

HOOVER

SERVICE

GUIDE



THE HOOVER COMPANY • NORTH CANTON, OHIO



Hamilton, Canada



Merthyr Tydfil, South Wales



La Havre, France



Cyfartha, South Wales



Cambridge, Ohio



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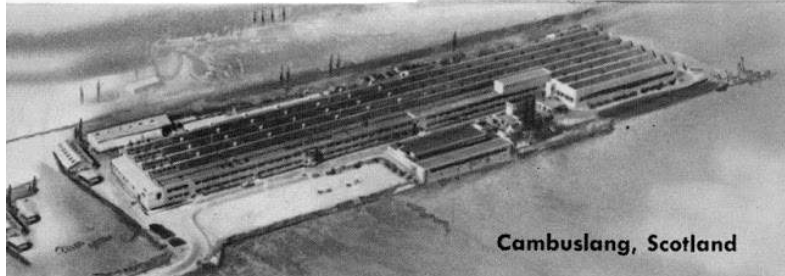
*Principal Factories
of*
**THE HOOVER
COMPANY**

FINE
APPLIANCES

*...around the house
...around the world*



North Canton, Ohio



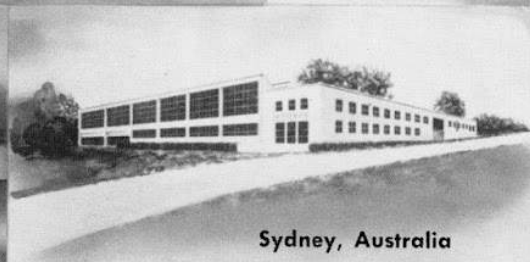
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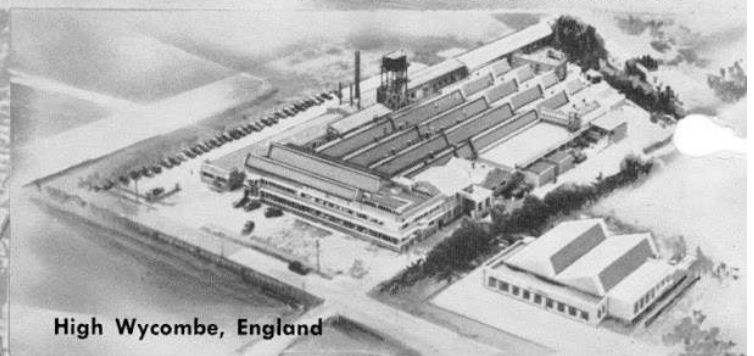
Sydney, Australia



Service Depot, Canton, Ohio



London, England



High Wycombe, England

INTRODUCTION



We lend you this Handbook on Hoover service convinced that it will help you render prompt, efficient and economical service to your customers.

The application of the instructions contained here will aid you in serving Hoover users well and in acquiring their good will for the future.

Hoover sales opportunities will be influenced greatly by the good will you create through good service.

You will find in this Handbook information covering the operation, maintenance and repair of Hoover cleaners and other appliances made since 1919.

It is written simply and illustrated generously so that Servicemen will find it easy to understand. We hope that you will use it as your constant guide and reference and will . . .

KEEP IT HANDY AND REFER TO IT OFTEN

THE HOOVER COMPANY

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What Is . . .

STANDARD HOOVER SERVICE?

STANDARD HOOVER SERVICE has been given wide publicity in newspapers and magazines for many years. When your customers call for Hoover service, this is what they expect and are prepared to pay for:

STANDARD HOOVER SERVICE

1. *Check and repair all electrical connections*, including plugs, cord, cord protector, switch and motor lead wires.

2. *Check, adjust and clean all motor parts*, including carbon brushes, carbon brush springs, armature, bearings and dirt finder.

3. *Check, adjust and clean agitator or brush roll*, including bristles and bearings.

4. *Check belt* for wear, cuts and loss of tension.

5. *Clean bag* and check for wear, tears, holes and clogging. Also check bag support

and bag ring. Throw-away bags should be replaced if they contain an excess of dirt.

6. *Check, adjust and clean main body assembly*, including rug adjuster, wheels, handle bail or socket and furniture guard.

7. *Canister Models — Check Hose, Rug nozzle* and other attachment parts for wear.

8. *Add lubricants as required*—see Lubrication Chart.

STANDARD SERVICE CHARGES

REFER TO ESTABLISHED LABOR
CHARGE IN THE LIST PRICE OF PARTS
BACK OF THIS MANUAL

CARE OF THE HOOVER CLEANER

The conscientious Serviceman will carefully correct the troubles on Hoovers brought in for service. Also, he will patiently review with each user what she can and should do to maintain her Hoover at top efficiency.

The accompanying illustrations (Figures 1 to 12) point out the most important steps

the user is to follow for efficient, economical and continuous performance.

On how well the user performs her part depends whether her weekly house cleaning and daily pick-up cleaning are to be pleasant duties or tedious jobs.



FIG. 1—Picking up pins, hairpins, tacks, pebbles or other hard objects with The Hoover may damage the belt or other moving parts

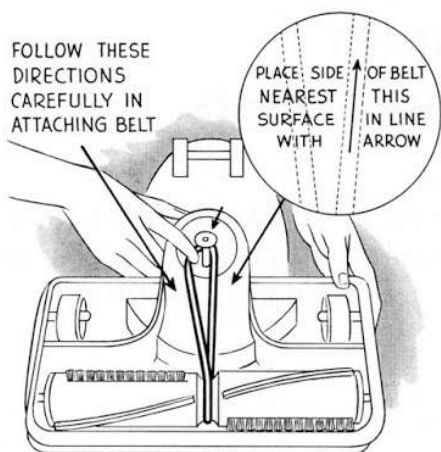


FIG. 3—For efficient cleaning and longer belt life make sure the belt is on properly

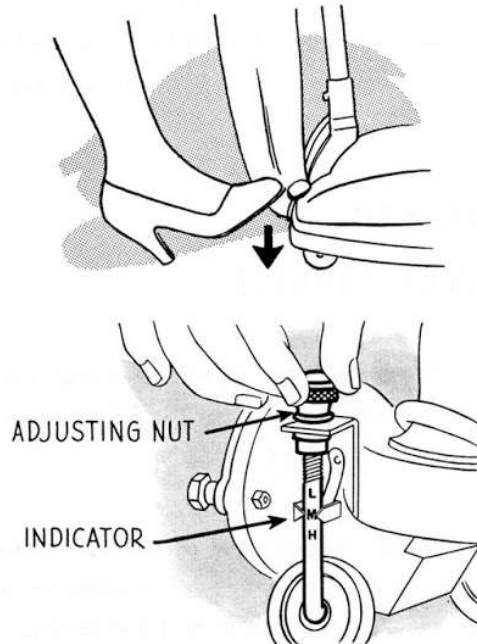


FIG. 2—Keep The Hoover properly adjusted for faster, deeper, easier cleaning

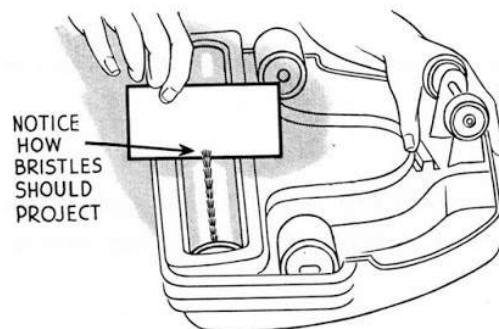


FIG. 4—Make sure the bristle tips extend just beyond the nozzle.

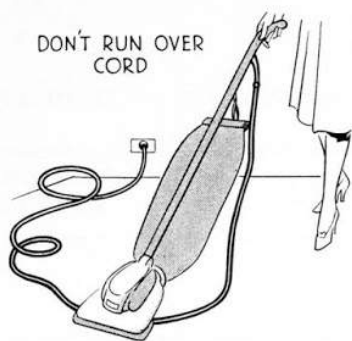


FIG. 5—Running over cord may damage the insulation

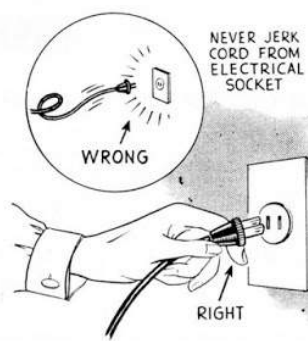


FIG. 6—Rough treatment may damage the electrical connections



FIG. 7—Wind cord loosely so there is no strain on the cord itself or on the connections



FIG. 8—A clean bag is more sanitary and enables The Hoover to do its best job

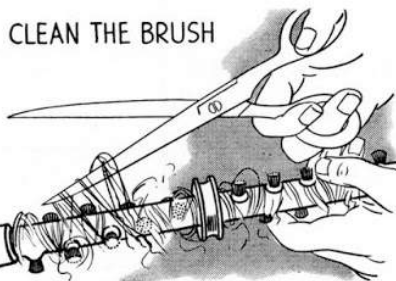


FIG. 9—Keep hairs and strings off brushes. They tend to become wound around the brushes and pulley and cut down efficiency

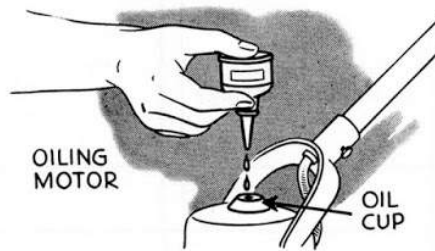


FIG. 10—Too much oil or grease can do as much harm as too little. Follow factory instructions for each model or see next page

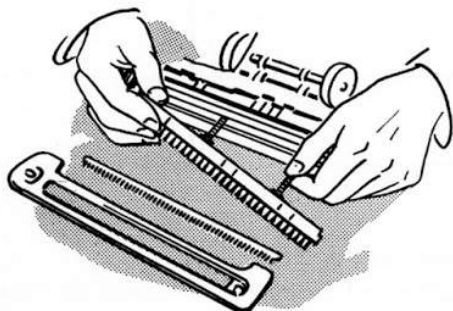


FIG. 11—Replace worn brush and litter picker on cleaning tool nozzles.

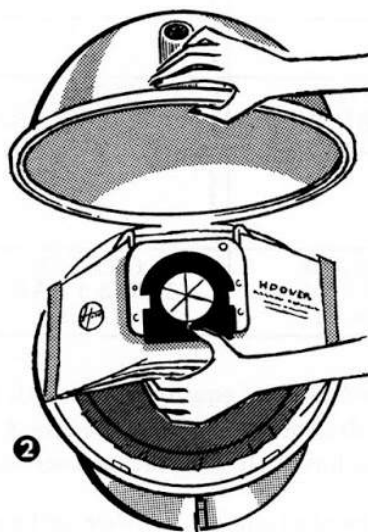


FIG. 12—Replace throw-away bag and filter when clogged with dirt

LUBRICATION CHART

USE HOOVER OIL PART NO. 175 OR HOOVER CUP GREASE NO. 145 AS INDICATED

MODEL NOS.	MOTOR BEARINGS		WHEELS	RUG VIBRATOR BEARINGS
	UPPER	FAN END		
105 541-543	OIL MONTHLY (Solid Bronze)	OIL MONTHLY (Solid Bronze)		
425-450 475-575 700-725 750-800 825				
900-925			GREASE AS NEEDED (Ball)	
1-12-14 115 27-28-29		GREASE 1 TO 3 YEARS (Ball)		
60-61-62 63-634 3500-3510 31-32-64-65 66-67-68	DO NOT LUBRICATE (Self Lubricating)		OIL AS NEEDED	
90-91-913 150-300				
25-26 80-305		*DO NOT LUBRICATE (Self Lubricating)	OIL AS NEEDED	
930			GREASE AS NEEDED (Ball)	
41-42-51 53-55-415 82-84-85 86-87-88	DO NOT LUBRICATE (Self Lubricating)	GREASE 1 TO 3 YEARS (Ball)		
50				
	GREASE 1 TO 3 YEARS (Ball)	GREASE 1 TO 3 YEARS (Ball)		

* Lubricate 1 to 3 years if equipped with ball bearings.

Lubricate handle socket shafts and other friction points as needed.

Hand Cleaners have self lubricating bearings and require no lubrication. See Page 26 for exception.

For Polisher lubrication see Polisher section.

CHAPTER I—LOCATING THE TROUBLE

Locating the cause of trouble quickly, enables you to determine the nature of repairs needed and to estimate their cost.

In many cases, source of trouble can be traced merely by operating The Hoover and looking for such things as failure to lift rug, failure to remove surface dirt, and unusual noise or odor.

For those cases where the difficulties are not so easily detected, the following chart will prove extremely helpful. However, the chart lists only the common causes of trouble and only brief hints on how to remedy the condition. For further details, it will be necessary to refer to the later pages of the Handbook as indicated below.

Motor Refuses To Run

Possible Cause	Remedy	See page
1. No power	Check source of power.....	12-20
2. Loose electrical connections	Inspect and tighten all connections.....	14-15-16-20
3. Damaged plug	Repair or replace plug	14
4. Broken wires in cord	Repair or replace cord.....	14-15-16
5. Switch not operating	Inspect switch contacts.....	15-16
6. Worn carbon brushes and springs.....	Replace with new brushes and springs.....	20-22-23
7. Carbon brushes sticking	Clean brushes and holders.....	20-22
8. Tight motor bearings	Ream or replace bearings.....	24-26
9. Dirt pack back of fan.....	Remove Dirt	20-30
10. Open field coil	Install new coil	25
11. Open or shorted wire in hose	Repair wire or replace hose	81-82

Motor Does Not Come Up To Speed

Possible Cause	Remedy	See page
1. Poor electrical contacts	Tighten connections	14-15-16-20
2. Sticking or worn carbon brushes.....	Clean or use two new brushes.....	20-22
3. Carbon brush springs have lost tension.....	Use two new springs.....	20-22
4. Carbon brush ring setting.....	Advance the setting.....	22
5. Fan rubs on motor bottom plate.....	Add fan spacing washer.....	30
6. Dirt pack back of fan.....	Remove dirt	20-30
7. Armature out of alignment.....	Check bearings and motor casing.....	24-26-30
8. Tight motor bearings.....	Ream or replace bearings.....	24-26
9. High mica condition of commutator.....	Undercut the commutator.....	23
10. Shorted armature	Use new armature.....	23
11. Open armature	Use new armature.....	23
12. Grounded armature	Remove carbon dust or use new armature.....	22-24
13. Tight agitator or brush roll	Inspect for tight ends.....	41-42-43
14. Lubrication—too little or too much.....	Remove excess or add lubricant	8-26-28-29
15. Low voltage	Check with Power Company.....	—

Excessive Noise

Possible Cause	Remedy	See page
1. Hard object in nozzle or fan chamber	Remove object	32-44
2. Litter wound on fan pulley	Remove obstruction	44
3. Fan rubbing motor bottom plate	Add fan spacing washer	30
4. Loose agitator bar	Use new agitator	41
5. Loose agitator brush	Check channel ends	42
6. Worn motor bearings	Use new bearings	26
7. Worn agitator or brush roll bearings	Use new bearings	41-42-43
8. Armature hitting field iron	Check bearing wear and armature alignment	24-26
9. Bent thread guard on agitator	Straighten or install new guard	42
10. Rough commutator	Smooth surface on lathe	23
11. Worn carbon brush	Use two new carbon brushes	22
12. Excessive armature end play	Add spacing washer at top of armature shaft	28
13. Hard grease in ball bearings	Relubricate	8-28-41

Excessive Vibration

Possible Cause	Remedy	See page
1. Broken or badly worn fan blades	Use new fan	29
2. Fan pulley out of balance	Use new pulley	29-30
3. Bent armature	Use new armature	24-26-30
4. Agitator or brush roll out of balance	Use new agitator or brush roll	29-41-42-43
5. Dirt on Canister or Tank cleaner fans	Remove dirt—examine secondary filter	81

Motor Heats Excessively

Possible cause	Remedy	See page
1. Dirt pack back of fan	Remove dirt	20-30
2. Agitator or brush roll turns hard	Remove dirt, check end spacing	41-42-43
3. Nozzle or brush roll adjusted too low	Adjust higher	6-32-37-39
4. Worn motor bearings	Use new bearings	26
5. Tight motor bearings	Ream or replace bearings	24-26
6. Armature rubs field iron	Check bearing and armature alignment	24-26
7. Shorted armature	Use new armature	23
8. Open armature	Use new armature	23
9. Rough commutator	Smooth surface on lathe	22-23
10. One field coil burned out	Use new coil	25
11. Shorted field coil	Use new coil	25
12. Lack of lubrication	Add lubricant	8-28
13. Poor commutator contacts	Re-set carbon brush holders	20-22-23

Cleaner Does Not Pick Up Rug

Possible cause	Remedy	See page
1. Clogged bag	Clean cloth bag or replace throw-away bag	7-18
2. Nozzle adjusted too high	Adjust closer to rug	6-34-39
3. Excessive sweeping brush extension	Adjust brush roll or reverse agitator brushes	32-42-43
4. Sluggish motor	Service the motor	20 to 30
5. Obstruction in fan eye	Remove obstruction	32
6. Cleaner bottom plate missing	Install a new plate	37
7. Thin or porous rug	Place paper under rug	—

Cleaner Does Not Remove Dust And Litter

Possible cause	Remedy	See page
1. Clogged bag	Clean cloth bag or replace throw-away bag	7-18
2. Worn sweeping brushes	Use new brushes	7-42-43

(Continued)

3. Sweeping brush clogged with ravelings	Remove ravelings	7
4. Obstruction in fan eye	Remove obstruction	32
5. Loose or broken belt	Use new belt	44
6. Sluggish motor	Service the motor	20-30
7. Stalled agitator or brush roll	Remove obstruction	41 to 44
8. Dirt pack in fan chamber	Remove dirt	32

Cleaner Pushes Hard

Possible cause	Remedy	See page
1. Nozzle or brush roll adjusted too low	Adjust higher	6-32-34-39
2. Worn wheels or shafts	Use new wheels or shafts	34-35
3. Belt guard bent	Straighten	38
4. Agitator latch open	Close securely	33
5. Wheels turn hard	Lubricate	8-34

Frequent Belt Breakage

Possible cause	Remedy	See page
1. Pins and strings picked up by cleaner	Pick up before cleaning	6-44
2. Agitator or brush roll stalled	Instruct how to clean light rugs and fringes	42-44
3. Agitator or brush roll turns hard	Clean ends and lubricate bearings	8-41-42-43
4. Sharp objects rubbing on belt	Remove obstruction	44
5. Belt on backwards	Install correctly	6-44
6. Agitator or brush roll turned end for end	Install properly	33-44
7. Belt rubs on belt guard	Straighten belt guard	38
8. Rough fan pulley	Use new pulley	—
9. Belt jumps off pulley	Install belt correctly	6-44
10. Wrong belt	Use proper belt	44

Dust Leaks Into Room

Possible cause	Remedy	See page
1. Holes in dust bag	Use new bag	18
2. Gasket in bag ring missing	Use new bag ring	18-19
3. Bent bag ring	Use new bag ring	18-19
4. Bag ring not secured to main casting	Tighten bag nuts or levers	18-19
5. Dirt between bag ring and main casting	Remove dirt	18
6. Hole in fan chamber wall	Use new casting	31
7. Motor gasket missing or broken	Use new gasket	—
8. Dust odor in storage closet	Clean bag before storing	19
9. Bag closure clip bent	Straighten	19

Faulty Lubrication

Possible cause	Remedy	See page
1. Lack of lubrication	Add lubricant	8-26-28-29
2. Clogged oil hole in armature shaft	Clean dirt from oil hole and use new wick	29
3. Gummed bearings	Clean and use Hoover oil or grease	8-26-28-29
4. Over-heated motor dries up oil	Service the motor	20-30
5. Dust around bearings absorbs the oil	Clean motor and bearings	26-28
6. Oil-soaked armature windings	Clean and use oil sparingly	8-23
7. Oil-soaked dirt back of fan	Clean and use less oil	8-20-30
8. Oil drops on rug	Wipe and use less oil on wheels	8-34
9. Grease on inside of motor casing	Remove grease	—
10. Machine oil placed in self oiling bearings	Replace bearing	29

CHAPTER II—TESTING AND REPAIRING HOOVER CLEANERS UPRIGHT

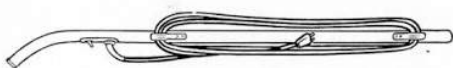


FIG. 13—A handle and cord assembly

Major Parts of a Hoover Cleaner

For the purpose of this chapter of the Handbook, The Hoover cleaner will be considered as being made up of five major assemblies, each of which includes a number of parts or sub-assemblies.

These five major assemblies are illustrated on this page:

1. Handle and Cord Assembly. Figure 13.
2. Bag Assembly. Figure 14.
3. Motor and Fan Assembly. Figure 15.
4. Main Casting Assembly. Figure 16.
5. Agitator and Belt Assembly or Brush Roll and Belt Assembly. Figures 17 and 18.

This chapter describes in general how to test and repair individual parts of these assemblies. However, in many cases it may be necessary to refer to other Chapters for information on dismantling a cleaner or its assemblies. Consult index in the front of this manual for specific models.

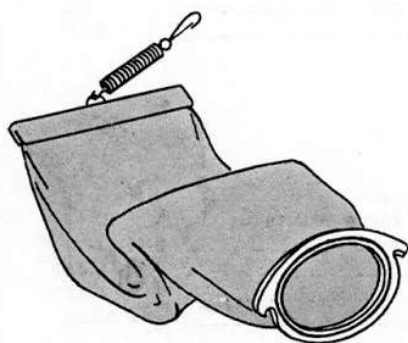


FIG. 14—A bag assembly

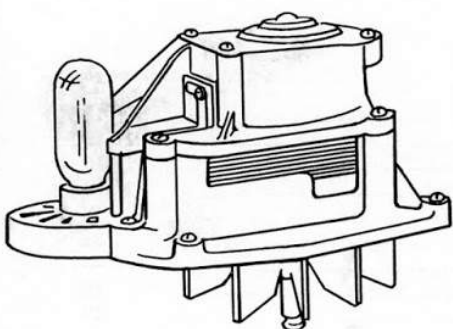


FIG. 15—A motor and fan assembly

Before dismantling The Hoover:

1. Test the wall socket to make sure that the house fuze is not blown out.
2. Turn The Hoover on and off, noticing any unusual operating conditions.
3. Disconnect cleaner from wall socket.

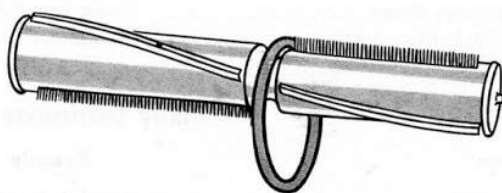


FIG. 17—An agitator and belt assembly

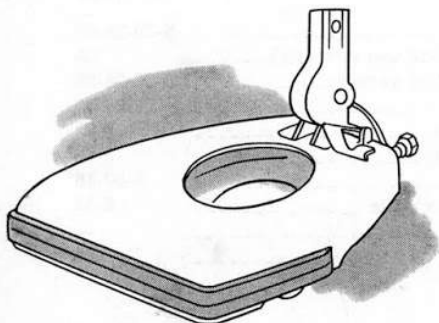


FIG. 16—A main casting assembly

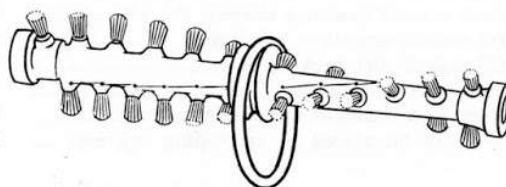


FIG. 18—A brush roll and belt assembly

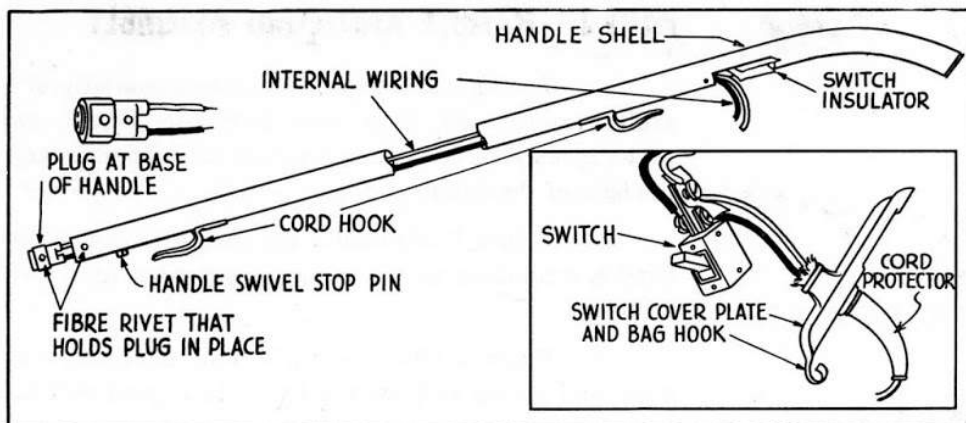


FIG. 19—Handle with single speed switch

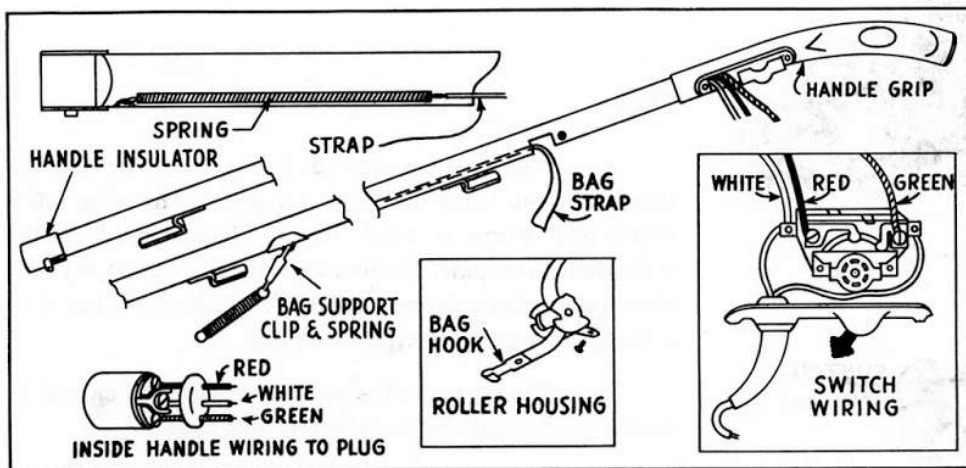


FIG. 20—Handle with two-speed switch and enclosed bag support mechanism

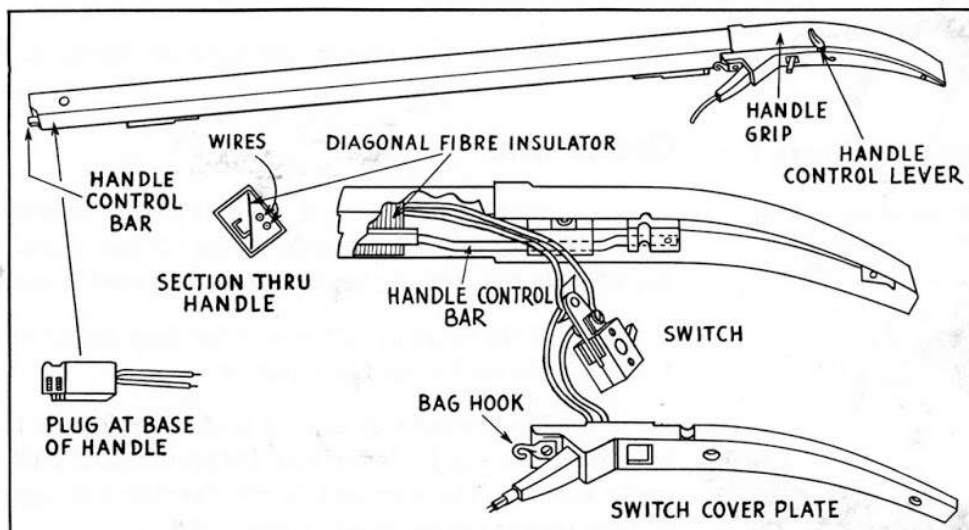


FIG. 21—Model 60 handle

PART I—HANDLE AND CORD ASSEMBLY

The handle assembly consists essentially of the handle shell, cleaner cord, plug, cord protector, switch, switch cover plate, insulators, the internal wiring of the handle and a plug in the base of the handle.

Figure 19 illustrates the simplest type of Hoover metal handle, containing no mechanical parts other than a single speed switch.

Figure 20 illustrates a handle containing a bag support strap and spring and equipped with two-speed switch.

Figure 21 illustrates the Model 60 handle, containing the finger-tip control mechanism and equipped with a single speed switch.

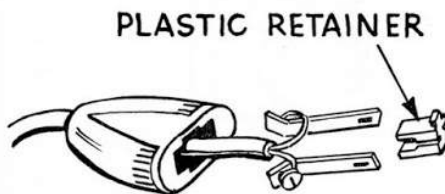


FIG. 22—Hoover service plug

Plug

Examine the plug for loose prongs or connections. With the power on, bend the cord sharply at the plug. If the cleaner starts and stops, a break in the cleaner cord at this point is indicated. To repair, disconnect cleaner and cut cord about one to three inches from the plug. Reconnect the old plug, if still serviceable. If damaged, install a new plug.

The type of plug molded to the cord cannot be repaired. A new plug should be installed in such cases.

The Hoover service plug is one of the better plugs on the market today. It offers maximum safety, durable construction, and good appearance.

Attach the plug to the cord as shown in Figure 22.

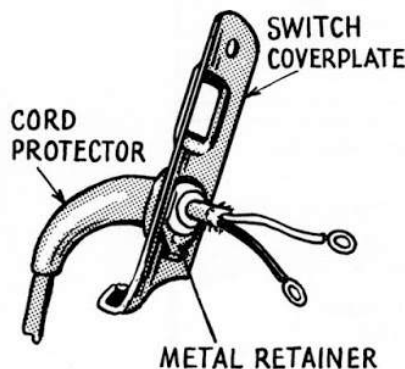


FIG. 23—Installation of service cord protector

Cleaner Cord

With the power on, bend the cord sharply at short intervals along its entire length. If the cleaner starts and stops, the wires in the cord are broken and a new cord is recommended.

If the covering of the cord has been cut or worn thru to the wires, the cord should be replaced.

The Hoover service cord is of exceptionally fine quality, is approved by the Underwriters' Laboratories, is kink-proof and easily cleaned. The standard length furnished is approximately 21 feet. Do not use so-called "lamp-cord."

Cord Protector

The cord protector is for the purpose of relieving the strain on the cord where it enters the switch and for protecting switch connections.

With the power on, bend the cord sharply at the cord protector. If cleaner starts and stops, wires in the cord are broken at this point.

To repair, cut the cord about two inches below the old protector.

The type of protector molded to the cord cannot be re-used. In such instances use a new service cord protector.

To slide the cord thru the rubber protector more easily, place soap, oil or grease on the end of the cord before stripping the ends.

When installing a protector in the switch cover plate, make sure that the metal horse shoe shaped retainer is replaced. See Figure 23.

On Model 102 always replace the set screw thru the bottom of switch base.

Switch

Switch trouble may be caused by loose connections. In this case, tighten them and try the switch again.

If the switch is of the open or exposed variety, its parts can be examined to detect the defect; but on the enclosed types, nothing can be seen or done since these switches cannot be taken apart.

To test the switch, try the switch mechanism. It should operate with a positive, snappy action. If the action is sluggish, a worn or broken spring or burned out contact point is probably causing the trouble.

Do not attempt to make extensive repairs on a switch. Replace with a new one.

When replacing the switches, be sure to replace the switch insulators.

There are three types of switches in use:

1. The single speed switch and method of wiring are shown in Figure 24.
2. The two-speed switch and wiring are shown in Figure 25.
3. The foot switch and wiring, shown in Figure 26, is mounted on the motor casing.

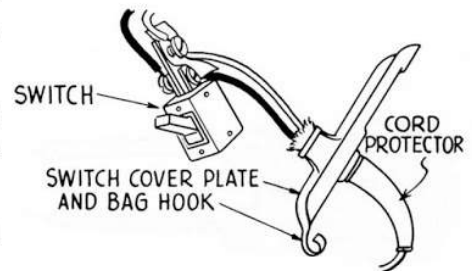


FIG. 24—Wiring diagram of single speed switch

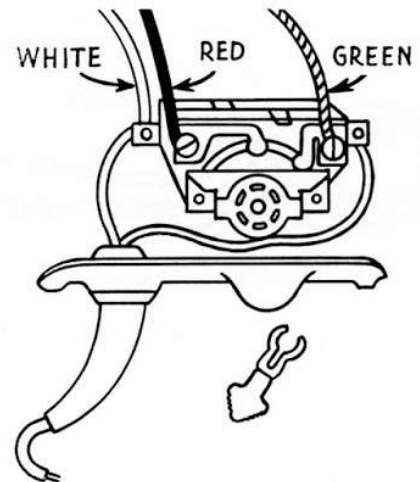


FIG. 25—Wiring diagram of a two-speed switch

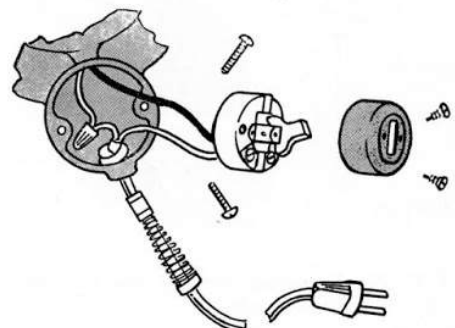


FIG. 26—Wiring diagram of foot switch

Internal Handle Wires and Base Plug

Very little difficulty is encountered with the wiring inside the handle.

Occasional trouble may be traced to loose electrical connections or to a defective plug at the base of the handle.

Wires of different colors are used to simplify making connections between this base plug and the switch.

In two-speed cleaners, base plug and switch contacts are marked to further simplify making connections correctly.

Red wires should be attached to contacts marked "R" (Red) or "H" (High-Speed). Green wires are to be attached to contacts marked "G" (Green) or "L" (Low-Speed). Reversing these wires will result in a dead electrical circuit.

Figure 27 illustrates the wiring diagram of single-speed base plugs.

Figure 28 illustrates wiring diagram of two-speed base plugs.

To remove the base plug from the end of the handle :

1. Drive out the fibre pin (See Figure 29) or remove the screw that holds the plug in place.
2. Tap the lower end of handle lightly while holding handle vertically.
3. Withdraw plug sufficiently to examine or to tighten loose connections.

If the plug or its contacts are worn or broken, install a new plug.

Handle Insulator

A fibre or rubber handle insulator (See Figure 20) will be found fitted around the lower end of handles of cleaners having metal motor casings. This insulator prevents possible leakage of current from the motor through the handle. In some cases, it is necessary to remove this insulator in order to get at the fibre pin holding the base plug in the handle.

Always replace the insulator, being sure to wipe clean both the insulator and the handle shell.

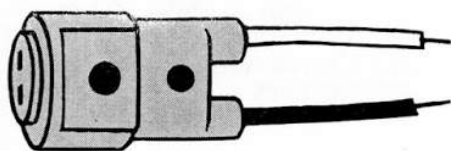


FIG. 27—Single speed base plug

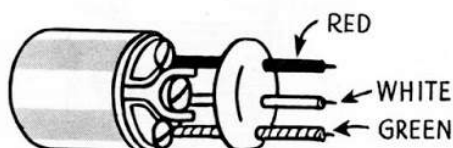


FIG. 28—Two-speed base plug

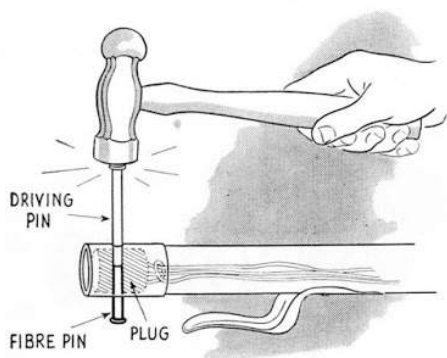


FIG. 29—Removing fibre pin and base plug from handle

Bag Support Strap and Spring

To remove a worn strap or spring inside the handle:

1. Remove plug from base of handle as outlined above. See Figure 29.
2. Remove roller and housing from handle by removing the retaining screw.
3. Bend up the steel prongs of the roller housing to release the bag strap from roller. See Figure 30.
4. With a screw-driver, reach into lower end of handle and carefully pry up the metal tab just enough to permit release of the bag support spring. See Figure 31.
5. With a small hook at the end of a two foot wire, release spring from metal tab. See Figure 32.
6. Remove the strap and spring through the roller housing hole in handle shell.
7. Replace above parts with bag support clip and spring. See Figure 20 or 33.
8. Replace the base plug in handle, securing it with fibre pin.

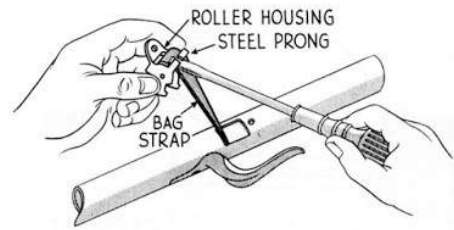


FIG. 30—Removing the bag strap from roller housing

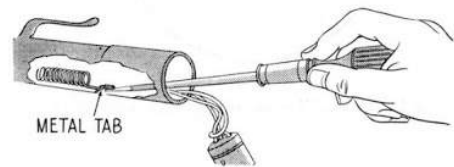


FIG. 31—Prying up metal tab holding bag support spring

Handle Grip

Worn or loose handle grips cannot be repaired or replaced except at the factory. In such cases the handles may be returned for repair.

Plastic grips can be replaced. The new grip must be soaked in warm water to prevent its cracking while being pressed onto handle shell. Press the grip into place by hand or by nothing more severe than light taps with a mallet. If the new grip is too tight, spread oil on the handle shell. If too loose, wrap strips of paper around the shell.

Handle Shell

Handles that are bent, but not buckled, often can be straightened and made serviceable.

Badly bent and broken handles must be replaced with new ones.

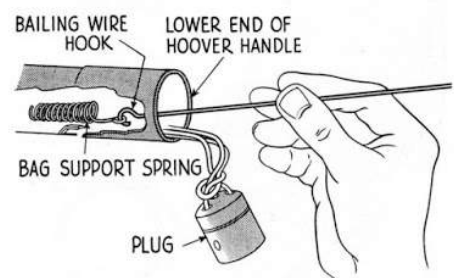


FIG. 32—Releasing bag support spring

PART II—BAG ASSEMBLY

There are five general types of bags used on Hoover cleaners.

