

TECHNICAL INFORMATION



PRODUCT

P 1 /13

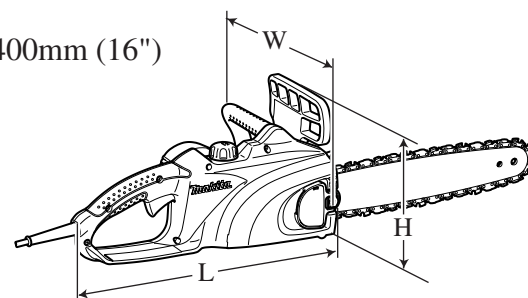
Model No. ▶ UC3020A/ UC3520A/ UC4020A

Description ▶ Chain Saws 300mm (12")/ 350mm (14")/ 400mm (16")

CONCEPT AND MAIN APPLICATIONS

These new electric chain saws have been developed as the up-graded successors to the current UC3010A series models. Designed with the concept of "Easy Operation and Maintenance", and feature the following main advantages;

- Toolless blade change and adjustment
- Front grip ergonomically designed for high maneuverability



*Dimensions: mm (")	
Length (L)	436
Width (W)	244
Height (H)	200

*Dimensions: excludes guide bar.

► Specification

Voltage (V)	Current (A)	Cycle (Hz)	Continuous Rating (W)		Max. Output (W)
			Input	Output	
110	15	50/ 60	1,570	700	1,900
120	15	50/ 60	1,710	850	1,950
220	8.6	50/ 60	1,800	1,000	2,400
230	8.2	50/ 60	1,800	1,000	2,400
240	7.9	50/ 60	1,800	1,000	2,400

Model No.		UC3020A	UC3520A	UC4020A
Chain speed per sec: m/s (m/min)		13.3 (800)		
Standard guide bar: mm (")		300 (12)	350 (14)	400 (16)
Chain blade	Type	90SG-46E	90SG-52E	90SG-56E
	Pitch	3/8"		
Chain brake		Mechanical brake		
Chain oil tank capacity: ml		200		
Automatic chain oiling		Yes		
Double insulation		Yes		
Power supply cord: m (ft)		0.3 (0.98)		
Net weight: kg (lbs)		3.8 (excluding guide bar and chain blade)		

► Standard equipment

Chain blade 1 pc (UC3020A: 90SG-46E, UC3520A: 90SG-52E, UC4020A: 90SG-56E)
 Guide bar 1 pc (UC3020A: 90SG 12", UC3520A: 90SG 14", UC4020A: 90SG 16")
 Chain cover 1 pc
 Hook complete 1 pc

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

► Optional accessories

Chain blade (90SG, 91VG) (300/ 350/ 400mm)
 Guide bar (90SG, 91VG) (300/ 350/ 400mm)
 Chain oil

► Features and benefits

Designed with the concept of "Easy Operation and Maintenance"

Ergonomically Positioned and Angled Front Grip

Increases maneuverability, making horizontal cutting easier.

Powerful Cutting Thanks to the High Torque Delivered by Heavy-Duty Motor.

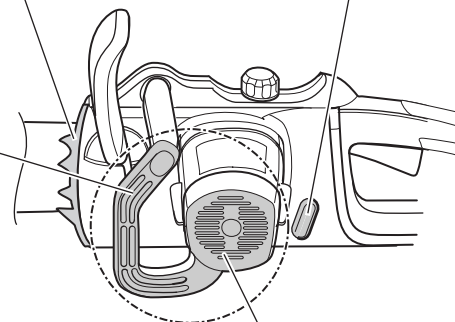
Rubberized Soft Rear Grip

Metal Spike Bumper

Firmly grips workpiece to provide more control, making cutting easier.

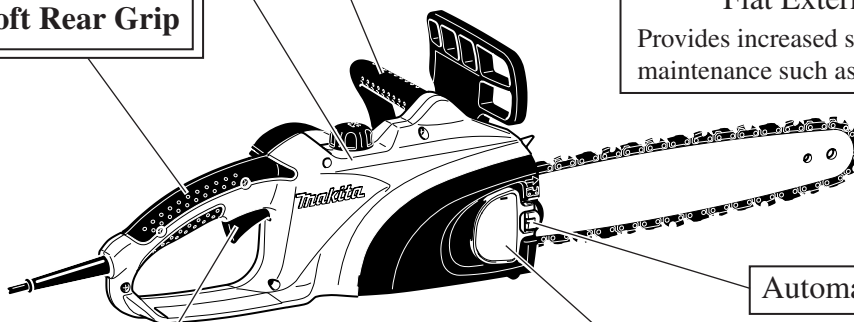
Large View Window of Oil Tank

Allows operator to easily check oil level.



Flat External Design

Provides increased stability in tool maintenance such as oiling/blade change.



Automatic Chain Oiling

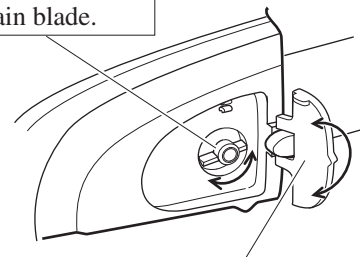
Easy-to-Operate, Large Switch Lever

Valve Built-in Oil Pump Prevents Chain Oil Leakage.

Toolless Blade Change and Adjustment

Without removing sprocket cover, blade change and adjustment can be done.

Simply turn this knob to adjust the tension of chain blade.



Merely by turning this lever, guide bar and chain blade can be replaced.

*The same advantages as UC3010A series models.

Comparison of products

Model No. Specification	Makita		Competitor A	Competitor B	Competitor C
	UC3020A/ UC3520A/ UC4020A	UC3010A/ UC3510A/ UC4010A	A	B	C D E
Continuous rating input: W	1,800*2	Europe: 1,800 Other countries: 1,500	2,000	1,800	1,700
Chain speed per sec: m/s	13.3	13.3	11	15.45	12
Standard guide bar: mm	300/ 350/ 400	300/ 350/ 400	300/ 350/ 400	300/ 350/ 400	300/ 350/ 400
Chain blade: inch	90SG (91VG*3)	90SG 3/8	91VG	P Picco Micro	90SG (91VG*3)
			3/8	3/8	3/8
Toolless adjustment of chain blade tension	Yes	No	Yes	Yes	Yes
Chain brake	Mechanical brake	Mechanical brake	Mechanical brake	Mechanical brake	Mechanical brake
Kick-back brake	Yes	Yes	Yes	Yes	Yes
Overload protector	No	No	No	Yes (OCR)	No
Oil tank capacity: ml	200	145	200	200	200
Automatic chain oiling	Yes	Yes	Yes	Yes	Yes
Double insulation	Yes	Yes	Yes	Yes	Yes
Power supply cord: m	0.3	0.3	0.22	1.6	0.3
Dimensions: mm [L x W x H]	without blade*1	410 x 232 x 180	417 x 255 x 220	405 x 238 x 208	453 x 255 x 203
	with blade	718/ 774/ 812 x 244 x 200	---	---	---
Net weight excluding guide bar and blade: kg including guide bar and blade: kg	3.8	3.5	3.95 (actually measured)	3.5	3.8
	4.2/ 4.3/ 4.4 (90SG) 4.3/ 4.4/ 4.5 (91VG)	3.9/ 4.0/ 4.2	4.2/ 4.3/ 4.4	4.2/ 4.3/ 4.4	4.2/ 4.3/ 4.4
Standard equipment	Chain blade, Guide bar Guide bar scabbard Hook complete	Chain blade, Guide bar Guide bar scabbard Universal wrench	Chain blade, Guide bar Guide bar scabbard	Chain blade, Guide bar Guide bar scabbard	Chain blade, Guide bar Guide bar scabbard Chain oil 80mL

*1: includes spike bumper yet without guide bar.

