Quietwriter® III Printer 5202

Hardware Maintenance and Service

Quietwriter® III Printer 5202

Hardware Maintenance and Service

Third Edition (November 1987)

This publication could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in later editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time.

Publications are not stocked at the address below. For copies, contact your point of purchase, IBM Authorized Dealer, or IBM Direct.

You can send comments or suggestions using the form in the back of this book. If the form has been removed, simply address your comments to the IBM Corporation, Dept. F98/962-3, 740 New Circle Road N.W., Lexington, KY 40511. Information you supply may be used by IBM without obligation. You may, of course, use it yourself. Necessary changes will be made in later editions of the manual.

References to IBM products, programs, or services do not imply that IBM intends to make them available outside the United States.

FCC NOTICE

The IBM Quietwriter® III Printer 5202 generates and uses radio frequency energy. If the printer is not installed and used in accordance with the operating instructions, technical or service information, it may interfere with radio or television reception. It has been tested and found to comply with the limits for a Class B computing device pursuant to Subpart J of Part 15 of Federal Communications Commission (FCC) rules, which are designed to provide reasonable protection against such interference when operated in a residential area.

In many instances, shielded cables and connectors must be used for connection to peripherals. Proper IBM cables are available from authorized dealers. The manufacturer is not responsible for any radio or television interference caused by using other than the recommended cables or by unauthorized modifications to this equipment; it is the responsibility of the user to correct such interference.

If this printer interferes with radio or television reception, which can be determined by switching the printer off and on, the user is encouraged to try one or more of the following:

- Move the receiving antenna on the radio or television;
- Relocate the printer in relation to the radio or television;
- Plug the printer into a different electrical outlet from the radio or television.
- Ensure that the grounding wire is tightly secured.

If necessary, contact your dealer or IBM service representative for additional suggestions.

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications

to this equipment. It is the responsibility of the user to correct such interference.

Warning: To comply with FCC regulations on electromagnetic interference for a Class B computing device, the printer cable must be shielded and properly grounded.

CAUTION
This product is equipped with a UL listed and CSA certified plug for user safety. It is to be used in conjunction with a properly grounded 115 VAC receptacle to avoid electrical shock.

To assure compliance with FCC regulations for a Class B computing device, use IBM cable Part Number 1525612. Use of substitute cable not properly shielded and grounded may result in violating FCC regulations.

PREFACE

This manual is divided into the following chapters:

Chapter 1, "General Information," contains a general description of your printer and the maintenance approach used to repair it. Special tools and test equipment are named here, and general environmental and safety instructions are located here.

Chapter 2, "Diagnostic Tests," contains tests and checks used to locate or repeat the symptom.

Chapter 3, "Diagnostic Information," contains the MAPs that are used to isolate the failing Field Replaceable Unit (FRUs).

Chapter 4, "Repair Information," provides instructions for removing and installing FRUs.

Chapter 5, "Adjustments," provides the instructions for making adjustments.

Chapter 6, "Locations," shows the locations of major components and test points on the printer.

Chapter 7, "Print and Ribbon Samples," contains samples of good printing and printing defects.

Chapter 8, "Preventive Maintenance," is used to lubricate the printer to prevent failures.

Chapter 9, "Parts Catalog," contains illustrations and part numbers for individual FRUs.

Associated Documentation

- *IBM Quietwriter® III Printer 5202 Guide to Operations*, Form Number S544-4082 (P/N 1319571).
- *IBM Quietwriter® III Printer 5202 Technical Reference*, Form Number S544-4083 (P/N 1319601).
- *Sheetfeed Option for the IBM Quietwriter® III Printer 5202 Guide to Operations*, Form Number S544-4122 (P/N 1318499).
- *Sheetfeed Hardware Maintenance and Service*, Form Number SY20-8580 (P/N 6373116).

SAFETY

QUIETWRITER Printer Safety Precautions

Warning: The 220 VAC Printer receptacle is light gray. DO NOT PLUG a 220 VAC line cord into a black (120 VAC) Printer receptacle.

This manual is designed to be used by professional service personnel trained to service this product. There are mechanical and electrical hazards in this product, and trained professional service personnel should recognize these hazards. Therefore, all warnings are not included in this manual.

IBM *QUIETWRITER* III Printer 5202 incorporates Class I construction as defined by the International Electrotechnical Commission Publication 380, *Safety of Electrically Energized Office Machines,* and other national standards.

Class I construction provides protection against electrical shock through the use of protective grounding of accessible metal parts of the machine.

The printer is equipped with grounding type (3-wire) electrical cords because protective grounding is necessary. Use only with a properly grounded electrical outlet.

For continued protection against electrical shock:

1. Connect only to a properly grounded electrical outlet of the correct voltage. (See machine voltage rating plate.)
2. Refer servicing to trained professional service personnel.
3. When servicing, use only identical or equivalent parts.

SAFETY

This product meets IBM safety standards.

The following information has been included in this publication for the use and safety of IBM personnel. For more information, see:

- *Electrical Safety for IBM Service Representatives*, S229-8124
- *Safety/Health Guidelines for IBM Service Representatives*, S241-5493

General Safety during Work

Use these rules to ensure general safety:

- Observe good housekeeping in the area of the machines during maintenance and after completing it.
- Use only field-supply items (such as adhesives, cleaning fluids, lubricants, paints, and solvents) that have been approved by IBM, that is, are supplied under an IBM part number.
- When lifting any heavy object:

  1. Ensure that you can stand safely without slipping.
  2. Balance the weight of the object between your two feet.
  3. Use a slow lifting force. Never move suddenly or twist when you attempt to lift.
  4. Lift by standing or by pushing up with your leg muscles; this action removes the strain from the muscles in your back. *Do not attempt to lift any objects that you think are too heavy for you.*

- Do not perform any action that causes hazards to the customer or that makes the equipment unsafe.

- Put removed covers and other parts in a safe place, away from all personnel, while you are servicing the machine.

- Always keep your tool case away from walk areas so that other persons will not trip over it; for example, put it under a desk or table.

- Do not wear loose clothing that can be trapped in the moving parts of a machine. Ensure that your sleeves are fastened or are rolled up above the elbows. If your hair is long, fasten it.

- Do not wear jewelry, chains, metal-frame eyeglasses, or metal fasteners for your clothing.

  Remember: A metal object lets more current flow if you touch a live conductor.

- Insert the ends of your necktie or scarf inside other clothing or fasten the necktie with a clip, preferably nonconductive, approximately 8 centimeters (3 inches) from the ends.

- Wear safety glasses when you are:

  - Using a hammer to drive pins or similar parts
  - Drilling with a power hand-drill
  - Using spring hooks or attaching springs
  - Soldering parts
  - Cutting wire or removing steel bands
  - Cleaning parts with solvents, chemicals, or cleaning fluids
  - Working in any other conditions that might be hazardous to your eyes.

- Before you start the machine, ensure that other service representatives and the customer's personnel are not in a hazardous position.

- After maintenance, reinstall all safety devices such as shields, guards, labels, and ground wires. Exchange any safety device that is worn or defective for a new one.

  Remember: Safety devices protect personnel from hazards. You destroy the purpose of the devices if you do not reinstall them before completing your service call.

- Reinstall all covers correctly before returning the machine to the customer.

Safety with Electricity

Observe these additional rules when working on equipment powered by electricity:

- Find the room emergency power-off (EPO) switch or disconnecting switch. If an electrical accident occurs, you can then operate the switch quickly.

- Do not work alone under hazardous conditions or near equipment that has hazardous voltages. Always inform your manager of any possible problem or if you must work alone.

- Disconnect all power:

  - Before removing or installing main units

  - Before working near power supplies

  - Before doing a mechanical inspection of power supplies

  - Before installing changes in machine circuits.

- Before you start to work on the machine, unplug the machine's power cable. If you cannot unplug the cable easily, ask the customer to switch off the wall box switch that supplies power to the machine, and either:

  - Lock the wall box switch in the off position, or

  - Attach a DO NOT OPERATE tag, Z229-0237, to the wall box switch.

Note: *A non-IBM attachment to an IBM machine can be powered possibly from another source and controlled by a different disconnecting switch or circuit breaker. If you determine that this condition is present, ensure that you remove (eliminate) this hazard before you start work.*

- If you need to work on a machine that has *exposed* electrical circuits, observe the following precautions:

  - Ensure that another person, who is familiar with the power-off controls, is near you.

    Remember: Another person must be there to switch off the power, if necessary.

  - **CAUTION**
    Some IBM hand tools have handles covered with a soft material that does not insulate you when working with live electrical circuits.

    . . . . . .

    . . . . . .

    . . . . . .

    . . . . . .

    Use only those tools and testers that are suitable for the job you are doing.

  - Use only one hand when working with powered-on electrical equipment; keep the other hand in your pocket or behind your back.

    Remember: There must be a complete circuit to cause electrical shock. By observing the above rule, you may prevent a current from passing through the vital parts of your body.

  - When using testers, set the controls correctly and use the IBM-approved probe leads and accessories intended for that tester.

– **CAUTION**
Many customers have, near their equipment, rubber floor mats that contain small conductive fibers to decrease electrostatic discharges. Do not use this wrong type of mat to protect yourself from electric shock.

. . . . . .

. . . . . .

. . . . . .

. . . . . .

. . . . . .

. . . . . .

Stand on suitable rubber mats (obtained locally, if necessary) to insulate you from grounds such as metal floor strips and machine frames.

- Observe the special safety precautions when you work with very high voltages; these instructions are given in IBM safety service memorandums (SMs) and the safety sections of maintenance information. Use extreme care when measuring high voltages.
- Do not use tools or testers that have not been approved by IBM. Ensure that electrical hand tools, such as power drills and Wire-Wrap[1] tools, are inspected regularly.
- Do not use worn or broken tools and testers.
- *Never assume* that power has been disconnected from a circuit. First, *check* that it has been switched off.
- Always look carefully for possible hazards in your work area. Examples of these hazards are: moist floors,

---

1 Trademark of the Gardner-Denver Co.

nongrounded power extension cables, power surges, and missing safety grounds.

- Do not touch live electrical circuits with the glass surface of a plastic dental mirror. The surface is conductive; such touching can cause personal injury and machine damage.

- Unless the maintenance information specifically lets you, do not service the following parts *with power on them* when they are removed from their normal operating places in a machine:

  Power supply units
  Pumps
  Blowers and fans
  Motor generators

  and similar units. (This rule ensures correct grounding of the units.)

- If an electrical accident occurs:

  - **Use caution; do not become a victim yourself.**

  - **Switch off power.**

  - **Send another person to get medical aid.**

  - **If the victim is not breathing, decide whether to give rescue breathing.**

Emergency First Aid

When giving first aid after an electrical accident:

- *Use Caution.* If the victim is still in contact with the electrical-current source, remove the power; to do this, you may need to use the room emergency power-off (EPO) switch or disconnecting switch.

  If you cannot find the switch, use a dry wooden rod or some other nonconductive object to pull or push the victim away from contact with the electrical-current source.

- *Work Quickly.* If the victim is unconscious, he or she possibly needs rescue breathing. If the heart has stopped beating, the victim may also need external cardiac compression.

  Only a trained and certified person[2] should perform external cardiac compressions.

- *Get Medical Aid.* Call a rescue group, an ambulance, or a hospital immediately.

Reporting Accidents

Report to your manager or to your IBM site all accidents, possible hazards, and accidents that nearly occurred.

Remember: An accident that nearly occurred can be caused by a design problem. Quick reporting ensures quick solving of the problem.

Report also each small electric shock, because the conditions that caused it need only differ slightly to cause serious injury.

---

2 If you want to be trained in giving this aid, ask a suitable organization (such as the Red Cross) in your area.

CONTENTS

1. GENERAL INFORMATION

The IBM *QUIETWRITER* III Printer 5202 is a letter-quality printer designed to attach to the IBM Personal Computer. It can also be attached to other original equipment manufacturer computers that are compatible with the IBM Personal Computer parallel interface.

The printer can print in 10, 12, 15, and 17.1 pitch or proportional spacing depending on the type font installed. Printing is accomplished at a rate of 100 to 160 characters per second burst speed by a nonimpact thermal printing technology. In addition, the printer has Bit Image Graphics capability. This allows the user to print advanced graphics images.

An optional pinwheel forms feeder and optional cut sheet feeders are available for this printer.

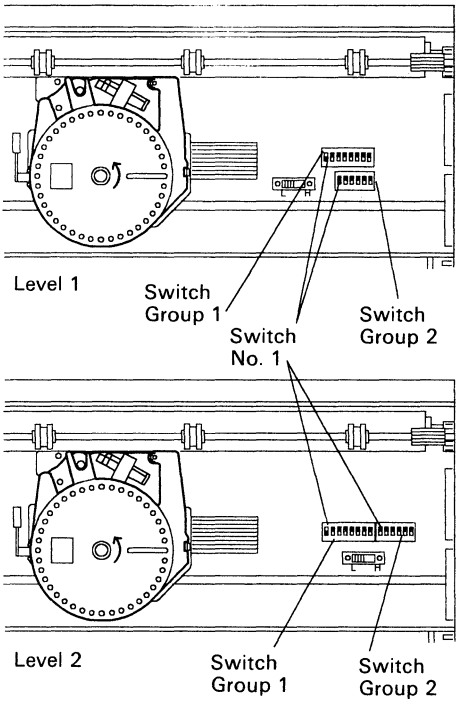
Maintenance Approach

The Maintenance Analysis Procedures (MAPs) in this manual lead you to the correct Field Replaceable Unit (FRU). Use the tests in section 2 to find or repeat your symptom, then begin with "MAP 0100: Start" on page 3-2.

After you complete the repair, run tests as needed to verify the repair.

Setup Switches

Your printer is equipped with two groups of setup switches which change how your printer performs certain functions. These switches are located on the printer Board. There are eight switches in Switch Group 1 and six switches in Switch Group 2.



To change the settings, slide the switch to the alternate setting with the tip of a pen. (Do *not* use a pencil.)

Note: Commands in your software program override switch settings.

Switch Group 1 (Eight Switches)

The settings of Switch Group One (eight switches) are as follows:

Sw. No.	Function	Switch Off	Switch On
1	Character set: Selects computer character set 1 or 2.*	Character set 1	Character set 2
2	Command alteration	See pg. 1-3.	
3	Skip perforation: Automatically skips 6 lines for perforations in paper	Does not skip	Skips
4 and 5	Sets form/page length.	See pg. 1-4.	
6	Line feed: Paper automatically feeds one line after carrier return.	No line feed after return	Paper advances with each return
7	Sets line spacing.	6 lines per inch	8 lines per inch
8	Reserved		

*Refer to your software instructions for more information about the character set option.

Switch 2, Command Alteration

The primary function of this switch is to cause an automatic carrier return after a line feed, vertical tab, or ESC j command. Also, when switch 2 is on, the default right margin is set to 8 inches. In addition, this switch changes the number of bytes that are discarded when an ESC @ command is received: three bytes when the switch is off, two bytes when the switch is on.

Switches 4 and 5, Page Length

These 2 switches work together to change the length of the page. The following chart summarizes these switch settings.

When...	Page length is
4 is off, 5 is off	11.00 inches
4 is off, 5 is on	11.69 inches
4 is on, 5 is off	12.00 inches
4 is on, 5 is on	14.00 inches

Switch Group 2 (Six Switches)

Switch 1, Internal/External Font Selection

Set Switch 1 *on* to print from the external (pluggable) fonts.

To choose a particular font from either the internal or external fonts, you must set switches 2 and 3.

Switches 2 and 3, Specific Font Selection

Embedded Fonts

Your printer has four embedded fonts. Use the chart below to set switches 2 and 3 to select an embedded font.,

When . . .	Font selected is
Both switches are off	Font 1 (Courier 10 pitch)
2 is off, 3 is on	Font 2 (Courier 12 pitch)
2 is on, 3 is off	Font 3 (Courier 17 pitch)

When . . .	Font selected is
Both switches are on	Font 4 (Boldface — proportional space)

Pluggable Fonts: External (pluggable) font cartridges are labeled so you can tell which fonts they contain. Each unprogrammable font cartridge contains four fonts. Programmable font cartridges may contain 1 to 4 fonts. Below is a sample label from a pluggable font cartridge.

Decide which font you want to print and then use the chart below to set switches 2 and 3 to print with that font.

When . . .	Font selected is
Both switches are off	Font 1
2 is off, 3 is on	Font 2
2 is on, 3 is off	Font 3
Both switches are on	Font 4

Switch 4, Font Emulation

The font emulation switch allows your printer to be compatible with software designed for the IBM *QUIETWRITER* 5201-001 and 5201-002.

When the switch is *on* the printer is compatible with the codes for the *QUIETWRITER* 5201-001 and 5201-002 and you can change fonts.

When the switch is *off*, as it is set at the factory, your printer is not compatible with the software for the *QUIETWRITER* 5201-001 and 5201-002.

Switches 5 and 6, Print Mode

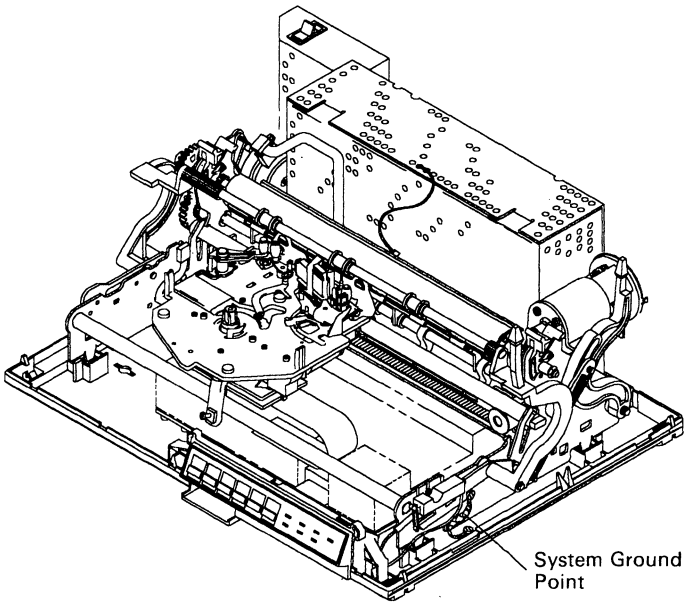
These 2 switches work together to set the Print Mode. Use the following chart to set switches 5 and 6 to select the Print Mode.

When . . .	Print mode is
Both switches are off	Quality mode
5 is off, 6 is on	Draft mode
5 is on, 6 is off	Quality mode
Both switches are on	Enhanced mode

System Ground Point

Use the System Ground Point as the ground reference for making any voltage measurements *with all the cables connected.* The System Ground Point is connected to the frame assembly.

Note: If a cable or connector to a component is disconnected, the system ground point will be isolated from that component.



Tools Required for Service

Meter readings in this manual were taken with an IBM meter, P/N 9900167.

Use the following tools to service this machine. If these tools are not available in EMEA or AFE, refer to your local tool sources.

Tool	Part Number
6″ Metal Scale	P/N 450158
Push-Pull Scale	P/N 460870
IBM #23 Grease, 1/2 oz.	P/N 1280441
IBM #23 Grease, 1 lb.	P/N 1280442
IBM #10 Oil, 4 oz.	P/N 1280443
IBM #10 Oil, 1 pt.	P/N 1280444
3/16″ x 6″ Flat-Blade Screwdriver	P/N 1650853
5/16″ x 6″ Flat-Blade Screwdriver	P/N 1650856
7-mm Open-End Wrench	P/N 1749242
Feeler Gauge	P/N 1749245 or P/N 9900468
#1 Screwdriver	P/N 4760541
#2 Screwdriver	P/N 4760542
5/16″ x 1/4″ Open-End Wrench	P/N 9900005
#4 Splined Wrench, 6 Flute	P/N 9900028
Large Springhook	P/N 9900059
Medium Screw Starter	P/N 9900060
3″ Small Screwdriver	P/N 9900070
T-Bender	P/N 9900094

Tool	Part Number
Analog VOM (Triplett[1] 310C or equivalent)	P/N 9900167
3/8″ x 7/16″ Box-End Wrench	P/N 9900182
#2 Splined Wrench, 6 Flute	P/N 9900216
Large Screw Starter	P/N 9900328
Wrap Plug	P/N 1341046
ESD Handling Kit	P/N 6428316
Wrist Band, small	P/N 6428167
Wrist Band, large	P/N 6428169

1 Trademark of the Triplett Corporation

2. DIAGNOSTICS TESTS

This section explains the diagnostic tests that are available to clarify the failure symptom on your printer, and verify the repair you make. These tests are the:

- Functional Check
- Power-On Self Test
- Printer Self Test
- Printer Wrap Test

If you have a clear symptom, begin with the "MAP 0100: Start" on page 3-2

Functional Check

Use this test to help you locate a clear symptom. Disconnect the Parallel Interface and Feature cables. Make sure the setup switches are all in their default (OFF) position. Also, note the position of the switches so you can reset them to the customer's position when you finish.

Action	Expected Response
Turn on the Printer.	The Printer performs a Power-on Self Test (See "Power-On Self Test (POST)" on page 2-4).
Insert paper and pull the Paper Bail to the load position.	Printer loads the paper to the top of the page if the Pinwheel Forms Feeder is not attached.

Action	Expected Response
If you have an Optional Pinwheel Forms Feeder attached: 1. Pull the Paper Release Lever forward. 2. Insert form and pull the Paper Bail to the load position. 3. Press the **Paper Up** Button. 4. Then press **Set Top Of Form.**	Printer loads the form to the top of the form, paper moves up, then feeds paper to the top of a new form. If the Optional Pinwheel Forms Feeder fails, replace it.
Press **Start/Stop** button.	**Ready** light turns off.
Press **Start/Stop** button again.	**Ready** light turns on when button is depressed.
Press and hold **Paper Up** button. Release after about 15 lines.	Paper moves up and Paper Bail automatically returns to the Platen if you have no Pinwheel Forms Feeder.
Press and hold **Paper Down** button. Release after the paper returns to its original position.	Paper moves down.
Press **Set Top Of Form**, then if you have an Optional Pinwheel Forms Feeder attached, press **Form Feed** button.	Paper moves to the top of the next form.

Action	Expected Response
Install a Font Cartridge if available. Use the **Print Mode** Button to set the Printer in the draft, quality, and enhance modes while performing the Printer Self Test (See "Printer Self Test" on page 2-6).	Printer Self Test prints, including characters in the Font Cartridge. Printout matches setup switch settings. You should notice different print speeds and quality of print.
Pull the Paper Release Lever forward.	Paper is free to move around the platen at both ends if you do not have a Pinwheel Forms Feeder attached.
Push the Paper Release Lever to the rear.	The paper is held tightly between the Platen and the feedrolls.
Remove the paper by pressing the **Form Feed** button.	The paper is removed completely.
If you have an optional Pinwheel Forms Feeder, remove last form by pressing the **Form Feed** Button.	The Printer should beep 1 time and the **Paper** light should turn on.
Press the **Start/Stop** button.	The **Paper** light goes out.
If you have an optional Sheetfeed attachment, remove the paper tray and any paper in the feed unit. With the Printer **Ready** Light on, press the **Form Feed** button.	The Printer should beep 1 time and the **Paper** light should turn on.

Action	Expected Response
Perform the Wrap Test (See "Printer Wrap Test" on page 2-7).	If the Printer beeps on and off continuously, the test has failed. Check the plug connection, then run this test again. If it still fails, Replace the Printer Board (See "Printer Board Removal (Level 1)" on page 4-27).

Did all steps give the expected response?

Yes **No**

Go to "MAP 0130: Error Code Chart" on page 3-36, if you have an error code, or to "MAP 0100: Start" on page 3-2.

The Printer is functional. If you suspect an intermittent problem, go to "MAP 0100: Start" on page 3-2, and try to duplicate it.

Power-On Self Test (POST)

Always **disconnect** J8P and J9P when you run the POST. Each time you turn on the printer, it performs the Power-on Self Test.

Note: The Ribbon Release Lever must be in the loaded position, even if you do not have a ribbon installed, for the machine to perform the POST. If you run the POST without a ribbon installed, the **Ready** Light will stay off at the end of the POST. Immediately after you turn the printer on, the following actions occur:

1. All the control panel lights turn on.
2. The Carrier moves to the left side frame, stops, then moves to the ribbon change position near the center of the machine.

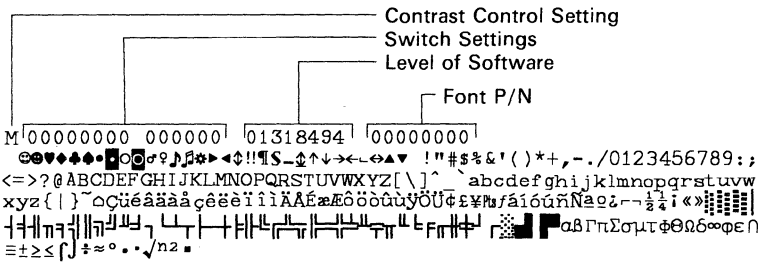
3. The following functions happen while the carrier is moving.
   a. The Platen moves 1 index up, then down 1 index while the carrier is moving to the left side frame.
   b. As the Carrier moves to the right;
      1) The Ribbon Feed Motor runs. You can see this better with the Ribbon Cartridge removed.
      2) The Ribbon Take-up Motor runs. You can see this better with the Ribbon Cartridge removed.
4. The printer beeps and the **Ready** Light and one of the **Print Mode** Mode Lights (**Draft**, **Quality**, or **Enhanced**) stay on, the rest of the control panel lights turn off.
5. If a hardware failure is detected during this test, the printer will:
   a. blink all the front panel lights on and off continuously and sound the beeper continuously for 6 seconds
   b. or, a light will come on solid which is an operator correctable error.
6. If all the front panel lights blink on and off continuously, press the **Print Mode** Button to get the error code.

Printer Self Test

The Printer Self Test exercises the printer independent of the attached Host Computer. It can be used to check print quality and to evaluate the graphics performance of the printer.

To perform the Printer Self Test:

1. Make sure there is paper in the printer.
2. Turn off the printer.
3. Press and hold the **Start/Stop** button.
4. Turn on the printer while holding the **Start/Stop** button. You can release the **Start/Stop** button after the first beep.
   - To interrupt printing, press and hold the **Start/Stop** button.
   - To restart this test, press the **Start/Stop** button.
   - To exit this test, press and hold the **Start/Stop** button, then press Reset or turn off the Printer.
5. The printer runs the following test:



Note: "H," "M," or "L" will print in the first position, indicating the Contrast switch is set at High, Medium, or Low. Zeros (0) or ones (1) will print in the next 12 positions representing the setup switch settings on the Printer Board. A zero indicates the switch is off and a one indicates the switch is on. Next, a eight-digit code will print. This code is the level of the software in your machine. The next lines show the characters in your Fonts (internal and pluggable).

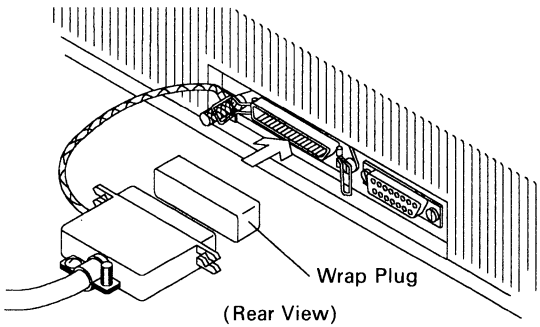
If you were directed here from a MAP, return to that MAP.

Printer Wrap Test

The Printer Wrap test exercises the circuits used to communicate with the host computer. If the test passes, the printer connection is good to the I/O Cable Connector. If the test fails, the Printer Board is failing.

To perform the Printer Wrap Test:

1. Turn off the Printer.
2. Disconnect the parallel interface cable.
3. Install the wrap plug in the parallel interface cable connector.



(Rear View)

4. Press and hold the **Paper Up** Button.
5. Turn on the printer.
6. The printer will run the Power-On Self Test.
7. Release the **Paper Up** Button when the printer beeps the first time.
8. If the **Font** Light comes on, press the **Start/Stop** Button.
9. The test will run continuously until you reset it or turn off the printer. Each time a test completes successfully, a front panel light will blink. The test repeats very quickly.
10. If the printer beeps, it has failed a test.
11. If the printer beeps continuously, the test fails continuously.
12. If the Wrap test fails, the printer board is defective.
13. To exit this test, press and hold the **Start/Stop** button, then press Reset or turn off the Printer.
14. Remove the Wrap Plug from the I/O Cable Connector.
15. If you were directed here from a MAP, return to that MAP.

3. DIAGNOSTIC INFORMATION

MAP 0100: Start

001
- Determine machine level.

Level.	Serial No. U.S.	Serial No. EMEA.
Level 1	Below 7,500,000	Below 4,400,000
Level 2	Above 7,500,000	Above 4,400,000

- Unplug the Parallel Interface and Feature Cables from the back of the Printer and disconnect the grounding thumb screw.
- Note the position of the setup switches so you can reset them to the customer's selection when you finish.
- Make sure all the setup switches are in the off position when you start this map.
- Use the tests in section 2, page 2-1, to find or repeat your symptom.
- Move the Ribbon Release Lever to the closed position.
- Inspect the Printer for obvious failures such as:

  - Is the AC linecord unplugged?
  - Is the Cover closed to activate the Cover Interlock?
  - Are there any paper clips or staples on or around the Printer Board?
  - Are the covers damaged?
  - Are cables and plugs in the Printer in good condition and connected properly?
  - Parts or belts broken, loose or off?

Were all the above items good?
Yes **No**

002
Take the required action to fix the Printer.

003
Do you have a Symptom?
Yes **No**

004
(Step 004 continues)

004 (continued)
Continue at Step 006 in this MAP.

005
Continue at Step 020 in this MAP.

006
(From Step 004 in this MAP)
- Turn on the machine.

Does the machine complete a POST (See "Power-On Self Test (POST)" on page 2-4).
Yes **No**

007
Continue at Step 024 in this MAP.

008
- Press the **Paper Up** Button. If the Paper Feed Motor turns or tries to turn when you press the button, the button is working.

Does the Paper Up Button work?
Yes **No**

009
Continue at Step 011 in this MAP.

010
Continue at Step 013 in this MAP.

011
(From Step 009 in this MAP)
- Manually rotate the Platen about 1/4 turn up or down.
- Press the **Paper Up** Button again. If the Paper Feed Motor turns or tries to turn when you press the button, the button is working.

Does the Paper Up Button work?
Yes **No**

012
Continue at "MAP 0110: Buttons" on page 3-18

013
(From Step 010 in this MAP)
(Step 013 continues)

013 (continued)
- Press the **Start/Stop** Button. If the **Ready** Light turns off when you press the button, the button is working.

Does the Start/Stop Button work?

Yes **No**

014
Continue at "MAP 0110: Buttons" on page 3-18

015
- Run the Printer Self Test (See "Printer Self Test" on page 2-6).
- As the test runs, check the printout for:

  - correct characters
  - correct spacing
  - good quality
  - no voids
  - good ribbon feed
  - good ribbon take-up

Does the test print correctly?

Yes **No**

016
Continue at Step 035 in this MAP.

017
- Run the Printer Wrap Test (See "Printer Wrap Test" on page 2-7).

Does the test run correctly (See "Printer Wrap Test" on page 2-7)?

Yes **No**

018
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

019
Continue at Step 066 in this MAP.

020
(From Step 005 in this MAP)
(Step 020 continues)

020 (continued)
Do you have an intermittent failure?
Yes **No**

021
Continue at Step 024 in this MAP.

022

- If you have an intermittent symptom, try unplugging and reconnecting the following connectors (See "Printer Assembly Locations" on page 6-1 and "Carrier Board Assembly Connector Locations" on page 6-2). Check all the following items at one time.

  - Carrier Cable (J4P)
  - Control Panel (J2P)
  - Paper Feed Motor (J6P)
  - Transport Motor (J10P and J11P)
  - Parallel Interface (J9P)
  - Feature (J8P)
  - Carrier Board
    - Paper Sensor connector
  - Carrier
    - Printhead Solenoid
    - Ribbon Feed Motor
    - Ribbon Take-up Motor
    - Ribbon Take-up Sensor Connector
    - Printhead Cable

- Run the Printer Self Test (See "Printer Self Test" on page 2-6).

Does the Printer still fail?
Yes **No**

023
The Printer is functional.

024
(From Steps 007 and 021 in this MAP)

- Remove the Font Cartridge.
- Turn off the Printer, then turn it on again.
- Carefully observe Control Panel Lights.

Do all the lights work correctly during the POST (See "Power-On Self Test (POST)" on page 2-4), but the Ready Light stays off at the end of the POST?
Yes **No**

025
Continue at Step 027 in this MAP.

026
Continue at "MAP 0120: Dead Machine" on page 3-20.

027
(From Step 025 in this MAP)
- Remove the Font Cartridge.
- Turn off the Printer, then turn it on again.
- Carefully observe the Power-on Self Test (See "Power-On Self Test (POST)" on page 2-4).

Does the Printer FAIL the POST?

Yes **No**

028
Continue at Step 035 in this MAP.

029
Did you get blinking lights and the Printer beeped continuously for 6 seconds?

Yes **No**

030
Continue at Step 032 in this MAP.

031
Continue at "MAP 0130: Error Code Chart" on page 3-36.

032
(From Step 030 in this MAP)
- The following symptoms may occur **during or immediately following** the POST.
- Check the list on the following page for your *identical* symptom. When you find your *identical* symptom, stop looking and answer the question at the end of this list.

  - Carrier:
    - drives into the left or right side frame.
    - stops during the POST.
    - does not move and different lights turn on each time you turn the printer on.
    - does not move, everything else in the POST is ok.
    - does not move and no micro index during the POST.
    - moves to the left and no micro index during the

POST.
  - movement OK, no lights and buttons do not work.
  - movement OK, no lights, no beep, and buttons do not work.
- Continuous or no beep after power on.
- Continuous tone.
- All lights:
  - on solid.
  - on solid and continuous beep.
  - turn on solid and nothing else happens.
  - turn on solid or the light pattern changes each time you turn on the Printer.
- Light pattern changes and beeper beeps on and off continuously each time you turn on the Printer.
- **Font** light blinking or on solid without Font Cartridge Installed.
- Printhead Solenoid is energized all the time during the POST.
- Ribbon
  - Light on solid, Ribbon Feed Motor runs all the time.
  - Feed Motor runs all the time during the POST.
- Paper Feed Motor runs all the time during the POST.
- Paper Feed Motor indexes about 5 lines, then the Paper light comes on.

Did you find your exact symptom in the Symptom list?
Yes **No**

033
Continue at Step 035 in this MAP.

034
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

035
(From Steps 016, 028, and 033 in this MAP)
- Check the following chart for your *identical* symptom:

Symptom	Action
No light, no head movement, no beep, no motor movement, and no solenoid operation at power on. — Printer locks up sometimes after POST has completed.	Go to "MAP 0120: Dead Machine" on page 3-20.
All lights blinking and the Printer beeps for 6 seconds.	Go to "MAP 0130: Error Code Chart" on page 3-36.
One of the Control Panel lights did not come on at power on.	Go to "MAP 0160: Light" on page 3-46.
Carrier drives into the left or right side frame. — Continuous or no beep after power on. — Font light blinking without Font Cartridge installed. — Wrap Test fails.	Replace the Printer Board (See "Printer Board Removal" on page 4-27).
Carrier moves as if printing, but no printing occurs.	Go to "MAP 0220: Print Quality – No Print" on page 3-78.
Font Light blinking, **Ready** Light off with Font Cartridge installed.	Go to "MAP 0150: Font" on page 3-42.
Font Light is on solid and the **Ready** Light off.	Go to "MAP 0150: Font" on page 3-42.

Symptom	Action
No print at all or continuous lines, all other power-on conditions met.	Go to "MAP 0220: Print Quality – No Print" on page 3-78.
Paper does not load properly. — Paper Light fails to detect end of paper. — Paper Light is on solid. — Paperfeed is failing or erratic. — Paper Sensor not detecting end of paper.	Go to "MAP 0170: Paper Feed/Paper Light" on page 3-50.
Print quality is poor. — Print quality poor or heavy/light printing.	Go to "MAP 0210: Print Entry/Quality" on page 3-72.
Ready light blinking.	Printer received a stop command (ESC i) from the host system. Press the **Start/Stop** button to continue printing.

Symptom	Action
Ribbon loose on feed or take-up side or loose over all. — Ribbon breaks while printing. — Ribbon burns or melts. — Ribbon Light is on solid.	Go to "MAP 0240: Ribbon Entry" on page 3-92.
Ribbon breaks at power on (Ribbon Take-up motor runs continuously). — Ribbon Take-up Motor does not turn, but all other power on conditions met.	Go to "MAP 0260: Ribbon Take-up" on page 3-112.
Ribbon Feed Motor does not turn, but all other power on conditions met.	Go to "MAP 0250: Ribbon Feed" on page 3-102.
Control Panel lights do not work correctly.	Go to "MAP 0160: Light" on page 3-46.
SAPI does not work.	Go to "MAP 0270: Semi – Automatic Paper Insertion (SAPI)" on page 3-122.

