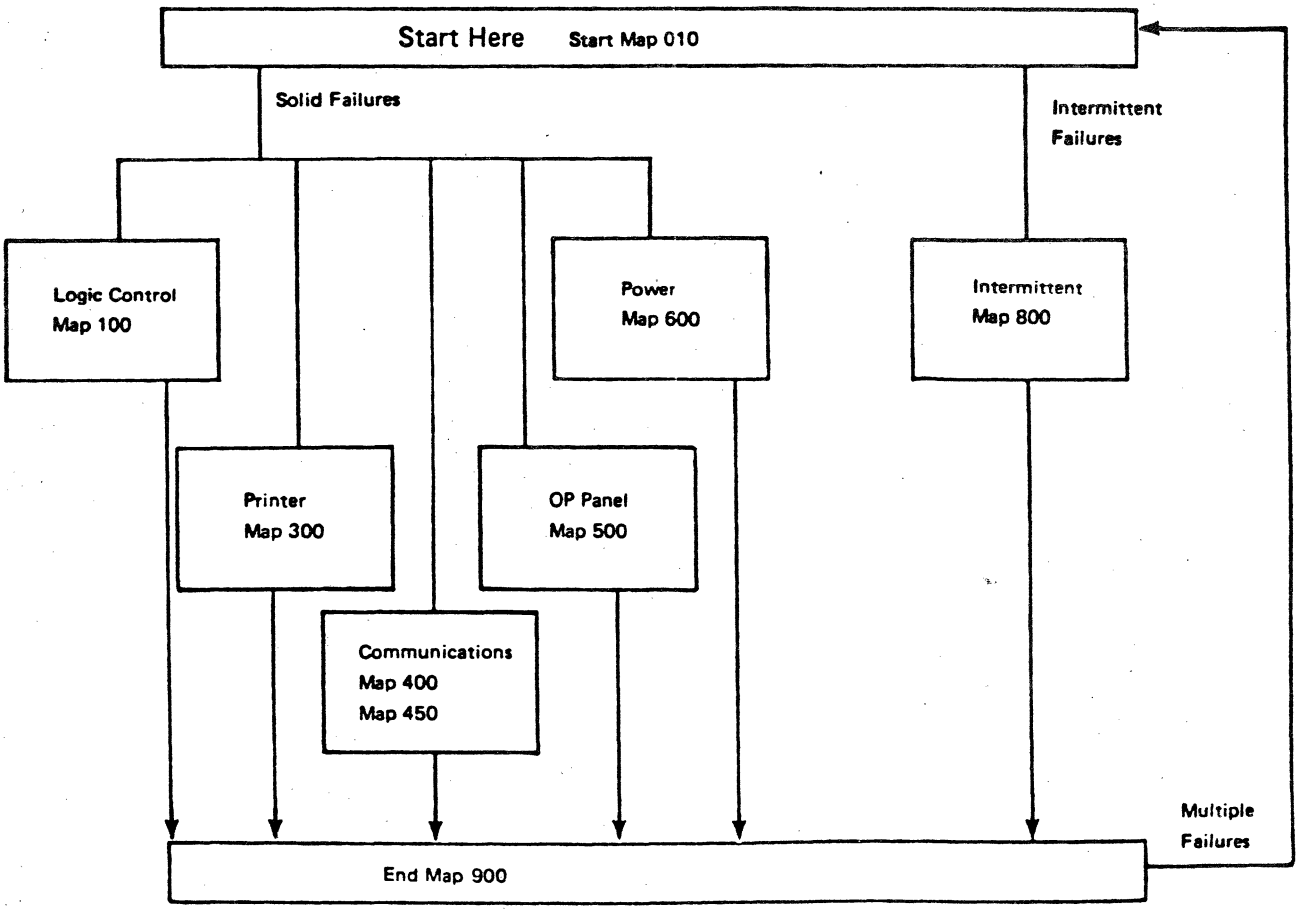
IBM Maintenance Library

3268 Printer

Map Charts for all Models



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7838589

IBM 3268 Printer Map Charts for all Models Printed in U.S.A. Order No. 7838589

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TABLE OF CONTENTS.

WARNING: The above EC release sequence does not necessarily indicate the Logic EC level of the machine. The Logic EC level is the EC level of page A000, P/N 8678484.

The Maps and Parts Catalog are contained in one binder and the MI is contained in a second binder.

If one or both of the binders are missing, request your local Branch Office order a Miscellaneous Equipment Specification (MES) from the factory that makes the 3268 for your country. The Bill of Material (B/M) number is 8678440.

IBM 3268

ENTRY POINTS

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

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	005	100	A
2	008	100	A
2	007	300	A
3	018	800	A
3	019	900	A

001
(ENTRY POINT A)

- Read Introduction (MI 001) for your information before using this MAP.
- Read Note 1 at right.
- Remember that switching Power Off will destroy the contents of the error log area. If you do not have a Test Switch printout, from when failure occurred, get a Test Switch printout before switching Power Off.
- Read Note 2 at right.

1.Power Off.
2.Remove printer cover. (MI 020)

********** CAUTION **********
If you override the Cover Interlock switch, the Print Head may move without warning.

3.Perform printer checks in right column.

NOTE 1: These MAPS frequently use the term 'SI' SI is an abbreviation for Status Indicator.

NOTE 2: To get a Test Switch printout, press an release the 'Test' Switch.

Perform Printer Checks with 'Power Off'.

All cards are seated correctly. (MI 119/122)
All cables and connectors are seated correctly. (MI 013)
All Modules on MPU-A Card C1 and MPU-B Card F1 are seated correctly. (MI 055)
Print ribbon is not jammed. (MI 361)
Print Head moves smoothly. (MI 321)
Forms Advance Knob turns smoothly. (MI 381)
Fan blades are not binding. (MI 631)

WAS A PROBLEM FOUND IN THE PRINTER CHECKS?
Y N

3 2
A B

002
(ENTRY POINT B)

1.Set up to run the BAT (MI 716):
- Move Print Head away from column 1.
- The BAT starts to run when Power is switched On, even if no response (Op Panel, Fan, Print Head) is observed on the printer.

2.Power On to start the BAT.

3.Determine if BAT has completed.

- Read Note 3 at right.

NOTE 3: The BAT (Basic Assurance Test) has completed if all of the following conditions occur in the order specified:
1. LED 3 can be observed to turn On - Off - On - Off during the first 15 seconds after Power On.
2. The Print Head moves.
3. LED 0 turning 'On' after LED 3 turns 'Off'.

DID THE BAT COMPLETE?
Y N

003
Determine if BAT has stopped at Diagnostic Exit Point.

- Read Note 4 at right.

NOTE 4:
Definition of Diagnostic Exit Point

1. OP Panel LEDs are as shown below:
   * 0 0 * * = ON
   * * * * 0 = OFF
2. SI indicates 89.
3. Pressing the Cancel Print switch causes the 89 in the SI to change.

HAS PRINTER STOPPED AT DIAGNOSTIC EXIT POINT:
Y N

004
IS THE SI = 01, 02 OR 03?
Y N

005
GO TO MAP 100, ENTRY POINT A.

006
IS LED 3 ON?
Y N

007
GO TO MAP 300, ENTRY POINT A.

008
GO TO MAP 100, ENTRY POINT A.

D 2 START REPAIR MAP

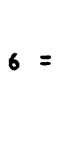
3268

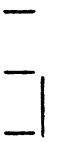
PAGE 3 OF 4

009
Pressing Cancel Print switch may cause more error codes to be displayed in the SI. Error codes are displayed in the order in which they occurred, one code is displayed each time Cancel Print switch is pressed. When the last error is reached, the decimal point is turned on. Pressing Cancel Print switch again will cause the first error to again be displayed. If the decimal point remains on when Cancel Print switch is pressed, only one error was logged.

Record all error codes logged during the BAT.

********** WARNING **********
When observing SI displays, the letter 'b' is easily taken for a number '6'. Check carefully.

b = 

6 = 

ANY SI = AX? (X = ANY CHARACTER)
Y N

010
ANY SI = CX? (X = ANY CHARACTER)
Y N

011
ANY SI = dX? (X = ANY CHARACTER)
Y N

012
GO TO MAP 100, ENTRY POINT B.

013
GO TO MAP 300, ENTRY POINT A.

014
GO TO MAP 450, ENTRY POINT A.

015
GO TO MAP 400, ENTRY POINT A.

016
IS PROBLEM INTERMITTENT?
Y N

017
GO TO PAGE 4, STEP 020, ENTRY POINT C.

018
For Intermittent problems
GO TO MAP 800, ENTRY POINT A.

019
Go to MI section specified by printer check that was not good and repair or exchange as needed.
Verify Repair.
GO TO MAP 900, ENTRY POINT A.

020
(ENTRY POINT C)
==========

CUSTOMER REPORTED SYMPTOMS

Symptom list for solid failures occurring after the Power On BAT has completed correctly.

GO TO MAP INDICATED FOR SYMPTOMS BELOW.

SYMPTOM	GO TO MAP
PRINT FAILURES	
SI = 01, 02, 03	300
SI = 31, 32, 33	300
SI = 45 or 47	300
SI = dC or dE	300
Any other printing problems	
See Symptom List in MAP	300
COMMUNICATION FAILURES	
"Can not Communicate." (Model 1)	4[illegible]
SI = 12	400
SI = 70 through 76	400
"Can not Communicate." (Model 2)	450
SI = 27, 28 or 65	450
SI = C8	450
OP PANEL	
Op Panel problems	500
Page Length problems	500
SI = 20	500
SI = 21 ..... Check Language switch setting	
SI = E0	500
POWER	
Power Problems	600
INTERMITTENT FAILURES	
For Intermittent failures	800

IBM 3263

ENTRY POINTS

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

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
1	003	600	A

001
(ENTRY POINT A)

For definition of Diagnostic Exit Point.
- See Note 1 at right.

HAS PRINTER STOPPED AT DIAGNOSTIC EXIT POINT?
Y N

002
If more than 1 FRU is specified, the first FRU specified is the most probable. Switching Power On will start the BAT. If BAT still fails, Exchange the next FRU specified.

- See Note 2 at right.

1.Set CE Meter to measure +21Vdc.
2.Voltage Test Points are on Voltage Regulator Card J11 and Logic Board.(MI 607).
3.Check 'ALL' Voltages (+/- 10%) in table.

- See Note 3 at right.

ARE 'ALL' VOLTAGES CORRECT?
Y N

003
Note failing Voltage(s) or Symptom(s) and
GO TO MAP 600, ENTRY POINT A.

NOTE 1: Definition of Diagnostic Exit Point.

1. OP Panel LEDs are as shown below:
   * 0 0 * * = ON
   * * * * 0 = OFF
2. SI indicates 89.
3. Pressing the Cancel Print switch causes the 89 in the SI to change.

NOTE 2: If FRU specified is the MPU-A card C1 and the BAT still fails after exchanging card. Exchange ROS Module 1 on the C1 card.
See (MI 119/122) for Card locations.
See MAP A000 for Card and Module Feature Reference.

NOTE 3 - VOLTAGE TABLE TEST POINTS (TP)

VOLTAGE	RANGE	(+)TP	(-)TP
+21 VDC	(18.9-23.1)	TP1	TP5
-21 VDC	(18.9-23.1)	TP5	TP2
+13 VDC	(11.7-14.4)	TP3	TP5
+8.5 VDC	(7.6- 9.4)	TP7	TP5
+5 VDC	(4.5- 5.5)	TP6	TP5
-5 VDC	(4.5- 5.5)	TP5	TP4
-5 VDC	(4.5- 5.5)	A4D08	A4B06
+5 VDC	(4.5- 5.5)	A4D03	A4D08
+8.5 VDC	(7.6- 9.4)	A4B11	A4D08

004
Power Off and then On.
Record information, obtained from performing the following nine (9) steps, in the SYMPTOM TABLE located on page 3.

1. RIBBON MOVEMENT ————
Read NOTES 1 and 2 on page 3.
Record any Ribbon Drive Motor pulses that occur, in the first 5 seconds, after Power On.
Record this information in RIBBON column of the symptom table.
If ribbon runs continuously, record 'RUN'.
If ribbon does not move, do not make an entry.

2. PRINT HEAD CARRIER MOVEMENT —— COLUMN 4
Let the BAT complete. (approximately 12-20 seconds)
If Print Head did not move, record an 'A' in column 4 of the symptom table.

3. ERROR CODE IN SI ————
Wait 20 seconds. Record contents of the SI in SI column of the symptom table. (If SI is blank, record a 'BK' in SI column

4. ERROR DATA IN 'LEDS' ————
Record contents of the 'LEDS' (in HEX) in LED column of the symptom table.

5. TEST SWITCH CHECK ———— COLUMN 5
Press and release Test Switch. Observe the following to determine if there is any printer response:
- .The OP Panel 'LEDs' or 'SI' may change.
- .The Ribbon Drive Motor may turn.
- .The Print Head may move.

If there is 'NO' response to pressing the Test Switch, record a 'B' in column 5 of the symptom table. (WAIT AT LEAST 30 SECONDS BEFORE ANSWERING)

6. MPU-A CARD C1 CHECK ———— COLUMN 6
Power Off. Remove MPU-A Card C1. Power On.
The Ribbon Drive Motor should pulse 1 long, 1 short, 1 long. If the number and sequence of ribbon pulses is not correct, record a 'C' in column 6 of the symptom table.

7. MPU-B CARD F1 CHECK ———— COLUMN 7
Power Off. Reinstall MPU-A Card C1 removed in preceding step. Remove MPU-B Card F1 and Power On.
The BAT should end with SI = 89. Press Cancel Print. 90 should be displayed in the SI. Press Cancel Print again. 95 should be displayed in the SI. No other error codes should occur. If this step is not correct, record a 'D' in column 7 of the symptom table.

8. COMM. CARD B1 CHECK ———— COLUMN 8
Power Off. Reinstall MPU-B Card F1 removed in preceding step. Remove the Comm. Card B1 and Power On.
The BAT should end with SI = 89. Press Cancel Print. Ax or Cx should be displayed in the SI. No other error codes should occur. If this step is not correct, record a 'E' in column 8 of the symptom table.

9. OP PANEL CHECK ———————— COLUMN 9
Power Off. Reinstall Comm. Card B1 removed in preceding step. Disconnect A3 Op Panel Card from the A3 socket. Power On. The Ribbon Drive and Print Head Carrier movement, should be the same with or without the A3 Card removed. If both Print Head Carrier and Ribbon Drive movement is the same, record a 'F' in column 9 of the symptom table. Power Off. Reinstall the A3 Card and Cable.

Review Notes on following page for your information:

(Step 004 continues)

(Step 004 continued)

SI = 88 OR BLANK AND LEDS = FF?
Y N

005
SI = 88 OR BLANK?
Y N

006
SI = 00 THROUGH 7X?
(X) = ANY CHARACTER, READABLE OR NOT.
Y N

007
SI = 80 THROUGH 8X?
(X) = ANY CHARACTER, READABLE OR NOT.
Y N

008
SI = 90 through FF or XX.

GO TO PAGE 9, STEP 016,
ENTRY POINT F.

009
GO TO PAGE 8, STEP 015,
ENTRY POINT E.

010
GO TO PAGE 7, STEP 014, ENTRY POINT G.

011
GO TO PAGE 10, STEP 017, ENTRY POINT D.

012
GO TO PAGE 11, STEP 018, ENTRY POINT C.

SYMPTOM TABLE

SI	LED	RIBBON	4	5	6	7	8	9
		/ /						
		/ /						
		/ /						

NOTE 1: A long Ribbon Drive Motor pulse is approximately 5 turns of the ribbon advance knob and a short pulse is approximately 1 turn of the ribbon advance knob.

NOTE 2: When an error is sensed, the normal sequence is 1 long pulse followed by 0 to 7 short pulses. One more long pulse may (but not always) follow. Record the long-short-long pulses as follows: 1 (long) / 0 to 7 (short) / 0 or 1 (long).

NOTE 3: In the following charts, a broken line " - - - -> " indicates you should ignore these conditions.

NOTE 4: 'X' indicates any alphanumeric character, readable or not.

013
(ENTRY POINT B)

Verify Fuses F2 and F3 on J17 Card are good.
See (MI 307) for location of fuses.

Record information obtained from the following four (4) steps in the SYMPTOM TABLE below.

1.The contents of the Status Indicator (SI).

2.Press Cancel Print Switch until all additional Error codes have been displayed. (MI 716) Record all additional SI codes.

3.Did the Print Head move. (Record YES or NO)

4.Record, if any, the sequence of Ribbon Drive Motor Pulses. Observe ribbon advance knob, a long pulse is approximately 5 revolutions and a short pulse is approximately 1 revolution. If ribbon movement is continuous, rec ' RUN.
- Read Notes 1 and 2 on Page 3.

SYMPTOM TABLE

SI	ADDITIONAL SI ERROR CODES				RIBBON MOTOR LONG/SHORT/LONG	HEAD MOVE
					/ /	
					/ /	
					/ /	
					/ /	

Locate failure symptom in Diagnostic Exit Point Chart starting on next page:

NOTE: If more than 1 FRU is indicated, the first FRU is the most probable. For Card locations, see (MI 119/122).
Power On will start the BAT. If the BAT still fails, Exchange the next FRU.
(Step 013 continues)

(Step 013 continued)

DIAGNOSTIC EXIT POINT CHART

BAT SI	ADDITIONAL SI ERROR CODES				RIBBON PULSES	HEAD MOVE	EXCHANGE CARDS/MODULES IN THE FOLLOWING ORDER
89	01					- - ->	F1,E1
89	89					YES	C1, GO TO MAP 500
89	89				1/1/1	YES	F1
89	90					- - ->	F1,E1
89	90	95			1/0/0	- - ->	F1,E1
89	90	95			1/1/0	- - ->	F1,E1
89	90	95			1/6/0	NO	E1
89	90	95			RUN	- - ->	F1,E1
89	90	95				- - ->	F1,E1
89	90	95	FF	A1	1/0/0	YES	E1
89	95					YES	F1
89	95	96				- - ->	F1,E1
89	96	95				- - ->	F1,E1
89	9F				1/0/0	NO	E1
89	E0					YES	GO TO MAP 500
89	E8					YES	GO TO MAP 500
89	F1					YES	ROS MODULE 1 OR C1
89	F2					YES	ROS MODULE 2 OR C1
89	F2	90	95		1-0-0	NO	E1
89	F3					YES	ROS MODULE 3 OR C1

(Step 013 continues)

Step 013 continued)

DIAGNOSTIC EXIT POINT CHART

BAT SI	ADDITIONAL SI ERROR CODES				RIBBON PULSES	HEAD MOVE	EXCHANGE FRU'S IN THE FOLLOWING ORDER
89	F2	F3				YES	E1
89	F4	F3	F2			YES	C1
89	F4					YES	ROS MODULE 4 OR C1
89	F5					YES	ROS MODULE 5 OR C1,E1
89	F6					YES	ROS MODULE 6 OR F1
89	F7					YES	ROS MODULE 7 OR F1
89	F8					YES	ROS MODULE 8 OR F1
89	FA					YES	B1,C1
89	FC					- - ->	
89	FE					- - ->	F1,
89	FE	A0	d0			NO	GO TO MAP
89	FF					YES	C1
89	FF				1/2/0	YES	F1
89	FF	90			1/1/0	YES	F1
89	FF	90	95		RUN	- - ->	E1
89	FF	90	95			- - ->	E1,F1
89	FF	90	95		1-0-0	NO	E1,F1
89	FF	A0	FE			YES	E1

GO TO MAP 900, ENTRY POINT A.

014
(ENTRY POINT G)
SI = 00 THROUGH 7X

SI CODE	LEDS ON	RIBBON PULSES	4 5 6 7 8 9	EXCHANGE OR (*)=MAP 500
00	33		A . . D E F	C1
00	33	1-0-0	A - - - - ->	C1,E1
00	53		A . . D E F	C1
00	FE	1-1-0	A . . D E F	C1,E1
00	FF		A . C . E F	E1,F1
00	FF		. . C . E F	E1,F1
01	10	1-1-0	A . C . E F	F1
01	33	1-0-0	A - - - - ->	C1,E1
01	33	1-1-0	A . . D E F	C1,F1
01	33	1-1-0	A . C D E	J17,F1
01	42		- - - - - ->	F1
01	9F		A . C . E F	F1,E1
01	9F	RUN	A . C . E F	E1
01	9F		A . . D E F	E1
01	9F	RUN	. B C . E F	F1
01	9F	RUN	. . C . E F	E1
01	FE		A . . D E F	C1,E1
01	FF		A . . D E F	E1
01	FF		. . C . E F	F1
01	FF	RUN	. . C . E F	E1
02	02		- - - - - ->	F1
02	42		- - - - - ->	F1
02	B3		- - - - - ->	F1
03	42		- - - - - ->	F1
04	01		- - - - - ->	F1
04	02		- - - - - ->	F1
04	FB		- - - - - ->	E1

(Step 014 continued)

11	CC		. . C . E F	E1
11	EC		- - - - - ->	E1,F1
14	00		A . . . E F	F1
14	40		A . . . E F	F1
44	AA		A . . D E F	C1,E1
51	FF	1-0-0	A - - - - ->	C1
55	AA	1-0-0	. . C . E F	E1
59	FB		A . . D E F	C1
59	FF		A - - - - ->	F1
7D	FF		A B - - - ->	E1

GO TO MAP 900, ENTRY POINT A.

(Step 014 continues)

015
(ENTRY POINT E)
SI = 80 THROUGH 8X

SI CODE	LEDS ON	RIBBON PULSES	4 5 6 7 8 9	EXCHANGE OR (*)=MAP 500
80	FF		A . . D E F	(*)
81	10		A B C . E F	E1
81	10		A . C . E F	F1
81	10	RUN	. . C . E F	F1
81	10	RUN	. . . . E F	F1
81	10	1-0-1	A . . D E F	C1,E1
81	10	1-0-1	A . . D E .	E1
81	10	1-0-1	A . . . E F	E1
81	10	1-0-1	A . . . E .	C1
81	10	1-0-1	A	B1
81	10	1-1-1	A . C . E F	F1
81	10	1-1-1	A . . D E F	E1
81	10	1-1-1	A - - - - ->	C1
82	10		A B C . E F	E1,F1
82	10		A B - - - ->	E1
82	10		A . C . E F	E1,F1
82	10		A . C . . F	E1
82	10		. B - - - ->	E1
82	10		. . C . E F	E1,F1
82	10	RUN	. B C . E F	F1
82	10	RUN	. . C . E F	E1,F1
82	10	RUN	. . C . E .	E1
82	10	1-0-0	A B C . E F	F1
82	10	1-0-0	A . C . E F	E1,F1
82	10	1-0-0	. . C . E F	F1
82	10	1-1-0	A . . D E F	C1
83	10	1-0-1	A . . D E F	C1
84	10		A . C . E F	E1
84	10		A . . D E F	C1,E1
84	10		A - - - - ->	F1
84	10		. . C . E F	E1,F1

(Step 015 continues)

(Step 015 continued)

84	10	1-0-0	A . C . E F	E1,F1
84	10	1-0-0	A - - - - ->	C1,E1
84	10	1-0-1	A . C . E F	E1
84	10	1-0-1	A . . D E F	C1
84	10	1-0-1	A - - - - ->	C1,E1
84	FF		. . . D E F	(*)
87	92		A B . D E F	C1
89	05		. B C . E F	E1
89	05		. . C . E F	E1,F1
89	29	1-5-0	A . C . E F	E1
89	30		A . C . E F	E1
89	53		. . C . E F	E1,F1
89	53		. . . . E F	F1
89	94		. . C . E F	E1
89	9F		A . C . E F	E1
89	9F		. . . D E F	C1,(*)
89	9F	1-0-0	A . C . E F	E1
89	BF		. . . D E F	(*)
89	DF		. . . D E F	(*)
89	FF	YE[illegible]	A - - - - ->	F1
89	FF	1-[illegible]-0	B - - - ->	F1
89	FF	1-0-0	A - - - - ->	F1
8A	9F		. . - - - ->	(*)
8	FF		. . . [illegible] .	(*)
8X	9F		. . - - ->	(*)

(X)= any other character readable or not

GO TO MAP 900, ENTRY POINT A.

