Kirby HERITAGE

SERVICE MANUAL FOR HERITAGE MODELS 1HD AND 1HC
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The Kirby Company
1920 West 114th Street • Cleveland, Ohio 44102
A SCOTT & FETZER GROUP

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SPECIAL TOOLS AND EQUIPMENT

1. With the exception of the few special Kirby tools as outlined on the current parts list, all necessary tools may be purchased locally at a hardware dealer of your choice. A list of those items which would be considered as standard tools consists of the following:

Chisel, Steel - 3/8" blade
File, Round Rattail - 8" long
File, 1/4" Pillar - #4 grade - 6" long
Hammer, Ball Peen, size 8 oz.
Pliers - Truarc No. 0300
Pliers, Electricians' diagonal cutting pliers - 5" long
Pliers, Heavy duty combination - 6" long
Pliers, Needle nose - 8" long
Screwdriver - Phillips head
Screwdriver - 1/4" blade
Screwdriver - 5/16" blade
Screwdriver - 7/32" blade
Soldering Iron, Quick Heating
Vise, Bench to open 4" or more
Assorted Special Kirby Tools as listed on Price List

2. Test meters required:

   Volt Wattmeter, Robinair Model 14865 or equivalent
   Accuracy ±3%
   Voltage ranges 0-130 V and 0-260 AC
   Wattage ranges 0-500, 0-2500, and 0-5000

   This instrument measures power consumption of an electrical device and, at the same time, monitors the input voltage to locate trouble spots caused by low voltage supply, overloaded circuits, or inadequate wiring.

   High Voltage Insulation Tester, Slaughter Co. Model 101.2.5 or equivalent
   Six voltage settings between 500 to 2500 VAC
   Indication: buzzer
   Detection: breakdown, ground, and short

   Volt Ohm Meter, A.W. Sperry Instruments Inc. Model SP-15 or equivalent

Sensitivity	2KΩ/VAC and DC
AC V	5/25/250/1000
DC V	5/25/250
DC MA	0.5/5/250
Ohms Full Scale	5K/500KΩ
Ohms Midscale	50/5KΩ
Continuity Range (Buzzer)	Separate Switch Position
Accuracy	DC ±3%FS — AC ±4%FS — Ohms ±3% of ARC

3. For a new distributor, the Handi-Butler attachment will suffice as a satisfactory polisher for touching up minor scuffs and scratches. For deep scratches we suggest that a very fine grade of emery cloth be used before polishing is attempted on the Handi-Butler. As a matter of fact, a handy tool can be made by wrapping this fine emery cloth around a flat file or a 12" rule, fastening it at either end with a heavy rubber band.

4. Still another most important tool in every service shop should be a combination Watt Voltage Meter. Specification sheets are available from the factory on all motors issued, and by running the motor on the Watt Voltage Meter you can determine whether it is operating efficiently. In the event of faulty operation, you can precisely pinpoint the cause.

5. This testing equipment, while more refined than normal visual or sound observation as outlined in the troubleshooting chart on pages 1-6 and 1-7, is not designed to displace the accepted procedures but rather to be applied in conjunction with the instructions on the troubleshooting chart. A description of the proper interpretation to apply to information received from this testing equipment would consist of the following:

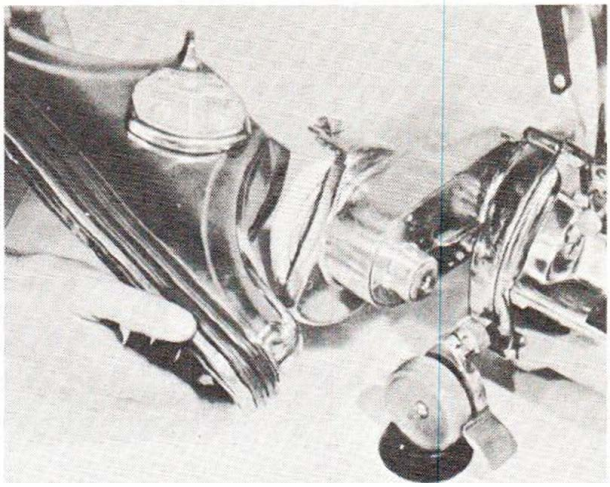
   a. HIGH WATTAGE — If the wattage consumption is approximately two times the normal prescribed rating, it is reasonable to assume that the armature is defective.

   b. EXTRA HIGH WATTAGE — If the wattage consumption is two to three times the normal wattage rating for the type of motor tested, then it is reasonable to assume that the field requires replacement.

      If the motor had run for any length of time with a shorted field, then there is also a good possibility that the armature will have become affected. Even after the field replacement has been made, a very close recheck of the armature should be made.

6. Information concerning the availability of the above or other suitable test equipment is available from the factory. Also, specification listings of motor ratings are available as a separate insert for the reason that additions and improvements will result in changes of specifications.

The Robinair Volt Wattmeter and the Sperry Instruments Volt Ohm Meter are test instru-ments critical to troubleshooting and repair of Kirbys.



Handi-Butler used as a polisher

SECTION 1
MOTOR GROUP

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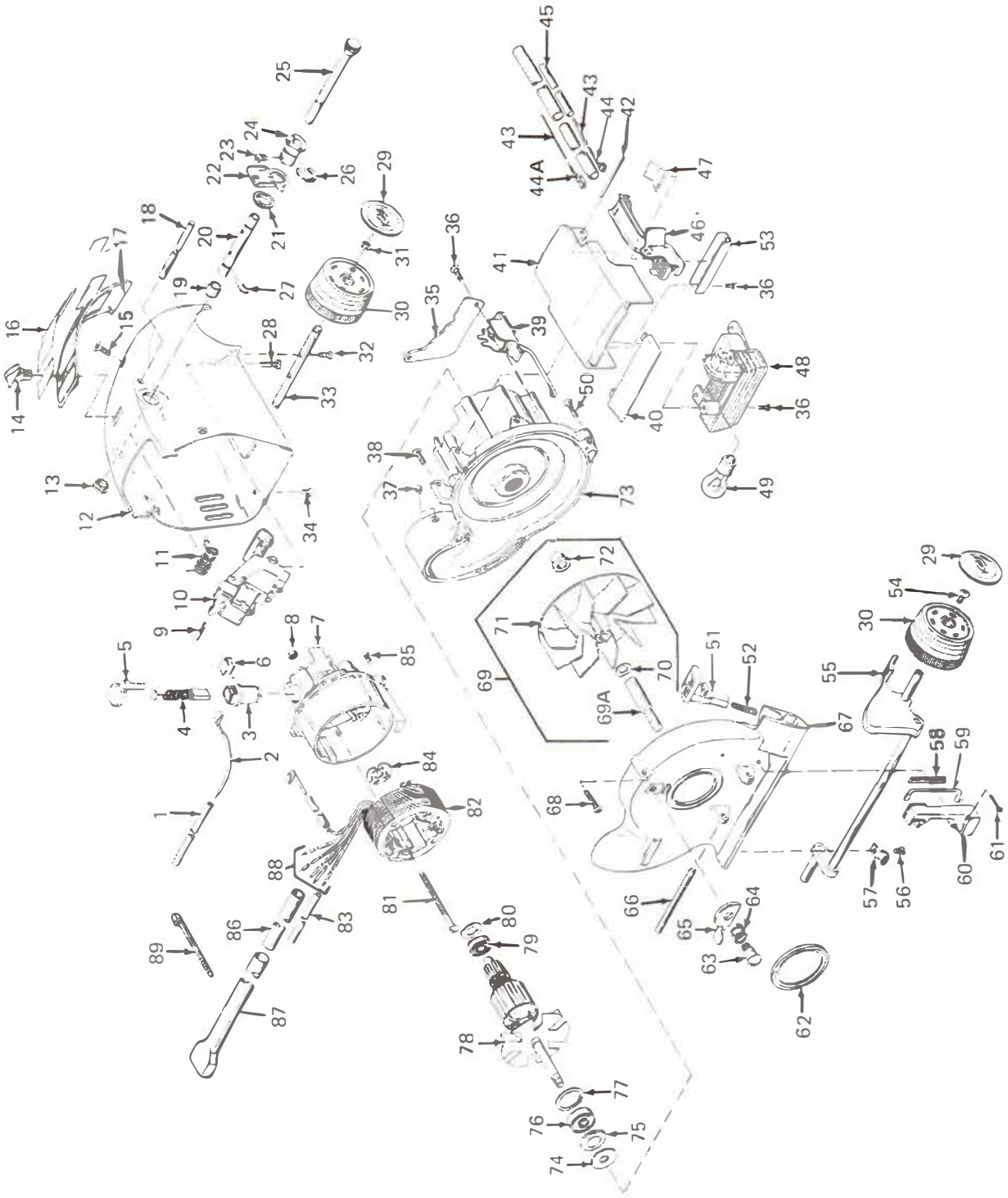


Figure 1-1 HERITAGE Models 1HD and 1HC motor group exploded view

1-1. ILLUSTRATED PARTS LIST

The exploded view illustration (fig. 1-1) and its related parts list provide identification of the parts and show the proper relationship of associated parts as an aid to overhauling the motor assembly.

HERITAGE MODELS 1HD AND 1HC MOTOR UNIT PARTS

Index No.	Part No.	Part Name	Quantity
1-1-1	111573	Brush lead tubing	1
-2	110973	Brush lead wire w/clip	1
-3	107276	Commutator brush holder section	2
-4	118076	Commutator carbon brush	2
-5	107173	Brush cap	2
-6	106859	Commutator brush retainer clip	2
-7	100180	Motor bell housing, plastic	1
-8	104773	Field screw nut	2
-9	111180	Foot switch clip	1
-10	110581	Foot switch	1
-11	137073	Handle fork spring	1
-12	135678S	Housing shell	1
-13	135960	Housing shell bushing, RH, small	1
-14	136681	Handle lock button	1
-15	110673	Foot switch screw, top	1
-16	112081	Scuff plate label	1
-17	111281	Foot switch scuff plate	1
-18	136979	Handle lock shaft	1
-19	137973	Handle fork oilite bearing	1
-20	137173	Handle fork spring shaft	1
-21	135860	Housing shell bushing, LH, large	1
-22	137579	Handle fork spring yoke	1
-23	137373	Handle fork spring screw	1
-24	137273	Handle fork spring bushing	1
-25	137879	Handle fork pin	1
-26	136373	Handle fork bushing clip	1
-27	1005	Handle fork spring clip	1
-28	110773	Foot switch screw, bottom	1
-29	131881	Wheel hub cap	4
-30	131981	Wheel	4
-31	132180	Wheel clip	4
-32	102269	Rear wheel shaft screw	2
-33	102080	Rear wheel shaft	1
-34	138470	Housing shell assembly screw	3
-35	119276	Vent plate	1
-36	102168	Headlight/speed selector switch/vent screw	6
-37	100656	Sani-Em-Tor connecting pin	3
-38	134756	Fan housing to motor housing screw	3
-39	134381	Speed selector switch	1
-40	161981	Headlight cap bumper	1
-41	160279	Headlight cap	1
-42	163379	Headlight cap hinge pin	1
-43	110878S	Headlight lead, white	1

Index No.	Part No.	Part Name	Quantity
1-1-44	112679	Terminal clip, single	1
-44a	112779	Terminal clip, double (orange lead)	1
-45	111678	Insulation tube, white	1
-46	112579S	Terminal block	1
-47	***	. Terminal block insulator	1
-48	108979	Headlight lens and socket	1
-49	109273	Headlight bulb	1
-50	135169	Fan housing to motor housing screw	1
-51	133073P	Ratchet lock	1
-52	1331	Ratchet lock spring	1
-53	162379	Terminal block hold down	1
-54	1321	Wheel screw	1
-55	131673S	Front wheel bracket shaft	1
-56	134157	Front shaft clamp screw	2
-57	134073	Front shaft clamp	2
-58	120481	Switch lever retainer	1
-59	120381	Speed selector switch lever	1
-60	120581	Switch lever cover	1
-61	135473	Switch lever cover screw	2
-62	122068	Nozzle seal O-ring	1
-63	1211	Nozzle lock screw	1
-64	1212	Nozzle lock spring	1
-65	121056P	Nozzle lock	1
-66	121656	Nozzle attaching shaft	1
-67	119781S	Fan housing	1
-68	134673	Fan housing to motor housing screw	1
-69	119078S	Plastic fan complete	1
-69a	***	. Fan pulley	1
-70	***	. Fan washer	1
-71	***	. Plastic fan	1
-72	***	. Spacer	1
-73	101181S	Motor housing casting w/seals and bearing	1
-74	100773	Front bearing seal	1
-75	100873	Front bearing seal retainer	1
-76	116073	Front bearing	1
-77	101076	Front bearing retaining ring	1
-78	114973	Armature	1
-79	115573	Rear bearing	1
-80	115774	Thrust washer	1
-81	104673	Field screw	2
-82	103981	Field	1
-83	111773	Motor tubing, white, short	1
-84	115674	Rear bearing finger spring	1
-85	100276	Bell housing assembly screw	4
-86	111981	Four wire insulator (clear tube)	1
-87	111481	Lead and switch cover, black	1
-88	120681	Terminal connector	1
-89	120781	Cable tie	1

*** Do not order this part; if defective, order the assembly above.

1-2. MOTOR UNIT CHECKOUT

a. Prepare the unit for motor checkout as follows:

(1) Remove the handle by pulling out the handle fork pin (25).

(2) Remove the Sani-Em-Tor and bag by grasping the bottom of the Sani-Em-Tor and pulling away from the housing shell, rotating the Sani-Em-Tor 1/8 turn around the exhaust port.

(3) Remove the nozzle or any other accessory from the motor unit to be tested.

(4) Remove the housing shell according to paragraph 1-3.

b. Check the motor unit for obvious damage, including cracked castings, broken or jammed fan, broken leads, burned wires or insulation, broken switches, misaligned parts, and other damage that could be discovered in a preliminary inspection. Correct any faults before attempting to check the motor operation.

c. Rotate the extended shaft of the fan to ensure that the motor unit does not bind or rub. If binding, scraping, difficult rotation, or unusual noise is noted, do not attempt to run the unit as additional damage may result. Instead, proceed with motor disassembly as described in paragraph 1-10.

CAUTION

The speed selector switch is not designed as a quick action "snap switch" and therefore should not be used as a start-stop switch for the motor. The switch should only be engaged by means of a properly attached accessory before power is applied through the main foot switch.

d. If the shaft rotates freely, use an electrical cord known to be in good condition and connect the unit to a power source.

CAUTION

When conducting the motor tests, cover the exhaust port with a soft porous cloth to trap possible dirt in the fan housing when the motor starts.

