

MODEL

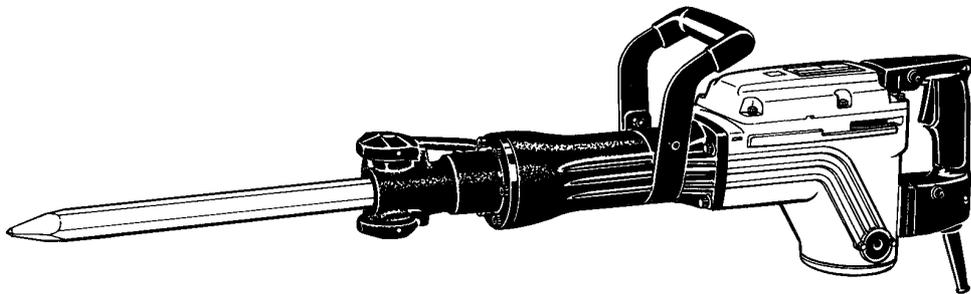
H 65SD

HITACHI
POWER TOOLS

HAMMER
H 65SD

TECHNICAL DATA
AND
SERVICE MANUAL

H



LIST No. E452

Sep. 1999

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-1	MAKITA	HM1303B
C-2	MAKITA	HM1500B

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 65SD

2. MARKETING OBJECTIVE

The Model H 65SD is a grease-sealed and double-insulated electric hammer. It has a tool retainer to permit 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. The Model H 65SD has been developed based on the current Model H 65SB, which features the use of Hitachi 30 mm hexagonal and round shank tools. Chipping and demolishing capabilities are equivalent to the Model H 65SB.

3. APPLICATIONS

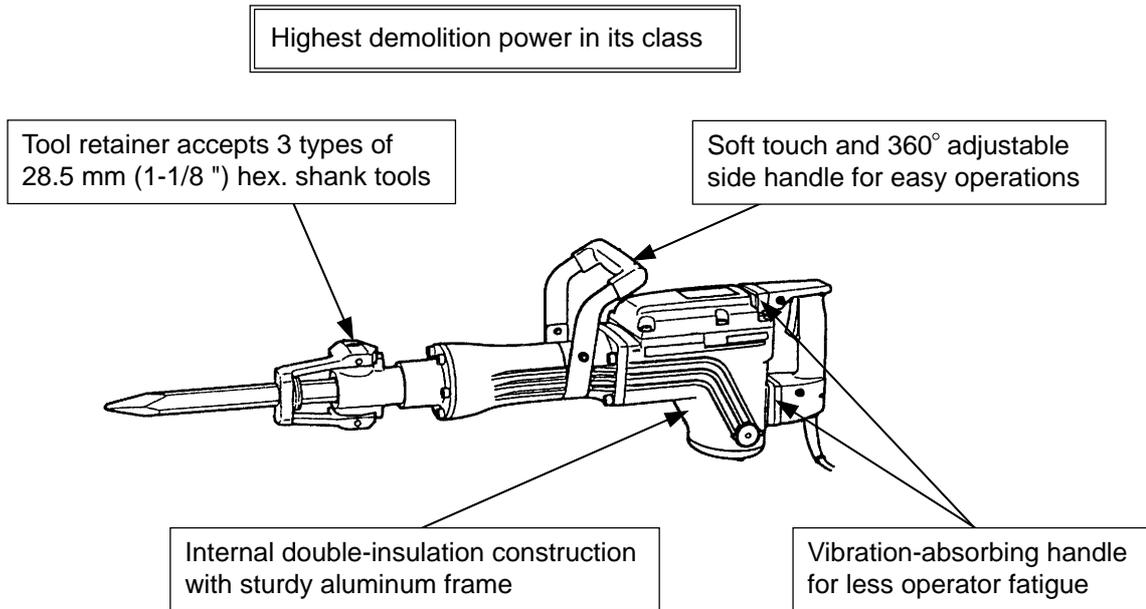
- Demolishing of concrete and similar materials.
- Groove and channel digging in concrete.
- Groove and channel digging in asphalt and gravel roads.
- Tamping/compacting of asphalt and graveled roads.
- Cutting of asphalt.

[Typical Applications]

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

4. SELLING POINTS

Maker • Model	Weight	Overall length
HITACHI H 65SD	18.0 kg (39.7 lbs)	823 mm (32-13/32 ")
HITACHI H 65SB	16.0 kg (35.3 lbs)	726 mm (28-37/64 ")
HITACHI H 65	18.0 kg (39.7 lbs)	807 mm (31-49/64 ")
C-1	16.0 kg (35.3 lbs)	823 mm (32-13/32 ")
C-2	19.0 kg (41.9 lbs)	807 mm (31-49/64 ")



4-1. Selling Point Descriptions

4-1-1. Largest demolition power in this class

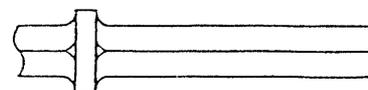
The powerful impact force of each blow ensures efficient and easy demolishing concrete.

The demolition performance is 1.0 – 1.3 times more powerful than that of similar products.

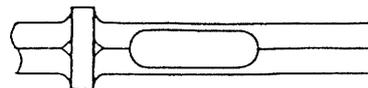
Maker • Model	Ratio of demolished weight (%)
HITACHI H 65SD	100
HITACHI H 65SB	100
HITACHI H 65	97
C-1	80
C-2	90

4-1-2. Tool retainer accepts 3 types of 28.5 mm (1-1/8 \") hex. shank tools

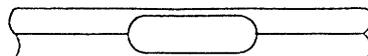
Three types of shank tools (Fig. 1) can be used in the Model H 65SD by turning the tool retainer in the following two methods.



Air tool shank tool



Standard hex. shank tool (combo type)



Retaining groove tool without collar

Fig. 1

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

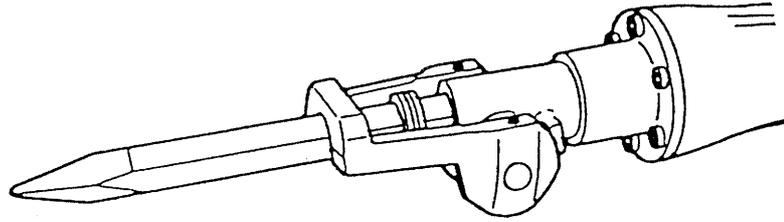


Fig. 2

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

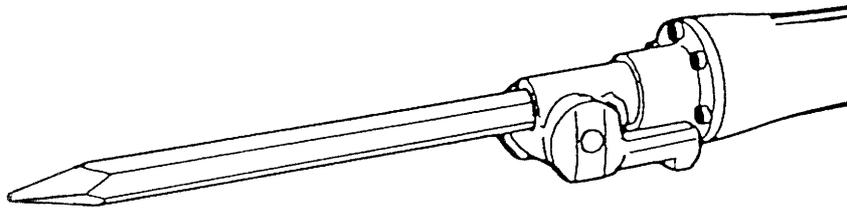


Fig. 3

4-1-3. Vibration-absorbing handle for less operator fatigue

There are two vibration-absorbing rubber pads, illustrated below, designed to efficiently absorb the vibration from the main body of the tool and minimize its transmission to the arms of the operator. One is mounted between the handle and the gear cover; the other is mounted between the handle and the housing.

