アメリカ

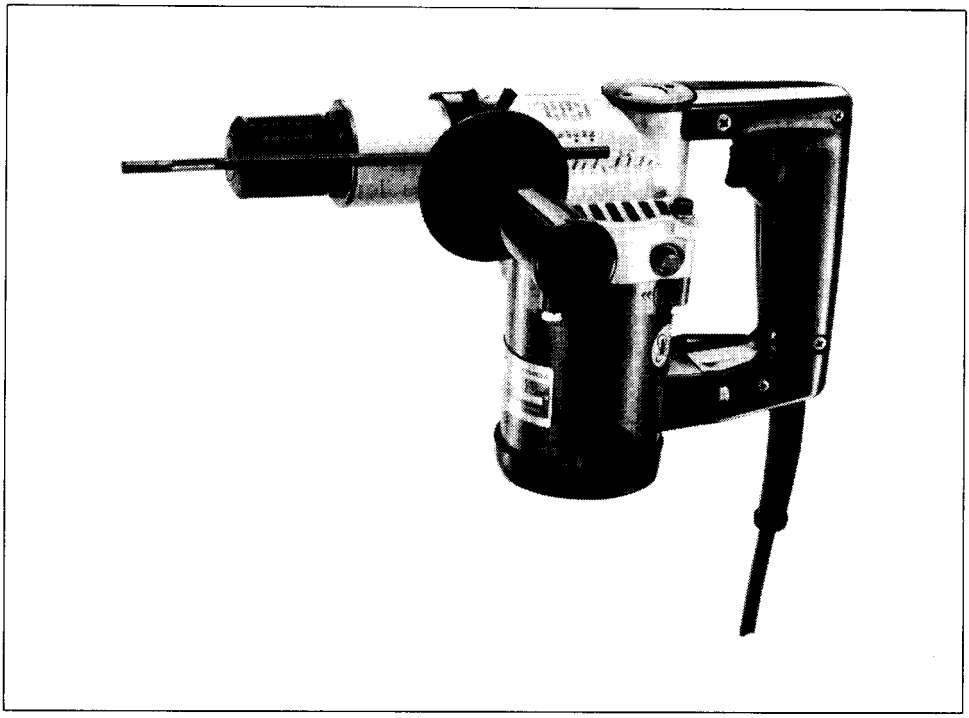
Makita

Rotary Hammer

19 mm (3/4") MODEL HR1821

Variable Speed

INSTRUCTION MANUAL



SPECIFICATIONS

Capacities			No load speed	Blows per minute	Overall length	Net weight
Wood	Steel	Concrete				
15 mm (5/8")	10 mm (3/8")	19 mm (3/4")	0 – 1,000 R/min.	0 – 3,500	321 mm (12-5/8")	3.1 kg (6.8 lbs)

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

IMPORTANT SAFETY INSTRUCTIONS

(For All Tools)

WARNING: WHEN USING ELECTRIC TOOLS, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, AND PERSONAL INJURY, INCLUDING THE FOLLOWING:

READ ALL INSTRUCTIONS.

1. KEEP WORK AREA CLEAN. Cluttered areas and benches invite injuries.
2. CONSIDER WORK AREA ENVIRONMENT. Don't use power tools in damp or wet locations. Keep work area well lit. Don't expose power tools to rain. Don't use tool in presence of flammable liquids or gases.
3. KEEP CHILDREN AWAY. All visitors should be kept away from work area. Don't let visitors contact tool or extension cord.
4. STORE IDLE TOOLS. When not in use, tools should be stored in dry, and high or locked-up place — out of reach of children.
5. DON'T FORCE TOOL. It will do the job better and safer at the rate for which it was intended.
6. USE RIGHT TOOL. Don't force small tool or attachment to do the job of a heavy-duty tool. Don't use tool for purpose not intended.
7. DRESS PROPERLY. Don't wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors. Wear protective hair covering to contain long hair.
8. USE SAFETY GLASSES. Also use face or dust mask if cutting operation is dusty.
9. DON'T ABUSE CORD. Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.
10. SECURE WORK. Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
11. DON'T OVERREACH. Keep proper footing and balance at all times.
12. MAINTAIN TOOLS WITH CARE. Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and if damaged, have repaired by authorized service facility. Inspect extension cords periodically and replace if damaged. Keep handles dry, clean, and free from oil and grease.
13. DISCONNECT TOOLS. When not in use, before servicing, and when changing accessories, such as blades, bits, cutters.

