

MODEL

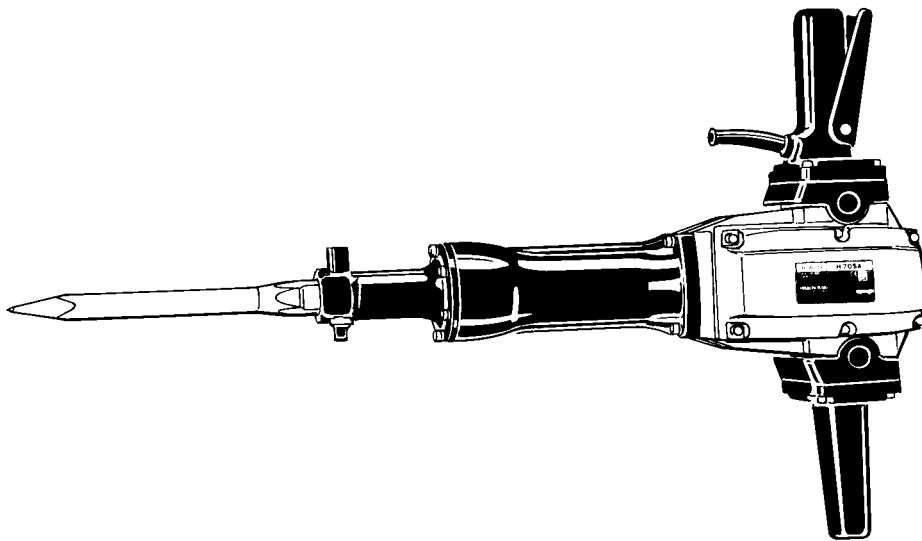
H 70SA

HITACHI
POWER TOOLS

HAMMER
H 70SA

TECHNICAL DATA
AND
SERVICE MANUAL

H



LIST No. E459

Aug. 2000

Notice for use

Specifications and parts are subject to change for improvement.
Refer to Hitachi Power Tool Technical News for further information.

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1. PRODUCT NAME

Hitachi Electric Hammer, Model H 70SA

2. MARKETING OBJECTIVE

The Model H 70SA has been developed based on the current Model H 65SB, which features the use of Hitachi 30 mm hexagonal tools. While the Model H 65SB has a D-shaped handle, the Model H 70SA has a T-shaped handle intended for downward chipping and demolishing. The compact Model H 70SA broadens our lineup of 90-class hammers (T-shaped handle).

3. APPLICATIONS

- Demolishing of concrete and similar materials
- Groove and channel digging in concrete
- Groove and channel digging in asphalt and gravel roads
- Tamping/compacting of asphalt and graveled roads
- Cutting of asphalt

[Typical applications]

Construction work, piping/wiring work, water supply/drain work, etc.

4. SELLING POINTS

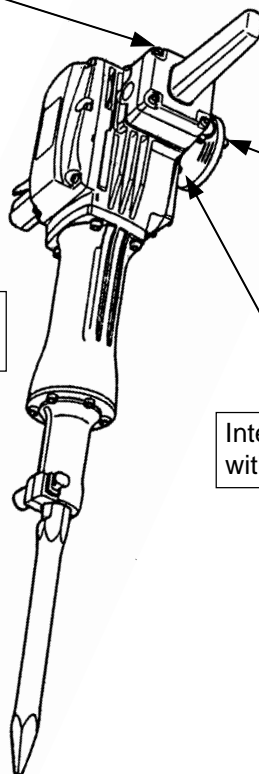
This hammer is the only one which is specifically designed for downward chipping and demolishing in the 65 – 70 class.

T-shaped handle with shock absorber reduces operator fatigue.

More compact and lightweight than 90-class hammers (T-shaped handle)

Dustproof double air vent construction protects against concrete chips.

Internal double-insulation construction with sturdy aluminum frame



4-1. Selling Point Descriptions

4-1-1. Highest chipping and demolishing performance in its class

The powerful impact force of each blow ensures efficient and easy demolition of concrete. The demolition performance is 1.0 – 1.3 times more powerful than that of similar products.

Maker • Model	Ratio of demolished weight (%)
HITACHI H 70SA	100
HITACHI H 65SB	100
C	79

4-1-2. T-shaped handle with shock absorber reduces operator fatigue

The T-shaped handle is equipped with the Hitachi's original shock absorber. Vibration transmitted from the tool main body is effectively absorbed and vibration transmitted to handle (B) and the side handle is minimized by compressing and shearing the two blocks of rubber mounted between the housing and handle (B) and between the housing and the side handle. The T-shaped handle improves downward chipping and demolishing performance and reduces operator's fatigue for a long-time operation.

4-1-3. Dustproof double air vent construction protects against concrete chips

A fine mesh is mounted between the tail cover and the housing which act as the air vent (inlet) for the motor cooling fan. The double air vent construction prevents concrete chips from entering in the motor directly (Fig. 1).

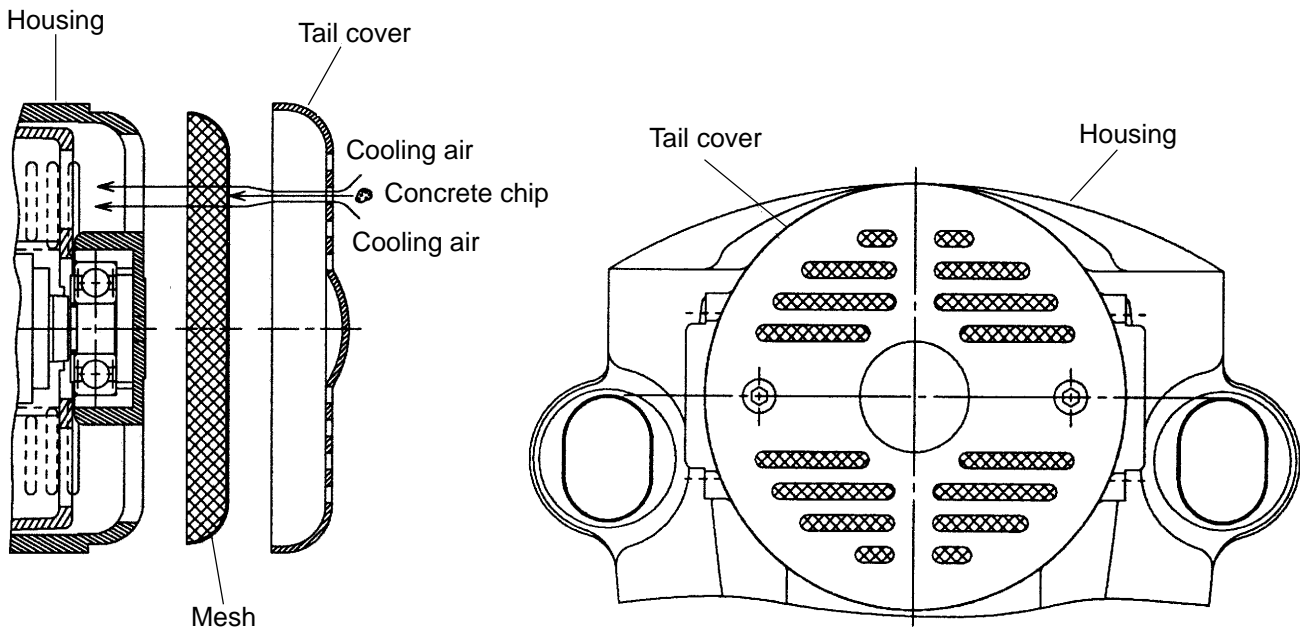


Fig. 1

4-1-4. More compact and lightweight than 90-class hammers (T-shaped handle)

Maker • Model	Weight	Overall length
HITACHI H 70SA	18 kg (39.7 lbs.)	625 mm (24-5/8")
HITACHI H 90SC	32 kg (70.5 lbs.)	842 mm (33-5/32")
HITACHI H 90SE	32 kg (70.5 lbs.)	859 mm (33-13/16")
BOSCH USH 27	29 kg (63.9 lbs.)	845 mm (33-1/4")
MAKITA HM 1800	29 kg (63.9 lbs.)	818 mm (32-7/32")

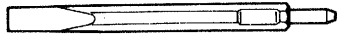
The Model H 70SA is lighter than the 90-class hammers (T-shaped handle) by 11 to 14 kg (24.2 to 30.8 lbs.) in weight and shorter by 193 to 234 mm (7-19/32" to 9-7/32") in length since it has been developed based on the current Model H 65SB which features the use of Hitachi 30 mm hexagonal tools.

