

Cause: A MOSS interface table (MIT) was not found for the selected TIC. Since the NCP is needed, the current function is cancelled.

Action: Verify NCP generation.

NCP/MOSS ERROR: PRESS SEND TO CONTINUE

Cause: A MOSS interface table (MIT) was not found for the selected TIC. The NCP is set not supporting TRSS. The function continues after SEND is pressed.

Action: Verify NCP generation.

NCP TRS SUPPORT NOT AVAILABLE: FUNCTION IGNORED

Cause: NCP generation does not support TRSS.

Action: None.

NO ACKNOWLEDGE FROM TRA: MODE NOW UNKNOWN

Cause: The TRM did not respond with an interrupt to MOSS during the disconnect process.

Action: Run diagnostics.

NO ANSWER FROM CONTROL PROGRAM: MODE NOW UNKNOWN

Cause: Mailbox to NCP was never answered during the connect process.

Action: Check if CP is running.

NO ANSWER TO ERROR STATUS REQUEST DURING ERROR RECOVERY

Cause: MOSS level 4 found an error after interrupt received.

Action: Run diagnostics.

NO TRA'S INSTALLED OR SWITCH ERROR: FUNCTION CANCELLED

Cause: There is no TRA present in the CDF. initialized.

Action: Run CDF.

REFRESH MODE: PRESS ATTN TO STOP REFRESH

Cause: Refresh mode is active.

Action: Self-explanatory.

SCROLL IGNORED

Cause: An attempt was made to scroll backward (F7) or forward (F8) beyond the limits of TIC storage (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 press SEND.

Action: Self-explanatory.

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

Dump Display Function Selection	6-2
MOSS Dump Display	6-3
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MOSS Storage Display	6-7
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Delete a File from the MOSS Disk	6-9
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 **B** is displayed.

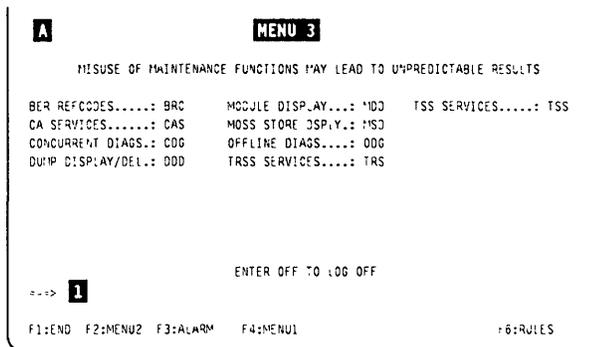


Figure 6-1. Maintenance Menu (Menu 3)

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:

MOSS dump display	Page 6-3
TSS/HPTSS/ESS dump display	Page 6-4
TRSS dump display	Page 6-5
CA dump display	Page 6-6
CCU dump display	Page 6-6
Delete file	Page 6-9

Note: If you press **SEND** without any file name in the file name area, a summary list of the dump files is displayed with the date and time of the dump (if it exists) and the reasons for taking the dump.

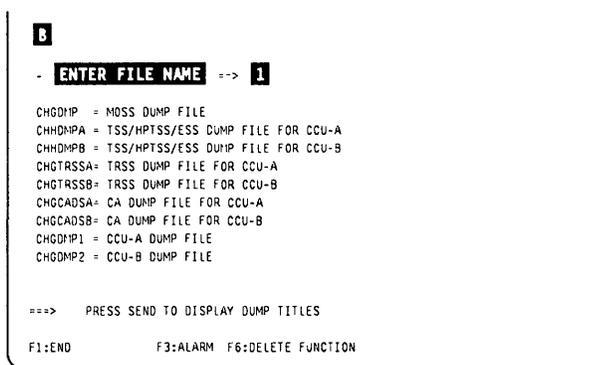


Figure 6-2. Dump Display/Delete Selection

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 the dump procedure.

1. Select the MOSS dump file (CHGDMP) in screen **B** on page 6-2.
2. In **1**, enter an item number (0 to 28) according to the area you want to dump.

If you don't enter anything, the full dump file will be displayed.
3. Press **SEND**.

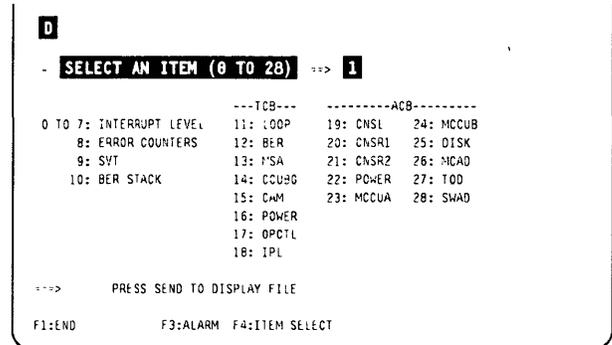


Figure 6-3. MOSS Dump Area Selection Screen

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.

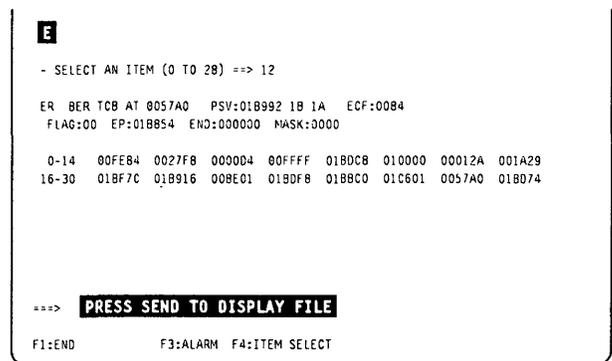


Figure 6-4. MOSS Storage Area Screen (BER Example)

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 area of the dump is displayed, starting from the area where you have entered the new address.

Scrolling (F7 or F8), affects only the new area so displayed.

Note: The information displayed on that screen is mainly for support personnel.

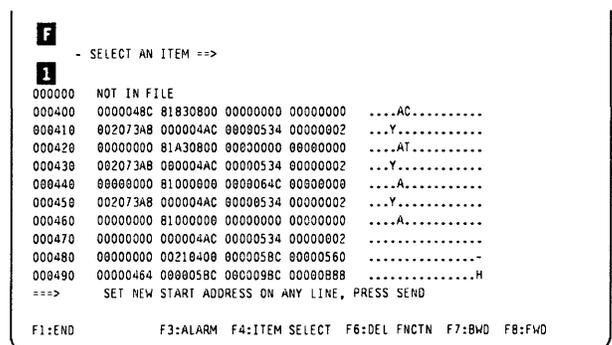


Figure 6-5. MOSS Storage Dump Screen

Scanner Dump Display

Display of a TSS, HPTSS, or ESS dump previously created from the TSS services function (TSS) (see Chapter 4).

1. Select the scanner dump file CHHDMPA (for CCU-A) or CHHDMPB (for CCU-B) in screen **B** 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.

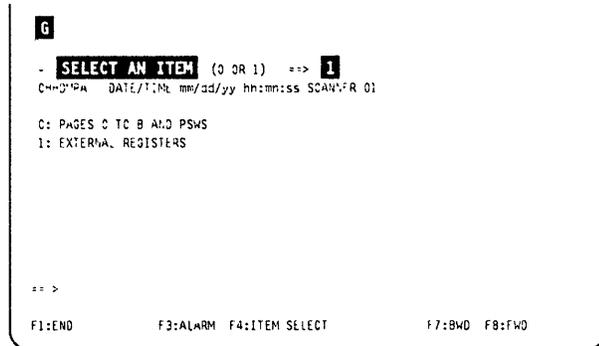


Figure 6-6. Scanner Dump Area Selection Screen

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**.

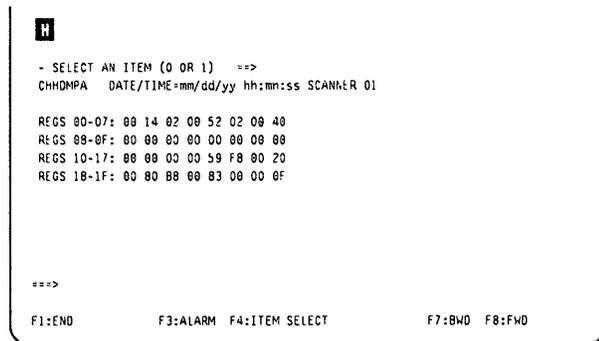


Figure 6-7. Scanner Dump Area Screen

TRSS/TIC Dump Display

Display of a TRSS/TIC dump previously created from the TRSS services function (TRS) (see Chapter 5).

1. Select the TRSS/TIC dump file CHGTRSSA (for CCU-A) or CHGTRSSB (for CCU-B) in screen **B** 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.

```

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

0: TRA 1 TIC 1 RAM CCUX DATE/TIME:mm/dd/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**).

```

K
- 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:9CA000 CONTROL:0110
DIAG:0000 IR/BR:00
L1ERR:0000 INTR:0000
IPB:FF00010203042010004000400505
000C9902000C99000PB:0480C0000021
109300000000000000001A001A0070
00000000107000C6030
CHKSTAT:0000000000000000
RINGSTAT:0840
==> 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 82080C80 840E4F4E 80120F10 920E0F11 B...D...+...K...
000010 94360000 95120504 89424746 CE244302 M...N...E...
000020 00778000 EFFE0300 253F0EB3 D222F5C0B .....K...S...
000030 E78C8BCC 701A0150 00000000 E7960100 X.....&.....X0...
000040 01004000 FFFF7340 00020600 85760120 .....
000050 02FE02C0 0000AE7C 9C340000 02040970 .....
000060 01000000 7FBF7FBF 80A60000 03EAB000 .....W.....
000070 BAFE0900 03EC000C 99000000 013002A4 .....R.....U...
000080 8040001A 06FF8000 00000000 03700000 .....
000090 00660000 0368C10C 9A020000 00000000 .....A...K.....
0000A0 0085001A 06300208 00000000 00000000 .....
==> SET NEW START ADDRESS ON ANY LINE, THEN PRESS SEND

F1:END F3:ALARM F4:ITEM SELECT F6:DEL FNC'N F7:BDW 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).

1. Select the CA dump file CHGCADSA (for CCU-A) or CHGCADSB (for CCU-B) in screen **B** on page 6-2.

From this screen, you may:

- Press **F7**, or **F8**, or **SEND**, to scroll.
- Press **F6**, to display the **dump delete selection** screen.
- Type a file name in **1**, and press **SEND**, to display another dump.

```

L
- ENTER FILE NAME ==> 1

000000 01000000 11:88700 18323900 C3C8C1D5 .....G.....CHAN
000010 05C53340 F1404000 000104C7 11:88700 NEL I .....G..S.
000020 40C3C3E4 40C14040 00000000 00000000 CCU A .....
000030 00000000 00000000 00000000 00000000 .....
000040 00000000 00000000 00000000 00000000 .....
000050 00000000 00000000 00000000 00000000 .....
000060 00000000 00000000 00000000 00000000 .....
000070 00000000 00000000 00000000 00000000 .....
000080 00000000 00000000 00000000 00000000 .....
000090 00000000 00000000 00000000 00000000 .....
0000A0 00000000 00000000 00000000 00000000 .....
==> SET NEW START ADDRESS ON ANY LINE, THEN PRESS SEND

F1:END F3:ALARM F6:DEL FNCTN F7:8WD F8:FWD
    
```

Figure 6-11. CA Dump Screen

CCU Dump Display

Display of a CCU dump previously created from an NCP abend.

The procedure is identical to the CA dump display, except that you select file CHGDMP1 (for CCU-A) or CHGDMP2 (for CCU-B).

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.

```

M                                MENU 3
MISUSE OF MAINTENANCE FUNCTIONS MAY LEAD TO UNPREDICTABLE RESULTS

BER RE-CODES.....: BRG      MODULE DISPLAY...: MOD    TSS SERVICES.....: TSS
CA SERVICES.....: CAS      MOSS STORE DPLY...: MSD
CONCURRENT DIAGS.: CDG     OFFLINE DIAGS....: ODG
DUMP DISPLAY/DI...: DD?    TRSS SERVICES....: TRS

                                     ENTER OFF TO LOG OFF

==> 1

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

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

1. In **1**, enter an item number (0 to 28) according to the area 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.

```

N
- SELECT AN ITEM (0 TO 28) ==> 1

---TCB--- -----ACB-----
0 TO 7: INTERRUPT LEVEL  11: LOOP    19: CNSL   24: MCCUB
8: ERROR COUNTERS      12: BFR     20: CNSR1  25: DISK
9: SVT                  13: MSA     21: CNSR2  26: MCAO
10: BER STACK           14: CCUBG   22: POWER  27: TOD
15: CAM                 15: CAM     23: MCCUA  28: SWAD
16: POWER
17: OPCTL
18: IPL

====>  PRESS SEND TO DISPLAY FILE

F1:END          F3:ALARM  F4:ITEM SELECT
    
```

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.

```

0
- SELECT AN ITEM (0 TO 28) ==> 12

ER BER TCB AT 0057A0  PSV:01B992 1B 1A  ECF:0084
FLAG:00 EP:01B854  END:000000  MASK:0000

0-14  00FE84  0027F8  0000D4  00FFFF  01B0C8  010000  00012A  001A29
16-30  01BF7C  01B916  00BE01  01BDF8  01B8C0  01C601  0057A0  01B074

====>  PRESS SEND TO DISPLAY FILE

F1:END          F3:ALARM  F4:ITEM SELECT
    
```

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.

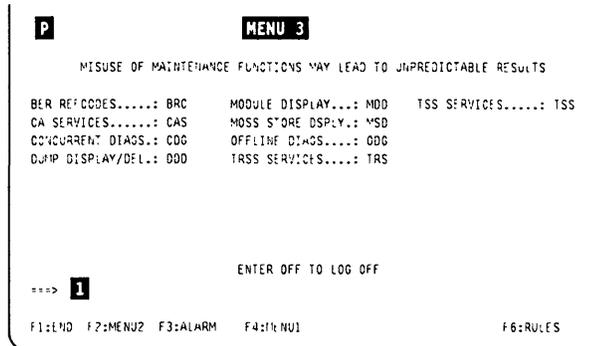


Figure 6-15. Maintenance Menu (Menu 3) Screen

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.

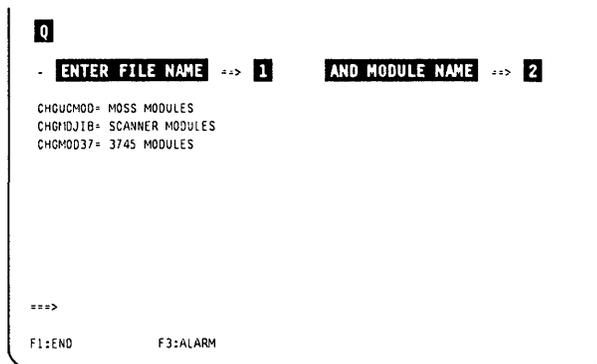


Figure 6-16. Module Display Selection Screen

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.

```

R                                MENU 3
MISUSE OF MAINTENANCE FUNCTIONS MAY LEAD TO UNPREDICTABLE RESULTS

BER REFCODES.....: BRC      MODULE DISPLAY...: MDD      TSS SERVICES.....: TSS
CA SERVICES.....:  CAS      MOSS STORE DSPLY.: MSD
CC/CURRENT DIAGS.: CDG      OFFLINE DIAGS....: ODG
DUMP DISPLAY/DEL.: DDD      TRSS SERVICES....: TRS

                                     ENTER OFF TO LOG OFF

---> 1

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

```

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

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

```

S
- ENTER FILE NAME ==>

CHGDMP = MOSS DUMP FILE
CHHDMPA = TSS/HPTSS/ESS DUMP FILE FOR CCU-A
CHHDMPB = TSS/HPTSS/ESS DUMP FILE FOR CCU-B
CHGTSSA = TRSS DUMP FILE FOR CCU-A
CHGTSSB = TRSS DUMP FILE FOR CCU-B
CHGCDSA = CA DUMP FILE FOR CCU-A
CHGCDSB = CA DUMP FILE FOR CCU-B
CHGDMP1 = CCU-A DUMP FILE
CHGDMP2 = CCU-B DUMP FILE

===> PRESS SEND TO DISPLAY DUMP TITLES

F1:END          F3:ALARM  F6:DELETE FUNCTION

```

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**.

```

T
- ENTER FILE NAME TO BE DELETED ==> 1

CHGDMP = MOSS DUMP FILE
CHHDMPA = TSS/HPTSS/ESS DUMP FILE FOR CCU-A
CHHDMPB = TSS/HPTSS/ESS DUMP FILE FOR CCU-B
CHGTSSA = TRSS DUMP FILE FOR CCU-A
CHGTSSB = TRSS DUMP FILE FOR CCU-B
CHGCDSA = CA DUMP FILE FOR CCU-A
CHGCDSB = CA DUMP FILE FOR CCU-B
CHGCIL = BER FILE

===>

F1:END          F3:ALARM  F6:DUMP DISPLAY FUNCTION

```

Figure 6-19. Dump Delete Selection Screen

File Delete

TRSS/TIC Dump Delete

If you type CHGTRSSA (for CCU-A) or CHGTRSSB (for CCU-B) 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 following message is displayed:

TIC x DUMP NOW EMPTY

Note: 'EMPTY' is displayed in front of the item(s) without dump.

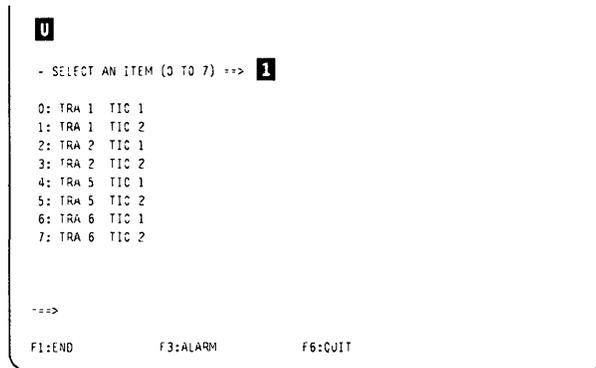


Figure 6-20. TRSS/TIC Dump Delete Screen

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

DDD Messages

- IN USE
- NOT OPENED
- OUTPUT ONLY
- PROTECTED
- TRUNCATED

Chapter 7. Applying and Displaying Microcode Fixes (MCF)

What Are Microcode Fixes and Patches	7-2
How to Install Microcode Fixes (MCFs)	7-3
MCF Functions Overview	7-4
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MCF Microcode Upgrade	7-10
MCF Microcode Restore	7-11
List the Old and New MCFs	7-13
MCF Messages	7-14

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 return to the previous microcode state. It restores the microcode to what 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, or
- 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.

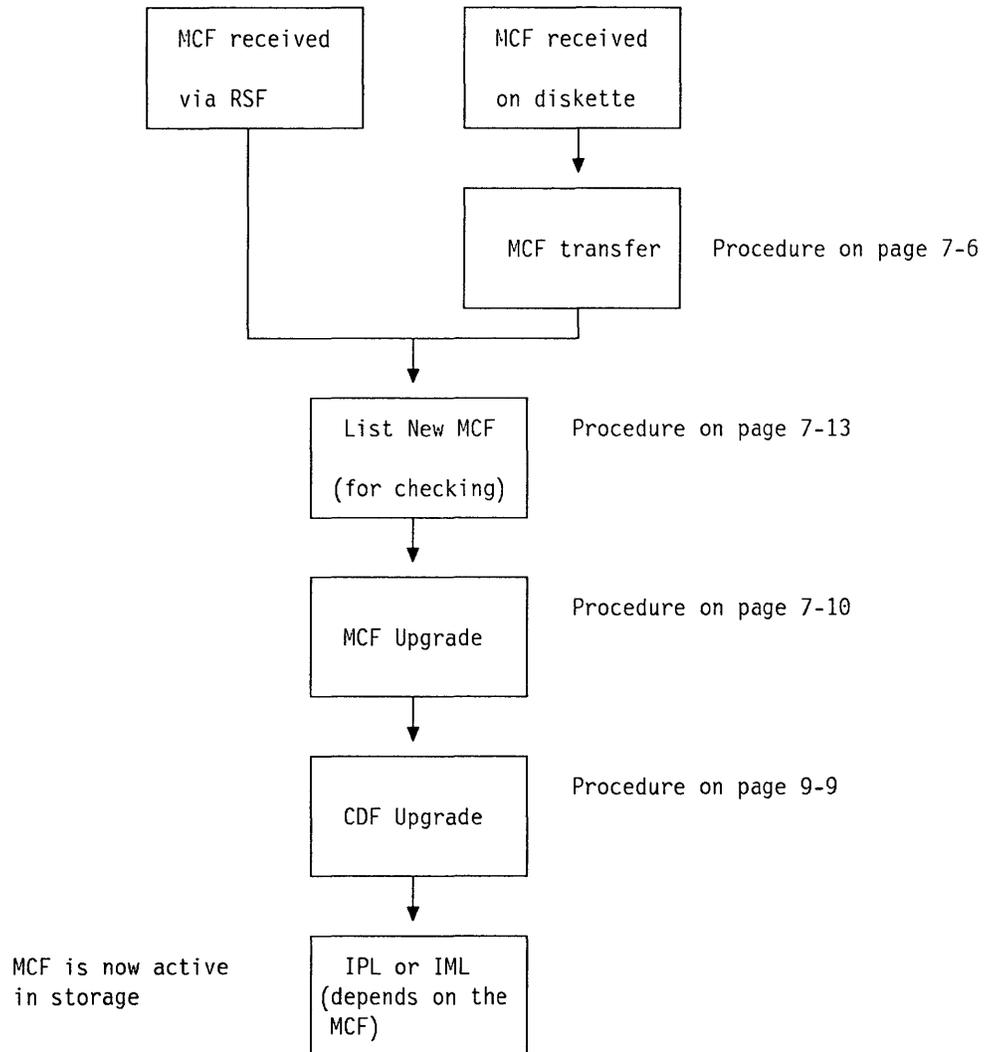


Figure 7-1. MCF Installation Sequence

MCF Functions Overview

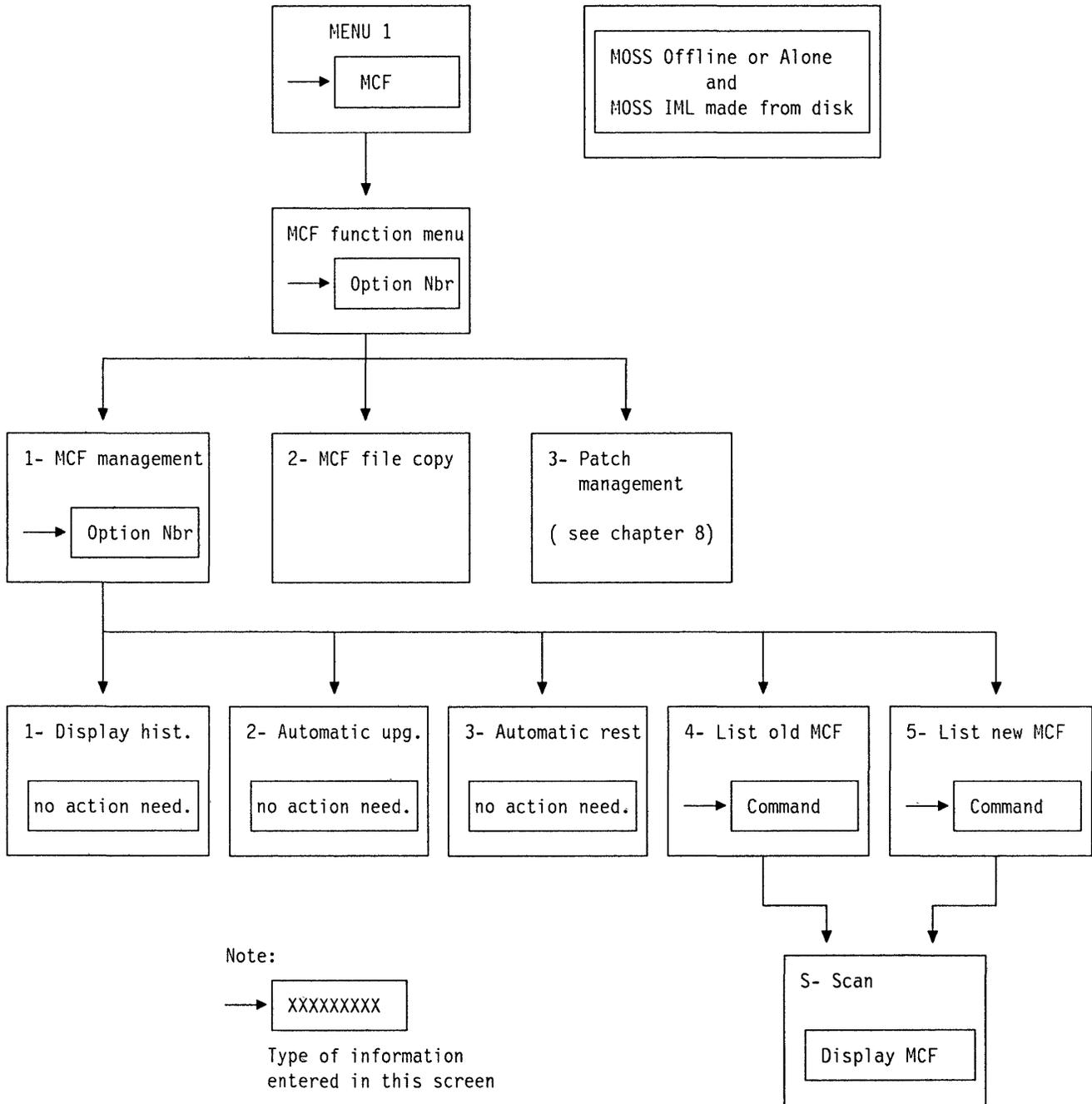


Figure 7-2. Microcode Fix Flow

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.

```

A                                MENU 1
CONFIG DATA FILE.: CDF          IML ONE SCANNER...: IMS      P#SSH#OROS.....: PSW
CONTROL PGM PROC.: CPP          IPL CCU(S).....: IPL        PORT SW#P FILE...: PSF
DISK FUNCTIONS...: DIF          LD LINK TEST REQ.: LTQ        POWER SERVICES...: POS
DISK IPL INFO...: DII           LD LINK TEST R:SP: LTS       SC#N#N#R I/F TR#C#E: SIT
EVENT LOG DISPLAY: ELD          LINE INTERF DSPLY: LID       ST#N#D #L#N#E *#E#T#.: S#T
F#L#L#B#C#K.....: FBK         LNK IPL PORTS...: LKP        SW#T#C#B#A#C#K...: S#B#K
IML H#O#S#S.....: IML          M#A#C#H#I#N#E L#V#L T#A#B#L#E: M#L#T  T#I#M#E S#E#R#V#I#C#E#S...: T#I#M
                                M#I#C#R#O#C#C#O#D#E F#I#X#E#S...: M#C#F  T#R#S#S I#N#T#E#R#F D#S#P#L#Y: T#I#D
                                E#S#S I#N#T#E#R#F D#S#P#L#Y...: E#I#D  W#R#A#P T#E#S#T.....: W#T#T

                                ENTER OFF TO LOG OFF

==== 1
F1:END  F2:MENU2  F3:ALARM          F5:MENU 3          F6:RULES

```

Figure 7-3. Menu 1 Screen

This screen displays the EC level of the MOSS microcode.

The procedures are described in:

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

```

B
- SELECT ONE OPTION (1 TO 3), THEN PRESS SEND ==> 1

1 = MCF MANAGEMENT
  (UPGRADE OR RESTORE MICROCODE, LIST, HISTORY TABLE)

2 = MCF FILE COPY FROM DISKETTE TO DISK

3 = PATCH MANAGEMENT

EC LEVEL - xxxxxxx

====
F1:END          F3:ALARM

```

Figure 7-4. MCF/Patch Selection Screen

MCF Transfer

You must use this procedure when you receive the MCF on diskette. This procedure transfers the MCF from the diskette to the MOSS disk. You may then use the **MCF upgrade** procedure to install the corresponding MCF.

- The MOSS must be **offline** or **alone**.
 - The MOSS IML must have been made from the disk.
1. You must be in the MCF function (see page 7-5).
 2. Enter **2** in **1**.
 3. Press **SEND**.

Screen **D** is displayed.

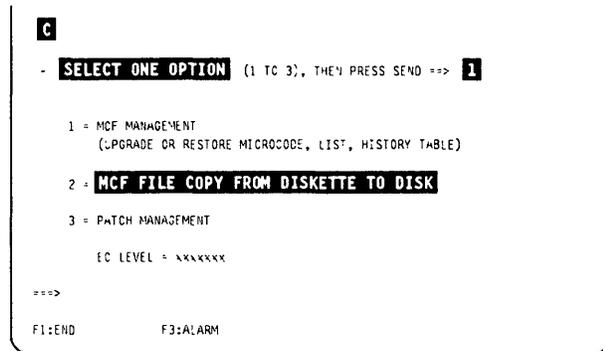


Figure 7-5. MCF/Patch Selection Screen

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

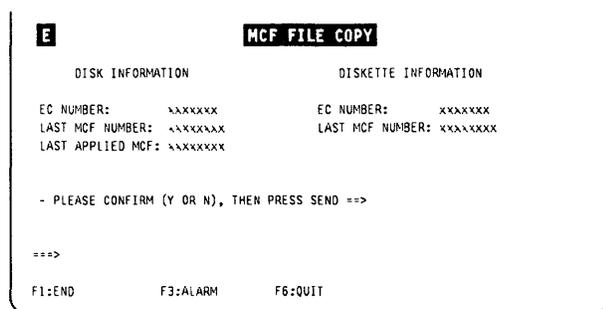


Figure 7-7. MCF File Copy Information Screen

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 the *Advanced Operations Guide* for the action needed by these messages.

- If the MCF file of the diskette is empty, this message is displayed:
FUNCTION CANCELED: THERE IS NO NEW MCF IN FILE ON DISKETTE
- If the file does not exist, this message is displayed:
DISK(ETTE) ERROR: MCF FUNCTION CANCELED
- If the last MCF number of the diskette is not sequential with the last applied MCF number on disk, this message is displayed:
FUNCTION CANCELED: DISKETTE MCF NOT SEQUENTIAL WITH LAST DISK MCF
- If the physical size of the diskette is greater than the available size of the disk, this message is displayed:
FUNCTION CANCELED: DISKETTE SIZE GREATER THAN DISK SIZE
- If a previous apply or restore MCF could not be successfully completed, this message is displayed:
FUNCTION CANCELLED: UPGRADE/RESTORE RECOVERY PENDING

You must restart and complete the MCF apply or restore operation that failed, before transferring a new MCF file.
- If the EC levels of the diskette and of the MOSS disk are different, this message is displayed:
DISK AND DISKETTE EC NUMBERS ARE DIFFERENT

until the correct diskette is mounted.

To leave the function, type 'N', or press F1 or F6.
- If the last MCF number on the diskette is lower than or equal to the MCF number on 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 page 7-5).
2. Enter **1** in **1**.
3. Press **SEND**.

Screen **G** is displayed.

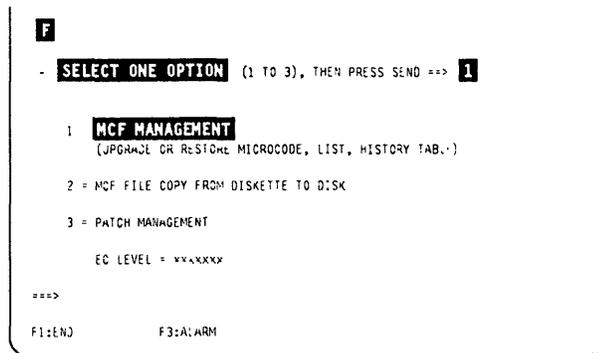


Figure 7-8. MCF/Patch Selection Screen

The procedures are described in:

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

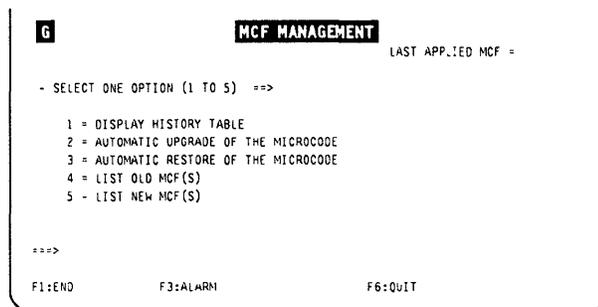


Figure 7-9. MCF Function Selection Screen

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 an engineering change (EC), or by 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** (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.

MM/DD/YY	LEVEL
xx/xx/xx	CODE UPGRADED TO LEVEL M>XXXXX
xx/xx/xx	CODE UPGRADED TO LEVEL M>XXXXX
xx/xx/xx	CODE UPGRADE/RESTORE FAILED
xx/xx/xx	CODE RESTORED TO LEVEL M>XXXXX
xx/xx/xx	CODE UPGRADED TO LEVEL M>XXXXX
xx/xx/xx	CODE UPGRADED TO LEVEL M>XXXXX
xx/xx/xx	CODE UPGRADED TO LEVEL M>XXXXX
xx/xx/xx	CODE RESTORED TO LEVEL M>XXXXX

==>>

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** (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.

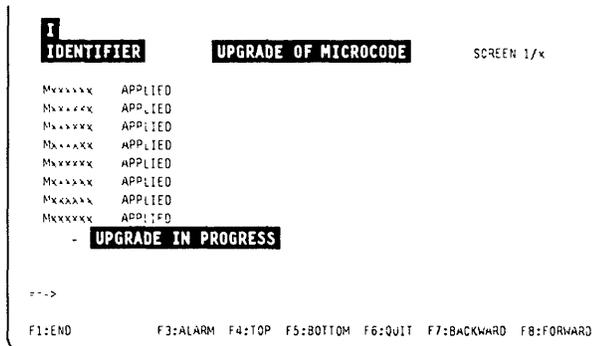


Figure 7-11. MCF Upgrade of Microcode (Upgrade in Progress)

1. At the completion of the MCF microcode upgrade, you see this screen (**J**).
2. Press **SEND**, to terminate the function.
3. Perform a CDF upgrade (refer to page 9-9) to bring the machine up to the right level.

Note: If you want to use the new microcode, you must execute a **MOSS and/or scanner re-IML**, according to the updated part of the microcode. The new code is then loaded, from the disk to the storage.

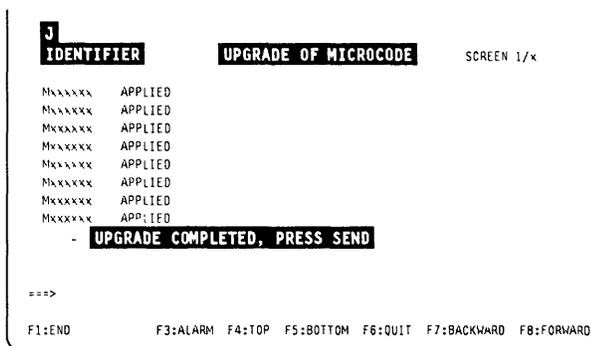


Figure 7-12. MCF Upgrade of Microcode (Upgrade Completed)

Error During MCF Upgrade

DATA ERROR

If one of the MCFs contained in the set cannot be applied (perhaps because of a conflicting local patch applied), the upgrade function is stopped, and all applied MCFs are restored (undone).

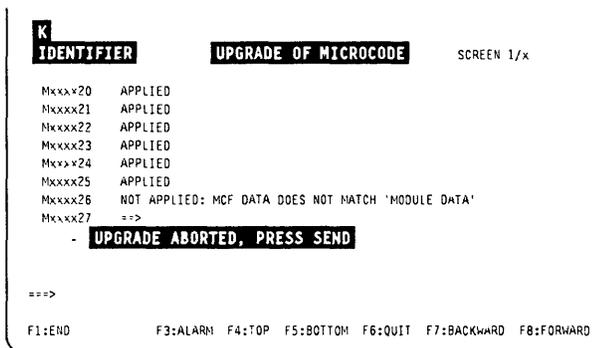


Figure 7-13. Data Error During MCF Upgrade (Example 1)

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** (page 7-8) and press **SEND**.

This screen is displayed (new MCF screen is similar).

You may then scan an MCF (see screen **R**).