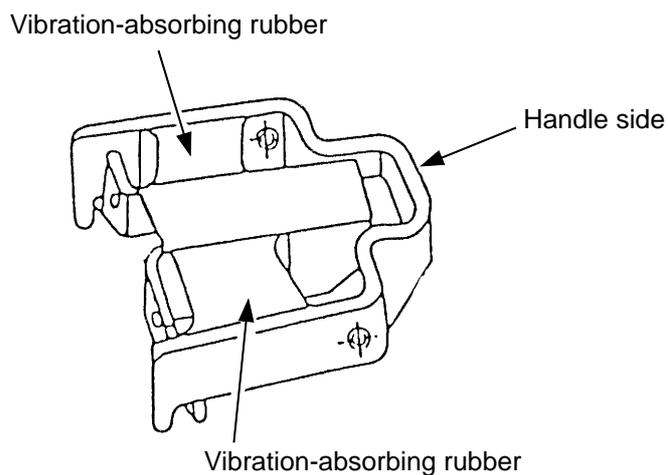
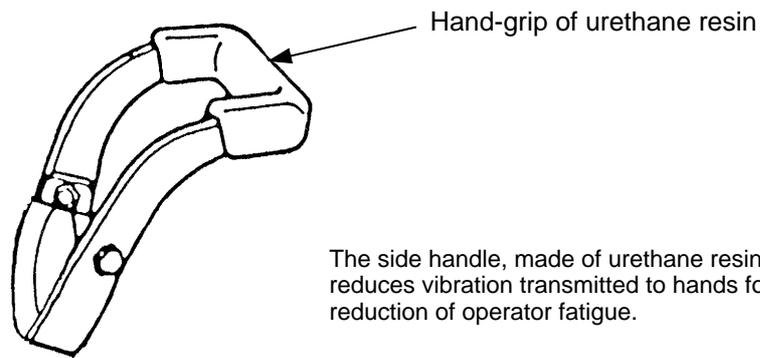


Fig. 4



Vibration-absorbing side handle

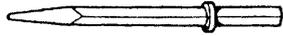
Fig. 5

5. SPECIFICATIONS

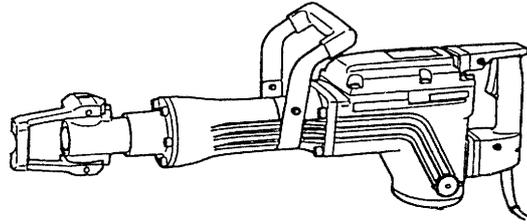
Item		H 65SD
Power source		Single-phase AC 50/60 Hz
Voltage (V)		110, 115, 230, 240
Motor type		AC single-phase series commutator motor
Insulation structure		Double insulation
Enclosure		Materials: Aluminum alloy die casting, Cast aluminum alloy, Glass-fiber reinforced plastic resin Paint: Hammer-net silver green and black
Switch		Trigger switch (with stopper)
Type of handles		D-shaped handle and side 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
Striking speed	No-load	1,800/ 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 with steel tool case
Standard accessories		<ul style="list-style-type: none"> • Hex. bar wrench (for M4) 1 • Hex. bar wrench (for M8) 1 • Steel tool case 1 • Side handle 1

5-1. Optional Accessories

1. Demolition work



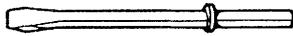
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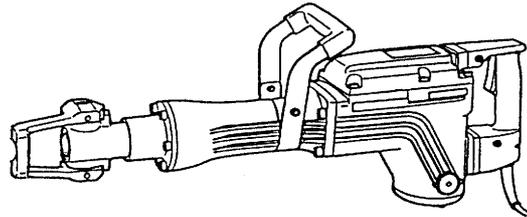
(1) Bull point

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

2. Grooving and chiseling work



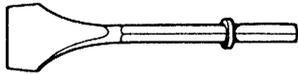
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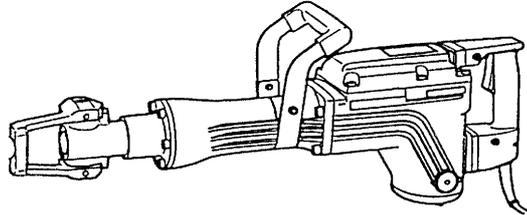
(1) Cold chisel

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

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



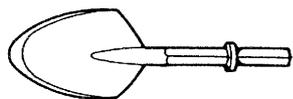
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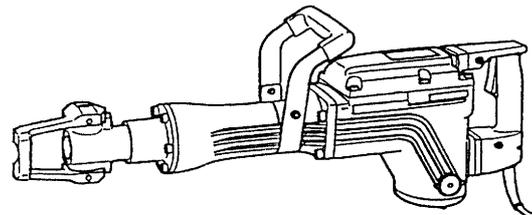
(1) Cutter

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

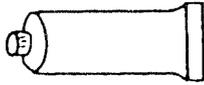
Overall length	Code No.
546 mm (21-1/2")	985233

5. Grease for impact drill



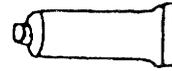
500 g (1.1 lbs) Can

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-1	C-2
Model name		H 65SD	H 65SB	H 65		
Power input	W	1,240	1,240	1,240	1,300	1,430
Full-load impact rate	bpm	1,400	1,400	1,400	1,450	1,300
Dimensions	Length	mm 823 (32-13/32")	726 (28-37/64")	807 (31-49/64")	823 (32-13/32")	807 (31-49/64")
	Height	mm 235 (9-1/4")	235 (9-1/4")	231 (9-3/32")	212 (8-11/32")	215 (8-15/32")
	Width	mm 120 (4-23/32")	120 (4-23/32")	120 (4-23/32")	120 (4-23/32")	— (—)
Striking energy per stroke	J	42	42	39.5	39.5	40.3
Insulation structure	—	Double insulation	Double insulation	Single insulation	Double insulation	Double insulation
No-load noise level	dB(A)	92	92	92	94	93
Weight (without cord)	kg	18.0 (39.7 lbs)	16.0 (35.3 lbs)	18.0 (39.7 lbs)	16.0 (35.3 lbs)	19.0 (41.9 lbs)

6-2. Demolition Performance Comparisons

The data shown in Fig. 6 are obtained in actual factory tests, and are for reference only. The demolished amount may vary in accordance with operating conditions, operator skill, etc.

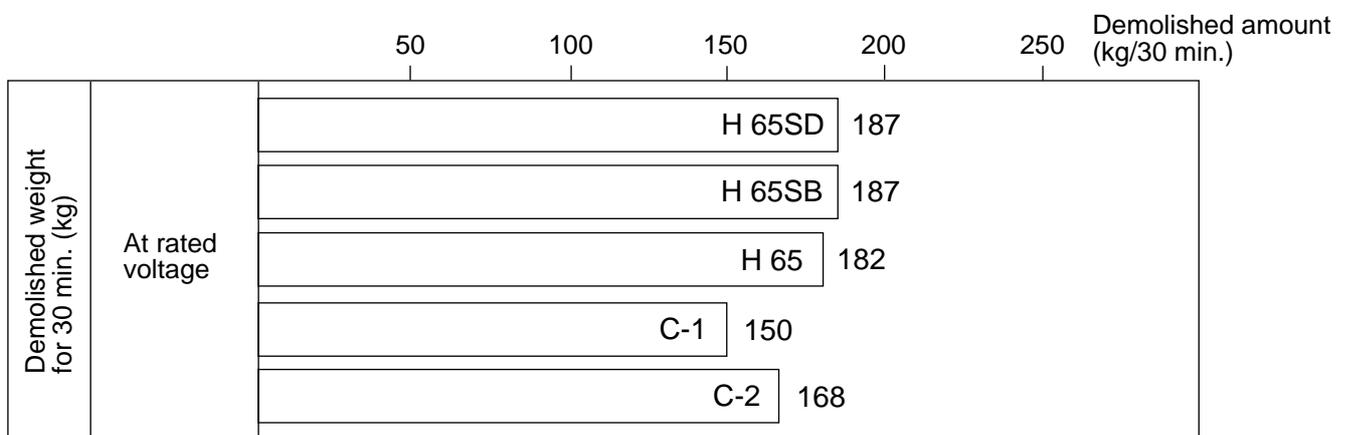


Fig. 6

7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Model H 65SD 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 65SD unit is provided with a Caution Plate (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 the U.S.A. and Canada

Hitachi Koki MADE IN JAPAN

- **WARNING** - • To reduce the risk of injury, user must read and understand instruction manual.
- AVERTISSEMENT** • Afin de réduire le risque de blessures, l'utilisateur doit lire et bien comprendre le mode d'emploi.

