

## **SECTION IV**

### **TROUBLESHOOTING GUIDE**

#### **4. INTRODUCTION**

This section is presented in the form of a table. Each section contains four major parts:

1. The section number.
2. A statement of the presenting condition.
3. A list of the possible causes of the condition.
4. The recommended action to be taken.

<u>SECTION</u>	<u>CONDITION</u>	<u>POSSIBLE CAUSE</u>	<u>RECOMMENDED ACTION</u>
4.1	NOT READY AND/OR NO INDEX	Diskette not inserted.	Insert diskette.
		Diskette not clamped.	Turn knob lock lever clockwise so that it is perpendicular to the diskette insertion slot.
		Unit not selected.	Verify unit select and jumper configuration.
		Drive motor not turning	Verify interface drive motor on.  Check Connector P6.  Verify drive belt installed  Replace circuit board.  Replace Drive Motor Assembly.
		Index sensor not connected. Index sensor defective.	Check P1. Replace index sensor.
4.2	WILL NOT SEEK OR RESTORE	Interface not enabled.	Verify interface direction, step, and select signals.
		Step motor disconnected.	Check Connectors P4 and P5.
		Defective step logic.	Replace circuit board.
		Defective stepper motor.	Replace Stepper Motor Assembly.
		Wrong option selected.	Check options DS and HL for the particular application.

<u>SECTION</u>	<u>CONDITION</u>	<u>POSSIBLE CAUSE</u>	<u>RECOMMENDED ACTION</u>
4.3	WILL NOT WRITE	Interface not enabled.	Verify write enable, select, and write data interface lines.
		Heads or write protect switch not connected.	Check Connectors P3, P8, and P9.
		Write protect switch misadjusted.	Check write protect switch operation.
		Defective write logic.	Replace circuit board.
		Defective heads.	Replace Head Carriage Assembly.
		Misadjusted platen load arm.	Adjust platen load arm.
4.4	WILL NOT READ	Interface incorrect.	Verify select is true and write enable is false.
		Alignment off.	Verify C. E. lobes, index burst, and Track 00 sensor adjustment.
		Defective read electronics.	Replace circuit board.
		Defective heads.	Replace Head Carriage Assembly.
		Platen load arm misadjusted.	Adjust platen load arm.
4.5	ACTIVITY L.E.D. INOPERATIVE	Interface not enabled.	Verify interface select and jumper configuration.

<u>SECTION</u>	<u>CONDITION</u>	<u>POSSIBLE CAUSE</u>	<u>RECOMMENDED ACTION</u>
4.5	ACTIVITY L. E. D. INOPERATIVE	Activity L.E.D. not connected.	Check P11
		Activity L.E.D. defective.	Replace Activity L. E. D. Assembly.
		Activity L.E.D. driver defective.	Replace circuit board.
4.6	NO TRACK 00 SENSOR INDICATION	Defective seek.	See Section 4.2
		Track 00 sensor not connected. Defective logic.	Check P2.  Replace circuit board.
		Defective Track 00 sensor.	Replace Track00 Sensor Assembly.
4.7	DRIVE MOTOR WILL NOT START WHEN DOOR LATCHED.	Defective microswitch.	Replace switch.
		Microswitch not connected.	Check P14.
		Misadjusted switch bracket.	Realign.

# SECTION V

## REPLACEMENT PROCEDURES

### 5 INTRODUCTION

This section contains the replacement procedures for the TM848 family of disk drives' parts and assemblies:

1. Drive Belt
2. Drive Motor
3. Circuit Board
4. Cone Assembly
5. Diskette Lever
6. Bridge Assembly
7. Front Panel
8. Activity L. E. D.
9. Load Arm Assembly
10. Track 00 Sensor Assembly
11. Write Protect Sensor Assembly
12. Door Switch Assembly
13. Index Sensor Assembly
14. Diskette Ejector Assembly
15. Load Resistor Assembly
16. Stepper Band
17. Stepper Motor Assembly
18. Head Carriage Assembly

#### 5.1 DRIVE BELT

##### 5.1.1 Removal

- A. Turn the drive over so that the spindle is facing upward (see Figure 5-1).

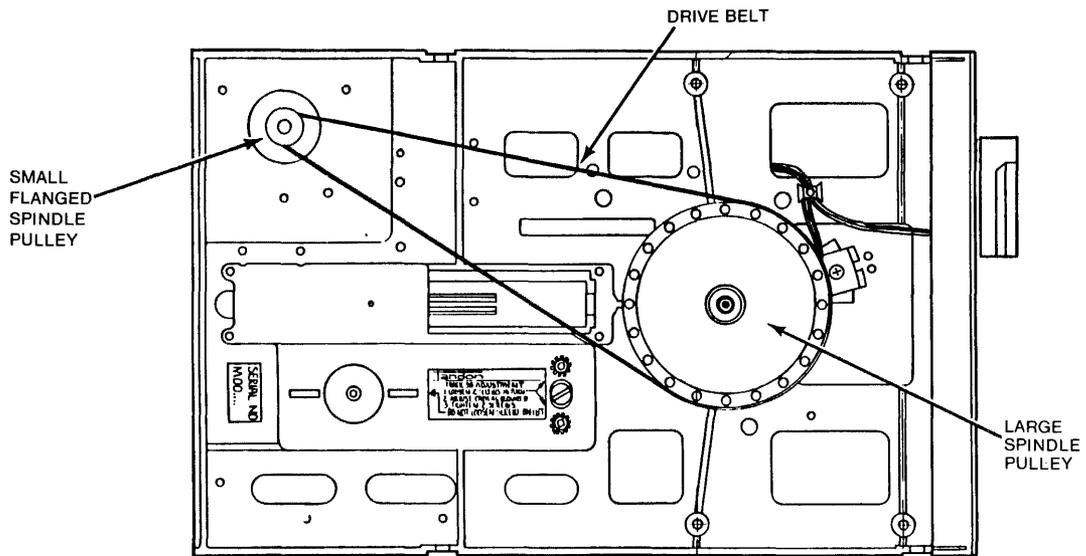


Figure 5-1  
Drive Belt and Spindle

B. Grasp the drive belt, and remove it from the pulleys.

#### 5.1.2 Installation

A. With the shiny side inward, loop the new drive belt onto the small, flanged spindle pulley.

B. While turning the spindle, put the drive belt on the large spindle pulley.

#### 5.1.3 Checks

A. After turning the drive motor on, check that the drive belt does not slip or fall off the large pulley.

B. Check the spindle speed (see Section II).

### 5.2 DRIVE MOTOR

#### 5.2.1 Removal

A. Remove the drive belt (see Section 5.1).

B. After turning the drive over, cut the tie wraps that hold the drive motor's wires (see Figure 5-2).

C. Unplug P6 from the circuit board.

D. Remove the three mounting screws that attached the drive motor to the chassis.

E. Lift out the drive motor.

#### 5.2.2 Installation

A. Set the drive motor on the chassis, aligning the three mounting holes.

B. Reinstall and tighten the three mounting screws.

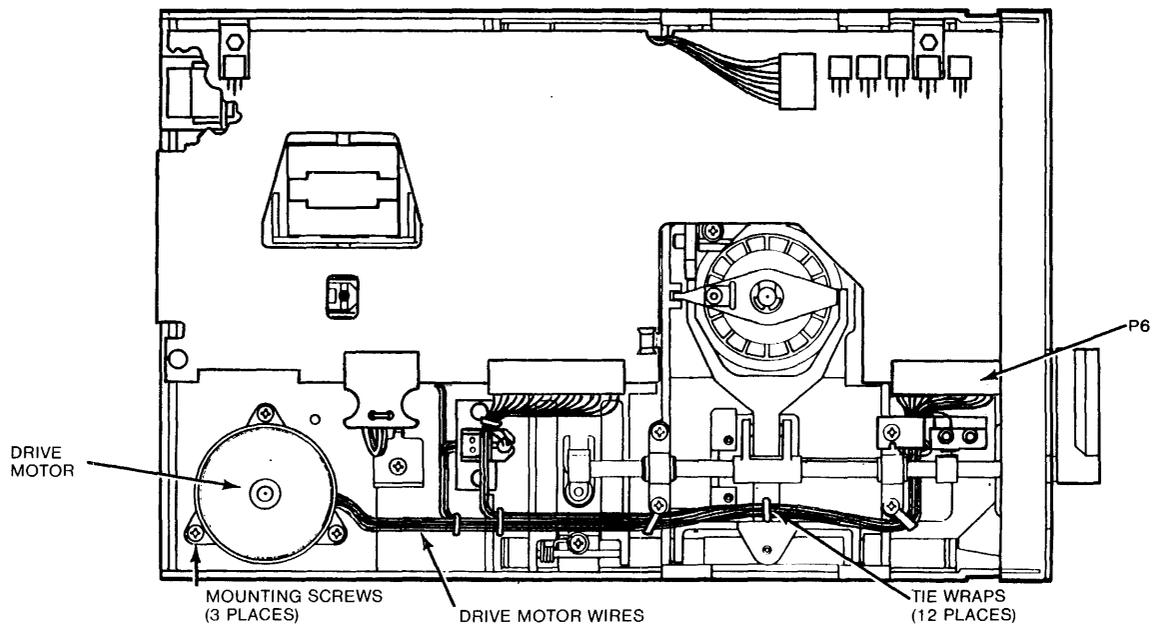


Figure 5-2  
Drive Motor and Related Parts

- C. Carefully rebundle the wires, including the drive motor wire, and cable harness them (see Figure 5-2).
- D. Plug P6 into the circuit board.
- E. Turn the drive over, and reinstall the drive belt (see Section 5.1.2).

