IBM Maintenance Library

VOLUME 01	VOLUME 02	VOLUME 03	VOLUME 13/16	VOLUME 17	VOLUME 18
MAINTENANCE ANALYSIS PROCEDURE	MAINTENANCE ANALYSIS PROCEDURE	MAINTENANCE ANALYSIS PROCEDURE	SUPPLEMENT MAINTENANCE INFORMATION	GENERAL INFORMATION	GENERAL INFORMATION
START EXIT UU = 00 02	UU = 1X	UU = 4X 5X EX FX	LOCATIONS TOOLS REMOVAL/ REPLACEMENT ADJUSTMENTS SERVICE AIDS DISKETTE DRIVE PROCESSOR POWER	GENERAL DESCRIPTION FUNCTIONAL UNITS DIAGNOSTIC INFORMATION PROCESSOR LOGS SYSTEM TESTS FEATURES	CONSOLE FUNCTIONS INDEX INSTALLATION

4341 Maintenance Analysis Procedures

EC 376695 16Aug79
EC 379585 14Sep79
PN 5666448
1 of 1
SEQ4A/

MAIN STORAGE

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
PUMA	A	1	001
PUMA	B	5	013
XXXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
4	009	0001	A
5	014	0001	A
2	004	5040	A
5	012	5040	A
2	006	5040	A
4	011	5040	A
6	016	5040	Q
6	018	5040	Q
6	019	5040	Q

001
****

(Entry Point A)

****

The ***PURPOSE*** of this MAP is to isolate Main Storage errors to the smallest number of FRUs, and to verify the repair.

USE this Map ONLY for 4xxxxxxx reference codes.

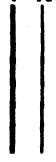
Write all reference codes, FRU lists and diagnostic TEST IDs on a paper pad for use throughout the MAP.

Ensure that the LOCAL/REMOTE switches on all Channel Control Units are in the LOCAL position.

When a problem cannot be recreated by the diagnostics, you have an ***INTERMITTENT*** problem and have only the original reference code and FRU list.

Are you attempting to resolve an ***INTERMITTENT* failure?**

Y N



5 2
A B

MODEL GROUP 2

002

Do you have replacement FRUs?

Y N

003

Is the last digit of your extension field (uurrrris) (xxxxxxxX) a '1'?

Y N

004

The problem 'CAN NOT' be temporarily solved by swapping Main Storage cards.

You MUST get replacement cards to fix the problem.

Go To Map 5040, Entry Point A.

005

You have reached this point because you have a double bit error in the BSM spread across two Main Storage cards:

AND YOU HAVE NO REPLACEMENT CARDS.

You must decide if a repair action should be taken temporarily, based on the customer need, and the waiting time for replacement cards.

Is a temporary repair action 'ABSOLUTELY' necessary?

Y N

006

When the cards are obtained, use the reference code and FRU list written on the paper pad and complete the repair action.

Go To Map 5040, Entry Point A.

007

The following card swapping procedure is intended as a 'TEMPORARY' solution to the problem.

A REPLACEMENT FRU MUST BE USED WHEN IT BECOMES AVAILABLE.

Install Diagnostic Disk DIAG4.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

2. Key in B and press the ENTER key.
   The system responds with ENTER TEST ID(S).

3. Key in TK4011B2 and press the ENTER key.
   Run time is variable (maximum 20 minutes).

Shown on the screen is a display of Main Storage showing the total number of single bit errors sensed per Main Storage card on the given address boundaries. The totals are in Hexadecimal.

Find the address range pertaining to the first card in your FRU list.

Identify the card with the largest single bit error total appearing in the same address range.

THIS CARD SHOULD NOT BE MOVED. DOING SO MAY CAUSE OTHER ERRORS.

Identify the card with the next highest single bit error total. ***THIS*** is the card that will be swapped.

Look through the totals pertaining to the Main Storage cards in other address ranges.

(Step 007 continues)

(Step 007 continued)

Locate an address boundry that does not contain a large amount of single bit errors.

You are going to swap one of those cards with the card you identified as having 'the next highest single bit error total'.

This will prevent large numbers of single bit errors in the same address boundry.

Use the following POWER DOWN/POWER UP procedure for swapping cards.

CAUTION

DAMAGE WILL RESULT IF CARDS ARE REMOVED AND/OR INSTALLED WITH POWER ON.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Operate the MODE SEL key.
   The General Selection screen appears.

2. Key in QMW and press the ENTER key.
   The PARTIAL POWER UP AND DOWN screen appears.

3. Key in 01 01 and press the ENTER key.
   The system responds with ACTION DONE.

Before swapping a card, ensure that there are no bent pins on the cards being swapped.

(Step 007 continues)

(Step 007 continued)

For card replacement procedure, see LSI Logic Card in the REMOVAL/REPLACEMENT section of the Maintenance Information Manual.

1. Operate the MODE SEL key.
   The General Selection screen appears.

2. Key in QMW and press the ENTER key.
   The PARTIAL POWER UP AND DOWN screen appears.

3. Key in 00 00 and press the ENTER key.
   Power on takes about 30 seconds. The system responds with ACTION DONE.

To verify the temporary card swap fix run the Main Storage portion of the MSMDS diagnostics, using the following procedure.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POIN A with the new symptom.

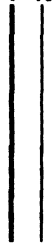
1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

2. Key in B and press the ENTER key.
   The system responds with ENTER TEST ID(S).

3. Key in TKBSMT00 and press the ENTER key.
   Run time is about 10 minutes.
   Normal end is indicated by an END OF MSMDs message or a reference code with a 'UU' field (UUrrrr of '4x'.

Is a reference code displayed on the screen?

Y N



4 4
E F

008

Run all MSMDs to verify system integrity.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

2. Key in G and press the ENTER key.
   Run time is about 10 minutes.
   Normal end is indicated by an END OF MSMDs message.

Is a reference code displayed on the screen?

Y N

009

You have corrected the problem and verified the System integrity.

Make an entry of the repair action in the CE LOG SCREEN.

Set the CE MODE switch to NORMAL.

Go To Map 0001, Entry Point A.

010

You have a failure during the System integrity testing after FRU replacement.

Check that the top card connectors on the card you replaced are seated and installed correctly (arrow pointing up)

When the same FRU is indicated in the new FRU list, you may have a bad card from supplies or a wrong part number.

(Step 010 continues)

(Step 010 continued)

Try exchanging the same FRU, using the above POWER OFF/ON and card replacement procedures and then run the MSMDs again.

It is POSSIBLE that you have fixed the main storage problem but had 2 problems on the machine.

When you are getting a ***DIFFERENT*** reference code and FRU list, you have a ***NEW*** failure.

You must correct this ***FAILURE*** as a ***NEW*** problem.

USE ONLY the ***NEW*** reference code and FRU list and

GO TO ENTRY POINT A of the MAP indicated.

011

This swap resulted in errors.

Using the POWER DOWN/POWER UP procedure described above:

Return the cards to their original position.

The problem cannot be temporarily solved by swapping Main Storage cards.

You 'MUST' get replacement cards to fix the problem.

When replacement cards are available, use the original PUMA FRU list

Go To Map 5040, Entry Point A.

012

Use the reference code, extension, FRU list and TEST ID recorded on the paper pad.

Go To Map 5040, Entry Point A.

013

****

(Entry Point B)

****

The problem cannot be recreated by the diagnostics.

You must decide on the best way to handle the problem based on the system and FRU availability.

Do you want to replace FRUs?
Y N

014

Set the CE MODE switch to NORMAL and return the system to the customer.

Make an entry in the CE LOG SCREEN.

Go To Map 0001, Entry Point A.

015

Before replacing FRU(s) check the CE LOG SCREEN for an entry that is similar to this failure.

See the Console Functions section in the Maintenance Information Manual, under Saved Screens, on how to display the CE LOG SCREEN function.

OR do the following

(Step 015 continues)

(Step 015 continued)

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Ensure that the Functional Disk is installed

2. Operate the MODE SEL key.
   The General Selection screen appears.

3. Key in QEWT and press the ENTER key.
   The CE LOG SCREEN will appear.

Are there any other 4x reference codes listed?
Y N

016

In your original FRU list, the underlined (INTENSIFIED) FRUs are Main Storage cards.

These FRUs are all of equal probability of causing th failure.

Use the following procedure to determine which of the Main Storage cards most probably caused the failure.

Install Diagnostic Disk DIAG4.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

(Step 016 continues)

(Step 016 continued)

2. Key in B and press the ENTER key.
   The system responds with ENTER TEST ID(S).

3. Key in TK4011B2 and press the ENTER key.
   Run time is variable (maximum 20 minutes).

Shown on the screen is a display of Main Storage showing the total number of single bit errors sensed per Main Storage card on the given address boundaries. The totals are in Hexadecimal.

Identify an underlined (INTENSIFIED) card in your FRU list which contains the largest count of single bit errors, and circle that FRU.

When the Array cards have an equal error count circle the ***FIRST*** card.

This is the ***ONLY*** card you will replace to attempt to correct this ***INTERMITTENT*** failure.

Go To Map 5040, Entry Point Q.

017

Are the '4x' reference codes, you are working with, the same?

Y N

H J

018

If different 4x reference codes have been logged in the CE log area, the problem is probably ***NOT*** the Array cards.

To reorder the FRU list, move the first two FRUs listed (Array cards) to the position immediately preceeding the A1G card.

This is your new FRU list that will be used for FRU replacement.

Check the CE LOG SCREEN to determine which FRUs, if any, were replaced and circle the next FRU.

This is the FRU that you will replace

Go To Map 5040, Entry Point Q.

019

Check the CE LOG SCREEN to determine which FRUs, if any, were replaced and circle the next FRU.

This is the FRU that you will replace.

Go To Map 5040, Entry Point Q.

MAIN STORAGE

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
XXXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	006	EC00	A
8	027	EC00	A
8	030	EC00	A
9	036	XXXX	A
9	035	XXXX	A
7	024	0000	A
8	032	0000	A
3	008	0001	A
8	031	0001	A
9	033	0001	A
5	013	5040	A
5	015	5040	A
5	018	5040	A
9	034	5040	A
5	020	5040	A
6	022	5040	A
10	043	5040	A
10	042	5040	A
4	009	5040	W

001
(Entry Point A)

Write all reference codes, FRU lists and diagnostic TEST IDs on a paper pad for use throughout the MAP.

Did you get the reference code by running diagnostics at the direction of a different MAP ?

Y N

9 2
A B

The ***PURPOSE*** of this MAP is to isolate Main Storage errors to the smallest number of FRUs, and to verify the repair.

USE this Map ONLY for 46xxxxxx reference codes.

002

Write the FRU list associated with the reference code on the paper pad.

The diagnostics on DIAG1 determine if there are any scan-ring, clock, trap or C-reg distribution problems on the system.

Use the following procedure to attempt to recreate the failure.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG1 and operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

4 When the system responds with ENTER TEST NAME(S) key in D001-D2FF and operate the ENTER key

5. Run time is about 10 min Normal end is indicated by a SELECTED TEST(S) XXXX-XXXX PROCESSED message

Is a reference code displayed on the screen?

Y N

9 C D

003

The following procedure will test the ECC circuits for failures.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG3 and operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

4 When the system responds with ENTER TEST NAME(S) key in D970-D983 and operate the ENTER key

5. Run time is about 2 min Normal end is indicated by a SELECTED TEST(S) XXXX-XXXX PROCESSED message

Is a reference code displayed on the screen?

Y N

9 E 3 F

004

The Main Storage diagnostics reside on DIAG4.

Use the following procedure to attempt to recreate the Main Storage failure.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG4 and operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

4 When the system responds with ENTER TEST NAME(S) key in TKBSMT00 and operate the ENTER key

5. Run time is variable. (maximum 20 minutes). Normal end is indicated by a MSMD ENDED message.

Is a reference code displayed on the screen?
Y N

005
Was the END OF MSMD TEST(S) message displayed on the screen after 20 min ?
Y N

4
G H J

H J SEQ460C MAP 4600-3

006

You may be having problems with the SP (Support Processing unit).

Go To Map EC00, Entry Point A.

007

The problem cannot be recreated by the diagnostics.

You must decide on the best way to handle the problem based on the system and FRU availability

If you decide to replace FRUs, use the original reference code and associated FRU list.

Do you want to replace FRUs?
Y N

008

Set the CE switch to NORMAL and return the system to the customer.

Go To Map 0001, Entry Point A.

009

In your original FRU list, the first two cards are Main Storage cards. These two FRUs are not listed in order of probability of causing the error

Use the following procedure to determine which of the two Main Storage cards most probably caused the problem.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install the Functional Disk and operate the MODE SEL key

2. When the General Selection screen appears, key in QECD and operate

(Step 009 continues)

(Step 009 continued)
the ENTER key

3. In the REF CODE column, find the latest reference code with a UU field (UUrrrris) of '46'.

4. Find the failing address to the right of this reference code, in the column STORAGE ERROR, and copy this address on the paper pad.

5. Install the Diagnostic Disk DIAG4 and operate the MODE SEL key

6. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

7. When the Diagnostics Mode screen appears, key in 8 and operate the ENTER key

8. When the system responds with ENTER TEST NAME(S) key in TK4011B2 and operate the ENTER key

9. Run time is variable, (maximum 20 minutes).

Shown on the screen is a display of Main Storage showing the total number of single bit errors sensed per Main Storage card on four meg address boundaries.

The totals are in Hexadecimal.

Use the failing address that was copied from the QECD screen earlier in this MAP. Under the column heading ADDRESS, find the range of addresses in which the
(Step 009 continues)

G 3

(Step 009 continued)
failing address is included

To the right of the address column are four totals. These are the total number of single bit errors per each Main Storage card in this four meg address boundary.

The Main Storage card location is shown above its single bit error total.

Rearrange your original Fru list so that the Main Storage card with the largest number of single bit errors is first, in the FOUR MEG BOUNDARY in QUESTION. The other Main Storage card should follow second, followed by the remaining cards in the order they appear in the original Fru list.

If all totals are equal, or if all are zero, use the original Fru list to replace parts.

Go To Map 5040, Entry Point W.

010
(Entry Point E)

Is the 'I' field (uurrrrIs) of your reference code '9' ?
Y N

011
Is the 'UU' field (UUrrrris) of your reference code a '46'?
Y N

012
You have a secondary problem and will have to correct it before you can continue. Go to Map 0000 Entry Point A.

When you have corrected the secondary problem return to this map with the original reference code and FRU list.

5 5
K L

013
Write the reference code, extension, TEST-ID, DIAG. EC number, and copy ONLY the following FRUs:

B1U, B1S, B1T

from the FRU list on the paper pad.

Ignore any earlier reference code and FRU list and use the new reference code and FRU list to replace the FRUS.

Go To Map 5040, Entry Point A.

014
Is the **FIRST FRU in your FRU list FROM**

'C1D thru C1U'?

Y N

015
Write the new reference code, extension, FRU list, DIAG. EC number, and TEST ID on the paper pad.

Go To Map 5040, Entry Point A.

016
Do you have replacement Main Storage cards?
Y N

017
Is your **NEW reference code FROM**

'46119098 thru 46119798'?

Y N

9
M N P

018
The problem can not be temporarily solved by swapping Main Storage cards.

You MUST get replacement cards to fix the problem.

Write the new reference code, extension, FRU list, DIAG. EC number, and TEST ID on the paper pad.

Go To Map 5040, Entry Point A.

019
Is the last digit of your extension field (uurrrris)(xxxxxxxX) a '1'?
Y N

020
The problem can not be temporarily solved by swapping Main Storage cards.

You MUST get replacement cards to fix the problem.

Write the new reference code, extension, FRU list, DIAG. EC number, and TEST ID on the paper pad.

Go To Map 5040, Entry Point A.

021
You have reach at this point because you have a double bit error in the BSM spread across two Main Storage cards, AND YOU HAVE NO REPLACEMENT CARDS.

You must decide if a repair action should be taken temporarily, based on the customer need, and the waiting time for replacement cards.

Write the reference code and FRU list on scrap paper.

Ignore any earlier reference code and FRU list and use the new reference code and FRU list to replace the FRUS.

Is a temporary repair action ABSOLUTELY necessary?
Y N

6 6
Q R

022

When the cards are obtained, use the reference code and FRU list written on the paper pad and complete the repair action.

Go To Map 5040, Entry Point A.

023

The following card swapping procedure is intended as a TEMPORARY solution to the problem.

A REPLACEMENT ARRAY CARD MUST BE USED WHEN IT IS AVAILABLE.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG4 and operate the MODE SEL key

2. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

3. When the system responds with ENTER TEST NAME(S) key in TK4011B2 and operate the ENTER key

4. Run time is variable. (maximum 20 minutes).

Shown on the screen is a display of Main Storage showing the total number of single bit errors sensed per Main Storage card on four meg address boundaries. The totals are in Hexadecimal.

Find the address range pertaining to the first card in your FRU list.

Identify the card with the largest single bit error total
(Step 023 continues)

(Step 023 continued)
appearing in the same address range (excluding the first card in your FRU list).

This is the card which will be moved in any swapping attempt.

THE FIRST CARD IN THE FRU LIST SHOULD NOT BE MOVED. DOING SO MAY CAUSE OTHER ERRORS.

Look through the totals pertaining to the Main Storage cards in other address ranges.

You are looking for a card, that if swapped with the card you just identified, will not cause large numbers of single bit errors on separate cards to be aligned in the same four meg address boundary.

Use the following POWER DOWN/POWER UP procedure for swapping cards.

CAUTION

DAMAGE WILL RESULT IF CARDS ARE REMOVED AND/OR INSTALLED WITH POWER ON.

To remove power from the IPU

1. Operate the MODE SEL key.

2. When the General Selection screen appears key in QMW and operate the ENTER key.

3. When the PARTIAL POWER UP AND DOWN screen appears key in 01 01 and operate the ENTER key.

When power does not go down GO TO MAP 0238, ENTRY POINT A.

Before swapping a card, ensure that there are no bent pins on the cards being swapped.

Use the card replacement procedure in the Maintenance Information manual and swap the the correct cards.
(Step 023 continues)

(Step 023 continued)

To bring up power to the IPU.

1. Operate the MODE SEL key.

2. When the General Selection screen appears key in QMW and operate the ENTER key.

3. When the PARTIAL POWER UP AND DOWN screen appears, key in 00 01 and operate the ENTER key (Power on takes about 30 seconds)

4. When the system responds with ACTION DONE,operate the MODE SEL key.

Does the System respond with a ACTION DONE message on the screen?
Y N

024
Operate the POWER OFF key and try the POWER ON/IML again.

If ACTION DONE cannot be obtained you may have a power problem.

When the power problem is resolved you will have to return to this map to resolve the original problem.

To resolve the power problem

Go To Map 0000, Entry Point A.

S

S SEQ460C MAP 4600-7

025
To verify the temporary card swap fix run the Main Storage portion of the MSMDS diagnostics, using the following procedure.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

4. When the system responds with ENTER TEST NAME(S), key in TKBSMT00 and operate the ENTER key

5. Run time is about 20 min. Normal end is indicated by an END OF MSMDs message

Is a reference code displayed on the screen?
Y N

026
Was the END OF MSMD TEST(S) message displayed on the screen after 20 min ?
Y N

9 8 8
T U V

027

You may be having problems with the SP (Support Processing unit).

Go To Map EC00, Entry Point A.

028

Run all MSMDs to verify system integrity.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG4 and operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in G and operate the ENTER key

4. Run time is about 25 min. Normal end is indicated by an END OF MSMDs message

Is a reference code displayed on the screen?

Y N

029

Was the END OF MSMD TEST(S) message displayed on the screen after 25 minutes?

Y N

W X Y

W X Y SEQ460C MAP 4600-8

030

You may be having problems with the SP (Support Processing unit).

Go To Map EC00, Entry Point A.

031

You have corrected the problem and verified the System integrity.

Set the CE switch to NORMAL.

Go To Map 0001, Entry Point A.

032

It is possible that you have fixed the original problem but you have made a new one.

On any card that you may have removed inspect the top card connectors for bent, broken or dirty pins.

Replace or repair the suspected card or top card connector.

Check that any top card connectors that you removed are seated and installed correctly (arrow pointing up)

When you are getting a different reference code and FRU list, you have a new failure.

You will have to correct this failure as a new problem.

Go To Map 0000, Entry Point A.

033

If this swap resulted in errors, return the cards to their original position before attempting another swap. Use the POWER DOWN/POWER UP procedure described above.

After a swap has been completed, make a note of the location of the first card in your FRU list.

THIS CARD SHOULD BE REPLACED WHEN A NEW CARD BECOMES AVAILABLE.

Go To Map 0001, Entry Point A.

034

Write the new reference code, extension, FRU list, DIAG. EC number, and TEST ID on the paper pad.

Go To Map 5040, Entry Point A.

035

Write the new reference code, extension, FRU list, DIAG. EC number, and TEST ID on the paper pad.

Go to the Map=XXXX displayed on the screen, or to Map 5040 if no Map=XXXX is displayed, for FRU replacement procedure.

Go To Map XXXX, Entry Point A.

036

Write the new reference code, extension, FRU list, DIAG. EC number, and TEST ID on the paper pad.

Go to the Map=XXXX displayed on the screen, or to Map 5040 if no Map=XXXX is displayed, for FRU replacement procedure.

Go To Map XXXX, Entry Point A.

037

Did you come here from MAP 'ED00' ?

Y N

038

Go to Page 4, Step 010, Entry Point E.

039

The diagnostics on DIAG1 determine if there are any scan-ring, clock, trap or C-reg distribution problems on the system.

Use the following procedure to attempt to isolate the failure.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG1 and operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

4 When the system responds with 'ENTER TEST NAME(S)' key in D001-D2FF and operate the ENTER key

5. Run time is about 10 min. Normal end is indicated by a 'SELECTED TEST(S) XXXX-XXXX PROCESSED' message

(Step 039 continues)

(Step 039 continued)

Is a reference code displayed on the screen?
Y N

040
The following procedure will test the ECC circuits for failures.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG3 and operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

4 When the system responds with 'ENTER TEST NAME(S)' key in D970-D983 and operate the ENTER key

5. Run time is about 2 min. Normal end is indicated by a 'SELECTED TEST(S) XXXX-XXXX PROCESSED' message

Is a reference code displayed on the screen ?
Y N

041
Go to Page 4, Step 010, Entry Point E.

Z A A

Z A A

042
Write the reference code, extension, TEST-ID, DIAG. EC number, and FRU list on paper pad.

You now have three FRU lists. Scratch out and ignore the first one.

Go To Map 5040, Entry Point A.

043
Write the reference code, extension, TEST-ID, DIAG. EC number, and FRU list on paper pad.

You now have three FRU lists. Scratch out and discard the first one.

Go To Map 5040, Entry Point A.

MAIN STORAGE

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
XXXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	006	EC00	A
8	027	EC00	A
8	030	EC00	A
9	036	XXXX	A
9	035	XXXX	A
7	024	0000	A
8	032	0000	A
3	008	0001	A
8	031	0001	A
9	033	0001	A
5	013	5040	A
5	015	5040	A
5	018	5040	A
9	034	5040	A
5	020	5040	A
6	022	5040	A
10	043	5040	A
10	042	5040	A
4	009	5040	W

001
(Entry Point A)

Write all reference codes, FRU lists and diagnostic TEST IDs on a paper pad for use throughout the MAP.

Did you get the reference code by running diagnostics at the direction of a different MAP ?

Y N

9 2
A B

The ***PURPOSE*** of this MAP is to isolate Main Storage errors to the smallest number of FRUs, and to verify the repair.

USE this Map ONLY for 48xxxxxx reference codes.

002

Write the FRU list associated with the reference code on the paper pad.

The diagnostics on DIAG1 determine if there are any scan-ring, clock, trap or C-reg distribution problems on the system.

Use the following procedure to attempt to recreate the failure.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG1 and operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

4 When the system responds with ENTER TEST NAME(S) key in D001-D2FF and operate the ENTER key

5. Run time is about 10 min Normal end is indicated by a SELECTED TEST(S) XXXX-XXXX PROCESSED message

Is a reference code displayed on the screen?

Y N

9 C D

003

The following procedure will test the ECC circuits for failures.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG3 and operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

4 When the system responds with ENTER TEST NAME(S) key in D970-D983 and operate the ENTER key

5. Run time is about 2 min Normal end is indicated by a SELECTED TEST(S) XXXX-XXXX PROCESSED message

Is a reference code displayed on the screen?

Y N

9 E 3 F

004

The Main Storage diagnostics reside on DIAG4.

Use the following procedure to attempt to recreate the Main Storage failure.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG4 and operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

4 When the system responds with ENTER TEST NAME(S) key in TKBSMT00 and operate the ENTER key

5. Run time is variable. (maximum 15 minutes). Normal end is indicated by a MSMD ENDED message.

Is a reference code displayed on the screen?

Y N

005

Was the END OF MSMD TEST(S) message displayed on the screen after 15 min ?

Y N

4
G H J

H J SEQ480C MAP 4800-3

006

You may be having problems with the SP (Support Processing unit).

Go To Map EC00, Entry Point A.

007

The problem cannot be recreated by the diagnostics.

You must decide on the best way to handle the problem based on the system and FRU availability

If you decide to replace FRUs, use the original reference code and associated FRU list.

Do you want to replace FRUs?

Y N

008

Set the CE switch to NORMAL and return the system to the customer.

Go To Map 0001, Entry Point A.

009

In your original FRU list, the first two cards are Main Storage cards. These two FRUs are not listed in order of probability of causing the error

Use the following procedure to determine which of the two Main Storage cards most probably caused the problem.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install the Functional Disk and operate the MODE SEL key

2. When the General Selection screen appears, key in QECD and operate

(Step 009 continues)

(Step 009 continued)
the ENTER key

3. In the REF CODE column, find the latest reference code with a UU field (UUrrrris) of '48'.

4. Find the failing address to the right of this reference code, in the column STORAGE ERROR, and copy this address on the paper pad.

5. Install the Diagnostic Disk DIAG4 and operate the MODE SEL key

6. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

7. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

8. When the system responds with ENTER TEST NAME(S) key in TK4011B2 and operate the ENTER key

9. Run time is variable, (maximum 15 minutes).

Shown on the screen is a display of Main Storage showing the total number of single bit errors sensed per Main Storage card on two meg address boundaries.

The totals are in Hexadecimal.

Use the failing address that was copied from the QECD screen earlier in this MAP. Under the column heading ADDRESS, find the range of addresses in which the
(Step 009 continues)

(Step 009 continued)
failing address is included

To the right of the address column are four totals. These are the total number of single bit errors per each Main Storage card in this two meg address boundary.

The Main Storage card location is shown above its single bit error total.

Rearrange your original Fru list so that the Main Storage card with the largest number of single bit errors is first, in the TWO MEG BOUNDARY in QUESTION. The other Main Storage card should follow second, followed by the remaining cards in the order they appear in the original Fru list.

If all totals are equal, or if all are zero, use the original Fru list to replace parts.

Go To Map 5040, Entry Point W.

010
(Entry Point E)

Is the 'I' field (uurrrrIs) of your reference code '9' ?
Y N

011
Is the 'UU' field (UUrrrris) of your reference code a '48'?
Y N

012
You have a secondary problem and will have to correct it before you can continue. Go to Map 0000 Entry Point A.

When you have corrected the secondary problem return to this map with the original reference code and FRU list.

013

Write the reference code, extension, TEST-ID, DIAG. EC number, and copy ONLY the following FRUs:

B1U, B1S, B1T

from the FRU list on the paper pad.

Ignore any earlier reference code and FRU list and use the new reference code and FRU list to replace the FRUS.

Go To Map 5040, Entry Point A.

014

Is the **FIRST FRU in your FRU list FROM**

'C1D thru C1U'?

Y N

015

Write the new reference code, extension, FRU list, DIAG. EC number, and TEST ID on the paper pad.

Go To Map 5040, Entry Point A.

016

Do you have replacement Main Storage cards?

Y N

017

Is your **NEW reference code FROM**

'48118098 thru 48118798'?

Y N

9 M N P

018

The problem can not be temporarily solved by swapping Main Storage cards.

You MUST get replacement cards to fix the problem.

Write the new reference code, extension, FRU list, DIAG. EC number, and TEST ID on the paper pad.

Go To Map 5040, Entry Point A.

019

Is the last digit of your extension field (uurrrris)(xxxxxxxX) a '1'?

Y N

020

The problem can not be temporarily solved by swapping Main Storage cards.

You MUST get replacement cards to fix the problem.

Write the new reference code, extension, FRU list, DIAG. EC number, and TEST ID on the paper pad.

Go To Map 5040, Entry Point A.

021

You have reach at this point because you have a double bit error in the BSM spread across two Main Storage cards, AND YOU HAVE NO REPLACEMENT CARDS.

You must decide if a repair action should be taken temporarily, based on the customer need, and the waiting time for replacement cards.

Write the reference code and FRU list on scrap paper.

Ignore any earlier reference code and FRU list and use the new reference code and FRU list to replace the FRUS.

Is a temporary repair action ABSOLUTELY necessary?

Y N

6 6 Q R

022

When the cards are obtained, use the reference code and FRU list written on the paper pad and complete the repair action.

Go To Map 5040, Entry Point A.

023

The following card swapping procedure is intended as a TEMPORARY solution to the problem.

