Kirby®

SERVICE MANUAL

Polishing Compound

F 2353
F 2153

THE IMPORTANCE of GOOD SERVICE

FOREWORD

The purpose of this Service Manual is

(1) to assist Kirby Distributors in the building and maintenance of a Service Department that will be able to make all necessary repairs required by Kirby from the most minor up to a complete overhaul and rebuilding to factory standards.

(2) to re-acquaint Kirby Distributors and their people with the various Kirby Guarantees and the rights and privileges of the customer under these guarantees.

(3) to lead the Distributor to increased profits by building up a clientele of "boosters for Kirby."

Let us review briefly the guarantees and interpretation thereof—

The One-Year Guarantee

A distributor should replace gratis any part showing unmistakable evidence of a defect in material or workmanship for a period of one year from date of purchase. Parts broken by carelessness on the part of the customer or salesman should be charged for. However, we would suggest waiving a service charge whenever the unit is returned to the distributor's office and called for by the customer. In all other circumstances if a service man has to call at the customer's home, a service charge is in order. This service charge should be kept as low as possible in the interest of good customer relations.

SERVICE MANUAL

SERVICE DEPARTMENT MANAGEMENT SUGGESTIONS

The physical layout of your service department will depend largely on the size and shape of the space available. However, regardless of the layout, such things as cleanliness, orderliness (a place for everything—everything in its place), and proper handling of necessary paper work are very important.

* * * * *

A good service department should be partitioned off from the rest of the office so as to exclude the casual trespasser. A dutch-type door with a shelf topping the bottom half is quite universally used.

* * * * *

A "work schedule or planning" board separated into the days of the week should be provided, so that the amount of work and the promised completion date of each job can be ascertained at a glance. Businesslike handling and scheduling of service work is invaluable in building good will and future sales.

* * * * *

A packing and wrapping table, equipped with wrapping paper and a gummed tape dispenser would be convenient. A storage space for reserve supplies of repacking papers should be adjacent to this table.

* * * * *

A printed memorandum form should be supplied for service calls, re-demonstration notices—anything pertaining to the work to be done by the service department. On this form there should be a space for the name of the person to whom the note is directed, the subject or type of work to be done, the date of the note, the name and address of the customer, space for detailed instructions, and, finally, a space for the signature of the person making the note.

* * * * *

A telephone should be convenient to this department.

* * * * *

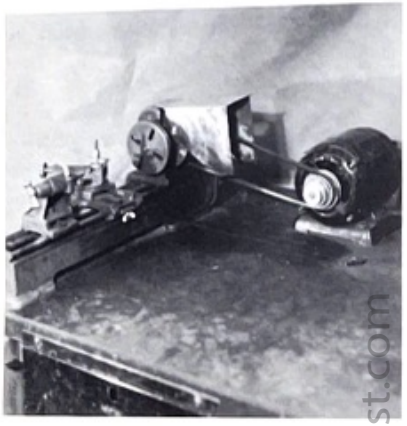
Bright but glareless light should be supplied. Poor lighting adds strain to the working conditions. Naturally, proper ventilation and heating conditions should prevail.
Courtesy should characterize all contacts.

EFFICIENT ARRANGEMENT OF SHOP EQUIPMENT

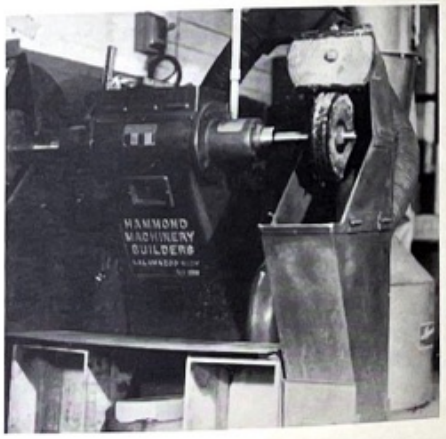
The pictures below show a layout of a designed model service department in which all parts are readily accessible with a minimum of lost motion.

Work bench with tools and roto-bin.

Roto-bin with storage bins in background for parts too large for roto-bin.



Small lathe for cutting down armatures. The one pictured was purchased from Sears-Roebuck at a reasonable price.



Polishing Lathe.
Specifications: 3 H.P. 220 volt. Manufactured by Hammond Machinery Builders, Kalamazoo, Mich. Model 3 AOL.

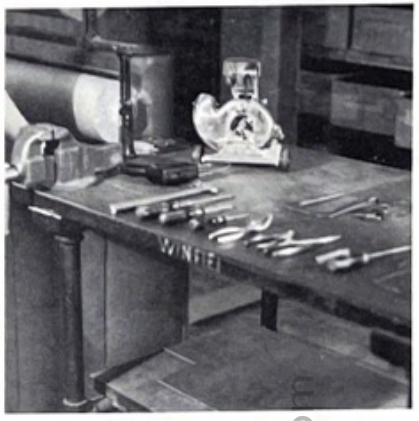
ROTO-BIN

For storage of small parts.
Rotates at the touch of a finger.
Manufactured by Frick-Gallagher Mfg. Co., Wellston, Ohio.

Storage bins for parts too large for roto-bins. Any local carpenter or handy man should be able to erect bins suitable for storage of such parts.

WORK BENCH, TOOLS AND SPECIAL TOOLS

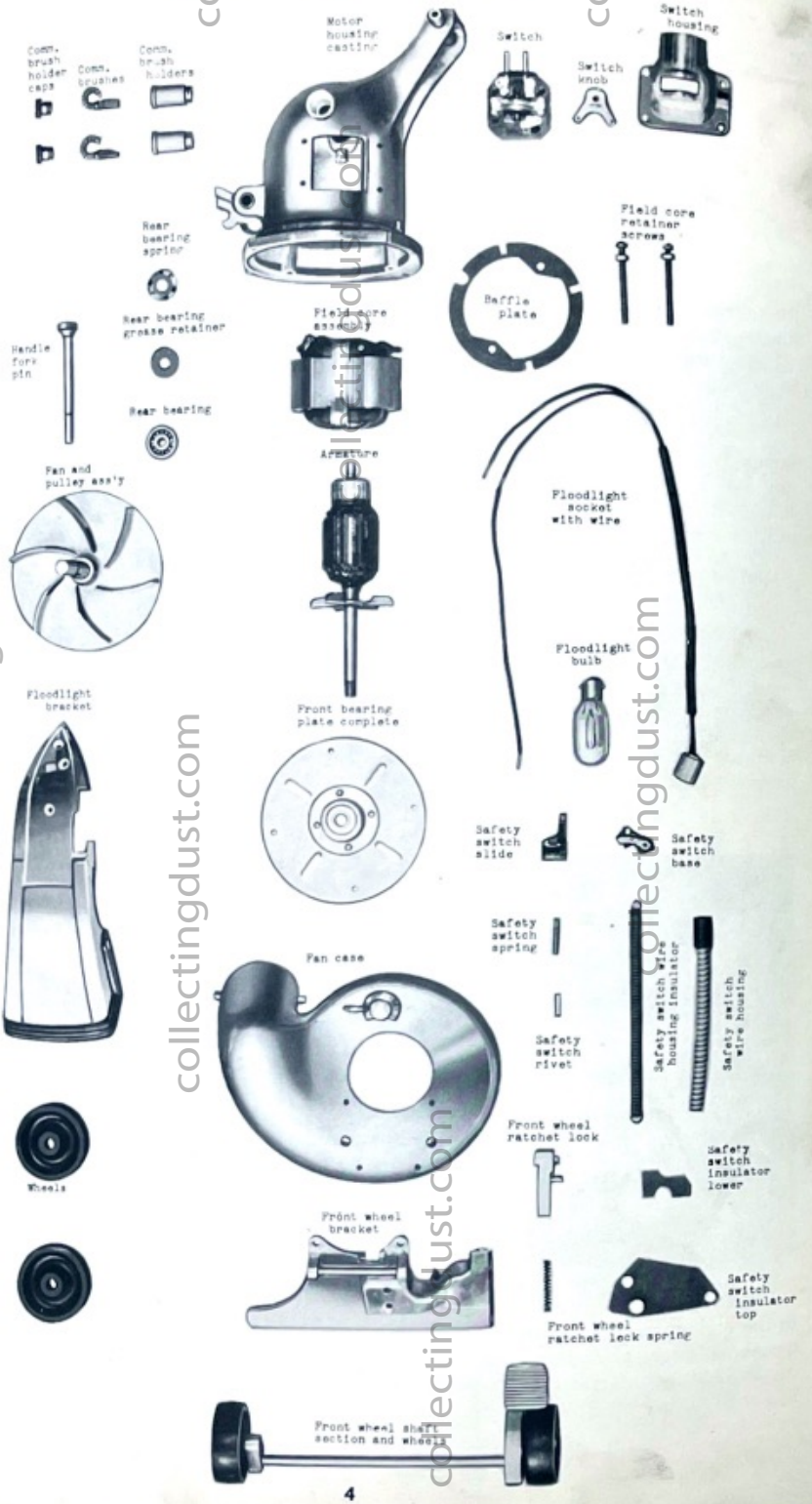
With the exception of three special tools all necessary tools can be purchased locally at a hardware store of your choice.



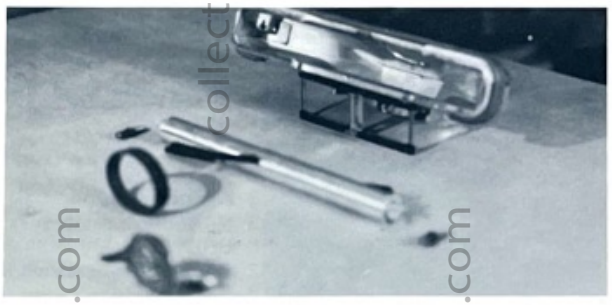
The necessary tools shown in the foreground are as follows:

Sturdy bench vise opening to 4" or more.
Quick heating soldering iron.
Ball pein hammer. Size 3/0—8 ounce.
Screw driver $\frac{5}{16}$" blade.
Screw driver ¼" blade.
Screw driver $\frac{3}{32}$" blade.
Pliers—heavy duty combination 6" long.
Pliers—Electricians diagonal cutting pliers 5" long.
Pliers—needle nose long pliers 8" long.
Chisel—steel—⅜" blade.
Round rat tail file—8" long.
Ordinary ice pick. (The picture shows a piece of steel piano wire, however, an ordinary ice pick will make a very good substitute).

In the background on the work bench are shown the three special tools we can supply. Two special tools for installation of handle springs can be purchased from the company. Your cost is $2.50 net. A rear bearing puller for separating the rear bearing from the armature lists at $1.50 net.



NOZZLE ASSEMBLY PARTS



Nozzle casting with rug guard and bumper assembled.
Small brush adjusting screw. Large brush adjusting screw.
Nozzle floor brush. Belt.
Nozzle beltlifter name cap. Nozzle beltlifter stop screw.

SANI-EM-TOR AND BAG PARTS

Sani-Em-tor bottom and bail. Sani-Em-tor upper casting.
Sani-Em-tor bag connection gasket (rubber). Sani-Em-tor bag cloth.
Sani-Em-tor bag clamp and chain.

HANDLE PARTS

Handle grip rubber. Handle tube. Handle fork insulating washer.
Handle grip sleeve and shim. Handle fork insulating sleeve. Handle fork.

SPARE PARTS TO CARRY IN STOCK

Too many distributors wait until their stock of certain parts is depleted before ordering. This results in a rush order to the factory and most probably a disgruntled customer.

A running inventory should be kept at all times. Parts should be ordered before your stock becomes dangerously low.

A Distributor taking over an established territory should maintain at all times not only parts for newer models but also parts most required for older models.

A suggested list for such a Distributor is as follows:

FOR LATER MODELS

- 2 each Armatures (As per service bulletin found at the end of Manual)
- 6 Cords complete
- 6 Fan cases
- 12 Fans
- 2 Floodlight brackets complete (less bulb)
- 12 Floodlight bumpers
- 24 Bulbs
- 6 Front bearing plates complete
- 12 Wheels (all are interchangeable)
- 2 Front wheel brackets
- 2 Front wheel bracket shaft section and wheels
- 2 Handles complete
- 6 Handle forks
- 6 Handle fork pins
- 12 Handle fork springs
- 12 Handle fork spring shafts
- 12 Handle fork spring plates
- 2 Handle grips complete
- 24 Handle grip rubber
- 2 Handle locks
- 1 Motor housing casting with handle spring assembled
- 6 Commutator brush holders
- 6 Commutator brush holder caps
- 36 Commutator brushes
- 2 Nozzles complete
- 2 Nozzle castings
- 12 Nozzle floor brushes
- 50 Belts
- 12 Brush adjusting screws large
- 12 Brush adjusting screws small
- 2 Nozzle bumpers
- 2 Nozzle rug guards
- 6 Nozzle belt lifter name caps
- 2 Rear bearings
- 6 Safety switch bases
- 6 Safety switch slides
- 2 Sani Emtors complete (less bag)
- 6 Sani Emtor bottoms
- 12 Bag cloths
- 6 Bag chains and clamp
- 6 Switches
- 2 Sets of attachments

Assortment of screws, insulators, washers and rivets.

FOR OLDER MODELS

- 1 (2-C) Armature
- 3 (2-C) Bags complete
- 3 (2-C) Fans
- 2 (2-C) Front bearings
- 2 (3-C) Fans
- 1 (3-C) Armature

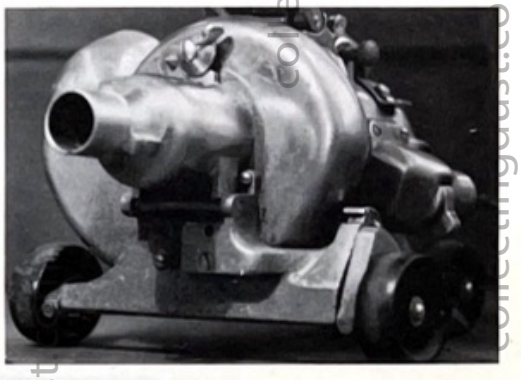
For a distributor in virgin territory, the following should suffice until sufficient volume of sales warrants additions:

- 2 Cords
- 1 Fan case
- 2 Fans
- 6 Bulbs
- 1 Front bearing plate complete
- 4 Wheels
- 1 Handle fork
- 6 Commutator brushes
- 6 Nozzle floor brushes
- 18 Belts
- 4 Brush adjusting screws large
- 4 Brush adjusting screws small
- 1 Belt lifter name cap
- 2 Safety switch bases
- 2 Safety switch slides
- 4 Sani Em-tor bottoms
- 6 Bag cloths
- 2 Bag clamp and chain
- 1 Switch

Assortment of screws, insulators, washers and rivets.

TROUBLE SHOOTING

After removing floor nozzle, handle, Sani-Emtor, bag and cord for later inspection, connect a suction coupler in front of motor unit, and plug in a cord which has been previously tested and found O.K.



POINTS TO CHECK

(1) Does motor smoke at commutator (rear) end after a few moments' operation?

This is caused by a shorted armature which must be replaced with a new armature of exactly the same make. (Refer to our service bulletins re-Replacement of Armatures and Fields, as found at the end of this book.)

(2) Does motor run at half speed with very little suction and power? Does motor show a tongue of fire around commutator?

Indicates an open lead in armature windings. Armature must be replaced as in No. 1.

(3) Motor overheats and runs fast.

