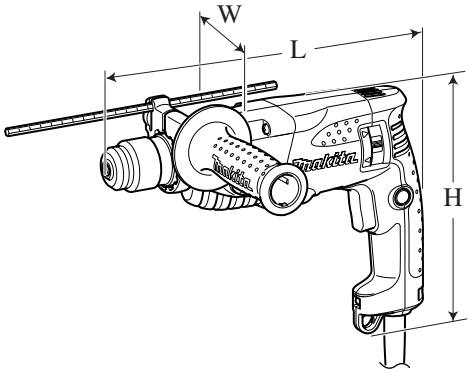
TECHNICAL INFORMATION

Model No. ► HR1830, HR1830F

Description ► Rotary Hammers 18mm (11/16")

CONCEPT AND MAIN APPLICATIONS

Models HR1830 and HR1830F have been developed as the most compact and lightweight models of Makita SDS-Plus Rotary Hammer range.
HR1830F features LED job light.



Dimensions: mm (")	
Length (L)	279 (10-7/8)
Width (W)	66 (2-5/8)
Height (H)	208 (8-3/16)

► Specification

Voltage (V)	Current (A)	Cycle (Hz)	Continuous Rating (W)		Max. Output (W)
			Input	Output	
110	4.2	50 / 60	440	190	290
120	3.9	50 / 60	440	190	290
220	2.1	50 / 60	440	190	290
230	2.0	50 / 60	440	190	290
240	1.9	50 / 60	440	190	290

Model No.		HR1830	HR1830F
No load speed: min-1= rpm		0 - 1,500	
Blows per min.= bpm		0 - 5,000	
Bit	Type	SDS-Plus	
	Diameter: mm (")	10 (3/8)	
Capacity: mm (")	Concrete	18 (11/16)	
	Steel	13 (1/2)	
	Wood	24 (15/16)	
LED Job light		No	Yes
Clutch		Yes	
Variable speed		Yes	
Rotation reversing facility		Yes	
Double insulation		Yes	
Power supply cord: m (ft)		Europe: 4.0 (13.1) Australia: 2.0 (6.6) Other countries: 2.5 (8.2)	
Net weight: kg (lbs)		1.7 (3.7)	

► Standard equipment

Side handle ..... 1 pc
Depth gauge ..... 1 pc
Plastic carrying case ..... 1 pc

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

► Optional accessories

Assorted TCT hammer bits	Chuck adapter	Holder driver	Assorted core bits
Assorted TCT hammer bits (taper-shank type)	Chuck key S13	Safety goggle	Center bit
	Drill chuck S13	Bit grease	Core adapter
Taper shank adapter	SDS-plus hammer chuck	Blow out bulb	Rod
Cotter	Dust cup 5.9	Grip drill	Dust extractor attachment
Drill chuck assembly	Anchor setting tool	Grip drill holder	

► Repair

CAUTION: Disconnect the machine for safety before repair/ maintenance !

[1] NECESSARY REPAIRING TOOLS

Code No.	Description	Use for
1R003	Retaining Ring S Pliers ST-2N	Removing Retaining ring WR25
1R022	Bearing Plate	Removing Helical gear 23
1R212	Pressure Gauge Tip for Retaining Ring Pliers	Modular use with 1R003
1R225	Bearing Extractor	Removing Armature
1R232	Pipe 30	Mounting Oil seal 25 to Gear housing complete
1R235	Round Bar for Arbor 6-100	Removing Armature
1R252	Round Bar for Arbor 30-100	Assembling Ball bearing 6805LLB
1R268	Spring Pin Extractor 3	Removing Pin 4 from Inner housing
1R269	Bearing Extractor	Removing Ball bearings
1R306	Ring Spring Removing Jig	Pressing Compression spring 25 for removing Retaining ring WR-25

[2] LUBRICATION

Apply the following kinds of grease to protect parts and product from unusual abrasion, when repairing or changing carbon brush.

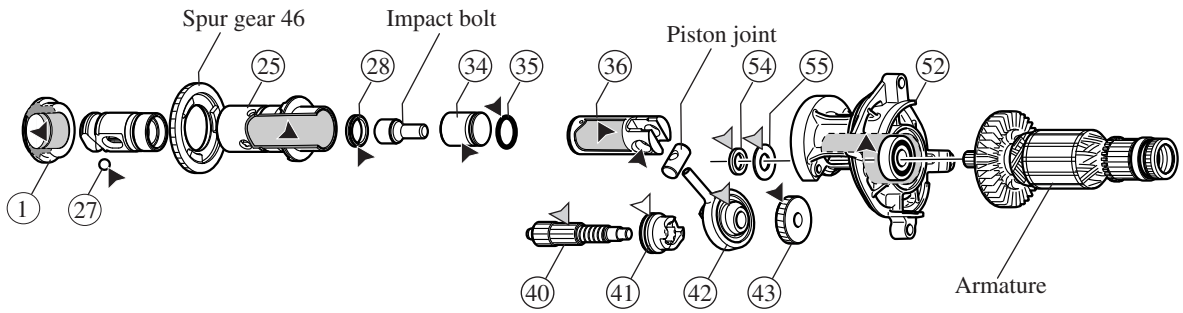
*Makita grease RA No.1 to the portion designated with black triangle ▲

*Makita grease FA No.2 to the portions designated with gray triangle △

*Disulfide molybdenum grease to the portions designated with white triangle △

Item No.	Description	Portion to lubricate	Symbol of Grease
①	Cap 35	Inside grooved portion	▲
㉕	Cylinder	Inside surface where the impact mechanism reciprocates	
㉗	Steel Ball 7.0	Whole portion	
㉘	X Ring 13	Whole portion	
㉞	Striker	Surface that contacts ㊱ Piston cylinder	
㉟	O Ring 14	Whole portion	
㊱	Piston Cylinder	Inside surface where the blowing mechanism reciprocates	
		Hole for accepting piston joint	
㊸	Helical Gear 23	Teeth portion which engages with armature's gear	
㊷	Inner Housing	Inside surface where ㊱ Piston cylinder reciprocates	
㊵	Spur Gear 10	Teeth portion that engages with Spur gear 46 and ㊶ Clutch cam	△
㊷	Swash Bearing 9	Slit between outer ring and inner ring	
㊹	Flat Washer 9 (small)	Whole portion	
㊺	Flat Washer 9 (large)	Whole portion	
㊶	Clutch Cam	Groove portion for fitting brim of ㉕ Cylinder	△

Fig. 1



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -1. Tool Holder

DISASSEMBLING

1) After taking off Cap 35, remove Ring spring 19 from Tool holder with Retaining ring S pliers ST2N (No. 1R003). (**Fig. 2**)
2) Remove Chuck cover and Ring 21. While pushing Guide washer towards Conical compression spring 21-19, take off Steel ball 7.0. (**Fig. 3**)
3) Remove Guide washer and Conical compression spring 21-19. (**Fig. 4**)

Fig. 2

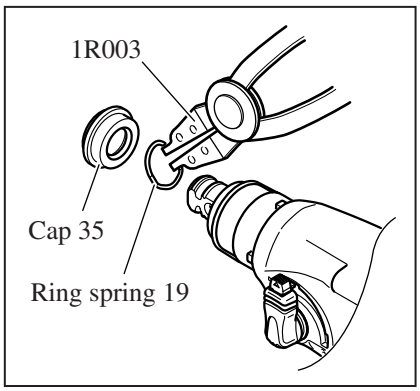


Fig. 3

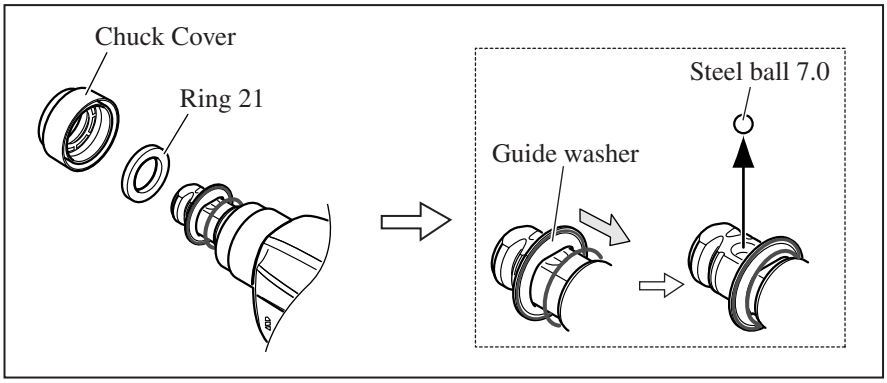
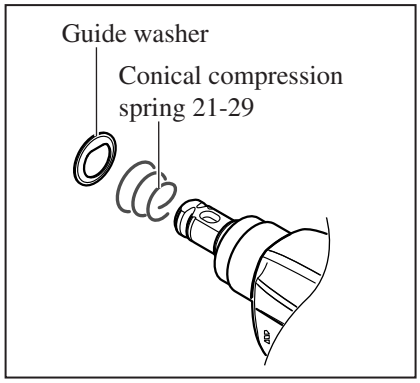


Fig. 4



ASSEMBLING

Do the reverse of the disassembling steps.

