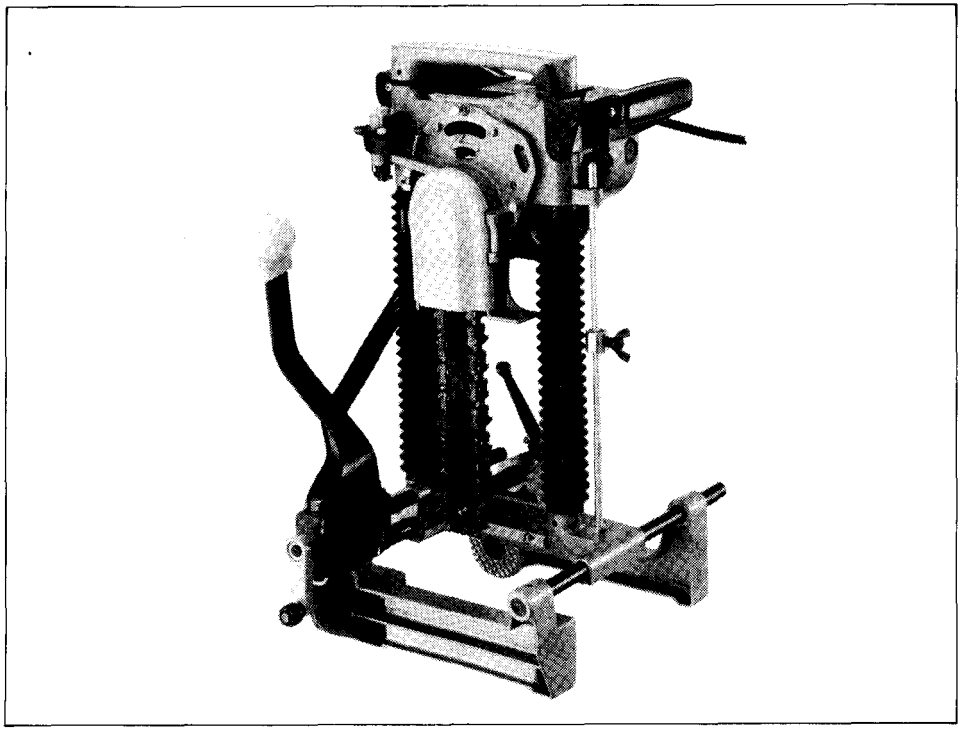
Makita
Chain Mortiser

MODEL 7104L

INSTRUCTION MANUAL



SPECIFICATIONS

Capacities		Width of applicable workpiece	Chain speed	Dimensions (L x W x H)	Net weight
Max. hole length (Longitudinal)	Max. hole depth				
130 mm (5-1/8")	155 mm (6-1/8")	80 mm 308 mm (3-1/8" 12-1/8")	300 m/min (1,000 FPM)	512 mm x 298 mm x 513 mm (20-3/16" x 11-3/4" x 20-3/16")	17 kg (37.4 lbs)

* Manufacturer reserves the right to change specifications without notice.
* Note: Specifications may differ from country to country.

BEFORE CONNECTING YOUR TOOL
TO A POWER SOURCE
Be sure you have read all
GENERAL POWER TOOL SAFETY RULES

GENERAL SAFETY PRECAUTIONS

1. KNOW YOUR POWER TOOL. Read the owner's manual carefully. Learn the tools applications and limitations, as well as the specific potential hazards peculiar to it.
2. KEEP GUARDS IN PLACE and in working order.
3. REMOVE ADJUSTING KEYS AND WRENCHES. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
4. KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.
5. DON'T USE IN DANGEROUS ENVIRONMENT. Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.
6. KEEP CHILDREN AWAY. All visitors should be kept safe distance from work area.
7. MAKE WORKSHOP KID PROOF with padlocks, master switches, or by removing starter keys.
8. DON'T FORCE TOOL. It will do the job better and safer at the rate for which it was designed.
9. USE RIGHT TOOL. Don't force tool or attachment to do a job for which it was not designed.
10. WEAR PROPER APPAREL. Wear no loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
11. ALWAYS USE SAFETY GLASSES. Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
12. SECURE WORK. Use clamps or a vise to hold work when practical. It's safer than using your hand and it frees both hands to operate tool.
13. DON'T OVERREACH. Keep proper footing and balance at all times.
14. MAINTAIN TOOLS WITH CARE. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
15. DISCONNECT TOOLS before servicing; when changing accessories such as blades, bits, cutters, and the like.
16. REDUCE THE RISK OF UNINTENTIONAL STARTING. Make sure switch is in off position before plugging in.
17. USE RECOMMENDED ACCESSORIES. Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury to persons.

18. NEVER STAND ON TOOL. Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.
19. CHECK DAMAGED PARTS. Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function — check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
20. DIRECTION OF FEED. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
21. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF. Don't leave tool until it comes to a complete stop.
22. PROPER GROUNDING. This tool should be grounded while in use to protect the operator from electric shock.
23. EXTENSION CORDS: Use only three-wire extension cords which have three-prong grounding-type plugs and three-pole receptacles which accept the tool's plug. Replace or repair damaged or worn cord immediately.