*2: Differs by country.

*3: Available with optional guide bar

► **Comparison of products**

Performance Comparison

Numbers in charts below are relative values when the capacity of Makita UC3510A is indexed at 100.

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

Cut 300mm diameter Japanese cedar log
with the following blade;

Makita UC3520A and UC3510A: 90SG

Competitor B Model B: Competitor B genuine

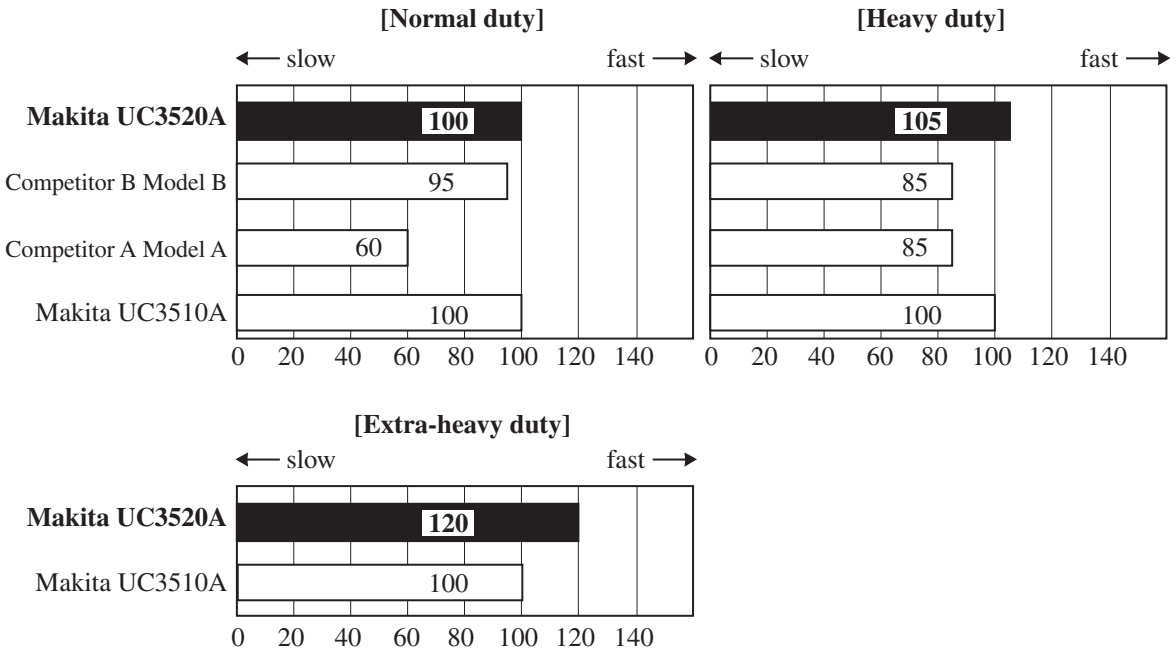
Competitor A Model A: 91VG

under the following duty conditions;

Normal duty: with a 5kg weight hung on the chain catcher portion

Heavy duty: using spike bumper, with the load under which the highest cutting efficiency can be obtained

Extra-heavy duty: with a 12kg weight hung on the chain catcher portion



► Repair

CAUTION: Remove the chain blade, guide bar from the machine for safety before repair/ maintenance ! Take off chain oil from oil tank !

[1] NECESSARY REPAIRING TOOLS

Code No.	Description	Use for
1R269	Bearing Extractor	Removing ball bearings

[2] LUBRICATION

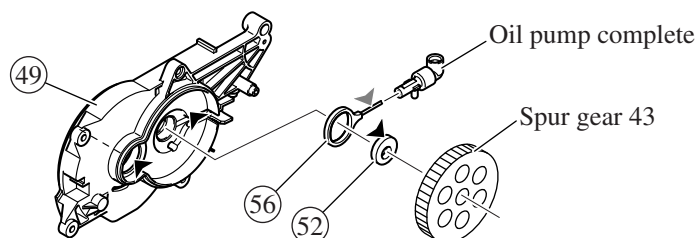
As illustrated in **Fig. 1**, to protect parts and product from unusual abrasion;

1) Apply Makita grease N. No.2 to the portions designated with the black triangle.

2) When replacing Oil pump complete, apply a little amount of Chain oil to the portions designated with the gray triangle.

Item No.	Description	Portion to lubricate
(49)	Bearing Box	Gear room (Apply about 3g.)
(52)	Cam	The portion that contacts (56) Crank
(56)	Crank	Pin portion that reciprocates in Oil pump complete

Fig. 1



[3] DISASSEMBLY/ASSEMBLY

[3] -1. Lubricating Mechanism

DISASSEMBLING

1) Put the machine on a work bench as illustrated in **Fig. 2**, then separate Housing (R) from Housing (L) by removing nine 4x18 Tapping screws.

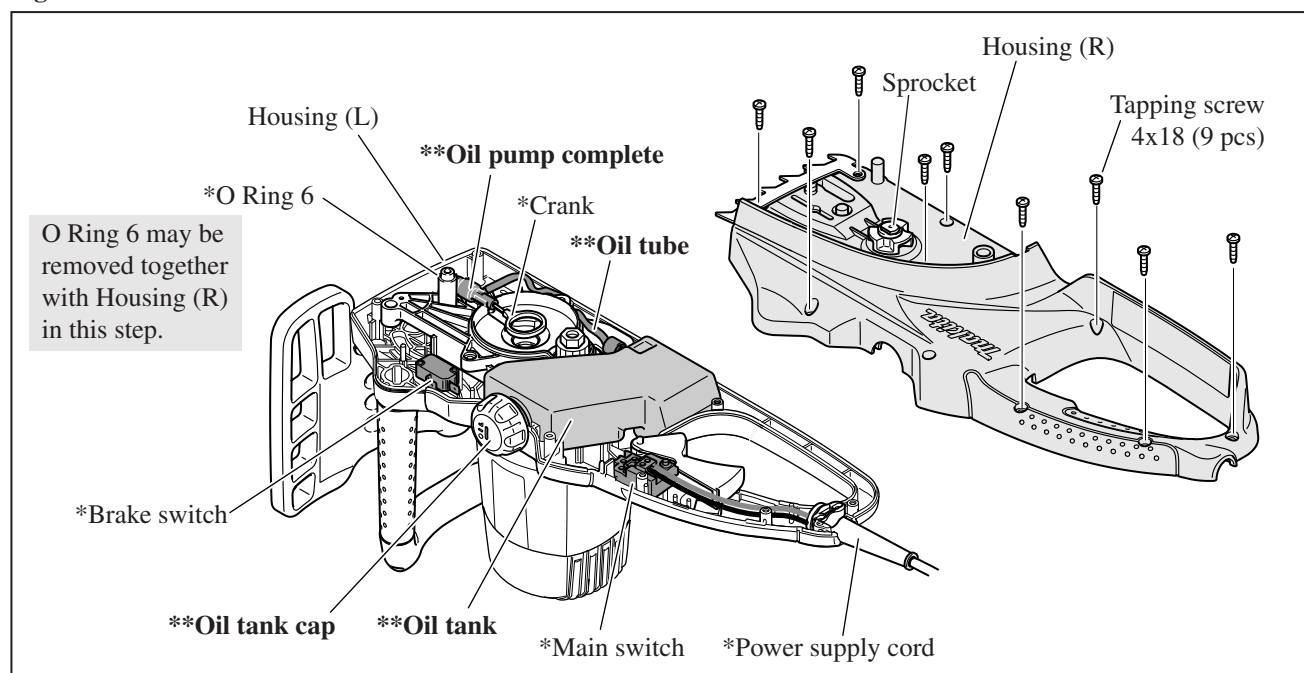
Note: Housing (R) can be separated without removing Sprocket.