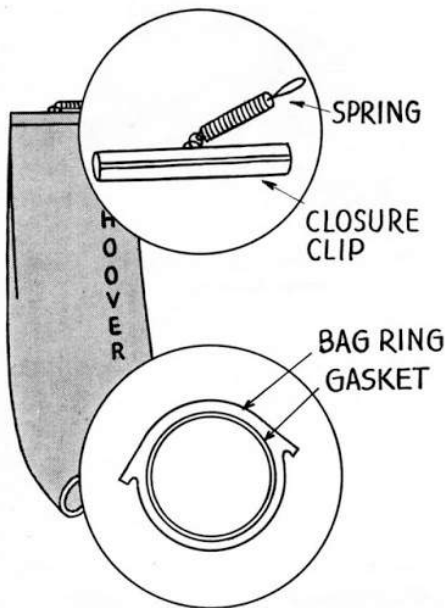


FIG. 33—The open top bag assembly

1. Figure 33 illustrates the open-top bag, the bag closure clip and spring, the bag ring and gasket. (Models having bag support springs within the handles have no springs on the bag closure clips.)
2. Figure 34 illustrates the closed-top bag, spreader and spring, bag ring and gasket. This type can be attached directly to the hook on the handle, or a bag spreader may be used. Open top bags can be substituted for closed types on most models if a bag closure clip and spring are used.
3. Figure 35 illustrates Model 60 cloth bag, closure clip and spring, muffler, bag ring and gasket.
4. Figure 36 illustrates the Model 60 and 61 Hygienisac assembly, which includes the outer zip bag with its clip and spring, the muffler, the bag ring and gasket, the Hygienisac fibre-felt bag and its closure clip.
5. Figure 36A illustrates a throw-away bag assembly.

Genuine Hoover bag fabrics are designed to retain the dirt and to filter the air. That is, all dirt and dust picked up by The Hoover collects in the bag but the air must escape thru the pores of the fabric. If it cannot escape freely, due to too much dirt in the bag or to clogged pores, the air will back up in the cleaner, cutting down the suction very substantially. This results in loss of ability to lift the rug and reduces beating and sweeping action.

The bag is not intended as a storage place for dirt. It should be emptied after each cleaning. Storing The Hoover with dirt in the bag results in dust odors in the storage closet and tends to rot the cloth.

When servicing, inspect the bag for holes, tears and worn spots. Small holes can be mended but if the bag is torn or badly worn, use a new bag. This is also necessary if the inside of the bag is coated with a gummy substance.

Always clean cloth bags thoroughly before returning to user. First, empty the bulky dirt. Turn bag inside out and brush well with a whisk broom. Clean the outside of the bag.

If the bag ring gasket is missing or if the bag ring is bent, a new ring must be used.

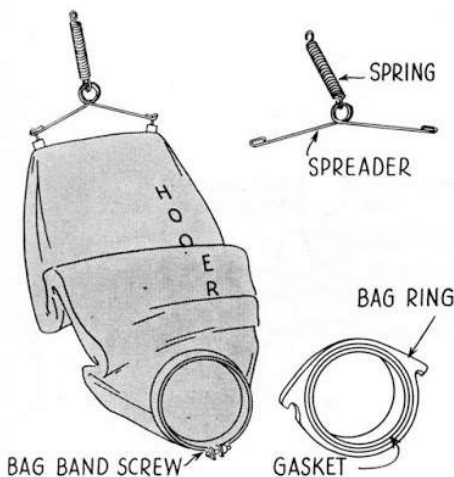


FIG. 34—The closed top bag assembly

To prevent dust leakage and dust odor be sure:

- that bag ring is firmly attached to bag.
- that bag ring gasket is not missing or broken.
- that bag ring is not bent.
- that bag ring is not coated with dirt.
- that exhaust opening at rear of main casting is not bent or coated with dirt.
- that bag ring is securely clamped to main casting.
- that bag closure clip is properly installed.
- that handi-sac or throw-away bag is properly mounted.

Note: Some older bag rings were not equipped with gaskets.

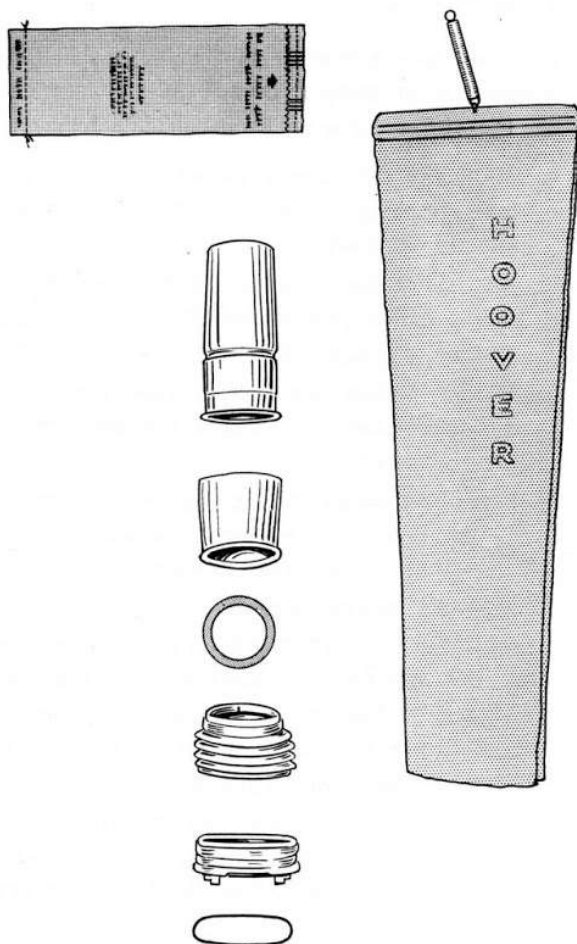


FIG. 36A—Throw-away bag assembly. Used on 31-63-64-65-66



FIG. 35—The Model 60 cloth bag assembly

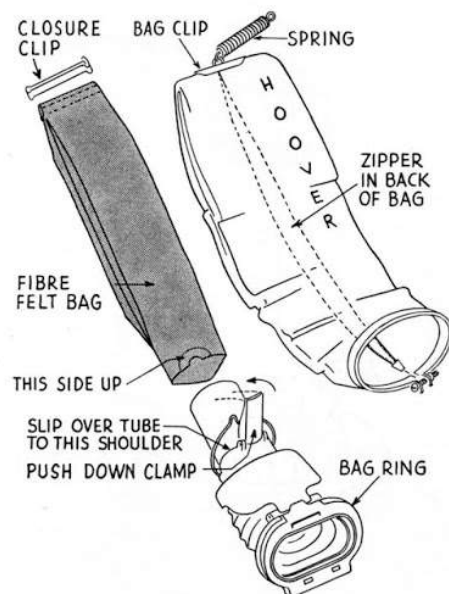


FIG. 36—The Models 60 and 61 Hygienisac assembly

PART III—MOTOR AND FAN ASSEMBLY

The Hoover motor assembly consists principally of the armature, field coils, field iron, carbon brushes, bearings, motor bottom plate, motor casing, fan and fan pulley.

Hoover motors are of three types, classified according to motor casing construction.

1. Figure 37 illustrates a motor with the motor casing and motor bottom plate cast in one piece.
2. Figure 38 illustrates a motor having a one-piece motor casing and a *separate* motor bottom plate.
3. Figure 39 illustrates a motor having a two-piece plastic motor casing in which the lower bearing is mounted in the lower motor casing.

Preliminary Test of Motor

In some cases minor motor trouble can be detected and corrected without completely dismantling the motor or without removing the motor from the main casting. To do this:

1. Make certain there is power in the wall socket and test all parts of handle and cord assembly as previously outlined.
2. Run the cleaner for about five minutes to observe its operation and to permit motor to reach normal operating temperature.
3. If motor does not run, or does not run properly, disconnect belt from fan pulley and try turning the fan by hand:
 - a. **If fan turns freely**, the trouble may be caused by loose motor wiring connections or by improper seating of the carbon brushes.
 - b. **If the fan turns hard**, separate the motor and fan assembly from the main casting, remove fan pulley and fan and clean out any dirt between fan and motor bottom plate. Then re-assemble the cleaner and test it again. Make sure that proper fan spacers are in place. See fan and fan spacers.
4. If motor still does not operate satisfactorily, it will be necessary to test and repair or replace parts individually as outlined on the following pages.

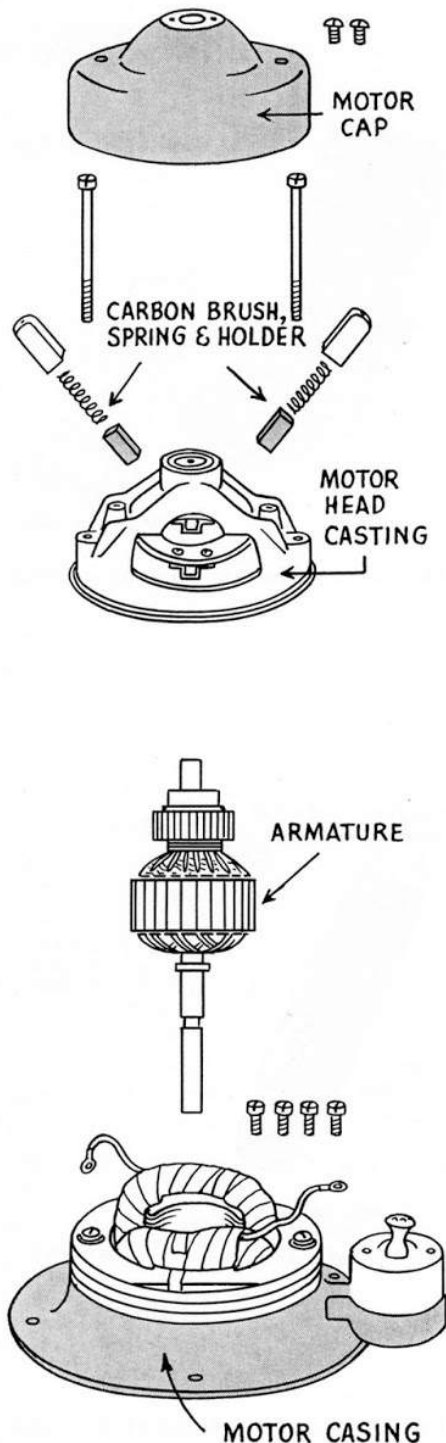


FIG. 37—Type of motor with motor casing and motor bottom plate cast in one piece

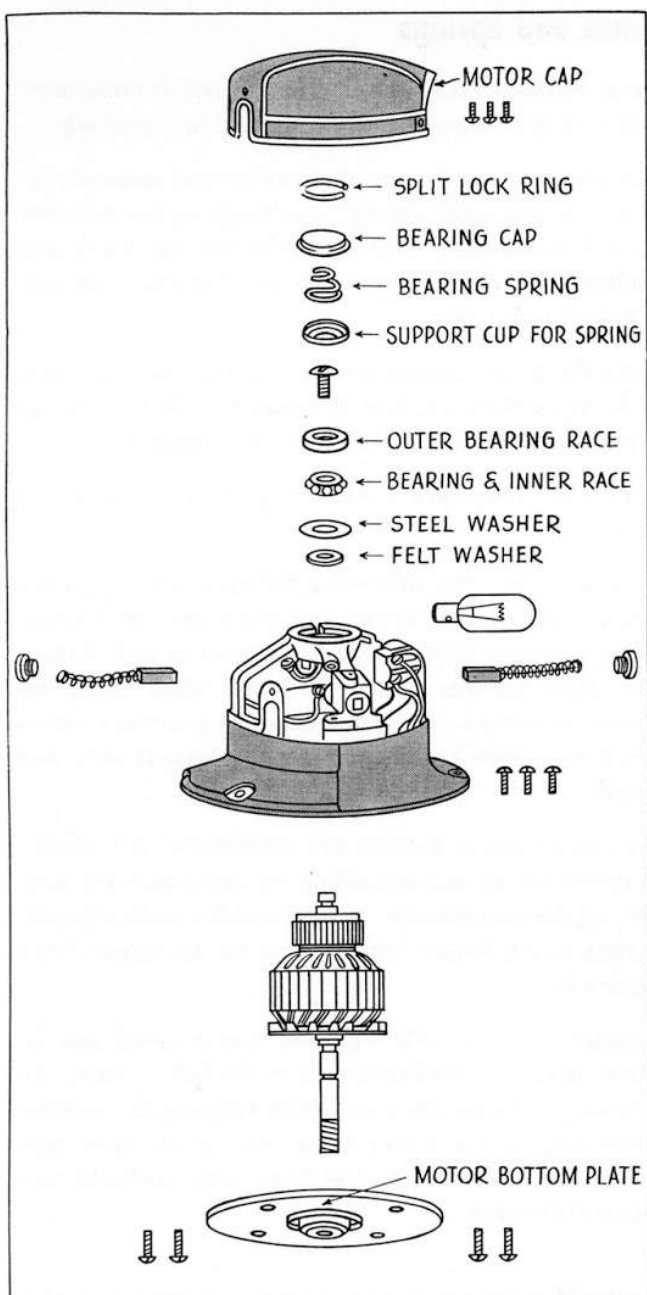


FIG. 38
Type of motor having one-piece
motor casing and separate bottom
plate

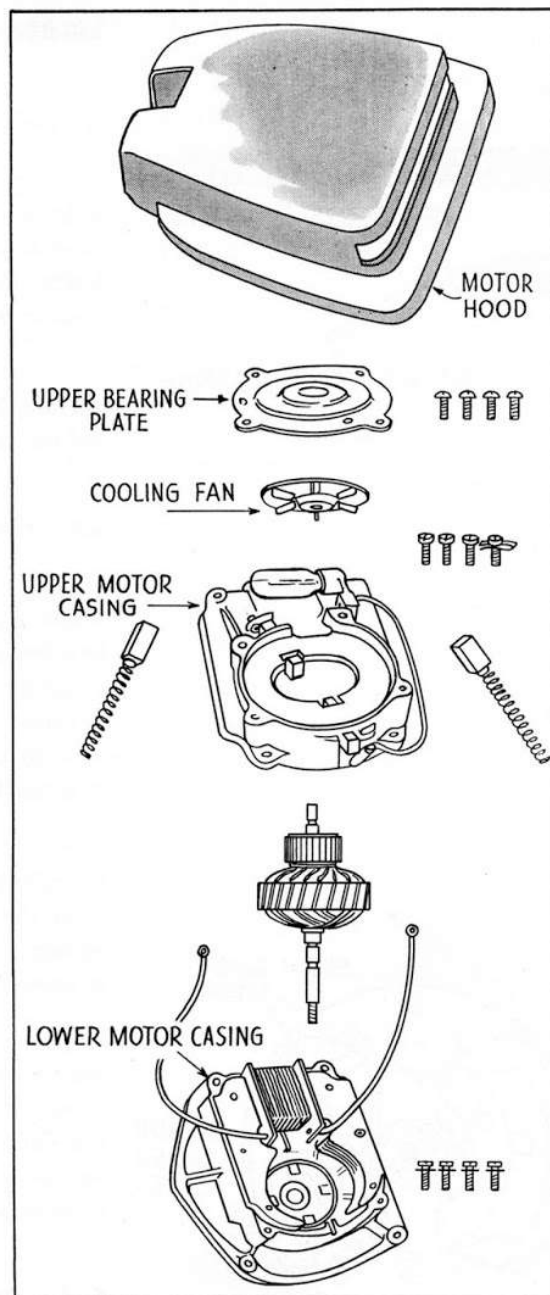


FIG. 39
Type of motor having two-piece
plastic motor casing with bottom
plate a part of lower casing

Carbon Brushes and Springs

Carbon brushes carry the current to the commutator. Properly seated carbon brushes usually show a faint sparking.

If contact between the carbon brushes and commutator is poor, there will be excessive arcing (sparking) at the brushes. This gradually will cause commutator bars to become rough and burnt. Poor contact will usually result in overheating, sluggishness or motor that will not run.

When taking out carbon brushes, mark them in some way so that each can be replaced, if still serviceable, in its original holder and in the same position as it was before removal.

Worn carbon brushes or weak springs should be replaced with new parts.

Figure 40 shows the difference between a new carbon brush and spring and a worn brush and weak spring. Carbon brushes should be replaced with new ones when worn to $\frac{1}{3}$ their original length. New springs should be used when replacing brushes. It is poor economy to use old springs. It is always advisable to use two new carbon brushes or springs even if only one is actually needed.

Some carbon brush holders are adjustable. All should be tight in the motor casing and should be located about $\frac{1}{8}$ inch from the surface of the commutator. Location of the carbon brush, spring, and carbon brush holder with respect to the commutator is shown in Figure 41.

On Models 102, 105, 541 and 543, motor speed can be regulated by turning the carbon brush ring to the left or right. To do this it is necessary to loosen the two screws (Figure 41) holding the carbon brush ring in the motor head casting. Be sure that carbon brush ring is "centered" and that the screws are tightened after making the adjustment.

Carbon Dust In the Motor

As carbon brushes wear down, fine carbon dust is deposited on all parts of the motor. Carbon dust is a conductor of electricity and may cause current to leak from one part of the motor to another or from the motor to outside objects such as a pipe or radiator. This condition causes poor motor operation and creates a shock hazard.

When servicing a motor, all carbon dust should be removed from the armature, field coils, carbon brush holders and other parts.

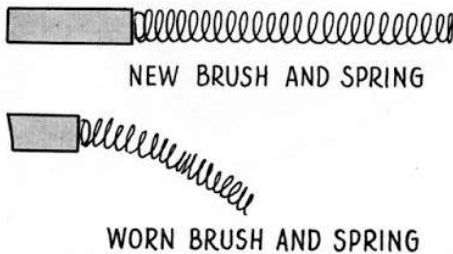


FIG. 40

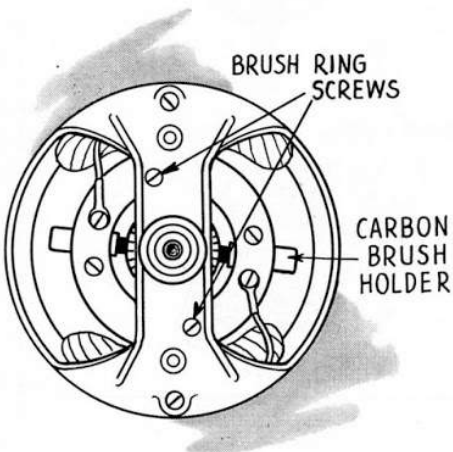


FIG. 41—Carbon brush holders set about $\frac{1}{8}$ inch from commutator

The best way to remove carbon dust is to blow it out with dry compressed air. Another way, though less satisfactory, is with a brush or a clean, dry cloth.

Armature

An armature is the heart of a motor. It consists of a straight central shaft having accurately ground bearing surfaces. To this shaft are attached the commutator for carbon brush contact, a magnetic iron core and core winding and, on some models, a cooling fan. An armature showing these parts is illustrated in Figure 42.

To locate armature trouble, remove motor hood and run motor while still attached to the main casting.

With the belt disconnected and the motor running, observe arcing between the commutator and the carbon brushes. Faint arcing is normal. If arcing should extend part or all the way around the commutator, make sure that carbon brushes are seated properly. See Figure 41. If arcing continues, smooth the commutator with "00" sandpaper. See Figure 43. Generally it will be advisable to remove the armature to do this. Clean all foreign matter from between the commutator bars with a thin knife or saw blade.

Make sure that the insulating mica between commutator bars is lower than the bars. It may be necessary to undercut the mica. If you are not equipped to do this, the armature may be returned to The Hoover Company or it may be sent to a local motor repair shop.

After sanding and cleaning the commutator, test the motor again. Let it run several minutes in order to reach its normal operating temperature. Defects in the armature frequently show up only after the motor has been warmed up.

Open Armature—An open armature is one in which one or more of the wires in the core winding is broken. The first indication of an open armature is excessive arcing around the commutator that cannot be corrected by sanding, cleaning and undercutting the commutator.

In addition, the motor will run slow and may get hot. Also, one or more of the commutator bars will be burnt and the adjoining bars roughened. The only remedy is a new armature.

Shorted Armature—A shorted armature is usually caused by two bare wires in the core winding touching one another, as a result of damage to the insulation from overheating, rotting or oil-soaking.

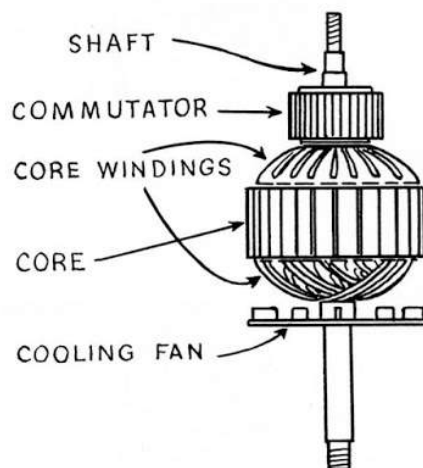


FIG. 42—The armature

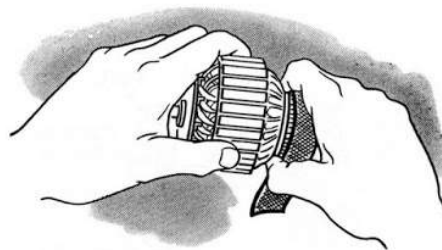


FIG. 43—Sanding the commutator

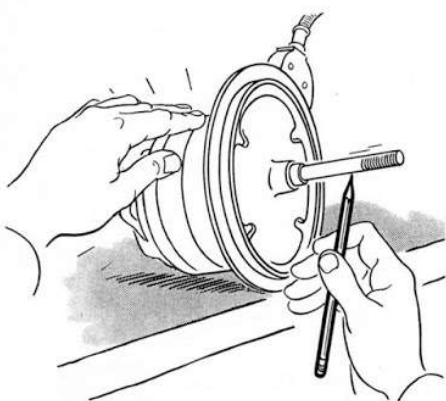


FIG. 44—Testing for bent armature shaft

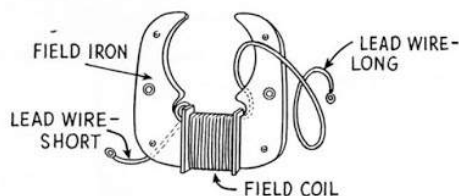


FIG. 45—Unit field coil and iron assembly. Both coil and iron must be replaced when coil is burnt out.



FIG. 46—Pair of field coils and field iron

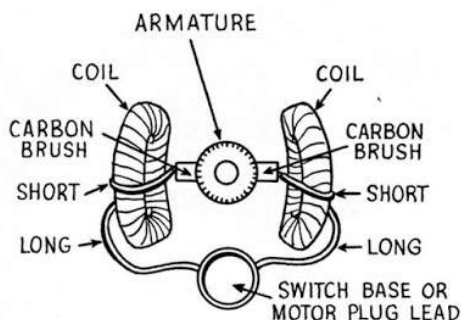


FIG. 47—Field coil wiring diagram for single speed cleaners without dirt finders, such as Models 102-105-425-541-543-575 and early 700-725

Other causes are carbon dust or pieces of metal lodged between commutator bars.

Symptoms of a shorted armature include:

1. An odor of burnt insulation.
2. Solder being thrown from commutator bars.
3. Motor running extremely hot.
4. Motor running slow.

A shorted armature must be replaced with a new one.

Grounded Armature—Grounds can be caused by rotted, oil soaked or broken insulation and the exposed core wires touching the armature core or shaft, or by an accumulation of carbon dust conducting current from insulated to uninsulated parts of the armature.

When such condition is noted the armature should be cleaned (with compressed air, if possible) to remove all dust. All oil should be washed from the armature core windings with naphtha or other solvent. Be sure that solvent has evaporated completely before running motor.

If after cleaning, this condition is not corrected, a new armature should be installed.

Alignment of Motor Parts

The armature must be properly aligned between upper and lower bearings.

If bearings are worn, the tension of the belt may pull the armature core against the field iron. This will cause binding and will result in excessive heating, wear and noise.

Misalignment caused by a bent armature shaft will create vibration throughout the motor. It can also be detected by holding a pencil lightly against the armature shaft while the motor runs. If shaft is bent, pencil will oscillate. See Figure 44. Be very careful to hold motor tightly during this test. A new armature is the only remedy.

On Models 102, 105, 541 and 543, a motor head casting not properly placed will also cause binding of the armature. To correct this condition, try reversing the position of the motor head casting and make sure that the casting is seated tightly on the motor casing.

On these same models, if misalignment is caused by a bent or damaged motor head casting, a new casting should be installed.

Field Coils and Field Iron

Models 27, 28, 29, 31, 60, 61, 62, 63, 64, 65, 66, 634, 80, 90, 91, 913 and 305 use a single field coil, as illustrated in Figure 45. This coil and its field iron are constructed as one assembly and are installed or removed from the motor together. In case either becomes defective, the whole assembly must be replaced.

Many other models use two field coils. See Figure 46. Either of these coils can be replaced without replacing the other and without replacing the field iron.

Open Circuit in Coil—An open circuit in a field coil is the principle reason why a motor will not start providing other electrical contacts are satisfactory. The coil is one continuous piece of wire and if this single wire is severed, no current will flow thru the motor.

Without test instruments it is difficult to test field coils. If all other parts test satisfactorily and the motor still will not start, the trouble is probably due to an open field coil and a new coil must be used.

Shorted Field Coil—A short caused by exposed wires in the coil may cause the motor to run faster and the coil affected will become hot. A shorted coil should be replaced with a new one.

Removing Field Coil—It is usually first necessary when removing a field coil to remove the metal retaining strap.

Before removing old coil, carefully note how the lead wires are connected so that the new coil can be connected in the same way.

Installing Field Coil—For wiring diagrams of field coils on various models, see Figures 47, 48, 49, 50 and 51.

Model 925 wiring diagram is not shown. If it is necessary to replace field coils in this model, we recommend that the motor be returned to the factory.

On two-speed motors, the coil lead wires are identified by different colors and motor lead plugs are marked "R" for red high speed wires and "G" for green low speed wires.

Always insert the coil lead wires so they cannot touch the armature or other moving parts of the motor.

New coils are wound with tape and impregnated with insulating varnish which makes them stiff. They must be heated to soften the varnish and make them flexible so they can be fitted into place. The heating can be done by placing the coils, for a few minutes, on either side of a 100-watt electric bulb (Figure 52) or warming by other means.

Field Coil Wiring Diagrams

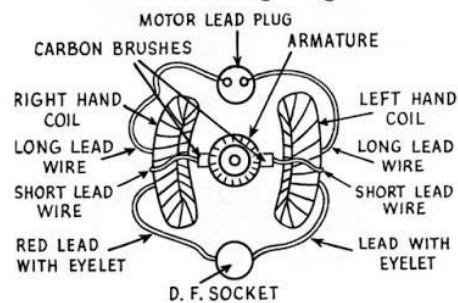


FIG. 48—Models 1-300-450-475

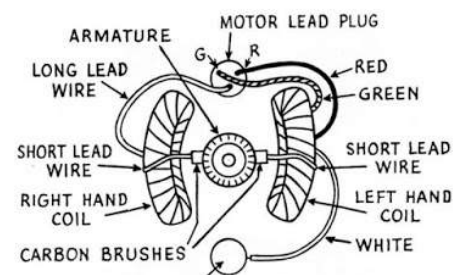


FIG. 49— D.F. SOCKET
Models 150-800-825-900 and later 725-750

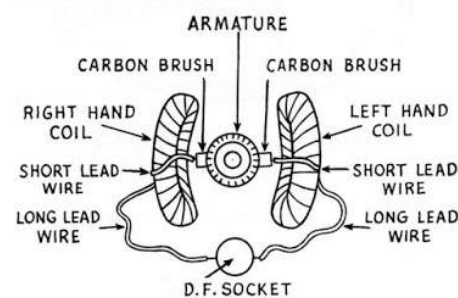


FIG. 50—Models 25-26-930

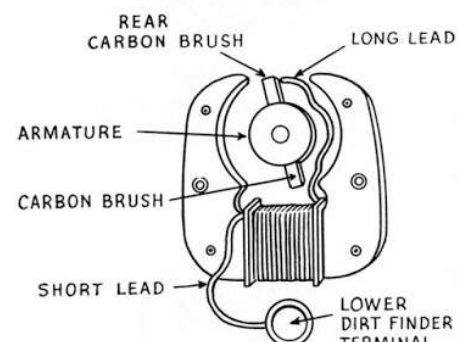


FIG. 51—Models 27-28-60-61-80-90-91-305

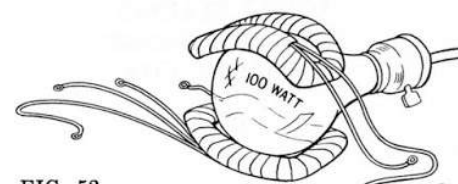
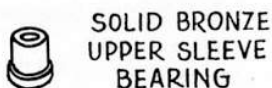


FIG. 52—
Heating field coils to make them flexible



SOLID BRONZE
UPPER SLEEVE
BEARING

FIG. 53

SOLID BRONZE
LOWER SLEEVE
BEARING

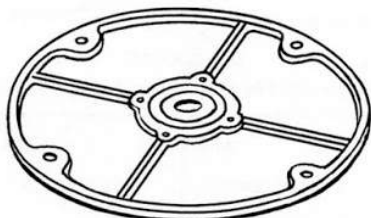


FIG. 54



UPPER
BALL BEARING

FIG. 55



LOWER BALL BEARING
IN MOTOR BOTTOM PLATE

FIG. 56



UPPER BEARING
OF POROUS BRONZE
SELF OILING TYPE

FIG. 57



LOWER BEARING
OF POROUS BRONZE
SELF OILING TYPE

FIG. 58

Motor Bearings

Four combinations of bearing types are used in various Hoover models.

1. Both upper and lower bearings of the solid bronze sleeve type in Models 102, 105, 541 and 543. See Figures 53 and 54.
2. Both upper and lower bearings of the ball bearing type in Models 425, 450, 475, 575, 700, 725, 750, 800, 825, 900, 925, 961 and 972. See Figures 55 and 56. On Models 425, 450, 475, 900 and 925, upper bearing is part of the armature shaft. If these bearings become worn, return the armature to the factory for service.
3. In late Models the upper bearing is of the porous bronze, self-oiling type and the lower bearings are ball bearings. See Figures 56 and 57.
4. In Models 25, 26, 80, 305 and 930 **both** upper and lower bearings are of the porous bronze, self-oiling type. See Figures 57 and 58.

Hand Cleaners have porous bronze, self-oiling bearings. Exceptions are Model 100 Dustettes below serial number 110,000. These have ball bearings which can be relubricated only at the Hoover factory.

REPLACING MOTOR BEARINGS

Bearings may, in time, wear and become noisy or cause other trouble. This wear is usually caused by improper lubrication or by the abrasive action of dirt.

Bearings cannot be repaired and should be replaced with new ones as soon as wear is detected.

If not replaced promptly, a defective bearing can throw the armature out of alignment, causing it to rub against the field iron.

Ball bearings and porous bronze bearings are installed just as they are assembled at the factory. They are furnished only in standard sizes, correct for each model.

When necessary to replace upper motor bearings on Models 575, 700, 725, 961 (Hoover motor) and 972, it is advisable to return the motor casing and upper bearing assembly for repair.

When necessary to replace lower motor bearings on Models 1, 150, 300, 425, 450, 475, 575, 700, 725, 750, 800, 825, 900, 925, 961 (Hoover motor) and 972, return the motor bottom plate and bearing assembly for repair.

Solid bronze sleeve bearings furnished as service parts are under sized to allow for worn armature shafts. It is usually advisable to have new bearings of this type installed by The Hoover Company. However, to fit a set of these bearings locally, proceed as outlined below and as illustrated. Note (Tools for replacing sleeve bearings are no longer available).

1. Remove the motor head casting and armature. Push out of the casting the metal and felt oil discs. On Robbins & Myers motor, remove the set screw holding the upper bearing in place.
2. On Robbins & Myers motor, drive the old upper bearing out from the inside. On Hoover motor, drive the bearing inward from the top of the casting. Use drift pin, Tool No. 64. See Figure 59.
3. Using the drift pin, remove the old lower bearing by driving it down through and toward the inside of the motor casing. See Figure 60.
4. Insert the new upper bearing from the inside and drive it up through the top of the motor head casting. See Figure 61.
5. Insert new lower bearing from the inside of the motor casing and drive it down into the motor bottom plate with the drift pin. See Figure 62.
6. Bevel the inside edges of the lower bearing, using Tool No. 117. See Figure 63.
7. Try the armature shaft in the bearings for size. If the bearings are too small, ream them out to make them fit. The fit should be snug on the shaft, with no side play. If installing new bearings and a new armature, use standard sized reamer, marked "SS." If using new bearings on the old armature, use under-sized reamer, marked "US."
8. To ream the bearings:
 - a. Screw the motor head casting securely to the motor casing.
 - b. Insert the under-sized ("US") reamer thru the lower bearing and into the upper bearing.
 - c. Turning reamer to the *right*, ream both bearings all the way thru. See Figure 64.
 - d. Remove reamer by continuing to turn it to the *right*.
NEVER TURN REAMER TO THE LEFT!
 - e. Remove motor head casting, blow out all shavings and again try the armature for size. If it is still too tight, use the standard sized reamer ("SS") in the same manner.

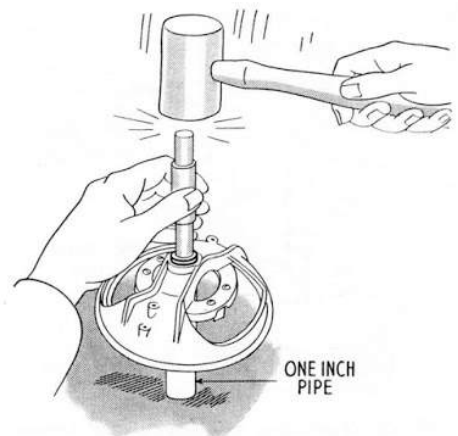


FIG. 59—Driving out upper solid bronze sleeve bearing

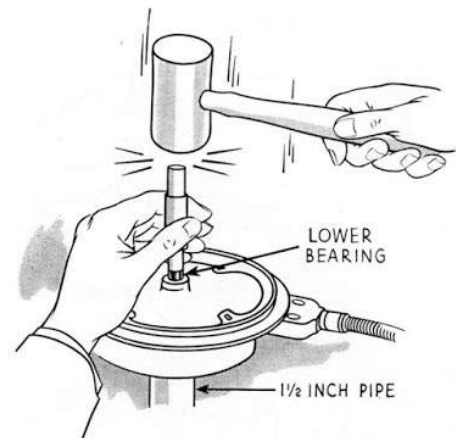


FIG. 60—Driving out lower solid bronze sleeve bearing

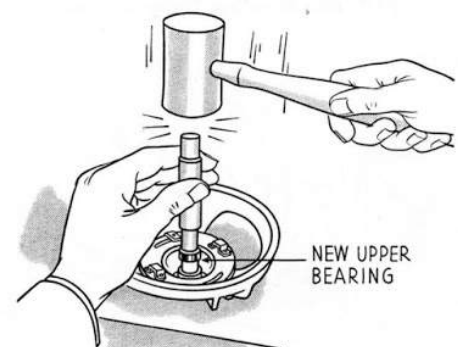


FIG. 61—Installing new upper solid bronze sleeve bearing

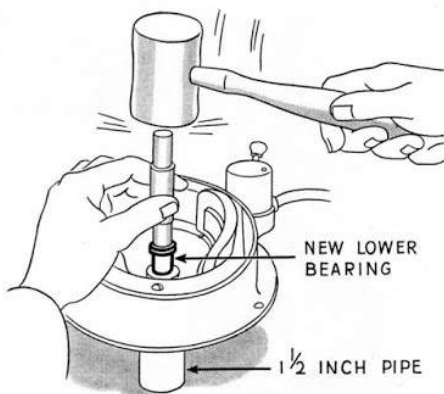


FIG. 62—Installing new lower solid bronze sleeve bearing

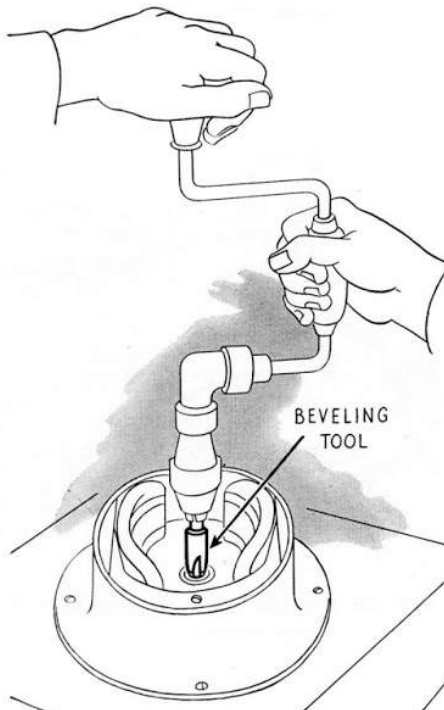


FIG. 63—Beveling lower bearing

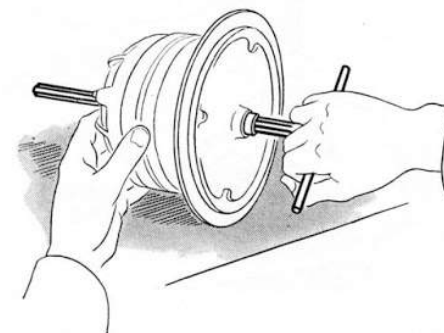


FIG. 64—Reaming upper & lower bearings

9. Place the armature in the motor casing and screw the motor head casting firmly into place.
10. Grasp the lower end of the armature shaft and test for end and side play. There should be no side play but there should be about 1/64 inch end play. See Figure 65.
11. If there is too much end play, install one (never more than two) very thin fibre spacing washer on top end of armature shaft to reduce end play to about 1/64 inch. It is necessary to remove motor head casting to install washer. See Figure 66.
12. If there is no end play, mill the face of the lower bearing on the inside of the motor casing. Use face miller, Tool No. 104. See Figure 67.

LUBRICATING MOTOR BEARINGS (See Lubrication Chart) (Page 8)

Ball Bearings—

Hoover soft cup grease is especially selected and is the only kind to be used in Hoover ball bearings. Substitutes usually do more harm than good. If the grease used is too soft, it runs out over other motor parts. If too hard, it slows up the motor and increases wear.

These bearings require new grease each 1 to 3 years, depending on amount of use. In commercial use, lubrication service may be required oftener.

Before adding new grease, ball bearings should be washed in gasoline or other solvent until all the dirt and old grease is removed. Dry the bearings thoroughly before proceeding.

On Models 425, 450, 475, 900 and 925, the grease is applied to the upper bearings by hand.

The best way to grease all other motor ball bearings is with grease gun (Tool No. 146), equipped with large nozzle.

Nozzle may be inserted from either side of upper bearing but must be inserted in the motor side of lower bearing as shown in Figure 68.

Solid Bronze Sleeve Bearings—

Hoover oil is of a light non-gumming quality and is especially compounded for The Hoover Company. The use of the wrong grade of oil can quickly gum up the motor.

