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Abstract:

This manual is produced by Y-E DATA INC. and reproduced by RC according to agreement.

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Y-E DATA

MAINTENANCE MANUAL

YD-180

HALF HEIGHT DOUBLE SIDED DOUBLE DENSITY

8 INCH FLEXIBLE DISK DRIVE

Y-E DATA INC.

Contents of this publication may be changed without notice.
Check the revision number for placing an order.

FDE-581001 REV. B

Revisions

Date	Rev.	Description	Revised pages
6, 1982	A	First edition	
12, 1982	B	Motor check & adjust	16,17,18

Note: In this publication,

(1) The YD-180 will be referred to as simply a "drive".

(2) The 8-in. flexible disk will be referred to as simply a "disk".

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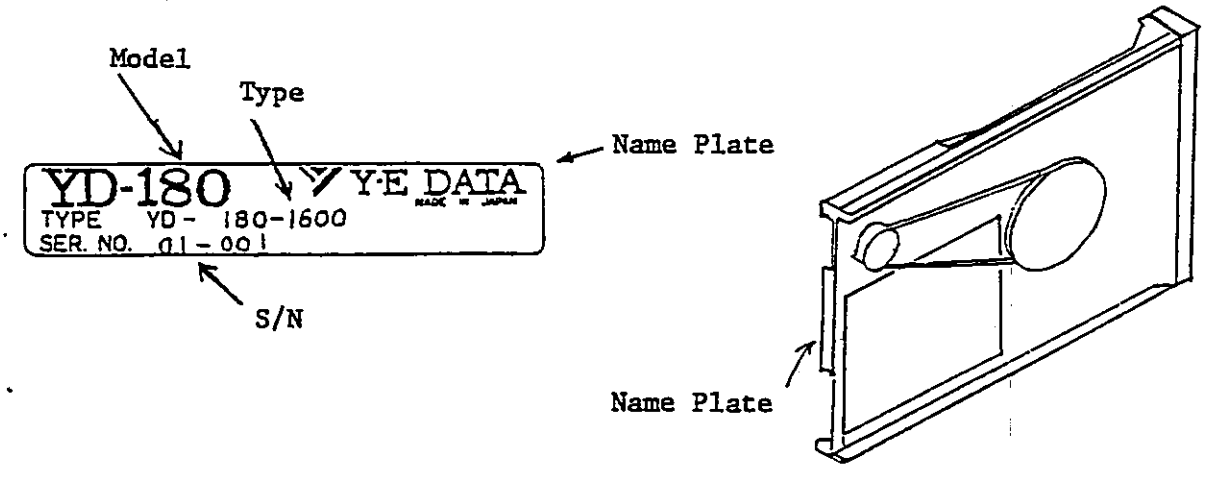
1.0 INTRODUCTION

This manual contains information describing the maintenance and operation of the Y-E Data YD-180 8 inch double sided double density flexible disk drive.

This manual provides detailed information of service checks, removal and replacement procedures, and adjustment instructions for customers engineers.

Maintenance procedures may differ depending upon the serial number (S/N) and type printed on the name plate.



2.0 MAINTENANCE TOOLS AND TEST EQUIPMENT

Tools and Equipment	Part Number	Remarks
• Tool Kit	141771-01	
Phillips Screwdriver (for M3 & M4)	140264-01	
Phillips Screwdriver (for M2 & M2.6)	141627-01	
Flat Head Screwdriver	141035-01	
Inspection Mirror	140268-01	
Cutters	140269-01	
Needle Nose Pliers	140372-01	
Tweezers	140265-01	
• Cleaning Disk (Nagase Sangyo CFD8W)		Verbatim CD8D
• CE Disk	140272-01	
Exerciser YD-164		

3.0 MAINTENANCE LEVELS

Maintenance is divided into three levels: preventive maintenance, maintenance level 1 and maintenance level 2.

Maintenance level 1 contains replacements of PWB, five photo sensors/ LED and drive belt.

Maintenance level 2 contains replacements of all other assemblies excluding the level 1.

4.0 PREVENTIVE MAINTENANCE

4.1 GENERAL

Under a reasonably dust-free environment, a preventive maintenance should be performed on the YD-180 every year. This contains visual check and cleaning.

Under a very dirty environment, the time between maintenance checks should be shortened.

4.2 PREVENTIVE MAINTENANCE ITEMS

Parts	Observe	Procedure	Supplies
Main Frame	Dirt and dust on the connector, the sensor and others	Clean.	Lint free gauze
	Loose screws	Tighten.	
Drive Belt	Dirt and dust	Clean.	Isopropyl alcohol
	Frayed or weakened areas	Replace.	
Guide bars and carriage	Dirt and dust	Clean.	Lint free gauze

4.3 HEAD/CARRIAGE ASSEMBLY

The head/carriage assembly is factory adjusted and tested and is not field serviceable. Do not, for any reason, attempt to repair this internal component.

Clean the dirt on read/write heads only with the cleaning disk. If it does not work, return the drive or the assembly to the manufacturer.

The read/write heads of the YD-180 are harder to collect dirts on their surfaces than single sided drives. However, following cautions must be taken:

1 Handle disks with care. (Do not use a coffee spilt disk.)

2 Do not use a worn disk.

5.0 SERVICE CHECK, REPLACEMENT AND ADJUSTMENT MAINTENANCE LEVEL 1

This chapter contains the detailed maintenance procedure on the assemblies tested below.

5.1 PWB

5.2 Index Lamp Assembly

5.3 Index Sensor Assembly

5.4 Track 00 Sensor Assembly

5.5 Write Protect Sensor Assembly

5.6 In use LED Assembly

5.7 Drive Belt

5.1 PWB

5.1.1 REMOVAL AND REPLACEMENT

1. Remove the drive belt (refer to 5.7).
2. Remove four connectors (J1, J2, J3 and J5(J6)) from the PWB.
3. Remove the four screws securing the PWB to the main frame casting. Remove the PWB.
4. Reverse the above procedure for re-installation of the PWB.

5.2 INDEX LAMP ASSEMBLY

5.2.1 SERVICE CHECK

1. Power up the drive.
2. Check for +2.0 to +3.4V between connector pins J2-B8 and GND on the PWB.

5.2.2 REMOVAL AND REPLACEMENT

1. Remove the J2 connector from the PWB.
2. Remove the two index lamp leads from the J2 connector by pushing down on the lamp lead tabs in the connector with tweezers: black to J2-A8, red to J2-B8.

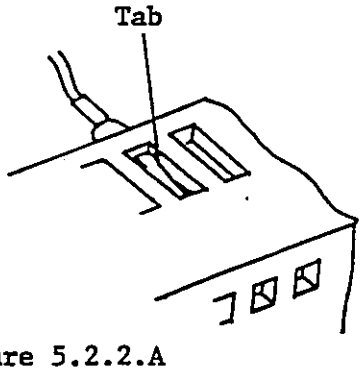


Figure 5.2.2.A

3. Cut the cable tie wrap.

CAUTION

Avoid damage to the lead covering when cutting the tie wrap.

4. Loosen the bead band and separate the index lamp leads.

5. Remove the screw securing the index lamp assembly to the carrier assembly. Remove the index lamp assembly.

6. Reverse the above procedure for re-installation.

Note: Install the index lamp assembly on the carrier, pushing the assembly firmly against the stop (refer to the illustration below).

Note: Make sure that the locking tabs on the leads engage in the connector slot. This will prevent the leads from pushing out when the connector is plugged in.

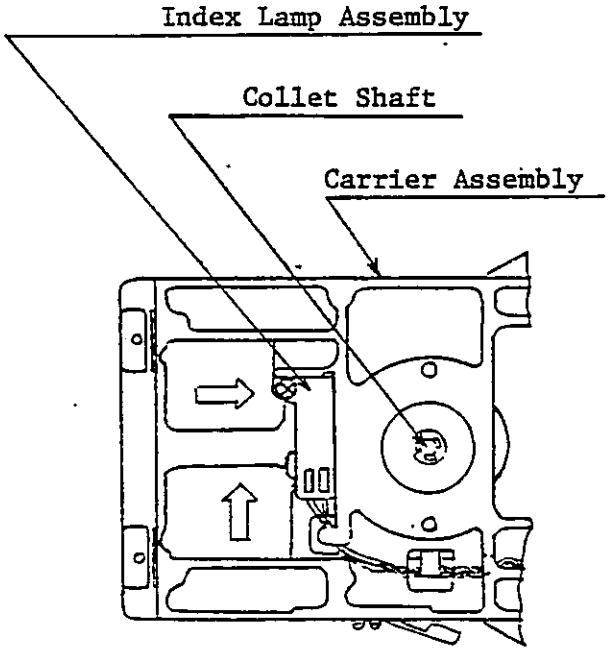


Figure 5.2.2.B

5.3 INDEX SENSOR ASSEMBLY

5.3.1 SERVICE CHECK

1. Power up the drive.

2. Check for +4.0 to +5.25V between J2-A7 and GND on the PWB without a disk installed and with the drive door closed; and for 0.0 to +0.3V with a disk installed (upside down, so that the index hole cannot line up with the index lamp and sensor) and the door closed.

3. Check between J2-A6 and GND on the PWB for the same voltages and under the same conditions described in step 2 above.

4. Remove the disk.

5.3.2 REMOVAL AND REPLACEMENT

1. Disconnect the J2 connector from the PWB.

2. Remove the four index sensor leads from the J2 connector by pushing down on the sensor lead tabs in the connector with tweezers: black to J2-A7, red to J2-B7, blue to J2-A6, orange to J2-B6.