14. REMOVE ADJUSTING KEYS AND WRENCHES. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
15. AVOID UNINTENTIONAL STARTING. Don't carry plugged-in tool with finger on switch. Be sure switch is OFF when plugging in.
16. OUTDOOR USE EXTENSION CORDS. When tool is used outdoors, use only extension cords intended for use outdoors and so marked.
17. STAY ALERT. Watch what you are doing, use common sense. Don't operate tool when you are tired.
18. 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 by an authorized service center unless otherwise indicated elsewhere in this instruction manual. Have defective switches replaced by authorized service center. Don't use tool if switch does not turn it on and off.
19. GUARD AGAINST ELECTRIC SHOCK. Prevent body contact with grounded surfaces. For example; pipes, radiators, ranges, refrigerator enclosures.
20. PROPER GROUNDING. This tool should be grounded while in use to protect the operator from electric shock.
21. 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.

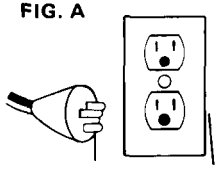
VOLTAGE WARNING: Before connecting the tool to a power source (receptacle, outlet, etc.) be sure the voltage supplied is the same as that specified on the nameplate of the tool. A power source with voltage greater than that specified for the tool can result in SERIOUS INJURY to the user — as well as 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.

For all grounded tools with American type plug.

GROUNDING INSTRUCTIONS: This tool should be grounded while in use to protect the operator from electric shock. *The tool is equipped with a three-conductor cord and three-prong grounding-type plug to fit the proper grounding-type receptacle.* The green (or green and yellow) conductor in the cord is the grounding wire. Never connect the green (or green and yellow) wire to a live terminal. Your unit is for use on 115 volts and has a plug that looks like Fig. "A".

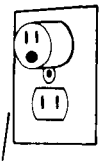
An adapter Fig. "B" and "C" is available for connecting Fig. "A" type plugs to two-prong receptacles. The green-colored rigid ear, lug, etc., extending from the adapter must be connected to a permanent ground, such as a properly grounded outlet box.

FIG. A



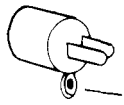
Grounding Blade

FIG. B



Cover of Grounded Outlet Box

FIG. C



Adapter

Grounding Means

ADDITIONAL SAFETY RULES

1. Wear a hard hat (safety helmet) and an ear protector if necessary.
2. Be sure the drill bit is secured in place before operation.
3. Under normal operation, the tool is designed to produce vibration. The screws can come loose easily, causing a breakdown or accident. Check tightness of screws carefully before operation.
4. In cold weather or when the tool has not been used for a long time, let the tool warm up for several minutes by operating it under no load. This will loosen up the lubrication. Without proper warm-up hammering operation is difficult.
5. Always be sure you have a firm footing.
   Be sure no one is below when using the tool in high locations.
6. Hold the tool firmly with both hands. Always use the side grip.
7. Keep hands away from rotating parts.
8. Do not leave the tool running. Operate the tool only when hand-held.
9. Do not point the tool at any one in the area when operating. The drill bit could fly out and injure someone seriously.
10. When drilling into walls, floors or wherever "live" electrical wires may be encountered, DO NOT TOUCH ANY METAL PARTS OF THE TOOL!
    Hold the tool only by the plastic handle or the side grip to prevent electric shock if you drill into a "live" wire.
11. Do not touch the drill bit or parts close to the drill bit immediately after operation; they may be extremely hot and could burn your skin.

SAVE THESE INSTRUCTIONS.

HOW TO USE

Bit grease

- Coat the drill bit shank head beforehand with a small amount (about 0.5 – 1 g; 0.02 – 0.04 oz.) of bit grease. This chuck lubrication assures smooth action and longer service life.

Installing and removing the drill bit

- To install the drill bit, align protrusion (A) with the red dot, then align the key groove on the drill bit shank with the red dot and insert the drill bit. Now turn the chuck cover 90 degrees.

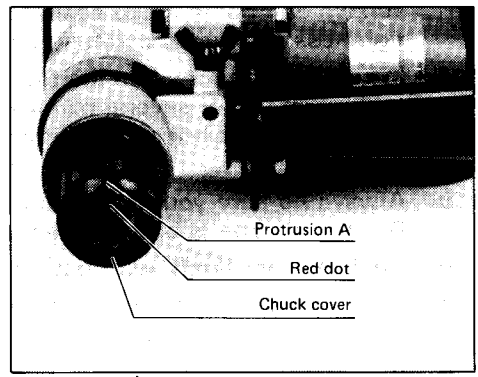


Fig. 1

- To remove the drill bit, turn the chuck cover until protrusion (A) is aligned with the red dot. Then slip out the drill bit.

