

**Extended  
Services**

GA33-0066-2

# 3720 3721

**Communication Controllers**

**IBM**

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IBM 3720 Models 1, 2, 11, and 12  
IBM 3721 Models 1 and 2  
Communication Controllers

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Extended Services

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System/370, 30xx, 4300,  
and 9370 Processors

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# Preface

This manual is designed to help the teleprocessing specialist to operate and test the IBM 3720/3721 Communication Controllers. It contains:

- Instructions for IML and IPL from the operator console, and for setting up, using, and changing passwords, files, and tables
- Tests for components of the 3720/3721
- Functions for disk, CCU, NCP, and EP
- A dictionary of messages.

You will also need to refer to the following manuals:

- *IBM 3720/3721 Communication Controllers, Operator's Guide*, GA33-0065
- *IBM 3720/3721 Communication Controllers, Problem Determination Guide*, GA33-0086
- *IBM 3720/3721 Communication Controllers, Configuration Guide*, GA33-0063
- *IBM Token-Ring Network, Problem Determination Guide*, SY27-0280
- *IBM 3725 and 3720 Communication Controllers, Principles of Operation*, GA33-0013.





## Conventions Used in This Manual

Throughout this manual, the following conventions are used:

- 3720 refers to the IBM 3720 Communication Controller, Models 1, 2, 11, and 12. (The model number is used when the information applies only to a specific model).
- 3721 refers to the IBM 3721 Communication Controller Expansion Unit, Models 1 and 2.
- The drawing of a key means that you have to press that key. For example:



means that you must:

- Press 
- Enter 1
- Press 

- Key letters, for example **A**, within a screen point to additional information not contained in the screen.
- Hexadecimal values are represented as X'n'.

For example: 16 is a natural value

X'16' is a hexadecimal value

## How to Select 3720 Functions

The functions described in this manual can be selected from one of two screen menus. Once you have entered the correct password, the 3720 function menu is displayed:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN:

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE

OFF: LOGOFF

PF1: MOVE TO SIA

PF2: CCU FNCTN

PF3: ALARM

CONFIG DATA FILE : CDF	LINE DESCR FILE : LDF	MACHINE LVL TABLE : MLT
CONTROL PRGM PROC : C	LINE INTERF DPLY : LID	MICROCODE FIXES : MCF
DISK FUNCTIONS : DF	LINE THRESHOLD : LTH	PANEL FUNCTIONS : PAF
DISK IPL INFO : DII	LINK IPL PORTS : LKP	PASSWORDS : P
EVENT LOG DISPLAY : E	LINK TEST : LT	PORT SWAP FILE : PS
IML MOSS : IML	LOAD LK TEST REQ : LOG	TOKEN RING INTR : TRI
IML ONE SCANNER : IS	LOAD LK TEST RESP: LOS	WRAP TEST : WT
IPL 3720 : IPL		

From this screen you can:

- Press PF1 to move the cursor to the system input area (SIA) in order to select a function
- Select one of the displayed functions by entering the acronym of the function into the system input area
- Press PF2 to display the CCU function menu
- Press PF3 to clear the alarm area or display a waiting alarm
- Enter T to terminate a function
- Enter OFF to logoff the operator console.

The instructions in this manual for selecting functions assume that the 3720 function menu is already displayed.

Consult the table of contents for the description of the function you want.

If a function cannot be loaded, the following message is displayed in the SIA:

PRESS SEND TO DISPLAY FUNCTIONS MENU

*Note:* The Token-Ring Interconnection (TRI) function can only be used on a 3720 Model 11 and 12 with a token-ring attachment.

**Warning:** If the message MAINTENANCE MODE appears in the upper part of the screen, call your IBM service representative immediately.

If you press PF2, the CCU function menu is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN:

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

CCU FUNCTION MENU

AC/BT PARAMETERS : ABP	DISPLAY LONG : DL	RESET CCU/LSSD : RCL
CCU STATE : CST	MOSS OFFLINE : MOF	SET ADDR COMPARE : AC
CHL ADAPTER STATE : CH	MOSS ONLINE : MON	SET BRANCH TRACE : BT
DATA EXCHANGE : DEX	RESET ADDR COMP : RAC	
DISPLAY/ALTER : DA	RESET BRCH TRACE : RBT	
IMMEDIATE FUNCTIONS		
BYPASS CCU CHECK : BCK	RESET CCU : RST	START CCU : S
BYPASS IOC CHECK : BIK	RESET CCU CHECK : RCK	STOP CCU : STP
CCU LVL3 INTRPT : IL3	RESET IOC : RIO	STOP ON CCU CHECK : SCK
CCU NORMAL MODE : NM	RESET I-STEP : RI	STOP ON IOC CHECK : SIK
Q CCU DATE/TIME : Q	SET I-STEP : SIP	

From this screen you can:

- Select one of the displayed functions by entering the acronym of the function.
- Press PF2 to switch to a 3720 function (see following page).
- Press PF3 to clear the alarm area or display a waiting alarm
- Press PF1 to move the cursor to the system input area, in order to select a function
- Enter T to terminate a function
- Enter OFF to logoff the operator console.

The CCU functions are described in Chapter 17 and the immediate functions are described in Chapter 19.

## How to Switch Between 3720 Functions and CCU Functions

It is possible to switch between a function displayed on the 3720 function menu and a CCU function. To do so, use the PF2 key.

### *If you press PF2 when a CCU function is selected:*

1. The CCU function is disconnected and frozen.
2. The name of the CCU function is displayed in the Function Pending area.
3. The 3720 function menu is displayed, see page v.
4. Select a 3720 function.
5. If you press PF2, the CCU function (that was pending) becomes active and the 3720 function becomes pending.
6. When you terminate the active CCU function, you return to the CCU function menu.

Press PF2 to make the 3720 pending function active.

### *If you press PF2 when a function from the 3720 function menu is selected:*

1. The 3720 function is disconnected and frozen.
2. The name of the 3720 function is displayed in the Function Pending area.
3. The CCU function menu is displayed, see page vii.
4. Select a CCU function.
5. If you press PF2, the 3720 function (that was pending) becomes active and the CCU function becomes pending.
6. When you terminate the active 3720 function, you return to the 3720 function menu.

Press PF2 to make the 3720 pending function active.

# Contents

<b>Chapter 1. Panel Functions from the Console</b> .....	<b>1-1</b>
Panel Information .....	1-2
Panel Function .....	1-4
PF Key .....	1-6
 <b>Chapter 2. MOSS IML from the Operator Console</b> .....	 <b>2-1</b>
MOSS IML from the Local Operator Console .....	2-1
MOSS IML from the Remote Operator Console .....	2-4
 <b>Chapter 3. Scanner IML from the Operator Console</b> .....	 <b>3-1</b>
 <b>Chapter 4. 3720 IPL from the Operator Console</b> .....	 <b>4-1</b>
 <b>Chapter 5. Password Management</b> .....	 <b>5-1</b>
Updating Passwords .....	5-3
Management Password .....	5-4
Local Console Password .....	5-4
Remote Customer Password .....	5-5
Remote Maintenance Password .....	5-5
Displaying Passwords .....	5-6
Temporary Activation of the Remote Maintenance Password .....	5-7
Permanent Activation of the Remote Maintenance Password .....	5-8
Deactivating the Remote Maintenance Password .....	5-9
Displaying or Resetting Logon Attempt Counters .....	5-10
Updating the Customer Identification .....	5-11
Password Recovery .....	5-12
Local Console Password Recovery .....	5-12
Remote Customer Console Password Recovery .....	5-12
Remote Maintenance Console Password Recovery .....	5-12
Management Password Recovery .....	5-12
Password Recovery Setup Instructions .....	5-12
 <b>Chapter 6. Link IPL Ports</b> .....	 <b>6-1</b>
How to Delete a Defined IPL Port .....	6-6
PF Keys .....	6-8
 <b>Chapter 7. Programmable Line Speed (PLS)</b> .....	 <b>7-1</b>
 <b>Chapter 8. Configuration Data File (CDF) Function</b> .....	 <b>8-1</b>
Upgrading the CDF .....	8-2
Displaying the CDF .....	8-3
Basic Frame Display .....	8-4
Expansion Frame .....	8-6
Programmable Line Speed Display/Update .....	8-6
 <b>Chapter 9. Line Description File (LDF)</b> .....	 <b>9-1</b>
Display Mode .....	9-2
Update Mode .....	9-4
How to Select the Line to be Updated .....	9-4

PF Keys .....	9-7
<b>Chapter 10. Port Swap .....</b>	<b>10-1</b>
Switching Ports .....	10-2
Resetting Ports .....	10-2
Port Swap Function Procedure .....	10-3
Port Swap Refused: Incompatible LIC Types .....	10-6
Hazardous Port Swap: Incompatible Line Protocols .....	10-8
PF Keys .....	10-9
<b>Chapter 11. Line Interface Display .....</b>	<b>11-1</b>
Line Parameters .....	11-3
Parameters for High-Speed Lines .....	11-4
Data Set Leads .....	11-5
Data Set Leads for High-Speed Lines .....	11-7
Transmit and Receive Data .....	11-8
PF Keys .....	11-9
V.24 - Non-Switched DCE Attachment .....	11-10
V.24 - Switched DCE Attachment .....	11-11
V.24/V.35 - Direct Attachment .....	11-12
V.35 DCE Attachment .....	11-13
V.25 (Autocall) .....	11-14
X.21 DCE Attachment .....	11-15
<b>Chapter 12. Token-Ring Interconnection Function .....</b>	<b>12-1</b>
Allow 'Activate Link' .....	12-2
Token-Ring Interconnection .....	12-2
Token-Ring Interconnection Error Messages .....	12-4
PF Keys .....	12-7
Termination .....	12-7
<b>Chapter 13. Wrap Test .....</b>	<b>13-1</b>
Modem Level Wrap .....	13-2
NTT Cable Level Wrap .....	13-2
LIC Level Wrap .....	13-3
Tailgate Level Wrap .....	13-3
Wrap Test Selection .....	13-4
Wrap Test Initialization .....	13-5
Data Wrap Test Pattern Selection .....	13-6
PF Key .....	13-7
Control Lead Wrap Test Pattern Selection .....	13-8
PF Key .....	13-9
Wrap Test Start .....	13-10
PF Key .....	13-11
Wrap Test in Progress .....	13-11
PF Keys .....	13-12
Wrap Test Results .....	13-13
PF Key .....	13-14
Meaning of SCF, LCS, and SES Codes .....	13-15
Incorrect Data Wrap Pattern .....	13-16
PF Keys .....	13-17
Incorrect Control Lead Pattern .....	13-17
PF Key .....	13-17
Wrap Test End .....	13-18



PF Key .....	13-18
Personal Patterns .....	13-19
Personal Data Wrap Pattern .....	13-19
Personal Control Lead Wrap Pattern .....	13-27
Default Patterns .....	13-31
Data Wrap Default Patterns .....	13-31
Control Lead Default Patterns .....	13-32
SDLC Default Pattern (LCD = 9) .....	13-33
BSC NCP - EBCDIC Non-Transparent Default Data Pattern (LCD = C) .....	13-34
BSC NCP - EBCDIC Transparent Default Data Pattern (LCD = C) .....	13-35
BSC NCP - ASCII Non-Transparent Default Data Pattern (LCD = D) .....	13-36
BSC EP - EBCDIC Non-Transparent Default Data Pattern (LCD = C) .....	13-37
BSC EP - EBCDIC Transparent Default Data Pattern (LCD = C) .....	13-38
BSC EP - ASCII Non-Transparent Default Data Pattern (LCD = D) .....	13-39
BSC EP - ASCII Transparent Default Data Pattern (LCD = E) .....	13-40
BSC EP Character Mode - EBCDIC Non-Transparent Default Data Pattern (LCD = C) .....	13-41
BSC EP Character Mode - ASCII Non-Transparent Default Data Pattern (LCD = D) .....	13-42
Start-Stop - Seven Bits Default Data Pattern (LCD = 4) .....	13-43
Start-Stop - Eight Bits Default Data Pattern (LCD = 6 or 7) .....	13-44
LIC Type 1 (RS232/CCITT V.24) - NTT Cable (PN 6398782) Control Lead Default Pattern .....	13-45
LIC Type 1 (RS366/CCITT V.25 - Autocall) - NTT Cable .....	13-46
LIC Type 1 - IBM 386X Modem Control Lead Default Pattern .....	13-47
LIC Tailgate Default Pattern .....	13-48
 <b>Chapter 14. Stand-Alone Link Tests .....</b>	 <b>14-1</b>
Definitions .....	14-1
Program Environment .....	14-2
SDLC Test Frame .....	14-3
Link Test Function Procedure .....	14-4
Before Starting .....	14-4
Requester .....	14-5
Loading the Stand-Alone Link Test Program .....	14-5
Link Test Initialization Screen .....	14-6
Options Screen .....	14-7
Investigation Mode Screen .....	14-8
Statistical Counters Screen .....	14-10
Personal Pattern Screen .....	14-11
Responder .....	14-12
Loading the Stand-Alone Link Test Program .....	14-12
Initialization Screen .....	14-13
Statistical Counters Screen .....	14-14
Meaning of SCF, LCS, and SES Fields .....	14-16
 <b>Chapter 15. Disk Functions .....</b>	 <b>15-1</b>
EC Microcode Installation .....	15-3
Checking the Diskettes .....	15-3
Copying the Diskettes .....	15-6
Save Disk onto Diskettes .....	15-8
Diskette Terminology .....	15-8
Creating the Primary Diskette .....	15-11
Creating the Secondary Diskette .....	15-12
Creating the 3721 Diskette .....	15-13
Restore Disk from Diskettes .....	15-15
Checking the Diskettes .....	15-15

Restoring the Disk .....	15-18
Diskette Initialization .....	15-20
Position Disk Recording Arm Back to Landing Zone .....	15-23
<b>Chapter 16. Microcode Fixes (MCFs) .....</b>	<b>16-1</b>
Selecting the MCF Function .....	16-2
Applying MCFs .....	16-3
Data and Disk Errors While Applying MCFs .....	16-4
Restoring MCFs .....	16-5
Displaying the MCF History Table .....	16-6
Displaying Old MCFs .....	16-7
Displaying New MCFs .....	16-8
<b>Chapter 17. Machine Level Table (MLT) .....</b>	<b>17-1</b>
<b>Chapter 18. Disk IPL Information .....</b>	<b>18-1</b>
Display Disk IPL Information .....	18-2
Change the Automatic Dump/Load Option Setting .....	18-3
Purge the Dump File .....	18-3
<b>Chapter 19. CCU Functions .....</b>	<b>19-1</b>
Address Compare and Branch Trace Parameter Display .....	19-2
PF Keys .....	19-2
CCU State .....	19-3
Channel Adapter State (3720 Model 1 and 11 Only) .....	19-4
Channel Adapter State Display .....	19-4
Channel Adapter Register Display .....	19-5
Termination .....	19-7
Display/Alter .....	19-8
Display .....	19-8
Alter .....	19-11
Display Long .....	19-15
Differences Between the Display/Alter and Display Long Functions .....	19-17
PF Keys .....	19-19
MOSS Offline .....	19-20
MOSS Online .....	19-21
Reset Address Compare .....	19-22
Reset Branch Trace .....	19-22
Reset CCU/LSSD .....	19-23
Set Address Compare (AC) .....	19-24
Address Compare Cancel .....	19-27
Simultaneous Address Compare and Branch Trace .....	19-28
Address Compare PF Key .....	19-28
Machine Status Area (MSA) .....	19-28
Set Branch Trace (BT) .....	19-30
Branch Trace Buffer .....	19-33
Branch Trace Extra Records .....	19-34
Example 1: Pending Lower Level Interrupt .....	19-34
Example 2: Higher Level Interrupt During Exit Instruction .....	19-35
Example 3: Back-to-Back Interrupts .....	19-36
Simultaneous Address Compare and Branch Trace .....	19-38
Termination .....	19-38
PF Keys .....	19-39
Machine Status Area (MSA) .....	19-39

Terminating CCU Functions .....	19-40
<b>Chapter 20. Immediate Functions .....</b>	<b>20-1</b>
Bypass CCU Check .....	20-2
Bypass IOC Check .....	20-3
CCU Level 3 Interrupt .....	20-4
CCU Normal Mode .....	20-5
Logoff .....	20-6
Query CCU Date and Time .....	20-7
Reset CCU .....	20-8
Reset CCU Check .....	20-9
Reset IOC .....	20-10
Reset I-Step .....	20-11
Set I-Step .....	20-12
Start CCU .....	20-13
Stop CCU .....	20-14
Stop On CCU Check .....	20-15
Stop On IOC Check .....	20-16
Terminate .....	20-17
<b>Chapter 21. How to Execute NCP and EP Functions .....</b>	<b>21-1</b>
Conventions .....	21-2
Data Exchange .....	21-3
PF Key .....	21-4
NCP and EP Functions in an NCP Environment with PEP .....	21-5
Switching Control to NCP Mode .....	21-5
Switching Control to EP Mode .....	21-6
NCP - Line Test .....	21-7
NCP - Dynamic Store .....	21-15
NCP - Display of Storage .....	21-17
NCP - Register Display .....	21-18
NCP - Channel Discontact .....	21-20
NCP - Address Trace .....	21-21
Address Trace Table Under NCP Version 2 .....	21-25
Address Trace Table Under NCP Version 3 or Higher .....	21-25
NCP - Channel Adapter Trace .....	21-28
NCP Scanner Interface Trace (SIT) .....	21-30
EP - Line Test .....	21-31
Level 2 and Level 3 Display Codes .....	21-35
EP/PEP - Display of Character Control Block (CCB) .....	21-37
EP/PEP - Line Trace and Scanner Interface Trace (SIT) .....	21-40
EP/PEP - Present Status on Channel .....	21-43
EP - Display of Storage .....	21-44
EP/PEP - Channel Adapter Reset (MSLA) .....	21-45
EP - Subchannel Switching (MSLA) .....	21-46
<b>Chapter 22. Control Program Procedures .....</b>	<b>22-1</b>
Printing Cataloged Control Program Procedures .....	22-1
3720 Procedure Tools .....	22-2
Directory of Cataloged Procedures .....	22-4
Display a Cataloged Procedure .....	22-6
Create/Copy a Procedure .....	22-8
Copy a Cataloged Procedure .....	22-16
Erase a Cataloged Procedure .....	22-17

Modify a Cataloged Procedure .....	22-18
Execute a Cataloged Procedure .....	22-20
Catalog Procedures .....	22-22
Precataloged Control Program Procedures .....	22-23
CP01 - SDLC Test Frames (NCP) .....	22-24
CP02 - 3270 BSC General Poll (NCP/EP) .....	22-26
CP03 - 2740 Start/Stop Poll (NCP/EP) .....	22-29
CP04 - Start Address Trace (NCP) .....	22-31
CP05 - Stop Address Trace (NCP) .....	22-33
CP06 - X.21 Switched Line Test (NCP) .....	22-34
Examples of Control Program Procedure Creation .....	22-39
Conventions .....	22-40
What to Do Once a Procedure is Created .....	22-40
FE01 - Install a ZAP (NCP or NCP/PEP) .....	22-41
CE01 - Text to 3270 - BSC in EBCDIC (NCP) .....	22-45
CE02 - Text to 3270 - BSC in EBCDIC (EP, PEP) .....	22-51
CE03 - Text to 2740 - S/S (NCP) .....	22-58
CE04 - Text to 2740 - S/S (EP, PEP) .....	22-63
Cataloged Control Program Procedure Print-Out .....	22-68
 <b>Chapter 23. Correspondence Between Line Addresses and Scanners .....</b>	<b>23-1</b>
Basic Frame (Model 1 and 2) .....	23-1
Basic Frame (Models 11 and 12) .....	23-2
Expansion Frame 1 .....	23-3
Expansion Frame 2 .....	23-4
 <b>Chapter 24. Messages .....</b>	<b>24-1</b>
Alphabetic List of All 3720 Messages .....	24-2
Function Messages .....	24-13
Common Messages .....	24-13
Channel Adapter State and Register Display Messages .....	24-17
Control Program Procedure Messages .....	24-19
Data Exchange Messages .....	24-24
Disk Function Messages .....	24-25
Disk IPL Information Messages .....	24-29
Display/Alter Messages .....	24-30
Display Long Messages .....	24-31
Event Log Messages .....	24-31
IML One Scanner Messages .....	24-32
IPL Port Messages .....	24-34
Line Description File Messages .....	24-35
Line Interface Display Messages .....	24-36
Link Test Messages .....	24-39
MCF Messages .....	24-40
Operator Console Logon Procedure Messages .....	24-42
Panel Functions Messages .....	24-43
Password Management Messages .....	24-44
Port Swap Messages .....	24-45
Programmable Line Speed Messages .....	24-48
Reset Address Compare Messages .....	24-49
Reset Branch Trace Messages .....	24-50
Reset CCU/LSSD Messages .....	24-50
Set Address Compare Messages .....	24-51
Set Branch Trace Messages .....	24-51

Stand-Alone Link Test Messages .....	24-75
Token-Ring Interconnection Messages .....	24-85
Wrap Test Messages .....	24-86
3720 IPL Messages .....	24-91
Operator Control Messages .....	24-93
Operator Console Information Messages .....	24-100
<b>Chapter 25. Machine Status Area .....</b>	<b>25-1</b>
Scanner Information .....	25-9
CCU/Scanner IPL Information .....	25-10
Token-Ring Information .....	25-15
<b>Chapter 26. Event Log .....</b>	<b>26-1</b>
BER Summary .....	26-2
BER List .....	26-3
PF Keys .....	26-4
BER Detail .....	26-5
PF Keys .....	26-5
<b>Chapter 27. Line Threshold .....</b>	<b>27-1</b>
<b>Chapter 28. Microcode Change from the Control Panel .....</b>	<b>28-1</b>
Error Codes .....	28-3
<b>List of Abbreviations .....</b>	<b>X-1</b>
<b>Glossary .....</b>	<b>X-3</b>
<b>Index .....</b>	<b>X-7</b>



# Figures

12-1.	Ring Status Indicator Description	12-3
12-2.	Initialization Error Description	12-5
12-3.	Open Error Description	12-6
13-1.	Characters to be Entered Before Data in Data Wrap Pattern	13-21
13-2.	NCP Transmit Control Byte for Data Wrap Patterns	13-21
21-1.	Switching Control to NCP Mode	21-5
21-2.	Switching Control to EP Mode	21-6
21-3.	Line Test Procedure	21-8
21-4.	Subroutines Used When Performing an NCP Line Test	21-9
21-5.	Line Test Codes	21-14
21-6.	MSA Field e and k Values for Dynamic Store	21-15
21-7.	NCP - Dynamic Store	21-16
21-8.	NCP - Display of Storage	21-17
21-9.	MSA Field e and k Values for Display of Storage	21-17
21-10.	NCP - Display of Register	21-18
21-11.	AARR Bit Setting Codes	21-19
21-12.	NCP - Channel Discontact	21-20
21-13.	NCP - Address Trace	21-22
21-14.	Address Trace Block	21-26
21-15.	Byte Expansion of Address Trace Block	21-27
21-16.	NCP - Channel Adapter Trace	21-28
21-17.	EP - Line Test	21-32
21-18.	Subroutines Used When Performing a Line Test	21-33
21-19.	Level 2 Display Codes	21-35
21-20.	Level 3 Display Codes	21-36
21-21.	Level 3 Error Codes	21-36
21-22.	EP/PEP - Display of Character Control Block (CCB)	21-37
21-23.	CCB Areas and Byte Expansion (Part 1)	21-38
21-24.	EP/PEP - Line Trace and Scanner Interface Trace (SIT)	21-41
21-25.	Display Codes for Line Trace and Scanner Interface Trace	21-42
21-26.	EP/PEP - Present Status on Channel	21-43
21-27.	MSA Fields e and k Values for Present Status on Channel	21-43
21-28.	EP - Display of Storage	21-44
21-29.	MSA Field e and k Values for Display of Storage	21-44
21-30.	EP/PEP - Channel Adapter Reset (MSLA)	21-45
21-31.	EP - Subchannel Switching (MSLA)	21-46
21-32.	MSLA Function Error Codes	21-47
22-1.	CP01 Procedure	22-25
22-2.	CP02 Procedure	22-27
22-3.	CP03 Procedure	22-29
22-4.	CP04 Procedure	22-31
22-5.	CP05 Procedure	22-33
22-6.	CP06 Procedure	22-35
22-7.	FE01 - Install a ZAP (NCP or NCP/PEP)	22-42
22-8.	CE01 - Text to 3270 - BSC in EBCDIC (NCP)	22-46
22-9.	CE02 - Text to 3270-BSC in EBCDIC (EP/PEP)	22-52
22-10.	CE03 - Text to 2740 - S/S (NCP)	22-59
22-11.	CE04 - Text to 2740 - S/S (EP/PEP)	22-64
24-1.	Message Areas	24-1



25-1.	Machine Status Area for the Scanner .....	25-1
25-2.	Machine Status Area for the CCU/Scanner IPL .....	25-2

## Chapter 1. Panel Functions from the Console

Use the panel functions to:

- Display on the local or remote operator console the information given on the control panel. The Panel/Console switch need not be on CONSOLE.
- Perform on the local or remote operator console the functions that are normally performed on the control panel. The Panel/Console switch must be on CONSOLE.

**Warning:** When switching back from CONSOLE to PANEL, make sure that the Channel Adapter switches on the control panel correspond to the Channel Adapter Disabled lamps.

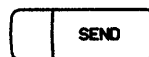
For 3720 Model 1 or 11, if the two-processor switch is not supported, enable only the desired channel adapter interface switch.

(Refer to the *3720/3721 Operator's Guide* for panel functions from the panel).

Selection:



*To move the cursor*



*To select panel functions*

## Panel Information

Depending on the position of the Panel/Console switch on the control panel, the following screens are displayed in refresh mode.

If the Panel/Console switch is on Console:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: PANEL FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

INFORMATION FROM THE CONTROL PANEL:

A HEX DISPLAY: FE5	INSTALLED CA: 1 2 3	D
B FUNCTION SELECT SWITCH: DISKETTE	CA STATE: E D E	E
C POWER CONTROL SWITCH: LOCAL	REQUESTED CA STATE: E E E	F
	E=ENABLED D=DISABLED	

- PRESS BREAK TO SELECT A PANEL FUNCTION AND STOP REFRESH

---

- A The hexadecimal code (unless it is not significant)
- B The position of the Function Select switch
- C The position of the Power Control switch (3720 Models 1 or 11 only)
- D The channel adapters that are installed (3720 Models 1 or 11 only)
- E The state of the Channel Adapter Disabled lamps (3720 Models 1 or 11 only)
- F The state of the Channel Adapter switches (3720 Models 1 or 11 only)

To access the panel functions from this screen, press BREAK (ATTN).

*Note: The channel adapters are numbered as follows:*

- 1 on the screen is CA1, interface A (1A on the operator panel)*
- 2 on the screen is CA1, interface B (1B on the operator panel)*
- 3 on the screen is CA2, interface A (2A on the operator panel)*
- 4 on the screen is CA2, interface B (2B on the operator panel)*

If the Panel/Console switch is on Panel:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: PANEL FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

INFORMATION FROM THE CONTROL PANEL:

A HEX DISPLAY: FE5	INSTALLED CA: 1 2 3 D
B FUNCTION SELECT SWITCH: DISKETTE	CA STATE: E D E E
C POWER CONTROL SWITCH: LOCAL	REQUESTED CA STATE: E E E F
	E=ENABLED D=DISABLED

- TO HAVE ACCESS TO THE PANEL FUNCTIONS:

1. GO TO THE CONTROL PANEL
2. SET PANEL/CONSOLE SWITCH TO CONSOLE

OR

- PRESS BREAK TO STOP REFRESH

---

To access the panel functions, set the Panel/Console switch to Console, or press BREAK (ATTN) to stop the refresh.

# Panel Function

When you have access to the panel functions, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1SERIAL NUMBER:

FUNCTION ON SCREEN: PANEL FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE   OFF: LOGOFF   PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

INFORMATION FROM THE CONTROL PANEL:

**A** HEX DISPLAY NOT SIGNIFICANT

**B** FUNCTION SELECT SWITCH: DISKETTE

**C** POWER CONTROL SWITCH: LOCAL

- SELECT A PANEL FUNCTION (IPL, IML, CA) ==> ♦

IPL = GENERAL IPL

IML = MOSS IML WITH RESET

CA = ENABLE OR DISABLE A CHANNEL ADAPTER **G**

- PF5 : START REFRESH

INSTALLED CA: 1 2 3 **D**

CA STATE: E D E **E**

REQUESTED CA STATE: E E E **F**

E=ENABLED

D=DISABLED

**A B** For the 3720 Models 1, 2, 11, and 12

**C D E F G** For the 3720 Models 1 and 11 only

*If you select IPL or IML:*

1. One of the following messages appears at the bottom of the screen depending, on the type of console you have:

LINE CHECK 2 (IBM 3101)  
COMM NOT READY 2 (IBM 3161, 3163)  
SENDING (IBM PC emulating an IBM 3101)

2. The IBM-copyright screen is displayed.
3. Press SEND.
4. The password screen is displayed.
5. Enter the password.
6. Look at the machine status area (MSA), to check the progression of the IPL or IML.
7. The 3720 function menu is displayed.

*If you select CA (3720 Model 1 only):*

The following screen is displayed:

Machine Status Area

CUSTOMER ID:3720-1SERIAL NUMBER:

FUNCTION ON SCREEN: PANEL FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATEOFF: LOGOFFPF1: MOVE TO SIAPF2: CCU FNCTNPF3: ALARM

INFORMATION FROM THE CONTROL PANEL:

**A** HEX DISPLAY NOT SIGNIFICANT

**B** FUNCTION SELECT SWITCH: DISKETTE

**C** POWER CONTROL SWITCH: LOCAL

CHANNEL ADAPTER STATE UPDATE:

- REPLACE ASTERISK ( \* ) BY E OR D TO UPDATE ==>

- PF5 : START REFRESH

INSTALLED CA: 1 2 3

CA STATE: E D E

REQUESTED CA STATE: E E E

E=ENABLED

D=DISABLED

INSTALLED CA: 1 2 3

CA STATE: E D E

◆◆◆

**H**

Enter E (to enable) or D (to disable) below the channel adapter state, then press SEND.

**H** Enter E (to enable) or D (to disable) below the channel adapter state, then press SEND.

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: PANEL FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

INFORMATION FROM THE CONTROL PANEL:

**A** HEX DISPLAY NOT SIGNIFICANT

**B** FUNCTION SELECT SWITCH: DISKETTE

**C** POWER CONTROL SWITCH: LOCAL

CHANNEL ADAPTER STATE UPDATE:

- REPLACE ASTERISK ( \* ) BY E OR D TO UPDATE ==>

YOUR REQUEST TO UPDATE CA STATE IS TRANSMITTED: CA3

- PF5 : START REFRESH

INSTALLED CA: 1 2 3

CA STATE: E D E

REQUESTED CA STATE: E E E

E=ENABLED

D=DISABLED

INSTALLED CA: 1 2 3

CA STATE: E D E

♦ ♦ ♦

CA1 CA2

**D**

**E**

**F**

**H**

## PF Key

PF5 starts refreshing the screen. To stop, press BREAK (ATTN).








## Chapter 2. MOSS IML from the Operator Console

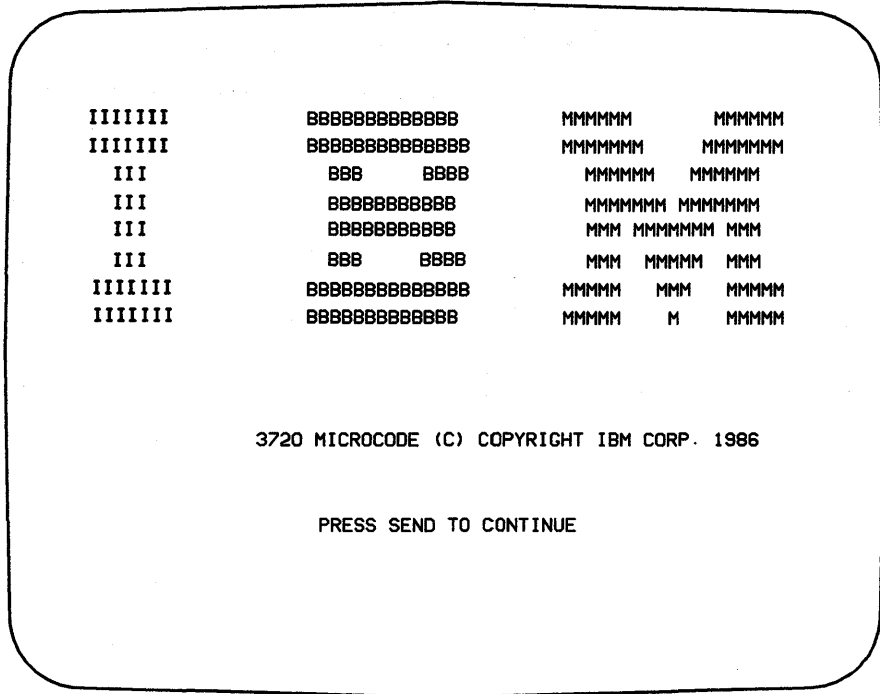
You can perform a MOSS IML from:

- The control panel. Refer to the *3720/3721 Operator's Guide*.
- The local console.
- The remote console.

### MOSS IML from the Local Operator Console

1.  *To position the cursor*
2.     *To select the MOSS IML function*
3. One of the following messages is displayed at the bottom of the screen:  
COMM NOT READY 2 (on a 3161, 3163 only)  
LINE CHECK 2 (on a 3101 only)  
SENDING (IBM PC emulating an IBM 3101)

4. The copyright screen is displayed:



*Note: Some displays are not hot-pluggable, that is, they do not generate a display if you simply plug them into a 3270 after IML. If no copyright screen appears on your console after IML has completed:*

- 1. Check that you have connected the console correctly.*
- 2. Re-IML the MOSS. The copyright screen should appear. If the problem persists, contact your service representative.*

5. Press SEND.
6. The password screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:






ENTER PASSWORD ===>

7. Enter the password.
8. MOSS will be in Customer Mode and all the functions described in this manual can be performed.

**Warning:** If the message MAINTENANCE MODE appears in the upper part of the screen, call your IBM service representative immediately.

## MOSS IML from the Remote Operator Console

To perform a MOSS IML from the remote console:

1.  *To position the cursor*
2.     *To select the MOSS IML function*
3. One of the following messages is displayed at the bottom of the screen:  
COMM NOT READY 2 (on a 3161 only)  
LINE CHECK 2 (on a 3101 only)  
SENDING (IBM PC emulating an IBM 3101)
4. MOSS is being IMLed, although the remote console is disconnected.
5. Reconnect the remote console using the remote console logon procedure given in the *3720/3721 Operator's Guide*.

## Chapter 3. Scanner IML from the Operator Console

Use this function to IML only one scanner. Before you IML a scanner:

- Stop all the lines on the scanner using NCP facilities.
- Make sure that MOSS is online (control program loaded).
- If an IPL is already selected, either:
  - Wait until the current IPL is completed, enter T followed by SEND, then select the IML One Scanner function, or
  - Cancel the current IPL by entering T followed by SEND, then select the IML One Scanner function.
- When a scanner IML is complete, you may IML another one by entering its number. (There is no need to select the function again.)
- If you do one of the following before the IML is complete, the IML is canceled:
  - Select the terminate function.
  - Switch from the operator console normal mode to test mode.
  - Power off the operator console.

*Notes:*

1. *Scanner IML messages are described in Chapter 24.*
2. *MSA fields m and n give information on the scanner. See Chapter 25.*

To IML one scanner:

Selection:

PF1

To position the cursor

I

S

SEND

To select IML One Scanner

```
CUSTOMER ID: 3720-1 SERIAL NUMBER:
FUNCTION ON SCREEN: IML ONE SCANNER

SYSTEM INPUT AREA (SIA) ==>
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

- ENTER:

THE SCANNER NUMBER PRECEDED BY S (S1, S3, OR S4)
OR
THE LINE ADDRESS (0 TO 27 OR 32 TO 63) ==>
```

Enter the line address, or 's' followed by the scanner number.  
The correspondence between line addresses and scanner numbers is given in  
Chapter 23.

When the IML is complete, the following message is displayed:

IML FOR SCANNER xx COMPLETED - SCANNER IS CONNECTED

To terminate when the IML is complete, use the terminate function.

## Chapter 4. 3720 IPL from the Operator Console

Use this function to IPL the CCU and IML the scanners.

Before using the 3720 IPL function, note that:

- You cannot select a CCU function before IPL phase 2 (at which point the hex display shows FF2 and MSA displays IPL PHASE 2).
- When an IPL or IML function is already selected, you must first do one of the following to select the 3720 function:
  - Wait until the current IPL or IML is completed, then terminate using the terminate function, or
  - Cancel the current IPL or IML using the terminate function, then select the 3720 IPL function.
- After the 3720 IPL, MOSS is in MOSS-ONLINE status.
- If you do one of the following before the IPL is complete, the IPL is canceled:
  - Select the terminate function.
  - Switch from the operator console normal mode to test mode.
  - Power off the operator console.

*Notes:*

1. *3720 IPL messages are described in Chapter 24.*
2. *MSA fields are described starting in Chapter 25.*



To IPL the 3720:

**Selection:**

PF1

*To position the cursor*

I

P

L

SEND

*To select 3720 IPL*

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: IPL

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

- PLEASE CONFIRM YOUR SELECTION: Y=YES, N=NO ==>

Enter 'Y' to confirm the request, or 'N' to cancel it. The IPL starts immediately after confirmation.

The following screen is displayed while the IPL is in progress, and remains until you select the terminate function.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: IPL 3720

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

CCU AND SCANNER IPL

WARNING : SELECTING TERMINATE FUNCTION OR SWITCHING OR  
POWERING OFF YOUR CONSOLE BEFORE 'IPL COMPLETE'  
CANCELS THE IPL

PF4: STOP PF5: RESUME

No action is required. However, you may stop within a phase (PF4) and resume (PF5).

If the automatic IPL/Dump option is set, and an active control program load module exists on the controller hard disk, that load module will be automatically loaded from the disk. Otherwise, the control program must be loaded over the channel or link, or from the disk, via a host request.

When the IPL is complete, the following message is displayed:

#### IPL COMPLETE

Use the terminate function to terminate the CCU and scanner IPL function when the IPL is complete.

IPL phases are displayed in:

- The third line of the MSA (fields r to x). For a description of the MSA, see *Chapter 25*.
- The hex display. For a description of the hex display, see the *3720/3721 Operator's Guide*.



## Chapter 5. Password Management

Use this function to update and display the passwords for the:

- Password management function
- Local console
- Remote console in customer mode
- Remote console in maintenance mode

Each password is from five to eight alphanumeric characters (nulls and blanks not allowed). **If you forget a password, refer to “Password Recovery” on page 5-12.**

To load the password management function:

Selection:  *To move the cursor*

*To select the password management function*

The following screen is displayed:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: PASSWORDS

SYSTEM INPUT AREA (SIA) ==>>

T: TERMINATE   OFF: LOGOFF

PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

- ENTER MANAGEMENT PASSWORD ==>> A

AVAILABLE FUNCTIONS:

UPDATE/DISPLAY/ACTIVATION/DEACTIVATION OF PASSWORDS

DISPLAY/RESET LOGON ATTEMPT. COUNTERS

UPDATE OF CUSTOMER IDENTIFICATION

- A** Enter the management password, then press SEND.

*Note:* When you select the password management function for the first time, or after your controller has been relocated or re-setup, the password is IBM3720.

Once you have entered the management password the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: PASSWORDS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

- SELECT OPTION ==>

- 1 = UPDATE MANAGEMENT PASSWORD
- 2 = UPDATE LOCAL PASSWORD
- 3 = UPDATE REMOTE CUSTOMER PASSWORD
- 4 = UPDATE REMOTE MAINTENANCE PASSWORD
- 5 = DISPLAY PASSWORDS
- 6 = TEMPORARY ACTIVATION OF REMOTE MAINTENANCE PASSWORD
- 7 = PERMANENT ACTIVATION OF REMOTE MAINTENANCE PASSWORD
- 8 = DEACTIVATION OF REMOTE MAINTENANCE PASSWORD
- 9 = DISPLAY/RESET LOGON ATTEMPT COUNTERS
- 10 = UPDATE CUSTOMER IDENTIFICATION

---

All the password functions described in this chapter assume that you have the passwords option screen displayed.

When the 3720 is initialized for the first time, use options 1, 2, 3, and 4 to create your own password.

# Updating Passwords

- Selection:**
- |              |                 |                                                                                  |
|--------------|-----------------|----------------------------------------------------------------------------------|
| <div>1</div> | <div>SEND</div> | <i>To update the<br/>managment password</i>                                      |
| <i>Or</i>    |                 |                                                                                  |
| <div>2</div> | <div>SEND</div> | <i>To update the password for<br/>the local console</i>                          |
| <i>Or</i>    |                 |                                                                                  |
| <div>3</div> | <div>SEND</div> | <i>To update the password for the<br/>remote console in<br/>customer mode</i>    |
| <i>Or</i>    |                 |                                                                                  |
| <div>4</div> | <div>SEND</div> | <i>To update the password for<br/>the remote console in<br/>maintenance mode</i> |

Once you have made the selection, the following screen is displayed:

Machine Status Area

CUSTOMER ID:  
FUNCTION ON SCREEN: PASSWORDS

3720-1

SERIAL NUMBER:

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE   OFF: LOGOFF   PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

- ENTER NEW XXXXXX PASSWORD ==>  
  ( 5 TO 8 CHARACTERS)

PF6: QUIT

Where xxxxxxxx is the type of password being updated.

Enter the new password and press SEND. All default passwords are IBM3720 except for the remote console in maintance mode, for which there is no default password. **Update them as soon as the 3720 is initialized.**

## Management Password

This password allows you to access the passwords function in order to modify or display the local and remote console passwords.

If you forget the management password, refer to "Password Recovery" on page 5-12.

## Local Console Password

This password allows you to have access to the local console. If you forget the local console password, call the person responsible for password management, or refer to "Password Recovery" on page 5-12.

## Remote Customer Password

This password allows you to have access to the remote console in customer mode.

When logging on the remote console, you cannot enter an incorrect password more than three times. If you do, the console is disconnected and this message is displayed:

**INCORRECT PASSWORD - TERMINAL DISCONNECTED**

The remote *customer* password must differ from the remote *maintenance* password.

If you forget the remote console password, call the person responsible for password management, or refer to “Password Recovery” on page 5-12.

## Remote Maintenance Password

This password allows the service representative to use the remote console in maintenance mode. You are responsible for this password.

The remote *maintenance* password must differ from the remote *customer* password.

The default remote maintenance password, as well as the remote maintenance password that you have just created, are not activated, that is, service personnel cannot use them. To activate them, either permanently or temporarily, use option 7 or 6.

If you forget the remote maintenance password, call the person responsible for password management, or use option 5 (display passwords) to display all passwords.



## Displaying Passwords

Use this function to display all passwords and the status of the remote maintenance password.

Selection:

5

SEND

To display all passwords

A screen similar to the following is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: PASSWORDS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

PASSWORDS ARE :

MANAGEMENT PASSWORD = .....

LOCAL PASSWORD = .....

REMOTE CUSTOMER PASSWORD = .....

REMOTE MAINTENANCE PASSWORD = ..... **A**

REMOTE MAINTENANCE PASSWORD STATUS = .

(P=PERMANENT T=TEMPORARY D=DEACTIVATED)

PF6: QUIT

---

- A** If the remote maintenance password has not been defined yet, the following message appears here:

(NOT YET DEFINED)

and the remote maintenance password entry field is blanked out.

## Temporary Activation of the Remote Maintenance Password

Use this function to allow service personnel to have access to the remote console only once.

**Selection:**

6

SEND

*To temporarily activate  
the remote maintenance  
password*

The following message is displayed:

**REMOTE MAINTENANCE PASSWORD HAS BEEN TEMPORARILY  
ACTIVATED**

## Permanent Activation of the Remote Maintenance Password

Use this function to allow service personnel to have permanent access to the remote console.

Selection:

*To permanently  
activate the remote  
maintenance password*

The following message is displayed:

REMOTE MAINTENANCE PASSWORD HAS BEEN PERMANENTLY  
ACTIVATED

## Deactivating the Remote Maintenance Password

Selection:

*To deactivate the  
remote maintenance  
password*

The following message is displayed:

REMOTE MAINTENANCE PASSWORD HAS BEEN PERMANENTLY  
DEACTIVATED

## Displaying or Resetting Logon Attempt Counters

Each time you enter an incorrect password, the attempt is recorded and a message displayed. You can display or reset the logon attempt counter.

Selection:

9

SEND

*To display/reset  
logon attempt counters*

A screen similar to the following is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN:

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

XX UNSUCCESSFUL ATTEMPTS FOR LOCAL LOGGING

XX UNSUCCESSFUL ATTEMPTS FOR REMOTE LOGGING

XX NOT ACTIVATED ATTEMPTS FOR MAINTENANCE LOGGING

- ENTER 'R' TO RESET THE COUNTERS ==>

PF6: QUIT

To reset the counters, enter R followed by SEND. All counters are reset at once.

## Updating the Customer Identification

Use this function to update the customer identification.

Selection:

1

0

SEND

*To select the  
customer identification  
update function*

The following screen is displayed:

Machine Status Area

CUSTOMER ID:3720-1SERIAL NUMBER:

FUNCTION ON SCREEN: PASSWORDS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE   OFF: LOGOFF   PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

- ENTER CUSTOMER IDENTIFICATION (1 TO 16 CHARACTERS) ==>

PF6: QUIT

---

Enter the customer identification (1 to 16 alphanumeric characters, nulls not allowed). Then press SEND.

# Password Recovery

## Local Console Password Recovery

*There is a remote console:* Select the password management function and display all passwords (option 5).

*There is no remote console:* Perform the password recovery setup (see instructions that follow).

## Remote Customer Console Password Recovery

*There is a local console:* Select the password management function and display all passwords (option 5).

*There is no local console:* Ask the local operator to perform the password recovery setup (see instructions that follow).

## Remote Maintenance Console Password Recovery

Select the password management function and display all passwords (option 5).

## Management Password Recovery

Perform the password recovery setup (see instructions that follow).

## Password Recovery Setup Instructions

**Warning:** All functional data (CDF, LDF, LKP, PLS, MCF) and control program procedures that have **not** been saved from your disk to backup diskettes will be erased by this procedure.

1. Deactivate the communication controller from the host computer.
2. Get the console wrap plugs and the keys to the controller doors.
3. Open the rear door of the controller.
4. Unplug the cables for the local and remote consoles, and for the RSF link, and plug the wrap plugs into their sockets.
5. Open the front door of the controller.
6. Set the Panel/Console switch to Panel and the Function Select switch to Setup Test.
7. Get the 3720 primary backup diskette and insert it into the diskette drive.

8. Switch the Power On/Off Switch to Power On, or if it is already on, press Function Start.
9. After approximately one minute, the following code is displayed on the hex display:

E	E	0
---	---	---

10. Open the diskette drive door and close it again.

11. 

E	E	0
---	---	---

 3720/3721 Setup starting. If the next code displayed is EE6 (step 18), go to step 1 and restart.

12. 

E	E	1
---	---	---

 The primary backup diskette is being copied to the disk.

13. After approximately two minutes, the following code is displayed:

E	E	2
---	---	---

 The primary backup diskette has been copied to the disk.

If you do not have a 3721, go to Step 15.

14. 

E	E	E
---	---	---

 Remove the 3720 primary backup diskette and insert the 3721 expansion diskette.

15. 

E	E	3
---	---	---

 Remove the 3720 primary backup diskette, if you came from Step 13; remove the 3721 expansion diskette, if you came from Step 14.  
Insert the 3720 secondary backup diskette.

16. 

E	E	4
---	---	---

 The 3720 secondary backup diskette is being copied to the disk.

17. After approximately two minutes, the following code is displayed:

E	E	5
---	---	---

 The CDF verify function is starting.

18. After approximately two minutes, the following code will be displayed:

E	E	6
---	---	---

 The diagnostics routines are running. (This code flashes intermittently while diagnostics are running).

19. After approximately ten minutes, the following code is displayed:

E	F	F
---	---	---

 The setup is completed.



20. Remove the wrap plugs and replace the cables into their sockets:

<i>Cable</i>	<i>Socket</i>
Local Console	DIRECT ATT
Remote Console	LINK ATT
Remote Support Facility	RSF

21. Close and lock the rear door of the controller.
22. Position the Function Select switch to MOSS IML.
23. Press Function Start.
24. When the IML function has been completed, the passwords are restored to the default value IBM3720.
25. Close and lock the front door of the controller.
26. Use the password management function to create your own passwords again.

## Chapter 6. Link IPL Ports

If you have a channel-attached or link-attached 3720 that can be IPLed from a host system, then once the 3720 is installed, you must first:

1. Perform a MOSS IML, then
2. Execute the Link IPL port function to inform the 3720 from which host machines a 3720 IPL can be expected.
  - For a *channel-attached* 3720, the control program can be transferred across the channel interface. You must indicate *all* the channel adapters that are installed.
  - For a *link-attached* 3720, the control program can be transferred via a communication line (SDLC link). You must give the characteristics of the SDLC link that connects both 3720 controllers used for initialization.

### *Notes:*

1. *No priority is assigned to channel adapters or link IPL ports. Whichever IPL request comes first from a host is taken.*
2. *If you switch to the CCU functions while performing the Link IPL Port function, all IPL port data that you entered will be lost when returning to the IPL Port function. (Switching between functions is described in the Preface.)*
3. *Link IPL port function messages are listed starting in Chapter 24. The listing will direct you to the specific message description and action.*

Selection:

PF1

To position the cursor

L

K

P

SEND

To select link IPL port function

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINK IPL PORTS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

- SELECT IPL PORT OPTION (0 TO 9)==>

0 = CHANNEL ADAPTERS (DISPLAY ONLY)

1-8 = INDIVIDUAL LINK IPL PORT

9 = LINK COMMON OPTIONS

(CONTROLLER ADDRESS AND TIMERS)

LINK IPL PORTS

PORT NUMBER :	1	2	3	4	5	6	7	8	A
LINE ADDRESS:									

From this screen you can choose to:

- Display the channel adapters that have been defined in the 3720 configuration
- Define (or update) the link IPL ports and the options common to all the link IPL ports
- Display the link IPL ports and the common options, once defined.

The line address of the defined link IPL ports are displayed on line A.

If you selected option 0 (channel adapters), the following screen is displayed:

Use this screen to display the channel adapters that have been defined in the 3720 configuration.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINK IPL PORTS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

CHANNEL ADAPTERS

CHANNEL ADAPTER IS INSTALLED (Y)

CHANNEL ADAPTER IS NOT INSTALLED (N)

CA 1 : Y

CA 2 : Y

PF6: IPL PORT OPTIONS

---

If you selected options 1 through 8 (individual link IPL port), a screen like the following example is displayed. There is one screen per link IPL port.

To define a link IPL port, you have to enter its address and characteristics on the screen shown below.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINK IPL PORTS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINK IPL-PORT 1

- LINE ADDRESS (0 TO 27 AND 32 TO 63) ==> 3 **B** **C**

- FULL DUPLEX (F) OR HALF DUPLEX (H) ==> F

- LINK INTERFACE OPTIONS (Y = YES, N = NO)

NRZI ==> Y **D**

DX FACILITY ==> Y **E**

SWITCHED LINE ==> N **F**

ANSWER TONE ==> N **G**

RING INDICATOR ==> N **H**

- DIRECT-ATTACH (D) OR EXTERNAL CLOCK (E) ==> E **I**

- DATA RATE (H = HIGH, L = LOW) ==> H **J**

- ENABLE TIMER IN 0.1 SECOND INTERVALS ==> 0000 **K**

PF6: IPL PORT OPTIONS PF8: FORWARD

Enter the port address and characteristics, then press SEND. The port definition is filed, unless there is an error. In this case, a message is displayed describing the error. The default values are given on the Link IPL sheet in the 3720/3721 *Configuration Guide*.

- B** This is the decimal line address that will be used as an IPL port. The MOSS converts this number into an even hexadecimal interface address or an even, or odd, pair of hexadecimal addresses, depending on the full-duplex or half-duplex entry. Line addresses are listed in Chapter 23. If you specify a line address for any of the eight IPL ports, you must also specify the controller SDLC address and link timeout values; to do so, use the Link Common Option screen.

Only a 3720 line address that is physically installed and configured can be entered. If a non-installed or non-configured address is entered, the following message is displayed:

CABLE DOES NOT EXIST

- C** If you enter F (full duplex), the decimal line address is converted into an even or odd pair of hexadecimal addresses. Data is transmitted on the even hexadecimal address and received on the odd hexadecimal address. If you enter F, you must enter Y on line **E**.

If you enter H (half-duplex), the decimal line address is converted to an even hexadecimal address over which data will be both transmitted and received.

- D** Specifies whether the data terminal equipment at the ends of the SDLC link must operate in non-return-to-zero-inverted (NRZI) mode (NRZI = Y). The NRZI setting must match the NRZI setting generated in the channel-attached controller line macro that represents the SDLC link between the channel-attached and link-attached controllers. If the link will not be operated in NRZI mode, specify NRZI = N.
- E** Specifies whether the communication line and modem constitute a half-duplex facility (DX FACILITY = N) or a duplex facility (DX FACILITY = Y)

This should not be confused with half-duplex or duplex data transfer. The entry specifies only the physical characteristics of the communication facility (line and modem).

- F** Specifies whether the physical path making up the SDLC link is switched (SWITCHED LINE = Y) or nonswitched (SWITCHED LINE = N). If the path is switched, the controller can monitor the link for the 'ring indicator' signal (RING INDICATOR = Y) and present an answer tone (ANSWER TONE = Y).

A LIC Type 4 does not support switched operation.

- G** Specifies whether the link-attached controller is to transmit an answer tone to the calling station (ANSWER TONE = Y) to signify completion of the connection. ANSWER TONE = Y is valid only for incoming calls on switched lines (SWITCHED LINE = Y). An answer tone is required only if the modem at the call-originating location requires an answer tone and the modem at the receiving location is not capable of generating one. (Consult your modem specifications.)
- H** Some modems used outside the USA go off hook when 'data terminal ready' is raised by the 3720. In this case, 'ring indicator' is monitored before 'data terminal ready' is raised so that this situation will not occur until an actual connection has been made (RING INDICATOR = Y).

For all other modem types, RING INDICATOR = N. (Consult your modem specifications.) The Y option is valid only for incoming calls on switched lines (SWITCHED LINE = Y).

- I** If the modem supplies the clock, enter E. If the link-attached 3720 supplies the clock, enter D (direct attachment). Consult your IBM sales representative to determine the direct-attached clock speeds supported. The direct-attached clock speed should be updated using the programmable line speed function (Chapter 7).
- J** If you entered D (direct attachment) on line **I**, you must not specify a data rate. If a rate is already displayed (H or L), delete it, using the DEL CHAR key.

- **K** The enable timer is used by the scanner to limit the waiting time for the proper response from the line interface. Once it is loaded, the control program can change this value. Specify the maximum wait time for modem interface leads to respond to changes in the 3720 interface leads, such as 'data set ready' coming active in response to 'data terminal ready', 'clear to send' coming active after 'request to send' has been raised, 'clear to send' dropping in response to 'request to send' dropping, and so on. Zero will result in an infinite wait. It is the default value of the ENABLTO parameter of the BUILD macro. Consult your modem specifications.

## **How to Delete a Defined IPL Port**

To delete an IPL port that you already defined, blank the address field on line **B**, using the space bar, then press SEND. The following message is displayed:

**IPL PORT TABLE UPDATED AND FILED**

If you selected option 9 (link common options), the following screen is displayed:

Use this screen to define the link IPL port common options.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINK IPL PORTS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINK IPL PORTS - COMMON OPTIONS

- SDLC CONTROLLER ADDRESS (1 TO FE) ==> L

- TIMER VALUES (1 TO 4 DIGITS IN 0.1 SEC INTERVALS)

DISABLE TIMER ==> 0002 M

LINK ACTIVITY TIMER ==> 0600 N

PF6: IPL PORT OPTIONSPF7: BACKWARD

- L Enter the hexadecimal SDLC address that will be used by the link-attached controller when communicating with the channel-attached controller.

If no value is entered, CLDP will default to controller address X'00'.

- M If the modem interface characteristics at the link-attached controller are the same as at the channel-attached controller, use the value that was generated in the channel-attached controller DSABLTO parameter of the BUILD macro that represents the SDLC link between the channel-attached and link-attached controllers.

The disable timer is used by the scanner as a wait time before checking for the proper response from the line interface when CLDP attempts to disable the line. Once it is loaded, the control program can change this value. Specify the time for the scanner to wait before checking that 'data set ready' has dropped after 'data terminal ready' has dropped. Zero will result in infinite timeout. The Common Options screen indicates the default timeout used by a local NCP (200 milliseconds). If the SDLC link is a leased line, the disable timer should be smaller (for example 0.1 second). Consult your modem specifications.

- N Use the value generated in the link-attached controller ACTIVTO group macro that represents the SDLC link between the channel-attached and link-attached controllers.

The link activity timer specifies the time that the CLDP will wait for communication from the channel-attached host before abending. Once it is loaded, the control program can change this value. Zero will result in an



infinite timeout. The Common Options screen indicates the default timeout used by a local NCP (1 minute) for SDLC links.

## **PF Keys**

**PF6:** To display the IPL port option screen.

**PF7:** To display the previous screen.

**PF8:** To display the next screen.

**Warning:** Save the new information onto the backup diskette every time you update the file (see Chapter 15).

## Chapter 7. Programmable Line Speed (PLS)

Use the programmable line speed (PLS) function to update the speed of the direct-attached lines for speeds above 1200 bps. When the 3720 is first installed, the default line speed is 9600 bps.

Selection:

PF1

*To move the cursor*

C

D

F

SEND

*To select the configuration data file function*

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: CONFIG DATA FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

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

1 = UPGRADE

2 = DISPLAY

Select option 2:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: CONFIG DATA FILE

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
CDF - DISPLAY OPTION

-SELECT ONE DISPLAY OPTION (1 TO 4) ==>

1 = ALL (2 TO 4)  
2 = BASIC FRAME  
3 = EXPANSION FRAME  
4 = PROGRAMMABLE LINE SPEED

PF6:QUIT

This displays your current configuration. If you do not have a 3721, the line 3 = EXPANSION FRAME is not displayed.

Select option 4:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: CONFIG DATA FILE

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
PROGRAMMABLE LINE SPEED FUNCTION

- ENTER A LINE ADDRESS (0 TO 27 AND 32 TO 63) ==>

PF6:QUIT

Enter the address of the line for which you want to display or update the speed.

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: CONFIG DATA FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

PROGRAMMABLE LINE SPEED FUNCTION - DISPLAY

- ENTER A LINE ADDRESS (0 TO 27 AND 32 TO 63) ==>

LINE ADDRESS = 60

CURRENT SPEED = 9600

LIC TYPE = LIC1

PF4: SPEED UPDATE PF6: QUIT PF7: PREVIOUS LINE PF8: NEXT LINE

---

From the screen you may:

- Press PF7 to display the previous available line.
- Press PF8 to display the next available line.
- Press PF6 to quit and display the CDF option screen.
- Press PF4 to update the speed.

If you press PF4:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: CONFIG DATA FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

PROGRAMMABLE LINE SPEED FUNCTION - UPDATE

LINE ADDRESS = 64

CURRENT SPEED = 9600

LIC TYPE = LIC1

- ENTER A DIGIT ( 0 TO 7 ) TO UPDATE CURRENT SPEED ==>

0 = 2400	4 = 38400
1 = 4800	5 = 55855
2 = 9600	6 = 245760
3 = 19200	7 = RPQ

PF6: QUIT

---

Update the speed as requested on the screen. The following message is displayed:

NEW SPEED xxxx BPS WILL BE EFFECTIVE AT NEXT SCANNER IML  
or  
NEW SPEED USING RPQ WILL BE EFFECTIVE AT NEXT SCANNER  
IML

To IML the scanners, refer to Chapter 3.

When you have updated the speed of the desired lines, terminate the function.

**Warning:** Save the new information onto the backup diskette, every time you update the file (see Chapter 15).

## Chapter 8. Configuration Data File (CDF) Function

Use this function to:

- Upgrade the configuration data file, when there is a change to the existing configuration. To upgrade the CDF the MOSS must be in MOSS ALONE state. See Chapter 25, Machine Status Area.
- Display the configuration data file (LICs, lines, channel adapters) of the 3720 basic frame and 3721 expansion frame.
- Display and modify the speed of direct-attached lines. This option is described in Chapter 7.

Selection:

PF1

*To move the cursor*

C

D

F

SEND

*To select the configuration data file function*

The following screen is displayed:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: CONFIG DATA FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE    OFF: LOGOFF

PF1: MOVE TO SIA    PF2: CCU FNCTN    PF3: ALARM

-SELECT CDF OPTION (1, 2)      ==>

1 = UPGRADE

2 = DISPLAY

## Upgrading the CDF

Select option 1 from CDF option screen. The CDF upgrade starts immediately and is automatic. The progression of the upgrade is displayed on the screen. When the upgrade is completed, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: CONFIG DATA FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

CDF UPGRADE STARTED

CCU INFORMATION FETCHED

CHANNEL ADAPTER INFORMATION FETCHED

SCANNER/TRSS INFORMATION FETCHED

CDF UPGRADE COMPLETED

A CDF upgrade does not initialize the channel adapter addresses (ESCL, ESCH, NSC), but it initializes the line clocking information to the default value for new lines only (external clock). The channel addresses have been set up by the IBM service representative during installation, according to your instructions.

**Warning:** After each CDF update, you must perform the checkout described in one of the following manuals, depending on your machine and model number:

- *3720 Model 1 Feature Addition Instructions, GA33-0110*
- *3720 Model 11 Feature Addition Instructions, GA33-0111*
- *3720 Model 2 Setup Instructions, GA33-0112*
- *3720 Model 12 Setup Instructions, GA33-0113*
- *3721 Models 1 and 2 Setup Instructions, GA33-0114.*

## Displaying the CDF

Select option 2 from the CDF option screen. The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: CONFIG DATA FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

CDF - DISPLAY OPTION

-SELECT ONE DISPLAY OPTION (1 TO 4) ==>

1 = ALL (2 TO 4) **A**

2 = BASIC FRAME **B**

3 = EXPANSION FRAME **C**

4 = PROGRAMMABLE LINE SPEED **D**

PF6:QUIT

- A** To display successively the contents of the basic and expansion frames, and the speed of the direct-attached lines.
- B** To display or update the contents of the basic frame.
- C** To display the contents of the expansion frame.
- D** To display or update the speed of the direct-attached lines. Refer to Chapter 7.

This screen display shows only the configuration of your machine. If your configuration has only a basic frame then the menu displayed would be:

- 1 = ALL (2 TO 3)
- 2 = BASIC FRAME
- 3 = PROGRAMMABLE LINE SPEED



## Basic Frame Display

If you have the Basic Frame option, the following screen is displayed on a 3720 Model 2 or 12:

Machine Status Area

CUSTOMER ID: 3720-2 SERIAL NUMBER:

FUNCTION ON SCREEN: CONFIG DATA FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LIC POS: 1 2 3 4 5 6 7

LIC TYPE: 01 04 03 02 00 00 00

LINE ADDRESS (A) AND CABLE ID INFO (I)

	A	I	A	I	A	I	A	I	A	I	A	I	A	I
PORT1:	0	4	4	4	8	4	12	4	16	0	20	0	24	0
PORT2:	1	4	5	0	9	0	13	4	17	0	21	0	25	0
PORT3:	2	4	6	0	10	0	14	0	18	0	22	0	26	0
PORT4:	3	4	7	0	11	0	15	0	19	0	23	0	27	0

PF4: UPDATE PF6: QUIT PF8: FORWARD

The channel adapter information is not displayed for a 3720 Model 2 or 12.

The following screen is displayed on a 3720 Model 1 or 11:

```

Machine Status Area

CUSTOMER ID:                3720-11          SERIAL NUMBER:
FUNCTION ON SCREEN: CONFIG DATA FILE

SYSTEM INPUT AREA (SIA) ==>
T: TERMINATE   OFF: LOGOFF   PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM
LIC POS:   3     4     5     6
LIC TYPE:  01    04    03    02
                                     CHANNEL ADAPTERS
                                     Y/N TPS  NSC  ESC
                                     A  B  L  H
LINE ADDRESS (A) AND CABLE ID INFO (I)
   A  I  A  I  A  I  A  I
PORT1: 0  4  4  4  8  4 12  4
PORT2: 1  4  5  0  9  0 13  4
PORT3: 2  4  6  0 10  0 14  0
PORT4: 3  4  7  0 11  0 15  0

TRA INSTALLED: Y  TIC INSTALLED: Y  N
TIC ADDRESS   :16 17

PF4:UPDATE    PF6:QUIT                PF8:FORWARD

```

The TRA/TIC information is displayed only for a 3720 Model 11 or 12 that has a token-ring attachment. You can display token-ring information on its own with the token-ring interconnection (TRI) function (see Chapter 12).

*Note:* The line address is found in column (A) for each PORTn row.

The 'CABLE ID INFO' (I) codes are:

- 0 Not installed
- 1 LIC 1/2/3 wrap block
- 2 LIC3 wrap cable
- 4 Modem attachment
- 5 Direct attachment
- 6 Autocall

Refer to Chapter 1 for channel adapter numbering.

## Expansion Frame

If you have the Expansion Frame option, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: CONFIG DATA FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LIC POS:	1	2	3	4	5	6	7	8
LIC TYPE:	01	02	03	00	00	00	00	00

LINE ADDRESS (A) AND CABLE ID INFO (I)

	A	I	A	I	A	I	A	I	A	I	A	I	A	I	A	I
PORT1:	32	4	36	0	40	0	44	0	48	0	52	0	56	0	60	0
PORT2:	33	4	37	0	41	0	45	0	49	0	53	0	57	0	61	0
PORT3:	34	0	38	0	42	0	46	0	50	0	54	0	58	0	62	0
PORT4:	35	0	39	0	43	0	47	0	51	0	55	0	59	0	63	0

PF6: QUIT PF8: FORWARD

## Programmable Line Speed Display/Update

This option is described in Chapter 7.

**Warning:** Save the new information onto the backup diskette every time you update the file (see Chapter 15).

## Chapter 9. Line Description File (LDF)

Use the LDF function to bring line parameters together in a unique file, the line description file, and to compute the weights automatically. The line parameters are:

- Address
- Symbolic name
- Protocol
- Speed
- Weight (once computed).

The line description file may be printed out at the host. The print procedure is documented in *Advanced Communication Functions for Network Control Program and System Support Programs for the 3720: Diagnosis Guide*, SC30-3181.

Selection:



*To position the cursor*



*To select LDF function*

*Note:* The line description function messages are described in Chapter 24. The listing will direct you to the specific message description and action.

## Display Mode

When you select this function for the first time, a screen similar to the following one is displayed.

Machine Status Area

CUSTOMER ID:3720-1SERIAL NUMBER:

FUNCTION ON SCREEN: LINE DESCR FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATEOFF: LOGOFFPF1: MOVE TO SIAPF2: CCU FNCTNPF3: ALARM

ADDRESS	NAME	PROTOCOL	SPEED (BPS)	WEIGHT
0 TO 27		NOT DESCRIBED		A
32 TO 63		NOT INSTALLED		B

- ENTER ADDRESS OF LINE TO BE DISPLAYED ==>

PF5: UPDATE

All lines are in either the NOT DESCRIBED or the NOT INSTALLED status.

- A** NOT DESCRIBED indicates that the line is installed but not yet described in the line description file. Press PF5 to describe it.
- B** NOT INSTALLED indicates that the line is not installed. Consequently, it cannot be described.

To describe the lines in the NOT DESCRIBED status, press PF5 and follow the procedure explained under "Update Mode."

When you select this function after an update, a screen similar to the following one is displayed:

Machine Status Area

CUSTOMER ID: 3720-12SERIAL NUMBER:

FUNCTION ON SCREEN: LINE DESCR FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATEOFF: LOGOFFPF1: MOVE TO SIAPF2: CCU FNCTNPF3: ALARM

ADDRESS	NAME	PROTOCOL	SPEED (BPS)	WEIGHT	
0	PARIS-01	START/STOP	1200	3.7	<b>C</b>
1 TO 3		NOT DESCRIBED			
4	SWAPPED TO ADDRESS 5				
6	PARIS-03	START/STOP	1200	3.7	
7 TO 15		NOT DESCRIBED			
16	PLANT-01	TOKEN RING		N/A	
17		NOT DESCRIBED			
32 TO 63		NOT INSTALLED			

- ENTER ADDRESS OF LINE TO BE DISPLAYED (0-27, 32-63) ==>

PF5: UPDATEPF8: FORWARD

(Token-ring information is displayed only for a 3720 Model 11 or 12).

In display mode, you are informed of the ports that have been swapped using the port swap function:

#### 4 SWAPPED TO ADDRESS 5

However, this information does not appear on the line description file print-out that you can obtain at the host.

From either screen, you may:

- Select another line, and remain in display mode
- Press PF7 or PF8 (if displayed) to display the previous or next lines
- Press PF5 to go to update mode.

## Update Mode

To go from display mode to update mode, press PF5.

### How to Select the Line to be Updated

The line that you can update is **C** of the preceding screen.

To update the previously installed line, press PF7.

To update the next installed line, press PF8.

If the line you selected is a token-ring attachment, the following screen is displayed.

Machine Status Area  
  
CUSTOMER ID: 3720-12 SERIAL NUMBER:  
FUNCTION ON SCREEN: LINE DESCR FILE  
  
SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
  
LINE 7 NAME: ADAPTER: 2 BASB TIC POS : 1 **D**  
PROTOCOL: TOKEN RING TIC TYPE: 1 **E**  
  
- ENTER LINE NAME ==> PLANT-01 **F**  
  
- PRESS SEND TO TRANSMIT DATA  
PF4: DISPLAY PF7: LINE 1 PF8: LINE 3

**D/E** Give the address, adapter number, BASB for the basic frame, TIC position, TIC type.

**F** The line name must not be more than eight alphanumeric characters.

If the line you selected is not a token-ring attachment, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINE DESCR FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE 2	NAME:	SCANNER: 1	BASB	LIC POS : 1	<b>D</b>
PROTOCOL:	UNDEFINED	SPEED: NONE		LIC TYPE: 1	<b>E</b>

- ENTER LINE NAME ==> 0 **F**

- SELECT A LINE PROTOCOL ==> 0 **G**

0 = UNDEFINED	1 = BSC EBCDIC
2 = START/STOP CHAR MODE	3 = BSC ASCII
4 = START/STOP	5 = BSC CHAR MODE
6 = SDLC HDX	7 = AUTOCALL
8 = SDLC FDX	

- PRESS SEND TO TRANSMIT DATA

PF4: DISPLAY PF7: LINE 1 PF8: LINE 3

- D/E** Give the address, scanner number, BASB for the basic frame, EXB for the expansion frame, LIC position, and type of the line selected.

If you have already described this line in a previous update, the protocol and speed are also displayed.

- F** The line name must not be more than eight alphanumeric characters.
- G** You must select a protocol from among those displayed.

Once you have entered or modified the line name and protocol, press SEND, to transmit that information and to add line **H** (line speed) on the next screen. Do not press a displayed PF key before pressing SEND, otherwise the information that you entered will be lost.

*Note:* For autocal lines, you are not required to enter the speed.



Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINE DESCR FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE 2	NAME: NICE01	SCANNER: 1	BASB	LIC POS : 1	D
PROTOCOL:	SDLC FDX	SPEED: NONE		LIC TYPE: 1	E

- ENTER LINE NAME ==> NICE01

- SELECT A LINE PROTOCOL ==> 8

0 = UNDEFINED	1 = BSC EBCDIC
2 = START/STOP CHAR MODE	3 = BSC ASCII
4 = START/STOP	5 = BSC CHAR MODE
6 = SDLC HDX	7 = AUTOCALL
8 = SDLC FDX	

- ENTER LINE SPEED ==> 0 (0 TO 19200 BPS) H

- PRESS SEND TO TRANSMIT DATA

PF4: DISPLAY PF7: LINE 1 PF8: LINE 3

H You must select a line speed within the indicated range.

Once you have entered the line speed, press SEND. Do not press a displayed PF key before pressing SEND, otherwise the line speed will be lost.

D is updated with the line name and E with the new protocol and speed, as shown in the following screen.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINE DESCR FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE 2 NAME: NICE01 SCANNER: 1 BASB LIC POS : 1

PROTOCOL: SDLC FDX SPEED: 9600 LIC TYPE: 1

- ENTER LINE NAME ==> NICE01

- SELECT A LINE PROTOCOL ==> 8

0 = UNDEFINED	1 = BSC EBCDIC
2 = START/STOP CHAR MODE	3 = BSC ASCII
4 = START/STOP	5 = BSC CHAR MODE
6 = SDLC HDX	7 = AUTOCALL
8 = SDLC FDX	

- PRESS SEND TO TRANSMIT DATA

PF4: DISPLAY PF7: LINE 1 PF8: LINE 3

---

The weight is computed but not displayed on this screen. See "Display Mode".

## PF Keys

Use the following PF keys only when they are displayed on the screen.

*In display mode:*

PF5: To switch to update mode.

PF7: To scroll backward in the line description file.

PF8: To scroll forward in the line description file.

*In update mode:*

PF4: To switch to display mode.

PF7: To update the preceding installed line.

PF8: To update the next installed line.

**Warning:** Save the new information onto the backup diskette, every time you update the file (see Chapter 15).



## Chapter 10. Port Swap

If a link to a port is unusable because of a LIC or scanner failure, you may logically and physically switch that link from its original port to a spare one, without having to regenerate the control program. Port swap is not allowed for link IPL ports.

Use the port swap function to logically switch the ports by exchanging information with the control program, and to create/update a MOSS file (the port swap file). You may display the port swap file at any time to verify the ports that are switched logically.

To switch ports, you must comply with the rules listed below:

- The new port must be a spare, which was not defined at system generation.
- The original port and the new port must be compatible LIC type, cable type, protocol, and speed.
- The line connected to the port to be switched must be inoperative (disabled/deactivated). It must not be an autocall line, an OEM line, or a line under control of EP.

*Notes:*

1. *The port swap function can be performed only under NCP Version 3 or later.*
2. *The port swap function messages are listed in Chapter 24. This list directs you to the specific message description and action.*

## Switching Ports

Switching ports is done in two steps: logical switching with acknowledgment from the control program, and physical switching. It is recommended that you follow the procedure in this order:

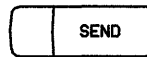
1. Make sure that MOSS is in MOSS-ONLINE status (field c of the MSA). If it is not, do the following:



*To select the CCU functions*



*To set MOSS online*



*To cancel the CCU functions*

2. Disable/deactivate the line at host if it is active.
3. Select and perform the port swap function, as described under "Port Swap Function Procedure" on page 10-3.
4. Once you have logically switched all desired ports and received message x SWAPPED TO y (x and y being the original and new ports), physically switch the ports.
5. When all ports are physically switched, enable/activate appropriate lines.

*Note:* Every time the CCU is re-initialized, all the ports that you have switched logically (listed in the port swap file) are switched another time. It may happen, at this time, that a switched port can no longer be switched logically. This is indicated in the port swap file by the message REFUSED BY CTL PGM followed by the reason for the refusal.

## Resetting Ports

When you reset ports (switch back ports), the port swap file is updated. All the information about reset ports is removed. The procedure to reset ports is identical to the port switching procedure described under "Switching Ports."

## Port Swap Function Procedure

Selection:

PF1

*To position the cursor*

P

S

SEND

*To select the port swap function*

When you select the port swap function for the first time, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: PORT SWAP FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

.SWAP PORT ==> TO PORT ==> A PF8: FORWARD

.NO SWAP FILED

- A** You are prompted to enter the decimal address of the original port (SWAP PORT ==>) and that of the new port (TO PORT ==>).

Once you have entered the addresses, the screen is immediately updated, if the switch is accepted (see screen below). If it is not accepted, a message explaining the refusal is displayed, (refer to "Port Swap Refused").

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: PORT SWAP FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

. ADDRESS	. NAME	. PRTOCOL	. SPEED (BPS)	. WEIGHT
1	SWAPPED TO ADDRESS 62			
62	PARIST	SDLC FDY	4800	12
11	SWAPPED TO ADDRESS 2			
2	NICE01	SDLC FDX	4800	12
5	SWAPPED TO ADDRESS 60			
60	DALLAS01	SDLC FDX	4800	12
8	SWAPPED TO ADDRESS 55			
55	BOSTON01	SDLC FDX	4800	12

.SWAP PORT ==> TO PORT ==> PF7: BACKWARD

8 SWAPPED TO 55

The NAME, PROTOCOL, SPEED, and WEIGHT are automatically displayed.

To display the port swap file, use the PF7 and PF8 keys.