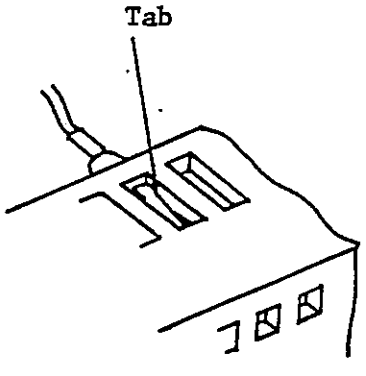


Figure 5.3.2.A

3. Cut the cable tie wrap.

> **CAUTION**
>
> Avoid damage to the lead covering when cutting the tie wrap.

4. Loosen the bead band and separate the index sensor leads.

5. Remove the screw securing the sensor to the main frame casting. Remove the sensor assembly from the housing.

6. Reverse the above procedure for re-installation.

Note: Install the index sensor assembly in the cutout on the main frame, pushing the sensor firmly against the main frame stop (refer to the illustration below).

Note: Make sure that the locking tabs on the leads engage in the connector slot. This will prevent the leads from pushing out when the connector is plugged in.

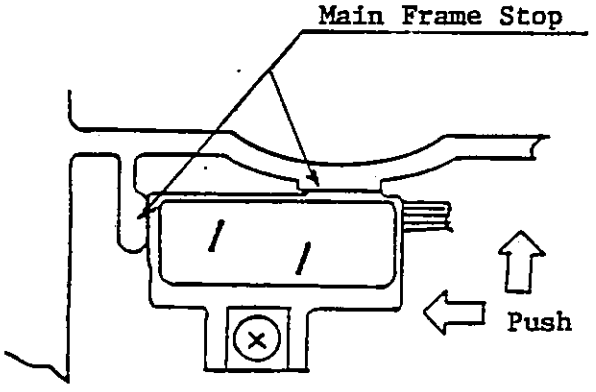


Figure 5.3.2.B

5.4 TRACK 00 SENSOR ASSEMBLY

5.4.1 SERVICE CHECK

1. Move the head/carriage assembly by hand all the way against the stop at the rear of the drive (away from the spindle).

2. Power up the drive. This positions the heads at track 00.

3. Check for +1.0 to +1.7V between J2-B12 and GND on the PWB.

4. Check for 0.0 to +0.3V between J2-A11 and GND on the PWB.

5. Power down the drive. Move the head/carriage assembly by hand toward the spindle by about 2 mm (track 04).

6. Power on the drive. Check for +4.0 to +5.25V between J2-A11 and GND on the PWB.

5.4.2 REMOVAL AND REPLACEMENT

1. Disconnect the J2 connector from the PWB.

2. Remove the four track 00 sensor leads from the J2 connector by pushing down on the sensor lead tabs in the connector with tweezers: blue to J2-A12, orange to J2-B12, black to J2-A11, red to J2-B11.

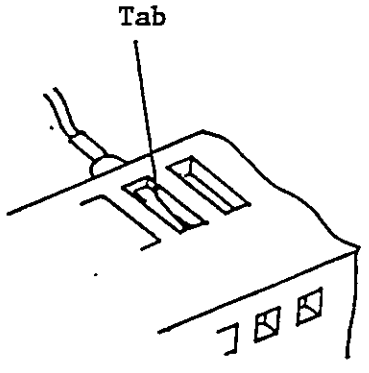


Figure 5.4.2.A

3. Cut the two cable tie wraps.

> **CAUTION**
>
> Avoid damage to the lead covering when cutting the tie wrap.

4. Loosen the bead band and separate the track 00 sensor leads.

5. Remove the screw securing the track 00 sensor assembly to the main frame casting. Remove the assembly.

6. Reverse the above procedure for re-installation.

Note: Install the track 00 sensor assembly on the main frame, making sure the peg on the bottom of the assembly is in the main frame hole and pushing the assembly in the opposite direction to the spindle hub.

Note: Make sure that the locking tabs on the leads engage in the connector slot. This will prevent the leads from pushing out when the connector is plugged in.

5.5 WRITE PROTECT SENSOR ASSEMBLY

5.5.1 SERVICE CHECK

1. Power up the drive.

2. Check for +2.0 to 3.4V between J2-B14 and GND on the PWB without a disk installed.

3. Check for 0.0 to +0.3V between J2-A13 and GND on the PWB. Then check for +4.0 to +5.25V between J2-A13 and GND on the PWB with an unprotected disk (no write protect notch) installed and the door closed.

4. Remove the disk.

5.5.2 REMOVAL AND REPLACEMENT

1. Disconnect the J2 connector from the PWB.

2. Remove the four write protect sensor leads from the J2 connector by pushing down on the sensor lead tabs in the connector with tweezers: black to J2-A14, red to J2-B14, blue to J2-A13, orange to J2-B13.

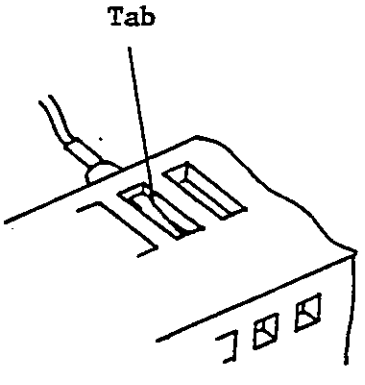


Figure 5.5.2.A

3. Cut the cable tie wrap.

> **CAUTION**
>
> Avoid damage to the lead covering when cutting the tie wrap.

4. Loosen the bead band and separate the write protect sensor leads.

5. With the drive door open, remove the screw securing the write protect sensor assembly to the main frame casting. Remove the assembly.

6. Reverse the above procedure for re-installation.

   Note: Install the write protect sensor assembly on the main frame, making sure the peg on the bottom of the assembly is in the main frame hole.

   Note: Make sure that the locking tabs on the leads engage in the connector slot. This will prevent the leads from pushing out when the connector is plugged in.

5.6 IN USE LED ASSEMBLY

5.6.1 REMOVAL AND REPLACEMENT

1. Disconnect the J2 connector from the PWB.

2. Remove the two In Use LED leads from the J2 connector by pushing down on the LED lead tabs in the connector with tweezers: black to J2-A15, red to J2-B15.

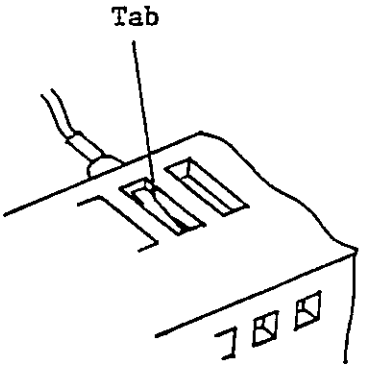


Figure 5.6.1.A

3. Cut the cable the wrap.

> **CAUTION**
>
> Avoid damage to the lead covering when cutting the tie wrap.

4. Loosen the bead band and separate the In Use LED leads.

5. Remove the screw securing the In Use LED assembly to the main frame casting. Remove the assembly.

6. Reverse the above procedure for re-installation.

   Note: Install the In Use LED assembly on the main frame, making sure the LED is in the bezel hole.

   Note: Make sure that the locking tabs on the leads engage in the connector slot. This will prevent the leads from pushing out when the connector is plugged in.

5.7 DRIVE BELT

5.7.1 SERVICE CHECK

1. Inspect the drive belt if it has become dirty with dust and dirt and if any evidence is found of fraying, cracking, or otherwise weakened areas.

5.7.2 REMOVAL AND REPLACEMENT

1. While turning the belt spindle pulley by hand, guide the drive belt so that it will rise up and over the edge of the spindle pulley.

2. Replace the drive belt on the motor pulley, then rotate the spindle pulley counterclockwise by hand so that the belt is riding contered on the spindle pulley and drive pulley surfaces.

   Note: Make sure that the belt does not contact any leads or components.

6.0 SERVICE CHECK, REPLACEMENT AND ADJUSTMENT

MAINTENANCE LEVEL 2

This chapter contains the detailed maintenance procedure on the assemblies listed below.

6.1 Drive Motor Assembly

6.2 Carrier Assembly

6.3 Pop-up Assembly

6.4 Media Guide

6.5 Head Load Solenoid Assembly

6.6 Door Lock Solenoid Assembly

6.7 Front bezel/Push Button

6.8 Front Door Assembly

6.9 Steel Belt Assembly

6.10 Stepper Assembly

6.11 Head/Carriage Assembly

6.1 DRIVE MOTOR ASSEMBLY

6.1.1 SERVICE CHECK

1. Power up the drive.
2. Install a disk and close the front door.
3. Load the read/write heads against the disk.
4. Connect the "TP3" and "GND" on the PWB to an electronic counter.
5. Check that the Index pulse cycle at TP3 is within 166.7 m sec ±1.5% (164.2 to 169.2 m sec).

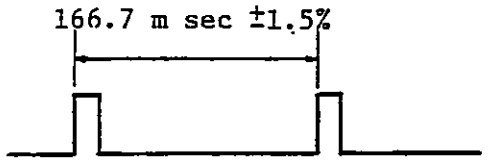


Figure 6.1.1

6.1.2 REMOVAL AND REPLACEMENT

1. Remove the drive belt (refer to 5.7).

2. Disconnect the J2 connector from the PWB.

3. Remove the three drive motor leads from the J2 connector by pushing down on the motor lead tabs in the connector with tweezers: black to J2-A9, red to J2-B9, blue to J2-B10.