Important: Do not remove Oil tank cap in this step.

2) The parts marked with * and ** can now be replaced. (**Fig. 2**)

The parts marked with ** are components of lubricating mechanism.

Fig. 2



► Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -1. Lubricating Mechanism (cont.)

ASSEMBLING

- 1) Mount O ring 6 to the boss of Bearing holder. (**Fig. 3**)
- 2) See **Fig. 4**.
Before connecting Oil tube to Oil tank, make sure that:
 1. Packing is mounted between Oil tank cap and Oil tank.
 2. O ring 6 is mounted to Oil pump complete.
 3. Clamp is put through Oil tube.
 4. Cap and Spring are assembled to in Oil tube.
- 3) Push Oil tube into Oil tank deeply until it stops, and secure with Clamp.
Note: Make sure that the tabs of Clamp is positioned on the Housing (R) installation side as illustrated in **Fig. 5**.
Then connect the other end of Oil tube securely to Oil pump complete.
- 4) Assemble the lubricating mechanism to the machine. (**Fig. 6**)
- 5) See **Figs. 21 and 22** on page 13 for assembling of electrical parts.

Fig. 3

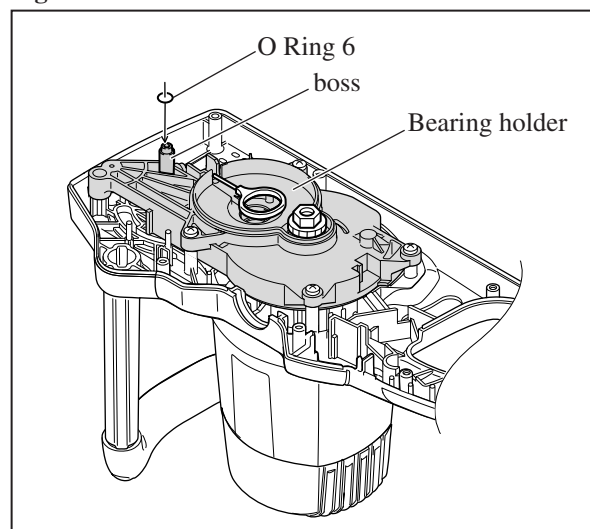


Fig. 4

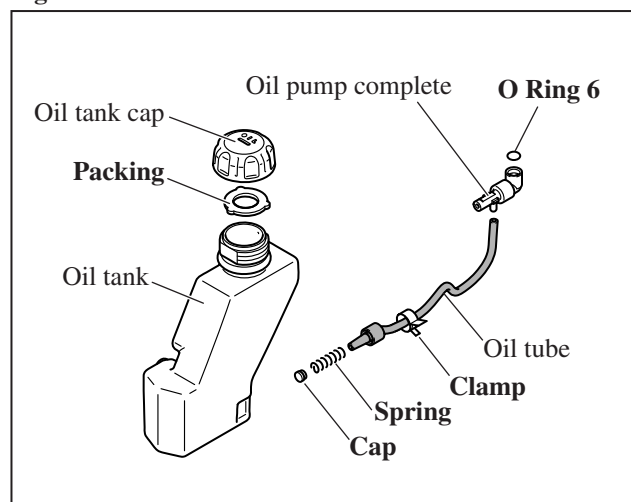


Fig. 5

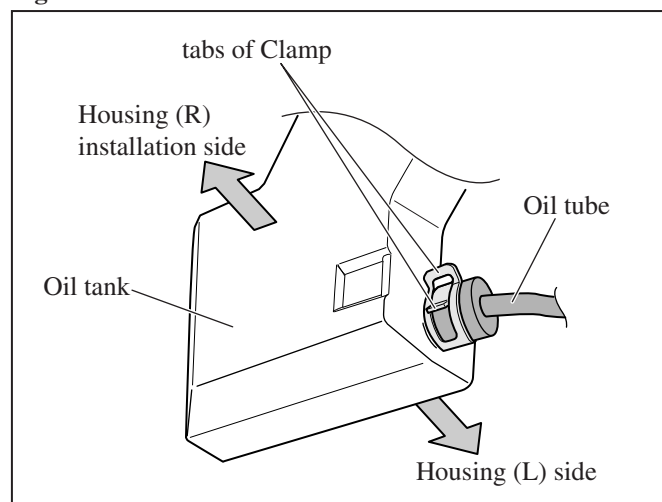
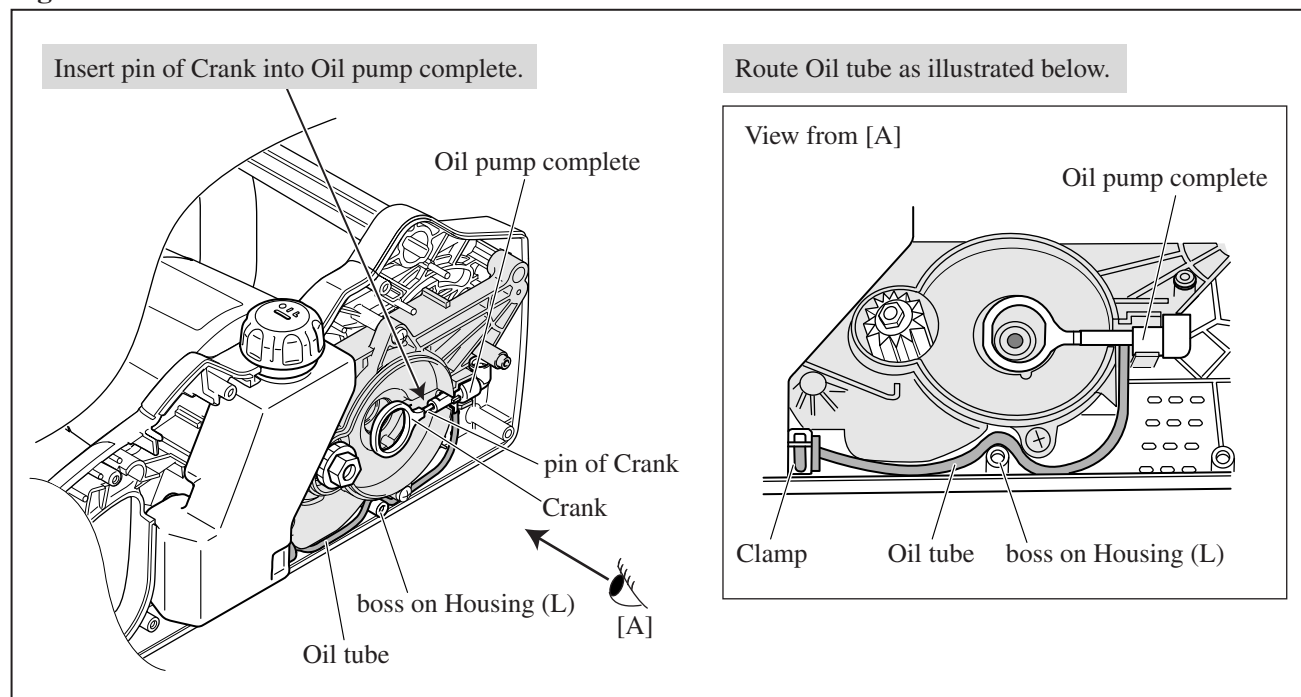