In normal household use, two or three drops of oil per month is necessary and sufficient. In commercial use, add two or three drops each week.

Be sure to add the oil after, and not before, using the cleaner.

The oil is applied thru the hole in the motor cap, into the hollow armature shaft. See Figure 10. This shaft contains a wick which feeds the oil to both bearings.

If this hole in the shaft becomes clogged so the wick refuses to absorb and feed oil, install a new wick.

The special wick removing tool (Tool No. 24) is inserted quickly into the oil hole in the armature shaft while the motor is running, and the old wick removed. For safety, it is well to wrap your hand with a cloth when using this tool.

Soak the new wick thoroughly in oil and then force it slowly into the shaft with motor running.

Too much oil can be as harmful as too little.

Porous Bronze Self-Oiling Bearings—

These bearings are made of compressed metal powder and are sponge-like in construction and appearance. The very special lubricant added at the factory is sufficient to last the life of the bearings. This type of bearing must be replaced if they are a source of trouble.

Never add oil or grease to bearings of this type. To do so will cause the bearings to fail. Ordinary oil and grease clog the pores, preventing the original lubricant from circulating.

Motor Vibration

Excessive vibration is usually caused by some part of the motor and fan assembly being out of balance. Follow this procedure to find and remove vibration:

1. Remove belt from fan pulley and run the motor. If vibration ceases, the trouble is in the agitator or brush roll. If the vibration continues, the trouble is in the motor and fan assembly.
2. Remove the motor from the main casting and inspect the fan. If fan blades are broken or badly worn, replace the fan with a new one and again try the motor for vibration.
3. If vibration continues with the new fan, loosen the fan pulley and turn the fan one quarter turn on the shaft and test motor again for vibration. If this does not reduce the vibration, try turning the fan another quarter turn.

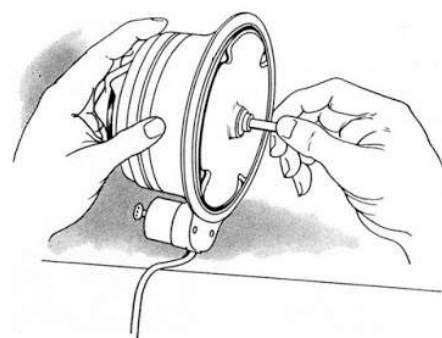


FIG. 65—Testing for end play and side play

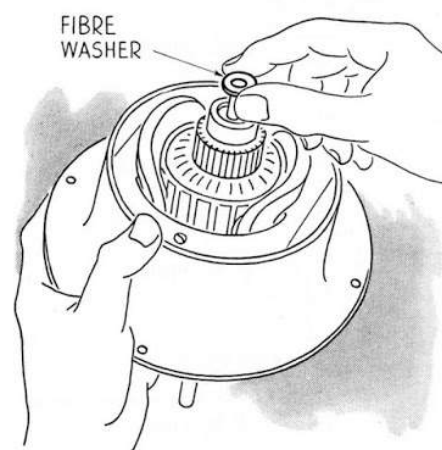


FIG. 66—Using fibre spacing washer to reduce end play

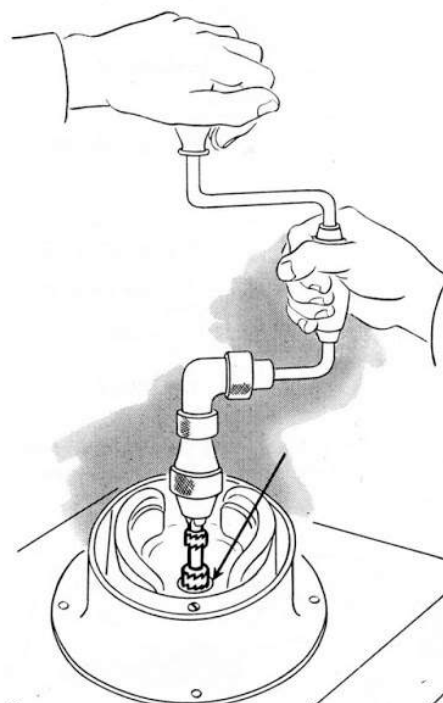


FIG. 67—Milling lower bearing to increase end play

FIG. 68—Greasing the lower ball bearing from inside of motor bottom plate

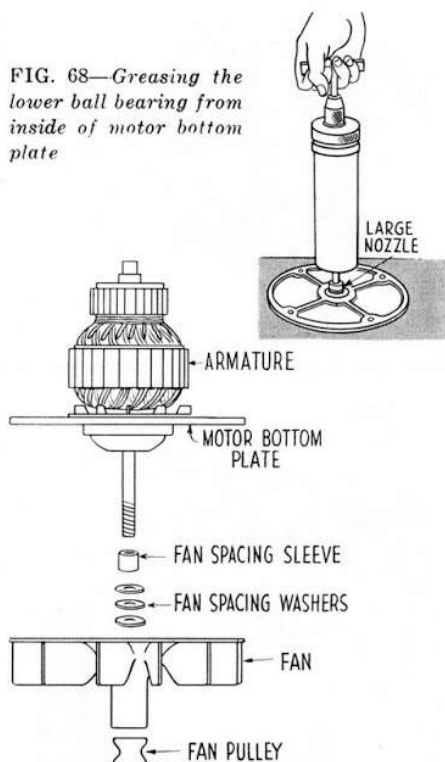


FIG. 69—Fan assembly on motors having lower ball bearings

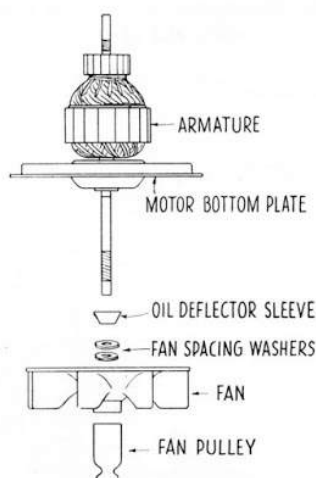


FIG. 70—Fan assembly on motors having lower porous bronze bearings

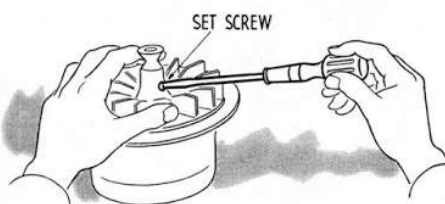


FIG. 71—Tightening set screw on armature shaft of Models 102 and 105

4. If turning the fan on the shaft does not help, try a new fan pulley.
5. If the trouble is not the fan or fan pulley, remove these parts from the armature shaft and run the motor. If vibration continues, the trouble is probably due to a bent armature shaft.

Fan and Fan Spacers

It is important that there be enough clearance between the fan and the motor bottom plate so that fan does not rub. Spacing washers are used to obtain the needed clearance which should be about $1/32$ inch.

In addition to the fan spacing washers, a tubular fan spacing sleeve is used on all models having lower motor ball bearings. See Figure 69.

On models having porous bronze self-oiling lower motor bearings, a cone shaped oil deflector sleeve is used above the fan spacing washer as shown in Figure 70.

If the fan rubs or binds, this places an additional load on the motor and will cause motor to over heat. If the fan strikes the motor bottom plate, noise will result.

If too many spacing washers are used, the fan will rub on the bottom of the fan chamber and this will have the same effect as rubbing on the motor bottom plate.

A small accumulation of dirt back of the fan cannot be prevented and will do no harm. On the other hand, when dirt starts caking there, serious trouble can result. A dirt pack acts as a brake on the motor. This results in overheating and can cause the motor to burn out.

To test for a dirt pack, remove the belt from the fan pulley and try to turn the fan by hand. If the fan drags, it should be removed and all dirt cleaned from between the fan and the motor bottom plate. At the same time, thoroughly clean the fan chamber.

When replacing the fan make sure the sleeve and proper number of spacing washers are installed.

On some Models 102 and 105, the fan is held in place with set screw in the hub of the fan. Remove this screw to remove the fan. When replacing, tighten the screw against flat side of the shaft. See Figure 71.

PART IV—MAIN CASTING ASSEMBLY

Main casting assemblies are of three general types.

1. Figure 72 represents those on which a handle bail and tilting bar attached to the main casting support the handle.
2. Figure 73 represents models with a bracket and socket supporting the handle.
3. Figure 74 shows the Model 150 main casting on which the handle bail is attached to the "chassis" under the casting. Similarly, Models 25 and 930 bails attach to studs under the main casting.

Main Casting

The parts making up a typical main casting assembly are shown in Figure 75.

Trouble will be encountered with the casting itself only thru extreme usage or abuse. If severely banged into radiators and heavy furniture the nozzle can be bent or its corners broken. Such damage, while unsightly, will not necessarily cause trouble. No attempt should be made to hammer out or straighten aluminum castings as the metal is liable to break. If punctured or badly bent, the main casting should be exchanged for a new one.

Where the cleaner is used in heavy duty or commercial service, particularly in sandy areas, the walls of the fan chamber may eventually be worn thru by the blasting action of the sand. If a hole is blasted thru the fan chamber an odor of dust will be evident.

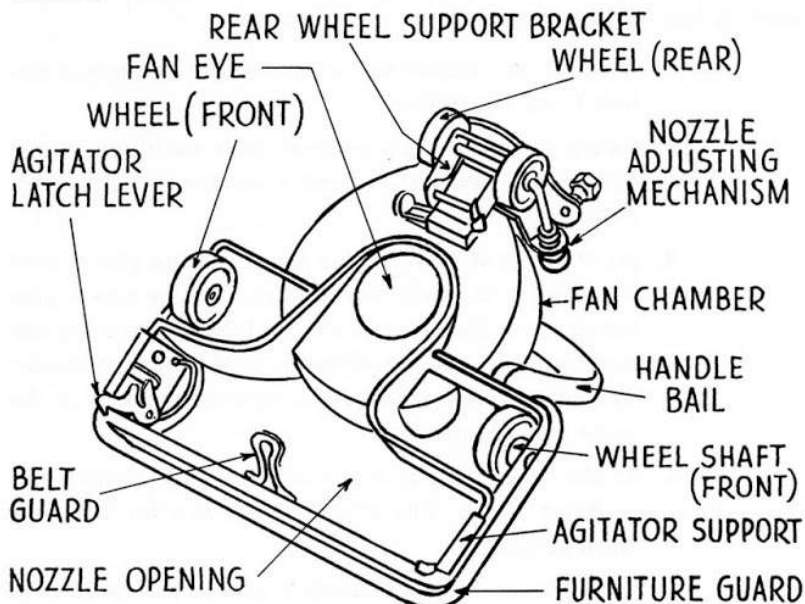


FIG. 75—Main parts of typical main casting assembly



FIG. 72—Main casting with handle bail and tilting bar

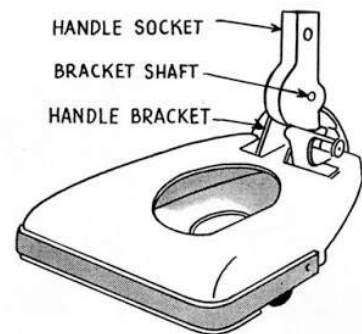


FIG. 73—Main casting with handle support bracket and socket

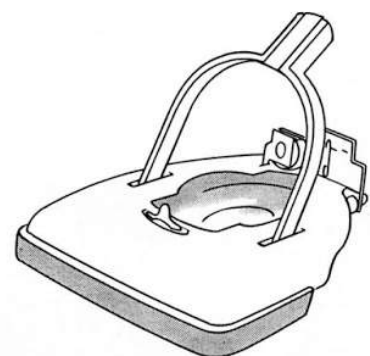


FIG. 74—Model 150 main casting and handle bail

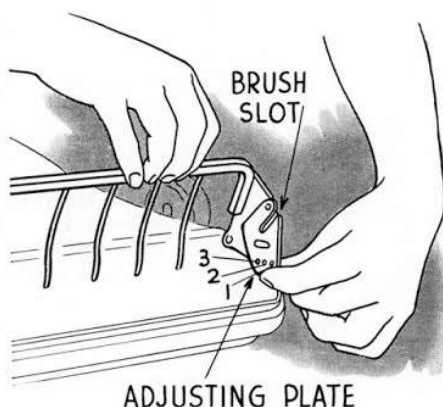


FIG. 76—Brush roll support and adjusting plates used on Models 102-105-541 and 961

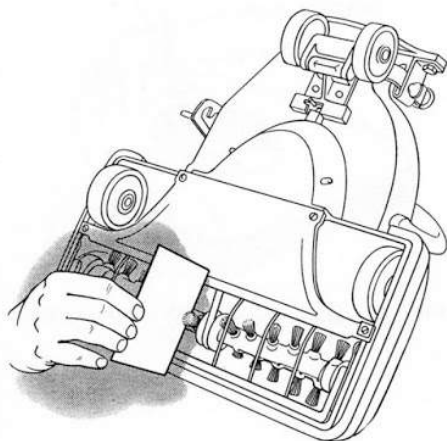


FIG. 77—Measuring bristle extension

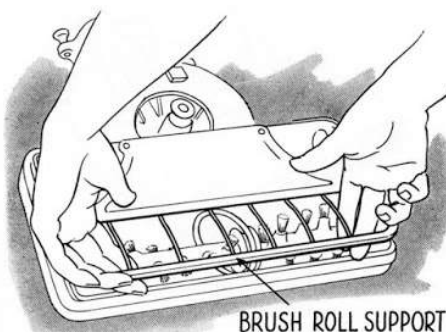


FIG. 78—Raising the brush roll support to remove the brush roll

Inspect for this wear by turning the cleaner over and examining the fan chamber from the outside or, remove the motor from the main casting and inspect the fan chamber from the inside. If holes are found, casting should be replaced. In a few cases, castings can be repaired at the factory by installing a fan chamber liner.

Occasionally a sticky type of dirt will be encountered packed in the fan chamber, causing poor suction. This dirt must be scraped out.

A frequent cause of trouble is a dirt pack in the fan eye. This is usually caused by a broom straw or a piece of cardboard lodged across the fan eye, collecting lint until the fan eye is completely clogged. When such an obstruction is encountered, it must be removed to restore suction and cleaning performance.

Brush Roll Support

The brush roll support used on Models 102, 105, 541 and 961 is illustrated in Figure 76. The ends of the support are pivoted to the sides of the nozzle so that the brush roll may be adjusted for bristle extension.

The bristles must extend below the nozzle so that they sweep the rug when the cleaner is operating. To determine if the brush needs adjusting, place a card across the nozzle as shown in Figure 77.

The proper bristle extension is from 1/16 inch to 3/32 inch. If less, adjust the brush roll as follows:

1. Remove the cleaner bottom plate and disconnect the belt from fan pulley.
2. Grasp the brush roll support near each end of the nozzle and swing the support outward as shown in Figure 78.
3. At the ends of the support are adjusting plates with three holes in them. See Figure 76. The small pins which fit in the holes in these plates are for adjusting the brush roll up or down in the cleaner nozzle. The pins at both ends of the support must be in the same relative position.
4. If the brush roll is not worn, the pins should rest in holes No. 1. The middle holes are for a partly worn brush.
5. If 1/16 inch bristle extension cannot be obtained in the third or last adjusting position, the brush is badly worn and a new brush roll is required.

To install a new brush roll, set both adjusting plates at No. 1 position, place belt in the belt pulley and insert new brush roll in the brush slots.

The belt pulley is not located in the exact center of the brush roll. Some brush rolls and main castings are stamped "Right" in which case place the right end of the brush roll in the right-hand slot in the support. (The right side in this case is determined by viewing the cleaner in the inverted position with the front toward the observer).

In case the brush roll is not stamped "Right," place the brush roll in the support so that the belt pulley lies *between* the two central carpet guard wires nearest together. See Figure 78.

Agitator Support

There are three general types of agitator supports.

1. Figure 79 shows the type of support used on Model 543 under serial number 4,092,000 and on Model 700 under 7,373,000. On these models, agitator support plates are located in the ends of the nozzle. The right-hand plate takes only the flat end of the agitator shaft and the left-hand plate only the round end.
2. Figure 80 shows the type of support used on Models 575, 725, 750, 800, 825, 900, 925 and on Model 543 over serial number 4,092,000 and on Model 700 over 7,373,000.
3. Figure 81 shows the type of latch levers located in the ends of the nozzle to support the agitator.

Agitators and supports must be latched tightly in place or vibration and noise will result.

Latch levers are held in position by wire springs. Should these springs break or become weak they should be replaced. On models where one end of the spring is riveted, cut the rivet to remove the old spring. Where the spring is hooked to the support plate, a new spring can be inserted without removing the plate.

Agitators are not adjustable to compensate for brush wear. However, some models have adjustable brushes. See Fig. 99.

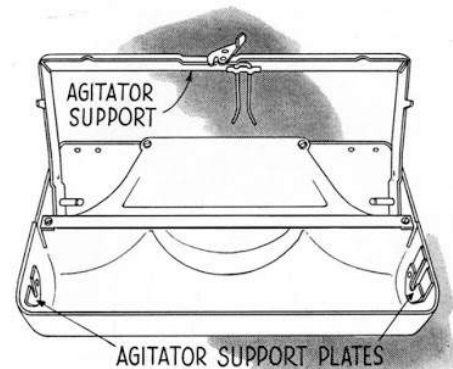


FIG. 79—Agitator support on early Models 543 and 700

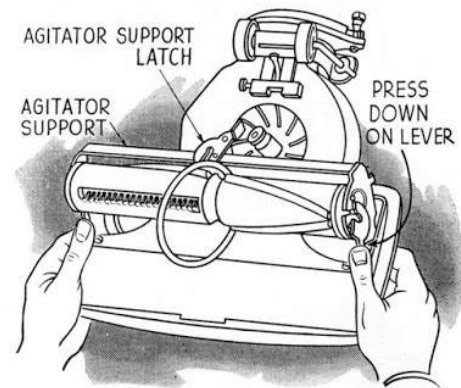


FIG. 80—Agitator support used on Models 575-725-750-800-825-900-925 and late Models 543 and 700

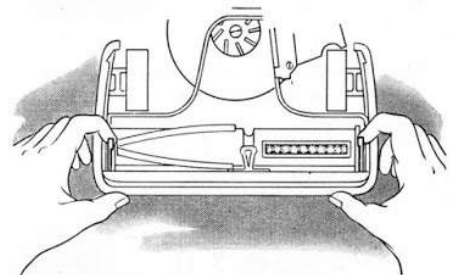


FIG. 81—Latch levers used to support the agitator or brush roll on later models

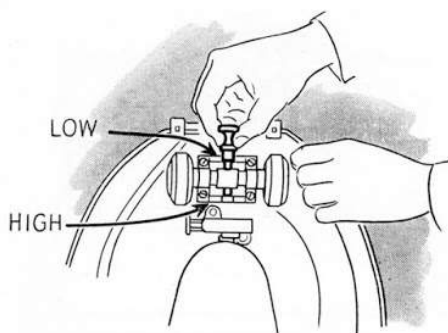


FIG. 82—Nozzle adjustment mechanism
Models 90, 91 and 913

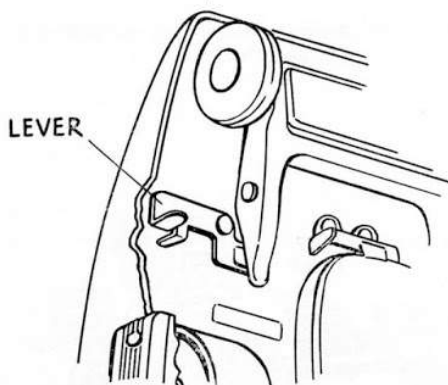


FIG. 82a—Nozzle adjustment mechanism
Models 28 and 61

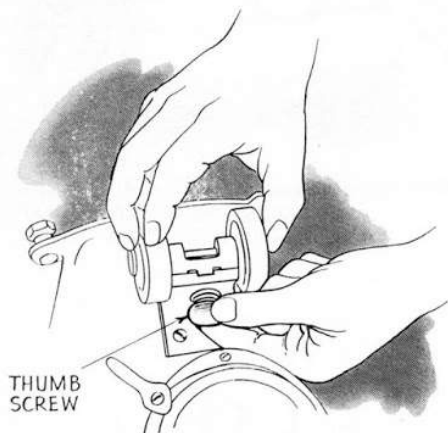


FIG. 83—Nozzle adjustment mechanism.
Models 102-105

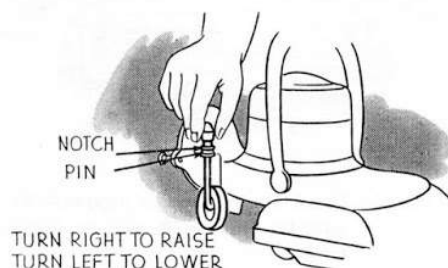


FIG. 84—Nozzle adjustment mechanism
using threaded adjusting rod

Nozzle Adjustment

The nozzle adjustment on Models 26, 27, 60, 80 and 305 is governed by the wheel size, so there is no adjustment mechanism to operate.

On Models 28 and 61 at left near the rear wheel support there is a small lever to adjust cleaner if necessary. See Figure 82a.

Nozzle adjustment on Models 90 and 91 is obtained by a lever mounted on the rear wheel support as shown in Figure 82. Move the adjusting lever front or back to raise or lower the nozzle.

The automatic rug adjuster on Model 150 is operated by a foot pedal. Adjust this model by placing it on the rug to be cleaned and stepping on the pedal before starting the motor. For further details, see Fig. 92.

On other models the clearance between the rug and nozzle, with motor *not* running, will vary and should be adjusted for different rugs. Roughly, this should be about 1/4 inch.

The adjustment mechanism on Models 102 and 105 is located on the rear wheel support bracket as shown in Figure 83. To adjust the nozzle, loosen the thumb screw and move bracket up or down as needed. The closer the bracket is adjusted to the main casting, the higher the nozzle will be, and vice versa.

The type of nozzle adjustment used on Models 1, 25, 300, 425, 450, 475, 541, 543, 575, 700, 725, 750, 800, 825, 900, 925, 930, 961 and 972 is shown in Figure 84. Turning knob to the right lowers the wheels and raises the nozzle. These cleaners should be adjusted while the motor is running, so that rug-lift and rug vibration can be felt and heard.

Nozzle adjustment on late models is described under the specific model. See table of contents.

Wheels

It is important that wheels of correct size be used to preserve cleaner balance and adjustment. If wheels or wheel shafts become worn or broken the cleaner is also thrown off balance and the nozzle out of adjustment.

Ball bearing wheels on Models 90, 91, 900, 925 and 930 should be greased with Hoover soft cup grease as needed. These wheels are screwed to the wheel shafts. On other models, wheels are held on the shafts with either lock rings or nuts.

Models 26, 60, 61, 90, 91 and 913 have hub caps over wheel shafts.

All other wheels should be oiled as needed to prevent wear and noise. Excess oil should be removed to prevent its dropping on the rug.

FRONT WHEELS

Front wheels on all models, except 12-14 and 150, are mounted on shafts either screwed or riveted to the main casting. A loose wheel shaft can result in a broken main casting. Threaded shafts can easily be replaced. Those riveted to the casting, on some models, can be replaced with threaded shafts available on special order. Castings with riveted shafts, where a threaded shaft cannot be used, should be returned to The Hoover Company for repair.

Model 150 front wheels are discussed under the heading of "Model 150 Chassis Assembly".

REAR WHEELS

On Models 1, 300, 425, 450, 475, 541, 543, 575, 700, 725, 750, 800, 825, 961 and 972, the rear wheels are mounted at opposite sides of a wheel support bracket on a long "L" shaped adjusting rod. This bracket is in two sections, hinged together with a bracket shaft pin. See Figure 85.

On some of these models, the bracket shaft pin is threaded into place. In this case, to replace the wheels:

1. Turn the adjusting knob as low as possible.
2. Remove the left or outer wheel by prying off the split lock ring.
3. Unscrew the bracket shaft pin.
4. Slide one section of the bracket off the adjusting rod.
5. Turn the adjusting rod to one side.
6. Remove inner wheel.
7. Re-assemble the bracket with new wheels.

On others of these models, the bracket shaft pin is not threaded but is held in place by a set screw thru one section of the wheel support bracket. To replace worn wheels:

1. Turn adjusting knob as low as possible.
2. Remove outer wheel.
3. Remove the set screw.
4. Break off the inner wheel with a hammer.
5. Drive the shaft pin out of the bracket with a pointed tool.
6. Slide one section of bracket off the adjusting rod.
7. Re-assemble bracket with new wheels.

On Models 1, 300, 425, 450 and 475, the bracket shaft pin cannot be removed. To put on new wheels:

1. Turn adjusting knob as low as possible.
2. Remove outer wheel.

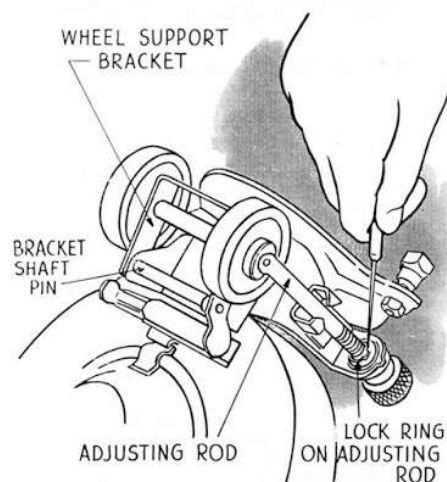


FIG. 85—Removing split lock ring from adjusting rod on Models 1-300-425-450-475

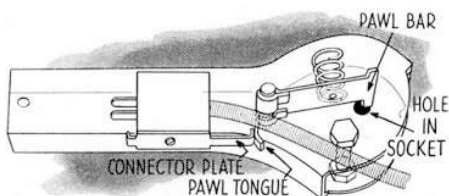


FIG. 86—Handle socket—Model 60

3. Remove the split lock ring that holds the adjusting knob to the adjusting rod. See Figure 85.
4. Unscrew the knob from the rod.
5. Remove the adjusting rod from the wheel support bracket.
6. Remove the inner wheel.
7. Re-assemble bracket with new wheels.

Rear wheels on many models are mounted on spring-supported brackets. Broken springs can be taken out by removing the brackets.

Model 150 rear wheels are described under "Model 150 Chassis Assembly."

Handle Bail

The forked type of bail is illustrated in Figure 72. Very little service is ever required on the bail. If for any reason the bushings in the prongs become worn or the bail broken it will be necessary to install a new bail. Broken or badly bent bails ordinarily cannot be repaired.

The handle tilting bar is riveted to the bail. If this part becomes worn, cut the rivet and install new bar.

On Models 750, 800, 825, 900 and 925 a part of the handle control mechanism is riveted to the under side of the main casting. If this part of the mechanism becomes worn it will be necessary to return the main casting to The Hoover Company for exchange or repair.

Model 150 bail shown in Figure 129.

Models 25 and 930 handle bails are shown in Figure 123.

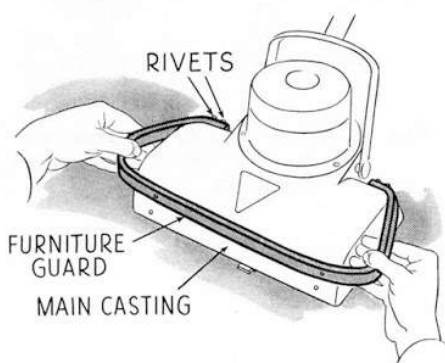


FIG. 87—Attaching furniture guard

Handle Socket

On many late Models a handle socket and a handle bracket are used in place of a handle bail.

On these Models the handle is moved from the upright to the low position by a foot lever which engages the lower end of the socket. The handle socket is attached to a handle support bracket on the main casting by means of a bracket shaft. This arrangement is illustrated in Figure 73.

Worn bushings in the socket will cause looseness in the handle. If the bushings or other parts of the socket become worn it will be necessary to install a new socket. If the bushings in the bracket become worn, return the main casting to The Hoover Company for repairs. The foot lever, if worn where it contacts the socket, can be replaced.

On Model 60 a pawl bar in the handle socket controls the handle position. This pawl is controlled by a lever located in the handle grip and by a bar running lengthwise thru the handle as illustrated in Figure 21. An interior view of the Model 60 socket is shown in Figure 86.

If Model 60 socket fails to control the handle position, it is because the pawl bar does not fully engage the notches in the bracket or because the pawl tongue in the handle socket is bent out of adjustment. If not working properly, it is advisable to return the socket for repairs.

Furniture Guard

The furniture guard on most models is attached with rivets inserted thru holes which must be punched in the guard. The ends of the guard should be attached to the main casting first as shown in Figure 87. The guard can then easily be pulled into position.

The guards used on Models 25, 26, 60, 61, 90, 91 and 150 are molded to fit the main casting and have ends designed to be slipped into, or riveted in, recesses in the main casting before the front of the guard is fastened in place.

In many cases split rivets can be used to attach furniture guards.

Cleaner Bottom Plate

There are three general types of removable cleaner bottom plates.

1. Figure 88 illustrates the small cover plate held in place with a lever. Usually this plate is called a hand-hole cover.
2. Figure 89 illustrates a type of cleaner bottom plate held in place with a slide latch. This kind is often referred to as a pulley cover.
3. Figure 90 illustrates a type of cleaner bottom plate held in place with a spring latch and having a gasket cemented to its inner edges. In this type a new plate should be installed if the gasket is broken or missing.

Removing the bottom plate gives access to the belt and other parts of the cleaner.

It is important that all bottom plates be securely fastened in place or no suction will be available for cleaning.

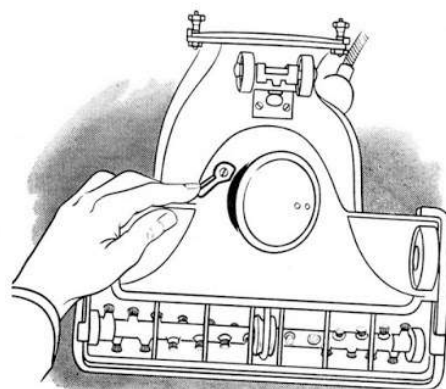


FIG. 88—Hand-hole cover type of cleaner bottom plate

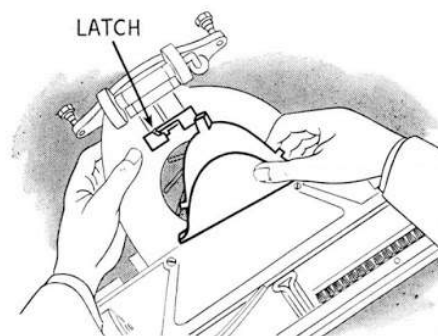


FIG. 89—Pulley cover type of cleaner bottom plate

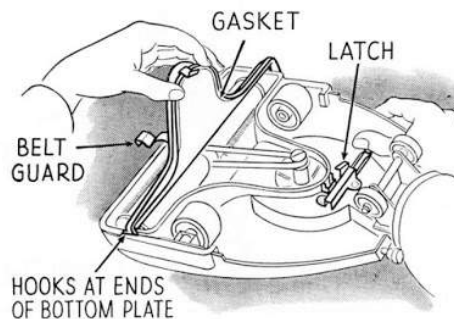


FIG. 90—One-piece cleaner bottom plate

Belt Guard

The belt guard is for the purpose of preventing damage to the rug as well as to the belt by preventing direct contact with the rug.

In some models the belt guard is attached to the brush roll support or agitator support while in other models it is attached to the main casting. In still others, it is part of or attached to the cleaner bottom plate. A missing, broken, or loose belt guard should be replaced.

Model 150 Chassis Assembly

(Also see Dismantling Model 150)

The chassis which is located on the underside of the main casting is shown in Figure 91.

The *front wheels* are taken off by removing the nuts, bolts and washers holding them in the prongs of the chassis. The washers are extremely important. Do not forget to put them back or excessive wear of chassis will result.

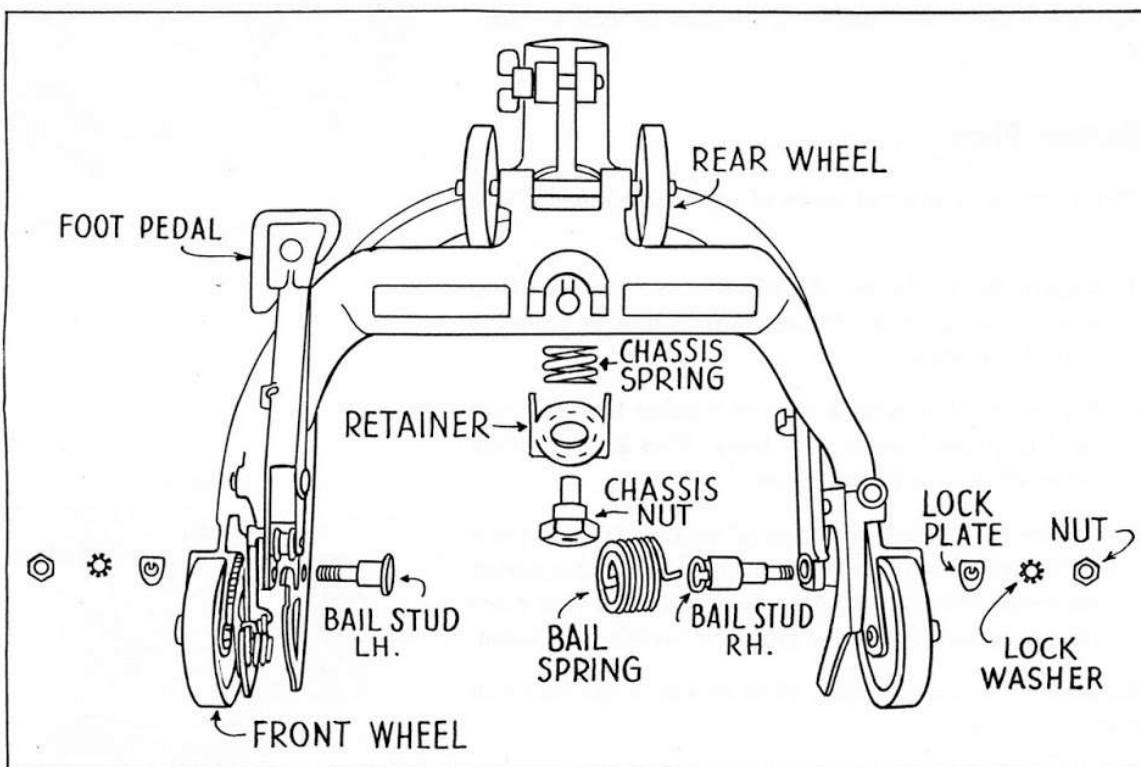


FIG. 91—Model 150 chassis assembly

The *rear wheels* are removed by prying off the split lock rings.

The *handle bail*, though bolted to the chassis, is not considered a part of the chassis. That is, if damaged, a new bail can be installed without using a new chassis. For detailed instructions on removing the bail, see Figure 129.

Major parts of the chassis are riveted to the chassis and cannot be replaced separately. Therefore, should any fixed part become defective a whole new chassis assembly is required. For detailed instructions for removing the chassis see Chapter 4.

Moving parts of the chassis should be cleaned regularly and lubricated with a drop or two of oil to reduce wear.

The nozzle is adjusted to varying thicknesses of rugs merely by stepping on "automatic rug adjuster" pedal at the side of the main casting while the cleaner is on the rug to be cleaned—with the motor not running.

If, for any reason, the automatic adjuster does not properly regulate the cleaner, it is possible to correct the setting of the adjustment mechanism.

This is done by turning the "chassis nut" located just forward of the rear wheels. The chassis nut controls the tension of the "chassis spring" located under the nut. The tension of the spring, in turn, determines the setting of the automatic adjuster.

The chassis nut and spring are installed at the factory with great care. Altering their original position should only be required to compensate for wear after years of use. If the adjustment must be corrected, or if a new chassis is to be installed, be guided by the following instructions to assure proper functioning of the adjuster:

1. Place the cleaner, with the handle off, on the bare floor.
2. Turn the chassis nut down until it is firm but not tight. If made too tight, the nozzle will not drop to the floor when the foot pedal is depressed.
3. Loosen the nut one half turn and depress the pedal. Repeat this until the nozzle falls to the floor of its own weight when the pedal is down.
4. Then, loosen the nut one final half turn and the setting is correct.

Note: When the foot pedal is depressed, the pawl bar attached to the pedal should engage the first small notch in the ratchet lever located near the left front wheel. See Figure 92. If the pawl does not engage this notch, proceed as follows:

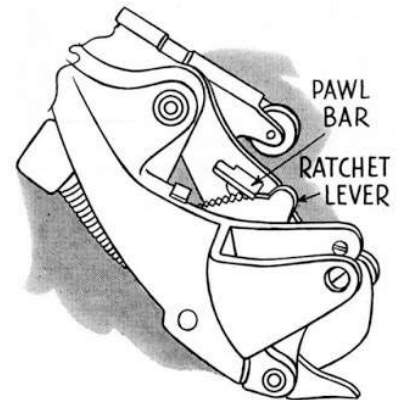


FIG. 92

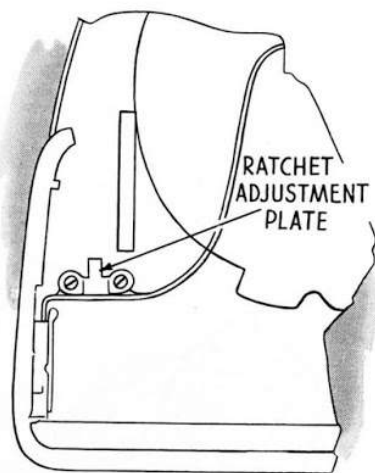


FIG. 93

1. Loosen the two screws holding the ratchet adjustment plate located at the top of the well of the left front wheel. See Figure 93.
2. Slide this plate back or forward so that the pawl does engage the first small notch when the pedal is depressed.
3. Tighten the screws.

In assembling some Model 150 cleaners at the factory, small sheet-metal shims or wedges were inserted in the V-shaped groove where the chassis bears on the main casting. Be sure to place these back as they were. These shims are for the purpose of leveling the nozzle in relation to the rug.

A slight "binding" of the chassis against the main casting at any point will make the rug adjuster action sluggish. If binding occurs, center the chassis more carefully in the main casting.

To replace a broken bail spring, it is not necessary to remove the handle bail. For details, see Figure 129.



PART V—AGITATOR AND BRUSH ROLL ASSEMBLIES

The agitator or brush roll is a revolving, belt driven, mechanism located in the cleaner nozzle. The function is to beat and sweep the dirt from the rug. The dirt removed is then carried by suction into the bag.

An important step in servicing agitators and brush rolls is the relubrication of the ball bearings. This should be done every time the cleaner is serviced. To do it properly:

1. Wash out dirt and old grease with naphtha or other solvent.
2. Dry the bearings thoroughly.
3. Put in new Hoover soft cup grease. The best way is with the special grease gun (Tool No. 146) as shown in Figure 94. Use small nozzle.

