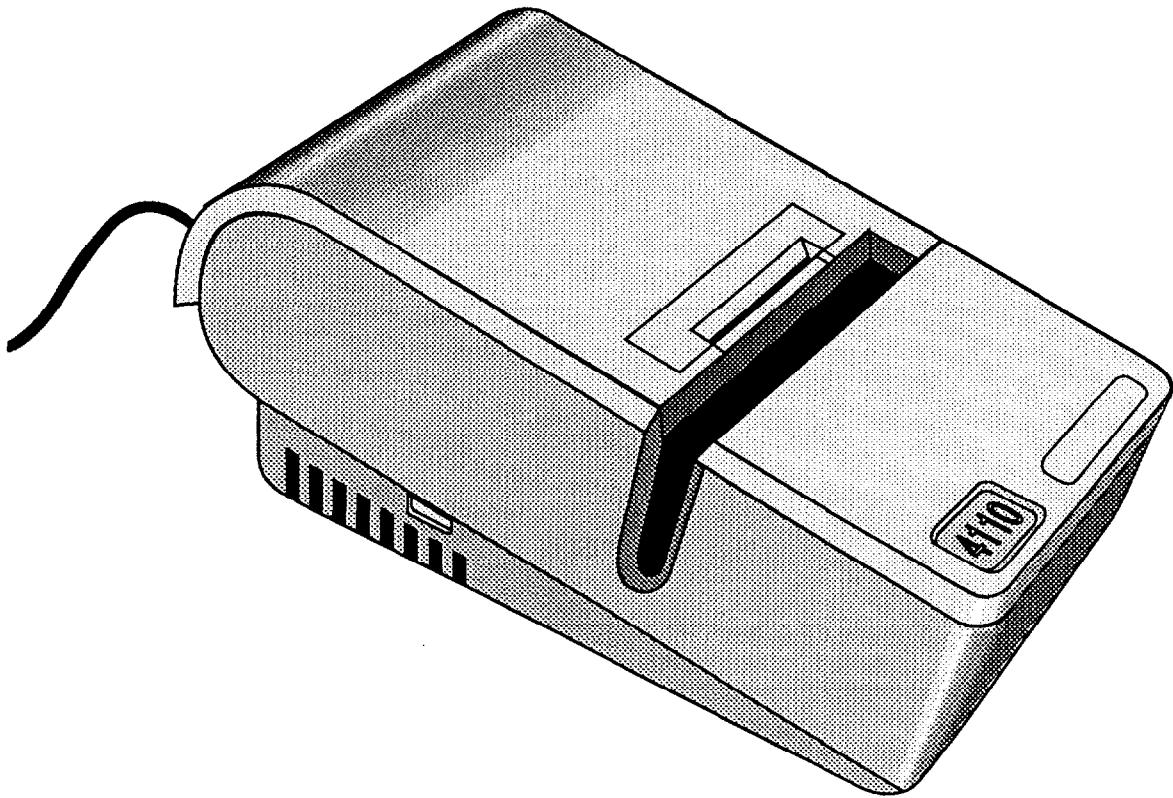




MDE-2360

**INSTALLATION  
AND SERVICE  
INSTRUCTIONS**

**G-SITE™ Form/Slip Printer**



## FCC WARNING

This equipment generates, uses, and can radiate radio frequency energy. Equipment not installed according to manufacturer's instructions may interfere with radio communications. This equipment has been tested and complies with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules. These rules provide reasonable protection against such interference in a commercial environment. However, the operation of this equipment in a residential area is likely to cause radio interference. The user is required to correct this interference at his/her own expense.

## COMPUTER PROGRAMS

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**Signal Words and Safety Symbols**

This is a standard alert symbol. When you see this symbol, along with the following signal words in Gilbarco manuals, be alert to the potential for personal injury.



**DANGER**

The hazard or unsafe practice **will** result in severe injury or death.



**WARNING**

The hazard or unsafe practice **could** result in severe injury or death.



**CAUTION**

The hazard or unsafe practice could result in **minor injury**.



**DANGER**

You are working in a dangerous environment. Fuels are highly flammable and explosive. Observe all safety precautions. Failure to do so will result in injury or DEATH.



Wear eye protection.



Use emergency power cutoff.



No people in area.



Clean up spills.



No smoking.



No open flames.



Collect fuel in approved containers.



No power tools.



No vehicles in area.



Use safety barricades.



Explosive



Electricity



Flammable



Read instructions for this and all related equipment. Do not allow untrained or unauthorized persons to service equipment. Call a Gilbarco Authorized Service Contractor if you need help.

**Overview**

The Form/Slip Printer is an optional G-SITE™ system peripheral. It validates credit card charge forms, vouchers or cashier checks. The printer communicates directly with the TCR™-15 console via a serial RS232C interface.

**Purpose**

This manual provides information to install and maintain the Form/Slip Printer. It also provides instructions to replace and adjust printer components.

**Related Documents**

MDE-2398 G-SITE Installation Manual

MDE-2399 G-SITE Service Manual

MDE-(Customer Specific) G-SITE Cashier/Operator Manual

**Abbreviations**

BPS - Bits Per Second

VAC - Volts Alternating Current

VDC - Volts Direct Current

VOM - Volt-ohm Meter

Hz - Hertz

**Hardware**

**Form/Slip Printer** DHPrint Model 4110 Journal/Validator Printer  
**Model Number** T16886

**Physical Dimensions**

Weight	15 lbs. (6.8 kg)
Height	7.5 inches (19.1 cm)
Width	8.25 inches (21.0 cm)
Depth	16.0 inches (40.6 cm)

**Mechanical Characteristics**

Duty cycle	120 characters per second, medium stroke printhead
Printhead gap	.023" credit card form/slips
Printhead	DHPrint 7 wire, in-line ballistic
Mechanism	DHPrint 411 stepper motor driven dot matrix serial impact type

**Power Requirements**

Voltages	115VAC ±10%, 60 Hz Single Phase
Power	200 Watts maximum
Fuse	2.0 AMP slow blow 230 VAC fuse

**Environment**

Temperature	32° to 122° Fahrenheit (0° to 50° Centigrade)
Storage	-40° to 149° Fahrenheit (-40° to 65° Centigrade)
Humidity	95% non-condensing

## Site Criteria

Installation of the Form/Slip Printer must be in accordance with the National Electrical Code NFPA 70, and the Automotive and Marine Service Station Code NFPA 30A.

The site must be equipped with electrical service which will allow compliance with all installation requirements of a complete Fueling System. No other equipment wiring should share the conduit with this unit.

Install the Form/Slip Printer in an enclosed weather-protected structure. Make sure the installation site meets environment specifications on previous page.

## Getting Started

1. Check parts against parts list to make sure all parts were shipped.
2. Check installation site to be sure it meets site criteria.
3. Have all necessary materials on hand.
4. Check G-SITE™ Form/Slip Printer for any possible shipment damage. Shipment damage is not covered under Gilbarco's warranty policy. Report any shipment damage to the carrier.
5. Check bottom panel of printer for model identification number.
6. Place unit in shipping carton to prevent exposure to elements and store indoors until ready for installation.



## Physical Placement

1. Be sure to turn off power.
2. Place the printer where it is not subjected to extreme temperature, direct sunlight, or liquid spills.
3. Install printer at least eighteen inches above the floor.
4. Install printer at least four inches from the wall to connect cables and open J-Cover (See *Figure 1*).

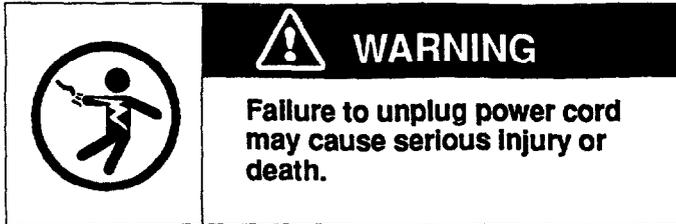
The receptacle providing power to the unit must be a properly installed isolated ground receptacle (Hubbell #IG 5261 or equivalent). This type receptacle is easily identified by its bright orange color and triangle embossed into the face of the outlet. The green grounding screw must be attached to the grounding conductor.

5. Plug in the printer's power cord. Do not share a conduit with wiring for any device which draws high amperage (compressor, freezer, etc.) or a device which is a source of RFI (TV, microwave, intercom, two-way radio, etc.). Do not turn power on at the printer.

