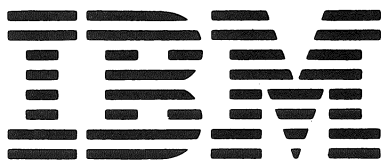


SY20-8524-0

IBM 5218 Printwheel Printer
Maintenance Analysis Procedures



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IBM 5218 Printwheel Printer
Maintenance Analysis Procedures

First Edition (March 1981)

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PREFACE

These Maintenance Analysis Procedures (MAPs) are to be used for servicing the IBM 5218 Printer. Customer engineers using these MAPs are assumed to have completed the course on the IBM 5218 Printer.

It is suggested that you start your call with the START OF CALL-ENTRY MAP, which leads to a repair action.

Related Publications

Related Information can be found in the following manuals:

IBM 5218 Maintenance Information Manual, SY20-8520

IBM 5218 Operator's Guide, GA23-1006

SAFETY

DANGER NOTICES

Through this manual, the word DANGER is used to inform the CE of an action that could cause a personal injury.

Ensure that you understand and observe the safety precautions printed on the CE Safety Practices card that is used in the country where you work. A copy of the card that is used by customer engineers who work in the United States follows.

CE SAFETY PRACTICES CARD

CE SAFETY PRACTICES

All Customer Engineers are expected to take every safety precaution possible and observe the following safety practices while maintaining IBM equipment:

1. You should not work alone under hazardous conditions or around equipment with dangerous voltage. Always advise your manager if you **MUST** work alone.
2. Remove all power, ac and dc, when removing or assembling major components, working in immediate areas of power supplies, performing mechanical inspection of power supplies, or installing changes in machine circuitry.
3. After turning off wall box switch, lock it in the Off position or tag it with a "Do Not Operate" tag, Form 229-1266. Pull power supply cord whenever possible.
4. When it is absolutely necessary to work on equipment having exposed operating mechanical parts or exposed live electrical circuitry anywhere in the machine, observe the following precautions:
 - a. Another person familiar with power off controls must be in immediate vicinity.
 - b. Do not wear rings, wrist watches, chains, bracelets, or metal cuff links.
 - c. Use only insulated pliers and screwdrivers.
 - d. Keep one hand in pocket.
 - e. When using test instruments, be certain that controls are set correctly and that insulated probes of proper capacity are used.
 - f. Avoid contacting ground potential (metal floor strips, machine frames, etc.). Use suitable rubber mats, purchased locally if necessary.
5. Wear safety glasses when:
 - a. Using a hammer to drive pins, riveting, staking, etc.
 - b. Power or hand drilling, reaming, grinding, etc.
 - c. Using spring hooks, attaching springs.
 - d. Soldering, wire cutting, removing steel bands.
 - e. Cleaning parts with solvents, sprays, cleaners, chemicals etc.
 - f. Performing any other work that may be hazardous to your eyes. **REMEMBER — THEY ARE YOUR EYES.**
6. Follow special safety instructions when performing specialized tasks, such as handling cathode ray tubes and extremely high voltages. These instructions are outlined in CEMs and the safety portion of the maintenance manuals.
7. Do not use solvents, chemicals, greases, or oils that have not been approved by IBM.
8. Avoid using tools or test equipment that have not been approved by IBM.
9. Replace worn or broken tools and test equipment.
10. Lift by standing or pushing up with stronger leg muscles — this takes strain off back muscles. Do not lift any equipment or parts weighing over 60 pounds.
11. After maintenance, restore all safety devices, such as guards, shields, signs, and grounding wires.
12. Each Customer Engineer is responsible to be certain that no action on his part renders products unsafe or exposes customer personnel to hazards.
13. Place removed machine covers in a safe, out-of-the-way place where no one can trip over them.
14. Ensure that all machine covers are in place before returning machine to customer.
15. Always place CE tool kit away from walk areas, where no one can trip over it; for example, under desk or table.
16. Avoid touching moving mechanical parts when lubricating, checking for play, etc.
17. When using stroboscope, do not touch **ANYTHING** — it may be moving.
18. Avoid wearing loose clothing that may be caught in machinery. Shirt sleeves must be left buttoned or rolled above the elbow.
19. Ties must be tucked in shirt or have a tie clasp (preferably nonconductive) approximately 3 inches from end. Tie chains are not recommended.
20. Before starting equipment, make certain fellow CEs and customer personnel are not in a hazardous position.
21. Maintain good housekeeping in area of machine while performing and after completing maintenance.

Knowing safety rules is not enough.
An unsafe act will inevitably lead to an accident.
Use good judgment — eliminate unsafe acts.

ARTIFICIAL RESPIRATION

General Considerations

1. **Start Immediately — Seconds Count**
Do not move victim unless absolutely necessary to remove from danger. Do not wait or look for help or stop to loosen clothing, warm the victim, or apply stimulants.
2. **Check Mouth for Obstructions**
Remove foreign objects. Pull tongue forward.
3. **Loosen Clothing — Keep Victim Warm**
Take care of these items after victim is breathing by himself or when help is available.
4. **Remain in Position**
After victim revives, be ready to resume respiration if necessary.
5. **Call a Doctor**
Have someone summon medical aid.
6. **Don't Give Up**
Continue without interruption until victim is breathing without help or is certainly dead.

Rescue Breathing for Adults

1. Place victim on his back immediately.
2. Clear throat of water, food, or foreign matter.
3. Tilt head back to open air passage.
4. Lift jaw up to keep tongue out of air passage.
5. Pinch nostrils to prevent air leakage when you blow.
6. Blow until you see chest rise.
7. Remove your lips and allow lungs to empty.
8. Listen for snoring and gurglings — signs of throat obstruction.
9. Repeat mouth to mouth breathing 10-20 times a minute. Continue rescue breathing until victim breathes for himself.



Thumb and
finger positions



Final mouth-to-
mouth position

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0060	HAMMER ENTRY	8	0640	EJECT PATH OPERATION	12
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MAP 0010-1

START OF CALL - ENTRY

PAGE 1 OF 17

ENTRY POINTS

FROM ENTER THIS MAP			
MAP	ENTRY	PAGE	STEP
NUMBER	POINT	NUMBER	NUMBER
SAME	AA	8	025
0001	A	2	001
0050	A	2	001
0090	A	2	001
0095	A	2	001
0660	A	2	001

EXIT POINTS

EXIT THIS MAP TO			
PAGE	STEP	MAP	ENTRY
NUMBER	NUMBER	NUMBER	POINT
17	062	0015	A
17	063	0015	A
5	012	0020	A
5	012	0030	A
5	012	0040	A
5	012	0050	A
5	012	0060	A
5	012	0090	A
8	027	0090	A
10	031	0090	A
12	035	0090	A
3	005	0100	A
5	012	0100	A
0	012	0100	A
14	047	0100	A
5	012	0110	A
5	013	0120	B
8	028	0120	B
10	032	0120	B
12	036	0120	B
5	012	0130	A

MAP 0010-1

START OF CALL - ENTRY

PAGE 2 OF 17

001

(ENTRY POINT A)

- Check that the printer is plugged into the wall socket and turned on.
- Check that the 'POWER ON' light is on.
- Check that the ribbon is installed correctly.
- Check an earlier printout for good print quality.
- Check for damaged platen, bail, feed rollers, lead screw, print wheel, hammer, or index drive belt.
- Check for a loose or broken carrier.
- Check that the printer is cabled correctly.
- Check that the fan motor is turning and blowing air.
- Check for broken, bent or open cover.
- Check the selector motor pull back cable(128). Check the adjustment and inspect the cable for breaks.
- Correct the problem now, if possible.
- If any of the checks can not be performed because of some machine condition answer this question 'yes'.
- To verify the printer for correct operation answer this question 'yes'.

(Step 001 continues)

MAP Description:

THIS MAP DETERMINES THE GENERAL TYPE OF FAILURE AND SENDS THE CE TO THE CORRECT MAP.

Entry Conditions:

NONE

Start Conditions:

NONE

Field replaceable units :

CARDS A-A1C1 AND A-A1D1, A-A1 BOARD, PRINT WHEEL, RIBBON CARTRIDGE, RIBBON SENSOR, CONTROL PANEL CARD, OPERATOR SWITCH ASSEMBLY, TOP REED CARD, PAPER SENSOR, AND THE LEFT CARRIER CABLE ASSEMBLY

INSTRUCTIONS:

Before installing any new card, inspect the A-A1 board sockets for bent or broken connectors, reinstall the card and inspect the A-A1 board for foreign particles such as paper clips.

Install new FRUs in the sequence listed if seperated by 'OR'. Install the new FRUs at the same time if seperated by 'AND'.

If the printer still fails after installing the new FRUs, see MAP for intermittent or unusual failures (MAP 0130) for a list of other parts which could generate the

START OF CALL - ENTRY

PAGE 3 OF 17

(Step 001 continued)

Are the checks correct?

Y N

002

Is the control panel 'POWER ON' light on?

Y N

003

Is the printer power switch set to '1'?

Y N

004

-SET PRINTER POWER SWITCH TO '1'.
WAIT 35 SECONDS UNTIL POWER ON
SEQUENCE IS COMPLETE.

GO TO PAGE 2, STEP 001,
ENTRY POINT A.

005

GO TO MAP 0100, ENTRY POINT A.

observed symptoms.

If the printer is not turned on, turn it on
and start over in the MAP. If the printer
is turned on go to the power MAP.

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START OF CALL - ENTRY

PAGE 4 OF 17

B 3

006 - Check that the screws that hold the ribbon motor drive assembly to the ribbon drive plate assembly are tight(226).
Are the screws tight?
Y N

007 Tighten the screws.

008 - Check the ribbon installation on the ribbon cartridge(136).
- Check the adjustment of the ribbon cartridge latches(136).
Are the checks correct?
Y N

009 Install the ribbon cartridge correctly or adjust the ribbon cartridge latches as necessary.
See MIM(136).

010 Is the control panel 'RIBBON' light on?
Y N

5 C D

D

011 Does the LED display flash repeatedly (all segments on, all segments off, all segments on and so forth)?
Y N

5 E F

F 4 5218 A01 A02

START OF CALL - ENTRY

PAGE 5 OF 17

012 Perform the repair action on the visible problem or, Go to the map below to isolate the visible problem.

For the ribbon or bad print quality,
GO TO MAP 0020, ENTRY POINT A.

For the index,
GO TO MAP 0030, ENTRY POINT A.

For the bail, feed rollers, or cam motor assembly,
GO TO MAP 0040, ENTRY POINT A.

For the print wheel or selection,
GO TO MAP 0050, ENTRY POINT A.

For the hammer,
GO TO MAP 0060, ENTRY POINT A.

For a code displayed, record the code and
GO TO MAP 0090, ENTRY POINT A.

For power on reset or power check,
GO TO MAP 0100, ENTRY POINT A.

For fan not turning,
GO TO MAP 0100, ENTRY POINT A.

(Step 012 continues)

C E 4 4 MAP 0010-5

(Step 012 continued)
For the escapement or carrier,
GO TO MAP 0110, ENTRY POINT A.

For the sheet feed,
GO TO PAGE 8, STEP 025,
ENTRY POINT AA.

For an intermittent,
GO TO MAP 0130, ENTRY POINT A.

013 GO TO MAP 0120, ENTRY POINT B.

014 (ENTRY POINT AB)
No ribbon cartridge should be installed if the machine is used in stencil mode.
Is the printer being used in the stencil mode?
Y N

015 - Ensure the ribbon sensor is covered by ribbon.
- Install a new ribbon cartridge if necessary.
Is the control panel 'RIBBON' light on?
Y N

7 6 6
G H J

MAP 0010-5

START OF CALL - ENTRY

PAGE 6 OF 17

016

The ribbon cartridge empty or out of place was the only problem.

017

- SET PRINTER POWER SWITCH TO '0'.
- Remove the retainer on the left carrier cable A-1A1A5(104).
- Disconnect the cable to the ribbon sensor from the left ribbon cable.
- Connect jumper from pin 1 to pin 3(on the carrier cable).
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the control panel 'RIBBON' light on?

NY

018

Bad ribbon sensor.

670

- Remove the A-A1A5 cable from the A-A1 board.
- Leave the jumper installed.
- Connect a meter between pin 1 on one end of the cable A-A1A5 and pin 1 on the other end of the cable (104).
- The meter should read less than .5 ohm.
- Repeat the reading for pins 2, 3 and 4.

step 019 continues)

This should force the ribbon light off.
Pin 1 is toward the front of the printer.

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MAP 0010-7

START OF CALL - ENTRY

PAGE 7 OF 17

(Step 019 continued)
Are the meter readings correct?

Y N

020

Bad cable A-A1A5.

021

- Leave the jumper installed.
- Reinstall cable A-A1A5.
- Select 'DIAG MODE'(301)
- Select and run diagnostic test 25 while observing the LED display.
- The LED display show the test number 25 ,the sense code ,and then the test number 25.

Is the sense code 00?

Y N

022

Bad card A-A1C1.

023

Bad control panel logic card.

024

The 'RIBBON' light should be on.
GO TO PAGE 8, STEP 025, ENTRY POINT AA.

MAP 0010-7

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A 3

START OF CALL - ENTRY

PAGE 8 OF 17

025

(ENTRY POINT AA)

- Observe the control panel LED display.
- If the LED display is blank record the fact that the code is blank.
- If a code is displayed on the LED display record the code.

Is the LED display blank(all segments off)?

Y N

026

Does the LED display flash repeatedly (all segments on, all segments off, all segments on and so forth)?

Y N

027

GO TO MAP 0090, ENTRY POINT A.

028

GO TO MAP 0120, ENTRY POINT B.

MAP 0010-8

If the LED display is not blank, a code should be displayed to indicate the action that needs to be taken. This code is not necessarily an error.

This is usually a power on diagnostic type failure.

9 K

MAP 0010-8

START OF CALL - ENTRY

PAGE 9 OF 17

K 8

029

- If the tractor feed is installed remove it from the printer and disconnect the tractor feed cable.
- Set the manual paper insertion deflector on sheet feed to the hand feed position if the sheet feed is installed.
- Insert a blank sheet of paper by hand into the platen area one inch from the left edge of the platen.
- Disconnect the sheet feed cable if installed.
- Press the 'LOAD' switch on the control panel.
- Wait until printer stops.
- Again - Press the 'LOAD' switch on the control panel.
- If the load switch does not work or the bail does not close, ignore the paper jam and continue in this map until the maintenance statistics are printed if possible.

Is the LED display blank(all segments off)?

Y N

1 1
1 0
L M

This is an attempt to load the paper by hand to print the statistics. The statistics are lost if the printer is powered off.

M 9

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START OF CALL - ENTRY

PAGE 10 OF 17

030

Does the LED display flash repeatedly (all segments on, all segments off, all segments on and so forth)?

Y N

031

Record the LED display.

GO TO MAP 0090, ENTRY POINT A.

032

GO TO MAP 0120, ENTRY POINT B.

MAP 0010-10

This is usually a power on diagnostic type failure.

MAP 0010-10

START OF CALL - ENTRY

PAGE 11 OF 17

L 9

| | | | |

033

- If the load switch does not work or the bail does not close, ignore the paper jam and continue in this map until maintenance statistics are printed if possible.
- The following sequence of control panel operations will cause the verify test to execute (310). Record these operations or come back to this step when verify test is run.
- While holding the 'STOP' switch on the control panel, press and release the 'PRINT TEST' switch, then release the 'STOP' switch.
- Observe the LED display and the indicator lights. All the lights should turn on then turn off. The statistics will be printed unless an error occurs.
- Keep this printout in case the problem is intermittent.
- Wait 15 seconds for the sequence to complete or wait until the print out stops.
- Record the LED display code or the fact that it is blank.

Is the LED display blank(all segments off)?

Y N
| | | | |

1 1
2 2
N P

N P 5218 A01 A02
1 1 START OF CALL - ENTRY
1 1 PAGE 12 OF 17

034

Does the LED display flash repeatedly (all segments on, all segments off, all segments on and so forth)?

Y N

035
Record the LED display.
GO TO MAP 0090, ENTRY POINT A.

036
GO TO MAP 0120, ENTRY POINT B.

037 - The control panel lights should have been observed on the preceding step. If these lights were not observed run the verify test over again.
- Observe the LED display including the periods.
- Observe the indicator lights.

Do all the control panel indicator lights and LED display segments come on then off except the 'POWER ON' light which remains on?

Y N

1 1
7 3
Q R

This is usually a power on diagnostic type failure.

This test to determine if the power on diagnostic routine can turn on and off all the lights.

5218 A01 A02
START OF CALL - ENTRY
PAGE 13 OF 17

038
Are the 'POWER ON' and 'ON LINE' lights the
only lights that remain on?
Y N

039
-SET PRINTER POWER SWITCH TO '0'.
-SET PRINTER POWER SWITCH TO '1'. WAIT
35 SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Do all the control panel indicator lights
and LED display segments come on then off
except the 'POWER ON' light which remains
on?
Y N

040
Do all the control panel indicator
lights and LED display segments turn on?
Y N

1 1 1 1
7 5 4 4
S T U V

The power on diagnostic routine did not work. This test to determine if the power switch will force the power on diagnostic routine and not rely on the control panel switches.

This test to determine if the power on diagnostic routine started and turned the lights on but could not run far enough to turn the lights off.

START OF CALL - ENTRY

PAGE 14 OF 17

041
Bad card A-A1D1.

---OR---
Bad control panel card.

---OR---
Bad card A-A1B1.

042 Does the 'RIBBON' light remain on?

043 Does the 'SET UP' light remain on?
Y N

044 Does the 'PRINTER EXCEPTION', 'READY', or 'RELEASE' lights remain on?

045

- Remove the sheet feed if installed.
- Remove the tractor feed if installed.
- Remove the printer top cover(200).

Is the power supply check light on?

- Remove the tractor feed if installed.

- Remove the printer top cover(200).
the power supply check light on?

Is the power supply check light on?

Z
Y

W X Y Z A

W X Y Z A A

046
Bad card A-A1D1.
---OR---
Bad control panel logic card.

---OR---
Bad control panel logic card.

047
GO TO MAP 0100, ENTRY POINT A.

048 Bad control panel logic card.

049 Remove the cable from the paper sensor to the A-A1C1 card.

- Press the 'LOAD' switch on the control panel.

Is the control panel 'SET UP' light on?

NY

050
Bad paper sensor.

051
Bad card A-A1C1.

052
GO TO PAGE 5, STEP 014, ENTRY POINT AB.

START OF CALL - ENTRY

PAGE 15 OF 17

T
1
3

053 - Press the 'START' switch on the control panel.

Is the control panel 'READY' light on?

Y N

054

- SET PRINTER POWER SWITCH TO '0'.
- Press and hold the 'START' switch on the control panel.
- While holding the 'START' switch on the control panel set the printer power switch to '1'.
- Observe the LED display while the printer is performing the power on sequence.
- Release the 'START' switch on the control panel.

Does the code 35 appear on the LED display any time during the power on sequence?

Y N

055

Bad card A-A1D1.

---OR---

Bad control panel switch assembly.

056

Bad card A-A1D1.

1
6
A
B

This test to determine if the start switch will work and the ready light can be turned on.

This forces the power on diagnostic tests to run and clears the statistics. This test the 'START' switch to determine if the micro code can sense it.

A 5218 A01 A02
 B START OF CALL - ENTRY
 1
 5 PAGE 16 OF 17

057 - Press the 'STOP' switch on the control panel.
 Is the control panel 'READY' light off?
 Y N
 058
 Bad card A-A1D1.
 ---OR---
 Bad control panel switch assembly.

059 - Press the 'PRINT TEST' switch on the control panel.

Does the printer attempt to print?

Y N
 060
 Bad card A-A1D1.
 ---OR---
 Bad control panel switch assembly.

061
 The indications changed.
 Go to the intermittent MAP.

This test to determine that the stop switch works and the ready light can be turned off.

This test to determine that the print switch works and that the printer can move. Any carrier, print wheel, index or hammer movement is an attempt to print.

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MAP 0010-17

START OF CALL - ENTRY

PAGE 17 OF 17

Q S
1 1
2 3

|
|
|

|
|
|
|
062

The 'ON LINE' will remain on if the controller is running and connected to the printer.

No problem has been found in the normal printer functions.

To continue to find a problem,
GO TO MAP 0015, ENTRY POINT A.

|
|
|
|
063

No problem has been found with the normal printer functions.

To continue to find a failure ,
GO TO MAP 0015, ENTRY POINT A.

MAP 0010-17

OPERATIONAL VERIFY

PAGE 1 OF 16

ENTRY POINTS

FROM ENTER THIS MAP			
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0010	A	2	001
0020	D	13	055
0030	B	7	019
0040	G	16	071
0060	E	13	057
0070	G	16	071
0080	G	16	071
0100	B	7	019
0110	G	16	071
0610	B	7	019
0810	C	11	039

EXIT POINTS

EXIT THIS MAP TO			
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
12	042	0020	A
12	053	0020	A
12	051	0020	A
4	009	0030	A
8	021	0030	A
8	024	0030	A
12	050	0030	A
4	010	0040	A
8	022	0040	A
10	036	0040	A
13	056	0040	A
9	028	0040	B
12	044	0050	A
12	048	0050	A
12	054	0060	A
13	058	0070	A
6	018	0090	A
15	066	0100	A
10	034	0110	A
12	046	0110	A
16	071	0130	A
5	014	0610	A
6	016	0610	A

OPERATIONAL VERIFY

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EXIT POINTS

EXIT THIS MAP TO			
PAGE	STEP	MAP	ENTRY
NUMBER	NUMBER	NUMBER	POINT
5	012	0630	H
10	038	0810	A

001
(ENTRY POINT A)

MAP Description:
THIS MAP DETERMINES THE GENERAL TYPE OF FAILURE AFTER THE NORMAL PRINTER FUNCTIONS WORK CORRECTLY AND SENDS THE CE TO THE CORRECT MAP.

Entry Conditions:
THE STEPS IN MAP 0010 MUST HAVE BEEN CORRECT.

Start Conditions:
NONE

Field replaceable units :
CARDS A-A1C1 AND A-A1D1, A-A1 BOARD, PRINT WHEEL, RIBBON CARTRIDGE, RIBBON SENSOR, CONTROL PANEL CARD, OPERATOR SWITCH ASSEMBLY, TOP REED CARD, PAPER SENSOR, AND

(Step 001 continues)

OPERATIONAL VERIFY

PAGE 3 OF 16

(Step 001 continued)

Is the sheet feed installed?

Y N

|

002

| GO TO PAGE 7, STEP 019,

| ENTRY POINT B.

|

003

-SET PRINTER POWER SWITCH TO '0'.

- Plug in the sheet feed cable if installed.

- Remove paper from platen area and sheet feed path if necessary.

- Set the manual paper insertion deflector on the sheet feed for normal sheet feed operation (700).

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Run verify test(307).

- Observe the sheet feed.

Is the sheet feed attachment operating correctly?

Y N

|

|

|

|

|

|

|

|

|

|

|

6 4

A B

THE LEFT CARRIER CABLE ASSEMBLY

A sheet of paper should feed from hopper 1 correctly.
 The statistics should print.
 The paper should stack correctly.

5218 A01 A02

OPERATIONAL VERIFY

PAGE 4 OF 16

B 3

004

- SET PRINTER POWER SWITCH TO '0'.
 - Disconnect the sheet feed cable.
 - Remove the sheet feed from the printer.
 - Check the cover adjustment (115).
- Is the cover adjusted correctly?

Y N

005

Adjust the cover (115).

006

- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Reinstall the sheet feed on the printer.
- Set the manual paper insertion deflector to the hand feed position.
- Insert a sheet of paper into the platen area.
- Press the 'LOAD' switch on the control panel.

Does the paper feed correctly and advance to the first writing line?

Y N

5 C D

D

007

- SET PRINTER POWER SWITCH TO '0'.
- Disconnect the sheet feed.
- Remove the sheet feed from the printer.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Insert a sheet of paper into the platen area.
- Press the 'LOAD' switch on the control panel.

Does the paper feed correctly and advance to the first writing line?

Y N

008

Does the platen move far enough to move the leading edge of the paper to the first print line?

Y N

009

GO TO MAP 0030, ENTRY POINT A.

010

GO TO MAP 0040, ENTRY POINT A.

5 E

MAP 0015-4

MAP 0015-4

5218 A01 A02

MAP 0015-5

OPERATIONAL VERIFY

PAGE 5 OF 16

C E
4 4

011 Can the platen gear be turned easily while
the index motor is detented (120)?

Y N

012 GO TO MAP 0630, ENTRY POINT H.

013 Tighten the set screws in the platen gear,
the platen pulley and the index motor
pulley (120,121,123).
If the platen gear can still be turned
easily install the new parts.

Bad platen gear.

---OR---

Bad platen pulley.

---OR---

Bad index motor pulley.

Bad index motor belt.

014 GO TO MAP 0610, ENTRY POINT A.

MAP 0015-5

5218 A01 A02

MAP 0015-6

OPERATIONAL VERIFY

PAGE 6 OF 16

A 3

015

- Select 'CE MODE'.
- Select and run diagnostic test 41.

Does a sheet of paper feed from hopper 2 and stack correctly?

Y N

016

GO TO MAP 0610, ENTRY POINT A.

017

- Select mode 2.
- Select and run diagnostic test 12.
- Let the test run for one minute, then press 'STOP'.

Is the LED display 12?

Y N

018

Record the code then,
GO TO MAP 0090, ENTRY POINT A.

7 F

A sheet of paper should feed from hopper 2 and stack correctly then the LED display will display the test number (41) or a code.

This tests the selection circuit, the selection motor and the selection feed back.

MAP 0015-6

F 6

5218 A01 A02

MAP 0015-7

OPERATIONAL VERIFY

PAGE 7 OF 16

019

(ENTRY POINT B)

- If the tractor feed is installed, remove the tractor feed and disconnect it.
- If the 'DIAG MODE' light is on, press the 'CANCEL' switch three times to leave the 'DIAG MODE'.
- Wait until the printer stops.
- The paper loading should have been observed in a earlier step. If not hand feed a sheet of paper and press 'LOAD'.
- All the paper holders should move away from the platen to let the paper pass by.
- The rear paper feed rollers should move away from the platen. Then close on the paper.
- The platen should advance the paper to the first print line.
- The bail should open.

Does the paper load correctly?

Y N

| |

8 8
G H

This tests the paper load operation, the 'LOAD' switch, the home switch, the position switch, the cam motor assembly, the index motor, the index motor drive belt, the platen, the feed roll assembly, and the spring comb assembly.

MAP 0015-7

G H 5218 A01 A02

MAP 0015-8

7 7

OPERATIONAL VERIFY

PAGE 8 OF 16

020

- Press the 'CANCEL' switch on the control panel.

- Press and hold the paper up switch on the control panel.

Does the platen turn enough to move the leading edge of the paper to the first print line?

Y N

021

GO TO MAP 0030, ENTRY POINT A.

022

GO TO MAP 0040, ENTRY POINT A.

023

- Press and hold the paper up switch on the control panel.

Does the paper move up?

Y N

024

GO TO MAP 0030, ENTRY POINT A.

9 J

MAP 0015-8

This determines if the problem is a cam or index problem.

This tests the paper up switch and the indexing.

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OPERATIONAL VERIFY

PAGE 9 OF 16

025

- Press and hold the paper down switch on the control panel.
Does the paper move down?
Y N

026

Bad control panel switch assembly.

027

- Press the 'RELEASE' switch on the control panel.
Can the paper be removed?
Y N

028

GO TO MAP 0040, ENTRY POINT B.

029

- Press the 'START' switch on the control panel.
Is the control panel 'READY' light on?
Y N

030

Bad control panel card.

---OR---

Bad control panel switch assembly.

---OR---

Bad card A-A1D1.

1
0
K

This tests the paper down switch.

OPERATIONAL VERIFY

PAGE 10 OF 16

K

9

031

- Press the 'STOP' switch on the control panel.

Is the control panel 'READY' light off?

Y N

032

Bad control panel card.

---OR---

Bad control panel switch assembly.

---OR---

Bad card A-A1D1.

033

- Observe the carrier assembly.

- Press the 'CANCEL' switch on the control panel.

Does the carrier assembly move to the left, hit the side frame then move to the center of the printer?

Y N

034

GO TO MAP 0110, ENTRY POINT A.

L

035

- Observe the CAM assembly on the right side of the printer (125)(100).

Is the cam home?

Y N

036

GO TO MAP 0040, ENTRY POINT A.

037

(If the tractor feed attachment is not available answer this question 'YES')

- Install the tractor feed on the printer and plug in the tractor feed cable.

- Install paper in tractor.

- Press and hold the paper up switch on the control panel.

The paper should move through the tractor feed.

If it is not known if the tractor feed is operating correctly, go to map 0810 entry point A then return to map 0015 entry point C.

Is the tractor feed attachment operating correctly?

Y N

038

GO TO MAP 0810, ENTRY POINT A.

1

1

M

5218 A01 A02

OPERATIONAL VERIFY

PAGE 11 OF 16

039

(ENTRY POINT C)

- If the 'DIAG MODE' light on, press the 'CANCEL' switch three times. Wait until the 'DIAG MODE' light turns off.
- Load a sheet of paper if necessary.
- Press the 'PRINT TEST' switch on the control panel.
- Press this switch as many times as necessary.
- Observe the left and right ribbon spools to ensure they both turn.
- Observe the print wheel to see if it moves.
- Observe the carrier to see if it moves.
- Press the index up switch if necessary to observe the print out.
- Observe the print out to see if it appears correct. Reference the Maintenance Information Manual (309) for a sample print out.

Are all the correct characters printed, is the print quality good and the checks correct?

Y N

040

Is the printout blank?

Y N

1 1 1
3 2 2
N P Q

This tests the 'PRINT TEST' switch and prints all the characters on the print wheel.

Q 1 1 1

5218 A01 A02

OPERATIONAL VERIFY

PAGE 12 OF 16

041 Does the ribbon advance correctly?

042
GO TO MAP 0020, ENTRY POINT A.

043 Does the print wheel select the correct characters?
Y N

044
GO TO MAP 0050, ENTRY POINT A.

045 - Observe the printout.
Is there enough escapement between characters?

046
GO TO MAP 0110, ENTRY POINT A.

047 Are the printed characters vertical (not tilted)?
Y N

P R S
MAP 0015-12

048
GO TO MAP 0050, ENTRY POINT A.

049 Is there enough indexing between lines?
Y N

050
GO TO MAP 0030, ENTRY POINT A.

051 The problem is assumed to be bad print quality. Suspect a bad ribbon, print wheel, or a hammer failure. GO TO MAP 0020, ENTRY POINT A.

052

- Turn the ribbon by hand.
- Press the 'PRINT TEST' switch on the control panel.

Is the printout blank?

Y N

053
GO TO MAP 0020, ENTRY POINT A.

054
GO TO MAP 0060, ENTRY POINT A.

R S
MAP 0015-12

5218 A01 A02

MAP 0015-13

OPERATIONAL VERIFY

PAGE 13 OF 16

N
1
1

055

(ENTRY POINT D)

- Remove the tractor feed if installed.
 - Remove the sheet feed if installed.
 - Remove the top cover.
 - Turn the cam motor by hand (100).
- Does the motor turn freely and the cam turn?

Y N

056

GO TO MAP 0040, ENTRY POINT A.

057

(ENTRY POINT E)

- Ensure the controller communications cable is connected to the printer and to the controller.
 - Ensure the controller is powered on and running the communications hardware.
- Is the control panel 'ON LINE' light on?

Y N

058

GO TO MAP 0070, ENTRY POINT A.

1
4
T

MAP 0015-13

T 5218 A01 A02

MAP 0015-14

1
3

OPERATIONAL VERIFY

PAGE 14 OF 16

059

- Remove the ribbon cartridge.

This tests the ribbon sensor, the print cartridge and the 'RIBBON' light.

Is the control panel 'RIBBON' light on?

Y N

060

- Observe the print cartridge

The print cartridge is a reflector for the ribbon sensor.

Is the print cartridge in place and clean?

Y N

061

Clean or install a new print cartridge.

062

- Clean the ribbon sensor(100).

Is the control panel 'RIBBON' light on?

Y N

063

Bad ribbon sensor.

---OR---

Bad card A-A1C1.

---OR---

Bad left carrier cable A-A1A5.

064

Install a ribbon cartridge assembly.
The dirty ribbon sensor was the problem.

1
5
U

MAP 0015-14

5218 A01 A02

MAP 0015-15

OPERATIONAL VERIFY

PAGE 15 OF 16

065

- Observe the fan. Feel for air blowing.

This tests the fan and ac voltage. If the fan is not working intermittent electronic failures could occur because of heating.

Is the fan turning and air blowing?

Y N

066

GO TO MAP 0100, ENTRY POINT A.

067

-SET PRINTER POWER SWITCH TO '0'.
- Lift the operator access cover (200).
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the LED display 06?

Y N

068

-SET PRINTER POWER SWITCH TO '0'.
- Lift the top cover (200).
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the LED display 06?

Y N

1 1 1
6 6 6
V W X

MAP 0015-15

V W X 5218 A01 A02

MAP 0015-16

1 1 1

5 5 5 OPERATIONAL VERIFY

| | | | | PAGE 16 OF 16

| | | | | 069

| | | | | Bad operator logic card.

| | | | | ---OR---

| | | | | Bad cable from the control panel logic
| | | | | card to the cover interlock plug.

| | | | | 070

| | | | | Bad cover interlock switch.

| 071

(ENTRY POINT G)

Install a ribbon cartridge assembly.

Lower the operator access cover.

No problem has been found.

If this MAP was entered to check the
machine, it is working correctly.

If there was a problem on the machine it is
intermittent,

GO TO MAP 0130, ENTRY POINT A.

This is the end of the normal good machine
path.

MAP 0015-16

5218 A01 A02

MAP 0020-1

RIBBON FEED ENTRY

PAGE 1 OF 12

ENTRY POINTS

FROM ENTER THIS MAP			
MAP	ENTRY	PAGE	STEP
NUMBER	POINT	NUMBER	NUMBER
SAME	C	6	037
SAME	E	8	058
SAME	F	11	080
SAME	AA	5	024
0010	A	1	001
0015	A	1	001
0090	A	1	001

001
(ENTRY POINT A)

(Step 001 continues)

EXIT POINTS

EXIT THIS MAP TO			
PAGE	STEP	MAP	ENTRY
NUMBER	NUMBER	NUMBER	POINT
12	086	0015	D
6	032	0030	A
5	021	0050	A
6	033	0050	A
6	035	0050	A
10	072	0050	A
12	089	0060	A
5	023	0110	A
6	030	0110	A
2	003	0130	A

MAP Description:
THIS MAP DETERMINES THE GENERAL TYPE OF
RIBBON FAILURE AND ISOLATES THE FAILURE.