A REPLACEMENT ARRAY CARD MUST BE USED WHEN IT IS AVAILABLE.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG4 and operate the MODE SEL key

2. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

3. When the system responds with ENTER TEST NAME(S) key in TK4011B2 and operate the ENTER key

4. Run time is variable. (maximum 15 minutes).

Shown on the screen is a display of Main Storage showing the total number of single bit errors sensed per Main Storage card on two meg address boundaries. The totals are in Hexadecimal.

Find the address range pertaining to the first card in your FRU list.

Identify the card with the largest single bit error total
(Step 023 continues)

(Step 023 continued)
appearing in the same address range (excluding the first card in your FRU list).

This is the card which will be moved in any swapping attempt.

THE FIRST CARD IN THE FRU LIST SHOULD NOT BE MOVED. DOING SO MAY CAUSE OTHER ERRORS.

Look through the totals pertaining to the Main Storage cards in other address ranges.

You are looking for a card, that if swapped with the card you just identified, will not cause large numbers of single bit errors on separate cards to be aligned in the same two meg address boundary.

Use the following POWER DOWN/POWER UP procedure for swapping cards.

CAUTION

DAMAGE WILL RESULT IF CARDS ARE REMOVED AND/OR INSTALLED WITH POWER ON.

To remove power from the IPU

1. Operate the MODE SEL key.

2. When the General Selection screen appears key in QMW and operate the ENTER key.

3. When the PARTIAL POWER UP AND DOWN screen appears key in 01 01 and operate the ENTER key.

When power does not go down GO TO MAP 0238, ENTRY POINT A.

Before swapping a card, ensure that there are no bent pins on the cards being swapped.

Use the card replacement procedure in the Maintenance Information manual and swap the the correct cards.
(Step 023 continues)

(Step 023 continued)

To bring up power to the IPU.

1. Operate the MODE SEL key.

2. When the General Selection screen appears key in QMW and operate the ENTER key.

3. When the PARTIAL POWER UP AND DOWN screen appears, key in 00 01 and operate the ENTER key (Power on takes about 30 seconds)

4. When the system responds with ACTION DONE,operate the MODE SEL key.

Does the System respond with a ACTION DONE message on the screen?
Y N

024
Operate the POWER OFF key and try the POWER ON/IML again.

If ACTION DONE cannot be obtained you may have a power problem.

When the power problem is resolved you will have to return to this map to resolve the original problem.

To resolve the power problem

Go To Map 0000, Entry Point A.

S

S SEQ480C MAP 4800-7

025
To verify the temporary card swap fix run the Main Storage portion of the MSMDS diagnostics, using the following procedure.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

4. When the system responds with ENTER TEST NAME(S), key in TKBSMT00 and operate the ENTER key

5. Run time is about 15 min. Normal end is indicated by an END OF MSMDs message

Is a reference code displayed on the screen?
Y N

026
Was the END OF MSMD TEST(S) message displayed on the screen after 15 min ?
Y N

9 8 8
T U V

027

You may be having problems with the SP (Support Processing unit).

Go To Map EC00, Entry Point A.

028

Run all MSMDs to verify system integrity.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG4 and operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in G and operate the ENTER key

4. Run time is about 20 min. Normal end is indicated by an END OF MSMDs message

Is a reference code displayed on the screen?

Y N

029

Was the END OF MSMD TEST(S) message displayed on the screen after 20 minutes?

Y N

W X Y

W X Y SEQ480C MAP 4800-8

030

You may be having problems with the SP (Support Processing unit).

Go To Map EC00, Entry Point A.

031

You have corrected the problem and verified the System integrity.

Set the CE switch to NORMAL.

Go To Map 0001, Entry Point A.

032

It is possible that you have fixed the original problem but you have made a new one.

On any card that you may have removed inspect the top card connectors for bent, broken or dirty pins.

Replace or repair the suspected card or top card connector.

Check that any top card connectors that you removed are seated and installed correctly (arrow pointing up)

When you are getting a different reference code and FRU list, you have a new failure.

You will have to correct this failure as a new problem.

Go To Map 0000, Entry Point A.

033

If this swap resulted in errors, return the cards to their original position before attempting another swap. Use the POWER DOWN/POWER UP procedure described above.

After a swap has been completed, make a note of the location of the first card in your FRU list.

THIS CARD SHOULD BE REPLACED WHEN A NEW CARD BECOMES AVAILABLE.

Go To Map 0001, Entry Point A.

034

Write the new reference code, extension, FRU list, DIAG. EC number, and TEST ID on the paper pad.

Go To Map 5040, Entry Point A.

035

Write the new reference code, extension, FRU list, DIAG. EC number, and TEST ID on the paper pad.

Go to the Map=XXXX displayed on the screen, or to Map 5040 if no Map=XXXX is displayed, for FRU replacement procedure.

Go To Map XXXX, Entry Point A.

036

Write the new reference code, extension, FRU list, DIAG. EC number, and TEST ID on the paper pad.

Go to the Map=XXXX displayed on the screen, or to Map 5040 if no Map=XXXX is displayed, for FRU replacement procedure.

Go To Map XXXX, Entry Point A.

037

Did you come here from MAP 'ED00' ?

Y N

038

Go to Page 4, Step 010, Entry Point E.

039

The diagnostics on DIAG1 determine if there are any scan-ring, clock, trap or C-reg distribution problems on the system.

Use the following procedure to attempt to isolate the failure.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG1 and operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

4 When the system responds with 'ENTER TEST NAME(S)' key in D001-D2FF and operate the ENTER key

5. Run time is about 10 min. Normal end is indicated by a 'SELECTED TEST(S) XXXX-XXXX PROCESSED' message

(Step 039 continues)

(Step 039 continued)

Is a reference code displayed on the screen?
Y N

040
The following procedure will test the ECC circuits for failures.

MSS failures may cause problems in executing the following procedure.

If any of the following steps fail to generate the described results, GO TO MAP EC00 ENTRY POINT A.

1. Install Diagnostic Disk DIAG3 and operate the MODE SEL key

2. When the General Selection screen appears, press and hold the ALT key and operate the MODE SEL key

3. When the Diagnostics Mode screen appears, key in B and operate the ENTER key

4 When the system responds with 'ENTER TEST NAME(S)' key in D970-D983 and operate the ENTER key

5. Run time is about 2 min. Normal end is indicated by a 'SELECTED TEST(S) XXXX-XXXX PROCESSED' message

Is a reference code displayed on the screen ?
Y N

041
Go to Page 4, Step 010, Entry Point E.

Z A
A

Z A
A

042
Write the reference code, extension, TEST-ID, DIAG. EC number, and FRU list on paper pad.

You now have three FRU lists. Scratch out and ignore the first one.

Go To Map 5040, Entry Point A.

043
Write the reference code, extension, TEST-ID, DIAG. EC number, and FRU list on paper pad.

You now have three FRU lists. Scratch out and discard the first one.

Go To Map 5040, Entry Point A.

MAP CODE 5010FXXX FIX 0001

SCAN STRING ISOLATION

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
PUMA	A	1	001
PUMA	B	4	013
XXXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	006	0001	A
3	007	0001	A
4	012	0001	A

001
****

(Entry Point A)

****

The ***PURPOSE*** of this MAP is to isolate processing unit Scan Ring problems by using the POWER ON sequencing.

Write all reference codes, extensions, FRU lists and diagnostic TEST IDs on a paper pad for use throughout the Map.

Ensure that the FUNCTIONAL disk is installed.

Ensure that the LOCAL/REMOTE switches on all Channel Control Units are in the LOCAL position.

Ensure that the CE MODE switch is NORMAL.

Have you been directed here by PUMA with an ***INTERMITTENT* failure?**

Y N

4 2
A B

MODEL GROUP 2

002

****

(Entry Point Q)

****

CAUTION

DAMAGE WILL RESULT IF CARDS ARE REMOVED AND/OR INSTALLED WITH POWER ON.

Use the following procedures to POWER DOWN/POWER UP the system.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Operate the POWER OFF key.
   The POWER IN PROCESS indicator will turn OFF within 30 seconds.

Replace FRUs in priority sequence from left to right in your list.

Circle the FRU(s) in the FRU list that you are going to replace. Unless otherwise specified, replace only ***ONE*** FRU at a time.

THE LAST FRU REPLACED (IF ANY) MUST BE REMOVED AND THE ORIGINAL FRU REINSTALLED BEFORE REPLACING THE NEXT FRU.

Before exchanging a card, ensure that there are no bent, broken or dirty pins on the top card connectors or the card being replaced.

Replace or repair the failing top card connector or card.

When reinstalling the top card connector arrow must be pointing UP.

(Step 002 continues)

(Step 002 continued)

For card replacement procedure, see LSI Logic Card in the REMOVAL/REPLACEMENT section of the Maintenance Information Manual.

1. Operate the POWER ON/IML key.
   The POWER COMPLETE indicator, on the OCP, turned on within 45 seconds.

The ***EXPECTED FAILURE*** is a reference code with an 'IS' field (uurrrrIS) of '2E' OR a reference code of 11D230xE.

DO you have a reference code?

Y N

003

You have had a correct power up sequence after a problem FRU replacement.

Did you replace A1K or A1H or A1J?

Y N

004

****

(Entry Point C)

****

Install Diagnostic Disk DIAG4.

Set the CE MODE switch ON.

Run all MSMDs to verify system integrity.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

(Step 004 continues)

(Step 004 continued)

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

2. Key in G and press the ENTER key.
   Run time is about 7 minutes.
   Normal end is indicated by an END OF MSMDs message.
   A reference code with a 'UU' field (UUrrrris) of '4x', '5x', '6x', or 'Ex' is the failure indication.

Is a reference code displayed on the screen?
Y N

005
Are you replacing FRU(s) for a ***INTERMITTENT* problem?**
Y N

006
You have replaced FRU(s) for a problem where you were able to ***RECREATE*** the problem with the POWER UP/POWER DOWN sequence.

You have corrected the problem and verified the System integrity.

Follow Branch Office procedures for returning the defective FRU(s).

Go To Map 0001, Entry Point A.

E F

E F

007
You have replaced one FRU for an ***INTERMITTENT*** problem.

The FRU replacement may not fix the problem.

You must wait for the next failure that gives a similar type of reference code and FRU list to continue with the ***INTERMITTENT*** failure resolution.

You must record this repair action in the CE LOG SCREEN.

Go To Map 0001, Entry Point A.

008
You have a failure during the System integrity testing after FRU replacement.

Check that the top card connectors on the card you replaced are seated and installed correctly (arrow pointing up)

When the same FRU is indicated in the new FRU list, you may have a bad card from supplies or a wrong part number.

Try exchanging the same FRU, using the above POWER OFF/ON and card replacement procedures and then run the MSMDs again.

When you are getting a ***DIFFERENT*** reference code and FRU list, you have a ***NEW*** failure.

You must correct this ***FAILURE*** as a ***NEW*** problem.

USE ONLY the ***NEW*** reference code and FRU list and

GO TO ENTRY POINT A of the MAP indicated.

009

RUN TIMING VERIFICATION DIAGNOSTIC

NOTE: A complete description of the Timing Verification Test is contained in the Adjustments section of the Maintenance Information Manual under the CLOCK ADJUSTMENTS PROCEDURE.

1. Install DIAG 4 disk.
2. Ensure that the CE MODE switch is ON.
3. Press and hold the ALT key, and press the MODE SEL key.

   DIAGNOSTIC MODE SELECTION SCREEN appears.
4. Press the ENTER key to select PUMA.
5. When system responds with ENTER REFERENCE CODE (or 'TVT'), key in TVT and press the ENTER key.
6. Follow the instructions displayed on the screen

NOTE: If a failure occurs follow displayed instructions or go to ENTRY POINT A of the indicated MAP.

010

Have all the FRUs been exchanged?

Y N

011

The FRU you exchanged did not fix the problem. You will have to continue with the FRU replacement procedures using the next FRU in the FRU replacement list.

Go to Page 2, Step 002, Entry Point Q.

012

You have reached a point where you have one or more of the following conditions.

1. A possible bad card from supplies is causing the same or similar problem.
2. If possible try exchanging the same FRU(s).
3. You have a board or cable problem.

You are at a point where ***ADDITIONAL*** aid is needed .

Go To Map 0001, Entry Point A.

013

****

(Entry Point B)

****

The problem can not be recreated by the diagnostics.

The FRU(s) that are 'INTENSIFIED' by CAP or PUMA have a probability of 80% or more of fixing the failure.

Before replacing FRU(s) check the CE LOG SCREEN for an entry that is similar to this failure.

See the Console Functions section in the Maintenance Information Manual, under Saved Screens, on how to display the CE LOG SCREEN function.

OR do the following

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Ensure that the CE MODE switch is set to ON.
2. Ensure that the Functional Disk is installed.
3. Operate the MODE SEL key.

(Step 013 continues)

(Step 013 continued)
The General Selection screen appears.

4. Key in QEWT and press the ENTER key.
The CE LOG SCREEN will appear.

Are there any previous incidents with similar FRUs listed?
Y N

014

Depending on the customer situation and parts availability replace the 'INTENSIFIED' FRU(s) from the FRU list you are working with.

When 'NO' FRU(s) are 'INTENSIFIED', replace ***ONLY*** the ***FIRST*** FRU.

Circle those FRUs in the list that you are going to replace.

Ensure that the CE MODE switch is in NORMAL.

Ensure that the LOCAL/REMOTE switches on all Channel Control Units are in the LOCAL position.

Go to Page 2, Step 002, Entry Point Q.

015

It is recommended that you invoke your support structure for this intermittent failure.

While waiting for your support structure assistance you can continue with the replacement of FRU(s) from the FRU list, in the CE LOG SCREEN that 'HAVE NOT' been replaced on the previous repair action.

Circle those FRU(s) in the list that you are going to replace.

Ensure that the CE MODE switch is in NORMAL.

Ensure that the LOCAL/REMOTE switches on all Channel Control Units are in the LOCAL position.

Go to Page 2, Step 002, Entry Point Q.

MAP CODE 5011FXXX FIX 0000

SCAN STRING VOLTAGE CHECK

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
PUMA	A	1	001
XXXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
1	002	1000	R
2	004	1000	R
2	005	5040	A

001

****

(Entry Point A)

****

The ***PURPOSE*** of this MAP is to check for a missing 5VDC on the A1 and B1 boards.

Disconnect the SMALL connector in the B1 board C4 position

Set the CE meter scale to measure about 5Vdc

Connect the CE meter to the disconnected cable as follows.

Positive meter lead ------- yellow wire.

Negative meter lead ------- black wire.

Does the meter indicate about 5Vdc ?
Y N

002

The missing 5 volts comes from 01A-A2-V2D2.

For reference use power ALD YA665.

Repair or exchange the cable.

Go To Map 1000, Entry Point R.

003

Reconnect the small connector you disconnected.

Disconnect the SMALL connector in the A1 board C4 position

Check the 5Vdc for the A1 board with the same procedure as used for the B1 board.

Does the meter indicate about 5Vdc ?

Y N

004

The missing 5 volts comes from 01A-A2-V2D3.

For reference use power ALD YA663.

Repair or exchange the cable.

Go To Map 1000, Entry Point R.

005

Reconnect the small connector you disconnected.

The two voltages (for the Scan Ring cards) that are not sensed on power up by sensors have now been checked and are correct.

Using the FRU list that was recorded before coming to this MAP.

Go To Map 5040, Entry Point A.

MAP CODE 5040FXXX FIX 0002

FRU REPLACEMENT

PAGE 1 OF 9

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
PUMA	A	1	001
PUMA	B	9	027
XXXX	A	1	001
4000	A	1	001
4000	Q	2	002
5011	A	1	001
5115	W	2	002
6500	A	1	001
6500	D	4	005
6500	W	2	002

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
5	014	0000	T
5	008	0001	A
5	009	0001	A
7	022	0001	A
7	024	0001	A
7	023	0001	A

001

****

(Entry Point A)

****

****
****
** REPLACE FRUS ONE AT A TIME **
** UNLESS OTHERWISE SPECIFIED **
****
****

The ***PURPOSE*** of this Map is to be a guide in the FRU replacement procedure.

Ensure that the LOCAL/REMOTE switches on all Channel Control Units are in the LOCAL position.

Have you been directed here by PUMA with an ***INTERMITTENT* failure?**

Y N

9 2
A B

MODEL GROUP 2

002
****

(Entry Point W)

****

Always replace FRUs in priority sequence from left to right in your list.

Circle the FRU(s) in the FRU list that you are going to replace. Unless otherwise specified, replace only ***ONE*** FRU at a time.

****

(Entry Point Q)

****

Is the FRU (or the last one replaced) located on the A2 or B2 board?

Y N

8
C D

003

CAUTION

DAMAGE WILL RESULT IF CARDS ARE REMOVED AND/OR INSTALLED WITH POWER ON.

Use the following procedures to POWER DOWN/POWER UP the system.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

POWER DOWN PROCEDURE

REQUIRED ACTION	EXPECTED RESULTS
1. Press the MODE SEL key.	GENERAL SELECTION screen appears.
2. Key in QMW and press the ENTER key.	PARTIAL POWER UP AND DOWN screen appears.
3. Key in 01 01 and press the ENTER key.	The system responds with ACTION DONE within 30 seconds.

THE LAST FRU REPLACED (IF ANY) MUST BE REMOVED AND THE ORIGINAL FRU REINSTALLED BEFORE REPLACING THE NEXT FRU.

Before exchanging a card, ensure that there are no bent, broken or dirty pins on the top card connectors or the card being replaced.

Replace or repair the failing top card connector or card.

When reinstalling the top card connector arrow must be pointing UP.

(Step 003 continues)

(Step 003 continued)

Replace the circled FRU(s).

For card replacement procedure, see LSI Logic Card in the REMOVAL/REPLACEMENT section of the Maintenance Information Manual.

POWER UP PROCEDURE

REQUIRED ACTION	EXPECTED RESULTS
1. Press the MODE SEL key.	GENERAL SELECTION screen appears.
2. Key in QMW and press the ENTER key.	PARTIAL POWER UP AND DOWN screen appears.
3. Key in 00 00 and press the ENTER key.	Power on takes about 30 seconds. The system responds with ACTION DONE.

****

(Entry Point F)

****

Was the FRU replaced because of an

*****INTERMITTENT*** failure OR**

*****P A REPAIR ACTION?*****

Y N

7
E F

F SEQ505F MAP 5040-3

004

To run the failing TEST ID or the CSLOAD or TEST GROUP that is ***RECORDED*** do the following.

If the following procedure does not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

SELECTED TEST PROCEDURE

REQUIRED ACTION	EXPECTED RESULTS
1. Press the MODE SEL key.	GENERAL SELECTION screen appears.
2. Press and hold ALT key, and press the MODE SEL key.	DIAGNOSTIC MODE SELECTION screen appears.
3. Key in B and press the ENTER key.	The system responds with ENTER TEST ID(S).
4. Key in the name of the FAILING TEST ID, CSLOAD, or TEST GROUP and press the ENTER key.	a. Normal end is indicated by a message. OR b. Reference code with a "UU" field (UUrrrris) 4x, 5x, 6x, or Ex is the failure indication.

Is a reference code displayed on the screen?

Y N

6 4
G H

005

You have had a good diagnostic run, after a problem FRU replacement.

Replace any channel terminators and cables to their original position, if they have been moved.

****

(Entry Point D)

****

Did you replace A1K or A1H or A1J?

Y N

6
J K

006

If the following procedure does not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

RUN PROCEDURE MSMDs

REQUIRED ACTION	EXPECTED RESULTS
1. Install Diagnostic disk DIAG4.	
2. Press the MODE SEL key.	GENERAL SELECTION screen appears.
3. Press and hold the ALT key and press the MODE SEL key.	DIAGNOSTIC MODE SELECTION screen appears.
4. Key in G and press the ENTER key.	a. Normal end is indicated by an END OF MSMDs message. OR b. Reference code with a "UU" field (UUrrrris) 4x, 5x, 6x, or Ex is the failure indication.

Is a reference code OR 'MSMD HANG' message displayed on the screen?

Y N

007

Are you replacing FRU(s) for a ***INTERMITTENT* problem?**

Y N

5 5 5
L M N

008

You have replaced FRU(s) for a problem where you were able to ***RECREATE*** the problem with the diagnostics.

You have corrected the problem and verified the System integrity.

Follow Branch Office procedures for returning the defective FRU(s).

Go To Map 0001, Entry Point A.

009

You have replaced one or more of the FRUs for an ***INTERMITTENT*** problem.

If this FRU replacement has not fixed the problem, you must wait for the next failure that gives a similar type of reference code and FRU list to continue with the ***INTERMITTENT*** failure resolution.

You must record this repair action in the CE LOG SCREEN.

Go To Map 0001, Entry Point A.

010

Is this a P A repair action?

Y N

011

You have a failure during the System integrity testing after FRU replacement.

Check that the top card connectors on the card you replaced are seated and installed correctly (arrow pointing up)

When the same FRU is indicated in the new FRU list, you may have a bad card from supplies or a wrong part number.

(Step 011 continues)

P

(Step 011 continued)

Try exchanging the same FRU, using the above POWER OFF/ON and card replacement procedures and then run the MSMDs again.

When you are getting a ***DIFFERENT*** reference code and FRU list, you have a ***NEW*** failure.

You must correct this ***FAILURE*** as a ***NEW*** problem.

USE ONLY the ***NEW*** reference code and FRU list and

GO TO ENTRY POINT A of the MAP indicated.

If no map is indicated

GO TO ENTRY POINT A of MAP EE00.

012

Have all FRUs been replaced?

Y N

013

The FRU you replaced did not fix the problem. You will have to continue with the FRU replacement procedures using the next FRU in the FRU replacement list you are working with.

Go to Page 2, Step 002, Entry Point W.

014

You have reached the point where the P A SEQUENCE HAS BEEN EXHAUSTED.

You must now run the full maintenance package before ordering more FRUs.

Use the original reference code recorded from the P A screen if available.

Go To Map 0000, Entry Point T.

015

Run Timing Verification Diagnostics.

NOTE: A complete description of the Timing Verification Test is contained in the Adjustments section of the Maintenance Information Manual under the CLOCK ADJUSTMENT PROCEDURE.

TIMING VERIFICATION TEST RUN PROCEDURE

REQUIRED ACTION	EXPECTED RESULTS
1. Install Diag4 disk.	
2. Ensure that the CE MODE switch is ON.	
3. Press and hold the ALT key and press the MODE SEL key.	DIAGNOSTIC MODE SELECTION screen appears.
4. Press the ENTER key.	The system responds with ENTER REFERENCE CODE (or TVT).
5. Key in TVT and press the ENTER key.	This starts the Timing Verification Test.
6. Follow the instructions displayed on the screen.	

NOTE: If a failure occurs follow displayed instructions or go to ENTRY POINT A of the indicated MAP.

016

****

(Entry Point E)

****

Does the FRU list contain cards similar to those in the recorded FRU list?

Y N

017

It is possible that you have fixed the original problem, but have made a new one.

Check that any top card connectors that you removed are seated and installed correctly (arrow pointing up)

When you have a different reference code and FRU list, you have a new failure.

You must correct this failure as a new problem.

Go to Page 2, Step 002, Entry Point W.

018

Have all FRUs been replaced ?

Y N

019

The FRU you replaced did not fix the problem. You will have to continue with the FRU replacement procedures using the next FRU in the FRU replacement list you are working with.

Go to Page 2, Step 002, Entry Point W.

020

Did you come to this Map from MAP 6500?

Y N

021

Did you come to this Map from MAP 4000?

Y N

022
****

(Entry Point C)

****

You have reached a point where you have one or more of the following conditions.

1. A possible bad card from supplies is causing the same or similar problem.

2. If possible try exchanging the same FRU(s).

3. The diagnostics cannot isolate the failure.

4. You have a board or cable problem.

You are at a point where ***ADDITIONAL*** aid is needed .

Go To Map 0001, Entry Point A.

023
Your problem may be a grounded receiver.

Using the following 'UU' field (UUrrrris) as a guide replace the FRUs listed one at a time.

46 or 48 C1D thru C1U

Go To Entry Point W of this MAP for FRU replacement.

If the problem is NOT resolved by one of those FRUs, you will need ***ADDITIONAL*** aid.

Go To Map 0001, Entry Point A.

024
A possible bad card from supplies is causing the same or similar problem. Try exchanging the same FRU(s) if possible.

A bad terminator or serpent connector may be the problem.

Use the following chart to check for bent or dirty pins:

TAGS OUT		TAGS IN	
OP OUT	(J13)	OP IN	(B03)
ADR OUT	(B10)	ADR IN	(B05)
DATA OUT	(G10)	DATA IN	(G08)
SEL OUT	(D09)	SEL IN	(B08)
SUPR OUT	(B12)	REQ IN	(J06)
HOLD OUT	(G12)	DISC IN	(J11)
CMD OUT	(D11)	STAT IN	(D04)
SRV OUT	(D13)	SRV IN	(D06)
MTR OUT	(J04)	MTR IN	(G05)

If this is not the problem, additional aid is needed.

Install the channel cables and standard terminators to their original condition.

Go To Map 0001, Entry Point A.

025
Go to Page 4, Step 005, Entry Point D.

026

Use the following procedure to prevent the system from doing an automatic IML each time the system is powered up.

PROCEDURE TO DISABLE POWER ON IML

REQUIRED ACTION	EXPECTED RESULTS
1. Ensure that the Functional disk is installed.	
2. Set the CE MODE switch to NORMAL.	
3. Press the MODE SEL key.	GENERAL SELECTION screen appears.
4. Key in QLX2 and press the ENTER key.	The PROGRAM LOAD screen appears.

****
(Entry Point P)
****

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

POWER OFF PROCEDURE

REQUIRED ACTION	EXPECTED RESULTS
1. OPERATE the POWER OFF key.	The POWER IN PROCESS indicator will turn OFF within 30 seconds.

(Step 026 continues)

(Step 026 continued)

THE LAST FRU REPLACED (IF ANY) MUST BE REMOVED AND THE ORIGINAL FRU REINSTALLED BEFORE REPLACING THE NEXT FRU.

Before exchanging a card, ensure that there are no bent, broken or dirty pins on the top card connectors or the card being replaced.

Replace or repair the failing top card connector or card.

When reinstalling the top card connector arrow must be pointing UP.

Replace the circled FRU(s).

For card replacement procedure, see LSI Logic Card in the REMOVAL/REPLACEMENT section of the Maintenance Information Manual.

POWER ON PROCEDURE

REQUIRED ACTION	EXPECTED RESULTS
1. Operate the POWER ON/IML key.	The POWER COMPLETE indicator will come ON within 45 seconds.
2. Set the CE MODE switch ON.	

Go to Page 3, Step 003, Entry Point F.

027
****

(Entry Point B)

****

The problem can not be recreated by the diagnostics.

The FRU(s) that are 'INTENSIFIED' by CAP or PUMA have a probability of 80% or more of fixing the failure.

Before replacing FRU(s) check the CE LOG SCREEN for an entry that is similar to this failure.

See the Console Functions section in the Maintenance Information Manual, under Saved Screens, on how to display the CE LOG SCREEN function.

OR do the following

If the following procedure does not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

PROCEDURE TO DISPLAY THE CE LOG

REQUIRED ACTION	EXPECTED RESULTS
1. Ensure that the Functional Disk is installed.	
2. Press the MODE SEL key.	GENERAL SELECTION screen appears.
3. Key in QEWT and press the ENTER key.	The CE LOG SCREEN will appear.

(Step 027 continues)

(Step 027 continued)

Are there any previous incidents with similar FRUs listed?
Y N

028

Depending on the customer situation and parts availability replace the 'INTENSIFIED' FRU(s) from the FRU list you are working with.

When 'NO' FRU(s) are 'INTENSIFIED', replace ***ONLY*** the ***FIRST*** FRU.

Circle those FRU(s) in the list that you are going to replace.

Ensure that the LOCAL/REMOTE switches on all Channel Control Units are in the LOCAL position.

Go to Page 2, Step 002, Entry Point Q.

029

It is recommended that you invoke your support structure for this intermittent failure.

While waiting for your support structure assistance you can continue with the replacement of FRU(s) from the FRU list, in the CE LOG SCREEN that 'HAVE NOT' been replaced on the previous repair action.

Circle those FRU(s) in the list that you are going to replace.

Ensure that the LOCAL/REMOTE switches on all Channel Control Units are in the LOCAL position.

Go to Page 2, Step 002, Entry Point Q.

MAP CODE 5115FXXX FIX 0002

CHAN/SP HARDWARE ISOLATION

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
PUMA	A	1	001
XXXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	004	0001	A
5	014	0001	A
6	023	0001	A
6	021	5040	W

001

****

(Entry Point A)

****

The ***PURPOSE*** of this MAP is to check the voltage to the channel receiver driver cards.

Ensure that the reference code, FRU list and diagnostic TEST IDs that directed you here have been recorded on a paper pad.

It is possible that you are having a voltage problem with the channel adapter cards.

If the failure occurs during Processing Unit IML, use the IML procedure for recreating the failure.

The following logic pages may have information that may be of help in correcting this problem.

(Step 001 continues)

(Step 001 continued)

LOGIC PAGE REFERENCE

PS205	COM	PS216
YA613	YA659	YA604
YF141		YF161

Ensure that Power is ON, the Functional Disk is installed and the CE MODE switch is NORMAL.

