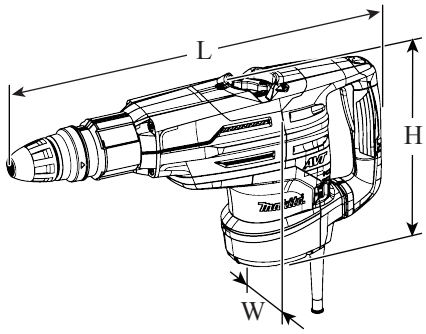
TECHNICAL INFORMATION

Model No. ► HR5212C, HR5202C

Description ► 52mm (2-1/16") Rotary Hammer



(The image above is HR5212C.)

CONCEPT AND MAIN APPLICATIONS

Model HR5212C/HR5202C are the successor models of the current HR5211C series models and developed to provide higher operating efficiency and more comfort with unrivalled low level of vibration, the optional dust extractor attachment newly designed, etc.

Listed below are the specification differences between HR5212C and HR5202C.

		HR5212C	HR5202C
AVT*	Active dynamic vibration absorber	Yes	No
	Vibration absorbing housing	Yes	No
	Soft no load	Yes	No

*Anti-Vibration Technology

Dimensions: mm (")		
	HR5212C	HR5202C
Length (L)	599 (23-1/2)	
Width (W)	140 (5-1/2)	134 (5-1/4)
Height (H)	287 (11-1/4)	

► Specification

Voltage (V)	Current (A)	Cycle (Hz)	Continuous Rating (W)		Max. Output (W)
			Input	Output	
110	17	50/60	1,510	750	1,600
120	15	50/60	---	800	1,800
220	8.6	50/60	1,510	950	2,100
230	8.6	50/60	1,510	950	2,100
240	8.6	50/60	1,510	950	2,100

Specification \ Model			HR5212C	HR5202C
No load speed: min.$^{-1}$ = rpm			150 - 310	
Impacts per minute: min.$^{-1}$ = ipm			1,100 - 2,250	
Shank type			Adapted for SDS-MAX	
Capacity: mm (")	Concrete	TCT bit	52 (2-1/16)	
		Core bit	160 (6-5/16)	
Electronic features	Variable speed control switch		Yes	
	Soft start		Yes	
	Constant speed control		Yes	
	Soft no load		Yes	No
Torque limiter			Yes	
Protection from electric shock			Double insulation	
Power supply cord: m (ft)			Europe: 4.0 (13.1) Brazil: 2.0 (6.6) Chile, Peru: 2.5 (8.2) Other countries: 5.0 (16.4)	
Weight according to EPTA-Procedure 01/2003*: kg (lbs)			11.9 (26.2)	10.9 (24.1)

* With Side grip assembly (Bar style)

► Standard equipment

Depth gauge (Stopper pole) 1
Side handle 90 assembly (D-shaped) 1
Side grip assembly (Bar style) 1
Bit grease 1
Cleaning cloth 1
Plastic carrying case 1

Note: The standard equipment for the tool shown above may vary by country.

► Optional accessories

TCT drill bits
Bull points
Scaling chisels
Grooving chisel
Bushing tool
Scoop
Chemical anchor adaptor
Hammer grease
Side grip assembly (Bar style)
Syringe
Dust extractor attachment
Core bits
Cold chisels
Scaling chisel (for Tile)
Shank (for Bushing tool and Rammer)
Rammer
Side handle 90 assembly (D-shaped)
Bit Grease
Safety Goggle
Plastic carrying case
Hammer Service Kit

Repair

CAUTION: Unplug the tool and remove the bit for safety before repair/ maintenance.
Repair the machine in accordance with "Instruction manual" or "Safety instructions".

[1] NECESSARY REPAIRING TOOLS

Code No.	Description	Use for
1R003	Retaining ring S pliers ST-2N	removing Ring spring 25 from Tool holder expanding the ends of Torsion spring 7
1R017	1/4" Hex shank bit M8	removing Impact bolt
1R022	Bearing plate (for arbor press)	removing Helical gear 38 removing Compression spring 45
1R023	Pipe ring (for arbor press)	removing Helical gear 38
1R026	Bearing setting pipe 16-8.2	assembling Torque limiter
1R032	Bearing setting plate 8.2	supporting Crank housing for assembling Cylinder 40 to the inside **Note**: Choose three Bearing setting plates among 1R032 to 1R037 that you have, and adjust the height.
1R033	Bearing setting plate 10.2	
1R034	Bearing setting plate 12.2	
1R035	Bearing setting plate 15.2	
1R036	Bearing setting plate 17.2	
1R037	Bearing setting plate 20.2	
1R039	Armature holder 41.5 set	removing Cylinder 40 from Crank housing
1R045	Gear extractor (large)	removing Armature from Gear housing complete
1R212	Tip for Retaining ring pliers	Attachment of 1R003
1R213	Cylinder extractor	disassembling Cylinder 40 from Crank housing
1R217	Ring 22	assembling Ball bearing 6006LLU with Crank shaft to Crank housing
1R232	Pipe 30	assembling Ring spring 25 to Tool holder
1R240	Round bar for Arbor 11-100	supporting Crank housing for assembling Cylinder 40 to the inside **Note**: Choose a couple of either 1R240 or 1R241 that you have, and set the two pieces to 1R306.
1R241	Round bar for Arbor 12-100	
1R252	Round bar for Arbor 30-100	removing Crank shaft with Ball bearing 6006LLU from Crank housing
1R258	V block	assembling Crank section to Crank housing
1R269	Bearing extractor	removing Ball bearings
1R291	Retaining ring S and R pliers	removing Retaining ring S-8
1R306	Ring spring removing jig	removing Crank shaft
1R312	Hammer vise	supporting the machine
1R350	Ring 60 (3 pcs.)	removing Cylinder from Crank housing
1R363	Ring spring removing tool	removing Ring spring 25
1R405	Spring holding jig	disassembling Cylinder section
1R406	Taper sleeve	fitting Fluoride ring 32.5 to Impact bolt

Repair

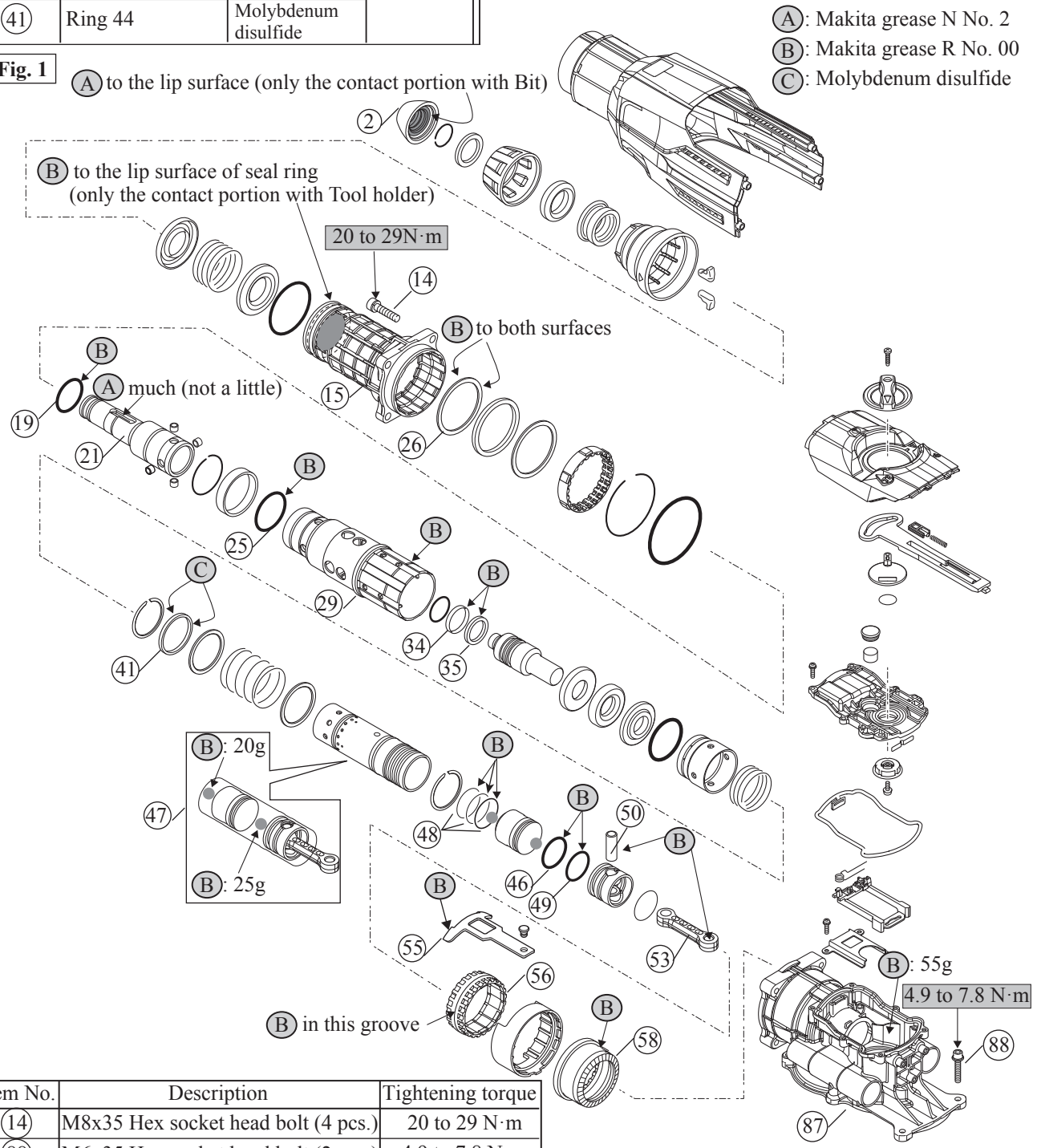
[2] LUBRICATION and TIGHTENING TORQUE

Apply grease to the specified portions and tighten the bolts to the specified torque shown below and the next page.

Item No.	Description	Grease	Amount
2	Tool holder cap	Makita grease N No. 2	a little
15	Barrel complete	Makita grease R No. 00	a little
19	O-ring 38		
21	Tool holder A	Makita grease N No. 2	much (not a little)
25	O-ring 45	Makita grease R No. 00	a little
26	Flat washer 60		
29	Tool holder B		
34	Fluoride ring 32.5		
35	X-ring 26		
41	Ring 44	Molybdenum disulfide	

Item No.	Description	Grease	Amount
46	O-ring 33	Makita grease R No. 00	a little
47	Cylinder 40		45g in total
48	O ring 35 (3 pcs.)		a little
49	O-ring 30		
50	Sleeve 9		
53	Connecting rod		
55	Link plate		
56	Driving sleeve		
58	Spiral bevel gear 33		
87	Gear housing complete		55g

Fig. 1

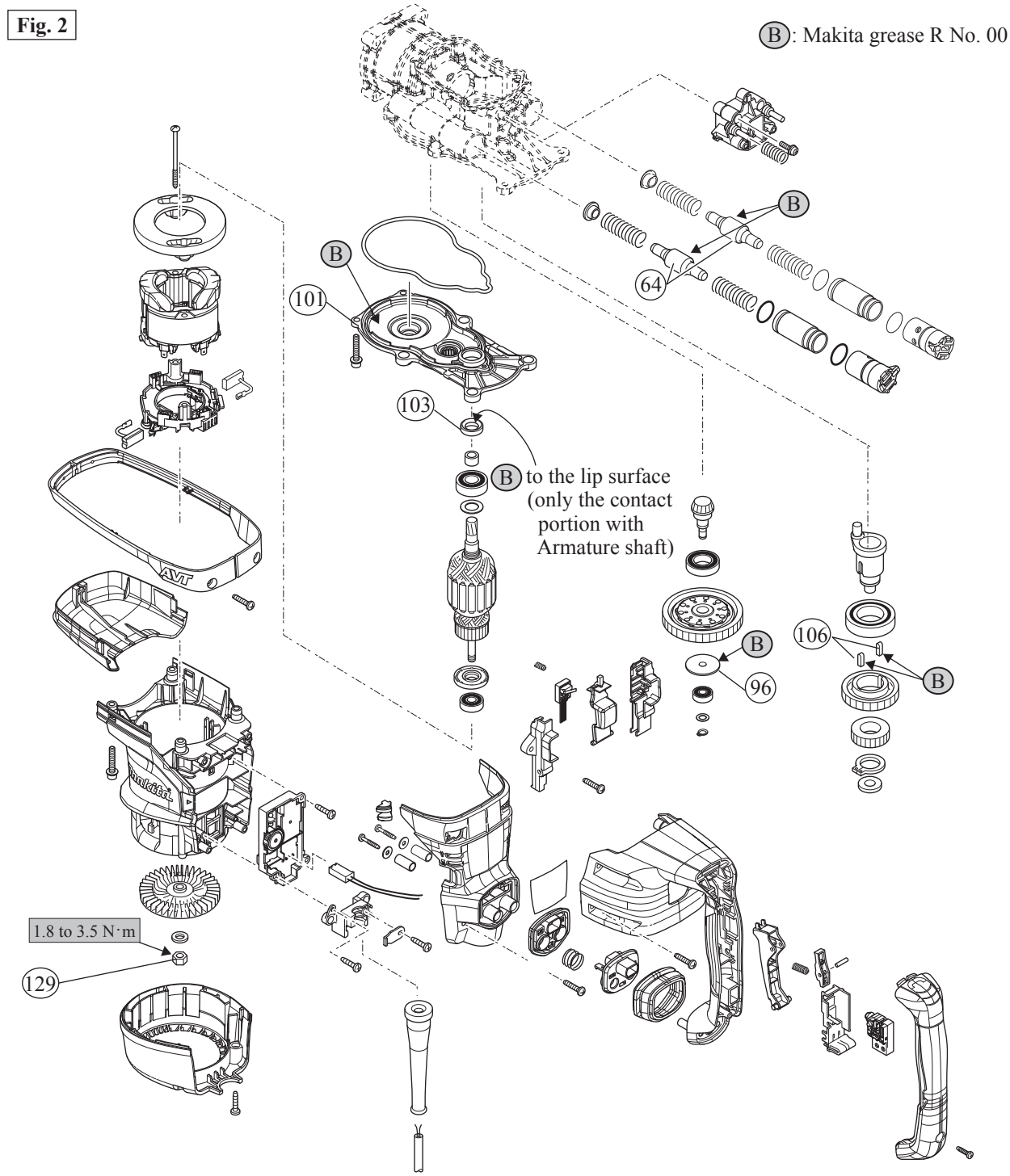


Item No.	Description	Tightening torque
14	M8x35 Hex socket head bolt (4 pcs.)	20 to 29 N·m
88	M6x35 Hex socket head bolt (2 pcs.)	4.9 to 7.8 N·m

