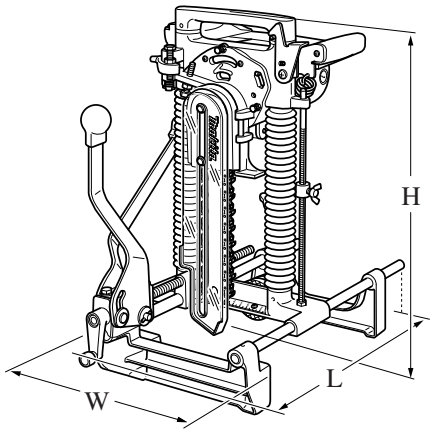
TECHNICAL INFORMATION

Model No. ► 7104L

Description ► Chain Mortiser



Dimensions: mm	
Length (L)	512 (20-1/8)
Width (W)	298 (11-3/4)
Height (H)	513 (20-1/4)

CONCEPT AND MAIN APPLICATIONS

Based on the current model 7104L, its specifications have been upgraded to meet the European standards. The front cover has been added to enclose the cutter chain. Some electrical parts have been changed to comply with the electromagnetic compatibility-requirement.

This tool is ideal for making mortises and notches quickly. Pivoting chain bar enables an opearator to make a 130mm long rectangular hole in three cutting processes without reclamping a workpiece.

Except for Europe, Australia and New Zealand, the current specifications have been continued.

► Specifications

Voltage (V)	Current (A)	Cycle (Hz)	Continuous Rating (W)		Max. Output(W)
			Input	Output	
240	5	50/60	1,140	780	1,500
110	10	50/60	1,050	680	1,300
230	5.2	50/60	1,140	780	1,500

No load speed: min-1=rpm			3,200
Chain blade: mm (")			France: 30 (1-3/16) Other countries: 16.5 (5/8)
Capacity: mm (")	Max mortise width	longitudinal	130 (5-1/8)
		transverse	France: 45 (1-3/4) Other countries: 31.5 (1-1/4)
	Max mortise depth		155 (6-1/8)
	Max clamp capacity		308 (12-1/8)
Protection against electric shock			Grounding
Power supply cord: m (ft)			5.0 (16.4)
Net weight: kg (")			17 (37.5)

► Standard equipment

Chain blade 16.5mm (5/8")* ..... 1 pc
Wrench 13-17 ..... 1 pc
Oil vessel ..... 1 pc

*France: 30mm (1-3/16")

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

► Optional accessories

Sharpening holder ass'y
Cutter chain: 15mm (9/16"), 16.5mm (5/8"), 18mm (11/16"), 21mm (13/16") and 24mm (15/16").
**30mm (1-3/16")
**Sprocket 4 for 30mm cutter chain
**Chain bar ass'y for 30mm cutter chain
(**marks: These accessories should be used at the same time.)

Repair

CAUTION: For safety before repair/maintenance;
1)Unplug machine. 2)Remove cutter chain, chain bar, Hex. bolt M10 and Washers.