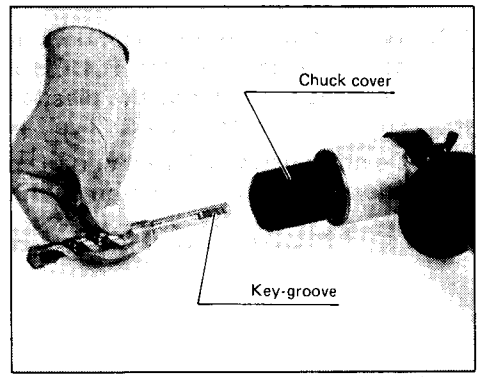


Fig. 2

Side grip

- The side grip can be swivelled a full 360 degrees. To set it at any desired angle, unscrew the grip counterclockwise and swivel to the desired position.
  Then tighten it securely. (Keep the grip base in the barrel groove before tightening in place.)

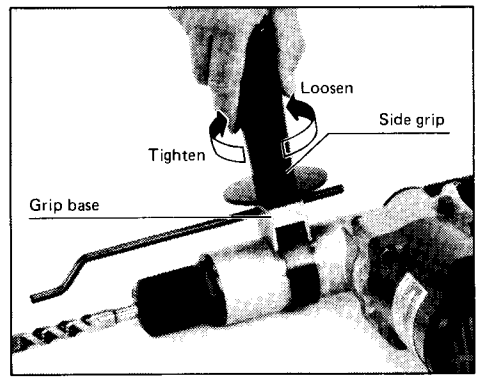


Fig. 3

Depth rod

- The depth rod is used to drill holes of uniform depth. Loosen the thumb screw set the depth rod to desired position, then tighten the thumb screw.

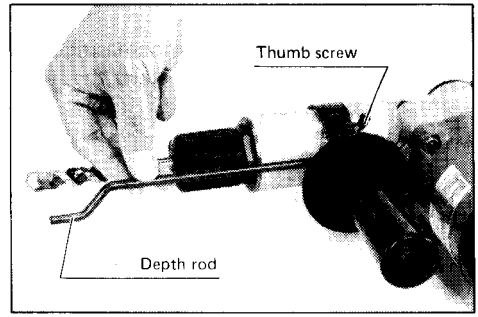


Fig. 4

Handling dust collector

- Use the dust collector for safe, sanitary overhead operations. Install the drill bit, then fix the dust collector on the end by turning and applying pressure. Then secure it by turning the metal retainer clockwise.

CAUTION:
Empty the dust collector of its contents after drilling every 2 or 3 holes.

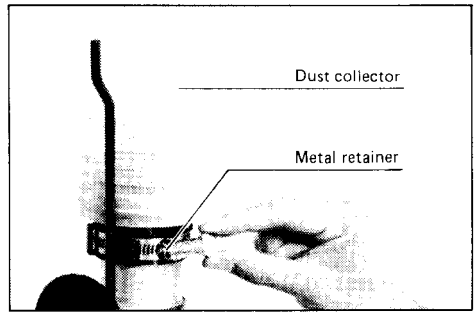


Fig. 5

How to work switchover mechanism

- For Rotation + Hammering:
  Press the push rod in ◁◁ ◯ ▷▷ direction.

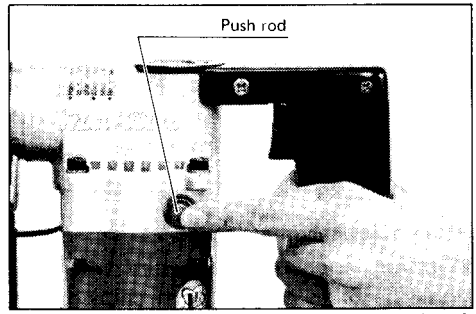


Fig. 6

For Rotation only:
Press the push rod in ◁◁ ⊖ ▷▷ direction.

CAUTION:
Press the push rod as far as it will go. Failure to do so can cause rapid wear of the switchover mechanism.

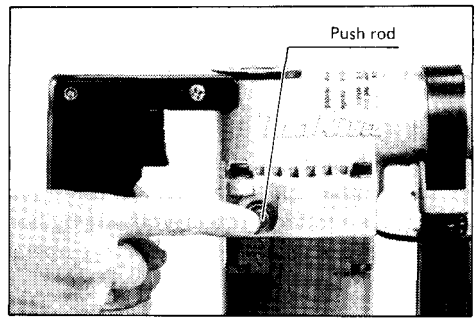


Fig. 7

Switch action

- Tool speed is increased by increasing pressure on the trigger. To start the tool, simply pull the trigger. Release the trigger to stop.

