

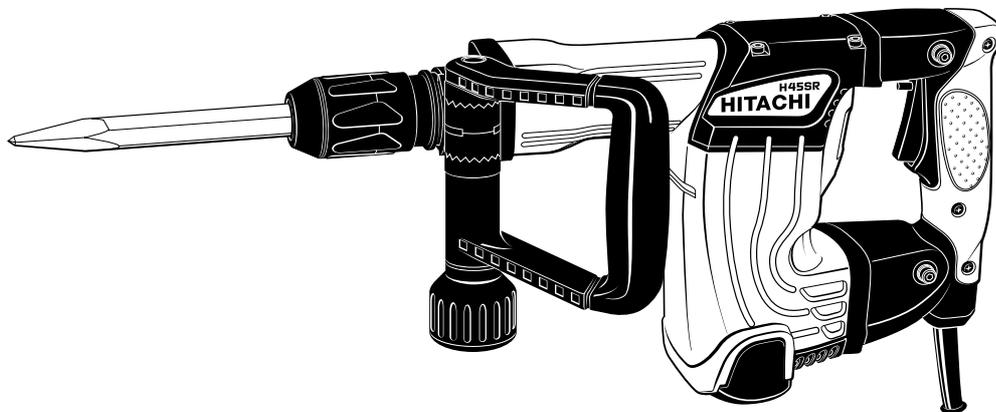
MODEL

H 45SR

HITACHI
POWER TOOLS

HAMMER
H 45SR

TECHNICAL DATA
AND
SERVICE MANUAL



M

LIST No. E464

May 2002

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

REMARK:

Throughout this TECHNICAL DATA AND SERVICE MANUAL, a symbol(s) is(are) used in the place of company name(s) and model name(s) of our competitor(s). The symbol(s) utilized here is(are) as follows:

Symbols Utilized	Competitors	
	Company Name	Model Name
C	MAKITA	HM0810



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1. PRODUCT NAME

Hitachi Electric Hammer, Model H 45SR

2. MARKETING OBJECTIVE

The Model H 45SR is an upgraded version of the current Model H 41SA, which features the use of Hitachi 17-mm hexagonal tools. The performance, durability and operability are greatly improved. With this competitive Model H 45SR, we aim to enhance the share of the Hitachi 17-mm hexagonal shank type hammers.

The main specifications are as follows:

- (1) High chipping and demolishing performance with low vibration and noise level
- (2) Self-chiseling (Good feeling)
- (3) Internal double-insulation construction with sturdy aluminum frame
- (4) A highly reliable mechanism for prevention of idle hammering and shock-absorbing mechanism results in prolonged service life and comfortable operation.
- (5) D-type side handle with adjustable mechanism for 360° rotation plus positioning from front to rear
- (6) Soft-touch grip for easier handling
- (7) Easy-to-hold plastic grip for efficient wall chipping
- (8) A very original design

3. APPLICATIONS

- Demolishing and chiseling of concrete
- Edging, gravel road digging, compacting and tamping, grooving, cutting, stripping, roughing and anchor piling work, etc. (with use of appropriate optional accessories)

4. SELLING POINTS

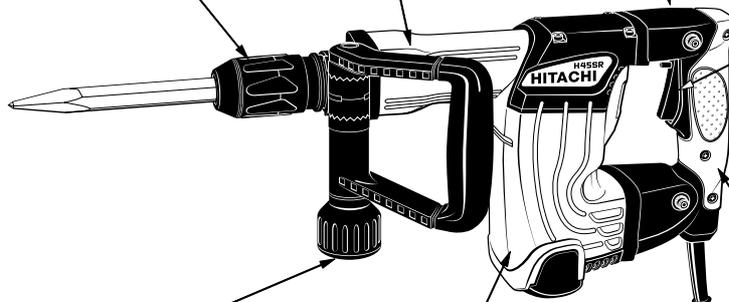
- High chipping and demolishing performance with low vibration and noise level
- Self-chiseling (Good feeling)
- A very original design

A highly reliable mechanism for prevention of idle hammering and shock-absorbing mechanism results in prolonged service life and comfortable operation.

Hitachi original design vibration-absorbing handle for excellent vibration reduction

Easy-to-hold plastic grip for efficient wall chipping

Large trigger switch for comfortable operation



D-type side handle with adjustable mechanism for 360° rotation plus positioning from front to rear

Internal double-insulation construction with sturdy aluminum frame

Soft-touch grip for easier handling

4-1. Selling Point Descriptions

4-1-1. High chipping and demolishing performance with low vibration and noise level

Demolition performance is 1.3 to 1.4 times higher than that of similar products thanks to the 12.5 J impact energy and efficient striking. The chipping performance is 1.3 to 1.4 times higher than that of similar products. Even so, the Model H 45SR produces equivalent or lower vibration and sound levels than those of similar products.

Maker · Model		HITACHI H 45SR	HITACHI H 41SA	C
Ratio of demolished weight	%	100	79	74
Full-load vibration level	dB (VL)	118.5	119.0	121.5
Full-load noise level	dB (A)	95.7	95.7	97.0
No-load noise level	dB (A)	84.3	88.0	89.2

4-1-2. Self-chiseling (Good feeling)

Thanks to the computer-simulated optimum striking characteristics, the quantity of body jumping is less than that of the current Model H 41SA and the working tool smoothly penetrates into the workpiece with a light pressing force. The Model H 45SR realizes quicker self-chiseling with better impact feeling.

Impact energy	65% up (7.5 J to 12.5 J)
Maximum compressed air force (piston force)	About 30% down
Quantity of body jumping	About 45% down

4-1-3. Internal double-insulation construction with sturdy aluminum frame

The aluminum die-cast outer frame is very sturdy (highly rigid). In addition, a plastic internal S holder is adopted to realize double-insulation construction. Thus the housing has greater rigidity and the double-insulated motor has greater durability. The Model H 45SR is heavy-duty and the service life of the carbon brush is greatly prolonged (3 times longer than the conventional one) minimizing disconnection of the armature, deviation of the core and grease leakage.

4-1-4. A highly reliable mechanism for prevention of idle hammering and shock-absorbing mechanism results in prolonged service life and comfortable operation

Conventional mechanism for prevention of idle hammering is to open and close the air holes according to the movement of the striker. The Model H 45SR has air holes located at the position unaffected by the rebound of the striker at no load. The air holes are opened and closed by the movement of sleeve (A) provided around the cylinder that interlocks with the tool and the second hammer to prevent idle hammering. This mechanism securely prevents idle hammering even in wall hammering works or even if a tool that can cause great rebound on the striker such as a cutter is used. Thanks to the highly reliable mechanism for prevention of idle hammering, the service life of the Model H 45SR is prolonged and hammering works requiring much attention not to break the surroundings can be efficiently performed with the Model H 45SR. At the instance of releasing the bull point from the concrete by moving the main body up, the second hammer contacts hammer holder (A) then the cushion (damper (A)) provided between hammer holder (A) and the front cover absorbs the striking force of the second hammer. Thus the Model H 45SR has greater durability than the similar products.

4-1-5. D-type side handle with adjustable mechanism for 360° rotation plus positioning from front to rear

The D-type side handle can be adjusted by 360° rotation and also allows convenient operation from front to rear. This side handle has a two-layer plastic construction (integral molding) made of nylon resin as the base and soft resin around it for a comfortable cushion grip.

4-1-6. Soft-touch grip for easier handling

The double-layer molded handle consists of a nylon resin base covered with a soft plastic layer to ensure a soft touch and firm, non-slip grip of the handles.

4-1-7. Easy-to-hold plastic grip for efficient wall chipping

The tool retainer is equipped with a small-diameter (50 mm) nylon resin grip. The easy-to-grip tool retainer does not get hot and the working tool can be easily positioned on the workpiece for the works such as wall chipping. Thus the Model H 45SR offers excellent workability.

4-1-8. Original design vibration-absorbing handle (Vibration-absorbing is significantly improved)

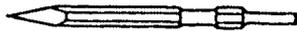
Hitachi's original design vibration-absorbing handle minimizes vibration through the rolling and compression of four cylindrical rubber cushions on inclined surfaces. The spring constant factor is as low as that of the Models H 45SB2, H 41SC, H 45MR, H 60KA, H 60MA and H 60MB, and the cushioning structure greatly reduces vibration.

5. SPECIFICATIONS

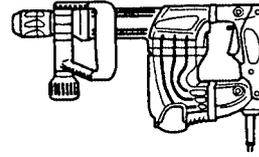
Power source	Single-phase AC 50/60 Hz	
Voltage	110 V, 220 V, 230 V, 240 V	
Motor type	AC single-phase series commutator motor	
Insulation structure	Double insulation	
Enclosure	Materials: Aluminum alloy die casting Nylon resin (Handle, tail cover and crank cover) Paint : Silver green metallic, black	
Switch	Trigger switch (with stopper)	
Type of handles	D-shaped handle and side handle	
Full-load current	For Europe, Australia, Korea	For Asia, etc.
	4.6 A (220 V), 4.4 A (230 V), 4.2 A (240 V)	10.0 A (110 V), 5.0 A (220 V), 4.8 A (230 V)
Power input	950 W	1,050 W
Striking speed	No-load : 4,000 min ⁻¹ Full-load : 3,000 min ⁻¹	
Weight	Product : 5.9 kg (13.0 lbs.); excluding cord and side handle Packed : 10.2 kg (22.5 lbs.)	
Packaging	Corrugated cardboard box with plastic tool case	
Standard accessories	<ul style="list-style-type: none"> • Bull point 280 mm (11-1/32") 1 pc. • Side handle 1 pc. • Hex. bar wrench (for M6) 1 pc. • Hex. bar wrench (for M5) 1 pc. • Hex. bar wrench (for M4) 1 pc. • Plastic tool case 1 pc. 	

