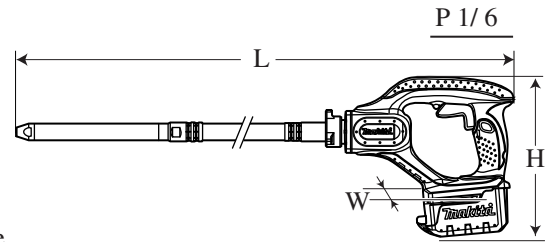


TECHNICAL INFORMATION



- Model No.** ▶ BVR340/ BVR440
BVR350/ BVR450/ BVR850
- Description** ▶ Cordless Concrete Vibrators
(14.4V, 18V)



CONCEPT AND MAIN APPLICATIONS

These five models have been developed as the first Cordless concrete vibrators of the MAKSTAR series models.

Using Li-ion battery as power source, these new models are superior to the current VR250D series models in work amount on a single battery charge. Model BVR850 features 2400mm (8.0ft) extra-long flexible shaft for smooth mixing of concrete in deep forms.

Model BVR340 and BVR440 are powered by 14.4V Li-ion battery, and Model BVR350, BVR450 and BVR850 by 18V Li-ion battery.

Dimensions: mm (")			
Model	BVR340 BVR350	BVR440 BVR450	BVR850
Length (L)	1,083 (42-3/4)	1,483 (58-1/2)	2,683 (105-1/2)
Width (W)	93 (3-5/8)		
Height (H)	250 (9-7/8)		

These new products are available in the following variations.

14.4V Models

Model No.	Battery		Charger	Plastic carrying case for storage of battery and charger
	type	quantity		
BVR340SFE	BL1430	2	DC18SC	Yes
BVR440SFE	BL1430	2	DC18SC	Yes

18V Models

Model No.	Battery		Charger	Plastic carrying case for storage of battery and charger	Country
	type	quantity			
BVR350	BL1830	2	DC18SC	Yes	USA, Canada, Mexico
BVR350SFE					Countries other than listed above
BVR450Z	No	---	No	No	All countries
BVR450	BL1830	2	DC18SC	Yes	USA, Canada, Mexico, Panama
BVR450SFE					Countries other than listed above
BVR850Z	No	---	No	No	All countries
BVR850	BL1830	2	DC18SC	Yes	USA, Canada, Mexico, Panama
BVR850SFE					Countries other than listed above

► Specification

Specification		Model No.	BVR340	BVR440	BVR350	BVR450	BVR850
Battery	Voltage: V		14.4		18		
	Capacity: Ah		3.0		3.0		
	Cell		Li-ion		Li-ion		
Flexible shaft length: mm (ft)			800 (2.6)	1,200 (4.0)	800 (2.6)	1,200 (4.0)	2,400 (8.0)
Vibration per minute: min-1=vpm			12,500		13,000		12,500
Vibrator length: mm			1.0		1.0		
Vibrator diameter: mm (")			25 (1)		25 (1)		
Net weight*: kg (lbs)			3.1 (6.8)	3.6 (7.9)	3.2 (7.1)	3.7 (8.2)	5.3 (11.7)

*Catalog value including battery.

► Standard equipment

See the variation tables above.

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

► Optional accessories

Battery BL1430 (14.4V models), Battery BL1830 (18V models), Chargers DC18SC, DC24SC, DC24SA

► Repair

CAUTION: Remove the battery cartridge from the machine for safety before repair/maintenance !