```

Q
IDENTIFIER                                OLD MCF(S)                                SCREEN 1/x

MXXXXX  A ==>
(A=APPLIED. OLD MCF(S) ARE ALWAYS APPLIED)
- TO SCAN AN MCF, ENTER S AGAINST IDENTIFIER

==>

F1?END          F3?ALARM  F4?TOP    F5?BOTTOM  F6?QUIT'  F7?BACKWARD  F8?FORWARD
  
```

Figure 7-19. Old MCF List Screen

MCF Scan Procedure

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

Screen **S** is displayed.

```

R
IDENTIFIER                                NEW MCF(S)                                SCREEN 2/ 3

MXXXXX  N ==> 1
MXXXXX  N ==>
(A=APPLIED. N=MCH-APPLIED)
- TO SCAN AN MCF, ENTER S AGAINST IDENTIFIER

==>

F1?END          F3?ALARM  F4?TOP    F5?BOTTOM  F6?QUIT'  F7?BACKWARD  F8?FORWARD
  
```

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

This screen displays the first record of the selected MCF. Press **F8** to display the next records.

VERIFY DATA is the old data.

REPLACE DATA is the new data.

```

S
ID: MXXXXX                                RECORD: 01

- FILE NAME = XXXXXXXX
- MODULE NAME = XXXXXXXX

- ADDRESS = XXX

- VERIFY DATA = XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
- REPLACE DATA = XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

==>

F1:END          F3:ALARM  F6:QUIT          F8:NEXT RECORD
  
```

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

MCF Messages

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

- ALL OR PART OF 'VERIFY DATA' IS OUTSIDE MODULE
- CCU FUNCTION NOT ALLOWED
- CCU/MOSS ERROR: FUNCTION CAN NOT BE PERFORMED
- CODE ALREADY RESTORED
- CODE ALREADY UPGRADED
- DESTINATION DISK(ETTE) ERROR: FUNCTION CAN NOT BE PERFORMED
- DISK AND DISKETTE EC NUMBERS ARE DIFFERENT
- DISK(ETTE) ERROR: MCF FUNCTION CANCELED
- DISKETTE MCF NBR NOT GREATER THAN DISK MCF NBR
- FUNCTION CANCELED: DISKETTE MCF NOT SEQUENTIAL WITH LAST DISK MCF
- FUNCTION CANCELED: DISKETTE SIZE GREATER THAN DISK SIZE
- FUNCTION CANCELED: THERE IS NO MCF FILE ON DISKETTE
- FUNCTION CANCELED: THERE IS NO NEW MCF IN FILE ON DISKETTE
- FUNCTION CANCELED: UPGRADE/RESTORE RECOVERY PENDING
- FUNCTION CAN NOT BE PERFORMED WHEN MOSS IS ONLINE
- FUNCTION NOT ALLOWED IN DISKETTE MODE
- FUNCTION TERMINATION NOT ALLOWED: COMPLETE FUNCTION
- INCORRECT DISKETTE, IT MUST BE A PRIMARY AT SAME EC
- INCORRECT DISKETTE, YOU MUST MOUNT THE IML DISKETTE
- INCORRECT MCF FILE: CONTACT SERVICE REPRESENTATIVE
- INPUT CHECKSUM DOES NOT MATCH COMPUTED ONE
- INVALID DATE
- INVALID FILE NAME
- INVALID INPUT
- INVALID MODULE NAME
- MCF FILE IS EMPTY
- MCF FILE COPIED ON DISK
- MIXED COMMANDS ARE NOT ALLOWED
- MOUNT CORRECTLY THE DISKETTE, THEN PRESS SEND
- NO NEW MCF IN FILE
- NO OLD MCF IN FILE
- ONLY ONE SCAN OR MODIFY ON SAME SCREEN
- RECOVERY OF A CANCELED APPLY
- RECOVERY OF A CANCELED RESTORE
- RECOVERY OF A CANCELED UPGRADE
- SOURCE DISK(ETTE) ERROR: FUNCTION CAN NOT BE PERFORMED
- THE HISTORY TABLE IS EMPTY
- UNDEFINED F KEY
- 'VERIFY DATA' AND 'REPLACE DATA' HAVE DIFFERENT LENGTHS
- 'VERIFY DATA' DOES NOT MATCH 'MODULE DATA'

Chapter 8. Handling Patches to Microcode

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What Are Microcode Fixes and Patches

The MCF function has two parts:

- The microcode fix (MCF), described in Chapter 7.
- The microcode patch (called patch). A patch:
 - Corrects or bypasses a single microcode design defect.
 - Is a response to a high-severity problem.
 - Has minimal test requirements.
 - 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 to 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.

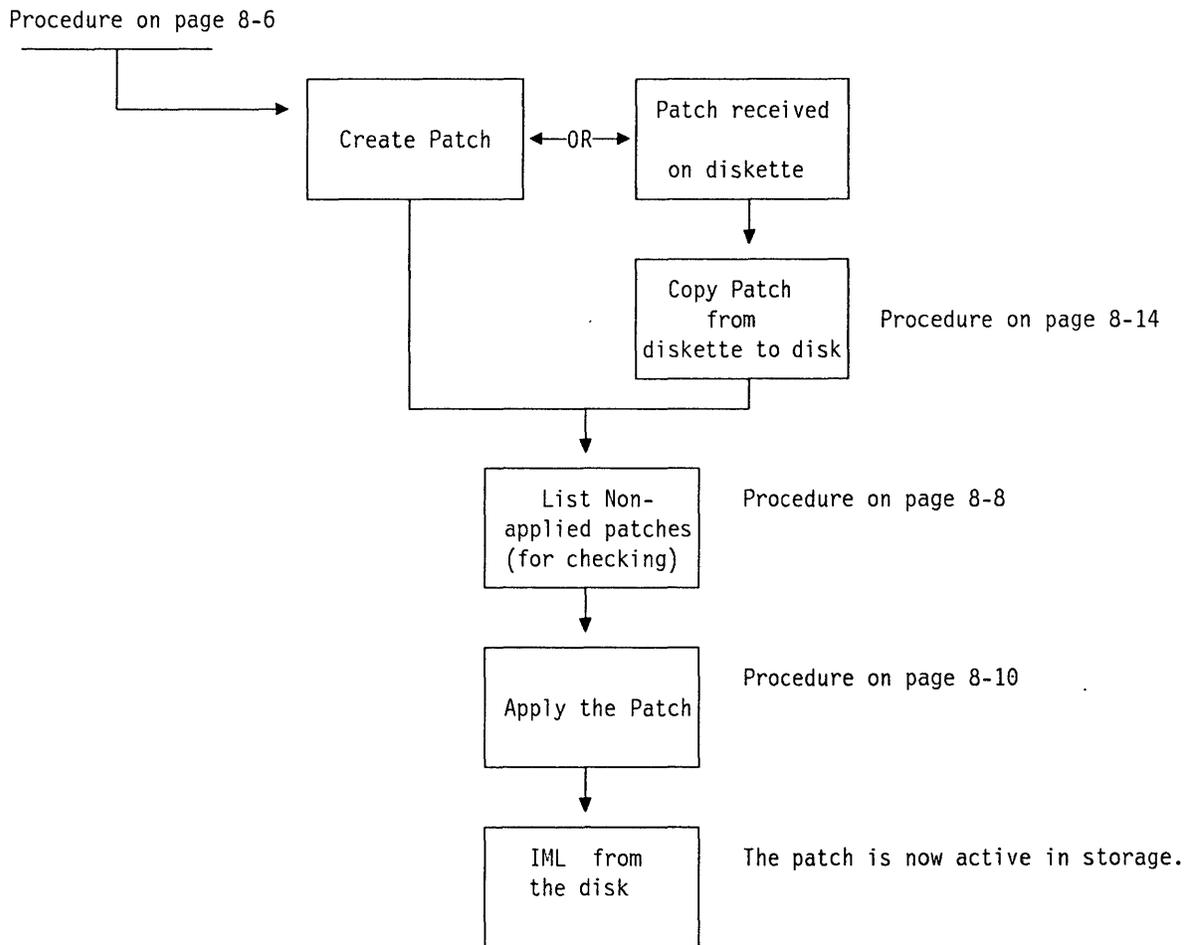


Figure 8-1. Patch Installation Sequence

Patch Function Overview

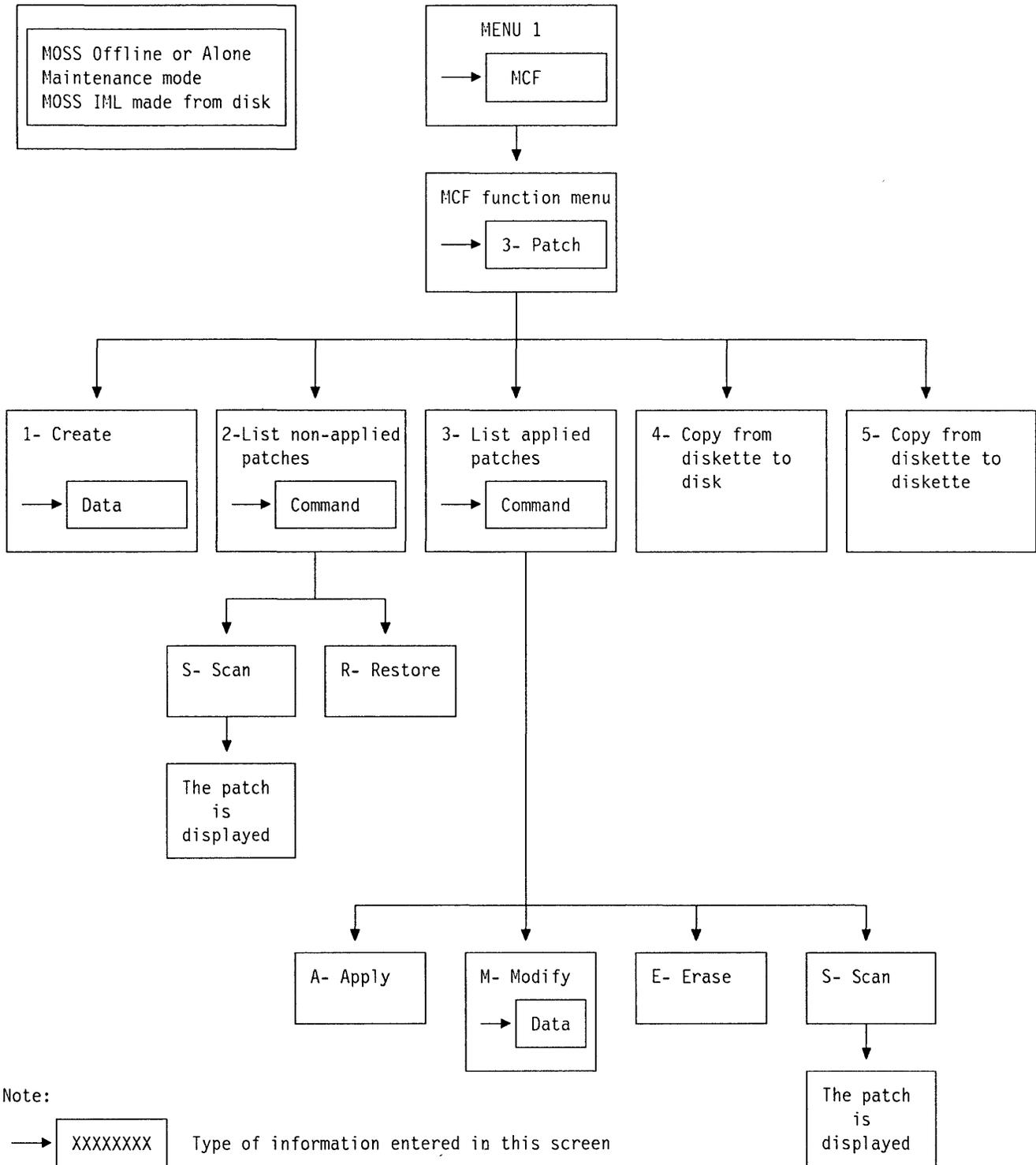


Figure 8-2. Microcode Patch Flow

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 1-5).
4. In MENU 1, type **MCF** in **1**.
5. Press **SEND**.

Screen **B** is displayed.

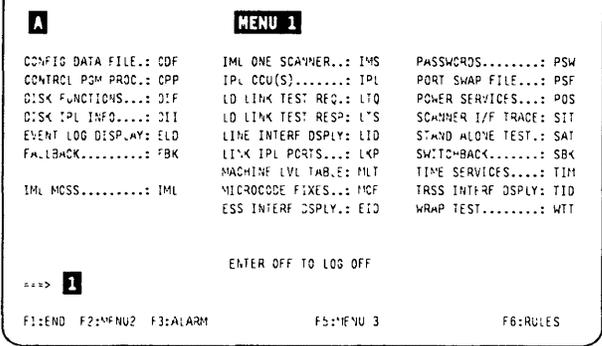


Figure 8-3. Menu 1 Screen

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

EC LEVEL: EC level of the MOSS microcode.

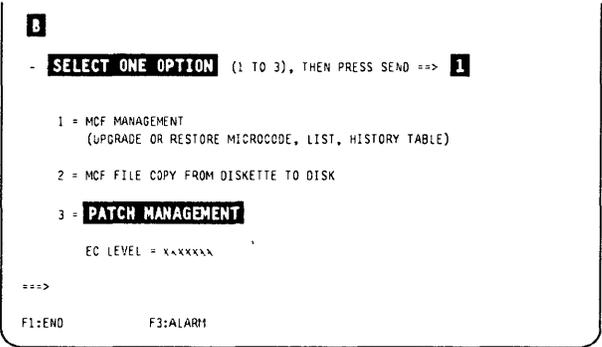


Figure 8-4. MCF/Patch Selection Screen

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

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

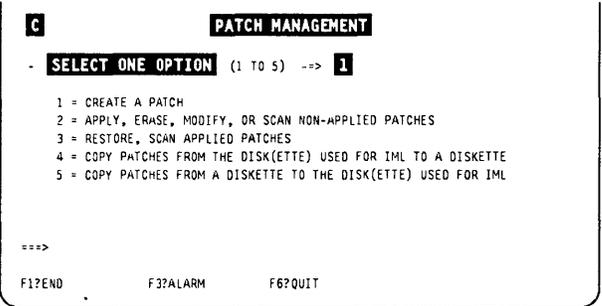


Figure 8-5. Patch Function Selection Screen

Create a Patch

Before Installing a Patch

Before installing a patch, you **must** have all the following elements:

- File name
- Module name
- Address
- Verify data
- Replace data
- Checksum.

1. Select option 1 in screen **C** 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.

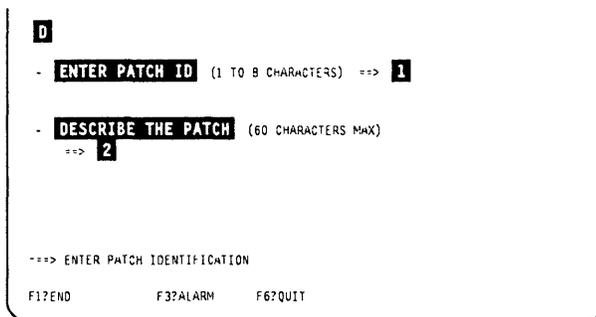


Figure 8-6. Patch Creation Header Screen

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**.

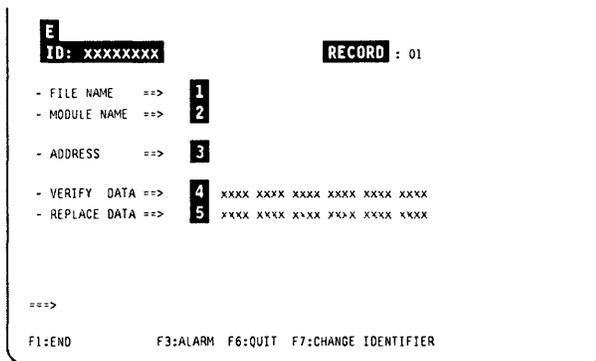


Figure 8-7. Patch Creation Record Screen

- 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).
- Continue to enter the **verify**, and **replace** data, until the end of the patch.
- 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
- Lengths 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:

- Press **F7** (optional step) to return to the previous record, which becomes the last record of the patch.
- Press **F5** to file the patch. Screen **G** is displayed.

```

F
ID: <XXXX>XXXX          RECORD: 01
- FILE NAME   ==>  XXXXXXXX
- MODULE NAME ==>  XXXXXXXX
- ADDRESS     ==>  XXXXXX
- VERIFY DATA ==>  XXXX XXXX <XX> XXXX XXXX XXXX XXXX XXXX
- REPLACE DATA ==> XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

====>
F1:END          F3:ALARM  F5:FILE  F6:QUIT  F7:PREVIOUS RECORD
  
```

Figure 8-8. Patch Creation Record Screen

- In **I**, enter the checksum (given with the patch).
- Press **SEND**.

If the checksum is incorrect, this message is displayed:

INPUT CHECKSUM DOES NOT MATCH COMPUTED ONE

- F4** Redisplay the patch previously entered (check patch).
- F5** File the patch with the incorrect checksum.

You cannot apply this patch, but you may try to get the correct checksum, and then modify the patch (refer to “Modify a Patch” on page 8-9).

```

G
PATCH ID

- ENTER CHECKSUM (4 CHARACTERS) ==> I

====>
F1:END          F3:ALARM  F4:CHECK PATCH  F5:FILE WITH INCORRECT CHECKSUM
  
```

Figure 8-9. Patch Management Checksum Screen

Handling 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.

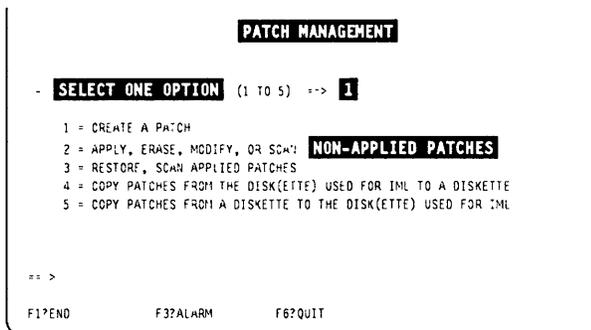


Figure 8-10. Patch Function Selection Screen

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.

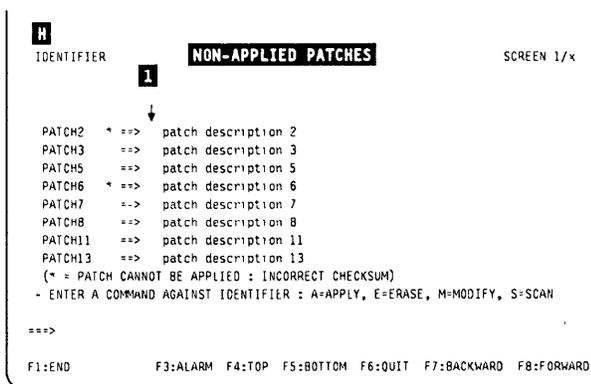


Figure 8-11. Non-Applied Patch List Screen

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
```

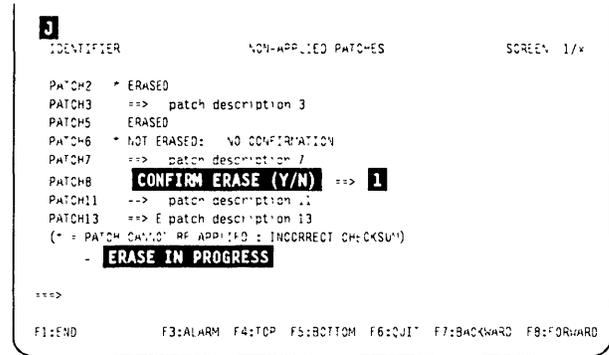


Figure 8-13. Patch Erase Confirmation Screen (Sample)

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. Press **F8** to select the record.
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.

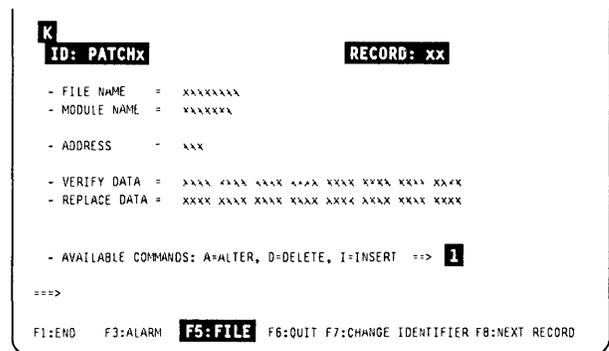


Figure 8-14. Patch Modify Execution Screen (Sample)

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  ==> 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 page 8-5).
2. Select option **3** in that screen.
3. Press **SEND**. Screen **0** is displayed.

```

PATCH MANAGEMENT
- SELECT ONE OPTION (1 TO 5) ==> 1

1 = CREATE A PATCH
2 = APPLY, ERASE, MODIFY, OR SCAN NOT-APPLIED PATCHES
3 = RESTORE, SCAN APPLIED PATCHES
4 = COPY PATCHES FROM THE DISK(ETTE) USED FOR IML TO A DISKETTE
5 = COPY PATCHES FROM A DISKETTE TO THE DISK(ETTE) USED FOR IML

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

```

Figure 8-18. Patch Function Selection Screen

1. Enter a command (see details in the next paragraphs) in column **1**, in front of the selected patch.
2. Press **SEND**.

This is the starting point for the restore and scan procedures, described in the next paragraphs.

```

0 IDENTIFIER 1 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

- ENTER A COMMAND AGAINST IDENTIFIER : R-RESTORE, S-SCAN

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

```

Figure 8-19. Applied Patch List Screen

Scan the Applied Patches

1. Type the **S** command in screen **0**. This screen displays the first record of the patch selected.
2. Use the F keys (F8: FORWARD, F7: BACKWARD), to display the other records.

```

P
ID: PATCH6 RECORD: xx

- FILE NAME = xxxxxxxx
- MODULE NAME = xxxxxxxx

- ADDRESS = xxx

- VERIFY DATA = xxxx xxxx xxxx xxxx xxxx xxxx xxxx
- REPLACE DATA = xxxx xxxx xxxx xxxx xxxx xxxx xxxx

==>
F1:END          F3:ALARM  F6:QUIT  F7:PREVIOUS RECORD  F8:NEXT RECORD

```

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

Applied Patch

Restore an Applied Patch

This function is the opposite of the apply function. It will undo the microcode modification requested by the applied patch (that is, restore the microcode to the previous code).

1. In **1** of screen **0**, enter **R** in front of every patch to restore, then press **SEND**.

At the end of the restore, this screen is displayed.

2. Press **SEND**.

```
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 to a MOSS Diskette

1. You must be in the "Patch Management" function (see page 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.

```

          PATCH MANAGEMENT
- SELECT ONE OPTION (1 TO 5) --> 1
1 = CREATE A PATCH
2 = APPLY, ERASE, MODIFY, OR SCAN NON-APPLIED PATCHES
3 = RESTORE, SCAN APPLIED PATCHES
4 = COPY PATCHES FROM THE DISK (ETTE) USED FOR IML TO A DISKETTE
5 = COPY PATCHES FROM A DISKETTE TO THE DISK(ETTE) USED FOR IML

-->
F1?END          F3?ALARM        F6?QUIT

```

Figure 8-23. Patch Function Selection Screen

1. This screen lists only those 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.

```

S          IDENTIFIER          COPY ON MOSS DISKETTE          SCREEN 1/X
          1
          ↓
PATCH2  * ==> patch description 2
PATCH3  ==> C patch description 3
PATCH5  ==> patch description 5
PATCH6  * ==> patch description 6
PATCH7  ==> C patch description 7
PATCH8  ==> C patch description 8
PATCH11 ==> patch description 11
PATCH13 ==> patch description 13
(* = PATCH WITH INCORRECT CHECKSUM)
- ENTER C TO SELECT PATCHES TO BE COPIED
- PRESS F6:QUIT TO MAKE EFFECTIVE THE COPY
==>
F1:END          F3:ALARM  F4:TOP  F5:BOTTOM  F6:QUIT  F7:BACKWARD  F8:FORWARD

```

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

Copy Patch

1. The selected patches are copied in the storage area reserved for the destination diskette.
2. Press **SEND** again.

You obtain the next screen with patches to be copied.

3. Repeat the operation in all screens that contain patches to be copied. Use **F8** (forward) and **F7** (backward) to scroll through the list.
4. After the last patch, press **F6** (QUIT) to make the copy effective.

When finished, this message is displayed:

SELECTED PATCH COPIED ON DISK(ETTE)

```
IDENTIFIER          COPY ON MOSS DISKETTE          SCREEN 1/X
PATCH2 * ==> patch description 2
PATCH3 SELECTED TO BE COPIED
PATCH5 ==> patch description 5
PATCH6 * ==> patch description 6
PATCH7 SELECTED TO BE COPIED
PATCH8 SELECTED TO BE COPIED
PATCH11 ==> patch description 11
PATCH13 ==> patch description 13
(* = PATCH WITH INCORRECT CHECKSUM)
- SELECTION COMPLETED, PRESS SEND

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

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 page 8-5).
2. Select option **5** in this screen.
3. Press **SEND**.
4. A message is displayed, asking you to mount the source diskette from which patches are to be copied.
5. Mount the diskette, and press **SEND**.
6. The 'patch copy from MOSS diskette' selection screen **V** is displayed.

```
PATCH MANAGEMENT
- SELECT ONE OPTION (1 TO 5) ==> 1
1 = CREATE A PATCH
2 = APPLY, ERASE, MODIFY, OR SCAN NON-APPLIED PATCHES
3 = RESTORE, SCAN APPLIED PATCHES
4 = COPY PATCHES FROM THE DISK(ETTE) USED FOR IML TO A DISKETTE
5 = COPY PATCHES FROM A DISKETTE TO THE DISK (ETTE) USED FOR IML

---->
F1?END  F3?ALARM  F6?QUIT
```

Figure 8-26. Patch Function Selection Screen

1. This screen lists only those patches that are on the source diskette, but not on the MOSS disk.
2. In **1**, enter **C** in front of every patch to copy, then press **SEND**.
3. You may also scan a patch (display its contents) before copying it. Refer to "Scan a Patch" on page 8-8.

```

V
IDENTIFIER      COPY FROM MOSS DISKETTE      SCREEN 1/x
1
PATCH2  * ==> patch description 2
PATCH3  --> C patch description 3
PATCH5  ==> patch description 5
PATCH6  * ==> patch description 6
PATCH7  ==> C patch description 7
PATCH8  ==> C patch description 8
PATCH11 ==> patch description 11
PATCH13 ==> patch description 13
(* = PATCH WITH INCORRECT CHECKSUM)
- ENTER C TO SELECT PATCHES TO BE COPIED, OR S FOR SCAN
- PRESS F6:QUIT TO MAKE EFFECTIVE THE COPY
==>

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

```

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

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)

```

W
IDENTIFIER      COPY FROM MOSS DISKETTE      SCREEN 1/x
PATCH2  * ==> patch description 2
PATCH3  SELECTED TO BE COPIED, OR S FOR SCAN
PATCH5  ==> patch description 5
PATCH6  * ==> patch description 6
PATCH7  SELECTED TO BE COPIED, OR S FOR SCAN
PATCH8  SELECTED TO BE COPIED, OR S FOR SCAN
PATCH11 ==> patch description 11
PATCH13 ==> patch description 13
(* = PATCH WITH INCORRECT CHECKSUM)
- SELECTION COMPLETED, PRESS SEND
==>

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

```

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

Patch Messages

ENTER PATCH IDENTIFICATION

Cause: During the creation of a patch, you are requested to enter the patch identification.

Action: Enter the patch identification.

INPUT CHECKSUM DOES NOT MATCH COMPUTED ONE

Cause: The checksum entered does not match the computed one.

Action: Verify and enter the correct checksum.

NO 'APPLIED' PATCHES IN FILE

Cause: There are no applied patches to be listed.

Action: None.

NO 'NON-APPLIED' PATCHES IN FILE

Cause: All non-applied patches, if any, have already been applied.

Action: None.

NOT APPLIED: FILE NOT FOUND

Cause: The filename entered during the creation of the patch cannot be found.

Action: Verify the filename and enter the correct one.

NOT APPLIED: MODULE NOT FOUND

Cause: The module name entered during the creation of the patch cannot be found.

Action: Verify the module name and enter the correct one.

PATCH ALREADY EXISTS

Cause: The patch identification already exists in the file.

Action: Change the patch identification.

PATCH AREA IS NOW FULL

Cause: No other patches can be entered in the file after this one.

Action: Verify the non-applied patches and delete the useless ones.

PATCH ERASED BECAUSE IT CONTAINS NO MORE RECORD

Cause: All records of the patch being modified have been deleted.

Action: None.

PATCH FILED

Cause: The created patch has been filed successfully.

Action: None.

REFUSED: MAXIMUM NUMBER OF PATCHES REACHED

Cause: The maximum number of patches is reached.

Action: Verify the non-applied patches and delete the useless ones.

REFUSED: NOT ENOUGH SPACE IN PATCH AREA

Cause: No other patches can be entered in the file.

Action: Verify the non-applied patches and delete the useless ones.

REFUSED: PATCHES ARE ALREADY ON DISK(ETTE)

Cause: The same patch identification is already on disk(ette).

Action: Verify and change the new patch identification.

SELECTED PATCHES, IF ANY, ARE COPIED ON DISK(ETTE)

Cause: The selected patches are copied on disk(ette).