The following screen shows on line **B** that port 58 is refused because the port was not spare when the CCU was re-initialized.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: PORT SWAP FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

ADDRESS	NAME	PROTOCOL	SPEED (BPS)	WEIGHT
3	SWAPPED TO ADDRESS 61			
61	NICE01	SDLC FDY	4800	12
7	SWAPPED TO ADDRESS 59			
59	NYCE01	SDLC FDX	4800	12
9	NICE02	SDLC FDX	4800	12
58	REFUSED BY CTL PGM: 58 IS NOT A SPARE <b>B</b>			
10	SWAPPED TO ADDRESS 57			
57	NYC03	SDLC FDX	4800	12

.SWAP PORT ==> TO PORT ==> PF7: BACKWARD



## Port Swap Refused: Incompatible LIC Types

If you enter ports for which port switching is refused because of LIC incompatibility, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: PORT SWAP FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

.ADDRESS---NAME-----PRTOCOL-----SPEED(BPS)--WEIGHT

.SWAP PORT ==> 0 TO PORT ==> 84

PF4:DISPLAY 0.84

REFUSED: INCOMPATIBLE LIC TYPES

---

From this screen, you may press PF4 to display information on the ports for which port switching is refused. The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: PORT SWAP FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

.ADDRESS---	NAME-----	PRTOCOL-----	SPEED(BPS)---	WEIGHT
LINE 0	NAME: LINE0	SCANNER: 1	BASB	LIC POS : 1
	PROTOCOL: START/STOP		SPEED: 19200 BPS	LIC TYPE: 1
				C
LINE 54	NAME:	SCANNER: 4	EXB	LIC POS : 6
	PROTOCOL: UNDEFINED		SPEED: NONE	LIC TYPE: 3
				D

.SWAP PORT ==> 0 TO PORT ==> 84

PF5:BACK TO LIST

REFUSED: INCOMPATIBLE LIC TYPES

**C/D** show the LIC types that are not compatible.

From this screen, press PF5 to return to the previous screen and select other ports.

## Hazardous Port Swap: Incompatible Line Protocols

If you enter ports for which port switching may be hazardous because of line protocol incompatibility, the following is displayed:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: PORT SWAP FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE   OFF: LOGOFF

PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

.SWAP PORT ==> 0   PF4: DISPLAY 0.63

TO PORT ==> 63   PF6: QUIT

WARNING: INCOMPATIBLE LINE PROTOCOLS. PRESS SEND TO BYPASS

From this screen you may:

- Press SEND to continue. The line protocols might not have been updated in the LDF file. Therefore, port switching may be possible.
- Press PF4 n,n to display information on the lines for which port switching may be hazardous.

On a display screen, you cannot switch ports.

- Press PF6 to cancel the current switch request, and select new ports.

If you press PF4, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: PORT SWAP FILE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

.ADDRESS	---NAME	-----PRTOCOL	-----SPEED (BPS)	--WEIGHT
LINE 0	NAME: LINE0	SCANNER: 1 LAB: 1	LIC POS : 1	<b>D</b>
	PROTOCOL: START/STOP	SPEED: 19200 BPS	LIC TYPE: 1	
LINE 63	NAME: LINE63	SCANNER: 3 LAB: 2	LIC POS : 8	<b>E</b>
	PROTOCOL: SDLC FDX	SPEED: 19200BPS	LIC TYPE: 1	

.SWAP PORT ==> 0 TO PORT ==> 63

PF5:BACK TO LIST

WARNING: INCOMPATIBLE LINE PROTOCOLS

**D/E** show the line protocols that are not compatible.

From this screen, press PF5 to return to the previous screen.

## PF Keys

Use the following PF keys only when they are displayed on the screen.

PF4: To display information on the lines for which port switching is not possible or hazardous.

PF5: To go back to the screen on which you entered at least one port for which port switching is not possible or hazardous.

PF6: To cancel the current switch request.

PF7: To display the previous ports in the port swap file.

PF8: To display the next ports in the port swap file.



## Chapter 11. Line Interface Display

You may use the line interface display function when modifying the network and installing terminals, and when you need information about lines. This function allows you to display:

- The type of control program (NCP or EP)
- Line parameters
  - Line interface standard
  - Line type
  - Line protocol
  - Cable identification
  - Transmission mode
  - Clock type
  - Speed
- Transmit and receive commands, and command status
- States of the data set leads (interchange circuits)
- 32 bytes of transmitted data
- 32 bytes of received data.

*Notes:*

1. *To take full advantage of the line interface display function, the control program should be loaded.*
2. *The line interface display function messages are listed in Chapter 24. The listing directs you to the specific message description and action.*

Selection:

PF1

*To position the cursor*

L

I

D

SEND

*To display the line function  
secondary menu*

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINE INTERF DPLY

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

ENTER A DECIMAL LINE ADDRESS FROM 0 TO 27 AND 32 TO 63==> A

- A Once you have entered the address and pressed SEND, the line parameter screen is displayed.

## Line Parameters

The parameters of the line that you selected on the previous screen are displayed as shown below. For high speed lines (230 kbps and above) refer to "Parameters for High Speed Lines."

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINE INTERF DPLY

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

ENTER A DECIMAL LINE ADDRESS FROM 0 TO 27 AND 32 TO 63 ==> (B)

LINE 42 10 IN SCANNER 3 CCITT V24 OR EIA RS232C (C)

(E) CONTROL PROGRAM:	NCP	(D)
(E) LINE TYPE:	NON SWITCHED	
(G) PROTOCOL:	SDLC	(F)
(G) TRANSMISSION MODE:	FULL DUPLEX	
CABLE ID:	MODEM ATTACHMENT	(H)
(I) CLOCK:	BUSINESS MACHINE - INTERNAL	
SPEED:	1200 BPS	(J)

PF5: REFRESH PF6: LINE PARAMETERS PF7: LEADS PF8: DATA

(B) You may request the parameters of another line by entering its address.

(C) The following information is displayed:

- The line address that you specified on the previous screen or on line (B)
- The line address in the scanner and the scanner number
- The line interface standard:

CCITT V.24 OR EIA RS232C  
CCITT V.25 OR EIA RS366  
CCITT X.21  
WIDE BAND  
CCITT V.35

(D) The control program: NCP or EP

(E) The line type: SWITCHED or NONSWITCHED

(F) The line protocol

(G) The transmission mode: FULL DUPLEX, HALF DUPLEX, or HALF DUPLEX RTS PERMANENT



- Ⓜ The cable identification:

CABLE NOT INSTALLED  
LIC1/2/4 WRAP BLOCK  
LIC3 WRAP BLOCK  
MODEM ATTACHMENT  
DIRECT ATTACHMENT  
AUTOCALL

- Ⓢ The clock type: BUSINESS MACHINE INTERNAL, MODEM, or BUSINESS MACHINE LOCAL ATTACHMENT
- Ⓤ The speed for internal clock, high-speed lines, and direct-attached lines

From this screen, you may:

- Display the parameters of another line, by entering its address on line Ⓟ, or
- Press one of the PF keys displayed on the screen. See “PF Keys”.

## Parameters for High-Speed Lines

If you selected a high speed line (230 kbps and above), the following line parameter screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINE INTERF DPLY

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

ENTER Y TO FORCE THE DISPLAY OF LINE LEADS ==> Ⓟ

WARNING: REQUEST OF LEADS MAY DISTURB THE DATA TRANSMISSION

LINE 1 0 IN SCANNER 1 INFT STANDARD NOT ACCESSED Ⓢ

CONTROL PROGRAM: NCP

LINE TYPE: NON SWITCHED

PROTOCOL: SDLC

TRANSMISSION MODE: FULL DUPLEX

CABLE ID: CABLE ID NOT ACCESSED Ⓜ

CLOCK: MODEM

SPEED: 230 Kbps

PF5: REFRESH PF6: LINE PARAMETERS PF7: LEADS PF8: DATA

LINE SPEED MAY BE 230 Kbps OR ABOVE

This parameter screen warns you that requesting high-speed line information may disturb the transmission of data. It does not display the line interface standard Ⓢ nor the cable id Ⓜ. These two parameters will be added to the screen if you enter Y on line Ⓟ.

## Data Set Leads

If you press PF7 on the Line Parameter screen, the Data Set Lead screen is displayed. For high-speed lines (230 kbps and above) refer to “Data Set Leads for High-Speed Lines.”

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINE INTERF DPLY

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

ENTER A DECIMAL LINE ADDRESS FROM 0 TO 27 AND 32 TO 63 ==> (B)

LINE 42 10 IN SCANNER 3 CCITT V24 OR EIA RS232C (C)

XMIT CMD: SDLC XMIT DATA STATUS: IN-PROGRESS RCV CMD: SDLC RCV DATA STATUS: IN-PROGRESS (K)

MODEM-OUT DTR ON } (M) MODEM-IN DSR ON } (N)

RTS ON

NS

DRS

MT

RFS ON

RI ON

CD ON

TI

PF5: REFRESH PF6: LINE PARAMETERS PF7: LEADS PF8: DATA

The line interface standard is indicated on line (C).

**Warning:** When a data set lead is off, OFF is not displayed on the screen. For example, in the above screen DRS means DRS OFF.

CCITT V.24 nonswitched DCE attachment	Go to page 11-10
CCITT V.24 switched DCE attachment	Go to page 11-11
CCITT V.24/V.35 direct attachment	Go to page 11-12
CCITT V.35 DCE attachment	Go to page 11-13
CCITT V.25 (autocall)	Go to page 11-14
CCITT X.21 DCE attachment	Go to page 11-15
Wide Band	---

**B** and **C** Refer to lines **B** and **C** on the Line Parameter screen

**K** The last transmit and receive commands

**L** The status of the transmit and receive commands

**M** Modem-out data set leads: DCE-source

**N** Modem-in data set leads: DTE-source

The abbreviations used on the Data Set Lead screens are the following:

For CCITT V24 and V35, Wide Band:

CD - (109) Data Channel Received Line Signal Detector  
(for CCITT V.24 only, CD is not significant in case of direct attachment)

RFS - (106) Ready For Sending (CTS)

DSR - (107) Data Set Ready

DTR - (108/2) Data Terminal Ready

MT - Modem Test

DRS - (111) Data signaling Rate Selected

NS - New Sync (for CCITT V.24 only, NS is not significant in case of direct attachment)

RI - (125) Ring Indicator

RTS - (105) Request to Send

TI - (142) Test Indicator

AGC - Automatic Gain Control

For CCITT V.25:

ACR - (205) Abandon Call and Retry

DSC - (204) Distant Station Connected

CRQ - (202) Call Request

DLO - (203) Data Line Occupied

DPR - (211) Digit Present

PND - (210) Present Next Digit

PWI - (213) Power Indication

NB8 - Digit signal 8

NB4 - Digit signal 4

NB2 - Digit signal 2

NB1 - Digit signal 1

For CCITT X.21:

C - Control  
I - Indicator  
R - Receive  
T - Transmit

From this screen, you may:

- Display the data set leads of another line by entering its address on line **B** or
- Press one of the PF keys displayed on the screen. See "PF Keys".

## Data Set Leads for High-Speed Lines

If you selected a high-speed line (230 kbps and above), the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINE INTERF DPLY

SYSTEM INPUT AREA (SIA) ==>>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

ENTER Y TO FORCE THE DISPLAY OF LINE LEADS ==> **B**

WARNING: REQUEST OF LEADS MAY DISTURB THE DATA TRANSMISSION

LINE 1 0 IN SCANNER 1 INFT STANDARD NOT ACCESSED **C**

XMIT CMD: SDLC XMIT DATA RCV CMD: SDLC RCV DATA

STATUS: IN-PROGRESS STATUS: IN-PROGRESS

PF5: REFRESH PF6: LINE PARAMETERS PF7: LEADS PF8: DATA

LINE SPEED MAY BE 230 KBPS OR ABOVE

The Data Set Lead screen warns you that requesting high-speed line control leads may disturb the transmission of data. It does not display the line interface standard **C** nor the data set leads. They will be added if you enter Y on line **B**.

It might happen that the scanner cannot provide the data set leads, in which case the following message is displayed:

LINE SPEED IS 230 KBPS OR ABOVE: LEAD STATE NOT ACCESSIBLE

You may terminate the function, using the terminate function, select another line, or press a displayed PF key.

The Transmit and Receive Data screen is displayed when you press PF8 on the Line Parameter screen or the Data Set Lead screen.

## Transmit and Receive Data

The Transmit and Receive Data screen is displayed when you press PF8 on the Line Parameter or on the Data Set Lead screen.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINE INTERF DPLY

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

ENTER A DECIMAL LINE ADDRESS FROM 0 TO 28 AND 32 TO 63 (B)

LINE 42 10 IN SCANNER 3 CCITT V24 OR EIA RS232C (C)

XMIT CMD: SDLC XMIT DATA RCV CMD: SDLC RCV DATA (K)

STATUS: IN-PROGRESS STATUS: IN-PROGRESS (L)

<p>(O) {</p> <p>SAMPLING OF XMIT DATA</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>EA</td><td>EB</td><td>EC</td><td>ED</td><td>EE</td><td>EF</td><td>FO</td><td>F1</td></tr> <tr><td>F2</td><td>F3</td><td>F4</td><td>F5</td><td>F6</td><td>F7</td><td>F8</td><td>F9</td></tr> <tr><td>FA</td><td>FB</td><td>FC</td><td>FD</td><td>FE</td><td>FF</td><td>00</td><td>01</td></tr> <tr><td>02</td><td>03</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td></tr> </table> <p>(Q) }</p>	EA	EB	EC	ED	EE	EF	FO	F1	F2	F3	F4	F5	F6	F7	F8	F9	FA	FB	FC	FD	FE	FF	00	01	02	03	04	05	06	07	08	09	<p>SAMPLING OF RCV DATA</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>F6</td><td>F7</td><td>F8</td><td>F9</td><td>FA</td><td>FB</td><td>FC</td><td>FD</td></tr> <tr><td>FE</td><td>FF</td><td>00</td><td>01</td><td>02</td><td>03</td><td>04</td><td>05</td></tr> <tr><td>06</td><td>07</td><td>08</td><td>09</td><td>0A</td><td>0B</td><td>0C</td><td>0D</td></tr> <tr><td>0E</td><td>0F</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr> </table> <p>(P) }</p>	F6	F7	F8	F9	FA	FB	FC	FD	FE	FF	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15
EA	EB	EC	ED	EE	EF	FO	F1																																																										
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06	07	08	09	0A	0B	0C	0D																																																										
0E	0F	10	11	12	13	14	15																																																										

PF5: REFRESH PF6: LINE PARAMETERS PF7: LEADS PF8: DATA

(B) and (C) refer to lines (B) and (C) on the Line Characteristic screen

*Note:* If you enter a new address on this screen, the line interface standard will not be accessed. INTF STANDARD NOT ACCESSED will be displayed. (K) and (L) Refer to lines (K) and (L) on the Data Set Lead screen

- (O) 32 bytes of transmit data from the buffer
- (P) 32 bytes of receive data from the buffer

From this screen, you may:

- Display the transmit and receive data of another line, by entering its address on line (B), or
- Press one of the PF keys (Q) displayed on the screen.

## PF Keys

Use the following PF keys only when they are displayed on the screen.

**PF5:** To refresh displayed line parameters, data set leads, or data. This allows you to view permanently the updated image of the information that you selected. To cancel the refresh mode, press **BREAK (ATTN)**.

**PF6:** To display the parameters of the line that you selected.

**PF7:** To display the data set leads of the line that you selected.

**PF8:** To display the transmitted and received data of the line that you selected.

**Warning:** Save the new information onto the backup diskette every time you update the file (see Chapter 15).

## V.24 - Non-Switched DCE Attachment

1. Scan this data set lead list.
2. Perform the actions for the first lead listed in error.
3. Restart transmission activity without performing the action for the next lead in error, if any.

If on the screen, the STATUS of the data set lead is:	Perform the following ACTIONS:
<b>DSR OFF</b>	- Check if the DCE is powered on and correctly connected.
<b>DTR OFF</b>	- Activate the line (host side). - Check the DTE-to-DCE cable connection.
<i>Duplex lines:</i> <b>RTS OFF and RFS OFF</b>	- Check if RTS PERMANENT on Line Parameter screen. Press PF6. - <i>If permanent</i> , activate the line. - <i>If not permanent</i> , check the scanner and the system generation parameters.
<i>Duplex lines:</i> <b>RTS ON and RFS OFF</b>	- Check the DTE-to-DCE cable connection. - Check if the DCE is powered on and correctly connected.
<i>Half-duplex lines:</i> <b>RTS and RFS do not flash</b>	Because of synchronization between the refresh rate and the transmission rate, data may never appear. To verify if data is being transmitted, press PF8. If no data: - Check if the DCE is powered on and correctly connected. - Check the DTE-to-DCE cable connection.
<i>Half-duplex lines:</i> <b>RTS ON and RFS OFF</b>	- Check the DTE-to-DCE cable connection. - Check if the DCE is powered on and correctly connected.
<i>Point-to-point:</i> <b>CD OFF</b>	- Check data transmission. Press PF8. <i>If no data in receive buffer</i> , suspect network problem.
<i>Multipoint:</i> <b>CD ON steady</b>	- Check the local DCE, the link, or the remote site (network problem).
<b>TI ON</b>	- Reset the DCE test switch to normal operating position.
<b>DRS OFF</b> <b>DRS ON</b>	No action required. You may check that the speed matches that displayed on the Line Parameter screen (PF6).
<b>MT ON</b>	- Reset test condition at the host side.
<b>NS</b>	Not significant
<b>RI ON</b>	Not significant
<b>All data set leads are OK but there is traffic only on transmit side</b>	- Check terminal configuration at remote site and control program generation parameters (for example, the remote terminal address, NRZI, or non-NRZI).

## V.24 - Switched DCE Attachment

1. Scan this data set lead list.
2. Perform the actions for the first lead listed in error.
3. Restart transmission activity without performing the action for the next lead in error, if any.

If on the screen, the STATUS of the data set lead is:	Perform the following ACTIONS:
If 108/1 (Connect Data Set to Line) <b>DTR ON</b>	- Check the system generation parameters and line parameters (PF6). If parameters OK, and RI = ON, check the DCE.
If 108/2 (Data Terminal Ready) <b>DTR OFF</b>	- Activate the line (host side).
Auto-answer line 108/1 (Connect Data Set to Line) or 108/2 (Data Terminal Ready) <b>RI OFF</b> and <b>DSR OFF</b>	Incoming call: - Check the transmission line. - Check the DCE. - Check the DTE-to-DCE cable connection.
<b>RTS</b> and <b>RFS</b> do not flash	- Check data transmission. Press PF8. If no data: - Check if the DCE is powered on and correctly connected. - Check the DTE-to-DCE cable connection.
<b>CD OFF</b>	- Check the DCE. - Check the DTE-to-DCE cable connection. - Check the remote site or the system generation parameters.
<b>TI ON</b>	Significant only if DSR is ON. In this case, reset the DCE test switch to the normal operating position.
<b>MT ON</b>	- Reset test condition at the host side.
<b>NS</b>	Not significant



## V.24/V.35 - Direct Attachment

1. Scan this data set lead list.
2. Perform the actions for the first lead listed in error.
3. Restart transmission activity without performing the action for the next lead in error, if any.

If on the screen, the <b>STATUS</b> of the data set lead is:	Perform the following <b>ACTIONS</b> :
<b>DTR OFF</b>	- Enable the line at the host side. - Check the DTE-to-DCE cable connection.
<b>RFS OFF</b>	Same actions as DTR OFF
<b>DSR OFF</b>	
<b>RTS OFF</b>	
<b>CD OFF</b>	
<b>All other data set leads are not significant</b>	

## V.35 DCE Attachment

1. Scan this data set lead list.
2. Perform the actions for the first lead listed in error.
3. Restart transmission activity without performing the action for the next lead in error, if any.

If on the screen, the <b>STATUS</b> of the data set lead is:	Perform the following <b>ACTIONS</b> :
<b>DSR OFF</b>	- Check if the DCE is powered on and correctly connected.
<b>DTR OFF</b>	- Activate the line (host side). - Check the DTE-to-DCE cable connection.
<i>Duplex lines:</i> <b>RTS OFF</b> and <b>RFS OFF</b>	- Check if RTS PERMANENT on Line Parameter screen. Press PF6. - <i>If permanent</i> , activate the line. - <i>If not permanent</i> , check the scanner and the system generation parameters.
<i>Duplex lines:</i> <b>RTS ON</b> and <b>RFS OFF</b>	- Check the DTE-to-DCE cable connection. - Check if the DCE is powered on and correctly connected.

## V.25 (Autocall)

1. Scan this data set lead list.
2. Perform the actions for the first lead listed in error.
3. Restart transmission activity without performing the action for the next lead in error, if any.

If on the screen, the STATUS of the data set lead is:	Perform the following ACTIONS:
<b>PWI OFF</b>	<ul style="list-style-type: none"><li>- Check if the Automatic Calling Unit (ACU) is powered on.</li><li>- Check the ACU-to-DTE cable connection.</li></ul>
<b>CRQ OFF</b>	<ul style="list-style-type: none"><li>- Activate the ACU line (host side).</li></ul>
<b>DLO OFF</b>	<ul style="list-style-type: none"><li>- Check the ACU.</li><li>- Suspect the ACU-to-DCE cable.</li></ul>
<b>PND</b> does not flash	<ul style="list-style-type: none"><li>- Check the ACU.</li><li>- Suspect the ACU-to-DCE cable.</li><li>- If the cable is OK, suspect the network.</li></ul>
<b>DPR</b> does not flash	<ul style="list-style-type: none"><li>- Check the ACU-to-DCE cable.</li><li>- If OK, contact the appropriate service representative.</li></ul>
<b>ACR ON</b>	<ul style="list-style-type: none"><li>- Check the ACU line. If OK, suspect the network.</li></ul>
<b>RSE OFF (DSC)</b>	<ul style="list-style-type: none"><li>- Check the ACU line. If OK, suspect the network.</li><li>- Press PF6 to display the Line Parameter screen.</li><li>- Enter the address of the Data Transmission line, then press SEND.</li><li>- Check the line parameters.</li><li>- PF7 to display the data set leads according to the V.24 - Switched DCE Attachment list, on page 11-11.</li></ul>

## X.21 DCE Attachment

1. Scan this data set lead list.
2. Perform the actions for the first lead listed in error.
3. Restart transmission activity without performing the action for the next lead in error, if any.

If on the screen, the STATUS of the data set lead is:	Perform the following ACTIONS:
<b>T OFF</b> <b>C OFF</b>	DTE not ready: - Check the line parameters (PF6). - If the problem persists, contact the appropriate 3720 service representative.
<b>R ON</b> <b>I OFF</b>	DCE not ready: - Check if DCE is powered on and correctly connected. - If the problem persists, contact the public switched network service representative.



## Chapter 12. Token-Ring Interconnection Function

The token-ring interconnection (TRI) function provides the information relative to the status and activity of a selected token-ring interface coupler (TIC). In addition, a function is provided that will allow an "activate link" command to be performed at the host. There are three basic functions available:

1. Give status of the token-ring.
2. Provide problem determination.
3. Show token-ring activity.

This function can be used only on a 3720 Model 11 or 12 that has a token-ring attachment.

Selection:

PF1

*To position the cursor*

T

R

I

SEND

*To select the token-ring interconnection function.*

Machine Status Area

CUSTOMER ID: 3720-11 SERIAL NUMBER:

FUNCTION ON SCREEN: TRI

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

TRA/TIC SELECT

- ENTER A DECIMAL LINE ADDRESS XX TO YY ==> \_\_\_\_

TRA	LINE ADDRESS	TIC'S
__	__	__

- TYPE 'A' TO ALLOW 'ACTIVATE LINK' COMMAND ==> \_\_\_\_

PRESS SEND TO CONFIRM

---

The table containing the installed TRAs, TIC, and corresponding line addresses will be filled according to the configuration of the machine.

## Allow 'Activate Link'

If the operator enters a line number and an 'A' in the space provided, the Allow Activate Link function will be performed. This function is needed if:

1. An automatic TIC dump is requested by NTRI, which causes the activate link (from the host) to be inhibited.
2. Before the autodump is completed, MOSS goes down or is unable to complete the dump and does not re-enable the activate link.

Successful completion of this function will allow the host operator to activate the token-ring attachment.

## Token-Ring Interconnection

If the operator enters a valid line address only, the following screen is displayed:

Machine Status Area A

CUSTOMER ID:

3720-11

SERIAL NUMBER:

FUNCTION ON SCREEN: TRI

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE

OFF: LOGOFF

PF1: MOVE TO SIA

PF2: CCU FNCTN

PF3: ALARM

TOKEN RING INTERCONNECTION

NODE ADDR: \_\_\_\_\_

GROUP ADDRESS: \_\_\_\_\_

FUNCTIONAL ADDR: \_\_\_\_\_

IR \_\_\_\_\_

BR \_\_\_\_\_

< TRI ERROR

< MESSAGE AREA

B

C

E

RING STATUS: D

SIGNAL LOSS: \_\_\_\_\_

HARD ERROR: \_\_\_\_\_

SOFT ERROR: \_\_\_\_\_

TRANSMIT BEACON: \_\_\_\_\_

LOBE WIRE FAULT: \_\_\_\_\_

AUTO-REMOVAL ERROR 1: \_\_\_\_\_

REMOVE RECEIVED: \_\_\_\_\_

COUNTER OVERFLOW: \_\_\_\_\_

SINGLE STATION: \_\_\_\_\_

RING RECOVERY: \_\_\_\_\_

PF5: REFRESH

PF6: SELECT

A The third line of the MSA contains the following information:

- TRA 02
- TRA mode (connect, disconnect or unknown)
- TIC ID (1 or 2)

- TIC mode (idle, reset, initialized, open, closed, frozen, or disabled, see page 25-15 and 25-16).
- B** Node, group, functional addresses of the token-ring (in hex). This is obtained from the TIC OPEN block (from NTRI).
- C** TRM activity information: A display of the IR/BR bits of the selected TRA and TIC ('on' or blank). The IR bit indicates that an interrupt is pending from the selected TIC. The BR bit indicates that a data transfer request (DMA) is pending for the TIC. A change of these values during refresh indicates activity for the selected TIC.
- D** Token-Ring Status: Selected bits from the token-ring status block (from NTRI). The indicators are either 'on' or blank. Refer to the Figure on page 12-2.

The meaning of each ring status indicator is given below.

Ring Status Indicator	Description
SIGNAL LOSS	A receiver exception currently exists in the TIC. The TIC is not receiving signals from the ring. This is a temporary condition and will either be recovered by the ring protocol or will go into a beacon condition (see HARD ERROR).
HARD ERROR	The TIC is transmitting or repeating beacon MAC frames. (See also TRANSMIT BEACON). If this remains for more than 30 seconds, see the <i>Token-Ring Network Problem Determination Guide</i> . Reactivate the link if necessary.
SOFT ERROR	The TIC has transmitted a soft error report frame. This is ring-recoverable. No action required.
TRANSMIT BEACON	Used in conjunction with HARD ERROR. If both indicators are on, this TIC is generating beacon frames. Same as HARD ERROR.
LOBE WIRE FAULT	The TIC has detected an open or a short circuit in the lobe data path. Check that the cable is connected to access unit. Reactivate the link for this TIC. If persistent, see the <i>Token-Ring Network Problem Determination Guide</i> .
AUTO REMOVAL ERROR 1	The TIC detected an internal hardware error during beacon auto-removal process and removed itself from the ring. Reactivate the line for this TIC. If persistent, call your service representative.
REMOVE RECEIVED	The TIC received a remove MAC frame from the network manager and has removed itself from the ring. Check with the token-ring operator why the 3720 was forced off the ring. When the problem is corrected, reactivate the line to this TIC.
COUNTER OVERFLOW	An error counter in the TIC has exceeded its maximum value of 255. No action required. Counter values are reported to NPDA.
SINGLE STATION	There are no other stations connected to this ring.
	If other stations are known to be on the ring, see the <i>Token-Ring Network Problem Determination Guide</i> . Otherwise, no action.

Figure 12-1 (Part 1 of 2). Ring Status Indicator Description



Ring Status Indicator	Description
RING RECOVERY	The monitor contention process is in progress on the ring. No action required. If the ring does not recover, another ring status indicator should appear within 30 seconds.

Figure 12-1 (Part 2 of 2). Ring Status Indicator Description

- E** A message indicating an error condition of the selected TIC if one exists. Possible messages are given below.

## Token-Ring Interconnection Error Messages

### Bring-Up Messages

BRING-UP ERROR 0 - INITIAL TEST ERROR

BRING-UP ERROR 1 - ROS CRC ERROR

BRING-UP ERROR 2 - RAM ERROR

BRING-UP ERROR 3 - INSTR. TEST ERROR

BRING-UP ERROR 4 - XOP/INTR TEST ERROR

BRING-UP ERROR 5 - PH HARDWARE ERROR

BRING-UP ERROR 6 - SIF REGISTER ERROR

If a bring-up error appears in the TRI error message area, an activate link should be tried again from the host. If the error persists, call your service representative. (NPDA Alert 1.)

### Initialization Messages

INITIALIZATION ERROR 1 - INV. PARM. LENGTH

INITIALIZATION ERROR 2 - INVALID OPTIONS

INITIALIZATION ERROR 3 - INV. RCV BURST SIZE

INITIALIZATION ERROR 4 - INV. XMIT BURST SIZE

INITIALIZATION ERROR 5 - INV. DMA ABORT THRESH

INITIALIZATION ERROR 6 - INVALID SCB ADDRESS

INITIALIZATION ERROR 7 - INVALID SSB ADDRESS

INITIALIZATION ERROR 8 - MMIO PARITY ERROR

INITIALIZATION ERROR 9 - DMA TIMEOUT

INITIALIZATION ERROR 10 - DMA PARITY ERROR

INITIALIZATION ERROR 11 - DMA BUS ERROR

INITIALIZATION ERROR 12 - DMA DATA ERROR

INITIALIZATION ERROR 13 - ADAPTER CHECK

The meaning of each initialization error is given below.

Initialization Error	Description
1 to 7	The specified initialization parameter was found to be invalid by the TIC microcode. Check installation/generation parameters. When corrected, reactivate the link to this TIC. If error persists, call your service representative.
8 to 13	The specified hardware problem has been detected by the TIC. Reactivate link to this TIC. If error persists, call your service representative.

**Figure 12-2. Initialization Error Description**

### Open Messages

OPEN ERROR - INVALID PARAMETERS

OPEN ERROR 1 IN PHASE x - FUNCTION FAILURE

OPEN ERROR 2 IN PHASE x - SIGNAL LOSS

OPEN ERROR 3 IN PHASE x - WIRE FAULT

OPEN ERROR 4 IN PHASE x - FREQUENCY ERROR

OPEN ERROR 5 IN PHASE x - TIMEOUT

OPEN ERROR 6 IN PHASE x - RING FAILURE

OPEN ERROR 7 IN PHASE x - RING BEACONING

OPEN ERROR 8 IN PHASE x - DUPL NODE ADDR

OPEN ERROR 9 IN PHASE x - REQUEST PARAMETERS

OPEN ERROR 10 IN PHASE x - REMOVE RECEIVED

OPEN ERROR 11 IN PHASE x - IMPL FORCE RCVD

## Open Phases

0 - LOBE MEDIA TEST

1 - PHYSICAL INSERTION

2 - ADDRESS VERIFICATION

3 - ROLL CALL POLL

4 - REQUEST PARAMETERS

The meaning of each open error is given below.

Open Errors	Description
INVALID PARAMETER	An open parameter was found to be invalid by the TIC microcode. Check installation/generation parameters. When corrected, reactivate the link to this TIC. If error persists, call your service representative.
FUNCTION FAILURE (1)	The lobe media test has failed, or another MAC frame was seen on the ring during the lobe media test (Phase 0). Unplug the token-ring adapter cable from its access unit. Reactivate the link to this TIC. If same symptom occurs, call your service representative. Otherwise, there is a problem in the lobe, (see <i>Token-Ring Network Problem Determination Guide</i> ).
SIGNAL LOSS (2)	The TIC is detecting no signal on the ring at the receiver side. Reactivate the link to this TIC. If error persists, see <i>Token-Ring Network Problem Determination Guide</i> .
WIRE FAULT (3)	There was a fault on the TIC line. Reactivate the link to this TIC. If error persists, see <i>Token-Ring Network Problem Determination Guide</i> .
FREQUENCY ERROR (4)	A frequency error occurred on the TIC line. Reactivate the link to this TIC. If error persists, see <i>Token-Ring Network Problem Determination Guide</i> .
TIMEOUT (5)	The TIC has not been able to complete the specified phase in the time allowed. Reactivate the link to this TIC. If error persists, see <i>Token-Ring Network Problem Determination Guide</i> .
RING FAILURE (6)	The TIC is the active monitor and cannot complete the ring purge process in the time allowed. Reactivate the link to this TIC. If error persists, see <i>Token-Ring Network Problem Determination Guide</i> .
RING BEACONING (7)	The monitor contention process was not completed in the time allowed or a beacon frame was received. Reactivate the link to this TIC after 30 seconds. If error persists, consult <i>Token-Ring Network Problem Determination Guide</i> .
DUPL NODE ADDRESS (8)	Some other adapter on the ring has the same specific address as this TIC. Check installation/generation address for this TIC. If no problem is found, see <i>Token-Ring Network Problem Determination Guide</i> .
REQUEST PARAMETER (9)	The parameter server was not able to provide the requested parameters in the time allowed. Reactivate the link to this TIC. If error persists, see <i>Token-Ring Network Problem Determination Guide</i> .
REMOVE RECEIVED (10)	A remove force MAC frame was received during the open process by this TIC. Check with the token-ring operator. Correct problem, and then reactivate the link to this TIC.

Figure 12-3 (Part 1 of 2). Open Error Description

Open Errors	Description
IMPL FORCE RECEIVED (11)	An IMPL force MAC frame was received by the TIC and the adapter has been closed. The adapter is in the same state as after initialization and will have to be opened again.

Figure 12-3 (Part 2 of 2). Open Error Description

## Receive Messages

### RECEIVE ERROR

## Transmit Messages

### TRANSMIT ERROR

If a receive or transmit error appears in the TRI error message area, an activate link should be tried again from the host. If the error persists, call your service representative.

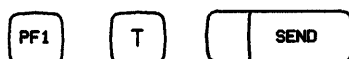
## PF Keys

PF5: To activate a periodic refresh of the display. To cancel the refresh mode, press ATTN.

PF6: To bring back the TRA/TIC Select screen.

## Termination

To terminate the line interface display function:



*or*

*Select a function from the CCU function menu.*



## Chapter 13. Wrap Test

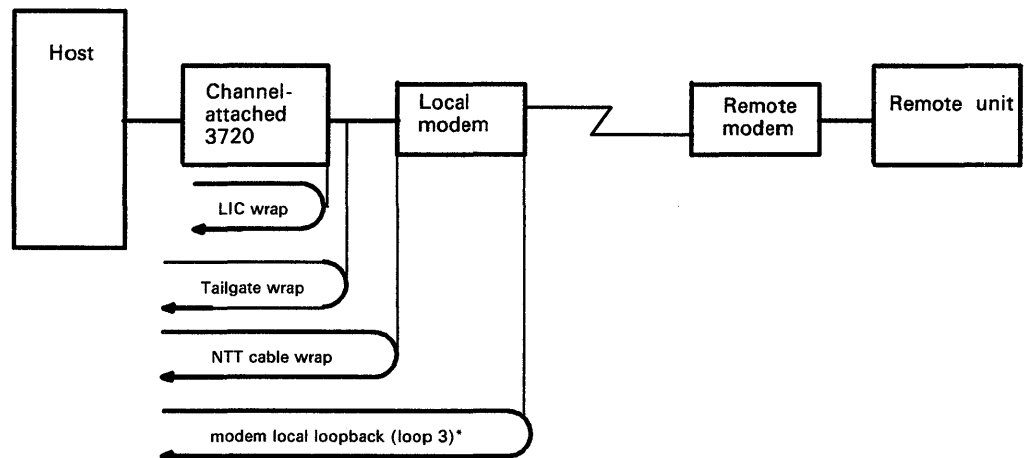
In the text that follows:

- *Modem* refers to IBM 386x and 586x modems or to other modems that activate, when in test/loop mode, data set ready (DSR) or other interface signals as indicated in the CCITT V54 recommendations.
- *Cable* refers to NTT cables or to other cables that have NTT-like wrap capabilities.

You may use the Wrap Test function as a problem determination aid, to determine whether:

- The modem is functionally operational (wrap test at modem level).
- The path from the 3720 to the NTT cable, excluding the modem, is functionally operational (wrap test at cable level).

At each level, you can perform two types of tests: the data wrap test and the control lead wrap test.



\* *Modem local loopback is referred to as loop 3 in the CCITT V54 recommendations.*

Notes:

1. You cannot use the wrap test function on a line that is being traced (line trace function) or tested (line test function). These functions are described in Chapter 21.
2. To execute the wrap test function, the CCU control program must be running (PROCESS and RUN are displayed in the machine status area (MSA), see Chapter 25), and MOSS must be online (MOSS-ONLINE is displayed in the MSA).

## Modem Level Wrap

The modem level wrap on the 3720 can verify the path after the cable end and within the modem.

- Data Wrap Test

The 3720 transmits defined data patterns on the 'transmit data' line and verifies that these patterns are wrapped back and received correctly on the 'receive data' line. Any discrepancy is detected by the 3720. The test can be run any number of times consecutively. You may use the default data wrap patterns or you may create your own personal data wrap patterns. Default data wrap patterns are provided according to line protocol (for example, BSC, ASCII).

- Control Lead Wrap Test

The 3720 transmits a defined pattern on the control leads to the modem. The modem is controlled by these control leads and always reacts the same way to a given configuration of the control leads. The modem wraps the transmitted pattern back to the 3720 in order to determine the status of the modem (the modem may not react to invalid configurations of the transmitted control leads). The control leads are continuously tested when the 3720 is in normal operation mode, or when a data wrap test is being performed.

A modem level control lead default pattern is provided only for the IBM 386x modems. The manner in which other types of modem wrap the control leads cannot be determined. Therefore, no default control lead patterns are provided for modems other than the IBM 386x modems. You must create your own personal control lead wrap patterns.

## NTT Cable Level Wrap

Using the NTT cable level wrap, the 3720 can verify the path up to, and including, the cable end. To perform the NTT cable level wrap, you must have a Test/Operate switch at the end of the cable.

- Data Wrap Test

The 3720 transmits defined data patterns on the 'transmit data' line and verifies that these patterns are wrapped back and received correctly on the 'receive data' line. Any discrepancy is detected by the 3720. The test can be run any number of times consecutively. You may use the default data wrap patterns or you may create your own personal data wrap patterns. Default data wrap patterns are provided according to line protocol (for example, BSC, ASCII).

- Control Lead Wrap Test

The 3720 transmits a defined control lead pattern on the transmit interface and verifies that the pattern is wrapped back and received correctly on the receive interface. Any discrepancy is detected by the 3720. You may use the control lead default patterns or create your own personal control lead patterns.

## LIC Level Wrap

This tests the LIC internally, whether or not a cable or tailgate wrap block is present. The 3720 transmits defined data patterns and verifies that these patterns are wrapped back and received correctly. Any discrepancy is detected by the 3720. The test can be run any number of times consecutively. You may use the default data wrap patterns or you may create your own personal data wrap patterns.

*Note:* For the LIC type 3 port the plugs are reversible. In order to fully test the card, reverse the wrap cable after the first test pass and run the test again.

## Tailgate Level Wrap

A tailgate wrap block must be inserted into the position being tested instead of the cable to the modem. The 3720 transmits a defined tailgate pattern on the transmit interface and verifies that the pattern is wrapped back and received correctly on the receive interface. Any discrepancy is detected by the 3720. You may use the tailgate default patterns or create your own personal tailgate patterns.



## Wrap Test Selection

Selection:



*To position the cursor*



*To select the wrap test function*

After you have selected the wrap test function, the wrap test Initialization screen is displayed.

# Wrap Test Initialization

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

WRAP TEST INITIALIZATION

-ENTER LINE ADDRESS (0 TO 27 OR 32 TO 63) ==> **A**

-ENTER WRAP TYPE (1.2) ==> **B**

1 = DATA

2 = CONTROL LEADS

-ENTER WRAP LEVEL (1 TO 4) ==> **C**

1 = MODEM 4 = TAILGATE

2 = NTT CABLE

3 = LIC (DATA WRAP ONLY)

-LINE(S) TO BE TESTED MUST BE DISABLED/DEACTIVATED

To initialize the wrap test:

1. Deactivate/disable, from the host, the line that you want to test.
2. Select appropriate options on **A**, **B**, and **C**.
3. Press SEND to display the Wrap Test Selection screen. If at **B** you select:
  - 1 go to "Data Wrap Test Pattern Selection" on page 13-6.
  - 2 go to "Control Lead Wrap Test Pattern Selection" on page 13-8.

## Data Wrap Test Pattern Selection

If you selected data wrap, the following screen is displayed.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

WRAP PATTERN SELECTION

LINE ADDRESS: 60	TYPE: DATA	LEVEL: MODEM	<b>D</b>
LCD 4: START/STOP 9/7	CNTRL PGM: NCP	LIC TYPE: 1	<b>E</b>

SELECT ONE OPTION (1 TO 3) ==>

1 = USE DEFAULT PATTERN	<b>F</b>
2 = DISPLAY DEFAULT PATTERN	<b>G</b>
3 = CREATE PERSONAL PATTERN	<b>H</b>

PF5: CANCEL

- D** Sums up the information you entered in the Wrap Test Initialization screen.
- E** Displays supplementary information that you did not enter in the Wrap Test Initialization screen, such as the line control definition (LCD).

The line control definition that follows is that defined at system generation.

3 - autocal  
4 - start/stop 9/7  
6 - start/stop 10/8  
9 - SDLC  
C - BSC EBCDIC  
D - BSC ASCII  
E - BSC ASCII TRSP (transparent - EP only).

- F** According to the LCD value C, D, or E (BSC only), one of the following may be displayed:
  - TEST IN TRANSPARENT MODE (Y,N) ==>  
To choose between transparent mode and non-transparent mode, when both modes are possible. (In transparent mode, control characters are considered as data.)
  - TRANSPARENT MODE IS NOT SUPPORTED if you defined the line in emulation mode or in NCP-ASCII.

- ONLY TRANSPARENT MODE IS SUPPORTED if you defined the line in EP-ASCII (LCD = E).

⑥ In BSC only, the following prompt is displayed:

EIB or ITB MODE (Y,N) = = >

In NCP, if you enter Y, ITBs will be taken as control characters and not as data in your personal pattern. (There is no ITB in default patterns.)

In EP, if the line has been defined in ITB mode at generation, you must enter Y, otherwise enter N.

⑧ If you enter:

- 1 go to "Wrap Test Start" on page 13-10.
- 2 go to "Default Patterns" on page 13-31.
- 3 go to "Personal Patterns" on page 13-19.

## PF Key

PF5: Cancels the Wrap Test function and display the Wrap Test End screen.

## Control Lead Wrap Test Pattern Selection

If there is a default pattern available, the following screen is displayed after you have initialized the wrap test (Wrap Test Initialization screen):

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

WRAP PATTERN SELECTION

LINE ADDRESS: 60 TYPE: CONTROL LEAD LEVEL: MODEM **D**

LCD 4: START/STOP 9/7 CNTRL PGM: NCP LIC TYPE: 1 **E**

SELECT ONE OPTION (1 TO 3) ==>

1 = USE DEFAULT PATTERN **F**

2 = DISPLAY DEFAULT PATTERN **G**

3 = CREATE PERSONAL PATTERN **H**

PF5: CANCEL

- D** Sums up the information you entered in the Wrap Test Initialization screen.
- E** Displays supplementary information that you did not enter in the Wrap Test Initialization screen, such as the line control definition (LCD).

The line control definition that follows is that defined at system generation.

3 - autocal  
4 - start/stop 9/7  
6 - start/stop 10/8  
7 - start/stop 11/8  
9 - SDLC  
C - BSC EBCDIC  
D - BSC ASCII  
E - BSC ASCII TRSP (transparent - EP only)

- F/G** If you selected MODEM, the following is displayed:

WARNING: MODEM CONTROL LEAD DEFAULT PATTERN  
APPLIES ONLY TO IBM 386X MODEMS

If you selected NTT CABLE, the following is displayed:

WARNING: CABLE CONTROL LEAD DEFAULT PATTERN  
APPLIES ONLY TO NTT CABLES

**H** If you enter:

- 1 go to "Wrap Test Start" on page 13-10.
- 2 go to "Default Patterns" on page 13-31.
- 3 go to "Personal Patterns" on page 13-19.

*If there is no default pattern for the line that you selected, you have to create your own patterns. The following screen is displayed:*

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE

OFF: LOGOFF

PF1: MOVE TO SIA

PF2: CCU FNCTN

PF3: ALARM

WRAP PATTERN SELECTION

LINE ADDRESS: 60

TYPE: CONTROL LEAD LEVEL: MODEM

LCD 4: START/STOP 9/7

CNTRL PGM: NCP

LIC TYPE: 1

**F**

**G**

NO DEFAULT PATTERN

PRESS SEND TO CREATE YOUR PERSONAL PATTERN

PF5: CANCEL

**F/G** Same as **F/G** on Control Lead Wrap Test Pattern Selection screen.

When you press SEND, you are prompted to create your personal pattern. Go to "Personal Patterns" on page 13-19.

## PF Key

PF5: To cancel the wrap test function and display the Wrap Test End screen.

## Wrap Test Start

After you have selected the default pattern, or after you have created your own pattern, the following screen is displayed.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

WRAP TEST START

LINE ADDRESS: 60 TYPE: DATA LEVEL: MODEM

LCD 4: START/STOP 9/7 CNTRL PGM: NCP LIC TYPE: 1

ENTER NUMBER OF WRAPS (1-255) OR P ==>

P = PERMANENT WRAP

PF5: CANCEL

- I** Enter the number of times the transmit pattern will be sent. Enter P to wrap for an indefinite period of time.
- J** Take the following actions, depending on the wrap level (MODEM, CABLE, LIC, or TAILGATE) that you have selected:

### Option MODEM:

- SELECT APPROPRIATE TEST ON THE MODEM, THEN PRESS SEND TO START THE WRAP

On 386x modems, switch to the local loopback test position (loop 3) or to the remote loopback test position (loop 2). On other modems, switch to the appropriate test position.

### Option NTT CABLE:

- TAKE APPROPRIATE ACTION ON NTT CABLE, THEN PRESS SEND TO START THE WRAP

On the NTT cable, PN 2667349, set the Test switch to TEST.

### Option LIC:

- PRESS SEND TO START THE WRAP

Once you have pressed SEND, the wrap test starts.

Option TAILGATE:

- PLUG APPROPRIATE WRAP FACILITY AT TAILGATE, THEN PRESS SEND TO START THE WRAP

Once you have pressed SEND, the wrap test starts.

## PF Key

PF5: To cancel the wrap test function and display the Wrap Test End screen.

## Wrap Test in Progress

Once you have entered the number of wraps and pressed SEND, the following screen is displayed:

Machine Status Area

CUSTOMER ID:	3720-1	SERIAL NUMBER:
FUNCTION ON SCREEN: WRAP TEST		
SYSTEM INPUT AREA (SIA) ==>		
T: TERMINATE	OFF: LOGOFF	PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM
WRAP TEST IN PROGRESS		
LINE ADDRESS: 60	TYPE: DATA	LEVEL: MODEM
LCD 4: START/STOP 9/7	CNTRL PGM: NCP	LIC TYPE: 1
PRESS ATTN IF YOU WANT TO STOP WRAP		

To stop the wrap before the end, press BREAK (ATTN). This is the only way you can stop the wrap if you entered P.

*Note:* If Alarm A15 is displayed (to indicate a solid error), cancel the Wrap Test function (PF5) and perform the actions requested for Alarm A15.



## **PF Keys**

If you press **BREAK (ATTN)**, to get control of the operator console, the following two PF keys are displayed:

**PF4:** To return to previous state and continue the wrap test.

**PF5:** To stop the wrap test and display the Wrap Test Result screen.

## Wrap Test Results

When the last wrap is completed or after you have stopped the wrap test, the following result screen is displayed.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

WRAP TEST RESULT

LINE ADDRESS: 60	TYPE: DATA	LEVEL: MODEM
LCD 9: SDLC	CNTRL PGM: NCP	LIC TYPE: 4A
NBR OF WRAPS TRANSMITTED: 001	NBR OF WRAPS RECEIVED: 001	NBR OF WRAPS INCORRECT: 001
TRANSMIT: SCF=00	LCS=00	SES=00
TRANSMIT: SCF=00	LCS=CA	SES=00

- PRESS SEND TO DISPLAY FIRST INCORRECT PATTERN

PF4: WRAP TEST INITIALIZATION

WRAP TEST COMPLETED

- K** Gives the total number of wrap patterns transmitted and received, and the number of patterns incorrectly received.

A received pattern is considered as incorrect when it does not match the expected pattern. See **R** under "Personal Patterns." For the default pattern, the transmit and expected patterns are identical.

Under EP, a pattern not received is considered as incorrect. This is not true under NCP.

- L** When the scanner detects an error, the following fields are displayed to give specific information on the error: the Status Control Field (SCF), Line Communication Status byte (LCS), Secondary Status Field (SES). The SCF, LCS, and SES codes are illustrated on the next page.

TRANSMIT: SCF= LCS= SES=  
RECEIVE: SCF= LCS= SES=

- M** SCANNER AND/OR LINE TIME-OUT is displayed when, for example:

- The wrap facility is not operational (Test/Operate switch not on test).
- The scanner does not operate normally.

Fix the wrap facility or re-IML the scanner and perform the Wrap Test function again. If it recurs, contact the person in charge of the 3720 problem determination.

- **N** **PRESS SEND TO DISPLAY FIRST INCORRECT PATTERN** is displayed only when there is an incorrect pattern.

## **PF Key**

**PF4:** To initialize a wrap test on any line.

## Meaning of SCF, LCS, and SES Codes

SCF	LCS	SES	Meaning
4x	00	00	Buffer request
0y	C0	00	AIO error
0y	C2	00	Adapter interface check
0y	C4	00	Communication scanner error
0y	C6	00	Front end scanner failing to answer
0y	C8	00	Front end scanner internal error
0y	CA	00	LIC driver check/ICC internal error
0y	CC	00	LIC or scanner error
0y	CE	00	LIC or ICC interface error
0y	D0	00	No interrupt from front end scanner, or receive text time-out
0y	D2	00	Command rejected (wrong interface, invalid command)
0y	D6	00	FES error reporting path check
0y	D8	00	Invalid level 2 interrupt
0y	E2	00	CTS dropped
1x	EE	00	DSR dropped
1x	F2	00	CTS failed to come up
1x	F4	00	DSR failed to come up
1x	F6	00	No cable installed
1x	F8	00	DSR/CTS failed to drop
.x	FA	00	X.21 disconnect DCE clear received
.x	FB	00	X.21 disconnect DCE clear received + time-out during clear
.x	80	00	Time-out (nothing received)
04	86	00	X.21 time-out on proceed to select
04	87	00	X.21 time-out on proceed to select + time-out during clear
.x	88	00	DLE-EOT disconnect sequence
0x	8A	00	Lost data
04	9A	00	X.21 CPS error
04	9B	00	X.21 CPS error + time-out during clear
.x	E2	80	Modem retrain
.x	*	48	Bad pad (BSC)
.x	*	40	Format exception (BSC)
8x	*	40	Abort-line idle (SDLC)
8x	*	00	Abort (SDLC)
.x	*	10	CRC check (SDLC or BSC)
.x	*	08	Flag off boundary (SDLC)
.x	*	02	DLE error (BSC)
.x	*	01	Length check (BSC)
.x	*	01	Early flag (SDLC)
<p>x =</p> <ul style="list-style-type: none"> <li>0: halt or abort</li> <li>1: service request</li> <li>2: overrun or underrun</li> <li>3: modem check</li> <li>4: data stored</li> <li>5: end of message</li> <li>6: data transmitted</li> <li>7: receive sequence</li> </ul> <p>y = 0 if NCP or character mode y = 4 if EP and normal mode</p> <p>. = the displayed digit is not significant * The displayed value is not significant</p>			

## Incorrect Data Wrap Pattern

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 60 DATA WRAP: INCORRECT PATTERN

EXPD:	00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F	0
RCVD:	00 01 02 03 04 0F 06 07 08 09 0A 0B 0C 0D 0E 0F	P
EXPD:	10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F	
RCVD:	10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F	
EXPD:	20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F	
RCVD:	20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F	
EXPD:	30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F	
RCVD:	30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F	

PF4: TEST RESULTS

0 The expected pattern (EXPD)

P The received pattern (RCVD)

The cursor shows the first error. The screen that is displayed does not necessarily show the beginning of the pattern but the portion that contains the difference. To display all the expected and received patterns, use the PF7 and PF8 keys.

If there is an incorrect pattern, make sure that it does not result from:

- An incorrect action when setting up the cable or modem for the wrap test.
- A personal pattern incorrectly entered.
- The selection of an inappropriate default pattern.

If it *does* result from one of these actions, restart the wrap test.

If it *does not*, contact the service representative responsible for the defective equipment.

**Note:** When a solid error is detected, a BER (Type 11, ID A2 or B1) is recorded in the BER file, immediately followed by Alarm A15.

## PF Keys

PF4: To leave the Incorrect Pattern screen and display the Wrap Test Result screen.

PF7: To display the previous screen of the incorrect pattern.

PF8: To display the next screen of the incorrect pattern.

## Incorrect Control Lead Pattern

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 60 CONTROL LEAD WRAP: INCORRECT PATTERN

TRANSMITTED PATTERN: 11000011 10000011

EXPECTED PATTERN: 10100011 10000011

RECEIVED PATTERN: 00000000 00000000

PF4: TEST RESULTS

---

*Note:* The control lead pattern bit definitions are listed under “Control Lead Bit Definition” on page 13-28.

## PF Key

PF4: To leave the Incorrect Pattern screen and display the Wrap Test Result screen.

## Wrap Test End

The Wrap Test End screen is the following:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

WRAP TEST END

LINE ADDRESS: 60 TYPE: CNTRL LEVEL: MODEM

LCD 9: SDLC CNTRL PGM-NCP LIC TYPE: 1

PF4:WRAP TEST INITIALIZATION

The Wrap Test End screen is displayed when:

- The Wrap Test cannot be initialized.

The reason for the abnormal termination is given by a message. Perform the action required by the message, then press PF4 to reinitialize the wrap.

- You canceled the test by pressing PF5. The following message is then displayed:

WRAP FUNCTION CANCELED ON OPERATOR REQUEST

### PF Key

PF4: To initialize a wrap test on any line.

## Personal Patterns

You are allowed to create a personal pattern if you selected to do so during the Wrap Test Pattern selection:

- SELECT ONE OPTION (1 to 3) == > 3

If you specified data wrap at Wrap Test Initialization (option 1), you are prompted to enter your personal data wrap pattern. If you specified control lead wrap at Wrap Test Initialization (option 2), you are prompted to enter your personal control lead wrap pattern. Information on how to create personal patterns, as well as an example for each of the types of personal patterns, is presented on the following pages.

## Personal Data Wrap Pattern

```

Machine Status Area

CUSTOMER ID:                               3720-1          SERIAL NUMBER:
FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>
T: TERMINATE   OFF: LOGOFF   PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

LINE ADDRESS: 60          DATA WRAP: PERSONAL PATTERN
TRANSMIT PATTERN          COPY (Y.N)          EXPECTED PATTERN

          Y
          Y
          Y
          Y
          N
          Y
          Y
          Y
          Y
          Y

          Q                                R

WHEN PATTERN COMPLETE ENTER C. THEN PRESS SEND ==>
PF8: QUIT                                PF8: FORWARD          S

```

The screen work area that you use to create your personal data patterns is divided into two areas separated by a vertical row of Ys. (See “Example of the Creation of a Personal Data Wrap Pattern.”)

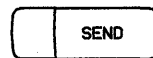
- The left area **Q** is used to enter the transmit pattern.
- The right area **R** is used to enter the expected pattern.
- The letter Y on each line is used to indicate whether or not the expected line is identical to the transmit line.

Line **S** is explained under “Is Your Pattern Complete” later in this chapter.



You are free to enter your personal data wrap patterns the way you wish. The only *rules* that apply to creating your patterns are:

- You must enter two hexadecimal characters at a time. Each pair of characters must be separated from the next by one blank (space bar).
- Each transmit and expected personal data wrap pattern must not be shorter than 8 nor longer than 540 hexadecimal characters.
- You cannot use *more than three screens* to enter your personal patterns. On a single screen, you cannot enter more than 180 characters for the transmit pattern and 180 for the expected pattern. To go from one screen to another, do as follows:



To transmit what you entered on the screen.



To display an empty screen, in order to enter more characters.

- When both patterns on a line are the same, leave the Y unchanged; when they are different, replace Y by N.

#### Contents of Personal Data Pattern

According to the line protocol, the pattern should start with a combination of the following characters:

- Transmit control byte
- End-of-message search argument (EOM)
- Padding character
- Synchronization characters.

If you entered Y on line **G** of the Data Wrap Test Pattern selection screen:

- EIB OR ITB MODE == > Y

you have to follow the rules described under "EIB/ITB".

Figure 13-1 tells you, by line protocol, which of these characters have to be entered before the data. These characters are transmitted but not expected.

Protocol Control Byte	Transmit Argument	EOM Search Characters	Padding	Synchronization
SDLC	No	No	No	No
BSC (normal mode)	Yes	No	No	No
BSC (character mode)	No	Yes	Yes	Yes
Start/Stop	No	Yes	Yes	Yes

**Figure 13-1. Characters to be Entered Before Data in Data Wrap Pattern**

### *NCP Transmit Control Byte*

The NCP transmit control byte contains coded instructions to the scanner that specify the initial and final control characters to be used in a transmission. It also contains an indicator that specifies whether leading graphics are to be sent. The transmit control byte has the following format:

- 0-2: Initial Control Sequence (ICS)
- 3-6: Final Control Sequence (FCS)
- 7: Leading graphics are possible if this bit is 1, not possible if this bit is 0

Figure 13-2 explains all transmit control bytes (BSC ASCII and BSC EBCDIC). The first column gives, for each transmit control byte, the hexadecimal value that you must enter when you create your personal pattern. It is also the value displayed on the default data wrap pattern screen.

Hex Value	Meaning
00	Turn line around and monitor
07	Send ENQ, turn around, and receive response (ENQ may be in a data stream of leading graphics)
0D	Send ACK-0, turn around, and receive
0F	Send NAK, turn around, and receive
1A	Send RVI, turn around, and receive
1D	Send ACK-1, turn around, and receive
1E	Send WACK, turn around, and receive
26	Send STX-ENQ (TTD), turn around, and receive
32	Send STX-data-ETX, turn around, and receive
34	Send STX-data-ETB, turn around, and receive
46	Send DLE-STX-data-DLE-ENQ, turn around, and receive
48	Send DLE-STX-data-DLE-ITB
52	Send DLE-STX-data-DLE-ETX, turn around, and receive
54	Send DLE-STX-data-DLE-ETB, turn around, and receive
66	Send SOH-data-ENQ, turn around, and receive
72	Send SOH-data-ETX, turn around, and receive
74	Send SOH-data-ETB, turn around, and receive
80	Send EOT, turn around, and monitor
98	Send EOT, turn around, and level 2 interrupt
9C	Send DLE-EOT, turn around, and level 2 interrupt

**Figure 13-2. NCP Transmit Control Byte for Data Wrap Patterns**

### ***EP Transmit Control Byte***

In non-transparent mode, the EP transmit control byte is X'00'.

In transparent mode, the EP transmit control byte is X'40'.

### ***EOM Search Argument***

The EOM search argument is the copy of the last character of the pattern. It is transmitted but not expected in return. It tells the control program what the last expected character is.

### ***Padding Characters***

Padding characters are used to insert timing characters into the data stream. These characters can be used to accommodate the operation of some mechanical action at a station or can be used to prevent distortion to characters due to modem turnaround activity.

- For leading pad: X'55' or X'FF' in BSC character mode, and X'FF' in Start/Stop
- For trailing pad: X'FF'.

### ***Synchronization Characters***

Synchronization characters are transmitted on the line but are not expected in return. They are:

- For BSC ASCII: X'16'
- For BSC EBCDIC: X'32'.

### ***EIB/ITB***

Apply the following rules if you entered Y on line **6** of the Data Wrap Test Pattern Selection screen:

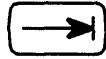
- EIB or ITB == > Y

- In NCP, the ITB character X'1F' must be immediately followed by X'00', in both the transmit and expected patterns.
- In EP:
  - ETB and ETX characters must be immediately followed by X'00' only in the expected patterns.
  - If the ITB characters are to be considered as control characters on the line being tested (system generation), the ITB characters must be immediately followed by X'00' in the expected patterns only.

## Creating Your Personal Data Wrap Pattern

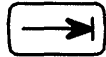
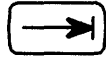
Once the Personal Data Wrap Pattern screen is displayed, the cursor is positioned at the first unprotected field. First enter one line of transmit pattern (see "Contents of Personal Data Pattern"). Then:

- If the transmitted and expected characters are the same, do not enter the expected ones. Press three times:

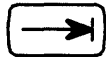


to position the cursor to the next transmit line.

If the transmitted and expected characters are different, replace Y by N as explained below:

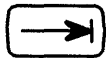
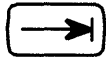


Enter the expected characters.



To position the cursor at the next transmit line.

- If you expect no characters, replace Y by N and move to the next transmit line, as follows:




Twice, to position the cursor to the next transmit line.

## Is Your Pattern Complete?

When you have entered all the characters of the transmit and expected patterns (one to three screens), notify the 3720 that your patterns are completed as follows:

1. Reply C on line **S** of the last screen only:

- WHEN PATTERN COMPLETE ENTER C. THEN PRESS SEND ==>

2. 

3. The wrap test starts.

*Note:* If you enter more than one screen, reply C (for completion) only on the last screen. If you press SEND without entering C, the patterns are not considered as complete.

## Personal Data Wrap Pattern PF Keys

PF5: To cancel the wrap test function and display the Wrap Test End screen.

PF6: To ignore the patterns that you are creating and display the Wrap Test Selection screen.

PF7: To display the previous screen that you have just created, if you wish to modify it.

PF8: To display the next screen, in order to enter more characters or to modify characters that you have already entered.

**Warning:** When you have entered or changed characters on a screen, press SEND before pressing either PF7 or PF8. Otherwise, the characters entered or changed on the current screen will be lost.



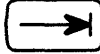







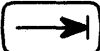


### Example of the Creation of a Personal Data Wrap Pattern

Let's assume that you want to create a transmit pattern and an expected pattern, between which the differences are: the transmit control byte (32), which is transmitted but not expected; and 18 and 19, which are expected instead of 16 and 17.

Transmit pattern: 32 00 05 07 0B 0C 0D 0E 0F 11 12 13 14 15 16 17

Expected pattern: 00 05 07 0B 0C 0D 0E 0F 11 12 13 14 15 18 19

The following describes one way of creating your patterns. Enter one blank only (space bar) between each pair of hexadecimal characters.

1. 32    
2. 00 05 07 08 0C 0D 0F 11   
3. 12 13 14 15   
4. 16 17    18 19

It results in the following screen:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM


LINE ADDRESS: 60	DATA WRAP: PERSONAL PATTERN
TRANSMIT PATTERN	COPY (Y,N) EXPECTED PATTERN
32	N
00 05 07 08 0C 0D 0E 0F 11	Y
12 13 14 15	Y
16 17	N 18 19
	Y
	Y
	Y
	Y
	Y

WHEN PATTERN COMPLETE ENTER C. THEN PRESS SEND ==>

PF6: QUIT PF8: FORWARD

5. Reply C to the following request:

WHEN PATTERN COMPLETE ENTER C. THEN PRESS SEND ==>

6.  To start the wrap test.

## Personal Control Lead Wrap Pattern

The personal control lead wrap pattern consists of four bytes of control lead. Each bit within the byte is represented on the screen by a period. When you create your pattern you replace the periods by a zero or a one to represent the logical level of that control lead. The relationship between the transmitted and expected control leads is described for the NTT cable and for IBM 386x modems on pages 13-45, 13-46, and 13-47. For others modems, refer to appropriate modem documentation.

The bit meaning is given under "Control Lead Bit Definition."

- Byte **T** contains a control lead pattern to be transmitted.
- Byte **V** contains the expected control lead pattern resulting from byte **T**.
- Byte **U** contains a control lead pattern to be transmitted.
- Byte **W** contains the expected control lead pattern resulting from byte **U**.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 60 CONTROL LEAD WRAP: PERSONAL PATTERN

ENTER TRANSMIT PATTERN ==>

T

U

ENTER EXPECTED PATTERN ==>

V

W

PF5: CANCEL PF6: QUIT



## Control Lead Bit Definition

Bit 0 is the leftmost bit in the byte.

LIC 1 (RS232/CCITT V.24)

Transmit byte **T** or **U**

Bit	Meaning
0	Data terminal ready (DTR)
1	Request to send (RTS)
2	New sync.
3	Data signaling rate selector (DSRS)
4	Test control
5	Not used (always 0)
6	Not used (always 1)
7	Not used (always 1)

Expected byte **V** or **W**

Bit	Meaning
0	Data set ready (DSR)
1	Ready for sending
2	Ring indicator (RI)
3	Receive line signal detector (RLSD)
4	Test indicator (TI)
5	Not used (always 0)
6	Not used (always 1)
7	Not used (always 1)

LIC 1 (RS366/CCITT V.25) - Autocall

Transmit byte **T** or **U**

Bit	Meaning
0	Digit signal 8
1	Digit signal 4
2	Digit signal 2
3	Digit signal 1
4	Call request
5	Digit present
6	Not used (always 1)
7	Not used (always 1)

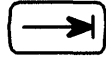
Expected byte **V** or **W**

Bit	Meaning
0	Power indication
1	Data line occupied
2	Present next digit
3	Abandon call and retry
4	Call originator status
5	Not used (always 0)
6	Not used (always 1)
7	Not used (always 1)

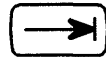
## Creating Your Personal Control-Lead Wrap Pattern

To create your personal control-lead pattern, do as follows:

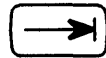
1. Replace the eight periods of byte **T** by zeros and ones, then press:



2. Replace the eight periods of byte **U** by zeros and ones, then press:



2. Replace the eight periods of byte **V** by zeros and ones, then press:



2. Replace the eight periods of byte **W** by zeros and ones, then press:



### Example of the Creation of a Personal Control Lead Wrap Pattern

Let's assume that you want to create a personal control lead wrap pattern for the following lines, which are being wrapped at the modem cable end for a LIC 1 (RS232/CCITT V.24):

Request to send --> Ready for sending

--> Receive line signal detect

Data terminal ready --> Data set ready

Furthermore, let's assume that you want to:

- Activate only the request-to-send line and check that the ready-for-sending and the receive-line-signal-detect lines are activated

and then

- Activate only the data-terminal-ready line and check that the data-set-ready line is activated.

Enter your patterns according to the bit definitions for the LIC 1 (RS232/CCITT V.24) given under "Control Lead Bit Definition." From these bit definitions, the personal control lead pattern is:

TRANSMIT PATTERN == > 01000011 10000011

EXPECTED PATTERN == > 01010011 10000011

To enter these patterns, refer to "Creating Your Personal Control Lead Wrap Pattern."

## Default Patterns

Default patterns are predefined wrap patterns that are ready for use. There are two types of default patterns: data and control lead. Both the data wrap and control lead default patterns are illustrated in the following pages.

### Data Wrap Default Patterns

Data wrap default patterns are available according to line protocol (SDLC, BSC, S/S) for all LIC types. There is no restriction on whether the wrap is at cable or modem level. The available data wrap default patterns are:

- SDLC
- BSC NCP-EBCDIC Non-transparent
- BSC NCP-EBCDIC Transparent
- BSC NCP-ASCII Non-transparent
- BSC EP-EBCDIC Non-transparent
- BSC EP-EBCDIC Transparent
- BSC EP-ASCII Non-transparent
- BSC EP-ASCII Transparent
- BSC EP Character mode - EBCDIC Non-transparent
- BSC EP Character mode - ASCII Non-transparent
- S/S - Seven bits
- S/S - Eight bits

## Control Lead Default Patterns

Control lead default patterns are available at:

- NTT cable level, for:
  - LIC type 1 (RS232/CCITT V.24) when using the NTT cable PN 2667349, and
  - LIC type 1 (RS366/CCITT V.25) when using the NTT cable PN 2667696
- Modem level, only for 386x/58xx modems

To use the control lead default patterns at the modem level on modems other than an IBM 386x modem, be sure that the functions provided by your modem are strictly identical to those provided by the 386x/58xx modems. If they are not, create your own personal pattern.

- LIC Tailgate.

## PF Keys

PF4: To start the wrap test function with the displayed default pattern.

PF6: To leave the Default Pattern screen and display the Wrap Test Selection screen.

PF7: To display the previous Default Pattern screen.

PF8: To display the next Default Pattern screen.

## SDLC Default Pattern (LCD = 9)

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 1 DATA WRAP: DEFAULT PATTERN

TRANSMIT CONTROL BYTE OR EOM SEARCH ARGUMENT  
PADDING AND/OR SYNCHRONISATION CHARACTERS  
TRANSMIT AND EXPECTED CHARACTERS:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
20	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D	2E	2F
30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F
50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F
60	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D	6E	6F
70	71	72	73	74	75	76	77	78	79	7A	7B	7C	7D	7E	7F

PF4: START WRAP PF6: QUIT PF8: FORWARD

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 1 DATA WRAP: DEFAULT PATTERN

80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F
90	91	92	93	94	95	96	97	98	99	9A	9B	9C	9D	9E	9F
AA	AB	AC	AD	AE	AF										
BA	BB	BC	BD	BE	BF										
CA	CB	CC	CD	CE	CF										
DA	DB	DC	DD	DE	DF										
EA	EB	EC	ED	EE	EF										
FA	FB	FC	FD	FE	FF										

PF4: START WRAP PF6: QUIT PF7: BACKWARD

## BSC NCP - EBCDIC Non-Transparent Default Data Pattern (LCD = C)

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 1 DATA WRAP: DEFAULT PATTERN

TRANSMIT CONTROL BYTE OR EOM SEARCH ARGUMENT: 32

PADDING AND/OR SYNCHRONISATION CHARACTERS:

TRANSMIT AND EXPECTED CHARACTERS:

00	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F			
11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E		
20	21	22	23	24	25	27	28	29	2A	2B	2C	2E	2F		
30	31	33	34	35	36	38	39	3A	3B	3C	3E	3F			
40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4E	4F	
50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F
60	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D	6E	6F
70	71	72	73	74	75	76	77	78	79	7A	7B	7C	7D	7E	7F

PF4: START WRAP PF6: QUIT PF8: FORWARD

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 1 DATA WRAP: DEFAULT PATTERN

80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F
90	91	92	93	94	95	96	97	98	99	9A	9B	9C	9D	9E	9F
AO	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE	AF
BO	B1	B2	B3	B4	B5	B6	B7	B8	B9	BA	BB	BC	BD	BE	BF
CO	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF
DO	D1	D2	D3	D4	D5	D6	D7	D8	D9	DA	DB	DC	DD	DE	DF
EO	E1	E2	E3	E4	E5	E6	E7	E8	E9	EA	EB	EC	ED	EE	EF
FO	F1	F2	F3	F4	F5	F6	F7	F8	F9	FA	FB	FC	FD	FE	FF

PF4: START WRAP PF6: QUIT PF7: BACKWARD

## BSC NCP - EBCDIC Transparent Default Data Pattern (LCD = C)

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 1 DATA WRAP: DEFAULT PATTERN

TRANSMIT CONTROL BYTE OR EOM SEARCH ARGUMENT: 52

PADDING AND/OR SYNCHRONISATION CHARACTERS

TRANSMIT AND EXPECTED CHARACTERS:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
20	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D	2E	2F
30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F
50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F
60	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D	6E	6F
70	71	72	73	74	75	76	77	78	79	7A	7B	7C	7D	7E	7F

PF4: START WRAP PF6: QUIT PF8: FORWARD

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 1 DATA WRAP: DEFAULT PATTERN

80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F

90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F

AD A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF

BD B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF

CD C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF

DD D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF

ED E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF

FD F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF

PF4: START WRAP PF6: QUIT PF7: BACKWARD



## BSC NCP - ASCII Non-Transparent Default Pattern (LCD = D)

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 1 DATA WRAP: DEFAULT PATTERN

TRANSMIT CONTROL BYTE OR EOM SEARCH ARGUMENT: 32

PADDING AND/OR SYNCHRONISATION CHARACTERS

TRANSMIT AND EXPECTED CHARACTERS:

00 05 07 0B 0C 0D 0E 0F  
10 11 12 13 16 18 19 1C 1D 1E  
25 27 2F  
3C 3F  
40 4A 4B 4C 4D 4E 4F  
50 5A 5B 5C 5D 5E 5F  
60 61 6A 6B 6C 6D 6E 6F  
79 7A 7B 7C 7D 7E 7F

PF4: START WRAP PF6: QUIT PF8: FORWARD

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 1 DATA WRAP: DEFAULT PATTERN

81 82 83 84 85 86 87 88 89  
91 92 93 94 95 96 97 98 99  
A1 A2 A3 A4 A5 A6 A7 A8 A9  
C0 C1 C2 C3 C4 C5 C6 C7 C8 C9  
D0 D1 D2 D3 D4 D5 D6 D7 D8 D9  
E0 E2 E3 E4 E5 E6 E7 E8 E9  
F0 F1 F2 F3 F4 F5 F6 F7 F8 F9

PF4: START WRAP PF6: QUIT PF7: BACKWARD

## BSC EP - EBCDIC Non-Transparent Default Data Pattern (LCD = C)

### Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: WRAP TEST  
SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
LINE ADDRESS: 1 DATA WRAP: DEFAULT PATTERN  
TRANSMIT CONTROL BYTE OR EOM SEARCH ARGUMENT: 00  
PADDING AND/OR SYNCHRONISATION CHARACTERS  
TRANSMIT AND EXPECTED CHARACTERS:  
02  
00 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F  
11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E  
20 21 22 23 24 25 27 28 29 2A 2B 2C 2E 2F  
30 31 33 34 35 36 38 39 3A 3B 3C 3E 3F  
40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F  
50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F  
60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F  
PF4: START WRAP PF6: QUIT PF8: FORWARD

### Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: WRAP TEST  
SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
LINE ADDRESS: 1 DATA WRAP: DEFAULT PATTERN  
70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F  
80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F  
90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F  
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF  
B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF  
C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF  
D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF  
E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF  
F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF  
03  
PF4: START WRAP PF6: QUIT PF7: BACKWARD

## BSC EP - EBCDIC Transparent Default Data Pattern (LCD = C)

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

TRANSMIT CONTROL BYTE OR EOM SEARCH ARGUMENT: 40  
PADDING AND/OR SYNCHRONISATION CHARACTERS  
TRANSMIT AND EXPECTED CHARACTERS:

10	02
00	01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
10	11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
20	21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F
30	31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F
40	41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F
50	51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F
60	61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F

PF4: START WRAP PF6: QUIT PF8: FORWARD

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 0 DATA WRAP: DEFAULT PATTERN

70	71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F
80	81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F
90	91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F
AO	A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF
BO	B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF
CO	C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF
DO	D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF
EO	E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF
FO	F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF
10	03 (CHARACTER '10' NOT TO BE RECEIVED)

PF4: START WRAP PF6: QUIT PF8: BACKWARD

### BSC EP - ASCII Non-Transparent Default Data Pattern (LCD = D)

```

Machine Status Area

CUSTOMER ID:                               3720-1          SERIAL NUMBER:
FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ===>
T: TERMINATE      OFF: LOGOFF      PF1: MOVE TO SIA      PF2: CCU FNCTN      PF3: ALARM

LINE ADDRESS: 0          DATA WRAP: DEFAULT PATTERN

TRANSMIT CONTROL BYTE OR EOM SEARCH ARGUMENT: 00
PADDING AND/OR SYNCHRONISATION CHARACTERS
TRANSMIT AND EXPECTED CHARACTERS:
02
00 06 07 08 09 0A 0B 0C 0D 0E 0F
11 12 13 14 18 19 1A 1B 1C 1D 1E
20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F
30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F
40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F
50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F
60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F
PF4:START WRAP      PF6:QUIT      PF8:FORWARD

```

```

Machine Status Area

CUSTOMER ID:                               3720-1          SERIAL NUMBER:
FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>
T: TERMINATE   OFF: LOGOFF   PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

LINE ADDRESS: 0          DATA WRAP: DEFAULT PATTERN

70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F
03

PF4: START WRAP   PF6: QUIT   PF8: BACKWARD

```

## BSC EP - ASCII Transparent Default Data Pattern (LCD = E)

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 0 DATA WRAP: DEFAULT PATTERN

TRANSMIT CONTROL BYTE OR EOM SEARCH ARGUMENT: 40

PADDING AND/OR SYNCHRONISATION CHARACTERS

TRANSMIT AND EXPECTED CHARACTERS:

10 02

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
20	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D	2E	2F
30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F
50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F
60	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D	6E	6F

PF4: START WRAP PF6: QUIT PF8: FORWARD

---

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 0 DATA WRAP: DEFAULT PATTERN

70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F

03 (CHARACTER '10' NOT TO BE RECEIVED)

PF4: START WRAP PF6: QUIT PF8: BACKWARD

---

### BSC EP Character Mode - EBCDIC Non-Transparent Default Data Pattern (LCD=C)

```

Machine Status Area

CUSTOMER ID:                               3720-1          SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ===>
T: TERMINATE    OFF: LOGOFF    PF1: MOVE TO SIA    PF2: CCU FNCTN    PF3: ALARM

LINE ADDRESS: 0          DATA WRAP: DEFAULT PATTERN

TRANSMIT CONTROL BYTE OR EOM SEARCH ARGUMENT: 03
PADDING AND/OR SYNCHRONISATION CHARACTERS: 55 55 32 32
TRANSMIT AND EXPECTED CHARACTERS:

02
00 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E
20 21 22 23 24 25 27 28 29 2A 2B 2C 2E 2F
30 31 33 34 35 36 38 39 3A 3B 3C 3E 3F
40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F
50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F
60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F

PF4:START WRAP    PF6:QUIT    PF8:FORWARD

```

```

Machine Status Area

CUSTOMER ID:                               3720-1          SERIAL NUMBER:

FUNCTION ON SCREEN:  WRAP TEST

SYSTEM INPUT AREA (SIA) ==>>>
T:  TERMINATE      OFF: LOGOFF      PF1: MOVE TO SIA      PF2: CCU FNCTN      PF3: ALARM

LINE ADDRESS:  0          DATA WRAP:  DEFAULT PATTERN

70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F
80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F
90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF
B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF
C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF
D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF
E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF
F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF
03

PF4:START WRAP      PF6:QUIT          PF8:BACKWARD

```

## BSC EP Character Mode - ASCII Non-Transparent Default Data Pattern (LCD = D)

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 0 DATA WRAP: DEFAULT PATTERN

TRANSMIT CONTROL BYTE OR EOM SEARCH ARGUMENT: 03  
PADDING AND/OR SYNCHRONISATION CHARACTERS: 55 55 16 16  
TRANSMIT AND EXPECTED CHARACTERS:

02
00 06 07 08 09 0A 0B 0C 0D 0E 0F
11 12 13 14 18 19 1A 1B 1C 1D 1E
20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F
30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F
40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F
50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F
60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F

PF4: START WRAP PF6: QUIT PF8: FORWARD

---

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 0 DATA WRAP: DEFAULT PATTERN

70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F  
03

PF4: START WRAP PF6: QUIT PF8: BACKWARD

---

## Start-Stop - Seven Bits Default Data Pattern (LCD = 4)

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 0 DATA WRAP: DEFAULT PATTERN

TRANSMIT CONTROL BYTE OR EOM SEARCH ARGUMENT: 7F

PADDING AND/OR SYNCHRONISATION CHARACTERS: FF

TRANSMIT AND EXPECTED CHARACTERS:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
20	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D	2E	2F
30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F
50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F
60	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D	6E	6F
70	71	72	73	74	75	76	77	78	79	7A	7B	7C	7D	7E	7F

PF4: START WRAP PF6: QUIT

---



## Start-Stop - Eight Bits Default Data Pattern (LCD = 6 or 7)

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 1 DATA WRAP: DEFAULT PATTERN

TRANSMIT CONTROL BYTE OR EOM SEARCH ARGUMENT: FF  
PADDING AND/OR SYNCHRONISATION CHARACTERS: FF  
TRANSMIT AND EXPECTED CHARACTERS:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
20	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D	2E	2F
30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F
50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F
60	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D	6E	6F
70	71	72	73	74	75	76	77	78	79	7A	7B	7C	7D	7E	7F

PF4: START WRAP PF6: QUIT PF8: FORWARD

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 1 DATA WRAP: DEFAULT PATTERN

80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F
90	91	92	93	94	95	96	97	98	99	9A	9B	9C	9D	9E	9F
AD	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE	AF
B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	BA	BB	BC	BD	BE	BF
C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF
D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	DA	DB	DC	DD	DE	DF
E0	E1	E2	E3	E4	E5	E6	E7	E8	E9	EA	EB	EC	ED	EE	EF
F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	FA	FB	FC	FD	FE	FF

PF4: START WRAP PF6: QUIT PF8: BACKWARD

## LIC Type 1 (RS232/CCITT V.24) - NTT Cable (PN 6398782) Control Lead Default Pattern

The default pattern illustrated below is provided for the control lead wrap only if the modem cable is NTT cable PN 6398782. This cable has a Test/Operate switch which allows the following wrapping:

Request to send --> Ready for sending  
--> Receive line signal detect

Data terminal ready --> Data set ready

The bit meaning is given on page 13-28.