## Getting Started

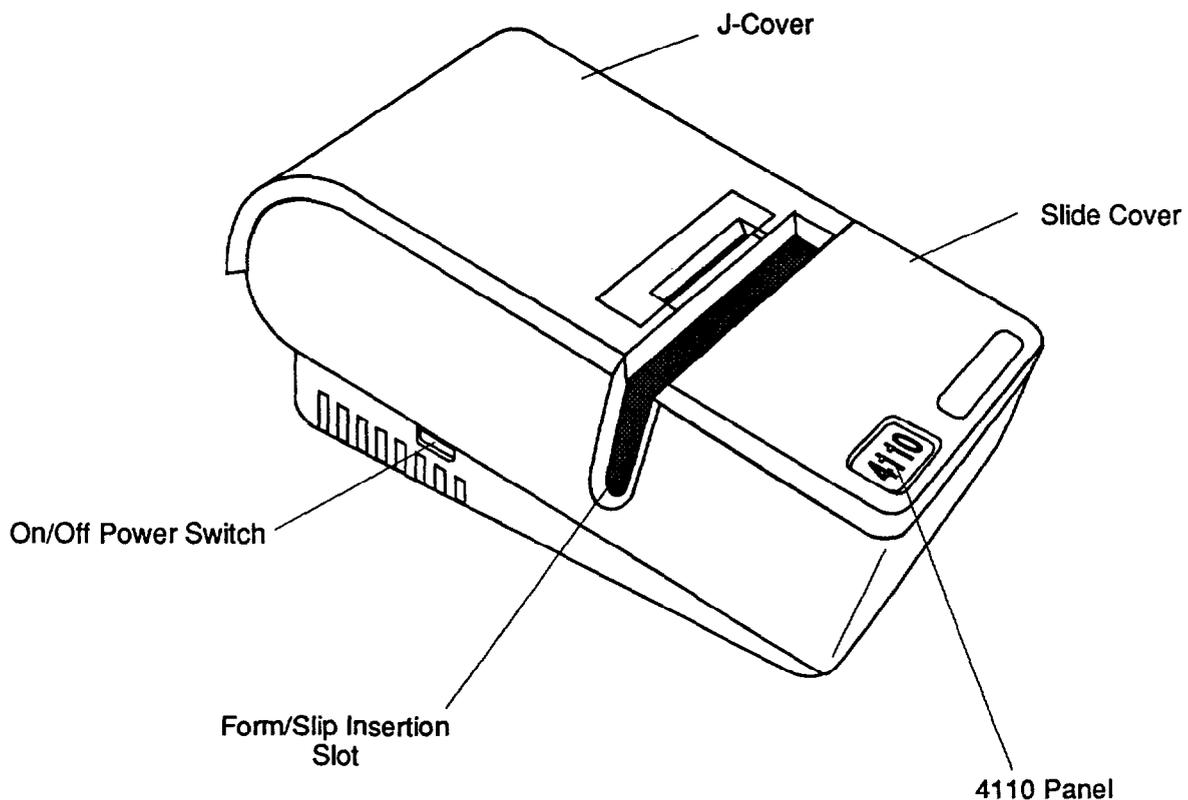
Before you install, adjust or replace components of the G-SITE™ Form/Slip Printer, you need to be familiar with inserting form/slip, performing self-test and installing the ribbon cartridge.

### Ribbon Cartridge Installation



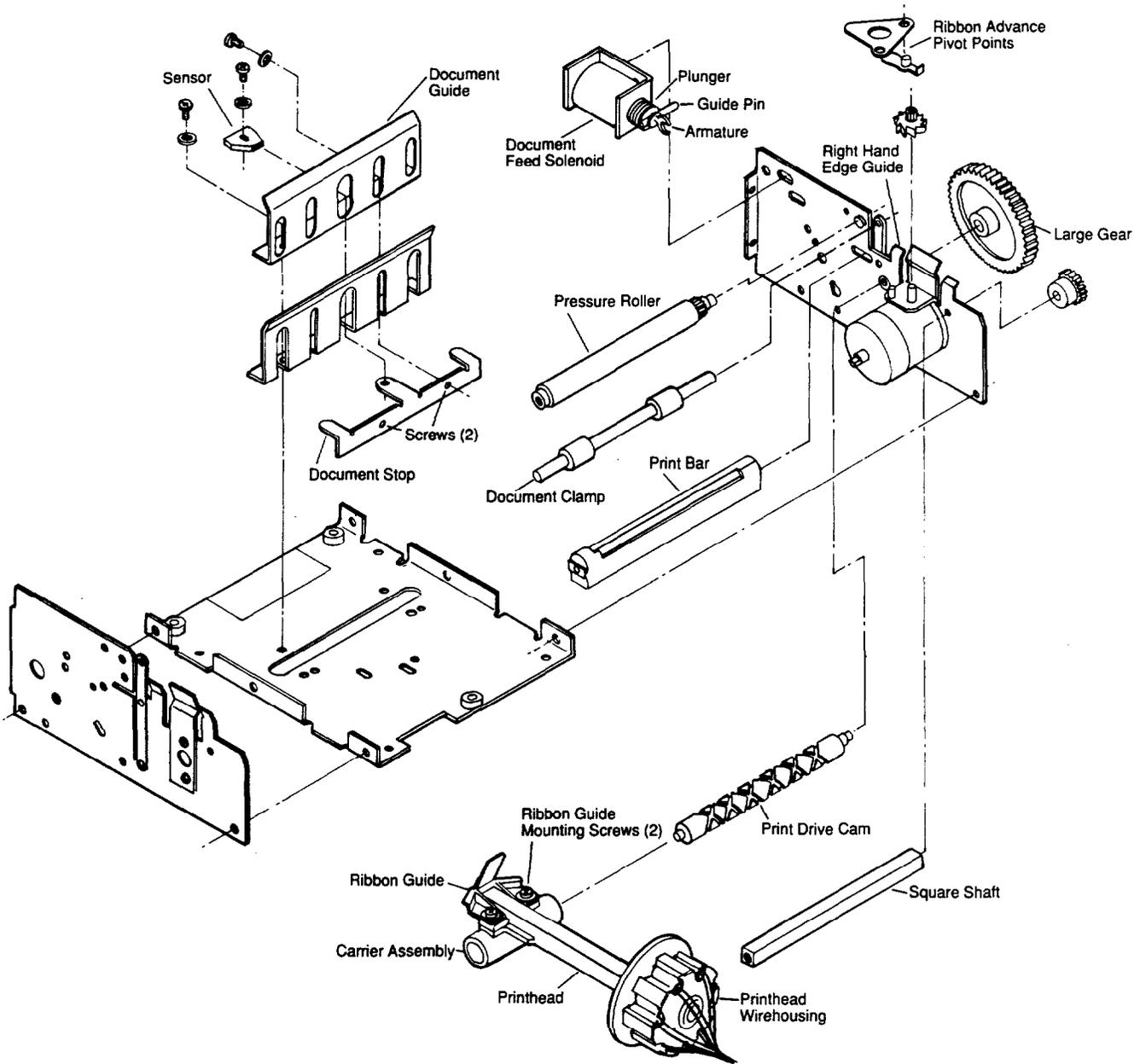
1. Turn off printer power.
2. Remove slide cover by sliding cover approximately 1-1/4" toward front of printer. Carefully, lift cover off printer case (See Figure 1).

Figure 1



Exploded View

Figure 2

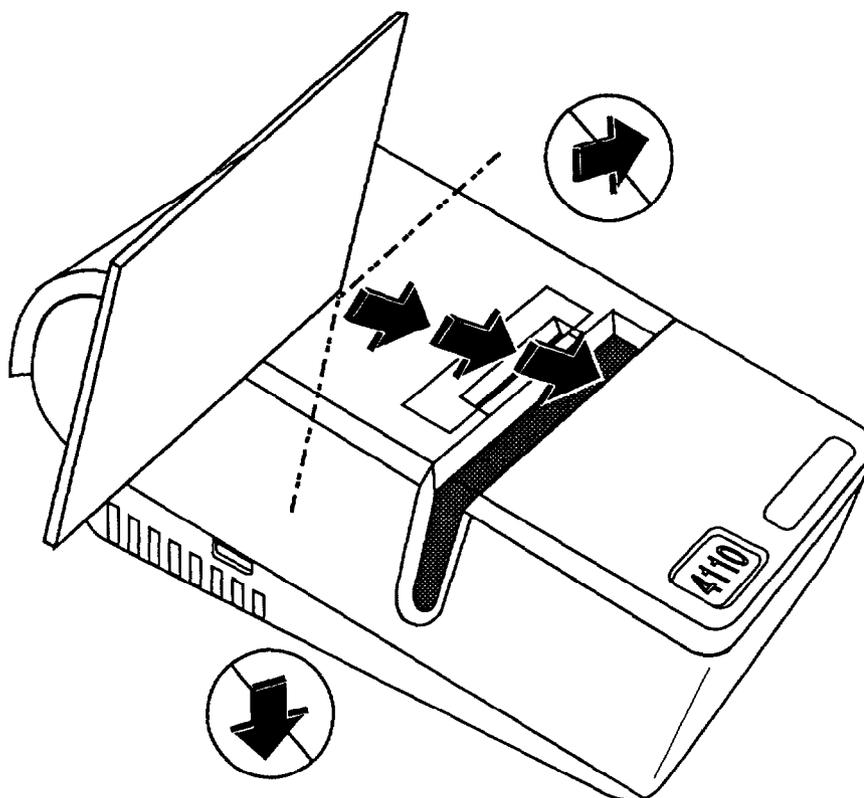


**Ribbon Cartridge Installation (continued)**

3. Center printhead by turning large gear toward back of printer (See *Figure 2*).
5. Insert ribbon over center tab of ribbon guide (See *Figure 2*). Slide ribbon in front of printhead and behind both outside tabs on ribbon guide.
6. Snap cartridge into position by pressing both ends.
7. Turn ribbon advance on ribbon cartridge to take up slack.
8. Replace slide cover.