5. SPECIFICATIONS

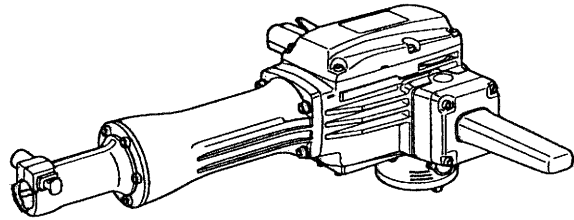
Item		H 70SA
Power source		Single-phase AC 50/60 Hz
Voltage (V)		110, 115, 230, 240
Motor type		AC single-phase series commutator motor
Insulation structure		Double insulation
Enclosure	Material	Aluminum alloy die casting, Cast aluminum alloy, Glass-fiber reinforced plastic resin
	Paint	Hammer-net silver green and black
Switch		Trigger switch
Type of handle		T-shaped handle
Full-load current		11.8 A (110 V), 11.4 A (115 V), 5.7 A (230 V), 5.4 A (240 V)
Power input		1,240 W (for Australia only 1,400 W)
Striking speed	No-load	1,850 /min.
	Full-load	1,400 /min.
Weight	Product	18.0 kg (39.7 lbs.); excluding cord
	Packed	24.5 kg (54.0 lbs.)
Packaging		Corrugated cardboard box
Standard accessories		<ul style="list-style-type: none"> • Bull point 410 mm (16-1/8") 1 • Hex. bar wrench (for M8) 1 • Hex. bar wrench (for M4) 1

5-1. Optional Accessories

1. Grooving and chiseling work



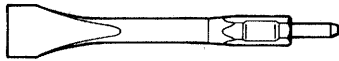
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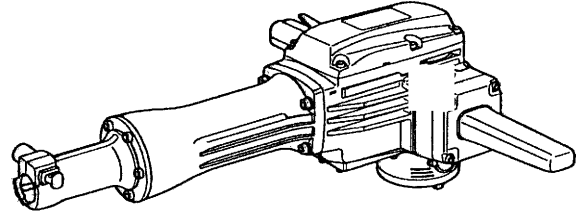
(1) Cold chisel

Overall length	Code No.
410 mm (16-1/8")	944962

2. Cutting and stripping work (asphalt cutting, etc.)



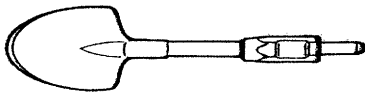
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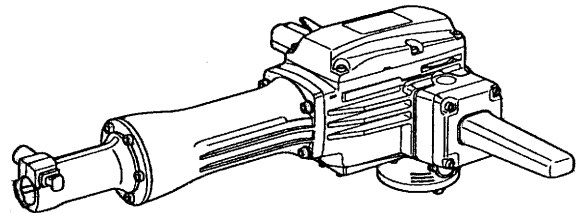
(1) Cutter

Width	Overall length	Code No.
75 mm (2-15/16")	410 mm (16-1/8")	944964

3. Digging work (substitute pick-ax)



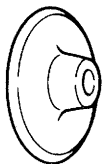
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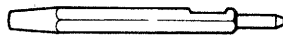
(1) Scoop

Overall length	Code No.
380 mm (15")	319298

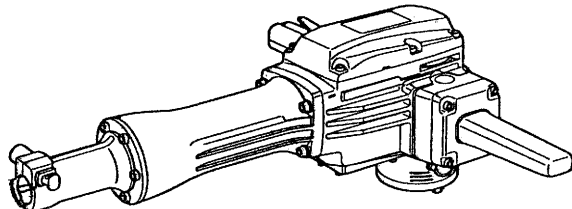
4. Tamping work



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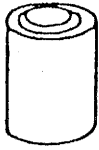
(1) Rammer

Diameter	Code No.
200 mm (7-7/8")	944965

(2) Shank

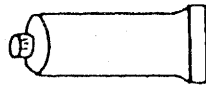
Overall length	Code No.
250 mm (10")	944966

5. Grease for impact drill



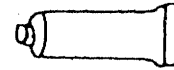
500 g (1.1 lbs.) Can

Code No. 980927



70 g (2.5 oz) Tube

Code No. 308471



30 g (1 oz) Tube

Code No. 981840

(Note)

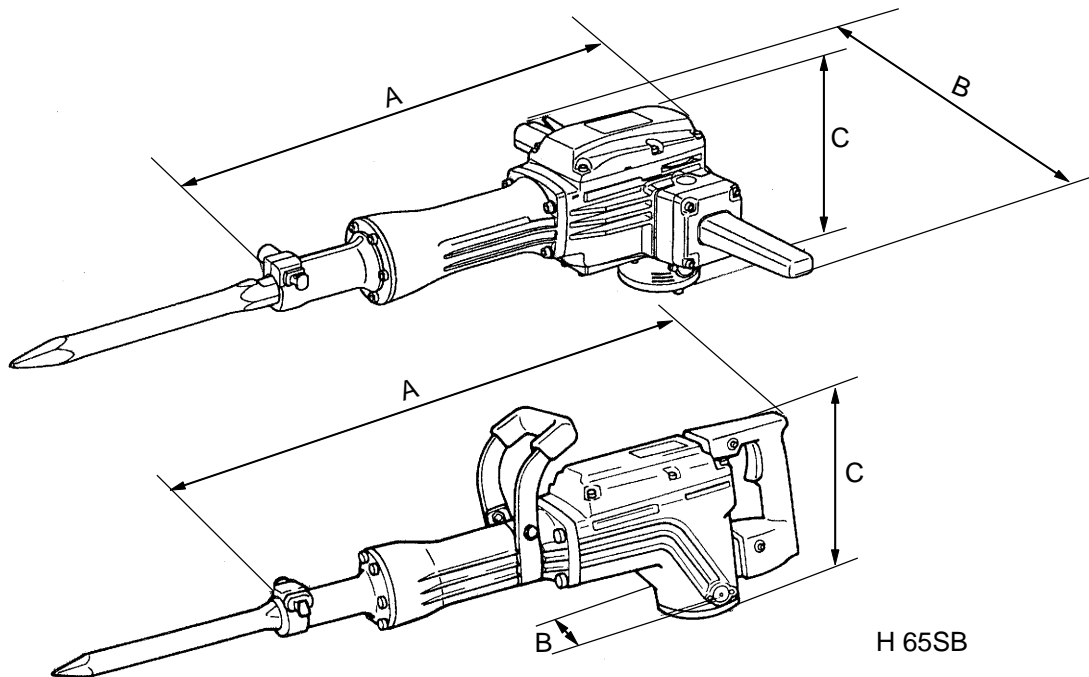
Code numbers listed above are subject to change. Please refer to periodic Technical News Bulletins.

6. COMPARISONS WITH SIMILAR PRODUCTS

6-1. Specification Comparisons

Maker		HITACHI		C	
Model name		H 70SA	H 65SB		
Power input	W	1,240*	1,240*	1,240	
Full-load impact rate	min ⁻¹	1,400	1,400	1,200	
Dimensions (illustration below)	A	mm	625 (24-5/8")	726 (28-19/32")	613 (24-1/8")
	B	mm	554 (21-13/16")	120 (4-23/32")	520 (20-15/32")
	C	mm	237 (9-5/16")	235 (9-1/4")	225 (8-7/8")
Striking energy per stroke	J	42.0	42.0	46.8	
Insulation structure	—	Double insulation	Double insulation	Double insulation	
Lubricating method	—	Grease	Grease	Grease	
Vibration-absorbing handle	—	Provided	Provided	Not provided	
No-load noise level	dB(A)	85.0	87.0	93.5	
Full-load noise level	dB(A)	102.1	102.2	101.9	
Vibration level	m/s ²	14.0	19.0	20.0	
Weight (without cord)	kg	18.0 (39.7 lbs.)	16.0 (35.3 lbs.)	17.0 (37.5 lbs.)	

* for Australia only 1,400 W



6-2. Demolition Performance Comparisons

The data shown in Fig. 2 are obtained in actual factory tests, and are for reference only. The demolished amount may vary in accordance with operating conditions, operator skill, etc.

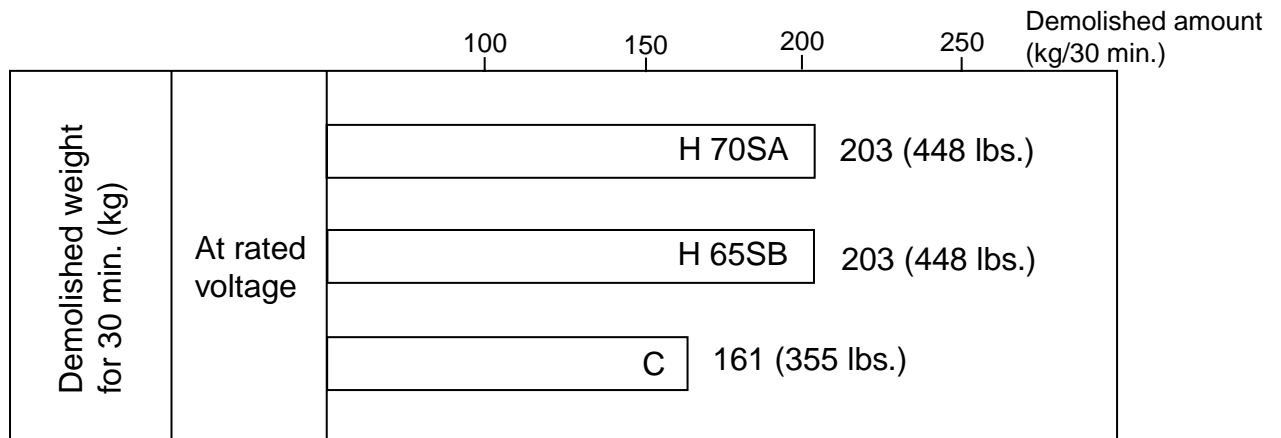


Fig. 2

7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Model H 70SA 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 70SA unit is provided with a Nameplate (illustrated below) which lists basic safety precautions in its use. Carefully ensure that the customer fully understands and follows these precautions before using the tool.

