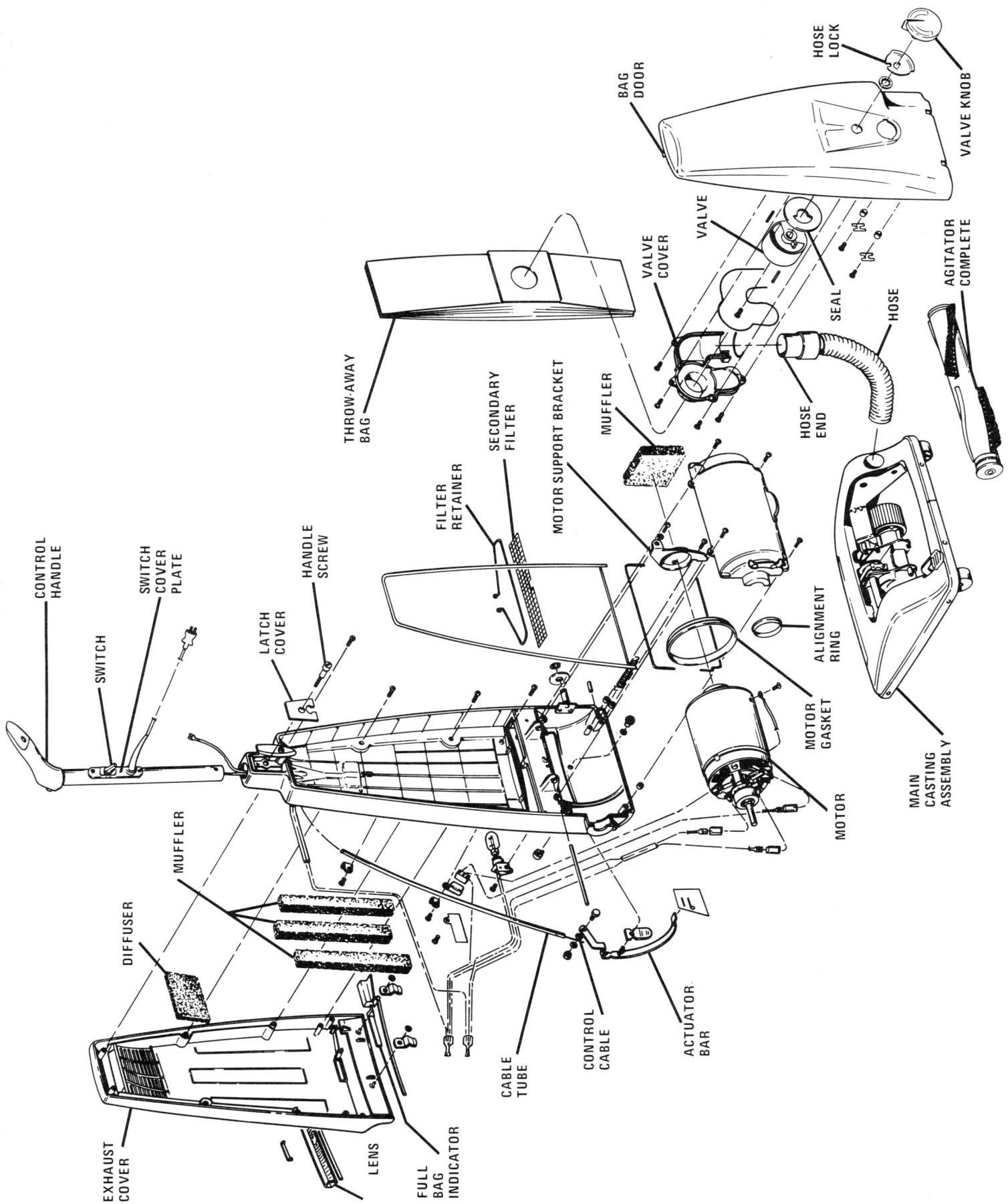


**SERVICE INSTRUCTIONS
DIAL-A-MATIC AND
DIAL-A-MATIC WITH POWER DRIVE**



**DIAL-A-MATIC AND
DIAL-A-MATIC WITH POWER DRIVE**



DIAL-A-MATIC CLEANERS

The Dial-A-Matic uses a paper bag enclosed in a bag housing. A dial on the bag housing controls the suction both for the rug and cleaning tools. The cleaning tools connect to the bag housing.

Since the dial controls suction, it should be adjusted to the type of rug. On a high-pile rug, the dial may have to be turned down so the cleaner is easy to move. On a new rug which is shedding loose nap, the dial should be set as high as possible to prevent a dust pack.

The Models 1130 and 1140 have an adjustment for indoor-outdoor carpeting and the high-pile shag rug. The earlier models have an attachment #161458 available for a shag rug.

There are various agitator brushes available for the Dial-A-Matic. The #13803 is soft white nylon, #12998 is black nylon and #47190 is black horsehair. Also available for the early models when used on indoor-outdoor carpeting is #19799 long bristle brush.

The Model 1100 used a grey colored filter and a small valve in the bag housing. When serviced, this model should be changed to the red filter and larger valve.

1. Handle Assembly

- a. To remove the handle, remove the screw which secures the handle into the bag housing. Check the retaining clip on the handle shell so that it does not become lost or fall into the handle socket.
- b. Disconnect the handle receptacle from the handle plug. The handle receptacle must extend out of the handle shell for assembly.
- c. Remove the two screws which secure the switch plate to the handle shell.
- d. In replacing a cord assembly, the molded cord protector is held into

the switch plate by a retainer.

- e. In replacing a cord protector only, the cord is held into the cord protector by tying the hemp string in the cord over a #18676 lock.

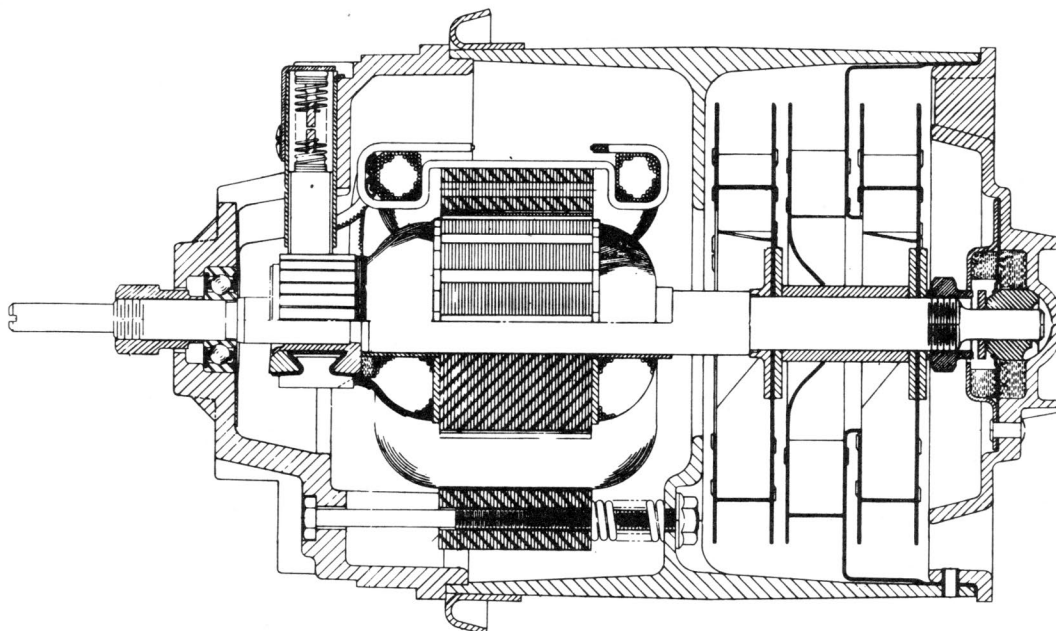
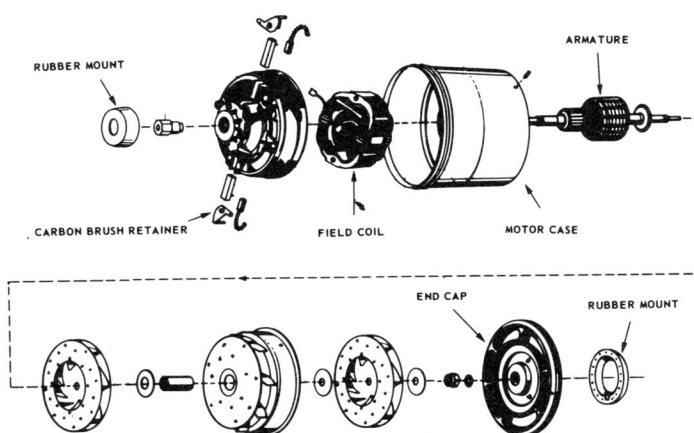
2. Removing Motor

- a. Open bag door and remove the hinge shaft plates to remove the bag door. Remove the hose from the bag door.
- b. Remove the bottom plate, agitator and belt.
- c. Remove the hose adapter and sleeve and remove the hose from the main casting.

- d. Remove the screw holding the handle balance spring to the main casting.
 - e. Remove the spring from the handle control lever.
 - f. Remove the two screws that hold the delrin bearing and the two screws which hold the metal trunion bearing to the main casting. The bag housing is now free of the main casting.
 - g. Pick up cleaner and with handle end resting on bench, lift up on the carrier wheels and slide the main casting down over the bag housing.
 - h. Remove the delrin and trunion bearings noting the position of same.
 - i. Remove the four screws which hold the two halves of the motor case together. Check the gaskets.
 - j. Disconnect the wiring to the motor.
 - k. Loosen the two screws that hold the rear motor support bracket.
 - l. Lift out motor.
 - m. In reassembly, line up the motor gasket with the ribs in the motor casing to form an air-tight seal. The rear motor mount must be positioned on the motor end cap and into the motor support bracket.
3. Dismantling Motor
- a. Remove the motor mounts from each end of the motor.
 - b. Slide off the field coil wires from the terminals.
 - c. Insert a screw driver in the slotted end of the armature shaft and turn off the armature nut counter-clockwise. Be careful not to damage the armature shaft. (Check for end play to indicate a worn bearing before removing nut.)
 - d. Remove the carbon brush retainers and carbon brushes.
 - e. At the rear of the motor, make a scribe mark on the motor end cap and motor casing for ease in assembly.
 - f. Remove the three pins holding the end cap to the motor casing with a punch.
 - g. Remove the end cap by inserting a screw driver in the slots between the end cap and casing. Check the bearing for wear. The service replacement end cap is not drilled and must be drilled after installation on casing.
 - h. Remove armature and other attached parts by pushing on the slotted end of the armature shaft.
 - i. Remove the fibre washer from armature shaft and remove fan nut by turning clockwise. All parts on armature shaft can now be removed. Check fans and washers for wear.

