MODEL

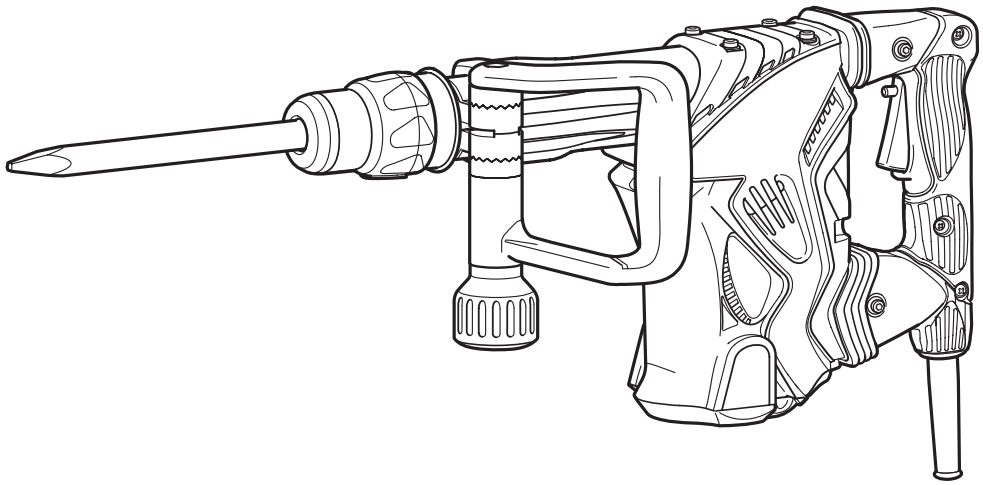
H 45MRY

Hitachi
Power Tools

DEMOLITION HAMMER
H 45MRY

TECHNICAL DATA
AND
SERVICE MANUAL

H



LIST No.: E495 Oct. 2006

REMARK:

Throughout this TECHNICAL DATA AND SERVICE MANUAL, symbols are used in the place of company names and model names of our competitors. The symbols utilized here are as follows:

Symbols Utilized	Competitors	
	Company Name	Model Name
C	MAKITA	HM0860C
B	BOSCH	GSH5E

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1. PRODUCT NAME

Hitachi Demolition Hammer, Model H 45MRY

2. MARKETING OBJECTIVE

The Model H 45MRY is an upgraded version of the current Model H 45MR that features the use of maker B's SDS-max shank tools. The performance, durability and operability are greatly improved. In addition, the vibration level of the Model H 45MRY is low enough to meet the requirements of the EU Physical Agents (Vibration) Directive that requires employers to take action to reduce exposure of workers to vibration below the exposure limit values (enforced in July 2005).

The main features of the Model H 45MRY are as follows:

(1) Lowest vibration level in the class thanks to the dynamic damper with a leaf spring and the new vibration-absorbing handle

(2) High chipping and demolishing performance with low vibration and noise level

(3) Self-chiseling (Good feeling)

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

(5) D-type side handle with adjustable mechanism for 360˚ rotation plus positioning from front to rear

