

MODEL

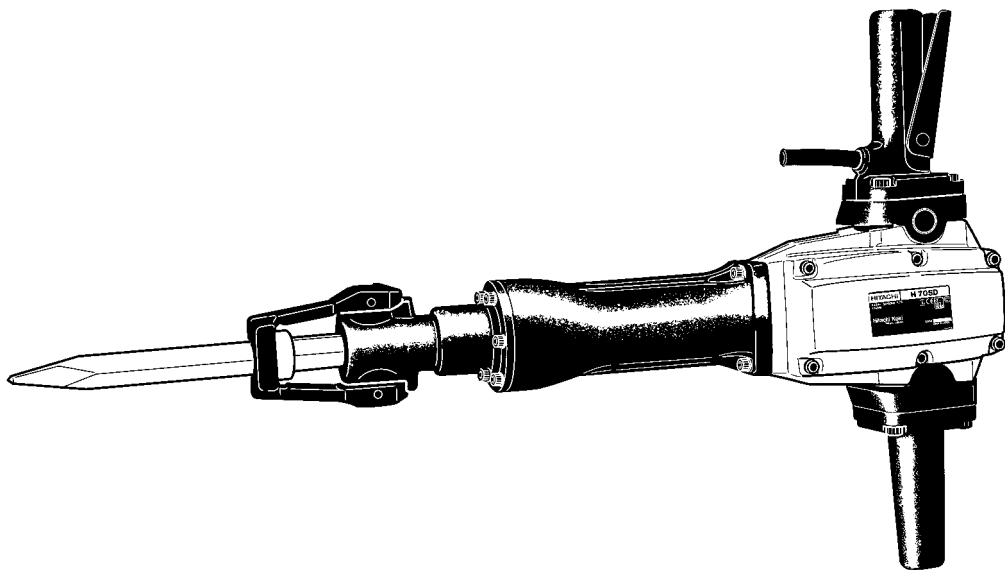
H 70SD

HITACHI
POWER TOOLS

HAMMER
H 70SD

TECHNICAL DATA
AND
SERVICE MANUAL

H



LIST No. E461

Dec. 2001

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

CONTENTS



Page

1. PRODUCT NAME	1
2. MARKETING OBJECTIVE	1
3. APPLICATIONS	1
4. SELLING POINTS	1
4-1. Selling Point Descriptions	2
5. SPECIFICATIONS	4
5-1. Optional Accessories	5
6. COMPARISONS WITH SIMILAR PRODUCTS	7
6-1. Specification Comparisons	7
6-2. Demolition Performance Comparisons	8
7. PRECAUTIONS IN SALES PROMOTION	8
7-1. Handling Instructions	8
7-2. Caution Plate	8
7-3. Grease Replacement	9
7-4. O-Ring Replacement	9
8. REFERENCE INFORMATION	10
8-1. Sealed and Dustproof Construction	10
8-2. Vibration-Absorbing Construction	10
8-3. Tool Retainer	13
9. REPAIR GUIDE	14
9-1. Precautions and Suggestions for Disassembly and Reassembly of the Main Body	14
10. STANDARD REPAIR TIME (UNIT) SCHEDULES	23
Assembly Diagram for H 70SD	

1. PRODUCT NAME

Hitachi Electric Hammer, Model H 70SD

2. MARKETING OBJECTIVE

The Model H 70SD has been developed based on the current Model H 65SD, which features the use of 28.5 mm (1-1/8") air tool shank tools, standard hexagonal shank tools (combo type), and retaining groove tools without collar. While the Model H 65SD has a D-shaped handle, the Model H 70SD has a T-shaped handle intended for downward chipping and demolishing. The compact Model H 70SD broadens our lineup of 90-class hammers (T-shaped handle).

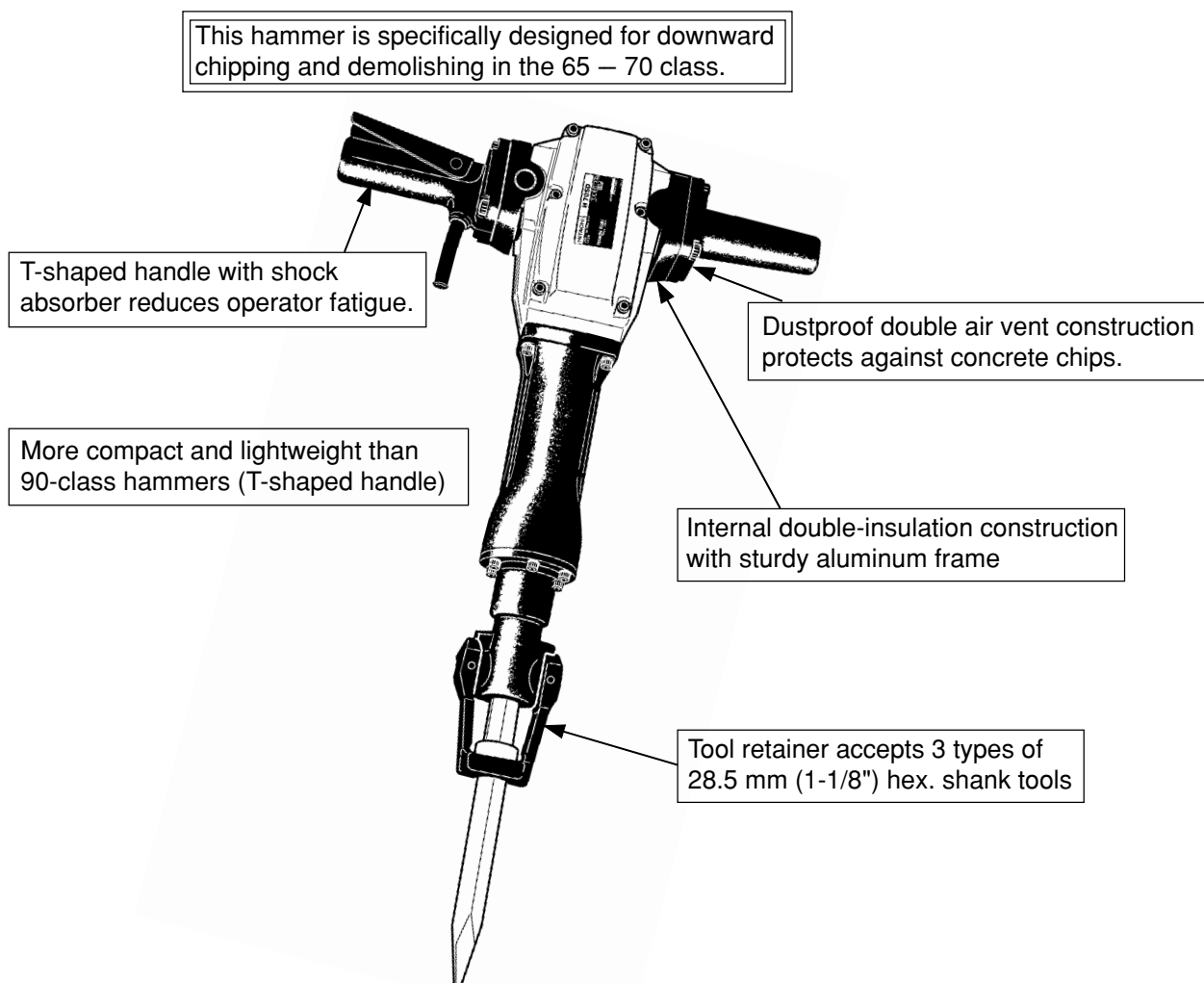
3. APPLICATIONS

- 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



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 • H70SD	100
HITACHI H 65SD	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).

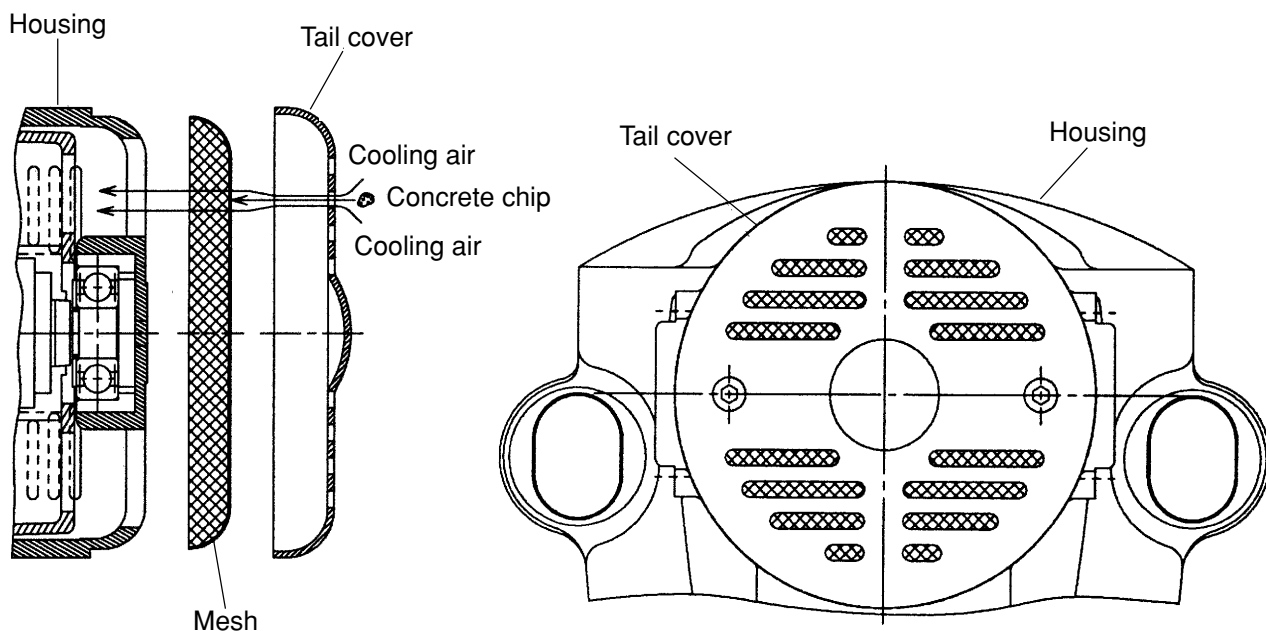


Fig. 1

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

Maker • Model	Weight	Overall length
HITACHI H 70SD	20 kg (44.1 lbs.)	722 mm (28-7/16")
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")
B	29 kg (63.9 lbs.)	845 mm (33-1/4")
C	29 kg (63.9 lbs.)	818 mm (32-7/32")

The Model H 70SD is lighter than the 90-class hammers (T-shaped handle) by 9 to 12 kg (19.8 to 26.5 lbs.) in weight and shorter by 96 to 137 mm (3-25/32" to 5-13/32") in length since it has been developed based on the current Model H 65SD which features the use of 3 types of 28.5 mm (1-1/8") hex. shank tools.

