



# MODEL CR 10V

## 1. NOTES ON DISASSEMBLY AND REASSEMBLY

The circled figures in the descriptions below correspond to the part numbers in the Parts Price List.

### 1-1. Disassembly:

#### (1) Upper Cover Disassembly:

After removing the Base Ass'y (37) and the Blade (501), set the Change Lever (19) to position "I", and remove the Insulation Cover (38) by pulling it forward (toward the blade mounting end). At this time, be very careful to avoid hooking the portion marked (A) (see illustration right) of the Insulation Cover on the Change Lever.

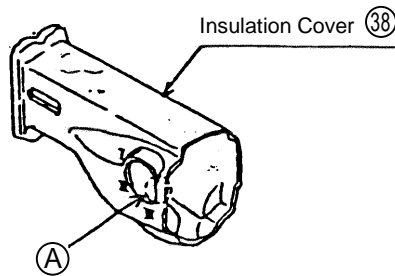


Fig. 4

Next, loosen the four M5 x 20 Hexagon Socket-Hd. Bolts (16) which secure the Upper Cover (18), and remove the Upper Cover by lifting it upwards. At this time, the rear end of the Plunger (15) may strike the Gear Cover Ass'y (42). To avoid this, the Plunger should be moved forward (toward the Blade end) beforehand.

(2) Remove the Plunger from the Upper Cover:

Remove the two M5 Special Bolts (36) which secure the Connector (35). As the Special Bolts are additionally secured by an adhesive agent (Cemedine 1500), it may be necessary to heat the Upper Cover (18) to permit removal. Next, the Plunger (15) can be removed from the Upper Cover (18) by pulling it out toward the front (toward the blade end).

(3) Remove the Plunger Case Ass'y (25) from the Upper Cover:

First, remove the E-Type Retaining Ring (26) from the Change Lever (19), and pull off the Change Lever from the Upper Cover. At this time, be very careful not to lose the D3. 969 Steel Ball (21) and Spring (C) (20) which may come out unexpectedly when the Change Lever is turned.

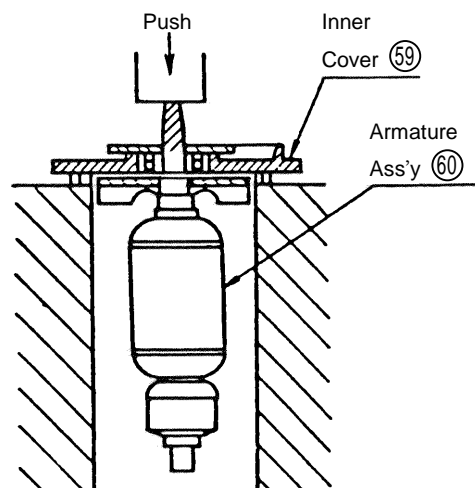
Next, pull off the D6 Pin (22) from the Upper Cover. However, as the D6 Pin is pressure fitted on the Upper Cover, be very careful in its removal.

(4) Gear Cover Ass'y and Housing Ass'y Disassembly:

When the four M5 x 35 (+) -Hd. Tapping Screws (40) are loosened, the Gear Cover Ass'y (42), Inner Cover (59), and Housing Ass'y (53) can be removed. At this time, the Armature Ass'y (60) remains on the side of the Housing, however the Brush Cap (50) and Carbon Brush (51) must be removed prior to reassembly.

(5) Inner Cover and Armature Ass'y Disassembly:

First, remove the C-Type Retaining Ring (54) from the Armature Ass'y (60). Then, support the Inner Cover (59) as shown in the illustration, and push down on the Pinion end of the Armature Ass'y with a press to disassemble the Armature Ass'y and the Inner Cover. At this time, be very careful not to excessively spread the C-Type Retaining Ring during removal.



**Fig. 5**

(6) Gear Cover Ass'y, Gear Ass'y, and Spindle Disassembly:

Loosen the two M5 x 10 Flat Hd. Screws (3) and the M6 Special Bolt (85) which secure the Cam Plate (5), and remove the Cam Plate from the Gear Ass'y (8).

Note: These screws are secured by adhesive and may be difficult to loosen. However, they can be easily loosened by special tools. If such special tools are not available, the screws can be loosened with a screwdriver and hexagon bar spanner as shown in the illustration below.