**Form/Slip Insertion**

1. Slide form/slip into slot starting on left-hand side of unit. Slide form/slip with a 45 degree downward and inward sweeping motion. Slide until form/slip touches the right-hand edge stop (See *Figure 3*).
2. The document clamp clamps the form/slip when the form/slip is against the bottom stop and covers the sensor. The printer prints on the form/slip.
3. Slide form/slip out of slot when printing is complete.

**Figure 3**

**Self-Test**

**NOTICE!**

**Always insert form/slip before turning on printer power. Failure to use form/slip while turning on power can cause printhead damage.**

Insert a form/slip into the form/slip insertion slot and turn power switch to ON (See *Figure 1*).  
**Note:** This is called the Self-Test.

The printer revision (version) number and DIP (Dual Inline Package) switch settings are printed on the form/slip (See *Figure 4*). To set DIP switches, see Setting Up The Form/Slip Printer.

**Figure 4: SAMPLE OF SELF-TEST**

```

line 1  REV 2.5           MK 115 (varies for each version)
line 2  MEMORY STATUS = OK
line 3  SW :
line 4  123 : BAUD RATE = 2400
line 5  45 : LINES/INCH = 8
line 6  6 : AUTO LF     = ON
line 7  7 : 40/48 COL  = 40
line 8  8 : POLARITY
line 9           RTS      = -12V
line 10 DIPSW 1 2 3 4 5 6 7 8
line 11           O C C C C O C O
    
```

- Line 1: Rev - software revision number, MK 115 - Gilbarco Use Only (varies for each version)
- Line 2: Memory Status - indicates successful completion of the RAM (Random Access Memory) and ROM (Read Only Memory) memory diagnostics
- Lines 3 - 9: show the DIP switch settings and functions
- Lines 10 - 11: DIPSW (Dual Inline Package Switches) - indicates which DIP switches are closed and which are open .  
 closed - C open - O

## Form/Slip Printer Communication

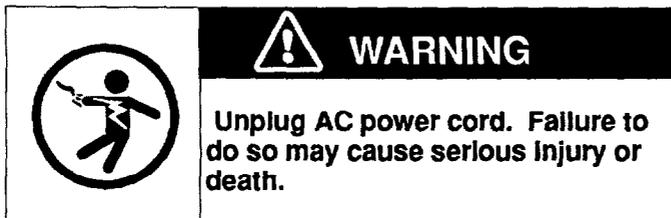
### Induced Noise Reduction

The communication port provides moderate induced noise protection.

For successful long distance communication:

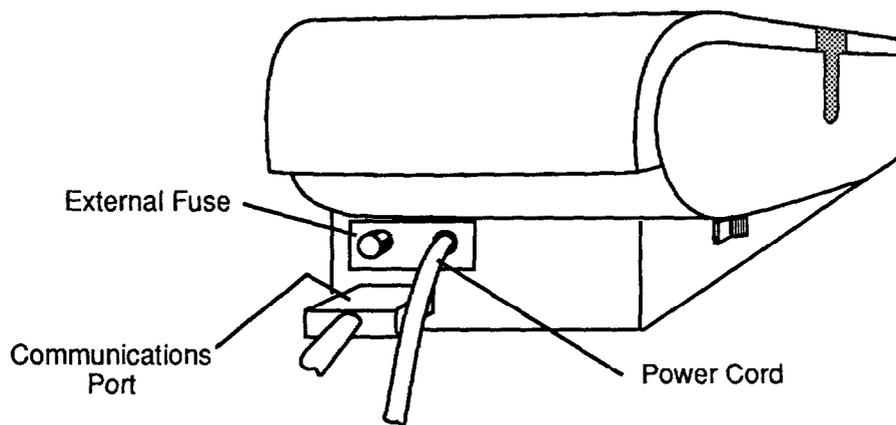
1. Avoid bundling the Form/Slip Printer cable with other wiring.
2. Run the cable away from devices which produce electrical noise (TV, microwave, intercom, two-way radio, etc.).

### Interface With G-SITE™



1. Turn off printer power and unplug power cord.
2. Connect communication cable (Q11542-31) to the port located on the back panel of printer (See Figure 5).
3. Connect communication cable (Q11542-31) to P209 located on bottom panel of TCR™-15 console.

Figure 5



**Setting Up The Form/Slip Printer**

Change the Slip Printer setup by setting the DIP switches. The DIP Switches are located on the bottom panel of the form/slip printer.

**Note: Power must be turned off to properly set DIP switches.**

1. Turn power OFF to set printer's DIP switches.
2. The printer may already be set properly. Do not change the DIP switches if they are set correctly.

The following instructions guide you through setting the DIP switches. Failure to correctly set the DIP switches may cause communication problems between the printer and the TCR™-15 console.

See *Figure 6* for Steps 3 - 7

**3. Set the Baud Rate - 2400 BPS**

- Switch 1 - open
- Switch 2 - closed
- Switch 3 - closed

**4. Set lines per inch - 8**

- Switch 4 - closed
- Switch 5 - closed

**5. Set automatic line feed**

- Switch 6 - open

**6. Set characters per line - 40**

- Switch 7 - closed

**7. Set busy signal polarity -12VDC.**

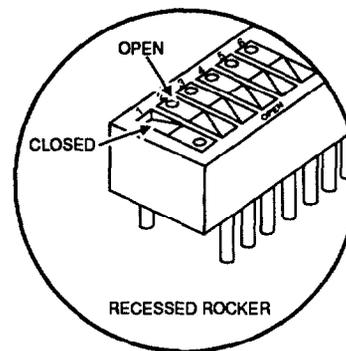
- Switch 8 - open

**8. Insert a form/slip into form/slip slot.**

**9. Turn power on to read DIP switches and perform a self-test.**

**10. Compare self-test results to Figure 4 to be sure DIP switch settings are correct.**

**Figure 6**



## Preventive Maintenance

### Introduction

This section instructs you on proper preventive maintenance procedures required for the printer. Failure to routinely follow these procedures may result in unnecessary equipment damage. Form/Slip Printer damage attributable to lack of, or improper use of, these procedures voids the device warranty.

### Overview

Form/Slip Printer preventive maintenance should be performed daily, weekly and once every three months. Station personnel are responsible for daily and weekly preventive maintenance. A Gilbarco Authorized Service Contractor is responsible for three-month preventive maintenance.

### Required Maintenance Supplies

- Isopropyl alcohol
- Oil (Q12055-23) or (Q11369-185)
- Grease (Q12055-22) or (Q11369-187 and Q11369-186)
- Lint-free cleaning cloth
- Cotton swabs

### Required Maintenance Tools

- Thickness Gauges
- Vacuum cleaner with corner attachment, canned air (no more than 40 psi pressure) or air bulb.

	 <b>WARNING</b>
	<b>Turn off printer power and unplug power cord before performing any maintenance on this device. Failure to do so could result in death or serious injury.</b>

<b>NOTICE</b> Do not use empty space in rear of printer as a storage area. Failure to comply may cause printer damage.
---

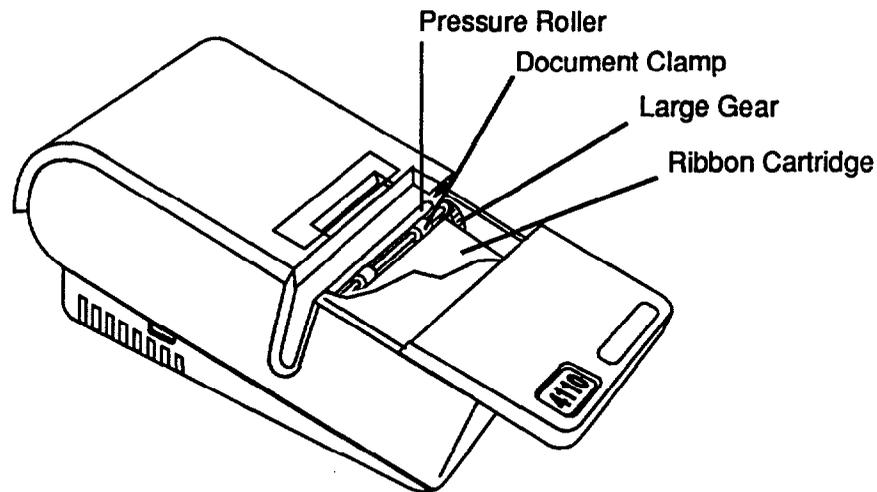
<b>NOTICE</b> Do not use thinner or trichloroethylene type solvents to clean the printer casing. These liquids can damage the casing.
--

**Operator Daily Maintenance**

Refer to Figures 1, 2, 5, & 7 for location of parts.

1. Turn off printer power and unplug power cord. Disconnect communication cable.
2. Remove printer ribbon cartridge.
3. Use either canned air (use no more than 40 psi pressure), a vacuum cleaner, or an air bulb to clear any paper particles from printer.
4. Turn large gear toward rear of unit to center printhead (See *Figure 2*).
5. Install ribbon cartridge (Q12055-24). Make sure the cartridge clicks into position. Carefully, thread printer ribbon. Take up any slack by turning ribbon advance clockwise.
6. Insert form/slip for self-test.
7. Plug power cord into receptacle, connect communication cable, and turn on printer power.