(6) Soft-touch grip for easier handling

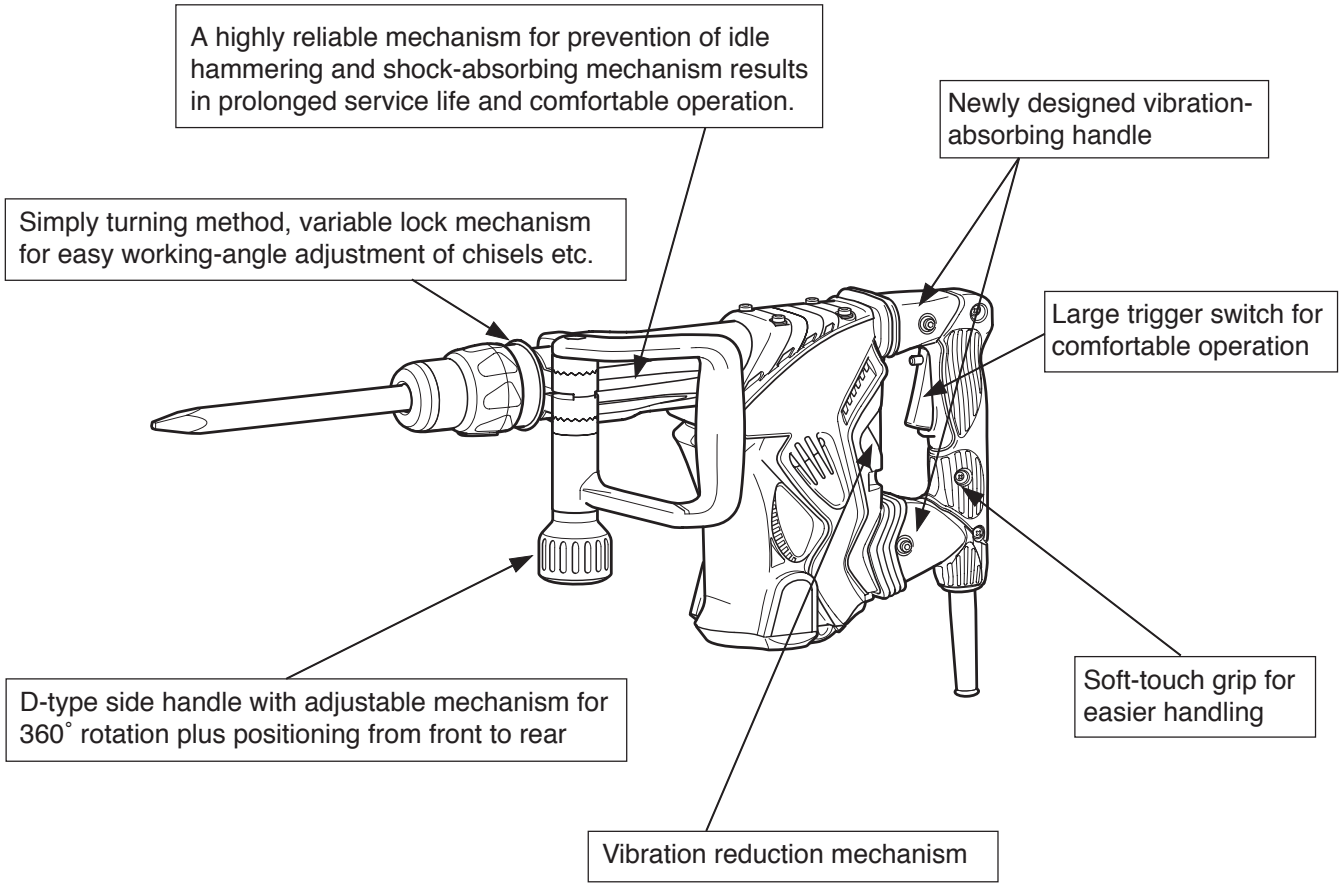
(7) Simply turning method, variable lock mechanism for easy working-angle adjustment of chisels etc.

3. APPLICATIONS

- Demolishing and chiseling of concrete
- Edging, gravel road digging, compacting and tamping, grooving, cutting, stripping and roughing, etc.

4. SELLING POINTS

- Lowest vibration level in the class
- High chipping and demolishing performance with low vibration and noise level
- Self-chiseling (Good feeling)



4-1. Selling Point Descriptions

4-1-1. Lowest vibration level in the class

The vibration level of the Model H 45MRY is about 50% to 60% lower than the similar products. It is the lowest vibration level in the class. Therefore, the vibration exposure limit time defined by the EU Physical Agents (Vibration) Directive is longest in the class.

Maker · Model		HITACHI H 45MRY	HITACHI H 45MR	C	B
Full-load vibration level (Tri-axial)	m/sec^2	7.7	14.2	14.0	19.2
Vibration exposure limit	min	202.4	59.5	61.2	32.6

4-1-2. High chipping and demolishing performance with low vibration and noise level

The hammering energy is transmitted more efficiently while the vibration level and the full-load noise level are lowest in the class. The demolishing performance is about 1.2 times higher than the similar products.

Maker · Model		HITACHI H 45MRY	HITACHI H 45MR	C	B
Ratio of demolished weight	%	100	84	87	86
Full-load vibration level (Tri-axial)	m/sec^2	7.7	14.2	14.0	19.2
Full-load noise level	dB	99	101	103	101

4-1-3. Self-chiseling (Good feeling)

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

Demolished amount	About 20% up
Maximum compressed air force (piston force)	About 32% down
Quantity of body jumping	About 24% down

4-1-4. Vibration reduction mechanism

The Model H 45MRY is equipped with Hitachi's own dynamic damper that absorbs vibration from the main body by means of resonance of a leaf spring and a spindle. As a result, the vibration level of the Model H 45MRY is remarkably lower than the current Model H 45MR.