Action: None.

Refer to "MCF Messages" on page 7-14 for the patch messages which are common to the MCF messages.

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	--	--	--	9-18	--	--	9-12
CCU Operating Mode	--	--	9-43	--	9-43	--	--
CDF	--	9-8	9-15	9-17	9-15	9-9	9-9
Channel Adapters	9-25	--	9-19	--	9-22	--	9-13
Extend	9-36	--	9-29	--	--	--	9-13
Frames	--	--	9-17	--	--	--	--
FRU Level	--	--	9-17	9-17	--	--	9-9
LIC	9-36	--	9-29	--	9-36	--	9-13
Line Adapters	9-33	--		--		--	
• HPTSS	9-33		9-31		9-38		9-13
• ESS	9-33		9-31		--		9-13
• TRSS	9-33		9-30		9-37		9-13
• TSS	9-33		9-30		9-34		9-13
MOSS	--	--	--	9-17	--	--	9-12
MUX	9-35	--	--	--	9-35	--	9-13
Ports	--	--		--		--	
• HPTSS			9-41		9-41		9-14
• ESS			9-41		--		--
• TRSS			9-41		--		9-14
• TSS			9-40		9-40		--
Switch	--	--	9-18	--	--	--	--
TIC	9-37	--	9-30	--	--	--	9-14
TPS	9-25	--	9-19	--	9-22	--	9-13

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 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 on both CCUs).

— Create

The create function is available only to the CE (3745 in maintenance mode). The MOSS must be in the MOSS **alone** state on both CCUs.

At the end of the hardware sensing, all the information previously entered manually is **lost** and set to the initial default value (as for the first create).

— Upgrade

The upgrade function is available to the CE and the customer. The MOSS must be in the MOSS **alone** state.

When the function has completed, the information previously entered manually is kept (manual fields are not updated). Use the display/update function to check and update the manual information as required. For example, if you added a channel adapter, manually enter the NSC address and the other required CA information.

— Verify

The verify function is available only to the CE (3745 in maintenance mode). The MOSS must be in the MOSS **alone** state on both CCUs.

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 involving the control program:

This corresponds to hardware changes performed while the control program is running. The control program has to be informed of the configuration changes.

This is the case for the display/update function for CAs and LAs. Any modification made on them must be known to the control program before becoming functional.

The list of hardware configuration changes of which the control program must be informed, is:

- Remove an LA (TSS, ESS, HPTSS, TRSS)
- Add an LA (TSS, ESS, HPTSS, TRSS)
- Remove a MUX
- Add a MUX
- Change a MUX/LA relationship
- Connect a MUX to a spare LA
- Replace a failing MUX by a spare one already installed
- Reconfigure a TSS (16 to 32 lines, or 32 to 16 lines)
- Remove a CA
- Add a CA
- Remove a TPS
- Add a TPS

These changes can be performed by using the options available in the display/update function. The MOSS state must be online for the involved CCU.

- Selective hardware sensing not involving the control program:

This corresponds to hardware changes performed while the control program is running, and the CCU program needs not be informed of the configuration changes. Only the LICs are concerned with that category (add, remove, or replace a LIC).

The LIC's hot plugging possibility is used while the NCP is running, with the adapter running, but with the LIC not running. Only the state of the LA, owner of that LIC, has to be considered:

- If the LA state is operative, the display command is issued to the LA to get the LIC data. The MOSS state can be either offline or online for the involved CCU (the request will be rejected if you are in MOSS offline with port swapping).
- If the LA state is inoperative, a hardware sensing of the LA is performed whether the program is loaded. The LA must be re-IMLed.

Display/Update: The display/update is partially available to the customer. Refer to the chapter "CDF" of the Advanced Operations Guide, SA33-0097, to obtain details about using the CDF in customer mode.

The LA selective upgrade can be executed only in MOSS online or MOSS offline state.

Notes:

1. The first eight lines of the MOSS screen (general information and MSA) are not shown on all the screens described in this chapter. They are not dedicated to CDF, and are explained in Chapter 1.
2. MSA is displayed when the MOSS state is significant. If a procedure can be executed with only one CCU in the specified MOSS state, the example is given with CCU-A.

Update Capability According to MOSS State

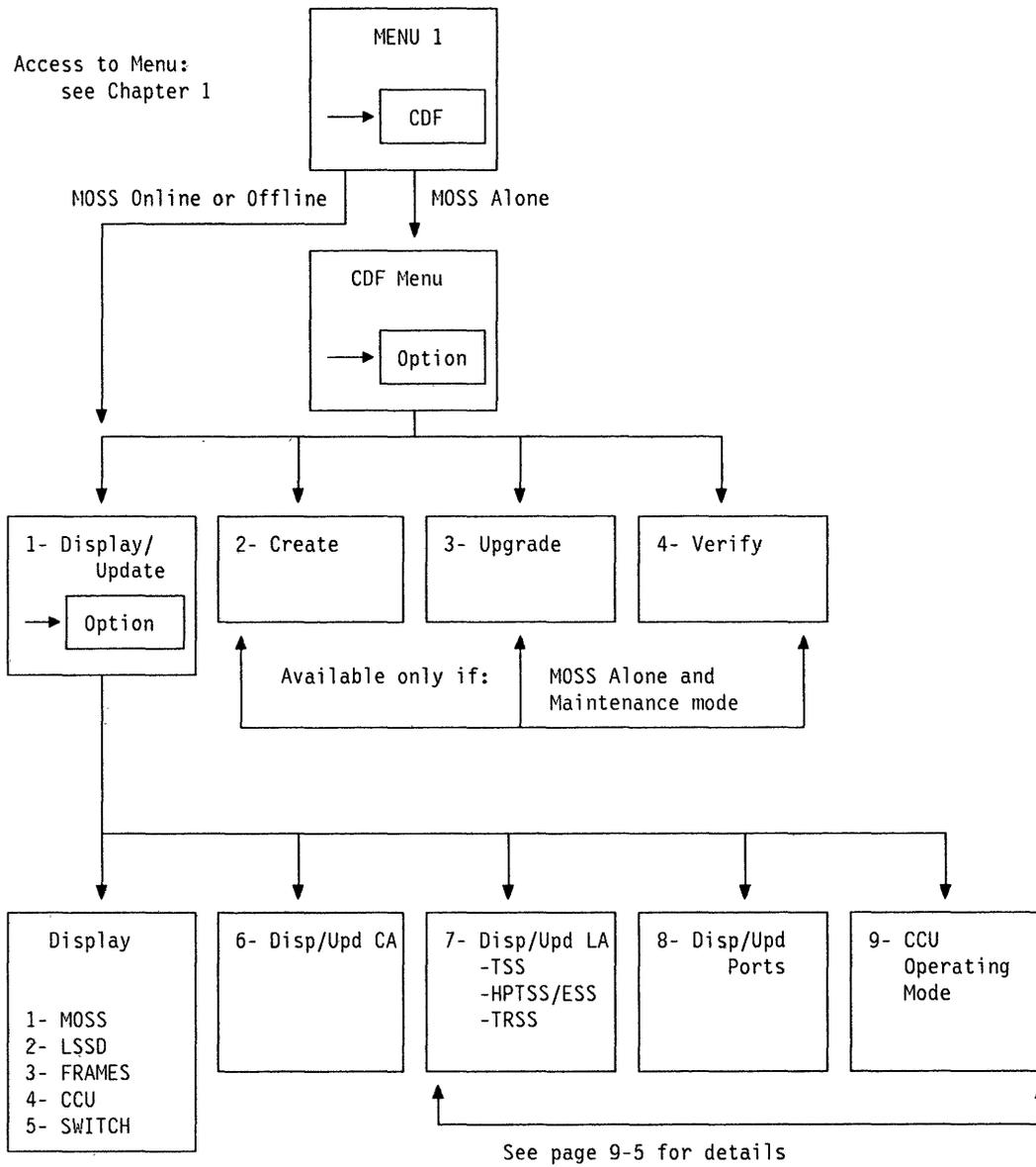
Some CDF functions may not be available, depending on:

- The MOSS state (online, offline, alone),
- The adapter status (operative or not operative),
- The mode (customer or maintenance).

The next table gives the MOSS state needed to use the CDF functions. The details are given in the corresponding procedures in this chapter.

Adapter Type	Action	MOSS			Comments
		Alone	Online	Offline	
CA	Update	Yes	Yes	Yes	
CA	Add/Delete	No	No	No	Power Off
LA	Add/Delete	Yes	No	No	
LA TSS	Del/repl/upd	No	Yes	Yes	Depends on adapter status
LA ESS	Del/repl/upd	No	Yes	No	Adapter inoperative
LA HPTSS	Del/repl/upd	No	Yes	No	
LA TRSS	Display/upd	(1)	Yes	(1)	
TSS Port	Update	Yes	Yes	Yes	
Other Ports: no update		(1)	(1)	(1)	Display only
Note: (1) Not modifiable with CDF update function. Display only.					

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.

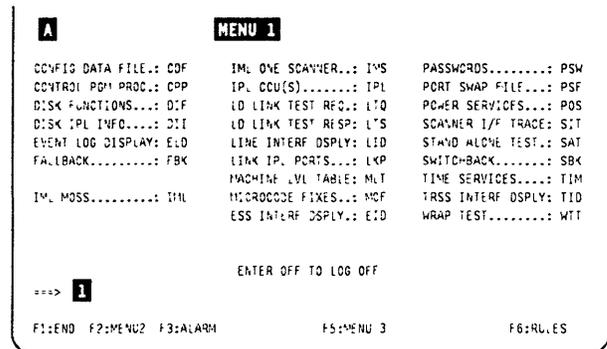


Figure 9-1. Menu 1 Screen

Maintenance Mode and MOSS Alone

In this screen, or in screen **C**, enter your selection in **1**, then press **SEND**.

Display/Update See page 9-15

Create See page 9-8

Upgrade See page 9-9

Verify See page 9-9

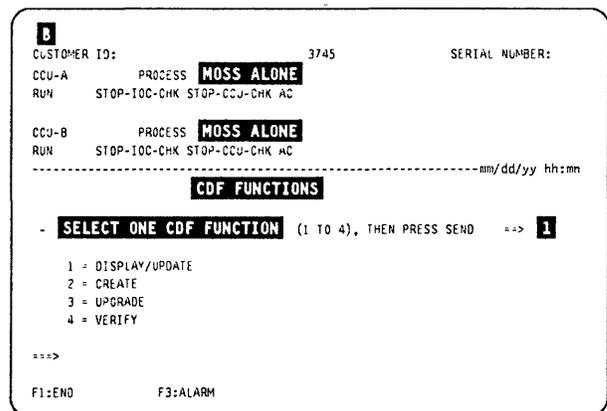


Figure 9-2. CDF Functions Selection Screen

Maintenance Mode and MOSS Not Alone

Display/Update is the only available function. The procedure is described in page 9-15.

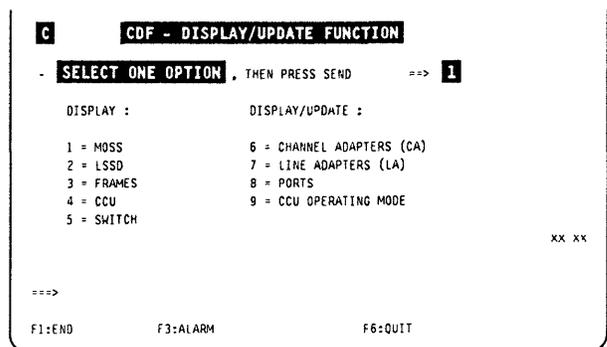


Figure 9-3. CDF Display/Update Screen

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 9-7), type **2**, and press **SEND**:
 - If it is not the first create, this screen is displayed.
 - a. Enter **Y**, or **N** in **1**. (**Y** displays screen **F**, **N** puts you back to the CDF functions selection screen **B**).
 - b. Press **SEND**.
 - Otherwise, you obtain screen **F**.

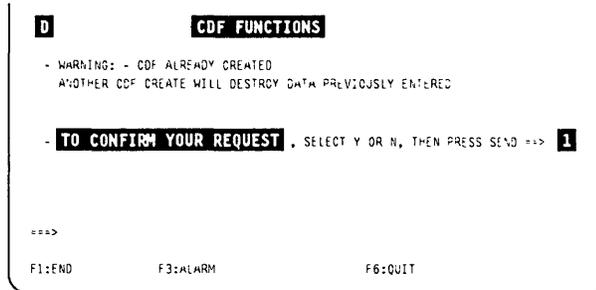


Figure 9-4. CDF Create Checking Screen

Some Power Supplies not up

If for any reason, some power supplies are not up, screen **E** is displayed. If you start the create function (answer **Y**), the hardware associated with the power supply(ies) that are not up will be considered as not installed.

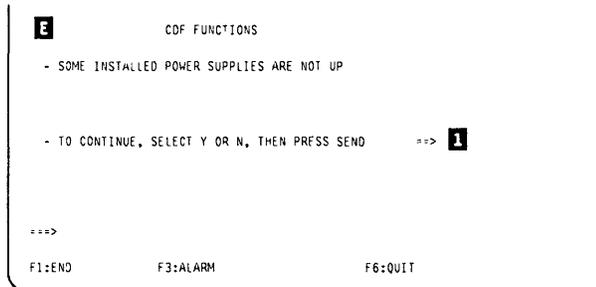


Figure 9-5. CDF Create Power Checking Screen

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

Refer to page 9-11 for more details.

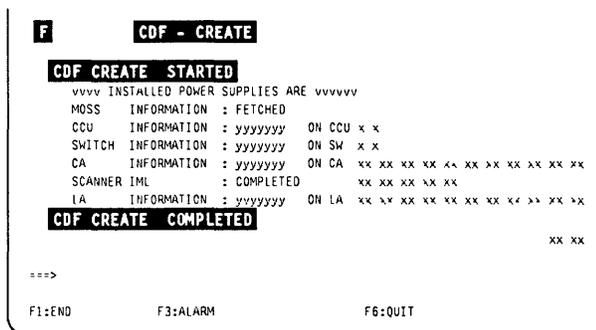


Figure 9-6. CDF Create Screen (Example)

If the CCU information is in error:

- On CCU-A: the CDF function is aborted.
- On CCU-B: the CDF function continues on CCU-A only.

If an error occurred, go to the corresponding display screen (see next pages) to obtain additional information.

Note: When the function is aborted, it is strongly recommended to re-IML the MOSS.

CDF Upgrade

One CCU Power Off on a 2-CCUs 3745

On a 2-CCUs 3745 with one CCU powered down (either manually or automatically), you must perform a POS create before any CDF upgrade (refer to “Recreating the PS ID Configuration Table” on page 12-16). If the POS create is not performed, the CDF upgrade will abort.

You must be in MOSS **alone**.

1. You must be in the CDF function (see page 9-7).
2. In **1** of this screen, type **3**, and press **SEND**.
3. Screen **G** is displayed.

You cannot perform a CDF upgrade if you have previously canceled an IPL in phase 1.

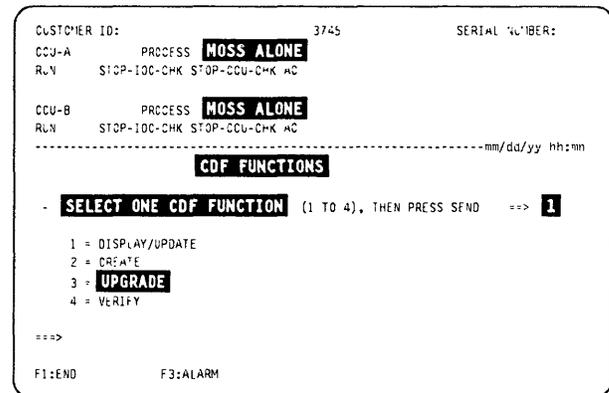


Figure 9-7. CDF Functions Selection Screen

No action is needed.

- On the screen, the process is similar to the CDF create.
- All the information entered manually is kept.

If the CCU information is in error on:

- CCU-A, the CDF function is aborted.
- CCU-B, the CDF function will continue on CCU-A only.

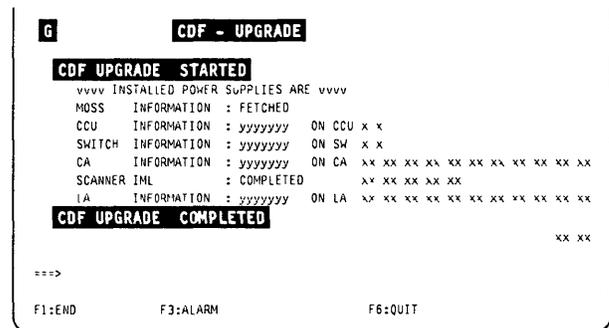


Figure 9-8. CDF Upgrade Screen

Refer to “CDF Create/Upgrade/Verify Field Explanations” on page 9-11 for more details.

CDF Verify

One CCU Power Off on a 2-CCUs 3745

On a 2-CCUs 3745 with one CCU powered down (either manually or automatically), you must perform a POS create before any CDF upgrade (refer to “Recreating the PS ID Configuration Table” on page 12-16). If the POS create is not performed, the CDF upgrade will abort.

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 of, or type of, 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 page 9-7).
2. In **1** of this screen, type **4**, and press **SEND**.
3. Screen **H** is displayed.

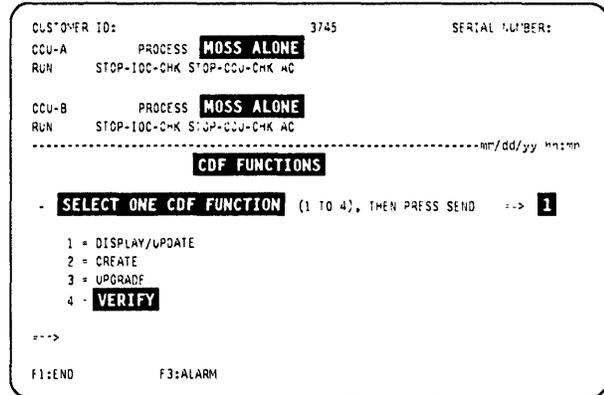


Figure 9-9. CDF Functions Selection Screen

- On the screen the process 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 **I** to **R** is displayed.

Refer to “CDF Create/Upgrade/Verify Field Explanations” on page 9-11 for more details.

Notes:

1. Some parameters (such as **bypass card**) are not checked during the verify function. To check them, run the display/update function.
2. If the CCU information is in error on:
 - CCU-A, the CDF function is aborted.
 - CCU-B, the CDF function will continue on CCU-A only.

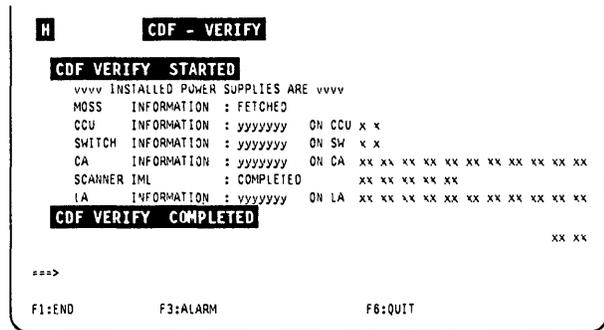


Figure 9-10. CDF Verify Screen

CDF Create/Upgrade/Verify Field Explanations

```

CDF - zzzzzzz
CDF zzzzzzz STARTED
vvvv INSTALLED POWER SUPPLIES ARE vvvv
MOSS INFORMATION : FETCHED
CCU INFORMATION : yyyyyy ON CCU x x
SWITCH INFORMATION : yyyyyy ON SW x x
CA INFORMATION : yyyyyy ON CA xx xx xx xx xx xx xx xx xx xx
SCANNER IML : COMPLETED xx xx xx xx xx
LA INFORMATION : yyyyyy ON LA xx xx xx xx xx xx xx xx xx xx
CDF VERIFY COMPLETED
xx xx

===>
F1:END F3:ALARH F6:QUIT
    
```

Figure 9-11. CDF Display/Upgrade/Verify Completion Screen

- vvvv** Can be ALL POWER SUPPLIES ARE UP or SOME POWER SUPPLIES ARE NOT UP
- yyyyyy** FETCHED or ERROR.
- zzzzzz** CREATE, UPGRADE, or VERIFY.
- CA or LA xx** xx represents the CA or LA number.
- CCU or SW x** x represents the CCU or SWITCH A or B.
- COMPLETED** The sensing step for scanner IML is terminated and no error has been found, or the function is terminated with or without error.
- FETCHED** The sensing step is terminated and no error has been found.
- ERROR** An error has been found during the sensing step. Check through the display/update function.
- xxxxx** Result of the operation:
 - COMPLETED** The operation has been performed. However you may receive the message COMPLETED WITH ERROR if a sensing error has been detected that does not prevent the completion of the operation.
 - ABORTED** An error has been found while sensing the CCU information. Check through the display/update function, then re-IML the MOSS.

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 **H**).

The procedure is the same for all the CDF difference screens.

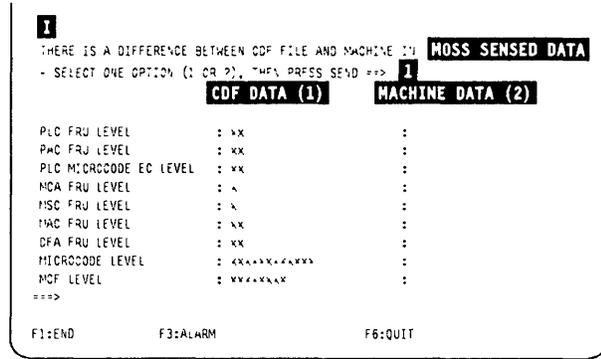


Figure 9-12. CDF Verify (MOSS Differences)

CCU Differences

If the CCU information is in error on:

- CCU-A, the CDF function is aborted.
- CCU-B, the CDF function will continue on CCU-A only.

Note: There is no STO FRU level displayed (no sensing available).

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

CCU TYPE This line is not displayed on machines before microcode EC A47035. CCU type can be: TCM, PUC, or Unknown (CCU sensing was not possible).

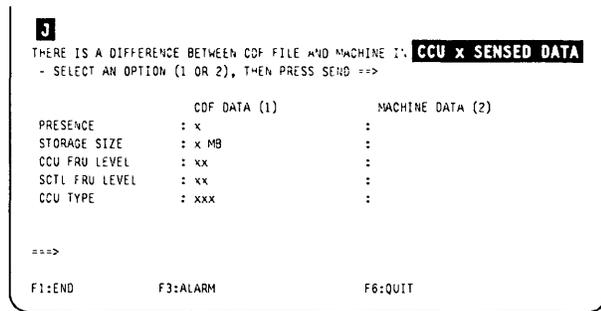


Figure 9-13. CDF Verify (CCU Differences)

Switch Differences

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

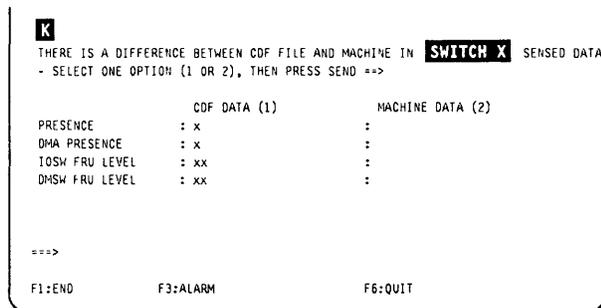


Figure 9-14. CDF Verify (Switch Differences)

CA Differences

PRESENCE Y (yes), or N (no)
TYPE CADS or BCCA
CADR-B Used with TPS.

```

L
THERE IS A DIFFERENCE BETWEEN CDF FILE AND MACHINE I: CA xx SENSED DATA
- SELECT AN OPTION (1 OR 2), THEN PRESS SEND ==>
      CDF DATA (1)           MACHINE DATA (2)
PRESENCE      : X              :
TYPE          : /X/X/         :
TPS PRESENCE  : X              :
CAL FRU LEVEL : XX/XX        :
CADR-A FRU LEVEL : X          :
CADR-B FRU LEVEL : X          :
MICROCODE LEVEL : XX         :

==>
F1:END      F3:A:ARM      F6:QUIT
    
```

Figure 9-15. CDF Verify (CA Differences)

LA Differences

PRESENCE Y (yes), or N (no)
TYPE TSS , ESS , HPTSS, or TRSS
FESL Used with TSS
FESH Used with HPTSS.
EAC Used with ESS

There are no TIC or TRM FRU levels displayed (no sensing available).

```

M
THERE IS A DIFFERENCE BETWEEN CDF FILE AND MACHINE I: LA xx SENSED DATA
- SELECT AN OPTION (1 OR 2), THEN PRESS SEND ==>
      CDF DATA (1)           MACHINE DATA(2)
PRESENCE      : X              :
TYPE          : <X/XX/      :
FES PRESENCE  : X              :
CSP FRU LEVEL : XX            :
FESL FRU LEVEL : XX           :
FESH FRU LEVEL : XX           :
EAC FRU LEVEL : XX            :

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

Figure 9-16. CDF Verify (LA Differences)

LA Differences (MUX)

LIC unit can be:

LIU1 LIC type 1, 3, 4
LIU2 LIC type 5, 6

```

N
THERE IS A DIFFERENCE BETWEEN CDF FILE AND MACHINE I: 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 UNIT      : XXXX          :

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

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

LA Differences (LIC)

The following line:

LIC 6 SPEED (KBPS)