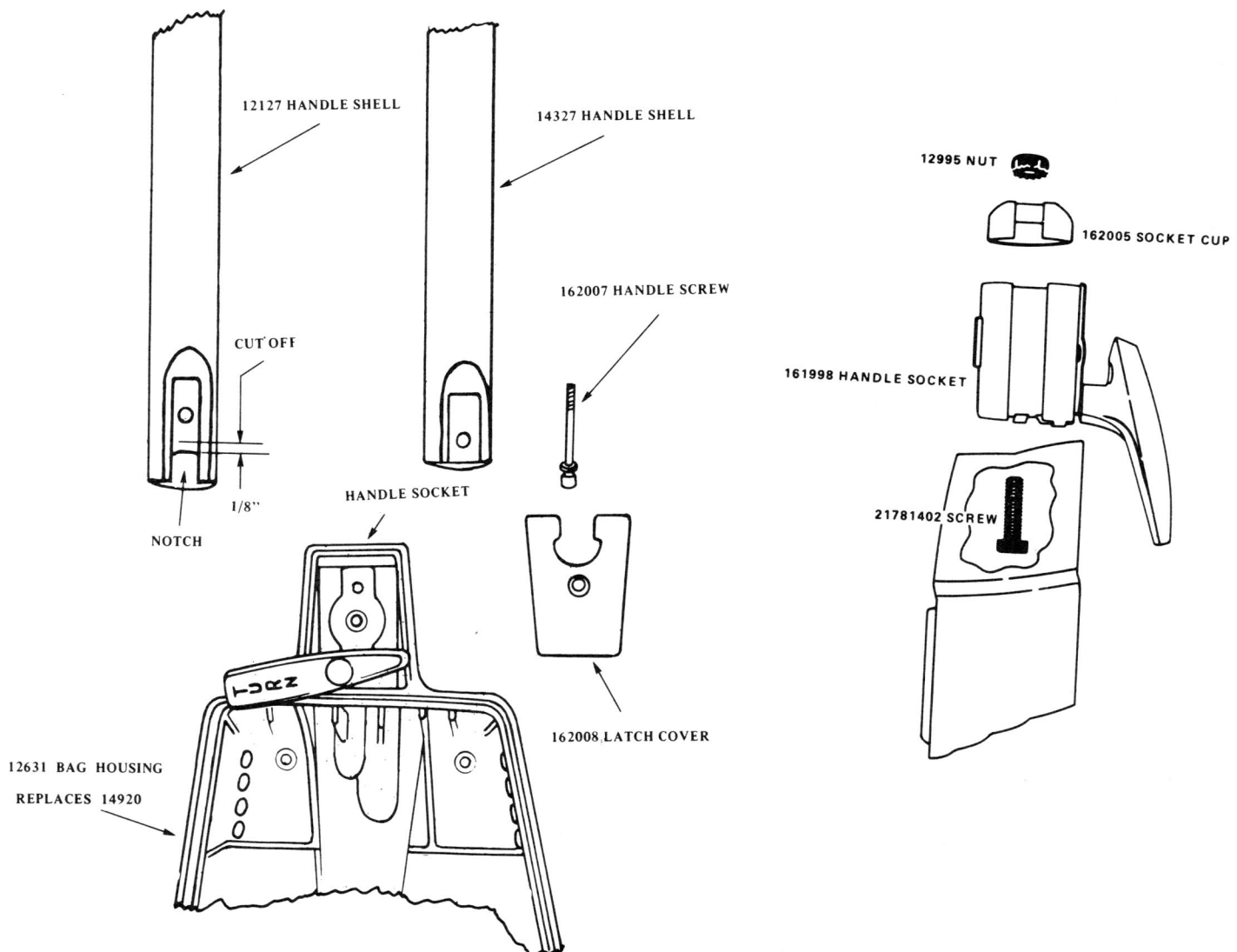
j. To remove the field coil and brush housing, remove the two nuts inside the motor casing.

k. In reassembly, the red lead wire on the field coil is lined up with the staked terminal on the brush housing.



DIAL-A-MATIC BAG HOUSING - MODEL 1130/1140

Starting with S.N. 43617 on the Model 1130 and S.N. 124507 on the Model 1140 a new Bag Housing #12631 is used and replaces #14920. This bag housing #12631 has a handle socket fastened into it by a rivet. The handle socket is a separate service part.



With the Bag Housing #12631, a Handle Shell #14327, Handle Screw #162007 and Latch Cover is used.

The special nut #12079 has been omitted from the Handle Shell #14327.

The Handle Screw #162007 goes through the handle and threads into the handle socket.

A Handle Shell #12127 is available for the early type handle assembly #12091.

To use the handle shell #12127 from an earlier Model Dial-A-Matic Cleaner on the Bag Housing #12631:

1. Push handle receptacle up into the handle so it won't be damaged.
2. Drill a 1/4" hole through the handle and opposite the present hole.
3. Cut off the handle shell 1/8" above notch.

DIAL-A-MATICS WITH HEADLIGHT

Headlight models have the same general construction as other models except the addition of a lighted full bag indicator and a headlight with a directed light beam.

The full bag indicator is more pronounced due to the lighted effect.

To replace the light bulb on the headlight (or lens) on these models, remove the eight screws from inside the bag housing which hold the exhaust cover.

On early models only, the headlight lens on the exhaust cover is glued permanently to the cover and, therefore, is not carried as a separate item.

DIAL-A-MATIC WITH POWER DRIVE

I. GENERAL

This is a Dial-A-Matic with automatic power drive and automatic nozzle height adjustment.

A suction control knob on the bag door controls and converts the suction on carpet or attachments.

A bag indicator in the exhaust cover indicates a full disposable bag.

The automatic power drive propels the cleaner backward or forward. The power drive has a forward and reverse clutch designed to slip so that the speed and power to the drive wheels is controlled by the operator.

The sliding control handle actuates the power drive through a control cable. Forward movement of the control handle propels the cleaner forward at a rate of speed dependent on the force applied to the handle. Pulling the control handle backward propels the cleaner backward. Releasing the control handle returns the power drive to neutral.

The neutral button located in the control handle locks the power drive unit in neutral for manually moving the cleaner on its wheels.

When the handle is in the upright position for storage or cleaning tools, the power drive unit is inoperative by the control handle.

The automatic nozzle height adjustment is accomplished by floating the main casting on top of the carpet. The drive and rear wheels are on a frame attached to the bag housing -- not the main casting.

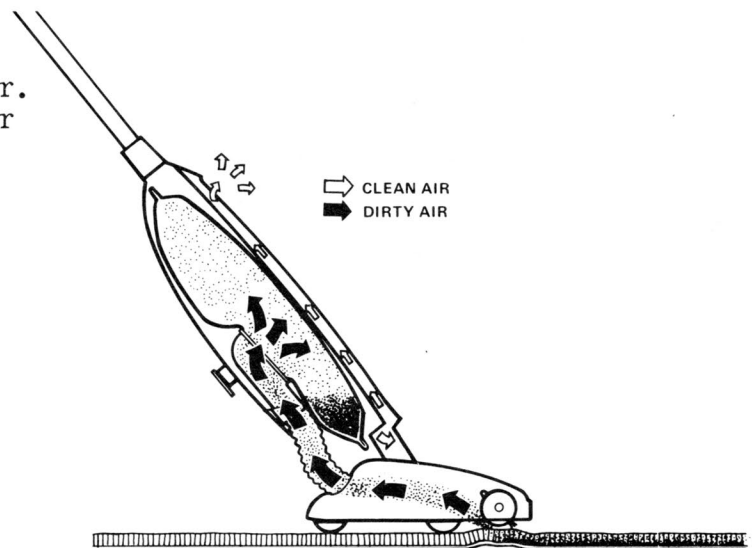
Two belts are used -- one to drive the agitator and one to drive the power unit. Both belts are driven from the motor.

II. BASIC OPERATION

These units operate on a principle of High Suction - Low Volume of Air. It is a clean air system, i.e., air is filtered before reaching the motor.

Dirt is loosened from the floor by the agitator and sucked into and captured in the throw-away bag.

Clean air continues through the bag, through the secondary filter, up the exhaust cover, through the diffuser, out the exhaust at the front of the machine near the top.



III. DISASSEMBLY

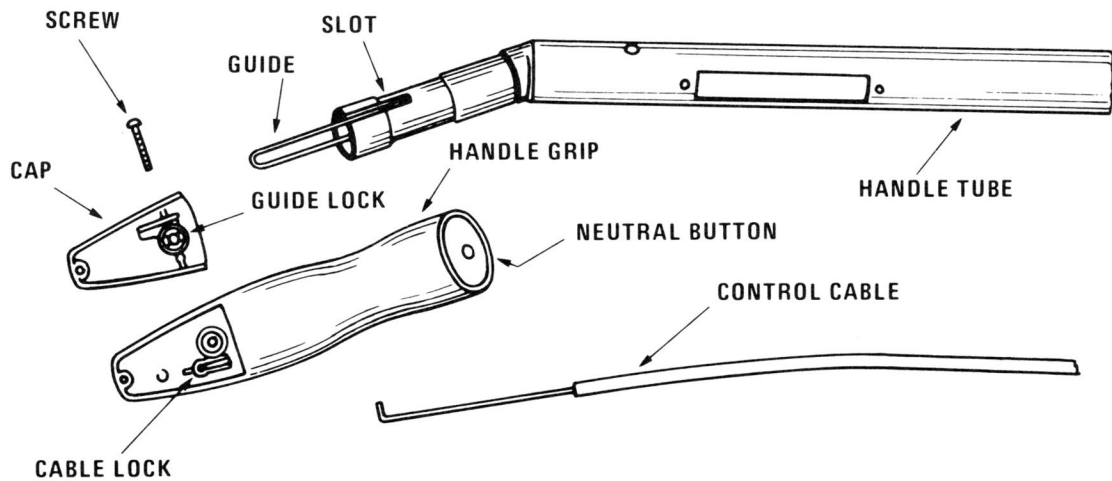
A. Handle Assembly

The limits of movement of the handle grip is controlled by the guide.