Machine Status Area

CUSTOMER ID:	3720-1	SERIAL NUMBER:
FUNCTION ON SCREEN: WRAP TEST		
SYSTEM INPUT AREA (SIA) ==>		
T: TERMINATE	OFF: LOGOFF	PF1: MOVE TO SIA    PF2: CCU FNCTN    PF3: ALARM
LINE ADDRESS: 0                      CONTROL LEAD WRAP: DEFAULT PATTERN		
TRANSMIT PATTERN:	11000011 10000011	
EXPECTED PATTERN:	11010011 10000011	
PF4: START WRAP	PF6: QUIT	

---

## LIC Type 1 (RS366/CCITT V.25 - Autocall) - NTT Cable

The default control lead wrap pattern illustrated below is provided for NTT Cable PN 6398786. The wrapping is as follows:

Digit signal 8 --> Wrap back digit 8 (not a CCITT recommendation)

Digit signal 4 --> Data line occupied

Digit signal 2 --> Abandon call and retry

Digit signal 1 --> Call originator status (distant station connected)

Digit present --> Present next digit

Call request --> Power indication

The bit meanings are given on page 13-28.

Machine Status Area

CUSTOMER ID:	3720-1	SERIAL NUMBER:
FUNCTION ON SCREEN: WRAP TEST		
SYSTEM INPUT AREA (SIA) ==>		
T: TERMINATE	OFF: LOGOFF	PF1: MOVE TO SIA    PF2: CCU FNCTN    PF3: ALARM
LINE ADDRESS: 0	CONTROL LEAD WRAP: DEFAULT PATTERN	
TRANSMIT PATTERN:	11111111 11111111	
EXPECTED PATTERN:	11111011 11111011	
PF4: START WRAP	PF6: QUIT	

---

## LIC Type 1 - IBM 386X Modem Control Lead Default Pattern

The default pattern illustrated below is provided for the control lead wrap only if the modem is an IBM 386x or 586x modem. The wrapping is as follows:

Data terminal ready --> Data set ready (except for the IBM 3863 and 3869 Model 2 for which DSR is always on)

Request to send --> Ready for sending.

Test indicator is always on

The bit meanings are given on page 13-28.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 0 CONTROL LEAD WRAP: DEFAULT PATTERN

TRANSMIT PATTERN: 11111011 10000011

EXPECTED PATTERN: 11011011 10001011

PF4: START WRAP PF6: QUIT

---

## LIC Tailgate Default Pattern

The default pattern illustrated below is provided for the tailgate. Get the wrap block for the type of LIC being tested. Remove the cable from the position you want to test and replace it with the wrap block. When the test is completed successfully, remove the wrap block and replace it with the cable you took out.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: WRAP TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

LINE ADDRESS: 0 CONTROL LEAD WRAP: DEFAULT PATTERN

TRANSMIT PATTERN: 11111011 10000011

EXPECTED PATTERN: 11111011 10100011

PF4: START WRAP PF6: QUIT

---

## Chapter 14. Stand-Alone Link Tests

### Definitions

In the text that follows, these definitions apply:

***Requesting Controller, or Requester:*** The controller that is selected by the operator as the controller that initiates the link test operations. It sends the data over the link, and expects responses from the responding controller.

***Responding Controller, or Responder:*** The controller that is selected by the operator as the responder. It receives the test frames from the requesting controller and sends them back.

***Note:*** The definitions of requester and responder are completely independent of whether the controllers are channel- or link-attached.

## Program Environment

The stand-alone link test (called simply "link test" in the rest of this manual) tests an intermediate network node (INN) link between two IBM communication controllers. The INN link is an SDLC leased or manually switched line. In addition, the link to be tested must be defined as an IPL port in the IPL port table of the requester (and also in the responding controller, if the link test program is to be used as the responder). The link test consists of two programs:

- Requester link test program, for use in the requester
- Responder link test program, for use in the responder.

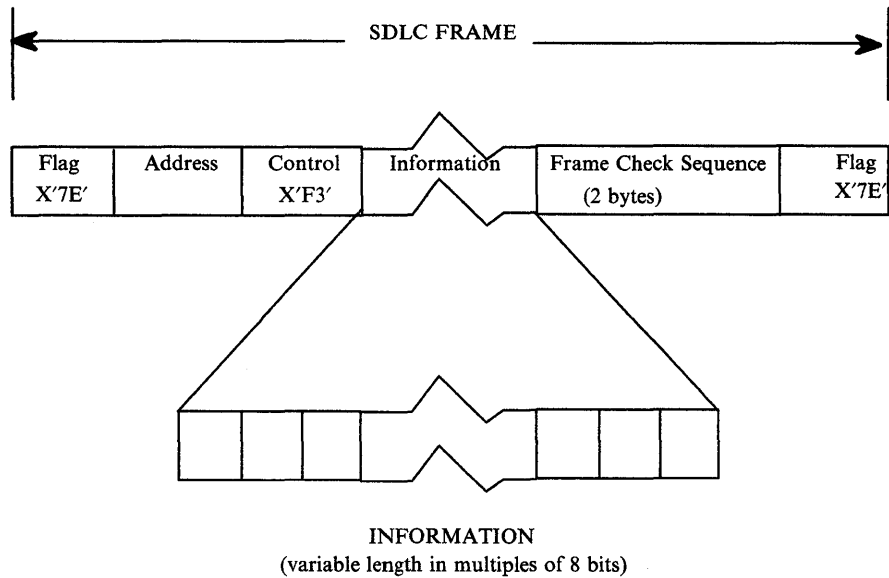
The programs are resident in the MOSS, and can be run even when the control program cannot be loaded. This is particularly useful for link-connected controllers in cases where the control program cannot be loaded over the normal IPL link(s). It is not essential for the Link Test program to be running in the responder, as the responding station can be any product capable of replying correctly to the SDLC 'Test' frame. This is the case with the IBM communication controllers when running the IBM-supplied Network Control Program (NCP).

### *Notes:*

1. *If the link test program is running in both controllers, an operator must be present at both locations; if only the requester is running the link test, the operation of the responder can be unattended.*
2. *The link test program should preferably be run in the link-attached controller only, as this mode causes the least disturbance to the network. However, using the link test responder program as the responder may be necessary if it is required to collect statistics at the responder.*
3. *When using the NCP as the responder, the NCP must activate the link under test and the physical unit (requester). A 'pending activation' status must be raised before the test can proceed.*
4. **Restriction:** *When a 3705 Communication Controller is used as the responder, the test frame must be a null frame (without data).*

## SDLC Test Frame

The format of the SDLC Test frame is shown below. Refer to *IBM Synchronous Data Link Control: General Information*, GA27-3093 for further information on SDLC.



*Notes:*

1. The address field contains the address of the responder to which the test frame is sent.
2. The information field can be either of the default patterns, or the personal pattern. The personal pattern may be null.
3. The frame sent back by the responder should be identical to the frame sent by the requester.



# Link Test Function Procedure

## Before Starting

To perform a link test, load the link test program (requester) into the requester. In addition, load the responding station with the link test responder program if you want to use it as the responder.

**Warning:** The link to be tested must be defined as an IPL port in the IPL port table of the requester. The controller address, of the responder side, must be defined in the IPL Port Common Options screen. It must also be defined as an IPL port in the responder, if the link test program is to be used as the responder. When the requester is a link-attached 3720, as is usually the case, the link will probably already be defined as an IPL port. The controller address, of the responder side, must be defined in the IPL Port Common Options screen.

The IPL port table(s) must be updated before loading takes place (Chapter 6). If you change the IPL port table(s), you must reload the corresponding link test(s). Do not forget to restore the original contents of the IPL port table(s) when you have finished using the link tests.

### *Notes:*

*When defining the IPL ports, pay particular attention to the following points:*

- 1. Verify the parameters of the link (duplex or half-duplex, switched or nonswitched, and direct attachment/external clock). If the link test is to be used in the wrap mode at the modem (local or remote) level, the IPL port **must** be defined as full-duplex.*
- 2. If the responder is the Link Test program, verify that the IPL ports are defined identically at both ends of the link.*

Error messages are described starting in Chapter 24.

## Requester

**Warning:** Loading the link test program destroys the control program.

### Loading the Stand-Alone Link Test Program

1. Disable all channel ports and power up the 3720 if not already done.
2. Perform a MOSS IML from the control panel.
3. Define the intermediate network node (INN) link as an IPL port in the IPL port table.
4. Enter LOQ followed by SEND to select function Load Link Test Requester. The following screen is displayed:

The screenshot shows a terminal window titled "Machine Status Area". The text displayed is as follows:

```
Machine Status Area

CUSTOMER ID:                3720-1                SERIAL NUMBER:
FUNCTION ON SCREEN: LINK TEST

SYSTEM INPUT AREA (SIA) ==>
T: TERMINATE  OFF: LOGOFF  PF1: MOVE TO SIA  PF2: CCU FNCTN  PF3: ALARM

STAND-ALONE LINK TEST PROGRAM IPL

LOADING IN PROGRESS AT REQUESTER

AFTER 'LINK TEST PROGRAMS LOADED' MSG , ENTER T IN THE
SIA AREA . THEN SELECT 'LT' TO START THE TEST

PF4: STOP  PF5: RESUME
```

The machine status area shows the progression of the loading process.

*Note:* If an error occurs during IPL Phase 3, the following message is displayed:

IPL PHASE 1 PHASE 2 PHASE 3 LINK TEST PROGRAM ABEND

5. When LINK TEST PROGRAM LOADED is displayed in the MSA, enter T followed by SEND to terminate IPL.
6. Enter LT followed by SEND to select the Link Test function.
7. The initialization menu is displayed.

## Link Test Initialization Screen

Machine Status Area

CUSTOMER ID:  
FUNCTION ON SCREEN: LINK TEST

3720-1

SERIAL NUMBER:

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE   OFF: LOGOFF   PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

REQUESTER

INITIALIZATION

- LINK ADDRESS (0-27, 32-63) ==>   **A**

- RESPONDER ADDRESS (00 TO FF) ==>   **B**

1. Enter the link address **A**. The link address is the address of the 3720 port to which the link cable is connected.
2. Enter the responder address **B**. The responder address is the address that is placed by the requester in the SDLC test frame. It has already been defined in the IPL port common options for the responder. This address does not change when the responder sends back the test frame to the requester unless the broadcast address (X'FF') is used in this case.
3. Press SEND. When the initialization is successful, the options screen replaces the initialization screen.

## Options Screen

Machine Status Area		
CUSTOMER ID:	3720-1	SERIAL NUMBER:
FUNCTION ON SCREEN: LINK TEST		
SYSTEM INPUT AREA (SIA) ==>		
T: TERMINATE	OFF: LOGOFF	PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM
REQUESTER	TEST OPTIONS	
	-ENTER PATTERN OPTION (0-1-2)	==> <b>A</b>
	0 = CREATE PERSONAL PATTERN	
	1 = USE DEFAULT PATTERN NUMBER 1	
	2 = USE DEFAULT PATTERN NUMBER 2	
	-ENTER COUNT OF TEST (1 TO 99) OR P	==> <b>B</b>
	P = PERMANENT	
	-SELECT TEST MODE (I OR S)	==> <b>C</b>
	I = INVESTIGATION MODE (STOP ON ERROR)	
	S = STATISTICAL MODE	

1. Select the pattern option **A**. You have three possibilities:

- Enter 0 to create your own pattern (see Personal Pattern screen).
- Enter 1 to select the 128 bytes from X'00' through X'7F'.
- Enter 2 to select the 128 bytes from X'80' through X'FF'.

Both the IBM NCP and the Link Test Responder programs can buffer a full 128 bytes. Other responders may be limited to less than 128 bytes; for example, the controller load/dump program (CLDP) is limited to 32 bytes. In this case, there will be an **INVALID DATA RECEIVED** message if the test message sent by the requester was longer than the limit.

2. Select the count option **B**. You have two possibilities:

- Enter a count from 1 to 99 as requested by the prompt message. Counting takes place from 1 to the count that you have entered.
- Enter P to select the permanent count. Counting takes place from 1 to 65535, and then wraps back to 0.

3. Select the mode option **C**. You have two possibilities:

- Enter I to select the investigation mode. The test stops on the first error detected, and information relative to the error is displayed. The test can be restarted, and will then stop on the next error, if any.

- Enter S to select the statistical counters mode. Error counts are kept in statistical counters; an error does not stop the test (unless the error disables the line).
4. Press SEND to validate the selection. One of the following screens will be displayed, depending on the options that you entered:
- Investigation mode screen
  - Statistical mode screen
  - Personal pattern screen.

*Note:* Whatever the mode you selected, the test stops when the specified count of tests (if any) is exhausted and the link test function is terminated. You can also stop the test at any time by pressing the BREAK (ATTN) key. You may then decide to continue the test or to terminate the link test function by entering T.

## Investigation Mode Screen

This screen is displayed when you selected the investigation mode from the options screen. The test stops on the first error detected, and the error data is displayed (see "Requester Error Screen Example" below).

Machine Status Area

CUSTOMER ID:	3720-1	SERIAL NUMBER:
FUNCTION ON SCREEN: LINK TEST		
SYSTEM INPUT AREA (SIA) ==>		
T: TERMINATE	OFF: LOGOFF	PF1: MOVE TO SIA    PF2: CCU FNCTN    PF3: ALARM
REQUESTER	INVESTIGATION MODE	PERMANENT TEST
CURRENT COUNT		
PRESS ATTN TO STOP THE TEST		

The screen above shows the 'permanent test' option selected in the first line. If you selected the count option, the first line appears as follows:

REQUESTER INVESTIGATION MODE TEST COUNT = xx

The link test function terminates when the specified count (if any) is reached. The message

**COUNT OF TESTS EXHAUSTED - LINK TEST FUNCTION COMPLETED**

is then displayed in the message area. The **CURRENT COUNT** is incremented from 1 to the user-specified count or, for a permanent test, from 1 to 65535, wrapping back to 0.

1. Press **BREAK (ATTN)** to stop the test.
2. Press **PF4** to continue the test, or end the link test function by entering **T**.

*Note:* When using the broadcast address (**X'FF'**), the test stops and the following message is displayed:

**ADDRESS RECEIVED: XX**

where **XX** is the address of the responder.

### Requester Error Screen Example

Machine Status Area			
CUSTOMER ID:	3720-1	SERIAL NUMBER:	
FUNCTION ON SCREEN: LINK TEST			
SYSTEM INPUT AREA (SIA) ==>			
T: TERMINATE	OFF: LOGOFF	PF1: MOVE TO SIA	PF2: CCU FNCTN PF3: ALARM
REQUESTER	INVESTIGATION MODE	PERMANENT TEST	
CURRENT COUNT			
HARDWARE ERROR ON TRANSMIT			
SCF:	LCS:	SES:	
PF4: CONTINUE			

SCF, LCS, and SES are described on page 14-16.

Press **PF4** to continue the test, or **T** followed by **SEND** to end the link test function.

## Statistical Counters Screen

The counters are refreshed twice per second. When the value of a counter changes, this count is highlighted for two seconds. The screen has the following format:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: LINK TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE   OFF: LOGOFF

PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

REQUESTER	STATISTICAL COUNTERS	TEST COUNT = NN
TEST FRAMES SENT OK	:	
TEST FRAMES RECEIVED OK	:	
INVALID ADDRESS FIELD RECEIVED	:	
INVALID CONTROL FIELD RECEIVED	:	
INVALID/TOO MUCH DATA RECEIVED	:	
COMMAND REJECT RECEIVED	:	
HARDWARE ERROR	ON TRANSMIT:	ON RECEIVE:
SCANNER ERROR	ON TRANSMIT:	ON RECEIVE:
TRANSMISSION ERROR	ON TRANSMIT:	ON RECEIVE:
TIMEOUT	ON TRANSMIT:	ON RECEIVE:

PRESS ATTN TO STOP THE TEST

For the permanent test, the counters can count up to 65355, wrapping back to 0.

1. Press BREAK (ATTN) to stop the test.
2. Press PF4 to continue the test, or T followed by SEND to end the link test function.

## Personal Pattern Screen

This screen allows you to create a personal pattern of up to 128 bytes.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINK TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

PERSONAL PATTERN

- ENTER PAIRS OF HEX CHARACTERS SEPARATED BY ONE BLANK

==> 00 01 02 04 08 10 20 40 80 AB AC AE CC CF DD EE <==

==> EF FF 24 48 88 8F <==

==> <==

==> <==

==> <==

==> <==

==> <==

==> <==

- ENTER C WHEN PATTERN IS COMPLETE==>

PF6: QUIT

1. Enter the pattern as pairs of hexadecimal characters separated by a single blank as shown on the screen above.  
It is possible to send an empty (null) data pattern; to do this, enter C, then press SEND.  
This may be useful if you wish to send an empty message consisting only of a header and a trailer.
2. Enter C followed by SEND to check the data for valid hexadecimal characters.
3. The investigation mode screen or the statistical counters screen is displayed, depending on the option specified in the OPTIONS screen.

### Notes:

1. You can return to the OPTIONS screen at any time by pressing PF6.
2. Both the IBM NCP and the Link Test Responder programs can buffer a full 128 bytes. Other responders may be limited to less than 128 bytes; for example, the controller load/dump program (CLDP) is limited to 32 bytes. In this case, there will be an INVALID DATA RECEIVED message if the test message sent by the requester was longer than the limit.
3. The null pattern **must** be used if the responder is a 3705 Communication Controller running NCP.



# Responder

**Warning:** Loading the link test program destroys the control program.

## Loading the Stand-Alone Link Test Program

1. Disable all channel ports and power up the 3720 if not already done.
2. Perform a MOSS IML from the control panel.
3. Define the intermediate network node (INN) link as an IPL port in the IPL port table.
4. Enter LOS followed by SEND. The screen displays:

LOADING IN PROGRESS AT RESPONDER

The screenshot shows a terminal window with a rounded rectangular border. At the top, it says "Machine Status Area". Below this, there are several lines of text: "CUSTOMER ID: 3720-1 SERIAL NUMBER:", "FUNCTION ON SCREEN: LINK TEST", "SYSTEM INPUT AREA (SIA) ==>", and "T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM". In the center, it says "STAND-ALONE LINK TEST PROGRAM IPL" and "LOADING IN PROGRESS AT RESPONDER". At the bottom, it says "AFTER 'LINK TEST PROGRAMS LOADED' MSG. ENTER T IN THE SIA. THEN SELECT 'LT' TO START THE TEST".

The machine status area shows the progression of the loading process.

5. When LINK TEST PROGRAM LOADED is displayed in the MSA, enter T in the selection area to terminate IPL.
6. Enter LT followed by SEND to select the link test function.
7. The initialization menu is displayed.

## Initialization Screen

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: LINK TEST

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

RESPONDER INITIALIZATION

- LINK ADDRESS (0-27, 32-63) ==> **A**

1. Enter the link address **A**. This is the address of the 3720 port to which the link cable is connected.
2. Press SEND. When the initialization is completed, the initialization screen changes to:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: LINK TEST

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

RESPONDER INITIALIZATION

- LINK ADDRESS (0-27, 32-63) ==>

INITIALIZATION COMPLETED

- PRESS SEND TO START THE TEST

3. Press SEND.
4. The initialization screen is replaced by the statistical counters screen.

## Statistical Counters Screen

The counters are refreshed twice per second. When the value of a counter changes, this count is highlighted for two seconds. The screen has the following format:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINK TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

RESPONDER	STATISTICAL COUNTERS	
TEST FRAMES RECEIVED OK	:	
TEST FRAMES SENT OK	:	
INVALID ADDRESS FIELD RECEIVED	:	
INVALID CONTROL FIELD RECEIVED	:	
MORE THAN 128 BYTES RECEIVED	:	
HARDWARE ERROR	ON TRANSMIT:	ON RECEIVE:
SCANNER ERROR	ON TRANSMIT:	ON RECEIVE:
TRANSMISSION ERROR	ON TRANSMIT:	ON RECEIVE:
TIMEOUT	ON TRANSMIT:	

PRESS ATTN TO STOP COUNTER REFRESH

When you press BREAK (ATTN), the screen is frozen, but the test (and counter incrementation) continues.

1. If no error was detected, press PF4 to restart counter refreshing.
2. If at least one error was detected:
  - Press PF4 to restart counter refreshing, or
  - Press PF5 to display the last error that was detected (see “Responder Error Screen Example”).

## Responder Error Screen Example

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINK TEST

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

RESPONDER

LAST DETECTED ERROR

HARDWARE ERROR ON TRANSMIT

SCF: LCS: SES:

PF4: CONTINUE

SCF, LCS, and SES are described on page 14-16.

Press PF4 to redisplay the statistical counters screen, and to restart counter refreshing.

*Note:* If an error disables the line, the function is terminated and the message area displays:

**LINK DISABLED - LINK TEST FUNCTION CANCELED**

You must now select the link test function (LT) to restart the test (reloading of the link test program is not necessary).

## Meaning of SCF, LCS, and SES Fields

The following list includes only transmission faults; for other values of these fields, consult your IBM service representative.

SCF	LCS	SES	Meaning
xx	E2	00	CTS dropped
xx	EE	00	DSR dropped
xx	F2	00	CTS failed to rise
xx	F4	00	DSR failed to rise
xx	F6	00	Cable not installed
xx	F8	00	DSR/CTS failed to drop
xx	E2	00	Modem retrain
xx	**	40	Abort line idle
xx	**	00	Abort
xx	**	10	CRC check
xx	**	08	Flag off boundary
xx	**	01	Early flag

Where:

\*\* may be any value.

xx is a byte whose bits have the following meaning:

Bit	Meaning
0	Halt/abort
1	Service request
2	Overflow/underflow
3	Modem check
4	Data stored
5	End of message
6	Data received
7	Receive sequence

## Chapter 15. Disk Functions

The disk functions allow you to:

- Install new microcode for an engineering change (EC).
- Save the disk onto diskettes, once you have installed microcode fixes (MCFs), upgraded your 3720, or modified your files such as LDF, IPL port tables, control program procedures.
- Restore the disk from the diskettes if you suspect that the new release you installed, or the latest update in your files, is incompatible with your applications, or if your disk has been replaced, or you suspect a disk problem.
- Initialize the diskette.
- Put the disk recording arm back to the landing zone.

### Warning

Before selecting the Disk Functions, set MOSS offline:



MOSS-OFFLINE is displayed in the MSA.

Selection:



*To move the cursor*



*To select disk functions*

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

DISK FUNCTION SELECTION

- SELECT ONE OF THE FOLLOWING FUNCTION ==>-

- 1 = EC MICROCODE INSTALLATION
- 2 = SAVE DISK ONTO DISKETTES
- 3 = RESTORE DISK FROM DISKETTES
- 4 = DISKETTE INITIALIZATION
- 5 = POSITION DISK RECORDING ARM BACK TO LANDING ZONE

---

If you selected option:

- 1, go to page 15-3
- 2, go to page 15-8
- 3, go to page 15-15
- 4, go to page 15-20
- 5, go to page 15-23

## EC Microcode Installation

To install a new EC, you received four diskettes: two sets of a primary and a secondary diskette. Each set is labeled "Normal" and "Backup". Use the normal set for first installation, then use the backup set thereafter.

EC installation is performed in two steps:

1. Check that both diskettes belong to the same EC.
2. Copy the diskettes onto the disk.

Selection:

PF1

*To move the cursor*

D

F

SEND

*To select disk functions*

1

SEND

*To select EC microcode installation*

### Checking the Diskettes

Machine Status Area

CUSTOMER ID:	3720-1	SERIAL NUMBER:
FUNCTION ON SCREEN: DISK FUNCTIONS		
SYSTEM INPUT AREA (SIA) ==>		
T: TERMINATE	OFF: LOGOFF	PF1: MOVE TO SIA    PF2: CCU FNCTN    PF3: ALARM
EC MICROCODE INSTALLATION		
- MOUNT PRIMARY DISKETTE, THEN PRESS SEND		
PF6: QUIT		

---

Once the primary diskette is mounted, you are prompted to check if it is the correct diskette.



Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

EC MICROCODE INSTALLATION

MOUNTED PRIMARY DISKETTE IDENTIFICATION :

EC NUMBER = XXXXXX **A**

INTERNAL ID = YYYYYYYY

- PLEASE CONFIRM (Y/N) ==>

PF6:QUIT

---

If the EC number displayed on **A** is not the correct one, enter N. You are then invited to mount the correct primary diskette.

If the EC number is correct, enter Y.

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

EC MICROCODE INSTALLATION

- MOUNT SECONDARY DISKETTE. THEN PRESS SEND

PF6:QUIT

---

Once the secondary diskette is mounted, both diskettes are compared.

- If both diskettes match, you are prompted to mount the primary diskette to start EC installation. See “Copying the Diskettes” on page 15-6.
- If both diskettes do not match, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
EC MICROCODE INSTALLATION

DISKETTES DO NOT BELONG TO THE SAME PAIR :

PRIMARY EC NUMBER : XXXXXXX INTERNAL ID : YYYYYYYY

SECONDARY EC NUMBER : XXXXXXX INTERNAL ID : YYYYYYYY **B**

- PRESS SEND

PF6: QUIT

---

- A** Either the EC number or the internal identification of the secondary diskette does not match that of the primary diskette.

Press SEND and mount the correct secondary diskette.

## Copying the Diskettes

If both diskettes belong the same EC, the following is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
EC MICROCODE INSTALLATION

- MOUNT PRIMARY DISKETTE. THEN PRESS SEND

PF6: QUIT

---

If you mount a diskette that is not the previous primary diskette checked, you will be invited to mount the correct one.

When the primary diskette is copied, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
EC MICROCODE INSTALLATION

- MOUNT SECONDARY DISKETTE. THEN PRESS SEND

WARNING: FROM NOW ON. SELECTING TERMINATE CAUSES MOSS DOWN AND THE DISK IS DESTROYED

---

If you mount a diskette that is not the previous secondary diskette checked, you will be invited to mount the correct one.

When the EC installation is completed, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
EC MICROCODE INSTALLATION

EC XXXXXXXX CORRECTLY INSTALLED. PRESS SEND

- PERFORM MOSS IML FROM CONTROL PANEL (NO OTHER ACTION IS POSSIBLE)

PF6: QUIT

When MOSS is IMLed, the 3720 function menu is displayed, unless there is a pending function. In this case, the CCU Function menu is displayed.

#### Warning

- A new release (EC) of the microcode also contains microcode fixes (MCFs). Once you have installed the new release, apply these MCFs, which are now on your disk:

PF1 M C F SEND to select MCF function

2 SEND To apply them automatically on the disk.

For more information on the MCF function, go to page 16-3.

- Once you have installed the new EC and applied MCFs, you should save your disk onto:
  - The primary backup diskette
  - The secondary backup diskette
  - The 3721 backup diskette, if you have a 3721.

If you have any diskette problems, try your normal copy and request a second set from IBM.

## Save Disk onto Diskettes

Disk contents are saved on two or three diskettes. When the disk is saved, these diskettes are named:

- Primary diskette
- Secondary diskette
- 3721 diskette.

Use the backup of each diskette.

Use this function to:

- Create a backup copy of initial diskettes
- Copy the MOSS disk files after new microcode fixes have been applied
- Copy the disk after changing link IPL Ports, PLS, CDF, LDF, and MLT files, and control program procedures.

This enables you to restore the disk from diskettes in case the disk becomes unusable owing to bad information on the disk, or physical damage.

The disk contents are saved on two diskettes for a 3720, or three diskettes for a 3720 and 3721. These diskettes must be compatible with the MOSS disk format, either:

- The primary and secondary backup diskettes for a 3720, or primary, secondary, and expansion diskettes for a 3720 and 3721 that you received for installation, or
- Diskettes formatted with the diskette initialization function described later in this chapter.

**Warning:** Use PC diskettes with part number 2HC 6109660 or equivalent (double-sided, high-density).

## Diskette Terminology

The word *mount* is used on the screens, or in this manual, to mean:

1. Insert the diskette into the diskette drive.
2. Close the diskette drive door (by turning or pulling the door latch).

All diskettes for initial installation or new engineering changes (called EC or microcode fixes) are supplied by IBM in two sets:

- Normal primary and secondary for the 3720, expansion for the 3721

- Backup, primary, and secondary for the 3720, expansion for the 3721.

Use the normal diskettes for the first installation or first application of microcode fixes, then use the backup set thereafter.

When MOSS requests you to mount a spare diskette, the prompt on the screen will refer to FIRST, SECOND, or 3721 (Expansion) diskette. When you save the contents of the MOSS disk onto diskettes, the prompt on the screen will refer to PRIMARY, SECONDARY, or 3721 (Expansion) diskette.

Do not forget to label the diskettes and their covers to indicate clearly what they are.

**Selection:**



*To move the cursor*



*To select disk functions*



*To select save disk onto diskettes function*

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
SAVE DISK ONTO DISKETTES

- DATE: 20/10/85 (MM/DD/YY)

- ENTER SAVE ID (FROM 1 TO 8 CHARACTERS) ==> **A**

- DO YOU WANT TO SAVE ALSO 3721 INFORMATION (Y OR NO) ==> **B**

PF6: QUIT

---

- A** You must enter a save identification. It will help you identify the level of the diskettes.
- B** If you have a 3721 you need to save information about the 3721, enter Y.

## Creating the Primary Diskette

You are prompted to mount a diskette on which primary information will be saved. This diskette will become the primary diskette.

**Warning:** This diskette must be formatted. If it is not, use function 6: Diskette Initialization (Page 15-20).

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

SAVE DISK ONTO DISKETTES

- MOUNT FIRST DISKETTE. THEN PRESS SEND

PF6: QUIT

---

When completed, the following is displayed:

DISK SAVED ONTO PRIMARY DISKETTE. REMOVE DISKETTE THEN  
PRESS SEND



## Creating the Secondary Diskette

You are then prompted to mount another diskette on which secondary information will be saved. This diskette will become the secondary diskette.

Machine Status Area

CUSTOMER ID:	3720-1	SERIAL NUMBER:
FUNCTION ON SCREEN: DISK FUNCTIONS		
SYSTEM INPUT AREA (SIA) ==>		
T: TERMINATE	OFF: LOGOFF	PF1: MOVE TO SIA
	SAVE DISK ONTO DISKETTES	PF2: CCU FNCTN
		PF3: ALARM
- MOUNT SECOND DISKETTE, THEN PRESS SEND		

---

When completed, the following is displayed:

DISK SAVED ONTO SECONDARY DISKETTE. REMOVE DISKETTE  
THEN PRESS SEND

## Creating the 3721 Diskette

If you decided to save 3721 information, the following screen is displayed:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE

OFF: LOGOFF

PF1: MOVE TO SIA

PF2: CCU FNCTN

PF3: ALARM

SAVE DISK ONTO DISKETTES

MOUNT A DISKETTE TO SAVE 37YY INFORMATION. THEN PRESS SEND

When the save is completed, the following message is displayed:

DISK SAVED ONTO 3721 DISKETTE. REMOVE DISKETTE THEN PRESS  
SEND

When diskettes are created, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

SAVE DISK ONTO DISKETTES

DISK CORRECTLY SAVED. TAKE NOTE OF THE FOLLOWING INFORMATION:

DATE	=	XX/XX/XX	(MM/DD/YY)
EC	=	XXXXXX	
SAVE ID	=	XXXXXXXX	
INTERNAL ID	=	HH/MM/SS	

THEN PRESS SEND

---

All the information displayed on the above screen should be written on the primary, secondary, and 3721 diskettes on which you just saved the disk. It will help identify your diskettes.

## Restore Disk from Diskettes

Restoring the disk from the diskettes is performed in two steps:

1. Check that both diskettes belong to the same pair.
2. Copy the diskettes onto the disk.

*Note:* You can restore the disk only from the diskettes that you created using the save function.

Selection:

PF1

*To move the cursor*

D

F

SEND

*To select disk functions*

3

SEND

*To select restore disk from diskettes function*

## Checking the Diskettes

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

RESTORE DISK FROM DISKETTES

- MOUNT PRIMARY DISKETTE. THEN PRESS SEND

PF6: QUIT

---

You are then invited to check the primary diskette that you have just mounted:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
RESTORE DISK FROM DISKETTES

MOUNTED PRIMARY DISKETTE IDENTIFICATION :

CREATED ON = MM/DD/YY (MM/DD/YY) A

SAVE ID = XXXXXXXX B

INTERNAL ID = YYYYYYYY C

- PLEASE CONFIRM (Y/N) ==>

PF6:QUIT

Check if the information on **A** **B** **C** corresponds to what is written on the diskette:

- A** is the date of the save.
- B** is the save identification you entered when you saved the disk onto the diskettes.
- C** was automatically created during the save.

If one of the above does not correspond to what is written on the diskette, enter N followed by SEND.

If it is the correct diskette, enter Y followed by SEND. The following message is then displayed:

#### PRIMARY DISKETTE CHECKING IN PROGRESS

Once the primary diskette is checked, you are requested to mount the secondary diskette.

If the secondary diskette does not match with the primary diskette, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
RESTORE DISK FROM DISKETTES

DISKETTES DO NOT BELONG TO THE SAME PAIR :

PRIMARY CREATED ON : MM/DD/YY SAVE ID : XXXXXXXX INTERNAL ID : YYYYYYYY  
SECONDARY CREATED ON : MM/DD/YY SAVE ID : XXXXXXXX INTERNAL ID : YYYYYYYY

- PRESS SEND

PF6:QUIT

---

Press SEND and mount the correct secondary diskette.

## Restoring the Disk

If both diskettes match, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
RESTORE DISK FROM DISKETTES

- MOUNT PRIMARY DISKETTE. THEN PRESS SEND

PF6: QUIT

---

If you mount a diskette which is not the checked primary diskette, you will be invited to mount the correct one.

When the primary diskette is copied, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
RESTORE DISK FROM DISKETTES

- MOUNT SECONDARY DISKETTE. THEN PRESS SEND

WARNING: FROM NOW ON, SELECTING TERMINATE CAUSES MOSS DOWN AND THE DISK IS DESTROYED

---

If you mount a diskette which is not the previous secondary diskette checked, you will be invited to mount the correct one.

When the restore is completed, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

RESTORE DISK FROM DISKETTES

DISK CORRECTLY RESTORED. PRESS SEND

- PERFORM MOSS IML FROM CONTROL PANEL (NO OTHER ACTION IS POSSIBLE)

PF6: QUIT

---



## Diskette Initialization

Use the Diskette Initialization function to format your diskettes. Diskette initialization is performed in two phases.

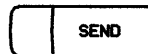
1. Formatting
2. Checking

**Warning:** Use PC diskettes with part number 2HC 6109660 or equivalent.

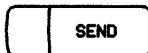
**Selection:**



*To move the cursor to the selection area.*



*To select disk functions*



*To select diskette initialization*

The following screen is displayed:

```

Machine Status Area

CUSTOMER ID:                3720-1                SERIAL NUMBER:
FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>
T: TERMINATE   OFF: LOGOFF   PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM
                DISKETTE INITIALIZATION

- PLEASE CONFIRM YOUR SELECTION (Y OR N) ==>

PF6:QUIT

```

If you enter N, the Disk Function Option screen is displayed.

If you enter Y, you are invited to mount the diskette to be formatted.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM  
DISKETTE INITIALIZATION

- MOUNT THE DISKETTE YOU WANT TO INITIALIZE. THEN PRESS SEND

PF6: QUIT

---

Once you have pressed SEND, diskette initialization starts and the following messages are displayed to show the progress:

DISKETTE FORMATTING IN PROGRESS  
DISKETTE CHECKING IN PROGRESS

If the diskette initialization ends without errors, the message DISKETTE INITIALIZATION SUCCESSFULLY COMPLETED is displayed.

If there are errors, the following screen is displayed:

Machine Status Area

CUSTOMER ID:3720-1SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE   OFF: LOGOFF   PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

DISKETTE INITIALIZATION

DISKETTE INITIALIZATION UNSUCCESSFULLY COMPLETED:

NUMBER OF TRACK(S) IN ERROR WHILE FORMATTING : XXX

NUMBER OF TRACK(S) IN ERROR WHILE CHECKING : XXX

WARNING: DO NOT USE THIS DISKETTE TO SAVE YOUR DISK.

PF6: QUIT

You cannot use this diskette to save your disk.

## Position Disk Recording Arm Back to Landing Zone

Use this function to position the recording arm of the disk back to its landing zone before removing power from your 3720.

Selection:

PF1

*To move the cursor to the selection area.*

D

F

SEND

*To select disk functions*

5

SEND

*To position disk recording arm back to landing zone*

Once selected, the function is immediately started. When completed, the following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK FUNCTIONS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

DISKETTE INITIALIZATION

POSITION DISK RECORDING ARM BACK TO LANDING ZONE

DISK RECORDING ARM IS NOW POSITIONED ON LANDING ZONE

WARNING: SELECTING TERMINATE RESTARTS DISK ACTIVITY

PF6: QUIT



## Chapter 16. Microcode Fixes (MCFs)

Between two major engineering changes, modifications may be made to the microcode. The modifications, referred to as microcode fixes (MCFs), are given to you by your IBM service representative, by means of an MCF file transfer or a set of new diskettes.

Use the MCF function to:

- Apply (upgrade) all MCFs transferred to you.
- Restore the microcode, if you think the MCFs are incompatible with your applications.
- Display a history table that gives you the latest level of your microcode.
- List all MCFs that have been applied in an earlier upgrade of the microcode. They are referred to as “old” MCFs. Old MCFs can no longer be restored, they are a permanent part of the code.
- List of MCFs that have just been transferred, whether or not applied. They are referred to as “new” MCFs.

*Notes:*

1. *You cannot use the MCF function when MOSS is online (Chapter 19). Check the status of MOSS in MSA field x.*
2. *All MCFs transferred together onto your disk are applied or restored together. You cannot apply or restore an MCF individually.*
3. *The group of MCFs applied or restored together is identified by the number of the last MCF in the group.*

## Selecting the MCF Function

Selection:

PF1

*To move the cursor*

M

C

F

SEND

*To select the MCF function*

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: MICROCODE FIXES

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

MCF MANAGEMENT

LAST APPLIED MCF = MCFID19

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

- 1 = DISPLAY HISTORY TABLE
- 2 = AUTOMATIC UPGRADE OF THE MICROCODE
- 3 = AUTOMATIC RESTORE OF THE MICROCODE
- 4 = LIST OLD MCF(S)
- 5 = LIST NEW MCF(S)

---

Once you have selected an option, you are requested to enter the date.

# Applying MCFs

All MCFs are applied automatically as soon as you have selected the functions.

Selection:   *To select automatic upgrade of the microcode*

Machine Status Area

CUSTOMER ID:3720-1SERIAL NUMBER:

FUNCTION ON SCREEN: MICROCODE FIXES

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE   OFF: LOGOFF   PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

IDENTIFIER

UPGRADE OF MICROCODE

SCREEN 1/1

MCFID28   APPLIED

MCFID29   APPLIED

MCFID30   APPLIED

- UPGRADE COMPLETED. PRESS SEND

When all MCFs are applied, the following message is displayed:

UPGRADE COMPLETED, PRESS SEND

Once the upgrade is completed, you must IML MOSS. The procedure is given in Chapter 2.



### Data and Disk Errors While Applying MCFs

If an MCF cannot be applied, a screen similar to the following is displayed that tells you why the MCF was not applied.

[illegible]

Press SEND.

All applied MCFs will be restored, but the MCF function will not be canceled.

If a disk error occurs while applying MCFs, the MCF function is canceled, and the following message is displayed, and MCFs are not restored:

DISK(ETTE) ERROR: MCF FUNCTION CANCELED

## Restoring MCFs

If the last-applied MCFs appear to be incompatible with your applications, you may restore the previous MCFs. All the previously applied MCFs are restored automatically as soon as you have selected the function.

Selection:

3

SEND

*To select automatic microcode restore*

Machine Status Area

CUSTOMER ID:	3720-1	SERIAL NUMBER:
FUNCTION ON SCREEN: MICROCODE FIXES		
SYSTEM INPUT AREA (SIA) ==>		
T: TERMINATE	OFF: LOGOFF	PF1: MOVE TO SIA    PF2: CCU FNCTN    PF3: ALARM
IDENTIFIER	RESTORE OF MICROCODE	SCREEN 1/1
MCFID22	RESTORED	
MCFID21	RESTORED	
MCFID20	RESTORED	
- RESTORE COMPLETED. PRESS SEND		

When all the previous MCFs are restored, the following message is displayed:

**RESTORE COMPLETED, PRESS SEND**

Once the restore is completed, you must IML the MOSS. The procedure is given in Chapter 2.

## Displaying the MCF History Table

The MCF history table lists all upgrades and restores brought to the microcode.

Selection:   To display the history table

A screen similar to the following is displayed:

**Machine Status Area**

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: MICROCODE FIXES

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

SCREEN 1/2

MM/DD/YY	MCF HISTORY	LEVEL
00/00/00	CODE UPGRADED TO LEVEL	MCFID4
00/00/00	CODE UPGRADED TO LEVEL	MCFID8
00/00/00	CODE UPGRADED/RESTORE FAILED	
00/00/00	CODE RESTORED TO LEVEL	MCFID4
00/00/00	CODE UPGRADED TO LEVEL	MCFID8
00/00/00	CODE UPGRADED TO LEVEL	MCFID10
00/00/00	CODE UPGRADED TO LEVEL	MCFID12
00/00/00	CODE RESTORED TO LEVEL	MCFID10

**A**

**B**

PF5: BOTTOM

PF6: QUIT

PF8: FORWARD

This table gives you the latest level of the microcode.

- A** Date of the apply or restore
- B** The level is identified by the last MCF that has been applied or restored.

## Displaying Old MCFs

Old MCFs are those already applied in an earlier upgrade of the microcode. They can no longer be restored.

Selection:

4

SEND

To list old MCF(s)

A screen similar to the following is displayed:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: MICROCODE FIXES

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE    OFF: LOGOFF

PF1: MOVE TO SIA    PF2: CCU FNCTN    PF3: ALARM

IDENTIFIER	OLD MCF(S)	SCREEN 1/ 3
MCFID1	A ==> AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
MCFID2	A ==> BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB	
MCFID3	A ==> CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
MCFID4	A ==> DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD	
MCFID5	A ==> EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE	
MCFID6	A ==> FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	
MCFID7	A ==> GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	
MCFID8	A ==> HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH	

(A=APPLIED. OLD MCF(S) ARE ALWAYS APPLIED)

- TO SCAN AN MCF, ENTER S AGAINST IDENTIFIER

PF5: BOTTOM    PF6: QUIT

PF8: FORWARD

Old MCFs are always applied. They can no longer be restored.

## Displaying New MCFs

New MCFs are those just transferred or received with new diskettes, whether or not applied.

**Selection:**

5 SEND

*To list New MCF(s)*

A screen similar to the following is displayed:

```
Machine Status Area
```

CUSTOMER ID:                      3720-1                  SERIAL NUMBER:

FUNCTION ON SCREEN: MICROCODE FIXES

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE    OFF: LOGOFF       PF1: MOVE TO SIA     PF2: CCU FNCTN    PF3: ALARM

IDENTIFIER                      NEW MCF (S)                      SCREEN 1 / 2

MCFID020 N ==> TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT  
MCFID021 N ==> UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU  
MCFID022 N ==> VVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVV  
MCFID023 N ==> WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW  
MCFID024 N ==> XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
MCFID025 N ==> YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY  
MCFID026 N ==> ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ  
MCFID027 N ==> OOOOoooooooooooooooOOOooooooooooooooooooooooooooooooooo  
  
(A=APPLIED. N=NON-APPLIED)

- TO SCAN AN MCF. ENTER S AGAINST IDENTIFIER

PF5: BOTTOM                  PF8: QUIT                      PF9: FORWARD

## Chapter 17. Machine Level Table (MLT)

Use this function to display the level of modifications of microcode and control programs. It displays:

- The control program version that is loaded in the CCU
- The control program load name (8 characters)
- The control program load id (8 characters)
- The EC level of the microcode
- The EC message
- The last-applied MCF
- The date of the last-applied MCF.

Selection:



*To position the cursor*



*To select the machine level table function*

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: MACHINE LVL TABLE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

CONTROL PROGRAM: EP **A** VMSPAR14 VERSION4

EC LEVEL : 021180E **B**

LAST APPLIED MCF : M180A011 ON 07/29/85 **C**

---

- A** Displays the control program identification when the control program is loaded. If no control program is loaded, then the message NO CONTROL PROGRAM LOADED is displayed.
- B** Displays the last EC level.
- C** Displays the last-applied MCF and the date it was applied.

**Warning:** Save the new information onto the backup diskette, every time you update the file (see Chapter 15).

## Chapter 18. Disk IPL Information

Use the disk IPL Information function to:

- Display the status of control program load modules and dump, as well as the automatic dump/load option setting on the MOSS disk
- Change the automatic dump/load option setting
- Purge the control program dump file.

*Note:* The automatic dump/load feature is also referred to as Automatic IPL/Dump.

Selection:

PF1

*To move the cursor*

D

I

I

SEND

*To select Disk IPL information*

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISK IPL INFO

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

CP RUNNING: A NNNNNNNN

DISK CONTENTS: B NNNNNNNN (LOAD MODULE STATE)

LOAD MODULES: C NNNNNNNN (LOAD MODULE STATE)

DUMP: D NNNNNNNN (MM/DD/YY HH:MM:SS)

AUTO DUMP/LOAD: E YES

ACTIVE LOAD MODULE: NNNNNNNN

PF4: CHANGE AUTO DUMP/LOAD OPTION

PF5: PURGE DUMP



## Display Disk IPL Information

- A** Displays the name of the control program, if there is one, that is running in the CCU.
- B** Displays the name and status of load modules on the disk. Load modules are in one of three states:
  - Load module transfer complete. This is indicated by displaying the name of the load module and the date and time (mm/dd/yy hh:mm:ss) that the load module was saved to the controller disk.
  - Load module is currently being saved to disk. This is indicated by displaying the name of the load module, followed by the words 'SAVE IN PROGRESS'.
  - Load module save suspended. No activity has been recorded in the last five minutes. This is indicated by displaying the name of the load module, followed by the words 'SAVE SUSPENDED'.

The host operator can purge this partial load module. However, it is not considered as a valid load module, and will be purged during IPL or overwritten by the MOSS if the space on the disk is needed for another load module.

- C** Displays the name of the control program, if there is one, and the date and time (mm/dd/yy hh:mm:ss) that it was saved to the disk.
- D** Displays the setting of the automatic dump/load option:
  - YES - automatic dump/load set
  - NO - automatic dump/load not set.

If the automatic dump/load option is set, and the controller has a failure, the control program is dumped to the controller hard disk, and then automatically reloaded from the MOSS disk. If there is already a dump on the disk, no dump or load is performed.

In addition, if the automatic dump/load option is set, the MOSS automatically loads the active control program load module from the controller hard disk at power on/reset or at a request from the MOSS console. In this case, no dump is performed.

- E** Displays the name of the active load module on the disk. The active load module is the one currently loaded and running in the CCU, if it was saved to disk when it was loaded, or loaded from the disk. If no control program is currently running, the active load module is the name of the last disk load module that was active. In the event of an automatic IPL, the active disk module is loaded into the CCU.

Pressing SEND from this screen will refresh the disk IPL information display.

## Change the Automatic Dump/Load Option Setting

To change the automatic dump/load option setting, press PF4 from the Disk IPL Information display. The setting will change from 'YES' to 'NO' or from 'NO' to 'YES' on the screen.

If there is no active disk load module, you cannot change the automatic dump/load setting from 'NO' to 'YES'. If you try to do this, the following message is displayed:

REQUEST REJECTED - NO ACTIVE LOAD MODULE ON DISK

If you try to use this function when the MOSS is busy processing a host command, the following message is displayed:

REQUEST REJECTED - DISK UPDATING NOT ALLOWED

If you get this message, wait a few minutes, then try again.

## Purge the Dump File

To purge the dump file on the disk, press PF5 from the Disk IPL Information display. If a dump exists on the disk, you are asked to confirm the purge dump request, as shown on the following screen:

Machine Status Area

CUSTOMER ID:	3720-1	SERIAL NUMBER:
FUNCTION ON SCREEN: DISK IPL INFO		
SYSTEM INPUT AREA (SIA) ==>		
T: TERMINATE	OFF: LOGOFF	PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM
CP RUNNING:	NNNNNNNN	
DISK CONTENTS:		
LOAD MODULES:	NNNNNNNN (LOAD MODULE STATE)	
	NNNNNNNN (LOAD MODULE STATE)	
DUMP:	NNNNNNNN (MM/DD/YY HH:MM:SS)	
AUTO DUMP/LOAD:	YES	
ACTIVE LOAD MODULE:	NNNNNNNN	
- PLEASE CONFIRM THE DUMP PURGE (Y OR N) THEN PRESS SEND ==>		
PF6: QUIT		

Enter Y to confirm the request, or N to cancel it. PF6 (Quit) will also cancel it.

If the request is confirmed, the dump is purged from the disk, and the Disk IPL Information screen is updated.

If no dump exists on the disk, the following message is displayed:

REQUEST REJECTED - DUMP FILE DOES NOT EXIST

If you try to use this function when the MOSS is busy processing a host command, the following message is displayed:

REQUEST REJECTED - DISK UPDATING NOT ALLOWED

If you get this message, wait a few minutes, then try again.

## Chapter 19. CCU Functions

The CCU functions are described in this chapter in alphabetic order. They are:

- Address compare and branch trace parameter display
- CCU state
- Channel adapter state
- Display/alter
- Display long
- MOSS offline
- MOSS online
- Reset address compare
- Reset branch trace
- Reset CCU/LSSD
- Set address compare
- Set branch trace
- Terminating CCU functions

*Note:* CCU function messages are described in Chapter 24. The data exchange function is described in Chapter 21.

## Address Compare and Branch Trace Parameter Display

Use the AC/BT parameters function to display the parameters of the current address compare and branch trace functions.

Selection:

PF2

To display CCU Function menu

A

B

P

SEND

To select AC/BT parameters

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: AC/BT PARAMETERS

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

ADDRESS COMPARE PARAMETERS CURRENT VALUES	BRANCH TRACE PARAMETERS CURRENT VALUES
AC TYPE = SINGLE	CCU STOP = NO
CCU ACTION = L1-I	WRAP STOP = YES
MOSS ACTION = NO	STOP ON AC = YES
ADDRESS 1 = 001234	LOWER LIMIT = 001234
ADDRESS 1 = L	UPPER LIMIT = 023456
ADDRESS 2 =	TRACE LEVELS= 1 2
ADDRESS 2 =	
PF4: TO RESTART LATEST AC	PF5: TO RESTART LATEST BT

For a description of the displayed values, refer to "Set Address Compare" and "Set Branch Trace" functions earlier in this chapter.

### PF Keys

Use the following PF keys only when they are displayed on the screen.

PF4: To restart the latest AC. If there is no active address compare, this starts an address compare using the displayed parameters.

PF5: To restart the latest BT. If there is no active branch trace, this starts a branch trace using the displayed parameters.

## CCU State

Use the CCU state function to display the state of the CCU.

Selection:

PF2

*To display CCU Function menu*

C

S

T

SEND

*To select CCU state*

The following screen is displayed in refresh mode.

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: CCU STATE

SYSTEM INPUT AREA (SIA) ==>>

T: TERMINATE

OFF: LOGOFF

PF1: MOVE TO SIA

PF2: CCU FNCTN

PF3: ALARM

CCU STATE: XXX A

- PRESS BREAK TO STOP REFRESH

**A** The CCU state may be:

**RUN:** Indicates that instructions are being executed and data transferred.

**WAIT:** Indicates that the CCU control program is in WAIT state: no instruction is being performed.

To stop refreshing, press **BREAK (ATTN)**.

## Channel Adapter State (3720 Model 1 and 11 Only)

Use the channel adapter state function to:

- Display the state of each channel adapter (enabled or disabled) as well as the current interface
- Display the registers of each channel adapter.

Selection:

*To display CCU function menu*

PF2

*To select CHL ADAPT STATE*

C

H

SEND

The Channel Adapter State Display screen is displayed.

### Channel Adapter State Display

Once you have selected the function, the channel adapter state screen is automatically displayed.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: CHL ADAPTER STATE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

CHANNEL ADAPTER STATES

INTERFACE A		
CHANNEL ADAPTERS	1	2
INTERFACE STATE	ENBL	DSBL
INTERFACE B		
CHANNEL ADAPTERS	1	2
INTERFACE STATE	DSBL	DSBL

ENBL=ENABLED DSBL=DISABLED NCAI=CA NOT INSTALLED

STOP THE CCU THEN PRESS PF4 TO DISPLAY CA REGISTERS

Refer to Chapter 1 for channel adapter numbering.

## Channel Adapter Register Display

**Warning:** The channel adapter register display function should be performed only by trained personnel.

When you display channel adapter registers, the channel adapter auto-selection mechanism is disabled, if it was initially enabled.

To display the input registers of the channel adapters, you must first display the channel adapter state. (Take note of the channel adapter state for later reference.) Then:

*To stop the CCU*

*To display the following screen:*

Machine Status Area

CUSTOMER ID: 3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: CHL ADAPTER STATE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE   OFF: LOGOFF

PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

REG X'E' = 0000

SELECTED CA = 1 A

ENTER A CA NUMBER ==>

B

OR PRESS SEND TO DISPLAY THE REGISTERS OF THE SELECTED CA

---

- A Gives the contents of the input register X'E', which is common to all channel adapters.

SELECTED CA is the number of the channel adapter automatically selected by the control program.

NONE is displayed instead of SELECTED CA = x if no channel adapter was selected automatically by the control program.



- B** Enter the number of the channel adapter whose registers you want to display, then press SEND;

or

only press SEND to display the registers of the channel adapter that has been automatically selected by the control program (SELECTED CA = on line **A**).

The CA registers are then displayed as illustrated in the next screen.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: CHL ADAPTER STATE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

CHANNEL ADAPTER NUMBER 1

REG X'0'	8800 C002 0000 C004
REG X'4'	D7C5 C440 400D 0080
REG X'8'	C004
REG X'C'	0000 0000 0000 2000
LSR 30	A-REG 0000 0000 0000 0000
	B-REG 0000 0000 0000 0000

SEND:REDISPLAY PF6:QUIT

- C** The LSR displayed on this line gives the pointer to the channel adapter cycle steal.

A description of the registers is given in 3725 and 3720 *Principles of Operation*.

The only two actions that you can now perform are:

- Press SEND to *redisplay* the registers once, and/or
- Press PF6 if you want to display other CA registers or terminate the function. The next screen will be displayed.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: CHL ADAPTER STATE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

- PRESS PF4 OR PF6

PF4:ENABLE CA AUTO SELECT PF6:QUIT (AUTO SELECT DISABLED)

Now you have the choice of enabling the CA auto-selection mechanism or leaving it in disabled state. Press the appropriate PF key:

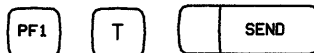
PF4: To enable the channel adapter auto-selection mechanism and display the channel adapter state screen.

PF6: To leave the channel adapter auto-selection mechanism in disabled state and display the channel adapter state screen.

Once the channel adapter state screen is displayed, you may either terminate the function or display other channel adapter registers.

## Termination

You can terminate this function only from the channel adapter state screen.



### Notes:

1. Before you terminate the function, do not forget to restart the CCU, using the Start CCU function.
2. If you displayed channel adapter registers, it is recommended that you set the channel adapter auto-selection mechanism to its initial state: enabled or disabled. Refer to "Channel Adapter Register Display."

## Display/Alter

Use the display/alter function to

- Display CCU storage and local store registers (LSRs), or
- Alter the CCU data being displayed.

Selection:

PF2

*To display CCU function menu*

D

A

SEND

*To select display/alter*

The display function screen is displayed.

## Display

After you have selected the display/alter function, select the CCU data that you want to display.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISPLAY/ALTER

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

-ENTER: S FOLLOWED BY STORAGE ADDRESS ==>

L FOLLOWED BY LSR NUMBER

V (WORK REGISTERS)

PF6: ST

---

You may display, on the same screen, any or all of the following CCU data:

- 16 bytes of CCU storage  
Example: If you enter S1234, 16 bytes are displayed, starting from the byte at address 1234.
- 4 LSRs  
Example: If you enter L6, four LSRs are displayed, starting from LSR6.
- 4 work registers  
Enter only W to display the first four work registers, then press PF8 to display the last four.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISPLAY/ALTER

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

-ENTER: S FOLLOWED BY STORAGE ADDRESS ==> W  
L FOLLOWED BY LSR NUMBER  
W (WORK REGISTERS)

S 001234 0800 0000 8800 0000 0800 0000 0200 4020  
L 06 100010 000000 0BC9C6 0BC9C2  
W 00 00212A 000008 000000 02226C

PF4: ALTER PF5: REFRESH PF6: ST PF7: BACKWARD PF8: FORWARD

Once a line is displayed, you may display another one. To do so, enter another CCU data request. Ten lines are available for display on the screen. When the screen is filled up, it wraps around. The latest displayed line (the current line) is *highlighted*.

An explanation of the CCU data displayed (as shown on previous screen):

**CCU storage:**

S 001234 0800 0000 8800 0000 0800 0000 0200 4020

The letter S (storage) is followed by the address of the first halfword displayed on this line. Each halfword is separated by two protected blanks.

### Local storage registers and work registers:

L 06 100010 000000 0BC9C6 0BC9C2

W 00 00212A 000008 000000 02226C

The letter L (LSR) or W (work register) is followed by the number of the first register displayed on this line. Registers are separated by two protected blanks.

Once a line is displayed, you may do one of the following:

- Press SEND to redisplay the current line.
- Press PF5 to refresh the current line.
- Press PF7 to display the preceding 16 bytes of storage or the previous four LSRs.
- Press PF8 to display the next 16 bytes of storage, the next four LSRs, or the next four work registers.
- Enter more CCU data (S, L, or W).
- Press PF4 to alter data (see "Alter").
- Press PF6 to start the CCU.

### Display PF Keys

Use the following PF keys only when they are displayed on the screen.

PF4: To switch to alter mode. See "Alter."

PF5: To refresh data every 500 ms. This allows you to view permanently the updated image of the data that you selected (CCU storage, LSRs, or work registers). To cancel the refresh, press BREAK (ATTN).

Pressing SEND, in display mode, re-displays the selected CCU data once.

PF6: To start the CCU without selecting function Start CCU.

PF7: To display the preceding 16 bytes of storage, four LSRs, or four work registers.

PF8: To display the next 16 bytes of storage, four LSRs, or four work registers.

## Alter

To alter CCU data (storage, LSRs, and work registers), you must first select the Display/Alter function and display the CCU data that you want to alter (as explained in “Display”).

To alter storage or LSRs, the control program may be either running or stopped; but, *to alter work registers, it must be stopped*. To stop the CCU, if you have already selected the display/alter function, do as follows:



*To display CCU function menu*




*To stop the CCU*

If you try to use alter while the CCU is not stopped, the message FIRST STOP THE CCU is displayed.


## How to Alter

Assume the display/alter function is already selected and the CCU data to be altered is already displayed.

1.  *To switch from display mode to alter mode*  
*The addressed line is redisplayed on the line below and on the second line of the work area.*  
*The cursor is positioned at the first character that may be modified on that second line.*

*The following message is displayed on the PF key line*

**MISUSE OF ALTER MAY GIVE UNEXPECTED RESULTS**

2. *Alter the data.*
3.  *To transmit altered data. The altered line moves below its original position and the redisplayed line. It becomes the third line of data indicated for that address. The screen is now in display mode.*
4. *Select another address if you want to alter more data and switch to alter mode (go to step 1).*

or

-   *To cancel*

*Note:* If you alter data and redisplay it while the control program is running, the redisplayed data may not match with what you altered. (That is, the system may have altered the data before you redisplayed it.)

## Branch Trace Buffer Allocation

The branch trace buffer address and length are provided by the control program after the 3720 initialization. However, if you execute a branch trace before the control program is loaded, you have to allocate the branch trace buffer, as follows:

1.     *To display CCU function menu and select the display/alter function.*
2. Enter L7C then  *To display LSRs starting from LSR X'7C'.*
3.  *to select the Alter function.*
4. Update LSR X'7C' with buffer length. The maximum buffer length is X'FFF0'. The last digit of the buffer length must always be 0.
5. Update LSR X'7D' with buffer address + X'18'
6.

*Note:* To alter only the buffer length, you just have to update LSR X'7C' (see step 4 above).

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: DISPLAY/ALTER

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE   OFF: LOGOFF

PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

0007E8   000818   001244   00003C

L 7C   0007E8   000818   001244   00003C

L 7C   0007E8   000818   001244   00003C

PF4: DISPLAY

MISUSE OF ALTER MAY GIVE UNEXPECTED RESULTS

---



## **Alter PF Keys**

Use the following PF keys only when they are displayed on the screen.

PF4 to cancel the alter request and return to display mode.

PF5 to refresh data every 500 ms. This allows you to view permanently the updated image of the data you selected (CCU storage, LSRs, or work registers). To cancel the refresh, press BREAK (ATTN).

Pressing SEND, in alter mode, redisplay the selected CCU data once.

PF6 to start the CCU without selecting Start CCU function.

PF7 to display the preceding 16 bytes of storage, four LSRs, or four work registers.

PF8 to display the next 16 bytes of storage, four LSRs, or four work registers.

# Display Long

Use the display long function to display CCU storage, LSRs, work registers, or CCU input registers.

Selection:

PF2

To display CCU function menu

D

L

SEND

To select display long function

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISPLAY LONG

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

-ENTER: S FOLLOWED BY STORAGE ADDRESS ==>  
L FOLLOWED BY LSR NUMBER  
W (WORK REGISTERS)  
I REGISTERS X'71' TO X'7F'

PF5:BT BUFFER PF6:CCU START

You may display, on the same screen, one of the following:

- 128 bytes of CCU storage  
Example: If you enter S1234, 128 bytes are displayed, starting from the byte at address 1234.
- 16 LSRs  
Example: If you enter L4, 16 LSRs are displayed, starting from LSR 4.
- All work registers  
Enter only W to display all the work registers.
- CCU input registers from X'71' to X'7F'  
Enter only I to display all CCU input registers from X'71' to X'7F'. The following screen is then displayed.

*Note:* You cannot use the display long function to display the X'70' register.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: DISPLAY LONG

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

-ENTER: S FOLLOWED BY STORAGE ADDRESS ==> I:

L FOLLOWED BY LSR NUMBER

W (WORK REGISTERS)

I REGISTERS X'71' TO X'7F'

I 71 0000C0 000002 000000

I 74 001E8C 000000 000000 3F0000

I 78 000000 000100 0522D1 000818

I 7C 0007E8 000000 000000 000000

PF5:BT BUFFER PF6:CCU START

CCU storage, LSRs, and work registers are presented on the screen in a similar way to the data displayed by the display/alter function. The input registers are displayed as follows:

I 74 001E8C 000000 000000 3F0000

The letter I (for input register) is followed by the number of the first input register displayed on the line. Input registers are separated by two protected blanks.

## Differences Between the Display/Alter and Display Long Functions

### DISPLAY/ALTER

- It displays on one line:  
16 bytes of storage; or  
four LSRs; or  
four work registers.
- It alters displayed data.
- It does not displays on same screen  
CCU storage, LSRs, and work  
registers.
- It uses the Refresh command.

### DISPLAY LONG

- It displays on several lines:  
128 bytes of storage; or  
16 LSRs; or  
all work registers; or  
all CCU input registers from X'71'  
to X'7F'.
- It does not alter displayed data.
- It does not display on same screen  
CCU storage, LSRs, and work  
registers.
- It does not use the Refresh  
command.

## Displaying Branch Trace Buffer

To display the branch trace buffer:



The first 128 bytes of the branch trace buffer are displayed. The contents of the first 24 bytes are:

bytes 0-1	Buffer length excluding header (maximum X'FFF0')
bytes 2-3	Reserved
byte 4	Branch trace options (x = non-significant bit):
xx1. ..x.	branch trace active
xx.1 ..x.	WRAP
xx.. 1.x.	BT STOP ON AC
xx.. .1x.	CCU STOP
xx.. ..x1	MOSS interrupt requested (address compare function)
bytes 5-7	Lower limit address
byte 8	Program level interrupt traced
01.. ..00	level 1
0.1. ..00	level 2
0..1 ..00	level 3
0... 1.00	level 4
0... .100	level 5
bytes 9-11	Upper limit address
byte 12	Reserved
bytes 13-15	Address of the first branch trace entry (buffer address + X'18').
byte 16	Reserved
bytes 17-19	Address + 8 of the last branch trace buffer entry used, when the branch trace was stopped
byte 20	Reserved
bytes 21-23	Address of the last branch trace buffer entry of the buffer

Each branch trace entry is eight bytes long and contains:

byte 1	Come-from program level interrupt (04 means level 4)
bytes 2-4	Come-from address
byte 5	Go-to program level interrupt
bytes 6-8	Go-to address

## **PF Keys**

Use the following PF keys only when they are displayed on the screen.

PF5: To display the branch trace buffer.

PF6: To start CCU without selecting function CCU Start.

PF7: To display the preceding 128 bytes of storage or 16 LSRs.

PF8: To display the next 128 bytes of storage or 16 LSRs.

## MOSS Offline

Use the MOSS offline function to set MOSS offline (logical disconnection between MOSS and the control program).

Selection:



*To display CCU function menu*



*To select MOSS offline*

This function is immediately performed. MSA field c displays MOSS-OFFLINE, and the hex display is FEE.

If you press **BREAK (ATTN)** while the function MOSS Offline is in progress, the following two PF keys are displayed:


PF4: To return to the previous status.





PF5: To quit and select another function although MOSS remains offline.

*Note:* You cannot set MOSS offline while transferring a MOSS or scanner dump to the host.

## MOSS Online

Use the MOSS online function to set MOSS online to the control program and reset the date and time.

**Selection:**  *To display CCU function menu*

    *To select MOSS Online*

This function is immediately performed. MSA field c displays MOSS-ONLINE, and the hex display is 000.

If you press **BREAK (ATTN)** while the function MOSS Online is in progress, the following three PF keys are displayed:

PF4: To return to the previous status.

PF5: To quit and select another function although MOSS remains online.

PF6: To start the CCU functions.



## Reset Address Compare

Use the reset address compare function to cancel the current address compare.

Selection:

PF2

*To display CCU function menu*

R

A

C

SEND

*To select reset address compare*

When the address compare is canceled, the Address Compare Parameter screen is displayed. See “Address Compare and Branch Trace Parameter Display”.

## Reset Branch Trace

Use the reset branch trace function to cancel the current branch trace.

Selection:

PF2

*To display CCU function menu*

R

B

T

SEND

*To select reset branch trace*

When the branch trace is canceled, the Branch Trace Parameter screen is displayed. See “Address Compare and Branch Trace Parameter Display”.

## Reset CCU/LSSD

Use this function to reset the entire CCU (LSSD, IOC, local store registers, 3720 storage). The channel adapter registers are not reset.

This function *destroys* the current state of the CCU control program. The only way to restart the 3720 is to IPL it.

Selection:

PF2

*To display CCU function menu*

R

C

L

SEND

*To select reset CCU/LSSD*

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN:

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

WARNING: THIS FUNCTION DESTROYS THE CCU CONTROL PROGRAM

ANSWER YES OR N TO CONFIRM ==>

## Set Address Compare (AC)

Use the set address compare function to force the CCU to perform a specific action whenever a storage address that you specified is detected during a specific storage access operation.

You can execute simultaneously an address compare and a branch trace. (See "Simultaneous Address Compare and Branch Trace". and the description of line **C** of the first screen of the branch trace function.)

Selection:

PF2

To display CCU function menu

A

C

SEND

To select set address compare

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: SET ADDR COMPARE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

ADDRESS COMPARE SELECTION

- ENTER ADDRESS COMPARE TYPE (S, D) ==> S **A**

S = SINGLE

D = DOUBLE

- ENTER CCU ACTION (I, S, N) ==> I **B**

I = LEVEL 1 INTERRUPT

S = CCU STOP

N = NO ACTION

- MOSS INTERRUPT (Y, N) ==> N **C**

N = NO

Y = YES

PF4 : LATEST SELECTED ADDRESS COMPARE OPTIONS

### **A** Selecting the address compare type:

**SINGLE** (Single Address Compare): You will be requested to enter a unique storage address and one or more storage access operations. When the storage address is detected during any one of the storage access operations, the CCU action (selected on line **B**) is executed.

**DOUBLE (Double Address Compare):** You will be requested to enter two addresses: the first one must be a load or store instruction address; the second one, a storage address to be accessed by the selected instruction. When both addresses are detected simultaneously, the CCU action (selected on line **B**) is executed.

**B** Selecting the CCU action:

**LEVEL 1 INTERRUPT** — CCU level 1 interrupt

**CCU STOP** — Control program stop and cycle steal stop

**NO ACTION** — No CCU action is required

**C** Selecting MOSS INTERRUPT:

- If you enter Y, a MOSS level 1 interrupt is requested to display address compare results in MSA field d.
- If you enter N, address compare results are not displayed in the MSA.

If you select S (CCU STOP) on line **B**, address compare results are always displayed, whether you selected MOSS INTERRUPT == > Y or N.

Once you have entered the different parameters on the screen, press SEND. The following screen is then displayed.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: SET ADDR COMPARE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE	OFF: LOGOFF	PF1: MOVE TO SIA	PF2: CCU FNCTN	PF3: ALARM
SINGLE AC - CCU LVL1 OPTION - NO MOSS INTERRUPT				<b>D</b>

- ENTER STORAGE ADDRESS (1 TO 6 DIGITS) ==> **E**

- ENTER 1 TO 4 STORAGE ACCESSES (L, S, C, I) ==> **F**

L = LOAD

S = STORE

C = CYCLE STEAL

I = INSTRUCTION

PF4 : LATEST SELECTED ADDRESS COMPARE VALUES

---

- D** This line shows up the parameters that you selected on the preceding screen.

**E** The storage address must be in the range of the CCU storage.

**F** The storage accesses are:

**LOAD:** The selected action is performed after a load instruction has accessed the storage address that you selected on line **E**.

**STORE:** The selected action is performed after a store instruction has accessed the storage address that you selected on line **E**.

**CYCLE STEAL:** The selected action is performed after the cycle steal mechanism has accessed the storage address that you selected on line **E**.

**INSTRUCTION:** The selected action is performed after the execution of the instruction for which you specified the address on line **E**.

Once you have entered all the parameters on the screen, press SEND.

The Address Compare is then started. The term AC appears in the MSA field d and the following screen displays the parameters that you have selected.

Machine Status Area  
AC

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: SET ADDR COMPARE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

ADDRESS COMPARE PARAMETERS  
CURRENT VALUES

AC TYPE = SINGLE  
CCU ACTION = L1-I  
MOSS ACTION = NO

ADDRESS 1 = 001234  
ACCESS 1 = L

ADDRESS 2 =  
ACCESS 2 =

PRESS ENTER TO DISPLAY FUNCTION MENU

---

This screen remains displayed until you press ENTER to display the function menu, or cancel the address compare (Reset Address Compare) and select terminate function.

Notes:

1. To set a new address compare when the CCU stops because of a previous address compare (STOP-AC in MSA field g), you need not select function Reset Address Compare, but only do the following:



2. If, after a successful address compare (hit) with CCU STOP, you set another address compare at the same instruction address +2, +4, or +6, the address compare may be unsuccessful.
3. If you set a double address compare with storage access operation LOAD, the address compare may be successful on a store instruction that accesses the same data address when the store instruction immediately precedes or follows the load instruction. This is also true for a store instruction.

## Address Compare Cancel

To cancel the address compare:

Selection:



To display CCU function menu



To select reset address compare

The terminate function does not cancel the address compare but only the set address compare function.

## Simultaneous Address Compare and Branch Trace

If you specify option CCU STOP in either the address compare or the branch trace when running simultaneously, the option applies only to the address compare function. For example, if you simultaneously execute these two functions with:

CCU STOP for BT,

the CCU will stop if the address compare is successful, but will not stop upon reaching the end of the branch trace buffer.

*Note:* If you specify Y, or accept the default (also Y), for ENTER Y FOR BT BUFFER WRAP on the Set Branch Trace menu, the CCU **will** stop upon reaching the end of the branch trace buffer.

## Address Compare PF Key

Use the following PF key only when they are displayed on the screen.

PF4:LATEST ADDRESS COMPARE VALUES, or

PF4:LATEST ADDRESS COMPARE OPTIONS — to display the parameters of the last address compare transmitted. This is helpful when you want to execute an address compare several times with the same or nearly the same parameters.

## Machine Status Area (MSA)

a	b	c	d	e	f
g	h	i	j	k	l
m		n		service personnel only	

MSA field d is reserved for the CCU address compare. It displays:

AC      (An Address Compare is set).

If you selected MOSS INTERRUPT = = > Y or CCU STOP, the following information is added:

HIT      (A single or double address compare is successful).

*Note:* Field g displays STOP-AC when the CCU control program is stopped because of the address compare, and field f displays the address of the last instruction executed.



## Set Branch Trace (BT)

Use the set branch trace function to save in the branch trace buffer information about non-sequential instructions, such as, when a branch is executed or a new program level is entered. The information saved is: come-from interrupt level, come-from address, go-to interrupt level, and go-to address.

You can execute simultaneously a branch trace and an address compare. Refer to "Simultaneous Address Compare and Branch Trace".

### *Notes:*

1. *Before executing a branch trace, make sure that the branch trace buffer is allocated. If it is not, allocate it. Refer to "Branch Trace Buffer Allocation," page 19-13.*
2. *To prevent unwanted trace records due to 100-millisecond timer-level 3 interrupts to and from the wait state:*
  - *The code traced should not include any level 3 code associated with the servicing of timer interrupts.*
  - *Local store register X'18' should be set to a storage address outside the range of the storage block being traced. Register X'18' must be set to this value only while the CCU is in the Wait state.*

Selection:

PF2

To display CCU function menu

B

T

SEND

To select set branch trace

The following screen is displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: SET BRANCH TRACE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

- ENTER Y FOR CCU STOP ON BT BUFFER FULL	==> N	<b>A</b>
- ENTER Y FOR BT BUFFER WRAP	==> Y	<b>B</b>
- ENTER Y FOR BT STOP ON AC	==> N	<b>C</b>
- ENTER LOWER LIMIT ADDRESS (1 TO 6 DIGITS)	==>	<b>D</b>
- ENTER UPPER LIMIT ADDRESS (1 TO 6 DIGITS)	==>	<b>D</b>
- BLANK THE UNWANTED LEVEL INTERRUPT(S)	==> 12345	<b>E</b>

PF4: LATEST SELECTED BRANCH TRACE VALUES

---

You are requested to choose from among the following parameters:

- A** If you enter Y, the CCU stops when the buffer is full. See following description for line **C** and figure below.

