Instruction Book

SCALING & CHIPPING TOOL

MODEL RCG3
MODEL RCG4

The Porter-Cable Machine Co.

Syracuse, New York

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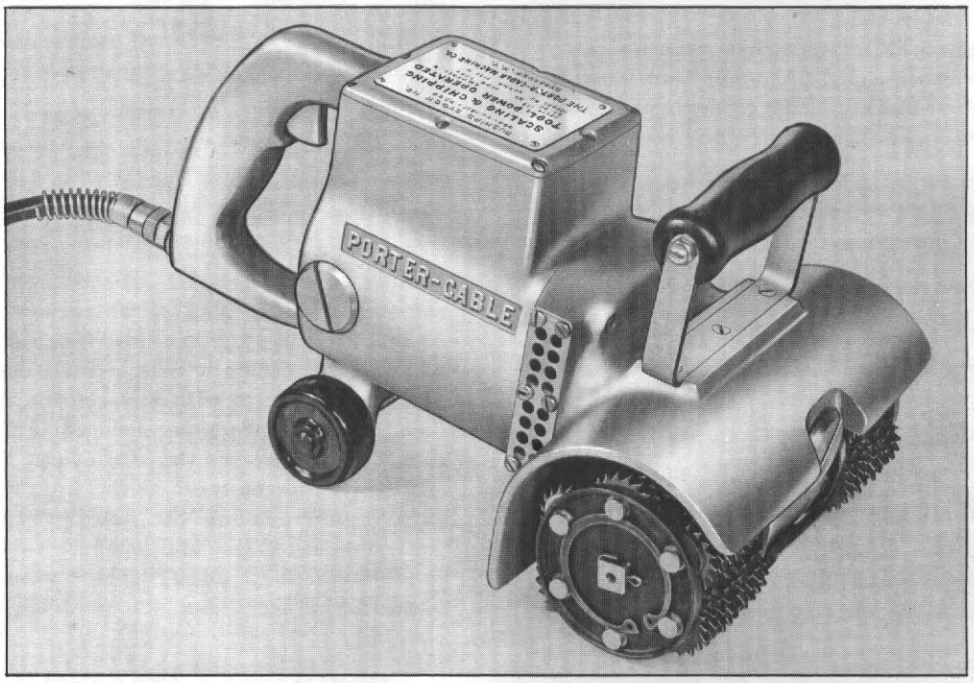


SECTION I
OPERATING INSTRUCTIONS

General

1. Be sure the switch is in the OFF position before connecting the machine to the power source. This machine is equipped with a motor for operation on a single phase, 115 volt, 60 cycle, A.C. power source. Do not connect to a 230 volt circuit. To do so will burn out both the armature and the field.

2. Grasp the front handle with one hand and the rear handle with the other hand.

3. Raise the front of the machine so the cutters and/or depth adjusting shoe do not contact the work.

4. Start the machine.

5. Lower front of machine until the depth adjusting shoe contacts the work.

6. Pull the machine toward you.

7. At the end of travel, roll the machine forward and to either side of its former path.

8. Repeat steps 5 through 7.

To Adjust Depth Adjusting Shoe

1. Loosen the two depth adjusting shoe locking screws (24567).

2. Slide shoe (53-RC) in or out as necessary so that fully extended cutters hang 3/16" below bottom of the shoe.

3. Tighten the locking screws (24567) securely.

4. Compensate for cutter wear by readjusting the depth adjusting shoe (53-RC) periodically.

Lubrication

Before putting the Scaling and Chipping Tool into operation, check the lubricant in the worm gear chamber.

To do this, remove the large screw cap (16-RC), screw cap washer (17-RC) and armature shaft grounding connector (36-RC) from the front of the machine and observe the grease level. The worm and worm gear should be well lubricated. If you find it necessary to add grease, use only special worm gear lubricant 51-YX.

Replace the armature shaft grounding connector, screw cap washer and screw cap.

SECTION II
MAINTENANCE INSTRUCTIONS

General

It is of the utmost importance that radio interference set up by the Scaling and Chipping Tool be kept to a minimum. By adhering to the following rules when making repairs, such interference will be minimized.