Repair

Item No.	Description	Grease	Amount
64	Counter weight (2 pcs.) for HR5212C only	Makita grease R No. 00	a little
96	Shoulder washer 8		
101	Gear housing complete		20 g
103	Oil seal 15		a little
106	Key 5 (2 pcs.: to prevent them from removing when assembled)		

Fig. 2



Item No.	Description	Tightening torque
129	M8-12 Hex nut	1.8 to 3.5 N·m

Repair

[3] DISASSEMBLY/ASSEMBLY

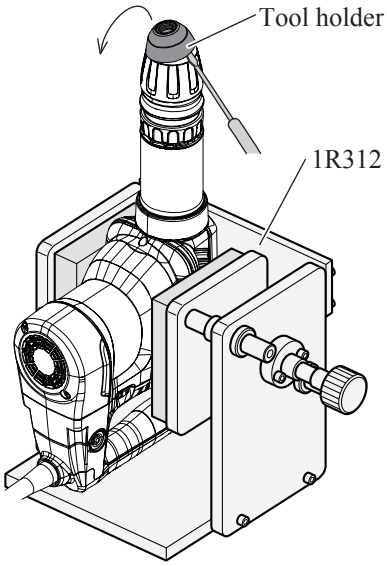
[3]-1. Chuck

DISASSEMBLING

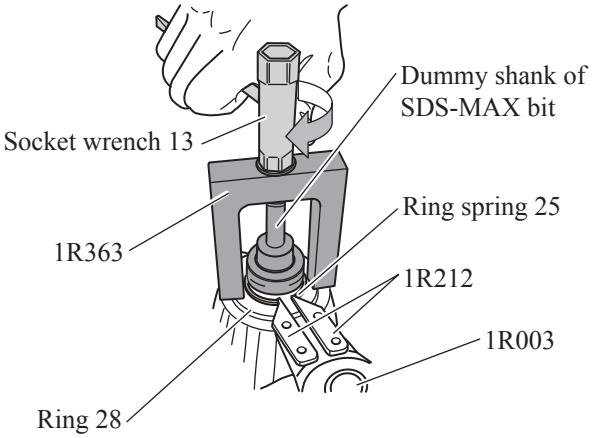
Chuck section can be disassembled as drawn in **Fig. 3**.

Fig. 3

1. Set the machine to 1R312 or the like, and remove Tool holder cap by prying off with a slotted screwdriver.

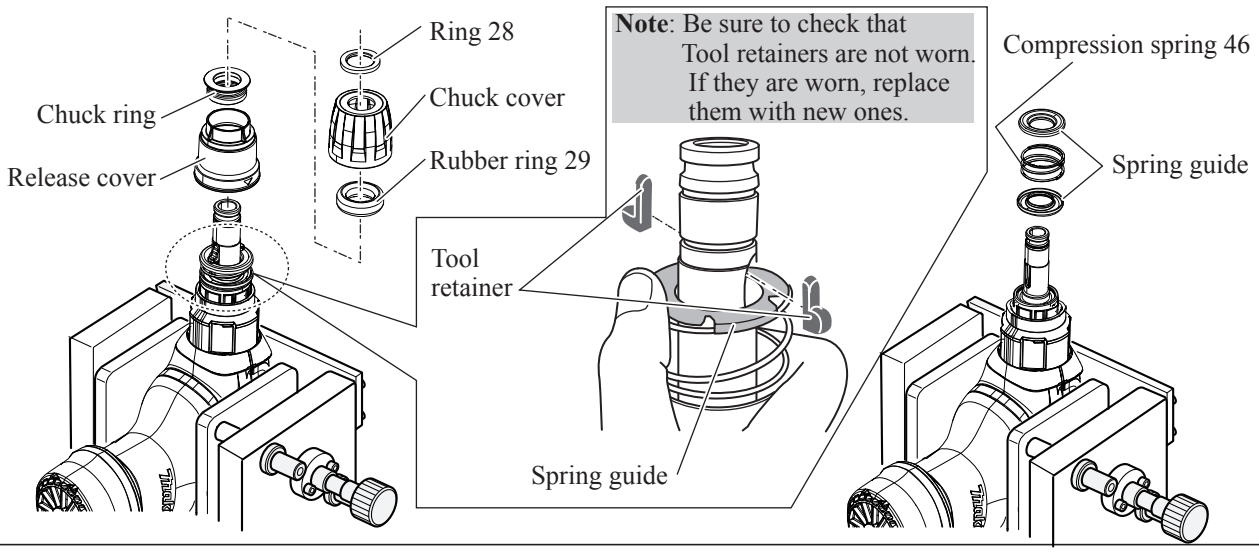


2. Insert the dummy shank of 1R363 into Tool holder, and lock it same way as you do for a real bit. Press down Ring 28 under Ring spring 25 by turning M8 Nut of 1R363 clockwise using a socket wrench 13, and remove Ring spring 25 using 1R003 and 1R212.



3. Remove Ring 28, Chuck cover, Rubber ring 29, Chuck ring and Release cover from Tool holder.

4. Remove a pair of Tool retainers by pressing down Spring guide. Then separate Spring guides and Compression spring 46 from Tool holder.



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-1. Chuck (cont.)

ASSEMBLING

Assemble Chuck section by reversing the disassembly procedure.

(1) First, hook Ring spring 25 to Tool holder A and secondly mount 1R363 on Ring 28. (**Fig. 4**)

(2) Slide Chuck cover downward.

Note: Without doing the step, the assembly procedure could not be done because the groove of Tool holder would not appear.

(3) While keeping the position of Chuck cover downward, press down Ring 28 until the groove of Tool holder appears and fit Ring spring 25 into the groove of Tool holder using 1R003 with 1R212. (**Fig. 5**)

(4) In case Ring spring 25 is incompletely fit into the groove of Tool holder, attach 1R232 onto Ring spring 25 and tap 1R232 to fit Ring spring 25 firmly into the groove of Tool holder. (**Fig. 6**)

Fig. 4

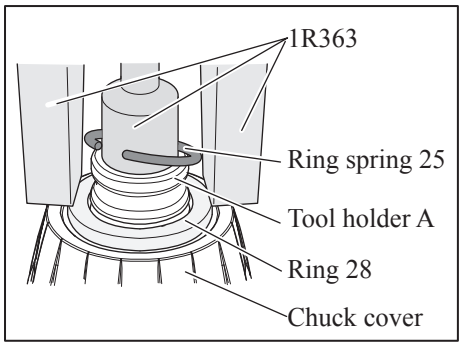


Fig. 5

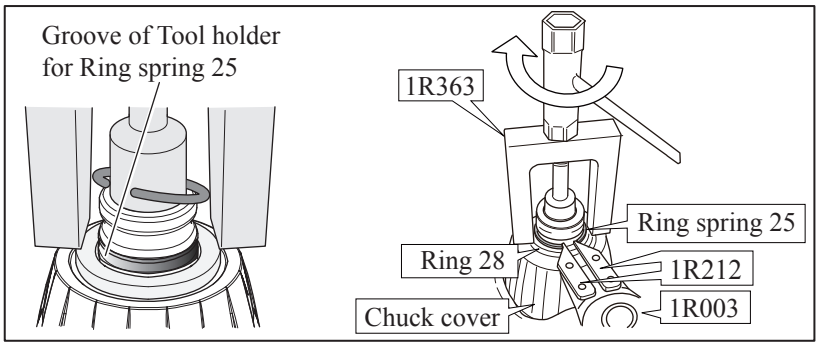
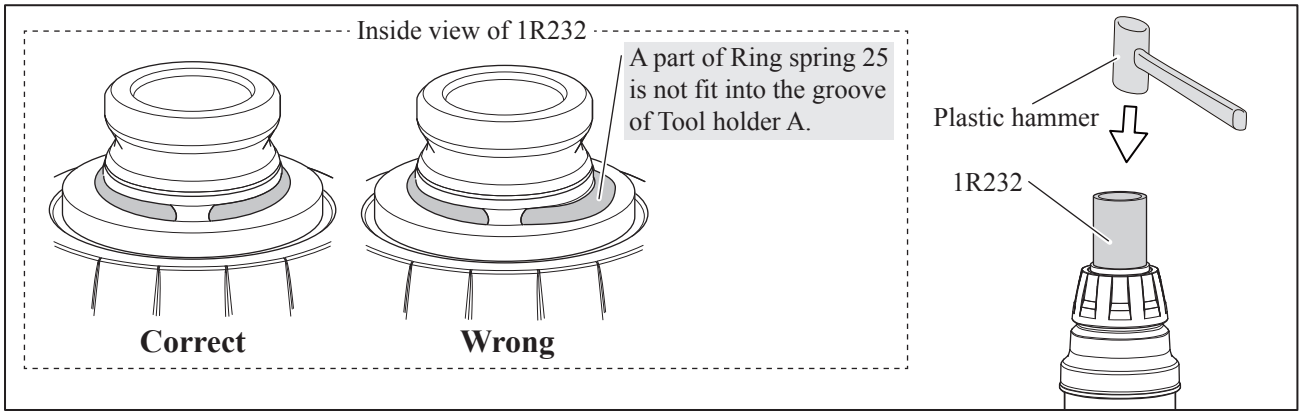
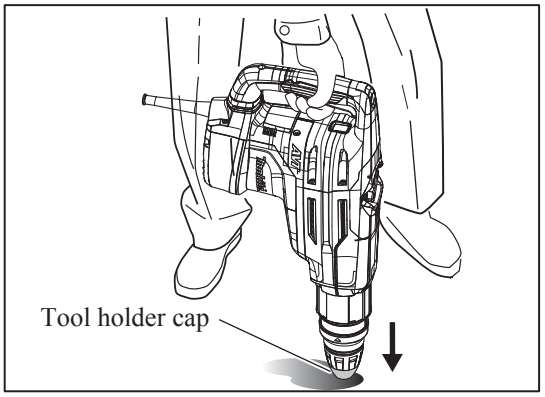


Fig. 6



Note: It is difficult to set Tool holder cap in place by hand.
Put Tool holder cap on floor, and push Tool holder A of the machine to the cap while making use of the machine weight. (**Fig. 7**)

Fig. 7



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-2. Impact bolt, Striker

DISASSEMBLING

Note: Impact bolt, Striker and Piston can be disassembled without removing Chuck section.

(1) Remove four 5x25 Tapping screws that fasten Handle base (for HR5202C)/ Handle A (for HR5212C) to Housing cover complete. (**Fig. 8**)

(2) Remove four M8x35 Hex socket head bolts that fasten Barrel section to Crank housing complete. (**Fig. 9**)

(3) Remove Barrel section by pulling the chuck portion straight. (**Fig. 10**)

Note: Be careful about grease and parts in the machine. They will fall out of the machine during removal of Barrel section.

(4) Insert a long bar into Chuck and then push out Impact bolt. (**Fig. 11**)

Note: • When O ring 26.5 (orange) shows through the worn Fluoride ring 32.5 or X-ring 26 looks worn out, or when Impact bolt falls out of Tool holder with turning Barrel section upright, all the rings on Impact bolt have to be replaced at a time. (**Fig. 12**)

• When there are dirt in Tool holder, clean all the ring, Impact bolt and Tool holder.