**Warning:** Option CCU STOP = = > Y can interrupt your applications.

- B** If you enter Y, recording resumes at the wrap address when the buffer is full; if you enter N, the branch trace function is deactivated when the buffer is full.
- C** If you enter Y, the branch trace is deactivated when a simultaneous address compare is successful, and the CCU stops if you entered Y on line **A**.
- D** Lower and upper limit addresses: addresses of the lower and upper limits of CCU storage to be traced. These limits must be in the range of the storage. The lower limit address must be smaller than the upper limit address.

*Note:* A branch trace may be stored starting at the specified lower limit address minus 4 or 2.

- E** To blank an interrupt level, use the DEL CHAR key or override the corresponding number by a blank character (space bar).

Branch trace options are as follows:

BT Options	When buffer is full:	Action(s)
CCU STOP = Y and WRAP = Y	CCU stops; BT remains active. (However, if an address compare is active, the CCU does not stop.)	Select function Start CCU to restart the CCU and to resume BT at the wrap address.
CCU STOP = Y and WRAP = N	CCU stops; BT is deactivated.	Select function Start CCU to restart the CCU.
<i>Note:</i> More information on CCU STOP is given under the description for line <b>C</b> and under "Simultaneous Address Compare and Branch Trace" on page 19-28.		

Once you have entered all the parameters on the screen, press SEND. The branch trace is then started. BT appears in MSA field j and the following screen displays the parameters that you have selected.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: SET BRANCH TRACE

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

BRANCH TRACE PARAMETERS

CURRENT VALUES

-CCU STOP = NO

-WRAP MODE = YES

-STOP ON AC = NO

-LOWER LIMIT = 001234

-UPPER LIMIT = 023456

-TRACE LEVELS = 1 2

## Branch Trace Buffer

The branch trace buffer is defined at control program generation time. Its address and length are provided by the control program to MOSS when the 3720 is initialized. The length is in local store register (LSR) X'7C', and the address of the first branch trace entry in LSR X'7D'. The address of the next branch trace entry to be recorded is in LSR X'7B'.

To display the branch trace buffer, use the Display Long function. The buffer contents is given in "Displaying Branch Trace Buffer" on page 19-18.

If you execute a branch trace before the control program is loaded, you must first allocate the branch trace buffer. To do so, refer to "Branch Trace Buffer Allocation" on page 19-13.

The branch trace buffer can be transferred to the host via a 3720 NCP dump. The procedure is described in *Advanced Communications Function for Network Control Program and System Support Programs: Diagnosis Guide*, SC30-3181.

## Branch Trace Extra Records

Under certain circumstances, the branch trace buffer may contain records showing the entry and the exit of the CCU through some program level without instruction execution at that level. In order to recognize such records, it is necessary to understand the operation of the interrupt change mechanism and the exact contents of the branch trace record.

When the CCU is operating at a given level (call it level A) and an interrupt to a higher level (level B) occurs, the CCU will return to the original level (A) after an Exit instruction is executed at the new level (B).

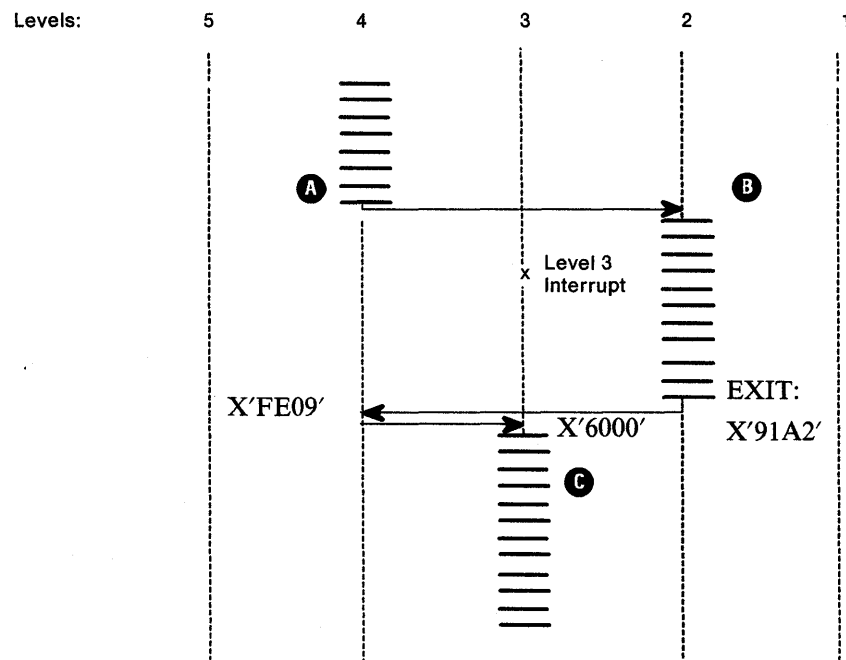
When an interrupt to another level (call it level C), higher in priority than level A, is pending or occurs immediately after the Exit instruction in level B, the CCU will not execute instructions in the original level A, but will immediately go to the ultimate level (C) and begin instruction execution there.

This sequence occurs for example when an error condition occurs due to the I-fetch of the first instruction in level A. This error condition includes storage protect violation, address exception, invalid OP code, and an IN/OUT instruction in level 5.

The following examples show this in more detail.

### Example 1: Pending Lower Level Interrupt

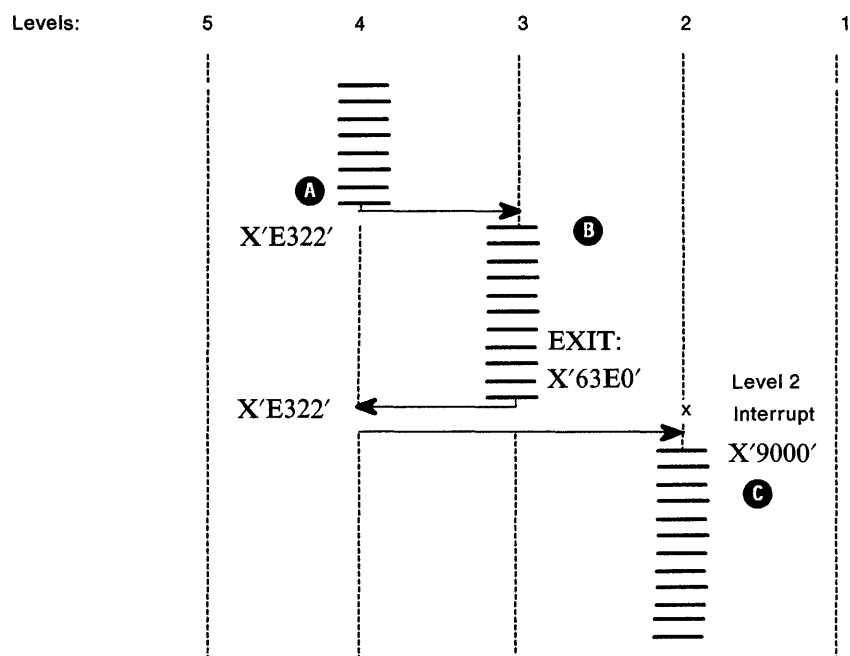
The CCU is executing at level 4 when a level 2 interrupt occurs. Before level 2 has finished executing, a level 3 interrupt occurs.



*Note:* Addresses are for example only.

## Example 2: Higher Level Interrupt During Exit Instruction

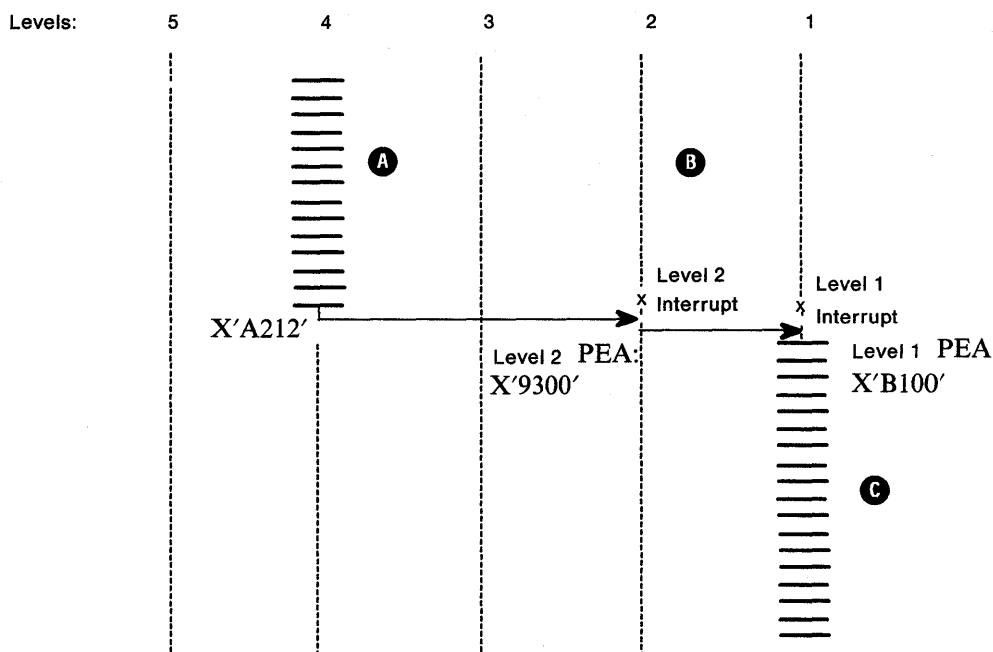
The CCU is executing an Exit instruction at level 3 when a level 2 interrupt occurs:



*Note:* Addresses are for example only.

### Example 3: Back-to-Back Interrupts

The CCU is executing an interrupt to level 2 when a level 1 interrupt occurs.



*Note:* Addresses are for example only.

When the branch trace mechanism is active, for each branch (instruction with R field = 0, Exit instruction, or interrupts) a record is stored, including:

- The 'came from' program level
- The 'came from' instruction address, which is the address of the last instruction *executed*
- The 'went to' program level
- The 'went to' instruction address, which is the address of the next instruction to be executed *if no interrupt occurs*.

As a result, the branch trace records are as follows:

Example 1:	Came from	Went to
	A 0200 91A2	B 0400 FE09
	B 0400 91A2	C 0300 6000
Example 2:	Came from	Went to
	A 0300 63E0	A 0400 E322
	B 0400 63E0	C 0200 9000
Example 3:	Came from	Went to
	A 0400 A212	B 0200 9300
	B 0200 A212	C 0100 B100

From a user viewpoint, the only record of interest is the transition from A to C, since instructions are executed in these program levels only:

Example 1:	0200 91A2	0300 6000
Example 2:	0300 63E0	0200 9000
Example 3:	0400 A212	0100 B100

The other parts of the records do not show machine failures but are a natural consequence of the hardware implementation.

If certain program levels are not being traced, some or all of the above information may be missing. The resulting records are shown below:

Example 1:	Level 2 traced only:	
	0200 91A2	0400 FE09
	Level 3 traced only:	
	0400 91A2	0300 6000
	Level 4 traced only:	
	0200 91A2	0400 FE09
	0400 91A2	0300 6000
	Level 5 traced only:	No record
	Level 1 traced only:	No record
Example 2:	Level 3 traced only:	
	0300 63E0	0400 E322
	Levels 3 and 2 traced only:	
	0300 63E0	0400 E322
	0400 63E0	0200 9000



## Simultaneous Address Compare and Branch Trace

If you specify option CCU STOP in the branch trace when running simultaneously with the address compare, the option applies to the Address Compare function but not to the Branch Trace function. For example, if you execute these two functions simultaneously with:

CCU STOP for BT,

the CCU will stop if the address compare is successful, but will not stop upon reaching the end of the branch trace buffer.

*Note:* If you specify Y, or accept the default (also Y), for ENTER Y FOR BT BUFFER WRAP on the Set Branch Trace menu, then the CCU **will** stop upon reaching the end of the branch trace buffer.

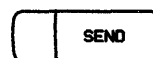
## Termination

To cancel the branch trace function:

Selection:



*To display CCU function menu*



*To select reset branch trace*

The terminate function does not cancel the branch trace but only the set branch trace function.

The branch trace may be automatically canceled when:

- The buffer is full and you specified NO WRAP (WRAP=N), or
- A CCU address compare is successful and you specified Branch Trace Stop On Address Compare (BT STOP ON AC=Y).

## PF Keys

Use the following PF key only when it is displayed on the screen.

PF4: To display the parameters of the last BT transmitted. This might be helpful if you want to execute the same BT several times.

## Machine Status Area (MSA)

a	b	c	d	e	f
g	h	i	j	k	l
m		n		service personnel only	

Field j displays BT whenever the branch trace is active.

## Terminating CCU Functions

To terminate a CCU function:

**Selection:**



*To position the cursor*



*To terminate*

The CCU function is terminated and the CCU function menu is displayed.

## Chapter 20. Immediate Functions

The Immediate functions are described in this chapter in alphabetical order. They are:

- Bypass CCU check
- Bypass IOC check
- CCU level 3 interrupt
- CCU normal mode
- Log off
- Query CCU date and time
- Reset CCU
- Reset CCU check
- Reset IOC
- Reset I-step
- Set I-step
- Start CCU
- Stop CCU
- Stop on CCU check
- Stop on IOC check
- Terminate

## Bypass CCU Check

Use the bypass CCU check function to allow the CCU to continue to run when a check condition occurs.

Selection:

PF2

*To display CCU function menu*

B

C

K

SEND

*To select bypass CCU check*

This function is immediately performed. MSA field b displays BYPASS-CCU-CHK.

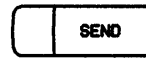
## Bypass IOC Check

Use the bypass IOC check function to let the CCU continue to run when an IOC-detected level 1 interrupt occurs (default).

Selection:



*To display CCU function menu*



*To select bypass IOC check*

This function is immediately performed. MSA field h displays BYP-IOC-CHK.

## CCU Level 3 Interrupt

Use the CCU Level 3 interrupt function to request a CCU level 3 interrupt. See bit 6 of byte 0 of the input X'7F' register in the *3725 and 3720 Principles of Operation*.

Selection:

PF2

*To display CCU function menu*

I

L

3

SEND

*To select CCU level 3 interrupt*

This function is immediately performed.

## CCU Normal Mode

Use the CCU normal mode function to leave instruction step mode and return to normal mode (no address compare, no branch trace).

**Selection:**



*To display CCU function menu*



*To select CCU normal mode*

The function is immediately performed. PROCESS is displayed in field a of the MSA.



# Logoff

You can logoff the operator console only when a main menu is displayed and no function is pending. In any other situation, one of the following messages will be displayed:

## PERFORM OR TERMINATE THE PENDING FUNCTION

Before logging off, you have to perform or terminate the pending function.

Selection:

PF1

*To position the cursor*

0

F

F

SEND

*to select logoff.*

On the Local Console: Once logged off, the copyright screen is displayed.

On the Remote Console: Once logged off, message "TERMINAL  
DISCONNECTED" is displayed.

## Query CCU Date and Time

Use the query CCU date and time function to display the date and time in the operator control message area.

Selection:



*To position the cursor*



*To select query CCU date and time*

In an NCP environment, the date and time come from the host. In an EP environment, the date is not displayed (only 00/00/00) and the time (hh:mm:ss) represents the period that elapsed since the last MOSS IML.

## Reset CCU

Use the reset CCU function to stop the control program processing and the cycle steal mechanism. MSA field g displays RESET.

**Selection:**

PF2

*To select CCU function menu*

R

S

T

SEND

*To select CCU reset*

Once selected, this function is executed immediately. No further action is required.

The only way to restart the 3720 is to IPL it.

## Reset CCU Check

Use the reset CCU check function to reset the CCU CHECK condition. The CCU remains stopped (HARDSTOP is displayed in MSA field g). To restart the CCU, press PF6.

**Selection:**



*To display CCU function menu*



*To reset CCU check*

This function is immediately performed.

## Reset IOC

Use the reset IOC function to generate a 'reset tag' pulse on the IOC bus.

Selection:

PF2

*To display CCU function menu*

R

I

O

SEND

*To reset the IOC*

This function is immediately performed.

## Reset I-Step

Use the reset I-Step function to reset the control program to normal processing.

Selection:

PF2

*To display CCU function menu*

R

I

SEND

*To select reset I-Step*

This function is immediately performed. MSA field a displays PROCESS.

## Set I-Step

Use the set I-Step function to set the control program to instruction step mode; that is, the control program and the cycle steal mechanism stop after the current instruction has been executed (MSA field g = STOP-PGM). The next instruction is executed when the CCU start function is selected, that is when



are pressed.

Selection:



*To display CCU function menu*



*To select set I-step*

This function is immediately performed. MSA field a displays I-STEP. When the current instruction has been executed, STOP-PGM is displayed in field g.

*Note:* In instruction step mode, if you modify the contents of the instruction address register (Alter function on work register 0), the next instruction may not be the expected one.

## Start CCU

Use the start CCU function to resume processing the control program. When the control program is in instruction-step mode, the start CCU function causes the execution of the next instruction. To set the control program in instruction-step mode, use function set I-Step, described on page 20-12.

Selection:



*To select CCU function menu*



*To select CCU start*

Once selected, this function is executed immediately. No further action is required. When the CCU is started, MSA field g displays RUN.

The start CCU function is not allowed to resume CCU processing if CCU is in STOP mode, because of a hardcheck or a reset (MSA field g).



## Stop CCU

Use the stop CCU function to stop the control-program processing immediately after the current instruction has been executed. MSA field g displays STOP-PGM.

**Warning:** Stopping the CCU can interrupt your applications.

Selection:



*To select CCU function menu*



*To select CCU stop*

Once selected, this function is executed immediately. It requires no further action. To resume processing the control program, use the CCU start function.

## Stop On CCU Check

Use the stop On CCU Check function to cancel Bypass CCU Check. The CCU stops when a CCU check condition occurs (default).

Selection:



*To display CCU function menu*



*To select stop On CCU check*

This function is immediately performed. MSA field b displays STOP-CCU-CHK.

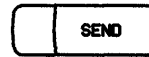
## Stop On IOC Check

Use the stop On IOC Check function to force the CCU to hardcheck when an IOC-detected level 1 interrupt occurs.

Selection:



*To display CCU function menu*



*To select stop on IOC check*

This function is immediately performed. MSA field h displays STOP-IOC-CHK.

# Terminate

Use the terminate function to *cancel* the active function and display the 3720 Function menu or the pending function if any.

Selection:



*To position the cursor*



*To terminate*

Once selected, this function is executed immediately. No further action is required.

When switching between functions, the terminate function has a slightly different action. (See 3720/3721 *Problem Determination Guide*).



## Chapter 21. How to Execute NCP and EP Functions

**Control Program Procedure description starts in Chapter 22.**

To execute any of the following NCP and EP functions, use the *Data Exchange* function, described in this chapter. This function allows you to select and to provide data to the NCP or EP functions and subroutines.

NCP functions are:

- Line Test
- Dynamic Store
- Display of Storage
- Display of Register
- Channel Discontact
- Address Trace
- Channel Adapter Trace

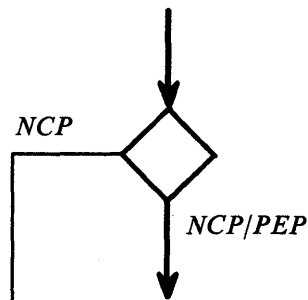
EP functions are:

- Line Test
- Display of Character Control Block
- Line Trace (level 2, level 3) and Scanner Interface Trace
- Present Status on Channel
- Display of Storage
- Multi-Subchannel Line Access (MSLA)
- Channel Adapter Reset
- Subchannel Switching

The above NCP and EP functions are also used in the control program procedures.

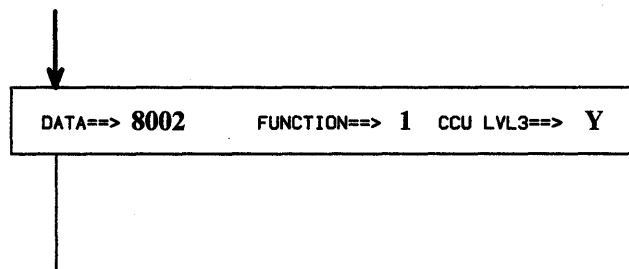
## Conventions

In the procedures given in this chapter, the following conventions, in addition to those described in the Preface, are used:



Decision. In this example, you have to decide between *NCP* and *NCP/PEP*.

Boxes in each procedure show information that is displayed on the screen. All you have to do is to enter the characters that are printed in bold type. In the following example, you are required to enter 8002, 1, and Y.



When entering the data exchange function, you do not have to specify the **FUNCTION==>** and **CCU LVL3==>** values if you already specified the same values in a previous data exchange. However, in the following *NCP* and *EP* function procedures, **FUNCTION==>** and **CCU LVL3==>** values are always shown, even when repetitive, for clarity.

## Data Exchange

Use the data exchange function to transfer to the CCU control program, the information necessary to select and execute NCP or EP functions and subroutines.

Selection:

PF2

*To display CCU function menu*

D

E

X

SEND

*To select data exchange*

The following screen is displayed:

Machine Status Area

CUSTOMER ID:	3720-1	SERIAL NUMBER:
FUNCTION ON SCREEN: DATA EXCHANGE		
SYSTEM INPUT AREA (SIA) ==>		
T: TERMINATE	OFF: LOGOFF	PF1: MOVE TO SIA
		PF2: CCU FNCTN
		PF3: ALARM
DATA ==>		
FUNCTION ==>		
CCU LVL3 ==>		
PF4: LATEST DATA EXCHANGE VALUES		

The values that you enter in the data exchange operands (DATA, FUNCTION, and CCU LVL3) must not conflict with the control program requirements.

DATA = = > xxxxxx

To provide data to the control program function.

xxxxxx is a string of up to 6 hexadecimal digits, which is transferred to CCU via the CCU X'71' input register (operator address/data entry register). For example, xxxxxx can be a storage address or a subroutine code.

If you enter 6 digits, the leftmost digit must not exceed 3.

If you do not enter a value, the last one entered is taken.



FUNCTION == > xx

To call the control program function to be performed.

xx is the function code. It is a decimal value from 1 through 16. This code is transferred to the CCU via the CCU X'72' input register (operator display/function select register).

The value 11 indicates that a storage address is being transferred. Letter S may be substituted for the value 11. In a similar manner, value 12 and letter R can be used to indicate a register address.

If you do not enter a value, the last one entered is taken.

CCU LVL3 == > Y or CCU LVL3 == > N

Y: An Operator Level 3 Interrupt is requested to signal to the control program that the function specified in FUNCTION == > is to be performed.

N: An Operator Level 3 Interrupt is not requested and the function specified in FUNCTION == > will not be performed.

If you specify CCU LVL3 == > N, the data exchange is treated as a no operation. Re-enter with CCU LVL3 == > Y.

**CCU LVL3 Default Value:** When you use the data exchange function for the first time, the default value is Y; then it is replaced by the value that you entered in the previous data exchange.

Every time you press SEND, the information that you entered or modified is transmitted and you are prompted another time. When the screen is full, it wraps around.

## PF Key

Use the following PF key only when it is displayed on the screen.

PF4: To display the contents of the CCU input X'71' and X'72' registers (values of the latest data exchange).

# NCP and EP Functions in an NCP Environment with PEP

In an NCP environment *with PEP*, you may execute either NCP functions or EP functions. Before executing any function, you have to switch control to either NCP or EP mode.

## Switching Control to NCP Mode

KEY	PROCEDURE	COMMENTS
	<pre>graph TD; PF2[PF2] --&gt; D; D --&gt; E; E --&gt; X; X --&gt; SEND1[SEND]; D --&gt; DATA[DATA==&gt; C FUNCTION==&gt; 7 CCU LVL3==&gt; Y]; DATA --&gt; SEND2[SEND];</pre>	<p>To select the data exchange function.</p> <p>To switch to NCP mode. If successful, MSA fields e and k display:</p> <p>e = X71:00000C k = X72:00000C</p> <p>If the control program is EP, MSA fields e and k display:</p> <p>e = X71:000000 k = X72:000000</p>

Figure 21-1. Switching Control to NCP Mode

## Switching Control to EP Mode

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     PF2([PF2]) --&gt; D[D]     D --&gt; E[E]     E --&gt; X[X]     X --&gt; SEND1[SEND]     SEND1 --&gt; Screen[DATA==&gt; E  FUNCTION==&gt; 7  CCU LVL3==&gt; Y]     Screen --&gt; SEND2[SEND]         </pre>	<p>To select the data exchange function.</p> <p>To switch to NCP mode. If successful, MSA fields e and k display:</p> <p>e = X71:00000E k = X72:00000E</p> <p>If the control program is EP, MSA fields e and k display:</p> <p>e = X71:000000 k = X72:000000</p>

Figure 21-2. Switching Control to EP Mode

## NCP - Line Test

Use this function to test NCP lines via the operator console. The line test function consists of an initialization subroutine, a series of test subroutines, and an end-test subroutine.

*Notes:*

- 1. If a line is in use by the line test function, it is not available to the host.*
- 2. If a line is in use by the system, it is not available to the line test function. Therefore, the line must always be deactivated before the line test is initialized.*
- 3. Always use subroutine X'50' to end all test functions, to ensure availability of the line to the host.*

To run the EP line test function in a PEP environment, switch control to EP mode and use the EP line test function.

While the line test function is being performed, codes are displayed in MSA fields e and k to show normal processing indications and errors. These codes are described in Figure 21-5.

All subroutine line tests are described in Figure 21-4.

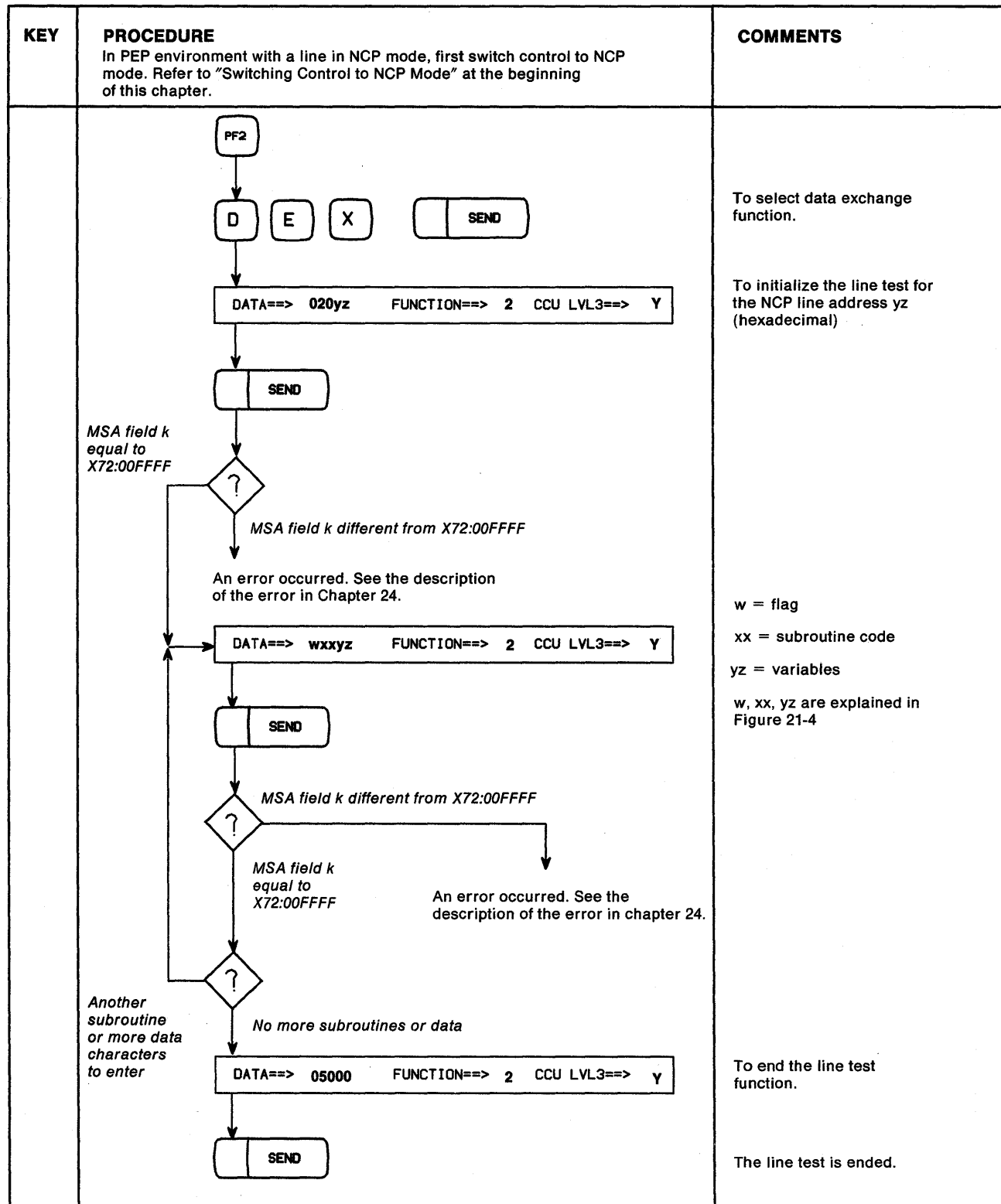


Figure 21-3. Line Test Procedure

To execute any of the subroutines described in Figure 21-4, enter:

DATA == > wxyz FUNCTION == > 2 CCU LVL3 == > Y

w, xx and yz values are given in the second, third, and fourth column of the following figure.

Subroutine Name	w	xx	yz	Description
Initialization	0	20	yz	To accept the relative hexadecimal line number (yz) of the line to be tested. This subroutine must be executed before any other line test subroutine because it collects all the information about the line and saves it in the LTS control block. It also initializes the fields in the LTS so that the test will run properly.
Enable	0	40	00	To issue a Setmode and Enable to the line. This subroutine is for leased lines only.  <i>Note:</i> This subroutine is required on leased lines before any Transmit/Receive subroutine is attempted.
Auto-Answer or Manual Dial	w	46	yz	To issue a Setmode and Monitor Incoming Call to the line and to complete the connection when the terminal calls in or someone manually dials out.  If w=0, the subroutine ends after the connection is established. If w=1, the Receive Mode subroutine (X'4A') is executed after the connection is established. (See Note 3.) If w=2, the Transmit Buffer subroutine (X'4F') will be executed after the connection is established. (See Note 3.) y and z are meaningful only if w=1 or 2. They are set the same as for subroutines X'4A' and X'4F'.  <i>Notes:</i>  1. Subroutine X'46' is required on auto-answer and on manual dial lines before any other Transmit/Receive subroutine is attempted.  2. If a hardware ID is received from the device, it is saved in the LTSRID field upon completion of this subroutine and may be displayed using subroutine Display LTS (X'4C') with yz=46.  3. Subroutine (X'46') may not be chained to Receive Mode (X'4A') or Transmit Buffer (X'4F') on an SDLC line because these two subroutines do not support SDLC.
Dial Digit Load	0	47	0z	To load each dial digit (z=0 to 9), one by one, into a data area to be used by the Dial Operate subroutine (X'48'). X'F' must be the last digit. It indicates the end of the dialed digits. The special characters X'A' to X'D' are also accepted.  <i>Notes:</i>  1. To resume entering the dial digits from the beginning, enter X'F'.  2. Only 15 digits may be entered if the line is X.21, because a special digit is inserted at the end.

Figure 21-4 (Part 1 of 5). Subroutines Used When Performing an NCP Line Test

Subroutine Name	w	xx	yz	Description
Dial Operate	w	48	yz	<p>To issue a Setmode and Dial to the line and to complete the connection using the digits entered with subroutine Dial Digit Load (X'47'). If w=0, the subroutine ends after the connection is established. If w=1, the Receive Mode subroutine (X'4A') is executed after the connection is established. (See Note 3.) If w=2, the Transmit Buffer subroutine (X'4F') will be executed after the connection is established. (See Note 3.) y and z are meaningful only if w=1 or 2. They are set the same as for subroutines X'4A' and X'4F'.</p> <p><i>Notes:</i></p> <ol style="list-style-type: none"> <li>1. This subroutine X'48' is required on auto-dial lines before any other Transmit/Receive subroutine is attempted.</li> <li>2. If a hardware ID is received from the device, it is saved in the LTSRID field upon completion of this subroutine and may be displayed using subroutine Display LTS (X'4C') with yz=46.</li> <li>3. This subroutine (X'48') may not be chained to Receive Mode (X'4A') or Transmit Buffer (X'4F') on an SDLC line because these two subroutines do not support SDLC.</li> </ol>
Receive Mode (BSC and Start/Stop)	0	4A	yz	<p>Used to:</p> <ul style="list-style-type: none"> <li>- Monitor the line for incoming data, if the line is point-to-point, and</li> <li>- Poll the device if the line is multipoint.</li> </ul> <p><i>Note:</i> To transmit and receive data on SDLC lines, use subroutine SDLC Test Frame with Data (X'63'). Once data is received, an ACK is transmitted for each block of data received until EOT is received.</p> <p>If y=1, errors are ignored unless they are so severe that the scanner has disabled the line.</p> <p>If y=0, the subroutine quits if an error is received. An error code is displayed in MSA field k (Figure 21-5).</p> <p>If z=1, the terminal is continuously polled or monitored until subroutine End Test (X'50') or End Function (X'5F') is selected.</p> <p>If z=0, the subroutine quits after it has received data followed by EOT.</p> <p>To look at the last buffer of data received:</p> <ol style="list-style-type: none"> <li>1. Use the Display LTS Address (X'4D') subroutine with yz=00, to get the address of the beginning of the received data buffer. The address will be displayed in MSA field k.</li> <li>2. Enter this address in the CCU Display Long function (Chapter 19) to look at the received data buffer. The buffer is 256 bytes long.</li> </ol>
Display LTS	0	4C	yz	<p>To display in MSA fields e and k two halfwords of the line test control block (LTS) beginning at the displacement yz (hexadecimal).</p> <p><i>Note:</i> The halfwords displayed begin on a halfword boundary. If an odd offset is entered, the low-order bit is ignored.</p>
Display LTS Pointer	0	4D	00	<p>To display the address of the LTS pointer in MSA field k so that you may display the entire LTS by means of the CCU Display Long function (Chapter 19).</p>

Figure 21-4 (Part 2 of 5). Subroutines Used When Performing an NCP Line Test

Subroutine Name	w	xx	yz	Description
Transmit Buffer (BSC and Start/Stop)	0	4F	yz	<p>To transmit the data that was loaded into the transmit buffer by means of the Load Transmit Buffer (X'51') subroutine.</p> <p>If y = 1, errors are ignored unless they are so severe that the scanner has disabled the line.</p> <p>If y = 0, the subroutine ends when an error occurs. An error code is displayed in MSA field k (Figure 21-5).</p> <p>If z = 1, the data is transmitted continuously.</p> <p>If z = 0, the data is transmitted once and the subroutine is ended.</p> <p><i>Notes:</i></p> <ol style="list-style-type: none"> <li><i>You must first select subroutine X'67' to load addressing characters.</i></li> <li><i>To transmit and receive data on SDLC lines, use the SDLC Test Frame With Data (X'63') subroutine.</i></li> <li><i>If this is run as a continuous operation on a BSC line, the sequence will be STX-data-ETX. A comparable sequence will be sent for start-stop lines.</i></li> </ol>
End Test	0	50	00	<p>To end the Line Test function and disable the line.</p> <p>Reinitialize the line (subroutine X'20') before it can be used again by the system.</p>
Load Transmit Buffer	0	51	yz	<p>To load the specified characters (yz), one by one, into the transmit buffer, to be used by the Transmit Buffer (X'4F') or SDLC Test Frame With Data (X'63') subroutine. The size of the buffer is that specified at system generation.</p>
Initialize Transmit Buffer Offset	0	58	yz	<p>To set an offset value (yz, normally equal to X'00') in the transmit buffer at which you wish to begin storing data.</p> <p><i>Note:</i> If a value other than X'00' is used, data will be stored at that offset into the data area. Transmission of the data will always begin at the first buffer position (offset = zero).</p>
Disable	0	5D	00	<p>To issue an X.21 DTE Clear Request or a Disable command to the line without ending the line test.</p>
End Function	0	5F	00	<p>To end a subroutine without ending the line test. The subroutine is ended when MSA fields:</p> <p>e = X71:00005F</p> <p>k = X72:00FFFF</p>
Select Setmode Data Byte	0	60	0z	<p>To select the Setmode data byte (z) that you want to change. There are 16 setmode bytes, so the value must be between X'0' and X'F', inclusive.</p>
Change Setmode Data	0	61	yz	<p>To change the Setmode data byte, specified in subroutine X'60', to the value yz.</p> <p><b>Warning:</b> Invalid values may cause NCP toabend.</p> <p><i>Notes:</i></p> <ol style="list-style-type: none"> <li><i>You must first choose the Setmode data byte (subroutine X'60') before you change it (subroutine X'61').</i></li> <li><i>You must execute subroutines X'60' and X'61' once for each Setmode data byte that you want to change.</i></li> <li><i>The Enable (X'40') subroutine always changes the Setmode data byte to its generated values.</i></li> </ol>

Figure 21-4 (Part 3 of 5). Subroutines Used When Performing an NCP Line Test



Subroutine Name	w	xx	yz	Description
Test without Data (SDLC)	0	62	y0	<p>To transmit an SDLC Test Frame continuously with no data and check the received frame.</p> <p>If y = 1, errors are ignored unless they are so severe that the scanner has disabled the line.</p> <p>If y = 0, the subroutine ends if there is an error. Subroutine X'50' or X'5F' must be used to terminate the function if there is no error.</p> <p><i>Note:</i> You must first select subroutine X'67' to load addressing characters.</p>
Test Frame with Data (SDLC)	0	63	y0	<p>To transmit an SDLC Test Frame continuously with the data stored in the buffer with the Load Transmit Buffer subroutine (X'51').</p> <p>If y = 1, errors are ignored unless they are so severe that the scanner has disabled the line.</p> <p>If y = 0, the subroutine ends if there is an error. Subroutine X'50' or X'5F' must be used to terminate the function if there is no error.</p> <p><i>Note:</i> You must first select subroutine X'67' to load addressing characters.</p>
Hardware ID Exchange (BSC and Start-Stop)	0	64	yz	<p>To indicate whether a transmit hardware ID is required and/or a receive hardware ID is expected and if the line is a call-in or call-out line.</p> <p><i>Note:</i> This subroutine (X'64') is necessary only for BSC and start-stop switched lines that need hardware ID - EXCHANGE.</p> <p>If y = 0, call-out line.</p> <p>If y = 1, call-in line.</p> <p>If z = 1, a receive hardware ID is expected.</p> <p>If z = 2, a transmit hardware ID is required.</p> <p>If z = 3, a receive hardware ID is expected and a transmit hardware ID is required.</p>
Load Hardware ID (BSC and Start-Stop)	0	65	yz	<p>To load the hardware ID (yz), 1 byte at a time, to be used if a transmit ID is required by subroutine X'64'.</p> <p><i>Notes:</i></p> <ol style="list-style-type: none"> <li>1. This subroutine (X'65') must be specified if a transmit ID is required.</li> <li>2. The data area contains enough space for a 3-byte hardware ID.</li> </ol>
Load Polling Characters	0	66	yz	<p>To load the hexadecimal polling characters (yz), one by one, as they will be sent to the terminal for use by the Receive Mode (X'4A') subroutine.</p> <p><i>Notes:</i></p> <ol style="list-style-type: none"> <li>1. This subroutine X'66' is required for subroutine X'4A' if the line is multipoint.</li> <li>2. For subroutine X'4A' on BSC lines, the ENQ following the polling characters must also be supplied.</li> <li>3. The data area allows room for seven polling characters or six plus the ENQ character.</li> </ol>

**Figure 21-4 (Part 4 of 5). Subroutines Used When Performing an NCP Line Test**

Subroutine Name	w	xx	yz	Description
Load Addressing Characters	0	67	yz	<p>To load the hexadecimal addressing characters (yz), one by one, as they will be sent to the terminal by subroutines X'4F', X'62', and X'63'.</p> <p><i>Notes:</i></p> <ol style="list-style-type: none"> <li>1. This subroutine X'67' is required for subroutine X'4F' if the line is multipoint.</li> <li>2. For subroutine X'4F' on BSC lines, the ENQ character that follows the addressing must also be supplied.</li> <li>3. The data area allows room for seven addressing characters or six plus the ENQ character. Only the first character will be used by subroutines X'62' and X'63'.</li> </ol>

**Figure 21-4 (Part 5 of 5). Subroutines Used When Performing an NCP Line Test**

Figure 21-5 describes each code displayed in the MSA field k when executing an NCP line test. The last two digits of field e indicate the function or subroutine code.

*Note:* If another function is being used while the line test function is running, fields e and k do not contain reliable information.

MSA Field e	MSA Field k	Description
X71:0000xx	X72:000000	Continuous function started.
X71:0000xx	X72:000001	The line is not defined in the control program.
X71:0000xx	X72:000002	The Line Test is already initialized.
X71:0000xx	X72:000003	EP line.
X71:0000xx	X72:000004	The line has user-written line control.
X71:0000xx	X72:000005	The line is active (deactivate it before testing).
X71:0000xx	X72:000006	A wrap test is in progress.
X71:0000xx	X72:000007	A PEP switch is in progress.
X71:0000xx	X72:000011	Unable to initialize the line test.
X71:0000xx	X72:000012	Invalid function.
X71:0000xx	X72:000013	Another function is running.
X71:0000xx	X72:000014	The line is not enabled. To enable it, use subroutine X'40'.
X71:0000xx	X72:000021	The scanner is down.
X71:0000xx	X72:000022	The function is invalid for switched lines.
X71:0000xx	X72:000023	The Enable or Setmode failed.
X71:0000xx	X72:000024	The function is invalid for leased lines.
X71:0000xx	X72:000025	The function is invalid for SDLC lines.
X71:0000xx	X72:000026	An error occurred on receive operation.
X71:0000xx	X72:000027	An error occurred on transmit operation.
X71:0000xx	X72:000028	The function is invalid for BSC and SS lines.
X71:0000xx	X72:000029	Disable or X.21 DTE Clear Request failed.
X71:0000xx	X72:00002A	Change command failed.
X71:0000xx	X72:00002B	No hardware ID supplied.
X71:0000xx	X72:00002C	No polling character supplied.
X71:0000xx	X72:00002D	No addressing character supplied.
X71:0000xx	X72:00002E	No dial digit supplied.
X71:0000xx	X72:00002F	No auto-dial unit connected to the line.
X71:0000xx	X72:000030	No Setmode byte selected.
X71:0000xx	X72:000031	Severe error on receive. The line is disabled.
X71:0000xx	X72:000032	Severe error on transmit. The line is disabled.
X71:0000xx	X72:000033	The value specified in y (DATA = = > wxxyz) is invalid.
X71:0000xx	X72:000034	The value specified in z (DATA = = > wxxyz) is invalid.
X71:0000xx	X72:000035	The value specified in w (DATA = = > wxxyz) is invalid.
X71:0000xx	X72:000036	The transmit buffer is empty.
X71:0000xx	X72:000041	No function in progress.
X71:0000xx	X72:000042	Buffer overflow.
X71:0000xx	X72:000043	Dial digit overflow.
X71:0000xx	X72:000044	Invalid dial digit entered. It must be a digit between X'0' and X'D'.
X71:0000xx	X72:000045	Polling character overflow.
X71:0000xx	X72:000046	Addressing character overflow.
X71:0000xx	X72:000047	Hardware ID overflow.
X71:0000xx	X72:00FFFF	Function or subroutine successfully performed.

**Figure 21-5. Line Test Codes**

## NCP - Dynamic Store

Use this function to store online bytes and halfwords in 3720 storage, without stopping the CCU.

MSA fields e and k display information on the progression of the NCP dynamic store function. See Figure 21-6.

MSA Field e	MSA Field k	Description
X71:03FFFD	X72:03FFFD	Store completed but next address exceeds storage limit.
X71:03FFFE	X72:03FFFE	Invalid sequence entered.
X71:03FFFF	X72:03FFFF	Invalid address entered.
X71:000000	X72:000000	Normal termination (FUNCTION = = > 6).

Figure 21-6. MSA Field e and k Values for Dynamic Store

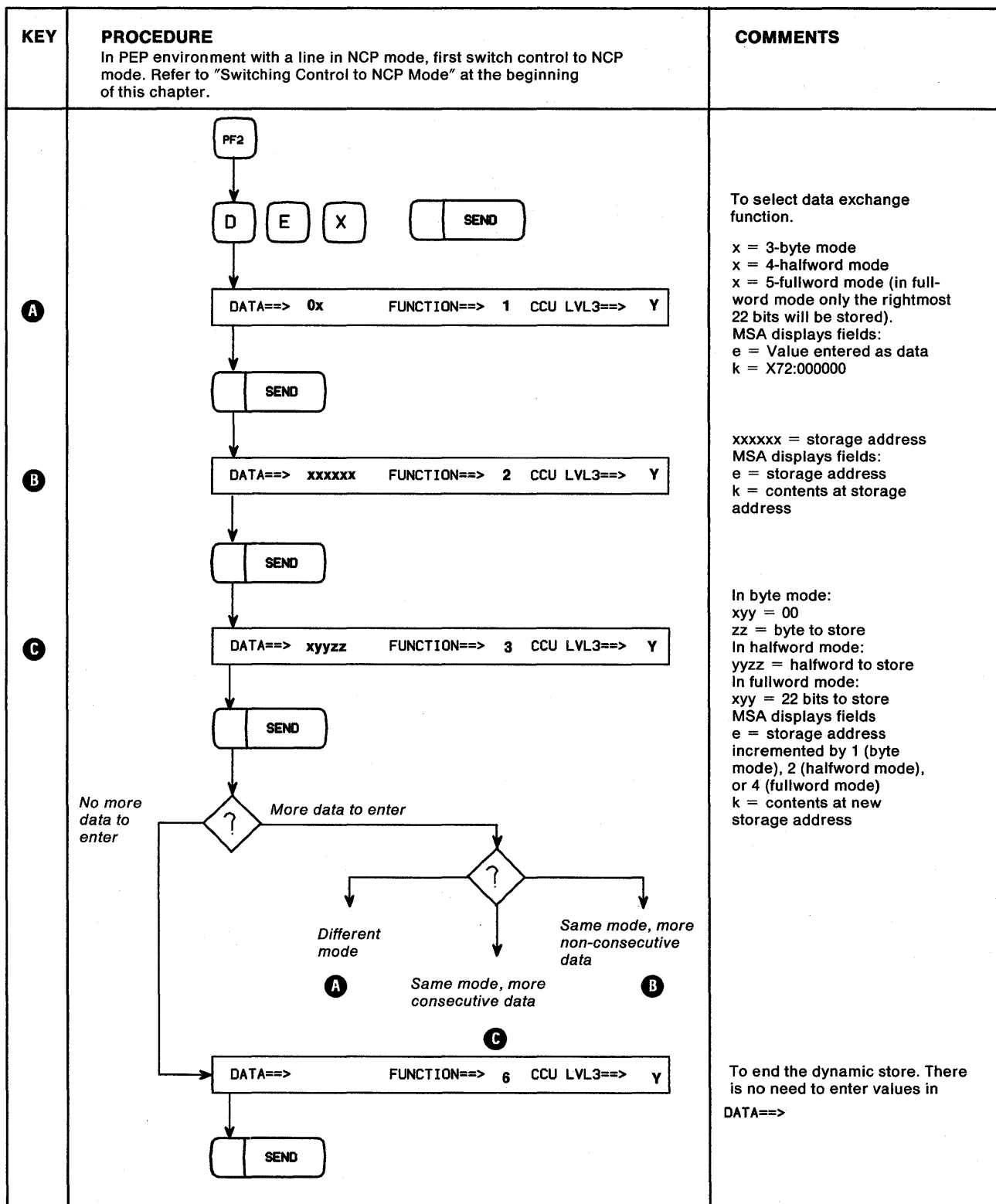


Figure 21-7. NCP - Dynamic Store

# NCP - Display of Storage

Use this function to display a 3720 storage halfword in MSA field k.

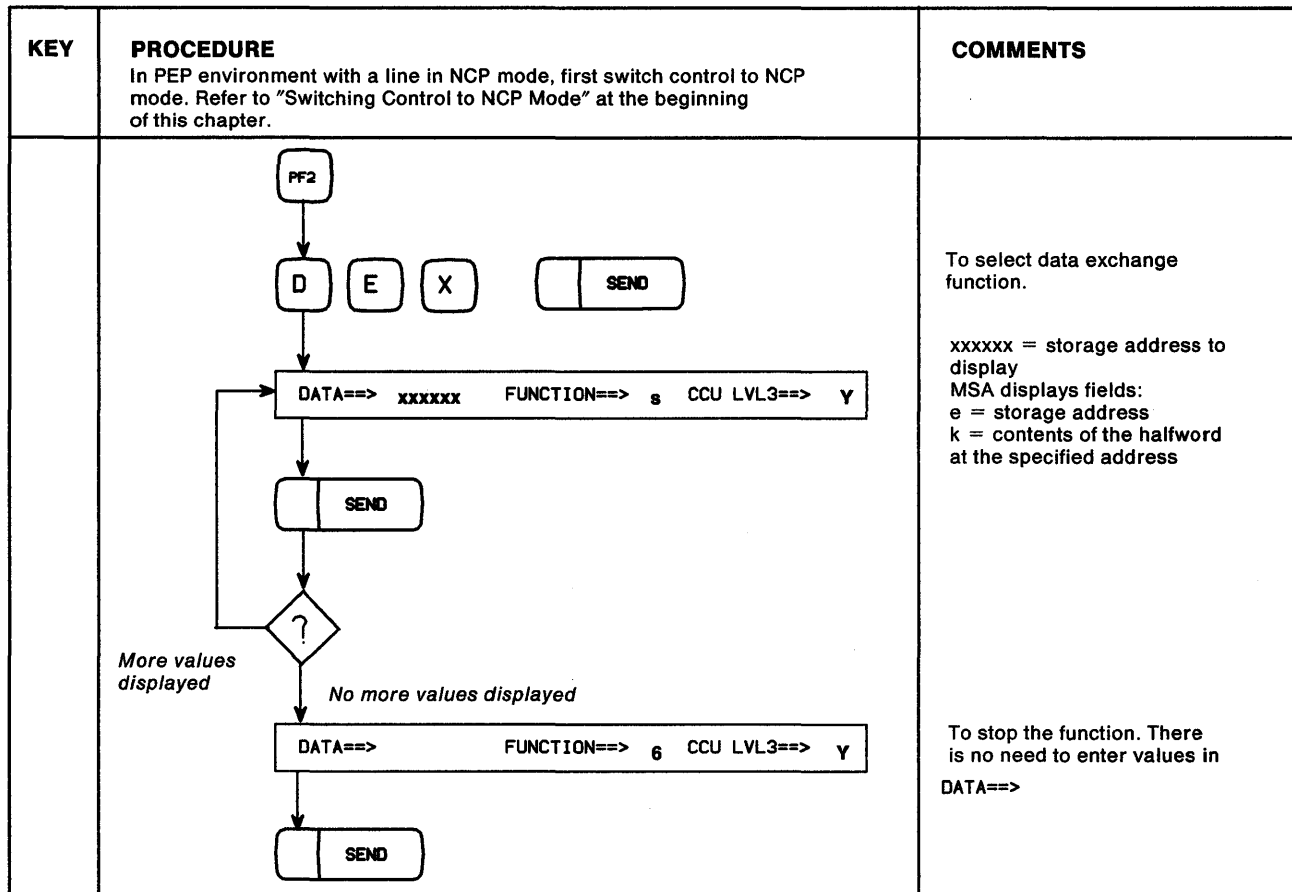


Figure 21-8. NCP - Display of Storage

MSA Field e	MSA Field k	Description
X71:xxxxxx	X72:00yyyy	xxxxxx = storage address yyyy = storage halfword
X71:000000	X72:000000	Invalid address entered.

Figure 21-9. MSA Field e and k Values for Display of Storage

# NCP - Register Display

Use this function to display 3720 register contents in MSA field k.

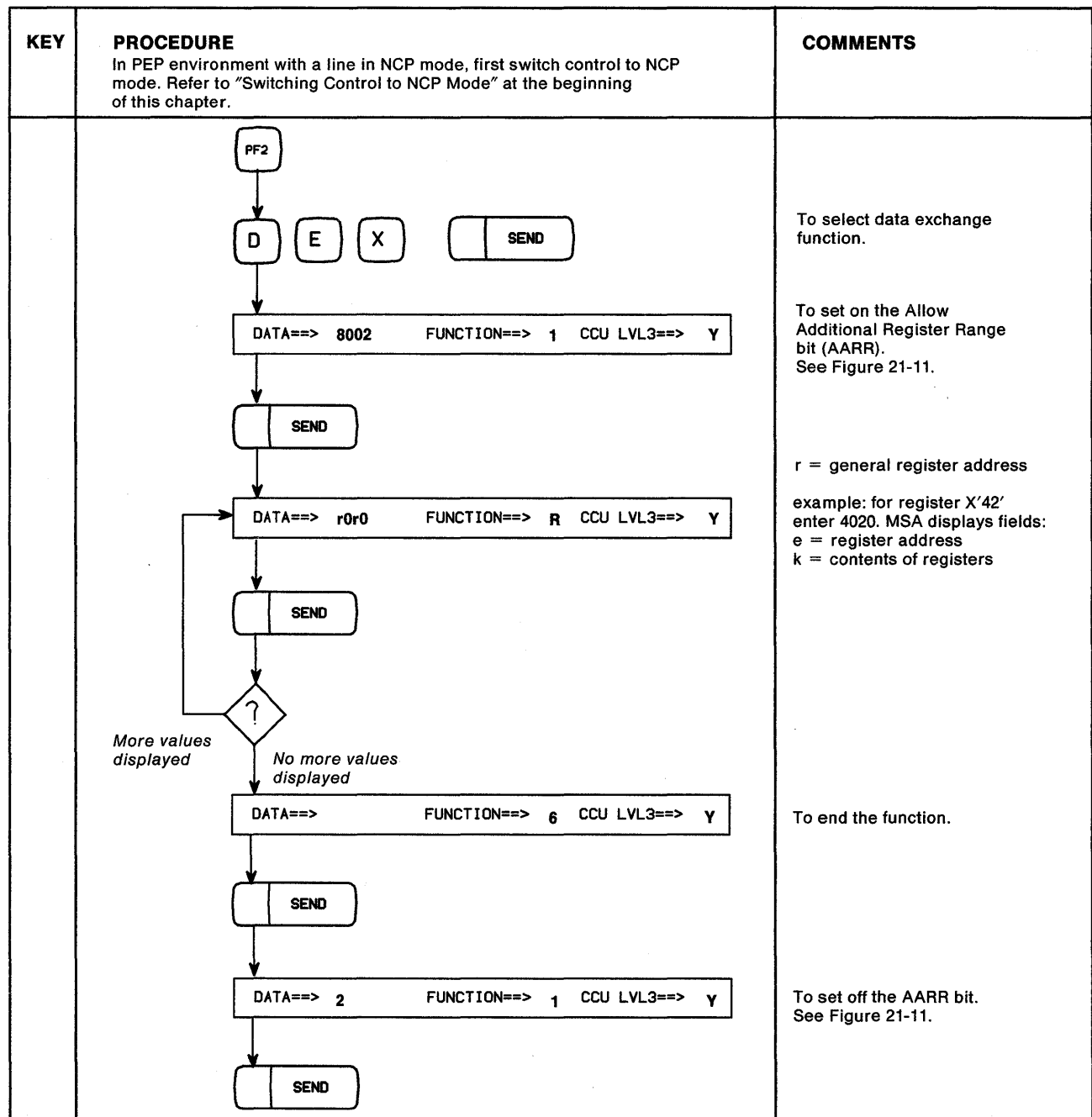


Figure 21-10. NCP - Display of Register

MSA Field e	Description
X71:001080	AARR bit is set on.
X71:009080	AARR bit is still on.
X71:009000	AARR bit is set off.
X71:001000	AARR bit is still off.

**Figure 21-11. AARR Bit Setting Codes**



# NCP - Channel Discontact

Use this function to cause auto-network shutdown (ANS) of a particular host processor(s). ANS is a non-optional function of the NCP. The Channel Discontact function allows the operator to isolate the NCP from the host processor by effectively disconnecting the appropriate channel adapter(s). The Channel Discontact function is useful when the NCP is unable to detect a host processor failure. When ANS is invoked with the Channel Discontact function, all NCP sessions with the specific channel-attached host(s) are inactive.

KEY	PROCEDURE	COMMENTS
	<div><div>PF2</div><div><div>D</div><div>E</div><div>X</div><div><div>SEND</div></div></div><div>DATA==&gt; 00xx00    FUNCTION==&gt; 1    CCU LVL3==&gt; Y</div><div><div>SEND</div></div></div>	<p>To select data exchange function.</p> <p>To execute Channel Discontact on the specified channel adapter(s).</p> <p>xx = channel adapter identification within the range X'01' to X'3F'. Only the following bits are valid:</p> <div><div>.....1</div>CA1</div> <div><div>.....1</div>CA2</div>

Figure 21-12. NCP - Channel Discontact

## NCP - Address Trace

Use this function to start an address trace from the operator console. This function is available only if **TRACE=YES** is specified in the **BUILD** macro.

The trace can store up to four variables into a trace table. If you try to trace more than four variables, MSA fields e and k will display garbled (and therefore meaningless) information.

You must specify in an address compare function (Chapter 19), one or two addresses and option **LEVEL 1 INTERRUPT (I)**.

When the level 1 interrupt occurs, the address compare checks if the storage access that you specified in the address compare function was detected in one of the specified program levels that you specified in the address trace function. If it was, it stores up to four variables into the trace table.

Each variable can be either two consecutive halfwords of storage or the contents of a general register.

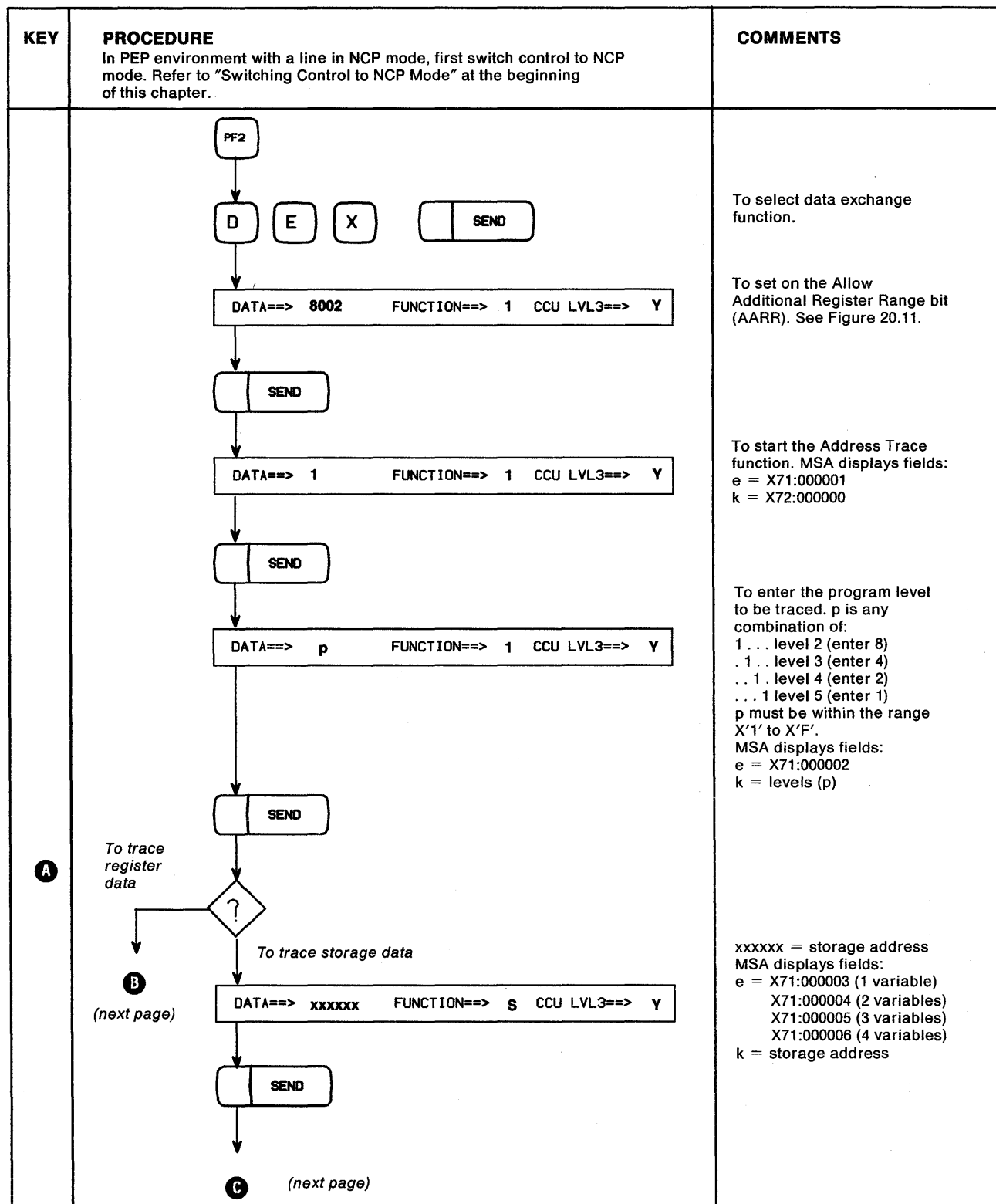


Figure 21-13 (Part 1 of 3). NCP - Address Trace

KEY	<b>PROCEDURE</b> In PEP environment with a line in NCP mode, first switch control to NCP mode. Refer to "Switching Control to NCP Mode" at the beginning of this chapter.	<b>COMMENTS</b>
<p><b>B</b></p> <p><b>C</b></p> <p><b>D</b></p>	<pre> graph TD     B["DATA==&gt; r0r0 FUNCTION==&gt; R CCU LVL3==&gt; Y"] --&gt; S1[SEND]     S1 --&gt; D1{?}     D1 -- "Four variables already entered" --&gt; D2((D))     D1 -- "More variables to trace" --&gt; A1((A))     A1 --&gt; B1["DATA==&gt; FUNCTION==&gt; 6 CCU LVL3==&gt; Y"]     B1 --&gt; S2[SEND]     S2 --&gt; D2     D2 --&gt; B2["DATA==&gt; FUNCTION==&gt; 3 CCU LVL3==&gt; Y"]     B2 --&gt; S3[SEND]     S3 --&gt; T1["The address trace is now active. Set a CCU Address Compare with one or two addresses and the LEVEL 1 INTERRUPT option. To select the address compare: PF1 A B P SEND"]     T1 --&gt; T2["(next page)"]           </pre>	<p>r = general register address example: for register X'42' enter 4020. MSA displays fields: e = X71:000003 to 000006 depending on the number of variables entered. k = register address</p> <p>This step is not required if you entered four variables. NCP is notified that there is no more data to enter. There is no need to enter values in DATA==&gt;</p> <p>To start the trace. There is no need to enter values in DATA==&gt;</p> <p>Each time there is an address compare hit, the Address Trace function will save in the trace table the variables that you entered.</p> <p>To position the cursor at the selection area.</p> <p>To select the Address Compare function.</p>


Figure 21-13 (Part 2 of 3). NCP - Address Trace

KEY	<b>PROCEDURE</b> In PEP environment with a line in NCP mode, first switch control to NCP mode. Refer to "Switching Control to NCP Mode" at the beginning of this chapter.	<b>COMMENTS</b>
	<p>↓</p> <p>Enter the address compare parameters as described in Chapter 5.</p> <p>When the address compare is set the count of interrupts processed is displayed in field e of the MSA.</p> <p>To end the address trace:</p> <p>↓</p> <p>PF1</p> <p>↓</p> <p>D E X      <input type="button" value="SEND"/></p> <p>↓</p> <p>DATA==&gt;      FUNCTION==&gt; 6    CCU LVL3==&gt; Y</p> <p>↓</p> <p><input type="button" value="SEND"/></p> <p>↓</p> <p>DATA==&gt; 2      FUNCTION==&gt; 1    CCU LVL3==&gt; Y</p> <p>↓</p> <p><input type="button" value="SEND"/></p> <p>↓</p> <p>PF1</p> <p>↓</p> <p>A B P      <input type="button" value="SEND"/></p>	<p></p> <p></p> <p></p> <p></p> <p>To select the data exchange function.</p> <p></p> <p>To end the trace. There is no need to enter values in DATA==&gt;</p> <p></p> <p></p> <p>To set off AARR bit. See Figure 21-11.</p> <p></p> <p></p> <p>To position the cursor at the selection area.</p> <p></p> <p>To cancel the Address Compare function.</p>

Figure 21-13 (Part 3 of 3). NCP - Address Trace

## Address Trace Table Under NCP Version 2

To display the address trace table, do the following:

1.  *To display CCU function menu.*

2.    *To select display long function.*

3. Enter S7D8 (address of pointer to HWE), then press



4. At S7D8, on the screen, there is a 4-byte pointer to HWE.  
Add an offset of X'04' to the HWE pointer to get the 4-byte  
address of the address trace block (ATB).

5. Enter S, then the address, then press



6. The address trace block is then displayed. Add an offset of X'14' to the  
address trace block pointer to get the address of the last entry used.  
The address trace block is displayed in Figures 21-14 and 21-15.

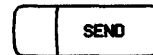
## Address Trace Table Under NCP Version 3 or Higher

To display the address trace table, do the following:

1.  *To display CCU function menu.*

2.    *To select display long function.*

3. Enter S6E8 then press



4. Add X'58' to the address found at S6E8

5. Enter S, then the new address, then press



6. At that new address, there is a 4-byte pointer to HWE.  
Add an offset of X'04' to the HWE pointer to get the 4-byte  
address of the address trace block (ATB).

7. Enter S, then the ATB address, then press



6. The address trace block is then displayed. Add an offset of X'14' to the  
address trace block pointer to get the address of the last entry used.  
The address trace block is displayed in Figures 21-14 and 21-15.

0(0)		ATBPRMS	
		Address of trace variable 1	
4(4)		Address of trace variable 2	
8(8)		Address of trace variable 3	
12(C)		Address of trace variable 4	
16(10)		ATBFRST	
		Address of first entry in trace table (CXTATPF)	
ATBPRCT*			
No. of variables in each trace entry			
20(14)		ATBPREV	
		Address of last entry used in trace table (CXTAPL)	
ATBCTL*			
Address trace control byte			
20(14)		ATBLAST	
		Address of last entry in trace table	
ATBLVLS*			
Program level to be traced			
28(1C)		30(1E)	
ATBCNTR		ATBIN	
Number of interrupts processed		Prototype input instruction	
32(20)		34(22)	
ATBBR		ATBENTSZ	
Prototype branch instruction		Trace entry size	
* Indicates that a byte expansion follows			

**Figure 21-14. Address Trace Block**

Offset/Field Name Hex Value	Bit Pattern	Contents
20(14) ATBCTL	xxxx....	<p>Address trace control byte</p> <p>Program levels to be traced</p> <p>Before trace activation: X'0'</p> <p>After trace activation: X'8' Level 2 X'4' Level 3 X'2' Level 4 X'1' Level 5</p> <p>Address trace type variables (bit 4: Variable = 4... bit 7: Variable = 1) 1 = Register or displacement 0 = Storage</p>
26(1A) ATBLVLS	X'80' X'40' X'20' X'10'	<p>Program levels to be traced</p> <p>Level 2 Level 3 Level 4 Level 5</p>

**Figure 21-15. Byte Expansion of Address Trace Block**



## NCP - Channel Adapter Trace

Use this function to trace channel adapter level-3 interrupts.

This function is available only if CATRACE = YES is specified in the BUILD macro.

KEY	<b>PROCEDURE</b> In PEP environment with a line in NCP mode, first switch control to NCP mode. Refer to "Switching Control to NCP Mode" at the beginning of this chapter.	<b>COMMENTS</b>
	<pre> graph TD     PF2[PF2] --&gt; D[D]     D --&gt; E[E]     E --&gt; X[X]     X --&gt; SEND1[SEND]     D --&gt; DATA1["DATA==&gt; xx06  FUNCTION==&gt; 1  CCU LVL3==&gt; Y"]     DATA1 --&gt; SEND2[SEND]     SEND2 --&gt; DATA2["DATA==&gt; 0006  FUNCTION==&gt; 1  CCU LVL3==&gt; Y"]     DATA2 --&gt; SEND3[SEND]           </pre>	<p>To select data exchange function.</p> <p>xx = channel adapter identification (within the range X'01' to X'3F'). Only the following bits are valid:</p> <p>..... 1 CA1          ..... 1 CA2</p> <p>MSA field e indicates which of the channel adapter(s) has the trace function active. Field e positions indicate the channel adapters.</p> <p>To deactivate the trace.</p>

Figure 21-16. NCP - Channel Adapter Trace

To analyze the information stored in the channel adapter trace table, use one of the following:

- The Display Long function (Chapter 19), to display the CCU storage.
- Take an NCP dump. Refer to *System Support Programs: Diagnosis Reference*, LY30-5564. The address and the format of the trace table is given in *Network Control Program Emulation Program: Reference Summary and Data Areas*, LY30-5570.

## **NCP Scanner Interface Trace (SIT)**

The scanner interface trace procedure under NCP is documented in *Network Control Program System Support Programs: Diagnosis Guide*, LY30-5591.

## EP - Line Test

The Line Test function is an optional function of the emulation program (EP), and is included during EP generation only if TEST= YES is specified in the BUILD definition statement.

Use this function to test a communication line via the operator console. The function consists of an initialization subroutine, a series of test subroutines, and an end test subroutine. The CCB display function may be used to analyze the operation of a line.

Line test subroutines are fully described in Figure 21-18. They do the following general tasks:

- Multiple line testing: Information about each line under test is stored in the CCB fields to allow concurrent testing of the communication lines.
- Line error checking: Data checks, feedback checks, dial errors, and SCF errors are dynamically displayed in MSA fields e and k, with an option to stop any line if an error occurs.
- Data translation: Transmit and receive data is translated from line code to PDF code when communication lines with redundancy checking are tested. Lines without redundancy checking must be tested in no-translate mode, and the buffer data must be entered in PDF code.

### *Notes:*

1. *When a line is in use by the line test function, all system commands are rejected.*
2. *When a line is in use by the system, it is not available to the line test function.*
3. *Always use X'8F' to end all the line test subroutines, to ensure availability of the line to the host.*
4. *Leased lines initially enabled by the access method must be re-enabled with subroutine X'80' (Figure 21-18).*

KEY	<b>PROCEDURE</b> To test an EP line in PEP environment, first switch control to EP mode. Refer "Switching Control to EP Mode" at the beginning of this chapter.	<b>COMMENTS</b>
	<pre> graph TD     PF2[PF2] --&gt; D[D]     D --&gt; E[E]     E --&gt; X[X]     X --&gt; SEND1[SEND]     SEND1 --&gt; D1{?}     D1 -- Not MSLA --&gt; SEND2[SEND]     D1 -- MSLA --&gt; D2[DATA==&gt; xx00 FUNCTION==&gt; 2 CCU LVL3==&gt; Y]     D2 --&gt; SEND3[SEND]     SEND3 --&gt; D3{?}     D3 -- Another line test or more data --&gt; SEND4[SEND]     D3 -- No other line test and no more data to enter --&gt; D4[DATA==&gt; 8Fyy FUNCTION==&gt; 5 CCU LVL3==&gt; Y]     D4 --&gt; SEND5[SEND]     SEND5 -- Only if the line is initially enabled by the host access method. --&gt; D5[DATA==&gt; 80yy FUNCTION==&gt; 5 CCU LVL3==&gt; Y]     D5 --&gt; SEND6[SEND]         </pre>	<p>To select data exchange function.</p> <p>xx = channel adapter number</p> <p>For MSLA error code, see Figure 21-32.</p> <p>xx = subroutine code yy = data</p> <p>xx and yy are described in Figure 21-18.</p> <p>To end the test.</p> <p>yy = subchannel address</p> <p>yy = subchannel address</p>

Figure 21-17. EP - Line Test

To execute any of the subroutines described in Figure 21-18, enter:

DATA = = > xxyy FUNCTION = = > 5 CCU LVL3 = = > Y

xx and yy values are given in the second and third column of the following figure.

Subroutine Name	xx	yy	Description
Load Transmit Buffer			
Buffer 1	00	data character	To load the data character into buffer 1, 2, or 3, or the dial digit into the dial digit buffer. Perform this subroutine as many times as you have data characters to enter (maximum is 20 per buffer). After the last one, enter X'99' in the yy operand. The next buffer location (vv) is displayed in MSA field k: X71:000000 X72:0000vv
Buffer 2	01	data character	
Buffer 3	02	data character	
Dial digit buffer	03	dial digit	
Load Receive			
Compare Character			To load a new receive compare character 1, 2, or 3. The old and the new receive compare characters are displayed in MSA field k.  X'99' as compare character causes continuous transmission without any attempt to receive. The old (vv) and new (ww) characters are displayed in MSA field k: X71:000000 X72:00vvww
compare character 1	04	compare character	
compare character 2	05	compare character	
compare character 3	06	compare character	
Swap Character			
Buffer 1 swap char.	08	swap character	To load a new swap character for buffer 1, 2, or 3. The old (vv) and the new (ww) swap characters are displayed in MSA field k: X71:000000 X72:00vvww If incoming data compares on the buffer swap character 1, 2 or 3, the associated buffer is transmitted unconditionally.
Buffer 2 swap char.	09	swap character	
Buffer 3 swap char.	0A	swap character	
Change Character			
Buffer 1	0C	position character	This subroutine is performed in two steps:  1. Specify the position of the character (yy) that you want to change in buffer 1, 2, or 3.  2. Enter the new character if the MSA field e displays X71:00FF00 and field k displays X72:000002.  The old (vv) and new (ww) characters are displayed in MSA field k: X71:000000 X72:00vvww
Buffer 2	0D	position character	
Buffer 3	0E	position character	
Dial buffer	0F	position character	
Display Buffer			
buffer 1	10	buffer position	To display the buffer position indicated in yy (must be an even number). If the designated position is less than X'10', the 4 bytes of data beginning at the specified position are displayed in MSA fields e and k. If the position is equal to or greater than X'10', the last 4 bytes of the buffer are displayed.
buffer 2	11	buffer position	
buffer 3	12	buffer position	
dial buffer	13	buffer position	
Display Receive			
Compare Character			To display the receive compare character 1, 2, or 3 in the two middle positions of MSA field k: Field k = X71:000000 Field e = X72:00..00
comp. char. 1	14	N/A	
comp. char. 2	15	N/A	
comp. char. 3	16	N/A	
Display Swap			
Character			To display buffer 1, 2, or 3 swap character in the two middle positions of MSA field k: Field k = X71:000000 Field e = X72:00..00
buffer 1	18	N/A	
buffer 2	19	N/A	
buffer 3	1A	N/A	

Figure 21-18 (Part 1 of 2). Subroutines Used When Performing a Line Test

Subroutine Name	xx	yy	Description
Transmit Buffer buffer 1	20	subchannel address	To transmit buffer 1, 2, or 3, until X'99' is recognized. The line is then set to receive mode.
buffer 2	21	subchannel address	
buffer 3	22	subchannel address	
buffers 1 to 3	23	subchannel address	
Receive/Reply Using Buffers 1, 2, 3			To place the line in receive mode, and perform receive compare character checking. If a compare is found, the line is turned around to transmit buffers 1, 2, and 3.
buffer 1	40	subchannel address	
buffer 2	41	subchannel address	
buffer 3	42	subchannel address	
buffers 1, 2, and 3	43	subchannel address	
Enable Line	80	subchannel address	To enable the line (DTR is raised on LIC interface).
Modify CCB Field			<p>This subroutine is performed in two steps:</p> <ol style="list-style-type: none"> <li>1. Specify the subchannel address.</li> <li>2. Enter the new data. The old (vv) and new (ww) data is displayed in MSA field k: X71:000000 X72:00vvww</li> </ol> <p>The new data for CCBFLGB1 is the flag byte, and for CCBSSC it is the control byte.</p>
CCBOPT	82	s/chan addr - new data	
CCBOPT2	83	s/chan addr - new data	
CCBSTMOD	84	s/chan addr - new data	
CCBFLGB1 (BSC) or CCBSSC (S/S)	85	s/chan addr - new data	
CCBFLGB2 (BSC)	86	s/chan addr - flag byte	
Stop on Line Error	87	FF or 00	If yy = FF (on condition), the subroutine stops the tests on the line having errors. If yy = 00 (off condition), the subroutine displays the error but does not stop the test.
Translate for Buffer 1, 2, or 3	8C	FF or 00	If yy = FF (no-translate mode), all data compare characters must be entered in PDF format. Data translation is not performed. If yy = 00 (translate mode), all transmit and receive characters are translated for TAI, TAI1, TTY1, and TTY2 devices. Other terminal types use no-translate mode.
Display Last Message in MSA Fields e and k	8D	none	To display the most current message. When no display information has been saved since the last request of subroutine X'8D', MSA fields e and k contain all zeros.
End Test	8F	subchannel address	To end all testing and to disable the line.

Figure 21-18 (Part 2 of 2). Subroutines Used When Performing a Line Test

## Level 2 and Level 3 Display Codes

Level 2 codes provide information about the line being tested (Figure 21-19), and level 3 codes about the selected subroutine (Figures 21-20 and 21-21).

Level 2 display codes are not displayed automatically in MSA fields e and k. To display them while performing subroutine X'20', X'23', X'40', X'43', X'80', X'86', or X'8F', use subroutine X'8D' only when the first digit displayed in field e is 2 (X71:2.....).