Did you find your symptom in the Symptom Index?
Yes **No**

036
Continue at Step 038 in this MAP.

037
(Step 037 continues)

037 (continued)
Perform the required Action.

038
(From Step 036 in this MAP)
- Turn the Printer off, then back on.

Did the Printer make a short beep?

Yes | **No**

039
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

040
Did all the lights come on for a short while?

Yes | **No**

041
Continue at "MAP 0160: Light" on page 3-46.

042
Did only the Font Light stay on?

Yes | **No**

043
Continue at Step 045 in this MAP.

044
Continue at "MAP 0150: Font" on page 3-42.

045
(From Step 043 in this MAP)
Did you get blinking lights and the Printer beeped continuously for 6 seconds?

Yes | **No**

046
Continue at Step 048 in this MAP.

047
Continue at "MAP 0130: Error Code Chart" on page 3-36.

048
(From Step 046 in this MAP)
- Turn the Printer on/off switch off, then back on.

Did the Carrier move left then to the right?

Yes — **No**

049
Continue at "MAP 0280: Transport" on page 3-124.

050
- Turn the Printer on/off switch off, then back on.

Did the Carrier move easily without excessive noise?

Yes — **No**

051
Continue at "MAP 0280: Transport" on page 3-124.

052
Is the Ribbon Light On?

Yes — **No**

053
Continue at Step 055 in this MAP.

054
Continue at "MAP 0240: Ribbon Entry" on page 3-92.

055
(From Step 053 in this MAP)
Is the Paper Light On?

Yes — **No**

056
Continue at Step 058 in this MAP.

057
Continue at "MAP 0170: Paper Feed/Paper Light" on page 3-50.

058
(From Step 056 in this MAP)
- Turn the Printer on/off switch off, then back on.

Did the Platen move at all?

Yes **No**

059
Continue at "MAP 0170: Paper Feed/Paper Light" on page 3-50.

060
- Press the **Paper Up** button.

Did the Platen move up one line?

Yes **No**

061
Continue at "MAP 0110: Buttons" on page 3-18.

062
- Press the **Paper Down** button.

Did the paper move down one line?

Yes **No**

063
Continue at "MAP 0110: Buttons" on page 3-18.

064
- Pull the Paper Bail forward to the load position.

Does the Platen turn freely without excessive noise?

Yes **No**

065
Continue at Step 068 in this MAP.

066
(From Step 019 in this MAP)
- Turn the Printer on/off switch off, then back on.
- Perform the following steps.

Action	Expected Response
Press the **Paper Up** button.	Platen moves up.
Press the **Paper Down** button.	Platen moves down.
Press the **Form Feed** button.	Platen moves up one page.
Press the **Print Mode** button.	**Quality** Light goes out, and the **Enhanced** Light lights.
Press the **Print Mode** button again.	Enhanced Light goes out, and the **Draft** Light lights.
Press the **Print Mode** button again.	**Draft** Light goes out and the **Quality** light lights.
Press the **Set Top Of Form** button, then the **Form Feed** button.	The platen should move one page from where the **Set Top Of Form** button was pressed.

Did all the buttons give the expected response?

Yes **No**

067

Continue at "MAP 0110: Buttons" on page 3-18.

068

(From Step 065 in this MAP)

- Turn the Printer on/off switch off, then back on.

Did the Platen move a short step down, then a short step up when you turned the power on?

Yes **No**

069

Continue at "MAP 0170: Paper Feed/Paper Light" on page 3-50.

(Step 070 continues)

070

- Turn the Printer on/off switch off, then back on.
- Pull the Paper Bail forward to the load position.

Does the Platen try to turn when the Paper Bail is pulled forward?

Yes | **No**

071

Continue at "MAP 0270: Semi – Automatic Paper Insertion (SAPI)" on page 3-122.

072

- Perform the Printer Wrap Test (See "Printer Wrap Test" on page 2-7).

Did the test complete successfully?

Yes | **No**

073

Replace the Printer Board (See "Printer Board Removal" on page 4-27).

074

- Perform the Printer Self Test (See "Printer Self Test" on page 2-6).
- Check the following chart for your symptom.

Symptom	Action
All lights blinking and the Printer beeps for 6 seconds.	Go to "MAP 0130: Error Code Chart" on page 3-36.
Font Light is on solid.	Go to "MAP 0150: Font" on page 3-42.

MAP continues on next page.

Symptom	Action
No Print.	Go to "MAP 0220: Print Quality – No Print" on page 3-78.
Paper does not feed.	Go to "MAP 0170: Paper Feed/Paper Light" on page 3-50.
Poor print quality – Contrast.	Go to "MAP 0200: Print Quality – Contrast" on page 3-68.
Poor print quality in general.	Go to "MAP 0210: Print Entry/Quality" on page 3-72.
Poor print quality – Voids.	Go to "MAP 0230: Print Quality – Voids" on page 3-86.
Ribbon breaks, burns, or melts.	Go to "MAP 0240: Ribbon Entry" on page 3-92.
Ribbon Light is on solid.	Go to "MAP 0240: Ribbon Entry" on page 3-92.

Did you get any of the above symptoms?
Yes **No**

075
Continue at Step 077 in this MAP.

076
Perform the required action.

077
(From Step 075 in this MAP)
- Compare the Setup Switch settings to the printout from the Printer Self Test (See "Setup Switches" on page 1-2).

Does the printout match the switch settings?
Yes **No**

078
(Step 078 continues)

078 (continued)
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

079
- Pull the Paper Bail forward (Not to the load position).
- Press and hold the **Paper Up** Button for about 20 line spaces.

Did the Paper Bail return to the Platen?

Yes **No**

080
Continue at "MAP 0140: First Writing Line Knock Off" on page 3-40.

081
- Move switch 1 of switch group 2 to the on position (See "Switch Group 2 (Six Switches)" on page 1-4) and remove the Font Cartridge.
- Turn on the Printer.

Does the Font Light come on solid?

Yes **No**

082
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

083
- Do not turn off the Printer.
- Install a good Font Cartridge.

Does the Font Light go out after 1 or 2 seconds?

Yes **No**

084
Continue at "MAP 0150: Font" on page 3-42.

085
Your Printer is completely functional.

MAP 0110: Buttons

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because a button is not operating properly.	• Cable installed incorrectly • Failing Control Panel • Failing Printer Board

001
Is the Control Panel cable connected correctly at both ends?
Yes **No**
| |
| **002**
| Install the cable correctly.
|
003
- Power off the machine.
- Unplug J2P from the Printer Board (See "Printer Board Connector Locations" on page 6-5).
- Set your ohm meter on the **1K** scale.
- Make the resistance check for the button or switch at the Control Panel cable.
- Measure the resistance between wire 9 of the Control Panel Cable and the wire for the failing button or switch.

The meter should move from infinity to less than 100 ohms when a good button is pressed.

Meter Check	Press Button
Wire 1 to wire 9	**Start/Stop**
Wire 2 to wire 9	**Paper Up**
Wire 3 to wire 9	**Paper Down**
Wire 4 to wire 9	**Form Feed**
Wire 5 to wire 9	Cover Interlock

Meter Check	Press Button
Wire 9	Ground
Wire 10 to wire 9	**Set Top Of Form**
Wire 11 to wire 9	**Print Mode**

Did the button operate correctly?

Yes **No**

004
Replace the Control Panel (See "Control Panel Removal" on page 4-11).

005
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

MAP 0120: Dead Machine

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because the machine is dead; no lights, no movement, no sound or an incorrect voltage reading from a previous MAP. **Ready** Light blinks during the POST, but stays off after the POST.	• Cover Interlock failing • Failing linecord • Failing switch • Damaged switch wiring • Failing power supply • Failing printer board • Failing fuse • Electrical shorts

001
Does the Ready Light come on during the POST, then stay off at the end of the POST?
Yes **No**

002
Continue at Step 008 in this MAP.

003
- Check the Cover Interlock Plunger on the Top Cover.

Is it good?
Yes **No**

004
Repair or replace the Top Cover.

005
- Turn off the machine.
- Unplug J2P from the Printer Board (See "Printer Board Connector Locations" on page 6-5).

(Step 005 continues)

005 (continued)
- Set your ohm meter on the **1K** scale.
- Make the resistance check for the Cover Interlock at the Control Panel cable.
- Measure the resistance between wire 9 and wire 5 of the Control Panel Cable.

The meter should move from infinity to less than 100 ohms when you operate the Cover Interlock by hand.

Did the Cover Interlock operate correctly?

Yes **No**

006
Repair or replace the Control Panel (See "Control Panel Removal" on page 4-11).

007
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

008
(From Step 002 in this MAP)
- Turn on the Printer.
- Set the meter to check 60 VDC.
- Check the voltages at the Power Supply test points on the Printer Board (See foldout "Printer Board Connector Locations" on page 6-5).

Do all the Voltages read 0 VDC?

Yes **No**

009
Continue at Step 035 in this MAP.

010
- Listen to the Power Supply.

Does it make a sound that repeats about 120 times a minute?

Yes **No**

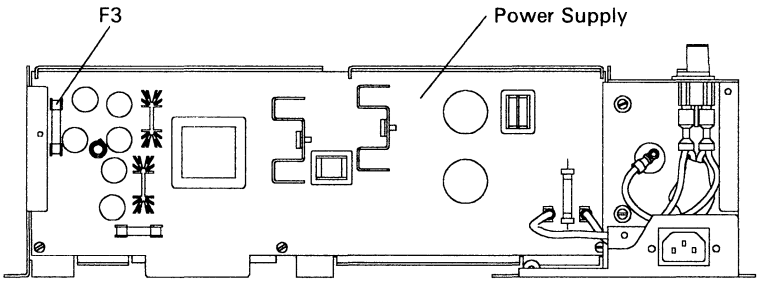
011
Continue at Step 079 in this MAP.

MAP continues on next page.

MAP 0120 (continued)

012

- **Turn off the Printer.**
- Check fuse F3.



(Rear View - Cover Removed)

Is F3 good?

Yes | **No**

013
Continue at Step 017 in this MAP.

014

- Disconnect J10P (See "Printer Board Connector Locations" on page 6-5).
- Make the following resistance checks.

  - J10P pin 1 to J10P pin 2 at the connector.
  - J10P pin 1 to the Transport Motor housing.
  - J10P pin 2 to the Transport Motor housing.

Do any of these readings measure less than 3 ohms?

Yes | **No**

015
Continue at Step 020 in this MAP.

016
Replace the following FRUs:

1. Printer Board (See "Printer Board Removal" on page 4-27).
2. Transport Motor.

017
(From Step 013 in this MAP)
- Disconnect the Ribbon Take-up Motor connector (See "Carrier Board Assembly Connector Locations" on page 6-2).
- Make the following resistance checks.

  - Ribbon Take-up Motor pin 1 to pin 2.
  - Ribbon Take-up Motor pin 1 to the motor housing.
  - Ribbon Take-up Motor pin 2 to the motor housing.

Do any of these readings measure approximately 0 ohms?

Yes **No**

018
Replace the fuse and the Printer Board (See "Printer Board Removal" on page 4-27).

019
Replace the following FRUs:

1. Replace the fuse.
2. Printer Board (See "Printer Board Removal" on page 4-27).
3. Ribbon Take-up Motor (See "Ribbon Take Up Motor Removal" on page 4-41).

020
(From Step 015 in this MAP)
- Disconnect the Ribbon Take-up Motor connector (See "Carrier Board Assembly Connector Locations" on page 6-2).
- Make the following resistance checks.

  - Ribbon Take-up Motor pin 1 to the motor housing.
  - Ribbon Take-up Motor pin 2 to the motor housing.

Do any of these readings measure approximately 0 ohms?

Yes **No**

021
(Step 021 continues)

MAP 0120 (continued)

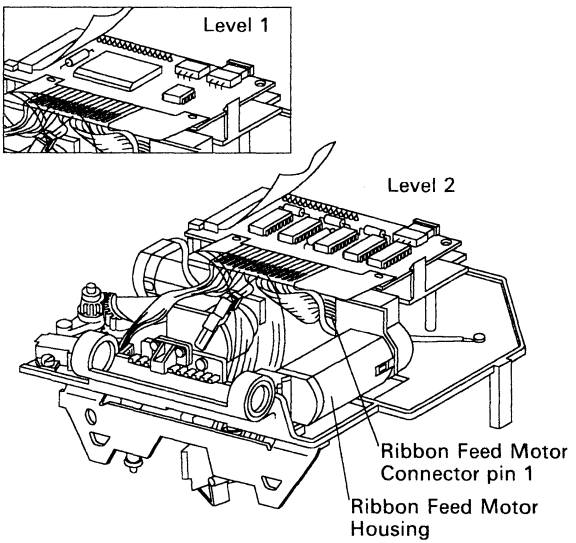
021 (continued)
Continue at Step 023 in this MAP.

022
Replace the following FRUs in the order shown:

1. Ribbon Take-up motor (See "Ribbon Take Up Motor Removal" on page 4-41).
2. Printer Board (See "Printer Board Removal" on page 4-27).

023
(From Step 021 in this MAP)
- Disconnect the Ribbon Feed Motor connector (See "Carrier Board Assembly Connector Locations" on page 6-2).
- Make the following resistance checks.

  - Ribbon Feed Motor pin 1 to the motor housing.
  - Ribbon Feed Motor pin 2 to the motor housing.



(Bottom View - Carrier Removed)

(Step 023 continues)

023 (continued)
Do any of these readings measure approximately 0 ohms?

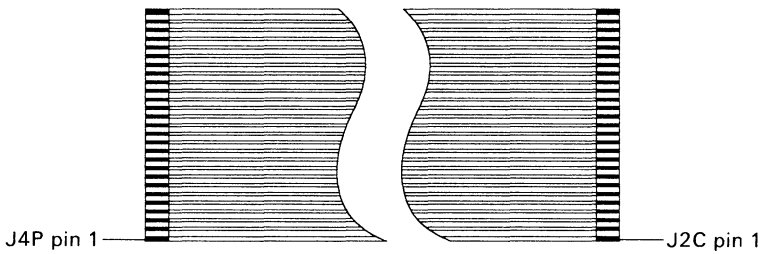
Yes | **No**

024
Continue at Step 026 in this MAP.

025
Replace the following FRUs in the order shown:

1. Ribbon Feed Motor.
2. Printer Board (See "Printer Board Removal" on page 4-27).

026
(From Step 024 in this MAP)
- Disconnect J4P (See "Printer Board Connector Locations" on page 6-5).
- Measure the resistance between J4P pin 12 and pin 16 on the Carrier Cable.



Carrier Cable

Does it measure approximately 0 ohms?

Yes | **No**

027
Continue at Step 029 in this MAP.

028
Replace the following FRUs:

1. Printer Board (See "Printer Board Removal" on page 4-27).
2. Ribbon Feed Motor.

3. Carrier (See "Carrier Removal" on page 4-6).

029
(From Step 027 in this MAP)
- Measure the resistance between J4P pin 12 and pin 15 on the Carrier Cable.

Does it measure approximately 0 ohms?
Yes **No**

030
Continue at Step 032 in this MAP.

031
Replace the following FRUs:

1. Printer Board (See "Printer Board Removal" on page 4-27).
2. Ribbon Take-up motor (See "Ribbon Take Up Motor Removal" on page 4-41).

032
(From Step 030 in this MAP)
- Remove the Power Supply (See "Power Supply Removal" on page 4-25).
- Turn on the Printer.
- Check the voltage at the connector on the bottom of the Power Supply. Make sure to use one of the ground pins of the connector for the meter ground connection.

Pin	Reading	Notes
1	0 VDC	Ground
2	-12 VDC	
3	0 VDC	Ground
4 and 5	38 VDC	Motor Supply
6, 7, 8, and 9	0 VDC	Ground
10, 11, 12, and 13	5 VDC	Logic Supply

(Step 032 continues)

032 (continued)
Are the voltages correct?
Yes **No**

033
Replace the Power Supply (See "Power Supply Removal" on page 4-25).

034
Replace the following FRUs in the order shown:

1. Printer Board (See "Printer Board Removal" on page 4-27).
2. Power Supply (See "Power Supply Removal" on page 4-25).

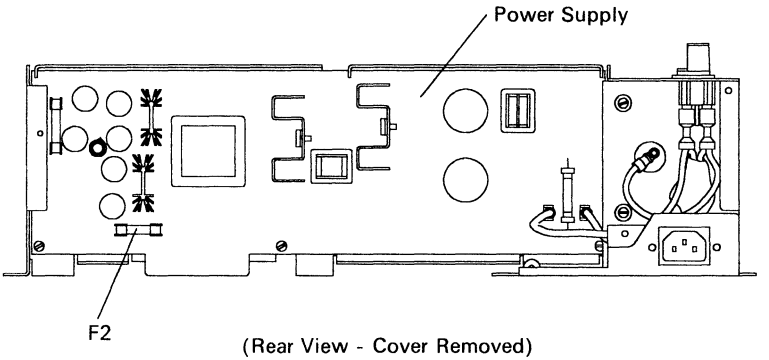
035
(From Step 009 in this MAP)
Are all the Voltages correct?
Yes **No**

036
Continue at Step 038 in this MAP.

037
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

MAP 0120 (continued)

038
(From Step 036 in this MAP)
- Check fuse F2.



(Rear View - Cover Removed)

Is F2 good?
Yes **No**
|
039
Continue at Step 067 in this MAP.

040
- Check fuse F3.

Is F3 good?
Yes **No**
|
041
Continue at Step 049 in this MAP.

042
Do the 30 and 38 VDC voltages check good?
Yes **No**
|
043
Continue at Step 052 in this MAP.

044
- Disconnect J4P.

Do the -12 and -5 VDC voltages check good?
Yes **No**
|
(Step 045 continues)

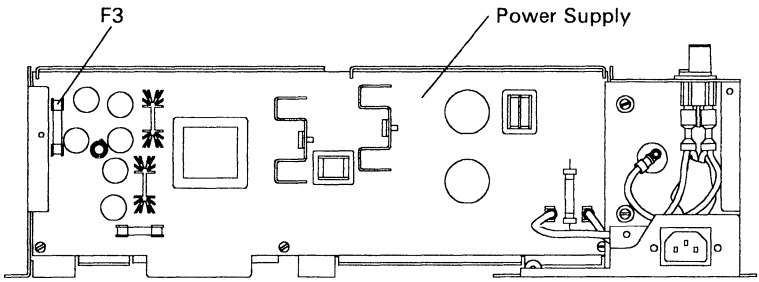
045
Continue at Step 055 in this MAP.

046
Does the 5 VDC voltage check good?
Yes **No**

047
Replace the Power Supply (See "Power Supply Removal" on page 4-25).

048
The Printer is functional, connect J4P.

049
(From Step 041 in this MAP)
- **Turn off the Printer.**
- Disconnect J4P.
- Install a good Fuse F3.
- Turn on the Printer.



(Rear View - Cover Removed)

Did F3 blow again?
Yes **No**

050
The Printer is functional, connect J4P.

051
Replace the fuse and the Printer Board (See "Printer Board Removal" on page 4-27).

052
(From Step 043 in this MAP)
Does the 38 VDC check good and 30 VDC check bad?
Yes **No**

053
Continue at Step 062 in this MAP.

054
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

055
(From Step 045 in this MAP)
Does the -12 VDC check good and -5 VDC check bad?
Yes **No**

056
Replace the Power Supply (See "Power Supply Removal" on page 4-25).

057
- Disconnect J4P and J11P.

Does the -5 VDC voltage check good?
Yes **No**

058
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

059
- Connect J4P.

Does the -5 VDC voltage check good?
Yes **No**

060
Replace the Carrier (See "Carrier Removal" on page 4-6).

061
Replace the Transport Motor.

062
(From Step 053 in this MAP)
Does the 38 VDC check bad?
Yes **No**

063
The Printer is functional.

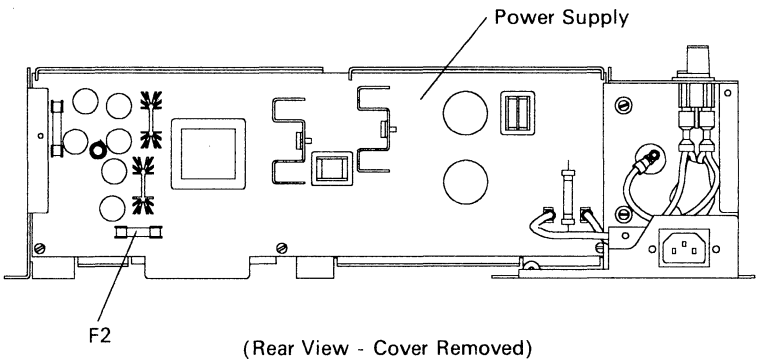
064
- Remove the Power Supply (See "Power Supply Removal" on page 4-25).
- Check pin 4 and 5 for 38 VDC.

Is it good?
Yes **No**

065
Replace the Power Supply (See "Power Supply Removal" on page 4-25).

066
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

067
(From Step 039 in this MAP)
- Disconnect J4P and J11P.
- Install a good Fuse F2.
- Turn on the Printer.



(Rear View - Cover Removed)

(Step 067 continues)

MAP 0120 (continued)

067 (continued)
Did F2 blow again?
Yes **No**
|
|
|
068
Continue at Step 070 in this MAP.

069
Replace the fuse and the Printer Board (See "Printer Board Removal" on page 4-27).

070
(From Step 068 in this MAP)
- **Turn off the Printer.**
- Reconnect J4P.
- Turn on the Printer.

Did F2 blow again?
Yes **No**
|
|
|
071
Continue at Step 073 in this MAP.

072
Replace the fuse and the Carrier (See "Printer Board Removal" on page 4-27).

073
(From Step 071 in this MAP)
- **Turn off the Printer.**
- Reconnect J11P.
- Turn on the Printer.

Did F2 blow again?
Yes **No**
|
|
|
074
Continue at Step 076 in this MAP.

075
Replace the fuse and the Transport Motor .

076
(From Step 074 in this MAP)
- Run the Printer Self Test (See "Printer Self Test" on page 2-6).

Did F2 blow again?

Yes **No**

077
The Printer is functional.

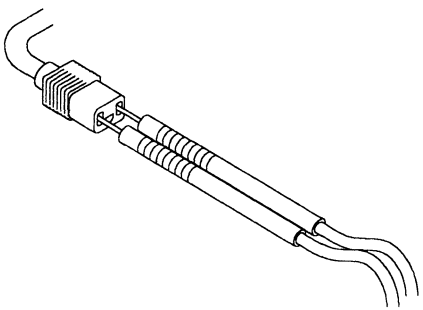
078
Replace the fuse and the Printer Board (See "Printer Board Removal" on page 4-27).

079
(From Step 011 in this MAP)
Is F1 in the Power Supply good?

Yes **No**

080
Replace the Power Supply (See "Power Supply Removal" on page 4-25).

081
- It is assumed that the line voltage is correct.
- Unplug the linecord from the Printer.
- Check the voltage at the end of the linecord. It should be within specifications.



Is the voltage correct?

Yes **No**

(Step 082 continues)

082
Replace the Line Cord.

083
- Check the ON/OFF Switch.

Is it good?

Yes **No**

084
Replace the ON/OFF Switch.

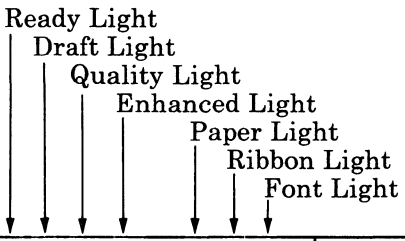
085
Replace the Power Supply (See "Power Supply Removal" on page 4-25).

NOTES

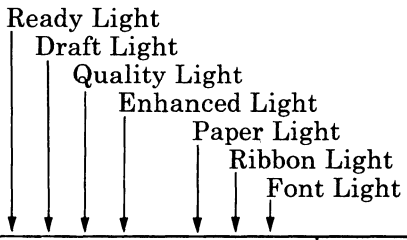
MAP 0130: Error Code Chart

1. Press the **Print Mode** Button to display the error code.
2. Observe all the lights on the Control Panel.
3. Use the following chart to find what action to take.

Note: X's indicate the light is on solid and a O means the light is off.

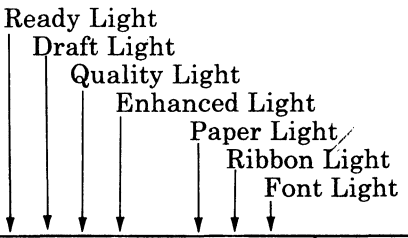


Control Panel		Action
X O O O	O X O	Go to "MAP 0240: Ribbon Entry" on page 3-92.
O O O O	X X O	
X O O O	X X O	
O X O O	O X O	
X X O O	O X O	
O O O O	O O X	Go to "MAP 0150: Font" on page 3-42.



Control Panel		Action
X O X O — O O X O — X O X O — O X X O — X X X O — O X X O — O O X O	O O O — X O O — X O O — O O O — O O O — X O O — X O X	Go to "MAP 0280: Transport" on page 3-124.
O X O X	X O X	Go to "MAP 0180: Paper Feed Electrical" on page 3-60.
X O O O	X O O	Go to "MAP 0170: Paper Feed/Paper Light" on page 3-50.

MAP 0130 (continued)

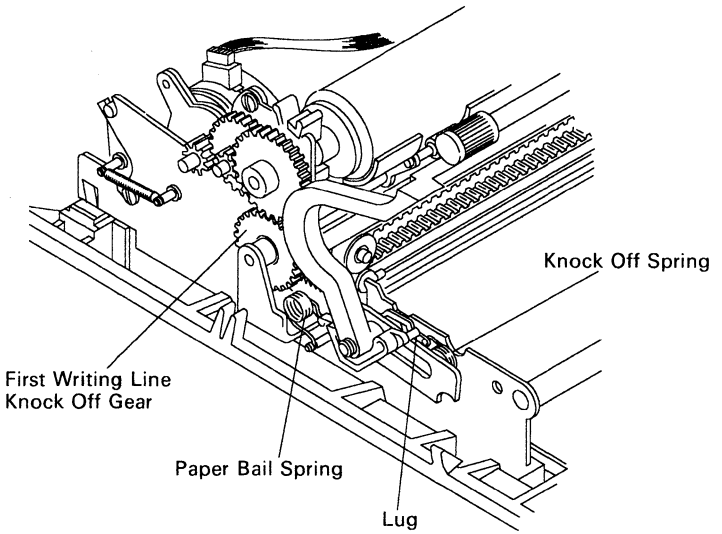


Control Panel							Action
X	X	X	X	X	X	X	Replace the Printer Board (See "Printer Board Removal" on page 4-27).
O	O	X	O	O	O	X	
O	X	O	X	O	O	X	
X	X	O	X	O	O	X	
X	O	X	O	O	O	X	
X	O	O	O	O	O	X	
None listed Error Codes							

NOTES

MAP 0140: First Writing Line Knock Off

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because the paper bail does not return to the platen after a SAPI operation.	• First Writing Line Knock Off assembly • Knock Off Spring • Platen loose • Paper Bail Spring • Paper Bail.



001
Is the Paper Bail spring attached?
Yes **No**

002
Install the Paper Bail spring.

(Step 003 continues)

003
Is the Knock Off spring attached?
Yes **No**
| |
| **004**
| Install the Knock Off spring.
|

005
- Position the Power switch off.
- Press down on both ends of the platen to make sure it is installed properly.
- Position the Power switch on.
- Pull the Paper Bail forward.
- Turn the Platen top to the rear by hand.

Does the First Writing Line Knock Off Gear turn?
Yes **No**
| |
| **006**
| Replace the First Writing Line Knock Off Gear.
|

007
- Examine the First Writing Line Knock Off Lug on the Left Paper Bail Arm.

Is lug worn or broken?
Yes **No**
| |
| **008**
| Replace the First Writing Line Knock Off.
|

009
Replace the Paper Bail Assembly.

MAP 0150: Font

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because the **Font** Light is on solid or blinking, also the Printer beeps and the ready light is off.	• Font Cartridge • Bad Host Interface • Printer board

Note: The **Font** Light comes on solid when the Printer or print application selects an external Font Cartridge and no Font Cartridge is installed. This is controlled by the Printer setup switches or Control Panel selection. The **Font** Light also comes on solid when the Font Cartridge is removed when it is required to complete a printing job.

The **Font** Light blinks when either the font download function failed to download a Font Cartridge properly or the **Font** Light blinks if a defective Font Cartridge was installed.

001
Is the Font Light on solid with or without a font cartridge installed?
Yes **No**

002
Continue at Step 004 in this MAP.

003
Continue at Step 009 in this MAP.

004
(From Step 002 in this MAP)
Is the Font Light blinking with or without a font cartridge installed?
Yes **No**

(Step 005 continues)

005
Continue at Step 009 in this MAP.

006
- Remove the Font Cartridge if one is installed.
- Turn on the Printer.

Is the Font Light blinking with no Font Cartridge installed?

Yes **No**

007
Continue at Step 016 in this MAP.

008
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

009
(From Steps 003 and 005 in this MAP)
- Do not install a Font Cartridge.
- **Turn off the Printer.**
- Make sure all the setup switches are in the off position (See "Setup Switches" on page 1-2).
- Run the Printer Self Test (See "Printer Self Test" on page 2-6).

Did the Font Light come on solid and stay on solid during the complete test?

Yes **No**

010
Continue at Step 012 in this MAP.

011
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

012
(From Step 010 in this MAP)
- **Turn off the Printer.**
- Move setup switch 1 of switch group 2 to the on position (See "Setup Switches" on page 1-2).
- Turn on the Printer.

(Step 012 continues)

012 (continued)
Did the Font Light come on solid?
Yes **No**

013
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

014
- Install the Font Cartridge.

Does the Font Light blink continuously about 10 seconds?
Yes **No**

015
Continue at Step 021 in this MAP.

016
(From Step 007 in this MAP)
- Run the Printer Wrap Test (See "Printer Wrap Test" on page 2-7)

Does Printer pass the wrap test?
Yes **No**

017
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

018
- Turn off the Printer, then turn it on again.
- Install the Font Cartridge that gave a blinking light condition.

Is the Font Light blinking?
Yes **No**

019
If the **Font** Light blinks when performing a download function, check the host interface and program for any error conditions. If there are no error conditions, have the customer purchase a new Font Cartridge.

020
Have the customer purchase a new Font Cartridge.

021
(From Step 015 in this MAP)
Did the Font Light stay on?
Yes **No**

022
The Printer is functional.

023
- Turn off the Printer, then turn it on again.
- Press and hold the **Start/Stop** Button.
- Press and release the **Font** Button at least 4 times.

Did the Font Light come on at any time while you were operating the Font Button?
Yes **No**

024
Font Cartridge is not programmed. Do one of the following; Use a programmed Font Cartridge or have the customer purchase a new Font Cartridge.

025
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

MAP 0160: Light

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because a light is always on or will not turn on.	• Control Panel • Failing Printer board

Note: If the **Ready** Light fails to turn on, make sure the cover is completely closed.

001
Is the panel cable connected correctly?
Yes **No**
| |
| **002**
| Connect the cable correctly.
|
003
Is the failing light always on?
Yes **No**
| |
| **004**
| Continue at Step 010 in this MAP.
|
005
- If the **Ready** Light is always on, press the **Start/Stop** Button.
- If the **Draft**, **Quality**, or **Enhanced** Light is always on, press **Print Mode** Button.

Did the light turn off when you pressed the button?
Yes **No**
| |
| **006**
| Continue at "MAP 0110: Buttons" on page 3-18.
|
007
- Run the Printer Self Test (See "Printer Self Test" on page 2-6).

(Step 007 continues)

007 (continued)
Did the Printer print the test with the Font, Paper, or Ribbon Light on solid?
Yes **No**

008
The lights are working correctly, check to make sure that you are trying to fix the correct symptom.

009
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

010
(From Step 004 in this MAP)
Are all the lights failing?
Yes **No**

011
Continue at Step 014 in this MAP.

012
- Connect the meter from J2P-4 to the system ground point (See "System Ground Point" on page 1-7).

Does the meter read 4.5 – 5.5 VDC?
Yes **No**

013
Continue at "MAP 0120: Dead Machine" on page 3-20.

MAP continues on next page.

MAP 0160 (continued)

014
(From Step 011 in this MAP)
- Turn on the Printer.
- Leave J2P connected. **CAUTION**
  DO NOT ground the pin of the failing light for more than ONE SECOND. If you do, you could damage the Printer Board.

- Ground the pin of the failing light with a meter lead or equivalent.

J2P pin	Response
3 to Ground	Turns the **Enhanced** Light on.
6 to Ground	Turns the **Draft** Light on.
7 to Ground	Turns the **Ribbon** Light on.
8 to Ground	Turns the **Quality** Light on.
12 to Ground	Turns the **Font** Light on.
15 to Ground	Turns the **Paper** Light on.
16 to Ground	Turns the **Ready** Light on.

Did the failing light turn on?
Yes **No**

015
Replace the Control Panel (See "Control Panel Removal" on page 4-11).

016
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

NOTES

MAP 0170: Paper Feed/Paper Light

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because the machine does not: • load the paper properly. • feed the paper properly. • Paper Light fails to detect the end of paper with manual cut sheet paper or continuous forms paper. • Paper Light is on when there is paper in the machine or at power on.	• Dirty, damaged or worn paper feed mechanism parts. • Paper Feed Motor Tension Spring disconnected. • Defective Pinwheel Forms Feeder. • Defective Optional Sheet Feeder. • Failing Printer Board • Failing SAPI Switch. • Failing Paper Sensor. • Failing Carrier Cable. • Failing Carrier Board.

001
Does the paper line feed correctly?
Yes **No**
| |
| **002**
| Continue at Step 032 in this MAP.
|
003
- Turn off the Printer.
- Remove any paper from the Printer.
- Turn on the Printer.

(Step 003 continues)

003 (continued)
Is the Paper Light on?
Yes **No**

004
Continue at Step 008 in this MAP.

005
- Press the **Start/Stop** Button.

Does the Paper Light stay on?
Yes **No**

006
Continue at Step 018 in this MAP.

007
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

008
(From Step 004 in this MAP)
- Use SAPI to load a sheet of paper.
- Press the **Set Top Of Form** Button.

Is the Paper Light off?
Yes **No**

009
Continue at Step 018 in this MAP.

010
- Press the **Form Feed** Button to clear the paper from the Printer.

Does the Paper Light come on?
Yes **No**

011
Continue at Step 013 in this MAP.

012
Continue at Step 018 in this MAP.

013
(From Step 011 in this MAP)
- Press the **Form Feed** Button again.

Does the Paper Light go on?

Yes **No**

014
Continue at Step 018 in this MAP.

015
- Press the **Start/Stop** Button.

Does the Paper Light go off?

Yes **No**

016
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

017
The Paper Light works correctly, continue at Step 021 in this MAP.

018
(From Steps 006, 009, 012, and 014 in this MAP)
- Set the meter to read 3 – 5 VDC.
- Connect the meter to J4P pin 24 and the system ground point (See "System Ground Point" on page 1-7).
- Watch the meter needle and slide a piece of paper between the End Of Paper Sensor and the Platen. You should get the following readings.

  - Paper between Platen and sensor .9 to 2.0 VDC
  - No paper between Platen and sensor 3.5 to 4.8 VDC

Are the voltage readings correct?

Yes **No**

019
Continue at Step 026 in this MAP.

020
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

021
(From Step 017 in this MAP)
Does the Paper Light detect out of paper with an optional Sheet Feeder?
Yes **No**

022
Refer to the Sheetfeed Service information to correct this failure.

023
Is the Paper light on continuously with the optional Sheet Feeder attached?
Yes **No**

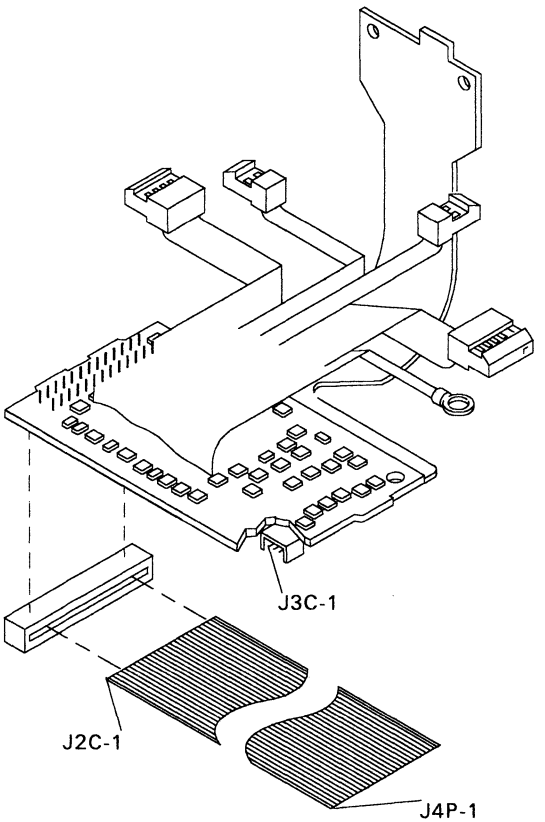
024
Continue at Step 032 in this MAP.