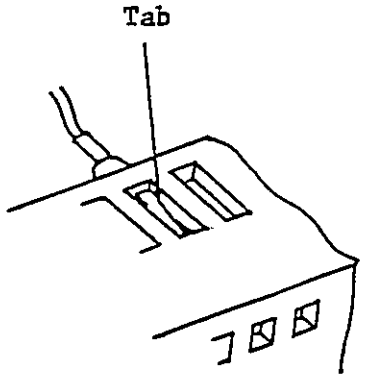


Figure 6.1.2.A

4. Cut the cable tie wrap.

CAUTION

Avoid damage to the lead covering when cutting the tie wrap.

5. Loosen the bead band and separate the drive motor leads.

6. Remove the two screws securing the motor control PWB to the main frame casting.

7. Remove the two screws securing the drive motor to the main frame casting. Remove the drive motor assembly.

8. Reverse the above procedure for re-installation.

Note: Install the drive motor on the main frame by pushing the motor against the main frame stops (refer to the illustration below).

Note: Make sure that the locking tabs on the leads engage in the connector slot. This will prevent the leads from pushing out when the connector is plugged in.

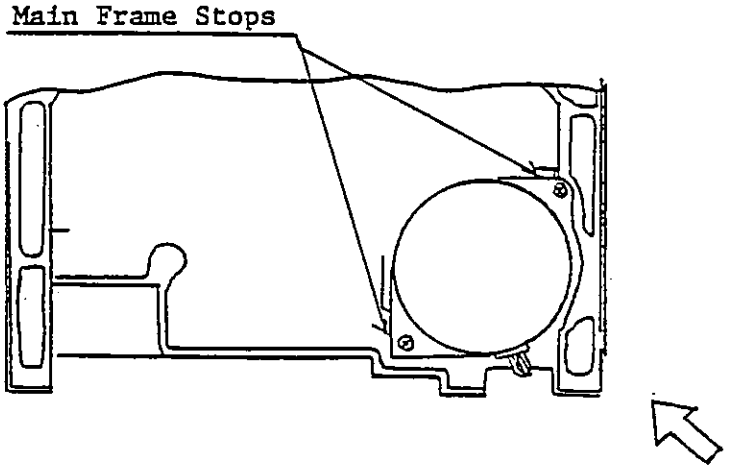


Figure 6.1.2.B

6.1.3 ADJUSTMENT

1. Adjust the Index cycle by turning the variable resistor on the motor control PWB with a screwdriver until the cycle is at 166.7 msec ±1% (refer to service check for the counter setting).

2. Paint the screw of the resistor to lock.

6.2 CARRIER ASSEMBLY

6.2.1 SERVICE CHECK

1. Close the front door.

2. Check for a gap between the carrier and the E-ring on the shaft of the collet assembly.

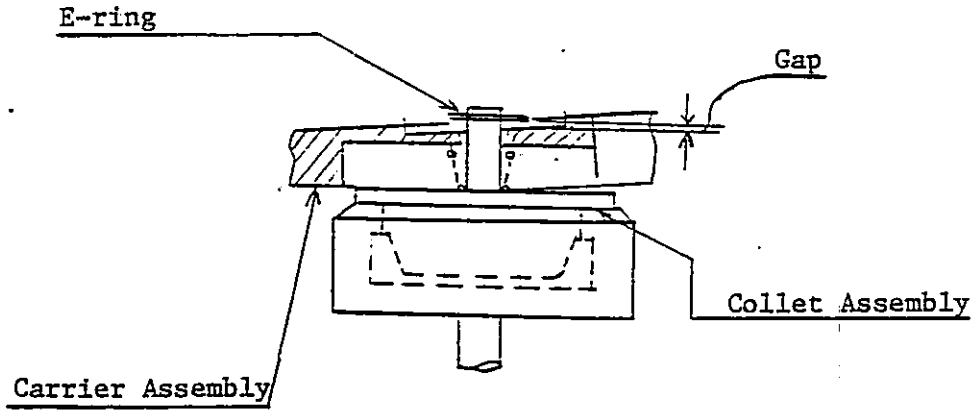


Figure 6.2.1.A

6.2.2 REMOVEL AND REPLACEMENT

1. Remove the screw securing the index lamps assembly to the carrier assembly. Remove the index lamp assembly (refer to 5.2.2).

2. Close the front door.

3. Remove the screw securing the ready off lever to the carrier assembly. Remove the ready off lever.

4. Remove the two screws securing the front door to the carrier assembly. Remove the front door (refer to 6.8).

5. Remove the screw securing the carrier holding spring to the main frame casting. Remove the carrier holding spring.

6. Raise the carrier in the upright position and remove the carrier from the main frame by sliding it in ⇒ direction.

7. Reverse the above procedure for re-installation.

   Note 1: Install the carrier assembly on the main frame, pushing the assembly against the main frame stop in the opposite direction of ⇒ and installing the carrier holding spring.

   Note 2: Make sure that a nylon washer is inserted into the carrier pin only at the drive motor side and is securely held.

   Note 3: Fit the two carrier springs securely in the guide.

8. Install the index lamp assembly (refer to 5.2.2).

9. Adjust the back stop adjustment screw (refer to 6.5.2).

10. Adjust the pop-up adjustment screw (refer to 6.3.2).

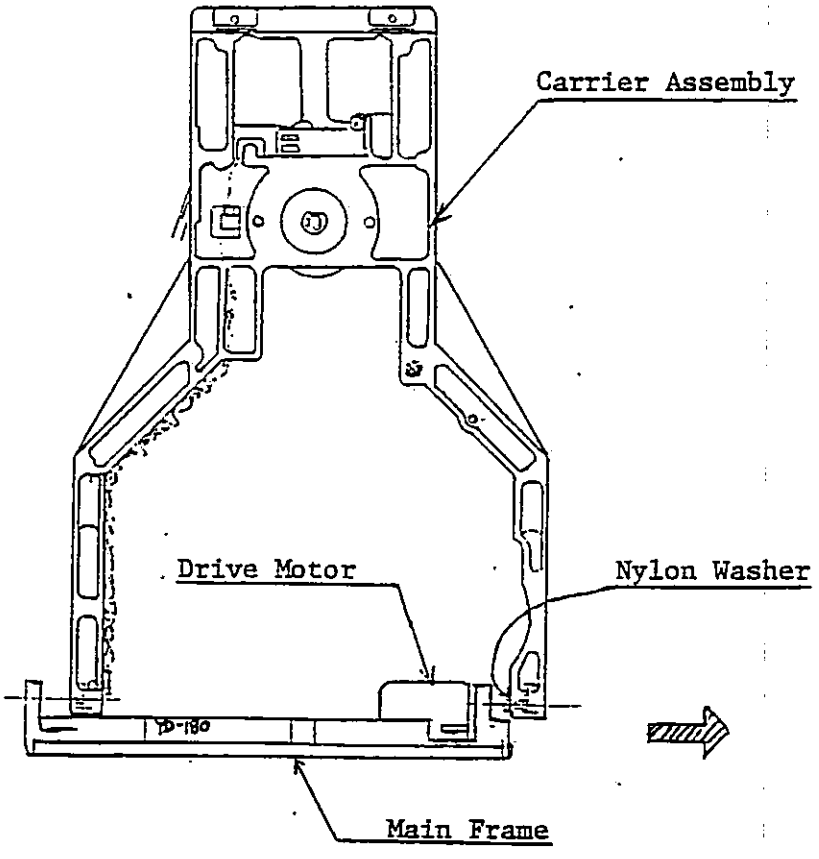


Figure 6.2.2.A

6.3 POP-UP ASSEMBLY

6.3.1 SERVICE CHECK

1. Install a disk in the drive and latch the pop-up slider. Remove the disk and close the drive door.

2. While holding the drive door, push the push button.

3. Open the drive door slightly until the pop-up slider is just unlatched.

4. Check for a gap of 2 to 4 mm between the spindle hub surface and the top of the collet assembly.

6.3.2 ADJUSTMENT

1. Latch the pop-up slider by sliding it toward the rear of the drive (away from the front door).

2. Loosen the two screws securing the pop-up lever to the carrier assembly.

3. Close the drive door.

4. Hold the door so that the gap between the spindle hub surface and the top of the collet assembly is approximately 2.5 mm.