Fig. 8

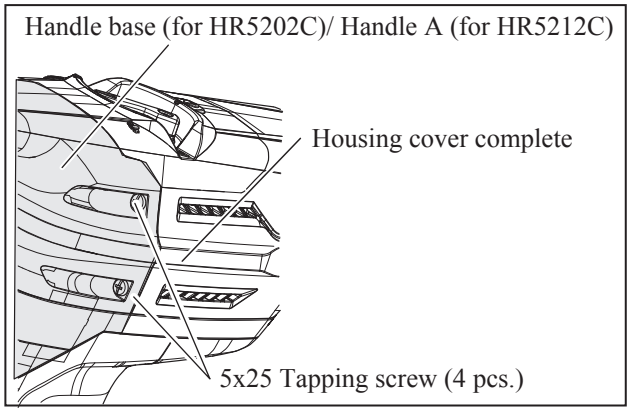


Fig. 9

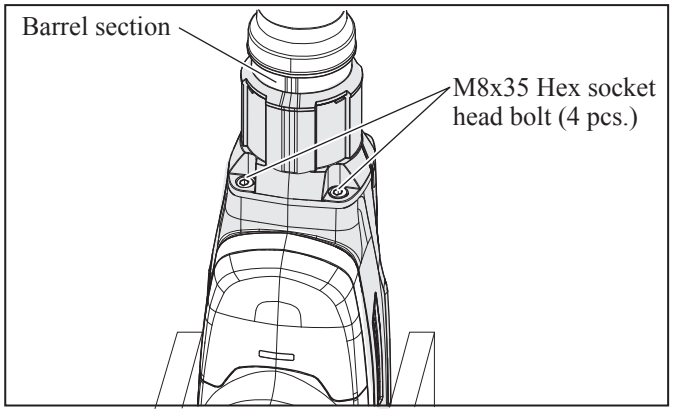


Fig. 10

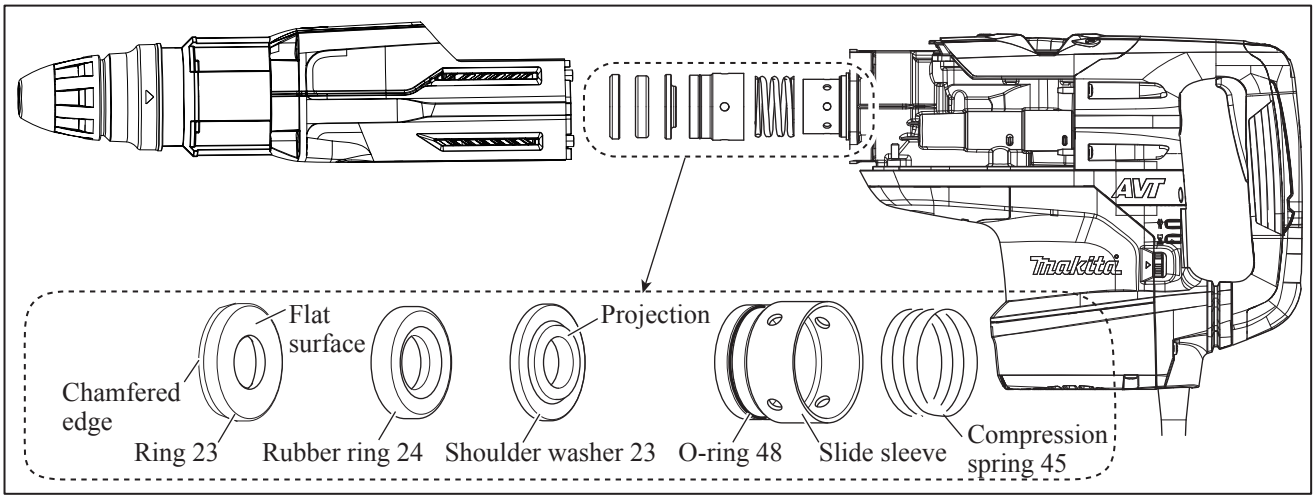


Fig. 11

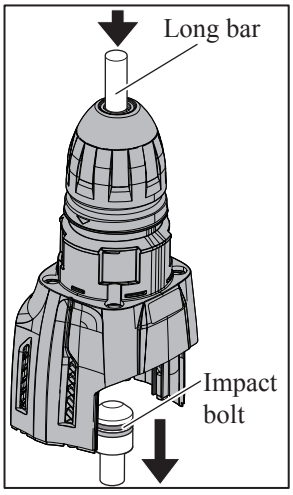
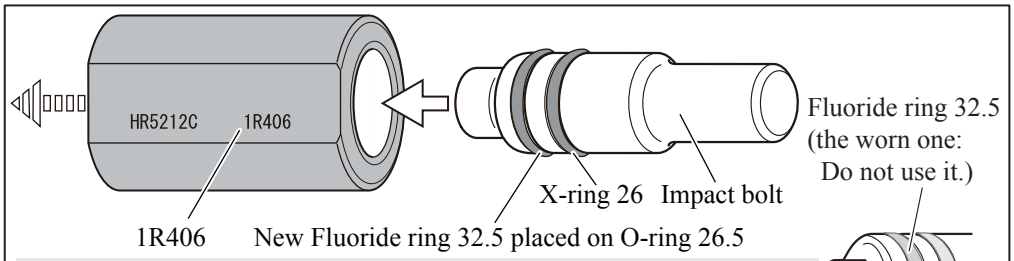


Fig. 12



Note: Fluoride ring does not shrink by itself after expanded.
If you assemble Impact bolt with rings into Tool holder at this time, Fluoride ring would break in the tool holder. Therefore, after replacement of Fluoride ring, insert Impact bolt on which Fluoride ring is installed, into 1R406 from the side with the marking "1R406", and keep Impact bolt in 1R406 over a minute. And then, push out Impact bolt to the side with the marking "HR5212C" as drawn above.

Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-2. Impact bolt, Striker (cont.)

DISASSEMBLING

(5) Disassemble Crank housing section as drawn in **Fig. 13**.
(6) Remove Striker by tapping the top of Cylinder 40, then replace O-ring 33 with a new one.
(7) Put 1R039 and 1R350 on Crank housing, then hook and pull Cylinder 40 with 1R213 as drawn in **Fig. 14**.
Note: Be careful about each direction as drawn in **Fig. 10** in the previous page when you set the parts in place in Cylinder 40. Except Rubber ring 24 and Compression spring 45, their parts are directional.
(8) Put 1R405 on Flat washer 44 located on Chuck side of Cylinder. Assemble two pieces of 1R022 to 1R306.
Set 1R306 to Arbor press.
Then compress Compression spring 45 by pressing down 1R405 using Arbor press with 1R022 and 1R306 until Retaining ring (EXT) WR-44 appears, and remove it using 1R003 with 1R212. (**Fig. 15**)
(9) Return Compression spring 34 back to the original shape gradually by reducing the pressure.
Cylinder section is disassembled as drawn in **Fig. 16**.

Fig. 13

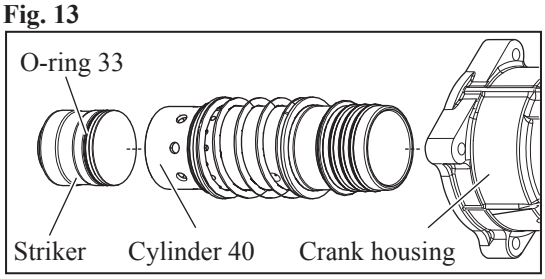
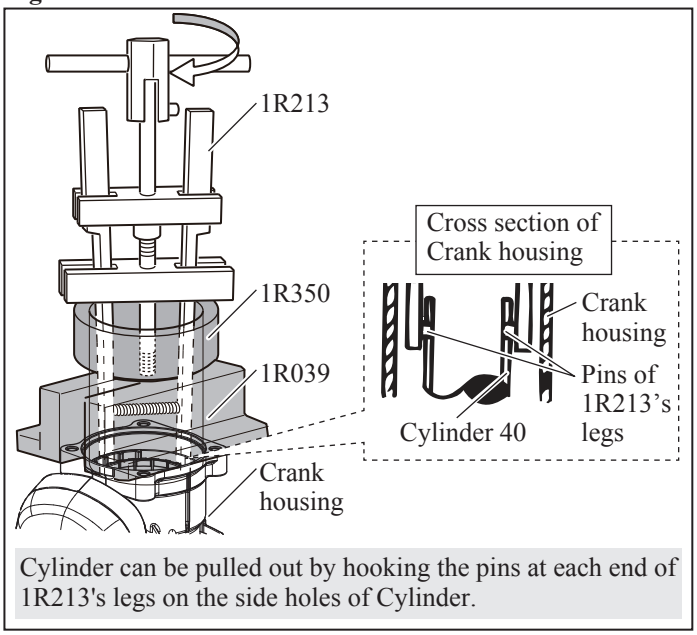
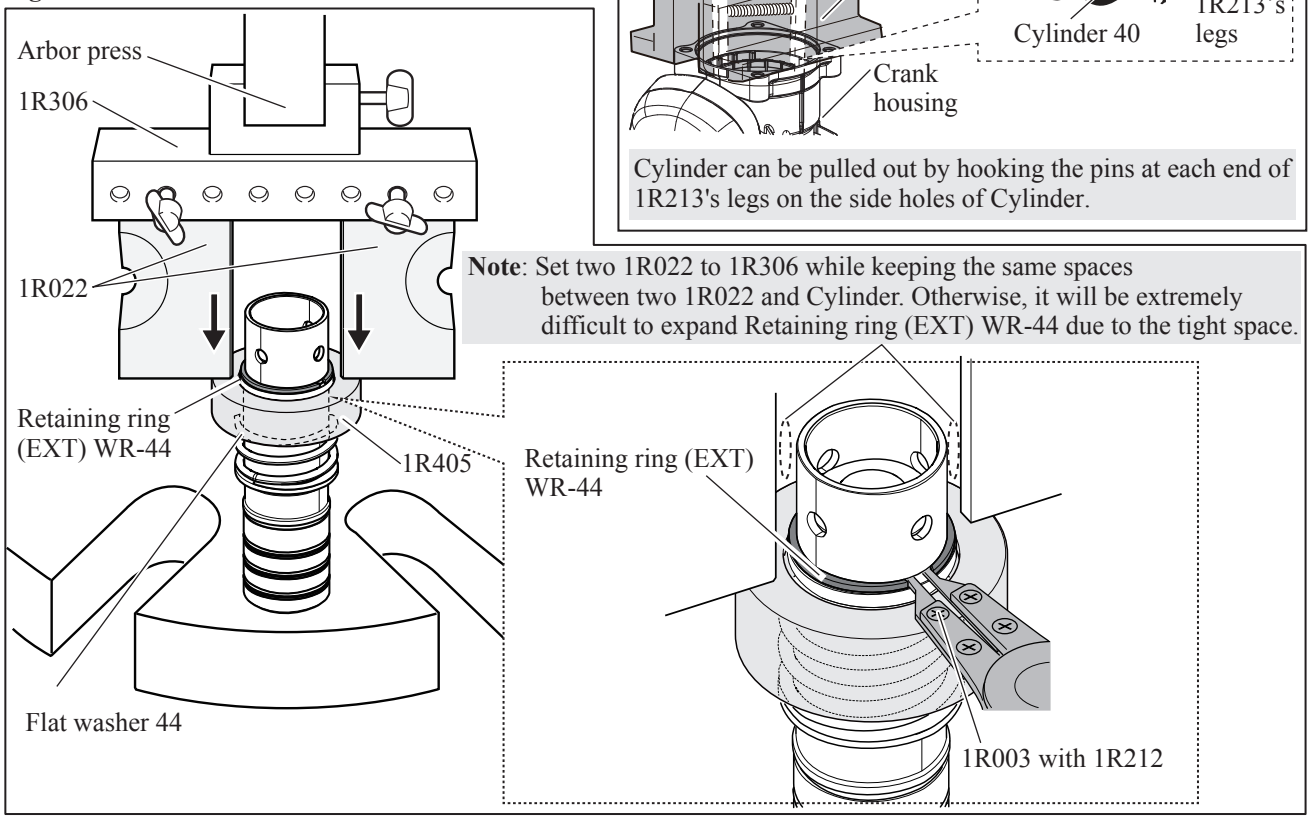


Fig. 14



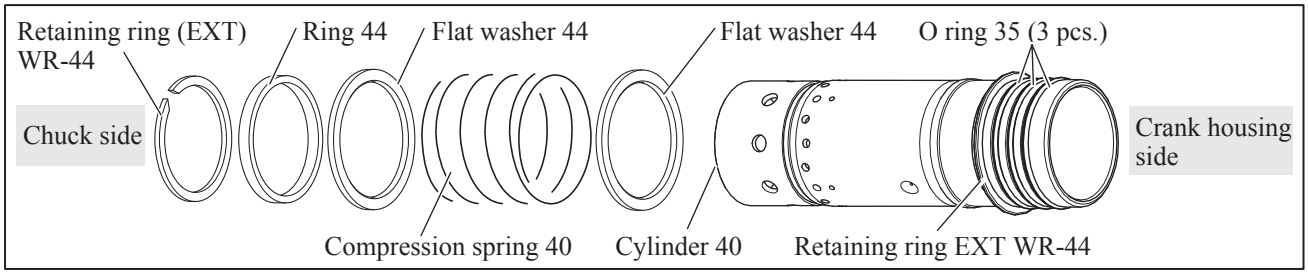
Cylinder can be pulled out by hooking the pins at each end of 1R213's legs on the side holes of Cylinder.