In Figure 21-19, lowercase letters in fields e and k have the following meaning:

xx = channel adapter number  
yy = subchannel address  
zz = first six bits of the SES  
vv = SCF  
ww = PCF

MSA Field e	MSA Field k	Description
X71:01xxyy	X72:00FC00	The test is accepted for the line whose subchannel address is displayed in field e (yy). The line has been enabled if current subroutine is other than X'8F'. If subroutine is X'8F', line will have been disabled and the test ended.
X71:02xxyy	X72:zzvvww	Line error on the line whose address is in field e (yy) while processing CHANGE command.
X71:03xxyy	X72:zzvvww	Line error on the line whose address is in field e (yy) while processing MONITOR INCOMING command.
X71:04xxyy	X72:zzvvww	Line error on the line whose address is in field e (yy) while processing DIAL command.
X71:05xxyy	X72:zzvvww	Line error on the line whose address is in field e (yy) while processing RAISEDTR command.
X71:06xxyy	X72:zzvvww	Line error on the line whose address is in field e (yy) while processing ENABLE command for auto-answer or leased line.
X71:07xxyy	X72:zzvvww	Line error on the line whose address is in field e (yy) while processing ENABLE command for auto-call line.
X71:08xxyy	X72:zzvvww	Line error on the line whose address is in field e (yy) while processing RESETD command.
X71:09xxyy	X72:00vvww	Data check on emulation mode line whose address is in field e (yy) while processing transmit.
X71:0Axxyy	X72:00vvww	Data check on emulation mode line whose address is in field e (yy) while processing receive.
X71:0Bxxyy	X72:zzvvww	Line error detected while transmitting.
X71:0Cxxyy	X72:zzvvww	Line error detected while receiving.

Figure 21-19. Level 2 Display Codes



MSA Field e	MSA Field k	Description
X71:x0FF00	X72:000001	'Monitor function for line errors' set.
X71:x0FF00	X72:000002	Enter new data character.
X71:x0FF00	X72:000003	Buffer-end (X'99') set.
X71:x0FF00	X72:000004	Translate-mode accepted.
X71:x0FF00	X72:000005	The line is enabled.
X71:x0FF00	X72:000006	Ending status presented.
X71:x0FF00	X72:000007	'Stop-on-line error' set.
X71:x0FF00	X72:000008	'No-translate mode' set.
X71:x0FF00	X72:000009	Test ended for the line.
x = 0: No level-2 display codes		
x = 2: Use subroutine X'8D' to display level-2 codes. These codes are documented in Figure 21-19.		

**Figure 21-20. Level 3 Display Codes**

MSA Field e	MSA Field k	Description
X71:x0FFFF	X72:000000	Invalid subroutine.
X71:x0FFFF	X72:000001	Invalid buffer index.
X71:x0FFFF	X72:000002	Invalid subchannel address (subchannel address is not associated with a line that was specified during EP generation).
X71:x0FFFF	X72:000003	Line is active with a host command or error recovery. Line must be inactive for line test.
X71:x0FFFF	X72:000004	Invalid subroutine for start-stop lines.
X71:x0FFFF	X72:000005	Request cannot be performed because line is not operational.
X71:x0FFFF	X72:000006	Subroutine X'8F' (END TEST) was issued for a line that is not in test mode.
x = 0: No level-2 display codes		
x = 2: Use subroutine X'8D' to display level-2 codes. These codes are documented in Figure 21-19.		

**Figure 21-21. Level 3 Error Codes**

## EP/PEP - Display of Character Control Block (CCB)

Use this function to display a character control block (CCB) for any installed line. The selected CCB areas are displayed only once in MSA fields e and k (Figure 21-23). These fields also display information on the function progression (see Figure 21-32).

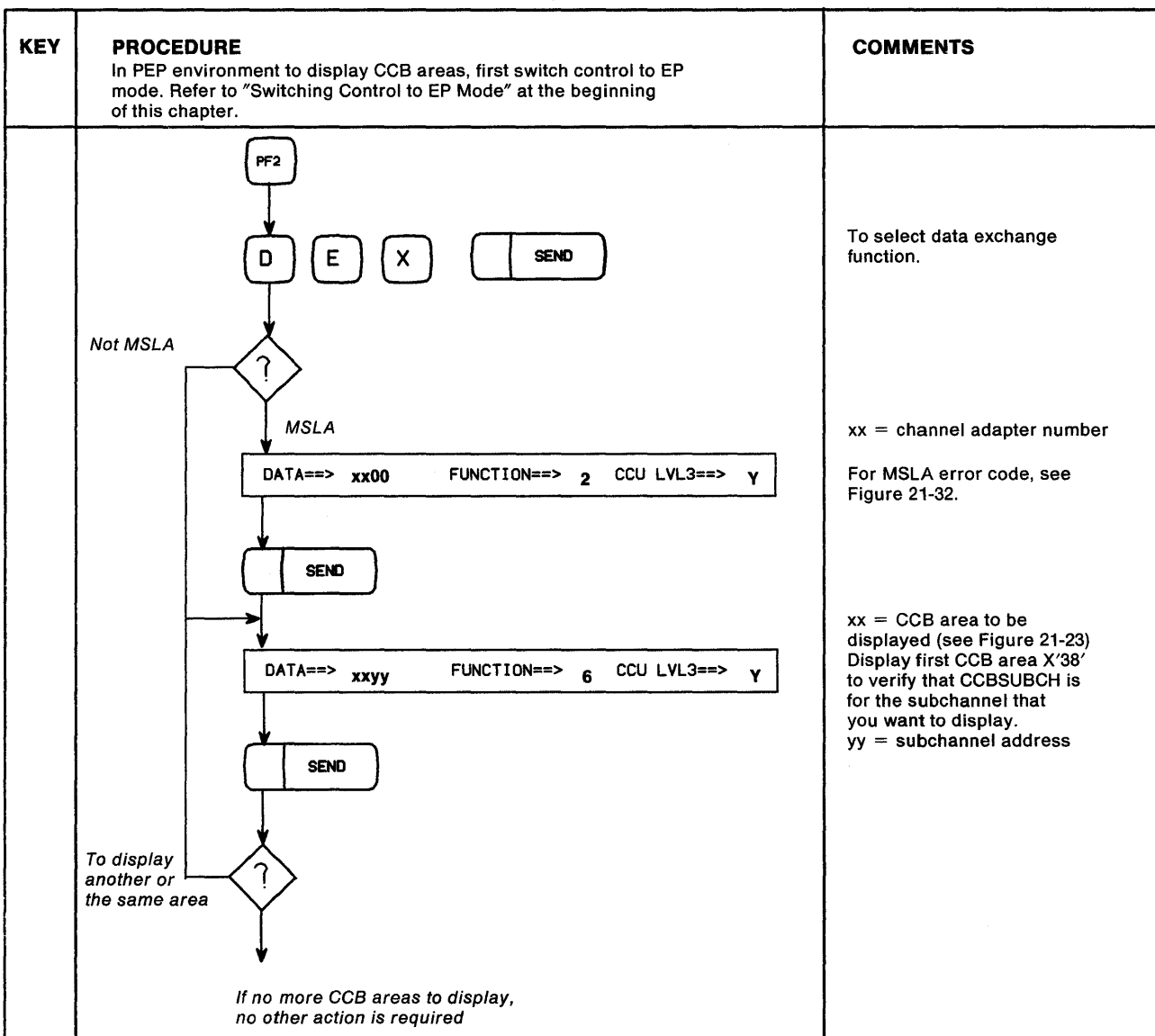


Figure 21-22. EP/PEP - Display of Character Control Block (CCB)

Figure 21-23 (Part 1) lists all the operands that you have to enter to display CCB areas in MSA fields e and k. The asterisk (\*) shows the bytes that are explained in Figure 21-23 (Part 2).

For the complete description of CCB areas, refer to *Network Control Program Emulation Program: Reference Summary and Data Areas*.

<b>DATA = = &gt;</b>				
2 8	CCBDATA		DATA BUFFER	
2 C	CCBDATA1		DATA BUFFER	
3 0	CCBSVLNK		CCBSVLNK	
3 8	CCBSUBCH	CCBCFLG	CCBSTAT*	CCBSENSE*
4 0	CCBCMD*	CCBLRI	CCBCSTAT*	CCBCSENS*
4 4	CCBNQCNT	CCBSVSTC	CCBCLOCK	CCBTMADR
4 8	CCBACADR		CCBOPT*	CCBOPT2*
4 C	CCBSTMOD*	CCBLCD	////////////////////////////////////	

#### START/STOP EXTENSION

6 0	CCBLRC	CCBSSC	CCBSSCX	CCBHPCN
6 4	CCBLGT			
6 8	CCBSBUFF			
7 0	CCBEBUFF			

#### BSC EXTENSION NORMAL MODE

6 0	CCBFLGB1	CCBFLGB2	CCBBCNT	CCBBCNT
6 4	CCBTBUF			
6 8	CCBBUFF			
6 C	CCBDLCOM		CCBCAB	CCBBUFSZ

**Figure 21-23. CCB Areas and Byte Expansion (Part 1)**

*Note:* Display data area X'38' first and verify that the CCBSUBCH byte displayed is for the subchannel that you wish to display.

Figure 21-24 (Part 2) gives the byte expansion of the most used CCB areas.

CCBSTAT CCBCSTAT	X'00' X'01' X'02' X'04' X'08' X'10' X'20' X'40' X'80'	Reset status byte Set unit exception (UE) Set unit check (UC) Set device end (DE) Set Channel end (CE) Set CU busy Set CU end Set status modifier Set attention
CCBSENSE CCBCSENS	X'00' X'01' X'02' X'04' X'08' X'10' X'20' X'40' X'80'	Reset sense byte Timeout (TO) Set lost data Set overrun Set data check Set equipment check Set bus out parity check Set intervention required Set command reject
CCBCMD	0000 1... 0001 0... 0010 0... 0100 1... 0111 1... 1000 0... 1001 1... 1111 1100 .... 1..	Write (S370/ X'01') Read (S370/ X'02') Sense (S370/ X'04') Poll (S370/ X'09') Disable (S370/ X'2F') Enable (S370/ X'27') Set mode (S370/ X'23') Line is used by Line Test function Command end flag
CCBOPT	1... .... .... 1... .... 1..	Auto-call option installed Switched line installed Duplex line
CCBOPT2	.1.. .... ...1 ....	Trace active bit 2702/2703
CCBSTMOD	..1. .... ...1 .... .... 1... .... ..xx	DTR (line enabled) Binary synch clock External clocking Oscillator select bits (00-01-10-11)

Figure 21-23. CCB Areas and Byte Expansion (Part 2)

## EP/PEP - Line Trace and Scanner Interface Trace (SIT)

Use this function to start or stop a trace on one or all defined lines as well as on the scanner interface. The Line Trace and SIT functions are documented in *Emulation Program Installation: Resource Definition, and Diagnosis*, SC30-3338.

The level-2, level-3, and scanner interface traces are EP optional functions. They are included at EP generation time unless LINETRC=NO is specified in the BUILD macro.

After deactivating the trace, you may get a storage dump of the 3720 using dump utility or dynamic dump utility program.

The line trace table in the storage dump is as follows:

- The line trace table pointer is in the upper part of the storage, after the EP load module.
- Look at the right-hand side of the dump for the START TRACE. The trace table pointer area starts four fullwords below.
- Line trace table pointer area:

First word: Latest entry address in the trace table (this entry was written before terminating the line trace).

Second word: Address of the trace table beginning.

Third word: Address of the trace table upper limit.

The SIT buffer may be located as follows:

- The EP-TLNVT fields (beginning at X'840') contain SW pointer to the SIT control blocks in the order they were started.
- The SIT CCB contains pointers to the two SIT buffers at X'28' and X'2C'.
- The SIT data and buffer leader are described in *Network Control Program Emulation Program: Reference Summary and Data Areas*, LY30-5570.

*Notes:*

1. *A trace can degrade EP performance.*
2. *To start a line or a scanner interface trace with the dynadump utility trace, the Trace Active bit must be off.*
3. *The format of the trace table entries is given in Network Control Program Emulation Program: Reference Summary and Data Areas.*

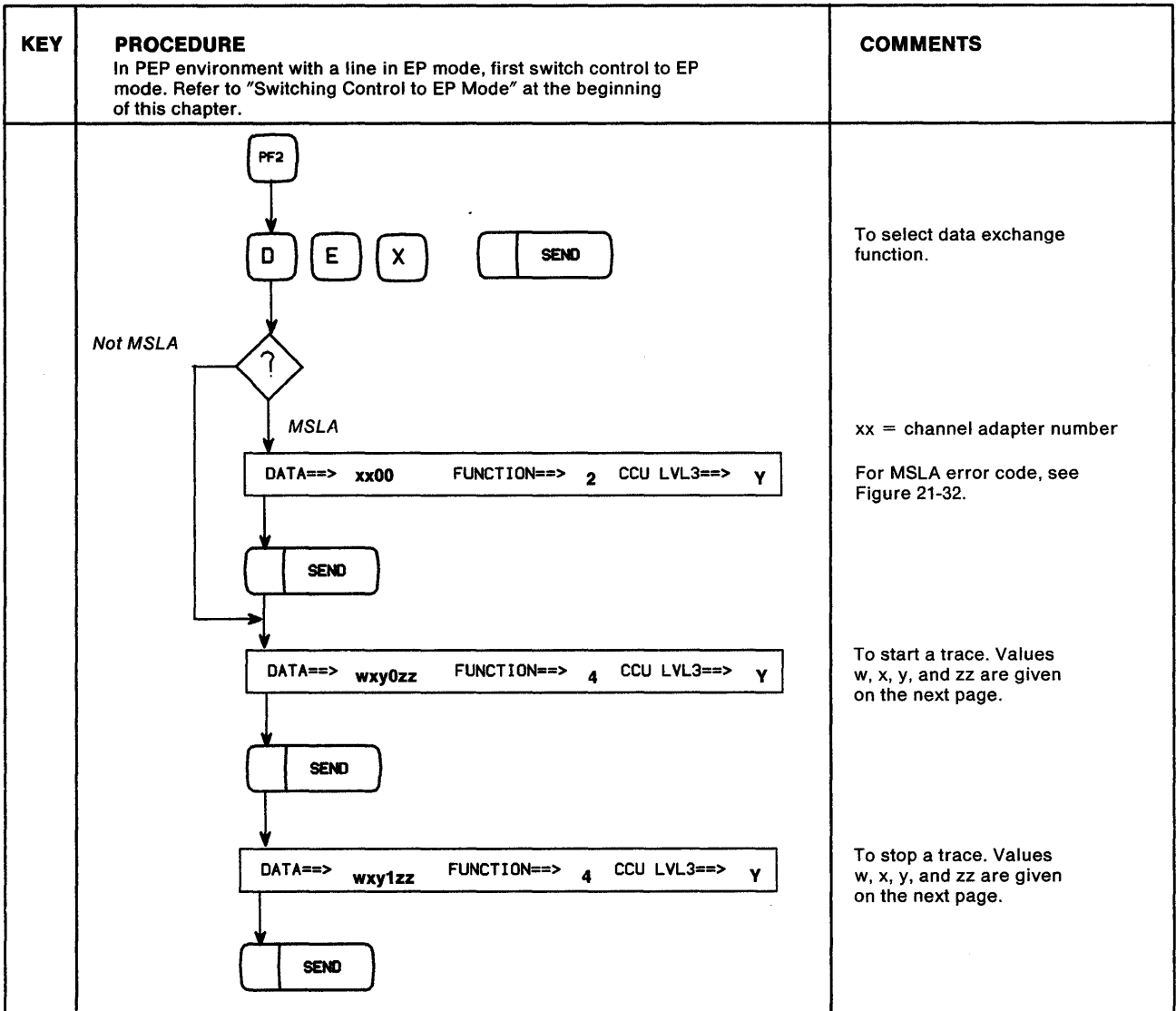
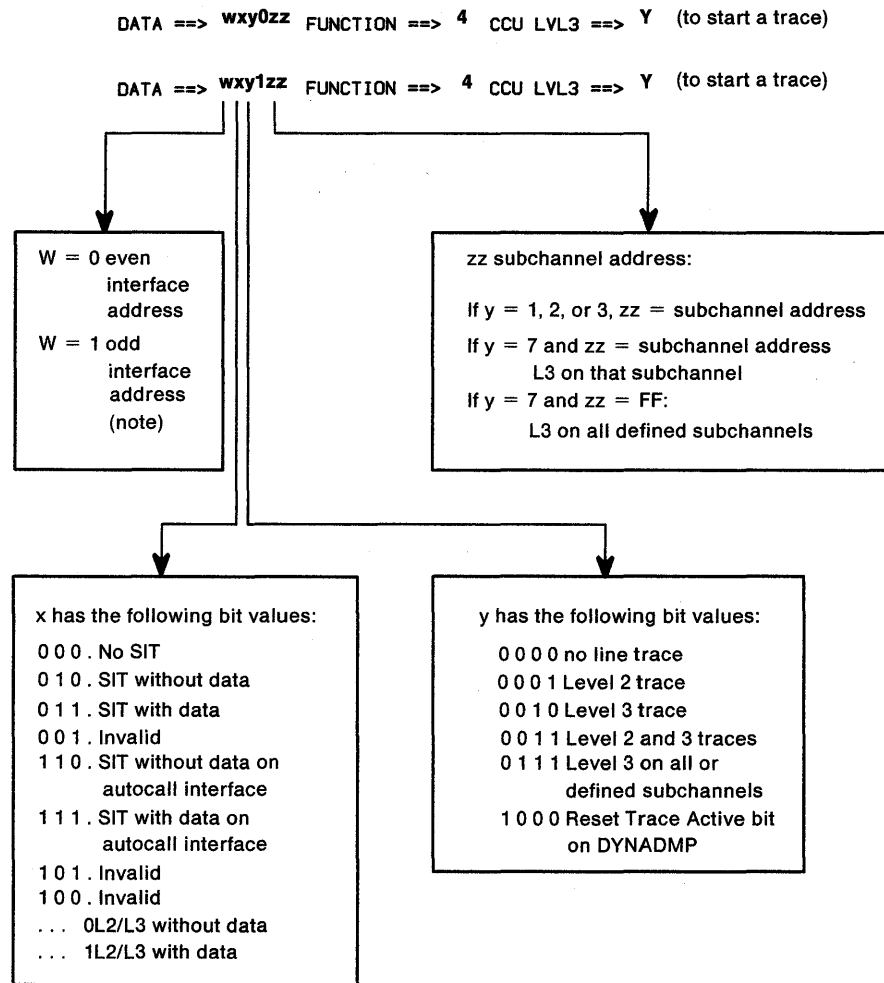


Figure 21-24. EP/PEP - Line Trace and Scanner Interface Trace (SIT)

The following gives the values that you need to start a trace.



*Note: If tracing online, w=0 will result in a trace of both transmit and receive.*

*If tracing during a Wrap Test, w=0 will result in tracing only the transmit address, and w=1 will result in tracing only the receive address. Both even and odd addresses may be traced simultaneously while performing a wrap.*

MSA Field e	MSA Field k	Description
X71:0000xx	X72:00yyzz	The trace request was successful. xx = number of active SITs yy = number of traced lines on level 2 zz = number of traced lines on level 3
X71:00FFFF X71:004001	X72:00FFFF X72:004001	An invalid trace was rejected. Unable to service the SIT request.

**Figure 21-25. Display Codes for Line Trace and Scanner Interface Trace**

## EP/PEP - Present Status on Channel

Use this function to release dynamically a locked subchannel without reinitializing the 3720 or the hosts. The subchannel may have not been released because of an error condition. The ending status channel end (CE), device end (DE), and unit check (UC) is presented to the host for the selected subchannel.

### Notes:

1. Sense command X'04' from the host after ending status CE, DE, or UC will receive Equipment check.
2. Make sure that the subchannel that you are releasing is not in a valid operation. When bit 5 of CCBCMD is on, the subchannel is not in a valid operation. To display CCBCMD use EP function Display of CCB.

KEY	PROCEDURE	COMMENTS
	<p>In PEP environment with a line in EP mode, first switch control to EP mode. Refer to "Switching Control to EP Mode" at the beginning of this chapter.</p> <pre> graph TD     PF2[PF2] --&gt; D[D]     D --&gt; E[E]     E --&gt; X[X]     X --&gt; SEND1[SEND]     SEND1 --&gt; DATA[DATA==&gt; 3xyy FUNCTION==&gt; 2 CCU LVL3==&gt; y]     DATA --&gt; SEND2[SEND]           </pre>	<p>To select the data exchange function.</p> <p>x = channel adapter number yy = subchannel address</p>

Figure 21-26. EP/PEP - Present Status on Channel

MSA Field e	MSA Field k	Description
X71:000000	X72:000300	Ending status CE, DE, UC presented to the host.
X71:00FFFF	X72:000301	Rejected.

Figure 21-27. MSA Fields e and k Values for Present Status on Channel



## EP - Display of Storage

Use this function to display two halfwords of storage in MSA fields e and k (Figure 21-29).

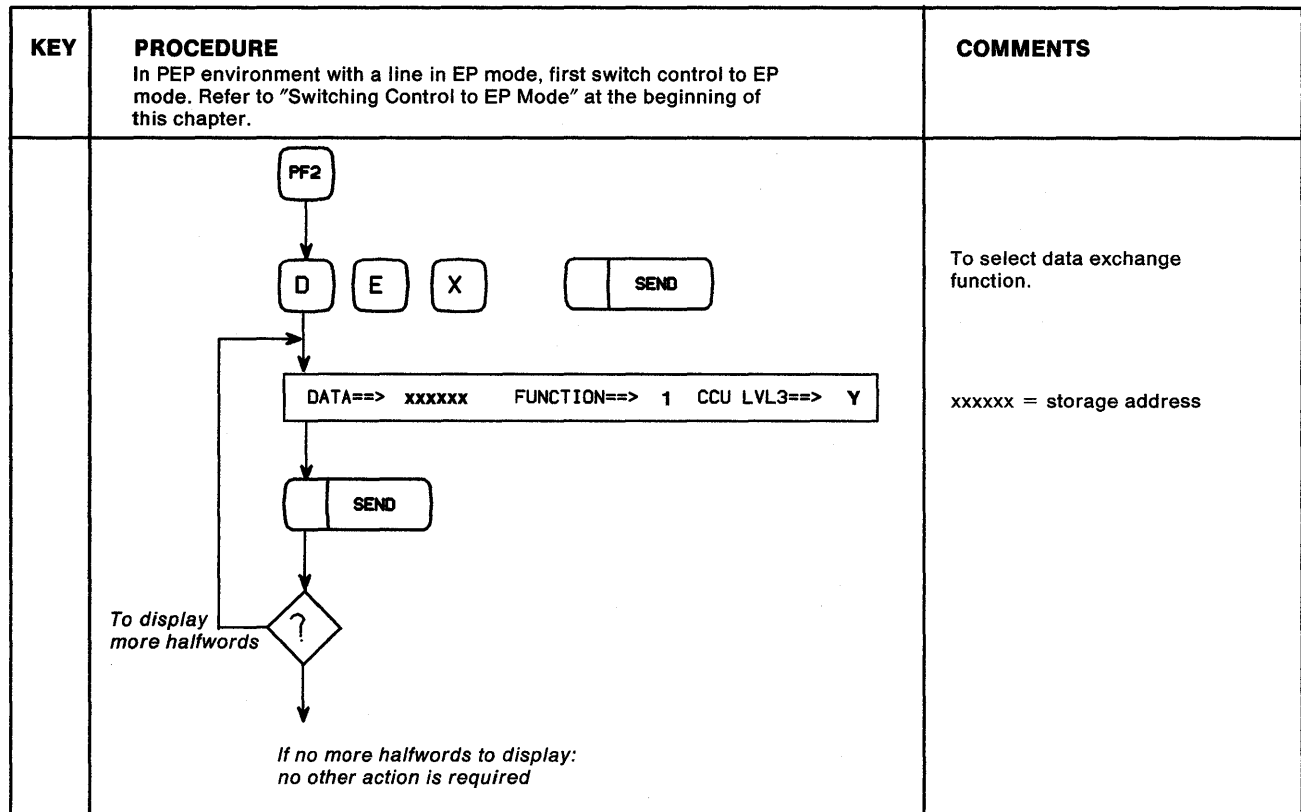


Figure 21-28. EP - Display of Storage

MSA Field e	MSA Field k	Description
X71:00FFFF	X72:00FFFF	Invalid address or function
X71:00xxxx	X72:00yyyy	xxxx = first storage halfword yyyy = second storage halfword

Figure 21-29. MSA Field e and k Values for Display of Storage

## EP/PEP - Channel Adapter Reset (MSLA)

Use this function to simulate a system reset from any attached channel if the access method terminates abnormally (abend) and you have to release the subchannels and lines.

The Channel Adapter Reset function resets only the subchannels and lines associated with the channel adapter that you specified, and has no effect on the normal operation of other channels.

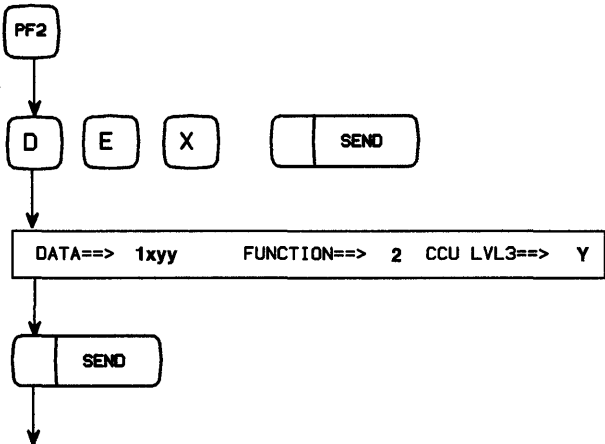
KEY	PROCEDURE In PEP environment with a line in EP mode, first switch control to EP mode. Refer to "Switching Control to EP Mode" at the beginning of this chapter.	COMMENTS
	 <p>When the channel adapter is reset, the MSA displays the following:</p> <p>field e: X71:000000 field k: X72:000101 or X72:000102</p> <p>For other codes, see Figure 21-32.</p>	<p>To select data exchange function.</p> <p>x = channel adapter number yy = 00 no status presentation yy = FF CE/DE/UC presented on all associated subchannels</p>

Figure 21-30. EP/PEP - Channel Adapter Reset (MSLA)

# EP - Subchannel Switching (MSLA)

Use this function to switch subchannel/line associations when the host access method does not issue disable commands. When a line is used with an access method that does not issue disable commands, the line cannot be accessed by another subchannel via host-issued commands.

Criteria regulating subchannel/line switching are as follows:

- The subchannels to which the line can be associated must be identified at generation time.
- The switch is performed only if the line does not have an active command other than ENABLE or PREPARE.

The subchannel switching function does not change the physical state of the line. An enabled line, for example, will remain enabled.

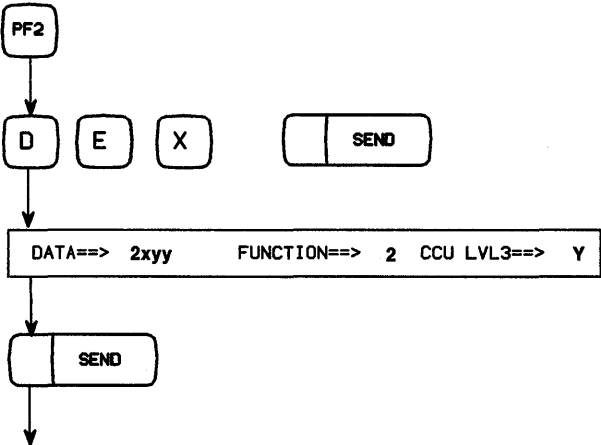
KEY	PROCEDURE	COMMENTS
	<p>In PEP environment with a line in EP mode, first switch control to EP mode. Refer to "Switching Control to EP Mode" at the beginning of this chapter.</p>  <p>When the switch is performed, the MSA displays the following:</p> <p>field e: X71:000000 field k: X72:000202 or X72:000203</p> <p>For other codes, see Figure 21-32.</p>	<p>To select the data exchange function.</p> <p>x = channel adapter number yy = subchannel address</p>

Figure 21-31. EP - Subchannel Switching (MSLA)

MSA Field e	MSA Field k	Description
X71:00FFFF	X72:00FFFF	Invalid subroutine.
X71:00FFFF	X72:00CACA	Invalid channel adapter.
X71:00FFFF	X72:000201	Subchannel entered outside the HI/LO range.
X71:00FFFF	X72:000202	Non-MSLA USCCB or NCP line test function active for the line.
X71:00FFFF	X72:000203	Line is currently active.
X71:00FFFF	X72:000204	MSLA USCCB currently active.
X71:000000	X72:000001	Channel adapter 1 selected.
X71:000000	X72:000002	Channel adapter 2 selected.
X71:000000	X72:000101	Channel adapter 1 reset.
X71:000000	X72:000102	Channel adapter 2 reset.
X71:000000	X72:000201	Subchannel is already using the line.
X71:000000	X72:000202	Successful switch.
X71:000000	X72:000203	Switch is performed - ENABLE or PREPARE aborted.

**Figure 21-32. MSLA Function Error Codes**



## Chapter 22. Control Program Procedures

A control program procedure is a sequence of instructions that call and execute one or several NCP or EP functions to perform a specific task. For example, to install a ZAP in NCP, the NCP Dynamic Store function is called. NCP and EP functions are described starting in Chapter 21.

To create and run the control program procedures, you use a series of tools, referred to as 3720 procedure tools.

Control program procedures are:

1. Pre-cataloged control program procedures. They are already cataloged in the 3720 disk and are available at any time to perform an appropriate task. The names of such procedures always start with CP. You cannot erase or modify them, nor can you create a procedure whose name starts with CP. You can only display, copy, and execute them. Precataloged procedures are described later in this chapter under "Precataloged Control Program Procedures."
2. Your own control program procedures that you create and catalog using the 3720 procedure tools.

This chapter:

- Describes the 3720 procedure tools that you use to run the control program procedures.
- Explains each step of the precataloged procedures that you can execute and copy.
- Shows you how to create some control program procedures.

## Printing Cataloged Control Program Procedures

Cataloged control program procedures may be printed on a host printer. The transfer and print procedures are documented in *System Support Programs, Diagnosis Reference*, LY30-5564.

A sample of a print-out is given at the end of this chapter.

## 3720 Procedure Tools

Selection:



*To position the cursor*



*To display the control program  
procedure tools*

The following 3720 procedure tools are displayed in the secondary menu area:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: CNTL PRGM PROC

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE    OFF: LOGOFF

PF1: MOVE TO SIA    PF2: CCU FNCTN    PF3: ALARM

1 DIRECTORY

2 DISPLAY

3 CREATE/COPY

4 ERASE

5 MODIFY

6 EXECUTE

7 CATALOG

The 3720 procedure tools are:

- Directory - To list all cataloged and precataloged procedures.
- Display - To display a specific procedure.
- Create/Copy - To create or copy a procedure.
- Erase - To erase a procedure that *you* created and cataloged.
- Modify - To modify a procedure that *you* created and cataloged.
- Execute - To execute any cataloged procedure.
- Catalog - To catalog a procedure that you created, copied or modified.

A procedure is created in *3720 storage*, then cataloged into a *procedure file* on the disk.

**Warning:** Save any new, or modified, procedure files onto the backup diskette every time (see Chapter 15).

To display, modify, or execute a procedure, the procedure is moved from the procedure file into 3720 storage unless a procedure with the same name is already in storage. In this case, the following two PF keys are displayed, so you can select the appropriate procedure:

PF4:TO USE PROC FROM FILE

PF6:TO USE PROC FROM STORE

Both versions of the same procedure may be at different levels.

To exit from a 3720 procedure tool:

- Select another 3720 procedure tool displayed in the secondary menu, or
- Select the Terminate function (Chapter 19). It will cancel *any 3720 procedure tools and erase the procedure that may be in 3720 storage*



## Directory of Cataloged Procedures

Use Directory to display the directory, that is, the list of all the cataloged procedures. The directory is updated automatically when you catalog a procedure.

Selection:

PF1

To position the cursor

C

SEND

To display the control program  
procedure tools

1

SEND

To select Directory

The following screen is displayed:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: CNTRL PRGM PROC

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE    OFF: LOGOFF

PF1: MOVE TO SIA    PF2: CCU FNCTN    PF3: ALARM

		NAME	TITLE	DATE (MM/DD/YY)
1 DIRECTORY				
2 DISPLAY				
3 CREATE/COPY				
4 ERASE				
5 MODIFY				
6 EXECUTE				
7 CATALOG				
	01	CP01	SOLC LINK TEST (NCP)	10/29/82
	02	CP02	3270 BSC POLL (NCP-EP)	02/14/83
	03	CP03	2740 S/S POLL (NCP-EP)	10/29/82
	04	CP04	START ADDR TRACE (NCP)	01/07/83
	05	CP05	STOP ADDR TRACE (NCP)	01/07/83
	06	CP06	X.21 SWITCHED LINE TEST	03/19/85
	07			

PF8: FORWARD

the first two digits are the procedure number. This number cannot be used to select the procedure. Its only purpose is to locate a procedure within the directory.

NAME and TITLE are those that you entered when creating the procedure.

DATE is that given by the 3720 when you cataloged the procedure.

The directory is automatically updated when you catalog a procedure.

## **PF Keys**

**PF7:** To list the preceding available procedures.

**PF8:** To list the next available procedures.

## Display a Cataloged Procedure

Use Display to display a specific procedure.

Selection:

PF1

To position the cursor

C

SEND

To display the control program  
procedure tools

2

SEND

To select Display

You are first requested to enter the name of the procedure that you want to display. The following screen is then displayed:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: CNTRL PRGM PROC

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE    OFF: LOGOFF

1 DIRECTORY

2 DISPLAY

3 CREATE/COPY

4 ERASE

5 MODIFY

6 EXECUTE

7 CATALOG

PF1: MOVE TO SIA    PF2: CCU FNCTN    PF3: ALARM

CP01    SDLC TEST FRAMES (NCP)

001 SETI    D= 00000C F= 07 I= Y    B

002 GOTO    T= 020 A= 000000 C=    B= 000000

003 DISP    L= 12 M= TEST FRAMESTO SDLC LINK

004 DISP    L= 15 M= CHANGE FFF TO NCP LINE ADDRESS

005 OSET    D= 002FFF F= 02 I= Y

006 GOTO    T= 018 A= 000000 C=    B= 000000

007 DISP    L= 15 M= CHANGE FF TO SDLC STATION ADDRESS

008 OSET    D= 0051FF F= 02 I= Y

009 SETI    D= 0051F3 F= 02 I= Y

010 SETI    D= 005C03 F= 02 I= Y

PF6: QUIT

PF8: FORWARD

- A Displays the NAME and the TITLE of the procedure, and the DATE.
- B The first 3 characters of each line are the step number. All instructions and operands shown on that screen are described under the Create procedure tool.

## **PF Keys**

PF4: To display the procedure that is already cataloged.

The PF6 key may have two meanings:

- To display the procedure that is in the 3720 storage.
- To clear the displayed procedure and allow you to display another one.

PF7: To display the previous 10 steps of the selected control program procedure.

PF8: To display the next 10 steps of the selected control program procedure.

## Create/Copy a Procedure

Use Create/Copy to create a new procedure or to copy an existing one under another name.

- The maximum number of procedures that you can create depends on the size of the procedures, but cannot exceed 62, including the precataloged control program procedures.
- The maximum number of statements in a procedure is 255.

Selection:

PF1

To position the cursor

C

SEND

To display the control program procedure tools

3

SEND

To select Create/Copy

1. You are first requested to enter the name and the title of the procedure.

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: CNTRL PGM PROC

SYSTEM INPUT AREA (SIA) ==>

PF2: CCU FNCTN PF3: ALARM

T: TERMINATE OFF: LOGOFF

1 DIRECTORY

2 DISPLAY

3 CREATE/COPY

4 ERASE

5 MODIFY

6 EXECUTE

7 CATALOG

ENTER NAME OF PROCEDURE TO BE CREATED ==> A

ENTER TITLE (UP TO 24 CHAR) ==> B

- A** The name is mandatory and must not exceed 4 characters. The first 2 characters must be different from CP. CP is reserved for precataloged procedures.

- B** The title must not exceed 24 characters. The title is not mandatory. It may be used to give any type of information that would help you to identify the contents of the procedure.
2. Once you have entered the name and title, press **SEND**. The Copy screen is displayed.

If you do not want to copy, press **SEND** a second time. Go to step 3.

If you want to copy an existing procedure under the name that you have just entered:

  - Enter the name of the procedure that you want to copy.
  - Press **SEND**.
  - Press **PF6** (you may modify the procedure before pressing **PF6**).
  - Select Catalog to catalog the procedure.
3. If you did not choose to copy a procedure, the following screen is displayed. Select one of the instructions and press **SEND**. Enter the first letter of the instruction (for example, **O** for **OSET**). Each instruction and its operands are described in the following pages.

```

Machine Status Area

CUSTOMER ID:                               3720-1          SERIAL NUMBER:
FUNCTION ON SCREEN:  CNTRL PRGM PROC

SYSTEM INPUT AREA (SIA) ==>
T: TERMINATE   OFF: LOGOFF   PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM
1 DIRECTORY
2 DISPLAY      SELECT: 0=OSET D=DISP H=HALT W=WAIT ==>
3 CREATE/COPY   S=SETI C=GOTO L=LOOP E=END
4 ERASE
5 MODIFY        001 ????
6 EXECUTE
7 CATALOG

```

4. You are requested to enter the appropriate operands.
5. When you have entered all operands, press SEND.

If there is no error, select another instruction or press PF4 to repeat the same instruction.

If there is an error, correct it, then press SEND.

6. When the procedure is complete, enter E. The END instruction must be the last one.

Once created, a procedure may be:

- Cataloged:



If you create, erase, modify, execute, or display *another procedure* before you catalog the procedure just created, the latter is lost.

- Executed:



- Displayed:



## Set Immediate Instruction (SETI)

SETI D= xxxxxx F= xx I= x
---------------------------

Use the SETI instruction to call a control program function and provide data. All available control program functions are described in Chapter 21. The values that you enter in the SETI operands (D, F, and I) must not conflict with the control program requirements.

D= xxxxxx

To provide data to the control program function.

xxxxxx is a string of up to 6 hexadecimal digits, which will be transferred to the CCU via the CCU X'71' input register (operator address/data entry register)

If you enter 6 digits, the leftmost digit must not exceed 3.

If you enter no value, the last entered one is taken.

F= xx

To call the control program function to be performed.

xx is the decimal value from 1 to 16 (or S for 11, R for 12) to be transferred to the CCU via the CCU X'72' input register (operator display/function select register).

If you enter no value, the last entered one is taken.

I= Y or I= N

Y: an Operator Level 3 Interrupt is requested to signal to the control program that the function specified in F= is to be performed.

N: an Operator Level 3 Interrupt is not requested and the function specified in F= will not be performed. If you specify I= N, press BREAK (ATTN) to recover and re-enter the SETI instruction with operand I= Y.

If you enter no value, the last entered one is taken.

## Operator Set Instruction (OSET)

OSET D= xxxxxx F= xx I= x
---------------------------

Use the OSET instruction every time you want to be prompted to call a control program function and/or enter data while executing a procedure. This allows you to enter, for example, a subchannel number.

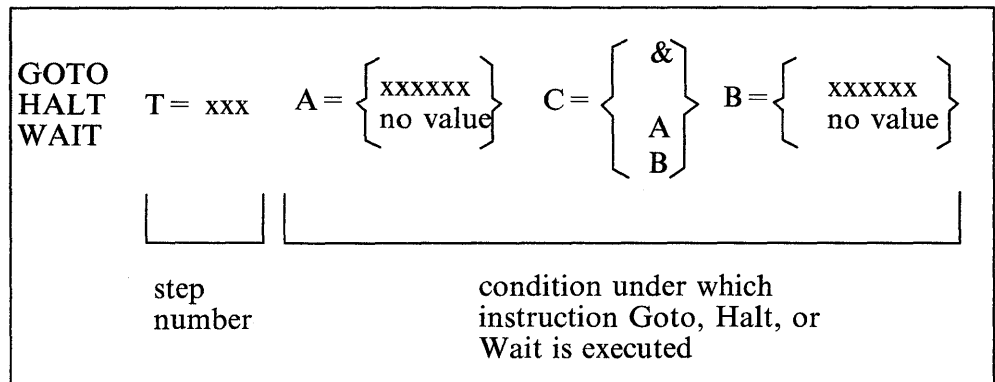


When the OSET instruction is read, you are invited to enter D, F, and/or I operands. If you enter no operands and press SEND, the current OSET operands are transmitted unchanged to the CCU.

The OSET operands are the same as those of the SETI instruction.

### Goto, Halt, and Wait Instructions

Instructions Goto, Halt, and Wait have the same format and operands.



$T = \text{xxx}$

xxx is the target step number. If you do not specify a step number, the next one is assumed.

$A = \left\{ \begin{array}{l} \text{xxxxxx} \\ \text{no value} \end{array} \right\}$

xxxxxx is the hexadecimal value expected in the CCU X'71' output register.

Enter no value if you expect no specific value in the CCU X'71' output register.

The contents of the CCU X'71' output register is displayed in MSA field e (see Chapters 21 and 25).

$\{ \& \}$	$\&$	means conditions A and B.
$C = \{ ! \}$	$!$	means condition A or B.
$\{ A \}$	$A$	means that the value entered in the A = operand is to be compared to the X'71' output register contents masked by the value entered in the B = operand.
$\{ B \}$	$B$	means that the value entered in the B = operand is to be compared to the X'72' output register contents masked by the value entered in the A = operand.

If you enter an instruction with no condition (that is, no value in operands A, B, and C), the instruction is executed unconditionally.

$B = \left\{ \begin{array}{l} \text{xxxxxx} \\ \text{no value} \end{array} \right\}$

xxxxxx is the hexadecimal value expected in the CCU X'72' output register.

Enter no value if you expect no specific value in the CCU X'72' output register.

The contents of the CCU X'72' output register is displayed in MSA field k.

### Goto Instruction

The Goto instruction allows you to go to step xxx and execute it, if the condition is fulfilled; otherwise the next step is executed.

Goto with no value has no effect. The procedure continues in sequence.

### Halt Instruction

When a Halt instruction is encountered, the following screen is displayed:

Machine Status Area

CUSTOMER ID:  
FUNCTION ON SCREEN: CNTRL PRGM PROC

3720-1

SERIAL NUMBER:

SYSTEM INPUT AREA (SIA) ==>>  
T: TERMINATE   OFF: LOGOFF  
1 DIRECTORY  
2 DISPLAY  
3 CREATE/COPY  
4 ERASE  
5 MODIFY  
6 EXECUTE  
7 CATALOG

PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM  
STEP BY STEP   CU02 LINE TEST  
ENTER STEP NUMBER OR   ==>>  
PRESS PF4   PF5   PF6 OR SEND (EXECUTE CURRENT STEP: 001)

PF4:EXECUTE SETI   PF5:STOP EXECUTION   PF6:CHANGE EXEC MODE  
001 HALT   T= 002 A= 000005 C=   B= 00000F

The Halt instruction allows you to go to the step that you specified in operand T= and to stop before executing that step, if the condition is fulfilled.

The current step is displayed on the function message line. To resume processing, do one of the following actions:

- Execute the current step, displayed on line 23 (SEND key).
- Go to another step (enter the step number).
- Request an additional SETI instruction (PF4 key). You are then requested to enter the SETI operands.
- Stop the function execution (PF5 key).

- Change the mode of execution (PF6 key). If the execution mode is step-by-step, it switches to continuous mode, and conversely. Then press SEND or any other displayed PF key.

### Wait Instruction

The Wait instruction allows you to wait until the condition is fulfilled, and then to go to the step that you specified in operand T=.

To get control of the operator console, press the BREAK (ATTN) key. The following screen is then displayed:

Machine Status Area

CUSTOMER ID:	3720-1	SERIAL NUMBER:
FUNCTION ON SCREEN: CNTRL PRGM PROC		

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE	OFF: LOGOFF	PF1: MOVE TO SIA	PF2: CCU FNCTN	PF3: ALARM
1 DIRECTORY	STEP BY STEP	CU02	LINE TEST	
2 DISPLAY	ENTER STEP NUMBER OR	==>		
3 CREATE/COPY	PRESS PF4 PF5 PF6 OR	SEND	(EXECUTE CURRENT STEP: 003)	
4 ERASE				
5 MODIFY				
6 EXECUTE				
7 CATALOG				

PF4:EXECUTE SETI PF5:STOP EXECUTION PF6:CHANGE EXEC MODE  
003 WAIT T= 004 A= 00003F C= B= 00004F

To resume processing, do one of the following actions:

- Return to wait state (SEND key).
- Go to another step (enter the step number).
- Request an additional SETI instruction (PF4 key). You are then requested to enter the SETI operands.
- Stop the function execution (PF5 key).
- Change the mode of execution (PF6 key). If the execution mode is step-by-step, it switches to continuous mode, and conversely. Then press SEND or any other displayed PF key.

## Loop Instruction

**LOOP T = xxx N = xxx**

When it reaches this instruction, the procedure loops from this step to that specified in operand T = xxx, for the number of times that you indicated in operand N = xxx minus 1 (because the Loop instruction is located at the end of the loop block).

The value specified in operand T = must be smaller than the step number of the Loop instruction.

If a Goto or a Halt instruction is within the range of steps covered by the Loop instruction and branches to a step outside this range, the Loop instruction is ended and the Goto or Halt instruction is executed.

Nested Loop instructions may give unpredictable results.

## Disp Instruction

**DISP L = xxx M = message**

The Disp Instruction allows you to display on the line specified in operand L = xx (12 to 21), the message specified in the M = operand.

These messages inform you of the progression of the procedure or ask you to perform specific actions.

A message remains on the screen until a new one is displayed on the same line or until you clear it.

To clear a message, you must enter another Disp instruction on the same line (same operand L =) with no character for the M operand.

DISP L = 15 M =

*Notes:*

1. *You cannot enter (in operand M =) messages longer than 40 characters*
2. *You cannot specify more than 50 messages (DISP instructions) in a procedure. This number does not include DISP instructions with blank characters.*

## End Instruction

The End instruction indicates the end of the procedure. It must be the last instruction of the procedure. This statement cannot be modified or erased.

## Copy a Cataloged Procedure

Use Copy to copy existing procedures in order to catalog them either modified or not. You may copy *any* procedure: procedures that you created and cataloged, or precataloged ones. The only way to modify a precataloged procedure is to copy it under another name and modify the copied version.

Selection:

PF1

*To position the cursor*

C

SEND

*To display the control program  
procedure tools*

3

SEND

*To select Create/Copy*

The first screen of Create/Copy is displayed. You are requested to:

- Enter the new name and title of the procedure (that is, the name under which you will catalog the copied procedure).
- Enter the name of the procedure that you want to copy.
- Press PF6 (you may modify the procedure before pressing PF6).
- Select Catalog.
- Enter the new name of the procedure.

## Erase a Cataloged Procedure

Use Erase to erase a cataloged procedure. The directory and the procedure file are automatically updated.

Selection:  *To position the cursor*

*To display the control program procedure tools*

*To select Erase*

The following screen is displayed:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: CNTRL PRGM PROC

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE   OFF: LOGOFF   PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

1 DIRECTORY

2 DISPLAY

3 CREATE/COPY

4 ERASE

5 MODIFY

6 EXECUTE

7 CATALOG

ENTER NAME OF PROCEDURE TO BE ERASED ==>

You cannot erase procedures starting with CP. As a general rule, erase *only* the procedures that *you* created and cataloged.

## Modify a Cataloged Procedure

Use Modify to delete, insert, or modify one or several instructions in a procedure already cataloged, except procedures starting with CP. If you want to modify a precataloged procedure (CP), you must first copy it under another name (see "Create/Copy a Procedure").

*Note:* Before selecting Modify, you must know the step number of the instruction(s) that you want to modify.

Selection:

PF1

To position the cursor

C

SEND

To display the control program  
procedure tools

5

SEND

To select Modify

Once you have selected Modify from the secondary menu, you are requested to enter the name of the procedure that you want to modify. Then the following screen is displayed:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: CNTRL PRGM PROC

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE   OFF: LOGOFF

PF1: MOVE TO SIA   PF2: CCU FNCTN   PF3: ALARM

1 DIRECTORY  
2 DISPLAY  
3 CREATE/COPY  
4 ERASE  
5 MODIFY  
6 EXECUTE  
7 CATALOG

CU02 LINE TEST  
ENTER STEP NUMBER ==>  
SELECT ACTION: D=DELETE   I=INSERT   M=MODIFY ==>

PF6: END MODIFY

- A** Enter the step number of the instruction that you want to delete or modify, or after which you want to insert a new instruction.
- B** Select the action: delete, insert, or modify.

The step you have just selected is displayed. If you selected the action:

- **DELETE:** The selected step is immediately deleted. (It is not possible to delete the last step of a procedure, which is always END. If this is attempted, the message INVALID INPUT appears on the screen.)
- **INSERT:** You have to enter one or more instructions. To insert a step before the first step, enter the step number 0. The maximum number of statements allowed in a procedure is 255.
- **MODIFY:** You have to modify the displayed instruction or to replace it by a new instruction. (It is not possible to modify the last step of a procedure, which is always END. If this is attempted, the message INVALID INPUT appears on the screen.)

If you insert or delete one or several instructions, the T= operands of the Goto, Halt, Wait, and Loop instructions are automatically updated.

If you enter a step number and press SEND without selecting an action, the step is nevertheless displayed.

Once the procedure is modified:

- Press PF6, then
- Catalog the procedure.

## PF Keys

PF4: To modify the procedure that is already cataloged.

The PF6 key may have two meanings:

- **TO USE PROC FROM STORE** - To modify the procedure that is in the 3720 storage.
- **END MODIFY** - To indicate end of modifications. Do not forget to catalog the procedure.



## Execute a Cataloged Procedure

Use Execute to execute a procedure that is cataloged or that you have just created or modified. The control program must be running and MOSS must be online.

Selection:  *To position the cursor*

*To display the control program procedure tools*

*To select Execute*

You are first requested to enter the procedure name. Then the following screen is displayed:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: CNTRL PRGM PROC

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE

OFF: LOGOFF

PF1: MOVE TO SIA

PF2: CCU FNCTN

PF3: ALARM

CU02 LINE TEST

ENTER EXECUTION MODE

1 DIRECTORY

2 DISPLAY

3 CREATE/COPY

4 ERASE

5 MODIFY

6 EXECUTE

7 CATALOG

S=STEP BY STEP C=CONTINUOUS ==> C

The procedure may be executed in two modes:

- Step-by-step mode: The procedure stops before executing each step, which is displayed on the function message line.
- Continuous mode: The procedure is executed automatically.

In both modes, when an OSET, a Halt, or a Wait instruction is encountered, the procedure stops and you are requested to take an action. These instructions are described under the Create procedure tool.

While a procedure is being executed, the messages specified in the Disp instruction at creation time are displayed on the screen.

#### **PF Keys**

PF4: To execute the procedure that is already cataloged.

PF6: To execute the procedure that is in the 3720 storage.

## Catalog Procedures

Use Catalog to catalog in the procedure file the procedure that you have created or modified in 3720 storage. The directory is updated automatically with the procedure name and title, and the date.

If you select the Terminate function before cataloging a procedure that you have just created or modified, the procedure is lost or the modifications are ignored.

Selection:

PF1

*To position the cursor*

C

SEND

*To display the control program  
procedure tools*

7

SEND

*To select Catalog*

The following screen is displayed:

Machine Status Area

CUSTOMER ID:

3720-1

SERIAL NUMBER:

FUNCTION ON SCREEN: CNTRL PRGM PROC

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE    OFF: LOGOFF    PF1: MOVE TO SIA    PF2: CCU FNCTN    PF3: ALARM

1 DIRECTORY

2 DISPLAY

3 CREATE/COPY

4 ERASE

5 MODIFY

6 EXECUTE

7 CATALOG

ENTER NAME OF PROCEDURE TO BE CATALOGED ==>

When the procedure is cataloged, the following message is displayed (x is the name of the procedure):

PROCEDURE x CATALOGED

# Precataloged Control Program Procedures

Precataloged procedures are procedures already cataloged on the controller diskette when you receive your 3720. The names of precataloged procedures always start with CP. You cannot modify or erase them.

Each procedure is documented in this chapter as follows:

- Selection. This tells you exactly what to do to select and execute each procedure.
- Detailed description of each step. This may help you if you want to create a similar procedure or to copy the procedure under a different name and modify it.

If an *unintentional* loop occurs while performing a control program procedure, do as follows:

1. Re-IML MOSS (see *3720/3721 Operator's Guide*).
2. Correct the control program procedure using the 3720 procedure tools described in this chapter, and
3. Execute the procedure another time.

The precataloged procedures are:

CP01 - SDLC test frames (NCP only)  
CP02 - 3270 BSC general poll (NCP/EP)  
CP03 - 2740 start/stop poll (NCP/EP)  
CP04 - start address trace (NCP only)  
CP05 - stop address trace (NCP only)  
CP06 - X.21 switched line test (NCP only)

Control program procedures use several NCP or EP subroutines. Most of these subroutines are described in Figures 21-4 and 21-18. The subroutine identifier is the:

- First two characters of the D operand of each SETI and OSET instruction if the D operand is four characters long.
- Second and third characters of the D operand of each SETI and OSET instruction if the D operand is five characters long.

These identifiers are listed in columns xx of Figures 21-4 and 21-18 (for NCP) and 21-18 (for EP).

Example: SETI D= 051F3 F= 2 I= Y  
          SETI D= 51F3 F= 2 I= Y



Load Transmit Buffer subroutine (X'51')

When an error occurs while executing a precataloged control program procedure, the procedure stops and the error code is displayed in field k of the MSA. These codes are documented under the appropriate functions, starting at Figure 21-5.

## CP01 - SDLC Test Frames (NCP)

Use this function to transmit SDLC test frames (command F3) from the 3720 to any SDLC link in your network.

<b>Selection:</b>	<input type="button" value="PF1"/>	<input type="button" value="C"/>	<input type="button" value="SEND"/>	<i>To display 3720 procedure tools in the secondary menu</i>		
	<input type="button" value="6"/>	<input type="button" value="SEND"/>		<i>To select Execute</i>		
	<input type="button" value="C"/>	<input type="button" value="P"/>	<input type="button" value="O"/>	<input type="button" value="1"/>	<input type="button" value="SEND"/>	<i>Name of the procedure</i>
	<input type="button" value="C"/>	<input type="button" value="SEND"/>				<i>Continuous mode; otherwise e S for step-by-step mode</i>

## Detailed Description

Steps and Instructions	Comments
001 SETI D= 00000C F= 07 I= Y	Set NCP mode.
002 GOTO T= 026 A= 000000 C= & B= 000000	If EP, go to step 26.
003 DISP L= 18 M= **** SDLC TEST-FRAMES TO SDLC LINK ****	Display on line 18 text in operand M.
004 DISP L= 14 M= CHANGE 'FF' TO NCP LINE ADDRESS (HEX)	Display on line 14 text in operand M.
005 OSET D= 0020FF F= 02 I=	Initialize the line.
006 GOTO T= 026 A= 0000FF C= B B= 000003	The line is an EP line, go to step 26.
007 GOTO T= 014 A= 0000FF C= B B= 000005	The line is active, go to step 14.
008 GOTO T= 012 A= 00FF00 C= B B= 000000	Errors, go to step 12.
009 SETI D= 004000 F= I=	Enable the line.
010 DISP L= 14 M=	Dummy message to increase delay.
011 GOTO T= 018 A= 00FF00 C= B B= 00FF00	No error detected, go to step 18.
012 DISP L= 14 M= ERROR (SEE LINE TEST FUNCTION)	An error is detected during initialization. The error code is in MSA fields e and k. See Figure 21-5.
013 GOTO T= 027 A= C= B=	Go to step 27.
014 DISP L= 14 M= LINE IS ACTIVE. (DEACTIVATE)	Display on line 14 text in operand M.
015 HALT T= 004 A= C= B=	Go to step 4 after the line is deactivated.
016 DISP L= 14 M= ERROR (SEE LINE TEST FUNCTION)	Same comment as STEP 012.
017 GOTO T= 027 A= C= B=	Go to step 27.
018 DISP L= 14 M= CHANGE 'AA' TO SDLC STATION ADDRESS	Display on line 14 text in operand M.
019 OSET D= 0067AA F= I=	Load addressing character.
020 SETI D= 006210 F= I=	Set SDLC test mode.
021 GOTO T= 023 A= 00FFFF C= B B= 000000	No error, go to step 23.
022 GOTO T= 016 A= C= B=	Error, go to step 16.
023 DISP L= 14 M= TO END THE TEST, PRESS SEND	Display on line 14 text in operand M.
024 OSET D= 005000 F= I=	Set end test.
025 GOTO T= 028 A= C= B=	Go to step 28 (end).
026 DISP L= 14 M= INITIATED LINE IS SUPPORTED BY EP	Display on line 14 text in operand M.
027 HALT T= 028 A= C= B=	Halt.
028 END	End of procedure.

Figure 22-1. CP01 Procedure

## CP02 - 3270 BSC General Poll (NCP/EP)

Use this procedure to transmit a poll sequence from the 3720 to any 3270 display system in EBCDIC with BSC protocol. For a 3270 display system in ASCII, replace data in the D operands marked by an asterisk by appropriate data. To do so, copy and modify the procedure.

The CP02 procedure runs in EP environment as well as in NCP or NCP/PEP environment.

Selection:                *To display 3720 procedure tools in the secondary menu*

        *To select Execute*

                 *Name of the procedure*

        *Continuous mode; otherwise enter S for step-by-step mode*

## Detailed Description

Steps and Instructions	Comments
001 DISP L= 19 M= **** GENERAL POLL TO 3270 (BSC) ****	Display on line 19 text in operand M.
002 SETI D= 00000C F= 07 I= Y	Set NCP mode.
003 GOTO T= 030 A= 000000 C= & B= 000000	If EP, go to STEP 31.
004 DISP L= 12 M= CHANGE 'FF' TO NCP LINE ADDRESS (HEX)	Display on line 12 text in operand M.
005 OSET D= 0020FF F= 02 I= Y	Initialize the line.
006 GOTO T= 030 A= 0000FF C= B B= 000003	PEP line, go to step 30.
007 GOTO T= 011 A= 0000FF C= B B= 000005	Line is active, go to step 11.
008 GOTO T= 013 A= 00FF00 C= B B= 00FF00	Line is available, go to step 13.
009 DISP L= 12 M= ERROR (SEE LINE TEST FUNCTION)	An error is detected during initialization. The error code is in MSA fields e and k. See Figure 21-5.
010 GOTO T= 024 A= C= B=	Go to step 24.
011 DISP L= 12 M= LINE IS ACTIVE IN NCP. (DEACTIVATE)	Display on line 12 text in operand M.
012 GOTO T= 024 A= C= B=	Go to step 24.
013 DISP L= 12 M= CHANGE 'AA' TO CU-POLL ADDRESS (TWICE)	Display on line 12 text in operand M.
014 OSET D= 0066AA F= I=	Load polling character.
015 OSET D= 0066AA F= I=	Load polling character.
016 SETI D= 00667F F= I=	Load all-device poll address.
017 SETI D= 00667F F= I=	Load all-device poll address.
018 SETI D= 00662D F= I=	Load ENQ character.
019 SETI D= 004000 F= I=	Enable the line.
020 SETI D= 004A11 F= I=	Continuous polling.
021 GOTO T= 023 A= 0000FF C= B B= 000000	Go to step 23.
022 GOTO T= 009 A= C= B=	Go to step 9.
023 DISP L= 12 M= -----LINE TEST IS RUNNING-----	Display on line 12 text in operand M.
024 DISP L= 13 M= TO END THE TEST, PRESS SEND	Display on line 13 text in operand M.
025 OSET D= 005000 F= I=	End the line test.
026 GOTO T= 054 A= C= B=	Go to step 54.

Figure 22-2 (Part 1 of 2). CP02 Procedure



Steps and Instructions	Comments
027 DISP L = 12 M = ERROR (SEE LINE TEST FUNCTION)	An error is detected. The error code is in MSA fields e and k. See Figure 21-5 (NCP) or Figures 21-20 and 21-21 (EP).
028 OSET D = 008DAA F = I =	Display last message.
029 GOTO T = 051 A = C = B =	Go to step 51.
030 SETI D = 00000E F = 07 I =	Set EP mode.
031 DISP L = 13 M = CHANGE 'AA' TO CU-POLL ADDRESS (TWICE)	Display on line 13 text in operand M.
032 SETI D = 000037 F = 05 I =	Load EOT character.
033 SETI D = 0000FF F = I =	Load PAD.
034 SETI D = 000032 F = I =	Load SYN.
035 SETI D = 000032 F = I =	Load SYN.
036 OSET D = 0000AA F = 05 I = Y	Load poll address.
037 OSET D = 0000AA F = 05 I = Y	Load poll address.
038 SETI D = 00007F F = I =	Load all-device poll.
039 SETI D = 00007F F = I =	Load all-device poll.
040 SETI D = 00002D F = I =	Load ENQ character.
041 SETI D = 000099 F = I =	Load end-of-buffer.
042 SETI D = 000110 F = I =	Load ACK buffer 1.
043 SETI D = 000161 F = I =	Load ACK.
044 SETI D = 000199 F = I =	Load end buffer 1.
045 SETI D = 000437 F = I =	Load compare character EOT.
046 SETI D = 000903 F = I =	Load swap character ETX.
047 DISP L = 13 M = CHANGE 'AA' TO SUBCHANNEL ADDRESS	Display on line 13 text in operand M.
048 OSET D = 0080AA F = I =	Enable line.
049 OSET D = 0020AA F = I = Y	Transmit buffer.
050 GOTO T = 027 A = 200000 C = A B = 200000	EP errors, go to step 27.
051 DISP L = 12 M = TO END THE TEST	Display on line 12 text in operand M.
052 OSET D = 008FAA F = I =	End test.
053 GOTO T = 027 A = 00FFFF C = A B = 00FFFF	Error, go to step 27.
054 END	End of procedure.

Figure 22-2 (Part 2 of 2). CP02 Procedure

## CP03 - 2740 Start/Stop Poll (NCP/EP)

Use this procedure to transmit a poll sequence from the 3720 to any 2740 or other start/stop terminal in a network working with the same protocol.

CP03 runs in EP environment as well as in NCP or NCP/PEP environment.

Selection:    *To display 3720 procedure tools in the secondary menu*

*To select Execute*

*Name of the procedure*

*Continuous mode; otherwise enter S for step-by-step mode*

### Detail Description

Steps and Instructions	Comments
001 DISP L= 19 M= **** S/S POLL TO 2740 WITH SCTL ****	Display on line 19 text in operand M.
002 SETI D= 00000C F= 07 I= Y	Set control to NCP mode.
003 GOTO T= 027 A= 000000 C= & B= 000000	If EP, go to step 27.
004 DISP L= 12 M= CHANGE 'FF' TO NCP LINE ADDRESS (HEX)	Display on line 12 text in operand M.
005 OSET D= 0020FF F= 02 I= Y	Initialize the line.
006 GOTO T= 025 A= 0000FF C= B B= 000003	PEP line, go to step 25.
007 GOTO T= 011 A= 0000FF C= B B= 000005	Go to step 11.
008 GOTO T= 013 A= 00FF00 C= B B= 00FF00	Line is available, go to step 13.
009 DISP L= 12 M= ERROR (SEE LINE TEST FUNCTION)	An error is detected during initialization. The error code is in MSA fields e and k. See Figure 21-5.
010 GOTO T= 022 A= C= B=	Go to step 24.
011 DISP L= 12 M= LINE IS ACTIVE IN NCP. DEACTIVATE	Display on line 12 text in operand M.

Figure 22-3 (Part 1 of 2). CP03 Procedure

Steps and Instructions	Comments
012 GOTO T= 022 A= C= B=	Go to step 22.
013 DISP L= 12 M= CHANGE 'AA' TO 2740 STATION ADDRESS	Display on line 12 text in operand M.
014 OSET D= 0066AA F= I=	Load the station address.
015 SETI D= 006640 F= I=	
016 SETI D= 004000 F= I=	Enable the line.
017 GOTO T= 016 A= 0000FF C= B B= 000023	Error, go to step 16.
018 SETI D= 004A11 F= I=	Receive mode.
019 GOTO T= 021 A= 00004A C= & B= 000000	Go to step 21.
020 GOTO T= 009 A= C= B=	Error, go to step 9.
021 DISP L= 12 M= ----LINE TEST IS RUNNING----	Display on line 12 text in operand M.
022 DISP L= 13 M= TO END THE TEST, PRESS SEND	Display on line 13 text in operand M.
023 OSET D= 005000 F= I=	End test.
024 GOTO T= 038 A= C= B=	Go to step 38.
025 SETI D= 00000E F= 07 I=	
026 SETI D= 008CFF F= I=	
027 SETI D= 00001F F= 05 I=	
028 DISP L= 13 M= CHANGE 'AA' TO 2740 ADDRESS (PDF-CODE)	Display on line 13 text in operand M.
029 OSET D= 0000AA F= I=	
030 SETI D= 000001 F= I=	
031 SETI D= 000099 F= I=	Load the station address.
032 SETI D= 00047C F= I=	Load EOA character.
033 DISP L= 13 M= CHANGE 'AA' TO SUBCHANNEL ADDRESS	Load buffer-end.
034 OSET D= 0080AA F= I=	
035 OSET D= 0020AA F= I=	Display on line 13 text in operand M.
036 DISP L= 12 M= TO END THE TEST,	Display on line 12 text in operand M.
037 OSET D= 008FAA F= I=	End the line test.
038 END	End the procedure.

Figure 22-3 (Part 2 of 2). CP03 Procedure

## CP04 - Start Address Trace (NCP)

Use this procedure to debug TP problems by storing up to four register values or storage values in a trace table each time the address that you specified is accessed in a specific program level. To stop the address trace, use procedure CP05 or the CCU data exchange function.

To display the address trace table, use the procedure given under "NCP-Address Trace" in Chapter 21.

You can use procedure CP04 only in NCP or NCP/PEP environment if TRACE = YES is specified in the BUILD macro.

Selection:

*To display 3720 procedure tools in the secondary menu*

*To select Execute*

*Name of the procedure*

*Continuous mode; otherwise enter S for step-by-step mode*

### Detailed Description

Steps and Instructions	Comments
001 SETI D= 00000C F= 07 I= Y	Set NCP mode.
002 GOTO T= 026 A= 000000 C= & B= 000000	If not NCP, go to step 26.
003 DISP L= 18 M= ***START ADDRESS TRACE ***	Display on line 18 text in operand M.
004 SETI D= 008002 F= 01 I= Y	Set on Allow Additional Register Range Bit (AARR).
005 SETI D= 000001 F= 01 I= Y	Set Address Trace function in NCP.
006 DISP L= 13 M= ENTER DESIRED PGM LEVELS ( 1 - F )	Display on line 13 text in operand M.
007 OSET D= F= I=	Set program levels. Enter in D= the program level (s) to be traced (X'1' to X'F'). It can be any combination of: 1... level 2 ..1... level 3 ...1. level 4 ....1 level 5

Figure 22-4 (Part 1 of 2). CP04 Procedure

Steps and Instructions	Comments
008 GOTO T= 019 A= 0FFFFFF C= B B= 03FFFF	Error, go to step 19.
009 DISP L= 13 M= ENTER STORAGE-ADDR. IN 'D' + S IN 'F'	Display on line 13 text in operand M.
010 DISP L= 14 M= OR REG.- ADDR. R0R0 IN 'D' + R IN 'F'	Display on line 14 text in operand M.
011 OSET D= F= I=	Enter in D= either the storage or the register address. (Enter the register address as r0r0: for register X'42' enter 4020.) Enter in F= either S for storage or R for register.
012 GOTO T= 014 A= C= B=	Go to step 14.
013 GOTO T= 016 A= C= B=	Go to step 16.
014 LOOP T= 013 N= 004	4 loops required to enter data.
015 GOTO T= 021 A= C= B=	All data entered, go to step 21 to continue.
016 DISP L= 13 M= IF MORE VALUES TO ENTER, PRESS [SEND]	Display on line 13 text in operand M.
017 DISP L= 14 M= IF NO MORE VALUES, ENTER STEP = > 21	Display on line 14 text in operand M.
018 HALT T= 009 A= C= B=	
019 DISP L= 13 M= INVALID PGM-LEVEL VALUE ENTERED	Display on line 13 text in operand M.
020 GOTO T= 006 A= C= B=	Go to step 06.
021 DISP L= 13 M=	Clear message on line 13.
022 DISP L= 14 M= *ALL POSSIBLE VARIABLES ARE ENTERED*	Display on line 14 text in operand M.
023 SETI D= F= 06 I=	
024 SETI D= F= 03 I=	Start the trace.
025 GOTO T= 028 A= C= B=	Go to step 28.
026 DISP L= 13 M= * CP04 ISN'T SUPPORTED BY EP *	Display on line 13 text in operand M.
027 HALT T= 031 A= C= B=	
028 DISP L= 13 M= ADDR. TRACE IS NOW ACTIVE, SET 'AC' WITH	Display on line 13 text in operand M.
029 DISP L= 14 M= LEVEL 1 INTERR. OPTION (CCU FUNCT. AC)	Display on line 14 text in operand M.
030 HALT T= 031 A= C= B=	
031 END	End of the procedure.

Figure 22-4 (Part 2 of 2). CP04 Procedure

## CP05 - Stop Address Trace (NCP)

Use this procedure to stop an address trace. You can use procedure CP05 only in NCP or NCP/PEP environment.

You can execute CP05 only if you already executed procedure CP04 - Start Address Table.

Selection:    *To display 3720 procedure tools in the secondary menu*

*To select Execute*

*Name of the procedure*

*Continuous mode; otherwise enter S for step-by-step mode*

### Detailed Description

Steps and Instructions	Comments
001 SETI D= 00000C F= 07 I= Y	Set NCP mode.
002 GOTO T= 009 A= 000000 C= & B= 000000	If EP, go to step 9.
003 DISP L= 18 M= **** STOP ADDRESS TRACE ****	Display on line 13 text in operand M.
004 SETI D= F= 06 I= Y	Stop the Address Trace function.
005 SETI D= 000002 F= 01 I= Y	Set off the Allow Additional Register Range bit (AARR).
006 DISP L= 13 M= THE ADDRESS TRACE IS NOW STOPPED...	Display on line 13 text in operand M.
007 DISP L= 14 M= CANCEL AC (CCU FNCTN RAC)	To cancel the address compare, select CCU function, Cancel AC (8).  <i>Note: This action is required only if you selected an Address Compare.</i>
008 HALT T= 011 A= C= B=	Go to step 11 (end).
009 DISP L= 13 M= *CP05 ISN'T SUPPORTED BY EP*	Display on line 13 text in operand M.
010 HALT T= 011 A= C= B=	Go to step 11 (end).
011 END	End of the procedure.

Figure 22-5. CP05 Procedure

## CP06 - X.21 Switched Line Test (NCP)

Use this procedure to transmit test frames.

Selection:

*To display 3720 procedure  
tools in the secondary menu*

*To select Execute*

*Name of the procedure*

*Continuous mode; otherwise C  
S for step-by-step mode*

## Detailed Description

Steps and Instructions	Comments
001 SETI D= 00000C F= 07 I= Y	Set NCP mode.
002 GOTO T= 005 A= 00000C C= & B= 00000C	If NCP, go to step 5.
003 DISP L= 18 M= CP06 CANNOT BE PERFORMED BY EP	Display message on line 18.
004 HALT T= 084 A= C= B=	EP mode, go to step 84 and halt.
005 DISP L= 18 M= **** X.21 SWITCHED LINE TEST ****	Display name of the procedure on line 18.
006 GOTO T= 010 A= C= B=	Go to step 10.
007 DISP L= 16 M=	Clear message on line 16.
008 GOTO T= 15 M=	Clear message on line 15.
009 DISP L= 14 M=	Clear message on line 14.
010 DISP L= 13 M= LINE ADDRESS SELECTION	Display message on line 13.
011 DISP L= 14 M= REPLACE FF BY HEX NCP LINE ADDRESS	Display message on line 14.
012 OSET D= 0020FF F= 02 I=	Initialize the line test.
013 DISP L= 14 M=	Clear message on line 14.
014 GOTO T= 028 A= 00FF00 C= B B= 00FF00	No error detected, go to step 28.
015 GOTO T= 019 A= 0000FF C= B B= 000003	EP line, go to step 19.
016 GOTO T= 021 A= 0000FF C= B B= 000005	The line is active, go to step 21.
017 DISP L= 14 M= LINE INIT. ERROR, SEE X71/X72 IN MSA	An error is detected during the initialization of the line. The error code is displayed in MSA field k. See Figure 21-5.
018 GOTO T= 022 A= C= B=	Go to step 22.

Figure 22-6 (Part 1 of 4). CP06 Procedure



Steps and Instructions	Comments
019 DISP L= 14 M= SELECTED LINE IS SUPPORTED BY EP	This message is displayed only in a PEP environment when the line is supported by EP.
020 GOTO T= 022 A= C= B=	Go to step 22.
021 DISP L= 14 M= LINE IS ACTIVE: DEACTIVATE IT FROM HOST	Display message on line 14.
022 DISP L= 15 M= ENTER STEP NUMBER 79 TO TERMINATE, OR	Display message on line 15.
023 DISP L= 16 M= PRESS SEND TO SELECT ANOTHER LINE	Display message on line 16.
024 HALT T= 007 A= C= B=	Go to step 7 and halt.
025 DISP L= 16 M=	Clear message on line 16.
026 DISP L= 15 M=	Clear message on line 15.
027 DISP L= 14 M=	Clear message on line 14.
028 DISP L= 13 M= DIAL NUMBER LOADING (2 TO 15 DIGITS):	Display message on line 13.
029 DISP L= 14 M= REPLACE E BY DIAL DIGIT	Display message on line 14.
030 OSET D= 00470E F= I=	Load one dial digit.
031 DISP L= 14 M=	Clear message on line 14.
032 GOTO T= 035 A= 00FF00 C= B B= 00FF00	Go to step 35.
033 DISP L= 14 M= DIAL DIGIT ERROR, SEE X71/X72 IN MSA	Display message on line 14.
034 HALT T= 035 A= C= B=	Go to step 35 and halt.
035 DISP L= 14 M= IF ANOTHER DIGIT, PRESS SEND	Display message on line 14.
036 DISP L= 15 M= OTHERWISE, ENTER STEP NUMBER 41	Display message on line 15.
037 HALT T= 038 A= C= B=	Go to step 38 and halt.
038 DISP L= 15 M=	Clear message on line 15.
039 DISP L= 14 M=	Clear message on line 14.
040 GOTO T= 029 A= C= B=	Go to step 29.
041 DISP L= 15 M=	Clear message on line 15.
042 DISP L= 14 M=	Clear message on line 14.
043 SETI D= 00470F F= I=	Indicate that the last digit has been entered.
044 DISP L= 13 M= SDLC STATION ADDRESS SELECTION	Display message on line 13.

Figure 22-6 (Part 2 of 4). CP06 Procedure

Steps and Instructions	Comments
045 DISP L= 14 M= REPLACE AA BY SDLC ADDRESS	Display message on line 14.
046 OSET D= 0067AA F= I=	Load addressing characters.
047 DISP L= 14 M=	Clear message on line 14.
048 DISP L= 13 M= DIAL OPERATE (SETMODE AND DIAL ISSUED)	Display message on line 13.
049 SETI D= 004800 F= I=	Issue a Set mode and Dial to the line and complete the connection using the digits entered on step 34.
050 DISP L= 17 M=	Clear message on line 17. This instruction is used to delay the dial operate test.
051 GOTO T= 060 A= 00FF00 C= B B= 00FF00	No error detected, go to step 60.
052 DISP L= 14 M= DIAL OPERATE ERROR, SEE X71/X72 IN MSA	The error code is displayed in field k of the MSA. See Figure 21-5.
053 HALT T= 054 A= C= B=	Go to step 54 and halt.
054 SETI D= 004D00 F= I=	Display LTS pointer address in MSA field k.
055 DISP L= 14 M= USE CCU FNCT DL 4 TO DISPLAY LTS, SEE X72	Select the Display Long function to display the LTS block. The address of the LTS pointer is displayed in MSA field k.
056 HALT T= 073 A= C= B=	Go to step 73 and halt.
057 DISP L= 16 M=	Clear message on line 16.
058 DISP L= 15 M=	Clear message on line 15.
059 DISP L= 14 M=	Clear message on line 14.
060 DISP L= 13 M= SDLC TEST FRAME TRANSMISSION	Clear message on line 13.
061 SETI D= 006200 F= I=	Transmit on SDLC test frame to the station selected in step 46.
062 GOTO T= 067 A= 00FFFF C= B B= 000000	No error, go to step 67.
063 DISP L= 14 M= TEST FRAME ERROR, SEE X71/X72 IN MSA	The error code is displayed in field k of the MSA. See Figure 21-5.
064 HALT T= 065 A= C= B=	Go to step 65 and halt.
065 DISP L= 14 M=	Clear message on line 14.
066 GOTO T= 068 A= C= B=	Go to step 66.
067 SETI D= 005F00 F= I=	End the SDLC test frame transmission but not the line test.
068 DISP L= 13 M= X.21 DTE CLEAR REQUEST	Display message on line 13.
069 SETI D= 005D00 F= I=	Issue an X.21 DTE clear Request to the line without ending the line test.