Caused by a defective field. Replace with one of same make as in No. 1 and No. 2.

Motor overheats.

Can also be caused by ventilating air inlet becoming blocked by lint.

(4) Motor does not run at all.

A defective or worn commutator brush or brushes can cause the failure of the unit to operate. Examine brushes. If one or both appear rough, dark or burnt, replace. If less than 3/8" stock remains, replace with genuine Kirby commutator brush stamped F15 or 687.

An open armature can also cause a burnt commutator brush, so be sure to run motor for 15 or 20 minutes after installing new brushes to be sure armature is O.K.

Foot switch defective.

Examine for broken spring in switch.

Burnt prongs on switch caused by defective cord.

Examine switch and test cord as pictured.

Safety switch slide not making contact with safety switch base due to contacts on base section being burnt, or spread too far apart. Examine safety switch base as pictured. (Bend contacts slightly inward as needed, or replace base section if burnt.)

Lint wedged between commutator brush and commutator, preventing proper contact. (About one-tenth of the motors returned to our factory as defective called for the simple removal of particles of lint between the commutator and commutator brush.)

Field lead clip attached to commutator brush holder loose or improperly soldered.

Motor must be torn completely down for inspection.

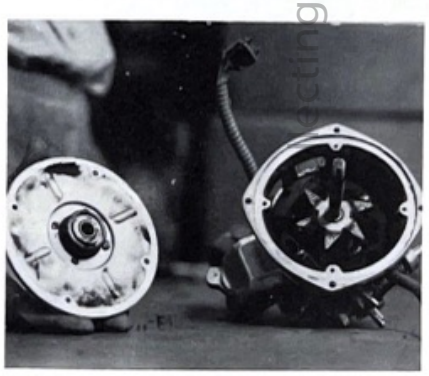
Motor blows fuses—sparks when touching metal ground, such as a radiator.

Fortunately a rare occurrence. Since there are a number of things that can cause a grounded motor, and since it is uncomfortable and possibly even dangerous to operate a motor in this condition, we believe it advisable to return the unit to our factory. (After locating and repairing the trouble, we ground test it with special equipment, passing 1000-volt current through the frame of the unit. It would not pay the average distributor to purchase a ground testing machine.)

(5) MOTOR VIBRATES

A broken fan is usually the cause of excessive vibration. Quite frequently the fan housing is cracked, or broken whenever the fan is broken. Small cracks in the fan case can often be closed with the aid of a ball peen hammer. (A ball peen hammer is one having a small round head.) Refer to picture alongside for removal of fan. Turn fan in clockwise manner to remove — has left-handed threads. Insert an ice pick as pictured through the ventilating hole on motor housing and through hole in armature shaft, thereby holding armature shaft rigid for removal of fan.

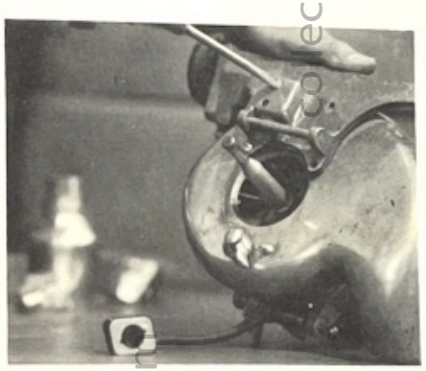
(6) MOTOR NOISY. Has clicking or grating sound, especially noticeable when turning on or turning off motor. Caused by lack of lubrication in bearings. (Usually front bearing.) On all models—3C through 511 to serial number 383346 no provision is made for re-lubricating the front bearing. Therefore a replacement of the bearing must be made. Beginning with model 511, serial number 383347, front bearing can easily be removed from plate for re-lubrication.



The rear bearing can be re-lubricated after washing thoroughly in gasoline. A special grease of high consistency must be used. We can supply this grease to distributors in one lb. lots. As illustrated above, it is not necessary to remove rear bearing from armature for re-lubrication.

DIS-ASSEMBLING MOTOR UNIT

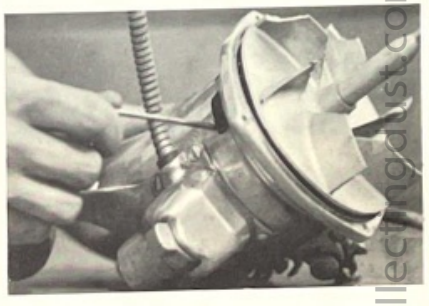
Remove bulb and floodlight bracket. (not pictured) Remove front wheel bracket by taking out four screws in front of bracket. (Upper two same length; one lower slightly longer, other lower a long one.)

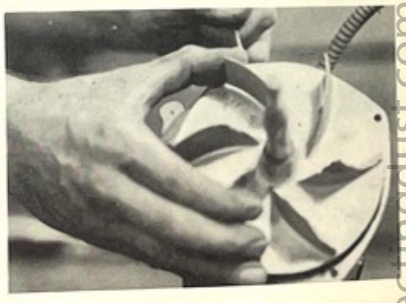


- *Note carefully the position of the insulators surrounding the safety switch assembly in order to re-assemble properly.*

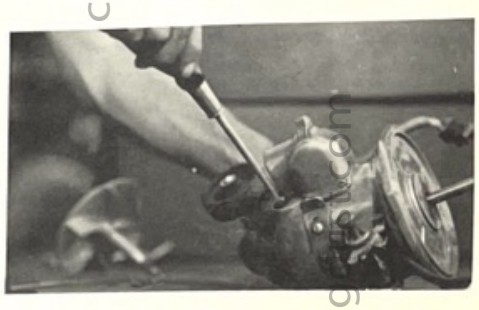
Remove four screws holding fan case to motor and take off fan case.

Remove fan by inserting ice pick through ventilating hole on bottom of motor housing and through hole in armature shaft, thereby holding armature so that the fan can be removed by turning fan in a clockwise manner, inasmuch as the threads on the armature and fan are left-handed threads.

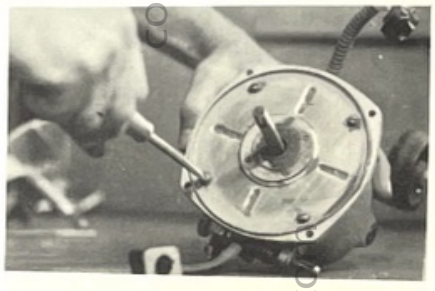


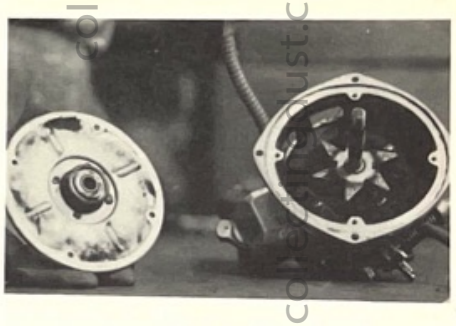


Remove commutator brush holder caps and brushes. Examine brushes. If one or both appear rough, dark or burnt, replace with genuine Kirby brush stamped F-15 or 687. If less than 3/8" stock remains, replace.

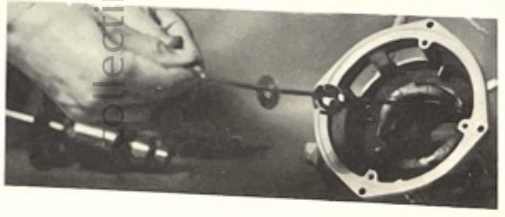


Remove front bearing plate by taking out four screws.



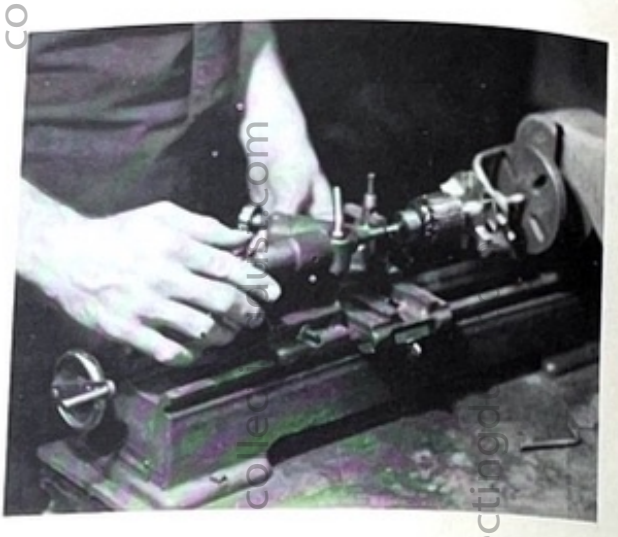


Take out armature. You will note a steel grease retainer next to open end of rear bearing. Also a spring finger spacer which fits between hole in motor housing and grease retainer.



Examine commutator of armature. If worn, take a cut off the commutator equal to the depth of the part worn. Remove all loose particles of metal from between segments of commutator with a penknife or similar thin edged instrument.

A small lathe which can be purchased locally for a nominal sum is a good investment.

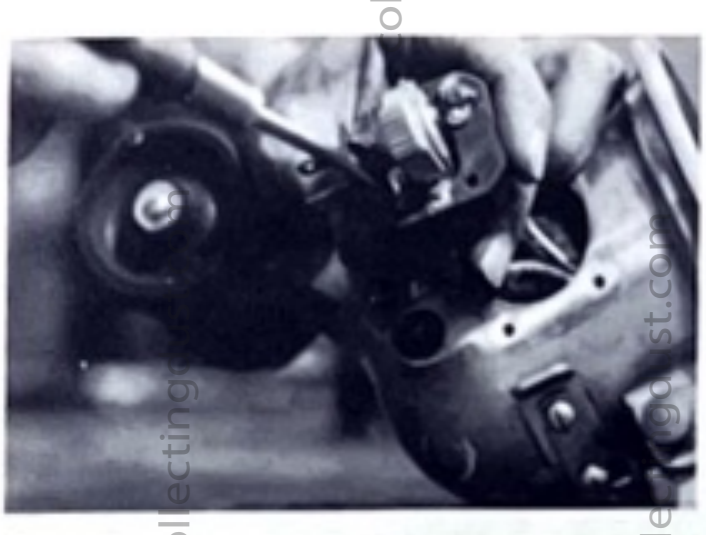


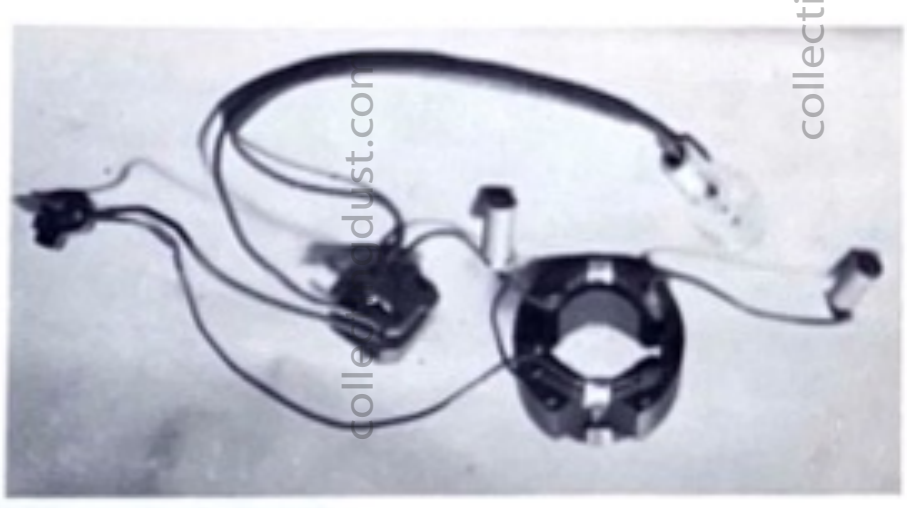
Also examine ventilating fan blades on armature. Once in a while a fan blade will become bent thereby cutting windings on armature.

Take off switch housing (four screws).

Remove switch from housing (two screws). Watch for small cylindrical fibre insulator which fits in deeper screw hole of switch proper between switch and housing. It is shaped like this 

Removing wires from switch for replacement of switch. (The simplest way to install a new switch is to place the new switch alongside the defective one before removing the wires from the defective switch. Remove one set of wires at a time and install in new switch.)

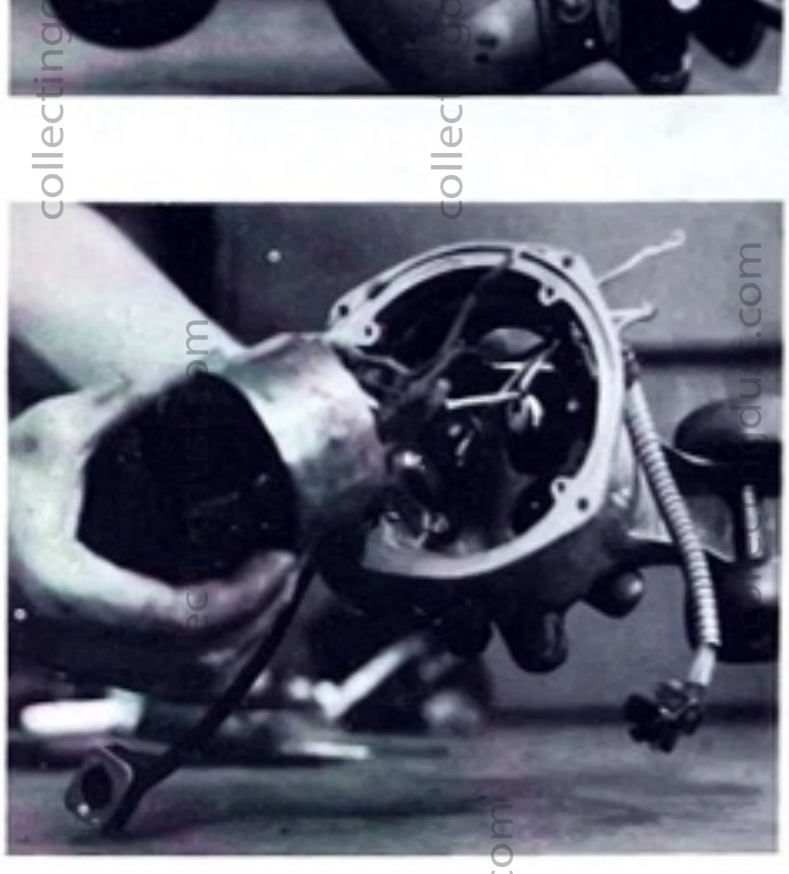


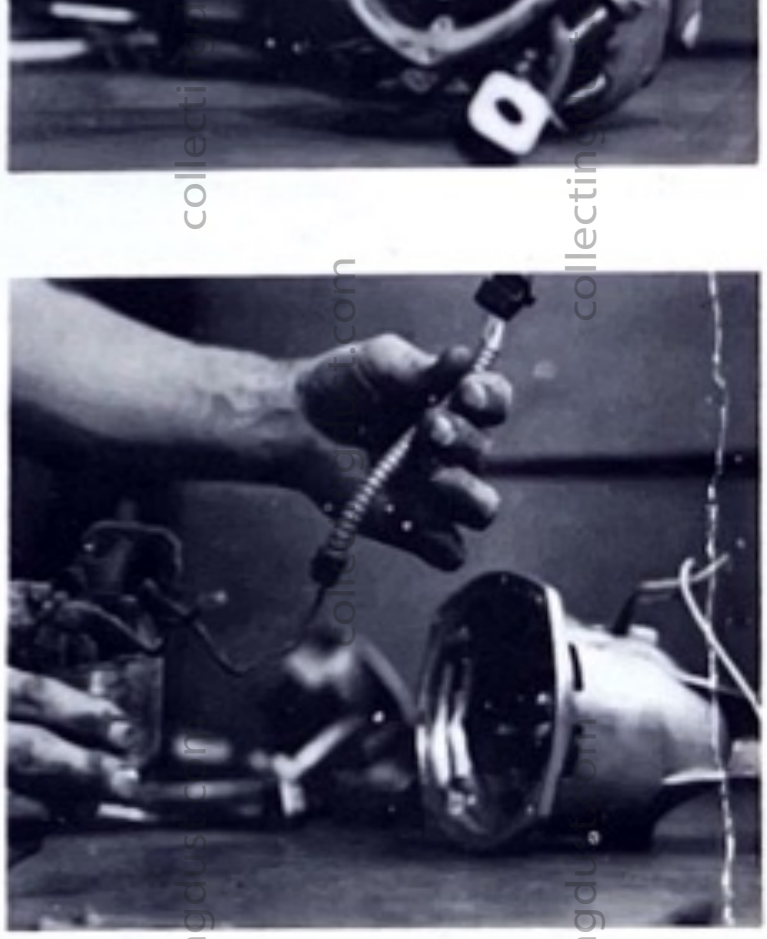


The picture above is the complete wiring diagram minus the motor housing. A little practice will enable you to rewire any Kirby from the ground up.