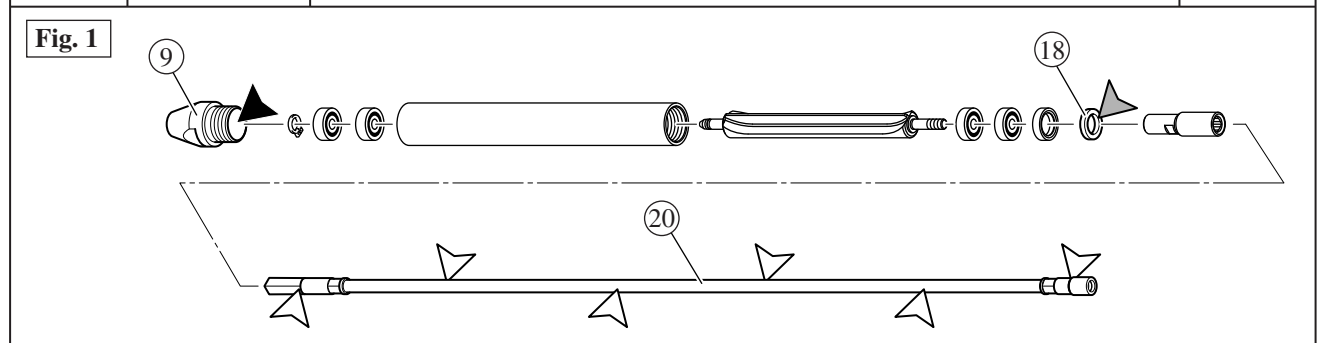
[1] NECESSARY REPAIRING TOOLS

Code No.	Description	Use for
1R023	Pipe ring for arbor press	Press-fitting Ball bearing
1R027	Bearing setting pipe 18-10.2	Press-fitting Ball bearing
1R269	Bearing extractor	Removing Ball bearing
1R291	Retaining ring S and R pliers	Removing/Assembling Retaining ring S-6
1R356	Bearing plate for arbor press	Press-fitting Ball bearing

[2] LUBRICATION

As described below, apply lubricant to the portions designated with the triangles to protect parts and product from unusual abrasion (Fig. 1).

Item No.	Description	Lubricant to apply and Portion to lubricate	Symbol of lubricant
⑨	Cap	Put 2.5g of Makita grease R No.00 into Cap.	▼
⑱	Felt ring	Saturate with Lubricating oil VG46.	▽
⑳	Flexible wire	Apply the following amount of Makita grease N No.2 to whole surface evenly; BVR340, BVR350: 1.5g, BVR440, BVR450: 2.0g, BVR850: 4.0g	▽



[3] DISASSEMBLY/ASSEMBLY

[3] -1. Removing/Assembling Flex-shaft Section from/to Motor Section

REMOVING

- 1) Remove Nut 36 by tapping with plastic hammer as illustrated in Fig. 2. Flexible hose is now unfastened from Bearing box, and the junction point of Flexible wire and Spindle will be seen by moving Flexible hose.
- 2) See Fig. 3. Fix Spindle by putting Wrench 8 on the flat surfaces of Spindle. Grasp the crimped portion of the hose with water pump pliers. Disconnect Flexible wire from Spindle by turning clockwise with water pump pliers.

Fig. 2

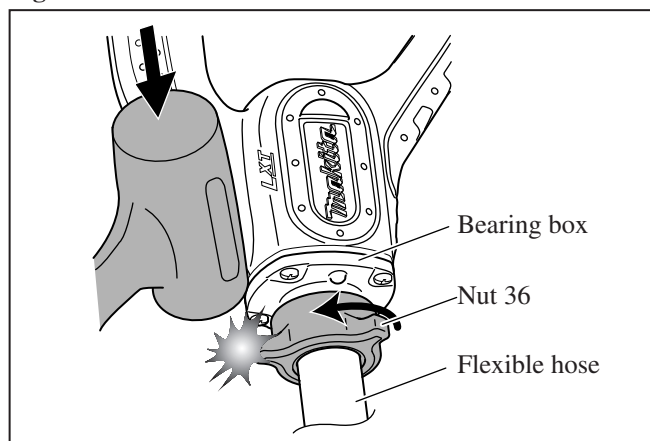
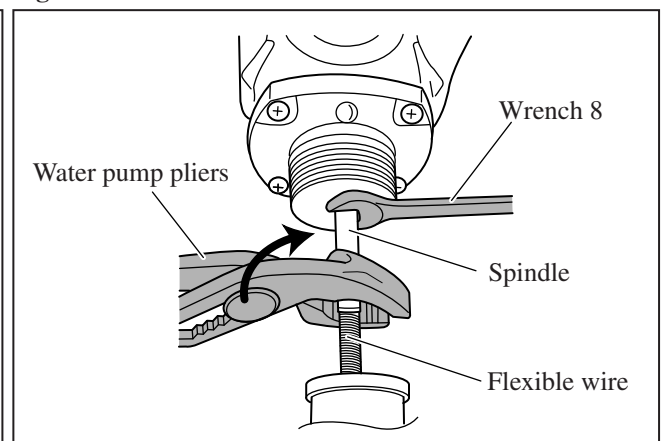


Fig. 3



ASSEMBLING

Do the reverse of the removing steps.

Important: Be sure that every threaded portion is securely tightened.