025
Refer to the Sheetfeed Service information to correct this failure.

MAP 0170 (continued)

026
(From Step 019 in this MAP)
- **Turn off the Printer.**
- Disconnect J4P (See "Printer Board Connector Locations" on page 6-5).
- Perform the following meter checks from the end of the Carrier Cable to J3C.

Meter Connection	Reading
J4P-17 to J3C-1	180 to 220 ohms
J4P-22 to J3C-2	0 ohms
J4P-24 to J3C-3	0 ohms



(Step 026 continues)

026 (continued)
Are all the meter readings correct?
Yes **No**
|
|
027
Continue at Step 029 in this MAP.
|
028
Replace the End Of Paper Sensor.

029
(From Step 027 in this MAP)
- Make the following continuity checks.

Meter Connection	Reading
J4P-17 to J2C-17	Continuity
J4P-22 to J2C-22	Continuity
J4P-24 to J2C-24	Continuity

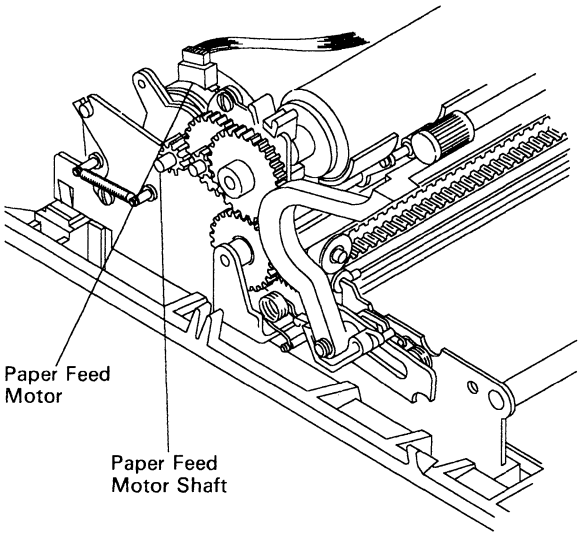
Do all of the meter checks read continuity?
Yes **No**
|
|
030
Replace the Carrier Cable.
|
031
Replace the Carrier Board (See "Carrier Board Assembly Removal" on page 4-8).

032
(From Steps 002 and 024 in this MAP) .
- Turn off the Printer.
- Disconnect and remove any optional paper handling feature that is installed on the Printer.
- Observe the Platen while running the Power-On Self Test. The Platen should rotate down and up a small amount.

Did the platen move at all during the Power-on Self Test?
Yes **No**
|
|
(Step 033 continues)

033
Continue at Step 036 in this MAP.

034
If the Platen turns or tries to turn at power-on, but does not turn or try to turn when the paper bail is pulled to the load position, the Semi-Automatic Paper Insertion (**SAPI**) Switch is bad.
- Manually rotate the Platen about 1/4 turn.
- Pull the Paper Bail to the load position.

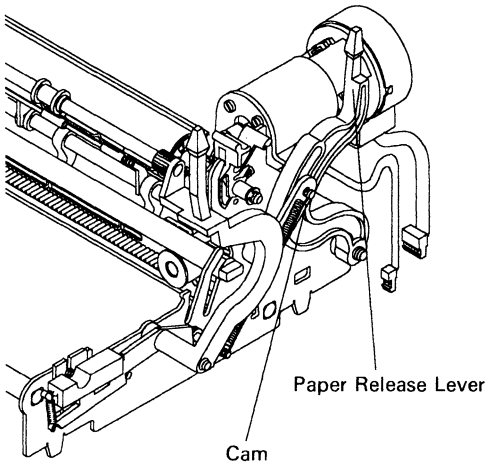


Does the Paper Feed Motor Shaft attempt to rotate?
Yes **No**

035
Continue at "MAP 0270: Semi – Automatic Paper Insertion (SAPI)" on page 3-122.

036
(From Step 033 in this MAP)
- Check the operation of the Paper Release Lever.
- Inspect the Paper Release Lever and Cam for wear or damage.

MAP continues on next page.



Are the Paper Release Lever and Cam good?

Yes **No**

037
Replace the Paper Release Lever and Cam.

038

- Inspect the Platen and clean it if necessary.
- Inspect the Deflector and clean it if necessary.
- Check the Deflector adjustment (See "Deflector Adjustment" on page 5-4).
- Clean the Feedrolls.
- Lubricate the Feed Roll Shaft.

Do all the parts look good?

Yes **No**

039
Replace the worn or damaged parts.

040

- Position the Power Switch off.
- Turn the Platen by hand and check for binds.

Does the Platen turn by hand without any binds?

Yes **No**

041
(Step 041 continues)

041 (continued)
Continue at Step 043 in this MAP.

042
Continue at Step 047 in this MAP.

043
(From Step 041 in this MAP)
- Make sure the Paper Feed Motor tension spring is attached properly and that it is not damaged.
- Inspect the Paperfeed Gears for wear.
- Remove the Platen.
- Inspect the Platen for damage.
- Inspect the Deflector. Make sure it is clean and installed correctly.

Do all the parts check good?
Yes **No**

044
Clean or repair as necessary.

045
- Rotate the Paperfeed Motor by hand.

Does the Paperfeed motor rotate without binds?
Yes **No**

046
Replace the Paperfeed Motor (See "Paper Feed Motor Removal" on page 4-23).

047
(From Step 042 in this MAP)
- Install the Platen.
- Position the Power Switch on.
- Press and hold the **Paper Up** Button. Make sure that the Paperfeed motor makes at least 1 revolution. If the motor has a bad phase, it will rotate erratically at the bad phase.

Does the Paperfeed Motor Shaft rotate smoothly?
Yes **No**

048
Continue at "MAP 0180: Paper Feed Electrical" on page 3-60.

(Step 049 continues)

049
The Printer paper feed is now operational.
- Position the Power Switch off.
- Reinstall the Optional Paper Handling Device, if available.

Note: A defective Printer Board may cause an apparent sheetfeed failure. If you have completed the Sheetfeed Option MAPs, and the Sheetfeed is still inoperative, replace the Printer Board and the I/O/Feature Cable on your Printer.

Is the Optional Paper Handling Device an IBM QUIETWRITER PRINTER Sheetfeed?

Yes **No**

050
Continue at Step 052 in this MAP.

051
Refer to the Sheetfeed Service information to correct this failure.

052
(From Step 050 in this MAP)
If you have a Pinwheel Forms Feeder attached, it may be binding.
- Examine the following:

1. The feedrolls must be disengaged from the paper when the Pinwheel Forms Feeder unit is being used. Verify that the Paper Release Lever is all the way forward.
2. Turn the platen by hand to check for binds.

Does the Platen turn by hand without any binds?

Yes **No**

053
Replace the Pinwheel Forms Feeder.

054
The Pinwheel Forms Feeder is now operational.

Note: If the second line printed overlaps the first line printed, but all other lines are properly spaced, the operator may have adjusted the paper by hand or moved the paper backwards.

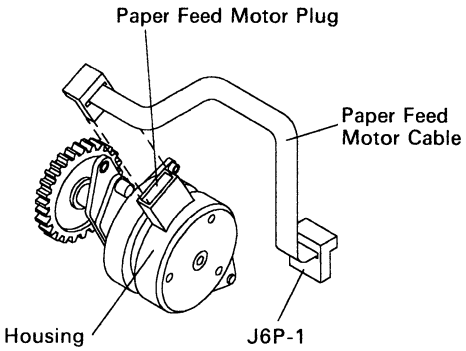
MAP 0180: Paper Feed Electrical

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because the Paper Feed Motor does not run properly.	• Defective Paper Feed Motor. • Defective Paper Feed Motor Cable. • Failing Printer Board

001

- Position the Power Switch off.
- Disconnect J6P from the Printer Board.
- Set the meter on the X1 resistance scale.
- Zero the meter.
- Make the following resistance checks.

Meter Checks	Level 1	level 2
J6P – 6 to J6P – 4	5 to 10 ohms	2 to 3 ohms
J6P – 2 to J6P – 4	5 to 10 ohms	2 to 3 ohms
J6P – 1 to J6P – 3	5 to 10 ohms	2 to 3 ohms
J6P – 5 to J6P – 3	5 to 10 ohms	2 to 3 ohms
J6P – 6 to housing	Infinity	Infinity
J6P – 2 to housing	Infinity	Infinity
J6P – 1 to housing	Infinity	Infinity
J6P – 5 to housing	Infinity	Infinity



Were all the measurements correct?

Yes **No**

002
Continue at Step 004 in this MAP.

003
The Printer Board is failing.

004
(From Step 002 in this MAP)
- **Turn off the Printer.**
- Check the Paper Feed Motor Cable for continuity.

Do all the wires in the cable read continuity?

Yes **No**

005
Replace the Paper Feed Motor Cable.

006
Replace the Paper Feed Motor.

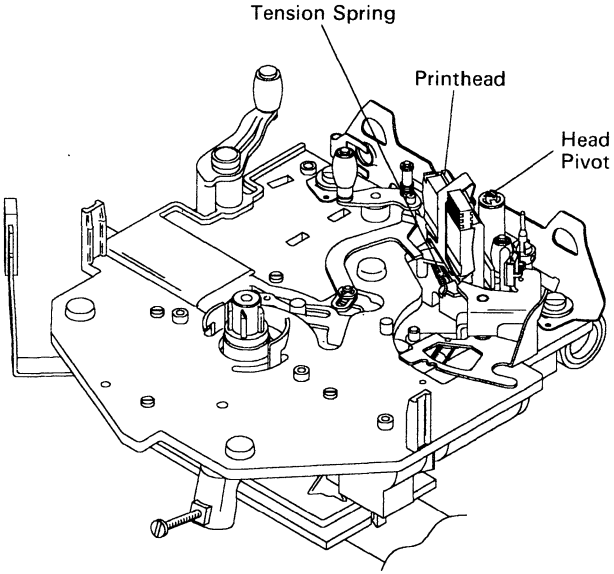
MAP 0190: Printhead Actuator

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because the Printhead is not moving toward the paper causing no printing. You loose characters at the beginning of a line of printing. You get erratic printing because the Printhead Actuator assembly is out of adjustment. The Printhead Actuator engages but there is no printing.	• "Printhead Solenoid Adjustment" on page 5-6. • Printhead tension spring • Printhead mechanism mechanical failure • Carrier Board Assembly • Carrier Cable • Printhead Solenoid • Printer Board

001

- Turn off the Printer.
- Remove the Ribbon Cartridge
- Move the Ribbon Release Lever to the closed position.
- Inspect the following parts for binds, damage, missing, or debris:

  - Printhead pivot assembly
  - Printhead pivot tension spring



Is the area free of debris?
Yes **No**
|
|
002
Clean as necessary.
|
003
Is the Printhead pivot tension spring connected?
Yes **No**
|
|
004
Connect the Printhead pivot tension spring.
|
005
Is the Printhead pivot tension spring good?
Yes **No**
|
|
006
Replace the Printhead pivot tension spring.
|
007
(Step 007 continues)

007 (continued)
Is the Printhead pivot assembly good?
Yes **No**

008
Replace the Carrier assembly (See "Carrier Removal" on page 4-6).

009
- Run the "Printer Self Test" on page 2-6.

Does the Printhead move toward the Platen?
Yes **No**

010
Continue at Step 016 in this MAP.

011
Does the Printer print?
Yes **No**

012
Continue at "MAP 0220: Print Quality – No Print" on page 3-78.

013
Are characters lost at the beginning of the print line?
Yes **No**

014
Continue at Step 023 in this MAP.

015
Replace the Printhead Solenoid (See "Printhead Solenoid Removal" on page 4-31).

016
(From Step 010 in this MAP)
- Check for unplugged cables on the carrier (See "Carrier Board Assembly Connector Locations" on page 6-2).

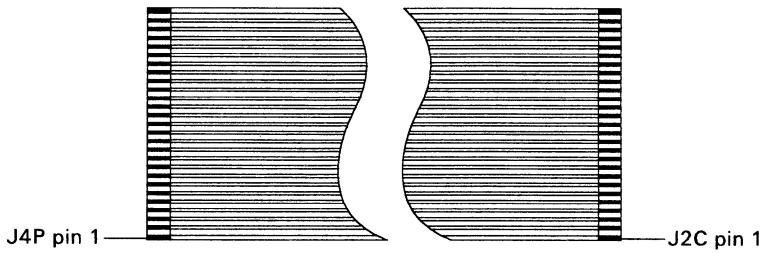
Are all the plugs connected?
Yes **No**

017
(Step 017 continues)

017 (continued)
Connect the unplugged plugs, then perform a Functional Check (See "Functional Check" on page 2-1).

018

- **Turn off the Printer.**
- Disconnect J4P (See "Printer Board Connector Locations" on page 6-5).
- Measure the resistance between pins 13 and 14 of the Carrier Cable.



Carrier Cable

Does the meter read about 112 ohms?

Yes **No**

019
Continue at Step 029 in this MAP.

020

- Reconnect the Carrier Cable.
- Try printing again.

Does the Printer print?

Yes **No**

021
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

022
The Carrier Cable was connected improperly, the Printer should be functional. Perform a Functional Check (See "Functional Check" on page 2-1) to make sure.

023
(From Step 014 in this MAP)
Does the Printhead move back and forward during printing and cause erratic printing?
Yes **No**

024
Continue at Step 026 in this MAP.

025
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

026
(From Step 024 in this MAP)
- Check the "Printhead Solenoid Adjustment" on page 5-6.

Is the adjustment good?
Yes **No**

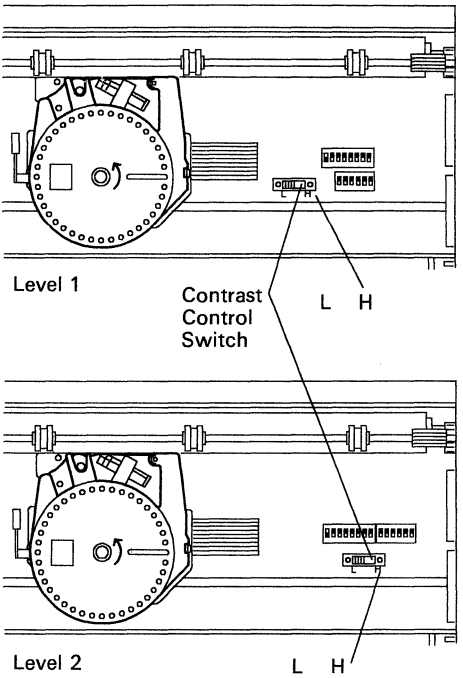
027
Correct the adjustment, then perform a Functional Check (See "Functional Check" on page 2-1) to make sure.

028
Replace the Printhead Solenoid (See "Printhead Solenoid Removal" on page 4-31).

029
(From Step 019 in this MAP)
Does the meter read infinity?
Yes **No**

030
Replace the Printhead Solenoid (See "Printhead Solenoid Removal" on page 4-31).

031
- Check pins 13 and 14 of the Carrier Cable for continuity.



Is the print quality good at any of the Contrast Switch settings (See "Print Samples" on page 7-1)?

Yes **No**

002
Continue at Step 004 in this MAP

003

- Leave the Contrast switch at the best print quality setting. Go to the "Functional Check" on page 2-1 to verify the Printer is working correctly.

MAP 0200 (continued)

004
(From Step 002 in this MAP)
- Examine the top line from each of the Printer Self Tests.
- If you cannot read the printout, answer this question yes.

```
L 00000000 000000   0000000        0000000
M 00000000 000000   0000000        0000000
H 00000000 000000   0000000        0000000
```

Printout Examples

Did all the switch settings (L, M, AND H) appear in the printouts?

Yes **No**

005
Replace the Printer Board (See "Printer Board Removal" on page 4-28).

006
Did all the switch settings (L, M, AND H) produce different results?

Yes **No**

007
Replace the Printer Board (See "Printer Board Removal" on page 4-28).

008
Is the print quality acceptable at any Contrast Switch setting?

Yes **No**

009
Replace the following FRUs in the order shown:

1. Printer Board (See "Printer Board Removal" on page 4-28).
2. Carrier Board Assembly (See "Carrier Board Assembly Removal" on page 4-8).

010
Your Printer is Functional.

NOTES

MAP 0210: Print Entry/Quality

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because you have poor print quality due to: • random voids in all the characters • poor overall print quality • specific voids in all the characters • tops of characters missing • bottoms of characters missing • characters do not print • poor vertical alignment • slanted characters • wavy characters • wrong characters printed.	• Ribbon • Printhead • Font Cartridge • Carrier Board Assembly • Carrier Assembly • Printer Board • "Cardholder Front-to-Rear Adjustment" on page 5-1.

001

- Make sure the platen is locked in place by pressing firmly on both ends of the platen.

(Step 001 continues)

001 (continued)
Is the platen locked in place?
Yes **No**

002
Press firmly on both ends of the platen to lock it in place.

003
Is the line spacing erratic or incorrect?
Yes **No**

004
Continue at Step 006 in this MAP.

005
Continue at "MAP 0170: Paper Feed/Paper Light" on page 3-50.

006
(From Step 004 in this MAP)
- Examine the used portion of the ribbon. Under normal conditions the characters should be spaced evenly and about centered on the ribbon (See "Ribbon Samples" on page 7-2). The quality may or may not be poor.

Are the characters uniform?
Yes **No**

007
Continue at "MAP 0240: Ribbon Entry" on page 3-92.

008
- Inspect the ribbon for even color as it leaves the supply side of the Ribbon Cartridge.

Is the color uniform?
Yes **No**

009
Have the customer purchase a new ribbon.

010
- Inspect the ribbon for damage as it leaves the supply side of the Ribbon Cartridge.

(Step 010 continues)

MAP 0210 (continued)

010 (continued)
Is the ribbon good?
Yes **No**

011
Have the customer purchase a new ribbon.

012
- Remove the Ribbon Cartridge.
- Remove the Printhead.
- Examine the Printhead for damage or burns. Burns appear at the end of the Printhead close to the contact point at the ribbon.

Is there obvious damage to the Printhead?
Yes **No**

013
Continue at Step 015 in this MAP.

014
Have the customer purchase a new Printhead.

015
(From Step 013 in this MAP)
- Use the following chart and perform the required action. Use the print samples, see "Print Samples" on page 7-1 as an aid to identify the correct symptom.

Symptom	Action
No print at all.	Go to "MAP 0220: Print Quality – No Print" on page 3-78.
Voids in print.	Go to "MAP 0230: Print Quality – Voids" on page 3-86.
Print too light or too dark.	Go to "MAP 0200: Print Quality – Contrast" on page 3-68.
Wrong characters.	Continue at Step 018 in this MAP

Symptom	Action
Some light characters on a line.	Go to "MAP 0240: Ribbon Entry" on page 3-92.
Wavy characters.	Have the customer purchase a new Printhead.
Slanted characters.	Replace the Carrier.
Dark and light printing during heavy black printing.	Replace the Carrier.
Ribbon smokes or smells.	Go to "MAP 0240: Ribbon Entry" on page 3-92.
Bad horizontal alignment, crowded or expanded characters.	Go to "MAP 0280: Transport" on page 3-124.

Did you find your symptom in the above chart?
Yes **No**

016
Your Printer is functional.

017
Take the appropriate action.

018
(From Step 015 in this MAP)
- Run the Wrap Test (See "Printer Wrap Test" on page 2-7).

Does it pass?
Yes **No**

019
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

(Step 020 continues)

020
Are the wrong characters coming from the external Font Cartridge?
Yes **No**

021
Continue at Step 025 in this MAP.

022
- Have the customer purchase a new Font Cartridge or reprogram the Font Cartridge.

Did it fix the problem?
Yes **No**

023
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

024
The Printer is functional.

025
(From Step 021 in this MAP)
- Check your host computer application and interface.

Is it good?
Yes **No**

026
Take the appropriate action to correct the problem.

027
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

NOTES

MAP 0220: Print Quality – No Print

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because the Carrier moves, and the Printer does not print or prints continuous lines.	• Printer Board failing • Carrier Assembly failing • Carrier Board Assembly failing • Carrier Cable failing • Carrier Ground connection not connected • Printhead Actuator failing

001

- Perform the Printer Self Test (See "Printer Self Test" on page 2-6).
- Observe the Printhead movement.

Does the Printhead make contact with the ribbon and push it against the paper?

Yes **No**

002

Continue at "MAP 0190: Printhead Actuator" on page 3-62.

003

Does the Printer print the correct characters during the Printer Self Test?

Yes **No**

004

Continue at Step 012 in this MAP.

005

- Perform the Printer Wrap Test (See "Printer Wrap Test" on page 2-7).

Does it pass the wrap test?

Yes **No**

(Step 006 continues)

006
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

007
Does the Printer fail with a Font Cartridge?
Yes **No**

008
Continue at Step 038 in this MAP.

009
- Have the customer purchase a new Font Cartridge.

Do you get printing with this Font Cartridge?
Yes **No**

010
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

011
The Printer is functional.

012
(From Step 004 in this MAP)
Do you have a Font Cartridge installed?
Yes **No**

013
Continue at Step 017 in this MAP.

014
- Run the Printer Self Test (See "Printer Self Test" on page 2-6).

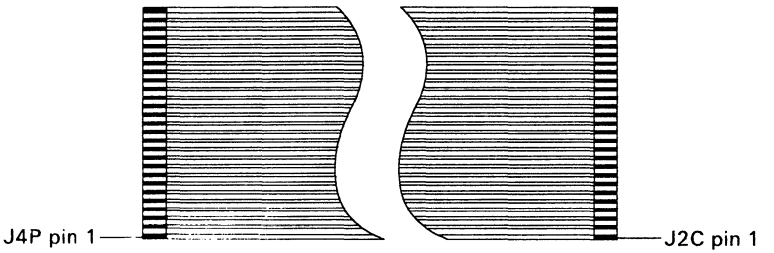
Does the Printer print the correct characters during the Printer Self Test?
Yes **No**

015
Continue at Step 017 in this MAP.

016
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

MAP 0220 (continued)

017
(From Steps 013 and 015 in this MAP)
- **Turn off the Printer.**
- Disconnect J2C and J4P.
- Check the Carrier Cable for continuity.



Carrier Cable

Do all the wires read continuity?
Yes **No**
|
|
018
Replace the Carrier Cable.

019
- Reconnect J2C and J4P.
- Connect the meter to the Carrier Plate and the system ground point (See "System Ground Point" on page 1-7).

Does the meter read continuity?
Yes **No**
|
|
020
Continue at Step 029 in this MAP

021
- Turn on the Printer.
- Connect the meter to J4P pin 4 and the system ground point (See foldout "Printer Board Connector Locations" on page 6-5).
- Press and hold the Paper Down Button while you check the meter.

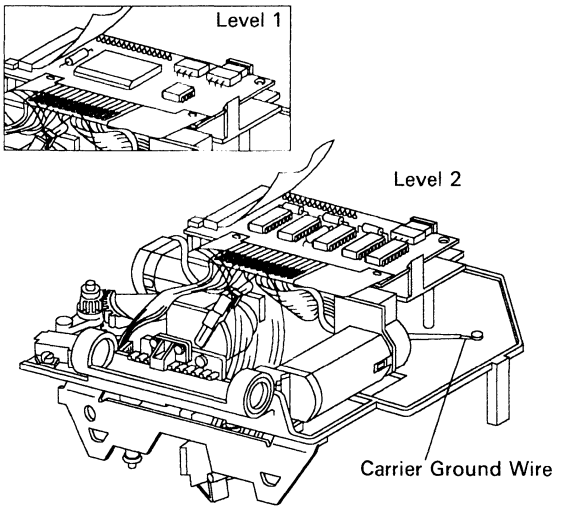
Does the meter read 17.6 – 21.6 VDC?
Yes **No**
|
|
022
(Step 022 continues)

MAP 0220 (continued)

028
Replace the following FRUs in the order shown:

1. Printhead Regulator.
2. Carrier Board (See "Carrier Board Assembly Removal" on page 4-8).

029
(From Step 020 in this MAP)



(Bottom View - Carrier Removed)

- Visually check the carrier ground wire.

Is the carrier ground wire connected?

Yes **No**

030
Connect the ground wire.

031
- Visually check the carrier ground wire.

Is the carrier ground wire broken or open?

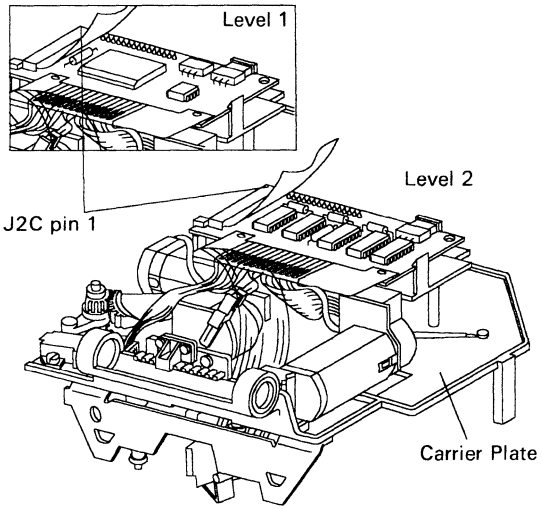
Yes **No**

032
(Step 032 continues)

032 (continued)
Continue at Step 034 in this MAP

033
Replace the Carrier Board (See "Carrier Board Assembly Removal" on page 4-8).

034
(From Step 032 in this MAP)
- Connect the meter to J2C pin 2 and the Carrier Plate.



(Bottom View - Carrier Removed)

Does the meter read continuity?
Yes **No**

035
Replace the Carrier Board (See "Carrier Board Assembly Removal" on page 4-8).

036
Does the Printer print random or wrong characters?
Yes **No**

037
Continue at "MAP 0100: Start" on page 3-2.

(Step 038 continues)

038
(From Step 008 in this MAP)
- Run the Printer Wrap Test (See "Printer Wrap Test" on page 2-7).

Does it pass?

Yes | **No**

039
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

040
Check your host computer interface and cable. If you feel that it is good, replace the Printer Board (See "Printer Board Removal" on page 4-27).

NOTES

MAP 0230: Print Quality – Voids

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because you have poor print quality due to: • specific voids in all the characters • loosing tops of characters • loosing bottoms of characters.	• "Printhead Height Adjustment" on page 5-5. • Printhead • Cardholder • Platen • Carrier Board Assembly • Carrier Assembly

001

- Turn off the Printer.
- Locate your exact symptom in the following chart.

Symptom	Action
Platen contaminated.	Clean Platen.
Platen worn.	Replace Platen.
Cardholder interferes with the Printhead as it moves to the print position. — Voids on envelopes.	Go to the "Cardholder Front-to-Rear Adjustment" on page 5-1 or replace if bent or damaged.

Did you find your symptom in the chart?

Yes — (Step 002 continues)

No

002

002 (continued)
Continue at Step 004 in this MAP.

003
Perform the required action.

004
(From Step 002 in this MAP)
- Remove the Ribbon Cartridge
- Move the Ribbon Release Lever to the closed position.
- Move the Printhead toward the platen then all the way back again several times to check for binds.

Does the Printhead bind when you move it toward the platen then all the way back again?

Yes **No**

005
Continue at Step 016 in this MAP.

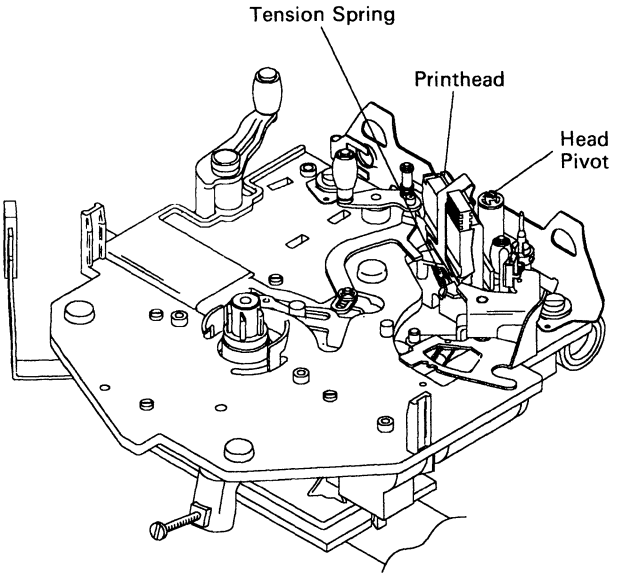
MAP continues on next page.

MAP 0230 (continued)

006

Inspect the following parts for damage, missing, or debris:

- Printhead pivot assembly
- Printhead pivot tension spring



Is the area free of debris?

Yes **No**

007

Clean as necessary.

008

Is the Printhead pivot tension spring connected?

Yes **No**

009

Connect the Printhead pivot tension spring.

010

Is the Printhead pivot tension spring good?

Yes **No**

(Step 011 continues)

011
Replace the Printhead pivot tension spring.

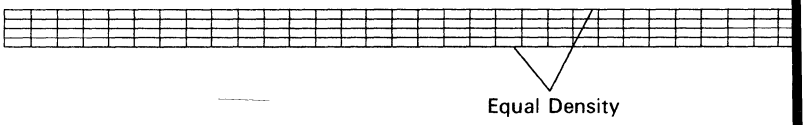
012
Is the Printhead pivot assembly good?
Yes **No**

013
Replace the Carrier assembly (See "Carrier Removal" on page 4-6).

014
Are you loosing the tops or bottoms of characters?
Yes **No**

015
Continue at Step 018 in this MAP.

016
(From Step 005 in this MAP)
- Install the Ribbon Cartridge
- Check the "Printhead Height Adjustment" on page 5-5.

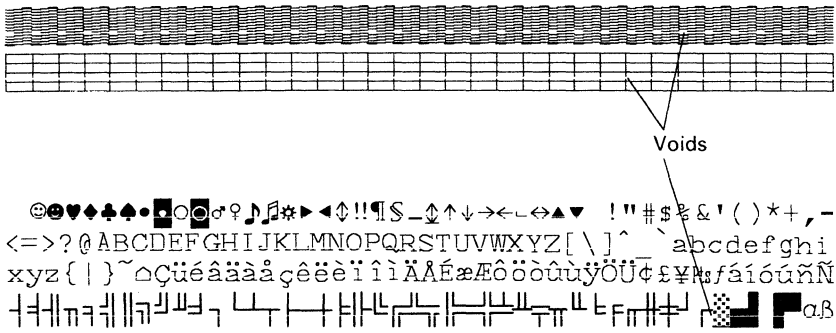


Is the adjustment good?
Yes **No**

017
Continue at Step 021 in this MAP.

018
(From Step 015 in this MAP)
- Run the Printer Self Test (See "Printer Self Test" on page 2-6), if you did not have to check the Printhead Height Adjustment.

MAP 0230 (continued)



Are there voids in the print or the printhead alignment character?

Yes | **No**

019
Your Printer is functional.

020
If you have a known-good Printhead installed, replace the Carrier Board Assembly (See "Carrier Board Assembly Removal" on page 4-8).

021
(From Step 017 in this MAP)
- Make the "Printhead Height Adjustment" on page 5-5.

Were you able to fix the printhead alignment problem?

Yes | **No**

022
Carrier assembly(See "Carrier Removal" on page 4-6).

023
Your Printer is functional.

NOTES

MAP 0240: Ribbon Entry

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because you have: • an error code • ribbon light on • breaking or burning ribbon • poor print quality • ribbon tracking errors • ribbon feed failure • ribbon take-up failure • ribbon feed or take-up always on • ribbon feed or take-up not working • erratic take arm motion • noisy ribbon feed or take-up • non uniform characters on the ribbon	• Carrier failing • Ribbon Take-up Motor failing • Printer Board failing • Carrier Board Assembly failing • Carrier Cable failing • Cables disconnected • Worn Rollers on the carrier • Worn or broken Take-up arm • Missing or damaged springs • Defective Ribbon Pressure Bracket • Dirty or worn Gimbal Pad • Worn Ribbon Hub Assembly • Defective or binding Ground Pivot Plate assembly • Defective Printhead • Take-up Sensor not working • Ribbon ground roller dirty

(Step 001 continues)

001
Is the Ribbon Light on solid and the Printer Self Test (See "Printer Self Test" on page 2-6), prints normally?
Yes **No**

002
Continue at Step 004 in this MAP.

003
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

004
(From Step 002 in this MAP)
- Remove the Ribbon Cartridge.
- Check your Ribbon Cartridge for damage.

Is it good?
Yes **No**

005
Have the customer purchase a new Ribbon Cartridge.

006
- Advance the ribbon manually.

Does it advance easily?
Yes **No**

007
Have the customer purchase a new Ribbon Cartridge.

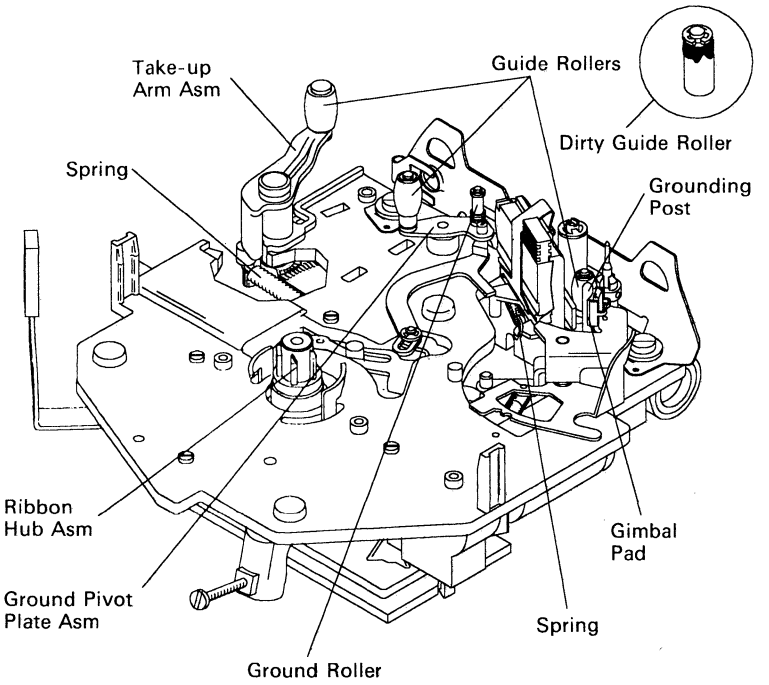
008
- Remove the Printhead.
- Check your Printhead for damage or excessive wear.

Is it good?
Yes **No**

009
Have the customer purchase a new Printhead.

MAP continues on next page.

MAP 0240 (continued)



010

- Make sure that none of the following parts are missing:

  - Connectors
  - Gimbal Pad
  - Ground Pivot Plate Assembly
  - Ribbon Guide Rollers
  - Ribbon Hub Assembly
  - Spring
  - Take-up Arm Assembly
  - Grounding Post

- Inspect them for:

  - binds
  - breakage
  - damage
  - dirt
  - loose or disconnected
  - wear

010 (continued)
Did all the parts check good?
Yes **No**

011
Continue at Step 013 in this MAP.

012
Continue at Step 016 in this MAP.

013
(From Step 011 in this MAP)
- Clean, replace or repair the parts as necessary.

Did the corrective action fix your ribbon problem?
Yes **No**

014
Continue at Step 016 in this MAP.

015
Your Printer is functional.

016
(From Steps 012 and 014 in this MAP)
- Run the Printer Self Test (See "Printer Self Test" on page 2-6).

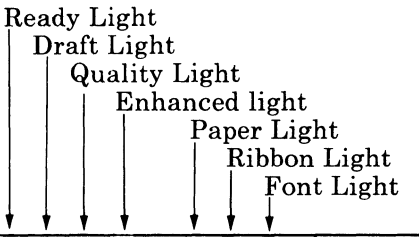
Do you get, all lights blinking and the Printer beeps for 6 seconds.
Yes **No**

017
Continue at Step 021 in this MAP.

MAP continues on next page.

MAP 0240 (continued)

018



Control Panel		Action
X O O O	O X O	Go to "MAP 0250: Ribbon Feed" on page 3-102.
O O O O	X X O	
X O O O	X X O	
O X O O	O X O	
X X O O	O X O	

- Press the **Print Mode** Button to get the error code (X's light is on solid and O's light is off).