4-1-5. Tool retainer accepts 3 types of 28.5 mm (1-1/8") hex. shank tools

Three types of shank tools (Fig. 2) can be used in the Model H 70SD by turning the tool retainer in the following two methods.

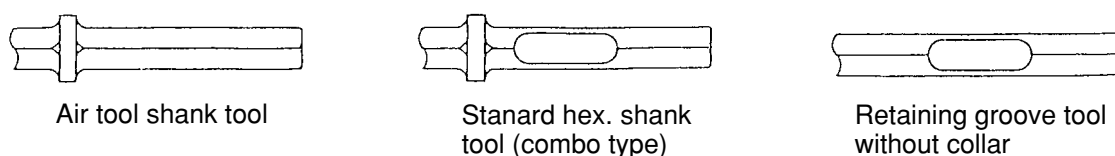


Fig. 2

(1) Mounting air tool shank tools and standard hex. shank tools (combo type)

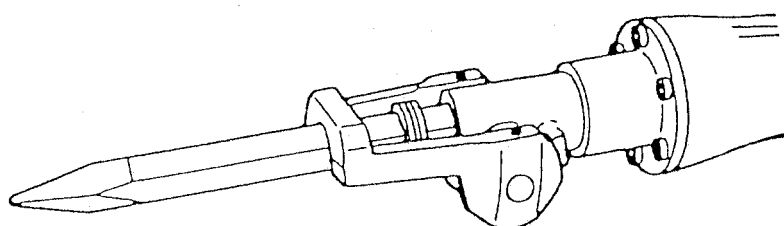


Fig. 3

(2) Mounting standard hex. shank tools (combo type) and retaining groove tools without collars

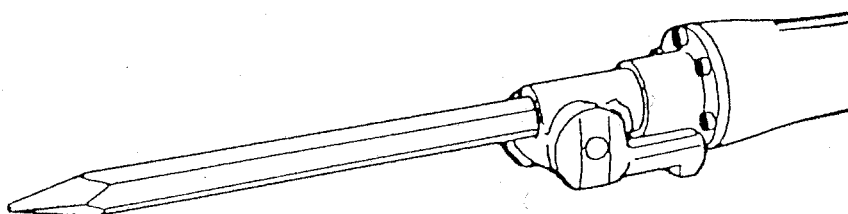


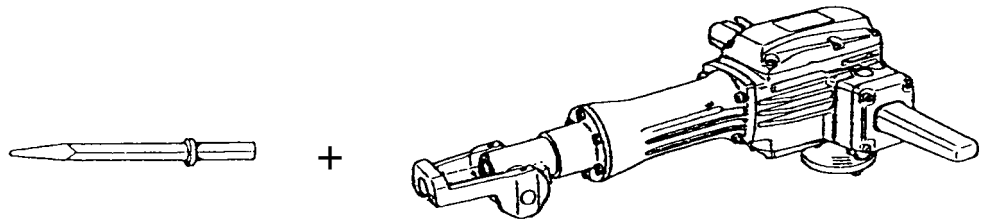
Fig. 4

5. SPECIFICATIONS

Item		H 70SD
Power source		Single-phase AC 50/60 Hz
Voltage (V)		110, 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), 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	20.0 kg (44.1 lbs.); excluding cord
	Packed	22.0 kg (48.5 lbs.)
Packaging		Corrugated cardboard box
Standard accessories		<ul style="list-style-type: none"> • Hex. bar wrench (for M8) 1 • Hex. bar wrench (for M4) 1

5-1. Optional Accessories

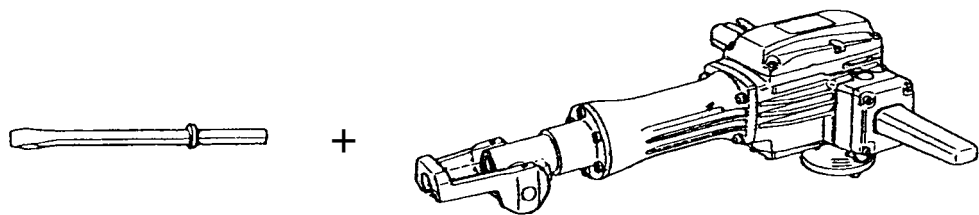
1. Demolition work



(1) Bull point

Overall length	Code No.
410 mm (16-9/64")	996372

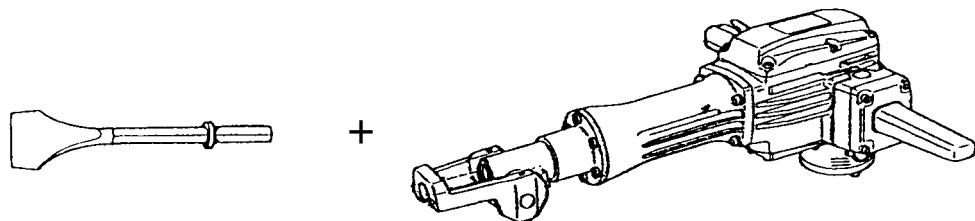
2. Grooving and chiseling work



(1) Cold shisel

Overall length	Code No.
410 mm (16-9/64")	996373
520 mm (20-15/32")	985231

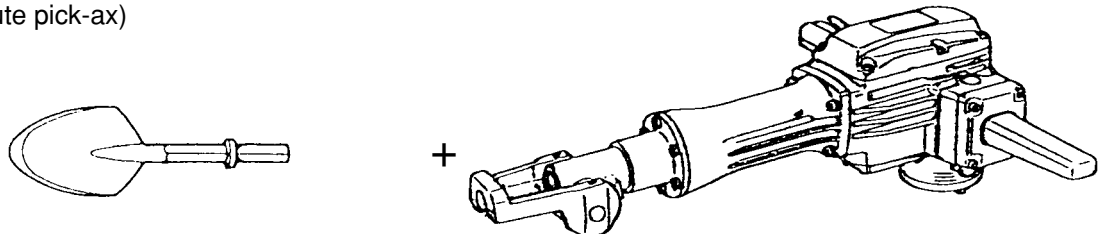
3. Cutting and stripping work (asphalt cutting, etc.)



(1) Cutter

Width	Overall length	Code No.
75 mm (3")	410 mm (16-9/64")	996374
75 mm (3")	520 mm (20-15/32")	985232

4. Digging (substitute pick-ax)



(1) Scoop

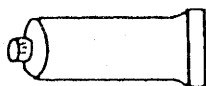
Overall length	Code No.
546 mm (21-1/2")	985233

5. Grease for impact drill



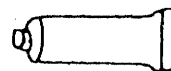
500 g (1.1 lbs.) Can

Code No. 980927



70 g (2.5 oz) Tube

Code No. 308471



30 g (1 oz) Tube

Code No. 981840

(Note)

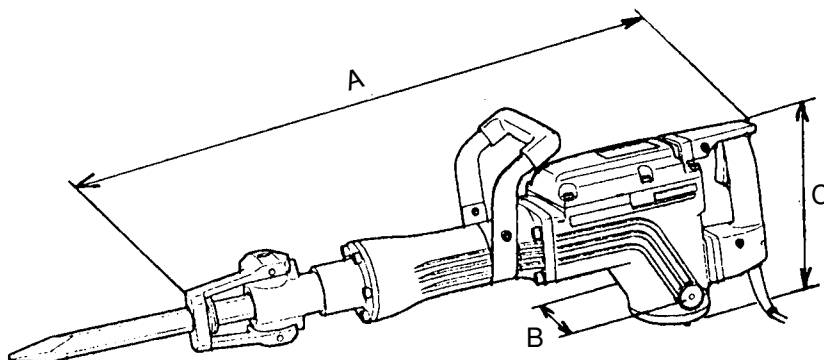
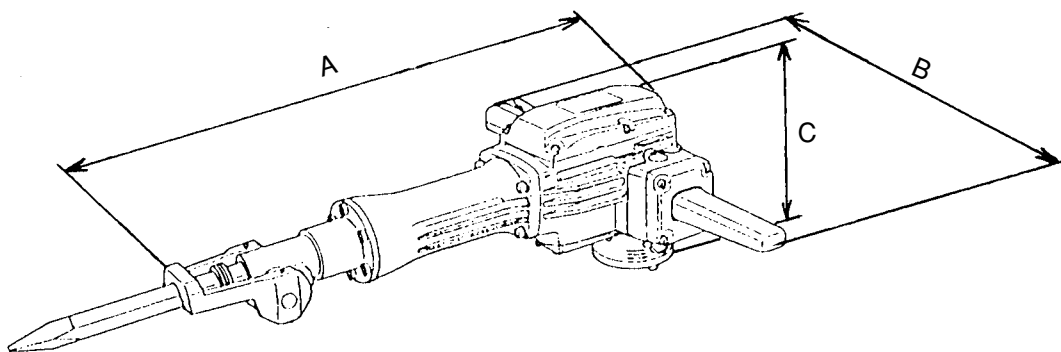
Code numbers listed above are subject to change. Please refer to periodic Technical News Bulletins.