4-1-5. Newly designed vibration-absorbing handle

The Model H 45MRY is equipped with the new vibration-absorbing mechanism based on the same Hitachi's own vibration-absorbing mechanism as the current Model H 45MR that absorbs vibration by rolling and compressing the four cylindrical rubber cushions on the inclined surface. In the new vibration-absorbing mechanism, the shaft fixed to the handle is turned in conjunction with the handle movement and the four cylindrical rubber cushions are rolled and compressed to absorb vibration more efficiently. The cushion effect not only greatly reduces vibration but also maintains good operability.

4-1-6. A highly reliable mechanism for prevention of idle hammering and shock-absorbing mechanism results in prolonged service life and comfortable operation

The Model H 45MRY has air holes located at the position unaffected by the rebound of the striker at no load. The air holes are opened and closed by the movement of the slide sleeve provided around the cylinder that interlocks with the tool and the second hammer to prevent idle hammering. This mechanism securely prevents idle hammering even in wall hammering works or even if a tool that can cause great rebound on the striker such as a cutter is used. Thanks to the highly reliable mechanism for prevention of idle hammering, the service life of the Model H 45MRY is prolonged and hammering works requiring much attention not to break the surroundings can be efficiently performed with the Model H 45MRY.

At the moment of releasing the bull point from the concrete by moving the main body up, the second hammer contacts hammer holder (A) and the cushion (damper (A)) provided between hammer holder (A) and the front cover absorbs the hammering force of the second hammer. Thus the Model H 45MRY has greater durability than the similar products.

4-1-7. D-type side handle with adjustable mechanism for 360˚ rotation plus positioning from front to rear

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

4-1-8. Soft-touch grip for easier handling

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

4-1-9. Simply turning method, variable lock mechanism for easy working-angle adjustment of chisels, etc.

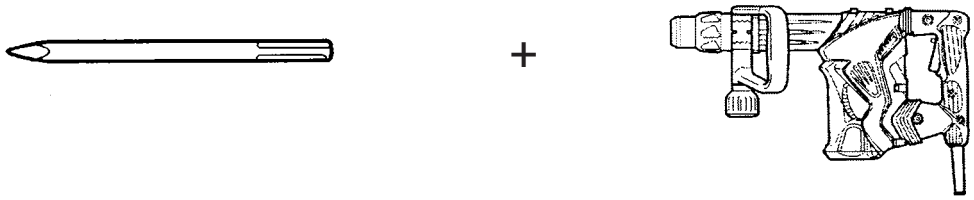
The tool swivel angle can be easily changed in 12 steps by pushing out grip (B) ahead and then turning grip (A).

5. SPECIFICATIONS

Power source	Single-phase AC 50/60 Hz
Voltage	110 V, 230 V
Motor type	AC single-phase series commutator motor
Insulation structure	Double insulation
Enclosure	Materials: Aluminum alloy die casting (Cylinder crank case) Nylon resin (Handle, tail cover, back cover, hood, crank cover) Polycarbonate resin (Housing) Paint: Green, gunmetallic silver, black, silver
Switch	Trigger switch (with stopper)
Type of handles	D-shaped handle and side handle
Full-load current	9.1A (110 V), 4.4 A (230 V)
Power input	950 W
Striking speed	No-load: 4,000 min^{-1} Full-load: 3,000 min^{-1}
Weight	Product: 5.9 kg (13.0 lbs.); Excluding cord and side handle Packed: 12.4 kg (27.3 lbs.)
Packaging	Corrugated cardboard box with plastic tool case
Standard accessories	• Bull point 280 mm (11-1/32") ····· 1 pc. • Side handle ····· 1 pc. • Plastic tool case ····· 1 pc.