For Australia



7-3. Grease Replacement

Different kinds of grease are used in the electro-pneumatic hammering section and the speed-change gear section. It is not necessary to replenish the grease between 6-month (approx.) change intervals unless the tool is disassembled or there is grease leakage due to a damage or worn seal.

To ensure the smooth reciprocating of the striker and the second hammer, special grease (Part No. 980927 or 981840 or 308471 for impact drill) is used in the hammering section. If the hammering section [inside the cylinder case and housing (crank shaft side)] is disassembled, thoroughly wipe away all old grease from all parts, and apply 30 g (1 oz) of new grease within the cylinder case and 40 g (1.4 oz) of new grease within the housing (crank shaft side). Do not exceed the designated amounts of grease. If there is excessive grease, it may flow between the striker and piston and cause reduced hammering efficiency and/or increased recoil force.

N.P.C. SEP-3A (Part No. 930035) is used in the speed-change gear section (inside the gear cover). The proper supply amount is 80 g (2.8 oz). Never use the hammering section special grease in the speed-change section. The special soft grease would leak into the motor section and cause serious problems.

7-4. O-Ring Replacement

The O-ring mounted on the piston is extremely important to ensure adequate sealing of the air pressure.

Although the O-Ring is made of special rubber to ensure a long service life, it does nonetheless become worn and should be replaced periodically depending on frequency of tool use. With average use, it is recommended that the O-ring should be replaced every six months to ensure maximum effectiveness.

8. REFERENCE INFORMATION

8-1. Sealed and Dustproof Construction

The cylinder case section and housing (crank case side) are sealed by four (4) O-rings, a holder seal and a seal ring. These seals serve to prevent leakage of the grease, as well as to prevent dust and dirt from entering the mechanism.

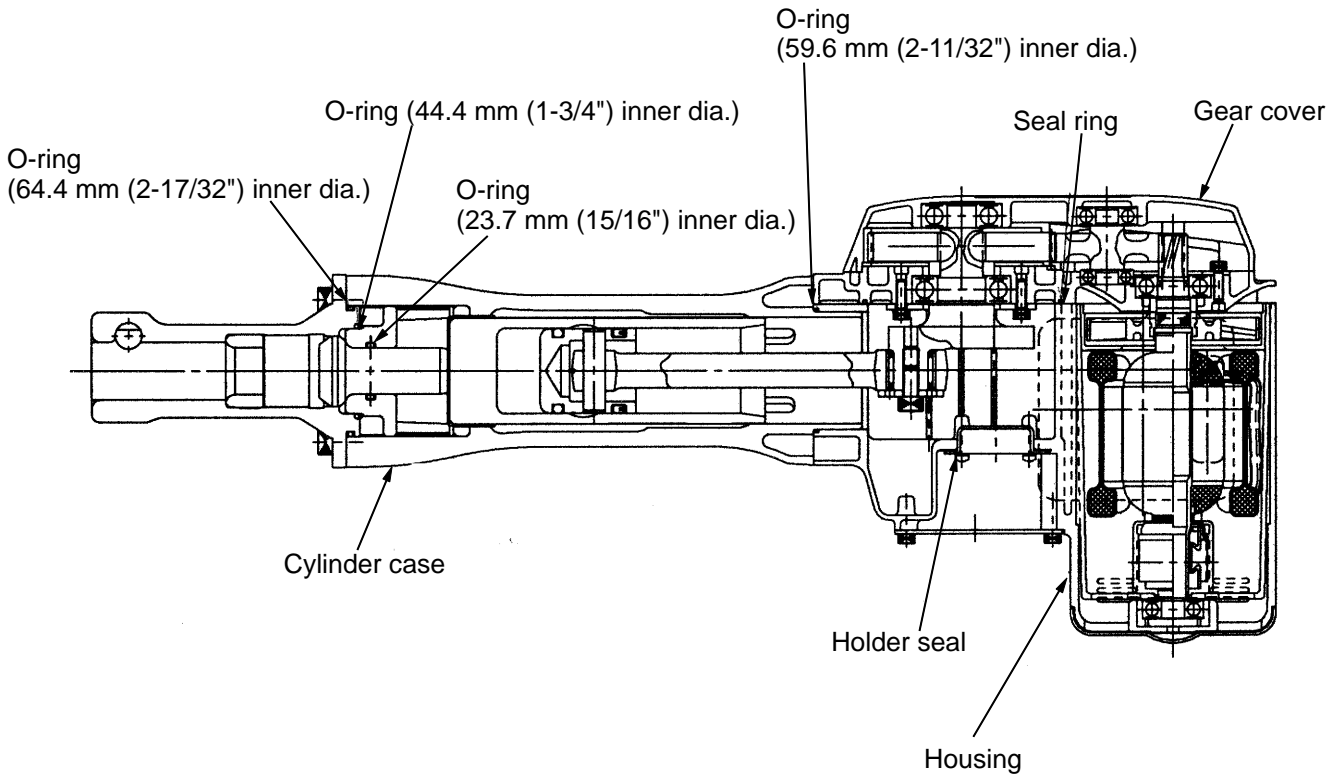


Fig. 3

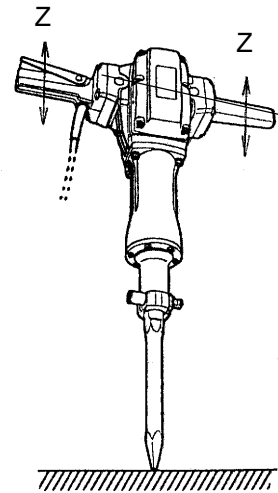
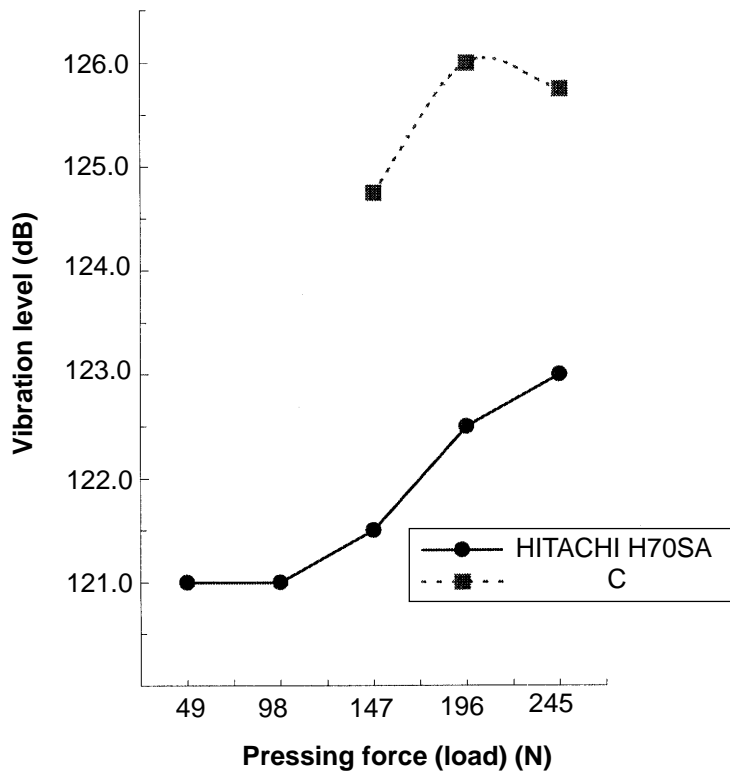
8-2. Vibration-Absorbing Construction

(1) Vibration-absorbing construction

The handle holders which secure handle (B) and the side handle to the housing can be smoothly turned thanks to the handle pins inserted in the slotted through holes at both sides of the housing. The handle pins are supported by dampers (B) fitted into the slotted through holes so that they can be moved in the axial direction of the tool. Two blocks of rubber (handle dampers (B)) are inserted between the housing and the handle holder. By pressing the handle portion, the handle holder turns and handle damper (B) is compressed and sheared according to the movement of the main body. Damper (B) is also compressed when it comes in contact with the handle pin. Thus, vibration transmitted from the main body to the handle portion is minimized. The four cylindrical rubbers (handle dampers) cushion the shock generated between the housing and the handle holder when the handle holder returns to the original position. The T-shaped handle with shock absorber improves downward chipping and demolishing performance and reduces operator's fatigue for a long-time operation.

(2) Level of handle vibration in Z direction

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



(Note) For improved operability in chipping and breaking operations, it is recommended that operating force be limited to the dead weight of the tool rather than pressing forcefully down on the handles. In keeping with this, the handle pressing force at which the vibration-absorbing effect is maximum is set for between 5 kg (11.0 lbs.) and 10 kg (22.0 lbs.). The customer should be cautioned to avoid pressing fully down on the handles during operation.