is displayed only if there is a LIC 6 speed problem. The speed displayed corresponds to switch setting on the LIC 6 (refer to 'Transmission Subsystem (TSS)' chapter in the *Maintenance Information Reference*).

```

O
THERE IS A DIFFERENCE BETWEEN CDF FILE AND MACHINE I: LA xx SENSED DATA
ABOUT THE LIC xxx OF THIS LA
- SELECT AN OPTION (1 OR 2), THEN PRESS SEND ==>
      CDF DATA (1)           MACHINE DATA (2)
LIC PRESENCE  : X              :
LIC TYPE      : X              :
LIC FRU LEVEL : XX            :
LIC 6 SPEED (KBPS):          :

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

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

LA Differences (TIC)

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

TIC TYPE Indicates if it is a TIC type 1, or 2.

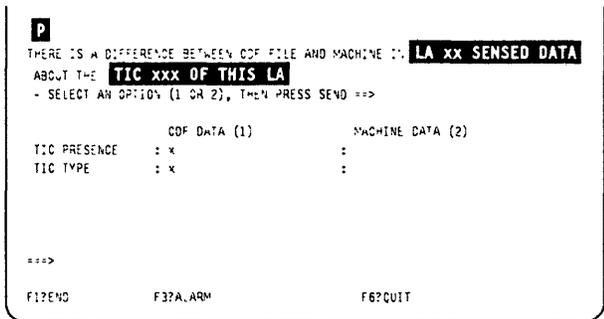


Figure 9-19. CDF Verify (LA Differences - TIC)

LA Differences (HPTSS Port)

PORT CABLE ID

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

INTERFACE TYPE V35 or X21.

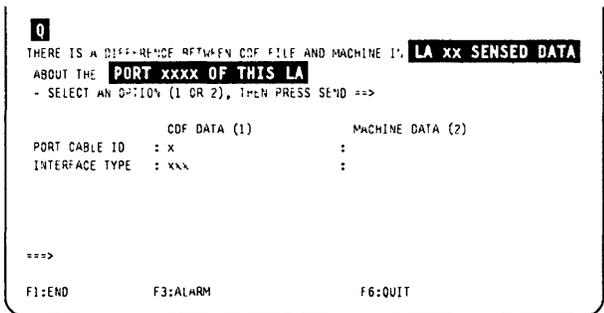


Figure 9-20. CDF Verify (LA Differences - HPTSS)

LA Differences (TRSS Port)

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

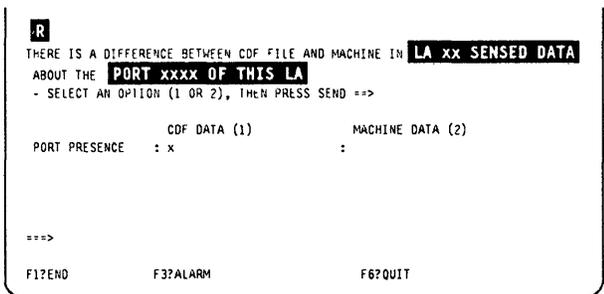


Figure 9-21. CDF Verify (LA Differences - TRSS)

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 menu 1, type **CDF** in **1**.
2. Press **SEND**.
3. If you are in:
 - Maintenance mode, and MOSS alone on both CCUs, screen **T** is displayed.
 - Any mode, and MOSS not alone on either (or both) CCU, screen **U** is displayed.

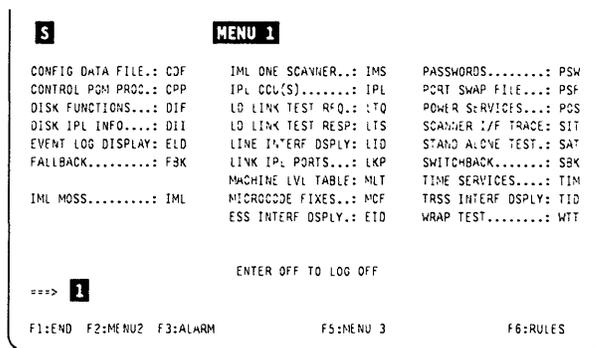


Figure 9-22. Menu 1 Screen

Maintenance Mode and MOSS Alone

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

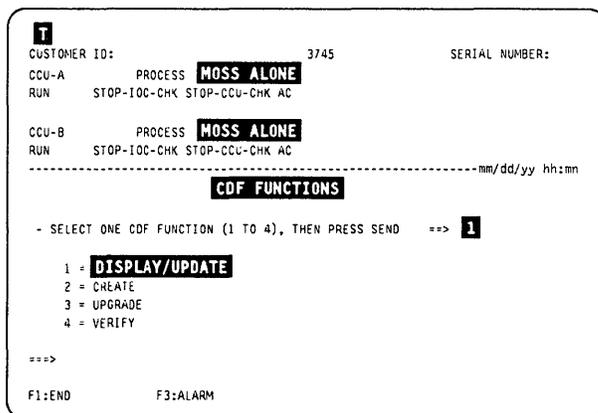


Figure 9-23. CDF Functions Selection Screen

MOSS Not Alone

1. In **1**, enter the selected option.
2. Press **SEND**.

The corresponding procedures are described in the following pages:

All display options	See from page 9-17 to page 9-18.
Display/update CA	See page 9-19.
Display/update LA	See page 9-29.
Display/update ports	See page 9-40.
CCU operating mode	See page 9-43.

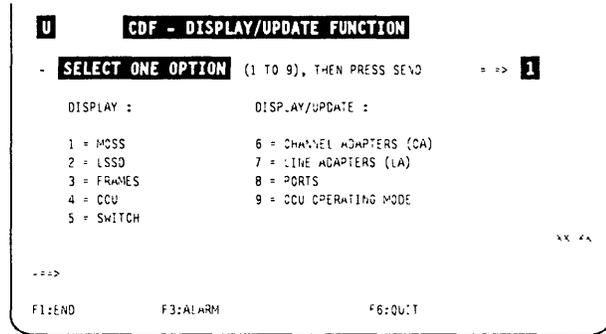


Figure 9-24. CDF Display/Update Menu Screen

Display MOSS

1. You must be in the CDF Display/update function (see page 9-15).
2. In the display/update function screen (**U**), page 9-16, select option 1.
3. Screen **V** is displayed.

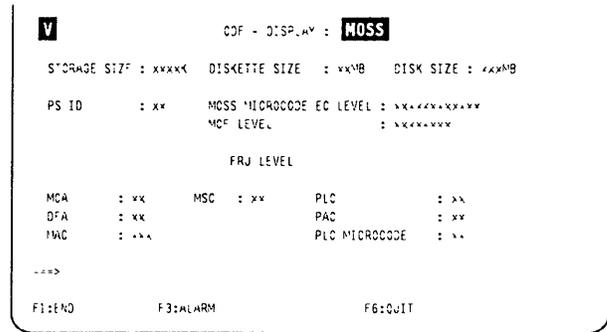


Figure 9-25. CDF Display MOSS

Display LSSD

1. You must be in the CDF Display/update function (see page 9-15).
2. In the display/update function screen (**U**) page 9-16, select option 2.
3. Screen **W** is displayed. A second screen is available to display the addresses from 0100 to 01FF.

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

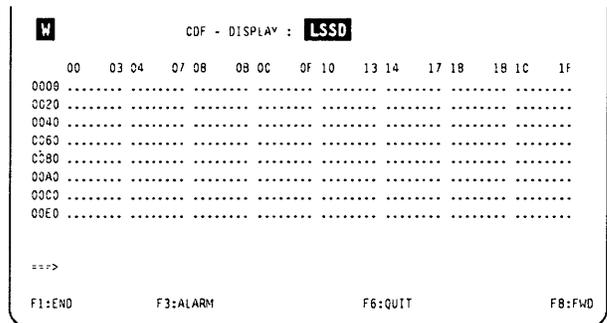


Figure 9-26. CDF Display LSSD

Display Frames

1. You must be in the CDF Display/update function (see page 9-15).
2. In the display/update function screen (**U**) page 9-16, select option 3.
3. Screen **X** is displayed.
4. Press **F8** to display the other screens (LA boards 2 to 4, CA boards 1 and 2).

LA Frames Field Explanation

This description is valid for all the LA frame screens (LA boards 1 to 4).

TYPE	TSS , ESS , HPTSS, or TRSS
ADDRESS	Physical address of the LA on the IOC bus
PRESENCE	Y (yes) or N (no)
GROUP	Address of a pair of LAs (1 to 8). Refer to the MIR (chapter "Buses and Bus Switching") for details.
LIC INSTALLED	'Y' (installed) or '-' (not installed). This information is valid only for TSS. It is displayed eight times for LICs type 1 to 4, and sixteen times for LICs type 5 or 6.

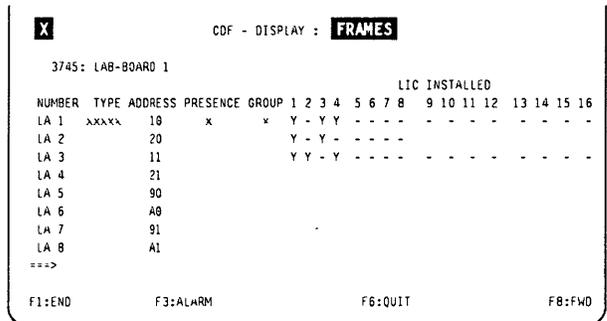


Figure 9-27. CDF Display Frames (LA Board 1)

CA Frames Field Explanation

This description is valid for CA boards 1 and 2.

TYPE	CADS or BCCA
ADDRESS	Physical address of the CA on the IOC bus
PRESENCE	Y (yes) or N (no)
GROUP	Address of a pair of CAs (1 to 4). Refer to the MIR (chapter "Buses and Bus Switching") for details.

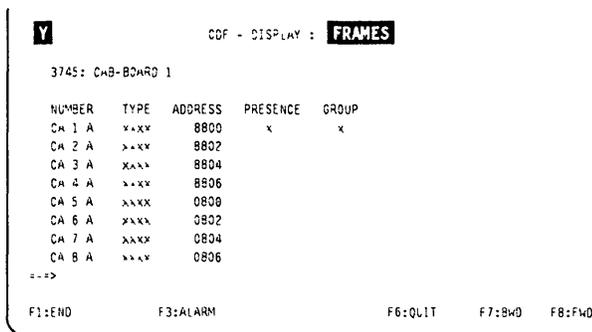


Figure 9-28. CDF Display Frames (CA Board 1)

Display CCU

1. You must be in the CDF Display/update function (see page 9-15).
2. In the display/update function screen (**U**), page 9-16, select option 4.
3. Screen **Z** is displayed.

If CCU-B is not installed the corresponding information is not displayed.

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

CCU TYPE This line is not displayed on machines before the implementation of micro-code EC A47035. CCU type can be: TCM, PUC, or Unknown (CCU sensing was not possible).

PS ID Associated power supply ID number

CCU or SCTL FRU LEVEL Refer to page 9-9 in case of FRU level problem.

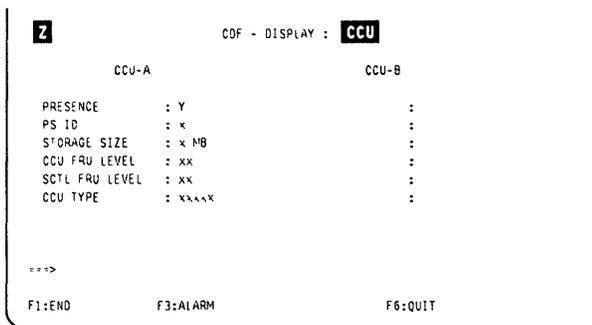


Figure 9-29. CDF Display CCU

Display Switch

1. You must be in the CDF Display/update function (see page 9-15).
2. In the display/update function screen (**U**) page 9-16, select option 5.
3. Screen **AA** is displayed.

If CCU B is not installed, the corresponding information is not displayed.

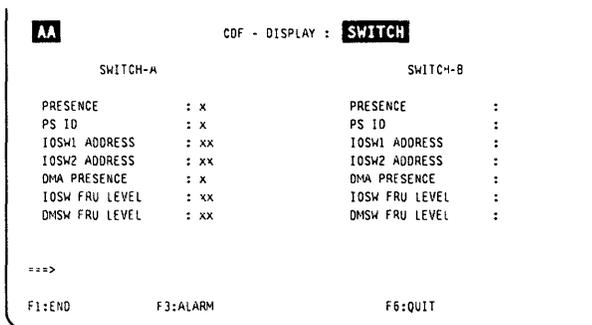


Figure 9-30. CDF Display Switch

Display/Update Channel Adapters

1. You must be in the CDF display/update function (see page 9-15).
2. In **1**, enter **6**.
3. Press **SEND**. Screen **AC** is displayed.

You may display:

All CAs Screens **AC** and **AD**
 One CA Screens **AE** to **AI**.

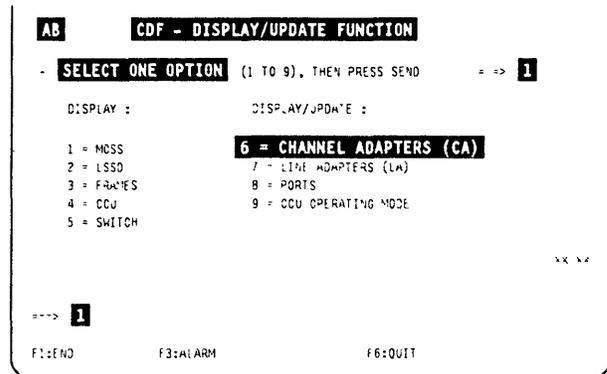


Figure 9-31. CDF Display/Update Menu Screen

Display All Channel Adapters

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

You cannot update a CA in this screen.

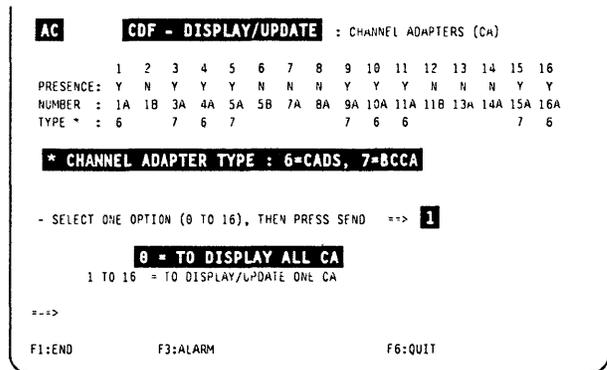


Figure 9-32. CDF Display/Update Channel Adapters Screen

Press **F8** to display CAs 9 to 16.

TYPE CADS or BCCA
ADDRESS Physical address of the CA on the IOC bus
PS ID Associated power supply ID number
PRESENCE Y (yes) or N (no)
TPS Y (yes) or N (no)
FRAME BF (3745 or base frame) or A11 (3746-A11)
NSC NSC address
ESCL ESC low address (CADS only)
ESCH ESC high address (CADS only)

Note: Fields ESCL and ESCH are blank if the CA is a BCCA, or if the CA is not present.

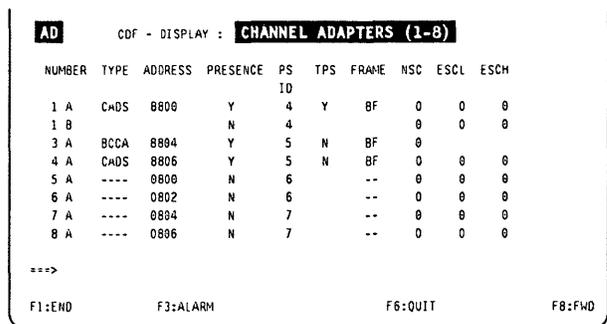


Figure 9-33. Display Channel Adapters

Display One Channel Adapter

1. You have selected option 6 in screen **AB**.
2. In **1**, enter a CA number then press **SEND**.
3. The result depends on the status of the CA.
 - If the CA is installed, screen **AF** is displayed.
 - If the CA is not installed, screen **AH** or **AI** is displayed.

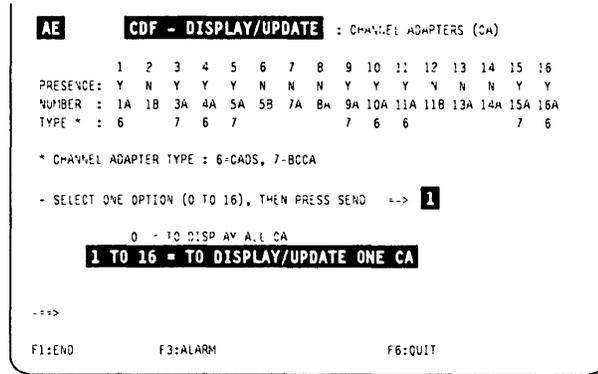


Figure 9-34. CDF Display/Update Channel Adapters Screen

Press **F8**, to display the CA parameters (screen **AG**). Refer to “CA Display Field Explanations” on page 9-26 for details.

If you want to **update** the CA, go to page 9-22.

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

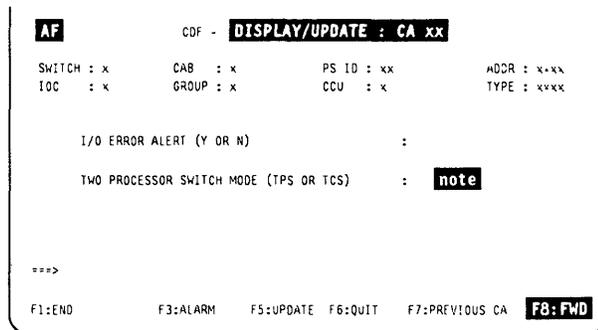


Figure 9-35. CA Display Screen

- 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 Parameter Explanations” on page 9-27.

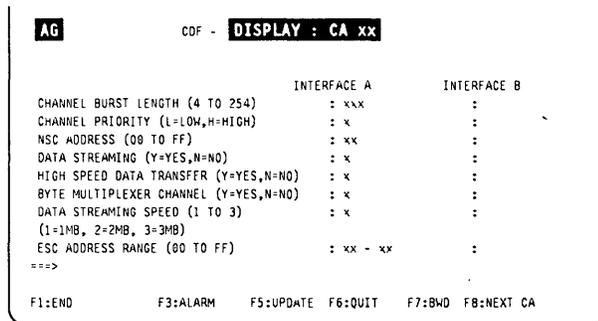


Figure 9-36. CA Display Screen (Second Part)

CA Not Installed

If you are in MOSS **online**, the following message is displayed:

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 9-25.)



Figure 9-37. 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 CA present 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).

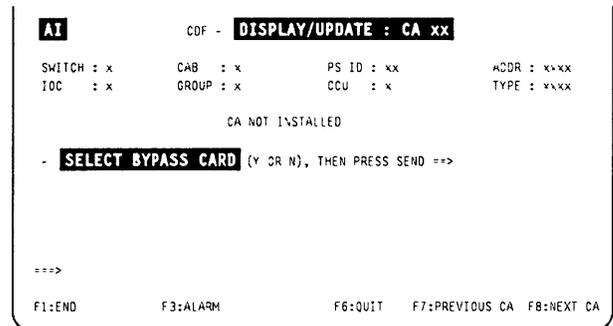


Figure 9-38. Display an Even CA not Installed

Update Channel Adapter

Before Updating a Channel

1. Always check the MOSS state in the MSA (refer to page 1-10), because the procedure is different, depending on the MOSS state.
2. Updating a CA is part of the concurrent maintenance (CACM) of the CAS function (refer to "Concurrent Maintenance Function (CACM)" on page 10-9 for additional information).

Procedure with MOSS Alone

1. You must be in the CDF Display/update function (see page 9-15).
2. Display the CA (see "Display/Update Channel Adapters" on page 9-19), then press **F5**.
3. This screen (**AJ**) is displayed.
4. Enter the required parameters in **1**, and in **2** if applicable (TPS feature installed); see "CA Display Field Explanations" on page 9-26.
5. If applicable, press **F8** to update the other parameters. Screen **AK** is displayed.
6. Press **SEND**.
7. Screen **AK** is displayed.

If both interfaces are connected to two different hosts, I/O error alert can be set to YES only if these two hosts support the I/O error alert feature.

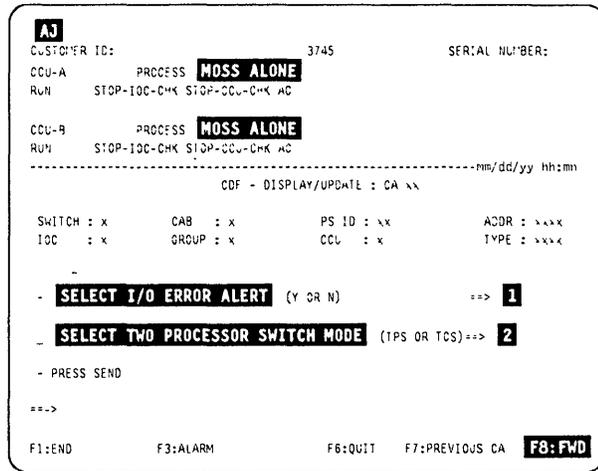


Figure 9-39. Update a CA (First Part)

- 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 Parameter Explanations" on page 9-27 for details.)
 2. Press **SEND**.
 3. The following message is displayed:

UPDATE OF THE CDF FILE SUCCESSFUL

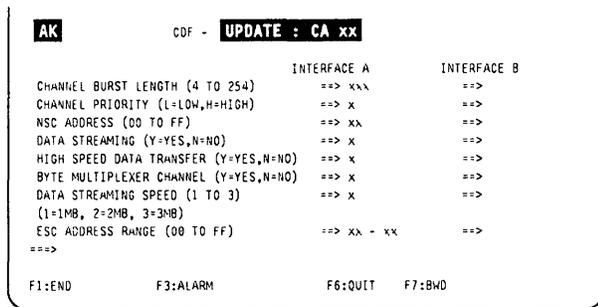


Figure 9-40. Update a CA (Second Part)

Changes Not Yet Effective

Changes made on any CA parameters are effective only after:

- CCU power OFF/power ON followed by IPL, or
- Shutdown/restore commands (see "CAS" chapter).

Procedure with MOSS Online

1. You must be in the CDF Display/update function (see page 9-15).
2. Display the CA (see "Display/Update Channel Adapters" on page 9-19), then press **F5**.
3. This screen (**AL**) is displayed.
4. Enter 2 in **1**.
5. Press **SEND**.
 - If the TPS is installed, screen **AM** is displayed.
 - If the TPS is not installed, screen **AN** is displayed.

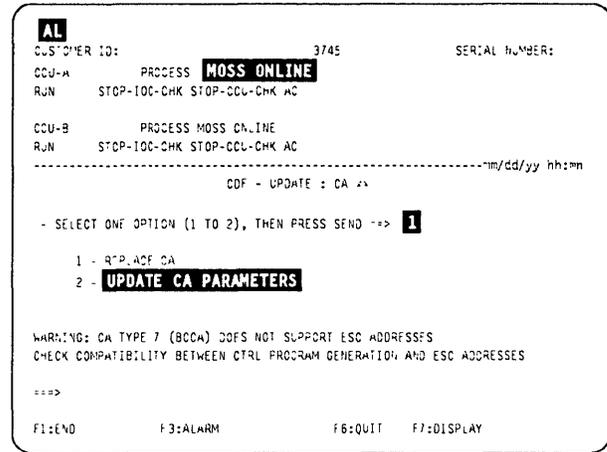


Figure 9-41. Update a CA (Menu Screen)

1. Enter the selected mode in **1**.
2. Press **SEND**.
3. Press **F8** to update the other CA parameters (screen **AN**).

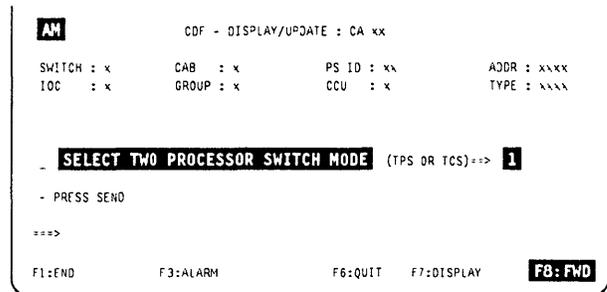


Figure 9-42. Update a CA (First Part)

- INTERFACE B information is displayed only if TPS is installed.
 - The ESC address range parameter is not present for type 7 CAs (BCCA).
1. Update the desired fields, under INTERFACE A, and INTERFACE B. (Refer to "CA Parameter Explanations" on page 9-27 for details.)
 2. Press **SEND**.
 3. The following message is displayed:
UPDATE OF THE CDF FILE SUCCESSFUL

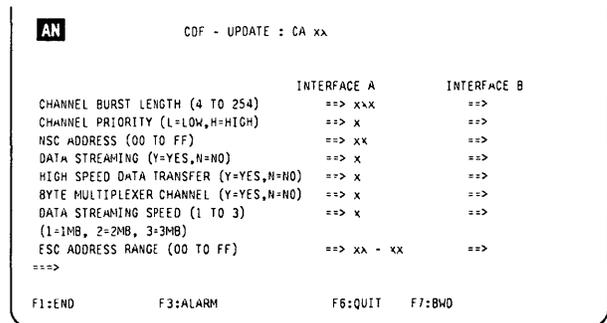


Figure 9-43. Update a CA (Second Part)

Changes Not Yet Effective

Changes made on any CA parameters are effective only after:

- CCU power OFF/power ON followed by IPL, or
- Shutdown/restore commands (see "CAS" chapter).

Replace a Channel Adapter

Before Replacing a CA

Replacing a CA is part of the concurrent maintenance (CACM) of the CAS function (refer to “Concurrent Maintenance Function (CACM)” on page 10-9 for additional information).

1. You must be in the CDF Display/update function (see page 9-15) in **MOSS Online** state.
2. Display the CA (see “Display/Update Channel Adapters” on page 9-19), then press **F5**.
3. This screen is displayed.
4. Enter **1** in **1**.
5. Press **SEND**. Screen **AP** is displayed.

```

AO
CUSTOMER ID: 3745 SERIAL NUMBER:
CCU-A PROCESS MOSS ONLINE
RUN STOP-IOC-CHK STOP-CCU-CHK AC
CCU-B PROCESS MOSS ONLINE
RUN STOP-IOC-CHK STOP-CCU-CHK AC
-----mm/dd/yy hh:mm
CDF - UPDATE : CA xx
- SELECT ONE OPTION (1 TO 2), THEN PRESS SEND => 1
1 - REPLACE CA
2 - UPDATE CA PARAMETERS
WARNING: CA TYPE 7 (BCCA) DOES NOT SUPPORT ESC ADDRESSES
CHECK COMPATIBILITY BETWEEN CTRL PROGRAM GENERATION AND ESC ADDRESSES
====
F1:END F3:ALARM F6:QUIT F7:DISPLAY
    
```

Figure 9-44. Update a CA (Menu Screen)

This screen reflects the progress of the operation. The following message is displayed:

CDF CA CHANGE xxxxxxxx

where xxxxxxxxx can be COMPLETED or ABORTED.

Changes Not Yet Effective

Changes made on any CA parameters are effective only after:

- CCU power OFF/power ON followed by IPL, or
- Shutdown/restore commands (see “CAS” chapter).

```

AP
CDF - CA CHANGE : CA xx
CDF CA CHANGE STARTED
ADAPTER INFORMATION : FETCHED or ERROR
OPERATOR CHOICE : ACCEPTED or REJECTED
CDS ENTRY SENT TO NCP : COMPLETED or ERROR
CDF CA CHANGE xxxxxxxx
====
F1:END F3:ALARM F6:QUIT F7:DISPLAY
    
```

Figure 9-45. CA Status Change Screen

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 9-9). This message is displayed:

CDF UPGRADE COMPLETED

5. Go to "Update Channel Adapter" on page 9-22, and enter the parameters of the new CA.

```

AQ
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
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
                          XX XX XX XX XX XX XX XX XX

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

```

Figure 9-46. CDF Upgrade Screen

CA Display Field Explanations

```

AF
      CDF - DISPLAY/UPDATE : CA xx
SWITCH : x      CAB   : x      PS ID : xx      ADDR : xxxx
IOC     : x      GROUP : x      CCU  : x      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 9-47. CA Display Screen

SWITCH A (CCU-A) or B (CCU-B)

IOC IOC number (1 or 2)

CAB CA board number (1 or 2)

GROUP Address of a pair of CAs (1 to 4). For details, refer to the MIR (Chapter "Buses").

PS ID Associated power supply ID number

CCU A (CCU-A) or B (CCU-B)

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 9-27.

CA Parameter Explanations

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.

```

AG
CDF - UPDATE : CA xx

CHANNEL BURST LENGTH (4 TO 254)      ==> xxx      ==>
CHANNEL PRIORITY (L=LOW,H=HIGH)      ==> x        ==>
NSC ADDRESS (00 TO FF)               ==> xx       ==>
DATA STREAMING (Y=YES,N=NO)          ==> x        ==>
HIGH SPEED DATA TRANSFER (Y=YES,N=NO) ==> x        ==>
BYTE MULTIPLEXER CHANNEL (Y=YES,N=NO) ==> x        ==>
DATA STREAMING SPEED (1 TO 3)        ==> x        ==>
(1=1HB, 2=2HB, 3=3HB)
ESC ADDRESS RANGE (00 TO FF)         ==> xx - xx  ==>
==>>

F1:END          F3:ALARH          F6:QUIT        F7:BWD

```

Figure 9-48. CA Parameters (CA installed with TPS)

CHANNEL BURST LENGTH

Length of the burst which can be transferred between the CA and the host. Enter an even number, from 4 to 254.

- For a block multiplexer or selector channel, the recommended value is 64 with CADS and 254 with BCCA to allow a better CA throughput.
- For a byte multiplexer channel, check for the host byte transfer rate, and select the burst length accordingly.

For a better throughput the recommended values are:

1. With **all** buffered devices on the byte channel: 64 with CADS, or 254 with BCCA.
2. 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 Transfer	Byte Multiplex Channel
43xx	No	Blank	See next table	Y or N according to channel type
308x	No			
3044 as channel extender	No			
Other	Yes	1, 2, 3 MB (or higher) according to host channel speed	No	No

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

Display/Update Line Adapters

Before Modifying an LA Configuration

When you modify an LA configuration, you must:

1. Ensure the control program has a sysgen supporting the hardware configuration changes.
2. Deactivate the lines of the LA (via a network operator command).
3. For LA, MUX, EXTEND changes, disconnect the LA via TSS services.
4. Turn OFF (via POS services) the power supplies of the hardware elements to be modified.
5. Change the hardware configuration.
6. Turn ON (via POS services) the power supplies of the modified hardware elements.
7. Perform the CDF display/update function.
8. IML the LA (via TSS services).
9. Connect the LA (via TSS services).
10. Activate the lines of the LA (via a network operator command).

1. You must be in the CDF display/update function (see page 9-15).
2. In **1**, enter 7.
3. Press **SEND**. Screen **AS** is displayed.

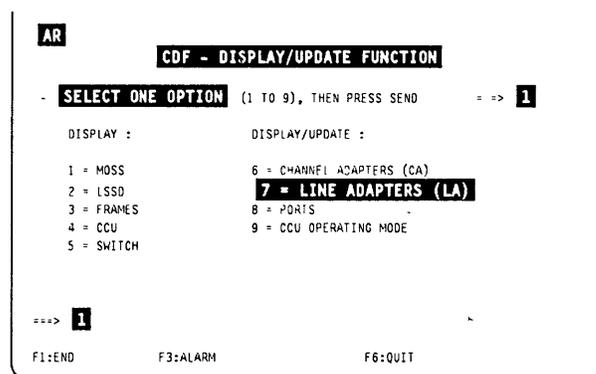


Figure 9-49. CDF Display/Update Menu Screen

Display LA

1. Enter the LA number in **1**.
2. Press **SEND**. Depending on the status, or type of LA, one of the screens **AT** to **AX** is displayed.

The LA can be:

- TRSS** LA number 1, 2, 5, or 6
- HPTSS** LA number 1 to 8
- ESS** LA number 1 to 8. This is displayed only if an ESS adapter is sensed by the MOSS.
- RSRVD** Reserved value
- TSS** LA number 1 to 32

You may obtain the LA number by displaying the port number (see "Display/Update Ports" on page 9-40).

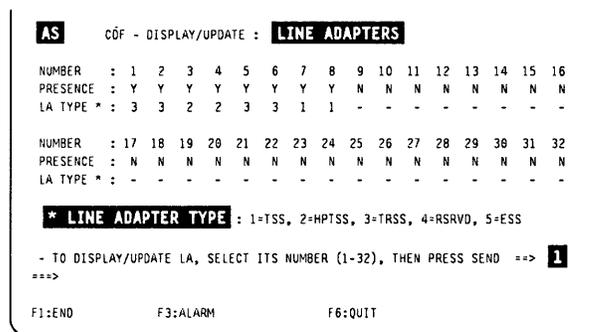


Figure 9-50. CDF Display/Update (Line Adapters)

The 32 LAs are arranged as follows:

LA Number	LA Board	Frame
1 to 8	1	3745
9 to 16	2	3746-A11
17 to 24	3	3746-A11
25 to 32	4	3746-A12

Display LA

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.

Refer to page 9-31 for fields description.

```
AT          CDF - DISPLAY : LA xx
SWITCH : x  LAB   : x  PS ID : xx  ADDR : xx
IOC      : x  GROUP : x  CCU   : x  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 9-51. Display an LA Not Installed

LA TSS

If EXTEND is present:

- Screen **AU** displays: F8: EXTEND.
- Press **F8** to display the EXTEND (same screen, see table in page 9-36 for LIC positions).

For description of this screen refer to “LA TSS Display Field Explanations” on page 9-32.

- PORT1 to PORT4 displayed for LIC types 1-4
- PORT1 and PORT2 displayed for LIC types 5-6.

```
AU          CDF - DISPLAY : LA xx
SWITCH : x  LAB   : x  PS ID : xx  ADDR : xxxxx  MUX  : xx
IOC      : x  GROUP : x  CCU   : x  TYPE : TSS  EXTEND : xxx
          CLOCK (C) AND CABLE INFO (I)
          LIC POSITION  PRESENCE  NUMBER  TYPE  PORT1  PORT2  PORT3  PORT4
          1            x         xxx    x    x  x  x  x  x  x  x
          2
          3
          4
          ==>
F1:END          F3:ALARM  F5:UPDATE  F6:QUIT  F7:PREVIOUS LA  F8:NEXT LA
```

Figure 9-52. Display an LA TSS

If the MUX is not installed, the following message is displayed: MUX IS NOT PRESENT and the information about the LIC and MUX is not displayed.

LA TRSS

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

```
AV          CDF - DISPLAY : LA xx
SWITCH : x  LAB   : x  PS ID : xx  ADDR : xxxxx
IOC      : x  GROUP : x  CCU   : x  TYPE : TRSS
          TIC POSITION  PRESENCE  PORT NUMBER  TYPE
          1            x         xxxxx  y
          2            x         xxxxx  y
          ==>
F1:END          F3:ALARM          F6:QUIT  F7:PREVIOUS LA  F8:NEXT LA
```

Figure 9-53. Display an LA TRSS Installed

LA HPTSS

- ERROR SEQUENCE** Pattern sent if there is an error (default value: 7FFF).
- DSR** Adjustable confirmation delay when the data set ready (DSR) level changes (default value: 16).
- PORTx** Port number.

```

AX          CDF - DISPLAY : LA xx
SWITCH : x  LAB  : x   PS ID : xx  ADDR : xx  PORT1 : xx
IOC     : x  GROUP : x  CCU  : x   TYPE : HPTSS PORT2 : xx
ERROR SEQUENCE : xxx
DSR INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS) : xxx
====>
F1:END      F3:ALARM  F5:UPDATE F6:QUIT  F7:PREVIOUS LA  F8:NEXT LA
    
```

Figure 9-54. Display an LA HPTSS Installed

LA ESS

- PORTx** Port number.