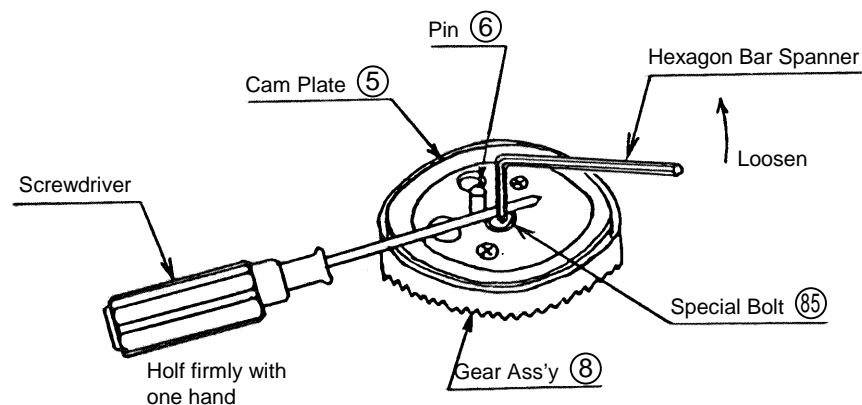


Fig. 6

Next, through the hole in the Gear Ass'y, remove the three M5 x 12 Flat Hd. Screws (7). The Gear Ass'y can then be pulled out together with the Bearing Cover (9), Ball Bearing (10), and Spindle (11).

Finally, support the Gear Ass'y as shown in the illustration below, and push down on the end of the Spindle to disassemble the Gear Ass'y and the Spindle.

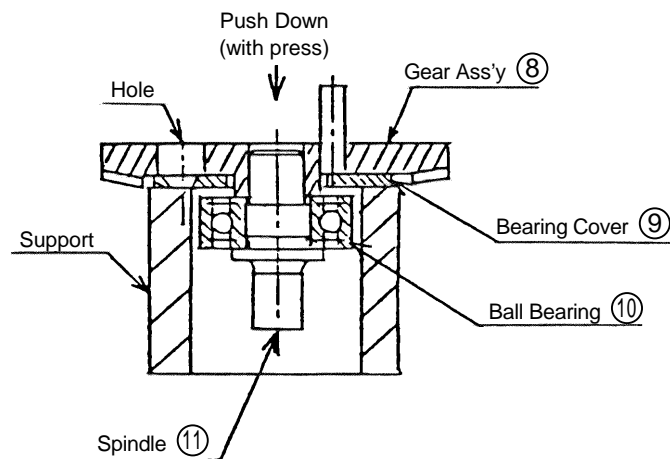


Fig. 7

## 1-2. Assembly:

Assembly can be accomplished by following the disassembly procedures in reverse. However, special attention should be given to the following items.

- (1) During assembly, be very careful to ensure that Spring (C) and the D3. 969 Steel Ball are properly mounted in the Change Lever.

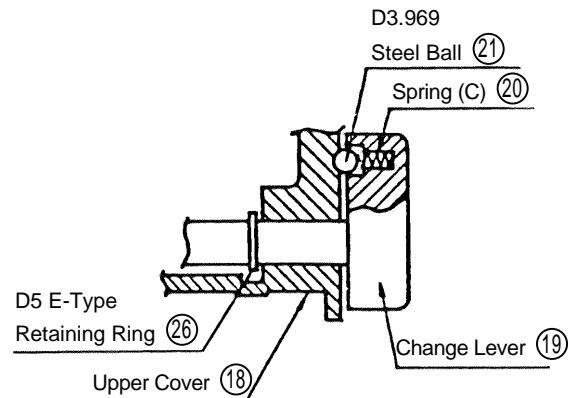


Fig. 8

- (2) Insert 35g of grease (Molluballoy #777-1) in both the Gear Cover and the Inner Cover. Apply a liberal amount of grease to the following parts:

The Needle Bearing (12) in the Gear Cover Ass'y the Needle Roller (2), the Connecting Piece (4), the teeth portion of the Gear Ass'y, the inside of the Connector (35), the Plate (27) sliding portion in the Upper Cover, the metal sliding portion of the Plunger, the grooved portion and hole of the Cam Plate (5), and the Ball Holder (31).