Note: Conical compression spring 21-29 and Ring spring 19 are not reversible when assembled to Tool holder complete. Be sure to assemble as illustrated in **Figs. 5, 6**.

Fig. 5

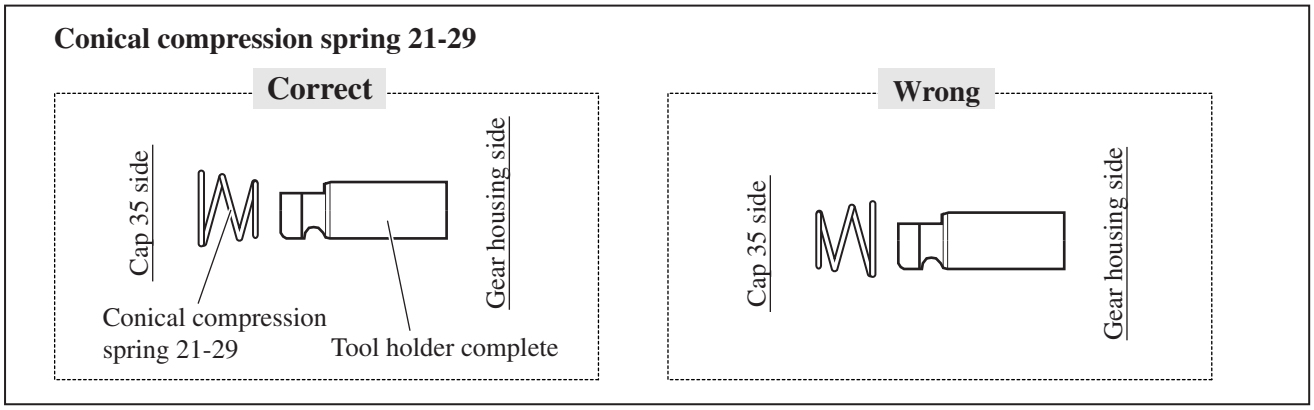
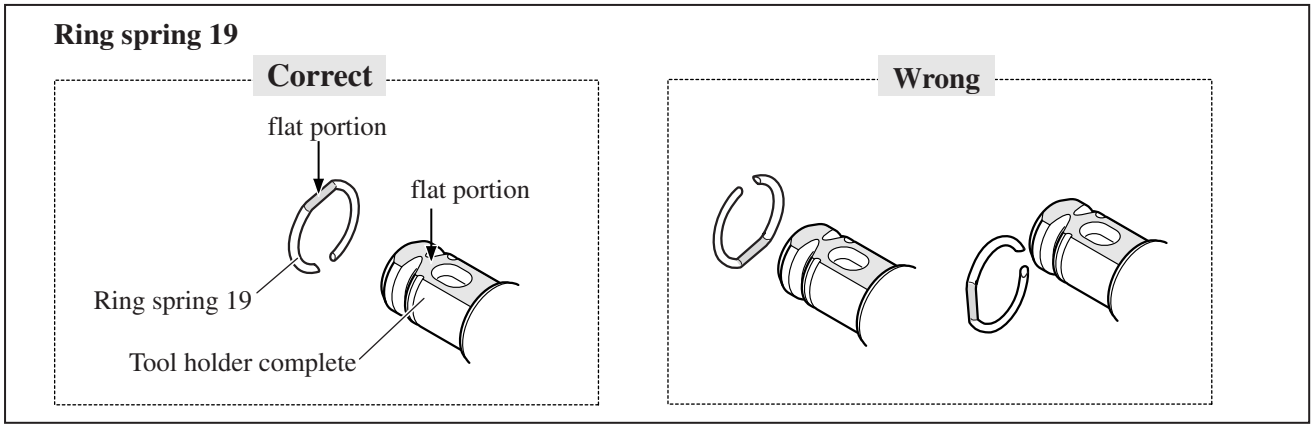


Fig. 6



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -2. Armature

DISASSEMBLING

1) Disassemble Tool holder section. (**Figs. 2**, **3**, **4**)
2) Remove Handle cover that covers Brush holder unit.
3) Set Brush holder unit to the suitable position for removing Carbon brushes. And remove them. (**Fig. 7**)
4) While pressing Lock button more deeply than usual locking operation, turn Change lever as illustrated in **Fig. 8**. Change lever can now be pulled off.
5) Remove four 4x35 Tapping screws. Remove Gear housing complete while holding the top of Tool holder by hand. (**Fig. 9**) Remove impact mechanism and Armature from Motor housing. (**Fig. 9**)
6) Remove Tool holder complete and Joint plate from Inner housing complete. (**Fig. 10**)
7) Disassemble Spur gear section. Remove Piston cylinder from Inner housing complete. (**Fig. 11**)
8) Putting Round bar for arbor 6-100 (No.1R235) or Bearing extractor (No.1R225) on Armature shaft, press the jig with arbor press. Now armature is removed from inner housing. (**Fig. 12**)