5-1. Optional Accessories

(1) Demolition work



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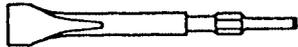
(1) Bull point Hexagonal shank bull point

Overall length	Code No.
280 mm (11-1/32")	980752
450 mm (17-23/32")	980753

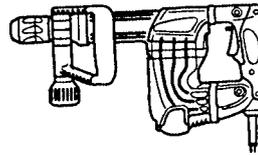
Round shank bull point

Overall length	Code No.
280 mm (11-1/32")	981922
450 mm (17-23/32")	981923

(2) Cutting, peeling, grooving and edging work (asphalt cutting, etc.)



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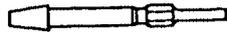
(1) Cutter

Code No.
981924
982705

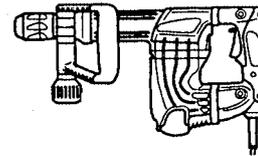
(3) Roughing surface work



+



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(1) Bushing tool

Code No.
955183

(2) Shank

Code No.
955186
982710

(Common use with bushing tool)

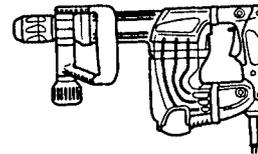
(4) Tamping work



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(1) Rammer

Code No.
955181

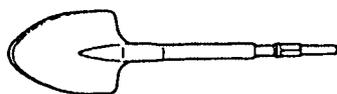
O.D. 140 mm dia. (5-33/64")

(2) Shank

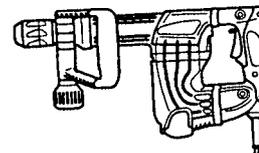
Code No.
955186
982710

(Common use with rammer tool)

(5) Digging work (Substitute pick-ax)



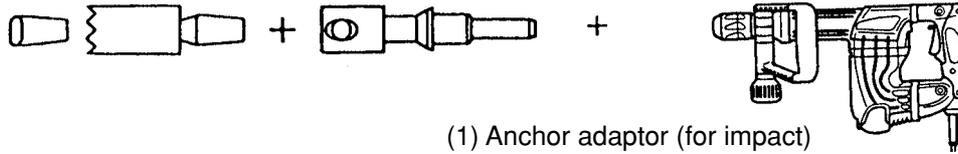
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(1) Scoop

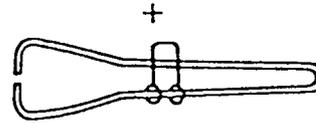
Code No.
956126
982711

(6) Self-drilling anchor setting work



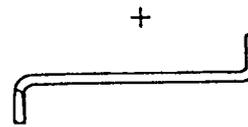
(1) Anchor adaptor (for impact)

Size No.	Anchor size	Code No.
No. 30	W3/8	981929
		982702
No. 40	W1/2	981930
		982703
N. 50	W5/8	981931
		982704



(2) Turning handle

Code No. 944573



(3) Drift key

Code No. 944574

(7) Syringe (for chip removal)



Code No. 318085

(8) Ground bar driving work

Code No. 980696
Code No. 991342
Code No. 991343
Code No. 991344



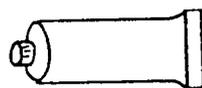
(1) Earth adaptor

(9) Grease for impact drill



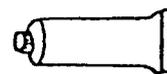
500 g Can

Code No. 980927



70 g Tube

Code No. 308471



30 g Tube

Code No. 981840

(Note)

Code numbers listed above are subject to change without notice.
Please refer to periodic Technical News Bulletins.

6. COMPARISONS WITH SIMILAR PRODUCTS

6-1. Specification Comparison

Maker		HITACHI				C	
Model name		H 45SR		H 41SA		C	
		For Europe, Australia, Korea	For Asia etc.	For Europe, Australia	For Southeast Asia		
Power input	W	950	1,050	810	1,050	900	1,050
Striking energy per stroke	J	12.5		7.5		8.53	
Full-load impact rate	min ⁻¹	3,000		3,000		2,900	
Full-load vibration level	dB(VL)	118.5		119.0		121.5	
Full-load noise level	dB(A)	95.7		95.7		97.0	
No-load noise level	dB(A)	84.3		88.0		89.2	
Dimensions	Length	mm	454 (17-7/8")	386 (15-3/16")	410 (16-9/64")		
	Height	mm	230 (9-1/16")	210 (8-9/32")	230 (9-1/16")		
	Width	mm	106 (4-11/64")	106 (4-11/64")	100 (3-15/16")		
Weight (without cord and side handle)	kg	5.9 (13.0 lbs.)		4.8 (10.6 lbs.)		5.3 (11.6 lbs.)	
Insulation structure	—	Double insulation		Double insulation		Double insulation	

6-2. Demolition Performance Comparison

The data shown in Fig. 1 are obtained in actual factory tests, and are for reference only. Demolished amount may vary in accordance with operating conditions, operator skill, etc.

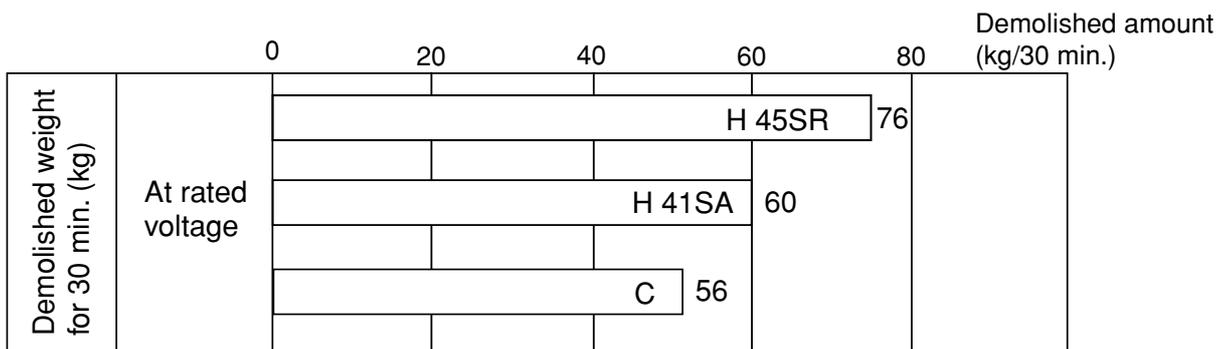


Fig. 1

6-3. Full-load Vibration Level Comparison

The graph shown in Fig. 2 illustrates the relationship between handle pressing force and handle vibration level in the Z direction.

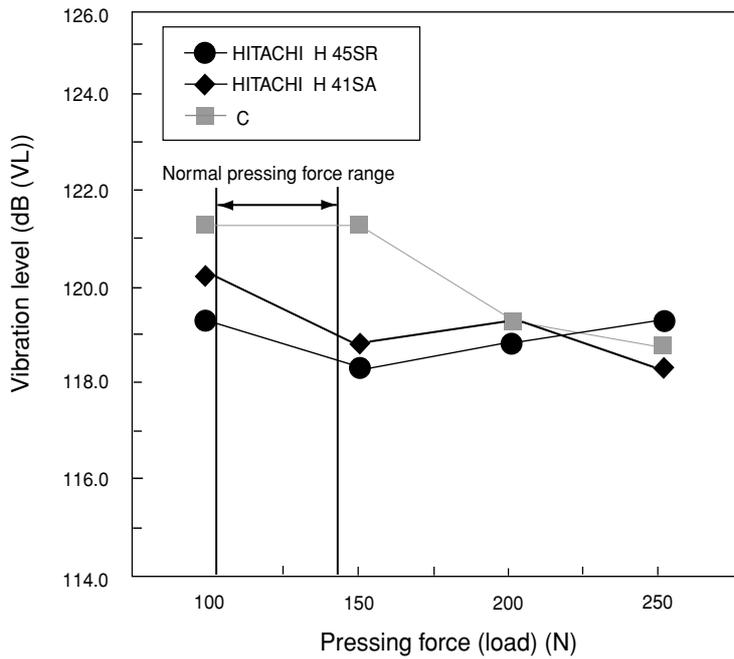


Fig. 2

6-4. Quantity of Working Tool Penetration and Quantity of Body Jumping

The graph shown in Fig. 3 illustrates the relationship between ratio of quantity of working tool penetration and ratio of quantity of body jumping.

The quantity of body jumping is less than the similar products and the working tool quickly penetrates into the workpiece.