The slot in the handle tube prevents the handle grip from rotating.

The control cable is secured into the cable lock by the cap.

To remove the handle tube, the wiring to the switch must be disconnected, as it is one length of wire to the motor.

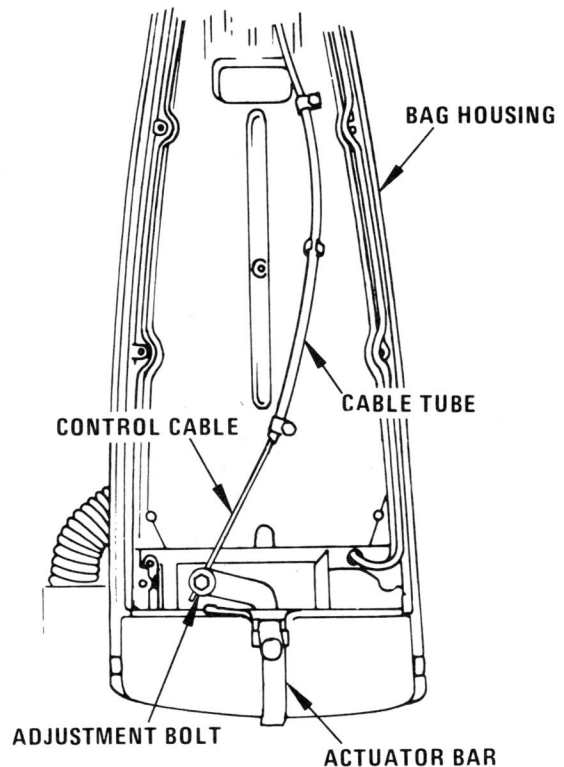


1. Remove the handle cap. Note the cap secures the control cable and guide in position.
2. Release the control cable from the cable lock and slide the handle grip off. A silicone lubricant is used in the handle grip.
3. Remove switch and disconnect cord wiring.
4. Remove bolt securing handle tube to the bag housing and remove the handle tube.

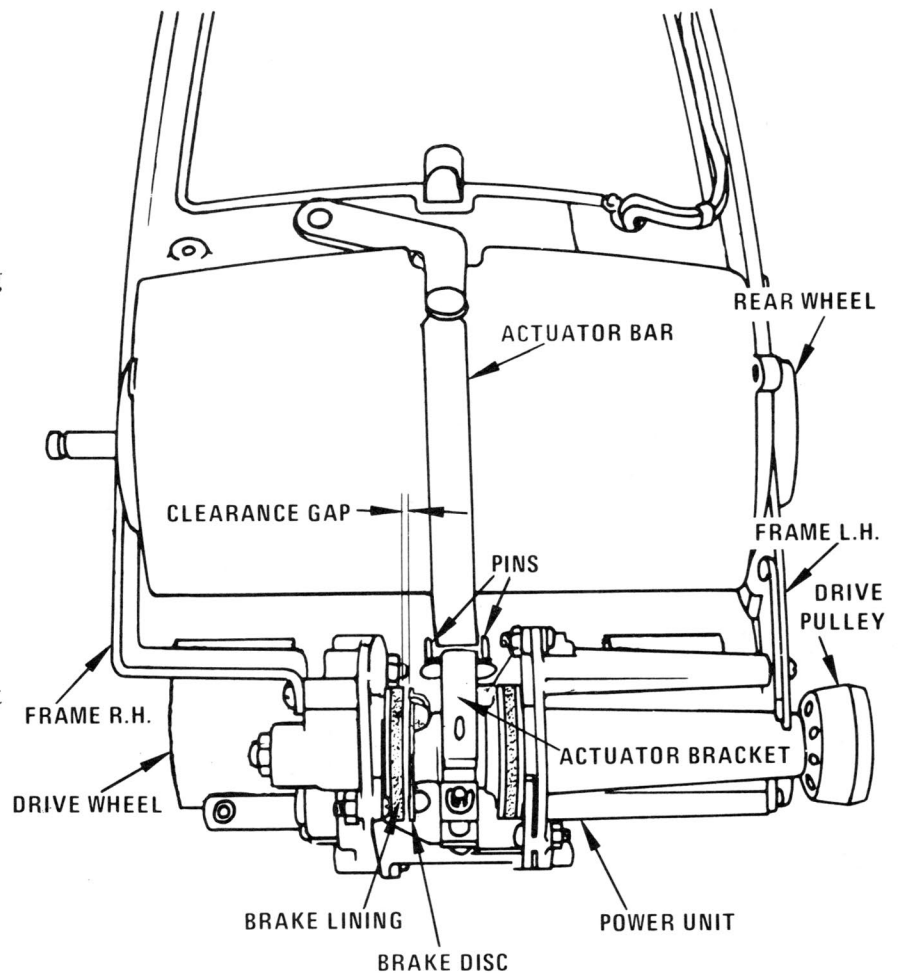
B. Control Cable

Adjustment

1. Open bag door and remove the screws securing the exhaust cover to the bag housing. The exhaust cover can now be lifted off to expose the control cable and adjustment bolt.
2. Lower the handle to the rug cleaning position. This will bring into view the engagement of the actuator bar with the pins of the actuator bracket.



3. Loosen the adjustment bolt. Note the control cable goes through the bolt.
4. Place the control handle in the neutral position by depressing the neutral button.
5. Center actuator bar between the pins with the actuator bracket centered in the power unit to cause a clearance gap between the brake lining and brake disc on both sides.
6. Tighten the adjustment screw and use Loctite to prevent loosening.
7. Check the adjustment by moving the control handle forward and backward from the neutral position. There should be slack on each side.



Also push the cleaner in the neutral position. The cleaner should move freely. If there is resistance, the adjustment is incorrect and causing pressure on the brake lining.

Replace agitator in the casting and latch it in position.

Make sure that the belt is in center of pulley and free of agitator mountings and latch. Turn agitator by hand to be sure that belt is in proper position in pulley groove.

C. Agitator and/or Belt Replacement

To replace agitator or belt, turn cleaner over. Remove the metal bottom plate by pushing latches toward the outside of cleaner. Lift bottom plate to release it from wire holders.

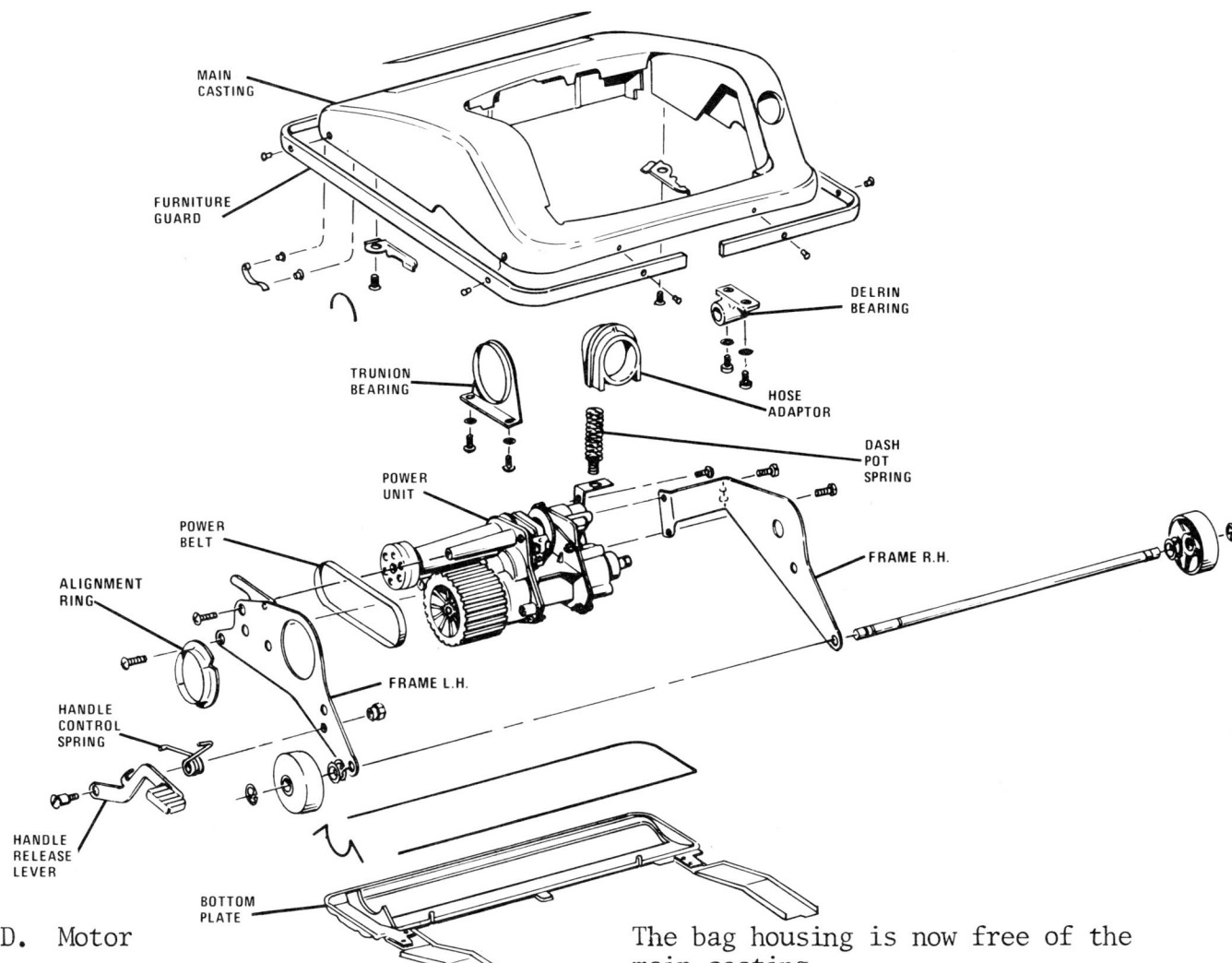
Push latches (2) that hold agitator in and toward center of cleaner until they are free. Lift out agitator and remove old belt.