Caution Plate on the back of tool case lid

CAUTION

- The grease should be exchanged once every six months after the machine is purchased. The authorized HITACHI power tool repair shop or the shop from where the tool was bought should be instructed when it is time to exchange the grease.
- Before working on walls, floors, etc., check for buried or hidden electrical wires and water or gas pipes.

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 the 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 five (5) O-rings 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.

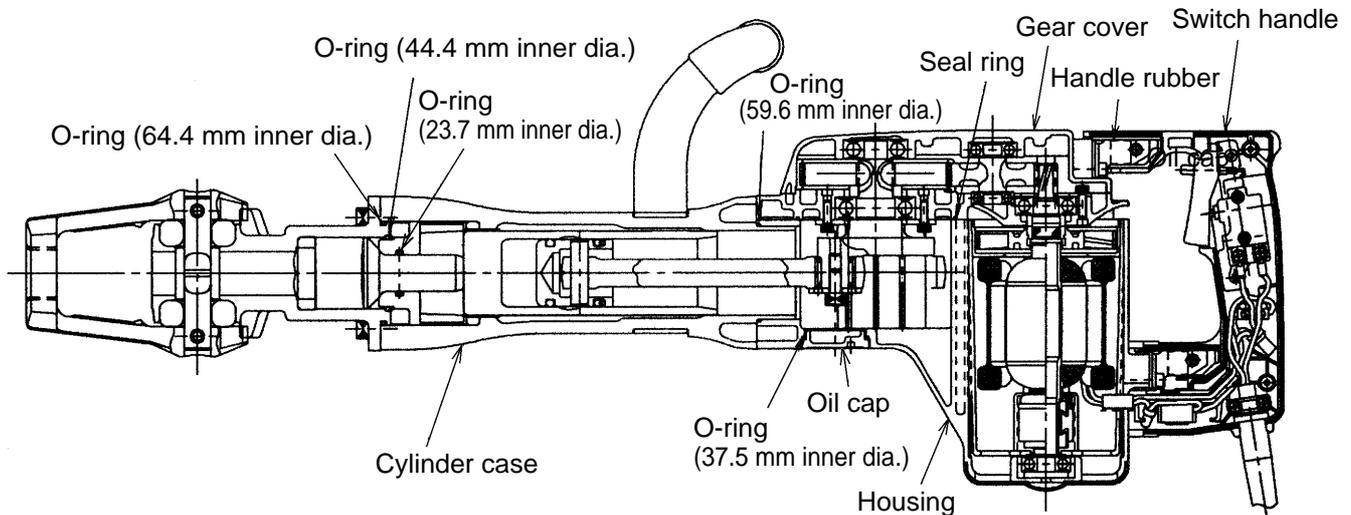


Fig. 7

8-2. Vibration-Absorbing Construction

There are vibration-absorbing cushions (handle rubbers) provided between the switch handle and the crank case and motor housing which allow significantly less vibration to transfer from the tool to the arm of the operator than conventional type hammers.

Vibration-absorbing rubber

As shown in Fig. 8, the main unit and handle are coupled only by the vibration-absorbing rubber.

As vibration is absorbed by the shearing type vibration-absorbing construction, the vibration-absorbing effect is high.

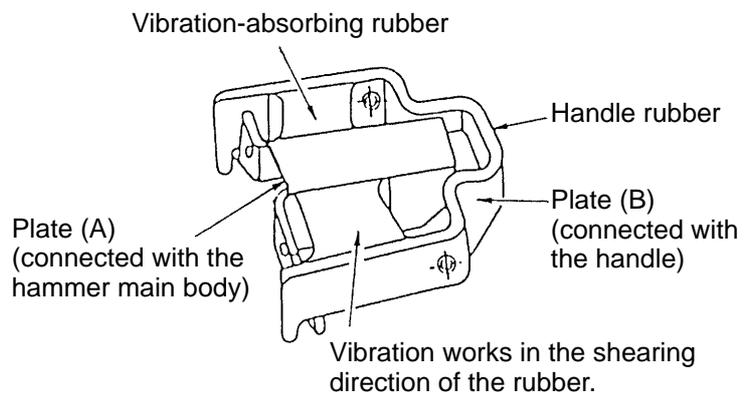


Fig. 8

8-3. Tool Retainer

Three types of shank tools (Fig. 1) can be mounted to the Model H 65SD 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. 9). Put the retainer back in position to fix the tool shank (Fig. 10).

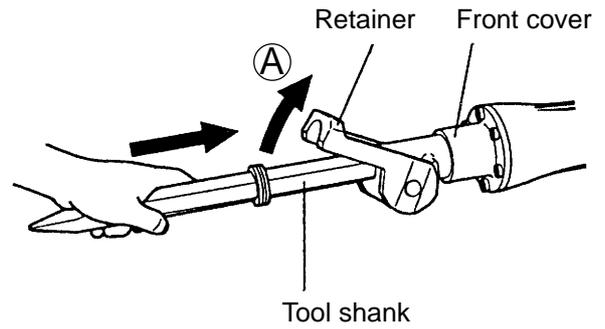


Fig. 9

- (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. 11). Turn the retainer in (C) direction to fix the tool shank (Fig. 12).

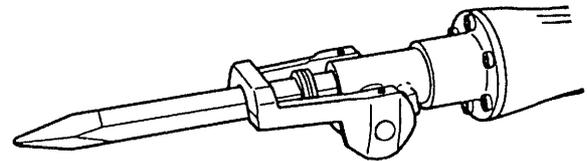


Fig. 10

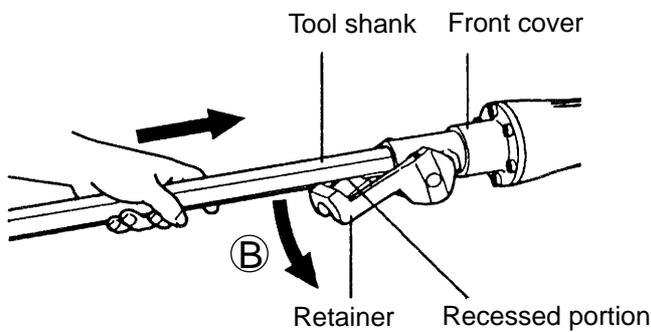


Fig. 11

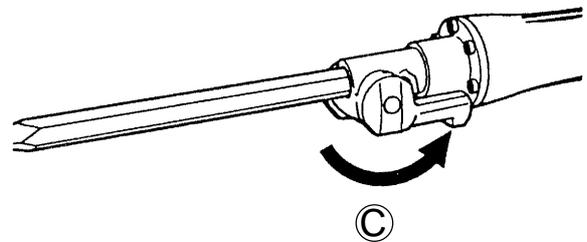


Fig. 12

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 [74]

- (1) Loosen the four M4 x 12 Seal Lock Hex. Socket Hd. Bolts [51], remove the Cap Covers [52], Cap Rubbers [53] and Brush caps [54], and take out the Carbon Brushes [55]. At this time, be very careful not to lose the disassembled parts.
- (2) Loosen the four M8 x 35 Nylock Hex. Socket Hd. Bolts [25], and remove the Cylinder Case [18]. Next, after loosening the M8 x 16 Seal Lock Hex. Socket Hd. Bolt [35], the Connecting Rod Ass'y [29] and Crank Washer [34] can be disassembled. Leave the Striker [22] and Piston [28] as they are.
- (3) Loosen the four M5 x 16 Seal Lock Hex. Socket Hd. Bolts [60], and take off Handle (A) [81] and Handle (B) [86]. Next, loosen the six M6 x 45 Seal Lock Hex. Socket Hd. Bolts [57], and disassemble the Gear Cover [39] and Counter Gear [62]. Then, by inserting a flat-blade screwdriver or similar tool into one of the air vents of the Inner Cover [43] and lifting it upwards, the Inner Cover [43], Armature Ass'y [74], Crank Shaft [48], and related parts can be removed in a single body.
- (4) As illustrated in Fig. 13, support the Inner Cover [43] 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 [74] from the Inner Cover [43].