Fig. 7

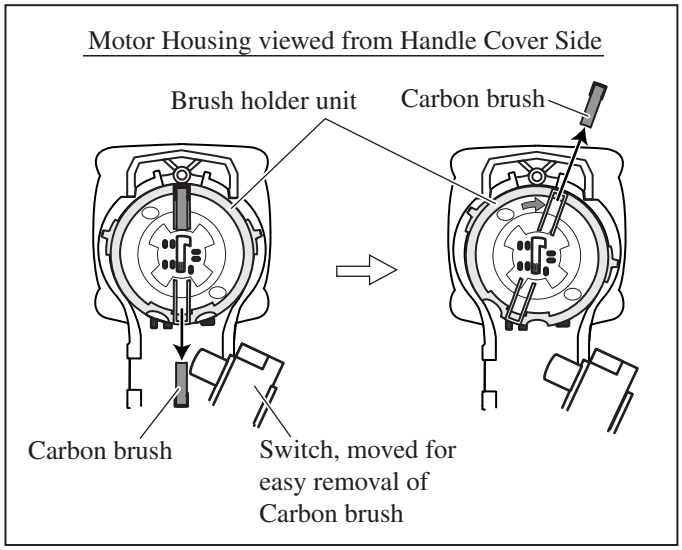


Fig. 8

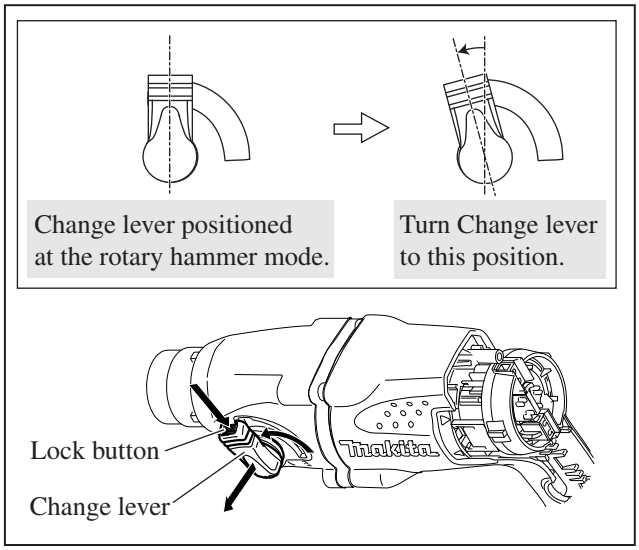


Fig. 9

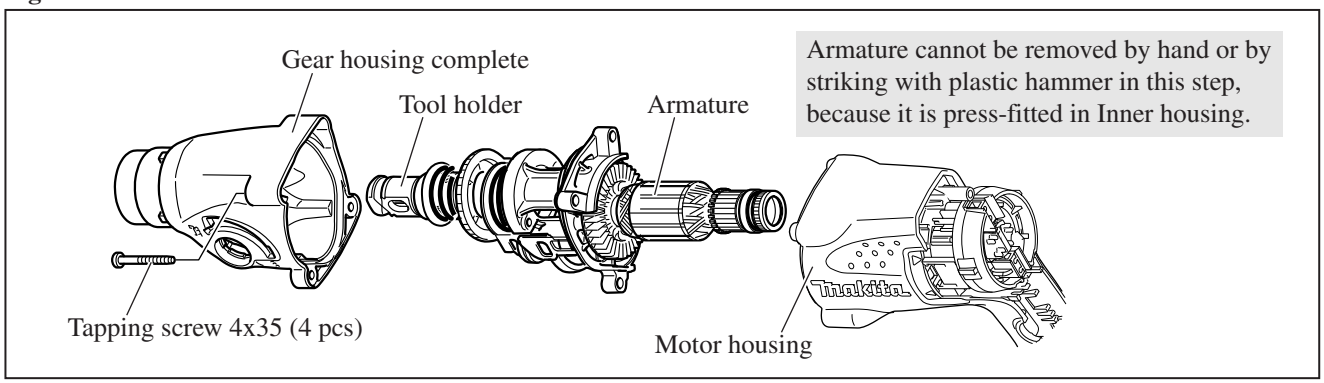


Fig. 10

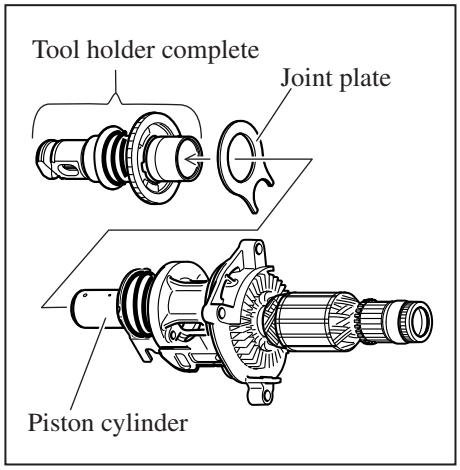


Fig. 11

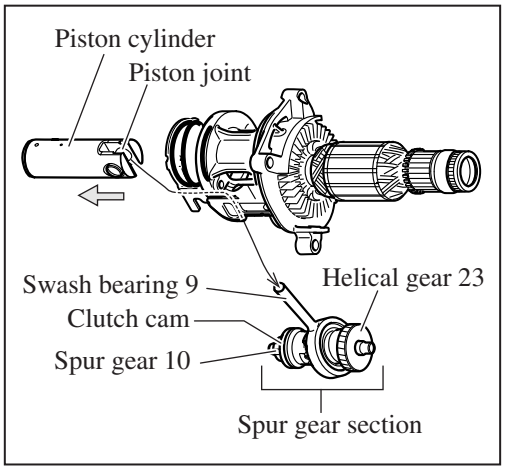
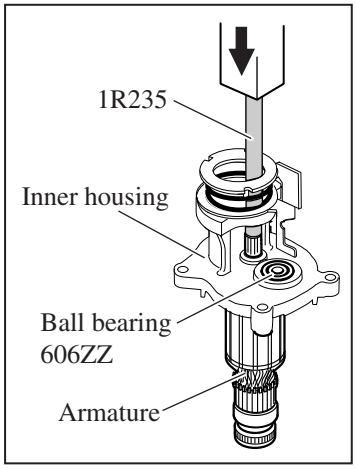


Fig. 12



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -2. Armature (cont.)

ASSEMBLING

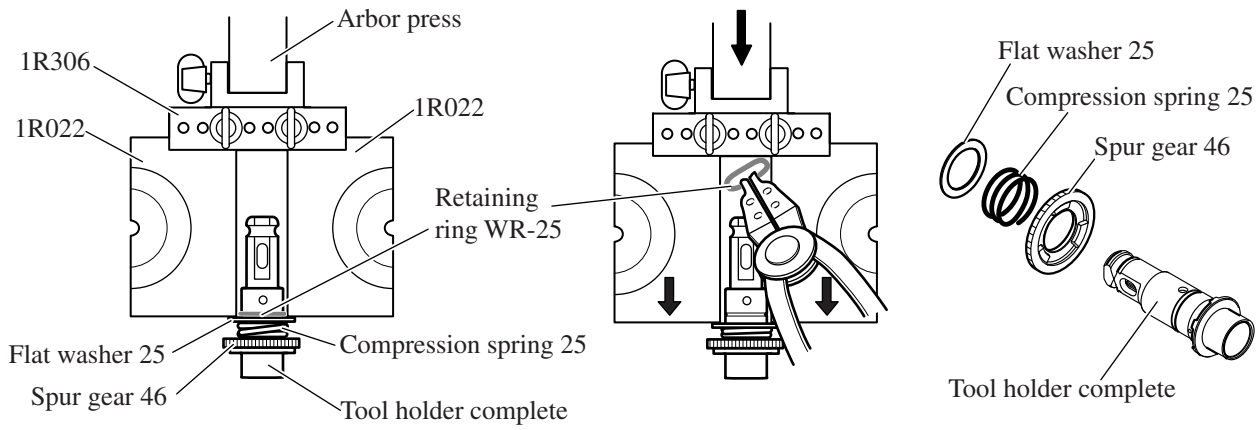
Do the reverse of the disassembling steps.

[3] -3. Gear Section

DISASSEMBLING

1) Separate Gear section from Inner housing. (**Fig. 7 to Fig. 11**)
2) Attach two Bearing plates (No.1R022) to Ring spring removing jig (No.1R306).
   Install them on arbor press as illustrated to left in **Fig. 13**.
3) Applying two Bearing plates to Flat washer 25, press down them with arbor press in order to remove the force of Compression spring 25 from Retaining ring WR-25. (center of **Fig. 13**)
4) While pressing Flat washer 25, remove Retaining ring WR-25 from Tool holder complete. (center of **Fig. 13**)
5) Remove Flat washer 25, Compression spring 25 and Spur gear 46 from Tool holder complete. (right in **Fig. 13**)

Fig. 13



6) Remove Spur gear section from Piston cylinder. (left in **Fig. 14**)
7) Insert two Bearing plates (No.1R022) between Swash bearing 9 and Helical gear 23. Setting the Spur gear section with Bearing plates onto the turn base of arbor press, press Spur gear 10 with arbor press. (center of **Fig. 14**)
8) Now Swash bearing 9 and Clutch cam can be removed from Spur gear 10. (right in **Fig. 14**)

Note: When removing Gear housing complete and Inner housing from Spur gear section (**Figs. 9 and 11**), both of 606ZZ Ball bearings will be left in Gear housing complete and Inner housing. (**Fig. 15**)
These 606ZZ Ball bearings can be removed as illustrated in **Fig. 16** on page 6.