► Repair

[3] -2. Motor Section

DISASSEMBLING

- 1) Remove Flex-shaft section from Motor section as described in [3] -1 on page 2.
- 2) Remove Bearing box from Housing by unscrewing four 4x20 Tapping screws.
- 3) Remove Cover complete as illustrated in **Fig. 4**.
- 4) Remove Housing R from Housing L by unscrewing nine 4x20 Tapping screws.
- 5) Remove Ball bearing 629LLB from Spindle with Bearing extractor (No.1R269) (**Fig. 5**).
- 6) Remove Supporter from DC Motor by unscrewing two M4x12 Pan head screws.

Fig. 4

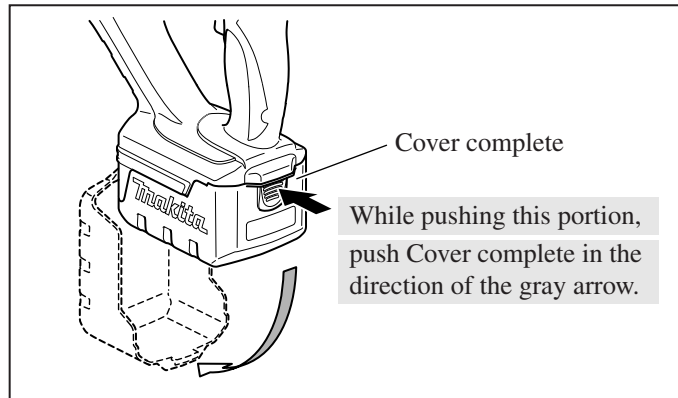
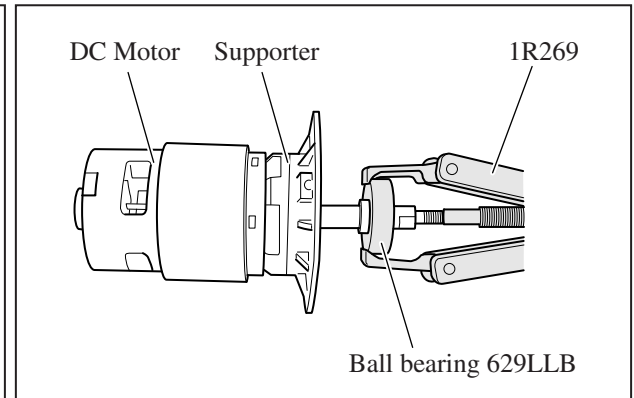


Fig. 5



ASSEMBLING

- 1) Install Supporter on DC Motor by fastening two M4x12 Pan head screws.
- 2) Set the assembly of DC Motor and Supporter in jigs as illustrated in **Fig. 6**. Press down Ball bearing 629LLB with arbor press all the way until it stops against the stopper on Spindle.

Important: Be sure to do the above steps. Do not press down Spindle into Ball bearing 629LLB or Spindle press-fitted on Motor shaft will be moved out of place (**Fig. 7**).

Fig. 6

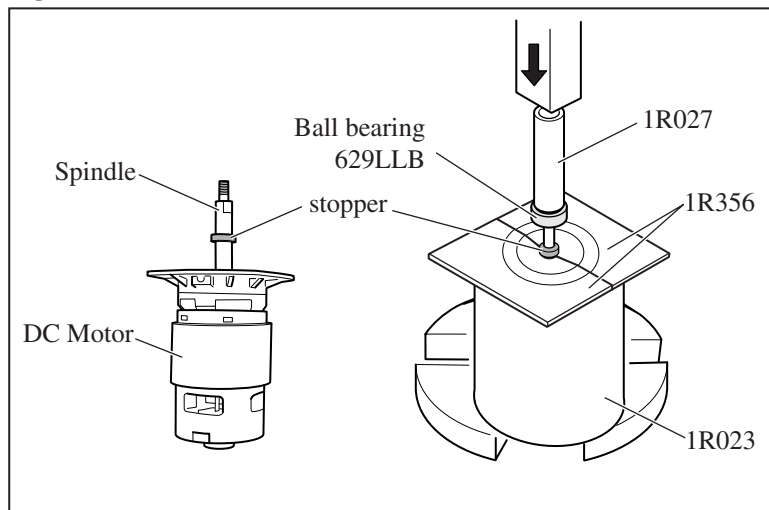
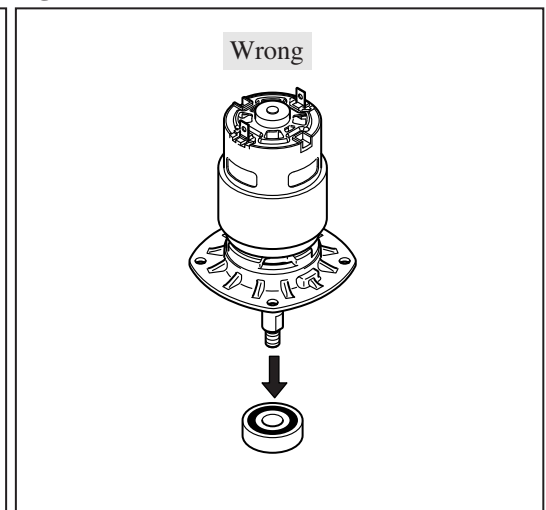