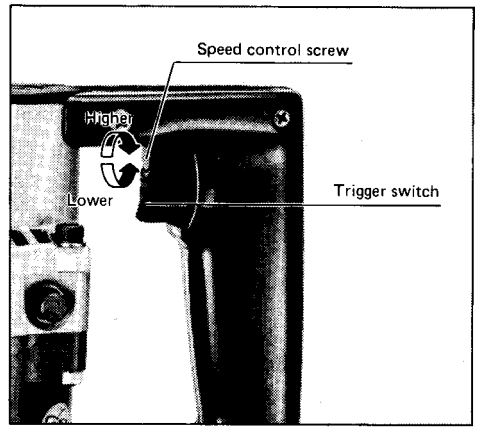


Fig. 8

- A speed control screw is provided so that tool speed (RPM) can be changed at the fully-pulled trigger position. Turn the speed control screw clockwise (+) for higher speed and counterclockwise (—) for lower speed.

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

Hammer drilling operation

- Position the drill bit at the location for the hole, then pull the trigger.
  Do not force the tool. Light pressure gives best results. Keep the tool in position and prevent it from slipping away from the hole.

When holes become clogged

- Do not apply more pressure when the hole becomes clogged with chips or particles. Instead, run the tool at idle, then remove from the hole. By repeating this several times, the hole will be cleaned out completely.

Fig. 9

CAUTION:
When drilling in concrete, it is quite possible that the drill bit could hit a reinforcing rod or some other object that could cause a kickback. Although this tool is equipped with the torque limiter, protect yourself by holding the tool firmly with both hands. (Be sure the side grip is secured tightly before operation.)

Blow-out bulb

- Use the blow-out bulb to clean out the hole.

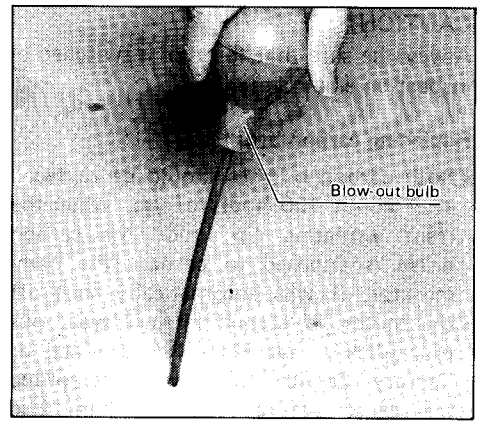


Fig. 10

Anchor setting procedure

- The drill bit has a red marking which can be used to indicate the anchor length. Use the depth rod when drilling for setting a number of anchors at the same depth.

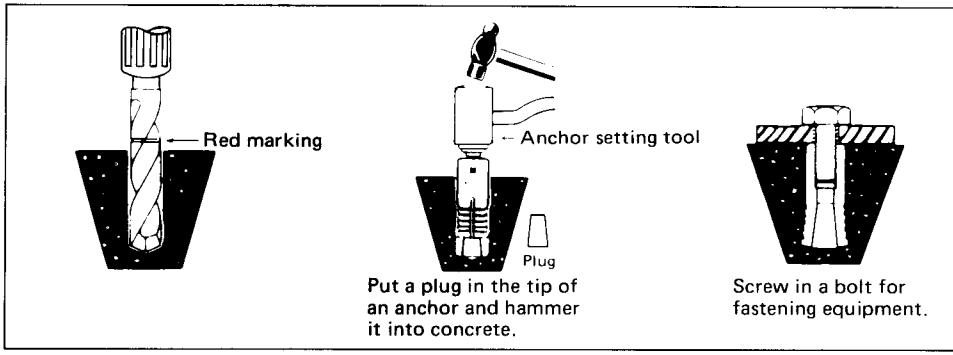


Fig. 11

Drilling in wood or metal

- Set the push rod for "rotation only." Then use the drill chuck and chuck adapter (optional equipment), installing it as described in "Installing and removing the drill bit (P. 6)."

CAUTION:
Do not perform "rotation + hammering" action with the drill chuck, or the chuck will probably be damaged.

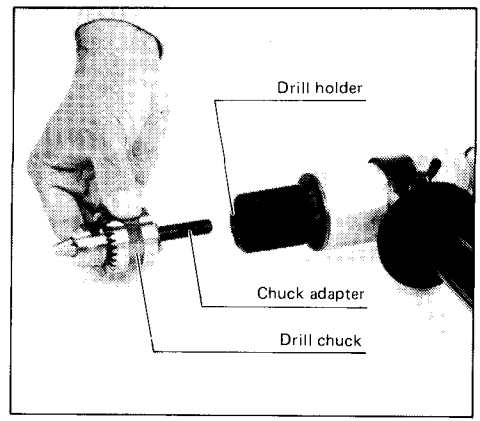


Fig. 12

MAINTENANCE

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

Replacing carbon brushes

- Both carbon brushes should be replaced after about 150 hours of use. When the resin insulating tip inside the carbon brush is exposed to contact the commutator, it will automatically shut off the motor. If carbon brushes wear out too quickly, ask Makita Authorized or Factory Service Centers to determine the cause before replacing them. Use only Makita carbon brushes.