VOLTAGE WARNING: Before connecting the tool to a power source (receptacle, outlet, etc.) be sure the voltage supplied is the same as that specified on the nameplate of the tool. A power source with voltage greater than that specified for the tool can result in SERIOUS INJURY to the user — as well as damage to the tool. If in doubt, DO NOT PLUG IN THE TOOL. Using a power source with voltage less than the nameplate rating is harmful to the motor.

ADDITIONAL SAFETY RULES

1. Use this tool only to cut holes in wood.
2. This tool is for cutting holes in flat-surfaced wood. Never use it for cutting holes in a log.
3. Wear ear protectors.
4. Handle the cutter chain carefully; it is very sharp.
5. Place the workpiece on wood blocks or short beams to prevent the cutter chain from hitting the ground, floor, etc., causing damage to the cutter chain at the time of hole breakthrough.
6. Check the cutter chain carefully for cracks or damage before operation. Replace cracked or damaged cutter chain immediately.
7. Secure the tool to the workpiece firmly.
8. Inspect for and remove nails or foreign matter from the workpiece before operation.
9. Do not operate the tool with the safety cover open.
10. Do not wear gloves during operation.
11. Keep hands away from moving parts.
12. Remove the tool from the workpiece after operation to keep it from falling off and possibly causing injury.
13. Don't abuse cord. Never yank cord to disconnect it from the receptacle. Keep cord away from heat, oil, water and sharp edges.

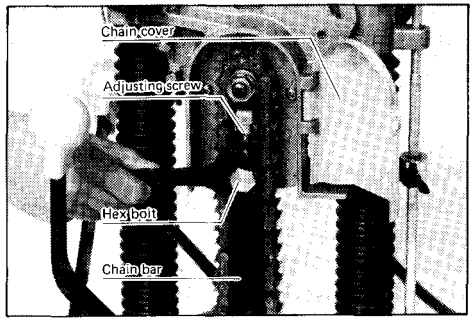
SAVE THESE INSTRUCTIONS.

Installing or removing cutter chain

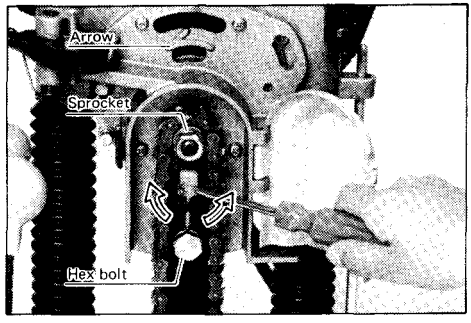
WARNING:

- Always be sure that the tool is switched off and unplugged before installing or removing the cutter chain.
- Always close the chain cover after installing, removing or adjusting the cutter chain.

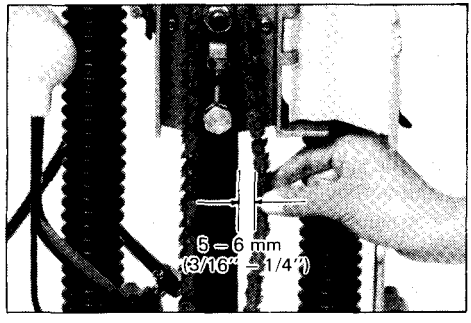
To install the cutter chain, open the chain cover. Loosen the hex bolt securing the chain bar and the adjusting screw.



Orient the cutters in the direction of the arrow on the tool (rotational direction). Attach the cutter chain to the sprocket first and then to the chain bar. Semi-tighten the hex bolt.



Turn the adjusting screw to increase the tension on the cutter chain. Pull the middle of the cutter chain lightly. When there is a clearance of approx. 5 – 6 mm (3/16" – 1/4") between the chain bar and the cutter chain, the tension on the cutter chain is adequate.

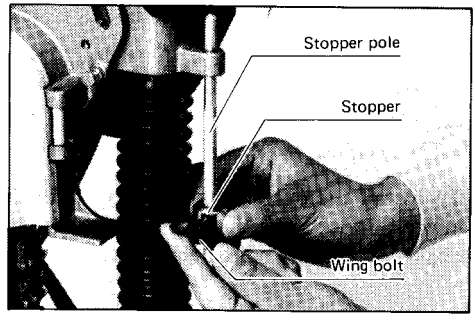


After adjusting the tension, tighten the hex bolt firmly to secure the chain bar. Additionally tighen slightly the adjusting screw. Close the chain cover.

To remove the cutter chain, follow the installation procedures in reverse.