8-3. Stop Lever [Tool Retainer]

To attach and detach the tool (bull point, etc.), as shown in Fig. 5, pull the stop lever in the direction of arrow, and turn it 180°. Then, fully insert the tool into the hexagonal hole of the front cover.

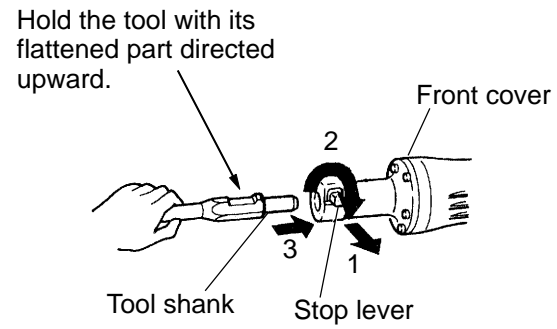


Fig. 5

8-4. Movement of the Stop Lever

After an extended period of use, the operation of the stop lever may become difficult due to incursion of concrete powder or similar materials into its sliding portion. In such a case, apply oil into the sliding portion between the stop lever and fitting portion of the front cover.

9. REPAIR GUIDE

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

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

9-1-1. Disassembly

[NOTE] If it is difficult to loosen and remove the fixing bolts, use an appropriate heating device to heat them to approximately 80°C (176°F).

- Disassembly of the Armature Ass'y **[88]**
- (1) Loosen the four Seal Lock Hex. Socket Hd. Bolts M4 x 12 **[56]**, remove the Cap Covers **[57]**, Cap Rubbers **[58]** and Brush Caps **[59]**, and take out the Carbon Brushes **[60]**. At this time, be very careful not to lose the disassembled parts.
 - (2) Loosen the four Nylock Hex. Socket Hd. Bolts M8 x 35 **[22]**, and remove the Cylinder Case **[19]**. Next, after loosening the Seal Lock Hex. Socket Hd. Bolt M8 x 16 **[31]**, the Connecting Rod Ass'y **[28]** and Crank Washer **[30]** can be disassembled. Leave the Striker **[21]** and Piston **[26]** as they are.
 - (3) Loosen the six Seal Lock Hex. Socket Hd. bolts M6 x 45 **[62]**, and disassemble the Gear Cover **[33]** and Counter Gear **[64]**. Then, by inserting a flat-blade screwdriver or similar tool into one of the air vents of the Inner Cover **[37]** and lifting it upwards, the Inner Cover **[37]**, Armature Ass'y **[88]**, Crank Shaft **[42]**, and related parts can be removed in a single body.
 - (4) As illustrated in Fig. 6, support the Inner Cover **[37]** with an appropriate tubular jig, and push down on the end surface of the armature shaft with a hand press to separate the Armature Ass'y **[88]** from the Inner Cover **[37]**.

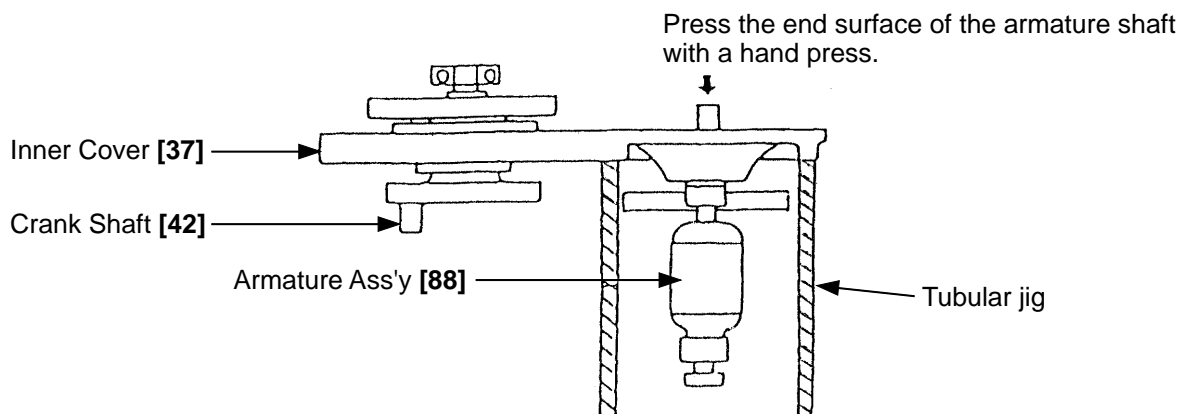


Fig. 6

- Disassembly of the Crank Shaft **[42]** section
- First, remove the four Seal Lock Hex. Socket Hd. Bolts M5 x 16 **[41]** which fix the Bearing Cover **[40]**. Then, as illustrated in Fig. 7, support the lower surface of the Inner Cover **[37]** with an appropriate tubular jig, align an appropriate steel rod with the end surface of the Crank Shaft **[42]**, and press down on the steel rod with a hand press. The Ball Bearing 6205DDCM **[39]**, Distance Ring (B) **[36]**, Final Gear **[35]**, two Woodruff Keys 4 x 16 **[43]**, and Crank Shaft **[42]** can then be disassembled from the Inner Cover **[37]**.

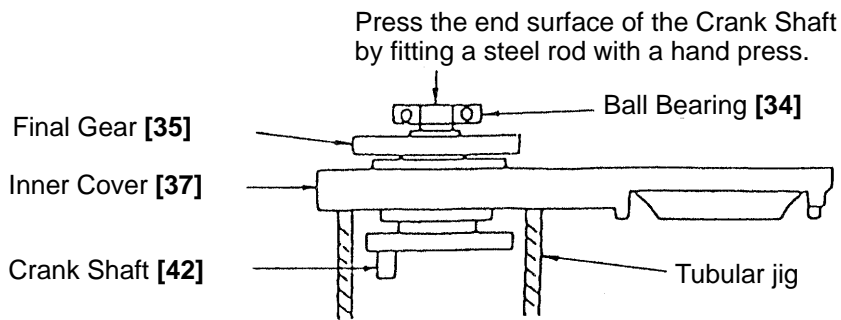


Fig. 7

- Disassembly of remaining parts from the Inner Cover [37]

Loosen the three Seal Lock Hex. Socket Hd. Bolts M5 x 16 [41], and take out Bearing Cover (A) [66] and the Ball Bearing 6203DDCM [67].

- Disassembly of the Mouth [15] and related parts

First, remove the six Nylock Hex. Socket Hd. Bolts M8 x 30 [10], and separate the Front Cover [7] from the Cylinder Case [19]. The Second Hammer [8], Shank Sleeve [14], Damper (A) [13], Mouth [15], Mouth Cover [16], Mouth Washer [17], and Urethane Ring [18] can then be taken out.

- Removal of O-Ring (E) [12]

As O-Ring (E) [12] is installed in the inner portion of the Shank Sleeve [14], it may be difficult to remove. As illustrated in Fig. 8, pry O-Ring (E) upward gently with a slender flat-blade screwdriver, being very careful not to damage the surface of the O-ring.

- Removal of the Striker [21] and related parts

Remove the four Nylock Hex. Socket Hd. Bolts M8 x 35 [22], and separate the Cylinder Case [19] from the Housing Ass'y [104]. From the Cylinder Case [19], take out the Striker [21], Piston [26], and Connecting Rod Ass'y [28] in a single body.

Holding the Striker [21] firmly in one hand, grasp the Connecting Rod Ass'y [28] in the other hand and pull it forcefully to separate it from the striker. Finally, extract the Piston Pin [27] from the Piston [26], and separate the Piston from the Connecting Rod Ass'y [28].

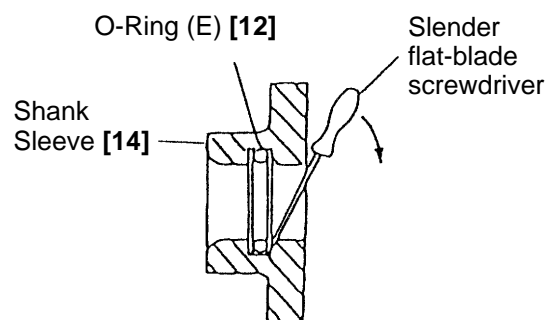


Fig. 8

- Disassembly of Switch (A) [99] and related parts

Pry off the Retaining Ring (E-Type) for D4 Shaft [72] with a small flat-blade screwdriver, pull out the Pin [70], and remove the Switch Lever [71]. Then, remove the two Seal Lock Hex. Socket Hd. Bolts M6 x 30 [46] on the Handle (B) side and the two Tapping Screws (W/Flange) D4 x 20 [103], and remove Handle (B) [102].