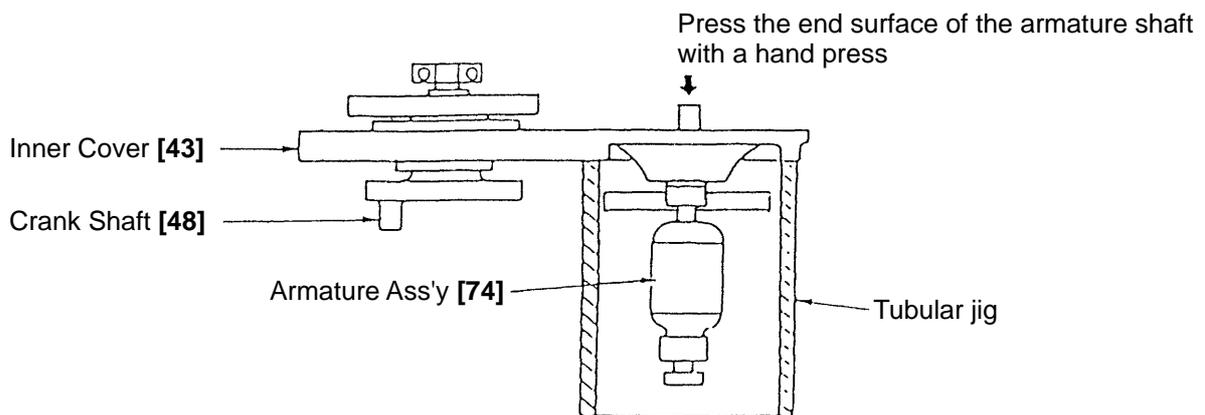


Fig. 13

• Disassembly of the Crank Shaft [48] section

First, remove the four M5 x 16 Seal Lock Hex. Socket Hd. Bolts [47] which fix the Bearing Cover [46]. Then, as illustrated in Fig. 14, support the lower surface of the Inner Cover [43] with an appropriate tubular jig, align an appropriate steel rod with the end surface of the Crank Shaft [48], and press down on the steel rod with a hand press. The 6205DDCM Ball Bearing [45], Distance Ring (B) [42], Final Gear [41], two Woodruff Keys [64], and Crank Shaft [48] can then be disassembled from the Inner Cover [43].

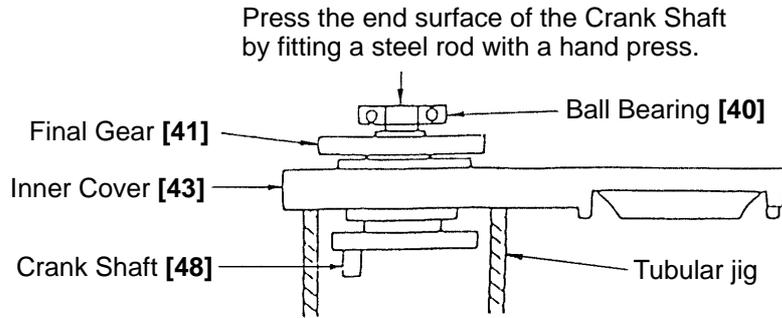


Fig. 14

- Disassembly of remaining parts from the Inner Cover [43]

Loosen the three M5 x 16 Seal Lock Hex. Socket Hd. Bolts [47], and take out Bearing Cover (A) [70] and the 6203DDCM Ball Bearing [71].

- Disassembly of the Mouth [14] and related parts

First, remove the six M8 x 30 Nylock Hex. Socket Hd. Bolts [4], and separate the Front Cover [5] from the Cylinder Case [18]. The Second Hammer [7], 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) [10]

As O-Ring (E) [10] is installed in the inner portion of the Shank Sleeve [13], it may be difficult to remove. As illustrated in Fig. 15, 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 [22] and related parts

Remove the four M8 x 35 Nylock Hex. Socket Hd. Bolts [25], and separate the Cylinder Case [18] from the Housing Ass'y [50]. From the Cylinder Case [18], take out the Striker [22], Piston [28], and Connecting Rod Ass'y [29] in a single body. Holding the Striker [22] firmly in one hand, grasp the Connecting Rod Ass'y [29] in the other hand and pull it forcefully to separate it from the Striker. Finally, extract the Piston Pin [27] from the Piston [28], and separate the Piston from the Connecting Rod Ass'y [29].

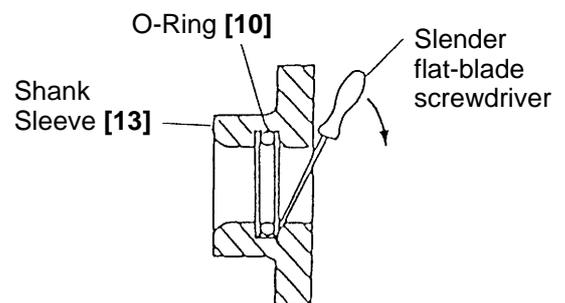


Fig. 15

- Disassembly of the Retainer [1] section

Remove the two D6 x 55 Roll Pins [11] from the 6 mm dia. holes of the Retainer [1] and remove the Lever Pin [2]. The Retainer [1] and two Retainer Dampers [3] can then be removed from the Front Cover [5] (Fig. 16).

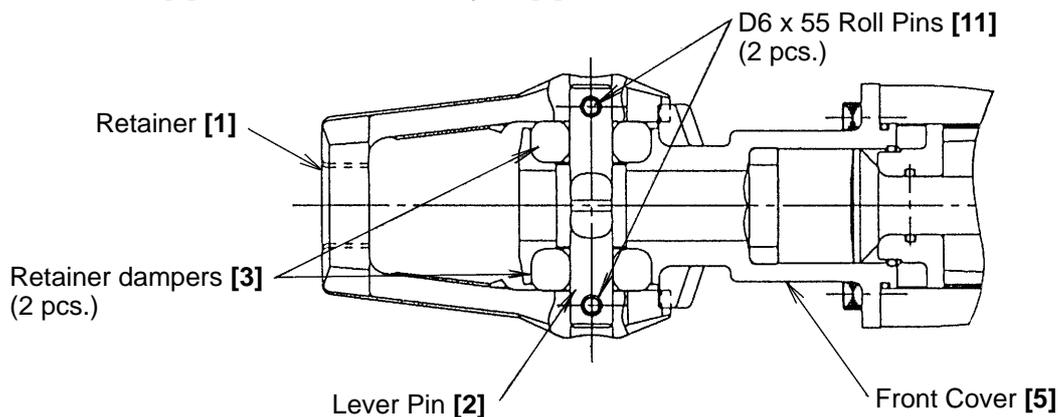


Fig. 16

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 [48] section

Press-fit the 6205DDCM Ball Bearing [45] into the Inner Cover [43], and fasten the Bearing Cover [46] onto the Inner Cover [43] with the four M5 x 16 Seal Lock Hex. Socket Hd. Bolts [47]. Support the inner race of the 6205DDCM Ball Bearing [45] with an appropriate jig, and press-fit the Crank Shaft [48] into the Ball Bearing. Next, insert Distance Ring (B) [42] and two Woodruff Keys [64] into the Crank Shaft [48], and press-fit the Final Gear [41] and 6302VVC M Ball Bearing [40] with a hand press.