**Figure 7**

**Operator Weekly Maintenance**

Refer to Figures 1, 2, 5, & 7 for location of parts.

1. Turn off printer power and unplug power cord. Disconnect communication cable.
2. Perform Daily Maintenance.
3. Remove printer ribbon cartridge.
4. Use alcohol, cotton swabs and a lint-free cloth to clean ink, dirt and grease from printer casing.
5. Turn large gear toward rear of printer to center printhead (See *Figure 2*).
6. Clean pressure roller with an alcohol-soaked cotton swab (See *Figure 2*). Turn pressure roller toward rear of printer until the document feed solenoid armature disengages (See *Figure 2*). Clean entire pressure roller.
7. Dry roller with paper towel. Engage document feed solenoid armature by turning pressure roller toward front of printer.
8. Clean document clamp with alcohol-soaked cotton swab. Dry rollers.
9. Center printhead.
10. Install ribbon cartridge. Make sure cartridge clicks into position. Carefully, thread printer ribbon. Take up any slack by turning ribbon advance clockwise.
11. Insert form/slip for self-test.
12. Plug power cord into receptacle, connect communication cable, and turn on printer power.

**Three Month Maintenance For Service Contractor**

This section must be performed only by an Authorized Service Contractor (ASC).

Clean, lubricate and inspect the Form/Slip Printer once every three months. Service the printer more frequently if it is subjected to heavy use, dirty environment, extreme temperature, extended shock or vibration.

**Notes:** Lubricate printer after every repair. Use oil (Q12055-23) or grease (Q12055-22).

Refer to Figures 1, 2, 5, & 7 for location of parts.

1. Turn off printer power and unplug power cord. Disconnect communication cable.
2. Perform daily and weekly maintenance.
3. Remove document clamp and printer ribbon cartridge.
4. Clean all grease and dirt from unit.
5. Lightly, oil all pivot points. Use oil Q12055-23 or Q11369-185
6. Lightly, grease all shafts and gears. Use grease Q12055-22 or Q11369-186.
7. Insert a form/slip into the Form/Slip Printer slot. Make sure document stop is not loose (*See Figures 1 & 3*). Adjust document stop if it moves (*See Adjusting Form/Slip Stop in ADJUSTMENTS*).
8. Make sure right-hand edge guide is squarely and securely installed (*See Figure 2*).
9. Make sure there are no missing or loose screws.
10. Rotate large gear to make sure printhead moves easily.
11. Make sure print drive cam bearings are in good condition (*See Figure 2*).
12. Insert thickness gauges to make sure gap between print bar and printhead is between .022" and .024". Check on both ends of print bar.
13. Make sure printhead, at the square shaft and print drive cam, moves less than 1/16" in and out and up and down.
14. Make sure ribbon is not snagged and ribbon track is not blocked.
15. Center printhead. Install ribbon cartridge. Make sure cartridge clicks into position. Turn large gear to make sure ribbon advances. The ribbon advances when printhead moves to far right and begins to move back to the left.
16. Replace document clamp.
17. Connect communication cable. Make sure power cord and communication cable are secure and in good condition.
18. Make sure there is no communication interference.
19. Insert form/slip into form/slip slot for self-test.
20. Plug power cord into receptacle and turn on printer power. Verify correct DIP Switch settings from self-test.

**Troubleshooting****Print****Symptom:** Faded print**Cause:** Ribbon cartridge worn out**Cure:** Replace ribbon cartridge (Q12055-24)**Symptom:** Random dots missing or faded**Cause:** Printhead/print bar gap incorrect**Cure:** Adjust printhead gap**Symptom:** Print smeared**Cause:** Printhead dirty**Cure:** Clean printhead**Cause:** Printhead/print bar gap incorrect**Cure:** Adjust printhead gap**Cause:** Ribbon guide/printhead gap incorrect**Cure:** Adjust ribbon guide gap**Printer Will Not Print Transmitted Data****Symptom:** Printer self-tests correctly but does not print**Cause:** Clamp command not given**Cure:** Enter 14, # on TCR™-15 console to clear printer**Cause:** Communication connector loose, disconnected or connected incorrectly**Cure:** Connect communication connection correctly**Cause:** DIP switch settings incorrect**Cure:** Check DIP switch settings**Cause:** Connectors from Controller Logic board to mechanism PCB incorrectly connected**Cure:** Check connection**Cause:** Ribbon cable from communication port to Controller Logic board or cable from printer to console is defective**Cure:** Check continuity of each cable. Replace if necessary.**Cause:** Controller Logic board defective**Cure:** Replace Controller Logic board (Q12055-09)

**Unit Does Not Power Up Correctly****Symptom:** Printhead sweeps continuously**Cause:** 8-pin connector improperly connected on either Controller Logic board or mechanism PCB**Cure:** Check 8-pin connector**Cause:** Controller Logic board or printer mechanism defective**Cure:** Run Test #1 to determine defective component**Symptom:** Printhead sweeps abnormally fast and then stops**Cause:** Runaway D.C. motor**Cure:** Power cycle unit**Cure:** Replace Controller Logic board (Q12055-09)**Cause:** 8-pin connector improperly connected on Controller Logic board or mechanism PCB**Cure:** Check 8-pin connector**Symptom:** Printhead does not sweep**Cause:** A.C. power connections loose or disconnected**Cure:** Check power connections at source and printer**Cause:** Fuse bad**Cure:** Replace fuse (Q12055-03)**Cause:** Power switch or transformer improperly installed or connected**Cure:** Check component connections**Cause:** Power switch defective**Cure:** Remove power switch and check continuity**Cause:** Fuse holder defective**Cure:** Replace fuse holder (Q12055-07)**Cause:** Printhead jammed by improperly installed or defective ribbon cartridge**Cure:** Remove ribbon cartridge. Turn large gray gear to check for free movement of printhead. Reassemble and run self-test**Cause:** Printhead jammed by paper in mechanism or drive gear teeth**Cure:** Remove cause of jam, reassemble printer and run self-test**Cause:** Improper printhead/print bar gap**Cure:** Adjust printhead/print bar gap**Symptom:** Prints backward and upside down.**Cause:** Cable connecting printhead wire housing to Controller Logic board installed incorrectly.**Cure:** Disconnect cable at Controller Logic board. Turn connector 180° and reconnect.

**Printer Does Not Self-Test Properly**

**Symptom:** Printhead sweeps on power up, printhead stops in center of print field and does not run self-test

**Cause:** Bottom stop sensor not covered

**Cure:** Make sure sensor is covered and rerun self-test

**Cause:** Bottom stop sensor improperly connected

**Cure:** Inspect sensor

**Cause:** Controller Logic or printer mechanism connector improperly connected

**Cure:** Remove covers and check for correct connections

**Symptom:** Horizontal row(s) of dots missing on printout

**Cause:** 14-pin connector on Controller Logic board improperly connected

**Cure:** Check 14-pin connector

**Cause:** Printhead is damaged

**Cure:** Replace Printhead Assembly (Q12055-16)

**Symptom:** Self-test printout is mirror image of correct printout

**Cause:** 14-pin connector on Controller Logic board improperly connected

**Cure:** Check 14-pin connector

**Document Does Not Advance Properly**

**Symptom:** Document feed solenoid moves but document does not advance properly

**Cause:** Document feed solenoid or the clamp solenoid is improperly adjusted

**Cure:** If document advances when you push very hard on the center of the clamp, clamp solenoid requires adjustment. Otherwise, document feed solenoid requires adjustment.

**Symptom:** Document does not advance

**Cause:** Document feed solenoid defective

**Cure:** Check document feed solenoid for continuity

**Cause:** Clamp solenoid defective

**Cure:** Check clamp solenoid for continuity

**Cause:** 7-pin connector from printer mechanism improperly connected on Controller Logic board

**Cure:** Check connection

**Cause:** 8-pin connector from printer mechanism improperly connected on Controller Logic board

**Cure:** Check connection

**Cause:** Controller Logic board defective

**Cure:** Replace Controller Logic board (Q12055-09)

**Test #1**

Use a volt-ohm meter (20K ohms/volt minimum)

Controller Logic board 8-pin Connector

Use a V.O.M. (+10 VDC Scale):

1. Place a (+) probe to Pin 1
2. Place a (-) probe to Pin 6
3. Turn on printer power

If V.O.M. needle fluctuates upscale, the Controller Logic board is defective. Replace Controller Logic board.

If V.O.M. needle fluctuates downscale, the printer mechanism is defective. Replace printer mechanism (Q12055-39).

**Tests #2 And #3**

Use a volt-ohm meter (20K ohms/volt minimum)

Remove fuse and printer mechanism (*See Printer Mechanism in REPLACEMENTS*).

On Controller Logic board:

1. Disconnect 3-pin connector.

**Test #2**

On Transformer:

2. Measure resistance between Pin 1 and Pin 2 with V.O.M. (R x 1 Scale).
3. Measure resistance between Pin 4 and Pin 5. The resistance should measure 10 ohms.