NOTE

For low speed motor testing, attach the standard nozzle (4, fig. 2-1). For high speed testing, attach the hose suction blower connection (10, fig. 5-1).

e. Check motor operation as follows:

(1) With nozzle body attached to the motor unit, the motor should operate at the low speed rate. If the motor starts when the main foot switch is activated, then check in accordance with instructions in step (3). To check the high speed side of the speed selector switch, remove nozzle attachment and attach the suction blower connection coupler which will activate the high speed range of the motor.

(2) If faulty operation of the speed selector switch is suspected, the switch can be tested in place.

(a) Disconnect the power cord from the motor to be sure the circuits are completely de-energized.

(b) Lift the black lead cover (87, fig. 1-1) and disconnect the leads from the selector switch.

(c) With a suitable test meter, test the switch for continuity. In the high speed position, the switch should be open across poles R to W, and Y to G; in the low speed position, the switch should be open across poles R to Y only. A discontinuity under these conditions or continuity other than described above indicates a faulty speed selector switch which should be replaced according to paragraph 1-5.

(d) Reconnect power cord to the unit and proceed with operational testing.

(3) While the motor is running, check the commutator and brushes for arcing. Only pinpoint arcing should be visible. If more severe arcing is noted, the brushes are defective, the commutator is rough or damaged, or the armature windings are shorted. Motor disassembly is required to repair or replace parts.

f. If faulty operation is evident, use the following troubleshooting chart to determine the cause of the unsatisfactory operation.

TROUBLESHOOTING CHART

MOTOR RUNS IMPROPERLY		
Trouble	Possible Cause	Remedy
Motor smokes after short period of operation	Defective armature	Replace armature (par. 1-10)
Motor runs slowly with little suction or power	Defective armature	Replace armature (par. 1-10)
	Dirty or defective brushes	Check brushes (par. 1-8)
	Poor electrical connection	Tighten electrical connection
	Dust and dirt buildup in nozzle and fan housing	Disassemble (par. 1-10) and clean out nozzle and fan housing
	Strands of carpeting, hair, etc., wrapped around pulley and brush	Disassemble (par. 2-3) and remove wound material from brush and pulley
	Too much dirt in the Sani-Em-Tor and bag	Empty the bag and Sani-Em-Tor
Motor vibrates	Broken fan	Replace fan (par. 1-10)
	Bent shaft	Replace armature (par. 1-10)
	Worn bearing	Replace bearing (par. 1-10)
Motor overheats	Defective field	Replace field (par. 1-10)
	Blocked motor vent inlet slots	Clean vent inlet slots (par. 1-3)
	Damaged or misaligned vent seal blocking motor vent outlet	Align or replace vent seal (par. 1-3)
Motor makes clicking or grating sound	Dirt or debris in motor housing	Inspect motor housing after removing housing shell (par. 1-3)
	Loose field screw	Inspect motor housing after removing housing shell (par. 1-3)
	Defective bearing	Replace bearing (par. 1-10)
	Vent fan hitting field	Realign or replace fan (par. 1-10)
	Defective fan	Replace fan (par. 1-10)

TROUBLESHOOTING CHART (Continued)

MOTOR DOES NOT RUN		
Trouble	Possible Cause	Remedy
Motor sparks and blows fuses when touching metal ground	Grounded wires in motor and/or headlight socket	Remove housing shell and inspect for worn, burned, or broken insulation (par. 1-3)
	Grounded armature or field	Replace armature or field (par. 1-10)
Motor and headlight dead	Defective foot switch	Replace foot switch (par. 1-4)
	Defective cord	Replace cord (par. 3-2)
	Nozzle not making proper contact with speed selector switch	Check nozzle fit and condition (par. 2-2)
	Defective speed selector switch	Replace speed selector switch (par. 1-5)
Motor dead but headlight lights	Defective speed selector switch	Replace speed selector switch (par. 1-5)
	Defective brushes	Replace brushes (par. 1-8)
	Loose or broken wire at foot or speed selector switch	Remove housing shell (par. 1-3a) and inspect wires (par. 1-4 and 1-5)
	Broken field lead	Inspect leads; disassemble and test for open field
Motor starts and stops erratically	Defective cord	Check cord (par. 3-2)
	Loose connections at foot or speed selector switch	Remove housing shell (par. 1-3a) and inspect (par. 1-4 and 1-5)
	Loose nozzle not making secure contact with speed selector switch	Check nozzle for fit and tightness (par. 2-2)
	Defective speed selector switch	Replace speed selector switch (par. 1-5)
	Defective foot switch	Replace foot switch (par. 1-4)
	Defective brushes	Replace brushes (par. 1-8)
	Defective field or armature	Replace as necessary (par. 1-10)

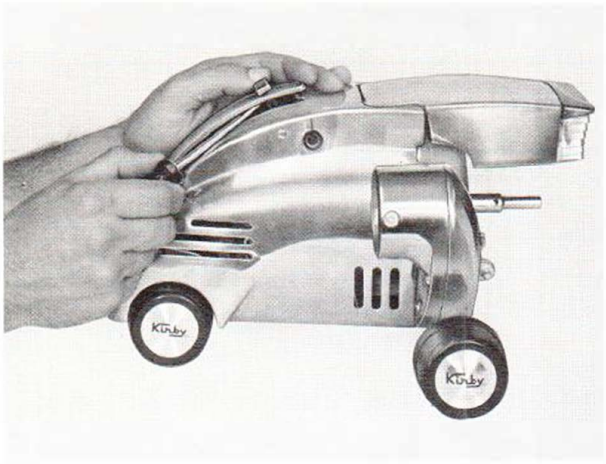


Figure 1-2. Removing plastic scuff plate and lock button

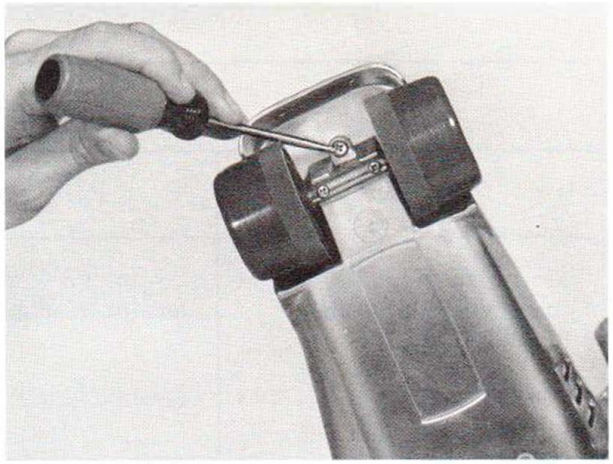


Figure 1-3. Loosening bottom foot switch screw

1-3. HOUSING SHELL

a. Removal. Removal of the housing shell (12, fig. 1-1) is necessary before proceeding with foot switch removal, headlight cap replacement, handle fork spring and handle lock replacement, and major overhaul. Remove and install the housing shell as follows:

(1) Wrap a clean cloth around a screwdriver blade to avoid scratching the housing shell. Pry up and remove plastic scuff plate (17). The handle lock button (14) will pry loose as well (fig. 1-2). Remove it and handle lock shaft (18, fig. 1-1), which will now be loose in the housing shell. Turn the housing shell on its side, and back out bottom foot switch housing screw (28) about 1/2 inch, as shown in figure 1-3. It is not necessary to remove the screw from the housing.

(2) Remove top foot switch screw (15, fig. 1-1).

(3) Remove three housing shell assembly screws (34) and remove housing shell (12) by pulling it back and up so that handle fork spring assembly inside housing shell clears upper brush holder (3) and brush cap (5).

(4) Remove two screws (32) and the assembled rear wheel shaft (33) and wheels (30). To remove stick-on wheel hub caps (29), place the assembled wheels and shaft in a vertical position. Gently force the upper wheel toward the lower wheel. The shaft will push the hub from the upper wheel, exposing "E" clip (31). Remove the clip and the wheel. Repeat for the second wheel.

b. Cleaning and inspection.

WARNING

Many cleaning solvents are toxic. Use in a well-ventilated area. Avoid breathing vapors. Avoid contact with skin.

(1) Clean the housing shell with a safety solvent or kerosene, taking care to remove all carbon dust and other dirt from the interior.

(2) Inspect the housing shell for cracks, severe dents, distortion, or other damage.

(3) Inspect the rear wheels for cracks, out-of-round mounting holes, looseness on shaft, and other damage; replace damaged wheels.

(4) Inspect the rear wheel shaft for misalignment and wear. Replace a damaged shaft.

(5) Polish the exterior of the shell with a buffing attachment or other metal polisher.

c. Installation.

(1) Position rear wheels (30) on rear wheel shaft (33). Attach "E" clips (31) to the shaft and hubs (29) to the wheels. Secure the shaft to the housing shell with mounting screws (32).

(2) Position the foot switch by pushing it about 3/8 inch into the large notch on the back of motor bell housing (7) to approximate its position. This must be done now because it is difficult to realign the switch after the housing shell is in place. See figure 1-4.

(3) Make sure that vent plate (35, fig. 1-1), speed selector switch (39), and black lead cover (87) are securely in place. Check that brush caps (5) are installed and that there is no debris or dirt fouling the motor.

(4) Slide shell over motor housing, lifting up slightly on the shell so that handle fork spring assembly clears motor brush and brush cap.

(5) Start the bottom foot switch mounting screw (fig. 1-3) into the foot switch, but do not tighten. Turn the housing shell on its side and fully install and tighten the top foot switch mounting screw (15, fig. 1-1). With the foot switch secured in position, tighten the bottom mounting screw fully.

(6) Install three housing shell assembly screws (34) and tighten. Finish tightening top foot switch mounting screw (15).

(7) If old scuff plate (17) is cracked or chipped, or if any tabs are worn or missing, install a new scuff plate. Align tabs on scuff plate with holes in housing shell and push plate in, starting with the bottom pair of tabs and working up, until all three tabs are firmly seated.

1-4. FOOT SWITCH

a. Remove housing shell and foot switch as described in paragraph 1-3a.

b. Inspection and testing.

(1) Inspect the switch and wires for loose, burned, or broken parts. Tug gently on the wires to check contact with the switch.

(2) Check continuity within the switch.

(a) Disconnect the power cord from the unit being tested to be sure the circuits are completely deenergized, and to gain access to the power supply prongs in the switch body.

(b) Attach a test probe to the power supply prong on the terminal connector side of the switch.

(c) Touch the other test probe to one of the "B" (black wire) terminal connectors. The meter should indicate continuity across the prong and "B" terminal.

(d) Attach a test probe to the other power supply prong.

(e) Touch the other test probe to a "W" (white wire) terminal connector. The meter should alternately indicate an open, then closed circuit as the foot switch is operated.

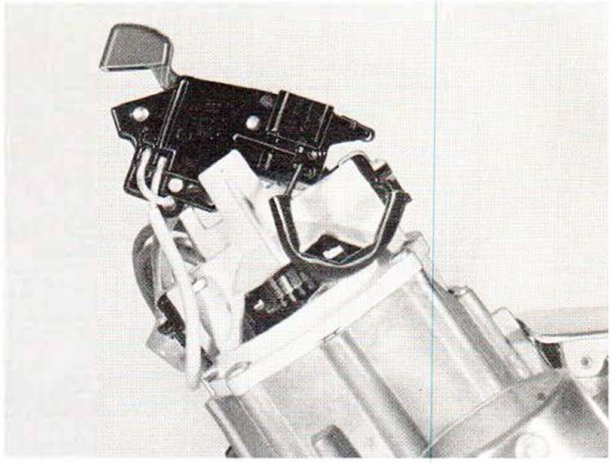


Figure 1-4. Positioning the foot switch in motor bell housing

(f) If the foot switch does not perform as described in either step (c) or (e), the switch is defective and should be replaced.

c. Replacement.

(1) Refer to figure 1-5 and note position of the wires. To remove the wires, fashion a tool by straightening one leg of a paper clip. Insert the paper clip into the release window next to each wire and pull out wire, as illustrated in figure 1-6.

(2) Tag each wire to facilitate reassembly.

(3) Install wires by pushing the bare ends of the wires into the proper switch recesses. If the wire end is damaged, clip off the end and strip insulation back about 1/4 inch. Tug gently on the wires to check for tightness.

(4) Replace housing shell and foot switch as described in paragraph 1-3c.

1-5. SPEED SELECTOR SWITCH

a. Remove the housing shell as described in paragraph 1-3a.

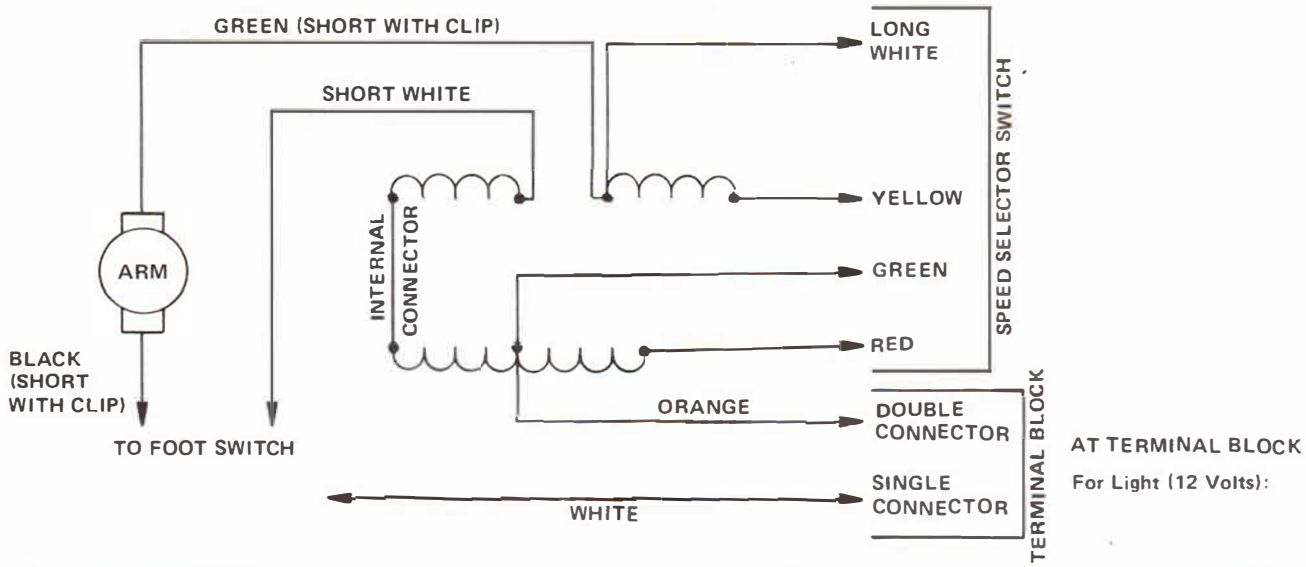
b. Speed selector switch (39, fig. 1-1) can be tested in place as described in paragraph 1-2e(2).

c. If the selector switch is faulty, remove and replace it as described below.