Ensure that the LOCAL/REMOTE switches on all Channel Control Units are in the LOCAL position.

To prevent the System from doing a automatic IML each time the system is powered up

1. Operate the MODE SEL key.
   The GENERAL SELECTION screen appears.

2. Key in QLX2 and press the ENTER key.
   The LOAD screen appears.

Connect the minus lead of a meter to any ground (D08) pin on the 01A-A2 board and use the following chart for probing.

Using Chart 1 check 'ALL' the pin positions in the ADAPTER CARD' column for 6 volts being present.

Step 001 continues)

(Step 001 continued)

CHART 1

FERRO SUPPLY	SWITCH SUPPLY	PROCESSOR UNIT	
PS 205	PS 216	01A-A2 BOARD	
CONN 5 PIN	CONN 3 PIN	CABLE CONN	ADAPTER CARD
11	8	A4D2	S2P2
12	7	A4D3	F2P2
10	1	A4B2	Q2P2
			R2P2
5	4	A4B4	D2P2
			E2P2

Are all the positions at 6 volts?
Y N

002
Are 'SOME' but 'NOT' all of the voltages missing?
Y N

4 4 3
A B C

003

Use Chart 2 to find the missing 6 volt supplied to the Channel Adaptor Card(s).

CHART 2

6V SUPPLIED FOR 01A-A2 BOARD CHAN ADAPTOR CARDS		
FROM	A2D4-B11	
TO	CONN	PIN
	A2A4	D05
TO		
FERRO SUPPLY PS 205	5	PIN 3
OR		
SWITCH SUPPLY PS 216	3	PIN 2

Attach the meter plus lead probe to 01A-A2D4-B11.

Does this point measure approximately 6 volts?
Y N

004

You may have a 01A-A2 Board problem. You are at a point where you need ***ADDITIONAL*** aid.

Go To Map 0001, Entry Point A.

D

005

Attach the meter plus lead probe to 01A-A2A4-D05.

Does this point measure approximately 6 volts?
Y N

006

You have a 01A-A2 Board problem.

The 6 volts is missing between pins D4-B11 and A4-D05.

Use a BLUE and WHITE wire for the repair.

Go to Page 6, Step 022, Entry Point B.

007

Attach the meter plus lead probe to Connector 5 Pin 3 or Connector 3 Pin 2.

Does this point measure approximately 6 volts?
Y N

008

You have a problem in the cable between the A2 board and the power supply.

Check the cable connectors for bent or dirty pins or for a open wire in the cable.

Repair or replace the cable.

Go to Page 6, Step 022, Entry Point B.

009

Cable connector 5 or 3 at the power supply or the K1 relay on the power supply was unplugged or misplugged

Check for bent or dirty pins at the K1 relay.

Replug the connector and K1 relay ensuring that they are positioned correctly.

Go to Page 6, Step 022, Entry Point B.

010

Using all the available reference points on Chart 1, check for the missing voltage at the Cable Connector in the A2A4 position, Cable Connector 5 or 3 at the power supply, Relay K1 on the power supply for dirty or bent pins, opens in the cables or misplugging.

When you have corrected the problem

Go to Page 6, Step 022, Entry Point B.

011

The 6 volts is present at the channel adapter cards.

It is possible that the pick voltage for the K1 relay is missing.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Operate the POWER OFF key.
   The POWER IN PROCESS indicator will turn OFF within 30 seconds.

Attach the meter plus lead probe to any pin in the A2 Board Adapter Card Column in in Chart 1.

Check for a voltage swing from 0 volts to 6 volts during the power up sequence.

1. Operate the POWER ON key.
   The POWER COMPLETE indicator will come ON within 45 seconds

Did you observe the voltage transition?

Y N

6 E F

012

The 6 volt pick for the K1 relay is missing.

Use Chart 3 to verify the pick voltage to the K1 relay by attaching a meter plus lead probe to 01A-B2D2-J10.

CHART 3

RELAY PICK CONTROL		
FROM CARD 01A-B2D2-J10		
TO CONN 01A-B2A3-D12		
TO	CONNECTOR	PS CONN
FERRO PS 205	241 PIN 14	4 PIN 3
OR		
SWITCH PS 216	240 PIN 5	2 PIN 3

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Operate the POWER OFF key.
   The POWER IN PROCESS indicator will turn OFF within 30 seconds.

Check 01A-B2D2-J10 for a voltage transition from 5 volts to 0 volts during the power up sequence.

1. Operate the POWER ON key.
   The POWER COMPLETE indicator will come ON within 45 seconds

Did you observe the voltage transition?

Y N

5 G 5 H

013

You have a problem with the Power Sequence Inhibit Control Line (C11).

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Operate the POWER OFF key.
   The POWER IN PROCESS indicator will turn OFF within 30 seconds.

Replace the card in 01A-B2D2.

Check 01A-B2D2-J10 for a voltage transition from 5 volts to Ovolts during the power up sequence.

1. Operate the POWER ON key.
   The POWER COMPLETE indicator will come ON within 45 seconds

Did you observe the voltage transition?

Y N

014

You are still missing the Power Sequence Inhibit Control Line (C11).

When possible try replacing the same FRU with a second one from stock and retry the power up sequence.

If no voltage transition is present you are at a point where you need ***ADDITIONAL*** aid.

Go To Map 0001, Entry Point A.

015

You have corrected your problem.

Go to Page 6, Step 022, Entry Point B.

016

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Operate the POWER OFF key.
   The POWER IN PROCESS indicator will turn OFF within 30 seconds.

Check 01A-B2A3-D12 for a voltage transition from 5 volts to 0 volts during the power up sequence.

1. Operate the POWER ON key.
   The POWER COMPLETE indicator will come ON within 45 seconds

Did you observe the voltage transition?

Y N

017

You may have a 01A-B2 Board problem.

The 5 volts is missing between pins D2-J10 and A3-D12.

Use a BLUE and WHITE wire for the repair.

Go to Page 6, Step 022, Entry Point B.

018

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Operate the POWER OFF key.
   The POWER IN PROCESS indicator will turn OFF within 30 seconds.

Attach the meter plus lead probe to any pin in the A2 Board Adapter Card Column in in Chart 1.

(Step 018 continues)

(Step 018 continued)

Check for a voltage swing from 0 volts to 6 volts during the power up sequence.

1. Operate the POWER ON key.
   The POWER COMPLETE indicator will come ON within 45 seconds

Did you observe the voltage transition?
Y N

019
Cable Connector 241 or 240; Cable Connector 4 or 2 or the K1 relay on the power supply may have bent or dirty pins or relay not plugged correctly.

Repair or correct the problem

Go to Step 022, Entry Point B.

020
You may have an intermittent problem that has corrected it self due to the movement of cables and relay.

Go to Step 022, Entry Point B.

021
The 6 volts is present at the channel adapter cards.

The problem is not with the adaptor card voltage or K1 relay pick.

Use the recorded FRU list to start replacing the FRUs.

Ensure that the CE MODE switch is ON.

Go To Map 5040, Entry Point W.

022
****

(Entry Point B)

****

Set the CE MODE switch ON.

Install Diagnostic Disk DIAG4.

Run all MSMDs to verify system integrity.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

2. Key in G and press the ENTER key.
   Run time is about 7 minutes.
   Normal end is indicated by an END OF MSMDs message.
   A reference code with a 'UU' field (Uurrrris) of '4x', '5x', '6x', or 'Ex' is the expected failure indication.

Is a reference code displayed on the screen?
Y N

023
You have corrected the problem and verified the System integrity.

Replace any channel terminators and cables to their original position, if they have been moved.

Follow Branch Office procedures for returning any defective FRU(s).

Go To Map 0001, Entry Point A.

024

When the reference code is '64153498', you have not corrected the problem.

You may wish to restart at ENTRY POINT A of this MAP and try again 'OR' get additional aid by: GOING TO MAP 0001 ENTRY POINT A

When you are getting a ***DIFFERENT*** reference code and FRU list, you have a ***NEW*** failure.

You must correct this ***FAILURE*** as a ***NEW*** problem.

USE ONLY the ***NEW*** reference code and FRU list and

GO TO ENTRY POINT A of the MAP indicated.

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
ED00	D	3	006
PUMA	A	1	001
XXXX	A	1	001
0000	B	4	010
6600	B	4	010

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
4	008	0001	A
4	009	0001	A
5	014	0001	A
5	018	0001	A
6	022	0001	A
7	028	0001	A
7	025	0001	A
7	029	5040	A
7	027	5040	D
7	024	5040	D
2	003	5040	W

001

****

(Entry Point A)

****

The ***PURPOSE*** of this Map is to continue analyzing for the Channel error that has been indicated by the published reference code.

WARNING This test may sense false errors if operator action causes interrupts on the channel while it is running.

Is the 'I' field (uurrrrIs) of your reference code a '9' ?

Y N

2A 2B

MODEL GROUP 2

002

Ensure that the DIAG4 Disk is installed.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

2. Key in B and press the ENTER key.
   The system responds with ENTER TEST ID(S).

3. Key in TSCHAN00 and press the ENTER key.
   Run time is about 2 minutes.
   Normal end is indicated by an END OF MSMDs message.
   A reference code with a 'UU' field (UUrrrris) of '4X','5x','6x', or 'ED' is the expected failure indication.

Is a reference code displayed on the screen?
Y N

003

It is ***NOT*** probable that the problem is in the interface.

Use the FRU list associated with your original reference code and go to the FRU REPLACEMENT map.

Go To Map 5040, Entry Point W.

004

Write the reference code, extension, FRU list and CSLOAD module on the paper pad.

If the 'I' field (uurrrrIs) of the new reference code is 'A' Go to the MAP=XXXX displayed with the reference code

OR ELSE.

Go to Step 005, Entry Point C.

005

****

(Entry Point C)

****

Using the chart below, find the channel that is failing. Write the channel number on the paper pad.

UU FIELD	EXTENSION	CHANNEL
ED	xxxxxxxx	0
65	01xxxxxx	1
65	02xxxxxx	2
65	03xxxxxx	3
65	04xxxxxx	4
65	05xxxxxx	5
65	06xxxxxx	0

The error may be in a cable or control unit.

The test will be run again with terminators at the tailgate of the problem channel.

This is to find out if the error is inside or outside the 4341 unit.

Remove the BUS and TAG I/O cables from the failing channel at the channel tailgate.

Move the standard terminators from the last control unit on the failing channel to the channel tailgate.

Ensure that the DIAG4 Disk is installed.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

WARNING: This test may sense false errors if operator action causes interrupts on the channel while it is running.

(Step 005 continues)

(Step 005 continued)

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

2. Key in B and press the ENTER key.
   The system responds with ENTER TEST ID(S).

3. Key in TSCHAN00 and press the ENTER key.
   Run time is about 2 minutes.
   Normal end is indicated by an END OF MSMDs message.
   A reference code with a 'UU' field (UUrrrris) of '6x', or 'ED'is the expected failure indication.

Is a reference code displayed on the screen?
Y N

006
****

(Entry Point D)

****

The error was not found with the the cables disconnected.

The problem can be with a control unit or cable associated with the failing channel, or it may be ***INTERMITTENT***.

A special test, CABLE WRAP TEST, will now be run to check the cables.

Reinstall the channel cables at the tailgate to their original condition.

(Step 006 continues)

7
C

(Step 006 continued)

Use the special wrap terminators:

BUS PN 8483772
TAG PN 8483773

to replace the standard terminators at the last control unit on the channel.

```
******************************
****    RUN PROCEDURE THE   ****
****     CABLE WRAP TEST    ****
****          (CWT)         ****
******************************
```

Ensure that the DIAG4 Disk is installed.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

2. Key in B and press the ENTER key.
   The system responds with ENTER TEST ID(S).

3. Key in M7 and press the ENTER key. Load time is about 2 minutes.

   The Special Test Selection screen appears, follow directions displayed

Does the CABLE WRAP TEST indicate a failure?
Y N

4 4
D E

007

The failure was not sensed by the CABLE WRAP TEST.

This indicates that no TAG or BUS lines have been found to be bad.

The problem may be inside one of the control units on the channel, or it may be ***INTERMITTENT***.

Using the Cable Wrap Test as an exerciser, see if the failure is caused by loose cables or connectors along the interface.

Can you locate the problem ?
Y N

008
Re-install the standard terminators on the last control unit. You are at a point were aid is needed.

Go To Map 0001, Entry Point A.

009
Repair the cables or connectors, then ensure that the cable(s) and terminator(s) are reinstalled to their original positions.

Go To Map 0001, Entry Point A.

010
****

(Entry Point B)

****

The CABLE WRAP TEST has sensed a error in the cable path. (This often is caused by a bad connection.)

When only the TAG or BUS is identified as failing, then only that special TAG or BUS terminator need be moved during the following testing.

(Step 010 continues)

(Step 010 continued)

When both TAG and BUS are identified as failing, then both special TAG and BUS terminators will be moved during the following testing.

Disconnect the failing channel interface cable(s) at the channel tailgate and install the special TAG and/or BUS WRAP terminator(s).

Follow the directions on the screen to display the CABLE WRAP TEST screen and ***RERUN*** the CWT test.

Does the CABLE WRAP TEST indicate a failure?
Y N

011
To isolate the failing cable, connector or control remove the special TAG and/or BUS Wrap terminator(s) from the failing channel at the tailgate and reinstall the interface cable(s).

****

(Entry Point G)

****

Disconnect the outbound TAG or BUS cable(s) from the next control unit.

Install the special TAG or BUS terminator(s) in their place.

Follow the directions on the screen to display the CABLE WRAP TEST screen and ***RERUN*** the CWT test.

Does the CABLE WRAP TEST indicate a failure?
Y N

6 5 5
F G H

012
Are the special TAG and/or BUS WRAP terminator(s) installed last control unit on the channel?
Y N

013
Remove the special terminator(s) and reinstall the cable(s).

Go to Page 4, Step 011, Entry Point G.

014
There is no longer a failure on this channel.

Remove the special TAG and/or BUS WRAP terminator(s) and install the standard terminator(s).

Go To Map 0001, Entry Point A.

015
The channel interface cable(s) between the terminated control unit and last control unit, that ran error free, or the terminated control unit is causing the failure.

Remove the interface cable(s) from the failing control unit and connect the special TAG and/or BUS terminator(s) directly to the inbound cable(s).

****
NOTE
****
This will test the cable(s).

Follow the directions on the screen to display the CABLE WRAP TEST screen and rerun the CWT test.

Does the CABLE WRAP TEST indicate a failure?
Y N

J K

016
The last control unit to be terminated is the probable cause of the channel failure.

Reinstall the channel interface cable(s) and terminator(s) to their original configuration. Ensure that the standard terminator(s) are in the last control unit of the failing channel.

The repair action for the failing control unit is to be performed following maintenance philosophy of that control unit.

017
The channel interface cable(s) that have the terminator(s) connected directly to them are causing the failure. REPAIR the failing cable(s).

Reinstall the cable(s) to the original condition.

Place the special terminator(s) at the last control unit.

Follow the directions on the screen to display the CABLE WRAP TEST screen and rerun the CWT test.

Does the CABLE WRAP TEST indicate a failure?
Y N

018
The repair has been verified.

Replace the special terminator(s) with the standard terminator(s).

Go To Map 0001, Entry Point A.

019
A failure occurred during the verifying test.

Go to Page 4, Step 010, Entry Point B.

020

The error is inside the 4341.

The following chart has the FRU(s) listed by channel assignment.

CHAN #	FRU #
0	A2F2
1	A2Q2
2	A2D2
3	A2R2
4	A2E2
5	A2S2

****
NOTE
****

When CHAN 0 is ***NOT*** the failing channel ***DO NOT*** use the CHAN 0 FRU for swapping.

Using the above chart, ***SWAP*** the failing channel FRU with one of the other channels.

Did the failure move with the FRU swap?

Y N

7
L M

021

You may have a bad 01A-A2 board, possible bad terminator or a bad cable.

Use the 'Channel Fault Isolation' PROCEDURE in the 'Service Aids' section Volume 13/16 of the MI Manual to isolate the failure.

Are you able to isolate the failure?

Y N

022

You are at a point were you will need aid.

Go To Map 0001, Entry Point A.

023

Install the Functional Disk.

Set the CE MODE switch to NORMAL.

To prevent the System from doing a automatic IML each time the system is powered up

1. Operate the MODE SEL key.
   The GENERAL SELECTION screen appears.

2. Key in QLX2 and press the ENTER key.
   The LOAD screen appears.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Operate the POWER OFF key.
   The POWER IN PROCESS indicator will turn OFF within 30 seconds.

   Replace the failing FRU that has been isolated.

1. Operate the POWER ON/IML key.
   The POWER COMPLETE indicator will come ON within 45 seconds

(Step 023 continues)

(Step 023 continued)

2. Set the CE MODE switch ON.
Using the above 'Run Procedure For Cable Wrap Test' follow the directions on the screen to display the CABLE WRAP TEST screen and ***RERUN*** the CWT test.

Does the CABLE WRAP TEST indicate a failure?
Y N

024
You have had a good diagnostic run, after a problem FRU replacement.

Replace any channel terminators and cables to their original position, if they have been moved.

Follow the instructions on the screen to exit from the CABLE WRAP TEST.

Go To Map 5040, Entry Point D.

025
You are at a point were ***ADDITIONAL*** aid is needed.

Go To Map 0001, Entry Point A.

026
Replace the failing FRU.

Follow the directions on the screen to display the CABLE WRAP TEST screen and ***RERUN*** the CWT test.

Does the CABLE WRAP TEST indicate a failure?
Y N

N P

027
You have had a good diagnostic run, after a problem FRU replacement.

Replace any channel terminators and cables to their original position, if they have been moved.

Follow the instructions on the screen to exit from the CABLE WRAP TEST.

Go To Map 5040, Entry Point D.

028
A possible bad card from supplies is causing the same or similar problem.

Try exchanging the same FRU, and ***RERUN*** the CWT test.

Or you may be having a board problem.

You are at a point were ***ADDITIONAL*** aid is needed.

Go To Map 0001, Entry Point A.

029
The error is inside the 4341.

It is possible that you have a bad terminator.

Use the current diagnostic frulist and add the terminators to the FRU list.

Go To Map 5040, Entry Point A.

MAP CODE 6600FXXX FIX 0001

METERING TEST

PAGE 1 OF 16

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
XXXX	A	2	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
6	021	0000	A
2	007	0000	B
2	006	0000	M
7	026	0001	A
5	018	0001	A
5	016	0001	A
6	020	0001	A
9	047	0001	A
10	057	0001	A
9	049	0001	A
13	081	0001	A
14	092	0001	A
15	107	0001	A
14	100	0001	A
14	098	0001	A
14	096	0001	A
16	113	0001	A
16	111	0001	A
15	109	0001	A
12	075	0001	A
16	116	6500	B

MODEL GROUP 2

001
****

(Entry Point A)

****

The ***PURPOSE*** of this Map is to find and repair any problem with the metering circuit in the 4341 main frame or the interface cables attached to the 4341 tailgate. A board probe mask and scope may be required to complete this procedure. You may desire to schedule deferred maintenance as a convenience for the customer.

This procedure is a decision making process that aids in answering and solving the following meter problems:

1. METER RUNNING ALL THE TIME.

2. THE METER IS NOT RUNNING.

It should be observed that, if the CE Key is active, Metering Out is disabled.

The following steps must be performed before starting the isolation of the problem;

1. Press the MODE SEL key.

2. Type in PROGR and operate the ENTER key.

At this point all meters should have been reset off.

3. Operate the stop key.

4. Wait until instruction stop is displayed.

5. Ensure that the CE mode switch is ON.

6. Type QOM and operate the ENTER key.

7. Type QVC and operate the ENTER key.

The state of all channel BUSS and TAGS should be displayed.

(Step 001 continues)

(Step 001 continued)

Are any of the SERVICE or DATA tag lines ACTIVE?
Y N

002
Is your metering problem on 'ONE' channel only?

Y N

003
It is possible that you may have a 4341 problem that is causing the meter problem and requires additional procedures.

Go to Page 3, Step 009, Entry Point C.

004
You may have a channel problem that requires additional 'Cable Wrap Test' procedures.

Go to Page 3, Step 008, Entry Point B.

005
Remove 'THAT' channels tag cable at the tailgate and install a STANDARD tag terminator.
Type QVC and operate the enter key.

Did the service or data line that was active become inactive?
Y N

006
It is possible that you may have a 4341 problem that is causing the meter problem and requires additional procedures.

Go To Map 0000, Entry Point M.

007
Reinstall the cables and terminators to their original positions.

Go To Map 0000, Entry Point B.

008
****

(Entry Point B)

****

```
****************************************
* RUN PROCEDURE FOR CABLE WRAP TEST    *
*           (CWT)                      *
*                                      *
*       * * WARNING * *                *
*                                      *
*  IF A CHANNEL SWITCHING UNIT IS      *
* ATTACHED TO THE CHANNEL BEING        *
* TESTED,  PLACE THE CABLE WRAP        *
* TERMINATORS IN THE  CHANNEL SIDE     *
* BUS/TAG OUT I/O CONNECTOR POSITIONS  *
* AND NOT IN THE SWITCHED-SIDE I/O     *
* CONNECTOR POSITIONS. FOR FURTHER     *
* INFORMATION, USE THE ATTACHED        *
* SWITCHING UNIT'S MAINTENANCE         *
* DOCUMENTATION.                       *
****************************************
```

Ensure that the DIAG4 Disk is installed.

Ensure that the CE MODE switch is ON.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.
2. Key in B and press the ENTER key.
   The system responds with ENTER TEST ID(S).
3. Key in M7 and press the ENTER key. Load time is about 2 minutes.

   The Special Test Selection screen appears, follow directions displayed

(Step 008 continues)

(Step 008 continued)
A check of the problem is done with an oscilloscope or by visually observing the failing I/O meter.

Does the CABLE WRAP TEST indicate a failure?

Y N

009
****
(Entry Point C)
****

```
********************
*******NOTE********
****SERVICE AID****
****INFORMATION****
********************
```

Volume 13/16 of the Maintenance Information Manual in the Service Aids Section has a METERING SERVICE PROCEDURE. There are five diagrams to aid in solving metering problems:

1. Figure 1 has the metering signal value for the meter circuit.

2. Figure 2 has the metering logic circuit for the A1-G card.

3. Figure 3 has the metering logic circuit for the B2-G card.

4. Figure 4 has the logic circuit for the Channel 0 Interface Adapter Card.

5. Figure 5 has the logic circuit for the Channels 1-5 Interface Adapter Cards.

NOTE: See BOARD SIGNAL LEVELS, in the SERVICE AIDS section, of the Maintenance Information Manual, for acceptable signal levels.

(Step 009 continues)

(Step 009 continued)
Using Figure 1, for reference, scope A2C5-D02 (scope point N).

Is Chan Meter Out at A2C5-D02 equal to ground?
Y N

010
Scope B2G2-S04 (scope point I).

Is IPU/Chan Meter Run at B2G2-S04 (scope point I) equal to 4 volts?
Y N

011
Scope A2T5-B02 (scope point C).

Is Chan Meter In at A2T5-B02 equal to ground?
Y N

012
Scope Meter In at the Adapter Card input for channels 0 thru 5 (scope point B).

Are any of the Meter In lines at 4 volts?
Y N

013
All the channel interface Meter In line are at ground. The problem is in one of the Adapter Cards.

Use the following Card Removal Procedure to remove ONE Channel Adapter Card at a time.

```
********************
*******NOTE*********
***CARD REMOVAL*****
*****PROCEDURE******
********************
```

Install the functional disk.

Set the CE MODE switch to NORMAL.

(Step 013 continues)

7 7 6 6
B C D E

(Step 013 continued)

To prevent the system from doing a automatic IML each time the system is powered up

1. Operate the MODE SEL key.
   The GENERAL SELECTION screen appears.

2. Key in QLX2 and press the ENTER key.
   The LOAD screen appears.

3. Operate the POWER OFF key.
   The POWER IN PROCESS indicator will turn OFF within 30 seconds.

THE LAST FRU REPLACED (IF ANY) MUST BE REMOVED AND THE ORIGINAL FRU REINSTALLED BEFORE REPLACING THE NEXT FRU.

Before exchanging a card, ensure that there are no bent, broken or dirty pins on the top card connectors or the card being replaced.

Replace or repair the failing top card connector or card.

When reinstalling the top card connector arrow must be pointing UP.

For card replacement procedure, see LSI Logic Card in the REMOVAL/REPLACEMENT section of the Maintenance Information Manual.

4. Operate the POWER ON/IML key.
   The POWER COMPLETE indicator will come ON within 45 seconds

5. ENSURE that the CE MODE SWITCH is set as required.

6. Ensure that the required diskette is installed.

7. ENSURE that the required loop or machine state is in place to continue with the test.

**** END OF CARD REMOVAL PROCEDURE ****

(Step 013 continues)

(Step 013 continued)

****

(Entry Point D)

****

Scope A2T5-B02 (scope point C).

Is Chan Meter In at A2T5-B02 equal to ground?
Y N

014
Have ALL the Channels been tested?
Y N

015
Using the Card Removal Procedure on page 4, remove the next Channel Adapter Card.

Go to Step 013, Entry Point D.

016
You have removed all the channel adapter cards and you still have a ground on the Chan Meter In line.

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

017
The card you just removed is failing, using the Card Removal Procedure on page 4, install a new card.

Scope A2T5-B02 (scope point C).

Is Chan Meter In at A2T5-B02 equal to ground?
Y N

F G

018
****

(Entry Point E)

****

You may have a failing card from supplies, using the Card Removal Procedure on page 4, try installing another card.

OR
You may be having a board problem.
You are at a point where you will need aid.

Reinstall all the Channel Tag cables that were disconnected.

Go To Map 0001, Entry Point A.

019
You have removed the failing card.

****

(Entry Point F)

****

Reinstall all the Channel Tag cables that were disconnected.

Ensure that the DIAG4 Disk is installed.

Ensure that the CE MODE switch is set ON.

Run all MSMDs to verify system integrity.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

(Step 019 continues)

(Step 019 continued)
2. Key in G and press the ENTER key.
Run time is about 20 minutes.
Normal end is indicated by an END OF MSMDs message.

A reference code with a 'UU' field (UUrrrris) of '4x','5x','6x', or 'ED' is the failure indication.

Is a reference code displayed on the screen?
Y N

020
You have replaced FRU(s) for a problem where you were able to ***RECREATE*** the problem with the diagnostics.

You have corrected the problem and verified the System integrity.

Replace any channel terminators and cables to their original position, if they have been moved.

Go To Map 0001, Entry Point A.

021
You have a failure during the System integrity testing after FRU replacement.

When the same FRU is indicated in the new FRU list, you may have a bad card from supplies or a wrong part number.

Using the Card Removal Procedure on page 4, try exchanging the same FRU and run the MSMDs again.

When you are getting a ***DIFFERENT*** reference code and FRU list, you have a ***NEW*** failure. You must correct this ***FAILURE*** as a ***NEW*** problem.

Go To Map 0000, Entry Point A.

022
Remove the Channel TAG Cable that has 4 volts on the Chan Meter In line.

Scope A2T5-B02 (scope point C).

Is Chan Meter In at A2T5-B02 equal to ground?
Y N

023
The problem is in the 4341.

Using the Card Removal Procedure on page 4, remove ONE Channel Adapter Card at a time.

Go to Page 5, Step 013, Entry Point D.

024
The problem is in one of the Control Unit or cables attached to the interface.

You will have to use the Maintenance philosophy for servicing the STANDARD 370 INTERFACE.

025
The IPU/Chan Meter Run was at ground and the Chan Meter In is at 4 volts.

Using the Card Removal Procedure on page 4, replace the A1-G2 card.

Scope B2G2-S04 (scope point I).

Is IPU/Chan Meter Run at B2G2-S04 equal to 4 volts?
Y N

026
****

(Entry Point G)

****

When the same FRU is indicated, you may have a bad card from supplies or a wrong part number.

Using the Card Removal Procedure on page 4, try exchanging the same FRU.

****

** OR **

****

****

(Entry Point H)

****

You are having a problem with the board or the board cables.

You are at a point where you need aid.

Go To Map 0001, Entry Point A.

027
You have removed the failing card.

Go to Page 15, Step 101, Entry Point M.

028
The IPU/Chan Meter Run was at 4 volts (inactive) and the Chan Meter OUT is at 5 volts (active).

Using the Card Removal Procedure on page 4, replace the B2-G2 card.

Scope B2G2-S03 (scope point J).

Is Chan Meter Out at B2G2-S03 equal to ground?
Y N

029
Go to Step 026, Entry Point G.

030
You have removed the failing card.

Go to Page 15, Step 101, Entry Point M.

031
Scope all the Channel Adapter Card output pins (scope point O).

Do all the Adapter Card output pins equal ground?
Y N

032
Using the Card Removal Procedure on page 4, swap the Channel Adapter Card that has 4 volts at the Meter Out output with one that has ground output.

Scope the output pins (scope point O) of the swapped Adapter Cards.

Did the 4 volt output Adapter Card move to the new position?
Y N

033

Disconnect the Interface Cables for the channel with the problem.

Scope the output pins of the Adapter Card with the disconnected cables.

Does the Adapter Card output pin equal ground.
Y N

034

Reconnect the Channel Tag cable.

Go to Page 7, Step 026, Entry Point G.

035

The problem is in one of the Control Units or cables attached to the interface.