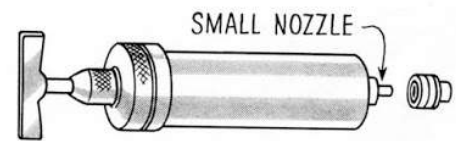


FIG. 94—Greasing agitator or brush roll bearing

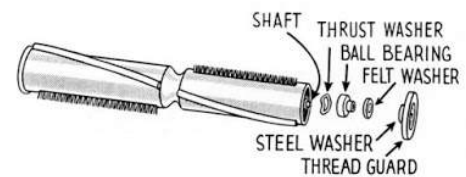


FIG. 95—Construction of the agitator

Agitator

The construction of an agitator is illustrated in Figure 95. It is composed of a shell with beater bars, pressed-in ends with bearing pockets, a shaft, spring thrust washers, ball bearings, felt washers, thread guards and sweeping brushes. On a few agitators, a separate steel spacing washer is used, but on most, this is welded to the inside of the thread guard.

The entire assembly is accurately balanced at the factory for maximum efficiency and smooth operation. The use of the wrong brushes will throw the agitator out of balance and the brushes may be thrown out.

Agitators having loose beater bars cannot be repaired.

The parts of the agitator should be assembled in the following order: See Figure 95.

1. Place shaft thru agitator. The flat end of the shaft should be to the short side of the agitator.
2. Insert spring thrust washer in bearing pocket over one end of shaft.
3. Insert bearing, with flat side down.
4. Insert felt washer on top of bearing.
5. Insert separate steel spacing washer, if required.
6. Screw thread guard to shaft.
7. Repeat at other end.

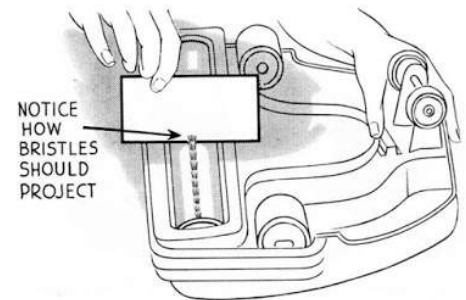


FIG. 96—Make sure the bristle tips extend just beyond the nozzle

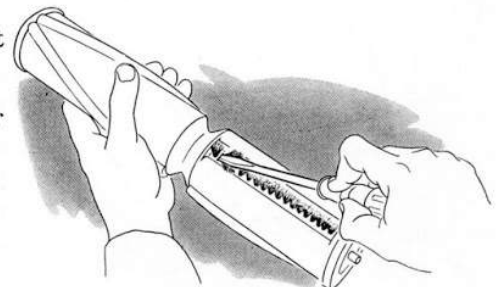


FIG. 97—To remove, press this type of brush down and under belt pulley

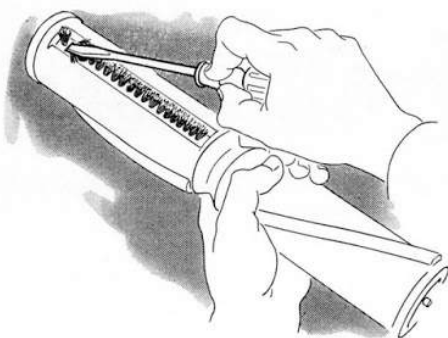


FIG. 98—To replace, press brush under agitator end

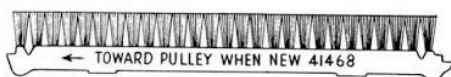
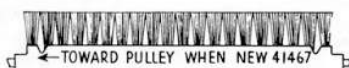


FIG. 99—Agitator brushes showing part numbers and instructions

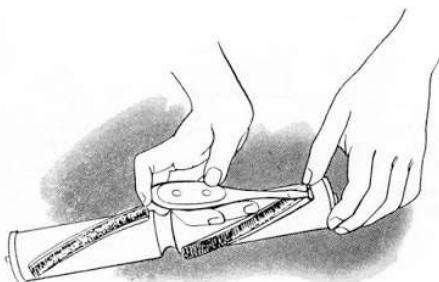


FIG. 100—To remove brush on Models 60-61, press latch outward and up until it catches

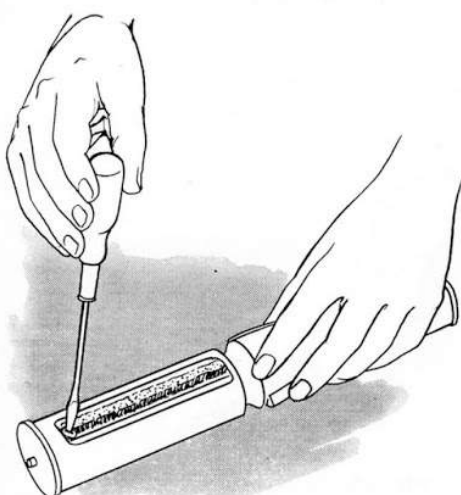


FIG. 101—Agitator brush held in place with set screw

Exception—Both ends of agitator shaft are round on some models. In such cases the thread guards have large hubs and the guard with flat hub is attached to the shaft on the long side of the agitator.

An agitator should spin freely. If it fails to do so, this may be caused by dirt and hairs under the thread guards, by improper assembly of the bearings and washers or by a bent thread guard. When servicing agitators, bearing pockets and thread guards should be thoroughly cleaned and the shell and bars cleaned and polished with steel wool.

A bent thread guard can usually be straightened. If not, a new thread guard should be used.

An agitator which turns hard overloads the motor and causes rapid belt wear and breakage.

AGITATOR BRUSHES

Agitator brushes are easily replaced when worn. In new brushes, the bristles extend about 1/16 inch beyond the nozzle as shown in Figure 96, and should be replaced as they become worn.

To remove agitator brushes on Models 150, 425, 450, 475, 543, 700, 725, 750, 800, 825, 900, 925 and 972 press inner end of brush down and under the belt pulley with a screw driver as shown in Figure 97. This will release the outer end so the brush can be removed. To replace, insert the brush into the channel under the pulley and press the outer end into place with a screw driver as shown in Figure 98.

Brushes used on Models 60, 61, 150, 450, 475, 750, 800, 825, 900 and 925 are reversible for additional wear. All adjustable brushes are marked as shown in Figure 99. To avoid unbalanced agitator, both brushes must be reversed at the same time.

The reversible agitator brush used on Models 60, 61, is held in place by a spring latch located in the outer end of the brush channel. To remove brush, press latch back with a screw driver and lower it until it stays back. To lock the brush in place, raise and release the latch until it snaps into place. Figure 100 illustrates how to remove and insert brushes on these models. Clean the dirt from around the latches to prevent latches from sticking.

In the agitators used on many later Models, brushes are removed by taking out the small set-screws and lockwashers holding them in place. See Figure 101. These brushes are not reversible.

Brushes have their part numbers stamped on the sides or top. See Figure 99. It is important that the correct brush is used.

Brushes should never be filed or otherwise altered to make them fit. The proper brush will fit without alteration.

When removing a brush with a screw driver as shown in Figure 97, it is very important that the end of the channel into which brush fits is not damaged or bent toward the pulley or the brush will not stay in place. Agitators having bent or worn brush channel ends should be replaced.

Brush Roll

A typical brush roll is illustrated in Figure 102. It is an aluminum casting with bristles, shaft, spring thrust washers, bearings, felt washers, steel spacing washers and thread guards.

The brush roll support is adjustable for bristle wear but the brush itself is not adjustable and should be replaced with a new one after the bristles are worn to a point where they no longer extend beyond the nozzle as shown in Figure 103.

When assembling a brush roll, the parts should be assembled in this order:

1. Place shaft thru brush roll.
2. Insert spring thrust washer in bearing pocket over one end of shaft.
3. Insert bearing with flat side down.
4. Insert felt washer on top of bearing.
5. Insert steel washer on top of felt washer.
6. Screw thread guard on shaft.
7. Repeat at other end.

After assembling, a brush roll should spin freely. Failure to do so is usually caused by improper assembly of bearings and washers.

The brush roll assembly in Models 1 and 80 is similar to an agitator assembly, the only major difference being that the brush roll uses sweeping brushes instead of brushes and beater bars. These brushes are replaceable as they become worn and are held in place with set screws.

To adjust the brushes on Models 1 and 80 to compensate for wear, note that on the right-hand end of the nozzle is the letter "R," and on the edge of the thread guard are the marks "R-1," "2" and "3." When the brush is new, "R-1" should be opposite "R" on the nozzle end. As the brush wears, "2" should be placed opposite "R," and after further wear, "3" should be opposite "R." To make this adjustment, the brush roll is removed and then replaced so that the proper number is opposite "R" on the end of the nozzle. After making this adjustment, be sure that the latch lever springs are returned to position and that the cleaner bottom plate is replaced. See Figure 130.

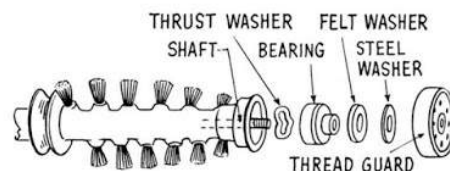


FIG. 102—Brush roll construction

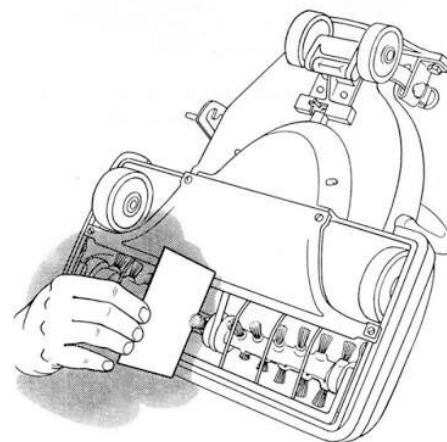


FIG. 103—Measuring bristle extension

Belt

Hoover belts are of the finest rubber available. Their composition and manufacture is the result of years of research and experience. Hoover belts are available in different sizes to fit the various Hoover models. Use of the wrong belt will result in dissatisfaction to the user. Part numbers are stamped on the belts.

The belt must have sufficient tension to drive the agitator or brush roll. 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 comparing its size with that of a new one. If the belt is stretched badly, worn or cut, it should be replaced before it breaks.

The belt is placed over the agitator or brush roll before installing in the nozzle. It is then connected to the fan pulley as shown in Figure 104.

It is **very important** that the belt be installed as instructed. If the belt is attached wrong the following things can occur:

1. Belt will wear more rapidly.
2. Belt is liable to break.
3. Cleaner will push harder.
4. Belt will climb fan pulley, slowing up brush roll or agitator.
5. Agitator or brush roll will turn in wrong direction.

Excessive wear and frequent belt breakage are usually due to one or more of the following reasons:

1. Picking up long strings or sharp objects with the cleaner.
2. Wire, hair and threads wound around belt pulley or fan pulley.
3. Rug fringe caught in belt.
4. Light rug sucked into nozzle.
5. Incorrect assembly of agitator or brush roll bearings, washers and thread guards.
6. Sharp object lodged in the nozzle or fan eye and rubbing on belt.
7. Brush roll placed in nozzle with belt pulley on wrong side of belt guard, causing belt to jump off pulley.
8. Brush roll support adjusted for too much bristle extension.
9. The brush roll installed with one end higher than the other.
10. Use of the wrong belt.

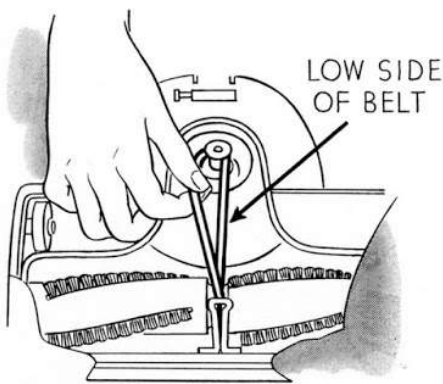


FIG. 104—Correct way to install belt on agitator or brush roll

PART VI—FINISH AND APPEARANCE OF CLEANER

There are four types of finishes used on various models and these finishes are best serviced as outlined here:

1. When the **dull satin finish** on cleaner and cleaning tool parts become soiled it can be improved by washing with soap and water.
2. **Wrinkle enamel finish** can be brightened by washing with soap and water. Lacquer thinner or steel wool should not be used.
3. **Polished aluminum finish** on cleaners can be restored with any non-gritty metal polish.
4. The **smooth baked enamel finish** can be restored by sand-papering rough spots and then refinishing the parts with the proper air dry color in spray cans obtained from The Hoover Co.

A spic and span Hoover is evidence of your pride in your work.

PART VII—HAND CLEANERS AND PIXIES

A hand cleaner is illustrated in Figure 105. The Pixie Figure 105A. Refer to page 94 for Service Instructions.

Due to the fact that all motor parts of the hand cleaner and Pixie must be accurately balanced and a special tool is used to seal the motor shell to the nozzle, it is recommended that these cleaners be returned to the factory for major repairs. If a fan is removed or replaced it must be carefully balanced to prevent excessive vibration.

The bag is removed by turning the bag ring to the left. To take out the bag ring, remove the bag band screw.

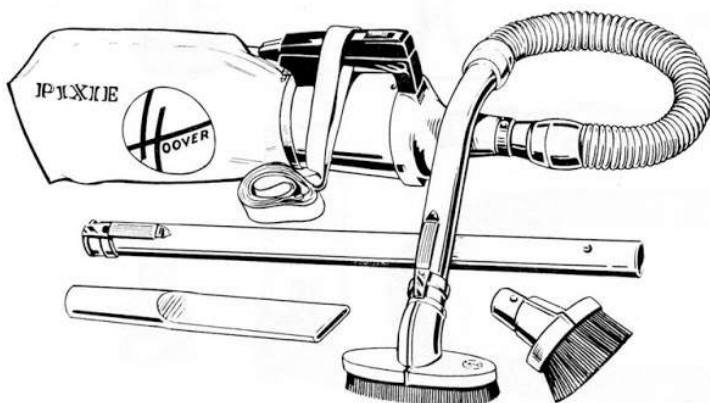


FIG. 105-A

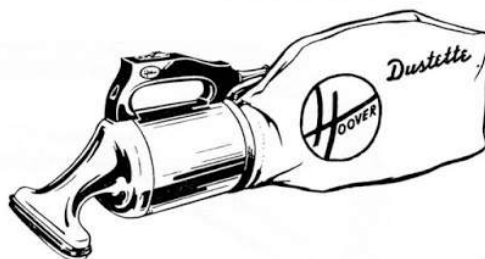


FIG. 105

PART VIII—CLEANING TOOLS



FIG. 106—Inserting connector in side of main casting

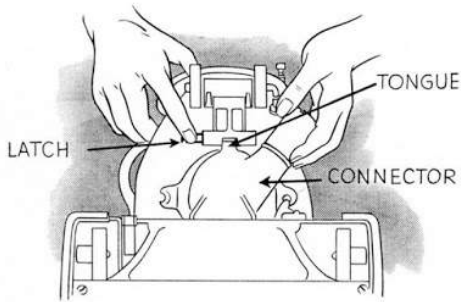


FIG. 107—Installing connector in place of cleaner bottom plate

Cleaning tools used on later models are attached by means of a connector inserted thru an opening in the side of the main casting as illustrated in Figure 106. On these models it is not necessary to remove cleaner bottom plate or belt to connect cleaning tools, but it is important, except on Model 150, to press down heavily on the rear of the cleaner to insert or remove the connector.

Cleaning tools on other models are attached to the main casting by means of a connector installed in place of the cleaner bottom plate after belt is removed from fan pulley. See Figure 107.

Figure 108 illustrates a typical de luxe upright set of cleaning tools:

- | | |
|-----------------------|-------------------|
| 1. Suction connector. | 5. Crevice tool. |
| 2. Hose. | 6. Dusting brush. |
| 3. Telescopic Wand. | 7. Floor brush. |
| 4. Furniture brush. | 8. Blower |

A hose which has been collapsed or dented cannot be repaired.

A user will occasionally wish to use an old set of Hoover cleaning tools with a new Hoover cleaner. In some cases we can accommodate the user by supplying a connector. The connector to order in each case is shown in the following chart.

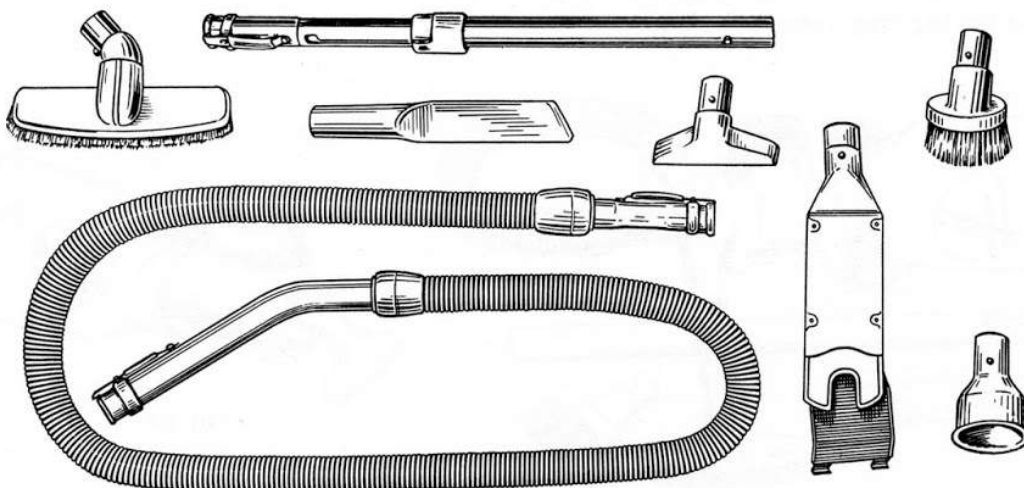


FIG. 108—Cleaning tool parts

CLEANING TOOL CONNECTORS FOR USE ON HOOVER UPRIGHT MODELS

Model	Umbrella Latch Use Connector	Turn on Latch Use Connector	Button on Hose Latch Use Connector	Button on Tools Use Connector
12-14	34744	x	22654	x
25-26-930	10300	x	10425	x
27-28-29-60-61 62-63-64-634	21999	x	34910	x
80-305	32746	x	32459	x
90-91-913	x	x	33212	x
102-105	x	x	x	x
*115	34100	46565	34100	x
150	x	x	31296	x
1-300-450-475	31924	42352	30906	41495
425	x	30576	x	41235
541	10402	40229	x	3782
543-575-700 725-750-800 825-900-925	10402	40229	30916	3782
31-65-66-67-68	x	x	x	34202

CONNECTORS CANNOT BE SUPPLIED FOR COMBINATIONS MARKED X

* Model 115 has bayonet latch on connector end of hose. Other end of hose has umbrella latch for tools.

** Model 543 Serial No. 4,217,588 up, use 30916. All other 543's use 40229.

*** Model 700 Serial No. 7,373,000 up, use 30916. All other 700's use 40229.

CHAPTER III—TESTING THE COMPLETED SERVICE JOB

No service job, large or small, can be considered complete until the cleaner has been thoroughly tested. This is to assure user satisfaction, the real purpose of Hoover service.

Every serviced cleaner should be given the following final inspection and tests in the shop.



A satisfied user is your best advertisement

1. Check motor operation—Operate motor for several minutes until it is warmed up. The motor should run smoothly and quietly.
2. Check switch—Turn switch off and on several times. The action should be positive.
3. Check cord assembly—With the motor running, bend the cleaner cord at the plug and at the cord protector. If the assembly is OK, motor will run without stopping and starting.
4. Check for vibration—With the motor operating, place fingers on the main casting. The cleaner should operate smoothly.
5. Check for quietness—The cleaner should be free from unusual noises such as whistling, “tinniness,” grating or sound of parts striking one another.
6. Check bristle extension—The bristles should extend about 1/16 inch below the nozzle.
7. Check nozzle adjustment—
 - a. Place cleaner on a rug of average thickness and adjust the nozzle as high as it will go.
 - b. With cleaner running, adjust the nozzle downward until maximum agitation of the rug is obtained.
8. Check cleaning effectiveness—Place a small amount of litter on the rug and observe how cleaner removes it. Dirt and lint should be removed quickly and completely.
9. Check appearance—Remove dust and stains from all parts of the cleaner.
10. *Ground test all appliances before delivery to owner.*

Home Delivery of Serviced Hoover

Even though the serviced cleaner has been thoroughly shop-tested, the following procedure is recommended for use in the home when making delivery. The few minutes so spent are thoroughly justified by the resulting user satisfaction.

1. Connect Hoover and adjust to rug.
2. Show and explain the completeness of the service rendered.
 - a. Cord—all connections tested.
 - b. Switch, handle positioner, rug adjuster and bulb—thoroughly checked.
 - c. Bag—cleaned or replaced.
 - d. Main casting—cleaned or refinished.
 - e. Motor—tested and serviced. Carbon brushes reset. All electrical connections tested. Lubrication checked.
 - f. Agitator or brush roll—cleaned, polished and bearings lubricated. Brushes adjusted or replaced.
 - g. Belt—tested or replaced. Properly installed.
 - h. Wheels—cleaned and lubricated.
3. Show re-newed cleaning efficiency.
 - a. Put down kapoc or litter and pick it up with Hoover.
 - b. Show rug vibration and dancing grit.
4. Give user instructions.
 - a. Adjusting for different rugs.
 - b. Emptying bag.
 - c. Lubricating.
 - d. Inspecting belt and brushes.
5. Show service rendered on Tank and Canister models.
 - a. Cord—all connections tested.
 - b. Switch—operate.
 - c. Motor—cleaned and lubricated.
 - d. Show cleaning efficiency with tools.
 - e. Bag cleaned or replaced.



CHAPTER IV—DISMANTLING HOOVER CLEANERS

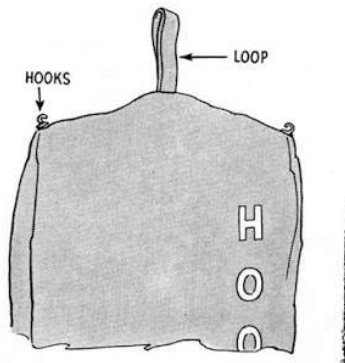


FIG. 109—Attach bag spreader to hooks on the bag or use the loop to attach the bag to the bag hook on the handle

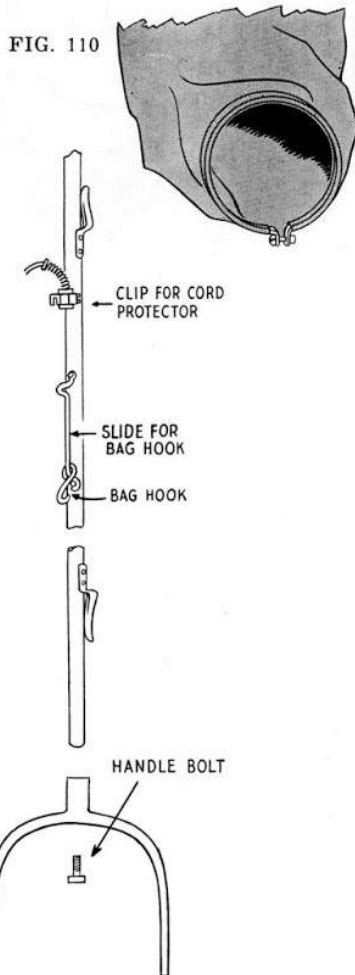


FIG. 111—One type of wood handle assembly

In this chapter of the Handbook, Hoover models are arranged in seven groups. In each group are cleaners similar in construction and using many like or similar parts. Where any particular cleaner in a group has a special feature, or if the method of dismantling any part is different, special notation is made in the text.

The best way to use and benefit by this chapter is to have these pages open before you as you take apart The Hoover being serviced.

When taking a cleaner apart, note carefully the original position of its parts. This will materially simplify the task of re-assembling.

In most cases, re-assembling The Hoover can best be accomplished by using these dismantling procedures in reverse order.

DISMANTLING MODELS 102-105-541-543

Bag Assembly

1. To remove **bag assembly**:
 - a. Unhook bag from handle. Figure 109.
 - b. Loosen the bag nuts at the rear of the main casting.
2. Loosen the bag band screw to remove **bag ring**. Figure 110.
3. Remove **spreader or closure clip**, if any, from top of bag.

Handle and Cord Assembly

1. To remove **handle**: Figure 111.
 - a. Pull cord protector spring from handle clip.
 - b. Remove nut located under the handle bail socket.
2. To remove **foot switch**:
 - a. Loosen set screw under base of switch and pull cord protector out of the switch base. Figure 112.
 - b. Unscrew **switch knob**, remove two screws and lift off the **switch cap**.
 - c. Remove two screws from the porcelain switch and disconnect **cleaner cord** and motor wires.

Brush Roll, Agitator and Belt Assemblies

1. To remove belt :
 - a. Push latch to left and remove *cleaner bottom plate*.
 - b. Remove belt from fan pulley.
 - c. On Model 543, raise agitator support latch.
 - d. Place thumbs on bottom of cleaner and fingers under agitator or brush roll support and pull the support out of the nozzle.
 - e. Lift out *brush roll or agitator*. Remove *belt*.

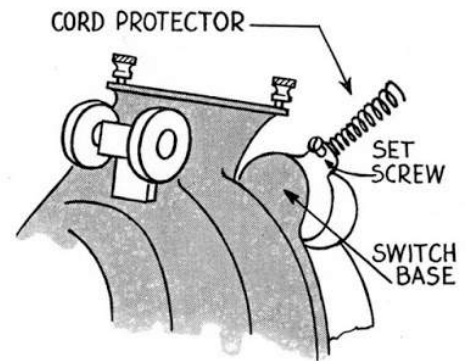


FIG. 112—Bottom view of foot switch

Motor and Fan Assembly

1. Remove four motor casing screws and lift *motor and fan assembly* from main casting. Remove *motor gasket*.
2. To remove fan :
 - a. On some models, loosen the set screw on the side of fan and remove fan from armature shaft.
 - b. On other models, insert screw driver thru the fan pulley into the slot at the lower end of the armature shaft. Turn screw driver to left while holding the fan and remove *fan pulley*. Figure 113. With screw drivers held between fan and motor bottom plate, pry *fan* off shaft.
3. Slip *fan spacing washers* from armature shaft.
4. Take out the two screws and remove *motor cap*.
5. To remove *carbon brush holders, springs and carbon brushes*:
 - a. Loosen the four screws on carbon brush ring, but do not take them out.
 - b. To prevent holder clips from falling out, tighten the two screws that do not hold field coil wires to carbon brush ring.
 - c. Remove the screws holding the field coil wires to the carbon brush ring.
6. Remove two long screws which hold *motor head casting* to motor casing, tap motor head casting gently and lift it from motor casing.
7. With a punch, drive the metal and felt *oil discs* from the motor head casting. Figure 114.
8. To release the *carbon brush ring*, take out the two screws on top of the motor head casting.
9. Lift *armature* from motor casing.

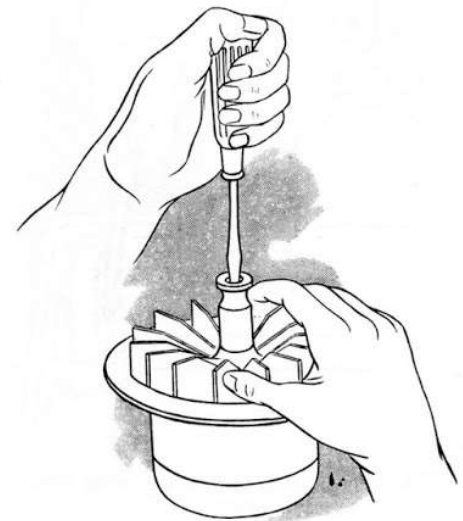


FIG. 113—Loosening fan and fan pulley

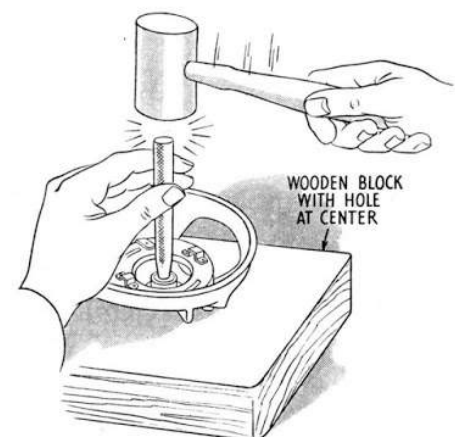


FIG. 114—Punching out the metal and felt oil discs from motor head casting

10. Remove the two long screws which hold field iron in motor casing and with two heavy screw drivers, one on either side of the field iron, lift **field coil and iron** from motor casing.
11. See Figures 59 and 60 for method of removing **motor bearings**.

Main Casting Assembly

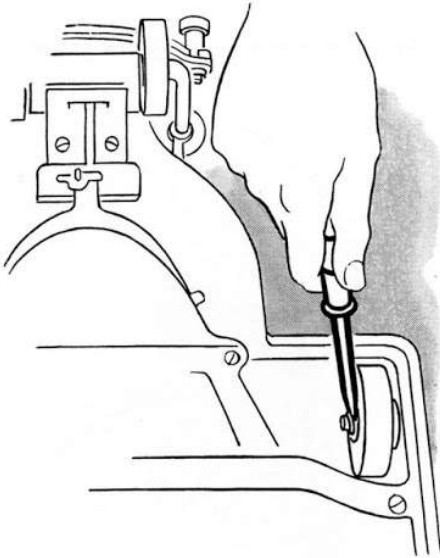


FIG. 115—Removing split lock ring from wheel shaft

1. To remove **handle bail**:
 - a. Remove the large screws holding the bail ends to the main casting. If bail is mounted on bail studs instead of screws, pry off the split lock rings or, on some models, remove the set screws from the lower ends of the bail.
 - b. Remove the tilting bar screw or, on models having the tilting bar stud riveted to main casting, slip the **tilting bar** off the stud.
2. To remove **rear wheel support bracket**:
 - a. On Models 102 and 105 remove thumb screw.
 - b. On Models 541 and 543 remove screws from the bracket and the screw located inside the rear opening of the main casting.
3. If front wheel shafts are riveted to the main casting, pry off split lock rings to remove **front wheels**. Figure 115. Use wrench to remove threaded **front wheel shafts**.
4. To remove **rear wheels**, pry off the split lock rings. (On some of these models, wheels are not removable from the support brackets.)
5. To remove the **furniture guard**, cut the rivets.

DISMANTLING

MODELS 575-700-725-750-800-825-900-925

Bag Assembly

1. To remove **bag assembly**:
 - a. Unhook bag from handle.
 - b. Loosen the bag nuts or raise the bag lock levers at the rear of the main casting.
2. Loosen bag band screw to remove **bag ring**.
3. Remove bag **spreader or closure clip** from top of bag.

Handle and Cord Assembly

1. Remove wing nut and bolt from handle bail socket and lift out **handle**. Figure 116.
2. Remove **switch cover plate**.
3. Detach **cleaner cord** wires from switch.
4. See Figures 30 to 32 for details of removing **bag support strap and spring** from handles on Models 725, 750, 800, 825, 900 and 925.

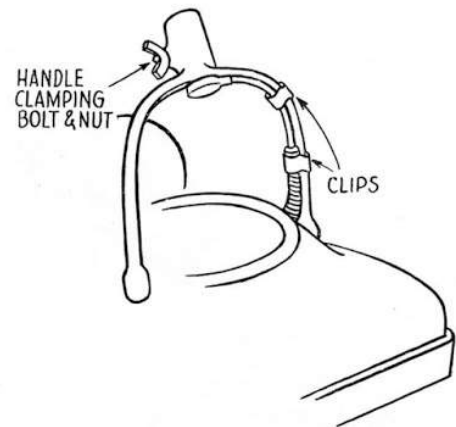


FIG. 116—Handle bail—showing handle clamping nut and bolt, motor lead cord and plug, and cord clips

Agitator and Belt Assembly

1. To remove belt:
 - a. Push latch to left and remove **cleaner bottom plate**.
 - b. Remove belt from fan pulley.
 - c. Raise agitator support latch at front of main casting and swing out the support. See Figure 80.
 - d. Press down on agitator latch lever plates and lift out **agitator**. Remove **belt**.

Motor and Fan Assembly

1. With screw driver, pry cord clip from handle bail. Figure 116.
2. Remove motor casing screws and lift **motor and fan assembly** from main casting. Remove **motor gasket**.
3. To remove fan:
 - a. Unscrew **fan pulley** by inserting screw driver thru fan pulley into slot at lower end of armature shaft and turning screw driver to left while holding the fan. On some Models 900 and 925, hold shaft on fan pulley with pliers while turning fan by hand. Figure 117.
 - b. With two screw drivers held between the fan and motor bottom plate, pry **fan** off armature shaft. Figure 118.
4. Slip **fan spacing washers and sleeve** from armature shaft.
5. Remove two screws and lift off **motor cap**.
6. Push **dirt finder bulb** against contact points, twist and lift out.
7. To remove carbon brush holders, springs and carbon brushes:
 - a. Unscrew caps from holders and remove **carbon brushes and springs**.
 - b. With sharp instrument, pry field coil wires from carbon brush holders.
 - c. Remove the set screws and slide out **carbon brush holders**.

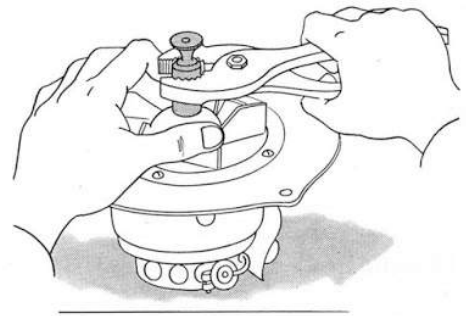


FIG. 117—Removing fan pulley with pliers



FIG. 118—Prying fan from armature shaft

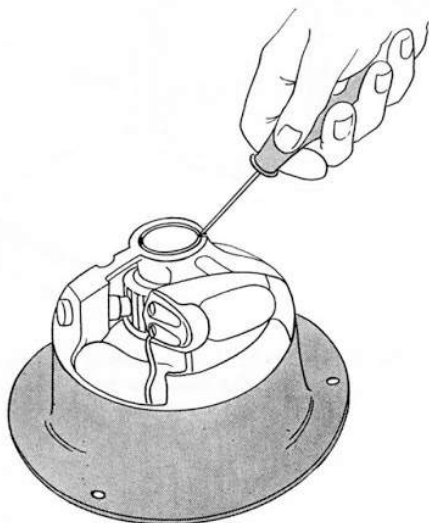


FIG. 119—Prying out split ring

8. To remove **upper bearing assembly**:

- a. On Models 750, 800 and 825, pry out the split lock ring and remove the steel bearing cap. This releases the bearing spring and spring support cup. Take out screw from top of armature shaft and remove bearing and washers. Figure 119.
- b. On Models 575, 700 and 725, the upper bearing is a part of the motor casing and should not be removed. To free the armature, however, lift out with a knife blade the brass bearing cap pressed into place above the upper bearing, and then remove the screw from top of armature shaft. Figure 120.
- c. On Models 900 and 925, the upper bearing is part of the armature. The steel bearing cap is a part of the motor casing and should not be removed. To remove the armature and bearing assembly, take out screws and remove motor bottom plate and armature from motor casing. The bearing spring and spring support cup located under bearing cap will come out with the armature.

9. Pull **armature** from motor bottom plate.

10. It is not advisable to remove **lower motor bearing assembly** from motor bottom plate. When necessary to replace a lower motor bearing, the complete motor bottom plate should be replaced.

11. To remove **field coils and iron**:

- a. Remove the long screws which hold field iron to motor casing.
- b. Remove fibre retainer from motor lead wire.
- c. Remove cord protector spring from motor casing.
- d. Gently tap motor casing on wooden block.

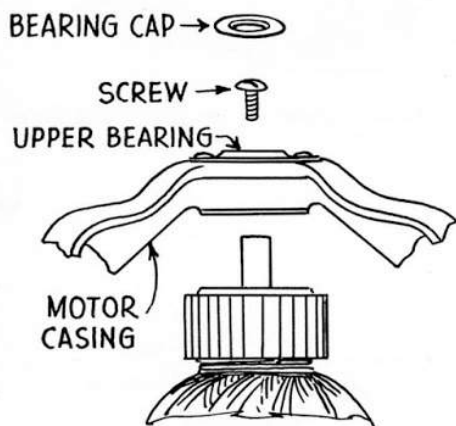


FIG. 120—Upper bearing arrangement
Models 575-700-725

Main Casting Assembly

1. To remove **handle bail**:

- a. Loosen set screws located at lower ends of the handle bail.
- b. Pull bail off bail studs—prong without tilting bar first.
- c. Slip **tilting bar** off stud.

2. To remove **front wheels**, pry off lock rings.

3. For methods of removing **rear wheels** from these various models, see Figure 85.

4. To remove the **furniture guard**, cut the rivets.

DISMANTLING MODELS 25-26-930

Bag Assembly

1. To remove *bag assembly*:
 - a. Unhook bag from handle.
 - b. Loosen the bag nuts at rear of main casting.
2. Loosen bag band screw to remove *bag ring*.
3. Remove *closure clip* from the top of bag.

Handle and Cord Assembly

1. Remove nut and bolt from handle bail or socket and lift out *handle*.
2. Remove *switch cover plate*.
3. Detach *cleaner cord* wires from switch.

Agitator and Belt Assembly

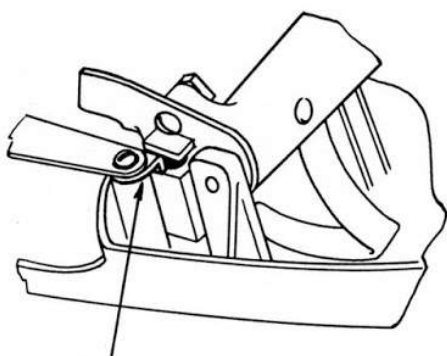
1. To remove belt:
 - a. Push the latch to left and remove *cleaner bottom plate*.
 - b. Remove belt from fan pulley.
 - c. Pull the belt guard outward from the agitator.
 - d. Raise the latch levers at ends of the nozzle as far as they will go and lift out *agitator*. Remove *belt*.



FIG. 121—Removing motor hood

Motor and Fan Assembly

1. Remove screw in front of *motor hood* and lift off hood. On Models 25 and 930, it is first necessary to raise front of name plate band. Figure 121.
2. Push *dirt finder bulb* against contact points, twist and lift out.
3. To remove motor and fan assembly from main casting:
 - a. Disconnect motor lead wires from motor casing terminals. On Model 930 also disconnect radio filter wires.
 - b. Take out four screws and lift *motor and fan assembly* from main casting. Remove *motor gasket*.
4. With screw driver in fan pulley slot, turn pulley to the right while holding fan. Remove the *pulley* and *fan* from armature shaft.