(1) Remove screws (61), and lever cover (60) from the face of fan housing (67), in order to pull lever (59) from the selector switch linkage arm which projects through the fan housing. See figure 1-7.

(2) If testing was performed in paragraph b, above, the leads will already be removed from the selector terminals; otherwise, remove lead cover

SCHEMATIC



PICTORIAL

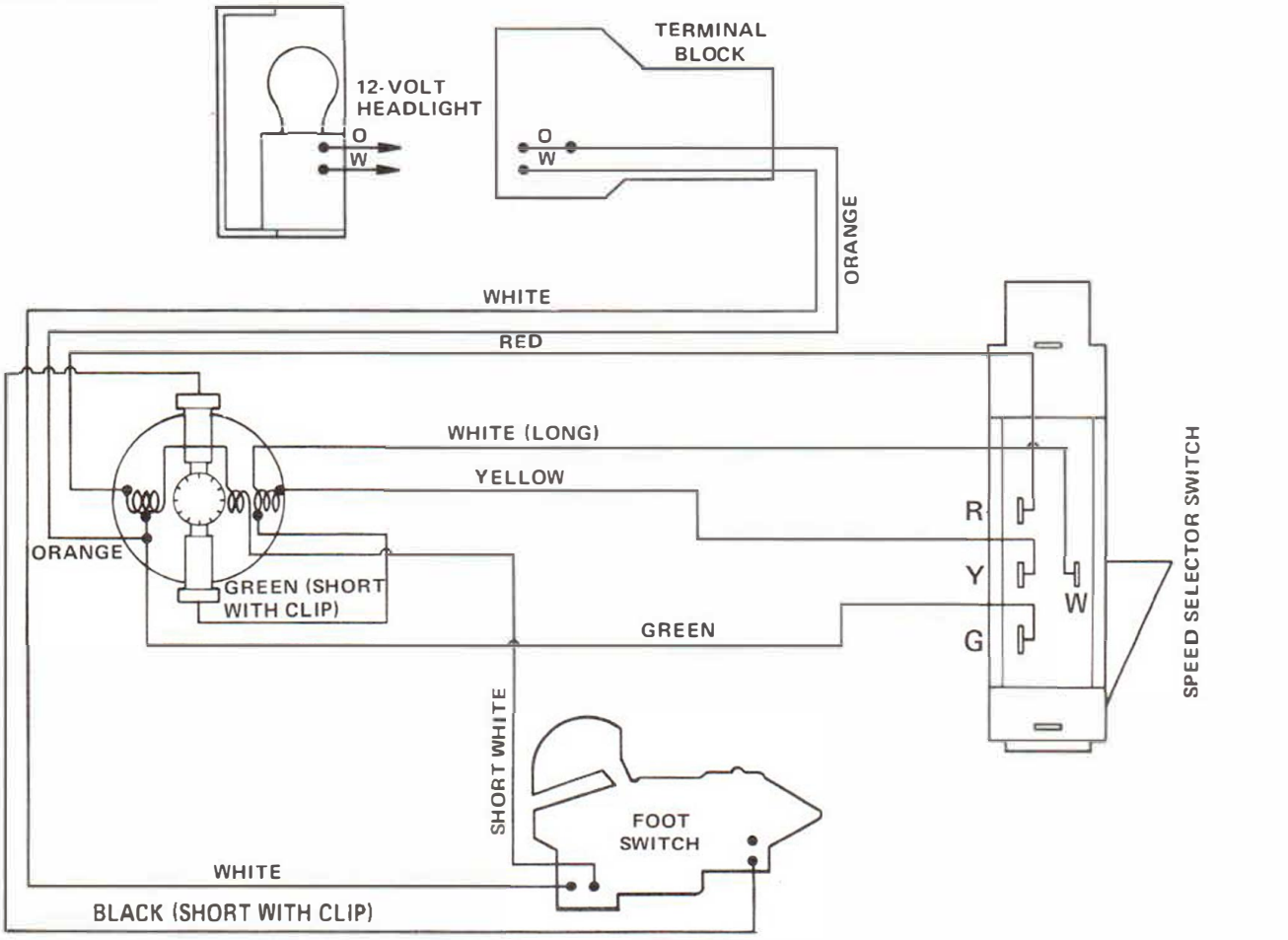


Figure 1-5. HERITAGE Models 1HD and 1HC wiring diagrams

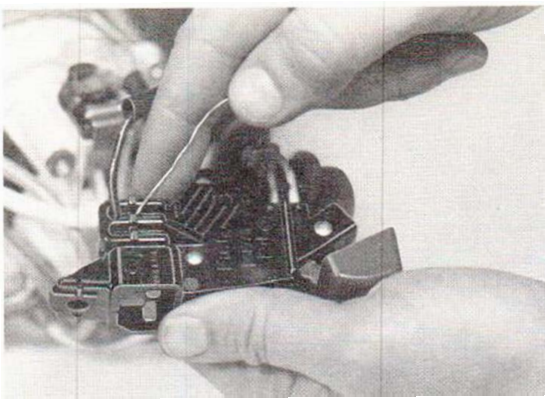


Figure 1-6. Removing wires from foot switch

(87, fig. 1-1) and the four colored leads from the speed selector switch.

(3) Remove the mounting screw (36) which secures the speed selector switch (39) to the vent plate (35) and motor housing (73). Lift the speed selector switch bracket off of the locating pin sticking through the vent plate and switch bracket. Being careful not to bend the linkage arm, slide it from the tear drop shaped hole at the bottom of the motor housing.

d. Switch replacement.

CAUTION

While installing the selector switch, be careful to avoid bending the linkage arm inserting it through the motor and fan housings, or while installing the switch lever (59).

(1) Insert the linkage arm through the motor housing eyelet and secure the switch in the retaining boss on motor housing (73, fig. 1-1).

(2) Emplace the selector switch by sliding the switch bracket over the locating pin of the motor housing sticking through the vent plate. Fasten the selector switch and vent plate to the motor housing with mounting screws (36).

(3) Insert lever (59) into the linkage arm and remount lever cover (60) to the fan housing with mounting screws (61).

(4) Inspect the four switch leads, the black switch/lead cover (87), the clear insulator tube (86), and the wire tie (89) before connecting the leads to the switch terminals. The four switch leads must be protected inside the insulator tube

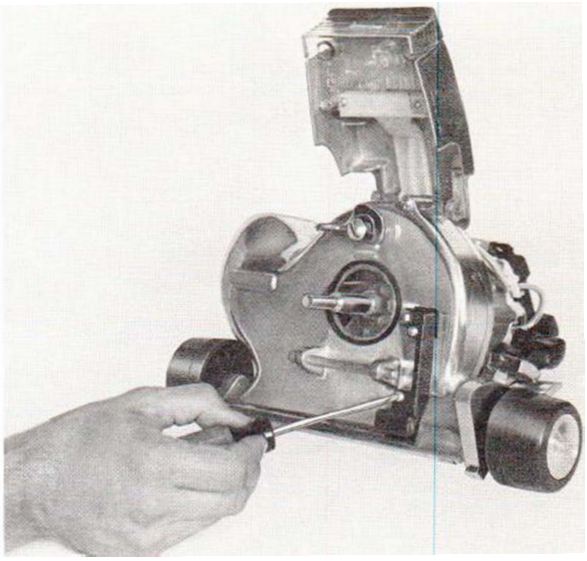


Figure 1-7. Removing lever cover from fan housing

and the tube must pass securely through the D-hole in the bell housing and into the housing. Be sure the switch/lead cover is secured to the insulator tube by the cable tie.

(5) Reconnect the four leads to the switch terminals according to the color coding. Cover the switch terminal board with the black switch cover (87), as shown in figure 1-9.

(6) Replace the housing shell as described in paragraph 1-3c.

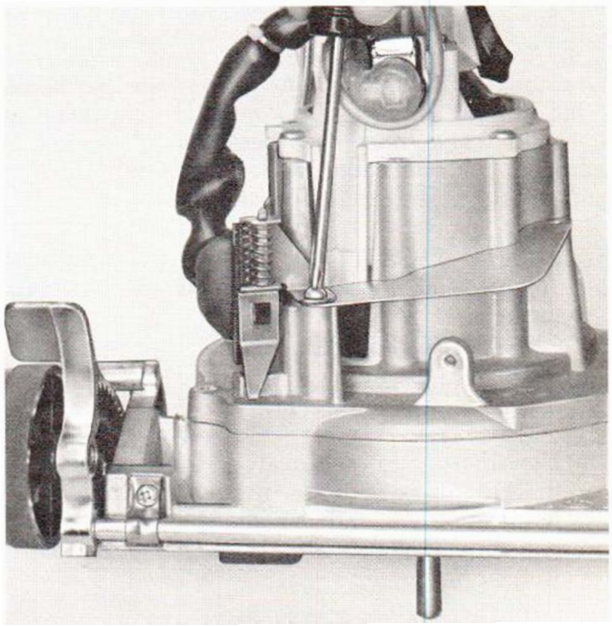


Figure 1-8. Removing speed selector switch

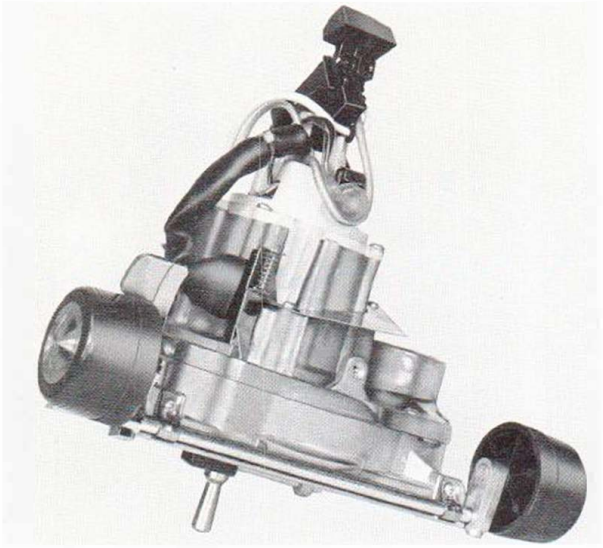


Figure 1-9. Speed selector switch and lead cover

1-6. HEADLIGHT

a. Bulb replacement.

(1) Lift headlight cap (41, fig. 1-1) and remove two headlight cap lens screws (36) as shown in figure 1-10. Remove lens from terminal block (46, fig. 1-1).

(2) To remove bulb, push it into the socket, rotate it about 1/4 turn counterclockwise, and pull it out. Test headlight operation with a good bulb before proceeding.

b. Socket testing. Corroded, bent, or broken contacts in the socket will prevent proper headlight operation. Clean and align contacts as necessary and recheck operation. If socket is damaged or contacts are defective, replace lens and socket assembly (48) as a unit.

c. Socket replacement. Fasten the headlight lens to headlight cap (41) with two screws (36).

1-7. HEADLIGHT CAP

NOTE

Headlight cap removal is not recommended as part of routine repair or overhaul. Remove and replace the headlight cap only if it has been damaged beyond functional repair.

a. Remove the housing shell as described in paragraph 1-3a, the headlight as described in paragraph 1-6, and the terminal hold down (53) by removing screws (36).

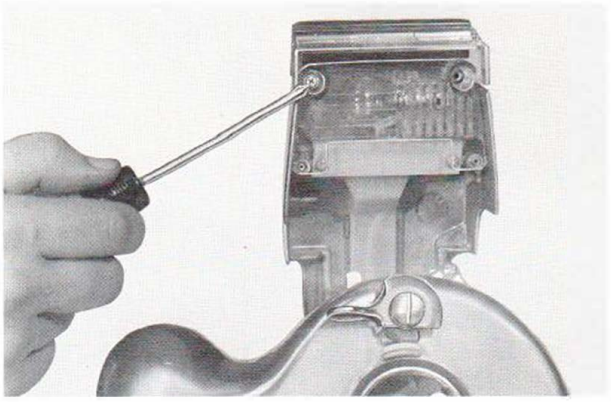


Figure 1-10. Removing headlight lens and socket

b. Remove the headlight cap by removing hinge pin (42) with a drift punch from left to right when the unit is facing you.

c. Attach terminal block (46), hold down (53), and mounting screws (36) to the new cap.

d. Align the holes of the new cap with those of the motor housing. Start the pin through the holes from right to left with the beveled end of the pin toward the left.

e. Be sure the headlight wires are over the hinge pin as shown in figure 1-18.

f. Replace the housing shell as described in paragraph 1-3c, and the headlight lens as described in paragraph 1-6c.

1-8. MOTOR BRUSHES

a. Removal.

(1) Remove housing shell as described in paragraph 1-3a.

(2) Pull off plastic brush caps (5, fig. 1-1). Note carefully the position of the brush wires. Squeeze together the spread end of the terminal clip and pull it out. The brushes (4) can then be removed.

(3) Inspect the brushes and armature commutator as described in paragraph b, below.

b. Inspection.

(1) Wipe the brushes with a rough, dry cloth. Examine the brushes for cracks, chips,

disconnected leads, damaged springs, roughness, or burned condition. If brushes are defective or worn to 3/8-inch length, replace with genuine Kirby brushes only.

(2) Inspect the armature commutator through the opening of the brush holder for roughness or excessive dirt. If the commutator is rough, scored, or dirty, remove the armature for cleaning or replacement, as directed in paragraph 1-10. If only a few commutator segments are burned, the armature windings may be open. Remove the armature and test as described in paragraph 1-10g.

(3) If only one brush is burned and the other remains shiny and smooth, the burned condition may be caused by an accumulation of dust or lint in the commutator area; or by a restriction of brush movement within the brush holder, caused by dirt or a pinched spring. In either case, the armature is probably good.

(4) If both brushes are burned, look for an open or shorted armature.

c. Brush installation.

(1) Insert brushes (4) into brush holders (3). Make sure the commutator contact surface is curved to fit the contour of the commutator. Use a pencil or small screwdriver to press down on the spring while inserting the terminal clip. Insert the clip from the notched side of the brush holder and push it in until the clip locks into the notch in the brush holder.

(2) Replace plastic brush caps (5), making sure the tubular part of each cap is securely inserted into the brush lead insulating tubes (1).

(3) Replace housing shell as described in paragraph 1-3c.

1-9. MOTOR UNIT MAJOR OVERHAUL

The following paragraphs give the instructions for complete disassembly, inspection, and rebuilding of the motor unit. It may not be necessary to completely disassemble the unit to replace the defective components and repair the motor unit. Follow the disassembly, inspection, and reassembly steps necessary to restore the unit to good working condition.

1-10. MOTOR UNIT DISASSEMBLY

a. Housing shell removal. Remove housing shell as described in paragraph 1-3a.

b. Speed selector switch removal. Remove the switch as described in paragraph 1-5c.

c. Front wheel removal.