Fig. 15



Note: Set two 1R022 to 1R306 while keeping the same spaces between two 1R022 and Cylinder. Otherwise, it will be extremely difficult to expand Retaining ring (EXT) WR-44 due to the tight space.

Fig. 16



ASSEMBLING Assemble the components by reversing the disassembly procedure. Be careful about each direction.

Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-3. Piston, Crank shaft

DISASSEMBLING

(1) After removing Cylinder 40 as drawn in **Fig. 14 in the previous page**, disassemble Handle section as drawn in **Fig. 17**.
(2) Loosen 4x18 Tapping screw and remove Change lever and Crank cap cover.
Set the machine to "Hammering" mode with the removed Change lever, Then remove Control plate and separate six M4x16 Pan head screws and Crank cap from Crank housing complete. (**Fig. 18**)
(3) Hook the legs of 1R311 to the head of Flat fillister head pin 6, and then pull out Flat fillister head pin 6 from Link plate. (**Fig. 19**)
(4) Remove Drive sleeve by pushing the end of Link plate from Crank side. Then, remove Guide ring. (**Fig. 12**)

Fig. 17

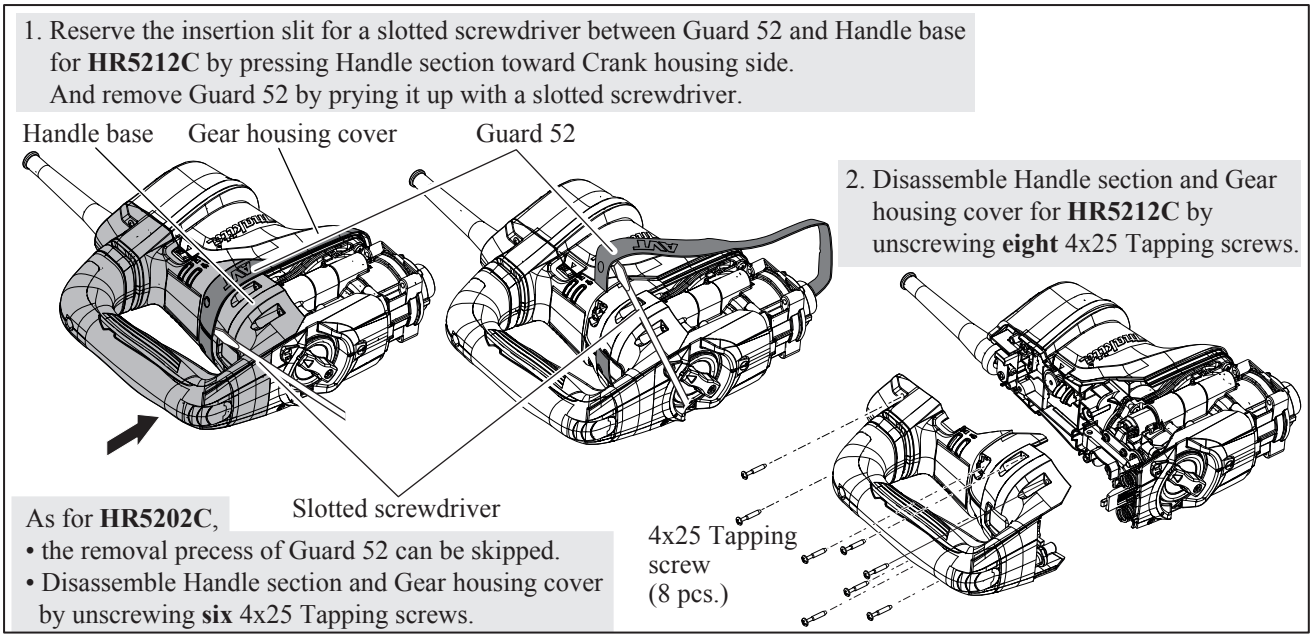


Fig. 18

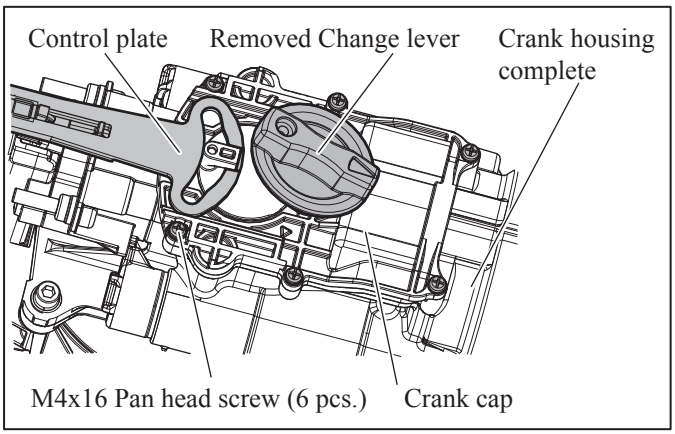


Fig. 19

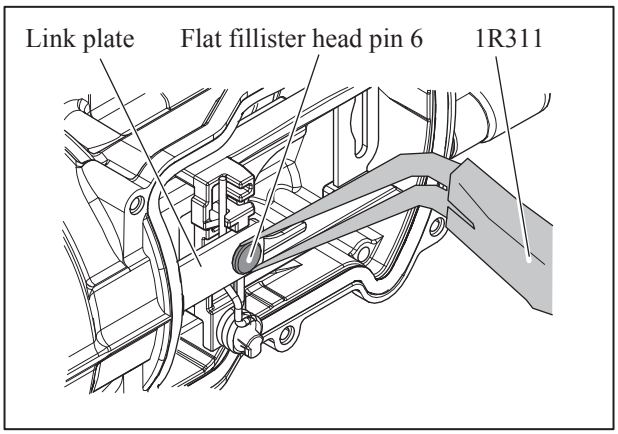
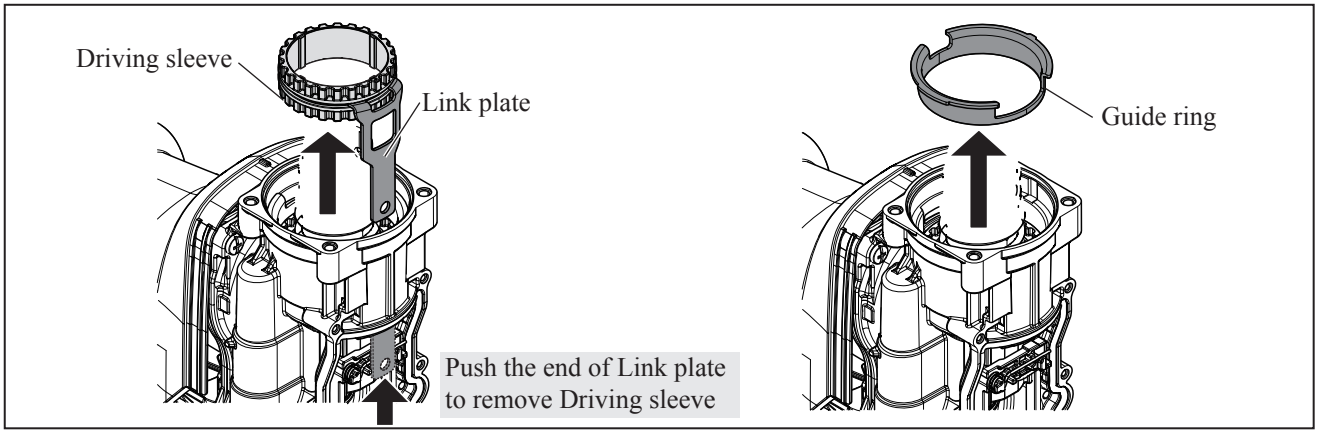


Fig. 20



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-3. Piston, Crank shaft (cont.)

DISASSEMBLING

(5) Remove Spiral bevel gear 33 from Crank housing carefully so as not to be tilted. (**Fig. 21**)
When Spiral bevel gear 33 is tilted in Crank housing in the disassembly process;
• it is impossible to remove Spiral bevel gear 33.
• Plane bearing 67 in Crank housing is harmed.

(6) Rotate Crank shaft by hand until Piston comes out from Crank housing, and remove O-ring 30 from Piston. (**Fig. 22**)

(7) Rotate Crank shaft to move the crank pin portion as drawn in **Fig. 23**, and then press down with Arbor press and 1R252 until Crank shaft with Ball bearing 6006LLU is removed. (**Fig. 24**)

Note: If the crank pin portion of Crank shaft is moved from the position drawn in **Fig. 23**, the pin portion will be hooked with Crank housing during disassembly process. Be careful.

(8) Piston cannot be removed without separating Cylinder 40 from Piston. If you would like to remove Crank shaft with Ball bearing 6006LLU **without separating Cylinder 40 from Piston**, mount 1R306 and two pieces of 1R240 on Crank shaft so that the two pieces of 1R240 cannot contact Connecting rod, and press down Crank shaft carefully. (**Fig. 25**)

(9) Remove Retaining ring S-22 with 1R291.

(10) Insert two pieces of 1R022 in between Helical gear 46 and Ball bearing 6006LLU, and place their parts on 1R023 then press down Crank shaft as drawn in **Fig. 26**.
Crank shaft section is disassembled as drawn in **Fig. 27**.

Fig. 21

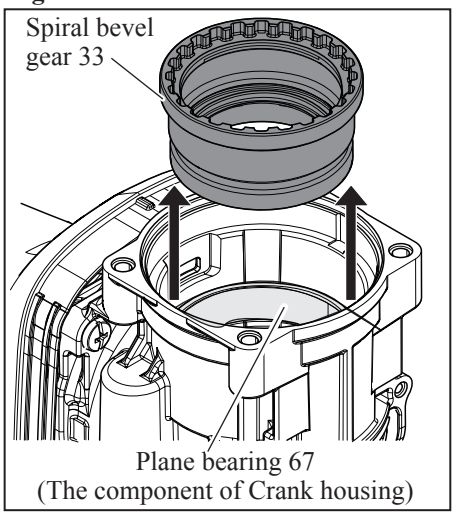


Fig. 22

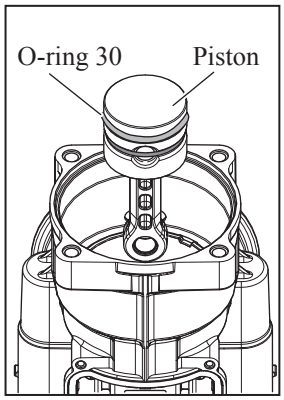


Fig. 23

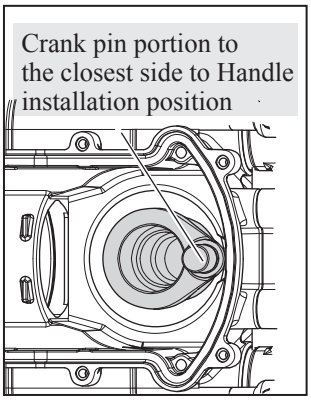


Fig. 24

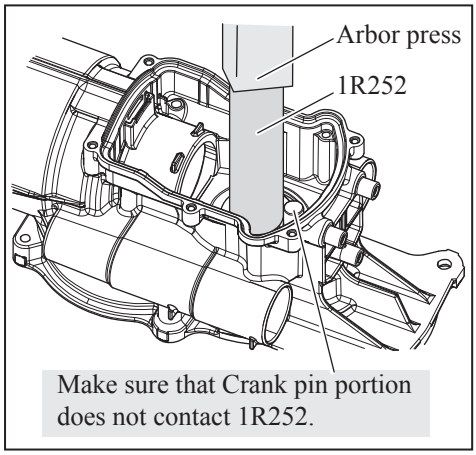


Fig. 25

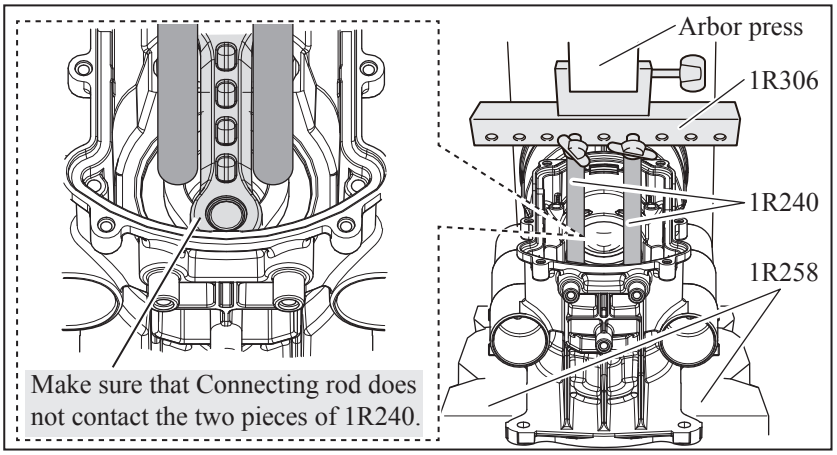


Fig. 26

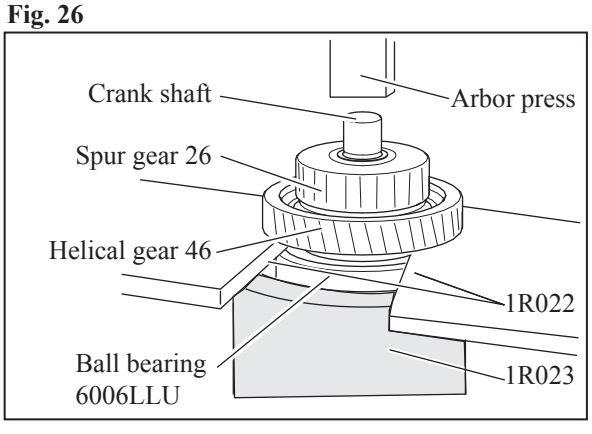
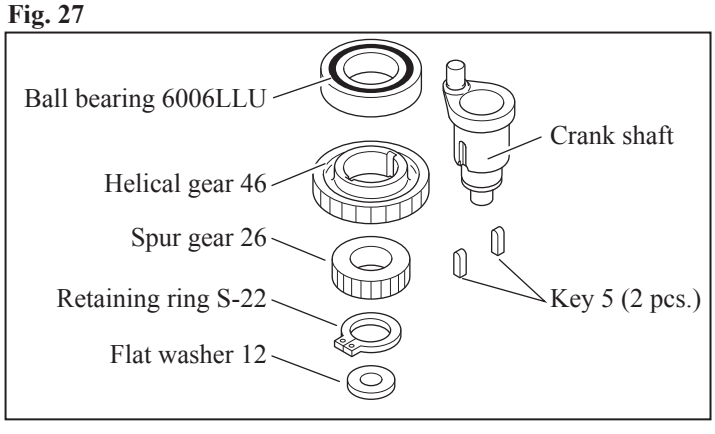


Fig. 27



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-3. Piston, Crank shaft (cont.)