### 5.2.3 Checks

- A. Check to ensure that the drive motor works.
- B. Check the spindle speed (see Section II).

## 5.3 CIRCUIT BOARD

### 5.3.1 Removal

- A. Remove all the connectors from the circuit board.
- B. Remove the two side mounting screws that connect the two regulator heat sinks to the drive's chassis (see Figure 5-3).
- C. Remove the screw and the retaining clip that attach the circuit board to the drive's chassis.
- D. Lift the circuit board away from the drive.
- E. Remove the power connector by pushing down on its top. Lift its wires out, using the slot provided (see Figure 5-3).

### 5.3.2 Installation

- A. Install the power connector by rethreading the power wires and pushing in the power connector from the back of the drive.

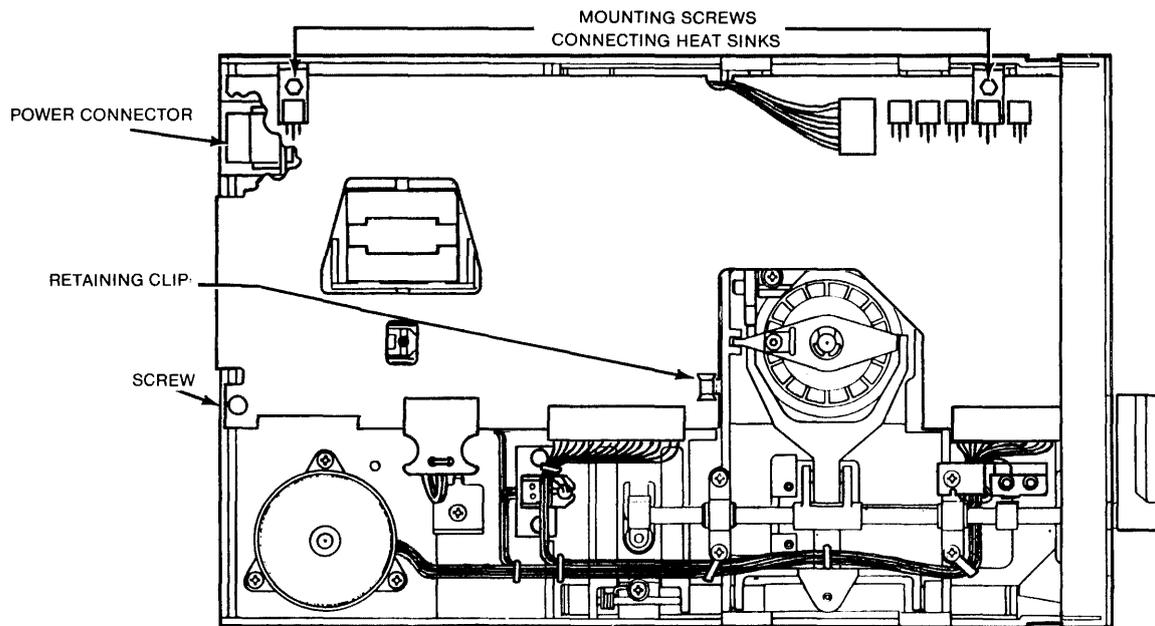


Figure 5-3  
Circuit Board Mounting Screws

- B. Remount the circuit board using the two screws to the two heat sinks and the screw and nylon clip that attach the circuit board to the drive's chassis.
- C. Plug in all connectors, ensuring that each one is seated correctly in its proper location.

### 5.3.3 Checks

- A. Verify the select and options configuration.
- B. Applying power, check the operation of the drive.

## 5.4 CONE ASSEMBLY

### 5.4.1 Removal

- A. Remove the screw that attaches the cone bracket to the cone alignment arm (see Figure 5-4).
- B. Unlatch the diskette lever.
- C. Swing the Cone Assembly up 90 degrees so that it points toward the side of the drive.
- D. Carefully remove the E-Ring, flat washer, and washer that holds on the cone shaft.
- E. Gently lift out the Cone Assembly.

### 5.4.2 Installation

- A. Gently insert the Cone Assembly.
- B. Carefully insert the E-Ring, flat washer, and wave washer that holds on the cone shaft (see Figure 5-5).
- C. Swing the Cone Assembly down 90 degrees so that it points toward the bottom of the unit.

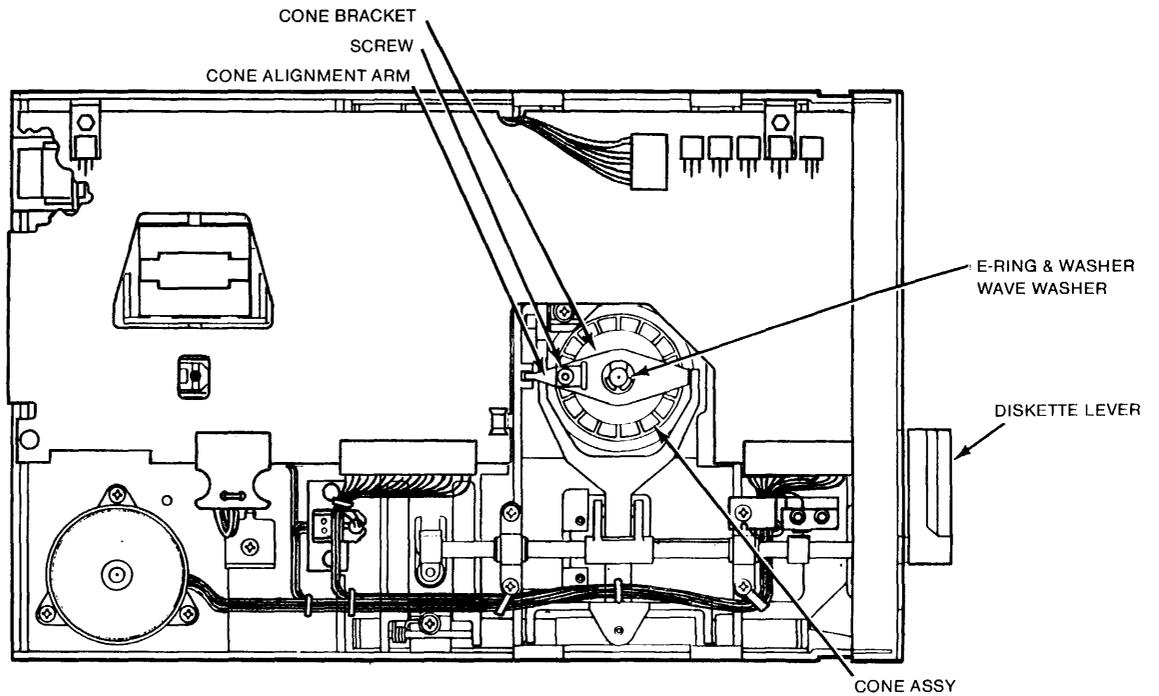


Figure 5-4  
Cone Assembly Key Parts

- D. Latch the diskette lever.
- E. Insert the screw that attaches the cone bracket to the cone alignment arm(see Figure 5-5).

