

# TECHNICAL INFORMATION



PRODUCT

P 1 /13

**Model No.** ▶ GA7040S/ GA9040S

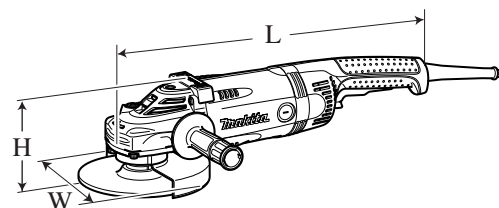
**Description** ▶ Angle Grinders 180mm (7")/ 230mm (9")

## CONCEPT AND MAIN APPLICATIONS

The above products have been developed as the successor models to the current 9057S/ 9059S, featuring low vibration rear handle and durability higher than the predecessors.

Also the following optional accessories will provide more comfort and control;

- Vibration absorbing side grip for comfortable work
- Toolless wheel cover for quick adjustment
- Dust cover attachment



Dimensions: mm (")		
Model No.	GA7040S	GA9040S
Length (L)	511 (20-1/8)	
Width (W)	200 (7-7/8)	249 (9-3/4)
Height (H)	140 (5-1/2)	

## ► Specification

Voltage (V)	Current (A)	Cycle (Hz)	Continuous Rating (W)		Max. Output (W)
			Input	Output	
See next page.					

Model No.		GA7040S	GA9040S
Wheel size: mm (")	Diameter	180 (7)	230 (9)
	Hole diameter	22.23 (7/8)	
No load speed: min-1= rpm.		*8,500	**6,600
Soft start feature		Yes	
AC/DC switch		No	
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)		5.5 (12.1)	

\*North America: 8,000, \*\*North America: 6,000

## ► Standard equipment

Lock nut wrench 35 ..... 1 pc  
 Side grip 36 ..... 1 pc  
 Plastic carrying case ..... 1 pc ("K" or "FK" models only; for example, GA7040SK)  
 Super flange ..... 1pc ("F" or "FK" models only; for example, GA7040SF)

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

## ► Optional accessories

GA7040S: Assorted accessories for 180mm Angle grinders  
 GA9040S: Assorted accessories for 230mm Angle grinders

Plastic carrying case  
 Vibration absorbing side grip  
 Toolless quick adjustable wheel cover  
 Super flange  
 Dust cover attachment

## ► Specification

Country	Voltage (V)	Current (A)	Cycle (Hz)	Continuous Rating (W)		Max. Output (W)
				Input	Output	
USA Canada	120	15	50/ 60	---	1,000	3,700
Guam	120	15	50/ 60	---	1,000	3,700
Mexico	127	15	50/ 60	1,900	1,000	3,700
Brazil (220V)	220 - 230	12	50/ 60	2,600	2,000	4,900
Brazil (127V)	127	20	50/ 60	2,500	1,500	3,700
Chile	220 - 230	12	50/ 60	2,600	2,000	4,900
Argentina	220 - 230	12	50/ 60	2,600	2,000	4,900
Commonwealth of Dominica	230	11.5	50/ 60	2,600	2,000	4,900
Switzerland	230	11.5	50/ 60	2,600	2,000	4,900
Germany Sweden Norway Russia Poland	230	11.5	50/ 60	2,600	2,000	4,900
Netherlands Spain Italy France Reunion Algeria Austria Turkey	230	11.5	50/ 60	2,600	2,000	4,900
UK (240V)	230 - 240	10.5	50/ 60	2,400	1,750	4,900
UK (110V)	110	23	50/ 60	2,400	1,500	3,700
South Africa (220V)	230	11.5	50/ 60	2,600	2,000	4,900
Saudi Arabia (220V)	220 - 230	12	50/ 60	2,600	2,000	4,900
Saudi Arabia (115V)	110 - 120	19	50/ 60	2,000	1,400	3,700
Egypt	220 - 230	12	50/ 60	2,600	2,000	4,900
Kuwait	230 - 240	11.5	50/ 60	2,600	2,000	4,900
Australia New Zealand	230 - 240	10	50/ 60	2,400	1,650	4,900
New Caledonia Tahiti	220 - 230	12	50/ 60	2,600	2,000	4,900
Hong Kong (220V)	220 - 230	12	50/ 60	2,600	2,000	4,900
South Korea	220	12	50/ 60	2,500	1,900	4,900
Thailand Philippines Vietnam North Korea Indonesia	220 - 230	12	50/ 60	2,600	2,000	4,900
Singapore Malaysia	230 - 240	11.5	50/ 60	2,600	2,000	4,900

## ► Features and benefits

### Outstanding Durability

#### 1) Superior Anti-Dust Structure

- Protective zigzag varnish on armature coil
- Protective powder varnish-coating on field coil
- Bearing-protective labyrinth construction
- Vent slots designed to minimize dust entrance

#### 2) Machined Bevel Gear

having durability higher than sintered gear that the competitor A's models use.

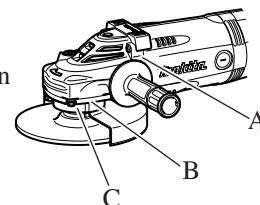
#### 3) Increased Heat Resistance

superior to our predecessor models and the competitor A's models  
(See the chart below.)

### Improvements to the Predecessor Models

#### 1) Protection Against Grease-Leakage

- A: Addition of a felt ring to the bearing portion on the drive-end of armature  
B: Addition of O ring to the shaft lock portion and the matching surface between gear housing and bearing box  
C: Increase of the size of the bearing box fastening screws from M5 to M6 for improvement to protect bearing box from loosening



#### 2) More durability to the bearing on the drive-end of armature:

Use ball bearing reinforced with nylon retainer.

#### 3) More durable Gear Housing:

- More strength to gear housing
- Shaft lock mechanism free from accidental push-in lock

#### 4) Improvement to prevent pin cap from falling off

shaft lock pin;  
by changing the material of pin cap for increasing the pulling load

### New Exterior Design

Gives the impression of high durability and high quality.

#### Torque Limiter \*

Protects lock nut from over-tightening at startups and in heavy duty applications.

#### Large Rubber Tool Rest

Protects work piece from scratches

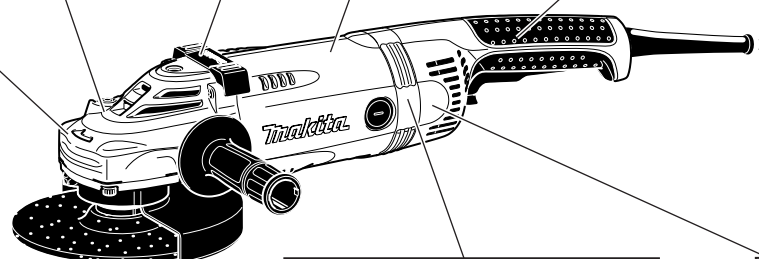
#### Heavy Duty Motor

with 2,600W Continuous rating Input

#### Low Vibration Rear Handle with Soft Grip for More Comfort and Control

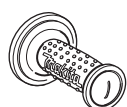
#### Rotatable Gear Housing \*

Can be positioned at every 90 degrees to suit most cutting and grinding operations.