Entry Conditions:
A PRINTOUT FROM THE PRINTER MUST BE
AVAILABLE OR THE PRINTER MUST HAVE ABILITY
TO PRINT OR A CODE MUST BE DISPLAYED.

Start Conditions:

MAP 0020-1

RIBBON FEED ENTRY

PAGE 2 OF 12

(Step 001 continued)

NONE

Field replaceable units :
 A-A1A4 CABLE, A-A1A5 CABLE, CARDS A-A1B1 AND
 A-A1C1, A-A1 BOARD, RIBBON MOTOR DRIVE,
 RIBBON CARTRIDGE, RIBBON DRIVE BELT, RIBBON
 BELT SPRING, RIBBON PLATE, RIBBON SENSOR AND
 FEED ROLLS

Is the LED display blank(all segments off)?

Y N

002

Is the code 69?

Y N

003

The symptoms changed,
 GO TO MAP 0130, ENTRY POINT A.

004

-SET PRINTER POWER SWITCH TO '0'.

- Remove the plug to the ribbon motor
 from the rear of the right carrier
 cable(105).

- Connect the CE multimeter from pins 12
 and 10 of the cable plug to the ribbon
 motor (100).

- The meter should read from 150 to 190
 ohms.

- Repeat the reading from pins 11 and 9.
 (Step 004 continues)

This checks the ribbon motor for open or
 short circuit in the windings.

RIBBON FEED ENTRY

PAGE 3 OF 12

(Step 004 continued)
Are the meter readings correct?

Y N

005

Bad ribbon motor drive assembly(226).

006

- Connect the CE multimeter from pins 12 and 11.
- The meter should read more than a million ohms.

Are the meter readings correct?

Y N

007

Bad ribbon motor drive assembly (226).

008

- Check that the right carrier cable A-ALA4 is plugged in and seated correctly (104).
- Remove and inspect the right carrier cable plug A-ALA4.
- Check for broken or bent pins.
- Check for continuity of the right carrier cable (Less than .5 ohm resistance) between pin 12 on the carrier end and pin 1 on the A-ALA4 end (105). Repeat for 1) pin 11 on the carrier end and pin 2

(Step 008 continues)

This check the ribbon motor for a short circuit from winding to winding.

RIBBON FEED ENTRY

PAGE 4 OF 12

(Step 008 continued)

- on the A-AlA4 end,
- 2) pin 10 on the carrier end and pin 3 on the A-AlA4 end, and
- 3) pin 9 on the carrier end and pin 4 on the A-AlA4 end.

Does the carrier cable check correctly?

Y N

009

Bad right carrier cable A-AlA4.

010

- Inspect the sockets for the A-AlB1 card on the A-Al board. Check for bent or broken pins.

- Inspect the board for foreign particles such as paper clips, staples, and so on. Are the checks correct?

Y N

011

Bad board A-Al.

B

A B

2

012

- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Connect the meter from test points labeled TP15(GND) and TP7(+36) on the card A-AlC1. Set the meter to read 50 Vdc (104).

Does the meter read between 32.4 and 39.6 Vdc?

Y N

013

Bad card A-AlC1.

---OR---

Bad board A-Al.

014

Bad card A-AlC1.

---OR---

Bad card A-AlB1.

015

Does the ribbon cartridge have ribbon in it?

Y N

5 5

C D

C D 4 4
 5218 A01 A02
 RIBBON FEED ENTRY
 PAGE 5 OF 12
 016 Install a new ribbon cartridge .
 Suspect the ribbon sensor.
 GO TO PAGE 11, STEP 080,
 ENTRY POINT F.
 017 - Check the adjustment of the carrier
 eccentric shafts (127).
 Is the check correct?
 Y N
 018 Make the carrier eccentric
 adjustment(127).
 019 - If a print out of the failure is not
 available run the print test to obtain a
 print out.
 Is the printout blank?
 Y N
 020 Are all the correct characters
 printed(309)?
 Y N
 021 GO TO MAP 0050, ENTRY POINT A.
 1
 2
 E F

F
 022 Is the spacing between characters
 consistent?
 Y N
 023 GO TO MAP 0110, ENTRY POINT A.
 024 (ENTRY POINT AA)
 Observe the print out of the failure.
 Are the printed characters cut off at the
 top or at the bottom?
 Y N
 025 Are all of the printed characters faded ?
 Y N
 026 Are two or more of the printed
 characters faded?
 Y N
 027 Is the right or left of the characters
 cut off?
 Y N
 1
 2
 G H J K L

L 5218 A01 A02

RIBBON FEED ENTRY

PAGE 6 OF 12

028 - Observe the printout to determine if ink from the feed rolls is smudged on the paper.
Is there ink on the printout from the feed rolls?
Y N

029 - Observe the printout for the spacing between characters. The spacing between characters should be consistent.

Is the spacing between characters correct?
Y N

030 GO TO MAP 0110, ENTRY POINT A.

031 Is there enough space between lines?
Y N

032 GO TO MAP 0030, ENTRY POINT A.

033 No problem has been found.
Suspect a print wheel or hammer .
GO TO MAP 0050, ENTRY POINT A.

M

MAP 0020-6

H J K M
5 5 5

034

Clean the feed rolls, if this does not solve the problem, install new feed rolls (216).

035

GO TO MAP 0050, ENTRY POINT A.

036

GO TO STEP 037, ENTRY POINT C.

037

(ENTRY POINT C)

Is a ribbon belt tension spring installed (230)?
Y N

038

Install a new drive belt tension spring(230).

039

- Turn the ribbon advance knob .
Does the ribbon advance knob turn freely?
Y N

040

Bad ribbon plate assembly.

7 N

MAP 0020-6

N 6 5218 A01 A02

RIBBON FEED ENTRY

PAGE 7 OF 12

041

-SET PRINTER POWER SWITCH TO '0'.
- Turn the right ribbon advance knob (230).

Do the left and right ribbon spools turn?

Y N

042

- Remove the ribbon cartridge.
- Turn the right ribbon spool on the ribbon cartridge.
- Some resistance will be encountered as the detent moves from tooth to tooth.

Do the left and right ribbon spools turn?

Y N

043

Is the ribbon cartridge out of ribbon?

Y N

044

Bad ribbon cartridge.

045

Suspect ribbon sensor.
GO TO PAGE 11, STEP 080, ENTRY POINT F.

1 0 P Q

Q 5218 A01 A02

046

- Install a ribbon cartridge.
- Turn the ribbon advance knob.
- Observe the ribbon drive belt. Does the ribbon drive belt turn?

Y N

047

- Check the ribbon belt tension spring (230).
Is the ribbon belt tension spring installed correctly?

Y N

048

Bad ribbon belt tension spring.

049

- Check the ribbon drive belt for correct installation, for breaks and for wear.

Are the checks correct?

Y N

050

Bad ribbon drive belt.

051

Bad ribbon plate assembly.

8 R

MAP 0020-7

R 7

052 (ENTRY POINT D)
 - Turn the ribbon lift cam (134).
 - Observe the right ribbon supply spool.
 Does the right ribbon supply spool turn?
 Y N

053 - Remove the ribbon cartridge.
 - Turn the right ribbon spool on the ribbon cartridge just removed.
 Does the right spool turn freely?
 Y N

054 Bad ribbon cartridge.

055 Bad ribbon drive belt.

056 - Turn the ribbon advance knob.
 - Check that the ribbon cartridge is installed correctly.
 - Check that the ribbon is not broken.
 Does the left ribbon supply spool turn?
 Y N

057 Bad ribbon cartridge.

S

S

058 (ENTRY POINT E)
 -SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Load a sheet of paper in printer.
 - Press the 'PRINT TEST' switch on the control panel.
 - Observe the ribbon motor.
 Does the ribbon motor turn?
 Y N

059 - Remove the ribbon cartridge.
 - Place a sheet of paper in the printer.
 - Press the 'PRINT TEST' switch on the control panel.
 Does the ribbon motor turn?
 Y N

060 -SET PRINTER POWER SWITCH TO '0'.
 - Remove the A-ALA4 plug from the A-A1 board(104).
 - Connect the CE multimeter from pin 1 to pin 3 on the A-ALA4 end of the right carrier cable.
 - The meter should read between 150 and 190 ohms.
 - Repeat the measurements for pin 2 to (Step 060 continues)

9 9
 T U

RIBBON FEED ENTRY

PAGE 9 OF 12

(Step 060 continued)

pin 4.

Are the meter readings correct?

Y N

061

- Check that the right carrier cable is plugged in and seated correctly.

- Remove and inspect the right carrier cable plug A-ALA4 (104).

- Check for broken or bent pins.

- Check for continuity of the right carrier cable (Less than .5 ohm resistance) between pin 12 on the carrier end and pin 1 on the A-ALA4 end (105). Repeat for

1) pin 11 on the carrier end and pin 2 on the A-ALA4 end,

2) pin 10 on the carrier end and pin 3 on the A-ALA4 end, and

3) pin 9 on the carrier end and pin 4 on the A-ALA4 end.

Does the carrier cable check correctly?

Y N

062

Bad right carrier cable A-ALA4.

063

Bad ribbon motor drive assembly.

V

T U V
8 8

064

Bad card A-ALC1.

065

Bad ribbon cartridge.

066

- Press the 'PRINT TEST' switch on the control panel.

Does the ribbon left spool turn?

Y N

067

- Remove the ribbon cartridge.

- Press the 'PRINT TEST' switch on the control panel.

Does the ribbon cam shaft turn (134)?

Y N

068

Bad ribbon motor drive assembly.

069

Bad ribbon cartridge.

1 0 W

P W
7 9

5218 A01 A02

RIBBON FEED ENTRY

PAGE 10 OF 12

070

- Check the ribbon lift arm
adjustment.(134)

Is the ribbon lift arm adjusted correctly?

Y N

071

Adjust the ribbon lift arm.(134)

072

Suspect a bad ribbon, print wheel
,selection, or a hammer failure.
GO TO MAP 0050, ENTRY POINT A.

073

- Turn the ribbon lift cam (134).
Does the ribbon lift cam turn freely?

Y N

074

- Remove the ribbon motor drive
assembly.(226)
- Turn the ribbon lift cam(on the ribbon
motor drive assembly).

Does the ribbon cam shaft turn freely?

Y N

075

Bad ribbon motor drive assembly.

X Y

X Y

076

Bad ribbon plate assembly.

077

- Observe the ribbon cam shaft (134).
- Turn the ribbon lift cam.
Does the ribbon cam shaft turn?

Y N

078

Tighten the set screw or install a new
FRU.

Bad ribbon motor drive assembly.

079

- Leave the ribbon out of the machine .
-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.
- Press the 'LOAD' switch on the control
panel.

Is the control panel 'RIBBON' light on?

Y N

1

1

2 A

Z A

MAP 0020-10

MAP 0020-10

5218 A01 A02

RIBBON FEED ENTRY

PAGE 11 OF 12

080

(ENTRY POINT F)

- SET PRINTER POWER SWITCH TO '0'.
- Clean and inspect the metal card guide(137).
- Clean and inspect the ribbon sensor(100).
- Leave the ribbon out of the machine .
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Press the 'LOAD' switch on the control panel.

Is the control panel 'RIBBON' light on?

Y N

081

Install the ribbon drive belt tension spring removed earlier.
Install the ribbon cartridge removed earlier.

Bad out of ribbon sensor.

---OR---

Bad card A-A1C1.

---OR---

Bad left carrier cable A-A1A5.

1 2 A B

The metal card guide reflects light to the ribbon sensor.

5218 A01 A02

RIBBON FEED ENTRY

PAGE 13 OF 13

087

- Turn the ribbon by hand.
 - Press the 'PRINT TEST' switch on the control panel.
- Is the printout blank?

Y N

088

GO TO PAGE 5, STEP 024,
ENTRY POINT AA.

089

GO TO MAP 0060, ENTRY POINT A.

INDEX FEED ENTRY

PAGE 1 OF 15

ENTRY POINTS

FROM	ENTER THIS MAP
MAP	ENTRY PAGE STEP
NUMBER	POINT NUMBER NUMBER

0010	A	1	001
0015	A	1	001
0090	A	1	001
0095	A	1	001
0650	A	1	001

001

(ENTRY POINT A)

- If power is off set the 'POWER' switch on the printer to 1 and wait 35 seconds for the power on diagnostics to complete.

(Step 001 continues)

EXIT POINTS

EXIT THIS MAP	TO
PAGE	STEP
NUMBER	NUMBER
	MAP ENTRY
	NUMBER POINT

2	004	0130	A
2	007	0130	A

MAP Description:

THIS MAP DETERMINES THE GENERAL TYPE OF INDEX FAILURE AND ISOLATES TO THE FAILING FRUS.

Entry Conditions:

NONE

Start Conditions:

NONE

Field replaceable units :

A-A1 board, A-A1B1 card, A-A1C1 card, A-A1F1 card, power supply, platen assembly, spring comb assembly, and feed roll assembly.

INDEX FEED ENTRY

PAGE 2 OF 15

(Step 001 continued)
 Is the LED display blank(all segments off)?

Y N

002

Is the code 71?

Y N

003

Is the code 73?

Y N

004

The symptoms changed.

GO TO MAP 0130, ENTRY POINT A.

005

- Select 'DIAG MODE'.

- Select and run diagnostic test 11.

Is the code 43?

Y N

006

Is the code 11?

Y N

007

The symptoms changed.

GO TO MAP 0130, ENTRY POINT A.

8 4 3 3
 A B C D

A 71 code is no current in the index motor.

```

C D      5218 A01 A02
2 2      INDEX FEED ENTRY
| |      PAGE 3 OF 15
| |
| |
| |      008
| |      Bad A-A1F1 card.
| |      ---OR---
| |      Bad A-A1C1 card.
| |
| |
009 - Connect a meter from the test point
      labeled '+5' to the test point labeled
      'GND' on the A-A1F1 card (104).
      Does the meter read between 4.5 and 5.5 VDC?
      Y N
| |
| |      010
| |      - Connect a meter between J4-2(+5) and
| |      J4-6(GND) on the power supply DC
| |      plug(234).
| |      Does the meter read between 4.5 and 5.5
| |      VDC?
| |      Y N
| |
| |      011
| |      Bad power supply.
| |
| |
| |      012
| |      Bad A-A1 board.
| |
| |
| |      013
| |      Bad A-A1F1 card.
| |      ---OR---
| |      Bad A-A1B1 card.

```

B

5218 A01 A02

2

INDEX FEED ENTRY

PAGE 4 OF 15

014

- Select 'DIAG MODE'(301).
- Select and run diagnostic test 12.
- Observe the LED display.

Is the code 51?

Y N

015

- Run diagnostic test 11.
- Is the code 41.

Y N

This test to determine if the selection motor has no current. If both the index and selection motor shows no current the problem could be reference voltage is missing or power on reset (POR) missing.

6 6 5
E F G

G 4

5218 A01 A02

MAP 0030-5

INDEX FEED ENTRY

PAGE 5 OF 15

016

- SET PRINTER POWER SWITCH TO '0'.
- Remove the index motor plug A-A1G3 from the A-A1 board (104).
- Connect the meter between the following pins the index motor plug A-A1G3.
- The meter should read from 1.2 OHMS to 1.6 OHMS.
- pins 1 and 4.
- pins 1 and 3.
- pins 2 and 5.
- pins 2 and 6.

The FLUKE[®] meter model 8020A can read with this accuracy on the 200 ohms scale.

Are the meter readings correct?

Y N

017

Bad index motor.

6 H

MAP 0030-5

*TRADEMARK OF JOHN FLUKE MFG. CO. INC.
MOUNTLAKE, WASHINGTON

F H 5218 A01 A02

MAP 0030-6

INDEX FEED ENTRY

PAGE 6 OF 15

018

Bad card A-A1F1.

---OR---

Bad card A-A1C1.

019

- Connect a meter between the test points labeled '+12' and 'GND' on the A-A1F1 card(104).

Does the meter read between 11.04 and 13.2

Vdc?

Y N

020

- Check for +12Vdc between pins J4-4 and J4-6 on the power supply plug J4 (234)(235).

Does the meter read between 11.04 and 13.2

Vdc?

Y N

021

Bad power supply.

022

Bad board A-A1.

E J

4

023

Bad card A-A1C1.

---OR---

Bad card A-A1B1.

---OR---

Bad card A-A1F1.

024

- Run diagnostic test 11.
Is the code 41.

Y N

025

Bad card A-A1C1.

---OR---

Bad card A-A1F1.

026

- Connect a meter between the test points labeled '+12' and 'GND' on the A-A1F1 card(104).

Does the meter read between 11.04 and 13.2

VDC?

Y N

7 7

K L

J

MAP 0030-6

5218 A01 A02

K L
6 6

INDEX FEED ENTRY

PAGE 7 OF 15

027 - Check for +12 Vdc between pins J4-4
and J4-6 on the power supply plug
J4(234).
Does the meter read between 11.04 and 13.2
VDC?
Y N
028 Bad power supply.
029 Bad board A-A1.
030 Bad card A-A1C1.
---OR---
Bad card A-A1B1.
---OR---
Bad card A-A1F1.

INDEX FEED ENTRY

PAGE 8 OF 15

A 2

| | | | | 031

- SET PRINTER POWER SWITCH TO '0'.
- Press and hold the paper up switch on the control panel.
- While holding the paper up switch on the control panel, set the printer power switch to '1'.
- Observe the LED display while the printer is performing the power on sequence.

Does the code 35 appear on the LED display any time during the power on sequence?

Y N

| | | | | 032

Bad operator panel switch assembly.

033

- Press the paper up switch on the control panel.
 - Press as many times as necessary.
- Does the platen advance correctly each time the switch is pressed?

Y N

| | | | | 034

- Press the paper up switch on the control panel.
 - Press as many times as necessary.
- Does the platen advance some times?

Y N | | | | |

1 1 5 4 9 M N P

5218 A01 A02

MAP 0030-9

INDEX FEED ENTRY

PAGE 9 OF 15

P 8

035

- SET PRINTER POWER SWITCH TO '0'.
- Turn the platen by hand.
- Some resistance will be encountered as the motor moves from position to position.

Does the platen turn without much resistance?

Y N

036

- Loosen the screws that hold the index motor.
- Remove the index motor drive belt.

Does the platen turn freely?

Y N

037

Bad platen bearings.

038

Bad index motor.

1 0 Q

MAP 0030-9

5218 A01 A02

MAP 0030-11

INDEX FEED ENTRY

PAGE 11 OF 15

T
1
0

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|
|
041

- Remove the index motor plug A-A1G3 from the A-A1 board (104).
- Connect the meter between the following pins on index motor plug A-A1G3.
- The meter should read from 1.2 OHMS to 1.6 OHMS.
- Pins 1 and 4.
- Pins 1 and 3.
- Pins 2 and 5.
- Pins 2 and 6.

The FLUKE^x meter model 8020A can read with this accuracy on the 200 ohm scale.

Are the meter readings correct?

Y N

|
|
042

|
|
Bad index motor.

1
2
U

*TRADEMARK OF JOHN FLUKE MFG. CO. INC.
MOUNTLAKE, WASHINGTON

MAP 0030-11

R S U 5218 A01 A02
1 1 1 INDEX FEED ENTRY
0 0 1

PAGE 12 OF 15

043
Bad card A-A1F1.
---OR---
Bad card A-A1C1.

044
Bad platen assembly.

045
- Check the set screws in the platen belt pulley(121).
- Attempt to turn the platen while holding the platen belt pulley.
Will the platen turn while holding the platen belt pulley?

Y N

046
- Check the set screws in the index motor belt pulley(123).
- Attempt to turn the index motor belt pulley.
Will the index motor belt pulley turn without the index motor turning?

Y N

1 1 1
3 3 3
V W X

The index motor should be electrically detented to do this step.

V W X 5218 A01 A02
 1 1 1 INDEX FEED ENTRY
 2 2 2 PAGE 13 OF 15

047 Check the drive belt tension.(122)
 Is the index motor drive belt tight
 enough?
 Y N

048 Adjust the index motor drive belt
 tension.(122)

049 Bad index motor drive belt.

050 Tighten the set screws in the index belt
 pulley.
 If this does not hold the index motor
 tight to the index belt pulley, install new
 set screws.

051 Tighten the set screws in the platen pulley.
 If this does not hold the platen tight to
 the pulley, install new set screws.

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INDEX FEED ENTRY

PAGE 14 OF 15

N 8

| | | | |

052

- Check the set screws in the platen belt pulley(121).
- Attempt to turn the platen while holding the platen belt pulley.
Will the platen turn while holding the platen belt pulley?

Y N

053

- Check the set screws in the index motor belt pulley(123).
- Attempt to turn the index motor belt pulley.

Will the index motor belt pulley turn without the index motor turning?

Y N

054

- Check the index motor drive belt tension(122).
Is the index motor drive belt tension correct?

Y N

055

Adjust the index motor drive belt tension(122).

1

1 5 A
5 Z A

The index motor should be electrically detented to do this step.

M Y Z A 5218 A01 A02

MAP 0030-15

INDEX FEED ENTRY

PAGE 15 OF 15

056 Bad index motor drive belt.

057 Tighten the set screws in the index belt pulley.
If this does not hold the index motor tight to the index belt pulley install, new set screws.

058 Tighten the set screws in the platen pulley.
If this does not hold the platen tight to the pulley, install new set screws.

059 - Check the index motor drive belt tension(122).
Is the index motor drive belt tension correct?
Y N

060 Attempt to adjust the tension. If the adjustment cannot be made, install a new belt and do the adjustment again.

A B

A B

061

- Check the index motor drive belt for breaks or wear.

Are the checks correct?

Y N

062

Bad index motor drive belt.

063

Bad feed roll assembly.

---OR---

Bad comb assembly.

MAP 0030-15

5218 A01 A02

MAP 0040-1

CAM MOTOR ENTRY

PAGE 1 OF 16

ENTRY POINTS

FROM ENTER THIS MAP			
MAP	ENTRY	PAGE	STEP
NUMBER	POINT	NUMBER	NUMBER
SAME	B	16	093
SAME	C	3	004
SAME	D	10	043
SAME	E	10	046
0010	A	2	001
0015	A	2	001
0015	B	16	093
0090	A	2	001
0095	A	2	001

EXIT POINTS

EXIT THIS MAP TO			
PAGE	STEP	MAP	ENTRY
NUMBER	NUMBER	NUMBER	POINT
2	003	0130	A
16	098	0130	A
3	006	0130	A
16	099	0660	A

MAP 0040-1

5218 A01 A02

CAM MOTOR ENTRY

PAGE 2 OF 16

MAP 0040-2

001
(ENTRY POINT A)

MAP Description:
THIS MAP DETERMINES THE TYPE OF PAPER LOAD
FAILURE AND ISOLATES THE FAILING FRUS.

Entry Conditions:
NONE
Start Conditions:
NONE

Field replaceable units :
A-A1F1, A-A1C1, CAM MOTOR ASSEMBLY, CAM HOME
SWITCH, CAM POSITION SWITCH, CAM IDLER GEAR,
CAM ASSEMBLY, CAM ASSEMBLY CABLE A-A1A3, AND
SPRING COMB ASSEMBLY.

Is the LED display blank(all segments off)?

Y N

002

Is the code 76 or 77?

Y N

003

The symptoms changed ,
GO TO MAP 0130, ENTRY POINT A.

1 0 3
A B

MAP 0040-2

5218 A01 A02

CAM MOTOR ENTRY

PAGE 3 OF 16

B 2

004
(ENTRY POINT C)
Is the code 76?

Y N

005
Is the code 77?

Y N

006
The symptoms changed,
GO TO MAP 0130, ENTRY POINT A.

007

-SET PRINTER POWER SWITCH TO '0'.
- Remove the two wires on the cam home
switch(100).
- Connect the two wires together.
-SET PRINTER POWER SWITCH TO '1'. WAIT
35 SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Is the code 77?

Y N

008
Bad cam home switch.

C D

C D

009

-SET PRINTER POWER SWITCH TO '0'.
- Remove the A-A1A3 plug from the A-A1
board(104).
- Check all wires in the A-A1A3 cable
for an open circuit with a meter.
- The meter should read less than .5
ohms on all wires in the cable.

Does the A-A1A3 cable check correctly?

Y N

010

Bad cable A-A1A3.

011

Bad cam home switch.

---OR---

Bad card A-A1C1.

012

-SET PRINTER POWER SWITCH TO '0'.
- Turn the cam motor by hand (211).

Does the cam motor turn freely?

Y N

4 4

E F

MAP 0040-3

MAP 0040-3

E F
3 3

5218 A01 A02

CAM MOTOR ENTRY

PAGE 4 OF 16

013

- Remove the cam(212).
- If necessary in order to remove the
cam, remove the cam motor assembly
then after this step install the cam
motor assembly.

Does the cam motor turn freely?

Y N

014

Remove the cam idler gear.

Does the cam motor turn freely?

Y N

015

Bad cam motor assembly.

016

Bad cam idler gear.

017

Bad cam assembly.

---OR---

Bad spring comb assembly.

018

Does the cam turn when the motor is turned?

Y N

H

019

Does the idler gear turn when the motor is
turned?

Y N

020

Check that the motor mounting screws are
tight and the motor gear is engaged
with the idler gear.

Bad cam motor assembly.

---OR---

Bad idler gear.

021

Check that the idler gear is engaged with
the cam and the screws are tight in the
idler gear.

Bad cam assembly.

---OR---

Bad idler gear.

5 G

G 4 5218 A01 A02

MAP 0040-5

CAM MOTOR ENTRY

PAGE 5 OF 16

022

- Move the home magnet at least 13 MM(1/2 inch) from the cam home switch by turning the cam motor(100).
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the cam turn?

Y N

023

-SET PRINTER POWER SWITCH TO '0'.
- Remove the plug from the cam home switch(100).
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the cam motor turn?

Y N

8 7 6

J K L

MAP 0040-5

5218 A01 A02

CAM MOTOR ENTRY

PAGE 6 OF 16

L 5

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|
|
024

- SET PRINTER POWER SWITCH TO '0'.
- Remove the plug from the cam motor assembly(100).
- Install a jumper from one side of the connector on the cam motor assembly to the test point marked '+36' on the A-A1F1 card (104).
- Install a jumper from the other side of the connector on the cam motor assembly to the test point marked 'GND' on the A-A1F1 card.

This connects the cam motor directly to voltage to determine if the motor is good.

CAUTION

Failure to remove the plug from the cam motor assembly could cause damage to the A-A1F1 card.

- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the cam motor run?

Y N

|
|
025

| Bad cam motor assembly.
|
|
|
|
|
|
|
|

7 M

M 5218 A01 A02

MAP 0040-7

6 CAM MOTOR ENTRY

PAGE 7 OF 16

026

- Leave the cam motor jumpers on.
- SET PRINTER POWER SWITCH TO '0'.
- Check all the wires in the cable A-A1A3 for an open circuit with a meter(104)(105).
- The meter should read less than .5 ohms on all wires in the cable.

Does the cam assembly cable check correctly?

Y N

027

Bad cam assembly cable A-A1A3.

028

- Leave the cam motor jumpers on.
- Remove the plug from the cam home switch(100).
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Connect the meter between the two leads on the cam home switch.

- The meter should be on a low ohms scale. Does the meter needle jump as cam passes the home position (the meter will change numbers if it is a digital meter)?

Y N

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|

N P

K N P

5

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029

Bad cam home switch.

030

Bad card A-A1F1.

---OR---

Bad card A-A1C1.

031

Bad cam home switch.

MAP 0040-7

5218 A01 A02

CAM MOTOR ENTRY

PAGE 8 OF 16

J 5

032

- SET PRINTER POWER SWITCH TO '0'.
- Remove the plug from the cam motor assembly(100).
- Install a jumper from one side of the connector on the cam motor assembly to the test point marked '+36' on the A-A1F1 card (104).
- Install a jumper from the other side of the connector on the cam motor assembly to the test point marked 'GND' on the A-A1F1 card.

This runs the motor directly and bypasses the drive circuit.

CAUTION

Failure to remove plug from the cam motor assembly could cause damage to the A-A1F1 card.

- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the idler turn?

Y N

033

Bad cam idler gear.

---OR---

Bad cam motor assembly.

9 Q

Q 8

5218 A01 A02

CAM MOTOR ENTRY

PAGE 9 OF 16

034

- SET PRINTER POWER SWITCH TO '0'.
 - Leave the cam motor jumpers on.
 - Check all the wires in the cable A-A1A3 for an open circuit with a meter(104)(105).
 - The meter should read less than .5 ohms on all wires in the cable.
- Does the cam assembly cable check correctly?

Y N

035

- Bad cam assembly cable A-A1A3.

036

- Leave the cam motor jumpers on.
 - Remove the plug from the cam home switch(100).
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Connect the meter between the two leads on the cam home switch.

- The meter should be on a low ohms scale. Does the meter needle jump as cam passes the home position (the meter will change numbers if it is a digital meter)?

Y N

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R S

R S

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037

- Bad cam home switch.

038

- Leave the cam motor jumpers on.
- Remove the plug from the cam position switch(100).
- Connect the meter between the two leads on the cam position switch.
- The meter should be on a low ohms scale. Does the meter needle jump as cam passes each position (the meter will change numbers if it is a digital meter)?

Y N

039

- Bad cam position switch.

040

- Bad card A-A1F1.

---OR---

- Bad card A-A1C1.

MAP 0040-9

MAP 0040-9

A 5218 A01 A02

CAM MOTOR ENTRY

PAGE 10 OF 16

041
-SET PRINTER POWER SWITCH TO '0'.
- Press and hold the 'LOAD' switch on the control panel.
- While holding the 'LOAD' switch on the control panel, set the printer power switch to '1'.
- Observe the LED display while the printer is performing the power on sequence.
Does the code 35 appear on the LED display any time during the power on sequence?
Y N

042
Bad control panel switch assembly.
---OR---
Bad cable A-A1A3.

043
(ENTRY POINT D)
- Remove the top cover and bypass the cover interlock.(101)
- Observe the cam motor.
- Press the 'CANCEL' switch on the control panel.
- Press the 'LOAD' switch on the control panel.
(Step 043 continues)

MAP 0040-10

(Step 043 continued)
Does the cam motor run?
Y N
044
Is the LED display blank(all segments off)?
Y N
045
GO TO PAGE 3, STEP 004,
ENTRY POINT C.
046
(ENTRY POINT E)
-SET PRINTER POWER SWITCH TO '0'.
- Turn the cam motor (211).
Does the cam motor turn freely?
Y N

047
- Remove the cam(212).
- If necessary in order to remove the cam, remove the cam motor assembly then after this step install the cam motor assembly.
Does the cam motor turn freely?
Y N

1 1 1 1
3 2 1 1
T U V W

MAP 0040-10

1	0
1	0

CAM MOTOR ENTRY

PAGE 11 OF 16

048

- Remove the cam idler gear.
Does the cam motor turn freely?

NY

649

Bad cam motor assembly.

050

- Check for worn or missing teeth on the cam idler gear.

- Check the idler gear bearings by holding the shaft while turning the cam idler gear.

Are the checks correct?

NY

051

Bad cam idler gear.

052

Bad cam motor assembly.

053

Bad cam assembly.

- - - OR - - -

Bad spring comb assembly.

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MAP 0040-12

CAM MOTOR ENTRY

PAGE 12 OF 16

054

- SET PRINTER POWER SWITCH TO '0'.
- Remove the plug from the cam motor assembly(100).
- Install a jumper from one side of the connector on the cam motor assembly to the test point marked '+36' on the A-A1F1 card (104).
- Install a jumper from the other side of the connector on the cam motor assembly to the test point marked 'GND' on the A-A1F1 card.

CAUTION

Failure to remove plug from the cam motor assembly could cause damage to the A-A1F1 card.

- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the cam motor run?

Y N

055

Bad cam motor assembly.

1 3 X

This connects the cam motor directly to voltage to determine if the motor is good.

MAP 0040-12

Y A
1 A
3 1
3 3

072
Bad feed roller assembly.

073
- Observe all the paper rollers.
- Press the 'LOAD' switch on the control panel.
- Do all the feed rollers move toward and away from the platen?
Y N

074
- Observe all the feed rollers.
- Press the 'LOAD' switch on the control panel.
- Do any of the feed rollers move toward and away from the platen?
Y N

075
- Observe the cam assembly.
- Press the 'LOAD' switch on the control panel.
Does the cam assembly turn?
Y N

1 1 1 1
5 5 5 5
A A A A
E F G H

5218 A01 A02
CAM MOTOR ENTRY
PAGE 14 OF 16

065
Are the teeth on the cam motor gear worn?
Y N

066
Are the teeth on the cam idler gear worn?
Y N

067
Bad cam idler gear.
---OR---
Bad cam motor assembly.
---OR---
Bad cam assembly.

068
Bad cam idler assembly.

069
Bad cam motor assembly.

070
Bad cam idler gear.
---OR---
Bad cam assembly.

071
Bad feed roller assembly.

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CAM MOTOR ENTRY

PAGE 15 OF 16

A H 1 4

076

- Observe the cam idler gear .
- Press the 'LOAD' switch on the control panel.

Does the cam idler gear turn?

Y N

077

Are the gear teeth on the idler engaged with those of the cam motor?

Y N

078

Adjust the cam motor position.

079

Are the teeth on the cam motor worn?

Y N

080

Are the teeth on the cam idler gear worn?

Y N

081

Bad cam idler gear.

---OR---

Bad cam motor assembly.

---OR---

Bad cam assembly.

A A A
J K L

MAP 0040-15

A A A A A
E F G J K L

1 1 1

4 4 4

082

Bad cam idler assembly.

083

Bad cam motor assembly.

084

Bad cam idler gear.

---OR---

Bad cam assembly.

085

Bad feed roller assembly.

086

Bad feed roller assembly.

087

- Observe the paper bail.

- Press the 'LOAD' switch on the control panel.

Does the paper bail move toward and away from the platen?

Y N

088

Is there a spring installed on each side of the paper bail?