[1] NECESSARY REPAIRING TOOLS

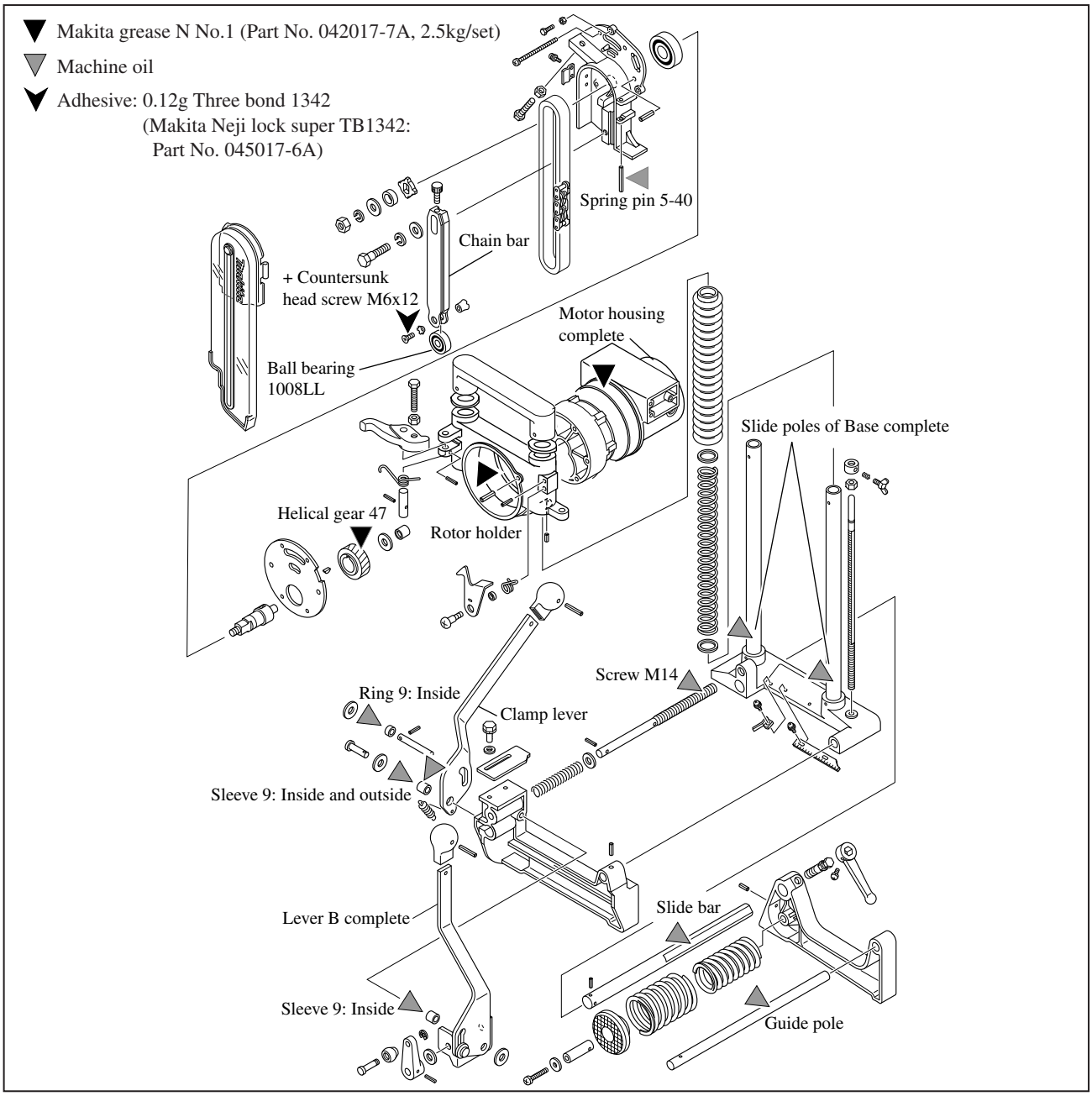
Code No.	Description	Use for
1R275	Type 94 field insert jig	Removing Sprocket 4
1R045	Gear extractor, large	Holding Sprocket 4 to unscrew Hex nut M10
1R308	Spring pin extractor 4.0	Removing 4.0mm diameter Spring pins
1R309	Spring pin extractor 5.0	Removing 5.0mm diameter Spring pins
1R310	Spring pin extractor 6.0	Removing 6.0mm diameter Spring pins

[2] LUBRICATION

See **Fig. 1**.

1. Apply 10g of Makita grease N No.1 for the teeth of Helical gear 47 and put some amount of Makita grease N No.1 on the rubbing surfaces of Motor housing complete and Rotor holder for their smooth pivot action. Refer to ▼ marks.
2. Put a little amount of machine oil on Spring pin 5-40, two slide poles of Base complete, the threads of M14 Screw, inside of Ring 9 and both sides of Sleeve 9 near Clamp lever, the inside of Sleeve 9 near Lever B complete, Slide bar and Guide pole. Refer to ▽ marks.
3. Put a little amount of adhesive on the threads of M6x12 + Countersunk head screw for setting Ball bearing 1008LL to Chain bar. Refer to ⮟ marks.

Fig. 1



Repair

[3] Repairing Motor Section

Armature and Field can be replaced without disassembling Gear housing section.

[3]-1. Disassembling Motor Section

Remove Carbon brushes from the machine.
Motor housing complete can turn freely by separating four M5x80 pan head screws from the machine.
However, the last one is difficult to be unscrewed because the tensile force of Tension spring 20 affects it through Chain bar holder and Rotor holder. Therefore, push Handle to counterclockwise direction as mentioned in **Fig. 1** to remove the last M5x80 pan head screw.
Next, Turning Motor housing complete clockwise as shown in **Fig. 2** so that the tensile force of Tension spring 20 can be removed.