#### Various Optional Accessories Available

Vibration absorbing side grip  
Toolless wheel cover  
Dust cover attachment



#### Rotatable Rear Handle

Can be positioned to suit most cutting and grinding operations.

#### Soft Start Feature \*

\*The same advantage as 9057S/ 9059S

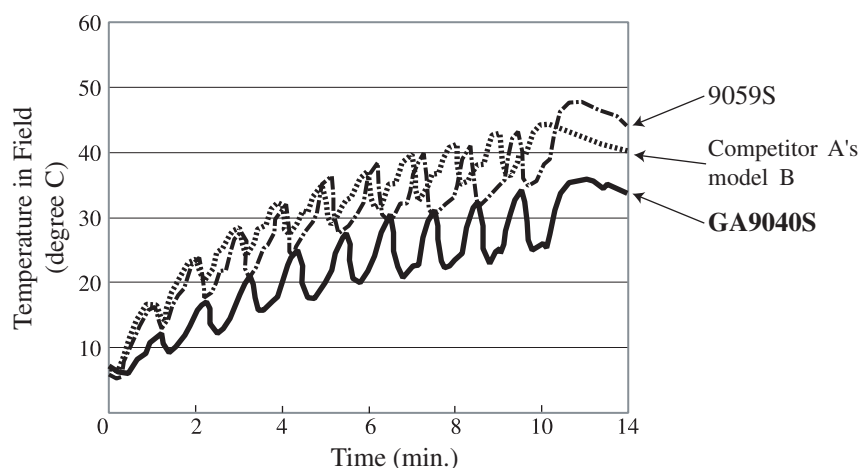
### Comparison of Temperature Rise

#### Test conditions

With an identical diamond wheel attached to each of Makita GA9040S, 9059S and competitor A's model B, Cut across a 600mm wide concrete plate continuously at a depth of 30mm. And measured the temperature rise in the front portion of Field coil.

#### Result:

The chart shows that our new model has heat resistance superior to the competing model.



► **Comparison of products**

Model No. Specifications		Makita				Competitor A		Competitor B	
		G-A7040S	G-A9040S	9057S	9059S	AY	BY	C	D
Wheel size: mm (")	Diameter	180 (7)	230 (9)	180 (7)	230 (9)	180 (7)	230 (9)	180 (7)	230 (9)
	Hole diameter	22.23 (7/8)	22.23 (7/8)	22.23 (7/8)	22.23 (7/8)	22.23 (7/8)	22.23 (7/8)	22.23 (7/8)	22.23 (7/8)
Power input: W		a) 2,600		a) 2,500		2,600		2,500	
Rated amperage for USA: A		15		15		N/A		N/A	
No load speed: min-1=rpm.		b) 8,500	c) 6,600	8,500	b) 6,600	8,500	6,500	8,500	6,600
Soft start feature		Yes	Yes	Yes	Yes	Yes	Yes	Yes, but in some variations	
AC/DC switch for USA		No	No	No	No	No	No	No	
Low vibration rear handle		Yes	Yes	No	No	No	No	No	
Toolless wheel cover		No (option)		No	No	Yes	Yes	Yes	
Vibration absorbing side grip		No (option)		No	No	Yes	Yes	No	
3-Position side grip		Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Rotatable rear handle		Yes	Yes	No	No	Yes	Yes	Yes	
Torque limiter		Yes	Yes	Yes	Yes	No	No	No	
Double insulation		Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Power supply cord: m (ft)		d) 2.5 (8.2)		2.5 (8.2)		2.5 (8.2)		3.5 (11.5)	
Dimensions: mm (")	Length	511 (20-1/8)		470 (18-1/2)		510 (20)		490 (19-1/4)	
	Width	200 (7-7/8)	249 (9-3/4)	200 (7-7/8)	249 (9-3/4)	195 (7-5/8)	244 (9-5/8)	192 (7-9/16)	245 (9-5/8)
	Height	140 (5-1/2)		139 (5-1/2)		138 (5-7/16)		148 (5-7/8)	
Net weight: kg (lbs)		5.5 (12.1)		5.1 (11.2)		5.2 (11.5)		5.3 (11.6)	
Standard equipment	Lock nut wrench	Yes		Yes		Yes		Yes	
	Side grip	Yes		Yes		Yes		Yes	

a) Differs by country b) 8,000 for North America c) 6,000 for North America d) 4.0m for Europe

## ► Comparison of products

### Performance Comparison

#### 180mm Grinders

**Note:** 1. The test results depend to a great extent on the hardness of materials, etc.

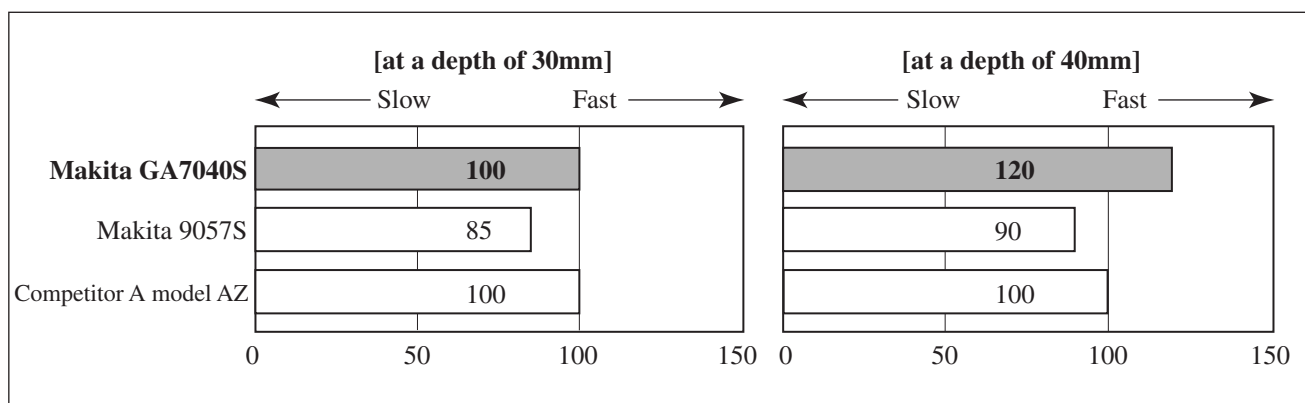
2. The numbers in the bar graphs are relative values when the capacity of Competitor A's model AZ is indexed at 100.

#### 1) EFFICIENCY OF CONCRETE CUTTING

##### Test conditions:

Cut concrete continuously at depths of 30mm and 40mm with an identical diamond wheel attached to all the models, and measured the time required to cut a certain length.