DISASSEMBLING for HR5212C only

(11) Push and turn Holder complete of Crank housing with a slotted screwdriver to remove the hook portion of Holder complete from Crank housing individually. (**Fig. 28**)

Note: Do not remove Base A from Crank housing first. Do the step (11) to prevent Holder complete from popping out during the disassembly process. Refer to parts breakdown of HR5212C in **Fig. 29**.

Fig. 28

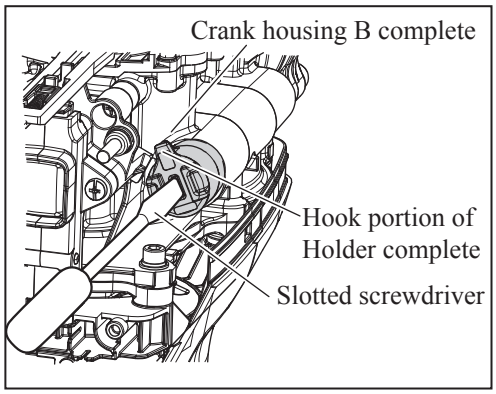
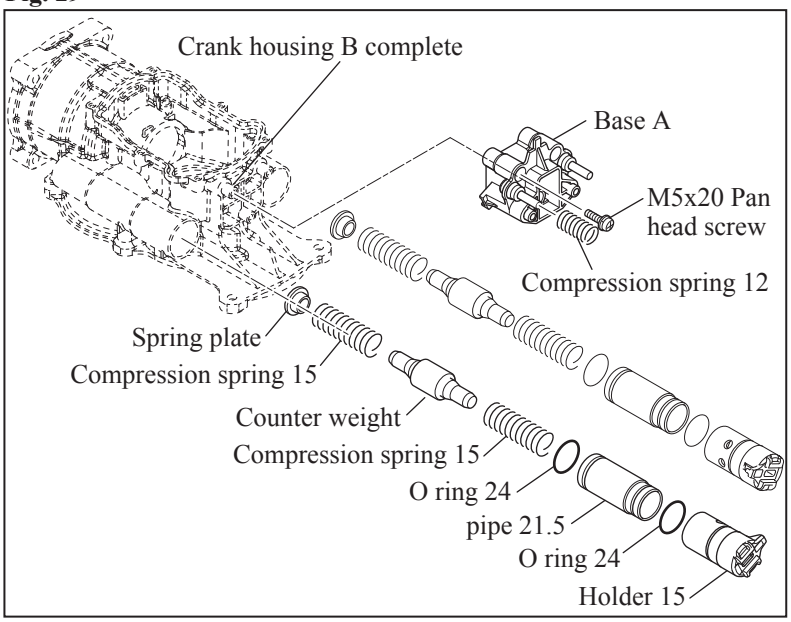


Fig. 29



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-3. Piston, Crank shaft (cont.)

ASSEMBLING

Assemble the components by reversing the disassembly procedure.

Note: • Place Crank shaft as drawn in **Fig. 23 of the previous page**, and put Crank housing on 1R217. Then press down Crank shaft section in place of Crank housing. (**Fig. 30**)

- Once Oil seal 42 in Barrel complete is removed, using Socket bit 36-56 (Makita part No. 134862-5) makes it easy to pressfit Oil seal 42 to Barrel complete. (**Fig. 31**)
- When you set Spiral bevel gear 33 in place, first apply Makita grease R No. 00 to the gear teeth, then insert to Crank housing straight down. Be careful not to tilt Spiral bevel gear 33. (**Fig. 32**)
- In case you remove Seal ring B from Crank housing, be sure to set Seal ring B in place before inserting Link plate into Crank housing. (**Fig. 33**)
- Insert the projection of Guide ring into the slot in Crank housing. (**Fig. 34**)
- Hooks of Link plate section should be fit into the center groove of Driving sleeve. (**Fig. 35**)
- Engage the gear teeth of Spiral bevel gear 33 and the cam groove of Driving sleeve.
- Pass Link plate through the slot of Seal ring B.
  It is recommend to pass Link plate from the opposite in advance to make the assembling way easier.
- Choose three pieces among 1R032 to 1R037 to stand Crank housing upright. Then pressfit Cylinder 40 with grease on three O rings 35 into Crank housing. (**Fig. 36**)

Fig. 30

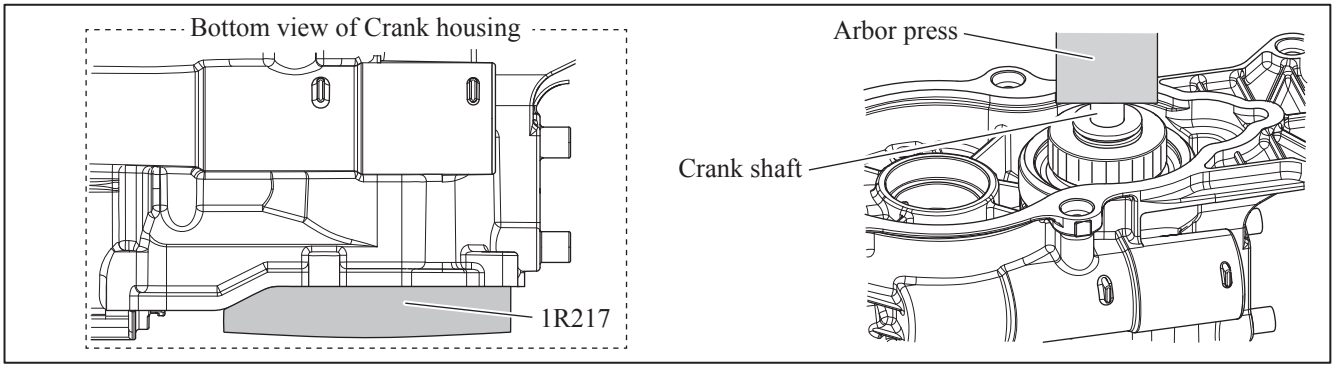


Fig. 31

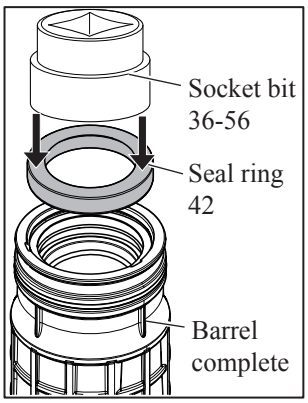


Fig. 32

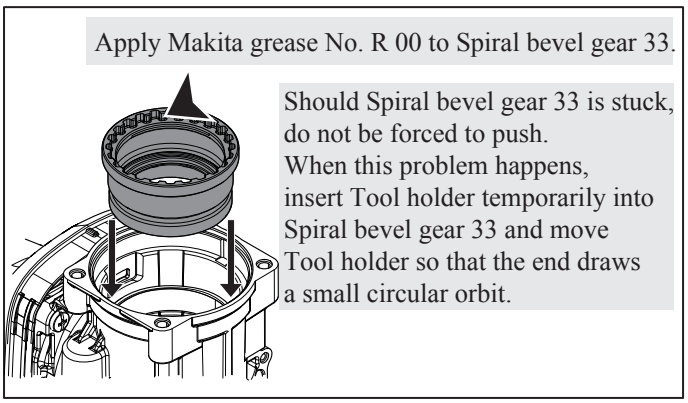


Fig. 33

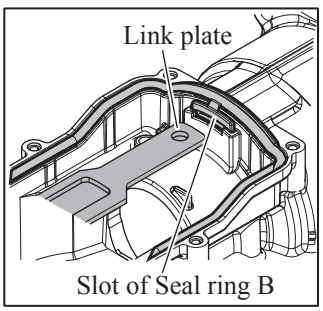


Fig. 34

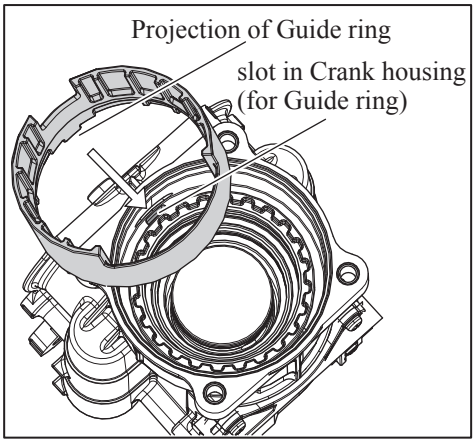


Fig. 35

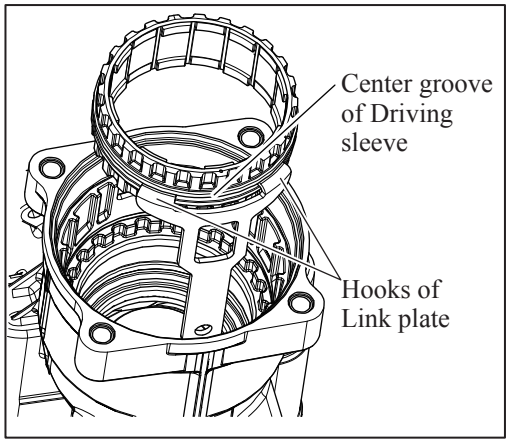
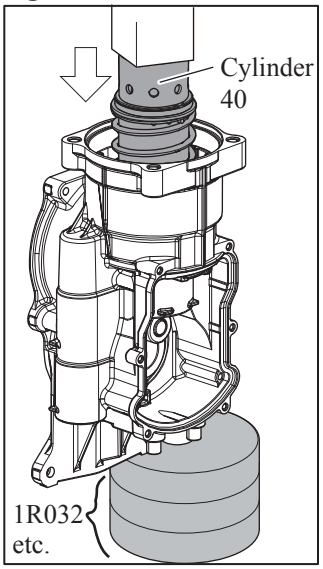


Fig. 36



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-4. Motor

DISASSEMBLING

Note: Motor section can be repaired without disassembling Barrel section and its linked driving mechanism.

(1) According to the steps shown in **Fig.** 17 **of [3]-3. Piston Crank shaft**, remove Gear housing cover, Guard 52 and Handle section.

(2) Remove two Tapping screws 5x25 and Rear cover from the bottom side of Motor housing. (**Fig. 37**)

(3) While holding Fan 90 carefully by a gloved hand so as not to be rotated, turn M8-12 Hex nut clockwise using a cordless impact driver with a socket bit.

Note: M8-12 Hex nut has a left hand thread. (**Fig. 38**)

(4) Slide Spiral springs aside and detach Carbon brushes from Commutator of Armature.

Note: It is not necessary to remove Carbon brushes completely from Carbon brush holders. (**Fig. 39**)

(5) Refer to **Fig. 40** and do the following steps:
Disconnect the connector of ON/OFF button switch from the connector of Controller.
Among six M6x35 Hex socket head bolts, first remove four pieces circled in **Fig. 40**.
Tap Armature shaft end with a plastic hammer to remove Motor housing from Armature, Gear housing and Crank housing. After that, remove the rest two M6x35 Hex socket head bolts.

Note: If you remove six M6x35 Hex socket head bolts at a time, Grease inside machine would leak out and therefore, the wiping and applying of grease would be required.

(6) Remove Gear housing section from Crank housing section. (**Fig. 41**)

(7) Remove Armature from Gear housing with 1R045. (**Fig. 42**)

ASSEMBLING

Assemble by reversing the disassembly procedure.

Note: Do not fail to put Flat washer 8 between M8-12 Hex nut and Fan 90. (**Fig. 38**)
When you replace Carbon brushes with new ones, route the pigtail as drawn in **Fig. 43**.