```

AX          CDF - DISPLAY : LA xx
SWITCH : x  LAB  : x   PS ID : xx  ADDR : xx  PORT1 :
IOC     : x  GROUP : x  CCU  : x   TYPE : ESS  PORT2 :
====>
F1:END      F3:ALARM  F5:UPDATE F6:QUIT  F7:PREVIOUS LA  F8:NEXT LA
    
```

Figure 9-55. Display an LA ESS Installed

LA Display Field Explanations

```

          CDF - DISPLAY : LA xx
SWITCH : x  LAB  : x   PS ID : xx  ADDR : xx
IOC     : x  GROUP : x  CCU  : x   TYPE : xxxxx
          |
          | This part differs according to LA type
          |
====>
F1:END      F3:ALARM  F5:UPDATE F6:QUIT  F7:PREVIOUS LA  F8:NEXT LA
    
```

Figure 9-56. Display an LA (Fields Common to All LA Types)

The explanation is valid for all the display LA screens.

- SWITCH** A (CCU-A) or B (CCU-B)
- IOC** IOC number (1 or 2)
- LAB** LA board number (1, 2, 3, or 4)
- GROUP** Address of a pair of LAs (1 to 8). Refer to the MIR ("Buses and Bus Switching") for details.
- PS ID** Associated power supply ID number
- CCU** A (CCU-A) or B (CCU-B)
- ADDR** LA address on the IOC bus
- TYPE** TSS , ESS , HPTSS, or TRSS

LA TSS Display Field Explanations

```

AU
                                CDF - DISPLAY : LA xx

SWITCH : x   LAB  : x   PS ID : xx   ADDR : xxxx   HUX  : xx
IOC      : x   GROUP : x   CCU  : x   TYPE : TSS   EXTEND : xxx

                                CLOCK (C) AND CABLE INFO (I)
LIC      PRESENCE NUMBER TYPE   PORT1  PORT2  PORT3  PORT4
POSITION                                     C  I   C  I   C  I   C  I
  1                x     xxx    x     x  x  x   x  x   x  x
  2
  3
  4
====>

F1:END          F3:ALARM    F5:UPDATE    F6:QUIT    F7:PREVIOUS LA    F8:NEXT LA
    
```

Figure 9-57. 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 LIC 6.

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 *Maintenance Information Reference*.

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 an LA

1. The MOSS must be online, and the adapter inoperative.
2. Display the number of the LA you want to add (refer to page 9-29) and press **F5**. Screen **AY** is displayed.
3. In **1**, enter the type of the LA you want to add then press **SEND**. Screen **AZ** is displayed.

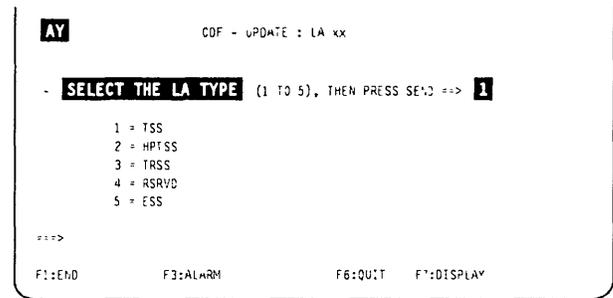


Figure 9-58. Add an LA Screen

This screen reflects the progress of the operation.

aaaaaaa FETCHED or ERROR
bbbbbbbb ACCEPTED or REJECTED
cccccccc COMPLETED or ERROR
vvvvvvvv COMPLETED or ABORTED

Refer to page 9-29 for actions to take to make the change effective.

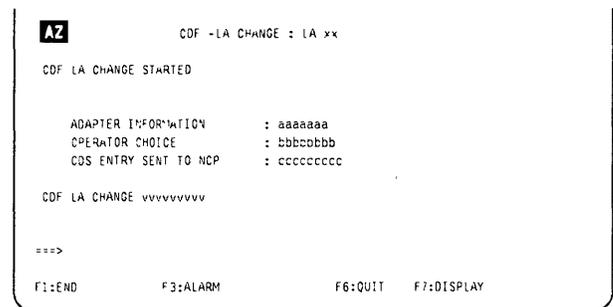


Figure 9-59. LA Status Change Screen

Delete/Replace/Update an LA TSS

1. Display the number of the LA you want to work with (refer to page 9-29) and press F5. Screen **BA** is displayed.
2. In **1**, enter the option number then press SEND.
3. The procedure depends on the selected option.

Screen **BA** may be different, depending on the LA configuration, or on the MOSS or adapter statuses:

- LA without MUX:
 - Only options 1 to 3 are displayed.
 - Option 3 is: add MUX.
- LA with MUX:
 - Options 1 to 8 are displayed when the adapter is inoperative, and the MOSS online
 - Option 3 is: replace MUX
 - Option 5 can be 'delete extend', or 'add extend', depending on whether extend is present.
 - Only the LIC options are displayed if the MOSS is offline, or the adapter operative. In that case, they are numbered from 1 to 3.

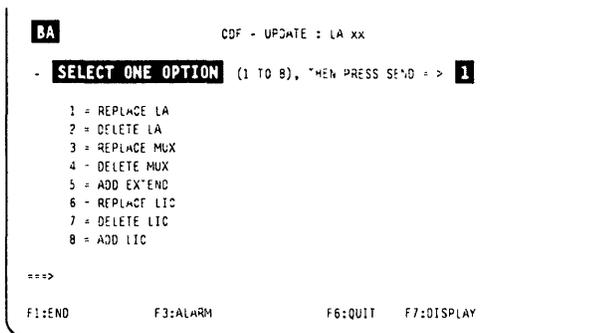


Figure 9-60. Update an LA TSS Menu Screen

Replace/Delete an LA TSS

1. Refer to page 9-29 before starting to delete or replace an LA TSS.
2. The MOSS must be online.
3. The adapter must not be connected.
 - For information about the adapter status and the way to modify it, refer to Chapter 4.
 - The adapter status is displayed in the MSA (see "MSA Field Definition (Scanner Information)" on page 1-15).
4. In screen **BA** select option **1** (Replace) or **2** (Delete). Screen **BB** reflects the progress of the operation.

aaaaaaa FETCHED or ERROR
bbbbbbbb ACCEPTED or REJECTED
cccccccc COMPLETED or ERROR
vvvvvvvv COMPLETED or ABORTED

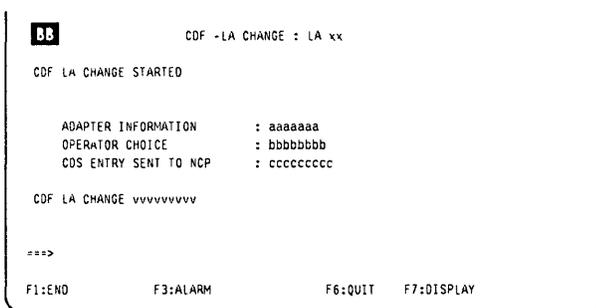


Figure 9-61. LA Status Change Screen

Add/Replace a MUX

1. Refer to page 9-29 before starting to add or replace a MUX.
2. The MOSS must be online.
3. The adapter must not be connected.
 - For information about the adapter status and the way to modify it, refer to Chapter 4.
 - The adapter status is displayed in the MSA (see "MSA Field Definition (Scanner Information)" on page 1-15).
4. In screen BA select option 3. Screen BC is displayed.
5. Enter

The MUX number in 1
 The EXTEND presence (Y or N) in 2
 then press SEND. Screen BD reflects the progress of the operation.

aaaaaaa	FETCHED or ERROR
bbbbbbbb	ACCEPTED or REJECTED
cccccccc	COMPLETED or ERROR
vvvvvvvv	COMPLETED or ABORTED

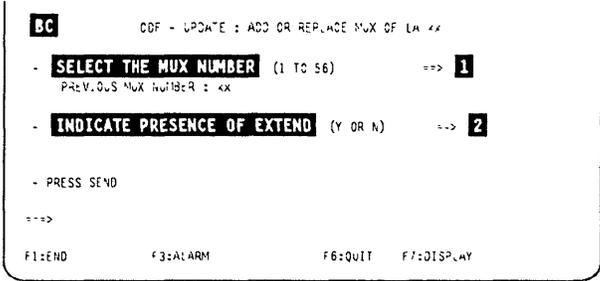


Figure 9-62. Add or Replace a MUX

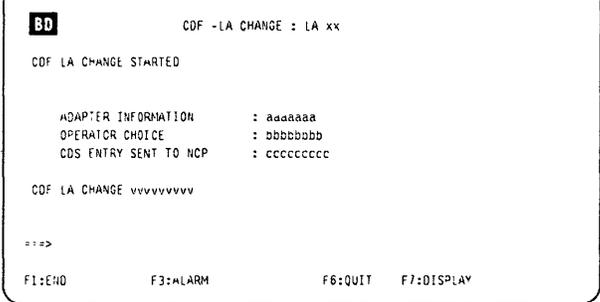


Figure 9-63. LA Status Change Screen

Delete a MUX

1. Refer to page 9-29 before starting to delete a MUX.
2. The MOSS must be online.
3. The adapter must not be connected.
 - For information about the adapter status and the way to modify it, refer to Chapter 4.
 - The adapter status is displayed in the MSA (see "MSA Field Definition (Scanner Information)" on page 1-15).
4. In screen BA select option 4. Screen BE reflects the progress of the operation.

aaaaaaa	FETCHED or ERROR
bbbbbbbb	ACCEPTED or REJECTED
cccccccc	COMPLETED or ERROR
vvvvvvvv	COMPLETED or ABORTED

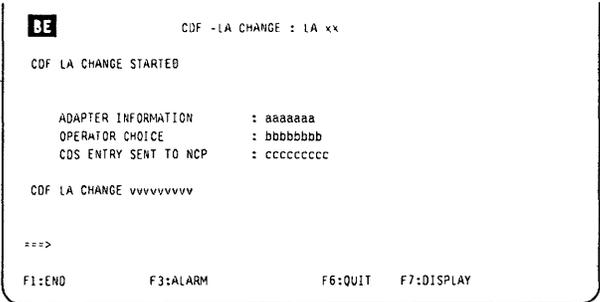


Figure 9-64. LA Status Change Screen

Add/Delete an Extend

1. Refer to page 9-29 before starting to add or delete an Extend.
2. The MOSS must be online.
3. The adapter must not be connected.
 - For information about the adapter status and the way to modify it, refer to Chapter 4.
 - The adapter status is displayed in the MSA (see “MSA Field Definition (Scanner Information)” on page 1-15).

4. In screen **BA** select option 5. Screen **BF** reflects the progress of the operation.

aaaaaaa FETCHED or ERROR
bbbbbbbb ACCEPTED or REJECTED
cccccccc COMPLETED or ERROR
vvvvvvvv COMPLETED or ABORTED

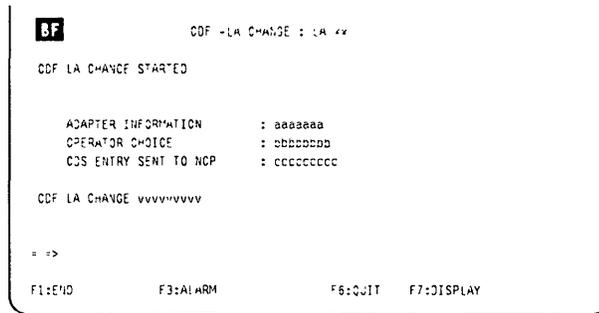


Figure 9-65. LA Status Change Screen

Add/Delete/Replace a LIC

1. Refer to page 9-29 before starting to add, delete, or replace a LIC.
2. The MOSS must be online.
3. The adapter can be connected or not connected.
 - For information about the adapter status and the way to modify it, refer to Chapter 4.
 - The adapter status is displayed in the MSA (see “MSA Field Definition (Scanner Information)” on page 1-15).
4. In screen **BA** select option 6 (Replace), 7 (Delete), or 8 (Add).
5. In screen **BG** enter the LIC position in **1** then press **SEND**. Refer to next table for LIC positions.

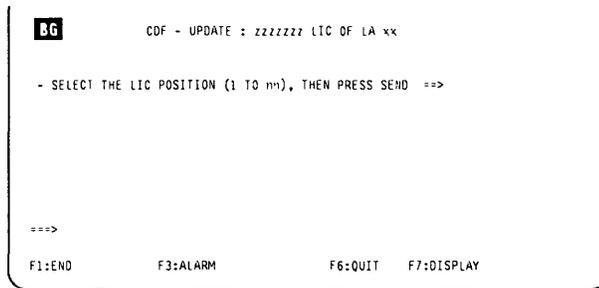


Figure 9-66. Add or Replace or Delete a LIC Screen

LIC Type	EXTEND	LIC Position
1 to 4	YES	1 to 8
	NO	1 to 4
5 or 6	YES	1 to 16
	NO	1 to 8

Screen **BH** or **BI** is displayed according to the adapter status.

The progress of the operation is indicated by screen **BH** (adapter operative) or screen **BI** (adapter inoperative) where:

aaaaaaa FETCHED or ERROR
bbbbbbbb ACCEPTED or REJECTED
cccccccc COMPLETED or ERROR
vvvvvvvv COMPLETED or ABORTED

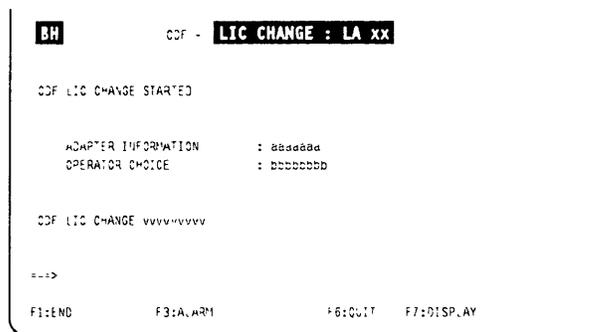


Figure 9-67. LIC Status Change Screen



Figure 9-68. LA Status Change Screen

Replace/Delete an LA TRSS

1. Refer to page 9-29 before starting to delete or replace an LA TRSS.
2. The MOSS must be online.
3. The adapter must not be connected.
 - For information about the adapter status and the way to modify it, refer to Chapter 4.
 - The adapter status is displayed in the MSA (see “MSA Field Definition (Scanner Information)” on page 1-15).
4. Display the number of the LA you want to replace or delete (refer to page 9-29) and press **F5**. This screen (**BJ**) is displayed.
5. In **1**, enter **1** (Replace) or **2** (Delete) then press **SEND**. Screen **BK** is displayed.

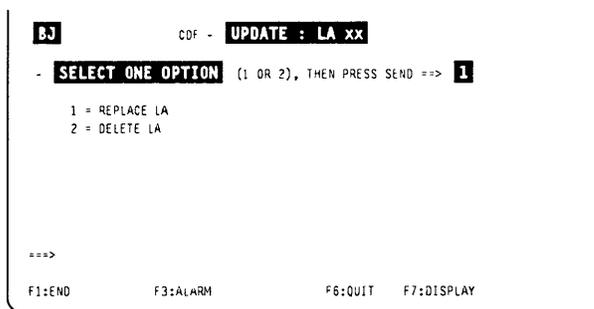


Figure 9-69. Replace/Delete an LA TRSS

Update an LA HPTSS

1. Refer to page 9-29 before updating an LA HPTSS.
2. The MOSS must be online.
3. The adapter can be connected or not connected.
 - For information about the adapter status and the way to modify it, refer to Chapter 4.
 - The adapter status is displayed in the MSA (see “MSA Field Definition (Scanner Information)” on page 1-15).
4. Display the number of the LA you want to update (refer to page 9-29) and press **F5**:
 - If the adapter is inoperative, screen (**BN**) is displayed. In **1**, enter **3** then press **SEND**. Screen **BO** is displayed.
 - If the adapter is operative, screen **BO** is displayed.

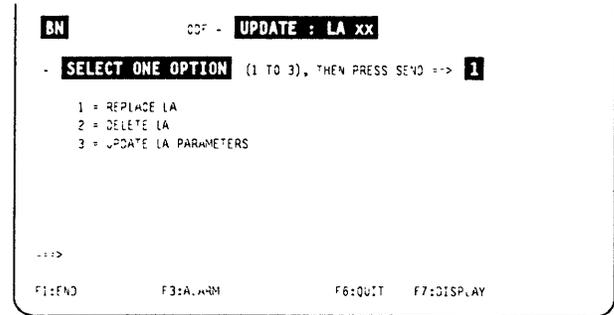


Figure 9-73. Update an LA HPTSS

Update the LA parameters in **1** and **2**, then press **SEND**. The message:

UPDATE OF THE CDF FILE SUCCESSFUL

indicates the end of the operation.

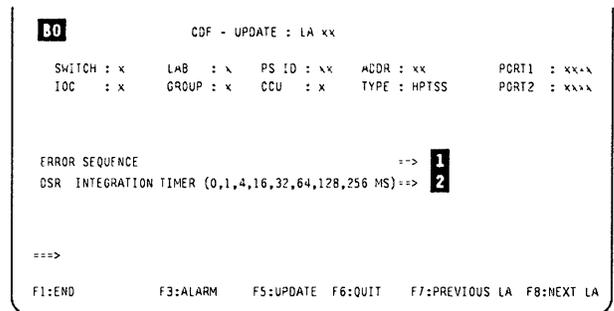


Figure 9-74. Update an LA HPTSS

Display/Update Ports

1. You must be in the CDF display/update function (see page 9-15).
2. Select option 8 (ports) in the CDF display/update screen **C** (see page 9-7). This screen is displayed.
3. Enter a PORT number in **1** then press **SEND**.

According to the port number, one of the following screens is displayed:

- BQ** TSS (0 to 895)
- BT** HPTSS (1024 to 1039)
- BU** ESS (1056 to 1071)
- BV** TRSS (1088 to 1095)

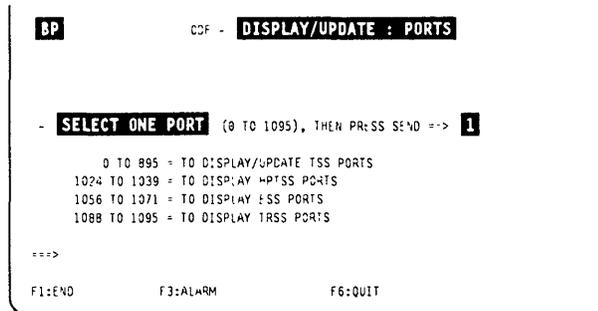


Figure 9-75. CDF Display/Update Ports Selection Screen

Display/Update TSS Port

This function provides inputs for LA, MUX, or LIC display or update. Press F8, to display the second screen (**BR**).

Notes:

1. The 'Cable Presence' field is **always 'Y' for LICs type 5 or 6.**
2. If the port is not installed, the following message is displayed:

PORT NOT INSTALLED

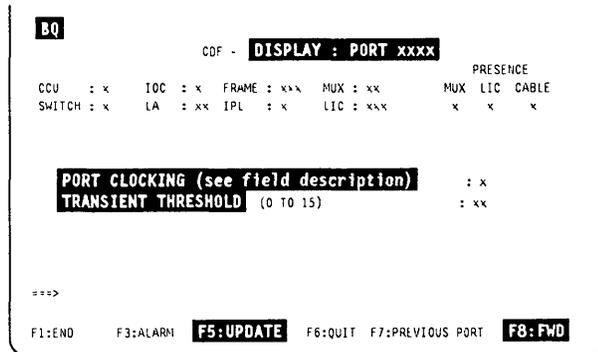


Figure 9-76. Display TSS Port (First Part)

(See "TSS Port Field Description" on page 9-42 for the field description).

note This line is displayed only for LIC type 1 to 4.

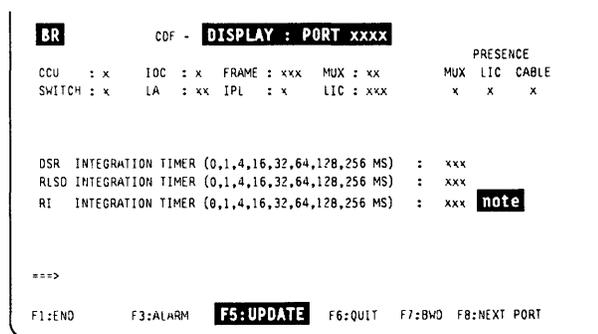


Figure 9-77. Display TSS Port (Second Part)

Update TSS Port

1. Press **F5** from either screen **BQ** or **BR**.
2. Update fields **1** to **5** (See "TSS Port Field Description" on page 9-42 for the field description).
3. Press **SEND**.
4. The following message is displayed:

UPDATE OF THE CDF FILE SUCCESSFUL

note This line is displayed only for LICs type 1 to 4.

```

BS          CDF - UPDATE : PORT XXXX

PORT CLOCKING          ==> 1
TRANSIENT THRESHOLD (0 TO 15) ==> 2
DSR INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS) ==> 3
RLSD INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS) ==> 4
RI INTEGRATION TIMER (0,1,4,16,32,64,128,256 MS) ==> 5 note

==>

F1:END          F3:ALARM          F6:QUIT          F7:DISPLAY
  
```

Figure 9-78. Update TSS Port

Display/Update HPTSS Port

This function provides inputs for LA display or update.

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

```

BT          CDF - DISPLAY : PORT XXXX          PRESENCE
          CCU : x      IOC : x      FRAME : xxx          CABLE
          SWITCH : x   LA : xx     IPL : x              x

          CABLE ID : x
          INTERFACE TYPE : xxx

==>

F1:END          F3:ALARM          F6:QUIT          F7:PREVIOUS PORT F8:NEXT PORT
  
```

Figure 9-79. Display HPTSS Port

Display ESS Port

If the port is not present the following message is displayed:

PORT NOT INSTALLED

```

BU          CDF - DISPLAY : PORT XXXX          PRESENCE
          CCU : x      IOC : x      FRAME : xxx          CABLE
          SWITCH : x   LA : xx     IPL : x              x

          CABLE ID : x
          INTERFACE TYPE : xxx

==>

F1:END          F3:ALARM          F6:QUIT          F7:PREVIOUS PORT F8:NEXT PORT
  
```

Figure 9-80. Display ESS Port

Display TRSS Port

This function provides inputs for LA display (a TRSS port cannot be updated).

```

BV          CDF - DISPLAY : PORT XXXX          PRESENCE
          CCU : x      IOC : x      FRAME : xxx          CABLE
          SWITCH : x   LA : xx     IPL : x              x

          CABLE ID : x
          INTERFACE TYPE : xxx

==>

F1:END          F3:ALARM          F6:QUIT          F7:PREVIOUS PORT F8:NEXT PORT
  
```

Figure 9-81. Display TRSS Port

TSS Port Field Description

```

BS
                                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 9-82. Update TSS Port (Field Description)

Fields LA, MUX, LIC, IPL, and PRESENCE are related to the upper part of screen **BS** on the previous page.

CCU A (CCU-A) or B (CCU-B)
SWITCH A (CCU-A) or B (CCU-B)
IOC IOC number (1 or 2)
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)
FRAME BF (3745 or base frame), L13 (3746-L13), L14 (3746-L14), or L15 (3746-L15)
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 (note)
- 1** Internal
- 2** External (note)
- 3** Local (also called direct attachment, or 3745 mode):
 You may find additional information about clocking in the "Transmission Subsystem (TSS)" Chapter of the *Maintenance Information References*.

Note: 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.

Display/Update CCU Operating Mode

1. You must be in the CDF display/update function (see page 9-15).
2. Select option 9 (CCU operating mode) in the CDF display/update screen **C** (see page 9-7). This screen is displayed.
3. Press **F5**. Screen **BX** is displayed.

```

BW          CDF - DISPLAY : CCU OPERATING MODE
CCU OPERATING MODE (1 TO 4)      : x
  1 = TWIN DUAL
  2 = TWIN STANDBY
  3 = TWIN BACKUP
  4 = SINGLE

TWIN STANDBY MODE ONLY: OPERATIONAL CCU (A OR B) : x

---->
F1:END          F3:ALARM          F5:UPDATE  F6:QUIT

```

Figure 9-83. Display CCU Operating Mode

In **1** and **2** enter the information (refer to next paragraph and next tables for details) then press **SEND**. The following message is displayed:

UPDATE OF THE CDF FILE SUCCESSFUL

```

BX          CDF - UPDATE : CCU OPERATING MODE
CCU OPERATING MODE (1 TO 4)      : 1
  1 = TWIN DUAL
  2 = TWIN STANDBY
  3 = TWIN BACKUP
  4 = SINGLE

TWIN STANDBY MODE ONLY: OPERATIONAL CCU (A OR B) : 2

---->
F1:END          F3:ALARM          F5:UPDATE  F6:QUIT

```

Figure 9-84. Update CCU Operating Mode

Rules for Changing the CCU Operating Mode

- Before changing the operating mode, check that some files (such as the port swap file) are closed, otherwise the request will be rejected.
- The operating modes can be changed according to the following rules:
 - In MOSS alone state: all operating modes
 - In MOSS not alone state:
 - Twin dual to twin backup
 - Twin backup to twin dual (if no fallback)
 - Twin standby to twin backup, or twin dual, or single
- If you select the **twin standby** mode without selecting the operational CCU, the message MANDATORY INPUT is displayed:

The following table provides the possible changes of the CCU operating mode, and their associated actions:

CCU Operating Mode

Current Operating Mode	Selected Operating Mode				
	SINGLE	TWIN SBY A	TWIN SBY B	TWIN DUAL	TWIN BACKUP
SINGLE	1	4	4	4	4
TWIN STANDBY A	4	1	3	3	3
TWIN STANDBY B	4	3	1	3	3
TWIN DUAL	4	3	3	1	2
TWIN BACKUP	4	3	3	2	1

Note: Possible results can be:

- Change ignored
- If fallback is:
 - active** change is refused
 - not active** change is accepted (no IPL needed)
- If NCP is:
 - running** change is refused
 - not running** change is accepted (IPL needed)
- Change refused (CDF create or upgrade must be performed before)

A CCU operating mode change can destroy the NCP load modules in the disk files. The following table shows the effect of an operating mode change:

Current Operating Mode	Selected Operating Mode				
	SINGLE (NCP A)	TWIN SBY A	TWIN SBY B	TWIN DUAL	TWIN BACKUP
SINGLE (NCP A)	No effect	No effect	A to B	No effect	No effect
TWIN STANDBY A	No effect	No effect	A to B	No effect	No effect
TWIN STANDBY B	B to A	B to A	No effect	No effect	No effect
TWIN DUAL	Destroy NCP B	Destroy NCP B	Destroy NCP A	No effect	No effect
TWIN BACKUP	Destroy NCP B	Destroy NCP B	Destroy NCP A	No effect	No effect

CDF Modification for Troubleshooting Purposes (S Function)

Using 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, if there is an IOC bus problem, to force the run of a diagnostic.
- This function is **not** displayed on the menu.

USAGE RESTRICTIONS

1. Available only in **service 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 **BZ** is displayed (Figure 9-86).

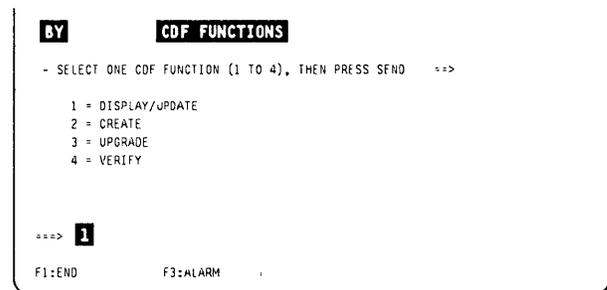


Figure 9-85. CDF Function Selection Screen

1. In **1**, type the selected option.
2. Press **Enter**.

One of the following screens is displayed, according to the selection:

- CA** Option 1
- CB** Option 2
- CC** Option 3
- CE** Option 4

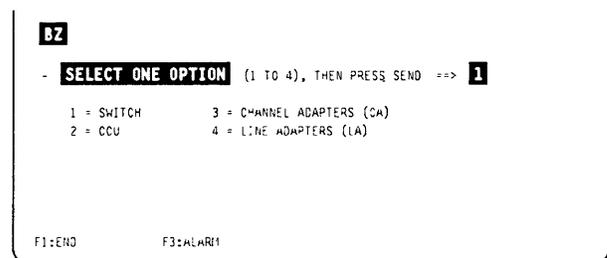


Figure 9-86. CDF Function Selection Screen

Modify Switch

1. Press **F5** to allow updating.
2. Modify the desired fields.
3. Press **Enter**.

The following message is displayed:

UPDATE OF THE CDF SUCCESSFUL

```
CA
          SWITCH-A    SWITCH-B
PRESENCE   : Y        : N    (Y : PRESENT, N : NOT PRESENT)
CONFIG STATUS : V      : I    (V : VALID, I : INVALID)
D'WA PRESENCE : Y      : N    (Y : PRESENT, N : NOT PRESENT..)

==>

F1:END    F3:ALARM1  F5:UPDATE  F6:QUIT
```

Figure 9-87. CDF Modify Switch

Modify CCU

1. Press **F5** to allow updating.
2. Modify the desired fields.
3. Press **Enter**.

The following message is displayed:

UPDATE OF THE CDF SUCCESSFUL

```
CB
          CCU-A      CCU-B
PRESENCE   : X        : X    (Y : PRESENT, N : NOT PRESENT)
CONFIG STATUS : X      : X    (V : VALID, I : INVALID)
STORAGE SIZE : X        : X    (2, 4, 6, 8 MEGABYTES)
CCU TYPE    : X        : X    (1 : TCM, 2 : PUC)
CCU STATUS  : X        : X    (1 : COMPLETE, 2: ERROR, 3: ABORT)
CCU INFORMATION: X      : X    (1: AVAILABLE, 2: NOT AVAILABLE)

==>

F1:END    F3:ALARM  F5:UPDATE  F6:QUIT
```

Figure 9-88. CDF Modify CCU

Modify CA

1. In **1**, type the CA number you want to modify.
2. Press **Enter**.

Screen **CD** is displayed.

```
CC
TO DISPLAY/UPDATE CA, SELECT ITS NUMBER (1-16) then PRESS SEND ==> 1

==>

F1:END    F3:ALARM  F6:QUIT
```

Figure 9-89. CDF Display/Update Channel Adapters

1. Press **F5** to allow updating.
2. Modify the desired fields.
3. Press **Enter**.

The following message is displayed:

UPDATE OF THE CDF SUCCESSFUL

```
CD
          CA *X
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 9-90. 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 parameters that can be updated.

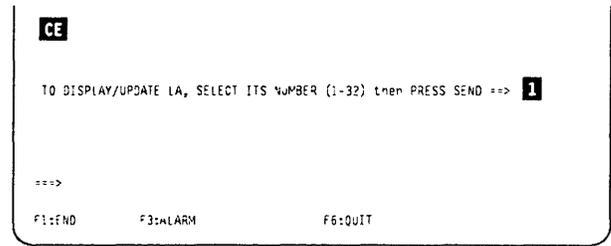


Figure 9-91. CDF Display/Update Line Adapters

CDF Messages

ADAPTER NOT ATTACHED TO ANY CCU

Cause: It is not possible to know the attached CCU for an absent CA.

Action: Run an upgrade or verify.

ADAPTER NOT ATTACHED TO THIS CCU

Cause: During a hardware change, there is a conflict about the attached CCU.

Action: Run an upgrade or verify.

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 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 FUNCTION IS NOT SUPPORTED BY THIS CCU

Cause: A hardware change is stopped because you are not in concurrent maintenance mode.

Action: Run option 4 (CACM) of the CAS function first.

CACM MODE NOT ESTABLISHED

Cause: The environment is not supporting the concurrent maintenance mode.

Action: Run option 4 (CACM) of the CAS function first.

CADS DEFINED WITH ESC CANNOT BE REPLACED BY BCCA

Cause: BCCA does not support ESC addresses.

Action: Check with customer for correct CA number or change in the NCP generation.

CCU-A (or B) INITIALIZATION IN ERROR

Cause: There is a problem at CCU-A (or B) initialization.

Action: Power-down and power-up of power supply number 2 (CCU-A) or 3 (CCU-B). If the problem is still present, run the CCU diagnostics.

CCU-A (or B) INIT ERROR. CALL SERVICE REPRESENTATIVE TO RUN DIAGS

Cause: There is a problem at CCU-A (or B) initialization.

Action: Power-down and power-up of power supply number 2 (CCU-A) or 3 (CCU-B). 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.

DATA MARKED WITH ?? WAS NOT AVAILABLE. SELECT MACHINE DATA (2)

Cause: A discrepancy on CCU information was detected during a CDF verify. Data identified by question marks (??) may have been assumed or was not available.

Action: Self-explanatory.

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 IN AMAC, TCM/PUC, OR CABLES. CONTACT SERVICE REPRESENTATIVE

Cause: CCU type cannot be sensed on CCU-A.

Action: Refer to the *Maintenance Information Procedures* for details.

ERROR WHILE SENDING MAILBOX TO NCP : ACK = xxxx CC = xx

Cause: Wrong data has been sent or wrongly processed by the NCP.

The ACK field can be:

- 8000 : In mailbox accepted
- 4004 : Fallback in progress
- 4008 : Invalid parameter
- 4020 : Invalid command
- 4040 : Function not supported

When the In mailbox is accepted but the NCP return code (completion code CC = xx) is not recognized by the CDF, this error message is displayed with the CC value.

Action: Call the PE for the 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.

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.

CDF Messages

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 .

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 the 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.

NONE INSTALLED POWER SUPPLY

Cause: There is no power supply up.

Action: Run the POS function to power-up the affected power supplies.

ONLY MACHINE DATA (2) IS VALID. SELECT 2 AND PRESS SEND

Cause: A discrepancy on CCU information was detected during a CDF verify. Data identified by question marks (??) may have been assumed or were not available.

Action: Self-explanatory.

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 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.

POWER SUPPLY CONFIGURATION REQUEST ERROR

Cause: The function aborted during a create, upgrade, or verify.

Action: Run the POS function to check the power status.

POWER SUPPLY OF CCU-A IS NOT OPERATIVE

Cause: CCU-A is not operative during a create, upgrade, or verify function.

Action: Run the POS function to check the CCU power status.

POWER SUPPLY OF CCU-A IS NOT OPERATIVE AND DISK READ ERROR

Cause: During a create, upgrade, or verify operation, the power supply of CCU-A becomes inoperative, and you get a disk read error when reading the old CDF file.

Action: Run the POS function to check the CCU power status, then if not successful, IML for disk checking.

POWER SUPPLY OF CCU-B IS NOT OPERATIVE

Cause: During a create, upgrade, or verify operation, the power supply of CCU-B becomes inoperative. The operation continues, but only on CCU-A.

Action: Check the power supply of CCU-B.

REFUSED BY CTL PGM: FALLBACK IN PROGRESS

Cause: The fallback was active during the last step of a hardware change.

Action: Retry when you are in switchback.

STORAGE SIZE REQUEST FAILED FOR CCU-A

Cause: It was impossible to obtain the storage size during a create, upgrade, or verify. The function has aborted.

Action: Power-down then power-up PS ID number 2 (CCU-A).

STORAGE SIZE REQUEST FAILED FOR CCU-A. CONTACT SERVICE REPRESENTATIVE

Cause: It was impossible to obtain the storage size during a create, upgrade, or verify. The function has aborted.

Action: Power-down then power-up PS ID number 2 (CCU-A). If the problem is still present run the CCU diagnostics.

STORAGE SIZE UNKNOWN FOR CCU A

Cause: The storage size is unknown during a create, upgrade, or verify. The function has aborted.

Action: Power-down then power-up PS ID number 2 (CCU-A).

SWITCH CONFIGURATION REQUEST ERROR

Cause: The function aborted during a create, upgrade, or verify.

Action: Power-down then power-up PS ID number 2 (CCU-A).

SWITCH INITIALIZATION IN ERROR

Cause: An error occurred during a switch initialization.

Action: Retry, then if not successful, Power-down then power-up PS ID number 2 (CCU-A).

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 CANNOT 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 CANNOT 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 get 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.

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

- ADAPTER CONFIG STATUS IS INVALID
- BOX OPERATING CHANGE SUCCESSFUL
- CHANGE REJECTED: A FALLBACK IS ACTIVE
- DATA MARKED WITH ?? IS NOT AVAILABLE. CONTACT SERVICE REPRESENTATIVE
- DISK ERROR DURING WRITING PROCESS
- ERROR DURING CALL ACCESS FUNCTION

CDF Messages

- 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 BOX OPERATING MODE WITH THE CCU CONFIGURATION
- 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

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.

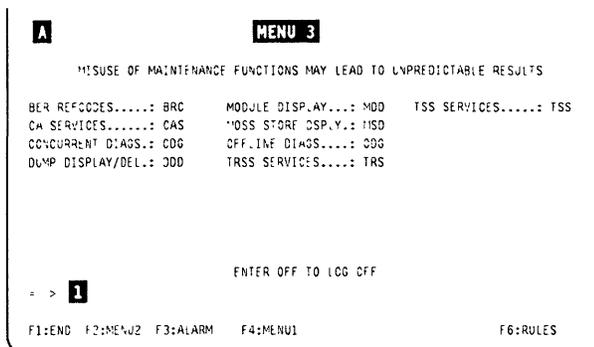


Figure 10-1. Maintenance Menu (Menu 3) Screen

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, 3, or 4, screen **C** (enter the CA number to be serviced) is displayed.

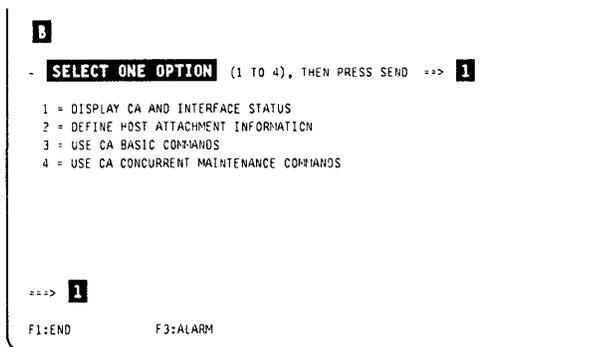


Figure 10-2. CA Services Function Selection 1 Screen

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

- Option 2** The CA must be present but not necessarily powered ON.
- Option 3** The CA must be present and powered ON.
- Option 4** The CA may not be present depending on the CACM command used (refer to page 10-9).

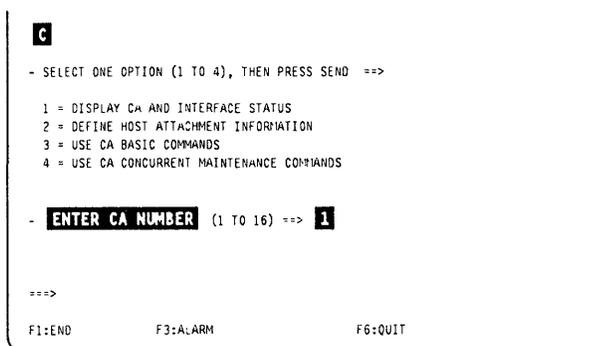


Figure 10-3. CA Services Function Selection 2 Screen

Display CA and Interface Status

CA and Interface Display

In screen **B** page 10-2, select option 1. This screen is displayed.

Refer to page 10-8 for a detailed description of this screen.

CA NBR	INTERNAL STATUS	LOGICAL STATUS	TRACE ACTIVE	INTERFACE NUMBER	E/D REQUEST	INTERFACE STATUS
1	OFF	INOPERATIVE		1A	D	DISABLED
2	-			2B	E	DISABLED
3	INIT	CONNECTED	YES	3A	D	DISABLED
4	-			3B	E	DISABLED
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

Define Host Attachment Information

1. You must be in the CAS function (see page 10-2).
2. Enter 2 in **1**.
3. Press **SEND**.
4. The next screen is displayed.

- **SELECT ONE OPTION** (1 TO 4), THEN PRESS SEND ==> **1**

1 - DISPLAY CA AND INTERFACE STATUS
 2 - **DEFINE HOST ATTACHMENT INFORMATION**
 3 - USE CA BASIC COMMANDS
 4 - USE CA CONCURRENT MAINTENANCE COMMANDS

===> **1**

F1:END F3:ALARM

Figure 10-5. CA Services Function Selection 1 Screen

1. In **1**, enter the **CA number**.
2. Press **SEND**.
3. Screen **E** is displayed.

The selected CA must be present.

- SELECT ONE OPTION (1 TO 4), THEN PRESS SEND ==>

1 - DISPLAY CA AND INTERFACE STATUS
 2 - DEFINE HOST ATTACHMENT INFORMATION
 3 - USE CA BASIC COMMANDS
 4 - USE CA CONCURRENT MAINTENANCE COMMANDS

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

===>

F1:END F3:ALARM F6:QUIT

Figure 10-6. CA Services Function Selection 2 Screen

CA Basic Commands

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 1-6), or can be displayed by using the CID function (see details in the *Advanced Operations Guide*).

When TPS is not present, the 'INTERFACE B' data area is not displayed.