- Disassembly of the Stop Lever [2]

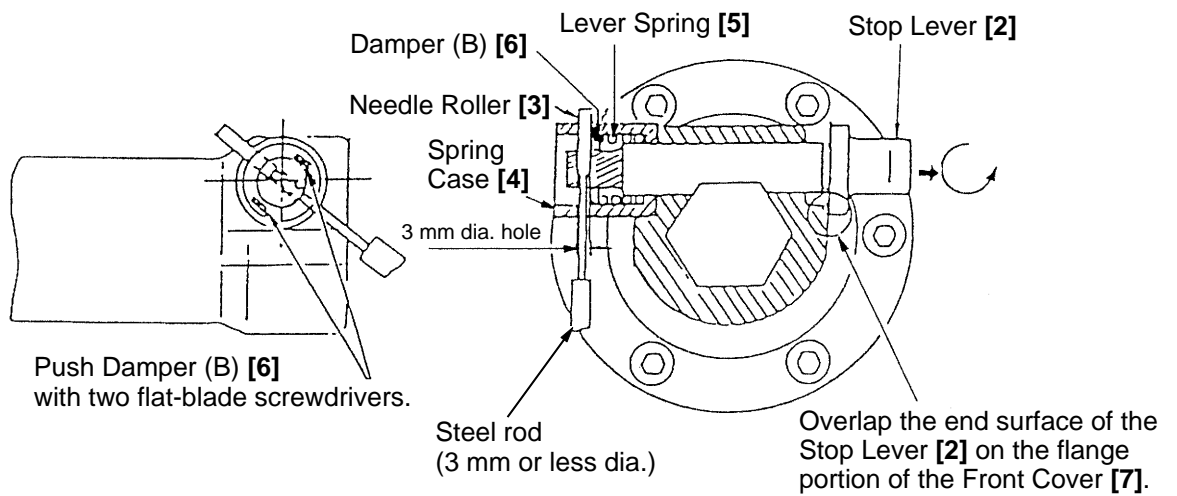


Fig. 9

Disassembly procedures are illustrated in Fig. 9. Pull the Stop Lever [2] outward in the direction indicated by the arrow, and turn it slightly so that its end surface comes to rest on the flange portion of the Front Cover [7]. Next, turn the Spring Case [4] so that the holes of the spring case are aligned with the Needle Roller [3]. Then, push in Damper (B) [6] with flat-blade screwdrivers to compress the Lever Spring [5]. Finally, while keeping the Lever Spring [5] compressed, fit a 3 mm or less dia. steel rod into the hole of the Spring Case [4], and push out the Needle Roller [3]. The Stop Lever [2], Damper (B) [6], and the Lever Spring [5] can then be taken out.

9-1-2. Reassembly

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

- Reassembly of the Crank Shaft [42] section

Press-fit the Ball Bearing 6205DDCM [39] into the Inner Cover [37], and fasten the Bearing Cover [40] onto the Inner Cover [37] with the four Seal Lock Hex. Socket Hd. Bolts M5 x 16 [41]. Support the inner race of the Ball Bearing 6205DDCM [39] with an appropriate jig, and press-fit the Crank Shaft [42] into the Ball Bearing. Next, insert Distance Ring (B) [36] and two Woodruff Keys 4 x 16 [43] into the Crank Shaft [42], and press-fit the Final Gear [35] and Ball Bearing 6302VVC [34] with a hand press.

- Reassembly of the Armature Ass'y [88]

Press-fit the Ball Bearing 6203DDCM [67] into the Inner Cover [37], and fasten Bearing Cover (A) [66] onto the Inner Cover with the three Seal Lock Hex. Socket Hd. Bolts M5 x 16 [41].

- Reassembly of the Striker [21] (Two possible methods)

(1) After the Connecting Rod Ass'y [28] has been assembled into the Housing Ass'y [104], mount the Piston [26] and press it into the Striker [21].

(2) Mount the Piston [26] onto the Connecting Rod Ass'y [28], and push down on the Connecting Rod Ass'y to press the Piston into the Striker [21].

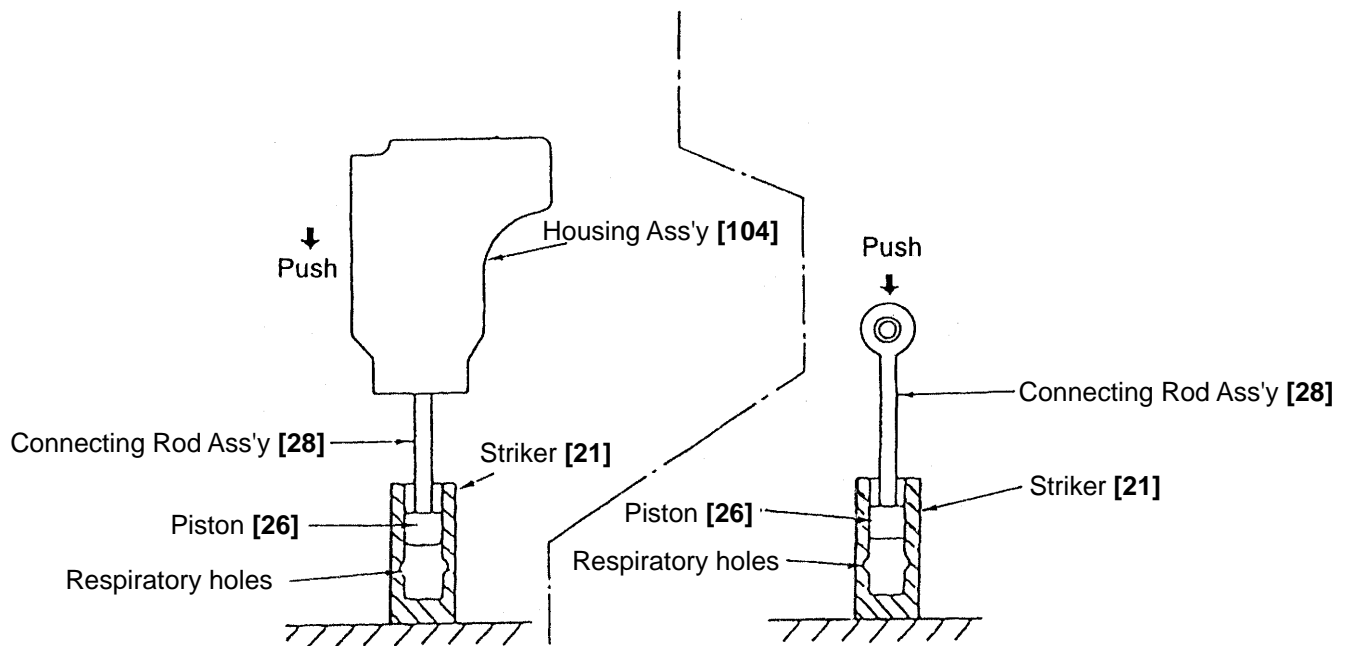


Fig. 10

Either of the two methods described above requires a pressing force of more than 30 kg. When a "hissing" sound is heard, the Piston [26] is properly inserted in the Striker [21]. (The "hissing" is the sound of the compressed air escaping from the Striker [21] when the Piston [26] reaches the respiratory chambers within the Striker [21].)

- Reassembly of the Handle Holder [48] section

Mount four Dampers (B) [44] and four Handle Dampers [50] to the Housing Ass'y [104], then mount two Handle Dampers (B) [49] to the Housing Ass'y [104] in the direction of arrow marked on Handle Damper (B) [49] surface. Next, mount two Handle Holders [48] to the Housing Ass'y [104] and insert two Handle Pins [92] into two 17.5 mm dia. holes of the Handle Holders [48]. Finally, tighten two Seal Lock Hex. Socket Hd. Bolts M8 x 16 [31] with two Washers [101]. At this time, align the notch of the flange portion of the handle pin with the notch of the Handle Holder [48] and then hold the flange portion of the Handle Pin [92].