5. Secure the two pop-up lever screws where the pop-up slider is just unlatched.

6. Perform service check (refer to 6.3.1).

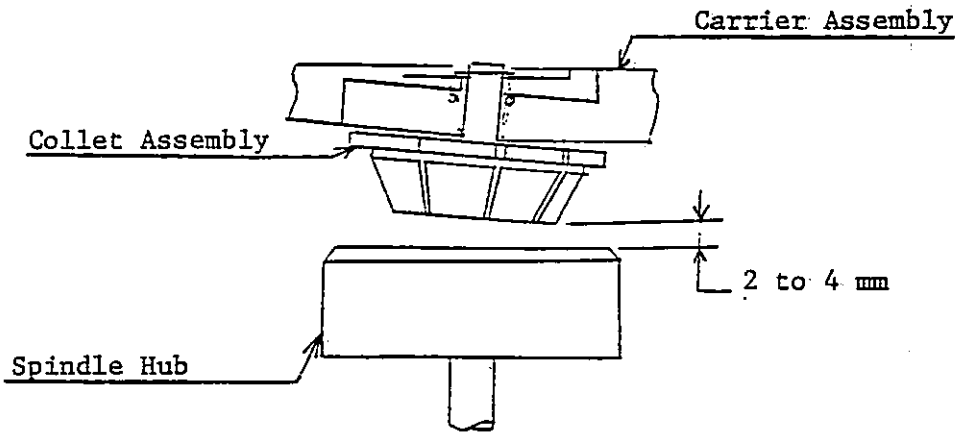


Figure 6.3.2.A

6.3.3 REMOVAL AND REPLACEMENT

1. Open the drive door.

2. Remove the two screws securing the front bezel to the main frame casting. Remove the bezel.

3. Remove the two screws securing the pop-up assembly to the main frame casting. Remove the pop-up assembly.

4. Reverse the above procedure for re-installation.

5. Perform service check (refer to 6.3.1).

6.4 MEDIA GUIDE

6.4.1 REMOVAL AND REPLACEMENT

1. Open the drive door.

2. Remove the two screws securing the front bezel to the main frame casting. Remove the front bezel.

3. Remove the two screws securing the media guide to the main frame casting. Remove the media guide.

4. Reverse the above procedure for re-installation.

6.5 HEAD LOAD SOLENOID ASSEMBLY

Note 1: Insert a piece of clean paper between the upper and lower read/write heads so that their surfaces do not contact each other.

Note 2: Remove the pop-up spring in the pop-up assembly from the pop-up slider.
Otherwise a disk may damage the head/carriage assembly when the disk pops out with the heads loaded.

6.5.1 SERVICE CHECK

1. Remove the pop-up spring in the pop-up assembly from the pop-up slider with tweezers.
2. Insert a disk in the drive and close the drive door.
3. Power up the disk drive. Install a shorting plug across test points HL on the PWB to load the heads against the disk.
4. Check for a gap between the bail and the carriage arm tab throughout the head/carriage assembly range of travel.
5. Remove the shorting plug installed at step 3. Power off the disk drive.
6. Remove the disk from the drive and close the drive door.
7. Check for a gap between upper and lower heads (with power off).
8. Install the pop-up spring to the pop-up slider.
9. Slide the head/carriage assembly by hand to approximately track 40 position.
10. Position the disk drive horizontally with the PWB down.
11. Power up the drive. Install a shorting plug across test points HL on the PWB to load the heads, and then remove the plug to unload the heads.

12. Check the gap between upper and lower heads (with power on). The gap should be within 0.1 and 0.3 mm.

    Note: As it cannot be measured, check the gap visually using an inspection mirror.

6.5.2 ADJUSTMENT

1. Close the driver door.

2. Slide the head/carriage assembly arm tab in the middle of the bail plate.

3. Position the disk drive horizontally with the PWB down.

4. Power up the drive. Install a shorting plug across test points HL on the PWB to load the heads, and then remove the plug to unload the heads.

5. Adjust the gap between heads for 0.1 to 0.3 mm (with power on).

    Note: As it cannot be measured, adjust the gap using an inspection mirror.
    Clockwise turn of the backstop adjustment screw reduces the gap between heads.

6. Perform service check (refer to 6.5.1).

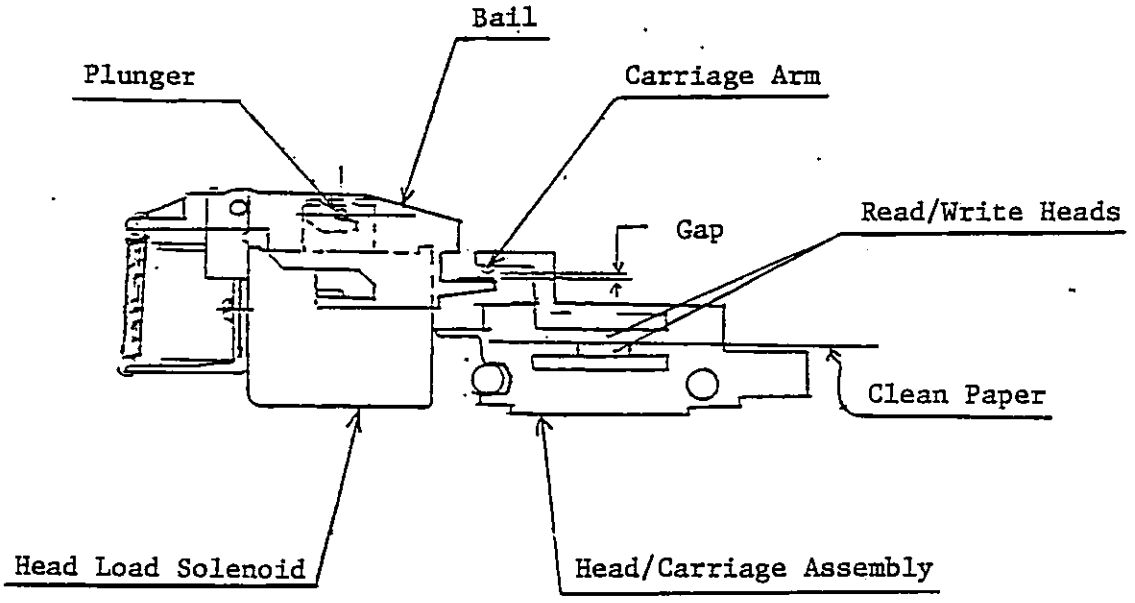


Figure 6.5.2.A

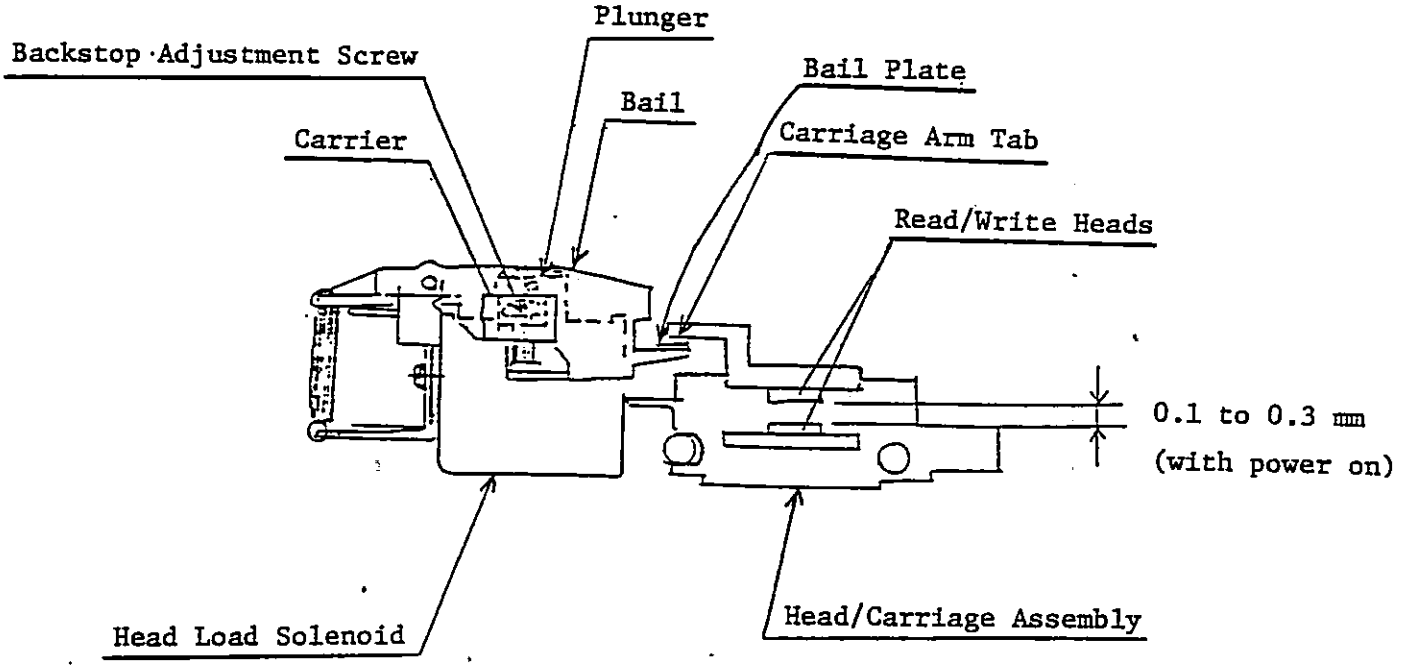


Figure 6.5.2.B

6.5.3 REMOVAL AND REPLACEMENT

1. Disconnect the J2 connector from the PWB.

2. Remove the two head load solenoid leads from the J2 connector by pushing down on the solenoid lead tabs in the connector with tweezers: black to J2-A1, red to J2-B1.

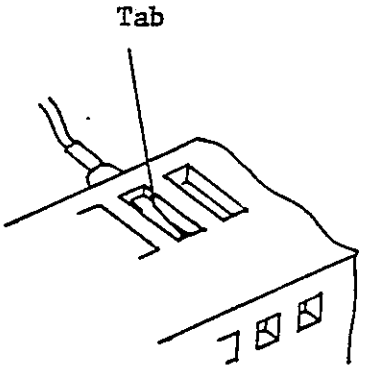


Figure 6.5.3.A

3. Cut the cable tie wrap.

CAUTION

Avoid damage to the lead covering when cutting the tie wrap.

4. Loosen the bead band and separate the solenoid leads.

5. Insert a piece of clean paper between upper and lower heads.

6. Slide the head/carriage assembly all the way toward the rear of the drive, holding the tail of the assembly by hand (refer to figure 6.5.3.C).