Fig. 37

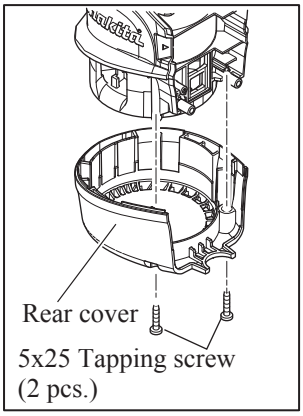


Fig. 38

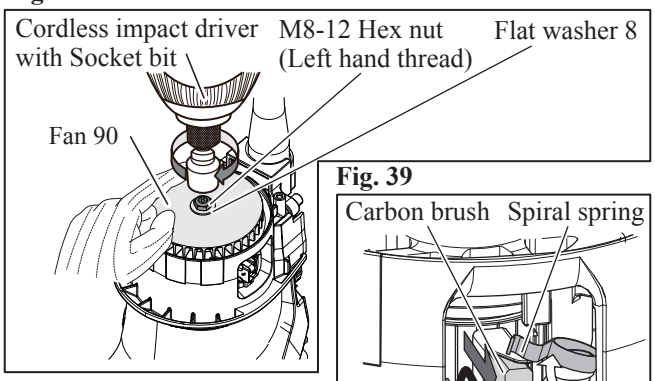


Fig. 39

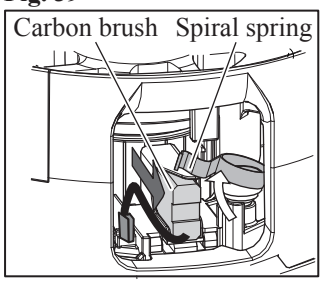


Fig. 40

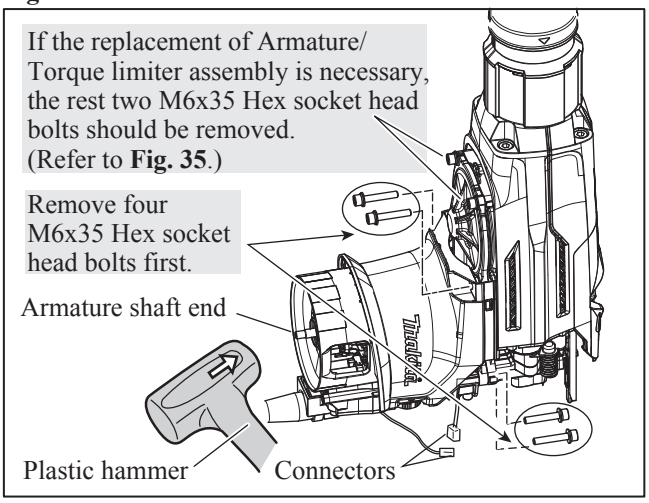


Fig. 41

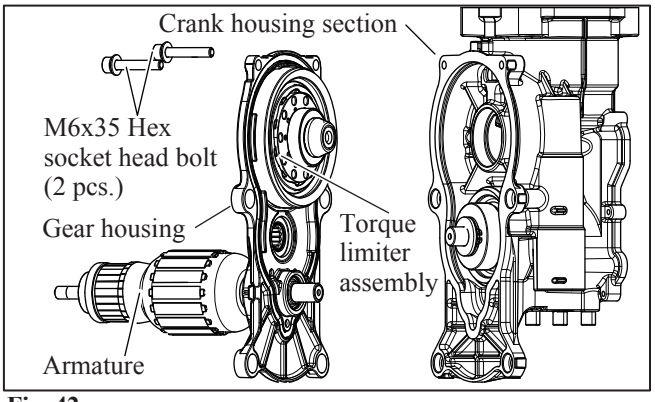


Fig. 42

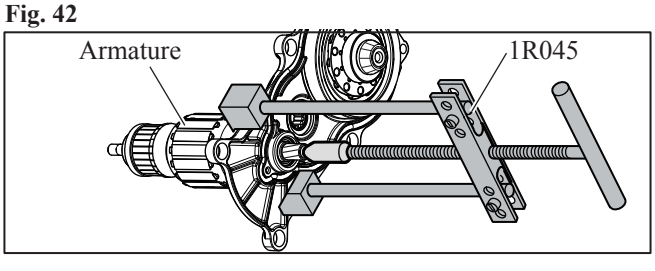
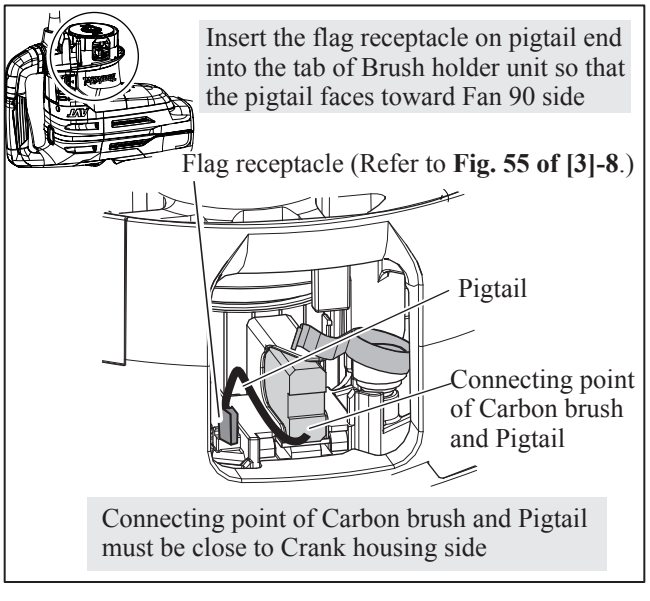


Fig. 43



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-5. Torque limiter assembly

DISASSEMBLING

(1) Remove Gear housing from Crank housing section. Refer to the previous page.
(2) Remove Torque limiter assembly by tapping Gear housing with a plastic hammer. (**Fig. 44**)
(3) Remove Retaining ring S-8 with 1R291, and remove Flat washer 8 by hand, then remove Ball bearing 608DDW with 1R269. (**Fig. 45**) Shoulder washer 8 can be removed.
(4) Use two 1R258 to receive the portion designated in gray color of Torque limiter assembly, press down the shaft of Spiral bevel gear 10. (**Fig. 46**)
Spiral bevel gear 10 and Ball bearing 6904LLU are removed from Torque limiter portion. (**Fig. 47**)
Note: Do not disassemble Torque limiter portion. Once it is disassembled, it is impossible reassemble them again.

Fig. 44

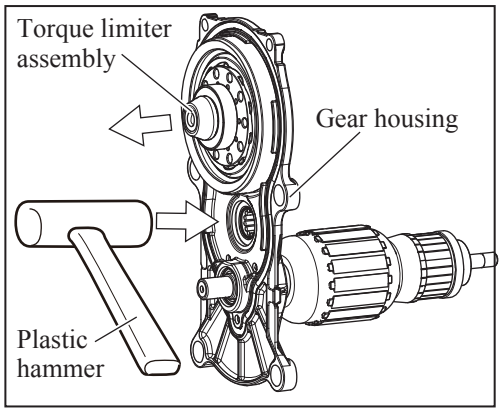


Fig. 45

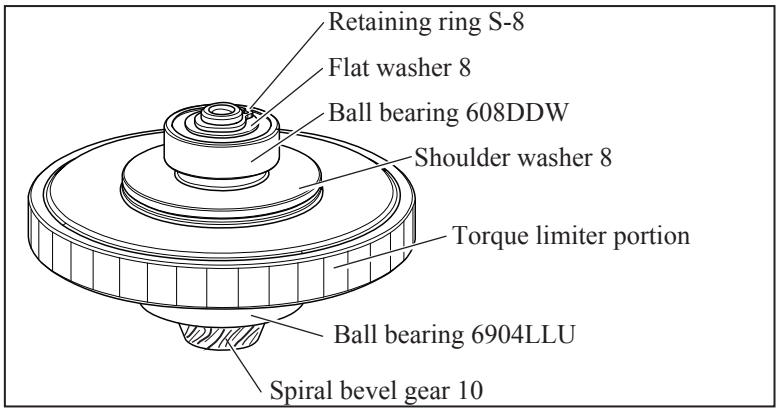


Fig. 46

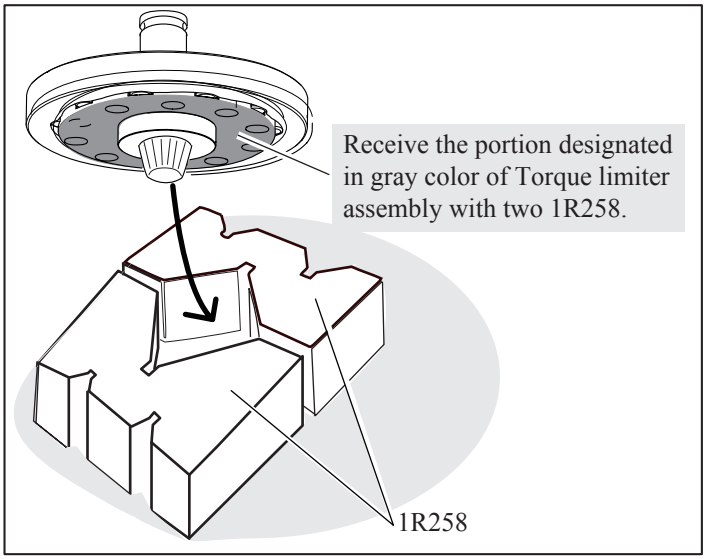
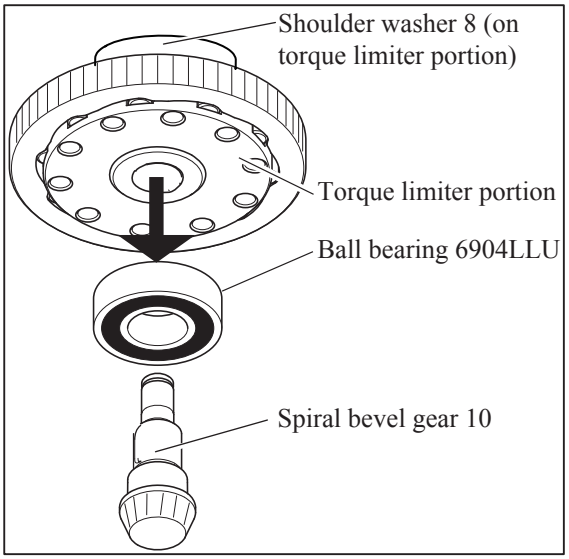


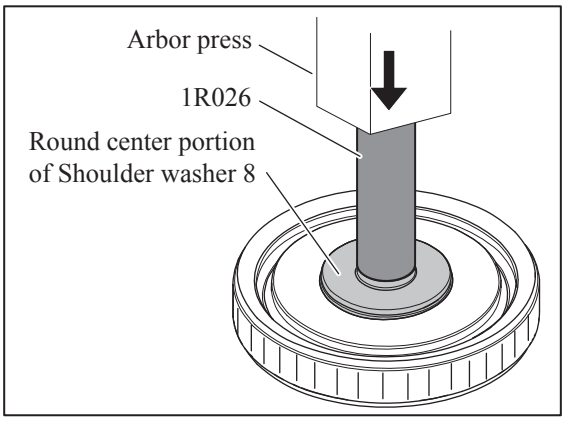
Fig. 47



ASSEMBLING

Assemble by reversing the disassembly procedure.
When Shoulder washer 8 is pressfit to Spiral bevel gear 10 in Torque limiter portion, place 1R026 to the round center portion of Shoulder washer 8 to press it down. (**Fig. 48**)

Fig. 48



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-6. Change lever

(1) When Change lever section is disassembled;
- fit the projection of Leaf spring into the groove on Link lever. (**Fig. 49**)
- reassemble the components to Crank cap by M4x10 Pan head screw with care to the directions (**Fig. 49**)
- assemble Crank cap section to Crank housing while aligning the pin of Crank cap to the opening of Link guide (**Fig. 50**).

(2) In the process of reassembling, i.e., as drawn in **Fig. 51**, set Change lever section in place temporarily and turn Change lever counterclockwise and clockwise to check that Driving sleeve moves back and forth.