Place new belt over motor pulley, with smooth side next to pulley, then over agitator.

Replace bottom plate. Place metal knobs on front of plate in wire holders. Check to see that latches are pushed back and will not be covered by plate. Place plate in position and latch securely. Turn agitator by hand to be sure that it is free.

NOTE - The belt must have sufficient tension to drive the agitator. If the belt slips or is broken, the Hoover will not clean properly. The belt should be inspected frequently for wear and loss of tension.

A stretched belt can be detected by rolling the agitator by hand while in place. If the belt is stretched badly, the agitator will slip on the belt. If worn or cut, it should be replaced before it breaks.

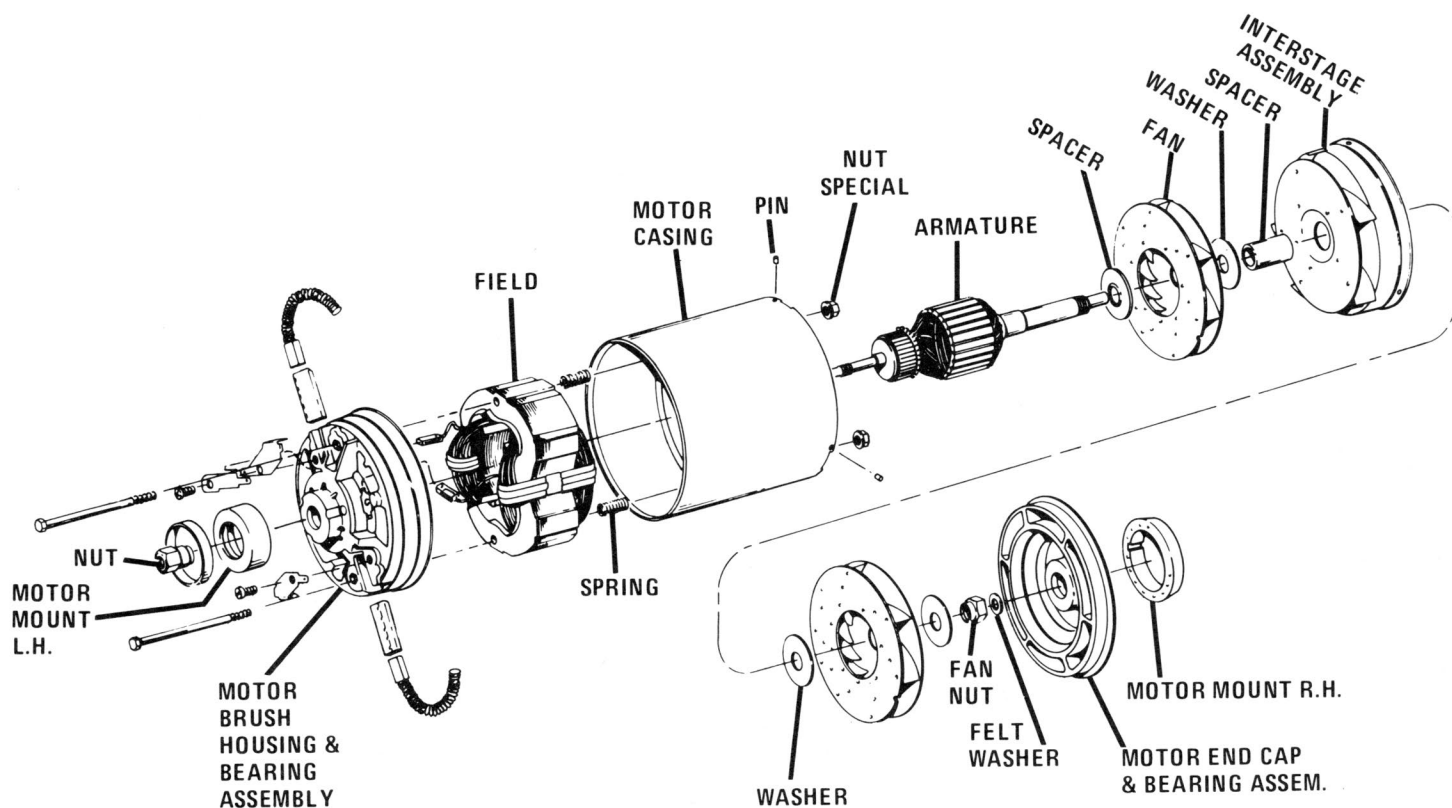


D. Motor

The bag housing is now free of the main casting.

1. Remove the hose from the bag door. Open bag door and remove the hinge shaft plates to remove the bag door.
2. Remove the bottom plate, agitator and belt.
3. Remove the hose adapter and sleeve and remove the hose from the main casting.
4. Remove the handle balance spring from the main casting.
5. Remove the spring from the handle release lever and remove the dash pot spring.
6. Remove the two screws that hold the delrin bearings and the two screws which hold the metal trunion bearing to the main casting.
7. Pick up cleaner and with handle end resting on bench, lift up on the carrier wheels and gently slide the main casting down over the bag housing.
8. Remove the Power Drive Belt.
9. Remove the delrin bearing.
10. Remove the trunion bearing.
11. Loosen frame L.H.
12. Remove alignment ring.
13. Remove the four screws which hold the two halves of the motor case together. Remove foam muffler. Check gaskets.
14. Disconnect the wiring to the motor.
15. Loosen the two screws that hold the rear motor support bracket.
16. Lift out the motor.

NOTE - In reassembly, line up the motor gasket with the ribs in the motor casing to form an air-tight seal. The rear motor mount must be positioned on the motor end cap and into the motor support bracket.



E. Motor Disassembly

1. Remove the motor mounts from each end of the motor.
2. Disconnect the field coil wires off of the terminals.

NOTE - Check for end play to indicate a worn bearing before removing nut.

3. Insert a screw driver in the slotted end of the armature shaft and turn off the armature nut. Be careful not to damage the armature shaft.
4. Remove the carbon brush retainers and carbon brushes.

6. Remove the three pins holding the end cap to the motor casing with a punch.
7. Remove the end cap by inserting a screw driver in the slots between the end cap and casing. Check the bearing for wear. The service replacement end cap is not drilled and must be drilled after installation on casing.

8. Remove armature and other attached parts by pushing on the slotted end of the armature shaft.
9. Remove the fiber washer from armature shaft and remove fan nut by turning clockwise. All parts on armature shaft can now be removed. Check fans and washers for wear.

5. At the rear of the motor, make a scribe mark on the motor end cap and motor casing for ease in assembly.
10. To remove the field coil and brush housing, remove the two nuts inside the motor casing.

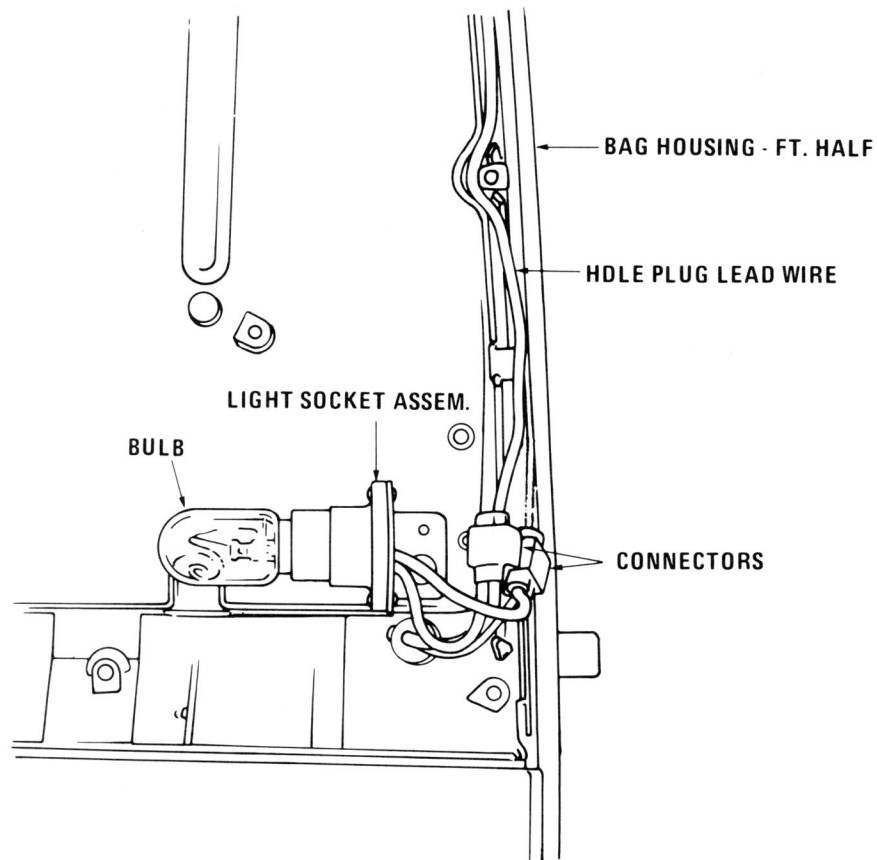
NOTE - In reassembly, the red lead wire on the field coil is lined up with the staked terminal on the brush housing.

E. Headlight

The bulb in these models is a dirt finder plus lights up the full bag indicator when the bag is full. The lens is not replaceable.

To replace the bulb open the bag door and remove the eight screws which hold the exhaust cover to the bag housing - front half.

Suppressor - The exhaust cover must be removed to replace the suppressor.



IV. Troubleshooting - Power Drive Cleaner Only

The following is a guide to aid in determining the origin of a problem for which these models could conceivably be brought in for service.