Fig. 7



► **Repair**

[3] -3. Flex-shaft Section

DISASSEMBLING

- 1) Remove Flex-shaft section from Motor section as described in [3] -1 on page 2.
- 2) Fix adjustable wrench in vise. Fix Flex-shaft section with adjustable wrench by fitting the flat surfaces of Flexible hose in adjustable wrench. Separate Pipe 25 from Flexible hose by turning in the direction of the arrow using a pipe wrench with length of 450mm or longer. (Fig. 8)
- 3) Fix Pipe 25 in vise by fitting the flat surfaces of Cap in the lips of vise. Remove Pipe 25 by turning in the direction of the arrow using the same pipe wrench as used for removal of Flexible hose. (Fig. 9)
Flex-shaft section can now be disassembled as illustrated in Fig. 10.

Fig. 8

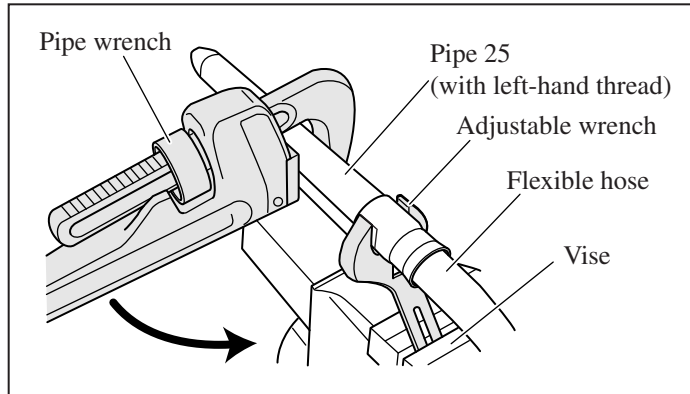


Fig. 9

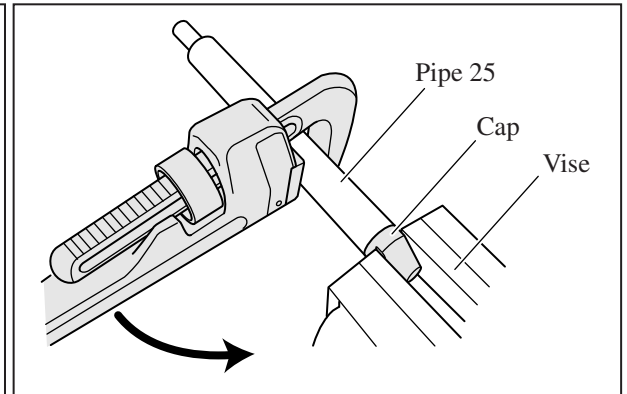
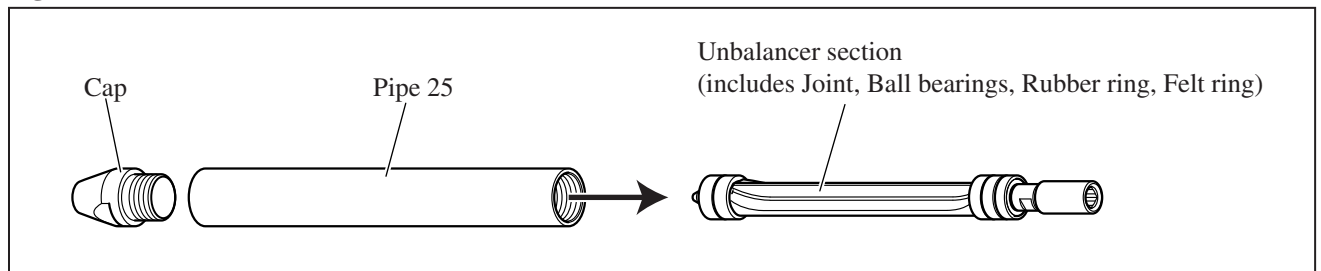