Fig. 14

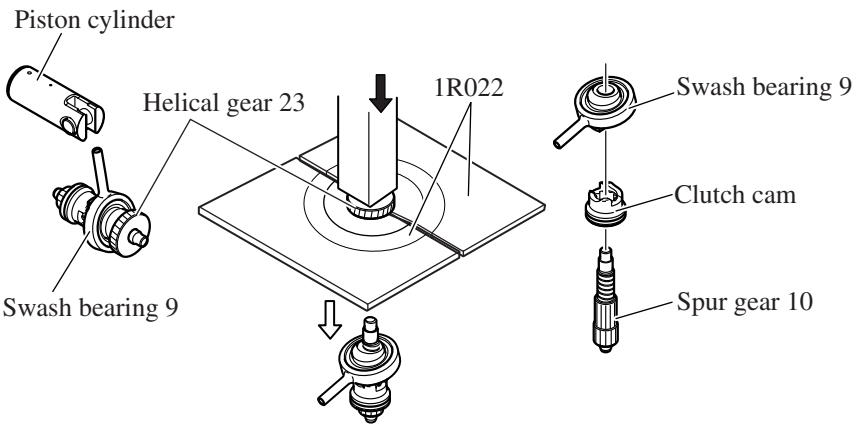
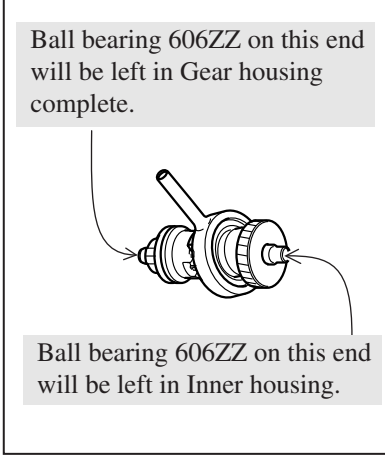


Fig. 15



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -3. Gear Section

DISASSEMBLING

9) Remove Ball bearing 606ZZ from Gear housing complete using the removed Spur gear 10 as a jig as follows; Insert Spur gear 10 into the Ball bearing again. Tilt the Ball bearing a little bit by moving Spur gear 10 as illustrated left to **Fig. 16**. Ball bearing 606ZZ can now be removed by tapping the edge of Gear housing complete with plastic hammer as illustrated to right in **Fig. 16**.
Note: The Ball bearing 606ZZ in Inner housing can be removed in the same way.

10) Remove Oil seal 25 and Ball bearing 6805LLB from Gear housing complete by tapping the four notches on the top of Gear housing complete in a crisscross manner using slotted screwdriver and plastic hammer. (**Fig. 17**)

Fig. 16

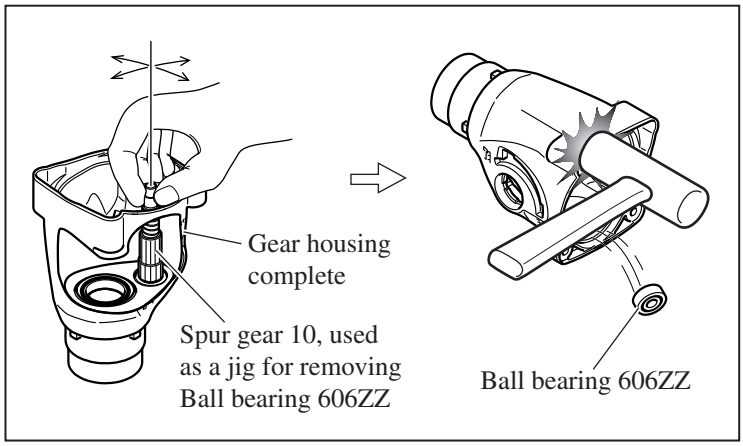
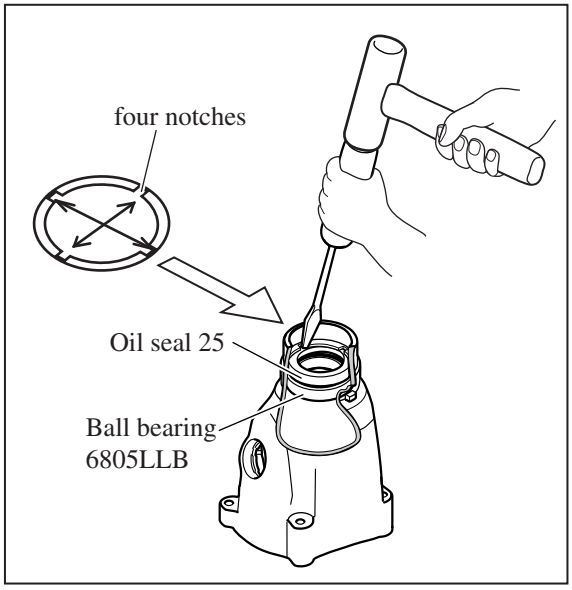


Fig. 17



ASSEMBLING

1) Put Spur gear 10 through Clutch cam and Swash bearing 9. (left in **Fig. 18**)
2) Assemble Helical gear 23 to Spur gear 10 by pressing with arbor press. (Center of **Fig. 18**)
3) Mount Piston cylinder to Swash bearing 9. (right in **Fig. 18**) Now the assembling of Spur gear section is finished.
4) Mount Ball bearing 606ZZ to Inner housing complete by pressing with arbor press. (**Fig. 19**)
5) Assemble Armature to Inner housing complete by pressing with arbor press. (**Fig. 20**)
6) Assemble the Tool holder section by doing the reverse of the disassembling steps. (**Fig. 13** on page 5)

Fig. 18

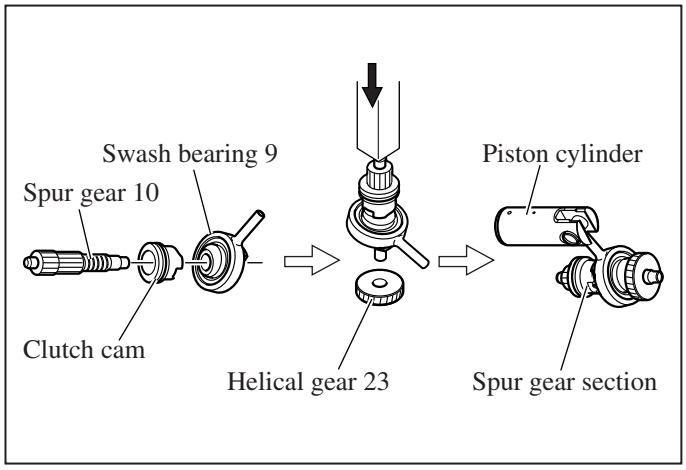


Fig. 19

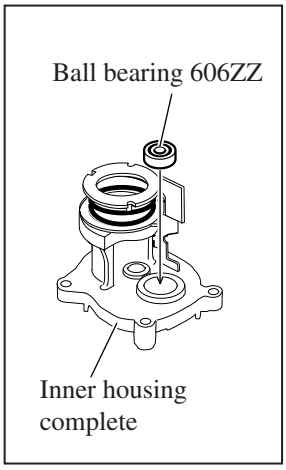
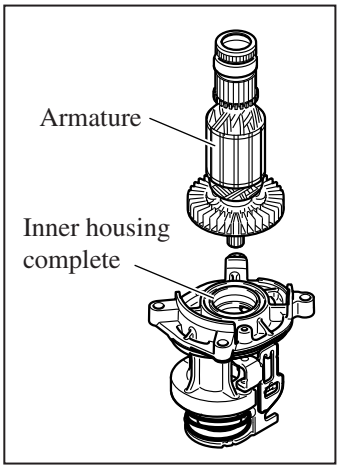