7. Loosen the backstop adjustment screw by rotating it approximately 5 turns counterclockwise.

8. Remove the two screws securing the head load solenoid assembly to the main frame casting. Remove the solenoid assembly in the illustrated direction.

   Note: Remove the head load solenoid assembly not to be caught on the arm tab because the bail plate is under the carriage arm tab.

9. Reverse the above procedure for re-installation.

   Note 1: The bail plate must rests under the carriage arm tab.

   Note 2: Avoid damage to the lead covering on removal and replacement with the screw driver.

   Note 3: Make sure that the locking tabs on the leads engage in the connector slot. This will prevent the leads from pushing out when the connector is plugged in.

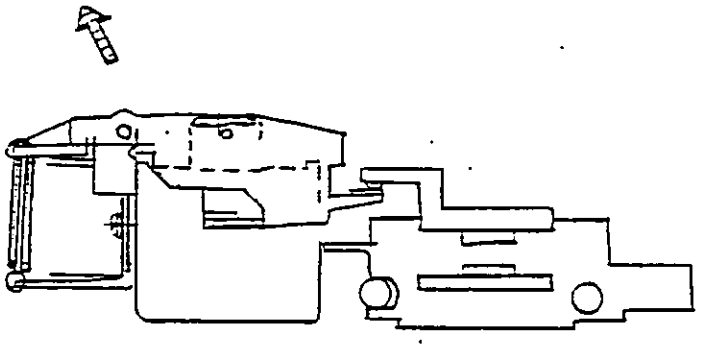


Figure 6.5.3.B

10. Perform service check (refer to 6.5.1).

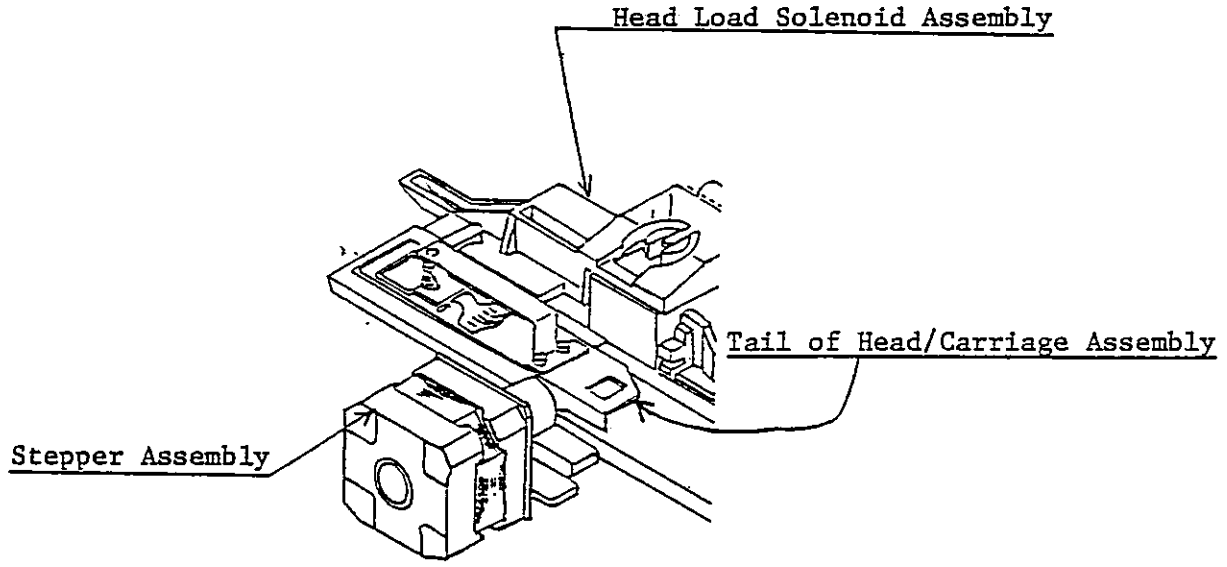


Figure 6.5.3.C

6.6 DOOR LOCK SOLENOID ASSEMBLY

6.6.1 REMOVAL AND REPLACEMENT

1. Disconnect the J2 connector from the PWB.

2. Remove the two door lock solenoid leads from the J2 connector by pushing down on the solenoid lead tabs in the connector with tweezers: black to J2-A2, red to J2-B2.

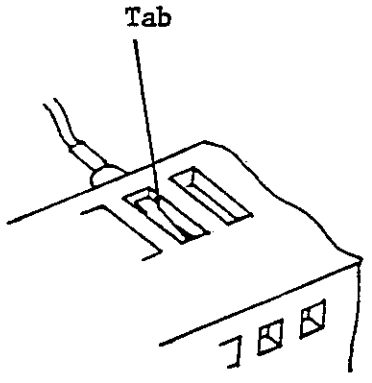


Figure 6.6.1.A

3. Cut the cable tie wrap.

> **CAUTION**
>
> Avoid damage to the lead covering when cutting the tie wrap.

4. Loosen the bead band and separate the door lock solenoid leads.

5. Open the drive front door.

6. Remove the two screws securing the door lock solenoid assembly to the main frame casting. Remove the assembly.

7. Reverse the above procedure for re-installation.

Note: Install the door lock solenoid assembly, pushing it against the main frame stops in the illustrated direction.

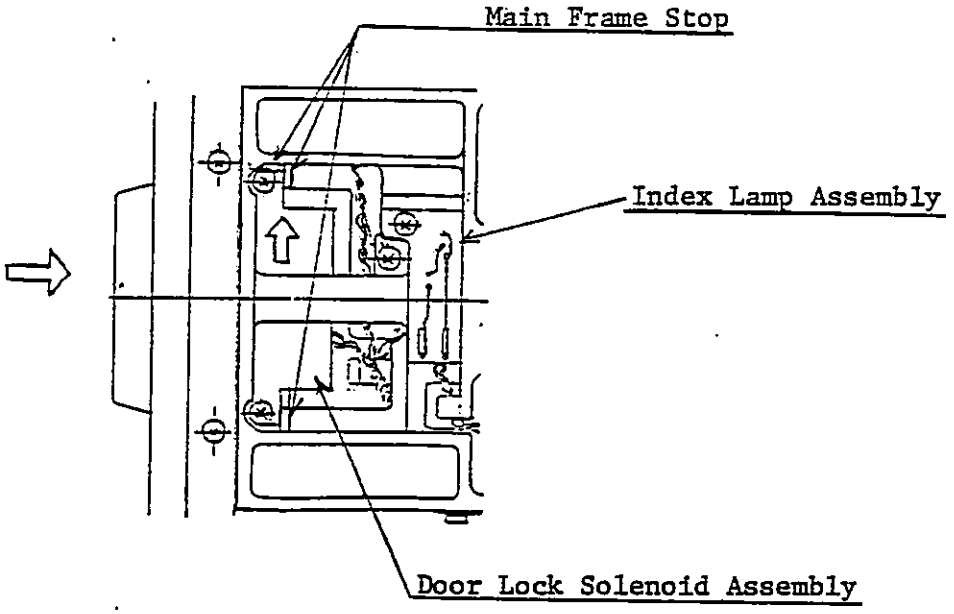


Figure 6.6.1.B

6.7 FRONT BEZEL/PUSH BUTTON

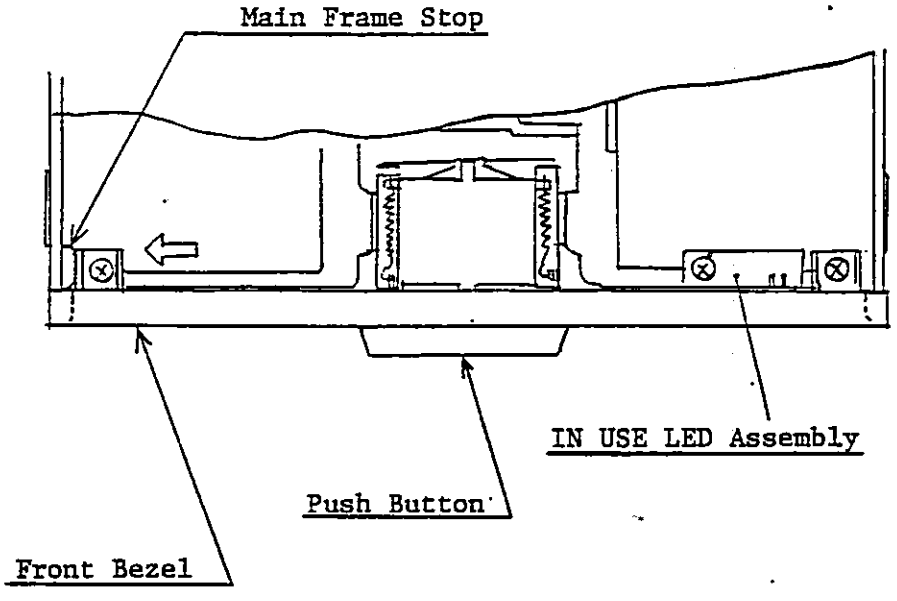
6.7.1 REMOVAL AND REPLACEMENT

1. Open the drive front door.

2. Remove the two screws securing the front bezel to the main frame casting. Remove the bezel.

3. Reverse the above procedure for re-installation.

Note: Push the front bezel assembly against the main frame stop while installing the front bezel assembly.