5-1. Optional Accessories

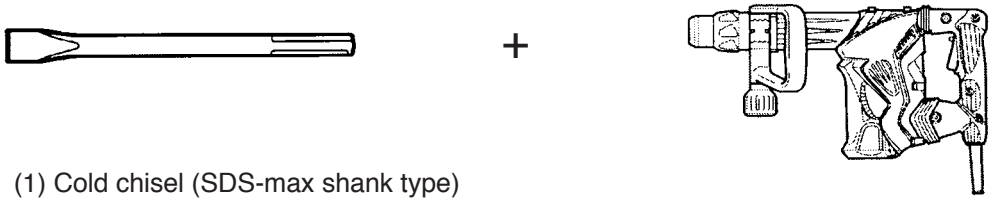
(1) Demolishing work



(1) Bull point (SDS-max shank type)

Overall length	Code No.
280 mm (11-1/32")	313471
400 mm (15-3/4")	313472

(2) Grooving and chiseling work



(1) Cold chisel (SDS-max shank type)

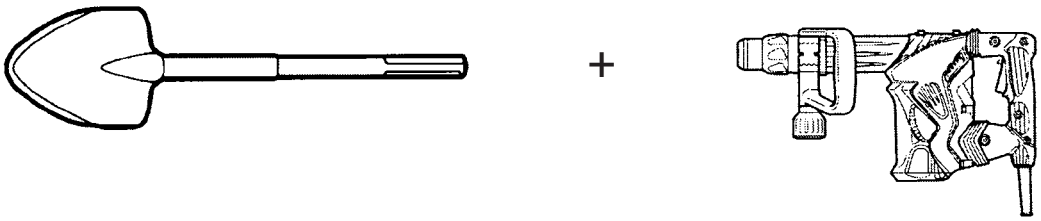
Overall length	Code No.
280 mm (11-1/32")	313473
400 mm (15-3/4")	313474

(3) Cutting and stripping work (Asphalt cutting etc.)

(1) Cutter (SDS-max shank type)

Width	Overall length	Code No.
50 mm (2")	400 mm (15-3/4")	313475

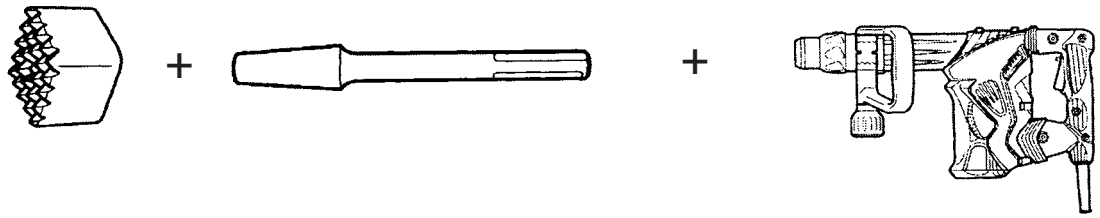
(4) Digging (Substitute pick-ax)



(1) Scoop (SDS-max shank type)

Overall length	Code No.
400 mm (15-3/4")	313476

(5) Roughing surface work



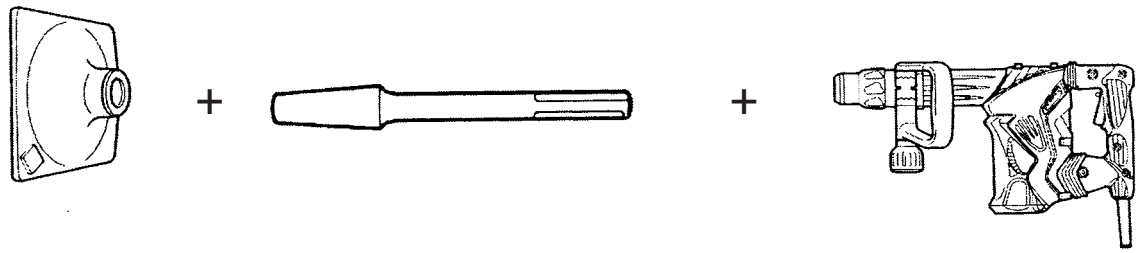
(1) Bushing tool

Code No.
313477

(2) Shank (SDS-max shank type)

Overall length	Code No.
220 mm (8-21/32")	313479

(6) Tamping work



(1) Rammer

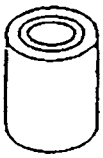
Code No.
313478

150 mm x 150 mm

(2) Shank (SDS-max shank type)

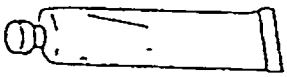
Overall length	Code No.
220 mm (8-21/32")	313479

(7) Grease for hammer and hammer drill



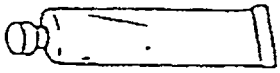
500 g (1.1 lbs.) Can

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 without notice. Please refer to periodic Technical News Bulletins.