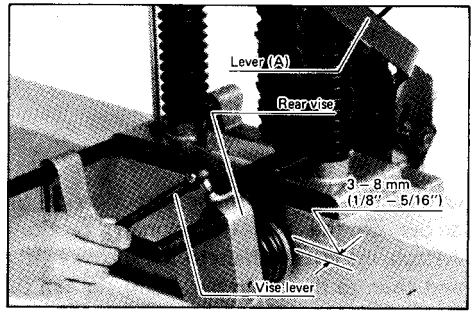
Adjusting depth of cut

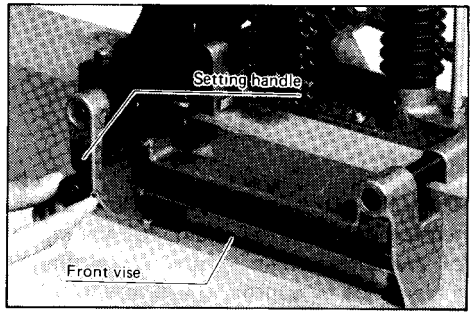
Loosen the wing bolt on the stopper. Move the stopper to the desired position and tighten the wing bolt. When tightened, the tip of the wing bolt should contact the flat surface of the stopper pole. The numbers indicated on the stopper pole are in cm units (3 mm; 1/8" per graduation).



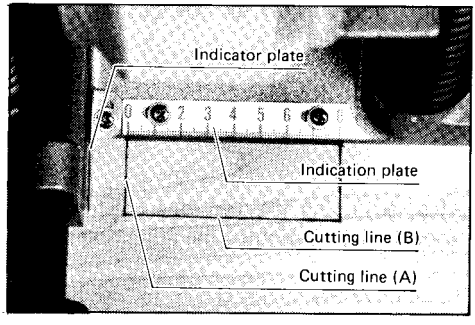
Securing tool to workpiece

Loosen the vise lever and move the rear vise backward. Place the tool on the workpiece so that the front vise contacts the side of the workpiece. Move the rear vise forward until the distance between the rear vise and the workpiece is 3 – 8 mm (1/8" – 5/16"). Tighten the vise lever to secure the rear vise. Move the tool so that the "0" on the indication plate is aligned with the cutting line (A). Push the lever (A) down fully to secure the workpiece.



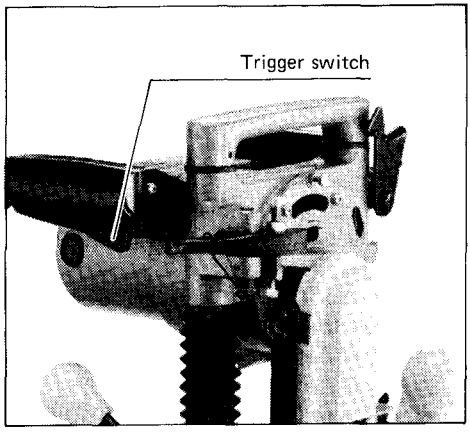


Turn the setting handle until the front edge of the yellow indicator plate is aligned with the cutting line (B).



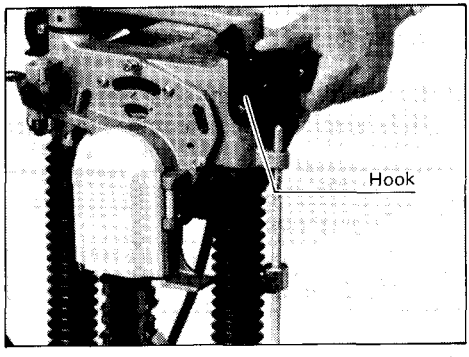
Switch action

To start the tool, simply pull the trigger. Release the trigger to stop.



WARNING:
Before plugging in the tool, always check to see that the trigger switch actuates properly and returns to the "OFF" position when released.

Operation



Grasp firmly the grips on either side. Switch on the tool and wait until the cutter chain attains full speed. Then release the hook and lower the tool head to cut in the workpiece. Do not apply excessive pressure to the tool. This may not only decrease the working efficiency but also cause a dangerous reaction. Feed slowly at the beginning of a cutting operation, at the time of hole breakthrough and when cutting a knot in the workpiece. After cutting, gently raise the tool head until you can hook the tool head back onto the hook. Then switch off the tool. Raise the lever (A) and remove the tool from the workpiece.

WARNING:

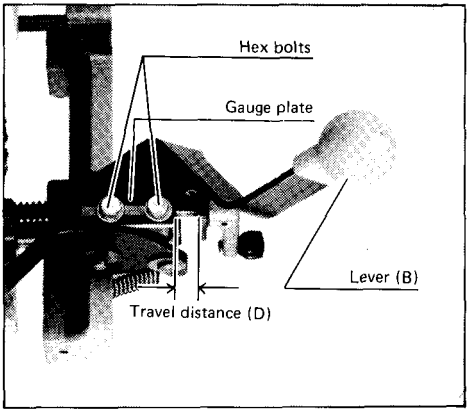
- Always hook the tool head back onto the hook when not operating the tool.
- Never attempt to cut a twisted or warped workpiece which the tool is not secured firmly to.

Adjusting indicator plate and indication plate

The yellow indicator plate and indication plate are factory adjusted for the standard-equipped cutter chain 18 mm (23/32"). If the alignment is off, for some reason, or when using another size cutter chain, loosen the screws and adjust the yellow indicator plate and indication plate.

Enlarging hole

1. Transverse (width) enlargement
   A hole can be enlarged transversely by adjusting the gauge plate. Max. expansion of hole width is 15 mm (9/16").