Did you get one of the error codes shown in the chart above?

Yes **No**

019
Continue at "MAP 0130: Error Code Chart" on page 3-36.

020
Go to "MAP 0250: Ribbon Feed" on page 3-102.

021
(From Step 017 in this MAP)
Did you get the ribbon light on solid without the ribbon breaking?

Yes **No**

022
(Step 022 continues)

022 (continued)
Continue at Step 039 in this MAP.

023
- Install a good Printhead.
- Run the Printer Self Test (See "Printer Self Test" on page 2-6)

Does the test fail?
Yes **No**

024
Have the customer purchase a new Printhead.

025
The Printer will retry printing 1 or 2 times when you press the **Start/Stop** Button in this step. During a retry;

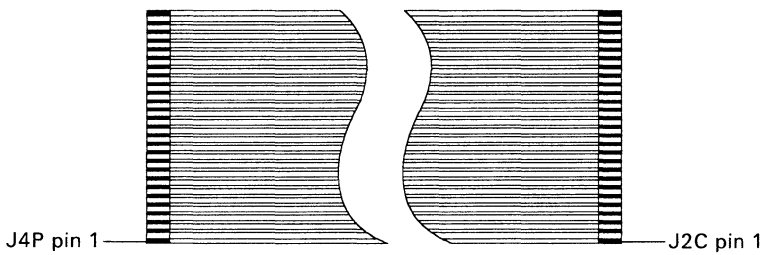
1. The Carrier will move left, then to the right.
2. When the Carrier gets to the left margin, the Printhead will move to the print position then back to the rest position.

- Carefully watch the Printhead and Carrier as the Printer retries to print when you press the **Start/Stop** Button.
- Press the **Start/Stop** Button.

Does the Printer retry printing 2 times?
Yes **No**

026
Continue at "MAP 0260: Ribbon Take-up" on page 3-112.

027
- **Turn off the Printer.**
- Check the Carrier Cable for continuity.



Carrier Cable

027 (continued)
Does the meter read Continuity?
Yes **No**

028
Replace the Carrier Cable.

029
- Reconnect the Carrier Cable.
- Connect the meter to the system ground point (See "System Ground Point" on page 1-7) and the carrier plate.

Does the meter read continuity?
Yes **No**

030
Continue at Step 036 in this MAP.

031
- Connect the meter to J4P pin 4 (See foldout "Printer Board Connector Locations" on page 6-5) and the system ground point (See "System Ground Point" on page 1-7).
- Press and hold the Paper Down Button while you check the meter.

Does the meter read 17.6 – 21.6VDC?
Yes **No**

032
Replace the following FRUs in the order shown:

1. Printhead Regulator.
2. Carrier Board (See "Carrier Board Assembly Removal" on page 4-8).
3. Printer Board (See "Printer Board Removal" on page 4-27).

033
- Connect the meter to J4P pin 18 and the system ground point (See "System Ground Point" on page 1-7).
- Press and hold the Paper Down Button while you check the meter.

Does the meter read 21.6 – 26.1 VDC?
Yes **No**

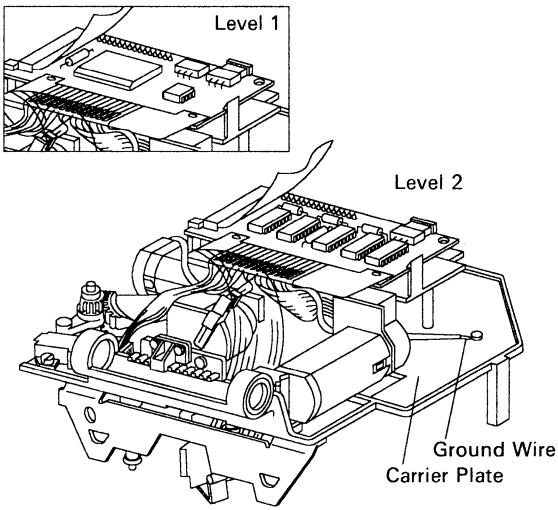
(Step 034 continues)

034
Replace the Carrier Board (See "Carrier Board Assembly Removal" on page 4-8).

035
Replace the following FRUs in the order shown:

1. Carrier Board (See "Carrier Board Assembly Removal" on page 4-8).
2. Printer Board (See "Printer Board Removal" on page 4-27).

036
(From Step 030 in this MAP)



(Bottom View - Carrier Removed)

Is the ground wire on the Carrier Plate connected?
Yes **No**

037
Connect the ground wire.

038
Replace the Carrier Board Assembly (See "Carrier Board Assembly Removal" on page 4-8).

039
(From Step 022 in this MAP)
Do you get the ribbon error code because of ribbon breakage or burning?
Yes **No**

040
Continue at Step 044 in this MAP.

041
- Remove the Printhead.
- Try printing.

Did the ribbon break?
Yes **No**

042
Replace the following FRUs in the order shown:

1. Printhead Regulator.
2. Printer Board (See "Printer Board Removal" on page 4-27).
3. Carrier Board (See "Carrier Board Assembly Removal" on page 4-8).

043
Continue at "MAP 0260: Ribbon Take-up" on page 3-112.

044
(From Step 040 in this MAP)
Is the print quality poor?
Yes **No**

045
Continue at Step 051 in this MAP.

MAP continues on next page.

046

- Check ribbon tracking.

Good Tracking in Quality Mode

Is it good?

Yes **No**

047

Check ribbon path for binds and dirty parts. Clean and lubricate as required. If this does not correct the problem, replace the Carrier Assembly (See "Carrier Removal" on page 4-6).

048

Are the characters approximately centered on the ribbon?

Yes **No**

049

Check ribbon path for binds and dirty parts. Clean and lubricate as required. If this does not correct the problem, replace the Carrier Assembly (See "Carrier Removal" on page 4-6).

050

Continue at "MAP 0210: Print Entry/Quality" on page 3-72.

051

(From Step 045 in this MAP)

Does the Ribbon Take-up Arm move erratically or is it noisy?

Yes **No**

052

The Ribbon Mechanism is working correctly.

053

Continue at "MAP 0260: Ribbon Take-up" on page 3-112.

MAP 0250: Ribbon Feed

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because you have: • ribbon error code • ribbon feed failure • ribbon feed always on • burning ribbon • poor print quality especially during heavy black printing	• Printer Board failing • Carrier Assembly failing • Carrier Cable failing • Ribbon Guide rollers defective • Ribbon Guide rollers dirty • Ribbon Pressure Bracket assembly defective • Ribbon Feed Drive Spring • Ribbon Ground Roller dirty

001

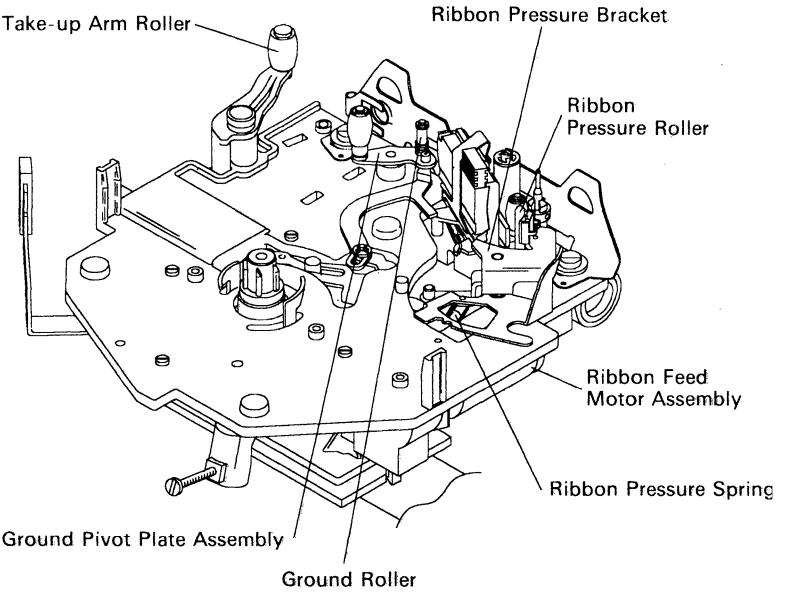
- Turn off the Printer.
- Remove the Ribbon Cartridge.
- Make sure that none of the following parts are missing:

  - Carrier Board
  - Connectors
  - Ground Pivot Plate Assembly
  - Ground Roller
  - Ribbon Feed Motor Assembly
  - Ribbon Pressure Bracket
  - Ribbon Pressure Roller
  - Ribbon Pressure Spring
  - Take-up Arm roller

- Inspect them for:

  - binds
  - breakage

- damage
- dirt
- loose or disconnected
- wear



Do all the parts check good?

Yes **No**

002
Clean, replace or repair the parts as necessary.

003

Do you get a ribbon error code?

Yes **No**

004
Continue at Step 006 in this MAP.

005
Continue at Step 012 in this MAP.

MAP 0250 (continued)

006
(From Step 004 in this MAP)
Is the ribbon feed on all the time?

Yes	No
	007 Continue at Step 009 in this MAP.

008
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

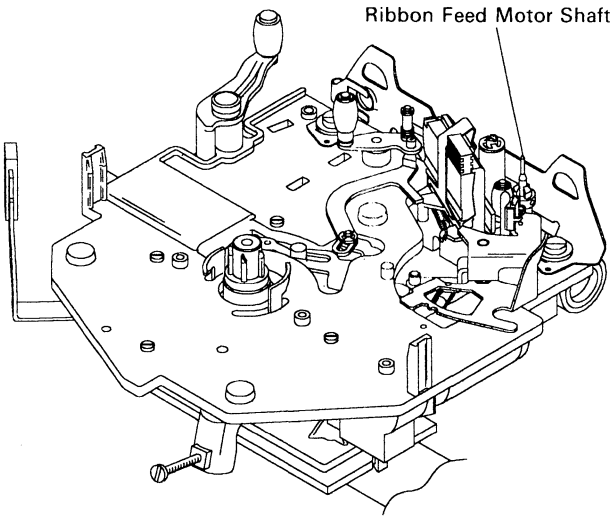
009
(From Step 007 in this MAP)
Does the ribbon break during printing?

Yes	No
	010 Continue at "MAP 0240: Ribbon Entry" on page 3-92.

011
Replace the Carrier (See "Carrier Removal" on page 4-6).

MAP continues on next page.

012
(From Step 005 in this MAP)
Does the Ribbon Feed Motor Shaft turn at power on?



Yes

No

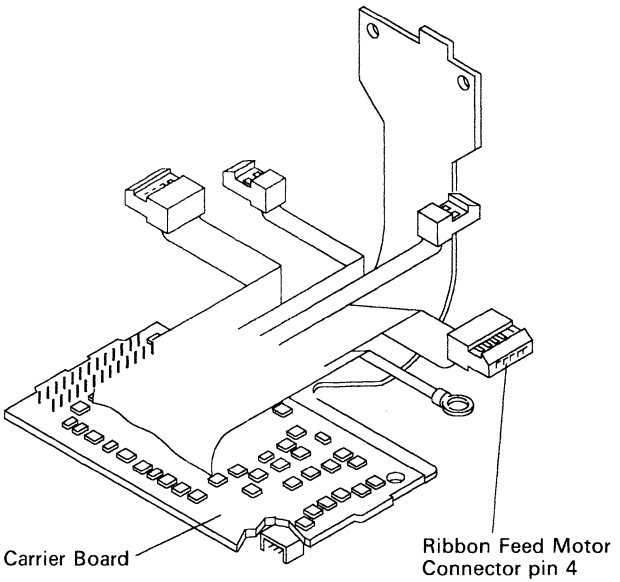
013
Continue at Step 015 in this MAP.

014
Continue at Step 017 in this MAP.

MAP continues on next page.

MAP 0250 (continued)

015
(From Step 013 in this MAP)
- Connect the meter to the Ribbon Feed Motor Connector pin 4 and the system ground point (See "System Ground Point" on page 1-7).
- Press and hold the Paper Down Button while you check the meter.



Does the meter read 34.2 – 41.8 VDC?

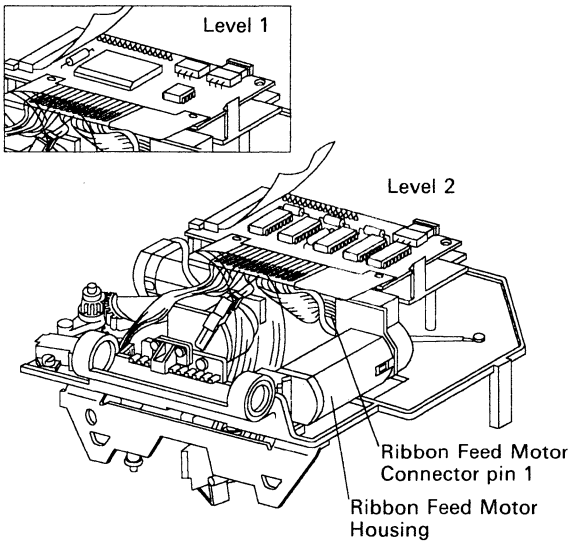
Yes **No**

016
Continue at Step 022 in this MAP.

017
(From Step 014 in this MAP)
- **Turn off the Printer.**
- Disconnect J4P.
- Make the following continuity checks (See foldout "Printer Board Connector Locations" on page 6-5) on the Carrier Cable.

  - J4P pin 10 to the Ribbon Feed Motor Connector pin 2
  - J4P pin 12 to the Ribbon Feed Motor Connector pin 5
  - J4P pin 16 to the Ribbon Feed Motor Connector pin 4

- J4P pin 17 to the Ribbon Feed Motor Connector pin 1
- J4P pin 22 to the Ribbon Feed Motor Connector pin 3



(Bottom View - Carrier Removed)

Do all the meter checks read continuity?

Yes | **No**

018
Continue at Step 029 in this MAP.

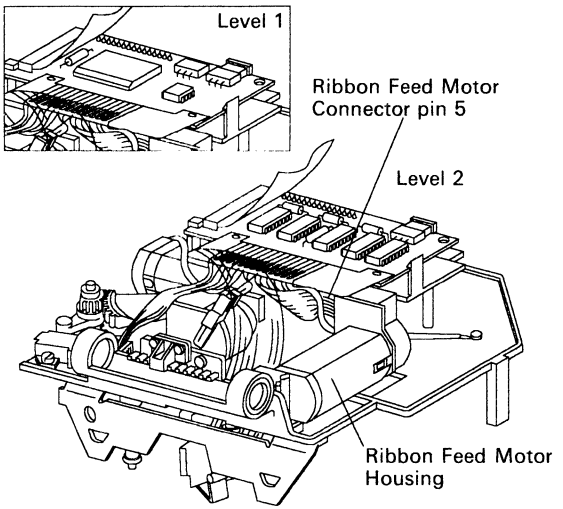
019

- **Turn off the Printer.**
- Disconnect J4P (See "Printer Board Connector Locations" on page 6-5).
- Make the following continuity checks.

Meter Connection	Reading
Ribbon Feed Motor Connector pin 4 to Ribbon Feed Motor Housing	Infinity

MAP 0250 (continued)

Meter Connection	Reading
Ribbon Feed Motor Connector pin 5 to Ribbon Feed Motor Housing	Infinity
Ribbon Feed Motor Connector pin 5 to pin 4.	50 – 100 ohms



(Bottom View - Carrier Removed)

Are all the meter readings correct?

Yes **No**

020
Replace the Ribbon Feed Motor.

021
Replace the following FRUs in the order shown:

1. Ribbon Feed Motor.
2. Printer Board (See "Printer Board Removal" on page 4-27).

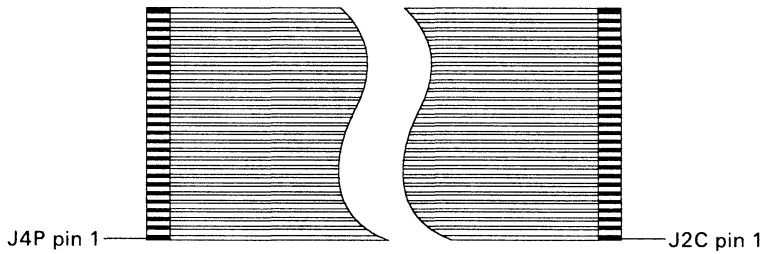
022
(From Step 016 in this MAP)
- Move the Carrier to the right.
- Press and hold the Paper Down Button while you check the meter.
- Check J4P pin 12 for 34.2 – 41.8 VDC (See foldout "Printer Board Connector Locations" on page 6-5).

Does it have 34.2 – 41.8 VDC?

Yes **No**

023
Continue at "MAP 0120: Dead Machine" on page 3-20.

024
- **Turn off the Printer.**
- Check continuity between J4P pin 12 and J2C pin 12.



Carrier Cable

Is there continuity?

Yes **No**

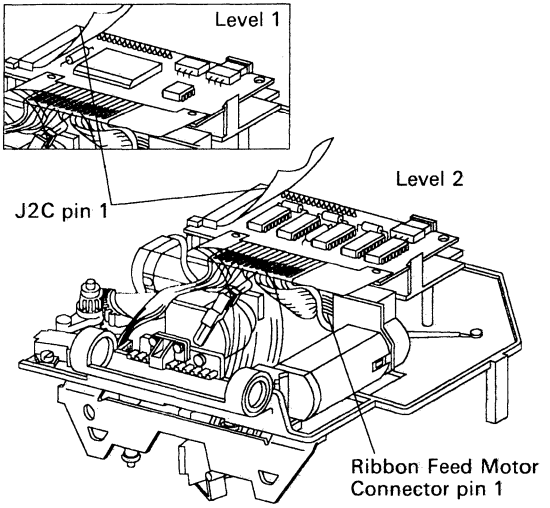
025
Replace the Carrier Cable.

MAP continues on next page.

MAP 0250 (continued)

026

- Check continuity between J2C Pin 12 to the Ribbon Feed Motor Connector Pin 1.



(Bottom View - Carrier Removed)

Is there continuity?

Yes **No**

027

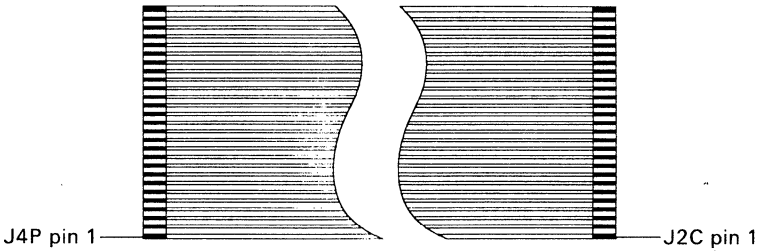
Replace the Carrier Board (See "Carrier Board Assembly Removal" on page 4-8).

028

Replace the Ribbon Feed Motor.

MAP continues on next page.

029
(From Step 018 in this MAP)
- **Turn off the Printer.**
- Disconnect J2C and J4P.
- Check the Carrier Cable for continuity.



Carrier Cable

Do all the wires read continuity?
Yes **No**

030
Replace the Carrier Cable.

031
Replace the Carrier Board (See "Carrier Board Assembly Removal" on page 4-8).

MAP 0260: Ribbon Take-up

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because you have: • Ribbon light on • Ribbon tracking problems • Ribbon Take-up Motor not working • noisy Ribbon Take-up Motor • Ribbon Take-up Motor always on • breaking ribbon • ribbon goes slack on take-up side • erratic Take-up Arm tension or motion • Take-up Arm loose, or worn	• Printer Board failing • Ribbon Take-up Motor failing • Take-up Roller defective • Worn or broken Take-up Arm • Worn, loose or broken Take-up Arm stud • Defective Take-up Sector Arm • Defective Ribbon Hub assembly • Take-up sensor not working • Take-up Arm Spring • Carrier Cable failing • Carrier Board failing • Ribbon ground roller dirty

001

- Turn off the Printer.

(Step 001 continues)

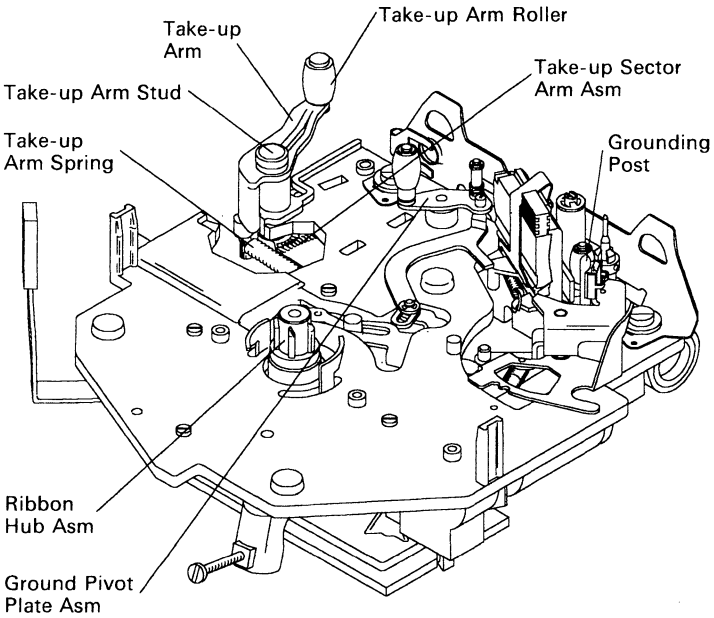
001 (continued)

- Remove the Ribbon Cartridge.
- Make sure that none of the following parts are missing:

  - Connectors
  - Ground Pivot Plate Assembly
  - Ribbon Hub Assembly
  - Take-up Arm, Roller, Spring and Arm Stud
  - Take-up Sector Arm assembly
  - Grounding Post

- Inspect them for:

  - binds
  - breakage
  - damage
  - dirt
  - loose or disconnected
  - wear



(Step 001 continues)

MAP 0260 (continued)

001 (continued)
Do all the parts check good?
Yes **No**

002
Clean, replace or repair the parts as necessary.

003
Did the ribbon break at power on?
Yes **No**

004
Continue at Step 006 in this MAP.

005
Continue at Step 015 in this MAP.

006
(From Step 004 in this MAP)
- Run the Printer Self Test (See "Printer Self Test" on page 2-6).

Does the ribbon light come on solid during or after the test?
Yes **No**

007
Continue at Step 026 in this MAP.

008
- Turn on the Printer.
- Check the voltage on TP3 (RTFLT*) (See foldout "Printer Board Connector Locations" on page 6-5).

Is it 2.4 – 5 VDC?
Yes **No**

009
Continue at Step 011 in this MAP.

010
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

011
(From Step 009 in this MAP)
- Move the Carrier to the right.
- Press and hold the Paper Down Button while you check the meter.
- Check the voltage on J4P pin 12.

Is it 34.2 – 41.8 VDC?
Yes **No**

012
Continue at "MAP 0120: Dead Machine" on page 3-20.

013
- **Turn off the Printer.**
- Disconnect, then reconnect J4P, J2C, and the Ribbon Take-up Motor connector (See "Carrier Board Assembly Connector Locations" on page 6-2).

Does the Printer still fail?
Yes **No**

014
The Printer is functional.

015
(From Steps 005 and 041 in this MAP)
- Check the -5 VDC voltage at the test point on the Printer Board (See foldout "Printer Board Connector Locations" on page 6-5).

Is the reading correct?
Yes **No**

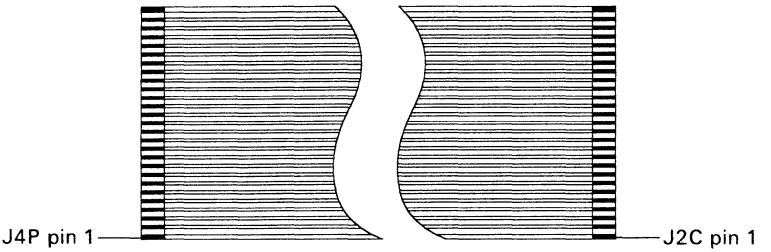
016
Continue at "MAP 0120: Dead Machine" on page 3-20

MAP continues on next page.

MAP 0260 (continued)

017

- **Turn off the Printer.**
- Check the Carrier Cable for continuity.



Carrier Cable

Do all the wires read continuity?

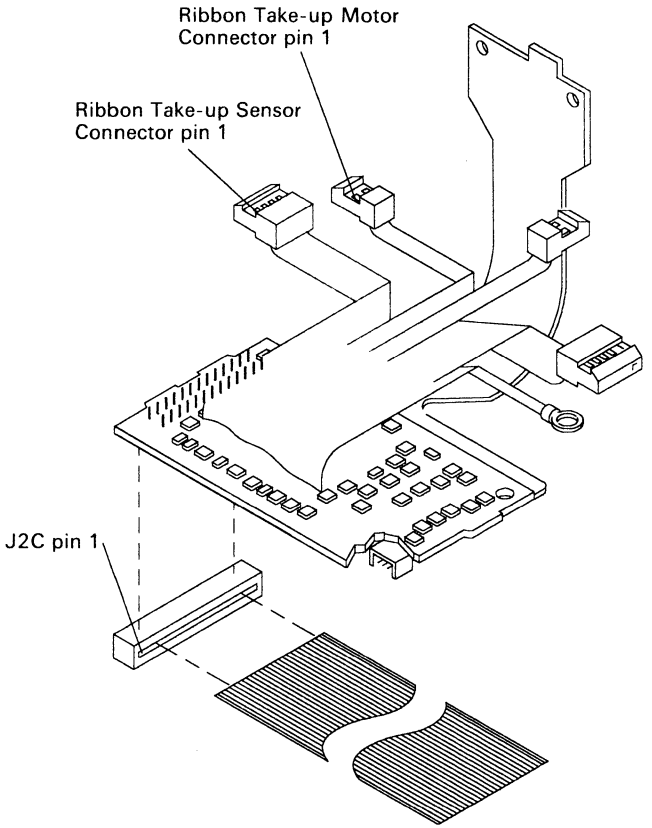
Yes **No**

018
Replace the Carrier Cable.

019

- Make the following continuity checks.

  - J2C pin 7 to Sensor Connector pin 4
  - J2C pin 8 to Sensor Connector pin 1
  - J2C pin 9 to Sensor Connector pin 3
  - J2C pin 17 to Sensor Connector pin 2
  - J2C pin 12 to Ribbon Take-up Motor pin 1
  - J2C pin 15 to Ribbon Take-up Motor pin 2



Do all the meter checks read continuity?

Yes **No**

020
Replace the Carrier Board (See "Carrier Board Assembly Removal" on page 4-8).

021

- If the ribbon breaks at power on, answer this question YES.
- Turn on the Printer.
- Connect a meter lead to the system ground point (See "System Ground Point" on page 1-7).
- Press and hold the Paper Down Button while you touch the other end of the meter lead to TP1 for 1 second (See foldout "Printer Board Connector Locations" on page 6-5).

021 (continued)
Does the Ribbon Take-up Motor turn?
Yes **No**
|
022
Continue at Step 029 in this MAP.

023
- Turn on the Printer.
- Remove the Ribbon.
- Move the Ribbon Release Lever to the closed position.
- Connect the meter to TP2 and the system ground point (See "System Ground Point" on page 1-7).
- Watch the meter and move the Ribbon Take-up Arm right, then left as far as you can several times.

Does the voltage vary between 2.3 VDC and .2 VDC as you move the arm to the right, then let it return to the left?
Yes **No**
|
024
Replace the Ribbon Take-up Sensor.

025
Replace the following FRUs in the order shown:

1. Carrier Assembly (See "Carrier Removal" on page 4-6).
2. Printer Board (See "Printer Board Removal" on page 4-27).

026
(From Step 007 in this MAP)
- Watch the Ribbon Take-up Arm.

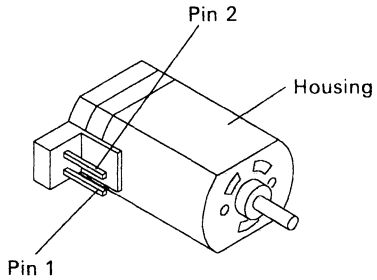
Does it move erratically when the ribbon breaks?.
Yes **No**
|
027
Continue at Step 038 in this MAP.

028
Replace the Carrier (See "Carrier Removal" on page 4-6).

029

(From Step 022 in this MAP)

- Disconnect J2C (See "Carrier Board Assembly Connector Locations" on page 6-2).
- Connect the meter to pin 1 and pin 2 of the Ribbon Take-up Motor.



Ribbon Take-up Motor

Does the meter read 35 – 75 ohms?.

Yes **No**

030

Replace the Ribbon Take-up motor (See "Ribbon Take Up Motor Removal" on page 4-41).

031

- Connect the meter to pin 1 and the housing of the Ribbon Take-up Motor.

Does the meter read infinity?

Yes **No**

032

Replace the Ribbon Take-up motor (See "Ribbon Take Up Motor Removal" on page 4-41).

033

- Connect the meter to pin 2 and the housing of the Ribbon Take-up Motor.

Does the meter read infinity ∞?

Yes **No**

034

Replace the Ribbon Take-up motor (See "Ribbon Take Up Motor Removal" on page 4-41).

(Step 035 continues)

035
Was the Ribbon Take-up Arm all the way to the left when the ribbon light came on?
Yes **No**

036
Replace the Carrier (See "Carrier Removal" on page 4-6).

037
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

038
(From Step 027 in this MAP)
Was the Ribbon Take-up Arm all the way to the right when the ribbon broke?
Yes **No**

039
Replace the following FRUs in the order shown:

1. Carrier Assembly (See "Carrier Removal" on page 4-6).
2. Printer Board (See "Printer Board Removal" on page 4-27).

040
- Turn on the Printer.
- Remove the Ribbon.
- Move the Ribbon Release Lever to the closed position.
- Connect the meter to TP2 (See foldout "Printer Board Connector Locations" on page 6-5) and the system ground point (See "System Ground Point" on page 1-7).
- Watch the meter and move the Ribbon Take-up Arm first right, then left.

Does the voltage vary between 2.7 VDC with the Ribbon Take-up Arm to the left and .2 VDC as you move the arm to the right?
Yes **No**

041
(Step 041 continues)

041 (continued)
Continue at Step 015 in this MAP.

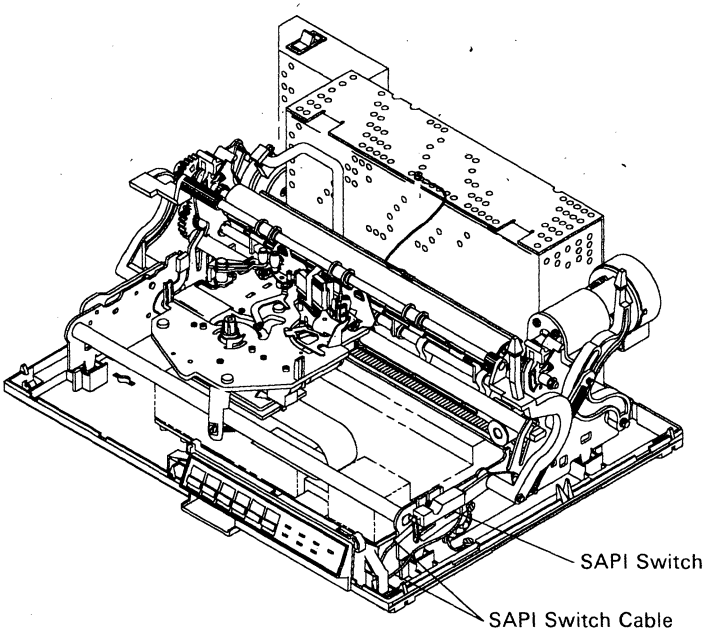
042
Was the Ribbon Take-up Arm all the way to the left when ribbon light came on?
Yes **No**

043
Replace the Carrier (See "Carrier Removal" on page 4-6).

044
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

MAP 0270: Semi – Automatic Paper Insertion (SAPI)

Symptom Explanation	Conditions That Could Cause This Symptom
You have enter this procedure because the Platen does not turn when the Paper Bail is pulled forward with the feature cable unplugged from the back of the machine.	• SAPI Switch • SAPI Switch Cable • Paper Feed Mechanism failure • Printer Board



(Step 001 continues)

001

- Power off the machine.
- Inspect the **SAPI** switch and cable for damage.
- Make sure the spring is installed correctly and is not damaged.

Is the SAPI switch or cable damaged?

Yes **No**

002
Go to Step 004 in this MAP

003
Repair or install new SAPI switch (See "Semi-Automatic Paper Insertion Switch (SAPI) Removal" on page 4-43).

004
(From Step 002 in this MAP)

- Disconnect J3P from the Printer Board (See "Printer Board Connector Locations" on page 6-5).
- Measure the resistance between pins 1 and 2 on the SAPI switch cable plug while pulling the paper bail forward.

Does the meter reading go from infinity to 0 ohms as the paper bail is pulled forward?

Yes **No**

005
Install new SAPI Switch and Cable.

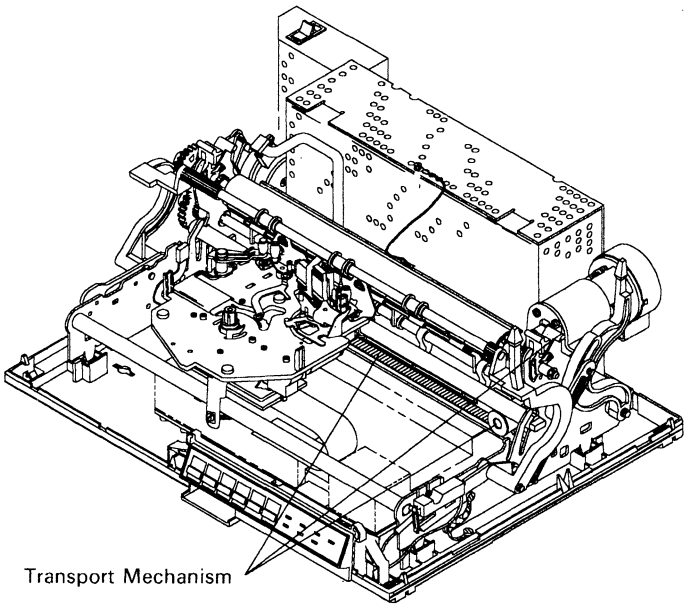
006
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

MAP 0280: Transport

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this procedure because the transport mechanism does not work properly or is noisy. Transport error code.	• Transport Adjustments • Worn, loose or broken Transport Mechanism parts • Transport Motor • Printer Board

001

- Position the Power switch off.
- Observe the Transport mechanism while moving the Carrier left and right by hand.



(Step 001 continues)

001 (continued)
Check the following:

Check for:	Action
Improper Carrier Transport Belt tension.	Perform the Carrier Transport Belt adjustment. (See the "Carrier Transport Belt Adjustment" on page 5-2).
Improper Transport Drive Belt tension.	Perform the Transport Drive Belt adjustment. (See the "Transport Motor Belt Adjustment" on page 5-8).
Worn or broken Carrier Transport Belt.	Replace the Carrier Transport Belt.
Worn or binding Transport Drive assembly.	Replace Transport Transport Drive assembly.
Worn or broken Transport Drive Belt.	Replace Transport Drive Belt.
Binding Transport Mechanism.	Replace Transport Mechanism.
Loose or worn carrier bearing.	Replace Carrier Assembly.
Loose, shaft.	Tighten the Shaft.
Pitted, or worn shaft.	Replace the Shaft and Carrier Assembly.
No lubrication on shaft.	Lubricate shaft.

MAP 0280 (continued)

Check for:	Action
Binding transport motor shaft.	Replace Transport Motor.
Transport noisy.	Check the front carrier support for damage and proper lubrication.
Transport motor noisy.	Replace Transport Motor.

Did the above checks all check good?

Yes **No**

002

Perform the required action to repair the problem.

003

- Start the "Printer Self Test" on page 2-6.
- Observe the test until you receive blinking lights and a long beep or until you are sure the transport mechanism is operating without any intermittent failures.

Did a Printer error occur?

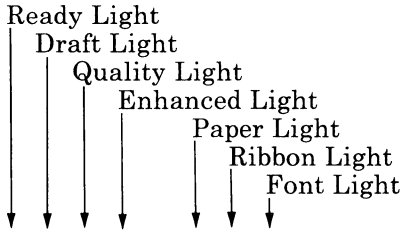
Yes **No**

004

Continue at Step 019 in this MAP.

MAP continues on next page.

005



Control Panel		Action
X O X O — O O X O — X O X O — O X X O — O X X O	O O O — X O O — X O O — O O O — X O O	Go to Step 008 in this MAP
X X X O — O O X O	O O O — X O X	Replace the Printer Board (See "Printer Board Removal" on page 4-27).

Use the chart above to find what action to take (X's indicate the light is on solid and a O means the light is off).

Did you get a Transport error code?