Y N

1 1 1

6 6 6

A A A

M N P

MAP 0040-15

A A A 5218 A01 A02
M N P
1 1 1 CAM MOTOR ENTRY
5 5 5 PAGE 16 OF 16

| | | | |
| | | | | 089
| | | | | Install a new spring or springs.
| | | | | 090
| | | | | Is the paper bail cam follower in the cam
| | | | | opening?
| | | | | Y N
| | | | | 091
| | | | | Form the paper bail cam follower to
| | | | | align in the opening on the cam.(100)
| | | | | 092
| | | | | Install a new paper bail. (100)
| | | | | 093
| | | | | (ENTRY POINT B)
| | | | | Is the LED display blank(all segments off)?
| | | | | Y N
| | | | | 094
| | | | | GO TO PAGE 3, STEP 004,
| | | | | ENTRY POINT C.

A Q
| | | | | 095
| | | | | -SET PRINTER POWER SWITCH TO '0'.
| | | | | - Press and hold the 'RELEASE' switch on
| | | | | the control panel.
| | | | | - While holding the 'RELEASE' switch on
| | | | | the control panel, set the printer power
| | | | | switch to '1'.
| | | | | - Observe the LED display during the power
| | | | | on sequence sequence.
| | | | | Does the code 35 appear on the LED display
| | | | | any time during the power on sequence?
| | | | | Y N
| | | | | 096
| | | | | Bad control panel switch assembly.
| | | | | ---OR---
| | | | | Bad cable from switch assembly to A-A1
| | | | | board.
| | | | | 097
| | | | | Is the sheet feed installed?
| | | | | Y N
| | | | | 098
| | | | | No problem has been found.
| | | | | GO TO MAP 0130, ENTRY POINT A.
| | | | | 099
| | | | | GO TO MAP 0660, ENTRY POINT A.

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PRINT WHEEL ENTRY

PAGE 1 OF 22

ENTRY POINTS

FROM	ENTER THIS MAP	MAP	ENTRY POINT	PAGE NUMBER	STEP NUMBER
SAME	B	8	029		
0010	A	2	001		
0015	A	2	001		
0020	A	2	001		
0090	A	2	001		

EXIT POINTS

EXIT THIS MAP	TO	PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
		8	030	0010	A
		22	081	0060	A
		9	034	0130	A
		12	046	0130	A

MAP 0050-1

MAP 0050-1

PRINT WHEEL ENTRY

PAGE 2 OF 22

001

(ENTRY POINT A)

- SET PRINTER POWER SWITCH TO '0'.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Lift the ribbon plate assembly.
- Push the selection home lever to the left then to the right(222).

MAP Description:
THIS MAP DETERMINES THE GENERAL TYPE OF PRINT WHEEL FAILURE AND ISOLATES THE BAD PART.

Entry Conditions:

NONE

Start Conditions:

NONE

Field replaceable units :
PRINT WHEEL, UPPER CARRIER ASSEMBLY,
SELECTION MOTOR ASSEMBLY, A-A1A4 CABLE, AND
A-A1A5 CABLE.

CAUTION

The selection motor pull back cable could be broken if the print wheel is not home.
This step checks the print wheel for home position.

Does the selection home lever move freely?

Y N

002

Bad upper carrier assembly.

3 A

5218 A01 A02

PRINT WHEEL ENTRY

PAGE 3 OF 22

A 2

003

- Push the selection home lever to the right(222).
- Observe the tip of the selection home lever.
- Observe the home groove in the selection motor hub(132).

Does the selection home lever enter the home groove on the selection motor hub?

Y N

004

- Check the selection motor print hub for damage(130)
- Check that the set screws on the print hub are tight.

Are the checks correct?

Y N

005

Tighten the set screws in the print hub, or install a new print hub if necessary (130).
Do the print wheel hub to platen adjustment.
Do the print wheel home adjustment (132)(127).

7 4
B C

C 3 5218 A01 A02

MAP 0050-4

PRINT WHEEL ENTRY

PAGE 4 OF 22

006

-SET PRINTER POWER SWITCH TO '0'.
- Attempt to turn the print wheel by hand.
Does the print wheel turn freely?
Y N

007

Bad print wheel.
---OR---
Bad selection motor assembly.

008

- Remove the A-AlA4 plug from the A-Al board (104).
- Connect the CE meter between the pins listed below on the A-AlA4 end of the right carrier cable.
- The meter should read between .5 ohms and 1.5 ohms.
- Pins 7 to 12.
- Pins 8 to 11.
- Pins 9 to 10.

Are the meter readings correct?

Y N

6 5

D E

This checks the selection motor for open or short circuit in the drive coils.

MAP 0050-4

5218 A01 A02

PRINT WHEEL ENTRY

PAGE 5 OF 22

E 4

009

- Inspect the right carrier cable plug A-ALA4 for broken or bent pins (104).
- Check for continuity of the right carrier cable (Less than .5 ohm resistance) between pin 6 on the carrier end and pin 7 on the A-ALA4 end (105). Repeat for
 - 1) pin 5 on the carrier end and pin 8 on the A-ALA4 end,
 - 2) pin 4 on the carrier end and pin 9 on the A-ALA4 end,
 - 3) pin 3 on the carrier end and pin 10 on the A-ALA4 end,
 - 4) pin 2 on the carrier end and pin 11 on the A-ALA4 end, and
 - 5) pin 1 on the carrier end and pin 12 on the A-ALA4 end.

Does the carrier cable check correctly?

Y N

010

Bad cable A-ALA4.

011

Bad selection motor assembly.

D 4 5218 A01 A02

MAP 0050-6

PRINT WHEEL ENTRY

PAGE 6 OF 22

012

- Remove the A-ALA5 plug from the A-A1 board(104).
- Connect the CE meter between the pins listed below on the A-ALA5 cable.
- The meter should read between 100 ohms and 170 ohms.
- Pins 8 to 12.
- Pins 9 to 12.
- Pins 10 to 12.
- Pins 11 to 12.

Are the meter readings correct?

Y N

013

- Connect the CE meter between pin 8 on one end of the cable A-ALA5 and pin 8 on the other end of the cable.
- The meter should read less than .5 ohm
- Repeat the measurements for pins 9, 10, 11 and 12.

Are the meter readings correct?

Y N

014

Bad cable A-ALA5.

015

Bad selection motor assembly.

This checks the selection motor for opens or short circuit in the feedback coils.

This checks the carrier cable A-ALA5 for the feed back signals.

Z F

MAP 0050-6

B F 5218 A01 A02

MAP 0050-7

PRINT WHEEL ENTRY

PAGE 7 OF 22

016

Bad card A-A1B1.

017

- Lower the ribbon plate assembly.
 - Press the selector home push rod on the ribbon plate assembly to the right.
- Does the plastic cap on the rod contact the ribbon plate assembly?

Y N

018

Bad upper carrier assembly.

019

- SET PRINTER POWER SWITCH TO '0'.
 - If the print wheel is not home it will not come out. The lever on the left of the ribbon drive will go in all the way when the print wheel is home.
 - Pull back the selection motor assembly by pressing selection home rod on the side of the ribbon plate assembly and holding while lifting the ribbon to the service position.
 - Remove the print wheel cartridge(225).
 - Lower the ribbon plate assembly.
 - Check that the selection motor turns freely.
 - Check for bent or broken print
- (Step 019 continues)

(Step 019 continued)

- Check the print hub for damage or wear (130).
 - Check the print hub set screws.
 - Check the print hub to platen adjustment.
 - Check for a worn drive hole.
- Are the checks correct?

Y N

020

- Check that the pullback cable is attached at both ends and not broken.
- Are the checks correct?

Y N

021

Bad pullback cable.

022

- Is the selection motor free to turn?

Y N

023

Bad selection motor assembly.

024

- Is the print hub worn or damaged (130)?

Y N

8 8 8

G H J

MAP 0050-7

G H J
7 7 7

5218 A01 A02

PRINT WHEEL ENTRY

PAGE 8 OF 22

025

Bad print wheel.

026

Bad print hub.

027

- Install a print wheel.
- Lower the ribbon.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Lift the ribbon plate assembly without pressing the selection home push rod.
- Press the hammer forward. A pencil or other item may be necessary to press the hammer forward.

Is the pointed part on the rear of the print character inside the V notch on the hammer?

Y N

028

Adjust the print wheel homing (132)(127).

K

029

(ENTRY POINT B)

Check both ends of the left and right carrier cables.(100)(151)
Are the cables plugged in and seated correctly?

Y N

030

Reconnect the cables.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Press the 'PRINT TEST' switch on the control panel.

If the printer still has a problem, GO TO MAP 0010, ENTRY POINT A.

031

- Observe the code or status of the LED display recorded in an earlier step. Was the LED display blank at the time the status of the LED display was recorded?

Y N

032

Was the code 51?

Y N

1 1
6 2 9
L M N

K

MAP 0050-8

MAP 0050-8

PRINT WHEEL ENTRY

PAGE 9 OF 22

 $N \infty$

033

Code 57 and 58 have the same meaning except 58 occurs when 'ON LINE'.

Was the code 54, 56, 57 or 58?

NY

034

The problem cannot be found in this map.
GO TO MAP 0130, ENTRY POINT A.

035

- SET PRINTER POWER SWITCH TO '0'.
- Remove the A-ALA4 plug from the A-A1 board(104).
- Connect the CE meter between the pins listed below on the A-ALA4 end of the right carrier cable.
- The meter should read between .5 ohms and 1.5 ohms.
- Pins 7 to 12.
- Pins 8 to 11.
- Pins 9 to 10.

Are the meter readings correct?

NY

10 Q
11 P

This checks the selection motor for open or short circuit in the drive coils.

PRINT WHEEL ENTRY

PAGE 10 OF 22

036

- Inspect the right carrier cable plug A-ALA4 for broken or bent pins (104).
- Check for continuity of the right carrier cable (Less than .5 ohm resistance) between pin 6 on the carrier end and pin 7 on the A-ALA4 end (105). Repeat for

- 1) pin 5 on the carrier end and pin 8 on the A-ALA4 end,
- 2) pin 4 on the carrier end and pin 9 on the A-ALA4 end,
- 3) pin 3 on the carrier end and pin 10 on the A-ALA4 end,
- 4) pin 2 on the carrier end and pin 11 on the A-ALA4 end, and
- 5) pin 1 on the carrier end and pin 12 on the A-ALA4 end.

Does the carrier cable check correctly?

Y N

037

Bad cable A-ALA4.

038

Bad selection motor assembly.

P 9

5218 A01 A02

MAP 0050-11

PRINT WHEEL ENTRY

PAGE 11 OF 22

039

- Remove the A-ALA5 plug from the A-A1 board(104).
- Connect the CE meter between the pins listed below on the A-ALA5 cable.
- The meter should read between 100 ohms and 170 ohms.
- Pins 8 to 12.
- Pins 9 to 12.
- Pins 10 to 12.
- Pins 11 to 12.

Are the meter readings correct?

Y N

040

- Connect the CE meter between pin 8 on one end of the cable A-ALA5 and pin 8 on the other end of the cable(104).
- The meter should read less than .5 ohm
- Repeat the measurements for pins 9, 10, 11 and 12.

Are the meter readings correct?

Y N

041

Bad cable A-ALA5.

042

Bad selection motor assembly.

1 2 R

This checks the selection motor for open or short circuit in the feedback coils.

MAP 0050-11

M R 5218 A01 A02

MAP 0050-12

8 1 1 PRINT WHEEL ENTRY

PAGE 12 OF 22

043

Bad card A-A1B1.

---OR---

Bad card A-A1C1.

044

- Select 'DIAG MODE' (301).

- Select and run diagnostic test 11.

Is the LED display 41?

Y N

045

Is the LED display 11?

Y N

046

The symptoms changed or two failures occurred,
GO TO MAP 0130, ENTRY POINT A.

1 1
5 3
S T

This test runs the escapement to determine if both the escapement and selection have no current.

If the LED display is 11, test 11 ran without errors.

MAP 0050-12

T 5218 A01 A02

MAP 0050-13

1 PRINT WHEEL ENTRY

2 PAGE 13 OF 22

047

- SET PRINTER POWER SWITCH TO '0'.
- Connect the meter to the test points on the A-A1B1 card that are labeled +36 and GND.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the meter read between 32.4 VDC and 39.6 VDC?

Y N

048

Bad board A-A1.

To isolate to the connector that is not making contact there are +36 VDC test points on the A-A1B1 and A-A1F1 cards.

049

- SET PRINTER POWER SWITCH TO '0'.
 - Remove the A-A1A4 plug from the A-A1 board(104).
 - Connect the CE meter between the pins listed below on the A-A1A4 end of the right carrier cable.
 - The meter should read between .5 ohms and 1.5 ohms.
 - Pins 7 to 12.
 - Pins 8 to 11.
 - Pins 9 to 10.
- (Step 049 continues)

MAP 0050-13

PRINT WHEEL ENTRY

PAGE 14 OF 22

(Step 049 continued)
 Are the meter readings correct?
 Y N

050

- Inspect the right carrier cable plug
 A-ALA4 for broken or bent pins (104).

- Check for continuity of the right
 carrier cable (Less than .5 ohm
 resistance) between pin 6 on the
 carrier end and pin 7 on the A-ALA4
 end (105). Repeat for

- 1) pin 5 on the carrier end and pin
 8 on the A-ALA4 end,
- 2) pin 4 on the carrier end and pin
 9 on the A-ALA4 end,
- 3) pin 3 on the carrier end and pin
 10 on the A-ALA4 end,
- 4) pin 2 on the carrier end and pin
 11 on the A-ALA4 end, and
- 5) pin 1 on the carrier end and pin
 12 on the A-ALA4 end.

Does the carrier cable check correctly?

Y N

051

Bad cable A-ALA4.

052

Bad selection motor assembly.

15 U

S U 5218 A01 A02

MAP 0050-15

1 1 PRINT WHEEL ENTRY

2 4 PAGE 15 OF 22

053

Reconnect A-A1A4 cable.

Bad card A-A1B1.

---OR---

Bad card A-A1C1.

054

-SET PRINTER POWER SWITCH TO '0'.

- Connect the meter to the power supply
J4-1 (+36 VDC) and to J4-6
(ground)(234).

-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Does the meter read between 32.4 VDC and
39.6 VDC?

Y N

055

Bad power supply.

056

Bad board A-A1.

---OR---

Bad card A-A1C1.

---OR---

Bad card A-A1F1.

To isolate to the connector that is not
making contact there are +36 VDC test points
on the A-A1B1 and A-A1F1 cards.

MAP 0050-15

5218 A01 A02

PRINT WHEEL ENTRY

PAGE 16 OF 22

MAP 0050-16

L 8

057

- Press the 'PRINT TEST' switch on the control panel.
 - Observe the printout compare it to the sample printout in the MIM (309).
- Are all the correct characters printed?

Y N

058

- SET PRINTER POWER SWITCH TO '0'.
- Remove the A-ALA4 plug from the A-A1 board(104).
- Connect the CE meter between the pins listed below on the A-ALA4 end of the right carrier cable.
- The meter should read between .5 ohms and 1.5 ohms.
- Pins 7 to 12.
- Pins 8 to 11.
- Pins 9 to 10.

Are the meter readings correct?

Y N

1 1 1
9 8 7
V W X

The print wheel is not home.
This checks the selection motor for open or short circuit in the drive coils.

MAP 0050-16

X 5218 A01 A02

MAP 0050-17

1
6

PRINT WHEEL ENTRY

PAGE 17 OF 22

059

- Inspect the right carrier cable plug A-ALA4 for broken or bent pins (104).
- Check for continuity of the right carrier cable (Less than .5 ohm resistance) between pin 6 on the carrier end and pin 7 on the A-ALA4 end (105). Repeat for
 - 1) pin 5 on the carrier end and pin 8 on the A-ALA4 end,
 - 2) pin 4 on the carrier end and pin 9 on the A-ALA4 end,
 - 3) pin 3 on the carrier end and pin 10 on the A-ALA4 end,
 - 4) pin 2 on the carrier end and pin 11 on the A-ALA4 end, and
 - 5) pin 1 on the carrier end and pin 12 on the A-ALA4 end.

Does the carrier cable check correctly?

Y N

060

Bad cable A-ALA4.

061

Bad selection motor assembly.

MAP 0050-17

5218 A01 A02

MAP 0050-18

PRINT WHEEL ENTRY

PAGE 18 OF 22

062

- Remove the A-ALA5 plug from the A-A1 board(104).
- Connect the CE meter between the pins listed below on the A-ALA5 cable.
- The meter should read between 100 ohms and 170 ohms.
- Pins 8 to 12.
- Pins 9 to 12.
- Pins 10 to 12.
- Pins 11 to 12.

Are the meter readings correct?

Y N

063

- Connect the CE meter between pin 8 on one end of the cable A-ALA5 and pin 8 on the other end of the cable.
- The meter should read less than .5 ohm
- Repeat the measurements for pins 9, 10, 11 and 12.

Are the meter readings correct?

Y N

064

Bad cable A-ALA5.

065

Bad selection motor assembly.

This checks the selection motor for opens or short circuit in the feedback coils.

1 9 Y

MAP 0050-18

V Y 5218 A01 A02

MAP 0050-19

1 1
6 8

PRINT WHEEL ENTRY

PAGE 19 OF 22

066

Bad card A-A1B1.

067

- Observe the printout and compare it to the sample printout in the MIM (309).
- Check that the characters are not tilted and that the spacing between characters is correct.

Are all the characters aligned correctly?

Y N

068

- SET PRINTER POWER SWITCH TO '0'.
- Remove the A-A1A4 plug from the A-A1 board.
- Connect the CE meter between the pins listed below on the A-A1A4 end of the right carrier cable.
- The meter should read between .5 ohms and 1.5 ohms.
- Pins 7 to 12.
- Pins 8 to 11.
- Pins 9 to 10.

Are the meter readings correct?

Y N

2 2
2 1 0
2 A A
Z A B

The print wheel is not home.
This checks the selection motor for open or short circuit in the drive coils.

MAP 0050-19

A
B
1
9

5218 A01 A02

PRINT WHEEL ENTRY

PAGE 20 OF 22

069

- Inspect the right carrier cable plug A-ALA4 for broken or bent pins (104).
- Check for continuity of the right carrier cable (Less than .5 ohm resistance) between pin 6 on the carrier end and pin 7 on the A-ALA4 end (105). Repeat for
 - 1) pin 5 on the carrier end and pin 8 on the A-ALA4 end,
 - 2) pin 4 on the carrier end and pin 9 on the A-ALA4 end,
 - 3) pin 3 on the carrier end and pin 10 on the A-ALA4 end,
 - 4) pin 2 on the carrier end and pin 11 on the A-ALA4 end, and
 - 5) pin 1 on the carrier end and pin 12 on the A-ALA4 end.

Does the carrier cable check correctly?

Y N

070

Bad cable A-ALA4.

071

Bad selection motor assembly

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MAP 0050-21

PRINT WHEEL ENTRY

PAGE 21 OF 22

072

- Remove the A-1A5 plug from the A-1 board(104).
- Connect the CE meter between the pins listed below on the A-1A5 cable.
- The meter should read between 100 ohms and 170 ohms.
- Pins 8 to 12.
- Pins 9 to 12.
- Pins 10 to 12.
- Pins 11 to 12.

Are the meter readings correct?

Y N

073

- Connect the CE meter between pin 8 on one end of the cable A-1A5 and pin 8 on the other end of the cable.
- The meter should read less than .5 ohm
- Repeat the measurements for pins 9, 10, 11 and 12.

Are the meter readings correct?

Y N

074

Bad cable A-1A5.

075

Bad selection motor assembly.

2 2 A C

This checks the selection motor for open or short circuit in the feedback coils.

MAP 0050-21

Z A 5218 A01 A02

1 C
9 2
1

PRINT WHEEL ENTRY

PAGE 22 OF 22

076

- Select diagnostic mode(301)
- Select and run the ribbon coverage test 48.
- Observe the line of underscores.

Do the underscores appear straight (not tilted)?

Y N

077

Adjust the print wheel alignment and check the carrier eccentric shafts (127)(132).

078

Bad card A-A1B1.

079

- Select 'DIAG MODE'(301).
- Run the ribbon coverage test.
- Diagnostic test 48.
- Observe the line of underscores.

Do the underscores appear straight (not tilted)?

Y N

080

Adjust the print wheel alignment and the carrier eccentric shafts (127)(132).

A D

A D

1 1 1

081

Suspect a bad print hammer causing the bad print.

GO TO MAP 0060, ENTRY POINT A.

For a sample printout see mim section 304 test 48.

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MAP 0060-1

HAMMER ENTRY

PAGE 1 OF 8

ENTRY POINTS

FROM	ENTER THIS MAP		

MAP	ENTRY	PAGE	STEP
NUMBER	POINT	NUMBER	NUMBER

0010	A	1	001
0020	A	1	001
0050	A	1	001
0090	A	1	001

001

(ENTRY POINT A)

- Lift the ribbon cartridge to the service position(remove the bail if necessary).
- Push the rear of the hammer forward until it comes in contact with the print wheel (131).

Does the hammer move freely?

Y N | | | | | | |

2 2
A B

EXIT POINTS

EXIT THIS MAP TO			
PAGE	STEP	MAP	ENTRY
NUMBER	NUMBER	NUMBER	POINT
3	012	0130	A
8	049	0130	A

MAP Description:

THIS MAP DETERMINES THE GENERAL TYPE OF HAMMER FAILURE AND ISOLATES TO THE BAD PART.

Entry Conditions:

NONE

Start Conditions:

NONE

Field replaceable units :

A-ALA4 CABLE, CARDS A-A1B1, A-A1C1, HAMMER ASSEMBLY.

MAP 0060-1

A B
1 1

5218 A01 A02

HAMMER ENTRY

PAGE 2 OF 8

002

Bad hammer assembly.

003

- Push the hammer forward until it comes in contact with the print wheel.
- Put pressure to the print wheel clockwise against the detent then counterclockwise against the detent.
- Observe the relative position of the hammer to print wheel.
- The 'V' in the hammer should hit the protrusion on the back of the print character.
- The pointed back of the print character should be inside the 'V' on the hammer.

Is the hammer position correct?
Y N

004

Adjust the hammer position (131) and the print wheel position (132).

C

C

005

- SET PRINTER POWER SWITCH TO '0'.
- Ensure the paper bail is against the platen. If it is not, advance the cam motor by hand until the paper bail is against the platen.
- If the print wheel is not home, lift the ribbon plate assembly, press the selection home lever to the right while turning the print wheel until the lever enters the home groove. This ensures print wheel is home so the print wheel cartridge can be removed and the alignment tool can be inserted(132).
- Check the distance from the hammer to the platen.(131)
- After checking this adjustment remove the print wheel alignment tool and install the print wheel.

Is the distance correct?
Y N

006

Adjust the hammer to platen distance(131).

3 D

D 2 5218 A01 A02

HAMMER ENTRY

PAGE 3 OF 8

007

- Observe the code or status of the LED display recorded in an earlier MAP step. Was the LED display blank at the time the status of the LED display was recorded?

Y N

008

Was the code 60?

Y N

009

Was the code 61?

Y N

010

Was the code 63 or 64?

Y N

011

Was the code 65?

Y N

8 6 5 4

E F G H J K

J K

012

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

GO TO MAP 0130, ENTRY POINT A.

013

-SET PRINTER POWER SWITCH TO '0'.

- Remove the hammer coil connector from the center of the right carrier cable (105).

Connect the meter between the two pins on the connector to the hammer coil.

- The meter should read between 2.0 and 3.0 OHMS.

Is the meter reading correct?

Y N

014

Bad hammer assembly.

015

- Remove the hammer feed back connector from the center of the left carrier cable A-A1A5 (105).

- Connect the meter between the two pins that are on the cable from the hammer feed back coils.

- The meter should read between 65 and 80 ohms.

(Step 015 continues)

(Step 015 continued)
Is the meter reading correct?

Y N

016

Bad hammer assembly.

017

- Reinstall the hammer coil connector in the center of of the right carrier cable.
- Inspect the right carrier cable connector A-ALA4 (104).
- Check for broken or bent pins.
- Check for continuity of the right carrier cable (Less than .5 ohm resistance) between pin 8 on the carrier end and pin 5 on the A-ALA4 end (105). Repeat for pin 7 on the carrier end and pin 6 on the A-ALA4 end.

Does the carrier cable check correctly?

Y N

018

Bad right carrier cable A-ALA4.

H L

3

019

- Inspect the sockets for the A-ALB1 card on the A-A1 board. Check for bent or broken pins.
- Inspect the board for foreign particles such as paper clips, staples, and so on.

Are the checks correct?

Y N

020

Bad board A-A1.

021

Bad card A-ALB1.

---OR---

Bad card A-ALC1.

022

-SET PRINTER POWER SWITCH TO '0'.

- Remove the hammer connector from the center of the right carrier cable(105). Connect the meter between the two pins on the connector to the hammer coil.
- The meter should read between 2.0 and 3.0 OHMS.

Is the meter reading correct?

Y N

5 5

M N

L

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HAMMER ENTRY

PAGE 5 OF 8

G M N
3 4 4

023
Bad hammer assembly.

024

- Connect the meter between the two pins that on the cable from the hammer feed back coils.
- The meter should read between 65 and 80 ohms.

Is the meter reading correct?

Y N

025

Bad hammer assembly.

026

Bad card A-AlB1.

---OR---

Bad right carrier cable A-AlA4.

027

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Observe the hammer.
- Press the 'PRINT TEST' switch on the control panel.

Press as many times as needed.

(Step 027 continues)

(Step 027 continued)
Does the hammer move?

Y N

028

- SET PRINTER POWER SWITCH TO '0'.
- Remove the hammer connector from the center of the right carrier cable (105).

Connect the meter between the two pins on the connector to the hammer coil.

- The meter should read between 2.0 and 3.0 OHMS.

Is the meter reading correct?

Y N

029

Bad hammer assembly.

030

- Inspect the right carrier cable connector A-AlA4 (104).
- Check for continuity of the right carrier cable (less than .5 ohm resistance) between pin 8 on the carrier end and pin 5 on the A-AlA4 end (105). Repeat for pin 7 on the carrier end and pin 6 on the A-AlA4 end.

(Step 030 continues)

P 5 5218 A01 A02
 HAMMER ENTRY
 PAGE 6 OF 8
 (Step 030 continued)
 Does the carrier cable check correctly?
 Y N
 031 Bad right carrier cable A-ALA4.
 032 Bad card A-A1B1.
 ---OR---
 Bad card A-A1C1.
 033 - Check the left carrier cable(100).
 - Check that the cable is plugged in and seated correctly.
 - Check for broken or bent pins.
 Are the checks correct?
 Y N
 034 Bad cable A-A1A5.
 035 BAD CARD A-A1B1.

F 3
 036 -SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
 Press the 'CANCEL' switch if necessary to clear the printer.
 - Press the 'PRINT TEST' switch on the control panel.
 - Observe the hammer.
 Does the hammer move?
 Y N
 037 -SET PRINTER POWER SWITCH TO '0'.
 - Remove the hammer connector from the center of the right carrier cable (105).
 Connect the meter between the two pins on the connector to the hammer coil.
 - The meter should read between 2.0 and 3.0 OHMS.
 Is the meter reading correct?
 Y N
 038 Bad hammer assembly.

7 7
 Q R
 MAP 0060-6

R 6

5218 A01 A02

HAMMER ENTRY

PAGE 7 OF 8

039

- Inspect the right carrier cable connector A-ALA4 (104).
- Check for continuity of the right carrier cable (Less than .5 ohm resistance) between pin 8 on the carrier end and pin 5 on the A-ALA4 end (105). Repeat for pin 7 on the carrier end and pin 6 on the A-ALA4 end.

Does the carrier cable check correctly?

Y N

040

Bad right carrier cable A-ALA4.

041

Bad card A-AlB1.

---OR---

Bad hammer assembly.

---OR---

Bad card A-AlC1.

Q 6

042

- SET PRINTER POWER SWITCH TO '0'.
- Remove the hammer feed back connector from the center of the left carrier cable(105).
- Connect the meter between the two pins on the hammer feed back coil.
- The meter should read between 65 and 80 ohms.

Is the meter reading correct?

Y N

043

Bad hammer assembly.

044

- Remove the left carrier cable connector A-ALA5.
- Check the left carrier cable for continuity.
- Connect the meter from pin 1 on one end to pin 1 on the other end.
- Repeat the measurements for pins 2-12.
- The meter should read less than .5 ohm.

Is the meter reading correct?

Y N

045

Bad left carrier cable A-ALA5.

8 S

MAP 0060-7

MAP 0060-7

5218 A01 A02

HAMMER ENTRY

PAGE 8 OF 8

970

Bad card A-A1B1.

OR

Bad hammer assembly.

— — — — — OR — — — — —

Bad card A-AlCl.

047

- Select 'DIAG MODE':

- Select and run diagnostic test 47.

- Observe the printout.

Is the print light on the larger characters?

NY

840

- Select and run diagnostic test 45.

- Observe the printout. Look on the

reverse side of the page to check for

character penetration.

Is the print too heavy on small

characters?

NY

670

No problem was found in this MAP.

GO TO MAP 0130, ENTRY POINT A.

U
T

0.50

Bad hammer assembly.

OR

Bad card A-A1B1.

051

Bad hammer assembly.

---OR---

Bad card A-A1B1.

U
T

5218 A01 A02

A1-A2 COMMUNICATIONS

PAGE 1 OF 3

ENTRY POINTS

FROM ENTER THIS MAP			

MAP	ENTRY	PAGE	STEP
NUMBER	POINT	NUMBER	NUMBER

0010	A	1	001
0015	A	1	001
0650	A	1	001
5070	A	1	001

001

(ENTRY POINT A)

- Remove the controller attachment cable from the printer attachment panel.
- Select 'DIAG MODE'(301).
- Select and run diagnostic test 07(303).

Is the LED display 9A?

Y N
| |
| |
| |
| |
| |
| |

2 2
A B

MAP 0070-1

EXIT POINTS

EXIT THIS MAP TO			

PAGE	STEP	MAP	ENTRY
NUMBER	NUMBER	NUMBER	POINT

2	005	0130	A
3	013	0130	A
3	015	5030	A
2	010	5070	A

MAP Description:

THIS MAP DETERMINES THE TYPE OF COMMUNICATIONS FAILURE AND ISOLATES THE BAD PART.

Entry Conditions:

NONE

Start Conditions:

NONE

Field replaceable units :
CARDS A-A1D1,AND A-A1E1

MAP 0070-1

A B
1 1

5218 A01 A02

A1-A2 COMMUNICATIONS

PAGE 2 OF 3

002

Bad card A-A1D1.

---OR---

Bad card A-A1E1.

003

- Install communication wrap jumper on the printer attachment panel.
- Press the 'CANCEL' switch on the control panel.
- Select and run diagnostic test 07.

Is the LED display 07?

Y N

004

Is the LED display 9A?

Y N

005

The symptoms have changed.
The problem must be intermittent.
GO TO MAP 0130, ENTRY POINT A.

C D

006

- Remove the A-A1H1 cable from the A-A1 board.
- Connect a jumper from A-A1H1 pin 1 to A-A1H1 pin 3.
- Connect a jumper from A-A1H1 pin 2 to A-A1H1 pin 4.
- Select and run diagnostic test 07.

Is the LED display 07?

Y N

007

Bad card A-A1D1.

008

Bad cable from A-A1 board to the communications attachment panel.

009

Has the display writer operation been verified?

Y N

010

Check out the display writer.
GO TO MAP 5070, ENTRY POINT A.

C D

3 E

E 2

5218 A01 A02

MAP 0070-3

A1-A2 COMMUNICATIONS

PAGE 3 OF 3

011 - Install the communications wrap jumper
on the system end of the printer cable.
- Select and run diagnostic test 07.
Is the LED display 07?
Y N
012 Is the LED display 9A?
Y N
013 The symptoms have changed.
The problem must be intermittent.
GO TO MAP 0130, ENTRY POINT A.
014 The wrap test works on the printer.
The wrap test fails at the end of the
cable.
015 The wrap tests run correctly on the printer
and on the display writer.
Install a new A-AID1 card then return to the
display writer again.
GO TO MAP 5030, ENTRY POINT A.

MAP 0070-3

CODE MATRIX TABLE

PAGE 1 OF 4

ENTRY POINTS

FROM	ENTER THIS MAP	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0010	A		2	001
0015	A		2	001

EXIT POINTS

EXIT THIS MAP	TO	PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
		4	004	0020	A
		4	004	0030	A
		4	004	0040	A
		4	004	0040	A
		4	004	0050	A
		4	004	0060	A
		4	003	0095	A
		4	004	0095	C
		4	004	0095	D
		4	004	0095	E
		4	004	0095	H
		4	004	0110	A

CODE MATRIX TABLE

PAGE 2 OF 4

001

(ENTRY POINT A)

SYMPTOM FRU TABLE

CODE	FRUS	CODE	FRUS	CODE	FRUS	CODE	FRUS	CODE	FRUS	CODE	FRUS
03-04	A-AIDI CT PAN	39-40	A-AIDI CT PAN	53	A-AIB1 A-A1C1	73	A-AIFI A-A1C1	88 OR .8.8	A-AIDI CT PAN A-A1C1		
07-29	A-AIDI CT PAN	42	A-AIDI CT PAN	55	A-AIB1 A-A1C1	74-75	A-AIFI A-A1C1 H REED SWIT	.8.8	CT PAN A-AIDI		
31	A-AIDI A-A1E1	43	A-AIFI A-A1C1	59	A-AIDI CT PAN	80	A-AICI	89	A-AICI A-AIDI		
32	A-AIDI	45	A-AICI A-AIDI	62	A-AIDI CT PAN	81-84	A-AICI	90	A-AIDI		
33-34	A-AIDI A-A1E1	47	A-AIDI	66-68	A-AIDI CT PAN	85	A-AICI HAMMER	91-92	A-AIDI CT PAN		
36-37	A-AIDI A-A1C1	48-50	A-AIDI CT PAN	70	A-AIDI CT PAN	86	A-AICI A-AIDI	93	A-AIDI		
38	A-AICI	52	A-AIDI CT PAN	72	A-AIDI CT PAN	87	A-AICI A-AIDI	94-97	A-AIDI CT PAN		
(Step 001 continues)								98-99	A-AIDI		

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MAP 0090-3

CODE MATRIX TABLE

PAGE 3 OF 4

(Step 001 continued)
IS THE CODE FOUND IN THE 'SYMPTOM FRU'
TABLE?
Y N

4
A B

002

SYMPTOM GO TO MAP TABLE

CODE	GO TO	CODE	GO TO
01-02	0095,C	57-58	0050,A
05	0095,C	60-61	0060,A
06	0095,D	63-65	0060,A
30	0095,E	69	0020,A
35	0095,H	71	0030,A
41	0110,A	76-77	0040,A
44	0110,A	78-79	0095,C
46	0110,A		
51	0050,A		
54	0050,A		
56	0050,A		

(Step 002 continues)

MAP 0090-3

CODE MATRIX TABLE

PAGE 4 OF 4

(Step 002 continued)
 IS THE CODE FOUND IN THE 'SYMPTOM GO TO MAP'
 TABLE?