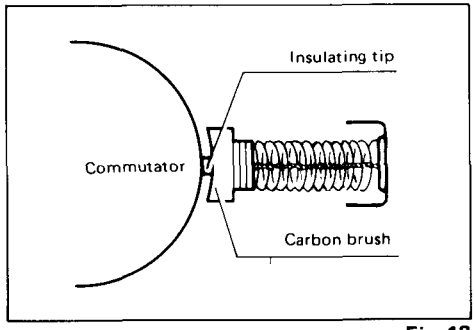


Fig. 13

- Use the screwdriver to remove the brush holder cap as shown in the figure.

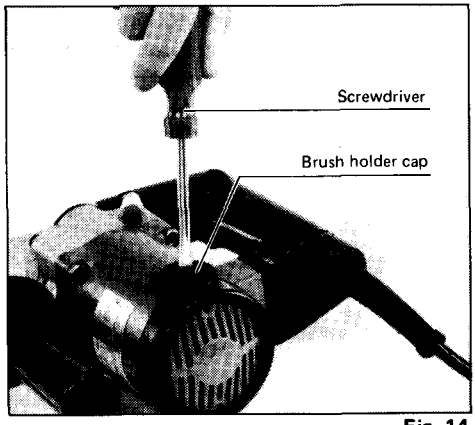


Fig. 14

Take out the worn brush, insert the new one and secure the brush holder cap.

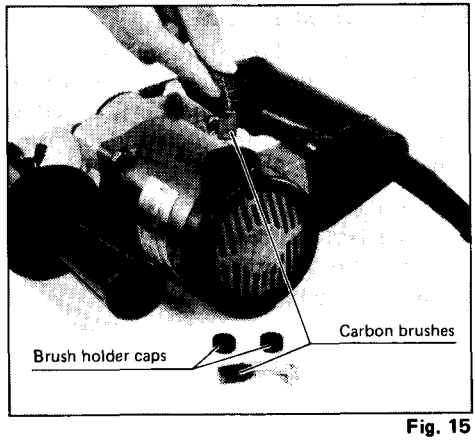


Fig. 15

Lubrication

- Lubricate the tool every time after replacing carbon brushes.

Run the tool for several minutes to warm it up, then rest the tool on the table with the chuck cover (bit) end pointing toward the ceiling. This will allow the old grease to collect inside the crank housing. After five minutes, take off the crank cap and remove the old grease. Wipe out all grease inside and replace with the fresh supply (30 g).

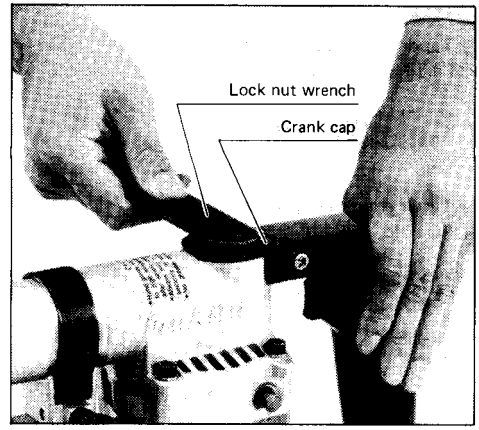


Fig. 16

CAUTION:
Filling with more than the specified amount of grease (approx. 30 g; 1 oz.) can cause faulty hammering action or a failure. Fill only with the specified amount of grease.

CAUTION:
Do not tighten the crank cap too much, when installing. It is made of resin and is subject to breakage.
Never use the bit grease for lubrication of hammer mechanism.

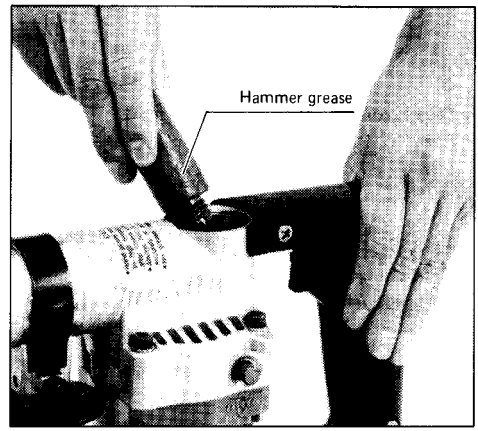


Fig. 17

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

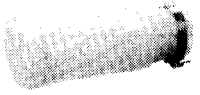
ACCESSORIES

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.