Figure 22-6 (Part 3 of 4). CP06 Procedure

Steps and Instructions	Comments
070 GOTO T= 074 A= 00FF00 C= B B= 00FF00	No error, go to step 74.
071 DISP L= 14 M= X.21 DTE CLEAR ERROR, SEE X71/72 IN MSA	The error code is displayed in field k of the MSA. See Figure 21-5.
072 HALT T= 073 A= C= B=	Go to step 73 and halt.
073 DISP L= 14 M=	Clear message on line 14.
074 DISP L= 13 M= PRESS SEND TO TERMINATE OR ENTER STEP:	Display message on line 13.
075 DISP L= 14 M= - 57 TO LOOP ON SAME STATION (IF DIALED)	Display message on line 14.
076 DISP L= 15 M= - 25 TO TEST A STATION ON SAME LINE	Display message on line 15.
077 DISP L= 16 M= - 9 TO TEST A STATION ON ANOTHER LINE	Display message on line 16.
078 HALT T= 079 A= C= B=	Go to step 79 and halt.
079 DISP L= 16 M=	Clear message on line 16.
080 DISP L= 15 M=	Clear message on line 15.
081 DISP L= 14 M=	Clear message on line 14.
082 DISP L= 13 M=	Clear message on line 13.
083 SETI D= 005000 F= I=	End the Line Test function.
084 DISP L= 18 M=	Clear procedure name displayed on line 18.
085 END	End of the CP06 procedure.

**Figure 22-6 (Part 4 of 4). CP06 Procedure**

## Examples of Control Program Procedure Creation

The following pages show you how to create five control program procedures:

- FE01 - Install a ZAP (NCP or NCP/PEP)
- CE01 - Text to 3270 - BSC in EBCDIC (NCP)
- CE02 - Text to 3270 - BSC in EBCDIC (EP, PEP)
- CE03 - Text to 2740 - S/S (NCP)
- CE04 - Text to 2740 - S/S (EP, PEP)

These procedures use several NCP and EP subroutines. Most of these subroutines are described in Figures 21-4 and 21-18. The subroutine identifier is the first two characters of the D operand of each SETI and OSET instruction. These identifiers are listed in columns xx of Figures 21-4 (for NCP) and 21-18 (for EP).

Example:

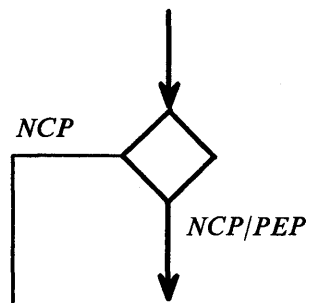
SETI D= 0032 F= 5 I= Y

↓

Load Transmit Buffer 1 subroutine (X'00')

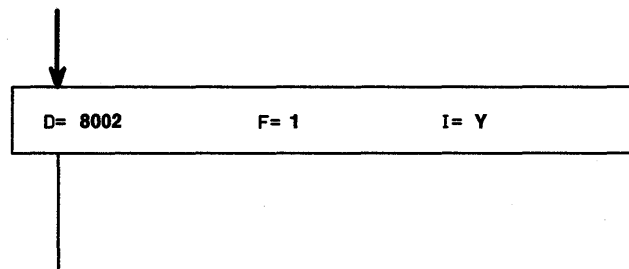
## Conventions

In the create procedures given in this chapter, the following conventions, in addition to those described in the Preface, are used:



Decision. In this example, you have to decide between NCP and NCP/PEP.

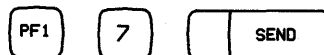
Boxes in each procedure show information that is displayed on the screen. All you have to do is to enter the characters that are printed in bold type. In this example, you are required to enter 8002, 1, and Y.



When entering a SETI or OSET instruction, you do not have to specify the F= and I= values if you already specified the same values in a previous SETI or OSET instruction. However, in the following procedures, F= and I= values are always shown, even when repetitive, for clarity.

## What to Do Once a Procedure is Created

You should first catalog it:



Once cataloged, you should test the procedure. To do so, execute it:



If there are errors, correct them, then catalog the procedure again. To modify it:



## **FE01 - Install a ZAP (NCP or NCP/PEP)**

Create this procedure at ZAP installation in NCP.

### **Requirements:**

- NCP with or without PEP
- BSC line protocol
- EBCDIC line code

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     PF1[PF1] --&gt; C[C]     C --&gt; S1[SEND]     S1 --&gt; 3[3]     3 --&gt; S2[SEND]     S2 --&gt; Text1["- ENTER NAME OF PROCEDURE TO BE CREATED ==&gt; - ENTER TITLE (UP TO 24 CHAR) ==&gt;"]     Text1 --&gt; S3[SEND]     S3 --&gt; S4[SEND]     S4 --&gt; D1{?}     D1 -- NCP --&gt; S5[S]     S5 --&gt; S6[SEND]     S6 --&gt; Text2["D = C    F = 7    I = Y"]     Text2 --&gt; S7[SEND]     S7 --&gt; D2{?}     D2 -- "To store halfwords" --&gt; C2[C]     C2 --&gt; PF4_1[PF4]     PF4_1 --&gt; Text3["D = 3    F = 1    I = Y"]     Text3 --&gt; S8[SEND]     S8 --&gt; PF4_2[PF4]     PF4_2 --&gt; End1[next page]     D2 -- "To store bytes" --&gt; PF4_3[PF4]     PF4_3 --&gt; Text4["D = 3    F = 1    I = Y"]     Text4 --&gt; S9[SEND]     S9 --&gt; PF4_4[PF4]     PF4_4 --&gt; End2[next page] </pre>	<p>To position the cursor.</p> <p>To select the control program procedure tools.</p> <p>To select CREATE.</p> <p>The name is FE01.</p> <p>SETI instruction.</p> <p>In NCP/PEP environment, you have to switch to NCP mode.</p> <p>To repeat previous SETI instruction.</p> <p>Byte mode</p> <p>To repeat previous SETI instruction.</p>

Figure 22-7 (Part 1 of 3). FE01 - Install a ZAP (NCP or NCP/PEP)

KEY	PROCEDURE	COMMENTS
B	<pre> graph TD     Start(( )) --&gt; B1[D = XXXXX F = 2 I = Y]     B1 --&gt; S1[SEND]     S1 --&gt; PF4_1[PF4]     PF4_1 --&gt; B2[D = XX F = 3 I = Y]     B2 --&gt; S2[SEND]     S2 --&gt; D1{?}     D1 -- "More consecutive bytes" --&gt; PF4_1     D1 -- "No more consecutive bytes" --&gt; D2{?}     D2 -- "More non-consecutive bytes" --&gt; PF4_1     D2 -- "No more bytes" --&gt; D3{?}     D3 -- "More data but in halfwords" --&gt; PF4_1     D3 -- "No more data" --&gt; B3[D = 4 F = 1 I = Y]     B3 --&gt; S3[SEND]     S3 --&gt; PF4_2[PF4]     PF4_2 --&gt; B4[D = XXXXXX F = 2 I = Y]     B4 --&gt; S4[SEND]     S4 --&gt; End(( ))   </pre>	<p>XXXXXX is the storage address right-justified.</p> <p>To repeat previous SETI instruction.</p> <p>XX is the byte to be stored.</p>
C		<p>To repeat previous SETI instruction.</p> <p>Halfword mode</p>
D		<p>To repeat previous SETI instruction.</p> <p>XXXXXX is the storage address right justified.</p>

Figure 22-7 (Part 2 of 3). FE01 - Install a ZAP (NCP or NCP/PEP)



KEY	PROCEDURE	COMMENTS
E	<pre> graph TD     Start(( )) --&gt; PF4[PF4]     PF4 --&gt; D1[D= XXXX F= 3 I= Y]     D1 --&gt; S1[SEND]     S1 --&gt; D1Q{?}     D1Q -- "More consecutive halfwords" --&gt; PF4     D1Q -- "No more consecutive halfwords" --&gt; D2Q{?}     D2Q -- "More non-consecutive halfwords" --&gt; D3Q{?}     D2Q -- "No more halfwords to store" --&gt; D4[D]     D3Q -- "More data but in bytes" --&gt; A[A]     D3Q -- "No more data (all data stored)" --&gt; L12[L= 12 M= ZAP XXX IS NOW INSTALLED. PRESS SEND TO END]     A --&gt; S2[SEND]     L12 --&gt; S3[SEND]     S3 --&gt; O[O]     O --&gt; S4[SEND]     S4 --&gt; D5[D= F= 6 I= Y]     D5 --&gt; S5[SEND]     S5 --&gt; E[E]     E --&gt; S6[SEND]     </pre>	<p>To repeat previous SETI instruction.</p> <p>xxxx is the halfword to be stored.</p> <p>DISP instruction</p> <p>To display on line 12 text in operand M=</p> <p>OSET instruction</p> <p>To end the dynamic store function. Enter no value in D=</p> <p>To end the procedure. (Do not forget to catalog the procedure.)</p>

Figure 22-7 (Part 3 of 3). FE01 - Install a ZAP (NCP or NCP/PEP)

## **CE01 - Text to 3270 - BSC in EBCDIC (NCP)**

Create this procedure to transmit text messages from the 3270 to any 3270 with BSC protocol.

### **Requirements:**

- NCP line
- BSC line protocol
- EBCDIC line code

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     PF1[PF1] --&gt; C[C]     C --&gt; S1[SEND]     S1 --&gt; 3[3]     3 --&gt; S2[SEND]     S2 --&gt; Box1["- ENTER NAME OF PROCEDURE TO BE CREATED ==&gt; - ENTER TITLE (UP TO 24 CHAR) ==&gt;"]     Box1 --&gt; S3[SEND]     S3 --&gt; S4[SEND]     S4 --&gt; D1{?}     D1 -- "No display of title line" --&gt; D2{?}     D1 -- "Display of title line" --&gt; D[D]     D --&gt; S5[SEND]     S5 --&gt; Box2["L= 12 M= TEXT TO 3270"]     Box2 --&gt; S6[SEND]     S6 --&gt; D2     D2 -- "NCP only" --&gt; Box3["L= 15 M= CHANGE FF TO NCP HEX LINE ADDRESS"]     D2 -- "PEP environment" --&gt; S[S]     S --&gt; S7[SEND]     S7 --&gt; Box4["D= C F= 7 I= Y"]     Box4 --&gt; S8[SEND]     S8 --&gt; D3[D]     D3 --&gt; S9[SEND]     S9 --&gt; Box3     Box3 --&gt; NextPage[next page] </pre>	<p>To position the cursor.</p> <p>To select the control program procedure tools.</p> <p>To select CREATE.</p> <p>The name is CE01.</p> <p>To display the title. 'TEXT TO 3270' is an example of title line.</p> <p>SETI instruction</p> <p>In PEP environment, to switch to NCP mode.</p> <p>DISP instruction</p> <p>To display on line 15 text in operand M=</p>

Figure 22-8 (Part 1 of 5). CE01 - Text to 3270 - BSC in EBCDIC (NCP)

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     Start(( )) --&gt; S1[SEND]     S1 --&gt; O1[0]     O1 --&gt; S2[SEND]     S2 --&gt; D1[D= 20FF F= 2 I= Y]     D1 --&gt; S3[SEND]     S3 --&gt; S4[SEND]     S4 --&gt; L1[L= 15 M= CHANGE AA TO 3270 POLL ADDRESS TWICE]     L1 --&gt; S5[SEND]     S5 --&gt; O2[0]     O2 --&gt; S6[SEND]     S6 --&gt; D2[D= 066AA F= 2 I= Y]     D2 --&gt; S7[SEND]     S7 --&gt; PF4_1[PF4]     PF4_1 --&gt; S8[SEND]     S8 --&gt; S9[S]     S9 --&gt; S10[SEND]     S10 --&gt; D3[D= 0667F F= 2 I= Y]     D3 --&gt; S11[SEND]     S11 --&gt; PF4_2[PF4]     PF4_2 --&gt; NextPage[next page] </pre>	<p>OSET instruction</p> <p>To enter the NCP line address.</p> <p>DISP instruction</p> <p>To display on line 15 text in operand M =</p> <p>OSET instruction</p> <p>To enter 3270 CU poll address.</p> <p>To repeat previous OSET instruction.</p> <p>To transmit previous OSET unchanged.</p> <p>SETI instruction</p> <p>To enter all-device = poll address (X'7F').</p> <p>To repeat previous SETI instruction.</p>

Figure 22-8 (Part 2 of 5). CE01 - Text to 3270 - BSC in EBCDIC (NCP)

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     Start(( )) --&gt; S1[SEND]     S1 --&gt; PF4[PF4]     PF4 --&gt; D1["D= 0662D F= 2 I= Y"]     D1 --&gt; S2[SEND]     S2 --&gt; D2[D]     D2 --&gt; S3[SEND]     S3 --&gt; L1["L= 15 M= CHANGE AA TO CU-SELECTION ADDR TWICE"]     L1 --&gt; S4[SEND]     S4 --&gt; O[0]     O --&gt; S5[SEND]     S5 --&gt; D3["D= 067AA F= 2 I= Y"]     D3 --&gt; S6[SEND]     S6 --&gt; PF4_2[PF4]     PF4_2 --&gt; S7[SEND]     S7 --&gt; D4[D]     D4 --&gt; S8[SEND]     S8 --&gt; L2["L= 15 M= CHANGE AA TO DEVICE SELECTION ADDR TWICE"]     L2 --&gt; S9[SEND]     S9 --&gt; NextPage[next page] </pre>	<p>To transmit previous SETI unchanged.</p> <p>To repeat previous SETI instruction.</p> <p>To enter enquiry character ENQ (X'2D').</p> <p>DISP instruction</p> <p>To display on line 15 text in operand M=</p> <p>OSET instruction</p> <p>To enter 3270 CU-select address.</p> <p>To repeat previous OSET instruction.</p> <p>To transmit previous OSET unchanged.</p> <p>DISP instruction</p> <p>To display on line 15 text in operand M=</p>

Figure 22-8 (Part 3 of 5). CE01 - Text to 3270 - BSC in EBCDIC (NCP)

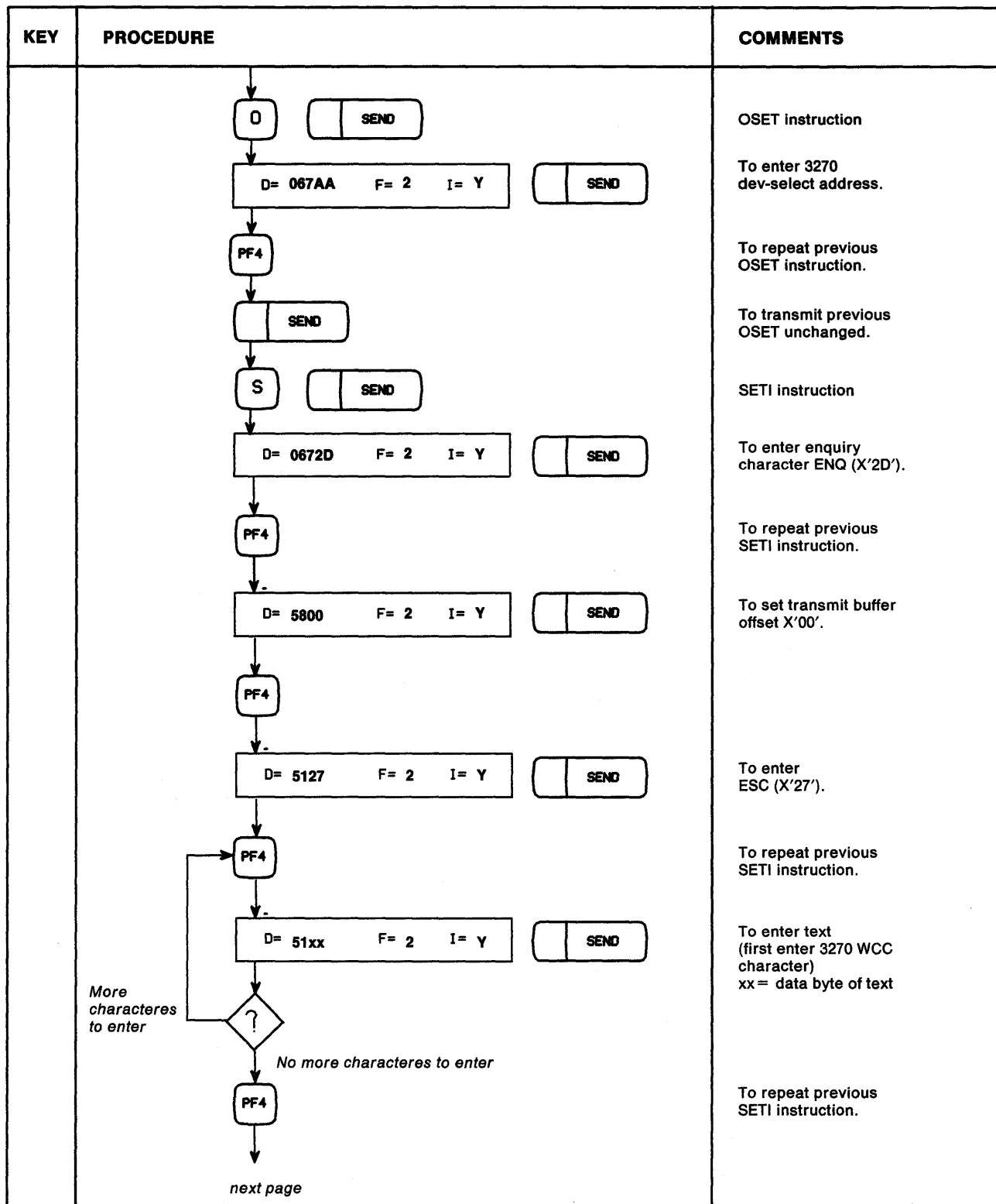


Figure 22-8 (Part 4 of 5). CE01 - Text to 3270 - BSC in EBCDIC (NCP)

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     Start(( )) --&gt; Box1[D= 4000 F= 2 I= Y]     Box1 --&gt; PF4_1[PF4]     PF4_1 --&gt; Box2[D= 4A10 F= 2 I= Y]     Box2 --&gt; PF4_2[PF4]     PF4_2 --&gt; Box3[D= 4F10 F= 2 I= Y]     Box3 --&gt; Box4[D]     Box4 --&gt; Box5[L= 15 M= TO END THE TEST PRESS SEND]     Box5 --&gt; Box6[O]     Box6 --&gt; Box7[D= 5000 F= 2 I= Y]     Box7 --&gt; Box8[E]   </pre>	<p>To enable the line.</p> <p>To repeat previous SETI instruction.</p> <p>To poll the 3270 and monitor for response.</p> <p>To repeat previous SETI instruction.</p> <p>To transmit the message text.</p> <p>DISP instruction</p> <p>To display on line 15 text in operand M=</p> <p>OSET instruction</p> <p>To wait for operator's response.</p> <p>End of procedure (do not forget to catalog the procedure).</p>

Figure 22-8 (Part 5 of 5). CE01 - Text to 3270 - BSC in EBCDIC (NCP)

## **CE02 - Text to 3270 - BSC in EBCDIC (EP, PEP)**

Create this procedure to transmit a text message from the 3270 to any 3270 in your network.

### **Requirements:**

- EP or PEP line
- BSC line protocol
- EBCDIC line code



KEY	PROCEDURE	COMMENTS
	<pre> graph TD     PF1_1[PF1] --&gt; C[C]     C --&gt; S1[SEND]     S1 --&gt; 3[3]     3 --&gt; S2[SEND]     S2 --&gt; InputBox["- ENTER NAME OF PROCEDURE TO BE CREATED ==&gt; - ENTER TILTLE (UP TO 24 CHAR) ==&gt;"]     InputBox --&gt; S3[SEND]     S3 --&gt; S4[SEND]     S4 --&gt; Decision{?}     Decision -- "No display of title line" --&gt; S5[S]     Decision -- "Display of title line" --&gt; D[D]     S5 --&gt; S6[SEND]     D --&gt; S7[SEND]     S6 --&gt; LBox["L= 12    F= TEXT TO 3270"]     LBox --&gt; S8[SEND]     S7 --&gt; S9[S]     S9 --&gt; S10[SEND]     S10 --&gt; DBox["D= E      F= 7    I= Y"]     DBox --&gt; S11[SEND]     S11 --&gt; S12[S]     S12 --&gt; S13[SEND]     S13 --&gt; D2Box["D= 0037    F= 5    I= Y"]     D2Box --&gt; S14[SEND]     S14 --&gt; PF1_2[PF1]     PF1_2 --&gt; NextPage[next page] </pre>	<p>To position the cursor.</p> <p>To select the control program procedure tools.</p> <p>To select CREATE.</p> <p>The name is CE02.</p> <p>To display the title. 'TEXT TO 3270' is an example of title line.</p> <p>SETI instruction</p> <p>TO switch to EP mode.</p> <p>To enter EOT character (X'37') into buffer 1.</p>

Figure 22-9 (Part 1 of 6). CE02 - Text to 3270-BSC in EBCDIC (EP/PEP)

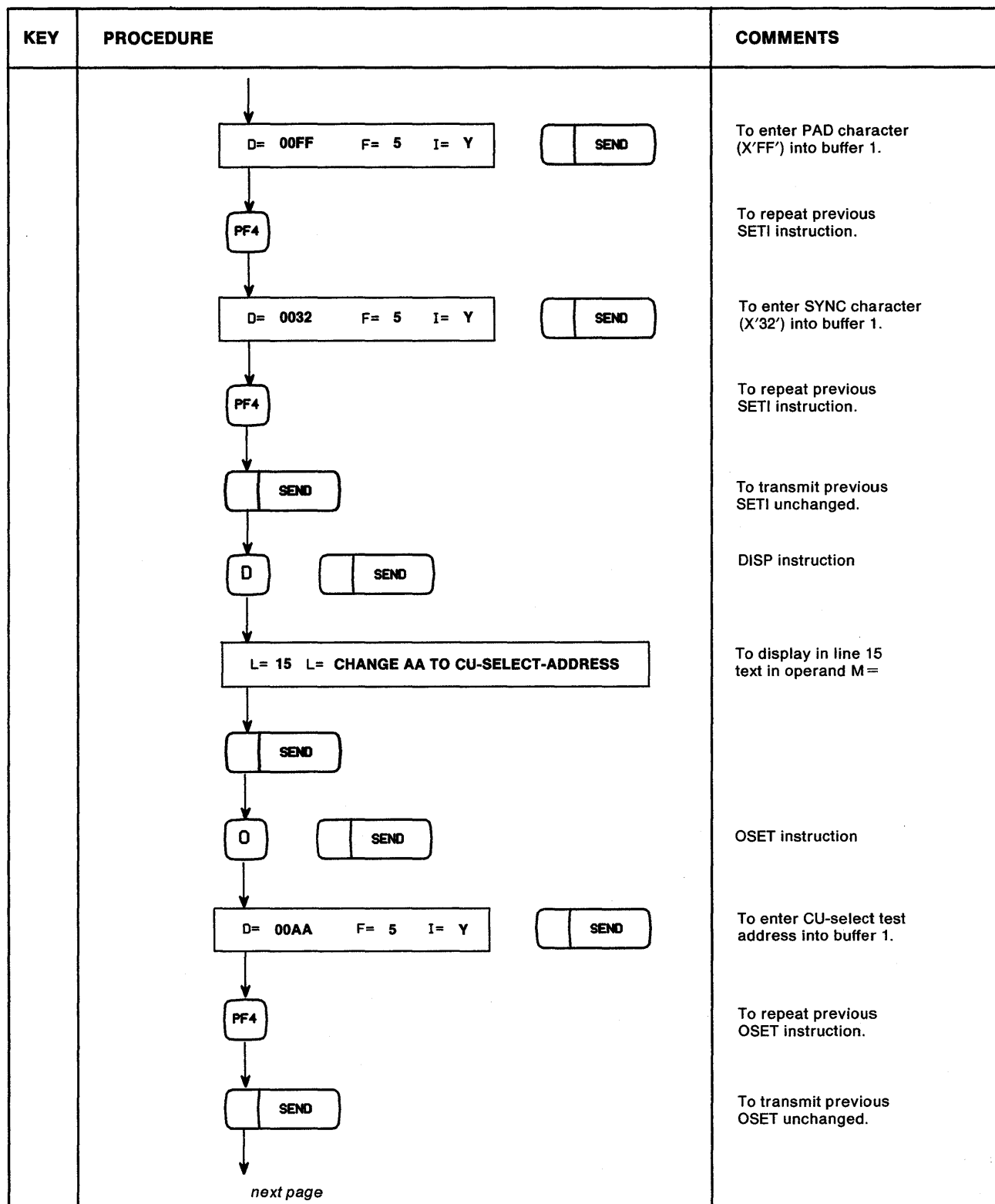


Figure 22-9 (Part 2 of 6). CE02 - Text to 3270-BSC in EBCDIC (EP/PEP)

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     Start(( )) --&gt; D1[D]     D1 --&gt; S1[SEND]     S1 --&gt; L[L= 15 M= CHANGE FF TO DEV-SELECT-ADDRESS]     L --&gt; S2[SEND]     S2 --&gt; O[O]     O --&gt; S3[SEND]     S3 --&gt; D2[D= 00FF F= 5 I= Y]     D2 --&gt; S4[SEND]     S4 --&gt; PF4_1[PF4]     PF4_1 --&gt; S5[SEND]     S5 --&gt; S[S]     S --&gt; S6[SEND]     S6 --&gt; D3[D= 002D F= 5 I= Y]     D3 --&gt; S7[SEND]     S7 --&gt; PF4_2[PF4]     PF4_2 --&gt; D4[D= 0099 F= 5 I= Y]     D4 --&gt; S8[SEND]     S8 --&gt; PF4_3[PF4]     PF4_3 --&gt; NextPage[next page] </pre>	<p>DISP instruction</p> <p>To display on line 15 text in operand M=</p> <p>OSET instruction</p> <p>To enter dev-select address into buffer 1.</p> <p>To repeat previous OSET instruction.</p> <p>To transmit previous OSET unchanged.</p> <p>SETI instruction</p> <p>To enter ENQ character (X'2D').</p> <p>To repeat previous SETI instruction.</p> <p>To enter end-buffer 1 character.</p> <p>To repeat previous SETI instruction.</p>

Figure 22-9 (Part 3 of 6). CE02 - Text to 3270-BSC in EBCDIC (EP/PEP)

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     Entry(( )) --&gt; D1[D= 0102 F= 5 I= Y]     D1 --&gt; PF4_1[PF4]     PF4_1 --&gt; D2[D= 0127 F= 5 I= Y]     D2 --&gt; PF4_2[PF4]     PF4_2 --&gt; D3[D= 01F1 F= 5 I= Y]     D3 --&gt; PF4_3[PF4]     PF4_3 --&gt; D4[D= 01C2 F= 5 I= Y]     D4 --&gt; PF4_4[PF4]     PF4_4 --&gt; D5[D= 01xx F= 5 I= Y]     D5 --&gt; Decision{?}     Decision -- "More data bytes" --&gt; PF4_4     Decision -- "No more data bytes" --&gt; S[S]     S --&gt; NextPage[next page]   </pre>	<p>To enter STX character (X'02') into buffer 2.</p> <p>To repeat previous SETI instruction.</p> <p>To enter ESC character (X'27') into buffer 2.</p> <p>To repeat previous SETI instruction.</p> <p>To enter Erase/Write command (X'F1') into buffer 2.</p> <p>To repeat previous SETI instruction.</p> <p>To enter WCC (X'C2') into buffer 2.</p> <p>To repeat previous SETI instruction.</p> <p>To enter text into buffer 2. xx= data byte of text (up to 15 characters).</p> <p>SETI instruction</p>

Figure 22-9 (Part 4 of 6). CE02 - Text to 3270-BSC in EBCDIC (EP/PEP)

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     Start(( )) --&gt; Box1[D= 0103 F= 5 I= Y]     Box1 --&gt; Send1[SEND]     Send1 --&gt; PF4_1((PF4))     PF4_1 --&gt; Box2[D= 0199 F= 5 I= Y]     Box2 --&gt; Send2[SEND]     Send2 --&gt; PF4_2((PF4))     PF4_2 --&gt; Box3[D= 0861 F= 5 I= Y]     Box3 --&gt; Send3[SEND]     Send3 --&gt; PF4_3((PF4))     PF4_3 --&gt; Box4[D= 0970 F= 5 I= Y]     Box4 --&gt; Send4[SEND]     Send4 --&gt; Box5[D]     Box5 --&gt; Send5[SEND]     Send5 --&gt; Box6[L= 15 L= CHANGE AA TO SUBCHANNEL ADDRESS]     Box6 --&gt; Send6[SEND]     Send6 --&gt; Box7[O]     Box7 --&gt; Send7[SEND]     Send7 --&gt; Box8[D= 20AA F= 5 I= Y]     Box8 --&gt; Send8[SEND]     Send8 --&gt; End(( ))     End --&gt; NextPage[next page] </pre>	<p>To enter ETX character (X'03') into buffer 2.</p> <p>To repeat previous SETI instruction.</p> <p>To enter end-buffer 2 character.</p> <p>To repeat previous SETI instruction.</p> <p>To enter ACK 1 (X'61') or swap character 1.</p> <p>To repeat previous SETI instruction.</p> <p>To enter ACK 0 (X'70) or swap character 2.</p> <p>DISP instruction</p> <p>To display on line 15 text in operand M=</p> <p>OSET instruction</p> <p>To start the line test on subchannel AA.</p>

Figure 22-9 (Part 5 of 6). CE02 - Text to 3270-BSC in EBCDIC (EP/PEP)

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     Start(( )) --&gt; D[D]     D --&gt; L["L= 14 M= TO END THE TEST, PRESS SEND"]     L --&gt; Send1[SEND]     Send1 --&gt; O[O]     O --&gt; DI["D= 8FAA F= 5 I= Y"]     DI --&gt; Send2[SEND]     Send2 --&gt; E[E]     E --&gt; Send3[SEND] </pre>	<p>DISP instruction</p> <p>To display on line 14s text in operand M=</p> <p>OSET instruction</p> <p>To wait for operator's display.</p> <p>End of procedure. (Do not forget to catalog the procedure).</p>

Figure 22-9 (Part 6 of 6). CE02 - Text to 3270-BSC in EBCDIC (EP/PEP)

### **CE03 - Text to 2740 - S/S (NCP)**

Create this procedure to transmit a text message from the 3720 to any 2740 start/stop terminal in your network.

#### **Requirements:**

- NCP
- Start/stop line protocol
- EBCDIC line code
- 2740 with station control

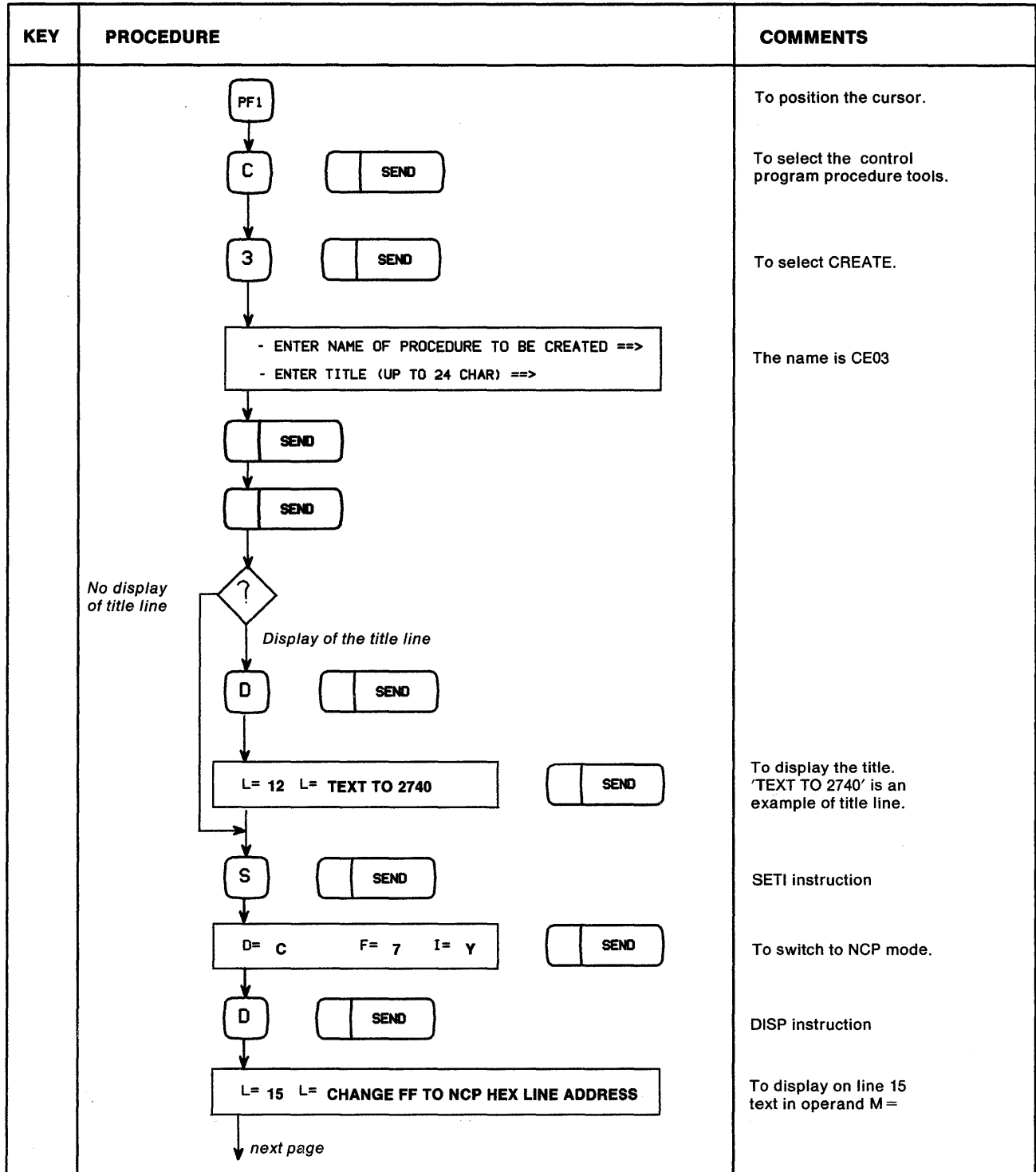


Figure 22-10 (Part 1 of 4). CE03 - Text to 2740 - S/S (NCP)



KEY	PROCEDURE	COMMENTS
	<pre> graph TD     Start(( )) --&gt; S1[SEND]     S1 --&gt; O1[0]     O1 --&gt; S2[SEND]     S2 --&gt; D1["D= 20FF F= 2 I= Y"]     D1 --&gt; S3[SEND]     S3 --&gt; S[S]     S --&gt; S4[SEND]     S4 --&gt; D2["D= 5800 F= 2 I= Y"]     D2 --&gt; S5[SEND]     S5 --&gt; PF4[PF4]     PF4 --&gt; D3["D= 511F F= 2 I= Y"]     D3 --&gt; S6[SEND]     S6 --&gt; PF4_2[PF4]     PF4_2 --&gt; D4["D= 5137 F= 2 I= Y"]     D4 --&gt; S7[SEND]     S7 --&gt; D[D]     D --&gt; S8[SEND]     S8 --&gt; L["L= 15 L= CHANGE AA TO 2740 ADDRESS"]     L --&gt; S9[SEND]     S9 --&gt; O2[0]     O2 --&gt; S10[SEND]     S10 --&gt; End(( ))   </pre> <p>next page</p>	<p>OSET instruction</p> <p>To enter NCP line address.</p> <p>SET instruction</p> <p>To set transmit buffer offset (X'00').</p> <p>To repeat previous SETI instruction.</p> <p>To load circle c (X'1F') into transmit buffer.</p> <p>To repeat previous SETI instruction.</p> <p>To load circle c (X'37') into transmit buffer.</p> <p>DISP instruction</p> <p>To display on line 15 text in operand M=</p> <p>OSET instruction</p>

Figure 22-10 (Part 2 of 4). CE03 - Text to 2740 - S/S (NCP)

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     Start(( )) --&gt; D51AA[D= 51AA F= 2 I= Y]     D51AA --&gt; SEND1[SEND]     SEND1 --&gt; S[S]     S --&gt; SEND2[SEND]     SEND2 --&gt; D5101[D= 5101 F= 2 I= Y]     D5101 --&gt; SEND3[SEND]     SEND3 --&gt; PF4_1[PF4]     PF4_1 --&gt; D51xx[D= 51xx F= 2 I= Y]     D51xx --&gt; SEND4[SEND]     SEND4 --&gt; Decision{?}     Decision -- "More data bytes" --&gt; PF4_1     Decision -- "No more data bytes" --&gt; PF4_2[PF4]     PF4_2 --&gt; D4000[D= 4000 F= 2 I= Y]     D4000 --&gt; SEND5[SEND]     SEND5 --&gt; PF4_3[PF4]     PF4_3 --&gt; D4F10[D= 4F10 F= 2 I= Y]     D4F10 --&gt; SEND6[SEND]     SEND6 --&gt; D[D]     D --&gt; SEND7[SEND]     SEND7 --&gt; NextPage[next page]           </pre> <p>The flowchart describes the procedure for sending text to station 2740. It begins with setting the destination address to 51AA, followed by a SETI instruction (S). Then, the destination is set to 5101 to load the EOA character. A loop follows where data bytes (xx) are loaded into the buffer and sent, with a decision point to check for more data. After the loop, the destination is set to 4000 to enable the line, followed by another SETI instruction. Finally, the destination is set to 4F10 to start transmitting data, and a DISP instruction (D) is sent before proceeding to the next page.</p>	<p>To enter 2740 station address.</p> <p>SETI instruction</p> <p>To load EOA character (X'01') into buffer.</p> <p>To repeat previous SETI instruction.</p> <p>To load data into buffer xx= data byte</p> <p>To repeat previous SETI instruction.</p> <p>To enable the line.</p> <p>To repeat previous SETI instruction.</p> <p>To start transmitting data.</p> <p>DISP instruction</p>

Figure 22-10 (Part 3 of 4). CE03 - Text to 2740 - S/S (NCP)

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     Start(( )) --&gt; Box1[L= 15 M= TO END THE TEST PRESS SEND]     Box1 --&gt; Send1[SEND]     Send1 --&gt; O[O]     O --&gt; Send2[SEND]     Send2 --&gt; Box2[D= 5000 F= 2 I= Y]     Box2 --&gt; Send3[SEND]     Send3 --&gt; E[E]     E --&gt; Send4[SEND]     </pre>	<p>To display on line 15 text in operand M=</p> <p>OSET instruction</p> <p>To wait for operator's response to stop the function.</p> <p>End of procedure. (Do not forget to catalog the procedure).</p>

Figure 22-10 (Part 4 of 4). CE03 - Text to 2740 - S/S (NCP)

## **CE04 - Text to 2740 - S/S (EP, PEP)**

Create this procedure to transmit a text message from the 3720 to any 2740 start/stop terminal in your network.

### **Requirements:**

- EP or PEP line
- Start/stop line protocol
- EBCDIC line code
- 2740 with station control

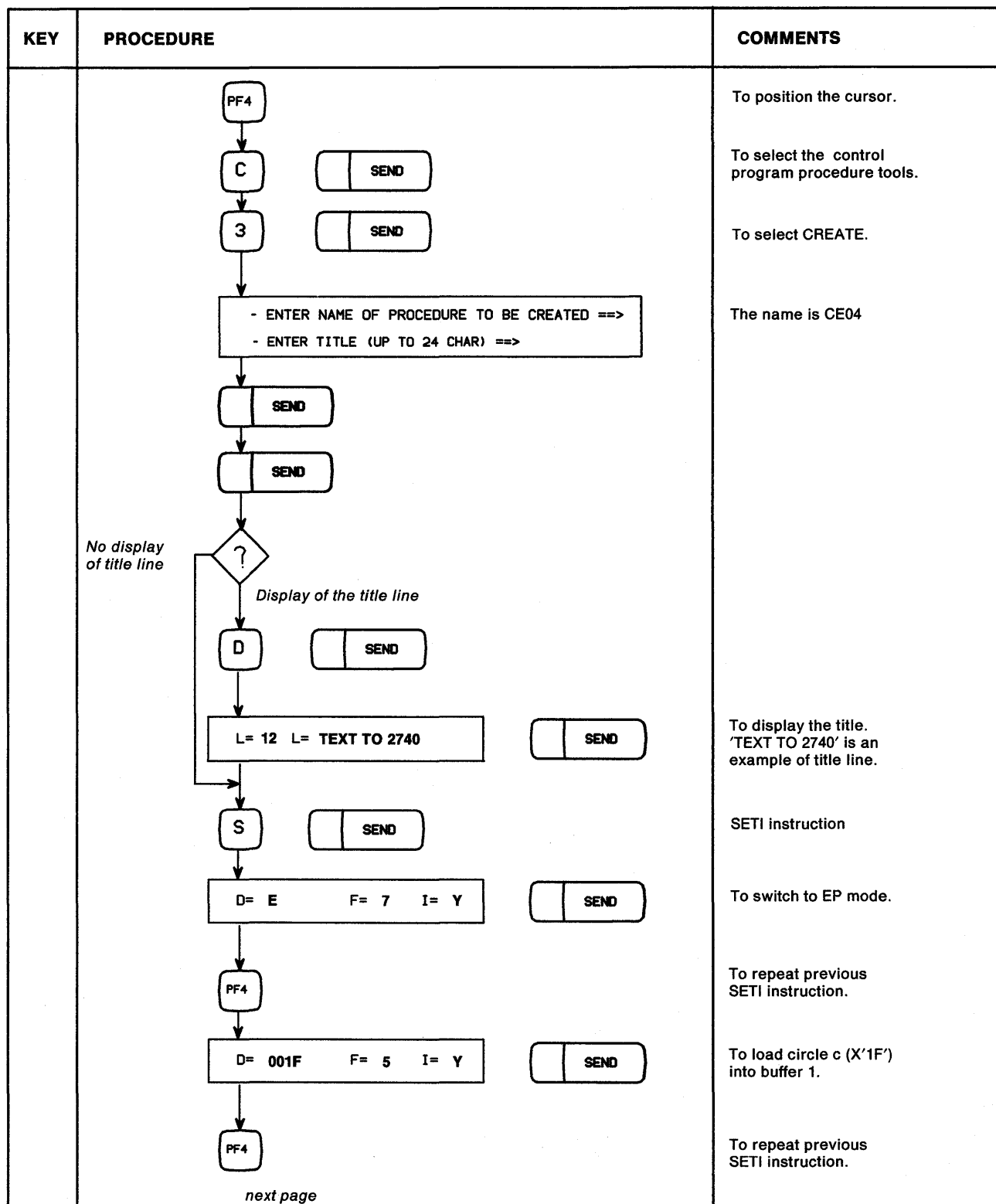


Figure 22-11 (Part 1 of 4). CE04 - Text to 2740 - S/S (EP/PEP)

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     Start(( )) --&gt; Box1[D= 0037 F= 5 I= Y]     Box1 --&gt; Box2[D]     Box2 --&gt; Box3[L= 15 L= CHANGE AA TO 2740 ADDRESS]     Box3 --&gt; Box4[0]     Box4 --&gt; Box5[D= 00AA F= 5 I= Y]     Box5 --&gt; Box6[S]     Box6 --&gt; Box7[D= 0001 F= 5 I= Y]     Box7 --&gt; Box8[PF4]     Box8 --&gt; Box9[D= 0099 F= 5 I= Y]     Box9 --&gt; Box10[PF4]     Box10 --&gt; Box11[D= 0116 F= 5 I= Y]     Box11 --&gt; NextPage[next page]   </pre>	<p>To load circle s (X'37') into buffer 1.</p> <p>DISP instruction</p> <p>To display on line 15 text in operand M=</p> <p>OSET instruction</p> <p>To enter 2740 station address</p> <p>SETI instruction</p> <p>To load EOA character (X'01') into buffer 1.</p> <p>To repeat previous SETI instruction.</p> <p>To load end-of-buffer 1 character.</p> <p>To repeat previous SETI instruction.</p> <p>To load into buffer 2.</p>

Figure 22-11 (Part 2 of 4). CE04 - Text to 2740 - S/S (EP/PEP)

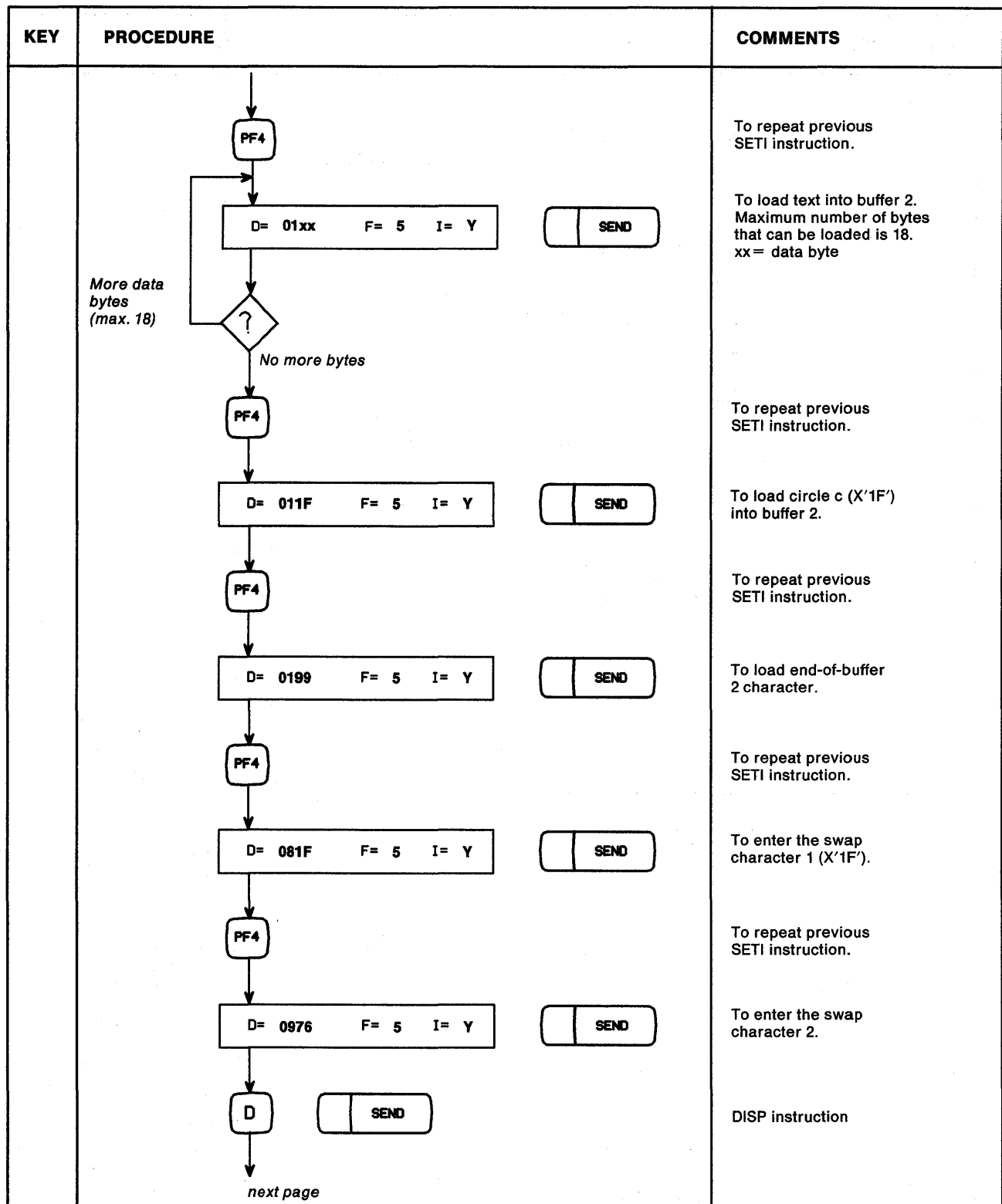


Figure 22-11 (Part 3 of 4). CE04 - Text to 2740 - S/S (EP/PEP)

KEY	PROCEDURE	COMMENTS
	<pre> graph TD     Start(( )) --&gt; L15[L= 15 L= CHANGE AA TO SUBCHANNEL ADDRESS]     L15 --&gt; S1[SEND]     S1 --&gt; O1[O]     O1 --&gt; S2[SEND]     S2 --&gt; D20AA[D= 20AA F= 5 I= Y]     D20AA --&gt; S3[SEND]     S3 --&gt; D[D]     D --&gt; S4[SEND]     S4 --&gt; L14[L= 14 L= TO END THE TEST PRESS SEND]     L14 --&gt; S5[SEND]     S5 --&gt; O2[O]     O2 --&gt; S6[SEND]     S6 --&gt; D8FAA[D= 8FAA F= 5 I= Y]     D8FAA --&gt; S7[SEND]     S7 --&gt; E[E]     E --&gt; S8[SEND]     S8 --&gt; End(( ))           </pre>	<p>To display on line 15 text in operand M=</p> <p>OSET instruction</p> <p>To enable the line.</p> <p>DISP instruction</p> <p>To display on line 14 text in operand M=</p> <p>OSET instruction</p> <p>To wait for operator's response to end the function.</p> <p>End of procedure. (Do not forget to catalog the procedure).</p>

Figure 22-11 (Part 4 of 4). CE04 - Text to 2740 - S/S (EP/PEP)



# Cataloged Control Program Procedure Print-Out

## CONTROL PROGRAM PROCEDURES - DIRECTORY

NAME: CP01	TITLE: SDLC TEST FRAMES (NCP)	DATE:
NAME: CP02	TITLE: 3270 BSC GENERAL POLL	DATE:
NAME: CP03	TITLE: 2740 START/STOP POLL	DATE:
NAME: CP04	TITLE: START ADDRESS TRACE (NCP)	DATE:
NAME: CP05	TITLE: STOP ADDRESS TRACE (NCP)	DATE:
NAME: CP06	TITLE: X.21 SWITCHED LINE TEST (NCP)	DATE:

NAME: CP01      TITLE: SDLC TEST FRAMES(NCP)      DATE:

001	SETI	D= 00000C	F= 07	I= Y
002	GOTO	T= 026	A= 000000	C= & B= 000000
003	DISP	L= 18	M= **** SDLC TEST-FRAMES TO SDLC LINK ****	
004	DISP	L= 14	M= CHANGE 'FF' TO NCP LINE ADDRESS (HEX)	
005	OSET	D= 0020FF	F= 02	I=
006	GOTO	T= 026	A= 0000FF	C= B B= 000003
007	GOTO	T= 014	A= 0000FF	C= B B= 000005
008	GOTO	T= 012	A= 00FF00	C= B B= 000000
009	SETI	D= 004000	F=	I=
010	DISP	L= 14	M=	
011	GOTO	T= 018	A= 00FF00	C= B B= 00FF00
012	DISP	L= 14	M= ERROR (SEE LINE TEST FUNCTION)	
013	GOTO	T= 027	A=	C= B=
014	DISP	L= 14	M= LINE IS ACTIVE (DEACTIVATE)	
015	HALT	T= 004	A=	C= B=
016	DISP	L= 14	M= ERROR (SEE LINE TEST FUNCTION)	
017	GOTO	T= 027	A=	C= B=

## Chapter 23. Correspondence Between Line Addresses and Scanners

### Basic Frame (Model 1 and 2)

Decimal Line Address	Hex Line Address	Dec. Line Interface Address	Hex. Line Interface Address	LIC Pos.	CS No.
00 01 02 03	00 01 02 03	000/001 002/003 004/005 006/007	000/001 002/003 004/005 006/007	1	1
04 05 06 07	04 05 06 07	008/009 010/011 012/013 014/015	008/009 00A/00B 00C/00D 00E/00F	2	1
08 09 10 11	08 09 0A 0B	016/017 018/019 020/021 022/023	010/011 012/013 014/015 016/017	3	1
12 13 14 15	0C 0D 0E 0F	024/025 026/027 028/029 031/031	018/019 01A/01B 01C/01D 01E/01F	4	1
16 17 18 19	10 11 12 13	032/033 034/035 036/037 038/039	020/021 022/023 024/025 026/027	5	1
20 21 22 23	14 15 16 17	040/041 042/043 044/045 046/047	028/029 02A/02B 02C/02D 02E/02F	6	1
24 25 26 27	18 19 1A 1B	048/049 050/051 052/053 054/055	030/031 032/033 034/035 036/037	7	1

## Basic Frame (Models 11 and 12)

Decimal Line Address	Hex Line Address	Dec. Line Interface Address	Hex. Line Interface Address	LIC/TIC Pos.	CS/TRA No.
00 01 02 03	00 01 02 03	000/001 002/003 004/005 006/007	000/001 002/003 004/005 006/007	3	1
04 05 06 07	04 05 06 07	008/009 010/011 012/013 014/015	008/009 00A/00B 00C/00D 00E/00F	4	1
08 09 10 11	08 09 0A 0B	016/017 018/019 020/021 022/023	010/011 012/013 014/015 016/017	5	1
12 13 14 15	0C 0D 0E 0F	024/025 026/027 028/029 031/031	018/019 01A/01B 01C/01D 01E/01F	6	1
16 17	10 11			1 2	2 2

## Expansion Frame 1

Decimal Line Address	Hex Line Address	Dec. Line Interface Address	Hex. Line Interface Address	LIC Pos.	CS No.
32	20	64/065	040/041	1	3
33	21	066/067	042/043		
34	22	068/069	044/045		
35	23	070/071	046/047		
36	24	072/073	048/049	2	3
37	25	074/075	04A/04B		
38	26	076/077	04C/04D		
39	27	078/079	04E/04F		
40	28	080/081	050/051	3	3
41	29	082/083	052/053		
42	2A	084/085	054/055		
43	2B	086/087	056/057		
44	2C	088/089	058/059	4	3
45	2D	090/091	05A/05B		
46	2E	092/093	05C/05D		
47	2F	094/095	05E/05F		
48	30	096/097	060/061	5	3
49	31	098/099	062/063		
50	32	100/101	064/065		
51	33	102/103	066/067		
52	34	104/105	068/069	6	3
53	35	106/107	06A/06B		
54	36	108/109	06C/06D		
55	37	110/111	06E/06F		
56	38	112/113	070/071	7	3
57	39	114/115	072/073		
58	3A	116/117	074/075		
59	3B	118/119	076/077		
60	3C	120/121	078/079	8	3
61	3D	122/123	07A/07B		
62	3E	124/125	07C/07D		
63	3F	126/127	07E/07F		

## Expansion Frame 2

Decimal Line Address	Hex Line Address	Dec. Line Interface Address	Hex. Line Interface Address	LIC Pos.	CS No.
32	20	64/065	040/041	1	3
33	21	066/067	042/043		
34	22	068/069	044/045		
35	23	070/071	046/047		
36	24	072/073	048/049	2	3
37	25	074/075	04A/04B		
38	26	076/077	04C/04D		
39	27	078/079	04E/04F		
40	28	080/081	050/051	3	3
41	29	082/083	052/053		
42	2A	084/085	054/055		
43	2B	086/087	056/057		
44	2C	088/089	058/059	4	3
45	2D	090/091	05A/05B		
46	2E	092/093	05C/05D		
47	2F	094/095	05E/05F		
48	30	096/097	060/061	5	4
49	31	098/099	062/063		
50	32	100/101	064/065		
51	33	102/103	066/067		
52	34	104/105	068/069	6	4
53	35	106/107	06A/06B		
54	36	108/109	06C/06D		
55	37	110/111	06E/06F		
56	38	112/113	070/071	7	4
57	39	114/115	072/073		
58	3A	116/117	074/075		
59	3B	118/119	076/077		
60	3C	120/121	078/079	8	4
61	3D	122/123	07A/07B		
62	3E	124/125	07C/07D		
63	3F	126/127	07E/07F		

## Chapter 24. Messages

Five types of messages are displayed on different areas of the operator console screen (Figure 24-1). An alphabetic list of all messages, starting on page 24-2, helps you to locate quickly the page where they are described.

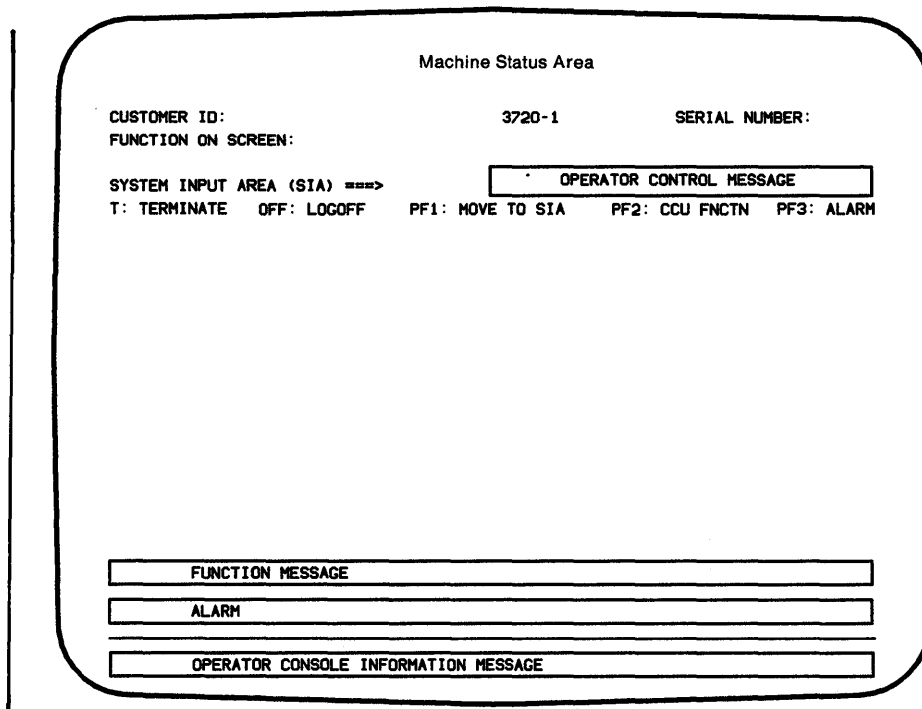


Figure 24-1. Message Areas

The five types of messages are:

1. Machine status area (MSA) messages. MSA fields are described in Chapter 25.
2. Operator Control Messages. These are displayed in the SIA line, to indicate invalid commands or to give information about immediate functions (except Terminate). They are described in this chapter in alphabetical order.
3. Function Messages. These are displayed on line 23, to inform you of the progression of the function or to indicate errors.
4. Alarms. These are described in *3720/3721 Problem Determination Guide*.
5. Operator console information messages. These are displayed below the horizontal line of the screens. They give the status of the operator console. They are described at the end of this chapter.

## Alphabetic List of All 3720 Messages

Messages applying to maintenance functions are not documented in this manual but in maintenance manuals. They are referred to as SP (service personnel). Similarly, messages marked PD (problem determination) apply to functions described in the *3720/3721 Problem Determination Guide*.

A0 MOSS IML EXCEPTION xxx yyy zzz	PD
A2 MOSS RECOVERABLE ERROR: MOSS	PD
A3 MOSS DISKETTE DOWN	PD
A4 MOSS DISKETTE ERROR: DISKETTE IS DEFECTIVE	PD
A6 MOSS OFFLINE: MAINTENANCE MODE	PD
A7 HARDWARE ERROR: 3720 RE-IPL IN PROGRESS	PD
A8 SOFTWARE ERROR: 3720 RE-IPL IN PROGRESS	PD
A9 HARDWARE ERROR: CHANNEL ADAPTER x DOWN	PD
A10 GENERAL IPL CHECK	PD
A15 LINE ADAPTER xxx DOWN	PD
A16 SCANNER xx ERROR (LINES xxx-yyy) - RE-IML IN PROGRESS	PD
A17 SCANNER xx ERROR (LINES xxx-yyy) - RE-IML IN PROGRESS	PD
A18 SCANNER xx ERROR (LINES xxx-yyy) - RE-IML SUCCESSFUL	PD
A19 SCANNER xx ERROR (LINES xxx-yyy) - RE-IML SUCCESSFUL	PD
A20 SCANNER xx ERROR (LINES xxx-yyy)	PD
A21 SCANNER xx ERROR (LINES xxx-yyy)	PD
A22 SCANNER xx ERROR (LINES xxx-yyy) - RE-IML FAILED	PD
A23 SCANNER xx ERROR (LINES xxx-yyy) - RE-IML FAILED	PD
A24 SCANNER xx ERROR (LINES xxx-yyy) - RE-IML FAILED	PD
A25 REMOTE CONSOLE ERROR: LINE/MODEMS/CONSOLE/MOSS	PD
A26 MOSS REMOTE CONSOLE ERROR: CONSOLE	PD
A28 TRM xx DOWN (TIC 1-2)	PD
A29 TIC x DOWN ON TRM xx	PD
A30 MOSS DISK DOWN: IPL/DUMP NOT POSSIBLE FROM/ON DISK	PD
A31 3720 RE-IPL SUCCESSFUL - DUMP AVAILABLE ON DISK	PD
A33 3720 RE-IPL SUCCESSFUL - DUMP NOT AVAILABLE ON DISK	PD
A34 3720 RE-IPL FAILED - DUMP AVAILABLE ON DISK	PD
A35 3720 RE-IPL FAILED - DUMP NOT AVAILABLE ON DISK	PD
"ACTIVATE LINK" IS ALREADY ALLOWED FOR THIS TIC	24-61
"ACTIVATE LINK" IS NOW ALLOWED	24-61
ADDRESS COMPARE ALREADY SET: CANCEL IT OR WAIT FOR HIT	SP
ADDRESS COMPARE ANOMALY: CANCEL ADDRESS COMPARE AND RETRY	SP
ADDRESS COMPARE CANCELED ON OPERATOR REQUEST	SP
A DELAYED DISPLAY OR ALTER HAS BEEN SPECIFIED	SP
ALL OR PART OF 'VERIFY DATA' IS OUTSIDE MODULE	SP
ALTER COMPLETE	SP
ALTERNATE TRACK ASSIGNMENT MAP FULL. CHANGE DISK	SP
A SCANNER IS ALREADY SELECTED: RELEASE IT TO SELECT ANOTHER	SP
AUTOMATIC DISPLAY BECAUSE OF ADDRESS COMPARE HIT	SP
BER FILE IS UPDATED	SP
BT BUFFER INCORRECTLY DEFINED	24-13
BUFFERS NOT AVAILABLE: WRAP TEST STOPPED	24-62
BUFFERS TEMPORARILY NOT AVAILABLE: WRAP FUNCTION CANCELED	24-62
xx BYTES ALTERED	SP
CABLE DOES NOT EXIST	24-34

## Alphabetic List of All 3720 Messages (continued)

CABLE NOT IN DIRECT ATTACHMENT	24-48
CABLE NOT INSTALLED	24-48
CA IPL DETECTED ON CA x	SP
CANCELED: TARGET VALUE > END STEP NUMBER	24-19
CCU ALREADY IN I-STEP MODE	24-69
CCU ALREADY IN PROCESS MODE	24-69
CCU CHECK RESET	24-69
CCU FUNCTION NOT ALLOWED	24-40
CCU FUNCTION NOT ALLOWED NOW: MOUNT DISKETTE FIRST	SP
CCU FUNCTION STILL PENDING	24-69
CCU FUNCTIONS REFUSED	24-69
CCU INITIALIZATION STARTED	SP
CCU/MOSS ERROR: AUTO SELECT NOT DISABLED	24-17
CCU/MOSS ERROR: AUTO SELECT NOT ENABLED	24-17
CCU/MOSS ERROR: BT BUFFER NOT ACCESSIBLE	24-13
CCU/MOSS ERROR: BT BUFFER NOT UPDATED	24-13
CCU/MOSS ERROR: CA CANNOT BE SELECTED	24-17
CCU/MOSS ERROR: CA REGISTER X'E' NOT ACCESSIBLE	24-17
CCU/MOSS ERROR: CA REGISTERS NOT ACCESSIBLE	24-18
CCU/MOSS ERROR: CA STATE NOT ACCESSIBLE	24-18
CCU/MOSS ERROR: CCU INITIALIZATION CANCELED	SP
CCU/MOSS ERROR: CDF CREATION CANCELED	SP
CCU/MOSS ERROR: CDF VERIFICATION CANCELED	SP
CCU/MOSS ERROR: DISKETTE SWAP FAILED	SP
CCU/MOSS ERROR: DISK FUNCTION CANNOT BE PERFORMED: PRESS SEND	24-25
CCU/MOSS ERROR: FUNCTION CANNOT BE PERFORMED	24-40
CCU/MOSS ERROR: FUNCTION NOT PERFORMED	24-69
CCU/MOSS ERROR: INITIAL CA CANNOT BE RESELECTED	24-18
CCU/MOSS ERROR: INPUT X'71', X'72' REG NOT ACCESSIBLE	24-24
CCU/MOSS ERROR: LINK TEST FUNCTION CANCELED	24-52
CCU/MOSS ERROR: MOSS DUMP SWAP CANCELED	SP
CCU/MOSS ERROR: RESET CCU FUNCTION CANCELED	24-50
CCU/MOSS ERROR: SCANNER DUMP SWAP CANCELED	SP
CCU/MOSS ERROR: STEP NOT EXECUTED	24-19
CCU/MOSS ERROR: WORK REGISTERS CANNOT BE ALTERED	24-30
CCU/MOSS ERROR: WRAP FUNCTION CANCELED	24-63
CCU/MOSS ERROR xxx	SP
CCU NORMAL MODE IMMEDIATE FUNCTION FAILED	24-69
CCU NOT IN THE RUN STATE (SEE MSA) - FUNCTION CANCELED	24-51
CCU NOW IN I-STEP MODE	24-70
CCU NOW IN NORMAL MODE	24-70
CCU NOW IN PROCESS MODE	24-70
CCU WILL BYPASS CCU CHECK	24-70
CCU WILL BYPASS IOC CHECK	24-70
CCU WILL STOP ON CCU CHECK	24-70
CCU WILL STOP ON IOC CHECK	24-70
CDF NOT CREATED: IPL PORT FUNCTION CANCELED	24-34
CDF NOT CREATED: WRAP FUNCTION CANCELED	24-63
CHANNEL ADAPTER NOT INSTALLED	24-18
CHECKPOINT TRACE SET xxx FOR LINE ADDRESS xxxx yyyyyyy	SP
CHGDMP MOSS DUMP FILE IS NOT EMPTY	SP
CHHDMP SCANNER DUMP FILE IS NOT EMPTY	SP
CHJDMP DUMP FILE ALREADY CONTAINS A xxxx DUMP	SP
CODE ALREADY RESTORED	24-40
CODE ALREADY UPGRADED	24-40
COMMAND INCOMPATIBLE WITH SCANNER MODE: LOOK AT MSA	SP



# **Alphabetic List of All 3720 Messages (continued)**

COMMAND REJECT RECEIVED DUE TO BUFFER OVERRUN .....	24-52
COMMAND REJECT RECEIVED DUE TO INVALID COMMAND .....	24-52
COMM NOT READY 1 .....	24-76
COMM NOT READY 2 .....	24-76
CONTENTION, PLEASE RE-ENTER .....	24-75
CONTROL PROGRAM LOADED .....	25-10
CONTROLLER DATA UNAVAILABLE, FUNCTION CANCELED .....	24-14
CONTROLLER DISKETTE ERROR: SAVE NOT PERFORMED .....	SP
CONTROLLER DISKETTE ERROR: SAVE PARTIALLY PERFORMED .....	SP
COUNTERS HAVE BEEN RESET .....	24-44
CP SAVE IN PROGRESS ON DISK .....	25-10
CUSTOMER IDENTIFICATION HAS BEEN UPDATED .....	24-44
DATA MUST BE PAIRS OF HEX CHARS SEPARATED BY 1 BLANK .....	24-53
DATA RATE MUST NOT BE SPECIFIED WITH DIRECT-ATTACH .....	24-34
DELAYED ALTER PERFORMED BECAUSE OF ADDRESS COMPARE HIT .....	SP
DESTINATION DISK(ETTE) ERROR: FUNCTION CANNOT BE PERFORMED .....	24-40
DISK DIRECTORY CAPACITY EXCEEDED: MOSS DOWN .....	24-25
DISK-DISKETTE ADAPTER DOWN .....	24-71
DISK ERROR: CLOSE NOT PERFORMED .....	SP
DISK ERROR: DIRECTORY MAY BE DAMAGED .....	24-20
DISK ERROR: DIRECTORY NOT ACCESSIBLE .....	24-20
DISK ERROR: DUMP FUNCTION NOT AVAILABLE .....	SP
DISK ERROR: DUMP MAY BE INCOMPLETE .....	SP
DISK ERROR: FUNCTION CANCELED. PRESS SEND .....	24-25
DISK ERROR: FUNCTION NOT AVAILABLE .....	24-14
DISK ERROR: FUNCTION NOT PERFORMED .....	SP
DISK ERROR: MOSS DOWN .....	24-25
DISK ERROR: PROCEDURE CANNOT BE FILED/MODIFIED .....	24-20
DISK ERROR: PROCEDURE FILE MAY BE DAMAGED .....	24-20
DISK ERROR: PROCEDURE NOT AVAILABLE .....	24-21
DISK NOT INITIALIZED .....	SP
DISK NOT READY .....	24-72
DISK OR DISKETTE UNUSABLE .....	24-71
DISK ERROR - SPEED CANNOT BE UPDATED .....	24-49
DISK ERROR: UNABLE TO LOAD CCU IPL MODULE .....	24-71
DISK ERROR: UNABLE TO LOAD FUNCTION MODULE .....	24-71
DISK ERROR: UNABLE TO LOAD SCANNER DUMP MODULE .....	24-71
DISK STARTING .....	24-72
DISK UNUSABLE: EC NOT INITIALIZED .....	24-26
DISKETTE ERROR: BER FILE INCOMPLETELY RESTORED, PURGE ABORTED .....	SP
DISKETTE ERROR: CCU INITIALIZATION CANCELED .....	SP
DISKETTE ERROR: CDF CREATION CANCELED .....	SP
DISKETTE ERROR: CDF DISPLAY CANCELED .....	SP
DISKETTE ERROR: CDF VERIFICATION CANCELED .....	SP
DISKETTE ERROR: DUMP MAY BE INCOMPLETE .....	SP
DISKETTE ERROR: FILE NOT FOUND .....	SP
DISKETTE ERROR: FUNCTION CANCELED: PRESS SEND .....	24-26
DISKETTE ERROR: IML CANCELED .....	24-32
DISKETTE ERROR: IPL PORT FUNCTION CANCELED .....	24-34
DISK(ETTE) ERROR: MCF FUNCTION CANCELED .....	24-40
DISKETTE ERROR: MOSS DOWN .....	24-26
DISKETTE ERROR: MOSS DUMP SWAP CANCELED .....	SP
DISKETTE ERROR: MOUNT A NEW ONE, THEN PRESS SEND .....	24-26
DISKETTE ERROR: PURGE NOT PERFORMED .....	SP
DISKETTE ERROR: REQUEST IGNORED .....	24-31

# Alphabetic List of All 3720 Messages (continued)

DISKETTE ERROR: RESET CCU FUNCTION CANCELED .....	24-50
DISKETTE ERROR: SAVE CANCELED .....	24-25
DISKETTE ERROR: SCANNER DUMP NOT AVAILABLE .....	SP
DISKETTE ERROR: SCANNER DUMP SWAP CANCELED .....	SP
DISKETTE ERROR: WRAP FUNCTION CANCELED .....	24-63
DISKETTE FUNCTIONS CANNOT BE PERFORMED WHEN MOSS IS ONLINE: PRESS SEND .....	24-26
DISKETTE NOT READY .....	24-71
DISPLAY ADDRESS MODIFIED TO xxxx .....	SP
DUMP CANCELED AS REQUESTED .....	SP
DUMP COMPLETE .....	SP
DUMP FILE BEING TRANSFERRED: TRY LATER .....	SP
DUMP FILED IN CHGTRSS: TO PRINT DUMP, TRANSFER IT TO HOST .....	SP
DUMP FILED IN CHHDMP: TO PRINT DUMP, TRANSFER IT TO HOST .....	SP
DUMP FILED: TO TRANSFER TO HOST, SWAP IT TO CNTRL DISKETTE .....	SP
DUMP IN PROGRESS .....	SP
DUMP IN PROGRESS ON CA x .....	25-11
DUMP IN PROGRESS ON DISK .....	25-11
DUMP IN PROGRESS ON L xxx .....	25-11
....: DUMP MAY BE INCOMPLETE .....	SP
EC INSTALLATION FROM xxxxx DISKETTE IN PROGRESS .....	24-27
ENABLE COMMAND FAILED - LINK TEST FUNCTION CANCELED .....	24-53
ENABLE NOT ALLOWED: STOP THE CCU .....	24-18
ENABLED PORTS CA xx L xxxxxxxx .....	25-11
ENTER ADDRESS WITHIN THE RANGE 0 TO 27 AND 32 TO 63 .....	24-45
ENTER A DISPLAYED LINE PROTOCOL .....	24-35
ENTER A DISPLAYED LINE SPEED .....	24-35
ENTER A LINE ADDRESS WITHIN THE RANGE 0 to 27 AND 32 TO 63 .....	24-49
ENTER A LINE ADDRESS WITHIN THE RANGE 0 TO 27 AND 32 TO 63 .....	24-36
ENTER PATCH IDENTIFICATION .....	24-40
ERROR DURING ERROR RECOVERY .....	24-36
ERROR IN FRONT END SCANNER PROCESSOR .....	24-36
ERROR IN SCANNER DURING COMMAND PROCESSING .....	24-14
ERROR IN SCANNER: ICC/LIC FAILED OR IS NOT PRESENT .....	24-37
ERROR ON TRACK 0. CHANGE DISK .....	SP
EXEC CANCELED ON OPERATOR REQUEST .....	24-21
EXEC CANCELED: OUTPUT X'71' REGISTER NOT ACCESSIBLE .....	24-21
'EXPECTED DATA' CANNOT BE ENTERED AFTER 'Y' .....	24-63
'EXPECTED INTERRUPT NOT RECEIVED: FUNCTION CANCELED .....	SP
FILE CHGxxxxx NOT FOUND ON xxxxxx: FUNCTION CANCELED, PRESS SEND .....	24-27
FILE CHGxxxxx SMALLER ON DISKETTE: FUNCTION CANCELED, PRESS SEND .....	24-27
FILE EMPTY: MOSS DUMP SWAP CANCELED .....	SP
FILE EMPTY: SCANNER DUMP SWAP CANCELED .....	SP
FIRST STOP THE CCU .....	24-30
FORMAT AS BAD TRACK: CHANGE DISK .....	SP
FORMAT CHECK .....	24-76
FORMAT COMMAND FAILED. CHANGE DISK .....	SP
FUNCTION CANNOT BE PERFORMED WHEN MOSS IS ONLINE .....	24-40
FUNCTION COMPLETED .....	24-14
FUNCTION IN PROGRESS .....	24-14
FUNCTION NOT ALLOWED: CHECK CCU STATE .....	24-37
FUNCTION NOT ALLOWED: CHECK CDF STATE .....	24-37
FUNCTION NOT ALLOWED IN DISKETTE MODE .....	24-40
FUNCTION NOT ALLOWED: LIC NOT INSTALLED .....	24-49
FUNCTION NOT ALLOWED: LIC NOT INSTALLED AND NO ICC PRESENT .....	24-49
FUNCTION NOT ALLOWED: NO ICC PRESENT .....	24-49

## Alphabetic List of All 3720 Messages (continued)

FUNCTION NOT AVAILABLE DURING IPL	24-72
FUNCTION NOT AVAILABLE IN DISKETTE MODE	24-72
FUNCTION NOT AVAILABLE: TRY LATER	24-15
FUNCTION TERMINATION NOT ALLOWED: COMPLETE FUNCTION	24-40
HARDWARE ERROR ON RECEIVE	24-53
HARDWARE ERROR ON TRANSMIT	24-54
IML FOR SCANNER <i>xx</i> COMPLETED: SCANNER CAN BE CONNECTED	SP
IML FOR SCANNER <i>xx</i> COMPLETED: SCANNER IS CONNECTED	24-32
IML FOR SCANNER <i>xx</i> IN PROGRESS	24-32
INCOMPATIBLE OPTIONS: FULL DUPLEX AND NO DX FACILITY	24-34
INCOMPATIBLE OPTIONS: NON-SWITCHED LINE AND ANSWER TONE	24-34
INCOMPATIBLE OPTIONS: NON-SWITCHED LINE AND RING INDICATOR	24-35
INCOMPATIBLE OPTIONS: SWITCHED LINE AND DIRECT-ATTACH	24-35
INCORRECT MCF FILE: CONTACT SERVICE REPRESENTATIVE	24-40
INCORRECT PASSWORD	24-44
INCORRECT PASSWORD - PLEASE RE-ENTER	24-42
INCORRECT PASSWORD - TERMINAL DISCONNECTED	24-42
INPUT CHECKSUM DOES NOT MATCH COMPUTED ONE	24-40
INPUT MUST BE PAIRS OF HEX CHARACTERS SEPARATED BY BLANKS	24-63
INPUT MUST BE 8 BINARY DIGITS	24-64
INSERT	24-76
INVALID ACTION	24-19
INVALID ADDRESS FIELD RECEIVED	24-54
INVALID ADDRESS - RANGE IS 0 TO FFF (HEX)	SP
INVALID ALTER REQUEST ON READ-ONLY STORAGE	SP
INVALID BER RECORD <i>n</i>	SP
INVALID CHANNEL ADAPTER NUMBER	24-19
INVALID CONTROL FIELD RECEIVED	24-54
INVALID DATA RECEIVED	24-55
INVALID DATA RECEIVED - TOO MUCH DATA RECEIVED	24-55
INVALID DATE	SP
INVALID FILE NAME	SP
INVALID FLAG VALUE	SP
INVALID INPUT	24-15
INVALID INPUT	24-72
INVALID INPUT: RE-ENTER FIELDS IN ERROR	SP
INVALID INTERRUPT RECEIVED FROM TRA: FUNCTION CANCELED	SP
INVALID LCD: WRAP FUNCTION CANCELED	24-64
INVALID LINE ADDRESS	24-15
INVALID MODULE NAME	SP
INVALID NUMBER OF HALFWORDS: RANGE IS 1-48	SP
INVALID PANEL FUNCTION: RE-ENTER	24-43
INVALID SEL#	24-31
INVALID TTA DATA	SP
IOC ERROR DURING ERROR RECOVERY	24-15
IOC RESET	24-72
IOC/SCANNER ERROR: FUNCTION NOT PERFORMED	24-16
IOC/TRA ERROR: FUNCTION NOT PERFORMED	24-61
IOC/TRA ERROR: <i>xxx</i>	SP
IPL CANCELED	25-12
IPL CHECK <i>xxx</i>	25-12
IPL CHECK F1B CLDP ABEND <i>xxxx</i>	25-12
IPL COMPLETE	25-12
IPL COMPLETE + ERRORS	25-12
IPL PORT TABLE UPDATED AND FILED	24-35