You will have to use the Maintenance philosophy for the failing Control Unit.

036

The card you just moved was failing, using the Card Removal Procedure on page 4, install a new card from supplies.

Scope all the channel Adapter Card output pins (scope point O).

Do all the Adapter Card output pins equal ground?
Y N

037
Go to Page 5, Step 018, Entry Point E.

038

You have replaced the failing card.

Go to Page 5, Step 019, Entry Point F.

039

You will need some type of program running to ensure that the meter circuit is active ie:

A customer program or any hand loop (SIO,TIO) will ensure this condition.

The following procedure is for entering a hand loop:

Install the Functional Diskette.

1. Perform an IML.
2. Type QDM0 and operate ENTER key.
3. At location 0006 type 0400 and operate ENTER key.
4. Type QDM0400.
5. At location 0400 type 47F0 0400 operate ENTER key.
6. Operate the MODE SEL key.
7. Type PROGR and operate the ENTER key.
8. Type RES and operate the ENTER key.
9. The hand loop is now running, the System light is on.

With the program running scope all the Adapter Card Meter Out outputs (scope point O).

Are ALL the Adapter Card Meter Out outputs at 4 volts?
Y N

040
Are ANY of the Adapter Card Meter Out outputs at 4 volts?
Y N

041
Scope A2C5-D02 Chan Meter Out (scope point N).

Is the signal equal to 5 volts?
Y N

042
Scope card input at B2G2-S04 (scope point I).

Is the signal equal to ground?
Y N

043
Scope signal at B2J1-E11 (scope point H).

Is the signal equal to ground?
Y N

044
Scope signal at A1B4-E06 (scope point G).

Is the signal equal to ground?
Y N

045
Scope signal at A1G2-A66 (scope point F).

Is the signal equal to ground?
Y N

10R 10S 10T 10U 10V W

W SQ606F MAP 6600-9

046
Scope card input at A1G2-Y08, Top Card Connector (figure 2).

Is the signal equal to ground?
Y N

047
The PSW1 Wait Bit 14 is missing (figure 2).

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

048
Scope card input at A1G2-A54 (figure 2).

Is the signal equal to GROUND ?
Y N

049
The Operate Bit is missing (figure 2).

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

050
Using the Card Removal Procedure on page 4, replace the A1-G2 card.

Scope B2G2-S04 (scope point I).

Is IPU/Chan Meter Run at B2G2-S04 (scope point I) equal to ground?
Y N

051
Go to Page 7, Step 026, Entry Point G.

052
You have replaced the failing card.

Go to Page 5, Step 019, Entry Point F.

053
Go to Page 7, Step 026, Entry Point H.

054
Go to Page 7, Step 026, Entry Point H.

055
Go to Page 7, Step 026, Entry Point H.

056
Scope card input at B2G2-U04 (figure 3).

Is the signal equal to +1.2 volts?
Y N

057
The INACTIVE LEVEL OF CHK PROCESSING UNIT STOP is missing (figure 3).

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

058
Scope card input at B2G2-D05 (figure 3).

Is the signal equal to ground?
Y N

059
With the CE KEY inserted and turned, you will have a CE signal of 5 volts and disable the Meter Out line.

When the CE KEY is not inserted or turned and you have a CE signal of 5 volts (figure 3) GO TO LOGIC PAGE YA 421 FOR CE KEY CIRCUIT.

X

060
Using the Card Removal Procedure on page 4, replace the B2-G2 card.

Scope B2G2-S03 (scope point J).

Is Chan Meter Out at B2G2-S03 (scope point J) equal to 5 volts?
Y N

061
Go to Page 7, Step 026, Entry Point G.

062
You have replaced the failing card.

Go to Page 5, Step 019, Entry Point F.

063
Go to Page 7, Step 026, Entry Point G.

064
Using the Card Removal Procedure on page 4, swap the Channel Adapter Card that has 4 volts at the Meter Out output with one that has ground output.

You will need some type of program running to ensure that the meter circuit is active ie:

A customer program or any hand loop (SIO,TIO) will ensure this condition.

The following procedure is for entering a hand loop:

Install the Functional Diskette.

1. Perform an IML.
2. Type QDM0 and operate ENTER key.
3. At location 0006 type 0400 and operate ENTER key.
4. Type QDM0400.
5. At location 0400 type 47F0 0400 operate ENTER key.

(Step 064 continues)

(Step 064 continued)
6. Operate the MODE SEL key.

7. Type PROGR and operate the ENTER key.

8. Type RES and operate the ENTER key.

9. The hand loop is now running, the System light is on.

Scope the output pins (scope point O) of the swapped Adapter Cards.

Did the 4 volt output from the ADAPTER CARD move to the new position?
Y N

065
Disconnect the Interface Cables for the channel with the problem.

Scope the output pins of the Adapter Card with the disconnected cables.

Does the Adapter Card output pin equal +4 VOLTS.
Y N

066
Go to Page 7, Step 026, Entry Point G.

067
The problem is in one of the Control Units OR cables attached to the interface.

You will have to use the Maintenance philosophy for the failing Control Unit.

068
Using the Card Removal Procedure on page 4, replace the card with the GROUND ON THE Meter Out output.

Scope the output pin (scope point O) of the new Adapter Card.

Is Chan Meter Out output of the new card equal to +4.0 VOLTS ?
Y N

Y Z

N Y Z
8

069
Go to Page 5, Step 018, Entry Point E.

070
You have replaced the failing card.

Go to Page 5, Step 019, Entry Point F.

071
Start with Channel 0 swap the standard terminator with the TAG WRAP terminator (PN 8483773).

****

(Entry Point J)

****

Scope A2T5-B02 (scope point C).

Is the Channel Meter In equal to -1.2 volts
Y N

072
Scope Meter In, Adapter Card input, for the Channel being checked (scope point B).

Is the Meter In line for the Channel being checked at 4.0 volts?
Y N

073
The problem is in one of the Control Units or cables attached to the interface.

You will have to use the Maintenance philosophy for servicing the STANDARD 370 INTERFACE.

074

The Adapter Card for the Channel just checked is failing, using the Card Removal Procedure on page 4, install a new card.

Scope A2T5-B02 (scope point C).

Is Chan Meter In at A2T5-B02 equal to -1.2 volts?
Y N

075

You may have a failing card from supplies using the Card Removal Procedure on page 4, try installing another card from supplies.

OR

Use one of the other Adapter Cards to check out the problem(by swapping).

You may be having a board or cable problem.

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

076

You have replaced the failing card.

Go to Page 5, Step 019, Entry Point F.

077

Have all Channels on the interface been checked?
Y N

078

Reinstall the standard terminator to the checked Channel.

Replace the standard terminator with the TAG WRAP terminator on the next Channel to be checked.

Go to Page 11, Step 071, Entry Point J.

079

DATA and SERVICE IN TEST

Ensure that the DIAG4 Disk is installed.

Ensure that the CE MODE switch is ON.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

2. Key in B and press the ENTER key.
   The system responds with ENTER TEST ID(S).

3. Key in M7 and press the ENTER key (Load time is about 2 minute)s.
   Install the Wrap Terminators at the tail gate for the failing channel.

The Special Test Selection screen appears.

4. Key in 02 and press ENTER.

****

(Entry Point K)

****

Follow the directions displayed.

Loop with ERRORS DISABLED (Option 'D') on the failing channel.

Scope A2T5-B02 (SCOPE POINT C).

Is the signal equal to -1.2 VOLTS?
Y N

080

Using the Card Removal Procedure on page 4, replace the Channel Card for the failing channel.

Scope A2T5-B02(SCOPE POINT C).

Is the signal equal to -1.2 volts?

Y N

081

You may have a defective card from supplies using the Card Removal Procedure on page 4, try installing another card from supplies.

OR

You may be having a board problem.

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

082

Go to Page 5, Step 019, Entry Point F.

083

Are all the channels tested?

Y N

084

Move the 'Wrap Terminator to the next channel.

Go to Page 12, Step 079, Entry Point K.

AF

085

LCA METER IN TEST

1. Operate the STOP key.

2. Enter QVH015 = 20.

This will turn the LCA METER IN latch ON with the clocks stopped.

Scope card input at A2P2-U09.

Is the signal equal to 4.0 volts?

Y N

086

Scope chan 0 metering out A2F2-D12 (figure 1).

Is the signal equal to 4.0 volts?

Y N

087

Scope card input at A2F4-b12 (scope point A).

Is the signal equal to ground?

Y N

088

Scope cable position at A2T3-B09(scope point A).

Is the signal equal to ground?

Y N

089

Scope cable position at A1A2-A10 (figure 4).

Is the signal equal to ground?

Y N

15AAG 14AAH 14AAJ 14AAK 14AAL 14AAM

090
Scope card output at A1C2-A10 (figure 4).

Is the signal equal to ground?
Y N

091
Using the Card Removal Procedure on page 4, replace the A1C2 card.

Scope card output at A1C2-A10 (figure 4).

Is the signal equal to ground?
Y N

092
You may have a failing card from supplies using the Card Removal Procedure on page 4, try installing another card from supplies.

OR

You may be having a board problem.

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

093
Go to Page 5, Step 019, Entry Point F.

094
Go to Page 15, Step 101, Entry Point M.

095
You have a defective cable between the A2 and A1 boards and will have to replace it.

You are at a point where you will need aid with the cable replacement.

Go to Map 0001, Entry Point A.

When the cable is replaced

Go to Page 5, Step 019, Entry Point F.

096
You have a defective A2 board and have a choice of several repair actions.

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

097
Using the Card Removal Procedure on page 4, replace the A2F2 card.

Scope card output at A2F2-D12 (scope point o).

Is the signal equal to 4.0 volts?
Y N

098
You may have a failing card from supplies using the Card Removal Procedure on page 4, try installing another card from supplies.

OR

You may be having a board problem.

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

099
Go to Page 5, Step 019, Entry Point F.

100
You have a defective A2 board and have a choice of several repair actions.

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

101

****

(Entry Point M)

****

1. Enter QVH015 = 00.

This will turn the LCA METER IN latch OFF with the clocks stopped.

Scope card input at A2P2-U09.

Is the signal equal to ground?

Y N

102

Scope card input at A2F4-b12 (figure 4).

Is the signal equal to -1.2 volts?

Y N

103

Scope cable position at A2T3-B09 (figure 4).

Is the signal equal to -1.2 volts?

Y N

104

Scope cable position at A1A2-A10 (figure 4).

Is the signal equal to -1.2 volts?

Y N

105

Scope card output at A1C2-A10 (figure 4).

Is the signal equal to -1.2 volts?

Y N

16ANP 16APP 16AQP ARS AS AT

106

Using the Card Removal Procedure on page 4, replace the A1C2 card.

Scope card output at A1C2-A10 (figure 4).

Is the signal equal to -1.2 volts?

Y N

107

You may have a failing card from supplies using the Card Removal Procedure on page 4, try installing another card from supplies.

OR

You may be having a board problem.

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

108

Go to Page 5, Step 019, Entry Point F.

109

You may be having a board problem.

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

110

You have a defective cable between the A2 and A1 boards and will have to replace it.

You are at a point where you will need aid with the cable replacement.

Go to Map 0001, Entry Point A.

When the cable is replaced

Go to Page 5, Step 019, Entry Point F.

111

You have a defective A2 board and have a choice of several repair actions.

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

112

Using the Card Removal Procedure on page 4, replace the A2F2 card.

Scope card output at A2F2-D12.

Is the signal equal to ground?

Y N

113

You may have a failing card from supplies using the Card Removal Procedure on page 4, try installing another card from supplies.

OR

You may be having a board problem.

You are at a point where you will need aid.

Go To Map 0001, Entry Point A.

114

Go to Page 5, Step 019, Entry Point F.

115

You have made a mistake or taken a wrong branch.

Go back to the start of the test procedure and start over again.

OR

Your problem may have been intermittent.

116

You have a channel problem that requires additional 'Cable Wrap Test' procedures.

Go To Map 6500, Entry Point B.

MAP CODE EC00FXXX FIX 0000

SP MICROCODE DET ERROR

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
PUMA	A	1	001
XXXX	A	1	001
0000	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	003	F000	B
4	014	F000	F
4	013	F003	D
3	012	XXXX	A
3	011	XXXX	A
3	010	0001	A
2	004	0200	A

001

****

(Entry Point A)

****

The ***PURPOSE*** of this MAP is to try to isolate the problem to a failing hardware FRU.

Write all reference codes,extensions,FRU lists and diagnostic TEST IDs on a paper pad for use throughout the MAP.

Set the CE MODE switch to NORMAL.

Ensure that the LOCAL/REMOTE switches on all Channel Control Units are in the LOCAL position.

To prevent the System from doing a automatic IML each time the system is powered up

1. Operate the MODE SEL key.
   The GENERAL SELECTION screen appears.

2. Key in QLX2 and press the ENTER key.
   The LOAD screen appears.

(Step 001 continues)

(Step 001 continued)

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Operate the POWER OFF key.
   The POWER IN PROCESS indicator will turn OFF within 30 seconds.

Install Diag4 Disk.

Operate the POWER/IML key on the OCP.

The Basic MSS Diagnostics will be executed automatically.

Did the MSS Diagnostic select screen appear in 30 seconds?
Y N

002
Is BASIC CHECK on ?
Y N

003
Go To Map F000, Entry Point B.

004
Go To Map 0200, Entry Point A.

005

Enter A0 to run the SP extend and optional DDA/Drive MSS Diagnostics.

When done, they sound the audible alarm, and position the cursor for a new selection.

Is a reference code displayed on the screen WITHIN 2 minutes?
Y N

4
A B

B

SEQ801F MAP EC00-2

006
Is 'TESTXX RUNNING' displayed in the lower left portion of the screen AFTER 2 minutes?
Y N

007

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

Install the Functional Disk.

1. Operate the POWER ON/IML key.
   The POWER COMPLETE indicator will turn on within 45 seconds.

Set the CE MODE switch ON.

Before continuing with the isolation, the FUNCTIONAL diskette must be checked for possible read errors.

1. Operate the MODE SELECT key.
   The General Selection screen will appear.

2. Key in QED, operate the ENTER key.
   The Diskette Readability Test screen will appear.

3. Operate the ENTER key.

There is a 1 min. run time to test a good diskette.

A 'NO READ ERROR ANALYSIS COMPLETED'

message is displayed.

Did the Diskette Readability Test fail?
Y N

4 4 3
C D E

008

The BASIC diagnostics will be run.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

Install Diag1 Disk.

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

2. Key in F and press the ENTER key.
   Run time is about 26 minutes.

   Normal end is indicated by an BASIC DIAGNOSTIC TESTS ENDED message.
   A reference code with a 'UU' field (UUrrrris) of '5x', '6x', or 'Ex' is the expected failure indication.

Observe the lower left corner of the screen while tests are running. TEST IDs (Dxxx) should change often while tests are running.

Is a reference code displayed on the screen ?
Y N

009

The diagnostics on DIAG4 test all of the Processing Unit at machine speed.

Install Diag4 Disk.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

(Step 009 continues)

(Step 009 continued)

2. Key in G and press the ENTER key.
   Run time is about 7 minutes.
   Normal end is indicated by an END OF MSMDs message.
   A reference code with a 'UU' field (UUrrrris) of '4x', '5x', '6x', or 'Ex' is the expected failure indication.

Is a reference code displayed on the screen?
Y N

010

The END OF MSMDs message was displayed on the screen after 7 min.

You were unable to recreate the problem.

The diagnostics are not able to isolate the problem or there may be a micro-code problem.

This may also be an intermittent problem and if it occurs again you will need aid.

Go To Map 0001, Entry Point A.

011

Write the new reference code, extension, FRU list and TEST ID on the paper pad.

Go to the Map=XXXX displayed on the screen, or to Map 5040 if no Map=XXXX is displayed, for FRU replacement procedure.

Go To Map XXXX, Entry Point A.

012

Write the new reference code, extension, FRU list and TEST ID on the paper pad.

Go to the Map=XXXX displayed on the screen, or to Map 5040 if no Map=XXXX is displayed, for FRU replacement procedure.

Go To Map XXXX, Entry Point A.

013

The FUNCTIONAL diskette may be bad.

You may have a problem with the diskette drive or adapter.

DO NOT install any other diskette until you have verified that it will not be damaged.

Go To Map F003, Entry Point D.

014

Go To Map F000, Entry Point F.

015

Follow the instructions on the console display.

MAP CODE ED00FXXX FIX 0001

LCA OR CHAN 0 ISOLATION

PAGE 1 OF 6

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
F000	B	4	015
PUMA	A	1	001
XXXX	A	1	001
0000	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
4	011	F000	B
6	024	F000	F
6	023	XXXX	A
6	022	XXXX	A
3	007	XXXX	A
3	008	0000	C
3	006	0000	C
3	005	0001	A
6	020	0001	A
4	012	0200	A
5	018	6500	D

001

****

(Entry Point A)

****

The ***PURPOSE*** of this MAP is to determine if the failure is being caused by the LCA or the channel 0 interface. The problem is then isolated to the smallest number of FRUs and the repair is verified.

USE this Map 'ONLY' for EDxxxxxx reference codes and/or CHAN 0 UNAVAILABLE messages.

Write all reference codes, extensions, FRU lists and diagnostic TEST IDs on a paper pad for use throughout the Map.

Ensure that the FUNCTIONAL disk is installed.

Set the CE MODE switch to NORMAL.

(Step 001 continues)

(Step 001 continued)

To prevent the System from doing a automatic IML each time the system is powered up

1. Operate the MODE SEL key.
   The GENERAL SELECTION screen appears.

2. Key in QLX2 and press the ENTER key.
   The LOAD screen appears.

Ensure that the LOCAL/REMOTE switches on all Channel Control Units are in the LOCAL position.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Operate the POWER OFF key.
   The POWER IN PROCESS indicator will turn OFF within 30 seconds.

2. Operate the POWER ON/IML key.
   The POWER COMPLETE indicator, on the OCP will turn on within 45 seconds.

3. Operate the MODE SEL key.
   The GENERAL SELECTION screen appears.

4. Key in QLM and press the ENTER key (IML takes about 3 minutes).
   Normal end is indicated by an IML COMPLETE message.
   A reference code with a 'UU' field (UUrrrris) of 'Ex', and/or a 'CHAN 0 UNAVAILABLE' message is the expected failure indication.

Is an 'Ex' reference code and/or a 'CHAN 0 UNAVAILABLE' message displayed on the screen, or is the System in a hang condition?

Y N

4
A B

002

Did you get a reference code during the IML.

Y N

003

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Set the CE MODE switch ON.

2. Install Diag4 Disk.

3. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

4. Key in G and press the ENTER key.
   Run time is about 7 minutes.
   Normal end is indicated by an END OF MSMDs message.
   A reference code with a 'UU' field (UUrrrris) of '4x', '5x', '6x', or 'Ex' is the expected failure indication.

Is a reference code displayed on the screen?

Y N

004

Display the processing unit logout directory.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Ensure that the FUNCTIONAL disk is installed.

2. Press the MODE SEL key.

3. Enter QECD.

(Step 004 continues)

3 3
C D

(Step 004 continued)

IF YOU ARE NOT SURE ABOUT THE TIME STAMP, ANSWER THE NEXT QUESTION 'NO.'

Was a RC logged at the reported time of failure that indicates SUCCESSFUL RETRY or SUCCESSFUL CC = 1 ON I/O?

Y N

005

You have had one of the following problems.

1. An ***INTERMITTENT*** Channel 0 interface or LCA failure which is no longer present on the system.

2. A communications problem between the MSS and LCA due to high activity on Channel 0.

The most probable cause of this failure is the Channel 0 interface.

This includes the terminators, cables and a control unit that may be putting a hot bit on the interface.

The second most probable cause is the LCA or the Channel 0 receiver/driver.

the FRUS ARE:

A2F2, A2M2, A2N2,
A2P2, A1B2

If you decided to replace FRUs, circle those FRU(s) in the list that you are going to replace.

Ensure that the LOCAL/REMOTE switches on all Channel Control Units are in the LOCAL position.

(Step 005 continues)

E

C 2 D 2 E

(Step 005 continued)

Use MAP 5040 ENTRY POINT Q to replace the FRUs.

*** OR ***

This is an ***INTERMITTENT*** problem.

If you do not replace any FRUs make an entry in the CE LOG SCREEN of this failure.

Go To Map 0001, Entry Point A.

006

Write this reference code on paper.

Go To Map 0000, Entry Point C.

007

Write the new reference code, extension, FRU list, and TEST ID on the paper pad.

Go to the Map=XXXX displayed on the screen, or to Map 5040 if no Map=XXXX is displayed, for FRU replacement procedure.

Go To Map XXXX, Entry Point A.

008

Go To Map 0000, Entry Point C.

009

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Operate the POWER OFF key.
   The POWER IN PROCESS indicator will turn OFF within 45 seconds.

Install Diag4 Disk.

Operate the POWER ON/IML key.

The Basic MSS Diagnostics will be executed automatically.

Did the MSS Diagnostic select screen appear in 30 seconds?

Y N

010

Is BASIC CHECK on ?

Y N

011

Go To Map F000, Entry Point B.

012

Go To Map 0200, Entry Point A.

013

Enter A0 to run the SP extend and optional DDA/Drive MSS Diagnostics.

When done, they sound the audible alarm, and position the cursor for a new selection.

Is a reference code displayed on the screen WITHIN 2 minutes?

Y N

014

Is 'TESTXX RUNNING' displayed in the lower left portion of the screen AFTER 2 minutes?

Y N

6 6
F G H

015

****

(Entry Point B)

****

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

Install the Functional disk.

1. Operate the POWER ON/IML key.
   The POWER COMPLETE indicator will turn on within 45 seconds.

Set the CE MODE switch ON.

Install Diag1 Disk.

1. Operate the MODE SEL key.
   The GENERAL SELECTION screen appears.

2. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

3. Key in B and press the ENTER key.
   The system responds with ENTER TEST ID(S).

4. Key in B1 and press the ENTER key.
   Run time is about 6 minutes.
   Normal end is indicated by an D001-D2FF PROCESSED message.
   A reference code with a 'UU' field (UUrrrris) of '5x' or '6x' is the expected failure indication.

Observe the lower left corner of the screen while tests are running. TEST IDs (Dxxx) should change often while tests are running.

(Step 015 continues)

(Step 015 continued)

Is a reference code displayed on the screen ?
Y N

016
If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Install Diag4 Disk.

2. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

3. Key in G and press the ENTER key.
   Run time is about 7 minutes.
   Normal end is indicated by an END OF MSMDs message.
   A reference code with a 'UU' field (UUrrrris) of '4x', '5x', '6x', or 'Ex' is the expected failure indication.

Is a reference code displayed on the screen?
Y N

017
****

(Entry Point C)

****

To determine if the problem is in the LCA or on the Channel 0 interface remove the BUS & TAG I/O cables from Channel 0 at the channel tailgate.

(Step 017 continues)

6 6
J K

(Step 017 continued)

Move the standard terminators from the last control unit on Channel 0 to the channel tailgate.

Check for correct cable connections and ensure that the pins on the terminator and serpentine connectors are not broken.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

Perform an IML.

1. Operate the MODE SEL key.
   The GENERAL SELECTION screen appears.

2. Key in QLM and press the ENTER key (IML takes about 3 minutes).
   Normal end is indicated by an IML COMPLETE message.
   A reference code with a 'UU' field (UUrrrris) of of 'Ex', and/or a 'CHAN 0 UNAVAILABLE' message is the expected failure indication.

Is an 'Ex' reference code and/or a 'CHAN 0 UNAVAILABLE' or is the System in a hang condition?
Y N

018
The failure is on the Channel 0 interface.

Use the Channel CABLE WRAP TEST on Channel 0 to isolate the failure.

Go To Map 6500, Entry Point D.

6
L

019

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Operate the MODE SEL key.
   The GENERAL SELECTION screen appears.

2. Key in QCM and press the ENTER key.
   The System responds with RINGS RESET: ALL.

3. Key in QVW2B and press the ENTER key.
   The system responds with COMMAND SENT TO SBA.

4. Key in QVY22 and press the ENTER key.
   The CLOCK RING screen appears.

Compare the clock values on the screen with the hardcopy printout for this machine.

Are the clock values different?

Y N

020

The Channel Adapter Card or/and the standard terminators are probably bad.

Replace them and perform an IML (QLM). If the problem is not resolved you are at a point were you need ***ADDITIONAL*** aid to isolate this failure.

Go To Map 0001, Entry Point A.

021

To change a value on the Clock Ring screen, position the cursor directly under and two lines below the value you want to change.

Key in the value you want in the location and press ENTER. The old value on the screen will be overlaid with the new value.

After the clock values are correct, verify that system operation is correct.

If another reference code occurs, use that reference code and enter the MAPs at MAP 0000 entry point A.

022

Write the new reference code, extension, FRU list, and TEST ID on the paper pad.

Go to the Map=XXXX displayed on the screen, or to Map 5040 if no Map=XXXX is displayed, for FRU replacement procedure.

Go To Map XXXX, Entry Point A.

023

Write the new reference code, extension, FRU list, and TEST ID on the paper pad.

Go to the Map=XXXX displayed on the screen, or to Map 5040 if no Map=XXXX is displayed, for FRU replacement procedure.

Go To Map XXXX, Entry Point A.

024

Go To Map F000, Entry Point F.

025

Follow instructions on the console display.

MAP CODE EE00FXXX FIX 0000

PU MICROCODE DET. ERROR

PAGE 1 OF 3

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
PUMA	A	1	001
XXXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	009	XXXX	A
3	008	XXXX	A
3	005	0001	A
3	007	0001	A

001

****

(Entry Point A)

****

The ***PURPOSE*** of this MAP is to isolate the problem to a failing hardware FRU, if possible.

The failure may be either IPU hardware or microcode in the Control Store.

Write all reference codes, extensions,and FRU lists and diagnostic TEST IDs on a paper pad for use throughout the MAP.

Before continuing with the isolation, the failure status of the machine should be kept in case aid is needed.

1. Ensure that the FUNCTIONAL diskette is installed.

2. Ensure that the CE MODE switch is ON.

3. Operate the MODE SELECT key.
   The General Selection screen appears.

4. Key in QOM and operate the ENTER key.
   The clocks are in hardstop.

(Step 001 continues)

(Step 001 continued)

5. Key in QVAB and operate the ENTER key.
   The QVAB screen appears.

Is there a Console Printer attached to your system?
Y N

002

If you do not have a printer attached to your system, OR your System printer is other then a console printer, you will have to copy the information from the QVAB screen onto the diskette.

1. Operate the MODE SEL key.
   The GENERAL SELECTION screen appears.

2. Key in QLKD and operate the ENTER key.
   The LOAD screen appears.

3. Key in QVAB and operate the ENTER key.
   The CSAR BACKUP TRACE is displayed.

4. Operate the COPY key.
   SAVED QVAB message is displayed.

5. Key in QLK3 and operate the ENTER key to return to Console Printer Mode.

Go to Step 003, Entry Point B.

003

1. When the QVAB screen appears operate the COPY key.

****

(Entry Point B)

****

The BASIC diagnostics will be run and following the directions given on the screen, three diskettes will be installed.

(Step 003 continues)

(Step 003 continued)

Observe the lower left corner of the screen while tests are running. TEST IDs (Dxxx) should change often while tests are running.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

Install Diag1 Disk.

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

2. Key in F and press the ENTER key.
   Run time is about 26 minutes.
   Normal end is indicated by an BASIC DIAGNOSTIC TESTS ENDED message.
   A reference code with a 'UU' field (UUrrrris) of '5x' or '6x' is the expected failure indication.

Is a reference code displayed on the screen ?
Y N

004

The diagnostics on DIAG4 test all of the Processing Unit at machine speed.

If the following procedures do not produce the described results, start again at MAP 0000, ENTRY POINT A with the new symptom.

1. Press and hold the ALT key and operate the MODE SEL key.
   The Diagnostic Mode Selection screen appears.

2. Key in G and press the ENTER key.
   Run time is about 7 minutes.
   Normal end is indicated by an END OF MSMDs message.

(Step 004 continues)

(Step 004 continued)

A reference code with a 'UU' field (UUrrrris) of '4x', '5x', '6x', or 'Ex' is the expected failure indication.

Is a reference code displayed on the screen?
Y N

005
The END OF MSMDs message was displayed on the screen after 7 min.

You were unable to recreate the problem.

The diagnostics are not able to isolate the problem or there is a micro-code problem.

This may also be an ***INTERMITTENT*** problem and if it occurs again you will need aid.

Make an entry for this problem in the CE LOG SCREEN.

Go To Map 0001, Entry Point A.

006
Does the new reference code have an associated FRU list?
Y N

007
You have received a second reference code that has NOT been isolated to a failing FRU.

You are at a point were you need aid to isolate this problem.

Go To Map 0001, Entry Point A.

B

A B
2

008
Write the new reference code, extension, FRU list and TEST ID on the paper pad.

Go to the Map=XXXX displayed on the screen, or to Map 5040 if no Map=XXXX is displayed, for FRU replacement procedure.

Go To Map XXXX, Entry Point A.

009
Write the new reference code, extension, FRU list and TEST ID on the paper pad.

Go to the Map=XXXX displayed on the screen, or to Map 5040 if no Map=XXXX is displayed, for FRU replacement procedure.

Go To Map XXXX, Entry Point A.