- **Taper shank adapter No. 1**
  Part No. 798131-4

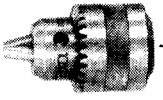
- **Taper shank adapter A**
  Part No. 798176-2

- **Dust collector**
  Part No. 122290-6

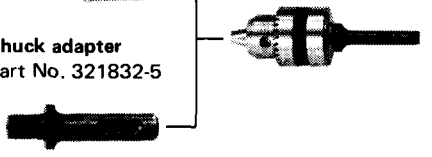


- **Depth rod**
  Part No. 321144-6

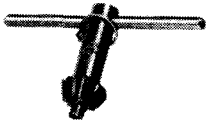
- **Drill chuck S10**
  Part No. 763056-1



- **Chuck adapter**
  Part No. 321832-5



- **Chuck key S10**
  Part No. 763403-6



- **Blow-out bulb**
  Part No. 765009-6

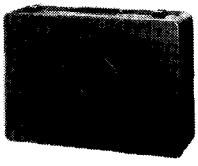
- **Hex wrench 5**
  Part No. 783203-8

- **Lock nut wrench 28**
  Part No. 782402-9

- **Hammer grease** 30 g; 1 oz.
  Part No. 181490-7

- **Bit grease** 100 g; 3.5 oz.
  Part No. 181573-3

- **Steel carrying case**
  Part No. 155826-6

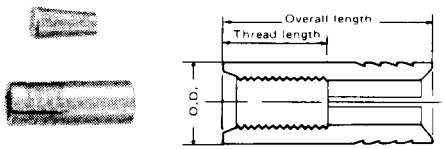


- **Cotter**
  Part No. 765010-1

• Tungsten-carbide tip bits

Part No.	Bit diameter (mm)	Max. drilling depth (mm)	Overall length (mm)
791180-0	6.5 (1/4")	60 (2-3/8")	120 (4-3/4")
791181-8	7.5 (5/16")	60 (2-3/8")	120 (4-3/4")
791182-6	8.0 (5/16")	70 (2-3/4")	130 (5-1/8")
791183-4	8.5 (11/32")	70 (2-3/4")	130 (5-1/8")
791184-2	9.5 (3/8")	70 (2-3/4")	130 (5-1/8")
791185-0	10.0 (3/8")	80 (3-1/8")	135 (5-5/16")
791186-8	10.5 (13/32")	80 (3-1/8")	135 (5-5/16")
791187-6	11.0 (7/16")	80 (3-1/8")	135 (5-5/16")
791188-4	11.5 (15/32")	80 (3-1/8")	135 (5-5/16")
791189-2	12.0 (1/2")	80 (3-1/8")	135 (5-5/16")
791190-7	12.5 (1/2")	80 (3-1/8")	135 (5-5/16")
791191-5	13.3 (17/32")	80 (3-1/8")	135 (5-5/16")
791192-3	14.5 (9/16")	80 (3-1/8")	135 (5-5/16")
791193-1	18.0 (11/16")	80 (3-1/8")	135 (5-5/16")
791195-7	16.0 (5/8")	175 (6-7/8")	230 (9-1/16")
791196-5	18.0 (11/16")	175 (6-7/8")	230 (9-1/16")
791197-3	19.0 (3/4")	175 (6-7/8")	230 (9-1/16")

• Anchors (30 sets per pkg)



Anchor No.	Outer diameter (mm)	Overall length (mm)	Thread	Thread length (mm)	Part No.
No.2	11 (7/16")	30 (1-3/16")	W 1/4"	10 (3/8")	798054-6
No.2.5	12 (1/2")	35 (1-3/8")	W 5/16"	13 (1/2")	798056-2
No.3	14.3 (9/16")	40 (1-5/8")	W 3/8"	15 (5/8")	798058-8
No.4	17.5 (11/16")	50 (2")	W 1/2"	20 (13/16")	798060-1

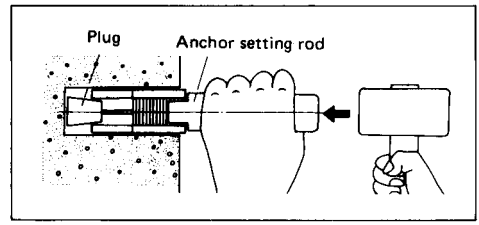
• Anchor setting tool

Part No. 765012-7

• Anchor setting rod (Manual setting)