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
A. Motor won't run.	1. Not firmly plugged in. 2. No voltage in customer's wall plug. 3. On/Off switch bad. 4. Open in attachment cord. 5. Open circuit or wiring connection off. 6. Open circuit in motor.	1. Check to see that attachment plug prongs are in good shape and not bent. 2. Plug into known good voltage source. 3. Replace switch. 4. Replace cord. 5. Replace wires or remake connections as necessary. 6. Check motor wiring, (Armature & field)
B. Motor runs, cleaner won't pick up or has poor suction.	1. Agitator belt broken or worn. 2. Hose clogged. 3. Hose out of connector (casting end) 4. Hole or cut in hose. 5. Bag full. 6. Secondary filter clogged. 7. Bag door damaged.	1. Replace belt. 2. Clear hose. 3. Re-install hose in connector. 4. Replace hose. 5. Replace throw-away bag. 6. Clean filter. 7. Be sure bag door fits snugly to bag housing and that there are no gaps.

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
B. Motor runs, cleaner won't pick up or has poor suction. (cont.)	8. Crack or hole in housing.	8. Replace defective housing.
	9. Bent or damaged bottom plate.	9. Replace bottom plate.
	10. Fans loose on motor.	10. Replace fan(s) if necessary and tighten fan nut securely.
	11. Worn agitator brushes.	11. Replace brushes.
C. Motor runs hot.	1. Motor clogged with dirt.	1. Clean motor.
	2. Refer to 1, 2, & 3. under Item B.	2. The items referred to can cause the motor to run hot because all restrict the air supply.
	3. Worn carbon brushes.	3. Replace brushes and check motor and bear.
	4. Shorted or overloaded field coil.	4. Replace coil.
	5. Shorted or overloaded armature.	5. Replace armature.
	6. Loose wire connection.	6. Connections should be tight to prevent high resistance. Tighten connections or replace components as necessary.
	7. Tight motor bearings.	7. Check and replace bearings as necessary.
D. Cleaner Noisy	1. Loose motor fans.	1. Replace fan(s) as necessary and tighten fan nut securely.
	2. Interference between bottom plate and agitator.	2. Check to see if bottom plate is damaged or mispositioned.
	3. Power drive unit noisy.*	3. Refer to separate troubleshooting section on <u>Power Drive Unit</u> .

* Power Drive Models Only

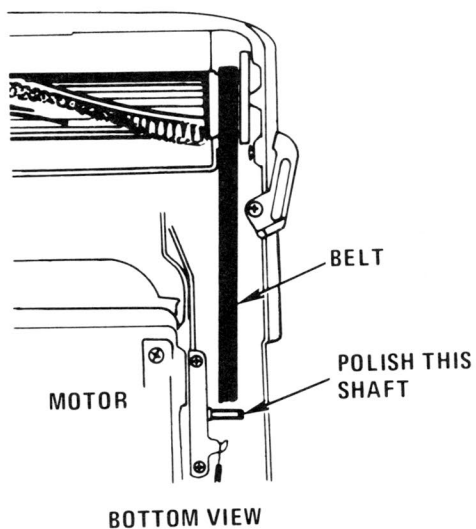
PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
D. Cleaner Noisy (cont'd)	4. Agitator bearings bad or need greased. 5. Bent Agitator 6. Foreign object in agitator cavity.	4. Grease or replace bearings. 5. Replace agitator. 6. Remove object, check cavity and agitator.
E. Motor runs - cleaner won't drive	1. Worn or broken power drive belt.* 2. Problem in Power Unit.* * Power Drive Models Only.	1. Replace belt. 2. Refer to separate troubleshooting section on <u>Power Drive Unit</u> .
F. Belt comes off shaft.	1. Belt not concentric. 2. Motor mount(s) not secure. 3. Motor mount(s) cracked or broken.	1. Turn belt end for end or inside out or replace belt. 2. Check mounting & tighten. 3. Replace motor mounts.

NOTE:

Periodically a belt will break in one of the subject units and a residue of rubber or other foreign matter will be left on the armature shaft.

To reduce the possibility of successive belt breakage the armature shaft should be cleaned and/or polished to its original state before installing a replacement belt.

Cleaning of the shaft can be accomplished using steel wool or a fine grade emery cloth. In most cases, cleaning with a NON-Flammable solvent IS NOT sufficient to clean the shaft adequately.



IV. POWER DRIVE UNIT

A. GENERAL

The Power Drive Unit is belt driven off of the motor, therefore, when the motor is running, the brake discs are turning. When the cleaner Control Handle is moved forward, pressure is applied to the L.H. Brake Disc Assembly through the action of the handle, control cable, actuator bar, and actuator bracket, causing the cleaner to move forward. Pulling back on the handle places pressure on the R.H. Brake Disc Assembly causing the cleaner to move backward. The clearance gap between either brake disc and Brake Disc Assembly should not exceed $3/64$ or $.050$ " when the opposite disc is engaged. If the gap is substantially greater on either side, it may indicate a bad thrust bearing inside the housing. The minimum allowable gap is $.020$ ".

References to left hand (LH) and right hand (RH) are when viewing the Power Drive Unit from the Operators position. See Figure 1.

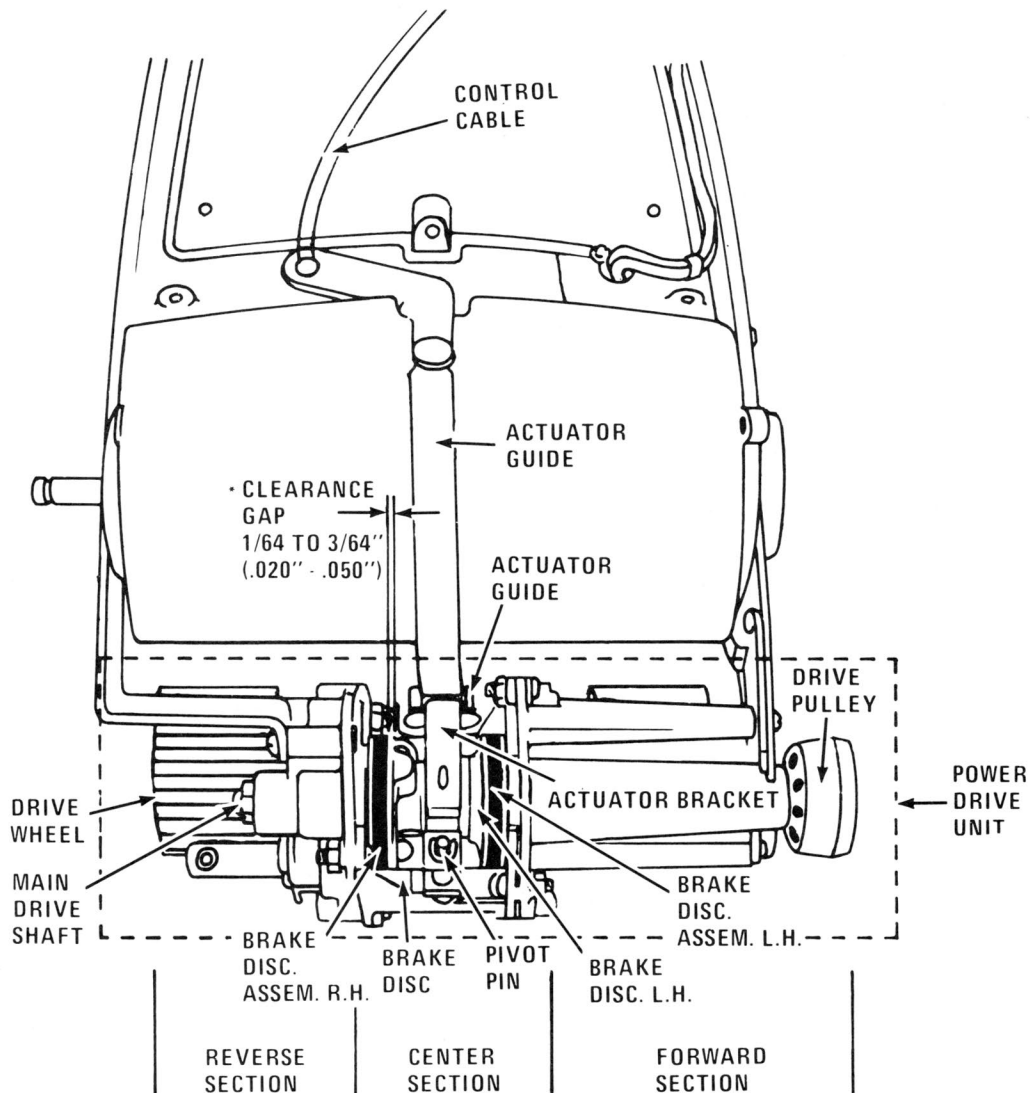
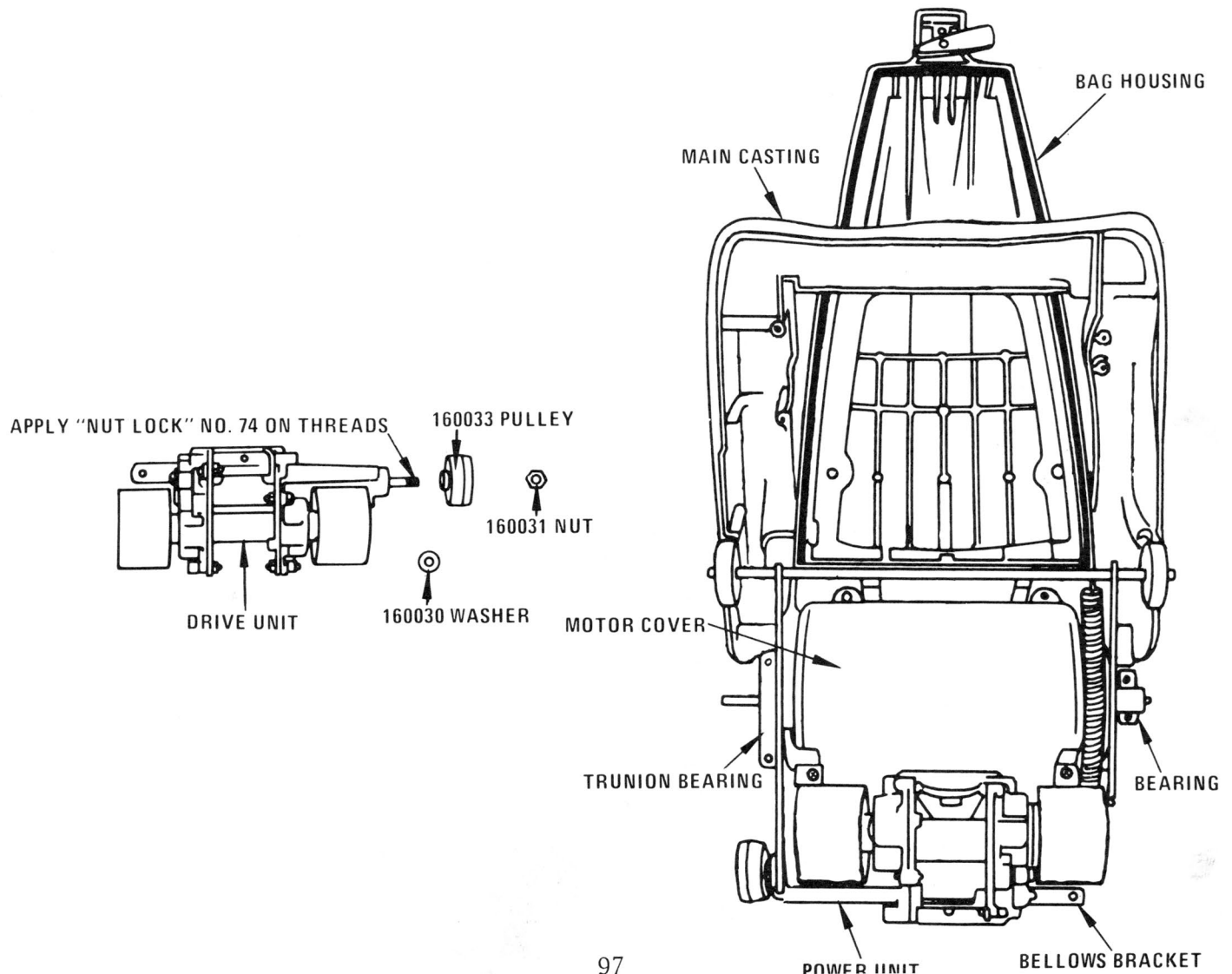