L-SHAPED STAMPING

FIG. 122—Nozzle adjustment stop on Models 25 and 930

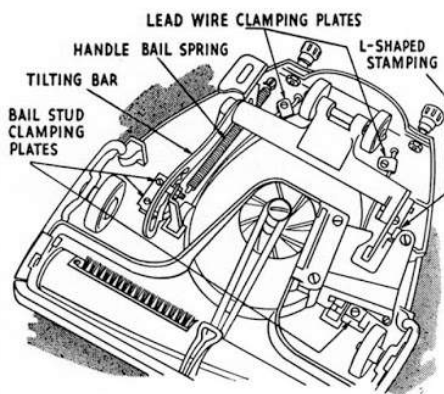


FIG. 123—Bottom view—Models 25 and 930

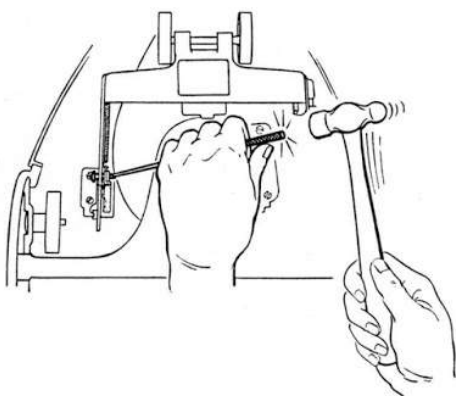


FIG. 124—Sketch showing use of chisel to stake the thread of the tilting bar bolt. Model 25

5. Slip *fan spacing washers and oil deflector sleeve* from the armature shaft.
6. Push the carbon brush retainers to one side, and remove the *carbon brushes and springs*.
7. Remove three screws and take off the *upper bearing plate*.
8. To free *upper bearing assembly*, remove three bolts from the bearing plate.
9. Remove *air-cooling fan* and nut by holding the lower part of armature shaft while turning the cooling fan to the left.
10. To remove *motor bottom plate*, take out five bolts which attach it to the motor casing.
11. Lift the *armature* from motor bottom plate.
12. To release *lower motor bearing assembly*, remove the bolts from cleaner bottom plate.
13. *Field coils and field iron* are removed from motor casing by taking out the two long bolts and disconnecting coil lead wires from motor casing terminals.

Main Casting Assembly

1. Remove the screws and lift off cleaning tool *connector housing*. (On Model 25 and 930, the small L-shaped stamping under the rear right screw of the connector housing serves as a nozzle adjustment "stop." When re-assembling, this must be replaced so that its bent lip can rest against the block-shaped nozzle adjusting nut when the nozzle is adjusted as high as it will go. Figure 122).
2. To remove *handle bail* from Model 25 and 930: Figure 123.
 - a. Disconnect the handle bail spring by removing the screw at one end and unhooking the other end from the handle bail prong.
 - b. Remove the nut and bolt holding the slotted tilting bar to the handle bail prong. (In replacing, "stake" the thread of this bolt so that it cannot work loose. Figure 124).
 - c. Remove the screws holding the clamping plates over the handle bail studs, lift off the plates and take out the studs.
 - d. Remove the clamping plates holding the motor lead wires to the main casting and pull the wires out of the holes in the main casting. On Model 930 this also releases the *radio interference eliminator*.
 - e. Remove handle bail from main casting.

3. To remove **handle socket** from Model 26:
 - a. Disconnect motor lead wires from motor casing terminals, remove the fibre retainer from the lead wires and bend up the flexible metal clip holding these wires to the main casting.
 - b. Pry one split lock ring off the upper bracket shaft, drive out this shaft and separate the socket and socket spring from the handle bracket.
 - c. Pry one split lock ring off lower bracket shaft and drive out the shaft.
 - d. Pry the socket pawl arm free from the wheel support bracket under the main casting.
4. To remove the **motor lead plug**, take out the set screw and pull plug from handle socket or handle bail.
5. To remove **front wheels**:
 - a. On Model 25—Pry off split lock rings and slide wheels from shaft.
 - b. On Model 930—Remove the screws from the shafts and slide off wheels.
 - c. On Model 26—Pry hub caps (using two screw drivers) and the split lock rings off front wheel shafts. Figure 125. (It is necessary to remove cleaning tool connector housing to give clearance for removal of right wheel).
6. **Front wheel shafts** are removed from main casting by turning the hex nuts between wheels and main casting.
7. To remove **rear wheels**:
 - a. On Model 25—Pry off split lock rings.
 - b. On Model 930—Remove screws from wheel shafts.
 - c. On Model 26—Pry off hub caps and split lock rings.
8. On Models 25 and 930, to remove the **rear wheel support bracket**:
 - a. Remove nut and bolt holding the nozzle adjusting lever to the right end of the wheel support bracket. This releases the spring tension on the bracket.
 - b. Loosen set screw located at rear center of wheel support bracket.
 - c. Drive out the shaft running thru the wheel support bracket. This releases the bracket, the nozzle adjusting lever, the tilting bar and pedal.
 - d. Remove the support springs.
9. On Model 26, to remove the **rear wheel support bracket**: Figure 126.

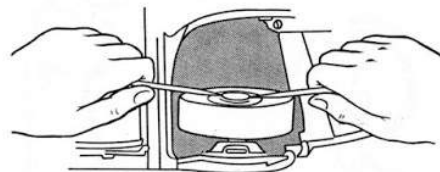


FIG. 125—Removing hub cap from wheel shaft

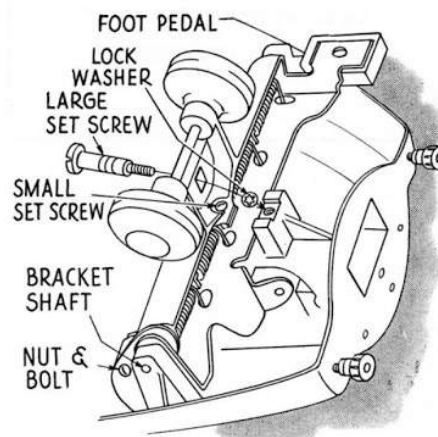


FIG. 126—Model 26 rear wheel support bracket



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friends tomorrow

- a. Remove the nut and bolt holding the nozzle adjusting lever to right end of the wheel support bracket.
- b. Remove large set screw from front center of wheel support bracket. This releases the spring tension on the bracket.
- c. Loosen small set screw at rear center of bracket.
- d. Drive out the shaft running thru the bracket. This releases the bracket, the support springs, the foot pedal bar and the nozzle adjusting lever.

10. To remove *furniture guard*, remove bolts or cut rivets from front of guard and lift ends of the guard out of the slots in the main casting.

DISMANTLING MODELS 1-300-425-450-475

Bag Assembly

1. To remove *bag assembly*:
 - a. Unhook bag from handle.
 - b. Loosen bag nuts at rear of main casting.
2. Loosen the bag band screw to remove *bag ring*.
3. Remove the *closure clip* from top of bag.

Handle and Cord Assembly

1. Remove nut and bolt from handle bail socket and lift out *handle*.
2. Remove *switch cover plate*.
3. Detach *cleaner cord* wires from switch.
4. See Figure 33 for method of removing *bag support strap and spring* from handle.

Agitator, Brush Roll and Belt Assemblies

1. To remove belt:
 - a. Push latch to left and lift off *cleaner bottom plate*.
 - b. Remove belt from fan pulley.
 - c. On Models 1 and 300, pull the belt guard outward from the agitator or brush roll.
 - d. Raise latch-levers at ends of nozzle as far as they will go and lift out *agitator or brush roll*. Remove *belt*.

Motor and Fan Assembly

1. On Models 1 and 300, take out the three screws and remove **motor hood** from main casting.
2. On Models 450 and 475, take out the two screws from the front and one from the rear of the **motor cap** and remove the cap.
3. On Model 425, to remove **motor hood**, and on Models 450 and 475, to remove **outer motor casing**:
 - a. Release motor lead plug from handle bail socket and pry cord clips from handle bail.
 - b. Take out the three screws holding the motor hood or the outer motor casing to the main casting. (This also frees the motor and fan assembly from the main casting).
 - c. Remove from the inside of motor hood or outer motor casing the fibre retainer holding the motor lead cord. Figure 127.
 - d. Remove the plug and spring from the motor lead cord.
 - e. Draw the motor lead cord out of the motor hood or outer motor casing.
4. Push **dirt finder bulb** against contact points, twist and lift out.
5. On Models 1 and 300, to remove **motor and fan assembly**, remove the screws holding motor casing to the main casting.
6. Remove **motor gasket**.
7. To remove the **fan**, remove **fan pulley** by holding the fan with one hand while turning pulley to right with pliers.
8. Remove **fan spacing washers and sleeve** from armature shaft.
9. To remove carbon brush holders, springs and carbon brushes:
 - a. Disconnect field coil wires from carbon brush holders and remove **carbon brushes and springs**. (On Models 1 and 300, use pliers to clinch together the split lock rings).
 - b. To remove **carbon brush holders**, loosen the set screws.
10. Remove screws and lift **motor bottom plate** and armature from motor casing.
11. Remove **armature** from motor bottom plate by gently tapping armature shaft on a block of wood.

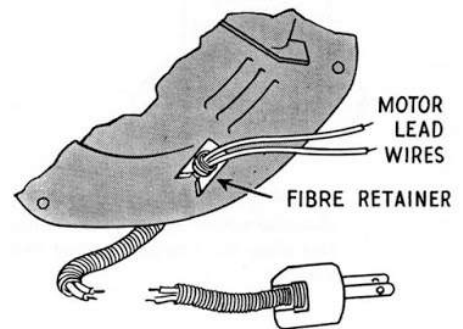


FIG. 127—Motor lead wires in motor hood or outer motor casing



FIG. 128—Sketch of Model 425 armature, showing upper bearing assembly, including the bearing, spring and washer

12. It is not advisable to remove lower motor bearing assembly from motor bottom plate. When necessary to replace a lower motor bearing, the complete motor bottom plate should be replaced.
13. On Models 1 and 300, remove the **upper bearing assembly** from motor casing by taking out three bolts. On Models 425, 450 and 475, the upper bearing is not to be removed from armature shaft, but remove the bearing spring and washer from above the bearing. Figure 128.
14. To remove **field coils and iron**:
 - a. Disconnect all field coil lead wires.
 - b. Remove the long bolts from the field iron.
 - c. Gently tap the lower edge of motor casing against a wooden block.

Main Casting Assembly

1. Pry split lock rings off wheel shafts to remove **front wheels**.
2. For methods of removing **rear wheels**, see Figure 85.
3. To remove **handle bail**:
 - a. Remove set screws from lower ends of handle bail.
 - b. Pull handle bail off bail studs—prong without tilting bar first.
 - c. Slip **tilting bar** off stud.
4. To remove **furniture guard**, cut the rivets.

DISMANTLING MODEL 150

Bag Assembly

1. To remove **bag assembly**:
 - a. Unhook bag from handle.
 - b. Raise the bag ring lock levers at the rear of the main casting.
2. Loosen the bag band screw to remove the **bag ring**.
3. Remove **closure clip** from top of bag.

Handle and Cord Assembly

1. Remove wing nut and bolt from handle socket and lift out **handle**.

2. Remove *switch cover plate*.
3. Detach *cleaner cord* wires from switch.
4. See Figures 30 to 32 for method of removing *bag support strap and spring* from handle.

Agitator Assembly

1. To remove belt:
 - a. Push latch to left and lift off *cleaner bottom plate*.
 - b. Remove belt from fan pulley.
 - c. Pull belt guard outward from the agitator.
 - d. Raise latch levers at ends of nozzle as far as they will go and lift out *agitator*. Remove *belt*.

Motor and Fan Assembly (Also see Chassis Assembly Figure 91)

1. Raise name plate band, remove set screw and lift *motor hood* from main casting.
2. Push *dirt finder bulb* against contact points, twist and lift out.
3. Remove set screw from side of handle bail socket to release *motor lead plug*.
4. Remove the six screws from motor bottom plate and lift *motor and fan assembly* from main casting. Remove *motor gasket*.
5. To remove *fan*, insert 3/16 inch screw driver thru fan pulley into slot at lower end of armature shaft. Turn screw driver to the left while holding the fan. Or, wrap a cloth around fan pulley and use pliers to turn fan pulley to right while holding fan. Remove *fan pulley*.
6. Slip *fan spacing washers and sleeve* from armature shaft.
7. To remove *carbon brushes and springs*, push the brass retainers to one side.
8. Loosen three top motor screws and lift off *upper bearing plate*.
9. To remove *upper bearing assembly*, unscrew the three bolts holding it in bearing plate.
10. Remove *air-cooling fan* by turning it to the left while holding lower end of armature shaft. (Caution: When re-assembling, be sure that flat surface of nut is seated in its recess on top of cooling fan, otherwise bearing plate will break when screws are tightened).

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influenced by the goodwill
created thru good service*

11. Separate the **motor bottom plate** from motor casing by removing the six nuts and bolts.
12. Remove **armature** from motor bottom plate.
13. It is not advisable to remove lower motor bearing assembly from motor bottom plate. When necessary to replace a lower motor bearing, the complete motor bottom plate should be replaced.
14. Remove two long bolts to release **field coils and field iron** from motor casing.

Main Casting Assembly

1. To remove **handle bail and chassis**:

- a. Place handle bail in upright storage position.
- b. Remove lower cord clip from handle bail.
- c. Remove motor lead plug from bail as outlined above.
- d. Remove connector housing by taking out the four screws.
- e. Using 9/16 inch wrench, remove the chassis nut, retaining plate and chassis spring.
(Note: When replacing chassis spring, turn one end until it rests against the raised ridge in the spring opening).
- f. Lower the handle bail through main casting to give clearance for working on bail studs.
- g. Using 7/16 inch wrench, remove the nut, lock washer, and lock plate from the left bail stud and take out the stud. This separates the left bail prong from the chassis.
- h. With a screw driver, pry the bail spring from the right bail prong.
- i. Remove the lock nut, lock washer, lock plate and bail stud from the right bail prong.
- j. Lift handle bail from main casting.

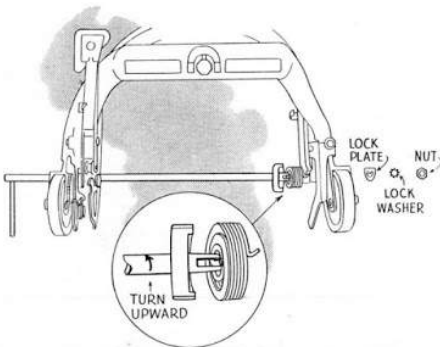


FIG. 129—To remove or replace bail spring

2. To replace a broken **bail spring** it is not necessary to remove the handle bail: Figure 129.

- a. Remove the right bail stud, the nut, lock washer and lock plate.
- b. Place new spring into position on the bail stud with the flat end of the spring resting in the slotted head of the stud and the bent-out end of the spring seated below the hook-like shoulder on the handle bail prong.

- c. Insert the split end of the special winding tool or screw driver into the open end of the bail stud and over the flattened end of the bail spring. See Figure 129. Special tool no longer supplied.
 - d. Wind the spring and stud to the left until the lock plate can be installed in the groove at the threaded end of the bail stud.
 - e. With the bail spring held under tension, replace the lock plate, lock washer and nut.
3. Cut the four rivets to remove the *furniture guard*.
 4. To take off *front wheels*, remove nuts, bolts and washers.
 5. To take off *rear wheels*, pry off split lock rings.

DISMANTLING MODELS 27-28-80-305

Bag Assembly

1. To remove *bag assembly*:
 - a. Unhook bag from handle.
 - b. Loosen the bag nuts at rear of main casting and lift off bag assembly.
2. Loosen bag band screw to remove *bag ring*.
3. Remove the *closure clip* from top of bag.

Handle and Cord Assembly

1. Remove nut and bolt from handle socket and lift out *handle*.
2. Remove *switch cover plate*.
3. Detach *cleaner cord* wires from switch.

Agitator, Brush Roll and Belt Assemblies

1. To remove belt:
 - a. Push the latch to the left and remove *cleaner bottom plate*.
 - b. Remove belt from fan pulley.
 - c. On Models 27, 28 and 305, raise the latch-levers at ends of the nozzle as far as they will go. On Model 80, use a screw driver to push the spring clamps toward rear of cleaner. Figure 130.
 - d. Lift out *agitator or brush roll*. Remove *belt*.

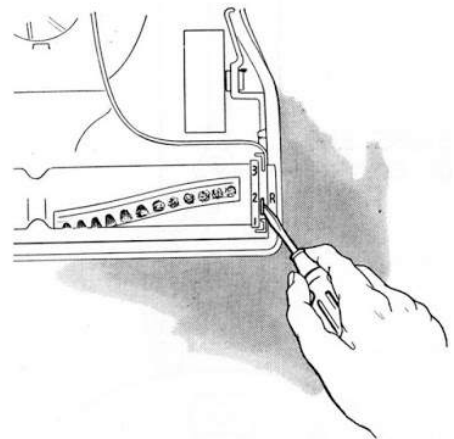


FIG. 130—Adjusting brush roll on Models 1 and 80 to compensate for brush wear

Motor and Fan Assembly

1. Remove the two screws near the dirt finder and lift **motor hood** from main casting. (The nuts for these screws lie in wells near the dirt finder socket and drop out when cleaner is inverted).
2. Remove **dirt finder lens**. (This fits into grooves in the motor hood and motor casing and must be engaged in both grooves when re-assembling).
3. Push the **dirt finder bulb** against the contact points, twist and lift out.
4. To remove motor and fan assembly from main casting:
 - a. Detach motor lead wires from motor casing terminals.
 - b. Unscrew and lift **motor and fan assembly** from main casting. Remove **motor gasket**.
5. To remove **fan**, with a screw driver held in fan pulley slot, turn fan to left. Or, wrap a cloth around the fan pulley and with a pair of pliers, turn pulley to right while holding fan. Remove **fan pulley**.
6. Remove **fan spacing washers and oil deflector sleeve** from armature shaft.
7. Detach carbon brush terminal screws and remove **carbon brushes and springs**.
8. Remove three top motor screws and **upper bearing plate**.
9. Remove **air-cooling fan** by turning it to left while holding armature shaft.
10. Remove screws and lift off **upper half of motor casing**.
11. Remove **armature** from motor casing.
12. Remove the screws and separate the **motor bottom plate** from motor casing.
13. Separate **lower bearing assembly** from motor bottom plate by removing three nuts and bolts.
14. To remove **field coil and field iron** assembly, take out two bolts holding field iron to motor casing.

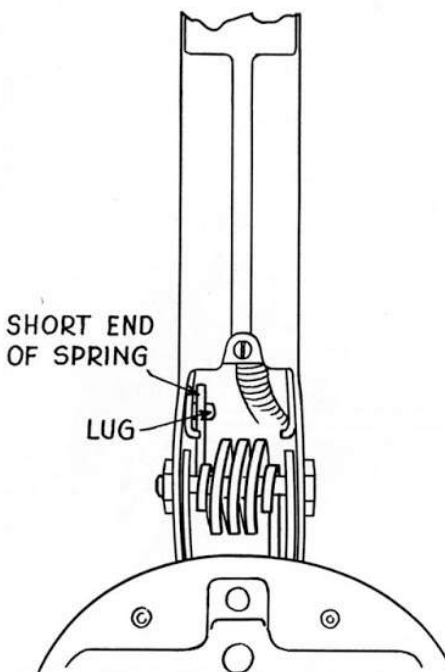


FIG. 131—Handle socket, Models 27-28-80 and 305

Main Casting Assembly

1. To remove **handle socket**:
 - a. Detach motor lead wires from the motor casing terminals.

- b. Remove upper handle bracket shaft and nut from handle socket and lift out the handle control spring. (When re-assembling, place the short end of the handle control spring uppermost and each end against one of the retaining lugs inside the socket. Figure 131).
2. Remove set screw and pull **motor lead plug** and wires upward through handle socket with the aid of a screw driver.
3. To remove the **foot pedal assembly**: Figure 132.
 - a. Pry up the spring which rests in the groove in the shaft.
 - b. Remove the shaft to remove the foot lever and foot lever coil spring.
4. To remove **wheels**, pry off the split lock rings.
5. To remove **furniture guard**, cut the rivets.

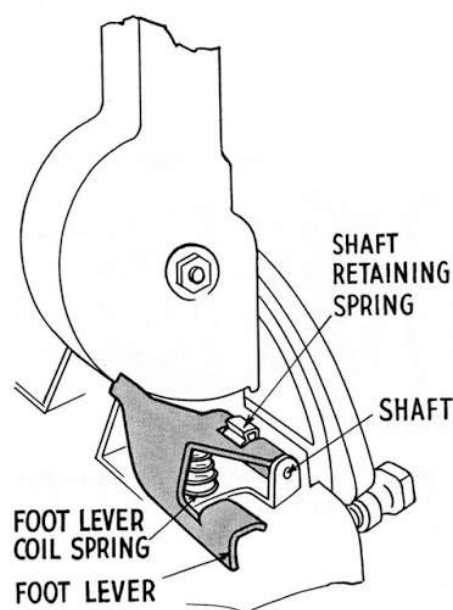


FIG. 132—Foot pedal assembly, Models 27-28-80 and 305

DISMANTLING MODELS 29-60-61-62-90-91-913

Bag Assemblies

1. To remove **bag assembly**:
 - a. Unhook bag from handle.
 - b. Raise the bag lock lever at rear of main casting.
2. To dismantle **Models 29, 61, 90, 91 and 913 cloth bag assembly**:
 - a. Loosen the bag band screw to remove the bag ring.
 - b. Remove closure clip from top of bag.
3. To dismantle **Model 60 cloth bag assembly**:
 - a. Remove closure clip from top of bag.
 - b. Loosen bag band screw to remove bag ring and muffler assembly.
 - c. Remove two screws in the bag ring to free the muffler assembly. Figure 133.
4. To dismantle **Models 60, 61 and 62 Hygienisac assembly**:
 - a. Remove the fibre-felt bag by opening the outer zipper bag and releasing the clamping lever. Remove the closure clip from the fibre-felt bag.
 - b. Remove the bag support clip and spring from the outer bag by taking out the split rivet holding together the inner and outer parts of the clip.
 - c. Loosen the bag band screw to remove the bag ring and muffler assembly from the bag.

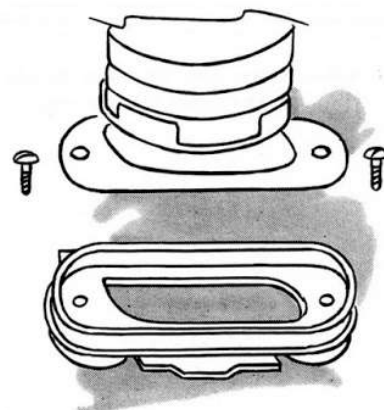


FIG. 133—Bag ring and muffler assembly, Model 60 cloth bag

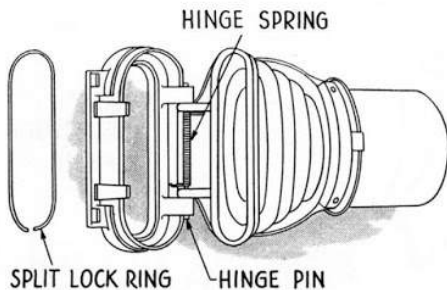


FIG. 134—Hygienisac bag ring and muffler assembly

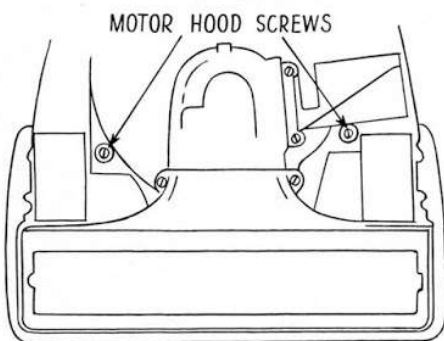


FIG. 135—Bottom view of Model 60, showing the motor hood screws

- d. To remove the bag ring from the muffler assembly, pry out the split lock ring located inside the bag ring and drive out the long rivet or pin and spring that acts as a hinge between the bag ring and the muffler assembly. Figure 134. (When re-assembling, place the hooked end of the spring against the bag ring and the straight end against the flange of the muffler housing).

Handle and Cord Assembly

1. To remove the **handle**:
 - a. On Models 60 and 61, remove nut and bolt from the handle socket.
 - b. On Models 90, 91 and 913 loosen the bolt in the socket.
2. Remove **switch cover plate**.
3. Detach **cleaner cord** wires from switch.

Agitator and Belt Assembly

1. To remove the belt:
 - a. Push latch to left and lift off **cleaner bottom plate**.
 - b. Remove belt from fan pulley.
 - c. Pull the belt guard outward from the agitator.
 - d. Raise the latch levers at the ends of the nozzle as far as they will go and lift out **agitator**. Remove **belt**.

Motor and Fan Assembly

1. To remove **motor hood**, loosen (do not remove) the two screws on the underside of the main casting near front wheels. Figure 135.
2. On Models 90, 91 and 913 remove the rubber **bumper** from the motor hood by removing the two screws.
3. On Models 60 and 61, remove **dirt finder lens and frame** by removing the two screws and pressing on the lens from the outside of the motor hood.
4. Push **dirt finder bulb** against contact points, twist and lift out.
5. To remove motor and fan assembly from main casting:
 - a. Disconnect the motor lead wires that run from the handle socket to the dirt finder terminals.

- b. Remove the screws holding motor bottom plate to main casting. Also remove the screw under the bag lock lever at the rear of the cleaner. Lift **motor and fan assembly** from main casting. Remove **motor gasket**.
6. To remove **fan**, hold fan with one hand while turning the fan pulley to the left with pliers. Remove **pulley**.
7. Remove **fan spacer and fan spacing washers** from the armature shaft.
8. Loosen the carbon brush retainer screws, push the retainers aside and remove **carbon brushes and springs**.
9. To disconnect **wiring from Models 90, 91 and 913 motors:** Fig. 136.
 - a. From the lower dirt finder terminal, detach the striped wires leading from the motor lead plug, radio interference eliminator and left side of field coil.
 - b. From the upper dirt finder terminal detach black wires leading from the rear carbon brush holder and the motor lead plug.
 - c. From the rear carbon brush holder, detach the black wires leading from the radio interference eliminator and upper dirt finder terminal.
 - d. From the front carbon brush holder, detach the striped wire leading from the right side of field coil.
 - e. From the upper motor bearing plate, detach the white wire leading from the radio interference eliminator.
10. To disconnect **wiring from Models 60, 61, 62, 63, 64, 634 and 29:** Figure 137.
 - a. From the lower dirt finder terminal detach the striped wires leading from the motor lead plug and the left side of field coil.
 - b. From the upper dirt finder terminal detach the black wires leading from the motor lead plug and the rear carbon brush holder.
 - c. From the rear carbon brush holder detach black wire leading from the upper dirt finder terminal.
 - d. From the front carbon brush holder, detach the striped wire leading from the right side of the field coil.
11. Remove screws and lift off **upper bearing plate**.
12. Remove **air-cooling fan** and nut by holding the lower part of the armature shaft while turning cooling fan to the left.
13. Take out four screws and remove the **upper half of the motor casing**.
14. Lift out the **armature**.
15. **Field iron and coil** are removed from motor casing by taking out the two long bolts.
16. The **lower bearing assembly** is removed from motor bottom plate by taking out four bolts and nuts.

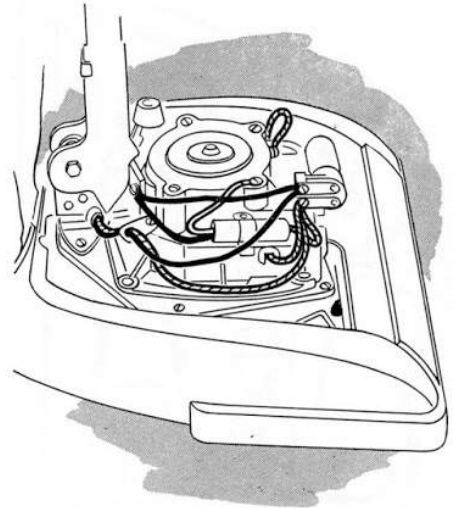


FIG. 136—Models 90, 91 and 913 motor wiring diagram

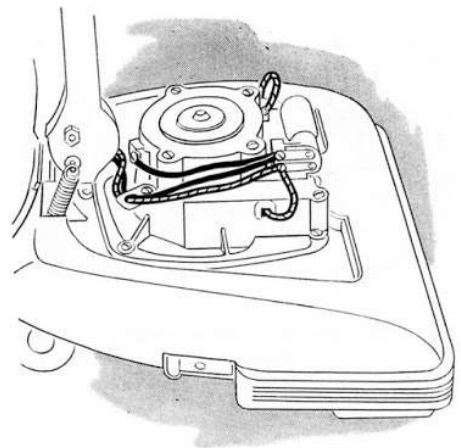


FIG. 137—Motor wiring diagram, Models 60, 61, 62, 63, 64, 29, 634

Main Casting Assembly

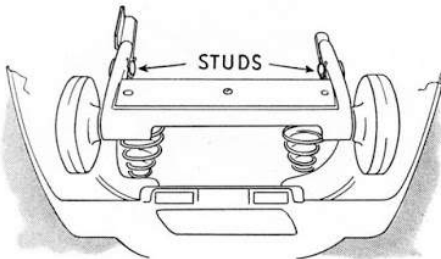


FIG. 138—Rear wheel support bracket,
Models 60, 61, 62, 63, 64,
634, 29

1. To remove **handle socket**:
 - a. Disconnect motor lead wires from the dirt finder terminals.
 - b. Remove shaft and nut from handle socket.
 - c. On Models 90, 91 and 913 remove handle socket spring by compressing it with a pair of pliers. (When replacing spring see that the ends of spring engage "stops" on socket and bracket, with the short end uppermost). On Models 60, 61, 62, 63, 64, 29, 634 pry tension spring off the pin at the side of the handle.
2. Remove set screw in the rear of handle socket and push the **motor lead plug** up through socket. (When replacing, make sure that end of the motor lead spring is inserted in notch in the motor lead plug). On Model 60, the handle control connector plate comes out with the motor lead plug.
3. On Models 90, 91 and 913 the **handle control mechanism** is operated by a red foot lever button. This mechanism is accessible for repair or replacement by removing the lock ring from the shaft that holds the foot lever bar to the motor bottom plate, and removing the shaft and spring under the foot lever bar.
4. On Models 90, 91 and 913 lift out the **fan chamber liner**.
5. **Front wheel shafts** are removed from the main casting by unscrewing the hex nuts situated between the wheels and the main casting.
6. On Models 60 and 61, remove **front wheels** from shafts by prying off hub caps and lock rings.
7. On Models 90, 91 and 913 pry hub caps from front wheel shafts. Wheels are not removable from the shafts.
8. To remove **rear wheels** from shafts:
 - a. On Models 60 and 61, pry off hub caps and lock rings.
 - b. On Models 90, 91 and 913 pry off hub caps and remove screws.
9. On Models 90, 91 and 913 to remove **rear wheel shaft**, remove screws and lift off the two retaining clips.
10. On Models 60 and 61, 62, 63, 29, 64, 634 to remove **rear wheel support bracket** and springs, remove lock rings and drive out two studs which attach the bracket to the main casting. Figure 138. (To replace bracket, first attach it to main casting with the studs and lock rings. Then compress springs with pliers and put them into place over the "bosses" on both main casting and bracket).
11. To remove **furniture guard**,
 - a. On Models 90, 91 and 913 cut the rivets.
 - b. On Model 60 series, cut the rivets, push the guard upward and force the ends of the guard out of slots in main casting.
12. On Models 60, 61, 62, 63, 64, 29, 634 remove the cleaning tool **connector housing** by removing the three screws.

Models 12 and 14

Bag Assembly

1. To Assemble An Outer Bag —

- Stretch the bellows over the lip on the aluminum bag support tube until the flange on the tube falls into the first groove of the bellows. If trouble is encountered in stretching bellows, place it in warm water for a few seconds.
- Place bag ring on the opposite end of bellows.
- The tongue of the bag ring is inserted inside of the bellows and points toward the aluminum bag support tube. See Fig. 1. A groove in the end of the bellows fits into a matching lip on the bag ring.
- With the bag turned inside out, place the seam which is on the front of the bag in line with the round hole in the bag ring. See Fig. 2. The bag throat fits around the bag ring into a groove provided for this purpose in the bellows.
- Bag properly installed turn right side out.

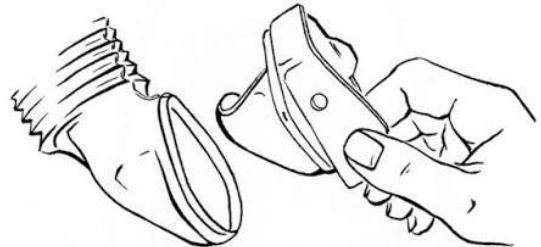


Fig. 1

2. To Fold Top Of Bag —

- First pinch together the two halves of the bag at the seam and flatten it out. See Fig. 3.
- Fold the back part of the bag in the form of a "V" toward the front of the bag. The amount of fold is determined by the length of the bag slide which is next slid over the end of the folded bag.

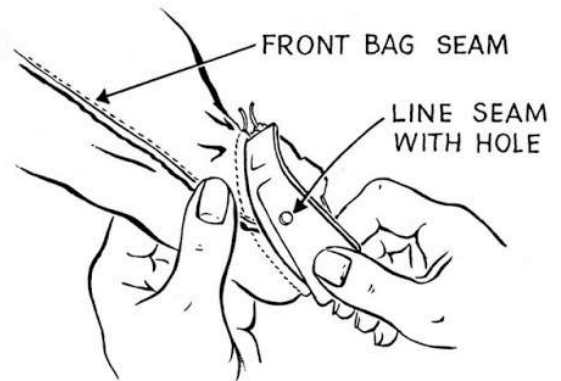


Fig. 2

Handle and Cord Assembly

1. To Install Cord Assembly —

Note: When reference is made to right or left side of the cleaner, the position is determined as viewed from the rear of operator's position as would be the case in normal use.

- To attach the cord to the handle, start cord through small end of cord protector, allowing about 30 inches of cord to extend through the large end of cord protector.
- Place cord and cord protector in cord support clip with large end of protector down and rounded side of protector against the handle. Place the large end of protector in lower end of cord support and tighten the clamp nut.
- Place the plastic cord sleeve or tube on the connection end of cord.
- Run cord through locator on back of bail socket.
- Run cord through center slot in handle bail grip and out the slot provided in the end of the bail grip. Do this with the bail grip removed from the bail. The cord extends down the inside of the left bail arm and passes through the bail lead clip which is attached to the left bail stud.
- Next pass the cord through the cord strain relief clip attached to the bakelite motor case. From this point, the cord enters a hole in the motor case where electrical connections are made.

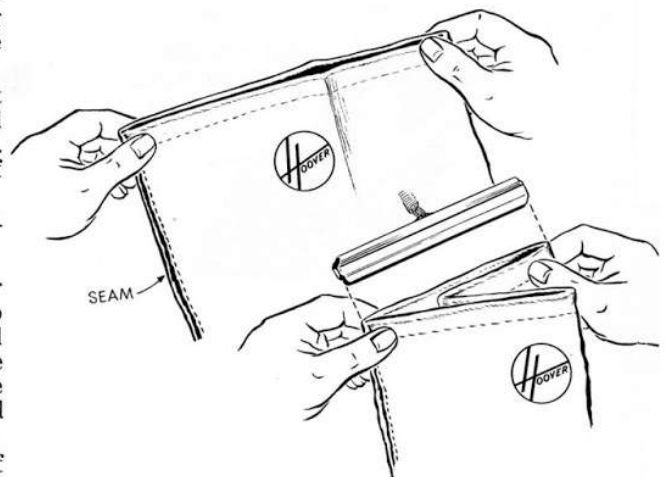


Fig. 3

Handle Bail

1. To Replace a Handle Bail —

- a. First place spacing washer over left bail stud, next to this place motor lead clip which has a tongue to fit into a notch in the bail. See Fig. 4.
- b. Place **left bail** arm on stud and tighten bail screw.
- c. Over the right bail stud first place roller detent spring with rounded end resting on rear side of bail arm; then tighten bail screw. With cleaner inverted, raise the bail to the level of the switch ball. The straight end of the spring must be forced into the notched lug projecting from the inside of the handle control lever. See Fig. 5. The best tool to do this is a $\frac{1}{4}$ inch screw driver having a "U" slot ground into the end of the blade. The slot is to prevent the screw driver from slipping off the spring and to permit twisting the end of the spring while it is being forced over the lug on the handle control lever to put tension on the spring.

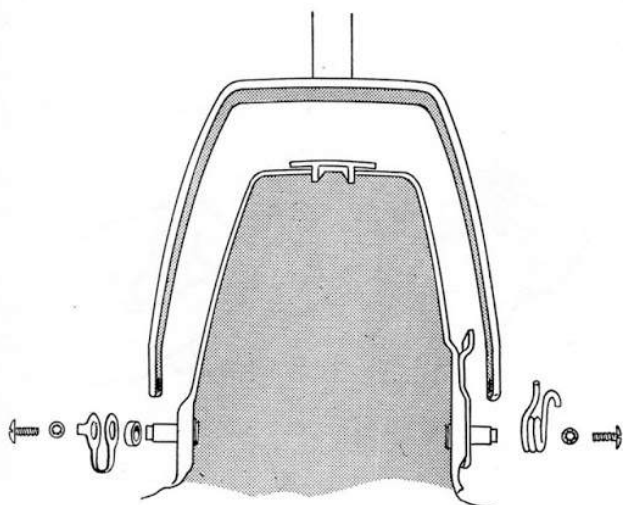


Fig. 4

Switch Assembly

1. The plastic switch cover plate is attached to the back of the casting with a screw located above the rear wheels.
2. Removal of the switch plate cover frees the switch ball and retaining spring. The switch can be replaced by removing the top switch nut with socket wrench or with a pair of pliers.
3. When replacing the switch, the lead wires must extend to the left and the slot on the threaded switch stem must be on the right side. A projection on the ball retaining ring engages this slot in the switch stem. The switch ball can be held in place on the spring over the switch while the switch cover plate is pressed into position. The tongue on the metal switch guard plate is placed over the projection on the plastic switch cover plate and the screw at the rear of the casting is tightened to hold the parts together.

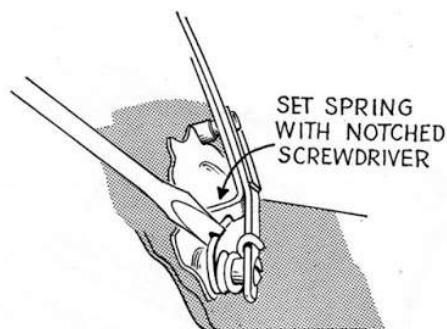


Fig. 5

Nozzle Adjustment Assembly

1. The front wheel shaft, wheels and nozzle adjustment lever assembly can be removed from the main casting by removing the two shaft clamps. The entire assembly can be lifted from the casting by turning the assembly until the nozzle adjustment lever slides through the slot in the casting. The nozzle adjustment spring can be removed by taking off the right wheel.
2. To replace a nozzle adjustment spring, first hook the small round end of the spring over the pin in the front wheel shaft. See Fig. 6. Next place the rear wheel and foot lever assembly in the casting.
3. Replace the wheel shaft clamps and **start** the screws, then with a screw driver pry the large end of the nozzle adjustment spring against the main casting back of the agitator. This puts tension on the spring. See Fig. 6. Hold the shaft in this position with one hand and **tighten** the wheel shaft clamp screws.