6. COMPARISONS WITH SIMILAR PRODUCTS

6-1. Specification Comparisons

Maker		HITACHI			C
Model name		H 70SD	H 70SA	H 65SD	
Power input	W	1,240*	1,240*	1,240*	1,240
Full-load impact rate	min ⁻¹	1,400	1,400	1,400	1,200
Dimensions (illustration below)	A	mm	722 (28-7/16")	625 (24-5/8")	823 (32-13/32")
	B	mm	554 (21-13/16")	554 (21-13/16")	120 (4-23/32")
	C	mm	237 (9-5/16")	237 (9-5/16")	235 (9-1/4")
Striking energy per stroke	J	42.0	42.0	42.0	46.8
Insulation structure	—	Double insulation	Double insulation	Double insulation	Double insulation
Lubricating method	—	Grease	Grease	Grease	Grease
Vibration-absorbing handle	—	Provided	Provided	Provided	Not provided
No-load noise level	dB(A)	85.0	85.0	87.0	93.5
Full-load noise level	dB(A)	102.1	102.1	102.2	101.9
Vibration level	m/s ²	14.0	14.0	19.0	20.0
Weight (without cord)	kg	20.0 (44.1 lbs.)	18.0 (39.7 lbs.)	18.0 (39.7 lbs.)	17.0 (37.5 lbs.)

* For Australia only 1,400 W



H 65SD

6-2. Demolition Performance Comparisons

The data shown in Fig. 5 are obtained in actual factory tests, and are for reference only. The demolished amount may vary in accordance with operating conditions, operator skill, etc.

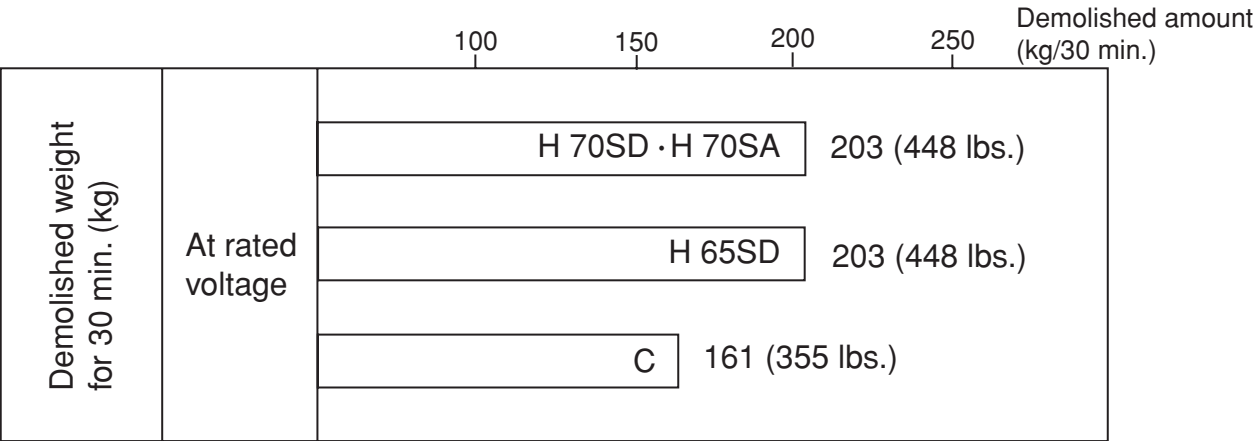


Fig. 5

7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Model H 70SD 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 70SD 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

CAUTION

- Read thoroughly HANDLING INSTRUCTIONS before use.

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.

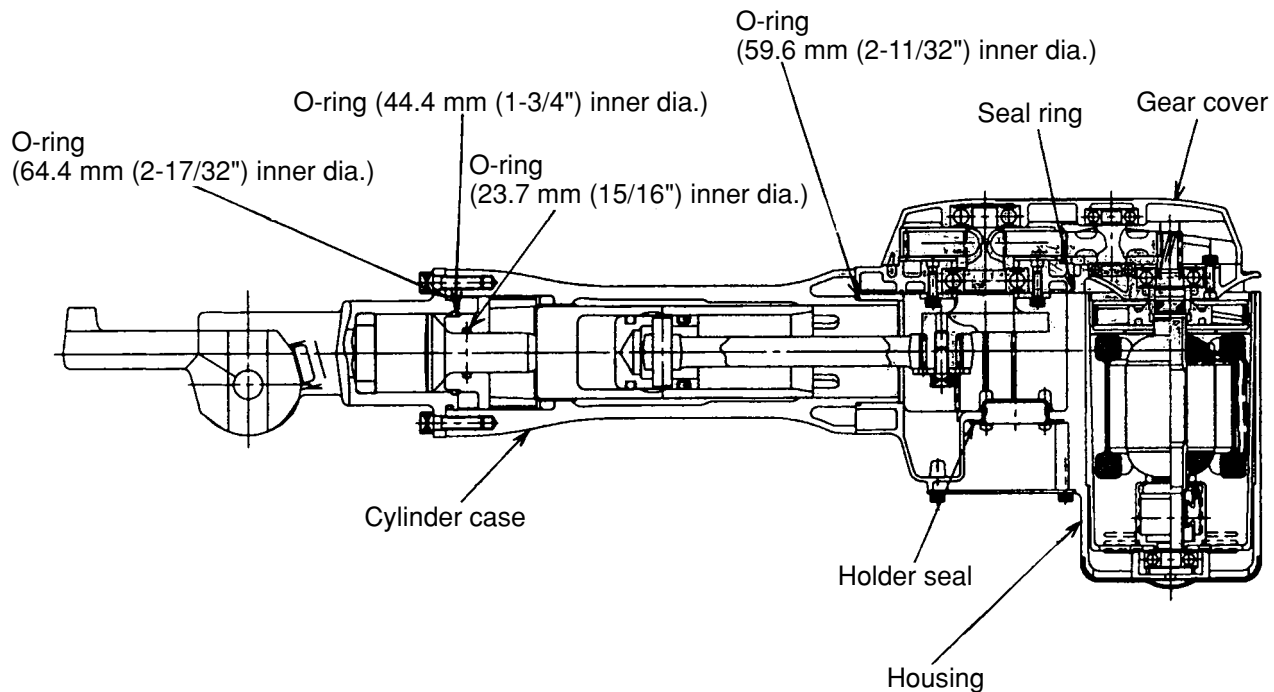


Fig. 6

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.