   Example:
   When cutting a hole 25 mm (1") wide using a cutter chain 18 mm (23/32"), proceed as follows:
   Push the lever (B) away from you. Loosen the hex bolts securing the gauge plate. Adjust the gauge plate so that the travel distance (D) is 7 mm (9/32"); that is, 25 mm (1") − 18 mm (23/32") = 7 mm (9/32"). Tighten the hex bolts to secure the gauge plate. Cut the first hole with the lever (B) pushed away from you. Then pull the lever (B) toward you and cut again to enlarge the hole.

   NOTE:
   The gauge plate is factory adjusted for cutting a hole 30 mm (1-3/16") wide using a cutter chain 18 mm (23/32").

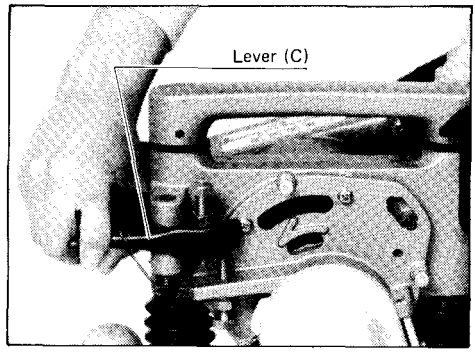
2. Longitudinal (length) enlargement
   Hole length can be determined in three steps shown in the table below.

Cutter chain position	Hole length to be cut
Original position	52.5 mm (2-1/16")
No. 1 set position	52.5 mm (2-1/16") – 105 mm (4-1/8")
No. 2 set position	77.5 mm (3-1/16") – 130 mm (5-1/8")

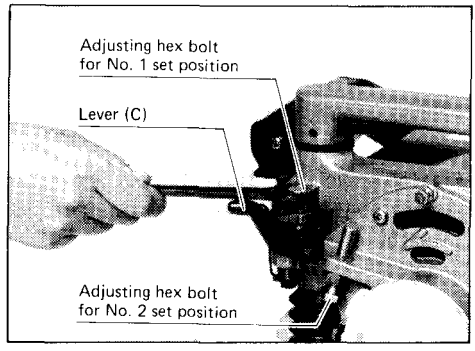
NOTE:

- A hole a little longer than predetermined may be cut depending upon the cutter chain tension.
- The adjusting hex bolts are factory adjusted for cutting holes 90 mm (3-9/16") long in the No. 1 set position and 120 mm (4-3/4") long in the No. 2 set position.

Push down the right-hand grip while raising the left-hand grip. Make sure that the adjusting hex bolt slips into place securely.



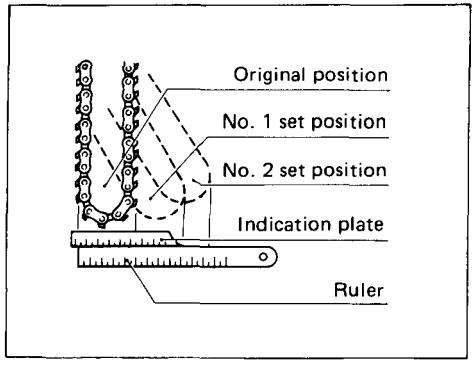
Loosen the hex nut securing the adjusting hex bolt. Turn the adjusting hex bolt until the cutter chain reaches the desired position, then tighten the hex nut.



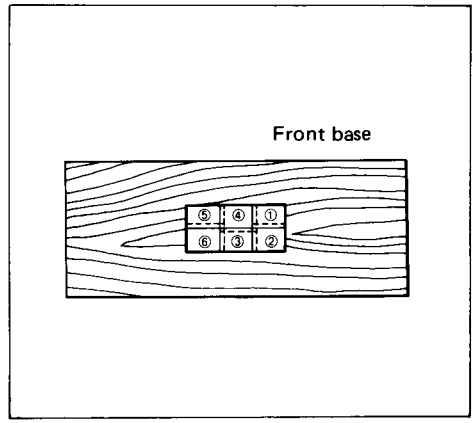
WARNING:
When using pressure to turn the adjusting hex bolt or hex nut, be careful not to allow the adjusting hex bolt to slip off the set position.

To bring the cutter chain back to the perpendicular (original) position, pull the lever (C) toward you while pressing down on the right-hand grip and slightly raising the left-hand grip and move the cutter chain back to its original position.

When cutting a hole, first use the perpendicular position, then No. 1 set position and finally No. 2 set position. Always safely hook the tool head back onto the hook when changing the cutter chain position.



When enlarging a hole both transversely and longitudinally, cut the holes in the order indicated from No. (1) to (6) as shown. This makes for more easy and efficient hole enlargement.