4. When replacing front wheels, one wheel washer fits on the shaft inside of each wheel.

Agitator

The agitator is the same as the Model 29 agitator No. 46849, **except** that the thread guards are reversed in the case of Model 12. (This information may be useful in case a Model 12 agitator is not available.)

1. To remove agitator, slip belt from fan pulley. Raise belt guard and latches at each end of agitator. The agitator can now be lifted from the cleaner. Thread guards can be unscrewed from ends to permit greasing ball bearings. The thread guard having a flat on the hub fits on the end of the agitator having the short brush.

Main Casting

The main casting is a two-piece assembly. One part is the main casting and the other part the fan chamber. These two parts **must never be separated**. The parts are cemented and bolted together and then machined until the two parts match and give the correct lip height. It is obvious that the two pieces cannot be matched from stock parts. For this reason main castings or fan chambers will not be furnished separately.

Motor

1. Carbon brushes can be removed without removing the motor. One brush lies beneath the plastic switch cover plate and the other is exposed on the under side of the motor. Both are held in place by large plastic head screws.
2. To remove motor and fan assembly from casting, first remove the rear wheel and shaft assembly. Next use a long Phillips head screw driver to loosen the motor attaching screws. The motor and fan can then be lifted from the casting. The fan pulley is removed by turning it **to the right** as this part has a left hand thread.

To Dismantle the Motor

1. Remove carbon brushes.
2. Remove three screws on left side of motor to separate the motor case halves. See Fig. 7.
3. Remove the two screws near the center of the right side of the motor. These screws hold the field iron to the motor case.
4. Remove four bearing attaching screws. Note that the head of one screw on the top bearing is on the outside of the motor case. After these screws are removed, the semi-circular bearing clamps can be removed.
5. Remove the brass screw which attaches the field coil brass strip on to the carbon brush holder end. The entire assembly of field, armature and bearings can be lifted from the motor case. The bearings can then be removed from the armature and the armature itself pulled through the field iron.

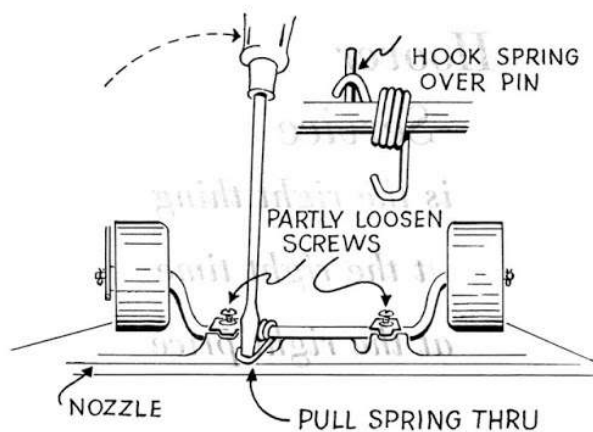


Fig. 6

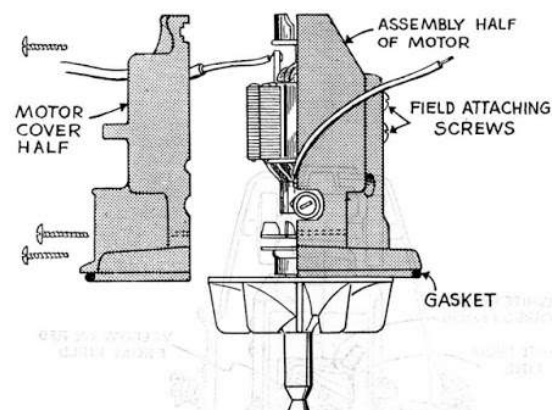


Fig. 7

Hoover
Service
is the right thing
at the right time
at the right price

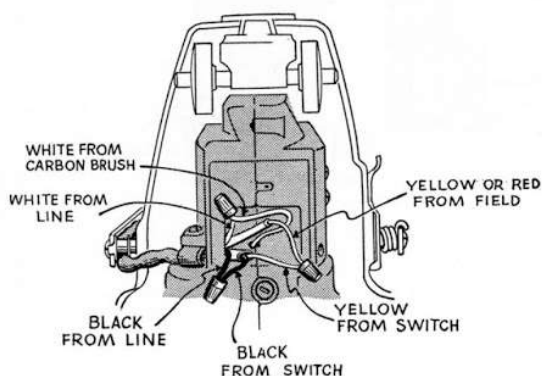


Fig. 8

To Assemble Motor

1. Place armature in position in the field iron.
2. Replace top bearing.
3. Replace lower bearing with flanged end toward ventilating fan.
4. Place armature and bearing assembly into motor case. Note that top bearing housing has a *flat side* and will fit the motor case in only the correct position. Before replacing the two screws which hold the field iron in the motor casing, be sure to replace the carbon brush holder nut next to the field iron.
5. Replace brass shunt *under brass strip* from field lead and replace brass screw.
6. Replace the round rubber motor casing gasket in the slot provided in front of the lower motor ball bearing.
7. Replace bearing clamp rings on each bearing. Note that the one small screw attaching the top bearing is inserted from the outside of motor casing.
8. Place field coil lead through small oblong hole in motor casing cover and replace the large loose carbon brush holder brass nut.
9. **Make sure** the patent plate **screw nut** is placed in the slot provided in the assembly half of the motor case.
10. Place cover half of motor casing into position on the assembly half. Place the fiber cord lead retainers under the two screw heads on the top or field coil side of the motor case.
11. If armature turns hard, rap the motor casing lightly above the top bearing. Replace carbon brushes.
12. Place armature sleeve on lower shaft. Add necessary fan spacing washers, fan and pulley. The pulley must be turned to the *left* to tighten it.
13. Before replacing motor, place motor gasket into position in the groove provided near the outer edge of the fan.
14. To attach motor assembly to the main casting, insert the two motor attaching screws through lower holes in the motor casing. Lower motor into position and **partially tighten the two lower screws** with long Phillips head screw driver. Next insert and tighten the two top motor case screws, then tighten the two lower screws.
15. Replace rear wheel assembly.

Wiring

1. Connect wiring as illustrated in Fig. 8.
2. After making electrical connections, replace the patent plate which also serves as a cover for terminal box.

- (a) To remove **bag** from cleaner, press the bag ring clamp lever to the left. The ears on lower part of the bag ring engage the loops in the retainer spring.
- (b) To remove **Hood** turn cleaner over and loosen **screw** in front of left rear wheel, also loosen **screw** to the rear of right front wheel. (cleaner as viewed from operators position.)
- (c) To remove bail first remove handle control lever on left side of bail. Remove two **lock rings** from bail shaft located on each side of the nozzle adjustment lever. Drive bail shaft to the left and remove.
- (d) The high speed **switch** giving added motor speed and suction for the cleaning tools is located beneath the patent plate. This switch is operated by the converter when it is inserted in the rear of the cleaner. For 65 and 66 connections see wiring diagram. (Fig. 1. Model 31, Fig. 2).
- (e) To release the cleaner **bottom plate** turn the two clamp levers outward. Lugs at the front of the bottom plate fit into loops in the retainer spring which is located at the front of the main casting.
- (f) To remove the **agitator** remove the belt. The agitator can then be lifted from the casting. Agitator **retaining springs** are held in place with pins which can be driven out to replace springs if necessary.
- (g) To remove **thread guards** from agitator place screw driver in slotted end of shaft and while holding opposite thread guard by hand turn shaft **counter clockwise**. After the thread guard being held is removed hold the thread guard at slotted end of shaft and turn shaft **clockwise** with screw driver.
- (h) To remove **agitator bearings** pry out retainer **clip** with a screw driver. If **care** is not used this spring clip may **fly out** and become lost. The felt washer, bearing and spring thrust washer can then be removed. The agitator ends are pressed lightly into place and can be tapped out by using the agitator shaft as a rod to remove the castings from opposite ends of the agitator.
- (i) **Agitator brushes** have plastic backs and take the shape of the channel when assembled. In some cases the brushes may be difficult to remove. Since brushes need not be removed except when worn one method is to first remove

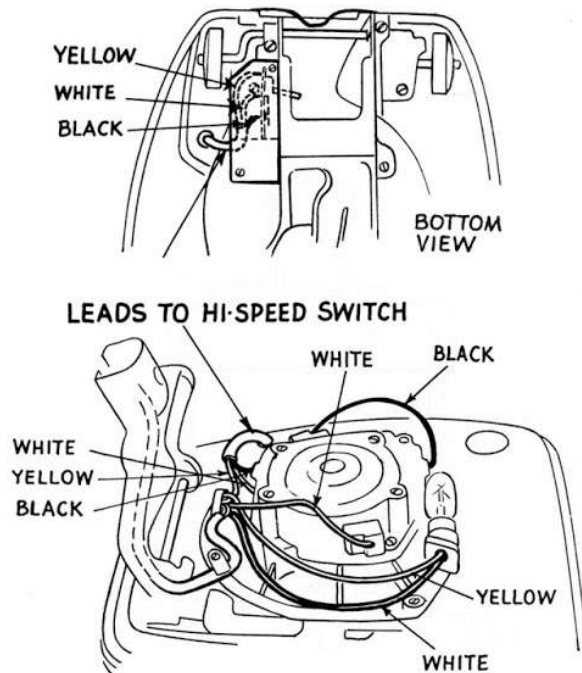


Fig. 1 — Models 65, 66, 67, 68

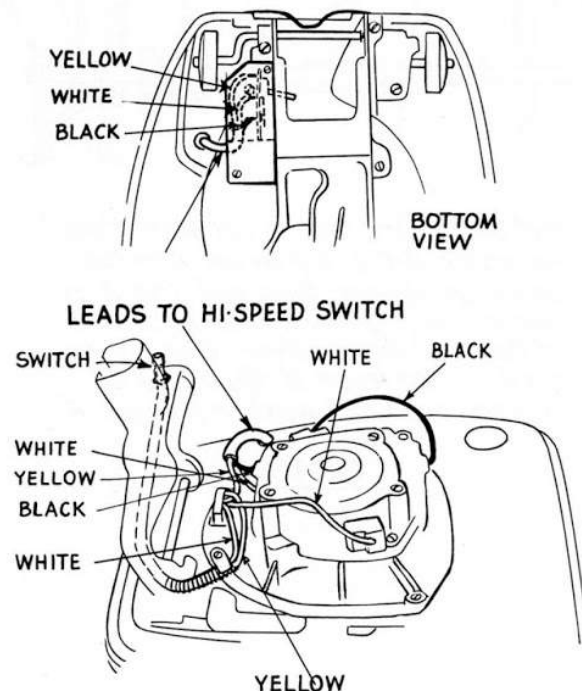
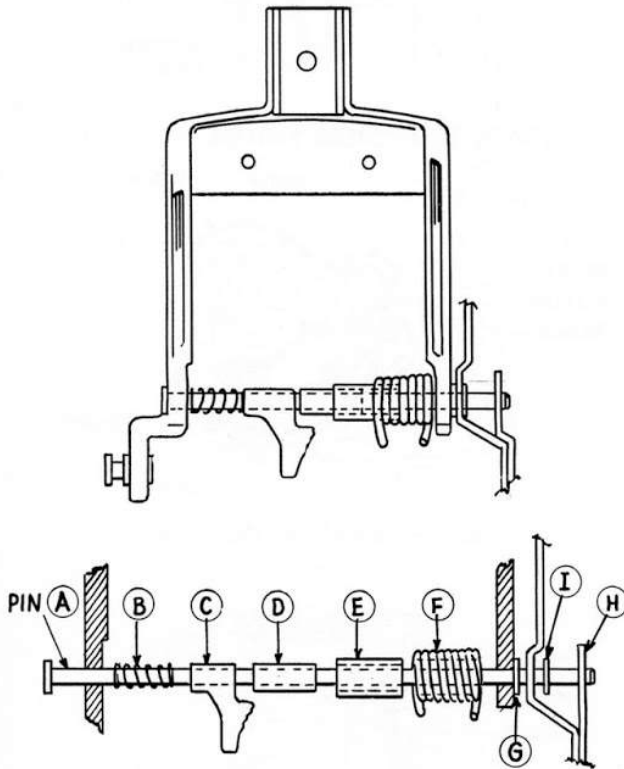


Fig. 2 — Model 31, 32



*Put pin A thru hole in L.H. arm of Bail
Put parts B-C-D-E-F on pin A in the
order as shown, then put Pin A as
far as it will go thru hole in R.H. arm
of Bail put lock washer G in slot on
pin A. Put on lever H, then lock all
in place with lock washer I on pin A.*

FIG. II

the thread guard then with a screw driver blade placed near the outer end of the brush drive the brush out endwise. In some cases the brush can be removed by using a small screw driver to pry the brush out from the pulley end of the brush. A pair of pliers is sometimes useful in removing the brush by pulling on it.

- (j) The **motor** is similar to other Hoover motors. The top bearing is self lubricating and should never be lubricated. The lower bearing is a ball bearing and should be lubricated with Hoover cup grease every one to three years depending on usage.

To Assemble

- (a) The motor **gasket** if replaced should be attached with rubber cement. (Purchased locally).
- (b) Agitator **brushes** are inserted from either end of the agitator before replacing thread guards.
- (c) When replacing **agitator bearings**, first insert spring thrust washer, bearing with flat face down then felt washer all held in place with spring retainer clip. In assembling agitator shaft there is no right or left end. The **thread guard** with hub fits into the well on the left side of main casting.
- (d) To assemble **bail** start shaft thru left fork of bail. In the order named place the following parts over the end of the shaft-bag latch spring, bag latch lever, outer spacer, inner spacer and large handle support spring. Push shaft thru right fork of bail and replace lock ring next to right bail arm. Replace nozzle adjustment lever and replace second lock ring on outside of lever. The lock rings are easily snapped into place with a screw driver.
- (e) The handle **control lever** can then be replaced on the left side of the bail.
- (f) Plastic foot **pads** can be pressed on both foot levers if necessary.
- (g) See **wiring diagram** for motor and hi speed switch connections.

MODEL 115

Bag Assembly

1. **To Remove Bag Assembly —**
 - a. Turn bag ring to the left to release assembly from cleaner outlet.
 - b. Remove the bag closure clip from top of bag.
 - c. To detach bag ring turn bag inside out and remove cord string. When replacing ring in bag make sure channel in ring is in line with seam so that when bag is turned correct side out **Hoover** will appear on top. See Fig. 1.

When servicing the bag inspect it for holes, tears, or worn spots, always clean inside of bag thoroughly to maintain maximum suction.

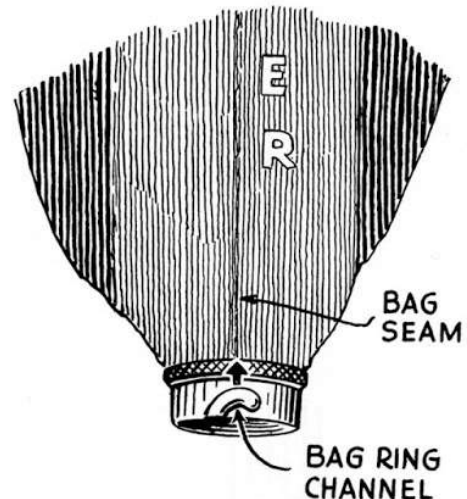


Fig. 1

Handle and Cord Assembly

1. Remove coin slotted nut and bolt from handle bail socket and lift out **handle**.
2. Release **cord** from handle by loosening coin slotted nut on bolt through bag support and cord protector retainer.
3. To remove cord in handle socket, pry ends of **support spring** upward with a screw driver.
4. Pry off **clips** on right bail arm to release cord from bail. Note: Location of clips on bail.
5. Remove screw in front of rear wheels and lift off **motor casing cover** from under side of motor.
6. To free cord in motor loosen **cord retainer clip screw**.
7. Unscrew **solderless connectors** at points where cord is attached to left field coil and switch lead wire. See Fig. 2.
8. With cord free from handle and motor the **cord protector** and **tubing** can be slipped off the cord.

Note: The type of plug molded to the cord can not be repaired. In case the plug must be replaced, a service plug should be installed.

Handle Bail and Handle Control Mechanism

1. **To Dismantle Handle Control Mechanism. See Fig. 3**
 - a. Remove **nuts** and **lock washers** from ends of bail shaft.
 - b. Pry off **right bail arm**, then free the **left bail arm** which will relieve tension on bail shaft and roller detent springs.
 - c. Remove detent spring.
2. **To Remove Bail Shaft and Spring —**
 - a. Slip off **bail shaft spacers**.
 - b. Drive out **bail shaft pin** with a nail set.
 - c. Remove motor from main casting and slide out **bail shaft**.
3. **To Replace Handle Bail and Control Mechanism —**
 - a. Install bail shaft in motor casing then insert bail shaft pin and attach the motor to the main casting.

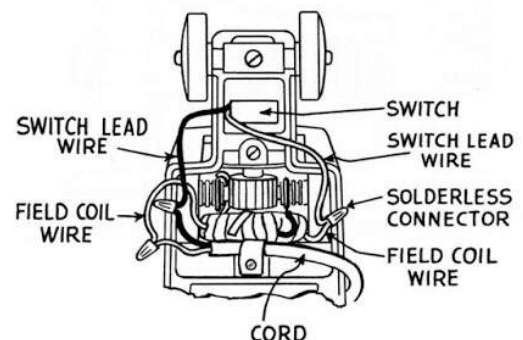


Fig. 2—Motor Wiring Diagram

Motor and Fan Assembly

1. To Dismantle **Motor Assembly** —
 - a. Remove four motor screws holding motor to main casting and lift **motor** from main casting.
 - b. Remove motor gasket.
 - c. To remove **fan** and **pulley** hold fan with one hand while turning the fan pulley to the right with pliers or screw driver.
 - d. Slip off **fan spacing washers** and **sleeve** from the armature shaft.
 2. To Remove **Carbon Brushes** —
 - a. Unscrew **caps** from holders and remove carbon brushes.
 3. To Remove **Motor Front Housing and Front Bearing**
 - a. Take out 4 screws and pry bottom motor housing loose with two screw drivers at points marked **lift**.
 4. Lift the **armature** from motor housing.
 5. To Release **Front Motor Bearing** —
 - a. Remove **rivets** from motor housing. When replacing bearing use bolts, washers and nuts shown in price list.
 6. To Remove **Motor Bottom Cover Plate** —
 - a. Take out screw in front of rear wheels and lift out cover plate from under the spring attaching clip.
 7. To Remove **Field Coils** —
 - a. Detach **cleaner cord** from the field coil and **switch leads** by unscrewing the three solderless connections. See Fig. 2.
 - b. With a screw driver slide off **field terminal clips** forcing the end of each clip out of the hole in carbon brush holder.
- Note: When replacing field coil lead to carbon brush holder, insert field assembly only part way to allow working room for attaching lead terminals to holders. Next, place the hooked end of the wire into the hole in the front top side of the carbon brush holder, then with a screw driver slide the terminal wire over the carbon brush holder.
- c. Remove three screws holding field iron support to motor case and pull **field assembly** forward.
 - d. To release **field iron** from support take out screw on side of support.
 - e. To remove **rear bearing assembly** remove the three screws holding it to motor casing.
 - f. Remove two set screws from inside of motor casing to release **carbon brush holders**.

Switch Assembly

1. To Remove **Switch Assembly** —
 - a. Pry up red switch pedal at lower end near rear wheels. See Fig. 6.
 - b. **Hex switch nut** on switch post can be removed without special tool by tapping the corners of the nut with a screw driver.
 - c. Lift out **switch retainer plate** and **switch**.

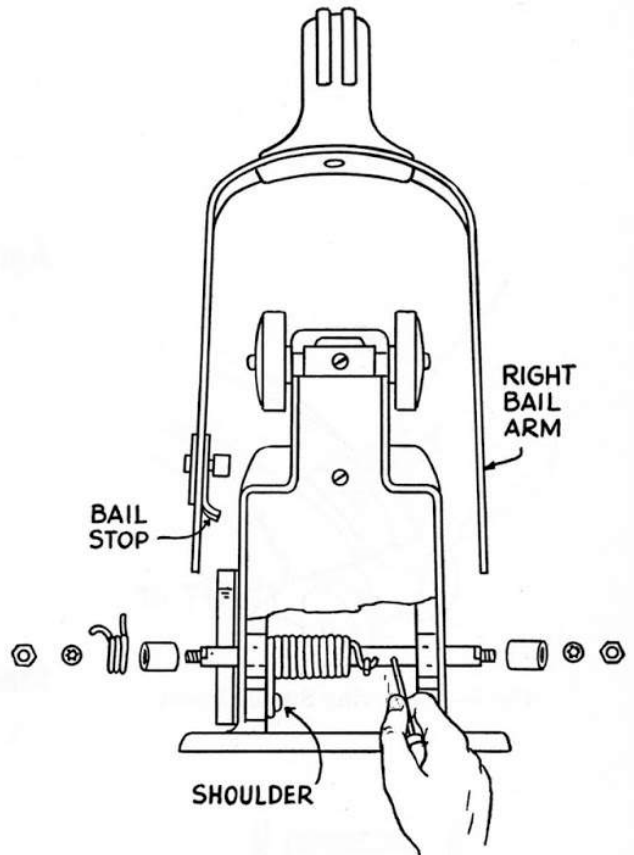


Fig. 4—Winding Shaft Spring

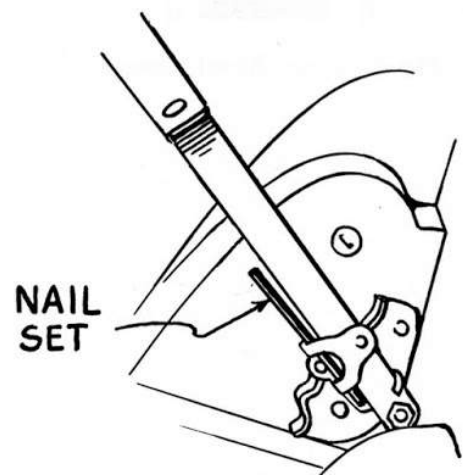


Fig. 5

- d. The **knurled edge nut** near the lower end of the switch acts as a spacer, and should be screwed to within about 1/16" from lower end of stem.

Note: If the knurled nut is not located properly on switch stem the switch may fail to operate properly. A little cup grease on top of switch stem asserts in easier operation.

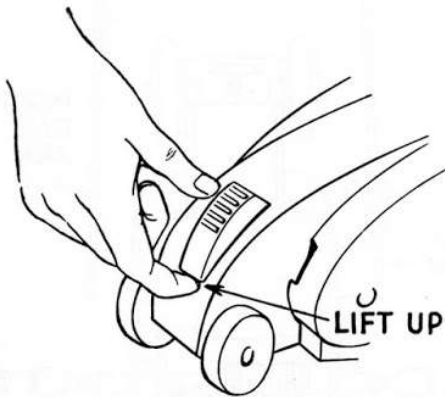


Fig. 6—Removing Switch Pedal

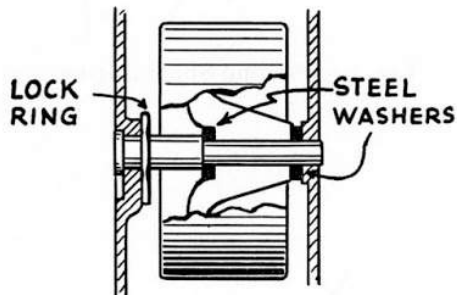


Fig. 7—Front Wheel Assembly

Agitator Assembly

1. To Remove Belt —

- a. Pull up **cleaner name plate** and lift off.
- b. Remove **belt from fan pulley**.
- c. Pull **belt guard** outward from agitator.
- d. Raise **latch levers** at ends of agitator as far as they will go and lift out **agitator**. **Remove belt**.
- e. A **hook** on the end of the **cleaning tool connector** is for purpose of lifting the belt into position on fan pulley through name plate opening.

Main Casting Assembly

1. To Remove Front Wheels —

- a. Remove **lock ring** at outer end of front wheel shaft.
- b. Lift up edge of furniture guard and slide **wheel shaft** outward.
- c. To replace wheels start **shaft** through hole in casting and place **washer** on end of shaft. Next insert wheel into position and press shaft part way through wheel, then insert the inside washer and press hairpin retainer into place. See Fig. 7. for locations of washers.
- d. Cut the four rivets to remove the furniture guard.

Lubrication

1. Apply a small amount of cup grease at the following points:
 - a. **Wheels, roller detent mechanism, roller detent spring, and bail shaft** at points of bearing on motor casing.
 - b. Lubricate **front motor bearing and agitator bearings, but not the rear motor bearing as it is self lubricating and should never be lubricated**.
 - c. Grease lightly top of **switch button**.

MODEL 2940

Attachment Cord

1. To replace (See Page 80)
 - a. Remove two Phillips Head Screws (Item 28), Terminal Block Cover (Item 27), pull cord strain bracket (Item 24) from opening, and remove Strain Relief Bushing (Item 25).
 - b. Remove terminals from two white lead wires and attachment cord (Item 30).
 - c. Reassemble attachment cord using solderless connectors (Item 26) and secure with friction tape.

Cleaner

1. To dismantle (See Page 80)
 - a. Loosen two Bag Latches (Items 8 and 16) and remove Bag Assembly Cover (Item 7), Throw-away Bags (Item 31) and Bag Assembly Complete (Item 32 and 33).
 - b. Remove four screws self tapping (Item 15) from bottom of cleaner shell (Item 14) and remove shell.
 - c. Remove motor from Cover Assembly (Item 21) and remove red lead connector from switch terminal with large screw driver.

Switch

1. To replace (See Page 80)
 - a. Remove screw (Item 17) Switch Retaining Plate (Item 18) and Switch (Item 19).
 - b. To assemble, position Switch with prongs to low side of switch opening.

Note: Service Switch 22634 can be substituted.

Retaining Clips

1. To remove (See Page 80, Item 20)
 - a. Position screw driver under clip at rear corner. Pry up to raise squared end up over retaining shoulder of motor case, then grasp end of clip with free hand and slide out to remove.

Bag Cover Assembly

1. To replace sleeve (Item 4) (See Page 80)
 - a. Remove screw (Item 10) from inside of cover, remove latch button and spring.
 - b. Drill turnover on rivet (Item 3) and punch out, remove sleeve (Item 4) and reassemble.

Dirt Valve

1. To replace (See Page 80)
 - a. Remove Retaining Ring (Item 11) and Dirt Valve (Item 12).
 - b. To reassemble use a plastic cement to secure Dirt Valve in position and assemble Retaining Ring.

Motor Assembly

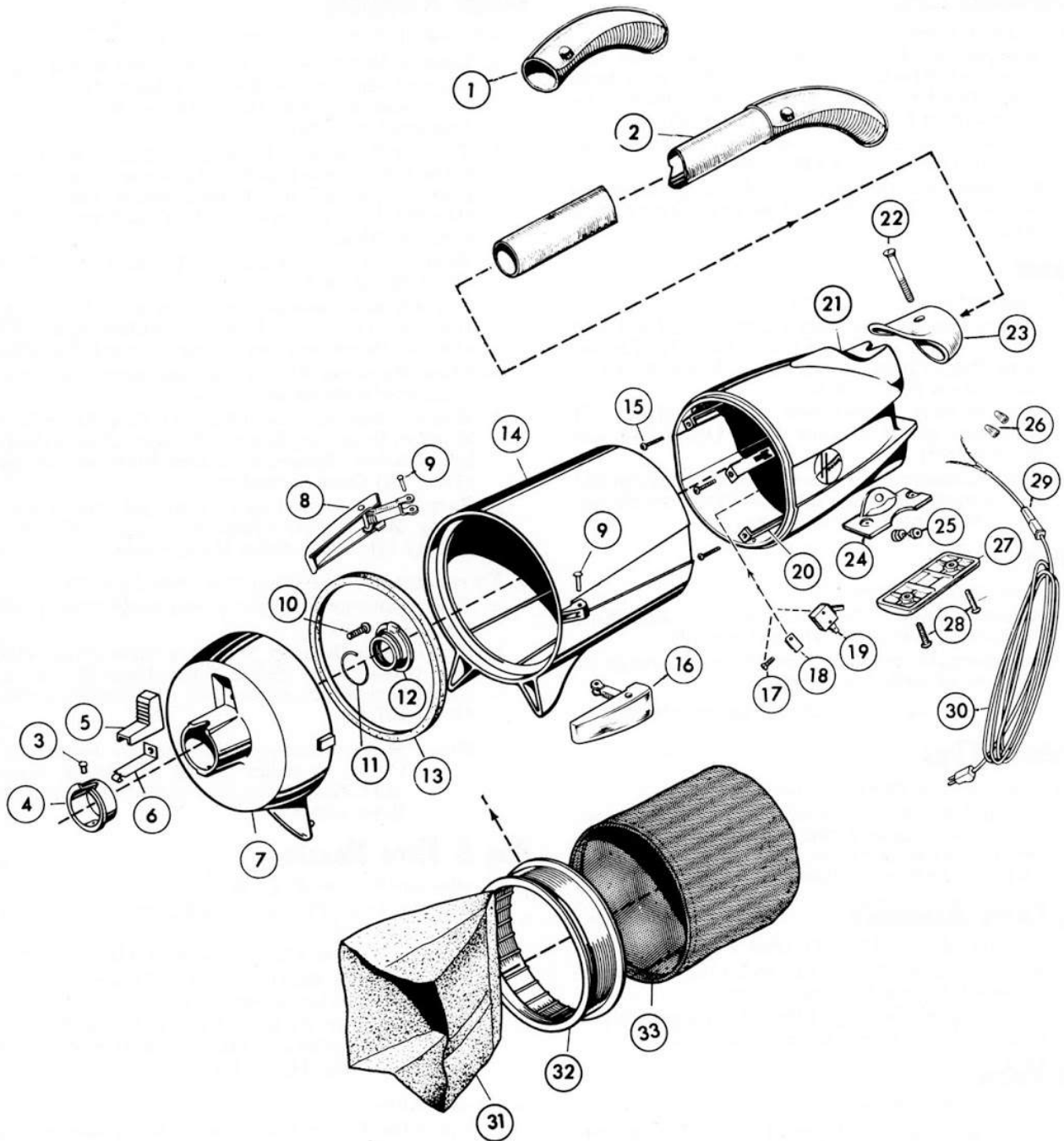
1. To dismantle motor (See Page 81)
 - a. Remove two screws (Item 20) from Motor Casing and remove two Brush Holders (Item 21), two Motor Brushes (Item 23), two Motor Brush Springs (Item 22).
 - b. To identify proper location of Motor Brushes, mark top of brush and motor case with X; repeat on second brush and motor case with straight line as removed. Use lead pencil for easy marking.
 - c. Remove four Sems Screws (Item 9) and Fan Housing (Item 3).
 - d. Remove sub assembly of Armature (Item 11), Defector (Item 6), Fan Assemblies (Item 5) and Nut Hexagon from Motor Casing (Item 19).
 - e. Place Hexagon Nut in vise and turn armature counter-clockwise to remove.
 - f. Remove steel washer (Item 4) Fan Assembly, Washer, Defector, Spacer, Washer, Fan Assembly, Washer, Spacer and End Plate Assembly (Item 10) from Armature.
 - g. Remove two Sems Units (Item 12), two Ventilating Baffle-Half (Item 13), and Field Assembly (Item 14) from Motor Case.
2. To replace bearing (Item 15) (See Page 81)
 - a. Drill turnover on three rivets with 3/16" drill and punch out.
 - b. Reassemble Bearing to Motor Case (Item 19) with three Litter Picker Nuts (Item 18), three serrated washers (Item 17) and three screws (Item 16).

Note: When reassembling motor in Motor Cover, position Motor Mounting Support Plate (Item 25) in Motor Mounting Rear (Item 24).

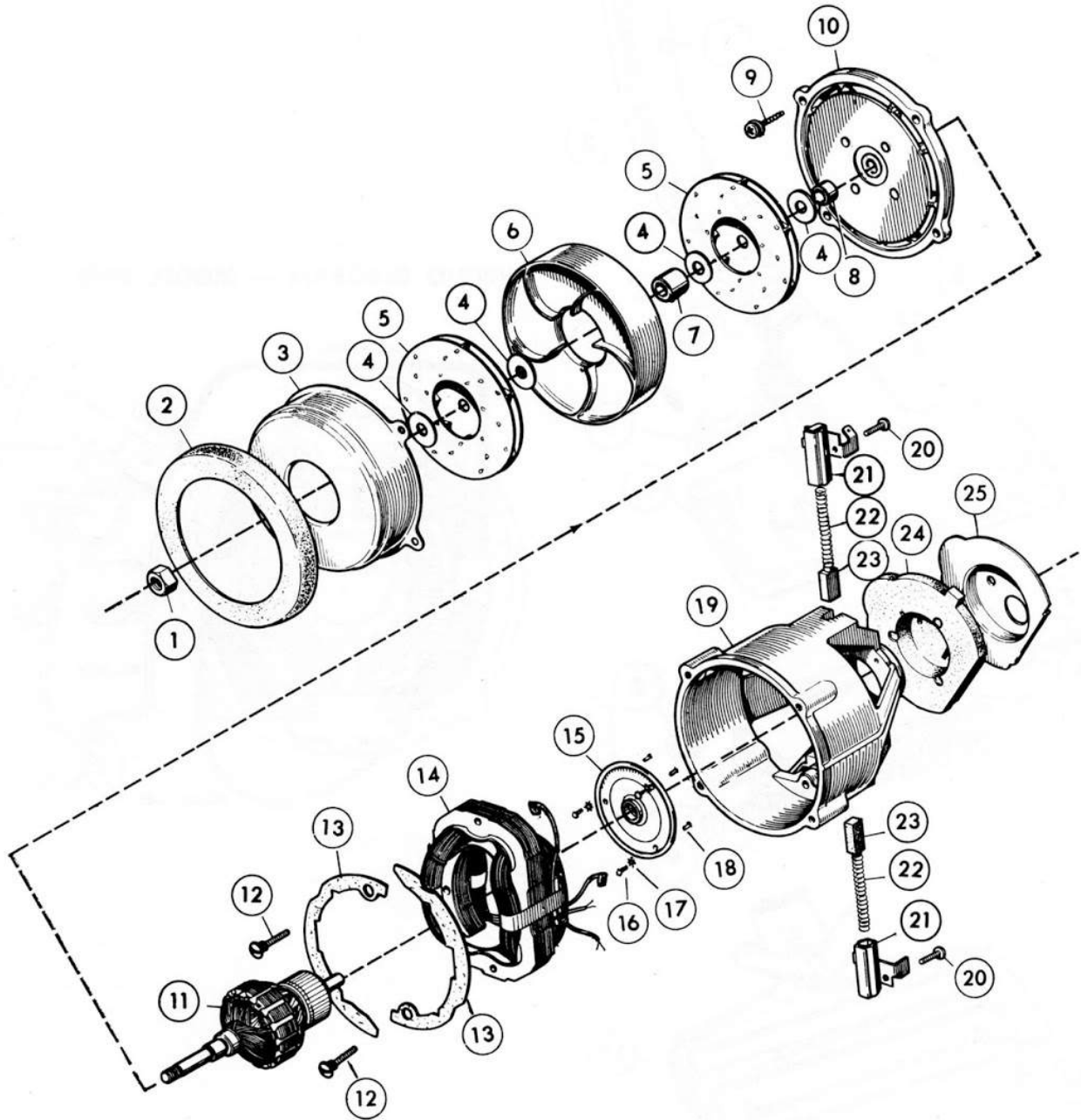
Rug & Floor Nozzle

1. To dismantle (See Page 82)
 - a. Remove four Phillips Head Screws (Item 3) and (Item 12).
 - b. Remove Bottom Plate Assembly (Item 13).
 - c. Remove Tube Retainer (Item 5) and remove Nozzle Connector Tube (Item 2).
 - d. Remove Litter Picker (Item 10) two Roller and two Roller Shafts (Items 7 & 8) and Brush Back Assembly (Item 11).
2. To assemble
 - a. Assemble Litter Picker with teeth slanted to back of nozzle.
 - b. Assemble Brush Back Assembly with two projections (guides) to front of nozzle.
 - c. Reassemble complete.