```
E
CA XX HOST ATTACHMENT INFORMATION
- FILL IN, OR MODIFY, OR BLANK FOLLOWING FIELDS, THEN PRESS SEND

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

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

Figure 10-7. CA Host Attachment Information Screen

Use CA Basic Commands Function

1. You must be in the CAS function (see page 10-2).
2. Enter 3 in **1**.
3. Press **SEND**.
4. The next screen is displayed.

```
- SELECT ONE OPTION (1 TO 4), THEN PRESS SEND ==> 1
1 = DISPLAY CA AND INTERFACE STATUS
2 = DEFINE HOST ATTACHMENT INFORMATION
3 = USE CA BASIC COMMANDS
4 = USE CA CONCURRENT MAINTENANCE COMMANDS

==> 1
F1:END                F3:ALARM
```

Figure 10-8. CA Services Function Selection 1 Screen

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

The selected CA must be present.

```
- SELECT ONE OPTION (1 TO 4), THEN PRESS SEND ==>
1 = DISPLAY CA AND INTERFACE STATUS
2 = DEFINE HOST ATTACHMENT INFORMATION
3 = USE CA BASIC COMMANDS
4 = USE CA CONCURRENT MAINTENANCE COMMANDS

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

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

Figure 10-9. CA Services Function Selection 2 Screen

1. In **1**, enter one of the commands listed on the screen.
2. Press **SEND**.

See page 10-7 for description of the first two lines of the screen, and "CA Commands" on page 10-5 for details on commands.

```

F
CA : STAT: INIT          ASC : IN   TR   A: REQUEST+E STATUS=DISABLED
CCU A  LS*A: CONNECTED  CSSC: IN   B: REQUEST+E STATUS=DISABLED
                                           PS ID: 4

- ENTER A COMMAND ==> 1

ENA = ENABLE A          INI = INITIALIZE      DRG = DISPLAY REGISTERS
ENB = ENABLE B          RST = RESET           DST = DISPLAY STORAGE
DSA = DISABLE A         DMP = DUMP            DRM = DISPLAY RAM
DSB = DISABLE B         STT = START TRACE     DTD = DISPLAY TRACE DATA
SEA = SEND I/O          SPT = STOP TRACE
ERROR ALERT

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

```

Figure 10-10. CA Command Screen

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 appropriate CA dump file (CHGCADSA for CCU-A CHGCADSB for CCU-B). 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 previous note).

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 Registers '1x' + '2x' + '3x'
 - 2 Registers '0x' + '4x' + '5x'
 - 3 Registers '6x' + '7x'.
3. Press **SEND**.

Note: Some registers cannot be displayed.

```

G
CA 1  ISTAT: INIT      ASC : IN      A: REQJES'D  S'A'US-DISABLED
CCU A  LSTAT: --      CS6C: IN     B: REQJES'D  S'A'US-DISABLED
                                           PS ID: 4
- 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 98 80 00 00
X'18' TO X'1F'  S030  00 18 89 99 89 99 82 00 80 00 81 60 80 00 00 00

X'20' TO X'27'  S040  00 00 00 00 00 20 00 00 F1 03 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 03 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.

```

H
CA 1  ISTAT: INIT      ASC : IN      TR  A: REQUEST=D STATUS-DISABLED
CCU A  LSTAT: --      CS6C: IN     B: REQUEST=D STATUS-DISABLED
                                           PS ID: 4
- ENTER ADDRESS (100 TO 7FF) ==> 1 (DATA BUFFER FROM 400 TO 4FF)

STORAGE      S340  80402010  08040201  00000000  00000000
S350  80200802  80204001  00000000  00000000
S360  80200802  80204001  00000000  00000000
S370  40100401  10000800  00000000  00000000
S380  80000020  00201000  10000000  00000000
S390  808031F1  13F19F00  0000F3F7  45014008
S3A0  00000000  00000000  00000000  00000000
S3B0  00000000  00000800  506F0300  00000000
====>

F1:END      F3:ALARM      F6:QUIT  F7:BACKWARD  F8:FORWARD
    
```

Figure 10-12. Display Storage Screen

Display RAM (DRM)

1. You must be in the CAS functions (see screen **F**).
2. In **1**, enter the starting address of the RAM part you want to display.
3. Press **SEND**.

This command allows displaying the RAM on a halfword basis.

```

I
CA 1  ISTAT: INIT      ASC : IN      TR  A: REQUEST=D STATUS-DISABLED
CCU A  LSTAT: --      CS6C: IN     B: REQUEST=D STATUS-DISABLED
                                           PS ID: 4
- ENTER ADDRESS (0 TO FFF) ==> 1

RAM          340  0800 0400 0200 0100 0080 0040 0020 0010
348  0008 0008 0008 0008 0008 0008 0008 0008
350  0800 0200 0080 0020 0800 0200 0400 0010
358  0008 0008 0008 0008 0008 0008 0008 0008
360  0800 0200 0080 0020 0800 0200 0400 0010
368  0008 0008 0008 0008 0008 0008 0008 0008
370  0480 0100 0040 0010 0100 0008 0080 0008
378  0008 0008 0008 0008 0008 0008 0008 0008
====>

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 (refer to screen **F**).

The last recorded events of the trace data are displayed first.

```

F
CA 1  ISTAT: INIT          ASC : IN          A: REQUEST=E STATUS=DISABLED
CCU A  LSTAT: --          CSGC: IN          B: REQUEST=E STATUS=DISABLED
                                           PS ID: 4

                TRACE DATA - SCREEN 3/4

      88 30 00 80 88 70 18 40 38 30 00 00 10 00 07 01
      00 30 00 80 88 70 18 40 38 30 00 00 10 00 07 01
      00 30 00 80 88 70 10 40 38 30 00 00 18 00 07 01
      00 30 00 80 88 70 10 40 38 30 00 00 10 00 07 01
      00 30 00 80 88 70 18 40 38 30 00 00 10 00 07 01
      00 30 00 80 88 70 10 40 38 30 00 00 10 00 07 01
      00 30 00 88 88 78 A8 A0 38 30 00 00 00 00 07 01
      00 30 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

CA Basic Commands Screen Description

```

F
CA 1  ISTAT: INIT          ASC : IN    TR  A: REQUEST=E STATUS=DISABLED
CCU A  LSTAT: CONNECTED   CSGC: IN    B: REQUEST=E STATUS=DISABLED
                                           PS ID: 4

- ENTER A COMMAND ==>

ENA = ENABLE A          INI = INITIALIZE          DRG = DISPLAY REGISTERS
ENB = ENABLE B          RST = RESET              DST = DISPLAY STORAGE
DSA = DISABLE A         DNP = DUMP              DRM = DISPLAY RAM
DSB = DISABLE B         STT = START TRACE       DTD = DISPLAY TRACE DATA
SEA = SEND I/O          SPT = STOP TRACE
      ERROR ALERT

===>

F1:END          F3:ALARM          F6:QUIT
    
```

Figure 10-15. CA Command Screen

Description of the First Two Lines of the Screen

- CA xx** CA number.
- CCU** CCU-A or CCU-B
- ISTAT** Internal status (see “CA Display Screen Fields Description” on page 10-8 for details).
- LSTAT** Logical status (see “CA Display Screen Fields Description” on page 10-8 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.
- 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 Display Screen Fields Description

D CA NBR	INTERIAL STATUS	LOGICAL STATUS	TRACE ACTIVE	INTERFACE NUMBER	E/D REQUEST	INTERFACE STATUS
1	OFF	INOPERATIVE		1A	D	DISABLED
2	-			1B	E	DISABLED
3	INIT	CONNECTED	YES	3A	D	DISABLED
4	-			3B	E	DISABLED
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: ALARH F6: QUIT

Figure 10-16. CA and Interface Status Screen

INTERNAL STATUS

-	CA not present or TPS installed.
OFF	CA powered OFF
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 CA initialization.
ERRCHAIN	An error occurred during the 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 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. This status is the result of a <i>restore</i> command (see page 10-9).
DISCONNECTED	The CA is now owned by the MOSS. This is the result of a <i>shutdown</i> command (see page 10-9).
DOWN	An error occurred during a normal operation.
UNDER INST	Result of the <i>install</i> command (see "Concurrent Maintenance Function (CACM)" on page 10-9).
***	The status is unknown.

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 is part of the CA concurrent maintenance explained in the MIP manual, SY33-2054. This concurrent maintenance involves several MOSS functions, such as CDF, POS, CAS, diagnostics.

The CA concurrent maintenance (CACM) function allows the user to diagnose, repair, change, or modify channel adapter(s) online without disturbing normal operations.

- 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.
- When a hardware component has to be installed, replaced, or removed, the corresponding power supply must be powered OFF. In that case the associated CA (if any), sharing the same power supply must also be disconnected and removed from the chains.

Note: Only the two CAs powered by the same power supply can be removed from the autoselect chain.

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

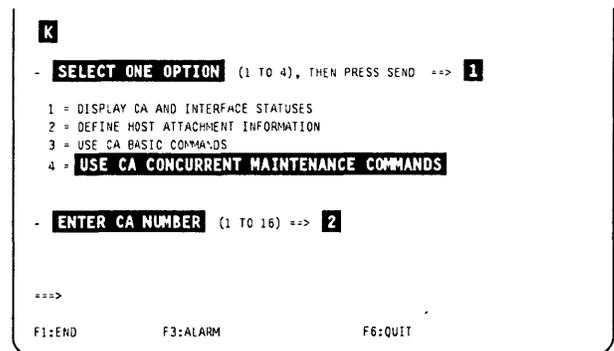


Figure 10-17. CA Services Function Selection 2 Screen

- In **1**, enter one of the commands listed on the screen, and press **SEND**.
- 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.

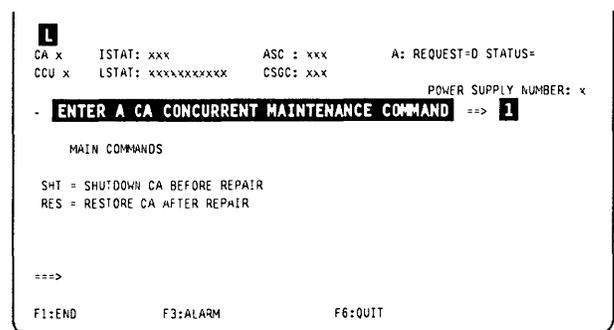


Figure 10-18. CACM Commands Screen

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 DEMOTIVATED 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 10-19. 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 10-20. Restore Command Screen

CA Messages

CDF ERROR: CA INITIALIZATION PARAMETERS NOT AVAILABLE

Cause: The initialization of the specified CA cannot be performed because of 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 because of an error on the MOSS-to-CCU boundary. A BER has been created.

Action: Refer to the BER.

Action: Refer to the return code.

COMMAND FAILED: DISK ERROR

Cause: The CA dump cannot be taken because of 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 because of an error occurring during CA initialization.

Action: Use the basic command 'INI' to obtain more information about the error.

COMMAND FAILED: RESET STEP IN ERROR

Cause: The restore command failed because of 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 because of 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 was not successful because an error was detected when verifying the written data. This can be because of 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 ALREADY EXISTS

Cause: The install new CA command is rejected since the specified CA already exists.

Action: None.

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.

CA Messages

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 IS NOT POWERED ON

Cause: The entered command or option cannot be accepted for a CA which is powered OFF.

Action: None.

COMMAND REFUSED: CA WITH TPS ALREADY EXISTS ON THE SAME POWER SUPPLY

Cause: The install new CA command is refused because it is impossible to install the specified CA. Only one CA TPS can exist on a power supply.

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 dedicated to the CCU to which the CA is connected 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: 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 because of a disk error.

Action: Retry, then if not successful, repair the disk.

DISK ERROR: DATA CANNOT BE RETRIEVED

Cause: It is impossible, because of 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 because of a disk error.

Action: Retry, then if not successful, repair the disk.

ERROR WHILE TRANSMITTING THE COMMAND

Cause: The command could not be transmitted because of a hardware error. A BER has been created.

Action: Refer to the BER.

(INSTALL) COMMAND FAILED: CP RETURN CODE : ACK = xxxx CC = xx

Cause: Details are given by the ACK and CC fields of the message (refer to "Return Code" on page 10-14).

Install can be replaced by *connect*, *CA chain update*, or *disconnect*. This corresponds to commands that are not directly accessible but are used by either **shutdown (SHT)** or **restore (RES)** command. In that case, call for support.

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: CA IS NOT POWERED ON

Cause: Self-explanatory.

Action: None.

OPTION REFUSED: CONNECTION CA-CCU UNKNOWN

Cause: The connected CCU is unknown.

Action: Re-IPL.

OPTION REFUSED: MOSS IS NOT ONLINE

Cause: No CACM is allowed if MOSS is not online.

Action: Use the MON command.

REQUEST SUCCESSFULLY TRANSMITTED

Cause: Self-explanatory.

Action: None.

REQUEST SUCCESSFULLY TRANSMITTED BUT NOT SAVED DUE TO A DISK ERROR

Cause: The entered enable or disable command has been successfully executed but it was impossible to save the request on the disk.

Action: Retry, then if not successful, repair the disk.

"..." MEANS RAM NOT READABLE IN FUNCTIONAL MODE

Cause: The specified CA is initialized and connected to a control program which is actually running. To avoid disturbing CA operations, the RAM positions (indicated by "...") were not read.

Action: None.

"...." MEANS REGISTER NOT IMPLEMENTED

Cause: The registers of categories 2 and 3 are mapped in the CA storage. "...." indicates that no specific value has been assigned to the corresponding storage position.

Action: None.

".." MEANS REGISTER NOT READABLE IN FUNCTIONAL MODE

Cause: The specified CA is initialized and connected to a control program which is actually running. To avoid any disturbance on the CA operations, some registers (indicated by "..") were not read.

Action: None.

Return Codes

Return Code

In the message, which is available only in concurrent maintenance,

zzzzzz COMMAND FAILED: CP RETURN CODE: ACK = xxxx CC = xx

- The ACK field can be:

X'8000' (CC = 00)	Request completed
X'8000' (CC = other value)	Request OK or not OK (see CC explanation table)
X'40xx' (CC = 00)	Request is rejected. The field xx can be:
X'40'	Function not supported
X'20'	Invalid command
X'08'	Invalid parameters specified
X'04'	Fallback in progress.

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

Table 10-1 (Page 1 of 2). Return Codes	
CC	Explanation
UPDATE CDS	
00	Update CDS complete
01	CA or LA not attached
02	CA or LA not installed
03	CA or LA currently operative
12	Unused
20	CA not CACM mode disconnected
21	CA not bypassed from both ASC/CSCG
22	CA not 'Install in progress'
23	CA currently installed
24	Function already performed
25	CA cannot be bypassed from both ASC/CSCG
DISCONNECT CA (SHT Command)	
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. The CA is still owned by some host(s)/VTAM(s).
09	Power block failure detected by L1
0A	ASCF detected by L1
CONNECT CA (RES Command)	
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

Table 10-1 (Page 2 of 2). Return Codes	
CC	Explanation
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
CA CHAIN UPDATE (SHT or RES Command)	
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
INSTALL CA	
00	Set/reset complete
02	CA not attached
03	CA currently installed
04	Function already performed

Return Codes

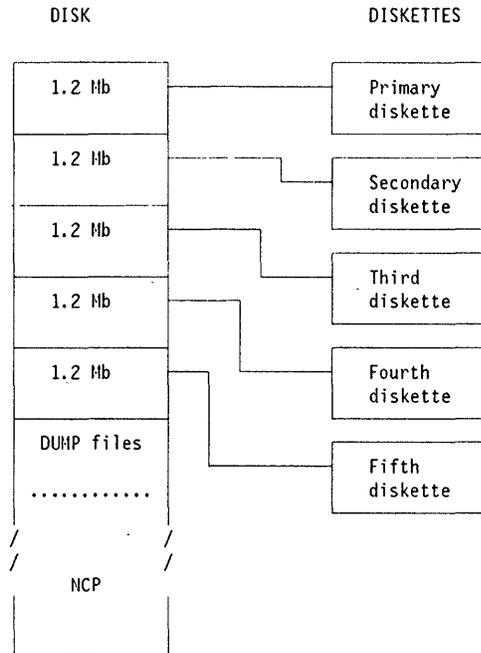
Chapter 11. Disk-Diskette Management Functions

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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, 2, or 3) 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: All options of menu **A** may be performed in customer or maintenance mode.

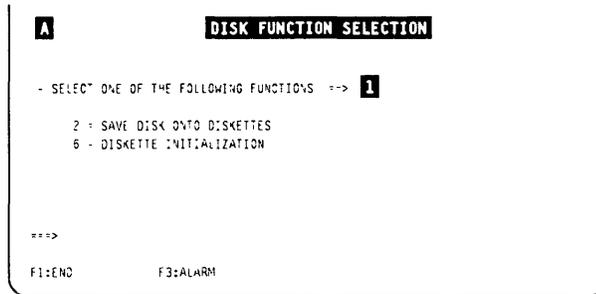


Figure 11-1. Disk Function Selection Screen (IML from Disk)

IML from Diskette

1. Ensure that the local console is powered ON.
2. At the diskette drive, insert the primary diskette from which you want to perform the IML, 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. A MOSS IML from diskette is started.
5. At the IML end, this screen is displayed.

Note: The disk initialization function (5) is **not** available to the customer.

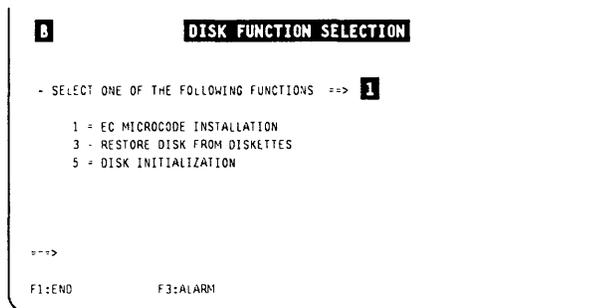


Figure 11-2. Disk Function Selection Screen (IML from Diskette)

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 following 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 page 11-4).
2. Enter **2** in **1**.
3. Press **SEND**. Screen **D** is displayed.

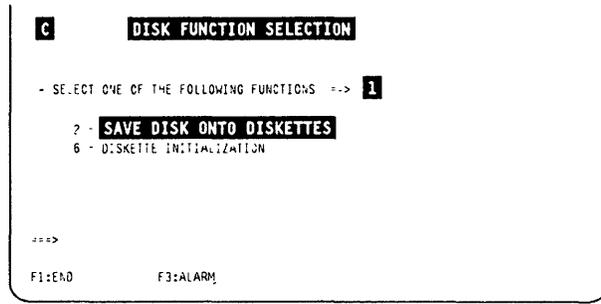


Figure 11-3. Disk Function Selection Screen (IML from Disk)

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.

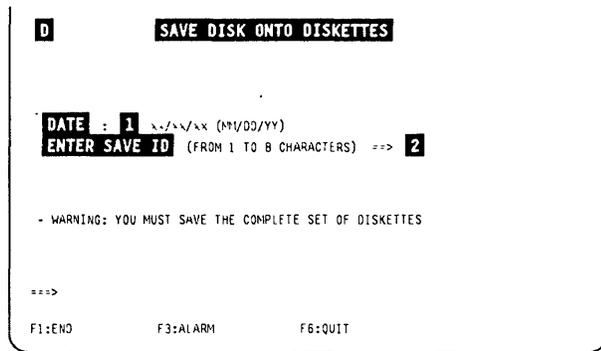


Figure 11-4. Disk Save Function Screen

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 has been saved on a diskette you obtain the message:
DISK SAVE ONTO xxxxxxxx DISKETTE COMPLETED.
2. Remove the diskette.
3. Press **SEND**.
4. You return to screen **E** to create the next diskette.
5. After the **fifth** diskette, you go to screen **G**.



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

1. Note the date and identifiers, and write them on the diskette or diskette cover for later identification.
2. Press **SEND**.
3. You return to screen **E**.

Note: The 'INTERNAL ID' field is an identification entered at the creation of the diskette. It 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 11-18 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

NCP must not be running (option 3 is not available while NCP is running).

1. The IML must have been made from the diskette (see page 11-4).
2. Enter 3 in **1**.
3. Press **SEND**. Screen **J** is displayed.

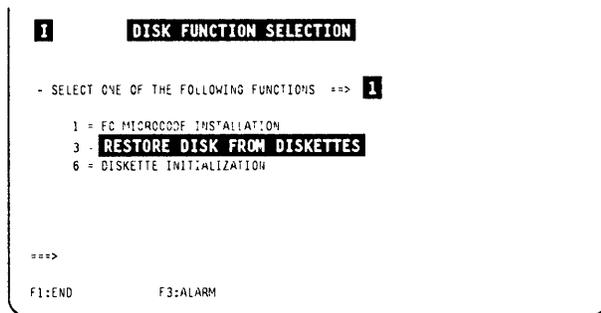


Figure 11-9. Disk Function Selection Screen (IML from Disk)

Step 1: Diskette 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 **K** 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 **L** is displayed.
- If NOT OK:
 1. Type **N** in **1**, and press **SEND**.
 2. You return to screen **J**.
 3. Insert the correct diskette and restart the procedure.

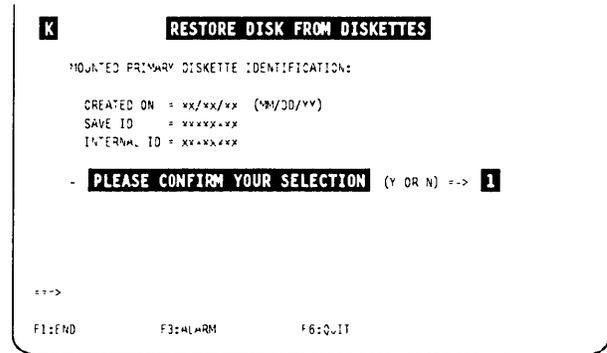


Figure 11-11. Restore Disk Function, Diskette Identification Screen

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 **M** is displayed.
5. If OK, screen **N** is displayed.

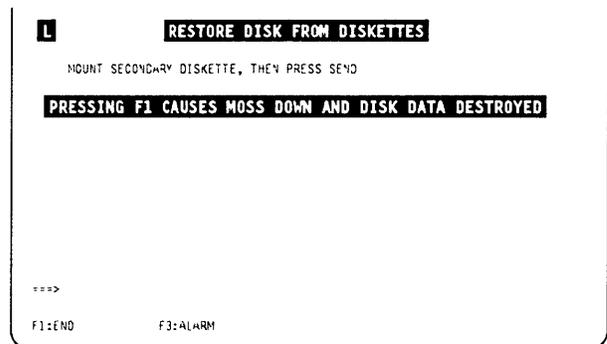


Figure 11-12. Restore Disk Function, Mount Secondary Diskette Screen

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 **L**.
2. Mount the correct diskette and resume the procedure.

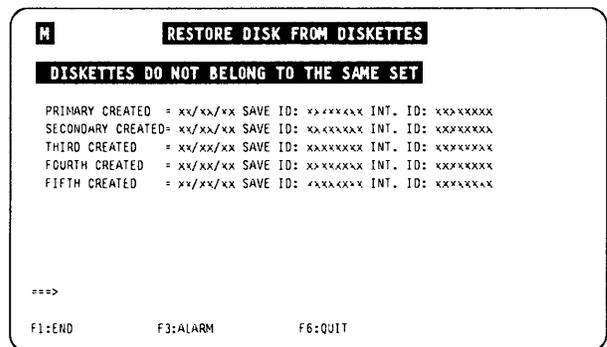


Figure 11-13. Restore Disk Function, Mismatch in Diskette Identification Screen

Restore Disk

Step 2: Copy the Diskettes

1. Mount the **primary** diskette.
2. Press **SEND**.
3. The following messages are displayed:

```
RESTORE DISK FROM xxxxxxxx DISKETTE IN  
PROGRESS
```

then

```
RESTORE DISK FROM xxxxxxxx DISKETTE COMPLETED
```

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

4. Repeat this step for the five diskettes.
5. Screen **0** 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 (patches on the diskettes have also been restored on disk).

1. Power the 3745 OFF, then ON.
2. Refer to the *3745 Installation Guide*, SY33-2057, 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.

Disk Restore Error

DISK ERROR. FUNCTION CANCELLED

1. Press **F1**.
2. Refer to "Hard Disk Trouble Analysis and Replacement" on page 11-18 for further action.

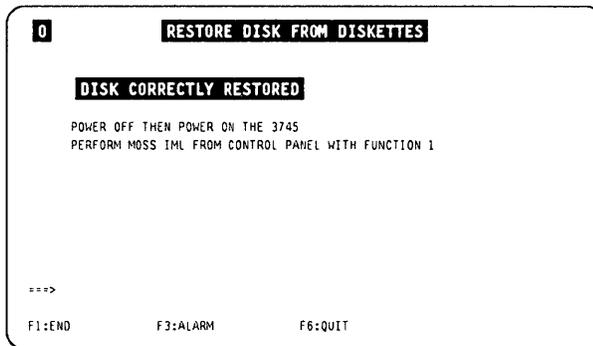


Figure 11-15. End of Restore Disk Function Screen

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 11-18).

Disk Initialization Procedure

- The IML must have been made from the diskette (see page 11-4).
 - You must be in **service** mode 1 or 2 at the control panel.
1. The DIF function screen is displayed (see page 11-4).
 2. Enter **5** in **1**.
 3. Press **SEND**. Screen **Q** is displayed.



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

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

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

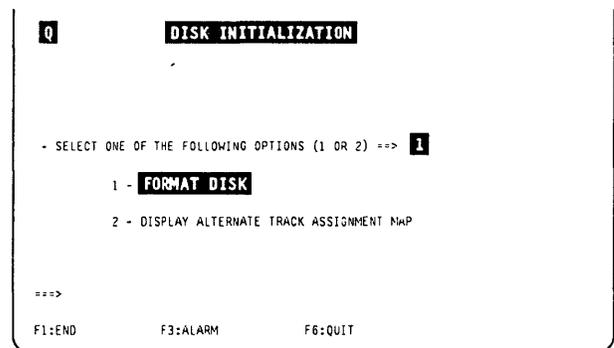


Figure 11-17. Disk Initialization Selection Screen

1. Enter the **machine serial number** in **1**.
2. Press **SEND**.

Screen **S** is displayed.

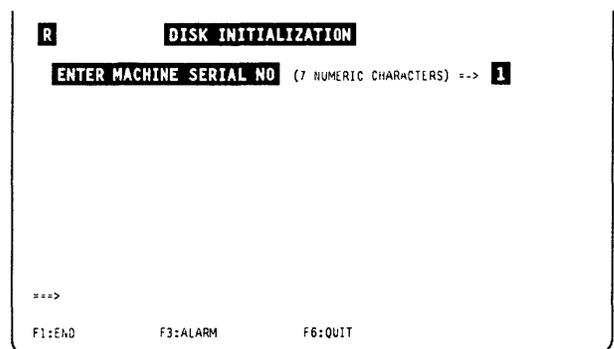


Figure 11-18. Disk Initialization Screen

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 COMPLETED; NO DEFECTIVE TRACK : ALTER-
NATE ASSIGNMENT MAP EMPTY

or

FORMAT COMPLETED, xx DEFECTIVE TRACK

Note: If any defective track has been found (last message), screen **T** is displayed.

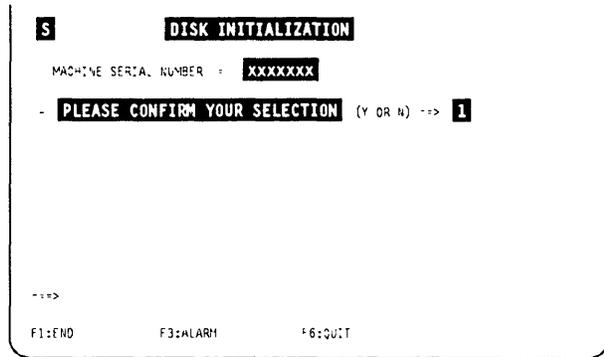


Figure 11-19. Disk Initialization Confirmation Screen

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 11-18 for further action.

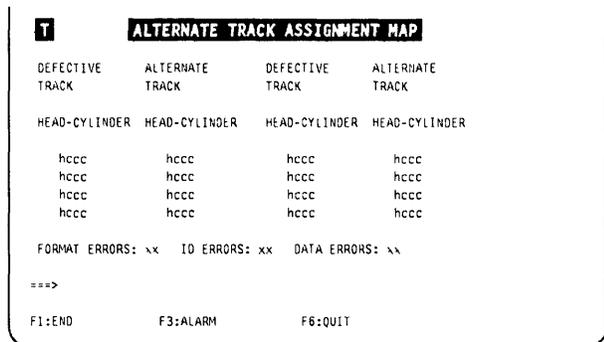


Figure 11-20. Disk Initialization Alternate Track Assignment Screen

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 page 11-4).
2. Enter **6** in **1**.
3. Press **SEND**. Screen **V** is displayed.

Note: This example shows the menu given after an IML from the diskette. However, the function is also available after an IML from disk.