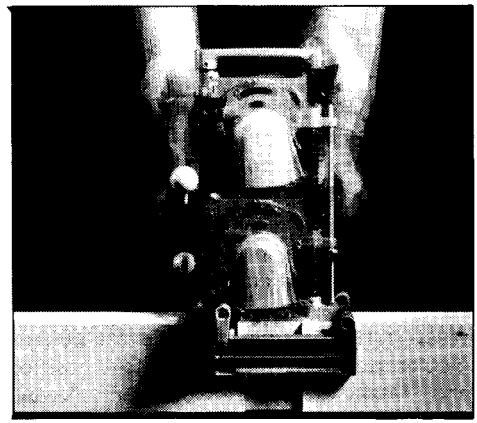


WARNING:

- Never attempt to enlarge a hole with the cutter chain still within the hole. This will cause unstable and dangerous operation.
- Never angle the cutter chain when cutting the first hole, or a dangerous kickback may result. Always have the cutter chain set to the perpendicular position when cutting the first hole.

Lap joints up to 130 mm (5-1/8") can be cut with this tool.

NOTE:
Lap joints can be cut only on the front (side away from you) of the workpiece.



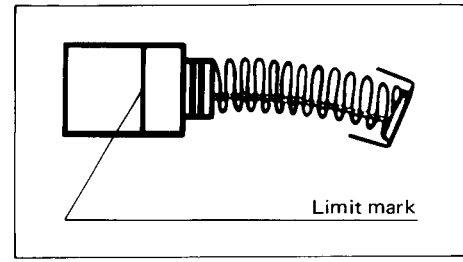
MAINTENANCE

CAUTION:

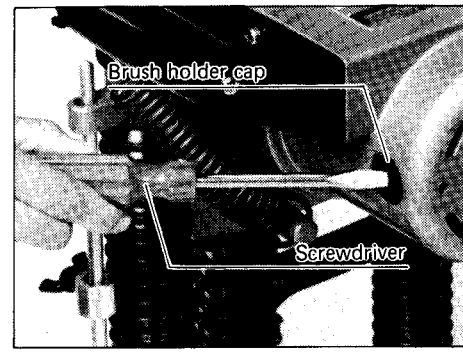
Always be sure that the tool is switched off and unplugged before attempting to perform inspection or maintenance.

Replacing carbon brushes

Remove and check the carbon brushes regularly. Replace when they wear down to the limit mark. Keep the carbon brushes clean and free to slip in the holders. Both carbon brushes should be replaced at the same time. Use only Makita carbon brushes.



Use a screwdriver to remove the brush holder caps. Take out the worn carbon brushes, insert the new ones and secure the brush holder caps.



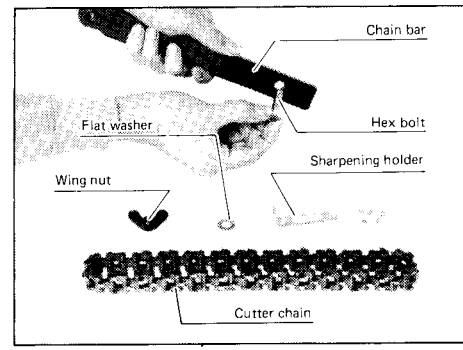
Lubrication

After use, remove dirt, chips and foreign matter adhering to the tool. Then oil the moving parts (especially cutter chain) and the contact portions.

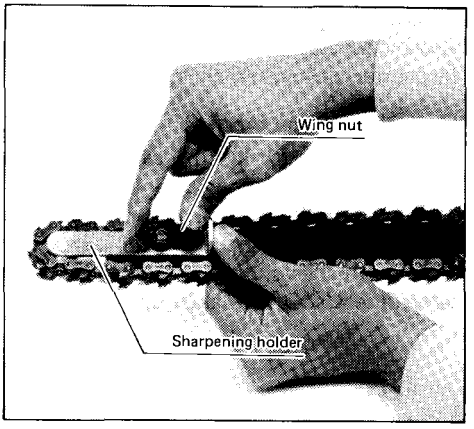
Sharpening cutter chain

Remove the chain bar and cutter chain from the tool. Remove the adjusting screw from the chain bar.

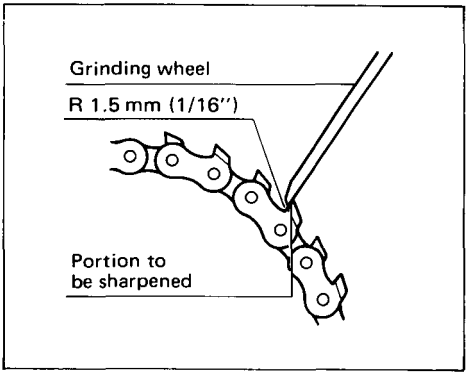
Remove the wing nut, flat washer and hex bolt from the sharpening holder assembly. Insert the hex bolt through the hole in the chain bar so that its hex head fits properly into the groove in the chain bar. Secure the sharpening holder to the chain bar using the wing nut and flat washer (semi-tighten).

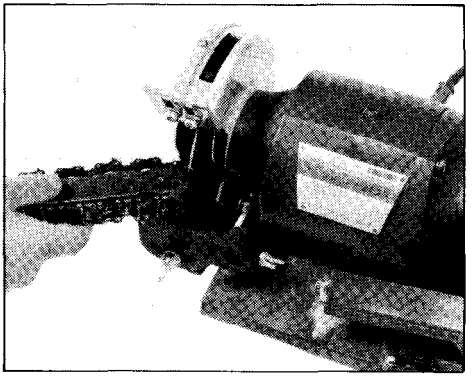


Install the cutter chain around this assembly (chain bar and sharpening holder assembly). Push the bent portion of the sharpening holder to maintain the tension on the cutter chain and tighten the wing nut securely.