Fig. 10



- 4) Fix Unbalancer section in vise. Put Wrench 9 on the flat surfaces of Joint. Remove Joint by turning in the direction of the arrow with the wrench. (Fig. 11)
- 5) Remove Retaining ring S-6 with Retaining ring S and R pliers (No.1R291). Remove Rubber ring and Felt ring. (Fig. 12)

Fig. 11

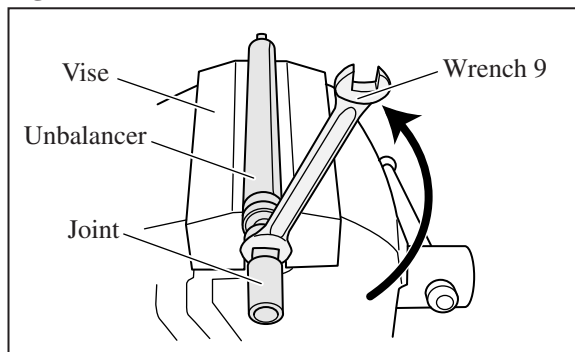
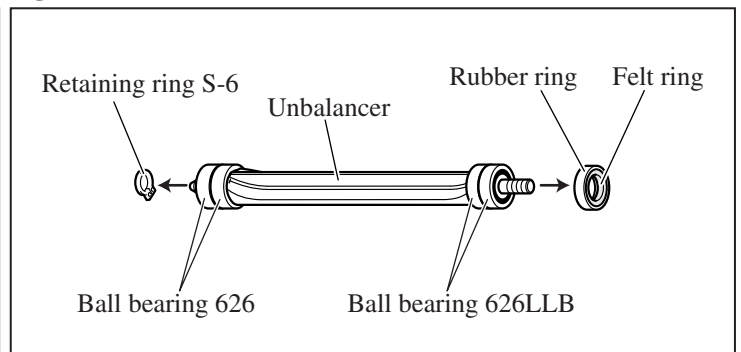
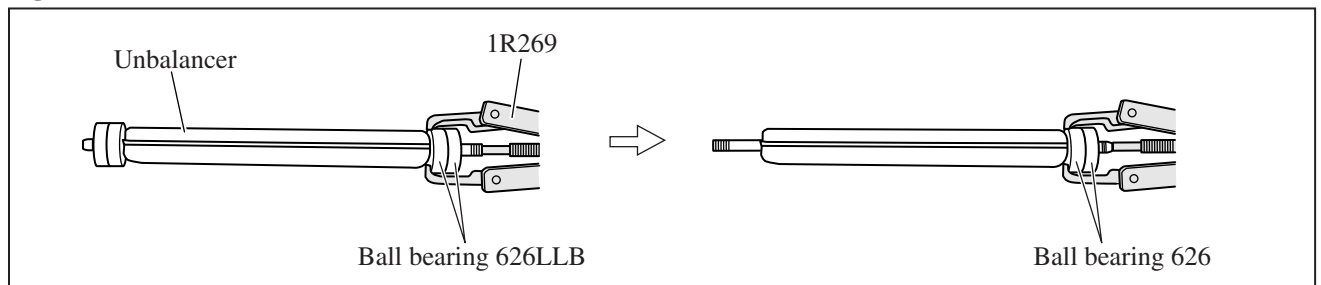


Fig. 12



- 6) Remove two 626LLB Ball bearings and two 626 Ball bearings from Unbalancer using Bearing extractor (No.1R269). (Fig. 13)

Fig. 13



► Repair

[3] -3. Flex-shaft Section (cont.)