MAP CODE F000FXXX FIX 0003

C.E. PANEL CODED STOP

PAGE 1 OF 34

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
DISP	X	29	206
DISP	Z	31	220
EC00	B	3	009
EC00	F	17	119
ED00	A	2	001
ED00	B	3	009
F003	B	3	009
F600	F	17	119
F600	Y	29	212
0000	A	2	001
0000	B	3	009
0000	F	17	119
0000	6	26	179
0000	A2	20	137
0239	A2	20	137

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
9	050	ED00	B
8	033	F003	A
13	081	F003	A
14	084	F003	A
7	025	F500	A
24	167	F500	A
25	173	F500	A
26	180	F500	A
26	184	F500	A
26	188	F500	A
27	193	F500	A
34	230	F500	A
24	159	F500	E
24	161	F500	E
34	229	F600	A
15	092	W00	A
34	228	W00	A
8	039	W00	A
15	092	00	A
34	228	00	A
8	036	00	A
7	028	0001	A
23	150	0001	A
23	152	0001	A
14	089	0001	A
11	064	0001	A
13	072	0001	A
13	073	0001	A
28	205	0001	A
29	211	0001	A
32	222	0001	A
34	224	0001	A
34	227	0001	A
31	220	0001	A
30	215	0001	A
8	035	0238	A
10	052	0238	A

MODEL GROUP 2

001
(Entry Point A)

CAUTION

POWER OFF BEFORE
REMOVING or EXCHANGING FRUs,
CARDS or INTERNAL CABLES.

When you are directed to
exchange or re-seat a FRU,
a check should be made to
insure that all cards,cables
and top card connectors (TCC)
are properly seated and in
the proper location.

Is CE MODE switch on CE panel set to 'NORMAL'?
Y N

002
Set CE MODE switch to 'NORMAL'.
BASIC CHECK led is lighted (ON) when CE MODE switch is in CE MODE.
You may have entered this MAP with a false symptom if the switch was 'ON'.
If directed to this MAP from the START MAP (MAP 0000), use the new symptom (BASIC CHECK not lighted), GO TO MAP 0000, Entry Point A.
Otherwise
Go to Step 001, Entry Point A.

003

Were you directed here from MAP 0000 (START MAP) by a symptom indicating an SP stop word (SP coded STOP)?
Y N

004
Were you directed here from MAP 0000 (START MAP) with the following symptoms; BASIC CHECK 'ON' and POWER COMPLETE 'ON'?
Y N

1 8
0 8
A B C

C SEQ901F MAP F000-2

005
(Entry Point A1)

Is the system console type 3279-2C?
Y N

006
Verify that 3278-2A has POWER ON.Check that SECURITY KEY is ON (if installed). Turn the audible alarm on the 3278-2A to MAXIMUM volume.

CLEAR the screen on the 3278 2A. Set the MODE switch to 'TEST'.
The 'TEST' pattern should display.
Adjust screen intensity and contrast.
Set 'MODE' switch to 'NORMAL'.
This will set screen intensity and contrast and CLEAR the screen.(ONLY cursor and divider line on the screen).If the system has not been Powered Off prior to operating the 'MODE' switch, system data could re-appear on the screen.
Check for obvious failures on the 3278-2A.

Any obvious failures on the 3278-2A?
Y N

007
(Entry Point A3)

POWER OFF.

If EITHER Power Complete or Power In Process indicator remains LIGHTED, take Y leg of next question.

Did power off fail?
Y N

8 8 8 3
D E F G

008

Insert the MSS diagnostic diskette 'DIAG4'.

CE mode switch must be in NORMAL;BASIC CHECK light OFF.

NOTE:With the PROCESSOR power 'OFF' the SP DISPLAY LEDs (green) on the CE PANEL should all be 'ON'.

POWER ON.

MSS BASIC diagnostics will automatically EXECUTE.

```
-------- REFERENCE A -----------
| The MSS BASIC DIAGNOSTICS have|
| run ERROR FREE when you hear  |
| the AUDIBLE ALARM on the 3278 |
|         or 3279 and           |
|*** BASIC MSS DIAG.COMPLETED **|
|*******************************|
| is displayed with the MAIN-   |
| TENANCE and SUPPORT SUBSYSTEM |
| ( MSS ) OPTIONAL DIAGNOSTIC   |
| SELECTION SCREEN.             |
| The OPERATOR CONTROL PANEL    |
|       will have the           |
| 'POWER IN PROCESS' indicator  |
| ON, all other indicators OFF. |
|                               |
```

Did the MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)

Y N

5
H J

009

(Entry Point B)

The MSS BASIC DIAGNOSTICS have executed and an ERROR STOP has occurred,NO REFERENCE CODE IS DISPLAYED ON THE CONSOLE..... FOUR HEX CHARACTERS must be read from the SP DISPLAY on the C.E. PANEL.

a. Open the cover and swing open the 01A A1 gate. Observe the SP DISPLAY on the C.E. PANEL.

b. PRESS and HOLD button C, ALL SP DISPLAY LEDs should be 'OFF'.
This checks the SP DISPLAY LED drivers which are in the SCL adapter.

Are ALL LEDs 'OFF'?

Y N

010

POWER OFF,exchange 01AB2 F2 and TCC.
POWER ON.
Wait 30 seconds,then PRESS and HOLD button C, ALL SP DISPLAY LEDs should be 'OFF'.
Now, if LEDs are ALL 'OFF', take Y leg of previous question.

OTHERWISE

Go to Page 20, Step 137, Entry Point A2.

011

c. LEDs ALL'OFF',continue with STEP d.

d. Wait at least 30 seconds, then PRESS and RELEASE buttons A and C at the same time.

e. PRESS and HOLD button B, record the two (high order) HEX CHARACTERS displayed.(READ SP DISPLAY TOP TO BOTTOM).

f. PRESS and HOLD buttons A and B at the same time. Record the two (low order) HEX CHARACTERS displayed.

(Step 011 continues)

(Step 011 continued)
g. Locate the SP DISPLAY ERROR STOP in one of the STOP LISTS and proceed as directed by the MAP.

NOTE: An 'x' (ie: 112x or 13xx) indicates you can ignore that CHARACTER of the DISPLAY. An 'x' can be flashing LED or blank LED.
The DISPLAY STOPS are grouped to direct you to exchange the least number of FRUS either individually or in groups.

CE PANEL DISPLAY
STOP LIST 1

100x	10Cx	118x
102x	10Dx	119x
103x	10Ex	11Ax
104x	10Fx	11Bx
105x		11Cx
106x	110x	11Dx
107x	112x	11Ex
108x	113x	11Fx
109x	1168	
10Ax	116C	2274
10Bx	117x	

Go to Page 19, Step 129, Entry Point C.

CE PANEL DISPLAY
STOP LIST 2

114x	1160	124x
115x		128x

Go to Page 19, Step 131, Entry Point D.

(Step 011 continues)

(Step 011 continued)

CE PANEL DISPLAY
STOP LIST 3

12B8	12CE	12F4
12BA	12E0	12F6
12CC	12E2	

Go to Page 27, Step 196, Entry Point 3.

CE PANEL DISPLAY
STOP LIST 4

1302	1304	

Go to Page 25, Step 176, Entry Point 4.

CE PANEL DISPLAY
STOP LIST 5

13F0	1734	2270
	1740	

Go to Page 23, Step 155, Entry Point 5.

(Step 011 continues)

(Step 011 continued)

```
## CE PANEL DISPLAY ##
#### STOP LIST 6  ####
----------------------
| 16A8 | 16C8 | 1720 |
| 16AC | 16D2 | 172x |
| 16B0 |      | 1738 |
| 16BC | 1714 | 173x |
| 16C0 | 1718 | 1744 |
| 16C4 | 171C | 1748 |
|      |      |      |
|      |      | 2278 |
----------------------
```

Go to Page 26, Step 179, Entry Point 6.

```
## CE PANEL DISPLAY ##
#### STOP LIST 7  ####
----------------------
| 222x | 223x | 224x |
----------------------
```

Go to Page 18, Step 126, Entry Point E.

```
## CE PANEL DISPLAY ##
#### STOP LIST 8  ####
----------------------
| 2250 | 225C | 2268 |
| 2254 | 2260 | 226C |
| 2258 | 2264 |      |
----------------------
```

Go to Page 16, Step 095, Entry Point 8.

```
## CE PANEL DISPLAY ##
#### STOP LIST 9  ####
----------------------
| 228x | 229x | 22Ax |
| 22Bx | 22Cx | 22D0 |
| 22D6 |      |      |
----------------------
```

Go to Page 15, Step 090, Entry Point 9.

(Step 011 continues)

(Step 011 continued)

```
## CE PANEL DISPLAY ##
#### STOP LIST 10 ####
----------------------
| 0xxx | 2Axx | 7xxx |
| 1xxx | 2Bxx | 8xxx |
| 22xx | 2Cxx | 9xxx |
| 23xx | 2Dxx | Axxx |
| 24xx | 2Exx | Bxxx |
| 25xx | 2Fxx | Cxxx |
| 26xx | 3xxx | Dxxx |
| 27xx | 4xxx | Exxx |
| 28xx | 5xxx | Fxxx |
| 29xx | 6xxx | xxxx |
----------------------
```

Go to Page 19, Step 129, Entry Point C.

012
(Entry Point W)

Select the 'FE' option to execute the MSS extended diagnostics.

During execution of the MSS extended diagnostics, 'TEST RUNNING' indicates on lower left of screen above the divider line (line 24) with the number of the test that is running. If an ERROR occurs, a ref code will be posted on the right end of the same line and the test will stop. NO TEST should take more than TWO MINUTES to complete.Some ERROR conditions can occur that will cause the SUPPORT PROCESSOR to hang with 'TEST RUNNING' and not display a ref code.

Did MSS extended diagnostics run ERROR FREE?
(No ref code displayed on the screen).
Y N

013
Follow instructions on console display.

014

Is 'TEST RUNNING' indicated on line 24 with same test number and no ref code for more than TWO MINUTES?

Y N

015

Select the 'A0' option to execute the MSS extended diagnostics for the DISKETTE DRIVE 2D (53FD).

Did the MSS extended diagnostics run ERROR FREE? (No ref code displayed on the screen).

Y N

016

Is ref code F51E12F8?

Y N

017
Follow instructions on console display.

018

Ref code F51E12F8 indicates a CRC read error on the diagnostic diskette.

Use the CE meter,set to the 6vdc scale.
Place the negative lead on 01AB2 T2D08 (GND).
Use the positive lead to probe the following test points on the 53FD file control card TPA2 (+ERASE GATE) or 01AB2 T1C13 ,and TPA3(+WRITE GATE) or 01AB2 T1D13,
The 01AB2 board locations are at the B2 board end of the cable and may be probed.
Both test points should be approximately ground (inactive level).

DISKETTE DAMAGE could result if TPA2 or TPA3 are always active(+).
(Step 018 continues)

8 7
L M

(Step 018 continued)

For DISKETTE DRIVE 2D reference, see MAINTENANCE INFORMATION MANUAL VOL.13/16.

ANY test points active (plus level)?

Y N

019

RE-IML

Did the MSS BASIC DIAGNOSTICS run ERROR free?(see REF.A)

Y N

020
Go to Page 3, Step 009, Entry Point B.

021

Select the optional diagnostic that displayed ref code F51E12F8 (option A0,Cx or D0).

Did optional diagnostic run ERROR free(no ref code)?

Y N

022

Is ref code F51E12F8?

Y N

023
Follow instructions on console display.

7 7 7
N P Q

024
Diagnostic diskette DIAG4 is defective.

Exchange diagnostic diskette DIAG4.
EC level MUST be the same.
Select the optional diagnostic that displayed ref code F51E12F8 (option A0,Cx or D0).

Did optional diagnostic run ERROR free(no ref code)?
Y N

025
Go To Map F500, Entry Point A.

026
Go to Page 31, Step 220, Entry Point Z.

027
Go to Page 31, Step 220, Entry Point Z.

028
POWER OFF.
Replace original FRUs in 01AB2 T2,U2 and File Control card.
The cable from the the file control card to the B2 board (01AB2 Y6) is described in the DISKETTE DRIVE section of VOL.13/16.
THE active level at either TPA2 or TPA3 is not due to the FRUs you just replaced.
Examine the board and cable to determine the source of the active level at the test points.

PROBLEM IS NOT RESOLVED.

Go To Map 0001, Entry Point A.

029
Select the 'FE' option to execute the MSS extended diagnostics to test PORT 0 (Operator Console) or if you have devices on PORTS 1 - 3 select 'C0' to execute diagnostics for the Device Cluster Adapter and all PORTS 0-3 and all attached 3278's, 3279's or 3287's.

Did the MSS extended diagnostics run ERROR FREE? (No ref code displayed on the screen).
Y N

030

Follow instructions on display console.

031
If no FRUs are in 01AA2 K4 and L2 (REMOTE SUPPORT FACILITY).

GO TO MAP F003, ENTRY POINT A.

OTHERWISE

If you have FRUs in location 01AA2 K4 and L2 (REMOTE SUPPORT FACILITY),check the FRU in location K4, if the FRU is the 38LS modem (38LS has 2 columns of 8 rocker switches), select the 'D0' option to run MSS OPTIONAL diagnostics for RSF.

If FRU in K4 is EIA interface (EIA interface FRU has no switches)
Select the 'E0' option to run MSS OPTIONAL diagnostics for RSF.
NOTE:The cable wrap plug must be placed on the end of the cable to run the 'E0' option.

Did the MSS OPTIONAL diagnostics for RSF run ERROR FREE? (No ref code displayed on the screen).
Y N

032
Follow instructions on console display.

033

Go To Map F003, Entry Point A.

034

Go to Page 29, Step 212, Entry Point Y.

035

Go To Map 0238, Entry Point A.

036

3278-2A Maintenance Information Manual is located under keyboard

GO TO 3278-2A MAP.

Go To Map 00, Entry Point A.

037

Verify that 3279-2C has POWER ON.Check that SECURITY KEY is ON (if installed).

Turn the audible alarm on the 3279-2C to MAXIMUM volume.

CLEAR the screen on the 3279-2C. Turn the MODE switch to 'TEST'.

The 'TEST' pattern should display.

Adjust screen brightness.

Check for obvious failures on the 3279-2C. (keyboard failure,incorrect 'TEST' Pattern etc.)

Turn the 'MODE' switch to 'NORMAL'. This will set screen brightness and contrast and CLEAR the screen. (Only cursor and divider line on the screen).

Any obvious failures on the 3279-2C?
Y N

038

Go to Page 2, Step 007, Entry Point A3.

039

The 3279-2C Maintenance Information Manual is located in a pocket inside the rear cover.

Go To Map W00, Entry Point A.

040

The symptoms BASIC CHECK 'ON' and POWER COMPLETE 'ON' with no ref.code,NORMALLY indicates that the system cannot communicate with the system console.

An SP stop word (SP coded stop) occurred. NO ref code is displayed on the console..... FOUR HEX CHARACTERS must be read on the SP DISPLAY of the C.E. PANEL.

a. Open the cover and swing open the 01A A1 gate. Observe the SP DISPLAY on the C.E. PANEL.

b. PRESS and HOLD button C, ALL SP DISPLAY LEDs should be 'OFF'.

Are ALL LEDs 'OFF'?
Y N

041

POWER OFF,exchange 01AB2 F2 and TCC.

POWER ON.

Wait 30 seconds,then PRESS and HOLD button C, ALL SP DISPLAY LEDs should be 'OFF'.

Now if LEDs are ALL 'OFF',take Y leg of previous question.

OTHERWISE

Go to Page 20, Step 137, Entry Point A2.

042

c. LEDs ALL'OFF',continue with STEP d.

d. Wait at least 30 seconds, then PRESS and RELEASE buttons A and C at the same time.

e. PRESS and HOLD button B, record the two (high order) HEX CHARACTERS displayed.(READ SP DISPLAY TOP TO BOTTOM).

f. PRESS and HOLD buttons A and B at the same time. Record the two (low order) HEX CHARACTERS displayed.

Is the STOP 16E8?
Y N

043
Go to Page 2, Step 005, Entry Point A1.

044

POWER OFF.
POWER IN PROCESS and POWER COMPLETE indicators should be off.

Did Power Off fail?
Y N

045

Insert the MSS diagnostic diskette 'DIAG4'.

CE mode switch must be in NORMAL;BASIC CHECK light OFF.

NOTE:With the PROCESSOR power 'OFF' the SP DISPLAY LEDs (green) on the CE PANEL should all be 'ON'.

POWER ON.

MSS BASIC diagnostics will automatically EXECUTE.
(Step 045 continues)

IOT

(Step 045 continued)

Did the MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

046
Go to Page 2, Step 005, Entry Point A1.

047

Select the 'FE' option to execute the MSS extended diagnostics.

During execution of the MSS extended diagnostics, 'TEST RUNNING' indicates on lower left of screen above the divider line (line 24) with the number of the test that is running. If an ERROR occurs, a ref code will be posted on the right end of the same line and the test will stop. NO TEST should take more than TWO MINUTES to complete.Some ERROR conditions can occur that will cause the SUPPORT PROCESSOR to hang with 'TEST RUNNING' and not display a ref code.

Did MSS extended diagnostics run ERROR FREE? (No ref code displayed on the screen).
Y N

048
Follow instructions on console display.

049

Is 'TEST RUNNING' indicated on line 24 with same test number and no ref code for more than TWO MINUTES?
Y N

050
Go To Map ED00, Entry Point B.

051

Go to Page 29, Step 212, Entry Point Y.

052
Go To Map 0238, Entry Point A.

053

An SP stop word has occurred.
NO ref code IS DISPLAYED ON THE CONSOLE.....
FOUR HEX CHARACTERS must be read from the SP DISPLAY on the C.E. PANEL.

a. Open the cover and swing open the 01A A1 gate. Observe the SP DISPLAY on the C.E. PANEL.

b. PRESS and HOLD button C, ALL SP DISPLAY LEDs should be 'OFF'.

Are ALL LEDs 'OFF'?
Y N

054

POWER OFF,exchange 01AB2 F2 and TCC.

POWER ON.

Wait 30 seconds,then PRESS and HOLD button C, ALL SP DISPLAY LEDs should be 'OFF'.

Now if LEDs are ALL 'OFF',take Y leg of previous question.

OTHERWISE

Go to Page 20, Step 137, Entry Point A2.

055

c. LEDs ALL'OFF',continue with STEP d.

d. Wait at least 30 seconds, then PRESS and RELEASE buttons A and C at the same time.

e. PRESS and HOLD button B, record the two (high order) HEX CHARACTERS displayed.(READ SP DISPLAY TOP TO BOTTOM).

f. PRESS and HOLD buttons A and B at the same time. Record the two (low order) HEX CHARACTERS displayed.

IS the STOP 1734,1740 OR 17xx? (xx indicates any other combination of hex digits, blank or flashing indicators.)
Y N

056
Go to Page 2, Step 005, Entry Point A1.

057

```
## CE PANEL DISPLAY ##
#### STOP LIST 11 ####
----------------------
| 177C | 1788 | 1798 |
| 1780 | 178C | 17A0 |
| 1784 | 1794 | 17A8 |
----------------------
```

Is ERROR STOP in LIST 11?
Y N

058
Is ERROR STOP 1790 or 179C?
Y N

059
STOP 1734 OR 1740 indicates a CRC read error on the 'FUNCT' diskette.

17xx could also indicate a defective 'FUNCT' diskette.

Use the CE meter,set to the 6vdc scale.
Place the negative lead on 01AB2 T2D08 (GND).
Use the positive lead to probe the following test points on the 53FD file control card TPA2 (+ERASE GATE / 01AB2 T1C13) ,and TPA3 (+WRITE GATE / 01AB2 T1D13),
The 01AB2 board locations at the B2 board end of the cable may be probed.
Both test points TPA2 and TPA3 should be approximately ground (inactive level).

DISKETTE DAMAGE could result if TPA2 or TPA3 is always active(+).

For DISKETTE DRIVE 2D reference see MAINTENANCE INFORMATION MANUAL VOL.13/16.

ANY test points active (plus level)?
Y N

060

POWER OFF.

Install MSS diagnostic diskette DIAG4.CE mode switch must be in NORMAL; BASIC CHECK light OFF.

POWER ON.

Did the MSS BASIC DIAGNOSTICS run ERROR free?(see REF.A,pg.3)
Y N

061
Go to Page 2, Step 005, Entry Point A1.

Y Z

062

Select option A0 to run 53FD extended diagnostics.

Do the diagnostics run ERROR free?(no ref code)
Y N

063
Follow instructions on console display.

064

53fd extended diagnostics have indicated no problems with the 53fd DISKETTE DRIVE 2D.

Stop 1734 or 1740 indicates CRC read errors on 'FUNCT' diskette.

'FUNCT' diskette stop 17xx with no diagnostics ERROR STOP indicates a defective 'FUNCT' diskette.

Exchange 'FUNCT' diskette.

PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

065
POWER OFF.

Exchange TCC's and 01AB2 T2,U2,and the File Control card.

Power ON.

Use the CE meter,set to the 6vdc scale.
Place the negative lead on 01AB2 T2D08 (GND).
Use the positive lead to probe the following test points on the 53FD file control card TPA2 (+ERASE GATE) or 01AB2 T1C13 ,and TPA3(+WRITE GATE) or 01AB2 T1D13,
The 01AB2 board locations are at the B2 board end of the cable and may be probed.
(Step 065 continues)

(Step 065 continued)
Both test points should be approximately ground (inactive level).

DISKETTE DAMAGE could result if TPA2 or TPA3 is always active(+).

For DISKETTE DRIVE 2D reference see MAINTENANCE INFORMATION MANUAL VOL.13/16.

ANY test points active (plus level)?
Y N

066
Insert MSS diagnostic diskette DIAG4.

RE-IML (switch D on CE panel).

Did the MSS BASIC DIAGNOSTICS run ERROR free?(see REF.A,pg 4)
Y N

067
Go to Page 3, Step 009, Entry Point B.

068
Select option A0 to run 53FD extended diagnostics.

Do the diagnostics run ERROR free?(no REF.CODE)
Y N

069

Is the ref code F51E12F8?
Y N

070
Follow instructions on console display.

1 3
A A A
A B C

A A
B C

071
Diagnostic diskette DIAG4 is defective.

Exchange diskette DIAG4.

Go to Page 24, Step 168, Entry Point A4.

072
Stop 1734 or 1740 indicates CRC read errors on 'FUNCT' diskette.

Exchange 'FUNCT' diskette.

Determine the failing FRU by exchanging the original FRUs ONE at a time.

POWER OFF/POWER ON for each card exchange.

TO PREVENT DAMAGE to the DISKETTE, OPEN diskette drive cover.

Probe TPA2 and TPA3 after each FRU exchange.

Use the CE meter,set to the 6vdc scale.
Place the negative lead on 01AB2 T2D08 (GND).
Use the positive lead to probe the following test points on the 53FD file control card TPA2 (+ERASE GATE) or 01AB2 T1C13 ,and TPA3(+WRITE GATE) or 01AB2 T1D13,
The 01AB2 board locations are at the B2 board end of the cable and may be probed.
Both test points should be approximately ground (inactive level).

Exchange the failing FRU. Verify correct operation by running MSS DIAGNOSTICS.

Select the AF option that will run 53FD DIAGNOSTICS continuously.

If an ERROR STOP occurs

1.NO ref code DISPLAYED:

Go To Map F000,Entry Point B.

(Step 072 continues)

(Step 072 continued)

2.ref code DISPLAYED:

Follow instructions on console display

If no ERRORS occur
Terminate diagnostics (RE-IML).
POWER OFF.

PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

073
POWER OFF.
Replace original FRUs in 01AB2 T2,U2 and File Control card.
The cable from the the file control card to the B2 board (01AB2 Y6) is described in the DISKETTE DRIVE section of VOL.13/16.
THE active level at either TPA2 or TPA3 is not due to the FRUs you just replaced.
Examine the board and cable to determine the source of the active level at the test points.

PROBLEM IS NOT RESOLVED.

Go To Map 0001, Entry Point A.

074
POWER OFF.
Insert DIAG-4 to run MSS BASIC and EXTENDED diagnostics.
POWER ON.

Did the MSS BASIC DIAGNOSTICS run ERROR free?(see REF.A,pg.3)
Y N

075
Go to Page 2, Step 005, Entry Point A1.

076

Select option FF to loop extended diagnostics for CONTROLLER and DCA adapter.
Run diagnostic 5 minutes.

Do the diagnostics run ERROR free?(no ref code)
Y N

077
Follow instructions on console display.

078
Terminate diagnostics by performing Re-IML (POWER ON/IML or CE-IML).
Extended diagnostics have indicated no problems with the Controller,SP Storage or DCA port 0.
Select option AF to loop extended diagnostics for the 53FD.
Run for 5 minutes.

Do the diagnostics run ERROR free?(no ref code)
Y N

079
Follow instructions on console display.

080
Terminate diagnostics by performing Re-IML (POWER ON/IML or CE-IML)
53fd extended diagnostics have indicated no problems with the 53fd DISKETTE DRIVE 2D.
Is RSF adapter installed (01AA2 K4,L2)?
Y N

081
Diagnostics have indicated no problem.
Problem is INTERMITTENT.

Go To Map F003, Entry Point A.

082

If RSF adapter is installed (01AA2 K4 and L2), select option DF to loop RSF diagnostics.
Run for 5 minutes.
Do the diagnostics run ERROR free?(no ref code)
Y N

083
Follow instructions on console display.

084
Terminate diagnostics by performing Re-IML (POWER ON/IML or CE-IML)
RSF extended diagnostics have indicated no problems in RSF adapter.
Diagnostics have indicated no problem.
Problem is INTERMITTENT.

Go To Map F003, Entry Point A.

085
POWER OFF.
Insert DIAG-4 to run MSS BASIC and EXTENDED diagnostics.
POWER ON.

Did the MSS BASIC DIAGNOSTICS run ERROR free?(see REF.A,pg.3)
Y N

086
Go to Page 2, Step 005, Entry Point A1.

087

Select option AF to loop 53FD extended diagnostics.
Run diagnostic 5 minutes.

Do the diagnostics run ERROR free?(no ref code)
Y N

088
Follow instructions on console display.

089

Terminate diagnostics by performing Re-IML (POWER ON/IML or CE-IML)
53FD extended diagnostics have indicated NO PROBLEMS with the 53fd DISKETTE DRIVE 2D.
PROBLEM IS NOT REPAIRED.

Go To Map 0001, Entry Point A.

090
(Entry Point 9)

POWER OFF.

Verify seating of cable at 01AB2 Y5 to the console Port 0 (01F gate). Verify the connection of the coax cable to the system console (3278-2A or 3279-2C) normally attached to Port 0. If necessary to verify continuity and the resistance of the coax cable GO TO 3278-2A MAP 02 Entry point A or GO TO 3279-2C MAP 0900 Entry Point CC. The 3278-2A Maintenance Library is located in a pocket under the keyboard;the 3279-2C Maintenance Library is located inside the rear cover. If no problem exists with the coax cable return to this MAP and continue with this step.

Exchange 01AB2 R2 and S2.
POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see ref.a,pg.1)
Y N

091
POWER OFF.

Replug original FRUs in 01AB2 R2 and S2.

Exchange 01AB2 H2,J2,K2 and TCC's

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

A A A
G H J

A A A
G H J

092
Replug original FRU(s) in 01AB2 H2,J2 and K2.

3278-2A Maintenance Information Manual is located in pocket under keyboard

GO TO 3278-2A MAPS

Go To Map 00, Entry Point A.

The 3279-2C Maintenance Information Manual is located in a pocket inside the rear cover.
Go To Map W00, Entry Point A.

093
Go to Page 28, Step 205, Entry Point I.

094
Go to Page 28, Step 205, Entry Point I.

095
(Entry Point 8)

Is the stop on the C.E. PANEL '2250'?
Y N

096

Is the stop on the C.E. PANEL '2254'?
Y N

097

Is the stop on the C.E. PANEL '2258'?
Y N

098

Is the stop on the C.E. PANEL '225C'?
Y N

099

Is the stop on the C.E. PANEL '2260'?
Y N

18AK 18AL 17AM 17AN 17AP AQ

100

Is the stop on the C.E. PANEL '2264'?
Y N

101

Is the stop on the C.E. PANEL '2268'?
Y N

102

Is the stop on the C.E. PANEL '226C'?
Y N

103
You should not be here.
Go to Page 3, Step 009, Entry Point B.

104
Go to Page 18, Step 126, Entry Point E.

105
POWER OFF. Exchange 01AB2 E4,F2 and TCC's.

POWER ON

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

106
Go to Page 18, Step 126, Entry Point E.

107
Go to Page 28, Step 205, Entry Point I.

17AR

108
POWER OFF. Verify seating of cable at 01AB2 Y6.

Exchange 01AB2 T2,U2 and TCC's.

POWER ON

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

109
Go to Page 18, Step 126, Entry Point E.

110

Select 'A0' option that will run MSS OPTIONAL diagnostics for DISKETTE DRIVE 2D.

Did the diagnostics run ERROR FREE? (No ref code displayed on screen.)
Y N

111
Follow instructions on console display.

112
Go to Page 28, Step 205, Entry Point I.

113
POWER OFF.

Verify seating of cable at 01AB2 Y5 to the console port (01F gate). Verify the connection of the coax cable to the system console (3278-2A or 3279-2C).To verify continuity of the coax cable GO TO 3278-2A MAP 02 Entry point A or GO TO 3279-2C MAP 0900 Entry Point CC. The 3278-2A Maintenance Library is located in a pocket under the keyboard;the 3279-2C Maintenance Library is located inside the rear cover. If no problem exists with the coax cable return to this MAP and continue with this step.