016
(ENTRY POINT F)
SI = 90 THROUGH FF and XX

SI CODE	LEDS ON	RIBBON PULSES	4 5 6 7 8 9	EXCHANGE OR (*)=MAP 500
90	9F		A . C . E F	F1
90	9F		. . C . E F	F1
90	9F	1-0-0	A . C . E F	E1
90	E1		A . . D E F	E1,C1
93	01		. . . . E F	E1
93	01		. . . . . F	C1
93	20		- - - - - ->	C1
93	54		. . . . E F	F1
93	91	1-0-0	A . C . E F	E1
94	01		A . C . E F	F1
94	01		. . . . E F	E1
94	01		. . . . E .	C1
94	01		. . . . . F	C1,E1
94	01		. . . . . .	C1,E1
94	01	1-1-0	A . C . E F	E1
94	01	1-5-0	A . C . E F	F1
94	01	1-5-0	A - - - - ->	E1
94	10	1-5-0	A - - - - ->	F1
94	10		A - - - - ->	E1
94	20	1-5-0	A - - - - ->	E1
94	20		. . . D . F	C1
94	52		A . . D E F	C1
94	80	1-0-0	A . C . E F	E1
94	91		A - - - - ->	C1
94	91	1-0-0	A - - - - ->	E1
94	92		A . . D E F	E1,C1
94	9E		A . . D E F	E1
94	9F		. . . . . F	E1
96	ED		A - - - - ->	C1,E1
97	10		A . C . E F	F1
97	10		A . . D E F	C1,F1
97	10		A . . D E .	(*)

(Step 016 continues)

(Step 016 continued)

97	10		A . . . E F	F1
97	10		. . . . . F	E1
97	10	1-0-1	A B . D E .	(*)
98	9F		. . . . E F	F1
9A	FB		A . . D E F	C1
9F	FD	1-0-0	A . C . E F	E1
A2	9F		A B C . E F	F1
E2	96		A B C . E F	E1
F2	9F	RUN	. . C . E F	E1
FF	10		. . C . E F	F1
FF	9F		A . C . E F	F1,E1
FF	9F		A - - - - ->	E1
FF	9F		. . C . E F	E1,F1
FF	9F		. . . D E F	C1
FF	9F	1-0-0	A . C . E F	E1,F1

(XX) = any other SI, readable or not

XX	10		A B - - - ->	(*)
XX	24	1-1-0	. B . . E F	(*)
XX	24	1-1-1	. B . . E F	(*)
XX	24	1-3-0	. B . . E F	(*)
XX	9F		A . C . E F	F1
XX	9F	1-0-0	A . C . E F	E1
XX	CD		. . . . E F	F1
XX	D2		. . . D E F	(*)
XX	FE		. . . D E F	(*)

(YY)= any other combination of LEDs

XX	YY		. . . . . F	E1
XX	YY		. B - - - ->	(*)

GO TO MAP 900, ENTRY POINT A.

017
(ENTRY POINT D)

SI = 88 OR BLANK

SI CODE	LEDS ON	RIBBON PULSES	4 5 6 7 8 9	EXCHANGE OR (*)=MAP 500
	00		A B C D E F	J17
	00		A B C D E .	(*)
	00		A B C . E F	E1,F1
	00		A . . D E F	C1,E1
	00		. B C D E F	J17,(*)
	00		. . . D E F	(*)
	00		. . . . E F	E1
	00		. . . . . F	E1,F1,C1
	00		. . . . .	F1
	00	RUN	. . . . .	J17,F1
	00	1-0-0	A . . D E F	E1,C1
	00	1-0-1	A . . D E .	C1,(*)
	00	1-1-0	A . C . E F	E1,F1
	00	1-1-0	A . . D E F	C1,E1
	00	1-1-0	A . . . E F	C1,E1
	00	1-1-0	. . . . E F	C1
	00	1-1-0	. . . . . F	C1
	10	1-1-1	A . . D E F	E1
	31	RUN	. B C . E F	F1
	40		. . . . . F	(*)
	40		. . . . .	(*)
	51		A B C . E F	F1
	51		. B C . E F	F1
	51		A - - - - ->	E1
	52		A - - - - ->	E1
	54		A . C . E F	F1
	54		A . . . E F	E1,F1
	80		. B C . E F	F1
	80		. . . . . F	(*)
	90		A - - - - ->	E1
	91		A . C . E F	E1
	92		A B . D E F	C1,E1
	92		A B . . E F	E1

(Step 017 continues)

(Step 017 continued)

92		A B . . . F	E1
92		A . C . E F	E1,F1
92		A . . D E F	C1,E1
92	RUN	. B C . E F	F1
92	1-0-0	A B . D E F	E1
92	1-0-0	A B . D E	E1
92	1-0-0	A . C . E F	E1,F1
92	1-0-0	A . . D E F	C1,E1
92	1-0-0	A . . D E .	C1
9F		A . C . E F	E1,F1
9F		A . . D E F	E1
9F		A . . . E F	E1
9F		. . C . E F	F1,E1
9F		. . . . E F	F1
9F	RUN	A . C . E F	E1
9F	RUN	. B C . E F	F1
9F	RUN	. . C . E .	F1
9F	RUN	. . . . E F	F1
9F	1-0-0	A . C D E F	E1
9F	1-1-0	A . C . E F	E1,F1
9F	1-1-0	A . . D E F	C1
C0		. . . D E .	(*)
E1		A . . D E F	E1
YY		. . D E F	(*)

(YY) = any other combination of LEDs

GO TO MAP 900, ENTRY POINT A.

018
(ENTRY POINT C)
SI = 88 OR BLANK and LEDS = FF

SI CODE	LEDS ON	RIBBON PULSES	4 5 6 7 8 9	EXCHANGE OR (*)=MAP 500
	FF		A B C D E F	E1,J17
	FF		A B C D E .	(*)
	FF		A B C D . F	B1
	FF		A B C . E F	E1,F1
	FF		A B . D E F	C1,(*)
	FF		A B . D E .	C1,(*)
	FF		A B . D . F	C1
	FF		A . C . E F	E1,F1
	FF		A . C . E .	F1
	FF		A . . D E F	C1,E1
	FF		A . . D E .	(*)
	FF			
	FF		. B C D E F	J17
	FF		. B C D . F	B1
	FF		. B C . E F	F1
	FF		. B . D E F	(*)
	FF			
	FF		. . C . E F	F1,E1
	FF		. . C . E .	E1,(*)
	FF		. . . D E F	C1,(*)
	FF		. . . D E .	(*)
	FF		. . . . E F	E1
	FF		. . . . . F	C1
	FF			
	FF	RUN	A . C . E F	F1
	FF	RUN	. B C . E F	F1
	FF	RUN	. . C . E F	F1
	FF	RUN	. . . . E F	F1
	FF	YES	. B C . E F	E1
	FF			
	FF	1-0-0	A B C . E F	E1,F1
	FF	1-0-0	A . C D E F	E1
	FF	1-0-0	A . . D E F	C1,E1
	FF	1-0-0	A . . . E F	F1
	FF	1-0-0	. . C . E F	E1
	FF	1-0-0	. . C . E .	F1

(Step 018 continues)

(Step 018 continued)

	FF	1-0-1	A B . D E .	(*)
	FF	1-0-1	A . C D E F	E1
	FF	1-0-1	A . C . E .	E1
	FF	1-0-1	A . . D E F	C1,E1
	FF	1-0-1	A . . D E .	(*)
	FF	1-0-1	A . . D . F	C1,B1
	FF	1-0-1	A . . . E F	E1
	FF			
	FF	1-1-0	A . C . E F	E1,F1
	FF	1-1-0	A . . D E F	C1,E1
	FF	1-1-0	A . . D E .	C1,(*)
	FF	1-1-0	A . . D . F	E1,C1,B1
	FF	1-1-0	. . C . E F	E1
	FF	1-1-0	. . . D E F	C1
	FF	1-1-0	. . . D E .	(*)
	FF			
	FF	1-1-1	A . C D E F	E1
	FF	1-1-1	A . C D E .	(*)
	FF	1-1-1	A . C . E F	F1
	FF	1-1-1	A . . D E F	C1,E1
	FF	1-1-1	A . . D E .	C1,E1,(*)
	FF	1-1-1	A . . D . F	B1
	FF	1-1-1	. . . D E F	E1
	FF	1-1-1	. . . D E .	(*)
	FF			
	FF	1-2-0	A . . D E F	C1,E1
	FF	1-2-0	A . . D E .	C1
	FF			
	FF	1-2-1	A . C D E F	E1
	FF	1-2-1	A . . D E F	C1,E1
	FF	1-2-1	A . . D E .	C1,E1,(*)
	FF			
	FF	1-3-1	A . . D . .	B1
	FF			
	FF	1-4-0	A . C D E F	E1
	FF	1-4-1	A . . D E F	C1,E1
	FF			
	FF	1-5-1	A . . D E F	E1

GO TO MAP 900, ENTRY POINT A.

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ENTRY POINT A

Review symptom list and take path that best describes failure.
See (MI 313) for Print Quality Samples.

PRINT SYMPTOMS	GO TO MAP	POSSIBLE FRU'S, (field replaceable units)
SI=01 or 31	305	Paper Out Switch, MPU-B Card F1 Linear Drive Card J16
Prints with Paper out	305	Paper Out Switch, MPU-B Card F1 Linear Drive Card J16
SI=02 or 32	305	Paper Load Switch, MPU-B Card F1 Linear Drive Card J16
Prints with Paper Load Lever in the open position	305	Paper Load Switch, MPU-B Card F1 Linear Drive Card J16
SI=03 or 33	305	Cover Open Switch, MPU-B Card F1
Prints with Cover open	305	Cover Open Switch, MPU-B Card F1 Communications Cable A2
SI=45 or 47	315	Linear Motor Motor Drive Card J17 MPU-B Card F1
SI=d0	310	Linear Motor, Linear Drive Card J16 MPU-B Card F1, Column 1 Sensor, Carrier Belt Fuses F1 and F2 on J16 Card
SI=d1	315	Linear Motor, Motor Drive Card J17 MPU-B Card F1
SI=d2	325	MPU-B Card F1, Linear Drive Card J16
SI=d3	325	MPU-B Card F1, Print Head Carrier Motor Linear Drive Card J16
SI=d4 or d5	340	MPU-B Card F1, Wire Drive Cards J14 or J15 Fuses F2 and F3 on Card J17

PRINT SYMPTOMS	GO TO MAP	POSSIBLE FRU'S, (field replaceable units)
SI=d6 or d7	340	MPU-B Card F1, Wire Drive Cards J14 or J15 Fuses F2 and F3 on Card J17
SI=d8	340	MPU-B Card F1, Wire Drive Cards J14 or J15 Fuses F2 and F3 on Card J17
SI=d9	330	MPU-B Card F1, Wire Drive Cards J14 or J15 Linear Drive Card J16, Motor Drive Card J17
SI=dC or dE	340	Print Head, Wire Drive Cards J14 or J15 MPU-B Card F1 Fuses F2 and F3 on Card J17
Print Quality Problems - Normal Mode and Condensed Print Mode	340	See (MI 313) for Print Quality Samples.
Light Print or Weak Print	340	Ribbon Drive Mo... Ribbon Cartridge , Motor Drive Card J1/ Fuses F2 and F3 on Card J17
Print Errors Missing Dots or No Dots	340	Print Head , Wire Drive Card... J14 or J15 MPU-B Card F1, Ribbon Motor Fuses F2 and F3 on Card J17, Worn Ribbon
Registration Problems	——>	See either Vertical Character Alignment or Horizontal Character Alignment
Losing Characters or Printing same Character twice.	325	MPU-B Card F1 Linear Drive Card J16 Print Head Carrier Motor
Prints Wrong Character	340	Check Language Switch Setting Op-Panel ROS Module 7 on MPU-B Card F1

PRINT SYMPTOMS	GO TO MAP	POSSIBLE FRU'S, (field replaceable units)
Prints slow	340	MPU-B Card F1, Linear Drive Card J16 Fuses F2 and F3 on Card J17
Poor vertical character alignment	340	Check belt, belt tension and Motor pulley. Linear Motor, MPU-B Card F1, Fuses F2 and F3 on J17 Card, Linear Drive Card J16
Forms Movement Indexing Failures Horizontal Character Alignment	360 360 360	Forms Feed Motor MPU-B Card F1 Forms Feed Tractor Assembly Forms Feed Belt Fuses F2 and F3 on Card J17 OP Panel Page Length Switch Forms Feed Motor Pulley Motor Drive Card J17
Prints in one direction only	340	Column 1 Sensor Adjustment (MI 355)
Left Margin shifts to the right	340	Carrier Belt Tension Adjustment (MI 345)
Ribbon Drive Motor turns continuous	——>	Exchange Motor Drive Card J17
Intermittent	800	
End	900	

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ENTRY POINTS

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

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
4	034	900	A

001
(ENTRY POINT A)

SI	Symptoms:
SI=01	Paper Out
SI=02	Paper Load Lever Open
SI=03	Cover Open
SI=31	Paper Out Time-out
SI=32	Paper Load Lever Open Time-out
SI=33	Cover Open Time-out

Customer Reported Symptoms

Prints with no forms in machine —
Prints with Paper Load Lever open
Prints with Cover open

QUICK REPAIR LIST:

1. Check for loose or disconnected Paper Load Lever and Paper Out Switch Plug P19.
2. Check for loose or disconnected Print Head Plug P12.
3. Check for loose or disconnected Communications Cable A2 (Cover Open).
4. Check for loose or disconnected Motor Drive Card J17, Linear Drive Card J16 and MPU-B Card F1.
5. Check for correct operation and adjustment of Paper Out, Paper Load Lever and Cover Open Switches.

IS SI = 01 OR 31 OR PRINTER PRINTS WITH NO FORMS LOADED?
Y N

002
IS SI = 02 OR 32 OR PRINTER PRINTS WITH PAPER LOAD LEVER OPEN?
Y N

003
SI=03 or 33 or prints with cover open.
IS COMMUNICATIONS CABLE A2 SEATED CORRECTLY?
Y N

004
Reseat Communications Cable A2.
GO TO PAGE 4, STEP 034,
ENTRY POINT B.

005
Request CE Test 56 (MI 733).
Using something magnetic, activate Cover Open switch several times. Observe LED 3.
DOES LED 3 TURN ON AND OFF AS SWITCH IS OPERATED?
Y N

006
Probe MPU-B F1 top card connector (MI 140).
F1X12 - '+Cover Open'
Activate Cover Open switch again.
DOES PROBE LEVEL CHANGE?
Y N

007
Power Off.
Disconnect Communications Cable A2 and see (MI 025) for switch circuit.
Using CE Meter, check continuity of Cover Open switch and switch wiring.
DO SWITCH AND CABLE CHECK GOOD?
Y N

008
Repair or exchange as needed.
Verify repair.
GO TO PAGE 4, STEP 034, ENTRY POINT B.

009
Exchange Logic Board. (MI 125)
Verify repair.
GO TO PAGE 4, STEP 034, ENTRY POINT B.

010
Exchange MPU-B Card F1.
Verify repair.
GO TO PAGE 4, STEP 034, ENTRY POINT B.

011
Reference (MI 025) for Cover Open switch adjustment / check procedure.
Verify repair.
GO TO PAGE 4, STEP 034, ENTRY POINT B.

012
SI=02 Paper Load Open was sensed or customer reported problem of printing with Paper Load open.
Request CE Test 56. (MI 733)
Move Paper Load Lever up and down to operate Paper Load switch several times. Observe LED 5. (Switch should make a noise as it operates.)
DOES LED 5 TURN ON AND OFF AS SWITCH IS OPERATED?
Y N

013
Probe MPU-B F1 top card connector (MI 140).
F1Z12 - 'Paper Load'.
Move Paper Load Lever so as to operate Paper Load switch.
DOES PROBE LEVEL CHANGE?
Y N

014
Power Off.
IS SWITCH PLUG P19 SEATED GOOD? (MI 013)
Y N

015
Reseat switch Plug P19.
Verify repair.
GO TO PAGE 4, STEP 034, ENTRY POINT B.

016
Disconnect Plug P19.
Using CE Meter, check continuity of Paper Load switch and switch wiring to Plug P19. (MI 390).
DO SWITCH AND WIRING CHECK GOOD?
Y N

017
Adjust, repair or exchange as needed.
Verify repair.
GO TO PAGE 4, STEP 034, ENTRY POINT B.

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EC321889 PEC

PRINTER INTERLOCKS

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PAGE 3 OF 4

018
Reconnect Plug P19.
Remove Linear Drive Card J16.
Power On.
IS PROBE LEVEL DOWN SOLID?
Y N

019
Exchange Linear Drive Card J16.
Verify repair.
GO TO PAGE 4, STEP 034,
ENTRY POINT B.

020
Exchange MPU-B Card F1.
Verify repair.
GO TO PAGE 4, STEP 034,
ENTRY POINT B.

021
Exchange MPU-B Card F1.
Verify repair.
GO TO PAGE 4, STEP 034, ENTRY POINT B.

022
Reference (MI 390) for Paper Load switch adjustment check procedure.
Verify repair.
GO TO PAGE 4, STEP 034, ENTRY POINT B.

023
SI=01 Paper Out was sensed or customer reported problem of printing with no forms loaded.
Remove forms from printer.
Request CE Test 56. (MI 733)
Move Print Head to right side frame.
Move Paper Out Switch operating arm up and down to operate the switch several times. Observe LED 4.
(Switch should make a noise as it operates.)
DOES LED 4 TURN ON AND OFF AS SWITCH IS OPERATED?
Y N

024
Probe MPU-B F1 top card connector (MI 140) F1Z32 - 'Paper Out'.
Move End of Forms switch operating arm up and down while probing.
DOES PROBE LEVEL CHANGE?
Y N

025
Power Off.
Disconnect Plug P19. (MI 013)
Using CE Meter, check continuity of Paper Out Switch and wiring to Plug P19. (MI 392).
DO SWITCH AND WIRES CHECK GOOD?
Y N

026
Adjust, repair or exchange as needed.
Verify repair.
GO TO PAGE 4, STEP 034, ENTRY POINT B.

027
Reconnect Plug P19.
Remove Linear Drive Card J16.
Power On.
IS PROBE LEVEL DOWN SOLID?
Y N

028
Exchange Linear Drive Card J16.
Verify repair.
GO TO PAGE 4, STEP 034, ENTRY POINT B.

029
Exchange MPU-B Card F1.
Verify repair.
GO TO PAGE 4, STEP 034, ENTRY POINT B.

030
Exchange MPU-B Card F1.
Verify repair.
GO TO PAGE 4, STEP 034, ENTRY POINT B.

031
Reference (MI 392) for Paper Out switch adjustment procedure.
IS PAPER OUT SWITCH ADJUSTMENT CORRECT?
Y N

032
Adjust, repair or exchange as needed.
Verify repair.
GO TO STEP 034, ENTRY POINT B.

033
Exchange MPU-A Card C1.
Verify Repair.
GO TO STEP 034, ENTRY POINT B.

034
(ENTRY POINT B)
==========
GO TO MAP 900, ENTRY POINT A.

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ENTRY POINTS

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

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	032	900	A

001
(ENTRY POINT A)

SI = d0

This Error Code indicates a problem in one of the following areas:

1.Carrier Motor or Carrier Motor Belt
2.Column 1 Sensor Circuit
3.Missing or Low Voltage

Power Off.

Check Fuses F1 and F2 on Linear Drive Card J16.
IS EITHER FUSE OPEN?
Y N

002
Check Carrier Motor Encoder Plug P18 for loose, damaged or disconnected. (MI 013)
DOES PLUG P18 CHECK GOOD?
Y N

003
Repair or exchange as needed.
GO TO PAGE 3, STEP 032, ENTRY POINT C.

004
Power On.
Position Print Head near center of print line after BAT completes.
Request CE Test 71 (MI 730).
DOES PRINT HEAD MOVE AT ALL?
Y N

4 3 2
A B C

QUICK REPAIR LIST:

1.Check for open Fuses on Linear Drive Card J16.

2.Check for loose or disconnected Column 1 switch Plug P13.

3.Check for loose or disconnected Carrier Motor Plug P10 and Carrier Motor Encoder Plug P18.

4.Exchange Carrier Motor, Carrier Motor Belt, Linear Drive Card J16, Motor Drive Card J17, MPU-B Card F1 or Column 1 Sensor.

005
IS CARRIER MOTOR BELT BROKEN, BELT OFF PULLEY OR BELT CAUSING PRINT HEAD TO BIND?
Y N

006
Both +21VDC and −21VDC is supplied directly to the Motor Drive Card J17, Linear Drive Card J16, and both Wire Drive Cards J15 and J14 from the power supply through the Logic Board.
Using CE Meter set on D.C. scale, check for +21VDC on TP2 on either Wire Drive Card J14 or J15 and −21VDC on TP1. (MI 311)
ARE BOTH +21VDC AND −21VDC PRESENT AT TEST POINTS?
Y N

007
Locate Voltage problem in Power Map.
GO TO MAP 600, ENTRY POINT A.

008
+12VDC, −12VDC and +5VDC are generated in the Motor Drive Card J17.
See (MI 307) for location of test points for following step.
ARE +12VDC AND −12VDC AND +5VDC ALL PRESENT ON MOTOR DRIVE CARD J17 TEST POINTS?
Y N

009
Exchange Motor Drive Card J17.
GO TO PAGE 3, STEP 032, ENTRY POINT C.

010
IS CARRIER MOTOR PLUG P10 AND WIRES TO CARRIER MOTOR CONNECTED AND MAKING GOOD CONTACT?
Y N

011
Correct problem.
GO TO PAGE 3, STEP 032, ENTRY POINT C.

012
Probe MPU-B top card connector - (MI 140)
F1Z22 - 'GO'
Request CE Test 71 (MI 730).
Observe Probe for at least 15 seconds.
DOES SIGNAL LEVEL CHANGE?
Y N

013
IS LINE DOWN SOLID?
Y N

014
Exchange MPU-B Card F1.
GO TO PAGE 3, STEP 032, ENTRY POINT C.

015
Power Off.
Remove Linear Drive Card J16.
Power On.
IS LINE STILL DOWN?
Y N

016
Exchange Linear Drive Card J16.
GO TO PAGE 3, STEP 032, ENTRY POINT C.

017
Exchange MPU-B Card F1.
GO TO PAGE 3, STEP 032, ENTRY POINT C.

018
Power Off.
Connect CE Meter: Red Meter Lead on Black Carrier Motor wire, Black Meter Lead on other Carrier Motor wire (leave Motor wires connected)
- CE Meter on 15 Volt D.C. scale.
Power On.
After BAT completes or error is displayed in SI, meter should read zero (0) volts.
IS METER READING ZERO (0) VOLTS?
Y N

019
Exchange Carrier Motor (MI 347)
GO TO PAGE 3, STEP 032, ENTRY POINT C.

020
While observing CE Meter, Move Print Head quickly from left to right.
IS THERE A POSITIVE (+) METER DEFLECTION?
Y N

021
Exchange Carrier Motor assembly. (MI 347)
GO TO STEP 032,
ENTRY POINT C.

022
Power off.
Remove Wire Drive Cards J14 and J15.
Power On.
Request CE Test 71 (MI 730).
(Ignore error codes d6 or d7 caused by Cards J14 and J15 being out.)
STILL FAIL (ERROR CODE IN SI)?
Y N

023
Exchange Wire Drive Card J14 and J15 one at a time.
GO TO STEP 032,
ENTRY POINT C.

024
Power Off.
Reinstall Wire Drive Cards J14 and J15.
Exchange Motor Drive Card J17 and Linear Drive Card J16 one at a time.
GO TO STEP 032, ENTRY POINT C.