(3) When Switch case set and Control plate are set in place;
- while facing the mark of ">POM-xxxx<" on Control plate to the upper side, pass the projection of Crank lever through the rounded opening of Control plate. (**Fig. 52**)
- pass the square pin of Switch lever C through the long opening of Control plate. (**Fig. 52**)

Fig. 49

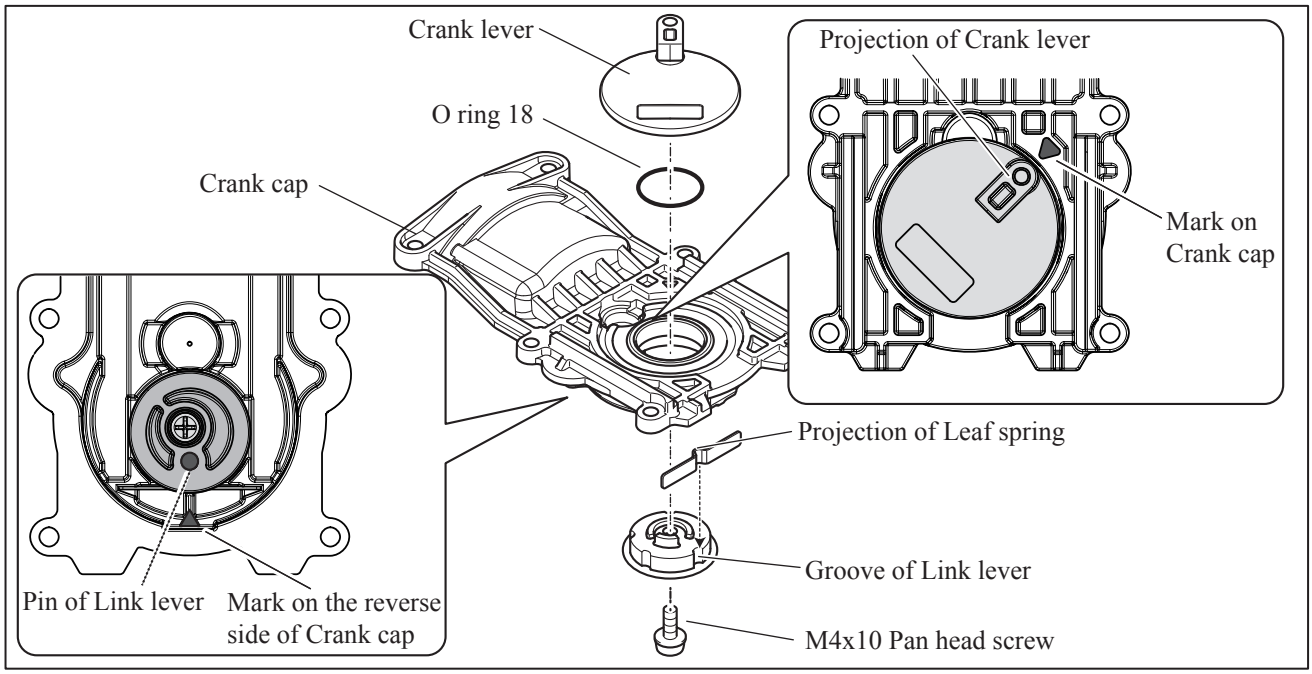


Fig. 50

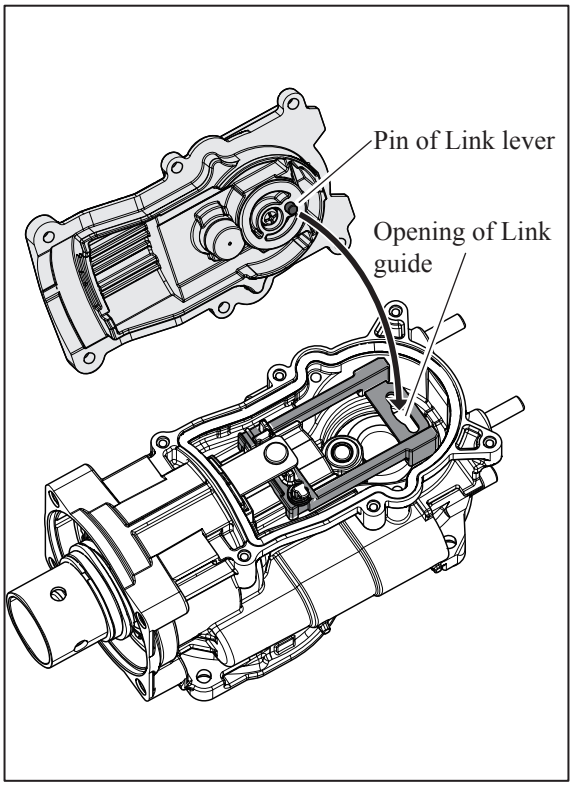


Fig. 51

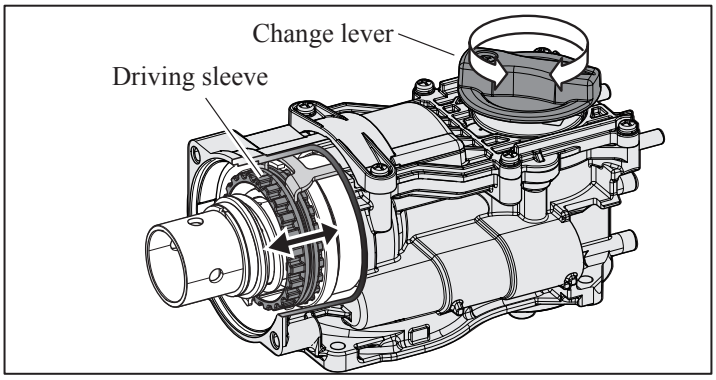
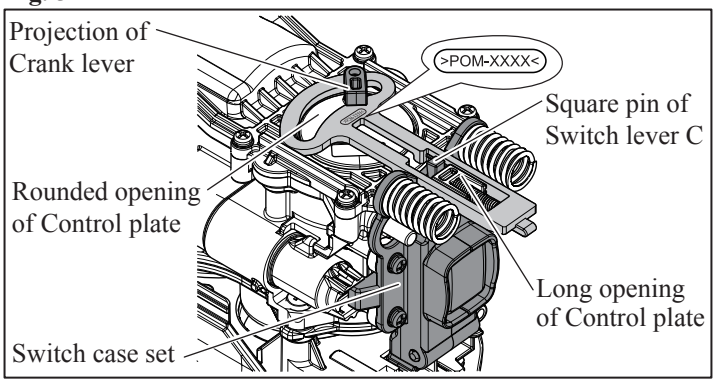


Fig. 52



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-7. Handle section

Loosen 4x18 Tapping screw and then remove Handle cover. (**Fig. 53**)
Main switch can be replaced. (**Fig. 54**)

Fig. 53

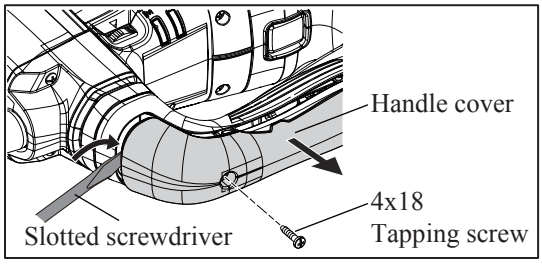
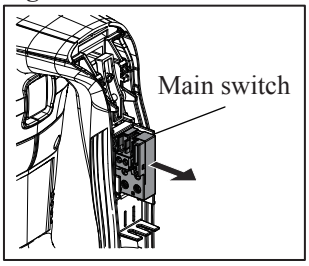


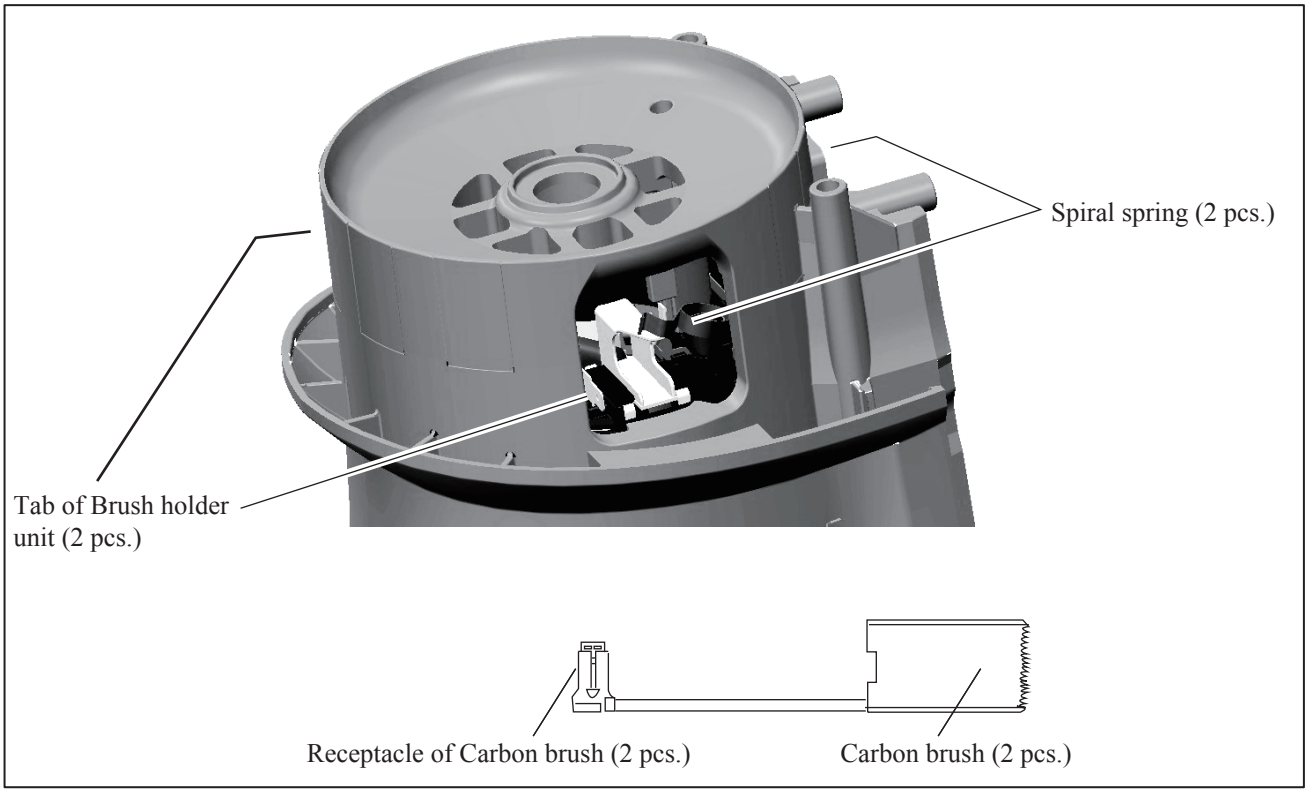
Fig. 54



[3]-8. Preparation before removing Field and Brush holder unit

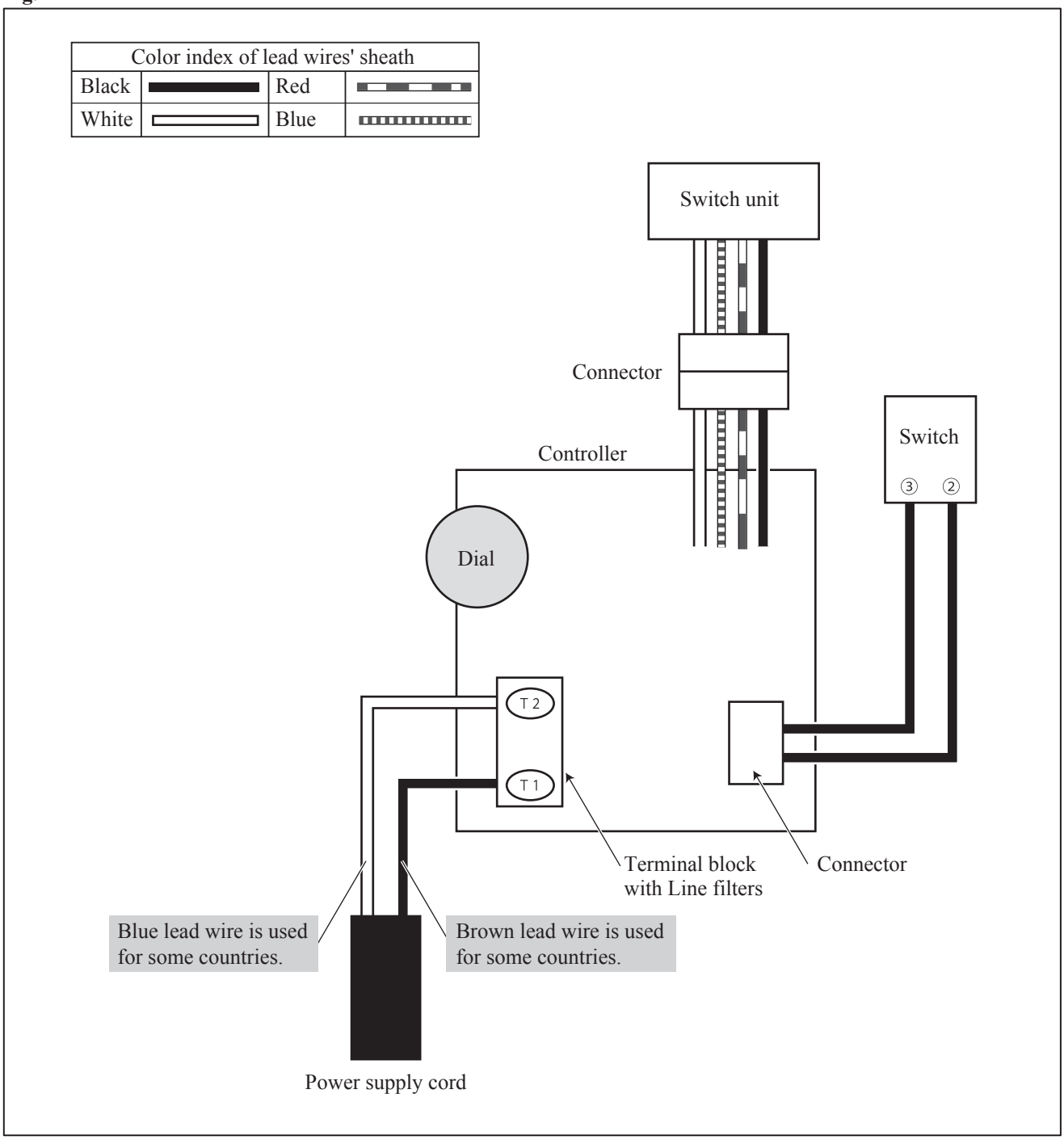
For removing Field from Motor housing unit, be sure to do the following steps in advance,
(1) Remove the receptacles of Carbon brushes from the tabs of Brush holder unit. (**Fig. 55**)
(2) Slide Spiral springs aside and put them on projections of Brush holder units. (Also refer to **Fig. 39 of [3]-4**.)
(3) After the steps (1) and (2), pull out Carbon brushes from Brush holder units.