Exchange 01AB2 R2 and S2.

(Step 113 continues)

(Step 113 continued)
POWER ON

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

114
Go to Page 18, Step 126, Entry Point E.

115
Go to Page 28, Step 205, Entry Point I.

116
POWER OFF. Exchange 01AA2 L2.

POWER ON

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

117
Go to Page 18, Step 126, Entry Point E.

118
Go to Page 28, Step 205, Entry Point I.

119

(Entry Point F)

POWER OFF.

Verify plugging of cables at locations 01AA2 T2 and U4 and 01AB2 V2 and V3.

Exchange 01AA2 M2,N2,P2 and TCC's.

POWER ON

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

120
Go to Step 126, Entry Point E.

121
Go to Page 28, Step 205, Entry Point I.

122
POWER OFF. Exchange 01AB2 G2 and TCC.

POWER ON

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

123
Go to Step 126, Entry Point E.

124
Go to Page 28, Step 205, Entry Point I.

125
Go to Step 126, Entry Point E.

126
(Entry Point E)

POWER OFF.
Exchange TCC's and FRUs in 01AB2 H2,J2 and K2.
POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

127

Go to Page 29, Step 212, Entry Point Y.

128
Go to Page 28, Step 205, Entry Point I.

129
(Entry Point C)

Were you directed here from STOP LIST 10?
Y N

130
(Entry Point G)

POWER OFF.
Ensure that DIAG-4 diskette is installed.
Exchange TCC's and FRU's in 01AB2 J2,H2 and K2.
POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

131
(Entry Point D)

POWER OFF. If applicable, replug original cards.
Exchange 01AB2 (*) L2 and M2 (if installed) with new FRUs.
NOTE: (*) SP storage is 64k and may have one 64k FRU in L2 or two 32k FRUs, one each in L2 and M2.

Power ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

2 0 A U — A V — A W — A X

A V — A W — A X

132

If SP Storage is single 64K storage in 01AB2 L2, the problem may be a defective PS104, +12volt output.

Use the 'DC DISTRIBUTION (PS101,PS104 TO GATE01A) as shown in the PROCESSOR POWER section of VOL.13/16. as a reference.

Scope ALL of the PS104 voltages at the distribution pins on the 01AB2 board as described on the referenced page.

PS104 supplies +12,-12,+8.5,+5 and -5 vdc to 01AB2 and 01AA2 boards.

If ANY of the voltages has a ripple that causes the voltage being scoped to be less than 91% (-9%) of nominal rating, PS104 should be REPAIRED or EXCHANGED.

If any voltage is not in tolerance, or if any defective FRU(s) are detected, repair or exchange them.

Do you still have a problem?
Y N

133

POWER OFF. If applicable, replug original FRU's.

Go to Page 28, Step 205, Entry Point I.

134
Go to Page 29, Step 212, Entry Point Y.

135
Go to Page 28, Step 205, Entry Point I.

136
Go to Page 28, Step 205, Entry Point I.

137
(Entry Point A2)

POWER OFF.

Unplug cables at 01AA2 T2 and U4.

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

138
Ensure that DIAG-4 diskette is installed.

POWER OFF. Replug cables at 01AA2 T2 and U4. This has verified that 01AA2 K4,L2,M2,N2 and P2 (LCA and RSF adapters) are not causing this problem.

Exchange TCC's and FRU's in 01AB2 J2,H2 and K2.
POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

139
Go to Page 21, Step 148, Entry Point A5.

140
Go to Page 28, Step 205, Entry Point I.

141
POWER OFF.

Replug cables at 01AA2 T2 and U4.

Exchange 01AA2 M2,N2,P2 and TCC's.

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE? (see REF.A,pg.3)
Y N

A A
Y Z

142
POWER OFF.

Examine sockets and back of panel in location 01AA2 K4,L2,M2,N2 and P2 for bent or shorted pins.

Correct any problems found.

Replug original FRUs in 01AA2 M2,N2 and P2.

Are FRUs plugged in location 01AA2 K4 and L2?
Y N

143

Go to Page 29, Step 210, Entry Point X1.

144

Exchange 01AA2 K4 and L2.

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE? (See REF.A,pg.1)
Y N

145

Go to Page 29, Step 210, Entry Point X1.

146
Go to Page 28, Step 205, Entry Point I.

147
Go to Page 28, Step 205, Entry Point I.

148
(Entry Point A5)

The MSS Resets to the CONTROLLER must be verified.

NOTE: If reset line levels have excessive variations, appearing to be intermittently correct, the problem may be due to a defective PS104.
The following reference may be used to check PS104.

Use the 'DC DISTRIBUTION (PS101,PS104 TO GATE01A) as shown in the PROCESSOR POWER section of VOL.13/16. as a reference.
SCOPE the PS104 voltages at the distribution pins on the 01AB2 board as described on the referenced page. PS104 supplies +12,-12,+8.5,+5 and -5 vdc to 01AB2 and 01AA2 boards.
If ANY of the voltages has a ripple that causes the voltage being scoped to be less than 91% (-9%) of nominal rating, PS104 should be REPAIRED or EXCHANGED.)

The MSS Resets to the CONTROLLER must be verified.

A 'power on reset' (-RESET to MSS) will occur whenever the POWER ON/IML switch on the OCP or POWER ON switch on the CE panel is actuated when power is 'OFF'.

SP IML via the POWER ON/IML or LOGIC RESET switches will result in a manual SP IML (-MANUAL IML).

C.E. IML via switch D on the C.E. panel will also result in an SP IML (-CE SWITCH D).

PLEASE READ THE FOLLOWING CAREFULLY.

MSS Reset originates at 01AD2 E2B04.

This reset only occurs at POWER ON.

A second level logic of the resets is shown in VOL. 13/16 MSS Service Aids 14 305 titled' Logic Reset'.

A failure of the resets can result in failure to perform manual IML of the Support Processor, Power Off failures, or runaway of the Controller with random error stops on the SP Display.

The runaway is due to failure to reset the Controller to

(Step 148 continues)

(Step 148 continued)
a starting address for SP IML (X1000) 01AB2 R2P12 .

To verify the MSS Resets use Logic Reset in MSS Service Aids VOL.13/16 as a reference and locate 01AB2 G2 FRU.

The MSS RESETS inputs and outputs are on 01AB2 G2 FRU. If the outputs are correct it is not necessary to check the inputs.

The following procedure will check the outputs that should result from the following three inputs to 01AB2 G2:

POWER ON reset line (-RESET TO MSS)
Manual IML (-MANUAL IML)
CE IML (switch D on the CE panel.)

The Service Aid titled LOGIC RESET (Vol 13/16) is the reference for 'Procedure to check MSS RESET'

Procedure to check MSS RESET

1.) POWER OFF.
Ensure that the CE Mode Switch is in 'NORMAL' Mode.
2.) Use the C.E. meter. Scale setting 6 vdc.
NOTE: ALL voltage readings are approximate values.
Down levels approximately 0 vdc.
Up levels between 3.5 vdc and 5.0 vdc.
3.) Place negative (-) lead on 01AB2 G2D08 (ground).
4.) Place positive (+) lead on 01AB2 G2S07 (-SBA RESET LINE 2).
5.) Press Power On switch on CE panel and observe meter. The meter should read approximately 0 vdc for 1.6 seconds, then deflect to between + 3.5 vdc and +5 vdc.
6.) With the same meter setup, press the Power On/IML switch on the OCP. The meter should deflect momentarily to approximately +3 vdc, then deflect to between 3.5 vdc and 5.0 vdc.
7.) With the same meter setup, press and hold CE IML (switch D on the CE Panel), and then release it. The meter should deflect to approximately 0 vdc while the switch is held, when the switch is released, the meter should then read between 3.5 vdc and 5 vdc.
8.) If the results of steps 5 through 7 are CORRECT, the

(Step 148 continues)

(Step 148 continued)
MSS resets are funtioning correctly.
If the OUTPUTS are correct, the INPUTS are also funtioning correctly.SKIP steps 9 through 14.

If any of the results for steps 5 - 7 are INCORRECT, record the incorrect result.
POWER OFF.
Place the positive lead on 01AB2 G2P09 (-SBA RESET LINE 1) and repeat steps 5 through 7.
Record the results.
This has tested the outputs G2 S07 (-SBA RESET LINE 2), and G2 P09 (-SBA RESET LINE 1)

CONTINUE

The inputs to 01AB2 G2 must now be tested to determine why the outputs are INCORRECT.

To TEST the inputs to 01AB2 G2;

9) POWER OFF. Place the positive (+) lead on 01AB2 G2P06 (-RESET TO MSS).
10) Press Power On switch on CE panel and observe meter. The meter should read approximately 0 vdc for 1.6 seconds, then read between 3.5 vdc and 5.0 vdc.
11) Place the positive (+) lead on 01AB2 G2P10 (-CE PANEL SW D).
12) With the above meter setup, press and hold CE IML (switch D on the CE Panel), and then release it. The meter should deflect to approximately 0 vdc while the switch is held, when the switch is released, the meter should read between 3.5 vdc and 5.0 vdc.
13) Place the positive (+) lead on 01AB2 G2P07 (-MANUAL IML).
14) Press the Power On/IML switch on the OCP or the Logic Reset switch; the meter should deflect momentarily to approximately +3 vdc, then read between 3.5 vdc and 5.0 vdc.

The RESETS input to 01AB2 G2 and voltage outputs of PS104 have now been checked.
(Step 148 continues)

(Step 148 continued)

Are 'ALL' of the Resets functioning properly? Three inputs: -MANUAL IML,-CE PANEL SW D , -RESET TO MSS and two outputs: -SBA RESET LINE 1 and -SBA RESET LINE 2.
Y N

149
Ensure that DIAG-4 diskette is installed.
Use the Service Aid (Logic Reset) as a reference.
The reset error conditions are listed below.
Locate the error condition you determined then EXCHANGE the FRUs one at a time to determine the failing FRU.
Power OFF, EXCHANGE FRU, Power ON.
*If the FRU to be exchanged is located on the 01AD2 board, CB1 and CB2 must be turned OFF.
Re-install original FRU if NOT defective.
If reset problem is corrected, BASIC MSS DIAGNOSTICS will run error free with the MSS diagnostic selection screen displayed (see REF.A,pg.3).

MSS RESET ERROR CONDITIONS

a) If ALL inputs are correct but BOTH outputs are failing, EXCHANGE the following FRUs, one at a time, to locate the failing FRU:
01AB2 G2,H2,E4,F2 and T2.

b) If ALL of the inputs and -SBA RESET LINE 1 are correct, but -SBA RESET LINE 2 is failing, EXCHANGE the following FRUs, one at a time, to locate the failing FRU:
01AB2 G2 and R2, 01AA2 L2,M2 and P2.

c) If failure is input LOGIC RESET SWITCH, EXCHANGE the following FRUs one at a time:
01AB2 G2,R2 and * 01AD2 B2.

d) If failure is input -MANUAL IML:
EXCHANGE 01AB2 G2, * 01AD2 B2.

e) If failure is input -RESET TO MSS:
EXCHANGE 01AB2 E2,G2,S4,T2 and also 01AB2 L2
(Step 149 continues)

(Step 149 continued)
(ONLY if single FRU 64K storage) and * 01AD2 E2,C4,C2,D2.

f) C.E. panel or Operator Control Panel switches and connecting cables should be considered as FRUs, and repaired or exchanged,as required.

g) If any defective FRU(s) are detected, repair or exchange them.

h) Excessive ripple of one of the PS104 output voltages; exchange PS104.

Do you still have a problem?
Y N

150
PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

151
Are resets functioning properly?
Y N

152
PROBLEM IS NOT REPAIRED.

Go To Map 0001, Entry Point A.

153
Go to Page 29, Step 206, Entry Point X.

154
Go to Page 19, Step 130, Entry Point G.

155
(Entry Point 5)

POWER OFF.

Verify seating of cable at 01AB2 Y6.

Exchange 01AB2 T2,U2 and TCC's.

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

156
POWER OFF. Replug original FRUs in 01AB2 T2 and U2.

Exchange 01AB2 (*) L2 and M2 (if installed) with new FRUs.
NOTE: (*) SP storage is 64k and may have one 64k FRU in L2 or two 32k FRUs, one each in L2 and M2.

Power ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

157
POWER OFF. Replug original FRU in 01AB2 L2 and M2.

Exchange TCC's and FRUs in 01AB2 H2,J2 and K2.

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

158
POWER OFF.
Replug original FRU(s) in 01AB2 H2,J2 and K2.

Trouble indicated is a defective diskette.

If available,exchange diskette and retry.

Do you have replacement diskette?
Y N

159

Go To Map F500, Entry Point E.

160

Insert replacement diskette (MUST BE AT SAME E.C. LEVEL)

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

161

Go To Map F500, Entry Point E.

162
Go to Page 28, Step 205, Entry Point I.

163
Go to Page 28, Step 205, Entry Point I.

164
Go to Page 28, Step 205, Entry Point I.

165

Select 'A0' option that will run MSS OPTIONAL diagnostics for DISKETTE DRIVE 2D.

Did the diagnostics run ERROR FREE? (No ref code displayed on screen.)
Y N

166

Is ref code F51E12F8?
Y N

167
Go To Map F500, Entry Point A.

168
(Entry Point A4)

Diagnostic diskette DIAG4 is defective.
Power OFF.
Exchange DIAG4 diskette (EC level must be the same).
Power ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

169
Go to Page 3, Step 009, Entry Point B.

170
Re-run diagnostic option that gave you F51E12F8 ref. code.

Did optional diagnostic run ERROR free(no ref code)?
Y N

171
Is ref.code F51E12F8?
Y N

172
Follow directions on display console.

173
Go To Map F500, Entry Point A.

174
Go to Page 28, Step 205, Entry Point I.

175
Go to Page 28, Step 205, Entry Point I.

176
(Entry Point 4)

POWER OFF. Exchange 01AB2 E4,F2 and TCC's.

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

177
Go to Page 29, Step 212, Entry Point Y.

178
Go to Page 28, Step 205, Entry Point I.

179
(Entry Point 6)

Check for the following:

1. The diskette is inserted correctly.

2. The diskette drive cover is closed.

3. The diskette is rotating.

Are ALL the above conditions correct?
Y N

180

Go To Map F500, Entry Point A.

181
POWER OFF.
Check the seating of the cable at 01AB2 Y6.
Check the seating of the File Control Card and all cables to the 53FD Diskette Drive.
If any of the components were loose or improperly seated,POWER ON to verify that the problem is repaired.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

182
POWER OFF.
Exchange 01AB2 T2,U2 and TCC's.
Ensure that DIAG-4 diskette is installed.

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

2 7 B J | B K | B L

B K | B L

183
POWER OFF. Replug original FRU in 01AB2 T2 and U2.

Exchange TCC's and FRUs in 01AB2 H2,J2 and K2.

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)?
Y N

184

Replug original FRUS in 01AB2 H2,J2 and K2.

Go To Map F500, Entry Point A.

185
Go to Page 28, Step 205, Entry Point I.

186

Select 'A0' option that will run MSS OPTIONAL diagnostics for DISKETTE DRIVE 2D.

Did the diagnostics run ERROR FREE? (No ref code displayed on screen.)
Y N

187

Is ref code F51E12F8?
Y N

188
Go To Map F500, Entry Point A.

189
Diagnostic diskette DIAG4 is defective.

Exchange diskette DIAG4.

Go to Page 24, Step 168, Entry Point A4.

2 7 B M

190
Go to Page 28, Step 205, Entry Point I.

191

Select 'A0' option that will run MSS OPTIONAL diagnostics for DISKETTE DRIVE 2D.

Did the diagnostics run ERROR FREE? (No ref code displayed on screen.)
Y N

192

Is ref code F51E12F8?
Y N

193
Go To Map F500, Entry Point A.

194
Diagnostic diskette DIAG4 is defective.

Exchange diskette DIAG4.

Go to Page 24, Step 168, Entry Point A4.

195
Go to Page 28, Step 205, Entry Point I.

196
(Entry Point 3)

POWER OFF.

Unplug cables at 01AA2 T2 and U4.

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A,pg.3)
Y N

197
POWER OFF. Replug cables at 01AA2 T2 and U4. This has verified that 01AA2 K4,L2,M2,N2 and P2 (LCA and RSF adapters) are not causing this problem.

Go to Page 29, Step 212, Entry Point Y.

198
POWER OFF.

Replug cables at 01AA2 T2 and U4.

Exchange 01AA2 M2,N2,P2 and TCC's.

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE? (see REF.A,pg.3)
Y N

199
POWER OFF.

Examine sockets and back of panel in location 01AA2 K4,L2,M2,N2 and P2 for bent or shorted pins.

Correct any problems found.

Replug original FRUs in 01AA2 M2,N2 and P2.

Are FRUs plugged in location 01AA2 K4 and L2?
Y N

200

Go to Page 29, Step 210, Entry Point X1.

201

Exchange 01AA2 K4 and L2.

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE? (See REF.A,pg.1)
Y N

202

Go to Page 29, Step 210, Entry Point X1.

203
Go to Step 205, Entry Point I.

204
Go to Step 205, Entry Point I.

205
(Entry Point I)
If more than one FRU was exchanged, determine the failing FRU by replugging the original FRUs one at a time. Run MSS diagnostic option that detected the failure. Exchange the failing FRU.

If no FRUs were replaced (only cables or FRUs reseated,etc.), continue the next step to verify the repair.

Select the option 'FF' that will cause the MSS BASIC diagnostics to loop CONTINUOUSLY.

Run diagnostics for FIVE minutes.

If a diagnostic ERROR STOP occurs with

1. NO ref.code displayed (SP stop word)

Go to Page 3, Step 009, Entry Point B.

********* OR *********
2. A ref.code displayed.
Follow instructions on console display.

********* OR *********
3. If No ERROR STOP occurs:

The failing FRU(s) have been repaired and/or exchanged.

To terminate diagnostics,RE-IML.

POWER DOWN

PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

206

(Entry Point X)

Does ref code UU = F5 (ref code = UURRRRIS)?
Y N

207
Does ref code UU = F6?
Y N

208
Does ref code UU = F8?
Y N

209
does ref code UU = FE?
Y N

210
(Entry Point X1)

Record this step number as you may return to this ENTRY POINT.

Because the SUPPORT PROCESSOR or an attached ADAPTER has been indicated as failing and the previous FRU replacements have not resolved the problem, The map will direct you to exchange additional FRUS. They will be grouped by ADAPTER.

Is this the FIRST time through this ENTRY POINT?
Y N

3 3 3 3 B B
4 4 4 1 V W
B B B B
R S T U

B B
V W

211

PROBLEM IS NOT REPAIRED.

Go To Map 0001, Entry Point A.

212

Support Processor Adapter Group

Group	FRU Location
LOW # 1.	Controller 01AB2 H2,J2, AND K2
# 2.	Controller Storage 01AB2 ($) L2 AND M2
# 3.	Display Adapter 01AB2 R2 AND S2
# 4.	Diskette Drive Adapter 01AB2 T2 AND U2
# 5.	C. E. Panel Adapter 01AB2 E4 AND F2
# 6.	Support Bus Adapter 01AB2 G2
# 7.	Local Channel Adapter 01AA2 M2,N2 AND P2
# 8.	Power Controller 01AB2 C2**,D2** AND E2
HIGH # 9.	REMOTE SUPPORT FACILITY 01AA2 K4* AND L2

(Entry Point Y)

The above chart has the FRUS grouped by adapter.

(Step 212 continues)

B B
V W
SEQ901F MAP F000-29

(Step 212 continued)
Determine the FRU group(s) you may have already exchanged,then starting with the LOWEST group number,exchange the FRUs, one GROUP at a time.

Exchange top card connector (TCC) and the FRUs one GROUP at a time.

Do not exchange any group(s) you exchanged prior to entering this map.

(Entry Point Y1)

POWER OFF.

If applicable, Replug ORIGINAL FRU(s) for the GROUP just exchanged.

Continue to EXCHANGE the LOWEST numbered GROUP that you HAVE NOT previously exchanged.

NOTE:
($) For GROUP # 2, SP storage is 64k and may have one 64k FRU in L2 or two 32k FRUS, one each in L2 and M2.
** For GROUP #8,verify correct location of jumper on 01AB2 C2 and D2. Refer to Sense Card Jumpers SEC.20, VOL.13/16.
* For GROUP #9,verify correct jumpers on 01AA2 K4 (EIA interface card) or switch settings (38LS modem) in REMOTE SUPPORT FACILITY CHECK section of installation instructions.

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A pg.3)
Y N

213

Have you exchanged all the GROUPS # 1. through #9?
Y N

214
Go to Step 212, Entry Point Y1.

B B
X Y

B B
X Y

215

POWER OFF.

Replug ORIGINAL FRU(S).

PROBLEM IS NOT REPAIRED.

Go To Map 0001, Entry Point A.

216

Rerun diagnostic option that failed.
If no ref code run diagnostic option as designated in next statement.
For GROUP # 3 Select the 'Cx' option (x=port 0,1,2 or 3).

For GROUP # 4 Select the 'A0' option.

For GROUP # 9,if K4 is 38LS MODEM select 'D0' option: if K4 is EIA interface select 'E0' option.
For detailed information on RSF refer to SERVICE AIDS section of MLM VOL.13/16.

For all other GROUPS select the 'FE' option.

The MSS OPTIONAL DIAGNOSTICS will be executed and should run once through completely.

Did the MSS OPTIONAL DIAGNOSTICS run ERROR FREE (no REFERENCE CODE displayed on the screen)?
Y N

217

Does ref code have same UU field (ref code = UURRRRIS) as last ref code displayed?
Y N

218
Follow instructions on console display.

219
Go to Page 29, Step 212, Entry Point Y.

220

(Entry Point Z)

If more than one FRU was exchanged, determine the failing FRU by replugging the original FRUs one at a time. Run MSS diagnostic option that detected the failure. Exchange the failing FRU.

PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

221
Is ref code FEE403F8?
Y N

222
The ref code format FEE0xxF8 indicates that the FRUs in location 01AA2 K4 and L2 are functioning correctly. The trouble is in the cable attached to RSF. To analyze the problem find the cable configuration for your machine in the SERVICE AIDS section of MIM VOL.13/16 titled RSF CARDS and WIRING CONFIGURATIONS.

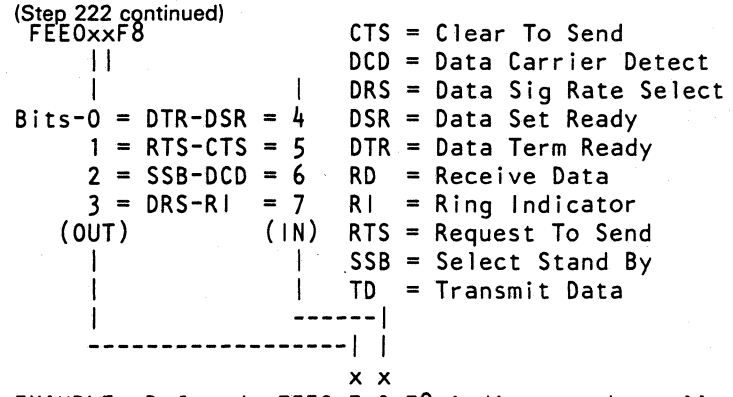
This routine tests the EIA-interface cable which must be terminated by the 'wrap plug'. CCA and EIA FRUs are tested before the following reference codes are displayed by the'E0' diagnostic option:

```
FEE0EEF8  =  TD - RD connection disturbed

FEE0FFF8  =  CCA FRU defective
```

(Step 222 continues)

(Step 222 continued)



EXAMPLE: Ref code FEE0-F-0-F8 indicates that all four EIA interface OUT lines (F) had a signal on them and that none of the IN lines returned the signal (0).This would occur if the wrap plug was not plugged on the end of the cable.

Ref code FEE0-8-C-F8 indicates that a signal was present on the DTR OUT line (8) and and that both DSR and CTS IN lines returned a signal (C). This would indicate a possible short between DSR and CTS.

Locate your Remote Support Facility configuration in the Service Aids section of VOL. 13/16.
Replace or repair the failing FRU or component (cable,connector,etc.)

PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

223
Is the 'Integrated Protective Coupler' (IPC) installed as a component of the REMOTE SUPPORT FACILITY?
Y N

224

The ref code format FEE0xxF8 indicates that the FRUs in location 01AA2 K4 and L2 are functioning correctly. The trouble is in the cable attached to RSF. To analyze the problem find the cable configuration for your machine in the SERVICE AIDS section of MIM VOL.13/16 titled RSF CARDS and WIRING CONFIGURATIONS.

This routine tests the EIA-interface cable which must be terminated by the 'wrap plug'. CCA and EIA FRUs are tested before the following reference codes are displayed by the'E0' diagnostic option:

FEE0EEF8 = TD - RD connection disturbed

FEE0FFF8 = CCA FRU defective

```
FEE0xxF8                CTS = Clear To Send
    ||                  DCD = Data Carrier Detect
    |              |    DRS = Data Sig Rate Select
Bits-0 = DTR-DSR = 4    DSR = Data Set Ready
    1 = RTS-CTS = 5     DTR = Data Term Ready
    2 = SSB-DCD = 6     RD  = Receive Data
    3 = DRS-RI  = 7     RI  = Ring Indicator
  (OUT)         (IN)    RTS = Request To Send
    |             |     SSB = Select Stand By
    |             |     TD  = Transmit Data
    |            ------|
    -----------------| |
                     x x
```

EXAMPLE: Ref code FEE0-F-0-F8 indicates that all four EIA interface OUT lines (F) had a signal on them and that none of the IN lines returned the signal (0).This would occur if the wrap plug was not plugged on the end of the cable.

Ref code FEE0-8-C-F8 indicates that a signal was present on the DTR OUT line (8) and and that both DSR and CTS IN lines returned a signal (C). This would indicate a possible short between DSR and CTS.

(Step 224 continues)

(Step 224 continued)
Locate your Remote Support Facility configuration in the Service Aids section of VOL. 13/16.
Replace or repair the failing FRU or component (cable,connector,etc.)

PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

225
Power Off.
To isolate the problem to either the modem or the IPC and connecting cables, switch 'K' on the 38LS must be set ON.
This will wrap the transmit test through the 38LS modem only and not test the IPC or connecting cable.
Set switch 'K' ON. (38LS switch settings are defined in the INSTALLATION section of VOL. 18 titled 'REMOTE SUPPORT FACILITY'.
Replug the original 38LS FRU in location 01AA2 K4.
POWER ON.
Select diagnostic option'D0'.

Do the diagnostics run ERROR free?(no REF.CODE)
Y N

226
Follow directions on console display.

227
Locate your Remote Support Facility configuration in the Service Aids section of VOL. 13/16.
Replace or repair the failing FRU or component (cable,connector,IPC,ETC.)

PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

228

3278-2A Maintenance Information Manual is located under keyboard

GO TO 3278-2A MAP.

Go To Map 00, Entry Point A.

The 3279-2C Maintenance Information Manual is located in a pocket inside the rear cover.
Go To Map W00, Entry Point A.

229

Go To Map F600, Entry Point A.

230

Go To Map F500, Entry Point A.

ADAPTER EXCHANGE MAP

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
EC00	D	6	015
F000	A	2	001
F000	E	11	044
F001	T	14	060
0000	A	2	001
0000	D	6	015
0000	T	14	060

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
9	041	F000	A
3	004	F000	B
4	008	F000	B
14	064	F000	B
7	025	F000	B
8	031	F000	B
9	037	F000	B
3	004	F001	A
5	010	F001	A
8	027	F001	A
8	033	F001	A
9	040	F001	A
5	010	F500	A
2	004	F600	A
5	010	W00	A
15	072	W00	A
5	010	00	A
15	068	00	A
2	003	0001	A
3	005	0001	A
3	004	0001	A
5	010	0001	A
8	028	0001	A
9	034	0001	A
10	043	0001	A
10	042	0001	A
14	057	0001	A
14	058	0001	A
6	011	0001	A
5	010	9999	1

001
(Entry Point A)

CAUTION

BEFORE REMOVING OR
REPLACING CARDS OR INTERNAL
CABLES ---- POWER OFF.

You have entered this MAP because the SUPPORT PROCESSOR or an associated ADAPTER has been indicated as failing.This MAP will direct you to exchange FRU's which will be grouped by ADAPTER.

All MSS BASIC and OPTIONAL diagnostics have run ERROR free.

Indications are the problem is INTERMITTENT.

The adapter you will be directed to exchange will be the most logical adapter as indicated by a ref code that was displayed during customer operation or by a ref code that was placed in the S.P. LOGOUT SUMMARY (QESA) or REFERENCE CODE LOGOUT FILE (QERD).

Display the last few CE LOG SCREEN entries to determine if you are diagnosing a similar problem.
The CE LOG SCREEN function is described in the Console Functions section VOL.18.
To display the CE LOG SCREEN perform the following:

1) Power OFF.
2) Insert the 'FUNCT' diskette.
3) Set CE switch to CE mode.
4) POWER ON at the C.E. panel.
5) Wait 30 seconds.
6) Press 'MODE SELECT' key.
7) 'GENERAL SELECTION' screen will appear.
8) Key in QEWT and press enter key.
9) The CE LOG SCREEN will appear.
10) Scan the last few logs to determine if a problem similar to this problem has been recently diagnosed. Determine what action was performed and if any FRUs have been previously exchanged for the same symptoms.