Fig. 1

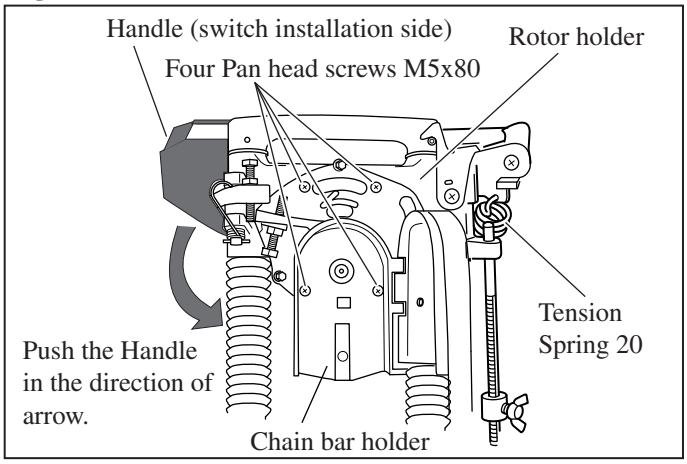
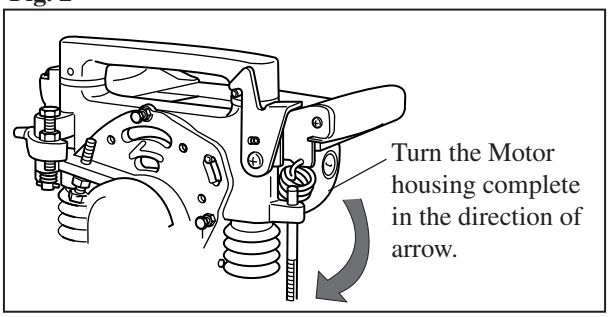
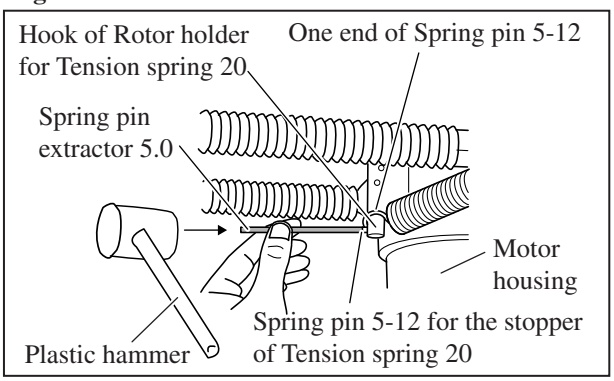


Fig. 2



Strike one end of Spring pin 5-12 using Spring pin extractor 5.0 (Makita part No. 1R309) and plastic hammer as shown in **Fig. 3** until the other end comes out of the hook of Rotor holder.
And then, pull out the Spring pin 5-12 from the opposite side using pliers. Pull out Motor housing complete backward while turning it. Move on to the step for Motor replacement.

Fig. 3



[3]-2. Reassembling Motor Section

Perform the disassembling procedure in reverse of the assembling steps.
The reassembling work can be successfully performed even if Tension spring 20 shrinks to the original size.
Drive Spring pin 5-20 into the hole of Rotor holder's hook upward from the bottom so that the upper end protrudes by 4mm for the stopper of Tension spring 20. Install Armature from Chain bar holder side. It is useful as a guide when Motor housing complete is installed.
Hook one end of Tension spring 20 in the hole of Grip holder L as shown in **Fig. 4** after inserting Motor housing section in Rotor holder. Chain cover should be vertical against ground. And both Motor housing and Rotor holder should be paralleled to the ground while pulling Tension spring 20 using Handle as described in **Fig. 5.** At this time, while pressing Motor housing section with knee, tighten four M5x80 pan head screws. This is to prevent the Motor housing section from slipping off.

Fig. 4

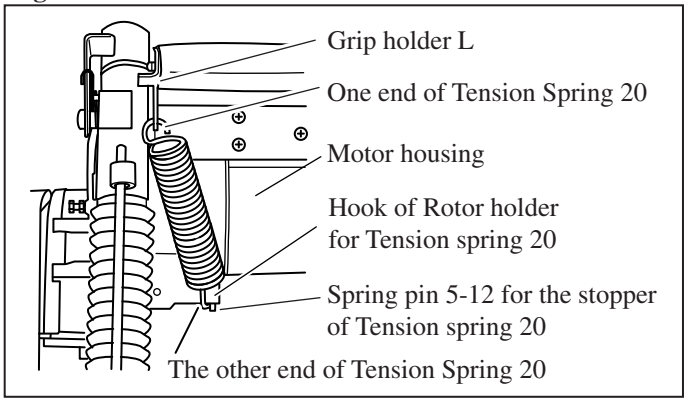
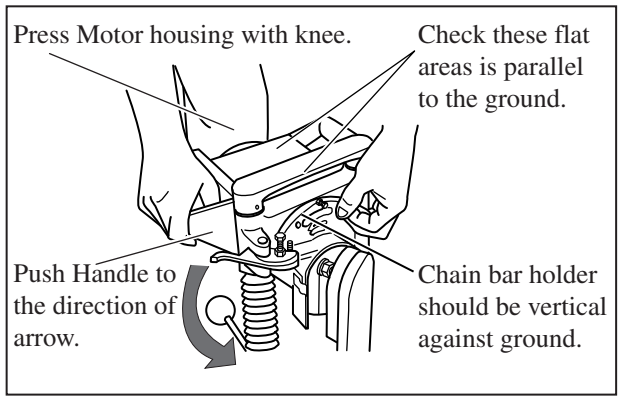


Fig. 5



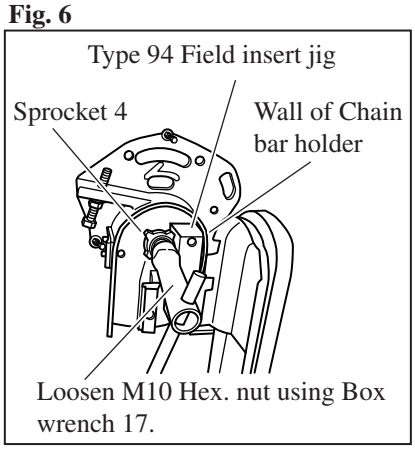
► Repair

[4] Disassembling Gear Section

Note: Gear section can be replaced without disassembling Motor section.