**Test results:** See the charts below.

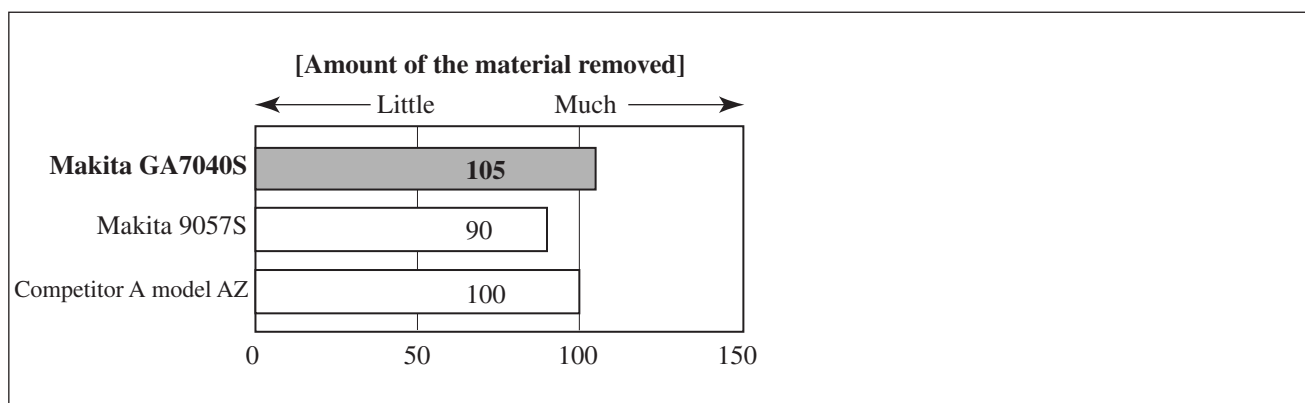


#### 2) EFFICIENCY OF METAL GRINDING

##### Test conditions:

Ground a steel plate continuously for 10 minutes and measured the amount of the removed material.

**Test results:** See the chart below.



## ► Comparison of products

### Performance Comparison

#### 230mm Grinders

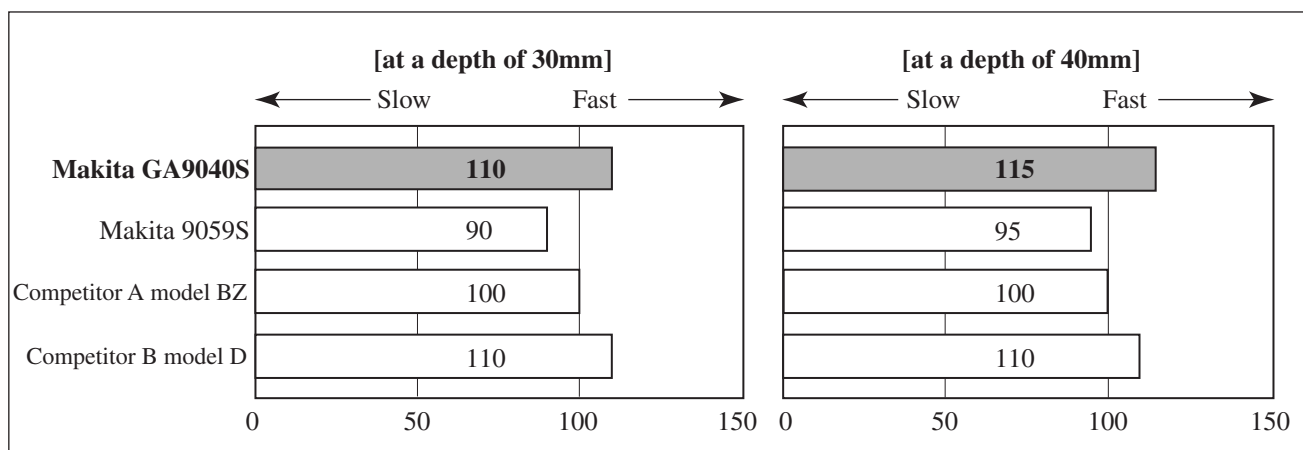
**Note:** 1. The test results depend to a great extent on the hardness of materials, etc.  
2. The numbers in the bar graphs are relative values when the capacity of Competitor A's model BZ is indexed at 100.

#### 1) EFFICIENCY OF CONCRETE CUTTING

##### Test conditions:

Cut concrete continuously at depths of 30mm and 40mm with an identical diamond wheel attached to all the models, and measured the time required to cut a certain length.

**Test results:** See the charts below.

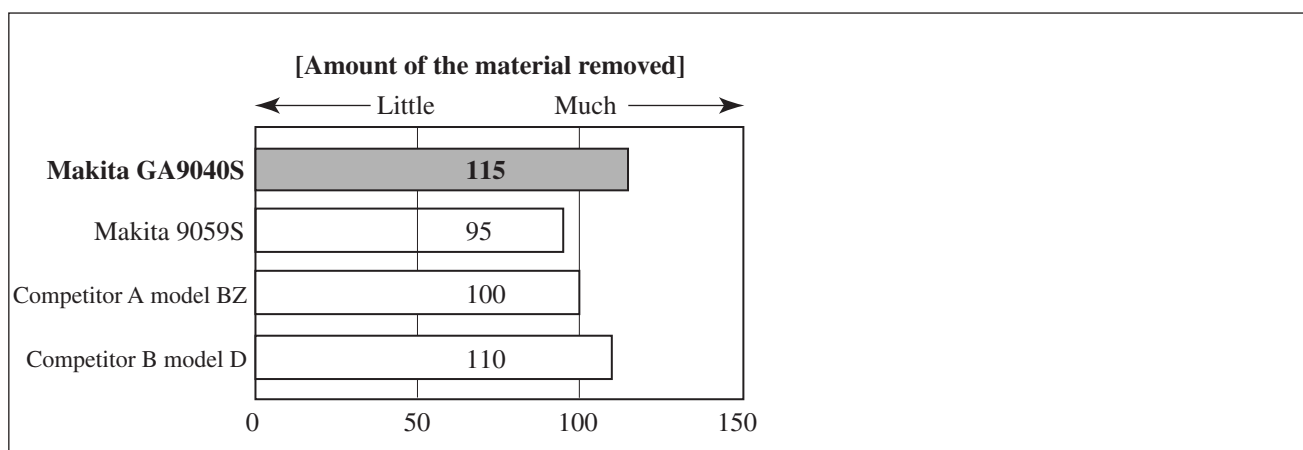


#### 2) EFFICIENCY OF METAL GRINDING

##### Test conditions:

Grind a steel plate continuously for 10 minutes and measured the amount of the removed material.

**Test results:** See the chart below.



## ► Repair

**CAUTION: Remove the wheel from the machine for safety before repair/ maintenance !**

### [1] NECESSARY REPAIRING TOOLS


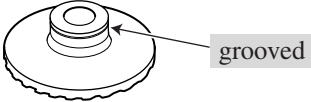

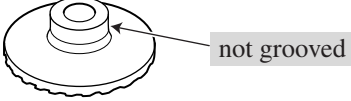
Code No.	Description	Use for
1R005	Retaining ring R pliers	Removal/installation of Retaining ring R-42
1R204	Jig for tightening nut M15-23	modular use with 1R224
1R223	Torque wrench shaft 20-90N.m	Disassembling/assembling Torque limiter assembly
1R224	Ratchet head 12.7	modular use with 1R223
1R252	Round bar for arbor 30-100	Press-fitting Felt ring 18
1R269	Bearing extractor	Removing Ball bearings

### [2] LUBRICATION

Put approx. 60g of Makita grease SG No.1 in the gear room of Gear housing complete to protect parts and product from unusual abrasion.

### [3] DISASSEMBLY/ASSEMBLY

**Important:** As listed below, different gears are used for GA7030/GA7030S/GA7040S and GA9030/GA9030S/GA9040S, and they are not interchangeable between the models. Be careful not to confuse them.