6.8 FRONT DOOR ASSEMBLY

6.8.1 REMOVAL AND REPLACEMENT

1. Close the drive front door.

2. Remove the two screws securing the front door assembly to the carrier. Remove the assembly.

3. Reverse the above procedure for re-installation.

Note 1: Hold the carrier down by hand, insert the front door assembly through the window in the front bezel and install the assembly pushing it against the carrier in the illustrated direction.

Note 2: Make sure that the gaps between the front door and the front bezel are equal at both sides.

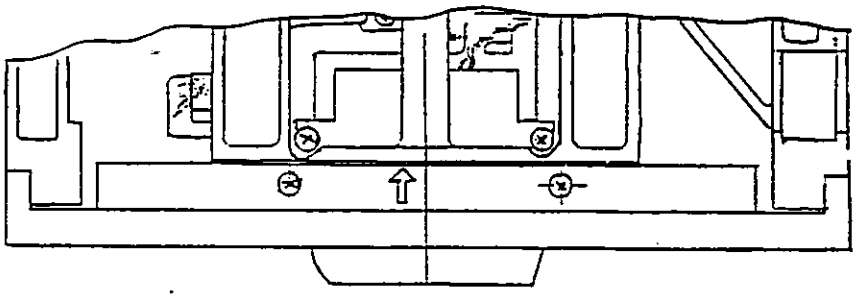


Figure 6.8.1.A

6.9 STEEL BELT ASSEMBLY

1. Remove the drive belt (refer to 5.7).

2. Remove the PWB (refer to 5.1).

3. Remove the shield plate.

4. Remove the two screws (M2.6) securing the steel belt assembly to the head/carriage assembly.

5. Remove the screw (M2) securing the steel belt assembly to the stepper pulley and remove the pulley/steel belt clamp.

6. Untie the loop of the steel belt assembly and remove it.

7. Reverse the above procedure for re-instruction.

Note 1: Make the loop of the steel belt assembly as illustrated below. Note that it has a direction.

Note 2: Install the assembly in the order of A and B .

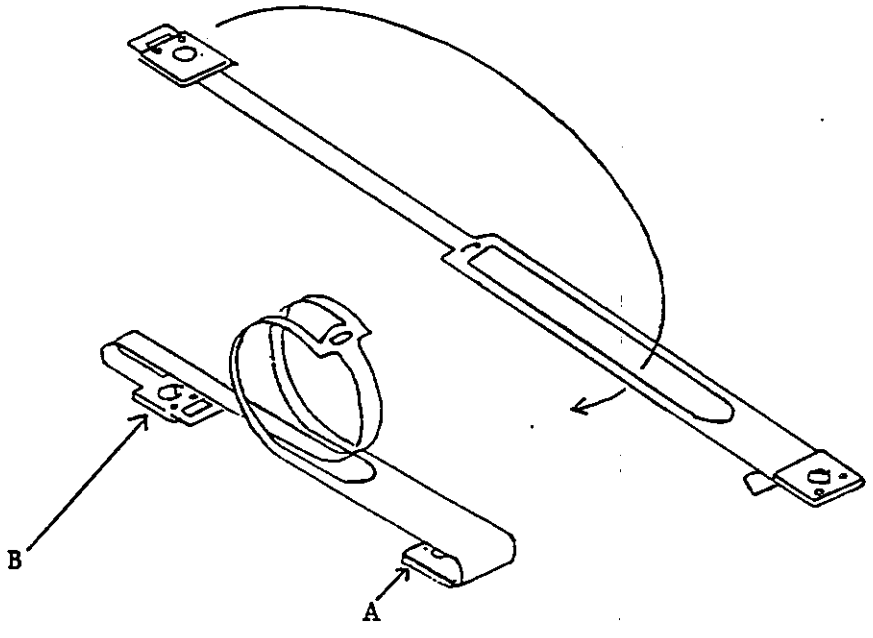


Figure 6.9.1.A

Note 3: Loosely secure the pulley/steel belt clamp mounting screw (M2) and the steel belt assembly mounting screws (M2.6). By sliding the head/carriage assembly back and forth by hand holding the assembly's tail, check that the steel belt runs smoothly.
Tighten the screws slowly. Refer to the figure 6.5.3.C.

8. Perform the head/carriage assembly positioning service check (refer to 6.11.1).

6.10 STEPPER ASSEMBLY

6.10.1 SERVICE CHECK

1. Power up the disk drive.

2. Check the carriage seek operation by applying the Direction and Step signals to the interface.

6.10.2 REMOVAL AND REPLACEMENT

1. Remove the steel belt assembly (refer to 6.9).

2. Remove the five stepper leads from the J2 connector by pushing down on the stepper lead tabs in the connector with tweezers: green to J2-A3, red to J2-A4, blue to J2-A5, white to J2-B3, yellow to J2-B4.

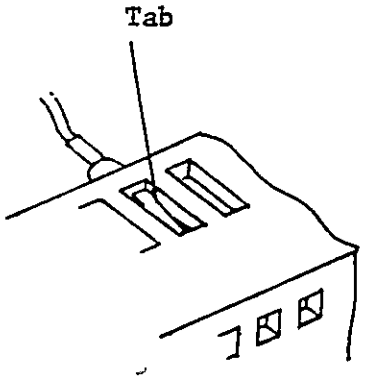


Figure 6.10.2.A

3. Cut the cable tie wrap.

CAUTION

Avoid damage to the lead covering when cutting the tie wrap.

4. Loosen the bead band and separate the stepper leads.

5. Remove the two screws securing the stepper assembly to the main frame casting. Remove the assembly.

6. Reverse the above procedure for re-installation.

Note: Hold the stepper assembly pushed against the main frame stop in the illustrated direction while installing the assembly.

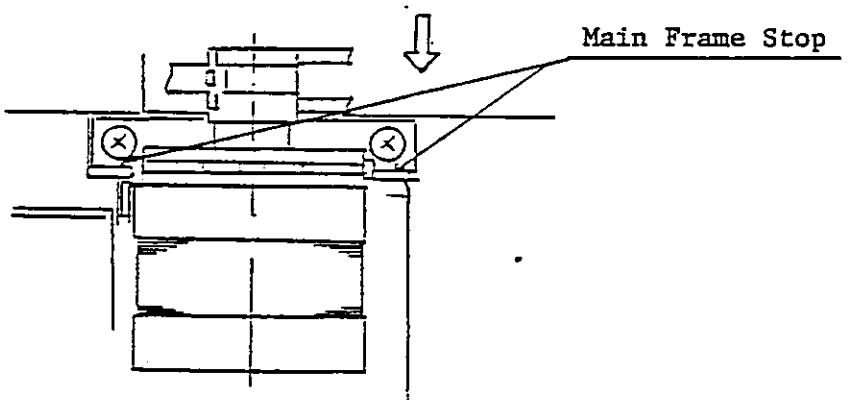


Figure 6.10.2.B

6.10.3 ADJUSTMENT

1. Perform the head/carriage assembly radial alignment (refer to 6.11.3).

6.11 HEAD/CARRIAGE ASSEMBLY

CAUTION

The head/carriage assembly is factory adjusted and tested. In the field there must be no adjustment or repair attempted on the entire head/carriage assembly.

6.11.1 RADIAL ALIGNMENT CHECK

1. Power up the drive.

2. Connect the oscilloscope channel probes 1 and 2 to TP1A and TP1B respectively, and the trigger probe to TP3.
   Set the oscilloscope controls as follows:

INPUT COUPLING MODES	AC
VERT MODE	ADD
CH2	INVERT
TIME/DIV	20 msec
VOLTS/DIV (CH1 & CH2)	50 mV

3. Insert a CE disk and close the drive door.

4. Load the read/write heads against the disk.
   Step the head carriage outward until the Tr00 signal (J1-23) goes low (0 to 0.4V).

5. Step the head carriage from track 00 to 40.
   Obtain A/B or B/A, the ratio between two amplitude lobes on the scope. Convert the ratio to a position on the CE disk conversion chart. Positioning error should be within ±40 μm.

6. Step the head carriage from track 76 to 40 and check the positioning as in the above step 5.

A B

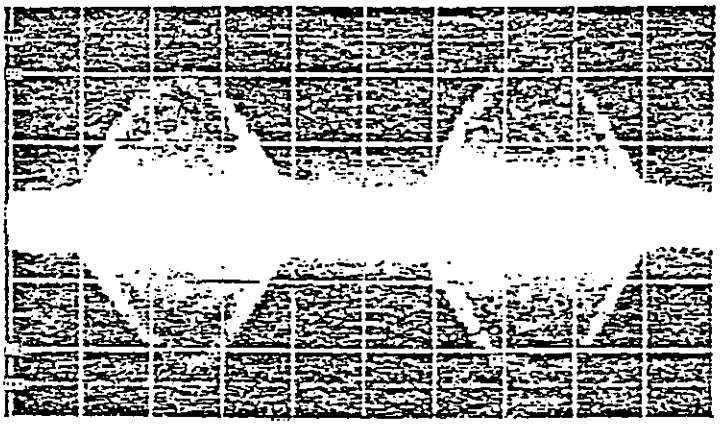


Figure 6.11.1.A

HOW TO USE THE CE DISK AND THE CONVERSION CHART

1. Preparation

   a) The test should be done under the temperature 13 to 33°C and the relative humidity 20 to 80%. If the humidity is not 50%, a humidity compensation is needed.

   b) Before using the CE disk, allow a minimum of 2 hours for the disk and drive to adapt to the ambient temperature and humidity in which they are to be used, with the DC power on.