(1) Remove the two front shaft clamp screws (56, fig. 1-1) from the bottom of fan housing (67).

(2) The ratchet lock (51) and ratchet lock spring (52) will be released as shaft (55) is removed.

d. Fan housing removal.

(1) Remove screw (68) from the front of fan housing (67). Remove three screws (38) from the motor housing casting around the exhaust outlet, and remove screw (50) from near the toe touch control.

CAUTION

The fan housing has been sealed with cement, and may not come apart easily. Do not attempt to pry the fan housing from the motor housing with a screwdriver as this may damage the mating surfaces or mar the front of the fan housing. Do not attempt to knock off the fan housing by rapping on it.

(2) To break loose the fan housing from the motor housing, insert a heavy screwdriver through the exhaust port of the motor housing and tap the end of the screwdriver. See figure 1-11.

(3) If the nozzle seal O-ring (62) is worn or damaged, remove it by prying it out with a small screwdriver, as shown in figure 1-12.

e. Fan removal.

CAUTION

Do not attempt to insert a screwdriver or other type of bar into the ventilating fan to lock the armature for fan (71, fig. 1-1) removal. Fan locking tool (T130) must be used. To fabricate a fan locking tool if you do not have one, refer to figure 1-13.

(1) Insert the fan locking tool through lower opening in motor bell housing (7, fig. 1-1) as illustrated in figure 1-14. Lower part of tool

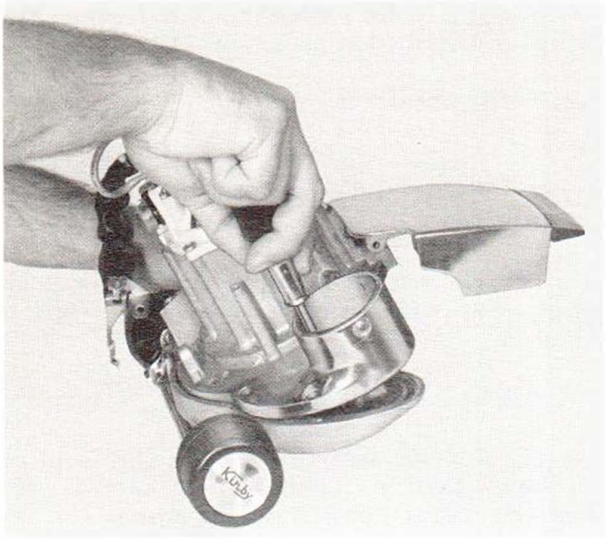


Figure 1-11. Tapping fan housing loose from motor housing

area (A) shown in figure 1-13 slides into one of the slots in the armature laminations. See figure 1-15. The protruding part of the tool bears against the internal shoulder of the field laminations.

CAUTION

The armature (78) and the pulley (69) which fastens fan (71) to the armature have left-hand threads. Unscrew the pulley CLOCKWISE.

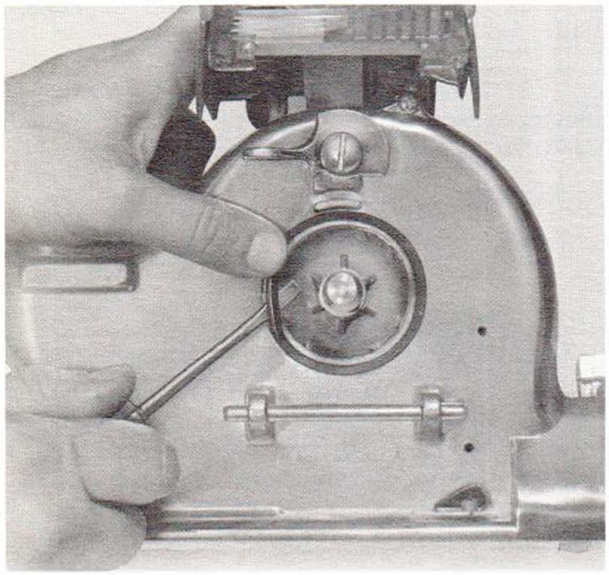
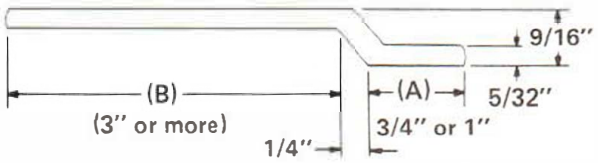


Figure 1-12. Removing nozzle seal O-ring



MAKE TOOL FROM ANY FLAT STEEL STOCK OF 1/16" THICKNESS. AREA (A) MUST BE GROUND OR FILED TO A THICKNESS OF 0.048 TO 0.050" SO THAT IT WILL ENGAGE SLOTS OF THE LAMINATIONS OF ARMATURE SIDE.

Figure 1-13. Fan locking tool dimensions

(2) Insert a small screwdriver or bar through the hole in pulley (69). Unscrew the pulley clockwise from the armature and remove the pulley, washer (70), fan (71), and spacer (72) from the shaft.

f. Motor brush removal. Refer to paragraph 1-8.

g. Armature assembly removal.

(1) Remove the headlight wires (43, fig. 1-1) and insulation tube (45) from the slot on the upper left side of motor bell housing (7). Do not disconnect the wires unless the field (82) must be replaced.

(2) Remove four screws (85) at the rear of the motor bell housing.

CAUTION

Before removing the bell housing from the motor housing, disconnect the four leads from the speed selector switch to prevent damaging the switch terminal connectors during bell housing removal.

(3) Pry bell housing out of motor housing casting (73) by inserting screwdriver blade between end of motor housing and shoulder on bell housing. It is possible to remove the bell housing and field assembly from the rear of the motor housing casting without disconnecting the field leads at the foot switch.

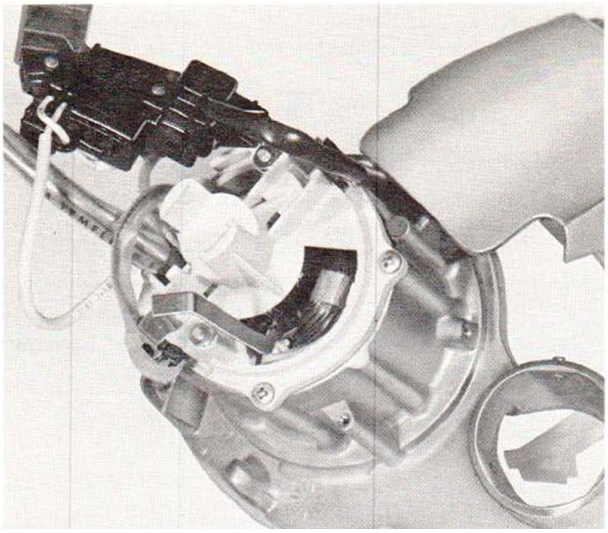


Figure 1-14. Fan locking tool inserted through motor bell housing

(4) Remove shaft of armature (78) from the front bearing (76) as shown in figure 1-16. If the front bearing is defective, use special retaining ring pliers (Waldes Truarc No. 0300) to remove the retaining ring from the bore in the motor housing casting as shown in figure 1-17. Press the front bearing from its seat in the motor housing casting. Do not remove the front bearing seal (74, fig. 1-1) or the seal retainer (75) unless they are badly worn.

(5) To remove armature rear bearing (79), attach bearing puller (SP125).

(6) Remove thrust washer (80) and rear bearing finger spring (84) from bearing seat at rear of motor bell housing.

h. Field removal.

(1) Remove the wires from the foot switch as described in paragraph 1-4c.

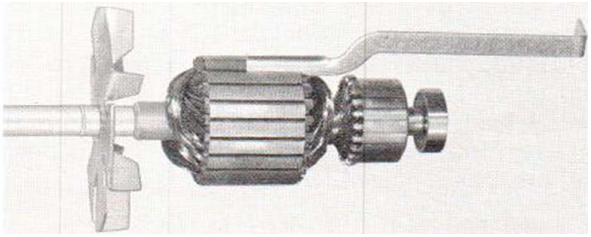


Figure 1-15. Locking tool positioned in armature slot

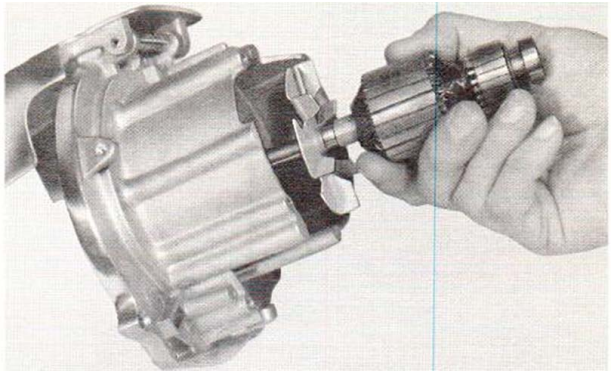


Figure 1-16. Removing armature

(2) Slide the headlight wires (43) from the slot on the back of the motor bell housing (7).

(3) Remove the headlight lens (48) and terminal block hold down (53) by removing screws (36) as shown in figure 1-10. The terminal block (46, fig. 1-1) will fall free, and may be removed easily from the hinge pin (42) by gently prying up with a small screwdriver.

(4) Disconnect the headlight wires from the terminal block by squeezing the clip prongs together with a tweezer or small screwdriver, as shown in figure 1-18. Pull the wires back through the slot above the hinge pin.

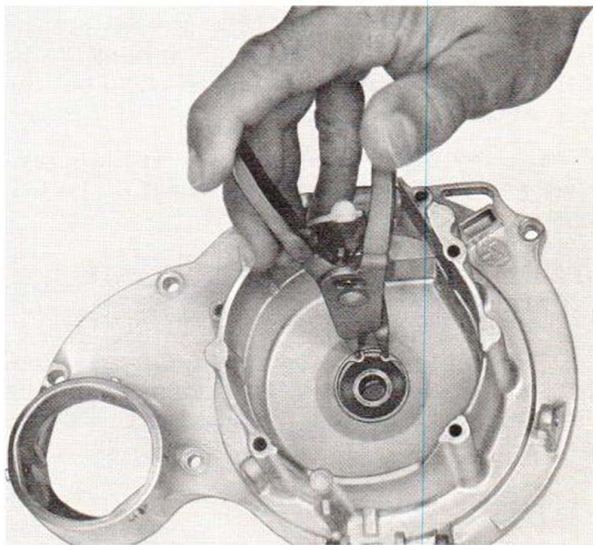


Figure 1-17. Removing bearing retaining ring from motor housing

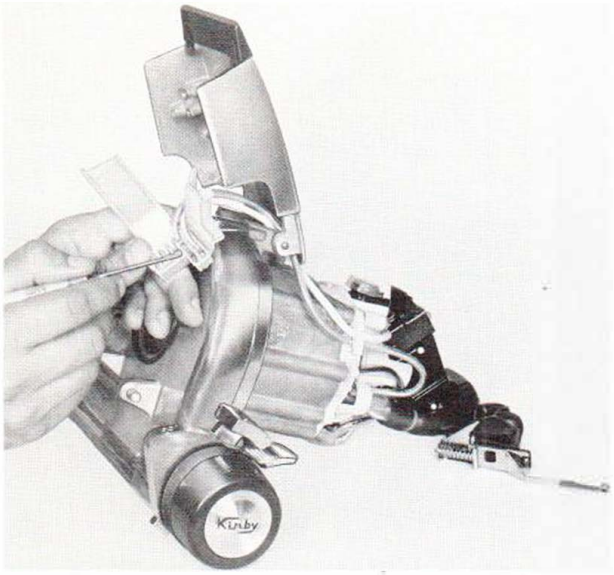


Figure 1-18. Headlight wire terminal clips in terminal block

CAUTION

There are no force fits, shrink fits, or compounds employed in the bell/motor housing assemblies that require the use of heat in the removal of any motor part. Using a torch to heat parts will burn insulation and damage plastic components.

(5) Remove two field nuts (8, fig. 1-1) from field screws (81), and remove the screws from the front of the bell housing. Disconnect the speed selector switch wires from the switch terminals. Cut the wire tie (89), and remove the black switch/lead cover (87), and insulator tube (86) from the switch leads. Pull the field out the front of the bell housing.

(6) Pry off retainer clips (6) with a screwdriver and push brush holders (3) out of the bell housing.

1-11. MOTOR UNIT INSPECTION AND REPAIR

a. Fan inspection. Inspect the fan for cracked, bent, or broken blades, for looseness on the shaft, and for damaged threads. Replace defective fan.

b. Bearing inspection.

(1) Inspect front and rear bearings (76 and 79, fig. 1-1) for rough or binding operation, excessive looseness or wear, or discoloration of balls or race. Replace the bearings if worn, damaged, or discolored.

WARNING

Many cleaning solvents are toxic. Use in a well-ventilated area. Avoid breathing vapors. Avoid contact with skin.

(2) If the bearings are to be reused, wipe them thoroughly with clean kerosene or a safety solvent to remove all old grease. Allow bearings to dry completely before reinstallation.

c. Armature inspection.

(1) Inspect the armature ventilating fan blades, and straighten any bent blades.

(2) Check for grounded armature windings with a test meter set for continuity. Because the armature is double insulated, the windings must be tested between the commutator segments and the laminations. If the meter indicates continuity at any segment, the armature is grounded and must be replaced.

(3) If the armature windings appear burned, if the commutator segments are burned from arcing, or if the armature is bent or worn where it seats the bearings, the armature must be replaced.

d. Commutator repair.

(1) Use No. 400 sandpaper to clean the commutator and to remove any burrs or surface roughness.

(2) Carefully clean all copper or carbon dust from the slots between the commutator segments.

(3) If the armature commutator is worn, rough beyond sandpaper smoothing, or grooved; it must be replaced.

e. Field inspection.

(1) With a volt ohm meter (VOM) (A.W. Sperry Instruments Model SP-15) set to test for continuity, test the circuit first across the red and green leads and then across the white and yellow leads. In both tests the meter should indicate continuity. If it does not, the field is open and must be replaced.

(2) Check the field for grounds by touching one probe of the VOM to the field core and the other to each of the field leads in turn. If continuity is indicated in any of the four tests, the field coil is grounded and must be replaced.

CAUTION

Before testing the high voltage resistance of the field, clean the motor windings. Dirt may conduct high voltage and endanger an otherwise good motor.

(3) With the high voltage insulation tester (Slaughter Co. Model 101.2.5) set for 1500 volts, and the speed switch engaged either by the nozzle or the hose attachment, test the insulation resistance by attaching one meter probe to the metal motor casting and the other to one foot switch prong for one second; then, using the alternate foot switch prong, repeat the test. If the insulation fails either test, replace the field.

f. Inspection and repair of housings.