Model No.	No load speed: min-1	Small spiral bevel gear (Gear on Armature shaft)	Large spiral bevel gear (Gear on Spindle)
GA7030 GA7030S GA7040S	8,500	<b>Spiral bevel gear 16</b> Number of teeth: 16 	<b>Spiral bevel gear 53D</b> Number of teeth: 53 
GA9030 GA9030S GA9040S	6,600 (USA, Guam: 6,000)	<b>Spiral bevel gear 12</b> Number of teeth: 12 	<b>Spiral bevel gear 53C</b> Number of teeth: 53 

### [3] -1. Armature, Small spiral bevel gear, Ball bearing 6301DDW

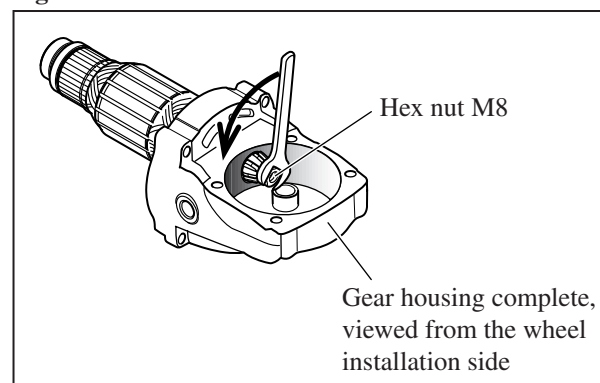
#### DISASSEMBLING

- 1) Remove Carbon brush. Separate the assembly of Gear housing complete with Armature from Motor housing complete by unscrewing four M5x35 Tapping screws.
- 2) Separate Bearing box from Gear housing complete by unscrewing four M6x22 Hex socket head bolts.
- 3) With Armature securely held by hand, remove Hex nut M8 from the drive-end of Armature shaft by turning counterclockwise with wrench 13. (**Fig. 1**)
- 4) Hold Small spiral bevel gear by hand, then pull off Armature from Gear housing complete. (**Fig. 2**)
 

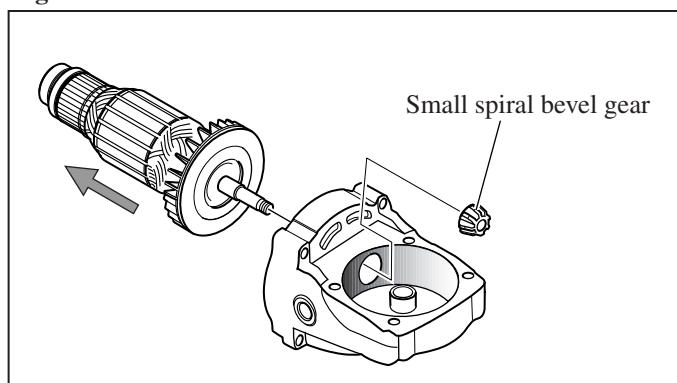
**Note:** If it is difficult to pull off Armature by hand, do the following steps.

  1. Lubricate small spiral bevel gear and Armature shaft with spray lubricant.
  2. Wrap the gear with cloth to protect the gear teeth.
  3. Using water pump pliers or the like, firmly grip the gear wrapped with cloth, then turn the gear.

**Fig. 1**



**Fig. 2**



## ► Repair

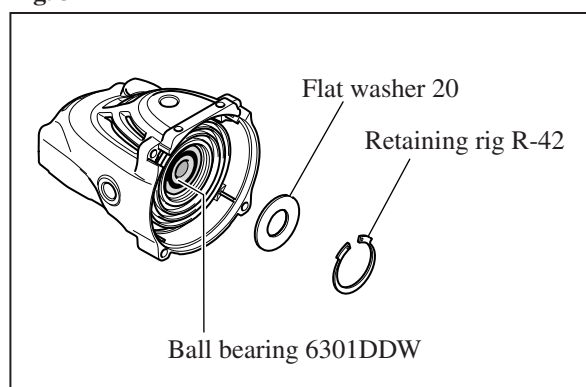
### [3] -1. Armature, Small spiral bevel gear, Ball bearing 6301DDW (cont.)

#### DISASSEMBLING

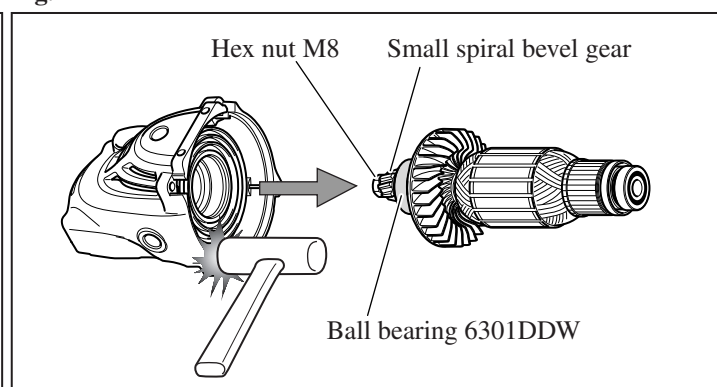
- 5) In order to remove Ball bearing 6301DDW from Gear housing complete, first remove Retaining ring R-42 with Retaining ring R pliers RT-2N (1R005), and remove Flat washer 20 from Gear housing complete. (**Fig. 3**)
- 6) Reassemble Armature to Gear housing complete, then the spiral bevel gear to Armature shaft. Tighten Hex nut M8 provisionally by turning clockwise. (Refer to **Fig. 2, 1**)
- 7) By tapping the end of Gear housing complete with a plastic hammer, Ball bearing 6301DDW can be removed together with Armature. (**Fig. 4**)
 

**Note:** Felt ring 18 falls off from Gear housing complete in this step. Be sure to mount to Gear housing complete when assembling the machine.
- 8) Remove Ball bearing 6200DDW from Armature with Bearing Extractor (1R269). (**Fig. 5**)