Yes

No

006

Continue at "MAP 0100: Start" on page 3-2 to check your symptom if you feel the Printer is not fixed.

007

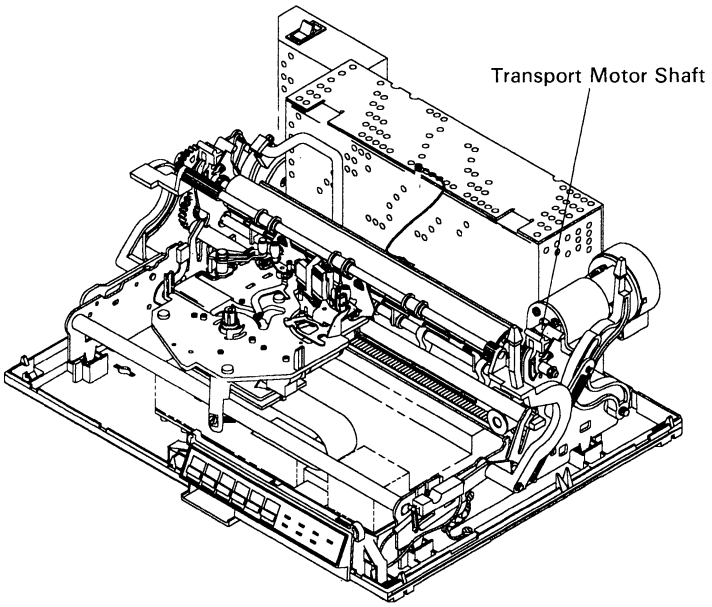
Take the action called out in the Action column.

008

(From Step 005 in this MAP)

Observe the Motor Shaft while turning the Printer on.

MAP 0280 (continued)



Does the motor shaft turn or start to turn when you turn on the Printer?

Yes **No**

009
Continue at Step 012 in this MAP

010

- **Turn off the Printer.**
- Disconnect J10P from the Printer Board (See "Printer Board Connector Locations" on page 6-5).
- Set the meter to the 60 VDC scale.
- Measure the voltage at connector J10P between pin 1 and pin 2 on the board while powering on.

Does the needle on the meter deflect when powering on?

Yes **No**

011
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

012
(Step 012 continues)

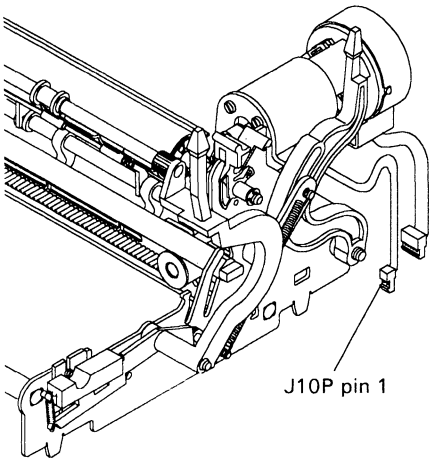
012 (continued)
(From Step 009 in this MAP)
- Check the following voltages (See foldout "Printer Board Connector Locations" on page 6-5).
- Use the system ground point for your ground connection (See "System Ground Point" on page 1-7).

Meter Connection	Reading
J11P-1 to ground	− 5 VDC
J11P-5 to ground	5 VDC
+38V test point to ground	38 VDC

Are the voltages correct?
Yes **No**

013
Continue at "MAP 0120: Dead Machine" on page 3-20.

014
- **Turn off the Printer.**
- Move the Carrier back and forth by hand to clean the Transport Motor contact brushes.
- Set the VOM to the X1 ohms scale and zero the meter.
- Measure the resistance of the motor between J10P pins 1 and 2 on the Transport Motor Cable as you move the carrier left and right by hand.
- To make this check, move the carrier a small amount, then stop and read the meter. Do this several times in each direction.



Does the resistance always measure between 6 and 20 ohms?

Yes | **No**

No

015
Replace the Transport Motor.

Yes

016

- Reconnect J10P to the Printer Board (See "Printer Board Connector Locations" on page 6-5).
- Position the Power switch on.
- Set your meter on the 12 V dc scale.
- Measure the voltage at connector J11P pin 2 while slowly moving the Carrier. Use the system ground point for the COM lead of the VOM.
- Measure the voltage at connector J11P pin 4 while slowly moving the carrier.
- To make this check, move the carrier a small amount, then stop and read the meter. Do this several times in each direction.

Note: Even though the voltage fluctuates very easily (changing 360 times per inch of Carrier movement), a good motor will measure both positive and negative depending on the Carrier position. If it is hard to get the meter to deflect a particular way, the Transport Motor is bad.

(Step 016 continues)

016 (continued)
Did the voltage reading from pin 2 and pin 4 read positive and then negative easily?

Yes | **No**

017
Replace the Transport Motor.

018
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

019
(From Step 004 in this MAP)
The Transport System is now functional.
Does the carrier move when the power switch is positioned on?

Yes | **No**

020
Replace the Printer Board (See "Printer Board Removal" on page 4-27).

021
Continue at "Functional Check" on page 2-1.

---

4. REPAIR INFORMATION

Using This Section

The procedures are in alphabetical order. Each removal procedure is followed by an installation procedure, sometimes on the same page. When there is artwork to support a procedure, it appears on the left-hand page.

Perform a functional check of the printer after completing an installation.

Read the following section before handling electronic parts.

Handling ESD-Sensitive Parts

Many electronic products use parts that are known to be sensitive to electrostatic discharge (ESD). To prevent damage when you work with ESD-sensitive parts, observe the following instructions; do these in addition to all the usual precautions such as switching off power before removing logic cards.

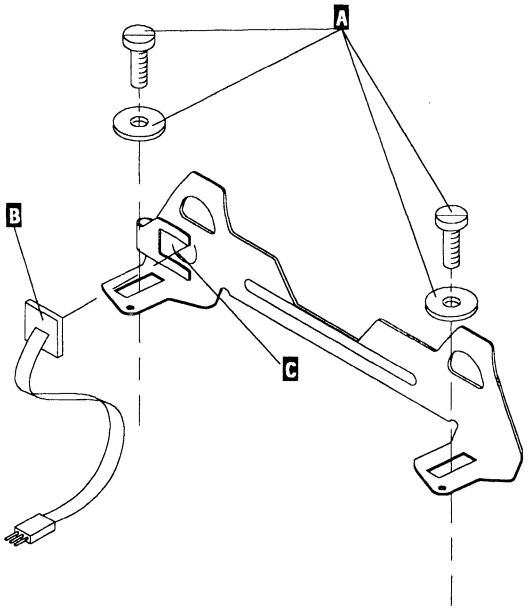
- Keep the ESD-sensitive part in its original shipping container (a special "ESD bag") until you are ready to install the part into the machine.
- Make the least-possible movements with your body to prevent an increase of static electricity from clothing fibers, carpets, and furniture.
- Put the ESD wrist strap on your wrist. Connect the wrist band to the system ground point. This discharges any static electricity in your body to the machine.
- Hold the ESD-sensitive part by its edge connector shroud (cover); *do not touch its pins.* If you are removing a pluggable module, use the correct tool.
- Do not place the ESD-sensitive part on the machine cover or on a metal table; if you need to put down the ESD-sensitive part for any reason, first put it into its special bag.

Machine covers and metal tables are electrical grounds. They increase the risk of damage because they make a discharge path from your body through the ESD-sensitive part. (Large metal objects can be discharge paths without being grounded.)

- Prevent ESD-sensitive parts from being accidentally touched by other personnel. Install machine covers when you are not working on the machine, and do not put unprotected ESD-sensitive parts on a table.

- If possible, keep all ESD-sensitive parts in a grounded metal cabinet (case).

- Be extra careful in working with ESD-sensitive parts when cold-weather heating is used because low humidity increases static electricity.

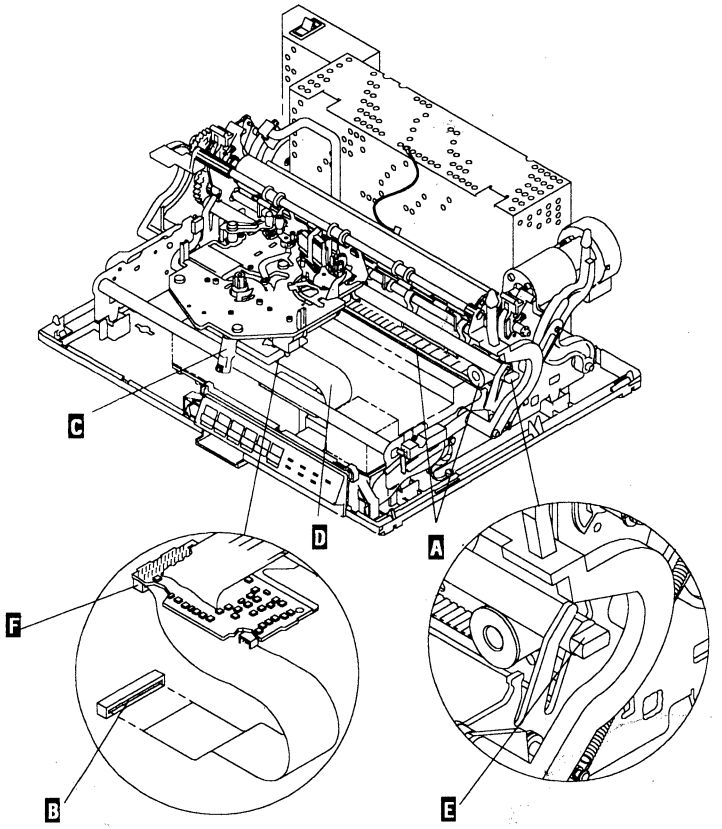


Cardholder Removal

1. Remove the Platen.
2. Remove the 2 Cardholder mounting screws and washers **A** .
3. Remove the Paper Sensor **B** (See "Paper Sensor Removal" on page 4-24).
4. Lift the Cardholder out of the machine.

Cardholder Replacement

1. Place the Cardholder on the Carrier the mounting screws and washers **A** .
2. Install the Paper Sensor **B** (See "Paper Sensor Replacement" on page 4-24) into its opening on the Cardholder **C** .
3. Install the Platen.
4. Perform the Cardholder Adjustments (See "Cardholder Front-to-Rear Adjustment" on page 5-1).



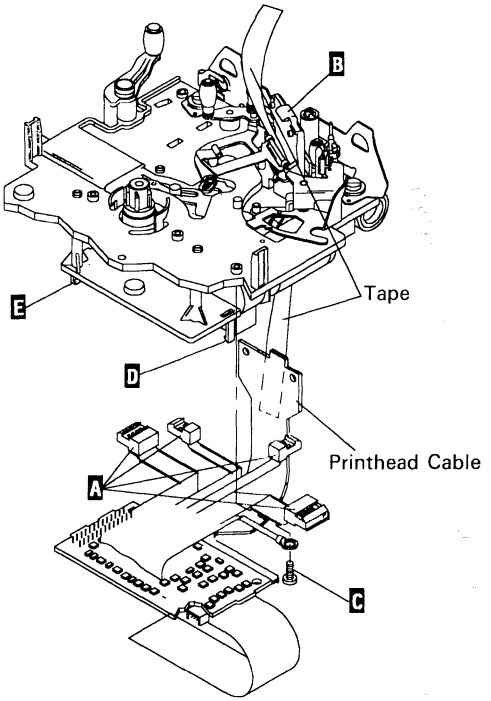
Carrier Removal

1. Remove the Cover (See "Cover Removal" on page 4-12).
2. Remove the Ribbon Cartridge and Printhead.
3. Remove the Carrier Transport Belt from the pulleys.
4. Disconnect the Carrier Cable from the Printer Board **B** (See "Zero Insertion Force (ZIF) Connector Removal" on page 4-47).

5. Turn the front Carrier Guide screw **C** out far enough to clear the front carrier shaft **D** .
6. Use a 1/4″ open end wrench to rotate the rear Carrier shaft top to rear until it stops **E** .
7. Slide the shaft to the right to release it from the frame.
8. Slide the Carrier Shaft to the **right** to remove it from the carrier. (This will prevent scoring of the carrier bearings.)
9. Disconnect the Carrier Cable from the base of the Carrier **F** (See "Zero Insertion Force (ZIF) Connector Removal" on page 4-47).

Carrier Replacement

1. Connect the carrier cable to the bottom of the carrier **F** (See "Zero Insertion Force (ZIF) Connector Replacement" on page 4-47).
2. Place the left end of the the Carrier Shaft into the right side of the Carrier.
3. Install the right end of the Carrier Shaft into the side frame.
4. Slide the left end of the Carrier shaft into the frame.
5. Rotate the Carrier Shaft top to front with a 1/4″ open end wrench **E** .
6. Tighten the front Carrier Guide Screw **C** .
7. Connect the Carrier Cable to the Printer Board **B** (See "Zero Insertion Force (ZIF) Connector Replacement" on page 4-47).
8. Install the Carrier Transport Belt on the Transport Pulleys (See "Carrier Transport Belt Replacement" on page 4-10).
9. Adjust the Cardholder (See "Cardholder Front-to-Rear Adjustment" on page 5-1).
10. Install the Printhead and Ribbon Cartridge.
11. Replace the Cover (See "Cover Replacement" on page 4-12).



Carrier Board Assembly Removal

1. Remove the Carrier (See **"Carrier Removal" on page 4-6**).
2. Disconnect the Carrier Board Connectors **A** .
3. Disconnect the Printhead Cable from the Printhead Holder **B** .

   Note: Slide a small screwdriver behind the Printhead Cable and carefully work the cable off of its locating pins. The tab on the top of the cable will bend as you work the cable off from its pins.
4. Remove the ground wire mounting screw **C** .
5. Pull the right Carrier Board Latch **D** to the right far enough to release the Carrier Board, then pull the board out of its mounting bracket **E** .

6. Carefully work the Printhead Cable out the bottom of the Printhead Holder **B** as you pull the Carrier Board away from the Carrier.

Carrier Board Assembly Replacement

1. Install the connectors on the Carrier Board Assembly **A** (See "Carrier Board Assembly Connector Locations" on page 6-2).

   Note: Be sure all the cables that connect to the Carrier Board Assembly are positioned correctly.
2. Place the Carrier Board Assembly over its mounting bracket **E** and snap it in place.

   Note: If you connect a piece of tape to the **BACK** of the Printhead Cable and push the tape through the bottom of the Printhead Pivot assembly, you can use it to help work the Printhead Cable into position. **CAUTION**
   Do not connect the tape to the front of the cable because the tape could pull off or contaminate the contact surface of the Printhead cable.

3. Push the tape up through the bottom of the carrier and through the bottom of the Printhead Pivot Assembly, then carefully work the Printhead Cable through the slot on the bottom of the Printhead Pivot Assembly **B** .
4. Remove the tape, then connect the Printhead Cable to the Printhead Pivot Assembly **B** .

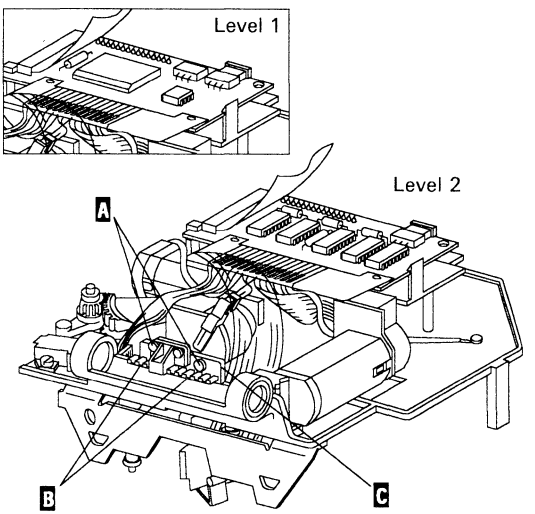
   Note: Slide the tab on the top of the cable into its slot, then work the cable on its pegs.
5. Install the ground wire **C** .
6. Replace the Carrier (See "Carrier Replacement" on page 4-7).
7. Install the Platen and Deflector.
8. Perform the Printhead Height Adjustment (See "Printhead Height Adjustment" on page 5-5).
9. Replace the Cover (See "Cover Replacement" on page 4-12).

Carrier Transport Belt Removal

1. Remove the Cover (See "Cover Removal" on page 4-12).
2. Remove the Carrier (See "Carrier Removal" on page 4-6).
3. Remove the 2 transport belt mounting screws **A**.
4. Remove the Carrier Transport Belt **B**.

Carrier Transport Belt Replacement

1. Install the Transport Belt so the screw holes line up with the holes on the mounting bracket **C** on the Carrier.
2. Install the 2 transport belt mounting screws **A**.
3. Install the Carrier (See "Carrier Replacement" on page 4-7).
4. Perform the Carrier Transport Belt Adjustment (See "Carrier Transport Belt Adjustment" on page 5-2).



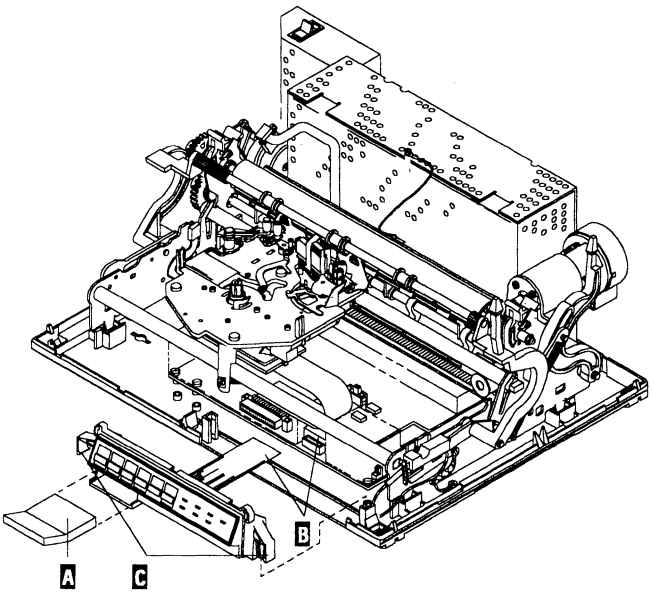
(Bottom View - Carrier Removed)

Control Panel Removal

1. Remove the Font Cartridge **A** .
2. Remove the Cover (See "Cover Removal" on page 4-12).
3. Disconnect the J2P connector from the Printer Board **B** (See "Zero Insertion Force (ZIF) Connector Removal" on page 4-47).
4. Locate the left and right Control Panel Mounting Latches **C** under the front of the printer.
5. Release the left and right Control Panel Mounting Latches **C** outward, then lift the Control Panel up.

Control Panel Replacement

1. Snap the Control Panel into the Bottom Cover.
2. Connect the J2P connector **B** to the Printer Board (See "Zero Insertion Force (ZIF) Connector Replacement" on page 4-47).
3. Replace the Cover (See "Cover Replacement" on page 4-12).

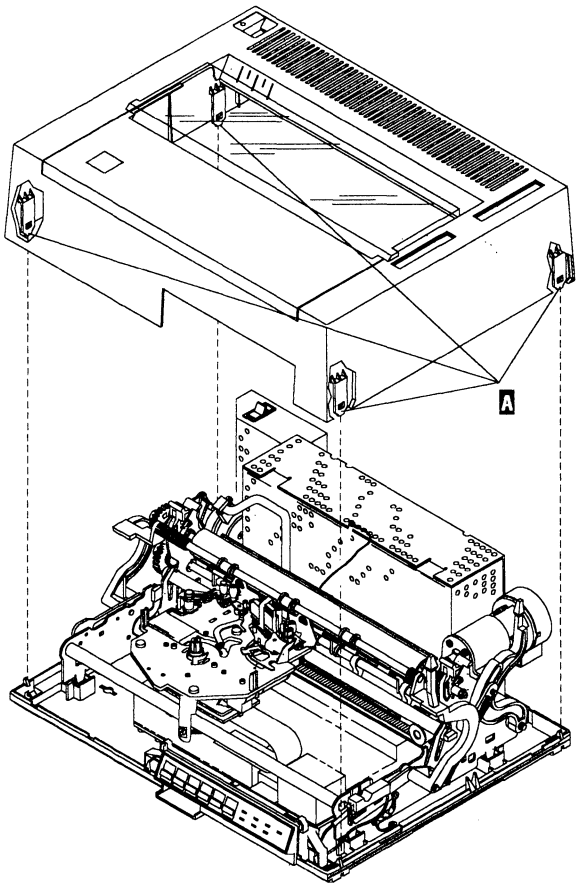


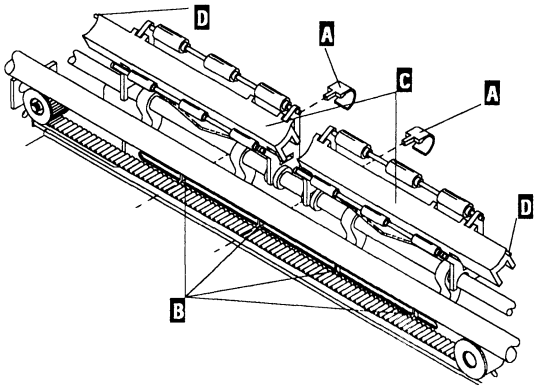
Cover Removal

1. Remove the linecord from the printer.
2. Push the tabs in with a tool to release the cover **A** .
3. Lift the cover up.

Cover Replacement

1. Lower the cover into position and latch it **A** .
2. Reinstall the linecord.



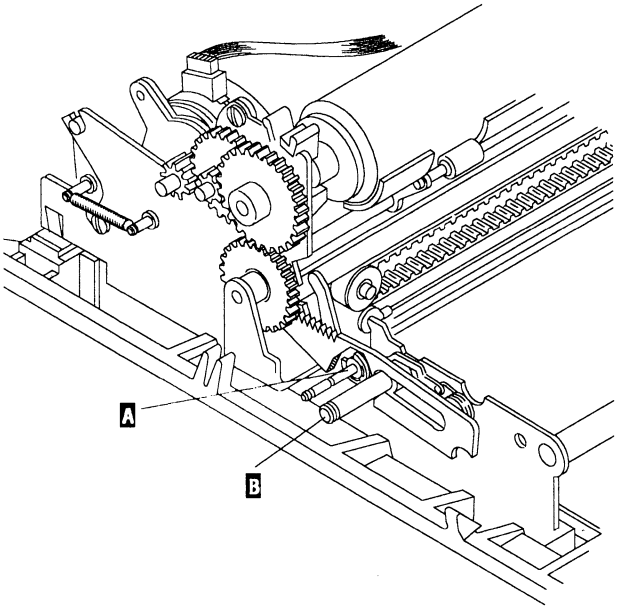


Feed Roller Assembly Removal

1. Remove the Cover (See "Cover Removal" on page 4-12).
2. Remove the platen and deflector.
3. Disconnect the ground strap from the deflector.
4. Remove the Feed Roller Retainer Clips **A** with a screwdriver.
5. Push the Feed Roller Assembly down until the lower ends of the assembly release from the Transport Bracket **B** .
6. Rotate the Feed Roller Assembly top to the front, then lift it out of the machine **C** .

Feed Roller Assembly Replacement

1. Place the Feed Roller Assembly on the Transport Bracket and align the forks with the bearing guides. Position the Deflector Supports to the outside **D** .
2. Push the Feed Roller Assembly down and pivot it top to rear until the lower ends of the assembly connect to the Transport Bracket **B** .
3. Reinstall the Feed Roller Retaining Clips **A** .
4. Connect the ground strap to the deflector. Make sure to install the clip so the wire is under the deflector.
5. Replace the Deflector and Platen.
6. Replace the Cover (See "Cover Replacement" on page 4-12).

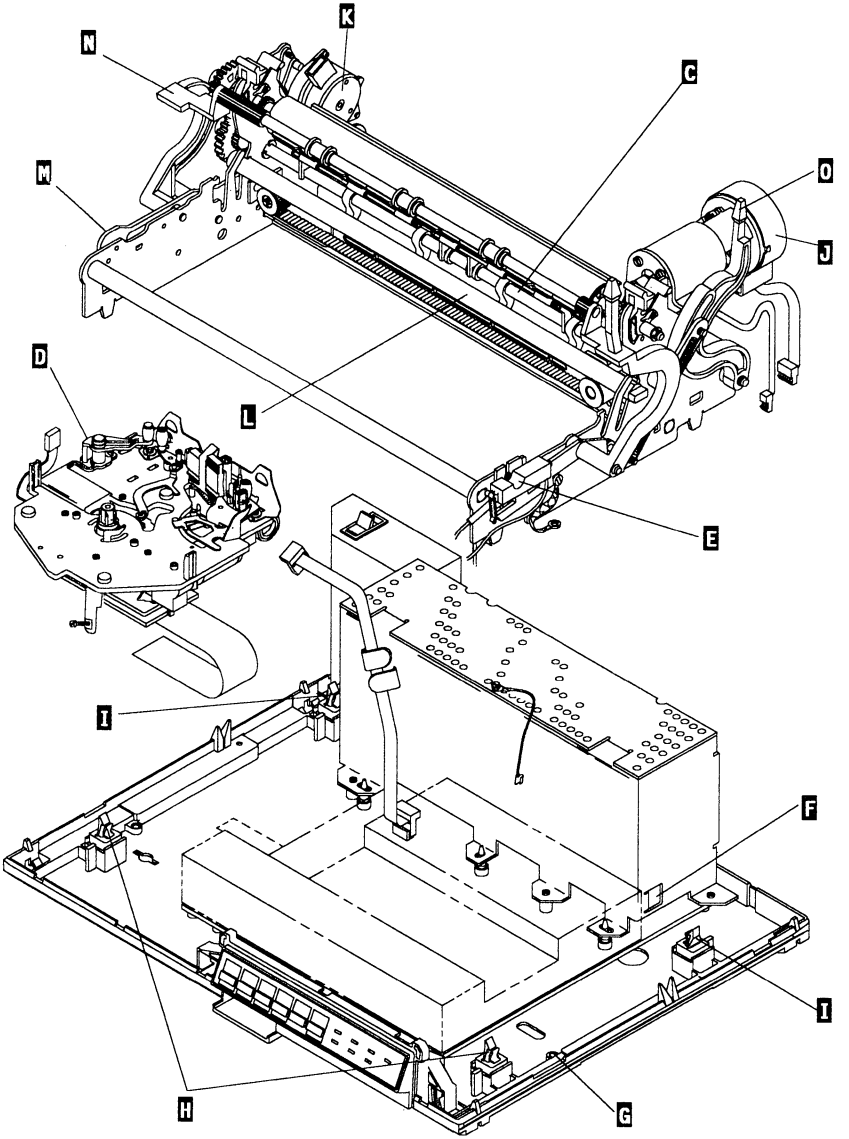

A
B

First Writing Line Knock Off Removal

1. Remove the Cover (See "Cover Removal" on page 4-12).
2. Remove the Paper Bail Assembly (See "Paper Bail Assembly Removal" on page 4-22).
3. Remove the "c" clip from the Paper Bail Mounting Shaft **A** .
4. Slide the Assembly off the Paper Bail Mounting Stud **B** .

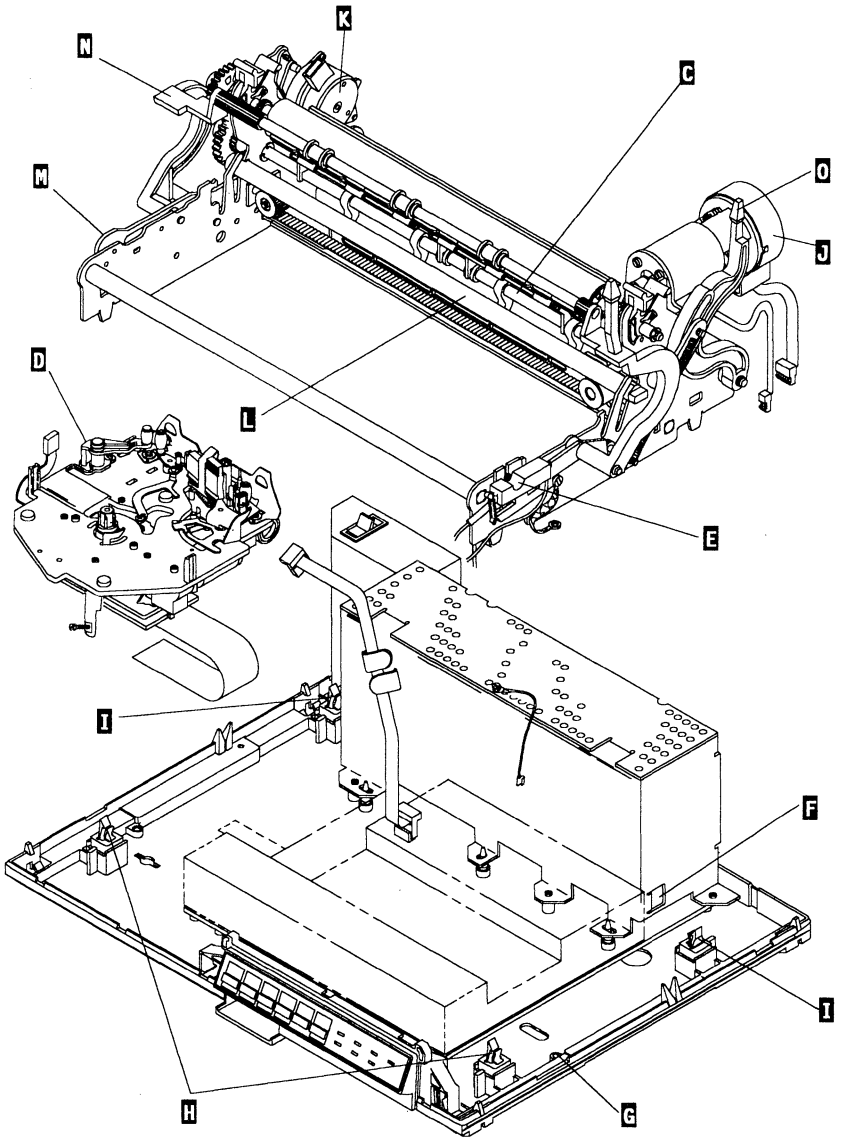
First Writing Line Knock Off Replacement

1. Install the First Writing Link Knock Off assembly on the Paper Bail Mounting Shaft **B** .
2. Install the "c" clip on the Paper Bail Mounting Stud **A** .
3. Install a new Left Paper Bail Arm.
4. Replace the Cover (See "Cover Replacement" on page 4-12).


K
N
C
W
O
J
D
L
E
I
F
I
H
G

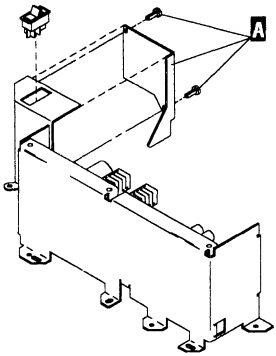
Frame Removal

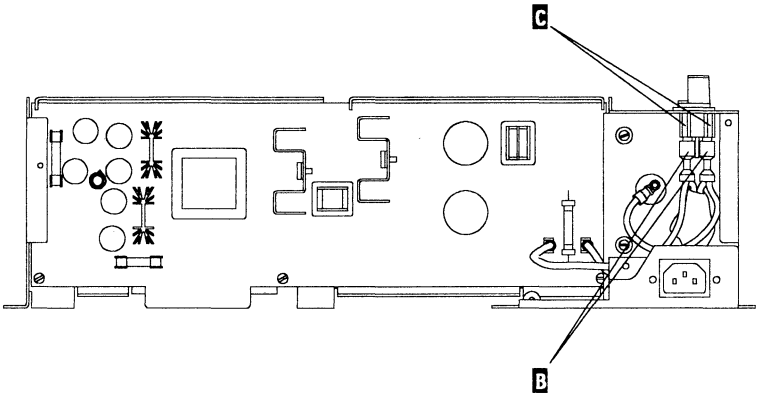
1. Remove the Feed Roller Assembly **C** (See "Feed Roller Assembly Removal" on page 4-13).
2. Remove the Carrier **D** (See "Carrier Removal" on page 4-6).
3. Remove the Semi-Automatic Paper Insertion (SAPI) Switch **E** (See "Semi-Automatic Paper Insertion Switch (SAPI) Removal" on page 4-43).
4. Disconnect all the connectors from the Printer Board **F** except J2P (See "Printer Board Connector Locations" on page 6-5).
5. Disconnect the Paper Feed Motor cable at the Motor **K** .
6. Disconnect the frame common wire **G** from the frame.
7. Release the front frame latches **H** and lift the front of the frame, then rest it on top of the frame latches.
8. Release the rear frame latches **I** and lift the frame out of the bottom cover.
9. Remove the Transport Assembly **J** .
10. Remove the Paper Feed Motor **K** (See "Paper Feed Motor Removal" on page 4-23).
11. Remove the Transport Mounting Bracket **L** .
12. Remove the First Writing Line Knock Off Assembly **M** (See "First Writing Line Knock Off Removal" on page 4-15).


K
N
C
M
O
J
D
L
E
I
F
I
H
G

Frame Replacement

1. Install the following from the old frame to the new frame:
   - First Writing Line Knock Off Assembly **M** (See "First Writing Line Knock Off Replacement" on page 4-15).
   - Transport Mounting Bracket **L** .
   - Paper Feed Motor **K** (See "Paper Feed Motor Replacement" on page 4-23).
   - Transport Assembly **J** .
2. Place the frame in the bottom cover.
3. Connect the frame to the bottom cover with the frame latches **H** and **I** .
4. Reconnect the frame ground to the frame **G** .
5. Install the following from the old frame to the new frame:
   - Semi-Automatic Paper Insertion (SAPI) **E** (See "Semi-Automatic Paper Insertion Switch (SAPI) Replacement" on page 4-43).
   - Carrier **D** (See "Carrier Replacement" on page 4-7).
   - Feed Roller Assembly **C** (See "Feed Roller Assembly Replacement" on page 4-13).
6. Install all the connectors on the Printer Board **F** (See "Printer Board Connector Locations" on page 6-5).
7. Connect the Paper Feed Motor cable to the Motor **K** .
8. Install a new Paper Bail Assembly **N** (See "Paper Bail Assembly Replacement" on page 4-22).
9. Install a new Paper Release Lever Assembly **O** .
10. Reconnect the Power Supply Cover and the J1S connector.


A


C
B

ON/OFF Switch Removal

1. Remove the Cover (See "Cover Removal" on page 4-12).
2. Remove the switch plate mounting screws and plate **A** .
3. Disconnect the 4 switch connectors **B** .
4. Press the rear switch retainers **C** forward, then raise the rear of the switch as far as you can.
5. Use a small screwdriver or similar tool to reach in front of the switch and release the switch retainers, then pull the switch out of the Power Supply.

ON/OFF Switch Replacement

1. Position the switch into the switch opening in the Power Supply.
2. Push the front of the switch into the switch opening as far as you can.
3. Press the rear switch retainers **C** forward, then push the rear of the switch down.
4. Connect the 4 switch connectors **B** .
5. Install the switch plate mounting screws and plate **A** .

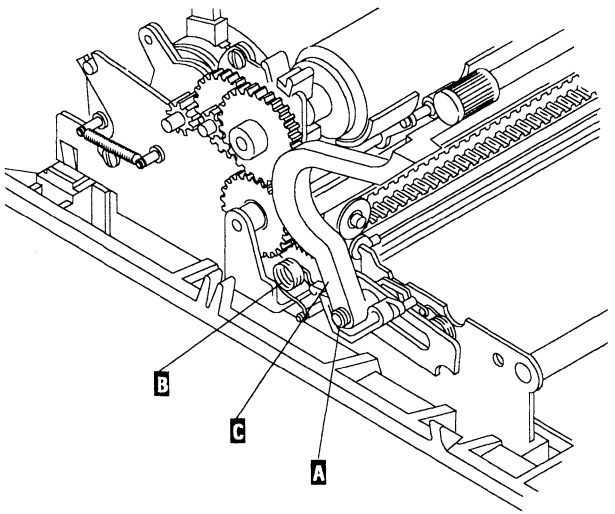
Paper Bail Assembly Removal

Warning: Place a shop cloth over the Paper Bail Arm while performing the next step to prevent injury from flying plastic.

1. Remove the Cover (See "Cover Removal" on page 4-12).
2. Clip the retaining lugs **A** off the Paper Bail Arms.
3. Remove the toggle springs **B** .
4. Slide the Paper Bail Arms **C** off the mounting shaft and the Paper Bail Shaft.

Paper Bail Assembly Replacement

1. Get a new Paper Bail Assembly.
2. Slide the Paper Bail Rollers onto the Paper Bail Shaft.
3. Slide the Paper Bail Arms **C** onto the mounting shaft and the Paper Bail Shaft **A** .
4. Attach the toggle springs **B** .
5. Replace the Cover (See "Cover Replacement" on page 4-12).