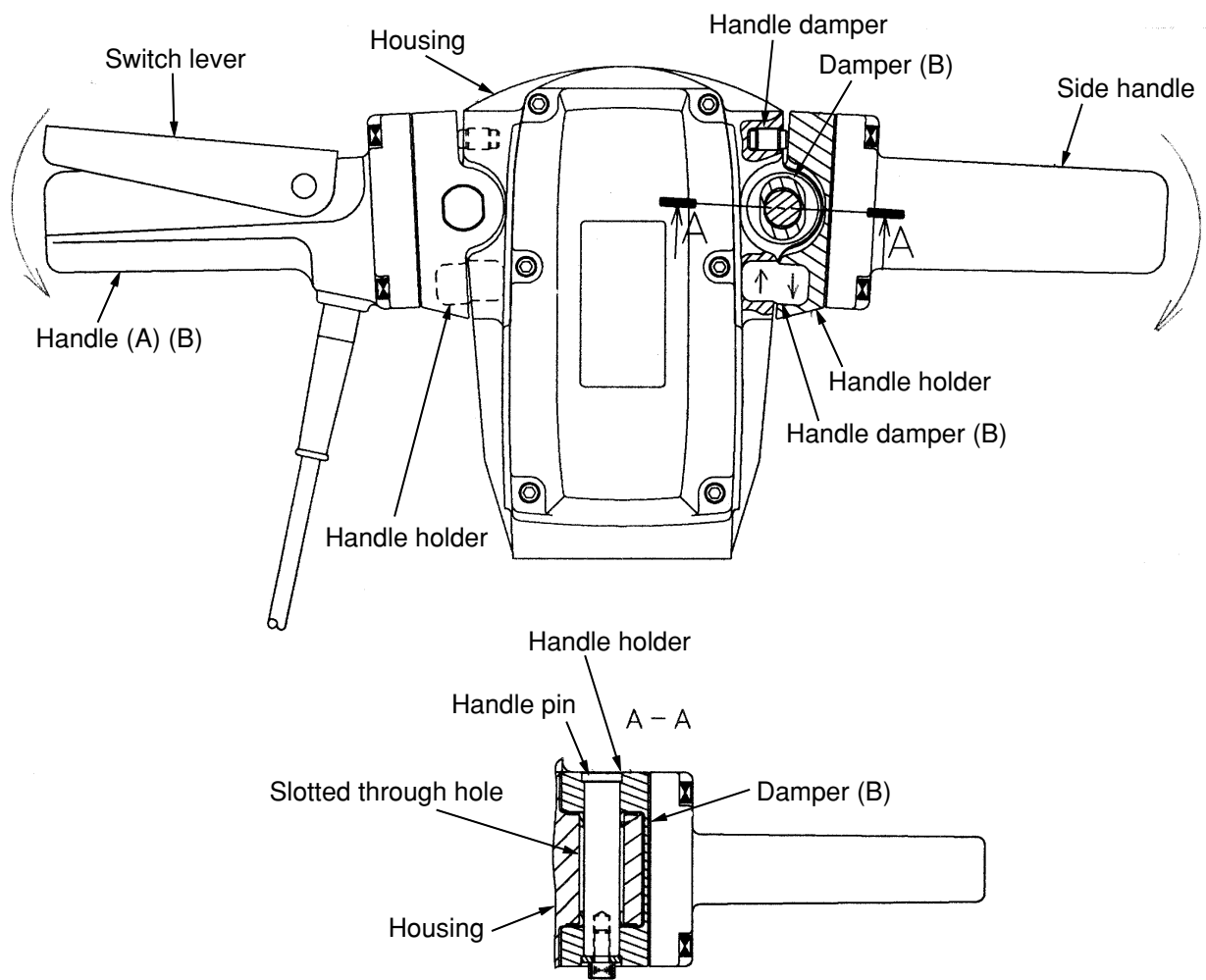
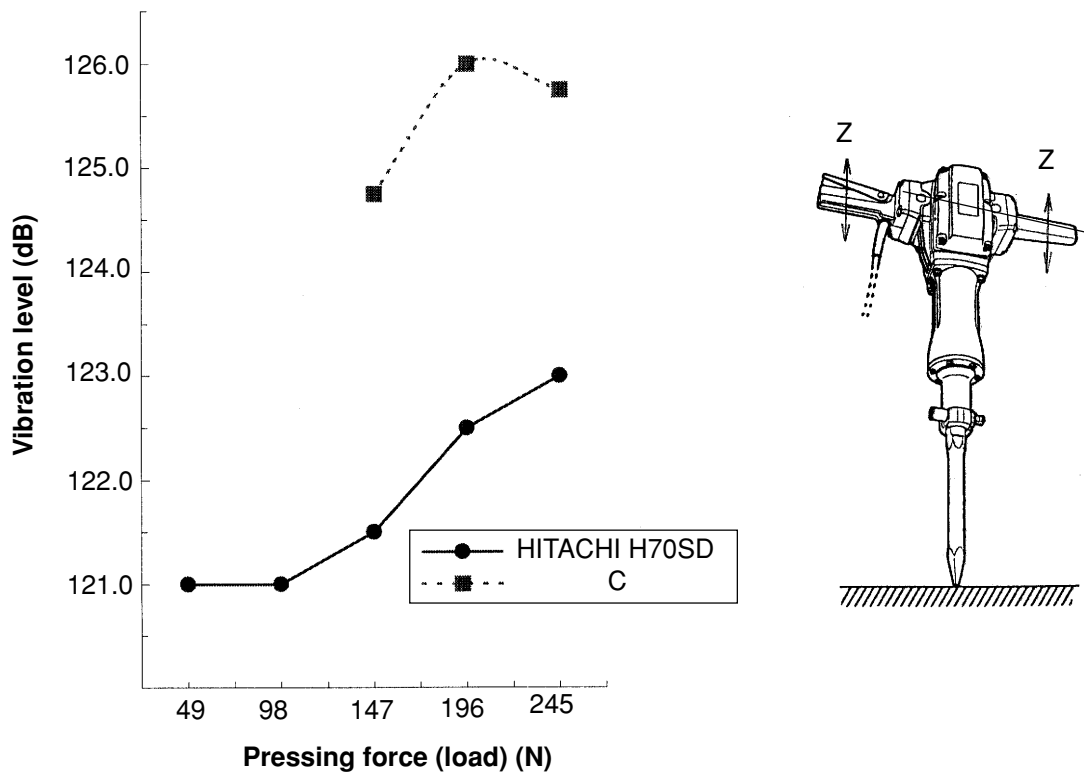


Fig. 7

(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. Tool Retainer

Three types of shank tools (Fig. 2) can be mounted to the Model H 70SD by turning the saddle-shaped retainer.

- (1) Mounting air tool shank tool and standard hex. shank tool

Raise the retainer in (A) direction and insert the tool shank into the hexagonal hole of the front cover as far as it will go (Fig. 8). Put the retainer back in position to fix the tool shank (Fig. 9).

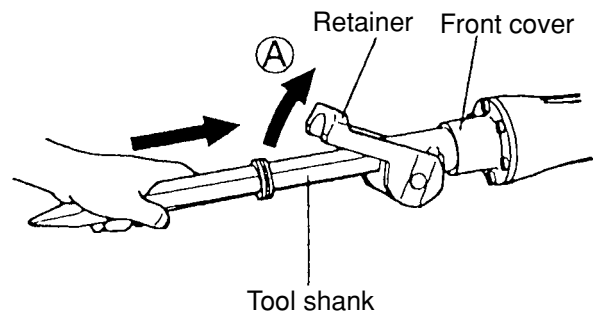


Fig. 8

- (2) Mounting standard hex. shank tool and retaining groove tool without collar

Lower the retainer in (B) direction and insert the tool shank into the hexagonal hole of the front cover as far as it will go facing the recessed portion of the tool shank to the retainer (Fig. 10). Turn the retainer in (C) direction to fix the tool shank (Fig. 11).

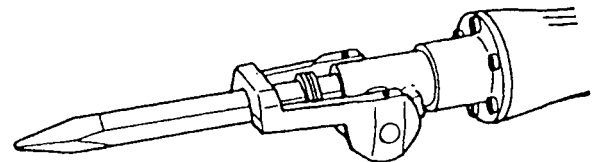


Fig. 9

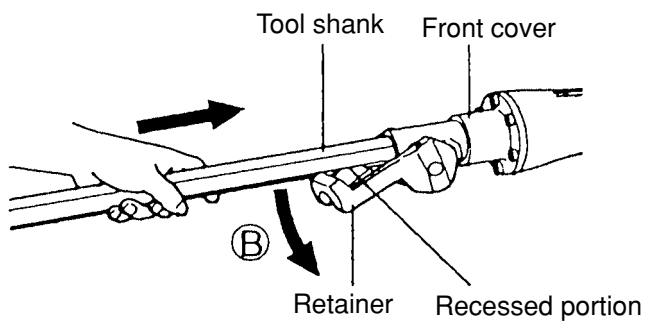


Fig. 10

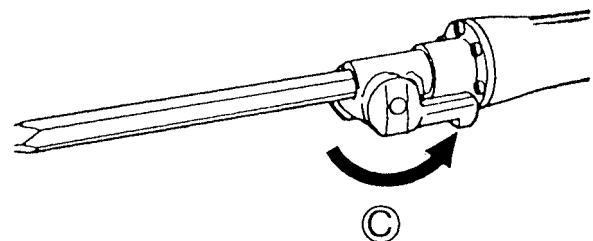


Fig. 11

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 [55], remove the Cap Covers [56], Cap Rubbers [57] and Brush Caps [58], and take out the Carbon Brushes (Auto Stop Type) (1 Pair) [59]. At this time, be very careful not to lose the disassembled parts.
 - (2) Loosen the four Nylock Hex. Socket Hd. Bolts M8 x 35 [21], and remove the Cylinder Case [18]. Next, after loosening the Seal Lock Hex. Socket Hd. Bolt M8 x 16 [30], the Connecting Rod Ass'y [27] and Crank Washer [29] can be disassembled. Leave the Striker [20] and Piston [25] as they are.
 - (3) Loosen the six Seal Lock Hex. Socket Hd. Bolts M6 x 45 [61], and disassemble the Gear Cover [32] and Counter Gear [63]. Then, by inserting a flat-blade screwdriver or similar tool into one of the air vents of the Inner Cover [36] and lifting it upwards, the Inner Cover [36], Armature Ass'y [88], Crank Shaft [41], and related parts can be removed in a single body.
 - (4) As illustrated in Fig. 12, support the Inner Cover [36] 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 [36].

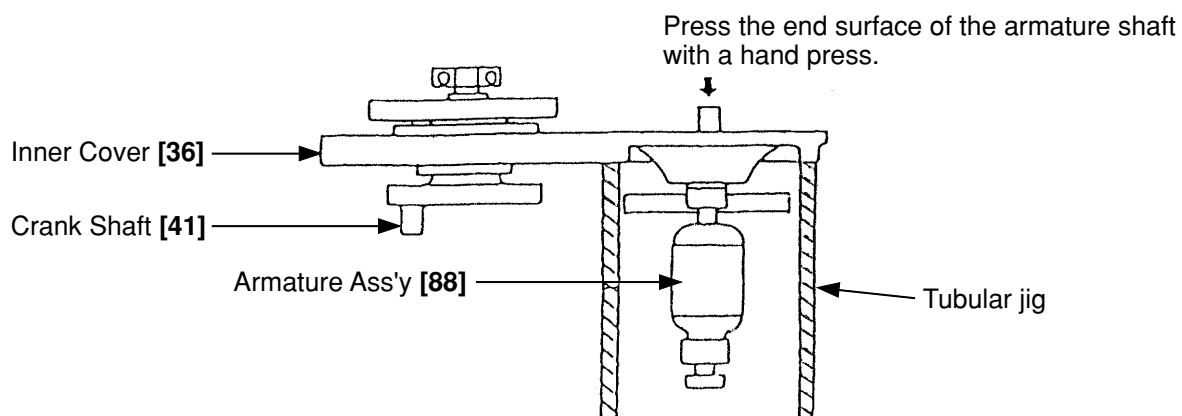


Fig. 12

- Disassembly of the Crank Shaft [41] section

First, remove the four Seal Lock Hex. Socket Hd. Bolts M5 x 16 [40] which fix the Bearing Cover [39]. Then, as illustrated in Fig. 13, support the lower surface of the Inner Cover [36] with an appropriate tubular jig, align an appropriate steel rod with the end surface of the Crank Shaft [41], and press down on the steel rod with a hand press. The Ball Bearing 6205DDCMPS2L [38], Distance Ring (B) [35], Final Gear [34], two Woodruff Keys 4 x 16 [42], and Crank Shaft [41] can then be disassembled from the Inner Cover [36].