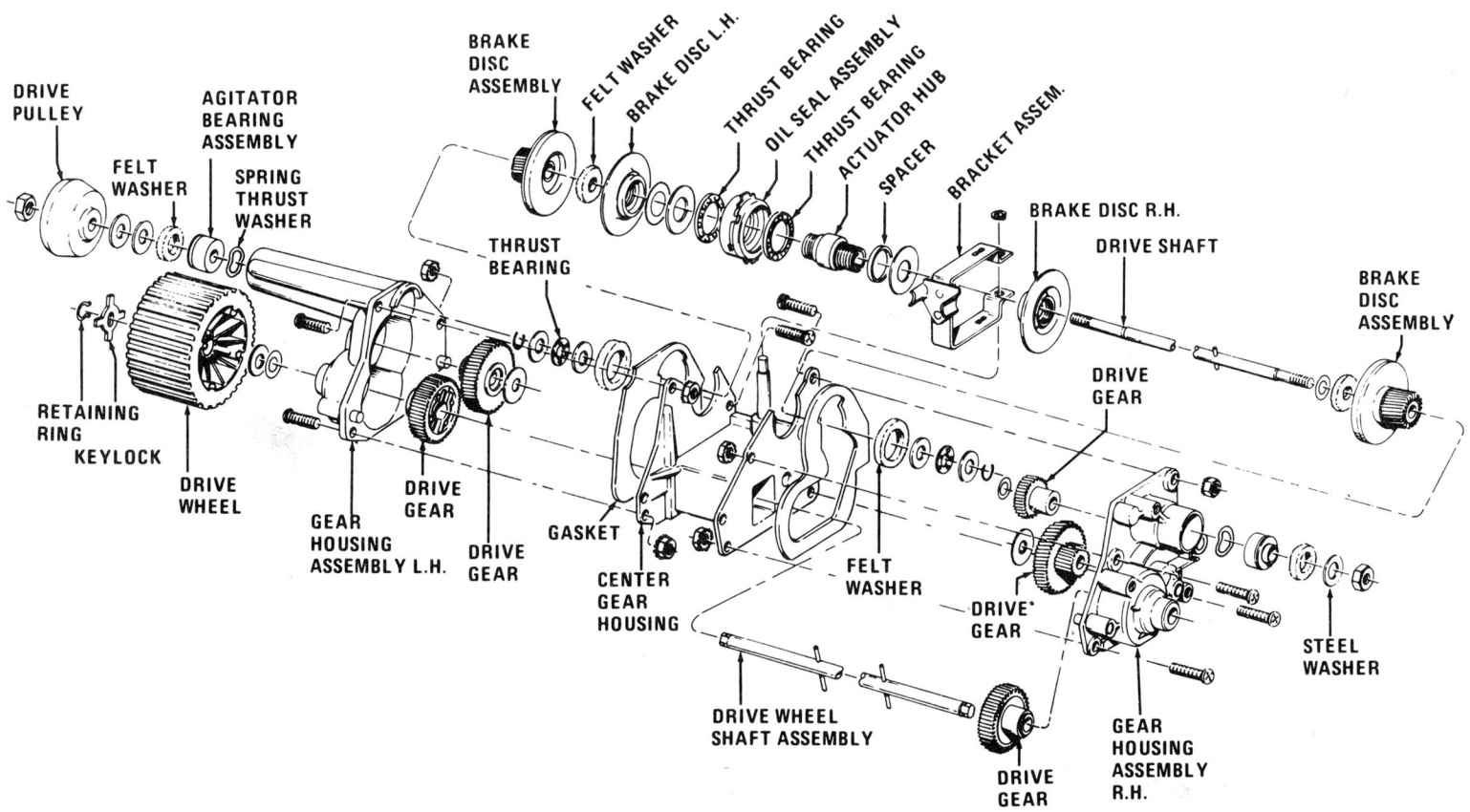
Fig 1

B. REMOVING POWER UNIT

1. Remove bottom plate.
2. Remove balance spring.
3. Remove hose to bag door.
4. Remove belts.
5. Remove handle release.
6. Remove screws which secure the trunion bearing and opposite bearing to main casting.
7. Slide bag housing forward through main casting.
8. Remove R.H. drive wheel of power unit which is secured on by a lock ring.
9. Remove screws securing power unit to L.H. & R.H. frame. (The power unit as a service replacement includes the L.H. drive wheel but not the R.H. drive wheel which must be re-used.)
10. The drive pulley is secured to the drive shaft of the power unit by a nut which has a L.H. thread. Turn the pulley to remove the nut as the pulley is forced to seat the nut.

Use Locite on the threads of the drive shaft when assembling.





The Power Drive Unit can be broken down into three main sections: Forward (LH) Section (Long), contains forward drive gears; Reverse RH Section (Short) contains reverse drive gears; Center Section contains brake discs, brake disc assemblies and actuator assembly.

Either the R.H. or L.H. section of the unit can be removed independently for repair. However, if a problem is encountered in the Center Section, the entire unit will have to be dis-assembled.

NOTE* Failure to drive, accompanied by noise, can usually be related to failed gears within the RH, LH, or both sides of the Power Drive Unit.

When a Power Drive Unit will drive but it is noisy, the problems will usually be related to the Center Section.

C. DISASSEMBLY

(Power Drive Unit out of cleaner)

Suggested Tools

1. Open end wrench 3/8" - 7/16"
2. Snap ring pliers
3. Needle nose pliers
4. Nut driver 11/32"
5. Screw driver-medium blade 1/4"
6. Screw driver-Philips
7. Vise-grip pliers
8. Wood mallet
9. File (fine)
10. .020/.050 Gauge - (Feeler Gauge)

1. Reverse (RH) Section (Short)

- a. Remove nut (LH Thread) and thrust washer from main drive shaft.
- b. Remove wheel . Check wheel drive shaft for burrs and de-burr with file if necessary to avoid damage to sleeve bearing when housing is removed.
- c. Remove four (4) bolts and nuts. Note that bolt and nut nearest pivot post are reverse and should be replaced this way.
- d. Hold Power Drive Unit with Reverse side down and separate the Reverse (RH) Gear Housing from the Center Section (Fig. 4). Note the position of the gears and thrust washers carefully. (Fig. 5)

