CORDLESS SLIDE COMPOUND MITER SAW
LS003G, LS004G

REPAIR MANUAL

August 2021
Ver.1

1 CONTENTS

2 CAUTION

Repair the machine in accordance with "Instruction manual" or "Safety instructions".
Follow the instructions described below in advance before repairing:

- Wear gloves.
- In order to avoid wrong reassembly, draw or write down where and how the parts are assembled, and what the parts are. It is also recommended to have boxes ready to keep disassembled parts by group.
- Handle the disassembled parts carefully. Clean and wash them properly.
- Remove Battery, except when it is necessary to check the operation of the machine.

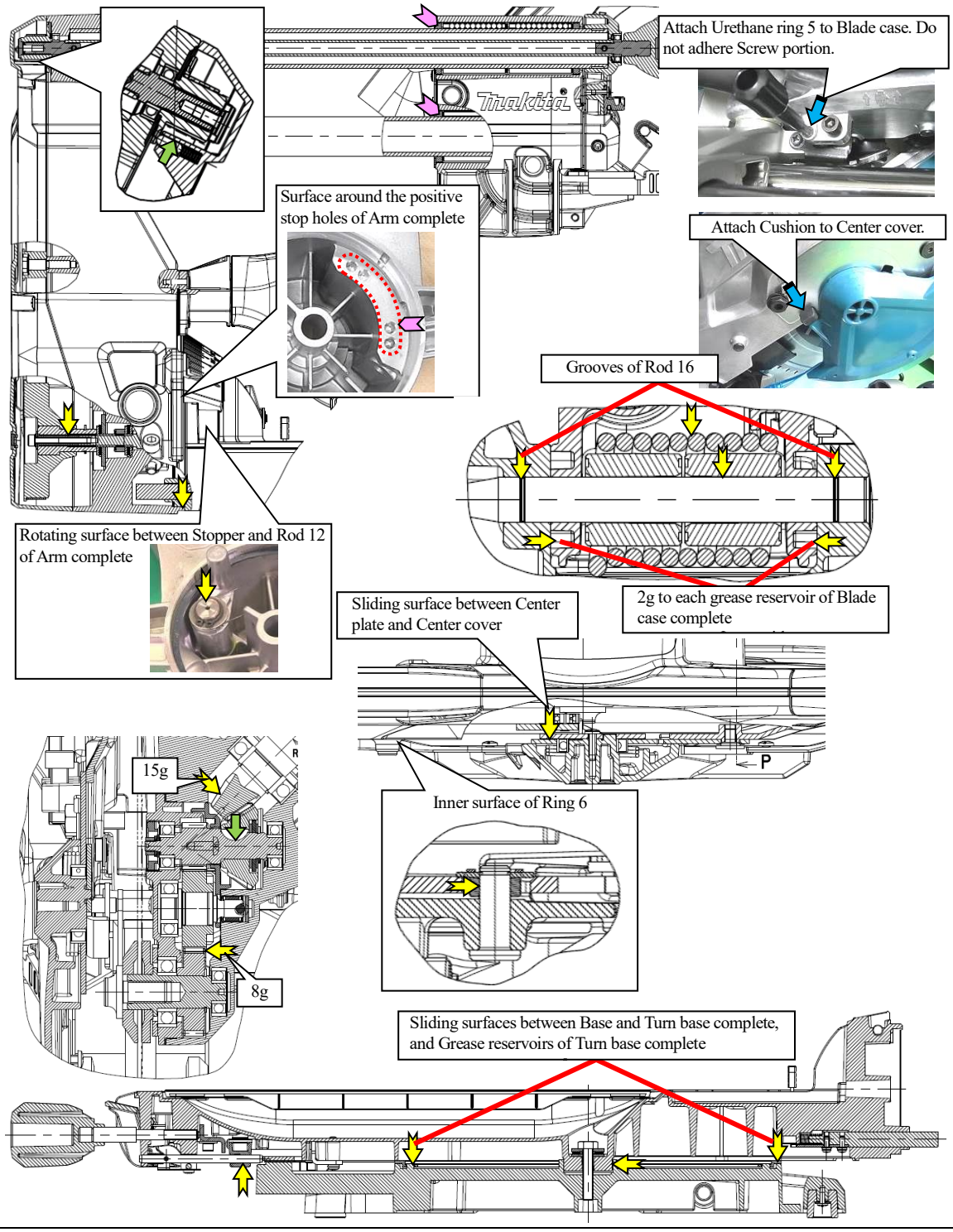
3 NECESSARY REPAIRING TOOLS

Code No.	Description	Use for
1R028	Pipe 12-20-50	press-fitting Retaining ring S-12
1R031	Pipe 20-28-50	press-fitting Helical gear 28
1R033	Ring 10-60-15	press-fitting Ball bearing 608DDW
1R035	Ring 15-60-15	supporting Gear shaft (when Helical gear 27 is press-fitted)
1R036	Ring 17-60-15	press-fitting Ball bearings 6000ZZ and 6003DDW
1R165	Ring spring setting tool B	removing Helical gear 28
1R207	Set square 45 degrees	adjusting the bevel angle of Saw blade
1R208	Set square 90 degrees	adjusting to the right angle of Saw blade
1R217	Ring 22-115	removing Spindle
1R269	Bearing puller small	removing Ball bearings 6000ZZ and 608DDW
1R285	Round bar 11-50	removing Spindle
1R291	Retaining ring pliers S and R	removing/ assembling Retaining rings
1R361	Bearing retainer extractor 22	removing/ assembling Bearing retainer 14-23
1R401	Bearing puller large	removing Helical gear 14
1R408-A	Magnet (1pc) for 1R408	・ adjusting to the right angle between Saw blade and Guide fence ・ aligning of Sub fence and Guide fence
1R411	Push bar for lead wires	fixing Lead wires
1R463-07	Ring 8-608-628	press-fitting Ball bearing 608DDW
1R463-10	Ring 10-6000-6200	press-fitting Ball bearing 6000ZZ
1R463-14	Ring 15-6002-6902	press-fitting Ball bearing 6002DDW
1R463-17	Ring 17-6003-6203	press-fitting Ball bearing 6003DDW

4 LUBRICANT AND ADHESIVE APPLICATION

	Description	Amount
	Makita grease R No.00	Apply a little unless specified in the figure.
	Makita grease FA No.2	Apply a little to Pin 4 and the keyway of Helical gear 14.
	Lubricant VG100	Apply to Felt 30 until it is soaked.
	Loctite 454 (Any type and any brand of instant adhesive can be used.)	Adhere the specified parts.

Fig. 1



5 TIGHTENING TORQUE SPECIFICATIONS

Parts to fasten			Fastener	Tightening torque (N·m)
Rod 6	↔	Lever 25 complete	Pan head screw M4x10 with WR	1.0 - 1.2
Upper fence L/ R	↔	Holder	Tapping screw bind CT 4x12	1.0 - 1.2
Bearing box			Bearing retainer 14-23	12 - 16
Bearing box	↔	Grease holder	Tapping screw bind CT 4x12	1.0 - 1.2
LED cover	↔	LED circuit	Tapping screw 3x10	0.8 - 1.1

6 REPAIR
6-1 Battery and Saw blade section
6-1-1 Disassembling

1 Remove Battery.

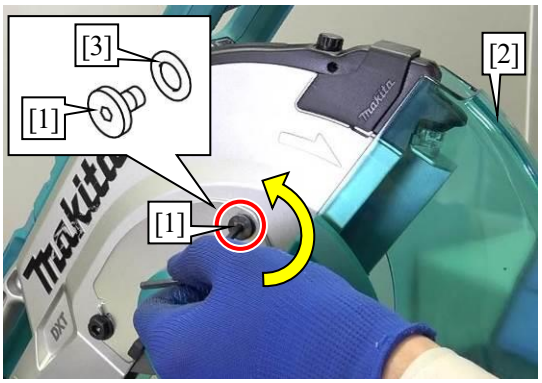
2 Open Safety cover by loosening Hex socket head bolt M8x20 of Blade case.

3 While pushing Shaft lock, remove Hex socket head bolt M10x20 (left-handed) with the supplied Hex wrench 6. And then remove Outer flange 53, Saw blade, Inner flange 53 and Ring 16.

Note
Fix the saw head at the top dead center to prevent it from falling down unexpectedly.
Tips
Tilting Blade case 45 degrees to the right prevents parts falling off.

6-2 Safety cover section
6-2-1 Disassembling

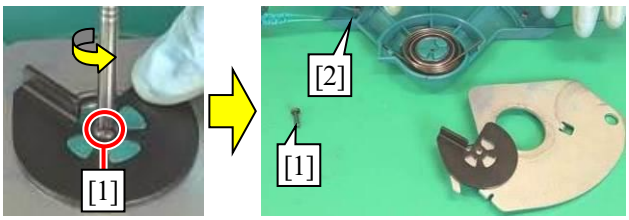
Fig. 2



1 Remove Hex socket head bolt M6 [1] with Hex wrench 4, then remove Wave washer 10 [3] from Safety cover section [2].

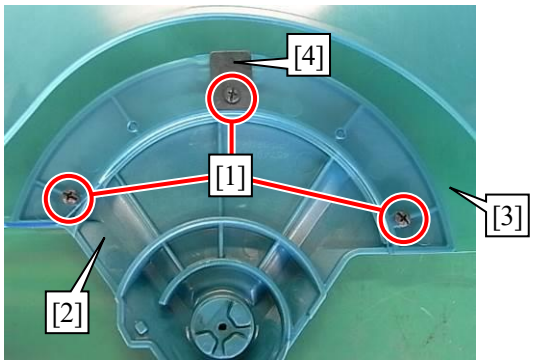
Note
Be careful not to drop Wave washer 10 [3].

Fig. 3



2 Remove Tapping screw 4x14 [1] from Safety cover section [2].

Fig. 4

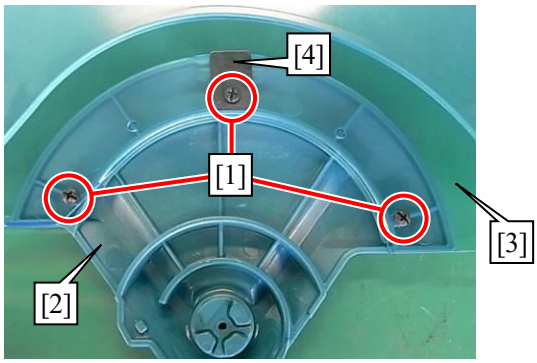


3 Remove Tapping screws 4x14 [1] (3 pcs), then disassemble Safety cover section to the following parts:

- Safety cover A [2]
- Safety cover B [3]
- Leaf spring [4] (LS003G only)

6-2-2 Assembling

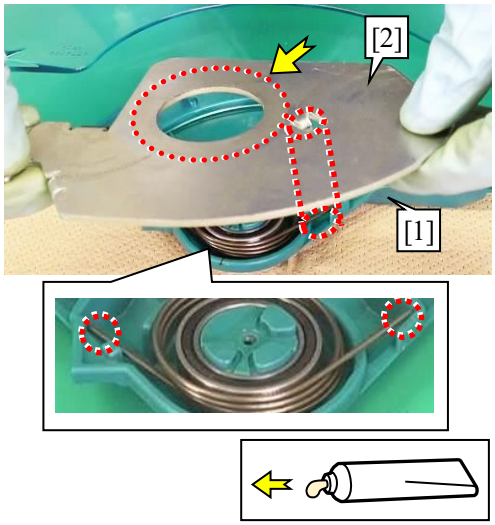
Fig. 5



1 Assemble the following parts with Tapping screws 4x14 [1] (3 pcs).

- Safety cover A [2]
- Safety cover B [3]
- Leaf spring [4] (LS003G only: The orientation matters.)

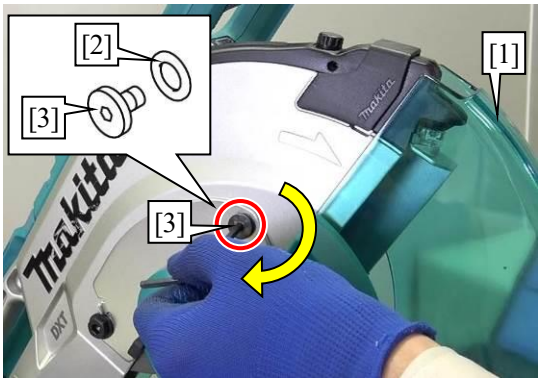
Fig. 6



1 Assemble Safety cover section [1] by reversing the disassembling procedure.

Note
Apply the specified grease to the sliding portion of Center cover [2] and Center plate.

Fig. 7



2 Assemble Safety cover section [1] with Wave washer 10 [2] and Hex socket head bolt M6 [3] with Hex wrench 4.

Note
Do not forget to mount Wave washer 10 [2].

6-3 Switch and Motor section
6-3-1 Disassembling

1 Slide back the saw head fully and lock it there. And then lock the saw blade at its lower limit position.

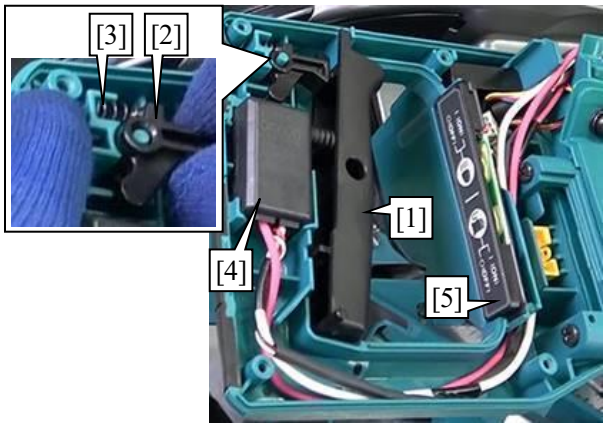
2 Remove Vertical vise and Upper fence R and L completes.

Fig. 8

3 Remove Tapping screws 4x18 [1] (8 pcs), then remove Handle cover [2], Rear cover [3] and Switch button [4].

Tips
The parts of Switch section can be replaced in this step.
Note
Be careful not to lose Switch button [4].

Fig. 9



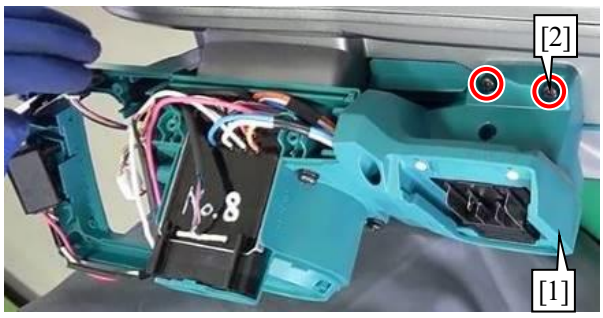
4 Remove Switch lever [1], Lock-off lever [2] and Compression spring 4 [3].

5 Disconnect Connector and Lead wires from Switch [4].

6 Remove Switch plate [5].

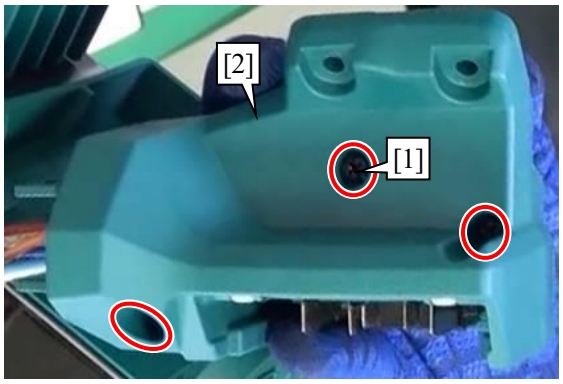
Tips
While pushing the locking tab of Connector to release the lock, pull it out.

Fig. 10



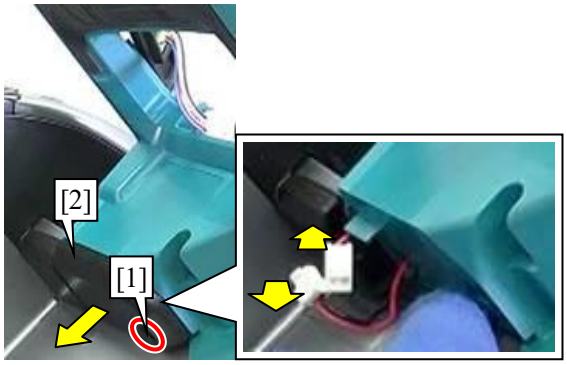
7 Remove Pan head screws M5x20 [2] (2 pcs) for LS003G/ Pan head screws M5x25 [2] (2 pcs) for LS004G from Battery housing [1].

Fig. 11



8 Remove Tapping screws 4x18 [1] (3 pcs), then disassemble Battery housing [2].

Fig. 12

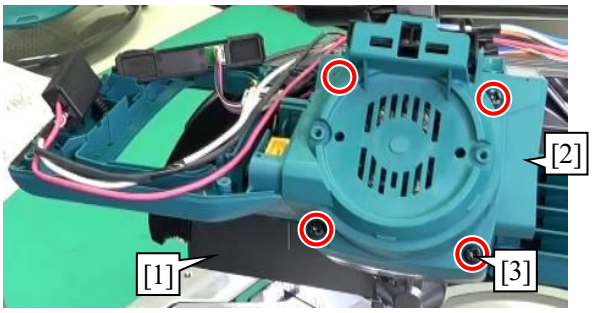


9 Raise the saw head, then fix it at the top dead center.

10 Remove Tapping screw 4x18 [1], then remove Lead cover holder [2], and then pull out Connector.

Tips
Push the locking tab of Connector to release the lock, then pull it out.

Fig. 13

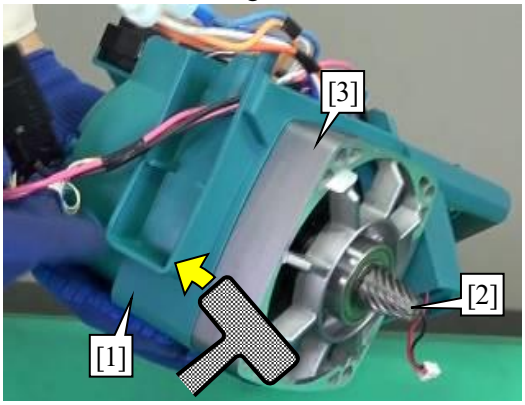


11 Hold the saw head [1] at the lowest point.

12 Remove Pan head screws M6x80 with WR [3] (4 pcs) from Motor section [2] with a No.3 Phillips screwdriver.

13 Remove Motor section [2] from Blade case [1].

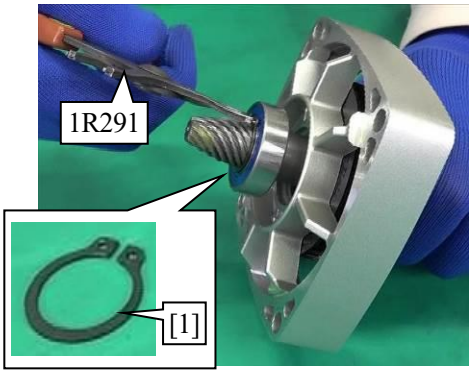
Fig. 14



14 Remove Rotor [2] by tapping the corner of Motor housing [1] with a plastic hammer.

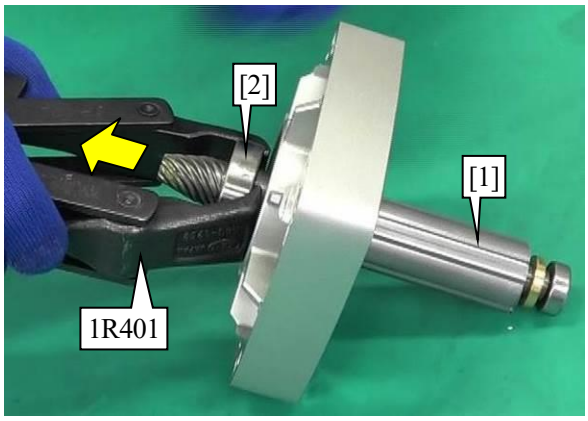
Tips
Hold Motor bracket [3] and pull it out because it returns by magnetic force on the way.
Note
Do not tap the thin portion of Motor housing [1].

Fig. 15



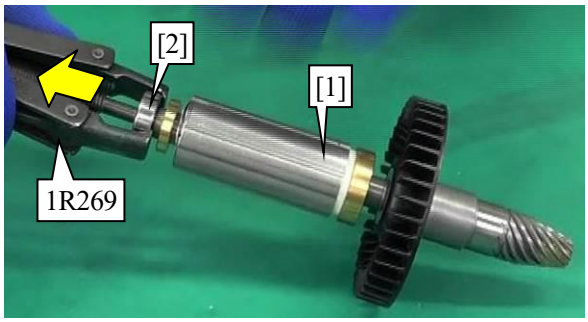
15 Remove Retaining ring S-17 [1] with 1R291.

Fig. 16



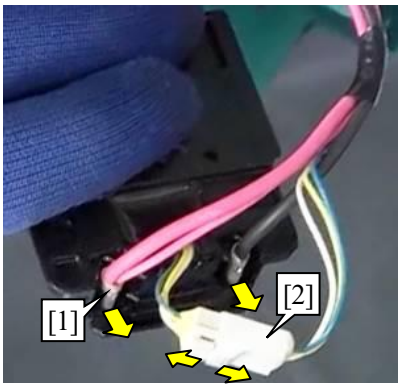
16 Remove Ball bearing 6003DDW [2] from the front portion of Rotor [1] with 1R401.