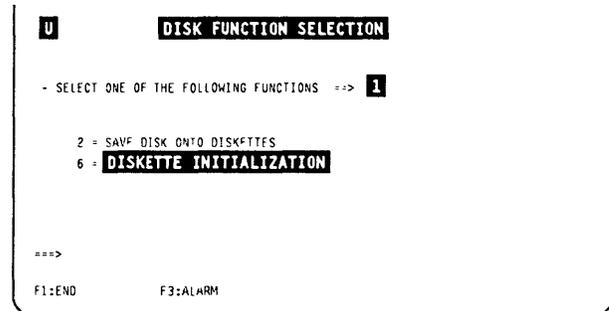


Figure 11-21. Disk Function Selection Screen

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

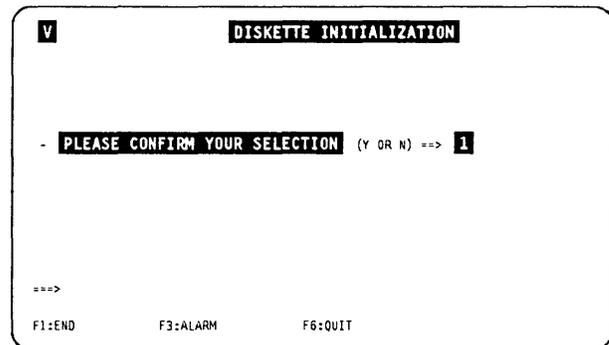


Figure 11-22. Diskette Initialization Screen

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.

The following part of the procedure lists the messages that are displayed depending on the successful completion of the operation.



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 COMPLETED

NUMBER OF TRACKS IN ERROR WHILE FORMATTING: xxxx

NUMBER OF TRACKS IN ERROR WHILE CHECKING: xxxx

WARNING: DO NOT USE THIS DISKETTE TO SAVE YOUR DISK

Installing an Engineering Change (EC)

Note: In the customer's documentation, the EC is called a microcode change.

- Before starting a new EC installation:
 - Perform a CDF verify.
 - 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. A MOSS IML from diskette is started.
5. At the IML end, you should be in the DIF function (automatic with diskette IML, see page 11-4 and Figure 11-24).
6. Enter 1 in **1**.
7. Press **SEND**. Screen **Y** is displayed.



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

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

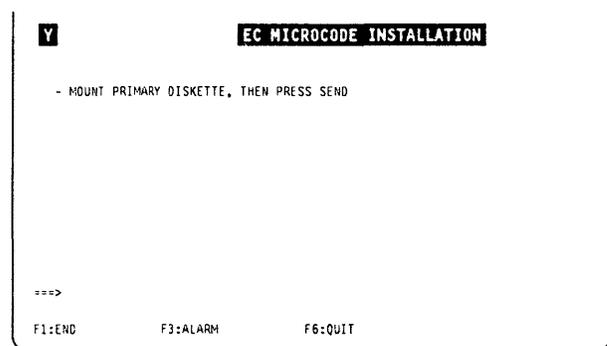


Figure 11-25. EC Installation, Mount Primary Diskette Screen

Step 1: Check the Diskettes

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

The following message is displayed:

xxxxxx DISKETTE CHECKING IN PROGRESS

(xxxxxx can be primary, secondary, third, fourth, or fifth).

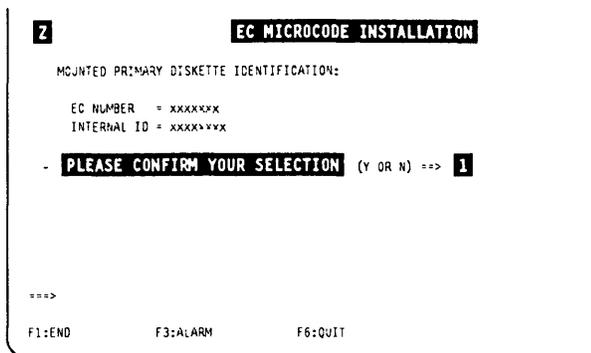


Figure 11-26. EC Installation, Diskette Identification Screen

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 **AB** is displayed.
 - If they do not match, screen **AC** is displayed.



Figure 11-27. EC Installation, Mount Secondary Diskette Screen

Step 2: Copy the Diskettes

Use of F1

Once started, the copy must come to its end. If you press **F1** before the end of the copy of the fifth diskette you set MOSS down, and the disk contents will not be valid. After the first diskette, the following message stays displayed:

WARNING: PRESSING F1 CAUSES MOSS DOWN AND DISK DATA DESTROYED

1. Mount the primary diskette, and press **SEND**. The following message is displayed:
EC INSTALLATION FROM xxxxx DISKETTE IN PROGRESS
(xxxxx can be primary, secondary, third, fourth, or fifth).
2. Then, you obtain the message:
MOUNT yyyyyy DISKETTE, THEN PRESS SEND
(yyyyyy identifies the next diskette to copy).
3. Repeat this step for each of the five diskettes.



Figure 11-28. EC Installation, Mount Primary 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
```

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. Set the panel for MOSS IML.
4. After about ten seconds, power the 3745 ON. This causes a MOSS IML.
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 9-9).
7. Before giving the 3745 back to the customer, **do not forget** to set the 3745 to customer mode.
8. 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.

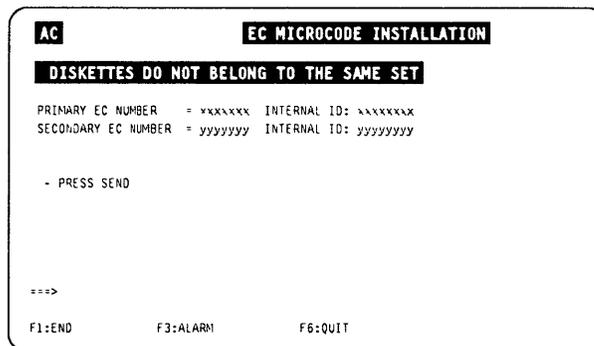


Figure 11-29. EC Installation, Unmatch in Diskette Installation Screen

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 11-18.

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 base frame.

- 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 the 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 base frame.

After disk initialization, try to restore the disk from the diskette again (see STEP 2).

If the restore is successful, you have completed the procedure. Restart the job that previously failed.

If the problem persists, call higher support.

Procedure 2

Your latest set of backup diskettes is either invalid or not up-to-date. You will use the 'normal' primary, secondary, third, fourth, and fifth diskettes (from the latest set of diskettes: initial installation or latest EC).

STEP A

1. Set the 3745 in service mode 1 or 2 at the control panel.

2. Mount the primary 'backup' diskette.

3. IML in diskette mode (function 9 at the control panel).

4. Re-initialize the current disk, as explained in "Initialize the Disk" on page 11-11.

Note: You must enter the serial number of the 3745.

STEP B Restore the disk from 'normal' primary, secondary, third, fourth, and fifth diskettes, that is, the primary, secondary, third, fourth, and fifth diskettes containing the latest version of the microcode (initial installation or latest EC).

Use the **restore disk** option (3) of the 'DIF' function on the **3745 function menu 1** screen. See "Restore the Disk from Diskettes" on page 11-8.

- If the restore is successful, go to STEP F.
- If the restore fails because of an I/O error, go to STEP C.

STEP C Replace the disk file adapter card (DFA). Refer to the *Maintenance Information Procedures* manual which 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 the 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.**INCREASING IN DISK SIZE - PLEASE WAIT SEVERAL MINUTES****Cause:** A 72MB disk (physical capability) was formatted to 45MB only. The system is formatting the remaining part to allow using the entire disk capacity.**Action:** No operator action. The operation is automatically performed.**HARDWARE CONFIGURATION SUPPORTS UP TO 4MB NCP LOAD MODULE****Cause:** The disk is a 45MB disk and therefore cannot support an NCP load module greater than 4MB.**Action:** Depending on the user's needs:

- The user does not want to use a 6MB NCP load module: no action.
- The user wants to use a 6MB NCP load module: exchange the disk for a 72MB disk.

Note: 6MB NCP load module is available starting from microcode EC A47035 level.**HARD DISK FAILURE; CHANGE YOUR DISK TO SUPPORT 6MB LOAD MODULE****Cause:** The disk is a 72MB disk (physical capacity) and was formatted up to 45MB only. An error occurred while formatting above 45MB. Therefore that disk cannot support an NCP load module greater than 4MB.**Action:** Depending on the user's needs:

- The user does not want to use a 6MB NCP load module: no action.
- The user wants to use a 6MB NCP load module: exchange the disk for a 72MB disk.

Note: 6MB NCP load module is available starting from microcode EC A47035 level.**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

DIF Messages

- 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

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 that hexadecimal and translated data are visible at the same time.

In the MOSS console you can display only hexadecimal or translated data at one time (see "Display I-SIT Buffer or File" on page 12-8).

Restrictions

- 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 available buffer space. Therefore, no other SIT can be started after a 56 kbps line SIT.
 - Low-speed line (below 56 kbps): four traces in four buffers of 2KB each.
- If an E-SIT is running for a given line, an I-SIT can not be started on this line (or vice-versa).

How to use the host SIT and SIT field details is described in the *ACF/TAP* manual, SC30-3143.

SIT Function Selection Procedure

1. Type **SIT** in **1**.
2. Press **SEND**.

Screen **B** is displayed.

```

A                                MENU 1
CONFIG DATA FILE.: CDF           IML ONE SCANNER...: IMS           PASSWORDS.....: PSW
CONTROL PGM PROC.: CPP           IPL CCU(S).....: IPL             PORT SWAP FILE.: PSF
DISK FUNCTIONS...: DIF           LD LINK TEST REQ.: LTQ           POWER SERVICES...: POS
DISK IPL INFO...: DII            LD LINK TEST RESP.: LTS           SCANNER I/F TRACE: SIT
EVENT LOG DISPLAY: ELD           LINE INTERF DSPLY: LID           STAND ALONE TEST.: SAT
FALLBACK.....: FBK              LINK IP. PORTS...: LKP           SWITCHBACK.....: S9K
IML MOSS.....: IML              MACHINF LV. TABLE: MLT           TIME SERVICES...: TIM
                                  MICROCODE FIXES...: MCF           TRSS INTERF DSPLY: TID
                                  ESS INTERF DSPLY.: EID           WRAP TEST.....: WTT

                                  ENTER OFF TO LOG OFF

==> 1

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

```

Figure 12-1. Menu 1 Screen

This screen is the starting point for all the **SIT** procedures described in this chapter. You must:

1. Enter the line address in **1**.
2. Select the action in **2**.
3. Press **SEND**.

```

B
- ENTER A DECIMAL LINE ADDRESS FROM 0 TO 1039 ==> 1
- ENTER THE ACTION TO BE PERFORMED (S, C, F, R, D, G) --> 2

S: START INTERNAL TRACE
C: CANCEL INTERNAL TRACE
F: FREEZE INTERNAL TRACE
R: RESUME INTERNAL TRACE
D: DISPLAY CSP STATUS
G: GET I-SIT BUFFER FROM SCANNER
WARNING: DURING I-SIT BUFFER TRANSFER EVENTS MAY BE LOST

==>

F1:END  F2:MENU2  F3:ALARM  F4:I-SIT BUFFER HANDLING

```

Figure 12-2. SIT Function Selection Screen

Start Internal SIT (I-SIT)

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 page 12-3).
2. Enter the line address in **1**.
3. Enter **S** in **2**.
4. Press **SEND**.
5. Screen **D** is displayed.

```

C
- ENTER A DECIMAL LINE ADDRESS FROM 0 TO 1071 - > 1
- ENTER THE ACTION TO BE PERFORMED (S, C, F, R, D, O) ==> 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

```

D
START I-SIT SELECTED FOR LINE xxx 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 SIT (I-SIT) Screen

Start Internal SIT (I-SIT) Screen Field Description

```

D
START I-SIT SELECTED FOR LINE xxxx  RLH xx  SCANNER xx

- TRACE IN WRAP MODE (Y OR N)      ==> Y
- CHECKPOINT TRACE (Y OR N)        ==> Y
- ENTER DATA COUNT (0 TO 255 OR ALL) ==> ALL
- STOP TRACE ON ERROR (Y OR N)     ==> N
- MAXIMUM AVAILABLE SIZE (Y OR N)  ==> N

===>

F1:END  F2:MENU2  F3:ALARM          F6:QUIT

```

Figure 12-5. Start Internal SIT (I-SIT) Screen

This screen shows the default values.

WRAP MODE	Allows tracing in wraparound mode or stopping the trace when the buffer is full.
CHECKPOINT	Allows recording checkpoint entries (refer to "Scanner Checkpoint Trace" on page 4-20 for additional information).
DATA COUNT	Is the size of the data record you want to keep trace of, starting from byte one (40 bytes maximum traced for HPTSS).
STOP ON ERROR	Allows stopping the trace (or not) after an error occurs.
SIZE	Size of the buffer you want for that trace. Two, four, or eight kbytes are the default sizes according to the line speed. If you select Y , no further trace can be started.

Cancel Internal SIT (I-SIT)

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 SIT (I-SIT)

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 SIT (I-SIT)

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 **F** 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
```

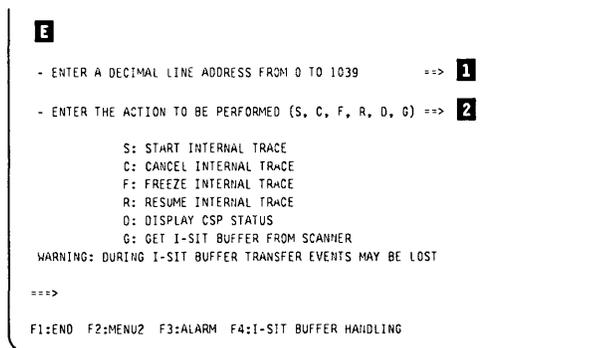


Figure 12-6. SIT Function Selection Screen

The number of lines displayed depends on the number of I-SIT(s) active or frozen.

```

F

      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 the line address in **1**.
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).

```

G
- ENTER A DECIMAL LINE ADDRESS FROM 0 TO 1039 ==> 1
- ENTER THE ACTION TO BE PERFORMED (S, C, F, R, D, G) ==> 2

      S: START INTERNAL TRACE
      C: CANCEL INTERNAL TRACE
      F: FREEZE INTERNAL TRACE
      R: RESUME INTERNAL TRACE
      D: DISPLAY CSP STATUS
      G: GET I-SIT BUFFER FROM SCANNER
      WARNING: DURING I-SIT BUFFER TRANSFER EVENTS MAY BE LOST
      ====
      F1:END  F2:MENU2  F3:ALARM  F4:I-SIT BUFFER HANDLING
  
```

Figure 12-8. SIT Function Selection Screen

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

The available functions are described in the next paragraphs.

```

H
- ENTER THE ACTION TO BE PERFORMED (D, E, F) ==> 1

      D: DISPLAY I-SIT
      E: ERASE I-SIT FILE
      F: FILE I-SIT ONTO DISK
      ====
      F1:END  F2:MENU2  F3:ALARM  F6:QUIT
  
```

Figure 12-9. I-SIT Buffer Handling Screen

Display I-SIT Buffer or File

Allows displaying the I-SIT in a format similar to 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 page 12-3).
2. In screen **H**, 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 **J** or **K** is displayed, according to the type of line.
 - If the disk file is empty, the display event selection screen is displayed (screen **J** for TSS, screen **K** for HPTSS).

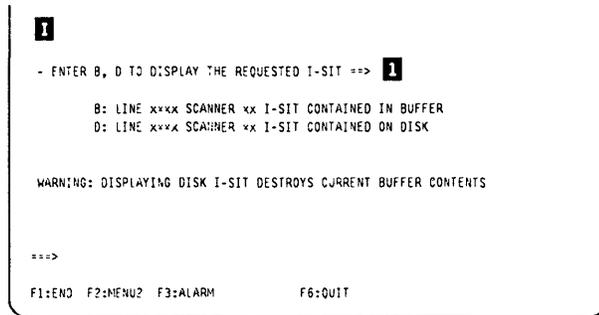


Figure 12-10. Display Buffer or File Selection Screen

Procedure for TSS

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

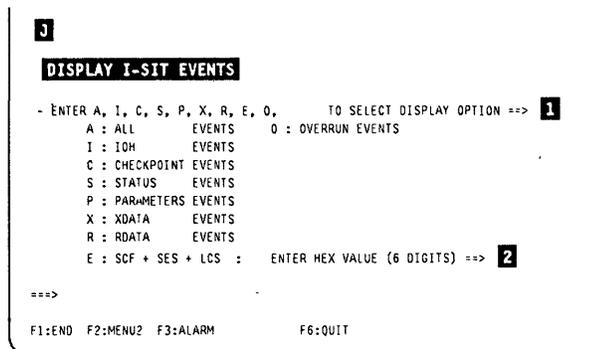


Figure 12-11. Display Event Selection Screen (TSS)

Procedure for HPTSS or ESS

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

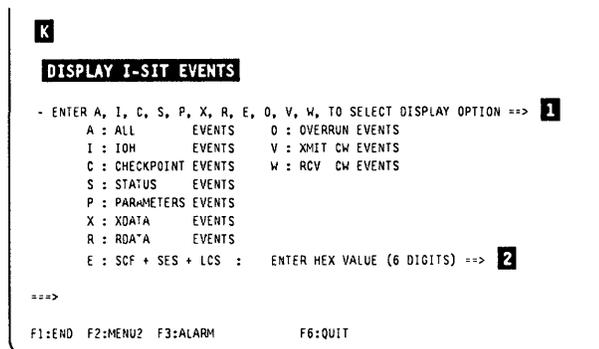


Figure 12-12. Display Event Selection Screen (HPTSS)

To display translated data:

1. Enter **T** in **L**.
2. Press **SEND**.
3. Screen **M** is displayed.

```

L
LINE xxxxx  SCANNER xx
                                ENTER T FOR TRANSLATED DATA ==> 1
                                OR Lhhhhhhm FOR LOCATE ==>>> 2

0001 PARM          000036001007F59C0958000004041F0B
0002 STAT SET MODE CMND COMPLETE 44010000000303030000
0003 PARM          01:0036001007F59C0958000004041F0B
0004 STAT ENABLE  CMND COMPLETE 4402009ECC0083B30C00
0005 IOH SET MODE  22100116
0006 CHKPT        A6B501A0
0007 XDATA        AA373737B244
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 **L**. To return to screen **L**:

1. Enter **H** in **L**.
2. Press **SEND**.

```

M
LINE xxxxx  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 12-14. 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 **L**.
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 12-15. I-SIT Buffer Handling Screen

Save I-SIT Buffer To Disk

1. Enter F in **1**.
2. Press **SEND**.
 - If the disk file is empty, this message is displayed:
I-SIT SAVED TO DISK
 - If the disk file is not empty, the following message asks you if you want to erase the file before saving the buffer:
I-SIT ALREADY ON DISK, PRESS 'E' BEFORE SAVING
(refer to “Erase I-SIT File”)

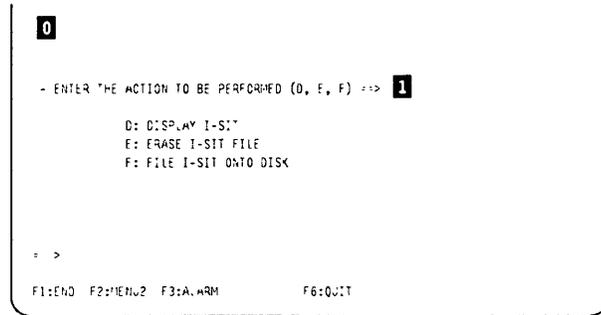


Figure 12-16. I-SIT Buffer Handling Screen

SIT Messages

Refer to the *3745 Advanced Operations Guide* 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)

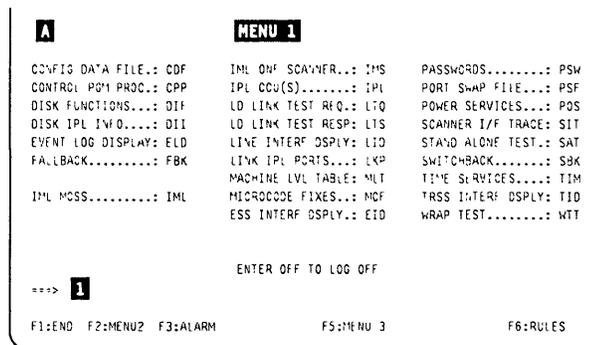
The power services (POS) function is used to:

- Display power supply information,
- Power ON or OFF a given power supply
- Recreate the power configuration table
- Acknowledge a change in the air filters or the battery
- Display the airflow detectors status.

POS Function Selection Procedure

In menu 1, type **POS** in **1** then press **SEND**.

The POS function selection screen (**B**) is displayed.



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

The frames are identified differently in the MIP and MIR, than in screen **B**. The following table gives the correspondence.

Name in Menu	Name in MIP/MIR
3745 (base frame)	Frame 01
3746 A11	Frame 02
3746 A12	Frame 03
3746 L13	Frame 04
3746 L14	Frame 05
3746 L15	Frame 06

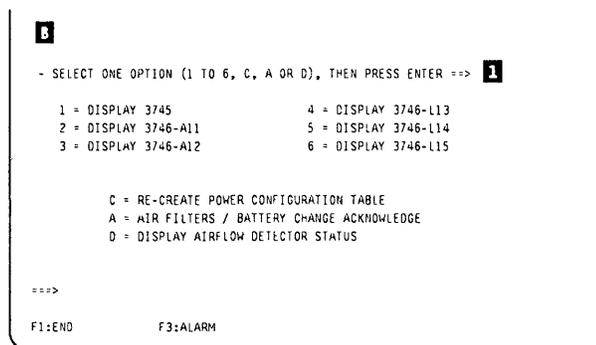


Figure 12-17. POS Function Selection Screen

Displaying Power Information

- This information is obtained by selecting an option from 1 to 6 in screen **A** (this example shows 3745 power information, but it could be any other screen corresponding to options 1 to 6).
- Options 2 to 6 display screens only if the corresponding frames are installed.
- Refer to page 12-15 for field explanations.

From that function, you may power ON or OFF any of the displayed power supplies. You may also press **F6** to return to screen **A**.

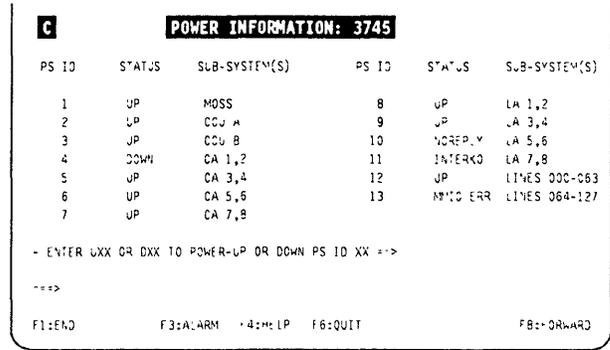


Figure 12-18. Power Information for Frame 3745 Screen

Powering ON a Power Supply

- You must have displayed the power information of the frame where the power supply is located
- Enter **Uxx** in **1** then press **SEND**. (xx is the power supply ID).

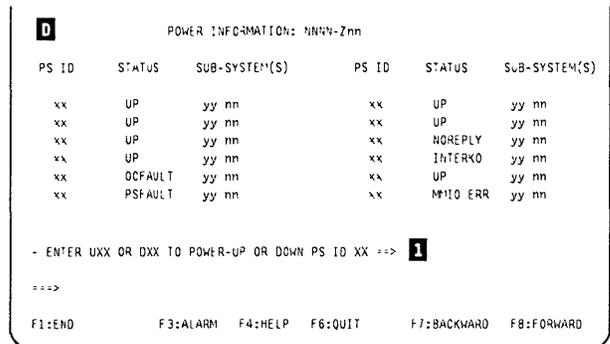


Figure 12-19. Power ON a Power Supply

Powering OFF a Power Supply

- You must have displayed the power information of the frame where the power supply is located
- Enter **Dxx** in **1** then press **SEND**. (xx is the power supply ID).

If you perform a power OFF on a power supply of a CCU, CA, or LA, you obtain screen **F** to confirm your action.

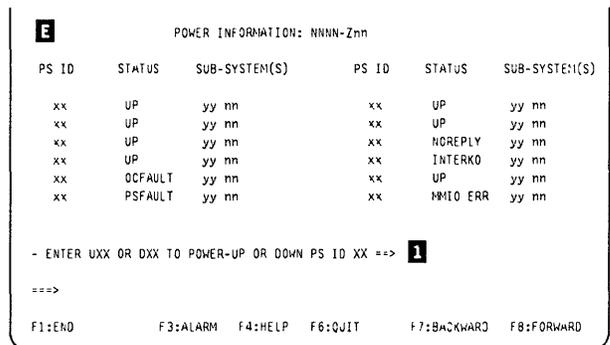


Figure 12-20. Power ON a Power Supply

Power Off Confirmation

If a power OFF request is made on a running CCU, on a chained CA, or on a connected LA, this screen is displayed (the following table gives the contents of the variable fields according to the type of subsystem).

NNN	yyyyy	zzzzz
CCU	POWER OFF	RUNNING
CA	CHAIN OUT	IN CHAINS
LA	DISCONNECT	CONNECTED

Enter either **Y** (to perform the power OFF) or **N** in **1** (to return to screen **E**) then press **SEND**.

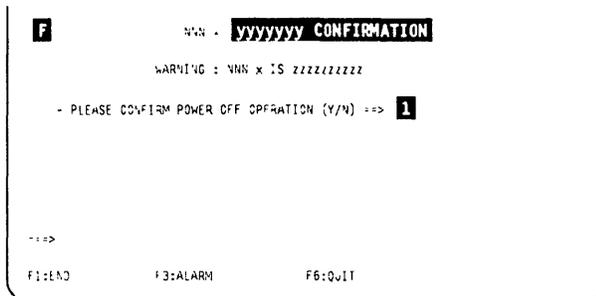


Figure 12-21. CCU Power Off Confirmation Screen

CDF Error During Power Off Request

If a CDF error occurs during a power OFF operation, this screen is displayed:

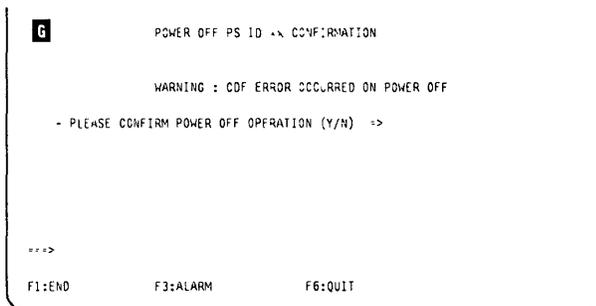


Figure 12-22. CDF Error During Power Off Request Screen

Power Information Field Descriptions

```

G
POWER INFORMATION: NNNN-Znn
PS ID      STATUS      SUB-SYSTEM(S)      PS ID      STATUS      SUB-SYSTEM(S)
  xx        UP          yy nn              xx        UP          yy nn
  xx        UP          yy nn              xx        UP          yy nn
  xx        UP          yy nn              xx        NOREPLY     yy nn
  xx        UP          yy nn              xx        INTERKO     yy nn
  xx        OCFAULT    yy nn              xx        UP          yy nn
  xx        PSFAULT    yy nn              xx        HHIIO ERR   yy nn

- ENTER UXX OR DXX TO POWER-UP OR DOWN PS ID XX ==>
====>
F1:END      F3:ALARM  F4:HELP  F6:QUIT  F7:BACKWARD  F8:FORWARD
    
```

Figure 12-23. Power Information Screen

PS ID Power supply number

STATUS The current status of the power supply.

- Press **F4** to obtain the help screen explaining the statuses.
- Any power supply status change is reflected on the power information screens.

SUB-SYSTEM(S) The sub-system powered by the corresponding power supply. This can be: MOSS, CCU A or B, CA, LA, or Lines. For CA, LA, and Lines, the corresponding numbers are displayed.

The subsystems not installed are not displayed.

If the power supply of an installed subsystem is not created in the CDF, the subsystem name is replaced by a dash on the screen.

Recreating the PS ID Configuration Table

Select option **C** (recreate the PS ID configuration table) on the POS function selection screen **B**. This function analyzes all the power supplies and displays their presence on this screen.

- The numbers are the PS ID for the power supply present and UP when the table is created.
- A dash (-) represents a power supply not present or DOWN when the table is created.

From this screen you may decide to:

- Use the new configuration table: enter **Y**
- Keep the old configuration table: enter **N**.

A message gives the result of the operation. The power subsystem (PSS) will then use the selected configuration.

The following table shows the PS ID assignments:

Frame	PS ID
3745 (base frame)	1 to 13
3746-A11	14 to 25
3746-A12	26 to 29
3746-L13	30 to 33
3746-L14	34 to 37
3746-L15	38 to 41
Note: For additional information, refer to the "Power" chapter of the <i>Maintenance Information Reference</i> manual.	

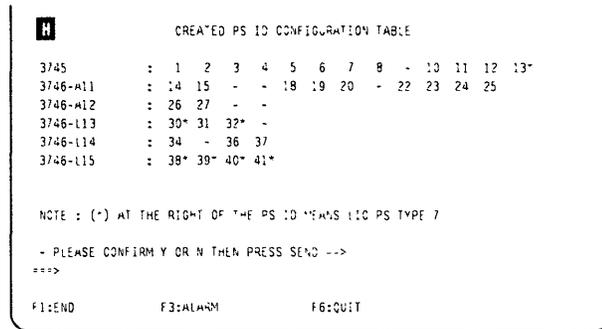


Figure 12-24. Recreating the PS ID Configuration Table Screen

Changing the Air Filters or the Battery

- Air filters must be changed once a year. If not, you will get an alarm every day.
- Normally, the battery should not be replaced.

1. Select option **A** on the POS function selection screen **B**. This screen is displayed.
2. Enter the selected option (**F** or **B**) in **1** then press **SEND**.

Screen **J** is displayed.

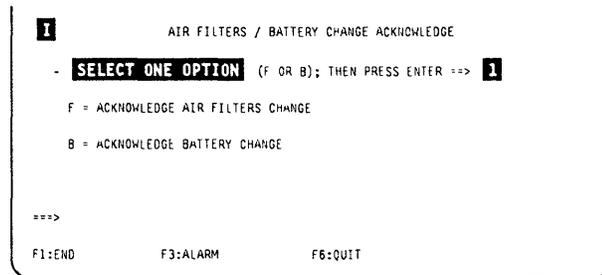


Figure 12-25. Air Filters and Battery Change Screen

xxxxxxxxxx can be AIR FILTERS or BATTERY.

Enter your choice (Y or N) in **1** then press **SEND**. When you enter **Y** a BER is logged to record the event. This stops the daily alarm for air filters or battery change.

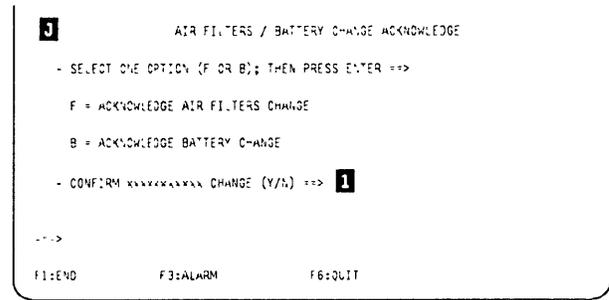


Figure 12-26. Air Filters or Battery Change Confirmation Screen

Displaying Airflow Detector Status

Select option **D** on the POS function selection screen **B**. This screen is displayed.

The following table shows the airflow detector assignments:

Frame	Airflow Detector
3745 (base frame)	1 to 4 and 17 to 19
3746-A11	5 to 12
3746-A12	13 to 16
3746-L13	20 to 23
3746-L14	24 to 27
3746-L14	28 to 31
Note: For additional information, refer to the "Power" chapter of the <i>Maintenance Information Reference</i> manual.	

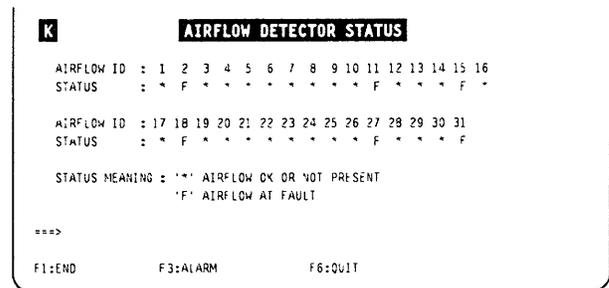


Figure 12-27. Airflow Detector Status Screen

POS Messages

NEW CONFIGURATION TABLE IGNORED

Cause: Self-explanatory

Action: None

NEW CONFIGURATION TABLE NOW OPERATIONAL

Cause: The power subsystem now uses the new configuration table for power block control.

Action: None.

POWER SUBSYSTEM/MOSS ERROR: NEW CONFIGURATION TABLE IGNORED

Cause: An error occurred while transmitting the confirmation to the power subsystem. The new configuration table is not taken into account by the power subsystem.

Action: Rerun the re-create PS ID configuration table.

Refer to the *3745 Advanced Operations Guide* for explanation of the following messages which are common to customers and CE:

- CDF ERROR: SOME PS ID INFO CAN'T BE DISPLAYED
- COMMAND NOT ALLOWED FOR MOSS POWER SUPPLY
- COMMAND PERFORMED WITH ERROR: SEE STATUS
- COMMAND SUCCESSFULLY PERFORMED
- FRAME NOT INSTALLED OR DATA NOT ACCESSIBLE
- INVALID INPUT
- POWER ON FAILED: TOO MANY AIRFLOWS AT FAULT
- POWER SUB SYSTEM/MOSS ERROR: COMMAND NOT PERFORMED
- POWER SUB SYSTEM/MOSS ERROR: OPTION NOT AVAILABLE
- PS ID IS MISSING
- SPECIFIED PS ID DOES NOT BELONG TO THIS FRAME
- SPECIFIED PS ID IS ALREADY OFF
- SPECIFIED PS ID IS ALREADY ON
- SPECIFIED PS ID IS NOT ALLOWED
- SPECIFIED PS ID IS NOT INSTALLED

Time Services (TIM)

Ask the Customer

Time services (TIM) is a customer function. No TIM information must be changed without customer permission.

The time services function is used to:

- Set or modify the date and time
- Define scheduled power-ON times (only once a day)
- Activate or deactivate the scheduling function
- Display the state of the scheduling function (activated or deactivated).

The date and time are permanently displayed on line 7 of the MSA (any screen).

TIM Function Selection Procedure

1. Type **TIM** in **1**.
2. Press **SEND**.

Screen **B** is displayed.