(1) Stripped threads in any of the housings can be remedied by cleaning up the bore and using the next larger self-tapping screw upon reassembly; or the bore could be reamed and tapped for an appropriate sized machine screw.

(2) If fan housing (67, fig. 1-1) is cracked, bent, or otherwise damaged, replace it.

(3) If motor housing (73) is bent, cracked, or worn in a critical area such as the bearing seat, replace it.

(4) If motor bell housing (7) is cracked or worn, especially around the bearing seat; if the area around the brush holders is melted, burned, or discolored; or if the bearing seat is worn so that the bearing no longer fits snugly, replace the housing.

WARNING

Many cleaning solvents are toxic. Use in a well-ventilated area. Avoid breathing vapors. Avoid contact with skin.

(5) If a housing is serviceable, wipe it clean with a rag soaked in kerosene or safety solvent, and blow out dust with compressed air. Allow housing to dry completely before reassembly.

1-12. MOTOR UNIT REASSEMBLY

a. Motor housing casting.

(1) Install front bearing seal (74, fig. 1-1) into the motor housing. Pack with Kirby bearing grease (T105) and install front bearing seal retainer (75) into the motor housing.

(2) Press a new front bearing (76) into the housing bore. Take care to press against only the outer bearing race to prevent bearing damage. Using special retaining ring pliers (Waldes Truarc No. 0300), install retaining ring (77) to secure the bearing in the housing bore. Refer to figure 1-17.

(3) Install brush holders (3, fig. 1-1) by pushing them into place at the rear of the bell housing. Note that the brush holder has a tab on the underside of its seating lip. Align this tab with the corresponding notch in the motor housing casting. Lip on brush holder contacts the boss on bell housing when holder is properly seated. Fasten with retainer clip (6).

b. Field installation.

(1) Field wires are tied into a harness at one end of the field (82). This end faces rear of motor bell housing (7). Feed the six longest leads through the D-hole at the end of the bell housing. The short green lead with the brush holder terminal clip passes through the opening next to this boss, not through the hole with the rest of the wires.

(2) Select the four speed switch leads from the wires fed through the D-hole. Slide the insulator tube (86) over the switch leads and slide it securely into the D-hole in the bell housing.

(3) Field core has two grooves along its length. The groove on the side opposite the wiring harness must be aligned with the guide on the inside wall of the bell housing.

CAUTION

Tighten screws only until field is seated in bell housing and nuts are snug. Bell housing will crack if screws are overtightened. Because of the low torque permitted on the screws, the nuts must be secured with Loctite. Be sure to wipe any excess Loctite from the motor, bell housings, or electrical leads or connections, as this excess will gather carbon dust, causing electrical tracking and grounding of the field.

(4) Place a small drop of Loctite thread sealing compound on the threads of screws (81). Fasten the field to the bell housing with these two screws and nuts (8). Wipe off any excess Loctite.

c. Armature reassembly and installation.

(1) Align rear bearing (79) on the armature shaft. Use an arbor press or vise to press bearing onto the shaft, applying pressure against the inner bearing race only.

(2) Set rear bearing finger spring (84) in the rear bearing bore with fingers toward the bearing. Set thrust washer (80) in place over rear bearing finger spring.

(3) Dip the end of a straightened paper clip in Loctite thread sealing compound, and apply the retained Loctite on the threads of each of four tapped holes at the back of the motor housing casting. Wipe off any excess Loctite.

(4) Slide long end of armature shaft through front bearing (76) in motor housing.

CAUTION

Tighten screws only until bell housing is tight against motor housing and screws are snug. Bell housing will crack if screws are overtightened. Loctite must be used because of the low torque permitted. Be sure to wipe any excess Loctite from the motor, bell housings, or electrical leads or connections, as this excess will gather carbon dust, causing electrical tracking and grounding of the field.

(5) Install the bell housing into the motor housing by sliding it over the end of the armature. Fasten with four screws (85).

d. Fan installation.

(1) Insert the fan locking tool (T130) (see figure 1-13) through the lower window in the motor bell housing as shown in figures 1-14 and 1-15, so that the tool slides into one of the armature laminations and the protruding part of the tool bears against the internal shoulder of the field lamination.

CAUTION

Armature (78, fig. 1-1) and the pulley (69) which fastens the fan (71) to the armature both have left-hand threads. Turn the pulley counterclockwise to thread it onto the armature.

(2) Slide spacer (72), fan (71), and washer (70) onto the armature shaft and thread pulley (69) into place.

(3) Insert a small screwdriver or bar through the hole in the pulley and tighten it on the shaft.

(4) Remove the screwdriver and fan locking tool, and spin the fan by hand to check for free rotation.

e. Fan housing installation.

(1) Reinstall nozzle seal O-ring (62) if it has been removed. Be sure to coat the flat side of the O-ring with Kirby plastic cement (T106). Install the O-ring in its groove in the fan housing with the cupped side out.

(2) Use a file or knife blade to remove old sealing cement from mating surfaces of fan housing (67) and motor housing casting.

(3) Coat the mating surfaces with fresh sealing cement (Scotch Clear Seal No. 1103, or equivalent). Align the fan housing with the motor housing casting and press parts together. Attach fan housing with one screw (68) through front of fan housing, one screw (50) through motor housing casting near toe touch control, and three screws (38) through motor housing casting around exhaust outlet.

f. Front wheel installation.

(1) Position ratchet lock spring (52) and ratchet lock (51) in motor housing casting.

(2) Slide the toe control lever of front wheel bracket shaft (55) over the arrow-shaped boss on the ratchet lock and hold in place on the fan housing while attaching front shaft clamps (57) with attaching screws (56). See figure 1-19.

g. Headlight installation. Refer to paragraph 1-6. Slide headlight wires under arm on back of motor bell housing.

h. Brush installation. Refer to paragraph 1-8.

i. Speed selector switch installation. Refer to paragraph 1-15d.

j. Foot switch installation. Attach white wires from field and headlight by inserting into proper holes in foot switch. Check wiring diagram (figure 1-5) to determine wire locations, and refer to figures 1-4 and 1-9 for wiring arrangement. Replace housing shell as described in paragraph 1-3c.

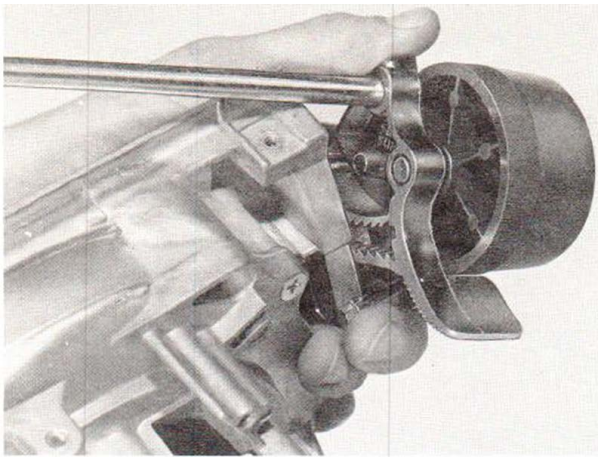


Figure 1-19. Installing front wheel shaft

1-13. HANDLE SPRING

a. Handle spring removal.

(1) Remove housing shell as described in paragraph 1-3a.

(2) Use a screwdriver to remove bushing clip (26, fig. 1-1).

(3) If spring (11) is not broken, release the spring tension before proceeding. Note in which notch of bushing (24) the tab of yoke (22) is located. The orientation of the yoke tab and the right bushing notch is critical to setting the correct spring tension during reassembly.

(4) Engage the pin of the spring tool (SP123) into one of the unused notches of the bushing. Twist it against the force of the spring. Inserting a screwdriver blade between the yoke and the bushing lip, disengage the yoke tab from the bushing notch. If the tab catches in the next notch, repeat the procedure until the spring is loose on the shaft.

(5) Remove spring screw (23) from bushing (24), and pull the bushing and yoke from the shell. See figure 1-20.

(6) Remove spring clip (27 fig. 1-1) from shaft (20). Catching the spring and bronze bearing with one hand, pull the shaft from the shell. Do not remove the two shell bushings (13 and 21) unless they must be replaced.

b. Handle spring replacement.

(1) If shell bushings (13 and 21) are worn, replace them.

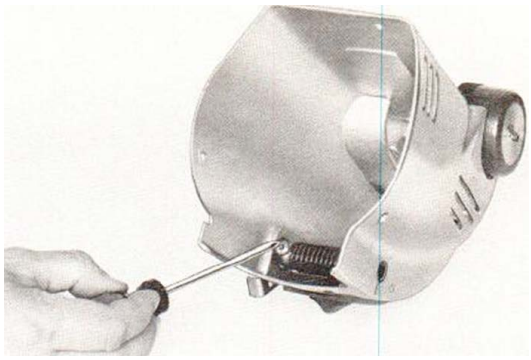


Figure 1-20. Removing screw from spring bushing

(2) At one end of spring shaft (20), there is a raised tab. Insert this end of the shaft through the larger shell bushing (21). Inside shell (12), slide bronze bearing (19) and spring (11) onto the shaft and slide the shaft into shell bushing (13).

(3) Slide handle fork pin (25) through the metal bushing (24) and into spring shaft (20). This pin will help separate the ends of the spring clip when it is installed. Install spring clip (27) so that flat side of the clip engages the groove in the shaft. Remove handle fork pin (25) and bushing (24) from the spring shaft.

(4) Slide yoke (22) onto bushing (24), and the bushing onto spring shaft (20) and into bushing (21). Install screw (23) into bushing (24).

(5) Insert the pin of the spring tool (SP123) into a notch of bushing (24) and rotate the bushing clockwise until the hook of spring (11) catches the shoulder of the screw. Use a screwdriver blade to prevent the tab on yoke (22) from catching in the wrong bushing notch. Continue to rotate the bushing until the tab on the yoke drops into a middle notch that will provide sufficient spring tension.

(6) Tap the bushing to seat it completely and install bushing clip (26) to retain the bushing.

NOTE

To prevent misplacing fork pin (25), temporarily reinsert it until handle is reinstalled.

(7) Replace the housing shell as described in paragraph 1-3c.

SECTION 2
NOZZLE GROUP

INDEX

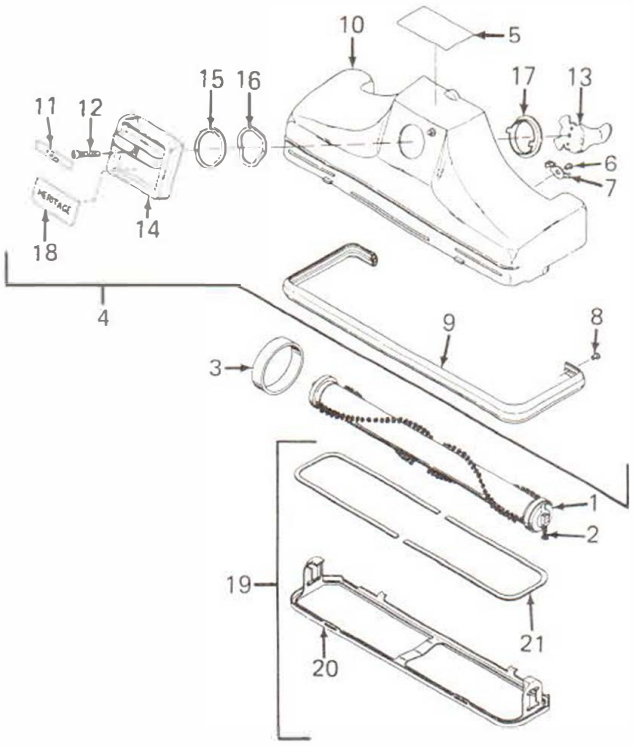


Figure 2-1. HERITAGE nozzle group, exploded view

Index No.	Part No.	Part Name	Quantity
2-1-1	152581	Brush roll assembly	1
-2	154169	Adjusting screw	2
-3	301279	Belt	1
-4	141681S	Nozzle less rug plate	1
-5	146681	. Instruction plate	1
-6	141381	. Rug plate latch rivet	1
-7	141481	. Rug plate latch	2
-8	140869	. Bumper end rivet	2
-9	140481	. Bumper	1
-10	***	. Nozzle body	1
-11	146381	. Belt lifter label	1
-12	144781	. Belt lifter screw	1
-13	144281	. Belt lifter hook	1
-14	144081	. Belt lifter	1
-15	144681	. Belt lifter flat washer	1
-16	144181	. Belt lifter spring washer	1
-17	145481	. Belt lifter bearing	1
-18	146781	. Belt lifter bottom label	1
-19	154481S	Rug plate assembly	1
-20	***	. Rug plate	1
-21	154881S	. Rug plate gasket (set)	1

*** Do not order this part; if defective, order the assembly above.

2-1. NOZZLE GROUP PARTS LIST

The exploded view illustration in figure 2-1 shows all available parts for the Nozzle Group of the HERITAGE. The parts are drawn in proper relationship to each other to serve as an aid to disassembly and reassembly. Note the following:

a. The parts list contains part numbers only for those parts for which service replacements are available. If you cannot find a part on the exploded view, or if the symbol (***) appears in the Part No. column, the part cannot be replaced separately.

b. The part names in this list are indented to indicate subassembly relationship. When a part name is indented under another name, it indicates that the indented part belongs to the subassembly under which it is indented. If you order an assembly, you will receive all the parts indented under it in this parts list.

c. The index numbers have been assigned in the approximate order of disassembly, except when the sequence is broken to show correct subassembly relationship.

2-2. NOZZLE AND BRUSH ADJUSTMENTS

a. Check that the two lugs that fit over the nozzle attaching shaft are not broken or badly distorted. These lugs cannot be repaired; if defective, the nozzle assembly must be replaced.

b. Brush adjustment.

(1) Place a straight edge across the nozzle opening to determine the protrusion of the brush bristles as shown in figure 2-2. Bristles should protrude 1/16 inch beyond the mouth of the nozzle.

(2) The brush roll height adjusting screws (2, fig. 2-1) are located at each end of the brush. Turn the adjusting screw clockwise to extend the brush so it protrudes more. Turn the adjusting screw counterclockwise to retract the brush so it protrudes less.

(3) Check and adjust the brush at each end of the nozzle to obtain the proper adjustment. Replace the brush roll assembly (1) when the bristles of the old brush are worn too short to make adjustment practical.

Figure 2-2. Checking nozzle brush protrusion

2-3. BRUSH ROLL, RUG PLATE, AND BELT REPLACEMENT

a. Adjust belt lifter (14) to release the tension on belt (3).

b. Turn the two rug plate latches (7) to release the rug plate, and swing the plate down and off the two bosses on the front of the nozzle body, as shown in figure 2-3.