Anchor No.	Part No.
No. 2	765014-3
No. 2.5	765015-1

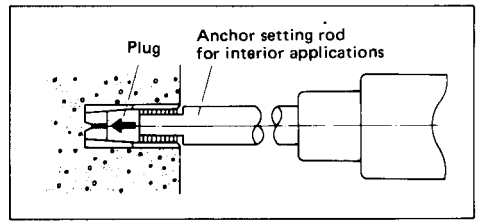
Makita anchor only



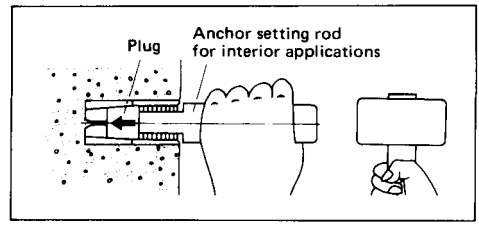
• Anchor setting rod for interior applications

Anchor No.	Machine Use	Manual Use
	Part No.	Part No.
No. 2	765020-8	765016-9
No. 2.5	765021-6	765017-7
No. 3	765022-4	765018-5
No. 4	765023-2	765019-3

(Set by tool)

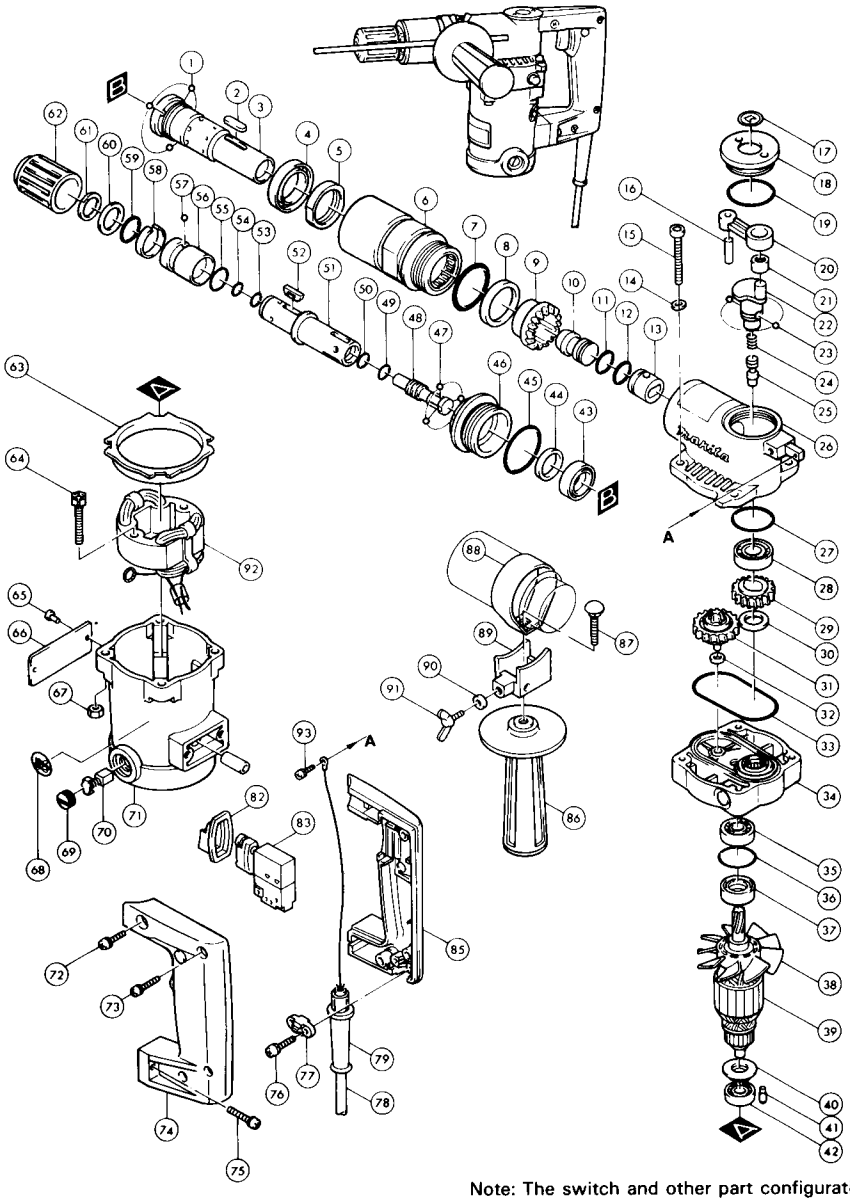


(Manual setting)