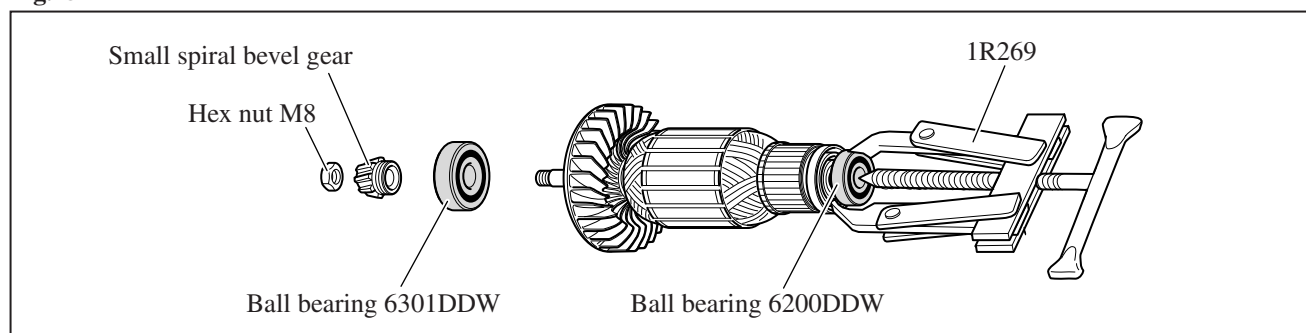
**Fig. 3**



**Fig. 4**



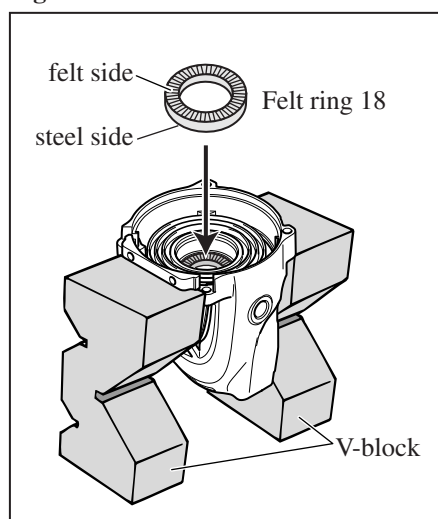
**Fig. 5**



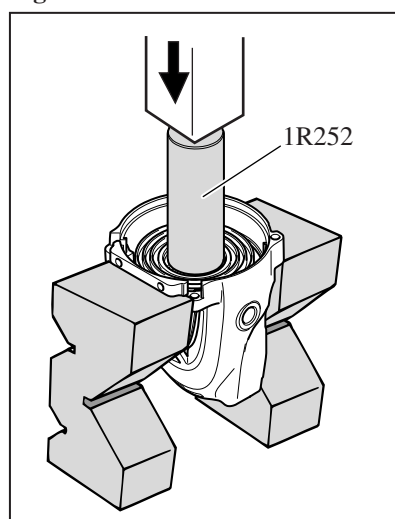
#### ASSEMBLING

- 1) Put Felt ring 18 on the hole of the Bearing room in Gear housing complete with the felt side facing upwards. Hold Gear housing complete with two V-blocks. (**Fig. 6**)
- 2) Press down Felt ring 18 fully into the hole using arbor press and 1R252. (**Fig. 7**)
- 3) Put a washer of 28mm outer diameter with 0.5mm thickness on Felt ring 18, then press down with arbor press and 1R252 to press-fit Felt ring 18 completely in the hole. (**Fig. 8**)

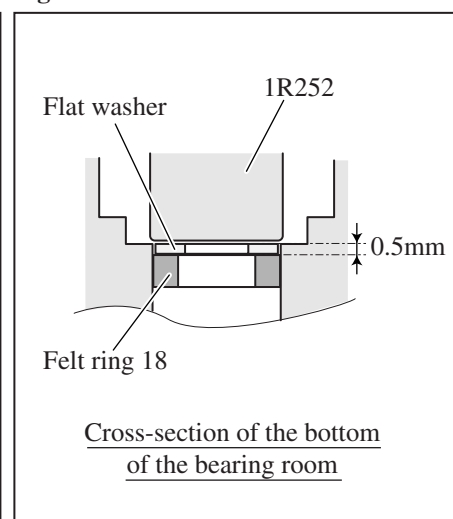
**Fig. 6**



**Fig. 7**



**Fig. 8**





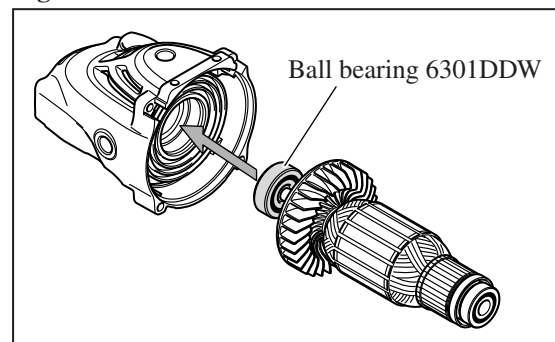
## ► Repair

### [3] -1. Armature, Small spiral bevel gear, Ball bearing 6301DDW (cont.)

#### ASSEMBLING

- 4) Mount Ball bearing 6301DDW on Armature by hand.  
Insert into the bearing installation hole of Gear housing. (Fig. 9)  
Pull off Armature.
- 5) Put Flat washer 20 on Ball bearing 6301DDW.  
Fasten with Retaining ring R-42.
- 6) Do the reverse of the disassembling steps.

Fig. 9



### [3] -2. Large spiral bevel gear and Ball bearing 6203DDW

**Note:** The gear and the ball bearing can be replaced without disassembling the Motor section.

**Important:** Replace Lock washer and Large spiral bevel gear with new one if the contact surface of each part is scratched when disassembling Torque limiter.

Be sure to replace Nut M15-23 and Cup spring 20 with new one when disassembling Torque limiter.

#### DISASSEMBLING

- 1) Separate Bearing box from Gear housing complete by unscrewing four M6x22 Hex socket head bolts.  
It is not necessary to remove Carbon brushes.
- 2) Remove Ball bearing 6000ZZ with 1R269. (Fig. 10)
- 3) Fix Bearing box in vise by clamping the flat surfaces of Spindle.  
Remove Nut M15-23 by turning clockwise with 1R224, 1R223 and 1R204. (Fig. 11)  
The following parts can now be removed from Bearing box;  
Cup spring 20 (2pcs), Lock washer, Large spiral bevel gear,  
Flat washer 15 (Fig. 12)