Removing field core assembly.

After the switch has been removed, the field core assembly together with all wires can be taken out by removing the 2 field core retaining screws and nuts.



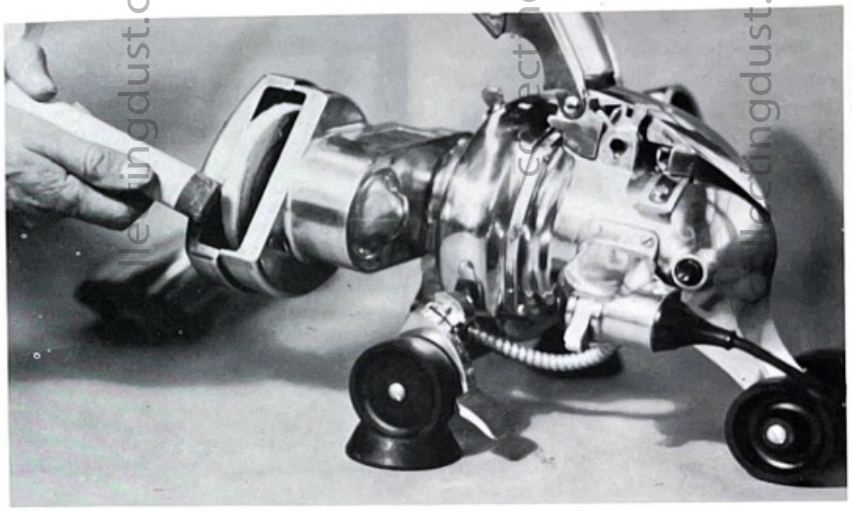


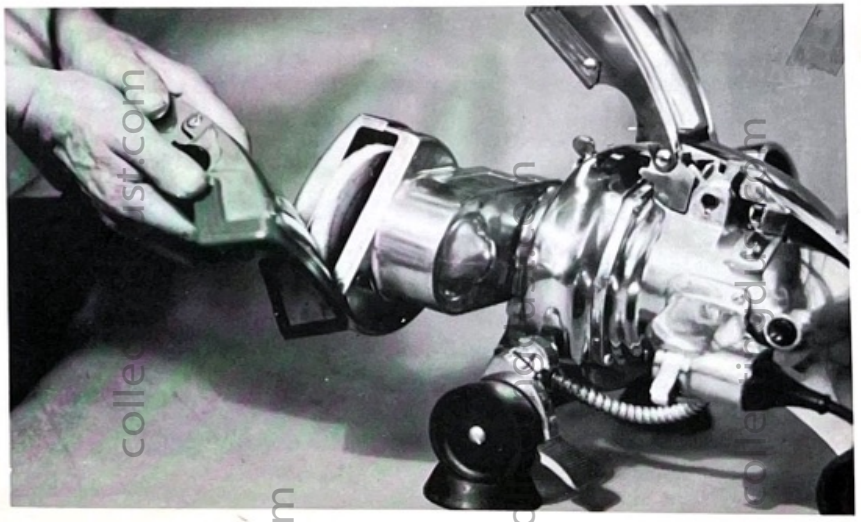
POLISHING WHILE DIS-ASSEMBLED

Although a fairly satisfactory job of polishing can be accomplished without tearing down the motor, it is impossible to "get around" the corners. At the factory all polishing is done while the motor is dis-assembled.

If considerable polishing is anticipated, a polishing lathe driven by a 3-horsepower motor is a necessity.

For a new distributor the Handi-Butler attachment will answer the purpose of touching up demonstrators for resale. In fact, the only thing the Handi-Butler will not do that a powerful polishing lathe can accomplish, is remove deep scratches in the casting.



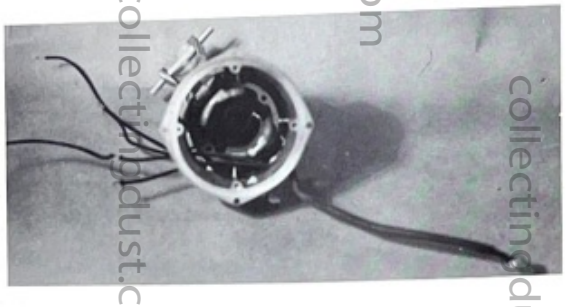


RE-ASSEMBLING MOTOR UNIT

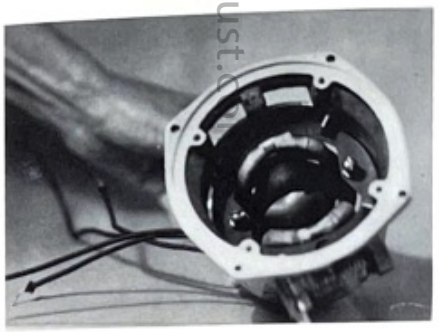
After thoroughly washing out the motor housing casting in gasoline or similar cleaning fluid, install field assembly. Be sure all cleaning fluid has evaporated before installing field.

Bend two short wires with field clips attached partially inside of field, in order that they will not be cut when field is inserted in motor housing. Insert field and draw two long leads through switch housing hole.

Insert floodlight wire leads from outside hole provided for same ahead of handle spring, through switch housing hole. Push excess wire in back of field until floodlight socket end protrudes about 7" from housing.

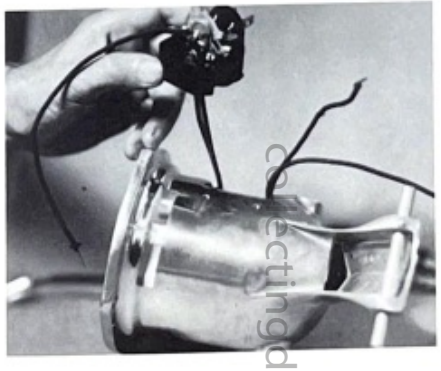


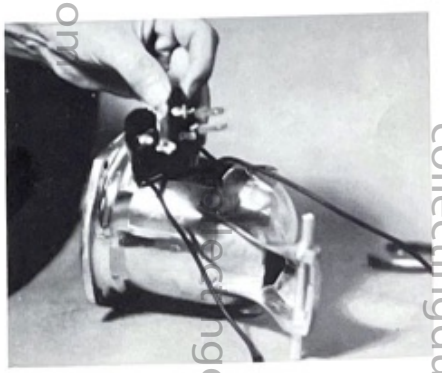
Install baffle plate.
Start field core screws. Do not tighten at this time.
Insert commutator brush holders with slots horizontal to motor in a level position. This is important. See picture at lower right. Tighten field core screws (not nuts) with screw driver —just a snug fit.
With a pair of pliers tighten lock nuts.
Snap field clips in brush holder slots.



Install switch.

You now have four leads of unequal lengths protruding from switch housing hole. Take longest lead with bare spot in center and insert through bottom of switch in largest hole furthest away from prongs. Pull wire through until bare wire in center can be fastened to screw. Then pull back balance of wire through same hole.





Next, take shortest lead and next shortest lead and insert through hole in bottom of switch to terminal screw diagonally opposite the one already connected.

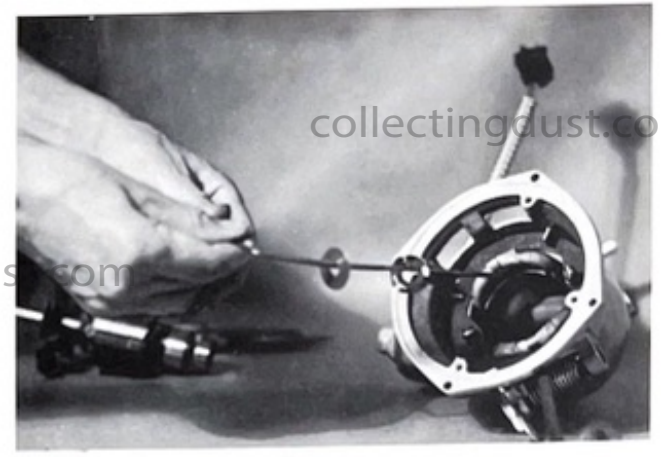
Insert 1" switch mounting screws through holes in switch and place small fibre cylindrical bushing in recessed hole and over screw (see picture at left).

Insert switch in switch housing and tighten screws (see picture at right).

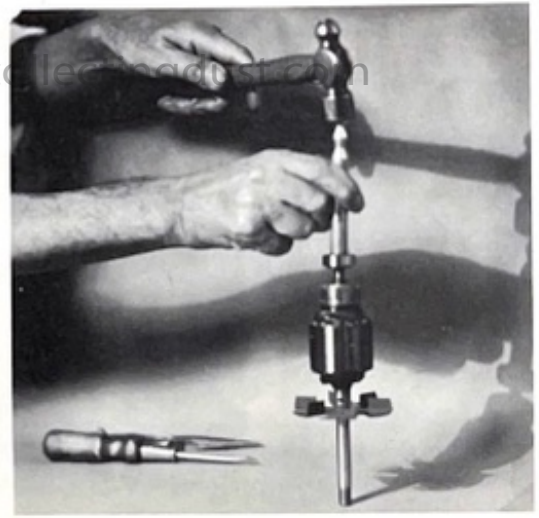
Insert two remaining leads through plastic insulator assembled inside of flexible tube, with lead from field extending about ¼" further than other lead. Attach longest lead (field lead) to contact on safety switch base on same side as protruding bakelite knob. Attach short lead to opposite contact on safety switch base (see picture at left).

Make sure rubber grommet on flexible tube fits into slot in switch housing and fasten switch housing assembly to motor housing (4 screws). (See picture at right.)

Insert rear bearing spring and rear bearing grease retainer (steel washer) in motor housing as pictured.

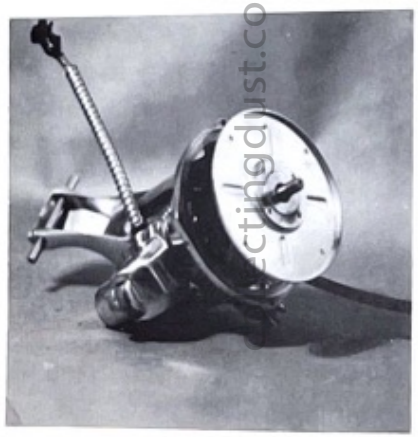


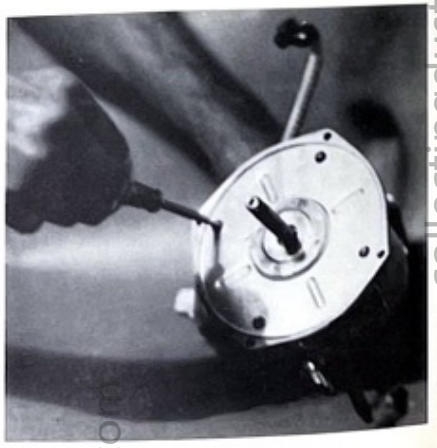
Next, if rear bearing has been removed from armature, re-install by forcing over shaft end with the aid of a discarded fan pulley and hammer. Make sure rear bearing is supplied with fresh lubricant.



Install armature in motor housing. While installing armature make sure field wires do not touch armature.

Install front bearing plate over armature shaft. Tighten four holding screws.

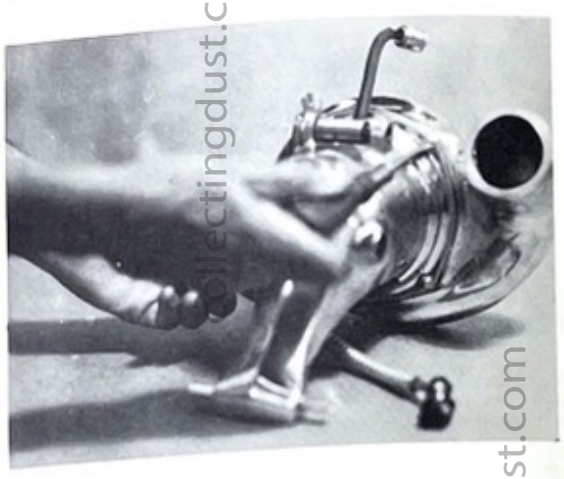




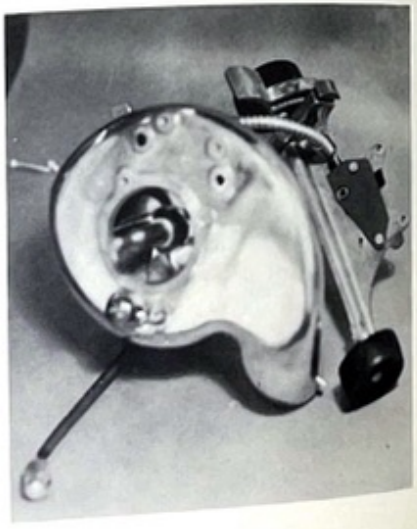
Install commutator brushes with curvature of brush conforming with curvature of armature. Install brush holder caps over brushes.

Install fan. Insert ice pick through ventilating hole and through hole in armature shaft, thereby holding armature stationary while screwing fan in a counter-clockwise direction. Bring up snug.

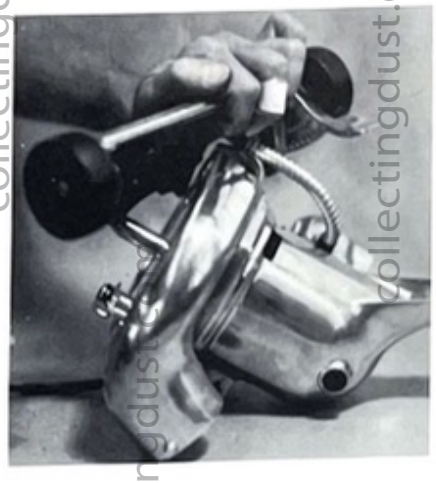
Install fan case. Tighten four mounting screws to equal tension.