Service commutator as often as necessary to keep brush arcing to a minimum. See instructions under "To Service Commutator."

Be sure brushes move freely in the brush holders.

Replace brushes when the carbon is worn to 1/4" length. Use only those brushes specified in the parts list.

Be sure that all grounding devices are properly installed.

Replace rough armature bearings.

In the following instructions when the "right" or "left" hand sides of the machine are referred to, the machine is being viewed from the rear.

To Replace Worn Cutters

1. Remove cotter pins (170-X) and cutter bundle retaining washers (2306-X) from both ends of the square cutter shaft (7-RC).

2. Slide the cutter bundles (11Y-RC) off the shaft (7-RC).

3. Using a 0.245" diameter pin in an arbor press, press the six cutter bundle pins (10Y-RC) out of one of the cutter bundle flanges and lift off the cutter bundle hub and flange.

4. Note whether the part at the open end of one of the cutter bundle pins on which new cutters are to be installed is a cutter (21-RC) or a spacer (27-RC). Also note direction in which cutter teeth point. Replace worn cutters with new cutters, making certain that the new cutters are located in the same position in the stack and the teeth point in the same direction as did the teeth of the worn cutters. In the same manner, using the same precautions about position of cutters and spacers and direction in which cutter teeth point, replace worn cutters in the remainder of the cutter stacks in the cutter bundle assembly.

5. After replacing the worn cutters in the six cutter stacks, place the hub of the cutter bundle hub and

flange in the center of the cutter stacks and position the flange so the holes in it are in line with the cutter bundle pins.

6. Carefully set the cutter bundle assembly on the bedplate of an arbor press with the loose hub and flange on the bottom. With a 3/8" diameter pin, press the cutter bundle pins into the bottom flange until flush with the outer surface of the flange.

7. Slide the cutter bundle assemblies onto the square cutter shaft, making certain that the teeth of the bottom-most cutters point toward the rear of the machine.

8. Install the cutter bundle retaining washers and cotter pins on each end of the square shaft.

To Replace Worm

1. Remove the large screw cap (16-RC), screw cap washer (17-RC) and armature shaft grounding connector (36-RC) from the front of the gear housing (see Parts List).

2. Remove cotter pins (170-X) and cutter bundle assemblies (11Y-RC) from the cutter shaft (7-RC). Apply a wrench to the flats of the cutter shaft to prevent it from turning.

3. With socket wrench (33-RC) remove worm retaining nut (1992-X).

4. Turn square cutter shaft (7-RC) in normal direction of rotation (shaft rotates counter-clockwise when viewed from left side of machine) and the worm (11-RC) will slide out through the screw cap opening.

To Replace Worm Gear

1. Remove both cutter bundles (11Y-RC) and worm (11-RC) as outlined under "To Replace Worm."

2. Remove bearing retaining ring (1996-X) from right side of gear housing, using Truarc No. 5 Pliers (35-RC).

3. Tap left end of cutter shaft (7-RC) lightly with a soft mallet. The shaft (7-RC), worm gear (12-RC), bearing (43RC), bearing housing (6-RC), bearing housing "O" ring (1990-X), jackshaft grounding plate (39-RC) and dust seal (45-RC) will slide out of the right side of the gear housing.

4. Hold the worm gear in one hand and tap the left hand end of the cutter shaft with a soft mallet and the worm gear will slide off.

5. To reassemble, reverse the above steps. Be sure to install the cutter bundle shaft key (402-X) in the slot on the shaft before sliding the worm gear into place. When replacing the bearing housing in the gear housing, make certain the "O" ring seal (1990-X) is evenly seated in its groove to avoid pinching. Tap bearing housing lightly around the edge and it will slide into place. Also be sure the dust seals (45-RC) are installed on the cutter bundle shafts before installing the cutter bundles.