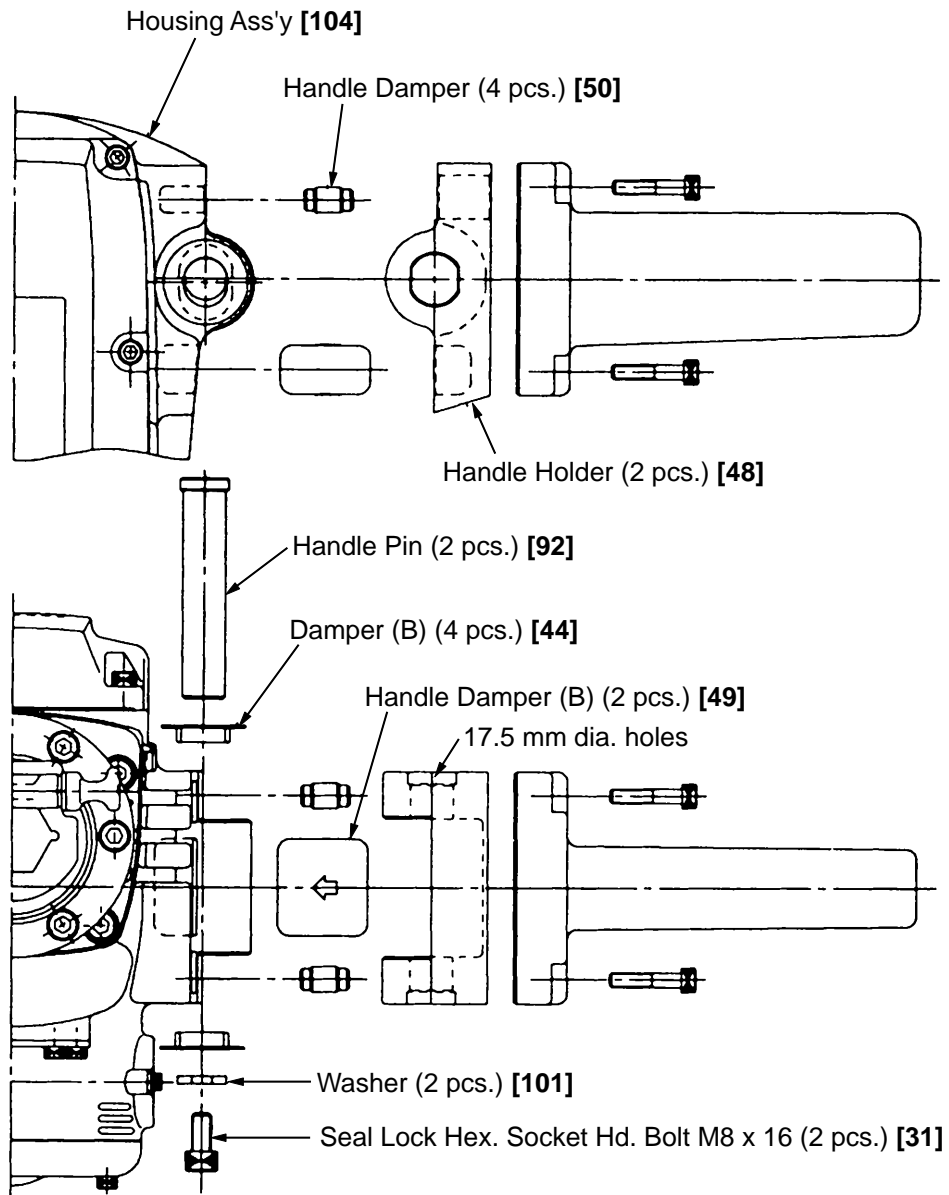


Fig. 11

- Mounting of Oil Seal (A) [25]

When mounting Oil Seal (A) [25] on the Piston [26], ensure that the lip portion of the Oil Seal is directed toward the rear surface of the Piston [26], as illustrated in Fig. 12. Prior to reassembly, thoroughly coat Oil Seal (A) [25] and O-Ring (A) [24] with grease (Grease for Impact Drill, Part No. 980927 or 981840 or 308471 is recommended), and carefully ensure they are not damaged.

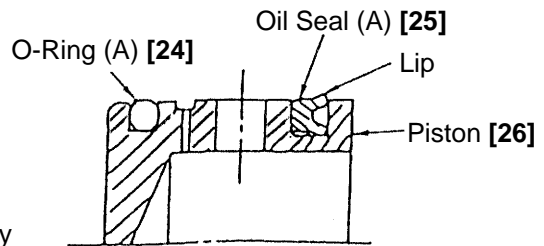


Fig. 12

- Mounting of Seal Ring (A) [38]

To prevent oil from leaking through between the Housing Ass'y [104] and the Inner Cover [37], Seal Ring (A) [38] is installed in the Inner Cover [37] for sealing grease. When fitting Seal Ring (A) [38] in the ring groove on the Inner Cover [37], exercise care not to allow the Seal Ring (A) [38] to twist or project out of the groove.

- Reassembly of the Stop Lever [2]

Prior to reassembly, thoroughly coat the grease (Doubrex 251, Part No. 980757, is recommended) on the sliding portion of the Stop Lever [2]. As illustrated in Fig. 13, place the end surface of the Stop Lever [2] on the flange portion of the Front Cover [7] and compress the Lever Spring [5] by pressing the Damper (B) [6] with two slender minus screwdrivers. Then, align the holes of the Stop Lever [2] and the Spring Case [4], and insert the Needle Roller [3].

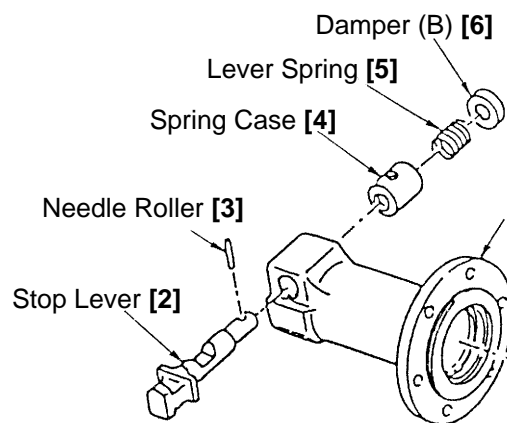


Fig. 13

9-1-3. Screw Locking Agent TB1401

(1) Prior to reassembly, all M5, M6 hexagon socket hd. bolts and machine screws must be coated with screw locking agent TB1401.

(2) The following parts must be replaced with new Hitachi genuine parts if they are loosened once.

- Front cover fixing bolts: Nylock Hex. Socket Hd. Bolt M8 x 30 [10]
- Cylinder case fixing bolts: Nylock Hex. Socket Hd. Bolt M8 x 35 [22]
- Fixing bolt on the Connecting Rod Ass'y [28] and Handle Holder [48]: Seal Lock Hex. Socket Hd. Bolt M8 x 16 [31]

[CAUTION] If fastening bolts come loose from vibration, it could cause serious damage to the machine. Ensure without fail that TB1401 screw locking agent is applied as directed above prior to reassembly. Before applying the TB1401, carefully clean any grease or other foreign matter from the male and female threads with gasoline, thinner or similar cleaning solvents.

9-1-4. Tightening torque

(1) M4 hexagon socket hd. bolts	4.41 ± 0.49 N•m (45 ± 5 kgf•cm, 39.1 ± 4.3 in-lbs.)
(2) M5 hexagon socket hd. bolts	7.84 $\begin{smallmatrix} +1.96 \\ 0 \end{smallmatrix}$ N•m (80 $\begin{smallmatrix} +20 \\ 0 \end{smallmatrix}$ kgf•cm, 69.5 $\begin{smallmatrix} +12.4 \\ 0 \end{smallmatrix}$ in-lbs.)
(3) M6 hexagon socket hd. bolts	9.80 $\begin{smallmatrix} +1.96 \\ 0 \end{smallmatrix}$ N•m (100 $\begin{smallmatrix} +20 \\ 0 \end{smallmatrix}$ kgf•cm, 86.9 $\begin{smallmatrix} +17.4 \\ 0 \end{smallmatrix}$ in-lbs.)
(4) M8 hexagon socket hd. bolts	29.4 $\begin{smallmatrix} +1.96 \\ 0 \end{smallmatrix}$ N•m (300 $\begin{smallmatrix} +20 \\ 0 \end{smallmatrix}$ kgf•cm, 260 $\begin{smallmatrix} +17.4 \\ 0 \end{smallmatrix}$ in-lbs.)
(5) D4 tapping screw	1.96 ± 0.49 N•m (20 ± 0.5 kgf•cm, 17.4 $\begin{smallmatrix} +4.3 \\ 0 \end{smallmatrix}$ in-lbs.)

[NOTE] If above bolts are tightened more than the designated values, it may cause breakage. Without fail, tighten the bolts and screws according to the above specified values.