Remove four M5x80 pan head screws in the front of the tool in the same manner described in Repairing Motor Section.
To release the tensile force of Tension spring 20, Turn the Motor housing clockwise. The tension spring 20 will return to the original size. Consequently, Motor housing complete can be easily removed.
Pull out Chain bar holder to your side from the front of tool while turning it.
Insert Type 94 Field insert jig (Makita part No. 1R275) between Sprocket 4 and the wall of Chain bar holder in order not to revolve Spindle fixed with the Sprocket 4 as shown in **Fig.6**. Loosen M10 Hex. nut using Box wrench 17 or Wrench 13-17.

Fig. 6



Remove Spring washer 10, Flat washer 10 and Ring 15 from Spindle by hand.
Remove Sprocket 4 from tool by hand. If it is stuck on the spindle firmly, use Gear extractor Large (Makita part No. 1R045).
Strike the reverse side of Chain bar holder using plastic hammer, so Gear housing can be separated from Chain bar holder.
The connecting parts of Chain bar holder and Gear housing are three Spring pins 6-24 only.
Remove gear section from Gear housing, and then tap the gear section on the table to separate Helical gear 47 from the other components of the gear section.

[5] Disassembling Vice Element

Vice element can be pulled out only by loosening Lever 98 ass'y as illustrated in **Fig. 7**. If chips attach in the Compression spring 48 and Compression spring 36, the chips make the clamp operation worse. Therefore, disassemble and clean them.
Loosen M6x35 Pan head screw to remove the Compression springs using cordless impact driver with phillips bit No.3 as mentioned in **Fig. 8** while holding Vice shoe so as not to jump by the reaction force of the Compression springs.

Fig. 7

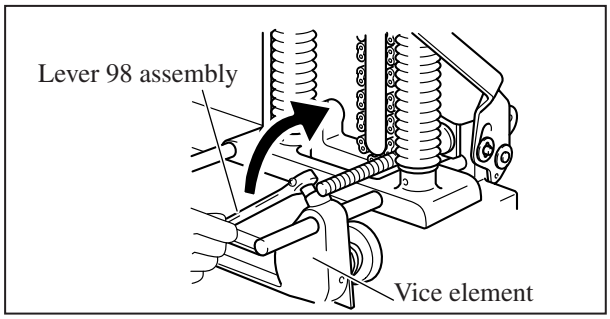
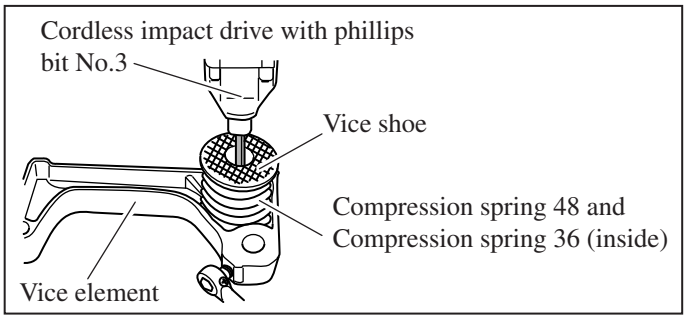


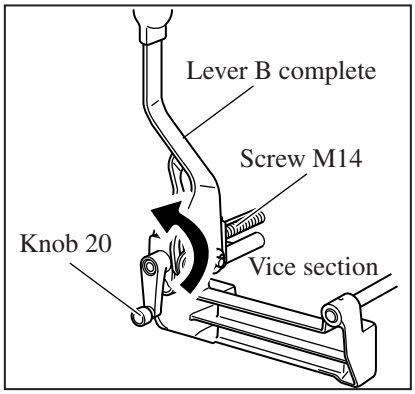
Fig. 8



[6] Disassembling Front Vice

Main body including Base complete on vice section can be removed backward from the Vice section in the following steps.
1) Disassemble Vice element in accordance with the above procedure.
2) Forward the main body to the edge of Screw M4 by turning Knob 20 as shown in **Fig. 9 .**

Fig. 9



Loosen two Levers in the direction of arrows as illustrated in **Fig. 10**.
Push one end of Spring pin at the right side of Lever B complete using Spring pin extractor 4.0 (Makita part No. 1R308) and plastic hammer.
Consequently, Pin 9 and some components can be separated as described in **Fig. 11**.