Fig. 17



17 Remove Ball bearing 607LLB [2] from the rear portion of Rotor [1] with 1R269.

Fig. 18

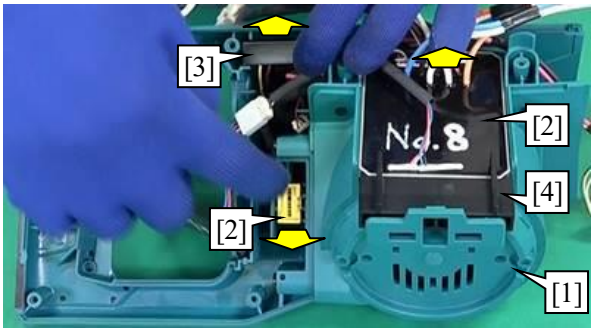


18 While pushing the locking tab to release its jaws, pull out Receptacle terminal of Terminal unit [1].

19 Disconnect Connectors [2] between Power supply circuit and Controller.

20 When disassembling Controller and Stator, cut Closed end splices (3 pcs) as close as possible to the crimped end, and then remove one connector between Stator and Controller.

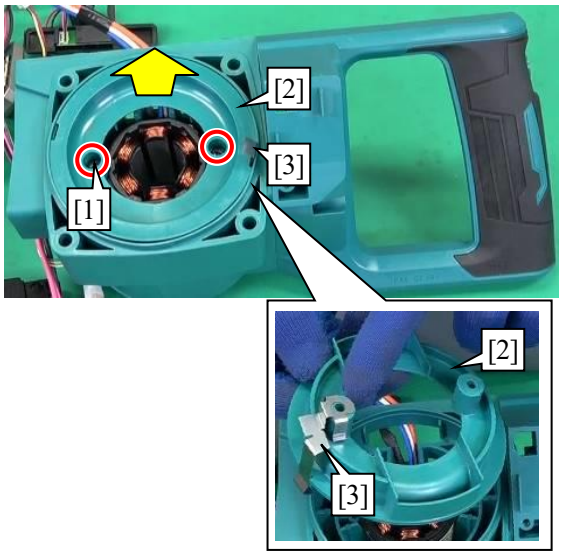
Fig. 19



21 Remove the following parts from Motor housing section [1]:

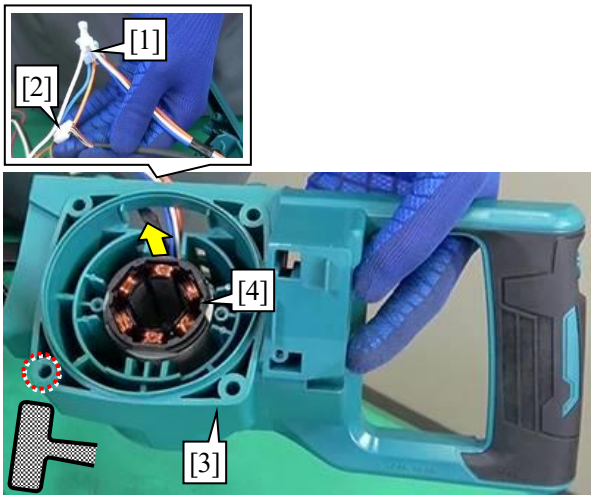
- Controller [2]
- Power supply circuit [3]
- Spacer [4]

Fig. 20



22 Remove Tapping screws 4x18 [1] (2 pcs), then remove Baffle plate [2] and Plate [3] only for countries where the measurements of EMI are requires.

Fig. 21



23 Cut Closed end splices [1] (3 pcs) as close as possible to the crimped end, then disconnect Connector [2].

24 Remove Stator [4] by tapping Motor housing [3] with a plastic hammer.

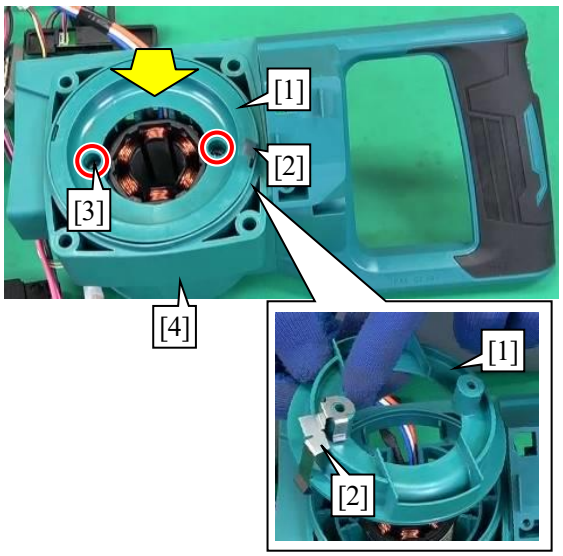
Tips
Hold Stator [4] by your fingers to prevent it from falling off.
Note
Do not tap the thin portion of Motor housing [3].

6-3-3 Assembling

1 Press-fit Stator to Motor housing by reversing the disassembling procedure.

2 Connect Connectors by crimping Closed end splices 5.5-SD (3 pcs) with 1R377.

Fig. 22

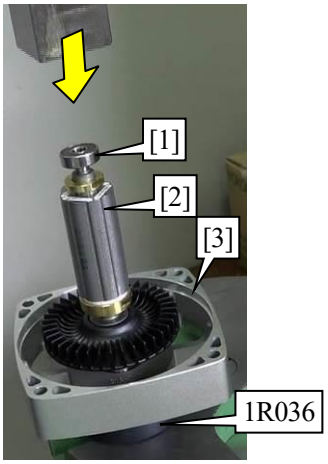


3 Assemble Plate [2] (only for countries where the measurements of EMI are required) to Baffle plate [1], then tighten Tapping screws 4x18 [3] (2 pcs).

Note
Assemble Plate [2] to Handle side.

4 Assemble Spacer, Controller, Capacitor and Connector between Power supply circuit and Controller to Motor housing [4].

Fig. 23

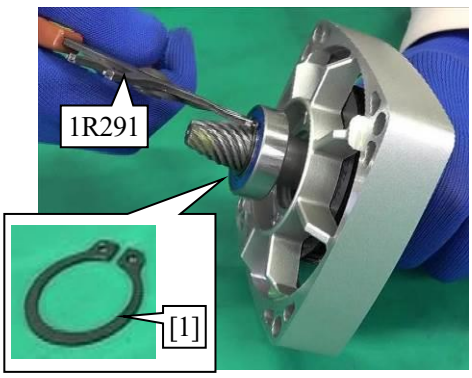


5 Press-fit Ball bearings to the front and rear of Rotor [2] with 1R038.

- Ball bearing 607LLB [1]
- Rotor [2]
- Motor bracket [3]
- Ball bearing 6003DDW

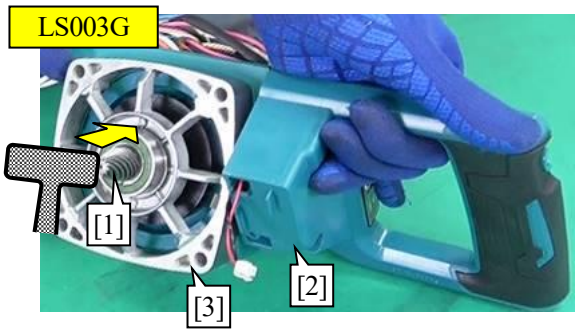
Tips
Press-fit Ball bearing 607LLB to the bottom with 1R462-17.
Note
The orientation of Motor bracket [3] matters.

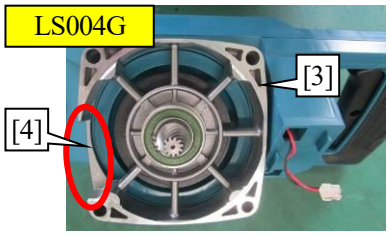
Fig. 24



6 Assemble Retaining ring S-17 [1] with 1R291.

Fig. 25



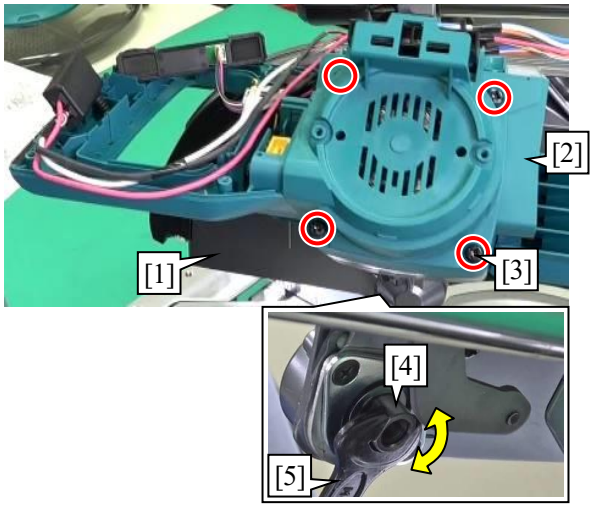


7 Insert Rotor [1]. As for Model LS003G, the orientation of its Motor bracket [3] does not matter.

8 Insert Rotor [1] into the bottom of Motor housing [2] by tapping the end of Rotor [1] with a plastic hammer.

Note
・ Do not pinch your fingers between Motor housing [2] and Rotor [1] because Rotor [1] has strong magnetic force. ・ Do not push Motor bracket [3] because Fan will be pushed and broken. ・ As for Model LS004G, the orientation of Motor bracket [3] matters. Therefore, assemble Motor bracket [3] with its notch as vent faced to the battery side.

Fig. 26

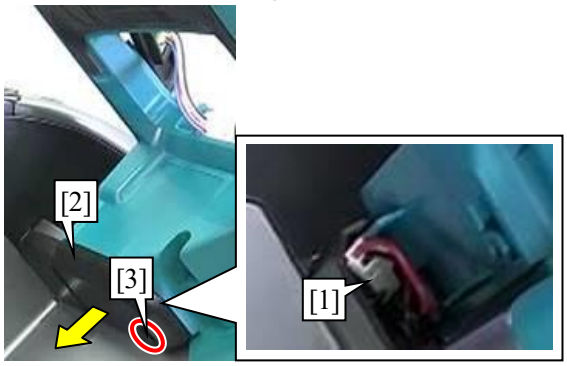


9 Hold the saw head at the lowest and the left tilting position.

10 Assemble Motor housing [2] to Blade case [1], then tighten Pan head screws M6x80 [3] (4 pcs) with a No.3 Phillips screwdriver.

Tips
If Gear do not engage and do not fit each other, turn Spindle [4] with a wrench or the like [5] to engage them.

Fig. 27

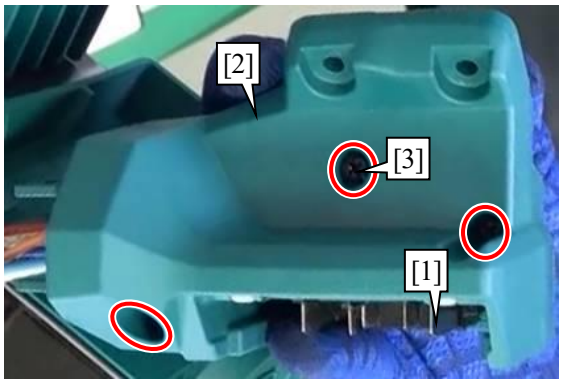


11 Hold the saw head at the top dead center.

12 Connect Connector [1] of Laser, then assemble Lead cover holder [2] with Tapping screw 4x18 [3].

Note
Be careful not to pinch Lead wires.

Fig. 28



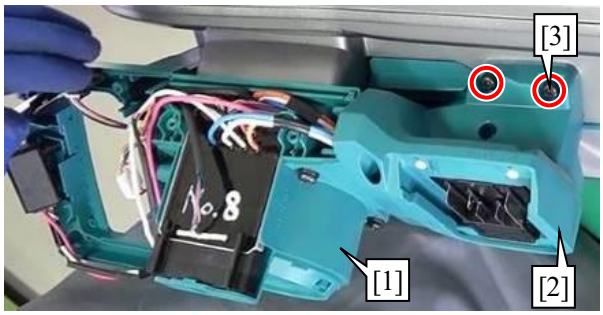
13 Return the tilt of the saw head and hold it at the lowest point.

14 Connect Receptacles to Terminal unit [1] by reversing the disassembling procedure.

15 Assemble Terminal unit [1] to Battery housing [2].

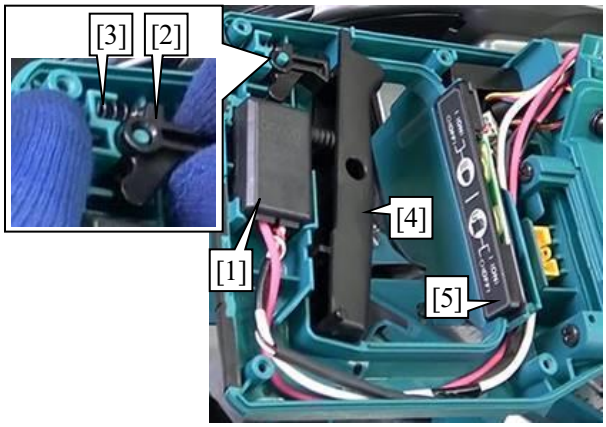
16 Tighten Tapping screws 4x18 [3] (3 pcs) to Battery housing [2].

Fig. 29



17 Assemble Battery housing [2] to Motor housing section [1] with Pan head screws M5x20 [3] (2 pcs) for LS003G/ Pan head screws M5x25 [3] (2 pcs) for LS004G.

Fig. 30



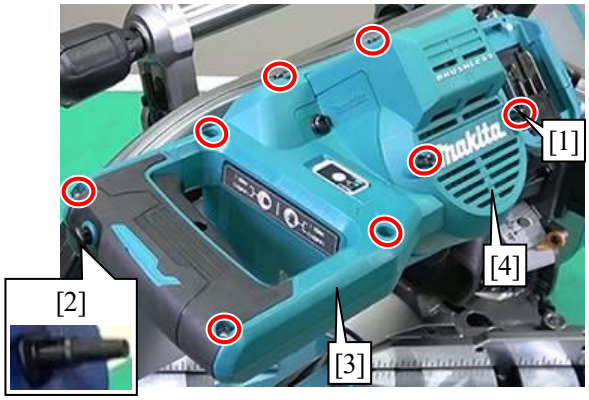
18 Connect Connector and Lead wires to Switch [1].

19 Assemble Lock off lever [2], Compression spring 4 [3] and Switch lever [4].

20 Assemble Switch plate [5].

Note
Be careful not to come off Lead wires or put them in front of Rib.

Fig. 31

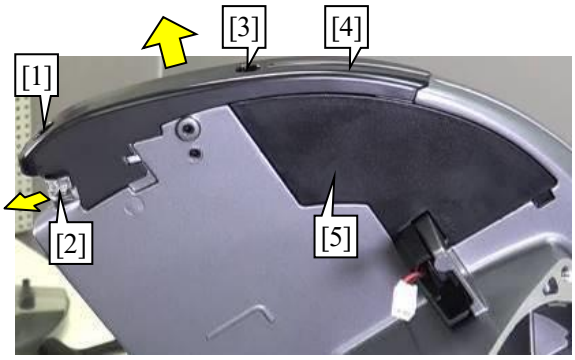


21 Assemble the following parts with Tapping screws 4x18 [1] (8 pcs):

- Switch button [2]
- Handle cover [3]
- Rear cover [4]

6-4 LED section
6-4-1 Disassembling

Fig. 32

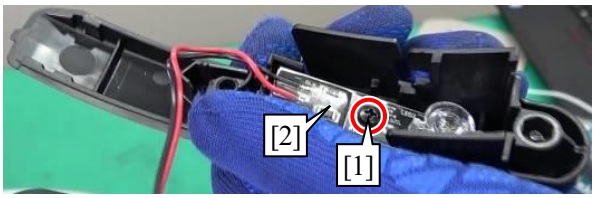


22 Loosen Tapping screw CT 4x16 [1], then remove Lens [2].

23 Remove Tapping screw CT 4x16 [3], then remove LED cover [4] and Lead cover [5].

Tips
Remove LED cover [4] by releasing its tabs with a slotted screwdriver.

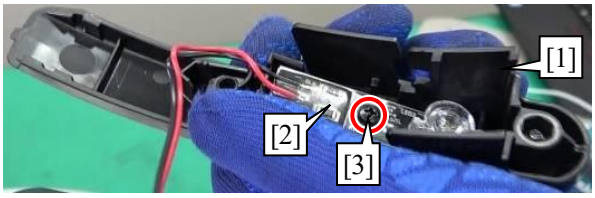
Fig. 33



24 Remove Tapping screw 3x10 [1], then remove LED circuit [2].

6-4-2 Assembling

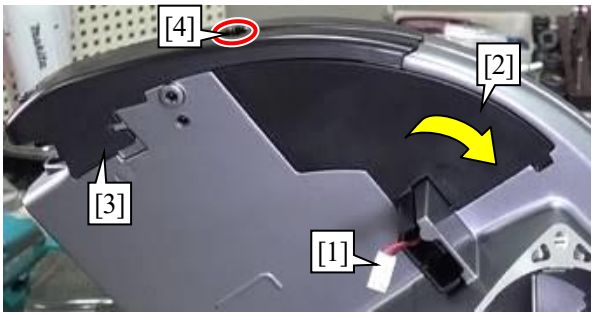
Fig. 34



1 Assemble LED circuit [2] to LED cover [1] with Tapping screw 3x10 [3].

Tips
When reassembling LED circuit [2], wipe the lens.

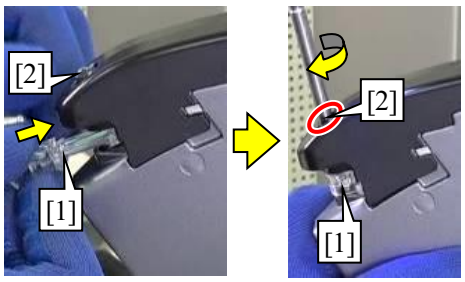
Fig. 35



2 Assemble Lead cover [2] with care of the position of Lead wires [1].

3 Cover LED cover [3] so that the tabs of Lead cover [2] can be fit, then tighten Tapping screw CT 4x16 [4] to the one place on the upper side of LED cover [3].

Fig. 36



4 Insert Lens [1], then tighten Tapping screw CT 4x16 [2].

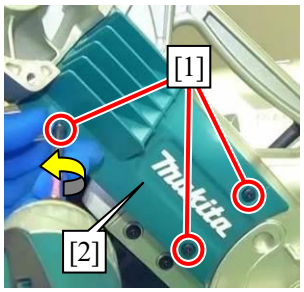
Note
The orientation of Lens [1] matters.

6-5 Gear section
6-5-1 Disassembling

1 Proceed with disassembly until Rotor is removed. (6-3-1)

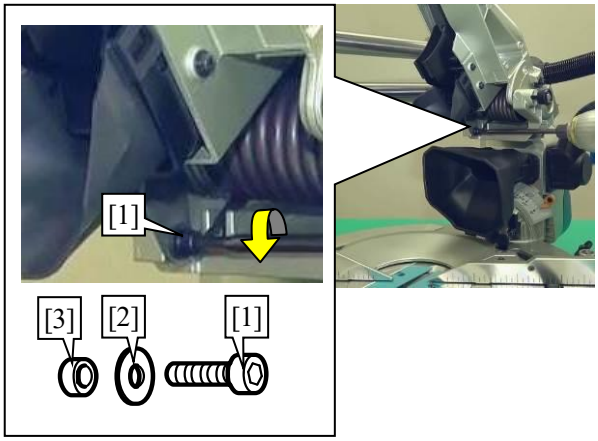
Note
Pull out Rotor first, or Gear cannot be pulled out because it is hooked with Rotor.

Fig. 37



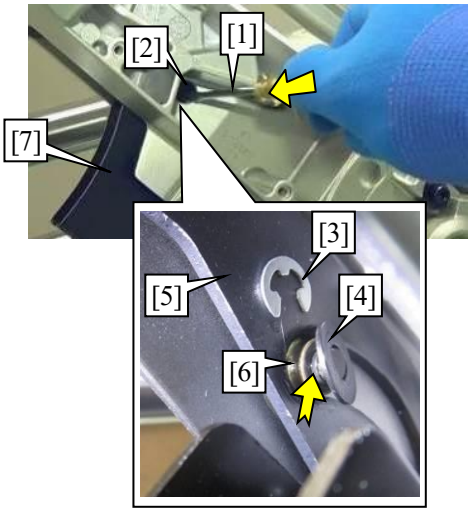
2 Remove Tapping screws CT4x16 [1] (3 pcs), then remove Logo plate [2].

Fig. 38



3 Remove Hex socket head bolt M6x20 [1], then remove Flat washer 6 [2] and Ring 6 [3].

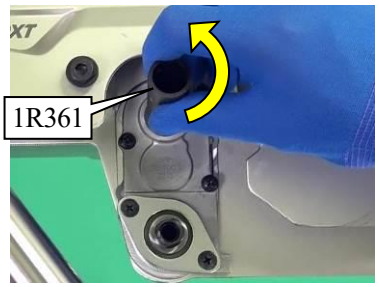
Fig. 39



4 Remove Stop ring E-5 [3] by inserting a thin slotted screwdriver [1] through the hole of Blade case [2], then remove Flat washer 6 [4], Link plate [5] and Ring 6 [6].

Tips
If it is difficult to remove Link plate [5], remove Guard holder [7].