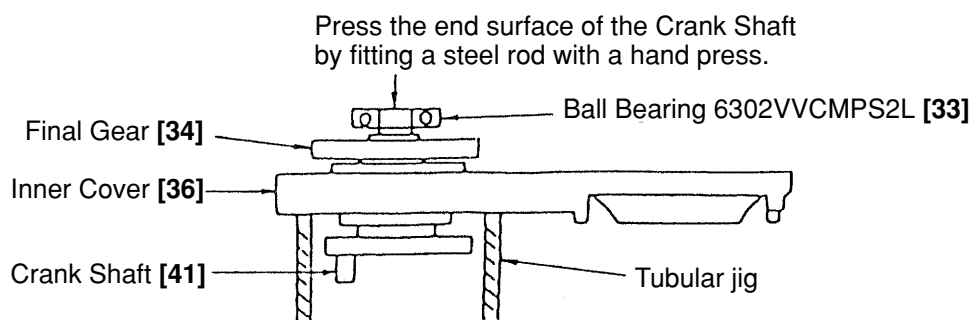


Fig. 13

- Disassembly of remaining parts from the Inner Cover [36]

Loosen the three Seal Lock Hex. Socket Hd. Bolts M5 x 16 [40], and take out Bearing Cover (A) [65] and the Ball Bearing 6203DDCMPS2L [66].

- Disassembly of the Mouth [14] and related parts

First, remove the six Nylock Hex. Socket Hd. Bolts M8 x 30 [4], and separate the Front Cover [6] from the Cylinder Case [18]. The Second Hammer [8], Shank Sleeve [13], Damper (A) [12], Mouth [14], Mouth Cover [15], Mouth Washer [16], and Urethane Ring [17] can then be taken out.

- Removal of O-Ring (E) [11]

As O-Ring (E) [11] is installed in the inner portion of the Shank Sleeve [13], it may be difficult to remove. As illustrated in Fig. 14, 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 [20] and related parts

Remove the four Nylock Hex. Socket Hd. Bolts M8 x 35 [21], and separate the Cylinder Case [18] from the Housing Ass'y [103]. From the Cylinder Case [18], take out the Striker [20], Piston [25], and Connecting Rod Ass'y [27] in a single body.

Holding the Striker [20] firmly in one hand, grasp the Connecting Rod Ass'y [27] in the other hand and pull it forcefully to separate it from the striker. Finally, extract the Piston Pin [26] from the Piston [25], and separate the Piston from the Connecting Rod Ass'y [27].

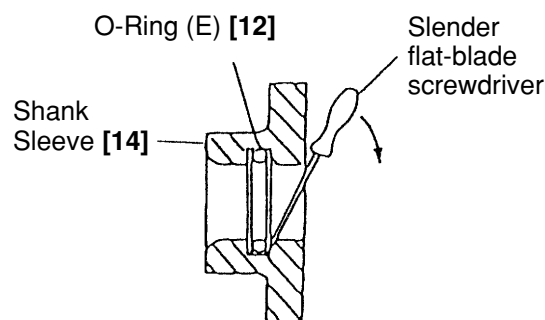


Fig. 14

- Disassembly of Switch (A) (1P Screw Type) W/O Lock [98] and related parts

Pry off the Retaining Ring (E-Type) for D4 Shaft [71] with a small flat-blade screwdriver, pull out the Pin [69], and remove the Switch Lever [70]. Then, remove the two Seal Lock Hex. Socket Hd. Bolts M6 x 30 [45] on the Handle (B) side and the two Tapping Screws (W/Flange) D4 x 20 (Black) [102], and remove Handle (B) [101].

- Disassembly of the Retainer [1] section

Remove the two Roll Pins D6 x 55 [2] from the 6 mm dia. holes of the Retainer [1] and remove the Lever Pin [3]. The Retainer [1] and two Retainer Dampers [5] can then be removed from the Front Cover [6] (Fig. 15).

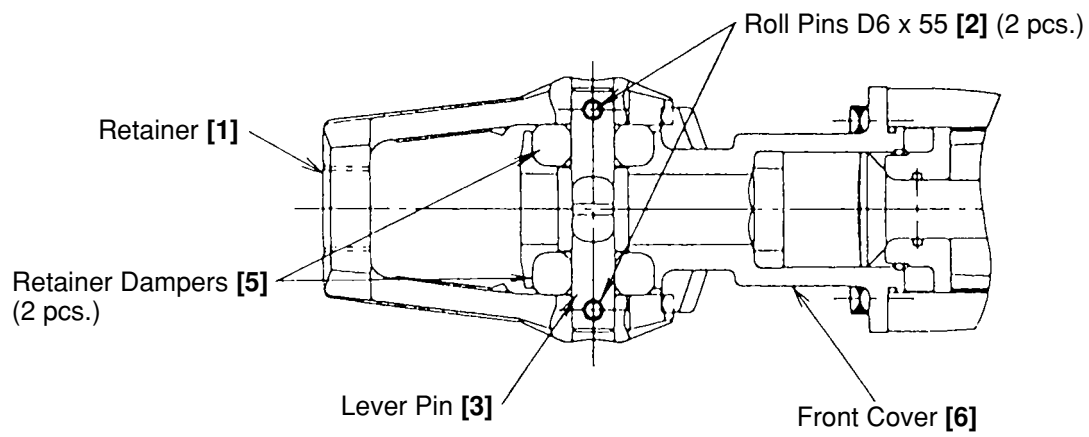


Fig. 15

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 [41] section

Press-fit the Ball Bearing 6205DDCMPS2L [38] into the Inner Cover [36], and fasten the Bearing Cover [39] onto the Inner Cover [36] with the four Seal Lock Hex. Socket Hd. Bolts M5 x 16 [40]. Support the inner race of the Ball Bearing 6205DDCMPS2L [38] with an appropriate jig, and press-fit the Crank Shaft [41] into the Ball Bearing. Next, insert Distance Ring (B) [35] and two Woodruff Keys 4 x 16 [42] into the Crank Shaft [41], and press-fit the Final Gear [34] and Ball Bearing 6302VVCMP2L [33] with a hand press.

- Reassembly of the Armature Ass'y [88]

Press-fit the Ball Bearing 6203DDCMPS2L [66] into the Inner Cover [36], and fasten Bearing Cover (A) [65] onto the Inner Cover with the three Seal Lock Hex. Socket Hd. Bolts M5 x 16 [40].

- Reassembly of the Striker [20] (Two possible methods)

(1) After the Connecting Rod Ass'y [27] has been assembled into the Housing Ass'y [103], mount the Piston [25] and press it into the Striker [20].

(2) Mount the Piston [25] onto the Connecting Rod Ass'y [27], and push down on the Connecting Rod Ass'y to press the Piston into the Striker [20].

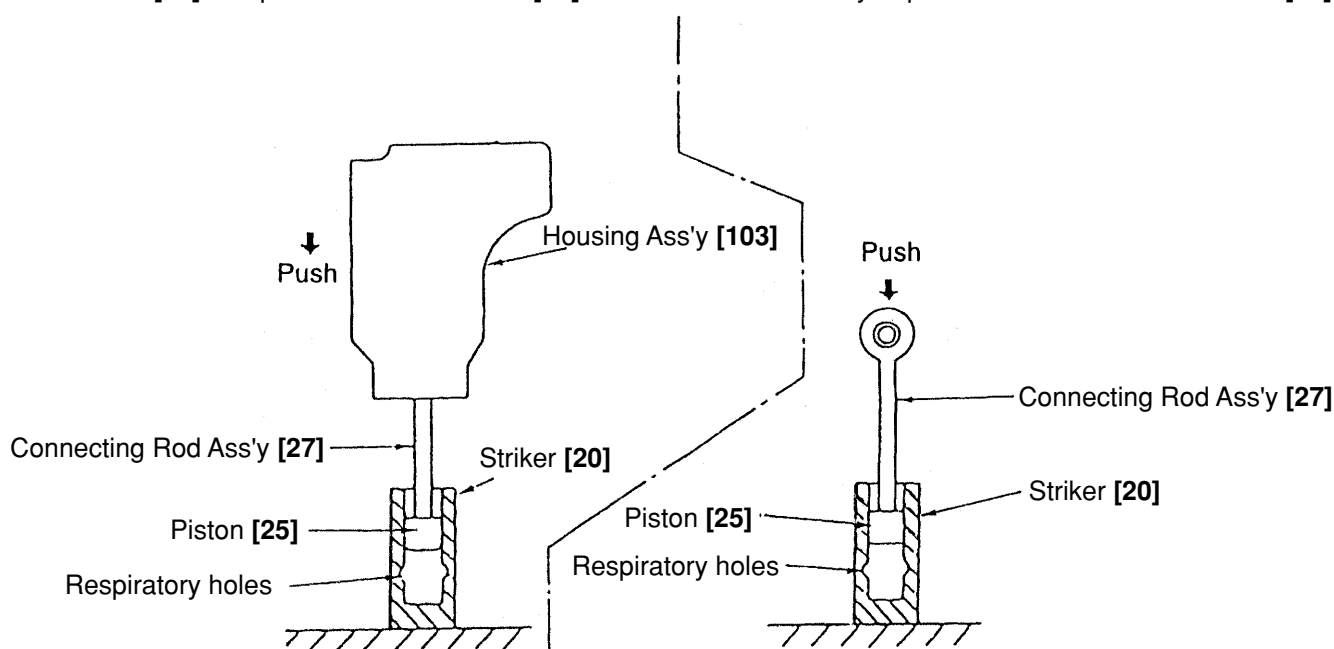


Fig. 16

Either of the two methods described above requires a pressing force of more than 30 kg. When a "hissing" sound is heard, the Piston [25] is properly inserted in the Striker [20]. (The "hissing" is the sound of the compressed air escaping from the Striker [20] when the Piston [25] reaches the respiratory chambers within the Striker [20].)