## Alphabetic List of All 3720 Messages (continued)

IPL STOP	25-14
b IS RESET	24-45
KEY LOCKED <WAIT>	24-77
LASTMCHK: xxxx	PD
LEVEL INCOMPATIBLE WITH SPECIFIED LINE ADDRESS	24-64
LIC NOT INSTALLED	24-64
LINE ADDRESS DOES NOT BELONG TO AN INSTALLED SCANNER	24-16
LINE ADDRESS HAS ALREADY BEEN USED FOR ANOTHER LINK	24-35
LINE ADDRESS xxx IS zz IN SELECTED SCANNER xx	SP
LINE CHECK 1	24-76
LINE CHECK 2	24-76
LINE NOT DISABLED/DEACTIVATED: WRAP FUNCTION CANCELED	24-64
LINE NOT SYSTEM GENERATED: WRAP FUNCTION CANCELED	24-64
LINE NOT YET INITIALIZED	24-37
LINE SPEED MAY BE 230 KBPS OR ABOVE	24-38
LINE SPEED MAY BE 230 KBPS OR ABOVE: LEAD STATE NOT ACCESSIBLE	24-38
LINE TEMPORARILY NOT AVAILABLE: WRAP FUNCTION CANCELED	24-64
LINE TEST ACTIVE: WRAP FUNCTION CANCELED	24-65
LINE TRACE ACTIVE: WRAP FUNCTION CANCELED	24-65
LINK DISABLED - LINK TEST FUNCTION CANCELED	24-55
LINK IPL DETECTED ON L xxx	25-13
LINK NOT DEFINED IN IPL PORT TABLE	24-56
LINK TEST PROGRAM ABEND	24-56
LINK TEST PROGRAM LOADED	25-13
LINK TEST PROGRAM NOT LOADED - FUNCTION CANCELED	24-56
LOAD IN PROGRESS ON CA x	25-13
LOAD IN PROGRESS FROM DISK	25-13
LOAD IN PROGRESS ON L xxx	25-13
LOCAL CONSOLE CALLING	24-42
LOOK AT MSA FOR ADDRESS COMPARE STATUS	SP
LSSD NOT ON DISKETTE: CDF CREATION CANCELED	SP
LSSD NOT ON DISKETTE: CDF VERIFICATION CANCELED	SP
LVL3 INTERRUPT SENT TO CCU	24-72
MCF FILE IS EMPTY	24-40
MICROCODE DETECTED ERROR DURING COMMAND PROCESSING	24-38
MIXED COMMANDS ARE NOT ALLOWED	24-40
....: MODE NOW UNKNOWN	SP
MORE THAN 128 BYTES RECEIVED	24-56
MOSS DOWN BECAUSE YOU SELECTED TERMINATE	24-27
MOSS DUMP COPIED INTO CCU STORAGE	SP
MOSS DUMP COPIED ON DISKETTE	SP
MOSS IS NOT ALONE	SP
MOSS NOT ONLINE: WRAP FUNCTION CANCELED	24-65
MOSS/PANEL ERROR: FUNCTION NOT PERFORMED	24-44
MOSS/TIC ERROR: FUNCTION CANCELED	SP
MOUNTED DISKETTE EC LEVEL IS DIFFERENT FROM ORIGINAL ONE	SP
MOUNTED DISKETTE IS NOT A PRIMARY	24-27
MOUNTED DISKETTE IS NOT A SECONDARY	24-27
MOUNTED DISKETTE TYPE IS DIFFERENT FROM ORIGINAL ONE	SP
MOUNT xxxxxxxx DISKETTE, PRESS SEND WHEN READY	SP
NEW SPEED USING RPQ WILL BE EFFECTIVE AT NEXT IML	24-49
NEW SPEED xxxxxx WILL BE EFFECTIVE AT NEXT IML	24-49
NM NOT ALLOWED WHEN A CCU FUNCTION IS ACTIVE	24-72
NO ACKNOWLEDGE FROM TRA: MODE NOW UNKNOWN	SP
NO ANSWER FROM CCU CONTROL PROGRAM: WRAP FUNCTION CANCELED	24-65
NO ANSWER FROM CONTROL PROGRAM: FUNCTION NOT PERFORMED	24-16

## Alphabetic List of All 3720 Messages (continued)

NO ANSWER FROM CONTROL PROGRAM: MODE NOW UNKNOWN .....	SP
NO ANSWER FROM LINK TEST PROGRAM - FUNCTION CANCELED .....	24-57
NO ANSWER TO ERROR STATUS REQUEST DURING ERROR RECOVERY .....	24-38
NO 'APPLIED' PATCHES IN FILE .....	24-40
NO CHANNEL ADAPTER SELECTED .....	24-19
NO CONTROL PROGRAM BUFFER: FUNCTION NOT PERFORMED .....	24-16
NO DEFECTIVE TRACK: ALTERNATE TRACK ASSIGNMENT MAP EMPTY .....	SP
NO FILE TO SWAP - SWAP IS COMPLETED .....	SP
NO FUNCTION VALUE .....	24-24
NO NEW MCF IN FILE .....	24-40
NO 'NON-APPLIED' PATCHES IN FILE .....	24-40
NO OLD MCF IN FILE .....	24-40
NO PROCEDURE TO CATALOG .....	24-21
NO SCANNER ANSWER: CHECK CCU STATE AND IF NEEDED RE-IML CS .....	24-39
NO SCANNER SELECTED .....	SP
NO SELECTION MADE .....	SP
NO SUPPORT FOR AUTOCALL LINE: WRAP FUNCTION CANCELED .....	24-65
NO SUPPORT FOR OEM LINE: WRAP FUNCTION CANCELED .....	24-65
NO SWAP CHANGES: FUNCTION NOT SUPPORTED BY CTL PGM .....	24-46
NO SWAP CHANGES: MOSS IS NOT ONLINE .....	24-46
NO SWAP FILED .....	24-46
NO TRA'S INSTALLED: FUNCTION CANCELED .....	SP
NON-CCU FUNCTION STILL PENDING .....	24-73
NON-OPERATIONAL EP DUALCOM LINE: WRAP FUNCTION CANCELED .....	24-66
....: NOT CONNECTED .....	SP
NOT ENOUGH SPACE IN ZAP AREA FOR ALL DATA .....	SP
NOT ENOUGH SPACE IN ZAP AREA TO COPY ALL SELECTED ZAPS .....	SP
NOTHING TO TERMINATE .....	24-73
NTRI/MOSS ERR: FUNCTION CANCELED .....	24-61
NTRI/MOSS ERR: PRESS SEND TO CONTINUE .....	SP
NTRI OFFLINE: FUNCTION IGNORED .....	SP
ONLY ONE SCAN OR MODIFY ON SAME SCREEN .....	24-40
PANEL FUNCTIONS CANNOT BE PERFORMED: SET PANEL .....	24-44
PASSWORD HAS BEEN UPDATED .....	24-44
PASSWORD MUST BE AT LEAST FIVE ALPHANUMERIC CHARACTERS LONG WITHOUT BLANKS .....	24-45
PATCH ALREADY EXISTS .....	24-40
PATCH AREA IS NOW FULL .....	24-40
PATCH ERASED BECAUSE IT CONTAINS NO MORE RECORD .....	24-41
PATCH FILED .....	24-41
PATCH FILED, CHECKSUM IS XXXX .....	24-41
PATTERN MUST CONTAIN AT LEAST 4 PAIRS OF HEX CHARACTERS .....	24-66
PRESS BREAK (ATTN) TO CANCEL ADDRESS COMPARE .....	SP
PRESS BREAK (ATTN) TO STOP .....	24-30
PRIMARY DISKETTE CHECKING IN PROGRESS .....	24-27
PRIMARY DISKETTE IS NOT THE ONE ALREADY CHECKED .....	24-28
PROCEDURE IN STORAGE CANNOT BE EXECUTED .....	24-21
PROCEDURE NAME ALREADY USED .....	24-22
PROCEDURE NAME CANNOT START WITH CP .....	24-22
PROCEDURE NOT FOUND IN FILE .....	24-22
PROCEDURE x CATALOGED .....	24-22
PROCEDURE x CREATED .....	24-22
PROCEDURE x ERASED .....	24-22
PROCEDURE x EXECUTED .....	24-22
PROCEDURE x MODIFIED .....	24-23

## Alphabetic List of All 3720 Messages (continued)

PURGE COMPLETED .....	SP
RECOVERY OF A CANCELED APPLY .....	24-41
RECOVERY OF A CANCELED RESTORE .....	24-41
RECOVERY OF A CANCELED UPGRADE .....	24-41
REFRESH MODE: PRESS BREAK (ATTN) TO STOP .....	SP
REFUSED: CCU SIZE MUST BE 512, 768, OR 1024 .....	SP
REFUSED: DIRECTORY IS FULL .....	24-23
REFUSED: FILE SPACE EXCEEDED .....	24-23
REFUSED: INCOMPATIBLE LIC TYPES .....	24-46
REFUSED: a IS ALREADY SWAPPED WITH b .....	24-46
REFUSED: bbb IS UNKNOWN TO CONTROLLER .....	24-46
REFUSED: MAXIMUM NUMBER OF PATCHES REACHED .....	24-41
REFUSED: MAXIMUM NUMBER OF ZAPS REACHED .....	SP
REFUSED: MAX NUMBER OF MESSAGES REACHED .....	24-23
REFUSED: MAX NUMBER OF STEPS REACHED .....	24-23
REFUSED: MEANINGLESS VALUES .....	24-47
REFUSED: NOT ENOUGH SPACE IN PATCH AREA .....	24-41
REFUSED: PATCHES ARE ALREADY ON DISK(ETTE) .....	24-41
REFUSED: THE FILE IS FULL, RESET A SWAP .....	24-47
REFUSED: ZAP AREA IS FULL .....	SP
REFUSED BY CTL PGM: FUNCTION NOT SUPPORTED .....	24-47
REFUSED BY CTL PGM: a IS A SPARE .....	24-47
REFUSED BY CTL PGM: aaa IS EP LINE .....	24-47
REFUSED BY CTL PGM: aaa IS NON-IBM .....	24-47
REFUSED BY CTL PGM: b IS NOT A SPARE .....	24-47
REFUSED BY CTL PGM: aaa IS NOT INACTIVE .....	24-47
REFUSED BY CTL PGM: RESOURCE NOT AVAILABLE .....	24-48
REFUSED BY CTL PGM: UNDEFINED ERROR .....	24-48
RELEASED SCANNER IS IN RESET OR INOPERATIVE MODE .....	SP
REMOTE CONSOLE CALLING .....	24-43
REMOTE CUSTOMER PASSWORD AND REMOTE MAINTENANCE PASSWORD MUST BE DIFFERENT .....	24-45
REMOTE MAINTENANCE PASSWORD HAS BEEN DEACTIVATED .....	24-45
REMOTE MAINTENANCE PASSWORD HAS BEEN PERMANENTLY ACTIVATED .....	24-45
REMOTE MAINTENANCE PASSWORD HAS BEEN TEMPORARILY ACTIVATED .....	24-45
REQUEST IGNORED .....	24-16
REQUEST IGNORED: CCU NOT INITIALIZED .....	24-67
REQUEST REJECTED: DISK UPDATING NOT ALLOWED .....	24-29
REQUEST REJECTED: DUMP FILE DOES NOT EXIST .....	24-29
REQUEST REJECTED: NO ACTIVE LOAD MODULE ON DISK .....	24-29
REQUESTED LINE ADDRESS IS INVALID FOR A TOKEN RING .....	24-62
RESET CCU CHECK IGNORED .....	24-73
RESET CCU FAILED .....	24-73
RESET CCU COMPLETED .....	24-73
RESET CCU NOT ALLOWED .....	24-73
RESTORE DISK FROM XXXXX DISKETTE IN PROGRESS .....	24-28
RESTORE NOT AUTHORIZED FROM THIS DISKETTE: PRESS SEND .....	24-28
RESUME IGNORED .....	24-68
RESULTS UNPREDICTABLE - PF4 AGAIN TO CONFIRM ELSE SEND .....	SP
RPO DETECTED ON L xxx .....	25-14
SAVE COMPLETED .....	SP
SCANNER xx AUTOMATIC DUMP IN PROGRESS .....	SP
SCANNER xx SELECTED: LOOK AT MSA FOR SCANNER MODE .....	SP
SCANNER AC HIT BUT REQUESTED ACTION NOT PERFORMED .....	SP
SCANNER CANNOT BE IMLED: MOSS IS NOT ONLINE .....	24-33
SCANNER CONNECTED TO CCU CONTROL PROGRAM .....	SP

# Alphabetic List of All 3720 Messages (continued)

SCANNER CONNECTION REJECTED BY CCU CONTROL PROGRAM	24-33
SCANNER CYCLE STEAL TO/FROM CCU FAILED	24-39
SCANNER DUMP COPIED INTO CCU STORAGE	SP
SCANNER DUMP COPIED ON DISKETTE	SP
SCANNER DUMP STARTED	SP
SCANNER ERROR ON RECEIVE	24-57
SCANNER ERROR ON TRANSMIT	24-58
SCANNER HARDSTOP DURING COMMAND PROCESSING	24-39
SCANNER IN DISCONNECTED/GO MODE	SP
SCANNER IN DISCONNECTED/STOP MODE	SP
SCANNER IN RESET MODE	SP
SCANNER NOT INSTALLED	24-16
SCANNER NOT OPERATIONAL - LINK TEST FUNCTION CANCELED	24-58
SCANNER x OVERLOADED (LINES x - y)	24-36
SCANNER PROCESSING RESUMED BUT SCANNER MODE IS UNKNOWN	SP
SCANNER PROCESSING RESUMED THEN STOPPED ON AC HIT	SP
SCANNER RELEASED BUT CURRENT MODE KEPT	SP
SCANNER SELECTED BUT NO STATUS RECEIVED	SP
SCANNER SELECTED BUT STATUS UNKNOWN	SP
SCANNER(S) NOT IMLED: xxxx	25-14
SCROLL IGNORED	SP
SECONDARY DISKETTE CHECKING IN PROGRESS	24-28
SECONDARY DISKETTE IS NOT THE ONE ALREADY CHECKED	24-28
SEL# RANGE LIMITED TO n	24-32
SELECT A FILE	SP
SELECT A SCANNER	SP
SELECT A TRA	SP
SELECTED PATCH COPIED ON DISK(ETTE)	24-41
SELECTED PATCHES, IF ANY, ARE COPIED ON DISK(ETTE)	24-41
SELECTED PROCEDURE IS FROM STORAGE	24-23
SELECTED TIC NOT AVAILABLE	24-62
SENDING	24-77
SET MODE COMMAND FAILED - LINK TEST FUNCTION CANCELED	24-58
SOURCE DISK(ETTE) ERROR: FUNCTION CANNOT BE PERFORMED	24-41
SPECIFY A DELAYED ALTER	SP
SPECIFY A DELAYED DISPLAY	SP
START CCU FAILED	24-73
START CCU IGNORED	24-74
START CCU COMPLETED	24-74
START CCU NOT ALLOWED	24-74
STEP 1 OF MOSS DUMP SWAP STARTED: DISKETTE TO CCU	SP
STEP 1 OF SCANNER DUMP SWAP STARTED: DISKETTE TO CCU	SP
STEP 2 OF MOSS DUMP SWAP STARTED: CCU TO DISKETTE	SP
STEP 2 OF SCANNER DUMP SWAP STARTED: CCU TO DISKETTE	SP
STEP 255 MUST BE THE END STATEMENT	24-24
STOP CCU COMPLETED	24-74
STOP CCU FAILED	24-74
STOP CCU IGNORED	24-75
STOP CCU IGNORED	24-68
STOP CCU NOT ALLOWED	24-75
STOP THE CCU THEN PRESS PF4 TO DISPLAY CA REGISTERS	24-19
STORE EXCEEDED (MAX 80 SECT.): USE 2 RUNS TO COPY FILES	SP
SWAP COMPLETED	SP
SWAP IS NOT ALLOWED, MOSS IS NOT OFFLINE	SP
SWAP IS STARTED	SP

## Alphabetic List of All 3720 Messages (continued)

a SWAPPED TO b	24-48
SYSTEM COMMAND	24-77
TERMINAL DISCONNECTED	24-42
TERMINAL DISCONNECTED FOR REMOTE CONSOLE	24-43
THE HISTORY TABLE IS EMPTY	24-41
THE NAME OF THE PROCEDURE TO BE CATALOGED IS: xxxx	24-24
THIS BER IS NO LONGER IN THE BER FILE	SP
TIC DUMP ALREADY EXISTS: AUTODUMP CANCELED	SP
....: TIC MODE NOT REPORTED	SP
TIMEOUT OCCURRED - TERMINAL DISCONNECTED	24-75
TIMEOUT ON RECEIVE	24-59
TIMEOUT ON TRANSMIT	24-59
TO ALTER DATA, SPECIFY AN IMMEDIATE DISPLAY	SP
TO CLEAR DUMP FILE ENTER C, OTHERWISE PRESS SEND	SP
TO DELAY ALTER, ENTER NEW DATA, CHANGE I TO D, PRESS SEND	SP
TOO MANY SELECTED ZAPS (WOULD EXCEED ZAP AREA CAPACITY)	SP
TOO MUCH DATA RECEIVED	24-59
TRA ALREADY CONNECTED: FUNCTION IGNORED	SP
TRA ALREADY DISCONNECTED: FUNCTION IGNORED	SP
TRA CANNOT BE CONNECTED: MOSS IS NOT ONLINE	SP
TRA CONNECTED	SP
TRA CONNECTION REJECTED BY CONTROL PROGRAM	SP
TRA DISCONNECTED	SP
TRA DISCONNECTED BUT NO CP ACKNOWLEDGE	SP
TRA DISCONNECTED BUT SOME TIC'S COULD NOT RESET	SP
TRA DISCONNECTED WITH UNEXPECTED STATUS	SP
TRA NOT DISCONNECTED: FUNCTION IGNORED	SP
....: TRA INTERRUPTS NOT ENABLED	SP
TRA SELECTED IS NOT INSTALLED: REQUEST REJECTED	24-62
....: TRA SELECTED WITH UNKNOWN MODE	SP
TRA XX SELECTED: LOOK IN MSA FOR MODE	SP
TRANSMISSION ERROR ON RECEIVE	24-60
TRANSMISSION ERROR ON TRANSMIT	24-60
TRANSMISSION ERROR, PLEASE RE-ENTER	24-75
UNABLE TO LOAD MODULE: FUNCTION CANCELLED	24-16
UNABLE TO SET LINE TO WRAP MODE: WRAP FUNCTION CANCELED	24-66
UNABLE TO SET TIC STORAGE BOUNDARY	SP
UNAUTHORIZED ACCESS - TERMINAL DISCONNECTED	24-43
UNDEFINED PF KEY	24-17
UNEXPECTED INTERRUPT RECEIVED: KEYBOARD INPUT IGNORED	SP
UNEXPECTED SCANNER INTERRUPT: PRESS SEND TO RETRY	SP
xx UNSUCCESSFUL ATTEMPTS FOR LOCAL LOGGING	24-43
xx UNSUCCESSFUL ATTEMPTS FOR REMOTE LOGGING	24-43
UPDATE HIGHLIGHTED FIELDS, PRESS SEND	SP
UPSHIFT	24-77
VERIFICATION NOT ALLOWED: MOSS MUST BE IN ALONE STATUS	SP
'VERIFY DATA' AND 'REPLACE DATA' HAVE DIFFERENT LENGTHS	SP
'VERIFY DATA' DOES NOT MATCH MODULE DATA	SP
WARNING: AT LEAST ONE TARGET VALUE > END STEP NUMBER	24-24
WARNING: INCOMPATIBLE LINE PROTOCOLS, PRESS SEND TO BYPASS	24-48
WARNING: THIS FUNCTION DESTROYS THE CCU CONTROL PROGRAM	SP
WRAP CONTROL LEAD AT LIC LEVEL NOT ALLOWED	24-66
WRAP FUNCTION CANCELED ON OPERATOR REQUEST	24-66
WRAP TEST COMPLETED	24-66
WRAP TEST STOPPED ON OPERATOR REQUEST	24-67
WRITE ERROR ON SECTOR 1 OR 2. CHANGE DISK	SP



**Alphabetic List of All 3720 Messages (continued)**

WRONG DISKETTE MOUNTED, MOUNT ORIGINAL DISKETTE .....	SP
WRONG PLACE .....	24-76
YOU MUST PERFORM MOSS IML FROM THE CONTROL PANEL .....	24-28

# Function Messages

## Common Messages

The following messages are common to several 3720 functions.

### **BT BUFFER INCORRECTLY DEFINED**

*Cause:* The branch trace register address and/or length are destroyed.

*Action:* Restore branch trace register address and/or length. (See Chapter 19).  
If the message appears another time, contact the appropriate service representative.

### **CABLE NOT INSTALLED**

*Cause:* The line that you specified is considered as not installed because there is no cable between the LIC and the modem.

*Action:* Enter the address of an installed line.

### **CCU/MOSS ERROR: BT BUFFER NOT ACCESSIBLE**

*Cause:* The length and address of the branch trace buffer are not available because of a hardware error on the MOSS-to-CCU boundary.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.

### **CCU/MOSS ERROR: BT BUFFER NOT UPDATED**

*Cause:* The branch trace parameters cannot be saved in the buffer header because of a hardware error on the MOSS-to-CCU boundary.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.

### **CCU/MOSS ERROR: FUNCTION NOT PERFORMED**

*Cause:* The function that you selected cannot be performed because of a hardware error on the MOSS-to-CCU boundary.

A BER is created: Type 01, ID 02.

*Action:*

1. Terminate the function, using function Terminate, and
2. Contact the appropriate service representative.

### **CONTROLLER DATA UNAVAILABLE: FUNCTION CANCELED**

*Cause:* A physical error occurred when accessing the diskette. The function is canceled.

*Action:* Select the function another time. If the problem persists, contact the appropriate service representative.

### **DISKETTE ERROR: FUNCTION NOT AVAILABLE**

*Cause:* The function that you selected is not available because of a hardware error on the diskette.

A BER is created: Type 01, ID 03.

Alarm A3 is displayed.

*Action:*

1. Terminate the function, using terminate function, and
2. Contact the appropriate service representative.

### **ERROR IN SCANNER DURING COMMAND PROCESSING**

*Cause:* A scanner hardware error is detected. The function cannot be performed.

A BER is created: Type 01, ID 05.

*Action:*

1. Terminate the function, using terminate function, and
2. Contact the appropriate service representative.

### **FUNCTION COMPLETED**

*Cause:* The function that you selected has been performed.

*Action:* Do one of the following:

- Select another function from the same secondary menu, or
- Terminate the function using terminate function.

### **FUNCTION IN PROGRESS**

*Cause:* The function that you selected is being performed.

*Action:* None.

## **FUNCTION NOT AVAILABLE: TRY LATER**

*Cause:* The function that you selected is not available because the procedure file is being transferred to the host.

*Action:* Wait and try later.

## **INVALID INPUT**

*Cause:* You did one of the following:

- You pressed SEND before entering the requested input on a screen,
- You entered one or more invalid characters,
- You entered an invalid value, for example, an address outside the specified range, or
- You made a formatting error.

*Action:* Do one of the following:

- Correct the erroneous input, or
- Press one of the PF keys displayed on the screen, if any.

## **INVALID LINE ADDRESS**

*Cause:* The line address that you entered is not within the range.

*Action:* Check the line address and re-enter.

## **IOC ERROR DURING ERROR RECOVERY**

*Cause:* The scanner is not able to process the MOSS command. An IOC error was detected during the error recovery.

A BER is created: Type 01, ID 05.

*Action:*

1. ReIML the appropriate scanner (Chapter 3).
2. If the error persists, contact the appropriate service representative.

### **IOC/SCANNER ERROR: FUNCTION NOT PERFORMED**

*Cause:* A hardware error is detected either in the scanner or in the IOC bus. The MOSS command cannot be performed.

A BER is created: Type 01, ID 05.

*Action:*

1. Terminate the function, using terminate function, and
2. Contact the appropriate service representative.

### **LINE ADDRESS DOES NOT BELONG TO AN INSTALLED SCANNER**

*Cause:* The scanner referred to by the line address that you entered is not installed.

*Action:* Check the line address (Chapter 23) and re-enter.

### **NO ANSWER FROM CONTROL PROGRAM: FUNCTION NOT PERFORMED**

*Cause:* There was no answer from the control program, when selecting function MOSS Online or MOSS Offline.

*Action:* Check if the control program is running.

### **NO CONTROL PROGRAM BUFFER: FUNCTION NOT PERFORMED**

*Cause:* No control program buffer is available at this time to execute your request.

*Action:* Try later.

### **REQUEST IGNORED**

*Cause:* Your request cannot be accepted in the present environment.

*Action:* Check the section in this manual that describes the function you are using.

### **SCANNER NOT INSTALLED**

*Cause:* The line address that you specified corresponds to a scanner that is not installed.

*Action:* Check the line address (Chapter 23) and re-enter.

### **UNABLE TO LOAD MODULE: FUNCTION CANCELED**

*Cause:* A software module is missing or damaged are destroyed.

*Action:* Contact the appropriate service representative

## **UNDEFINED PF KEY**

*Cause:* You pressed a PF key that is not displayed on the screen.

*Action:* Do one of the following:

- Press one of the PF keys displayed on the screen, if any, or
- Enter requested input.

## **Channel Adapter State and Register Display Messages**

### **CCU/MOSS ERROR: AUTO SELECT NOT DISABLED**

*Cause:* The auto-selection mechanism cannot be disabled because of a hardware error on the CCU-to-MOSS boundary.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.

### **CCU/MOSS ERROR: AUTO SELECT NOT ENABLED**

*Cause:* The auto-selection mechanism cannot be enabled as requested because of a hardware error on the CCU-to-MOSS boundary.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.

### **CCU/MOSS ERROR: CA CANNOT BE SELECTED**

*Cause:* The requested channel adapter cannot be selected because of a hardware error on the CCU-to-MOSS boundary.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.

### **CCU/MOSS ERROR: CA REGISTER X'E' NOT ACCESSIBLE**

*Cause:* The channel adapter register that you selected cannot be read because of a hardware error on the CCU-to-MOSS boundary.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.

### **CCU/MOSS ERROR: CA REGISTERS NOT ACCESSIBLE**

*Cause:* The channel adapter registers cannot be read because of a hardware error on the CCU-to-MOSS boundary.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.

### **CCU/MOSS ERROR: CA STATE NOT ACCESSIBLE**

*Cause:* The channel adapter state registers cannot be read because of a hardware error on the MOSS-to-CCU boundary.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.

### **CCU/MOSS ERROR: INITIAL CA CANNOT BE RESELECTED**

*Cause:* The initial channel adapter cannot be reselected because of a hardware error on the CCU-to-MOSS boundary.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.

### **CHANNEL ADAPTER NOT INSTALLED**

*Cause:* You entered a valid channel adapter number, but it is not among the installed channel adapter numbers.

*Action:* Enter the number of channel adapter that has been installed.

### **DISKETTE ERROR: FUNCTION NOT AVAILABLE (See "Common Messages")**

### **ENABLE NOT ALLOWED: STOP THE CCU**

*Cause:* You cannot enable the channel adapter auto-selection mechanism if the CCU is not stopped.

*Action:* Do the following if the CCU is not stopped:

1. 

PF2	S	T	P	SEND
-----	---	---	---	------

*To stop the CCU.*
2. 

PF4
-----

*To continue.*

## INVALID ACTION

*Cause:* You were requested to press either PF4 (to enable the auto-selection mechanism and to display the Display Channel Adapter State screen) or PF6 (to leave the auto-selection mechanism in disabled status and to display the Display Channel Adapter State screen) but you pressed some other key.

*Action:* Press either PF4 or PF6.

## INVALID CHANNEL ADAPTER NUMBER

*Cause:* You entered an invalid channel adapter number.

*Action:* Enter a valid channel number.

## NO CHANNEL ADAPTER SELECTED







*Cause:* A channel adapter was not automatically selected, nor did you enter a channel adapter number.

*Action:* Enter a channel adapter number.

## STOP THE CCU THEN PRESS PF4 TO DISPLAY CA REGISTERS

*Cause:* To display the channel adapter registers, the CCU must be stopped.

*Action:*

1.      *To stop the CCU.*
2.  *To continue.*

## Control Program Procedure Messages

### CANCELED: TARGET VALUE > END STEP NUMBER

*Cause:* While executing the procedure, a Goto, Halt, or Wait target value greater than the step number of the End instruction was encountered.

*Action:* Correct the target value and execute the procedure another time (Chapter 22).

### CCU/MOSS ERROR: STEP NOT EXECUTED

*Cause:* A SETI or OSET instruction was not executed because of a hardware error on the MOSS-to-CCU boundary.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.



#### **DISK ERROR: DIRECTORY MAY BE DAMAGED**

*Cause:* The directory may be damaged because of a disk hardware error that occurred when writing the directory. Control program procedures may be lost.

A BER is created: Type 01, ID 03.

Alarm A3 is displayed.

*Action:* Contact the appropriate service representative.

#### **DISK ERROR: DIRECTORY NOT ACCESSIBLE**

*Cause:* The directory is not available because of a hardware error on the disk.

A BER is created: Type 01, ID 03.

Alarm A3 is displayed.

*Action:* Contact the appropriate service representative.

#### **DISK ERROR: FUNCTION NOT AVAILABLE (See "Common Messages")**

#### **DISK ERROR: PROCEDURE CANNOT BE FILED/MODIFIED**

*Cause:* The procedure cannot be cataloged or modified because of a disk hardware error that occurred when writing the procedure.

A BER is created: Type 01, ID 03.

Alarm A3 is displayed.

*Action:* Contact the appropriate service representative.

#### **DISK ERROR: PROCEDURE FILE MAY BE DAMAGED**

*Cause:* The procedure file may be damaged because of a disk hardware error that occurred when erasing a procedure.

A BER is created: Type 01, ID 03.

Alarm A3 is displayed.

*Action:* Contact the appropriate service representative.

### **DISK ERROR: PROCEDURE NOT AVAILABLE**

*Cause:* The procedure that you selected is not available because of a hardware error on the disk.

A BER is created: Type 01, ID 03.

Alarm A3 is displayed.

*Action:* Contact the appropriate service representative.

### **EXEC CANCELED ON OPERATOR REQUEST**

*Cause:* You canceled the procedure by pressing PF5 while the procedure was being executed.

*Action:* None.

### **EXEC CANCELED: OUTPUT X'71' REGISTER NOT ACCESSIBLE**

*Cause:* The execution of the selected procedure is canceled because of a hardware error on the MOSS-to-CCU boundary when reading the output X'71' register.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.

### **FUNCTION NOT AVAILABLE: TRY LATER (See "Common Messages")**

### **INVALID INPUT (See "Common Messages")**

### **NO PROCEDURE TO CATALOG**

*Cause:* You selected Catalog but there is no procedure to catalog.

*Action:* None.

### **PROCEDURE IN STORAGE CANNOT BE EXECUTED**

*Cause:* The selected procedure cannot be executed because it is not completely created or modified.

*Action:* Do one of the following:

- Once you have entered all the steps, enter End, which must be the last instruction, or
- Once you have entered all the modifications, press PF6:END MODIFY.

### **PROCEDURE NAME ALREADY USED**

*Cause:* The name of the procedure that you want to create is already used.

*Action:* Enter a procedure name that is not in the directory.

### **PROCEDURE NAME CANNOT START WITH CP**

*Cause:* You cannot create, modify, erase, or catalog a procedure whose name starts with CP.

*Action:* If you want to modify such a procedure, you must copy it under another name and modify the copied procedure (Chapter 22).

### **PROCEDURE NOT FOUND IN FILE**

*Cause:* You selected a procedure that does not exist in the procedure file.

*Action:* Enter the name of an existing procedure.

### **PROCEDURE x CATALOGED**

*Cause:* Procedure x is successfully cataloged. The procedure directory is automatically updated.

*Action:* None.

### **PROCEDURE x CREATED**

*Cause:* Procedure x is created.

*Action:* You should catalog the procedure. However, before cataloging it, you may execute and/or modify it, if necessary.

The procedure just created will be lost unless you catalog it before you create, erase, modify, execute, or display another procedure.

### **PROCEDURE x ERASED**

*Cause:* Procedure x is erased. The procedure directory is automatically updated.

*Action:* None.

### **PROCEDURE x EXECUTED**

*Cause:* Procedure x is executed.

*Action:* None.

## **PROCEDURE x MODIFIED**

*Cause:* Procedure x is modified.

*Action:* You should catalog the procedure. However, before cataloging it, you may execute and/or modify it, if necessary.

## **REFUSED: DIRECTORY IS FULL**

*Cause:* You cannot catalog a procedure because the maximum number of cataloged procedures (47) is already reached in the directory.

*Action:* If you want to catalog a procedure, you must erase a procedure that is already cataloged (Chapter 22).

## **REFUSED: FILE SPACE EXCEEDED**

*Cause:* You cannot catalog a procedure because there is not enough space in the procedure file.

*Action:* If you want to catalog a procedure, you must erase a procedure that is already cataloged to free some space in the procedure file (Chapter 22).

## **REFUSED: MAX NUMBER OF MESSAGES REACHED**

*Cause:* You cannot enter another message (Disp) in the procedure because the maximum number of messages (50) is already reached.

*Action:* None.

## **REFUSED: MAX NUMBER OF STEPS REACHED**

*Cause:* You cannot insert another step in the procedure because the maximum number of steps (255) is already reached.

*Action:* None.

## **REQUEST IGNORED (See "Common Messages")**

## **SELECTED PROCEDURE IS FROM STORAGE**

*Cause:* The procedure that you have selected is already in storage because you have just created, displayed, or modified it. The procedure in storage and that in the procedure file may be at different levels.

*Action:* Do one of the following:

- Press PF4, to use the procedure that is in the file, or
- Press PF6, to use the procedure that is in storage.

## **STEP 255 MUST BE THE END STATEMENT**

*Cause:* The next step is the last one (255).

*Action:* You must enter the End instruction.

## **THE NAME OF THE PROCEDURE TO BE CATALOGED IS: xxxx**

*Cause:* The name of the procedure to be cataloged does not match the name of the procedure that is in 3720 storage (just created or modified).

*Action:* Enter the name indicated in the message.

## **UNDEFINED PF KEY (See "Common Messages")**

## **WARNING: AT LEAST ONE TARGET VALUE > END STEP NUMBER**

*Cause:* While creating or modifying the procedure, you entered a Goto, Halt, or Wait target value that is greater than the step number of the End instruction.

*Action:* Correct the target value before cataloging or executing the procedure.

## **Data Exchange Messages**

### **CCU/MOSS ERROR: FUNCTION NOT PERFORMED (See "Common Messages")**

### **CCU/MOSS ERROR: INPUT X'71', X'72' REG NOT ACCESSIBLE**

*Cause:* The registers cannot be accessed because of a hardware error on the MOSS-to-CCU boundary.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.

### **DISKETTE ERROR: FUNCTION NOT AVAILABLE (See "Common Messages")**

### **INVALID INPUT (See "Common Messages")**

### **NO FUNCTION VALUE**

*Cause:* You did not enter a function value in parameter FUNCTION == >.

*Action:* Enter a function value in FUNCTION == >.

## **UNDEFINED PF KEY (See "Common Messages")**

## Disk Function Messages

### **CCU/MOSS ERROR: DISK FUNCTION CANNOT BE PERFORMED: PRESS SEND**

*Cause:* The disk function cannot be performed because of a hardware error on the MOSS-to-CCU boundary.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.

### **DISK DIRECTORY CAPACITY EXCEEDED: MOSS DOWN**

*Cause:* Too many customer files. The capacity of the disk directory is exceeded.

*Action:* Contact the appropriate service representative.

### **DISK ERROR: FUNCTION CANCELED. PRESS SEND**

*Cause:* A physical error occurred when accessing the diskette. The disk function is canceled.

A BER is created: Type 01, ID 03.

Alarm A3 is displayed.

*Action:* Select the disk function again. If the problem persists, contact the appropriate service representative.

### **DISK ERROR: MOSS DOWN**

*Cause:* MOSS is down because a hardware error occurred when writing on the disk.

MOSS is no longer available.

*Action:* Contact the appropriate service representative.

### **DISK ERROR: SAVE CANCELED**

*Cause:* While saving the disk onto the secondary diskette a disk error is detected.

*Action:* Start another save from the beginning: primary and secondary diskettes. If the problem persists, contact the appropriate service representative.

### **DISKETTE ERROR: FUNCTION CANCELED: PRESS SEND**

*Cause:* A physical error occurred when accessing the diskette. The disk function is canceled.

A BER is created: Type 01, ID 03.

Alarm A3 is displayed.

*Action:* Select the disk function another time. If the problem persists, contact the appropriate service representative.

### **DISKETTE ERROR: MOSS DOWN**

*Cause:* MOSS is down because a hardware error occurred when writing on the disk.

MOSS is no longer available.

*Action:* Contact the appropriate service representative.

### **DISKETTE ERROR: MOUNT A NEW ONE, THEN PRESS SEND**

*Cause:* An error has been detected on the diskette that you mounted.

*Action:* Mount another one.

### **DISKETTE FUNCTIONS CANNOT BE PERFORMED WHEN MOSS IS ONLINE: PRESS SEND**

*Cause:* Disk function cannot be performed when MOSS is connected to the CCU control program.

*Action:* Set MOSS offline, as follows:



### **DISKETTE NOT READY**

*Cause:*

- The diskette is not mounted.
- The diskette engaging lever is not set correctly.

*Action:* Mount the diskette or set correctly the diskette engaging level.

### **DISK UNUSABLE: EC NOT INITIALIZED**

*Cause:* The disk is damaged.

*Action:* Contact the appropriate service representative.

**EC INSTALLATION FROM xxxxx DISKETTE IN PROGRESS**

*Cause:* The EC primary or secondary diskette is being copied onto the disk.

*Action:* None.

**FILE CHGxxxxx NOT FOUND ON xxxxxx: FUNCTION CANCELED, PRESS SEND**

*Cause:* File CHGxxxxx cannot be found on the new EC diskette or is no longer on the disk.

*Action:* Contact the appropriate service representative.

**FILE CHGxxxxx SMALLER ON DISKETTE: FUNCTION CANCELED, PRESS SEND**

*Cause:* The space allocated for the file CHGxxxxx on the new EC diskette is too small.

*Action:* Contact the appropriate service representative.

**INVALID INPUT (See "Common Messages")**

**MOSS DOWN BECAUSE YOU SELECTED TERMINATE**

*Cause:* You selected terminate function while the disk was being written.

MOSS is no longer available.

*Action:* Contact the appropriate service representative.

**MOUNTED DISKETTE IS NOT A PRIMARY**

*Cause:* You have been requested to mount a primary diskette and you mounted either a secondary diskette or a 3721 diskette.

*Action:* Mount the correct primary diskette.

**MOUNTED DISKETTE IS NOT A SECONDARY**

*Cause:* You have been requested to mount a secondary diskette and you mounted either a primary diskette or a 3721 diskette.

*Action:* Mount the correct primary diskette.

**PRIMARY DISKETTE CHECKING IN PROGRESS**

*Cause:* The primary diskette is being checked.

*Action:* None.



### **PRIMARY DISKETTE IS NOT THE ONE ALREADY CHECKED**

*Cause:* The diskette that you mounted is not the primary diskette that has just been checked.

*Action:* Mount the correct primary diskette.

### **RESTORE DISK FROM xxxxx DISKETTE IN PROGRESS**

*Cause:* The disk is being restored from the primary or secondary diskette.

*Action:* None.

### **RESTORE NOT AUTHORIZED FROM THIS DISKETTE: PRESS SEND**

*Cause:* You cannot restore the disk from an EC diskette.

*Action:*

- Perform an EC installation.
- Mount the correct diskette.
- Terminate the disk functions.

### **SECONDARY DISKETTE CHECKING IN PROGRESS**

*Cause:* The secondary diskette is being checked.

*Action:* None.

### **SECONDARY DISKETTE IS NOT THE ONE ALREADY CHECKED**

*Cause:* The diskette that you mounted is not the secondary diskette that has just been checked.

*Action:* Mount the correct secondary diskette.

### **UNDEFINED PF KEY (See "Common Messages")**

### **YOU MUST PERFORM MOSS IML FROM THE CONTROL PANEL (self-explanatory)**

## **Disk IPL Information Messages**

### **REQUEST REJECTED - DISK UPDATING NOT ALLOWED**

*Cause:* MOSS is busy processing host command.

*Action:* Wait a few seconds and then try again.

### **REQUEST REJECTED - DUMP FILE DOES NOT EXIST**

*Cause:* Dump was not found on the disk.

*Action:* None.

### **REQUEST REJECTED - NO ACTIVE LOAD MODULE ON ON DISK**

*Cause:* Active load module was not found on disk.

*Action:* None.

## Display/Alter Messages

### CCU/MOSS ERROR: FUNCTION NOT PERFORMED (See "Common Messages")

### CCU/MOSS ERROR: WORK REGISTERS CANNOT BE ALTERED

*Cause:* The current CCU interrupt level cannot be accessed because of a hardware error on the MOSS-to-CCU boundary.

A BER is created: Type 01, ID 02.

*Action:* Contact the appropriate service representative.

### DISKETTE ERROR: FUNCTION NOT AVAILABLE (See "Common Messages")

### FIRST STOP THE CCU

*Cause:* You cannot alter work registers if the CCU is not stopped.

*Action:* Stop the CCU and restart the Alter function:

1.  *Display the CCU Function menu.*
2.     *To stop the CCU.*
3.    *To select Display/Alter.*
4. *Display appropriate data then press PF4 to switch to alter mode.*

### INVALID INPUT (See "Common Messages")

### PRESS ATTN TO STOP

*Cause:* The display function is in refresh mode.

*Action:* Press BREAK (ATTN) to stop refreshing.

### UNDEFINED PF KEY (See "Common Messages")

## Display Long Messages

**BT BUFFER INCORRECTLY DEFINED** (See “Common Messages”)

**CCU/MOSS ERROR: BT BUFFER NOT ACCESSIBLE** (See “Common Messages”)

**CCU/MOSS ERROR: FUNCTION NOT PERFORMED** (See “Common Messages”)

**DISKETTE ERROR: FUNCTION NOT AVAILABLE** (See “Common Messages”)

**INVALID INPUT** (See “Common Messages”)

**UNDEFINED PF KEY** (See “Common Messages”)

## Event Log Messages

**BER FILE IS UPDATED** (Service personnel only)

**DISKETTE ERROR: REQUEST IGNORED**

*Cause:* Your request cannot be performed because of a diskette error.

A BER is created: Type 01, ID 03

Alarm A3 is displayed.

*Action:*

1. Retry.
2. If the error persists, contact the appropriate service representative.

**INVALID BER RECORD n** (service personnel only)

**INVALID FLAG VALUE** (service personnel only)

**INVALID INPUT** (See “Common Messages”)

**INVALID SEL#**

*Cause:*

- The selection number (SEL#) that you entered is not between 0 and the maximum number of BERs in the BER file, or
- When scrolling, you reached the last BER of the selected list.

*Action:* Do one of the following:

- Enter a correct BER SEL#, or
- Stop scrolling; the last BER of the list is already displayed.

**SEL# RANGE LIMITED TO n**

*Cause:* To display a BER list, a BER index is built. This index has n entries. Any BER beyond this limit (n) cannot be displayed.

*Action:* None.

**THIS BER IS NO LONGER IN THE BER FILE** (service personnel only)

**UNDEFINED PF KEY** (See "Common Messages")

**IML One Scanner Messages**

**CCU/MOSS ERROR: FUNCTION NOT PERFORMED** (See "Common Messages")

**DISKETTE ERROR: FUNCTION NOT AVAILABLE** (See "Common Messages")

**DISKETTE ERROR: IML CANCELED**

*Cause:* The scanner microcode is not accessible because of a hardware error on the diskette. The IML is canceled.

A BER is created: Type 01, ID 03.

Alarm A3 is displayed.

*Action:*

1. Terminate the function, using terminate function, and
2. Contact the appropriate service representative.

**ERROR IN SCANNER DURING COMMAND PROCESSING** (See "Common Messages")

**IML FOR SCANNER xx COMPLETED: SCANNER IS CONNECTED**

*Cause:* The scanner is operational and under control of the CCU control program. MSA field m 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 INPUT** (See “Common Messages”)

**INVALID LINE ADDRESS** (See “Common Messages”)

**IOC ERROR DURING ERROR RECOVERY** (See “Common Messages”)








**IOC/SCANNER ERROR: FUNCTION NOT PERFORMED** (See “Common Messages”)

**LINE ADDRESS DOES NOT BELONG TO AN INSTALLED SCANNER** (See “Common Messages”)

#### **SCANNER CANNOT BE CONNECTED: MOSS IS NOT ONLINE**

*Cause:* The scanner cannot be connected because the MOSS is not online.

*Action:* Set MOSS online and restart the IML as follows:

1.  *To display the CCU Function menu.*
2.     *To set MOSS online.*
3.  *To switch back to IML functions.*
4.  *To restart automatically the IML of the same scanner.*

#### **SCANNER CONNECTION REJECTED BY CCU CONTROL PROGRAM**

*Cause:* The scanner that you IMLed is not recognized by the CCU control program. The scanner is not operational.

A BER is created: Type 01, ID 05

*Action:*

1. Terminate the function using terminate function.
2. Contact the appropriate service representative.

**SCANNER NOT INSTALLED** (See “Common Messages”)

## **IPL Port Messages**

### **CABLE DOES NOT EXIST**

*Cause:* The communication line whose address was entered is either not installed or not configured.

*Action:* Enter a new address if a non-installed address was entered. Contact the appropriate service representative if an installed address was entered.

### **CDF NOT CREATED: IPL PORT FUNCTION CANCELED**

*Cause:* The 3720 configuration file has not been created.

*Action:* Contact the appropriate service representative.

### **DATA RATE MUST NOT BE SPECIFIED WITH DIRECT-ATTACH**

*Cause:* You selected a data rate (DATA RATE = H or L) for direct-attached lines.

*Action:* Delete the data rate option (H or L) by using



### **DISKETTE ERROR: IPL PORT FUNCTION CANCELED**

*Cause:* The IPL port file cannot be accessed because of a diskette error.

A BER is created: Type 01, ID 03.

Alarm A3 is displayed.

*Action:*

1. Retry.
2. If the error persists, contact the appropriate service representative.

### **INCOMPATIBLE OPTIONS: FULL DUPLEX AND NO DX FACILITY**

*Cause:* The options that you entered are not compatible. You specified F for full-duplex and N for DX facility.

*Action:* Determine correct option and re-enter.

### **INCOMPATIBLE OPTIONS: NON-SWITCHED LINE AND ANSWER TONE**

*Cause:* The options that you entered are not compatible. You specified N for switched line and Y for answer tone.

*Action:* Determine correct option and re-enter.

### **INCOMPATIBLE OPTIONS: NON-SWITCHED LINE AND RING INDICATOR**

*Cause:* The options that you entered are not compatible. You specified N for switched line and Y for ring indicator.

*Action:* Determine correct option and re-enter.

### **INCOMPATIBLE OPTIONS: SWITCHED LINE AND DIRECT-ATTACH**

*Cause:* The options that you entered are not compatible. You specified Y for switched line and D for direct-attach.

*Action:* Determine correct option and re-enter.

### **INVALID INPUT (See "Common Messages")**

### **IPL PORT TABLE UPDATED AND FILED**

*Cause:* The IPL port table that you updated is filed. You update the IPL port table every time you define a new IPL port, or modify or delete a defined one.

*Action:* None.

### **LINE ADDRESS HAS ALREADY BEEN USED FOR ANOTHER LINK**

*Cause:* You have already defined an IPL port for that address.

*Action:* Enter an address that has not been used. Press PF6 to display the line addresses that are already used.

### **UNDEFINED PF KEY (See "Common Messages")**

## **Line Description File Messages**

### **CABLE NOT INSTALLED (See "Common Messages")**

### **CONTROLLER DATA UNAVAILABLE, FUNCTION CANCELED (See "Common Messages")**

### **ENTER A DISPLAYED LINE PROTOCOL**

*Cause:* You did not enter a protocol from among those displayed on the screen.

*Action:* Enter a displayed line protocol.

### **ENTER A DISPLAYED LINE SPEED**

*Cause:* You did not enter a speed from among those displayed on the screen.

*Action:* Enter a displayed line speed.



## **ENTER A LINE ADDRESS WITHIN THE RANGE 0 TO 27 AND 32 TO 63**

*Cause:* The line address that you entered is not within the range 0 to 27 or 32 to 63.

*Action:* Check the line address and re-enter.

## **INVALID INPUT (See “Common Messages”)**

### **SCANNER x OVERLOADED (LINES x - y)**

*Cause:* Allowable scanner load exceeded.

*Action:* Do one of the following:

- Verify that no mistakes have been made while entering line parameters. Check only those lines specified in the message.
- Redistribute the line load on other LICs. Refer to the *3720/3721 Configuration Guide* to determine the current load for this LIC.

## **UNDEFINED PF KEY (See “Common Messages”)**

## **Line Interface Display Messages**

### **CABLE NOT INSTALLED (See “Common Messages”)**

### **CCU/MOSS ERROR: FUNCTION NOT PERFORMED (See “Common Messages”)**

### **DISKETTE ERROR: FUNCTION NOT AVAILABLE (See “Common Messages”)**

### **ERROR DURING ERROR RECOVERY**

*Cause:* An undefined error was detected during the error recovery. The scanner is not able to process the MOSS command.

A BER is created: Type 01, ID 05.

*Action:*

1. Re-IML the appropriate scanner (Chapter 3).
2. If the error persists, contact the appropriate service representative.

### **ERROR IN FRONT END SCANNER PROCESSOR**

*Cause:* A scanner hardware error is detected. The function cannot be performed.

A BER is created: Type 01, ID 05.

*Action:* Terminate the function.

**ERROR IN SCANNER DURING COMMAND PROCESSING** (See “Common Messages”)

**ERROR IN SCANNER: ICC/LIC FAILED OR IS NOT PRESENT**

*Cause:* A scanner hardware error is detected. The function cannot be performed.

A BER is created: Type 01, ID 05.

*Action:* Terminate the function.

**FUNCTION NOT ALLOWED: CHECK CCU STATE**

*Cause:* You selected the line interface function before IPL phase 4.

*Action:* To select the line interface display function, wait until PHASE 4 is displayed on MSA, or FF4 is displayed on the hex display.

**FUNCTION NOT ALLOWED: CHECK CDF STATE**

*Cause:* You selected the line interface function with an incorrectly initialized CDF.

*Action:* Check the CDF for errors by using the CDF function on the main menu.

**INVALID INPUT** (See “Common Messages”)

**INVALID LINE ADDRESS** (See “Common Messages”)

**IOC ERROR DURING ERROR RECOVERY** (See “Common Messages”)

**IOC/SCANNER ERROR: FUNCTION NOT PERFORMED** (See “Common Messages”)

**LINE ADDRESS DOES NOT BELONG TO AN INSTALLED SCANNER** (See “Common Messages”)

**LINE NOT YET INITIALIZED**

*Cause:* The control program did not yet request the line initialization (Set Mode command).

*Action:* Activate the line at the host console and retry.

### **LINE SPEED MAY BE 230 KBPS OR ABOVE**

*Cause:* Displaying the states of the data set leads for high-speed lines (230 kbps or above) may disturb the transmission of data.

*Action:* Do one of the following:

- Enter Y to display the lead states
- Terminate the function, using the Terminate function, or
- Press one of the displayed PF keys.

### **LINE SPEED MAY BE 230 KBPS OR ABOVE: LEAD STATE NOT ACCESSIBLE**

*Cause:* You tried to display the states of the data set leads for high-speed lines (230 kbps or above) but the scanner cannot provide the leads.

*Action:* Do one of the following:

- Terminate the function, using the Terminate function,
- Select another line, or
- Press one of the displayed PF keys.

### **MICROCODE DETECTED ERROR DURING COMMAND PROCESSING**

*Cause:* The scanner microcode detected an error. The function cannot be performed.

A BER is created: Type 01, ID 05.

*Action:* Terminate the function, then re-IML the scanner. If the problem persists, contact the appropriate service representative.

### **NO ANSWER TO ERROR STATUS REQUEST DURING ERROR RECOVERY**

*Cause:* The scanner is not able to process the MOSS command. It did not answer during error recovery.

A BER is created: Type 01, ID 05.

*Action:*

1. Perform a 3720 IPL from the operator console (Chapter 4).
2. If the error persists, contact the appropriate service representative.

## **NO SCANNER ANSWER: CHECK CCU STATE AND IF NEEDED RE-IML CS**

*Cause:* The scanner cannot answer MOSS commands because it is down, or because the CCU is not in the RUN state

*Action:* Do one of the following:

- If the scanner is down and the CCU is in the RUN state (see MSA field g), re-IML the scanner (Chapter 3), then try again.
- If the CCU is not in the RUN state, perform a 3720 IPL from the operator console (Chapter 4), re-IML the scanner (Chapter 3), then try again.

## **SCANNER CYCLE STEAL TO/FROM CCU FAILED**

*Cause:* The scanner is not able to exchange data with the CCU. The scanner recovery failed. The error is in the scanner (incorrect cycle steal parameters).

A BER is created: Type 01, ID 05.

*Action:*

1. Re-IML the appropriate scanner.
2. If the error persists, perform a 3720 IPL from the operator console (Chapter 4).
3. If the error persists, contact the appropriate service representative.

## **SCANNER HARDSTOP DURING COMMAND PROCESSING**

*Cause:* A scanner hardstop error is detected. The function cannot be performed.

A BER is created: Type 01, ID 05.

*Action:* Terminate the function, then re-IML the scanner. If the problem persists, contact the appropriate service representative.

## **UNDEFINED PF KEY (See "Common Messages")**

### **Link Test Messages**

These messages are described under "Stand-Alone Link Test Messages" on page 24-51.

## **MCF Messages**

**ALL OR PART OF 'VERIFY DATA' IS OUTSIDE MODULE**

**CCU FUNCTION NOT ALLOWED**

**CCU/MOSS ERROR: FUNCTION CANNOT BE PERFORMED**

**CODE ALREADY RESTORED**

**CODE ALREADY UPGRADED**

**DESTINATION DISK(ETTE) ERROR: FUNCTION CANNOT BE PERFORMED**

**DISK(ETTE) ERROR: MCF FUNCTION CANCELED**

**ENTER PATCH IDENTIFICATION**

**FUNCTION CANNOT BE PERFORMED WHEN MOSS IS ONLINE**

**FUNCTION NOT ALLOWED IN DISKETTE MODE**

**FUNCTION TERMINATION NOT ALLOWED: COMPLETE FUNCTION**

**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**

**MIXED COMMANDS ARE NOT ALLOWED**

**NO 'APPLIED' PATCHES IN FILE**

**NO 'NON-APPLIED' PATCHES IN FILE**

**NO NEW MCF IN FILE**

**NO OLD MCF IN FILE**

**ONLY ONE SCAN OR MODIFY ON SAME SCREEN**

**PATCH ALREADY EXISTS**

**PATCH AREA IS NOW FULL**

**PATCH ERASED BECAUSE IT CONTAINS NO MORE RECORD**

**PATCH FILED**

**PATCH FILED, CHECKSUM IS XXXX**

**RECOVERY OF A CANCELED APPLY**

**RECOVERY OF A CANCELED RESTORE**

**RECOVERY OF A CANCELED UPGRADE**

**REFUSED: PATCHES ARE ALREADY ON DISK(ETTE)**

**REFUSED: MAXIMUM NUMBER OF PATCHES REACHED**

**REFUSED: NOT ENOUGH SPACE IN PATCH AREA**

**SELECTED PATCH COPIED ON DISK(ETTE)**

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

**SOURCE DISK(ETTE) ERROR: FUNCTION CANNOT BE PERFORMED**

**THE HISTORY TABLE IS EMPTY**

**UNDEFINED PF KEY**

**'VERIFY DATA' AND 'REPLACE DATA' HAVE DIFFERENT LENGTHS**

**'VERIFY DATA' DOES MATCH 'MODULE DATA'**

## **Operator Console Logon Procedure Messages**

### **INCORRECT PASSWORD - PLEASE RE-ENTER**

*Cause:* You entered an incorrect logon password.

*Action:* Enter the correct password.

- Local console password: The number of unsuccessful attempts is not limited.
- Remote console password: The number of unsuccessful attempts is limited to three. Then the remote console is disconnected.

### **INCORRECT PASSWORD - TERMINAL DISCONNECTED**

*Cause:* You entered three times an incorrect logon password on the remote console. The remote console is disconnected. The password may have been modified, or you no longer have access to the remote console.

*Action:* Check whether the password has been modified, or whether you still have access to the remote console.

If you obtain the new password, you have to reconnect the remote console.

### **TERMINAL DISCONNECTED**

*Cause:* The remote operator console is disconnected for any of the following reasons:

- You have been inactive for more than 10 minutes.
- You entered OFF on the remote console.
- You have disconnected by the local console operator.

*Action:* If the local console is logged on, you cannot log on the remote console.

### **LOCAL CONSOLE CALLING**

*Cause:* The local console operator is trying to log on.

*Action:* It is recommended that you log off. The local console operator can disconnect the remote console at any time.

## **REMOTE CONSOLE CALLING**

*Cause:* The remote console operator is trying to log on.

*Action:* You may log off to allow the remote console operator to log on.

However, if you do not use the local console for more than 15 minutes, it will be disconnected if the remote console operator attempts to log on.

## **TERMINAL DISCONNECTED FOR REMOTE CONSOLE**

*Cause:* The local console is disconnected because the operator did not use it for more than 15 minutes and the remote console operator logged on the console.

*Action:* You may log on the local operator console.

## **UNAUTHORIZED ACCESS - TERMINAL DISCONNECTED**

*Cause:* The remote console password has been deactivated.

*Action:* Contact the person responsible for password management.

## **xx UNSUCCESSFUL ATTEMPTS FOR LOCAL LOGGING**

## **xx UNSUCCESSFUL ATTEMPTS FOR REMOTE LOGGING**

*Cause:* Indicates the number of unsuccessful attempts that have been made to log on each console.

*Action:* You can use the password management function to reset these counters.

## **Panel Functions Messages**

**INVALID INPUT** (See "Common Messages")

**INVALID PANEL FUNCTION: RE-ENTER**

*Cause:* You entered an incorrect option.

*Action:* Enter IPL, IML, or CA.



### **MOSS/PANEL ERROR: FUNCTION NOT PERFORMED**

*Cause:* The panel function cannot be performed because of an error on the MOSS-to-panel boundary.

*Action:* Try again. If the problem persists:

1. Terminate the function using Terminate, and
2. Contact the appropriate service representative.

### **PANEL FUNCTIONS CANNOT BE PERFORMED: SET PANEL/CONSOLE SWITCH TO CONSOLE**

*Cause:* The Panel/Console switch on the 3720 control panel was not set to console.

*Action:* Set the switch to console.

### **UNDEFINED PF KEY: (See "Common Messages")**

## **Password Management Messages**

### **COUNTERS HAVE BEEN RESET**

*Cause:* All counters have been reset at once.

*Action:* None.

### **CUSTOMER IDENTIFICATION HAS BEEN UPDATED (self-explanatory)**

### **DISKETTE ERROR: FUNCTION NOT PERFORMED (See "Common Messages")**

### **INCORRECT PASSWORD**

*Cause:* You entered an incorrect password to have access to the password management function.

*Action:* Check the password and re-enter.

### **INVALID INPUT (See "Common Messages")**

### **PASSWORD HAS BEEN UPDATED**

*Cause:* The request to update the local or remote password is successful.

*Action:* None.

**PASSWORD MUST BE AT LEAST FIVE ALPHANUMERIC CHARACTERS LONG WITHOUT BLANKS**

*Cause:* Self-explanatory.

*Action:* Re-enter correctly.

**REMOTE CUSTOMER PASSWORD AND REMOTE MAINTENANCE PASSWORD MUST BE DIFFERENT (self-explanatory)**

**REMOTE MAINTENANCE PASSWORD HAS BEEN DEACTIVATED**

*Cause:* The request to deactivate the remote maintenance password is successful.

*Action:* None.

**REMOTE MAINTENANCE PASSWORD HAS BEEN PERMANENTLY ACTIVATED**

*Cause:* The request to activate permanently the remote maintenance password is successful.

*Action:* None.

**REMOTE MAINTENANCE PASSWORD HAS BEEN TEMPORARILY ACTIVATED**

*Cause:* The request to activate temporarily the remote maintenance password is successful.

*Action:* None.

**UNDEFINED PF KEY (See "Common Messages")**

**Port Swap Messages**

**CONTROLLER DATA UNAVAILABLE, FUNCTION CANCELED (See "Common Messages")**

**ENTER ADDRESS WITHIN THE RANGE 0 TO 27 AND 32 TO 63**

*Cause:* The line address that you entered is not within the range 0 to 27 or 32 to 63.

*Action:* Check the line address and re-enter.

**INVALID INPUT (See "Common Messages")**

**b IS RESET**

*Cause:* You switched port b back to port a. The information in the port swap file about the switching from port a to port b is removed.

*Action:* None.

### **NO SWAP CHANGES: FUNCTION NOT SUPPORTED BY CTL PGM**






*Cause:* Your control program does not support the port swap function.

*Action:* Check the level of your control program.

### **NO SWAP CHANGES: MOSS IS NOT ONLINE**

*Cause:* You cannot perform the port swap function when MOSS is not in MOSS-ONLINE status.

*Action:* If MOSS is in MOSS-OFFLINE status, set MOSS to MOSS-ONLINE status as follows:

1.  to display the CCU functions.
2.     set MOSS online.

If MOSS is in MOSS-ALONE status, initialize the 3720.

### **NO SWAP FILED**

*Cause:* The port swap file is empty. This message is displayed when you select the port swap function for the first time, or when all switched ports have been reset.

*Action:* None.

### **REFUSED: INCOMPATIBLE LIC TYPES**

*Cause:* The LIC types for the original and new ports are of different types.

*Action:* None.

### **REFUSED: a IS ALREADY SWAPPED WITH b**

*Cause:* You already swapped port a with port b.

*Action:* None.

### **REFUSED: bbb IS UNKNOWN TO CONTROLLER**

*Cause:* No LIC or cable is installed, or the cable you specified is not connected to a modem or used for direct attachment.

*Action:* Contact the appropriate service representative.

#### **REFUSED: MEANINGLESS VALUES**

*Cause:* The two addresses that you entered are either the same or not decimal.

*Action:* Enter the correct addresses, then press SEND.

#### **REFUSED: THE FILE IS FULL, RESET A SWAP**

*Cause:* The port swap file is full because you already switched 64 ports.

*Action:* To swap another port, you must reset one.

#### **REFUSED BY CTL PGM: FUNCTION NOT SUPPORTED**

*Cause:* Your control program does not support the port swap function.

*Action:* None.

#### **REFUSED BY CTL PGM: a IS A SPARE**

*Cause:* The original port (a) that you entered is a spare.

*Action:* Enter a valid port.

#### **REFUSED BY CTL PGM: aaa IS AN EP LINE**

*Cause:* The port swap function cannot be performed in an EP environment.

*Action:* None.

#### **REFUSED BY CTL PGM: aaa IS NON-IBM**

*Cause:* Ports cannot be swapped because the line (aaa) is an OEM line.

*Action:* None.

#### **REFUSED BY CTL PGM: b IS NOT A SPARE**

*Cause:* The new port that you entered is not a spare.

*Action:* Enter a spare port, then press SEND.

#### **REFUSED BY CTL PGM: aaa IS NOT INACTIVE**

*Cause:* The line for which you want to swap ports is still active.

*Action:* Deactivate the line at the host, then perform the port swap.

### **REFUSED BY CTL PGM: RESOURCE NOT AVAILABLE**

*Cause:* No NCP buffer is available for the moment. The port swap request is canceled.

*Action:* Request the swap later.

### **REFUSED BY CTL PGM: UNDEFINED ERROR**

*Cause:* The control program refused the port swap for a reason undefined to MOSS.

*Action:* Contact the appropriate service representative.

### **a SWAPPED TO b**

*Cause:* Port a is logically swapped with port b.

*Action:* Switch ports physically.

### **UNDEFINED PF KEY (See "Common Messages")**

### **WARNING: INCOMPATIBLE LINE PROTOCOLS, PRESS SEND TO BYPASS**

*Cause:* The line protocols are not compatible.

*Action:* You are requested to press SEND to continue. The line protocols might not have been updated in the LDF file. Therefore, port swapping may be possible. You may cancel the swap request by pressing PF6:QUIT.

## **Programmable Line Speed Messages**

### **CABLE NOT IN DIRECT ATTACHMENT**

*Cause:* You cannot update the speed of a line that is not direct-attached.

*Action:* Terminate the function:



### **CABLE NOT INSTALLED**

*Cause:* The line that you selected is considered as not installed because there is no cable.

*Action:* Terminate the function:



### **DISK ERROR - SPEED CANNOT BE UPDATED**

*Cause:* A disk error is detected when writing the new speed on the disk.

*Action:* Try again. If the problem persists, contact the appropriate service representative.

### **ENTER A LINE ADDRESS WITHIN THE RANGE 0 to 27 AND 32 TO 63**

*Cause:* The line address that you entered is not within the range 0 to 27 or 32 to 63.

*Action:* Check the line address and re-enter.

### **FUNCTION NOT ALLOWED: LIC NOT INSTALLED**

*Cause:* There is no LIC installed for the selected line.

*Action:* If the line address is correct, install a LIC.

### **FUNCTION NOT ALLOWED: LIC NOT INSTALLED AND NO ICC PRESENT**

*Cause:* There is no LIC installed or ICC present for the selected line.

*Action:* If the line address is correct, install a LIC and an ICC.

### **FUNCTION NOT ALLOWED: NO ICC PRESENT**

*Cause:* There is no ICC present for the selected line.

*Action:* If the line address is correct, install an ICC.

### **INVALID INPUT (See "Common Messages")**

**NEW SPEED USING RPQ WILL BE EFFECTIVE AT NEXT IML** (self-explanatory)

**NEW SPEED xxxxxx WILL BE EFFECTIVE AT NEXT IML** (self-explanatory)

**UNDEFINED PF KEY** (self-explanatory)

## **Reset Address Compare Messages**

**CCU/MOSS ERROR: BT BUFFER NOT UPDATED** (See "Common Messages")

**CCU/MOSS ERROR: FUNCTION NOT PERFORMED** (See "Common Messages")

**DISKETTE ERROR: FUNCTION NOT AVAILABLE** (See "Common Messages")

**REQUEST IGNORED** (See "Common Messages")

## **Reset Branch Trace Messages**

**CCU/MOSS ERROR: BT BUFFER NOT UPDATED** (See “Common Messages”)

**CCU/MOSS ERROR: FUNCTION NOT PERFORMED** (See “Common Messages”)

**DISKETTE ERROR: FUNCTION NOT AVAILABLE** (See “Common Messages”)

**REQUEST IGNORED** (See “Common Messages”)

## **Reset CCU/LSSD Messages**

**CCU/MOSS ERROR: RESET CCU FUNCTION CANCELED**

*Cause:* A physical error occurred when communicating with the CCU. The Reset CCU/LSSD function is canceled.

A BER is created: Type 01, ID 02.

*Action:* Select the reset CCU/LSSD function again. If the problem persists, contact the appropriate service representative.

**DISKETTE ERROR: RESET CCU FUNCTION CANCELED**

*Cause:* A physical error occurred when accessing the diskette. The reset CCU/LSSD function is canceled.

A BER is created: Type 01, ID 03.

Alarm A3 is displayed.

*Action:* Select the Reset CCU/LSSD function again. If the problem persists, contact the appropriate service representative.

**FUNCTION COMPLETED** (See “Common Messages”)

**FUNCTION IN PROGRESS** (See “Common Messages”)

**INVALID INPUT** (See “Common Messages”)

## Set Address Compare Messages

See "Common Messages" for explanations of the following messages.

**CCU/MOSS ERROR: FUNCTION NOT PERFORMED**

**DISKETTE ERROR: FUNCTION NOT AVAILABLE**

**INVALID INPUT**

**REQUEST IGNORED**

**UNDEFINED PF KEY**

## Set Branch Trace Messages

See "Common Messages" for explanations of the following messages.

**BT BUFFER INCORRECTLY DEFINED**

**CCU/MOSS ERROR: BT BUFFER NOT ACCESSIBLE**

**CCU/MOSS ERROR: BT BUFFER NOT UPDATED**

**CCU/MOSS ERROR: FUNCTION NOT PERFORMED**

**DISKETTE ERROR: FUNCTION NOT AVAILABLE**

**INVALID INPUT**

**REQUEST IGNORED**

**UNDEFINED PF KEY**

## Stand-Alone Link Test Messages

**CCU NOT IN THE RUN STATE (SEE MSA) - FUNCTION CANCELED**

*Cause:* An error occurred that prevents the CCU from functioning correctly, or the CCU is stopped.

*Action:*

1. Re-IPL the link test program (if necessary).
2. Set the CCU to the RUN state (if necessary).
3. Restart the test.
4. If the error persists, contact the service representative.



## **CCU/MOSS ERROR - LINK TEST FUNCTION CANCELED**

*Cause:* A hardware error occurred between the CCU and the MOSS.

*Action:*

1. Press General Reset on the control panel to reset the 3720.
2. Re-IPL the link test program.
3. Restart the test.
4. If the error persists, contact the service representative.

## **COMMAND REJECT RECEIVED DUE TO BUFFER OVERRUN**

This message applies only to the requester.

*Cause:* An overrun condition occurred at the responder.

*Action:*

1. Re-IPL the link test program.
2. Restart the test.
3. If the error persists, contact the service representative.

## **COMMAND REJECT RECEIVED DUE TO INVALID COMMAND**

This message only applies to the requester. This message is followed by two hexadecimal characters representing the invalid command code that was received by the responder and returned to the requester.

*Cause:* An invalid command (not X'F3' = TEST) was received by the responder.

*Action:*

1. Re-IPL the link test program.
2. Restart the test.
3. If the error persists, contact the service representative.

## **DATA MUST BE PAIRS OF HEX CHARS SEPARATED BY 1 BLANK**

This message applies only to the requester.

*Cause:* One of the following conditions occurred during data entry using the personal pattern screen:

1. The pairs of hexadecimal characters were not separated by a single blank.
2. More than one blank separated a pair of hexadecimal characters.
3. The hexadecimal characters were not entered in pairs.
4. One or more characters was outside of the range X'0' through X'F'.

*Action:* Position the cursor at the error and correct it using the insert/delete keys, then press SEND.

## **ENABLE COMMAND FAILED - LINK TEST FUNCTION CANCELED**

*Cause:* The line cannot be enabled.

*Action:*

1. Check that the IPL port table has been correctly defined.
2. Check that the modem cable is correctly connected.
3. Check that the modem is powered up and operational.
4. If the link is a direct attachment, check that the responder is powered on and initialized.
5. If the error persists, contact the service representative.

*Note:* The SCF, LCS, and SES are also displayed for this type of error.

## **HARDWARE ERROR ON RECEIVE**

*Cause:* A cable or modem error occurred on receive.

*Action:*

1. Verify the modem and modem cable.
2. Restart the test.
3. If the error persists, contact the service representative.

*Notes:*

1. The SCF, LCS, and SES are also displayed for this type of error.
2. Some errors of this type may disable the link. In this case, the PF4 key is not made available and the following message is displayed in the message area:

**LINK DISABLED - LINK TEST FUNCTION CANCELED.**

## **HARDWARE ERROR ON TRANSMIT**

*Cause:* A cable or modem error occurred on transmit.

*Action:*

1. Verify the modem and modem cable.
2. Restart the test.
3. If the error persists, contact the service representative.

*Notes:*

1. *The SCF, LCS, and SES are also displayed for this type of error.*
2. *Some errors of this type may disable the link. In this case, the PF4 key is not available and the following message is displayed in the message area:*

**LINK DISABLED - LINK TEST FUNCTION CANCELED.**

## **INVALID ADDRESS FIELD RECEIVED**

This message is followed by two hexadecimal characters representing the address field that was received.

*Cause:* An invalid address field was received in the test frame.

*Action:*

1. Check that the responder address specified when you initialized the requester is correct.
2. Restart the test.
3. If the error persists, contact the appropriate service representative.

## **INVALID CONTROL FIELD RECEIVED**

This message is followed by two hexadecimal characters representing the control field that was received.

*Cause:* An invalid control field was received in the test frame.

*Action:*

1. Re-IPL the link test program.
2. Restart the test.
3. If the error persists, contact the appropriate service representative.

## INVALID DATA RECEIVED

This message applies only to the requester.

*Cause:* The received data does not match the transmitted data, which is therefore displayed on a separate screen.

*Action:*

1. Examine the data to determine the character(s) in error. The cursor is positioned in front of the first character that does not match.

*Note:* Up to 64 bytes can be shown on a screen, so two screens may be needed to display all the data. In this case, you can see which screen is displayed by looking at the bottom right hand corner of the screen:

- If PF8:FORWARD is displayed, you are looking at the first screen (first 64 bytes).
- If PF7:BACKWARD is displayed, you are looking at the second screen (second 64 bytes).

2. Use PF8 or PF7 to switch between screens as required.
3. Press PF4 to continue the test.

*Notes:*

1. If, in addition, too many bytes have been received, the error message is:

**INVALID DATA RECEIVED - TOO MUCH DATA RECEIVED.**

2. The IBM NCP and the Link Test Responder programs can both buffer a full 128 bytes. Other responders may be limited to less than 128 bytes; for example, the controller load/dump program (CLDP) is limited to 32 bytes. In this case, there will be an **INVALID DATA RECEIVED** message if the test message sent by the requester was longer than the limit.

## INVALID DATA RECEIVED - TOO MUCH DATA RECEIVED

See "Invalid Data Received", Notes 1 and 2.

## INVALID INPUT (See "Common Messages")

## LINK DISABLED - LINK TEST FUNCTION CANCELED

*Cause:* An error occurred that disabled the link.

*Action:*

1. Determine the error condition from the display.
2. Restart the test in investigation mode and check the other error message.

### **LINK NOT DEFINED IN IPL PORT TABLE**

*Cause:* The link being tested is not defined in the IPL port table.

*Action:*

1. Define the link as an IPL port (Chapter 6).
2. Re-IPL the link test program.
3. Restart the test.

### **LINK TEST PROGRAM ABEND**

*Cause:* A hardware error occurred during IPL phase 3.

*Action:*

1. Press Power ON to reset the 3720.
2. Re-IPL the link test program.
3. Restart the test.
4. If the error persists, contact the service representative.

### **LINK TEST PROGRAM NOT LOADED - FUNCTION CANCELED**

*Cause:* You tried to select the link test (LT) function when the link test program was not loaded.

*Action:* Select the load link test requester (LOQ) function or load link test responder (LOS) to load the link test program.

### **MORE THAN 128 BYTES RECEIVED**

This message applies only to the responder.

*Cause:* The link test responder expects to receive up to 128 bytes of data, but more than 128 bytes were received. The extra data is ignored.

*Action:*

1. Press PF4 to return to the responder statistical counters screen.
2. If the error persists, contact the service representative.

## **NO ANSWER FROM LINK TEST PROGRAM - FUNCTION CANCELED**

*Cause:* The link test program did not reply within 2 minutes, during initialization, or within 2 seconds if running.

*Action:*

1. Press General Reset on the control panel to reset the 3720.
2. Re-IPL the link test program.
3. Restart the test.
4. If the error persists, contact the service representative.

*Note:* The 2-minute timeout may occur during initialization on a dial-up line because the connection was not established.

## **SCANNER ERROR ON RECEIVE**

*Cause:* A scanner error occurred.

*Action:*

1. Press General Reset on the control panel to reset the 3720.
2. Re-IPL the link test program.
3. Restart the test.
4. If the error persists, contact the service representative.

*Notes:*

1. *The SCF, LCS, and SES are also displayed for this type of error.*
2. *Some errors of this type may disable the link. In this case, the PF4 key is not available and the following message is displayed in the message area:*

***LINK DISABLED - LINK TEST FUNCTION CANCELED.***

## **SCANNER ERROR ON TRANSMIT**

*Cause:* A scanner error occurred.

*Action:*

1. Press General Reset on the control panel to reset the 3720.
2. Re-IPL the link test program.
3. Restart the test.
4. If the error persists, contact the service representative.

*Notes:*

1. *The SCF, LCS, and SES are also displayed for this type of error.*
2. *Some errors of this type may disable the link. In this case, the PF4 key is not available and the following message is displayed in the message area:*

***LINK DISABLED - LINK TEST FUNCTION CANCELED.***

## **SCANNER NOT OPERATIONAL - LINK TEST FUNCTION CANCELED**

*Cause:* The scanner supporting the link to be tested is not operational.

*Action:*

1. Re-IPL the link test program.
2. Restart the test.
3. If the error persists, contact the service representative.

## **SET MODE COMMAND FAILED - LINK TEST FUNCTION CANCELED**

*Cause:* The scanner did not respond to a Set Mode command.

*Action:*

1. Press General Reset on the control panel to reset the 3720.
2. Re-IPL the link test program.
3. Restart the test.
4. If the error persists, contact the service representative.

## **TIMEOUT ON RECEIVE**

This message only applies to the requester.