6. COMPARISONS WITH SIMILAR PRODUCTS

6-1. Specification Comparison

Maker			HITACHI		C	B
Model name			H 45MRY	H 45MR		
Power input		W	950	950	1,100	1,100
Striking energy per stroke		J	12.7	12.5	1.8 to 12.0	2.0 to 12.0
Full-load impact rate		min^{-1}	3,000	3,000	1,100 to 2,650	1,300 to 3,000
Full-load vibration level (Tri-axial)		m/sec^2	7.7	14.2	14.0	19.2
Vibration exposure limit		min	202.4	59.5	61.2	32.6
Full-load noise level		dB	99	101	103	101
Dimensions	Length	mm	475 (18-45/64")	454 (17-7/8")	454 (17-7/8")	450 (17-23/32")
	Height	mm	230 (9-1/6")	230 (9-1/16")	223 (8-25/32")	230 (9-1/16")
	Width	mm	104 (4-3/32")	106 (4-11/64")	99 (3-57/64")	102 (4-1/64")
Weight (without cord and side handle)		kg	5.9 (13.0 lbs.)	5.9 (13.0 lbs.)	4.7 (10.4 lbs.)	5.5 (12.1 lbs.)
Insulation structure		—	Double insulation	Double insulation	Double insulation	Double insulation
Vibration reduction mechanism		—	○	×	×	×
Vibration-absorbing handle		—	○	○	×	○

6-2. Demolition Performance Comparison

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

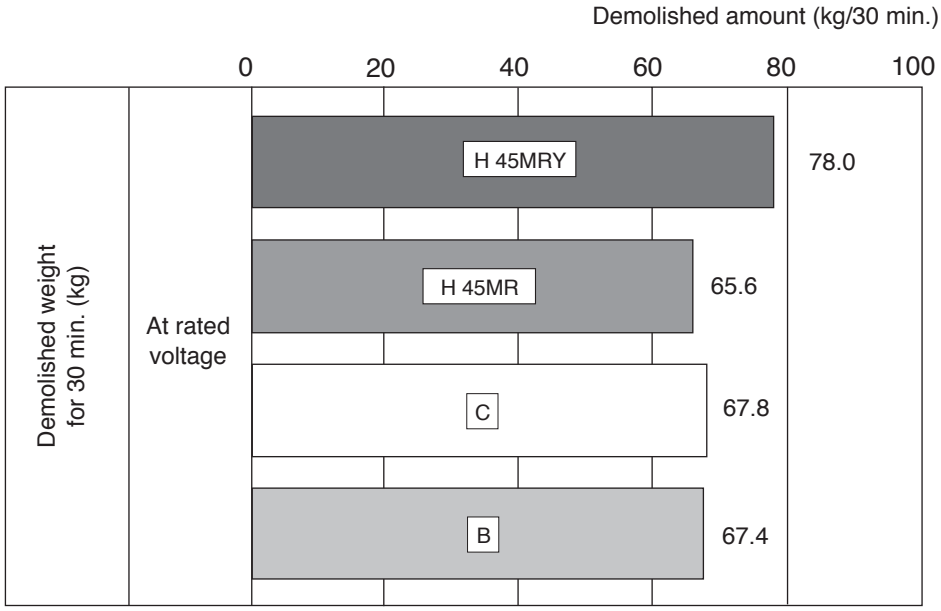


Fig. 1

7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Model H 45MRY Demolition 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 Demolition 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. Grease Replacement

The striking portion and the speed reduction portion of the Model H 45MRY respectively use different types of grease. Grease replacement is required if the unit is disassembled for maintenance or O-rings become damaged and worn as described in 7-3. The striking portion uses special grease. If the striking portion (inside the cylinder crank case) is disassembled, thoroughly remove all of the old grease from each part. On reassembly, fill 27.0 g (0.9 oz) of new grease in the crank case (connecting rod side). Do not exceed the designated amount of grease. Excessive grease may cause reduced striking performance.