- Reassembly of the Handle Holder [47] section

Mount four Dampers (B) [43] and four Handle Dampers [49] to the Housing Ass'y [103], then mount two Handle Dampers (B) [48] to the Housing Ass'y [103] in the direction of arrow marked on Handle Damper (B) [48] surface. Next, mount two Handle Holders [47] to the Housing Ass'y [103] and insert two Handle Pins [92] into two 17.5 mm dia. holes of the Handle Holders [47]. Finally, tighten two Seal Lock Hex. Socket Hd. Bolts M8 x 16 [30] with two Washers [100]. At this time, align the notch of the flange portion of the handle pin with the notch of the Handle Holder [47] and then hold the flange portion of the Handle Pin [92].

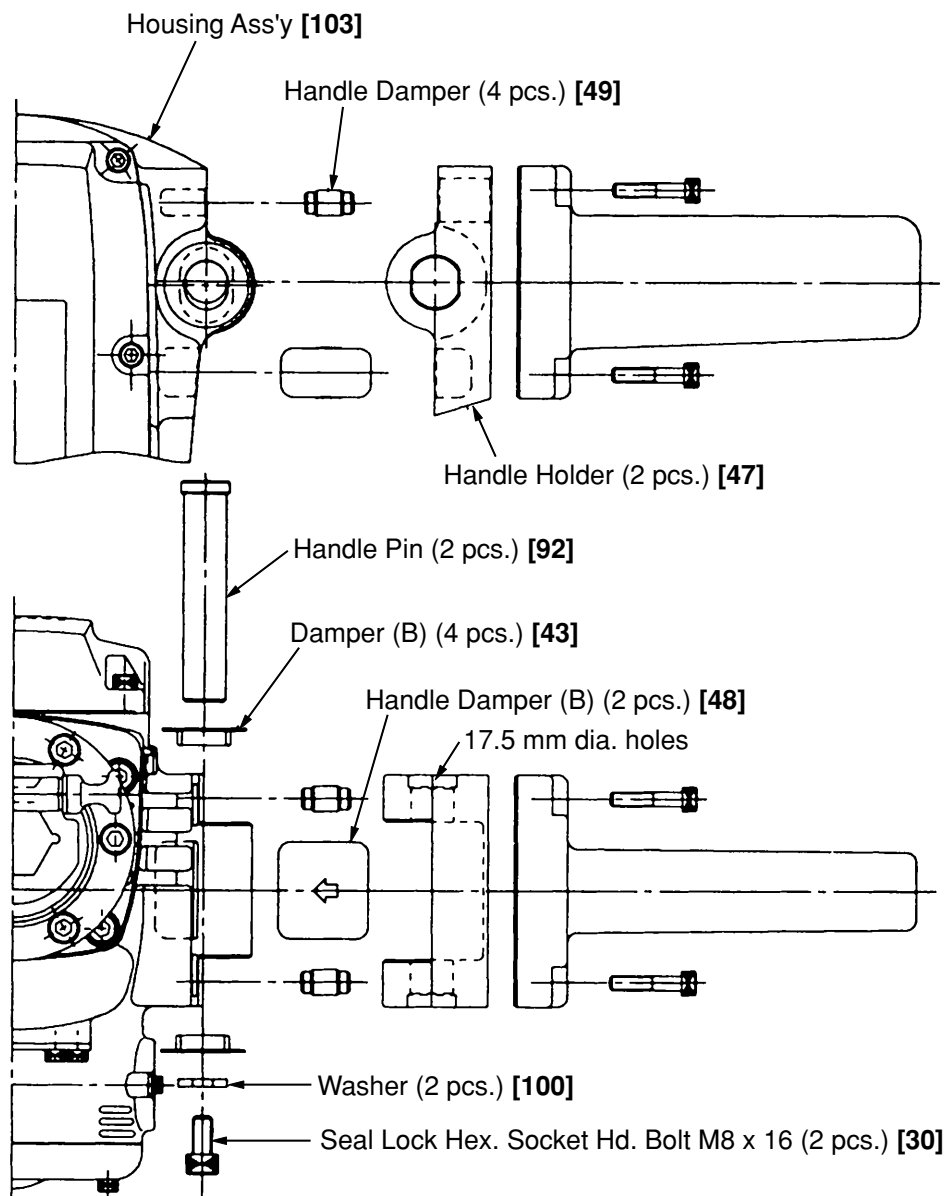


Fig. 17

- Mounting of Oil Seal (A) [24]

When mounting Oil Seal (A) [24] on the Piston [25], ensure that the lip portion of the Oil Seal is directed toward the rear surface of the Piston [25], as illustrated in Fig. 18. Prior to reassembly, thoroughly coat Oil Seal (A) [24] and O-Ring (A) [23] with grease (Grease for Impact Drill, Part No. 980927 or 981840 or 308471 is recommended), and carefully ensure they are not damaged.

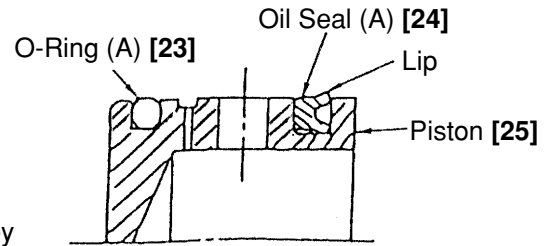


Fig. 18

- Mounting of Seal Ring (A) [37]

To prevent oil from leaking through between the Housing Ass'y [103] and the Inner Cover [36], Seal Ring (A) [37] is installed in the Inner Cover [36] for sealing grease. When fitting Seal Ring (A) [37] in the ring groove on the Inner Cover [36], exercise care not to allow the Seal Ring (A) [37] to twist or project out of the groove.

- Reassembly of the Retainer [1] section

Before reassembly, apply grease (Doubrex #251 Part No. 980757) to the sliding portion between the Retainer [1] and the Retainer Damper [5] of the Front Cover [6], and Lever Pin [3]. Mount the two Retainer Dampers [5] to the Front Cover [6] and then mount the Retainer [1]. Insert the Lever Pin [3] into the 17.5 mm dia. hole of the Retainer [1] facing the recessed portion of the Lever Pin [3] to the hexagonal hole of the Front Cover [6]. At this time, align the 6.5 mm dia. hole of the Retainer [1] with the 7 mm dia. hole of the Lever Pin [3]. Drive the Roll Pin D6 x 55 [2] into the 6.5 mm dia. hole of the Retainer [1] approximately 5 mm under the end surface of the Retainer [1] (Fig. 19).

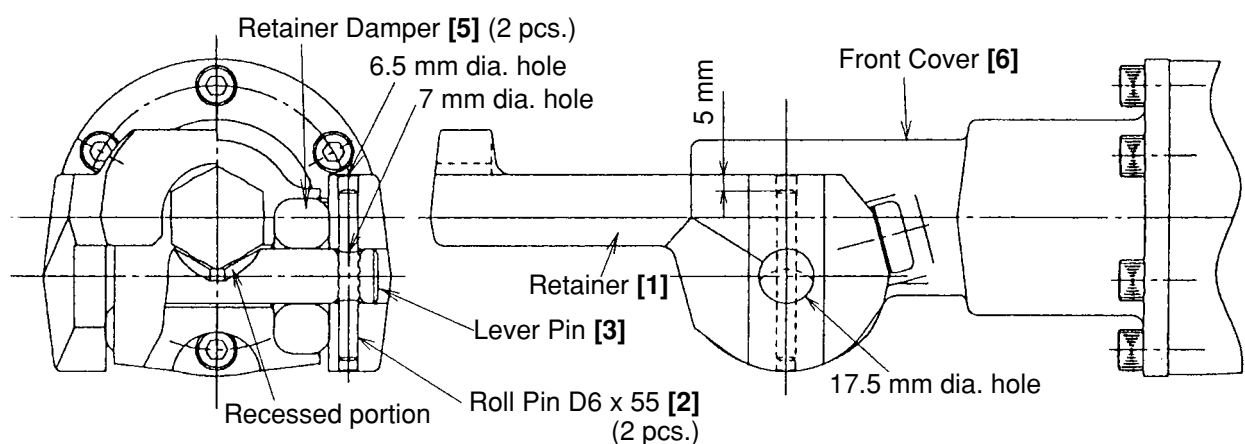


Fig. 19

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 [4]
 - Cylinder case fixing bolts: Nylock Hex. Socket Hd. Bolt M8 x 35 [21]
 - Fixing bolt on the Connecting Rod Ass'y [29]: Seal Lock Hex. Socket Hd. Bolt M8 x 16 [30]