Fig. 6



► Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -1. Lubricating Mechanism (cont.)

TROUBLE SHOOTING

If the oil is not supplied to chain or delivered very little;

- 1) Remove Guide bar, then Push nut and Filter. (**Fig. 7**) Run the machine without Filter.

If the oil flows out from Oil supply port, there is not trouble with Oil pump complete.

The malfunction is caused by clogged Filter in this case. Clean up Filter with kerosene.

- 2) If the oil does not flow out, remove Housing (R) (**Fig. 2** on page 5)

and disassemble Lubricating mechanism. (**Fig. 3** on page 6)

Then check whether the following parts are clogged with foreign matter:

Filter in Oil tank, Oil tube, Oil pump complete

If clogged, remove foreign matter and clean up the part(s) with kerosene.

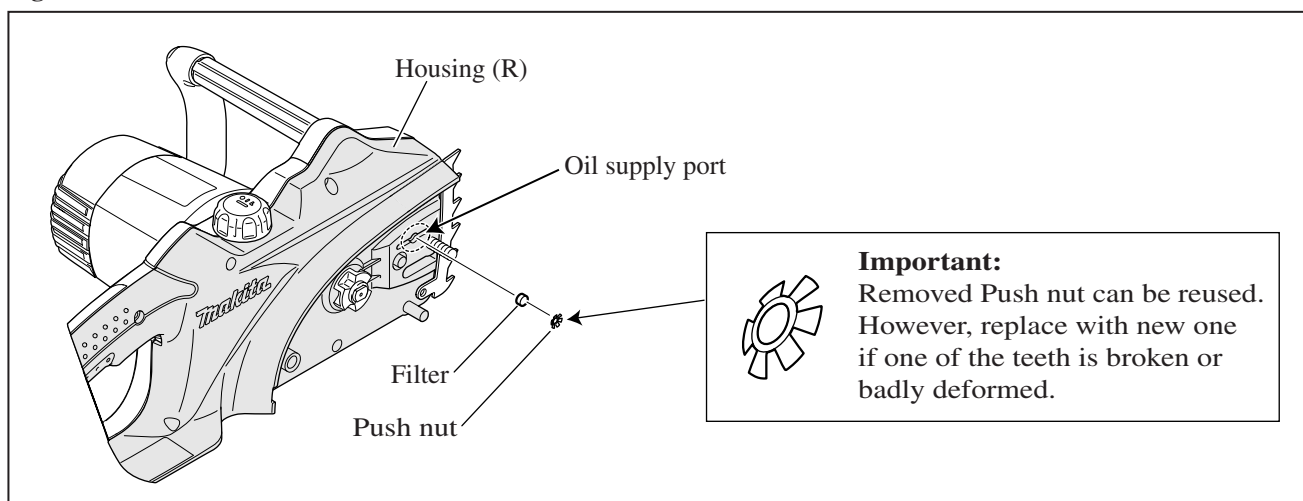
Reassemble Lubricating mechanism and Housing (R) to Housing (L), then Filter and Push nut to Housing (R).

Run the machine, then check whether the oil flows out.

- 3) If the oil does not flow out, the malfunction is caused by broken Oil pump complete.

Replace Oil pump complete with new one.

Fig. 7



► Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -2. Brake Mechanism and Armature

Principle of Brake Mechanism

Refer to the explanation below when repairing Brake mechanism.

These models are equipped with the following two brake systems.

A. Brake Synchronized with Switch Lever

This brake works when Switch lever is released to stop operation. (Figs. M-1, M-2, M-3)

B. Kick Back Brake

This brake works when Front hand guard is pushed towards Chain bar. The machine stops even if Switch lever stays in ON position. (Fig. M-4)