```

A
MENU 1
CONFIG DATA FILE.: CDF      IML ONE SCANNER.: IMS      PASSWORDS.....: PSW
CONTROL PGM PROC.: CPP      IPL CCU(S).....: IPL      PCRT SWAP FILE.: PSF
DISK FUNCTIONS...: DIF      LD LINK TEST REQ.: LTQ      POWER SERVICES.: POS
DISK IPL INFO....: DII      LD LINK TEST RESP.: LTS      SCANNER I/F TRACE: SIT
EVENT LOG DISPLAY: ELD      LINE INTERF DSPLY: LID      STAND ALONE TEST.: SAT
FALLBACK.....: FBK        LINK IPL PORTS...: LKP      SWITCHBACK.....: SBK
IML MOSS.....: IML        MACHINE LVL TAB.E: MLT      TIME SERVICES...: TIM
                        MICROCODF FIXES...: MCF      TRSS INTERF DSPLY: TID
                        ESS INTERF DSPLY.: EID      WRAP TEST.....: WTT

                        ENTER OFF TO LOG OFF

==== 1
F1:END  F2:MENU2  F3:ALARM          F5:MENU 3          F6:RULES
  
```

Figure 12-28. Menu 1 Screen

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

```

B
- SELECT ONE OPTION (1 OR 2), THEN PRESS SEND ==> 1

  1 = SET/MODIFY DATE AND/OR TIME
  2 = DISPLAY/UPDATE "SCHEDULED POWER-ON" DATA

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

Figure 12-29. 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.

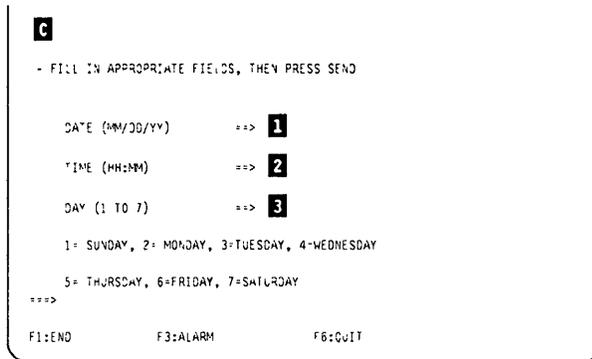


Figure 12-30. Set/Modify Date and/or Time Screen

Display/Update Scheduled Power-ON Data

1. Select **2** in screen **B**.
2. Enter the scheduled power-ON time in front of the appropriate day.
3. Enter **Y** or **N** in **1**.
4. Press **SEND**.
5. This message is displayed:
DATA SUCCESSFULLY TRANSMITTED
6. Press **F1** to leave the function.

Note: Do not forget to set:

POWER CONTROL = 2 (network)

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

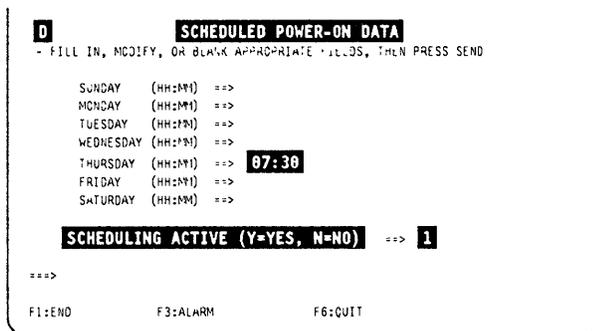


Figure 12-31. Display/Update Scheduled Power-ON Data Screen

TIM Messages

Refer to the *3745 Advanced Operations Guide* 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

Repaired CCU (REP)

1. In MENU 2, enter **CSR** in **1** and press **SEND**.
2. Select CCU-A or CCU-B (refer to the *Advanced Operations Guide* for detailed procedure). **SELECTED** is displayed in the MSA in front of the CCU name.
3. In MENU 2, enter **REP** in **1** then press **SEND**. Screen **B** is displayed.

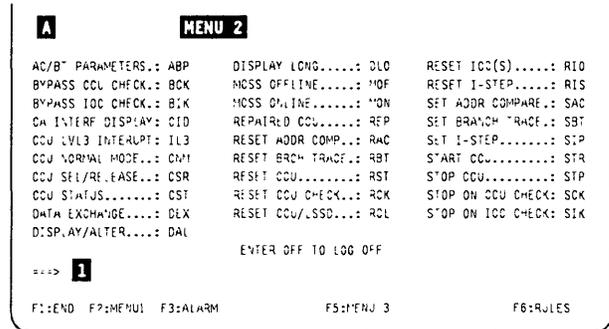


Figure 12-32. Menu 2 Screen

1. Press **SEND** to confirm the request.
2. When the request has been satisfied the following message is displayed:

CCU REPAIRED FUNCTION COMPLETED

If the request is not satisfied, the result is an abend.

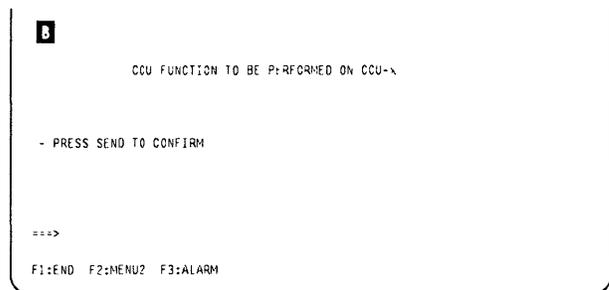


Figure 12-33. Repaired CCU Function Selection Screen

REP Messages

CCU REPAIRED FUNCTION COMPLETED

Cause: The REP function has been successfully executed.

Action: Execute a switchback function if the machine is in back-up mode, or IPL the CCU if the machine is in dual mode.

FUNCTION NOT ALLOWED, CHECK CCU STATE

Cause: The CCU is not in the 'down' state.

Action: Check the CCU state.

IPL In Maintenance Mode

In MENU 1 enter IPL in **1**. Screen **B** is displayed.

```

A                                MENU 1
CONFIG DATA FILE.: CDF           IPL CME SCANNER.: IMS           PASSWORDS.....: PSM
CONTROL PGM PROC.: CPP           IPL CCU(S).....: IPL           PORT SWAP FILE.: PSF
DISK FUNCTIONS....: DIF           LD LINK TEST REQ.: LTQ         POWER SERVICES.: POS
DISK IPL INFO.....: DII           LD LINK TEST RESP.: LTS        SCANNER I/F TRACH: SIT
EVENT LOG DISPLAY: ELD           LINE INTERF DSPLY: LID        STAND ALONE TEST.: SAT
FALLBACK.....: FBK              LINK IPL PORTS...: LKP        SWITCHBACK.....: SBK
IML MOSS.....: IML              MACHINE LVL TABLE: MLT       TIME SERVICES....: TIM
                                MICROCODE FIXES...: MCF       TRSS INTERF DSPLY: TID
                                ESS INTERF DSPLY.: EID        WRAP TEST.....: WTT

                                ENTER OFF TO LOG OFF

* > 1

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

```

Figure 12-34. Menu 1 Screen

- In **1**, enter the CCU selection.
- In **2**, 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 stops at the beginning of each phase (1, 2, 3, 4). "STOP" is displayed in the MSA (next to the IPL phase field). Press **F5** to resume the operation.

```

B
- SELECT THE CCU YOU WANT TO IPL (1 TO 3) ==> 1

  1 = AVAILABLE CCU(S) ACCORDING TO OPERATING MODE
  2 = CCU-A
  3 = CCU-B

- SELECT AN IPL OPTION (1 TO 2) ==> 2

  1 = NORMAL
  2 = STEP-BY-STEP

==>

F1:END F2:MENU2 F3:ALARM

```

Figure 12-35. IPL Function Screen (Maintenance Mode)

List of Abbreviations

abend	abnormal end of task	CAL	channel adapter logic card
AC	address compare	CADR	channel adapter driver receiver card
ACB	adapter control block	CADRUk	channel adapter driver receiver type UK card
ACF	Advanced Communications Function	CADS	channel adapter with data streaming
ACK	affirmative acknowledgment (BSC)	CATPS	channel adapter with two-processor switch
ACR	abandon call request	CB	circuit breaker
ACU	automatic calling unit	CCITT	Comite Consultatif International Telegraphique et Telephonique
AE	address exception	CCMD	current command (storage)
AEK	address exception key	CCN	communications controller node
AFD	airflow detector	CCU	central control unit
AGC	automatic gain control (signal)	CCW	channel command word
AIO	adapter-initiated operation	CD	carrier detector (signal)
ALU	arithmetic and logic unit	CDF	configuration data file
AMD	air moving device	CDG	concurrent diagnostic
AS	autoselection chain	CDS	configuration data set (NCP/EP)
ASCII	American National Standard Code for Information Interchange	CE	customer engineer
AXB	adapter expansion block	CEPT	Comite Europeen des Postes et Telecommunications
BCC	block check character (BSC)	CHCW	channel control word
BCCA	buffer chaining channel adapter	CHPID	channel path identification
BCCW	bit clock control word	CI	calling indicator (signal)
BCD	binary-coded decimal notation	CLDP	controller load/dump program
BER	box event record	CNM	communication network management
B/M	bill of material	CNMI	communication network management interface
BPC1	bus propagation card to replace the CAL card	CNSL	console
BPC2	bus propagation card to replace the TRM card	CONFsw	configuration switch
bps	bits per second	CP	1) communication processor, control program 2) circuit protector
BR	bus request	CPIT	control program information table
BSC	binary synchronous communication	CPM	connection point manager
BT	branch trace	CPT	checkpoint trace
BTAM	Basic Telecommunications Access Method	CR	1) compare register (instruction) 2) call request (signal)
BTAM-ES	BTAM extended support	CRC	cyclic redundancy check character
C	control (X.21 signal)	CRP	check record pool
CA	channel adapter		
CAB	channel adapter board		
CAC	common adapter code		
CACM	channel adapter concurrent maintenance		

CRQ	call request	DSC	distant station connected
CRU	customer replaceable unit	DSR	data set ready (signal)
CS	1) cycle steal 2) communication scanner	DSRS	data signaling rate selection (signal)
CSA	common subassembly	DSU	data service unit (DCE-like for high-speed communication lines)
CSCW	cycle steal control word	DTE	data terminal equipment
CSG	cycle steal grant	DTER	DMA bus terminator
CSGH	cycle steal grant high	DTR	data terminal ready (signal)
CSGL	cycle steal grant low (card)	DVB	device block
CSP	communication scanner processor	DX	duplex
CSR	cycle steal request	EBCDIC	extended binary-coded decimal interchange code
CSRH	cycle steal request high	EC	engineering change
CSRL	cycle steal request low	ECC	error checking and correction
CSS	control subsystem	EDE	elementary data exchange
CSU	1) customer setup 2) customer service unit (DCE-like for high-speed communication lines)	ED/FI	error detection/fault isolation
CSW	channel status word	EIA	Electronic Industries Association
CTS	clear to send (signal)	EIB	error intermediate block
CW	control word	ELCS	extended line communication status
DAF	destination address field (SNA)	EMEA	Europe, Middle East, Africa
DB	data byte	ENQ	enquiry (BSC)
DC	data chaining (channel status)	EOT	end of transmission (BSC)
DCE	data circuit-terminating equipment	EP	emulation program
DCF	diagnostic control function	EPO	emergency power-off
DCM	diagnostic control monitor	ERC	error reference code
DCRLSD	data channel receive line signal detector (same as CD)	EREP	environmental recording, editing, and printing (program)
DE	device end (channel status)	ERP	error recovery procedure
DFA	disk file adapter card	ESC	emulation subchannel (address)
DFI	defect-free installation	ESCH	emulation subchannel high (address)
DIFF	differentiator	ESCL	emulation subchannel low (address)
DLE	data link escape character	ESD	electrostatic discharge
DLO	data line occupied (signal)	ESS	Ethernet** subsystem
DMA	direct memory access	ETB	end-of-transmission block character (BSC)
DMSW	direct memory access switch card	ETX	end-of-text character (BSC)
DMUX	double multiplex card for board on LIC unit 1	EXP	expected
DOI	duration of interrupt	FAC	flag address control (SDLC frame)
DP	digit present (signal)	FCC	Federal Communications Commission
DPR	digit present request	FCPS	final call progress signals (X.21)
DRS	data rate select	FCS	frame check sequence
DRV	driver	FDD	flexible disk drive
		FDS	flat distribution system

FDX	full-duplex (synonym for duplex)	IML	initial microcode load
FE	field engineering	in.	inch
FEIS	field engineering information system	INN	intermediate network node
FERR	FESA error register	INOP	inoperative (line, modem, or terminal)
FES	front-end scanner	INS	information network system
FESA	front-end scanner adapter	IOC	input/output control
FESH	front-end scanner (high-speed)	IO	input/output
FESL	front-end scanner (low-speed)	IOCB	input/output control bus
FID4	format identification 4	IOCS	input/output control system
FM	frequency modulation	IOIRR	input/output interrupt request register
FPS	FES parameter/status	IOSW	input/output switch (card)
FRU	field-replaceable unit	IPF	instruction pre-fetch
ft	foot	IPL	initial program load
GPR	general purpose register	IPR	isolated pacing response (SNA)
GPT	generalized PIU trace	IR	interrupt request
GTF	generalized trace facility	IRR	interrupt request removed
HCS	Hardware Central Service	ISDN	integrated service digital network
HDD	hard disk drive	ISL	inbound serial link
HDX	half-duplex	ITB	intermediate text block (BSC)
hex	hexadecimal	ITER	IOC bus terminator
hh	hexadecimal value hh	IVT	isolation verification tests
HLIR	high-level interrupt request	K	1024 (bytes or words)
HLU	highest logical unit (largest CPU in an establishment)	KBD	keyboard
HPTSS	high-performance transmission sub-system	kbps	kilobits per second
HSB	high-speed buffer	kHz	kilohertz
HSC	high-speed channel	ko	not ok
HSS	high-speed scanner	LA	line adapter
HW	hardware	LAB	line adapter board
Hz	Hertz	LAN	local area network
I	indication (signal)	LAP	line adapter processor
IACK	interrupt acknowledgement	LAR	lagging address register
IAR	instruction address register	LCB	line control block (storage)
IBE	internal box error	LCD	line control definer (storage)
ICA	integrated communication adapter	LCS	line communication status (storage)
ICB	interface control block (storage)	LDF	line description file
ICF	internal clock function	LED	light-emitting diode
ICW	interface control word	LERR	line error register/driver check
ID	identifier	LIB	line interface buffer
IFT	internal function test	LIB1	LIC board type 1 for LICs 1, 3, and 4
IMB	in mailbox (MOSS)	LIB2	LIC board type 2 for LICs 5 and 6
		LIC	line interface coupler card

LICx	line interface coupler type x (card)	MIP	Maintenance Information Procedures
LID	line interface display	MIR	Maintenance Information Reference
LIU	line interface coupler unit	MIT	MOSS interface table
LIU1	LIC unit 1 for LICs type 1, 3, and 4	MLC	machine level control
LIU2	LIC unit 2 for LICs type 5, and 6	MLT	machine load table
LLB	local loopback	MMIO	memory mapped input/output
LLIR	low-level interrupt request	MOD	modifier
LL2	link level 2 test	MOSS	maintenance and operator subsystem
LNVT	line vector table	MPC	MOSS processor card
LPDA	Link Problem Determination Aid	MPS	multiple port sharing
LRU	least-recently used	ms	millisecond
LS	local storage	MSA	machine status area
LSAR	local storage address register	MSA	multistation access unit
LSI	large scale integration	MSC	MOSS storage card
LSR	local storage register (CSP)	MSD	machine status display
LSS	low-speed scanner	MUX	multiplex function
LSSD	level-sensitive scan design	NAK	negative acknowledgment character (BSC)
LT	local test	NCCF	Network Communications Control Facility
LU	logical unit	NCP	Network Control Program
m	meter	NCTE	network communication terminal equipment
mA	milliampere	NLDM	Network Logical Data Manager
MAC	MOSS adapter card	NMPF	network management program facilities
MAP	maintenance analysis-procedure	NMVT	network management vector transport
Mb	megabyte; 1 048 576 bytes	NOSP	network operation support program (VTAM) < D > Use storage
MCA	MOSS console adapter card	NPDA	Network Problem Determination Application
MCPC	machine check/program check	NPM	NetView performance monitor
MCC	MOSS control card	NPSI	network packet switching interface
MCF	microcode fix	NRZI	see NRZ-1
MCT	machine configuration table	NRZ-1	non return-to-zero change on ones recording
MDOR	MOSS data operand register	NSC	native subchannel (address)
MDR	miscellaneous data record	NTO	Network Terminal Option
MERR	MUX error	NTT	Nippon Telegraph and Telephone (Japanese PTT)
MES	miscellaneous equipment specification	OCR	OR character register
MFM	modified frequency modulation	ODG	offline diagnostic
MHz	megahertz	OEM	original equipment manufacturer
MICB	MOSS interface control block	OEMI	original equipment manufacturer's interface
min	minute		
MIO	MOSS input/output		
MIOC	MOSS I/O control bus		
MIOH	MOSS input/output halfword		
MIOHI	MOSS input/output halfword immediate		

OHR	OR halfword register	PSS	power subsystem
OLT	online test	PSTCE	product support trained CE
OLTEP	online test executive program	PSTY	power supply type
OLTSEP	online test stand-alone execution (program)	PSV	program status vector
OLTS	online test system	PSW	program status word
OLTT	online terminal test	PSx	power supply type x
OMB	out mailbox	PTCE	product-trained CE
OP	operation decode	PTER	power bus terminator
OS	Operating System	PTF	program temporary fix
OSL	outbound serial link	PTT	Post, Telephone and Telegraph (agency)
PAC	power analog card	PU	physical unit
PAP	previous adapter present	RC	receive clock
PAR	problem analysis and repair	RCDB	reference code data base
PC	personal computer	RCV	receive
PCB	power control bus	RD	receive data (signal)
PCF	primary control field (storage)	RDB	reference code data base
PCI	program-controlled interrupt	RECFMS	record formatted maintenance statistics
PCR	power check reset	RECMS	record maintenance statistics
PCSS	power control subsystem	REQMS	request for maintenance statistics
PCW	processor control word	RETAIN	Remote Technical Assistance Information Network
PCWC	power control wrap card	RFS	ready for sending (signal) (or clear to send CTS)
PD	problem determination	RH	request/response header
PDAID	problem determination aids	RIM	request initialization mode (SDLC)
PDB	power distribution board	RLSD	receive line signal detector
PDF	parallel data field (storage)	RNIO	OS/VS VTAM IO trace
PE	Product Engineering	ROK	read-only key
PEP	partitioned emulation program	ROS	read-only storage
PF	programmable function	ROSAR	read-only storage address register
PFAR	prefetch address register	RPO	remote power-off
PI	power indication (signal)	RPQ	request for price quotation
PIO	program-initiated operation	RSET	receive signal element timing (same as RC)
PIRR	program interrupt request register	RSF	remote support facility
PIU	pass information unit	RTC	retry count (X.21)
PLC	power logic card	RTM	retry timer (X.21)
P/N	part number	RTS	request to send (signal)
PND	present next digit (signal)	RU	request/response unit (SNA)
POPR	prefetch operation register	RVI	reverse interrupt (BSC)
POR	power-on reset	R/W	read/write
PROM	programable read-only memory	s	second
PS	power supply		
PSA	program status area		

SAC	storage and control board assembly	STER	switch terminator
SACL	storage and control lower assembly	STG	storage
SACU	storage and control upper assembly	STO	storage (card)
SALT	stand-alone link test	STX	start of text (BSC)
SAR	storage address register	SVC	supervisor call
SCB	scanner control block (storage)	SW	switch
SCF	secondary control field (storage)	SWER	switch error register
SCP	signal converter product (or DCE)	SYN	synchronous idle (BSC)
SCR	serial clock receive (signal)	SYSGEN	system generation
SCT	serial clock transmit (signal)	T	transmit (signal)
SCTL	storage control card	TA	tag address
SD	send data (signal)	TAP	trace analysis program
SDF	serial data field (storage)	TAR	temporary address register
SDLC	Synchronous Data Link Control	TB	terminator block
SE	system engineer	TC	transmit clock
SES	secondary status (storage)	TCAM	Telecommunications Access Method
SET	signal element timing (signal)	TCB	task control block
SHM	short hold mode	TCC	trace correlation counter (storage)
SIDI	serial in data in	TCM	thermally-controlled module
SIM	set initialization mode (SDLC)	TCP	test connector pin
SIO	start input/output	TCS	two-channel switch
SIT	scanner interface trace	TCTR	transient error counter
SKA	storage key address	TD	1) tag data 2) transmitted data (signal)
SKDR	storage-protect key data register	TERM	terminator
SL	serial link	TG	transmission group
SMPS	switching module power supply	TH	transmission header
SMUXA	single multiplex card for lower board on LIC 2	TI	test indicator (signal)
SMUXB	single multiplex card for upper board on LIC 2	TIC1	token-ring interface coupler type 1 card (4Mb)
SNA	Systems Network Architecture	TIC2	token-ring interface coupler type 2 card (16Mb)
SNRM	set normal response mode (SDLC)	TICB	trace interface control block
SODO	serial out data out	TIO	test I/O
SOH	start of heading (BSC)	TLNVT	trace line vector table
SP	storage protect	TOD	time of day
SPAЕ	storage protect/address exception	TPS	two-processor switch
SPK	storage protect key	TPSA	trace parameter status area
SRL	shift register latch	TRA	token-ring adapter
SS	start-stop	TRM	token-ring multiplexer card that controls up to two TICs
SSB	system status block	TRSS	token-ring subsystem
SSCP	system services control point	TRU	trace record unit
SSP	system support programs		

TSET	transmitter signal element timing (signal, same as TC)	VPD	vital product data
TSS	transmission subsystem	VRC	vertical redundancy check
TTA	translate table area	VS	virtual storage
TTD	temporary text delay (BSC)	VTAM	Virtual Telecommunications Access Method
T1	US service for very high speed transmissions at 1.5 million bps	V.24	CCITT V.24 recommendation
UA	unnumbered acknowledgment (SDLC)	V.25	CCITT V.25 recommendation
UC	universal controller	V.28	CCITT V.28 recommendation
UCW	unit control word	V.35	CCITT V.35 recommendation
UE	unit exception (channel status)	WACK	wait before transmit positive acknowledgment (BSC)
UEPO	unit emergency power-off	WB	wrapback (signal)
UK	United Kingdom	WKR	work register
UKA	user key address	WSDR	wide storage data register
UKP	user key program	XI	X.25 SNA interconnection
UKDR	user key data register	XID	exchange identification
UKL	user key level interrupt	XREG	external registers
URSF	universal remote support facility	X.21	CCITT X.21 recommendation
USASCII	(see <i>ASCII</i>)	X.25	CCITT X.25 recommendation
us	microsecond	YZxxx	wiring diagram
VB	valid byte (signal)	ZI	zero insert
VCNA	VTAM node control application	ZREG	Z register
VH	valid halfword (signal)		

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.

fallback. In twin-backup mode, a state where the traffic of the failing CCU has been redirected to the second one.

In standby mode, a state where the traffic of the failing CCU has been redirected to the standby CCU after it is IPLed.

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.

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).

The HPTSS consists of up to eight high-speed scanners (HSSs).

high-speed scanner. Line adapter for lines up to 2 million bps, composed of a communication scanner processor (CSP) and a front-end high-speed scanner (FESH).

high-speed transfer. A mode of high-speed data transmission over an I/O interface to enable communication between data processing systems through a channel.

hit. In cache operation, indicates that the information is in the cache storage.

host processor. (1) A processor that controls all or part of a user application network. (2) In a network, the processing unit in which the access method for the network resides. (3) In an SNA network, the processing unit that contains a system services control point (SSCP). (4) A processing unit that executes the access method for attached communication controllers. Also called *host*.

IBM service representative. An individual in IBM who performs maintenance services for IBM products or systems.

initial microcode load (IML). The process of loading the microcode into a scanner or into MOSS.

initial program load (IPL). The initialization procedure that causes 3745 control program to commence operation.

input/output control (IOC). The circuit that controls the input/output from/to the channel adapters and scanners via the IOC bus.

internal clock function. A LIC function that provides a transmit clock for sending data, and retrieves a receive clock from received data, when the modem does not provide those timing signals. When the terminal is connected in direct-attach mode (without modem) the ICF also provides the transmit and receive clocks to the terminal, via the LIC card.

internal function test (IFT). A set of diagnostic programs designed and organized to detect and isolate a malfunction.

LIC module. A group of four adjacent LICs.

LIC unit. A line interface coupler unit (LIU) consisting of:

- One power supply (PS) associated with
- Two line interface boards (LIBs), housing
- Multiplex cards (DMUX, SMUXA, or SMUXB), and
- Line interface coupler cards (LICs)

line. See *transmission line*.

line adapter (LA). The part of the TSS, HPTSS, or TRSS that scans and controls the transmission lines. Also called *scanner*.

For the TSS the line adapters are low-speed scanners (LSSs).

For the HPTSS the line adapters are high-speed scanners (HSSs).

For the TRSS the line adapters are token-ring adapters (TRAs).

line interface coupler (LIC). A circuit that attaches up to four transmission cables to the controller.

Link Problem Determination Aid (LPDA). A set of test facilities resident in the IBM 386X/586X modems and activated from the control program in the controller and from host.

link protocol. The set of rules by which a logical data link is established, maintained, and terminated, and by which data is transferred across the link.

Logrec. Error logging program managed via the operating system.

longitudinal redundancy check (LRC). A system of error checking performed at the receiving station after a block check character has been accumulated.

low-speed scanner. Line adapter for lines up to 256 kbps, composed of a communication scanner processor (CSP) and a front-end low-speed scanner (FESL).

maintenance and operator subsystem (MOSS). The part of the controller that provides operating and servicing facilities to the customer's operator and the IBM service representative.

microcode. A program, that is loaded in a processor (for example, the MOSS processor) to replace a hardware function. The microcode is not accessible to the customer.

miss. In cache operation, indicates that the information is not in the cache storage.

modem (modulator-demodulator). A functional unit that transforms logical signals from a DTE into analog signals suitable for transmission over telephone lines (modulation), and conversely (demodulation). A modem is a DCE. It may be integrated in the DTE.

MOSS input/output control (MIOC). The circuit that controls the input/output from/to the MOSS.

multiplexer channel. A channel designed to operate with a number of I/O devices simultaneously. Several I/O devices can transfer records at the same time by

interleaving items of data. See also *byte multiplexer*, *block multiplexer*.

multiplexing. In data transmission, a function that permits two or more data sources to share a common transmission medium so that each data source has its own channel.

multipoint connection. A connection established for data transmission among more than two data stations. The connection may include switching facilities.

NetView. An IBM licensed program used to monitor a network, manage it, and diagnose its problems.

network. See *user application network*.

Network Control Program (NCP). An IBM licensed program that provides communication controller support for single-domain, multiple-domain, and inter-connected network capability.

nonswitched line. A connection between systems or devices that does not have to be made by dialing. The connection can be point-to-point or multipoint. The line can be leased or private. Contrast with *switched line*.

online tests. Testing of a remote data station concurrently with the execution of the user's programs (that is, with only minimal effect on the user's normal operation).

Operating System/Virtual Storage (OS/VS). A family of operating systems that control IBM System/360 and System/370 computing systems. OS/VS includes VS1, VS2, MVS/370, and MVS/XA:

operator console. The IBM Operator Console that is used to operate and service the 3745 through the MOSS. A local console must be located within 7 m of the 3745. Optionally an alternate console may be installed up to 120 m from the 3745, or a remote console may be connected to the 3745 through the switched network.

owning host. A host which can IPL a 3745 and also run application programs.

partitioned emulation programming (PEP) extension. A function of a network control program that enables a communication controller to operate some telecommunication lines in network control mode while simultaneously operating others in emulation mode.

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.

switchback. Operation to reset a twin-backup configuration from fallback to initial state.

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 32 low-speed scanners (LSSs) associated with
- LIC units (LIUs), through
- Serial links (SLs).

TSST board. line adapter board for token-ring adapters

twin. Configuration with two CCUs.

twin-dual. Mode of operation with two CCUs operating simultaneously in two distinct subareas.

twin-backup. Mode of operation identical to twin-dual with fallback capability.

twin-standby. Mode of operation with one CCU active and the other in standby, ready to take over.

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

Bibliography

3745 Models 210, 310, 410, and 610 Customer Documentation

Introduction (INTRO) GA33-0092	Provides information for learning about and evaluating 3745 capabilities	Configuration Program (CP) GA33-0093	Provides information for configuring a 3745
S/370 I/O IMPP GC22-7064	Provides information for doing physical site planning	Preparing for Connection (PFC) GA33-0127	Provides information for preparing cable installation and LIC 5/6 configuration
Principles of Operation (POP) SA33-0102	Describes the 3745 instruction set in order to write or modify a control program	Connection Integration Guide (CIG) SA33-0129 *	Provides information for installing and testing LICs and customizing the 3745 after installation
Basic Operations Guide (BOG) SA33-0098 *	Provides procedures for carrying out daily routine operations	Advanced Operations Guide (AOG) SA33-0097 *	Provides procedures for carrying out advanced operations and tests from the 3745 console
Problem Determination Guide (PDG) SA33-0096 *	Provides procedures for performing problem determination	Master Index (MI) SA33-0172 *	Provides references to 3745 Models 210, 310, 410, and 610 customer documentation
Console Setup Guide (CSG) SA33-0158 *	Provides information on setting consoles for the 3745	Telecommun. Prod. Safety Handbook TPSH GA33-0126 *	Recalls safety principles
Remote load./ Activation Guide (RLA) SA33-0161	Provides information for loading and activating a remote controller		

* This manual is part of the shipping group

3745 Models 210, 310, 410, and 610 Service Documentation.

Product-Trained CE

Installation
Guide
(IG)
SY33-2057 *

Provides instructions
for installing or
relocating a 3745

Service
Functions
(SF)
SY33-2055 *

Describes the MOSS
functions used from
a 3745 console

Maintenance
Information
Proc. (MIP)
SY33-2054 *

Provides procedures
for isolating and fixing
a 3745 problem

Parts Catalog
(PC)
S135-2010 *

Provides reference
information for
ordering 3745 parts

Product-Support-Trained CE

Maintenance
Information
Ref. (MIR)
SY33-2056 *

Provides in-depth
hardware reference
information

Diagnostic
Descriptions
(DD)
SY33-2059 *

Describes the
3745 diagnostic
programs

External
Cable
Refer. (ECR)
SY33-2075 *

Provides references
to console and line
cables used for
connecting a 3745

Service
Master
Index (SMI)
SY33-2080 *

Provides references
to 3745 models
210, 310, 410, and 610
shipping group
documentation

Channel
Adapter OLTs
(CAOLT)
D99-3745A

Provides procedures
for running the CA OLTs
on a 3745

* This manual is part of the shipping group.

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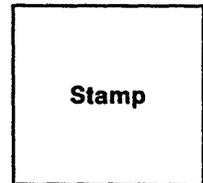
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