Y N

| 003

| GO TO MAP 0095, ENTRY POINT A.

| 004

Go to the correct MAP listed in the 'SYMPTOM
 GO TO MAP' table.

(Step 004 continued)

 GO TO MAP 0050, ENTRY POINT A.

 GO TO MAP 0060, ENTRY POINT A.

 GO TO MAP 0040, ENTRY POINT A.

 GO TO MAP 0095, ENTRY POINT C.

 GO TO MAP 0095, ENTRY POINT D.

 GO TO MAP 0095, ENTRY POINT E.

 GO TO MAP 0095, ENTRY POINT H.

 GO TO MAP 0110, ENTRY POINT A.

005

Install a new FRU for the first FRU
 listed. If the printer does not work
 correctly install new FRUS one at a time in
 the order listed. See the 'SYMPTOM FRU'
 table.

POSSIBLE MAP EXIT POINTS

GO TO MAP 0020, ENTRY POINT A.

GO TO MAP 0030, ENTRY POINT A.

GO TO MAP 0040, ENTRY POINT A.

(Step 004 continues)

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CODE MATRIX

PAGE 1 OF 14

MAP 0095-1

ENTRY POINTS

FROM ENTER THIS MAP			
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0010	A	2	001
0090	A	2	001
0090	C	10	043
0090	D	9	036
0090	E	14	064
0090	H	14	062
0610	B	7	019
0620	B	7	019
0620	C	10	043
0630	A	2	001
0640	A	2	001
0640	AC	4	006
0650	B	7	019

EXIT POINTS

EXIT THIS MAP TO			
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
9	035	0010	A
11	051	0030	A
12	055	0040	A
3	005	0130	A
13	061	0610	A
11	052	0610	A

MAP 0095-1

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CODE MATRIX

PAGE 2 OF 14

MAP 0095-2

001
(ENTRY POINT A)

MAP Description:
THIS MAP DETERMINES BAD PART OR ADJUSTMENT
BASED ON THE CODE FROM THE BASIC ASSURANCE
TEST.

Entry Conditions:
NONE

Start Conditions:
A CODE MUST BE DISPLAYED ON THE OPERATOR
PANEL.

Field replaceable units :
A-A1B1,A-A1C1,A-A1D1,A-A1E1,A-A1F1

NOTE: For a description of the codes see MIM
SECTION (305).

Is the LED display blank(all segments off)?

Y N

002

Is the control panel 'DIAG MODE' light on?

Y N

9 4 3
A B C

MAP 0095-2

C 2

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CODE MATRIX

PAGE 3 OF 14

D E

MAP 0095-3

003

TABLE OF VALID CODES

NOTE: $\begin{bmatrix} \square & \square \end{bmatrix} = 6$ $\begin{bmatrix} \square & \square \end{bmatrix} = B$

XX-YY *	IS	XX THROUGH YY *****
01-02	60	71 81-83 93
05	61	73-79 84-87 98
06	63-65	.8.8 99
30-38	69	89
41		
43-47		
51		
53-58		

Is the code found in the 'TABLE OF VALID CODES'?

Y N

|||

D E

004

Bad control panel card.

---OR---

Bad card A-AID1.

005

THE SYMPTOMS CHANGED,
GO TO MAP 0130, ENTRY POINT A.

MAP 0095-3

5218 A01 A02

CODE MATRIX

PAGE 4 OF 14

006

(ENTRY POINT AC)
TABLE OF CE CODES

NOTE:

$\begin{bmatrix} \square \\ \square \end{bmatrix} = 6 \begin{bmatrix} \square \\ \square \end{bmatrix} = B$

A0	C1-C6	
05	CA	
8A	CC	
8C	D1-D5	
9A	D7	
9C	D8	
9D		

Is the code found in the 'TABLE OF CE CODES'?

Y N

5 5
F G

F G
4 4

5218 A01 A02

CODE MATRIX

PAGE 5 OF 14

007

Bad control panel card.

---OR---

Bad card A-AID1.

008

Is the LED display 8A?

Y N

009

Is the LED display A0?

Y N

010

Is the LED display C0?

Y N

011

Is the LED display CC?

Y N

012

Is the LED display D1?

Y N

9 8 8 8 8 6

H J K L M N

Code 8A signifies a processing unit is not ready and a reset must be performed.

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CODE MATRIX

PAGE 6 OF 14

N 5

013

Is the LED display D2?

Y N

014

Is the LED display D3?

Y N

015

Is the LED display D4?

Y N

016

Is the LED display D6?

Y N

017

Is the LED display D7?

Y N

018

Is the LED display D8?

Y N

8 8 8 8

P Q R S T U

8 7

V W

CODE MATRIX

PAGE 7 OF 14

019

(ENTRY POINT B)

Find the LED display in the vertical column and do the service check or adjustment or install a new FRU in the numbered order.

CODES												SERVICE CHECKS , ADJUSTMENTS AND BAD FRUS
8	8	9	9	9	9	9	9	9	9	9	9	
A	C	A	C	D	1	2	3	4	5	6	A	
-	-	-	-	-	I	I	I	I	I	I	I	START TO DO AGAIN
-	-	2	3	-	-	-	-	-	-	-	-	BAD COMMUNICATION ATTACHMENT PANEL
-	-	-	I	-	-	-	-	-	-	-	-	CONTROLLER COMMUNICATION PROBLEM
-	-	-	-	-	2	-	-	-	-	-	-	ESCAPEMENT MOTOR ASSEMBLY
-	-	-	-	-	-	-	-	-	-	-	3	BAD ANALOG2 CARD A-AIB1
I	I	I	2	I	3	2	3	-	-	-	I	BAD CARD A-AID1
2	-	-	-	-	-	-	-	-	-	-	2	BAD PRINTER LOGIC CARD A-AICI
-	-	-	-	-	-	-	-	-	-	-	5	BAD PATCH CARD A-AIEI
-	-	-	-	-	-	-	-	-	-	-	4	BAD ANALOG1 CARD A-AIFI
3	-	3	4	-	4	3	4	2	2	2	6	BAD BOARD A-AI

P Q R S T V 5218 A01 A02
6 6 6 6 6

CODE MATRIX

PAGE 8 OF 14

020 This is a recoverable error .Press
start.
Return to the MAP that sent you
here.

021 Close the top cover or bypass
interlock.
Return to the MAP that sent you
here.

022 Remove the paper.
Return to the MAP that sent you here.

023 Load in a sheet of paper by hand.
Return to the MAP that sent you here.

024 Load paper into the sheet feed hoppers.
Return to the MAP that sent you here.

025 Load paper into the tractor feed.
Return to the MAP that sent you here.

J K L M
5 5 5 5

026 Is the out of ribbon sensor covered by
ribbon?
Y N

027 Install a new ribbon cartridge and
return to the map that sent you here

028 Bad out of ribbon sensor.
---OR---
Bad card A-ALD1.
---OR---
Bad cable A-ALA4.

029 Wrong print wheel selection.
Return to the MAP that sent you here,
and select the correct print wheel.

030 Wrong test selection.
Return to the MAP that sent you here, and
select the correct test.

031 The open cover test worked correctly.
Return to the MAP that sent you here.

MAP 0095-8

MAP 0095-8

A H 5218 A01 A02
 2 5 CODE MATRIX
 PAGE 9 OF 14

032 - Select 'DIAG MODE' (301).
 - Select and run diagnostic test 10.
 Is the code 10?
 Y N

033 GO TO PAGE 7, STEP 019,
 ENTRY POINT B.

034 The reset worked correctly.
 Return to the MAP that entered this MAP.

035 The machine may have been turned off]
 ---OR---
 Not enough time was permitted to complete
 the basic assurance test]
 GO TO MAP 0010, ENTRY POINT A.

MAP 0095-9

036 (ENTRY POINT D)
 - Code 06 is cover open code. If the top
 cover is open, close the cover.
 -SET PRINTER POWER SWITCH TO '0'.
 -SET PRINTER POWER SWITCH TO '1'. WAIT 35
 SECONDS UNTIL POWER ON SEQUENCE IS
 COMPLETE.

Is the LED display 06?
 Y N

037 The cover was probably open. Go back to
 the map you came from.

038 -SET PRINTER POWER SWITCH TO '0'.
 - Lift top cover and install cover bypass
 jumper.
 -SET PRINTER POWER SWITCH TO '1'. WAIT 35
 SECONDS UNTIL POWER ON SEQUENCE IS
 COMPLETE.

Is the LED display 06?
 Y N

039 Adjust or install new cover interlock
 switch.

1 0 X

MAP 0095-9

X 9

5218 A01 A02

CODE MATRIX

PAGE 10 OF 14

040 - Check pins in cover interlock plug and
CE jumper.
Is the plug and jumper OK?
Y N

041 Repair or install a new CE jumper or cable
from control panel card to interlock plug.

042 Bad control panel logic card.
---OR---
Bad card A-A1D1.

MAP 0095-10

043 (ENTRY POINT C)
Is the sheet feed installed?
Y N

044 -SET PRINTER POWER SWITCH TO '0'.
-SET PRINTER POWER SWITCH TO '1'. WAIT
35 SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.
- Select diagnostic mode.
- Select and run diagnostic test 08.
Is the LED display 08?
Y N

045 Bad card A-A1D1.

046 Bad card A-A1C1.

1
1
Y

MAP 0095-10

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CODE MATRIX

PAGE 11 OF 14

Y
1
0

047

- SET PRINTER POWER SWITCH TO '0'.
- Disconnect the sheet feed plug from the attachment panel.
- Leave the sheet feed on the printer.
- Remove paper jam if necessary.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Insert a sheet of paper by hand into the platen area.
- Press the 'LOAD' switch on the control panel.

Does the paper move to the first writing line?

Y N

048

- Remove the sheet feed from the printer.
- Remove the printer cover(200).
- Install the cover interlock jumper.
- Attempt to hold back the platen while pressing and holding the paper up switch.

Can the platen be held back easily?

Y N

1

2

A

B

A
B

049

Does the platen move far enough to move the paper to the first print line?

Y N

050

- Remove the sheet feed.
- Attempt loading a sheet of paper again.

Does the platen move far enough to move the paper to the first print line?

Y N

051

GO TO MAP 0030, ENTRY POINT A.

052

Install sheet feed.

-SET PRINTER POWER SWITCH TO '0'.

Plug in sheet feed.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

GO TO MAP 0610, ENTRY POINT A.

1

2

A

C

MAP 0095-11

MAP 0095-11

A A
A C
1 1
1 1

5218 A01 A02

CODE MATRIX

PAGE 12 OF 14

053

- Remove cover interlock jumper.
- Reinstall printer cover.
Is the printer cover adjustment correct
(115)?
Y N

054

Do the cover adjustment.

055

Remove the sheet feed.
GO TO MAP 0040, ENTRY POINT A.

056

Loose set screws in the index motor drive
pulley.

---OR---

Loose set screws in the platen pulley.

---OR---

Loose index motor drive belt.

---OR---

Bad index motor drive pulley.

---OR---

Bad platen pulley.

---OR---

Bad index motor drive belt.

Z 5218 A01 A02

1
1

CODE MATRIX

PAGE 13 OF 14

057

- Select diagnostic mode(301).
- Select and run diagnostic test 26 while observing the LED display.
- The LED display will show the test number 26, then the sense code, then will return the test number 26.

Is the sense code 01?

Y N

058

Bad paper sensor.

---OR---

Bad card A-ALC1.

059

Is the cover adjustment correct (115)?

Y N

060

Do the cover adjustment (115).

061

-SET PRINTER POWER SWITCH TO '0'.
Plug in sheet feed.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

GO TO MAP 0610, ENTRY POINT A.

The sense code will be 00 if the sensor is not covered or 01 if the sensor is covered.

CODE MATRIX

PAGE 14 OF 14

062
(ENTRY POINT H)
- SET PRINTER POWER SWITCH TO '0'.
- Remove the main printer cover(200).
- Remove the control panel assembly(202).
- Separate the control panel circuit card from the switch panel(203) and unplug the cable between them.
- Reconnect the cable from the A-A1 board to to the control panel circuit card.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the LED display 35?

Y N

063
Bad control switch panel.
---OR---
Bad control panel card.

064
Bad control panel cable.
---OR---
Bad control panel card.
---OR---
Bad card A-A1D1.

(Step 064 continues)

(Step 064 continued)
(ENTRY POINT E)
The 'EXCEPTION' handler received an error from another processing unit and could not interpret the error. The hardware test were then run and found no errors.
Suspect an intermittent failure, a failure with more than one FRU or a micro code problem.

Bad card A-A1B1
---OR---
Bad card A-A1C1
---OR---
Bad card A-A1D1
---OR---
Bad card A-A1E1
---OR---
Bad card A-A1F1
---OR---
Bad power supply.

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POWER CHECK ENTRY

PAGE 1 OF 20

ENTRY POINTS

FROM ENTER THIS MAP			
MAP	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0010	A	2	001
0015	A	2	001
0610	A	2	001

MAP 0100-1

EXIT POINTS

EXIT THIS MAP TO			
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
20	086	0010	B
17	071	0120	A
18	078	0130	A

MAP 0100-1

B 2

5218 A01 A02

POWER CHECK ENTRY

PAGE 3 OF 20

002

-SET PRINTER POWER SWITCH TO '0'.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Does the carrier move?

Y N

003

- Listen for the fan motor running.
- Feel for air blowing out of the
fan(100).

Is the fan motor running?

Y N

004

-SET PRINTER POWER SWITCH TO '0'.
- Remove and check the AC fuse in the
power supply(234)(235).

Is the fuse good?

Y N

1 7 6 4

C D E F

F

005

- Install a good fuse.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Is the control panel 'POWER ON' light on?

Y N

006

-SET PRINTER POWER SWITCH TO '0'.
- Install a good fuse.
- Remove the plug from the fan motor.
-SET PRINTER POWER SWITCH TO '1'. WAIT
35 SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Is the control panel 'POWER ON' light on?

Y N

007

Bad printer power supply.

008

Bad fan motor assembly.

009

The fuse was the only problem.

MAP 0100-3

MAP 0100-3

POWER CHECK ENTRY

PAGE 5 OF 20

013

016

DANGER

HIGH AC VOLTAGE PRESENT . CLIP ON LEADS OR
HOLD ON INSULATOR.

- SET PRINTER POWER SWITCH TO '0'.
- Disconnect the printer from the wall outlet.
- Connect the CE meter to each black wire on the bottom of the printer power switch.
- Connect the printer to the wall plug.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the meter read between 100 and 150 volts AC?

Z
 Y

014

Bad AC filter assembly.

-0.15

Bad printer power switch.

DANGER

HIGH AC VOLTAGE PRESENT . CLIP ON LEADS OR
HOLD ON INSULATOR.

- SET PRINTER POWER SWITCH TO '0'.
- Disconnect the printer from the wall outlet.
- Connect the CE meter to the two black wires on the AC plug on the power supply(234).
- Connect the printer to the wall plug.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the meter read between 100 and 150 volts AC?

NY

017

Bad AC cable from the printer power switch to the power supply.

6 Y

K 5218 A01 A02

POWER CHECK ENTRY

PAGE 6 OF 20

018

DANGER

HIGH AC VOLTAGE PRESENT . CLIP ON LEADS OR
HOLD ON INSULATOR.

- Disconnect the printer from the wall outlet.
- SET PRINTER POWER SWITCH TO '0'.
- Connect the CE meter to the two black wires on the AC plug on the fan assembly.
- Connect the printer to the wall plug.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the meter read between 100 and 150 volts AC?

Y N

019

Bad printer power supply.

020

Bad fan assembly.

MAP 0100-6

D 3

021

(ENTRY POINT B)

- SET PRINTER POWER SWITCH TO '0'.
- Remove the sheet feed if installed.
- Remove the tractor feed if installed.
- Remove the main printer cover.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Observe the power supply check light(101).

Is the power supply check light on?

Y N

022

Is the control panel 'POWER ON' light on?

Y N

023

- Connect a meter on connector J4(on the power supply) between pins 2 and 7 (234).

Does the meter read between 4.5 VDC and 5.5 VDC?

Y N

024

Bad printer power supply.

8 8 7

L M N

MAP 0100-6

N 5218 A01 A02

MAP 0100-7

POWER CHECK ENTRY

PAGE 7 OF 20

025

- SET PRINTER POWER SWITCH TO '0'.
- Remove the A-A1A2 connector from the A-A1 board.
- Connect a meter between A-A1A2 pin 7 and A-A1A2 pin 8 on the A-A1 board(104).
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the meter read between 4.5 VDC and 5.5 VDC?

Y N

026

Bad board A-A1.

027

- Connect the meter from A-A1A2 pin 1 on the cable to the other end of the cable pin 1.
- The meter should read less than .5 ohms.
- Repeat the reading for pins 2 through 12.

Are the meter readings correct?

Y N

028

Bad cable A-A1A2.

8 P

MAP 0100-7

L M P 5218 A01 A02

MAP 0100-8

6 6 7 POWER CHECK ENTRY

PAGE 8 OF 20

029 Bad control panel logic card.

030 The power supply check resets when power is turned off then back on .
Go to the intermittent MAP .

031 -SET PRINTER POWER SWITCH TO '0'.
- Observe the control panel lights.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Do all the control panel lights come on?

Y N

032 -SET PRINTER POWER SWITCH TO '0'.
- Remove the power supply dc cable J4 at the supply (234).
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the power supply check light on?

Y N

1 1
7 7 9
Q R S

This disconnects the power supply from the load to determine if the load or the power supply is causing the power check.

MAP 0100-8

POWER CHECK ENTRY

PAGE 9 OF 20

၆၈၈

033

- SET PRINTER POWER SWITCH TO '0'.
- Reconnect the power supply dc cable.
- Remove cables A-A1A2, A-A1A3, and A-A1A4 (104).
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the power supply check light on ?

034

```

-SET PRINTER POWER SWITCH TO '0'.
- Reconnect the power supply dc cable.
- Reconnect cable A-A1A2.
-SET PRINTER POWER SWITCH TO '1'. WAIT
  35 SECONDS UNTIL POWER ON SEQUENCE IS
  COMPLETE.

```

Is the power supply check light on ?

NY

035

```

-SET PRINTER POWER SWITCH TO '0'.
- Reconnect cable A-A1A3.
-SET PRINTER POWER SWITCH TO '1'.
  WAIT 35 SECONDS UNTIL POWER ON
  SEQUENCE IS COMPLETE.

```

Is the power supply check light on?

人 之

110W
110V
111U
111T

The load should be causing the power check. This disconnects the control panel, the cam motor assembly, the selection motor windings, and the hammer solenoid from the power supply to determine if they are causing the power check.

The control panel , the cam motor assembly , the selection motor , windings , or the hammer solenoid should be causing the power check. This reconnects the control panel to determine if it is causing the power check.

The cam motor assembly, the selection motor windings, or the hammer solenoid should be causing the power check. This reconnects the cam motor assembly determine if it is causing the power check.

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POWER CHECK ENTRY

PAGE 10 OF 20

036

- SET PRINTER POWER SWITCH TO '0'.
- Reconnect cable A-A1A4.
- Remove the front plug from the right carrier cable (105).
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the power supply check light on ?

Y N

037

Bad hammer assembly .

038

Bad selection motor assembly .

039

- SET PRINTER POWER SWITCH TO '0'.
- Disconnect connector on the cam motor assembly (211).
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the power supply check light on ?

Y N

040

Bad cam motor assembly.

1 1 X

The selection motor windings , or the hammer solenoid should be causing the power check. This disconnects the hammer solenoid and reconnects the selection motor windings determine which one is causing the power check.

The cam motor or the A-A1A3 cable should be causing the power check. This disconnects the cam motor to determine if it is causing the power check.

T U X 5218 A01 A02

MAP 0100-11

POWER CHECK ENTRY

PAGE 11 OF 20

041

Bad A-A1A3 cable.

042

-SET PRINTER POWER SWITCH TO '0'.
- Disconnect the A-A1A2 cable from the control panel card.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the power supply check light on ?

Y N

043

Bad control panel card.

044

Bad A-A1A2 cable.

045

-SET PRINTER POWER SWITCH TO '0'.
- Reconnect A-A1A2 ,A-A1A3 and A-A1A4 cables.
- Disconnect A-A1A5 and A-A1A7 cables.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

(Step 045 continues)

The control panel card or the cable to the control panel should be causing the power check.

This disconnects the control panel card to determine if it is causing the power check.

The control panel , the cam motor assembly , the selection motor windings , and the hammer solenoid are not causing the power check.

This disconnects the selection feedback, the hammer feedback, the paper sensor and the ribbon sensor to determine if they are causing the power check.

MAP 0100-11

POWER CHECK ENTRY

PAGE 12 OF 20

(Step 045 continued)

Is the power supply check light on ?

Y N

046

-SET PRINTER POWER SWITCH TO '0'.

- Reconnect cable A-A1A5.

-SET PRINTER POWER SWITCH TO '1'. WAIT

35 SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

The selection feedback, the hammer feedback, the paper sensor or the ribbon sensor should be causing the power check.
This reconnects the selection feedback, the hammer feedback and the ribbon sensor to determine if they are causing the power check.

Is the power supply check light on ?

Y N

047

Bad paper sensor.

048

-SET PRINTER POWER SWITCH TO '0'.

- Remove the front plug from the left carrier cable (105).

-SET PRINTER POWER SWITCH TO '1'. WAIT

35 SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

The selection feedback, the hammer feedback or the ribbon sensor should be causing the power check.
This disconnects the ribbon sensor to determine if it is causing the power check.

Is the power supply check light on ?

Y N

049

Bad ribbon sensor.

1 1
3 3
Y Z

Y Z 5218 A01 A02

MAP 0100-13

1 1 POWER CHECK ENTRY

2 2 PAGE 13 OF 20

050

-SET PRINTER POWER SWITCH TO '0'.
- Remove center plug from the left
carrier cable (105).
-SET PRINTER POWER SWITCH TO '1'. WAIT
35 SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Is the power supply check light on ?

Y N

051

Bad hammer assembly.

052

Bad selection assembly.

053

-SET PRINTER POWER SWITCH TO '0'.
- Reconnect A-A1A5 and A-A1A7 cables.
- Disconnect A-A1G2 cable.(If there is no
cable plugged in A-A1G2 answer this
question 'YES')
-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Is the power supply check light on ?

Y N

1 1

5 4

A A

A B

The selection feedback or the hammer
feedback should be causing the power check.
This disconnects the hammer feedback to
determine if it is causing the power check.

The selection feedback, the hammer feedback,
the paper sensor and the ribbon sensor are
not causing the power check.
This disconnects the sheet feed to determine
if it is causing the power check.

MAP 0100-13

5218 A01 A02

POWER CHECK ENTRY

PAGE 14 OF 20

A
B
1
3

054

-SET PRINTER POWER SWITCH TO '0'.
- Reconnect A-AIG2 cable .
- Disconnect the sheet feed from the attachment panel.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the power supply check light on ?

Y N

055

-SET PRINTER POWER SWITCH TO '0'.
- Reconnect the cable from the attachment panel to the sheet feed.
- Disconnect sheet feed analog card connector J7.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the power supply check light on ?

Y N

056

Bad sheet feed analog card.

057

Bad cable from the attachment panel to the sheet feed.

1
5
A
C

MAP 0100-14

The sheet feed analog card, the cable from the sheet feed to the attachment panel or the A-AIG2 cable should be causing the power check.
This disconnects the sheet feed at the attachment panel to determine if it is causing the power check.

The sheet feed analog card or the cable from the sheet feed to the attachment panel should be causing the power check.
This disconnects the sheet feed analog card to determine if it is causing the power check.

MAP 0100-14

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 POWER CHECK ENTRY
 PAGE 15 OF 20

Bad cable A-A1G2.

-SET PRINTER POWER SWITCH TO '0'.

- Reconnect cable A-A1G2.

- Remove card A-A1F1.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35
 SECONDS UNTIL POWER ON SEQUENCE IS
 COMPLETE.

Is the power supply check light on ?

Y N

060
 Bad card A-A1F1.

-SET PRINTER POWER SWITCH TO '0'.

- Reconnect card A-A1F1.

- Remove card A-A1B1.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35
 SECONDS UNTIL POWER ON SEQUENCE IS
 COMPLETE.

Is the power supply check light on ?

Y N

062
 Bad card A-A1B1.

None of the motors, sensors or feed back are
 causing the power check.

This disconnects the A-A1F1 card to
 determine if it is causing the power check.

The A-A1F1 card is not causing the power
 check.

This disconnects the A-A1B1 card to
 determine if it is causing the power check.

5218 A01 A02

MAP 0100-16

POWER CHECK ENTRY

PAGE 16 OF 20

A
D
1
5

063

-SET PRINTER POWER SWITCH TO '0'.
- Reconnect card A-A1B1.
- Remove card A-A1C1.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Is the power supply check light on ?

Y N

064

Bad card A-A1C1.

065

-SET PRINTER POWER SWITCH TO '0'.
- Reconnect card A-A1C1.
- Remove card A-A1E1 if installed.(If this
card is is not installed answer this
question 'YES')
-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Is the power supply check light on ?

Y N

066

Bad card A-A1E1.

1
7
A
E

The A-A1B1 card is not causing the power
check.
This disconnects the A-A1C1 card to
determine if it is causing the power check.

The A-A1C1 card is not causing the power
check.
This disconnects the A-A1E1 card to
determine if it is causing the power check.

MAP 0100-16

C Q R A 5218 A01 A02

MAP 0100-17

3 8 E 1 6 POWER CHECK ENTRY

PAGE 17 OF 20

067

-SET PRINTER POWER SWITCH TO '0'.
- Reconnect card A-A1E1.
- Remove card A-A1D1.
-SET PRINTER POWER SWITCH TO '1'.
WAIT 35 SECONDS UNTIL POWER ON
SEQUENCE IS COMPLETE.

Is the power supply check light on ?

Y N

068

Bad card A-A1D1.

069

Bad printer power supply.

---OR---

Bad A-A1 board.

070

Bad printer power supply.

071

GO TO MAP 0120, ENTRY POINT A.

072

Is the control panel 'POWER ON' light on?

Y N

1 1

8 8

A A

F G

The A-A1E1 card is not causing the power check.
This disconnects the A-A1D1 card to determine if it is causing the power check.

MAP 0100-17

A
G
1
7

073

- Disconnect the A-A1A2 connector from the A-A1 board.
- Connect the meter between pins 7 and 8 on the A-A1 board at connector A-A1A2.

Does the meter read between 4.5 VDC and 5.5 VDC?

Y N

074

Bad board A-A1.

075

- Reconnect the A-A1A2 connector.
- Connect a meter between pins 7 and 8 on the control panel (pin one is on the bottom).

Does the meter read between 4.5 VDC and 5.5 VDC?

Y N

076

Bad cable A-A1A2.

077

Bad control panel card.

A
2
F
1
7

078

The power supply check resets when power is turned off then back on ,
GO TO MAP 0130, ENTRY POINT A.

079

(ENTRY POINT C)

- Remove the sheet feed if installed.
- Remove the tractor feed if installed.
- Remove the main printer cover.

Is the power supply check light on (101)?

Y N

080

- Observe the fan or feel for air blowing.

Is the fan running?

Y N

081

-SET PRINTER POWER SWITCH TO '0'.

- Check the fan motor plug for bent or broken contacts.
- Check that the plug is seated correctly.

Is the fan motor plug in good condition and plugged correctly?

Y N

2 1 1 1

0 9 9 9

A A A A

H J K L

A A
K L
1 1
8 8

5218 A01 A02

POWER CHECK ENTRY

PAGE 19 OF 20

| |
| |
| |

082

Plug in ,repair or install a new fan motor
plug.

083

Bad fan motor.

A J
1 1
8 8

MAP 0100-19

| |
| |
084

- Connect the CE multimeter to the probe
points in the following table. Record
the measurements.

VOLTAGE	LOW RANGE	HIGH RANGE	PROBE POINT
+5 VDC	4.8	5.5	A-A1B1 CARD TEST POINTS +5V AND GND MIM 104
+12 VDC	11.04	13.2	A-A1B1 CARD TEST POINTS +12 AND GND
+36 VDC	32.4	39.6	A-A1B1 CARD TEST POINTS +36 AND GND
-24 VDC	19.2	30.48	POWER SUPPLY J4-6 GND AND J4-8(-24V) MIM 234

Are the measurements correct?

Y N

085

Bad power supply.

2
0
A
M

MAP 0100-19

A A 5218 A01 A02
H M
1 1
8 9
POWER CHECK ENTRY
PAGE 20 OF 20
086
This map should not have been entered.
GO TO MAP 0010, ENTRY POINT B.
087
GO TO PAGE 6, STEP 021, ENTRY POINT B.

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MAP 0110-1

ESCAPEMENT-CARRIER

PAGE 1 OF 16

ENTRY POINTS

FROM ENTER THIS MAP			
MAP	ENTRY	PAGE	STEP
NUMBER	POINT	NUMBER	NUMBER
0010	A	1	001
0015	A	1	001
0090	A	1	001

001
(ENTRY POINT A)

Is the LED display blank(all segments off)?

Y N
| | | | | | | |
1 4 2
A B

EXIT POINTS

EXIT THIS MAP TO			
PAGE	STEP	MAP	ENTRY
NUMBER	NUMBER	NUMBER	POINT
16	077	0015	G
2	005	0130	A

MAP Description:
THIS MAP DETERMINES THE GENERAL TYPE OF
ESCAPEMENT FAILURE AND ISOLATES THE FAILURE.

Entry Conditions:
NONE

Start Conditions:
NONE

Field replaceable units :
NONE.

MAP 0110-1

B
1

5218 A01 A02

ESCAPEMENT-CARRIER

PAGE 2 OF 16

002
Y N

Is the code 41?

003
Y N

Is the code 44?

004
Y N

Is the code 46?

005

THE CODE CHANGED OR WAS OBSERVED
WRONG.

GO TO MAP 0130, ENTRY POINT A.

006
Y N

Is there a left hand margin switch?

007
(ENTRY POINT B)

- SET PRINTER POWER SWITCH TO '0'.
- Move the carrier away from the left hand margin.
- Set printer power switch to '1'.

(Step 007 continues)

1
3 4 3
C D E

MAP 0110-2

(Step 007 continued)

Does the carrier return to the left hand margin and then center?

Y N

008

- SET PRINTER POWER SWITCH TO '0'.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the leadscrew coupler turn(101)?

Y N

009

- Check the set screws in the leadscrew coupler(217).

Are the set screws tight enough?

Y N

010

Tighten the set screws.

011

Bad leadscrew coupler assembly.

3 3
F G

MAP 0110-2

E G
2 2

5218 A01 A02

ESCAPEMENT-CARRIER

PAGE 3 OF 16

012

-SET PRINTER POWER SWITCH TO '0'.
-SET PRINTER POWER SWITCH TO '1'. WAIT
35 SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Does the lead screw turn at all?

Y N

013

- Check the set screws in the
leadscrew coupler(217).

Are the set screws tight enough?

Y N

014

Tighten the set screws.

015

Bad leadscrew coupler assembly.

016

Bad lower carrier assembly.

017

Bad card A-A1C1.

---OR---

Bad card A-A1D1.

E 2

018

-SET PRINTER POWER SWITCH TO '0'.
- Move carrier away from the left hand
margin.

- Set printer power switch to '1'.
Does the carrier go to the left hand margin
and stay?

Y N

019

Does the escapement motor turn?

Y N

020

The motor could be bad or there could be
a bind on the leadscrew.

Bad escapement motor assembly.

---OR---

Bad leadscrew.

---OR---

Bad lower carrier assembly.

021

GO TO PAGE 2, STEP 007,
ENTRY POINT B.

022

Bad left hand margin switch.

MAP 0110-3

MAP 0110-3

D 2

5218 A01 A02

ESCAPEMENT-CARRIER

PAGE 4 OF 16

023

Is there a left hand margin switch?

Y N

024

- Observe the carrier and the lead screw for an obstruction.

Is an obstruction binding the carrier movement?

Y N

025

- Select 'DIAG MODE'(301).

- Select mode 3.

- Select and run diagnostic test 11.

- Observe the leadscrew coupler.(217)

- Press the'STOP' switch after making the observation

Does the leadscrew coupler turn at all?

Y N

026

-SET PRINTER POWER SWITCH TO '0'.
- Loosen the left set screws in the leadscrew coupler assembly.
- Turn the lead screw by hand.

Does the lead screw turn freely?

Y N

1 1

1 1

H J

K

L

M

L M

027

Bad lead screw.

---OR---

Bad lower carrier assembly.

---OR---

Bad lead screw bearing.

028

- Turn the leadscrew coupler.

- Some resistance will be encountered as the motor moves from position to position.

Does the leadscrew coupler turn(101)?

Y N

029

Bad escapement motor assembly.

030

- Tighten the set screws.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the escapement motor turn at all?

Y N

7 5

N P

MAP 0110-4

MAP 0110-4

P
4

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MAP 0110-5

ESCAPEMENT-CARRIER

PAGE 5 OF 16

031

- Connect the meter between test point (REFERENCE) and test point (GROUND) on the A-A1B1 card(104).
- The meter should read between 4.5 volts DC and 5.5 volts DC.

Is the meter reading correct?

Y N

032

Bad card A-A1B1.

033

- Connect the meter between test point (REFERENCE) and test point (GROUND) on the A-A1F1 card(104).
- The meter should read between 4.5 and 5.5 volts DC.

Is the meter reading correct?

Y N

034

Bad card A-A1B1.

---OR---

Bad board A-A1.

6
Q

MAP 0110-5

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ESCAPEMENT-CARRIER

PAGE 6 OF 16

MAP 0110-6

- 035
- SET PRINTER POWER SWITCH TO '0'.
 - Remove the escapement motor cable connector A-A1G1 from the A-A1 board.
 - Connect a FLUKE* meter on the low ohms scale between pins 1 and 2 of the escapement motor connector. Record the reading.
 - The meter should read between .6 ohms and .8 ohms.
 - Repeat for pins 2 and 3.
 - Repeat for pins 4 and 5.
 - Repeat for pins 5 and 6.