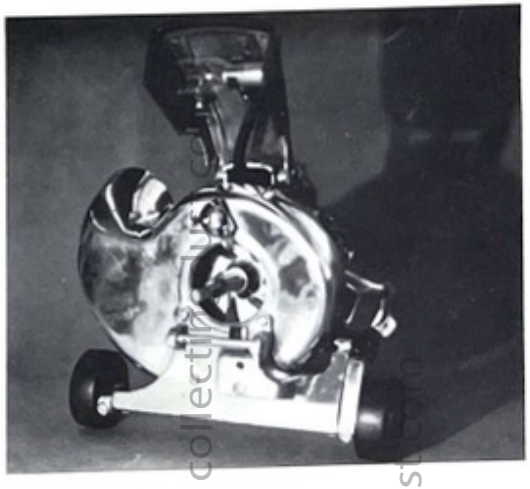
Insert safety switch spring and rivet in safety switch slide. Insert small paper insulator in front wheel bracket. Slide flexible tube, connected to safety switch base, into front wheel bracket. Place safety switch slide in position. Install large paper insulator over assembly.



Install entire assembly on front of motor. Install and tighten securely four mounting screws.



Install floodlight bracket and bulb.



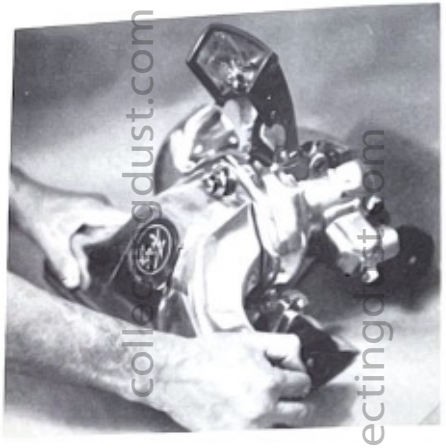
Connect cord and suction coupler and run motor for about 15 minutes.

EXAMINATION OF NOZZLE AND ADJUSTMENT OF FLOOR BRUSH

Points to check:

Are both lugs on back of nozzle that fit over nozzle rear bar intact? Occasionally one becomes broken. Cannot be repaired.

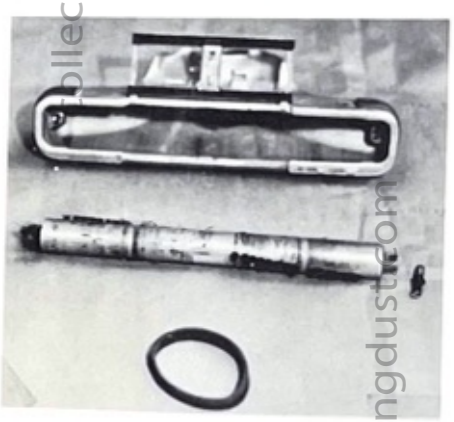
Test for loose fit by "rocking". Place nozzle in position; lock nozzle lock securely. Grasp nozzle with one hand at each end. If nozzle can be rocked back and forth, air is leaking in at opening. With a small blunt chisel hit nozzle at places designated in picture.



Does nozzle lie flat along entire length? Place motor unit with nozzle attached on a flat surface. Push down on nozzle and examine between flat surface and bottom of nozzle casting. If one side is higher, hit the opposite side of nozzle with a blunt chisel in place designated in previous picture.

Removal of brush adjusting screws, examination and retapping brush adjusting screw holes.

A large screw driver is a "must" in removing and installing brush adjusting screws. After the screws are removed, inspect rubber bushings for wear. A worn rubber bushing will not hold brush securely in place. If it is found impossible to screw brush adjusting screws down to the metal stop, a ¼ x 28 tap (obtainable at your local hardware store) will be a good investment in cleaning out the threads in the casting.



A new brush is indicated when bristles are worn down so short that no further adjustment is practical.

Large brush adjusting screw.

Adjustment of floor brush. Be sure large brush adjusting screw is installed at upper end of casting when casting is held as in picture below. If brush adjusting screws are installed incorrectly, the belt will ride on adjacent bristles.

After brush adjusting screws are installed correctly, with large brush adjusting screw at top as illustrated, and floor brush with belt is placed in position, adjust position of floor brush by turning brush adjusting screws until bristles protrude about 1/16" below mouth of nozzle.

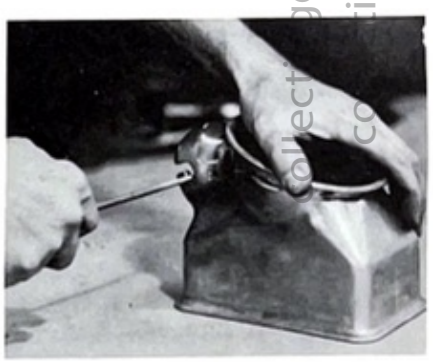
SANI-EM-TOR AND BAG

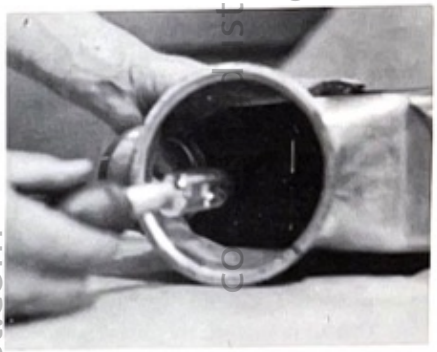
Points to check:

(1) Fit of Sani-Em-tor on fan housing. Rubber gasket worn. Replace with new gasket. Apply a small amount of rubber cement to flat side of gasket. Allow to become tacky before installing in mouth of Em-tor. Allow to dry thoroughly before attaching Sani-Em-tor to motor unit. Make sure gasket does not fold inward at certain points, as is sure to happen when Sani-Em-tor is fitted to motor before cement has a chance to set. (Rubber cement can be purchased locally at any hardware store or filling station.)

(2) Sani-Em-tor slips off of motor unit. Repeated removal of Sani-Em-tor will wear the ears flat, thereby causing the Sani-Em-tor to slip off motor unit. By deepening the notches with a small round file as pictured and installing a new gasket, a snug tight fit can be insured.

(3) Dust leaks around bottom of Sani-Em-tor tray. Worn felt gasket will cause this condition. Examine for leaks by inserting test light in Sani-Em-tor. If light shows outside at junction of tray and casting, it will be necessary to install a new bottom tray, since the felt gasket is fused to the casting.





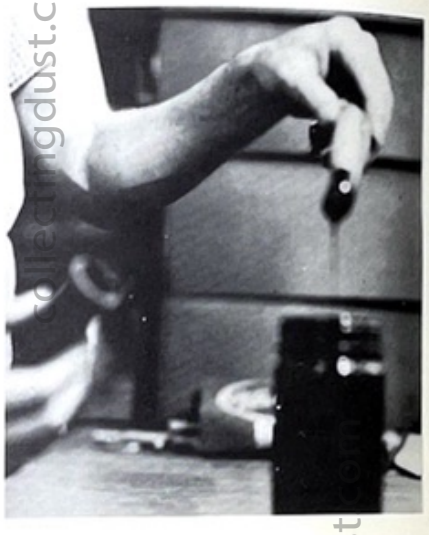
Perhaps the easiest method of installing a new bag is to rest the Sani-Em-tor against a table with the body as a support to allow the use of both hands. Stretch bag over Sani-Em-tor as shown.

HANDLE ASSEMBLY

Points to check:

(1) Rubber Grip worn.

Remove worn grip by slicing longitudinally with a sharp knife. Apply a small amount of rubber cement to tip of casting. Slide rubber grip *quickly* over casting. If this operation is not performed quickly, or if too little cement is applied, the rubber grip will stick half way between and can neither be easily removed or forced on to its fullest extent.



(2) Handle will not stay in upright position when stored.

Cause: Weak or broken spring. See Page 29 for instructions in installing new spring.

(3) Handle fork insulator and washer.

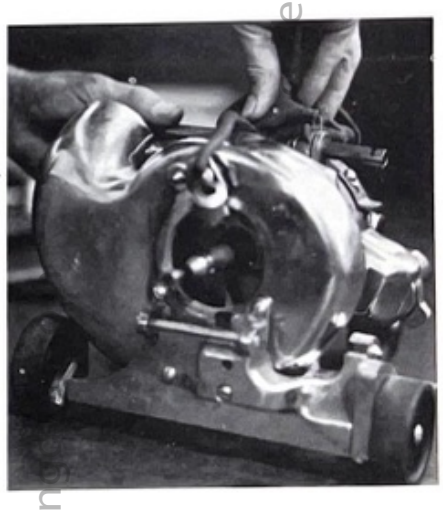
This is provided for the purpose of insulating the user from electrical shocks resulting from a grounded motor. The proper installation is shown at left.

INSTALLING A HANDLE SPRING

The only tools required for the installation of a handle spring are a hammer, screw driver, crank and special round tapered pin as illustrated below. We can supply the crank and pin at $2.50 per set, net.

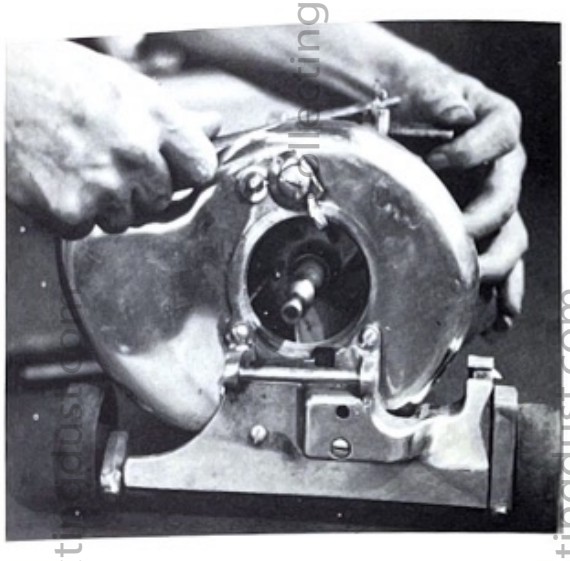
Remove handle fork pin clip with a pair of long nose pliers or pry off with a screw driver. NEXT,

With the aid of the round special pin drive the shaft out of the single hole in housing about as far as shown in picture on left.



After placing a rag over handle spring to avoid injury, withdraw pin as shown in picture on right. Spring, plate and washers can then be removed.

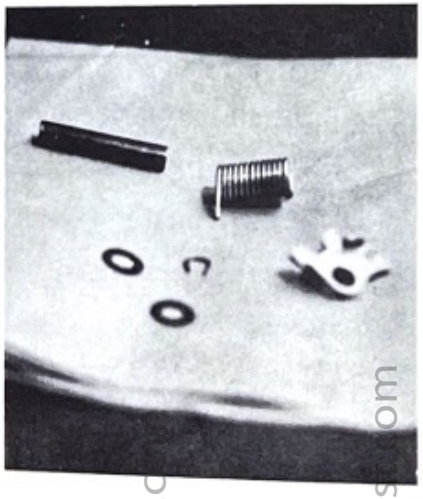
Do not attempt *forcing* the hollow shaft through the two ears on the casting. This shaft has been crimped on the end opposite the slot, necessitating filing of shaft to allow shaft to be removed. *Any forcing can only result in a broken housing.*

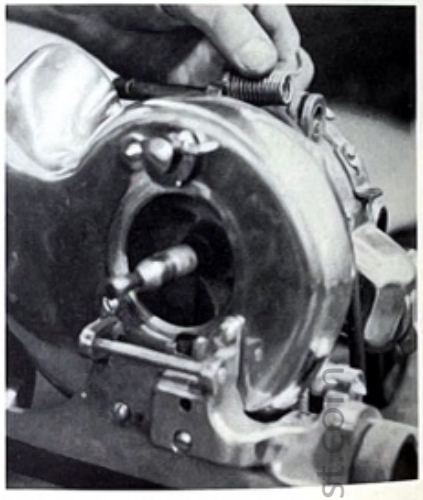


Note picture on left comprising handle spring assembly.

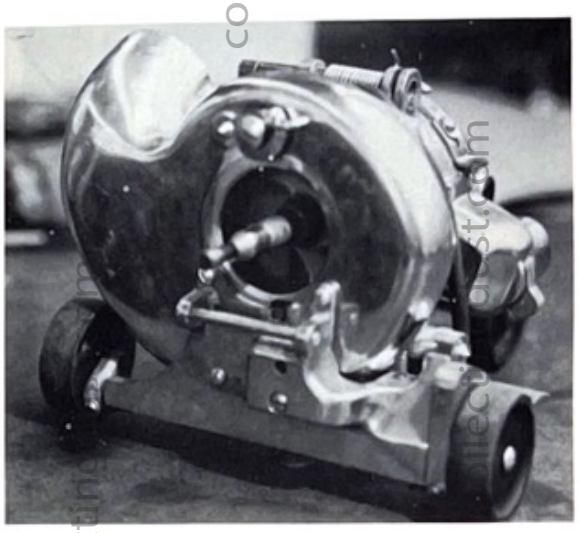
ASSEMBLY OF SPRING TO HOUSING

Lay spring in place with straight end in hole provided in motor housing. (Picture on right.)

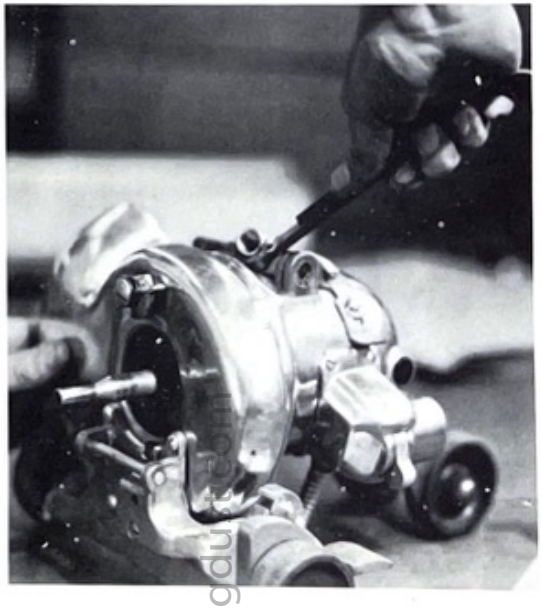




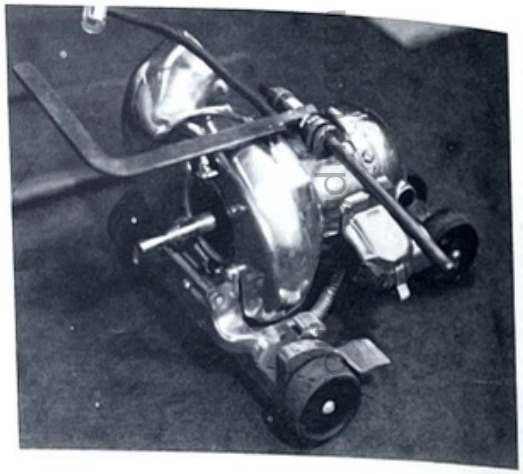
Insert hollow shaft through single ear side until it reaches about the third or fourth turn of the handle spring. Any further distance will make it impossible to wind tension into spring.