ASSEMBLING

- 1) Saturate Felt ring with Lubricating oil VG46. (Refer to [2] LUBRICATION.) Assemble Felt ring to Rubber ring.
Note: Replace the rings with new ones if they are damaged.
- 2) Assemble Unbalancer section. (Refer to **Figs. 13, 12, 11.**)
- 3) Apply Threebond 1303 to the whole threaded portion of Cap. Fasten Cap securely to Pipe 25. (Refer to **Fig. 9.**)
Important: Be careful not to apply the bond to Cap other than the threaded portion.
- 4) Insert Unbalancer section into Pipe 25 all the way until it stops (**Fig. 14**). Adjust the position of Rubber ring so that the end surface of Rubber ring is flush with that of the opening of Pipe 25 (**Fig. 15**).
- 5) Fasten Flexible hose securely to Pipe 25 while inserting Rubber ring into place. (Refer to **Fig. 8.**)
Important: Be careful not to tilt Rubber ring.

Fig. 14

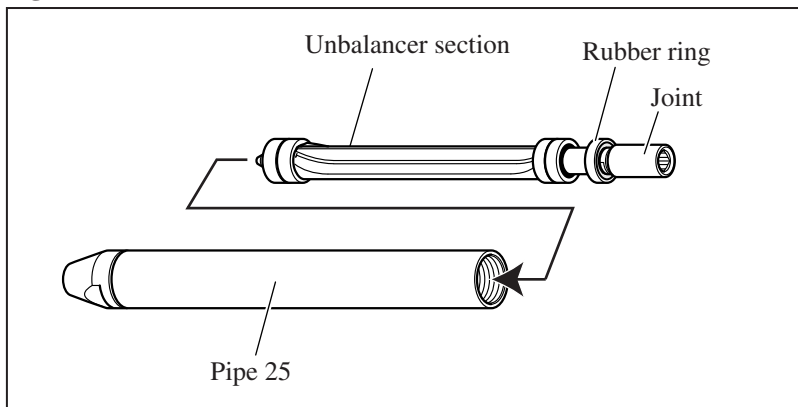
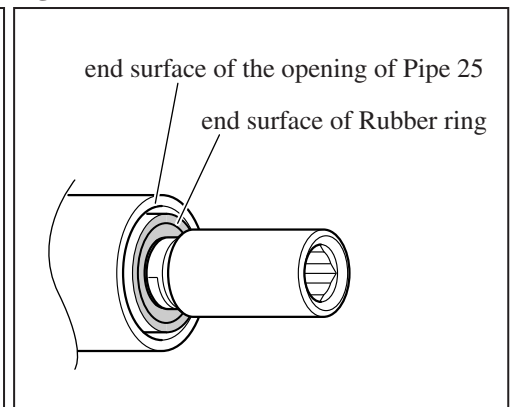
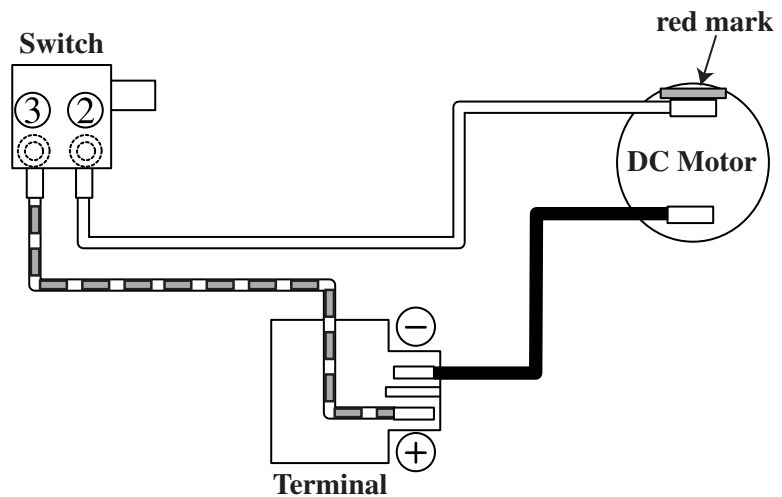