[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

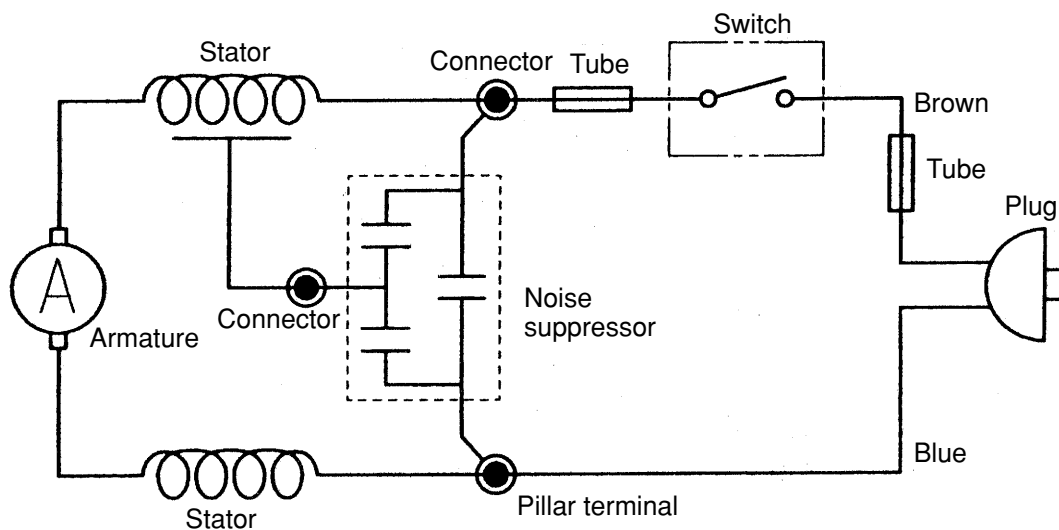


Fig. 20

- Schematic diagram of products with noise suppressor

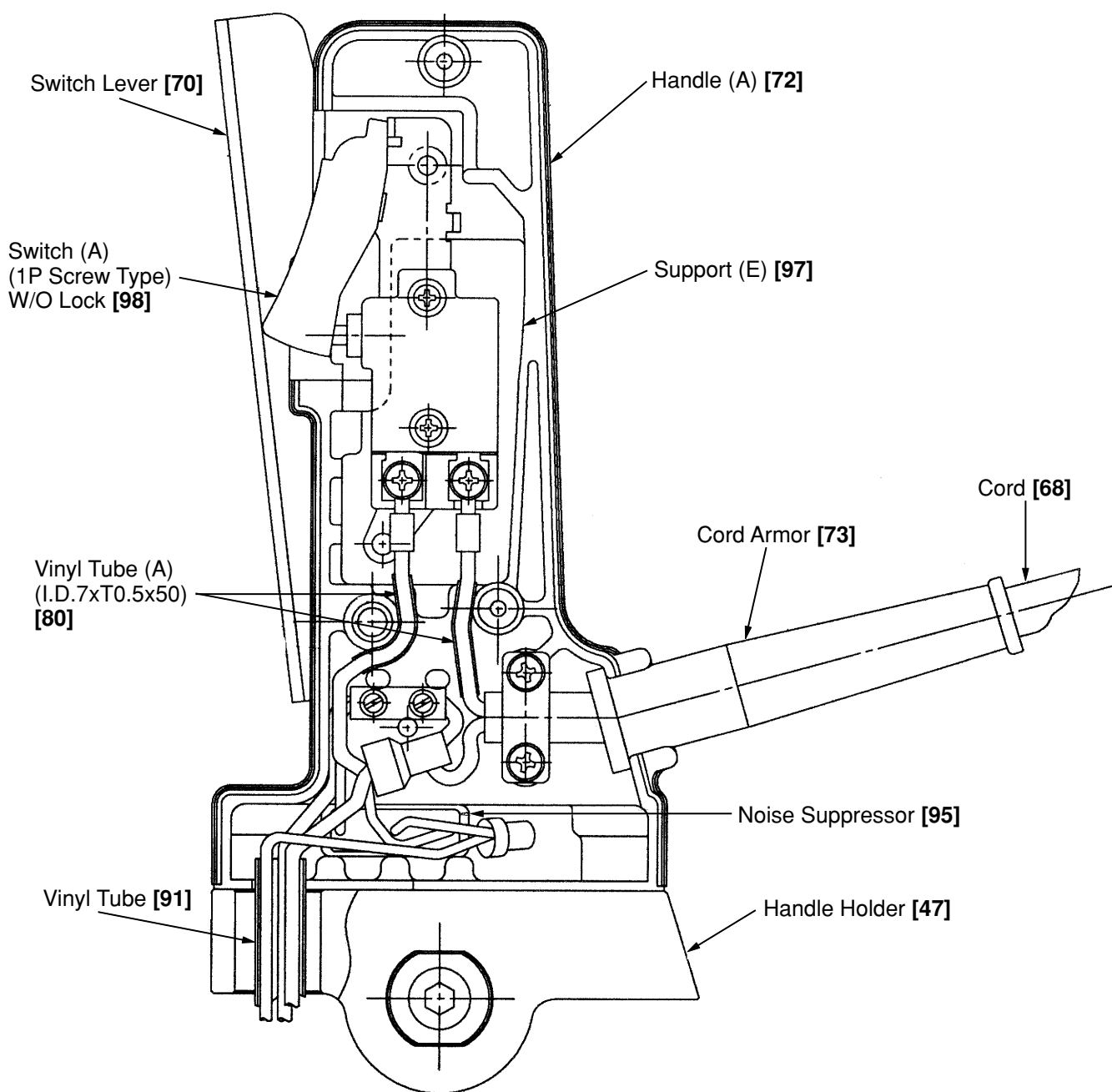


Fig. 21

- Safety precautions in wiring work (See Fig. 21.)

Switch (A) (1P Screw Type) W/O Lock [98] is flexibly supported by Support (E) [97] to protect it from damage from vibration which could lead to possible electrical shock. Ensure without fail that Support (E) [97] is properly mounted. Also, ensure that the leadwires are properly covered by Vinyl Tube (A) (I.D.7xT0.5x50) [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 70SD	General Assembly	Work Flow						
		Switch (A) Cord	Handle (A) Handle (B) Handle Pin Handle Holder					Housing Ass'y Stator Ass'y
				Gear Cover		Armature Ass'y		
		Front Cover Retainer Second Hammer Damper (B) O-ring (C)	Mouth Mouth Cover Urethane Ring Shank Sleeve Damper (A) O-ring (B) O-ring (E)	Cylinder Case		Ball Bearing (6203DD) Ball Bearing (6201DD)		
						Counter Gear Ball Bearing (6001VV) Ball Bearing (6201VV)		
			Striker Piston Connecting Rod Ass'y Oil Seal (A) O-ring (A) O-ring (1AS-60)				Crank Shaft Ball Bearing (6302VV) Ball Bearing (6205DD) Inner Cover Final Gear	