6. Add enough worm gear grease 51-YX to the worm gear chamber, so the gears will be well lubricated.

To Replace Armature

1. Remove the two large screw caps (16-RC) located on each side of the motor housing (1-RC).

2. Remove the brush caps (29-K75) and the brushes (30-K75). Mark the brushes in such a way that they can be replaced in the same positions in the holders from which they are removed.

3. Remove the four gear housing retaining screws (1573-X).

4. Holding the motor housing (1-RC) in one hand, tap the gear housing (see Parts List) lightly until it separates from the motor housing.

5. Remove the large screw cap (16-RC), screw cap washer (17-RC) and armature shaft grounding connector (36-RC) from the front of the gear housing (see Parts List). Grasp the armature in one hand and with the socket wrench (33-RC) provided, remove the worm retaining nut (1992-X). Remove the lock washer (197-X) and the worm (11-RC).

6. The armature (8-RC) may then be removed from the gear housing (see Parts List) by holding the armature in one hand & tapping the gear housing lightly.

7. Reverse the above steps to reassemble.

To Replace Armature Gear End Bearing

1. Remove armature as outlined under "To Replace Armature".

2. Remove grease seal (600-XA) from gear housing.

3. Remove armature gear end bearing retaining ring. (31-RC) with Truarc No. 5 Pliers (35-RC).

4. Remove bearing (44-RC).

5. Reverse steps 1 through 4 to reassemble. When installing grease seal, make sure the feathered edge is toward the gear chamber.

To Replace Armature Commutator End Bearing

1. Remove armature as outlined in steps 1 through 6 of "To Replace Armature".

2. Remove armature commutator end bearing from armature shaft.

3. Reassemble by reversing above steps. Make sure the armature shaft grounding plate (38-RC) is in the bearing bore before installing commutator end bearing.

To Service Commutator

1. Excessive arcing at the brushes may be caused

by a dirty commutator or uneven seating of the brushes or uneven commutator wear.

2. Remove the two retaining screws (24565) which secure the rear wheel yoke (4-RC) to the motor housing and remove the wheel yoke.

3. Use a clean cloth and 6/0 sandpaper to remove oil or grease that might accidentally get on the commutator. Do not use carbon tetrachloride for this operation.

4. If excessive arcing continues, the commutator should be turned down at high speed in a lathe of the highest quality. The total eccentricity must not exceed 0.001" and the bar to bar height 0.0002".

To Replace Field

1. Remove armature as outlined in steps 1 through 4 under "To Replace Armature".

2. Remove air baffle (13-RC).

3. Remove field lead springs from brush holders (128Y-K75).

4. Remove brush holder insulating washers (385-X) from brush holders (128Y-K75).

5. Remove eight filter compartment cover screws (2248X) located on top of the machine.

6. Remove filter compartment cover (26-RC).

7. Remove field lead retaining screws (or nuts) from front ends of filter unit(s) (55-RC).

8. Remove the two field retaining screws (2378-X) and lockwashers (193-X).

9. Remove field (9-RC) from motor housing.

10. To reassemble, reverse above steps. When replacing the air baffle, the end with the larger diameter goes into the motor housing first.

To Replace Brushes

1. Remove the two large screw caps (16-RC) located on either side of the motor housing (1-RC).

2. Remove the brush caps (29-K75).

3. Remove brushes (30-K75).

4. Brushes should be removed periodically to check for wear. Replace when the carbon has worn to 1/4" length. When installing new brushes, make certain that they move freely in the brush holders. To check this, grasp the rear end of the brush spring between the forefinger and thumb, insert the carbon in the brush holder and slide it in and out. If brush does not slide in and out freely, examine holder for burrs or other irregularities and remove any that might be found.

5. Since radio interference reduction requirements are involved, the brushes should be well seated.

6. The brushes should be "run in" at not over 75% of the normal voltage rating of the machine until 75% of the brush-face area is seated.

7. If it is found necessary to replace or adjust the brush holders (128Y-K75), be sure they are so positioned that the edge of the brush along its width is absolutely parallel with the commutator bars. That end of the brush holder nearest the commutator should be spaced approximatelyn 1/32" from it.