- Reassembly of the Armature Ass'y [74]

Press-fit the 6203DDCM Ball Bearing [71] into the Inner Cover [43], and fasten Bearing Cover (A) [70] onto the Inner Cover with the three M5 x 16 Seal Lock Hex. Socket Hd. Bolts [47].

- Reassembly of the Striker [22] (Two possible methods)

(1) After the Connecting Rod Ass'y [29] has been assembled into the Housing Ass'y [50], mount the Piston [28] and press it into the Striker [22].

(2) Mount the Piston [28] onto the Connecting Rod Ass'y [29], and push down on the Connecting Rod Ass'y to press the Piston into the Striker [22].

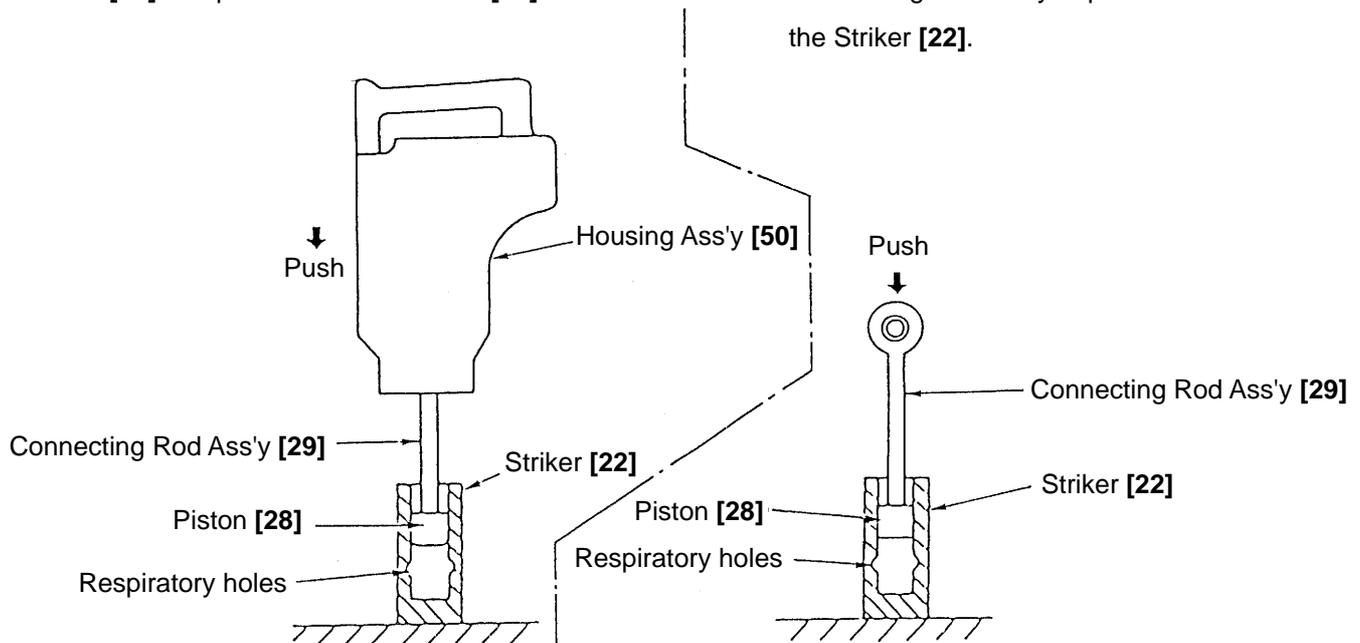


Fig. 17

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

- Mounting of Oil Seal (A) [24]

When mounting Oil Seal (A) [24] on the Piston [28], ensure that the lip portion of the Oil Seal is directed toward the rear surface of the Piston, 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.

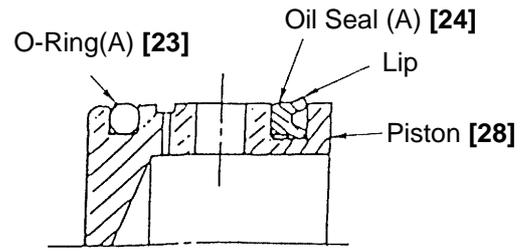


Fig. 18

- 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 [3] of the Front Cover [5], and Lever Pin [2]. Mount the two Retainer Dampers [3] to the Front Cover [5] and then mount the Retainer [1]. Insert the Lever Pin [2] into the 17.5 mm dia. hole of the Retainer [1] facing the recessed portion of the Lever Pin [2] to the hexagonal hole of the Front Cover [5]. At this time, align the 6.5 mm dia. hole of the Retainer [1] with the 7 mm dia. hole of the Lever Pin [2]. Drive the D6 x 55 Roll Pin [11] into the 6.5 mm dia. hole of the Retainer [1] approximately 5 mm under the end surface of the Retainer [1] (Fig. 19).

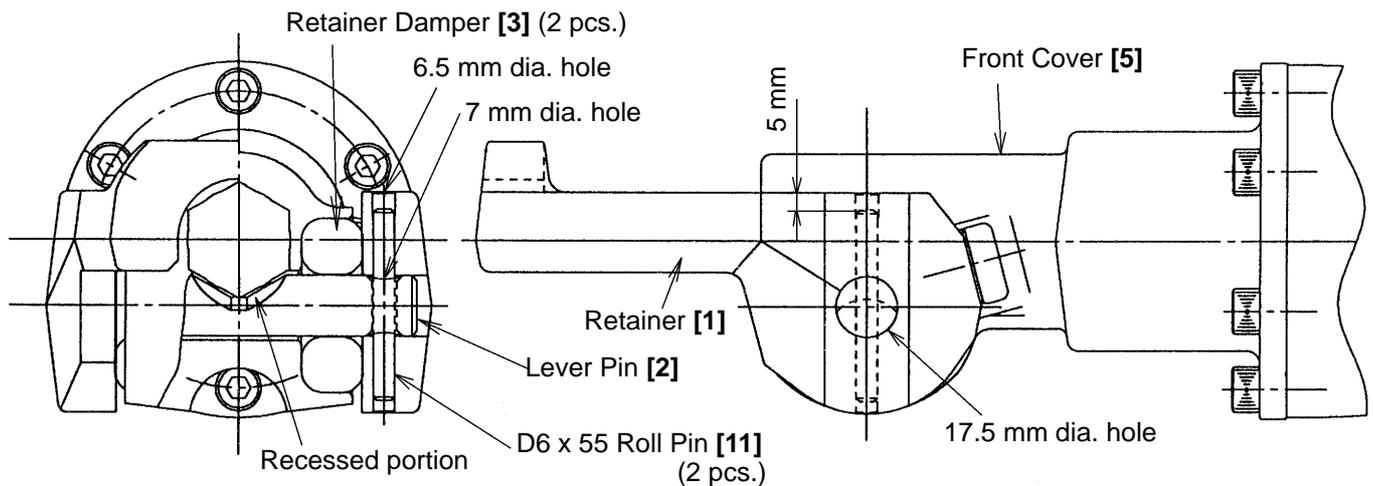


Fig. 19

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: M8 x 30 [4]
 - Cylinder case fixing bolts: M8 x 35 [25]
 - Fixing bolt on the Connecting Rod Ass'y [29]: M8 x 16 [35]