025
Correct cause of problem (MI 345).
GO TO STEP 032, ENTRY POINT C.

026
Request CE Test 55 (MI 722). Press switch 8 and then press Cancel Print to display printer test data starting at storage location '00E8'.
IS LED 0 'ON'?
Y N

027
IS LED 1 'ON'?
Y N

028
LED 2 is on.
CE Test 71 did not complete.
Power Off
Exchange Motor Drive Card J17, Linear Drive Card J16 and MPU-B Card F1 one at a time.
GO TO STEP 032, ENTRY POINT C.

029
LED 1 On indicates Column 1 Sensor signal is 'ON' solid.
Inspect Plug P13 for damaged or loose leads or disconnected. (MI 013)
DOES PLUG P13 CHECK GOOD.?
Y N

030
Repair or exchange as needed.
GO TO STEP 032, ENTRY POINT C.

031
Probe MPU-B Top Card connector (MI 140)
F1Z29 - 'Column 1'
Move Print Head over and away from Column 1 Sensor.
IS PROBE LEVEL DOWN SOLID?
Y N

032
Power Off.
Exchange MPU-B Card F1 and Linear Drive Card J16 one at a time.

(ENTRY POINT C)
==========
Verify Repair.
GO TO MAP 900, ENTRY POINT A.

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EC321889 PEC

033
Power off.
Remove Motor Drive Card J17 and position Print Head at Column 1.
Power On.
Probe Plug P13 Pin 4 (MI 119/122).
IS PROBE LEVEL DOWN SOLID?
Y N

034
Exchange Motor Drive Card J17 and MPU-B Card F1 one at a time.
GO TO PAGE 3, STEP 032, ENTRY POINT C.

035
Exchange Column 1 Sensor (MI 355).
GO TO PAGE 3, STEP 032, ENTRY POINT C.

036
(ENTRY POINT B)
==========
LED 0 'On' indicates Column 1 Sensor signal was not found when Print Head moved.

Check that Plug 12 is correctly seated and making good contact. (MI 013)

Probe MPU-B F1 Top Card connector (MI 140) F1Z29 - 'Column 1'
Move Print Head over Column 1 Sensor.

DOES SIGNAL LEVEL CHANGE?
Y N

037
Probe Signal Line at Plug P13 Pin 4 (MI 013) and move Print Head over Column 1 Sensor.
DOES SIGNAL LEVEL CHANGE?
Y N

038
Power Off.
Remove Motor Drive Card J17.
Power On.
Using pull up Resistor (MI 053), probe Plug P13 Pin 4.
IS SIGNAL LEVEL DOWN SOLID?
Y N

039
Exchange Motor Drive Card J17.
GO TO PAGE 3, STEP 032, ENTRY POINT C.

040
See (MI 355) Column 1 Sensor adjustment.
IS ADJUSTMENT CORRECT?
Y N

041
Adjust Column 1 Sensor assembly.
GO TO PAGE 3, STEP 032, ENTRY POINT C.

042
Exchange Column 1 Sensor (MI 355).
GO TO PAGE 3, STEP 032, ENTRY POINT C.

043
Exchange Motor Drive Card J17 and Linear Drive Card J16 one at a time.
GO TO PAGE 3, STEP 032, ENTRY POINT C.

044
Exchange MPU-B Card F1 and Linear Drive Card J16 one at a time.
GO TO PAGE 3, STEP 032, ENTRY POINT C.

045
Exchange open fuse.
GO TO PAGE 3, STEP 032, ENTRY POINT C.

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ENTRY POINTS

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

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	013	600	A
3	014	900	A

001
(ENTRY POINT A)

SI = 45 or 47.....Customer Error Codes
SI = d1.....Diagnostic Error Code

Customer Reported Problem of Poor Print Quality

These error codes indicate a problem with the Encoder Signals from the Carrier Motor.

Request CE Test 55 (MI 722). Press switch 8 and then press Cancel Print to display printer test data starting at storage location '00E8'.
Press Cancel Print switch again, SI = 'E9'.

ARE ANY LED'S 0, 1, 2 OR 3 'ON'?
Y N

002
ARE ALL FOUR LED'S 4, 5, 6 AND 7 'ON'?
Y N

003
ARE ANY LED'S 4, 5, 6 OR 7 'ON'?
Y N

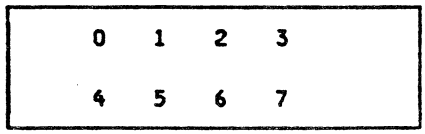
3 3 2 2
A B C D

QUICK REPAIR LIST:

1. Check for loose or disconnected Carrier Motor Encoder Plug P18 and Carrier Motor Plug P10. (MI 013)

2. Exchange Carrier Motor, Carrier Motor Belt, Linear Drive Card J16, Motor Drive Card J17, MPU-B Card F1, Column 1 Sensor or any open Fuses.

OP Panel LEDs



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004
Request CE Test 56 (MI 733).
SI = 13 - LED 0 and LED 2 should turn 'On' and 'Off' as Print Head Carrier is moved slowly.
Press Cancel Print switch once.
SI = 14 - LED 1 and LED 3 should turn 'On' and 'Off' as Print Head Carrier is moved slowly.

See Encoder Probe Point chart and probe signal line, on MPU-B F1 top card connector, that compares to LED that is not working as described.
GO TO STEP 005, ENTRY POINT C.

005
Reference Encoder Probe Point chart at right and probe signal line, on MPU-B F1 top Card connector, that compares to LED that is 'On'.

ENCODER PROBE POINTS - (MI 140)

LED 0 - 10 ENC 1 - F1Z09	
LED 1 - 10 ENC 2 - F1Z10	
LED 2 - 16 ENC 1 - F1Z30	
LED 3 - 16 ENC 2 - F1Z31	
LED 4 - 10 ENC 1 - F1Z09	
LED 5 - 10 ENC 2 - F1Z10	
LED 6 - 16 ENC 1 - F1Z30	
LED 7 - 16 ENC 2 - F1Z31	

(ENTRY POINT C)
==========
Move Print Head while probing each line.

DOES PROBE LEVEL CHANGE WHILE MOVING PRINT HEAD?
Y N

006
Power Off.
Remove Wire Drive Cards J14 and J15.
Power On.
Probe failing line on Plug P18 (see wiring figure (MI 305) for Plug P18 pin locations).
Move Print Head.
DOES PROBE LEVEL CHANGE WHILE MOVING PRINT HEAD?
Y N

007
Power Off.
Reinstall Wire Drive Cards J14 and J15.
Exchange Carrier Motor assembly (MI 347).
Verify repair.
GO TO STEP 014,
ENTRY POINT B.

008
Power Off.
Exchange Linear Drive Card J16.
Reinstall Wire Drive Cards J14 and J15.
Verify repair.
GO TO STEP 014, ENTRY POINT B.

009
Exchange MPU-B Card F1.
Verify repair.
GO TO STEP 014, ENTRY POINT B.

010
Verify Plug P18 is seated correctly. (MI 013)
See Logic Figure (MI 305) and check for missing or wrong voltage at Plug P18 - pin 3 (+5volts).
NOTE: J17 Card must be installed to check voltage
IS VOLTAGE MISSING OR NOT CORRECT?
Y N

011
Exchange Linear Drive Card J16 and then Carrier Motor (MI 347) one at a time.
Verify repair.
GO TO STEP 014, ENTRY POINT B.

012
See (MI 311) for Wire Drive Card Test points.
IS +21VDC AND -21VDC PRESENT AT TP1 AND TP2 ON WIRE DRIVE CARDS J14 AND J15?
Y N

013
Locate Voltage problem in Power Map.
GO TO MAP 600, ENTRY POINT A.

014
Exchange Motor Drive Card J17.
Verify repair.
GO TO STEP 014, ENTRY POINT B.

(ENTRY POINT B)
Verify Repair
GO TO MAP 900, ENTRY POINT A.

015
Encoder line that compares to LED that is 'On', appears to be grounded.

Using Encoder Probe Point chart, on Page 2, Probe signal line, on MPU-B F1 top card connector, that compares to LED that is 'On'.

To isolate, remove Linear Drive Card J16 and Power On.
Move Print Head while probing failing line.

If line is still down solid, Power Off, Reinstall Linear Drive Card J16 and then disconnect Encoder Plug P18 and Power On.
Move Print Head again while probing failing line.

IS LINE STILL DOWN AFTER DISCONNECTING EACH FRU SEPARATELY?
Y N

016
Exchange FRU that was causing ground.
Verify repair.
GO TO STEP 014, ENTRY POINT B.

017
Exchange MPU-B Card F1 and then Logic Board one at a time.
Verify repair.
GO TO STEP 014, ENTRY POINT B.

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ENTRY POINTS

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

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	006	900	A

001
(ENTRY POINT A)

SI = d2 or d3

These error codes indicate a problem with the Carrier Motor or its Logic Circuits.

IS SI = d2?
Y N

002
SI = d3 or Customer reported problem of missing characters or printing same character twice, indicates carrier speed is too quick.

Request CE Test 73 (MI 734).
Model 1/2 adjust Potentiometer R1.
Adjust Potentiometer on Linear Drive Card J16 until LED 5 comes 'On'.
NOTE:This is not a critical adjustment. Because of the sensitivity of the potentiometer, LED 5 may not stay on solid. Adjust for midpoint between LED 4 ON and LED 6 ON.

(ENTRY POINT B)
==========
Request CE Test 71 (MI 730).
IS PROBLEM CORRECTED?
Y N

2 2 2
A B C

QUICK REPAIR LIST:
1. Check for loose or disconnected Carrier Motor Plug P10 and Carrier Motor Encoder Plug P18.

2. Check for loose or disconnected Linear Drive Card J16 and MPU-B Card F1.

3. Exchange Carrier Motor, Carrier Motor Belt, Linear Drive Card J16, Motor Drive Card J17, MPU-B Card F1, Column 1 Sensor, Open Fuses on Cards J16 or J17.

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003
Exchange Linear Drive Card J16.

Exchange MPU-B Card F1.
Verify repair.
GO TO STEP 006, ENTRY POINT C.

004
Return machine to customer mode.
Verify repair.
GO TO STEP 006, ENTRY POINT C.

005
Exchange Linear Drive Card J16 and then MPU-B Card F1, one at a time.
Verify repair.
GO TO STEP 006, ENTRY POINT C.

006
(ENTRY POINT C)
GO TO MAP 900, ENTRY POINT A.

IBM 3268

ENTRY POINTS

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

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	006	500	A
2	015	900	A

001
(ENTRY POINT A)

SI = d9

This error code indicates a problem with MPU-B Card F1 Drive Line or Feedback Circuits.

Request CE Test 55 (MI 722). Press switch 8 and then press Cancel Print to display printer test data starting at storage location '00E8'.
Press Cancel Print switch until SI = 'FA'.
ARE ANY LED'S 5, 6 OR 7 'ON'?
Y N

002
Request CE Test 55 (MI 722). Press switch 8 and then press Cancel Print to display printer test data starting at storage location '00E8'.
Press Cancel Print switch until SI = 'F9'.
ARE ANY LED'S 'ON'?
Y N

003
Press Cancel Print switch once. SI = 'FA'.
ARE ANY LED'S 0, 1, 2, OR 3 'ON'?
Y N

004
IS THIS YOUR FIRST TIME HERE?
Y N

2 2 2 2 2
A B C D E

QUICK REPAIR LIST:

1. Check for loose or disconnected Carrier Motor Plug P10 and Carrier Motor Encoder Plug P18.
2. Check for loose or disconnected Paper Motor Plug P9.
3. Check for loose or disconnected Column 1 Sensor Plug P13.
4. Check for loose or disconnected Ribbon Drive Motor Plugs P3 and P20.
5. Check for loose or disconnected Linear Drive Card J16 and Motor Drive Card J17.
6. Exchange Carrier Motor, Carrier Motor Belt, Linear Drive Card J16, Motor Drive Card J17, MPU-B Card F1, Column 1 Sensor, Any open Fuses on Cards J16 or J17.

005
Possible problem with Op Panel not displaying LED's correctly.
Reference Op Panel check procedure to verify Op Panel is working correctly.
GO TO MAP 500 AND THEN RETURN HERE.

IS OP PANEL WORKING CORRECTLY?
Y N

006
Correct problem using Op Panel MAP.
GO TO MAP 500, ENTRY POINT A.

007
Exchange Motor Drive Card J17, Linear Drive Card J16, and MPU-B Card F1.
GO TO STEP 015,
ENTRY POINT E.

008
Request CE Test 70 (MI 730)
Drive Card Wrap Test.
GO TO MAP 300, ENTRY POINT A.

009
GO TO STEP 010, ENTRY POINT D.

010
(ENTRY POINT D)
==========
Problem is single motor drive line or feedback line.
Exchange MPU-B Card F1.
GO TO STEP 015, ENTRY POINT E.

011
Problem is an active drive line or missing feedback signal.
IS LED 5 'ON'?
Y N

012
IS LED 6 'ON'?
Y N

013
Probe each of the following drive lines on MPU-B F1 top card connector (MI 140).
F1Z26 - Reserved
F1Z27 - Reserved
F1Z05 - Reserved
F1Z13 - Reserved
IS ANY LINE DOWN?
Y N

014
GO TO PAGE 3, STEP 028, ENTRY POINT B.

015
GO TO PAGE 3, STEP 029, ENTRY POINT F.

(ENTRY POINT E)
==========
Verify Repair
GO TO MAP 900, ENTRY POINT A.

016
Power Off.
Remove Wire Drive Card J14.
Power On.
Request CE Test 70 (MI 730).
IS ERROR CODE 'd9' DISPLAYED IN THE SI?
Y N

017
Exchange Wire Drive Card J14.
GO TO STEP 015, ENTRY POINT E.

018
Request CE Test 55 (MI 722). Press switch 8 and then press Cancel Print to display printer test data starting at storage location '00E8'.
Press Cancel Print switch until SI = 'FA'.
IS LED 6 STILL 'ON'?
Y N

019
GO TO PAGE 3, STEP 026, ENTRY POINT C.

15SEP81 PN8678453
EC321889 PEC

020
Probe each of the following motor drive lines on MPU-B F1 top card connector (MI 140).
F1Z02 - PM01
F1Z03 - PM02
F1Z04 - PM03
F1Z24 - STEP

Request CE Test 0.
Press Hold Print switch.
Press Index switch several times while probing each line.
IS ANY LINE DOWN SOLID?
Y N

021
GO TO STEP 028, ENTRY POINT B.

022
GO TO STEP 029, ENTRY POINT F.

023
Power Off.
Remove Wire Drive Card J15.
Power On.
Request CE Test 70 (MI 730).
IS ERROR CODE 'd9' DISPLAYED IN THE SI?
Y N

024
Exchange Wire Drive Card J15.
GO TO PAGE 2, STEP 015, ENTRY POINT E.

025
Request CE Test 55 (MI 722). Press switch 8 and then press Cancel Print to display printer test data starting at storage location '00E8'.
Press Cancel Print switch until SI = 'FA'.
IS LED 5 STILL 'ON'?
Y N

026
(ENTRY POINT C)
Exchange Wire Drive Card that was removed in preceding step.
GO TO PAGE 2, STEP 015, ENTRY POINT E.

027
Probe each of the following drive lines on MPU-B F1 top Card connector (MI 140).
F1Z22 - GO
F1Y33 - MR
F1Z08 - Pitch1
F1Z25 - RDM
IS ANY LINE DOWN?
Y N

028
(ENTRY POINT B)
Exchange MPU-B Card F1.
GO TO PAGE 2, STEP 015, ENTRY POINT E.

029
(ENTRY POINT F)
Power Off.
Reference Logic figure (MI 305) and remove Drive Card (J16 or J17) associated with failing line.
Power On.
Using a Pull up Resistor (MI 053), probe the line that was down.
IS LINE STILL DOWN?
Y N

030
Exchange J16 or J17 Drive Card associated with failing line.
GO TO PAGE 2, STEP 015, ENTRY POINT E.

031
Exchange MPU-B Card F1.
GO TO PAGE 2, STEP 015, ENTRY POINT E.

15SEP81 PN8678453
EC321889 PEC

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ENTRY POINTS

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

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
8	082	315	A
7	081	315	A
9	107	325	A
5	049	600	A
6	060	600	A

001
(ENTRY POINT A)

SI SYMPTOMS

d4 - Missing feedback from MPU-B wrap test.
d5 - Missing feedback from MPU-B wrap test.
d6 - Missing feedback from left Wire Drive Card.
d7 - Missing feedback from right Wire Drive Card.
d8 - Hot feedback from Wire Drive Card.
dC - Failure in Wire Drive Card.
dE - Failure in Wire Drive Card feedback circuits.

CUSTOMER REPORTED SYMPTOMS

1. Missing Dots
2. Light or weak print
3. No printing but Print Head moves
4. Prints slow in normal mode (34 IPS)
5. Prints in one direction only
6. Left margin shifts to right
7. Poor vertical character alignment
8. Print problem in Normal Mode.
   (Condensed Print Mode Prints good.)
9. Print problem in Condensed Print Mode.
   (Normal Mode Prints good.)
10. Print quality good but wrong characters print.
11. Poor print quality.

QUICK REPAIR LIST:

1. Check for loose, disconnected or damaged Print Wire Plugs P4 and P12, Ribbon Drive Motor Plugs P3 and P20, Wire Drive Cards J14 and J15 or MPU-B Card F1.

2. Check for +21VDC and -21VDC on both Wire Drive Cards J14 and J15 Test Points.

3. Check Fuses F2 and F3 on Motor Drive Card J17.

4. Exchange Carrier Motor, Carrier Motor belt, Linear Drive Card J16, Motor Drive Card J17, MPU-B Card F1, Column 1 Sensor, any open Fuses on Cards J16 OR J17.

5. Check Ribbon Cartridge for binding, worn or loose.

(Step 001 continues)

(Step 001 continued)
IS SI = dC OR dE?
Y N

002
IS SI = d8?
(Hot feedback from Wire Drive Card, left or right)
Y N

003
IS SI = d4,d6,d5 AND d7? (ALL FOUR)
Y N

004
IS SI = d4 OR d5?
(Missing feedback from MPU-B Drive Card wrap test)
Y N

005
IS SI = d6?
(Missing feedback from left W... Drive Card)
Y N

006
IS SI = d7?
(Missing feedback from right Wire Drive Card)
Y N

007
IS SYMPTOM - PRINTS IN ONLY ONE DIRECTION?
(Carrier speed is good.)
Y N

008
IS SYMPTOM PRINTS SLOW IN NORMAL (34 INCHES PER SECOND) MODE? (Carrier movement is slower than normal.)
Y N

009
IS SYMPTOM - LEFT MARGIN MOVES TO THE RIGHT WHILE PRINTING?
Y N

010
IS SYMPTOM - FAILS TO PRINT 1 OR MORE WIRES? (Other Wires print good.)
Y N

011
IS SYMPTOM - PRINTS EXTRA DOTS?
Y N

012
IS SYMPTOM POOR VERTICAL CHARACTER ALIGNMENT?
Y N

013
IS PRINT QUALITY GOOD BUT WRONG CHARACTER PRINTS?
Y N

014
IS PRINT PROBLEM IN CONDENSED PRINT MODE ONLY?
(NORMAL PRINT MODE - 34 IPS - PRINTS GOOD)
Y N

015
IS PRINT PROBLEM IN NORMAL PRINT MODE ONLY?
(CONDENSED PRINT MODE - 20 IPS - PRINTS GOOD)
Y N

016
See (MI 313) for Print Quality Samples.
IS PRINT QUALITY POOR? (character not formed correctly)
Y N

017
Symptom is light print, smudge print or no print.

Before continuing, verify ribbon turns freely in the cartridge and ribbon is not worn out (no ink or hole in the ribbon).

DOES RIBBON TURN FREELY IN CARTRIDGE AND IS NOT WORN?
Y N

018
Locate cause of bind in ribbon mechanism or exchange ribbon cartridge. (MI 364)
GO TO PAGE 7, STEP 078, ENTRY POINT I.

019
IS THE FORMS THICKNESS LEVER SET TO COMPARE WITH FORMS INSTALLED IN PRINTER?
Y N

020
Correct problem.
Verify Paper Thickness Lever Detent, located on left side frame, is in the center of the hole and has good spring tension. (MI 381)
GO TO PAGE 7, STEP 078, ENTRY POINT I.

021
IS RIBBON MOTOR FUSE F2, ON MOTOR DRIVE CARD J17, GOOD? (MI 307)
Y N

022
Exchange Fuse and have customer run job.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

023
DOES RIBBON DRIVE MOTOR TURN WHILE PRINTING?
Y N

024
Probe MPU-B F1 top card connector (MI 140)
F1Z25 - 'rdm'
Request CE Test 76 (MI 736).
IS PROBE LEVEL UP AND THEN THE DOWN LED COMES ON WHEN PRINTING STARTS?
Y N

025
Exchange MPU-B Card F1.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

026
Remove Ribbon Cartridge.
IS +21VDC PRESENT ON RIBBON DRIVE MOTOR PLUG P3 - PIN 24 (RED WIRE)? (MI 367)
Y N

027
Power Off.
Remove Motor Drive Card J17.
IS RIBBON MOTOR FLAT CABLE SEATED GOOD AT BOTH ENDS? (Plug P20 on Logic Board and Plug P3 under Print Head)
Y N

028
Reseat plug.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

029
See wiring figure for Ribbon Drive Motor circuit (MI 367) and check continuity between Ribbon Drive Motor Plug and Card socket J17.
WAS CHECK GOOD?
Y N

030
Power Off.
Exchange or repair cause of open.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

031
Power Off.
Exchange Motor Drive Card J17.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

032
IS +21VDC PRESENT ON RIBBON DRIVE MOTOR PLUG P3 - PIN 12 (BLUE WIRE)? (MI 367)
Y N

033
Ribbon Drive Motor appears to be open.
Power Off.
Exchange Ribbon Drive Motor (MI 367).
GO TO PAGE 7, STEP 078, ENTRY POINT I.