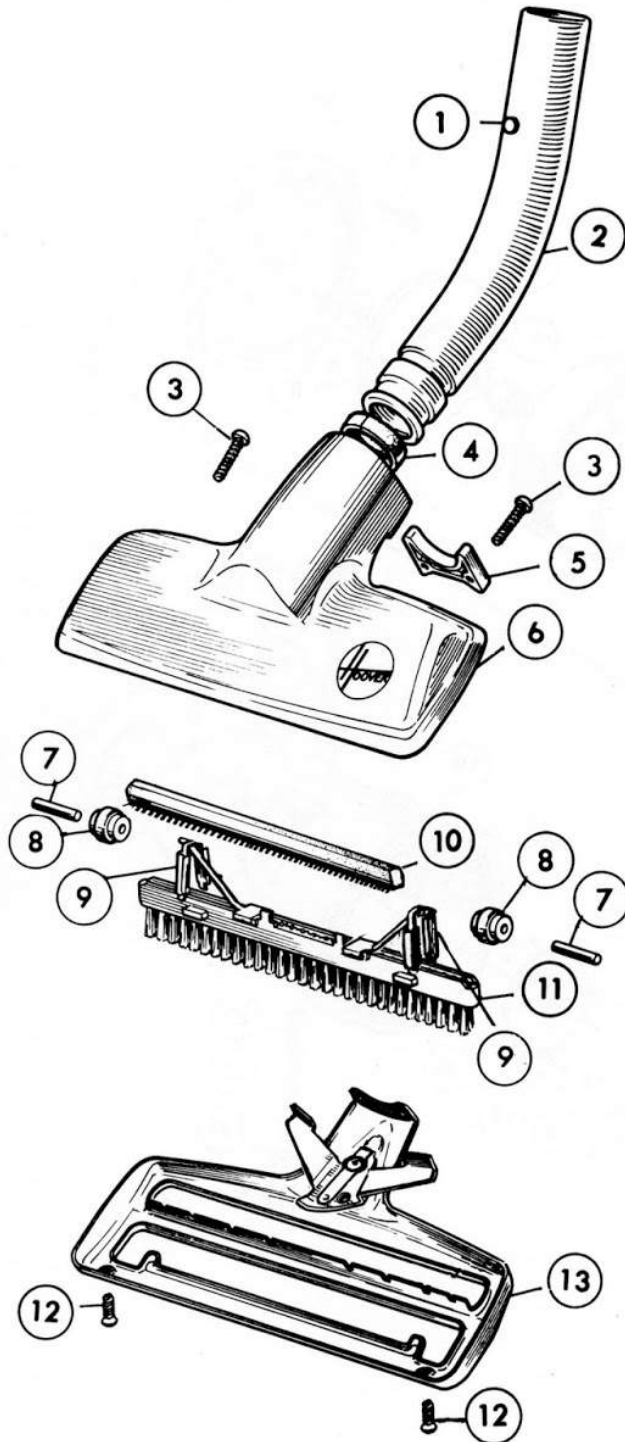
MODEL 2940



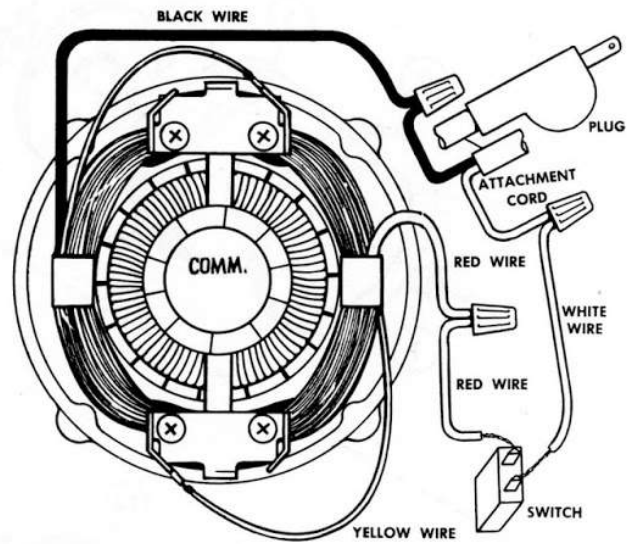
MOTOR ASSEMBLY — MODEL 2940



CARPET & FLOOR NOZZLE — MODEL 2940



WIRING DIAGRAM — MODEL 2940



CHAPTER VI - TANK and CANISTER CLEANERS

Models 41 - 42 - 50 - 51 - 53 - 55 - 415 - 82 - 84 - 85 - 86 - 87 - 88

Motor

The motors on tank and canister cleaners are quite similar in construction except for minor details. The principal difference is in the fan system. The arrangement of fan parts used on models 42, 50, 53, 55, 415, 82, 84, 85, 86, 87 and 88 are shown in Fig. 1. The fan arrangement on Models 41 and 51 are shown in Fig. 2.



Fig. 1

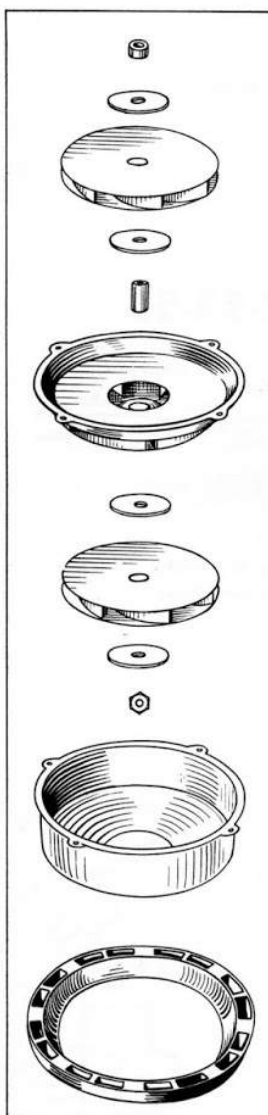
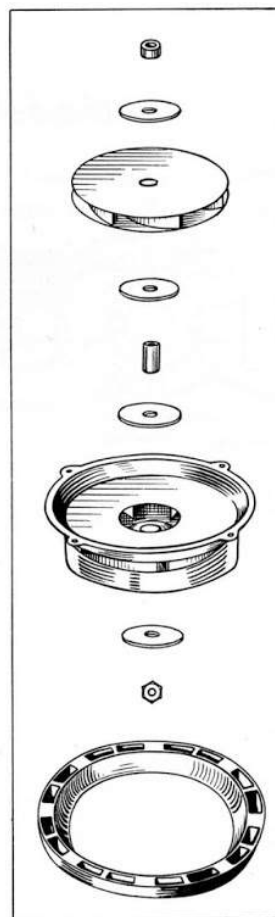
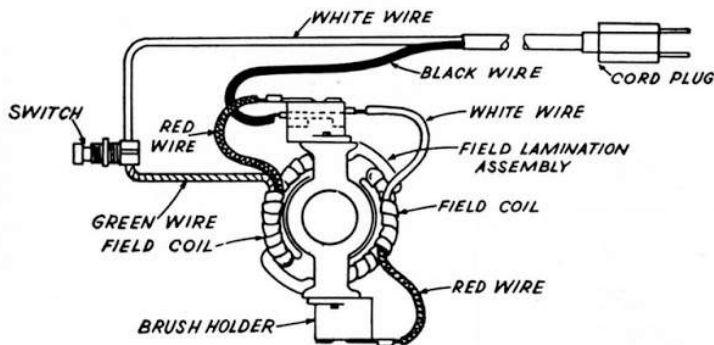


Fig. 2

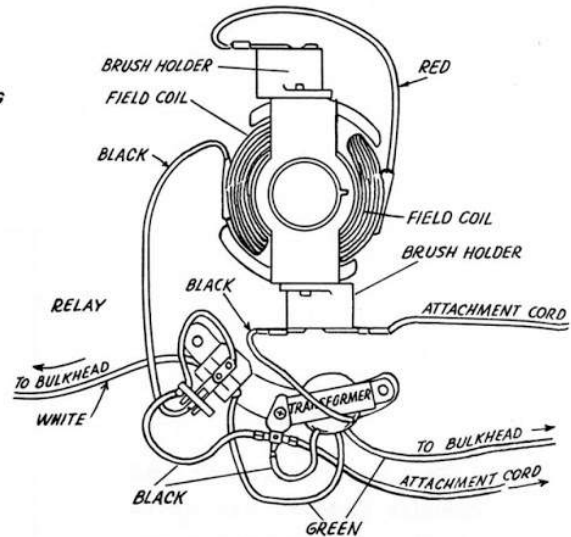


WIRING DIAGRAMS

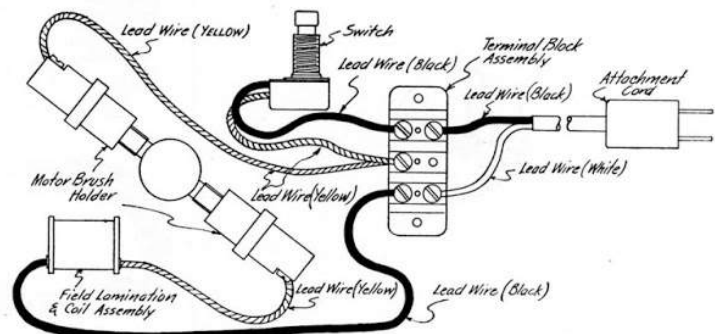
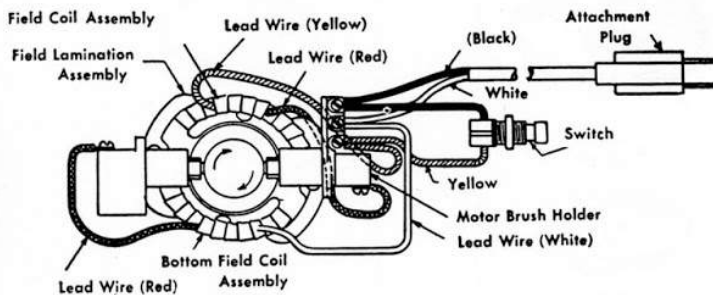
Models 82-84-85-86-88



Model 87



Models 42-53-55



HOLIDAY Model 415

MODEL 87 CONSTELLATION HOSE AND CLEANER

The remote control switch on the curved end of the hose is a new feature introduced with the Model 87 Hoover Constellation.

The vinyl coated coiled spring consists of two wires which are connected at both ends of the hose to carry the 24 volt current to the remote control switch.

The vinyl hose can be replaced in the field with a new hose using the same ends. The old hose can be repaired by removing the ends, cutting off the defective section of hose and reassemble, using the same ends.

To assemble use rubber cement on the inside of the hose, tying the hose securely to the curved tubing or plastic connector end with the original tape or service twine No. 90034.

Figure 1 and 2 show the electrical connections on the hose assembly. Figure 3 shows the method of dismantling the switch.

In cases where the hose breaks near the grip, cut off the damaged section of hose and replace the end same as is done when installing a new hose.

Cleaning Tool Hose Assembly

1. To Repair Or Replace

- a. Remove hose grip by pulling in direction of arrow along hose (A).
- b. Loosen terminal screws to release hose wires (B).
- c. Remove tape and pull hose from end of tube in direction of arrow (C).
- d. Cut off damaged portion of hose.
- e. Strip 7/8" of covering from hose spring wire by cutting along outside diameter of spring. See Figure 1A.
- f. Using two pliers grasp wire at center of stripped portion and bend end of spring wire 180° to position for assembly to terminal.
- g. Apply water or small amount of liquid soap to end of tubing for assembly of hose.
- h. Assemble in reverse order.

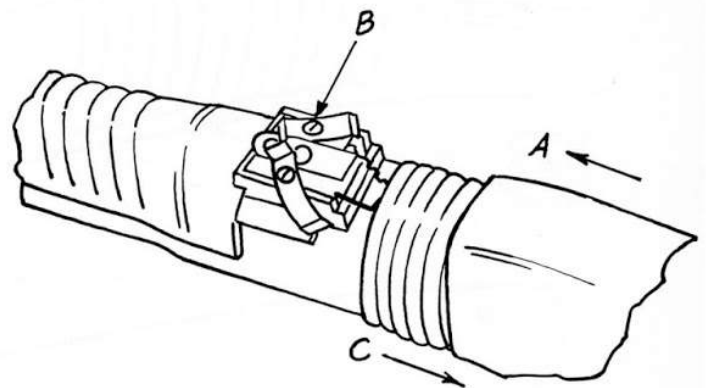


Fig. 1

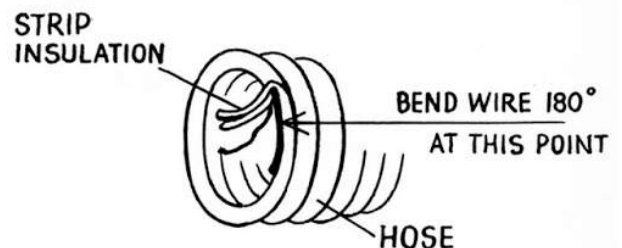


Fig. 1A

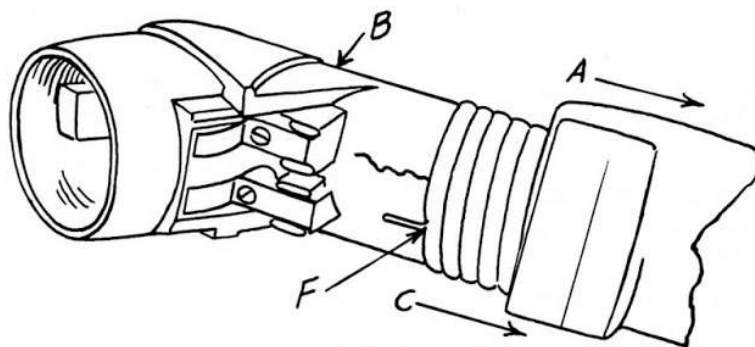


Fig. 2

1. To Repair Or Replace

- a. The grip on the connector end is more difficult to remove but the same procedure as outlined under Figure I should be followed.

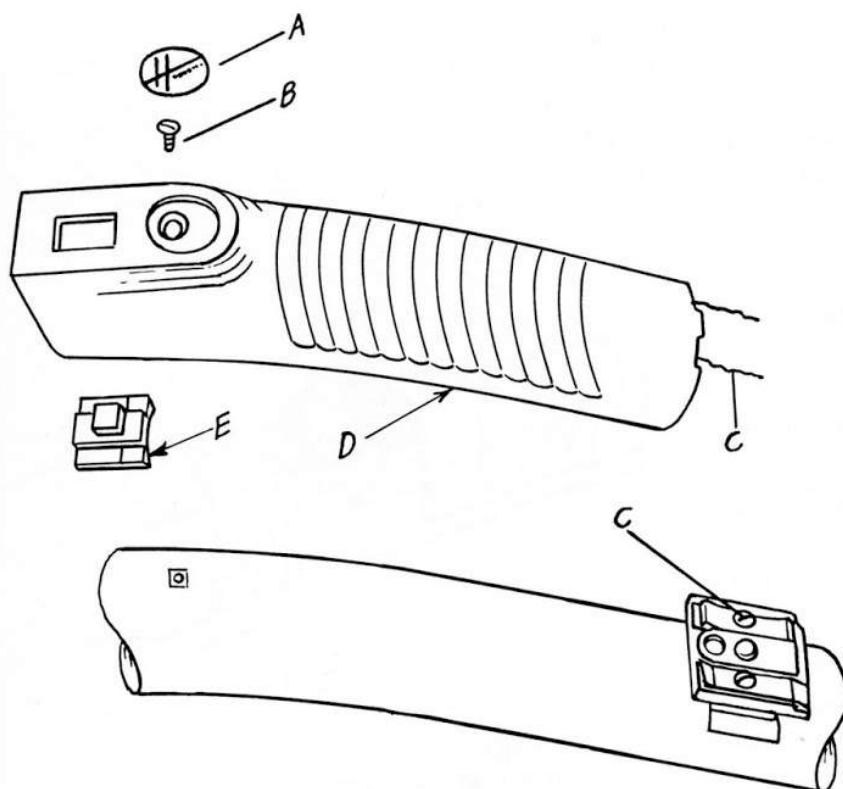


Fig. 3

1. To Repair Or Replace

- a. Remove decal (A) with pointed screw driver.
- b. Remove screw (B).
- c. Loosen terminal screws to release two switch lead wires (C).
- d. Remove switch cover (D).
- e. Remove switch slide (E).
- f. Assemble in reverse order.

Failure of the cleaner to operate could be attributed to various things and can be located using the following procedure.

1. To Test Cleaner

- a. Check power outlet.
- b. Check attachment cord for defective plug or damaged wire.
- c. Connect cleaner to power supply, place cleaner over attachment cord to raise cleaner from floor. SEE FIGURE 4. Turn blower switch at connector opening to "On" position. If the motor operates from the blower switch the trouble is due to a defective hose.

If the motor does not run the relay should be checked.

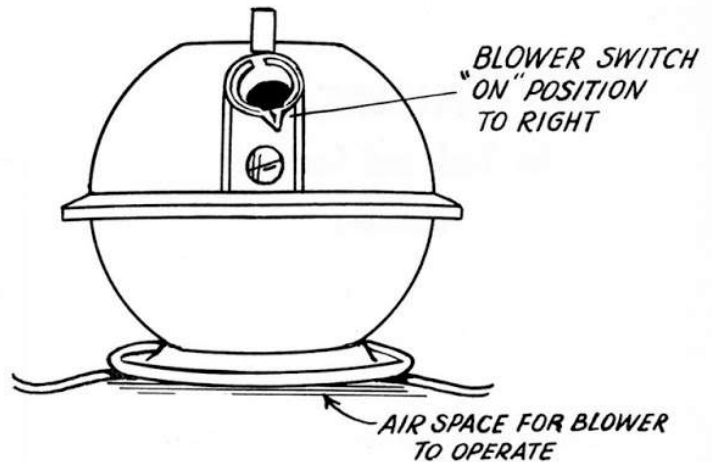


Fig. 4

2. To Test Relay

- a. Open cleaner and remove bag.
- b. Remove 4 sems fastener units.
- c. Remove bulkhead assembly.
- d. Remove 2 lead wires from bulkhead terminal tabs.
- e. Close circuit by placing ends of two lead wires together. SEE FIGURE 5. If the relay fails to operate, press down on top of relay to close circuit. SEE FIGURE 6. If the motor fails to operate, the motor should be checked for defective field and armature.

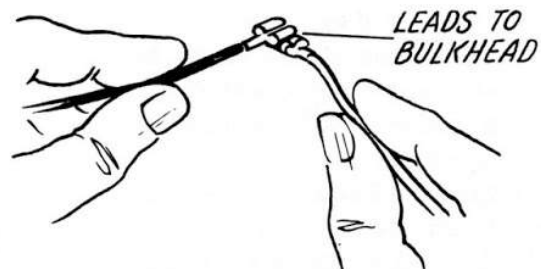


Fig. 5

3. To Test Hose

- a. When motor operates with blower switch, place connector end of hose in cleaner and move switch to "On" position.
- b. When cleaner fails to operate from hose switch, check for poor connection and if none are evident, replace hose only.

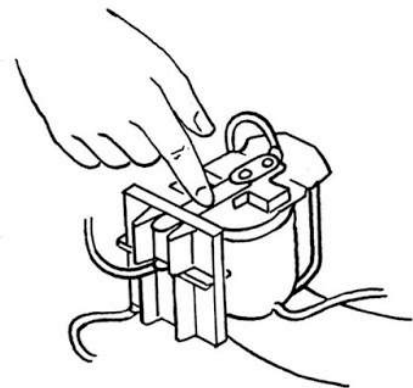


Fig. 6

Ground Test Before Delivery to Owner

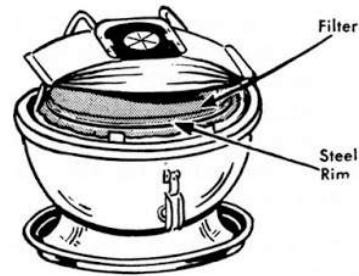
FILTERS

for Tank and Canister Cleaners

Tank cleaners Models 50, 51, 53 are equipped with cloth bags only. Models 41, 42, 55 and 415 have a paper type filter bag inside the cloth bag. These bags can be emptied as needed.

Canister cleaners Models 82, 84, 85, 86, 87 and 88 are equipped with throw-away bags which must be replaced instead of emptying.

Both Tank and Canister cleaners are equipped with a felt or glass fibre safety filter to protect the motor. The cleaner should not be operated without the safety filter. Safety filters should be replaced if badly soiled otherwise suction may be reduced.

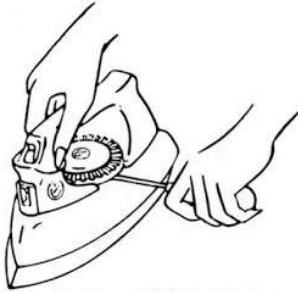


Secondary Filter

Below the paper bag in your cleaner is located a secondary filter put there to prevent any dirt from entering the motor. If you notice a decrease in suction in your cleaner it may be that this filter has become dirt laden which prevents your cleaner from operating at top efficiency. When this happens, remove the filter by taking off the steel rim and replace with a new filter.

CHAPTER VII - ELECTRIC IRONS

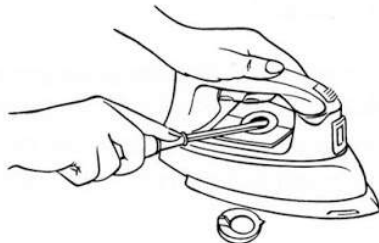
One Minute Disassembly for Maintenance



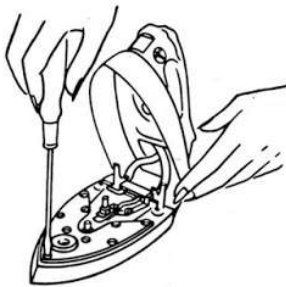
1 Snap off dial with screw driver



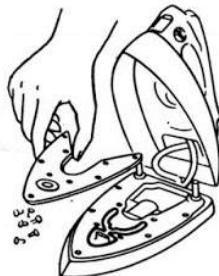
2 Snap off dial



3 Remove dial plate by prying gently with screw driver



6 Remove the nine screws on steam passage cover



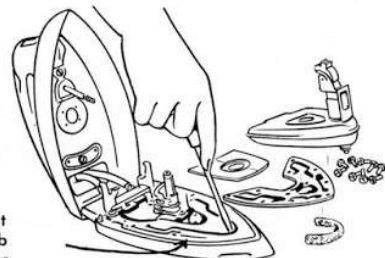
7 Remove steam passage cover. Steam chamber is in view



4 Unscrew main assembly bolt



5 Lift handle and cover assembly. Remove reservoir



Do not disturb silicone

8 Use care not to disturb the white silicone seal on contacting surfaces of cover and soleplate. Remove mesh screen and shake out deposits. Remove liming in steam chamber by scraping with small screw driver. Replace mesh screen and reassemble iron.

Dry Irons—Models 010 and 015

Dismantling To reach the thermostat loosen dial set screw, reached thru a slot in the side of the dial. The dial and dial spring can then be lifted from the iron. Remove the two screws under the dial and the soleplate cover can be lifted from the soleplate exposing the thermostat and other interior parts of the iron.

Testing If the iron does not heat or the temperature is too high or too low the thermostat is probably at fault and must be replaced. The thermostat is not adjustable.

The correct operating temperature with dial at *highest heat setting* is between 455° and 565° F after the iron is thoroughly heated.

Steam or Dry Irons

Models 011, 0113, 4000, 4110, 013, 4220 and 4330

Dismantling These irons are all similar in construction and are serviced in the same general manner. To dismantle see the following illustration.

Servicing

- (a) Remove lime from the steam chamber and passages with a screw driver or similar tool. Do not polish the steam chamber. A badly limed iron will make little steam.
- (b) Remove all scorched burnt starch and lint from the inside of the iron as this burnt material can discolor the steam.
- (c) Make sure that small fibre glass valve seat gasket is in place under the brass valve seat.
- (d) On some models the large hold down screw nut within the soleplate may be found loose thus preventing the screw from holding the soleplate and soleplate cover securely together. When this condition is encountered remove the old nut and chisel away the metal which held it in place. Substitute repair nut assembly 47959 in such cases.

Ground test before delivery to owner.

Testing

A rapid drip or almost unbroken stream of water is desirable as it flows from the water tank when the valve is opened.

Temperatures too high or too low may cause drops of water to spit from the holes in the soleplate.

Some thermostats are adjustable, others are not. The adjusting screw if any is reached thru the top of the thermostat stem. To raise the temperature turn the screw to the left or as you would open most water faucets to increase pressure.

If the iron does not heat, the thermostat is probably at fault.

The correct operating temperature with dial **set at steam** is 290° to 390° F. after the iron has been permitted to heat for several minutes to reach a uniform temperature.

*Hoover sales opportunities are influenced by
the good will created thru good service*

CHAPTER VIII

AUTOMATIC COFFEEPOT MODEL 5610

How The Coffeepot Operates

The Hoover Automatic Coffeepot has a capacity of nine cups of water. Cold water should always be used for making coffee or testing. The main heating element causes water to boil in the well at the base of the pump stem. The percolating action should continue until the water reaches a temperature of 170 to 210°F when on the strong setting. At the end of this time the thermostat shuts off the main heating element and the auxiliary element attached to the heater takes over and keeps the coffee hot. The main element does not go into action again until the pot becomes cold or is cooled manually.

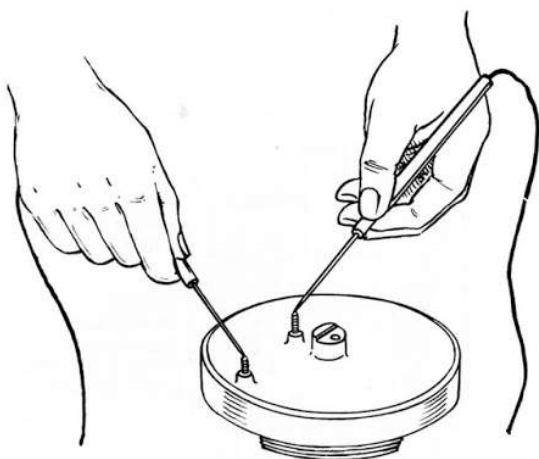


Fig. I

Preliminary Testing

Before servicing a coffeepot which does not perform properly or fails to heat the following steps should be taken before dismantling the pot.

- (a) Fill the pot to the **six cup mark** and test for percolation. If the valve at the lower end of the stem or the well in which it rests is caked with sediment the percolator may not operate. Remove the sediment and repeat this test. (See page 4 on cleaning.)
- (b) Test the **cord** and **plug** for loose contacts or breaks.
- (c) Remove the **base** and examine all electrical connections.
- (d) Test the **heating element** for burn-out using a test lamp. Place the **test prods** in contact with the **two terminals** on the main heating element. See Fig. I. The lamp should show a free flow of current, otherwise the element is burned out.
- (e) If trouble is traced to the heating element, thermostat or other electrical defects further dismantling will be necessary as described below.

To Dismantle

1. Remove **top, basket, strainer** and **stem**; then turn the coffepot over with the bottom up.
2. Remove the **two screws** used to attach the **base**.
3. Place **screw driver** through the **cord plug opening** and **above** the two contact pins. By lifting on the screw driver, the base can be loosened and removed. See Fig. II.
4. Remove **dial** by taking out the **dial screw**.
5. Remove the **base bracket screw** at the center of the heating element. This releases the **bracket** and **thermostat guide**.
6. Remove **strip brass conductors**. Note—the **two fine wires** from auxiliary heater are attached—**one under each thermostat contact screw**.
7. Remove **nut** which attaches **thermostat** to the shell.
8. To replace the **handle** remove the **top handle screw** from the inside of the shell. The **lower screw** is removed from the outside.

This is as far as dismantling can be carried without the use of special tools.

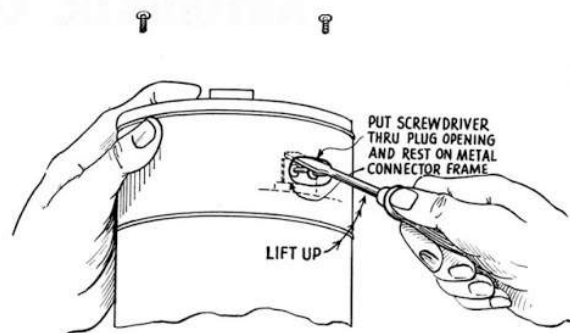


Fig. II

Servicing The Thermostat

The **thermostat** is **not adjustable** and it is necessary to replace it in case trouble is encountered by its failing to open or close. **At no time** should the **bi-metal** in the thermostat be bent as this will disturb the adjustment made at the factory.

If the **heating element** is not burned out the trouble will probably be found in the thermostat which must be replaced. When attaching a **thermostat** the **hex nut** which holds it in place should be tightened **snugly** but **not with excessive force**.

Servicing The Heating Element

The **heating element** is an assembly of the element proper and a **secondary heater** which keeps the coffee hot after the thermostat shuts off the main element when the coffee has reached the proper temperature. The **element** is held in place by a **large hex nut** located inside the bottom of the pot. To loosen the nut requires the use of a large socket wrench. See Fig. III.

After removing the old element **scrape away** any part of the asbestos gasket which may cling to the bottom of the pot.

When attaching the **new element** place a **new asbestos gasket** over the threaded shank of the element. **Apply a coat of shellac to the gasket**. Apply a **small amount of grease to the threads on the aluminum nut**.

Assemble the **element** in the shell **aligning the two cord plug pins with the handle**. Tighten the **large hex nut** firmly (do not use excessive force) making sure that the electrical terminal pins remain aligned with the handle.

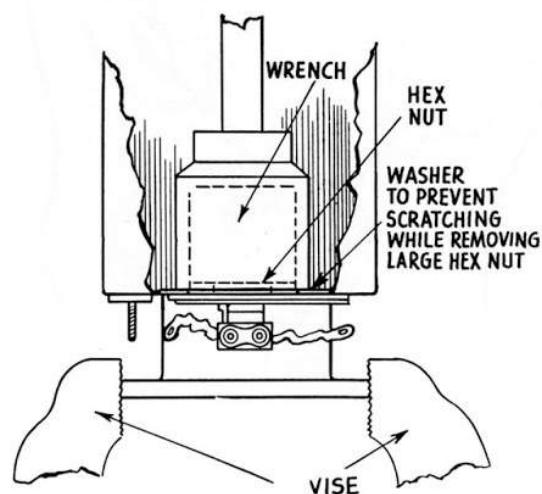


Fig. III

Model 5610 Coffeepot



Fig. IV

If the pins are not properly aligned the cord plug will not enter the opening in the base and the thermostat dial may bind on the base.

After assembling the *heating element* and *thermostat* make sure that the bare connectors and wires *clear all metal parts* by at least $\frac{1}{8}$ inch. See Fig. IV.

Servicing The Shell

The *shell* consists of a copper body to which the spout is soldered. It is chrome plated on the outside and tin plated on the inside. (See page 4 on cleaning.)

Dents in the shell cannot be entirely removed. The users manual cautions against heating the pot without water. When this is done the shell assembly can be damaged beyond repair. Under such conditions, the only remedy is a new shell and spout assembly.

Servicing The Base

The *base* is a chrome plated brass cup to which is riveted a bakelite base ring having feet on which the pot rests. If this bakelite ring should become broken, a new one can be attached with screws and nuts.

Servicing The Basket, Strainer And Pump

These parts are aluminum having a bright finish. While certain types of water as well as coffee stain the parts, this does no harm although the stain is difficult to remove.

The *steam* and *valve assembly*, also the *well* in which it rests should be cleaned as sediment or coke may interfere with percolation. Coked parts can also affect the functioning of the thermostat. (See cleaning.)

CAUTION—The pot should never be immersed in water for cleaning. To do so would rust the thermostat and other working parts.

Final Test

TEMPERATURE OF WATER — For test purposes *assemble the pot and fill to the six cup mark with cold water* and set the dial in the *strong* position. Insert *thermometer* into the water through the pouring spout. See Fig. V.

If the *thermostat* does not shut off when the water temperature reaches approximately 210° F or if the water temperature does not reach approximately 170° F the thermostat is not functioning properly and should be replaced with a new one.

Ground test before delivery to owner.

Cleaning The Coffeepot

The combination of water and coffee sediment may produce a brown stain on parts inside the pot. If cleaning is neglected for an extended period of time the sediment may form a coke-like substance in the heater well and in the lower end of the percolator tube at the valve. This accumulation of coke can cause failure of the percolator to function.

A recommended cleaning procedure is as follows:

- (a) **To remove coke**—With a *pen knife* or *screw driver* scrape away the hard accumulation in the well, in the large hex nut and at the valve end of the percolator stem. The remaining coke can be removed with steel wool or household scouring powder. In rare instances parts may be coked so badly that it may be necessary to install a new stem assembly to obtain satisfactory percolation. **Do not use steel wool** or anything harsher than *Bon Ami* to clean the inside of the tin plated shell.
- (b) The *chrome finish* on the outside of the pot can be cleaned with a damp cloth, then wiped dry. If necessary it can also be cleaned with a chrome polish.
- (c) **Aluminum parts** such as the *basket*, *strainer* and *percolator tube* may in time become stained with the coffee. This stain is difficult to remove. It is best removed by scouring with household cleansers such as *Bon Ami*, *Old Dutch*, etc.
- (d) Aluminum parts should be washed in *hot water* and *wiped dry immediately*. If water is permitted to stand on aluminum for any length of time a white corrosion may occur.



Fig. V

CHAPTER IX

POLISHERS—MODEL 5130 and 5350

Handle Assembly

1. To assemble

- a. Place lower handle in bail socket with open end of cord storage hooks down and to rear. Push bolt through opening and secure with nut. See FIG. 1.

- b. Join upper and lower half of handle, lining up holes. Insert bolt through cord support clip (small hole) through both parts of handle and cord clip (large hole) and secure with nut. Before tightening the nut place cord protector in opening between clips. Pull up slack in cord and tighten nut. See FIG. 1.

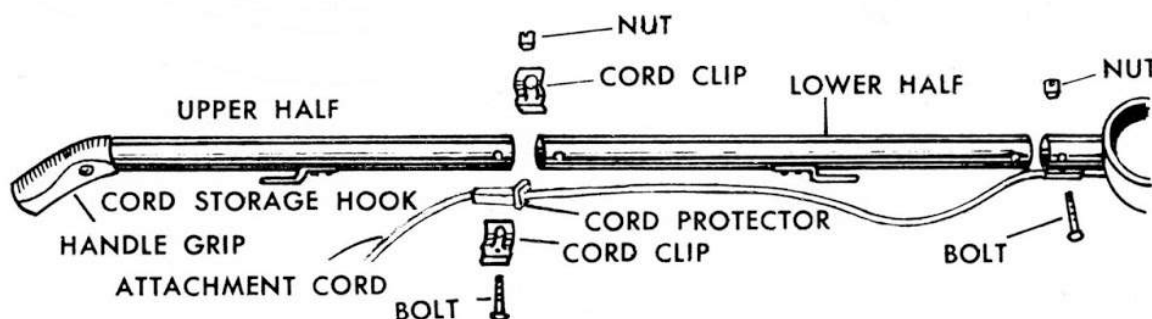


FIG. 1

CORD SHOULD BE ADJUSTED
(Before Tightening Nut)
TO GIVE FREE HANDLE MOVEMENT

Hood and Bail Assembly

1. To dismantle

- a. Turn polisher over and remove (4) screws from bottom of casting, and (2) bail arm retainers from top rear of hood. Turn polisher over, place handle in upright position and remove screw from bail arm and bail shaft drive plate as shown in FIG. 2.
- b. Pull bail arm away from hood on left side to remove from bail shaft, release pull and repeat on right side of bail to remove second bail arm from shaft.
- c. Grasp hood and raise vertically over bail shaft drive plate. See FIG. 2.

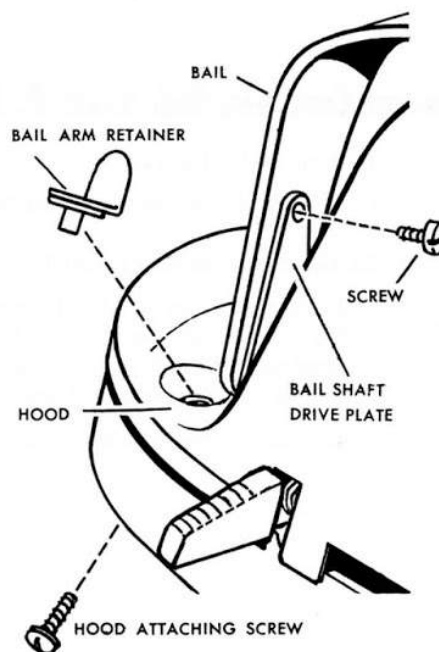


FIG. 2

MODEL 5130 AND 5350

Bail Mounting Bracket and Switch Assembly

1. To remove switch
 - a. Remove red lead wire terminal and white lead wire terminal from switch.
 - b. Remove (2) nuts, (2) washers and (2) screws. See FIG. 3.
2. To remove bail mounting bracket
 - a. Remove screw shown in lower center of FIG. 3.

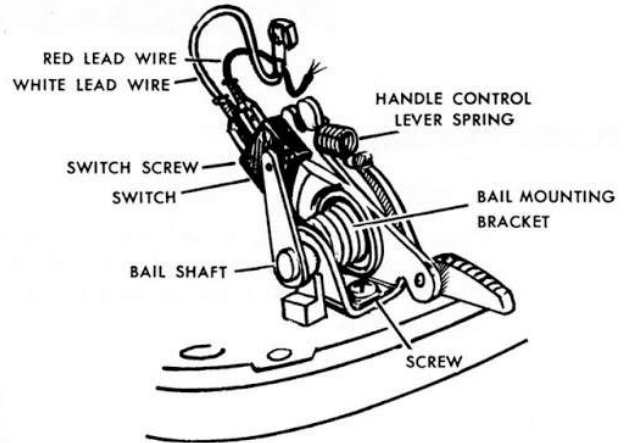


FIG. 3

Attachment Cord and Bail Shaft R. H.

1. To remove bail shaft
 - a. Remove (1) screw and bail shaft.
2. To remove attachment cord
 - a. Disconnect end of attachment cord lead from black lead wire and second lead from brush retainer. See FIG. 4. Note location of cord knot and cord cover tubing.
 - b. Remove screw and lead wire clip.

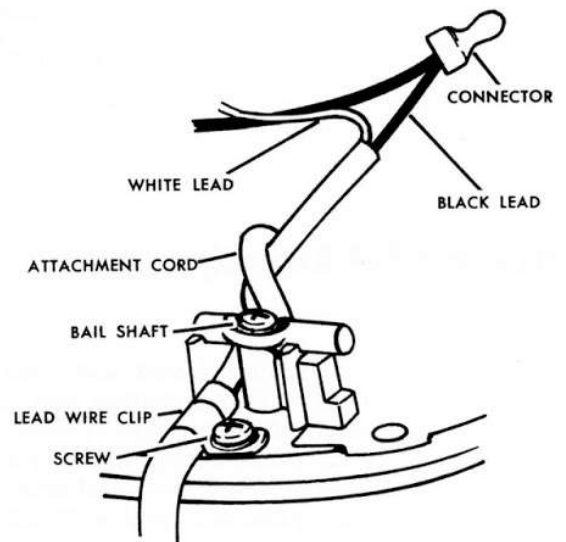
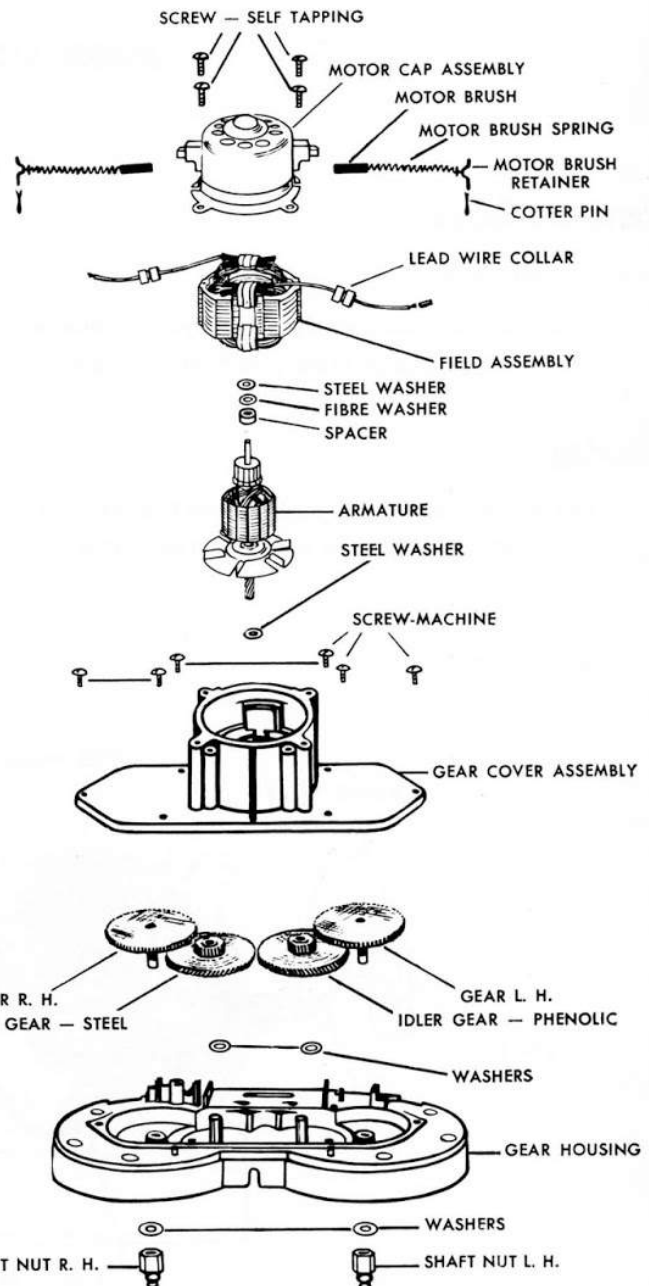


FIG. 4

MODEL 5130 AND 5350

Motor Assembly

1. To dismantle
 - a. Remove cotter pin, motor brush retainer, motor brush spring and motor brush from both brush holders.
 - b. Remove (4) motor cap screws and motor cap from gear cover assembly. Disengage (2) lead wire collars.
 - c. Remove field assembly. To reassemble check wiring diagram shown on rear cover for location of field in relation to case.
 - d. Remove steel washer, fibre washer and spacer from commutator end of shaft, remove armature and remove steel washer from lower end of armature shaft. Remove (6) screws and gear cover assembly. See FIG. 5.