9-1-5. Internal wiring

- Wiring diagram of products with noise suppressor

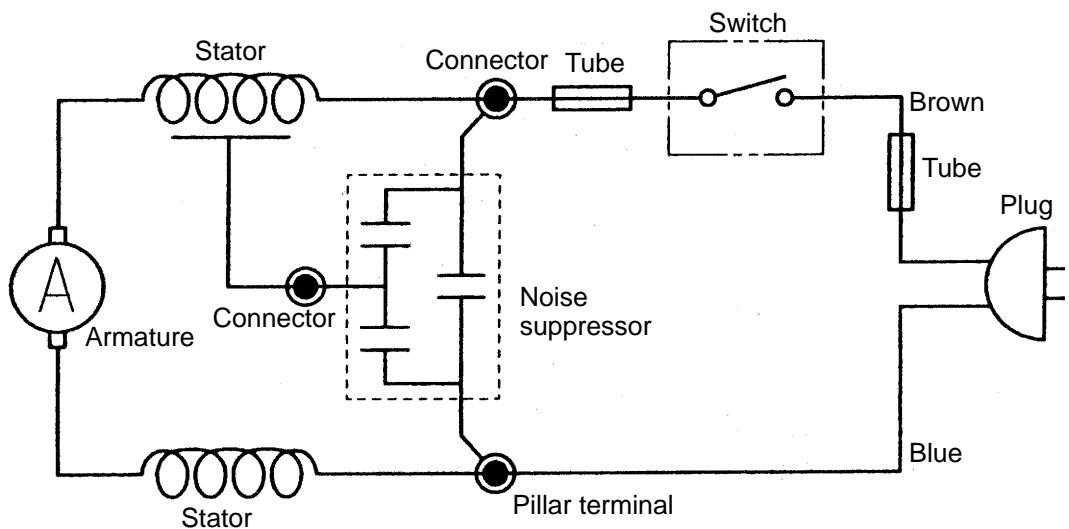


Fig. 14

- Schematic diagram of products with noise suppressor

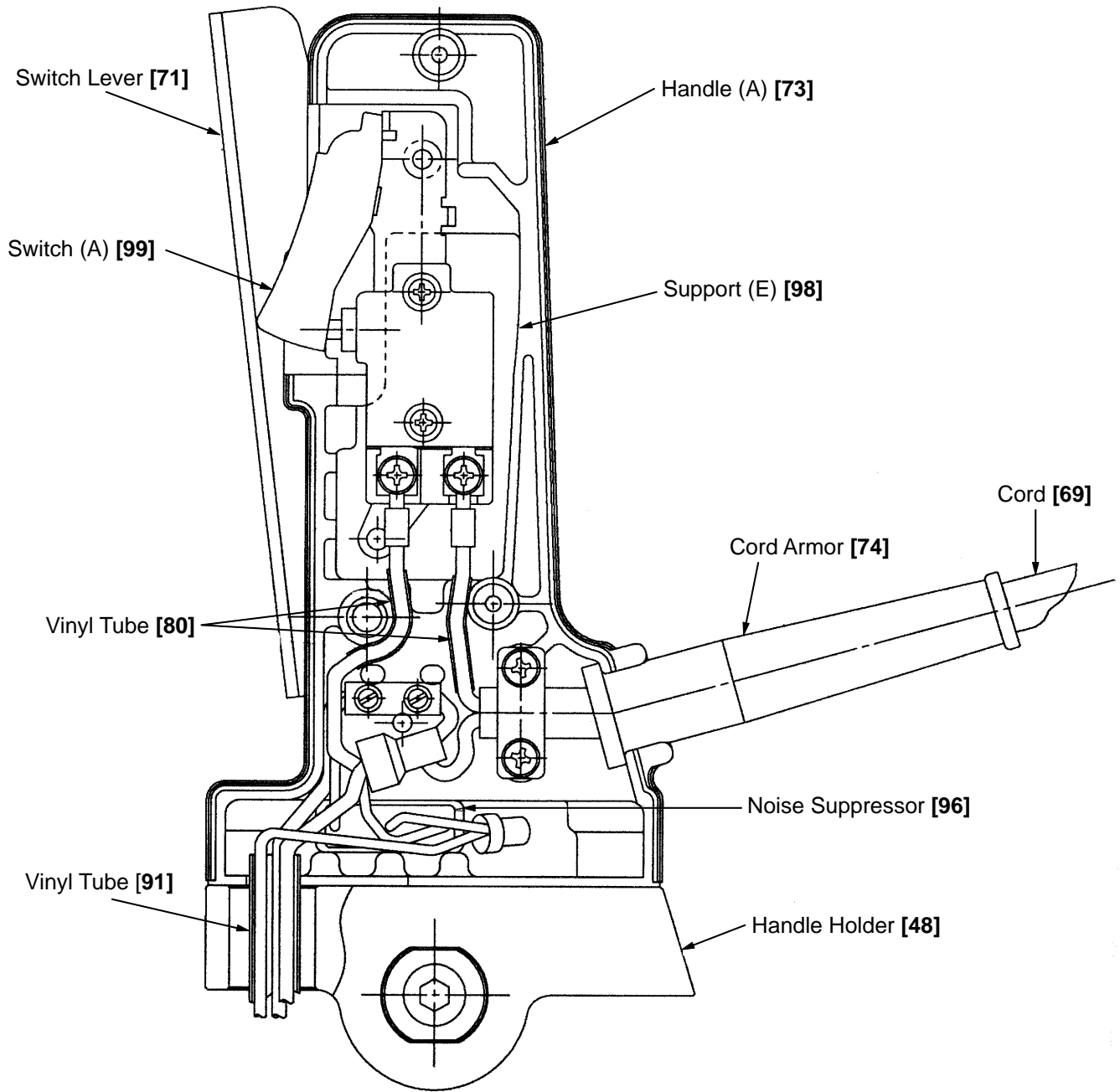


Fig. 15

- Safety precautions in wiring work (See Fig. 15.)

Switch (A) [99] is flexibly supported by Support (E) [98] to protect it from damage from vibration which could lead to possible electrical shock. Ensure without fail that Support (E) [98] is properly mounted. Also, ensure that the leadwires are properly covered by Vinyl Tube [80], and that the leadwires of the Stator Ass'y [83] and the grounding leadwire are properly supported by Vinyl Tube [91].

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 4000 V/1 minute, with no abnormalities ... 220 V – 240 V
(and 110 V for U.K. products)

AC 2500 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	115	120	127	220	230	240
Current (A) (Max.)	5.9	5.7	5.4	5.2	3.0	2.8	2.7

10. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable		20	40	60	80	100	120 min.
	Fixed							
H 70SA		Work Flow						
			Switch (A) Cord	Handle (A) Handle (B) Handle Pin Handle Holder				Housing Ass'y Stator Ass'y
	General Assembly				Gear Cover	Armature Ass'y		
		Front Cover Stop Lever Ass'y O-ring (C) Second Hammer	Mouth Mouth Cover Ur ethane Ring Shank Sleeve Damper (A) O-ring (B) O-ring (E)	Cylinder Case	Ball Bearing (6201) Ball Bearing (6203)	Counter Gear Ball Bearing (6001) Ball Bearing (6201)		
			Striker Piston Connecting Rod Ass'y Needle Bearing Oil Seal (A) O-ring (A) O-ring (1AS-60)				Ball Bearing (6302) Final Gear Crank Shaft Ball Bearing (6205) Inner Cover	

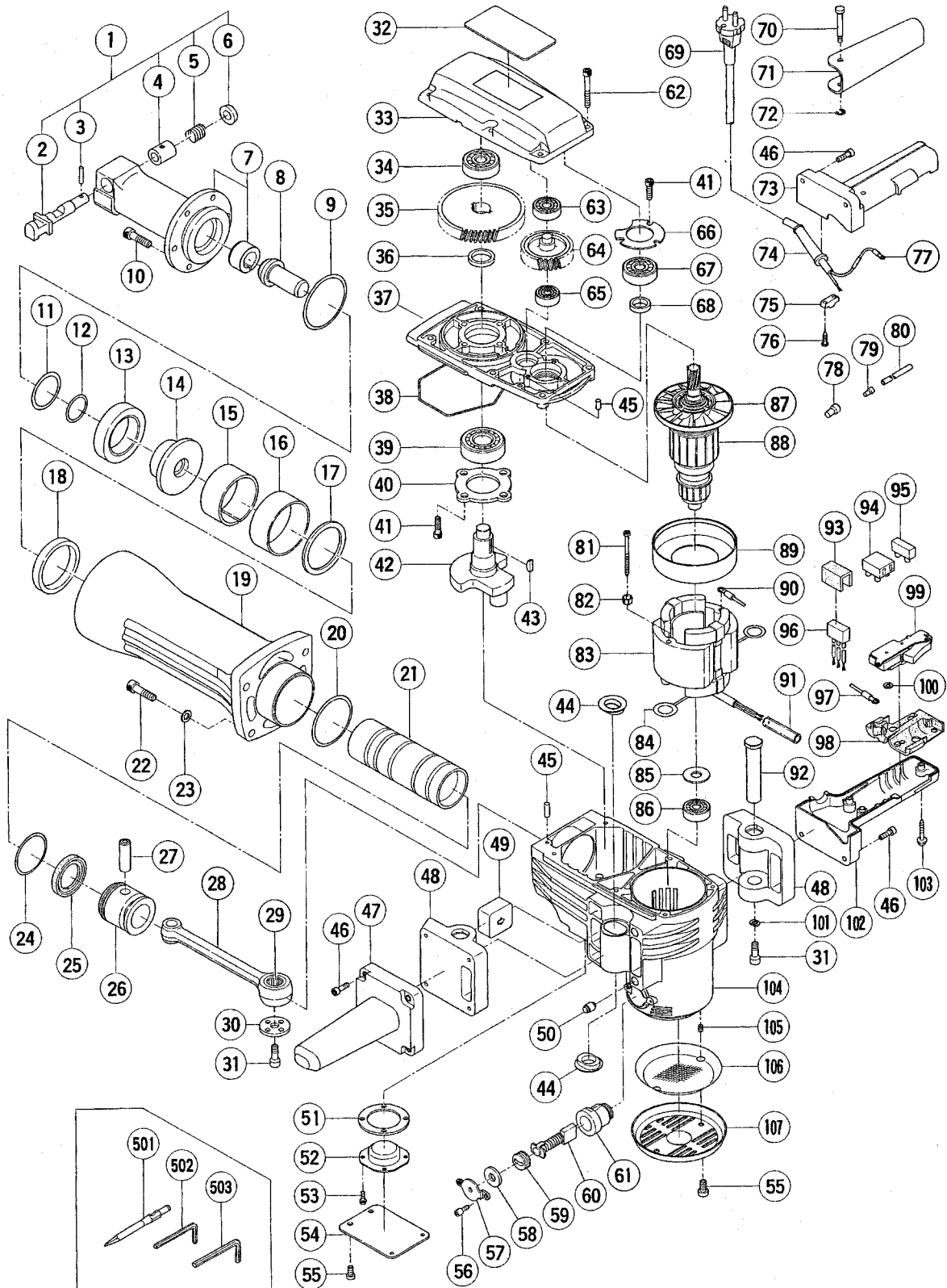
ELECTRIC TOOL PARTS LIST

■ HAMMER

2000•8•10

Model H 70SA

(E1)