Fig. M-1

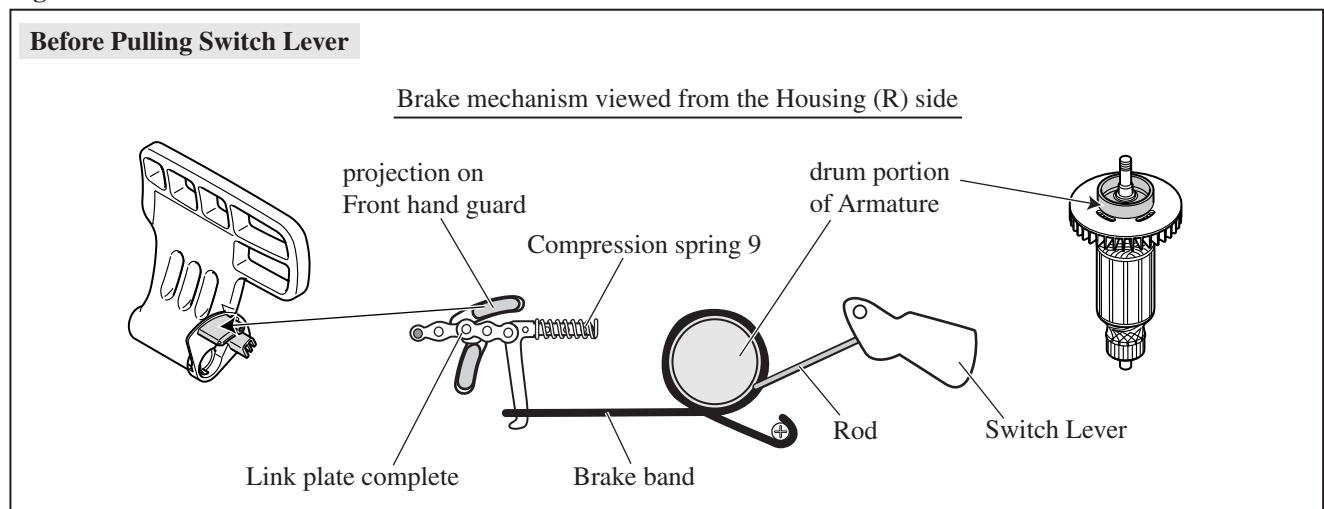


Fig. M-2

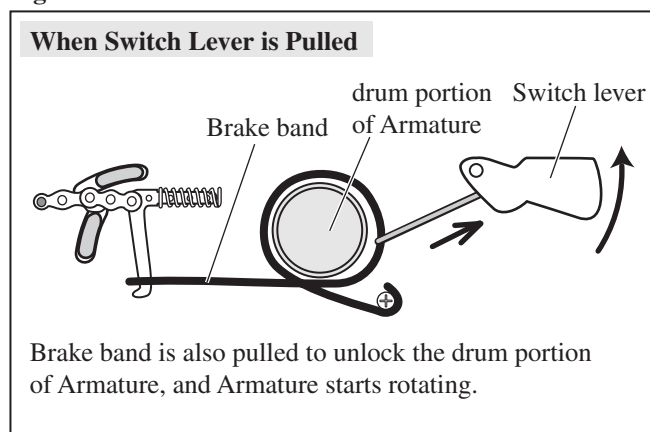


Fig. M-3

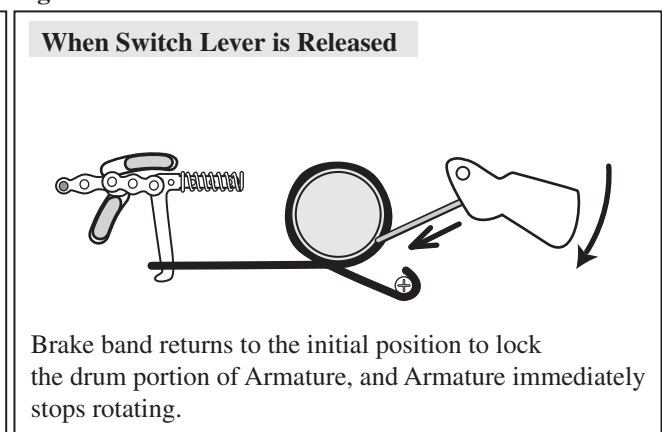
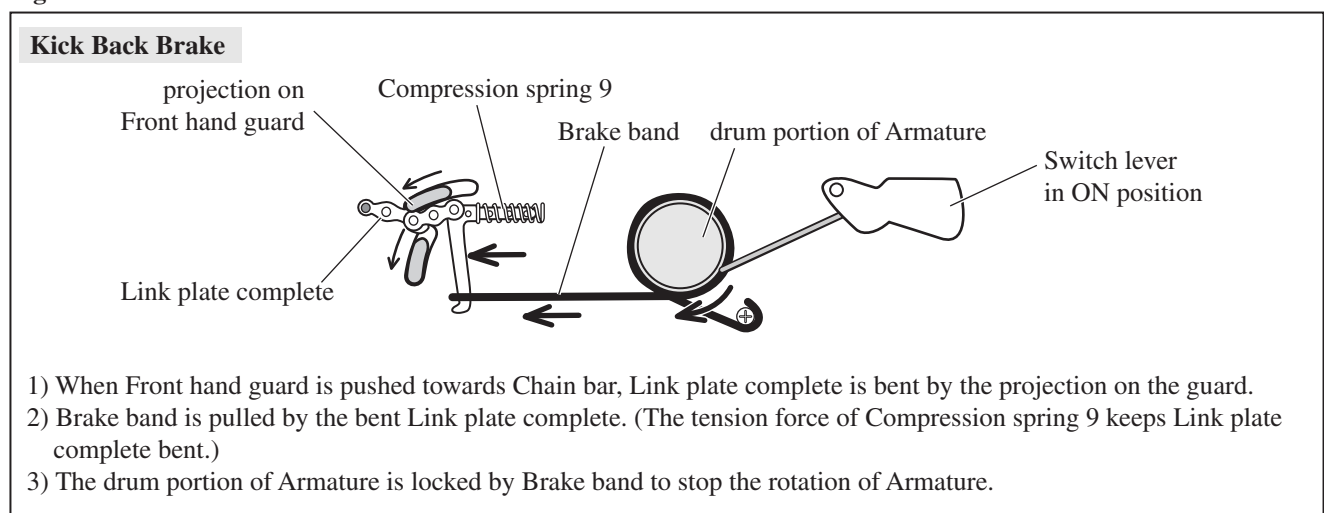


Fig. M-4



► Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -2. Brake Mechanism and Armature

DISASSEMBLING

- 1) Remove Housing (R). (**Fig. 2** on page 5)
- 2) Push Front hand guard towards the Guide bar installation side to lock Armature with kick back brake.
If Front hand guard is damaged, remove it and lock Armature by bending Link plate complete with a slotted screwdriver. (**Fig. 8**)
- 3) Remove entire Lubricating mechanism (Oil pump complete, Oil tube, Oil tank). While swiveling Switch lever, disconnect from Rod. Unscrew four 4x18 Tapping screws. (**Fig. 9**)

Fig. 8

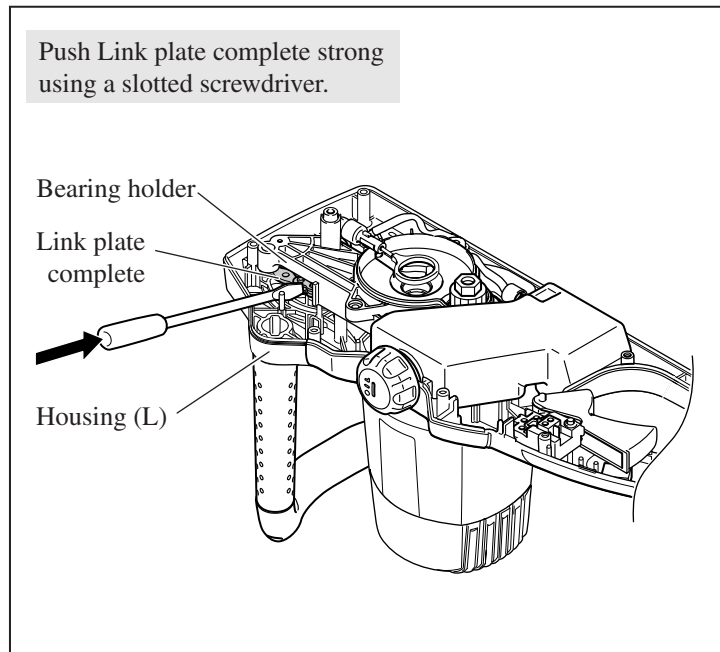
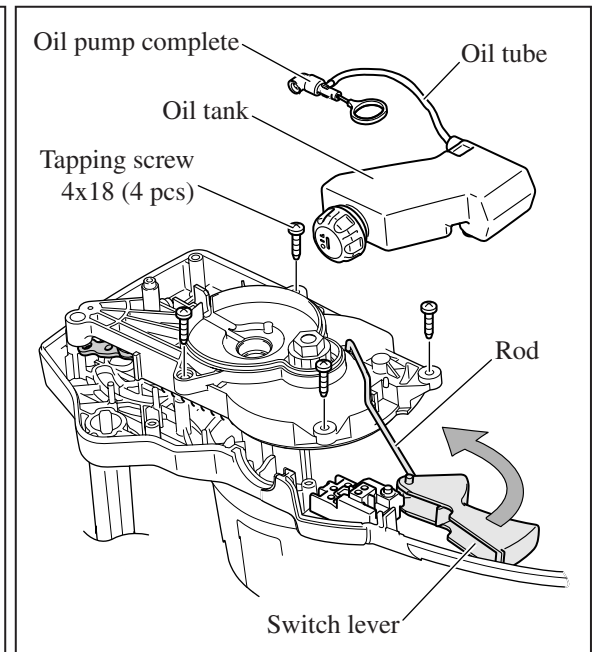