034
Power Off.
Disconnect one(1) Wire from Carrier Motor so that Print Head Carrier will not move.
Connect meter + lead on Ribbon Drive Motor Plug P3 - Pin 12 (Blue Wire).
Power On.
Request CE Test 76 (MI 736).
DOES CE METER READING FALL FROM +21VDC TO APPROXIMATELY 5VDC?
Y N

035
Power Off.
Reinstall Wire on Carrier Motor.
Remove Motor Drive Card J17.
See (MI 367) for Ribbon Drive Motor circuit and check continuity between Ribbon Drive Motor Plug and Card socket J17.
WAS CHECK GOOD?
Y N

036
Power Off.
Exchange or repair cause of open.
GO TO PAGE 7, STEP 078,
ENTRY POINT I.

037
Power Off.
Exchange Motor Drive Card J17.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

038
Power Off.
Reinstall Wire on Carrier Drive Motor.
Exchange Ribbon Drive Motor (MI 367).
GO TO PAGE 7, STEP 078, ENTRY POINT I.

039
Request CE Test 76 (MI 736).
CAN YOU HEAR ANY WIRES FIRING?
Y N

040
GO TO STEP 048, ENTRY POINT B.

041
Reference (MI 343).
IS PLASTIC FRONT BEARING IN PLACE ON THE SMALL CARRIER SUPPORT SHAFT?
Y N

042
Correct problem.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

043
Power Off.
Reference (MI 332) and perform Print Head to Platen gap adjustment.
Power On.
Request CE Test 76 (MI 736).
IS PRINTING GOOD NOW?
Y N

044
HAS CUSTOMER INSTALLED A NEW RIBBON CARTRIDGE?
Y N

045
Obtain and install a new ribbon cartridge.
(MI 364)
PROBLEM CORRECTED?
Y N

046
GO TO STEP 048, ENTRY POINT B.

047
GO TO MAP 900, ENTRY POINT A.

048
(ENTRY POINT B)
==========
IS +21VDC AND -21VDC PRESENT ON BOTH CARDS J14 AND J15 TEST POINTS? (MI 311)
Y N

049
Locate Voltage problem in Power Map.
GO TO MAP 600, ENTRY POINT A.

050
See (MI 013) for location of Plugs.
ARE PRINT WIRE PLUGS P4 AND P12 SEATED GOOD?
Y N

051
Reseat Print Wire Plugs P4 and P12.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

052
Request CE Test 02 (MI 732).
(No errors will be displayed in SI until after Test 02 completes.)
IS SI = dC?
Y N

053
IS SI = dE?
Y N

054
Test ended with no errors indicated.
HAS CUSTOMER INSTALLED A NEW PRINT HEAD?
Y N

055
Have customer install a new Print Head.
PROBLEM CORRECTED?
Y N

056
GO TO STEP 058,
ENTRY POINT D.

057
GO TO PAGE 7, STEP 078, ENTRY POINT I.

058
(ENTRY POINT D)
==========
Power Off.
Swap Wire Drive Cards J14 and J15.
Power On.
Request CE Test 02 (MI 732).
DOES PROBLEM MOVE WITH WIRE DRIVE CARD?
Y N

059
Using CE Meter, check both +21VDC and -21VDC at either J14 or J15 Test points. (MI 311)
Request CE Test 76. (MI 736)
ARE VOLTAGES CORRECT (+/- 10%) AND DO NOT FALL WHILE PRINTING?
Y N

060
Locate Voltage Problem in Power Map.
GO TO MAP 600, ENTRY POINT A.

061
Exchange MPU-B Card F1.
IS PROBLEM CORRECTED?
Y N

062
IS PROBLEM INTERMITTENT?
Y N

063
(ENTRY POINT H)
==========
See (MI 305), Part 3 of 3, and verify continuity of Print Head flat cable between Plugs P4 and P12.
DOES FLAT CABLE CHECK OUT GOOD?
Y N

064
Repair or exchange flat cable as needed.
GO TO PAGE 7, STEP 078,
ENTRY POINT I.

065
Power Off.
Remove Wire Drive Cards J14 and J15.
Using CE Meter set on X1 ohms scale, check path of failing Wire. See (MI 305) for point to point wiring and meter on Wire Drive Card socket J14 or J15. Compare meter reading with a known good set of wires.
Print head coil should meter approximately 2 ohms.
DO PRINT HEAD COILS CHECK GOOD?
Y N

066
Exchange Print Head. (MI 326)
GO TO PAGE 7, STEP 078.
ENTRY POINT I.

067
Exchange Logic board. (MI 125)
GO TO PAGE 7, STEP 078, ENTRY POINT I.

068
Go To Map 800, Entry Point A.

069
GO TO STEP 078, ENTRY POINT I.

070
Power Off.
Exchange failing Wire Drive Card J14 or J15.
GO TO STEP 078, ENTRY POINT I.

071
Request CE Test 55 (MI 722). Press switch 8 and then press Cancel Print to display printer Test data starting at storage location '00E8'.
Press Cancel Print until SI = 'FE'.
Any LED's 'On' indicate a problem with the Left Wire feedback check circuits.
Press Cancel Print switch once. SI = 'FF'.
Any LED's 'On' indicate a problem with the Right Wire feedback check circuits.

Power Off.
Swap Wire Drive Cards J14 and J15.
Power On.
Request CE Test 02 (MI 732).
IS A 'dE' ERROR DISPLAYED IN THE SI AFTER TEST 02 COMPLETES?
Y N

072
Problem must be Intermittent.
GO TO MAP 800, ENTRY POINT A.

073
Request CE Test 55 (MI 722). Press switch 8 and then press Cancel Print to display printer Test data starting at storage location '00E8'.
Press Cancel Print until SI = 'FE' and then 'FF' as described in preceding step.

DOES REVIEW OF STORAGE LOCATION 'FE' AND 'FF' INDICATE PROBLEM MOVED WITH THE WIRE DRIVE CARD?
Y N

074
GO TO PAGE 6, STEP 063,
ENTRY POINT H.

075
Exchange failing Wire Drive Card J14 or J15.
GO TO STEP 078,
ENTRY POINT I.

076
Request CE Test 55 (MI 722). Press switch 8 and then press Cancel Print to display printer test data starting at storage location '00E8'.
Press Cancel Print until SI = 'FA'.
ARE ANY LED'S ON?
Y N

077
GO TO PAGE 9, STEP 108,
ENTRY POINT G.

078
GO TO PAGE 10, STEP 113,
ENTRY POINT F.

(ENTRY POINT I)
Verify Repair.
GO TO MAP 900, ENTRY POINT A.

079
Verify repair by running customer job.
GO TO STEP 078, ENTRY POINT I.

080
GO TO PAGE 8, STEP 092, ENTRY POINT E.

081
GO TO MAP 315, ENTRY POINT A.

082
GO TO MAP 315, ENTRY POINT A.

083
Verify Language Switches are set to Language you want to print. (MI 501)
ARE LANGUAGE SWITCHES SET CORRECTLY?
Y N

084
Have Customer correct language switch setting.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

085
Verify Language Switches operate correctly. Perform Switch check procedure in MAP 500 and then return here.
DID SWITCHES OPERATE CORRECTLY?
Y N

086
Exchange Op Panel. (MI 507)
GO TO PAGE 7, STEP 078, ENTRY POINT I.

087
Exchange ROS Module 7 on MPU-B Card F1. (MAP A000)
GO TO PAGE 7, STEP 078, ENTRY POINT I.

088
GO TO STEP 092, ENTRY POINT E.

089
GO TO PAGE 5, STEP 048, ENTRY POINT B.

090
GO TO PAGE 5, STEP 048, ENTRY POINT B.

091
Request CE Test 76 (MI 736).
IS FIRST CHARACTER OF EACH PRINT LINE IN A STRAIGHT VERTICAL LINE?
Y N

092
(ENTRY POINT E)
Check the following:
1.Carrier Belt tension adjustment. (MI 345)
2.Loose or Broken Carrier Motor Pulley.
3.Loose set screws in Carrier Motor Pulley.
4.Worn Carrier Motor Belt.
5.Idler Pulley assembly (worn or broken).
6.Column 1 Sensor Adjustment. (MI 355)
7.Print Head for any bent wires.
8.Print Head tip for any dirt/ink.

WAS A PROBLEM LOCATED?
Y N

093
Exchange Linear Drive Card J16.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

094
GO TO PAGE 7, STEP 078, ENTRY POINT I.

095
IS PROBLEM INTERMITTENT?
Y N

096
GO TO STEP 092, ENTRY POINT E.

097
GO TO MAP 800, ENTRY POINT A.

098
Power Off.
Verify Carrier Motor pulley is not loose.
Check that set screws in Motor Pulley are tight.
Move Print Head Carrier by hand, by pushing on side of Ribbon Cartridge.
DOES PRINT HEAD CARRIER MOVE FREELY?
Y N

099
Locate cause of bind and repair or exchange as needed.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

100
Request CE Test 77 (MI 736).
DOES PRINT SPEED APPEAR TO BE SLOW IN CONDENSED MODE ALSO?
Y N

101
Exchange Linear Drive Card J16 and MPU-B Card F1 one at a time.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

102
Request CE Test 73 (MI 734).
Model 1/2 uses Potentiometer R1.
Adjust Potentiometer on Linear Drive Card J16 until LED 5 comes 'On'.
Request CE Test 76 (MI 736).
IS PRINT SPEED PROBLEM CORRECTED?
Y N

103
Exchange Linear Drive Card J16.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

104
GO TO PAGE 7, STEP 078, ENTRY POINT I.

105
Verify black tab, located on bottom of Print Head Carrier assembly, used to activate Column 1 Sensor, is in correct alignment (MI 355).
Check Column 1 Sensor adjustment (MI 355).
IS ADJUSTMENT CORRECT?
Y N

106
Adjust Column 1 Sensor assembly.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

107
GO TO MAP 325, ENTRY POINT A.

108
(ENTRY POINT G)
Feedback signal from right Wire Drive Card J14 was not sensed by MPU-B Card F1.
Power Off.
Exchange Wire Drive Card J14.
Power On.
Request CE Test 02 (MI 732).
IS PROBLEM CORRECTED?
Y N

109
WAS MORE THAN 1 ERROR CODE LOGGED AFTER RUNNING THE BAT?
Y N

110
Exchange MPU-B Card F1.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

111
Locate problem using other error code.
GO TO MAP 010, ENTRY POINT A

112
GO TO PAGE 7, STEP 078, ENTRY POINT I.

113
(ENTRY POINT F)
Feedback signal from left Wire Drive Card J15 was not sensed by MPU-B Card F1.
Power Off.
Exchange Wire Drive Card J15.
Power On.
Request CE Test 02 (MI 732).
IS PROBLEM CORRECTED?
Y N

114
WAS MORE THAN 1 ERROR CODE LOGGED AFTER RUNNING THE BAT?
Y N

115
Exchange MPU-B Card F1.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

116
Locate problem using other error code.
GO TO MAP 010, ENTRY POINT A

117
GO TO PAGE 7, STEP 078, ENTRY POINT I.

118
Feedback signal, from left or right wire output of MPU-B Card, was not sensed by MPU-B Card check circuits.
Exchange MPU-B Card F1.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

119
Probe RAM E1 top Card connector. (MI 137)
E1Y23 - 'reg I/O'.
IS LINE PULSING?
Y N

120
Exchange MPU-A Card C1.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

121
Exchange Ram Storage Card E1.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

122
Check +5Vdc at TP3 on Motor Drive Card J17.
IS +5VDC CORRECT?
Y N

123
Exchange Motor Drive Card J17.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

124
Feedback signal was received by MPU-B Card F1 from one of the Wire Drive Cards, J14 or J15, when no wires were activated.
Probe MPU-B F1 top card connector (MI 140)
F1Y07 - Right Wire Drive Card J14
F1Z07 - Left Wire Drive Card J15
WAS EITHER LINE DOWN SOLID?
Y N

125
Exchange MPU-B Card F1.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

126
Power Off.
Exchange Wire Drive Card associated with line that was down.
IS PROBLEM CORRECTED?
Y N

127
Exchange MPU-B Card F1 and then Logic Board, one at a time.
GO TO PAGE 7, STEP 078, ENTRY POINT I.

128
GO TO PAGE 7, STEP 078, ENTRY POINT I.

129
GO TO PAGE 5, STEP 048, ENTRY POINT B.

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ENTRY POINTS

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

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	031	900	A

001
(ENTRY POINT A)

Symptoms:
- Partial Indexing.
- Failing to Index.
- Failing to Skip correctly.

Fuse F2 on Motor Drive Card J17 fuses +21Vdc from the power supply. Fuse F3 on Motor Drive Card J17 fuses -21Vdc from the Power Supply. The Paper Feed Stepper Motor uses both +21 Vdc and -21Vdc.

Power Off.

Check Fuse F2 and F3 on Motor Drive Card J17. See (MI 307) for Fuse location on Card J17.

ARE BOTH FUSES GOOD?
Y N

002
Exchange open fuse.
GO TO PAGE 3, STEP 031, ENTRY POINT B.

003
Inspect Forms Motor Belt and Pulley for loose, worn, binding or broken. (MI 386)
Inspect Forms Motor spline drive mechanism for loose, worn, binding, broken or not engaging correctly. (MI 394)
WAS CHECK GOOD?
Y N

2 2
A B

QUICK REPAIR LIST:

1. Check for an open Fuse F2 or F3 on Motor Drive Card J17.
2. Check for loose, disconnected or damaged Paper Motor Plug P9, Motor Drive Card J17 or MPU-B Card F1.
3. Check for loose or disconnected Page Length Plug P2 (Model 2 only) located on Op Panel.
4. Check for broken, damaged or loose Forms Motor Belt or Motor Pulley.
5. Exchange Carrier Motor, Carrier Motor Belt, Linear Drive Card J16, Motor Drive Card J17, MPU-B Card F1, Column 1 Sensor, any open Fuses on Cards J16 OR J17.

004
Repair or exchange as needed.
GO TO PAGE 3, STEP 031, ENTRY POINT B.

005
WITH POWER OFF, DOES FORMS ADVANCE KNOB TURN FREELY?
Y N

006
Locate cause of bind and repair.
GO TO PAGE 3, STEP 031, ENTRY POINT B.

007
Inspect paper path for any obstructions.
ARE FORMS FREE OF OBSTRUCTION?
Y N

008
Remove or adjust cause of obstruction.
GO TO PAGE 3, STEP 031, ENTRY POINT B.

009
IS PRINT HEAD TO PLATEN GAP ADJUSTED CORRECTLY? (MI 332)
Y N

010
Adjust assembly for correct gap (MI 332).
GO TO PAGE 3, STEP 031, ENTRY POINT B.

011
Inspect Forms Tractor mechanism for any broken, bent, loose or binding parts.
WAS PROBLEM LOCATED?
Y N

012
IS PROBLEM PAGE LENGTH FEATURE IS NOT WORKING CORRECTLY? (MODEL 2 ONLY)
Y N

013
Power On.
Request CE Test 75 (MI 736).
DOES PAPER FEED MOTOR DRIVE LINE TEST PERFORM AS DESCRIBED IN MI?
Y N

014
Probe each Paper Motor Drive line on MPU-B F1 top card connector (MI 140).

F1Z24 - 'STEP' - LED 4
F1Z02 - 'PM01' - LED 5
F1Z03 - 'PM02' - LED 6
F1Z04 - 'PM03' - LED 7

Request CE Test 75. (MI 736)
DOES LEVEL OF EACH LINE BEING PROBED GO DOWN WHILE LED, THAT COMPARES TO THAT LINE, IS ON?
Y N

015
Reference (MI 305) and check for missing or wrong voltage. Both +21Vdc and -21Vdc are needed on J17 Card.
IS VOLTAGE CORRECT?
Y N

016
Locate Voltage problem in Power Map.
GO TO MAP 600, ENTRY POINT A

017
Exchange MPU-B Card F1.
GO TO PAGE 3, STEP 031, ENTRY POINT B.

018
See (MI 013) for location of Plug.
IS PAPER FEED MOTOR PLUG P9 SEATED CORRECTLY?
Y N

019
Reseat Paper Feed Motor Plug P9.
GO TO PAGE 3, STEP 031, ENTRY POINT B.

F G FORMS MOVEMENT
2 2

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PAGE 3 OF 3

020
Reference (MI 386) and disconnect Paper Motor Plug P9. Using CE Meter check continuity of Paper Drive Motor phases.
Each phase should meter approximately 13 ohms.
DOES MOTOR CHECK OUT GOOD?
Y N

021
Exchange Paper Feed Motor. (MI 386)
GO TO STEP 031, ENTRY POINT B.

022
Exchange Motor Drive Card J17.
IS PROBLEM FIXED?
Y N

023
Exchange MPU-B Card F1 and then Logic Board one at a time.
GO TO STEP 031, ENTRY POINT B.

024
GO TO STEP 031, ENTRY POINT B.

025
Probe MPU-B top card connector. (MI 140)
F1Z24 - 'STEP'
Request CE Test 75. (MI 736)
DOES PROBE LEVEL CHANGE WHEN LED 4 COMES ON?
Y N

026
Exchange MPU-B Card F1.
GO TO STEP 031, ENTRY POINT B.

027
Probe Plug P9 pin 3 (PSM COM). (MI 013)
Request CE Test 75. (MI 736)
DOES PROBE LEVEL CHANGE WHEN LED 4 COMES ON?
Y N

028
Exchange Motor Drive Card J17.
GO TO STEP 031, ENTRY POINT B.

029
DOES ONE OF THE THREE PAPER MOTOR PHASES (PM01, PM02 OR PM03) APPEAR TO HAVE LESS TORQUE THAN THE OTHER TWO?
Y N

030
GO TO STEP 031,
ENTRY POINT B.

031
Exchange Motor Drive Card J17.
GO TO STEP 031, ENTRY POINT B.

(ENTRY POINT B)
Verify Repair.
GO TO MAP 900, ENTRY POINT A.

032
Locate problem in Op-Panel Map.
GO TO MAP 500, ENTRY POINT A.

033
Exchange or repair Forms Tractor assembly as needed. (MI 394)
GO TO STEP 031, ENTRY POINT B.

15SEP81 PN8678453
EC321889 PEC

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ENTRY POINTS

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

001
(ENTRY POINT A)

THIS MAP RESERVED FOR FEATURE.

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ENTRY POINTS

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

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
5	037	500	A

001
(ENTRY POINT A)

1. Before continuing, ensure that LSA Card B1 and LSA Cable A2, are seated correctly.

2. The QUICK REPAIR Chart may be used if FRU's are available.

Request CE Test 60 (MI 725).

QUICK REPAIR CHART

SI CODE	Exchange FRU(s) in the order specified	
A0	MPU-A C1 / LSA Card B1	(*)
A1	LSA B1 / MPU-A Card C1	(*)
A2	LSC Cable / LSA Card B1	(*)
	or Customer LSC	(**)
12	LSC Cable / LSA Card B1	(*)
	or Customer LSC	(**)
71-76	Customer LOOP / LSC	(**)
	or Controller	(**)

(*) For FRU Exchange Procedures
GO TO PAGE 8, Step 067
ENTRY POINT G.

(**) For Customer Symptoms,
GO TO MAP 800, ENTRY POINT C.

DOES TEST 60 RUN OK?
Y N

002
Only Error Codes A0, A1 and A2 are valid for Test 60.
IS ERROR CODE A0, A1 OR A2 DISPLAYED IN THE SI?
Y N

003
DOES ANY ERROR CODE DISPLAY IN SI?
Y N

004
GO TO PAGE 2, STEP 006,
ENTRY POINT S.

005
GO TO MAP 010, ENTRY POINT A.

006
(ENTRY POINT S)
1.Power Off.
2.Disconnect LSC Cable from Logic Board (A2).
3.Power On.
With LSC Cable disconnected, a SI of '03' indicates a 'Cover Open' condition was sensed after the BAT completed. The '03' in the SI will change to '12', approximately 12 seconds after '03' is displayed.
DOES SI = '12', 12 SECONDS AFTER BAT COMPLETES?
Y N

007
1.Power Off.
2.Plug LSC Cable into A2 socket
GO TO PAGE 6, STEP 042, ENTRY POINT B.

008
1.Power Off.
2.Plug LSC Cable into A2 socket.
3.Disconnect LSC Cable from LSC.
4.Power On.
DOES SI = '12', 12 SECONDS AFTER BAT COMPLETES?
Y N

009
The LSC Cable appears to be failing
GO TO PAGE 8, Step 067, Entry Point K.

010
1.Plug 'Test Plug' into LSC Cable.
2.Request CE Test 60. (MI 725)
DOES TEST 60 RUN OK?
Y N

011
The LSC Cable appears to be failing
GO TO PAGE 8, Step 067, Entry Point K.

012
GO TO PAGE 3, STEP 016, ENTRY POINT E.

013
1.Power Off.
2.Disconnect LSC Cable from LSC.
3.Power On.
With LSC Cable disconnected, a SI of '03' will occur if the BAT completes correctly. The '03' in the SI will change to '12', approximately 12 seconds after '03' is displayed.
IS '12' DISPLAYED IN THE SI, 12 SECONDS AFTER BAT COMPLETES?
Y N

014
GO TO PAGE 6, STEP 042, ENTRY POINT B.

015
Plug Test Plug into LSC Cable.
GO TO PAGE 3, STEP 016, ENTRY POINT E.

016
(ENTRY POINT E)
==========
Verify that this 3268 can activate and de-activate relays in the LSC. (The Wrap Plug should be installed for this testing.)
Perform the following:

1.Start Test 64, part 01. Read Note 1 at right.
2.Meter voltage from pin 6 (PICK RLY1) to pin 8 (Ground).
See Wrap Plug pin information at right
3.Meter voltage from pin 7 (PICK RLY2) to pin 8 (Ground).
ARE BOTH PIN 6 AND PIN 7 LESS THAN .6VDC DURING TEST 64, PART 1?
Y N

017
LSA Card B1 appears to be failing.
GO TO PAGE 8, Step 067, Entry Point H.

018
1.Run Part 4 of Test 64. (04 displayed in SI)
2.Meter Voltage pin 6 to pin 8. (PICK RELAY 1 to Gnd).
3.Meter Voltage pin 7 to pin 8. (PICK RELAY 2 to Gnd).
DO BOTH PIN 6 AND PIN 7 METER 3.5VDC TO 8.5VDC?
Y N

019
Install CE Indicator Card in A1 socket on Logic Board. (MI 409)

- Read Note 2 at right.

ARE BOTH CE INDICATOR CARD LEDS 2 AND 3 OFF?
Y N

020
LSA Card B1 appears to be failing.
GO TO PAGE 8, Step 067, Entry Point H.

NOTE 1: See (MI 725), How to run Test 64. Test 64, part 1, has both relays in the NOT picked position.

Measurement is taken on the 4 pins extending from the 'Wrap Plug' while installed on the LSC Cable.

NOTE 2: Both relays should be picked. The CE Indicator Card is used to determine if LSA Card is supplying the necessary voltage to the cable. CE Indicator Card LEDS 2 and 3 should be 'Off' indicating an active line.

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021
The LSC Cable appears to be failing
GO TO PAGE 8, Step 067, Entry Point K.