Fig. 55



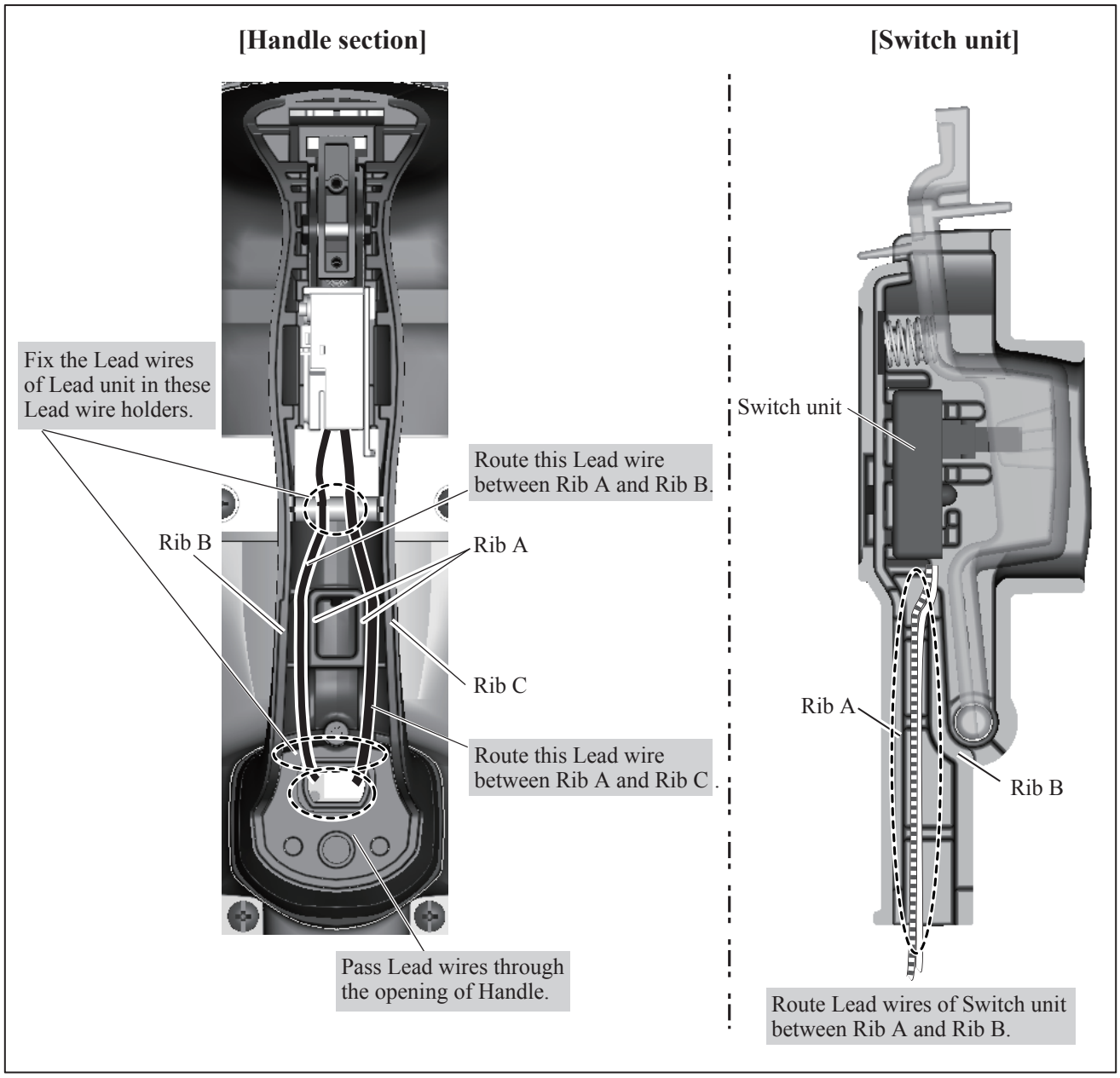
Circuit diagram

Fig. D-1



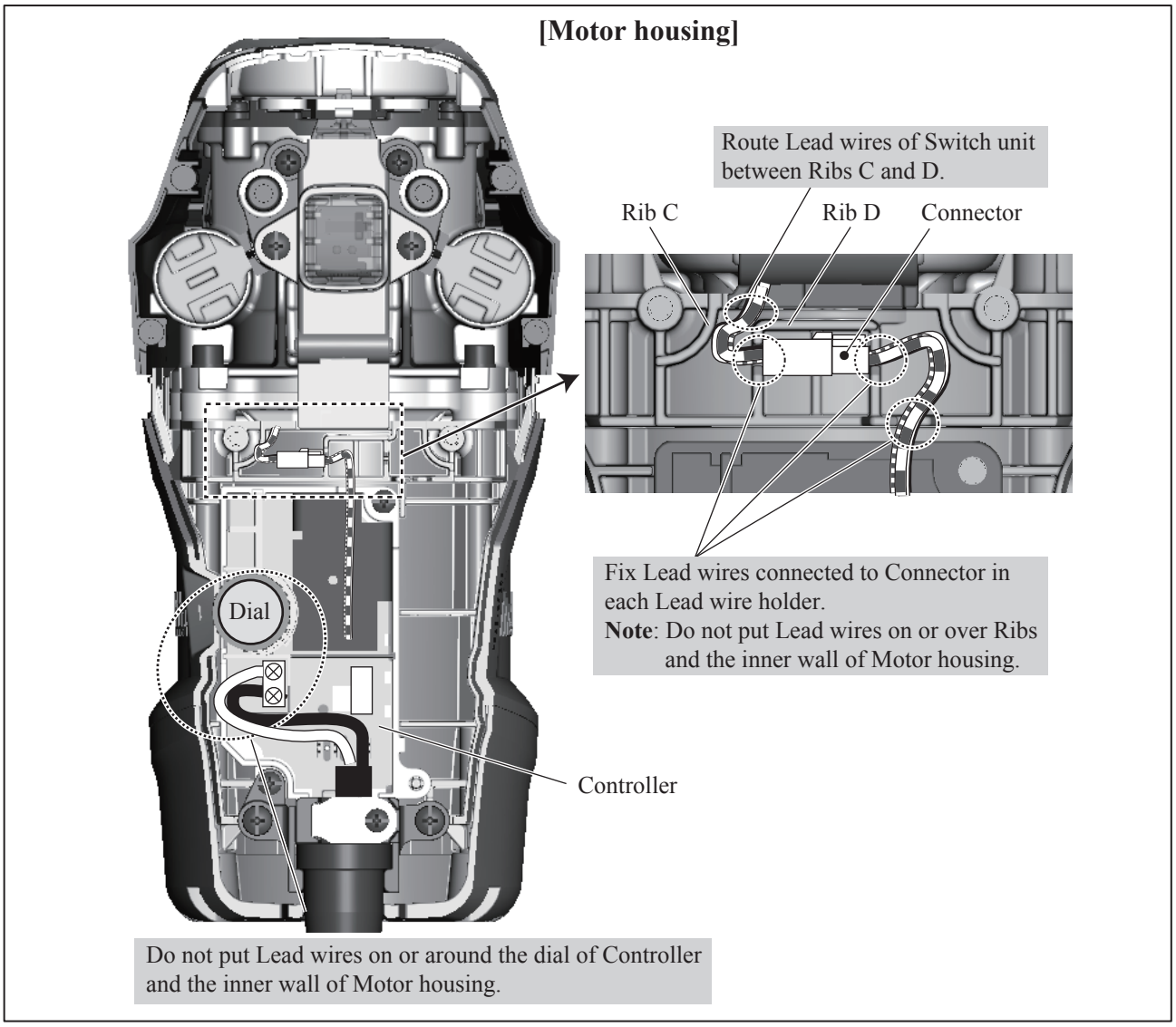
Wiring diagram

Fig. D-2



Wiring diagram

Fig. D-3



► Maintenance program

When you replace Carbon brushes, it is recommended to replace the following parts with new ones at the same time.
Hammer service kit is available.
If two Tool retainers are worn out, replace them with new ones.
Note: Be sure to remove the old grease in the machine, apply the specified grease in accordance with **Figs. 1 and 2**.

Item No.	Description	
—	Makita grease R No. 00	Hammer service kit
2	Tool holder cap	
33	O-ring 26.5	
34	Fluoride ring 32.5	
35	X-ring 26	
46	O-ring 33	
49	O-ring 30	
121	Carbon brush CB-175 (2 pcs/ 1 set)	

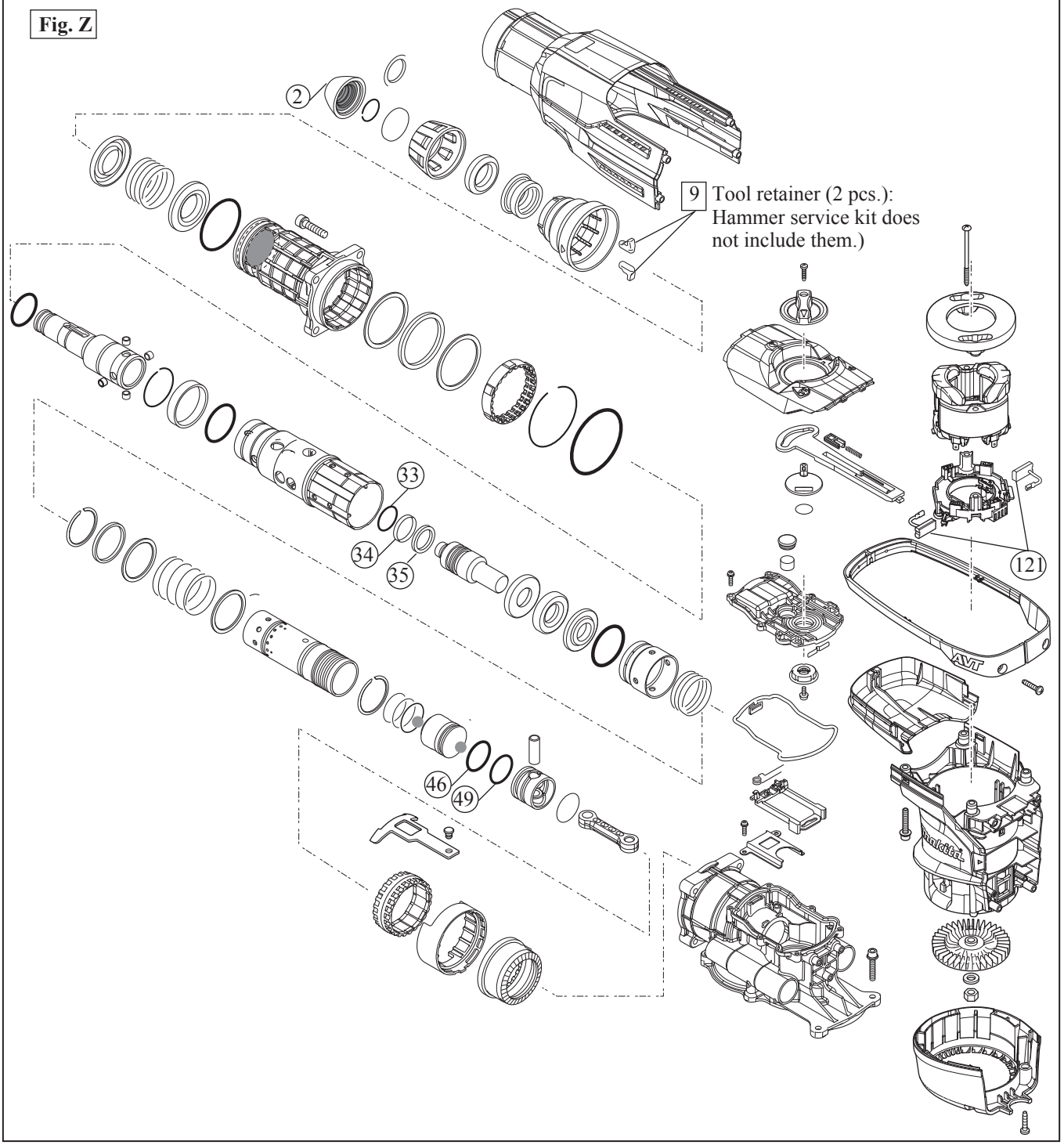



Fig. Z