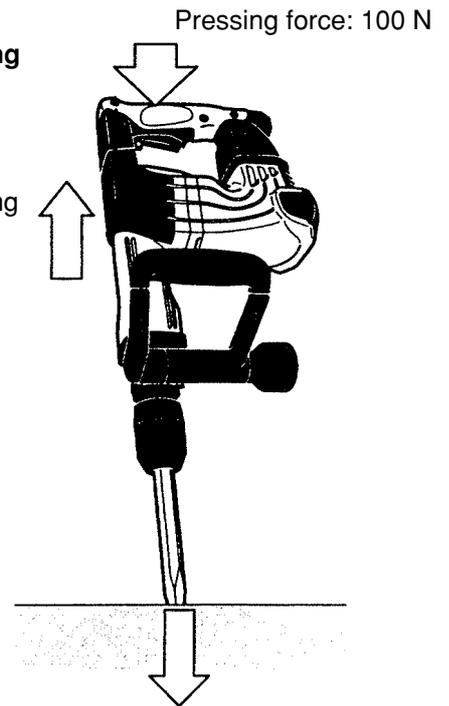
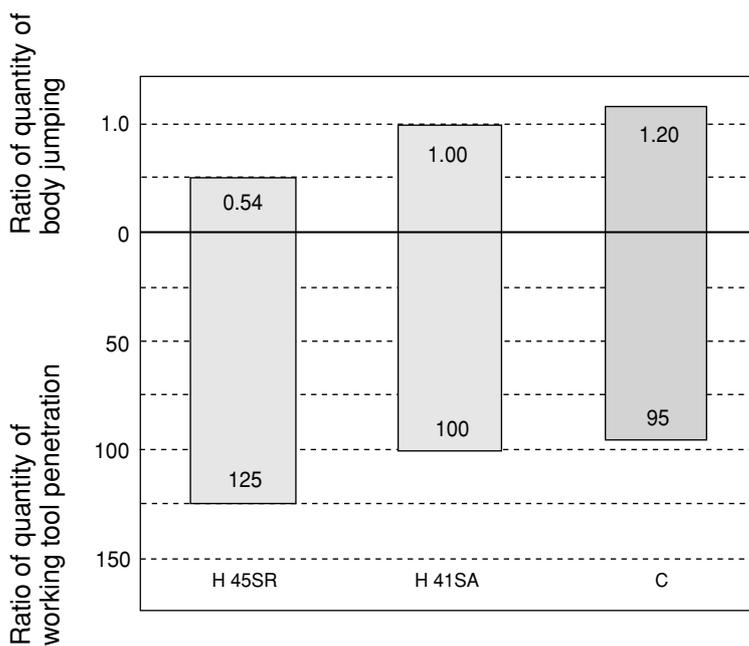


Fig. 3

7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Model H 45SR Electric Hammer by all of our customers, it is very important that at the time of sale the salesperson carefully ensures that the buyer seriously recognizes the importance of the contents of the Handling Instructions, and fully understands the meaning of the precautions listed on the Caution Plate attached to each tool.

7-1. Handling Instructions

Although every effort is made in each step of design, manufacture and inspection to provide protection against safety hazards, the dangers inherent in the use of any electric tool cannot be completely eliminated. Accordingly, general precautions and suggestions for the use of electric power tools, and specific precautions and suggestions for the use of the Electric Hammer are listed in the Handling Instructions to enhance the safe, efficient use of the tool by the customer. Salespersons must be thoroughly familiar with the contents of the Handling Instructions to be able to offer appropriate guidance to the customer during sales promotion.

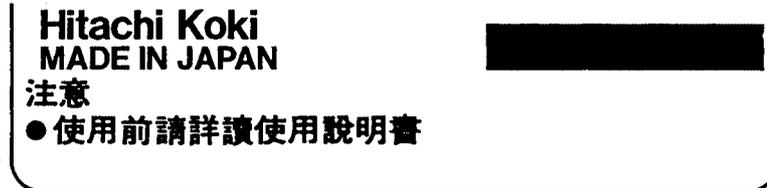
7-2. Caution Plate

The Model H 45SR unit is provided with a Caution Plate (illustrated below) which lists basic safety precautions in use. Carefully ensure that the customer fully understands and follows these precautions before using the tool.

For Australia



For Taiwan



7-3. Grease Replacement

The striking portion and the speed reduction portion of the Model H 45SR respectively use different types of grease. Grease replacement is required if the unit is disassembled for maintenance or O-rings become damaged and worn as described in 7-4.

The striking portion uses special grease. If the striking portion (inside the cylinder crank case) is disassembled, thoroughly remove all of the old grease from each part. On reassembly, insert 53 g (1.9 oz) of new grease into the cylinder crank case (connecting rod side). Do not exceed the designated amount of grease. Excessive grease insertion may cause reduced striking performance.

The speed reduction portion (inside the gear cover) uses Hitachi Motor Grease No. 29 (Code No. 930035). The proper supply volume is 20 g (0.7 oz). Never use the striking portion special grease in the speed reduction portion. Special grease would leak into the motor portion and cause subsequent trouble.

7-4. O-Ring Replacement

The O-rings (mounted on the striker and piston) are extremely important to ensure adequate sealing of the air pressure. Although the O-rings are made of special rubber to give them a long service life, they do nonetheless become worn, and should be replaced by new ones periodically depending on frequency of use of the tool. With average use, it is recommended that the O-rings be replaced at least every six months to ensure maximum effectiveness.

8. REFERENCE INFORMATION

Structure:

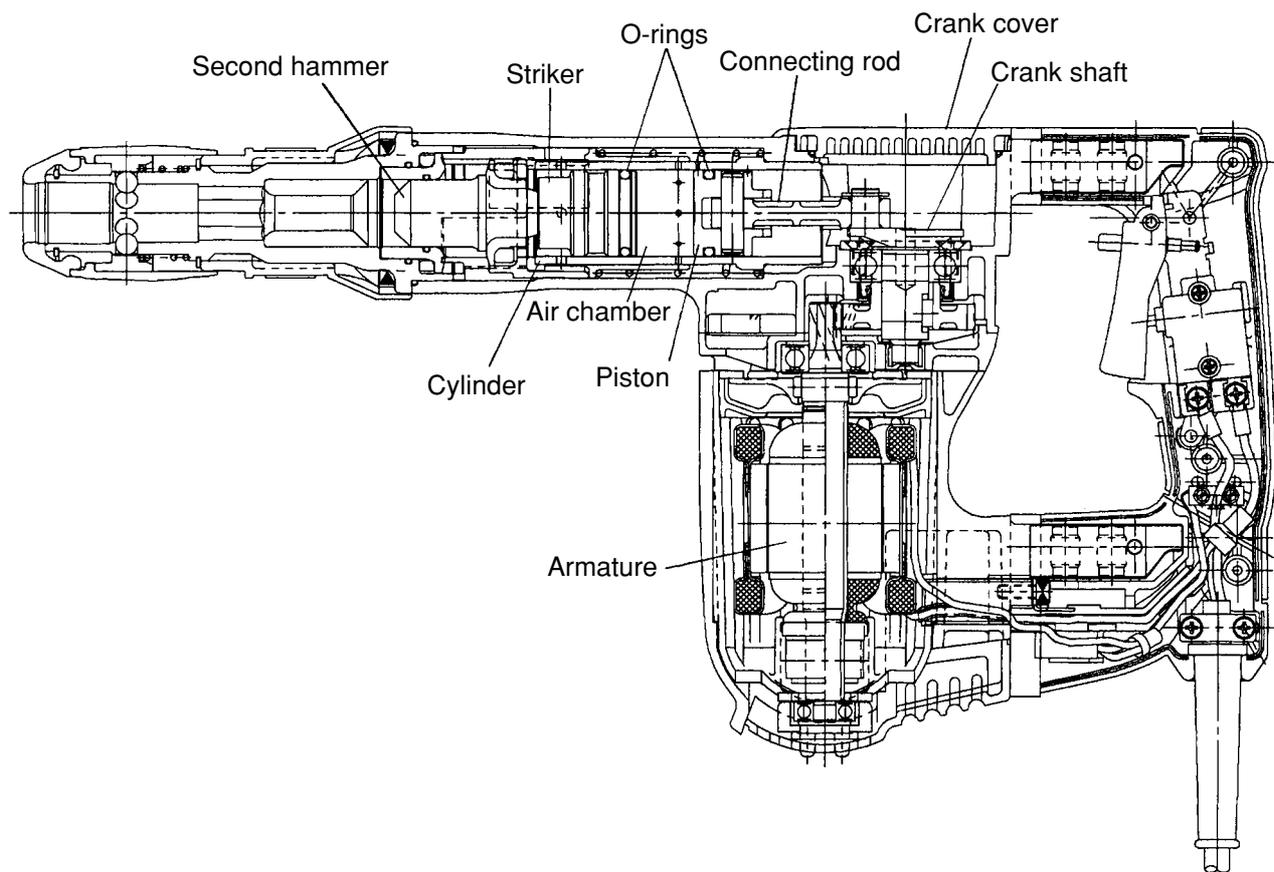


Fig. 4

8-1. Striking Operation

The rotation of the armature is transferred to the crank shaft and connecting rod, which in turn cause the piston to reciprocate inside the cylinder. As the piston reciprocates, the changing air pressure inside the air chamber between the piston and the striker causes the striker to continuously strike against the end of the second hammer. At the same time, the air-cushion effect within the air chamber absorbs the impact of the striker. Should the air escape from the air chamber, the air-cushion effect would cease, and the impact energy would not be absorbed. Accordingly, the O-rings mounted on the striker and piston play an extremely important role in sealing the air within the air chamber.

8-2. Idling-Proof Mechanism

When the bull point is released from the concrete surface, sleeve (A) and the second hammer are forcibly moved to the position illustrated in Fig. 5 by spring (C), and the striker moves out of striking position. When this occurs, the air holes located at the position unaffected by the rebound of the striker at no load are opened and the pressure within the air chamber remains unchanged even though the piston continues to reciprocate, thereby preventing striking operation.