Fig. 10

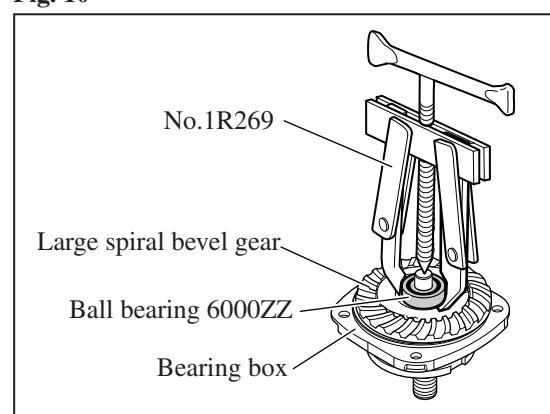


Fig. 11

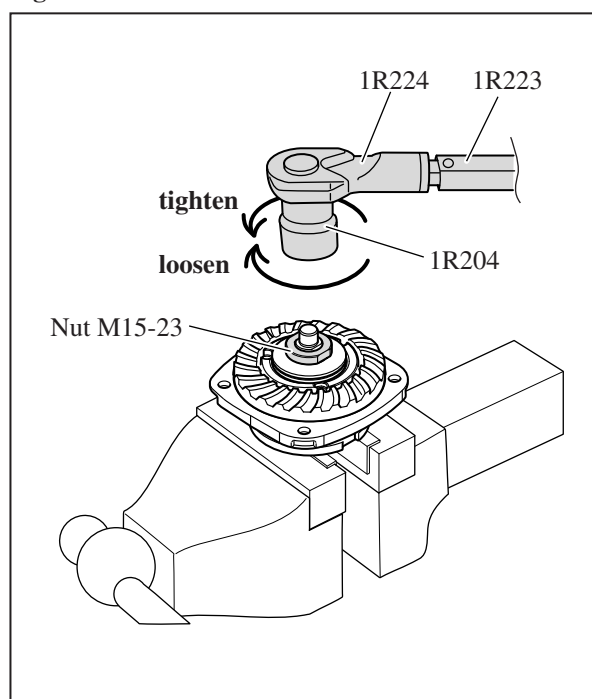
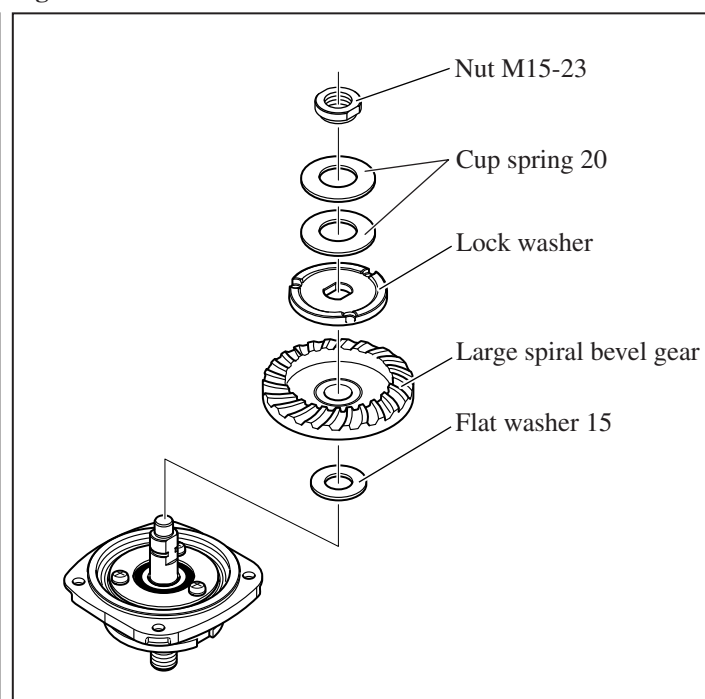


Fig. 12



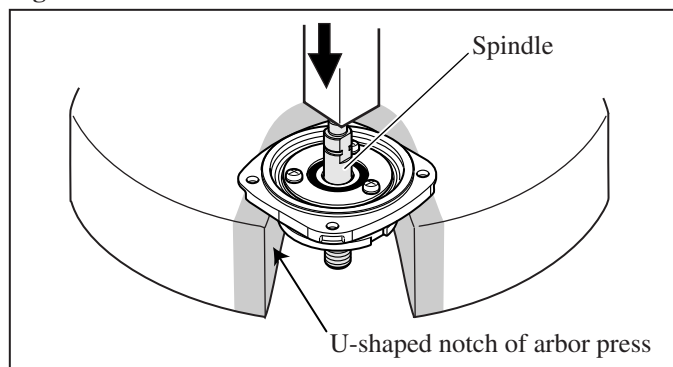
## ► Repair

### [3] -2. Large spiral bevel gear and Ball bearing 6203DDW (cont.)

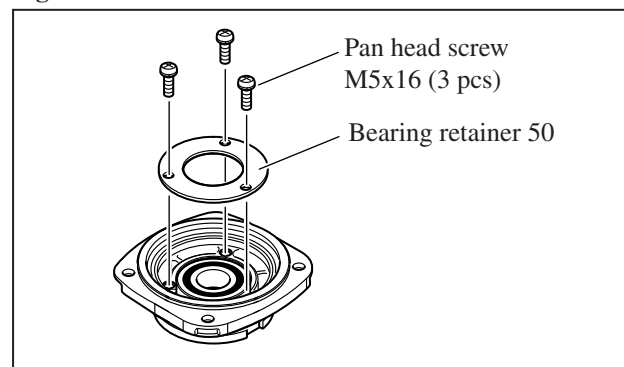
#### DISASSEMBLING

- 4) Put Bearing box on the turn base of arbor press so that the wheel cover installation surface of Bearing box is placed on the edge of the U-shaped notch of the turn base. Remove spindle by pressing down with arbor. (**Fig. 13**)
- 5) Remove Bearing retainer 50 from Bearing box by unscrewing three M5x16 Pan head screws. (**Fig. 14**)
- 6) Remove Ball bearing 6203DDW by striking Bearing box straight down against flat surface of work bench. (**Fig. 15**)  
If cannot be removed, use arbor press and a round bar for arbor of an appropriate size as illustrated in **Fig. 16**.

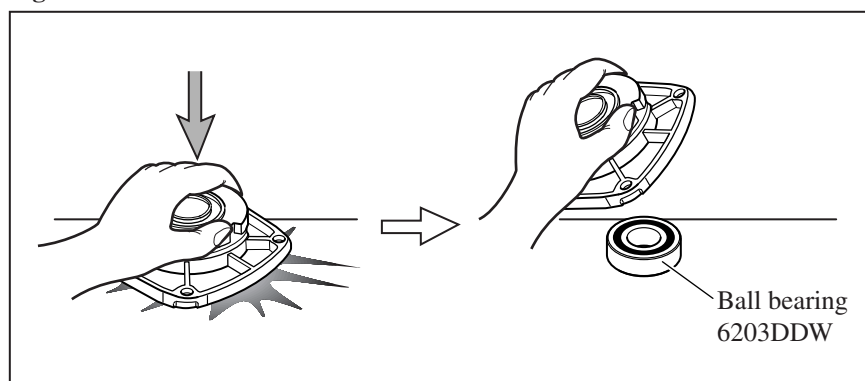
**Fig. 13**



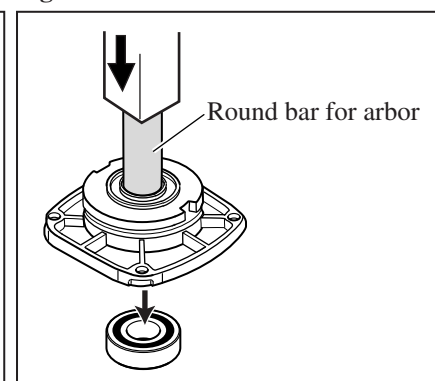
**Fig. 14**



**Fig. 15**



**Fig. 16**



#### ASSEMBLING

**Important: Be careful not to put the lubricants on the threaded portion of Spindle.**

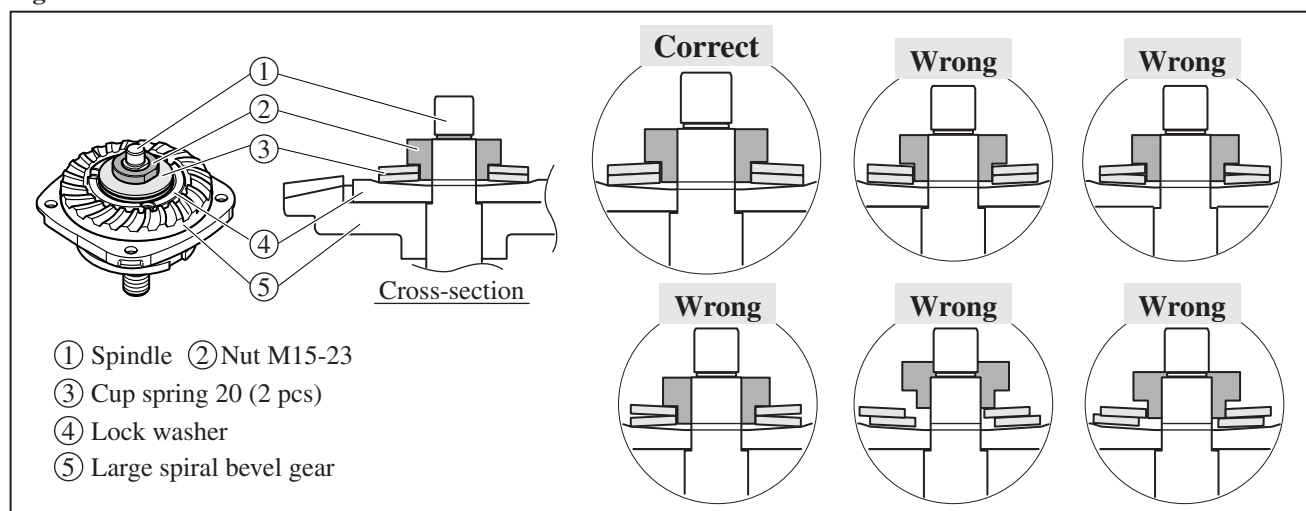
**Also be sure that the contact surface of each part is not contaminated with dust or foreign particles.**