022
DID TEST 60 OR THE BAT FAIL WHILE CONNECTED TO THE LSC?
Y N

023
1.Power Off.
2.Install CE Indicator Card in socket A1 on Logic Board (MI 409).
3.Remove 'Wrap' Plug from LSC Cable and plug Cable into LSC.
4.Power On.
5.Wait for BAT to complete.
DOES LED 10 (RXD) COME 'ON' OR FLICKER?
Y N

024
It appears there is no Data on the Loop.
This is a Controller, Loop or LSC failure.
GO TO PAGE 9, STEP 068, ENTRY POINT L.

025
IS LED 9 (TXD) 'ON'? (MAY BE DIM OR FLICKER)
Y N

026
Data Rate is available to the CE, as the 7th and 8th bytes of the Test Switch Printout (Test Data 2) location 00DE/00DF.

0006 = .6K	0012 = 1.2K
0024 = 2.4K	0048 = 4.8K
0096 = 9.6K	0192 = 19.2K
0384 = 38.4K	

DOES LOOP DATA RATE MATCH THIS PRINTERS DATA RATE ?
Y N

027
GO TO PAGE 5, STEP 035,
ENTRY POINT R.

028
DOES LED 6 (RTS) COME ON OR FLICKER?
Y N

029
GO TO PAGE 6, STEP 049,
ENTRY POINT F.

030
DOES LED 7 (CTS) COME ON OR FLICKER?
Y N

031
It appears that a 'go' is not getting to this printer.
GO TO PAGE 9, STEP 068,
ENTRY POINT L.

032
(ENTRY POINT LF)
Data is leaving this printer. If controller is not receiving data from this terminal, there is a controller, LSC or LOOP failure.
GO TO PAGE 9, STEP 068, ENTRY POINT L.

033
GO TO STEP 032, ENTRY POINT LF.

034
The LSC is suspected of failing.
The Wrap Test works OK when using the Wrap Plug but Test fails when connected to the LSC.
Inform customer how you determined LSC is failing.
GO TO PAGE 8, Step 067, Entry Point L.

035
(ENTRY POINT R)

Data Rate and Carrier Rate select switches are located on the OP Panel. The chart at the right, can be used to determine if the selected OP Panel rates, are correct on the LSA Card B1.

Compare Test Switch Printout (Test Data 2, Location 00DE/DF) to Data Rate/Carrier Rate set in the OP Panel Switches.
DOES RATE AND SWITCH SETTING MATCH?
Y N

036
The Chart at the right is a list of probe points or meter connections on LSA Card Socket B1.
1.Power Off.
2.Remove LSA Card B1.
NOTE: If a Probe is to be used, Printer Power must be On.
The pins will show how the OP Panel Carrier/Data Rate switches are set.
GND = down level on probe or continuity to D08 on CE meter.
(*) = Neither UP nor DOWN on CE Probe or OPEN Circuit to D08 on CE meter.
ARE LINE LEVELS AT LSA CARD B1 SOCKET CORRECT?
Y N

037
Power Off.
Problem is with Data Rate or Carrier Rate Select Switches.
GO TO MAP 500, ENTRY POINT A.

038
LSA Card B1 appears to be failing.
GO TO PAGE 8, Step 067, Entry Point H.

039
DOES CARRIER RATE AND DATA RATE MATCH THAT OF THE LOOP?
Y N

040
Inform customer, rates do not match.

041
GO TO PAGE 9, STEP 068, ENTRY POINT L.

(LSA SOCKET) B1					CARRIER	DATA
J06	J07	J10	J11	J12	RATE	RATE
*	GND	GND	GND	GND	9600	600
*	GND	GND	GND	*	9600	1200
*	GND	GND	*	*	9600	2400
*	GND	*	GND	*	9600	4800
*	GND	*	*	*	9600	9600
GND	*	GND	GND	GND	38400	2400
GND	*	GND	GND	*	38400	4800
GND	*	GND	*	*	38400	9600
GND	*	*	GND	*	38400	19200
GND	*	*	*	*	38400	38400

042
(ENTRY POINT B)
==========
Before continuing, a check of printer voltage is necessary.

1.Set CE Meter to measure +21Vdc.
2.Voltage Test Points, are on Voltage Regulator Card J11.
3.Check 'ALL' Voltages specified (+/- 10%) in following table:

VOLTAGE	(+)TP	(-)TP
+21	TP1	TP5
-21	TP5	TP2
+13	TP3	TP5
+8.5	TP7	TP5
+5	TP6	TP5
-5	TP5	TP4

ARE ALL VOLTAGES CORRECT?
Y N

043
Note failing voltage.
Go To MAP 600, Entry Point A.

044
WAS SI = A0?
Y N

045
WAS SI = A2?
Y N

046
GO TO PAGE 8, STEP 067, Entry Point H.

047
GO TO PAGE 8, STEP 067, Entry Point K.

048
GO TO PAGE 8, STEP 067, Entry Point J.

049
(ENTRY POINT F)
==========
See (MI 722), for information on Test 55, how to select it and how the data is displayed.

See (MI 740), for information on Test Switch Printout and location of COMMUNICATIONS data in the printout.

The address that this printer will respond to can be found in location '00DD'.
Check with Customer and verify that this address is correct.
IS ADDRESS THE ONE THAT THE CONTROLLER IS EXPECTING ?
Y N

050
ARE ADDRESS SWITCHES ON THE OP PANEL SET CORRECTLY?
Y N

051
Set ADDRESS switch to correct address.
Verify Repair.
GO TO PAGE 9, Step 068, Entry Point L

052
Exchange OP Panel Card.
GO TO PAGE 9, STEP 068, ENTRY POINT L.

053
1.Disconnect LSC cable from LSC.
2.Request CE Test 60. (MI 725)
(Plug LSC Cable in after test)
(A2 is expected with cable disconnected)
ERROR CODE = A2?
Y N

054
LSA Card B1 appears to be failing.
GO TO PAGE 8, Step 067, Entry Point H.

055
Check following voltages on Logic Board.
1.+8.5Vdc (+/- 10%) at B1B11 and B1G11.
2. +5Vdc (+/- 10%) at B1D03 and B1J03.
3. -5Vdc (+/- 10%) at B1B06 and B1G06.
ARE 'ALL' VOLTAGES OK?
Y N

056
Note failing voltage.
GO TO MAP 600, ENTRY POINT A.

057
Review Error Log for any errors. (MI 743)
If error log is not available, take the no leg.
IS THERE A LARGE NUMBER OF COMMUNICATION ERRORS IN THE ERROR LOG ?
Y N

058
DOES CUSTOMER REPORT ANY ON LINE FAILURE SYMPTOMS ?
Y N

059
No failure found in this printers communications.
Get Controller to do Problem Determination.

060
GO TO STEP 062, ENTRY POINT C.

061
LSA Card B1 appears to be failing.
GO TO PAGE 8, Step 067, Entry Point H.

062
(ENTRY POINT C)
==========
Error from error log or reported by customer.
1. SI = A0 (Diagnostic On Line Failure).
   (failing FRU is LSA B1 CARD or MPU-A C1 Card.
2. SI = 12 (Diagnostic On Line Failure).
   (failing FRU is LSA B1 Cable or LSC.
3. LED 2 never comes on
   (problem is system (loop or host) failure.
4. LED 2 is On and Off
   (problem is SLOW SYSTEM.
5. Other customer reported symptoms
   (GO TO MAP 800, ENTRY POINT C.)

DOES CUSTOMER REPORT ANY OF THE ABOVE SYMPTOMS ?
Y N

063
Check with customer about correct LOOP carrier speed.
See (MI 407), for information on LSA card jumpering and Op Panel 'DATA' and 'CARRIER' Switches.
IS THIS MACHINE SWITCHED FOR THAT SPEED?
Y N

064
Carrier Speed may not be correct. (MI 501)
1.Check Carrier Rate Switches are set correctly.
GO TO PAGE 9, Step 068, Entry Point L

065
No failure found in this printers communications.
Get Controller to do Problem Determination.

066
Exchange FRU(s) indicated or inform customer of suspected failure.
GO TO PAGE 9, STEP 068, ENTRY POINT L.

067
(ENTRY POINT G)

FRU EXCHANGE PROCEDURES

(ENTRY POINT J) * MPU-A CARD FAILURE *

1.Exchange MPU-A Card C1.
2.Run failing Test.
IS FAILURE STILL PRESENT?
Y N

GO TO PAGE 9, Step 068,
ENTRY POINT L.

Reinstall original C1 card.
HAS LSA CARD B1 BEEN EXCHANGED?
Y N

GO TO STEP 067, Entry Point H.

Verify Repair.
GO TO MAP 900, ENTRY POINT A.

(ENTRY POINT K) * LSC CABLE FAILURE *

Before LSC Cable exchange:
1.Check LSA cable connector for poor connections.
2.Check LSA cable for open or short circuits.
Exchange LSC Cable.
IS FAILURE STILL PRESENT?
Y N

GO TO PAGE 9, Step 068,
ENTRY POINT L.

Reinstall original Cable.
HAS LSA CARD B1 BEEN EXCHANGED?
Y N

GO TO STEP 067, Entry Point H.

Verify Repair.
GO TO MAP 900, ENTRY POINT A.

(ENTRY POINT H) * LSA CARD FAILURE *

Before card Exchange,
1.Check that Secondary Mode is jumpered on LSA Card.
2.Ensure all Data Rate and Carrier Rate select jumpers on LSA Card are in the upper position.
3.Ensure Correct Carrier Speed and Data rate is set in the OP Panel.
ARE JUMPERS AND SWITCHES SET CORRECTLY?
Y N

Correct Jumpering/Switches and
GO TO PAGE 9, Step 068,
ENTRY POINT L.

Exchange LSA Card B1.
1.Ensure Secondary Mode Jumpers and all upper 'CARRIER' and 'DATA' jumpers (MI 407), are installed on the new card.
2.Run failing Test.
IS FAILURE STILL PRESENT?
Y N

GO TO PAGE 9, Step 068,
ENTRY POINT L.

HAS MPU-A CARD C1 BEEN EXCHANGED?
Y N

GO TO STEP 067, Entry Point J.

Verify Repair.
GO TO MAP 900, ENTRY POINT A.

068
(ENTRY POINT L)

CHECK OUT AND CLEAN UP SECTION

1.Power Off.
2.Disconnect LSC Cable from LSC or Wrap Plug.
3.Ensure all cards and cables are seated or plugged correctly.
4.Power On.
5.Wait for BAT to complete.
NOTE: (OP Panel LED 0, 'On' indicates BAT ran OK.
DID OP PANEL LED 0, COME ON AFTER BAT COMPLETED?
Y N

069
GO TO MAP 010, ENTRY POINT A.

070
Wait for 15 seconds after LED 0 comes on. The SI should display '12'.
IS SI = '12' ?
Y N

071
IS SI = 'A0' OR 'A1' ?
Y N

072
GO TO MAP 010, ENTRY POINT A.

073
GO TO PAGE 1, STEP 001, ENTRY POINT A.

074
Plug Wrap Plug into LSC Cable.
The '12' should go away in a few seconds.
DOES '12' IN THE SI GO AWAY?
Y N

075
The LSC Cable appears to be failing
GO TO PAGE 8, Step 067, Entry Point K.

076
The OP Panel should now have LED 0 (READY) and LED 1 (COMM) On.
IS LED 0 ON?
Y N

077
GO TO MAP 010, ENTRY POINT A.

078
1.Power Off.
2.Plug LSC Cable into LSC.
3.Power On.
4.Wait for BAT to complete. LED 0 should come on and LED 1 should come on 8 seconds after BAT completes.
LED 2 'On', indicates controller is polling this Printer.
When LED 2 comes On, it will be on for a minimum of 8 seconds.
DOES LED 2 (OK) COME ON?
Y N

079
DOES A '12', OR ANY '7X' SI CODE, APPEAR?
Y N

080
It appears controller is not polling at this time.
GO TO STEP 082, ENTRY POINT N.

081
GO TO PAGE 7, STEP 062, ENTRY POINT C.

082
(ENTRY POINT N)

Check out of this printer is completed.
Remove CE Indicator from A1 socket.
GO TO MAP 900, ENTRY POINT A.

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ENTRY POINTS

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

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
4	023	800	A
3	009	900	A
4	019	900	A
4	025	900	A
4	024	900	A

001
(ENTRY POINT A)

See QUICK REPAIR List at the right if Swap / Spare Cards are available.

NOTE1: 'CX' = any error code 'C0' through 'CF'.

NOTE2: Ensure coax cable is disconnected before running any communications tests.

IS THE SI = ONE OR MORE OF THE FOLLOWING: C0, C1, C2, C3, C4, C5, C6, C7, CC, Cd, or CE ?
Y N

002
IS SI = CA ?
Y N

3 3 2
A B C

QUICK REPAIR LIST

1.Comm. Attachment Card B1. See (MI455)
Ensure jumpers are correct on new Card.
2.MPU-A Card C1.
3.RAM Card E1.

Error Codes displayed by communications tests (Tests 60/61) are:

C0 - Read/Write to Comm. Attachment failed.
C1 - Base Ram Addressing failure.
C2 - Feature Ram Addressing failure.
C3 - Pattern R/W to Comm. Ram failed.
C4 - Pattern R/W to Comm. EAB Ram failed.
C5 - Wrap Test of Basic Commands failed.
C6 - Wrap Test of Extended Commands failed.
C7 - Wrap Test of EAB Commands failed.
C8 - Ram Parity Check Failure (on stored data).
CA - Base Buffer size less than Display size.
CC - Parity Check Failure (test mode).
Cd - Not Expected Interrupt from Comm. Attachment.
CE - Machine Check or Program Check during Comm. Test.

NOTE: C8 errors may occur during looping on Test 60 or 61. This error, to be valid, must have a 'CC' also. If the 'CC' is not present, this error is to be ignored.

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003
IS SI = C8 ?
Y N

004
NOTE: Disconnect coax cable before running any Communications test.
Run Test 61 (MI 728) -
Approximate run time is 2 minutes.
ANY SI = C0 THROUGH CF?
Y N

005
After Test 61 completes....connect the coax cable....wait for 2 minutes more.
IS SI = 65?
Y N

006
IS SI = 27 OR 28 ?
Y N

007
See Test Switch Printout (Error Log section) for any error codes. (MI 749)

ARE ANY COMMUNICATION ERROR CODES...65, 27, OR 28 LOGGED IN LOCATIONS '0C70'THROUGH '0C7F' ?
Y N

008
(ENTRY POINT B)
==========
FEATURE AND JUMPER CHECK:

Check that all of the Specify Feature Jumpers on the Comm. Card B1, are correct for your machine. See (MI 455)
Request CE Test 55 (MI 722). Press switch 5 and then press Cancel Print switch to display comm. Test data starting at storage location '6000'.
Press Cancel Print switch until SI = '03'.

SI	LEDS	MEANING
03	5 On 6 Off 7 On	EAB Installed Base buffer Size = 4K

Press Cancel Print Switch until SI = '07'.

07	0 - 3	Specify Features - Group 1 = Display buffer size 0001 = 0960 bytes 0010 = 1920 bytes 0011 = 2560 bytes 0110 = 3564 bytes 0111 = 3440 bytes

Press Cancel Print switch until SI = '1d'.

1d	0 - 7	Specify Features - Group 2 0 = CR at MPP+1 1 = NL at MPP+1 2 = FF Function 3 = FF is last character in print order 4 = Null suppress 5 = FF location 6 = FF after print order 7 = reserved

(Step 008 continues)

PAGE 3 OF 4

(Step 008 continued)
ARE FEATURES AND JUMPERS CORRECT FOR YOUR PRINTER?
Y N

009
Repair as needed.
Verify Repair
GO TO MAP 900, ENTRY POINT A.

010
GO TO PAGE 4, STEP 018,
ENTRY POINT C.

011
SI = 65 - Indicates a Parity error was sensed during a read of RAM on Comm. Card B1.
SI = 27 - Indicates subsystem was not ready, or a failing Coax line.
SI = 28 - Indicates a Poll Check.

GO TO PAGE 4, STEP 018,
ENTRY POINT C.

012
SI = 27 - Indicates subsystem was not ready, or a failing Coax line.
SI = 28 - Indicates a Poll Check.

GO TO PAGE 4, STEP 018,
ENTRY POINT C.

013
SI = 65 - Indicates a Parity error was sensed during a read of RAM on Comm. Card B1.
GO TO PAGE 4, STEP 018, ENTRY POINT C.

014
GO TO PAGE 4, STEP 022, ENTRY POINT E.

015
SI = C8 - Indicates a Parity error was sensed during a read of RAM on Comm. Card B1.
GO TO PAGE 4, STEP 018, ENTRY POINT C.

016
SI = CA - Indicates Base buffer size jumpered on Comm. Card B1 is not correct.
GO TO PAGE 2, STEP 008, ENTRY POINT B.

017
GO TO PAGE 4, STEP 022, ENTRY POINT E.

018
(ENTRY POINT C)
==========
INTERNAL COAX CABLE CHECK:

1.Power Off.
2.Disconnect External Coax Cable from rear of printer.
3.Reseat Cards B1, C1, and E1 and cable A2.
4.Using CE Meter, check continuity at Coax Connector on rear of printer:
  a.Outer conductor to frame ground should be more than 1 Megohm.
  b.Outer conductor to inner conductor should be less than 2 Ohms.

IS COAX CONTINUITY CHECK OK?
Y N

019
Coax circuit from connector on rear of printer, through A2 Cable, Logic Board, and Comm. Card B1 is either open or sh[illegible] circuit to frame ground.
Repair as needed, (MI 453) and (MI 459).
Verify Repair
GO TO MAP 900, ENTRY POINT A.

020
Reconnect External Coax Cable to rear of printer.
GO TO STEP 021, ENTRY POINT D.

021
(ENTRY POINT D)
==========
EXTERNAL COAX CABLE AND CONTROLLER CHECK:

Determine if any of the following may be causing the problem:
1.Check External Coax Cable from rear of printer to controller for disconnected, loose, open or short circuit.
2.Check Controller for Power Off, hung in an error condition or attempting to recover from an error condition.

WAS A PROBLEM LOCATED?
Y N

022
(ENTRY POINT E)
==========
Exchange following FRU'S in sequence until problem is fixed.

1.Comm. Attachment Card B1.
  See (MI 455) and ensure jumpers are correct on new Card.
2.MPU-A Card C1.
3.RAM Card E1.

IS PROBLEM FIXED ?
Y N

023
GO TO MAP [illegible]00, ENTRY POINT A.

024
GO TO MAP 900, ENTRY POINT A.

025
Exchange or repair as needed.
Verify Repair.
GO TO MAP 900, ENTRY POINT A.

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ENTRY POINTS

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

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
6	054	900	A

001
(ENTRY POINT A)

A list of Checks and Entry points is located at the right.

For FRUs included in this MAP, see FRU list at right.

NAME OF CHECK	POINT	STEP	PAGE
PAGE LENGTH	PL	033	4
LANGUAGE SWITCHES	LT	074	8
ADDRESS SWITCHES	LT	074	8
OP PANEL SWITCHES	B	065	7
SI CHECK	TS	002	1
LED CHECK	TS	002	1
FRU ISOLATING	FI	059	6
WIRING CHECK	CK	062	6

DID YOU COME HERE FROM MAP 100?
Y N

002
(ENTRY POINT TS)
==========
The 'Test' switch forces an interrupt when pressed. Pressing test switch may result in one of the following:

1. SI = 88 - Normal when 'Test' switch is pressed.
2. SI = 97 - Printer cannot find the source of the interrupt (failing Op Panel).
3. SI = 90 - MPU-A does not recognize interrupt. (MPU-A Card C1 failure)
4. SI = 92 - MPU-B does not recognize interrupt. (MPU-B Card F1 failure) Selecting a printer test (Test 76 for example) may result in SI = '92'.
5. No change in Op Panel, no ribbon or head movement, indicates Op Panel (switch), is failing.

(Step 002 continues)

FRU LIST FOR OP PANEL MAP

OP PANEL
OP PANEL CABLE
OP PANEL CARD A3
PAGE LENGTH SWITCH (Model 2 only)
MPU-A CARD C1.

(Step 002 continued)
DID SI = 97 AFTER 'TEST' SWITCH WAS PRESSED?
Y N

003
DID SI = 90 AFTER 'TEST' SWITCH WAS PRESSED?
Y N

004
DID SI = 92 AFTER 'TEST' SWITCH WAS PRESSED?
Y N

005
Pressing and holding 'Test' switch should turn on all SI segments and LEDs.
DO ANY SI SEGMENT(S) OR LEDS FAIL TO TURN ON WHEN 'TEST' SWITCH IS PRESSED?
Y N

006
To answer the following questions, you need to know that a LED and SI indicator Test is done at Power On.
1. At Power On, all LED and all segments are turned on.
2. SI will then briefly display '82'. This '82' indicates diagnostic test has started.
3. The BAT turns off 'All' SI segments and 'All' LEDs. All LEDs and SI segments 'On', and all LEDs and SI segments 'Off' at Power On, will be specified by this MAP as the LED and SI Test.
4. As BAT continues, 'LEDs' are turned On and Off, indicating that the BAT is running.

IS PROBLEM - NO LEDS OR SI SEGMENTS, ARE DISPLAYED AT POWER ON?
Y N

007
IS PROBLEM - 'ALL' LEDS AND 'ALL' SI SEGMENTS FAILED TO TURN OFF?
Y N

008
IS PROBLEM - AUDIBLE ALARM SOUNDS CONTINUOUS OR DOES NOT SOUND AT ALL?
Y N

009
IS THIS PRINTER A MODEL 2 (327X ATTACHMENT)?
Y N

010
IS PROBLEM WITH DATA RATE OR CARRIER SELECT SWITCHES?
Y N

011
IS PROBLEM WITH ADDRESS SWITCHES?
Y N

OP PANEL

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012
(ENTRY POINT PM)
==========
For a test of the Language switches, take the YES leg)
IS PROBLEM WITH LANGUAGE SWITCHES?
Y N

013
For 'How to use' CE Test 55 (MI 722).

Test 55 will be selected at this time.
1.Press and hold 'Test' switch. '88' should appear in SI when Test is pressed.

NOTE 1: IF '97' appears in SI, Op Panel Logic is failing.
GO TO STEP 059, ENTRY POINT FI.
NOTE 2: If '92' appears in SI,
GO TO STEP 062, ENTRY POINT CK.