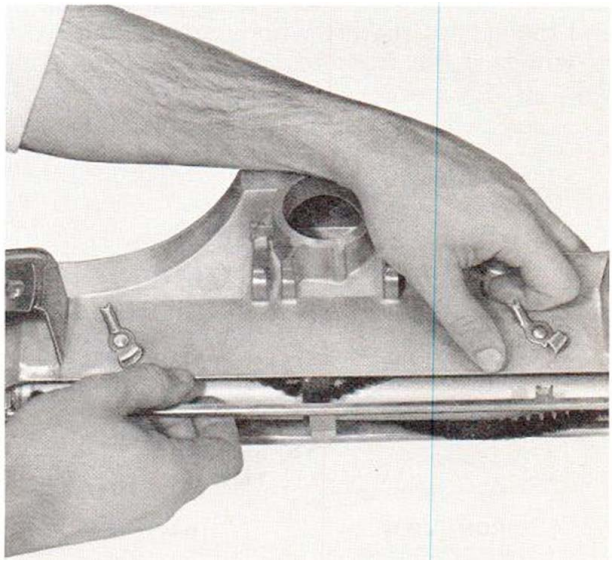


Figure 2-3. Releasing rug plate spring lock

c. Remove adjusting screws (2, fig. 2-1) from the ends of the brush roll. Carefully spreading the rug plate arms, work the brush roll out of the plate.

d. Install a new brush roll (1), rug plate assembly (19), or belt (3) as required. Replace the adjusting screws and close the rug plate on the nozzle body, securing it with the two latches (9).

e. Adjust the brush roll height as described in paragraph 2-2b.

2-4. BELT LIFTER REPLACEMENT

a. Remove the rug plate and brush roll as described in paragraph 2-3.

b. With a screwdriver or fingernail, lift the label (11) at its center to expose belt lifter screw (12). Holding belt lifter hook (13) inside the nozzle, remove the belt lifter screw. As the belt lifter hook and bearing (17) are pulled from belt lifter (14), spring washer (16) and flat washer (15) will fall free.

c. Inspect for and replace worn, broken, or damaged parts.

d. To replace the belt lifter:

(1) Place belt lifter hook (13) and bearing (17) into nozzle body (10) from the inside, and hold them in place with your left hand. Position them so the tabs of the bearing are horizontal and the ears of the lifter hook are to your right as you face the front of the nozzle. See figure 2-4.

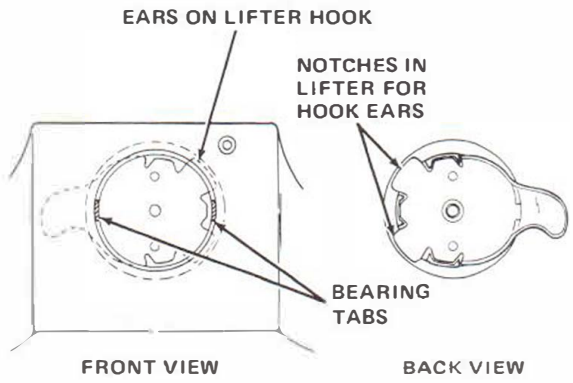


Figure 2-4. Positioning of the belt lifter, hook, and bearing

(2) Place spring washer (16, fig. 2-1) then flat washer (15) over the tabs of the bearing from the outside of the nozzle body.

(3) With lifter screw (12) placed in belt lifter (14), position the lifter with the lifter bar horizontal so the tabs of the bearing (17) fit into the depression in back of the lifter bar. Press the lifter into place, moving it slightly until you feel it slip into place with the ears of the hook fitting into the notches on the right side of the lifter, as shown in figure 2-4.

(4) When positioned properly, screw (12, fig. 2-1) lines up with the threaded hole in hook (13). Thread the screw into the hook and securely fasten the assembly in place. Replace the lifter label by inserting each end into the notches on the lifter bar and pressing the center of the label until it slips into place.

(5) The lifter hook and lifter must be oriented correctly for proper lifting of the belt. Check the orientation by starting with the lifter bar horizontal and the "Kirby" reading right to left. The recessed arrow should be in the upper left hand corner pointing to the BELT ON mark on the label, as shown in figure 2-6.

(6) Turn the lifter 270° counterclockwise until it is stopped by the housing stop rivet. The "Kirby" on the label should read from top to bottom. The arrow should be pointing to the

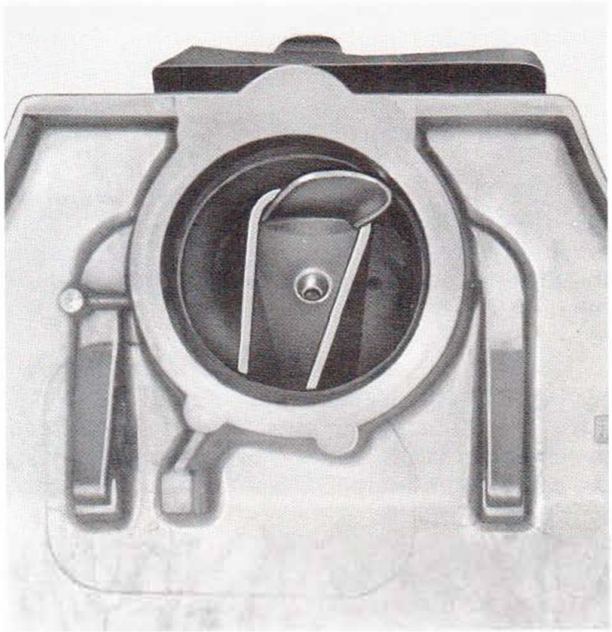


Figure 2-5. Belt lifter and lifter hook in position

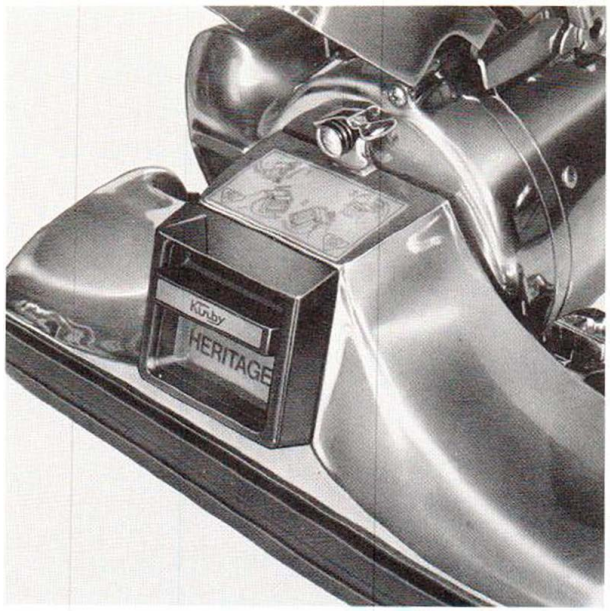


Figure 2-6. Belt lifter in BELT ON position

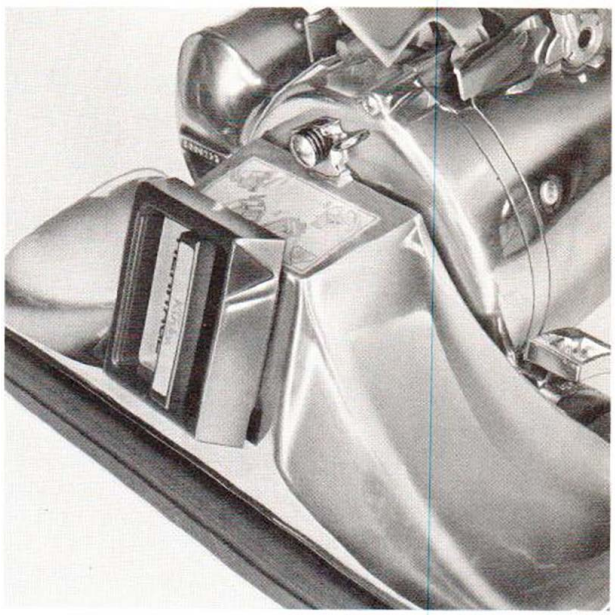


Figure 2-7. Belt lifter in BELT OFF position

BELT OFF mark on the right side of the label, as shown in figure 2-7. The belt lifter hook lifting flange should be in the top dead center position as shown in figure 2-5. If it is not, disassemble and reassemble properly.

(7) Replace the brush roll, rug plate, and belt as described in paragraph 2-3.

(8) With the belt in place, check that the belt is lifted properly as shown in figure 2-5.

SECTION 3
HANDLE GROUP WITH CORD

INDEX

3-1. HANDLE GROUP PARTS LIST

The exploded view illustration in figure 3-1 shows all available parts for the Handle Group of the HERITAGE. The parts are drawn in proper relationship to each other to serve as an aid to disassembly and reassembly. Note the following:

a. The parts list contains part numbers only for those parts for which service replacements are available. If you cannot find a part on the exploded view, or if the symbol (***) appears in the Part No. column, the part cannot be replaced separately.

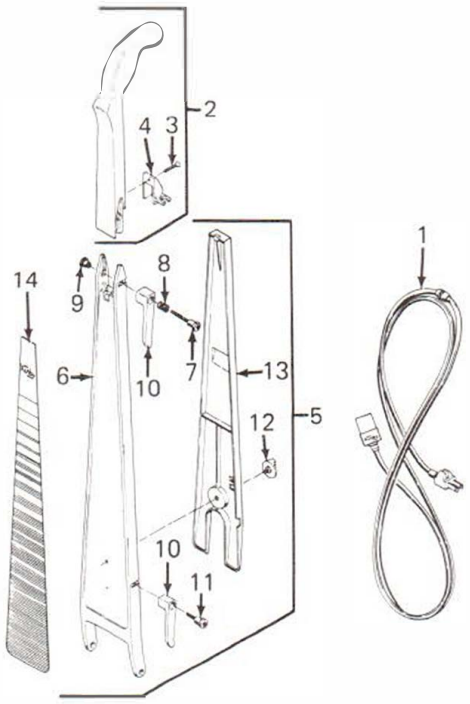


Figure 3-1. HERITAGE handle group, exploded view

Index No.	Part No.	Part Name	Quantity
3-1-1	192081	Cord set	1
-2	173381	Handle grip assembly	1
-3	175381	. Bracket retainer screw	1
-4	175481	. Bracket	1
-5	175081G	Handle fork assembly	1
-6	***	. Handle fork	1
-7	174067	. Swivel screw	1
-8	174167	. Spring	1
-9	175168	. Swivel post nut	1
-10	173881	. Cord hook swivel	2
-11	174467	. Shoulder screw	1
-12	174981	. Cover retainer screw	1
-13	174581	. Rear cover	1
-14	174381	Insert label	1

*** Do not order this part; if defective, order the assembly above.

b. The part names in this list are indented to indicate subassembly relationship. When a part name is indented under another name, it indicates that the indented part belongs to the subassembly under which it is indented. If you order an assembly, you will receive all the parts indented under it in this parts list.

3-2. CORD

WARNING

Do not use the Kirby cord set as an extension cord. This may damage the cord set and make it unsafe to use as a power cord with the Kirby.

Failure of the unit to operate can be caused by interruption of the circuit in the cord between the wall outlet and the motor unit.

a. Inspect the cord for cuts, defective insulation, damaged or loose plug or connector.

CAUTION

A plastic key (see figure 3-2) has been included in the female end of the cord set. This is to prevent the cord being used as an extension. Because of this it is no longer possible to test the continuity by connecting the cord between a power source and a desk lamp to observe operation of the lamp.

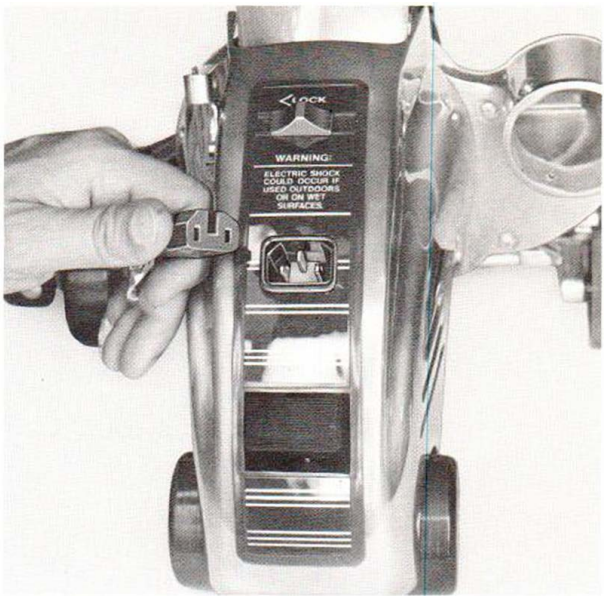


Figure 3-2. Kirby cord set with alignment pin safety key

b. If the plug or connector is damaged or burned, remove the old part from the cord, clean the leads, and install a new plug or connector.

c. If the cord insulation is damaged or if there is a break in the cord wires, the entire cord should be replaced.