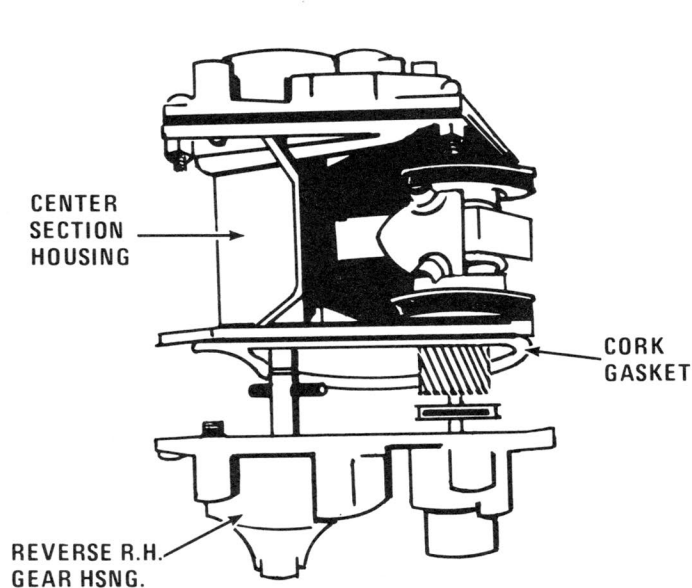


Fig. 4

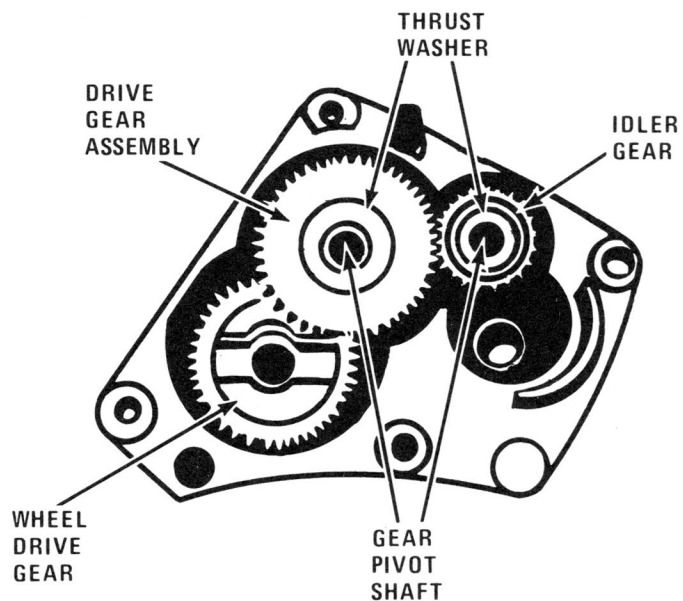


Fig. 5

- e. Remove and inspect each gear for wear, broken teeth or any other irregularity.
- f. Inspect gear pivot shafts for looseness. They should be tight and flush with the outside of the Housing. A 1/32" protrusion is acceptable. If greater, replace housing.
- g. Remove and inspect Felt Seal, Agitator Bearing Assembly, and Spring Washer from opposite side of Housing. (Fig. 6)

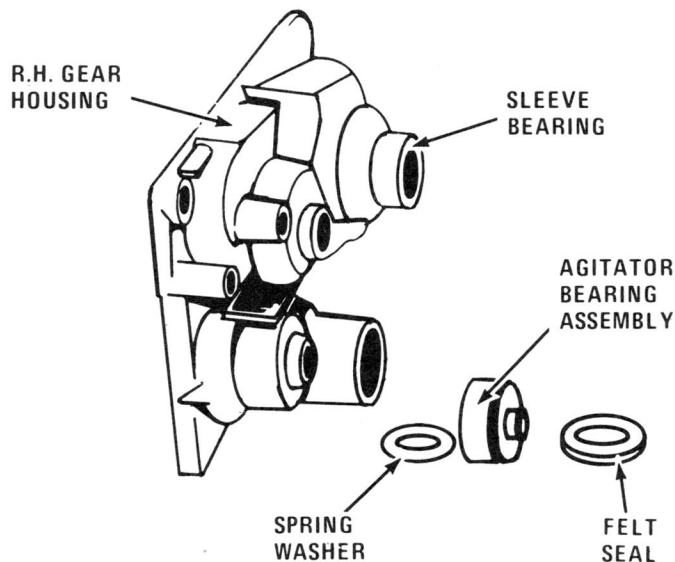


Fig. 6

- h. Remove and inspect the cork gasket.
- i. Remove "C" clip, 2 thrust washers and thrust bearing from main drive shaft.
NOTE* Thrust Bearing should contain 5 bearing balls. Remove felt dust seal

from RH Brake Disc Assembly and replace with new one. Cement new seal to Center Section Housing, using 3M 847 adhesive, to prevent rotation. (Fig. 7)

Also inspect gear teeth of RH Brake Disc Assembly for wear and/or breakage. Replacement of this assembly covered in Center Section dis-assembly.

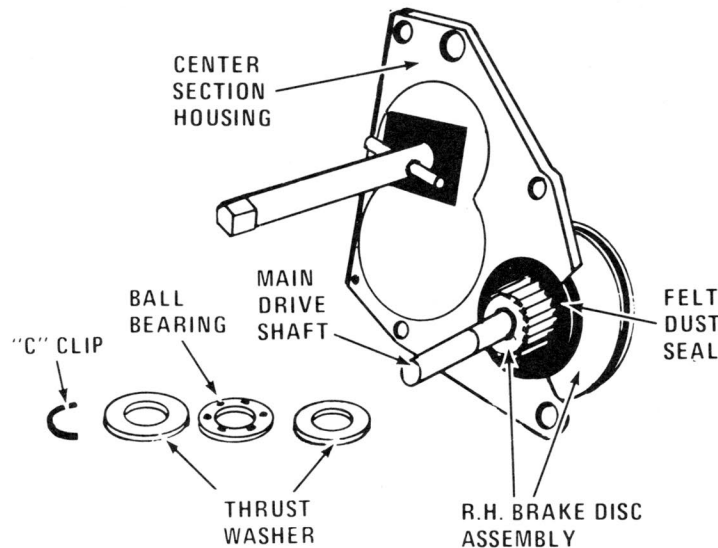


Fig. 7

- j. Clean out all grease from gear housing. If solvent is used, take care not to leach oil from impregnated Sleeve Bearing. Re-pack gears using Hoover Grease, Part #904.

2. FORWARD (LH) SECTION (LONG)

- a. Remove Wheel, Fig. 8, and de-burr end of wheel drive shaft with a file.
- b. Remove Main Drive Pulley. Grasp "Reverse Side" Brake Disc plus Brake Disc Assembly with Vise-Grip pliers then turn Drive Pulley clockwise (LH Thread) until nut is free. Pulley may be tight on shaft due to presence of Loctite sealant. (Fig. 9) Apply Loctite to drive shaft when re-installing pulley, taking care not to get any down in area of the Agitator Bearing.

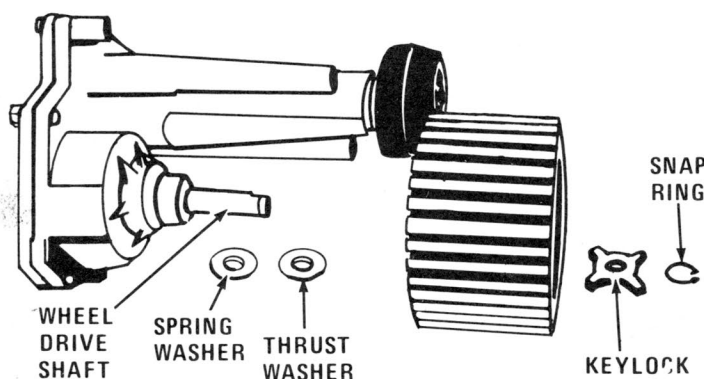


Fig. 8

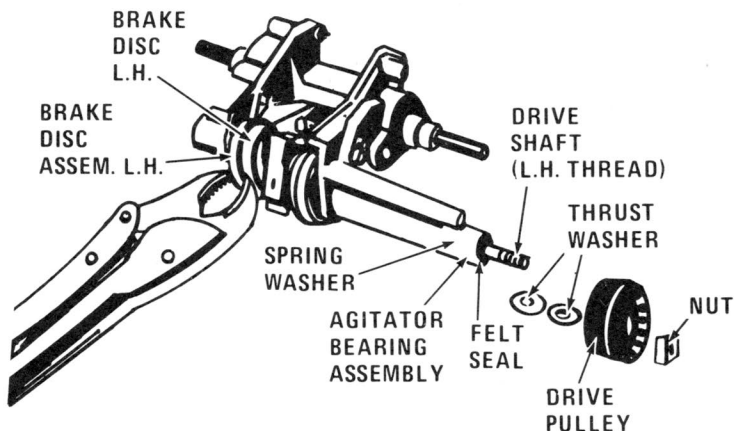


Fig. 9

- c. Remove 4 bolts and nuts. NOTE* The bolt and nut nearest the pivot post are reversed and should be re-installed this way.
- d. Hold the Forward Section upright and gently drive the main drive shaft out using a wood mallet separating the Forward (RH) gear housing from the Center Section (Fig 10).
- e. Remove and inspect gears (Fig 11).

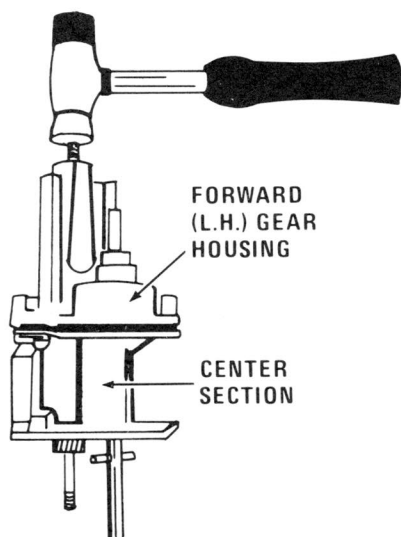


Fig. 10

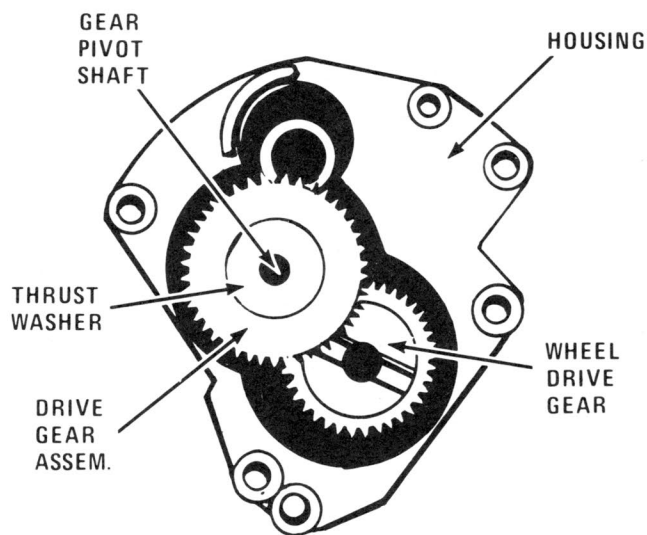


Fig. 11

- f. Clean out all grease from gear case. If solvent is used, take care not to leach oil from the sleeve bearing. Repack gear case using HOOVER grease #904.
- g. Inspect gear pivot shaft for looseness. Shaft should be tight and flush with outside of housing. A 1/32" protrusion is acceptable. If greater, replace housing.