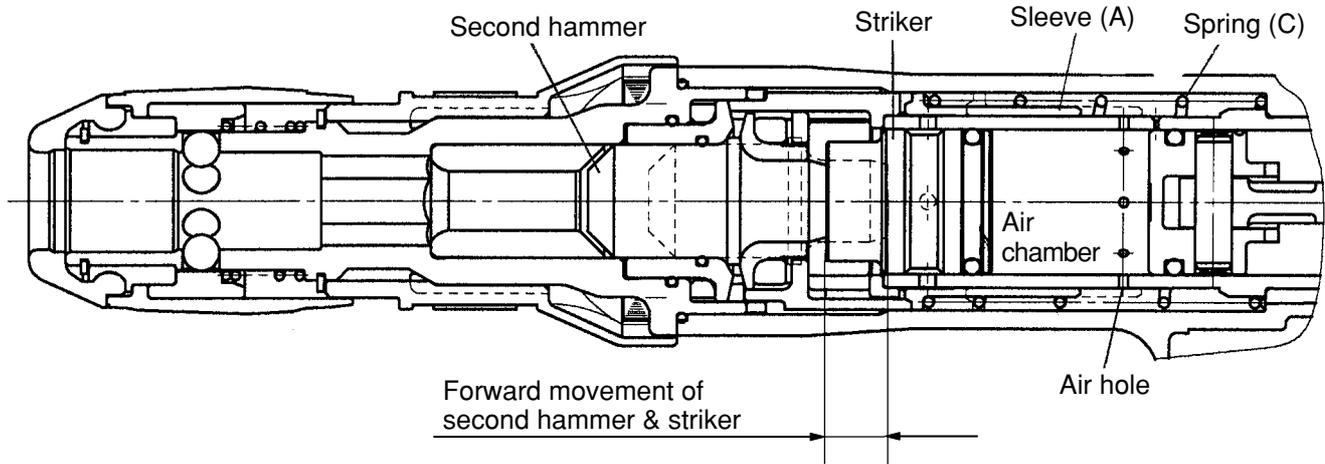


Fig. 5

8-3. Shock-Absorbing Mechanism

At the instance of releasing the bull point from the concrete by moving the main body up, the second hammer contacts hammer holder (A) as shown in Fig. 6 then the cushion (damper (A)) provided between hammer holder (A) and the front cover absorbs the striking force of the second hammer. Thus the durability of the Model H 45SR is increased greatly because the second hammer does not strike the tool retainer directly.

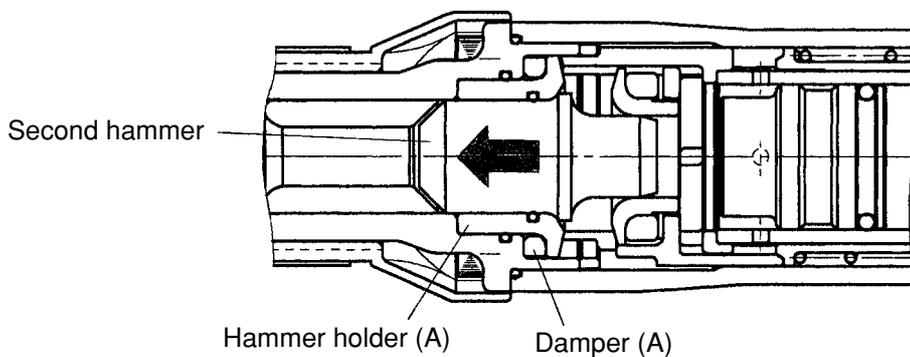


Fig. 6

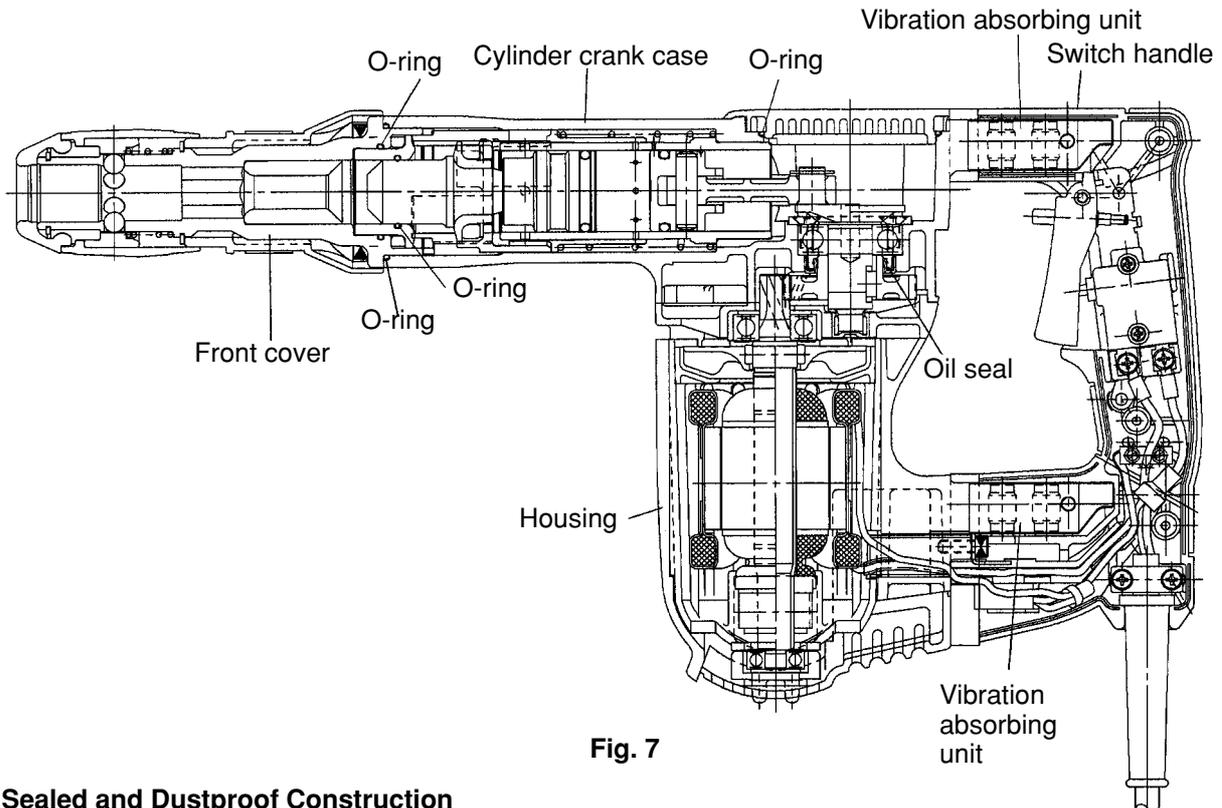


Fig. 7

8-4. Sealed and Dustproof Construction

The cylinder crank case is sealed by four O-rings and an oil seal which serve to prevent leakage of the grease, as well as to prevent dust and dirt from entering the mechanism.

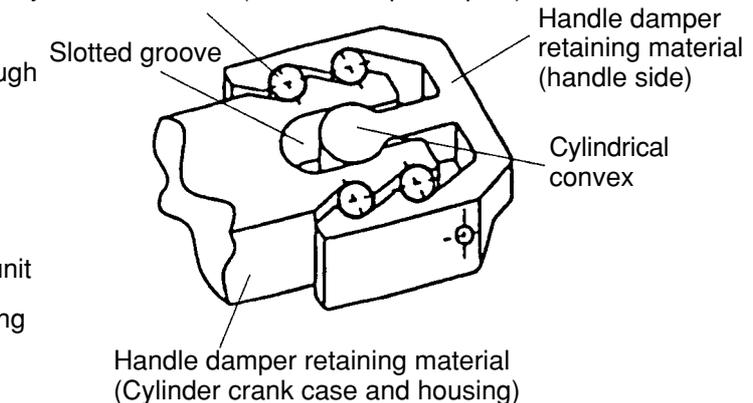
8-5. Vibration Absorbing Construction

Hitachi original, innovative units which absorb vibration are installed between the switch handle and the cylinder crank case and between the switch handle and the housing. As a result, the amount of vibration transmitted from the main body to the arms of the operator is considerably less in comparison with conventional hammers.

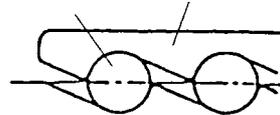
Construction of vibration absorbing unit:

The main body (cylinder crank case and housing) and the handle are connected through four cylindrical rubbers (handle dampers). Vibration is absorbed by the rolling and compression of the four rubbers on inclined surfaces. Because the vibration absorbing unit has non-linear spring characteristics, its spring constant factor is lower than that of the conventional shearing rubber type vibration-absorbing construction, and it provides significantly higher efficiency in minimizing vibration. In addition, the interlocking slotted groove and cylindrical convex portions at the center prevent the handle from being disconnected by twisting or pulling, a common problem with conventional hammers.

Cylindrical rubbers (handle damper: 4 pcs.)



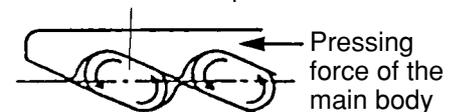
Vibration-proof rubbers Handle side



Main body side

(a) At no-load

Rolled and compressed



Reaction

(b) At full-load

Fig. 8

8-6. Tool Retainer

The Model H 45SR is equipped with a slide-type tool retainer. Tools can be attached and detached just by pulling grip (A). While pulling grip (A) in (A) direction, insert the tool in the hole of the front cap (Fig. 9). Adjust the hexagonal shank position by turning the tool and push it in to the end. Lock the tool by returning grip (A) back to the original position.