Fig. 9



- 4) Put the machine as illustrated in **Fig. 10**. Remove Rear cover, then Carbon brush. The assembly of Armature and Bearing holder can now be removed.
- 5) By hooking Rod on the notch of Bearing holder as illustrated in **Fig. 11**, place Rod in the same position as it would be when Switch lever is pulled. Brake synchronized with Switch lever is now unlocked.

Fig. 10

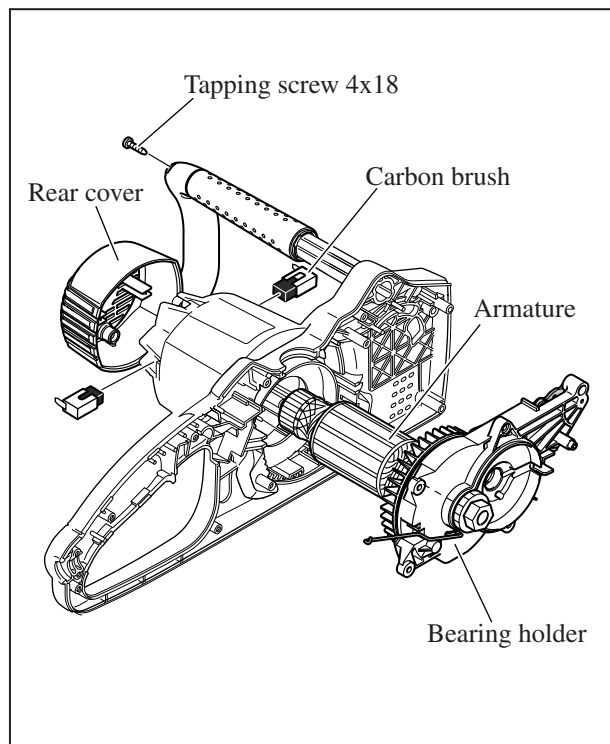
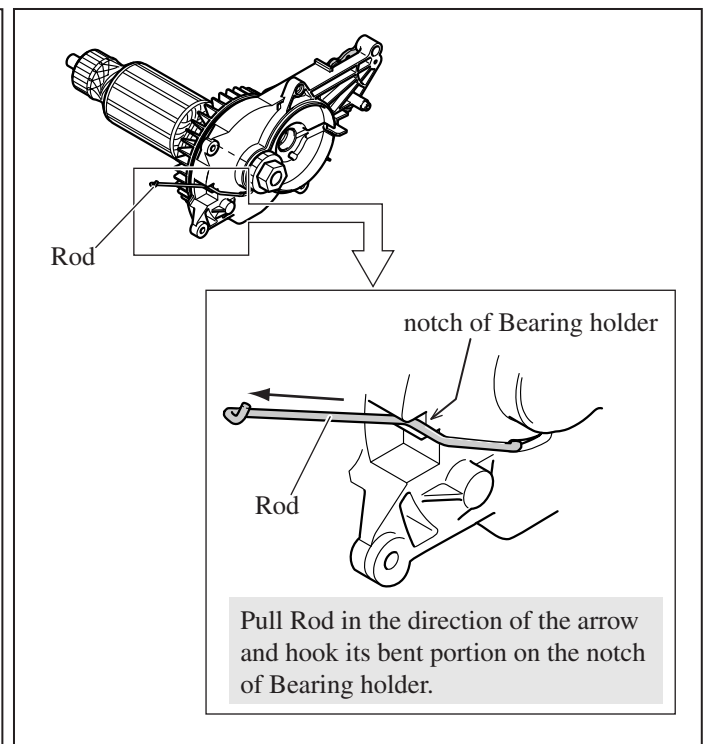


Fig. 11



► Repair

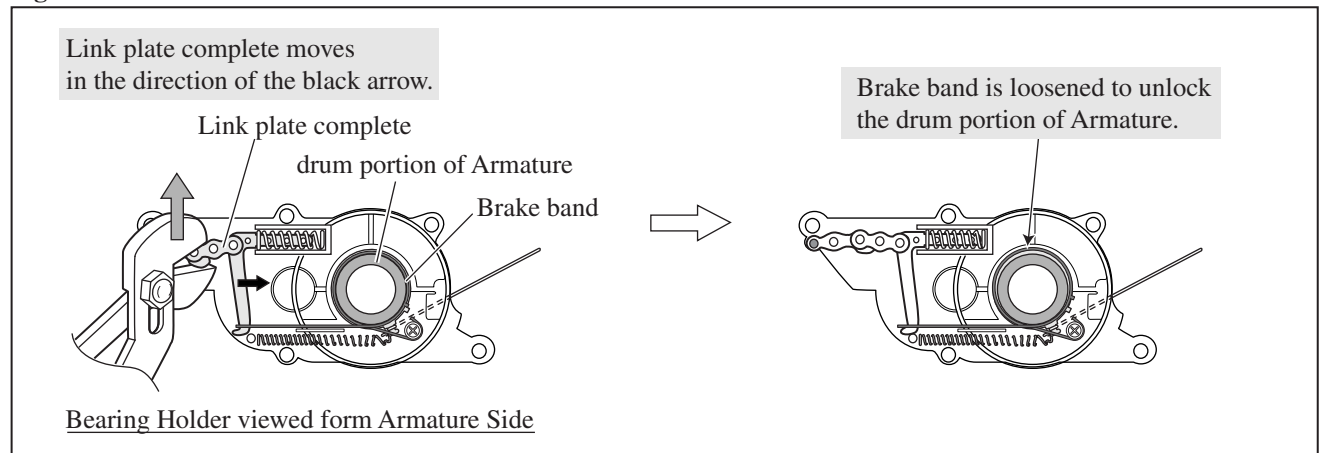
[3] DISASSEMBLY/ASSEMBLY

[3] -2. Brake Mechanism and Armature (cont.)