Fig. 20



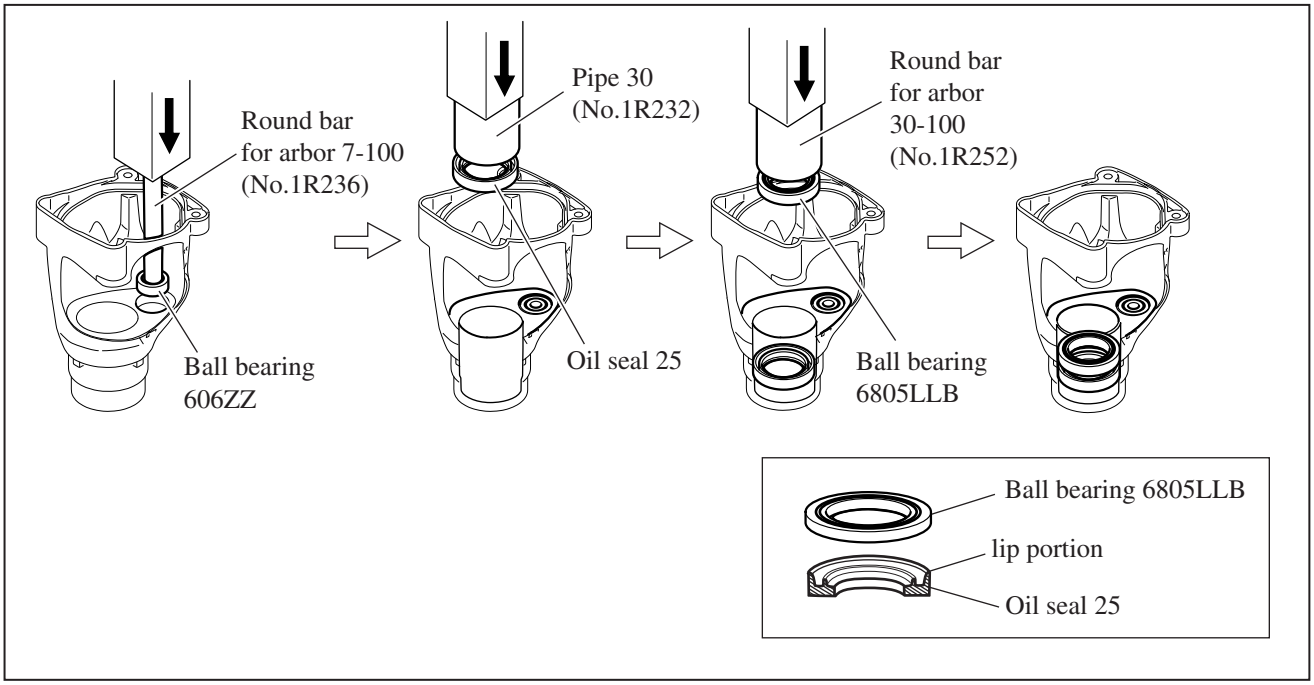
Repair

[3] DISASSEMBLY/ASSEMBLY
[3] -3. Gear Section (cont.)

ASSEMBLING

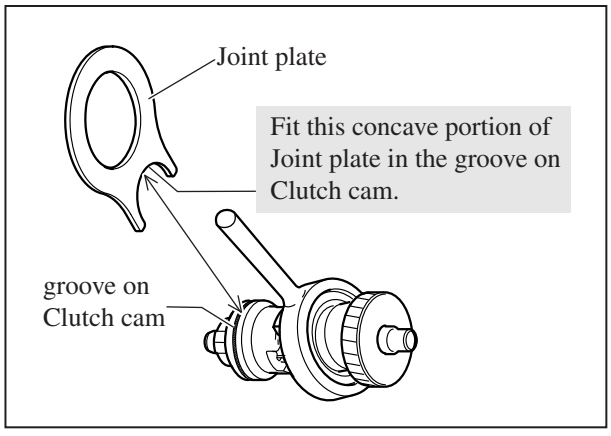
7) Assemble Ball bearing 606ZZ, Oil seal 25 and Ball bearing 6805LLB to Gear housing complete. (**Fig. 21**)
Note: The lip portion of Oil seal 25 must be positioned on the Ball bearing 6805LLB side when assembled to Gear housing complete. (bottom right in **Fig. 21**)

Fig. 21



8) Mount Piston cylinder to Inner housing. Setting the pole of Swash bearing to the front dead point, insert the pole into the hole of Piston joint. Insert Spur gear 10 into Ball bearing 606ZZ of Inner housing. (**Fig. 11** on page 4)
9) Put Joint plate through Tool holder section.
Assemble Tool holder section to Piston cylinder.
(**Fig. 10** on page 4)
Note: Fitting Joint plate in the groove on Clutch cam, mount Tool holder section to Inner housing. (**Fig. 22**)
10) Mount the assembled Gear section to Motor housing.
(**Fig. 9** on page 4)
11) Assemble Gear housing complete to motor housing.
(**Fig. 9** on page 4)

Fig. 22



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -4. Inner Housing Complete

DISASSEMBLING

1) Remove Inner housing complete from the machine. (**Fig. 7** to **Fig. 12**)
2) Remove Compression spring 3 mounted between the bosses of Change plate and Stopper plate. (**Fig. 23**)
3) Put Inner housing complete over the 40mm wide U-shaped notch of turn base. Remove Pin 4 by pressing Spring pin extractor 3 (No.1R268) using arbor press. (**Fig. 24**)
   Important: Felt 4x3 will always be damaged when Pin 4 is removed with arbor press.
   Be sure to replace damaged Felt 4x3 with new one when reassembling Inner housing section.
4) Remove Change plate, Compression spring 32 and Stopper plate from Inner housing. (**Fig. 25**)

Fig. 23

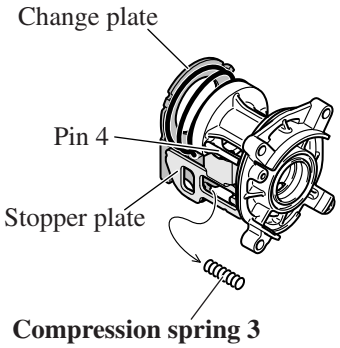


Fig. 24

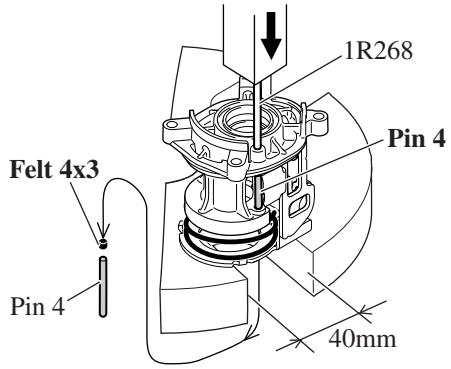
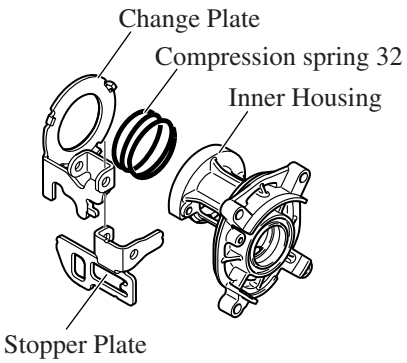


Fig. 25



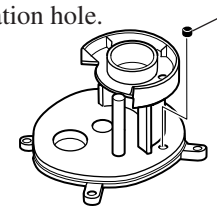
ASSEMBLING

1) Assemble Inner housing complete as illustrated in **Figs. 26**.

Fig. 26

Fig. 26-1

Insert Felt 4x3 into the Pin 4 installation hole.



Illustrations in Figs. 26-1, -2, -3 are cross-sections viewed from the side A.

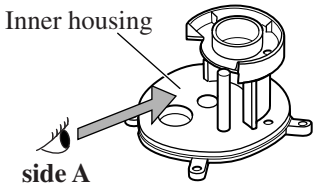
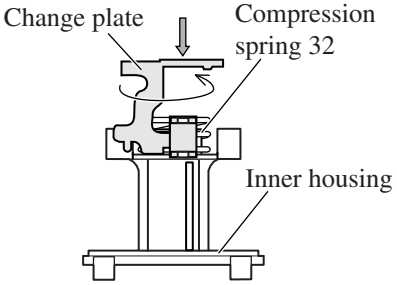
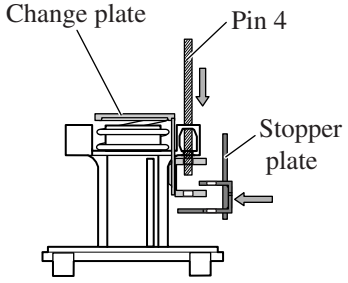


Fig. 26-2



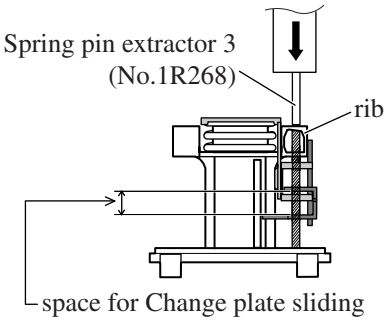
Put Compression spring 32 in place on Inner housing. Assemble Change plate to Inner housing while turning to the position in **Fig. 25-3**.

Fig. 26-3



Aligning the upper through hole of Change plate with that of Inner housing, put Pin 4 through the two holes.
Set Stopper plate and align the upper through hole of Stopper plate with the lower through hole of Change plate. Put Pin 4 through the two holes and the lower through hole of Stopper plate into the hole on Inner housing where Felt 4x3 is inserted.