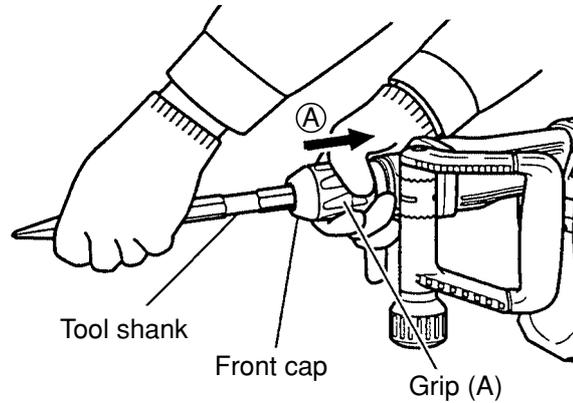


Fig. 9

8-7. Side Handle

The side handle can be adjusted by 360° rotation and also allows operation from front to rear. Loosen the handle by turning the grip in (A) direction and adjust the handle to a convenient position. Turn the grip in (B) direction to fix the side handle. (Fig. 10)

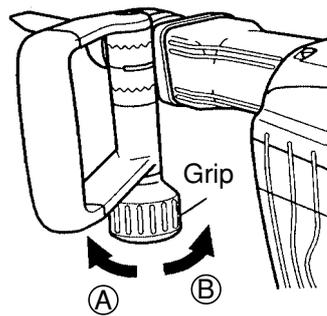


Fig. 10

9. REPAIR GUIDE

9-1. Precautions and Suggestions for Disassembly and Reassembly of the Main Body

The numbers in **[Bold]** correspond to the item numbers in the Parts List and exploded assembly diagrams.

9-1-1. Disassembly

- Retainer disassembly (See Figs. 11 and 12.)

Pull Grip (A) **[4]** fully in the arrow direction as shown in Fig. 11 and remove the Front Cap **[1]** (since the Front Cap **[1]** is made of rubber and engaged firmly with Sleeve (C) **[3]**, pull it strongly to remove).

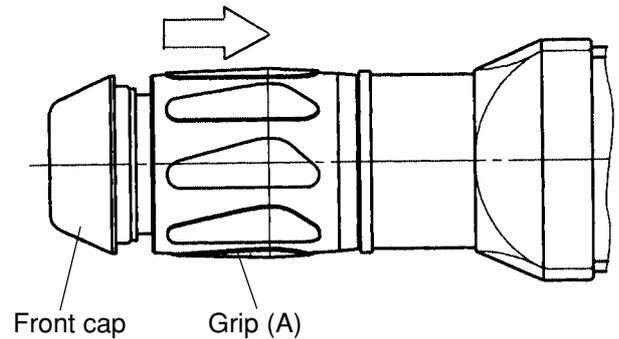


Fig. 11

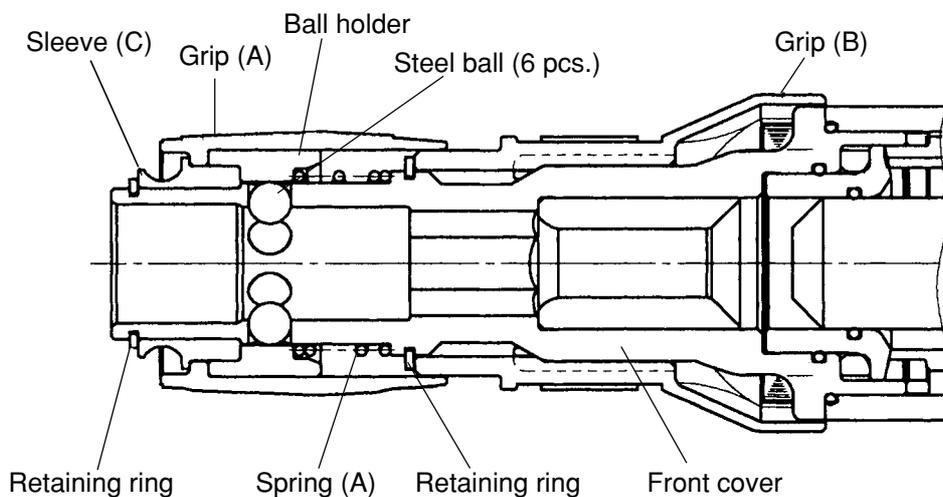


Fig. 12

Remove the Retaining Ring D28 **[2]** by means of a snap ring remover, then Sleeve (C) **[3]**, Grip (A) **[4]**, Ball Holder **[5]**, the six Steel Balls D7.94 **[7]** and Spring (A) **[6]** can be removed from the Front Cover Ass'y **[10]**. Furthermore, remove the Retaining Ring D35 **[8]** by means of a snap ring remover, then Grip (B) **[9]** can be removed from the Front Cover Ass'y **[10]**. (Fig. 12)

- Piston and striker disassembly

Remove the Seal Lock Hex. Socket Hd. Bolts M6 x 25 **[11]** fixing the Front Cover Ass'y **[10]**, then the Front Cover Ass'y **[10]**, Hammer Holder (A) **[16]**, Damper (A) **[15]**, Second Hammer **[18]**, Hammer Holder (B) **[20]**, Damper (B) **[21]**, Washer **[22]**, Hammer Holder (C) **[23]**, Damper (C) **[19]**, Cylinder Holder **[26]**, Cylinder **[29]**, Sleeve (A) **[27]** and Spring (C) **[28]** can be removed from the Cylinder Crank Case **[46]**. The Striker **[24]** can be removed by tapping the Cylinder **[29]** lightly with a plastic hammer.

As the Piston **[31]** remains in the Cylinder Crank Case **[46]** side, remove the Seal Lock Hex. Socket Hd. Bolts M4 x 12 **[34]** fixing the Crank Cover **[36]**, then the Crank Cover **[36]** can be removed from the Cylinder Crank Case **[46]**, and remove the Retaining Ring for D10 Shaft **[39]** to remove the Connecting Rod **[32]** from the Crank Shaft **[40]**.

- First gear and crank shaft disassembly

Remove the grease from the Connecting Rod [32] side and the First Gear [51] side of the Cylinder Crank Case [46]. Remove the two Seal Lock Hex. Socket Flat Hd. Bolts M5 x 12 [42] fixing Bearing Cover (A) [43]. Then place the Connecting Rod [32] side of the Cylinder Crank Case [46] downward on a workbench and apply pressure on the end surface of the Crank Shaft [40] with a hand press to remove the First Gear [51] and the Crank Shaft [40] (Fig. 13). Before removing them, make sure that the two Seal Lock Hex. Socket Flat Hd. Bolts M5 x 12 [42] fixing Bearing Cover (A) [43] are removed.

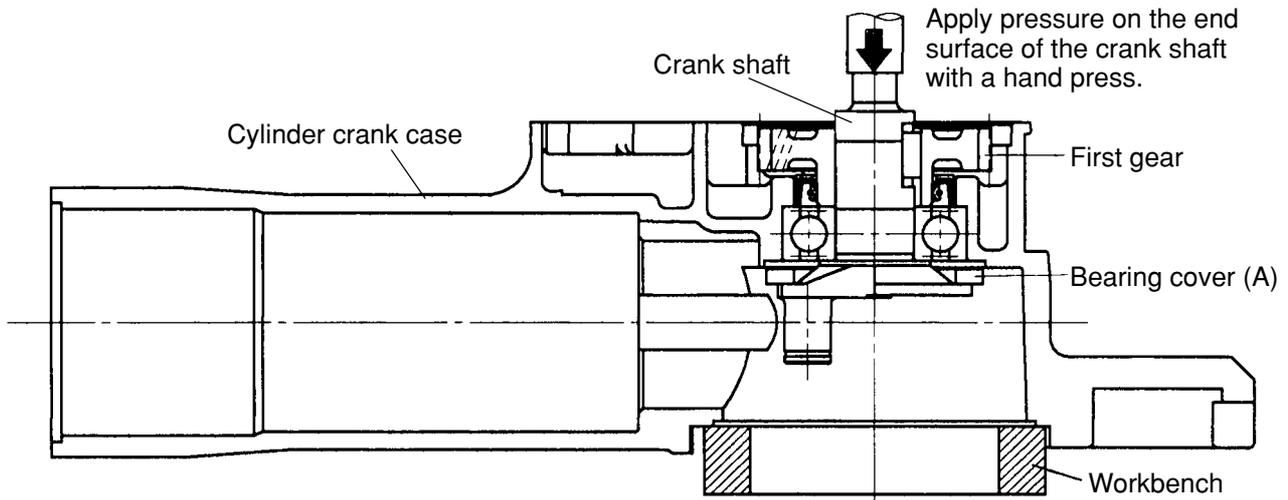


Fig. 13

9-1-2. Reassembly

Reassembly can be accomplished by following the disassembly procedure in reverse. However, special attention should be given to the following items.

- First gear and crank shaft reassembly

Press-fit the Ball Bearing 6203DDCMPS2L [44] in the Cylinder Crank Case [46] and fix Bearing Cover (A) [43] with the two Seal Lock Hex. Socket Flat Hd. Bolts M5 x 12 [42]. Press-fit the Crank Shaft [40]. Then mount the Oil Seal [45]. Put the Feather Key 4 x 4 x 10 [41] into the groove of the Crank Shaft [40] and press-fit the First Gear [51] with a suitable tool while holding the flat portion of the Crank Shaft [40] with a steel bar. Before press-fitting, make sure that the Feather Key 4 x 4 x 10 [41] fits in the key groove of the First Gear [51] (Fig. 14).