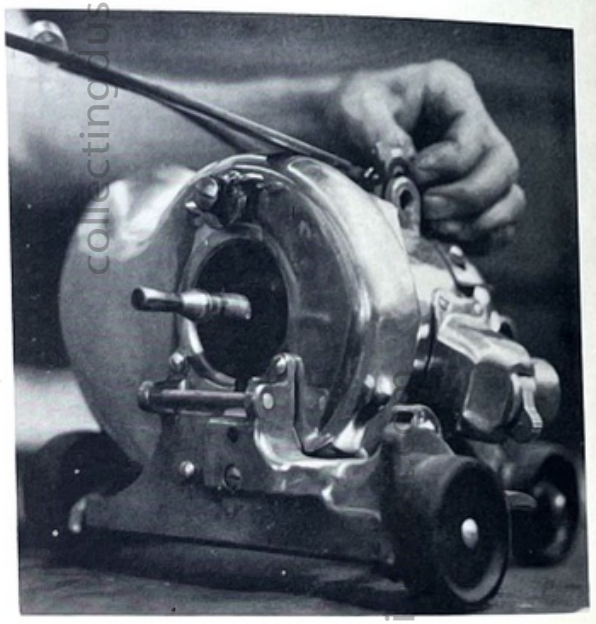
With special tool, wind one turn of tension into spring as pictured.



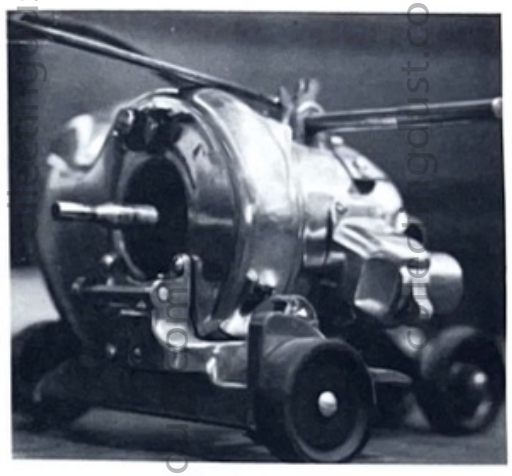
Line up spring with round tool and drive hollow shaft through *first* section of double ear only, as pictured below.



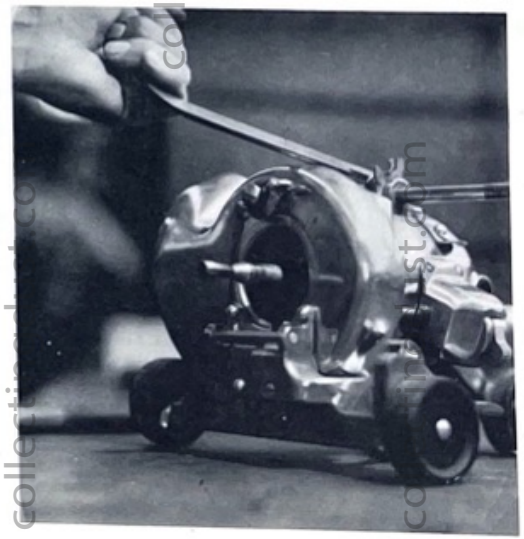
Remove round tool and insert plate with one washer on each side as shown below. Meanwhile, maintain tension on spring with crank.



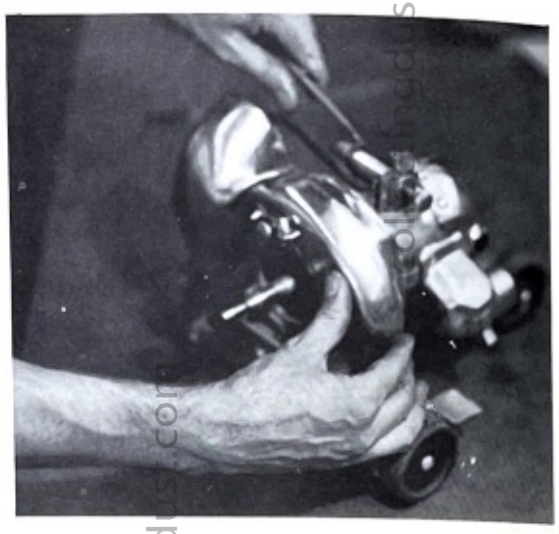
Re-insert round tool as a guide and drive hollow shaft through until ends are flush with casting.



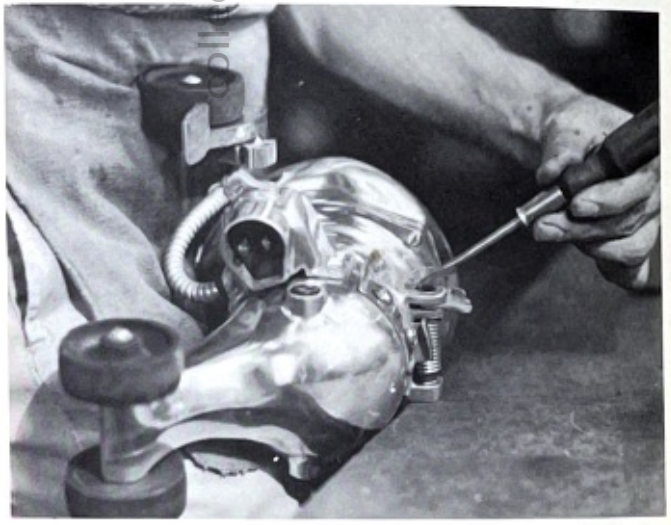
Twist the hook tool (crank) to the right, thereby dropping hooked end of spring onto notch on plate provided for this purpose.



After lining up hollow shaft so that the slot is perpendicular and to the front, insert handle fork pin and force pin clip over shaft with straight end of pin clip in slot on hollow shaft. Crimp end of shaft as shown below.



Turn over and crimp other end.



MISCELLANEOUS INFORMATION AND SERVICE BULLETINS

A SERVICE BULLETIN OF PRIME IMPORTANCE TO ALL DISTRIBUTORS & SUB-DISTRIBUTORS

Effective December 1, 1955

All Kirbys sent to us for rebuilding under the terms of the Kirby Service Insurance Guarantee, when rebuilt, will be returned DIRECT TO THE CUSTOMER'S HOME from the factory. Whenever you send in a Kirby for rebuilding under the terms of the Service Insurance Guarantee, be sure the CORRECT name and address of the owner are included, in order that the rebuilt Kirby reaches the proper destination with the least possible delay.

When we return the customer's rebuilt Kirby to her, we will send it C.O.D. at the factory guarantee rebuilt price, plus transportation charges. Therefore, we suggest that the customers' Kirbys you send to us for rebuilding be sent transportation charges collect, so the incoming transportation charges can be added to the C.O.D. charge we make to the customer. Naturally, then, you will make no charge to the customer, since we will bill her for all charges. Motor freight charges are usually based on cwt and anything weighing less than one hundred pounds is charged at the minimum cost of one hundred pounds. Railway Express charges, on the other hand, are based on the actual weight. Therefore, we further suggest that customers' Kirbys be returned to us by Railway Express collect rather than motor freight. In order to ensure that exact transportation charges are added to each rebuild, please ship each Kirby separately. Do not include extraneous parts not belonging to the customer.

A card will be sent to you the same day the rebuilt Kirby is returned to the owner, stating we have rebuilt the customers' Kirby in accordance with the terms of the Service Insurance Guarantee. Many leads for the sale of new Kirbys should result from a prompt follow-up by one of your dealers.

We are stamping all Service Insurance Guarantee rebuilds as follows:

—REBUILT—
(date)

to enable us to have an effective check on all factory rebuilds out in the field.

Some few distributors send traded, demonstrated or reverted Kirbys to us for reconditioning and rebuilding. These, of course, do not come under the terms of the Service Insurance Guarantee.

Neither, perhaps, would you want them stamped "REBUILT". Therefore, if you do from time to time send us Kirbys not owned by a customer, but rather by you or one of your dealers or subs, be sure to tell us. We will not stamp them "REBUILT".

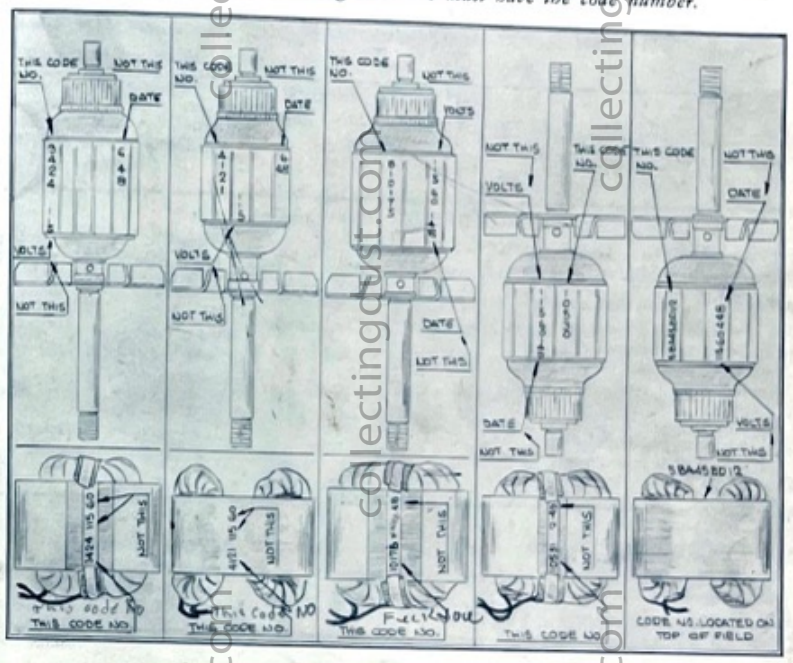
The cost for such rebuilding, or reconditioning, will be based on the list price of parts involved, less your usual discount, plus actual cost of labor.

THE SCOTT & FETZER COMPANY
Service Department

SUPPLEMENTARY SERVICE BULLETIN RE-ARMATURES AND FIELDS

A number of distributors have inquired concerning the method of distinguishing the five types of armatures and/or fields other than by the letter or letters preceding and following the serial number. The following pictures portray clearly just what information we require to insure correct replacement.

The stacking of each armature and the side of each field is indented with a code number, also the voltage, kilocycle, and manufacturing date. We are not interested in the voltage and kilocycle angle (unless of course it happens to be an odd voltage motor, such as 32 or 220 volt) or the manufacturing date. *We must have the code number.*



REMEMBER

In order to secure the correct type armature and/or field the code number must be one of the following:

Armatures	Fields
3424	3424
4121-4494-4579	4121-4494-4579
10175	10176
10530-11320	10531-11321 some 10530
5BA45BD12	5BA45BD12
5BA45BD12A	5BA45BD12B

REPLACEMENT OF ARMATURES AND FIELDS
MODELS 505 THROUGH 516

Number Stamped on Armature	Letters Stamped on Serial Number Plate of Kirby	Matching Number Stamped on Field
3424 — Can only be replaced with another 3424 armature	None	3424 — Can only be replaced with another 3424 field
10175 — Can only be replaced with another 10175 armature	W	10176 — Can only be replaced with another 10176 field
4579 — Can only be replaced by either 4121 or 4494 armature or another 4579	LS	4579 — Can only be replaced with either 4121 or 4494 field or another 4579
4494 — Can only be replaced by either 4579 or 4121 or another 4494	LS	4494 — Can only be replaced with either 4121 or 4579 or another 4494
4121 — Can only be replaced by 4579 or 4494 or another 4121	LS	4121 — Can only be replaced by 4579 or 4494 or another 4121
10530 — Can only be replaced with another 10530 or 11320 armature	WS	10531 — Can only be replaced with either 10531 or 11321 field
11320 — Can only be replaced with another 11320 or 10530 armature	WS	11321 — Can only be replaced with either 11321 or 10531 field
5 BA 45 BD 12 — Can only be replaced with a 5 BA 45 BD 12A or B	B	5 BA 45 BD 12A — Can only be replaced with a 5 BA 45 BD 12A or 5 BA 45 BD 12B

IMPORTANT!

FACTORY SERVICE & REPLACEMENT POLICY

READ THIS CAREFULLY

The following information is the authoritative guide for all Distributors in the interpretation of the Kirby guarantee and in making free replacements for customers. This bulletin outlines what replacements will be honored by the factory and the circumstances under which we shall make gratis replacements. We also suggest ways of keeping demonstrator equipment in good order.

REPLACEMENT TO CUSTOMERS

Parts of the Kirby which break or become unserviceable *as a result of defective material or workmanship* during the one year guarantee period, will be replaced *without charge for the parts or labor involved, but* you, as the Distributor should charge for your serviceman's time and transportation to and from the customer's home.

There must be unmistakable evidence that there is a defect in material or workmanship, or free replacement should not be made, especially in the following instances:

ATTACHMENT HOSE

REPLACEABLE—gratis if the rubber sleeves on the ends split or if the inner wire (at the ends of the hose) comes loose and uncoiled, preventing free passage of air and dirt.

NOT REPLACEABLE—gratis if hose has been stepped on, crushed, broken, or kinked through accident, carelessness or abuse on the part of the customer or salesman. When stored, hose should be placed through loop on Kirby Kabinet. Hanging the hose over a hook or nail while stored is apt to cause kinking and damage which is not covered by the guarantee.

It would be possible to supply hose which would withstand all the abuse and accidents to which many users carelessly or inadvertently subject their equipment, but such hose would be cumbersome, not flexible enough and too heavy for a woman to use without undue fatigue. Advise users to handle hose with some degree of care and consideration.

SUCTION FANS AND FAN CASES

NOT REPLACEABLE—unless there is unmistakable evidence that either the fan or fan case was made of defective material.

In 99 cases out of 100, fans and fan cases break as the result of customers permitting coins, nails, screws, small stones, and similar hard objects, to pass through the cleaner instead of avoiding them. Whether this breakage happens accidentally or as the result of carelessness, the damage cannot be construed as due to a defect in material or workmanship.

CLOTH BAGS

REPLACEABLE—gratis only when seams rip open as the result of defective sewing, or when the coil spring at the lower end (which clamps cloth to Sani-Em-tor) breaks or loses its tension.

NOT REPLACEABLE—if bags are torn, burned or worn out by excessive use in hotels or public buildings, irrespective of the length of time in service.

BELT DRIVEN BRUSHES

REPLACEABLE—if bristles come out of sockets or if bearings should happen to be defective.

NOT REPLACEABLE—when customers put brush into nozzle in the incorrect position, resulting in the belt riding over and wearing out bristles adjacent to belt pulley on brush. This is thoroughly covered in the instruction book. Factory cannot be responsible for customer's carelessness in this respect.

BRUSH BELTS

Belts are not guaranteed (see factory guarantee). Two belts are supplied with each machine at the time of purchase.

IN GENERAL

The factory will in no case make free replacements of parts damaged or broken as the result of accident, misuse, abuse, or damage resulting from owner's tampering or repairs attempted by unauthorized servicemen.

If it is necessary for you to send any part or motor unit to the factory for repair, customer should be required to pay transportation to and from the factory, the same as if the customer herself forwarded the shipment.

SERVICE CHARGES

Our guarantee (second paragraph) provides for service charges as follows: "*Delivery* of such part or the cleaner itself *must be made prepaid to the factory or authorized Distributor during the period of the guarantee.* Under any other circumstances a service charge will be made for sending a service representative to call for or deliver any cleaner or parts".

REPLACEMENTS TO DISTRIBUTORS

When the Distributor replaces parts for a customer, *it will be necessary to forward the defective part to the factory before a new part will be sent in exchange to the Distributor.* We suggest that such replacements be sent in a group at 30 to 60 day intervals (with the exception of motor units requiring immediate attention). Always advise by separate letter when sending replacements and be sure to list parts in detail so that we can check the items in the shipment when it arrives.