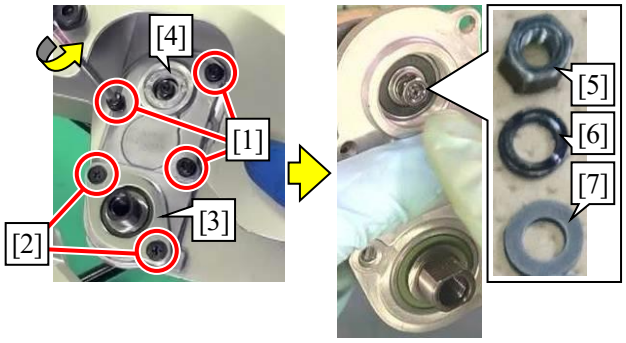
Fig. 40



5 Loosen Bearing retainer 14-23 with 1R361.

Tips
It is recommended to tilt the saw head 45 degrees to the right to prevent the grease from falling out.

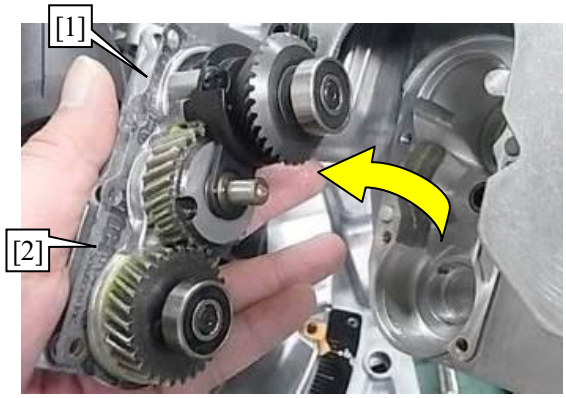
Fig. 41



6 Remove Pan head screws M5x16 [1] (3 pcs) and + Countersunk head screws M5x16 [2] (2 pcs), then remove Bearing retainer 51 [3].

7 Remove Bearing retainer 14-23 [4]. Hold the flats of Helical gear 14 with an adjustable wrench, then remove Hex nut M5 [5] with Socket bit 8, and then remove Spring washer 5 [6] and Flat washer 5 [7].

Fig. 42

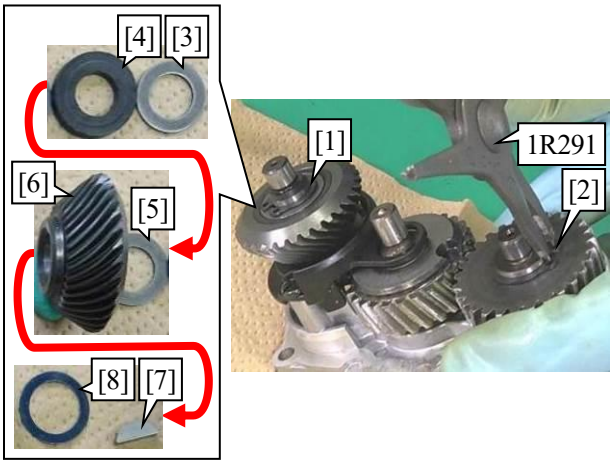


8 Pry up and remove Bearing box section [1] with a slotted screwdriver, then remove Gasket [2].

Fig. 43

9 Remove Ball bearings 608DDW [1] (2 pcs) with 1R269.

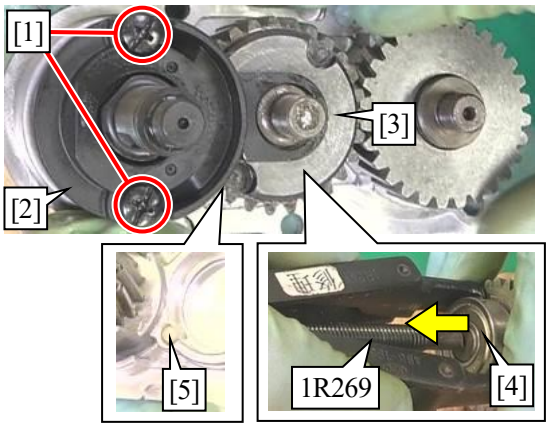
Fig. 44



10 Remove Retaining rings S-12 [1] and S-15 [2] with 1R291, then remove the following parts:

- Flat washer 12 [3]
- Rubber washer 12 [4]
- Flat washer 12 [5]
- Spiral bevel gear 32 [6]
- Woodruff key 4 [7]
- Thin washer 14 [8]

Fig. 45



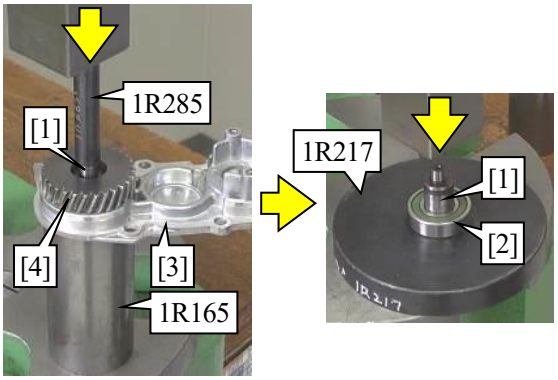
11 Remove Tapping screws bind CT 4x12 [1] (2 pcs), then remove Grease holder [2] and Helical gear 27 [3]. And then remove Ball bearing 608DDW [4] with 1R269.

Tips
Be careful not to lose Rubber pin 4 [5].

Fig. 46

12 Pull out Helical gear 14 [1] with 1R401, then push out Ball bearing 608DDW from Bearing box [2] by hand.

Fig. 47



13 Support Bearing box complete [3] with 1R165, then remove Spindle [1] by pressing it with 1R285 and Arbor press. And then remove Ball bearing 6002DDW [2] from Spindle [1] by pressing Spindle [1] with 1R217 and an arbor press.

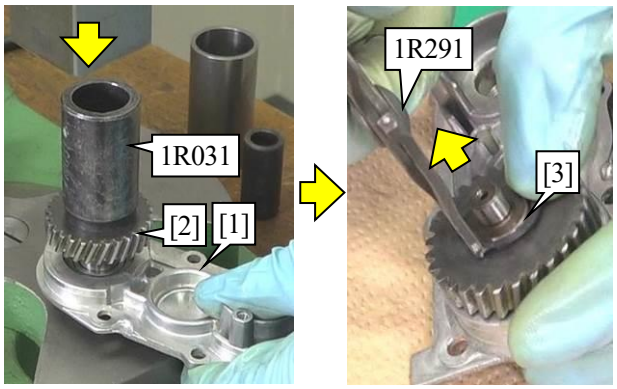
Note
Support Bearing box [3] and Helical gear 28 [4] with your hand to prevent them from falling, then push out Spindle.

6-5-2 Assembling

Fig. 48

1 Press-fit Ball bearing 6002DDW [2] to Spindle [1] with 1R029.

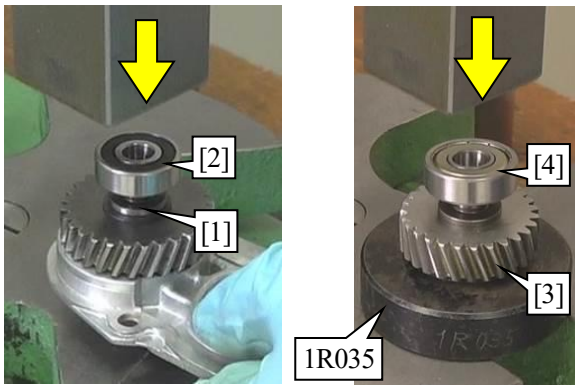
Fig. 49



2 Insert Spindle into Bearing box [1], then press-fit Helical gear 28 [2] with 1R031. And then assemble Retaining ring S-15 [3] with 1R291.

Note
Press-fit the convex side of Helical gear 28 [2] to Bearing box [1].

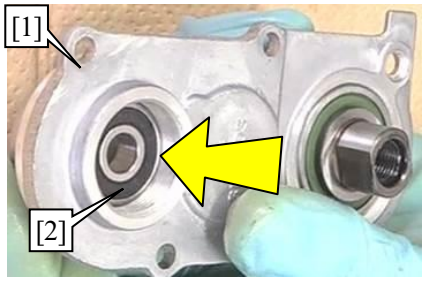
Fig. 50



3 Press-fit Ball bearing 608DDW [2] to Spindle [1]. Place Gear shaft on 1R035, then press-fit Helical gear 27 [3] and Ball bearing 6000ZZ [4].

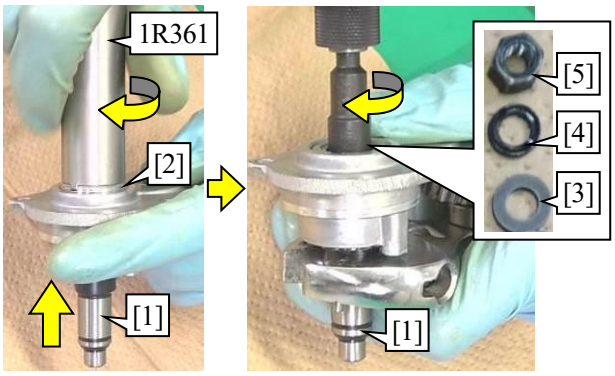
Tips
・ Press-fit Ball bearing 608DDW [2] to the bottom with 1R463-07 and Ball bearing 6000ZZ [4] with 1R463-10. ・ Apply the specified grease into the hole at the end of Gear shaft, then attach Steel balls 4.

Fig. 51



4 Insert Ball bearing 608DDW [2] into Bearing box [1].

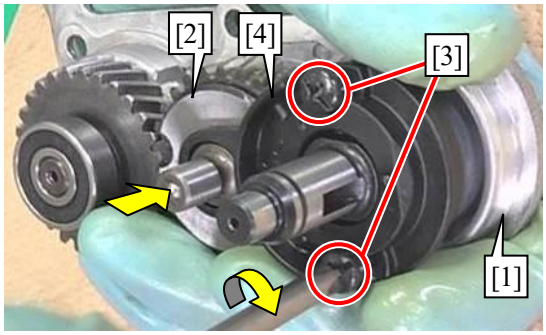
Fig. 52



5 Insert Helical gear 14 [1] into Ball bearing 608DDW, then manually tighten Bearing retainer 14-23 [2] with 1R361. Assemble Flat washer 5 [3] and Spring washer 5 [4], then hold the flats of Helical gear 14 [1] with an adjustable wrench, and then tighten Hex nut M5 [5] with a socket bit 8.

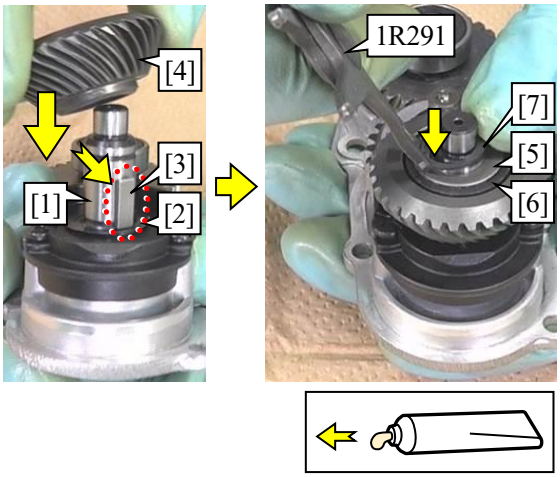
Tips
Final tightening of Bearing retainer 14-23 [2] is easier after assembling Bearing box to Blade case.

Fig. 53



6 Insert Helical gear 27 [2] into Bearing box [1], then fix Grease holder [4] with Tapping screws CT4x12 [3] (2 pcs).

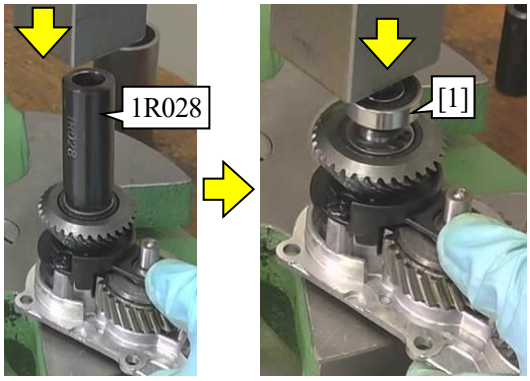
Fig. 54



7 Assemble Thin washer 14 [2], Woodruff key 4 [3], Spiral bevel gear 32 [4] and Rubber washer 12 [6] sandwiched between Flat washers 12 [5] (2 pcs) to Helical gear 14 [1], then insert Retaining ring S-12 [7] partway with 1R291.

Note
・ Be sure to insert Thin washer 14 [2]. ・ Apply the specified grease to the key slot of Helical gear 14 [1].

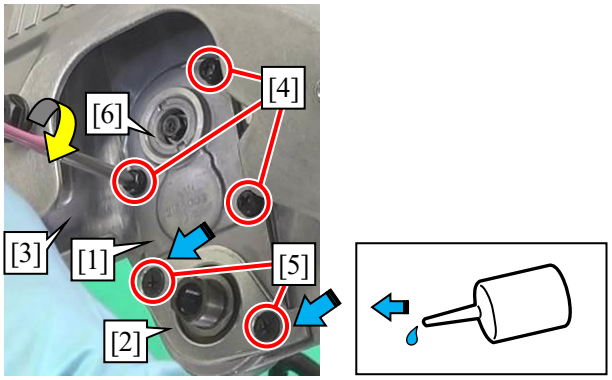
Fig. 55



8 Press-fit Retaining ring S-12 with 1R028 until the click sound can be heard. And then press-fit Ball bearing 608DDW [1].

Tips
Press-fit Ball bearing 608DDW [1] with 1R033 until it stops.

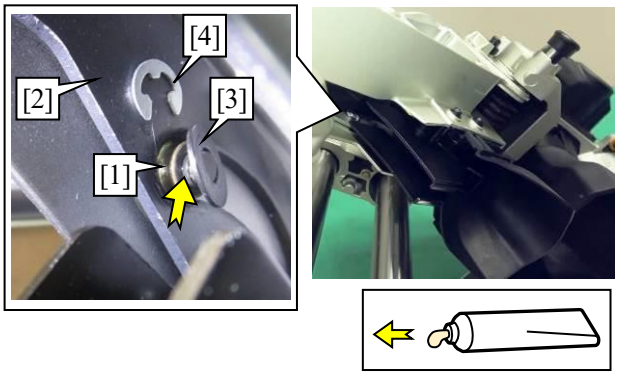
Fig. 56



9 Assemble Gasket, Bearing box [1] and Bearing retainer [2] to Blade case [3] with Pan head screws M5x16 [4] (3 pcs) and + Countersunk head screws M5x16 [5] (2 pcs). And then tighten Bearing retainer 14-23 [6] with 1R361.

Tips
・ Tilt the saw blade 45 degrees to the right to prevent the grease from falling out. ・ Apply Loctite 243 or ThreeBond 1342(H) to + Countersunk head screws M5x16 [5] (2 pcs) when tightening them.

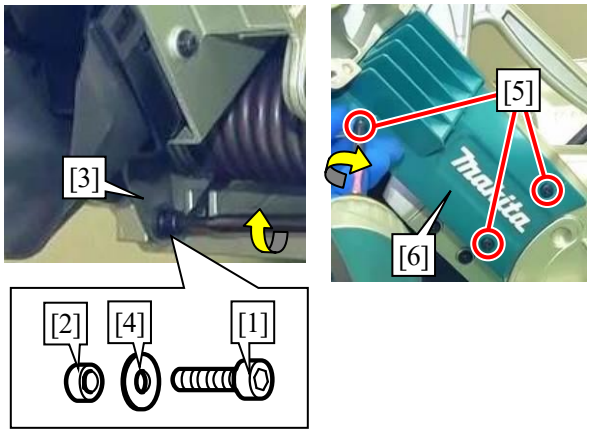
Fig. 57



10 Apply the specified grease to the inner circumference of Ring 6 [1], then assemble Link plate [2] and Flat washer 6 [3] with Stop ring E-5 [4].

Tips
Tilt the saw head 45 degrees left for easy installation.

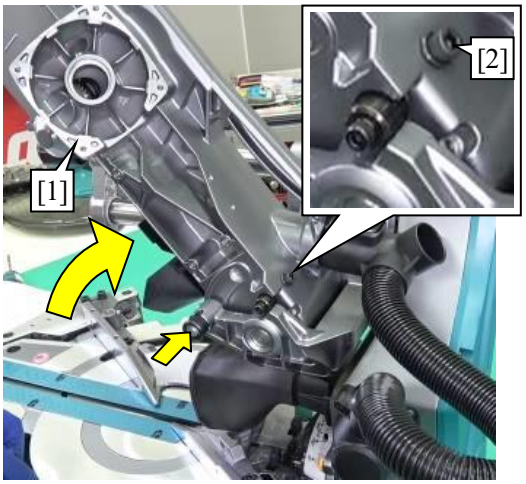
Fig. 58



11 Assemble Ring 6 [2], Link plate [3] and Flat washer 6 [4] with Hex socket head bolt M6x20 [1]. And then assemble Logo plate [6] with Tapping screws CT 4x16 [5] (3 pcs).

6-6 Blade case section
6-6-1 Disassembling

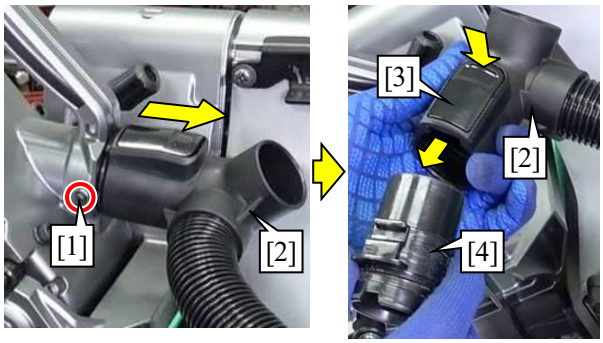
Fig. 59



1 While holding Blade case section [1] at a right angle, loosen H.S.H.bolt M6x16 [2] for LS003G/ Hex socket head bolt M6x20 [2] for LS004G for adjusting spring force of Torsion spring 40 for LS003G/ Torsion spring 45 for LS004G by about 10mm.

Note
・ Be sure to hold Blade case section [1] at the top dead center. ・ Once H.S.H.bolt M6x16 [2] for LS003G/ Hex socket head bolt M6x20 [2] for LS004G is pulled out, the screw threads of Blade case [1] will be broken due to the breakage of the threads of bolts. Therefore, do not remove H.S.H.bolt M6x16 [2]for LS003G/ Hex socket head bolt M6x20 [2] for LS004G.

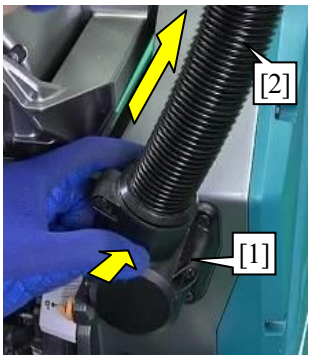
Fig. 60



2 Remove Pan head screw M4x14 [1], then remove Hose joint [2].

3 Push Button A [3] and remove Dust nozzle [4] from Hose joint [2].

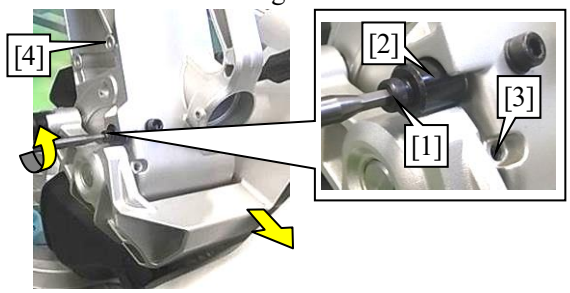
Fig. 61



4 Remove Hose 28-0.45 [2] from Hose connector [1].

Tips
While pressing the lock buttons on both sides of Hose connector [1], remove Hose 28-0.45 [2].

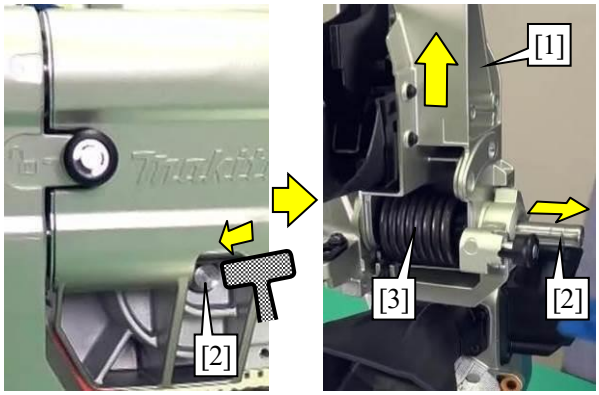
Fig. 62



5 Remove Hex socket head bolt M5x30 [1] for LS003G/ Hex socket head bolt M5x18 [1] for LS004G, then remove Sleeve 6 [2] for Top dead center stopper. And then loosen H.S.set screw (Flat point) M6x16 [3] by turning 2 or 3 times with Hex wrench.

Tips
Remove Hex socket head bolt M5x30 [1] by lowering Blade case section [4] slightly.