The FLUKE* meter model 8020A has enough accuracy on the 200 ohm scale. This checks for an open or short circuit in the escapement motor winding.

*TRADEMARK OF JOHN FLUKE MFG. CO. INC.
MOUNTLAKE, WASHINGTON

Are the meter readings correct?

Y N | | | | | | |

Z Z | | | | | | |
R S

MAP 0110-6

4K 4N 6R 6S

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ESCAPEMENT-CARRIER

PAGE 7 OF 16

036

Bad escapement motor assembly.

037

Bad card A-A1F1.

038

Bad lead screw.

---OR---

Bad lower carrier assembly.

039

- Press the 'CANCEL' switch three times to leave diagnostic mode.
- Lift the top printer cover(200).
- Connect a meter between TP8 (+12) and TP10 (GND) on the A-ALC1 card(104).
- The meter should read between 11.04 and 13.2 VDC.

Is the meter reading correct?

NY

U
T

MAP 0110-7

U

070-

- Check for +12 Vdc between pins J4-4 and J4-6 on the power supply connector J4(234).
- The meter should read between 11.04 and 13.2 VDC.

Is the meter reading correct?

NY

170

Bad power supply.

042

Bad board A-A1.

MAP 0110-7

T
7

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MAP 0110-8

ESCAPEMENT-CARRIER

PAGE 8 OF 16

043

CAUTION

Do not touch the meter leads together.
Damage could occur to the feed back emitter
or the A-ALC1 card.

This checks the feedback after it goes
through the amplifier.

- Set the scale to read 5 Vdc .
- Remove the escapement motor connector
from the rear of the A-A1 board.(A-ALC1)
- Connect the meter between TP11 and
TP15(ground) on the A-ALC1 card(104).
- Leave the power on to obtain a voltage
reading.
- Turn the lead screw very slightly
clockwise then counterclockwise while
observing the meter.
- The meter should read between 0 and .5
volts DC for some leadscrew positions
and between 3.0 and 5.0 volts DC for
others.
- Repeat the reading with meter between
TP12 and TP15 (ground).

Are the meter readings correct?

Y N
| | | | | | | | | |
1 1 9
V W

MAP 0110-8

W
8

5218 A01 A02

ESCAPEMENT-CARRIER

PAGE 9 OF 16

MAP 0110-9

044

- Connect the meter between pin 5 on the escapement normal feedback connector to TP15 (ground)(104).
- The meter should read between 4.5 and 5.5 volts DC.

Are the meter readings correct?

Y N

045

Bad card A-ALC1.

046

- SET PRINTER POWER SWITCH TO '0'.
- Move the escapement feedback connector from the normal socket (right from front of printer) to the test socket(101)(104). These sockets are on the top of the A-ALC1 card.
- Connect the meter between feedback connector pins 3 and TP15(ground).
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- The code 44 is normal for this step.
- The meter should read between 0.0 and +0.5 volts DC for some leadscrew positions then between +2.0 and +5.0 volts DC for others.
- Turn the lead screw very slightly while (Step 046 continues)

This checks for the + 5 volts DC controlled by the A-ALC1 card to the escapement feedback.

This checks the feedback before the amplifier on the electronics .

MAP 0110-9

ESCAPEMENT-CARRIER

PAGE 10 OF 16

(Step 046 continued)

observing the meter.

- Repeat the procedure with the meter connected between pins 4 and TP15(ground).

Are the meter readings correct?

Y N

047

Bad escapement motor assembly.

048

Bad card A-A1C1.

---OR---

Bad escapement motor assembly.

---OR---

Bad leadscrew .

The escapement motor feedback could have one or more openings covered or bent that would not be found by the test. The leadscrew could have a bind or burr in only one spot that would not be found by the test.

H J V
4 4 8

5218 A01 A02

MAP 0110-11

ESCAPEMENT-CARRIER

PAGE 11 OF 16

049

Bad card A-A1C1.

---OR---

Bad escapement motor assembly.

---OR---

Bad lead screw .

050

Remove the obstruction.

051

- SET PRINTER POWER SWITCH TO '0'.
 - Unplug the left hand margin switch from the A-A1 board.
 - Move the carrier to the center of the lead screw.
 - Set the printer power switch to '1'.
- Does the carrier move to the left margin (ignore error code 46 if it appears)?

Y N

052

Bad A-A1C1 card.

---OR---

Bad A-A1 board.

1 2 X

The escapement motor feedback could have one or more openings covered or bent that would not be found by the test. The leadscrew could have a bind or burr in only one spot that would not be found by the test.

MAP 0110-11

X
1
1

5218 A01 A02

ESCAPEMENT-CARRIER

PAGE 12 OF 16

053

Bad left hand margin switch.

MAP 0110-12

MAP 0110-12

054

- SET PRINTER POWER SWITCH TO '0'.
- Remove the escapement motor connector from the the A-A1 board(A-A1G1).
- Connect a FLUKE* meter on the low ohms scale between pins 5 and 6 of the connector on the escapement motor. Pin 1 is on the right from the front of the printer. Record the reading. Repeat for pins 5 and 4. Repeat for pins 3 and 2. Repeat for pins 2 and 1. The meter should read between .6 ohms and .8 ohms.

The FLUKE* meter model 8020A has enough accuracy on the 200 ohm scale to read this resistance. This checks for an open or short circuit in the escapement motor winding.

*TRADEMARK OF JOHN FLUKE MFG. CO. INC.
MOUNTLAKE, WASHINGTON

Are the meter readings correct?

Y N | | | | |

1 1
4 4
Y Z

A Y Z
1 1 1
3 3 3

5218 A01 A02
ESCAPEMENT-CARRIER
PAGE 14 OF 16

055
Bad escapement motor assembly.

056
Bad card A-A1F1.
---OR---
Bad card A-A1C1.

057
-SET PRINTER POWER SWITCH TO '0'.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

- Observe the carrier movement.
Does the carrier move to the left side frame
then to the center of the platen?

Y N

058
Does the printer have a margin switch?

Y N

059
Bad lead screw.
---OR---
Bad lower carrier assembly.

A A
A B

A A
A B

060
Bad left margin switch.
---OR---
Bad lead screw.
---OR---
Bad lower carrier assembly.

061

- Run the 'VERIFY' test or observe a
earlier printout.
- Look for not enough room between
characters.

Is the spacing correct?

Y N

062
- Leave power on to detent the
escapement motor.
- Turn the lead screw clockwise then
counterclockwise(101).

Does the leadscrew coupler turn the same
as the lead screw?

Y N

1 1 1
6 5 5
A A A
C D E

A A
D E
1 1
4 4

5218 A01 A02

ESCAPEMENT-CARRIER

PAGE 15 OF 16

063

- Check the set screws in the lead screw
end of the leadscrew coupler.(217)
Are the screws tight enough?

Y N

064

Tighten the escapement motor coupling
set screws.

065

Bad leadscrew coupler assembly.

066

- Turn the leadscrew coupler clockwise and
then counterclockwise.

Does the escapement motor turn the same as
the leadscrew coupler?

Y N

067

- Check the right leadscrew coupler set
screws.(217)

Are the set screws tight enough?

Y N

068

Tighten the right escapement set
screws.(217)

A A
F G

A A
F G

069

Bad leadscrew coupler assembly.

070

-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

- Lift the ribbon assembly.
- Hold the carrier assembly by the frame
just above the lead screw.
- Put hard pressure to the right then to
the left.

Does the carrier have any visible movement?

Y N

071

Does the printer have a left hand margin
switch?

Y N

072

GO TO PAGE 2, STEP 007,
ENTRY POINT B.

073

Bad leadscrew.

---OR---

Bad escapement motor.

---OR---

Bad A-1F1 card.

1 6 A H

MAP 0110-15

MAP 0110-15

A A 5218 A01 A02

MAP 0110-16

C H
1 1 ESCAPEMENT-CARRIER

4 5
PAGE 16 OF 16

074 - Check the lead screw follower,
mounting screws and eccentric shaft
set screws(219)(126).

Is this check correct?

Y N

075 Tighten the screws or adjust the lead
screw follower or the eccentric set
screws.

076 Bad lower carrier assembly.

---OR---

Bad lead screw.

077
This MAP should not have been entered.
To continue isolation,
GO TO MAP 0015, ENTRY POINT G.

MAP 0110-16

POWER CHECK AFTER POR

PAGE 1 OF 14

ENTRY POINTS

FROM	ENTER THIS MAP	MAP	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0010	B	8			026
0100	A	1			001

001

(ENTRY POINT A)

- SET PRINTER POWER SWITCH TO '0'.
- Remove cable A-A1G1 from the A-A1 board.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

MAP Description:

THIS MAP ISOLATES THE POWER CHECK AFTER THE OPERATOR LIGHTS COME ON. THIS MAP ISOLATES THE POWER ON RESET FAILURE WHEN THE LIGHTS COME ON, THEN OFF, THEN ON AND REPEATS THIS SEQUENCE.

Entry Conditions:

THE 'POWER ON' LIGHT GOES OFF AFTER ALL THE OPERATOR LIGHTS COME ON, OR POWER ON RESET SEQUENCE REPEATS ITSELF.

Start Conditions:

NONE

Field replaceable units :

NONE.

(Step 001 continues)

POWER CHECK AFTER POR

PAGE 2 OF 14

(Step 001 continued)

Is the control panel 'POWER ON' light off?

Y N

002

Bad escapement motor assembly.

---AND--

Bad card A-A1F1.

003

-SET PRINTER POWER SWITCH TO '0'.

- Reconnect cable A-A1G1.

- Remove cable A-A1A4.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Is the control panel 'POWER ON' light off?

Y N

004

Bad selection motor assembly.

---AND--

Bad card A-A1B1.

This removes the escapement motor to
determine if it is causing the power check.

This remove the selection motor to determine
if it is causing the power check.

5218 A01 A02

POWER CHECK AFTER POR

PAGE 3 OF 14

A 2

005

-SET PRINTER POWER SWITCH TO '0'.

- Reconnect cable A-A1A4.

- Remove cable A-A1G3.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the control panel 'POWER ON' light off?

Y N

006

Bad index motor assembly.

---AND--

Bad card A-A1F1.

007

-SET PRINTER POWER SWITCH TO '0'.

- Reconnect cable A-A1G3.

- Remove card A-A1F1.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the control panel 'POWER ON' light off?

Y N

This remove the index motor to determine if it is causing the power check.

5 4
B C

5218 A01 A02

POWER CHECK AFTER POR

PAGE 4 OF 14

C 3

008

- Select 'DIAG MODE'.
- Select and run diagnostic test 12.

Is the control panel 'POWER ON' light off?

Y N

009

Is the code 51?

Y N

010

Bad card A-A1F1.

011

Bad card A-A1F1.

---OR---

Bad card A-A1C1.

012

Bad card A-A1B1.

With this card removed it causes a 71 error. Test 12 forces the micro code to run the A-A1B1 functions to determine if it is causing the power check. If a power check does not occur the A-A1F1 that was remove was causing the power check.

5218 A01 A02

MAP 0120-5

POWER CHECK AFTER POR

PAGE 5 OF 14

B 3

013

- SET PRINTER POWER SWITCH TO '0'.
- Reconnect card A-A1F1.
- Remove card A-A1B1.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Install a jumper from A-A1B1D1 to ground.
- Remove the jumper from A-A1B1D1 to ground.

Is the control panel 'POWER ON' light off?

Y N

014

Bad card A-A1B1.

015

- SET PRINTER POWER SWITCH TO '0'.
- Reconnect card A-A1B1.
- Remove card A-A1C1.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the control panel 'POWER ON' light off?

Y N

016

Bad card A-A1C1.

6 D

MAP 0120-5

This removes the A-A1B1 to determine if it is causing the power check. The jumper forces the power on reset which causes the micro code to run.

This removes the A-A1C1 to determine if it is causing the power check.

5218 A01 A02

POWER CHECK AFTER POR

PAGE 6 OF 14

D 5

017
Is there a card installed in A-A1E1?
Y N

018

- SET PRINTER POWER SWITCH TO '0'.
- Reconnect card A-A1C1.
- Remove card A-A1D1.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the control panel 'POWER ON' light off?

Y N

019

Bad card A-A1D1.

020

Bad power supply.

021

- SET PRINTER POWER SWITCH TO '0'.
- Reconnect card A-A1C1.
- Remove card A-A1E1.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Is the control panel 'POWER ON' light off?

Y N
|
|
|
|
|
|

7 7
E F

This removes the A-A1D1 to determine if it is causing the power check.

This removes the A-A1E1 to determine if it is causing the power check.

E F 5218 A01 A02

MAP 0120-7

POWER CHECK AFTER POR

PAGE 7 OF 14

022
Bad card A-A1E1.

023

-SET PRINTER POWER SWITCH TO '0'.

- Reconnect card A-A1E1.

- Remove card A-A1D1.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Is the control panel 'POWER ON' light off?

Y N

024

Bad card A-A1D1.

025

Bad power supply.

This removes the A-A1D1 to determine if it
is causing the power check.

MAP 0120-7

POWER CHECK AFTER POR

PAGE 8 OF 14

026

(ENTRY POINT B)

- SET PRINTER POWER SWITCH TO '0'.
- Remove cable A-A1G1 from the A-A1 board.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the LED display flash repeatedly (all segments on , all segments off, all segments on)?

Y N

|

|

|

|

|

|

|

|

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|

|

|

|

|

|

|

|

|

|

|

|

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|

|

|

|

|

|

027

Bad escapement motor assembly.

---AND--

Bad card A-A1F1.

028

-SET PRINTER POWER SWITCH TO '0'.

- Reconnect cable A-A1G1.

- Remove cable A-A1A4.

- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the LED display flash repeatedly (all segments on , all segments off, all segments on)?

Y N

|

|

|

|

|

|

|

|

|

|

|

|

|

This removes the escapement motor to determine if it is causing the power on reset check.

The LED display is flashing if all segments turn on, off,on,off-----.

This remove the selection motor to determine if it is causing the power on reset check.

9 9

G H

G H 5218 A01 A02

MAP 0120-9

8 8

POWER CHECK AFTER POR

PAGE 9 OF 14

029

Bad selection motor assembly.

---AND--

Bad card A-A1B1.

030

-SET PRINTER POWER SWITCH TO '0'.

- Reconnect cable A-A1A4.

- Remove cable A-A1G3.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Does the LED display flash repeatedly (all
segments on , all segments off, all segments
on)?

Y N

031

Bad index motor assembly.

---AND--

Bad card A-A1F1.

This remove the index motor to determine if
it is causing the power on reset check.

1 0 J

MAP 0120-9

POWER CHECK AFTER POR

PAGE 10 OF 14

- 032
- SET PRINTER POWER SWITCH TO '0'.
 - Reconnect cable A-A1G3.
 - Remove card A-A1F1.
 - SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the LED display flash repeatedly (all segments on , all segments off, all segments on)?

Y N

033

- Select 'DIAG MODE'.
- Select and run diagnostic test 12.

Does the LED display flash repeatedly (all segments on , all segments off, all segments on)?

Y N

034

Is the code 51?

Y N

1 1 1 1
1 1 1 1
K L M N

With this card removed it causes a 71 error. Test 12 forces the micro code to run the A-A1B1 functions to determine if it is causing the power on reset check. If a power on reset check does not occur the A-A1F1 that was remove was causing the power on reset check.

K L M N 5218 A01 A02

1 1 1 1
0 0 0 0

POWER CHECK AFTER POR

PAGE 11 OF 14

035

Bad card A-A1F1.

036

Bad card A-A1B1.

---OR---

Bad card A-A1C1.

037

Bad card A-A1B1.

038

-SET PRINTER POWER SWITCH TO '0'.

- Reconnect card A-A1F1.

- Remove card A-A1B1.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

- Install a jumper from A-A1B1D1 to
ground.

- Remove the jumper from A-A1B1D1 to
ground.

Does the LED display flash repeatedly (all
segments on , all segments off, all segments
on)?

Y N

039

Bad card A-A1B1.

1
2
P

This removes the A-A1B1 to determine if it
is causing the power check. The jumper
forces the power on reset which causes the
micro code to run.

5218 A01 A02

POWER CHECK AFTER POR

PAGE 12 OF 14

040

-SET PRINTER POWER SWITCH TO '0':

- Reconnect card A-A1B1.

- Remove card A-AlCl₃.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the LED display flash repeatedly (all segments on, all segments off, all segments on)?

NY

041

Bad card A-AlCl.

042

Is there a card installed in A-A1E1?

NY

043

-SET PRINTER POWER SWITCH TO '0'.

- Reconnect card A-A1C1.

- Remove card A-A1D1:

```
-SET PRINTER POWER SWITCH TO '1'. WAIT
35 SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.
```

(Step 043 continues)

130

This removes the A-AlCl₃ to determine if it is causing the power on reset check.

This removes the A-ALD1 to determine if it is causing the power on reset check.

5218 A01 A02

MAP 0120-13

POWER CHECK AFTER POR

PAGE 13 OF 14

(Step 043 continued)

Does the LED display flash repeatedly (all segments on, all segments off, all segments on)?

Y N

044

Bad card A-A1D1.

045

Bad power supply.

046

-SET PRINTER POWER SWITCH TO '0'.

- Reconnect card A-A1C1.

- Remove card A-A1E1.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the LED display flash repeatedly (all segments on, all segments off, all segments on)?

Y N

047

Bad card A-A1E1.

1 4 R

This removes the A-A1E1 to determine if it is causing the power on reset check.

MAP 0120-13

5218 A01 A02

MAP 0120-14

POWER CHECK AFTER POR

PAGE 14 OF 14

R
1
3

|
|
|
048

-SET PRINTER POWER SWITCH TO '0'.

- Reconnect card A-A1E1.

- Remove card A-A1D1.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Does the LED display flash repeatedly (all
segments on , all segments off, all segments
on)?

Y N

|

| 049

| Bad card A-A1D1.

|

050

Bad power supply.

This removes the A-A1D1 to determine if it
is causing the power on reset check.

MAP 0120-14

INTERMITTENT - UNUSUAL

PAGE 1 OF 25

ENTRY POINTS

FROM ENTER THIS MAP			
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
SAME	B	3	008
SAME	D	13	031
SAME	E	15	036
0010	A	2	001
0020	A	2	001
0030	A	2	001
0040	A	2	001
0050	A	2	001
0060	A	2	001
0070	A	2	001
0080	A	2	001
0090	A	2	001
0095	A	2	001
0100	A	2	001
0610	A	2	001
0620	A	2	001
0650	C	6	013
0660	C	6	013
0810	A	2	001

EXIT POINTS

EXIT THIS MAP TO			
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
25	075	0650	A
13	026	0660	A
20	056	5070	A
21	058	5070	A
21	060	5070	A
22	062	5070	A

INTERMITTENT - UNUSUAL

PAGE 2 OF 25

001

(ENTRY POINT A)

- Obtain all error code , maintenance statistics printout, printouts that were being printed at the time of the error, and symptoms that are available.
- Obtain as much information as possible from the customer.
- Connect a meter to all the probe points in the table and record the readings.

VOLTAGE	LOW RANGE	HIGH RANGE	PROBE POINT
+5 VDC	4.8	5.5	A-A1B1 CARD TEST POINTS +5V AND GND MIM 104
+12 VDC	11.04	13.2	A-A1B1 CARD TEST POINTS +12 AND GND
+36 VDC	32.4	39.6	A-A1B1 CARD TEST POINTS +36 AND GND
-24 VDC	19.2	30.48	POWER SUPPLY J4-6 GND AND J4-8(-24V) MIM 234
(Step 001 continues)			

MAP Description:
THIS MAP DETERMINES THE GENERAL TYPE OF INTERMITTENT OR UNUSUAL FAILURE AND SELECTS A GROUP OF FRUS .
Entry Conditions:
NONE
Start Conditions:
NONE

Field replaceable units :
CARDS A-A1B1 , A-A1C1, A-A1D1, A-A1E1 AND A-A1F1, BOARD A-A1, POWER SUPPLY PRINT WHEEL, RIBBON CARTRIDGE, RIBBON SENSOR, OPERATOR PANEL CARD, OPERATOR SWITCH ASSEMBLY, INSIDE REED CARD, TOP REED CARD, PAPER SENSOR, THE RIGHT AND THE LEFT CARRIER CABLE ASSEMBLIES AND THE UPPER AND LOWER CARRIER ASSEMBLIES.

(Step 001 continued)

Are the meter readings correct?

Y N

002

- Check all voltages at the power supply
DC plug.

Are the meter readings correct?

Y N

003

Bad power supply.

004

Bad card A-A1B1.

---OR---

Bad board A-A1.

005

Was the LED display recorded earlier blank?

Y N

006

Use this as the code and

GO TO STEP 008,

ENTRY POINT B.

007

Is the LED display blank now?

Y N

1

3

A B

B

008

(ENTRY POINT B)

TABLE OF VALID CODES

NOTE:

1	2	3	4	5	6	7	8	9	0	=	B
1	2	3	4	5	6	7	8	9	0	=	B

XX-YY x	IS	XX THROUGH xxxxxx	YY
------------	----	----------------------	----

01-02	60	71	81-83	93
-------	----	----	-------	----

05	61	73-79	84-87	98
----	----	-------	-------	----

06	63-65		.8.8	99
----	-------	--	------	----

30-38	69		89	
-------	----	--	----	--

41				
----	--	--	--	--

43-47				
-------	--	--	--	--

51				
----	--	--	--	--

53-58				
-------	--	--	--	--

(Step 008 continues)

(Step 008 continued)

Is the code found in the 'TABLE OF VALID CODES'?

Y N

009

TABLE OF CE CODES

NOTE:
 $\begin{array}{|c|c|c|} \hline \square & = 6 & \square \\ \hline \square & & \square \\ \hline \end{array} = B$

A0	C1-C6	
05	CA	
8A	CC	
8C	D1-D5	
9A	D7	
9C	D8	
9D		

Is the code found in the 'TABLE OF CE CODES'?

Y N

6 5
C D E

E

010

Bad operator panel logic card.

---OR---

Bad card A-A1D1.

---OR---

Bad card A-A1B1.

---OR---

Bad cable from the operator panel to the A-A1 board.

---OR---

Bad board A-A1.

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INTERMITTENT - UNUSUAL

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011

Find the code and install new FRUs in the numbered order. The same number signifies to install the new FRUs at the same time.

CODES												SERVICE CHECKS , ADJUSTMENTS AND BAD FRUS
8	9	9	9	C	C	C	C	C	C	C	C	
A	C	A	C	D	1	2	3	4	5	6	A	
-	-	-	-	-	1	1	1	1	1	1	-	START TO DO AGAIN
-	-	-	-	-	-	-	-	-	-	-	-	BAD COMMUNICATION ATTACHMENT PANEL
-	-	-	-	-	-	-	-	-	-	-	-	CONTROLLER COMMUNICATION PROBLEM
-	-	-	-	-	-	-	-	-	-	-	-	ESCAPEMENT MOTOR ASSEMBLY
-	-	-	-	-	-	-	-	-	-	-	-	BAD ANALOG2 CARD A-A1B1
1	1	1	2	1	3	2	3	-	-	-	-	BAD CARD A-A1D1
2	-	-	-	-	-	-	-	-	-	-	-	BAD PRINTER LOGIC CARD A-A1C1
-	-	-	-	-	-	-	-	-	-	-	-	BAD PATCH CARD A-A1E1
-	-	-	-	-	-	-	-	-	-	-	-	BAD ANALOG1 CARD A-A1F1
3	3	4	-	4	3	4	2	2	2	6	-	BAD BOARD A-A1

C
4

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INTERMITTENT - UNUSUAL
PAGE 6 OF 25

012

Is the code 01, 02, 05, 78 or 79?
Y N

013

(ENTRY POINT C)
Is the code 00 through 34.
Y N

014

Is the code 35 through 45.
Y N

015

Is the code 46 through 57.
Y N

016

IS THE CODE 60 THROUGH 71.
Y N

1 1 1 1
3 2 1 0 9
F G H J K L

L

017

IS THE CODE 73 THROUGH 79.
Y N

018

Is the code 80 through 99.
Y N

019

The code changed.
Use the new code and
GO TO PAGE 2, STEP 001,
ENTRY POINT A.

8 7
M N

5218 A01 A02

INTERMITTENT - UNUSUAL

PAGE 7 OF 25

020

Find the code and install new FRUs in the numbered order. The same number signifies to install the new FRUs at the same time.

CODES															
8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	SERVICE CHECKS , ADJUSTMENTS AND
0	1	2	3	4	5	6	7	8	9	0	3	8	9		BAD FRUS
-	-	-	-	-	-	3	3	-	-	-	-	-	-	-	BAD ANALOG2 CARD A-A1B1
I	I	I	I	I	I	I	I	3	I	-	-	-	-	-	BAD PRINTER LOGIC CARD A-A1C1
2	-	-	-	-	2	2	2	I	2	I	I	I	I	I	BAD CARD A-A1D1
-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	BAD HAMMER ASSEMBLY
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BAD ANALOG1 CARD A-A1F1
-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	BAD CONTROL PANEL LOGIC CARD
-	-	-	-	-	-	4	4	-	-	3	-	-	-	-	BAD BOARD A-A1

M 5218 A01 A02
6

MAP 0130-8

INTERMITTENT - UNUSUAL

PAGE 8 OF 25

021

Find the code and install new FRUs in the numbered order. The same number signifies to install the new FRUs at the same time.

CODES												SERVICE CHECKS , ADJUSTMENTS AND BAD FRUS
7	7	7	7	7	7	7	7	7	7	7	7	
3	4	5	6	7	8	9						BAD FRUS
-	-	-	-	-	-	-	-	-	-	-	-	BAD HOME REED SWITCH
-	-	-	-	-	-	-	-	-	-	-	-	BAD POSITION REED SWITCH
-	-	-	-	-	-	-	-	-	-	-	-	BAD CAM ASSEMBLY
-	-	-	-	-	-	-	-	-	-	-	-	BAD CAM MOTOR ASSEMBLY
-	-	-	-	-	-	-	-	-	-	-	-	BAD PLATEN FEED CAM IDLER GEAR
-	-	-	-	-	-	-	-	-	-	-	-	BAD CABLE A-A1A3
2	2	3	8	4	2	3						BAD PRINTER LOGIC CARD A-A1C1
1	1	1	6									BAD ANALOG1 CARD A-A1F1
-	-	-	-	-	-	-	-	-	-	-	-	BAD SHEET FEED ANALOG CARD
-	-	-	-	-	-	-	-	-	-	-	-	BAD SHEET FEED ATTACHMENT CABLE
3	3	4	9	5	4	4						BAD BOARD A-A1

MAP 0130-8

5218 A01 A02

INTERMITTENT - UNUSUAL

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022

Find the code and install new FRUs in the numbered order. The same number signifies to install the new FRUs at the same time.

CODES										SERVICE CHECKS , ADJUSTMENTS AND BAD FRUS
6	6	6	6	6	6	7	7	7	7	
0	1	3	4	5	9	1				BAD FRUS
1		1	1	1						CHECK HAMMER POSITION(131).
3	4	3	3	3						BAD ANALOG2 CARD A-A1B1
						1				BAD ANALOG1 CARD A-A1F1
						2				BAD INDEX MOTOR ASSEMBLY
5	5	4	4	5	1	3				BAD PRINTER LOGIC CARD A-A1C1
	1									BAD FUSE ON CARD A-A1B1
6	6	5	5	6	4	4				BAD BOARD A-A1
2	2	2	2	2						BAD HAMMER ASSEMBLY
					2					BAD RIBBON MOTOR DRIVE ASSEMBLY
	3				3					BAD RIGHT CARRIER CABLE
4				4						BAD LEFT CARRIER CABLE

5218 A01 A02

INTERMITTENT - UNUSUAL

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023

Find the code and install new FRUs in the numbered order. The same number signifies to install the new FRUs at the same time.

CODES										
4	5	5	5	5	5	5	5	5	5	SERVICE CHECKS , ADJUSTMENTS AND
6	7	1	3	4	5	6	7	8		BAD FRUS
1										BAD MARGIN SWITCH MODEL A01 ONLY
	2	1	2	1	3	3	3	3		BAD ANALOG2 CARD A-A1B1
	4	2	3	2	4	4	4			BAD PRINTER LOGIC CARD A-A1C1
3	1									BAD CARD A-A1D1
	5	3	5		5	5				BAD BOARD A-A1
2										BAD COUPLING ASSEMBLY
	3									BAD RIGHT CARRIER CABLE
			4	2	2	2	2			BAD LEFT CARRIER CABLE
	1		1	3	1	1	1	1		BAD SELECTOR MOTOR

H 6 5218 A01 A02

MAP 0130-11

INTERMITTENT - UNUSUAL

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024

Find the code and install new FRUs in the numbered order. The same number signifies to install the new FRUs at the same time.

CODES										SERVICE CHECKS , ADJUSTMENTS AND BAD FRUS
3	3	3	3	4	4	4	4	4	4	
5	6	7	8	1	3	4	5			BAD PRINTER LOGIC CARD A-A1C1
2	2	1	3	2	1	1				BAD CARD A-A1D1
4	1	1	2				2			BAD ANALOG1 CARD A-A1F1
				2	1	3				BAD ANALOG2 CARD A-A1B1
							6			BAD BOARD A-A1
5		3		4	3					BAD CONTROL PANEL SWITCH ASSEMBLY
1										BAD CONTROL PANEL LOGIC CARD
2										BAD CONTROL PANEL CABLE A-A1A2
3										BAD LEAD SCREW
							4			BAD LOWER CARRIER ASSEMBLY
							5			ESCAPEMENT MOTOR ASSEMBLY
				1		2				

MAP 0130-11

5218 A01 A02

INTERMITTENT - UNUSUAL

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025

Find the code and install new FRUs in the numbered order. The same number signifies to install the new FRUs at the same time.

CODES												SERVICE CHECKS , ADJUSTMENTS AND BAD FRUS
0	0	0	3	3	3	3	3	3	3	3	3	
1	2	5	6	0	1	2	3	4				BAD PAPER SENSOR
-	-	1	-	-	-	-	-	-	-	-	-	BAD COVER INTERLOCK SWITCH
-	-	-	1	-	-	-	-	-	-	-	-	BAD SHEET FEED SENSOR 1
1	-	-	-	-	-	-	-	-	-	-	-	BAD SHEET FEED SENSOR 2
-	1	-	-	-	-	-	-	-	-	-	-	BAD SHEET FEED ANALOG CARD
2	2	2	-	-	-	-	-	-	-	-	-	BAD SHEET FEED CABLE TO ATTACHMENT PANEL
3	3	-	-	-	-	-	-	-	-	-	-	BAD CONTROL PANEL CARD
-	-	-	2	-	-	-	-	-	-	-	-	BAD PRINTER LOGIC CARD A-A1C1
4	4	3	-	-	-	-	-	-	-	-	-	BAD CARD A-A1D1
-	-	-	3	1	1	1	1	1	1	1	1	BAD PATCH CARD A-A1E1
-	-	-	-	2	2	-	2	2	2	2	2	BAD BOARD A-A1
5	5	4	-	-	-	-	3	3	3	3	3	
-	-	-	-	-	-	-	-	-	-	-	-	

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1 1 INTERMITTENT - UNUSUAL
3 3

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(Step 031 continued)

GO TO PAGE 2, STEP 001,
ENTRY POINT A.

032

Visually inspect the problem area for loose connections, broken parts, foreign particles, and so on.

If a repair action IS NOT performed,

GO TO PAGE 13, STEP 031,
ENTRY POINT D.

033

- Remove the controller cable from the printer attachment panel.
- Install communications wrap connector to the printer attachment panel.
- Select 'DIAG MODE'.
- Select mode 2.
- Select and run diagnostic test 07.
- Run test for five minutes or until an error code is displayed.

(Step 033 continues)

Some of the test that could be run in MODE 2 are listed below.

- DIAGNOSTIC TEST 10
- DIAGNOSTIC TEST 11
- DIAGNOSTIC TEST 12
- DIAGNOSTIC TEST 13
- DIAGNOSTIC TEST 18
- DIAGNOSTIC TEST 22
- DIAGNOSTIC TEST 38

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(Step 033 continued)

- An 07 will be displayed unless an error occurs.

Is an error code displayed?

Y N

034

No error was found in the printer communications.

Suspect communication cable or controller.

Wrap connector will connect to cable at the controller end.

035

Record the error code and

GO TO PAGE 3, STEP 008,

ENTRY POINT B.

036

(ENTRY POINT E)

- Make all the mechanical adjustments to the index, selection motor, escapement, hammer, platen, the upper and lower carrier assemblies and ribbon.

Are the adjustments correct?

Y N

T U MAP 0130-15

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T U

MAP 0130-15

W X 5218 A01 A02

MAP 0130-16

1 1
5 5

INTERMITTENT - UNUSUAL

PAGE 16 OF 25

042

Bad print wheel.

---OR---

Bad selection motor.

---OR---

Bad card A-A1B1.

043

Are the tops or bottoms of the characters
light or faded?

Y N

044

Are the right or left of the characters
light or faded?

Y N

045

The print quality problem is not a
normal problem.

GO TO PAGE 13, STEP 031,

ENTRY POINT D.

1 1
7 7
Y Z

MAP 0130-16

Z

|

|

|

|

|

046

Bad print wheel.

---OR---

Bad selection motor.

---OR---

Bad hammer.

---OR---

Bad platen.

---OR---

Bad lead screw.

---OR---

Bad upper carrier.

---OR---

Bad lower carrier.

---OR---

Bad escapement motor.

---OR---

Bad card A-A1B1.

---OR---

Bad card A-A1F1.

V Y 5218 A01 A02

MAP 0130-17

INTERMITTENT - UNUSUAL

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047
Bad ribbon.
---OR---
Bad ribbon drive plate.
---OR---
Bad platen .
---OR---
Bad index motor.
---OR---
Bad card A-A1F1.

048
Bad ribbon.
---OR---
Bad print wheel.
---OR---
Bad platen.
---OR---
Bad hammer.
---OR---
Bad card A-A1B1.

MAP 0130-17

INTERMITTENT - UNUSUAL

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049

SAMPLE OF STATISTICS PRINT

THESE ARE ADDRESSES.
IGNORE THESE CHARACTERS.