Makita

19 mm (3/4")
ROTARY HAMMER
Model HR1821



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

ITEM NO.	NO. USED	DESCRIPTION
MACHINE		
1	3	Steel Ball 6.4
2	1	Key 4
3	1	Cylinder Liner 20
4	1	Ball Bearing 3007
5	1	Nut M30.3-36
6	1	Barrel
7	1	O Ring 40
8	1	Flat Washer 30
9	1	Spiral Bevel Gear 26
10	1	Striker
11	1	O Ring 16
12	1	O Ring 16
13	1	Piston
14	4	Spring Washer 6
15	4	Hex. Socket Head Bolt M6x50
16	1	Pin 5
17	1	Makita Label
18	1	Crank Cap
19	1	O Ring 35
20	1	Rod
21	1	Needle Bearing 810
22	1	Crank Shaft
23	2	Steel Ball 5.6
24	1	Compression Spring 6
25	1	Change Pin 8
26	1	Crank Housing
27	1	O Ring 32
28	1	Ball Bearing 6002
29	1	Helical Gear 29
30	1	Flat Washer 15
31	1	Torque Limiter
32	1	Flat Washer 6
33	1	O Ring 65
34	1	Gear Housing
35	1	Ball Bearing 6200
36	1	O Ring 30
37	1	Oil Seal 13
38	1	Fan 67
39	1	ARMATURE ASSEMBLY
		(Assembled Items 38 - 40 & Item 42)
40	1	Insulation Washer
41	1	Rubber Pin 4
42	1	Ball Bearing 608LB
43	1	Oil Seal 21
44	1	Felt Ring 20
45	1	O Ring 40
46	1	Seal Holder
47	3	Steel Ball 6.4
48	1	Impact Bolt
49	1	O Ring 10
50	1	O Ring 10
51	1	Drill Holder
52	2	Key 4
53	1	O Ring 10
54	1	O Ring 10
55	1	O Ring 19
56	1	Change Ring
57	1	Steel Ball 4.8
58	1	Leaf Spring
59	1	O Ring 19
60	1	Flat Washer 20
61	1	Spiro Lock Washer 20
62	1	Chuck Cover
63	1	Fan Guide
64	2	Hex. Bolt M5x40 (With Washer)
65	2	Rivet 0-5
66	1	Name Plate
67	4	Hex. Nut M6
68	1	Label
69	2	Brush Holder Cap
70	2	Carbon Brush
71	1	Motor Housing
72	2	Pan Head Screw M6x16 (With Washer)
73	3	Pan Head Screw M5x22 (With Washer)
74	1	Handle Set (With Item 85)
75	2	Pan Head Screw M6x25 (With Washer)
76	2	Pan Head Screw M4x18 (With Washer)
77	1	Strain Relief
78	1	CORD ASSEMBLY
		(With Cord, Plug & Item 79)
79	1	Cord Guard
82	1	Dust Cover
83	1	Switch
85	1	Handle Set (With Item 74)
86	1	Grip 37
87	1	Cap Square Neck Bolt M8x35
88	1	Belt
89	1	Grip Base
90	1	Rubber Washer 4.5
91	1	Thumb Screw M5x15
92	1	FIELD ASSEMBLY
93	1	Pan Head Screw M4x8 (With Washer)

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

アメリカ

MAKITA LIMITED ONE YEAR WARRANTY

Warranty Policy

Every Makita tool is thoroughly inspected and tested before leaving the factory. It is warranted to be free of defects from workmanship and materials for the period of ONE YEAR from the date of original purchase. Should any trouble develop during this one-year period, return the COMPLETE tool, freight prepaid, to one of Makita's Factory or Authorized Service Centers. If inspection shows the trouble is caused by defective workmanship or material, Makita will repair (or at our option, replace) without charge.

This Warranty does not apply where:

- repairs have been made or attempted by others;
- repairs are required because of normal wear and tear;
- The tool has been abused, misused or improperly maintained;
- alterations have been made to the tool.

IN NO EVENT SHALL MAKITA BE LIABLE FOR ANY INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES FROM THE SALE OR USE OF THE PRODUCT. THIS DISCLAIMER APPLIES BOTH DURING AND AFTER THE TERM OF THIS WARRANTY.

MAKITA DISCLAIMS LIABILITY FOR ANY IMPLIED WARRANTIES, INCLUDING IMPLIED WARRANTIES OF "MERCHANTABILITY" AND "FITNESS FOR A SPECIFIC PURPOSE," AFTER THE ONE-YEAR TERM OF THIS WARRANTY.

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

Makita Electric Works, Ltd.
11-8, 3-chome, Sumiyoshi-cho, Anjo, Aichi 446, Japan
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