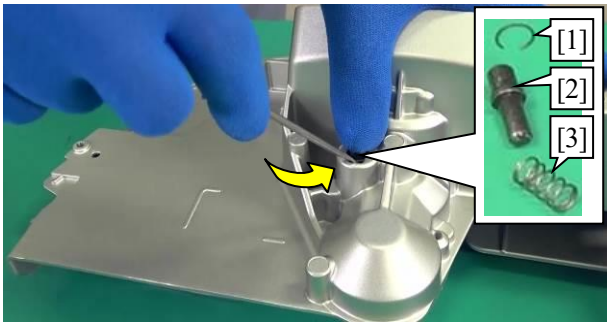
Fig. 63



6 Raise Blade case section [1] upright, then tap Rod 16 [2] from Slide pipe side with a box wrench or the like, and then pull it out from the opposite side by hand. Pull out Blade case [1] together with Torsion spring 40 [3] for LS003G/ Torsion spring 35 [3] for LS004G and Sleeves 17 (2 pcs) upward straightly.

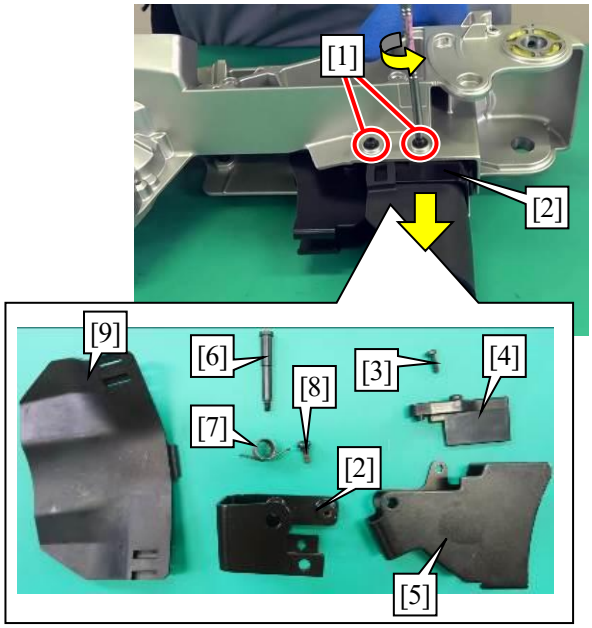
Note
Be careful that Torsion spring 40 [3] for LS003G/ Torsion spring 35 [3] for LS004G and Sleeves 17 (2 pcs) are likely to fall onto Base, so it is recommended to lay cardboard or the like on Base.

Fig. 64



7 Remove Ring spring 8 [1] with a slotted screwdriver, then remove Pin 6 [2] and Compression spring 7 [3].

Fig. 65

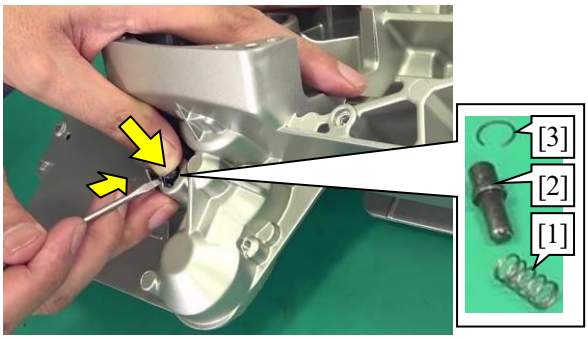


8 Remove Pan head screws 4x10 [1] (2 pcs), then remove Guard plate section [2]. And then remove the following parts from Guard plate section [2]:

- Tapping screw 4x12 [3]
- Dust guide plate [4]
- Guard plate [5]
- Shoulder hex bolt M4 [6]
- Torsion spring 11 [7]
- + Pan head screw M4x11 [8]
- Guard [9]

6-6-2 Assembling

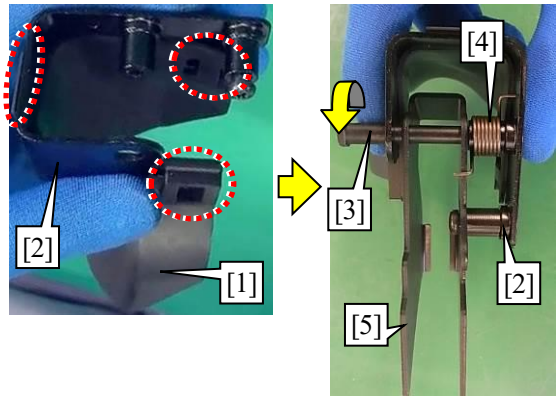
Fig. 66



1 Insert Compression spring 7 [1] and the longer side of Pin 6 [2] into Blade case, then assemble them with Ring spring 8 [3] by using a slotted screwdriver.

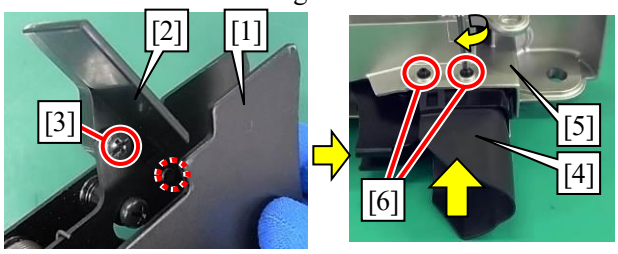
Tips
Be careful not to overlap the notch position of Ring spring 8 [3] with the groove for removing it.

Fig. 67



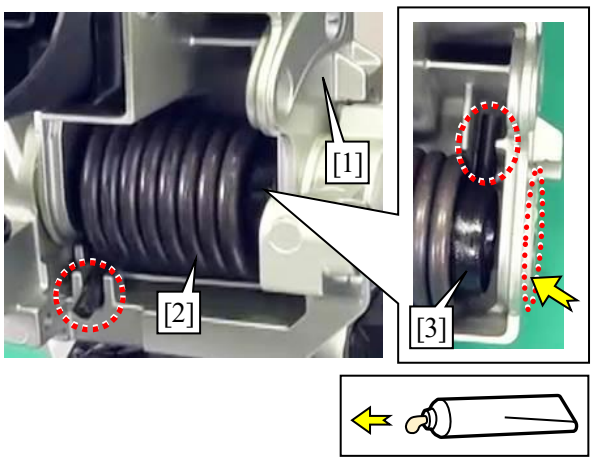
2 Pass Guard [1] through the groove and projection from the inside of Guard holder [2]. Tighten Shoulder hex bolt M4 [3], then assemble Torsion spring 11 [4] and Guard plate [5] to Guard holder [2].

Fig. 68



3 Insert the projection of Dust guide plate [2] into Guard plate [1], then tighten Tapping screws 4x12 [3], then insert the projections of the screw holes of Guard holder [4] into the holes of Blade case [5], and then tighten them with Pan head screws M4x10 with WR [6] (2 pcs).

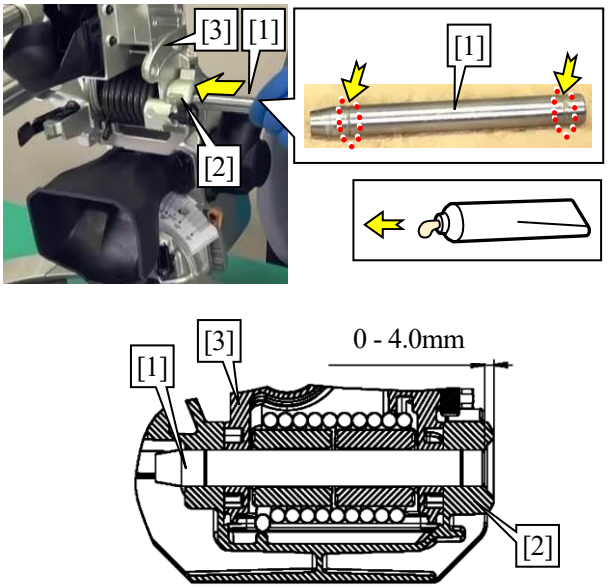
Fig. 69



4 Set Torsion spring 40 [2] for LS003G/ Torsion spring 35 [2] for LS004G and Sleeves 17 [3] (2 pcs) on Blade case [1], then apply the specified grease to the sliding surface, and then stand them upright to Front arm.

Note
Note the position of legs of Torsion spring 40 [2] or Torsion spring 35 [2].

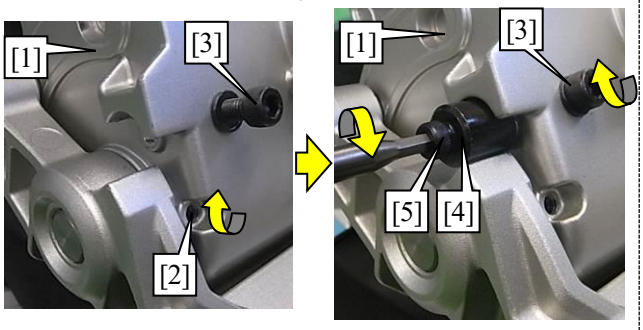
Fig. 70



5 Apply the specified grease to the grooves and outer surface of Rod 16 [1], then insert it a little, with the tapered end at the top, into Front arm [2]. And then, while aligning the hole of Blade case [3] with that of Front arm [2], insert Rod 16 [1] by hand until its rear end is positioned 0-4.0 mm inside the end face of Front arm [2].

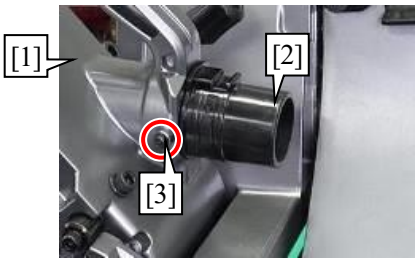
Tips
If there are burrs caused by Set screw on the outer surface of Rod 16 [1], remove them with a grinding stone or the like before inserting Rod 16 [1].

Fig. 71



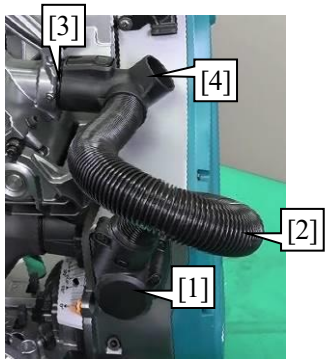
6 Lower Blade case section [1], then tighten H.S.set screw (Flat point) M6x16 [2]. Then fully tighten H.S.H.bolt M6x16 [3] for LS003G/ Hex socket head bolt M6x20 [3] for LS004G. And then tighten Sleeve 6 [4] and Hex socket head bolt M5x30 [5] for LS003G/ Hex socket head bolt M5x18 [5] for LS004G.

Fig. 72



7 Assemble Dust nozzle [2] to Blade case [1] with Pan head screw M4x14 [3].

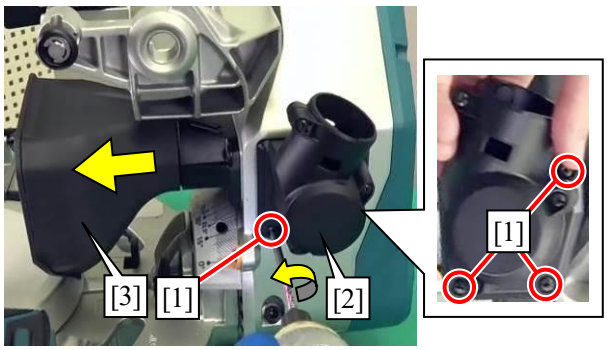
Fig. 73



8 Insert Hose 28-0.5 [2] into Hose connector [1], then assemble Hose joint [4] to Dust nozzle [3].

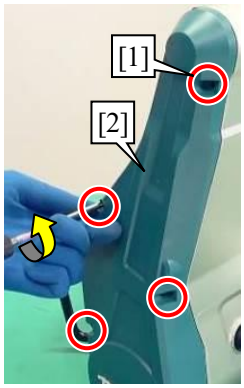
6-7 Front arm section
6-7-1 Disassembling

Fig. 74



1 Remove Dust nozzle [2] by removing Tapping screws CT 4x16 [1] (3 pcs). And then remove Dust guide [3].

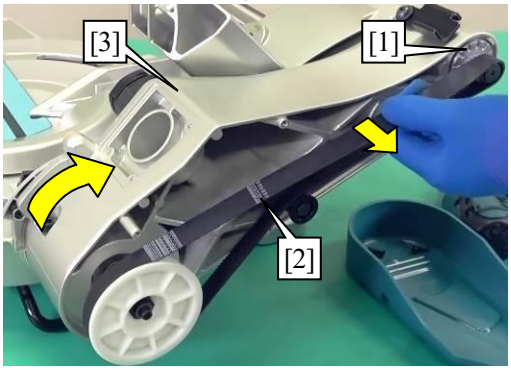
Fig. 75



2 Remove Tapping screws CT 4x16 [1] (4 pcs), then remove Arm cover [2].

Note
Be careful not to lose Compression spring 4 and Pin 4.

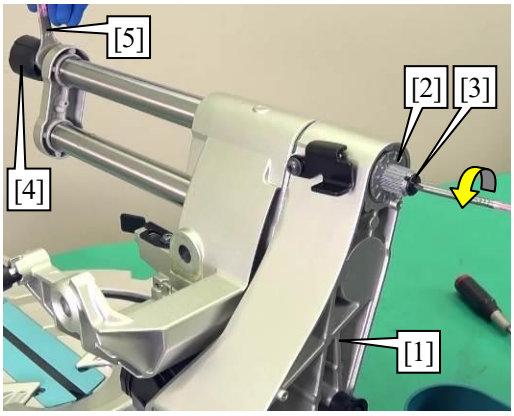
Fig. 76



3 Remove Synchro belt 15-810 [2] from Pulley 17-19.3 [1].

Tips
Synchro belt 15-810 [2] can be easily removed by turning Grip 50B.
Note
Tilt Arm [3] fully to the left before disassembling the parts. This is because the bevel lock is loose and Arm [3] falls unexpectedly.

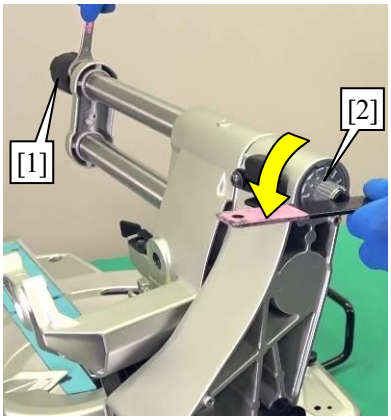
Fig. 77



4 Loosen Pulley 17-87.8 (left-handed), then return Arm [1] to the right angle position and hold it. And then remove + Flat head screw M5 [3] from Pulley 17-19.3 [2].

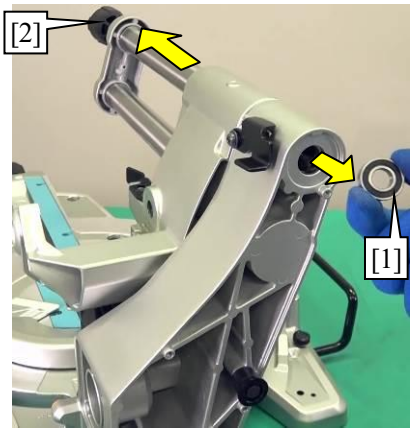
Note
Support Grip 50B [4] by hand or prevent it from rotating with Wrench 17 [5] as shown.

Fig. 78



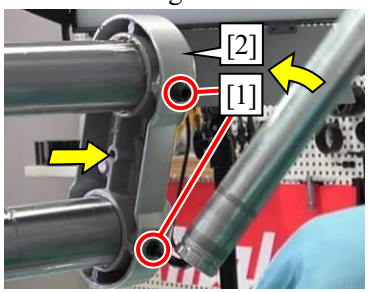
5 Lock the flats of Grip 50B [1] with Wrench 17, and then remove Pulley 17-19.3 [2] by turning it counterclockwise with a 3mm thick Lock nut wrench for Angle grinder or the like.

Fig. 79



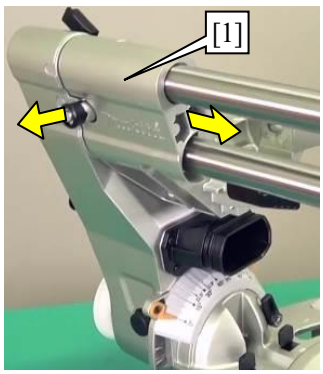
6 Push out Ball bearing 6900LLB [1] by pushing with the shaft of Grip 50B [2], then remove Grip 50B [2].

Fig. 80



7 Loosen Set screws M8x12 [1] (2 pcs) by turning them about three turns counterclockwise with a hex wrench and an appropriate steel pipe, and then remove Holder [2] by tapping the center portion straight with a plastic hammer as shown.

Fig. 81



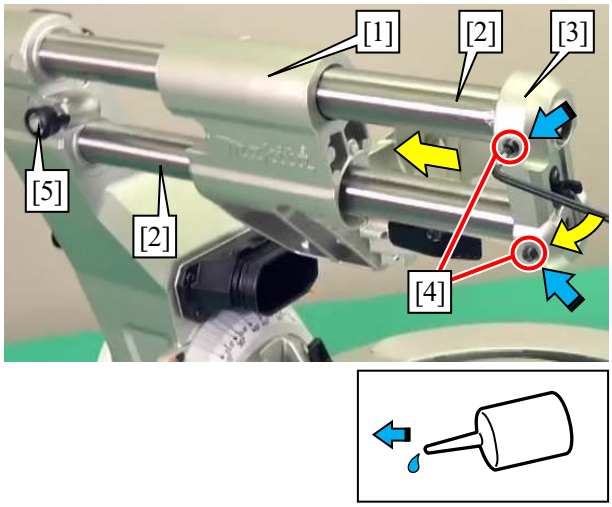
8 Unlock the slide lock by pulling and turning Knob 22 90 degrees, then remove Front arm [1] by pulling it as shown.

Note
Be careful not to tilt Front arm [1].

6-7-2 Assembling

1 Lock Arm section at 0 degrees bevel by turning Pulley 17-87.8 counterclockwise.

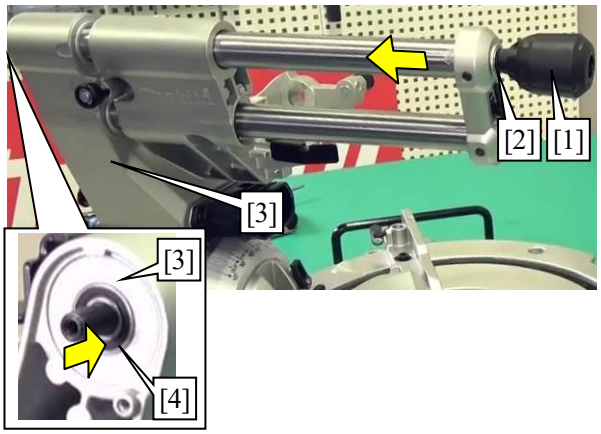
Fig. 82



2 Slide Front arm [1] onto Slide pipes [2]. Install Holder [3], then fasten it with Set screws M8x12 [4] (2 pcs).

Tips
・ Apply the specified lubricant to Felt rings 30 on the rear of Front arm [1] until they are soaked. ・ Check that Front arm [1] slides smoothly and Slide lock [5] is works properly.
Note
・ Be careful not to tilt Holder [3]. ・ Apply Loctite 243 or ThreeBond 1342(H) to the threads of Set screws M8x12 [4] (2 pcs).

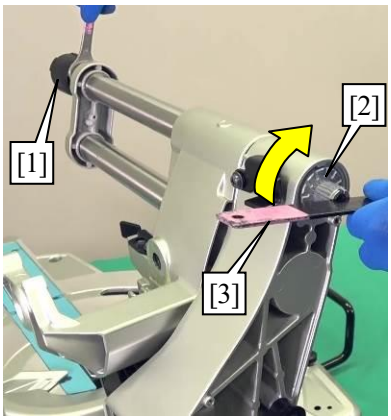
Fig. 83



3 Pass Wave washer 15 [2] through Grip 50B [1], then insert Grip 50B [1] in place. Insert Ball bearing 6900LLB [4] into Arm section [3].

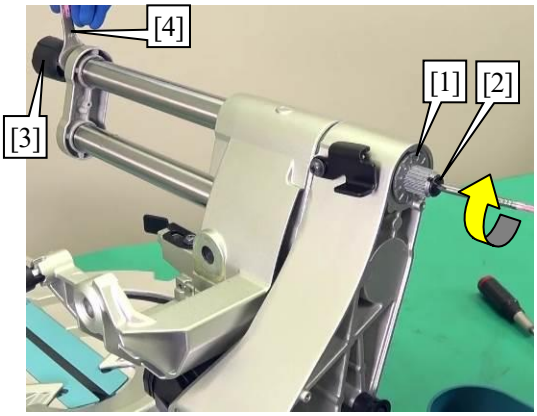
Tips
Pass Grip 50B [1] first, then insert Ball bearing 6900LLB [4]. Otherwise the bearing will be pushed out of place.

Fig. 84



4 Lock the flats of Grip 50B [1] with Wrench 17, then tighten Pulley 17-19.3 [2] by turning it clockwise with a 3mm thick Lock nut wrench for Angle grinder or the like [3].

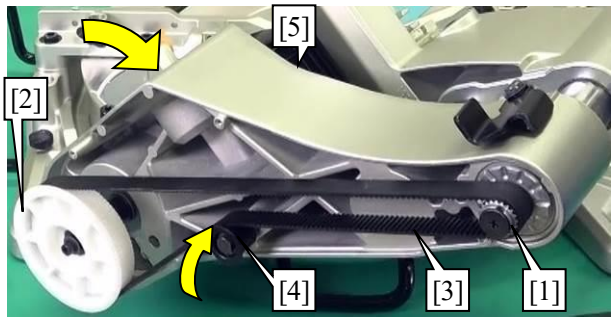
Fig. 85



5 Tighten + Flat head screw M5 [2] to Pulley 17-19.3 [1].

Tips
Support Grip 50B [3] by hand or prevent it from rotating with Wrench 17 [4].