2.Press and release Op Panel switch 5.
3.'Test' is still being held.
DOES STATUS INDICATOR = 05?
Y N

014
Release 'Test' switch.
GO TO PAGE 7, STEP 065, ENTRY POINT B.

015
Press and release Op Panel switch 5 again.
DOES STATUS INDICATOR = 55?
Y N

016
Release 'Test' switch.
GO TO PAGE 7, STEP 065, ENTRY POINT B.

017
1.Release 'Test' switch.
2.Pressing any Op panel switch, 0 through 9 should display that switch number in the low order SI.
3.Press and release switches 0 through 9.
DOES THE SWITCH NUMBER FOR EACH SWITCH DISPLAY IN THE LOW ORDER SI?
Y N

018
GO TO PAGE 7, STEP 065,
ENTRY POINT B.

019
Press and release switches A, B, and C one at a time.
The switch number should display in the SI.
(A=10), (B=11), (C=12).
DO SWITCH NUMBERS DISPLAY IN SI?
Y N

020
GO TO PAGE 6, STEP 059,
ENTRY POINT FI.

021
Press and release 'CANCEL PRINT' switch (D).
DID SI DISPLAY CHANGE WHEN CANCEL PRINT SWITCH (D) WAS PRESSED?
Y N

022
GO TO PAGE 6, STEP 059,
ENTRY POINT FI.

023
Op Panel switches are working OK.
GO TO MAP 900, ENTRY POINT A.

024
GO TO PAGE 8, STEP 074, ENTRY POINT LT.

025
GO TO PAGE 8, STEP 074, ENTRY POINT LT.

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026
1.Power Off.
2.Disconnect A3 Op Card from A3 socket and cable.
3.Using CE Meter, check A3 Op Card end to end for continuity on the following pins:
B03 - B03 - carrier select 1
D02 - D02 - carrier select 2
B02 - B02 - data rate select 1
D04 - D04 - data rate select 2
B12 - B12 - data rate select 3
ARE ALL LINES OK?
Y N

027
Exchange A3 Op Panel Card.
GO TO MAP 900, ENTRY POINT A.

028
1.Disconnect Op Panel Cable from Op Panel.
2.Using CE Meter, check Op Panel cable end to end for continuity on the following lines:
B03 - B03 - carrier select 1
D02 - D02 - carrier select 2
B02 - B02 - data rate select 1
D04 - D04 - data rate select 2
B12 - B12 - data rate select 3
ARE ALL CABLE LINES OK?
Y N

029
Exchange Op Panel Cable.
GO TO MAP 900, ENTRY POINT A.

030
Exchange Op Panel. (MI 507)
GO TO MAP 900, ENTRY POINT A.

031
IS PROBLEM - PAGE LENGTH IS NOT WORKING CORRECTLY? (MODEL 2 ONLY)
Y N

032
GO TO PAGE 3, STEP 012, ENTRY POINT PM.

033
(ENTRY POINT PL)
==========
Verify Page Length Switch is working.
1.Request CE Test 55 (MI 722). Press switch '9 and then press Cancel Print to display Op Panel Data starting at location '00E8'. Press Cancel Print until SI = 'Eb'.
2.The LEDS now display contents of the Page Length Switch.
3.Set Page Length Switch to '00'. All LEDs should be 'On'.
ARE ALL LEDS ON WITH SWITCH SET TO '00'?
Y N

034
1.Disconnect Page Length Switch from Op Panel (P2).
See (MI 509) for information on Op Panel Logic and wiring.
2.Do a continuity check of each Page Length line to ground (switch set to 00). There should not be continuity at this time.
IS ANY LINE SHORT CIRCUIT TO GROUND?
Y N

035
Exchange Op Panel. (MI 507)
GO TO MAP 900, ENTRY POINT A.

036
Exchange Page Length Switch. (MI 512)
GO TO MAP 900, ENTRY POINT A.

037
Using Test 55, display each of the Page Length Switch positions in the LEDs.
ARE ANY LEDS ON WHEN THEY SHOULD BE OFF?
Y N

038
DO ANY LEDS FAIL TO COME ON?
Y N

039
The Page Length Switch checks OK. If customer still has a failure using Page Length,
Exchange Page Length Switch. (MI 512)
GO TO MAP 900, ENTRY POINT A.

040
Disconnect Page Length Switch from Op Panel.
Do a continuity check of each line on the switch to ground when that line should be active.
See (MI 509) for information on Op Panel Logic and wiring.
DOES PAGE LENGTH SWITCH HAVE AN OPEN CIRCUIT FOR LINE THAT IS ACTIVE?
Y N

041
Exchange Page Length Switch. (MI 512)
GO TO MAP 900, ENTRY POINT A.

042
Exchange Op Panel. (MI 507)
GO TO MAP 900, ENTRY POINT A.

043
If Page Length Switch displays the wrong LEDs,
Exchange Page Length Switch. (MI 512)
GO TO MAP 900, ENTRY POINT A.

044
DOES AUDIBLE ALARM SOUND CONTINUOUS?
Y N

045
Ensure Volume potentiometer is adjusted so alarm is audible.
If adjustment of the potentiometer does not permit alarm to be heard,
Exchange Op Panel. (MI 507)
GO TO MAP 900, ENTRY POINT A.

046
Exchange Op Panel. (MI 507)
Go To MAP 900, Entry Point A.

047
GO TO PAGE 6, STEP 062, ENTRY POINT CK.

048
See (MI 509) for information on Op Panel Logic and wiring.

LEDs and SI are turned on by the POR line from MPU-A Card C1.
1.Power Off.
2. Reseat A3 Op Card, A3 Cable connector and P1 Cable connector.
3.Power On.
DO LEDS AND SI NOW COME ON AT POWER ON (LED/SI TEST)?
Y N

049
The POR line, from MPU-A Card C1, causes the SI and LEDS to be turned on before running the BAT.
DO ANY LEDS OR SI SEGMENTS COME ON WHILE BAT IS RUNNING?
Y N

050
GO TO PAGE 6, STEP 062, ENTRY POINT CK.

051
See (MI 509) for information on Op Panel Logic and wiring.

1.Power Off.
2.Disconnect A3 Op Card from Logic Board.
3.Use CE Probe (MI 053) and check A3B13 for a POR Pulse when Printer power is switched on.
4.Power On.
DOES A3B13 PULSE AT POWER ON?
Y N

052
Exchange MPU-A Card C1.
GO TO MAP 900, ENTRY POINT A.

053
GO TO PAGE 6, STEP 059, ENTRY POINT FI.

PAGE 6 OF 8

054
GO TO MAP 900, ENTRY POINT A.

055
GO TO PAGE 7, STEP 065,
ENTRY POINT B.

056
Exchange MPU-B Card F1.
GO TO MAP 900, ENTRY POINT A.

057
Exchange MPU-A Card C1.
GO TO MAP 900, ENTRY POINT A.

058
GO TO STEP 059, ENTRY POINT FI.

059
(ENTRY POINT FI)
==========
See (MI 509) for information on Op Panel Logic and wiring.

The Op Panel, Op Panel Cable or A3 Op Card, is failing.
1.Power Off.
2.Disconnect Op Panel Cable from A3 Op Card.
3.Disconnect A3 Op Card from A3 socket.
4.Connect Op Panel Cable directly into A3 socket.
5.Power On.
IS ORIGINAL PROBLEM STILL PRESENT?
Y N

060
Exchange A3 Op Panel Card.
GO TO MAP 900, ENTRY POINT A.

061
The Op Panel Cable or Op Panel is failing.
1.Power Off.
2.Reinstall A3 Op Card.
3.Check Op Panel cable for continuity.
4.Exchange cable if found to be failing, or exchange Op Panel (MI 507).

062
(ENTRY POINT CK)
==========
See (MI 509) for information on Op Panel Logic and wiring.

There are 5 logic lines to be checked at this time. Each line will pulse at least once during the BAT.
1.Power Off.
2.Disconnect A3 Card from its socket.
3.Using CE Probe, probe lines 1 - 5, while BAT is running. Run the BAT for each line.
4.Power On.
5.Probe the following lines on Logic Board:
Op Switch select - A3B04
Display select - A3B05
Address 14 - A3B07
Address 15 - A3B08
(-)Write/(+)Read - A3B10
PULSE = Both LEDs On solid.
= One LED On solid and the other flickers.
= Each LED turns On and Off at least once.
DID ALL 5 LINES PULSE DURING THE BAT?
Y N

063
Exchange MPU-A Card C1.
GO TO MAP 900, ENTRY POINT A.

064
GO TO STEP 059, ENTRY POINT FI.

065
(ENTRY POINT B)
==========
The purpose of this testing is to determine if all Op Panel switches, 'SI' segments and 'LEDs', operate OK.

- SI AND LED TEST -

1.Press and hold 'Test' switch.
ARE ANY OP PANEL SI SEGMENTS OR LEDS ON?
Y N

| 066
| Continue to hold test switch for at least 30 seconds.
| DOES '97' DISPLAY IN SI?
| Y N
| |
| | 067
| | GO TO PAGE 6, STEP 062, ENTRY POINT CK.
| |
| 068
| GO TO PAGE 6, STEP 059, ENTRY POINT FI.

069
DID 'ALL' LEDS AND 'ALL' SI SEGMENTS COME ON?
Y N

| 070
| GO TO PAGE 6, STEP 059, ENTRY POINT FI.

071
- OP PANEL PUSHBUTTON TEST -
1.With 'Test' switch being held pressed.
2.Press and release Op Panel switches 0 through 9, one at a time. The number of the Op Panel switch pressed, should appear in both the right SI and the lower LEDS.
3.When the next switch is pressed, the last switch number should move from the right SI position to the left, and the new switch number should be displayed in the right SI. The LED display will move the last switch number to the upper LEDs and the present switch to the lower LEDS.
(Step 071 continues)

(Step 071 continued)
NOTE: Failure of switch to display a number in the SI, will also cause a failure to shift the existing number in the LEDs.
DO ALL THE SWITCHES DISPLAY CORRECTLY?
Y N

| 072
| Exchange Op Panel. (MI 507)
| GO TO MAP 900, ENTRY POINT A.

073
The Op Panel pushbuttons, SI and LEDS, are OK.

074
(ENTRY POINT LT)
==========
The Op Panel switches can be checked by using Test 55. (MI 722)
1.Note present setting of Language Select and
  Model 1 - Address Switch
  Model 2 - Page Length Switch
2.Select Test 55.
3.Press switch '9'. SI should display 'E8'.
4.Press 'Cancel Print Switch' on Op Panel twice.
  'EA' should be displayed in SI.
5.The contents of the Language switches is now
  displayed in the LEDS. Change setting of each
  of the Language switches. The LED that
  compares, should change. Reset Language
  switches to original setting.
6.Press 'Cancel Print Switch' on Op Panel. 'Eb'
  should be displayed in SI.
7.The contents of the Address switches (Page
  Length Switch - Model 2), is now displayed in
  the LEDS. Change setting of each of the
  switches and the LED that compares, should
  change. Reset switches to original setting.
DO ALL SWITCHES CHECK OK?
Y N
|
| 075
| Exchange Op Panel. (MI 507)
| GO TO MAP 900, ENTRY POINT A.
|
076
GO TO MAP 900, ENTRY POINT A.

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ENTRY POINTS

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

001
(ENTRY POINT A)
Below is a table of Voltage failure symptoms. Each symptom has a page number and entry point associated with it.
Locate Symptom that best describes failure and go to the Entry Point for that Symptom.
If a Fuse is specified, as a symptom, at the Entry Point you go to, ensure Fuse is good.

Power Failure Symptom Table

SYMPTOM	Page No.	Step No.	Entry Point
+21/-21 VOLTS DC HIGH/LOW/MISSING OPEN FUSE F4, F5	9	091	VA
+13 VOLTS DC HIGH/LOW/MISSING OPEN FUSE F6	8	084	VB
+8.5 VOLTS DC HIGH/LOW/MISSING OPEN FUSE F1	6	054	FB
+5 VOLTS DC HIGH/LOW/MISSING OPEN FUSE F2	4	027	FA
-5 VOLTS DC HIGH/LOW/MISSING OPEN FUSE F3	7	069	FC

— TABLE CONTINUES ON NEXT PAGE —
(Step 001 continues)

POWER SUPPLY FRU LIST

- Fuses:
  - F1 +8.5VDC ..... 2 A
  - F2 +5VDC ..... 8 A
  - F3 -5VDC ..... 1 A
  - F4 +21/-21VDC .. 15 A
  - F5 +21/-21VDC .. 15 A
  - F6 +13VDC ..... 8 A
  - F7 Line Fuse ... 6 A
- Capacitor PC Board Assembly:
  - * C7 (-21Vdc)
  - * C8 (+21Vdc)
  - * C9 (+13Vdc)
  - * C10 (Resonant Capacitor)
- On/Off Switch
- Transformer Assembly
- J11 Regulator Card
- Heatsink Assembly:
  R10-R11-CR1-CR2-TB1-TB2
- Power Supply 'P' and 'J' connectors:
  P1/J1-P2/J2-P5/J5-P6/J6-P7/J7-P8/J8-J11
- Resistors:
  - R8 - R9
- Fan
- AC Cable and Plug
- J17 Printer Card
- Logic Board

(*) A method for checking capacitors is on following page.

(Step 001 continues)

(Step 001 continued)

SYMPTOM	Page No.	Step No.	Entry Point
WILL NOT POWER ON SI AND LEDS BLANK OPEN FUSE F7 OR MISSING LINE VOLTAGE	3	002	PO
HANGS AT POWER ON ALL SI AND LED ON	3	002	PO
FAN DOES NOT RUN	3	002	PO
SYMPTOM NOT KNOWN	11	117	CK
POWER CHECK OR INTERMITTENT	11	117	CK
RIPPLE CHECK	11	117	CK
FUSES OPEN	12	120	FZ

NOTE 1: If all fuses check good and a symptom cannot be found in the chart
GO TO PAGE 11, STEP 117, ENTRY POINT CK.

(Step 001 continued)

CAPACITOR CHECK

- Disconnect Printer Power Plug from wall outlet.
- Ensure capacitor is discharged. (Short the (−) connector to the (+) connector)
- Disconnect all wiring from capacitor terminals.
- Use CE Meter, set to lowest Rx scale, for C7,C8 and C9, and highest scale for C10.
  1. Ensure safety plug on C7,C8 and C9 capacitors is not blown out and is not leaking.
  2. Put the + meter lead to the (+) capacitor terminal and the - meter lead to the (−) capacitor terminal.
     The meter reading should move to 0 ohms and then slowly move toward the open reading.
  3. Put the + meter lead to the (−) capacitor terminal and the - meter lead to the (+) capacitor terminal.
     The meter reading should move as in step above.
- If any steps 1, 2 or 3 above fails, the capacitor is failing and should be exchanged.

- Reconnect all wiring removed for Test.

002
(ENTRY POINT PO)

SYMPTOM - PRINTER WILL NOT POWER ON
- PRINTER HANGS AT POWER ON
- FUSE 7 OPEN
- FAN DOES NOT RUN

Ensure power plug is connected at wall outlet and at printer power socket.
Check for AC line Voltage between TB1-2 and TB1-13. (MI 604)
IS LINE VOLTAGE CORRECT BETWEEN TB1-13 AND TB1-2?
Y N

003
Disconnect Power Plug from wall socket.
See Wiring figure (MI 610/613) and check continuity of Power On/Off switch leads at connector P5.
IS POWER ON/OFF SWITCH OK?
Y N

004
Exchange Power On/Off Switch. (MI 515)
GO TO PAGE 6, STEP 045, ENTRY POINT C.

005
Check line voltage Fuse F7. (MI 604)
IS F7 FUSE OK?
Y N

006
Exchange F7 Fuse
Power On.
DID FUSE F7 OPEN AGAIN?
Y N

007
GO TO PAGE 6, STEP 045, ENTRY POINT C.

008
GO TO PAGE 12, STEP 120, ENTRY POINT FZ.

009
Ensure Line Voltage is correct at wall outlet.
If Voltage is not correct, inform customer of Line Voltage problem.

See Wiring figure (MI 610/613) and verify TB1 wiring is correct for input voltage to your machine.

See Wiring circuit (MI 610/613) and check continuity from TB1-2 through J5 connector to one side of the AC Plug. Also from TB1-13 through J5 connector to the other side of the AC Plug.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

010
With Power Switch in the 'On' position.
IS FAN RUNNING?
Y N

011
Ensure fan is free of binds. (MI 631)
If fan is binding, Exchange fan.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

Using Power Supply Wiring figure (MI 610/613), check fan 'AC' Voltage at TB1-8 and TB1-14.

If voltage is correct on TB1, locate problem between fan and TB1. (MI 610/613)
Repair or Exchange as needed.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

If voltage is not correct, see Wiring figure (MI 610/613) and locate cause of missing or wrong voltage.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

012
ARE ALL DC VOLTAGES MISSING AT J11 REGULATOR CARD TEST POINTS (MI 607)?
Y N

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013
Check +21VDC at J11 - TP1 (+) to TP5 (-).
IS +21VDC (+/- 10%) PRESENT AT TP1?
Y N

014
GO TO PAGE 9, STEP 091, ENTRY POINT VA.

015
Check +13VDC at J11 - TP3 (+) to TP5 (-).
IS +13VDC (+/- 10%) PRESENT AT TP3?
Y N

016
GO TO PAGE 8, STEP 084, ENTRY POINT VB.

017
Check +5VDC at J11 - TP6 (+) to TP5 (-).
IS +5VDC (+/- 10%) PRESENT AT TP6?
Y N

018
GO TO STEP 027, ENTRY POINT FA.

019
Check for +5VDC at A4D03 on Logic Board.
IS +5VDC (+/- 10%) PRESENT ON LOGIC BOARD?
Y N

020
Exchange J11 Regulator Card.

Exchange Logic Board.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

021
Probe MPU-B top card connector (MI 140)
F1Y27 - 'POR'.
IS THE LINE UP?
Y N

022
IS THE LINE PULSING?
Y N

023
The POR signal is generated on the J17 Motor Drive Card. Power Off, remove Motor Drive Card J17, Power On and probe F1Y27 again.
IS LINE STILL DOWN?
Y N

024
Exchange failing Motor Drive Card J17
GO TO PAGE 6, STEP 045,
ENTRY POINT C.

025
Remove cards and/or connectors, one at a time, until signal is up.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

026
GO TO PAGE 11, STEP 117, ENTRY POINT CK.

027
Voltage is present at Logic Board but printer does not run Diagnostic Code.
GO TO PAGE 11, STEP 117, ENTRY POINT CK.

(ENTRY POINT FA)
==========
SYMPTOM - +5VDC
- OPEN FUSE F2.
- HIGH/LOW +5VDC
- MISSING +5VDC
IS FAILURE AN OPEN FUSE F2?
Y N

028
Check +5VDC at J11 - TP6 (+) to TP5 (-)
IS +5VDC (+/- 10%) PRESENT AT TP6?
Y N

029
IS FAILURE +5VDC LESS THAN 2 VOLTS DC?
Y N

030
IS FAILURE +5VDC LESS THAN 4.5 VOLTS DC?
Y N

031
High +5Vdc
Exchange J11 Regulator Card.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

032
Low +5VDC can be caused by:
Regulator Card Failure (C4 open)
Low +13VDC.
GO TO STEP 033, ENTRY POINT VC.

033
(ENTRY POINT VC)
==========
Check +13VDC at J11 - TP3 (+) to TP5 (-)
IS +13VDC (+/- 10%) PRESENT AT TP3?
Y N

034
GO TO PAGE 8, STEP 084, ENTRY POINT VB.

035
Disconnect the J7 connector. (MI 604)
Check Resistor R8 for open circuit. It should be approximately 5 ohms. (P7 pin 1 to P7 pin 2)
IS LOAD RESISTOR R8 OK?
Y N

036
Check for broken wires from Plug P7 to Resistor R8.
Exchange Load Resistor R8.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

037
Exchange J11 Regulator Card.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

038
Check +5VDC at A4D03 (+) TO A4D08 (-).
IS +5VDC (+/- 10%) PRESENT ON LOGIC BOARD?
Y N

039
Exchange J11 Regulator Card.

Exchange Logic Board. (MI 125)
GO TO PAGE 6, STEP 045,
ENTRY POINT C.

040
Exchange Logic Board. (MI 125)
GO TO PAGE 6, STEP 045, ENTRY POINT C.

041
(ENTRY POINT B)
==========
- Power Off.
- Exchange open fuse.
- Power On.
DOES FUSE OPEN AGAIN?
Y N

042
GO TO PAGE 6, STEP 045, ENTRY POINT C.

043
GO TO PAGE 12, STEP 120, ENTRY POINT FZ.

044
Verify Regulator Card J11, Plugs P1, P2 and P8 are all seated correctly. (MI 604)

See Wiring figure (MI 610/613) and verify correct TB1 Wiring and continuity of wiring on the input side of the Transformer.
Repair or Exchange as needed
GO TO PAGE 6, STEP 045, ENTRY POINT C.

045
(ENTRY POINT C)
==========

WAS A FRU EXCHANGED?
Y N

046
(ENTRY POINT RS)
==========
Run Basic Assurance Test (BAT).
DOES BAT RUN OK?
Y N

047
GO TO MAP 010, ENTRY POINT A.

048
GO TO MAP 900, ENTRY POINT A.

049
DID THAT FRU REPAIR THE ORIGINAL PROBLEM?
Y N

050
IS THIS YOUR FIRST TIME HERE?
Y N

051
See Power Supply FRU List on page 1 of this MAP and Exchange items in the list until failure is fixed.

052
GO TO MAP 010, ENTRY POINT A

053
GO TO STEP 046, ENTRY POINT RS.

054
(ENTRY POINT FB)
==========
SYMPTOM - +8.5VDC
- OPEN FUSE F1.
- HIGH/LOW +8.5VDC
- MISSING +8.5VDC
IS FAILURE AN OPEN FUSE F1 OR F6?
Y N

055
Measure +8.5VDC at J11 - TP7 (+) to TP5 (-).
IS +8.5VDC (+/- 10%) PRESENT AT TP7 ?
Y N

056
IS VOLTAGE LESS THAN +5VDC?
Y N

057
IS VOLTAGE LESS THAN +7.5VDC?
Y N

058
High +8.5VDC can be caused by
1. High +21VDC input to J11 Regulator card.
2. J11 Regulator card.

(ENTRY POINT VE)
==========
Check +21VDC at J11 - TP1 (+) to TP5 (-)
IS +21VDC (+/- 10%) OK?
Y N

059
GO TO PAGE 9, STEP 091,
ENTRY POINT VA.

060
Exchange J11 Regulator Card.
GO TO STEP 045,
ENTRY POINT C.

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PAGE 7 OF 12

061
Low +8.5VDC can be caused by
1. Low +21VDC input to the J11 Regulator card.
2. J11 Regulator Card Failure (C6)

GO TO PAGE 6, STEP 058,
ENTRY POINT VE.

062
Disconnect J7 connector. (MI 604)
Check Resistor R9 for open circuit. It should be approximately 1.8 ohms.
(P7 pin 4 to P7 pin 3)
IS RESISTOR R9 OK?
Y N

063
Check for broken wires from P7 to R9.
Exchange Resistor R9.
GO TO PAGE 6, STEP 045,
ENTRY POINT C.

064
GO TO PAGE 6, STEP 058, ENTRY POINT VE.

065
Check +8.5VDC on Logic Board at A4B11.
IS THE VOLTAGE HIGH?
Y N

066
Exchange Logic Board. (MI 125)
GO TO PAGE 6, STEP 045, ENTRY POINT C.

067
Exchange J11 Regulator Card.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

068
GO TO PAGE 5, STEP 041, ENTRY POINT B.

069
(ENTRY POINT FC)
==========
SYMPTOM - -5VDC
- OPEN FUSE F3 OR F5
- HIGH/LOW -5VDC
- MISSING -5VDC
IS FAILURE AN OPEN FUSE F3 OR F5?
Y N

070
Check -5VDC at J11 - TP4 (-) to TP5 (+).
IS -5VDC (+/- 10%) CORRECT AT TP4?
Y N

071
IS FAILURE LOW -5VDC? (-3VDC TO +1VDC)
Y N

072
IS FAILURE LOW -5VDC? (-4.5VDC TO -3VDC)
Y N

073
High -5VDC can be caused by
High -21VDC input to J11 Regulator Card.
Failing J11 Regulator Card (C2)
IS -21VDC (+/- 10%) AT TP2 (-) TO TP5 (+)?
Y N

074
GO TO PAGE 9, STEP 091,
ENTRY POINT VA.

075
Exchange J11 Regulator Card.
GO TO PAGE 6, STEP 045,
ENTRY POINT C.

076
Low -5VDC can be caused by:
Low -21VDC input to J11 Regulator Card.
Failing J11 Regulator Card (C2)

(ENTRY POINT VF)
IS -21VDC (+/- 10%) AT TP2 (-) TO TP5 (+)?
Y N

077
GO TO PAGE 9, STEP 091,
ENTRY POINT VA.

078
Exchange J11 Regulator Card.
GO TO PAGE 6, STEP 045,
ENTRY POINT C.

079
GO TO STEP 076, ENTRY POINT VF.

080
Check for -5VDC at A4B06 on Logic Board.
IS -5VDC (+/- 10%) CORRECT?
Y N

081
Exchange J11 Regulator Card.

Exchange Logic Board. (MI 125)
GO TO PAGE 6, STEP 045, ENTRY POINT C.