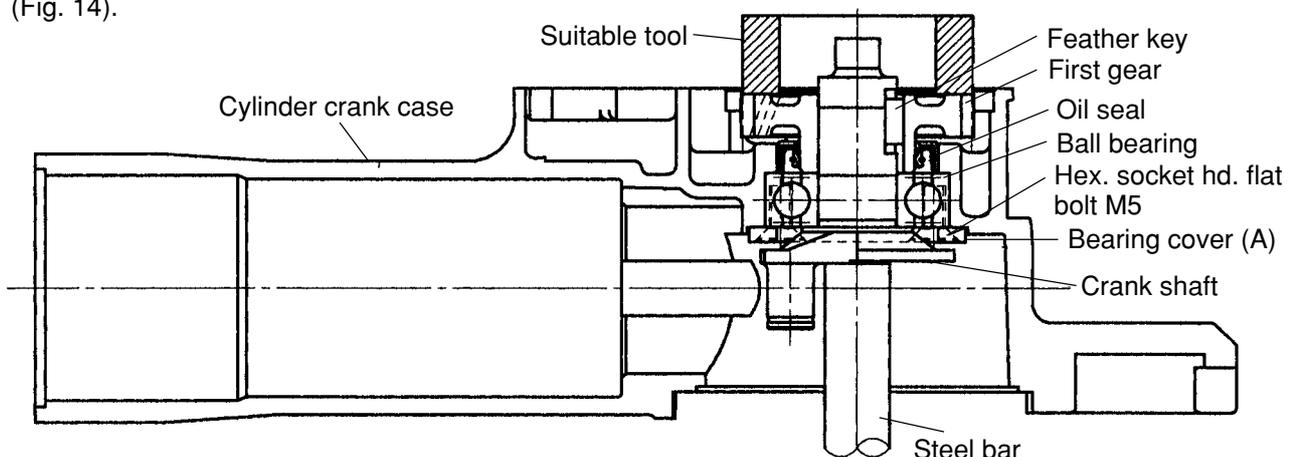


Fig. 14

- Piston reassembly

Insert the Piston Pin [30] into the D8 hole (marked) of the Piston [31] and the Connecting Rod [32] then press-fit it. Mount the O-ring [25] to the Piston [31]. Be careful not to protrude the Piston Pin [30] from the outside diameter of the Piston [31]. Move the crank pin of the Crank Shaft [40] to the bottom dead center and insert the piston ass'y into the Crank Shaft [40] from the cylinder case of the Cylinder Crank Case [46]. Mount the Retaining Ring for D10 Shaft [39] using a retaining ring puller (Fig. 15).

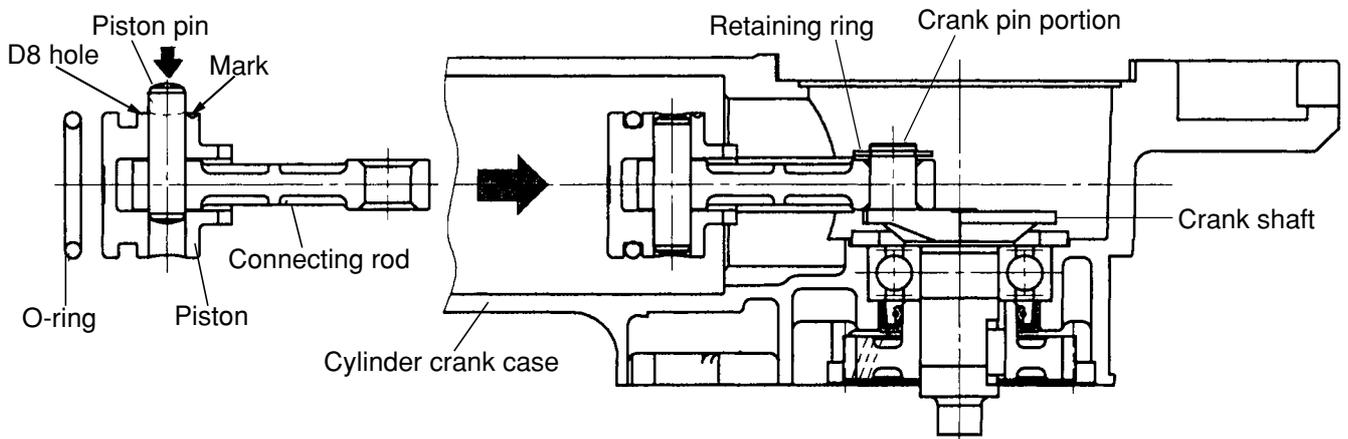


Fig. 15

- Cylinder reassembly

Move the crank pin of the Crank Shaft [40] then move the Piston [31] to the top dead center. Insert the Cylinder [29] into the Cylinder Crank Case [46] (Fig. 16).

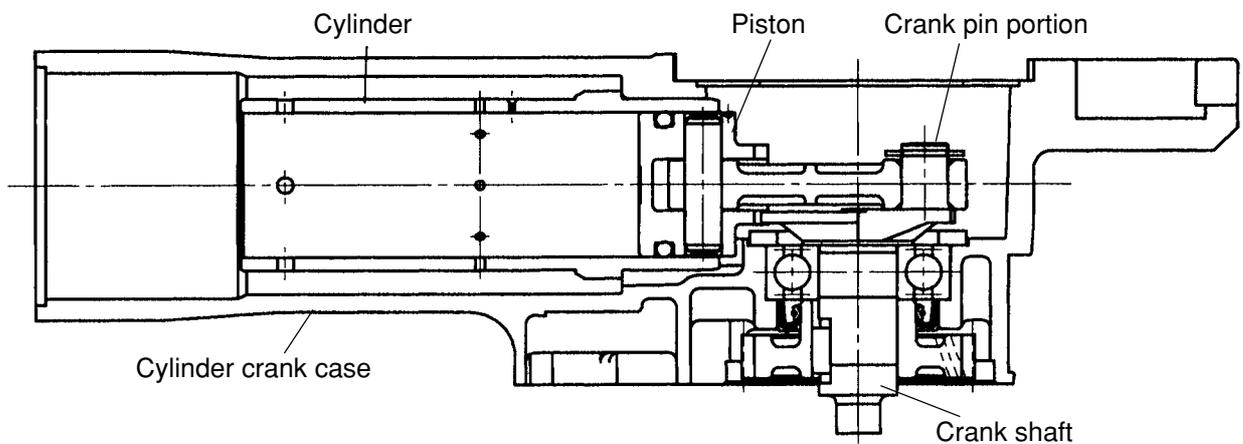


Fig. 16

- Lubrication

Apply special grease (grease for electric impact drills) to the inner circumference of the Connecting Rod [32], O-rings [25] in the Striker [24] and in the Piston [31], sliding portion of the Second Hammer [18], Oil Seal [45], Damper (A) [15], Damper (B) [21], Damper (C) [19], inner circumference of Sleeve (A) [27], Hammer Holder (B) [20] and Hammer Holder (C) [23]. Seal 53 g of the special grease into the Cylinder Crank Case [46] (the Connecting Rod [32] side).

Apply Hitachi Motor Grease No. 29 to the Needle Bearing (M661) [52], the pinion portion of the Armature [68] and the Steel Ball D7.94 [7]. Seal 20 g of the Hitachi Motor Grease No. 29 into the Cylinder Crank Case [46] (the First Gear [51] side).

- Oil seals

Be very careful not to damage the O-ring (1AS-50) [14] on the Front Cover Ass'y [10], O-ring (S-34) [13] in the Front Cover Ass'y [10], O-ring (S-25) [17] in Hammer Holder (A) [16], O-ring (1AS-60) [38] in the Crank Cover [36], O-rings [25] in the Striker [24] and in the Piston [31], and Oil Seal [45] in the Cylinder Crank Case [46].

9-1-3. Screw locking agent TB1401

Apply screw locking agent TB1401 to all hex. socket hd. bolts M4, M5 and M6.

Caution: If bolts are loosened by vibration, it could cause damage to the hammer body. Ensure without fail that screw locking agent is applied to threaded portions prior to reassembly.

9-1-4. Tightening torque

(1) Attached bolts of front cover (Hex. socket hd. bolts M6 x 25)	$13.7^{+0.98}_0$ N·m (140 $^{+10}_0$ kgf·cm, 121.5 $^{+8.7}_0$ in-lbs.)
(2) Attached bolts of bearing cover (A) (Hex. socket hd. flat bolts M5 x 12)	4.41 ± 0.49 N·m (45 ± 5 kgf·cm, 39.1 ± 4.3 in-lbs.)
(3) Tapping screws D5	2.94 ± 0.49 N·m (30 ± 5 kgf·cm, 26.0 ± 4.3 in-lbs.)
(4) Hex. socket hd. bolts M6 x 45	$9.8^{+1.96}_0$ N·m (100^{+20}_0 kgf·cm, $86.8^{+17.4}_0$ in-lbs.)
(5) Attached bolts of tail cover (Hex. socket hd. bolts M5 x 10)	$4.9^{+1.96}_0$ N·m (50^{+20}_0 kgf·cm, $43.4^{+17.4}_0$ in-lbs.)
(6) Attached bolts of crank cover (Hex. socket hd. bolts M4 x 12)	4.41 ± 0.49 N·m (45 ± 5 kgf·cm, 39.1 ± 4.3 in-lbs.)
(7) Tapping screws D4	1.96 ± 0.49 N·m (20 ± 5 kgf·cm, 17.4 ± 4.3 in-lbs.)
(8) Attached bolts of handle (Hex. socket hd. bolts M5 x 12)	$4.9^{+1.96}_0$ N·m (50^{+20}_0 kgf·cm, $43.4^{+17.4}_0$ in-lbs.)
(9) Attached bolts of internal wire holder (Hex. socket hd. bolts M5 x 14)	$7.84^{+1.96}_0$ N·m (80^{+20}_0 kgf·cm, $69.4^{+17.4}_0$ in-lbs.)