Fig. 10

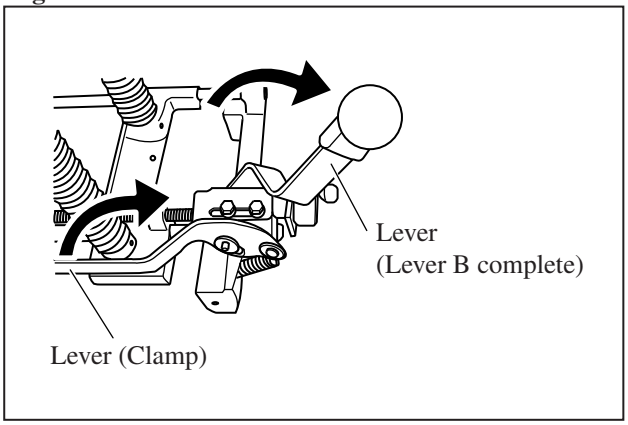
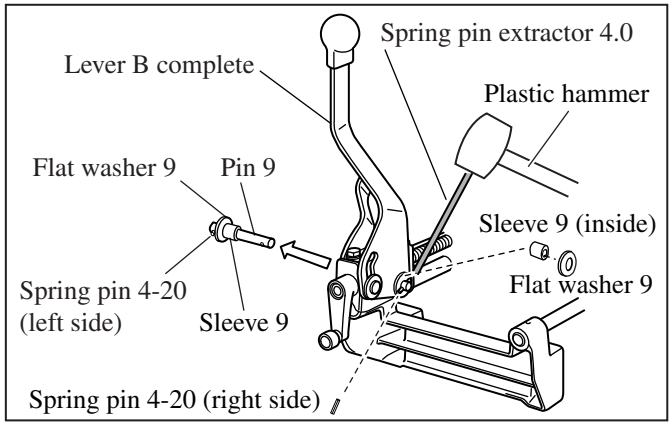


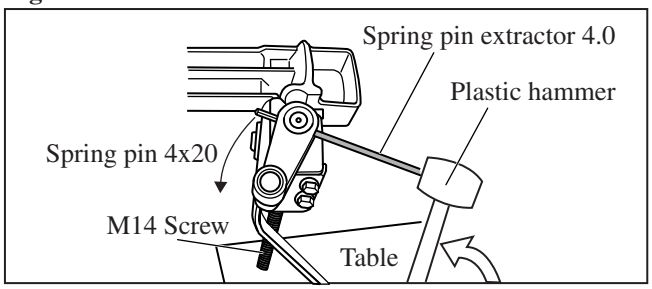
Fig. 11



Repair

When removing M14 Screw from the front vice section;
1) Press the end of M4 Screw against table to compress Compression spring 10.
2) At the same time, push out 4-20 Spring pin in M14 Screw using Spring pin extractor 4.0 (Makita part No. 1R308). See **Fig. 12.**

Fig. 12



[7] Adjustment

Note: The following information applies to the products including 16.5mm cutter chain as the standard accessory.

1) Fix an yellow colored Indication plate to Base complete with M4x8 pan head screw as shown in **Fig. 13** after aligning the front edge of the Indication plate with front end of 16.5mm cutter chain.
2) When aligning the center of + Countersunk head screw M6x12 with the bottom of Base complete, drive Stopper pole into the Base complete by hand in order to adjust the height of Rotor holder at ZERO position on Stopper pole as shown in **Fig. 14**. After positioning it, tighten M8 Hex. nut onto the hole of Base complete firmly using Wrench.
Note: Face the gauge of Stopper pole to outside before tihgtening M8 Hex. nut.
3) Align the left end of Scale plate with the left end of the cutter chain by resetting the scale plate on the Base complete. See **Fig. 15**.