Fig. 26-4



Press down Pin 4 using 1R268 and arbor press until the upper end of Pin 4 is at the same height as the rib of Inner housing.
(The space for Change plate sliding has been thus obtained.)

Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -4. Inner Housing Complete (cont.)

ASSEMBLING

2) Mount Compression spring 3 in place by connecting one end to the projection of Stopper plate and the other to the projection of Change plate. (**Fig. 27**)

Important: Do not assemble as illustrated in **Fig. 28.**

Fig. 27

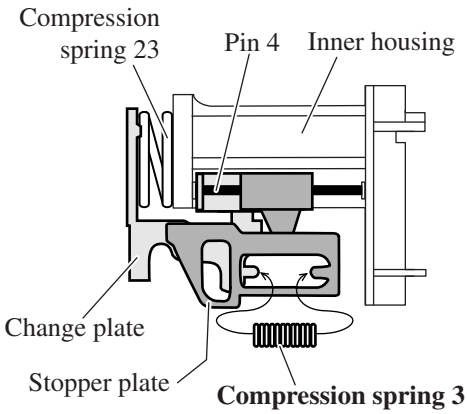
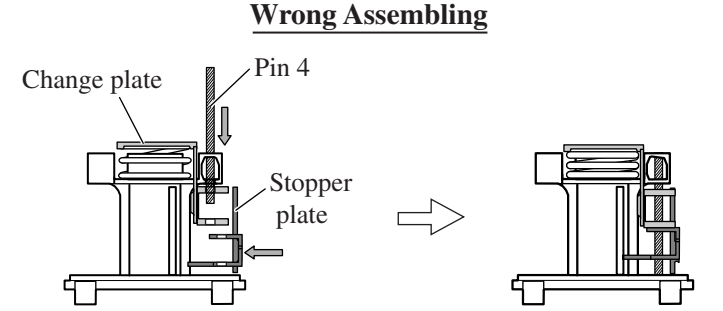


Fig. 28



If assembled with the upper through hole of Stopper plate placed under the lower through hole of Change plate,

Change plate cannot slide.

[3] -5 Tool Holder Section

DISASSEMBLING

1) Remove Tool holder complete from Inner housing complete. (**Fig. 7** to **Fig. 10** on page 4)
2) Remove Retaining ring WR-25, Flat washer 25, Compression spring 25, Spur gear 46 from Tool holder complete. (**Fig. 13** on page 5)
3) Set Tool holder complete between Armature holder set (No.1R038), and fix them in vise. (**Fig. 29**)
4) Apply slotted screwdriver to Ring spring 22 through the side hole of Tool holder. Strike the slotted screwdriver with plastic hammer to remove Ring spring 22 from the groove on the inside surface of Tool holder complete. Apply screwdriver through the other side hole, remove Ring spring 22 from the groove in the same way. (**Fig. 29**)
5) Ring spring 22 can be pulled off from Tool holder complete when completely removed from the groove. (**Fig. 30**)
Note: Ring spring 22 will be damaged or deformed in the steps 4) and 5). Be sure to replace damaged/deformed Ring spring 22 when assembling Tool holder section.

Fig. 29

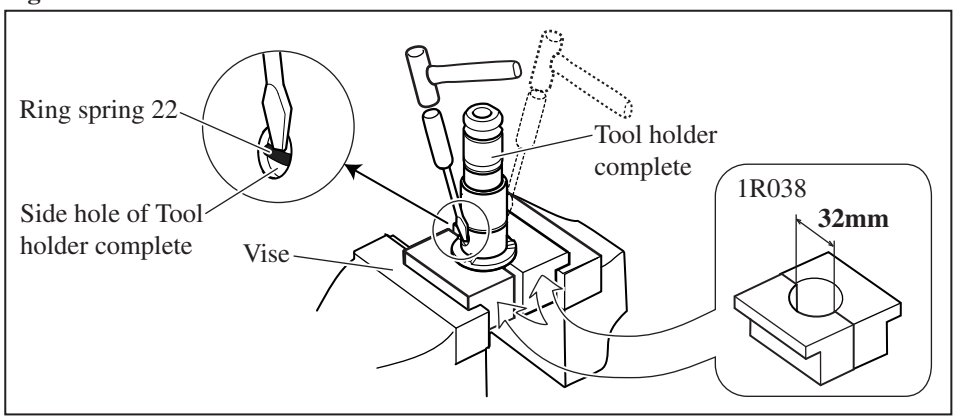
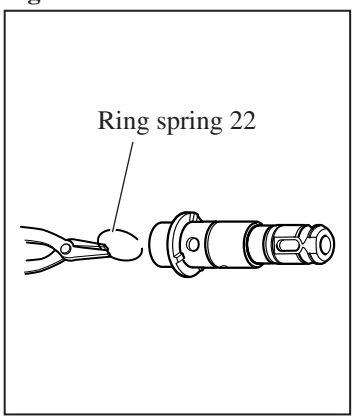


Fig. 30



6) Remove Impact bolt from Tool holder complete by striking Tool holder complete against workbench. (**Fig. 31**)
7) Remove Ring 11 and X ring 13 from Impact bolt. (**Fig. 32**)

Fig. 31

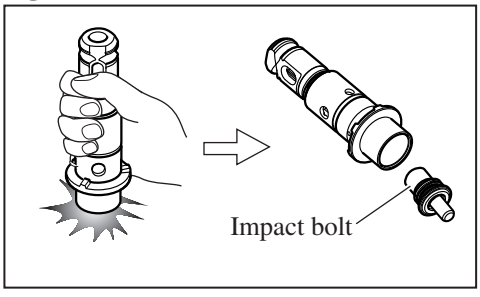
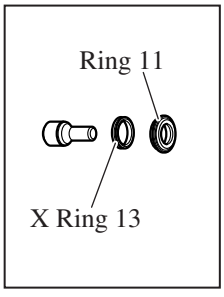


Fig. 32



Repair

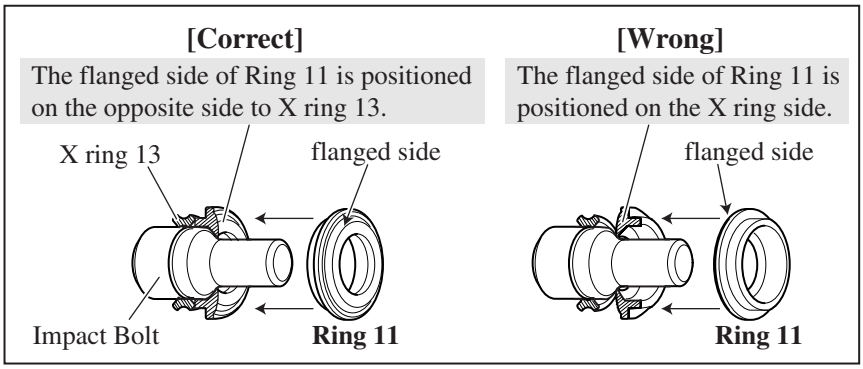
[3] DISASSEMBLY/ASSEMBLY

[3] -5 Tool Holder Section (cont.)