**Test #3**

On Transformer:

2. Measure resistance between Pin 6 and Pin 8. Resistance should measure less than 1 ohm.
3. Place a (+) probe to Pin 10. Resistance should measure less than 1 ohm. If resistance measures more than 1 ohm, replace transformer.

## Adjustments

### Purpose

This section identifies the reasons for printer part adjustments and instructs you, by steps, how to adjust the following components.

- printhead and ribbon guide gap
- print drive cam bearings and printer frame gap
- form/slip stop
- clamp solenoid
- document feed solenoid
- flag position

### Required Tools

- Thickness Gauge
- Flag adjusting tool (Q12055-25)
- #2 -8" Phillips Magnetic Screwdriver
- Standard screw starter and driver
- Glyptol Sealant

### Before You Start



1. Turn off printer power and unplug power cord. Disconnect communication cable.
2. Open J-Cover. Remove slide cover by sliding cover approximately 1-1/4" toward front of printer. Carefully, lift cover off printer case.
3. Remove document clamp, ribbon cartridge, and 4110 panel by lifting from two posts (See Figures 1 and 2).

## Adjusting Printhead And Ribbon Guide Gap

### Reasons For Adjustment

- Print is light
- Document does not insert in printer

### Steps

To adjust printhead/print bar gap, perform Steps 1 - 10.

To adjust ribbon guide/print bar gap, perform Steps 1 - 14.

### Printhead

1. Loosen the two print bar mounting screws (*See Figure 2*).
2. Move printhead to far left by turning large gear.
3. Insert .024" thickness gauge between printhead and print bar.
4. Move print bar forward until thickness gauge contacts both print bar and printhead.
5. Secure left print bar mounting screw. Do not tighten.
6. Repeat Steps 2 - 5, moving printhead to the right and securing the right mounting screw.
7. Insert .022" thickness gauge. It should move freely. Insert the .024" thickness gauge. It should fit tightly. Test gap at both far left and far right ends. Readjust print bar if thickness gauges do not fit as stated.
8. Tighten the two print bar mounting screws when gap is correct.

### Ribbon guide

9. Insert .017" thickness gauge between ribbon guide and print bar (*See Figure 2*).

**Note:** Loosen only one screw at a time.

10. Loosen left ribbon guide mounting screw.
11. Move ribbon guide forward until it contacts .017" thickness gauge.
12. Tighten left ribbon guide mounting screw.
13. Repeat Steps 10 - 12 loosening and tightening the right ribbon guide mounting screw.
14. Move printhead by turning the large gear. Be sure there is clearance between the document guide, ribbon guide and the carrier assembly (*See Figure 2*). If there is no clearance, loosen the document guide screws. Move document guide toward front of printer and tighten document guide screws.

## Adjusting Print Drive Cam Bearings And Printer Frame Gap

### Steps

1. Remove printer mechanism (*See Printer Mechanism in REPLACEMENTS*).
2. Insert .010" notched thickness gauge between print drive cam bearings and printer mechanism frame. Insert on both ends of printer mechanism. Gauge should fit tightly.
3. Tighten six screws on printer frame if gauge does not fit tightly.
4. Insert .004" notched thickness gauge between print drive cam bearings and printer mechanism frame. Insert on both ends of printer mechanism. Gauge should fit loosely.
5. Loosen six screws on printer frame if gauge does not fit loosely.
6. Replace printer mechanism.

### Adjusting Form/Slip Stop

#### Reasons For Adjustments

- Change top margin
- Tighten form/slip stop

#### Steps

1. Loosen the two document stop screws (See Figure 2).
2. Move stop up or down to adjust margin.
3. Tighten the two document stop screws.
4. Perform a self-test to be sure you are satisfied with new margin.

### Adjusting Clamp Solenoid

#### Reason For Adjustment

- Document clamp too tight or too loose.

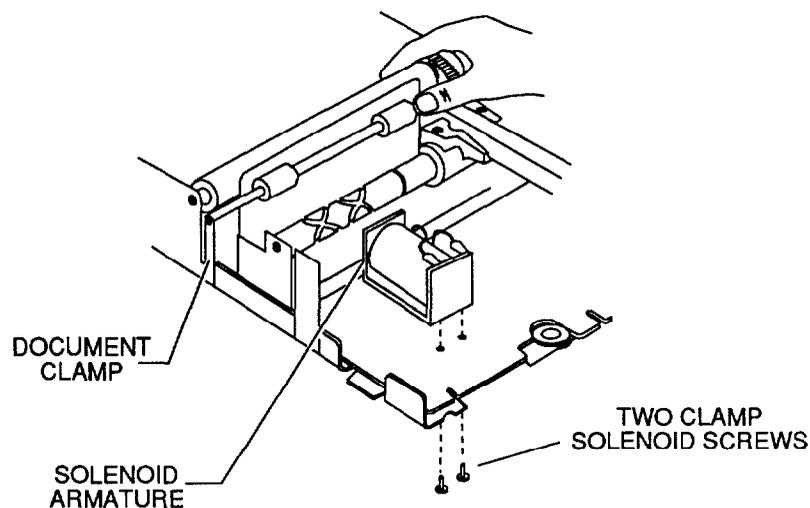
#### Steps

1. Remove printer mechanism (See Printer Mechanism in REPLACEMENTS).
2. Loosen the two clamp solenoid screws (See Figure 8). The screws are on bottom frame of the printer mechanism.
3. Replace document clamp.
4. Insert a form/slip between document clamp and pressure roller. Tightly press together the rollers.

**Note:** Do not release document clamp and pressure roller until Step 8.

5. Move solenoid to the front to increase pressure or to the back to decrease pressure.
6. Move screws into correct position.
7. Tighten screws.
8. Release document clamp and pressure roller.
9. Push solenoid armature into clamp position to test clamp operations (See Figure 8). Readjust clamp if there is no firm pressure against the form/slip.
10. Replace printer mechanism (See Printer Mechanism in REPLACEMENTS).

**Figure 8**



### Adjusting Document Feed Solenoid

#### Reason For Adjustment

- Document roller does not turn.

#### Steps

1. Loosen the two document feed solenoid screws located on the side of printer mechanism frame (See Figure 2).
2. Allow solenoid to take a relaxed position.
3. Be sure guide pin sticks through the hole on the side of the printer mechanism frame (See Figure 2). The pin should not prevent clamp armature from turning pressure roller.
4. Tighten one screw. Do not secure. Make sure screw moves in the hole.
5. Push solenoid plunger into solenoid body (See Figure 2).

**Note:** Do not release plunger until Step 9.

6. Turn pressure roller toward back of printer. Make sure clamp armature clears the next tooth on pressure roller. Make sure you hear a click. Continue to push plunger .015 into solenoid.
7. Move solenoid body toward pressure roller until it contacts snap ring on the plunger.
8. Tighten screws.
9. Release plunger.
10. Turn on power.
11. Insert an .015 thickness gauge between plunger snap ring and solenoid body. Insert a form/slip into form/slip slot. Make sure pressure roller turns.
12. Remove .015 thickness gauge and insert an .030 thickness gauge between plunger snap ring and solenoid body. Insert a form/slip into form/slip slot. Make sure pressure roller does not turn.
13. Apply glyptol sealant to all solenoid mounting junctions.

### Adjusting Flag Position

#### Reason For Adjustment

- To change left and right margins on the form/slip

#### Steps

1. Move printhead to far right by turning the large gear.
2. Insert flag adjusting tool into adjustment slot (See Figure 9).

#### To Move The Margins Inward:

3. Turn both left and right flags outward.

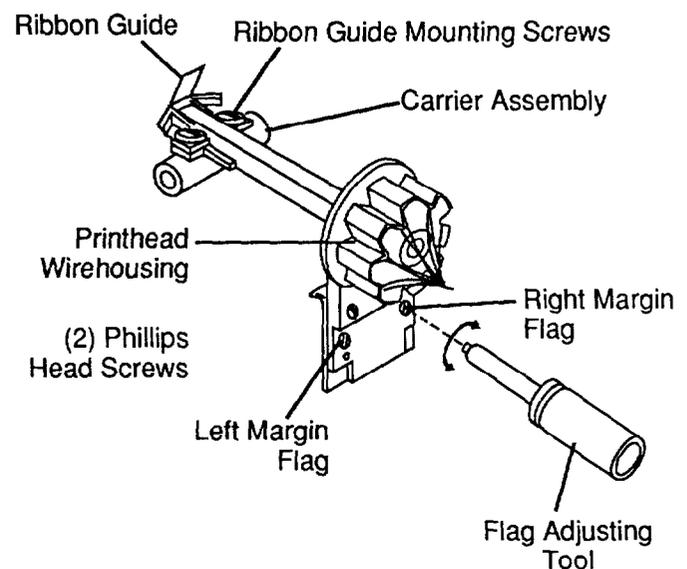
#### To Move The Margins Outward:

4. Turn both left and right flags inward.

#### After You Finish

1. Replace document clamp, ribbon cartridge, and 4110 panel.
2. Replace slide cover and close J-cover.
3. Connect communication cable and power cord.
4. Insert a form/slip for a self-test. Plug power cord into receptacle and turn on printer power.