SECTION 4
SANI-EM-TOR AND BAG GROUP

INDEX

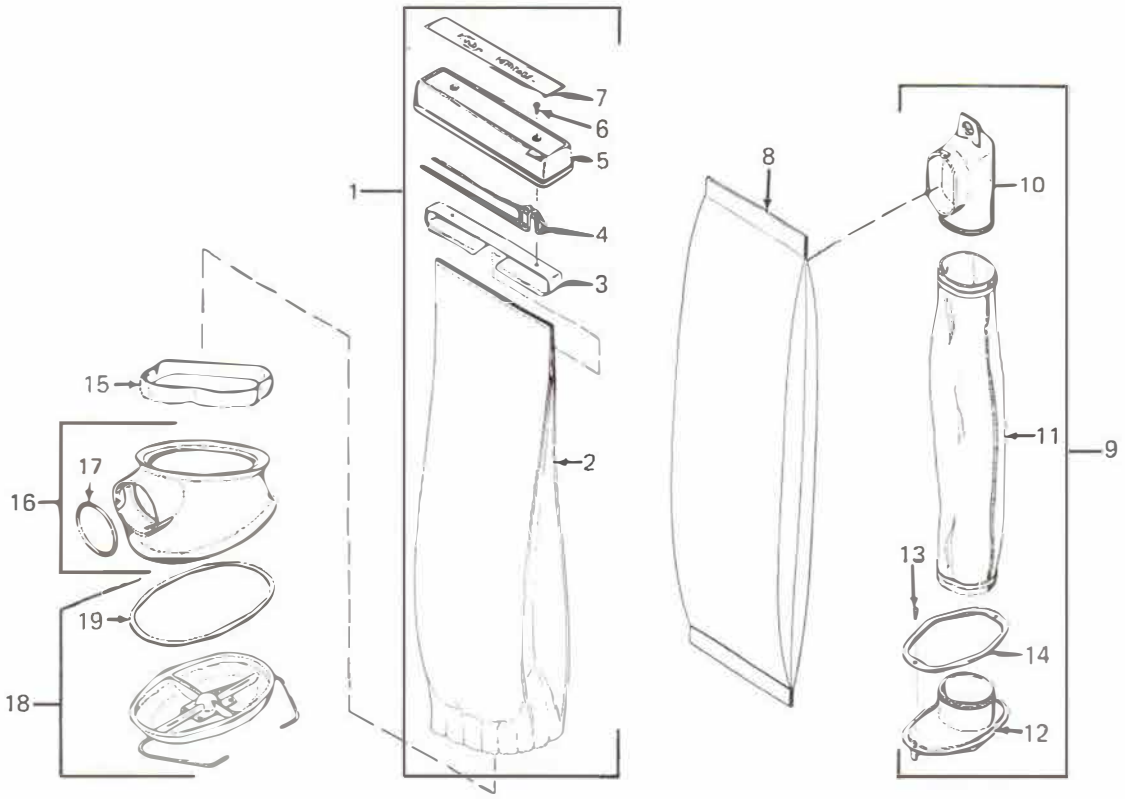


Figure 4-1. HERITAGE Sani-Em-Tor and bag group, with disposable bag, exploded view

Index No.	Part No.	Part Name	Quantity
4-1-1	189981S	Cloth bag assembly (zipper)	1
-1a	189481S	Cloth bag assembly (pocket)	1
-2	190081	. Cloth bag only (zipper)	1
-2a	189681	. Cloth bag only (pocket)*	1
-3	173681	. Support hanger	1
-4	191781	. Wire hanger	1
-5	191881	. Top cover	1
-6	193281	. Clamp screw	2
-7	192281	. Top cover label	1
-8	190681	Disposable bag, paper	3
-9	189881S	Disposable filler tube assembly	1
-10	***	. Disposable bag top clamp assembly	1
-11	***	. Disposable bag filler tube	1
-12	***	. Disposable bag adapter collar	1
-13	191481	. Adapter mounting screw	2
-14	192981	. Adapter gasket	1
-15	191681	Bag guard, plastic collar	1
-16	179981S	Sani-Em-Tor body with gasket and cam	1
	***	. Sani-Em-Tor body	1
-17	188056	. Sani-Em-Tor body gasket	1
-18	185981S	Sani-Em-Tor bottom tray with gasket	1
	***	. Sani-Em-Tor bottom tray	1
-19	186169	. Sani-Em-Tor bottom tray gasket	1

* Not illustrated.
*** Do not order this part; if defective, order the assembly above.

4-1. SANI-EM-TOR AND BAG GROUP PARTS LIST

The exploded view illustration in figure 4-1 shows all available parts for the Sani-Em-Tor and Bag Group with disposable bag and adapter of the HERITAGE. The parts are drawn in proper relationship to each other to serve as an aid to disassembly and reassembly. Note the following:

a. The parts list contains part numbers only for those parts for which service replacements are available. If you cannot find a part on the exploded view, or if the symbol (***) appears in the Part No. column, the part cannot be replaced separately.

b. The part names in this list are indented to indicate subassembly relationship. When a part name is indented under another name, it indicates that the indented part belongs to the subassembly under which it is indented. If you order an assembly, you will receive all the parts indented under it in this parts list.

4-2. BAG REPLACEMENT

a. Removal.

(1) Unscrew the Sani-Em-Tor to remove it from the motor unit.

(2) Lift label (7, fig. 4-1) to access cover mounting screws (6) as shown in figure 4-2.

(3) Remove both screws to remove top cover (5, fig. 4-1), wire hanger (4), and support hanger (3) from bag (2).

(4) Pull up bag guard (15), and slide it along and off the bag. Stretch the spring in the bottom of the bag and remove the bag from the Sani-Em-Tor.

b. Installation.

(1) Rest Sani-Em-Tor body (16) against the edge of a workbench and use both hands to stretch the bag over the body flange as shown in figure 4-3.

(2) Slide bag guard (15, fig. 4-1) over the bag and pull it down around the bag bottom to seal the bag to the Sani-Em-Tor.

(3) Slide the legs of support hanger (3) between the folds on each side of the bag. Install

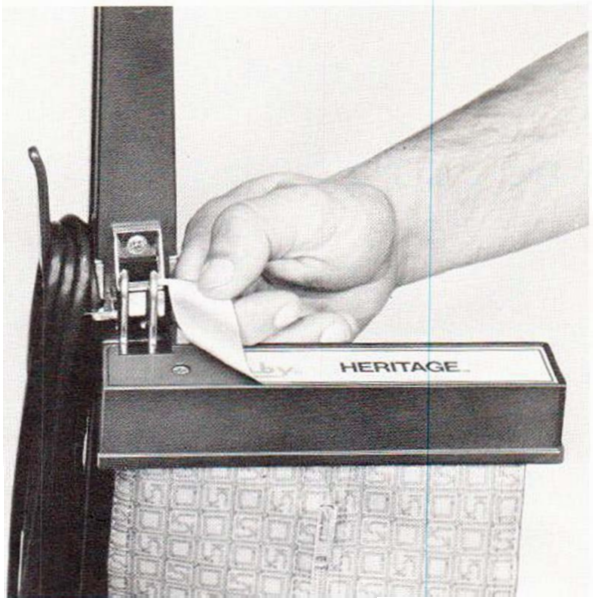


Figure 4-2. Label on top cover and mounting screw

wire hanger (4) in the cover (5), and fasten the cover to the support hanger with mounting screws (6). Replace the label on the cover.

(4) Reattach the Sani-Em-Tor to the motor unit. The Sani-Em-Tor should fit snugly to the exhaust horn of the motor. To facilitate reattaching the Sani-Em-Tor with a new gasket which may be dry on the surface, spray the gasket in place with WD-40 or other suitable rubber-safe lubricants, observing the precautions recommended by the manufacturer.

Figure 4-3. Installing bag on Sani-Em-Tor body

Figure 4-4. Filler tube, adapter collar, and mounting screws

4-3. FILLER TUBE REPLACEMENT

a. Removal. If a pocket bag is used on the unit, the bag must be removed as described in paragraph 4-2. If a zipper bag is used, detach wire hanger (4) from hanger bracket (4, fig. 3-1), unzip the bag and fold the sides out of the way to pull filler tube (11, fig. 4-1) out of the bag, as shown in figure 4-4. Remove the two screws (13, fig. 4-1) and drop the adapter collar (12) through the Sani-Em-Tor body and out the opened bottom tray as shown in figure 4-5.

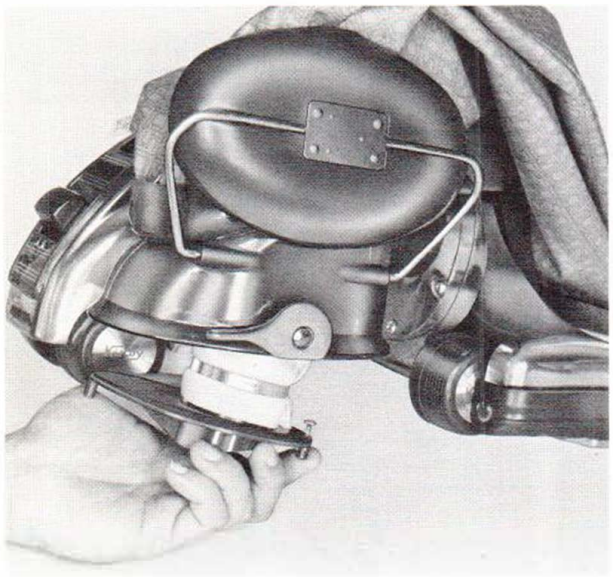


Figure 4-5. Filler tube and adapter cover through bottom of Sani-Em-Tor body

b. Installation.

(1) With the bottom tray (18, fig. 4-1) of the Sani-Em-Tor open, slip the filler tube up into the bag, and secure the collar in place with mounting screws (13).

(2) Attach the filler tube to the elastic hanger in the top of the bag. If a pocket bag is used, reinstall the bag onto the Sani-Em-Tor as described in paragraph 4-2. If a zipper bag is used, zip the bag closed and attach it to the hanger bracket.

4-4. SANI-EM-TOR REPAIR

a. Bottom tray replacement.

(1) Release the bail on Sani-Em-Tor bottom tray (18, fig. 4-1) and open the bottom tray. Disengage the ends of the bail from the Sani-Em-Tor body and remove the bottom tray.

WARNING

Adhesive is flammable and toxic. Do not use near heat, sparks, or open flames. Use in well-ventilated area. Avoid prolonged contact with skin. Avoid breathing vapors.

(2) If only Sani-Em-Tor bottom tray gasket (19) is worn, pull it from the groove in the bottom tray. Clean the groove and cement a new gasket in place with Kirby T106 adhesive.

(3) Position the Sani-Em-Tor bottom tray so that the side with the small rivet is toward the clamp on the Sani-Em-Tor body. Engage the two ends of the bail in the holes in the Sani-Em-Tor body as shown in figure 4-6.

b. Gasket replacement.

(1) If body gasket (17, fig. 4-1) is worn, cracked, or gouged, use a knife or screwdriver to remove the gasket from Sani-Em-Tor body (16).

WARNING

Adhesive is flammable and toxic. Do not use near heat, sparks, or open flames. Use in well-ventilated area. Avoid prolonged contact with skin. Avoid breathing vapors.

(2) Use Kirby T106 adhesive to secure a new gasket in the Sani-Em-Tor body.

4-5. GENERAL DUST LEAKAGE

Complaints of dust odor or leakage can result from the following:

a. Bag problems.

(1) Worn or damaged bag. Replace if necessary.

(2) Bag agitation, possibly from bumping the bag into furniture while the motor is running.

(3) Poor seal at the Sani-Em-Tor body. Check the condition of bag guard (15, fig. 4-1) and its position on the bag. Check the condition of the elastic at the bottom of the bag. Replace the bag if the elastic is stretched or damaged.

b. Bottom tray troubles.

(1) Check that Sani-Em-Tor bottom tray (18, fig. 4-1) is correctly aligned and tightly installed on Sani-Em-Tor body (16).

(2) Use a brush to clean bottom tray gasket (19) on the tray. If the gasket is damaged or no longer seals tightly, replace it as described in paragraph 4-4.

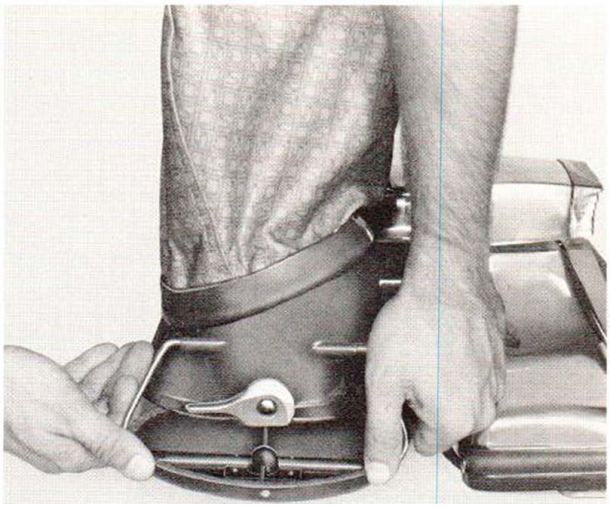


Figure 4-6. Sani-Em-Tor bottom tray

c. Body gasket defects. Replace the body gasket (17) if necessary as described in paragraph 4-4. The Sani-Em-Tor should fit snugly to the exhaust horn of the motor. To facilitate reattaching the Sani-Em-Tor with a new gasket which may be dry on the surface, spray the gasket in place with WD-40 or other suitable rubber-safe lubricant, observing the precautions recommended by the manufacturer.

SECTION 5
ACCESSORY PACKAGES

INDEX

5-1. ACCESSORY PACKAGES

The exploded view illustrations and related parts lists in this section show all available parts for the Convenience Accessories, Super Renovator, Home Turbo, Handi-Butler, and Service Groups used with the HERITAGE. No service instructions are provided, but the parts are drawn in proper relationship to each other to serve as an aid to disassembly and reassembly. Note the following:

a. The parts lists contain part numbers only for those parts for which service replacements are available. If you cannot find a part on the exploded views, or if the symbol (***) appears in the Part No. column, the part cannot be replaced separately.

b. The part names in these lists are indented to indicate subassembly relationship. When a part name is indented under another name, it indicates that the indented part belongs to the subassembly under which it is indented. If you order an assembly, you will receive all the parts indented under it in the parts list.

5-2. KIRBY HERITAGE CONVENIENCE GROUP

The convenience group includes the basic Kirby upright with a disposable bag system plus the Convenience Group Accessories illustrated in Figure 5-1. The components of the basic Kirby upright are presented in detail in Sections 1 through 4.

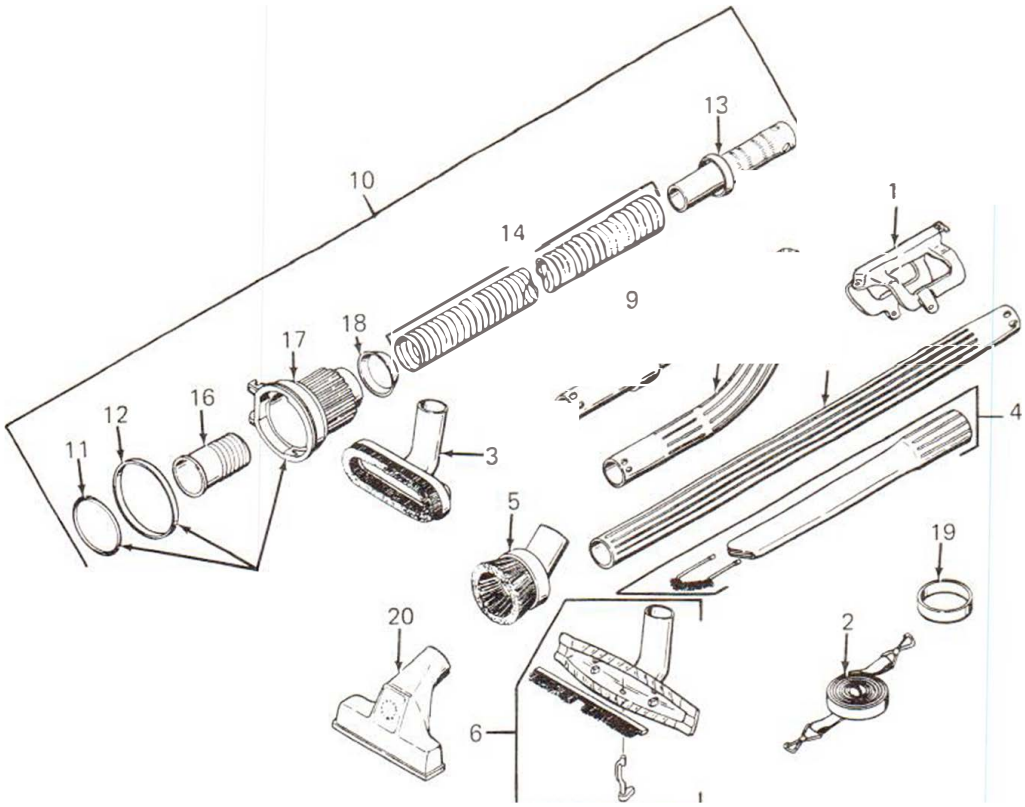


Figure 5-1. Kirby HERITAGE convenience group accessories, exploded view

Index o.	Part No.	Part Name	Quantity
5-1-1	200081	Lifter grip	1
-2	202081	Shoulder strap	1
-3	217981S	Upholstery tool .	1
-4	225981S	Crevice tool assembly	1
-5	218481S	Duster brush assembly	1
-6	219781S	Surface nozzle assembly	1
-7	224081	Long extension tube	1
-8	225081	Curved extension tube	1
-9	227581S	Swivel elbow assembly	1
-10	223681S	Attachment hose assembly	1
-11	188056	Gasket	1
-12	223881	Seal ring	1
-13	223381	Swivel tube	1
-14	223081	Hose	1
-15	211081S	Suction blower including items 11 and 12	1
-16	223581	Connector	1
-17	***	Blower body	1
-18	223481	Sleeve ferrule	1
-19	301279	Belt	1
-20		Turbo brush	1
-21		Cardboard kit box*	1
-22		Odorific*	1
-23		Room and Carpet Fresh*	1
-24		Disposable bags, package of 3*	1
-25		New Owner's Book*	1

* Not illustrated.
*** Do not order this part; if defective, order the assembly above.