ASSEMBLING

1) Install X ring 13 on Impact bolt. Assemble Ring 11 to Impact bolt as illustrated to left in **Fig. 33**.
2) Insert the Impact bolt into Tool holder complete. (**Fig. 31** on page 9)

Fig. 33



3) Use Piston cylinder as a jig when assembling Ring spring 22 into Tool holder complete using arbor press. (**Fig. 34**)
4) Insert Striker into Piston cylinder with the O ring 14-mounted end placed on the Inner housing complete side. (**Fig. 35**)

Fig. 34

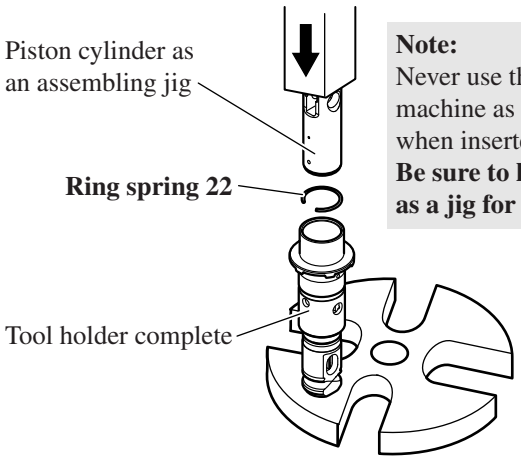
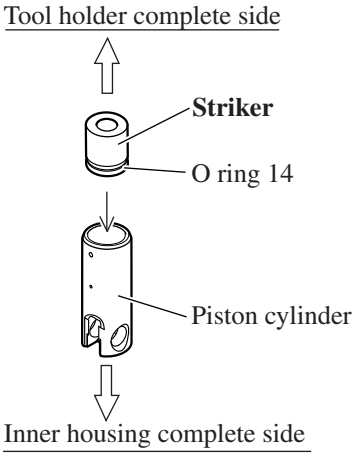


Fig. 35

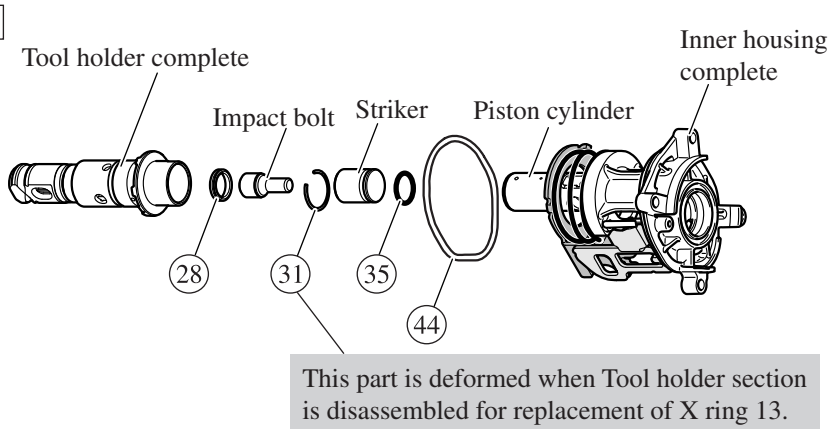


[3] -6 Maintenance

It is recommended to replace the following parts with new ones when changing Carbon brush. (**Fig. 36**)

Item No.	Description	Where to assemble
㉘	X ring 13	Assemble to Impact bolt.
㉛	Ring spring 22	Assemble to the inside of Tool holder complete.
㉟	O ring 14	Assemble to Striker.
㊹	Seal ring	Assemble to Inner housing complete.

Fig. 36



Circuit diagram

Fig. 37

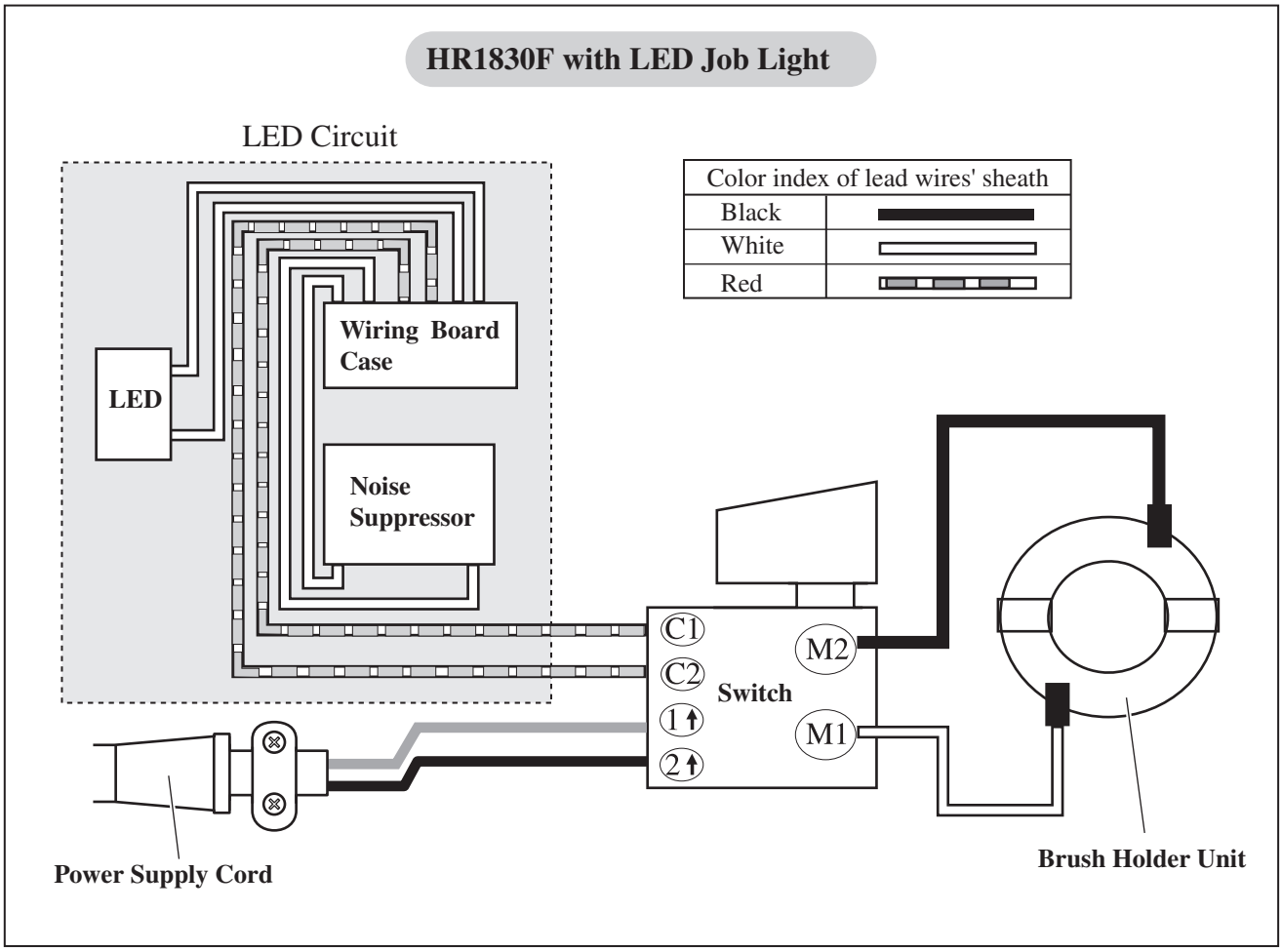
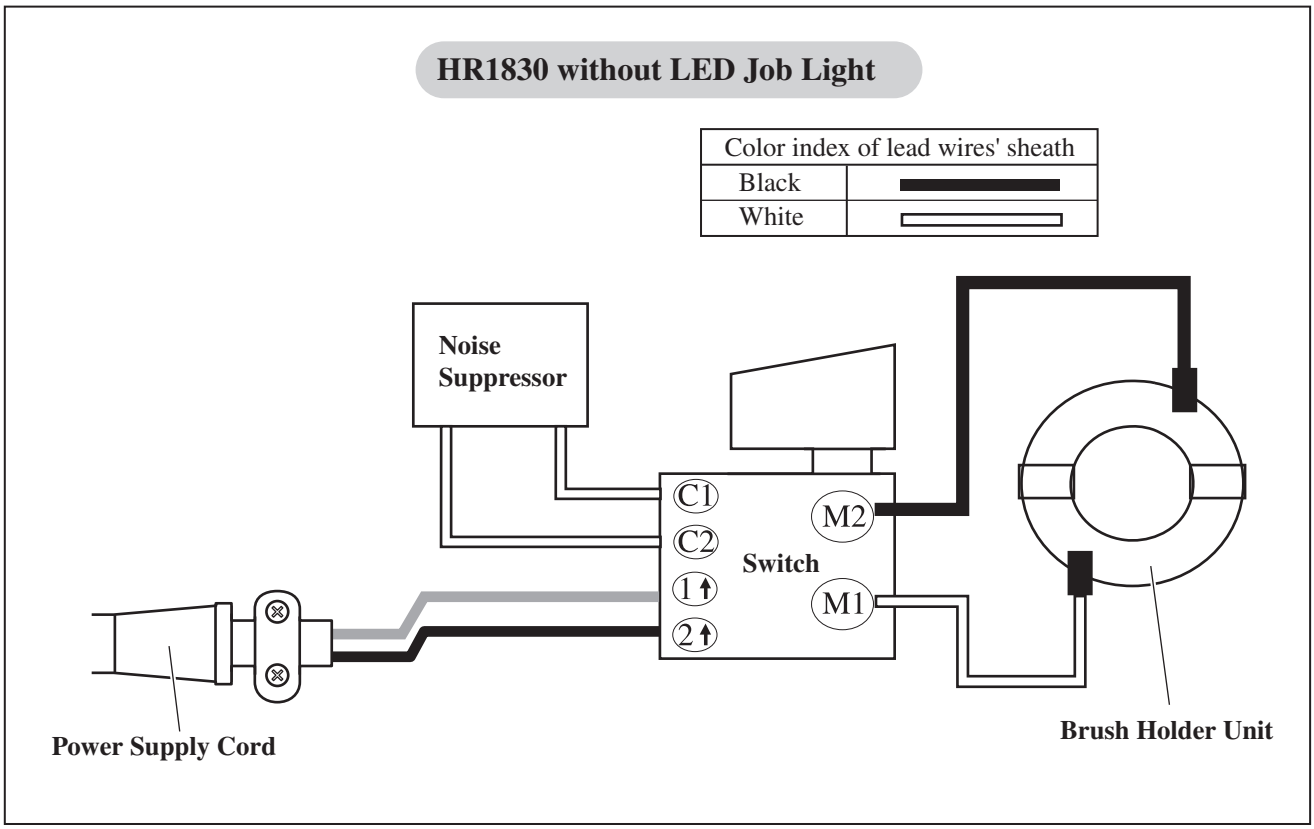