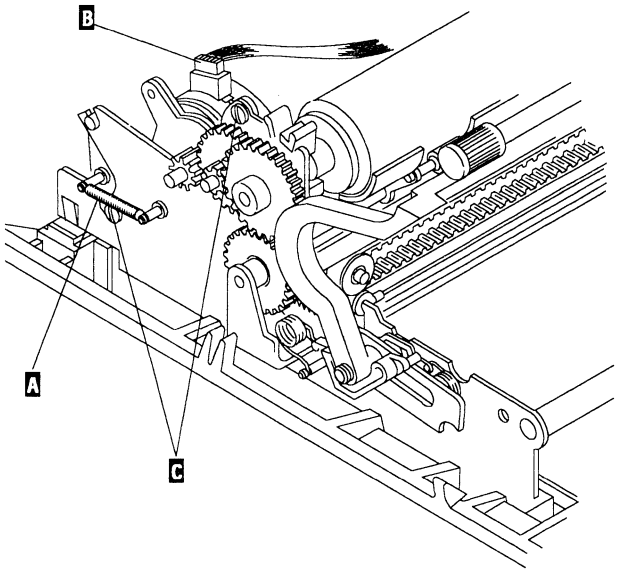


Paper Feed Motor Removal

1. Remove the Cover (See "Cover Removal" on page 4-12).
2. Remove the Platen.
3. Remove the Paperfeed Motor Tension Spring **A** .
4. Disconnect the Paperfeed Motor Connector **B** .
5. Remove the 2 Paperfeed Motor Mounting Screws **C** .
6. Move the Paperfeed Motor to the rear and lift it out of the machine.

Paper Feed Motor Replacement

1. Place the Paperfeed Motor into the machine.
2. Replace the 2 Paperfeed Motor Mounting Screws **C** .
3. Replace the Paperfeed Motor Tension Spring **A** .
4. Connect the Paperfeed Motor Connector **B** .
5. Replace the Platen.
6. Replace the Cover (See "Cover Replacement" on page 4-12).



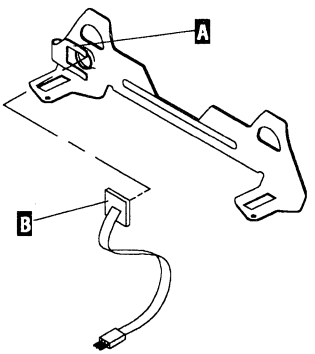
Paper Sensor Removal

1. Remove the Cover (See "Cover Removal" on page 4-12).
2. Remove the Paper Sensor Connector J3C from the Carrier Board (See "Carrier Board Assembly Connector Locations" on page 6-2).
3. Gently pry the sensor mounting bracket **A** forward to spread it far enough to remove the Paper Sensor **B** .
4. Carefully slide the Paper Sensor **B** to the right to remove it.

Paper Sensor Replacement

1. Gently pry the sensor mounting bracket **A** forward to spread it far enough install the Paper Sensor **B** .
2. Carefully slide the Paper Sensor **B** to the left to install it.

   Note: Make sure the sensor is seated properly in the hole in the Cardholder.
3. Install the Paper Sensor Connector J3C on the Carrier Board "Carrier Board Assembly Connector Locations" on page 6-2. Be sure to feed the cable under the Carrier Board, between the board and its mounting bracket "Carrier Board Assembly Connector Locations" on page 6-2.

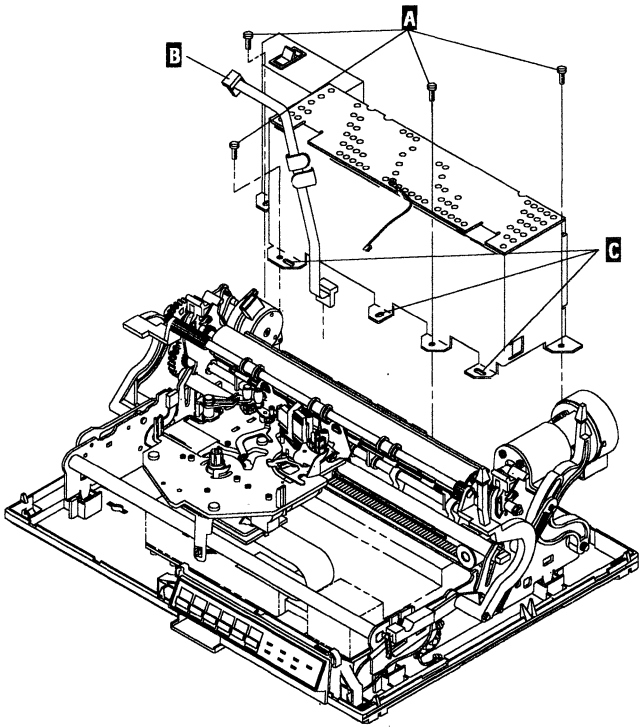


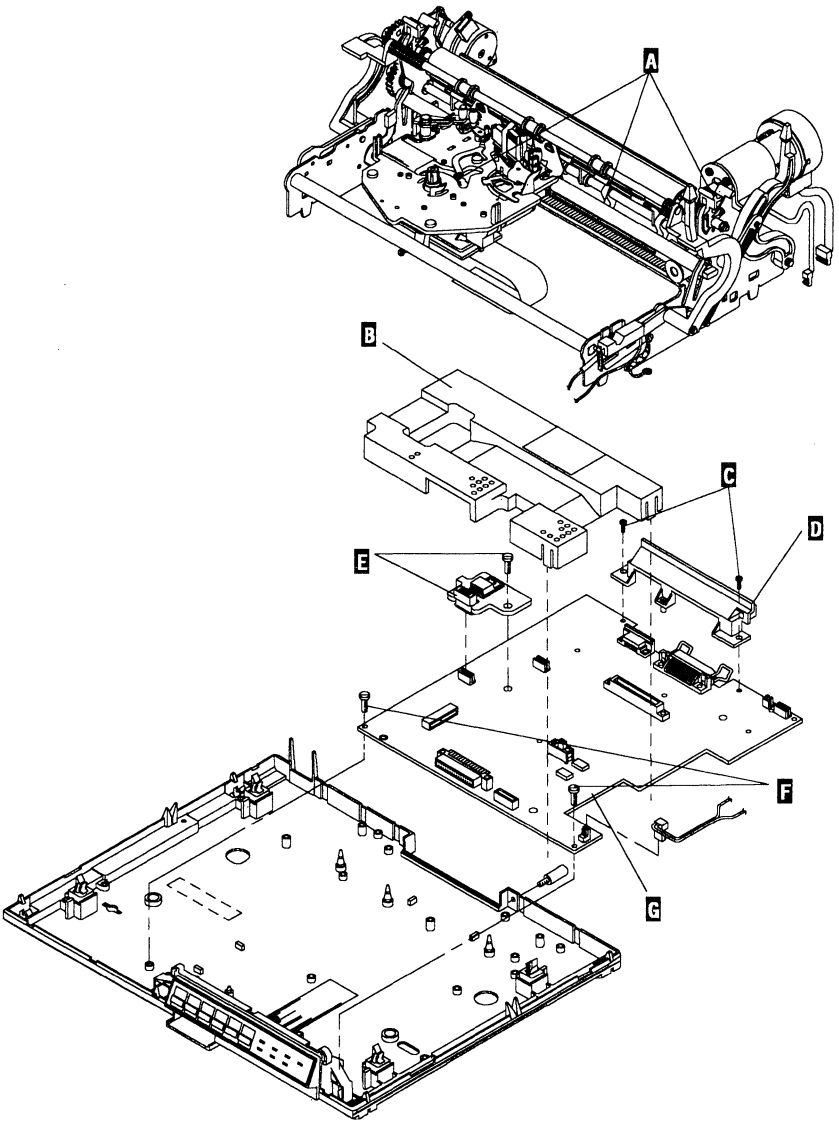
Power Supply Removal

1. Disconnect the ground strap **D** from the deflector.
2. Remove the Cover (See "Cover Removal" on page 4-12).
3. Remove the Power Supply Mounting Screws **A** .
4. Disconnect the Paper feed cable **B** at both ends.
5. Lift the Power Supply straight up and out of the machine.

Power Supply Replacement

1. Line up the Power Supply aligning holes **C** with the pins in the Bottom Cover and the mounting screw holes with the holes in Bottom Cover, then push the Power Supply straight down into the machine.
2. Install the Power Supply Mounting Screws **A** .
3. Connect the ground strap **D** to the deflector. Make sure to install the clip so the wire is under the deflector.
4. Connect the Paper feed cable **B** at both ends.
5. Replace the Cover (See "Cover Replacement" on page 4-12).



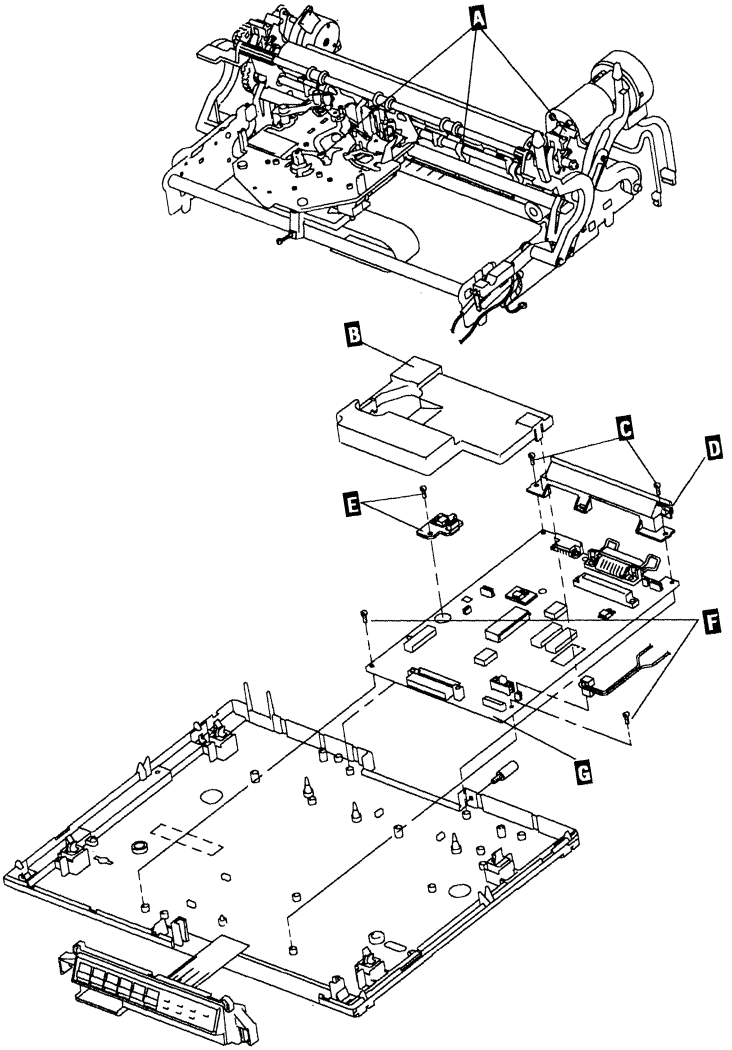

A
B
C
D
E
F
G

Printer Board Removal (Level 1)

1. Remove the Power Supply (See "Power Supply Removal" on page 4-25).
2. Remove the Frame, Paperfeed and Transport (FPT) assembly **A** .
3. Remove the Printer Board Cover **B** .
4. Remove the mounting screws on the rear connector shield **C** and the connector shield **D** .
5. Remove the Printhead Regulator mounting screw and the regulator **E** .
6. Remove the Printer Board mounting screws **F** and Printer Board **G** .

Printer Board Replacement (Level 1)

1. Place the Printer Board **G** over the Printer Board mounting holes.
2. Install the Printer Board mounting screws **F** .
3. Install the Printhead Regulator and mounting screw **E** .
4. Install the Printer Board Cover **B** .
5. Install the FPT **A** .
6. Install the Power Supply (See "Power Supply Replacement" on page 4-25).

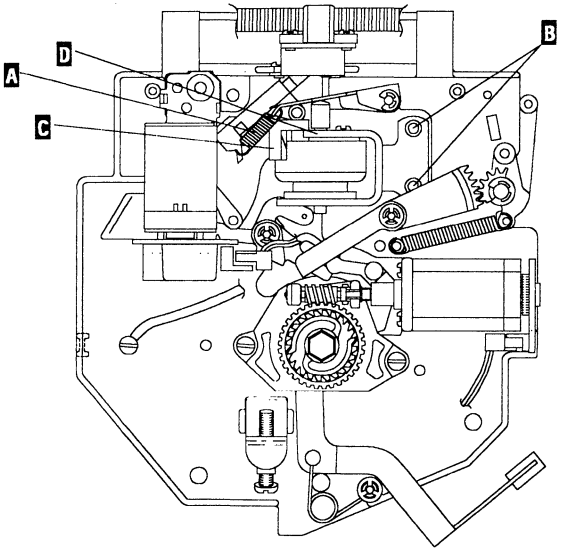

A
B
C
D
E
F
G

Printer Board Removal (Level 2)

1. Remove the Power Supply (See "Power Supply Removal" on page 4-25).
2. Remove the Frame, Paperfeed and Transport (FPT) assembly **A** .
3. Remove the Printer Board Cover **B** .
4. Remove the mounting screws on the rear connector shield **C** and the connector shield **D** .
5. Remove the Printhead Regulator mounting screw and the regulator **E** .
6. Remove the Printer Board mounting screws **F** and Printer Board **G** .

Printer Board Replacement (Level 2)

1. Place the Printer Board **G** over the Printer Board mounting holes.
2. Install the Printer Board mounting screws **F** .
3. Install the Printhead Regulator and mounting screw **E** .
4. Install the Printer Board Cover **B** .
5. Install the FPT **A** .
6. Install the Power Supply (See "Power Supply Replacement" on page 4-25).



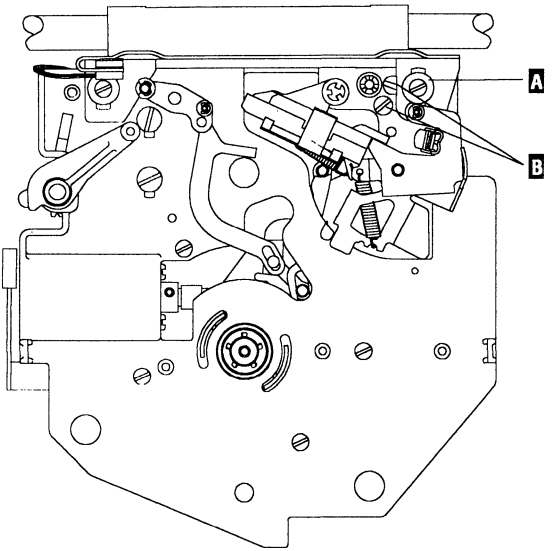
(Bottom View)

Printhead Solenoid Removal

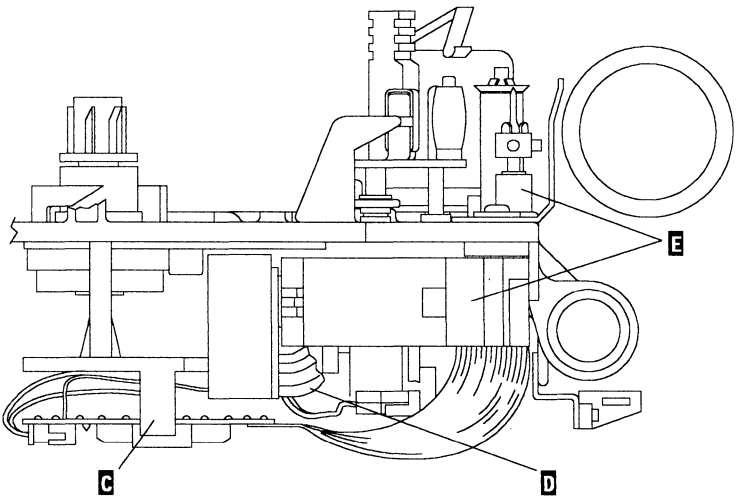
1. Remove the Carrier (See "Carrier Removal" on page 4-6).
2. Disconnect the Printhead Tension Spring **A** .
3. Remove the 2 Printhead Solenoid bracket mounting screws **B** .
4. Disconnect the Printhead Solenoid Connector **C** and lift the solenoid **D** from the Carrier.

Printhead Solenoid Replacement

1. Connect the Printhead Solenoid Connector **C** .
2. Place the Printhead Solenoid **D** in the Carrier and install the 2 Printhead Solenoid bracket mounting screws **B** .
3. Connect the Printhead Tension Spring **A** .
4. Install the Carrier (See "Carrier Replacement" on page 4-7).
5. Perform the Printhead Solenoid Adjustment (See "Printhead Solenoid Adjustment" on page 5-6).



(Top View)



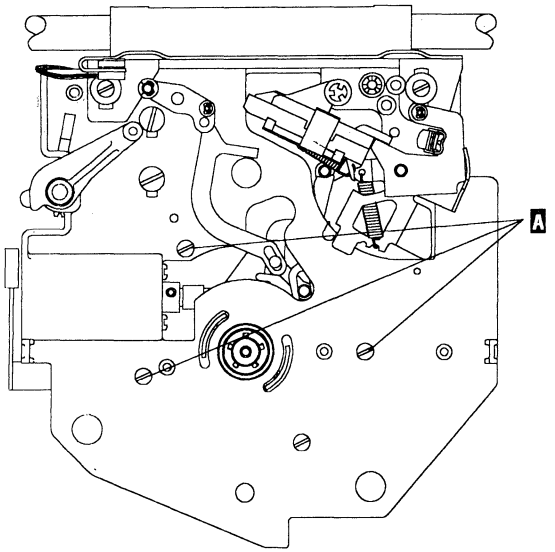
(Left Side View)

Ribbon Feed Motor Removal

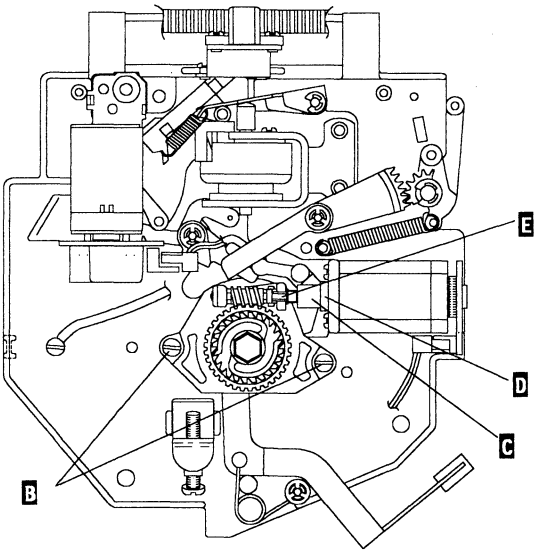
1. Remove the Carrier (See "Carrier Removal" on page 4-6).
2. Remove the right hand cardholder screw **A** and the washer.
3. Remove the Ribbon Feed Motor screws **B** .
4. Release the Carrier Board Latches **C** .
5. Disconnect the Ribbon Feed Motor Connector **D** .
6. Remove the Ribbon Feed Motor **E** .

Ribbon Feed Motor Replacement

1. Connect the Ribbon Feed Motor Connector **D** .
2. Install the Ribbon Feed Motor **E** .
3. Install the Carrier Board in its latches **C** .
4. Install the rear (flat head) Ribbon Feed Motor screw **B** . This will position the motor correctly.
5. Install the front Ribbon Feed Motor screw **B** .
6. Install the right hand cardholder washer and screw **A** .
7. Install the Carrier (See "Carrier Removal" on page 4-6).
8. Adjust the Cardholder (See "Cardholder Front-to-Rear Adjustment" on page 5-1).



(Top View)



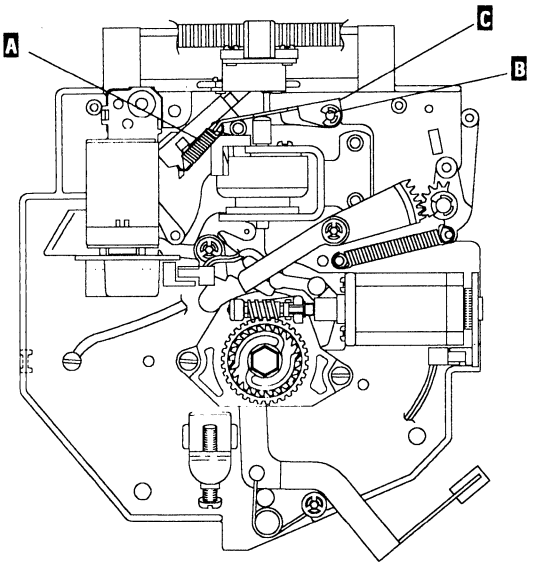
(Bottom View)

Ribbon Hub Assembly Removal

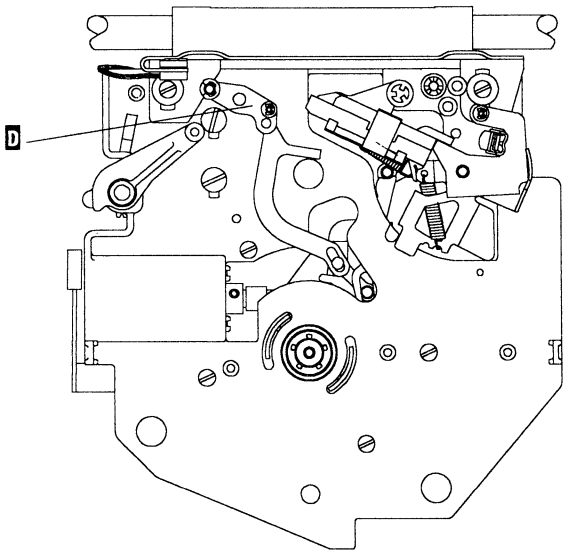
1. Remove the Cover (See "Cover Removal" on page 4-12).
2. Remove the Carrier (See "Carrier Removal" on page 4-6).
3. Remove the 3 Carrier Board Mounting Bracket screws **A** and carefully tilt the Carrier Board out of the way.
4. Remove the 2 Ribbon Hub mounting assembly screws **B** .
5. Lift the Ribbon Hub out of the Carrier being careful not to lose the Take Up Motor Coupler **C** .

Ribbon Hub Assembly Replacement

1. Place the Ribbon Hub Assembly in the Carrier.
2. Place the Take Up Motor Coupler **C** between the motor shaft collar **D** and the worm gear shaft **E** on the Ribbon Hub Assembly.
3. Install the 2 Ribbon Hub Assembly mounting screws **B** , move the Ribbon Release Lever to seat the Ribbon Hub Assembly and tighten the screws.
4. Install the Carrier Board Mounting Bracket screws **A** and tighten the 3 mounting screws **A** .
5. Install the Carrier (See "Carrier Removal" on page 4-6).



(Bottom View)



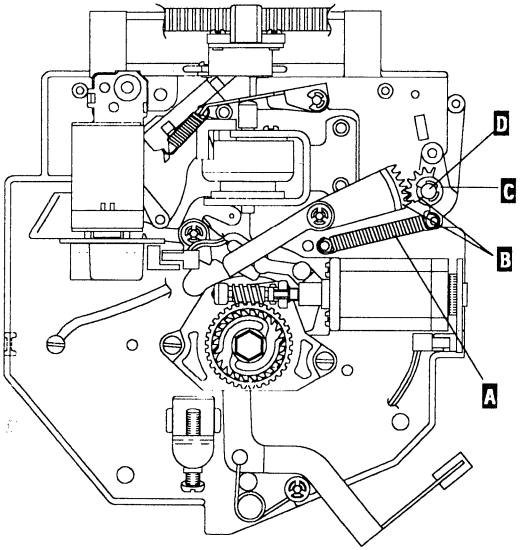
(Top View)

Ribbon Pivot Assembly Removal

1. Remove the Carrier (See "Carrier Removal" on page 4-6).
2. Remove the Printhead Pivot Assembly tension spring **A** .
3. Remove the "c" clip **B** .
4. Remove the Printhead Pivot Assembly **C** .
5. Remove the Ribbon Pivot Assembly **D** .

Ribbon Pivot Assembly Replacement

1. Install the Ribbon Pivot Assembly **D** on the top of the carrier.
2. Hold your finger over the Ribbon Pivot Assembly and turn the Carrier over so the underside is facing you.
3. Install the Printhead Pivot Assembly **C** .
4. Install the "c" clip **B** .
5. Install the Printhead Pivot Assembly tension spring **A** .
6. Install the Carrier (See "Carrier Removal" on page 4-6).



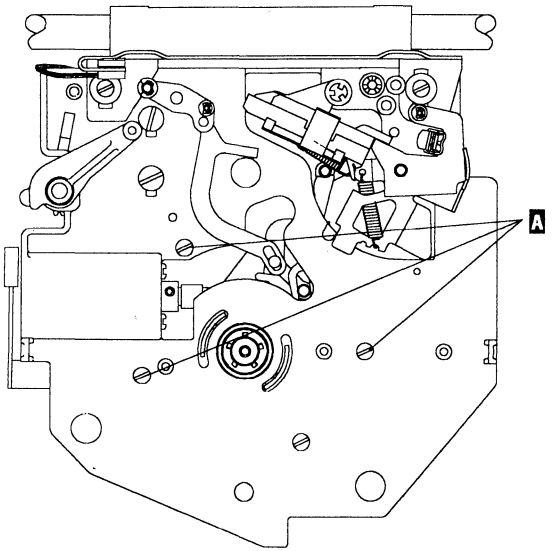
(Bottom View)

Ribbon Take Up Arm Removal

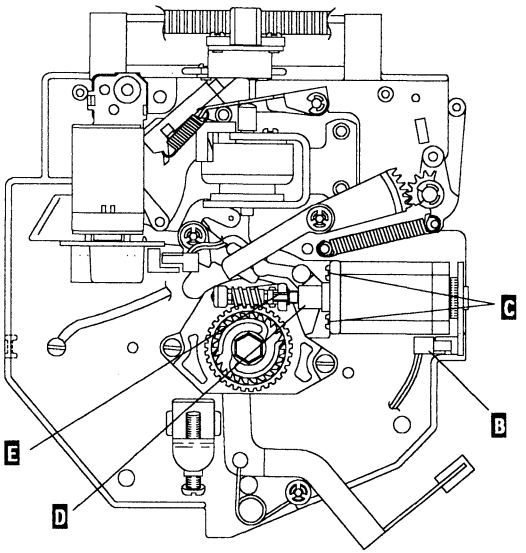
1. Remove the Carrier (See "Carrier Removal" on page 4-6).
2. Remove the Ribbon Take Up Arm Spring **A** .
3. Make note of the timing marks on both gears **B** .
4. Remove the "c" clip **C** from the mounting stud **D** .
5. Remove the Ribbon Take Up Arm from the Carrier.

Ribbon Take Up Arm Replacement

1. Install the Ribbon Take Up Arm on the Carrier being sure the timing marks **B** on the gears line up.
2. Place the mounting stud **D** through the Ribbon Take Up Arm and install the "c" clip **C** on the bottom of the stud.
3. Install the Ribbon Take Up Arm Spring **A** .
4. Install the Carrier (See "Carrier Replacement" on page 4-7).



(Top View)



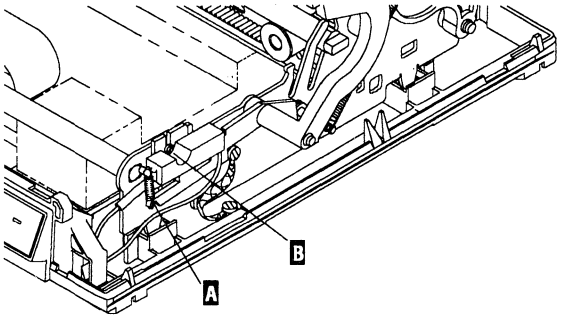
(Bottom View)

Ribbon Take Up Motor Removal

1. Remove the Carrier (See "Carrier Removal" on page 4-6).
2. Remove the 3 Carrier Board Mounting Bracket screws **A** and carefully tilt the Carrier Board out of the way.
3. Disconnect the Ribbon Take-up Motor Connector **B** .
4. Remove the 2 Ribbon Take Up Motor mounting screws **C** being careful not to lose the Take Up Motor Coupler **D** and lift the motor from the Carrier.

Ribbon Take Up Motor Replacement

1. Place the Take Up Motor Coupler **D** between the motor the worm gear shaft **E** and the Take Up Motor.
2. Install the 2 Ribbon Take Up Motor mounting screws **C** .
3. Install Carrier Board Mounting Bracket Screws **A** and tighten the mounting screws.
4. Connect the Ribbon Take-up Motor Connector **B** .
5. Replace the Carrier (See "Carrier Replacement" on page 4-7).

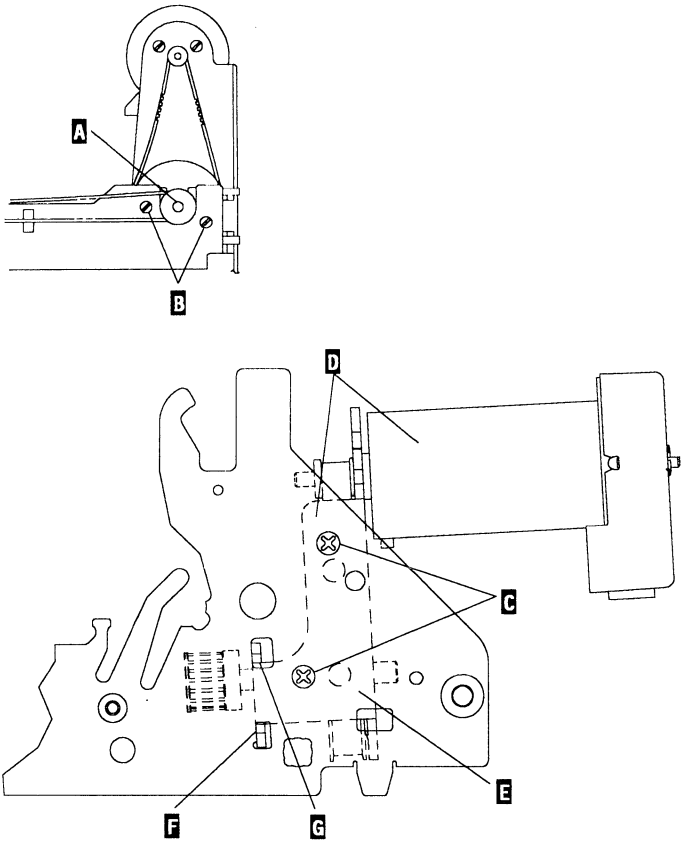

B
A

Semi-Automatic Paper Insertion Switch (SAPI) Removal

1. Remove the Cover (See "Cover Removal" on page 4-12).
2. Remove the spring from the switch **A** .
3. Remove the switch mounting screw **B** .
4. Lift the switch up from the actuator and disconnect the wires.

Semi-Automatic Paper Insertion Switch (SAPI) Replacement

1. Connect the switch wires.
2. Lower the switch onto the switch actuator and position the wires to the left side of the actuator, as you lower the switch onto the switch actuator.
3. Mount the switch to the side frame so it is horizontal and its mounting screw is bottomed in the slot, then tighten the screw **B** .
4. Connect the switch spring **A** .
5. Install the Cover (See "Cover Replacement" on page 4-12).



(Right Side View)

Transport Drive Assembly Removal

1. Remove the Cover (See "Cover Removal" on page 4-12).
2. Remove the Carrier Transport Belt from the right pulley **A** .
3. Remove the mounting screws **B** .
4. Remove the 2 motor bracket mounting screws **C** .
5. Remove the drive assembly **D** from the machine.

Transport Drive Assembly Replacement

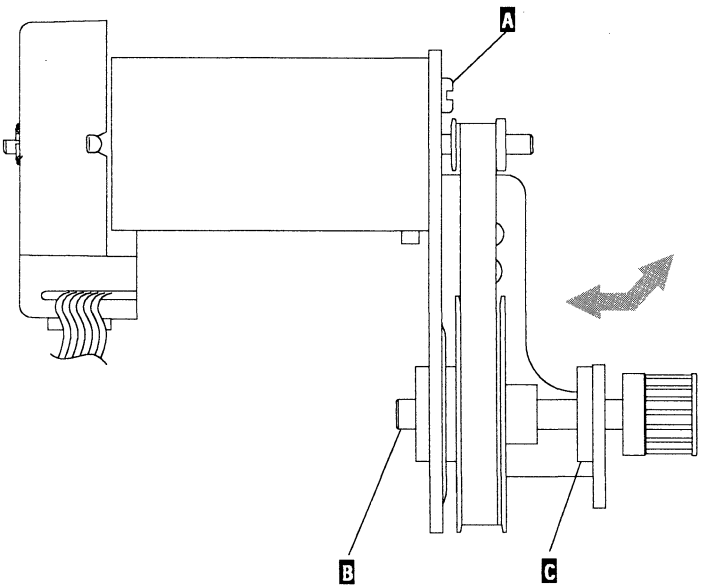
1. Position the right-hand end of the motor bracket **E** in the side frame to meet 2 conditions:
   - Down so the bottom lug **F** touches the bottom of the hole in the side frame.
   - Forward so both lugs **F** and **G** touch the front of the holes in the side frame.
2. Tighten the 2 motor bracket mounting screws **C** .
3. Install the mounting screws **B** .
4. Install the Carrier Transport Belt **A** .

Transport Drive Belt Removal

1. Remove the Cover (See "Cover Removal" on page 4-12).
2. Remove the Transport Drive Assembly (See "Transport Drive Assembly Removal" on page 4-45).
3. Loosen the motor mounting screws **A** .
4. Remove shaft **B** in direction shown.
5. Remove the drive belt.

Transport Drive Belt Replacement

1. Install the drive belt on shaft **B** .
2. Install the shaft **B** so the front bearing **C** is flush as shown.
3. Install the drive belt on both pulleys.
4. Perform the Transport Drive Belt Adjustment (See "Transport Motor Belt Adjustment" on page 5-8).
5. Install the Transport Drive Assembly (See "Transport Drive Assembly Replacement" on page 4-45).

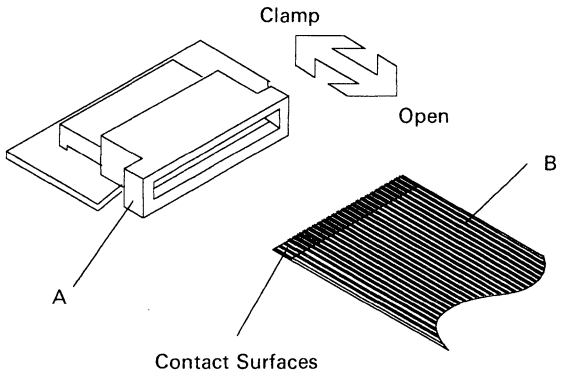


Zero Insertion Force (ZIF) Connector Removal

1. Slide the cable clamp **A** to the open position.
2. Notice how the contact surfaces of the cable are positioned as you pull the cable **B** out of the connector.

Zero Insertion Force (ZIF) Connector Replacement

1. Slide the cable clamp **A** to the open position.
2. Make sure the cable **B** is positioned so the contact surfaces of the cable are positioned as shown, then slide the cable into the ZIF connector.
3. Make sure the cable **B** is seated all the way in the connector and hold it there as you slide the cable clamp **A** to the clamp position.

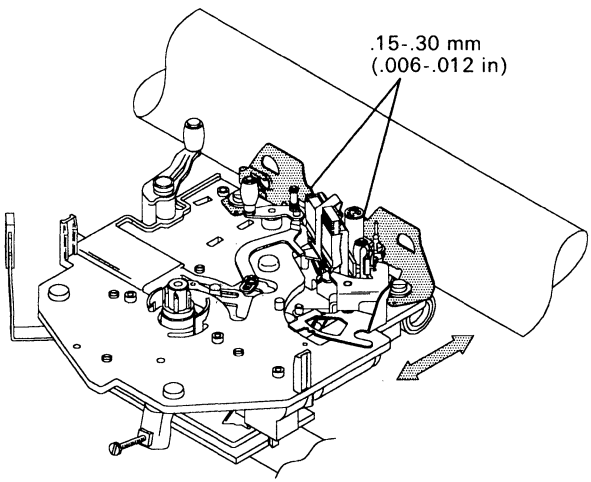


5. ADJUSTMENTS

Cardholder Front-to-Rear Adjustment

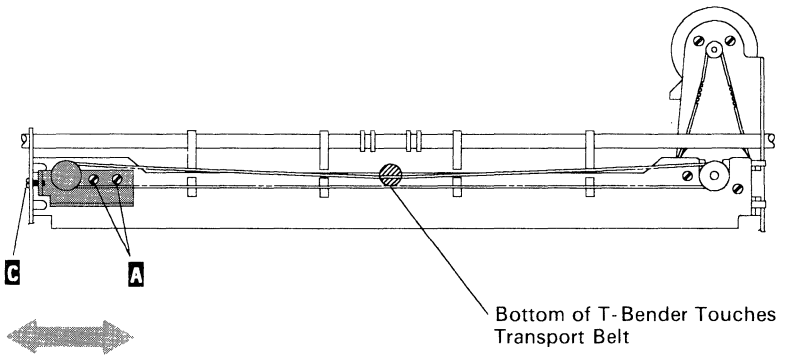
Adjust the Cardholder front or rear for a clearance of 0.15-0.30 mm (.006-.012 in) between the Platen and the Cardholder. Check the adjustment at the writing line on the Cardholder with the carrier centered as shown.