To Replace Switch

1. Remove the two handle cover retaining screws (24566).

2. Remove handle cover (24561).

3. Remove switch retaining screw (24564) and switch spacer (28-RC).

4. Remove the two terminal retaining screws on each end of the switch.

5. Remove switch (1514XA).

6. If the electrical tape on the terminals is torn or damaged during disassembly, replace with new tape before reassembling.

7. Reverse steps 1 through 5 to reassemble.

To Replace Cord

1. Remove the two handle cover retaining screws (24566).

2. Remove handle cover (24561).

3. Remove switch retaining screw (24564).

4. Remove ground wire retaining screw w/lock washer (2058X).

5. Remove the two terminal retaining screws on the cord end of switch only.

6. Unscrew strain reliever (23515) from bushing and pull cord from handle.

7. Remove brass gripping ring from old cord by prying up prongs with a screwdriver. Slip strain reliever off old cord.

8. Replace strain reliever on new cord and slip on brass gripping ring with prongs toward end of the cord to be inserted in the handle.

9. Slip new cord (2941X) into handle, install wire terminals and secure the green wire terminal (2014-X) to the handle with the ground wire retaining screw w/lock washer (2058-X).

10. Tape the other two terminal wire grips (2014-X) with electrical tape and secure to the lower end of the switch with the retaining screws.

11. Secure switch (1514XA) to handle with retaining

screw (24564). Be sure to install the switch spacer (28-RC) under the switch mounting plate.

12. Replace handle cover (24561) and install handle cover retaining screws (24566).

To Replace Filter Unit

1. Remove six filter compartment cover screws (2248X) located on top of machine.

2. Remove filter compartment cover (26-RC).

3. Remove wire terminal retaining screws (or nuts) and lockwashers from filter unit.

4. Remove filter unit retaining screws (2248X).

5. Lift filter unit from compartment.

6. To reassemble, reverse steps 1 through 5. Make certain that the end of the filter unit marked "To Line" is toward the rear of the machine.