IGNORE THESE CHARACTERS.									
LABEL C0		LABEL C1		LABEL C2		LABEL C3		LABEL D0	
E18E									
E180	5FBD 79BE 6901 0000 540C 2A06 AE00 C000 00C1 0000 C200 00C3 0000 D000 00D1 0000								
E1A0	>D200 00D3<0000>D400 00D5<0000 D600 00D7 0000>D800 00D9<0000 DA00 00DB 0000>DC00								
E1C0	00DD<0000 DE00 00DF 00FA E000 00E1 0000 0000 0001 0000 FE00 0000 0000 8005								
LABEL D2		LABEL D3		LABEL D4		LABEL D5		LABEL D8	
LABEL DD		LABEL D9		LABEL DC					

Above is a sample of the statistics print out from the printer. The desired data can be found by first finding the two character label for that data. The data is always four characters in length and follows immediately after the associated label.

NOTE - The exact location of the labels and the associated data in the print out being analyzed may differ from that of the above sample (If the micro code is different). (Step 049 continues)

INTERMITTENT - UNUSUAL

PAGE 19 OF 25

(Step 049 continued)
 However, a label will always be followed by exactly four characters of data, and then another label.

This step checks to see if a hard error has occurred.

- Observe the statistics print out.
- Find the four characters between the labels 'DC' and 'DD'.
- Ignore the last two characters after the label 'DC'.

Are the first two characters after the label 'DC' both zero?

Y N

050

Use these two characters as the code, then
 GO TO PAGE 3, STEP 008,
 ENTRY POINT B.

051

- Observe the statistics print out.
- Find the four characters between the labels 'D8' and 'D9'.
- Ignore the last two characters after the label 'D8'.

(Step 051 continues)

This step determines if a 'SOFT ERROR' is recorded.

INTERMITTENT - UNUSUAL

PAGE 20 OF 25

(Step 051 continued)

Are the first two characters after the label 'D8' both zero?

Y N

052

Use these two characters as the code and then,
GO TO PAGE 3, STEP 008,
ENTRY POINT B.

053

Is the print quality good?

Y N

054

GO TO PAGE 15, STEP 036,
ENTRY POINT E.

055

- Observe the statistics print out.
- Find the four characters between the labels 'C0' and 'C1'.

Are all four characters between the labels 'C0' and 'C1' zero?

Y N

056

Some command from the controller is not valid.

GO TO MAP 5070, ENTRY POINT A.

2

1

A

A

This step determines if a 'COMMUNICATION COUNT' is recorded for a command reject error.

5218 A01 A02

INTERMITTENT - UNUSUAL

PAGE 21 OF 25

A
A
2
0

057

- Observe the statistics print out.
 - Find the four characters between the labels 'C1' and 'C2'.
- Are all four characters between the labels 'C1' and 'C2' zero?

Y N

058

- This is a frame error from the controller.
- GO TO MAP 5070, ENTRY POINT A.

059

- Observe the statistics print out.
 - Find the four characters between the labels 'C2' and 'C3'.
- Are all four characters between the labels 'C2' and 'C3' zero?

Y N

060

- This is an overrun error from the controller.
- GO TO MAP 5070, ENTRY POINT A.

2
2
A
B

This step determines if a 'COMMUNICATION COUNT' is recorded for a frame error.

This step determines if a 'COMMUNICATION COUNT' is recorded for an overrun error.

5218 A01 A02

INTERMITTENT - UNUSUAL

PAGE 22 OF 25

A
B
2
1

061 |
|
| - Observe the statistics print out.
| - Find the four characters between the
| labels 'C3' and 'D0'.
| Are all four characters between the labels
| 'C3' and 'D0' zero?
| Y N
|
| 062 |
| This is a parity error from the
| controller.
| GO TO MAP 5070, ENTRY POINT A.

This step determines if a 'COMMUNICATION
COUNT' is recorded for a parity error.

063 |
| - Observe the statistics print out.
| - Find the four characters between the
| label of 'D0' and 'D1'.
| Are the four characters between 'D0' and
| 'D1' all zero?
| Y N
|
| 064 |
| Follow the escalation procedure.

This step determines if an 'AUTO RECOVERABLE
COUNT' is recorded for a 47 error.

2
3
A
C

5218 A01 A02

INTERMITTENT - UNUSUAL

PAGE 23 OF 25

A
C
2
2

- 065
- Observe the statistics print out.
 - Find the four character between the labels 'D1' and 'D2'.

Are all four characters between the labels 'D1' and 'D2' zero?

Y N

- 066
- Follow the escalation procedure.

- 067
- Observe the statistics print out.
 - Find the four character between the labels 'D2' and 'D3'.

Are all four characters between the labels 'D2' and 'D3' zero?

Y N

- 068
- Follow the escalation procedure.

2
4
A
D

This step determines if an 'AUTO RECOVERABLE COUNT' is recorded for a 64 error. The 'AUTO RECOVERABLE COUNT' should be between the labels 'D1' and 'D2'.

This step determines if an 'AUTO RECOVERABLE COUNT' is recorded for a 55 error. The 'AUTO RECOVERABLE COUNT' should be between the labels 'D2' and 'D3'.

5218 A01 A02

INTERMITTENT - UNUSUAL

PAGE 24 OF 25

A
D
2
3

|
|
069

- Observe the statistics print out.
- Find the four characters between the labels 'D3' and 'D4'.
Are all four characters between the labels 'D3' and 'D4' zero?

Y N
|
|
| 070
| Follow the escalation procedure.
|
071

- Observe the statistics print out.
- Find the four characters between the labels 'D4' and 'D5'.
Are all four characters between the labels 'D5' and 'D5' zero?

Y N
|
| 072
| Follow the escalation procedure.
|

073
Is the sheet feed installed?

Y N
|
|
|
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|
|

2 2
5 5
A A
E F

This step determines if an 'AUTO RECOVERABLE COUNT' is recorded for a 37 error.

This step determines if an 'AUTO RECOVERABLE COUNT' is recorded for a 45 code.

A A 5218 A01 A02
 E F
 2 2 INTERMITTENT - UNUSUAL
 4 4
 PAGE 25 OF 25
 | |
 | |
 | | 074
 | | No intermittent or unusual problem has
 | | been found in the statistics print. To
 | | continue to find a problem,
 | | GO TO PAGE 13, STEP 031,
 | | ENTRY POINT D.
 | |
 075
 To find an intermittent problem with the
 sheet feed,
 GO TO MAP 0650, ENTRY POINT A.

5218 A01 A02

MAP 0610-1

START OF CALL- Sheet feed entry

PAGE 1 OF 10

ENTRY POINTS

FROM		ENTER THIS MAP		

MAP	ENTRY	PAGE	STEP	
NUMBER	POINT	NUMBER	NUMBER	

0015	A	2	001	
0095	A	2	001	

EXIT POINTS

EXIT THIS MAP		TO		

PAGE	STEP	MAP	ENTRY	
NUMBER	NUMBER	NUMBER	POINT	

2	002	0015	B	
10	039	0015	B	
6	018	0095	B	
4	006	0100	A	
4	010	0130	A	
4	011	0620	A	
8	024	0620	A	
4	013	0630	A	
8	026	0630	A	
10	035	0630	E	
4	014	0640	A	
8	027	0640	A	
8	022	0650	A	
10	034	0650	A	

MAP 0610-1

START OF CALL- Sheet feed entry

PAGE 2 OF 10

001

(ENTRY POINT A)

MAP Description:
THIS MAP DETERMINES THE GENERAL TYPE OF SHEET FEED FAILURE AND SENDS THE CE TO CORRECT MAP. ALL CHECKS IN STEP 003 MUST BE COMPLETED BEFORE THE CE CONTINUES INTO THE FOLLOWING STEPS. THE CHECKS NEED VISUAL AND HAND TOUCHING INSPECTIONS. ALL VOLTAGES MUST BE IN 10% TOLERANCE. ALL RESISTANCE MEASUREMENTS MUST BE IN 10% TOLERANCE.

Entry Conditions:

NONE

Start Conditions:

NONE

Field replaceable units :

Analog Card, J7 Cable Assembly, Drive Pulleys, Rocker Springs, Cone Rollers, Printer A-A1C1 Card.

Is the sheet feed attached?

Y N

002

GO TO MAP 0015, ENTRY POINT B.

3 A

START OF CALL- Sheet feed entry

PAGE 3 OF 10

003

- IF YOU ARE UNFAMILIAR WITH THIS MAP READ THE SUPPLEMENTARY INFORMATION ON THE RIGHT SIDE OF THIS PAGE.
- Request description and examples of problem from the operator.
- Visually inspect for loose/broken parts, operator errors, etc.
- Check that paper and side/rear restraints in tray are correct. Detent for trays and detent screws are correct. See Sheet Feed Maintenance Information Manual(723) and Chapter 3 of the Operators Guide.
- Check that rails are tight and have no loose screws(766).
- Check mounting screws of all wire racks and ensure that all mounting points are tight and rack positions are correct(780).
- Check the supplies and environments meets that specified in Appendix A of the Operators Guide.
- If the cause of failure can be determined and adjusted or repaired, adjust or repair and verify the adjustment or repair.
- Remove the paper from the printer. Press the 'RELEASE' switch, if necessary, to remove the paper.

(Step 003 continues)

The following checks remove some machine failure with unpredictable or intermittent symptoms. Failure to perform these correctly can make use of these maps very difficult.

REQUEST INFORMATION FROM OPERATOR.

Visually inspect: Check for loose or broken parts, etc.

CHECK RAILS. Remove both paper trays and attempt to move the rail up or down by hand. They should be correctly positioned in the frame.

CHECK PAPER AND PAPER RESTRAINT.

TRAY DETENTS: Reinstall the trays. Check that the detents hold the tray. Pull on the tray to move it slightly away from the stop position, release it, the tray should be pulled back correctly against the frame.

CHECK WIRE RACKS: Hold each rack near the frame and attempt to move up and down. The racks will deflect somewhat but the mounting points should be stable.

START OF CALL- Sheet feed entry

PAGE 4 OF 10

(Step 003 continued)

- Put the hand insertion paper deflector in automatic sheet feed operation position.
- If machine is on DO NOT SET POWER SWITCH TO '0' until instructed by the map.
- If machine is off, set power switch to '1'.

Do the above checks fail to find the cause of the problem?

Y N

004

Repair problems found in step 003 above.

005

Is the control panel 'POWER ON' light on?

Y N

006

GO TO MAP 0100, ENTRY POINT A.

007

Is the LED display blank?

Y N

008

Is the code 05?

Y N

|

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5

B C D

C D

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009
Is the code 01 or 02 or 78 or 79?
Y N

010

Symptom has changed.
GO TO MAP 0130, ENTRY POINT A.

011

GO TO MAP 0620, ENTRY POINT A.

012

Did the paper leading edge reach the
sequencer area(700)?
Y N

013

GO TO MAP 0630, ENTRY POINT A.

014

GO TO MAP 0640, ENTRY POINT A.

B 4 5218 A01 A02

START OF CALL- Sheet feed entry

PAGE 5 OF 10

015

- SET PRINTER POWER SWITCH TO '0'.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Put the printer in 'DIAGNOSTIC MODE'(301).
- Select and run Test Unit 24 to check sheet feed status(306).
- Observe the LED display on the operator panel.
- If you are unfamiliar with HEXIDECIMAL NUMBER, read the supplementary information at the right of this page and also observe the figure at right to distinct a SIX from a BEE.

Is 9X,?
Y N

016

- Check sheet feed connector to see if it is plugged into the printer attachment panel correctly(763).
 - Disconnect sheet feed J7 cable from the sheet feed analog card and printer attachment panel.
 - Use a meter to check the cable for continuity(705).
- (Step 016 continues)

6 E

MAP 0610-5

THIS STEP DETERMINES THE SHEET FEED STATUS. THE CHARACTER 'X' COULD BE ANY HEXIDECIMAL NUMBER AND HAS NO MEANING. IGNORE THIS 'X' CHARACTER.

OBSERVE THE LIGHTS.
A SIX LOOKS SIMILAR TO A BEE.

NOTE:

	= 6		= B
---	-----	---	-----

MAP 0610-5

5218 A01 A02
 START OF CALL- Sheet feed entry
 PAGE 6 OF 10
 (Step 016 continued)
 Is the cable and connector check correct?
 Y N
 017 Repair or reinstall J7 cable and
 connector as necessary. Plug the sheet
 feed J7 cable into the sheet feed and
 the printer attachment panel correctly.
 018
 GO TO MAP 0095, ENTRY POINT B.
 019 - Remove jammed paper from sheet feed, if
 necessary
 - Press the 'CANCEL' switch on the control
 panel.
 - Select and run Test Unit 40 for hopper
 1(lower).
 - Wait until test is complete.
 Does a single sheet insert and eject
 correctly?
 Y N

5218 A01 A02

MAP 0610-7

START OF CALL- Sheet feed entry

PAGE 7 OF 10

020

- Remove jammed paper from sheet feed and run test 40 again, if necessary.
- Read the supplementary information at right.

Does the lower picker separator motor and the upper picker separator motor run at the same time when you run test 40(701)?

Y N

021

- Remove jammed paper from the sheet feed path.
- Run Test Unit 40 to determine the location of paper jam.
- Repeat the above steps as many times as needed in order for you to answer the following question.

Does the paper always jam or stop at the same approximate location in the paper path when test 40 is repeated?

Y N

8 8 8
H J K

MAP 0610-7

The upper motor normally should not run when you run test 40, unless the motor drive circuit is shorted.

022

Check and reinstall rocker springs 1, 2-3, and 4(701).

OR

Check and reinstall Drive rollers C2 & C3(701).

OR

Check and reinstall pulleys P1, P2 & P4(701).

If the problem remains unsolved after new parts are installed.

GO TO MAP 0650, ENTRY POINT A.

0.23

Is the paper leading edge past roller C2(701)?

Y
Z

024

Sheet Feed failure is in the insert path.
GO TO MAP 0620, ENTRY POINT A.

025

Does the leading edge of the paper reach the sequencer area(700)?

Y
Z

026

Sheet feed failure is in the eject path.
GO TO MAP 0630, ENTRY POINT A.

三

67

027

GO TO MAP 0640, ENTRY POINT A.

0.28

- Remove jammed paper, if necessary.
- Meter from connector pin J7-2(GND) to connector pin J7-8(705).

- Run test 40 again while metering between J7-8 and J7-2(GND).

Does meter read 2.5 to 5.0 Vdc?

NY

029

Bad printer A-AlCl card.

-30-

Bad sheet feed analog card(763).

- 031

- Press the 'CANCEL' switch on the control panel.

- Select and Run Test Unit 41 for hopper 2(upper).

- Wait until test is complete. does a single sheet insert and eject correctly?

NY

I

90

N
 M

5218 A01 A02

MAP 0610-9

START OF CALL- Sheet feed entry

PAGE 9 OF 10

032

- Remove jammed paper and run test unit 41 again, if necessary.

Do the upper and lower picker separator motors run at the same time when you run test unit 41(701)?

Y N

033

- Remove jammed paper and run test 41 again to determine the location of paper jam.

- Also observe both pick separator motors while test 41 is running.

- Repeat the above procedure as many times as needed in order for you to answer the following question.

Does paper always jam or stop at the same approximate location in the paper path when test 41 is repeated?

Y N

1 1 1
0 0 0
P Q R

The lower motor normally should not run when you run test 41 unless the motor drive circuit is shorted.

MAP 0610-9

P Q R 5218 A01 A02

START OF CALL- Sheet feed entry

PAGE 10 OF 10

034

Check and reinstall rocker spring 5-6(701).

---OR---

Check rollers C4, C5 & C6(701) for damage.

---OR---

Check Pulleys P4, P5, & P6(701) for damage and loose setscrews. If problem remains unsolved after new parts are installed.

GO TO MAP 0650, ENTRY POINT A.

035

GO TO MAP 0630, ENTRY POINT E.

036

- Remove jammed paper, if necessary.
- Meter connector pin J7-9 to pin J7-2 voltage(705).
- Run test 41 again while metering between J7-9 and J7-2(GND).

Does the meter read 2.5 to 5.0 Vdc?

Y N

037

Bad printer A-A1C1 card.

038

Bad sheet feed analog card(763).

MAP 0610-10

M 8

|
|
|
|
|

039

No problem has been found in this map.
To continue printer check out,
GO TO MAP 0015, ENTRY POINT B.

MAP 0610-10

5218 A01 A02

SHEET FEED CONTROL

PAGE 1 OF 18

ENTRY POINTS

FROM ENTER THIS MAP				
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER	
SAME	B	12	085	
SAME	C	4	018	
SAME	D	8	046	
SAME	E	14	100	
0610	A	2	001	
0610	E	14	100	
0630	A	2	001	
0660	A	2	001	

EXIT POINTS

EXIT THIS MAP TO				
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT	
3	003	0010	A	
12	086	0010	A	
4	014	0010	A	
4	012	0095	B	
4	015	0095	C	
4	010	0130	A	
11	079	0130	A	
18	127	0630	A	
12	084	0630	A	
11	082	0630	A	
4	016	0630	A	
11	083	0630	B	

001

(ENTRY POINT A)

- SET PRINTER POWER SWITCH TO '0'.
- Remove jammed paper from the sheet feed.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Run verify test(307).
- While pressing and holding the 'STOP' switch, press and release the 'PRINT TEST' switch, and then release the 'STOP' switch.

- Observe the LED display.

Error Code 78 and printer exception light ON indicate the wrap test to the sheet feed analog circuits failed when executing sheet feed basic assurance test(307).

Error Code 79 and printer exception light ON indicate sensor made at POR(307).

Is the LED display blank?

Y

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 218. **Figures**
 219. **Equations**
 220. **Formulas**
 221. **Diagrams**
 222. **Charts**
 223. **Graphs**
 224. **Tables**
 225. **Figures**
 226. **Equations**
 227. **Formulas**
 228. **Diagrams**
 229. **Charts**
 230. **Graphs**
 231. **Tables**
 232. **Figures**
 233. **Equations**
 234. **Formulas**
 235. **Diagrams**
 236. **Charts**
 237. **Graphs**
 238. **Tables**
 239. **Figures**
 240. **Equations**
 241. **Formulas**
 242. **Diagrams**
 243. **Charts**
 244. **Graphs**
 245. **Tables**
 246. **Figures**
 247. **Equations**
 248. **Formulas**
 249. **Diagrams**
 250. **Charts**
 251. **Graphs**
 252.

1999 *Journal of Management Education* 23(1): 10-20

1999-2000
 2000-2001

Abstract

10

1. *Chlorophyll a* (Chl a) and *Chlorophyll b* (Chl b) are the primary photosynthetic pigments in green plants. They are responsible for capturing light energy and converting it into chemical energy through the process of photosynthesis. Chl a is the most abundant pigment, while Chl b is present in smaller amounts. Both pigments are found in the chloroplasts of green plants.

1000 1000

—

—

100

1000 1000000

Abstract

100

— **Wavelength** —

1000

1

I

NO

10

0
1

MAP Description:
THIS MAP DIAGNOSES THE MOTOR AND SENSOR.

Entry Conditions:
NONE

Start Conditions:
NONE

Field replaceable units :

J7 Cable Assembly, Cable from Attachment Panel to A-A1 Board, Sheet Feed Analog Card, Motors, Sensors, Printer A-A1 Board.

5218 A01 A02

SHEET FEED CONTROL

PAGE 3 OF 18

002

TABLE OF VALID CODES

NOTE: <table><tr><td><table><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></table></td><td>= 6</td><td><table><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></table></td><td>= B</td></tr></table>					<table><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></table>					= 6	<table><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></table>					= B
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XX-YY x	IS	XX THROUGH YY xxxxxxx														
01-02	60	71	81-83	93												
05	61	73-79	84-87	98												
06	63-65		.8.8	99												
30-38	69		89													
41																
43-47																
51																
53-58																

Is the code found in the table of valid codes?

Y N

C D

MAP 0620-3

C D

003
GO TO MAP 0010, ENTRY POINT A.

004
Is the code 78?
Y N

005
Is the code 79?
Y N

006
Is the code 01 ?
Y N

007
Is the code 02 ?
Y N

008
Is the code 05?
Y N

1 1
4 2 4 4 4
E F G H J K

MAP 0620-3

J K 5218 A01 A02

3 3 SHEET FEED CONTROL

PAGE 4 OF 18

009

Is the code 06?

Y N

010

The symptom has changed.

GO TO MAP 0130, ENTRY POINT A.

011

Is the printer top cover open?

Y N

012

GO TO MAP 0095, ENTRY POINT B.

013

Is printer cover interlock switch jumper

on?

Y N

014

close the top cover or install CE jumper

to bypass the cover interlock.

GO TO MAP 0010, ENTRY POINT A.

015

GO TO MAP 0095, ENTRY POINT C.

016

GO TO MAP 0630, ENTRY POINT A.

G H

3 3

017

GO TO PAGE 8, STEP 046,

ENTRY POINT D.

018

(ENTRY POINT C)

-SET PRINTER POWER SWITCH TO '0'.

- Remove jammed paper from sheet feed.

- Push the manual paper insertion
deflector in automatic sheet feed
operation position.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

- Put printer in 'DIAGNOSTIC MODE'(301).

- Select test unit 40.

- Press the 'START' on the operator panel.

Does the motor 1(lower) run?

Y N

019

-SET PRINTER POWER SWITCH TO '0'.

- Remove the left hand cover from the
sheet feed(760).

-SET PRINTER POWER SWITCH TO '1'. WAIT
35 SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

- Connect connector pin J4-4(GND) to
connector pin J7-9 with a jumper(705).
(Step 019 continues)

8

L

MAP 0620-4

MAP 0620-4

SHEET FEED CONTROL

PAGE 5 OF 18

(Step 019 continued)

Does the motor 1(lower) run?

Y
N

020

- Remove the jumper cable from connector J7 and connector J4(705).

- Connect connector pin J5-2 to connector pin J4-4(GND) with a jumper(705).

Does the motor 1(lower) run?.

Y
Z

021

- Remove jumper cable from connectors J5 & J4(705).

- Check for +36Vdc across connector pin J4-4(GND) and the plus(white lead) side of the connector at the lower motor circuit board(705).

Is the voltage present?

$$\begin{matrix} \mathbb{Z} \\ \mathbb{Y} \end{matrix}$$

022

Is +36Vdc present across J4-4(GND) and J7-5(705)?

Y
N

9999

M
N
P
Q
R

2

023

- Check the printer attachment panel connector for short circuit and loose pins(105).

Is prin
correct?

NY

024

Bad printer attachment panel connector.

0.25

- Measure +36Vdc at the printer attachment panel connector(105).

Is +36Vdc present at the printer attachment panel connector?

LYN

026

Bad printer cable from printer attachment panel to A-A1 board.

027

Bad cable from sheet feed to printer attachment panel(763).

P Q 5218 A01 A02

SHEET FEED CONTROL

PAGE 6 OF 18

028 Is +36Vdc present across test points J5-1 and J4-4(GND) on the sheet feed analog card(705)?

Y N

029 Bad sheet feed analog card(763).

030 Bad motor 1(lower) cable assembly(701).

031 -SET PRINTER POWER SWITCH TO '0'.
 - Disconnect connector J5 from the sheet feed analog card(705)
 - Reconnect connector J5 to sheet feed analog card after the checks are completed.
 - Check motor 1(lower) coil resistance in five positions at the J5 connector.
 - Turn shaft approximately 72 degrees between each measurement.
 - Shaft can be turned by turning shipswheel(728) by hand.
 Is motor 1(lower) resistance 13 ohms to 22 ohms?

Y N

M N S T

5 5

032

Is motor 1(lower) resistance less than 13 ohms for any of the 5 positions?

Y N

033

Bad motor 1(lower). (764).

---OR---

Bad motor 1 cable assembly(701).

034

Bad motor 1(lower)(764) and sheet feed analog card(763)

035

Bad motor 1(lower)(764).

036

Bad sheet feed analog card(763).

037

-SET PRINTER POWER SWITCH TO '0'.
 - Remove sheet feed and printer cover from printer.
 - Jumper attachment panel connector pin 2 to pin 7 on printer side of panel(105).
 Remove jumper after this step is completed.
 - Reconnect the sheet feed cable back to the printer attachment panel.
 (Step 037 continues)

S T

SHEET FEED CONTROL

PAGE 7 OF 18

(Step 037 continued)

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the motor 1(lower) fail to run?

Y N

038

- SET PRINTER POWER SWITCH TO '0'.
- Disconnect sheet feed cable J7 from the sheet feed analog card and the printer attachment panel(763).
- Check cable from attachment panel to printer A-A1 board for continuity, short circuit and loose connections(105).

Is cable correct?

Y N

039

- Bad cable from printer attachment panel to A-A1 board.

040

- Remove printer A-A1C1 card from A-A1 board(104).
- Check printer A-A1 board for physical damage.

Is A-A1 board damaged?

Y N

041

042

043

044

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059

060

061

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371

SHEET FEED CONTROL

PAGE 8 OF 18

L 4

046

(ENTRY POINT D)

- SET PRINTER POWER SWITCH TO '0'.
- Remove jammed paper from sheet feed.
- Push the manual paper insertion deflector in automatic sheet feed operation position.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Put the printer in 'DIAGNOSTIC MODE'(301).
- Select and Run test Unit 41.

Does the motor 2(upper) run(701)?

Y N

047

- SET PRINTER POWER SWITCH TO '0'.
- Remove the left hand cover from the sheet feed(760).
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Connect Jumper from connector pin J4-4(GND) to connector pin J7-8(705).

Does the motor 2(upper) run(701)?

Y N

1 1 X

1 0 Y

X Y Z

Z

048

- Remove the jumper from J7 and J4 connectors(705).
- Connect connector pin J5-4 to connector pin J4-4(GND) with a jumper cable(705).

Does the motor 2(upper) run?.

Y N

049

- Check for +36Vdc across connector pin J4-4 and the plus(white lead) side of the connector at the upper motor circuit(705).

Is the voltage present?

Y N

050

- Check voltage between connector pin J4-4(GND) and connector pin J7-5(705).

Is +36Vdc present between J7-5 and J4-4(GND)?

Y N

1

0 9 9 9

A A A A

A B C D

A A 5218 A01 A02

C D 8 8 SHEET FEED CONTROL

PAGE 9 OF 18

051 - Check printer attachment panel connector for continuity, short circuit and pin damage(105). Is printer attachment panel connector check correct?

Y N

052 Bad printer attachment panel connector.

053 - Measure +36Vdc at the attachment panel plug(105). Is +36Vdc present at the attachment panel?

Y N

054 Bad cable from printer attachment panel to A-A1 board.

055 Bad sheet feed cable J7(763).

056 Is +36Vdc present at sheet feed analog card connector pin J4-4(GND) to connector pin J5-3(705)?

Y N

MAP 0620-9

A A A
B E F
8

057 Bad sheet feed analog card(763).

058 Bad motor 2(upper) cable Assembly(701).

059

-SET PRINTER POWER SWITCH TO '0'.

- Remove jumper cable from connector J5 and J4(705)
- Disconnect connector J5 from sheet feed analog card. Reconnect after check is complete(705).

- Check motor 2(upper) coil resistance in five positions at the J5 connector.

- Turn shaft approximately 72 degrees between each measurement.

- Shaft can be turned by turning shipswheel(728) by hand.

Is motor 2(upper) resistance 13 ohms to 22 ohms?

Y N

060

Is motor 2(upper) resistance less than 13 for any of five positions?

Y N

1 1 1
0 0 0
A A A
G H J

A A
E F

MAP 0620-9

Y A A A 5218 A01 A02
8 A G H J
8 9 9 9 SHEET FEED CONTROL

PAGE 10 OF 18

061 Bad motor 2(upper)(764).
---OR---
Bad motor 2(upper) cable(701).
062 Bad motor 2(upper)(764) and sheet feed analog card(701).
063 Bad motor 2(upper)(764).
064 Bad sheet feed analog card(763).

065 -SET PRINTER POWER SWITCH TO '0'.
- Remove sheet feed and printer cover from printer.
- Connect the attachment panel connector pin 3 to pin 7(105) on the printer side of the attachment panel with a jumper cable(Remove jumper after this step is completed).
- Reconnect the sheet feed cable to printer attachment panel(763).
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

(Step 065 continues)

1 1
1 1
A A
K L

(Step 065 continued)
Does the motor 2(upper) fail to run?
Y N
066 -SET PRINTER POWER SWITCH TO '0'.
- Disconnect sheet feed cable from the sheet feed analog card and the printer attachment panel.
- Check the cable from the attachment panel to A-A1 board for continuity, short circuit and loose connections(105).
Is printer cable check correct?
Y N

067 Bad printer cable from printer attachment panel to printer A-A1 board.
068 - Remove the printer A-A1C1 card from the printer(104).
- Check A-A1 board for physical damage.
Is A-A1 board damaged?
Y N

069 Bad printer A-A1C1 card(104).

```

X A A 5218 A01 A02
8 K L SHEET FEED CONTROL
  0 0 PAGE 11 OF 18
  | | Bad printer A-A1 board(104).
  | | 071
  | | -SET PRINTER POWER SWITCH TO '0'.
  | | - Disconnect the sheet feed cable from
  | | sheet feed and the printer attachment
  | | panel.
  | | - Meter sheet feed cable for
  | | continuity(705).
  | | Is J7 cable check correct?
  | | Y N
  | | 072
  | | Bad sheet feed J7 cable(763).
  | | 073
  | | Bad A-A1 board.
  | | 074
  | | Is the LED display 41?
  | | Y N
  | | 075
  | | Is code 05?
  | | Y N
  | | 1
  | | 2
  | | A A A
  | | M N P

```

[illegible]

MAP 0620-11

MAP 0620-11

3 M 1 SHEET FEED CONTROL

PAGE 12 OF 18

084
GO TO MAP 0630, ENTRY POINT A.

58-0

(ENTRY POINT B)

- Clean the hopper 1(lower) sensor and ensure that no paper is under the sensor(729).

- Clean the hopper 2(upper) sensor and ensure that no paper is under the sensor(729).

- Run verify test(307).

Does the LED display indicate code 79?

NY

086

Dirty sensor was the problem. Clean the sensors(729).

GO TO MAP 0010, ENTRY POINT A.

0.87

-SET PRINTER POWER SWITCH TO '0'.

- Remove jammed paper, if needed.

- Disconnect connector J4 from the sheet feed(705).

```

SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

```

- Reconnect J4 to sheet feed after the test is completed(705).

(Step 087 continues)

(Step 087 continued)

Does the LED display indicate code 79?

NY

880

Bad upper sensor(729).

$$\begin{array}{r} 98 \\ -0 \\ \hline \end{array}$$

-SET PRINTER POWER SWITCH TO '0'.

- Remove jammed paper, if needed.

- Disconnect connector J2 from the sheet feed. (705)

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Reconnect connector J2 to the sheet feed after the test is completed(705).

Does the LED display indicate 79?

NY

090

Bad lower sensor(729).

I

13

A

Q

A Q 1 2

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SHEET FEED CONTROL

PAGE 13 OF 18

091 -SET PRINTER POWER SWITCH TO '0'.
- Remove wire J7-12 and J7-11 from sheet feed J7 connector(705).
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Run verify test(307).
- Reinstall wires J7-12 and J7-11 back to J7 connector after test is completed(705).

Does the LED display indicate code 79?

Y N

092

-SET PRINTER POWER SWITCH TO '0'.
- Remove wire J7-12 from connector(705).
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Run verify test(307).
- Reinstall wire J7-12 back to J7 connector after test is completed(705).

Does the LED display indicate code 79?

Y N

1 1 4
A A A
R S T

A T

093

-SET PRINTER POWER SWITCH TO '0'.
- Remove sheet feed attachment panel connector from the printer attachment panel(763).
- Remove pin 7 from the sheet feed attachment panel connector(705).
- Reinstall sheet feed cable to the printer attachment panel(763).
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Run verify test(307).

Does the LED display indicate code 79?

Y N

094

Bad printer A-A1 board(104).
---OR---
Bad printer A-A1C1 card(104).
---OR---
Bad printer cable from printer attachment panel to printer A-A1 board(104).

095

Bad sheet feed J7 cable(763).

MAP 0620-13

MAP 0620-13

A S 1 3

096

- SET PRINTER POWER SWITCH TO '0'.
- Remove wire from position 6 on sheet feed attachment panel connector(705).
- Reinstall sheet feed attachment panel cable to printer attachment panel.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Run verify test(307).
- Reinstall wire back to sheet feed attachment panel connector position 6 after test is completed.

Does the LED display indicate code 79?

Y N

097

Bad printer A-A1 board(104).

---OR---

Bad printer A-A1C1 card(104).

---OR---

Bad printer cable from printer attachment panel to printer A-A1 board(104).

098

Bad sheet feed cable(763).

E A 3 R

1 3

099

- Remove connector J7 from sheet feed analog card(705)
- Check cable J7 for continuity and pin connections (705).

Does cable check correctly?

Y N

100

Bad sheet feed J7 cable.

101

Bad sheet feed analog card(763).

102

(ENTRY POINT E)

Is hopper 1(lower) motor running continuously?

Y N

103

Is Hopper 2(upper) motor running continuously?

Y N

1 1

7 6

A A

U V

5218 A01 A02

SHEET FEED CONTROL

PAGE 15 OF 18

A

W

1

4

104

- Connect J7 cable to the sheet feed and the printer attachment panel connector.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Meter connector pin J7-4 to connector pin J4-4(GND) for +12Vdc(705).
Is the voltage present?

Y N

105

Bad printer cable from the printer attachment panel to the A-A1 board.

106

- Meter connector pin J7-13 to connector pin J4-4(GND) for +5.0Vdc(705).
Is voltage 4.5 to 5.5Vdc?

Y N

107

Bad cable from printer attachment panel to printer A-A1 board.

A

X

108

- Meter connector pin J7-2(GND) to pin J7-10(705).
Is voltage 0.0 to 0.5VDC?

Y N

109

-SET PRINTER POWER SWITCH TO '0'.
- Remove J7 cable connector from the sheet feed analog card(705).
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Meter connector pin J7-10 to J7-2(GND) voltage on J7 cable(705).
Is voltage 2.0 to 5.5Vdc?

Y N

110

Bad printer card A-A1C1(104).

111

Bad sheet feed analog card(763).

1

6

A

Y

MAP 0620-15

A Y 1 5

| | 112

- Connect a jumper cable from connector pin J4-4(GND) to connector pin J7-9(705).
- Meter voltage from pin J7-10 to pin J4-4(705).