Fig. 86

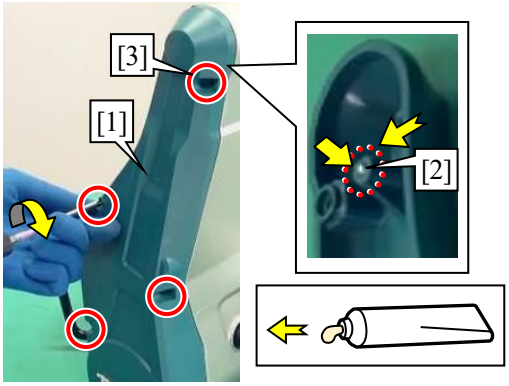


6 Fit Synchro belt 15-810 [3] to Pulley 17-19.3 [1] and Pulley 17-87.8 [2] first, then fit it to Sleeve 20 [4].

7 Be sure to pull Pulley 17-87.8 [2] fully toward you after assembling Synchro belt 15-810 [3].

Note
Assemble Arm [5] at an angle to the left fully because Tilt lock is loosened and Arm [5] falls unexpectedly.

Fig. 87



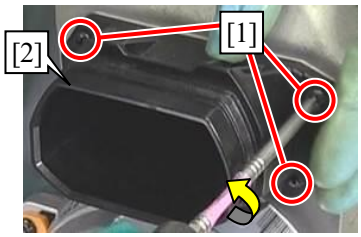
8 Assemble Compression spring 4 and Pin 4 (The orientation does not matter) [2] to Arm cover [1], then tighten them with Tapping screws CT 4x16 [3] (4 pcs).

Note
Apply the specified grease to Pin 4 [2] to prevent it from falling off.

6-8 Arm section

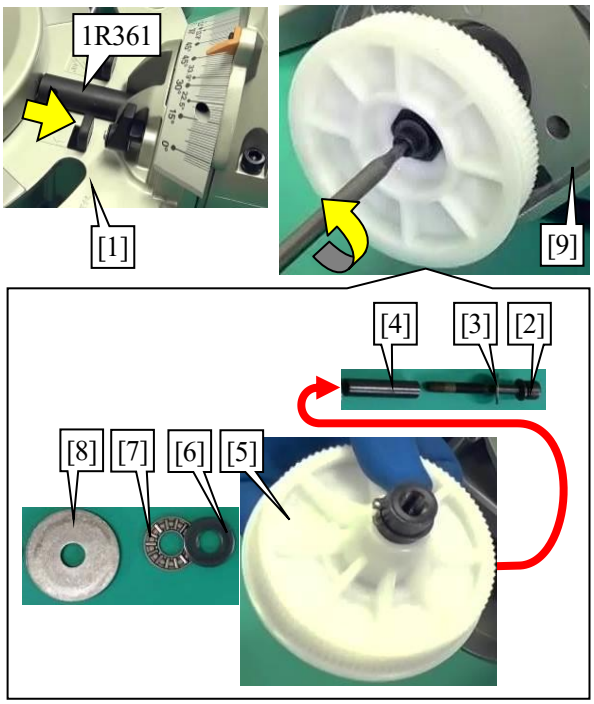
6-8-1 Disassembling

Fig. 88



1 Remove Tapping screws CT 4x16 [1] (4 pcs), then remove Dust guide [2].

Fig. 89



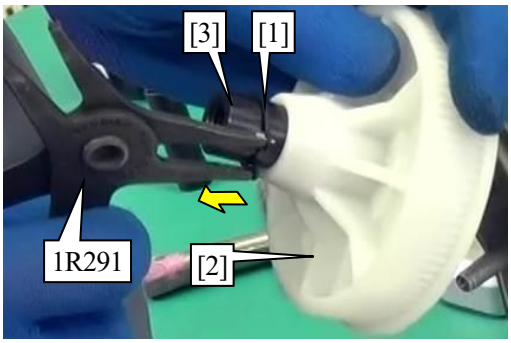
2 Insert 1R361 into Turn base [1] to prevent Center shaft from falling out.

3 Remove Hex socket head bolt M5x40 (LS003G) [2]/ M5x30 (LS004G) [2], then remove the following parts in order:

- Flat washer 5 [3]
- Sleeve 5 [4]
- Pulley 17-87.8 section [5]
- Flat washer 10 [6] (small outer diameter)
- Thrust needle cage 1024 [7]
- Flat washer 10 [8] (large outer diameter)

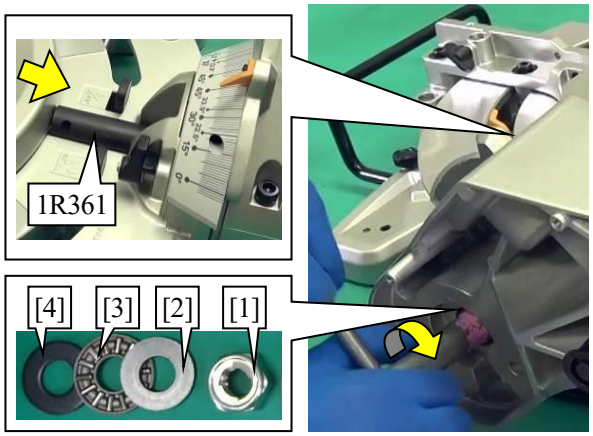
Tips
・ If Pulley 17-87.8 [5] is too tight to be loosened by hand, push Pulley 17-87.8 [5] fully and loosen it by turning it clockwise with a socket wrench 19. ・ Remove Flat washer 10 [8] (large outer diameter) by tilting Base.
Note
Disassemble the parts by tilting Arm [9] at an angle to the left fully so as to prevent it from falling unexpectedly.

Fig. 90



4 Remove Retaining ring S-17 [1] with 1R291 (LS003G only), then remove Hex nut M10-19 [3] from Pulley 17-87.8 [2].

Fig. 91

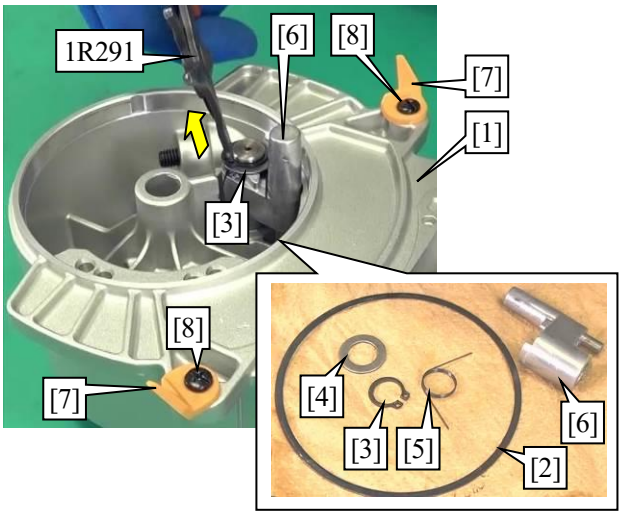


5 While pressing Center shaft with 1R361, remove Hex lock nut M10-17 (left-handed) [1] by turning it clockwise with a socket wrench 17.

6 Pull Center shaft forward, then remove the following parts in order:

- Flat washer 10 [2] (small outer diameter)
- Thrust needle cage 1024 [3]
- Flat washer 10 [4] (small outer diameter)

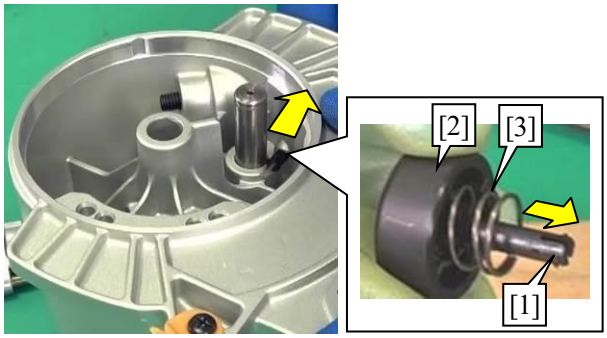
Fig. 92



7 Remove Arm [1] rearward, then remove Washer 94 [2]. Remove Retaining ring S-12 [3] with 1R291, then remove Flat washer 12 [4], Torsion spring 14 [5] and Stopper [6].

Note
・ Do not tilt Arm [1] when removing it. ・ Loosen Tapping screws bind CT 4x12 [8] (2 pcs) and turn Indication plates [7] (2 pcs) 90 degrees, or the plates will interfere with Arm.

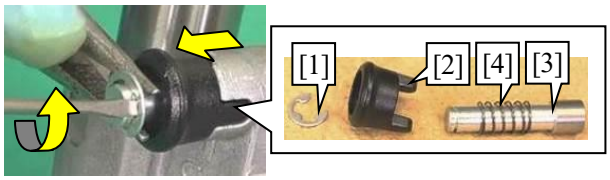
Fig. 93



8 While pinching and pushing Claws [1] with long-nose pliers, remove Release button [2] and Compression spring 12 [3].

Tips
Assemble Compression spring 12 [3] to Release button [2] firmly. After assembling, push Release button [2] and check the return action of Stopper with turning operation.

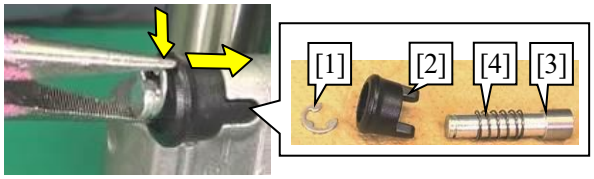
Fig. 94



9 Remove Stop ring E-7 [1] with long-nose pliers and a slotted screwdriver, then remove Knob 22 [2], Stopper pin [3] and Compression spring 10 [4].

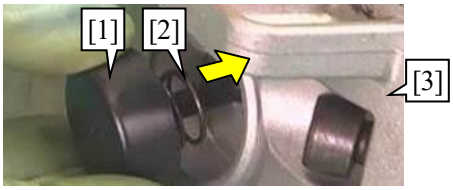
6-8-2 Assembling

Fig. 95



1 Assemble Stop ring E-7 [1] with long-nose pliers, then assemble Knob 22 [2], Stopper pin [3] and Compression spring 10 [4].

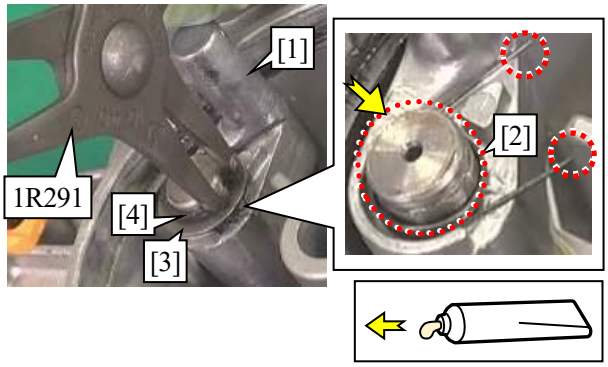
Fig. 96



2 Assemble Compression spring 12 [2] to Release button [1], then assemble them to Arm [3].

Note
If Compression spring 12 [2] is not firmly assembled, Stopper will out of order.

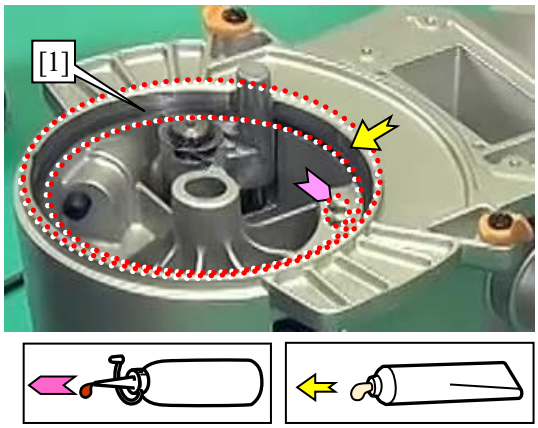
Fig. 97



3 Apply the specified grease to the pin of Arm, then pass Stopper [1], Torsion spring 14 [2] and Flat washer 12 [3], and then assemble Retaining ring S-12 [4] with 1R291.

Note
・ Note the position of legs of Torsion spring 14 [2]. ・ Check that Stopper [1] operates properly by pushing Release button.

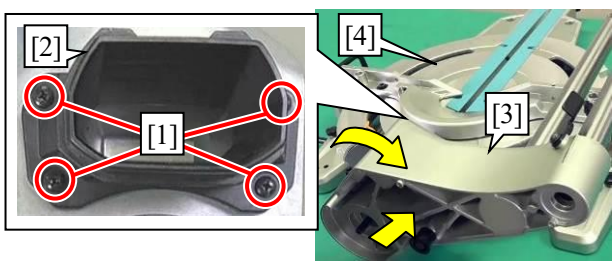
Fig. 98



4 Assemble Washers 94 [1], then apply grease and oil.

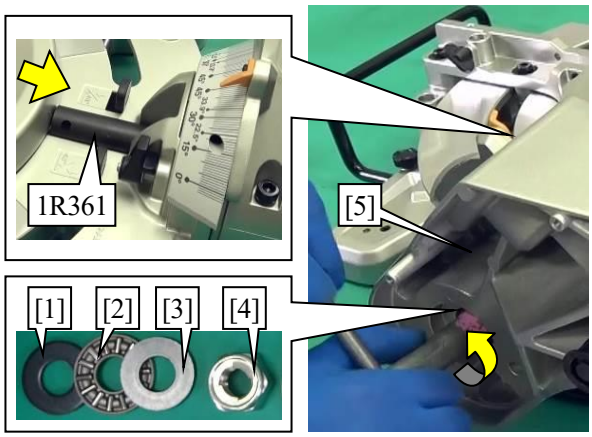
Note
・ Apply the specified grease to the rotating surface. ・ Apply the specified oil around the positive hole.

Fig. 99



5 Tighten Tapping screws CT 4x16 [1] (4 pcs) to assemble Dust guide [2]. Insert Arm section [3] to Turn base [4] and tilt it to the left.

Fig. 100



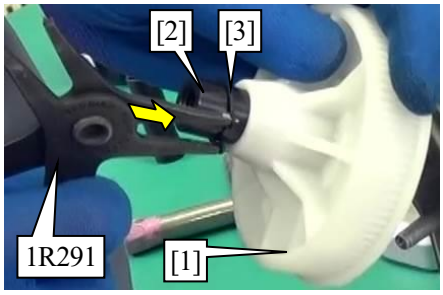
6 Insert Center shaft, then assemble the following parts in order with 1R361 so that they do not come off:

- Flat washer 10 [1] (small outer diameter)
- Thrust needle cage 1024 [2]
- Flat washer 10 [3] (small outer diameter)
- Hex lock nut M10-17 [4]

Tips
Be sure to release Positive lock of Tilting.

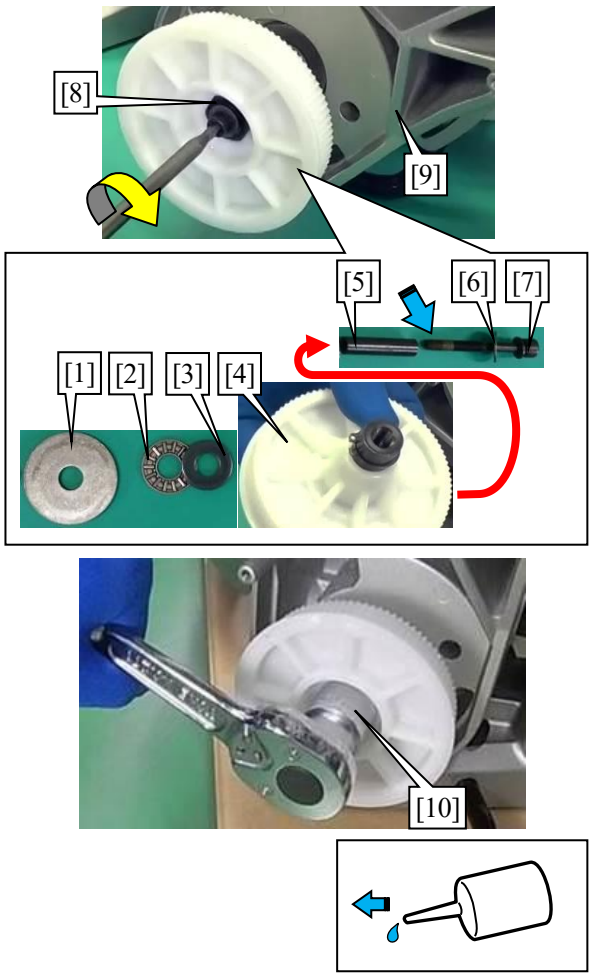
Note
Adjust Hex lock nut M10-17 [4] so that you can tilt Arm [5] smoothly, but with resistance a little, and without looseness.

Fig. 101



7 Pass Hex nut M10-19 [2] through Pulley 17-87.8 [1], then assemble Retaining ring S-17 (LS003G only) [3] with 1R291.

Fig. 102



8 Assemble the following parts in order:

- Flat washer 10 [1] (large outer diameter)
- Thrust needle cage 1024 [2]
- Flat washer 10 [3] (small outer diameter)
- Pulley 17-87.8 section [4]
- Sleeve 5 [5]
- Flat washer 5 [6]
- Hex socket head bolt M5x40 (LS003G) [7]/ M5x30 (LS004G) [7]

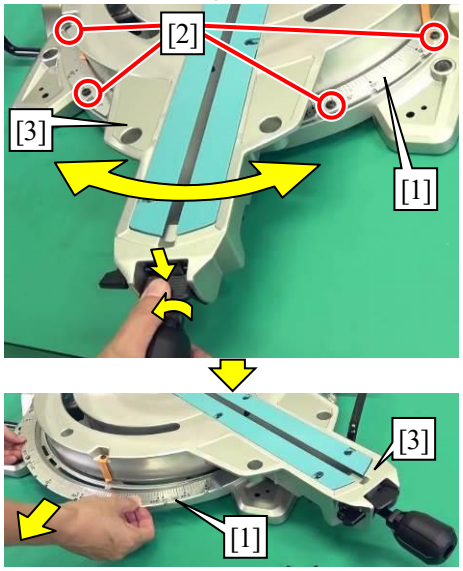
Tips
Pulley 17-87.8 [4] can move back and forth. To fix Arm [9], set the pulley to the back and tighten Hex nut M10-19 [8] with a socket 19 [10].

Note
・ Assemble the parts by tilting Arm [9] at an angle to the left fully so that Arm [9] does not fall unexpectedly. ・ Apply Loctite 243 or ThreeBond 1342(H) to the threads of Hex socket head bolt M5x40 (LS003G) [7]/M5x30 (LS004G) [7].

6-9 Base, Turn base section

6-9-1 Disassembling

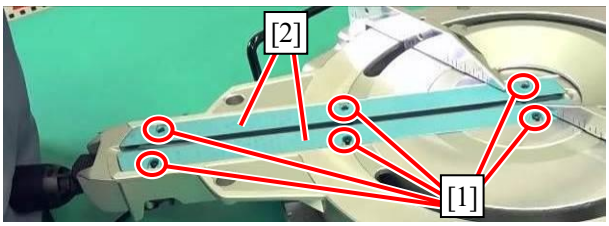
Fig. 103



1 Remove + Pan head screws M5 [2] (4 pcs) that fasten Miter scale plate [1]. Release the miter lock, then rotate Turn base [3] fully left or right, and then remove Miter scale plate [1] together with Miter lock plate by sliding them sideways towards you.

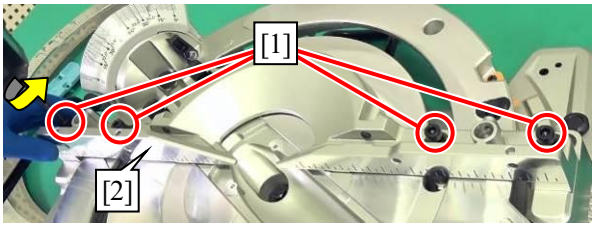
Tips
Once + Pan head screws M5 [2] (4 pcs) are removed, Miter scale plate [1] can be removed together with Turn base [3], with the miter lock unreleased. This approach will be a shortcut if you are going to do only lubrication or cleaning,

Fig. 104



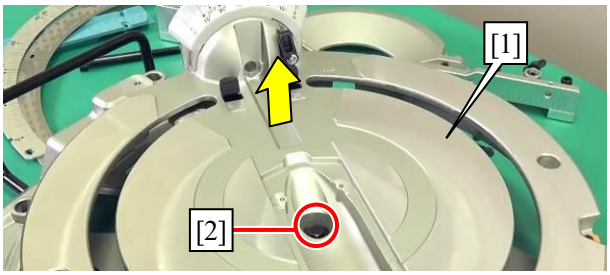
2 Rotate Turn base left or right, then remove Kerf boards [2] (2 pcs) by removing Tapping screws bind CT 4x12 [1] (LS003G/ 6 pcs, LS004G/ 4 pcs).