Do the reverse of the disassembling steps.

**Note 1. When assembling Cup spring 20 and Nut M15-23 to Spindle:**

- 1) Cup spring 20 is not reversible when assembled to Spindle. Be sure to put as illustrated in **Fig. 17**.  
Also be careful not to put the protruding portion of Nut M15-23 over Cup spring 20.
- 2) Fasten Nut M15-23 to Spindle by presetting the torque of 1R223 to 55-60N.m, then turning counterclockwise with 1R224, 1R223 and 1R204. (**Fig. 11** on page 9)

**Fig. 17**



## ► Repair

### [3] -2. Large spiral bevel gear and Ball bearing 6203DDW (cont.)

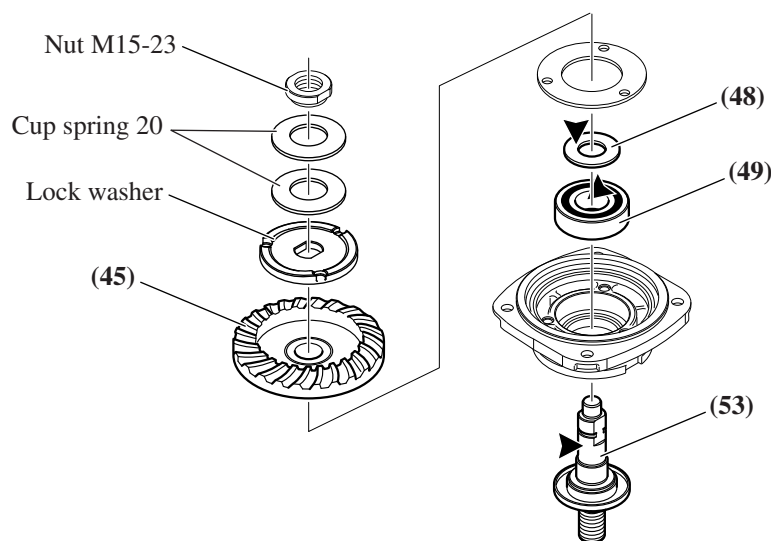
#### ASSEMBLING

#### Note 2. Lubrication

- 1) Apply an appropriate amount of Makita grease K No.1 to the portion designated with the gray triangle in **Fig. 18**.
- 2) Apply an appropriate amount of lubricant of molybdenum disulfide to the portions designated with the black triangle in **Fig. 18**.

Item No.	Description	Portion to lubricate	Lubricant
(45)	Large spiral bevel gear	Surface that contacts Lock washer	Makita grease K No.1
(48)	Flat washer 15	Surface that contacts (45) Large spiral bevel gear	Lubricant of molybdenum disulfide
(49)	Ball bearing 6203DDW	Surface of inner race	
(53)	Spindle	Surface that contacts (45) Large spiral bevel gear	

**Fig. 18**



### [3] -3. Shaft Lock

#### DISASSEMBLING

- 1) Remove Bearing box from Gear housing.
- 2) Pull off Shoulder pin 5 with pliers while pushing Pin cap with a finger. (**Fig. 19**)

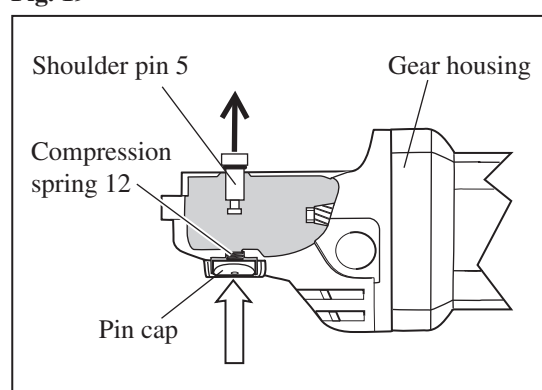
**Note:** Do not pull off shoulder pin 5 without holding pin cap because Compression spring 12 would sling Pin cap.

#### ASSEMBLING

Do the reverse of the disassembling steps.

**Note:** Do not reinstall removed Pin cap because removal of Shoulder pin 5 damages the inside surface of Pin cap. Be sure to remove plastic dust of Pin cap from Shoulder pin 5 and to install it onto a new Pin cap.

**Fig. 19**



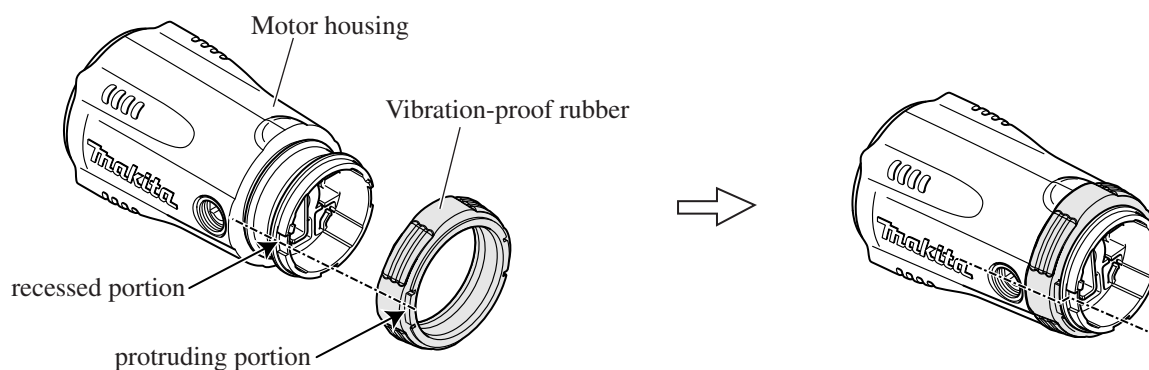
## ► Repair

### [3] -4. Assembling Handles (R) and (L) to Motor Housing

1) Assemble Vibration-proof rubber to Motor housing as illustrated in **Fig. 20**.