Fig. 13

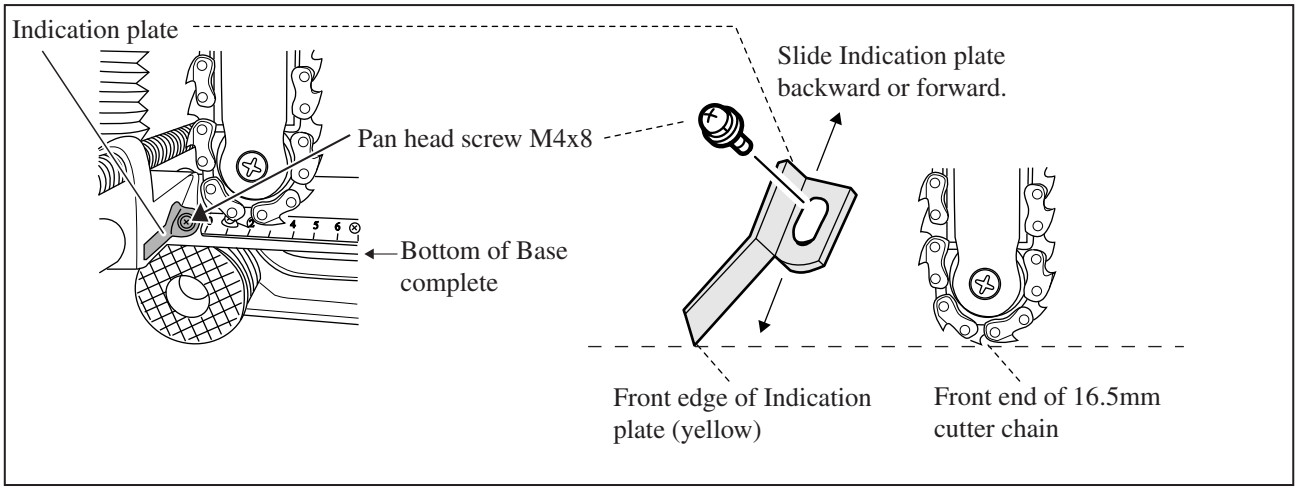


Fig. 14

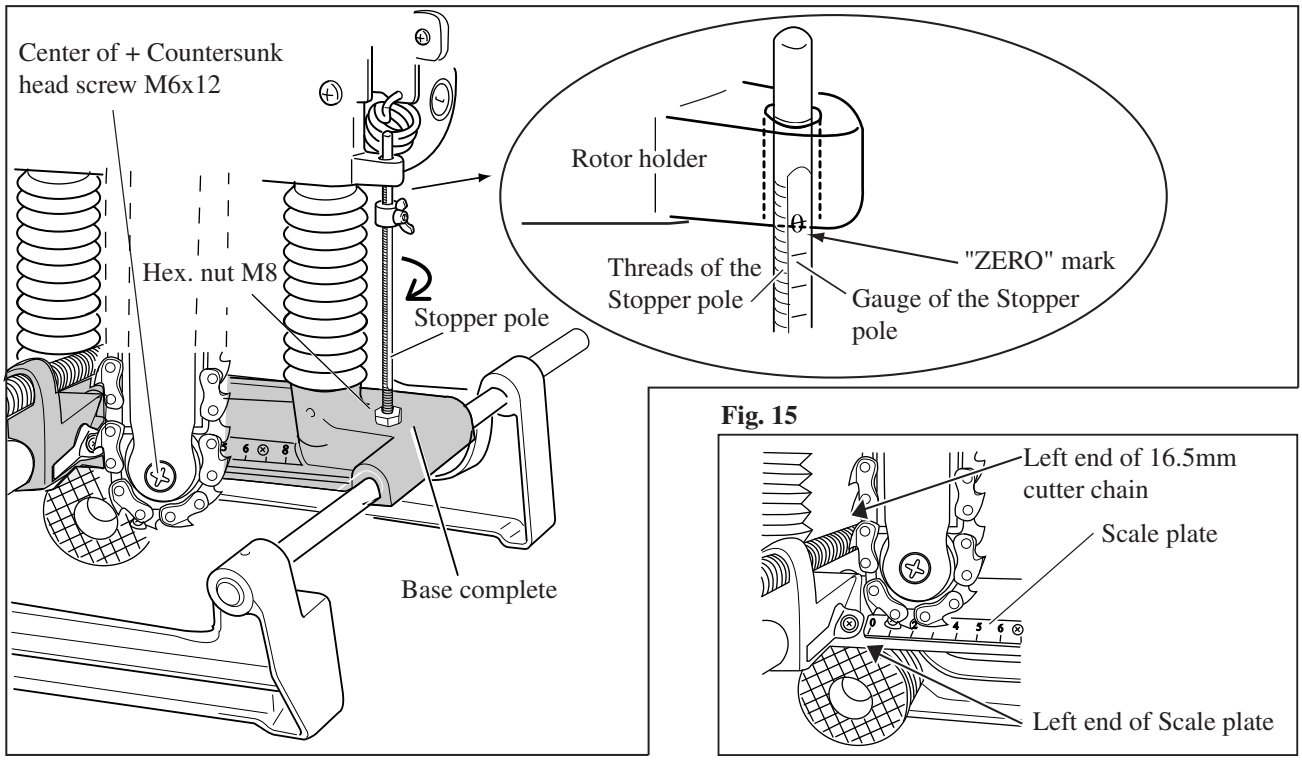


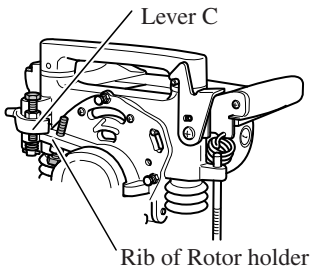
Fig. 15

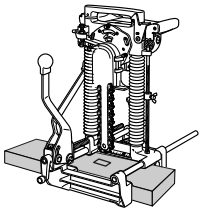
Repair

4) Refer to **Fig. 16, Fig. 17, Fig. 18 and Fig. 19**.
Precisely adjust M8x44 Hex. bolts and Stopper to make a rectangular hole with the same size into the wooden workpiece as illustrated in **Fig. 20.** When the machine with 16.5mm cutter chain is used, **Fig. 20** shows the cutting size preset in Makita plant. Meanwhile, if preferring to make a 30mm long rectangular hole, adjust M8x44 Hex. bolt for No. 2 set position to lean Chain bar assembly to the limit.

Fig. 16

Lever C is hooked on rib of Rotor holder directly as below. It is original position of Chain bar.