Use a grinder suitable for sharpening a cutter chain. The grinder should be equipped with a grinding wheel (grit 60 – 1,000) having a profile as shown in the figure. Its no load speed should be 3,000 – 3,600 RPM (for example, Makita Model 9300).
When sharpening, be careful to maintain the cutter chain configurations identical to the original cutter chain. Sharpen all cutters evenly, one by one. After sharpening, wipe off any foreign matter adhering to the cutter chain and then oil the link portions.





To maintain product SAFETY and RELIABILITY, repairs, any other maintenance or adjustment should be performed by Makita Authorized or Factory Service Centers, always using Makita replacement parts.

ACCESSORIES

CAUTION:

These accessories or attachments are recommended for use with your Makita tool specified in this manual. The use of any other accessories or attachments might present a risk of injury to persons. The accessories or attachments should be used only in the proper and intended manner.

- **Cutter chain**

Part No.	Width
791085-4	15 mm (5/8")
791086-2	16.5 mm (21/32")
791087-0	18 mm (11/16")
791084-6	21 mm (13/16")
791088-8	24 mm (15/16")
* 791174-5	30 mm (1-3/16")

* When using a cutter chain 30 mm (1-3/16"), remove the standard-equipped chain bar and sprocket, and install the chain bar for 30 mm (1-3/16") and sprocket for 30 mm (1-3/16").

- **Chain bar for 30 mm (1-3/16")**

Part No. 122235-4

To remove the standard-equipped chain bar, loosen the hex bolt securing the chain bar. Then remove the hex bolt, spring washer, flat washer and chian bar. Remove the adjusting screw from the chain bar. To install the chain bar for 30 mm (1-3/16"), first install the adjusting screw on the chain bar for 30 mm (1-3/16"). Then install the chain bar using the hex bolt, spring washer and flat washer.

- **Sprocket 4 for 30 mm (1-3/16")**

Part No. 221502-5

To remove the standard-equipped sprocket, insert a slotted screwdriver as shown in the figure to lock the sprocket. Loosen the hex nut securing the sprocket and then remove the hex nut, spring washer, flat washer, ring 15 and sprocket. To install the sprocket for 30 mm (1-3/16"), mount the sprocket onto the spindle with the round hole side facing in. Then secure using the spring washer, flat washer and hex nut. The ring 15 is not necessary when securing the sprocket for 30 mm (1-3/16").