In order to facilitate customer replacements and repair service, it is suggested that each Distributor stock a small quantity of the parts most often called for. A list of the suggested stock required can be found on page 6 of this Manual.

NOTICE!

The factory will in no case replace parts, attachments or cleaners which are shop-worn, damaged, or soiled during demonstration.

Hose and bags, which become soiled or damaged during the time machines are being carried in the field for demonstration are the Distributor's responsibility. The factory will not replace soiled hose or bags without charge.

HOW TO HANDLE THE BAG SITUATION

It has been found good practice for the Distributor to stock extra demonstrator bags (cloth only), which the salesmen are required to use on demonstration; then, when the order is signed, the salesman can install the brand new clean bag which is packed with the machine. It should be the duty of each salesman or your service man to keep the demonstrator bags (and all other equipment) clean and in presentable condition. When bags become too soiled, new demonstration bags should be provided.

HOW TO HANDLE HOSE

It is impractical to supply demonstrator hose. Instruct your salesmen to keep hose (and all other attachments) as clean as possible. *Do not stand on hose to demonstrate its strength. The hose is not designed to stand such abuse. Do not knot the hose tightly to demonstrate flexibility.* Some men are too careless in this respect. If they damage hose through carelessness, charge it up to them and they'll be more careful.

If the outer braid covering on the hose becomes soiled and dull in appearance, wipe off the covering with naphtha or a similar dry cleaning fluid. Your Service Department should handle this for you. Dust, which has collected on the inner walls of the hose, can be dislodged and blown out by hooking the hose to blower side of the Kirby power unit.

If you, as the Distributor, have any other questions regarding service replacement policy, we will be glad to give you the information you desire if you will address a letter to the Service Department at the factory.

THE SCOTT & FETZER COMPANY

Service Department

INTRODUCING THE MODEL 516 KIRBY

The 50th Anniversary Model 516 Kirby has been designed and engineered by experts who are considered tops in their profession. No expense has been spared in its development. Only the best quality materials have been used. No "cutting corners" in manufacturing. And further more from my standpoint as National Service Manager, and yours as Service Representatives, the ease and simplicity of repairing and rebuilding Model 516 Kirbys is amazing.

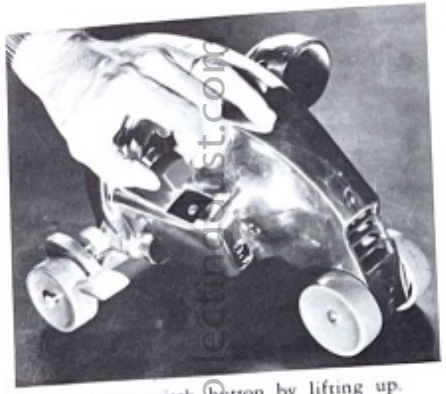
Our Engineering Department after designing a new part asked our Service Department, "How can we use this to best advantage and still consider ease of replacement out in the field". Many times this question was solved to the advantage of both.

You will also find that where formerly many Kirbys had to be brought into the shop for repairs, now can be repaired in the customer's home on the kitchen table. Enough of my eulogizing. You will find out for yourself.

Your National Service Manager

FRED H. SMITH

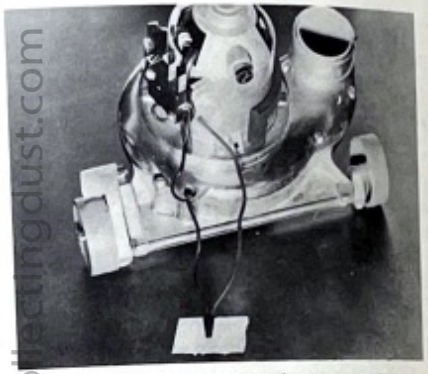
DISASSEMBLY OF MOTOR UNIT



First remove switch button by lifting up.

Remove three screws holding shell housing to motor housing.

The shell housing can then be separated from the motor housing by pulling *straight back.*

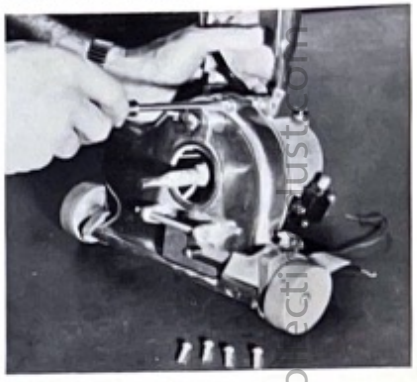


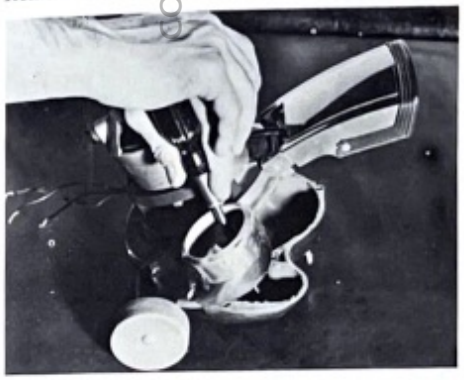
After shell housing is removed—unscrew wire nut shown in foreground.

Remove safety switch lead and headlight lead from bottom screw of foot switch.

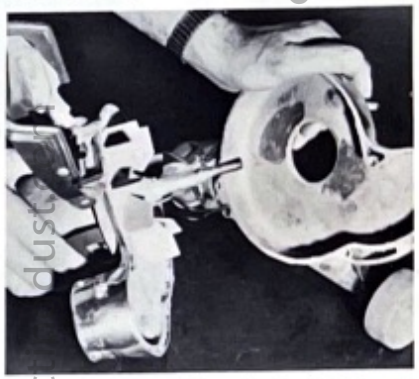
DISASSEMBLY OF MOTOR UNIT CONTINUED

Remove five screws—four from back—one longer under headlight cap in front.

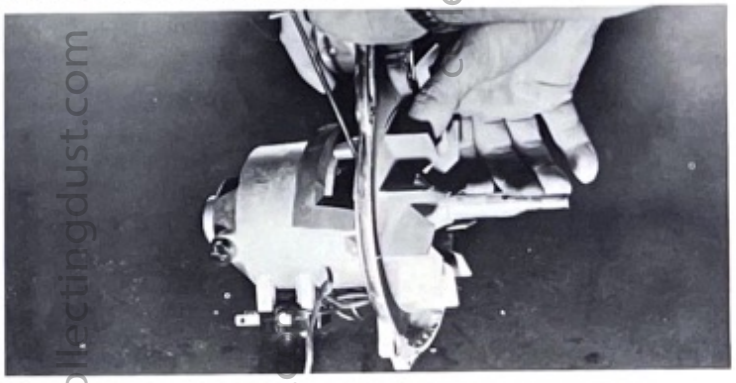




Separate fan case from motor housing as pictured.

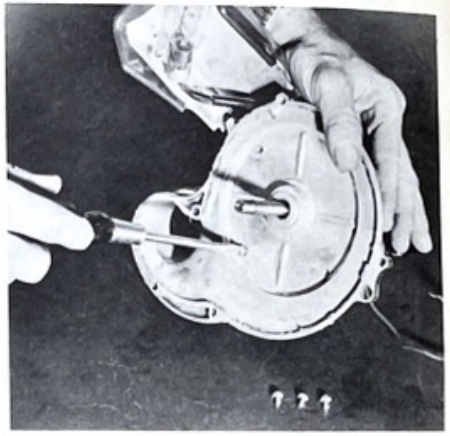


A sharp rap is required to break adhesive seal.

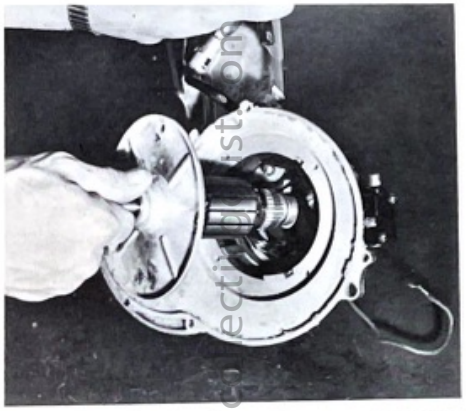


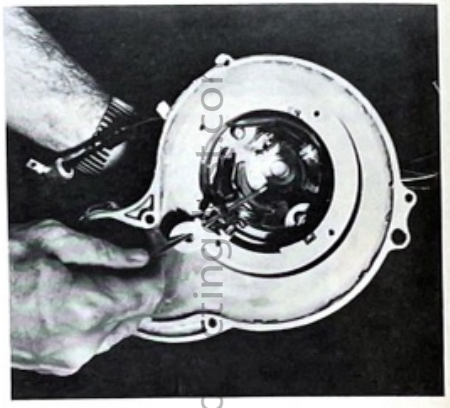
Remove fan by inserting icepick through ventilating slit, and hold in armature shaft. Turn fan in clockwise manner. (Refer to Page 9.)

Remove commutator brush holder caps and brushes as shown.

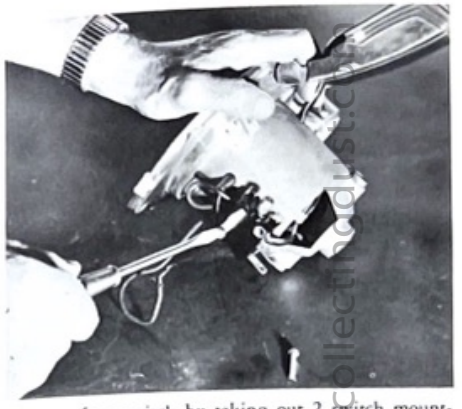


Remove four screws from front bearing plate.

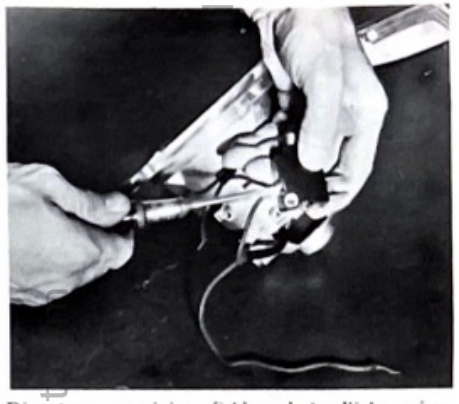




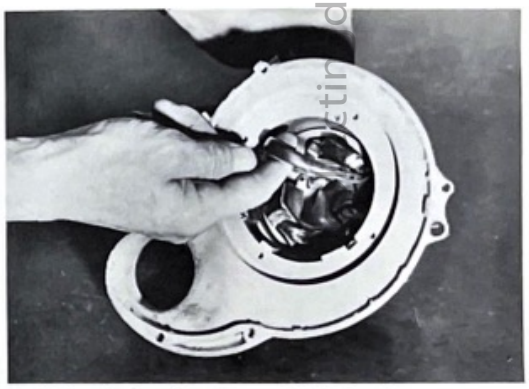
Remove front bearing plate and armature by pulling on armature shaft. This is a tight fit so considerable effort may be required. Occasionally the steel grease retainer will stick to rear bearing. Be sure not to lose it or the finger spring in rear bearing well.



Remove foot switch by taking out 2 switch mounting screws.



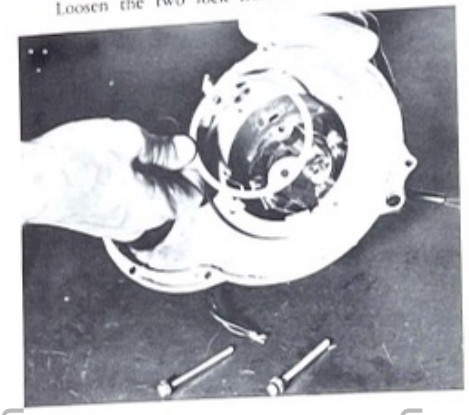
Disconnect remaining field and headlight wires from foot switch.



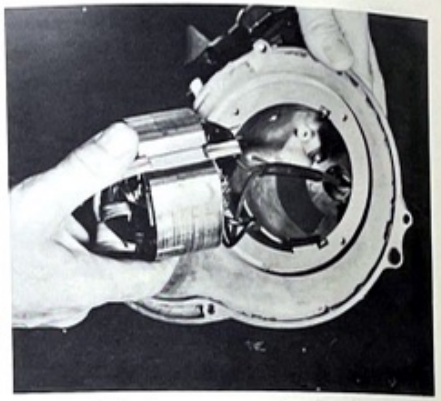
If necessary to remove field coil assembly: Remove field clips from commutator brush holders.

Remove headlight harness with wires from behind field coil and withdraw from motor housing.

Loosen the two lock nuts on field core mounting screws and take out screws.



Lift out baffle plate.



Remove field. Be sure not to damage plastic insulating tube which it is necessary to reinstall on new field if a new field is required.

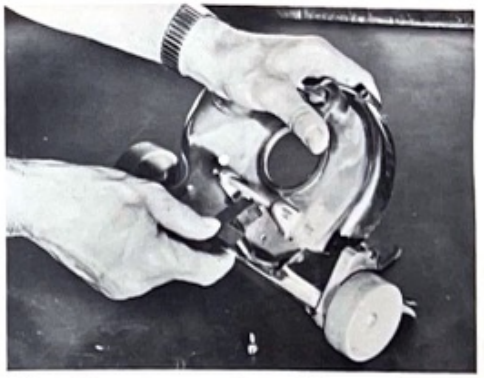
ALSO NOTE HOW WIRES LAY AROUND FIELD SCREWS IN ORDER TO REASSEMBLE WITHOUT THE POSSIBILITY OF PINCHING OR REVERSING.

THE MOTOR UNIT IS NOW COMPLETELY DISASSEMBLED

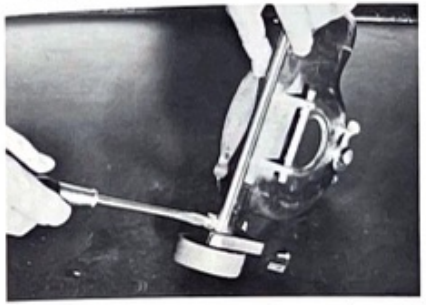
AFTER INSPECTION OF EACH PART —

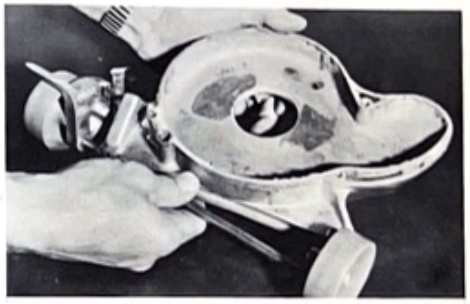
Reverse the Above Procedure to Re-assemble

FAN CASE DIVISION
TO DISASSEMBLE

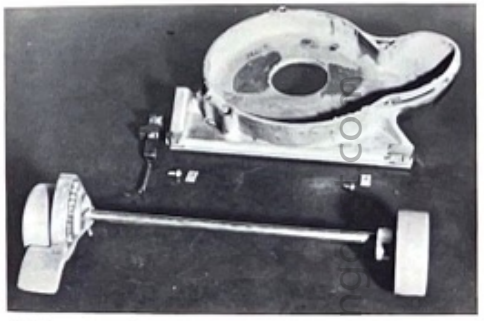


Remove safety switch by taking out one safety switch mounting screw.