DISASSEMBLING

- 6) Unlock the Kick back brake by pulling Link plate complete in the direction of the gray arrow with adjustable pliers. (Fig. 12)

Fig. 12



- 7) Armature can now be separated from Bearing holder as illustrated in Fig. 13.

- 8) Remove the tension force of Compression spring 9 from Link plate complete by pulling Link plate complete with pliers in the direction of the gray arrow with adjustable pliers. (Fig. 14)

Fig. 13

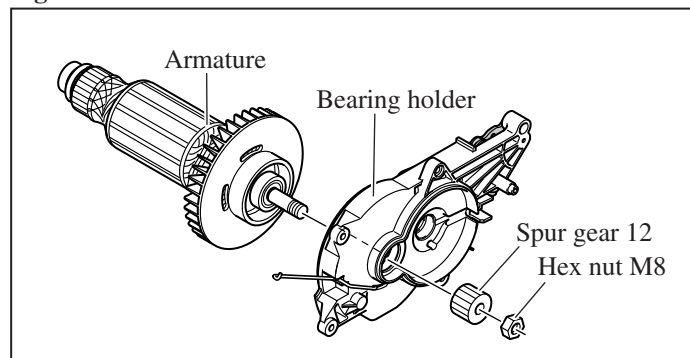
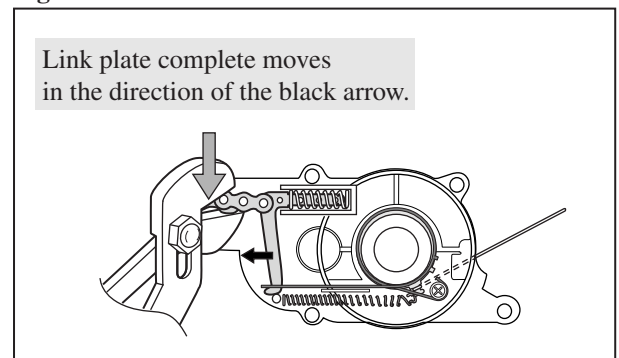
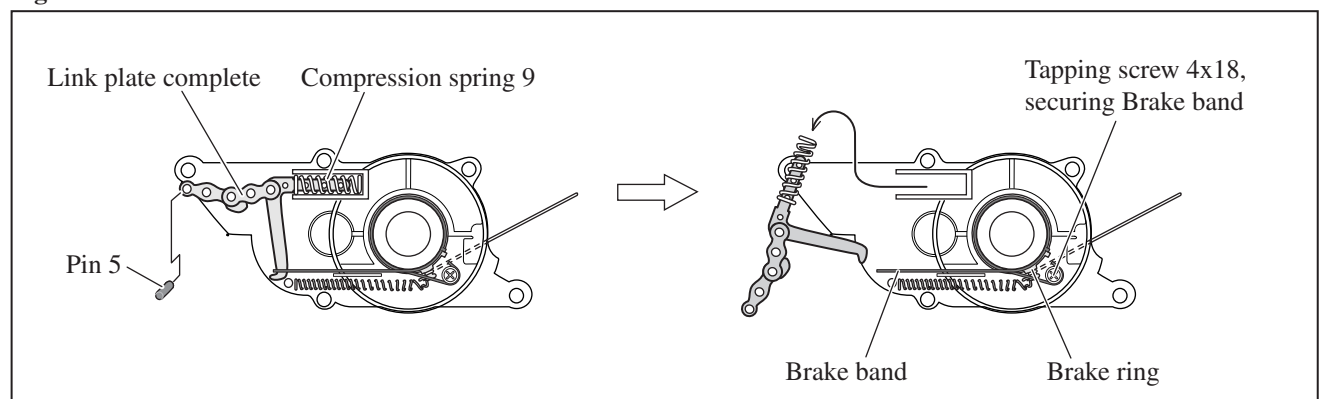


Fig. 14



- 9) By removing Pin 5, Link plate complete and Compression spring 9 can be separated from Bearing holder. (Fig. 15)

Fig. 15



► Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -2. Brake Mechanism and Armature (cont.)

DISASSEMBLING

10) Remove Brake band by unscrewing Tapping screw 4x18, then disconnect Brake ring from Rod. (**Fig. 16**)

11) Remove Rod from Bearing holder. (**Fig. 17**)

Fig. 16

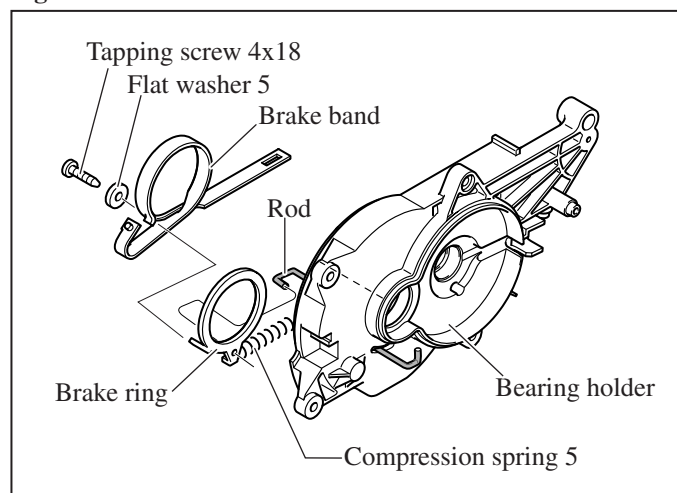
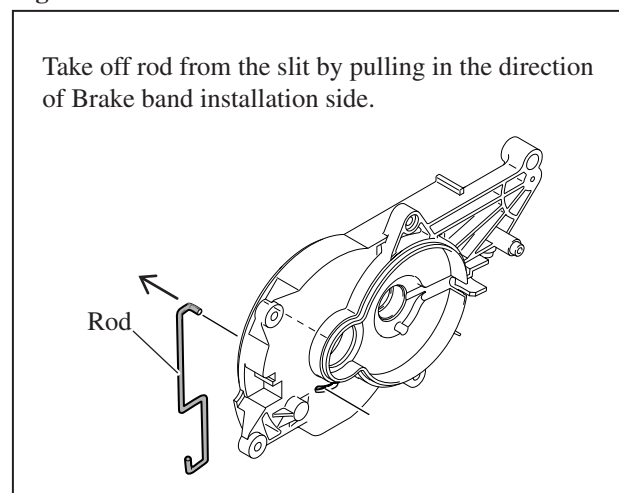


Fig. 17



ASSEMBLING

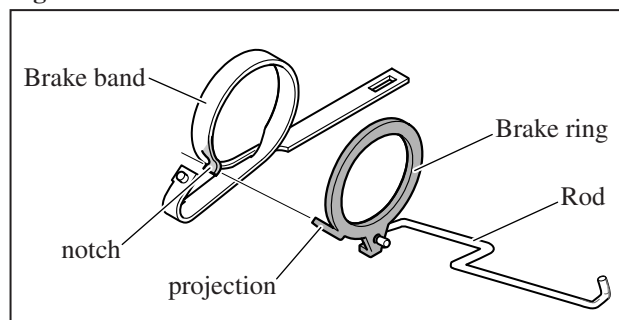
1) Assemble the components of Brake mechanism to Bearing holder. (**Figs. 17, 16, 15**)