Fig. 105



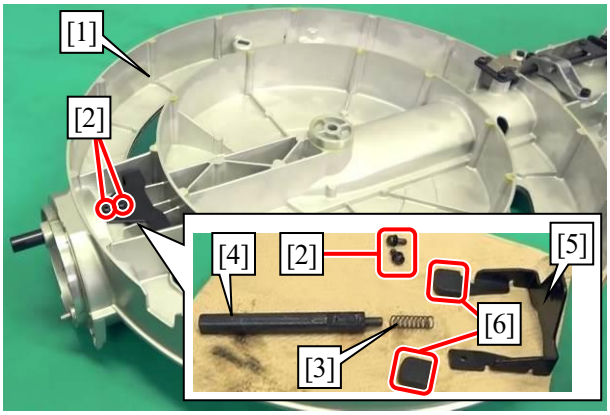
3 Remove H.S.H.bolt M8x35 with WR [1] (4 pcs), then remove Guide fence [2].

Fig. 106



4 Remove Hex bolt M8x40 [2] from the center of Turn base [1], then lift up and remove Turn base [1].

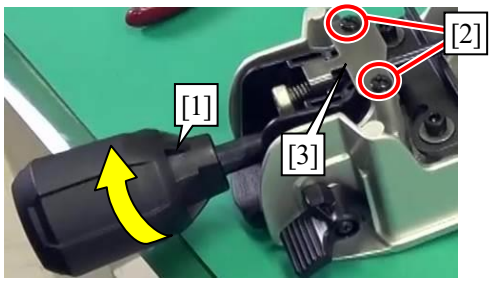
Fig. 107



5 Remove Slide plate. Turn over Turn base [1] and disassemble it into the following parts:

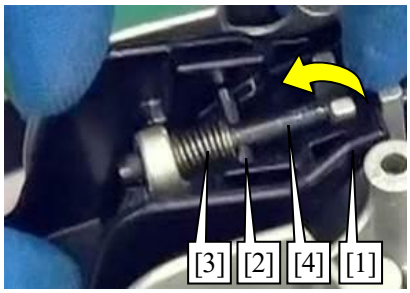
- Pan head screws M4x10 with WR [2] (2 pcs)
- Compression spring 6 [3]
- Rod 12 [4]
- Lever plate [5]
- Caps [6] (2 pcs)

Fig. 108



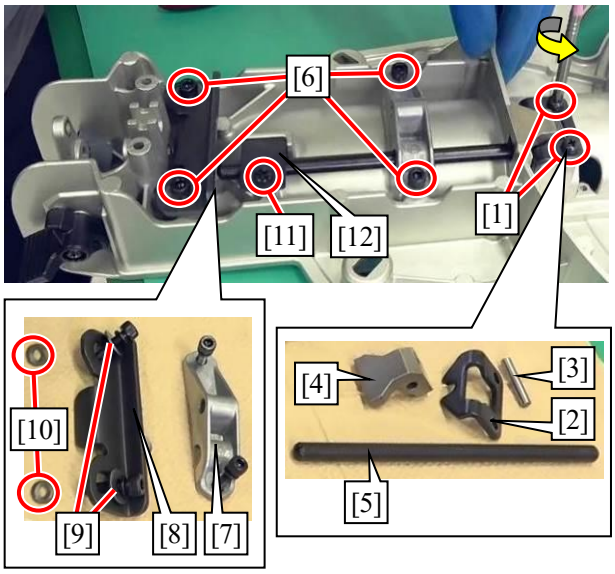
6 Remove Grip 50A [1]. Remove Tapping screws bind CT 4x12 [2] (2 pcs), then remove Lock lever plate [3].

Fig. 109



7 Pry up and remove Lock lever [1] with a slotted screwdriver. Remove Pin 3 [2], then remove Compression spring 6 [3] and Lock pin 6 [4].

Fig. 110



8 Remove Pan head screws M5x20 [1] (2 pcs), then remove the following parts:

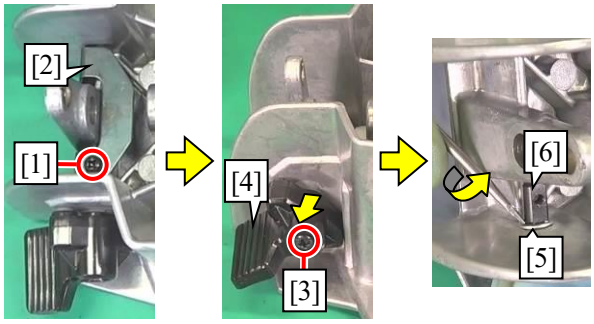
- Stopper holder [2]
- Pin 5 [3]
- Turn stopper [4]
- Lock rod [5]

9 Remove Hex socket head bolts M5x20 [6] (4 pcs), then remove the following parts:

- Pin holder [7]
- Lock plate [8]
- Flat washers 5 [9] (2 pcs)
- Rings 5 [10] (2 pcs)

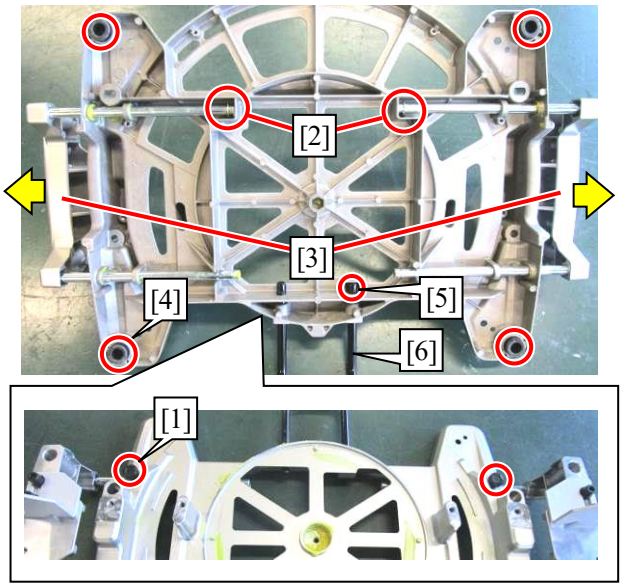
10 (LS003G only) Remove Tapping screw bind CT 4x12 [11] and Leaf spring [12].

Fig. 111



11 Remove Pan head screw M3x8 [1], then remove Cam plate [2]. Remove Pan head screw M4x10 with WR [3], then remove Lever 25 [4]. Remove Stop ring E-4 [5] with a slotted screwdriver, then remove Rod 6 [6].

Fig. 112

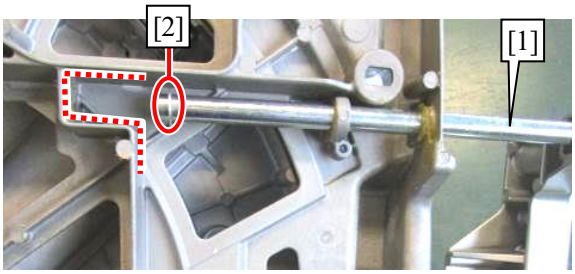


12 Loosen Screws M5x16 [1] (2 pcs), then remove Stop rings E-9 [2] (2 pcs) with a slotted screwdriver, and then remove Sub base section [3] (LS003G)/ Holders 200 [3] (LS004G, 2 pcs). Remove Tapping screws bind CT 4x12 (4 pcs), then remove Foots [4] (4 pcs).

13 (LS003G only) Remove H.S.set screw (Flat point) M5x12 [5], then remove Holder 90 [6].

6-9-2 Assembling

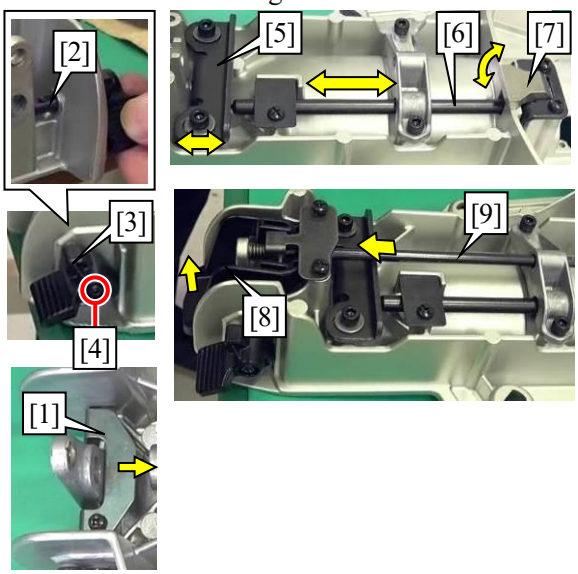
Fig. 113



14 Install Foots (4 pcs) and Sub base sections [1] (2 pcs) by reversing the disassembling procedure.

Tips
Note the installation positions of Stop rings E-9 [2] (2 pcs).

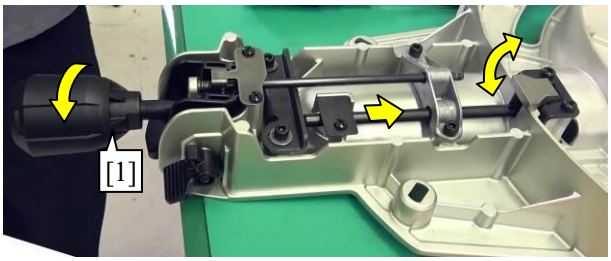
Fig. 114



15 Install Miter locking section by reversing the disassembling procedure.

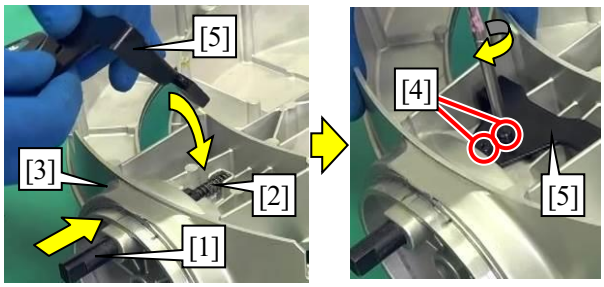
Tips
Put Cam plate [1] to the center of Turn base to the full, then fasten it to Rod 6 [2].
Note
・ Place Rod 6 [2] with the flat surface up, then install Lever 25 [3] on the rod so that the lever end is positioned as shown, and then fasten them with Pan head screw M4x10 with WR [4]. ・ Check that Lock plate [5], Lock rod [6] and Turn stopper [7] move properly. ・ Check that Lock pin 6 [9] moves when pulling Lock lever [8].

Fig. 115



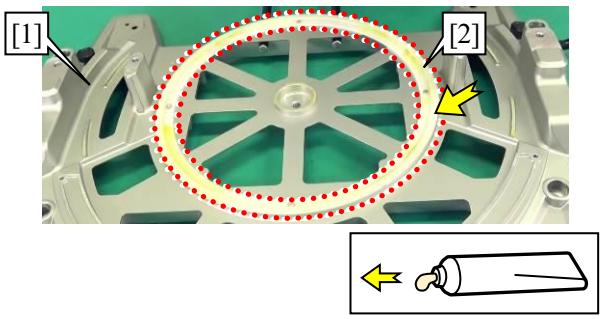
16 Make sure that Miter lock plate can be clamped and locked by turning Grip 50A [1].

Fig. 116



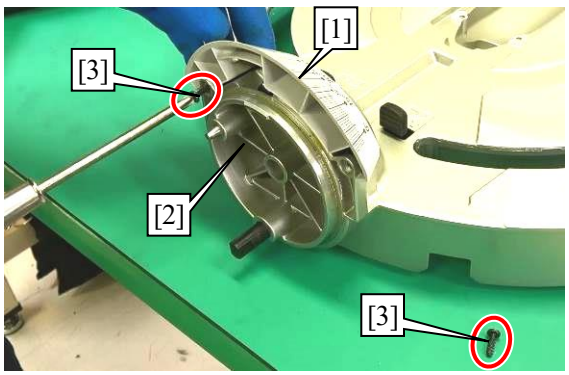
17 Insert Compression spring 6 [2] to Rod 12 [1], then insert it onto Turn base [3] with the flat surface faced upward. Assemble Lever plate [5] with Pan head screws M4x10 with WR [4] (2 pcs).

Fig. 117



18 Assemble Slide plate [2] to Base [1], then apply the specified grease to Slide plate [2] and Turn base.

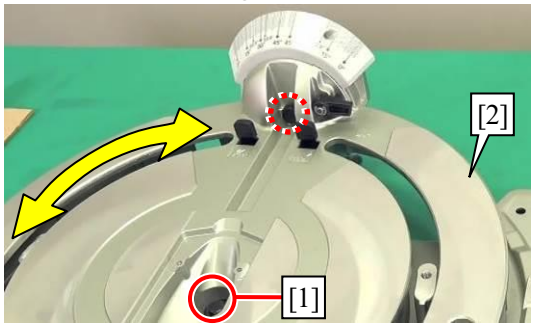
Fig. 118



< LS003G only>

19 When assembling Bevel scale plate [1] to Turn base complete [2], first tighten the left Tapping screw 4x14 [3], then prevent Bevel scale plate [1] from rising up.

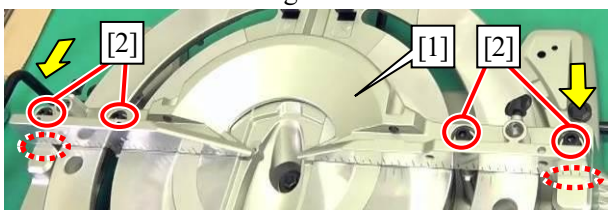
Fig. 119



20 Tighten Hex bolt M8x40 [1] to adjust Turn base [2] so that it can turn smoothly.

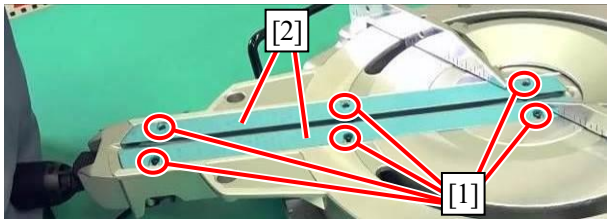
Tips
Insert Center shaft.

Fig. 120



21 Tighten H.S.H.bolt M8x35 with WR [2] (4 pcs) to fix Guide fence [1] to the position fully toward you.

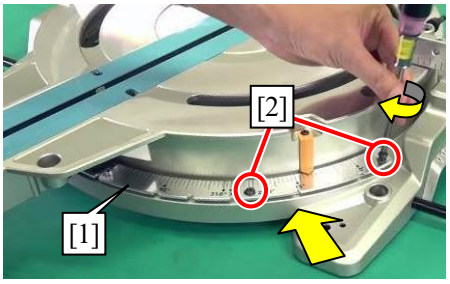
Fig. 121



22 Rotate Turn base section fully left or right, then fasten Kerf boards [2] (2 pcs) with Tapping screws bind CT 4x12 [1] (6 pcs/ LS003G, 4 pcs/ LS004G).

Note
Be sure to place and fasten Kerf boards [2] (2 pcs) as far away from each other as possible.

Fig. 122

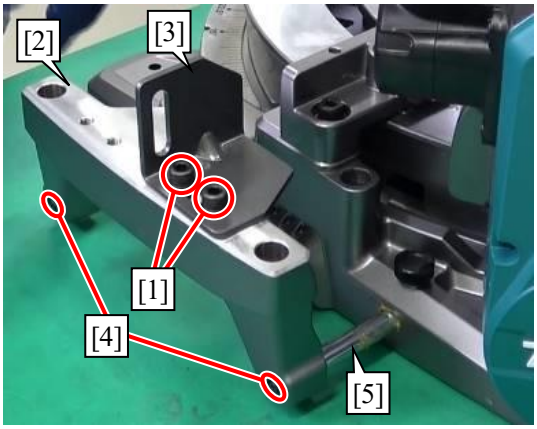


1 Slide Miter scale plate [1] together with Miter lock plate into the place, and then temporarily fasten the plates by tightening +Pan head screws M5 [2] (4 pcs) lightly enough to allow Miter scale plate [1] to move.

Note
Do not securely tighten +Pan head screws M5 [2] (4 pcs) until you have squared Guide fence to the saw blade.

6-10 Sub base section
6-10-1 Disassembling

Fig. 123



< LS003G only >

1 Remove Hex socket head bolts M8x25 [1] (2 pcs on one side), then remove Sub fence [3] from Sub base [2].

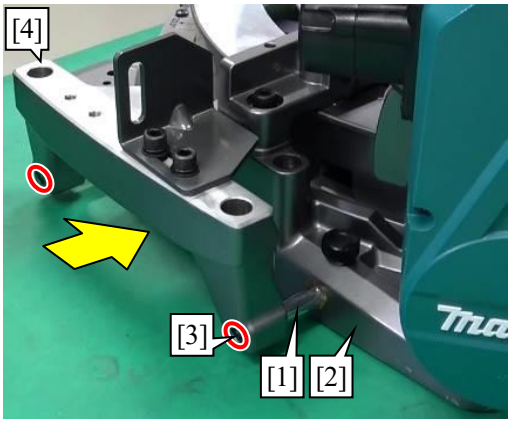
2 Remove Pan head screws M4x10 [4] (2 pcs on one side), then remove Sub base [2].

3 Remove Rods 12 [5] (2 pcs on one side).

4 Remove Rods 12 [5] (2 pcs on one side) (Fig. 112). Disassemble it in the same way as the left and right sides.

6-10-2 Assembling

Fig. 124



< LS003G only >

1 Assemble Sub base by reversing the disassembling procedure.

Tips
Decide the distance between Rods 12 [1] by tightening Pan head screws M4x10 [3] (2 pcs on one side) with Rods 12 [1] (2 pcs) passed through Base [2].
Note
Be sure to slide Sub base section [4] to be the most compact position, then tighten Pan head screws M4x10 [3] (2 pcs on one side).

2 Adjust the position of Sub fence. (7-5)

3 Assemble Vise, Upper Fences L and R.

6-11 Blade section

6-11-1 Assembling

1 Open Safety cover by loosening Hex socket head bolt M8x20 of Blade case.

2 Assemble Inner flange 53/ 46, Ring 16/ 15.88, Saw blade and Outer flange 53/ 46.

3 While pushing Shaft lock, tighten Hex socket head bolt M10x20 (left-handed) with Hex wrench 6 supplied with the machine.

6-12 Others

6-12-1 Assembling

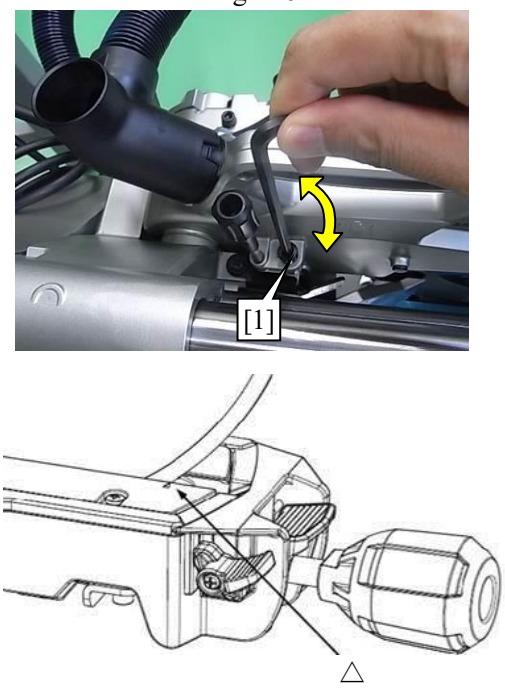
1 If Wireless unit was assembled, do not forget to assemble it.

2 Put back the supplied Hex wrench 6 to the regular position.

7 Adjustment

7-1 Adjustment of lower limit position of the saw blade

Fig. 125



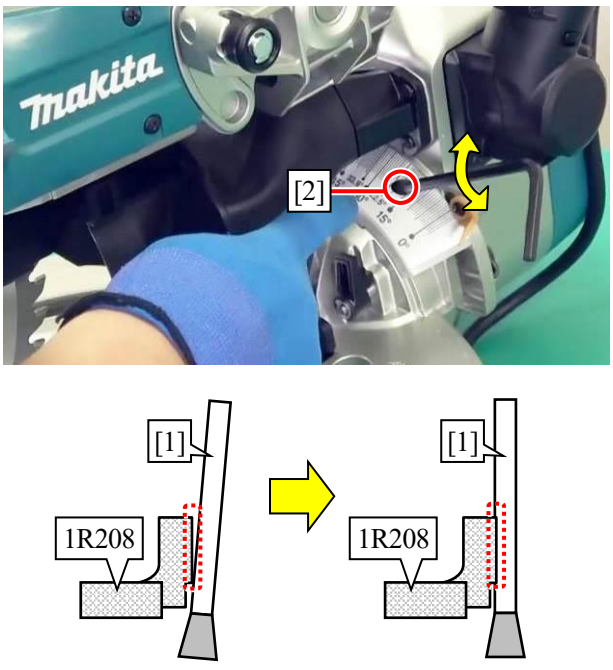
1 Install the saw blade. Then, by turning Hex socket head bolt M8x25 [1], adjust the lower limit position of the blade so that the blade tip is positioned at the triangle mark on Kerf board as shown bottom.

Note
Be very careful with this adjustment. If the lower limit position of the saw blade is too low, the blade tip will reach and cut Turn base complete.