[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	$4.41^{\pm 0.49}$ N•m ($45^{\pm 5}$ kgf•cm, $39.1^{\pm 4.3}$ in-lbs)
(2) M5 hexagon socket hd. bolts	$7.84^{+1.96}_0$ N•m (80^{+20}_0 kgf•cm, $69.5^{+12.4}_0$ in-lbs)
(3) M6 hexagon socket hd. bolts	$9.80^{+1.96}_0$ N•m (100^{+20}_0 kgf•cm, $86.9^{+17.4}_0$ in-lbs)
(4) M8 hexagon socket hd. bolts	$29.4^{+1.96}_0$ N•m (300^{+20}_0 kgf•cm, $260^{+17.4}_0$ in-lbs)
(5) D4 tapping screw	$1.96^{\pm 0.49}$ N•m ($20^{\pm 0.5}$ kgf•cm, $17.4^{+4.3}_0$ 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

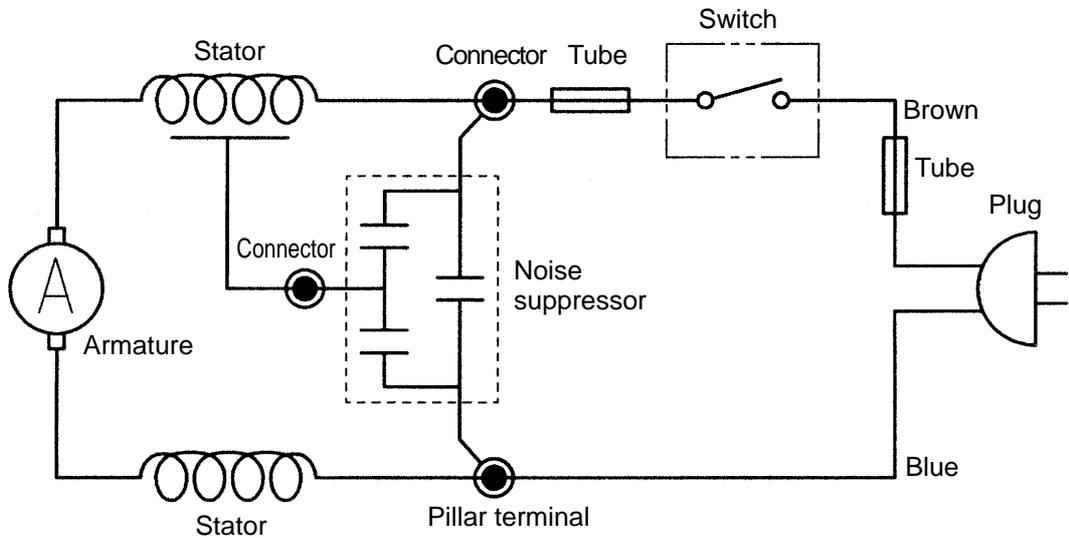


Fig. 20

- Wiring diagram of products without noise suppressor

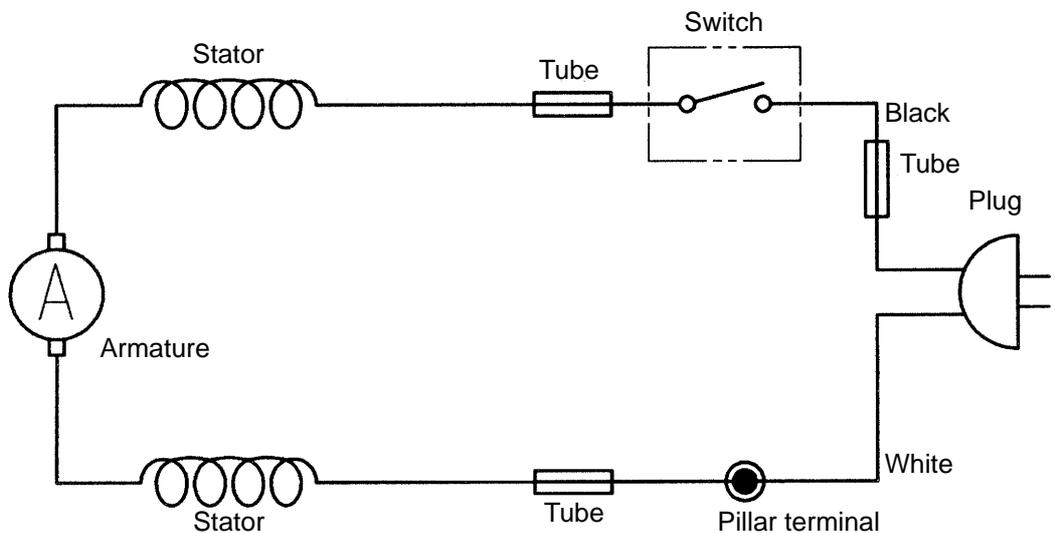


Fig. 21

- Schematic diagram of products with noise suppressor or without noise suppressor

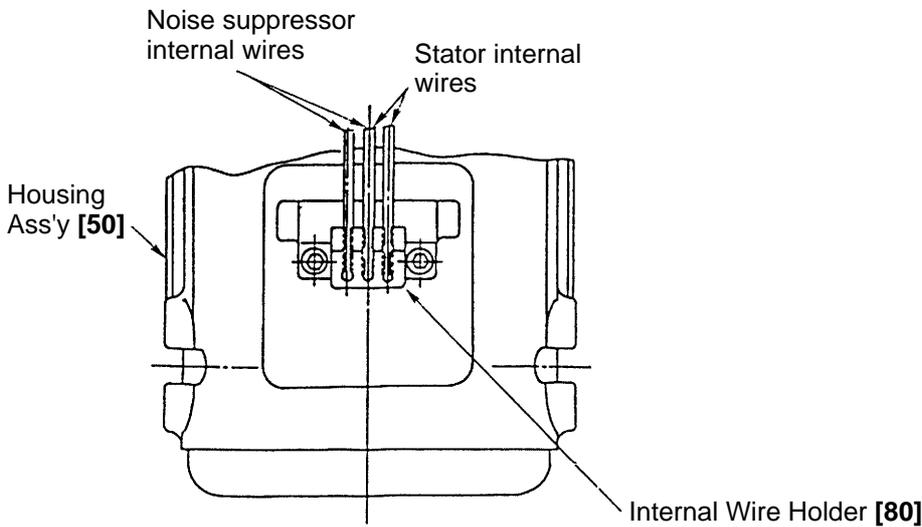
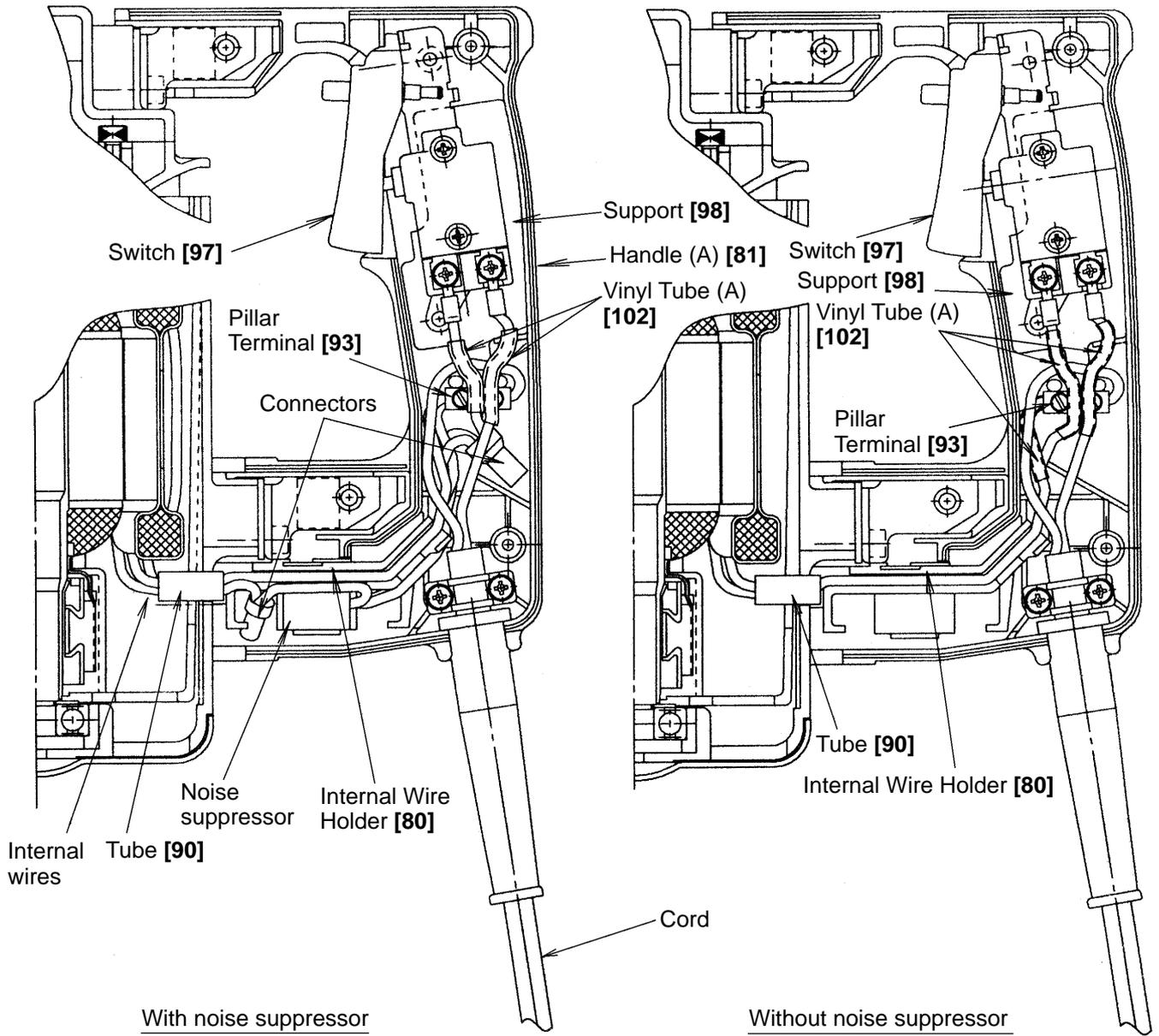