Is voltage 2.0 to 5.5Vdc?

Y N | | 113

Bad sheet feed analog card(763).

| | 114

- Meter the printer cable from printer attachment panel to printer A-A1 board for continuity(105).

Is the printer cable correct?

Y N | | 115

- Bad printer cable from attachment panel to A-A1 board.

| | 116

Bad printer card A-A1C1(104).

A V 1 4

| | 117

- SET PRINTER POWER SWITCH TO '0'.
- Remove J7-8 wire from J7 connector(705).
- Reconnect J7-8 to J7 connector after the test is completed.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does hopper motor 2(upper) run continuously?

Y N | | 118

- SET PRINTER POWER SWITCH TO '0'.
- Disconnect sheet feed attachment panel connector from printer attachment panel.
- Remove pin 4 from the connector using a pin removal tool(IBM P/N 2108398).
- Reconnect sheet feed attachment connector to printer attachment panel.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does hopper motor 2(upper) run continuously?

Y N | | | | | | | |

1 1 1
7 7 7
A B B
Z A B

5218 A01 A02

SHEET FEED CONTROL

PAGE 17 OF 18

A A B B
U Z A B
1 1 1 1
4 6 6 6

119 Bad printer A-A1C1 card(104).
---OR---
Bad printer A-A1 board(104).
---OR---
Bad printer cable from printer
attachment panel to A-A1 board(104).
120 Sheet feed J7 cable has short circuit.
121 Bad sheet feed analog card(763).

122 -SET PRINTER POWER SWITCH TO '0'.
- Remove J7-9 wire from J7 connector(705).
- Reinstall wire back to J7 after check is
complete.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.
Does motor 1(lower) run continuously?

Y N

123

B B
C D

123 -SET PRINTER POWER SWITCH TO '0'.
- Disconnect sheet feed attachment panel
connector from printer attachment
panel.
- Remove pin 3 from the connector using
a pin removal tool(IBM P/N 2108398).
- Reconnect sheet feed attachment
connector to printer attachment panel.
-SET PRINTER POWER SWITCH TO '1'. WAIT
35 SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

Does the motor 1(lower) run continuously?

Y N

124 Bad printer A-A1C1 card(104).
---OR---
Bad printer A-A1 board(104).
---OR---
Bad printer cable from printer
attachment panel to A-A1 board(104).

125 Sheet feed J7 cable has short circuit.

126 Bad sheet feed analog card(763).

B B
C D

A
2

5218 A01 A02

SHEET FEED CONTROL

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127

No problem is found in the map. To continue
isolating,
GO TO MAP 0630, ENTRY POINT A.

MAP 0620-18

MAP 0620-18

SHEET FEED OPERATION

PAGE 1 OF 23

ENTRY POINTS

FROM ENTER THIS MAP			
MAP	ENTRY POINT	PAGE NUMBER	STEP NUMBER
SAME	B	8	049
SAME	C	12	080
SAME	D	20	156
SAME	E	15	119
SAME	F	8	048
SAME	G	17	130
0015	H	10	064
0610	A	1	001
0620	A	1	001
0620	B	8	049
0650	A	1	001

EXIT POINTS

EXIT THIS MAP TO			
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
4	012	0030	A
10	069	0130	A
15	118	0640	A
16	128	0650	A
8	044	0660	A
23	187	0660	A
23	191	0660	A

001

(ENTRY POINT A)

- Remove jammed paper from sheet feed, if needed.
 - Check paper position in both input trays.
 - Push the manual paper insertion deflector into the automatic sheet feed operation position.
 - SET PRINTER POWER SWITCH TO '0'.
- (Step 001 continues)

MAP Description:

THIS MAP DETERMINES THE SHEET FEED DETAILED FEED CHECK.

Entry Conditions:

NONE

Start Conditions:

NONE

SHEET FEED OPERATION

PAGE 2 OF 23

(Step 001 continued)

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Put the printer in 'DIAGNOSTIC MODE'(301).

- Select and Run Test Unit 42 for the (lower) hopper1(303).

- Press the START key on the control panel, this should feed the paper to 1.5 to 2 inches past the First Writing Line. Did a sheet of paper feed from hopper 1(lower) to 1.5 to 2 inches past the first Writing line?

Y N

002

Does the LED indicate 05 ?

Y N

003

- Remove jammed paper from the sheet feed.

-SET PRINTER POWER SWITCH TO '0'.

-SET PRINTER POWER SWITCH TO '1'.

WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Put printer in 'DIAGNOSTIC MODE'(301).

- Select and Run Test Unit 42.

- Observe the hopper 1(lower) paper (Step 003 continues)

1

4

8

A B

Field replaceable units :
Analog Card, J-7 Cable Assembly, Sensors,
Second Sheet Restraint(SSR) Solenoid, SSR
Solenoid Linkage, Belt, Cone Rollers, Drive
Train Gears, Pulleys, Rocker Springs.

SHEET FEED OPERATION

PAGE 3 OF 23

(Step 003 continued)

picker separator(701). paper picker
Does the hopper 1(lower) separator contact the paper?
Y N

004 - Check that the position adjustment of
the lower input tray is correct and
that the detent screws are not
loose(723).

Are the lower tray and detent checks
correct?
Y N

005 Adjust tray and/or detent and
screws(723).

006 - Press the hopper 1(lower) paper
picker/separator wheel down(725).
- Remove the jammed paper.
- Select and Run test unit 42, if
necessary.

Does the hopper 1(lower) paper
picker/separator contact the paper?
Y N

C D E

007 Check picker separator lift
mechanism(725).
Adjust if necessary.

008 Bad hopper 1(lower) paper
picker/separator(764).

009 - Remove paper from sheet feed path, if
necessary.
- Press 'CANCEL' 3 times.
- While pressing 'INDEX UP' switch,
observe the cone roller C2 and C3(701).
Did the cone rollers C3 and C2 move?

Y N

010 Does the printer platen gear turn?
Y N

4 4 4
F G H

H 3 5218 A01 A02

SHEET FEED OPERATION

PAGE 4 OF 23

011

- SET PRINTER POWER SWITCH TO '0'.
- Disconnect sheet feed cable from printer attachment panel(763).
- Remove the sheet feed from printer.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Press 'INDEX UP'.

Does the printer platen gear turn?

Y N

012

GO TO MAP 0030, ENTRY POINT A.

013

Bad timing belt(701).

---OR---

Bad sequencer gear(701).

---OR---

Bad sequencer pulley(701).

---OR---

Bind in C1 cone roller shaft(701).

---OR---

Tight shaft end play(721).

---OR---

Bad lower drive gear train(701).

F G 3 3

|

|

|

|

| 014

Bad timing belt(701).

---OR---

Bad lower drive gear train(701).

---OR---

Sheet feed not attached correctly.

---OR---

Loose timing belt adjustment(720).

| 015

-SET PRINTER POWER SWITCH TO '0'.

-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

- Remove the sheet feed left side cover(760).

- Remove the jammed paper.

- Select and Run Test Unit 42, if necessary.

- Observe the second sheet restraint solenoid(726).

Is the second sheet restraint solenoid being pulled downward to the down(picked) position during test 42?

Y N

|

|

|

|

|

|

|

|

|

| 6 5

J K

SHEET FEED OPERATION

PAGE 5 OF 23

- 016 - Push the second sheet restraint solenoid down by hand.
 - Observe hopper 1(lower) and hopper 2(upper) second sheet restraint pawls(767 and 768).

Are both pawls moving below the paper path ?
 Y N

- 017 - Check the second sheet restraint assembly adjustment(726).
 Is the second sheet restraint adjustment correct?
 Y N

- 018 Adjust the second sheet restraint assembly(726).
 Y N

- 019 - Check the gate control linkage for binds(748).
 Is Gate control linkage binding?
 Y N

- 020 Bad second sheet restraint solenoid assembly(769).
 Y N

L M

L M

- 021 Bad gate control linkage(748).
 Y N

- 022 -SET PRINTER POWER SWITCH TO '0'.
 - Connect the meter from pin J6-1(positive) on the sheet feed analog card to pin J6-2 on the sheet feed analog card(705).
 - Remove the jammed paper from the sheet feed.
 - Set meter to 200 Vdc.
 -SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
 - Select and Run Test Unit 42.
 - Measure for 25.0 to 40.0 Vdc while motor 1(lower) is running.
 Is the meter reading correct ?
 Y N

- 023 -SET PRINTER POWER SWITCH TO '0'.
 - Disconnect connector J6 from the sheet feed(705).
 - Meter second sheet restraint solenoid connector pin J6-1 to pin J6-2 for resistance(705).
 (Step 023 continues)
 Y N

6 N

SHEET FEED OPERATION

PAGE 6 OF 23

(Step 023 continued)

Is resistance in the range of 49 ohms to 76 ohms?

Y N

024

Bad second sheet restraint solenoid and sheet feed analog card(769 and 763).

025

Bad sheet feed analog card(763).

026

- Disconnect connector J6 from sheet feed analog card(705).
- Meter second sheet restraint solenoid connector pin J6-1 to pin J6-2 for resistance(705).

Is resistance less than 6 ohms?

Y N

027

Is the second sheet restraint solenoid adjustment correct(726)?

Y N

028

Adjust second sheet restraint solenoid(726).

P Q

J P Q

4

029

Bad second sheet restraint solenoid(769).

030

Bad sheet feed analog card and bad second sheet restraint solenoid(763 and 769).

031

-SET PRINTER POWER SWITCH TO '0'.

- Lift the splitter to up position.
- Insert a paper under sensor from front of sheet feed.

Does the paper easily slide between the sensor 1(lower) block and sensor backup guide(729)?

Y N

032

Remove obstruction from the sensor area.

Check and adjust wire rack(780).

Check and adjust sensor backup guide(729).

Check and adjust sensor block(729).

7

R

SHEET FEED OPERATION

PAGE 7 OF 23

033 - With the paper covering the lower sensor.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the LED indicate code 79?

Y N

034

The problem is in the electrical area.
GO TO PAGE 12, STEP 080,
ENTRY POINT C.

035

- Check the hopper 1(lower) sensor housing location(729).
Is the lower sensor housing blocking the paper path?

Y N

036

- Check lower inner wire rack position(731).
Is the lower wire rack blocking the paper path?

Y N

8 8 S T U

U

037

Is the paper curled?

Y N

038

Is the paper tray clear of obstructions and burrs?

Y N

039

Remove obstructions or burrs and check paper stack in both trays to see if they are correct.

---OR---

Install a new paper tray.

040

- Push the second sheet restraint solenoid down by hand(726).
- Observe the movement of the second sheet restraint pawls(767 and 768).

Are both pawls pushed out of the paper path?

Y N

8 8 8 V W X

SHEET FEED OPERATION

PAGE 8 OF 23

041 - Check the second sheet restraint assembly adjustment(726).
Is the second sheet restraint assembly adjustment correct?
Y N

042 Make adjustment of second sheet restraint assembly(726).
Y N

043 Bad second sheet restraint pawl and bellcrank assembly(167 and 168).
Y N

044 No problem has been found.
GO TO MAP 0660, ENTRY POINT A.

045 Put in a new supply of paper.
GO TO PAGE 1, STEP 001,
ENTRY POINT A.

046 Adjust lower inner wire rack position(731).

047 Adjust hopper 1(lower) sensor housing(729).

B 2

048 (ENTRY POINT F)

- Remove the jammed paper.
- Select and run test 42 again if necessary.
- Measure the time that the hopper motor 1 runs.

Does hopper motor 1(lower) run for more than 5 seconds ?
Y N

049 (ENTRY POINT B)

- Remove the jammed paper.
- Remove the left side cover(760).
- Select and Run Test Unit 42 again, if necessary.
- Observe the second sheet restraint solenoid(726).

Does the second sheet restraint solenoid remain in downward(picked) position after test 42 is completed?
Y N

050

Does the leading edge of the paper pass cone roller C2(701)?
Y N

1 1 9 9
2 1 A A
Y Z A B

A 5218 A01 A02

B SHEET FEED OPERATION

MAP 0630-9

8 PAGE 9 OF 23

051 Is roller C2(701) broken or off the shaft?
Y N
052 Is backup roller for C2(701) damaged or off?
Y N
053 Is backup roller in close contact with C2?
Y N
054 Bad spring of rocker 2 and 3(701)
---OR---
Bad pulley P4(773) or roller C4(775).
055 GO TO PAGE 12, STEP 080, ENTRY POINT C.
056 Install new C2 backup roller(776).
057 Install new C2 roller(775).

058 - Check rockers 2 and 3 for damage(701).
Are rockers 2 and 3 damaged?
Y N
059 Does the leading edge of the paper pass roller C1(701)?
Y N
060 Check C1 and backup rollers(701).
Check rocker(1) assembly and spring(701).
Check setscrew for pulley P1(701).
Check timing belt(720) and idle pulley position(720).
Check for obstructions in paper path.

061 Does the paper leading edge completely enter the printer cover?
Y N

1 1 1
1 0 0
A A A
C D E

MAP 0630-9

A A 5218 A01 A02

MAP 0630-10

A G

SHEET FEED OPERATION

PAGE 10 OF 23

062

Adjust the printer cover position(115) and check for any obstruction which may block the paper from entering into the printer cover.
Check lower inner wire rack adjustment(731).

063

Did paper reach printer rear feed roller?

Y N

064

(ENTRY POINT H)

- Check binds of the sheet feed drive gears(701).
- Check C1 and backup rollers(701)
- Check rocker assemblies(1,2,3) and springs(701)
- Check setscrews of P1, P2 P2 and P3 pulleys(701)
- Check drive belt(720) and idle pulley position(720).
- Check printer acoustic filter adjustment.

Are the checks correct?

Y N

065

Make adjustment or install new parts.

1

1

A A

F G

066

- Select 'DIAGNOSTIC MODE'(301).
- Select test 26.
- Run test 26 while observing the LED display.

Does the LED display indicate code 01?

Y N

067

Bad paper sensor(729).

---OR---

Bad A-A1C1 card.

068

- Remove sheet feed from printer.
- Check the drive gear train for binding in gears or pulleys or any obstruction which may prevent the drive train from turning. You can perform this check by turning the lower drive gear by two fingers(701).

Is the gear train bound?

Y N

069

This indicates an intermittent problem in the printer.

GO TO MAP 0130, ENTRY POINT A.

MAP 0630-10

Z A A A 5218 A01 A02

MAP 0630-11

SHEET FEED OPERATION

PAGE 11 OF 23

070 Make adjustment to remove binding or install new parts.

071 Bad printer feed roller assembly(100).

---OR--- Bad printer comb assembly(100).

---OR--- Bad printer cam assembly(100).

---OR--- Bad paper holder(100).

---OR--- Bad paper bail(100).

072 Install new rocker 2 or 3 or both and/or their spring(701).

073 -SET PRINTER POWER SWITCH TO '0'.
- Remove the left sheet feed cover(760), if necessary.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.
- Remove jammed paper.
- Select and Run Test Unit 42 again, if necessary.
(Step 073 continues)

(Step 073 continued)
Does the second sheet restraint solenoid remain in the downward(picked) position after test 42 is completed?

Y N

074 Binding in second sheet restraint mechanism. Adjust second sheet restraint assembly(726).

075 - Disconnect connector J6 from the sheet feed analog card(705).
- Observe the second sheet restraint solenoid linkage movement.
Does the linkage and/or solenoid return to the correct released position?

Y N

076 - Disconnect the second sheet restraint linkage at the clevis(726).
Does the solenoid return to the released position?

Y N

1 1 1
2 2 2
A A A
J K L

MAP 0630-11

Y A A A 5218 A01 A02

SHEET FEED OPERATION

PAGE 12 OF 23

077

Bad second sheet restraint solenoid assembly(769).

---OR---

Bound second sheet restraint upper bellcrank(726).

078

Bound second sheet restraint lower bellcrank(726).

079

Bad sheet feed analog card(763).

080

(ENTRY POINT C)

- Check that the timing belt(720) and drive train including all pulleys and gears(701) are not loose.

- Check that all pulleys are tight on shaft and setscrews are not loose.

Is the drive belt and train correct?

Y N

081

Adjust or install a new new timing belt(720) and/or transport and aligner pulleys(730) and/or gears(701) and their setscrews.

A M

A M

082

- Check voltage between connector pin J4-4(GND) and connector pin J2-1(705). Is voltage 1.0 to 1.5 Vdc?

Y N

083

-SET PRINTER POWER SWITCH TO '0'.

- Disconnect the sensor connector J2 from the sheet feed analog card(705).

- Measure resistance between connector J2-1 and connector J7-4(705).

Is the resistance 324 ohms to 396 ohms?

Y N

084

Bad sheet feed analog card(763).

085

Bad lower hopper sensor(729).

086

- Ensure that the hopper 1(lower) sensor is covered by paper(701).

- Measure voltage between connector pin J2-3 and connector pin J4-4(705).

Is the voltage 0.0 to 3.9 Vdc?

Y N

1 1

3 3

A A

N P

AP 12
AN 12

0.87

-SET PRINTER POWER SWITCH TO '0'.

- Set meter to 200K ohm setting.

- Measure resistance between connector pin J2-3 and connector pin J7-4(705).

Is the resistance 16K to 32.3K ohms?

NY

880

Bad sheet feed analog card(763).

980

Bad lower hopper sensor(729):

090

- Measure voltage between connector pin J7-12 and connector pin J4-4(705).

Is the voltage 2.0 to 5.5Vdc?

NY

160

-SET PRINTER POWER SWITCH TO '0':

- Disconnect sheet feed cable J7 from the sheet feed analog card(763) and the printer attachment panel.

- Check sheet feed cable J7 for continuity and short circuit(705).

Is the sheet feed cable J7 check correct?

NY

A S
A R
A Q

A S
A R
A Q

092

Bad sheet feed J7 cable(763).

0.93

Bad sheet feed analog card(763).

094

-SET PRINTER POWER SWITCH TO '0'.

- Disconnect the sheet feed J7 cable from the sheet feed analog card and the printer attachment panel connector(763).

- Check sheet feed cable J7 for continuity and short circuit(705).

Is the sheet feed cable J7 check correct?

NY

095

Bad sheet feed J7 cable(763).

0.96

- Check cable from printer attachment panel to A-A1 board for continuity and short circuit(105).

Is the printer cable check correct?

NY

097

Bad printer cable from the printer attachment panel to the A-A1 board.

14 AT

5218 A01 A02
SHEET FEED OPERATION
PAGE 15 OF 23

A A
U Y
1 1
4 4
118
Bad Sequencer and stack.
if pulley P4 and its setscrew is not loose
and the paper path is free of
obstruction(701).
GO TO MAP 0640, ENTRY POINT A.

119
(ENTRY POINT E)
- Remove the jammed paper if necessary.
- Select Test Unit 43 for hopper 2(upper)
- Press the 'START' key on the control
panel, this should feed the paper to 1.5
to 2 inches past the writing print line.
Did a sheet of paper feed from hopper 2 to
1.5 to 2 inches past the first writing line?
Y N

120
Does the LED display indicate 05 ?
Y N

2 1 1
3 7 6
A B B
Z A B

A V
1 1
4 4
112
Does the paper pass roller C4(701)?
Y N
113
Is the setscrew of P4 pulley loose(701)?
Y N
114
Is the P4 pulley rocker spring off(701)?
Y N
115
Bad roller C4(775).
---OR---
Obstruction in eject paper path.
116
Reinstall P4 pulley rocker spring(701).
117
Tighten the P4 pulley setscrews(730).
Also check setscrews of pulleys P2 &
P6(701).

A Y

B
B
1
5

5218 A01 A02

SHEET FEED OPERATION

PAGE 16 OF 23

121

- Remove the jammed paper.
- Select and Run Test Unit 43 again, if necessary.
- Observe the hopper 2(upper) paper picker separator(701).

Does the hopper 2(upper) paper picker/separator contact the paper?

Y N

122

- Check that the adjustment of detents of the upper input tray are correct and the detent screws are not loose(723).

Are the upper tray and detent checks correct?

Y N

123

- Adjust or install a new tray and/or detent and their screws(723).

B B
C D

B B
C D

MAP 0630-16

124

- Press the hopper 2(upper) paper picker/separator wheel down(725).
- Remove the paper.
- Select and Run Test Unit 43 again, if necessary.

Does the hopper 2(upper) paper picker/separator contact the paper?

Y N

125

- Check picker separator lift mechanism(725).
- Adjust if necessary.

126

Bad hopper 2(upper) paper picker separator(764).

127

Is code 02?

Y N

128

Symptom has changed.
GO TO MAP 0650, ENTRY POINT A.

129

GO TO PAGE 17, STEP 130, ENTRY POINT G.

MAP 0630-16

B
A
1
5

130 (ENTRY POINT G)
- Remove the jammed paper and run test 43 again if necessary.
- Measure the time that the hopper motor 2(upper) runs.
- Observe the second sheet restraint solenoid(726).
Does the hopper motor 2(upper) run for more than 5 seconds?
Y N

131 - Remove the jammed paper.
- Select and Run test Unit 43 again, if necessary.
- Observe the second sheet restraint movement(726).
Does the second sheet restraint solenoid remain in the downward(picked) position after test 43 is completed?
Y N

132 Does paper leading edge pass cone roller C5(701)?
Y N

2 1 1
0 9 8
B B B B
E F G H

B
H

133 Is roller C5 broken or off the shaft(701)?
Y N
134 Is C5 backup roller damaged or off(701)?
Y N
135 Are C5 backup rollers in contact with C5 roller?
Y N
136 Bad rocker 5 and 6 spring(701)
---OR---
Bad rocker 5 or 6(701)
137 GO TO PAGE 20, STEP 156, ENTRY POINT D.
138 Install a new C5 backup roller(776).
139 Install a new C5 roller(775).

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G SHEET FEED OPERATION
1
7

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140 - Check position of rocker 5 and 6(701).
Are the rocker 5 and 6 correct?
Y N

141 Install a new rocker 5 and/or rocker 6
and/or their spring(701).
142

Does the leading edge of the paper pass
roller C1(701)?
Y N

143 Check C1(701) and backup rollers(701).
Check rocker 1 and spring 1(701).
Check setscrews for pulley P1 and P4(701).
Check drive belt(720) and idle pulley
position(720).
Check for obstructions in paper path.

144 Does paper leading edge completely enter
printer cover?
Y N

145 Adjust printer cover position and check
lower inner wire rack adjustment(731).
|
|
|
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|
|

B J

MAP 0630-18

B J

146 Did paper reach printer rear feed roller?
Y N

147 Check C1 and backup rollers(701).
Check rocker ASM and spring(701).
Check setscrews for pulley P1 and P4(701).
Check drive belt(720) and idle pulley
assembly position(720).
Check printer acoustic filter adjustment.

148 Bad printer feed roller assembly(100).
---OR---
Bad printer comb assembly(100).
---OR---
Bad printer cam assembly(100).
---OR---
Bad printer paper holder(100).
---OR---
Bad printer paper bail(100).

MAP 0630-18

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F SHEET FEED OPERATION

17 PAGE 19 OF 23

149

-SET PRINTER POWER SWITCH TO '0'.
- Remove the left sheet feed cover(760).
-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

- Remove jammed paper.
- Select and Run Test Unit 43 again, if
necessary.

Does the second sheet restraint solenoid
remain in the downward(picked) position
after test 43 is completed(726)?

Y N

150

Binding in second sheet restraint
mechanism.
Adjust second sheet restraint
assembly(726).

151

- Disconnect J6 connector from analog
card(705).

- Observe solenoid linkage movement(726).
Does the linkage or solenoid return to the
correct released position?

Y N

B B
K L

MAP 0630-19

B B
K L

152

- Disconnect the second sheet restraint
linkage at the clevis(726).

Does the second sheet restraint solenoid
return to the released position?

Y N

153

Bad second sheet restraint solenoid
assembly(769).

---OR---

Bound second sheet restraint upper
bellcrank(726).

154

Bound second sheet restraint lower
bellcrank(726).

155

BAD sheet feed analog card(763).

MAP 0630-19

მე 17

156

(ENTRY POINT D)

- Check timing belt(720) and drive train(720).
- Check that all pulleys are tight on shaft and all setscrews are not loose(701).
- Check loose idler(701) and belt tension(720).

Are the timing belt and train checks correct?

2
3

157

Adjust or install a new timing belt(720) and/or a new drive train including pulleys and gears and setscrews(701 and 730).

158

-SET PRINTER POWER SWITCH TO '0':

- Lift the splitter in up position.
- Insert a paper under sensor 2(upper) from front of sheet feed.

Does paper easily slide between the sensor 2(upper) block and sensor backup guide(729)?

NY

[illegible]

Remove obstruction from sensor area.
Check and adjust wire rack, sensor backup guide and sensor block.

-160

- With a paper covering the upper sensor.
- SET PRINTER POWER SWITCH TO '1'. WAIT 35 SECONDS UNTIL POWER ON SEQUENCE IS COMPLETE.

Does the LED display indicate code 79?

NY

161

- Remove jammed paper from sheet feed.
- Check voltage at pin J4-1 to pin J4-4(GND) on the sheet feed analog card(705).

Is voltage 1.0 to 1.5Vdc?

NY

162

- SET PRINTER POWER SWITCH TO '0'.
 - Disconnect sensor connector J4 from sheet feed analog card(705).
 - Measure resistance between connector pin J4-1 and connector pin J7-4 on the sheet feed analog card(705).
- (Step 162 continues)

22

21

B N
B M

☐ மி ☐ ஓ
☐ மி ☐ டு

SHEET FEED OPERATION

PAGE 21 OF 23

B
Q
2
0

(Step 162 continued)

Is resistance 324 ohms to 396 ohms?

Y N

163

Bad sheet feed analog card(763).

164

Bad hopper 2(upper) sensor(729).

165

- Ensure that the upper sensor is covered by paper.

- Measure voltage between connector pin J4-4(GND) and connector pin J4-3(705).

Is voltage 0.0Vdc to 3.9Vdv?

Y N

166

-SET PRINTER POWER SWITCH TO '0'.

- Set meter to 200K ohm setting.

- Measure resistance between connector pin J4-3 and connector pin J7-4(705).

Is resistance 16K to 32.3K ohms?

Y N

167

Bad sheet feed analog card(763).

168

Bad hopper 2(upper) sensor(729).

B
RB
R

169

- Measure voltage between connector pin J4-4(GND) and connector pin J7-11(705).

Is voltage 2.0 to 5.5Vdc?

Y N

170

-SET PRINTER POWER SWITCH TO '0'.

- Disconnect sheet feed cable from sheet feed analog card and printer attachment panel(763).

- Check cable for continuity and short circuit(705).

Is cable check correct?

Y N

171

Bad sheet feed cable(763).

172

Bad sheet feed analog card(763).

2
2
B
S

173

- SET PRINTER POWER SWITCH TO '0'.
- Disconnect sheet feed cable from the sheet feed and the printer attachment panel(763).
- Check sheet feed cable for continuity and short circuit(705).

Is cable check correct?

Y N

174

- Bad sheet feed cable assembly(763).

175

- Check printer cable from printer attachment panel to A-A1 board for continuity and short circuit(105).

Is printer cable check correct?

Y N

176

- Bad printer attachment panel to A-A1 board cable.

B B

P T

2 0

177

178

179

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219

220

- Disconnect the printer A-A1C1 card from the A-A1 board(104).
- Check physical damage of the A-A1 board.

Is the printer A-A1 board damaged?

Y N

178

- Bad printer A-A1C1 card(104).

179

- Bad printer A-A1 board(104).

180

Is the cone roller C6 moving(701)?

Y N

181

- Install a new roller C6(775) and/or tighten pulley P6 setscrew(730).

182

- Check the hopper 2(upper) sensor housing position(729).

Is the sensor housing blocking the paper path?

Y N

183

184

185

186

187

188

189

190

191

192

193

194

195

2 2

3 3

B B

U U

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SHEET FEED OPERATION

PAGE 23 OF 23

A B B
Z U W

1 2
5 2

183

- Check center inner wire rack(780).
Is the rack blocking the paper path?

Y N

184

Is the paper curled?

Y N

185

Is the paper tray clear of obstructions
and burrs?

Y N

186

Remove obstruction or burr and check
paper stack in both tray to see if
they are correct.

---OR---

Install new paper tray.

187

No problem has been found.

GO TO MAP 0660, ENTRY POINT A.

188

Put in a new supply of paper.
GO TO PAGE 1, STEP 001,
ENTRY POINT A.

B W

MAP 0630-23

Adjust center inner wire rack by
forming.

189

Adjust

190

Adjust hopper 1(lower) sensor
housing(729).

191

No problem found in this map.

GO TO MAP 0660, ENTRY POINT A.

MAP 0630-23

5218 A01 A02

MAP 0640-1

EJECT PATH OPERATION

PAGE 1 OF 12

ENTRY POINTS

FROM ENTER THIS MAP				
-----+-----				
MAP	ENTRY	PAGE	STEP	
NUMBER	POINT	NUMBER	NUMBER	
-----+-----				
SAME	B	5	012	
SAME	D	9	053	
0630	A	1	001	
0650	A	1	001	

001

(ENTRY POINT A)

EXIT POINTS

EXIT THIS MAP TO				
-----+-----				
PAGE	STEP	MAP	ENTRY	
NUMBER	NUMBER	NUMBER	POINT	
-----+-----				
2	004	0650	A	

MAP Description:

THIS MAP DETERMINES IF PAPER IS SENT THROUGH THE UPPER EJECT PATH CORRECTLY.

Entry Conditions:

NONE

Start Conditions:

NONE

Field replaceable units :

ANALOG CARD, SEQUENCER SOLENOID, RATCHET, SOLENOID ARMATURE, SEQUENCER GATE< SEQUENCER DRIVE ROLLER, CLUTCH DISK, REED SWITCH, GATE DOWN STOP, UPPER AND LOWER KICK ROLLERS, SEQUENCER CYLINDERS.

(Step 001 continues)

MAP 0640-1

EJECT PATH OPERATION

PAGE 2 OF 12

(Step 001 continued)
 Is the paper correctly aligned(the left edge
 in the groove of the block) when it reaches
 the sequencer(700) area?

Y N

002

- Check the roller C1 and C4 for wear or damage(701)
- Check pulleys P1 and P4 for loose set screws(701).
- Check for burrs in the wire rack and block paper guide.
- Check back up rollers for contact, verify their rockers are free, and that the rocker springs are on(701).

Are the above checks correct?

Y N

003

Adjust, repair, or install new parts.

004

GO TO MAP 0650, ENTRY POINT A.

005

Does the paper stop with the leading edge
 turned over in the sequencer and with the
 trailing edge not ejected?

Y N

| | | | | | | |

1

1 3

A B

EJECT PATH OPERATION

PAGE 3 OF 12

006

Does the paper leading edge pass the eject rollers(700)?

Y N

007

Check the eject rollers for loose set screws, binds, or missing parts and repair.

008

- Read the supplementary information at the right, if you are unfamiliar with this map.
- Remove covers and pivot out the sheet feed analog card(760,761,762,763).
- Inspect ratchet magnet armature to ratchet engagement and ratchet set screw(742,743).
- Hand operate gate, check gate stops on down stop in correct position(745).
- Check sequencer paper opening alignment and position relative to the gate and stripper fingers(740 and 743).
- latch the gate.
- Check that sequencer drive roller is centered in the grooves of the drive roller, and that setscrews on both are tight(744).
- Check that drive roller tension spring (Step 008 continues)

A machine inspection is to be performed before getting into the sequencer map. If you are unfamiliar with the adjustments and checks, see the MIMs listed.

NOTE you are instructed to check only a part of the adjustments referenced. THESE CHECKS ARE IMPORTANT since BADLY ADJUSTED PARTS CAUSE RANDOM SYMPTOMS AND BRANCHES INTO THE WRONG LEGS OF THE MAPS.

SEQUENCER MAGNET TO RATCHET. Check that the armature is fully engaged with the ratchet tooth. Hold the ratchet and attempt to turn the sequencer shaft to verify that the ratchet setscrew is tight(742,743).

GATE AND CYLINDER ALIGNMENT. Trip the gate latch(701) to lower the gate(700). Verify visually that the gate moves all the way down, stops on the down stop(745) approximately 0.2MM to 0.7MM of the bottom

EJECT PATH OPERATION

PAGE 4 OF 12

(Step 008 continued)

is on and that the drive roller trip spring will engage rollers(702).

- Use the MIM references in the supplementary information to determine the cause of problems you have found.

of the paper openings of the sequencer cylinders. With the ratchet against the armature verify that the paper opening in the cylinders are aligned and 0.3MM to 1.0MM from the gate(740). Visually check the cylinders to ensure they clear the openings in the stripper fingers. Latch the gate when checks are complete. Problems see MIM(740,743,745,749).

Verify that with the armature fully engaged in the ratchet that the drive roller(702) is centered in the notch of the drive wheel(702). Ensure set screw tightness by attempting to turn the drive roller and drive wheel while holding the shafts. Ensure the tension spring(702) is in place. Hand operate magnet armature(701). The trip spring (702) should turn drive wheel into engagement with drive roller. Engage armature and ratchet when checks are complete.

If there is part or adjustment which did not pass the visual check correct the problem using MIM referenced or the MIM for that part of the machine.

Are the checks correct?

Y N
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5 5
C D

EJECT PATH OPERATION

PAGE 5 OF 12

009

Have you identified the cause?

Y N

010

If the above checks were not correct but you have not identified the cause, the MAPS can be used, HOWEVER THE SEQUENCER RATCHET SHOULD BE CHECKED FOR CORRECT ENGAGEMENT TO THE ARMATURE BEFORE RUNNING TEST UNIT 40. RANDOM POSITION OF THE SEQUENCER CAUSES RANDOM SYMPTOMS AND MAKES USE OF THE MAPS DIFFICULT.

GO TO STEP 012,

ENTRY POINT B.

011

Adjust, repair or install new parts

012

(ENTRY POINT B)

Does the magnet(701) pick at the correct time during test 40 or verify test(It should pick as the paper enters the sequencer paper opening)(741)?

Y N

8 E

F

F

013

Does the sequencer magnet pick at any time?

Y N

014

- Observe the sequencer cylinders on either side of the reed switch pawl(actuator)(700).
- Run test 40.

Does the paper enter the paper openings in the sequencer cylinders and get 0 to 2mm of being completely in the paper openings?

Y N

015

Go to entry point d of this map.

016

Does the reed switch pawl(700) move freely when operated by hand?