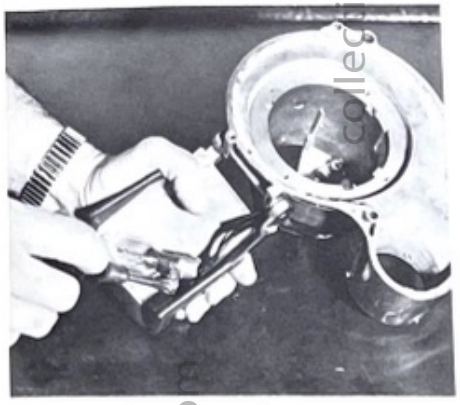
To repair or replace toe touch control, set indicator at #7 position and then remove clamp screws as pictured.



All the parts in toe touch control shown here.

In case round rubber gasket has to be replaced be sure to use a good grade of rubber cement. Allow to dry thoroughly.

Re-assembly is easy by proceeding in reverse order.

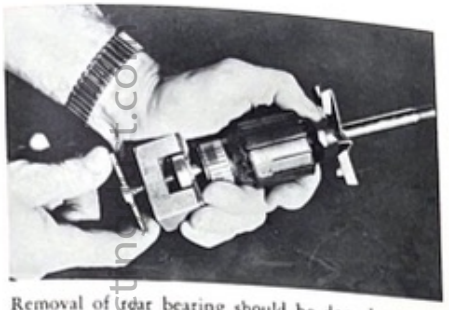


Remove socket as pictured.

Remove bracket by driving hinge pin out from *exhaust* side of bracket.
Do not lose wave washers.

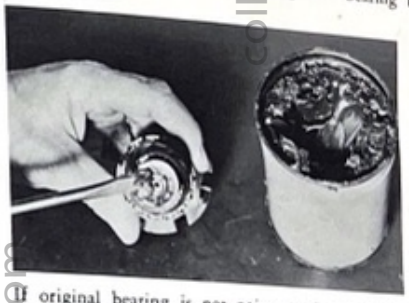
We are not showing all step by step operations in assembly since most of the operations are in reverse of disassembly. However here are a few of the highlights which should be of assistance.

BEARING ASSEMBLY



Removal of rear bearing should be done by special tool which we can supply at $1.50 each net.

Installing new bearing by use of old fan pulley.



If original bearing is not noisy—wash thoroughly with gasoline and repack with our special-high consistency bearing grease at 50c per lb. net.

COMPONENT PARTS OF FRONT BEARING

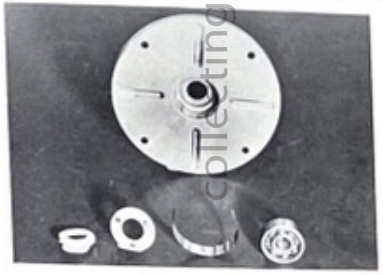
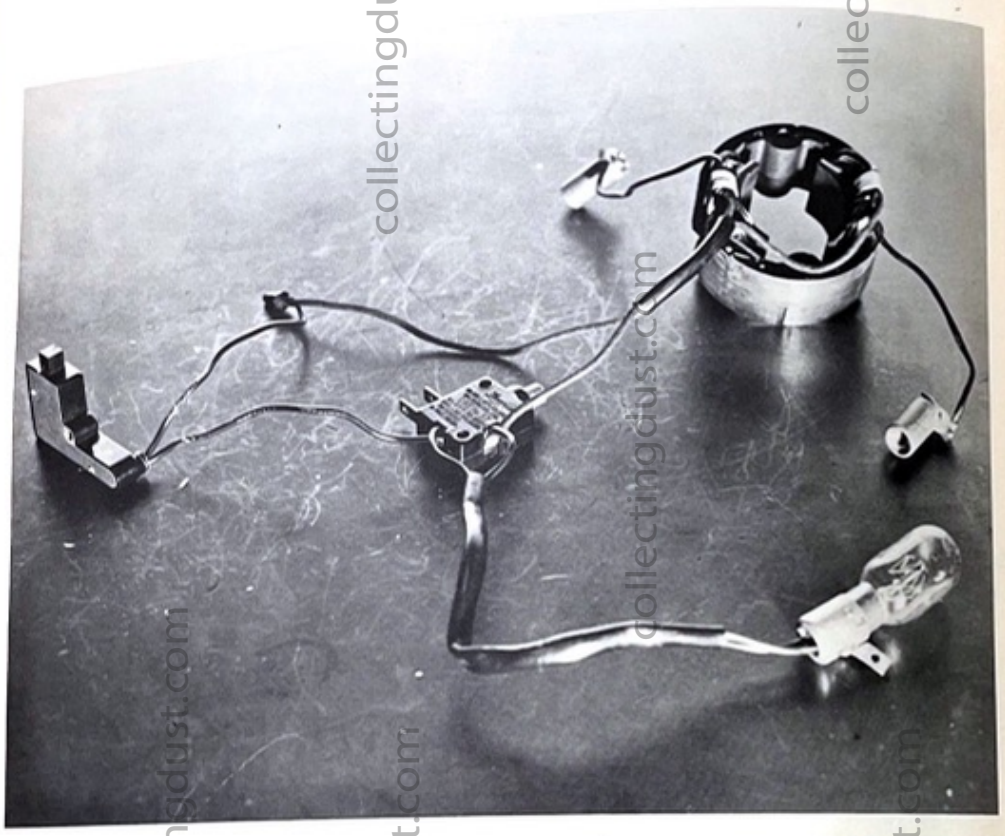


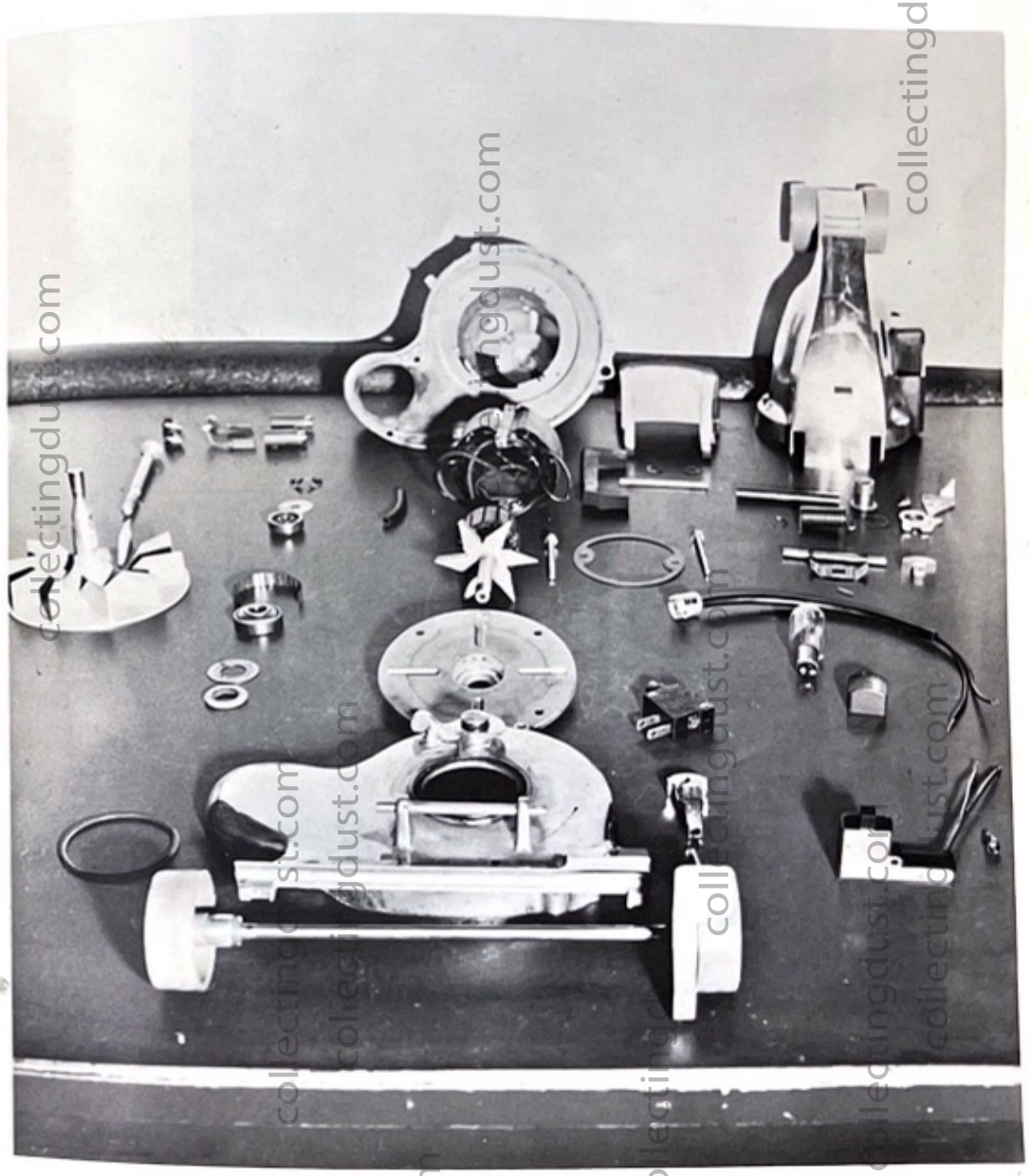
Plate assembly.

Bearing can be pushed out of plate by using thumb pressure only.
If not noisy—wash and repack as described for rear bearing. In assembling parts in plate, be sure notch in corrugated brass strip engages with slot in front bearing well.

WIRING ASSEMBLY



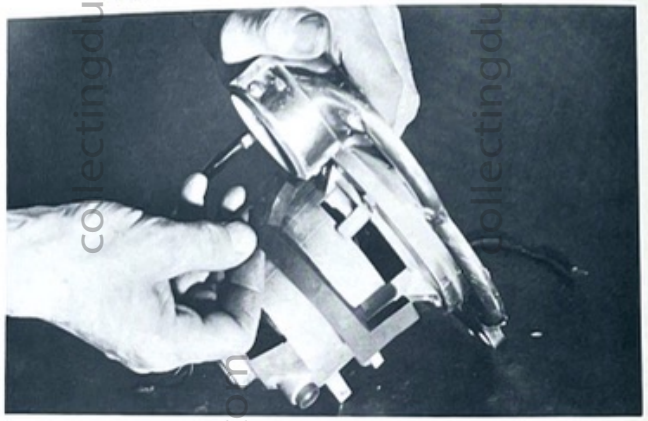
ALL PARTS IN MOTOR UNIT PROPER



FIELD INSTALLATION CAUTIONS

Refer to instructions on Page 47. Also remember to lay insulating tubing containing field wires between switch mounting lugs under switch. Tighten field core screws before drawing up nuts.

MOTOR HOUSING ASSEMBLY CAUTION



The sponge rubber baffle pictured has a self sticking surface and requires no cement. For illustrative purposes the picture shows this baffle set back from flange of motor housing. Should be installed with ends against flange. The purpose of this baffle is to prevent recirculation of heated exhaust air through motor.

FAN CASE TO MOTOR HOUSING CAUTION

Remove by scraping any excess sealing compound adhering to fan housing and motor housing. A special liquid sealing compound which we can supply at $ .25 per tube *must* be applied on rim of fan case before assembly of fan case to motor housing. Do not attempt to use any other form of adhesive.

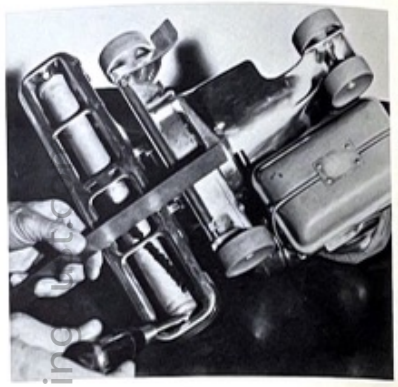
ARMATURE INSTALLATION CAUTION

Be sure finger spring is installed in housing well before steel washer. Also be sure field clips and wires are clear of armature rotor.

NOZZLE ASSEMBLY

ADJUSTMENT OF FLOOR BRUSH

The Floor Brush for the Model 516 is interchangeable with 514 and 515. Can also be used on Model 513 by substituting short 1" brush adjusting screws for the long 1⅜" Adjusting screws furnished with each Model 514, 515 and 516 brush.
NOT INTERCHANGEABLE WITH MODELS UNDER 513.



TO ADJUST BRUSH TO COMPENSATE FOR WEAR

Turn both brush adjusting screws inwardly which will lower the bristles on the brush. The bristles on both sides of the brush should extend about 1/16" below the mouth of the nozzle. This can be determined by using a flat surface to check as pictured.
BELTS FOR THE 516 MODEL UPRIGHT AND POLISHER ARE SLIGHTLY SMALLER IN DIAMETER AND SHOULD NOT BE USED ON PREVIOUS MODELS UPRIGHT AND POLISHER. HANDI BUTLER BELTS REMAIN THE SAME SIZE AS PREVIOUS MODELS.

REPLACEMENT OF WORN OUT FLOOR BRUSH

We can supply the brush shell exclusive of the ends at a very nominal price. However, we cannot break down the bearing and yoke assembly or shaft, for purchase separately since these are assembled by special machinery at the factory.

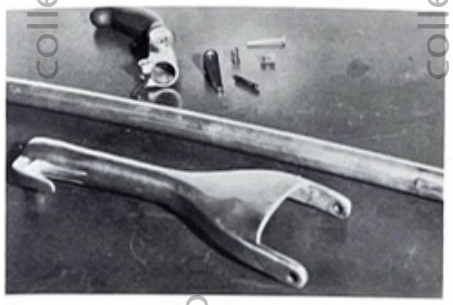
TO DISASSEMBLE WORN OUT BRUSH

Remove one adjusting screw—tap this end at flange of yoke assembly, thus removing from brush shaft. Other end and shaft can then be easily removed. We can supply wave washers, corrugated strips and plastic ends. If care is used in disassembly, all internal parts of the worn out floor brush can be re-used in a new brush shell. If bearings are dirty, wash in gasoline and repack with bearing grease.

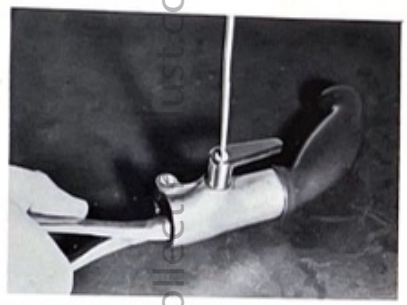
REMOVAL OF BELT LIFTER

Working from the back of the nozzle with a long screw driver, remove stop screw, align flanges on belt lifter to slots in housing. Lift out belt lifter and install new one, if necessary, in reverse order.

HANDLE ASSEMBLY



Component parts of handle.

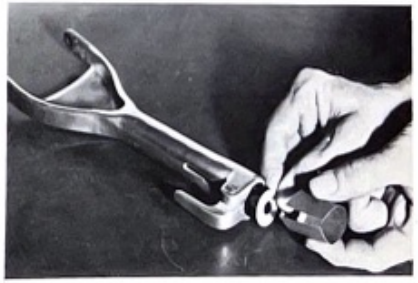


To disassemble handle grip remove screw as pictured by inserting long nose pliers to hold speed nut while screw is removed. To re-assemble reverse procedure.