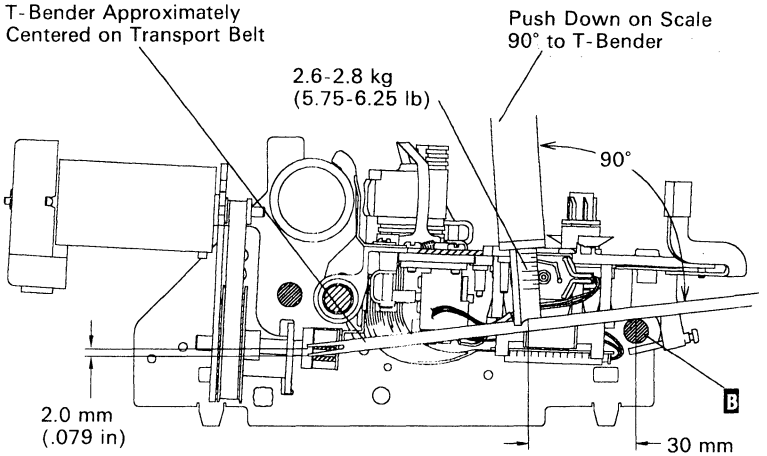
Note: Adjust the Cardholder to the tight end of the specification 0.15 (.006 in) to optimize print quality on envelopes.



Carrier Transport Belt Adjustment

1. Move the Carrier all the way to the right.
2. Loosen the idler pulley mounting screws **A** .
3. Slide the T-Bender on the top of the transport belt at the center of the belt.
4. Rest the T-Bender on the Carrier Shaft **B** .
5. Hold the scale 90 degrees to the T-Bender.
6. Apply 2.6 – 2.8 kg (5.75 – 6.25 lb) pressure on the T-Bender 30 mm (1.18 in) from the center of the Carrier Shaft.
7. Turn the adjusting screw **C** in or out until the bottom of the T-Bender touches the transport belt.

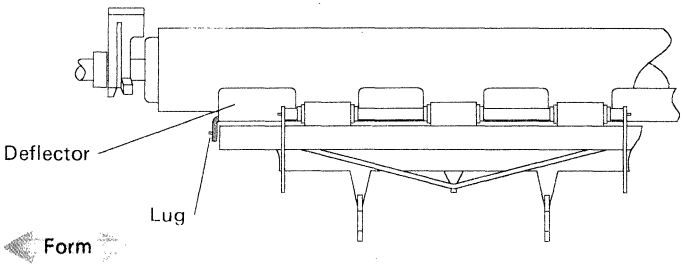




(Left Side View)

Deflector Adjustment

Form the Deflector lugs so they are perpendicular to the bottom of the Deflector.



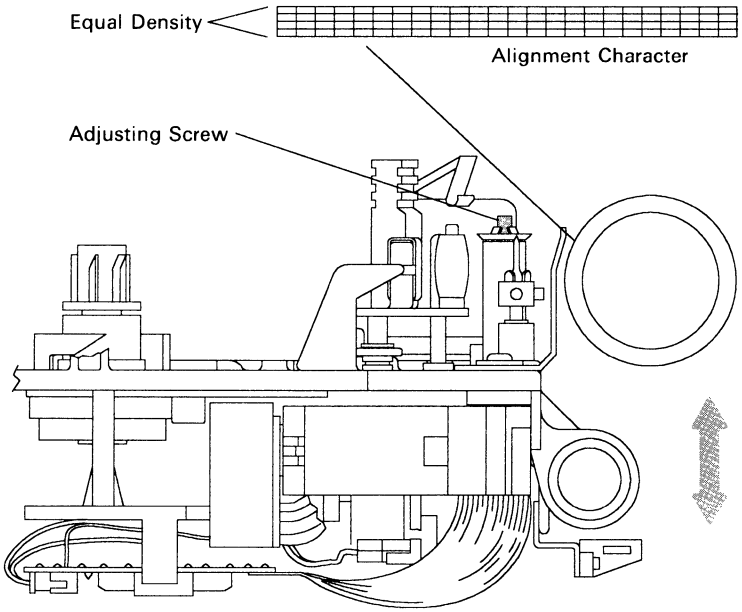
Printhead Height Adjustment

Start the Printer Self Test (See "Printer Self Test" on page 2-6), then press the **Form Feed** button to get the printhead alignment character.

Top light — Turn the adjusting screw clockwise 1/4 turn at a time to eliminate the problem.

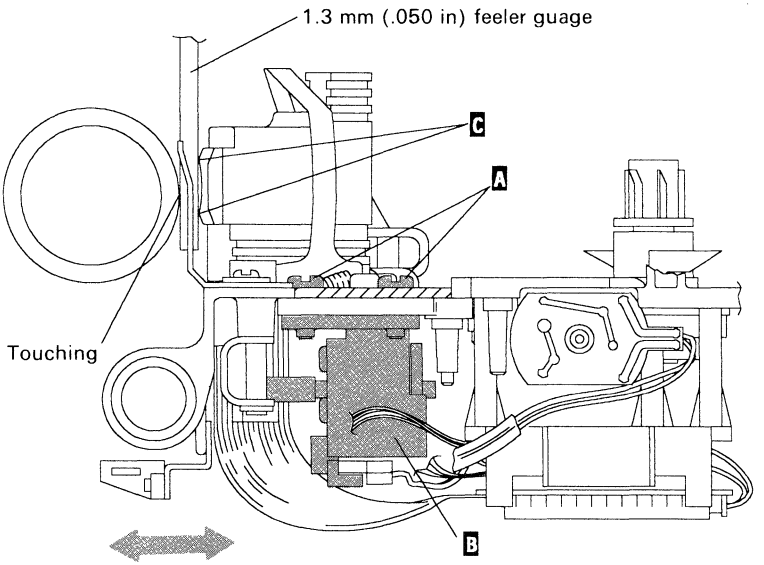
Bottom light — DO NOT exceed 1/2 turn counterclockwise or you may cause another print quality problem. Turn the adjusting screw counterclockwise to eliminate the problem.

Note: If you cannot make this adjustment, replace the Carrier (See "Carrier Removal" on page 4-6.)



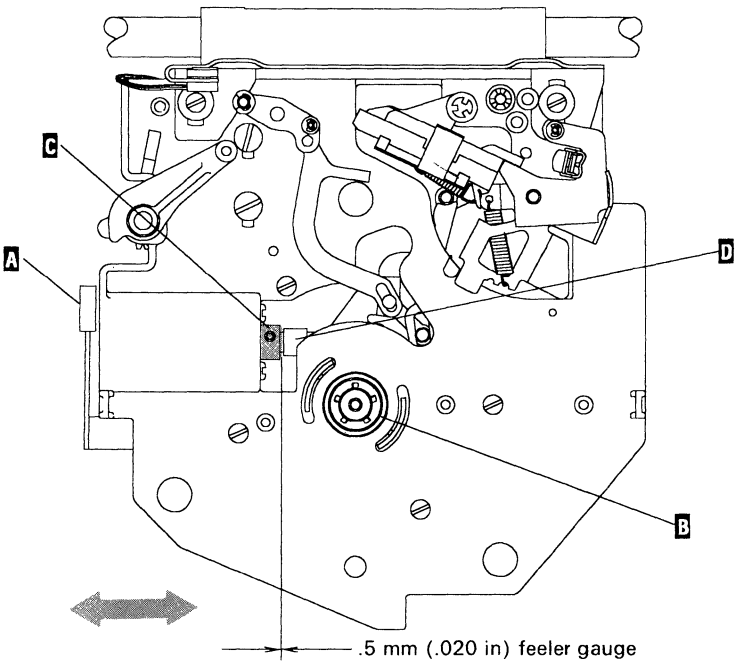
Printhead Solenoid Adjustment

1. Make sure the "Cardholder Front-to-Rear Adjustment" on page 5-1 is correct.
2. Remove the Ribbon Cartridge and move the release lever to the closed position.
3. Loosen the solenoid mounting screws **A** .
4. Hold a 1.3 mm (.050 in) feeler gauge perpendicular to the platen.
5. Slide the Printhead Solenoid **B** front or rear so there is minimum clearance between the top and bottom of the Printhead and the feeler gage at points **C** .
6. Tighten the solenoid mounting screws **A** .
7. Install the Ribbon Cartridge.
8. Use the following procedure and one of the customers envelopes and make sure the envelope does not catch on the ribbon.
   a. Turn off the Printer.
   b. Manually turn the Platen to roll an envelope into the machine.
   c. Watch the envelope as it passes the ribbon. It should not touch the ribbon as it passes it.
   d. Repeat this adjustment if the envelope touches the ribbon.



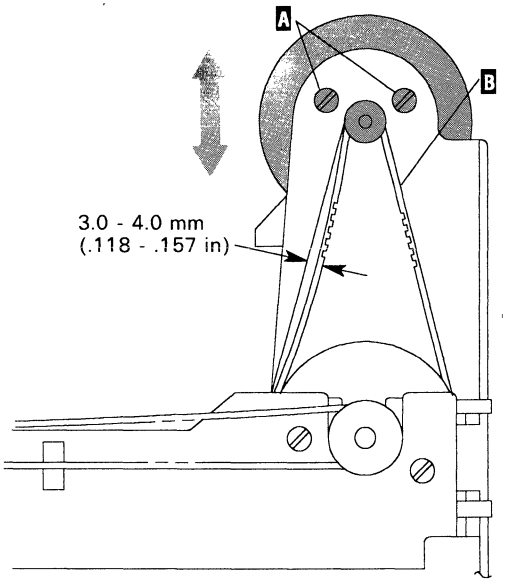
Ribbon Take Up Motor Collar Adjustment

1. Remove the Ribbon Cartridge and move the release lever **A** to the open position.
2. Bias the hub **B** clockwise until it stops.
3. Loosen the collar **C** mounting screw.
4. Place a .5 mm (.020 in) feeler gauge between the collar **C** and the coupler **D** .
5. Slide the collar **C** to the right so it traps the feel gauge, then tighten the collar mounting screw.



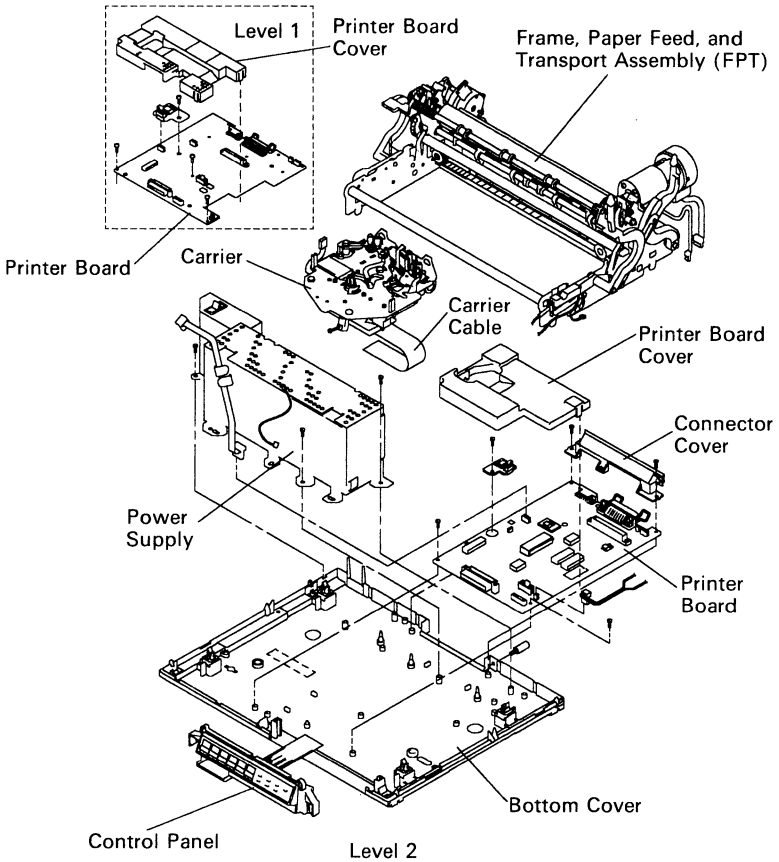
Transport Motor Belt Adjustment

1. Remove the Platen.
2. Loosen the 2 motor mounting screws **A** .
3. Slide the motor up or down so the belt **B** is tight with 3.0-.4.0 mm (.118-.157 in) deflection.
4. Tighten the motor mounting screws **A** .

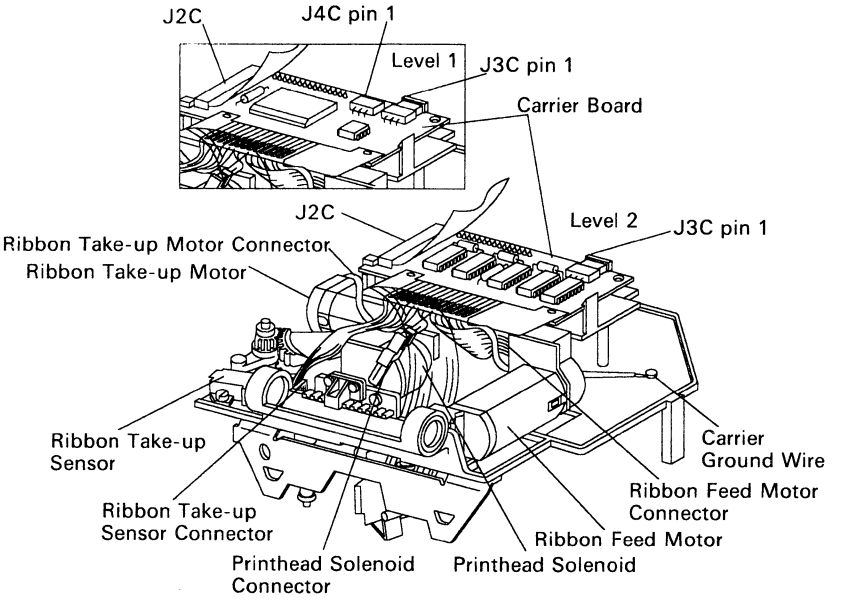


6. LOCATIONS

Printer Assembly Locations

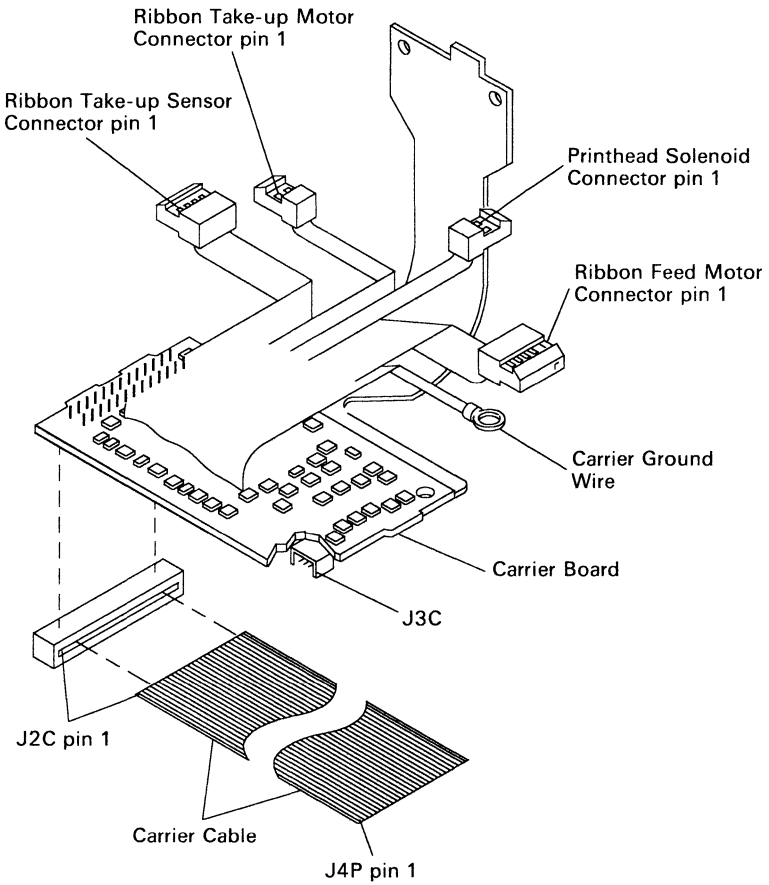


Carrier Board Assembly Connector Locations

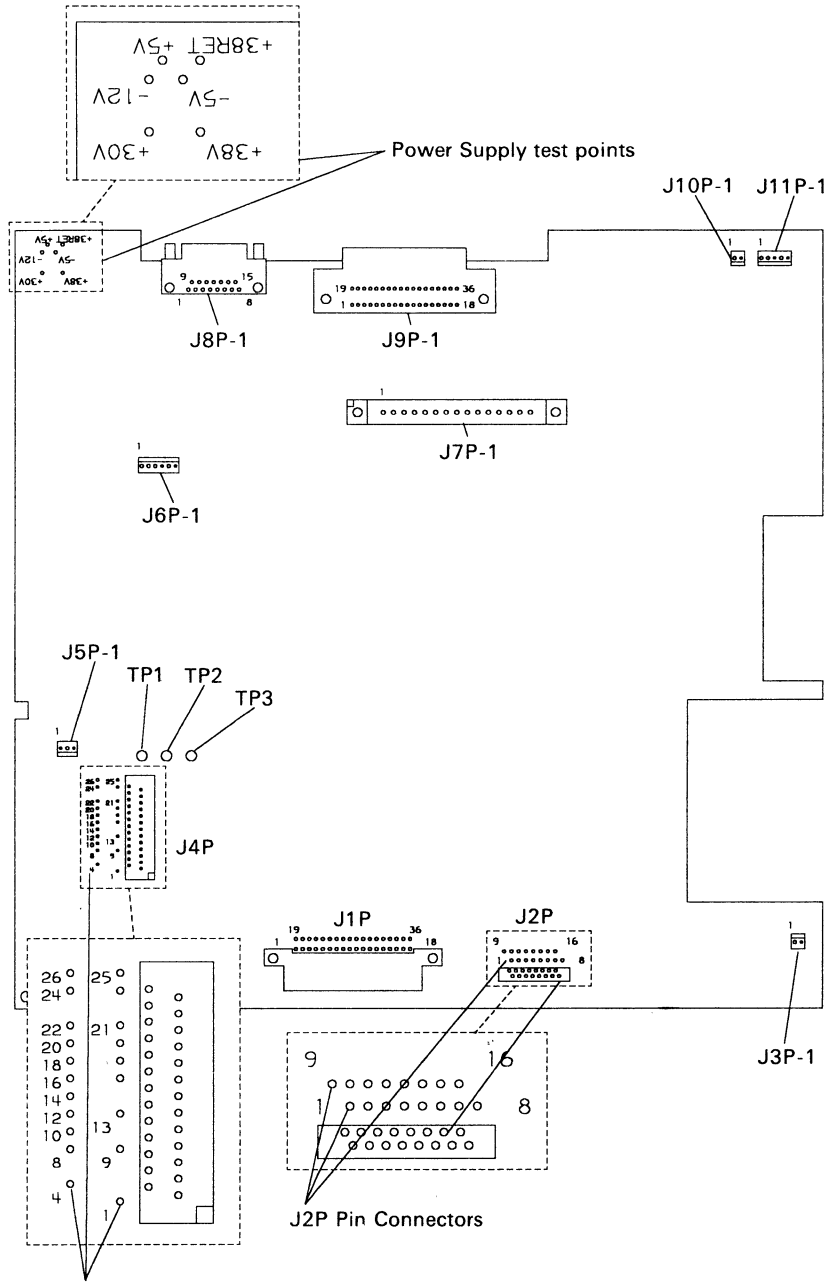


(Bottom View - Carrier Removed)

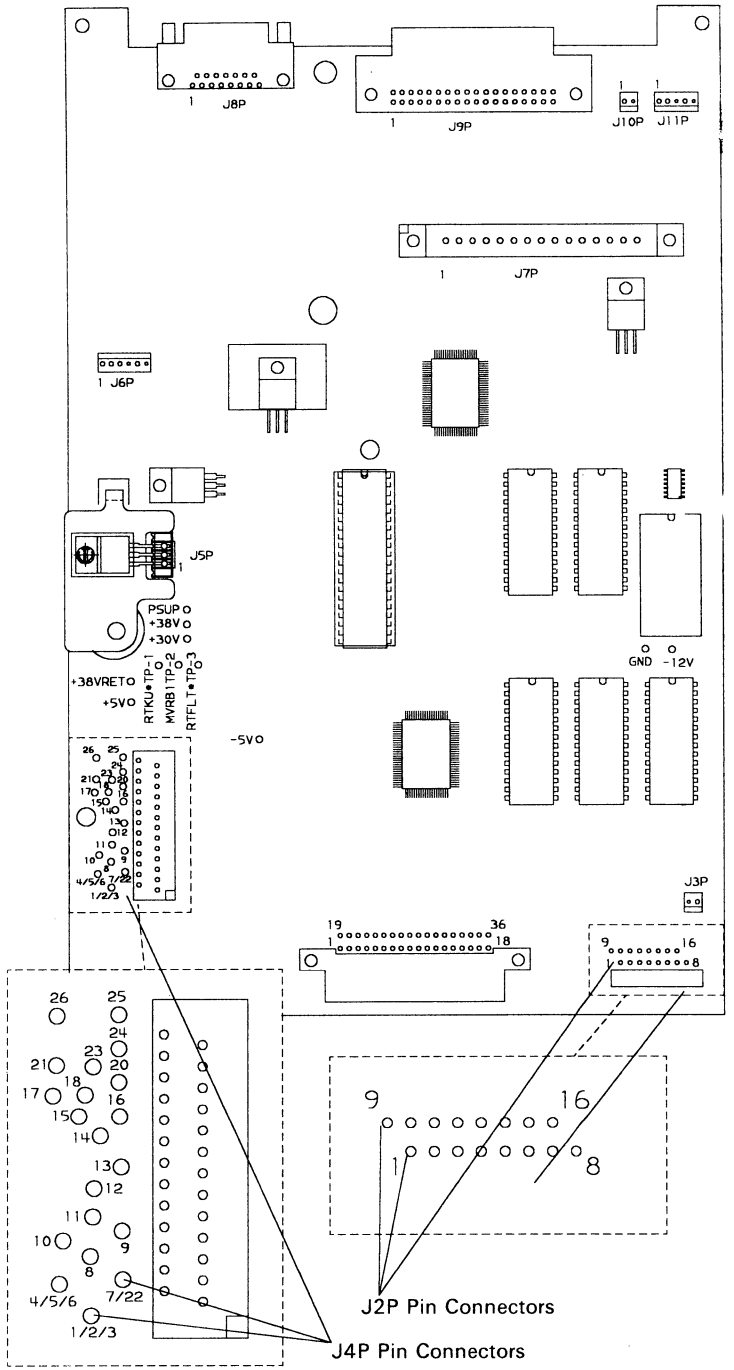
Carrier Board Assembly Connector Locations (cont.)



Printer Board Connector Locations

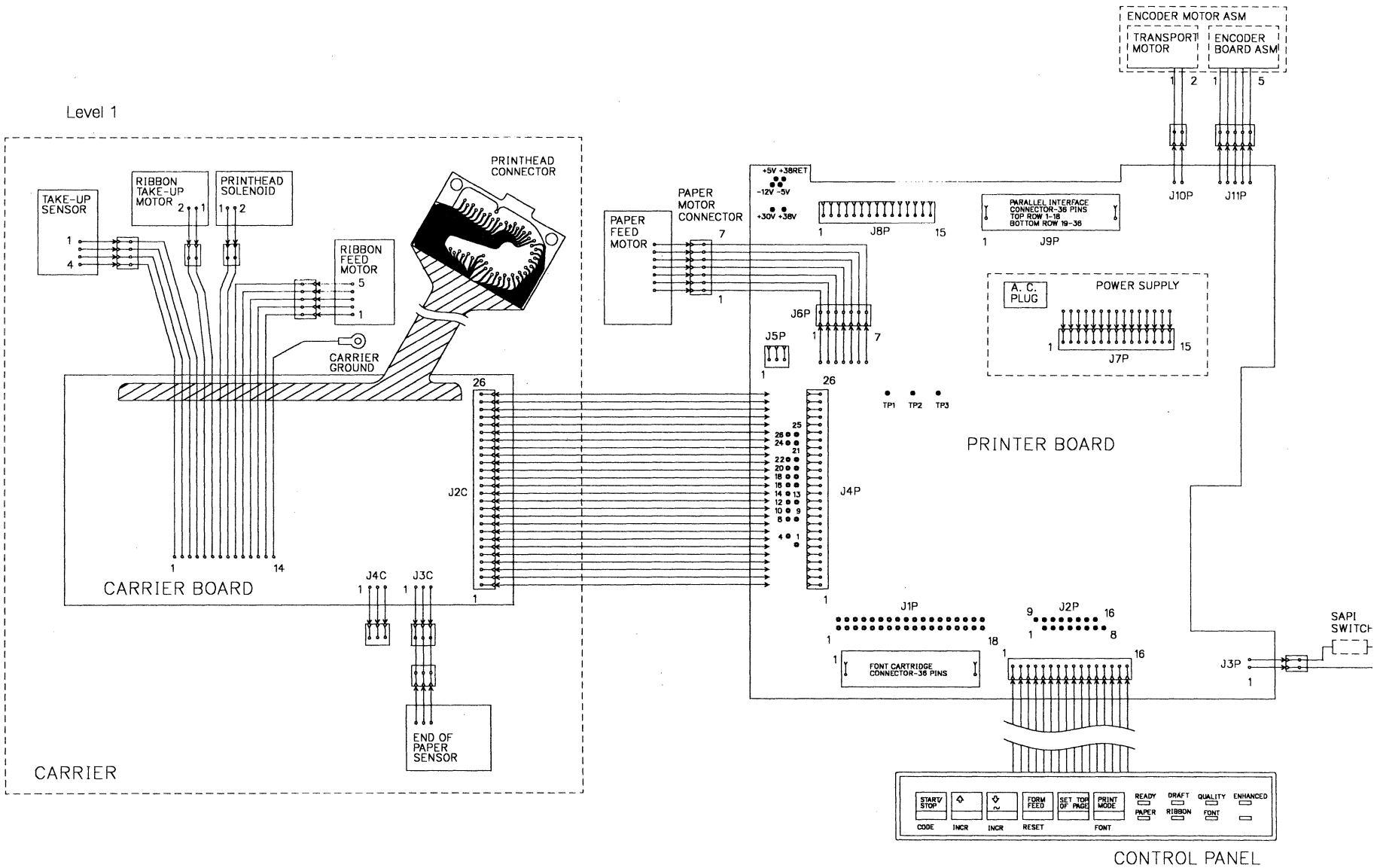


Level 1

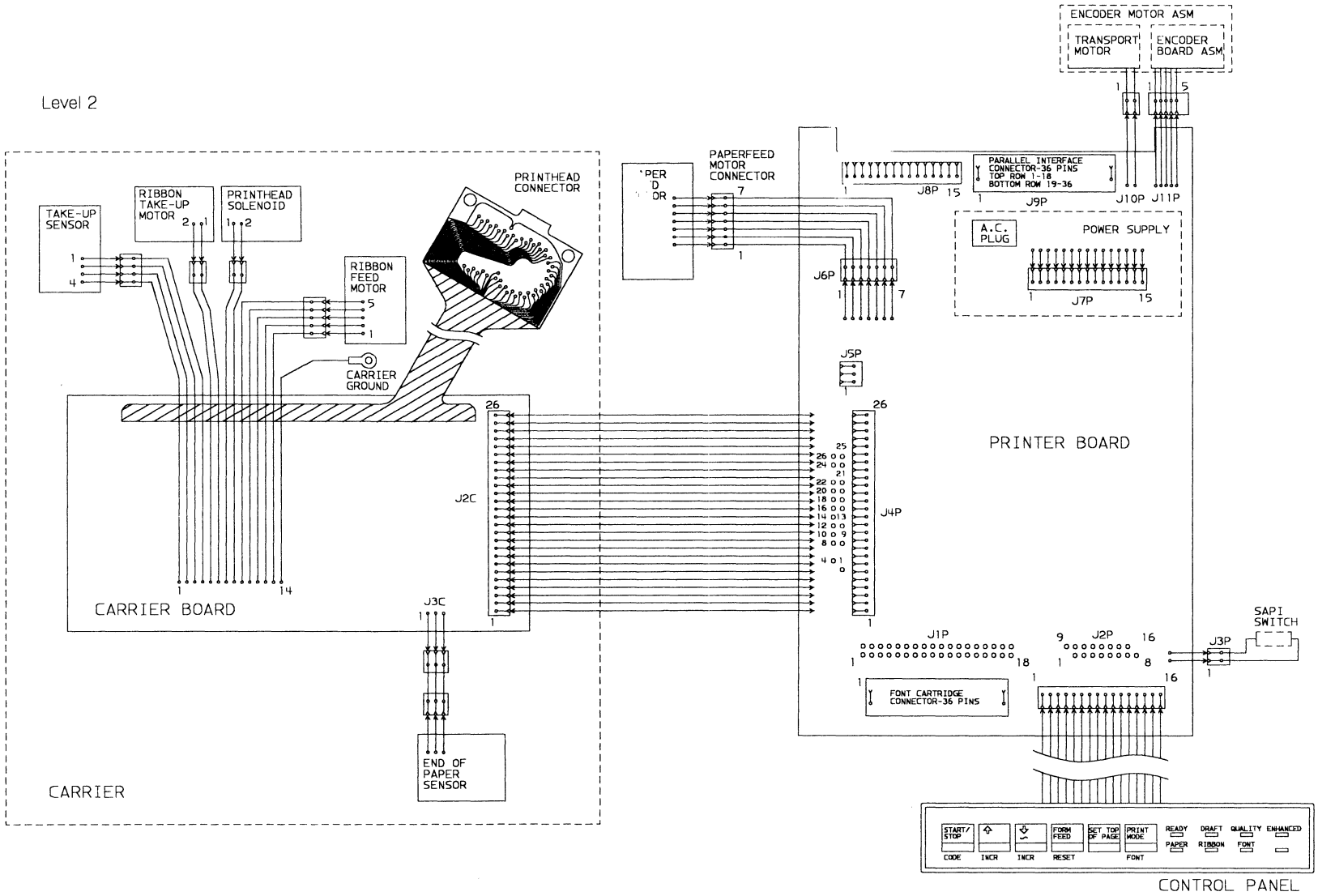


Level 2

Printer Wiring Diagram



Printer Wiring Diagram

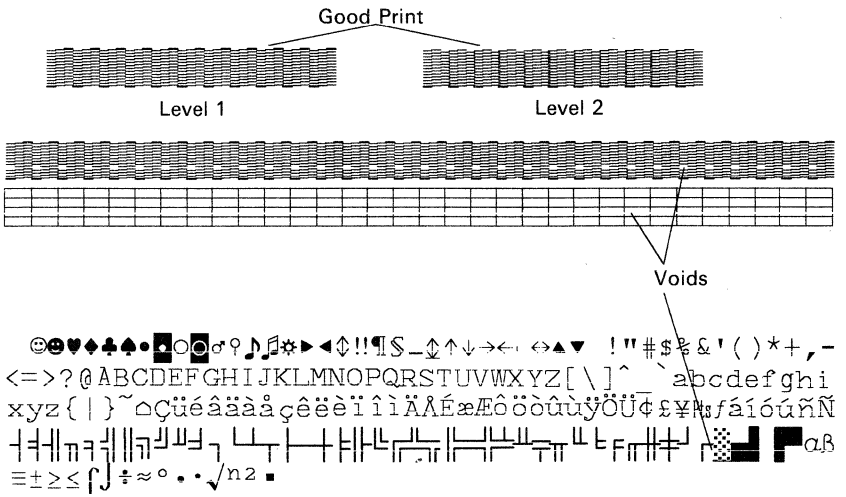


(Fold out)

7. PRINT AND RIBBON SAMPLES

Print Samples

The print samples below show some typical print quality samples and failures. These samples were taken in the **QUALITY MODE**.



Random Voids All Characters

Bottoms of Characters Missing

Overall Poor Print Quality

Characters Do Not Print

Specific Voids All Characters

Vertical Alignment is Poor

Tops of Characters Missing

Slanted Characters

Wavy Characters

Ribbon Samples

The ribbon samples below show some typical good and bad character patterns that appear on the back of a used ribbon. These samples were taken in the **ENHANCED MODE**.

8. PREVENTIVE MAINTENANCE (PM)

Safety Inspection Guide

The purpose of this inspection guide is to aid you in identifying unsafe conditions.

Good judgment should be used to identify possible safety conditions not covered by this inspection guide. Refer to the safety reminders for a general checklist.

If any unsafe conditions are present, you must find out how serious the hazard could be and if you can continue before you correct the hazard.

Check the following items (see the Parts Catalog section):

- Damaged, missing, or altered parts, especially in the area of the Power switch and the Power Supply.
- Damaged, missing, or altered covers, especially in the area of the Top Cover and the Power Supply Cover.
- Possible safety exposure from any non-IBM attachments.

Lubrication Specifications

CAUTION
Because oil and grease affect rubber, special care should be taken to prevent lubricants from contacting the platen, feed rolls, paper bail rolls, rubber mounts and drive belts.

Carrier

Ribbon Brake Pivot	No. 10 Oil
Pinch Roller Shaft within Capstan	No. 10 Oil
Capstan/Clutch Pulley Bearing surface	No. 10 Oil
Head Actuator Arm at its pivot	No. 10 Oil
Shock Arm Pivots	No. 10 Oil
Load Lever Cam surface	No. 23 Grease
Load Lever Link at guide in Ribbon Plate	No. 23 Grease

Carrier Transport

Idler Pulley Bearing surface	No. 10 Oil

Paper Feed

Paper Bail Pivot Studs	No. 23 Grease
Paper Bail Toggle Spring Pivots	No. 23 Grease
Paper Release Lever Camming Slot	No. 23 Grease

Lubrication

IBM #23 Grease, 1/2 oz.	P/N 1280441
IBM #23 Grease, 1 lb.	P/N 1280442
IBM #10 Oil, 4 oz.	P/N 1280443
IBM #10 Oil, 1 pt.	P/N 1280444

PARTS CATALOG

How To Use This Parts Catalog

1. SIMILAR ASSEMBLIES: If two assemblies contain a majority of identical parts, they are broken down on the same list. Common parts are shown by one index number. Parts peculiar to one or the other of the assemblies are listed separately and identified by description.

2. **NO PN**: When this indication appears in the part number column, it denotes a group of parts for which no assembly part number has been assigned and the detailed parts should be ordered separately.

3. **NP**: This entry in the unit column indicates the part is non-procurable and the next higher assembly should be ordered.

4. **NR**: This entry in the unit column denotes the part is procurable but not recommended for field replacement. The next higher assembly should be ordered.

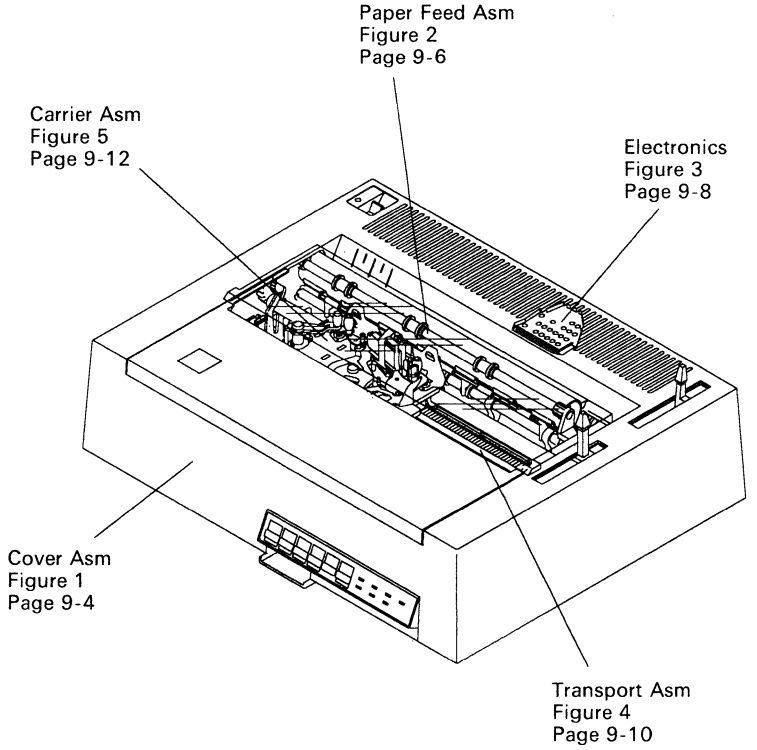
5. **AR**: As Required (AR) in the unit column denotes that the quantity is used as required.