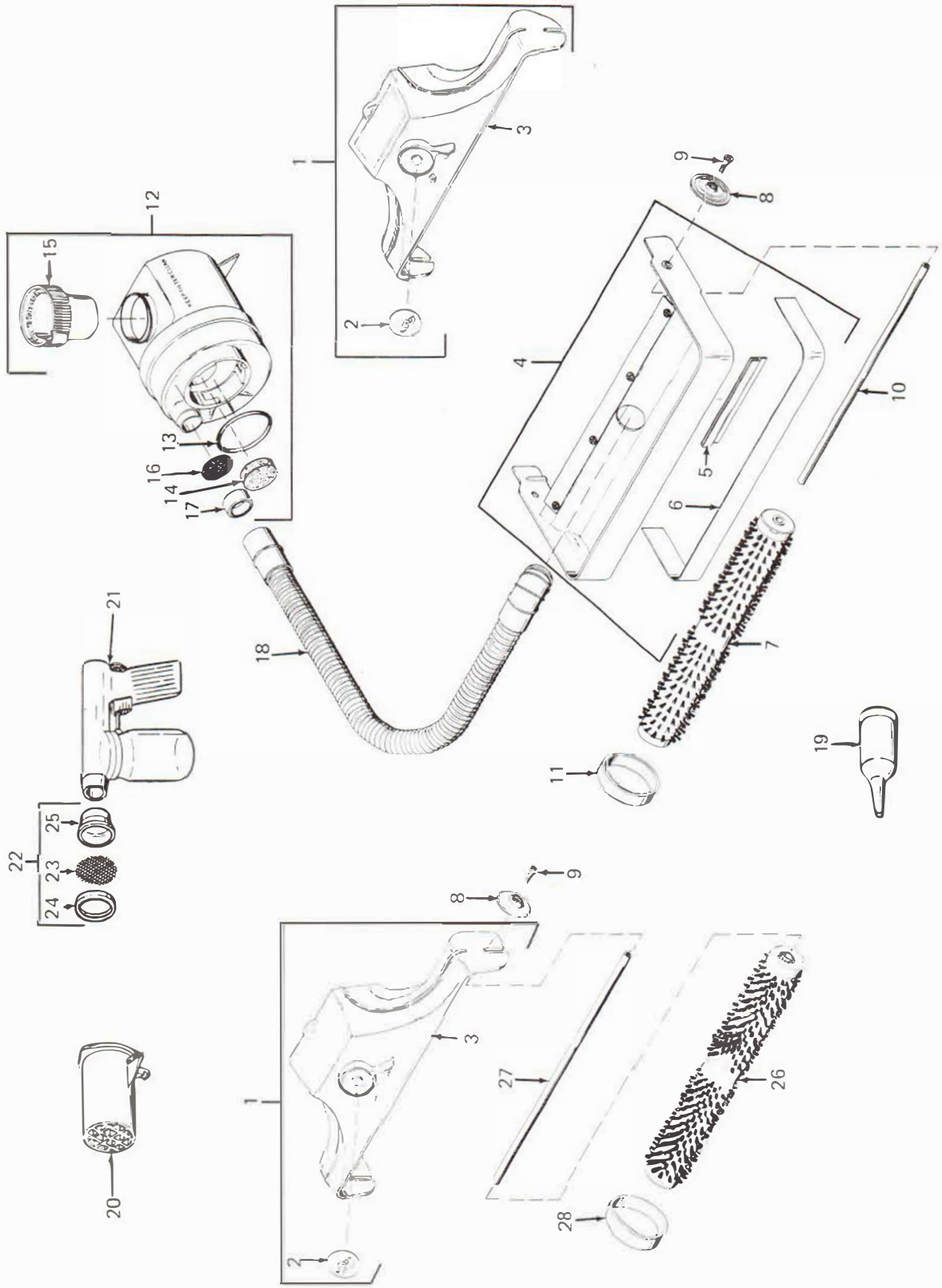


Figure 5-2. Kirby HERITAGE super renovator group, exploded view

Index No.	Part No.	Part Name	Quantity
5-2-1	303181S	Super Renovator nozzle assembly, less brush and axle	1
-2	303981	Belt lifter label	1
	***	Belt lifter	1
-3	***	Nameplate	1
-4	304781S	Tray assembly	1
-5	305281	Belt baffle strip	1
-6	305481	Suds leveler	1
-7	305864	Rug renovator brush	1
-8	306381	Bumper	4
-9	306264	Bumper screw .	4
-10	306164	Shaft	1
-11	301279	Belt	1
-12	306781S	Renovator tank assembly	1
-13	188056	Gasket	1
-14	307364	Tank filter	1
-15	308981	Tank cap and measuring cup	1
-16	307581	Suds screen	1
-17	307665	Suds screen retainer	1
-18	308081S	Rug renovator hose assembly	1
-19	213881	Inflator	1
-20	224181	Air intake nozzle assembly .	1
-21	250081S	Spray gun assembly	1
-22	251981S	Suds-O-Gun assembly .	1
-23	252281	Suds-O-Gun screen	1
-24	***	Suds-O-Gun retaining ring	1
-25	***	Suds-O-Gun body	1
-26	300965	Miracle Head brush assembly	1
-27	3020	Shaft	1
-28	301279	Belt	1
-29	***	Nameplate, caution label*	1
-30	252681	Instant Suds, 12 oz.*	1

* Not illustrated.
*** Do not order this part; if defective, order the assembly above.

At some time in the future, the Home Turbo Group component list and illustration will be supplied as a Customer Information Bulletin update, to be inserted in place of this page.

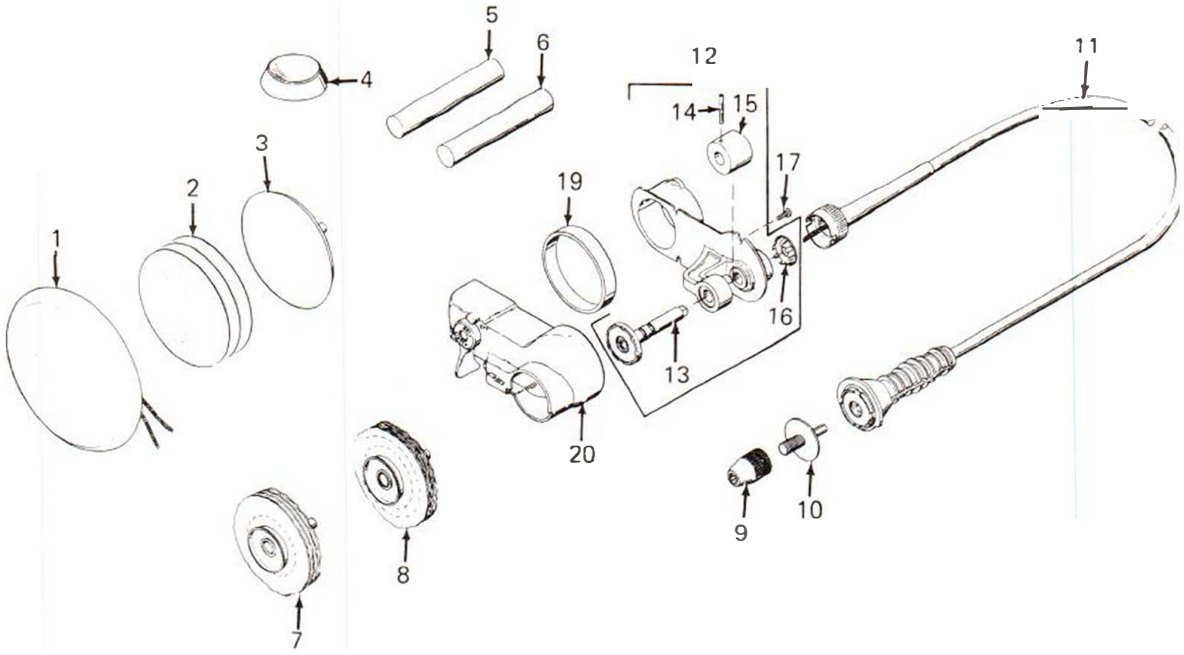


Figure 5-4. Kirby HERITAGE Handi-Butler group, exploded view

Index No.	Part No.	Part Name	Quantity
5-4-1	414073	Bonnet for rubber disc	1
-2	412662	Sanding disc	3
-3	412079	Rubber disc	1
-4	428079	Cup for cleaner wheel	3
-5	4240	Polishing stick — coarse	1
-6	4260	Polishing stick — fine	1
-7	419962S	Flannel buff assembly	1
-8	421962S	Sewed sheeting and buff assembly	1
-9	427062	Chuck .	1
-10	427176	Chuck adapter	1
-11	417181	Flexible shaft assembly	1
-12	399981S	Handi-Butler frame assembly	1
-13	402362-9	Jack shaft assembly	1
-14	4027	Pulley pin, 1/8" x 1-1/8"	1
-15	402458	Handi-Butler pulley	1
-16	402558	Jack shaft cover	1
-17	100479	Assembly screw, No. 8 x 1/2" pan head .	3
-18	***	Caution label*	1
-19	405058	Handi-Butler belt	1
-20	403981S	Handi-Butler body	1
	***	Belt lifter	1

* Not illustrated.
*** Do not order this part; if defective, order the assembly above.

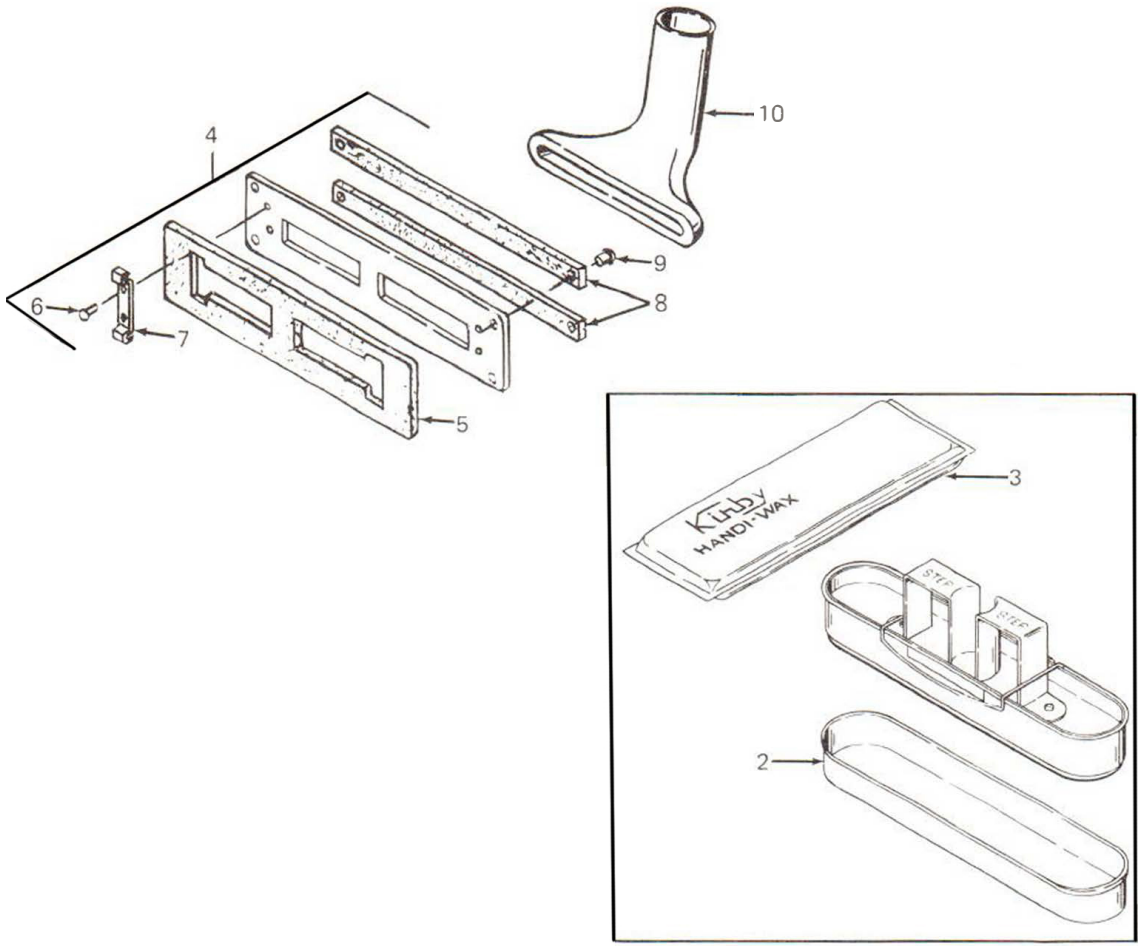


Figure 5-5. Kirby HERITAGE service group, exploded view

Index No.	Part No.	Part Name	Quantity
5-5-1	316081A	Handi-Waxer complete (case lot only)	1
-2	310681	Handi-Waxer cover	1
-3	315281	Handi-Waxer wax unit (case lot only)	1
-4	205981S	Floor duster pad plate assembly	1
-5		Foam pad seal	1
-6		Spring rivet	4
-7		Spring	2
-8		Felt pad	2
-9		Pad rivet	4
-10	216081	Utility air nozzle	1