Note:

*Engage the notch on Brake band with the projection on Brake ring when assembling Brake band to Bearing holder. Otherwise Armature cannot be unlocked when Switch lever is pulled for starting operation. (**Fig. 18**)

*Compression spring 9 of link plate complete has to be set in the rib of bearing holder exactly. (**Fig. 15** on page 10)

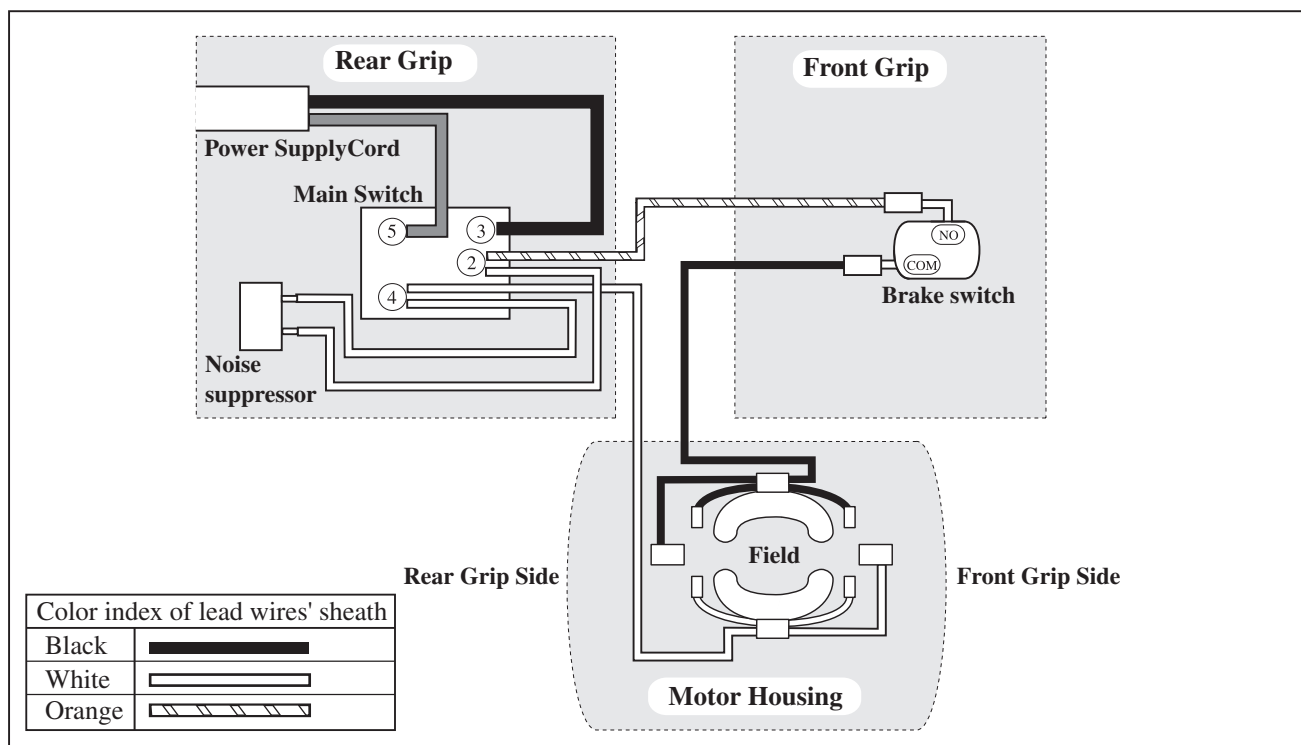
Fig. 18



- 2) Unlock Kick back brake with pliers. (**Fig. 12** on page 10)
- 3) Assemble Rod to Bearing holder as illustrated in **Fig. 11** on page 9.
Kick back brake and brake synchronized with Switch lever are both unlocked in this step.
- 4) Assemble Armature to Bearing holder. (**Fig. 13** on page 10)
- 5) Assemble Lubricating mechanism to Bearing holder. (**Figs. 6, 5, 4, 3** on page 6)
- 6) Pull Switch lever to loosen Brake band.
- 7) Engage Spur gear 43 mounted to Housing (R) with Spur gear 12 mounted to Armature.
Then turn Sprocket until Cam of Spindle fits in the loop portion of Crank.
- 8) Secure Housing (R) to Housing (L) with nine 4x18 Tapping screws. (**Fig. 2** on page 6)

► Circuit diagram

Fig. 19



► Wiring diagram

Fig. 20

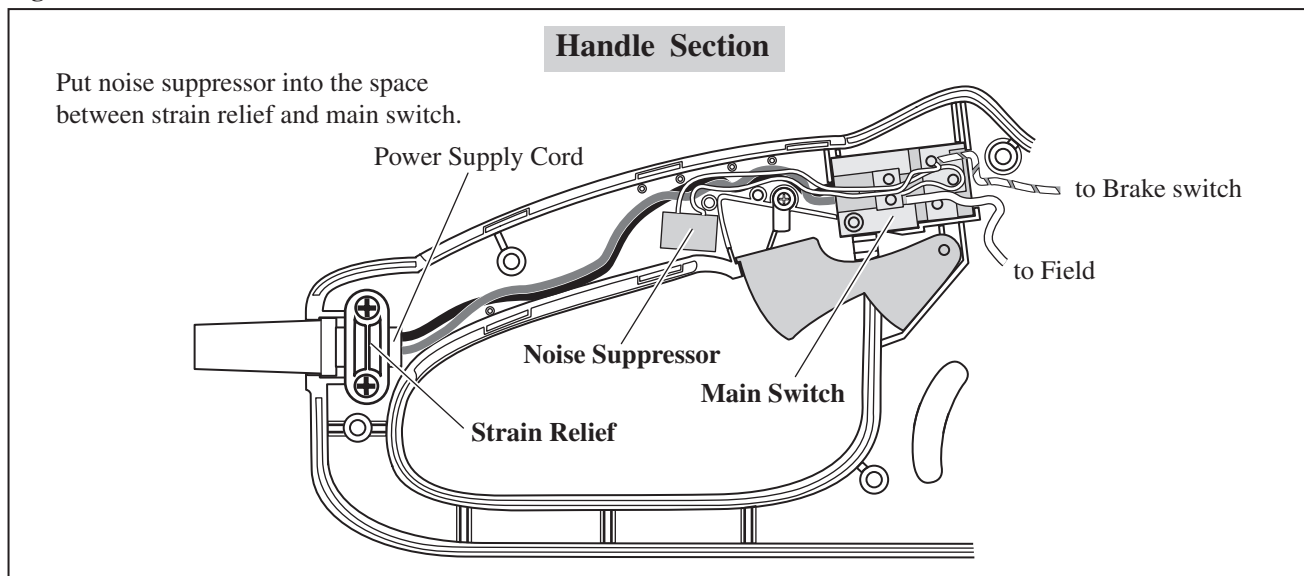


Fig. 21