PARTS

H 70SA

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	318-656	STOP LEVER ASS'Y	1	INCLUD.2-6	
2	998-423	STOP LEVER	1		
3	998-426	NEEDLE ROLLER	1		
4	998-424	SPRING CASE	1		
5	956-975	LEVER SPRING	1		
6	998-425	DAMPER (B)	1		
7	998-435	FRONT COVER	1		
8	998-420	SECOND HAMMER	1		
9	998-428	O-RING (C)	1		
10	306-437	NYLOCK HEX. SOCKET HD. BOLT M8X30	6		
11	998-427	O-RING (B)	1		
12	998-419	O-RING (E)	1		
13	998-433	DAMPER (A)	1		
14	998-418	SHANK SLEEVE	1		
15	956-963	MOUTH	1		
16	956-962	MOUTH COVER	1		
17	956-961	MOUTH WASHER	1		
18	956-960	URETHANE RING	1		
19	319-359	CYLINDER CASE	1		
20	956-996	O-RING (1AS-60)	1		
21	956-958	STRIKER	1		
22	306-163	NYLOCK HEX. SOCKET HD. BOLT M8X35	4		
23	949-433	BOLT WASHER M8 (10 PCS.)	4		
24	998-414	O-RING (A)	1		
25	998-415	OIL SEAL (A)	1		
26	998-413	PISTON	1		
27	944-928	PISTON PIN	1		
28	998-434	CONNECTING ROD ASS'Y	1	INCLUD.29	
29	944-921	NEEDLE BEARING (NTN 8E-NK 18/20 RDO)	1		
30	956-955	CRANK WASHER	1		
31	996-364	SEAL LOCK HEX. SOCKET HD. BOLT M8X16	3		
32		NAME PLATE	1		
33	319-360	GEAR COVER	1		
34	630-2VV	BALL BEARING 6302VVCMP2L	1		
35	944-916	FINAL GEAR	1		
36	944-915	DISTANCE RING (B)	1		
37	998-412	INNER COVER	1		
38	957-143	SEAL RING (A)	1		
39	620-5DD	BALL BEARING 6205DDCMP2L	1		
40	956-949	BEARING COVER	1		
41	990-079	SEAL LOCK HEX. SOCKET HD. BOLT M5X16	7		
42	998-430	CRANK SHAFT	1		
43	956-850	WOODRUFF KEY 4X16	2		
44	318-655	DAMPER (B)	4		
45	944-918	PIN D5X15.8	2		
46	993-496	SEAL LOCK HEX. SOCKET HD. BOLT M6X30	8		
47	305-633	SIDE HANDLE	1		
48	319-365	HANDLE HOLDER	2		
49	319-364	HANDLE DAMPER (B)	2		
50	310-124	HANDLE DAMPER	4		
51	956-969	HOLDER SEAL	1		

PARTS

H 70SA

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
52	998-416	HOLDER	1	
53	987-203	SEAL LOCK SCREW (W/SP. WASHER) M4X12	4	
54	998-417	COVER PLATE	1	
55	991-690	SEAL LOCK HEX. SOCKET HD. BOLT M5X12	6	
56	983-162	SEAL LOCK HEX. SOCKET HD. BOLT M4X12	4	
57	956-972	CAP COVER	2	
58	944-960	CAP RUBBER	2	
59	940-540	BRUSH CAP	2	
60	999-086	CARBON BRUSH (AUTO STOP TYPE) (1 PAIR)	2	
61	956-984	BRUSH HOLDER	2	
62	986-940	SEAL LOCK HEX. SOCKET HD. BOLT M6X45	6	
63	620-1VV	BALL BEARING 6201VVCMP2L	1	
64	956-948	COUNTER GEAR	1	
65	600-1VV	BALL BEARING 6001VVCMP2L	1	
66	944-911	BEARING COVER (A)	1	
67	620-3DD	BALL BEARING 6203DDCMP2L	1	
68	944-907	DISTANCE RING (A)	1	
*	69	500-390Z	CORD	(CORD ARMOR D10.7)
*	69	500-408Z	CORD	(CORD ARMOR D8.2) FOR AUS,NZL
*	69	500-466Z	CORD	(CORD ARMOR D10.7) FOR GBR (110V)
*	69	500-450Z	CORD	(CORD ARMOR D10.7) FOR GBR (230V)
*	69	500-458Z	CORD	(CORD ARMOR D10.7) FOR SAF
*	69	500-391Z	CORD	(CORD ARMOR D10.7) FOR SUI
70	992-870	PIN	1	
71	992-869	SWITCH LEVER	1	
72	968-643	RETAINING RING (E-TYPE) FOR D4 SHAFT	1	
73	305-636	HANDLE (A)	1	
*	74	958-049	CORD ARMOR D8.2	
*	74	940-778	CORD ARMOR D10.7	
*	75	960-266	CORD CLIP	
*	75	981-987Z	CORD CLIP	FOR SUI
76	982-095	TAPPING SCREW (W/WASHER) D4X20	2	
*	77	980-063	TERMINAL	FOR CORD
*	78	959-141	CONNECTOR 50092 (10 PCS.)	EXCEPT FOR FIN
*	79	959-140	CONNECTOR 50091 (10 PCS.)	EXCEPT FOR FIN
80		VINYL TUBE (I.D7XT0.5X50)	2	
81	960-251	HEX. HD. TAPPING SCREW D5X65	2	
82	956-764	SPECIAL WASHER	2	
*	83	340-488C	STATOR ASS'Y 110V	INCLUD.84
*	83	340-488E	STATOR ASS'Y 230V	INCLUD.84
*	83	340-488F	STATOR ASS'Y 240V	INCLUD.84
84	945-932	BRUSH TERMINAL	2	
85	944-954	BEARING WASHER	1	
86	620-1DD	BALL BEARING 6201DDCMP2L	1	
87	996-370	FAN	1	
*	88	360-286C	ARMATURE ASS'Y 110V-115V	INCLUD.87
*	88	360-286E	ARMATURE ASS'Y 220V-230V	INCLUD.87
*	88	360-286F	ARMATURE ASS'Y 240V	INCLUD.87
89	306-098	FAN GUIDE	1	
90	986-277	INTERNAL WIRE	1	
91	319-363	VINYL TUBE	1	

* : ALTERNATIVE PARTS

8 - 00

PARTS

H 70SA

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
92	319-366	HANDLE PIN	2		
93	930-153	SUPPORT (B)	1		
* 94	958-308Z	PILLAR TERMINAL (A)	1	FOR FIN	
* 95	938-307	PILLAR TERMINAL	1	EXCEPT FOR NZL.SAF	
96	994-273	NOISE SUPPRESSOR	1		
* 97	981-974	INTERNAL WIRE	1		
* 97	306-681	INTERNAL WIRE	1	FOR GBR	
98	990-082	SUPPORT (E)	1		
99	992-891	SWITCH (A) (1P SCREW TYPE) W/O LOCK	1		
* 100	949-423	WASHER M4 (10 PCS.)	1	EXCEPT FOR NZL	
101	319-367	WASHER	2		
102	305-631	HANDLE (B)	1		
103	301-653	TAPPING SCREW (W/FLANGE) D4X20 (BLACK)	2		
104	319-361	HOUSING ASS'Y	1	INCLUD.61,105	
105	938-477	HEX. SOCKET SET SCREW M5X8	2		
106	319-362	MESH	1		
107	306-099	TAIL COVER	1		

STANDARD ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
501	944-961	BULL POINT 410MM	1		
502	943-277	HEX. BAR WRENCH 3MM	1		
503	872-422	HEX. BAR WRENCH 6MM	1		

OPTIONAL ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
601	944-962	COLD CHISEL 410MM (HEX. SHANK TYPE)	1		
602	944-964	CUTTER W75X45L (ROUND SHANK TYPE)	1		
603	944-966	RAMMER SHANK (HAMMER)	1		
604	944-965	RAMMER 200MM	1		
605	319-298	SCOOP 380L (ROUND SHANK TYPE)	1		
606	306-441	SERVICE KIT (H 65SB)	1	INCLUD.9,11,12,18,20,24,25,38,607,609	
607	981-840	GREASE (A) FOR HAMMER.HAMMER DRILL (30G)	1		
608	308-471	GREASE FOR HAMMER.HAMMER DRILL (70G)	1		
609	930-035	GREASE (SEP-3A) (100G)	1		
610	980-927	GREASE FOR HAMMER.HAMMER DRILL (500G)	1		