To Replace Wheels

1. Remove either of the wheel retaining nuts (2299-X) and the wheel axle washer (138-X).

2. Grasp the other wheel retaining nut and withdraw the axle (54-RC) from the wheels and wheel yoke (4-RC).

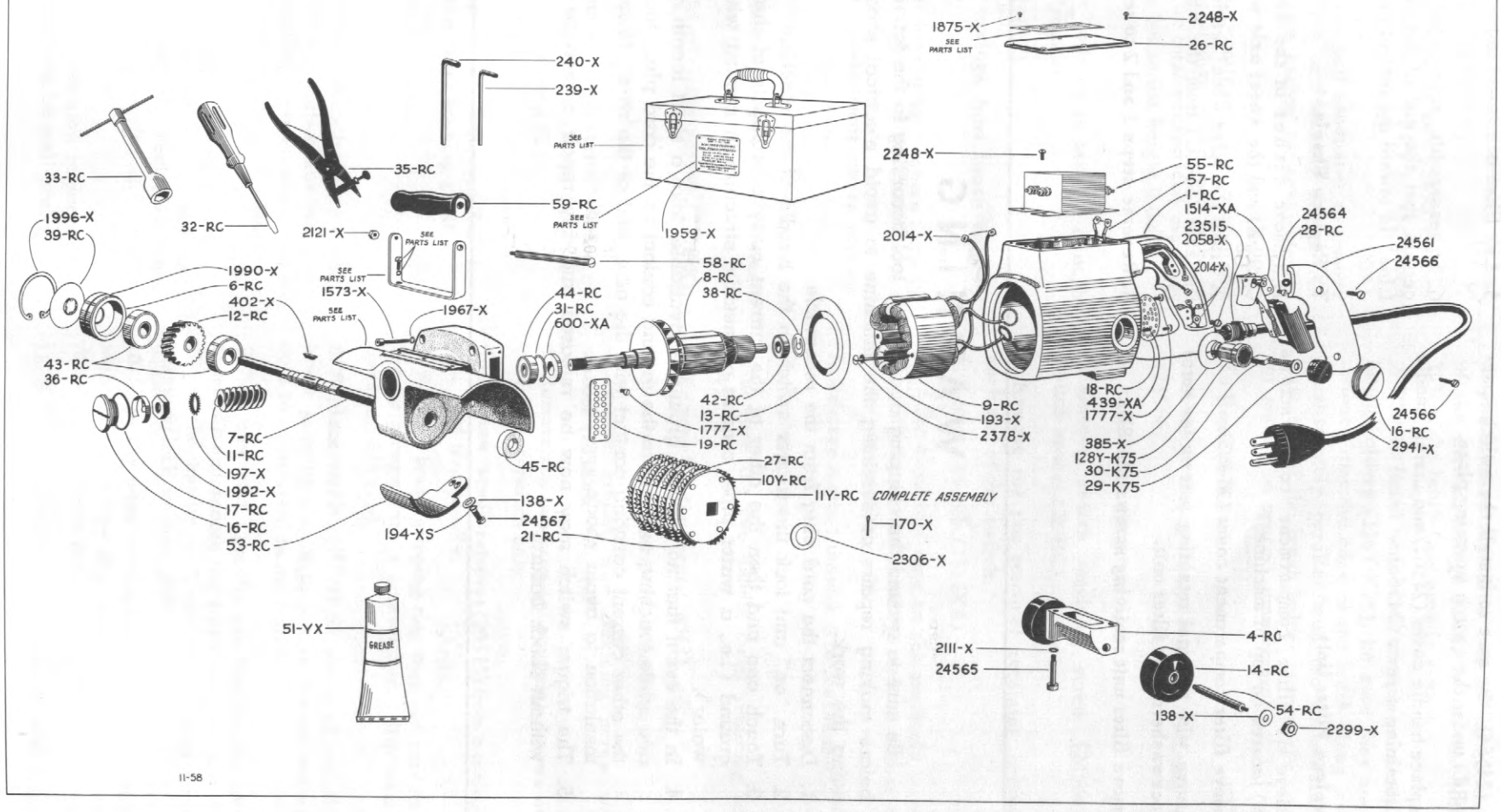
3. Reverse steps 1 and 2 to reassemble.

WARNING

Be sure to ground the chipping and scaling tool according to the following instructions before making repairs or servicing the machine to avoid electrical shock to the person doing the work.

1. Disconnect the cord plug from the receptacle.
2. Turn "on" and lock the trigger switch in the handle of the machine.
3. Touch one and then the other of the current carrying contacts of the cord plug to a ground (i.e., a water pipe, conduit or metallic structure in contact with the ground or water).
4. In the event that no suitable ground is available, take a short length of insulated wire and while touching one end to the ground contact on the cord plug, touch one and then the other current carrying contact with the other end of the wire. Hold the wire by the insulation to avoid shock.
5. The trigger switch may now be released and any repair or service work performed without shock hazard.

SCALING & CHIPPING TOOL
POWER OPERATED



SECTION IV

PORTER-CABLE MACHINE COMPANY
Syracuse, New York, U.S.A.