6. A circle around a Figure-Index number indicates a complete assembly. The assembly is broken down within the figure.

7. **INDENTURE**: The indenture is marked by a series of dots located before the part description. The indenture indicates the relationship of a part to next higher assemblies. For example:

Indenture	Relationship of Parts
(No Dot)	MAIN ASSEMBLY
(One Dot)	• Detail parts of a main assembly
(One Dot)	• Sub assembly of the main assembly

CONTENTS



Options
Figure 6
Page 9-18

1384710 COMBINED PARTS PACKET
7343178 DISCONTINUANCE KIT

VISUAL INDEX

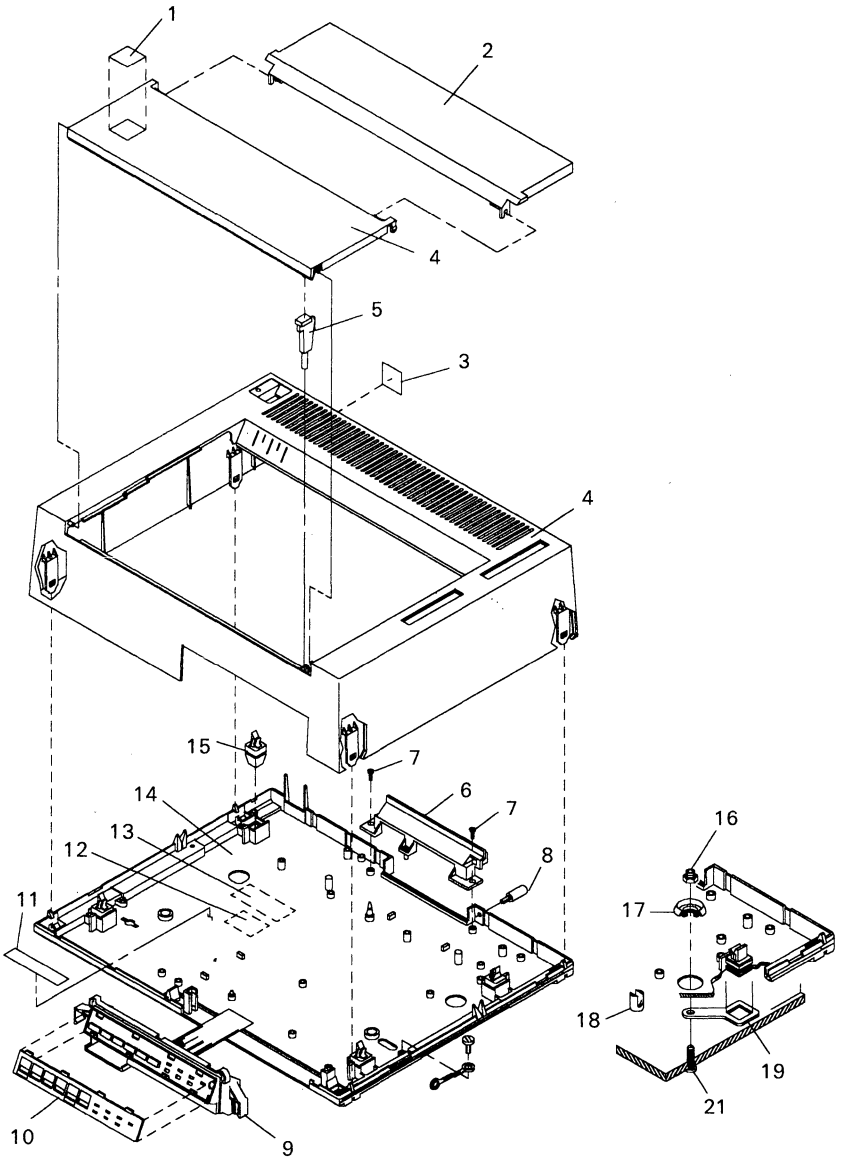


Figure 1. Cover Asm

FIGURE INDEX	PART NUMBER	UNITS	DESCRIPTION
1-1	1318116	1	Logo, Top
-2	1318106	1	Shield, Clear
-3	1318117	1	Logo, Rear
-4	1318204	1	Cover, Top and Center
-5	1318107	1	Plunger, Cover Interlock
-6	1318114	1	Connector Cover
-7	No PN	AR	Screws, Part of Parts Packet 1384710
-8	1341014	1	Thumb Screw, Ground Cable
-9	1318207	1	Panel Asm, Control
-10	1318188	1	• Overlay, Control Panel, English
-10	1318446	1	• Overlay, Control Panel, Danish
-10	1318444	1	• Overlay, Control Panel, Dutch
-10	1318434	1	• Overlay, Control Panel, French
-10	1318440	1	• Overlay, Control Panel, German
-10	1318436	1	• Overlay, Control Panel, Italian
-10	1318442	1	• Overlay, Control Panel, Spanish
-11	1384017	1	Label, Serial Number
-12	1318320	1	Label, FCC
-13	1318316	1	Label, Electrical Requirements
-14	1318209	1	Cover, Bottom
-15	1318112	4	• Latch, Frame (Replace all 4)
-16	0117281	AR	Nut
-17	1342358	AR	Collar
-18	1342428	1	Guide, Hole Aligning
-19	1342359	1	Plate, Right
-19	1342372	1	Plate, Left
-21	1287007	AR	Bolt, 5/8″
-21	1287008	AR	Bolt, 3/4″
-21	1287009	AR	Bolt, 1″
-21	1287010	AR	Bolt, 1 1/4″
-21	1287011	AR	Bolt, 1 1/2″
-21	1287012	AR	Bolt, 1 3/4″
-21	1287013	AR	Bolt, 2″
-21	1287911	AR	Bolt, 2 1/4″
-21	1287912	AR	Bolt, 2 1/2″
-21	1287913	AR	Bolt, 2 3/4″
-21	1287914	AR	Bolt, 3″

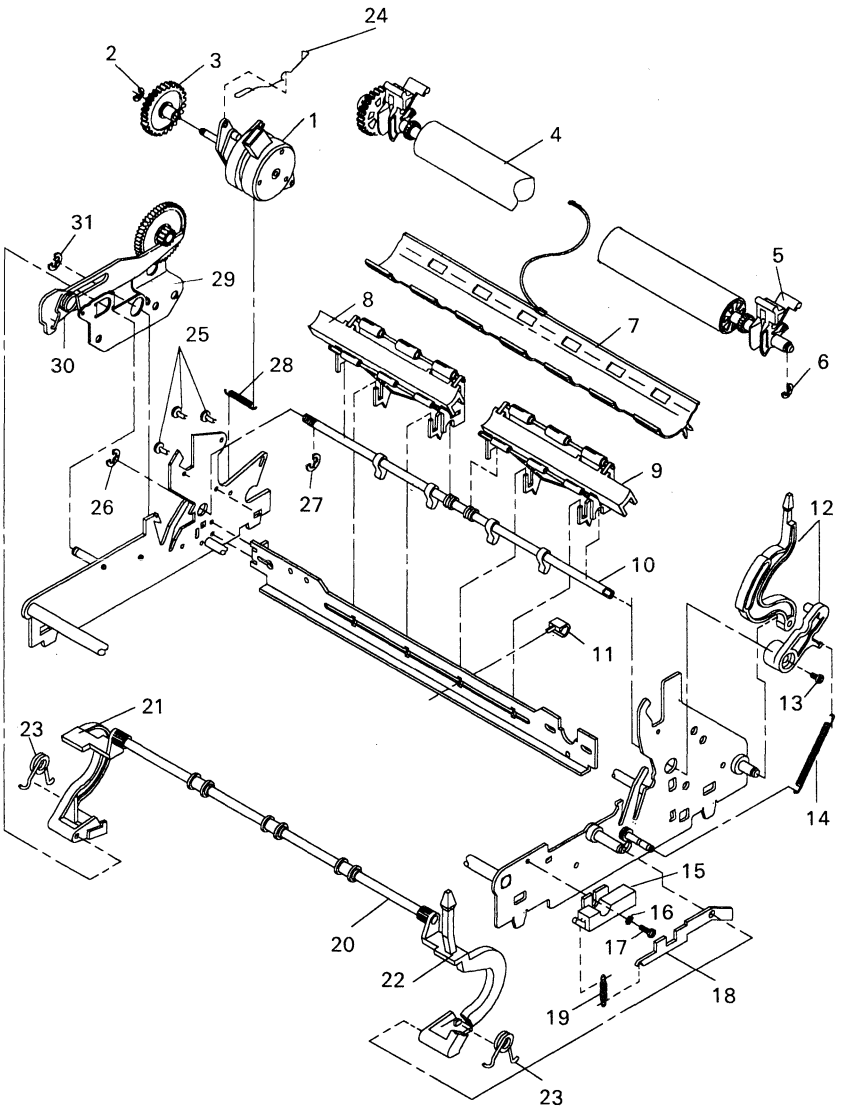


Figure 2. Paper Feed Asm

FIGURE INDEX	PART NUMBER	UNITS	DESCRIPTION
2-1	1384709	1	Motor Asm, Paperfeed – level 1 Includes Index -2 And -3
2-1	1384995	1	Motor Asm, Paperfeed – level 2 Includes Index -2 And -3
-2	No PN	1	Retainer, part of Parts Packet 1384710
-3	6486501	1	Gear, Intermediate Also Order Index -4
-4	1384705	1	Platen, Also Order index -3
-5	No PN	2	● Latch, Platen
-6	No PN	1	● Retainer, part of Parts Packet 1384710
-7	1339237	1	Deflector (Gnd wire shown for ref. only)
-8	1384145	1	Roller Asm, Paperfeed LH Also Order Index -9
-9	1384146	1	Roller Asm, Paperfeed RH Also Order Index -8
-10	1337884	1	Shaft, Paperfeed Cam Also Order Index -11
-11	1317976	2	Clip, Paperfeed Roller Asm Retainer
-12	1384047	1	Lever, Paper Release Asm Includes Index -10, and -13
-13	No PN	1	● Screw, part of Parts Packet 1384710
-14	No PN	1	● Spring, part of Parts Packet 1384710
-15	1317502	1	Switch, SAPI
-16	No PN	AR	Retainer, part of Parts Packet 1384710
-17	No PN	AR	Screw, part of Parts Packet 1384710
-18	1337061	1	Lever, SAPI
-19	No PN	AR	Spring, part of Parts Packet 1384710
-20	1384044	1	Paper Bail Asm
-21	1362388	1	Bail Arm, Left
-22	1317769	1	Bail Arm, Right
-23	No PN	AR	● Spring, part of Parts Packet 1384710
-24	1318473	1	Clip, Platen Ground
-25	No PN	AR	Screw, part of Parts Packet 1384710
-26	No PN	AR	Retainer, part of Parts Packet 1384710
-27	No PN	1	Retainer, part of Parts Packet 1384710
-28	No PN	AR	Spring, part of Parts Packet 1384710
-29	1384704	1	Knockoff Asm
-30	No PN	1	● Spring, part of Parts Packet 1384710
-31	No PN	AR	Retainer, part of Parts Packet 1384710

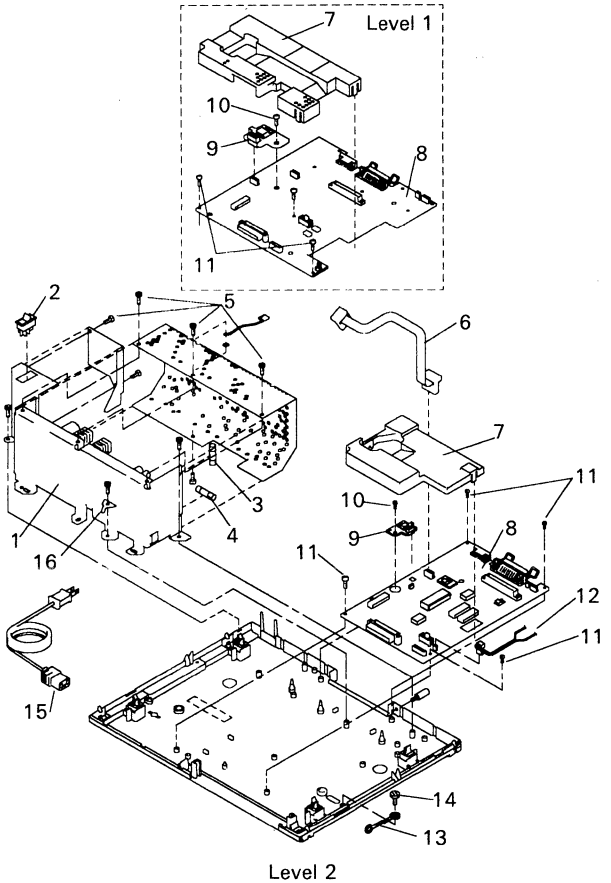


Figure 3. Electronics

FIGURE INDEX	PART NUMBER	UNITS	DESCRIPTION
3-1	1384700	1	Power Supply Asm 100 to 127 VAC
-1	1384711	1	Power Supply Asm 200 to 240 VAC
-2	1035036	1	● ON/OFF Switch
-3	855253	1	● Fuse, 1A
-3	1035059	1	● Fuse, 1A W.T.
-4	1035073	1	● Fuse, 5A
-4	1035058	1	● Fuse, 5A W.T.
-5	No PN	AR	Screw, part of Parts Packet 1384710
-6	1318175	1	Cable, Index
-7	1318115	1	Cover, Printer Board – level 1
-7	1319560	1	Cover, Printer Board – level 2
-8	1384701	1	Board, Printer – level 1
-8	1384781	1	Board, Printer – level 2
-9	1384713	1	Regulator Asm – level 1
-9	1384782	1	Regulator Asm – level 2
-10	No PN	AR	Screw, part of Parts Packet 1384710
-11	No PN	AR	Screw, part of Parts Packet 1384710
-12	1318354	1	SAPI cable – level 1
-12	1319520	1	SAPI cable – level 2
-13	1246807	1	Cable, Ground
-14	No PN	AR	Screw, part of Parts Packet 1384710
-15	6952301	1	Line Cord
-16	No PN	1	Ground Clip, part of Parts Packet 1384710

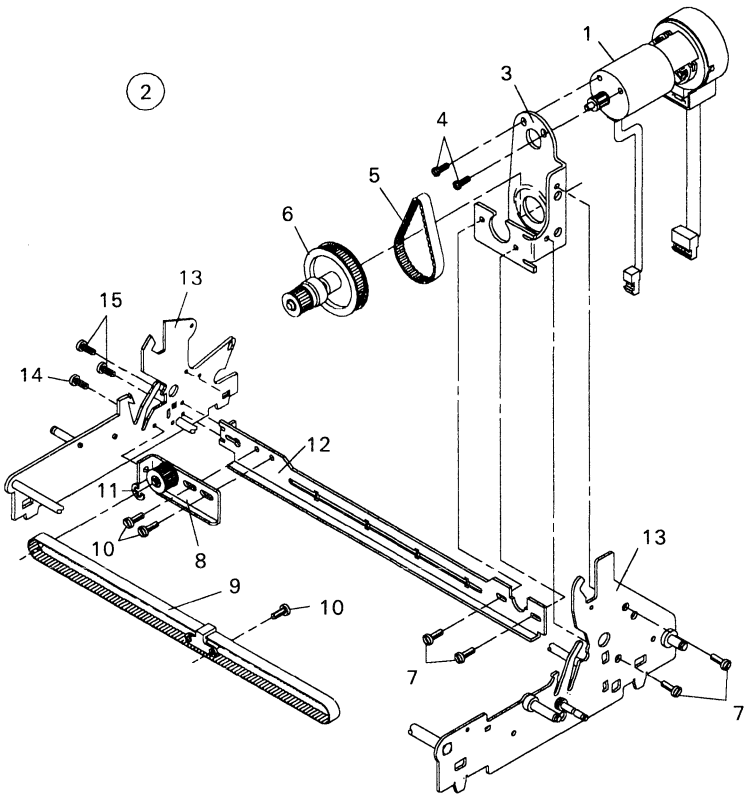


Figure 4. Transport Asm

FIGURE INDEX	PART NUMBER	UNITS	DESCRIPTION
4-1	1384706	1	Motor, Transport – level 1
4-1	1384999	1	Motor, Transport – level 2
-2	1384707	1	Transport Drive Asm
-3	No PN	1	• Bracket
-4	1621197	AR	• Screw, also part of Parts Packet 1384710
-5	1318295	1	• Belt, Transport Motor
-6	No PN	1	• Gear Asm
-7	1623642	AR	• Screw, also part of Parts Packet 1384710
-8	No PN	1	• Pulley Asm
-9	1337651	1	• Belt, Transport
-10	No PN	2	• Screw, part of Parts Packet 1384710
-11	No PN	1	• Retainer, part of Parts Packet 1384710
-12	1339140	1	Bracket, Transport Mtg
-13	1384712	1	Frame Asm, Also order PN 1384044
-14	No PN	1	Screw, part of Parts Packet 1384710
-15	No PN	AR	Screw, part of Parts Packet 1384710

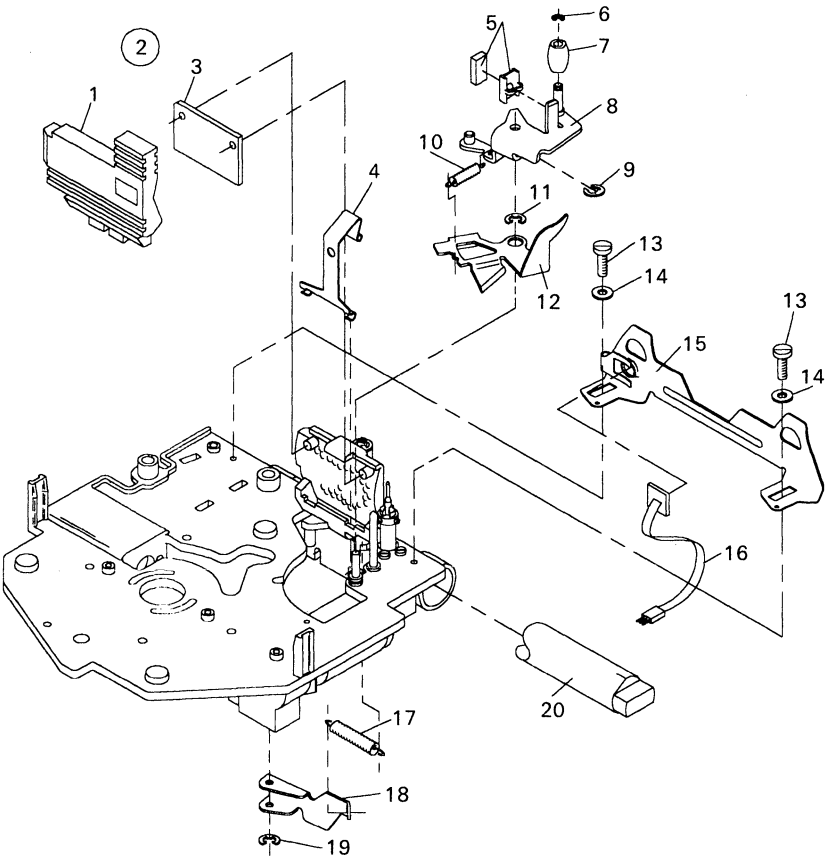


Figure 5. Carrier Asm (1 of 3)

FIGURE INDEX	PART NUMBER	UNITS	DESCRIPTION
5-1	1318154	1	Printhead
-2	1384702	1	Carrier Asm – level 1
-2	1384997	1	Carrier Asm – level 2
-3	1317862	1	• Pad, Printhead
-4	1342202	1	• Clip, Cover
-5	1318288	1	• Pad, Gimbal
-5	1318287	1	• Bracket, Pad
-6	No PN	1	• Retainer, part of Parts Packet 1384710
-7	1318449	1	• Roller
-8	1318230	1	• Bracket, Brake
-9	No PN	1	• Retainer, part of Parts Packet 1384710
-10	No PN	1	• Spring, part of Parts Packet 1384710
-11	No PN	1	• Retainer, part of Parts Packet 1384710
-12	1318286	1	• Latch, Cartridge
-13	No PN	2	• Screw, part of Parts Packet 1384710
-14	No PN	2	• Washer, part of Parts Packet 1384710
-15	1318199	1	• Cardholder
-16	1318217	1	• Sensor, Paper
-17	No PN	1	• Spring, part of Parts Packet 1384710
-18	1318219	1	• Bracket, Head Actuator
-19	No PN	1	• Retainer, part of Parts Packet 1384710
-20	1337071	1	Shaft, Carrier

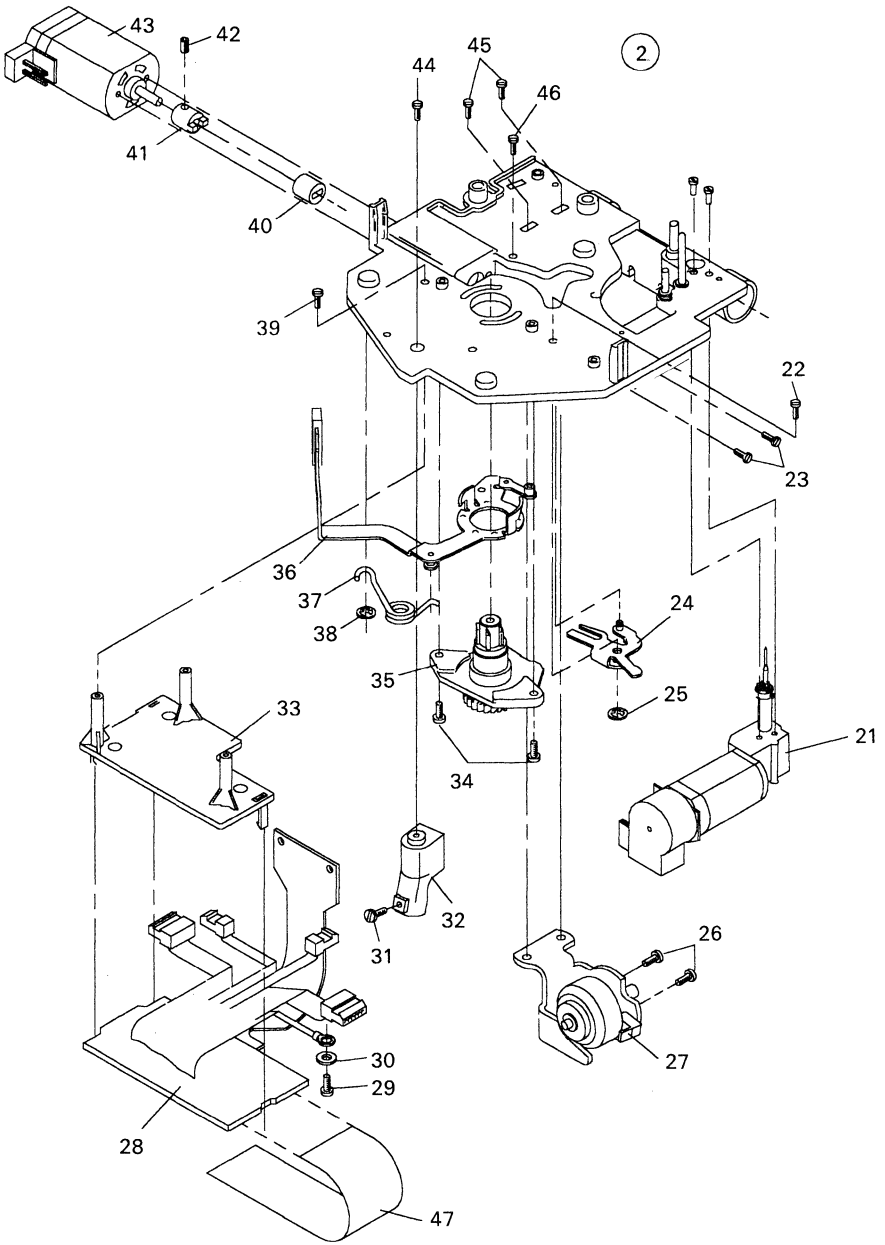


Figure 5. Carrier Asm (2 of 3)

FIGURE INDEX	PART NUMBER	UNITS	DESCRIPTION
5-2	1384702	1	Carrier Asm – level 1
5-2	1384997	1	Carrier Asm – level 2
-21	1384796	1	• Motor, Feed
-22	No PN	AR	• Screw, part of Parts Packet 1384710
-23	No PN	AR	• Screw, part of Parts Packet 1384710
-24	1318233	1	• Load Lever Rel Arm
-25	No PN	1	• Retainer, part of Parts Packet 1384710
-26	No PN	AR	• Screw, part of Parts Packet 1384710
-27	1318249	1	• Solenoid, Printhead
-28	1384708	1	• Board Asm, Carrier – level 1
-28	1384996	1	• Board Asm, Carrier – level 2
-29	No PN	1	• Screw, part of Parts Packet 1384710
-30	No PN	1	• Washer, part of Parts Packet 1384710
-31	No PN	1	• Screw, part of Parts Packet 1384710
-32	1318194	1	• Front Carrier Shoe
-33	1318276	1	• Mount, Board
-34	No PN	AR	• Screw, part of Parts Packet 1384710
-35	1318193	1	• Hub Asm
-36	1318229	1	• Load Lever Asm
-37	No PN	1	• Spring, part of Parts Packet 1384710
-38	No PN	1	• Retainer, part of Parts Packet 1384710
-39	No PN	1	• Screw, part of Parts Packet 1384710
-40	No PN	1	• Coupler, part of Parts Packet 1384710
-41	1317894	1	• Collar, Takeup
-42	No PN	1	• Screw, part of Parts Packet 1384710
-43	1318284	1	• Motor, Takeup
-44	No PN	AR	• Screw, part of Parts Packet 1384710
-45	No PN	AR	• Screw, part of Parts Packet 1384710
-46	No PN	1	• Screw, part of Parts Packet 1384710
-47	1318277	1	Cable, Carrier

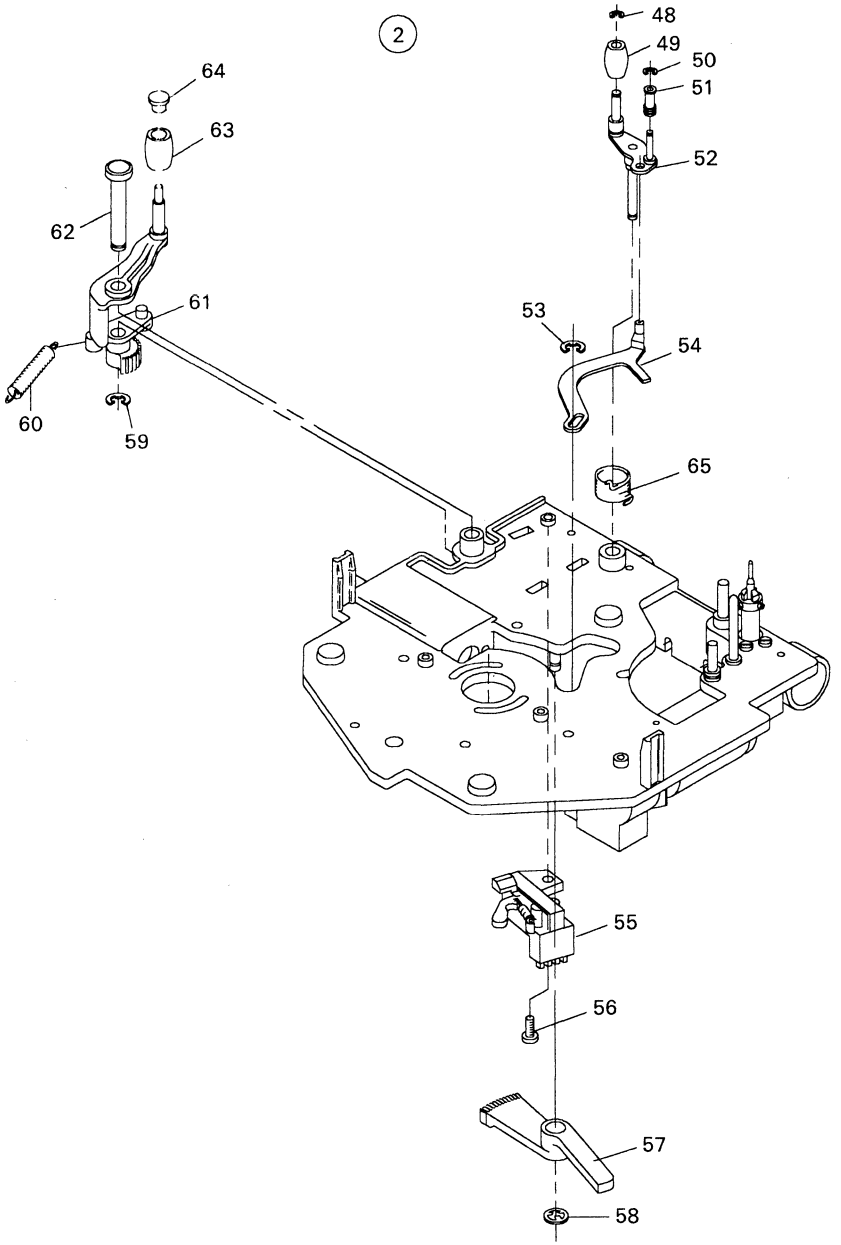


Figure 5. Carrier Asm (3 of 3)

FIGURE INDEX	PART NUMBER	UNITS	DESCRIPTION
5-2	1384702	1	Carrier Asm – level 1
5-2	1384997	1	Carrier Asm – level 2
-48	No PN	1	• Retainer, part of Parts Packet 1384710
-49	1318449	1	• Roller
-50	No PN	1	• Retainer, part of Parts Packet 1384710
-51	1318349	1	• Roller, Ground
-52	1318236	1	• Pivot Plate, Ground
-53	No PN	1	• Retainer, part of Parts Packet 1384710
-54	1318285	1	• Link, Ground
-55	1318347	1	• Sensor Asm
-56	No PN	1	• Screw, part of Parts Packet 1384710
-57	1318198	1	• Arm, Sector
-58	No PN	1	• Retainer, part of Parts Packet 1384710
-59	No PN	1	• Retainer, part of Parts Packet 1384710
-60	No PN	1	• Spring, part of Parts Packet 1384710
-61	1342278	1	• Takeup Arm Asm
-62	1342298	1	• Stud, Takeup Arm Asm
-63	1337116	1	• Roller
-64	No PN	1	• Retainer, part of Parts Packet 1384710
-65	No PN	1	• Spring, part of Parts Packet 1384710

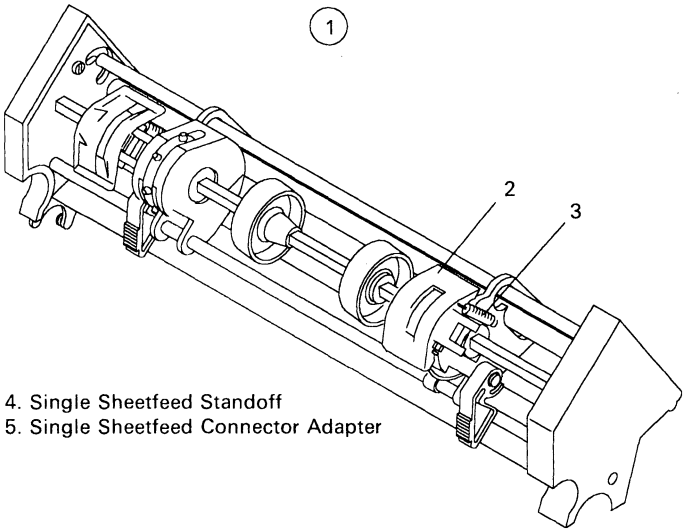


Figure 6. Options

FIGURE INDEX	PART NUMBER	UNITS	DESCRIPTION
6-1	1318214	1	Pinfeed Asm
-2	1341174	2	• Cover, Pinwheel Asm
-3	No PN	AR	• Spring, part of Parts Packet 1384710
-4	1318361	1	Standoff, Single Sheetfeed
-5	1318401	1	Adapter, Single Sheetfeed Connector

NUMERICAL INDEX

PART NUMBER	FIG-INDEX	PART NUMBER	FIG- PART FIG-INDEX
0117281	1-16	1318288	5-5
0855253	3-3	1318295	4-5
1035036	2-2	1318316	1-13
1035058	3-4	1318320	1-12
1035059	3-3	1318347	5-55
1035073	3-4	1318349	5-51
1246807	3-13	1318354	3-12
1287007	1-21	1318434	1-10
1287008	1-21	1318440	1-10
1287009	1-21	1318436	1-10
1287010	1-21	1318442	1-10
1287011	1-21	1318444	1-10
1287012	1-21	1318449	5-7
1287013	1-21		4-49
1287911	1-21	1318446	1-10
1287912	1-21	1318473	2-24
1287913	1-21	1319520	3-12
1287914	1-21	1319560	3-7
1317862	5-3	1337061	2-18
1317869	2-22	1337071	5-20
1317894	5-41	1337116	5-63
1317502	2-15	1337651	4-9
1317976	2-11	1337884	2-10
1318106	1-2	1339140	4-12
1318107	1-5	1339237	2-7
1318112	1-15	1341014	1-8
1318114	1-6	1341174	6-2
1318115	3-7	1342278	5-6
1318116	1-1	1342298	5-6
1318117	1-3	1342358	1-17
1318154	5-1	1342359	1-19
1318175	3-6	1342372	1-19
1318188	1-10	1342428	1-18
1318193	5-35	1342514	3-12
1318194	5-32	1362388	2-21
1318198	5-57	1384017	1-11
1318199	5-15	1384044	2-20
1318204	1-4	1384047	2-12
1318207	1-9	1384145	2-8
1318209	1-14	1384146	2-9
1318214	6-1	1384700	3-1
1318217	5-16	1384701	3-8
1318219	5-18	1384702	5-2
1318229	5-36	1384704	2-29
1318230	5-8	1384705	2-4
1318233	5-24	1384706	4-1
1318236	5-52	1384707	4-2
1318249	5-27	1384708	5-28
1318276	5-33	1384709	2-1
1318277	5-47	1384711	3-1
1318284	5-43	1384712	4-13
1318285	5-54	1384713	3-9
1318286	5-12	1384781	3-8
1318287	5-5	1384782	3-9

1384796	5-21	1621197	4-4
1384995	2-1	1623642	4-7
1384996	5-28	6486501	2-3
1384997	5-2	6952301	3-15
1384999	4-1		

INDEX

O

P

R

S

T

IBM Quietwriter® III Printer 5202
Hardware Maintenance and Service Library
Order Number Z544-4113-2

Reader's Comment Form

You may use this form to communicate your comments about this publication, with the understanding that IBM may use or distribute whatever information you supply in any way it believes appropriate without incurring any obligation to you.

1. Did you find the book well organized?
   Yes ☐ No ☐

2. Was the content of the book accurate and complete?
   Yes ☐ No ☐

3. Was the book easy to use?
   Yes ☐ No ☐

4. What can we do to improve the book?

   _____

   _____

   _____

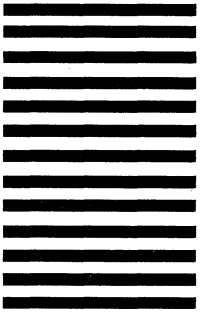
5. What is your job title?

   _____

Questions or comments about supplies, service, applications, and so on will slow response time considerably. Please refer those questions or comments to your point of purchase, IBM Authorized Dealer, or IBM Direct.

Note: Please direct all requests for copies of IBM publications to your point of purchase. Publications are not stocked at the location to which this form is addressed.

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 123 LEXINGTON, KY 40511

POSTAGE WILL BE PAID BY ADDRESSEE

International Business Machines Corporation
Department F98, Building 962-3
740 New Circle Road, N.W.
Lexington, Kentucky 40511

Fold Here

Please Do Not Staple

Tape

International Business Machines Corporation
Information Products Division
Document No. Z544-4113-2
Printed in USA
11/87