082
Exchange Logic Board. (MI 125)
GO TO PAGE 6, STEP 045, ENTRY POINT C.

083
GO TO PAGE 5, STEP 041, ENTRY POINT B.

084
(ENTRY POINT VB)
SYMPTOM - +13 VOLTS DC
- OPEN FUSE F6
- HIGH/LOW +13VDC
- MISSING +13VDC
IS FAILURE AN OPEN FUSE F6?
Y N

085
See (MI 604) for location of J1 and J2.
IS +13VDC AT J1-7 (+) TO J1-8 (-)?
Y N

086
IS +13VDC AT J2-1 (+) TO J2-2 (-)?
Y N

087
IS +21VDC AT J11 - TP1 (+) TO TP5 (-)?
Y N

088
GO TO PAGE 9, STEP 091,
ENTRY POINT VA.

089
Check for more than 15 volts AC at the two
Transformer leads to CR2 on the Heatsink .

If AC Voltage is present,
Exchange the CR2 Rectifier. (MI 604)
GO TO PAGE 6, STEP 045,
ENTRY POINT C.

If AC Voltage is not present, Transformer
is failing.
Exchange Transformer assembly.
GO TO PAGE 6, STEP 045,
ENTRY POINT C.

090
There is an open Circuit between J2 and J1.
Exchange Capacitor PC Board. (MI 633)
GO TO PAGE 6, STEP 045, ENTRY POINT C.

091
Verify Fuse F2 is good.
See Logic circuit (MI 610/613) and locate problem between Plug P1 and J11 Regulator Card.
GO TO PAGE 6, Step 045, Entry Point C.

(ENTRY POINT VA)
SYMPTOM - +21/-21VDC
- OPEN FUSES F1, F3, F4, F5
- HIGH/LOW +21/-21VDC
- MISSING +21/-21VDC
ARE ANY FUSES F1, F3, F4 OR F5 OPEN?
Y N

092
Check +21VDC at J11 - TP1 (+) to TP5 (-).
IS +21VDC (+/- 10%) AT TP1?
Y N

093
IS +21VDC (+/- 10%) AT CONNECTOR J1-5/6 (+) TO J1-4 (-)?
Y N

094
GO TO STEP 098, ENTRY POINT OL.

095
Check Fuses F1, F2 and F3 on J11 Card.
Using CE Meter, check continuity of wires in cable from P1 to P8.
Exchange J11 Regulator Card.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

096
Check -21VDC at J11 - TP2 (-) to TP5 (+).
IS -21VDC (+/- 10%) AT TP2?
Y N

1 1
0 0
X Y Z

097
IS -21VDC (+/- 10%) AT CONNECTOR J1-1/2 (-) TO J1-4 (+)?
Y N

098
(ENTRY POINT OL)
IS FAILURE LOW OR MISSING VOLTAGE?
Y N

099
(ENTRY POINT TR)

Power Off.
Disconnect Power Cord from wall outlet.
Remove fuses F4 and F5. (MI 604)
Check from Transformer side of F4 Fuse to Transformer side of F5 Fuse for continuity.
Remove leads from Capacitor C10 and check for continuity through the Transformer winding. (MI 610/613)
IS THERE CONTINUITY THROUGH BOTH WINDINGS?
Y N

100
Reinstall F4 and F5 fuses.
Exchange Transformer assembly.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

101
Check from F4 Fuse socket (transformer side) to TB2-1 for continuity.
IS THERE CONTINUITY TO THE TERMINAL BOARD?
Y N

102
Exchange Transformer Assembly.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

103
See (MI 610/613) and verify continuity of all wires from CR1 to TB2 to Plug P8 on Logic Board and from CR2 to TB2 to Plug P8 on Logic Board.
IS CONTINUITY CHECK GOOD?
Y N

104
Repair or exchange as needed.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

105
Exchange CR1 Rectifier. (MI 604)
GO TO PAGE 6, STEP 045, ENTRY POINT C.

106
Low +21VDC can be caused by C8 being open.
Low −21VDC can be caused by C7 being open.
Perform Capacitor Check on suspected Capacitor.
See Capacitor Check on Page 2 of this MAP.
IS SUSPECTED CAPACITOR (C7 OR C8) OK?
Y N

107
Exchange failing Capacitor. (MI 633)
GO TO PAGE 6, STEP 045, ENTRY POINT C.

108
Check Capacitor C10.
See Capacitor Check on Page 2 of this MAP.
IS CAPACITOR C10 OK?
Y N

109
Exchange Capacitor C10. (MI 633)
GO TO PAGE 6, STEP 045, ENTRY POINT C.

110
GO TO PAGE 9, STEP 099, ENTRY POINT TR.

111
Check Fuses F1, F2 and F3 on J11 Card.
Check Cable P1 to P8.
Exchange J11 Regulator Card.
GO TO PAGE 6, STEP 045,
ENTRY POINT C.

112
Check for both (+) and (−) 21VDC on J17 Motor Drive Card Test Points (MI 307), and on J14 and J15 Wire Drive Card Test Points.(MI 311)
ARE BOTH +21VDC AND −21VDC PRESENT ON ALL THREE CARDS?
Y N

113
Exchange Card that had a voltage missing
Exchange Logic Board. (MI 125)
GO TO PAGE 6, STEP 045,
ENTRY POINT C.

114
GO TO PAGE 6, STEP 045, ENTRY POINT C.

115
GO TO PAGE 5, STEP 041, ENTRY POINT B.

116
GO TO PAGE 5, STEP 041, ENTRY POINT B.

117
(ENTRY POINT CK)
==========

SYMPTOM - POWER SUPPLY VOLTAGE CHECK.
- INTERMITTENT FAILURES
- SYMPTOM NOT KNOWN

With Power Off, check voltage and ground loops. (MI 625/628)
Power on, Check the DC Voltages while CE Test 76 (Ripple Print) is running.
NOTE: If the symptom is not known, Test 76 does not have to be running for the voltage check. If the voltages are OK, check again while Test 76 is running.

(+)	(-)	Volts +/-10%	RIPPLE LIMIT
TP1	TP5	+21VDC	1.0 VAC
TP5	TP2	-21VDC	1.0 VAC
TP3	TP5	+13VDC	1.0 VAC
TP5	TP4	-5VDC	.2 VAC
TP6	TP5	+5VDC	.2 VAC
TP7	TP5	+8.5VDC	.2 VAC

If a Voltage is failing, go to Symptom Table at Entry Point A of this MAP.
Using an oscilloscope, check the DC voltages in the chart above for any AC ripple.

WAS THE RIPPLE CHECK OK?
Y N

118
Power Off and Disconnect the Wall Plug.
Verify Fuses F4 and F5 are good.
Using CE meter, perform capacitor check procedure described on page 2 of this Map
Inspect all connectors in Power Supply for correct connection. (MI 604)
Reseat each connector.
Inspect all screw connections in Power supply. Ensure each connection is tight by loosening and tightening each screw.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

119
GO TO PAGE 6, STEP 045, ENTRY POINT C.

Check List for Intermittent Failures

1. Failing Capacitors, Open Diodes and open transformer windings, will cause voltages to change under load. If Voltage changes during this test, go to Symptom Table on Page 1 of this MAP and use symptom - LOW '?' Voltage. Answer any question concerning the Voltage as if the Voltage is more than 10% low.

2. Before continuing, Power Off. Disconnect Power Cord. Ensure all Power Supply P/J connectors are making connection by disconnecting and then reseating them. Ensure correct connection of Capacitors C7, C8 and C9 by loosening and tightening the Capacitor screws. Connect Power Cord and Power On .

3. Ripple is the 'AC' present on a 'DC' voltage line. Intermittent failures of any part of the printer can be caused by ripple. Ripple is caused by loose connections in the Power Supply. (usually capacitors)

120
(ENTRY POINT FZ)
==========

FUSES OPEN

The fuses covered by this MAP are those fuses in the Power Supply. Printer card fuses are covered in the 300 MAPS.
DOES THE FUSE OPEN EACH TIME POWER IS SWITCHED ON?
Y N

121
Exchange the fuse and,
GO TO MAP 010, ENTRY POINT A.

122
Power Off.
Exchange the open fuse.
Disconnect all cards from Logic Board.
Power On.
DOES THE FUSE OPEN NOW?
Y N

123
- Power Off and install one card.
Power On.
If the fuse opens, the card just installed is causing the fuse to open. If the fuse does not open, Power Off and install next card.
Continue this procedure until the failing card is found.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

124
Disconnect the Load Resistor Plug P7.
(Load Resistors for +5VDC and 8.5VDC)
Power On.
DOES THE FUSE OPEN NOW?
Y N

125
The Load Resistors (R8/R9) are causing the fuse to open.
Exchange the P7 Load Resistor assembly.
GO TO PAGE 6, STEP 045, ENTRY POINT C.

A
D

126
Power Off.
Reinstall the original P7 Load Resistor Plug .
Exchange open fuse.
Use Chart below for this check.
Disconnect the J11 Regulator Card.
Disconnect Plug P8 from Logic Board.
Note: All Cards are removed from Logic Board.
The Board should read as an open circuit at this time.
F1 opens - J11-7,8,9 and 10 to frame gnd.
F2 opens - J11-1,2,5 and 6 to frame gnd.
F3 opens - J11-3 to frame gnd.
F4 opens - J11-11,15 and 16 to frame gnd.
F5 opens - J11-11,15 and 16 to frame gnd.
F6 opens - J11-19 and 20 to frame gnd.
F7 opens - GO TO STEP 127, Entry Point PP.
WAS CONTINUITY READ FOR THE FUSE THAT IS OPENING?
Y N

127
(ENTRY POINT PP)
==========
Inspect the Power Supply for short circuits in the wiring, P/J connectors, etc. If no problem is found here, Exchange each FRU in the following order:
- Fuse F1 J11 Regulator Card
- Fuse F2 J11 Regulator Card
- Fuse F3 J11 Regulator Card
- Fuse F4 Heatsink Assembly
Capacitor C8
- Fuse F5 Heatsink Assembly
Capacitor C7
- Fuse F6 Heatsink Assembly
Capacitor
- Fuse F7 Transformer Assembly
Heatsink Assembly
Fan assembly
Capacitor C10
GO TO PAGE 6, STEP 045, ENTRY POINT C.

128
Exchange Logic Board. (MI 125)
GO TO PAGE 6, STEP 045, ENTRY POINT C.

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ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
ALL	A	1	001
ALL	B	4	015

001
(ENTRY POINT A)

General Information on Locating Intermittent Problems

A. Microcode or Customer Operational Procedures may be the problem if failure can be duplicated.
   1. Verify Customer PDP procedures.
   2. Check Retain System Information.
   3. Communicate with F.E. Support/Engineering personnel.
   4. Use Communication Storage Print (Test 03).
B. Physical Environment Check:
   1. Paper, dust, pins, labels in paper path
   2. Temperature or humidity measured by Temperature/Humidity Tester.*
C. Communication Lines can be the source if random failures occur.
   1. Digital data between two devices can be recorded using the following tools:
      a. P.T.2 A service system for on site and remote use in servicing products.*
      b. Buffer TDAT.*
   2. Recorded data can be checked to determine if the communication error is caused by the following:
      a. Line noise.
      b. Programming failure.
      c. Failure of printer to respond/addressing problem.
   3. PCIA data (located in Communication Storage Printout)
      a. PCIA is the space in RAM, that shows the data transmitted and received.

(Step 001 continues)

(Step 001 continued)

      b. PCIA contains information on line control as well as status information. Print the PCIA and verify data is correct.
   4. Twisted wire and coax cable problem isolating.*
      a. Manual describes a procedure to find short circuits, opens and other failures in twinax loop or coax cable.
   5. Test Switch Printout (Error Log) contains status indicator failures to be used in isolating intermittent failures.
D. Electromagnetic or customer power failures can cause problems that cause random failures. Intermittent problems caused by EMI (Electromagnetic Interference), RFI (Radio Frequency Interference), ElectroStatic Discharge, and Line noise, are difficult to locate because of random failure patterns. The following tools on test equipment is available:
   1. Electrostatic Locating Tool*
   2. Earth Tester (ground check)*
   3. Electromagnetic Compatibility Simulator*
   4. Recording Voltmeter*
   5. DB Meter*
   6. Power Line Disturbance Tester*
   7. Electrical Safety Analyzer*
E. The following items are available and may be used to locate intermittent failures:
   1. Test Switch Printout (Error Log) /Intermittent Information. (MI 740-763)
   2. Loop on diagnostic routines in the failing area.
   3. Use Symptom Index.
   4. Swap communication Lines if possible.
   5. Use Printer MAPs for printer failures.
   6. Get Retain System information.
   7. Check with FE Support/Engineering personnel.
   8. Check power supply grounding, and output voltages.
   9. Observe and check connections, board wiring, terminals, cables, etc.
   10. Analyze Communication Storage Printout.
   11. Check oscillator pulses.
   12. Swap cards or other hardware.
   13. Shake hardware, cables and connectors.

(Step 001 continues)

(Step 001 continued)
14. Increase and decrease voltages (if possible).

*These are Branch Office or Region tools/test equipment. Review the tools/test equipment FE TSL for part numbers and description.
Review (MI 740-763) for Intermittent Information/Test Switch Printout information.

Overheating can cause hard to diagnose problems. Ensure fan in the Printer is running.
IS FAN RUNNING?
Y N

002
GO TO MAP 600, ENTRY POINT A.

003
Question operator for problem symptoms:
1. WHAT JOB WAS RUNNING?
2. WHAT ERRORS OCCURRED?
2. ERROR LOG PRINTOUT?
A valid status number is any number in Operator's Guide.
DOES CUSTOMER REPORT A VALID SI AS THE CAUSE OF THIS SERVICE CALL?
Y N

004
Review the Test Switch Printout. (MI 740-763)
DOES ERROR LOG SECTION OF TEST SWITCH PRINTOUT CONTAIN ANY ERRORS?
Y N

005
GO TO PAGE 4, STEP 015, ENTRY POINT B.

006
IS RECORDED ERROR A PRINTER FAILURE? (SI = 45 OR 47)
Y N

007
GO TO PAGE 3, STEP 014, ENTRY POINT C.

008
Review Printer Symptoms Index.
GO TO MAP 300, ENTRY POINT A.

009
(ENTRY POINT D)
==========
IS THE 'SI' REPORTED BY THE CUSTOMER A CUSTOMER ERROR CODE ('01' THROUGH '76')?
Y N

010
See description of diagnostic test (MI 700).
CAN YOU GET THE FAILURE AGAIN, BY LOOPING ON A DIAGNOSTIC? (MI 710)
Y N

011
GO TO MAP 900, ENTRY POINT C.

012
GO TO MAP 010, ENTRY POINT A.

013
GO TO PAGE 3, STEP 014, ENTRY POINT C.

014
(ENTRY POINT C)

For error code reported by customer, take indicated action:

SI	CAUSE	(*) ACTION to take
01	PAPER OUT -	(*) Install Paper (*) Check Switch adjustment (MI 391)
02	PAPER LOAD -	(*) Check Paper path (*) Check Switch adjustment (MI 390)
03	COVER OPEN -	(*) Close Cover (*) Check Switch adjustment (MI 025)
06	OPERATOR ALARM CODE -	Operational Message (*) no action
07	ORDER IN PCIA NOT VALID -	Operational Error (*) no action
08	PRINT HOLD - TIME-OUT -	Operational Error (*) no action
09	OPERATOR ENTRY NOT VALID -	Operator Error (*) no action)
12	LSC CABLE/LSC FAILURE -	(*) Ensure Cable plugs are OK. (*) Exchange B1 Card/LSC Cable
20	STATION ADDRESS NOT VALID -	(*) Set to correct address (*) Language Switch (MAP 500)
21	LANGUAGE CODE NOT VALID -	(*) Set to correct language (*) Address Switch (MAP 500)
27	CONTROLLER TIME-OUT -	(*) Verify Controller is active
28	POLL CHECK -	(*) Check Internal/External Coax

SI	CAUSE	(*) ACTION TO TAKE
31	TIME-OUT	(*) SEE 01 at left
32	TIME-OUT	(*) SEE 02 at left
33	TIME-OUT	(*) SEE 03 at left
45	PRINT EMITTER SEQUENCE ERROR -	(*) MAP 300
47	CARRIER MOTOR ON, NO EMITTERS -	(*) MAP 300
59	CANCEL SELECTED -	Operational
60	BUFFER REPRINT -	Message
61	PA 1 SELECTED -	"
62	PA 2 SELECTED -	"
63	PRINT IN SEND MODE -	"
		(*) no action
65	ADAPTER RAM ERROR - Parity Error sensed in the Communications RAM	(*) Possible Controller Failure (*) Possible External Coax Failure (*) Exchange B1 Card/Coax Cable
71	LOSS OF DATA SET READY (DSR) -	(*) Exchange B1 Card
73	CLEAR TO SEND (CTS) FAILURE -	(*) Exchange B1 Card
74	CARRIER FAILURE (RLSD) - Carrier from next terminal on the LOOP, is being interrupted for a period of time more than 4 seconds	(*) Verify the LOOP Connection
75	WRITE TIME-OUT -	(*) Possible Controller Failure (*) CHECK PRINTER SPEED
76	CONNECTION PROBLEM -	(*) LOOP FAILURE

GO TO MAP 900, ENTRY POINT A.

015
(ENTRY POINT B)
==========
The following parts should be checked when failures occur that are difficult to diagnose.
1.Loose cable connectors and cards.
  Reseat connectors and cards.
  Terminals can be loose in connector block.
  Terminals can be bent or opened and result in a poor contact.
2.Printer voltages from power supply to Plug P8 on Logic Board. (MI 610.)
3.Filter capacitors C7,C8 and C9.
  Check for short or open circuit.
4.Poor electrical ground (MI 628) or Power cord grounding.
Inspect:
  a.Cover grounding (MI 628).
  b.Grounding of form stand.
  c.Check ground to D08 pins on Logic Board.
5.Linear Drive card J16.
6.Check Logic Board for bent or broken pins, cold flow solder connections or burn spots caused by a short.(MI 125)
7.Review Test Switch Printout for any Printer errors. (MI 740-763)
WERE ANY PRINTER ERRORS LOGGED IN PRINTOUT?
Y N

016
Determine area of failure from customer reported symptom.

HEAD MOVEMENT PROBLEMS

Check the following:
1.Head crashes into left side.
  GO TO MAP 310, ENTRY POINT B.
2.Head crashes into right side - exchange Linear Drive Card J16.
3.Carrier Motor for any binds.
4.Carrier Motor Pulley for loose or broken.
5.Carrier Motor Pulley for loose set screws.
6.Carrier Belt tension mechanism for adjustment or worn.
7.Column 1 Sensor for adjustment.
(Step 016 continues)

(Step 016 continued)
8.Head speed problem.
  GO TO MAP 325, ENTRY POINT A.
9.Carrier Belt - worn or missing cogs.

PRINT PROBLEMS

Check the following:
1.Ribbon Mechanism.
2.Ribbon Flat Cable for continuity.
3.Print Head Flat Cable for continuity.
4.Carrier Motor Encoder signals.
5.Platen for any wear.
6.Forms Thickness Lever Detent.
7.Wires binding in print head - dirty or ink.
8.Ribbon moving up while printing - adjust platen gap.
9.Over Printing - see forms movement problems.

FORMS MOVEMENT PROBLEMS

Check the following:
1.Belt or pulley or motor binding/slipping.
2.Paper Load tension bar binding forms.
3.Forms Tractor adjustment.
4.Spline drive not engaging correctly.
5.Platen gap adjustment.
6.Paper Out switch adjustment.
7.Paper path for obstructions.
GO TO MAP 900, ENTRY POINT A.

017
Using Test Switch Printout sections:
Test Log 1 and Test Log 2 (MI 758)
Test Data 1 and Test Data 2 (MI 755)
For any printer errors logged in Test Log 1 , review Map 300 for that error and GO TO MAP specified.
Use information in Test Data 1 or 2 printout to answer Map questions.
(When Map question uses the word LED, answer as if the word was BIT)
EXAMPLE: 'IS LED 0 ON?' should read as 'IS BIT 0 ON?' in Test Data storage.

END

3268

PAGE 1 OF 4

ENTRY POINTS

FROM MAP NUMBER	ENTER THIS MAP: ENTRY POINT	PAGE NUMBER	STEP NUMBER
ALL	A	1	001
ALL	B	2	014
ALL	C	4	025

001
(ENTRY POINT A)

Power Off.
At this time, Printer should have all cards, cables and connectors, in their correct location.
Reinstall any cards, cables and plugs that were removed in preceding MAPs and verify all other cards, cables and plugs are seated correctly.

If Comm. Card B1 was exchanged, ensure new Card is jumpered correctly. (MI 405/455)

If Linear Drive Card J16 was exchanged, ensure Carrier speed is correct. Request CE Test 73 (MI 734) and perform speed adjustment procedure if required.

Power On.

WERE ANY ERRORS INDICATED DURING BAT?
Y N

002
Request CE Test 01 (MI 731).
IS THERE ANY VISUAL SYMPTOM OF PRINTING ERRORS?
Y N

003
Install Printer covers.
Return machine to customer configuration.
End of call.

004
IS THIS YOUR FIRST TIME THROUGH THESE MAPS FOR THIS PROBLEM?
Y N

005
HAS PRINT HEAD BEEN EXCHANGED?
Y N

006
Exchange Print Head (MI 326).
Request Print Test 01 again.
IS PROBLEM FIXED?
Y N

007
GO TO PAGE 2, STEP 014,
ENTRY POINT B.

008
GO TO PAGE 3, STEP 021,
ENTRY POINT D.

009
GO TO PAGE 2, STEP 014, ENTRY POINT B.

010
GO TO MAP 300, ENTRY POINT A.

011
IS THIS YOUR FIRST TIME HERE FOR THIS PROBLEM?
Y N

012
GO TO PAGE 2, STEP 014, ENTRY POINT B.

013
GO TO MAP 010, ENTRY POINT A.

15SEP81 PN8678459

EC321889 PEC

014
(ENTRY POINT B)

1. Power Off. See Note 1 at right.
2. Reseat all cards and cables and verify they are installed correctly.
3. Power On.
4. See (MI 625-628) and check voltages and grounds while CE Test 76 (Ripple Print) is running. (MI 736)

NOTE: If symptom is not known, Test 76 does not have to be running for voltage check. If voltages are OK, check again while Test 76 is running. See Note 2 at right.