7-2 Adjustment of bevel angle to 0 degrees

1 Assemble Safety cover. (6-2-2)

Fig. 126

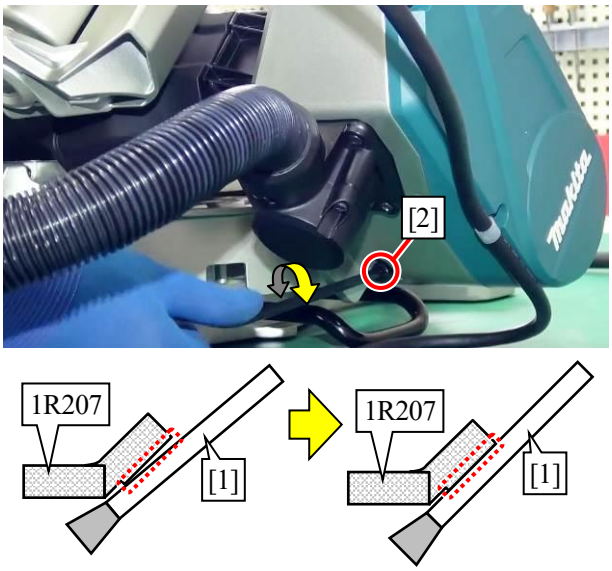


2 While holding the saw head at the lowest point, then set 1R208 to Saw blade [1], and then adjust them to be a right angle by turning Hex socket head bolt M8x25 [2].

7-3 Adjustment of bevel angle to 45 degrees

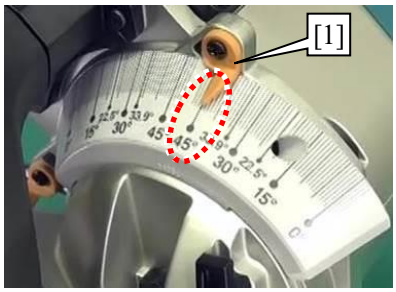
1 Tilt the saw head slightly to the left, then press Release button to tilt it to the right.

Fig. 127



2 While attaching 1R207 to Saw blade [1], adjust it by turning Hex socket head bolt M8x25 [2] to be no gap. Temporarily turn Hex socket head bolt M8x25 [2] counterclockwise to tilt the saw head to 45 degrees or more as shown, then turn Hex socket head bolt M8x25 [2] clockwise to adjust the angle of the saw head to 45 degrees.

Fig. 128



3 Loosen Position indicator plate [1], and then adjust it so that it indicates 45 degrees.

4 Similarly, tilt the saw head to the left and adjust it with Hex socket head bolt M8x25 [2] so that Indication plate indicates 45 degrees.

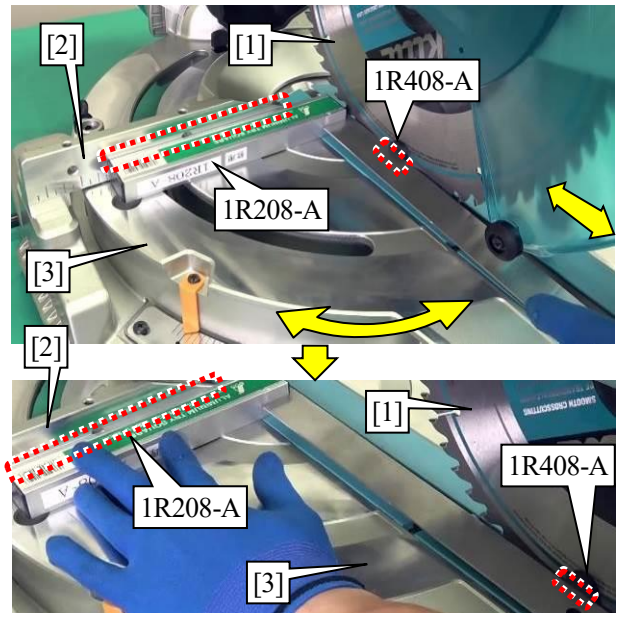
7-4 Adjustment Guide fence and the miter angle of Saw blade

1 Lock the miter lock to 0 degrees positive stop, and then tighten Grip 50A. (Fig. 103)

2 Slightly loosen + Pan head screws M5 (4 pcs) so that Miter scale plate can move.

3 Hold the saw head at the lowest point.

Fig. 129



4 Attach 1R408-A (1 pc) to Saw blade [1], then set 1R208-A against Guide fence [2]. And then, adjust Turn base [3] by moving it left or right until there is no gap between 1R408-A and 1R208-A.

Note
・ Do not attach 1R408-A on the tips and slots of the saw blade. ・ Check the squareness at the points where the saw blade [1] is nearest and farthest from you.

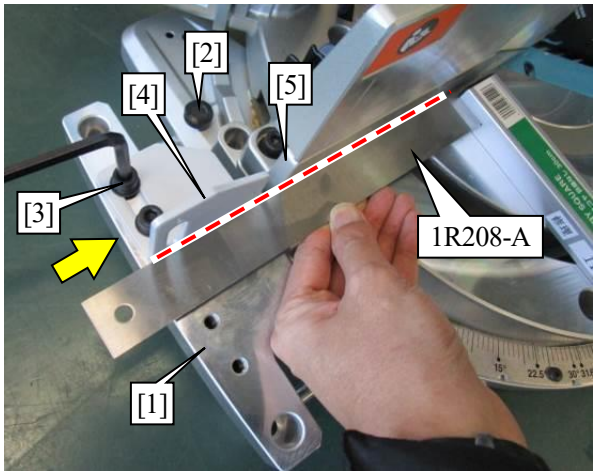
Fig. 130

5 Tighten + Pan head screws M5 [1] (4 pcs), and then adjust Indication plates [2] (2 pcs) so that each of the plate indicates 0 degrees.

Note
Be careful not to forget to remove 1R408-A after adjustment.

7-5 Adjustment of Sub fence

Fig. 131



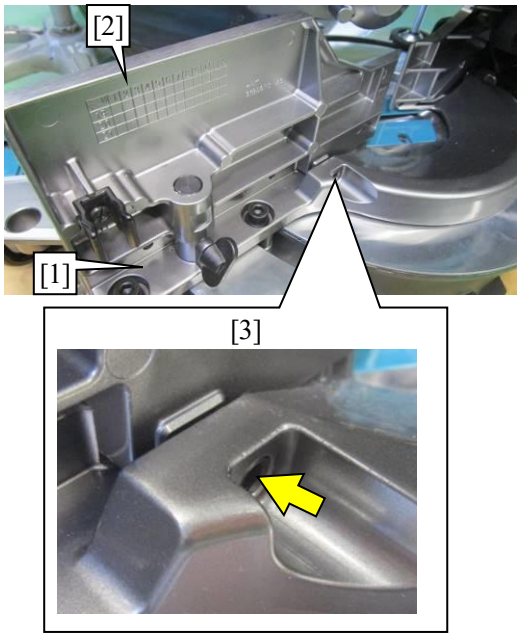
1 Slide Sub base section [1] fully towards Base section, then secure it with Screws M5x16 [2] (2 pcs).

2 Tighten Hex socket head bolts M8×25 [3] (2 pcs) temporarily. Then use 1R208-A to adjust Sub fence [5] until its surface is flush with that of Guide fence [4], and then fix Sub fence [5] securely. Adjust right and left Sub fences in the same way as described above.

Note
Be sure to slide Sub base section [1] fully towards Base section.

7-6 Attaching Upper fence adjustment

Fig. 132

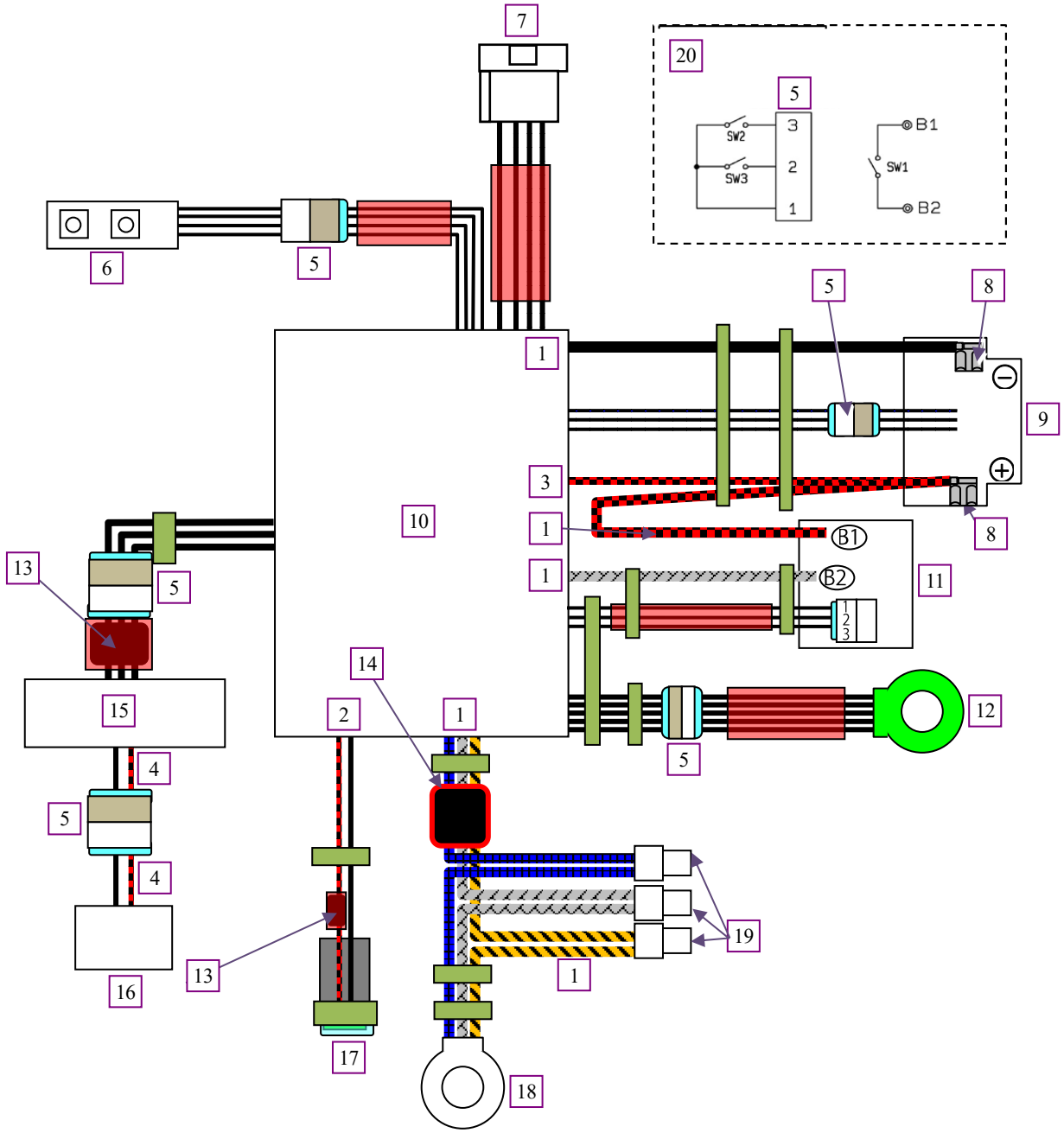


1 If there is a backlash when assembling Upper fence [2] to Guide fence [1], adjust H.socket head set screw M10x12 [3] of Guide fence [1] so that it can be attached and detached smoothly without a backlash.

Note
This adjustment is basically unnecessary because it is factory adjusted. However, adjustment is necessary when Guide fence and Upper fence are replaced.

8 CIRCUIT DIAGRAM

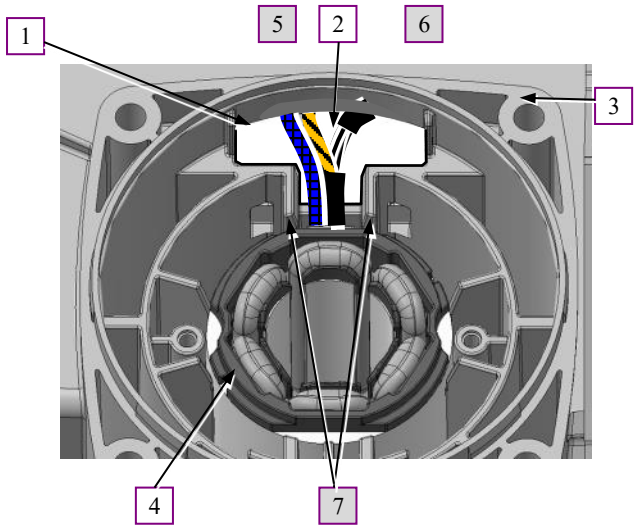
Fig. 133



1	AWG14	11	Main switch
2	AWG26	12	Controller B
3	AWG22	13	Line filter
4	AWG24	14	Line filter (if used)
5	Connector	15	Power supply circuit
6	Switch unit	16	LED circuit
7	Connector for Wireless unit	17	Capacitor
8	Flag receptacle with lock (#250, t=0.8)	18	Stator
9	Terminal unit	19	Closed end splice
10	Controller	20	Circuit diagram of Switch

9 WIRING DIAGRAM
9-1 Motor housing
9-1-1 Section 1

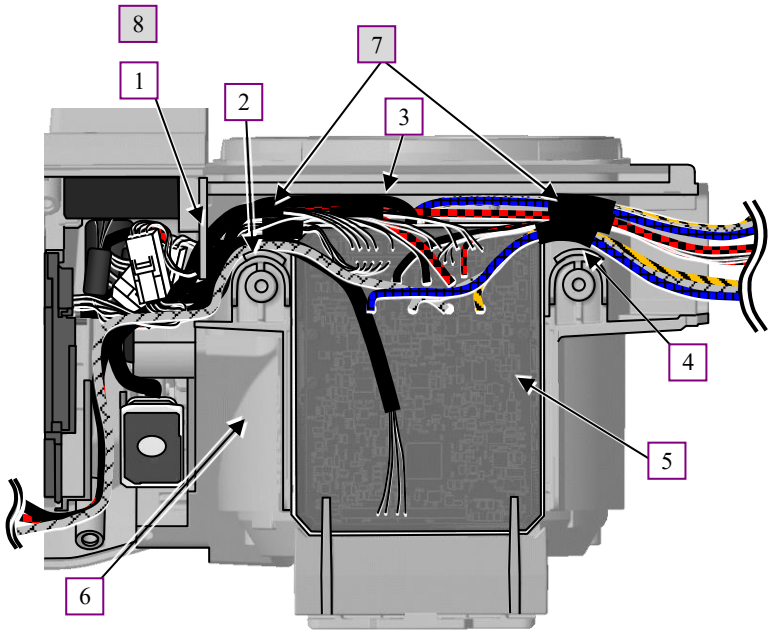
Fig. 134



1	The edge of Opening	3	Motor housing
2	Opening	4	Stator
5	Be careful not to slack Stator lead wires in Motor housing.		
6	Be careful not to damage Lead wires by the edge of Opening when passing Stator lead wires through Opening.		
7	Route Stator lead wires between these ribs.		

9-1-2 Section 2

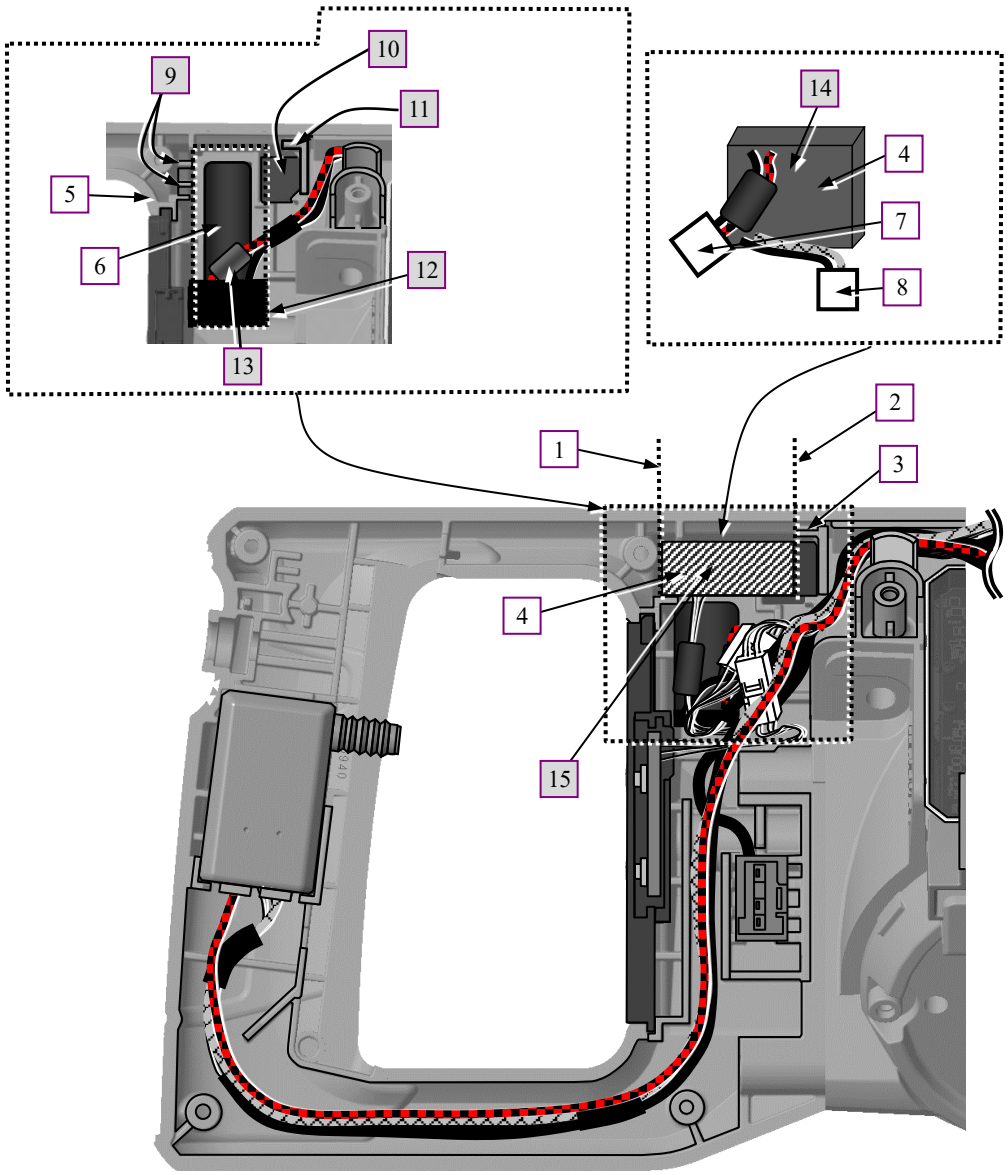
Fig. 135



1	Rib D	4	Rib B
2	Rib C	5	Controller
3	Rib A	6	Motor housing
7	・Route Lead wires (White, Blue, Orange) to Stator and Lead wires to Terminal between Rib A and Rib B. ・Route the other lead wires between Rib A and Rib C.		
8	Be careful not to put Lead wires on Rib D.		

9-2 Handle section
9-2-1 Section 1

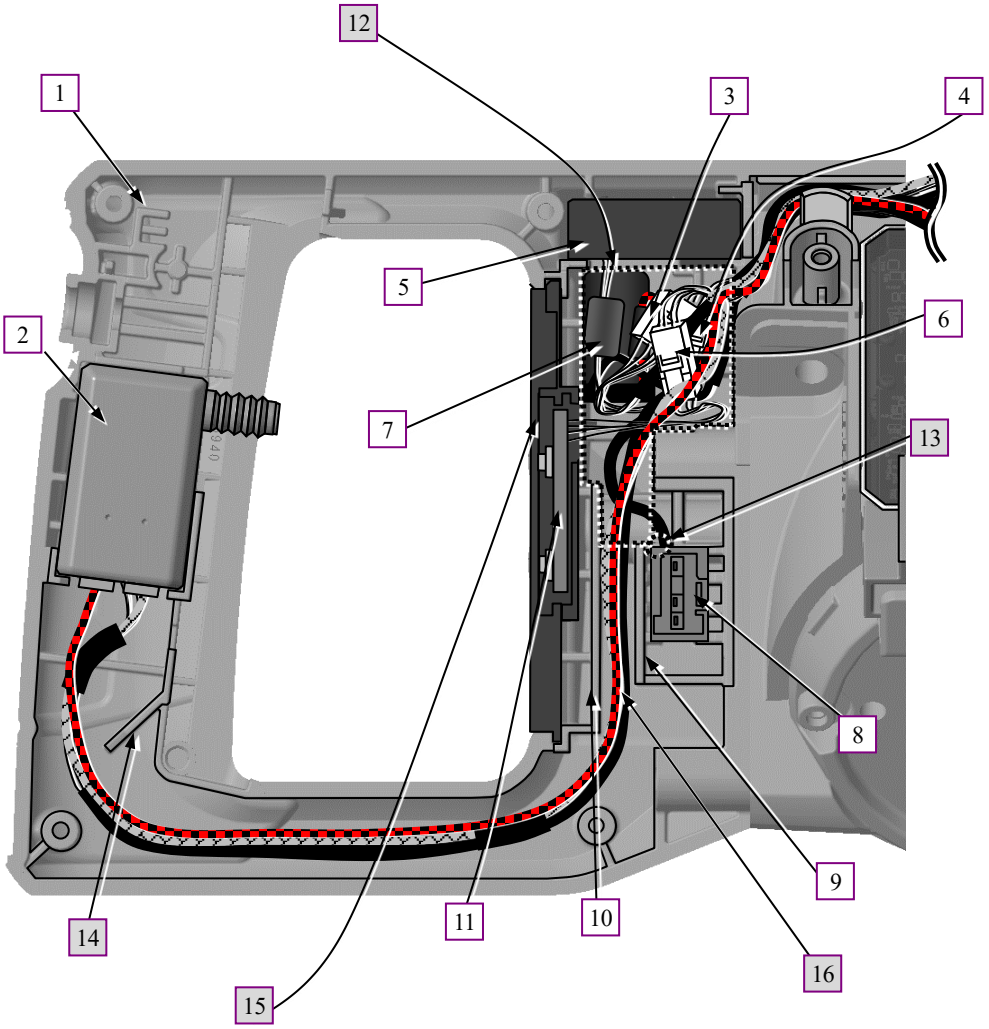
Fig.136



1	The end of Power supply circuit	5	Handle
2	The end of Rib A	6	Capacitor
3	Rib A	7	Connector (3-pin)
4	Power supply circuit	8	Connector (2-pin)
9	Be careful not to put Lead wires on these ribs.		
10	Pass Connector (2-pin) through this opening of Handle.		
11	Be careful not to put Lead wires on this rib.		
12	Put Capacitor in the place as shown.		
13	Be careful not to put Line filter under Capacitor.		
14	Put Power supply circuit so that Lead wires to Connector (2-pin) protrude from the back side of Handle.		
15	Be careful not to put Lead wires on the shaded line area of Power supply circuit.		