Figure 9



## Replacements

This section provides instructions for replacing parts of the printer. Please follow guidelines below.

**NOTE: Be sure to check the fuse before repairing the printer (See Figure 5). Replace fuse (Q12055-03) if it appears to be blown.**

### Required Tools

- #2 - 8" Phillips Magnetic Screwdriver
- Standard screw starter and driver
- Socket head wrench with nut driver
- Glyptol Sealant
- Snap Ring Pliers (available at any auto parts store)
- Needlenose Pliers

### Before You Start



1. Turn off printer power and unplug power cord. Disconnect communication cable.
2. Open J-cover. Remove slide cover by sliding cover approximately 1-1/4" towards front of the printer (See Figure 1). Carefully, lift cover off printer case.
3. Remove, document clamp, ribbon cartridge, and 4110 panel by lifting it from two posts (See Figures 1 and 2).

### Printer Mechanism

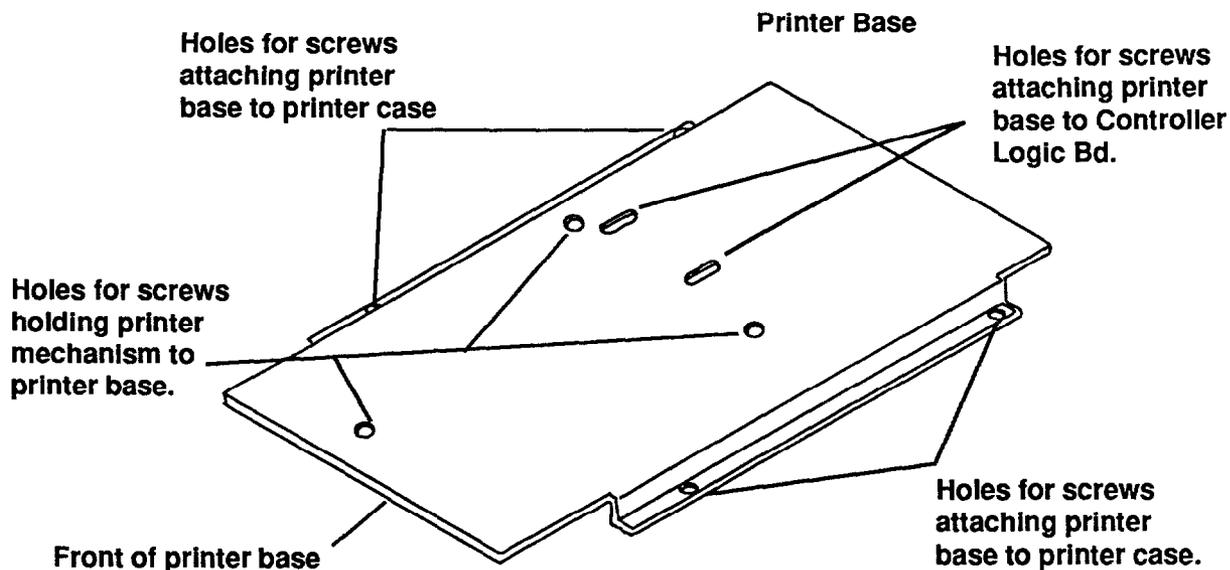
Use this procedure to replace the following parts:

- printer mechanism (Q12055-01)
- Controller Logic board (Q12055-09)
- ribbon cable/communication port connector (Q12055-08)
- power switch (Q12055-02)
- transformer (Q12055-28)
- sensor board (Q12055-17)
- flag assembly (Q12055-15)
- printhead assembly (Q12055-16)
- cam follower (Q12055-14)
- timing disk (Q12055-11)
- fuseholder (Q12055-07)
- clamp solenoid (Q12055-20)
- document feed solenoid (Q12055-19)

### Removing Printer Mechanism

1. Remove three Phillips head screws attaching printer mechanism to printer base (See Figure 10). Save screws. Do not damage mica insulation sheet beneath if present.

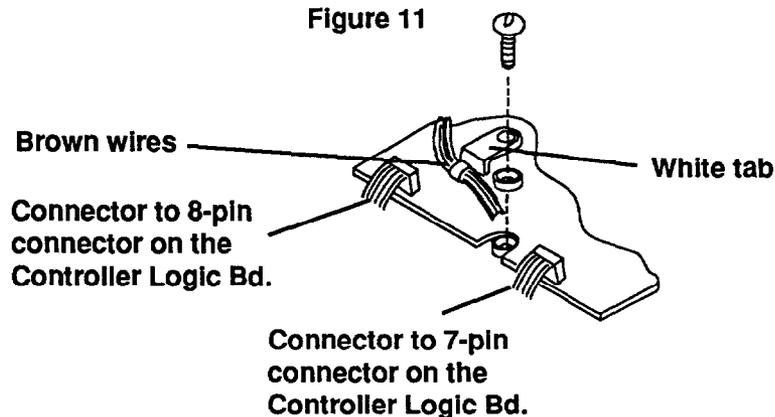
Figure 10



2. Unplug the two connectors on sensor board at the front of the printer mechanism (See Figure 11). Do not disconnect cable on Controller Logic board.

**Note:** Note location of the two ground wires attachment for reconnection.

Figure 11



3. Unscrew and save the four screws attaching printer base to printer case (See Figure 10). Save nuts from the bottom of printer case.
4. Unscrew and save two screws attaching printer base to Controller Logic board (See Figure 10).
5. Carefully, lift printer base until you can reach under printer base.
6. Disconnect the one 14-pin connector connecting the Controller Logic board to the printhead wiring house (See Figure 12). Disconnect at Controller Logic board.
7. Carefully, remove printer mechanism.
8. Remove printer base.

**Controller Logic Board**

**Removing Controller Logic Board**

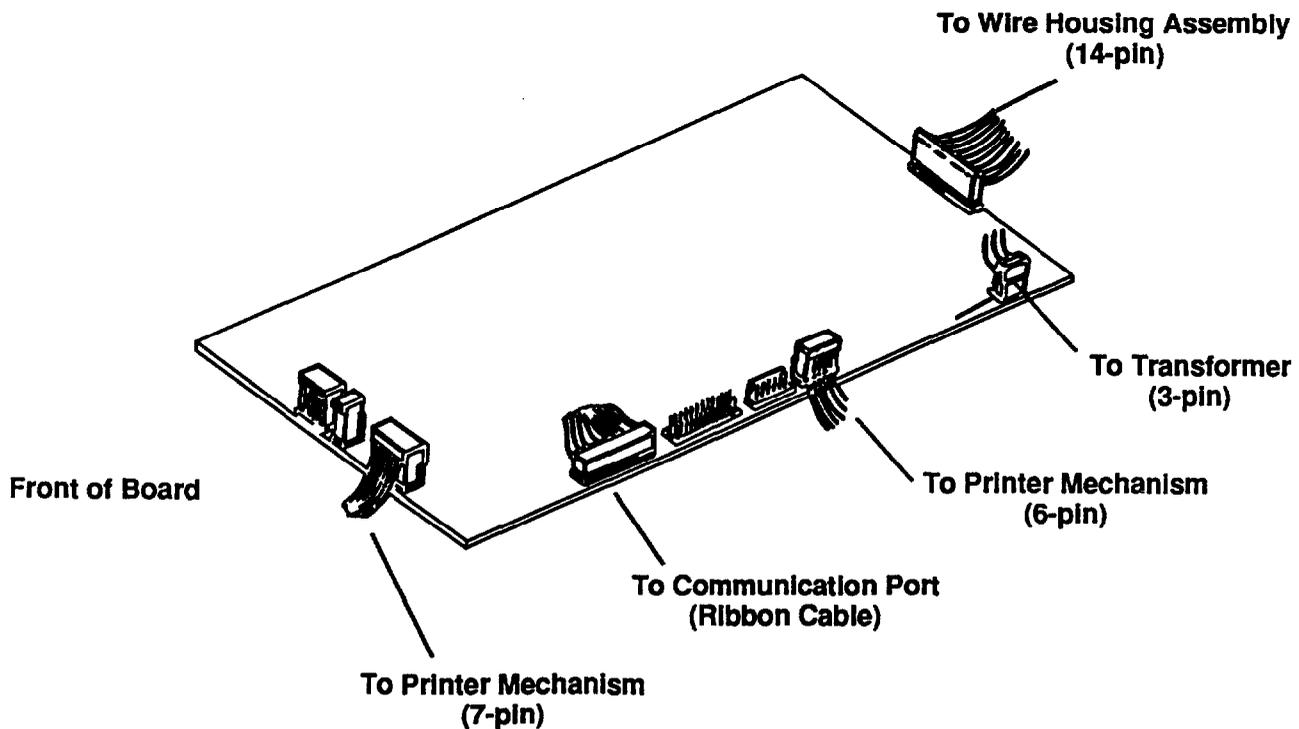
1. Remove printer mechanism (See *Printer Mechanism*).
2. Remove power switch (See *Power Switch*).
3. Disconnect the following connectors from Controller Logic board (See *Figure 12*):
  - transformer
  - (2) printer mechanism
  - communication ribbon cable
4. Lift Controller Logic board from two posts at rear of printer. Slide board from under the two tabs at front of printer. Remove board from printer.