Fig. 38

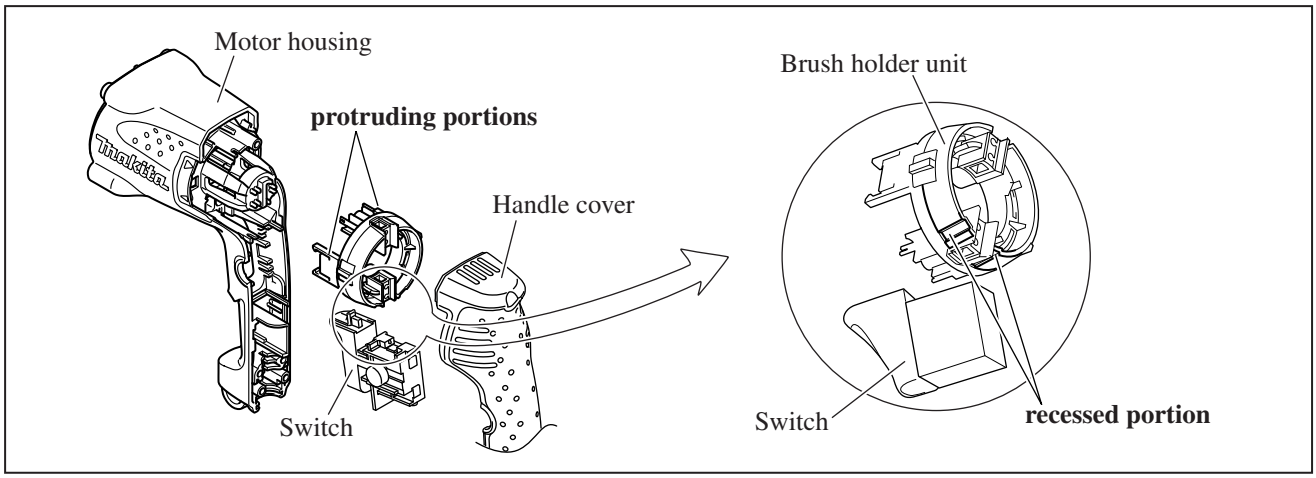


Wiring diagram

[1] Assembling Brush Holder Unit to Motor Housing (Fig. 39)

Assemble Brush holder unit to Motor housing;
With the protruding portions on the motor housing side
With the recessed portions on the Switch side

Fig. 39



[2] Wiring on the Rear of Motor Housing (Fig. 40)

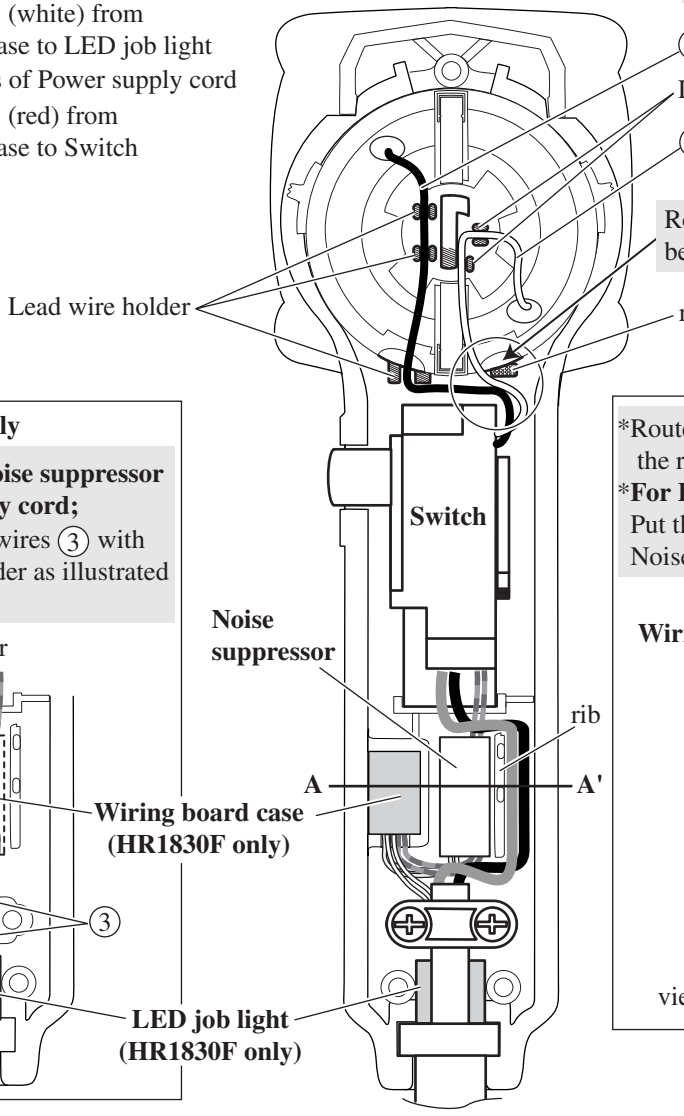
Fig. 40

Index of Lead wires

① : Lead wire (black) from Brush holder unit to Switch
② : Lead wire (white) from Brush holder unit to Switch
③ : two Lead wires (white) from Wiring board case to LED job light
④ : two Lead wires of Power supply cord
⑤ : two Lead wires (red) from Wiring board case to Switch

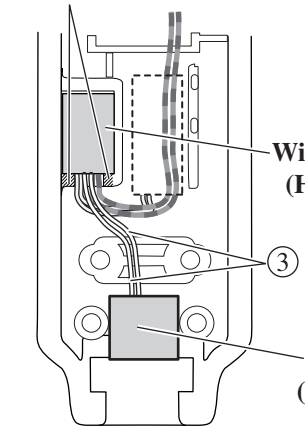
Fix the two lead wires ① and ② with the Lead wire holders.

Route the two lead wires ① and ② between this rib and Switch.

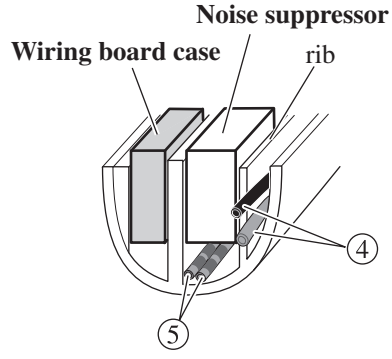


For HR1830F only

Before setting Noise suppressor and Power supply cord;
Fix the two Lead wires ③ with the Lead wire holder as illustrated below.



*Route the two Lead wires ④ between the rib and the wall of Motor housing.
***For HR1830F only:**
Put the two Lead wires ⑤ under Noise suppressor.



Cross-section A - A'
viewed from the Cord guard side