9-2-2 Section 2

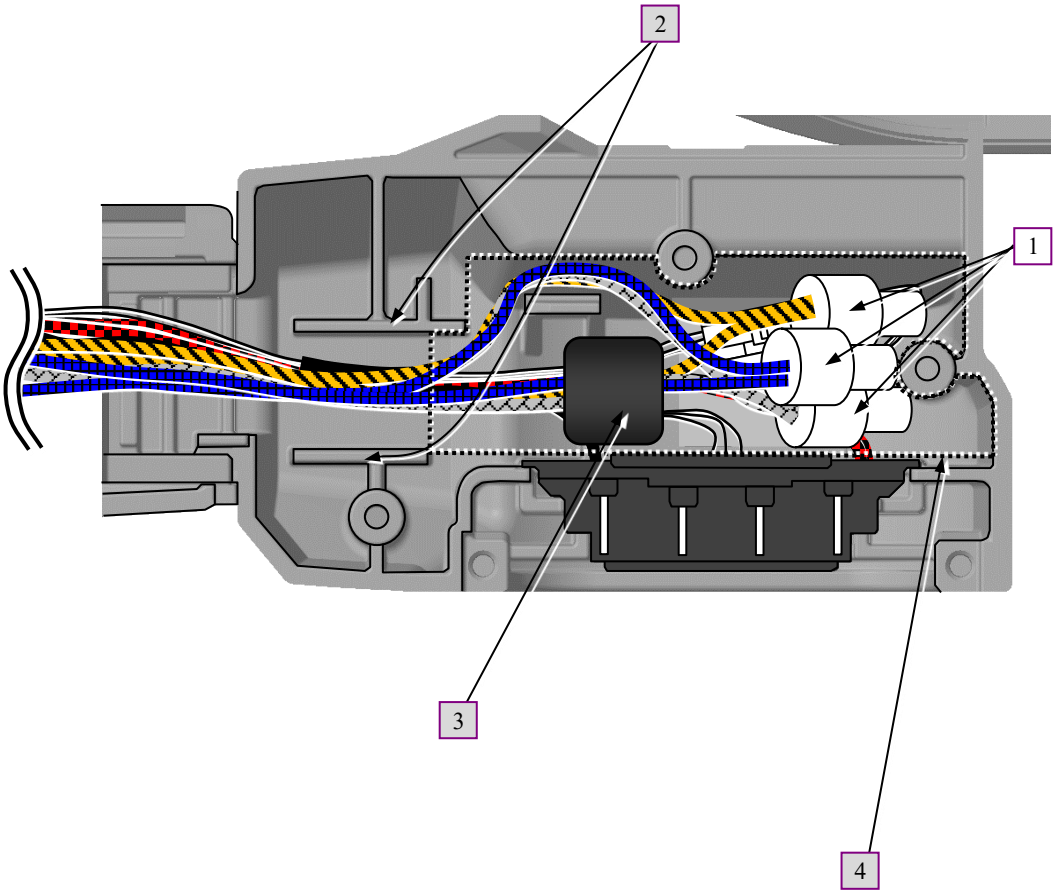
Fig.137



1	Handle	7	Line filter (if used)
2	Switch	8	Connector for Wireless unit
3	Connector to Stator	9	Rib E
4	Connector to Power supply circuit	10	Rib F
5	Power supply circuit	11	Switch unit
6	Connector to Switch unit		
12	Place Connector to Switch unit, Connector to Power circuit, Connector to Stator and Line filter in this space.		
13	Fix Lead wires to Connector housing in this groove.		
14	Be careful not to put Lead wires on this rib.		
15	Be careful not to put Lead wires under Switch plate complete.		
16	Route Controller lead wires to Switch between Rib E and Rib F.		

9-3 Battery housing section

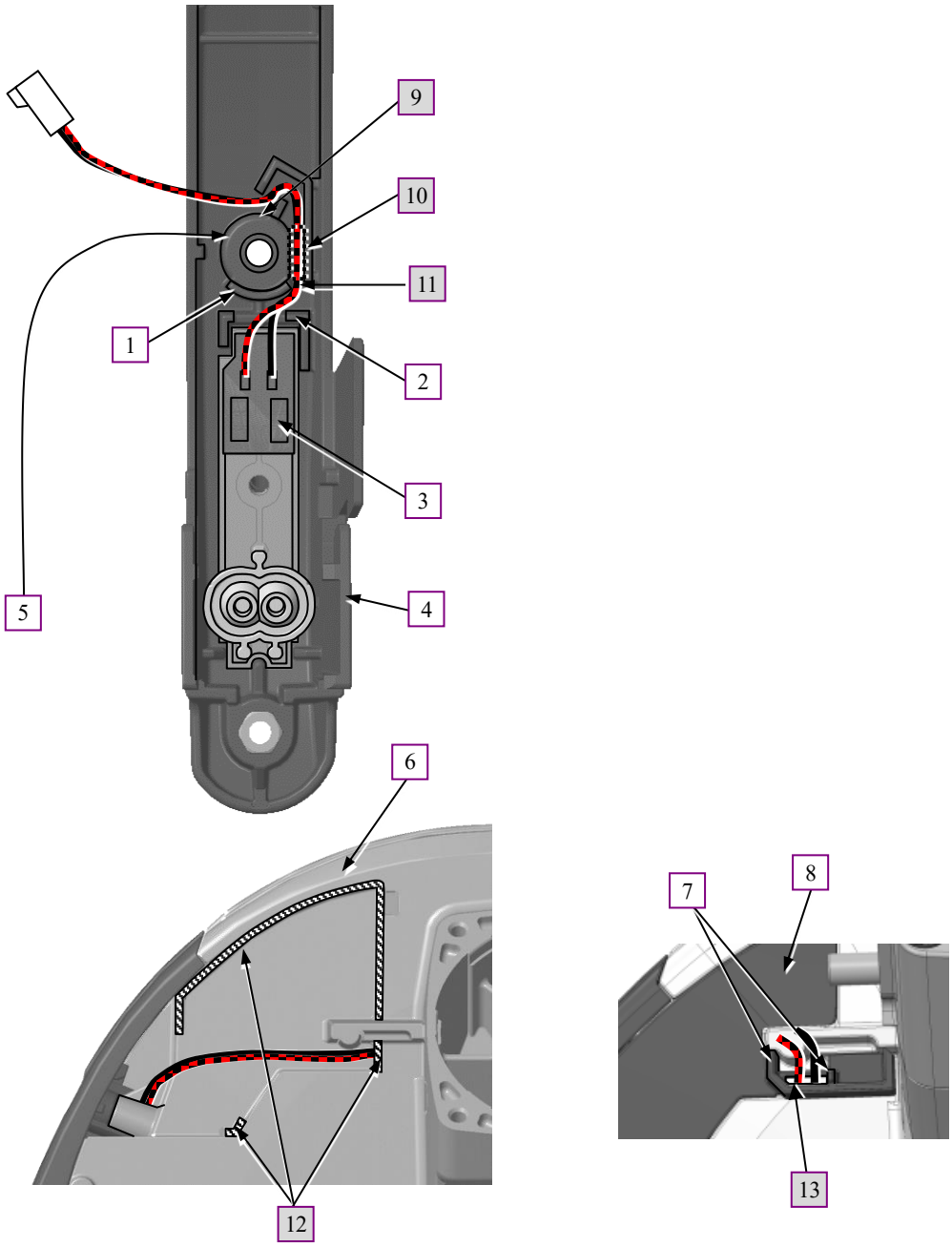
Fig.138



1	Closed end splice
2	Route Lead wires between these ribs.
3	Pass Controller lead wires (Blue, White, Orange) to Stator through Line filter (if used).
4	Put Closed end splices and Line filter in this space.

9-4 LED circuit section

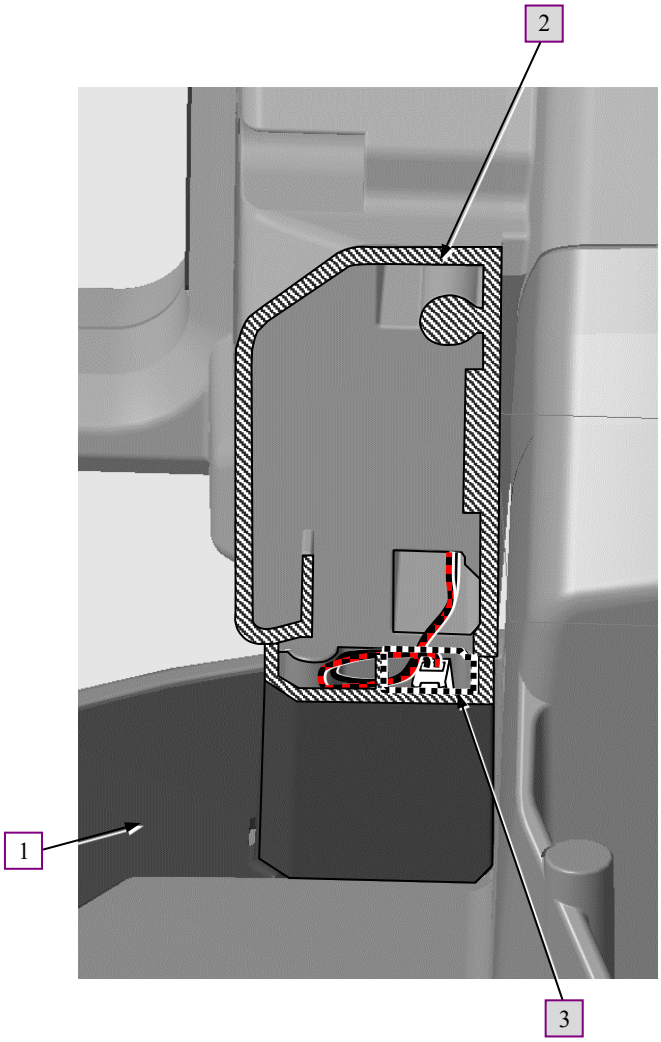
Fig.139



1	Rib A	5	Boss
2	Rib B	6	Blade case
3	LED circuit	7	Ribs
4	LED cover	8	Lead cover
9	Be careful not to put LED circuit lead wires on Boss.		
10	Fix LED circuit lead wires in this groove.		
11	Route LED circuit lead wires between Rib A and Rib B.		
12	Be careful not to put LED circuit lead wires on these shaded portion.		
13	Pass LED circuit lead wires between Ribs as shown.		

9-5 Handle lower section

Fig.140



1	Lead cover
2	Be careful not to put Lead wires on the mating surface (shaded portion) with Lead cover holder.
3	Place Connector (2-pin) in this space.

10 TROUBLESHOOTING

Whenever you find any trouble in your machine, first, see this list to check the machine for solution.

10-1 Note for Repairing

The content may vary depending on the model.

1 Use a full charged battery which has a star mark.

2 When Housing is disassembled, check the conditions of the electrical parts (Connectors, Lead wires, Switches, etc.), Rotor, Stator, Gear section, etc.

3 Be sure to test the machine 10 times to correctly diagnose functions such as F/R control, variable speed control, etc.

4 In order to make it easier to reproduce symptoms, run the motor at Normal speed.

5 Use the following Repairing tools for diagnosing LED and Switch.

Repairing tools	Purpose
1R402	For checking variable resistance value or electrical continuity at contact points
1R402-B	
1R412	For checking whether LED lights up
1R413	For checking variable resistance value or electrical continuity at contact points

10-2 Test for checking the short-circuit in FET (Field Effect Transistor) of controller

Fig. 141

1 Set Digital tester (1R402) to Diode mode.

Fig. 142

2 Connect Black probe to the plus pole of Terminal, and Red probe to the minus pole.

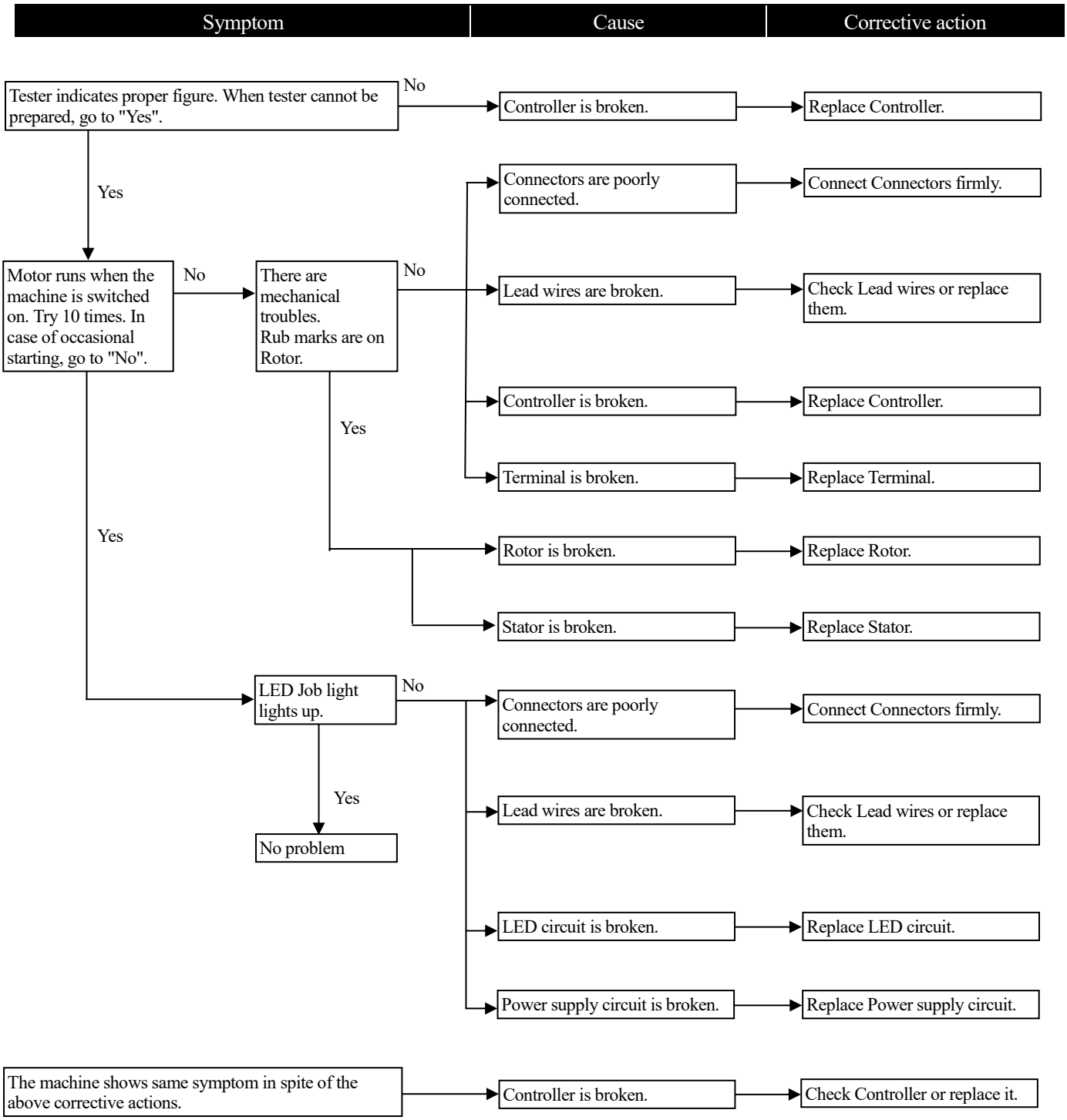
Tips
By attaching 1R402-B to each probe of 1R402, you can make your hands free for easier check.
Note
Be careful not to reverse them. The reversed contacts could spoil the test.

3 Wait until the figure on Tester gets stable.

4 Controller is in order if Tester indicates 1.1±0.1V. If Tester indicates 0V, 0.4V or 0.8V approx., Controller is broken. Replace it with a new one.

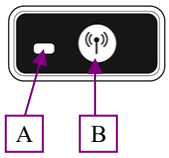
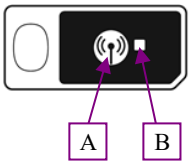
10-3 Flowchart for Troubleshooting

Check the items in the following flowchart in order from the top to bottom. Description of the item is referred to CIRCUIT DIAGRAM. After corrective action, return to the start of Troubleshooting and re-check again.

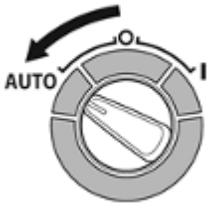


10-4 Wireless activation

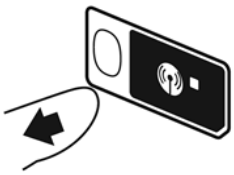
- Be sure to prepare non-defective AWS-supported tool and vacuum cleaner for efficient defect inspection.
- Check Step 1 to Step 3 in order and if some troubles happen, see 10-4-4.
- During the inspection, do not use microwave oven nearby.

AWS-supported tool	AWS-supported vacuum cleaner
	
A Wireless activation lamp B Wireless activation button	A Wireless activation button B Wireless activation lamp

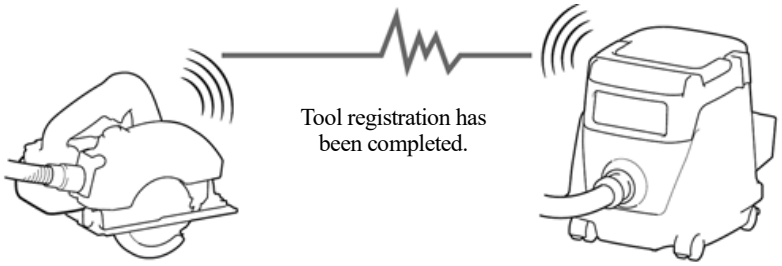
10-4-1 Step 1: Preparation for Wireless activation

AWS-supported tool	AWS-supported vacuum cleaner
1 Install battery/batteries. 2 Make sure that Wireless activation lamp lights up in red, then the lamp turns off. 3 Press Wireless activation button briefly, then make sure that the lamp blinks in blue. 	1 Install battery/batteries or plug in the machine. 2 Set the stand-by switch to "AUTO".  3 Make sure that Wireless activation lamp lights up in red, then blinks in blue.

10-4-2 Step 2: Tool registration

AWS-supported tool	AWS-supported vacuum cleaner
1 Press and hold down Wireless activation button, then make sure that Wireless activation lamp blinks in green.  2 After the lamp starts blinking in green, release your finger. 	1 Press and hold down Wireless activation button, then make sure that Wireless activation lamp blinks in green.  2 After the lamp starts blinking in green, release your finger. 

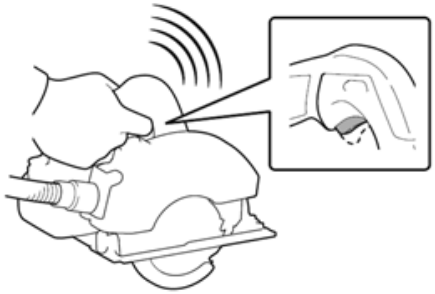
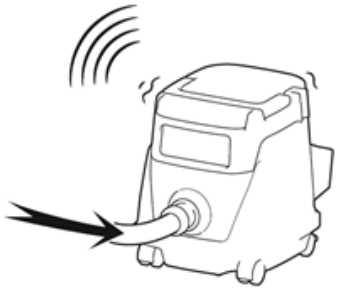
3 Make sure that, after Wireless activate lamps blink in green, the lamps light up in green (without blinking) for 2 seconds, then start blinking in blue.



Note
If Wireless activation lamp does not light up in green, restart from Step 1 ().10-4-1 If the light does not light up again, go to 10-4-4.

10-4-3 Step 3: Checking wireless activation

The tool and cleaner should be about 5m apart from each other.

AWS-supported tool	AWS-supported vacuum cleaner
Make sure that, when the tool is activated, Wireless activation lamp lights up in blue. 	Make sure that, when the tool is activated, Wireless activation lamp lights up in blue and Wireless activation works properly. 

10-4-4 What to check and Corrective action

Whenever you disassemble AWS-supported tool and vacuum cleaner, be sure to check AWS-related parts for broken wires or poor wire connection.

AWS-supported tool

Step	What to check	Corrective action
1, 2, 3	Wireless unit	check, replace
1, 3	Connector connection failure	check, clean
1, 3	Sub controller	check, replace
1, 3	Controller	check, replace

AWS-supported vacuum cleaner

Step	What to check	Corrective action
1	Power switch	check, replace
1, 2, 3	Wireless unit complete	check, replace
1, 3	Controller	check, replace