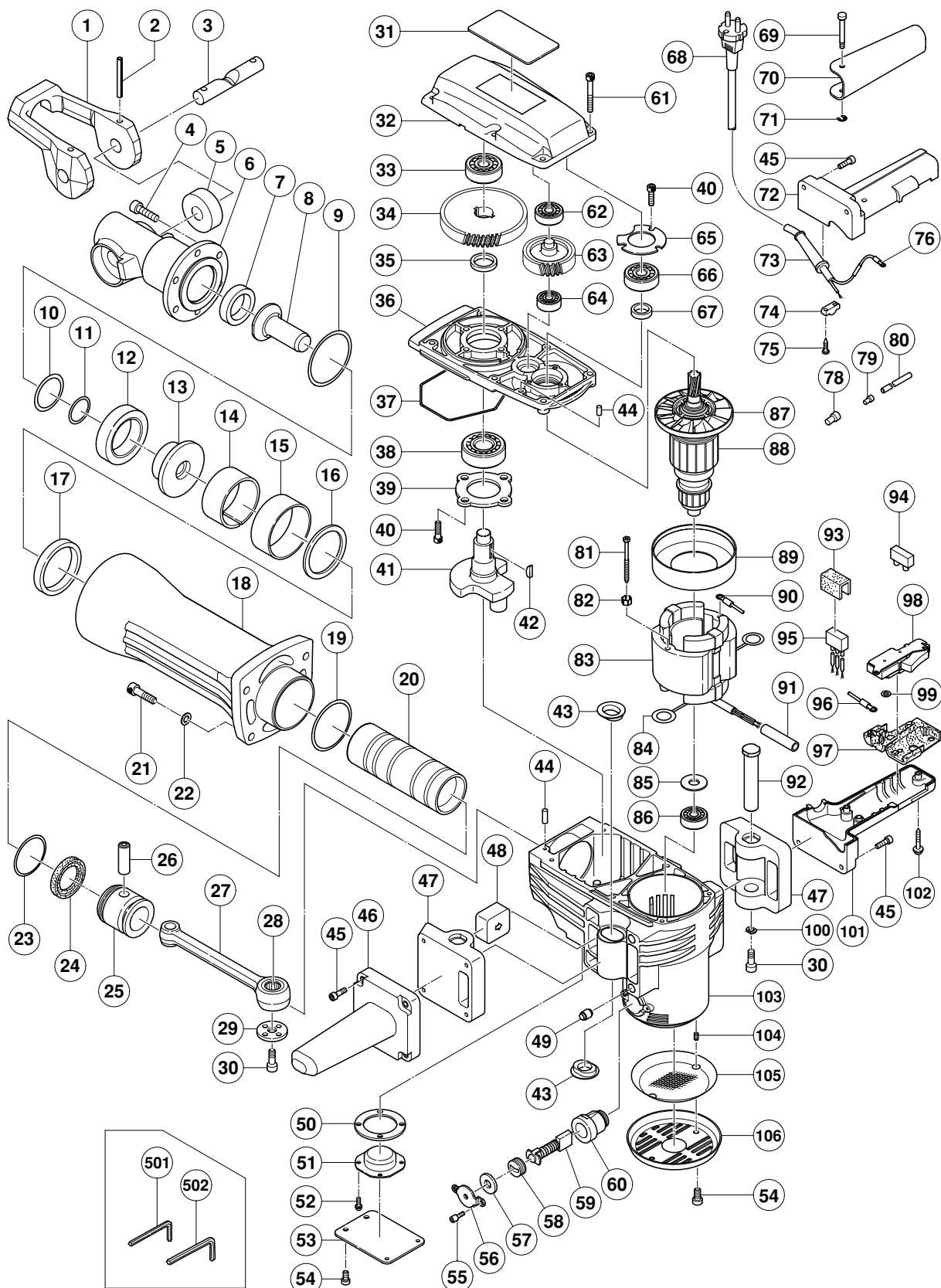
ELECTRIC TOOL PARTS LIST

■ HAMMER

2001・12・25

Model H 70SD

(E1)



PARTS

H 70SD

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	318-221	RETAINER	1		
2	994-416	ROLL PIN D6X55	2		
3	318-222	LEVER PIN	1		
4	306-437	NYLOCK HEX. SOCKET HD. BOLT M8X30	6		
5	305-621	RETAINER DAMPER	2		
6	318-223	FRONT COVER	1		
7	996-369	DAMPER (B)	1		
8	996-367	SECOND HAMMER	1		
9	998-428	O-RING (C)	1		
10	998-427	O-RING (B)	1		
11	998-419	O-RING (E)	1		
12	998-433	DAMPER (A)	1		
13	998-418	SHANK SLEEVE	1		
14	956-963	MOUTH	1		
15	956-962	MOUTH COVER	1		
16	956-961	MOUTH WASHER	1		
17	956-960	URETHANE RING	1		
18	320-489	CYLINDER CASE	1		
19	956-996	O-RING (1AS-60)	1		
20	956-958	STRIKER	1		
21	306-163	NYLOCK HEX. SOCKET HD. BOLT M8X35	4		
22	949-433	BOLT WASHER M8 (10 PCS.)	4		
23	998-414	O-RING (A)	1		
24	998-415	OIL SEAL (A)	1		
25	998-413	PISTON	1		
26	944-928	PISTON PIN	1		
27	998-434	CONNECTING ROD ASS'Y	1	INCLUD.28	
28	944-921	NEEDLE BEARING (NTN 8E-NK 18/20 RDO)	1		
29	956-955	CRANK WASHER	1		
30	996-364	SEAL LOCK HEX. SOCKET HD. BOLT M8X16	3		
31		NAME PLATE	1		
32	319-360	GEAR COVER	1		
33	630-2VV	BALL BEARING 6302VVCMP2L	1		
34	944-916	FINAL GEAR	1		
35	944-915	DISTANCE RING (B)	1		
36	998-412	INNER COVER	1		
37	957-143	SEAL RING (A)	1		
38	620-5DD	BALL BEARING 6205DDCMPS2L	1		
39	956-949	BEARING COVER	1		
40	990-079	SEAL LOCK HEX. SOCKET HD. BOLT M5X16	7		
41	998-430	CRANK SHAFT	1		
42	956-850	WOODRUFF KEY 4X16	2		
43	318-655	DAMPER (B)	4		
44	944-918	PIN D5X15.8	2		
45	993-496	SEAL LOCK HEX. SOCKET HD. BOLT M6X30	8		
46	305-633	SIDE HANDLE	1		
47	319-365	HANDLE HOLDER	2		
48	319-364	HANDLE DAMPER (B)	2		
49	310-124	HANDLE DAMPER	4		
50	956-969	HOLDER SEAL	1		
51	998-416	HOLDER	1		

PARTS

H 70SD

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
52	987-203	SEAL LOCK SCREW (W/SP. WASHER) M4X12	4		
53	998-417	COVER PLATE	1		
54	991-690	SEAL LOCK HEX. SOCKET HD. BOLT M5X12	6		
55	983-162	SEAL LOCK HEX. SOCKET HD. BOLT M4X12	4		
56	956-972	CAP COVER	2		
57	944-960	CAP RUBBER	2		
58	940-540	BRUSH CAP	2		
59	999-086	CARBON BRUSH (AUTO STOP TYPE) (1 PAIR)	2		
60	956-984	BRUSH HOLDER	2		
61	986-940	SEAL LOCK HEX. SOCKET HD. BOLT M6X45	6		
62	620-1VV	BALL BEARING 6201VVCMP2L	1		
63	956-948	COUNTER GEAR	1		
64	600-1VV	BALL BEARING 6001VVCMP2L	1		
65	944-911	BEARING COVER (A)	1		
66	620-3DD	BALL BEARING 6203DDCMP2L	1		
67	944-907	DISTANCE RING (A)	1		
*	68	500-390Z	CORD	1	(CORD ARMOR D10.7)
*	68	500-466Z	CORD	1	(CORD ARMOR D10.2) FOR GBR (110V)
*	68	500-450Z	CORD	1	(CORD ARMOR D10.7) FOR GBR (230V)
*	68	500-247Z	CORD	1	(CORD ARMOR D10.7) FOR SAF
*	68	500-408Z	CORD	1	(CORD ARMOR D8.2) FOR AUS
	69	992-870	PIN	1	
	70	992-869	SWITCH LEVER	1	
	71	968-643	RETAINING RING (E-TYPE) FOR D4 SHAFT	1	
	72	305-636	HANDLE (A)	1	
*	73	958-049	CORD ARMOR D8.2	1	
*	73	940-778	CORD ARMOR D10.7	1	
	74	960-266	CORD CLIP	1	
	75	982-095	TAPPING SCREW (W/WASHER) D4X20	2	
*	76	980-063	TERMINAL	1	
*	76	930-804	TERMINAL M4.0 (10 PCS.)	1	FOR GBR (110V)
	78	959-141	CONNECTOR 50092 (10 PCS.)	2	
	79	959-140	CONNECTOR 50091 (10 PCS.)	1	
	80	996-438	VINYL TUBE (A) (I.D.7XT0.5X50)	2	
	81	960-251	HEX. HD. TAPPING SCREW D5X65	2	
	82	956-764	SPECIAL WASHER	2	
*	83	340-488C	STATOR ASS'Y 110V	1	INCLUD.84
*	83	340-488E	STATOR ASS'Y 230V	1	INCLUD.84
*	83	340-488F	STATOR ASS'Y 240V	1	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	1	INCLUD.87
*	88	360-286E	ARMATURE ASS'Y 220V-230V	1	INCLUD.87
*	88	360-286F	ARMATURE ASS'Y 240V	1	INCLUD.87
	89	306-098	FAN GUIDE	1	
	90	986-277	INTERNAL WIRE	1	
	91	319-363	VINYL TUBE	1	
	92	319-366	HANDLE PIN	2	
	93	930-153	SUPPORT (B)	1	

PARTS

H 70SD

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
* 94	938-307	PILLAR TERMINAL	1	EXCEPT FOR SAF	
95	317-491	NOISE SUPPRESSOR	1		
* 96	981-974	INTERNAL WIRE	1		
* 96	306-681	INTERNAL WIRE	1	FOR GBR	
97	990-082	SUPPORT (E)	1		
98	992-891	SWITCH (A) (1P SCREW TYPE) W/O LOCK	1		
99	949-423	WASHER M4 (10 PCS.)	1		
100	319-367	WASHER	2		
101	305-631	HANDLE (B)	1		
102	301-653	TAPPING SCREW (W/FLANGE) D4X20 (BLACK)	2		
103	319-361	HOUSING ASS'Y	1	INCLUD.60,104	
104	938-477	HEX. SOCKET SET SCREW M5X8	2		
105	319-362	MESH	1		
106	306-099	TAIL COVER	1		

STANDARD ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
501	943-277	HEX. BAR WRENCH 3MM	1		
502	872-422	HEX. BAR WRENCH 6MM	1		

OPTIONAL ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
601	996-373	COLD CHISEL 410MM (HEX. SHANK TYPE)	1		
602	985-231	COLD CHISEL 520MM (HEX. SHANK TYPE)	1		
603	996-374	CUTTER W75X410MM (HEX. SHANK TYPE)	1		
604	985-232	CUTTER W75X520MM (HEX. SHANK TYPE)	1		
605	985-233	SCOOP 546L (HEX. SHANK TYPE)	1		
606	996-372	BULL POINT 410MM (HEX. SHANK TYPE)	1		
607	306-441	SERVICE KIT (H 65SB)	1	INCLUD.4,9,10,11,17,19,23,24,37,59,608,609,611	
608	980-927	GREASE FOR HAMMER.HAMMER DRILL (500G)	1		
609	981-840	GREASE (A) FOR HAMMER.HAMMER DRILL (30G)	1		
610	308-471	GREASE FOR HAMMER.HAMMER DRILL (70G)	1		
611	930-035	GREASE (SEP-3A) (100G)	1		