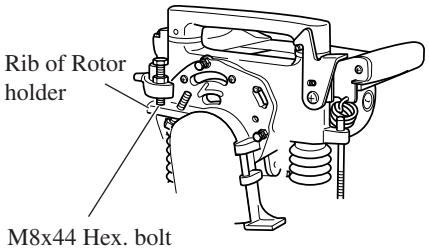


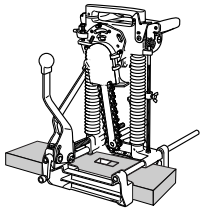


Original position (vertical against ground)

Fig. 17

Tip of M8x44 Hex. bolt for No.1 set position is hooked on rib of Rotor holder directly. It is No.1 set position of Chain bar.

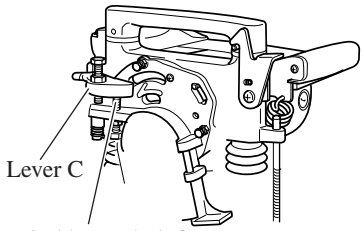


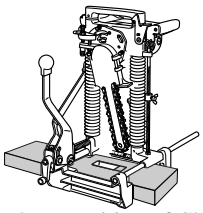


No.1 set position of Chain bar

Fig. 18

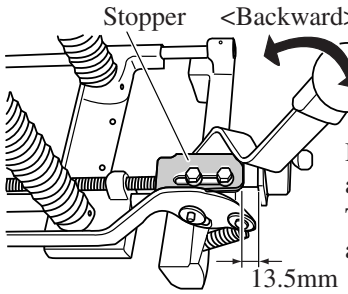
Tip of M8x44 Hex. bolt for No.2 set position is stuck with Lever C directly. It is No.2 set position of Chain bar.





No.2 set position of Chain bar

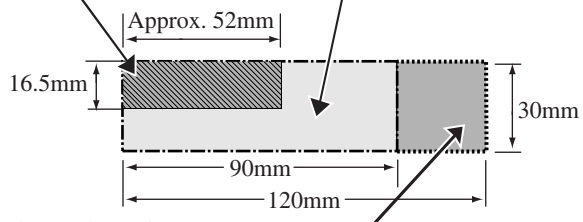
Fig. 19



If the travel distance is set at 13.5mm by shifting Lever B complete forward, a 16.5mm wide rectangular hole can be cut in a single stroke.
Total 30.0mm wide holes can be made after shifting Lever B complete backward and repeating a single stroke.

Fig. 20

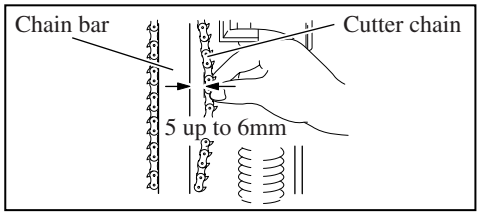
1. Cutting by a single stroke at vertical position.
2. Cutting by each stroke at:
   1)vertical position and No.1 set position when Lever B complete is shifted forward.
   2)vertical position and No.1 set position after Lever B complete is shifted backward.
   Total four strokes



3. Cutting by each stroke at:
   1)vertical position, No.1 set position and No. 2 set position when Lever B complete is shifted forward.
   2)vertical position, No.1 set position and No. 2 set position after Lever B complete is shifted backward.
   Total six strokes

5) Adjust the tension of 16.5mm cutter chain. When there is a clearance of approx. 5 up to 6mm between the chain bar and the cutter chain, the tension on the cutter chain is adequate. See **Fig. 21**.
Note: Do not touch the cutting edges of the cutter chain when pulling it.
6) Adjust the clearance between Chain bar holder and Rotor holder so that Chain bar ass'y can be tilted smoothly without stuck by moving the tips of three M5X16 Hex. bolts backward and forward.

Fig. 21

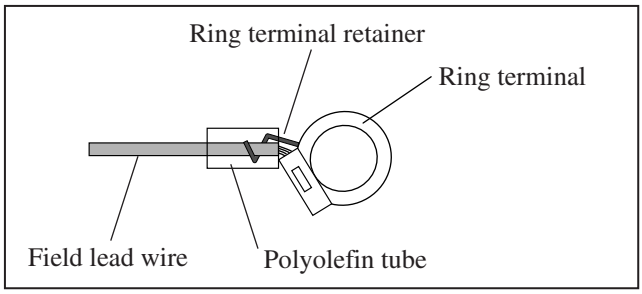


► Wiring diagram

[1] Connecting Lead Wire to Ring Terminal

Route Field lead wire to inside of Polyolefin tube. And then shrink the Polyolefin tube on the end of Ring terminal retainer to cover the clamping position of the Ring terminal retainer to Field lead wire. See **Fig. 22.**