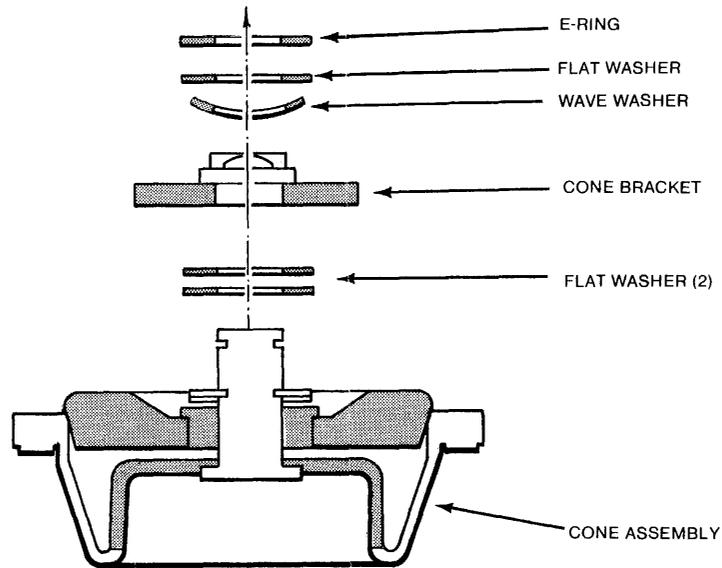


Figure 5-5  
Cone Assembly Parts

### 5.4.3 Checks

- A. Ensure that the Cone Assembly turns freely.
- B. If not, reverify that the Cone Assembly has been installed correctly.
- C. Insert a diskette.
- D. Ensure that the diskette is clamped properly by the cone.

## 5.5 DISKETTE LEVER

### 5.5.1 Removal

- A. Pry off the cover that hides the diskette lever's retaining screw (see Figure 5-6).

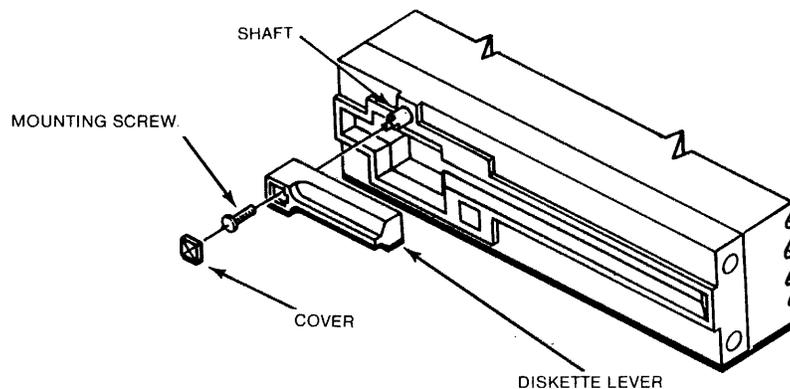


Figure 5-6  
Diskette Lever Key Parts

- B. Remove the diskette lever's retaining screw.
- C. Carefully remove the diskette lever.

### 5.5.2 Installation

- A. Put the diskette lever on the shaft.
- B. Put a drop of Loctite Number 234 on the threads of the diskette lever's screw.
- C. Install and tighten the diskette lever's screw.
- D. Put the cover back on the diskette lever.

### 5.5.3 Checks

- A. Ensure that the diskette lever is perpendicular to the drive when the diskette is clamped. See Figure 5-7 for the adjustment.
- B. Ensure that the diskette lever is parallel to the drive when the diskette is unclamped. See Figure 5-7 for the adjustment.

## 5.6 BRIDGE ASSEMBLY

### 5.6.1 Removal

- A. Remove the circuit board (see Section 5.3.1).
- B. Remove the diskette lever (see Section 5.5.1).
- C. Remove the four bridge mounting screws that attach the Bridge Assembly to the chassis (see) Figur 5-8).

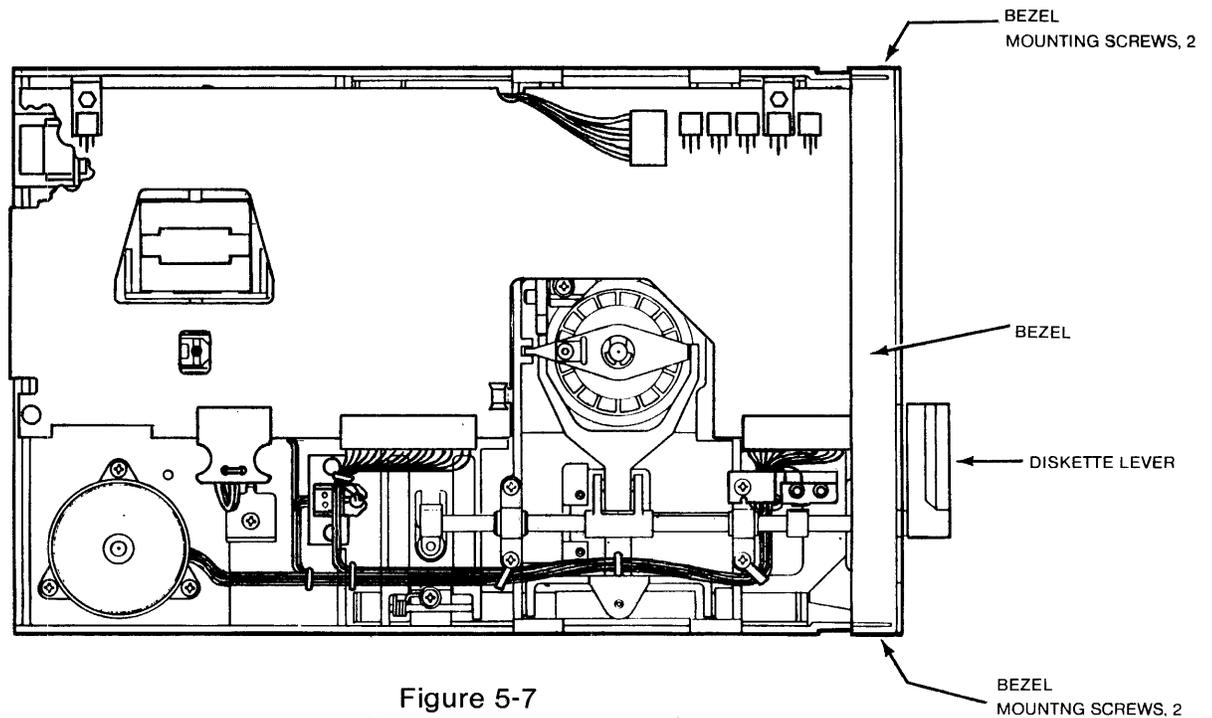


Figure 5-7  
Diskette Lever Adjustment

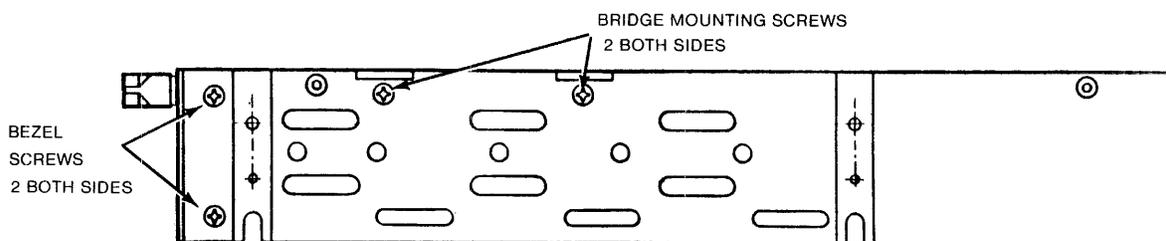


Figure 5-8  
Bridge Assembly Key Parts

- D. Carefully pull out the two index L. E. D.'s in the Bridge Assembly.
- E. Carefully lift out the Bridge Assembly toward the back of the drive. The shaft must clear the bezel.

#### 5.6.2 Installation

- A. Insert the shaft into the bezel and lay the Bridge Assembly in place.
- B. Install and tighten the four bridge mounting screws that attach the Bridge Assembly to the chassis.
- C. Install the two index L. E. D.'s into the Bridge Assembly.
- D. Install the diskette lever (see Section 5.5.2).
- E. Install the circuit board (see Section 5.3.2).

#### 5.6.3 Checks

- A. Ensure that the diskette lever clamps the cone and loads the head (see Figure 5-9).