9-1-5. Internal wiring

- Wiring diagram for products with noise suppressor

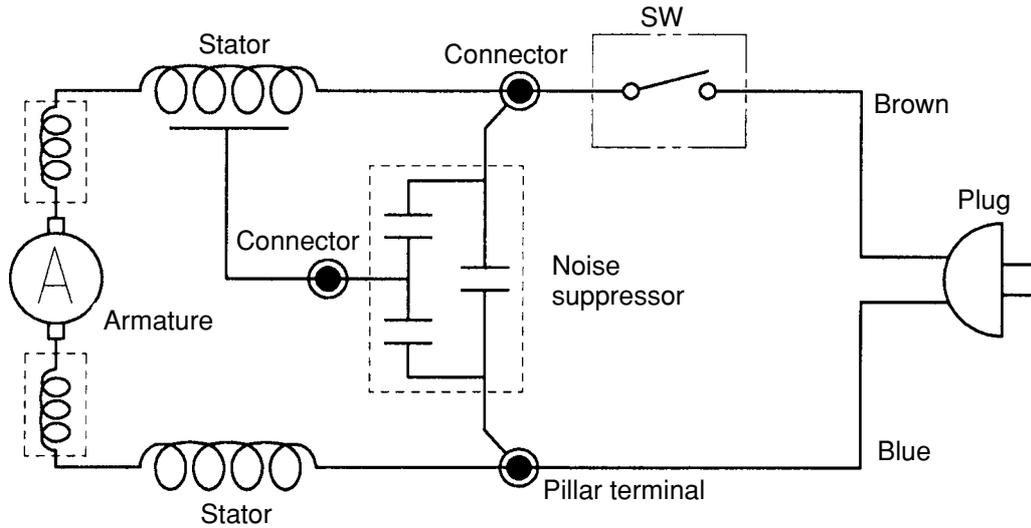


Fig. 17

- Wiring diagram for products without noise suppressor

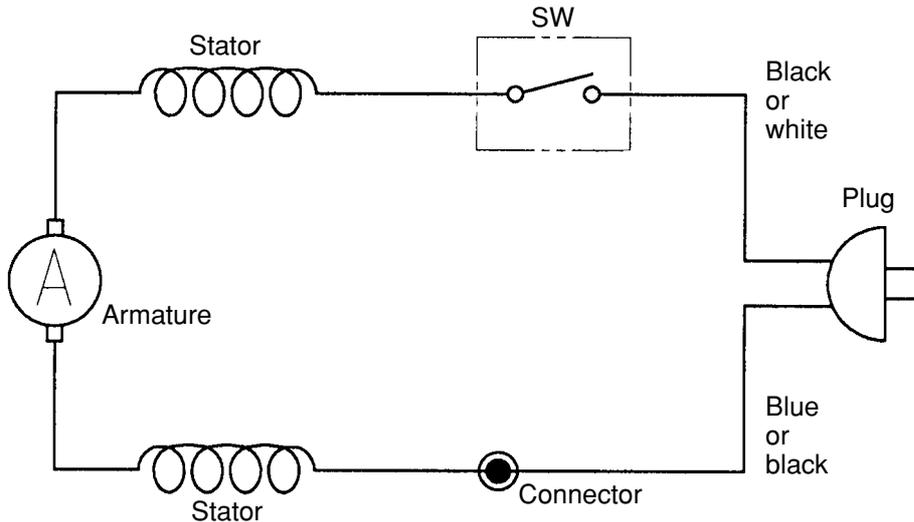


Fig. 18

9-1-6. Insulation tests

On completion of disassembly and repair, measure the insulation resistance and dielectric strength.

Insulation resistance: 7 MΩ or more with DC 500 V Megohm Tester

Dielectric strength: AC 4,000 V/1 minute, with no abnormalities ... 220 V – 240 V
(and 110 V for U.K. products)

AC 2,500 V/1 minute, with no abnormalities ... 110 V – 127 V
(except U.K. products)

9-1-7. No-load current value

After no-load operation for 30 minutes, the no-load current value should be as follows:

Voltage (V)	110	220	230	240
Current (A) (Max.)	3.8	2.2	2.1	2.0

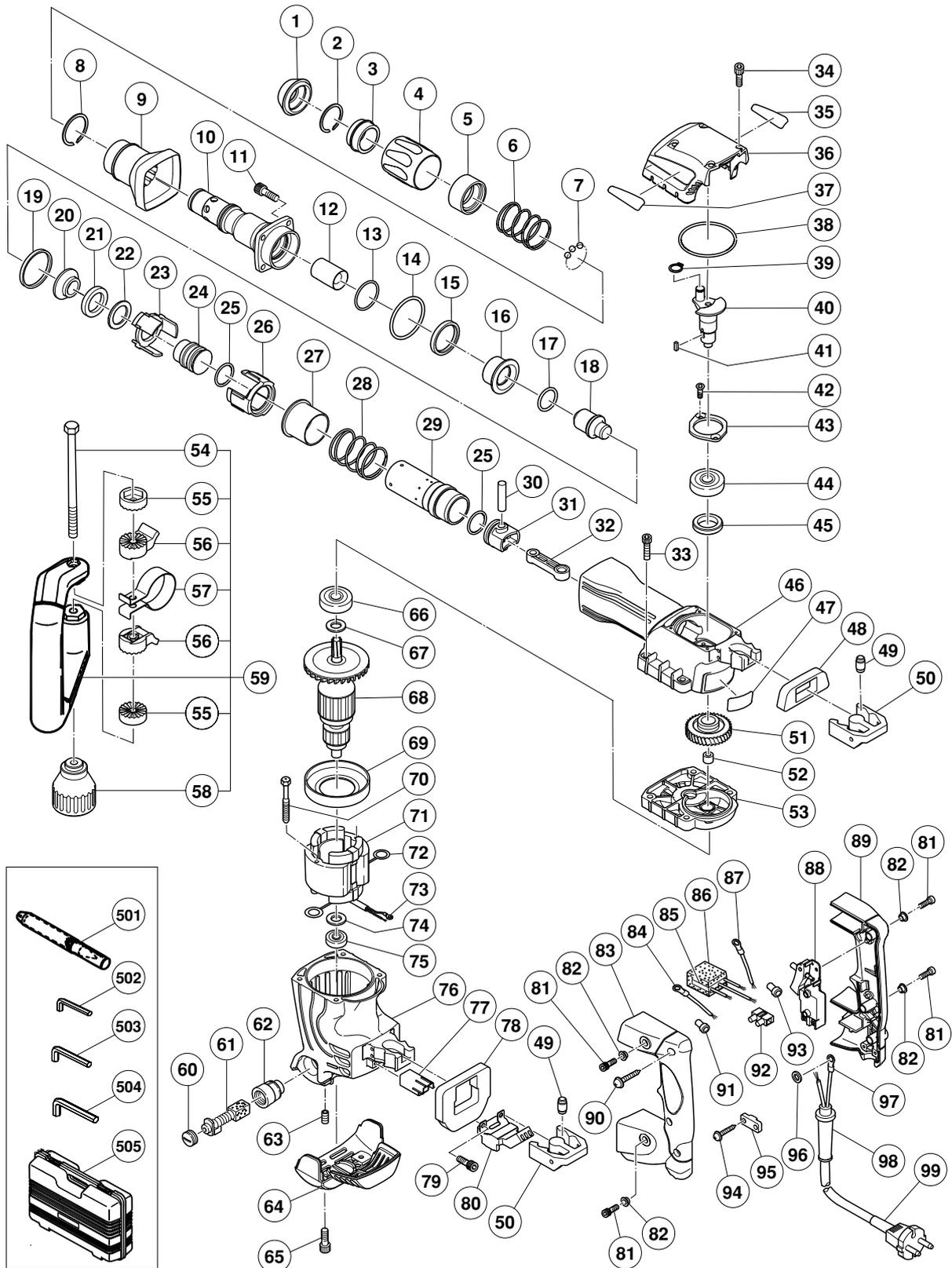
ELECTRIC TOOL PARTS LIST

■ HAMMER

2002 · 5 · 30

Model H 45SR

(E1)