Fig. 15



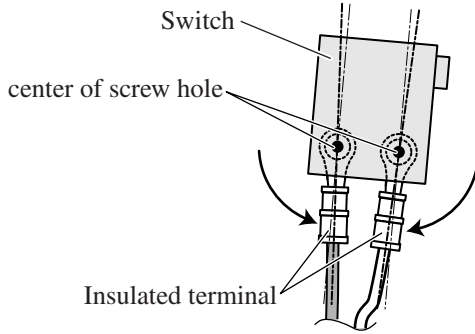
► Circuit diagram

Color index of lead wires	
Black	
White	
Red	



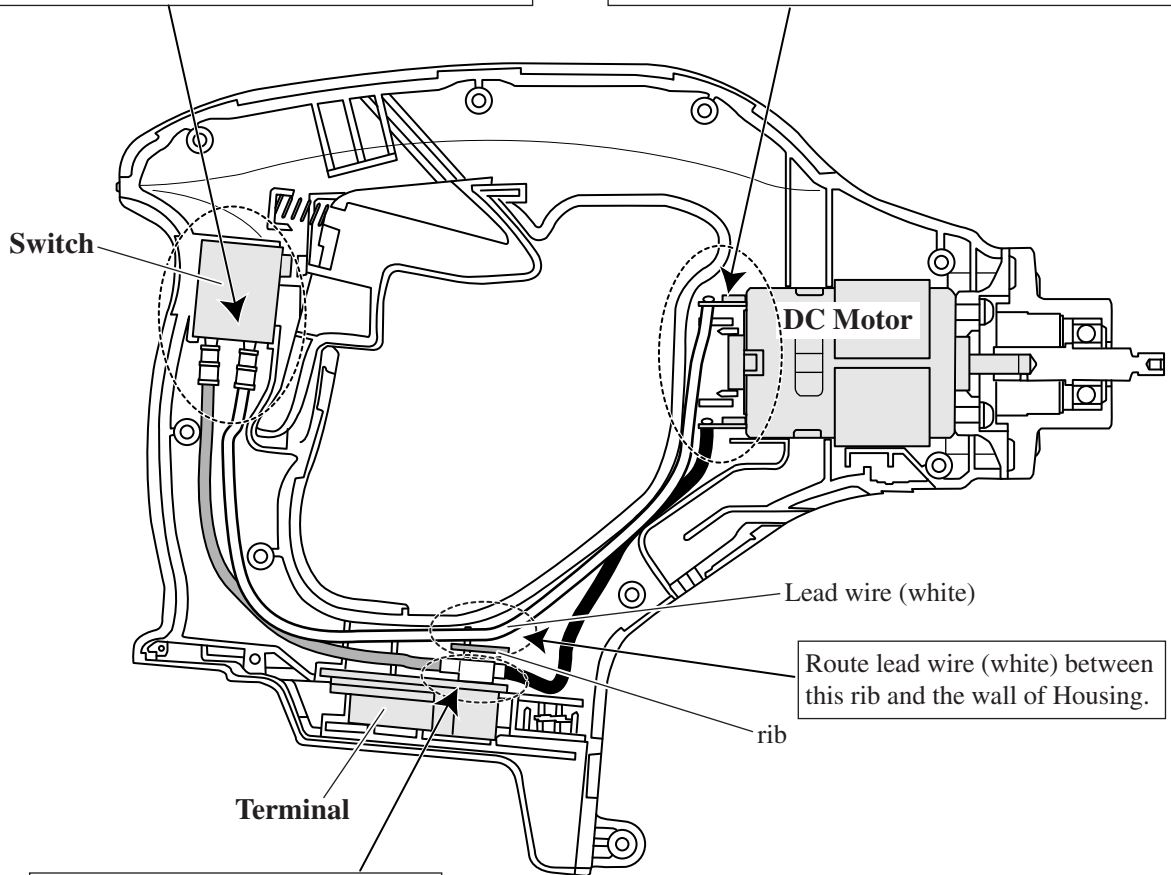
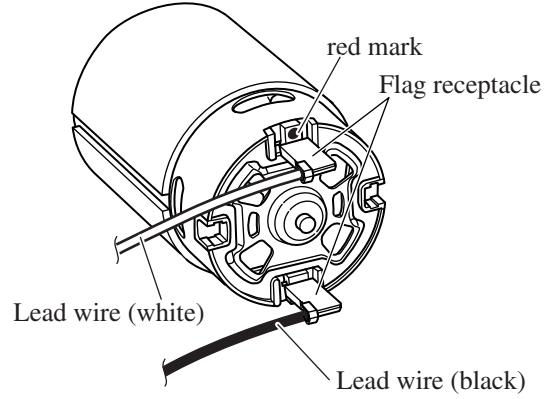
► **Wiring diagram**

Connect Lead wires (red, white) to Switch as illustrated below. Be sure that the center line of each Insulated terminal is positioned inside of the center of each screw hole.



Connect Flag receptacles to the terminals on DC Motor as illustrated below.

Note: Connect the Flag receptacle on Lead wire (white) to the terminal with a red mark.



Connect Lead wires (red, black) to Terminal as illustrated below.