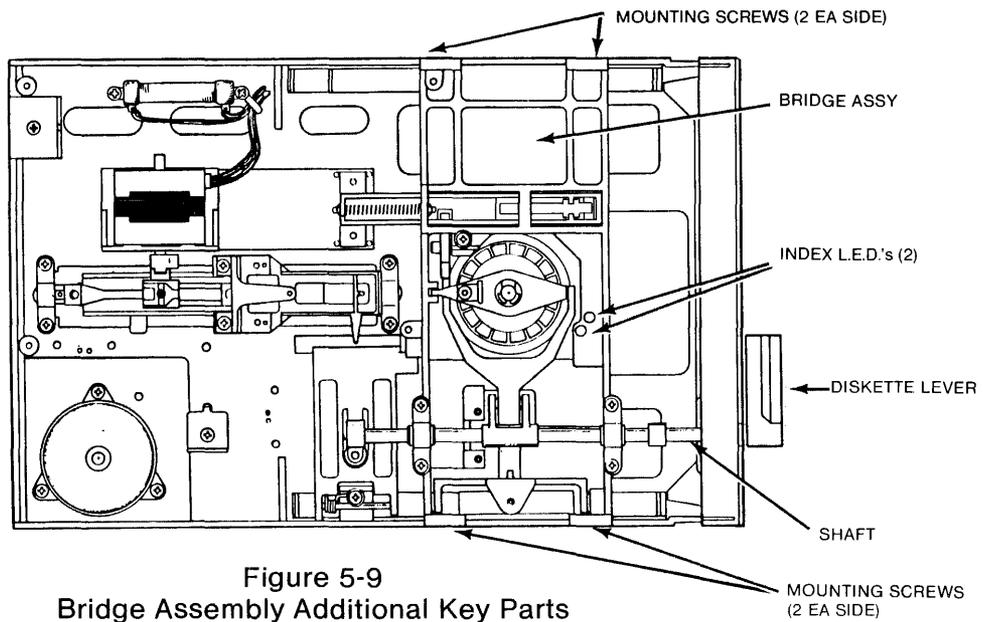


Figure 5-9  
Bridge Assembly Additional Key Parts

5.7 BEZEL

5.7.1 Removal

- A. Remove the diskette lever (see Section 5.5).
- B. Remove the four bezel mounting screws, two on each side, that attach the bezel to the chassis (see Figure 5-10).

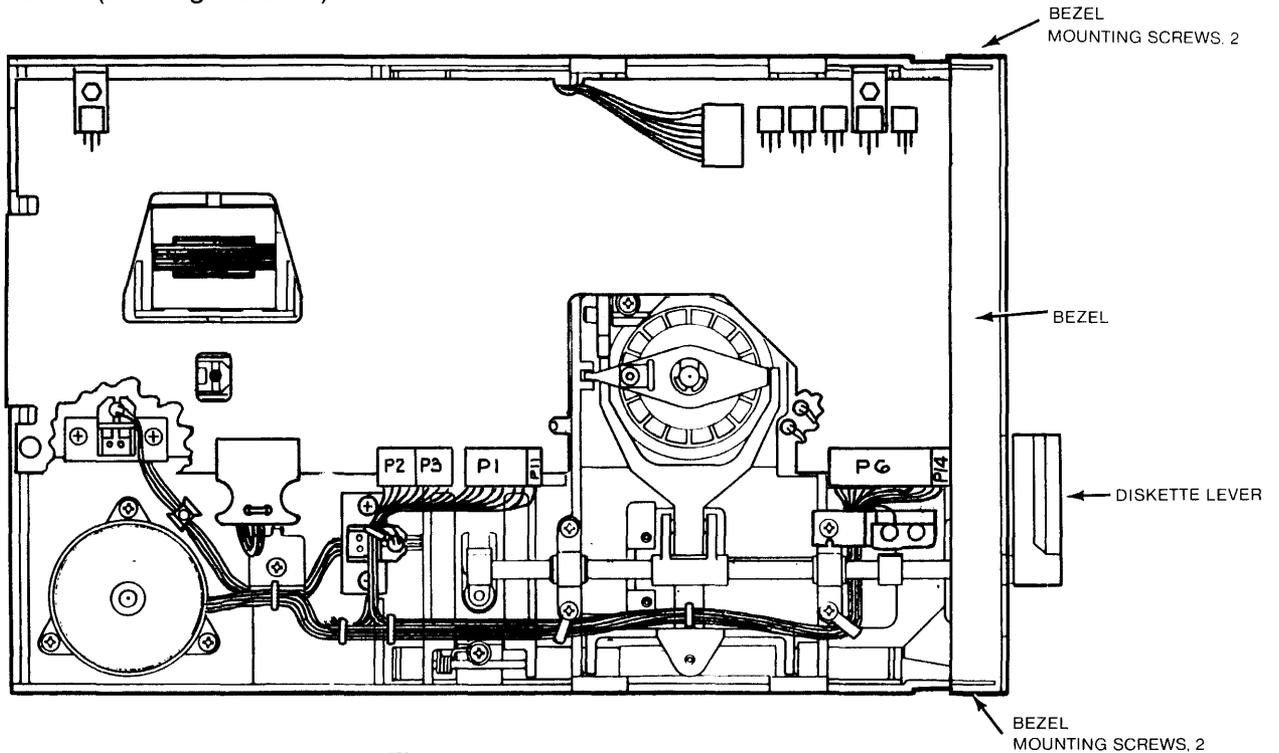


Figure 5-10  
Bezel and Related Parts

- C. Lift off the bezel, being careful that the Activity L. E. D. comes out of its mounting with no binding.

## 5.7.2 Installation

- A. Put the bezel on the drive, ensuring that the Activity L. E. D. goes into its holder.
- B. Install the four bezel mounting screws that attach the bezel to the chassis.

## 5.7.3 Checks

- A. Ensure that the Activity L. E. D. goes on when required.
- B. Ensure that the diskette lever clamps the cone and loads the head.

## 5.8 ACTIVITY L. E. D.

### 5.8.1 Removal

- A. Remove the bezel (see Section 5.7.1).
- B. Remove the brackets that hold the bundle of wires going to P11 from the chassis (see Figure 5-11).

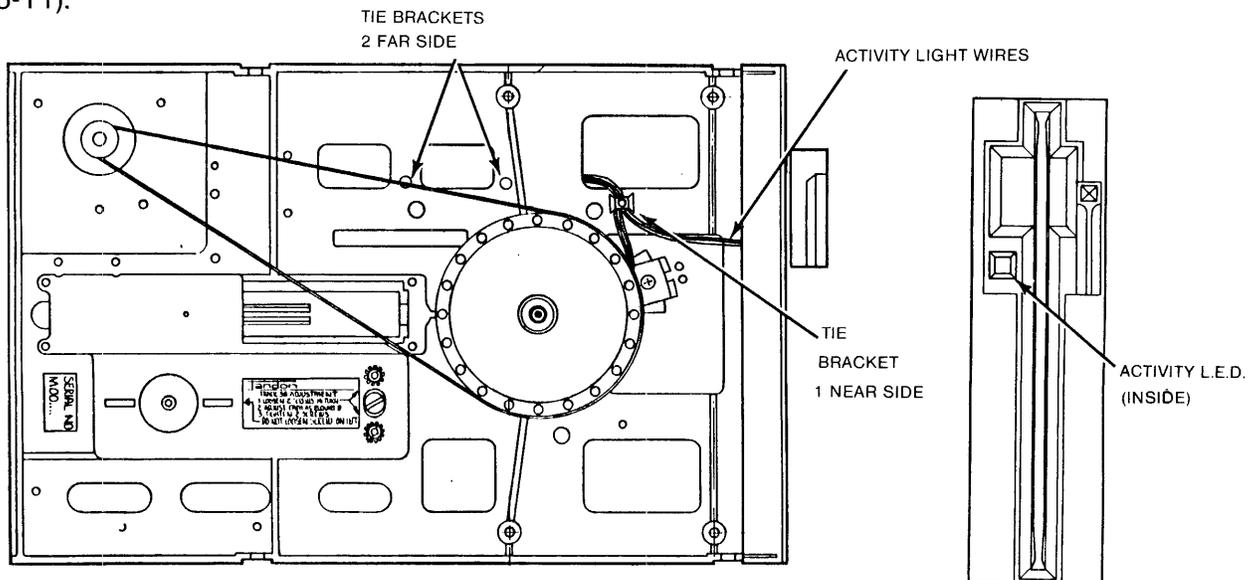


Figure 5-11  
Activity L. E. D. Key Parts

- C. Remove the Activity L. E. D. and its wires after unplugging P11.

### 5.8.2 Installation

- A. Install the Activity L. E. D. into the bezel.
- B. Install the bezel.
- C. Attach the Activity L. E. D. wires to the chassis with brackets (see Figure 5-11).
- D. Plug P11 into the circuit board.

### 5.8.3 Checks

- A. Ensure that the Activity L. E. D. does not interfere with the drive mechanisms.
- B. Ensure that the Activity L. E. D. goes on when required.

## 5.9 LOAD ARM ASSEMBLY

### 5.9.1 Removal

- A. Remove the circuit board (see Section 5.3.1).
- B. Remove the mounting screw and washer that are used to attach the Load Arm Assembly to the chassis (see Figure 5-12).