- **Sharpening holder assembly**

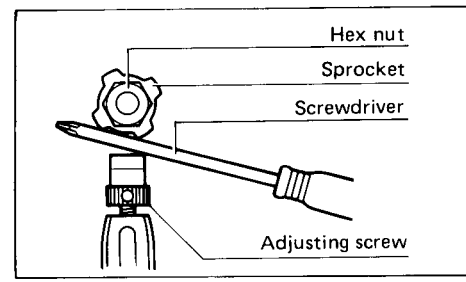
Part No. 123028-2

- **Wrench 13-17**

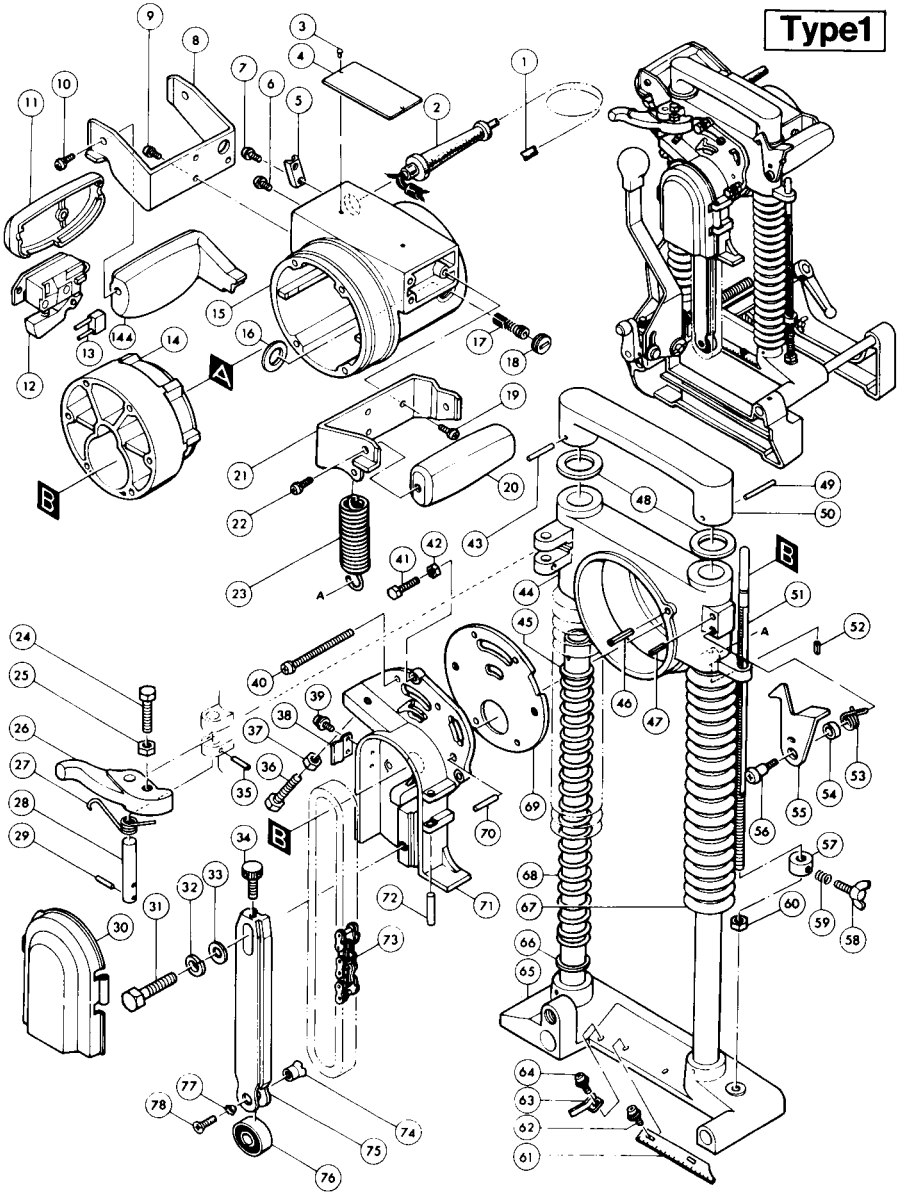
Part No. 781204-0

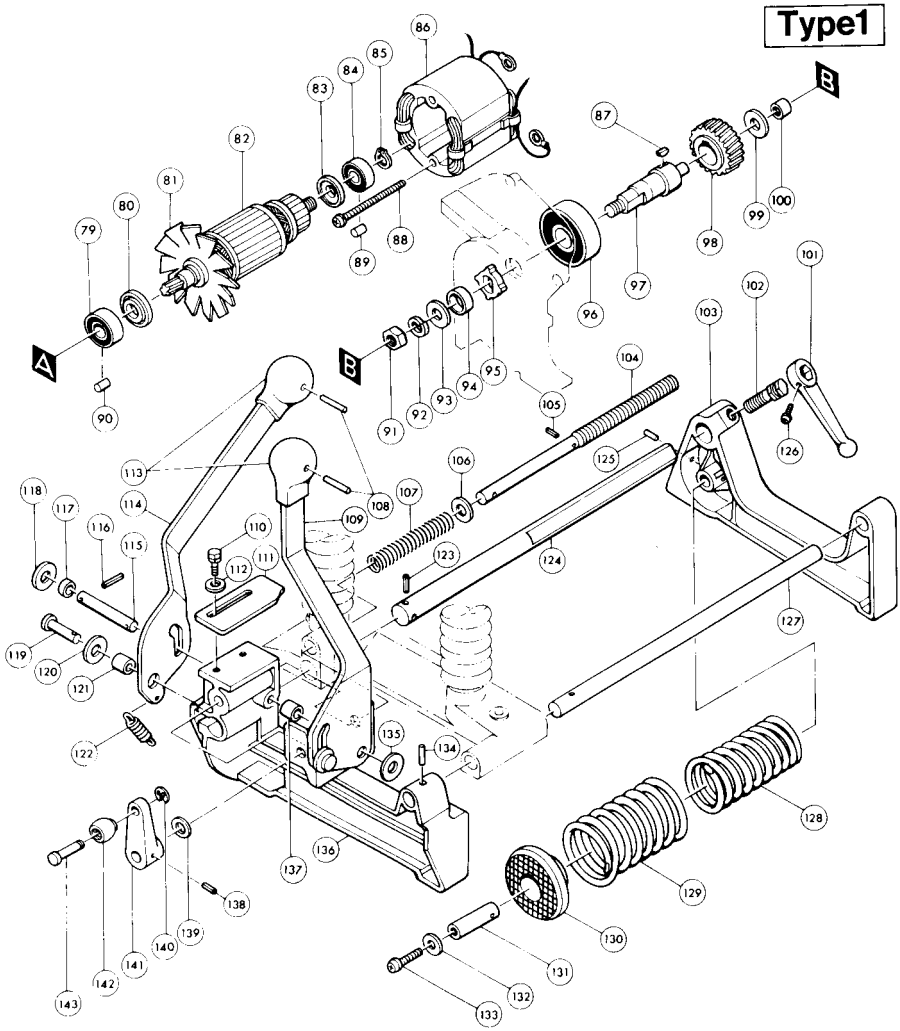
- **Oil supply (100 cc)**

Part No. 181117-9



CHAIN MORTISER
Model 7104L





Note: The switch, noise suppressor and other part configurations may differ from country to country.