(Step 001 continues)

(Step 001 continued)
Have FRUs been exchanged to repair a similiar problem as indicated by an entry in the CE LOG SCREEN?
Y N

002

Do you have a ref code that was displayed during the customer's run or from the S.P. logout summary?
(ref code format = UURRRRIS).
Y N

003
Go To Map 0001, Entry Point A.

004
Power OFF. Insure DIAG-4 is installed.
Refer to the ref code that was recorded at the start of this call.
Check the first two characters (UU) of the ref code.

For ref code UU='F0'
Go to Page 3, Step 004, Entry Point H.

For ref code UU='F1'
Go to Page 4, Step 006, Entry Point L.

For ref code UU='F2'
Go to Page 12, Step 050, Entry Point G.

For ref code UU='F3'
Go to Page 11, Step 044, Entry Point E.

For ref code UU='F4' or 'F5'
Go to Page 6, Step 015, Entry Point D.

For ref code UU='F6'
Go To Map F600, Entry Point A.

(Step 004 continues)

(Step 004 continued)

For ref code UU='F8' or 'F9'
Go to Page 14, Step 060, Entry Point T.

For ref code UU='FA'
Go to Page 14, Step 060, Entry Point T.

For ref code UU='FD'
Go to Page 11, Step 047, Entry Point F.

For ref code UU='FE'
Go to Page 12, Step 053, Entry Point K.

(Entry Point H)

SP bus error is indicated. ADAPTER isolation may be necessary to locate the failing ADAPTER. Select the 'FF' option that loops the MSS diagnostics. Run for FIVE minutes. If a diagnostic ERROR STOP occurs

---

ERROR STOP with no ref code displayed.

Go To Map F000, Entry Point B.

ERROR STOP with ref code displayed.
Follow instructions on console display.

or

Go To Map F001, Entry Point A.

If no ERROR STOP occurs

PROBLEM IS INTERMITTENT

Go To Map 0001, Entry Point A.

A
2

005
Invoke your support structure for this INTERMITTENT failure.

Go To Map 0001, Entry Point A.

006
(Entry Point L)

```
|-------- REFERENCE A ----------|
| The MSS BASIC DIAGNOSTICS have|
| run ERROR FREE when you hear  |
| the AUDIBLE ALARM on the 3278 |
|         or 3279 and           |
|                               |
|*** BASIC MSS DIAG.COMPLETED **|
|*******************************|
|                               |
| is displayed with the MAIN-   |
| TENANCE and SUPPORT SUBSYSTEM |
| ( MSS ) OPTIONAL DIAGNOSTIC   |
| SELECTION SCREEN.             |
| The OPERATOR CONTROL PANEL    |
|      will have the            |
| 'POWER IN PROCESS' indicator  |
| ON, all other indicators OFF. |
|_______________________________|
```

POWER OFF.
Insure DIAG-4 diskette is installed.
Exchange 01AB2 (*) L2 and M2 (if installed) with new FRUs.
NOTE: (*) SP storage is 64k and may have one 64k FRU in L2 or two 32k FRUs, one each in L2 and M2.

Power ON.

Did MSS BASIC diagnostics run ERROR FREE? (see REF.A,pg.4)
Y N

6
B C

C SEQ904 MAP F003-4

007
(Entry Point J)

POWER OFF.
Insure DIAG-4 is installed.
Verify proper seating of the FRU(S) you just exchanged.

Verify that no other FRU is loose in its socket.

POWER ON.

If an MSS BASIC diagnostic ERROR stop occurs, one of the new FRU(S) is defective.

POWER OFF.

Exchange the defective FRU(S).

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR FREE?
Y N

008

Go To Map F000, Entry Point B.

009

(Entry Point S)

If a diagnostic option displayed a ref.code,or ERROR stop, rerun that option.

Or, select a diagnostic option as follows.

For 'F4' or 'F5' ref code select AF option to loop MSS OPTIONAL diagnostics for DISKETTE DRIVE 2D.

For an 'F8','F9' or 'FA' ref code select FF option to loop MSS,DCA and port 0 diagnostics or select C1, C2 or C3 option (ports 1,2 or 3 respectively) to loop DCA adapter OPTIONAL DIAGNOSTICS.

(Step 009 continues)

(Step 009 continued)
For all other ref codes select FE option to run OPTIONAL DIAGNOSTICS.

Did OPTIONAL diagnostics run ERROR FREE?(no ref code displayed on screen.)
Y N

010
Ref code format = UURRRRIS

If UU= F5?

Go To Map F500, Entry Point A.

If UU= F8 or F9

Refer to the REF. CODE and if an I/O device ERROR has been indicated but cannot be isolated by the device map,

PROBLEM IS NOT REPAIRED.
Go To Map 0001, Entry Point A.

OTHERWISE
The 3278-2A Maintenance Information Manual is located in a pocket under the 3278-2a keyboard.

GO TO 3278-2A MAPS

Go To Map 00, Entry Point A.

(Step 010 continues)

(Step 010 continued)
The 3279-2C Maintenance Information Manual is located in a pocket inside the rear cover.

3279-2C display color or convergence problems require the system 'FUNCT' diskette installed with the MSS powered 'ON'.

Online tests 0 and 7 require information from the 'FUNCT' diskette.
Continue service for display color or convergence problems as directed by the 3279-2C Maintenance Information manual.

Go To Map W00, Entry Point A.

If UU= FA, a problem is indicated in the 3287 printer(ports 1,2 or 3.)

Service is performed 'OFFLINE' using the 3287 Maintenance Manual located in a pocket under the 3287.

GO TO 3287 MAPs.

Go To Map 9999, Entry Point 1.

For all other 'Fx' ref codes

Follow instructions on console display.

or

Go To Map F001, Entry Point A.

011

(Entry Point X)

To terminate diagnostics,press IML.

POWER OFF.

The most logical ADAPTER as indicated by the ref code has been exchanged.

The diagnostics have been re-run to verify the operation of the ADAPTER that was exchanged.

PROBLEM IS INTERMITTENT

Go To Map 0001, Entry Point A.

012

(Entry Point I)

Select the 'FE' option to execute the MSS OPTIONAL diagnostics.

Did MSS OPTIONAL diagnostics run ERROR FREE? (No REFERENCE CODE displayed on the screen).
Y N

013
Go to Page 4, Step 007, Entry Point J.

014
Go to Step 011, Entry Point X.

015

(Entry Point D)

If UU=F5 (ref code format = UURRRRIS) or if you were directed here by the message 'DISKETTE CHECK', continue this procedure.

Ref code F5000x24,(where x = number of times diskette read 'CRC ERRORS' occurred before a successful read was performed) is logged out in the SP LOGOUT SUMMARY for each unsuccessful read that occurred.
Ref code F5000A2C is displayed when ten unsuccessful reads occurred and the system is stopped.
This would indicate a defective 'FUNCT ' diskette.

NOTE:If you need to observe the SP LOGOUT SUMMARY screen the 'FUNCT' diskette must be inserted and the console function 'QESA' requested with the system powered on in C.E. mode as described in CONSOLE FUNCTIONS VOL.18.

Ref code F4xxxxxx could also indicate a defective 'FUNCT' diskette,

NOTE: If service is being performed and machine covers and gates are open, in areas of high radar wave concentration, it is possible to have a FALSE indication of the above two ref codes.
Machine covers may have to be closed while running diagnostics or during testing.

Were you directed here either by the message 'DISKETTE CHECK', or ref code F5000A2C or F4xxxxxx?
Y N

016

Did the SP LOGOUT SUMMARY show several ref code logouts of F5000x24,where x = 1 through 9? NOTE:If you need to observe the SP LOGOUT SUMMARY screen the 'FUNCT' diskette must be inserted and the console function 'QESA' requested with the system powered on in C.E. mode as described in CONSOLE FUNCTIONS VOL.18.

Y N

017

POWER OFF

Exchange TCC's and FRU's in 01AB2 T2 AND U2.

POWER ON.

Did MSS BASIC diagnostics run ERROR FREE? (see REF.A,pg.4).

Y N

018

Go to Page 4, Step 007, Entry Point J.

019

Select the 'FE' option to execute the MSS OPTIONAL diagnostics.

Did MSS OPTIONAL diagnostics run ERROR FREE? (No ref code displayed on the screen).

Y N

020

Go to Page 4, Step 007, Entry Point J.

G H

021

Select the 'AF' option to loop Diskette Drive 2D optional diagnostics.
Run for five minutes.

Did OPTIONAL diagnostics run ERROR FREE?(no ref code displayed on screen.)

Y N

022

Go to Page 4, Step 007, Entry Point J.

023

Go to Page 6, Step 011, Entry Point X.

024

POWER OFF.

Install MSS diagnostic diskette DIAG4.

POWER ON.

Did the MSS BASIC DIAGNOSTICS run ERROR free?(see REF.A,pg.4)

Y N

025

Go To Map F000, Entry Point B.

026

Select option A0 to run 53FD extended diagnostics.

Do the diagnostics run ERROR free?(no ref code)

Y N

8 8
J K

027

Follow instructions on console display.

or

Go To Map F001, Entry Point A.

028

53fd extended diagnostics have indicated no problems with the 53fd DISKETTE DRIVE 2D.

Ref code F5000x24 indicates CRC read errors on 'FUNCT' diskette.

Exchange 'FUNCT' diskette.

PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

029

The message 'DISKETTE CHECK' or ref code F5000A2C indicates a CRC read error on the 'FUNCT' or 'DIAG' diskette.

Ref code F4xxxxxx could also indicate a defective diskette.

See DISKETTE DRIVE 2D in SUPPLEMENT MAINTENANCE INFORMATION VOL. 13/16.

Probe the following Test Points on the 53FD File Control card or 01AB2 board;TPA2 (+ERASE GATE, 01AB2 T1C13),and TPA3(+WRITE GATE,01AB2 T1D13).

Both test points (TPA2 and TPA3) should be approximately ground (inactive level).

DISKETTE DAMAGE could result if TPA2 or TPA3 are always active(+).

ANY test points active (plus level)?

Y N

9
L M

030

If you were directed here by the message 'DISKETTE CHECK' perform the 'DISKETTE READABILITY SCREEN' console function 'QED' as described in MIM VOL.18 on the FAILING diskette, to verify that the data has not been destroyed.
It is possible diskette data integrity damage may have occurred due to component failure.
If a diskette is indicated to be unreadible it must be corrected or replaced.

Continue with this step to verify correct operation of the 53FD diskette drive.

Verify CE mode switch is in NORMAL.

POWER OFF.
Install MSS diagnostic diskette DIAG4.
POWER ON.

Did the MSS BASIC DIAGNOSTICS run ERROR free?(see REF.A,pg.4)

Y N

031

Go To Map F000, Entry Point B.

032

Select option AF to loop 53FD extended diagnostics. Run for five minutes.

Do the diagnostics run ERROR free?(no ref code)

Y N

033

Follow instructions on console display.

or

Go To Map F001, Entry Point A.

MAP CODE F003XXXX

ADAPTER EXCHANGE MAP

PAGE 9 OF 16

034

Terminate diagnostics by pressing RE-IML.

53fd extended diagnostics have indicated no problems with the 53fd DISKETTE DRIVE 2D.

Ref code F5000A2C indicates CRC read errors on 'FUNCT' or 'DIAG' diskette.

Ref code F4xxxxxx without any diagnostic error stops indicates a defective diskette.

Exchange the FAILING diskette.

PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

035
POWER OFF.

Exchange TCC's and 01AP2 T2,U2,and the File Control card.

POWER ON.

Probe the following test points on the 53FD file control card;TPA2 (+ERASE GATE, 01AB2 T1C13),and TPA3(+WRITE GATE,01AB2 T1D13).

ALL test points (TPA2 and TPA3) should be ground (inactive level).

DISKETTE DAMAGE could result if TPA2 or TPA3 are always active(+).

See DISKETTE DRIVE 2D in SUPPLEMENT MAINTENANCE INFORMATION VOL.13.

ANY test points active (plus level)?
Y N

1 0 P Q

Q SEQ904 MAP F003-9

036
Insert MSS diagnostic diskette DIAG4.

RE-IML (switch D on CE panel).

Did the MSS BASIC DIAGNOSTICS run ERROR free?(see REF.A,pg.4)
Y N

037
Go To Map F000, Entry Point B.

038
Select option A0 to run 53FD extended diagnostics.

Do the diagnostics run ERROR free?(no ref code)
Y N

039

Is the ref code F51E12F8?
Y N

040
Follow instructions on console display.

or

Go To Map F001, Entry Point A.

041
Diagnostic diskette DIAG4 is defective.

Exchange diskette DIAG4.

Go To Map F000, Entry Point A.

1 0 R

042

Ref code F5000A2C indicates CRC read errors on 'FUNCT' diskette.

Exchange 'FUNCT' diskette.

Determine the failing FRU by exchanging the original FRUs ONE at a time.

POWER OFF/POWER ON for each card EXCHANGE.

TO PREVENT DAMAGE to the DISKETTE, OPEN diskette drive cover.

On the File Control card, probe TPA2 and TPA3 after each exchange of 01AB2 T2 and U2, and the File Control card. All test points should be ground (inactive level).

Exchange the failing FRU. Verify correct operation by running MSS DIAGNOSTICS.

Select the AF option that will run 53FD DIAGNOSTICS continuously.

If an ERROR STOP occurs

1.NO ref code DISPLAYED:

GO TO MAP F000,ENTRY POINT B.

2.ref code DISPLAYED:

Follow instructions on console display

or

GO TO MAP F001,ENTRY POINT A.

If no ERRORS occur

RE-IML.

POWER OFF.
(Step 042 continues)

(Step 042 continued)

PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

043

POWER OFF.
Replace original FRUs in 01AB2 T2,U2 and File Control card.
The cable from the the file control card to the B2 board (01AB2 Y6) is described in the DISKETTE DRIVE section of VOL.13/16.
THE active level at either TPA2 or TPA3 is not due to the FRUs you just replaced.
Examine the board and cable to determine the source of the active level at the test points.

PROBLEM IS NOT RESOLVED.

Go To Map 0001, Entry Point A.

044
(Entry Point E)

POWER OFF.

Exchange TCC's and FRU's in 01AB2 F2 AND E4.

POWER ON.

Did MSS BASIC diagnostics run ERROR FREE? (see REF.A,pg.4).
Y N

045
Go to Page 4, Step 007, Entry Point J.

046
Go to Page 6, Step 012, Entry Point I.

047
(Entry Point F)

POWER OFF.

Exchange TCC's and FRU's in 01AB2 G2.

POWER ON.

Did MSS BASIC diagnostics run ERROR FREE? (see REF.A,pg.4).
Y N

048
Go to Page 4, Step 007, Entry Point J.

049
Go to Page 6, Step 012, Entry Point I.

050
(Entry Point G)

POWER OFF.

Exchange TCC's and FRU's in 01AA2 M2,N2 AND P2.

POWER ON.

Did MSS BASIC diagnostics run ERROR FREE? (see REF.A,pg.4).
Y N

051
Go to Page 4, Step 007, Entry Point J.

052
Go to Page 6, Step 012, Entry Point I.

053
(Entry Point K)

POWER OFF.
Ensure DIAG-4 is installed.
Exchange FRU's in 01AA2 K4 AND L2.

POWER ON.

Did MSS BASIC diagnostics run ERROR FREE? (see REF.A,pg.4).
Y N

054
Go to Page 4, Step 007, Entry Point J.

055
REMOTE SUPPORT FACILITY; check the FRU in location K4, if the FRU is the 38LS modem (38LS has 2 columns of 8 rocker switches), select the 'D0' option to run MSS OPTIONAL diagnostics for RSF.

If FRU in K4 is EIA interface (EIA interface FRU has no switches), select the 'E0' option to run MSS OPTIONAL diagnostics for RSF.
NOTE:The cable wrap plug must be placed on the end of the cable to run the 'E0' option.
See SERVICE AIDS section of MIM VOL.13/16 for detailed information on RSF CARDS and WIRING CONFIGURATIONS (38LS and EIA). An FExxxxxx ref code issued during RSF operation could be caused by any of the components that are included in your RSF feature.
Point to point wiring is shown in the detailed reference in VOL.13/16.

Did the MSS OPTIONAL diagnostics for RSF run ERROR FREE? (No REFERENCE CODE displayed on the screen).
Y N

056

Did you run the 'D0' option?

Y N

057

The ref code format FEE0xxF8 indicates that the FRUs in location 01AA2 K4 and L2 are functioning correctly. The trouble is in the cable attached to RSF. To analyze the problem find the cable configuration for your machine in the SERVICE AIDS section of MIM VOL.13/16 titled RSF CARDS and WIRING CONFIGURATIONS.

This routine tests the EIA-interface cable which must be terminated by the 'wrap plug'. CCA and EIA FRUs are tested before the following reference codes are displayed by the'E0' diagnostic option:

```
 FEE0EEF8  =  TD - RD connection disturbed

 FEE0FFF8  =  CCA FRU defective

 FEE0xxF8                CTS = Clear To Send
     ||_____________     DCD = Data Carrier Detect
     |              |    DRS = Data Sig Rate Select
Bits-0 = DTR-DSR = 4     DSR = Data Set Ready
     1 = RTS-CTS = 5     DTR = Data Term Ready
     2 = SSB-DCD = 6     RD  = Receive Data
     3 = DRS-RI  = 7     RI  = Ring Indicator
   (OUT)         (IN)   RTS = Request To Send
     |             |    SSB = Select Stand By
     |             |    TD  = Transmit Data
     |             ------|
     -------------------| |
                        x x
```

EXAMPLE: Ref code FEE0-F-0-F8 indicates that all four EIA interface OUT lines (F) had a signal on them and that none of the IN lines returned the signal (0).This would occur if the wrap plug was not plugged on the end of the cable.

Ref code FEE0-8-C-F8 indicates that a signal was present on the DTR OUT line (8) and and that both DSR and CTS IN lines returned a signal (C). This would indicate a possible short between DSR and CTS.

(Step 057 continues)

(Step 057 continued)

Repair or exchange the cable and/or associated FRUs

Verify repair by running 'E0' option.

PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

058

Replug original FRUs in 01AA2 K4 & L2.

PROBLEM IS NOT REPAIRED.

Go To Map 0001, Entry Point A.

059

Go to Page 6, Step 011, Entry Point X.

060

(Entry Point T)

Is ref code F9xx0B20? (xx = 00,01,02 or 03 for ports 0 through 3 respectively.

Y N

061

Is the display console a 3279-2C?

Y N

062

For 3278-2A, verify correct display and keyboard functions by performing Test Mode 1, Test Mode 2 and Test Mode 3 as described in the 3278-2A Maintenance Information Manuel located under the keyboard.

Any display or keyboard problems?

Y N

063

(Entry Point R)

If the MSS diagnostic diskette (DIAG-4) is not already being used,

POWER OFF.

Insert DIAG-4.

POWER ON.

Did MSS BASIC DIAGNOSTICS run ERROR free?(See REF.A,pg.4).

Y N

064

Go To Map F000, Entry Point B.

MAP CODE F003XXXX

ADAPTER EXCHANGE MAP

065

Diagnostic option 'FE' will test the system console on PORT 0. Option 'FF' will loop the diagnostic including all of the BASIC diagnostics located in the ROS module. Option 'C0' will run console diagnostics for all ports 0-3. Option 'CF' will loop console diagnostics for all ports 0-3.

Run FE,FF,C0,CF or the 'Cx'(x=1,2 or 3) option as directed by the MSS DIAGNOSTIC selection screen.

For an 'EREP' indication of a device problem on a 3278-2A,3279-2C or 3287, or for an'F8','F9' or'FA' ref code select the 'C0' option to test all ports.

To loop diagnostics for INTERMITTENT problems, select 'FF' option for port 0 or 'C1','C2' or 'C3' option for the MSS OPTIONAL DIAGNOSTICS for the DCA (ports 1,2 or 3 respectively).

Port 0 is tested by the MSS BASIC DIAGNOSTIC automatically after POWER ON and with option FE or FF.

Did the MSS OPTIONAL DIAGNOSTICS run ERROR FREE? (No ref code displayed on the screen).

Y N

066

```
---------- CHART A ------------
Ref.code format F8 Cxyy F8 where

x= 0 means port 0 .
x= 1 means port 1 .
x= 2 means port 2 .
x= 3 means port 3 .
yy= error number.
yy= 01 adapter failure(01AB2 R2).
yy= 02 adapter failure(01AB2 R2).
yy= 03  = conditions listed below
*NO DEVICE Attached to port x, or
Device powered 'OFF'   port x, or
Device in TEST mode    port x, or
Coax cable open        port x, or
Bad driver(01AB2 S2)   port x.
* Press 'b' key twice to bypass
test stop with no device attached.
--------------------------------
yy= 04  to  20 = DEVICE FAILURE
GO TO DEVICE MAPS (3278,3279 or 3287)
```

(Step 066 continues)

(Step 066 continued)

Refer to CHART A.
An 'F8' REF. CODE is defined to direct you to either the DCA adapter (01AB2 R2),DCA driver (01AB2 S2) or to the device (3278-2A or 3287).The maps for the 3278-2A are located under the keyboard;the 3279-2C maintenance library is located inside the rear cover; or for the 3287 in a pocket at the rear.

If problem is not isolated by.REF.CODE analysis using CHART A,

Go to Page 16, Step 075, Entry Point C.

067

Go to Page 16, Step 075, Entry Point C.

068

Using the 3278-2A Maintenance Information Manual.

Go To Map 00, Entry Point A.

069

For 3279-2C, verify correct display and keyboard functions by performing Test Mode 1, Test Mode 2 and Test Mode 3 as described in the 3279-2C Maintenance Information manuel located inside the rear cover.

Does the 3279-2C have display color or convergence problems?

Y N

070

Any display or keyboard problems?

Y N

071

Go to Page 14, Step 063, Entry Point R.

072

Using the 3279-2C Maintenance Information Manual.

Go To Map W00, Entry Point A.

073
3279-2C display color or convergence problems require the system 'FUNCT' diskette installed with the MSS powered 'ON'.
Online tests 0 and 7 require information from the 'FUNCT' diskette.
Continue service for display color or convergence problems as directed by the 3279-2C Maintenance Information manual.

074
Ref code F9xx0B24 indicates a failure of the device on the port indicated xx.
The type of ERROR indicated by ref code F9xx0B24 normally would be due to a logic failure in the device buffer or line control (serdes).
Use the symptom (ie; dead keyboard, no display or no print output) and go to the device maps symptom/fix index to repair the device (3278, 3279 or 3287).

075
(Entry Point C)

POWER OFF.
Insure DIAG-4 is installed.
Exchange FRU's in 01AB2 R2 AND S2.

POWER ON.

Did MSS BASIC diagnostics run ERROR FREE? (see REF.A,pg.4).
Y N

076
Go to Page 4, Step 007, Entry Point J.

077
Go to Page 4, Step 009, Entry Point S.

DISKETTE DRIVE 2D

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
F000	A	1	001
F000	E	7	063
0211	S	2	009

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
8	078	F000	B
8	078	F001	A
8	074	0001	A
8	076	0001	A
8	078	0001	A

001
(Entry Point A)

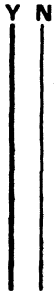
A visual inspection of the DISKETTE DRIVE 2D should be made to locate obvious problems ie:

Broken belt.
Motor not running.
Collet not rotating.
Cover not latching.

53FD FRU EXCHANGE LIST
1.AC MOTOR
2.CABLE ASSEMBLY
3.COLLET
4.COVER ASSEMBLY
5.DISKETTE
6.*DRIVE BELT
7.**DRIVE BELT IDLER
8.FILE CONTROL CARD
9.LED ASSEMBLY
10.PHOTO TRANSISTOR ASSEMBLY
11.SOLENOID
12.53FD FILE DRIVE ASSEMBLY
* Part number differs without DRIVE BELT IDLER.
**Not installed on later level 53FD DRIVES.

Any of the above problems?

Y N



9 2
A B

MODEL GROUP 1 AND 2

002

(Entry Point I)

Is diskette free of damage?
Y N

003
Exchange diskette
Go to Step 002, Entry Point I.

004

Is diskette inserted properly?
Refer to DISKETTE DRIVE 2D VOL.13 on diskette insertion.
Y N

005
Reinsert diskette properly.

Return to 'Y' leg of this question.

006

•Check '+ 5vdc', '- 5vdc', and '+ 24vdc' input voltages to diskette drive control card.
Source voltage checked at ALD YA 601, CONN 04,+5 vdc pin 02,-5 vdc pin 03 and +24 vdc pin 06.
Refer to DISKETTE DRIVE 2D VOL. 13 for control card test points.

Are voltages correct?
Y N

007
Check cables refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

C

008

Jumper '- head load' test point on diskette drive control card to ground. This should energize the solenoid and cause bail to load heads, and put maximum load on drive components.

Did solenoid energize and load the HEADS?
Y N

009
(Entry Point S)

Check continuity of solenoid, check for binds.
Refer to DISKETTE DRIVE 2D VOL.13.

Is solenoid defective (open,shorted,grounded or binding)?
Y N

010
Go to Page 7, Step 063, Entry Point E.

011

Exchange solenoid.

Refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

012

Is the DRIVE HUB PULLEY turning? (NOTE: A loose retaining screw will allow the drive hub to slip on the shaft).
Y N

013
(Entry Point F)

Is DRIVE BELT installed and tracking properly?
Refer to DISKETTE DRIVE 2D VOL.13.
Y N

4 3 3
D E F

014

Install or exchange belt.

NOTE: Drive belt part number is different for 53FD that has no idler pulley.

Go to Page 7, Step 064, Entry Point C.

015

Is the drive motor pulley turning?

Y N

016

(Entry Point G)

Is drive motor shaft turning?

Y N

017

Measure AC voltage at AC motor connector JACK 'DISK 01' on 53FD drive.

Voltage between 1 and 3, and Ground on 5.

AC voltage at motor connector JACK should be 200,208,220 or 240 VAC for 60hz or 200,220,230 or 240 for 50hz.

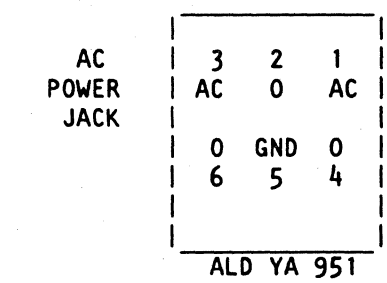
Check to be sure that wires in the AC PLUG and JACK are not loose in their sockets.

Refer to DISKETTE DRIVE 2D VOL.13 power requirements.

DANGER

HAZARDOUS VOLTAGE
PRESENT ON THIS CONNECTOR.

DISK 01



ALD YA 951

(Step 017 continues)

(Step 017 continued)

Is AC voltage correct at motor connector? (200,208,220 or 240 VAC for 60hz or 200,220,230 or 240 for 50hz. Voltage between 1 and 3, and Ground on 5.)

Y N

018

DANGER

HAZARDOUS VOLTAGE
PRESENT ON THIS CONNECTOR.

Use ALD YA 951 to correct voltage problem on DISK 01.

Check cables refer to DISKETTE DRIVE 2D VOL.13.

Go to Page 7, Step 064, Entry Point C.

019

Turn off AC power, remove belt, allow to cool 5 minutes then turn on AC power.

Does motor start?

Y N

020

Exchange AC motor.

Refer to DISKETTE DRIVE 2D VOL.13.

Go to Page 7, Step 064, Entry Point C.

021

•Check hub assembly for binds with cover closed.

Is hub free of binds?

Y N

022

•Open cover and check for binds and noise.

Is hub free of binds and noise?

Y N

023

Go to Page 8, Step 073, Entry Point Y.

024
Exchange cover or collet assembly as required.
Refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

025
•Check idler for binds.
NOTE: Later versions of 53FD assembly do not have an idler pulley and the belt is a different part number.

Is idler free of binds?
Y N

026
Exchange idler assembly.
Refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

027
Reinstall belt. If trouble still exists, exchange drive motor.
Refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

028
Drive motor pulley is loose. Adjust and tighten.
Refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

029
•Check hub assembly for binds with cover closed.

Is hub free of binds?
Y N

030
•Open cover and check for binds and noise.

Is hub free of binds and noise?
Y N

031
Go to Page 8, Step 073, Entry Point Y.

032
Exchange cover or collet assembly as required.
Refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

033
•Check idler for binds.

Is idler free of binds?
Y N

034
Exchange idler assembly.
Refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

035
Exchange belt.
Refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

036

Is collet screw in cover oscillating?
Y N

037
•Open cover and remove diskette. The diskette drive hub should be turning.

Is the DRIVE HUB turning? (NOTE: A loose retaining screw will allow the drive hub to slip on the shaft).
Y N

038
Go to Page 8, Step 073, Entry Point Y.

039
Exchange COVER ASSEMBLY.
Refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

040
•Probe '+ index' with a failing diskette inserted.
Refer to DISKETTE DRIVE 2D VOL.13.

Is line pulsing?
Y N

041
•Probe '+53FD index'.