Gear Housing, Gears and Shaft Nuts

NOTE: When reference is made to right or left side of the polisher, the position is determined as viewed from the rear of operator's position as would be the case in normal use.

1. To dismantle
 - a. Remove shaft nut right hand and washer. Remove shaft nut left hand and washer. Remove gears from housing.
2. To assemble
 - a. Assemble idler gear-phenolic, idler gear steel, brush shaft and gear left hand and brush shaft and gear right hand. Note: The brush shaft and gear right hand and the shaft nut right hand have a hole centered on the bottom for identification.
 - b. Assemble (2) washers and right and left hand shaft nuts.
 - c. To lubricate gears apply eleven grams of Hoover grease Part No. 987 at each of the five locations marked (x) on FIGURE 6. A total of fifty-five grams are equal to approximately 3 2/3 tablespoons of grease per polisher.

FIG. 5

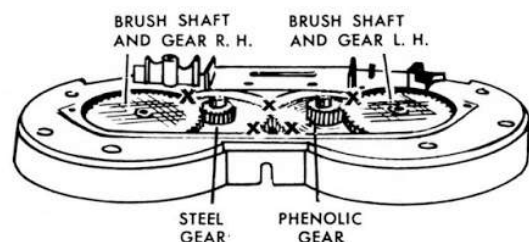


FIG. 6

MODEL 5130 AND 5350

Furniture Guard

1. To dismantle
 - a. Remove hex nut, washer-lock special, washer, hood attachment plate and furniture guard.

Bearings

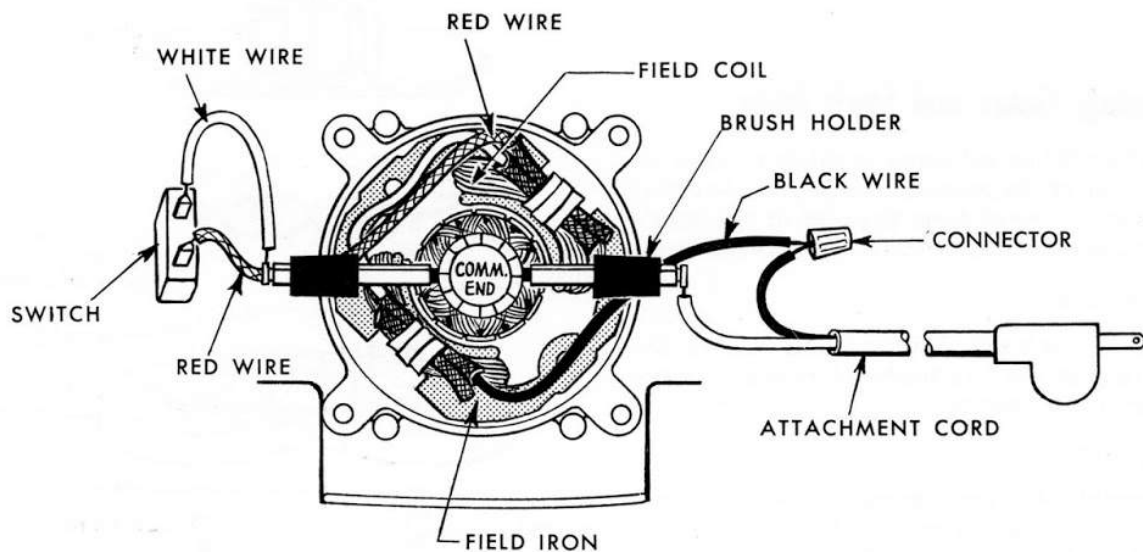
1. The upper and lower motor bearing are self-lubricating and should never be lubricated.

Lubricating Gears

Use gear grease Part No. 987 supplied by The Hoover Company for this polisher. **Do not use cup grease** such as is used on ball bearings.

Testing

A high voltage impedance test is essential and should be conducted by placing one test prong across both attachment plug prongs and the 2nd test prong to plated surface of the Bail Shaft Drive Plate. See FIG. 2.



WIRING DIAGRAM — MODEL 5130

CHAPTER X

POLISHER MOTORS

Models 021-0215-5020-5240 and 5450

The motor and drive mechanism on the above polishers are all serviced in the same manner. The principal difference between the three models is in the switch and handle. In the case of Models 5020 and 5450 the switch is operated by raising and lowering the handle.

Switch

To adjust the point at which the switch turns "on" loosen the switch cam nut attached to the right fork of the bail. Next rotate switch cam very slightly until the switch turns "on" at the desired handle height.

place a mark on *armature ventilating fan*. See Fig. I. This is done so that the gear can be replaced with teeth in contact with the same tooth on the armature shaft worm. Gear life will be shortened if gears are not replaced with the same teeth engaging as originally assembled.

4. Remove *cotter key* and *hex nut* on top of gears.
5. To remove *gear shafts* tap top of shaft with mallet. When shaft is free you will find a small gear *key* which locks gear on shaft.
6. Lift out gears.

Dismantling

A. Gears

1. Remove *gear cover screws* and lift off covers.
2. Remove as much *grease* as possible from top of each gear.
3. Place an *alignment mark* on top of each gear and a *similar mark* on inside of gear housing; also

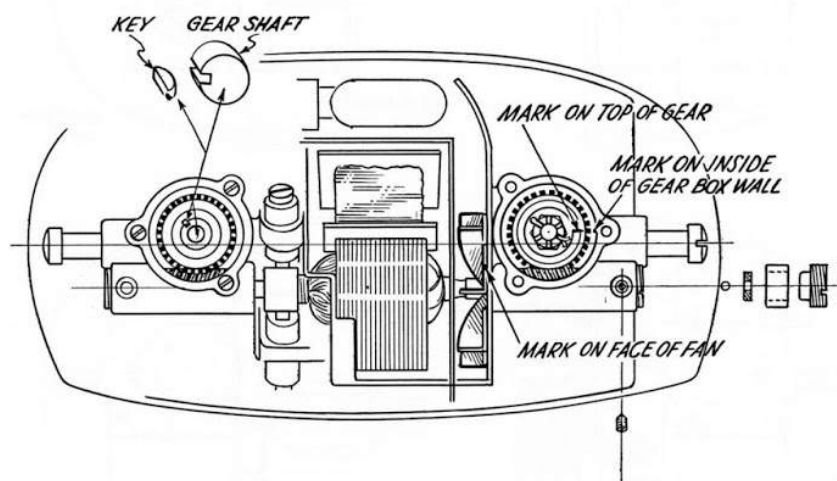


Fig. I

Motor

B. Motor

1. Loosen **Allen Head set screws** and remove **thrust screw** at end of armature. See Fig. I.
2. Remove **rubber seals, felt seals** and **thrust balls** at ends of armature.
3. Remove **round head body bolt** back of headlite, one **hex head body bolt** next to rear motor brush and **two hex head body bolts** underneath polisher housing. See Fig. II.
4. Pull endwise on the two housings (right and left) to separate them. Pins align the two housings. The **armature** will remain attached to the **right housing**. The **field iron** will remain attached to the **left housing**.
5. Remove one bolt and one screw to release fibre **ventilating shield**.
6. Remove **armature assembly and ventilating shield** endwise from right housing.
7. Remove **two field iron bolts** to release the **field assembly** from left housing.
8. Loosen **two Allen set screws** on bottom side of housing to remove motor **brush holders**.

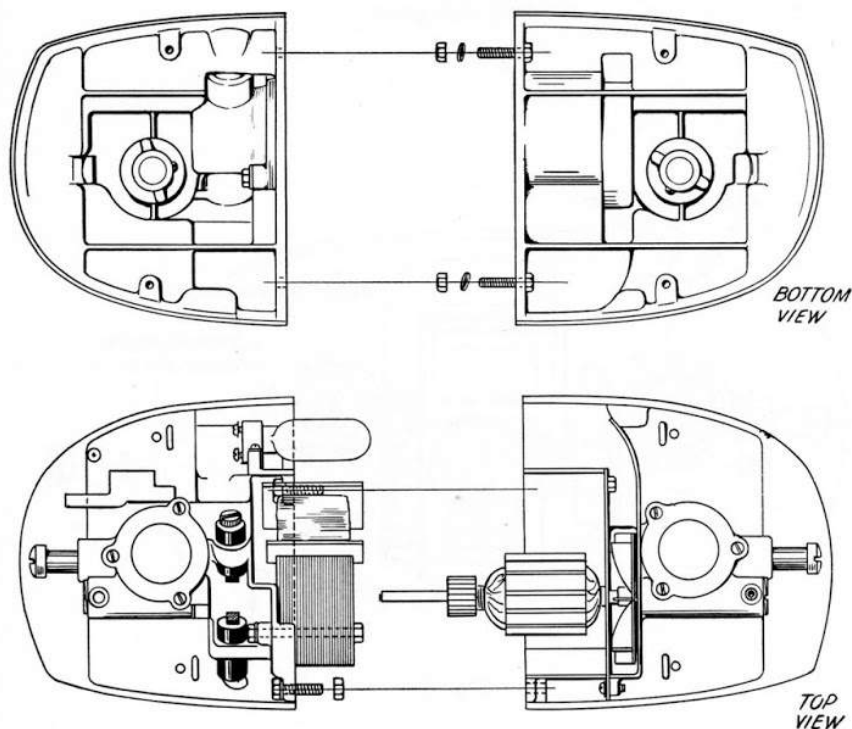


Fig. II

To Assemble

C. Motor and Gears

1. Replace **fibre ventilating shield** over armature and ventilating fan assembly.
2. Insert end of **armature** opposite commutator into right housing. Replace ventilating shield with two screws.
3. Assemble **field iron** in **left housing**, replacing two field bolts.
4. Slide **right** and **left housings** together and replace three hex housing bolts. Replace **round head bolt** back of headlite.
5. Attach **terminal block** with two screws.
6. Replace **headlite socket** with two screws.
7. Place **1/8 inch** of **Special Gear Grease** (Hoover Part No. 904) under gears and on worm.
8. Replace **gears** (flat face down) with alignment marks previously made.
9. Hold **gear** in place on **worm** and **insert gear shaft** (when a worm gear is replaced with a new one the worm must be in good condition).
10. Place **gear key** in position (round side toward shaft). See Fig. I.
11. Replace **hex nut** and tighten — back off 1 hex.
12. Replace **cotter key**.
13. Pack **gear case** with special gear grease level with top of gears. (Don't fill case completely.)
14. Replace **gear covers**.
15. Place **thrust ball**, (coat with grease) **rubber seal** and **felt seal** on ends of armature shaft. Insert thrust screws at ends of armature shaft. (See Item 19 for adjustment of thrust screws.)
16. Replace **motor brush holders** (flat side down). Allow 1/16 inch clearance

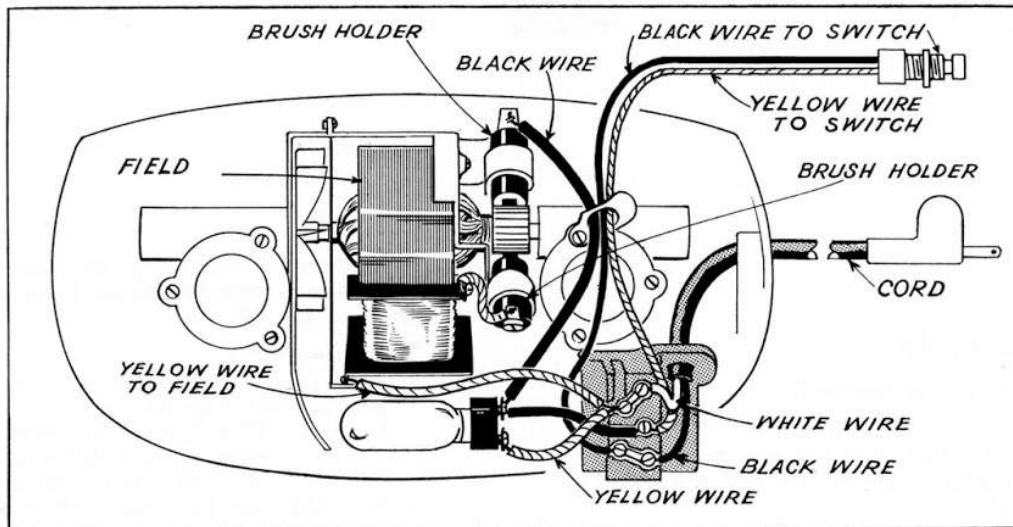


Fig. III

between motor brush holder and commutator.

17. Tighten **motor brush holder** set screws on under side of the housing.
18. Replace **motor brushes** and tighten thrust screws — adjust so that motor brushes track about center of commutator.
19. Loosen **right thrust screw** about 1/2 turn **to obtain 1/64 inch end play in armature**. Tighten set screws which bind the thrust screws. If thrust screws are too tight the motor will labor and be noisy.

D. Test Motor

1. Before replacing the motor hood **run the motor** for 10 minutes and make final **end play adjustment** so motor runs freely.

E. Motor Bearings

The armature and brush shaft **bearings** are reamed after being pressed into the housing to obtain proper alignment. For this reason bearings cannot be replaced by service. In case new bearings are required, it will be necessary to return the complete housing assembly.

F. Lubrication

Use **gear grease** Part No. 904 supplied by The Hoover Company for polishers.

Do not use cup grease such as is used on ball bearings. Coat the gears and worm with grease during assembly. After assembling the gears, fill the **gear case level with the top of the gears** with grease pressed into place. No other bearings require oil or grease.

G. Ground test before delivery to owner.

PIXIE

Dismantling

Bag Assembly

1. To remove *bag assembly*
 - a. Turn knurled bag ring to left.
2. Loosen the bag band screw to remove the bag assembly from the bag ring and support.

Handle and Cord Assembly

1. Remove Philips head screw from top and front of handle. *Figs. 1 and 2*
2. Remove top of handle. *Fig. 3*
3. Remove screw and green lead wire from switch. *Fig. 4*
4. Remove screw and green wire from terminal block *Fig. 5* and move switch and wires to one side.
5. Remove handle by removing two screws. The one at the front inside the handle is easily visible. *Fig. 6* The one at the rear is located inside the handle directly under the end of the cord protector. *Fig. 7*
6. Pull green wires through opening in handle and lay handle, switch and cord aside.

Nozzle Assembly

1. Remove three screws *Fig. 8* at the front of the motor outer shell, tap and pull the nozzle *Fig. 9* from the shell.

Motor Assembly

1. Pull motor from outer shell. Avoid damage to lead wires.

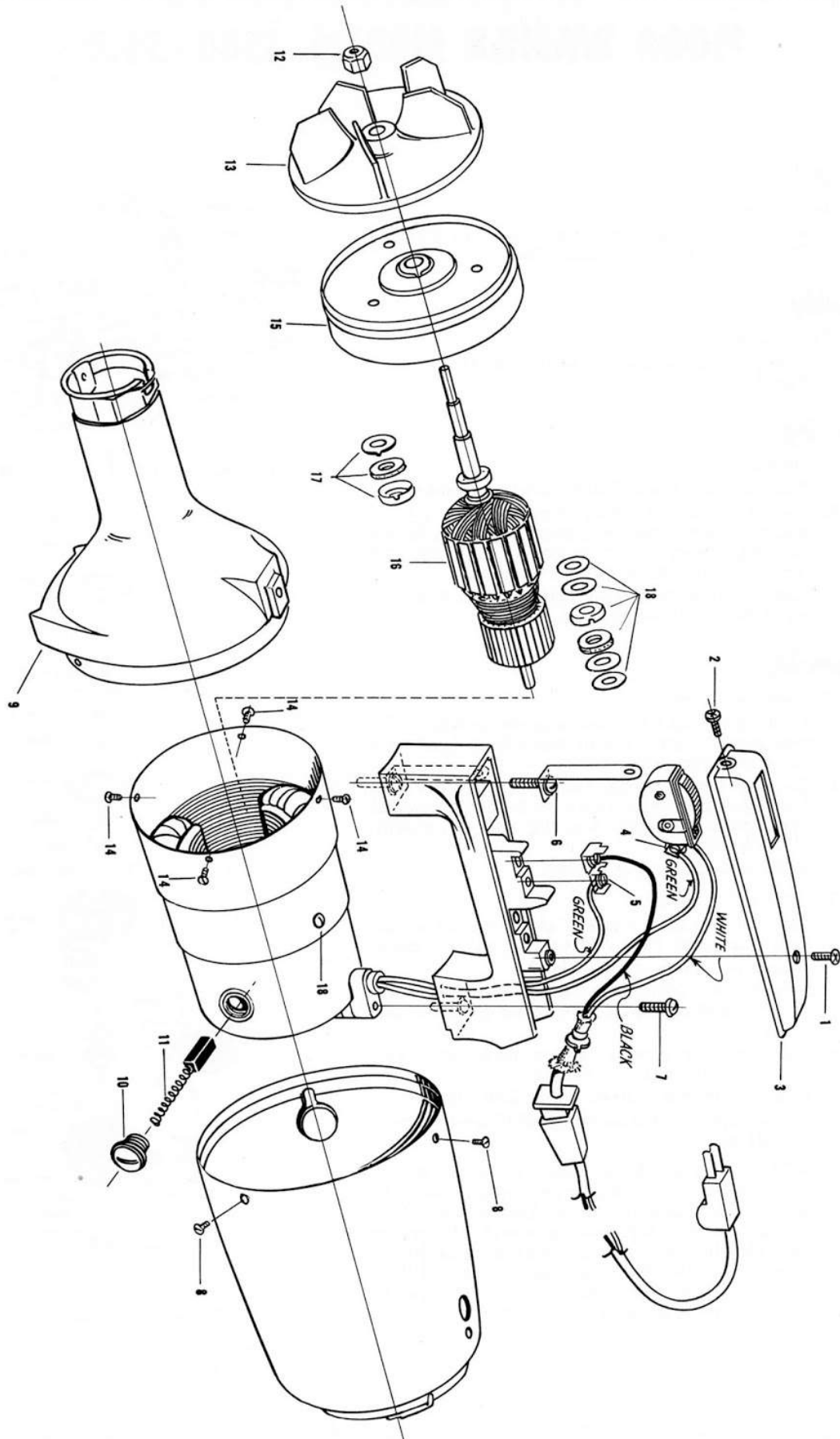
2. Remove brush caps *Fig. 10* from brush holders and remove carbon brushes and springs. *Fig. 11*
3. To remove *FAN*
 - a. With pliers or socket wrench, unscrew the hex nut. *Fig. 12*
Caution: This is a L. H. thread and must be turned to the right or clockwise to loosen.
 - b. Slip fan *Fig. 13* from shaft, if necessary use two screw drivers to pry off.
4. Take out 4 screws *Fig. 14* and remove end plate. *Fig. 15*
5. Remove armature *Fig. 16* with washer cup, washer felt and washer on fan end of shaft *Fig. 17* and fibre washers, washer cup, washer felt and washer on commutator end of shaft. *Fig. 18*.
6. Slip field coil lead clips off the brush holder using a screw driver or a sharp instrument.
7. Remove the two screws holding the field in place. *Fig. 18*
8. Remove the eyelets on the leads and pull the field coils and laminations out of the casing pulling the leads thru the hole in the rear motor mounting support.
9. Bend the field coil straps open and remove the field coils from the laminations.

Assemble The Pixie

1. Before placing the motor and fan assembly into the motor shell run the motor to observe any out of balance caused by the fan.
2. To correct out of balance, loosen the fan nut, turn the fan slightly on the shaft and tighten fan nut. Continue to move the fan until a balanced position is reached.

(OVER)

PIXIE



FLOOR WASHER MODELS 3500 - 3510

Tank Assembly

1. To remove
 - a. Raise Lever on lower right side to Release Position and remove tank. *Fig. 1.*

Bag Assembly

1. To remove
 - a. Grasp Bag Ring and pull bag from tank. *Fig. 1.*

Motor Housing

1. To dismantle
 - a. Remove Screw and Tank Latch Assembly.
 - b. Remove Four Machine Screws from top of housing, Screw and Nut from top edge, Screw and Nut from lower section of housing and Screw from bottom side of housing.
 - c. Remove Retaining Ring from right and left hand Motor Housing. *Fig. 1.*

Motor Assembly

1. To remove motor
 - a. Disconnect cord terminals from carbon brush retainer and switch and black field lead wire terminal from switch.
 - b. Remove four Screws, Lead Wire Holder and four Motor Straps. Lugs on motor straps fit over bosses on motor housing and cap assembly. *Fig. 6.*
 - c. Remove fan housing *gasket.*
2. To dismantle motor
 - a. Insert screw driver in slot at top end of armature shaft and remove Hex Nut with wrench.
 - b. Dismantle as shown in *Fig. 2.*
 - c. Loosen two Screws on Carbon Brush Retainers to remove Retainers, Carbon Brushes and Holders.
 - d. Remove four screws, Motor End Plate and Armature from motor casing.
 - e. Remove armature from motor end plate.
 - f. To remove Field Assembly, drill and remove two Rivets.

NOTE: The black lead wire is on the motor exhaust side of the motor case when correctly assembled. The motor is similar to other Hoover motors. The top bearing is self lubricating and should never be lubricated. The lower bearing is a ball bearing and should be lubricated with Hoover cup grease every one to three years depending on usage.

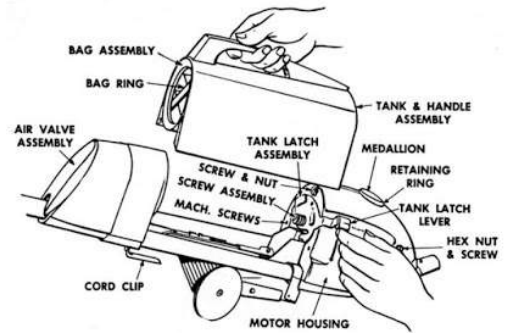


Fig. 1
Construction of Tank and Motor Housing

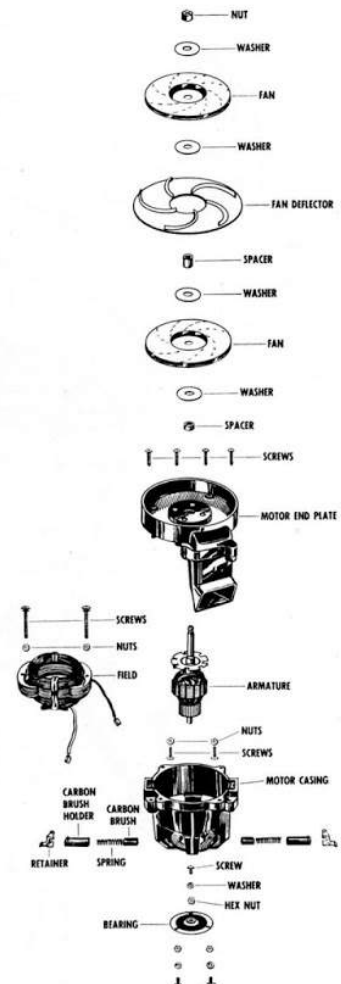


Fig. 2 Motor Assembly

3. To assemble motor

- Assemble **field** to case with **two screws** 48724 and **two nuts** 52609.
- Assemble parts in reverse order. *See Fig. 2.*
- Press upwards on commutator to raise armature in motor case when assembling fans, deflectors, etc., so that adequate shaft extension is available for the top washer to seat over shoulder at thread end of shaft before placing nut.
- Place **gasket** on fan housing and assemble motor to housing.
- See wiring diagram for motor and cord connections. *Fig. 12.*

Attachment Cord

- To Replace cord Only without removing handle.
 - Remove tank assembly and motor housing.
 - Remove black cord lead from switch and white lead from carbon brush retainer.
 - Pull on motor end of cord and untie knot.
 - Tie a length of **twine or wire** to terminals on end of cord to use as finder.
 - Remove Cord from handle, pulling through grip end. *See Fig. 3.*
- To Assemble
 - Remove finder twine or wire from end of defective cord and tie to terminals on end of new cord.
 - Pull on twine at bottom of handle to pull and guide cord through handle. Rotate cord in handle if terminals catch on inside of handle.
 - Tie knot in cord approximately **8 in.** from end.
 - Assemble in reverse order as listed above. For Ref. *see Figures 8 and 12.*

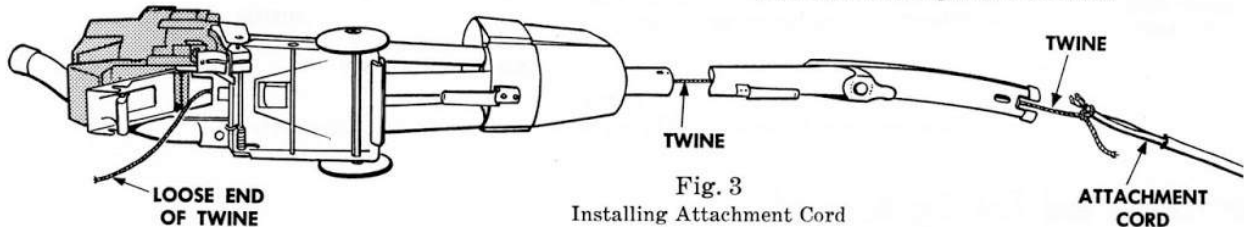


Fig. 3
Installing Attachment Cord

Handle Assembly Upper Half

1. To dismantle

- Remove coin slotted Nut and Bolt from handle and separate Handle.
- Pull on motor end of cord and untie knot.

- Drill turnover on Tubular Rivet and knock out with punch. *See Fig. 5.* Remove Handle Knob and Control Lever Assembly.

2. To Assemble

- Assemble in reverse order.

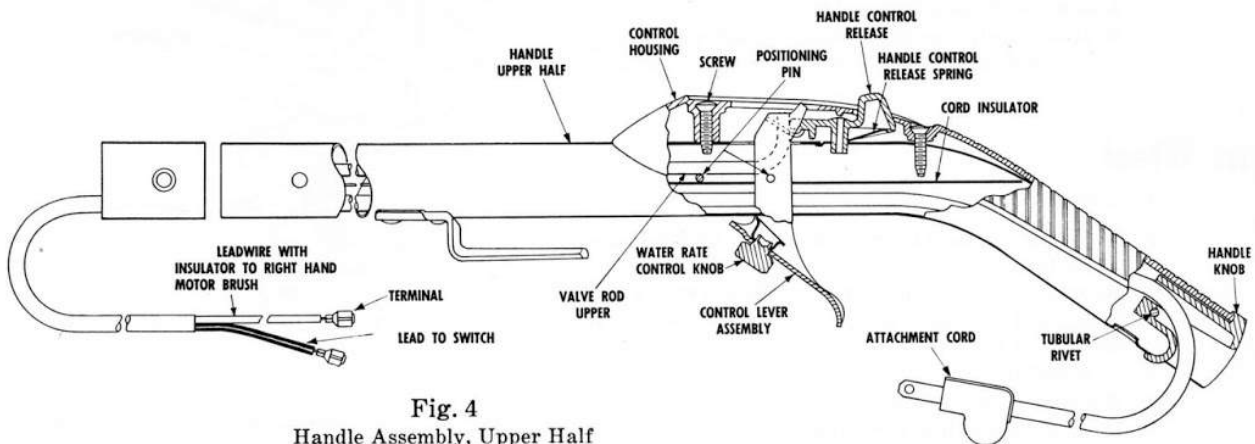


Fig. 4
Handle Assembly, Upper Half

- Tie a length of twine or wire to terminals on end of cord to use as a finder as shown in *Fig. 3* and remove cord.
- Remove two Screws, Control Housing, Handle Control Release and Spring.
- Remove 2 Pins, Valve Rod Upper and Cord Insulator. *See Fig. 4.*

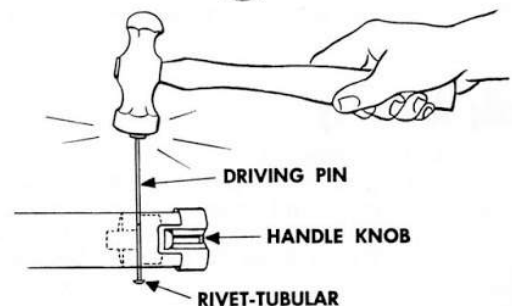


Fig. 5 Remove Rivet

Separator Assembly

1. To dismantle
 - a. Remove handle upper half.
 - b. Remove Lock Ring, Shaft and Air Valve Assembly and Spring.
 - c. Remove two Screws and Cord Clip.
 - d. Pull Separator Assembly, Sump and Separator Tubes from handle and motor housing end cap assembly. *See Fig. 6.*
2. To reassemble
 - a. Remove **caulking compound** from ends of tube with mineral spirits.
 - b. Apply fresh compound around outside of tube near end before assembly to seal against water leaks.
 - c. Assemble in reverse order.

CAUTION: Assemble cord clip screws with **care** to avoid damaging cord.

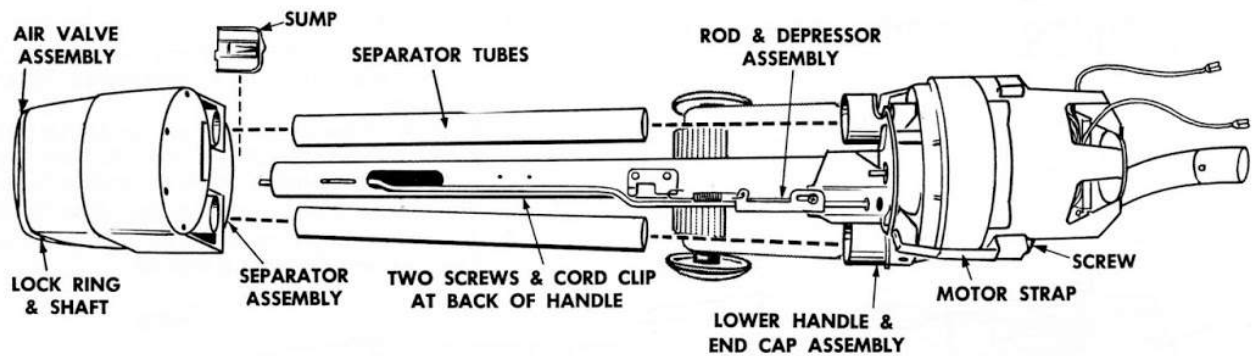


Fig. 6
Construction of Separator, Tubes and Motor Housing End Cap Assembly

Lower Handle and End Cap Assembly

1. To dismantle
 - a. Remove two machine Screws and Fan Housing from end cap assembly.
 - b. Punch out Attaching Pin and remove Handle Plug Assembly.
 - c. Remove Rod and Depressor Assembly.
2. To reassemble
 - a. Assemble in reverse order.
 - b. Follow caulking procedure listed under separator assembly to assemble Fan Housing.

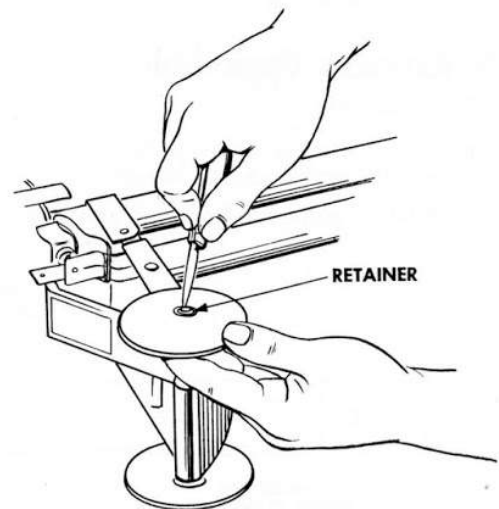


Fig. 7
Cut Retainer to Remove

Carrier Wheel

1. To dismantle
 - a. Cut plastic Retainer with knife and remove. *See Fig. 7.*
 - b. Remove washer and Carrier Wheel from shaft.
 - c. Remove lock ring, shaft and switch lever assembly. *Fig. 8.*
2. To reassemble
 - a. Assemble in reverse order.
 - b. Position switch lever **gasket**.
 - c. For location of springs *see Fig. 8.*

Nozzle Assembly

1. To dismantle
 - a. Remove Nozzle Cap, Suds Control Bar, turn over and remove Six Screws, insert screw driver through nozzle cap opening and tap Brush Back to remove. *See Fig. 9.*

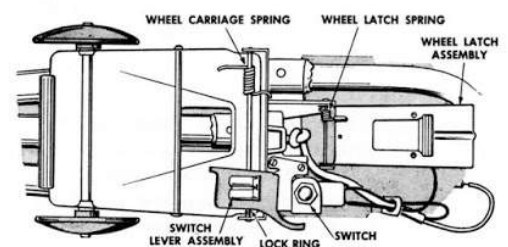


Fig. 8
Location of Springs, Cord, Latch and Lever Assemblies

Testing

1. Before replacing the two halves of the Motor Housing, run the motor for several minutes until it is warmed up. Turn Switch off and on several times, check for Vibration and Quietness.
2. A high voltage impedance test is essential and should be conducted by placing one test prong across both attachment plug prongs and the 2nd test prong to bearing cap. Test also from plug prongs to nozzle tube.
3. Assemble Motor Housing and Tank Latch Assembly.
4. Partially fill Tank Assembly with Water and observe for Leaks at valve closure spring area.
5. Test Bag Assembly for leaks and replace defective.
6. Assemble Bag Assembly in Tank and assemble to Floor Washer.
7. Place water control knob to "Slow" position and control lever on "Water" and observe the amount of water that is released. **Fig. 11.**
 - a. With Water Rate Control on "Slow" water flow to be from 1 to 5 fluid oz. in 15 Seconds.
 - b. To obtain proper Water Flow, remove tank, place water rate control knob to Slow position. Loosen water rate Adjustment Nut on valve rod lower and move nut to lower end of slot. **Fig. 10.** Place Floor Washer in horizontal position on bench, assemble tank, place penny between Water Rate Control Knob and Handle as shown in **Fig. 11.** Press control lever to water, release. Remove tank carefully to avoid moving adjustment nut out of position and tighten Water Rate Adjustment Nut.
 - c. Check and replace Suds Control Bar when $\frac{1}{4}$ or less remains.
 - d. Assemble Nozzle.
 - e. Place control in "Scrub" position and scrub area approximately 2 ft. by 3 ft.
 - f. Place control in "Dry" position and pick up water.

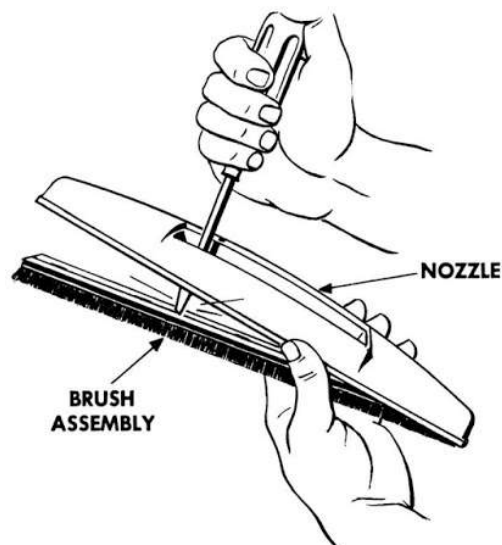


Fig. 9 To Remove Brush Assembly

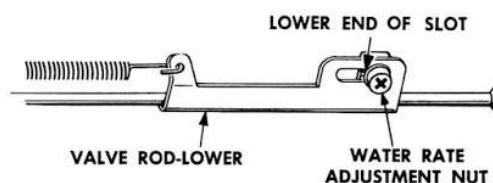


Fig. 10 Set Water Rate Adjustment Nut

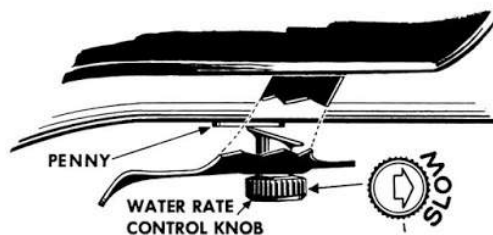


Fig. 11

Make Sure the Water Rate Adjustment Knob and Penny Are in Position to Adjust Water Flow

WIRING DIAGRAM - MODEL 3500

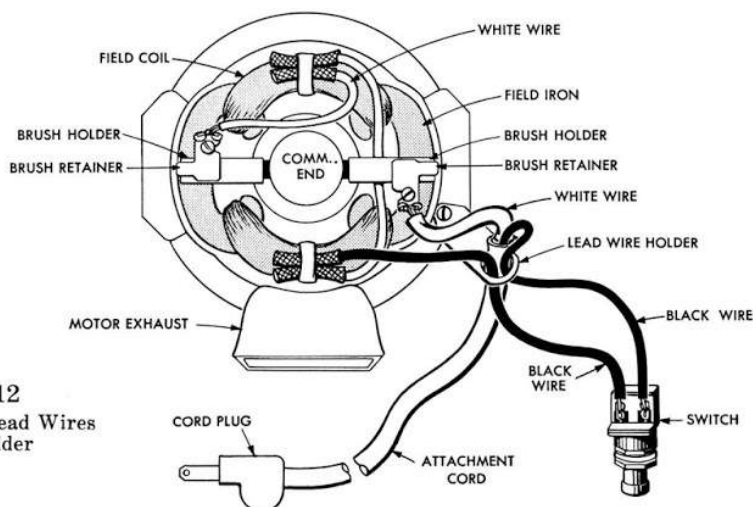


Fig. 12
Location of Lead Wires
and Holder