Fig. 22

- Safety precautions in wiring work (See Fig. 22.)

Switch (B) [97] is flexibly supported by the Support [98] to protect it from damage from vibration which could lead to possible electrical shock. Ensure without fail that the Support is properly mounted. Also, ensure that the leadwires are properly covered by Vinyl Tube (A) [102], and that the leadwires of the Stator Ass'y [76] and the grounding leadwire are properly supported by the Internal Wire Holder [80].

9-1-6. Insulation Tests

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

Insulation resistance: 7 M Ω 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

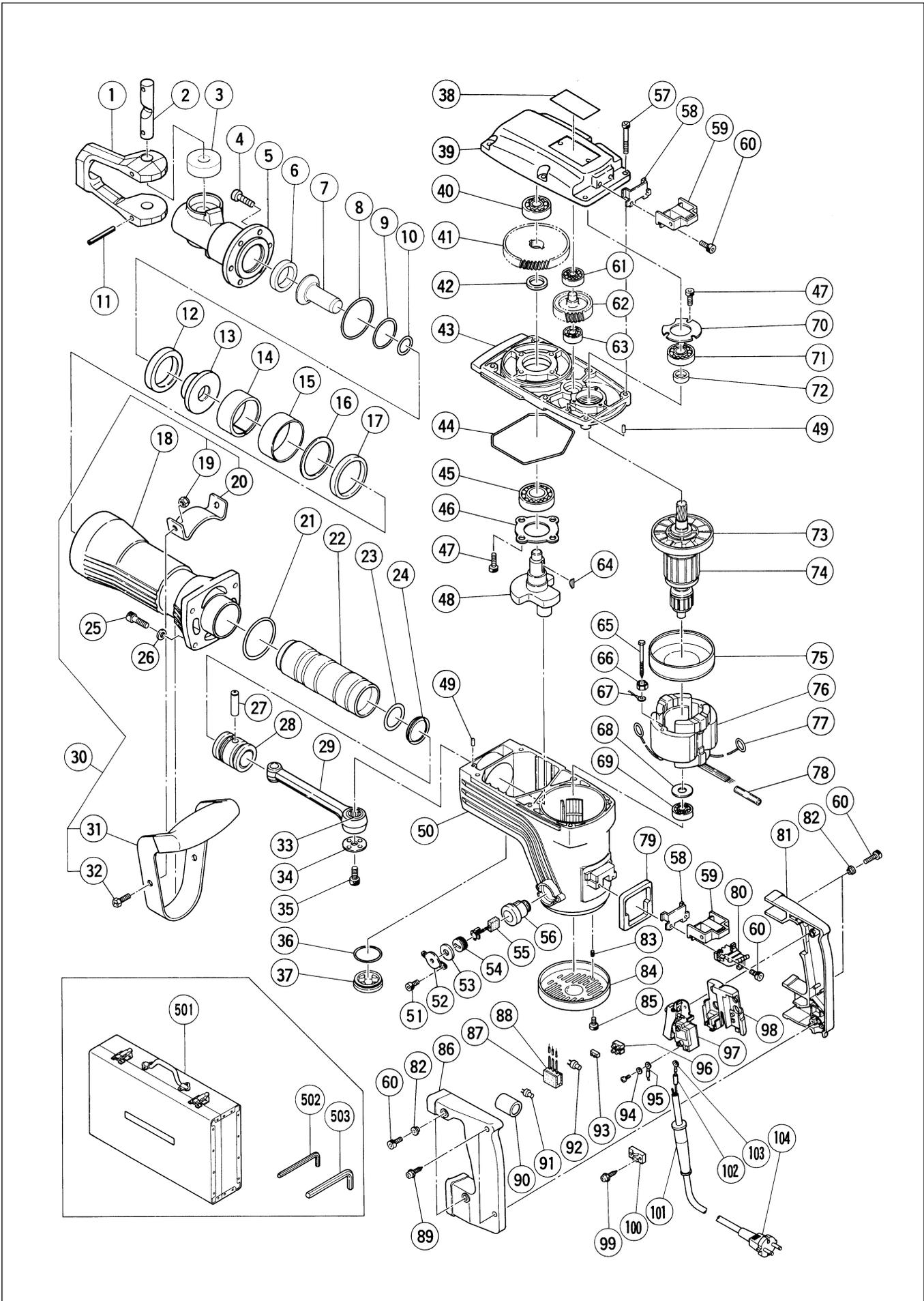
After no-load operation for 30 minutes, the no-load current value should be as follows:

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 65SD		Work Flow						
		Switch Cord	→					Housing Ass'y
	General Assembly			Handle		Gear Cover	Armature Ass'y	
	Fixed Cost							
	Switch	} 0 min.						
	Handle							
	Front Cover Retainer		Front Cover Retainer	Mouth Mouth Cover Urethane Ring Shank Sleeve Damper	Cylinder Case		Ball Bearing (6201) Ball Bearing (6203)	
	Cord	10 min.						
	Others	20min.						
				Striker Piston Connecting Rod Ass'y Needle Bearing			Counter Gear Ball Bearing (6001) Ball Bearing (6201)	
							Ball Bearing (6302) Final Gear Crank Shaft Ball Bearing (6205) Inner Cover	