*Cause:* A timeout occurred at the requester because no answer was received from the responder within the timeout period.

*Action:*

1. Check that the responder is correctly IPLed.
2. Check at the responder side that the controller address is correctly defined in the IPL port common options screen.
3. Check the modems, cables, and the line.
4. If the error persists, contact the service representative.

## **TIMEOUT ON TRANSMIT**

*Cause:* The scanner did not reply to a command sent from the Link Test program within the timeout period.

*Action:*

1. Re-IPL the link test program.
2. Restart the test.
3. If the error persists, contact the service representative.

## **TOO MUCH DATA RECEIVED**

This message only applies to the requester.

*Cause:* More data than expected was received (extra data is ignored). However the received data **does** match the transmitted data.

*Action:*

1. Press PF4 to continue the test.
2. If the error persists, contact the service representative.



## TRANSMISSION ERROR ON RECEIVE

*Cause:* The scanner indicated a transmission error occurred on receive.

*Action:*

1. Re-IPL the link test program.
2. Restart the test.
3. If the error persists, contact the service representative.

*Notes:*

1. *The SCF, LCS, and SES are also displayed for this type of error.*
2. *Some errors of this type may disable the link. In this case, the PF4 key is not available and the following message is displayed in the message area:*

**LINK DISABLED - LINK TEST FUNCTION CANCELED.**

## TRANSMISSION ERROR ON TRANSMIT

*Cause:* The scanner indicated a transmission error on transmit.

*Action:*

1. Re-IPL the link test program.
2. Restart the test.
3. If the error persists, contact the service representative.

*Notes:*

1. *The SCF, LCS, and SES are also displayed for this type of error.*
2. *Some errors of this type may disable the link. In this case, the PF4 key is not available and the following message is displayed in the message area:*

**LINK DISABLED - LINK TEST FUNCTION CANCELED.**

## UNDEFINED PF KEY (See "Common Messages")

## **Token-Ring Interconnection Messages**

### **ACTIVATE LINK IS ALREADY ALLOWED FOR THIS TIC**

*Cause:* The selected token-ring interface coupler (TIC) does not have its activate link inhibit indicator on.

*Action:* Retry the activate link from the host.

### **ACTIVATE LINK IS NOW ALLOWED**

*Cause:* The activate link inhibit indicator for the selected TIC has been reset in the NTRI control block.

*Action:* The token-ring interface coupler may now be activated from the host.

### **CCU/MOSS ERROR: FUNCTION NOT PERFORMED (See "Common Messages")**

### **IOC/TRA ERROR: FUNCTION NOT PERFORMED**

*Cause:* The function could not be performed due to an IOC or TRA hardware error.

A BER is created: type 01, ID 07.

*Action:* Retry or terminate the function.

### **MOSS/TIC ERROR: FUNCTION CANCELED**

*Cause:* An error occurred while MOSS was communicating with the TIC. If refresh is active, it is terminated.

This may happen if the line is activated from the host and the TRI function is in refresh mode.

A BER is created: type 01, ID 07.

*Action:* Retry or terminate the function.

### **NTRI/MOSS ERROR: FUNCTION CANCELED**

*Cause:* No NTRI information was found for the selected TIC. NTRI is set offline. Since NTRI is needed for the current function, it is canceled.

*Action:* Check the CDF and control program system generation.

### **REFRESH MODE: PRESS BREAK (ATTN) TO STOP**

*Cause:* You are in refresh mode.

*Action:* Press BREAK (ATTN) to exit.

**REQUESTED LINE ADDRESS IS INVALID FOR A TOKEN RING**

*Cause:* A TIC cannot be installed at the line address entered.

*Action:* Enter a valid line address.

**SELECTED TIC NOT AVAILABLE: REQUEST REJECTED**

*Cause:* The TRA corresponding to the line address entered is installed, but the corresponding TIC is not installed.

*Action:* Enter a valid line address.

**TRA SELECTED IS NOT INSTALLED: REQUEST REJECTED**

*Cause:* The TRA corresponding to the line address is not installed.

*Action:* Enter a valid address.

**INVALID INPUT** (See "Common Messages")

**UNDEFINED PF KEY** (See "Common Messages")

**Wrap Test Messages**

**BUFFERS NOT AVAILABLE: WRAP TEST STOPPED**

*Cause:* The CCU control program stopped the wrap test because no more buffer space is available (control program overloaded).

*Action:* Retry later.

**BUFFERS TEMPORARILY NOT AVAILABLE: WRAP FUNCTION CANCELED**

*Cause:* The buffers are not available for the moment. The wrap test function is canceled.

*Action:* Retry later.

**CABLE NOT INSTALLED** (See "Common Messages")

### **CCU/MOSS ERROR: WRAP FUNCTION CANCELED**

*Cause:* A physical error occurred when communicating with the CCU. The wrap test function is canceled.

A BER is created: Type 01, ID 02.

*Action:* Check that the CCU is correctly IPLed and that MOSS is online (MSA field c should display MOSS-ONLINE).

Retry later. If the problem persists, contact the appropriate service representative.

### **CDF NOT CREATED: WRAP FUNCTION CANCELED**

*Cause:* The 3720 configuration data file has not been tested.

*Action:* Contact the appropriate service representative.

### **DISKETTE ERROR: WRAP FUNCTION CANCELED**

*Cause:* A physical error occurred when accessing the diskette. The wrap test function is canceled.

A BER is created: Type 01, ID 03.

Alarm A3 is displayed.

*Action:* Retry later. If the problem persists, contact the appropriate service representative.

### **'EXPECTED DATA' CANNOT BE ENTERED AFTER 'Y'**

*Cause:* You entered data in the 'expected' area of the screen after the letter Y.

The letter Y means that the 'transmit' and 'expected' data are identical. In that case, you should have not entered the 'expected' data.

*Action:* Do one of the following:

- If 'transmit' and 'expected' data are identical, erase the 'expected' data.
- If they are different, replace Y by N.

### **INPUT MUST BE PAIRS OF HEX CHARACTERS SEPARATED BY BLANKS**

*Cause:* You did not enter two hexadecimal characters at a time.

*Action:* Correct your input.

### **INPUT MUST BE 8 BINARY DIGITS**

*Cause:* The digits that you entered are either less than eight or not binary.

*Action:* All dots of the field in error must be replaced by zeros or ones.

### **INVALID INPUT (See "Common Messages")**

### **INVALID LCD: WRAP FUNCTION CANCELED**

*Cause:* The control program transmitted an incorrect line control definition (LCD)

*Action:* Contact the appropriate service representative.

### **LEVEL INCOMPATIBLE WITH SPECIFIED LINE ADDRESS**

*Cause:* You selected a wrap level that is incompatible with the specified line address.

*Action:* Either select another wrap level or terminate the function.

### **LIC NOT INSTALLED**

*Cause:* You entered a line address corresponding to a LIC that is not installed.

*Action:* Enter a line address corresponding to a LIC that is installed (see Chapter 23).

### **LINE NOT DISABLED/DEACTIVATED: WRAP FUNCTION CANCELED**

*Cause:* You pressed SEND before disabling or deactivating the line.

*Action:* Select the wrap test function again. Once you have entered the line address and the wrap type and level, make sure that the line is disabled or deactivated before pressing SEND.

### **LINE NOT SYSTEM GENERATED: WRAP FUNCTION CANCELED**

*Cause:* The line that you specified was not defined at CCU control program generation time. The wrap test function is canceled.

*Action:* Select the wrap test function again and specify a valid line address.

### **LINE TEMPORARILY NOT AVAILABLE: WRAP FUNCTION CANCELED**

*Cause:* You cannot at present perform wrap tests on the line that you specified. The wrap test function is canceled.

*Action:* Retry later.

### LINE TEST ACTIVE: WRAP FUNCTION CANCELED

*Cause:* You tried to perform the wrap test function on a line that is being tested (line test functions).

*Action:* None.

### LINE TRACE ACTIVE: WRAP FUNCTION CANCELED






*Cause:* You tried to perform the wrap test function on a line that is being tested (line trace functions).

*Action:* None.

### MOSS NOT ONLINE: WRAP FUNCTION CANCELED

*Cause:* The wrap test function is canceled because MOSS is not online.

*Action:* Set MOSS online and restart the wrap test. To set MOSS online do as follows:

1.  to display the CCU functions.
2.     set MOSS online.

### NO ANSWER FROM CCU CONTROL PROGRAM: WRAP FUNCTION CANCELED

*Cause:* The CCU control program did not answer a MOSS request.

A BER is created: Type 01, ID 02.

*Action:* Check that MOSS is online (MOSS-ONLINE is displayed in MSA field c). If the control program supports the wrap tests, select the wrap test function another time and try again. If the problem persists, contact the appropriate service representative.

### NO SUPPORT FOR AUTOCALL LINE: WRAP FUNCTION CANCELED

*Cause:* The wrap tests cannot be performed on autocall lines. The Wrap Test function is canceled.

*Action:* None.

### NO SUPPORT FOR OEM LINE: WRAP FUNCTION CANCELED

*Cause:* Wrap tests cannot be performed on OEM lines. The wrap test function is canceled.

*Action:* None.

### **NON-OPERATIONAL EP DUALCOM LINE: WRAP FUNCTION CANCELED**

*Cause:* The line is equipped with EP Dualcom feature. The wrap test function cannot be performed on such lines.

*Action:* Do not perform a wrap test on this line.

### **PATTERN MUST CONTAIN AT LEAST 4 PAIRS OF HEX CHARACTERS**

*Cause:* Your pattern contains fewer than four pairs of hexadecimal characters.

*Action:* Enter at least four pairs of hexadecimal characters. When your pattern is complete, do the following:



### **SCANNER NOT INSTALLED (See "Common Messages")**

### **UNABLE TO SET LINE TO WRAP MODE: WRAP FUNCTION CANCELED**

*Cause:* The wrap tests cannot be performed on the line that you specified, for any of the following reasons:

- Modem is not powered on.
- Modem is not set to the appropriate test position.
- There is a hardware error in the modem, cable, or scanner.

The error code is given in the line communication status byte (LCS) on the wrap test result screen.

A BER is created: Type 11.

*Action:* Check whether the line address is valid. If it is, check whether the modem is powered on and set on the appropriate position. In any other case, contact the appropriate service representative.

### **UNDEFINED PF KEY (See "Common Messages")**

### **WRAP CONTROL LEAD AT LIC LEVEL NOT ALLOWED**

*Cause:* You cannot perform a LIC wrap test on control leads.

*Action:* Either select other options or terminate the functions.

### **WRAP FUNCTION CANCELED ON OPERATOR REQUEST**

*Cause:* You canceled the wrap test function by pressing PF5.

*Action:* None.

## WRAP TEST COMPLETED

*Cause:* The wrap has been performed the number of times that you specified. The test is now completed.

*Action:* If there is an incorrect pattern, press SEND to display it.

## WRAP TEST STOPPED ON OPERATOR REQUEST

*Cause:* You stopped the wrap test function by pressing the BREAK (ATTN) key. The wrap test result screen is displayed.

*Action:* None

## 3720 IPL Messages








### INVALID INPUT (See "Common Messages")

### REQUEST IGNORED: CCU NOT INITIALIZED



*Cause:* The CCU resources needed to IML a scanner are not available, because the CCU hardware is not yet initialized. The IML request is ignored.

*Action:*

- IPL the CCU and IML all the scanners (see Chapters 3 and 4).
- Reset the CCU and restart the scanner IML:

1.  To display the CCU functions.
2.     To select Reset CCU/LSSD
3.   To select Reset All

When message FUNCTION COMPLETE is displayed:

4.  To switch back to IML function
5.  To restart automatically the IML of the same scanner.



## **RESUME IGNORED**

*Cause:* You cannot resume this IPL because it is not stopped.

*Action:* To resume the IPL, wait until message IPL STOP is displayed.

## **STOP IGNORED**

*Cause:* You cannot stop this IPL because it is already stopped, not yet started, or already completed.

*Action:* Do one of the following:

- Press PF5 to resume the IPL
- Select another IPL from the secondary menu, or
- Terminate the IPL, using the terminate function.

## **UNDEFINED PF KEY (See "Common Messages")**

# Operator Control Messages

## **CCU ALREADY IN I-STEP MODE**

*Cause:* You selected the set I-step function when the CCU was already in instruction step mode.

*Action:* None.

## **CCU ALREADY IN PROCESS MODE**

*Cause:* You selected the reset I-step function when the CCU was already in process mode.

*Action:* None.

## **CCU CHECK RESET**

*Cause:* The CCU check condition is reset.

*Action:* None.

## **CCU FUNCTIONS REFUSED**

*Cause:* You selected the CCU functions before MOSS IML phase 2.

*Action:* Select the CCU functions after MOSS IML phase 2.

## **CCU FUNCTION STILL PENDING**

*Cause:* You tried to log off while a CCU function was pending.

*Action:* Perform or terminate the pending function.

## **CCU/MOSS ERROR: FUNCTION NOT PERFORMED**

*Cause:* The function that you selected cannot be performed because of a hardware error on the MOSS-to-CCU boundary.

A BER is created: Type 01, ID 02.

*Action:*

1. Terminate the function, using the terminate function, and
2. Contact the appropriate service representative.

## **CCU NORMAL MODE IMMEDIATE FUNCTION FAILED**

*Cause:* The CCU normal mode function failed.

*Action:* Try again. If the problem persists, contact the appropriate service representative.

### **CCU NOW IN I-STEP MODE**

*Cause:* The CCU is set to instruction step mode.

*Action:* None.

### **CCU NOW IN NORMAL MODE**

*Cause:* The CCU is set to normal processing. All CCU default options are set: no address compare, no branch trace...

*Action:* None.

### **CCU NOW IN PROCESS MODE**

*Cause:* The CCU is set to normal processing.

*Action:* None.

### **CCU WILL BYPASS CCU CHECK**

*Cause:* The CCU will continue to run when a CCU check condition occurs.

*Action:* None.

### **CCU WILL BYPASS IOC CHECK**

*Cause:* The CCU will continue to run when an IOC-detected level 1 interrupt occurs.

*Action:* None.

### **CCU WILL STOP ON CCU CHECK**

*Cause:* The CCU will stop when a CCU check condition occurs.

*Action:* None.

### **CCU WILL STOP ON IOC CHECK**

*Cause:* The CCU will stop (hardcheck) when an IOC-detected level 1 interrupt occurs.

*Action:* None.

## **DATE AND TIME**

*Cause:* This is a reply to the query date and time function (Q). In an NCP environment, the date and time come from the host. They are displayed in the following format: mm/dd/yy hh:mm:ss

In an EP environment, 00/00/00 is displayed instead of the date. The time displayed (hh:mm:ss) is the period of time that elapsed since the last MOSS IML.

*Action:* None.

## **DISK-DISKETTE ADAPTER DOWN**

*Cause:* The disk/diskette adapter is down.

*Action:* Contact the appropriate service representative.

## **DISK ERROR: UNABLE TO LOAD CCU IPL MODULE**

*Cause:* A disk error occurred during an automatic 3720 initialization.

*Action:* Initialize the 3720 from the control panel or the operator console. If the 3720 initialization fails, contact the appropriate service representative, but while waiting for service set the 3720 to diskette mode.

## **DISK ERROR: UNABLE TO LOAD FUNCTION MODULE**

*Cause:* A disk error occurred while selecting a 3720 function.

*Action:* Try again. If the problem persists, contact the appropriate service representative.

## **DISK ERROR: UNABLE TO LOAD SCANNER DUMP MODULE**

*Cause:* A disk error occurred while an automatic scanner dump was attempted.

*Action:* Contact the appropriate service representative.

## **DISK OR DISKETTE UNUSABLE**

*Cause:* The disk or diskette are damaged.

*Action:* Contact the appropriate service representative.

## **DISKETTE NOT READY**

*Cause:* The diskette is not mounted or the diskette engaging lever is not set correctly.

*Action:* Mount the diskette or set the engaging lever correctly.

**DISK NOT READY (self-explanatory)**

*Action:* Contact the appropriate service representative.

**DISK STARTING****DISKETTE STARTING**

*Cause:* The message is displayed when the disk or diskette starts. It is displayed for approximately 25 seconds for disk, 5 seconds for diskette. The keyboard is locked while the message is displayed.

*Action:* None.

**FUNCTION NOT AVAILABLE DURING IPL**

*Cause:* You selected a function while initializing the 3720.

*Action:* Select the function once the 3720 initialization is completed.

**FUNCTION NOT AVAILABLE IN DISKETTE MODE**

*Cause:* No function can be selected in diskette mode.

*Action:* Contact the appropriate service representative.

**INVALID INPUT**

*Cause:* What you entered is erroneous in the present context.

*Action:* Re-enter correctly.

**IOC RESET**

*Cause:* A 'reset tag' pulse has been generated on the IOC bus.

*Action:* None.

**LVL3 INTERRUPT SENT TO CCU**

*Cause:* A CCU level-3 interrupt has been sent to the CCU.

*Action:* None.

**NM NOT ALLOWED WHEN A CCU FUNCTION IS ACTIVE**

*Cause:* You cannot select the CCU normal mode function if a CCU function has been selected already.

*Action:* None.

## **NON-CCU FUNCTION STILL PENDING**

*Cause:* You tried to log off while a function other than a CCU function is pending.

*Action:* Perform or terminate the pending function.

## **NOTHING TO TERMINATE**

*Cause:* You selected the terminate function and there is no function active nor pending.

*Action:* None.

## **RESET CCU CHECK IGNORED**

*Cause:* You are trying to reset the CCU check condition but it is already reset.

*Action:* None.

## **RESET CCU FAILED**

*Cause:* The CCU cannot be reset because of a hardware error.

A BER is created: Type 01, ID 02.

*Action:* Re-IPL the CCU.

## **RESET CCU COMPLETED**

*Cause:* The immediate function CCU reset is successfully completed.

*Action:* None.

## **RESET CCU NOT ALLOWED**

*Cause:* The immediate function CCU reset is not allowed while performing the CCU extended functions (service personnel).

*Action:* None.

## **START CCU FAILED**

*Cause:* The CCU cannot be started because of a hardware error.

A BER is created: Type 01, ID 02.

*Action:* Re-IPL the CCU.

### START CCU IGNORED

*Cause:* You are trying to start the CCU but it is already running.

*Action:* None.

### START CCU COMPLETED












*Cause:* The immediate function CCU start is successfully completed.

*Action:* None.

### START CCU NOT ALLOWED

*Cause:* You are trying to start the CCU but there is a CCU hardcheck or the CCU is reset.

*Action:*

- If CCU hardcheck, you must first reset the CCU check conditions, then start the CCU:
  1.  To display CCU function menu, if not already selected.
  2.     To select the Reset CCU Check function.
  3.  To start the CCU.
- If the CCU is reset, IPL the CCU:
  1.  To position the cursor
  2.     To IPL the CCU

### STOP CCU COMPLETED

*Cause:* The immediate function CCU stop is successfully completed.

*Action:* None.

### STOP CCU FAILED

*Cause:* The CCU cannot be stopped because of a hardware error.

A BER is created: Type 01, ID 02.

*Action:* Re-IPL the CCU.

### **STOP CCU IGNORED**

*Cause:* You are trying to stop the CCU but it is already stopped.

*Action:* None.

### **STOP CCU NOT ALLOWED**

*Cause:* The immediate function CCU stop is not allowed while performing the CCU extended functions (service personnel only).

*Action:* None.

### **TIMEOUT OCCURRED - TERMINAL DISCONNECTED**

*Cause:* The remote console is disconnected because it has been inactive for 30 minutes.

*Action:* Follow the logon procedure if you want to access the system again.

### **TRANSMISSION ERROR, PLEASE RE-ENTER (self-explanatory)**

### **CONTENTION, PLEASE RE-ENTER**

*Cause:* The command or data that you entered was incorrectly received.

*Action:*

1. *Re-enter all your input, even though it is still displayed on the screen.*

- 2.





# Operator Console Information Messages

The operator information area (line 25 of the screen) is reserved for the display of operator console information messages. These messages are documented in the appropriate operator console manuals. This section describes only those that require a specific 3720 action.

## **FORMAT CHECK (3101 only)**

## **WRONG PLACE (3161 in 3101 emulation mode)**

*Cause:* You performed one of the following invalid actions:

1. You pressed one of the following keys in a protected field:

Any graphic character key, including:

space bar  
ERASE  
DEL CHAR

2. You pressed any graphic character key in insert mode when the field does not contain at least one null character to be used for character movement.

## **INSERT**

*Cause:* You pressed INS CHAR. The operator console is operating in insert mode.

*Action:* Insert characters or press RESET key to leave insert mode.

## **COMM NOT READY 1 (3161 only)**

## **LINE CHECK 1 (3101 only)**

*Cause:* The communication with the 3720 was not possible because the 'clear-to-send' (CTS) signal was off, or was dropped during data transmission.

*Action:* Wait until the message is cleared.

## **COMM NOT READY 2 (3161 only)**

## **LINE CHECK 2 (3101 only)**

*Cause:* The communication with the 3720 was not possible because the 'data-set-ready' (DSR) signal was off, or was dropped during data transmission. This message is displayed, for instance, when performing the MOSS IML.

*Action:* Go to Chapter 2.

## **SENDING**

*Cause:* You pressed SEND. Consequently, data that you entered is being transmitted. The keyboard is not available.

*Action:* Wait until message SENDING is cleared before entering new data.

## **KEY LOCKED <WAIT> (self-explanatory)**

*Cause:* Delay between pressing key and program recognizing it.

*Action:* Wait.

## **SYSTEM COMMAND**

*Cause:* The keyboard is disabled by a keyboard-lock command from the 3720.

*Action:* Wait until this message is cleared before entering new data.

## **UP SHIFT**

*Cause:* You pressed SHIFT or LOCK. The operator console is in uppercase mode.

*Action:* Enter characters.



## Chapter 25. Machine Status Area

You are permanently informed of the 3720 status by the information displayed on the first three lines of the operator console screen: the machine status area (MSA).

The first two lines of the MSA show CCU and MOSS information. The third line shows:

- Selected scanner information (service personnel only) or,
- CCU/Scanner IPL information.

Figure 25-1 illustrates the MSA for the scanner. Figure 25-2 illustrates the MSA for the CCU/Scanner IPL. Each letter is a key that refers to the explanation.

a	b	c	d	e	f
g	h	i	j	k	l
m		n	service personnel only		

Figure 25-1. Machine Status Area for the Scanner

**Warning:** If the following message appears in the MSA, call your IBM service representative immediately:

MAINTENANCE MODE

a	b	c	d	e	f		
g	h	i	j	k	l		
r		s	t	u	v	w	x

**Figure 25-2. Machine Status Area for the CCU/Scanner IPL**

**Field a**

a	b	c	d	e	f
g	h	i	j	k	l
m		n	service personnel only		

Displays the CCU mode:

PROCESS                      Normal processing  
I-STEP                        Instruction step

**Field b**

a	b	c	d	e	f
g	h	i	j	k	l
m		n	service personnel only		

Displays the CCU check mode:

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

**Field c**

a	b	c	d	e	f
g	h	i	j	k	l
m		n	service personnel only		

Indicates whether MOSS is connected to the CCU control program:

MOSS-ONLINE    MOSS is connected to the CCU control program, but both are  
operational.  
MOSS-OFFLINE   MOSS is not connected to the CCU control program, but both are  
operational.  
MOSS-ALONE    MOSS is operational while the CCU control program is not loaded  
or no longer operational.  
SERVICE-MODE   MOSS is in service mode (service personnel only).

The following illustration gives the status of MOSS after the different IPLs/IML.

After a:	MOSS is in status:	Hex Display code is:
Initialization (general IPL) MOSS IML	MOSS-ONLINE MOSS-OFFLINE if CP is loaded MOSS-ALONE if CP is not loaded	X'000' X'FEE' X'FEF'
CCU/Scanner IPL	MOSS-ONLINE	X'000'
STEP BY STEP IPL	MOSS-ONLINE	X'000'
BYPASS PHASE 1 IPL	MOSS-ONLINE	X'000'
BYPASS PHASE 3 IPL	MOSS-ONLINE	X'000'

**Field d**

a	b	c	<b>d</b>	e	f
g	h	i	j	k	l
m		n	service personnel only		

Displays information on the CCU address compare function:

**AC**                      The address compare function is active.

If you selected MOSS INTERRUPT=Y and/or CCU STOP=Y when defining the address compare, the following are displayed:

**AC HIT**                      A single or double address compare is successful.

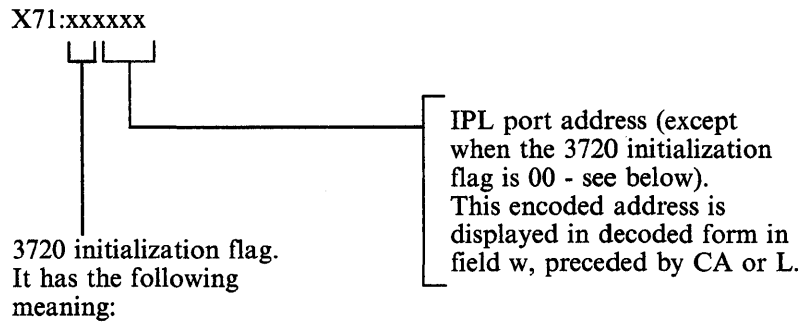
**Field e**

a	b	c	d	<b>e</b>	f
g	h	i	j	k	l
m		n	service personnel only		

Is 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 the 3720 initialization. The values displayed in this field are explained where appropriate in this manual. See also field k.

**X71:xxxxxx**                      Contents of CCU X'71' output register.  
**X71:ERROR**                      Error when accessing the register. Register contents cannot be displayed.

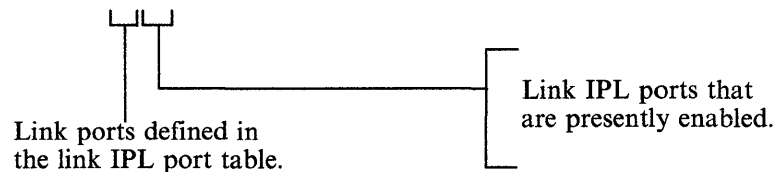
At initialization time, field e displays:



- 01 = IPL request detected on a link-attached 3720
- 02 = IPL request detected on a channel-attached 3720
- 05 = dump in progress on a link-attached 3720
- 06 = dump in progress on a channel-attached 3720
- 09 = control program load in progress on a link-attached 3720
- 0A = control program load in progress on a channel-attached 3720
- 11 = Remote Power Off (RPO) command is detected
- 20 = control program loader/dump abend before an IPL request detected on a channel- or link-attached 3720
- 21 = control program loader/dump abend on an IPL request detected on a link-attached 3720
- 22 = control program loader/dump abend on an IPL request detected on a channel-attached 3720
- 25 = control program loader/dump abend on a link-attached 3720 dump
- 26 = control program loader/dump abend on a channel-attached 3720 dump
- 29 = control program loader/dump abend on a link-attached 3720 control program load
- 2A = control program loader/dump abend on a channel-attached 3720 control program load

When the 3720 initialization flag is 00, field e displays:

X71: 00 xxxx





**Field f**

a	b	c	d	e	f
g	h	i	j	k	l
m		n	service personnel only		

Is displayed along with field l, when the CCU status is Stop X'70', Stop Pgm, Stop BT, Stop AC, or Hardstop (see field g)

LAR:xxxxxx      OP:xxxx      C:x      (field f)  
IAR:xxxxxx      ILVL:xxxx      Z:x      (field l)

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  
Z:x      Value of the Z-latch (0 or 1)

CCU INTERRUPTS DISABLED      (field f)  
Nothing displayed      (field l)

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 performing some utility programs (service personnel only)

CCU REGISTERS      (in field f)  
NOT ACCESSIBLE      (in field l)

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

**Field g**

a	b	c	d	e	f
g	h	i	j	k	l
m		n	service personnel only		

Displays the CCU status:

RUN	Instructions are being executed or data transferred.
RESET	The control program stopped because you initiated function Reset CCU; to restart the CCU, do an IPL.
HARDCHK	The control program stopped on a hardcheck error. An automatic re-IPL is attempted, if the control program is loaded.
HARDSTOP	You selected the CCU check reset function to reset the CCU check condition. To restart, select the CCU start function from the CCU function menu or press PF6:CCU START or PF6:S if displayed on the screen.
IPL-REQ	A CCU IPL was requested and is in progress.
STOP-X70	The control program stopped on an output X'70' instruction executed by the control program.
STOP-PGM	The control program stopped because you initiated function CCU Stop or function Set I-Step.
STOP-BT	The control program stopped because the branch trace function that you initiated with CCU STOP has become deactivated.
STOP-AC	The control program stopped because the address compare function that you initiated with CCU Stop (CCU Action=S) is successful.

**Field h**

a	b	c	d	e	f
g	h	i	j	k	l
m		n	service personnel only		

Indicates whether the 3720 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 function Set IOC Check Stop to force the system stop on an IOC check.

**Field i**

a	b	c	d	e	f
g	h	i	j	k	l
m		n	service personnel only		

Displays the last MOSS check code.

LASTMCHK:xxx      Check code. This code is for service personnel only.  
Simultaneously, additional information is provided, such as Alarms,  
MOSS inoperative lamp.

**Field j**

a	b	c	d	e	f
g	h	i	j	k	l
m		n	service personnel only		

Displays BT when the branch trace function is active.

**Field k**

a	b	c	d	e	f
g	h	i	j	k	l
m		n	service personnel only		

Is updated each time an output X'72' instruction is executed by the control program, for example, when using the CCU data exchange function or the control program procedures, or during the 3720 initialization. The values displayed in this field are explained where appropriate in this manual. See also field e.

X72:xxxxxx      Contents of CCU X'72' output register.  
X72:00xxxx      Control program load/dump abend code (service personnel).  
X72:ERROR      Error when accessing the register. Register contents cannot be displayed.

**Field l**

a	b	c	d	e	f
g	h	i	j	k	l
m		n	service personnel only		

Is displayed along with field f. See field f description.

## Scanner Information

### Field m

a	b	c	d	e	f
g	h	i	j	k	l
m		n	service personnel only		

Displays information on the selected scanner:

#### NO SCANNER SELECTED:

You selected a scanner function before selecting a scanner.

#### SCANNER xx yyyyyyyyyyyy

Where xx is the number of the selected scanner and yyyyyyyyyyyy is any of the following:

#### CONNECTED

The scanner is operational and under control of the CCU control program.

#### INITIALIZED

The control code is loaded and the front end adapter is operational.

#### INOPERATIVE

The scanner is inoperative or the CCU is not running.

#### DISCTD-STOP

Disconnected-stop. The control code is no longer under control of the CCU control program, either after command STOP or after a scanner address compare HIT.

#### DISCTD-GO

Disconnected-go. You entered command GO while in status DISCTD-STOP. The scanner remains disconnected but the control code execution resumes.

#### RESET

You entered command RESET. You may initiate an IML or a DUMP.

#### UNKNOWN-MODE

The scanner is selected but it is impossible to identify its status.

### Field n

a	b	c	d	e	f
g	h	i	j	k	l
m		n	service personnel only		

Displays the scanner option:

#### IML

A scanner IML is being started.

#### DUMP

A scanner dump is in progress.

## CCU/Scanner IPL Information

CCU/scanner IPL information, instead of scanner information, is displayed on the third line.

Shortly after the IPL is successfully completed, the third line of the MSA is cleared if the IPL was requested from the control panel or from the host. If the IPL was requested from the operator console (function IPL CCU/TSS), the third line is cleared when the terminate function is selected.

a	b	c	d	e	f		
g	h	i	j	k	l		
r		s	t	u	v	w	x

**Field r** displays IPL to indicate that an IPL is started.

**Field s** displays PHASE 1 to indicate the start of phase 1 (CCU test and initialization). This field is blank when phase 1 is bypassed.

**Field t** displays PHASE 2 to indicate the start of phase 2 (load from the disk and start the control program loader/dump). This field is always present.

**Field u** displays PHASE 3 to indicate the start of phase 3 (load and initialize the scanners). This field is blank when phase 3 is bypassed.

**Field v** displays PHASE 4 to indicate the start of phase 4 (load from the host and initialize the control program). This field is always present.

**Field w** displays any of the following:

CA IPL DETECTED ON CA x

The control program loading/dumping is started on a channel-attached 3720. (A write IPL command has been detected by the 3720.) x is the channel adapter number.

### *Action:*

- If this message appears temporarily, no action is required.
- If this message appears permanently, follow the problem determination procedure for 3720 Model 1 or 11 load problems in the *3720/3721 Problem Determination Guide*.

CONTROL PROGRAM LOADED

The control program is loaded.

CP SAVE IN PROGRESS ON DISK

The control program is being saved on the 3720 disk.

## DUMP IN PROGRESS ON CA x

A control program dump is being taken on a channel-attached 3720. The progression of the dump is indicated in MSA field k that displays control program storage addresses. x is the channel adapter number.

### *Action:*

- If this message appears temporarily, no action is required.
- If this message appears permanently, follow the problem determination procedure for 3720 Model 1 load problems in the *3720/3721 Problem Determination Guide*.

## DUMP IN PROGRESS ON DISK

A control program dump is being taken on the 3720 disk. If this message appears permanently, call your service representative.

## DUMP IN PROGRESS ON L xxx

A control program dump is being taken on a link-attached 3720. The progression of the dump is indicated in MSA field k that displays control program storage addresses. xxx is the decimal communication line file

### *Action:*

- If this message appears temporarily, no action is required.
- If this message appears permanently, follow the problem determination procedure for 3720 Model 2 or 12 load problems in the *3720/3721 Problem Determination Guide*.

## ENABLED PORTS CA xx L xxxxxxxx (3720 Model 1)

### ENABLED PORTS L xxxxxxxx (3720 Model 2)

Indicates which channel adapters or link IPL ports are enabled.

x can be either Y or N.

In the CA field, Ys indicate which channel adapters are enabled, and Ns, which channel adapters are not enabled. The position of the Ys and Ns gives the channel adapter number.

In the L field, Ys indicate which link IPL ports are enabled. N is used for the link IPL ports not enabled. The position of each letter (Y or N) gives the position of the link IPL port in the link IPL port table (from 1 to 8).

**IPL CANCELED**

The 3720 initialization is canceled by:

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

**IPL CHECK xxx**

The IPL ends abnormally. The check code (xxx) is also displayed on the hex display of the control panel. Take note of the check code for service personnel.

**IPL CHECK F1B CLDP ABEND xxxx**

The IPL ends abnormally. xxxx is the hexadecimal control program loader/dump abend code.

Contact the appropriate service representative.

**IPL COMPLETE**

The IPL is successfully completed.

**IPL COMPLETE + ERRORS**

The IPL is complete although an error has been encountered.

If the error comes from a scanner, Alarm A11 is displayed.

For any other intermittent errors (for example, diskette errors) no alarm is displayed. The 3720 should run normally.

- If it does, take note of the error code for the record. No other action is required.
- If it does not, contact the appropriate service representative.

A BER is created: Type 01, ID 00.

#### LINK IPL DETECTED ON L xxx

The control program loading/dumping is started on a link-attached 3720. A Set Initialization Mode (SIM) command has been detected by the 3720.

##### *Action:*

- If this message appears temporarily, no action is required.
- If this message appears permanently, follow the problem determination procedure for 3720 Model 2 or 12 load problems in the *3720/3721 Problem Determination Guide*.

#### LINK TEST PROGRAM ABEND

A hardware error occurred at phase 3, while loading the stand-alone link test. The stand-alone link test function is described in Chapter 14.

#### LINK TEST PROGRAM LOADED

The stand-alone link test program is loaded. The stand-alone link test function is described in Chapter 14.

#### LOAD IN PROGRESS ON CA x

The control program is being loaded on a channel-attached 3720. The progression of the load is indicated in MSA field k where CCU storage addresses are displayed. x is the channel adapter number.

##### *Action:*

- If this message appears temporarily, no action is required.
- If this message appears permanently, follow the problem determination procedure for 3720 Model 1 or 11 load problems in the *3720/3721 Problem Determination Guide*.

#### LOAD IN PROGRESS FROM DISK

The control program is being loaded from the disk. If this message appears permanently, call your service representative.

#### LOAD IN PROGRESS ON L xxx

The control program is being loaded on a link-attached 3720. The progression of the load is indicated in MSA field k where CCU storage addresses are displayed. xxx is the decimal communication line address.



## RPO DETECTED ON L xxx

The Remote Power Off (RPO) command is detected on the communication line xxx.

xxx is the decimal communication line address.

*Action:* If the Power Control switch is set to 'Network with Auto-Power On', the 3720 will be powered off. If it is not powered off, follow the problem determination procedure for being unable to power off the 3720 Model 1 in the *3720/3721 Problem Determination Guide*.

## SCANNER(S) NOT IMLED: xxxx

Indicates that one or more scanners are not IMLed.

*Action:* Re-IML the indicated scanner(s). If the problem persists, contact the appropriate service representative.

xxxx identifies the scanner not IMLed.  
8000 indicates scanner 1  
2000 indicates scanner 3  
1000 indicates scanner 4

Scanner 2 does not exist

Field x

## IPL STOP

Indicates that the IPL stopped at the beginning of a phase or on operator request.

## Token-Ring Information

When the TRSS services or the token-ring interconnection function is active, line 3 of the machine status area (MSA) contains information relative to the selected TRM card and TIC cards.

a	b	c	d	e	f
g	h	i	j	k	l
m*	n*	o*	p*	q*	

**Field m\*** Displays the TRA number: TRAx<sub>xx</sub>, where xx is 02. This indicates which TRA has been selected. The same numbering as for scanners is used.

**Field n\*** Displays the TRA mode.  
This field indicates the mode of the selected TRA. It is updated after each TRA/TIC select.

CONNECT      The TRA is operational and is under NTRI control.

DISCONNECT      The TRA is under MOSS control.

UNKNOWN      A non-recoverable error occurred during the connect or disconnect process, or an MIOC/IOC error occurred during TRA Select. Connect/Disconnect may be retried.

**Field o\*** TIC SELECTED  
TIC x, where x is 1 or 2.  
(See Chapter 23 for correspondence between TIC number, TRA number and line addresses). This field is updated after each TRA/TRI Select.

**Field p\*** TIC MODE  
This field displays the current mode of the selected TIC and is updated after each TRA/TIC Select and after each refresh.

IDLE      The TIC has not yet been reset by NTRI.

RESET      The TIC has been reset by NTRI but not yet initialized.

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

CLOSED      Indicates that the TIC has been opened since initialization but has since been closed (by host).

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

- Interrupts from this TIC were disabled.
- DMA from this TIC was disabled.
- The TIC was reset, but TIC RAM was left intact.

**DISABLED**      The associated TRA has been disconnected by the MOSS. NTRI will not communicate with this TIC.

**Field q\***      NTRI OFFLINE indicator:

Indicates that:

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

Several functions which depend upon NTRI will not be available. This field is updated after each function selection from the secondary menu.

## Chapter 26. Event Log

Use the event log function to display BERs and alarms.

The box event record file collects information on errors and events. Each piece of information is referred to as a BER.

- A BER created for an error is always associated with an Alarm. This alarm follows immediately the BER. In this case, perform the action required for that alarm.
- A BER created for an event requires no specific action.

When the BER file is full, the next BER to arrive overrides the oldest BER in the file. BERs are stored in the order of arrival. Use the time stamp to determine which BER most recent.

You may display three types of information on the BERs:

1. The summary of all the BERs and alarms in the file (BER Summary screen)
2. The list of all the BERs for a specific component or of all the alarms (BER List screen)
3. The detail of a specific BER (BER Detail screen).

The BER file may be printed at the host. The print procedure as well as the transfer of the file to the host is documented in *Advanced Communication Function for Network Control Program and System Support Programs for the 3720: Diagnosis Guide*.

A BER does not have to be created for every error/event.

You can use the line threshold function described in Chapter 27 to set BER creation for a number of errors/events.

Event log messages are listed in Chapter 24.

Selection:



*To position the cursor*



*To select the event log function*

The BER Summary screen is first displayed.

## BER Summary

When you select the Event Log function, the BER Summary screen is first displayed.

Machine Status Area

CUSTOMER ID: 3720-1      SERIAL NUMBER:

FUNCTION ON SCREEN: EVENT LOG DISPLAY

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE    OFF: LOGOFF    PF1: MOVE TO SIA    PF2: CCU FNCTN    PF3: ALARM

SEL	NAME	TYPE	PENDING	DATE	1ST BER	TOTAL
A	B	D	E	F	G	H
			BERS	MM/DD	HH:MM	IN FILE
1	CA (CHANNEL ADAPTERS)	10	21	06/04	12:02	21
2	TSS (TRANSMISSION SUBSYSTEM)	11	20	05/10	09:02	20
3	CP (CONTROL PROGRAM)	12	10	04/09	08:03	10
4	CCU (CENTRAL CONTROL UNIT)	13	10	06/01	10:02	10
5	IOC (I/O CONTROL)	14	0			0
6	MOSS (MAINTENANCE OPERATOR SUBSYSTEM)	01	58	06/05	11:53	58
7	ALARM		22	06/05	09:12	22
8	TRSS (TOKEN RING SUBSYSTEM)	15	0			0
9	ALL (ALL FILE CONTENTS)		141			141

- ENTER SEL OR NAME ==>

- A** Selection number. Use this number to display the list of all the BERs for that specific component.
- B** CA, TSS, CP, CCU, IOC, MOSS, or TRSS is the name of the component that you enter to display the list of all the BERs for that specific component.

You enter ALARMS to display the list of all the alarms recorded in the BER file.

You enter ALL to display the list of all the BERs and ALARMS recorded in the BER file.

- C** Full name of the component. Do not use it to display a BER List screen.
- D** The BER type (service personnel only).
- E** The number of BERs that are not yet flagged. (See BER List screen, column **J**.)
- F** The date and time of the oldest BER in this category that is not flagged (pending BER).
- G** The total number of BERs, flagged or not.

# BER List

To display a BER List screen, enter, from the BER Summary screen, either a SEL# or a NAME.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: EVENT LOG DISPLAY

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

H	I	J	K	L	M	N	
				MOSS LIST			TOTAL:58
SEL	DATE/TIME	FLAG	NAME	TYPE	ID	ERROR DESCRIPTION	
12	06/04 11:53		MOSS LVLO	01	00	PGM CHK IN LVL07 AT 12120	
11	06/04 11:44		MOSS LVLO	01	00	PGM CHK IN LVL07 AT 12120	
10	06/04 11:35		MOSS LVLO	01	00	PGM CHK IN LVL07 AT 12120	
8	06/04 11:14		MOSS LVLO	01	00	PGM CHK IN LVL07 AT 12120	
7	06/04 11:05		MOSS APPL	01	06	CCU IPL ABEND OF17	
6	06/04 11:04		MOSS LVL1	01	01	CCU HARDCHK	
4	06/05 09:13		MOSS DISK	01	03	I/O BUS PARITY ERROR FILE:CHGMDJIB	
3	06/05 09:05		MOSS APPL	01	06	CCU IPL ABEND OF17	
2	06/05 09:04		MOSS LVLO	01	00	PGM CHK IN LVL07 AT 13AA0	
1	06/05 09:02		MOSS LVL1	01	01	CCU HARDCHK	
- ENTER SEL OR NAME ==>							
PF4:BER SUMMARY PF7:BACKWARD PF8:FORWARD							

On the first line, the BER type and the total number of BERs for the selected component are displayed.

- H** Selection number. Use this number to display the detail of a specific BER.
- I** The date and time at which the BER was recorded. The date is four digits defining month and day. EP does not handle the date, and displays 00/00. The time is four digits defining hour and minute. Under NCP, the date and time come from the host. If the host is remote, the time recorded on the BER may differ from the 3720 time.
- J** The hexadecimal flag value (service personnel only).
- K** The origin name. This name should not be confused with the component name on the BER Summary screen, column **B**. It may be used also to list all the BERs having the same origin: CA, CS, or LINE.
- L** The BER type (service personnel only).
- M** The BER identification (service personnel only).
- N** The error description (up to 40 characters).  
An asterisk (\*) at the end of the error description indicates that the description is truncated. For the complete description of the error, display the BER Detail screen.

From the BER List screen, you may display:

- The details of a specific BER, by entering a SEL# (see BER Detail screen).
- The list of BERs having the same origin, by entering an origin name (NAME on the BER List screen), which are CAX, CSx, or LINEx. Replace x by the number of the channel adapter (CA), scanner (CS), or line.

For example, if you enter CS1, you will display the list of all the BERs for scanner 1.

- The list of BERs for a specific component, by entering CA, TSS, CP, CCU, IOC, or MOSS.
- The list of all the Alarms, by entering ALARMS.
- The list of all the BERs of the BER file by entering ALL.

## **PF Keys**

PF4: To display the BER Summary screen.

PF7: To display the newer BERs for the same component.

PF8: To display the older BERs for the same component.

## BER Detail

To display a BER Detail screen, enter a SEL# from the BER List screen. The BER Detail screen may be used to display the full description of a BER that was truncated on a BER List screen.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: EVENT LOG DISPLAY

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

BER DETAIL

SEL 8 FLAG 00 DATE:06/05 TIME:09:13 TYPE:01 ID:03

DISK I/O BUS PARITY ERROR FILE: CHGMDJIB CHRR:28010901

PF4:BER SUMMARY PF5:BER LIST PF7:PREVIOUS BER PF8:NEXT BER

---

## PF Keys

PF4: To display the BER Summary screen.

PF5: To display the BER List screen starting from the BER displayed on the BER Detail screen.

PF7: To display the BER Detail screen of the previous BER in the BER list.

PF8: To display the BER Detail screen of the next BER in the BER list.





## Chapter 27. Line Threshold

Use the line threshold function to change the level at which a BER is created.

Each line has a value, and all the lines in the same LIC have the same value. The values you assign to the lines depend upon local maintenance and fault reporting requirements. For example, in the controller the traffic on one line or set of lines may be more critical than on the rest of the lines. It might be better for the former to have a lower threshold than the rest of the lines so that more BERs are created to give forewarning of developing problems.

The default value for any line is 4. If you enter line threshold values of 2 or 3, they will be forced to 1. If you enter 0, you will get the message INVALID INPUT.

On the displays shown on the following page, note that:

- Installed scanners are flagged with an asterisk (\*).
- LIC positions for which a LIC can be plugged have a default threshold value of 1.
- Positions that do not exist, and thus cannot have a LIC, are given a default threshold value of 0.

Selection:



*To position the cursor*



*To select the line threshold function*

The current line threshold values for each LIC are displayed:

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:  
FUNCTION ON SCREEN: LINE THRESHOLD

SYSTEM INPUT AREA (SIA) ==>  
T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

THRESHOLD DISPLAY

LIC POSITION	* S. 1 LINES	* S. 3 LINES	* S. 4 LINES
LIC1	4 00-03	4 32-35	
LIC2	4 04-07	4 36-39	
LIC3	4 08-11	4 40-43	
LIC4	4 12-15	4 44-47	
LIC5	4 16-19		4 48-51
LIC6	4 20-23		4 52-55
LIC7	4 24-27		4 56-59
LIC8			4 60-63

PF5:THRESHOLD UPDATE

To update a line threshold press PF5

To quit press PF4

Machine Status Area

CUSTOMER ID: 37XX-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINE THRESHOLD

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

THRESHOLD UPDATE

- ENTER LINE ADDRESS (0-27 32-63) ==>

PF5: THRESHOLD DISPLAY

---

Enter the address of the line and press:

	SEND
--	------

The current threshold for that line is displayed and you are invited to enter a new value.

Machine Status Area

CUSTOMER ID: 3720-1 SERIAL NUMBER:

FUNCTION ON SCREEN: LINE THRESHOLD

SYSTEM INPUT AREA (SIA) ==>

T: TERMINATE OFF: LOGOFF PF1: MOVE TO SIA PF2: CCU FNCTN PF3: ALARM

THRESHOLD UPDATE

- ENTER LINE ADDRESS (0-27 32-63) ==> 23

CURRENT THRESHOLD: 4 LIC 6 S.1

- ENTER NEW VALUE ==>

WARNING: ANY VALUE LOWER THAN 4 WILL BE FORCED TO 1

PF5: THRESHOLD DISPLAY

Enter the new value and press:

SEND

Or press PF5 to return to the line threshold display.

If you have entered a new value remember to update your records with all the new threshold values.

## Chapter 28. Microcode Change from the Control Panel

You will receive four diskettes labeled “Normal” or “Backup”. Use the backup set.

Use the following procedure when you need to implement microcode changes from the control panel. (To implement them from the operator console, see Chapter 15).

Before you start, ask the network operator to deactivate your communication controller from the network.

1. Mount the primary diskette.
2. Set the Function Select switch to Microcode Change.
3. Press the General Reset switch to start the microcode change.
4. Look at the hexadecimal display for the progression of the microcode change.

E	1	1
---	---	---

Microcode change is starting.

5. Open and close the diskette drive latch to confirm the start.

x	x	y
---	---	---

xyy is the last three digits of the EC number, where y (the suffix) may be a letter A-F.

6. Check the EC number and suffix on the diskette tag.
  - If it is not the correct number or suffix, restart with correct diskette.
  - If it is the correct number or suffix, go to step 7.
7. Open and close diskette drive latch to confirm.

E	1	2
---	---	---

Primary diskette checking in progress.

8. 

E	1	3
---	---	---

 Mount the secondary diskette.

E	1	4
---	---	---

Secondary diskette checking in progress.

9. 

E	1	5
---	---	---

 Mount the primary diskette.

E	1	6
---	---	---

Microcode change from primary diskette in progress.

10. 

E	1	7
---	---	---

 Mount secondary diskette.

E	1	8
---	---	---

 Microcode change from secondary diskette in progress.

E	1	F
---	---	---

 Microcode change successfully completed.

11. Remove the secondary diskette and store it.

12. Perform IML function for MOSS:

- Set Function Select switch to MOSS IML.
- Press the Function Start switch.

Either of the following codes will be displayed, depending on the MOSS state when you started this procedure:

F	E	E
---	---	---

 MOSS IML function is successful and MOSS is offline.

F	E	F
---	---	---

 MOSS IML function is successful and MOSS is alone.

13. END OF PROCEDURE. The 3720 may now be returned to normal operation (see *3720/3721 Operator's Guide*).

---

# Error Codes

The list below gives error codes, their meaning, and corrective action.

E	1	9
---	---	---

**Contact the appropriate service representative.**

E	A	1
---	---	---

The microcode change failed because you pressed the Function Start switch.

- Press the General Reset switch. The procedure will start.

E	A	2
---	---	---

Mounted diskette is not a primary one.

- Mount a primary diskette. The procedure continues.

E	A	3
---	---	---

Mounted diskette is not a secondary one.

- Mount a secondary diskette. The procedure continues.

E	A	4
---	---	---

Mounted primary diskette is not the one already checked.

- Mount correct diskette.

E	A	5
---	---	---

Mounted secondary diskette is not the one already checked.

- Mount correct diskette.

E	A	6
---	---	---

Diskettes do not belong to the same pair.

- Mount the correct secondary diskette.

E	A	7
---	---	---

Disk error. Microcode change failed. **Contact the appropriate service representative.**

E	A	8
---	---	---

Primary diskette error. Microcode change failed.

- Retry from step 1 with the normal diskettes and order a new set from IBM.
- If it fails, **contact the appropriate service representative.**



**E A 9**

Secondary diskette error. Microcode change failed.

- Retry from step 1 with the normal diskettes and order a new set from IBM.
- If it fails, **contact the appropriate service representative.**

**E A A**

File not found on disk. **Contact the appropriate service representative.**

**E A B**

File not found on disk. **Contact the appropriate service representative.**

**E A C**

File smaller on diskette. **Contact the appropriate service representative.**

**E A D**

Disk directory capacity is exceeded: **Contact the appropriate service representative.**

**E A E**

Diskette not ready. Close the diskette drive latch. The procedure continues.

**E A F**

Diskette not ready. Microcode change failed. Restart from step 1.

**E B 0**

**Contact the appropriate service representative.**

**E B 1**

EC number is not valid. Microcode change failed.  
**Contact the appropriate service representative.**

**E B 2**

**Contact the appropriate service representative.**

to

**E B E**

**E B F**

Microcode error.  
**Contact the appropriate service representative.**

**F E C**

Check that CE switch 3 is set "ON" when doing the microcode upgrade.

# List of Abbreviations

<b>AARR</b>	allow additional register range bit	<b>ETX</b>	end-of-text character (BSC)
<b>ABEND</b>	abnormal end of task	<b>FES</b>	front-end scanner (card)
<b>AC</b>	address compare	<b>FNCTN</b>	function (CCU FNCTN) (3727 operator console key)
<b>ACF</b>	advanced communications function	<b>GCF</b>	graphic configuration file
<b>ANS</b>	auto-network shutdown	<b>HDX</b>	half-duplex
<b>ASCII</b>	American National Standard Code for Information Interchange	<b>HW</b>	hardware
<b>ATTN</b>	attention key	<b>IAR</b>	instruction address register
<b>BER</b>	box event record	<b>ICC</b>	internal clock control
<b>bps</b>	bits per second	<b>IML</b>	initial microcode load(er)
<b>BREAK</b>	break key	<b>IOC</b>	input/output control
<b>BSC</b>	binary synchronous communication	<b>IPL</b>	initial program load(er)
<b>BT</b>	branch trace	<b>L</b>	load (instruction)
<b>CA</b>	channel adapter	<b>LAB</b>	line attachment base
<b>CCITT</b>	The International Telegraph and Telephone Consultative Committee	<b>LABA</b>	line attachment base type A
<b>CCU</b>	central control unit	<b>LABB</b>	line attachment base type B
<b>CCU FNCTN</b>	ccu function	<b>LABC</b>	line attachment base type C
<b>CCW</b>	channel status word	<b>LCD</b>	line control definition (storage)
<b>CDF</b>	configuration data file	<b>LDF</b>	line description file
<b>CLAB</b>	channel and line attachment base	<b>LIC</b>	line interface coupler
<b>CLDP</b>	controller load/dump program	<b>LIC1</b>	line interface coupler type 1 (card)
<b>CNM</b>	communication network management	<b>LIC2</b>	line interface coupler type 2 (card)
<b>CNSL</b>	console	<b>LIC3</b>	line interface coupler type 3 (card)
<b>CP</b>	control program (NCP, EP)	<b>LIC4A</b>	line interface coupler type 4A (card)
<b>CPT</b>	checkpoint trace	<b>LIC4B</b>	line interface coupler type 4B
<b>CRC</b>	cyclic redundancy check	<b>LSR</b>	local storage register (CSP)
<b>CS</b>	communication scanner	<b>LSSD</b>	level sensitive scan design
<b>CSP</b>	communication scanner processor	<b>MES</b>	miscellaneous equipment specifications
<b>CSS</b>	control subsystem	<b>MLT</b>	machine load table (diskette)
<b>CTS</b>	clear to send (signal)	<b>MOSS</b>	maintenance and operator subsystem
<b>DCE</b>	data circuit-terminating equipment	<b>MSA</b>	machine status area (console)
<b>DCM</b>	diagnostic control monitor	<b>MSLA</b>	multi-subchannel line adapter
<b>DLE</b>	data link escape (BSC)	<b>NAUN</b>	nearest address upstream neighbor (CNM)
<b>DSR</b>	data set ready (signal)	<b>NCCF</b>	Network Communications Control Facility (CNM)
<b>DSRS</b>	data signaling rate selection (signal)	<b>NCP</b>	network control program
<b>DTE</b>	data terminal equipment	<b>NPDA</b>	Network Problem Determination Application (CNM)
<b>DTR</b>	data terminal ready (signal)	<b>NRZI</b>	non return-to-zero inverted
<b>EBCDIC</b>	extended binary-coded decimal interchange code	<b>NTRI</b>	NCP token-ring interconnection
<b>EC</b>	engineering change	<b>OEM</b>	original equipment manufacturer
<b>EOM</b>	end of message	<b>OLTEP</b>	online test execution program
<b>EOT</b>	end of transmission (BSC)	<b>OLTS</b>	online test system
<b>EP</b>	emulation program	<b>OLTT</b>	online terminal test
<b>EPO</b>	emergency power off	<b>PCF</b>	primary control field (storage)
<b>ESC</b>	emulation subchannel		
<b>ESCH</b>	emulation subchannel high		
<b>ESCL</b>	emulation subchannel low		
<b>ETB</b>	end-of-transmission-block character (BSC)		

<b>PCW</b>	processor control word	<b>SYN</b>	synchronous character (BSC)
<b>PEP</b>	partitioned emulation program	<b>SYSGEN</b>	system generation
<b>PF</b>	program function (3727 operator console keys)		
<b>RAS</b>	reliability, availability, and serviceability	<b>TCAM</b>	telecommunication access method
<b>RD</b>	receive data (signal)	<b>TIC</b>	token-ring interconnection coupler
<b>RDV</b>	redrive (card)	<b>TPS</b>	two-processor switch (feature)
<b>RFS</b>	ready for sending (signal) (or clear to send CTS)	<b>TRA</b>	token-ring adapter
<b>RH</b>	request/response header (SNA)	<b>TRI</b>	token-ring interconnection
<b>RI</b>	register to immediate operand (instruction)	<b>TRM</b>	token-ring adapter multiplexer
<b>ROS</b>	read-only storage	<b>TRSA</b>	token-ring subsystem attachment
<b>RPO</b>	remote power off	<b>TRSS</b>	token-ring subsystem
		<b>TSS</b>	transmission subsystem
		<b>TTA</b>	translate table area
		<b>UEPO</b>	unit emergency power off
		<b>USASCII</b>	(see ASCII)
<b>SCF</b>	secondary control field (storage)	<b>VTAM</b>	virtual telecommunication access method
<b>SDF</b>	serial data field (storage)	<b>V.24</b>	CCITT V.24 recommendation
<b>SDLC</b>	synchronous data link control (SNA)	<b>V.25</b>	CCITT V.25 recommendation
<b>SELN</b>	selection (3727 operator console key)	<b>V.28</b>	CCITT V.28 recommendation
<b>SES</b>	secondary status (storage)	<b>V.35</b>	CCITT V.35 recommendation
<b>SIT</b>	scanner interface trace		
<b>SNA</b>	Systems Network Architecture		
<b>SS</b>	start-stop	<b>XREG</b>	external registers
<b>SSP</b>	system support programs		

# Glossary

This glossary defines all new terms and abbreviations that are used in this manual. It also includes definitions developed by the American National Standards Institute (ANSI), by the International Organization for Standardization (ISO), and by the International Telegraph and Telephone Consultative Committee (CCITT).

If you do not find the term you are looking for, refer to the index or to the *IBM Vocabulary for Data Processing, Telecommunications, and Office Systems*, GC20-1699.

**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.

**asynchronous transmission.** Transmission where 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*).

**availability.** The degree to which a system or resource is ready when needed to process data.

**binary synchronous communication (BSC).** A link protocol for synchronous transmission of coded data (see also *synchronous transmission*).

**box error record (BER).** Information about an error detected by the controller. It is recorded on the diskette and can be displayed on the operator console for error analysis.

**central control unit (CCU).** In the 3725, the processor that executes the network control program and controls the storage and channel adapters.

**channel adapter (CA).** A circuit that attaches a host processor channel.

**channel interface.** The interface between the controller and the host processors.

**channel and line attachment base (CLAB).** A board that includes the first CAB and LAB of the controller.

**communication controller.** A type of communication control unit whose operations are controlled by one or more programs stored and executed in the unit. Examples are the IBM 3725 or the IBM 3720.

**Communication Network Management (CNM).** An IBM product program that assists the user in identifying network problems from a control point. It is stored in

the host processor and comprises the Network Problem Determination Application (NPDA) and the Network Communication Control Facility (NCCF).

**communication scanner.** See *scanner*.

**configuration data file (CDF).** A file of the diskette that contains a description of all the hardware features (presence, type, address, and characteristics).

**control panel.** A panel on the 3720 that contains switches and indicators for the use of the customer's operator and service personnel.

**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.

**controller.** The IBM 3720/3721 Communication Controller and Expansion.

**customer engineer.** A person who provides field services for IBM products.

**cyclic redundancy check (CRC).** A method of error checking performed at the receiving station after a block check character has been received.

**direct attachment.** Attachment of a DTE to the controller without a DCE.

**diskette.** A thin, flexible magnetic disk, and its protective jacket, that records the 3720 microcode, diagnostics, error logs, and monitored data.

**duplex transmission.** A simultaneous two-way independent transmission in both directions (contrast with *half duplex*).

**Emulation Program (EP).** A control program that allows the 3720/3721 to emulate the functions of an IBM 270X.

**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.** An alternate, one way at a time, independent transmission (contrast with *duplex*).

**host processor.** A data processing system connected to and communicating with a user application network through the controller (also called *host*).

**initial program load (IPL).** The process by which a configuration image is loaded into storage at the beginning of a work day or after a system malfunction.

**input/output control (IOC).** The circuit that controls the input/output from/to the channel adapters, scanners, and token-ring adapters, via the IOC bus.

**interface.** A shared boundary between two machines.

**internal clock circuit (ICC).** An optional circuit that provides, through the LICs, the clock control to the DCEs or DTEs that need it.

**line.** See *transmission line*.

**line attachment base (LAB).** The unit of modularity of the transmission subsystem. It corresponds to one board and includes mainly the scanners and the line interface couplers.

**line interface coupler (LIC).** A circuit that attaches up to four transmission cables to the controller.

**maintenance and operator subsystem (MOSS).** The part of the controller that provides operating and servicing facilities to the customer's operator and customer engineer.

**microcode.** Code, created by IBM, that is loaded in a processor (the MOSS processor, for example) to replace a hardware function. The microcode is not accessible to the customer.

**modem.** (modulator-demodulator) A device that modulates and demodulates signals transmitted over data communication facilities. A modem is a DCE. It may be integrated in the DTE.

**multiplexing.** The division of a transmission facility into two or more channels by allotting the common channel to several different channels, one at a time.

**network.** See *user application network*.

**network control program (NCP).** A program, generated by the user from a library of IBM-supplied modules, that operates the controller.

**network control program token-ring interconnection.** A component of ACF/NCP allowing communications to the IBM Token-Ring Network.

**nonswitched line.** A permanent dedicated transmission line that connects two or more DTEs. 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, while the terminal is still connected to the processing unit) with only minimal effect on the user's normal operation.

**operator console.** The console that is used to operate and service the 3720/3721 through the MOSS.

**partitioned emulation programming (PEP) extension.** A feature of NCP that permits some lines to operate in network control mode while simultaneously operating others in emulation mode.

**reliability.** The ability of a functional unit to perform its intended function under stated conditions for a stated period of time.

**scanner.** A device that scans and controls the transmission lines. It is composed of one communication scanner processor (CSP) and one front end scanner (FES).

**serviceability.** The capability to perform effective problem determination, diagnosis, and repair on a data processing equipment.

**start-stop.** A link protocol for asynchronous transmission of coded data (see 'asynchronous transmission').

**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 link protocol for synchronous transmission of coded data (see also 'synchronous transmission').

**synchronous transmission.** Transmission where the character synchronism is controlled by timing signals generated at the sending and receiving stations. The BSC or SDLC protocols, for example, use synchronous transmission (contrast with 'asynchronous transmission').

**systems network architecture (SNA).** The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through and controlling the configuration and operation of networks.

**timeout.** The time interval allotted for certain operations to occur.

**token-ring adapter (TRA).** An adapter that allows attachment to the IBM Token-Ring Network. It consists of one token-ring multiplexer (TRM) and of one to four token-ring interconnection couplers (TICs).

**token-ring interconnection (TRI).** A MOSS function that provides:

- Information on the status of TICs
- Problem determination help
- Information on token-ring activity.

**token-ring interconnection coupler (TIC).** A circuit that attaches to one IBM token-ring network.

**token-ring interconnection display (TRID).** A MOSS function that provides information about the TIC ring status.

**token-ring multiplexer (TRM).** An adapter that connects up to four TICs to the IOC Bus.

**token-ring subsystem (TRSS).** A group of token-ring adapters (TRAs) within a 3720.

**token-ring subsystem attachment (TRSA).** A TRM and one TIC as a single entity for purposes of problem determination by the NPDA.

**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 a *line*).

**transmission subsystem (TSS).** The part of the controller that controls the data transfers over the transmission interface.

**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, established and operated by users for the purpose of data processing or information exchange. This configuration may use circuit-switched, packet-switched, and leased-circuit services provided by carriers or PTT (also called a *user network*).



# Index

## A

AARR bit setting codes 21-19  
activating remote maintenance password 5-7, 5-8  
address compare and branch trace parameter display function 19-2  
address trace block 21-26  
address trace function NCP 21-21  
address trace table 21-25  
alarms\*\*  
alerts, VTAM\*\*  
alter CCU data 19-8  
alter function 19-8  
applying MCFs 16-3  
asterisk character 26-3

## B

basic frame display 8-4  
BER 26-1, 27-1  
    detail 26-5  
box event record 26-1  
branch trace buffer 19-18, 19-33  
branch trace buffer allocation 19-13  
branch trace extra records 19-34  
break key\*  
bypass ccu check function 20-2  
bypass IOC check function 20-3

## C

catalog procedure 22-22  
CCB areas and byte expansion 21-38  
CCB display of character control block function 21-37  
CCU function selection vii  
CCU functions 19-1  
CCU functions and 3720 functions, switching between viii  
CCU normal mode function 20-5  
CCU state function 19-3  
CDF function 8-1  
CE01 - text to 3270 - BSC in EBCDIC (NCP) 22-45  
change the automatic dump/load option setting 18-3  
channel adapter reset (MSLA) function, EP/PEP 21-45  
channel adapter state and register display messages 24-17  
channel adapter state function 19-4

channel adapter trace function, NCP 21-28  
channel adapters disabled lamps\*  
channel discontact function, NCP 21-20  
channel-related messages\*\*  
    codes 13-15  
    COMM NOT READY 2\*\*  
    configuration data file (CDF) Function 8-1  
    console link test\*\*  
    console logoff\*  
    console problems\*\*  
        local\*\*  
        remote\*\*  
control panel  
    3720 model 1\*  
    3720 model 2\*  
control program procedure messages 24-19  
control program procedures 22-1  
copy a cataloged procedure 22-16  
correspondence between line addresses and scanners 23-1  
CP01 - SDLC test frames (NCP) 22-23  
CP02 - 3270 BSC general poll (NCP/EP) 22-23  
CP03 - 2740 start/stop poll (NCP/EP) 22-23  
CP04 - start address trace (NCP) 22-23  
CP05 - stop address trace (NCP) 22-23  
CP06 - X.21 switched line test (NCP) 22-23  
create/copy a procedure 22-8  
customer identification update 5-11  
customer identification\*

## D

data exchange function 21-3  
data exchange messages 24-24  
date function 20-7  
deactivating the remote maintenance password 5-9  
DEL CHAR key\*  
directory function of cataloged procedures 22-4  
disk function messages 24-25  
disk functions 15-1  
disk IPL information function 18-1  
disk IPL information messages 24-29  
disk problems\*\*  
diskette initialization 15-20  
diskette mode\*  
Disp instruction 22-15  
display a cataloged procedure 22-6  
display alter messages 24-30  
display CCU storage 19-8  
display disk ipl information 18-2  
display local store registers 19-8

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display long function 19-15  
display of character control block (CCB) function,  
EP/PEP 21-37  
display of register function, NCP 21-18  
display of storage function, EP 21-44  
display of storage function, NCP 21-17  
display/alter function 19-8  
displaying logon attempt counters 5-10  
displaying or resetting logon attempt counters 5-10  
displaying passwords 5-6  
dump/load option setting 18-3  
dynamic store function, NCP 21-15

## E

ec microcode installation 15-3  
End instruction 22-15  
EP - display of storage function 21-44  
EP - line test function 21-31  
EP - subchannel switching (MSLA) function 21-46  
EP functions 21-1  
EP/PEP - channel adapter reset (MSLA)  
function 21-45  
EP/PEP - display of character control block (CCB)  
function 21-37  
EP/PEP - line trace and scanner interface trace (SIT)  
function 21-40  
EP/PEP - present status on channel function 21-43  
erase a cataloged procedure 22-17  
event log 26-1  
event log messages 24-31  
examples of control program procedure creation 22-39  
execute a cataloged procedure 22-20  
expansion frame 8-6

## F

FE01 - install a ZAP (NCP or NCP/PEP) 22-41  
function  
function area\*  
function messages 24-1, 24-13  
FUNCTION ON SCREEN\*  
FUNCTION PENDING\*

## G

Goto instruction 22-12, 22-13

## H

Halt instruction 22-12, 22-13  
hazardous port swap 10-8  
hex display\*  
hexadecimal codes\*\*  
host messages\*\*  
how to execute NCP and EP functions 21-1

## I

IML MOSS (with reset) from consoles\*  
IML MOSS (without reset) from the consoles 2-1  
IML MOSS from control panel\*  
IML one scanner 3-1  
IML one scanner messages 24-32  
IML one scanner\*  
immediate function selection vii  
immediate functions 20-1  
initialization, 3720 model 1\*  
initialization, 3720 model 2\*  
INS CHAR key\*  
install a ZAP (NCP or NCP/PEP) 22-39

## L

LCS 13-15  
LDF function 9-1  
level 2 display codes 21-35  
level 3 display codes 21-36  
level 3 error codes 21-36  
level 3 interrupt function 20-4  
LIC wrap 13-1  
line addresses and scanners, correspondence  
between 23-1  
LINE CHECK 2\*\*  
line description file (LDF) 9-1  
line description file messages 24-35  
line interface display 11-1  
line interface display messages 24-36  
line messages\*\*  
line problems\*\*  
line test codes 21-14  
line test function, EP 21-31  
line test function, NCP 21-7  
line threshold 27-1  
line trace and scanner interface trace (SIT) function,  
EP/PEP 21-40  
line trace and scanner interface trace codes 21-42  
link IPL ports 6-1  
link test messages 24-39

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- link tests\*\*
- load link test requester 14-5
- load problems\*\*
  - 3720 model 1\*\*
  - 3720 model 2\*\*
- local console logoff\*
- local console logon procedure\*
- local console password 5-1, 5-4
- local console password recovery 5-12
- local console problems\*\*
- logoff function 20-6
- logoff procedure\*
- LOGOFF\*
- logon procedure
  - local console\*
  - remote console\*
- Loop instruction 22-15

## M

- machine level table function 17-1
- machine status area (MSA) 25-1
- machine type\*
- management password 5-4
- management password recovery 5-12
- MCF function 16-1
- MCF history table 16-6
- MCF messages 24-40
- menu v, vii
  - CCU functions vii
  - immediate functions vii
  - 3720 functions v
- messages 24-1
- messages list 24-2
- microcode change 25-1, 28-1
- microcode fixe function 16-1
- MLT function 17-1
- modem loopback 13-1
- modem tests\*\*
- modify a cataloged procedure 22-18
- MOSS IML (with reset) from consoles\*
- MOSS IML (without reset) from the consoles 2-1
- MOSS IML from control panel\*
- MOSS Inoperative lamp on\*\*
- MOSS Inoperative lamp\*
- MOSS offline function 19-20
- MOSS online function 19-21
- MSA 25-1
- MSLA function error codes 21-47

## N

- NCP - address trace function 21-21
- NCP - channel adapter trace function 21-28
- NCP - channel discontact function 21-20
- NCP - display of register function 21-18
- NCP - line test 21-7
- NCP display of storage function 21-17
- NCP dynamic store function 21-15
- NCP functions 21-1
- NCP scanner interface trace (SIT) 21-30
- NCP transmit control byte 13-21
- NetView messages\*\*
- no answer after correct password\*\*
- no IBM copyright screen\*\*
  - local console\*\*
  - remote console\*\*
- NPDA V3 messages\*\*
- NPDA V3R2 (VSE)\*\*
- NTT cable 13-1
- NTT cable wrap 13-1

## O

- OFF\*
- one scanner IML 3-1
- one scanner IML\*
- operator console characteristics\*
- operator console information messages 24-1, 24-76
- operator console problems\*\*
  - local\*\*
  - remote\*\*
- operator control messages 24-1, 24-69
- operator set instruction (OSET) 22-11
- OSET instruction 22-11

## P

- panel functions 1-1
- panel functions messages 24-43
- panel/console switch 1-1
- password display 5-6
- password management 5-1
- password management function 5-1
- password management messages 24-44
- password recovery 5-12
- password recovery setup instructions 5-12
- password update 5-3
- permanent activation of the remote maintenance
  - password 5-8
- permanent ringing\*\*

\* 3720/3721 Communication Controllers, Operator's Guide, GA33-0065

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- PF1 key\*
- PF2 key\*
- PF3 key\*
- PLS function 7-1
- port swap 10-1
- port swap messages 24-45
- position disk recording arm 15-23
- power check lamp on\*\*
- power check lamp\*
- power off 3720 model 1\*
- power off 3720 model 2\*
- power on lamp\*
- power on, 3720 model 1\*
- power on, 3720 model 2\*
- power-off problems\*\*
  - 3720 model 1\*\*
  - 3720 model 2\*\*
- power-on problems\*\*
  - 3720 model 1\*\*
  - 3720 model 2\*\*
- precataloged control program procedures 22-23
- present status on channel function, EP/PEP 21-43
- programmable line speed (PLS) 7-1
- programmable line speed messages 24-48
- purge the dump file 18-3

## Q

- query CCU date and time function 20-7

## R

- re-initialization, 3720 model 1\*
- re-initialization, 3720 model 2\*
- refused port swap 10-6
- remote console active lamp on\*\*
- remote console active lamp\*
- remote console in customer mode 5-1
- remote console in maintenance mode 5-1
- remote console logoff\*
- remote console logon procedure\*
- remote console problems\*\*
- remote customer console password recovery 5-12
- remote customer password 5-5
- remote maintenance console password recovery 5-12
- remote maintenance password 5-5
- remote maintenance password activation 5-7, 5-8
- remote maintenance password deactivation 5-9
- requester 14-1
- requesting controller 14-1
- reset address compare function 19-22
- reset address compare messages 24-49
- reset branch trace function 19-22

- reset CCU check function 20-9
- reset CCU function 20-8
- reset CCU/LSSD function 19-23
- reset CCU/LSSD messages 24-50
- reset I-step function 20-11
- reset IOC function 20-10
- resetting logon attempt counters 5-10
- resetting ports 10-2
- responder 14-1
- responder limitation 14-11
- responding controller 14-1
- restore disk from diskettes 15-15
- restoring MCFs 16-5

## S

- save disk onto diskettes 15-8
- scanner IML 3-1
- scanner IML\*
- scanner interface trace (SIT) function 21-40
- scanner-related messages\*\*
- scanners and line addresses, correspondence between 23-1
- SCF 13-15
- SDLC test frame 14-3
- SDLC test frames (NCP) 22-24
- selecting CCU functions vii
- selecting immediate functions vii
- selecting 3720 functions v
- selective scanner IML\*
- serial number\*
- SES 13-15
- set address compare function 19-24
- set address compare messages 24-51
- set branch trace function 19-30
- set branch trace messages 24-51
- set I-step function 20-12
- set immediate instruction (SETI) 22-11
- SETI instruction 22-11
- SIT, NCP scanner interface trace 21-30
- stand-alone link test messages 24-51
- stand-alone link tests 14-1
- start address trace (NCP) 22-31
- start CCU function 20-13
- stop address trace (NCP) 22-33
- stop CCU function 20-14
- stop on CCU check function 20-15
- stop on IOC check function 20-16
- subchannel switching (MSLA) function, EP 21-46
- switching between 3720 functions and CCU functions viii
- switching control to EP mode 21-6
- switching control to NCP mode 21-5
- switching ports 10-2
- switching to diskette mode\*

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## SYSTEM INPUT AREA (SIA)\*

### T

tailgate wrap 13-1  
tailgate wrap test\*\*  
temporary activation of the remote maintenance  
password 5-7  
terminal disconnected for remote console\*\*  
terminate CCU function 19-40  
terminate function 20-17  
terminate\*  
terminating CCU functions 19-40  
text to 2740 - S/S (EP, PEP) 22-39  
text to 2740 - S/S (NCP) 22-39, 22-58  
text to 3270 - BSC in EBCDIC (EP, PEP) 22-39, 22-51  
text to 3270 - BSC in EBCDIC (NCP) 22-39  
time function 20-7  
token-ring  
token-ring interconnection (messages) 24-61  
token-ring interconnection 12-1, 25-15  
problem determination\*\*

### U

unable to power off the 3720\*\*  
model 1\*\*  
unable to power off 3720\*\*  
model 2\*\*  
unable to power on the 3720\*\*  
model 1\*\*  
unable to power on 3720\*\*  
model 1\*\*  
model 2\*\*  
unsuccessful load\*\*  
3720 model 1\*\*  
3720 model 2\*\*  
updating passwords 5-3  
updating the customer identification 5-11

### V

V.24 non-switched DCE attachment 11-10  
V.24 switched DCE attachment 11-11  
V.24/V.35 direct attachment 11-12  
V.25 (autocall) 11-14  
V.35 DCE attachment 11-13  
VTAM alerts\*\*

### W

Wait instruction 22-12, 22-14  
wrap test 13-1  
wrap test messages 24-62

### X

X.21 DCE attachment 11-15  
X.21 Switched Line Test (NCP) 22-34

### Numerics

2740 start/stop poll (NCP/EP) 22-29  
3270 BSC general poll (NCP/EP) 22-26  
3720 function selection v  
3720 functions and CCU functions, switching  
between viii  
3720 IPL from the operator console 4-1  
3720 IPL messages 24-67  
3720 model 1 control panel\*  
3720 model 1 drops power\*\*  
3720 model 1 initialization\*  
3720 model 1 power off\*  
3720 model 1 power on\*  
3720 model 1 re-initialization\*  
3720 model 2 control panel\*  
3720 model 2 drops power\*\*  
3720 model 2 initialization\*  
3720 model 2 power off\*  
3720 model 2 power on\*  
3720 model 2 re-initialization\*  
3720 procedure tools 22-2

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