2. Measurement

   a) Refer to 6.11.1 for test equipment and setting up.

   b) Read a positioning error corresponding A/B or B/A on the conversion chart printed on the envelope of the CE disk.

If B/A = 0.9, the positioning error reads +Pμm on the illustrated chart.

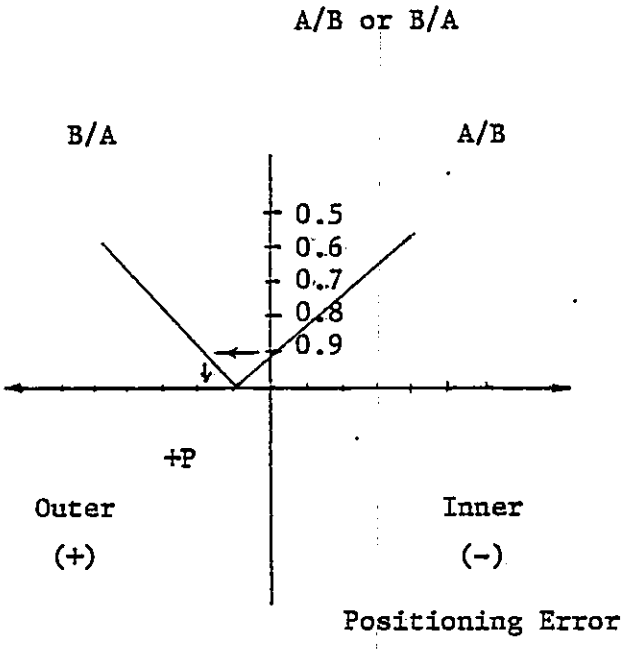


Figure 6.11.1.B

c) Compensation (for only humidity. Thermal effect can be neglected.)

Humidity Compensation $\Delta Ph = \beta \times (h - 50)$

Where, h: ambient humidity (%RH);

β = +0.4 μm/%RH: compensation coefficient.

- Compensated Positioning Error

$Po = P + \Delta Ph = P + 0.4\ (h - 50)$

If h = 70% RH, $Po = P + 0.4\ (70 - 50) = P + 8$ μm.

6.11.2 REMOVAL AND REPLACEMENT

1. Slide the head/carriage assembly by hand holding the carriage tail so that the carriage arm tab rests approximately 10 mm from the front edge of the bail plate.

2. Remove the steel belt assembly (refer to 6.9).

3. Remove the head cable clamp with the needle nose pliers.

4. Remove the two screws securing the guide bar clamp to the main frame. Remove the clamp.

5. Open the front door.

6. Carefully remove the head carriage assembly from the guide bars.

7. Reverse the above procedure for re-installation.

   Note: Wipe the two guide bars with a clean cloth moistened with alcohol before installing them.
   Do not apply any lubricating oil.

8. Perform service check of the head load solenoid assembly (refer to 6.5.1).

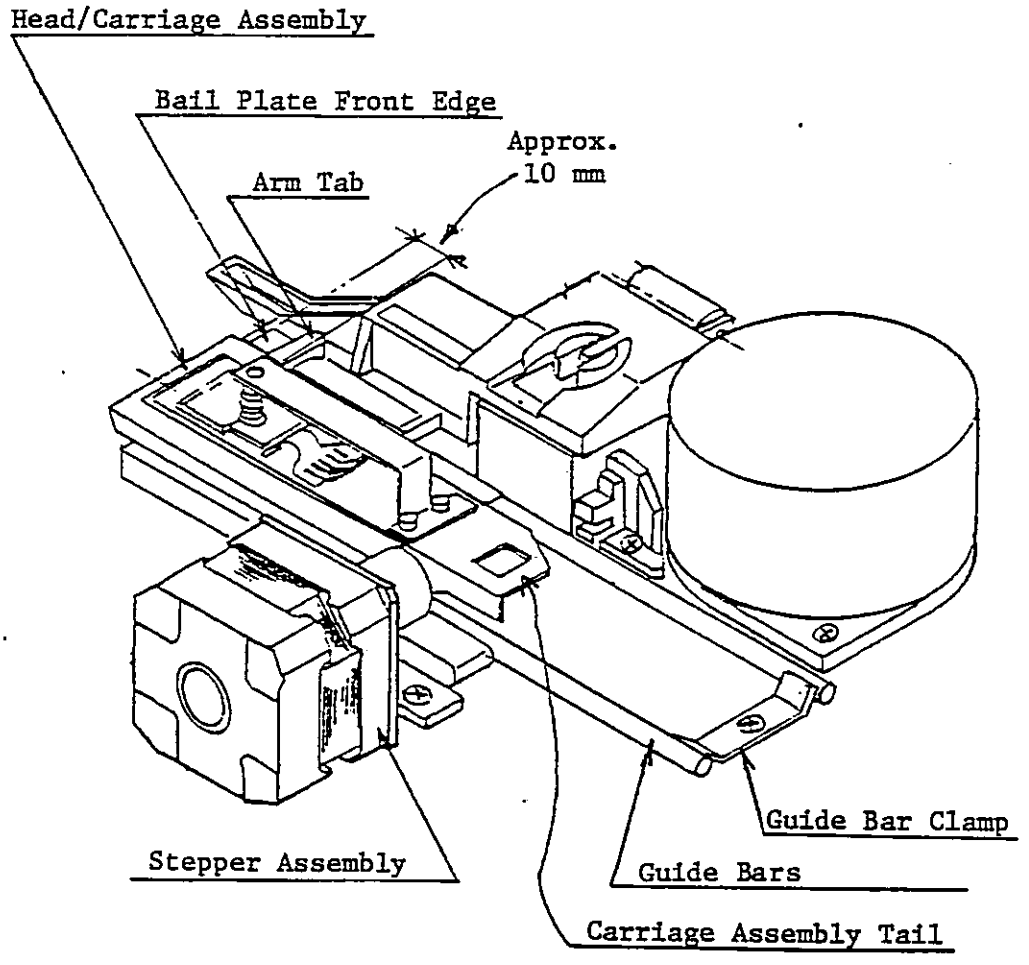


Figure 6.11.2.A

6.11.3 RADIAL ALIGNMENT ADJUSTMENT

1. Connect the oscilloscope channel probes 1 and 2 to TP1A and TP1B respectively, and the trigger probe to TP3.
   Set the oscilloscope controls as follows:

INPUT COUPLING MODES	AC
VERT MODE	ADD
CH2	INVERT
TIME/DIV	20 msec
VOLTS/DIV (CH1 & CH2)	50 mV

2. Move the head/carriage assembly by hand holding the assembly tail outward and push it lightly against the stop.

3. Insert a CE disk and power up the drive.

4. Step the carriage inward by 40 steps.

5. Load the read/write heads against the disk. Insert a flat head screwdriver between the stepper side and the frame, and move the stepper inward or outward to obtain the "cat eyes" display shown in Figure 6.11.1.A.
   (Refer to the next step 6 for the direction.)

   Note: By a 1/4 turn from the secured position, loosen the stepper mounting screws.

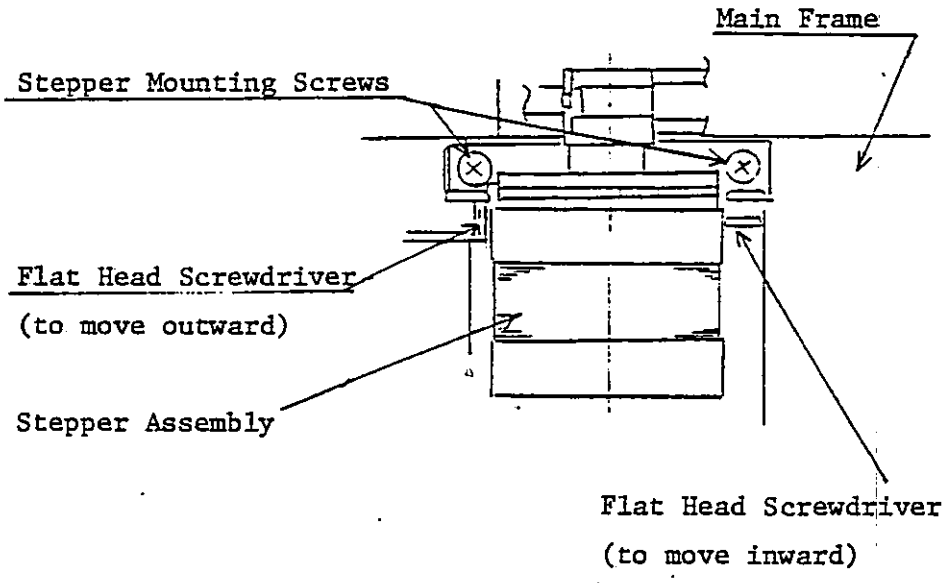


Figure 6.11.3.A

6. Move the stepper in the following direction:

   Inward when A > B;

   Outward when A < B.

7. Fine-tune the alignment so that the positioning error be within ±40 μm. The error is obtained from A/B or B/A of the side 0 output on the CE disk conversion chart.

8. Stop the carriage from track 76 to track 40, and check the alignment for the specification described in the above step. If not within the specification, repeat the step 6.