SCALING & CHIPPING TOOL

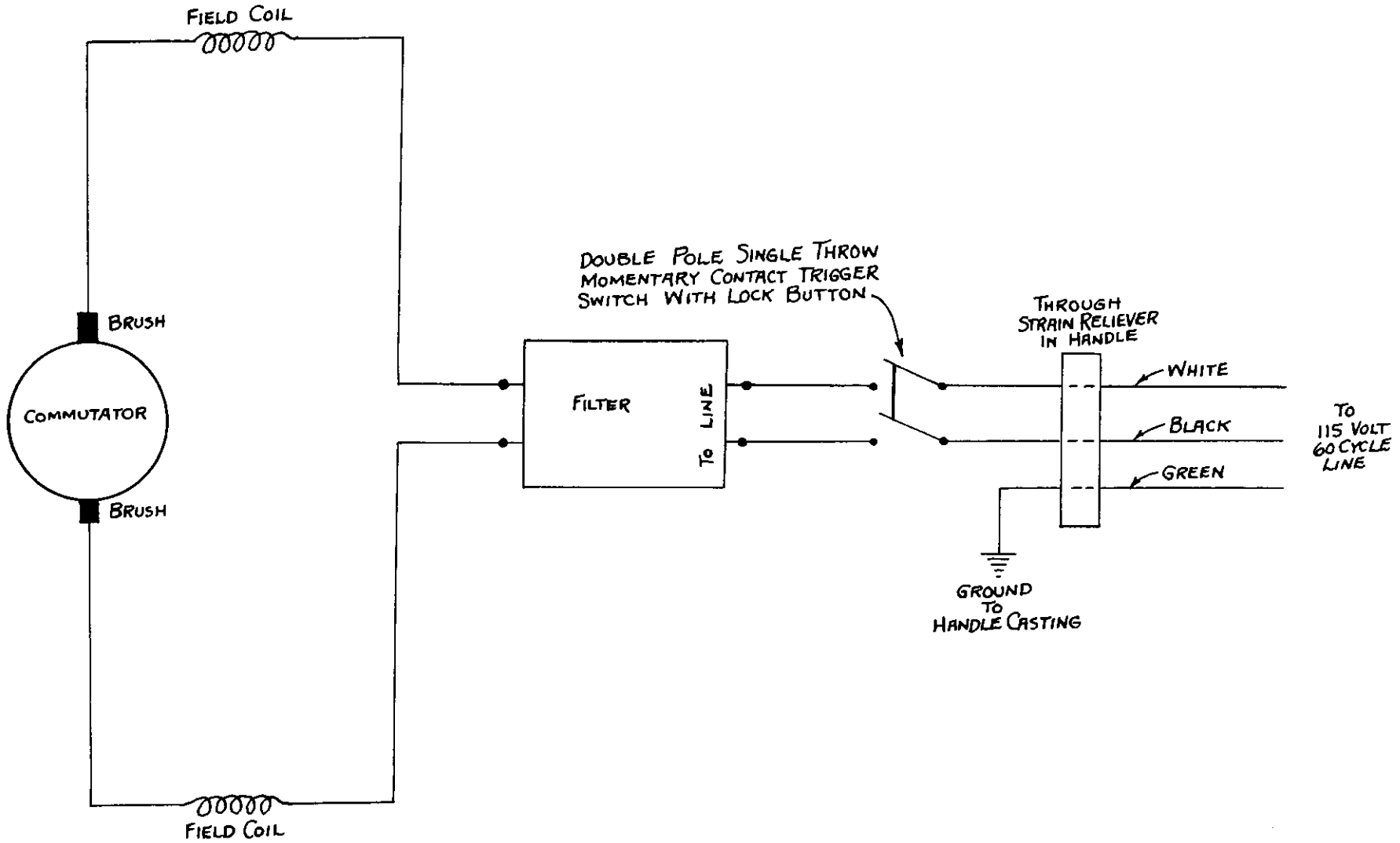
MODEL RCG3

MODEL RCG4

PARTS LIST NO. 245

NOVEMBER, 1958

Part No.	Pcs. Req'd.	Part Name
1-RC	1	Housing - Motor
2-RC	1	Housing - Gear (For Model RCG3 only)
24573	1	Housing - Gear (For Model RCG4 only)
16Y-RC	1	Cord Assembly
24561	1	Cover - Handle
4-RC	1	Yoke - Wheel
6-RC	1	Housing - Bearing
7-RC	1	Shaft - Cutter Bundle
8-RC	1	Armature - 115 Volt
24570	1	Case - Carrying (w/name plare) (For Model RCG3 only)
24578	1	Case - Carrying (w/name plate) (For Model RCG4 only)
9-RC	1	Field - 115 Volt
9Y-RC	4	Cutter Bundle Hub and Flange
10Y-RC	12	Pin - Cutter Bundle
11-RC	1	Worm
11Y-RC	2	Currer Bundle Assembly
12-RC	1	Gear - Worm
13-RC	1	Baffle - Air
14-RC	2	Wheel
15-RC	1	Strap - Front Handle (For Model RCG3 only)
24574	1	Strap - Front Handle (For Model RCG4 only)
16-RC	3	Cap - Screw
17-RC	1	Washer - Screw Cap
18-RC	1	Shield - Motor Housing
19-RC	2	Shield - Gear Housing
21-RC	96	Cutter
26-RC	1	Cover - Filter Compartment
27-RC	96	Spacer - Cutter
128Y-K75	2	Holder - Brush
28-RC	1	Spacer - Switch
29-K75	2	Cap - Brush
30-K75	2	Brush and Spring
31-RC	1	Ring - Armature Gear End Bearing Reraining
32-RC	1	Screw Driver - 3"
33-RC	1	Wrench - Worm Retaining Nut
35-RC	1	Pliers - Retaining Ring (Truarc no. 5)
36-RC	1	Connector - Armature Shaft Ground
24533	2	Plare - Name (For Model RCG3 only)
24575	2	Plate - Name (For Model RCG4 only)
38-RC	1	Plate - Armature Shaft Grounding
39-RC	1	Plate - Jackshafr Grounding
42RC	1	Bearing - Armature Commurator End
43RC	2	Bearing - Cutter Bundle Shaft
44RC	1	Bearing - Armature Gear End
45-RC	2	Seal - Cutter Bundle Shaft Dust
24562	2	Manual - Operating and Service
51-YX	1	Grease - Worm Gear
53-RC	1	Shoe - Depth Adjusting
54-RC	1	Axle - Wheel
55-RC	1	Filter