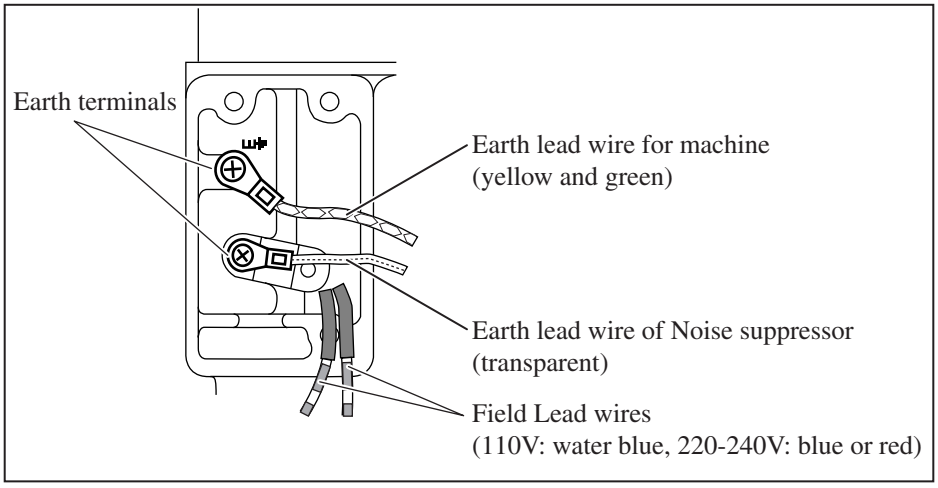
Fig. 22



[2] Connecting Earth Terminals for Machine and Noise Suppressor

Connect Earth terminals with Motor housing so that each direction is the same as illustrated in **Fig. 23**.

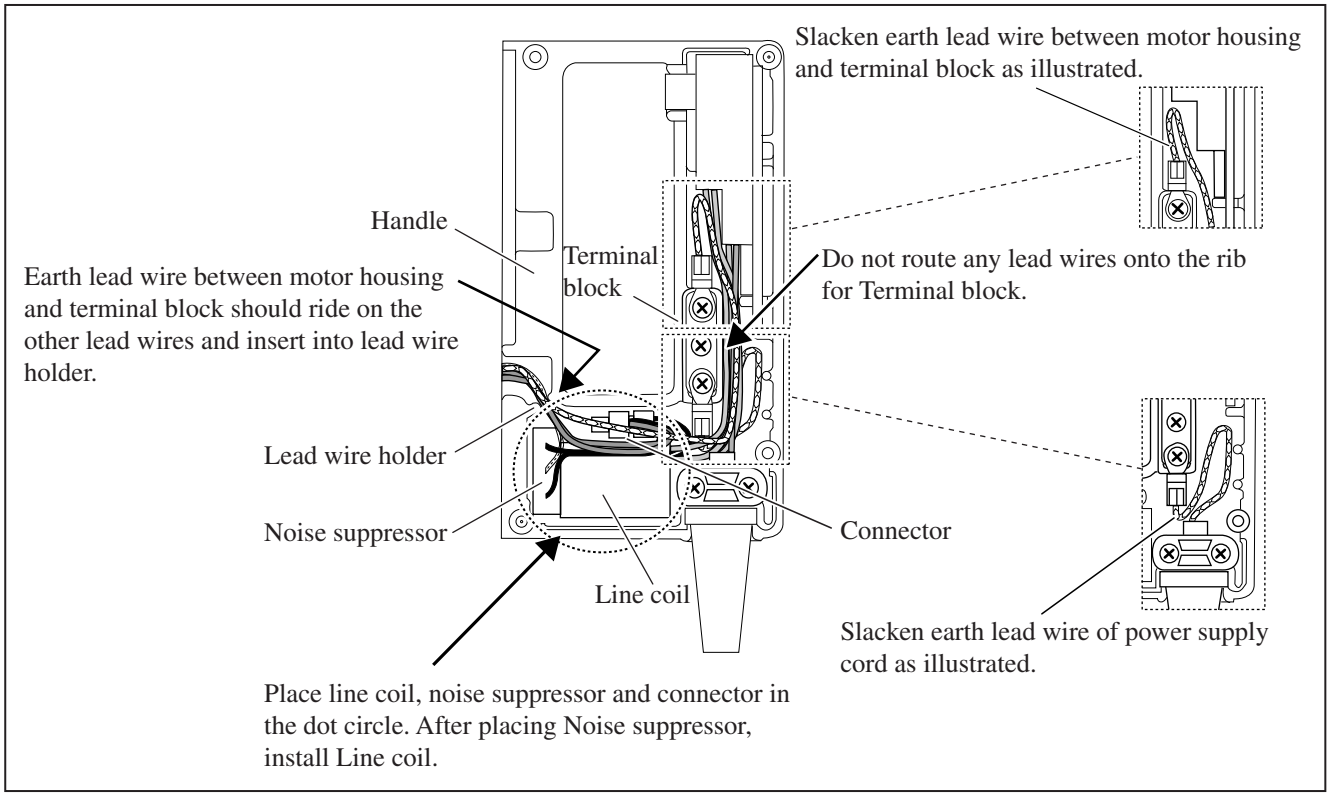
Fig. 24



[3] Wiring in Handle at Switch Installation Side

See **Fig. 24** below.

Fig. 23



Circuit diagram