**Fig. 20**

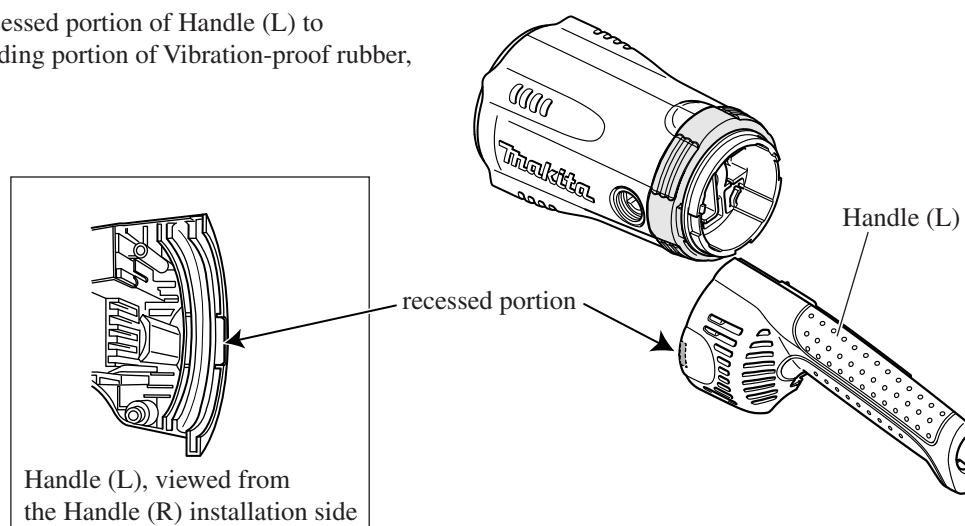
Align the center of the recessed portion of Motor housing with that of the protruding portion of Vibration-proof rubber.



2) Assemble Handle (L) to Motor housing as illustrated in **Fig. 21**.

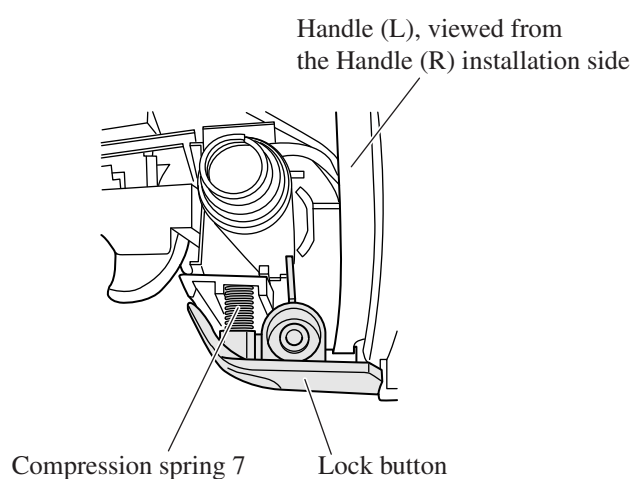
**Fig. 21**

Fit the recessed portion of Handle (L) to the protruding portion of Vibration-proof rubber,

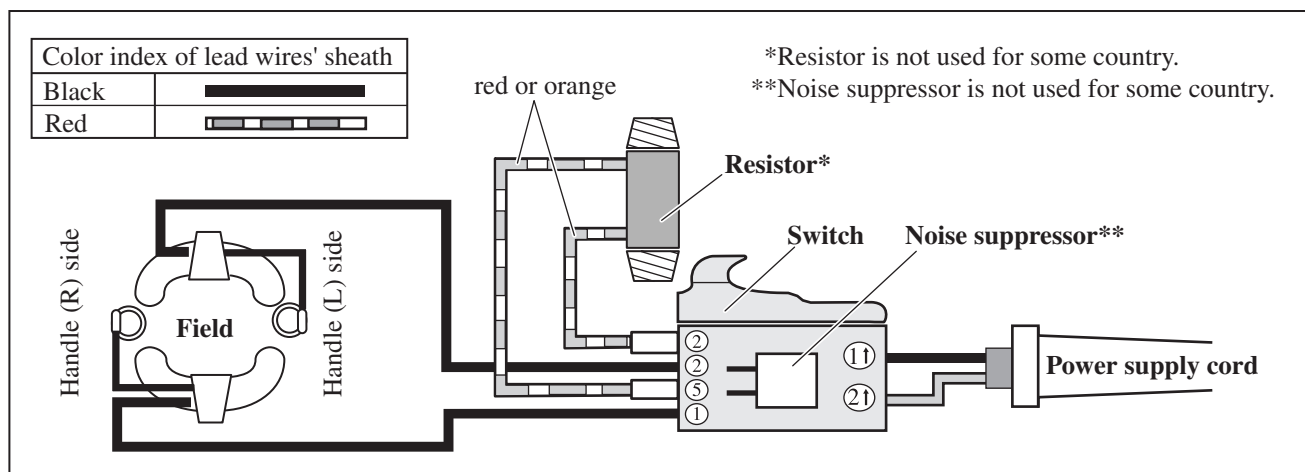


3) Put Lock button and Compression spring 7 in place on Handle (L) as illustrated in **Fig. 22**. Assemble Housing (R) to Housing (L).

**Fig. 22**



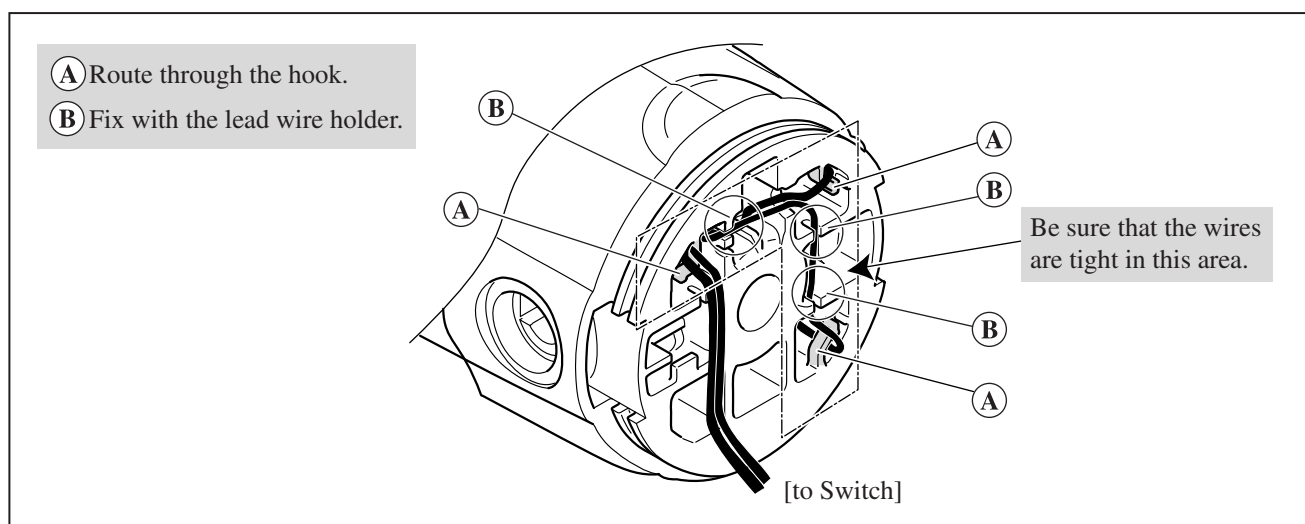
## ► Circuit diagram



## ► Wiring diagram

### [1] Motor Housing

Route two Field lead wires (black) as illustrated below.



### [2] Handle