ITEM NO.	NO. USED	DESCRIPTION
MACHINE		
1	1	Cord
2	1	Cord Guard
3	2	Rivet 0–5
4	1	Name Plate
5	1	Strain Relief
6	1	Pan Head Screw M4x8 (With Washer)
7	2	Pan Head Screw M4x12 (With Washer)
8	1	Grip Holder R
9	3	Pan Head Screw M5x18 (With Washer)
10	2	Pan Head Screw M5x10 (With Washer)
11	1	Switch Case Set (With Item 144)
12	1	Switch
13	1	Noise Suppressor
14	1	Gear Housing
15	1	Motor Housing
16	2	Insulation Washer
17	2	Carbon Brush
18	2	Brush Holder Cap
19	3	Pan Head Screw M5x18 (With Washer)
20	1	Grip 25
21	1	Grip Holder L
22	2	Pan Head Screw M5x10 (With Washer)
23	1	Tension Spring 20
24	1	Hex. Bolt M8x44
25	1	Hex. Nut M8
26	1	Lever C
27	1	Tension Spring 12
28	1	Pin 10
29	1	Spring Pin 4–20
30	1	Chain Cover
31	1	Hex. Bolt M10
32	1	Spring Washer 10
33	1	Flat Washer 10
34	1	Screw M8x28
35	1	Spring Pin 4–20
36	1	Hex. Bolt M8x44
37	1	Hex. Nut M8
38	1	Leaf Spring
39	2	Pan Head Screw M4x8 (With Washer)
40	4	Pan Head Screw M5x80 (With Washer)
41	3	Hex. Bolt M5x16
42	3	Hex. Nut M5
43	1	Spring Pin 5–32
44	1	Front Housing
45	2	Flat Washer 24
46	1	Spring Pin 6–24
47	1	Spring Pin 4–20
48	2	Rubber Washer 24
49	1	Spring Pin 5–45
50	1	Carry Handle
51	1	Stopper Pole
52	1	Spring Pin 5–12
53	1	Tension Spring 13
54	1	Ring 8
55	1	Hook
56	1	Pan Head Screw M6
57	1	Nut M10 20
58	1	Wing Bolt M6x15
59	1	Compression Spring 7
60	1	Hex. Nut M8
61	1	Indication Plate
62	2	Pan Head Screw M4x8 (With Washer)
63	1	Indicator Plate
64	1	Pan Head Screw M4x8 (With Washer)
65	1	Base
66	2	Flat Washer 24
67	2	Bellows
68	2	Compression Spring 25
69	1	Disc
70	1	Spring Pin 6–24
71	1	Chain Bar Holder
72	1	Spring Pin 5 40

ITEM NO.	NO. USED	DESCRIPTION
MACHINE		
73	1	Cutter Chain
74	1	Head Shaft
75	1	Chain Bar
76	1	Ball Bearing 1008LL
77	1	Toothed Lock Washer 6
78	1	Countersunk Head Screw M6x12
79	1	Ball Bearing 6201LLB
80	1	Dust Seal 12
81	1	Fan 92
82	1	ARMATURE ASSEMBLY (With Item 79 – 85)
83	1	Dust Seal 10
84	1	Ball Bearing 6200LLB
85	1	Retaining Ring S–10
86	1	FIELD ASSEMBLY
87	1	Woodruff Key 4
88	2	Pan Head Screw M5x75 (With Washer)
89	1	Rubber Pin 4
90	1	Rubber Pin 6
91	1	Hex. Nut M10
92	1	Spring Washer 10
93	1	Flat Washer 10
94	1	Ring 15
95	1	Sprocket 4
96	1	Ball Bearing 6304LLB
97	1	Spindle
98	1	Helical Gear 47
99	1	Flat Washer 10
100	1	Needle Bearing 1015
101	1	Lever 98
102	1	Hex. Bolt M12x34
103	1	Vice Element
104	1	Screw M14
105	1	Spring Pin 4–20
106	1	Flat Washer 10
107	1	Compression Spring 10
108	2	Spring Pin 5–40
109	1	Lever B
110	2	Hex. Bolt M8x16 (With Washer)
111	1	Stopper
112	2	Flat Washer 8
113	2	Knob 40
114	1	Clamp
115	1	Pin 9
116	2	Spring Pin 4–20
117	1	Ring 9
118	1	Flat Washer 9
119	1	Pin 9
120	1	Flat Washer 9
121	1	Sleeve 9
122	1	Tension Spring 9
123	1	Spring Pin 4–16
124	1	Slide Bar
125	1	Spring Pin 5–20
126	1	Pan Head Screw M5x10
127	1	Guide Pole
128	1	Compression Spring 36
129	1	Compression Spring 48
130	1	Vice Shoe
131	1	Vice Shaft
132	1	Flat Washer 6
133	1	Pan Head Screw M6x35 (With Washer)
134	1	Spring Pin 5–24
135	1	Flat Washer 9
136	1	Front Vice
137	1	Sleeve 9
138	1	Spring Pin 4–20
139	1	Flat Washer 10
140	1	Stop Ring E–6
141	1	Handle
142	1	Knob 20
143	1	Pin 8
144	1	Switch Case Set (With Item 11)

Note: The switch, noise suppressor and other part specifications may differ from country to country.

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