Is the line pulsing?
Y N

042
•Perform LED output service check for failing diskette (Diskette 2D).
Refer to DISKETTE DRIVE 2D VOL.13.

Is LED voltage correct?
Y N

043
•Remove/exchange the LED. Refer to DISKETTE DRIVE 2D VOL.13.

Any more errors?
Y N

044
Problem is corrected.
Go to Page 7, Step 064, Entry Point C.

045
Exchange diskette drive control card.
Refer to DISKETTE DRIVE 2D VOL.13 to remove/install control card.
Go to Page 7, Step 064, Entry Point C.

046
•Do Phototransistor(PTX)/LED alignment.
Refer to DISKETTE DRIVE 2D VOL.13.

Any more errors?
Y N

6 P Q R S

Q R S SEQ906 MAP F500-5

047
Problem is corrected.
Go to Page 7, Step 064, Entry Point C.

048
•Perform PTX amplifier service check.
Refer to DISKETTE DRIVE 2D VOL.13.

Is output correct for the 53FD amplifier?
Y N

049
Exchange diskette drive control card.
Refer to DISKETTE DRIVE 2D VOL.13 to remove/install control card.

Any more errors?
Y N

050
Problem is corrected.
Go to Page 7, Step 064, Entry Point C.

051
Exchange PTX assembly.
Refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

052
Exchange PTX assembly.
Refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

053
Inspect the diskette. Not ready condition may be present if the diskette jacket allows enough light through to trigger the index circuitry.
Go to Page 7, Step 063, Entry Point E.

054

If a scope is available, do diskette speed service check.
Refer to DISKETTE DRIVE 2D VOL.13.

Heads must be loaded during diskette speed check.
If system indication or scope is not available, answer next question NO.

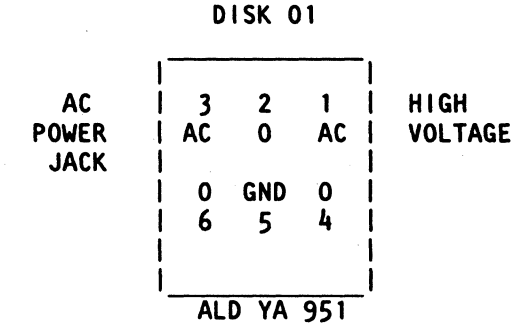
Is disk speed correct?
Y N

055

The drive motor speed can be almost normal with one AC phase missing.
Verify that connector 'DISK 01' does not have a loose connector at pin 1, 3 or 5.
Measure AC voltage at AC motor connector 'DISK 01'.
Refer to DISKETTE DRIVE 2D VOL.13 power requirements.

DANGER

HAZARDOUS VOLTAGE
PRESENT ON THIS CONNECTOR.



(Step 055 continues)

(Step 055 continued)

Is AC voltage correct at motor connector? (200,208,220 or 240 VAC for 60hz or 200,220,230 or 240 for 50hz. Voltage between 1 and 3, and Ground on 5.)
Y N

056

Check cables refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

057
(Entry Point B)
Check cover,pivots, latch and collet.

Are pivots, latch, and collet correct?
Y N

058

Exchange as required.
Refer to DISKETTE DRIVE 2D VOL.13.
Go to Page 7, Step 064, Entry Point C.

059

•Do head load solenoid service check.
Refer to DISKETTE DRIVE 2D VOL.13.

Is adjustment correct?
Y N

060

Adjust solenoid.
Go to Page 7, Step 064, Entry Point C.

061
Go to Page 7, Step 064, Entry Point C.

0C2

•Probe '+ diskette sense'.

Refer to DISKETTE DRIVE 2D VOL.13.

If a Diskette 2D is inserted, this line should be at an up level. If a 33fd diskette is inserted, this line should be at a down level.

Note: The level of this line is valid only when index pulses are present.

Is level correct?

Y N

063

(Entry Point E)

Exchange diskette drive control card.

Refer to DISKETTE DRIVE 2D VOL.13 to remove/install control card.

Go to Step 064, Entry Point C.

064

Check cables refer to DISKETTE DRIVE 2D VOL.13.

(Entry Point C)

Insert MSS DIAGNOSTIC DISKETTE(DIAG4).

POWER ON.--- MSS BASIC diagnostics will automatically execute.

```
|------- REFERENCE A -----------|
| The MSS BASIC DIAGNOSTICS have|
| run ERROR FREE when you hear  |
| the AUDIBLE ALARM on the 3278 |
|     or 3279 and               |
|*** BASIC MSS DIAG.COMPLETED **|
|*******************************|
| is displayed with the MAIN-   |
| TENANCE and SUPPORT SUBSYSTEM |
| ( MSS ) OPTIONAL DIAGNOSTIC   |
| SELECTION SCREEN.             |
| The OPERATOR CONTROL PANEL    |
|       will have the           |
| 'POWER IN PROCESS' indicator  |
| ON, all other indicators OFF. |
|_______________________________|
```

(Step 064 continues)

(Step 064 continued)

Did the MSS BASIC DIAGNOSTICS run ERROR FREE?(SEE REF.A)

Y N

065

Go to Step 067, Entry Point X.

066

Select 'A0' option to run DISKETTE DRIVE extended diagnostics.

Did diagnostics run ERROR FREE (An 'F5' REFERENCE CODE will be displayed indicating a failure)?

Y N

067

(Entry Point X)

Have you replaced the file control card?

Y N

068

Replace the file control card.

POWER ON.

MSS BASIC diagnostics will automatically execute

Did the MSS BASIC DIAGNOSTICS run ERROR FREE?(SEE REF.A)

Y N

069

Go to Page 8, Step 073, Entry Point Y.

070

Select 'A0' option to run DISKETTE DRIVE extended diagnostics.

Did diagnostics run ERROR FREE (An 'F5' REFERENCE CODE will be displayed indicating a failure)?

Y N

071
Go to Step 073, Entry Point Y.

072
Go to Step 078, Entry Point D.

073
(Entry Point Y)

POWER OFF.

Replace 53FD assembly.

POWER ON.--- MSS BASIC diagnostics will automatically execute.

Did the MSS BASIC DIAGNOSTICS run ERROR FREE?(SEE REF.A)

Y N

074
PROBLEM IS NOT REPAIRED.

Go To Map 0001, Entry Point A.

075

Select 'A0' option to run DISKETTE DRIVE extended diagnostics.

Did diagnostics run ERROR FREE (An 'F5' REFERENCE CODE will be displayed indicating a failure)?

Y N

X Y

076

PROBLEM IS NOT REPAIRED.
Go To Map 0001, Entry Point A.

077
Go to Step 078, Entry Point D.

078
(Entry Point D)

Select the OPTIONAL DIAGNOSTIC 'AF' to loop DISKETTE DRIVE 2D.

Run diagnostic for FIVE minutes.

If a diagnostic ERROR STOP occurs,and

1. NO REFERENCE CODE is displayed

Go To Map F000, Entry Point B.

---

2. A REFERENCE CODE is displayed

Go To Map F001, Entry Point A.

Otherwise

The failing FRU(S) have been isolated and replaced.

Terminate diagnostics.(RE-IML)

POWER DOWN

PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

079

Broken belt?
Go to Page 2, Step 013, Entry Point F.

Motor not running?
Go to Page 3, Step 016, Entry Point G.

Collet not rotating?
Go to Page 2, Step 002, Entry Point I.

Cover not latching?
Go to Page 6, Step 057, Entry Point B.

POWER CONTROLLER

PAGE 1 OF 12

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
EC00	A	1	001
F001	A	1	001
0000	A	1	001
1000	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
7	075	F000	B
8	086	F000	F
3	026	F000	Y
8	085	F003	A
1	003	0000	A
10	104	0000	A
8	085	0000	A
12	128	0001	A
6	067	0001	A
6	069	0001	A
6	068	0001	A
6	064	0001	A
6	070	0239	A
2	015	0239	A
8	084	0239	A
3	031	0239	A
1	003	1000	A
2	014	1000	B

001

(Entry Point A)
Did message 'INVALID PROCESSOR ID' or ref code F60006FA appear on the screen?
Y N

002
Is the ref code F6xxxxxx?
Y N

003
Return to the MAP that directed you here.

Go To Map 0000, Entry Point A.

Go To Map 1000, Entry Point A.

MODEL GROUP 1 AND 2

9 2
A B

004
Is ref code F60CE206?
Y N

005
Is ref code F60007FA?
Y N

006
Is ref code F60099FA?
Y N

007

(Entry Point B)

Record this step number as you may return here.
Is this the FIRST time through this step?
Y N

008
Re-run PC diagnostics by pressing 'PF9' key.
Do you have a ref code?
Y N

7 C 7 D 6 E 4 F G H

G H SEQ907 MAP F600-2

009

(Entry Point C)

Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will appear.
Press M and W keys,then enter.
'PARTIAL POWER UP/DOWN' screen will appear.
Key in 00 00,then enter to POWER UP system.
Does ref code get displayed on screen?
Y N

010
PROBLEM IS NOT REPAIRED.

Go to Page 12, Step 128, Entry Point Y.

011
Is the ref code F60CE206?
Y N

012
Is the ref code UU=1x?
Y N

013
PROBLEM IS NOT REPAIRED.

Go to Page 12, Step 128, Entry Point Y.

014

(Entry Point Z)

Go To Map 1000, Entry Point B.

015
Go To Map 0239, Entry Point A.

016
Is the ref code UU=F6?
Y N

3 J 3 K

J K
2 2

MAP CODE F600XXXX

PAGE 3 OF 12

017
Is ref code 1x?
Y N

018
Go to Page 10, Step 104, Entry Point X.

019
Go to Page 2, Step 014, Entry Point Z.

020
If PC diagnostics will not run ERROR free and you have replaced 01AB2 C2,D2 AND E2, check cards,card sockets and back panel for bent or broken pins or loose connectors.

POWER OFF.
Correct any pin or connector problem.
Replug orignal FRU(s).
POWER ON at the C.E. panel.
Wait 30 seconds.
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will appear.
Press M and P keys,then enter.
This will cause the POWER CONTROLLER diagnostics to run.
Did the PC diagnostics run completely? ('END OF DIAGNOSTICS' appears on the screen.)
Y N

021
Is the ref code UU=F6?
Y N

022
Is ref code UU=1x?
Y N

023
Go to Page 10, Step 104, Entry Point X.

024
Go to Page 2, Step 014, Entry Point Z.

L M

L M

SEQ907 MAP F600-3

025
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will appear.
Press M and W keys,then enter.
'PARTIAL POWER UP/DOWN' screen will appear.
Key in 00 00,then enter to POWER UP system.

(Entry Point J)
Does ref code get displayed on screen?
Y N

026
PROBLEM IS NOT REPAIRED.

Go To Map F000, Entry Point Y.

027
Is the ref code F60CE206?
Y N

028
Is the ref code UU=1x?
Y N

029
PROBLEM IS NOT REPAIRED.

Go to Page 12, Step 128, Entry Point Y.

030
Go to Page 2, Step 014, Entry Point Z.

031
Go To Map 0239, Entry Point A.

032

Go to Page 5, Step 055, Entry Point D.

033

A ref code with UU='F6' indicates a failure in the POWER CONTROLLER adapter (PCA) or sensor circuit. POWER CONTROLLER adapter diagnostics are on the 'FUNCT DISKETTE'.They are run automatically as power is applied to the MSS. Any failure in the POWER CONTROLLER adapter will cause an 'F6' ref code to be displayed. There are also some diagnostics contained on the MSS diagnostics diskette (DIAG4) which also display an 'F6' ref code.

POWER OFF.

POWER IN PROCESS and POWER COMPLETE indicators should both be off.

If power off fails
Go To Map 0238,Entry Point A.

OTHERWISE

On the C.E. panel turn the C.E. switch to C.E. mode.
Verify the 'FUNCT DISKETTE' is inserted.
POWER ON at the C.E. panel.
Wait 30 seconds.
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will appear.
Press M and P keys,then enter.
This will cause the POWER CONTROLLER diagnostics to run.

Did the PC diagnostics run completely? ('END OF DIAGNOSTICS' appears on the screen.)

Y N

034
Is the ref code UU=F6?

Y N

035
Is the ref code UU=1E?

Y N

036
Go to Page 10, Step 104, Entry Point X.

6
N P Q

P Q SEQ907 MAP F600-4

037
Go to Page 2, Step 014, Entry Point Z.

038

(Entry Point I)

POWER OFF.

Verify proper seating and location of top card connectors (TCC) on 01AB2 C2,D2 and E2.

NOTE: Top card connectors 'W' and 'X' are different and cannot be rotated 180 degrees or swapped with each other.
Be sure TCC are not plugged in ONE position low.
Re-plug TCC 'W' first to insure it is not ONE position low.
Ref code F60001FA will result from TCC 'W' being plugged one position low.
Exchange 01AB2 E2.
POWER ON at the C.E. panel.
Wait 30 seconds.
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will appear.
Press M and P keys,then enter.
This will cause the POWER CONTROLLER diagnostics to run.

Did the PC diagnostics run completely? ('END OF DIAGNOSTICS' appears on the screen.)

Y N

039
Is the ref code UU=F6?

Y N

040
Is the ref code UU=1E?

Y N

041
Go to Page 10, Step 104, Entry Point X.

042
Go to Page 2, Step 014, Entry Point Z.

043

POWER OFF.

Replug ORIGINAL FRU in 01AB2 E2.
Verify correct location of jumper on 01AB2 C2 and D2. Refer to Sense Card Jumpers SEC.20, VOL.13/16.
If correct,exchange 01AB2 C2 AND D2.
POWER ON at the C.E. panel.
Wait 30 seconds.
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will appear.
Press M and P keys,then enter.
This will cause the POWER CONTROLLER diagnostics to run.

Did the PC diagnostics run completely? ('END OF DIAGNOSTICS' appears on the screen.)
Y N

044
Is the ref code UU=F6?
Y N

045
Is the ref code UU=1E?
Y N

046
Go to Page 10, Step 104, Entry Point X.

047
Go to Page 2, Step 014, Entry Point Z.

048

POWER OFF.

Replug ORIGINAL FRU in 01AB2 C2 and D2.
Exchange Top card connectors.
POWER ON at the C.E. panel.
Wait 30 seconds.
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will appear.
Press M and P keys,then enter.
This will cause the POWER CONTROLLER diagnostics to run.
(Step 048 continues)

T

(Step 048 continued)
Did the PC diagnostics run completely? ('END OF DIAGNOSTICS' appears on the screen.)
Y N

049
Is the ref code UU=F6?
Y N

050
Is the ref code UU=1E?
Y N

051
Go to Page 10, Step 104, Entry Point X.

052
Go to Page 2, Step 014, Entry Point Z.

053
Go to Page 2, Step 007, Entry Point B.

054

Go to Step 055, Entry Point D.

055

(Entry Point D)

If more than one FRU was Replaced, locate the failing FRU by replugging ORIGINAL FRUs one at a time and rerun PC diagnostics.
Exchange failing FRU.
POWER OFF at the C.E. panel.
Turn C.E. switch to 'NORMAL'.
PROBLEM IS REPAIRED.

Go to Page 12, Step 128, Entry Point Y.

056

Go to Step 055, Entry Point D.

057
Diagnostics have not indicated any ERRORS.
Go to Page 2, Step 007, Entry Point B.

058
Check the CE panel to see if BASIC CHECK and POWER OFF FAIL LEDs (red) are lighted.
Are both BASIC CHECK and POWER OFF FAIL LEDs lighted?
Y N

059
Use the Service Aid 'LOGIC RESET' in VOL. 13/16.
Indications are the Power Controller Adapter (PCA) is not operating correctly.
Set the CE meter to the 6 volt dc scale,place the negative (-) lead on 01AB2 E2D08 (ground), the positive lead on 01AB2 E2G07 (-RESET TO PC).
Up level approximately 3.5 vdc to 5.0 vdc, down level approximately 0 vdc (ground).
Power ON.
Is '-RESET TO PC' at a constant down level(approximately 0 vdc?)
Y N

060
Go to Page 2, Step 007, Entry Point B.

061
Power Off.
Exchange 01AB2 E2.
Power on.
Is '-RESET TO PC' at a constant down level(approximately 0 vdc?)
Y N

062
Is POWER ON successful?
Y N

063
Go to Page 2, Step 007, Entry Point B.

064
PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

065
POWER OFF.
##################################
** CB1 and CB2 MUST be turned 'OFF'
to exchange FRUs in 01AD2 board.
##################################
Exchange the FRU's listed below, one at a time,to locate defective FRU.
Re-install original FRU if not defective.
POWER ON after each exchange ,then check voltage level on 01AB2 E2G07 (-RESET TO PC).

** 01AD2 E2, ** 01AD2 C2, ** 01AD2 C4,
** 01AD2 D2, ** 01AD2 B2.

Is '-RESET TO PC' at a constant down level(approximately 0 vdc?) after each FRU has been exchanged?
Y N

066
Is POWER ON successful?
Y N

067
PROBLEM IS NOT REPAIRED.

Go To Map 0001, Entry Point A.

068
PROBLEM IS REPAIRED.

Go To Map 0001, Entry Point A.

069
PROBLEM IS NOT REPAIRED.

Go To Map 0001, Entry Point A.

070
Go To Map 0239, Entry Point A.

071
Ref code F60007FA indicates a defective FRU in the POWER CONTROLLER adapter or indicates that Power Off (N/C) to the Power Controller Adapter is not being sensed. This can cause the system to Power On and Power Off continually.
Refer to ALD YF171 sensor number D61 (01AB2 C2M10).
Proper voltage indicated should be +2.4Vdc to +5.5Vdc.
Second level description of the POWER OFF switch on the Operator Control Panel (OCP) is in the service aids section of VOL.13/16.
Does Voltage at 01AB2 C2M10 measure between +2.4Vdc to +5.5Vdc?
01AB2 C2M10 (+) to C2D08 (ground).
Y N

072
Refer to ALD YF171 sensor D61.
The circuit to the sensor is open or a defective FRU is indicated.
Locate and repair problem or replace defective FRU.
PROBLEM IS REPAIRED.

Go to Page 12, Step 128, Entry Point Y.

073
Go to Page 2, Step 007, Entry Point B.

074
F60CE206 indicates an abnormal POWER OFF via the 30 second or 36 milisecond timer.
This problem could be caused by a failure in the MSS CONTROLLER , one of its adapters or another hardware failure that could cause the MSS to malfunction.
To analyze the problem, the MSS diagnostics will be run first.
If no errors are detected by running the MSS diagnostics , next the SP LOGOUT SUMMARY (QESA) and REFERENCE CODE LOGOUT FILE must be searched to locate common ref.code logouts.

POWER OFF.
(Step 074 continues)

(Step 074 continued)
POWER IN PROCESS and POWER COMPLETE indicators should be off.
Insert the MSS diagnostic diskette 'DIAG-4'.
CE mode switch must be in NORMAL;BASIC CHECK light OFF.
NOTE:With the PROCESSOR power 'OFF' the SP DISPLAY LEDs (green) on the CE PANEL should all be 'ON'.

POWER ON.

MSS BASIC diagnostics will automatically EXECUTE.

```
|------- REFERENCE A -----------|
| The MSS BASIC DIAGNOSTICS have|
| run ERROR FREE when you hear  |
| the AUDIBLE ALARM on the 3278 |
|         or 3279 and           |
|*** BASIC MSS DIAG.COMPLETED **|
|*******************************|
| is displayed with the MAIN-   |
| TENANCE and SUPPORT SUBSYSTEM |
| ( MSS ) OPTIONAL DIAGNOSTIC   |
| SELECTION SCREEN.             |
| The OPERATOR CONTROL PANEL    |
|       will have the           |
| 'POWER IN PROCESS' indicator  |
| ON, all other indicators OFF. |
|_______________________________|
```

Did the MSS BASIC DIAGNOSTICS run ERROR FREE?(see REF.A)
Y N

075
Go To Map F000, Entry Point B.

076
Select the 'FF' option to Loop the MSS diagnostics. Run for five minutes
During execution of the MSS extended diagnostics, 'TEST RUNNING' indicates on lower left of screen above the divider line (line 24) with the number of the test that is running. If an ERROR occurs, a ref code will be posted on the right end of the same line and the test will stop. NO TEST should take more than TWO MINUTES to complete.Some ERROR conditions can occur that will cause the SUPPORT PROCESSOR to hang with 'TEST RUNNING' and not display a ref code.
Did MSS extended diagnostics run ERROR FREE? (No ref code displayed on the screen).
Y N

077
Follow instructions on console display.

078
Is 'TEST RUNNING' indicated on line 24 with same test number and no ref code for more than TWO MINUTES?
Y N

079
Do the diagnostics run ERROR free?(no ref.code)
Y N

080
Follow instructions on console display.

081
Terminate diagnostics by performing Re-IML (POWER ON/IML or CE-IML)
Extended diagnostics have indicated no problems with the CONTROLLER,CONTROLLER STORAGE or DCA Port 0.
Select option AF to Loop extended diagnostics for the 53FD.
Run for 5 minutes.
Do the diagnostics run ERROR free?(no ref code)
Y N

082
Follow instructions on console display.

083
Terminate MSS diagnostics by pressing Power on/IML button.
On the C.E. panel turn the C.E. switch to C.E. mode.
Insert the 'FUNCT' diskette.

POWER ON/IML at the OCP.
Wait 30 seconds.
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will display.
Press QERD, then enter.
REFERENCE CODE LOGOUT FILE will display.
Determine if there is a common ref.code in last few logouts and record that ref.code.Ignore ref.code F60CE206.
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will display.
Press QESA, then enter.
SP LOGOUT SUMMARY will display.
Determine if there is a common ref.code in last few ref.code logouts and record that ref.code.Ignore ref.code F60CE206.
Do you have a common ref.code?
Y N

084
Go To Map 0239, Entry Point A.

085
ref.code format = UURRRRIS
For ref. code UU ='Fx' (x = 0 through F)

Go To Map F003, Entry Point A.

For All other ref.codes;

Go To Map 0000, Entry Point A.

086
Go To Map F000, Entry Point F.

087

(Entry Point A1)

Record this step number as you may be directed to return here.
Is this the first time through this step?
Y N

088
You were directed here originally by the message 'INVALID PROCESSOR ID', but the POWER CONTROLLER diagnostics did not fail.
The POWER CONTROLLER diagnostics must be run again.

Re-run PC diagnostics by pressing 'PF9' key.
Did the PC diagnostics run completely? ('END OF DIAGNOSTICS' appears on the screen.)
Y N

089
Did '4341 SERIAL NUMBER' message appear on screen?
Y N

090
Go to Page 10, Step 101, Entry Point A4.

091
Go to Page 10, Step 106, Entry Point A2.

092
POWER CONTROLLER diagnostics again did not indicate a SERIAL NUMBER failure.
The FRU at 01AB2 S4 should be checked for a loose jumper and that it is properly seated.

POWER OFF.

VERIFY that the jumpers on the FRU at 01AB2 S4 are not loose.(Refer to SERVICE AIDS section in MI vol.13/16 under SERIAL NUMBER CARD for proper jumpers.)
Re-install FRU at 01AB2 S4.
POWER ON at the C.E. panel.
(Step 092 continues)

(Step 092 continued)
Wait 30 seconds.
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will appear.
Press M and P keys,then enter.
This will cause the POWER CONTROLLER diagnostics to run.
Did the PC diagnostics run completely? ('END OF DIAGNOSTICS' appears on the screen.)
Y N

093
Did '4341 SERIAL NUMBER' message appear on screen?
Y N

094
Go to Page 10, Step 101, Entry Point A4.

095
Go to Page 10, Step 106, Entry Point A2.

096
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will appear.
Press M and W keys,then enter.
'PARTIAL POWER UP/DOWN' screen will appear.
Key in 00 00,then enter to POWER UP system.
DID system power up?(POWER COMPLETE led is lighted.).
Y N

097
Go to Page 10, Step 101, Entry Point A4.

098
Problem has disappeared.
PROBLEM IS NOT REPAIRED.

Go to Page 12, Step 128, Entry Point Y.

099

'INVALID PROCESSOR ID' indicates a difference exists between the machine serial as stored on the 'FUNCT' diskette and the serial as plugged on the 'SERIAL NUMBER' card in location 01AB2 S4.
To find why the difference occurred, the POWER CONTROLLER diagnostics must be run.
The message below will appear when the diagnostic has indicated a difference.

4341 SERIAL NUMBER

DISKETTE SERIAL NUMBER xxx

MACHINE SERIAL NUMBER xxx

To run the POWER CONTROLLER diagnostics,perform the following steps.

POWER OFF.

POWER IN PROCESS and POWER COMPLETE indicators should be off.
If power off fails
Go To Map 0238,Entry Point A.

OTHERWISE

On the C.E. panel turn the C.E. switch to C.E. mode.
Verify the 'FUNCT DISKETTE' is inserted.

(Entry Point A5)

POWER ON at the C.E. panel.
Wait 30 seconds.
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will appear.
Press M and P keys,then enter.
This will cause the POWER CONTROLLER diagnostics to run.
(Step 099 continues)

(Step 099 continued)
Did the PC diagnostics run completely? ('END OF DIAGNOSTICS' appears on the screen.)
Y N

100
Did '4341 SERIAL NUMBER' message appear on screen?
Y N

101

(Entry Point A4)
Do you have a ref.code?
Y N

102
PROBLEM IS NOT REPAIRED.
Go to Page 12, Step 128, Entry Point Y.

103
Is the ref code UU=F6?
Y N

104

(Entry Point X)

Go To Map 0000, Entry Point A.

105
Go to Page 2, Step 007, Entry Point B.

106

(Entry Point A2)

The three digits in the serial number fields should be the same.

The diagnostic indicates they differ.

The last three digits of the actual serial number on the machine tag were stored on the 'FUNCT' diskette via the 'QFS' configuration screen at the factory or during reconfiguration when a new 'FUNCT' diskette was installed.
(Step 106 continues)

(Step 106 continued)

The three digits designated as 'MACHINE SERIAL NUMBER' are derived from the serial number card located in 01AB2 S4 which had jumpers installed at the factory or when a new FRU was installed.
Are the last three digits indicated on the screen as 'DISKETTE SERIAL NUMBER' correct? (They must match the serial number on the machine tag.)
Y N

107
Verify that the correct 'FUNCT' diskette for this 4341 is installed.

Is correct diskette installed?
Y N

108
Install correct 'FUNCT' diskette.
Re-run PC diagnostics by pressing 'PF9' key.

Did the PC diagnostics run completely? ('END OF DIAGNOSTICS' appears on the screen.)
Y N

109
Did '4341 SERIAL NUMBER' message appear on screen?
Y N

110
Go to Page 10, Step 101, Entry Point A4.

111
PROBLEM IS NOT REPAIRED.

Go to Page 12, Step 128, Entry Point Y.

A A A
C D E

112
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will appear.
Press M and W keys,then enter.
'PARTIAL POWER UP/DOWN' screen will appear.
Key in 00 00,then enter to POWER UP system.
DID system power up?(POWER COMPLETE led is lighted.).
Y N

113
Go to Page 10, Step 101, Entry Point A4.

114
PROBLEM IS REPAIRED.

Go to Page 12, Step 128, Entry Point Y.

115
PROBLEM IS NOT REPAIRED.

Go to Page 12, Step 128, Entry Point Y.

116
Are the last three digits indicated on the screen as 'MACHINE SERIAL NUMBER' correct?(The FRU must be jumpered properly.)
Y N

117
POWER OFF.

VERIFY that the jumpers on the FRU at 01AB2 S4 are correct.(Refer to SERVICE AIDS section in MI vol.13/16 under SERIAL NUMBER CARD for proper jumpers.)
Are the jumpers correct?
Y N

118

Correct jumpers on 01AB2 S4.
Re-install FRU at 01AB2 S4.
POWER ON at the C.E. panel.
Wait 30 seconds.
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will appear.
Press M and P keys,then enter.
This will cause the POWER CONTROLLER diagnostics to run.

Did the PC diagnostics run completely? ('END OF DIAGNOSTICS' appears on the screen.)

Y N

119

Did '4341 SERIAL NUMBER' message appear on screen?

Y N

120

Go to Page 10, Step 101, Entry Point A4.

121

Go to Step 123, Entry Point A3.

122

PROBLEM IS REPAIRED.

Go to Step 128, Entry Point Y.

123

(Entry Point A3)

POWER OFF.
Replace the FRU at 01AB2 S4.
Verify jumpers on FRU.
Re-install FRU at 01AB2 S4.
POWER ON at the C.E. panel.
Wait 30 seconds.
Press 'MODE SELECT' key.
'GENERAL SELECTION' screen will appear.
Press M and P keys,then enter.
This will cause the POWER CONTROLLER diagnostics to run.
(Step 123 continues)

(Step 123 continued)

Did the PC diagnostics run completely? ('END OF DIAGNOSTICS' appears on the screen.)

Y N

124

Did '4341 SERIAL NUMBER' message appear on screen?

Y N

125

Go to Page 10, Step 101, Entry Point A4.

126

PROBLEM IS NOT REPAIRED.

Go to Step 128, Entry Point Y.

127

PROBLEM IS REPAIRED.

Go to Step 128, Entry Point Y.

128

PROBLEM IS NOT REPAIRED.

(Entry Point Y)

Go To Map 0001, Entry Point A.

129

Go to Page 9, Step 087, Entry Point A1.