- (3) When pressure fitting the Gear Ass'y to the Spindle, don't forget to assemble the Bearing Cover.
- (4) Prior to reinstalling the Plunger into the Plunger Case Ass'y, don't forget to assemble the Felt Packing (24), Packing Washer (23), and the O-Ring (86).
- (5) Apply Cemedine 1500 adhesive to the M5 Special Bolts.
- (6) When aligning the Upper Cover Ass'y to the Gear Cover Ass'y, don't forget to assemble the Seal Packing (B) (1) and the D7. 94 Steel Ball (33), and be sure to put the D7. 94 Steel Ball into the Ball Holder (31). In addition, be sure to apply a liberal amount of grease (Molluballoy #777-1) in the Ball Holder.

(CAUTION) : If the D7. 94 Steel Ball is worn or deformed, replace it with a new one.

- (7) Be very careful not to pinch any of the lead wires between the Housing Ass'y and the Handle during reassembly.

#### (8) Tightening Torque

⑥4 ⑦9	D4 Tapping Screw	20 ± 5 kg-cm (17.4 ± 4.34 in-lb)
④0 ④5	D5 Tapping Screw	30 ± 5 kg-cm (26 ± 4.34 in-lb)
③2 ⑤5	M4 ⊕Hd.Machine Screw	15 - 20 kg-cm (13.02 - 17.4 in-lb)
①6	M5 Hex. Socket Bolt	50 - 75kg-cm (43.4 - 65.1 in-lb)
③6	M5 Special Bolt	50 - 60 kg-cm (43.4 - 52.1 in-lb)
⑧5	M6 Special Bolt	70 - 90 kg-cm (60.8 - 78.1 in-lb)

### 1-3. Wiring Diagram

Ensure that internal wiring is accomplished in accordance with the illustrations in Fig. 9.

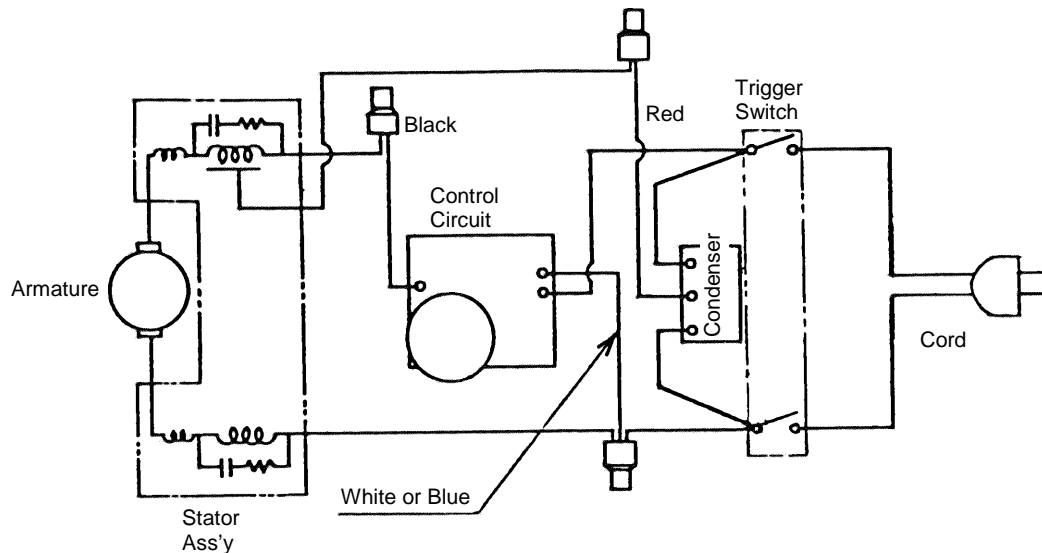
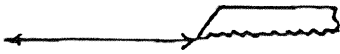



Fig. 9

### 1-4. Precaution after Repair

- (1) On completion of disassembly and repair, measure the insulation resistance and conduct insulation tests (dielectric strength test) .
- (2) Confirm that there is no abnormal noise heard during no-load operation of the blade.
- (3) During no-load operation, confirm the orbital action by changing the lever from "I" to "III". Blade tip motions should be as illustrated follows.

Change Lever "I"	Change Lever "III"
	 <p data-bbox="837 465 1225 544">Up and down movement of the blade end can be seen.</p>