- h. Remove "C" clip, thrust bearing, and 2 thrust washers from main drive shaft. NOTE* Thrust bearing should contain 5 bearing balls. Also remove and inspect cork gasket and felt dust seal from LH Brake Disc Assembly (Fig 12). Replace Felt Seal with new one and cement in place to Center Section Housing using 3M 847 adhesive.

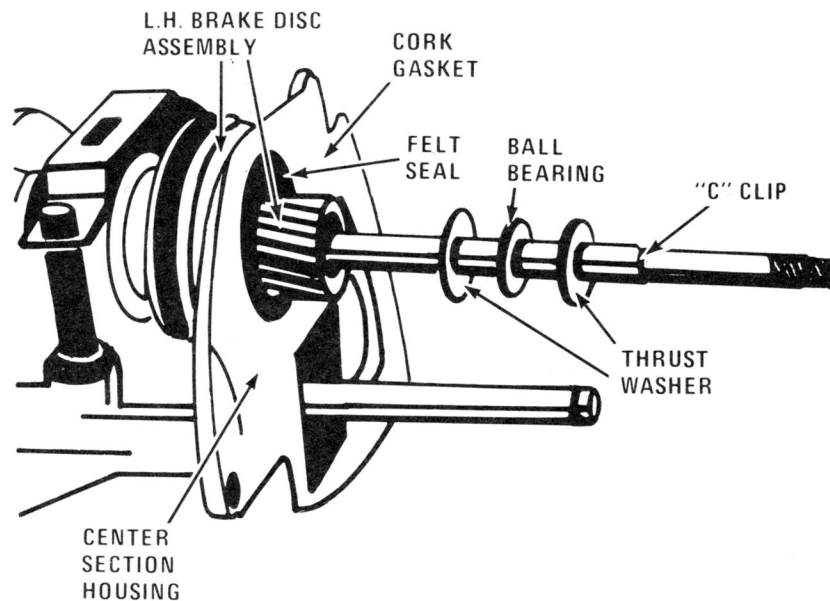


Fig. 12

CENTER SECTION (Fig. 13)

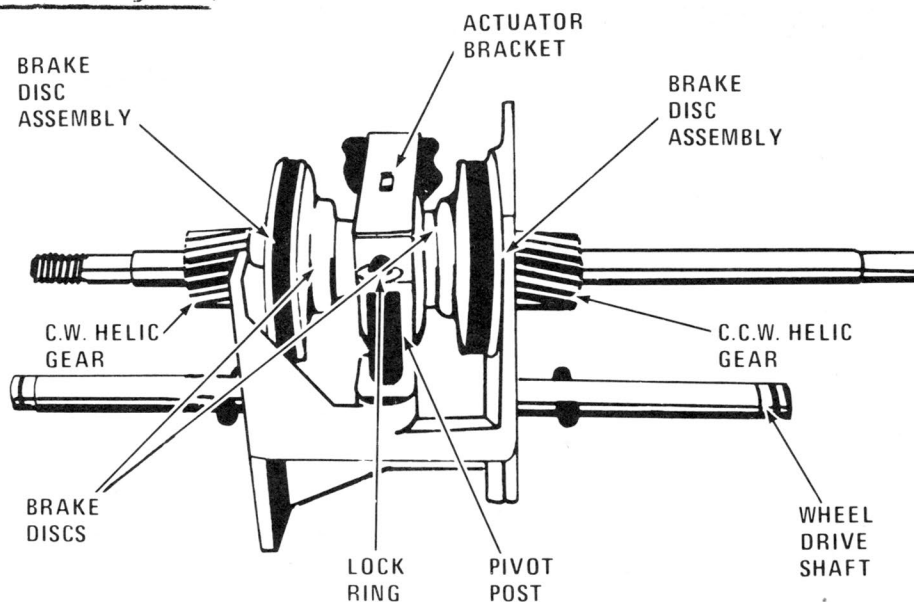


Fig. 13

NOTE* Both Forward (LH) and Reverse (RH) sections will have to be removed in order to service the Center Section. (Refer to Sections 1 & 2)

- a. Remove Wheel Drive Shaft and inspect for straightness.
- b. Remove Felt Washers from Brake Disc Assembly if not already done.
- c. Remove lock ring from pivot post, lift Actuator Assembly from Housing and inspect pivot post for tightness.
- d. Remove Forward (LH) and Reverse (RH) Brake Disc Assemblies by pulling straight off. NOTE* Forward or Long Side Assembly has clockwise helics.
- e. Remove Actuator Bracket Assembly by spreading apart. NOTE* When re-assembling, the large hole in Bracket slips over pivot post first.
- f. Remove felt washers and thrust washer then pull drive shaft out of the Actuator Assembly from the short side. (Fig. 14)

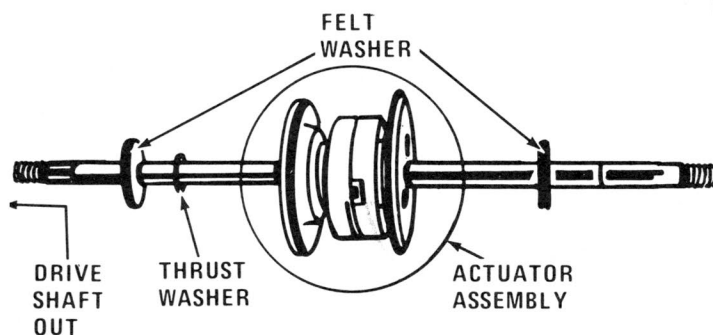


Fig. 14

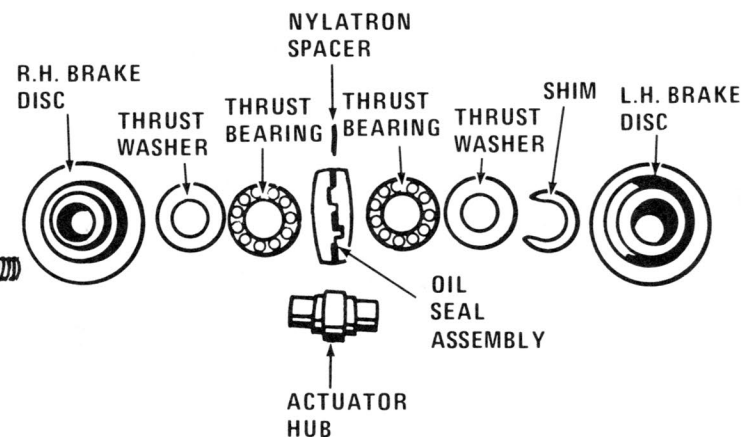


Fig. 15

- g. To dis-assemble Actuator Assembly:

- 1) Unscrew Brake Discs. Reverse side has LH thread; Forward side has RH thread.
- 2) Note the number of metal spacers in Forward side. Be sure the correct amount of spacers are replaced to allow .020" to .050" clearance gap (See Fig. 1) between Brake Disc Assembly and Brake Disc.

See Fig. 15 for Actuator Assembly breakdown.

D. TROUBLE SHOOTING

The following information is provided as a guide to help in determining the cause and possible remedy of abnormal operation of the Power Drive Unit once the nature of failure has been established.

NOTES- 1. Check unit physically for missing or broken components.

2. If Power Drive Unit is dis-assembled, for whatever reason, new thrust bearings should be installed where practical. Number of thrust bearings:

Reverse Section - 1
Forward Section - 1
Center Section - 2

1. Cleaner Won't Drive at All

CHECK

- a. Power Unit tight

Bent Main Drive Shaft or Wheel Drive Shaft.

Center Section Bearings frozen.

- b. Stripped or broken gears

- c. Locked or Jammed Gears

Check gears for wear and pivot posts for looseness.

- d. Bad Thrust Bearings
(Forward or Reverse Sections)

Check Thrust Bearings for wear and/or missing balls.

- e. Pivot Posts loose or broken

Replace housing affected.

- f. Broken Main Drive Shaft

Replace Drive Shaft.

- g. Excessive travel, Actuator Assembly

Check Thrust Bearings 1 ea in Forward & Reverse Sections, 2 in Center Section.

- h. Actuator Assembly binding on Drive Shaft

Replace Actuator Assembly & check Drive Shaft.

- i. Lock Rings missing from Wheel Drive Shaft

Replace lock rings.

- j. Inadequate Clearance between Brake Disc & Disc Assembly

DISCS UNSCREWED; RE-TIGHTEN (LH THREAD)
(ACTUATOR ASSEMBLY)

2. Cleaner Won't Drive Forward

- a. Stripped or Broken Gears

Check Forward Section Gears.

- b. Too much travel in Actuator Assembly

Check Thrust Bearings, Forward & Center Sections.

Worn Brake Lining.

- c. Loose Brake Lining

Replace Brake Disc Assembly.

- d. Drive Pin Broken-Wheel Drive Shaft

Replace Wheel Drive Shaft (Pin press fit)

- | | |
|---------------------------------------|---|
| e. Sleeve Bearing pushed out part way | Replace Forward Section Housing-Bearing is press fit. |
|---------------------------------------|---|
3. Cleaner Won't Drive in Reverse
- | | |
|---|---|
| a. Stripped or Broken Gears | Check Gears in Reverse Section, especially idler. |
| b. Too much travel in Actuator Assembly | Check Thrust Bearings Reverse in Center Sections.

Worn Brake Lining. |
| c. Loose Brake Lining | Replace Brake Disc Assembly. |
| d. Broken Drive Pin Wheel Drive Shaft | Replace Wheel Drive Shaft (Pin press fit) |
| e. Sleeve Bearing pushed out part way | Replace Reverse Section Housing (Bearing Press Fit) |
4. Grinding Noise When Driving
- a. Broken gears
 - b. Bad bearings, Center Section
5. Noise When Driving or Idling
- a. Center Section Thrust Bearing Bad
6. Squeeking Noise When Driving
- a. Bad Sleeve Bearing (s)
7. Erratic Drive
- a. Worn or broken gears
 - b. Bent Brake Disc(s) or Brake Disc Assembly (s)
8. Grease Leakage
- a. Bad Cork Gasket(s)