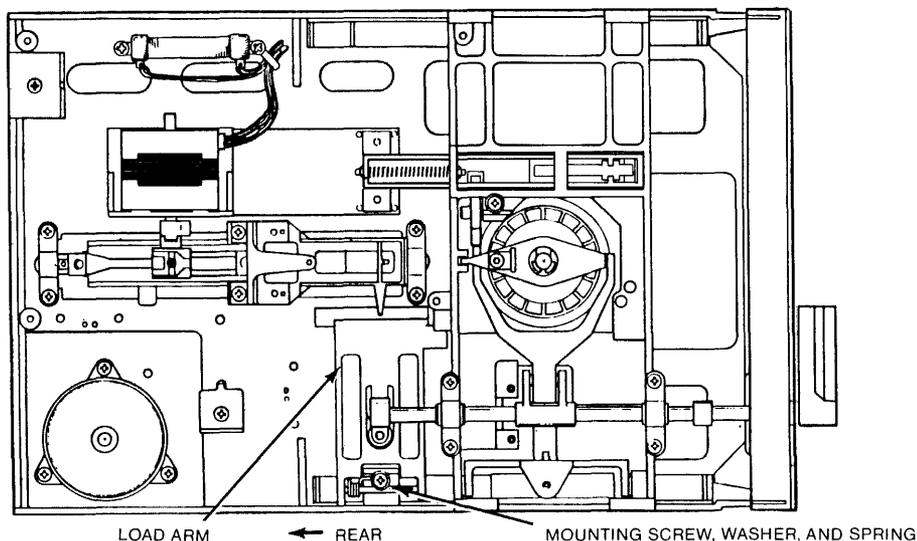


Figure 5-12  
Load Arm Assembly Key Parts

- C. Carefully slide out the Load Arm Assembly toward the rear of the chassis.

### 5.9.2 Installation

- A. Slide the Load Arm Assembly into position from the rear of the chassis, ensuring that the load spring is sitting under the front of the mounting screw.
- B. Install and tighten the mounting screw that attaches the Load Arm Assembly to the chassis, ensuring that the washer is under the screw and that the head lift arm is over the Load Arm Assembly.
- C. Install the circuit board (see Section 5.3.2).

### 5.9.3 Checks

- A. Insert a diskette in the drive.
- B. Ensure that the head is loaded when the diskette lever is activated and that adequate clearance is attained for diskette insertion and ejection (see Section II).

## 5.10 TRACK 00 SENSOR ASSEMBLY

### 5.10.1 Removal

- A. Remove P2 from the circuit board.
- B. Cut the tie wraps that hold the cable harness, and remove the P2 wires (see Figure 5-13).

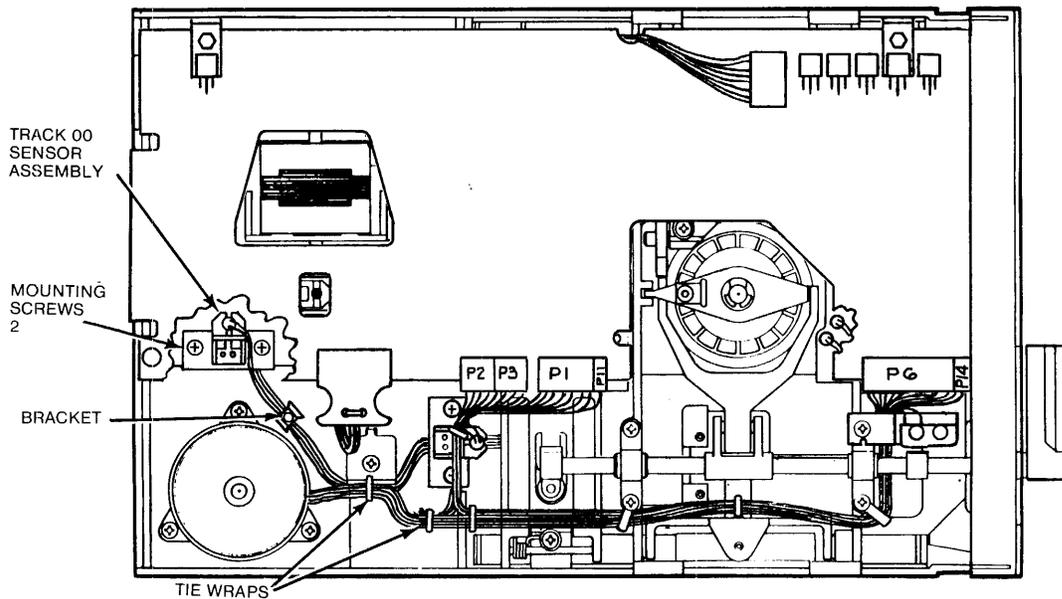


Figure 5-13  
Track 00 Sensor Assembly Key Parts

- C. Remove the P2 wires from the bracket attached to the chassis.
- D. Remove the two mounting screws that hold down the Track 00 Sensor Assembly.
- E. Lift off the Track 00 Sensor Assembly.

#### 5.10.2 Installation

- A. Using the two original mounting screws, install the Track 00 Sensor Assembly.
- B. Loop the P2 wires from the Track 00 Sensor Assembly through the bracket attached to the chassis.
- C. Using tie wraps, cable harness the P2 wires and the other wires together.
- D. Plug P2 into the circuit board.

#### 5.10.3 Checks

- A. Adjust the Track 00 sensor (see Section II).

### 5.11 WRITE PROTECT SENSOR ASSEMBLY

#### 5.11.1 Removal

- A. Remove P3 from the circuit board.
- B. Remove the two mounting screws that attach the Write Protect Sensor Assembly to the chassis (see Figure 5-14).
- C. Cut the tie wraps that hold the wires to the cable harness, and lift out the Write Protect Sensor Assembly.

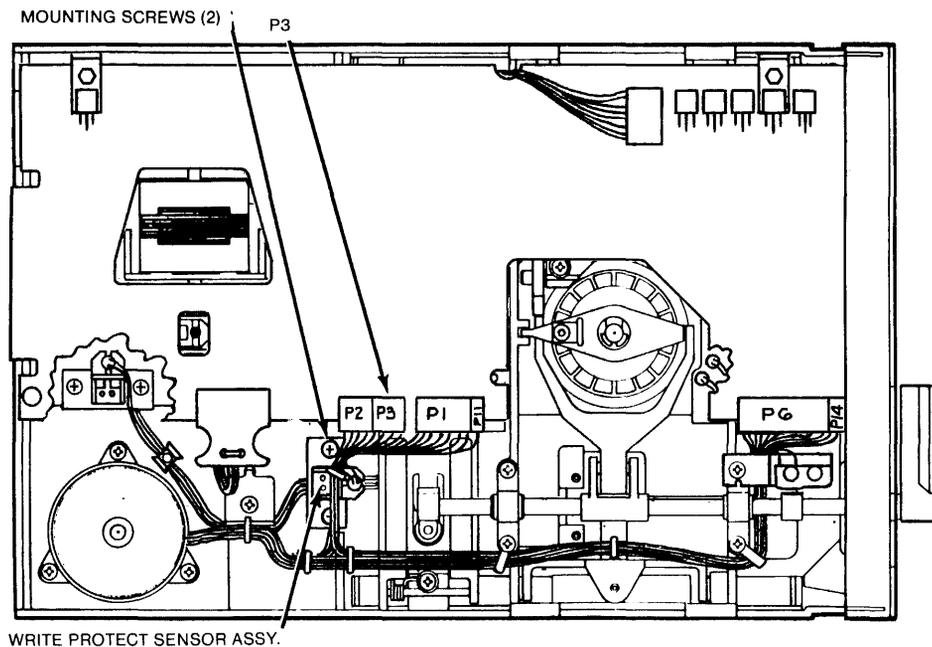


Figure 5-14  
Write Protect Sensor Assembly Key Parts

### 5.11.2 Installation

- A. Using the two original mounting screws, attach the Write Protect Sensor Assembly to the chassis.
- B. Plug P3 into the circuit board.
- C. Tie wrap the Write Protect wires to the cable harness.

### 5.11.3 Checks

- A. Verify operation of the Write Protect Sensor Assembly.

## 5.12 DOOR SWITCH ASSEMBLY

### 5.12.1 Removal

- A. Remove P14 from the circuit board.
- B. Remove the mounting screw from the door switch bracket (see Figure 5-15).
- C. Cut the tie wraps leading to P14.
- D. Lift out the Door Switch Assembly.

### 5.12.2 Installation

- A. Mount the Door Switch Assembly to the bridge, using the original mounting screw.
- B. Plug P14 into the circuit board.

### 5.12.3 Checks

- A. Ensure that the door switch operates properly.