**Replacing Controller Logic Board**

1. Slide new Controller Logic board (Q12055-09) under the two tabs and lower board onto the two posts.

**Note:** Make sure connector wires lead from the connectors as illustrated (See *Figure 12*).

**Figure 12**



2. Reconnect four connectors into Controller Logic board (See *Figure 12*).
3. Reinstall power switch.
4. Replace printer mechanism (See *Printer Mechanism*).

### Replacing Printer Mechanism

•Reverse the above steps to replace the new printer mechanism (Q12055-01).

**Note:** Make sure the two ground wires are installed. Make sure the printer mechanism is insulated from the chassis. Make sure white tab on printhead wire-housing cable is reattached (See Figure 11).

### Power Switch

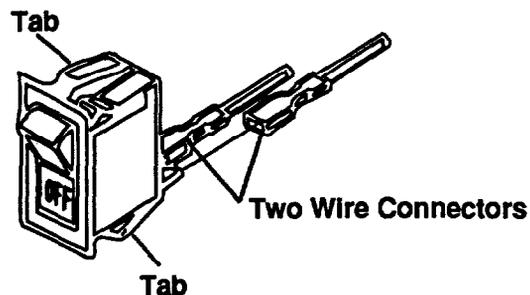
#### Removing Power Switch

1. Remove printer mechanism (See *Printer Mechanism*).
2. Disconnect two power switch two-wire connectors (See *Figure 13*).
3. Squeeze the two tabs to remove the power switch (See *Figure 13*).

#### Replacing Power Switch

1. Push new power switch (Q12055-02) into power switch location. Make sure it pops into place.
2. Connect the two power switch two-wire connectors. Wire order is not important.
3. Replace printer mechanism (See *Printer Mechanism*).

**Figure 13**  
**Power Switch**



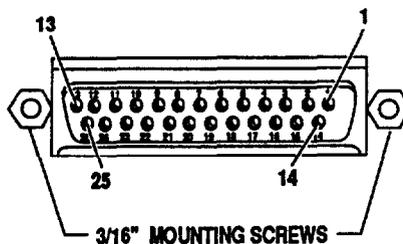
**Ribbon Cable And Communication Port Connector****Removing Ribbon Cable And Communication Port Connector**

1. Remove printer mechanism (*See Printer Mechanism*).
2. Disconnect communication port connector (ribbon cable) from Controller Logic board (*See Figure 12*).
3. Remove and save two nuts connecting the 25-pin connector to printer case. The nuts are on the back of printer case (*See Figure 14*).
4. Remove cable.
5. Remove and save ferrite bead.

**Replacing Ribbon Cable And Communication Port Connector**

1. Place ferrite bead on new ribbon cable (Q12055-08).
2. Connect 25-pin connector to printer case. Align connector with the No. 1 pin (*See Figure 14*).
3. Apply glyptol sealant to screw threads.

**Note:** It is acceptable to bend the ribbon cable while connecting it to the board.

**Figure 14****COMMUNICATION  
PORT CONNECTOR****NOTICE**

**Do not crimp cable. Do not install printer mechanism if cable is crimped. Crimping may cause printer damage.**

4. Connect new ribbon cable to the Controller Logic board. Make sure there are no twists in the cable.
5. Replace printer mechanism (*See Printer Mechanism*).

## Transformer

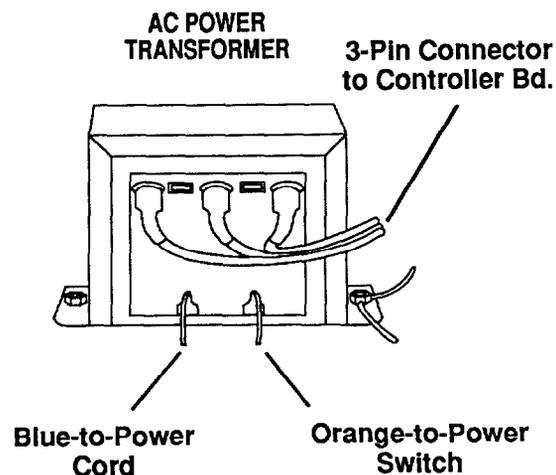
Figure 15

### Removing Transformer

1. Remove printer mechanism (See *Printer Mechanism*).
2. Disconnect transformer cable on Controller Logic board (See *Figure 12*).
3. Disconnect blue and orange wires connecting transformer to power cord and power switch (See *Figure 15*).
4. Remove and save two bolts and washers attaching transformer to printer case. The ground wire disconnects.
5. Remove transformer.

### Replacing The Transformer

1. Place new transformer (Q12055-28) into printer case.
2. Replace and tighten two bolts. Make sure ground wire is attached.
3. Connect blue wire, from left transformer terminal, to power cord and orange wire, from right transformer terminal, to power switch (See *Figure 15*).
4. Connect transformer cable to Controller Logic board.
5. Replace printer mechanism.



## Sensor

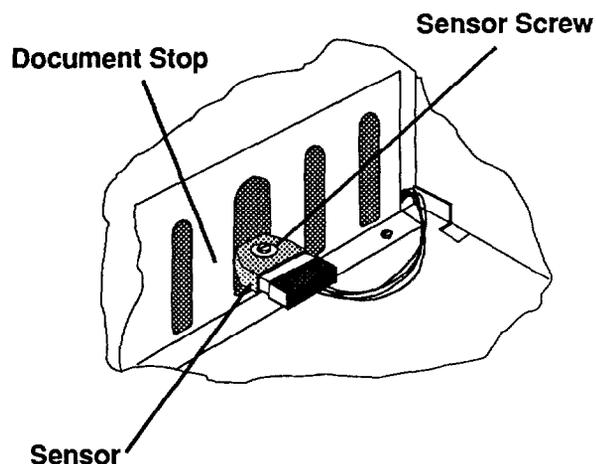
Figure 16

### Removing Sensor

1. Remove and save screw and washer attaching sensor to document stop (See *Figure 16*).
2. Disconnect connector from sensor. Discard sensor.

### Replacing Sensor

1. Connect cable connector to new sensor (Q12055-29).
2. Use screw and washer to attach sensor to document stop.



**Sensor Board**

**Removing Sensor Board**

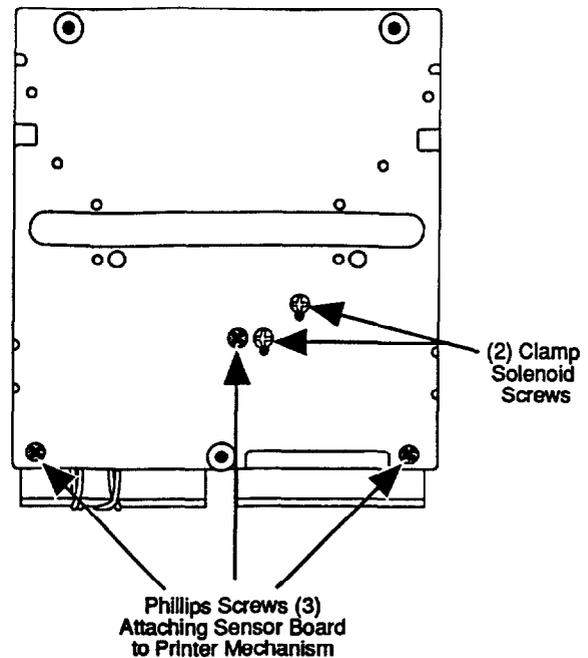
1. Remove printer mechanism (See *Printer Mechanism*).
2. Disconnect four connectors from sensor board (See *Figure 18*).
3. Unscrew and save three Phillips head screws washers from beneath printer mechanism (See *Figure 17*). The screws attach sensor board to printer mechanism.
4. Move printhead to far right side of printer by turning large gear.
5. Carefully, slide board from printer mechanism. Discard board.

**Replacing Sensor Board**

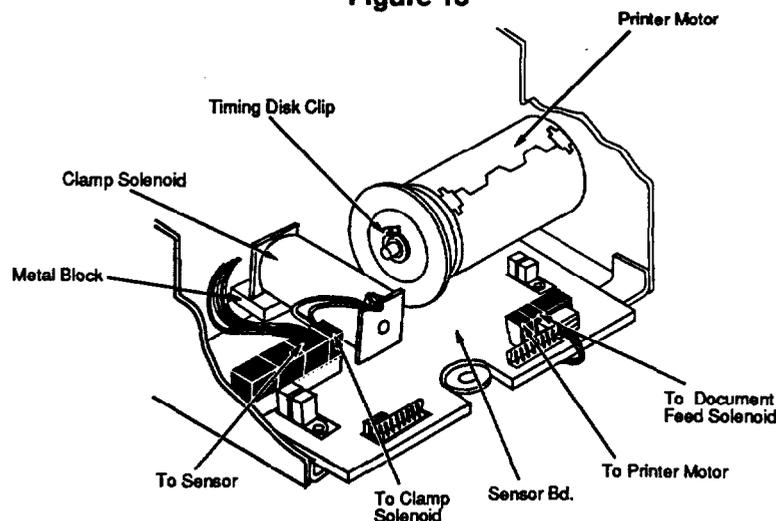
1. Slide new sensor board (Q12055-17) into correct position. Be careful not to damage timing disk. Make sure cables on right side of printer mechanism are under sensor board and connector hang off front of mechanism.
2. Attach board using three screws.
3. Reconnect four connectors as previously connected (See *Figure 18*).
4. Replace printer mechanism.