Assembly Diagram for H 65SD



PARTS

H 65SD

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	318-221	RETAINER	1	
2	318-222	LEVER PIN	1	
3	305-621	RETAINER DAMPER	2	
4	306-437	NYLOCK HEX. SOCKET HD. BOLT M8X30	6	
5	318-223	FRONT COVER	1	
6	996-369	DAMPER (B)	1	
7	996-367	SECOND HAMMER	1	
8	998-428	O-RING (C)	1	
9	998-427	O-RING (B)	1	
10	998-419	O-RING (E)	1	
11	994-416	ROLL PIN D6X55	2	
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	306-164	CYLINDER CASE (BLACK)	1	
19	944-950	U-NUT (B) M8	2	
20	944-948	HANDLE STAY	1	
21	956-996	O-RING (1AS-60)	1	
22	956-958	STRIKER	1	
23	998-414	O-RING (A)	1	
24	998-415	OIL SEAL (A)	1	
25	306-163	NYLOCK HEX. SOCKET HD. BOLT M8X35	4	
26	949-433	BOLT WASHER M8 (10 PCS.)	4	
27	944-928	PISTON PIN	1	
28	998-413	PISTON	1	
29	998-434	CONNECTING ROD ASS'Y	1	INCLUD.33
30	306-165	SIDE HANDLE ASS'Y	1	INCLUD.19,20,31,32
31	306-166	GRIP	1	
32	949-655	HEX. SOCKET HD. BOLT M8X16 (10 PCS.)	2	
33	944-921	NEEDLE BEARING (NTN 8E-NK 18/20 RDO)	1	
34	956-955	CRANK WASHER	1	
35	996-364	SEAL LOCK HEX. SOCKET HD. BOLT M8X16	1	
36	980-717	O-RING (S-38)	1	
37	990-945	OIL CAP ASS'Y	1	INCLUD.36
38		NAME PLATE	1	
39	998-429	GEAR COVER	1	
40	630-2VV	BALL BEARING 6302VVCMP2L	1	
41	944-916	FINAL GEAR	1	
42	944-915	DISTANCE RING (B)	1	
43	998-412	INNER COVER	1	
44	957-143	SEAL RING (A)	1	
45	620-5DD	BALL BEARING 6205DDCMP2L	1	
46	956-949	BEARING COVER	1	
47	990-079	SEAL LOCK HEX. SOCKET HD. BOLT M5X16	7	
48	998-430	CRANK SHAFT	1	
49	944-918	PIN D5X15.8	2	
50	306-097	HOUSING ASS'Y	1	INCLUD.56,83
51	983-162	SEAL LOCK HEX. SOCKET HD. BOLT M4X12	4	

* : ALTERNATIVE PARTS

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PARTS

H 65SD

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
52	956-972	CAP COVER	2		
53	944-960	CAP RUBBER	2		
54	940-540	BRUSH CAP	2		
55	999-086	CARBON BRUSH (AUTO STOP TYPE) (1 PAIR)	2		
56	956-984	BRUSH HOLDER	2		
57	986-940	SEAL LOCK HEX. SOCKET HD. BOLT M6X45	6		
58	980-750	GUIDE PLATE	2		
59	980-727	HANDLE RUBBER	2		
60	990-079	SEAL LOCK HEX. SOCKET HD. BOLT M5X16	8		
61	620-1VV	BALL BEARING 6201VVCMP2L	1		
62	956-948	COUNTER GEAR	1		
63	600-1VV	BALL BEARING 6001VVCMP2L	1		
64	956-850	WOODRUFF KEY 4X16	2		
65	960-251	HEX. HD. TAPPING SCREW D5X65	2		
66	956-764	SPECIAL WASHER	2		
*	67	994-190	INTERNAL WIRE	1	FOR GBR,FIN,NOR,SUI
	68	944-954	BEARING WASHER	1	
	69	620-1DD	BALL BEARING 6201DDCMP2L	1	
	70	944-911	BEARING COVER (A)	1	
	71	620-3DD	BALL BEARING 6203DDCMP2L	1	
	72	944-907	DISTANCE RING (A)	1	
	73	996-370	FAN	1	
*	74	360-286U	ARMATURE ASS'Y 115V	1	INCLUD.68,69,71,73
*	74	360-286E	ARMATURE ASS'Y 220V-230V	1	INCLUD.73
	75	306-098	FAN GUIDE	1	
*	76	340-259C	STATOR ASS'Y 110V-115V	1	INCLUD.77,78
*	76	340-259E	STATOR ASS'Y 220V-230V	1	INCLUD.77,78
*	76	340-259G	STATOR ASS'Y 115V	1	INCLUD.77,78 FOR USA
	77	945-932	BRUSH TERMINAL	2	
	78		TUBE (I.D.7XT0.25X20)	1	
	79	980-751	HANDLE PACKING	1	
	80	985-469	INTERNAL WIRE HOLDER	1	
	81	306-168	HANDLE (A)	1	
	82	991-711	DISTANCE PIECE (B)	4	
	83	938-477	HEX. SOCKET SET SCREW M5X8	2	
	84	306-099	TAIL COVER	1	
	85	991-690	SEAL LOCK HEX. SOCKET HD. BOLT M5X12	2	
	86	306-169	HANDLE (B)	1	
*	87	930-153	SUPPORT (B)	1	FOR NOISE SUPPRESSOR
*	88	994-273	NOISE SUPPRESSOR	1	FOR GBR,FIN,NOR,SUI
*	88	930-039	NOISE SUPPRESSOR	1	FOR ITA,FRG,FRA,HOL,ESP
	89	307-028	TAPPING SCREW (W/FLANGE) D4X25 (BLACK)	2	
	90	306-167	TUBE (I.D.7XT1.1X15)	1	
*	91	959-140	CONNECTOR 50091 (10 PCS.)	1	HOR GBR,NOR,SUI
*	92	959-141	CONNECTOR 50092 (10 PCS.)	1	FOR GBR,ITA,FRG,FRA,HOL,NOR,ESP,SUI
	93	938-307	PILLAR TERMINAL	1	
*	94	949-423	WASHER M4 (10 PCS.)	1	FOR GBR,ITA,FRG,FRA,HOL,FIN,NOR,ESP,SUI
*	95	981-974	INTERNAL WIRE	1	
*	95	306-681	INTERNAL WIRE	1	FOR GBR
*	96	958-308Z	PILLAR TERMINAL (A)	1	FOR FIN
	97	306-143	SWITCH (B) (1P SCREW TYPE) W/LOCK	1	

PARTS

H 65SD

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
98	990-082	SUPPORT (E)	1	
99	984-750	TAPPING SCREW (W/FLANGE) D4X16	2	
* 100	960-266	CORD CLIP	1	
* 100	981-987Z	CORD CLIP	1	FOR SUI
* 101	958-049	CORD ARMOR D8.2	1	
* 101	940-778	CORD ARMOR D10.7	1	
102	996-438	VINYL TUBE (A) (I.D.7XT0.5X50)	2	
* 103	992-810	TERMINAL	1	
* 103	930-804	TERMINAL M4.0 (10 PCS.)	1	FOR GBR (110V),USA
* 104	500-390Z	CORD	1	(CORD ARMOR D10.2)
* 104	500-246Z	CORD	1	(CORD ARMOR D10.2) FOR GBR (110V)
* 104	500-450Z	CORD	1	(CORD ARMOR D10.2) FOR GBR (230V)
* 104	500-391Z	CORD	1	(CORD ARMOR D10.2) FOR SUI
* 104	500-434Z	CORD	1	(CORD ARMOR D8.2) FOR USA

STANDARD ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
501	314-179	CASE (STEEL)	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	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	980-927	GREASE FOR HAMMER.HAMMER DRILL (500G)	1	
608	308-471	GREASE FOR HAMMER.HAMMER DRILL (70G)	1	
609	981-840	GREASE (A) FOR HAMMER.HAMMER DRILL (30G)	1	