## 5.13 INDEX SENSOR ASSEMBLY

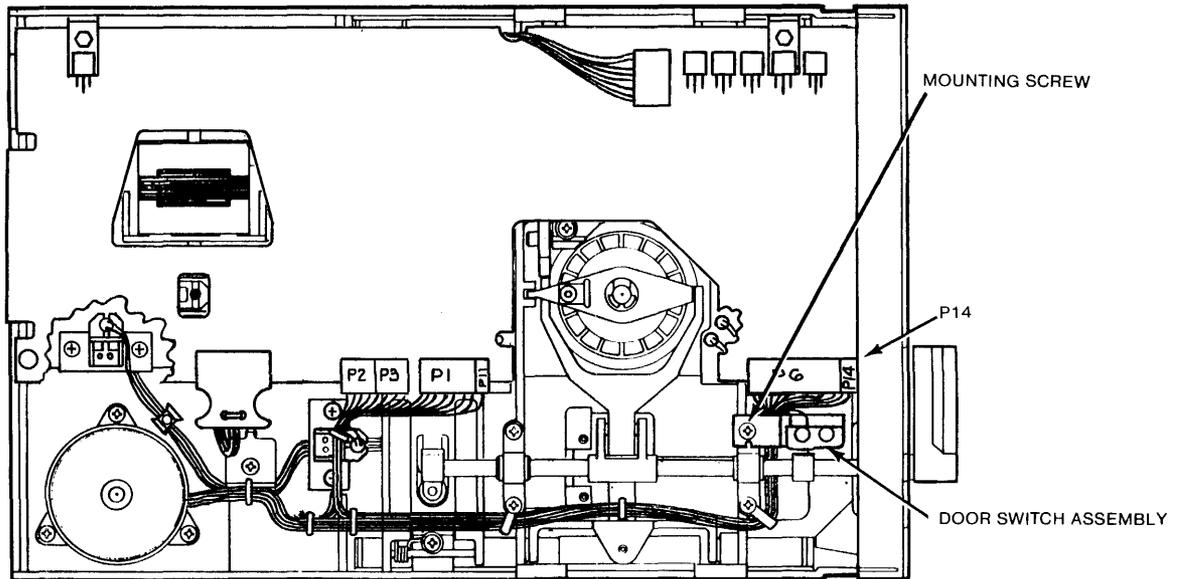


Figure 5-15  
Door Switch Assembly Key Parts

### 5.13.1 Removal

- A. Remove the circuit board (see Section 5.3.1).
- B. Gently remove the two index L. E. D. 's from the Bridge Assembly (see Figure 5-16).

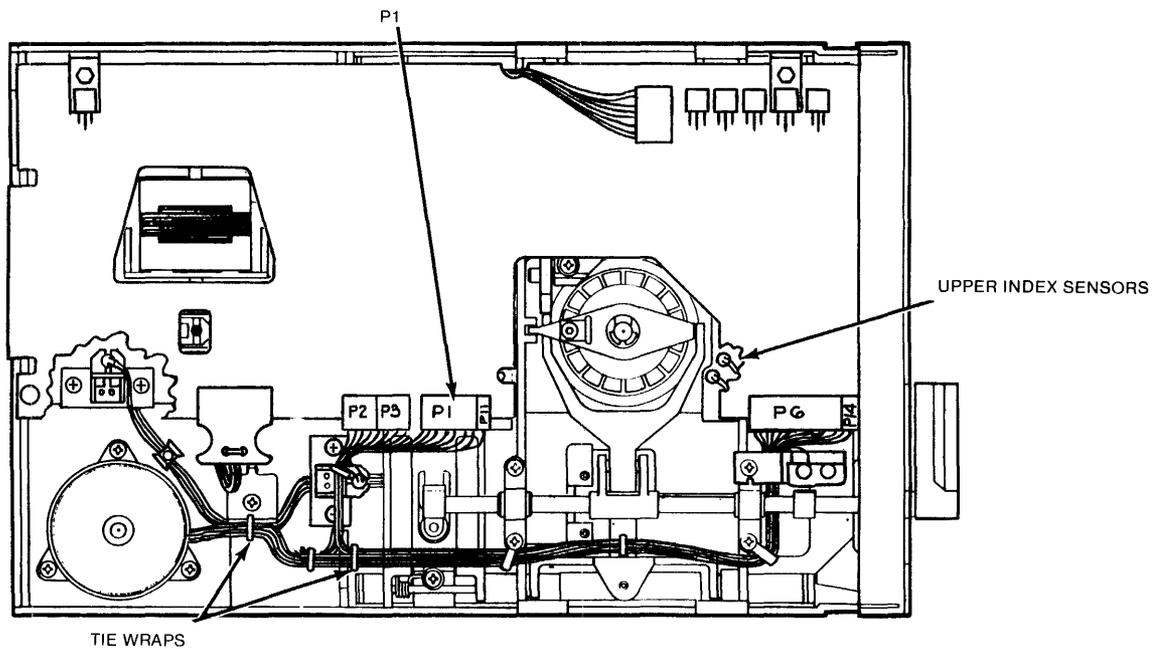


Figure 5-16  
Index Sensor Assembly Key Parts, Top View

- C. Turn the drive over and remove the mounting screw from the Index Sensor Assembly (see Figure 5-17).
- D. Remove the two brackets that attach the Index Sensor Assembly's wires to the chassis (see Figure 5-16).

E. Cut the tie wraps along the cable harness (see Figure 5-16).

F. Lift out the Index Sensor Assembly (P1).

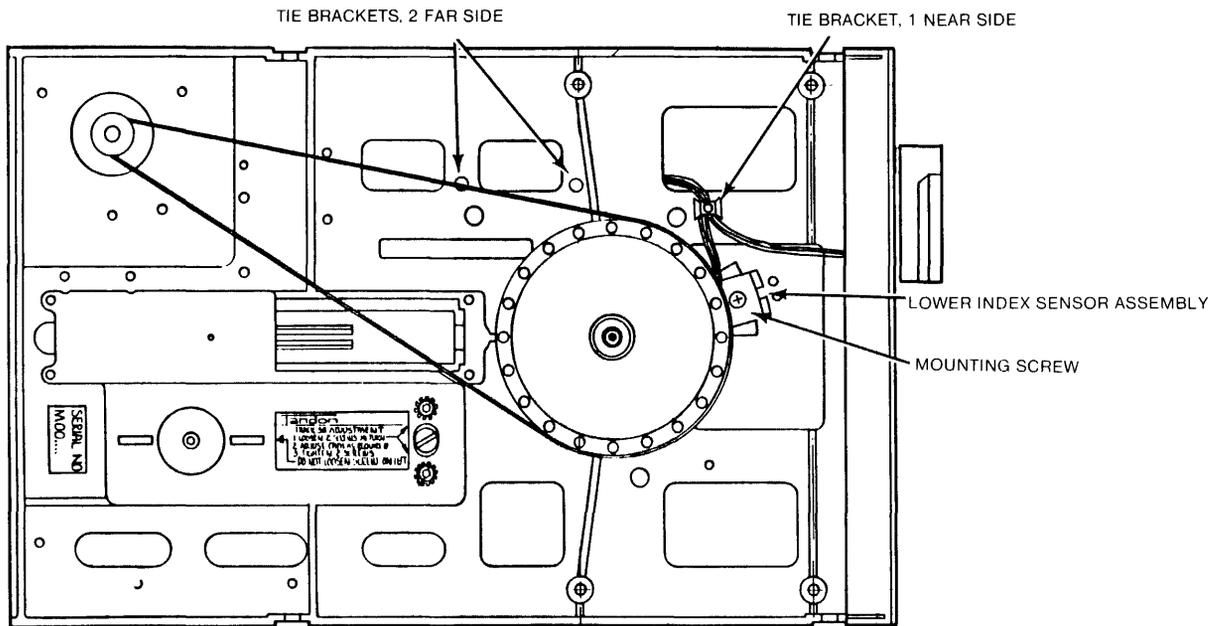


Figure 5-17  
Index Sensor Assembly Key Parts, Bottom View

### 5.13.2 Installation

- A. Put the Index Sensor Assembly into the drive.
- B. Loop the wires to the cable harness and chassis.
- C. Insert the two L. E. D. index sensors into their sockets.
- D. Using the original mounting screw, attach the index L. E. D. to the drive's chassis.
- E. Cable harness the bundle of wires, including the Index Sensor Assembly's wires.
- F. Reinstall the circuit board (see Section 5.3.2).

### 5.13.3 Checks

- A. Check the index-to-data adjustment (see Section II).

## 5.14 DISKETTE EJECTOR ASSEMBLY

### 5.14.1 Removal

- A. Remove the circuit board (see Section 5.3.1).
- B. Remove the door lock lever (see Figure 5-6).
- C. Locate and remove the four screws, two on each side, that hold the Bridge Assembly (see Figure 5-7).