57-RC	1	Lead - Switch ro Filter
58-RC	1	Stud - Front Handle
59-RC	1	Handle - Front
2248X	10	Screw - Filter (4) and Filter Compartment Cover (6) Retaining
138-X	4	Washer - Depth Adjusting Shoe Retaining Screw and Wheel Axle
170-X	2	Pin - Cutter Bundle Retaining Cotter
193-X	2	Washer - Field Retaining Screw Lock
194-XS	2	Washer - Depth Adjusting Shoe Ret. Screw Lock
197-X	1	Washer - Worm Retaining Nut Lock
231-X	3	Screw - Front Handle Strap Retaining (For Model RCG3 only)
2017X	2	Screw - Front Handle Strap Retaining (For Model RCG4 only)
1967X	2	Washer - Front Handle Strap Retaining Screw Lock (For Model RCG4 only)
239-X	1	Wrench - Gear Housing Retaining Screw
240-X	1	Wrench - Wheel Yoke & Depth Adjusting Shoe Ret. Screw
385-X	2	Washer - Brush Holder Insulating
402-X	1	Key - Cutter Bundle Shaft
439-XA	2	Screw - Brush Holder Lock
600-XA	1	Seal - Armature Shaft Grease
23515	1	Reliever - Cord Strain
24567	2	Screw - Depth Adjusring Shoe Retaining
24565	2	Screw - Wheel Yoke Retaining
24564	1	Screw - Switch Retaining
1573-X	4	Screw - Gear Housing Retaining
1777-X	16	Screw - Motor and Gear Housing Shield Retaining
24566	2	Screw - Handle Cover Retaining
1875-X	4	Screw - Machine Nameplate Retaining
1959-X	4	Rivet - Case Nameplate Retaining
1967-X	4	Washer - Gear Housing Retaining Screw Lock
1990-X	1	Ring - Bearing Housing "O"
2378-X	2	Screw - Field Retaining
1992-X	1	Nut - Worm Retaining
1514-XA	1	Switch
1996-X	1	Ring - Bearing Housing Retaining
2014-X	5	Terminal - Solderless
2058-X	1	Screw - Ground Wire (w/lockwasher)
2111-X	2	Wasber - Wheel Yoke Retaining Screw Lock
2121-X	1	Nut - Front Handle Stud
2299-X	2	Nur - Wheel Retaining
2941-X	1	Cord - 3-Wire
2306-X	2	Washer-Cutter Bundle Retaining



WIRING DIAGRAM FOR SCALING & CHIPPING TOOL
POWER OPERATED
MODEL RC