**Figure 17**

Bottom of Printer, BASE



**Figure 18**



**Timing Disk**

**Removing Timing Disk**

1. Remove sensor board (See *Sensor Board*).
2. Use snap ring pliers to remove timing disk clip (See *Figure 18*). Save clip.
3. Remove and discard timing disk.

**Replacing Timing Disk**

1. Place new timing disk (Q12055-11) into timing disk location (See *Figure 18*).
2. Replace timing disk clip.
3. Replace sensor board.

**Flag Assembly****Removing Flag Assembly**

1. Remove printer mechanism (See *Printer Mechanism*).
2. Remove and save two Phillips head screws from flag assembly (See *Figure 9*).
3. Remove and discard flag assembly.

**Replacing Flag Assembly**

1. Place new flag assembly (Q12055-15) into flag assembly location. Top of assembly fits behind printhead wiring house.
2. Use two screws to attach flag assembly to printhead wiring house.
3. Replace printer mechanism.
4. Adjust flag assembly if necessary (See *Adjusting Flag Position in ADJUSTMENTS*).

**Printhead Assembly****Removing Printhead Assembly**

1. Remove printer mechanism (See *Printer Mechanism*).
2. Unscrew and save two ribbon guide mounting screws and washers (See *Figure 19*).
3. Remove and discard printhead assembly.

**Replacing Printhead Assembly**

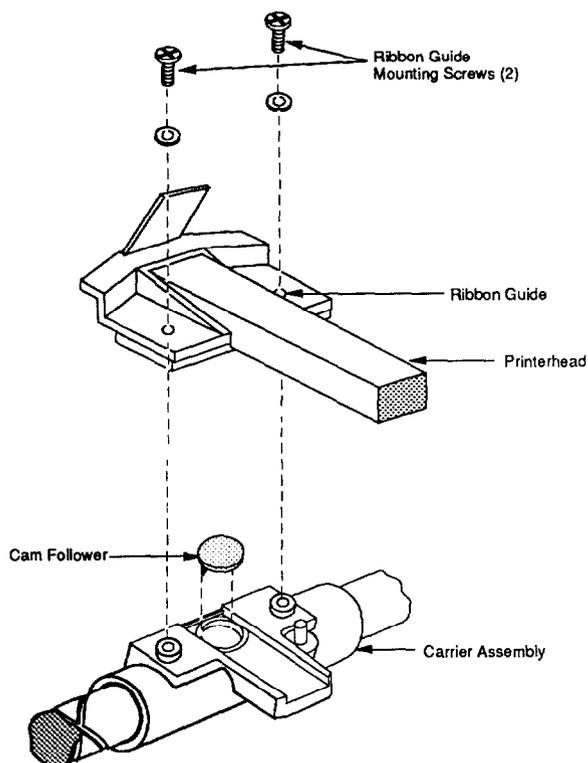
1. Place new printhead assembly (Q12055-16) into carrier assembly.
2. Use two ribbon guide mounting screws and washers to attach printhead assembly to carrier assembly.
3. Replace printer mechanism.
4. Adjust printhead and ribbon guide gap if necessary (See *Adjusting Printhead and Ribbon Guide Gap in ADJUSTMENTS*).

**Cam Follower****Removing Cam Follower**

1. Remove printhead assembly (See *Printhead Assembly*).
2. Turn large gear until cam follower pops out of position. Remove and discard cam follower (See *Figure 2 and 19*).

**Replacing Cam Follower**

1. Place new cam follower (Q12055-14) in carrier assembly. Turn cam follower until it falls in flat position.
2. Replace printhead assembly.
3. Adjust printhead and ribbon guide gap if necessary (See *Adjusting Printhead and Ribbon Guide Gap in ADJUSTMENTS*).

**Figure 19**

**Fuseholder**

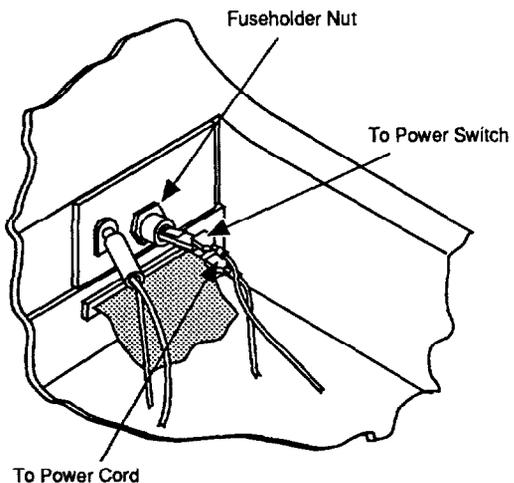
**Removing Fuseholder**

1. Remove fuse.
2. Remove printer mechanism  
(See *Printer Mechanism*).
3. Disconnect two spade lugs from fuseholder tabs.
4. Use needlenose pliers to remove fuseholder nut  
(See *Figure 20*). Save nut.
5. Pull fuseholder out of the back of printer case.

**Replacing Fuseholder**

1. Place new fuseholder (Q12055-07) through back of printer case. Make sure longer fuseholder tab is on the bottom (See *Figure 20*).
2. Replace and tighten fuseholder nut.
3. Connect (brown) spade lug, from power cord, to bottom tab. Connect (purple) spade lug, from power switch, to top tab (See *Figure 20*).
4. Replace printer mechanism.
5. Replace fuse.

**Figure 20**



**Clamp Solenoid**

**Removing Clamp Solenoid**

1. Remove printer mechanism  
(See *Printer Mechanism*).
2. Disconnect clamp solenoid's 2-pin connector from sensor board (See *Figure 18*).
3. Remove and save two solenoid screws  
(See *Figure 17*).
4. Remove clamp solenoid.

**Replacing Clamp Solenoid**

1. Place clamp solenoid (Q12055-20) into correct position. Armature should be under clamp. Solenoid should sit on top of metal block and sensor board (See *Figure 18*).
2. Replace two solenoid screws.
3. Reconnect solenoid connector to sensor board  
(See *Figure 18*).
4. Adjust clamp solenoid if necessary  
(See *Adjusting Clamp Solenoid in ADJUSTMENTS*).
5. Replace printer mechanism.

## Document Feed Solenoid

### Removing Document Feed Solenoid

1. Remove printer mechanism (See *Printer Mechanism*).
2. Remove sensor board (See *Sensor Board*).
3. Remove and save two document feed solenoid screws and washers from side of printer mechanism frame (See *Figure 2*).
4. Remove 2-pin connector from document feed solenoid cable. **Note:** Note how cable is routed for replacement.
5. Remove document feed solenoid.

### Replacing Document Feed Solenoid

1. Remove 2-pin connector from new document feed solenoid cable (Q12055-19).
2. Place solenoid into correct position against side of printer mechanism (See *Figure 2*).
3. Use two screws and washers to attach solenoid.
4. Route solenoid cable as routed before.
5. Replace sensor board.
6. Adjust document feed solenoid if necessary (See *Adjusting Document Feed Solenoid in ADJUSTMENTS*).
7. Replace printer mechanism.

### After You Finish

1. Replace document clamp, ribbon cartridge, and 4110 panel.
2. Replace slide cover and close J-cover.
3. Reconnect communication cable.
4. Insert a form/slip for a self-test. Plug power cord into receptacle and turn on printer power.

**SERVICE**

[Empty rectangular area for service details]

**Recommended Spare Parts**

DESCRIPTION	PART NUMBER
Printer Mechanism	Q12055-01
Power Switch	Q12055-02
Fuse (2 amp. 115 VAC)	Q12055-03*
Housing Foot Pad	Q12055-04
Harness Assemblies	
7 Pin to Control Logic Board	Q12055-05
8 Pin to Control Logic Board	Q12055-06
Fuseholder Assembly	Q12055-07
Ribbon Cable/Connector	Q12055-08
Control Logic Board	Q12055-09*
EPROM Programmed	Q12055-10
Timing Disk	Q12055-11
Cam Follower	Q12055-14
Flag Assembly	Q12055-15
Printhead Assembly	Q12055-16*
Sensor Board	Q12055-17*
Sensor Board Harness	Q12055-18
Document Feed Solenoid	Q12055-19
Clamp Solenoid	Q12055-20
Grease	Q12055-22* or Q11369-187 (for cam drive) and Q11369-186 (gears)
Oil	Q12055-23* or Q11369-185
Ribbon Cartridge	Q12055-24
Flag Adjusting Tool	Q12055-25*
0.004" Notched Thickness Gauge	Q12055-26
0.010" Notched Thickness Gauge	Q12055-27
Sensor	Q12055-29*
Transformer Assembly	Q12055-28*

\* This parts are included in K93346 Form/Slip Printer Stock-Up Parts Kit.