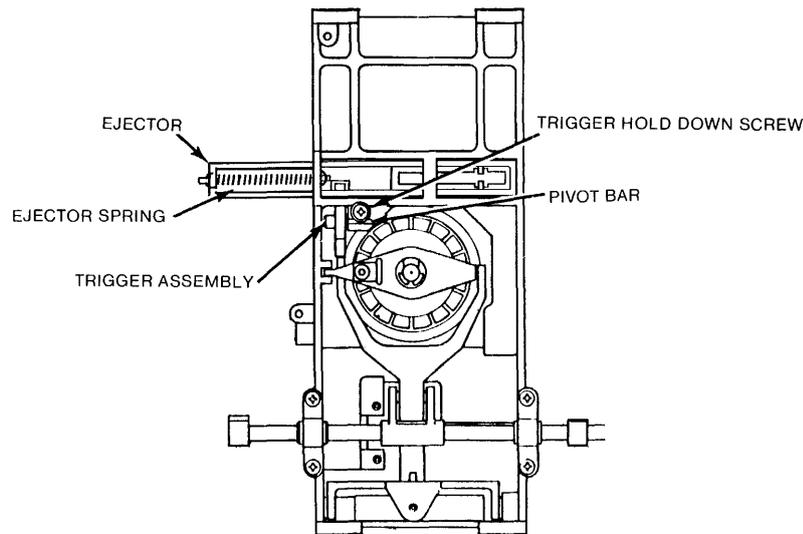


Figure 5-18  
Diskette Ejector Assembly Key Parts

- D. Lift up the Bridge Assembly approximately two inches, taking care not to pull the L. E. D.'s from their sockets.
- E. Release the spring attached to the rear of the ejector.
- F. Remove the ejector.

#### 5.14.2 Installation

- A. Insert the ejector.
- B. Engage the spring attached to the rear of the ejector.
- C. Insert the Bridge Assembly approximately two inches, taking care to put the L. E. D.'s in their respective sockets.
- D. Reinstall the original four screws that hold the Bridge Assembly.
- E. Push on the lever. Reinstall the retaining screw. Insert the small plug in the door lever.
- F. Reinstall the circuit board (see Section 5.3.1).

#### 5.14.3 Checks

- A. Insert a work diskette into the drive.
- B. Ensure that the diskette stays in prior to being closed.
- C. Close and open the diskette lever.
- D. The diskette should eject.
- E. If not, see Section 5.4.

#### 5.15 LOAD RESISTOR ASSEMBLY

### 5.15.1 Removal

- A. Remove P5 from the circuit board.
- B. Remove the circuit board (see Section 5.3.1).
- C. Remove the two mounting screws that attach the Load Resistor Assembly to the chassis.
- D. Unsolder the wires to the load resistors (see Figure 5-19).
- E. Mark or identify these wires so that they can be put back in the same location.

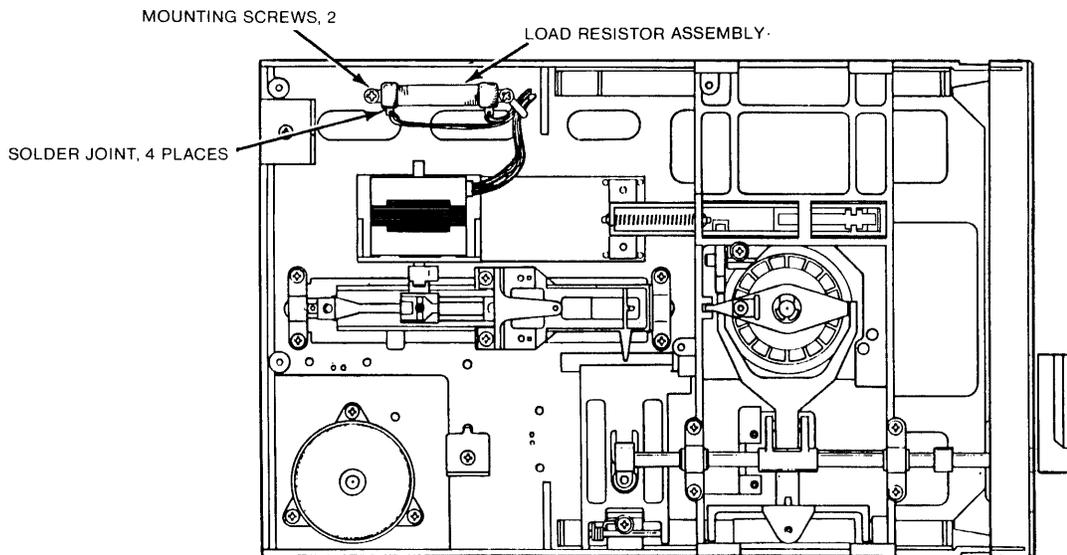


Figure 5-19  
Load Resistor Assembly and Key Parts

### 5.15.2 Installation

- A. Solder the wires back in the same place at which they were originally.
- B. Mount the Load Resistor Assembly onto the chassis using the two original mounting screws.
- C. Install the circuit board (see Section 5.3.2).
- D. Plug P5 into the circuit board.

### 5.15.3 Checks

- A. Enable the drive through the interface logic.
- B. Step the drive to Track 00.
- C. Step the drive to Track 76.
- D. Do the C. E. alignment verification procedure (see Section II).

## 5.16 STEPPER BAND

### 5.16.1 Removal

It is suggested that the drive be returned to an authorized Tandon repair center when removing the stepper band.

- A. Remove the circuit board (see Section 5.3.1).
- B. Lift off the stepper band from the spring tensioner (see Figure 5-20).

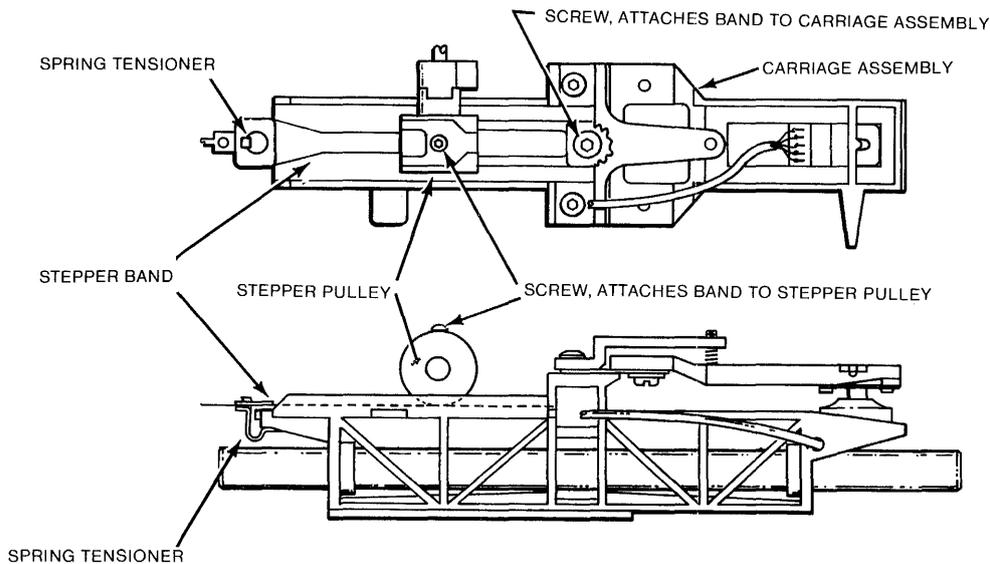


Figure 5-20  
Stepper Band Key Parts

- C. Remove the screw that attaches the front of the stepper band to the Head Carriage Assembly.
- D. Remove the mounting screw that attaches the stepper band to the stepper pulley.
- E. Lift out the stepper band.

### 5.16.2 Installation

- A. Screw the front of the stepper band into the Head Carriage Assembly (see Figure 5-21).
- B. Loop the stepper band around the stepper pulley.
- C. Attach the rear of the band to the spring tensioner.
- D. Attach the stepper band to the stepper pulley loosely with the mounting screw.
- E. Move the Head Carriage Assembly back and fourth at least five times.
- F. Visually inspect the stepper band to ensure that it is centered on the stepper pulley.
- G. Tighten the mounting screw that attaches the stepper pulley to the stepper band.
- H. Install the circuit board (see Section 5.3.2).

### 5.16.3 Checks

- A. Check the C. E. alignment (see Section II).