Y N

017

Adjust the sequencer cylinder or the reed switch assembly to remove the bind or install new reed switch(741)

7 6

G H

EJECT PATH OPERATION

PAGE 6 OF 12

018 Does the sequencer magnet pick when the reed switch pawl (actuator) is pushed fully down?

Y N

019 When hand operated does the sequencer magnet armature clear the ratchet by 0.2MM to 0.5MM and is it free of mechanical binds?

Y N

020 Adjust or install new part to remove binds.

021

- Disconnect connector J1(705) to disconnect the reed switch.
- With the printer power switch in the '1' position, short the reed switch pins J1-1 to J1-2 at the sheet feed analog card.(705)
- This simulates a closing reed switch. The magnet should pick each time the pins are shorted. If the pins are shorted for more than 4 seconds, a time out will occur and the magnet will drop.

(Step 021 continues)

7 J

(Step 021 continued)
Does the sequencer magnet pick when the pins are shorted?

Y N

022 - Set voltmeter to '200' volts range, and meter the voltage from connector pin J4-4(GND) to J3-2(705).

Does the voltage read 36Vdc?

Y N

023 - Meter the voltage from J4-4(GND) TO J3-1(705).

Does voltage measure 36Vdc?

Y N

024 Bad sheet feed analog card.(763)

025 Bad sequencer magnet.(771)

7 7
K L

K L 5218 A01 A02

EJECT PATH OPERATION

PAGE 7 OF 12

026 - Turn printer power to '0'.
- Disconnect sequencer magnet connector J3 and measure coil resistance at connector point J3-1 to J3-2(705).
Does the coil resistance measure between 130 ohms to 197 ohms?

Y N

027 Does the coil measure less than 66 ohms?

Y N

028 Bad sequencer magnet(771).

029 Bad magnet and sheet feed analog card(763,771).

030 Bad sheet feed analog card.(763)

031 Bad reed switch(741) and reed switch cable J1 (705).

MAP 0640-7

G J 5 6

032 Reed switch adjustment is bad(741).

---OR---
Paper does not have strength to operate reed switch. See customer guide for supplies specifications.

033 Is the voltage continuously present across sequencer magnet when power is on?

Y N

034 The logic sees an wrong signal from the reed switch. Adjust or install new reed switch(741).

---OR---
Observe the reed switch and reed switch pawl(actuator). If the switch pawl is being hit by the gate; the wire rack, the stripper or reed switch should be adjusted to prevent this interference.

---OR---
There is an intermittent short circuit on the reed switch cable J-1 (705)

8 M

MAP 0640-7

E M
5 7

5218 A01 A02

EJECT PATH OPERATION

PAGE 8 OF 12

035

-SET PRINTER POWER SWITCH TO '0'.
- Disconnect sequencer magnet.
- Check for a short circuit on the coil
by measuring resistance of the magnet
lead J3-2 to test point J4-4 on the
sheet feed analog card(705).

Does the resistance measure less than 200
ohms?
Y N

036

Bad sheet feed analog card(763).

037

Bad sequencer magnet cable.(705).

038

Does the sequencer ratchet turn one half
revolution and correctly engage the armature
during test 40(run test 40 again, if
necessary)?
Y N

039

Does the sequencer magnet armature clear
the ratchet by 0.2MM to 0.5MM when hand
operated?
Y N

9

N P Q

P Q

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9

R

MAP 0640-8

MAP 0640-8

040 Adjust sequencer magnet.(742)

041

- Hit cancel three times and then press
index up.

- Observe the upper kick roller shaft.
Does the upper kick roller shaft (703) turn
while indexing?
Y N

042

Binding shaft or loose set screws. Adjust
end play if necessary.(721)

043

- Check the drive wheel and roller
adjustments(744).
Are the adjustments correct and the set
screws tight?
Y N

044

Adjust drive roller and wheel,(744)
install new drive wheel if necessary.
Visually verify the sequencer ratchet
adjustment(743) has not been changed.
adjust if necessary.

EJECT PATH OPERATION

PAGE 9 OF 12

200

045

Does the sequencer put approximately 20 to 40N force at the drive roller(702)?

$$\begin{matrix} Z \\ Y \end{matrix}$$

046

Adjust spring tension or install new spring (751).

047

Does the trip spring turn the drive wheel and the drive roller into engagement(702)?

Y
Z

048

Weak trip spring. Adjust or install new part(751)

W 5218 A01 A02
 9
 EJECT PATH OPERATION
 PAGE 10 OF 12

MAP 0640-10

054 Are the second sheet restraint solenoid (726) and gate latch linkage (748) correctly adjusted and returning smoothly?
 Y N
 055 Adjust, repair or install new parts.
 056 Is the gate cam correctly adjusted(746)?
 Y N
 057 Adjust the gate cam(746).
 058 Does the gate operate freely(721) and is the gate down stop (745) correctly adjusted?
 Y N
 059 Adjust , repair or install new part.
 060 AT this point the gate and all its linkage has been checked, check gate adjustments and use normal escalation procedures.

V 9
 061
 062
 063
 064
 065
 1 1
 1 1
 X Y

- Hand insert a sheet of paper into the sequencer cylinder paper opening (740).
 - Observe the paper as it enters for binds or obstructions.
 - Check both sides of the cylinders.
 Does the paper enter freely?

062 Is the cause of the problem still unknown?
 Y N
 063 Adjust, repair or install new parts.
 064 Are the sequencer cylinders correctly aligned(740), the ratchet adjustments(743) made correctly, and the cylinder openings free of burrs or other obstructions?
 Y N
 065 Adjust or repair.

MAP 0640-10

X Y 5218 A01 A02

1 1 EJECT PATH OPERATION

0 0

PAGE 11 OF 12

066 - Check that the clamp hub moves freely in the sequencer cylinder and that the clamp actuator spring is present and has not been damaged(740). Does the clamp work correctly?

Y N

067

Repair or install new part .

068

At this point the adjustments which would prevent a paper jam at the sequencer entry have been checked. Check again for burrs , bent gate or bent sequencer shaft or any other obstructions. Follow normal escalation procedures.

069

At this point the static checks on the sequencer do not indicate a cause for a jam in the sequencer. Run test 40 and observe for dynamic jams. Correct the cause or follow normal escalation procedures.

A U

2 9

070

Adjust reed switch.(741)

071

(ENTRY POINT C)

Does the gate fail to latch up(700)?

Y N

072

Upper kick rollers(703) do not work. Check set screws install new rollers if necessary.

---OR---

Loose set screws on sequencer pulley.(701)

073

- Remove the left side cover if necessary(760).

Does the second sheet restraint solenoid return freely and fully when hand operated(726)?

Y N

074

Make the second sheet restraint adjustment(726), verify binds have been removed or install a new part.

1

2

Z

5218 A01 A02
 EJECT PATH OPERATION
 PAGE 12 OF 12

075 Is the gate latch correctly, adjusted, free of wear or binds and is the spring present and attached (748)?
 Y N

076 Make necessary adjustments or repairs.

077 Is the gate correctly adjusted(749) and is the screw tight?
 Y N

078 Make necessary adjustments or repairs.

079 Is the gate cam adjustment(746) correct and set screw tight?
 Y N

080 Make necessary adjustments.

A
 A
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 081

At this point all gate latching mechanisms have been checked and the cause of the gate not latching has not been found. Check again and then follow normal escalation procedures.

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MAP 0650-1

INTERMITTENT- ENTRY

PAGE 1 OF 10

ENTRY POINTS

FROM ENTER THIS MAP				
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER	
0130	A	2	001	
0610	A	2	001	
0620	A	2	001	
0630	A	2	001	
0640	A	2	001	

EXIT POINTS

EXIT THIS MAP TO				
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT	
7	018	0030	A	
7	017	0070	A	
9	024	0130	C	
10	030	0130	C	
9	025	0660	A	
10	031	0660	A	

MAP 0650-1

INTERMITTENT- ENTRY

PAGE 2 OF 10

001

(ENTRY POINT A)

- Obtain all error code , error log printout, printouts that were being printed at the time of the error, and symptoms that are available.
- Obtain as much information as possible from the customer.
- Perform a visual inspection for broken or loose parts.
- If the cause of failure can be determined and repaired, repair as needed and verify the repair.

Did the operator perform the normal problem determination and correction procedure?

Y N

002

Instruct the operator on correct problem determination procedures. See chapter 4 of Sheet feed OPERATOR GUIDE.

003

Is the failure symptom an operator prompt or error code?

Y N

| | | | | | | | | |

7 3

A B

MAP Description:
THIS MAP DETERMINES THE GENERAL TYPE OF INTERMITTENT FAILURE SYMPTOM AND SENDS THE CE TO THE CORRECT MAP USING THE SYMPTOM INDEX AND AVAILABLE ERROR CODES.

Entry Conditions:

NONE

Start Conditions:

NONE

Field replaceable units :

NONE.

B 5218 A01 A02

2

INTERMITTENT- ENTRY

PAGE 3 OF 10

004

Is the symptom a printer problem?

Y N

005

Is the failure a communication problem?

Y N

006

Is the failure an application that was
processed differently than the operator
expected?

Y N

7 7 7 4
C D E F

F

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MAP 0650-4

3

INTERMITTENT- ENTRY

PAGE 4 OF 10

007

Major Symptom	Minor Symptom	Mechanical checks and repair action
Objectionable or unexpected characteristics (no error code)	Paper ejects into output tray without being sequenced.	Reed switch closes too soon(741). Front edge of sequencer cylinder paper openings not in line(740). Sequencer cylinder #1 to clamp hub out of adjustment(740). Clamp spring broken, overextended or loose(740).
	Paper damage to top edge of sheet.	Gate down stop too high(745). Ratchet adjusted such that sequencer cylinder paper opening to gate gap is not correct(743). Front edge of sequencer cylinder paper openings not in line(740). Reed switch closes too late(741). Gate end play too small(721).
	Intermittent failure of flip strips to feed out completely.	Ratchet adjusted such that sequencer cylinder paper opening to gate gap is not correct(743). Lower kick roller end play is too small(740).
	Left edge of paper folded over	Paper weight below specification(Operators Guide/ Appendix A). Side restraint in paper tray broken or not correctly positioned(Operators Guide). End play too loose on cone roller shaft(730).

is the symptom found in the table?

Y N

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7 5
G H

MAP 0650-4

5218 A01 A02

INTERMITTENT- ENTRY

PAGE 5 OF 10

008

Major Symptom	Minor Symptom	Mechanical checks and repair action
Objectionable or unexpected characteristics (no error code).	Intermittent, more than one sequencer cycles.	Reed switch lever adjusted too low with upstop screw(741). Reed switch lever rubbing side of cylinder(741). End play too loose on sequencer cylinder shaft(721).
	Sequence cycle during insert cycle.	Reed switch lever adjusted too high with upstop screw(741).
	Objectionable paper skew.	Lower inner wire rack too far forward(731). Back up roller or its C-clip missing or its rocker spring broken(776).
	Debris on paper in output tray.	Sequencer cylinder rubbing stripper fingers(740).
Noisy	Picker separator noisy	Picker separator disk drive not in line contact (may be caused by upper bearing coming loose or motor bracket out of pivot opening in picker separator bracket(728)). Picker separator lift mechanism adjusted too low, bottomed against lift bracket or drive disk(725).

Is the symptom found in the table?

Y N
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7 6
J K

009

Major Symptom	Minor Symptom	Mechanical checks and repair action
Noisy	Belt jumps teeth.	Timing belt too loose(720). End play tight on upper kick roller shaft(721). End play tight on sequencer pulley shaft(721). End play tight on cone roller shaft(730). Lower kick roller end play too small(740).
	Squeaking	Lower kick roller end play out of adjustment(740) No lubrication on drive gear studs(Preventive maintenance). No lubrication on timing belt idler pulley studs(Preventive maintenance)
	Grinding	Sequencer clutch drive roller rubbing side of drive wheel groove(744). Sequencer clutch pivot arm down stop adjusted too low(744). End play too loose on sequencer cylinder shaft(721). End play too loose on sequencer pulley shaft(721).
	Can not close tray without damaging paper.	Picker/separator lift spring broken or binds in lift mechanism(725).
	Paper burnished on left edge	Rollers binding on picker/separator wheel(764).

Is the symptom found in the table?

Y N

7 7

L M

E G J L M 5218 A01 A02
3 4 5 6 6
INTERMITTENT- ENTRY

PAGE 7 OF 10

010 Follow normal escalation procedures.

011 Perform mechanical checks and repair as described in the symptom index table.

012 Perform mechanical checks and repair as described in the symptom index table.

013 Perform mechanical checks and repair as described in the symptom index table.

- 014
- The operator must have performed the following steps before requesting CE for service.
 - Run the job again and verify the failure.
 - Run a know job similar to the one that failed.
 - Attempt the failing job on another system, if possible and verify that the job runs correctly.
 - Follow normal escalation procedures if an application problem is suspected.
 - Answer the following question 'NO' if (Step 014 continues)

MAP 0650-7

A C D
2 3 3

(Step 014 continued)
another machine is not available.
Does the job fail in the same way on another machine?

Y N

015

Go to step 007 of this map.

016

Follow normal escalation procedures.

017

GO TO MAP 0070, ENTRY POINT A.

018

GO TO MAP 0030, ENTRY POINT A.

019

Is an error code recorded or displayed?

Y N

020

Is a statistics printout available?

Y N

021

Turn machine back to operator and request him to keep failure records next time when request CE for service.

1

0 8

N P

MAP 0650-7

INTERMITTENT-ENTRY

PAGE 9 OF 10

(Step 022 continued)

However, a label will always be followed by exactly four characters of data, and then another label.

- Observe the statistics print.
- Find the four characters between the labels 'DC' and 'DD'.
- Ignore the last two characters after the label 'DC'.

Are the first two characters after the label 'DC' both zero?

Y
Z

023

- Use these two characters as the code.
- Is the code 05?

NY

024

GO TO MAP 0130, ENTRY POINT C.

0.25

GO TO MAP 0660, ENTRY POINT A.

026

- Run test 40 and 41 LOOP for 5 minutes. Is there a paper jam during test runs?

$$\begin{matrix} Z \\ Y \end{matrix}$$

.....

.....

Q

α
α

— — — — — 0 5 4 4

0.27

Stop service and request operator to keep failure records next time when request CE for service.

0.28

Go to step 007 of this map.

INTERMITTENT- ENTRY

PAGE 10 OF 10

029 (ENTRY POINT B)
TABLE OF VALID CODES

NOTE: $\begin{array}{ c } \hline \square \\ \hline \end{array} = 6 \quad \begin{array}{ c } \hline \square \\ \hline \end{array} = B$			
XX-YY *	IS	XX THROUGH YY *****	
01-02	60	71 81-83	93
05	61	73-79 84-87	98
06	63-65	.8.8	99
30-38	69	89	
41			
43-47			
51			
53-58			
(Step 029 continues)			

(Step 029 continued)
Is the code found in the 'TABLE OF VALID
CODES ' ?
Y N
030
GO TO MAP 0130, ENTRY POINT C.
031
GO TO MAP 0660, ENTRY POINT A.

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SHEET FEED INTERMITTENT

PAGE 1 OF 13

ENTRY POINTS				

FROM	ENTER THIS MAP			

MAP	ENTRY	PAGE	STEP	
NUMBER	POINT	NUMBER	NUMBER	

SAME	B	13	030	
SAME	E	13	033	
0040	A	1	001	
0650	A	1	001	

001
(ENTRY POINT A)

(Step 001 continues)

EXIT POINTS				

EXIT THIS MAP TO				

PAGE	STEP	MAP	ENTRY	
NUMBER	NUMBER	NUMBER	POINT	

13	037	0010	A	
2	005	0130	C	
13	031	0130	C	

MAP Description:
THIS MAP DETERMINES INTERMITTENT PROBLEMS
WITH ERROR CODE KNOWN AND/OR FAILURE SYMPTOM
OBSERVED AND VERIFIES SHEET FEED OPERATION
AFTER REPAIR ACTIONS IS COMPLETED.

Entry Conditions:
NONE

Start Conditions:
NONE

Field replaceable units :
ANALOG CARD, J7 CABLE ASM, SOLENOIDS,
SENSORS, MOTORS, PULLEYS, ROCKER SPRINGS,
CONE ROLLERS, PRINTER A/C1 CARD.

SHEET FEED INTERMITTENT

PAGE 2 OF 13

(Step 001 continued)
 Is the printer exception light on and the
 LED display with error code 79?
 Y N
 |
 |
 | 002
 | Is the printer exception light on and the
 | LED display with error code 78?
 | Y N
 |
 |
 | 003
 | Is code 01 or 02?
 | Y N
 |
 |
 | 004
 | Is code 05?
 | Y N
 |
 | 005
 | GO TO MAP 0130, ENTRY POINT C.

1 1
 2 2 9 3
 A B C D

Major Symptom	Minor Symptom	Mechanical checks and repair action
Insert cycle ran with no paper in the paper path		Side restraint in paper tray broken or not correctly positioned(Operators Guide). Tray detent not correctly adjusted or tray detent parts broken or loose(723). Paper curl out of specification (Operators Guide/Appendix A). Picker/separator support pad out of adjustment or shock absorbers broken(724). Paper sensor housing horizontally too far to the rear(729).
Jammed after cone roller C3 or C6(701)		Paper sensor housing vertical adjustment is not correct(729). Pulley set screws are loose(730). Back up roller or its C-clip missing or its rocker spring broken(776). Wire rack are loose or broken(780 and 731). Paper sensor backup guide out of adjustment(729).
Jammed as paper enters printer covers		Printer cover out of adjustment(115). Lower inner wire rack out of adjustment(731). Splitter out of adjustment(732).

Is the symptom found in the table?

Y N

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

SHEET FEED INTERMITTENT

PAGE 4 OF 13

007

Major Symptom	Minor Symptom	Mechanical checks and repair action
Jammed at start of eject path (paper leading edge past first writing line and starts entering sheet feed eject path)		Manual insertion deflector not in correct location or broken(Operators Guide)(779). Picker/separator lift mechanism adjusted too low(bottomed against lift bracket or drive disk)(725). Not enough gap between printer acoustic filter and cover(115). Side restraint in paper tray broken or not correctly positioned(Operators Guide). Lower inner wire rack too far forward(731). Tray detent not correctly adjusted or tray detent parts broken or loose(723). Picker/separator support pad out of adjustment or shock absorbers. broken(724). Back up roller or its C-clip missing or its rocker spring broken(776).
Double feed		Paper placed too far forward in tray(Operators Guide). Bind in second sheet restraint solenoid (probably solenoid down stop).(726). Paper sensor and/or its housing out of adjustment(729). END play on second sheet restraint pawl bad(721). Second sheet restraint clevis too tight(lower hopper only).(726). Second sheet restraint spring(s) broken(726).

Is the symptom found in the table?

Y N

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8 5

G H

SHEET FEED INTERMITTENT

PAGE 5 OF 13

008

Major Symptom	Minor Symptom	Mechanical checks and repair action
Intermittent index stalls		Drive train gear studs loose from left mounting plate(777). Drive train gears broken(701). End play tight on cone roller shaft(730). End play tight on upper kick roller shaft(721). End play tight on sequencer pulley shaft(721). Lower kick roller end play too small(740). Timing belt too tight(720). Left mounting plate loose(777). Printer index problem(Map 0030, entry point A).
Jammed at sequencer	Sequencer magnet(701) picked	Reed switch lever adjusted too low with up stop screw ,magnet does not unpick(741). End play too loose on sequencer cylinder shaft(721). Sequencer cylinder rubbing stripper fingers(740). Reed switch lever touching side of sequencer cylinder(741). Sequencer clutch tension spring broken or over extended(702) . Sequencer clutch drive wheel or roller loose on shaft(744). Sequencer pulley or gear loose(701). Sequencer clutch pivot arm down stop adjusted too high(744). Sequencer clutch trip spring to drive roller interference(751). Gate cam to gate gap too small(746). Sequencer clutch drive roller rubbing side of drive wheel groove(744).
(Step 008 continues)		

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MAP 0660-6

SHEET FEED INTERMITTENT

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(Step 008 continued)
Is the symptom found in the table?

Y N

8 7
J K

MAP 0660-6

SHEET FEED INTERMITTENT

PAGE 7 OF 13

009

Major Symptom	Minor Symptom	Mechanical checks and repair action
Jammed at Sequencer	Sequencer magnet failed to pick	Gate down stop out of adjustment(745). Front edge of sequencer cylinder paper openings not in line(740). Ratchet adjusted such that sequencer cylinder paper opening to gate gap is out(743). Reed switch closes too late(741). Sequencer magnet out of adjustment(742). End play tight on gate(721). Gate latch clevis adjusted for too small a gap between the latch and latch plate(748). End play too loose on sequencer cylinder shaft(721). Sequencer cylinder #1 to clamp hub out of adjustment(740). Reed switch lever rubbing side of cylinder(741). Wire rack loose or broken(780 and 731). Sequencer clamp spring rubbing side of cylinder(741).
	Jam caused by not complete sequencer cycle of preceding sheet	Bind in second sheet restraint solenoid(probably solenoid down stop)(701). Gate latch spring broken loose(748). Gate to latch plate radially maladjusted such that the latch does not reset correctly(748). End play too loose on gate(721). End play not correct on second sheet restraint pawl(721). Upper kick roller set screw loose(750). No lubrication on gate latch pivot stud(Pre.Main).
(Step 009 continues)		

E G J 5218 A01 A02

MAP 0660-8

3 4 6

SHEET FEED INTERMITTENT

PAGE 8 OF 13

(Step 009 continued)
Is the symptom found in the table?

Y N

010

Follow normal escalation procedures.

011

Perform mechanical checks and repairs
as described in symptom index table.
GO TO PAGE 13, STEP 033,
ENTRY POINT E.

012

Perform mechanical checks and repairs as
described in symptom index table.
GO TO PAGE 13, STEP 033,
ENTRY POINT E.

013

Perform mechanical checks and repairs as
described in symptom index table.
GO TO PAGE 13, STEP 033,
ENTRY POINT E.

014

Perform mechanical checks and repairs as
described in symptom index table.
GO TO PAGE 13, STEP 033, ENTRY POINT E.

MAP 0660-8

C 5218 A01 A02

MAP 0660-9

2 SHEET FEED INTERMITTENT

PAGE 9 OF 13

015

Major Symptom	Minor Symptom	Mechanical checks and repair action
Paper jammed before getting to paper sensor (701)	Second sheet restraint solenoid did not pick completely(701).	Bind in second sheet restraint solenoid(probably solenoid downstop)(701). Second sheet restraint solenoid movement too long(726). Gate latch clevis adjusted for too large a gap between latch and latch plate(748). End play not correct on second sheet restraint pawl(721).
	Second sheet restraint solenoid picked(701)	Side restraint in paper tray broken or not correctly positioned(Operators Guide). Picker/separator lift mechanism adjusted too low, bottomed against lift bracket or drive disk(725). Tray detent not correctly adjusted or tray detent parts broken or loose(723). Second sheet restraint solenoid movement too short(726). Second sheet restraint clevis too loose(726). Picker/separator pad out of adjustment or shock absorber broken (724). Back up roller or its C-clip missing or its rocker spring broken(776). Paper sensor backup guide out of adjustment(729).

Is the symptom found in the table?

Y N
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2 0
L M

MAP 0660-9

SHEET FEED INTERMITTENT

PAGE 10 OF 13

016

Major Symptom	Minor Symptom	Mechanical checks and repair action
Paper jammed before getting to paper sensor (701)	Cone rollers not turning (possible index stall)	Sheet feed not attached correctly(Operators Guide) Timing belt too tight(720). Drive train gears studs loose from left mounting plate(777). Drive train gears broken, off or set screw loose(701). Pulley set screws loose(730). End play tight on upper kick roller shaft(721). End play tight on sequencer pulley shaft(721). End play tight on cone roller shaft(730). Left mounting plate loose (777). Printer index problem(Printer Map 0030, entry point A).
Paper separated so slowly it did not reach cone roller C3 or C6 in time(701)	Picker/separator feed slow or does not feed at all.	Side restraint in paper tray not correctly positioned(Operators Guide). Picker/separator lift mechanism adjusted too low(bottomed against lift bracket or drive disk)(725). Picker separator drive disk not in line contact(may be upper bearing coming loose or motor bracket out of pivot openings in picker/separator bracket)(728). Tray detent not correctly adjusted or tray detent parts broken or loose(723). Picker/separator motor broken,worn out,run very slowly(764).

Is the symptom found in the table?

Y N

1	1
2	1
N	P

SHEET FEED INTERMITTENT

PAGE 11 OF 13

017

Major Symptom	Minor Symptom	Mechanical checks and repair action
Picker/separator failed to feed last several sheet in tray		Paper placed behind non-textured surface of paper (Operators Guide). Picker/separator lift mechanism adjusted too high(725). Tray detent not correctly adjusted or tray detent parts broken or loose(723).

is the symptom found in the table?

Y N

018

Follow normal escalation procedures.

1 2 Q

B L N Q 5218 A01 A02

2 9 1 1 SHEET FEED INTERMITTENT

0 1 PAGE 12 OF 13

019 Perform mechanical checks and repairs as described in symptom index table.
GO TO PAGE 13, STEP 033,
ENTRY POINT E.

020 Perform mechanical checks and repairs as described in symptom index table.
GO TO PAGE 13, STEP 033,
ENTRY POINT E.

021 Perform mechanical checks and repairs as described in symptom index table.
GO TO PAGE 13, STEP 033,
ENTRY POINT E.

022 - Check sheet feed connector J7 and Attachment panel connector for loose connections and damaged pins.
Are the J7 and attachment panel connector correct?
Y N

023 Repair or reinstall connectors.

A R

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024 Reinstall sheet feed analog card.
---OR---

Reinstall printer A1C1 card if analog card was reinstalled earlier.
GO TO PAGE 13, STEP 033,
ENTRY POINT E.

025 was the paper in the printer area?
Y N

026 Go to map 0620, entry point A to check sensors.
If no problem could be found, follow normal escalation procedures.

027 - Remove jammed paper from printer area.
- press 'CANCEL' switch on operator panel.
- Run 'VERIFY' test(307).

Does the verify test run correctly?
Y N

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1 1 1

3 3 3

S T U

T U 5218 A01 A02

1 1

2 2 SHEET FEED INTERMITTENT

| | PAGE 13 OF 13

| | 029

| | Attach the sheet feed correctly.

| | GO TO STEP 030,

| | ENTRY POINT B.

| | 030

| | (ENTRY POINT B)

| | -SET PRINTER POWER SWITCH TO '0'.

| | - Remove both input trays from sheet feed.

| | - Ensure that the paper is aligned

| | correctly with the protruded up molded

| | section at the front of the tray. See

| | chapter 3 of Sheet Feed Operators Guide.

| | - Ensure that there is no paper in the

| | paper path.

| | - Run verify test(307).

| | Does the verify test run correctly?

| | Y N

| | 031

| | GO TO MAP 0130, ENTRY POINT C.

| | 032

| | GO TO STEP 033, ENTRY POINT E.

MAP 0660-13

S

1

2

| | 033

| | (ENTRY POINT E)

| | -SET PRINTER POWER SWITCH TO '0'.

| | -SET PRINTER POWER SWITCH TO '1'. WAIT 35

| | SECONDS UNTIL POWER ON SEQUENCE IS

| | COMPLETE.

| | - Put printer in 'DIAGNOSTIC MODE'.

| | - Select and run test 40 loop mode.

| | Does the paper insert and eject correctly?

| | Y N

| | 034

| | Follow normal escalation procedures.

| | 035

| | - Select and run test 41 loop mode.

| | Does the paper insert and eject correctly?

| | Y N

| | 036

| | Follow normal escalation procedures.

| | 037

| | GO TO MAP 0010, ENTRY POINT A.

MAP 0660-13

5218 A01 A02

MAP 0810-1

START OF CALL- Tractor feed entry

PAGE 1 OF 6

ENTRY POINTS

FROM ENTER THIS MAP				

MAP	ENTRY	PAGE	STEP	
NUMBER	POINT	NUMBER	NUMBER	

0015	A	1	001	

001
(ENTRY POINT A)

Is the tractor feed attached?

Y N
| |
| |
| |
| |
| |
| |

2 2
A B

EXIT POINTS

EXIT THIS MAP TO				

PAGE	STEP	MAP	ENTRY	
NUMBER	NUMBER	NUMBER	POINT	

2	002	0010	B	
6	057	0015	C	
2	006	0100	A	

MAP Description:
THIS MAP DETERMINES THE GENERAL TYPE OF
TRACTOR FEED FAILURE AND ISOLATES TO THE
FAILING FRUS.

Entry Conditions:

NONE

Start Conditions:

NONE

Field replaceable units :

GUIDE ASM, tractor FEED ASM. GEARS, PULLEY
ASM, PLATE ASM, BELT, LEVER, TRACTORS, CABLE
ASM.

MAP 0810-1

START OF CALL- Tractor feed

PAGE 2 OF 6

002

GO TO MAP 0010, ENTRY POINT B.

003

- Request the problem or failure symptom from the operator.
- Request example and any other information concerning the problem.
- Make a visual inspection for problem, loose or broken parts, etc.
- Check if the paper loaded correctly.
- Check that the supplies and environments meet to specifications as described in appendix A of the Sheet Feed Operators Guide.
- If the failure cause can be determined and repaired, repair as needed and verify repair.
- If machine is on DO NOT TURN OFF UNTIL INstructed by map.
- If machine is off, turn on.

Are N
Y

004

Repair problems.

50.

Is the control panel 'POWER ON' light on?

NY

900

GO TO MAP 0100, ENTRY POINT A.

200

- Select and run test 24 in loop mode.
- Observe the LED display on the control panel.

Is the Code 0E, 1E, 2E, 3E, 4E, 5E, 6E, or 7E?

NY

800

-SET PRINTER POWER SWITCH TO '0':

- Check that the tractor connector is plugged into printer attachment panel connector correctly.
- Check continuity between pin 1 & pin 9 of the tractor connector.

Y
S I N

009

Bad tractor cable.

010

Bad printer A-A1C1 card.

30

5218 A01 A02

START OF CALL- Tractor feed

PAGE 3 OF 6

D 2

011 -SET PRINTER POWER SWITCH TO '0'.
-SET PRINTER POWER SWITCH TO '1'. WAIT 35
SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

- Press printer index up switch.

Does the drive shaft turn correctly?

Y N

012

-SET PRINTER POWER SWITCH TO '0'.
- Disconnect the tractor cable connector
from the printer attachment panel.
- remove the tractor from the printer.
- Remove the left cover.
- reinstall the tractor to printer.
- reconnect the tractor cable connector
to the printer attachment panel.
-SET PRINTER POWER SWITCH TO '1'. WAIT
35 SECONDS UNTIL POWER ON SEQUENCE IS
COMPLETE.

- Observe the intermediate gear while
press and hold the printer index
switch.

Does the intermediate gear turn?

Y N

4 E F G

MAP 0810-3

F G

013 - Check that the tractor is correctly
installed to the printer.
Is the installation correct?

Y N

014 Bad installation.

015 Bad printer index function.
Go to map 0030, A

016 Does the drive belt gear turn correctly?

Y N

017 Bad Belt drive gear.

018 - Check the drive belt for wear or damage.
Is the belt worn or damaged?

Y N

019 - Check the belt tension.
Is the belt tension correct?

Y N

4 4 4
H J K

MAP 0810-3

START OF CALL- Tractor feed

PAGE 4 OF 6

020

Adjust the idler for correct belt tension.

021

- Check drive shaft pulley teeth? Are teeth correct?

Z
Y

022

Bad pulley.

0.23

- Check drive shaft pulley setscrews. Are the setscrews tight?

Y
Z

024

Tighten the setscrews.

0.25

- SET PRINTER POWER SWITCH TO '0'.
- Disconnect tractor connect from printer.
- Remove the tractor from the printer.
- Check the drive shaft bushings for binding.

Is the bushing check correct?

2
Y

026

Reinstall bushing.

L
H
E

33

027

Are the side plates loose from the frame?

NY

028

i Reinstall drive shaft

029

Reinstall tractor.

030

Bad belt.

-031

- Pull the tensioner release lever to 'LOAD' position.

Does the tensioner release lever push the tensioner to the 'LOAD' position?

NY

032

Bad tensioner release lever.

5218 A01 A02

MAP 0810-5

START OF CALL- Tractor feed

PAGE 5 OF 6

M 4

- 033
- Load forms into the tractor.
 - Ensure that the tensioner release lever is in the +P position.
 - Run print test.
- Is the form indexing correctly?

Y N

034 Does form feed straight?

Y N

- 035
- Check the alignment of paper pin holes to both left and right tractor pins.

Is the alignment correct?

Y N

- 036
- Align the paper pin holes to both tractor pins correctly.

037 Do the tractor covers on both tractors close correctly?

Y N

- 038
- Reinstall springs on tractor covers.

N P Q

N P Q

039 Reinstall both the left and right tractor unit.

040 Printer index problem.
Go to printer map 0030,A

041 Is the line to line spacing correct?

Y N

- 042
- Check the tensioner spring.
Is the spring check correct?

Y N

043 Bad spring.

044 Is the form input end free from drag?

Y N

045 Adjust form input to be free from any drag.

6 6

R S

MAP 0810-5

R S 5218 A01 A02

START OF CALL- Tractor feed

PAGE 6 OF 6

046

Is the drive gear correct?

Y N

047

Adjust drive gear or reinstall a new drive gear.

048

Is the belt drive gear correct?

Y N

049

Adjust the belt drive gear or reinstall a new belt drive gear.

050

Printer index problem.

Go to printer map 0030,A

051

Does the form feed correctly?

Y N

052

- Check tractor forms guide ASM installation position.

Is the position correct?

Y N

T U V

T U V

053

Install tractor forms guide ASM correctly.

054

Bad forms guide assembly.

055

Does the form stack correctly?

Y N

056

Adjust front to rear location of the paper stand.

057

GO TO MAP 0015, ENTRY POINT C.

MAP 0810-6

MAP 0810-6

READER'S COMMENT FORM

SY20-8524-0

IBM 5218 Printwheel Printer
Maintenance Analysis Procedures

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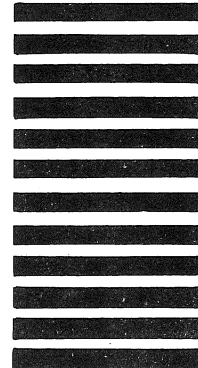
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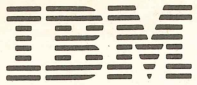
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