9. Select the side 1 and check as in the steps 7 and 8.

10. Repeat the above steps 2 through 3 and check the cat-eyes display.

11. Step the carriage outward by 40 steps and verify that the Track 00 signal (J1-26) is at a low level.

7.0 PARTS/ASSEMBLIES PHYSICAL LOCATIONS

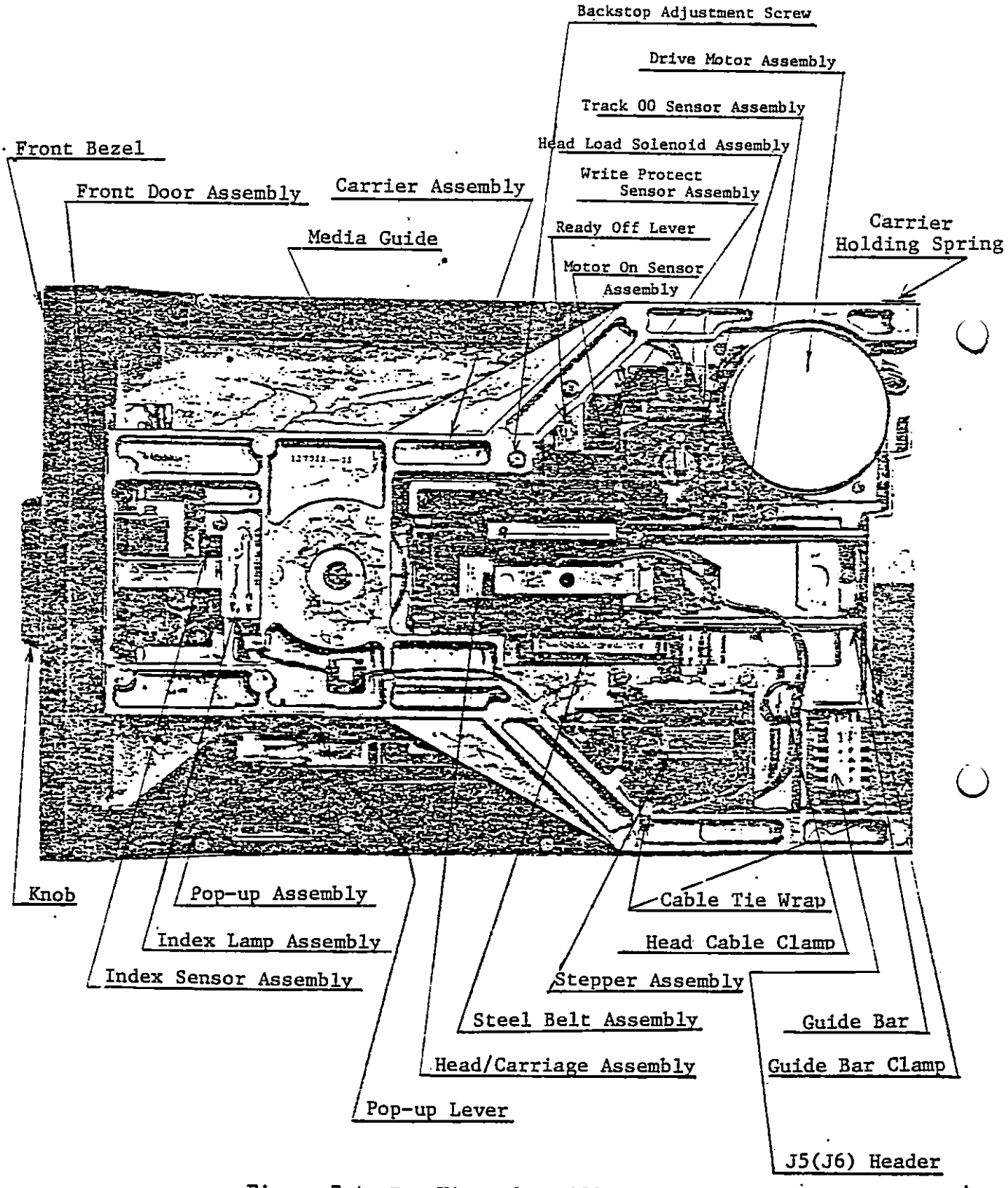


Figure 7.A Top View of YD-180

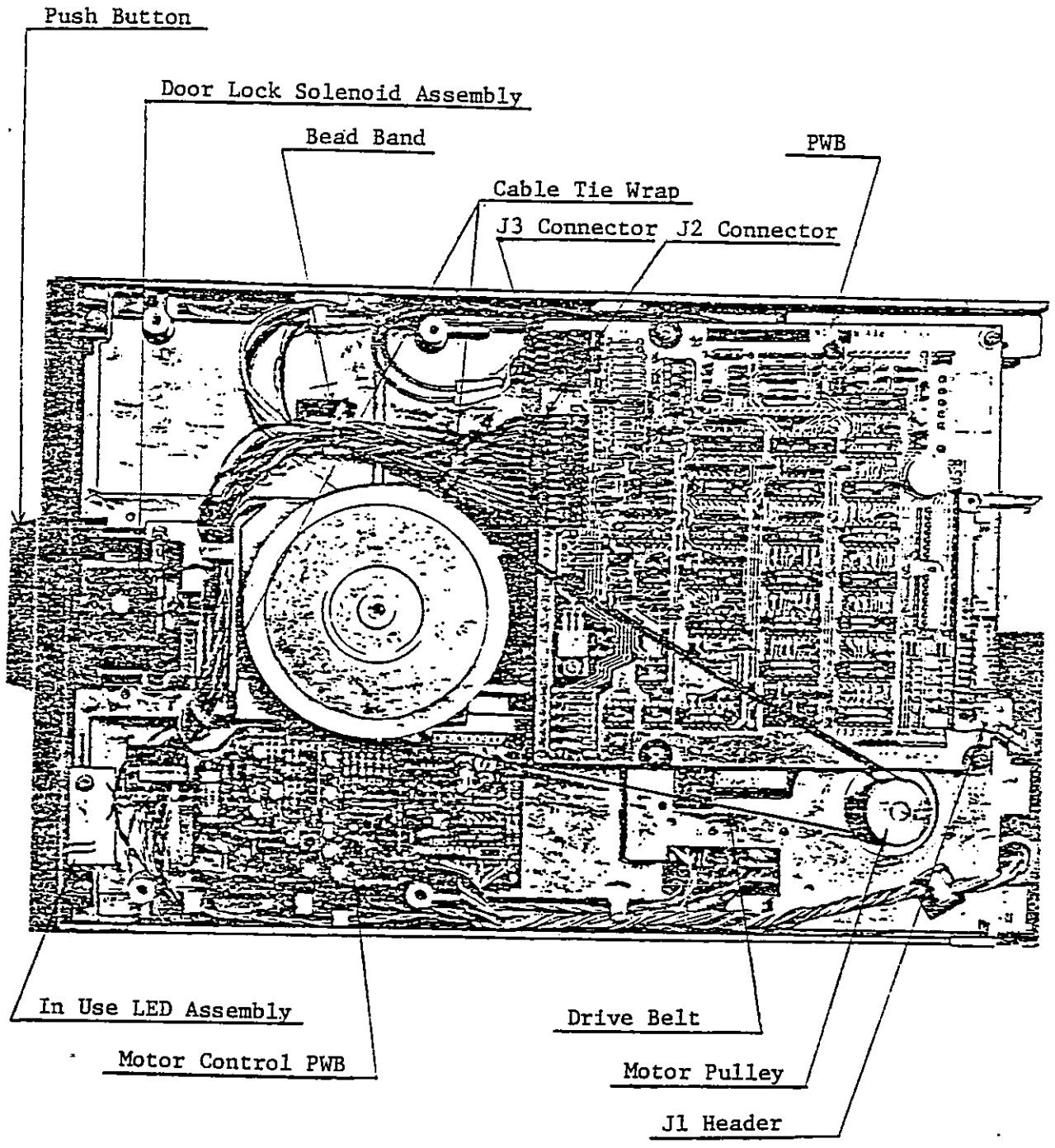


Figure 7.B Bottom View of YD-180

8.0 RECOMMENDED SPARE PARTS LIST

8.1 MAINTENANCE LEVEL 1

Part Description	P/N	Remarks
PWB		Refer to 8.3.
Index Lamp Assembly	147003-01	
Index Sensor Assembly	147006-01	
Track 00 Sensor Assembly	137009-01	
Write Protect Sensor Assembly	147076-01	
In Use LED Assembly		Refer to 8.3.
Drive Belt	147056-01	

8.2 MAINTENANCE LEVEL 2

Drive Motor Assembly	147053-01	with Motor Control PWB and Motor Pulley
Carrier Assembly	127011-01	with Collet Assembly and Index Lamp Assembly
Pop-up Assembly	137007-01	
Media Guide	137014-01	
Head Load Solenoid Assembly	137013-02	with Bail
Door Lock Solenoid Assembly	137002-02	
Front Bezel		Refer to 8.3.
Push Button	147031-01	
Front Door Assembly	137019-02	with Knob
Steel Belt Assembly	147088-01	
Stepper Assembly	137004-01	
Head/Carriage Assembly	127008-01	

8.3 APPLICATIONS

Part Description	P/N	Drive Type
PWB	127001-11	1600
PWB	127002-11	1601 (ANSI I/F)
PWB	127003-11	1602
PWB	127003-12	1603
In Use LED Assembly	147004-01	1600, 1601
In Use LED Assembly	147081-01	1602, 1603
Front Bezel	127010-01	1600, 1601
Front Bezel	127010-03	1602, 1603

Note: YD-180-1601 is the export model with the ANSI interface.

RETURN LETTER

Title: 8 inch Flexible Disc Drive (YD-180) Maintenance Manual RCSL No.: 42-i2355

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