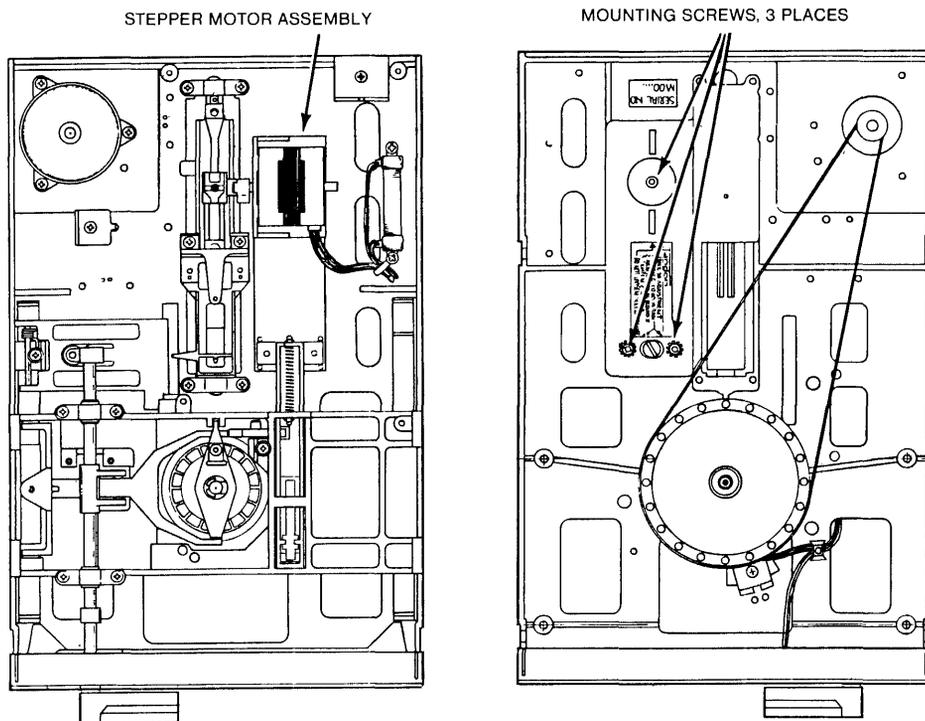


Figure 5-21  
Stepper Band Additional Key Parts

## 5.17 STEPPER MOTOR ASSEMBLY

### 5.17.1 Removal

It is suggested that the drive be returned to an authorized Tandon repair center when removing the Stepper Motor Assembly.

- A. Remove the circuit board (see Section 5.3.1).
- B. Remove the stepper band (see Section 5.16.1).
- C. Remove the three mounting screws that attach the Stepper Motor Assembly to the chassis (see Figure 5-22).
- D. Remove plug connectors P4 and P5 from the circuit board.
- E. Cut the tie wraps that connect the stepper motor wires to the load resistors.
- F. Lift out the Stepper Motor Assembly.

### Note

Be careful not to damage the stepper band.

### 5.17.2 Installation

- A. Place the Stepper Motor Assembly into the drive's chassis.
- B. Using the original three mounting screws, attach the Stepper Motor Assembly to the chassis.

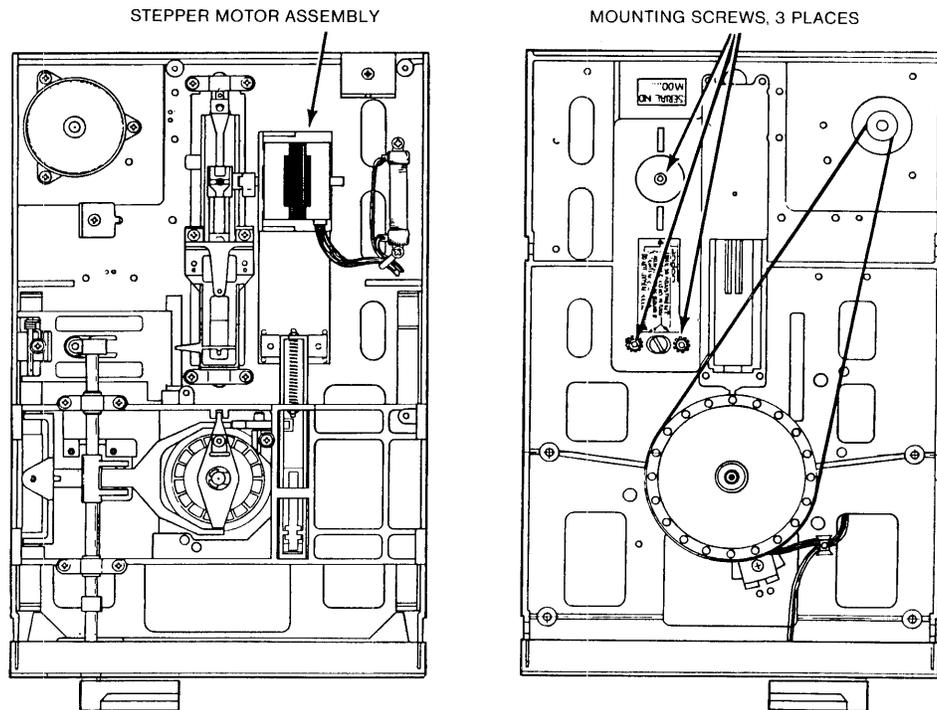


Figure 5-22  
Stepper Motor Assembly Key Parts

- C. Replace the stepper band (see Section 5.16.2).
- D. Replace the circuit board (see Section 5.3.2).

### 5.17.3 Checks

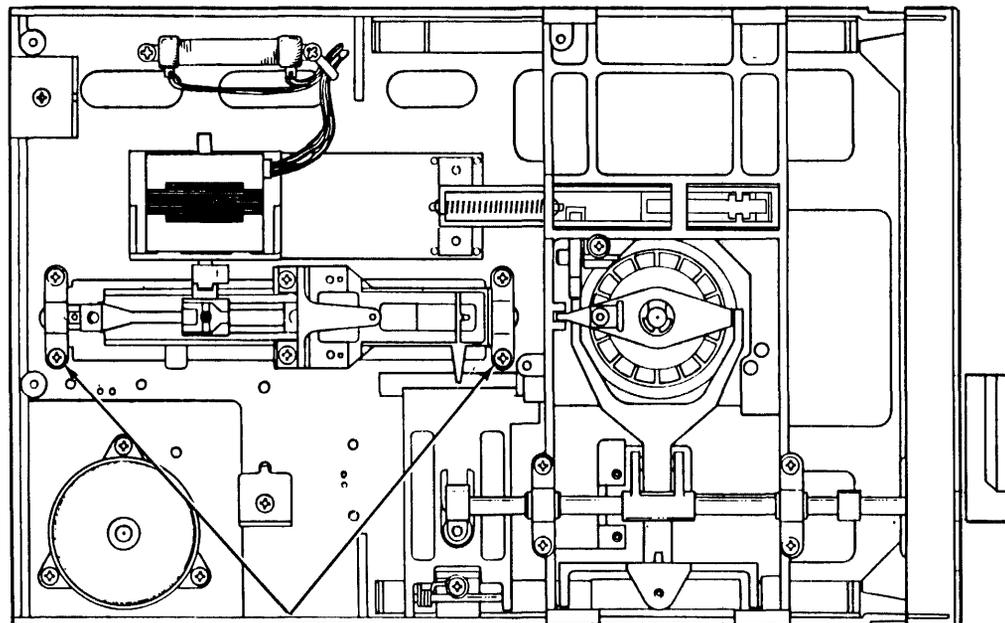
- A. Align the C. E. lobes on the drive (see Section II).

## 5.18 HEAD CARRIAGE ASSEMBLY

### 5.18.1 Removal

It is suggested that the drive be returned to an authorized Tandon repair center when removing the Head Carriage Assembly.

- A. Remove the Stepper Motor Assembly (see Section 5.17.1).
- B. Remove plug connectors P8 and P9 from the circuit board.
- C. Cut the tie wraps that hold the head cables to the chassis.
- D. Remove the clip that holds the head cables to the head cable flexure bracket.
- E. Remove the four mounting screws that attach the carriage shaft to the chassis (see Figure 5-23).



MOUNTING SCREWS 4 PLACES

Figure 5-23  
Head Carriage Removal

F. Lift out the Head Carriage Assembly.

#### 5.18.2 Installation

- A. Install the carriage shaft in the carriage.
- B. Using the four original mounting screws, attach the carriage shaft to the chassis.
- C. Install the Stepper Motor Assembly (see Section 5.17.2).

#### Note

Take care not to damage the Arm Spring Assembly.

- D. Plug connectors P8 and P9 into the circuit board.
- E. Cable harness the Head Carriage Assembly's wires to the main wire bundle.

#### 5.18.3 Checks

- A. Check the azimuth (see Section II).
- B. Check the Cats Eye alignment (see Section II).
- C. Check the index alignment (see Section II).