The following test points are located on the J11 Voltage Regulator Card.

(+)	(-)	Volts +/-10%	RIPPLE LIMIT
TP1	TP5	+21 VDC	1.0 VAC
TP5	TP2	-21 VDC	1.0 VAC
TP3	TP5	+13 VDC	1.0 VAC
TP5	TP4	-5 VDC	.2 VAC
TP6	TP5	+5 VDC	.2 VAC
TP7	TP5	+8.5 VDC	.2 VAC

If any Voltage is failing, Locate failing voltage in symptom table in MAP 600.
Using an oscilloscope, check DC voltages in the chart above for any AC ripple. See Note 3 at right.
WAS RIPPLE CHECK OK?
Y N

NOTE 1. Disconnect Power Cord.
Ensure all Power Supply P/J connectors are making connection by disconnecting and then reseating them.
Ensure correct connection of Capacitors C7, C8 and C9 by loosening and tightening the Capacitor screws.
Connect the Power Cord and Power On .

NOTE 2. Failing Capacitors, Open Diodes and open transformer windings, will cause voltages to change under load. If Voltage changes during this test, go to Symptom Table on Page 1 of MAP 600 and use symptom - LOW '?' Voltage. Answer any question concerning the Voltage as if the Voltage is more than 10% low.

NOTE 3. Ripple is the 'AC' present on a DC voltage line.
Intermittent failures of any part of the printer can be caused by ripple. Ripple is normally caused by loose connections in the Power Supply. (usually capacitors)

015
Power Off and Disconnect power plug from wall.
- Verify Fuses F4 and F5 are good.
- Perform Capacitor check described in Map 600, page 2. (Ensure Capacitors C7, C8 and C9 are discharged.)
- Inspect all connectors in Power Supply for correct connection. Reseat each connector.
- Inspect all screw connections in Power supply. Ensure each connection is tight by loosening and tightening each screw.

Power On. Check voltage and ripple again.
DO VOLTAGE AND RIPPLE CHECK GOOD NOW?
Y N

016
Exchange Power Supply.
GO TO STEP 017, ENTRY POINT E.

017
(ENTRY POINT E)
==========
IS PROBLEM FIXED?
Y N

018
DOES A REVIEW OF THE TEST SWITCH PRINTOUT INDICATE A PROBLEM? (MI 740)
Y N

019
Dial for aid.

020
GO TO MAP 010, ENTRY POINT A.

021
(ENTRY POINT D)
==========
Install Any Printer Covers Removed.
Return machine to customer configuration.
End of call.

022
IS THIS YOUR FIRST TIME HERE FOR THIS PROBLEM?
Y N

023
GO TO PAGE 4, STEP 025, ENTRY POINT C.

024
GO TO MAP 800, ENTRY POINT B.

025
(ENTRY POINT C)
Using the REPORTED SYMPTOM,
Exchange one FRU at a time in the order shown:

1. HANGS -
   - Exchange RAM Card E1 ..... (MI 119/122)
   - Exchange MPU-A Card C1 ..... (MI 119/122)
   - Exchange Printer Card J17 ..... (MI 119/122)
   - Exchange Op Panel ..... (MI 507)
   - Exchange Logic Board ..... (MI 125)

2. RIBBON DRIVES CONTINUOUS -
   - Exchange MPU-B Card F1 ..... (MI 119/122)
   - Exchange RAM Card E1 ..... (MI 119/122)

3. SI=86, 87, 93 -
   - Exchange RAM Card E1 ..... (MI 119/122)
   - Exchange MPU-B Card F1 ..... (MI 119/122)
   - Exchange MPU-A Card C1 ..... (MI 119/122)

4. COMMUNICATIONS PROBLEM -
   - Exchange COMM. Card B1 ..... (MI 119/122)
   - Exchange MPU-A Card C1 ..... (MI 119/122)
   - Exchange OP Panel - (Model 1 Only) ..... (MI 507)
   - Exchange LSC CABLE - (Model 1 Only) ..... (MI 427)
   - Exchange Internal Coax - (Model 2 Only) .. (MI 459)
   - Exchange RAM Card E1 ..... (MI 119/122)
   - Exchange Logic Board ..... (MI 125)

5. PRINTER PROBLEM - (not shown above)
   - Exchange MPU-B Card F1 ..... (MI 119/122)
   - Exchange Printer Card J17 ..... (MI 119/122)
   - Exchange Printer Card J16 ..... (MI 119/122)
   - Exchange Printer Card J15 ..... (MI 119/122)
   - Exchange Printer Card J14 ..... (MI 119/122)
   - Exchange Column 1 Sensor ..... (MI 355)
   - Exchange Ribbon Drive Motor ..... (MI 367)
   - Exchange Carrier Motor/Belt/Pulley ..... (MI 343)
   - Exchange Forms Motor ..... (MI 386)
   - Exchange Op Panel, Card A3 and Cable .... (MI 507)
   - Exchange Voltage Regulator Card ..... (MI 607)
   - Exchange Power Supply ..... (MI 604)
   - Exchange Logic Board ..... (MI 125)

GO TO PAGE 3, STEP 017, ENTRY POINT E.

ENG. CHANGE NO. 321871D 321881 321882 323608E 323608F 323608L 323608S 995801 995801A 328315 323595 PN 8678484

DATE OF CHANGE: MAR 81 JUN 81 AUG 81 JAN 82 JAN 82 FEB 82 FEB 82 MAR 82 APR 82 MAY 82 SEP 82

ENG. CHANGE NO: 323608T 328294

DATE OF CHANGE: MAR 83 APR 83

LOGIC CARD PART NUMBERS

CARD NAME	CARD LOCATION	CARD P/N	CARD SIZE	MODEL USED IN
OPERATOR PANEL CARD	A3	8548969	1W2H	1 AND 2
LOOP STATION ADAPTER	B1	8548788	2W3H	1
COMM. ATTACHMENT	B1	6340938	4W3H	2
	B1	6173580	4W3H	2
MPU-A	C1	8548946	4W3H	1
	C1	4786417	4W3H	1
	C1	6173481	4W3H	1
	C1	4786429	4W3H	1
	C1	4786442	4W3H	1
MPU-A	C1	8548948	4W3H	2
	C1	4786418	4W3H	2
	C1	6173483	4W3H	2
	C1	4786430	4W3H	2
	C1	4786444	4W3H	2
RAM STORAGE	E1	8325909	4W3H	1 AND 2
	E1	4786386	4W3H	1 AND 2
MPU-B	F1	8548950	4W3H	1 AND 2
	F1	6173490	4W3H	1 AND 2
REGULATOR	J11	8678403	SPECIAL	1 AND 2
WIRE DRIVER RIGHT	J14	6814204	SPECIAL	1 AND 2
WIRE DRIVER LEFT	J15	6814204	SPECIAL	1 AND 2
LINEAR DRIVER	J16	6814205	SPECIAL	1 AND 2
STEP MOTOR DRIVER	J17	6341248	SPECIAL	1 AND 2
	J17	6814206	SPECIAL	1 AND 2

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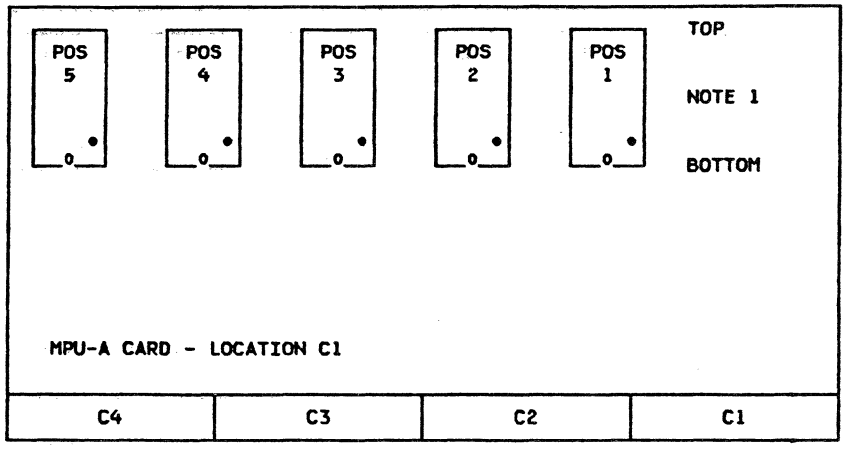
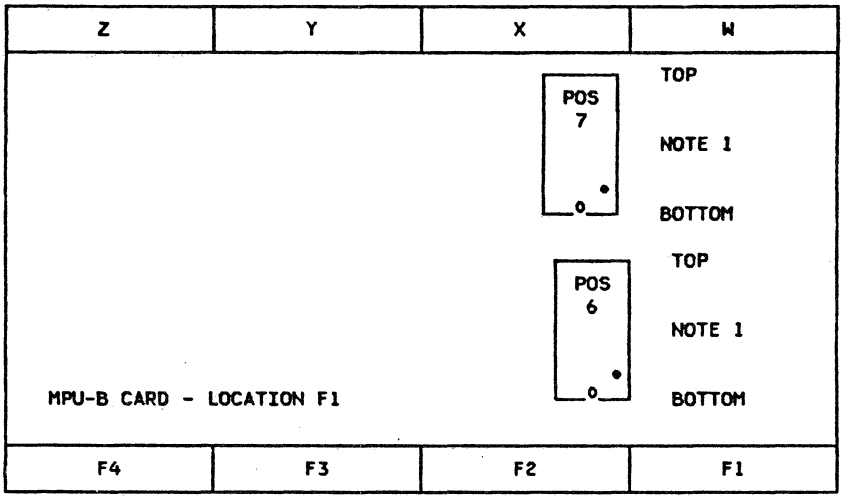
DATE OF CHANGE: MAR 81 JUN 81 AUG 81 JAN 82 JAN 82 FEB 82 FEB 82 MAR 82 APR 82 MAY 82 SEP 82

ENG. CHANGE NO: 323608T 328294

DATE OF CHANGE: MAR 83 APR 83

PLUGGABLE ROS/EPROM MODULE CHART





NOTE 1: THE ° AND • SYMBOLS INDICATE THE PIN 1 END (BOTTOM) OF THE SOCKET, ROS, AND EPROM MODULES. THERE ARE TWO SIZES OF MODULES AND SOCKETS THAT MAY BE USED ON THESE CARDS, 24 AND 28 PIN. WHEN PLUGGING A 24 PIN MODULE INTO A 28 PIN SOCKET OR A 28 PIN MODULE INTO A 24 PIN SOCKET, ENSURE THAT THE TOP ENDS OF THE SOCKET AND MODULE ARE ALIGNED.

ENG. CHANGE NO: 321871D 321881 321882 323608E 323608F 323608L 323608S 995801 995801A 328315 323595 PN 8678484

DATE OF CHANGE: MAR 81 JUN 81 AUG 81 JAN 82 JAN 82 FEB 82 FEB 82 MAR 82 APR 82 MAY 82 SEP 82

ENG. CHANGE NO: 323608T 328294

DATE OF CHANGE: MAR 83 APR 83

PLUGGABLE ROS/EPROM PART NUMBERS - MODEL 1

POS	FEATURE BM	EC NO.	321882	323608L	323608M	323608N	995791	995793	323608T
1	1989764	PART NO.	8493901						
		CRC CHAR	288F4E5A						
2	1989763	PART NO.	8493902					6026265	7838544
		CRC CHAR	53AD7E8D					A85EEAD9	F114A083
3	6814045	PART NO.	4481777					6026266	7838545
		CRC CHAR	F8D35F06					5D04187D	70834A2C
4	6026088	PART NO.	4481778					6026267	7838546
		CRC CHAR	117B2FB7					7CA63579	83D5DF7D
5	1989765	PART NO.	4481779					6026268	7838547
		CRC CHAR	--------					--------	--------
6	6026099	PART NO.	4481783						
		CRC CHAR	96D7E1DC						
7 NOTE 2	6026098	PART NO.	4481784	6026208			8519497		
		CRC CHAR	8C426DE9	EDA46DE9			EDA46DE9		
	6026097	PART NO.	4481785		6026211		8519498		
		CRC CHAR	8C42FEDE		EDA4FEDE		EDA4FEDE		
	6026096	PART NO.	4481786			6026214	8519499		
		CRC CHAR	E3909C14			82769C14	82769C14		

NOTE 2: MODULE IN POSITION 7 IS DETERMINED BY WHICH LANGUAGE FEATURE BM IS INSTALLED.
FEATURE BM 6026098 IS USED FOR NATIONAL USE CHARACTER SET PLUS APL----------STANDARD FEATURE.
FEATURE BM 6026097 IS USED FOR NATIONAL USE CHARACTER SET PLUS KATAKANA--------SPECIFY FEATURE 2773.
FEATURE BM 6026096 IS USED FOR KATAKANA PLUS APL----------SPECIFY FEATURE 0173.

ENG. CHANGE NO: 321871D 321881 321882 323608E 323608F 323608L 323608S 995801 995801A 328315 323595 PN 8678484

DATE OF CHANGE: MAR 81 JUN 81 AUG 81 JAN 82 JAN 82 FEB 82 FEB 82 MAR 82 APR 82 MAY 82 SEP 82

ENG. CHANGE NO: 323608T 328294

DATE OF CHANGE: MAR 83 APR 83

PLUGGABLE ROS/EPROM PART NUMBERS - MODEL 2 W/O SPEC FEAT 9181

POS	FEATURE BM	EC NO.	321882	323608P	323608Q	323608R	323608S	995816
1	1989767	PART NO.	8493906					
		CRC CHAR	602C6268					
2	1989766	PART NO.	4481780				6026217	
		CRC CHAR	B18C4659				65290DF9	
3	6814046	PART NO.	4481781				6026220	
		CRC CHAR	BD446640				C9BAD564	
4	RESERVED							
5	1989768	PART NO.	4481782				6026223	
		CRC CHAR	--------				--------	
6	1989772	PART NO.	4481783					
		CRC CHAR	96D7E1DC					
7 NOTE 3	1989770	PART NO.	4481784	6026208				8519497
		CRC CHAR	8C426DE9	EDA46DE9				EDA46DE9
	1989769	PART NO.	4481785		6026211			8519498
		CRC CHAR	8C42FEDE		EDA4FEDE			EDA4FEDE
	6814095	PART NO.	4481786			6026214		8519499
		CRC CHAR	E3909C14			82769C14		82769C14

NOTE 3: MODULE IN POSITION 7 IS DETERMINED BY WHICH LANGUAGE FEATURE BM IS INSTALLED.
FEATURE BM 1989770 IS USED FOR NATIONAL USE CHARACTER SET PLUS APL----------STANDARD FEATURE.
FEATURE BM 1989769 IS USED FOR NATIONAL USE CHARACTER SET PLUS KATAKANA--------SPECIFY FEATURE 2773.
FEATURE BM 6814095 IS USED FOR KATAKANA PLUS APL----------SPECIFY FEATURE 0173.

ENG. CHANGE NO: 321871D 321881 321882 323608E 323608F 323608L 323608S 995801 995801A 328315 323595 PN 8678484

DATE OF CHANGE: MAR 81 JUN 81 AUG 81 JAN 82 JAN 82 FEB 82 FEB 82 MAR 82 APR 82 MAY 82 SEP 82

ENG. CHANGE NO: 323608T 328294

DATE OF CHANGE: MAR 83 APR 83

PLUGGABLE ROS/EPROM PART NUMBERS - MODEL 2 W/SPEC FEAT 9181

POS	FEATURE BM	EC NO. 328294
1	1989761	PART NO. 6814217 CRC CHAR 6D5F167A
2	1989760	PART NO. 6813984 CRC CHAR 0932D1CD
3	1989759	PART NO. 6814132 CRC CHAR 12F14E37
4	1989758	PART NO. 6814138 CRC CHAR 7C4B8B6B
5	1989762	PART NO. 6814139 CRC CHAR --------
6	1989771	PART NO. 6814173 CRC CHAR 4EE61262
7 NOTE 4	6026095	PART NO. 6814175 CRC CHAR 46485824
	6026094	PART NO. 6814176 CRC CHAR 46481E16
	6026093	PART NO. 6814179 CRC CHAR F0EE886E

NOTE 4: MODULE IN POSITION 7 IS DETERMINED BY WHICH LANGUAGE FEATURE BM IS INSTALLED.
FEATURE BM 6026095 IS USED FOR NATIONAL USE CHARACTER SET PLUS APL----------STANDARD FEATURE.
FEATURE BM 6026094 IS USED FOR NATIONAL USE CHARACTER SET PLUS KATAKANA--------SPECIFY FEATURE 2773.
FEATURE BM 6026093 IS USED FOR KATAKANA PLUS APL----------SPECIFY FEATURE 0173.

ENG. CHANGE NO:
321871K 321871C 321882 321924 PN 8678482
DATE OF CHANGE
APR 81 APR 81 SEP 81 OCT 81

3268 DEVICE CODE AND FEATURE NAME		FACTORY B/M'S* MODEL 1	MODEL 2
SHIP GROUP			
DEFAULT	MAPS, MIMS, ETC	1989741	1989741
MANUAL GROUP (BY COUNTRY CODE)			
DEFAULT	USA - ENGLISH	6813981	6814099
	WTC - BRAZILIAN PORTUGUESE	6814117	6814128
	WTC - CANADIAN FRENCH	6814120	6814131
	WTC - DANISH	6814110	6814121
	WTC - DUTCH	8678317	8678316
	WTC - FINNISH	6814111	6814122
	WTC - FRENCH	6814112	6814123
	WTC - GERMAN	6814113	6814124
	WTC - ITALIAN	6814114	6814125
	WTC - JAPANESE	6814115	6814126
	WTC - NORWEGIAN	6814116	6814127
	WTC - SPAINISH	6814118	6814129
	WTC - SWEDISH	6814119	6814130
VOLTAGE GROUP			
2730	100V 60 HZ	6814142	6814142
2822	110V 60 HZ	6814143	6814143
2800	120V 60 HZ- DPD DEFAULT	6814141	6814141
2823	127V 60 HZ	6814144	6814144
2804	100V 50 HZ	6814145	6814145
2805	110V 50 HZ	6814146	6814146
2806	200V 50 HZ	6814147	6814147
2813	220V 50 HZ	6814148	6814148
2821	230V 50 HZ	6814149	6814149
2801	240V 50 HZ	6814150	6814150
LABEL GROUP (BY COUNTRY CODE)			
	BELGIUM	6814169	6814169
	BRAZILIAN PORTUGUESE	8678312	8678312
	CANADIAN FRENCH	8678441	8678441
	DANISH	8678313	8678313
DEFAULT	ENGLISH	8678351	8678351
	FINNISH	8678314	8678314
	FRENCH	6814172	6814172
	GERMAN	8678443	8678443
	ITALIAN	6814167	6814167
	JAPANESE	6814168	6814168
	NORWEGIAN	6814170	6814170
	SPAINISH	8678442	8678442
	SWEDISH	6814171	6814171
NOMENCLATURE GROUP			
2935	CANADIAN FRENCH	6814153	6814161
DEFAULT	ENGLISH	6814151	6814159
2926	FRENCH	6814156	6814164
2929	GERMAN	6814157	6814165
2932	ITALIAN	6814158	6814166
2930	JAPANESE	6814154	6814162
2931	SPANISH	6814155	6814163
MEDIA ASSEMBLY GROUP			
DEFAULT	BASE MACHINE	6814100	6814101
9955**	EPROM HARDWARE	7838631	7838631

* CIRCLE FEATURES ON MACHINE
** RPO-RECORD PURPOSE ONLY B/M'S-USED BY MACHINE LEVEL CONTROL-FACTORY ONLY.

ENG. CHANGE NO:
321871K 321871C 321882 321924 PN 8678482
DATE OF CHANGE
APR 81 APR 81 SEP 81 OCT 81

3268 DEVICE CODE AND FEATURE NAME		FACTORY B/M'S* MODEL 1	MODEL 2
LOGIC CARD GROUP			
DEFAULT	BASE CARD GROUP	8878338	8678339
LOGIC GROUP - PCM ROS			
DEFAULT	BASE ROS POSITION 1	1989764	1989767
DEFAULT	BASE ROS POSITION 2	1989763	1989766
DEFAULT	BASE ROS POSITION 3	6814045	6814046
DEFAULT	BASE ROS POSITION 4	6026088	--------
DEFAULT	BASE ROS POSITION 5	1989765	1989768
LOGIC GROUP - PMA ROS			
DEFAULT	BASE ROS POSITION 6	6026099	1989772
DEFAULT	NATIONAL USE + APL ROS POSITION 7	6026098	1989770
2773	NATIONAL USE + KANA ROS POSITION 7	6026097	1989769
0173	KANA + APL ROS POSITION 7	6026096	6814095
CHARACTER PRINT GROUP			
9521	960		6814133
DEFAULT	1920		6814134
9523	2560		6814135
9524	3440		6814136
9525	3564		6814137
COMPATABILITY SPECIFY GROUP			
9501	NO JUMPER CR AT MPP+1		6341089
9502	NO JUMPER NL AT MPP+1		6341090
9503	JUMPER FF FUNCTION		6341091
9504	NO JUMPER [illegible] AST CHARACTER		6341092
9505	JUMPER NULL SU[illegible]ESS		6341093
9506	JUMPER FF LOCATION		6341094
9507	JUMPER FF AFTER PO		6341095
FEATURE GROUP B/M (FINAL ASSEMBLY 50 HZ)			
DEFAULT	BASE ASSEMBLY	1989660	1989652
FEATURE GROUP B/M (FINAL ASSEMBLY 60 HZ)			
DEFAULT	BASE ASSEMBLY	1989658	1989650
LINE CORD GROUP			
DEFAULT	USA 3M NON-LOCK PLUG	1989797	1989797
9890	USA 3M LOCK PLUG	1989796	1989796
9511	USA 1.8M NON-LOCK PLUG	1989788	1989788
9511+9890	USA 1.8M LOCK PLUG	1989795	1989795
	WTC AFE HV	1989783	1989783
	WTC ALGERIA, BELGIUM, FRANCE AND GERMANY	1989780	1989780
	WTC AUSTRALIA, FINLAND, GERMANY, NORWAY, SWEDEN AND YUGOSLAVIA	1989782	1989782
	WTC CHILE AND ITALY	1989787	1989787
	WTC DENMARK	1989786	1989786
	WTC IRELAND, MALAYSIA AND UK	1989781	1989781
	WTC ISRAEL	1989789	1989789
	WTC JAPAN, LOCKING PLUG	1989791	1989791
	WTC SOUTH AFRICA	1989785	1989785
	WTC SWITZERLAND	1989784	1989784
BASE SPARE PARTS			
9955**	SPARE PARTS	6341231	6341231
ACCESSORY GROUP			
4450	FORMS STAND	6341096	6341096

* CIRCLE FEATURES ON MACHINE
** RPO-RECORD PURPOSE ONLY B/M'S-USED BY MACHINE LEVEL CONTROL-FACTORY ONLY.

ENG. CHANGE NO:
321871K 321871C 321882 321924

DATE OF CHANGE
APR 81 APR 81 SEP 81 OCT 81

PN 8678482

HISTORY SHEET

RPQ BM NO.	EC NO.	RPQ TITLE	DATE INSTL	DATE REM

PROM/PATCH CARD OR REA	PROBLEM CORRECTED	DATE INSTL	DATE REM

UPDATE BM NO.	EC NO.	DATE INSTALLED

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