HANDLE FORK

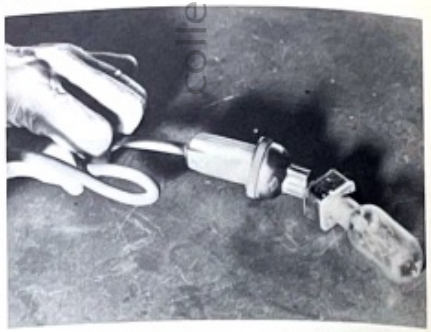
Should service be required on handle fork be sure insulators are replaced exactly as pictured.

The plastic outer covering cannot be replaced on the Model 514-515-516. All replacements of handle grips on Models 514-515-516 must be made on a complete handle grip replacement basis.



TESTING CORD

Connect cord to wall plug and test bulb as pictured. Flex cord along entire length, paying special attention to the moulded ends. We can supply replacement ends as per parts price list.

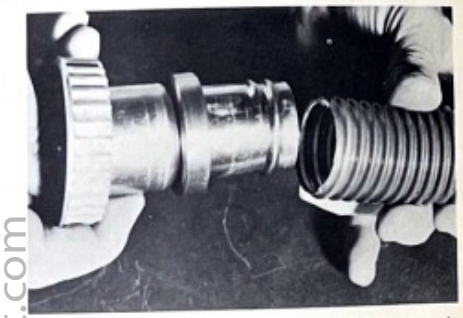


INSTALLING GASKET IN SANI EM-TOR

Apply rubber cement to gasket. Insert in mouth of SaniEm-Tor. Allow to dry thoroughly before installing Emtor to fan case.

HOSE SWIVEL ENDS

Hose ends can be removed from hose for service. They are attached or detached with a left hand thread, corresponding to the spiral of the hose construction.

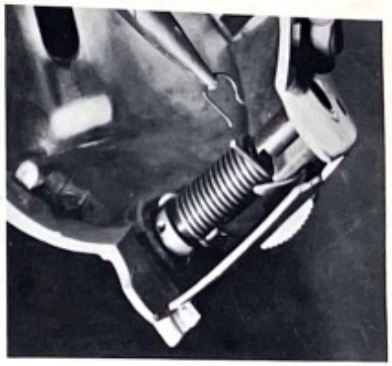


The swivel lock ring and sleeve are permanently assembled one to the other and cannot be separated.

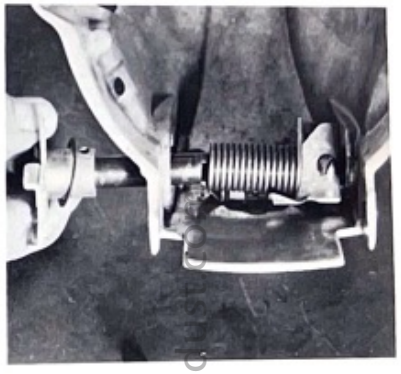
TO REMOVE BROKEN HANDLE FORK SPRING

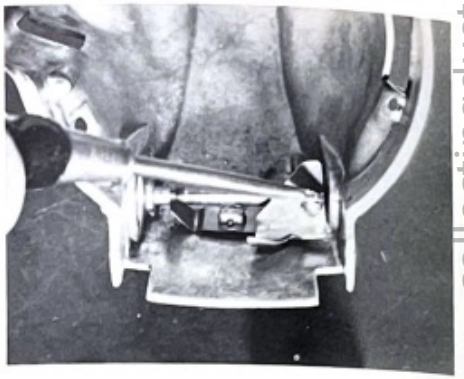
Remove spring bushing screw.

Remove Handle Fork U Clip.



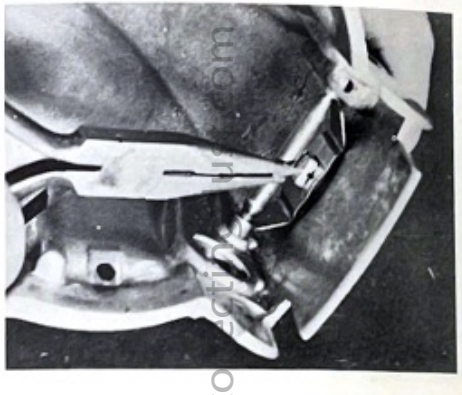
Remove spring shaft assembly.



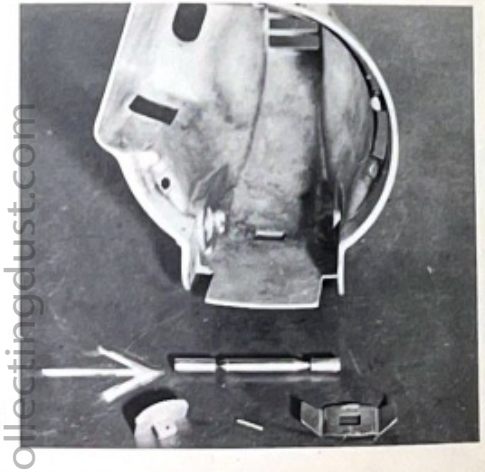


While Handle Fork spring assembly is out inspect handle slide. If necessary this can be removed as follows.

Remove Handle Fork spring spreader and screw.



Remove handle lock button retainer pin.

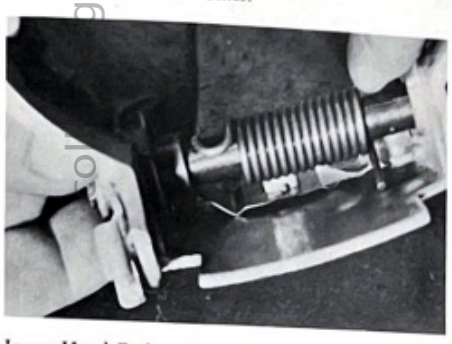


For assembly be sure to have long end of pin toward switch side of housing.

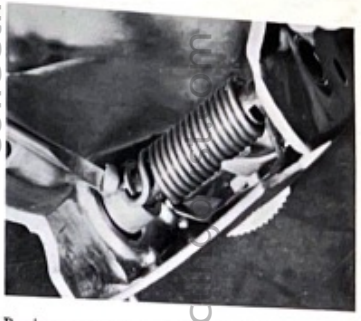
INSTALLING NEW SPRING

Slide Handle Fork spring shaft into Handle Fork spring shaft bushing so that small screw holes are aligned one over the other.

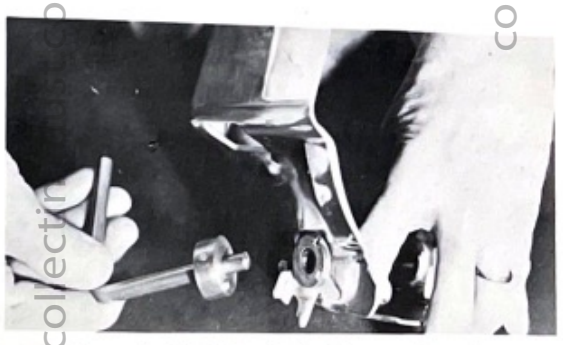
Then place yoke and fibre washer over bushing.



Insert Hand Fork spring shaft through large bushing of shell housing and through spring on inside of housing.

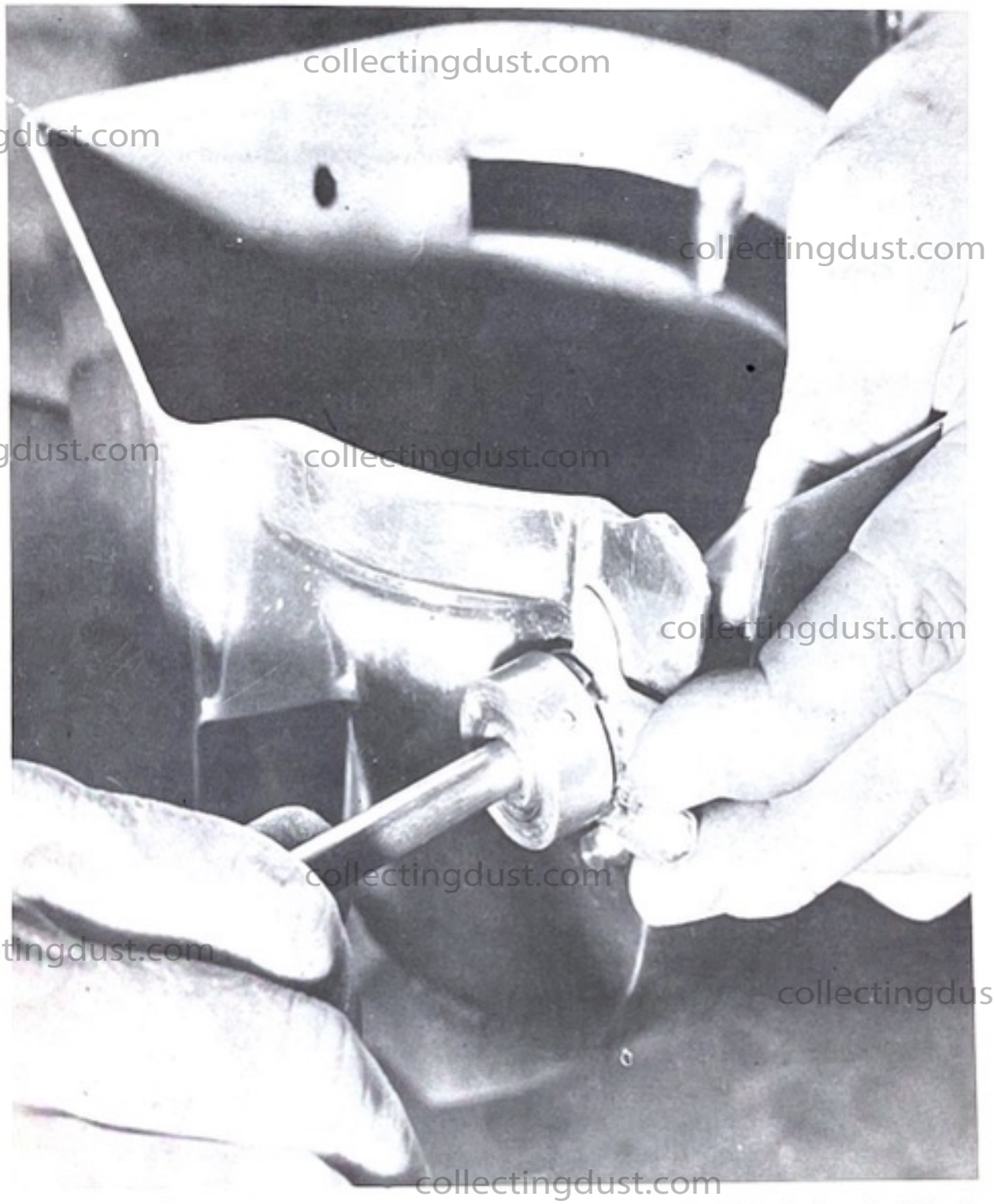


Replace screw through two holes previously aligned as per picture above.



Insert the 516 Spring Tool which we will supply you with as shown inserting pilot end into Handle Fork spring shaft key lug into either of the notches on the bushing flange.

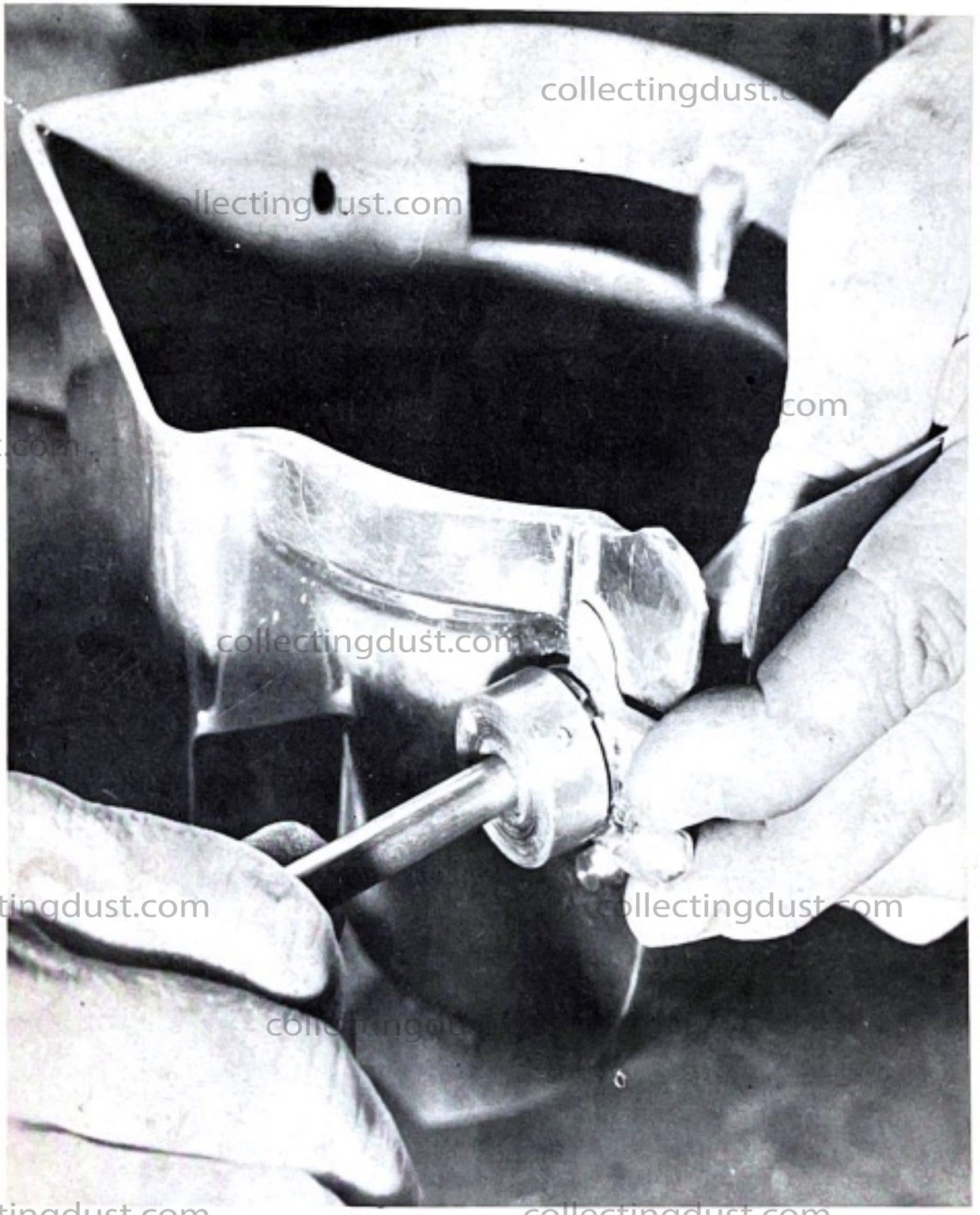
INSTALLING NEW SPRING—CONTINUED



With spring tool engaged, wind in clockwise direction until either the 2nd or 3rd notch of Handle Fork spring shaft bushing flange is engaged with raised pilot on Handle Fork spring yoke plate. This is to be determined by the amount of tension desired.

Replace Spring U Clip on shaft with Handle Fork Pin in correct position.

INSTALLING NEW SPRING—CONTINUED



With spring tool engaged, wind in clockwise direction until either the 2nd or 3rd notch of Handle Fork spring shaft bushing flange is engaged with raised pilot on Handle Fork spring yoke plate. This is to be determined by the amount of tension desired.

Replace Spring U Clip on shaft with Handle Fork Pin in correct position.