PARTS

H 45SR

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	320-844	FRONT CAP	1	
2	320-846	RETAINING RING D28	1	
3	320-847	SLEEVE (C)	1	
4	320-845	GRIP (A)	1	
5	320-848	BALL HOLDER	1	
6	320-849	SPRING (A)	1	
7	944-941	STEEL BALL D7.94	6	
8	320-850	RETAINING RING D35	1	
9	320-851	GRIP (B)	1	
10	320-915	FRONT COVER ASS'Y	1	INCLUD.12
11	981-942	SEAL LOCK HEX. SOCKET HD. BOLT M6X25	4	
12	320-853	SLEEVE	1	
13	980-879	O-RING (S-34)	1	
14	990-067	O-RING (1AS-50)	1	
15	320-812	DAMPER (A)	1	
16	320-811	HAMMER HOLDER (A)	1	
17	319-572	O-RING (S-25)	1	
18	320-854	SECOND HAMMER	1	
19	320-817	DAMPER (C)	1	
20	320-814	HAMMER HOLDER (B)	1	
21	320-815	DAMPER (B)	1	
22	320-835	WASHER	1	
23	320-816	HAMMER HOLDER (C)	1	
24	320-822	STRIKER	1	
25	320-823	O-RING	2	
26	320-818	CYLINDER HOLDER	1	
27	320-820	SLEEVE (A)	1	
28	320-821	SPRING (C)	1	
29	320-819	CYLINDER	1	
30	320-826	PISTON PIN	1	
31	320-824	PISTON	1	
32	320-825	CONNECTING ROD	1	
33	986-940	SEAL LOCK HEX. SOCKET HD. BOLT M6X45	4	
34	983-162	SEAL LOCK HEX. SOCKET HD. BOLT M4X12	4	
35		HITACHI LABEL	1	
36	320-831	CRANK COVER	1	
37		HITACHI LABEL	1	
38	956-996	O-RING (1AS-60)	1	
39	939-540	RETAINING RING FOR D10 SHAFT (10 PCS.)	1	
40	320-829	CRANK SHAFT	1	
41	930-511	FEATHER KEY 4X4X10	1	
42	980-760	SEAL LOCK HEX.SOCKET FLAT HD. BOLT M5X12	2	
43	980-761	BEARING COVER (A)	1	
44	620-3DD	BALL BEARING 6203DDCMPS2L	1	
45	310-119	OIL SEAL	1	
46	320-828	CYLINDER CRANK CASE	1	
47		NAME PLATE	1	
48	320-837	HANDLE PACKING (A)	1	
49	310-124	HANDLE DAMPER	8	
50	310-123	TRANSATORY UNIT	2	
51	320-830	FIRST GEAR	1	

PARTS

H 45SR

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
52	939-299	NEEDLE BEARING (M661)	1	
53	320-841	GEAR COVER ASS'Y	1	INCLUD.52
54	317-107	BOLT M8	1	
55	317-106	HANDLE HOLDER (B)	2	
56	317-105	HANDLE HOLDER (A)	2	
57	320-635	BAND	1	
58	317-108	GRIP	1	
59	317-103	SIDE HANDLE ASS'Y	1	INCLUD.54-58
60	935-829	BRUSH CAP	2	
* 61	999-043	CARBON BRUSH (1 PAIR)	2	
* 61	999-073	CARBON BRUSH (AUTO STOP TYPE) (1 PAIR)	2	FOR TPE,SIN,MAL,SRI,AUS,SAF,YEN,EUROPE
62	971-001	BRUSH HOLDER	2	
63	938-477	HEX. SOCKET SET SCREW M5X8	2	
64	320-834	TAIL COVER	1	
65	877-839	SEAL LOCK HEX. SOCKET HD. BOLT M5X10	2	
66	620-1DD	BALL BEARING 6201DDCMPS2L	1	
67	302-429	DUST WASHER (B)	1	
* 68	360-571C	ARMATURE 110V	1	
* 68	360-571E	ARMATURE 220V-230V	1	
* 68	360-571F	ARMATURE 240V	1	
69	320-832	FAN GUIDE	1	
70	953-174	HEX. HD. TAPPING SCREW D5X55	2	
* 71	340-519C	STATOR ASS'Y 110V	1	INCLUD.72
* 71	340-519H	STATOR ASS'Y 220V-230V	1	INCLUD.72,73
* 71	340-519E	STATOR ASS'Y 220V-230V	1	INCLUD.72 FOR SAF,YEN,EUROPE,KOR
* 71	340-519F	STATOR ASS'Y 240V	1	INCLUD.72
72	930-703	BRUSH TERMINAL	2	
73	930-804	TERMINAL M4.0 (10 PCS.)	1	
74	982-631	WASHER (A)	1	
75	608-VVM	BALL BEARING 608VVC2PS2L	1	
76	320-833	HOUSING ASS'Y	1	INCLUD.62,63
77	320-836	SLEEVE (B)	1	
78	320-838	HANDLE PACKING (B)	1	
79	984-509	SEAL LOCK HEX. SOCKET HD. BOLT M5X14	2	
* 80	980-754	INTERNAL WIRE HOLDER	1	
* 80	310-424	INTERNAL WIRE HOLDER	1	FOR TPE,AUS,SAF,YEN,EUROPE
81	991-690	SEAL LOCK HEX. SOCKET HD. BOLT M5X12	4	
82	991-711	DISTANCE PIECE (B)	4	
83	320-839	HANDLE (A)	1	
* 84	990-861	INTERNAL WIRE	1	FOR TPE,AUS,SAF,YEN,EUROPE
* 85	994-273	NOISE SUPPRESSOR	1	FOR TPE,AUS,SAF,YEN,EUROPE
* 85	930-039	NOISE SUPPRESSOR	1	FOR KOR
* 86	317-492	SUPPORT (B)	1	FOR TPE,AUS,SAF,YEN,EUROPE
* 87	981-974	INTERNAL WIRE	1	FOR TPE,AUS,SAF,YEN,EUROPE,KOR
88	306-143	SWITCH (B) (1P SCREW TYPE) W/LOCK	1	
89	320-840	HANDLE (B)	1	
90	307-028	TAPPING SCREW (W/FLANGE) D4X25 (BLACK)	3	
* 91	959-140	CONNECTOR 50091 (10 PCS.)	1	FOR TPE,AUS,SAF,YEN,EUROPE
* 92	938-307	PILLAR TERMINAL	1	FOR TPE,HKG,AUS,SAF,YEN,EUROPE
* 93	959-141	CONNECTOR 50092 (10 PCS.)	2	EXCEPT FOR HKG
94	984-750	TAPPING SCREW (W/FLANGE) D4X16	2	

PARTS

H 45SR

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
	960-266	CORD CLIP	1	
*	96	949-423 WASHER M4 (10 PCS.)	1	FOR AUS,SAF,YEN,EUROPE
	980-063	TERMINAL	1	FOR CORD
*	98	953-327 CORD ARMOR D8.8	1	
*	98	938-051 CORD ARMOR D10.1	1	
*	99	500-394Z CORD	1	(CORD ARMOR D10.1)
*	99	500-424Z CORD	1	(CORD ARMOR D8.8) FOR SIN,MAL,SRI
*	99	500-390Z CORD	1	(CORD ARMOR D8.8) FOR KOR,SAF,YEN,EUROPE
*	99	500-239Z CORD	1	(CORD ARMOR D10.1) FOR TPE
*	99	500-408Z CORD	1	(CORD ARMOR D8.8) FOR AUS
*	99	500-440Z CORD	1	(CORD ARMOR D8.8) FOR HKG

STANDARD ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
*	501	980-752 BULL POINT 280MM (HEX. SHANK TYPE)	1	EXCEPT FOR AUS,SAF,YEN,EUROPE
*	502	943-277 HEX. BAR WRENCH 3MM	1	FOR TPE,AUS,SAF,YEN,EUROPE
	503	944-458 HEX. BAR WRENCH 4MM	1	
	504	944-459 HEX. BAR WRENCH 5MM	1	
	505	320-842 CASE	1	

OPTIONAL ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
*	601	234-001 BULL POINT 280MM (10 PCS.)	1	EXCEPT FOR AUS,SAF,YEN,EUROPE
	602	981-922 BULL POINT 280MM (ROUND SHANK TYPE)	1	
*	603	980-753 BULL POINT 450MM (HEX. SHANK TYPE)	1	
*	603	981-923 BULL POINT 450MM (ROUND SHANK TYPE)	1	FOR AUS,SAF,YEN,EUROPE
*	604	982-705 CUTTER	1	
*	604	981-924 CUTTER W45X280L (ROUND SHANK TYPE)	1	FOR AUS,SAF,YEN,EUROPE
*	605	982-710 SHANK 250L (FOR RAMMER AND BUSHING TOOL)	1	
*	605	955-186 SHANK 250L (FOR RAMMER AND BUSHING TOOL)	1	FOR AUS,SAF,YEN,EUROPE
	606	955-183 BUSHING TOOL	1	
	607	955-181 RAMMER 140MM	1	
*	608	982-702 ANCHOR ADAPTER NO.30	1	
*	608	981-929 ANCHOR ADAPTER NO.30	1	FOR AUS,SAF,YEN,EUROPE
*	609	982-703 ANCHOR ADAPTER NO.40	1	
*	609	981-930 ANCHOR ADAPTER NO.40	1	FOR AUS,SAF,YEN,EUROPE
*	610	982-704 ANCHOR ADAPTER NO.50	1	
*	610	981-931 ANCHOR ADAPTER NO.50	1	FOR AUS,SAF,YEN,EUROPE
*	611	980-696 EARTH ADAPTER D18X156	1	EXCEPT FOR AUS,SAF,YEN,EUROPE
	612	944-573 TURNING HANDLE	1	
	613	944-574 DRIFT KEY	1	
	614	318-085 SYRINGE (BELLOWS TYPE)	1	
*	615	982-711 SCOOP 405L	1	
*	615	956-126 SCOOP 405L (ROUND SHANK TYPE)	1	FOR AUS,SAF,YEN,EUROPE
	616	981-840 GREASE (A) FOR HAMMER.HAMMER DRILL (30G)	1	
	617	308-471 GREASE FOR HAMMER.HAMMER DRILL (70G)	1	
	618	980-927 GREASE FOR HAMMER.HAMMER DRILL (500G)	1	