The speed reduction portion (inside the gear cover) uses Hitachi Motor Grease No. 29 (Code No. 930035).

The proper supply volume is 20 g (0.7 oz). Never use the striking portion special grease in the speed reduction portion. Special grease would leak into the motor portion and cause subsequent trouble.

7-3. O-ring Replacement

The O-rings (mounted on the striker and the piston) are extremely important to ensure adequate sealing of the air pressure. Although the O-rings are made of special rubber to give them a long service life, they do nonetheless become worn, and should be replaced by new ones periodically depending on frequency of use of the tool.

With average use, it is recommended that the O-rings be replaced at least every six months to ensure maximum effectiveness.

8. REFERENCE INFORMATION

Structure:

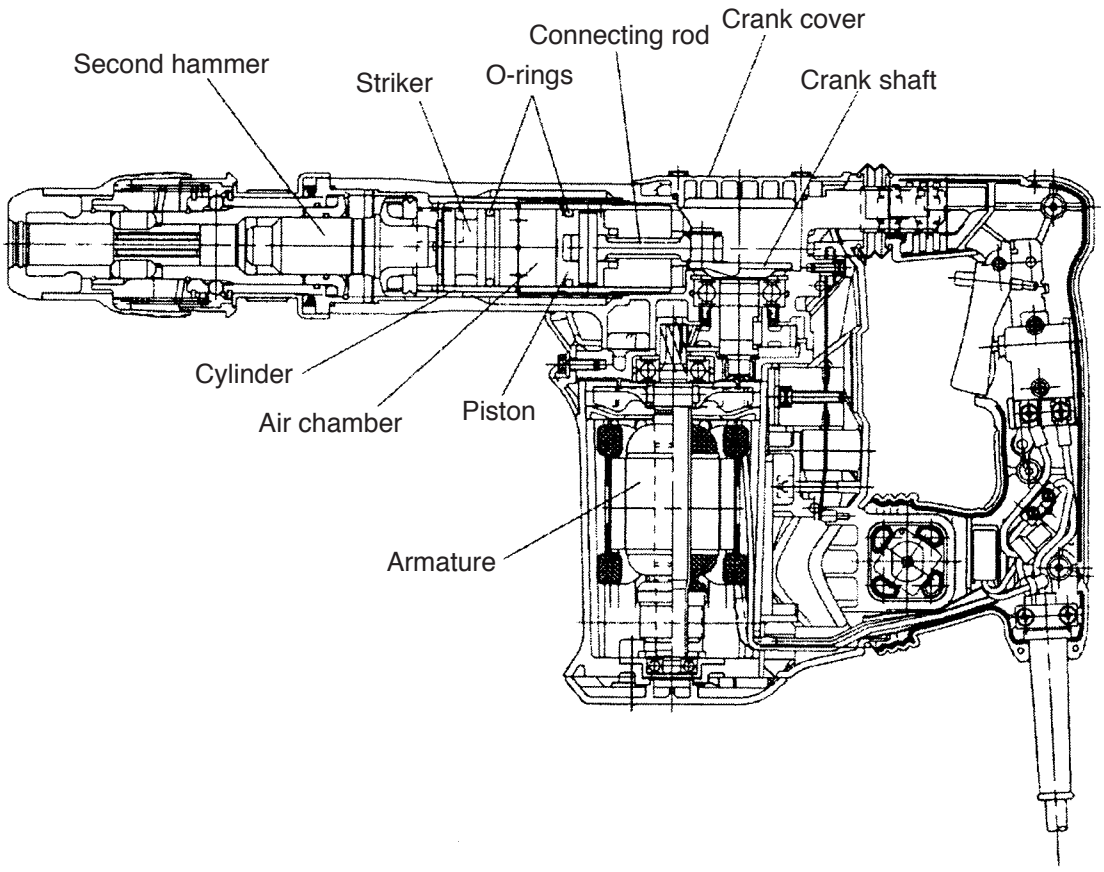


Fig. 2

8-1. Striking Operation

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

8-2. Dynamic Damper with Leaf Spring

The vibration caused by hammering operation of the Model H 45MRY is transmitted to the cylinder crank case, back cover, housing and finally to the weight through the leaf spring supporting portion. Then the weight moves in the reverse direction of the transmitted vibration to negate the vibration of the main body (Fig. 3).

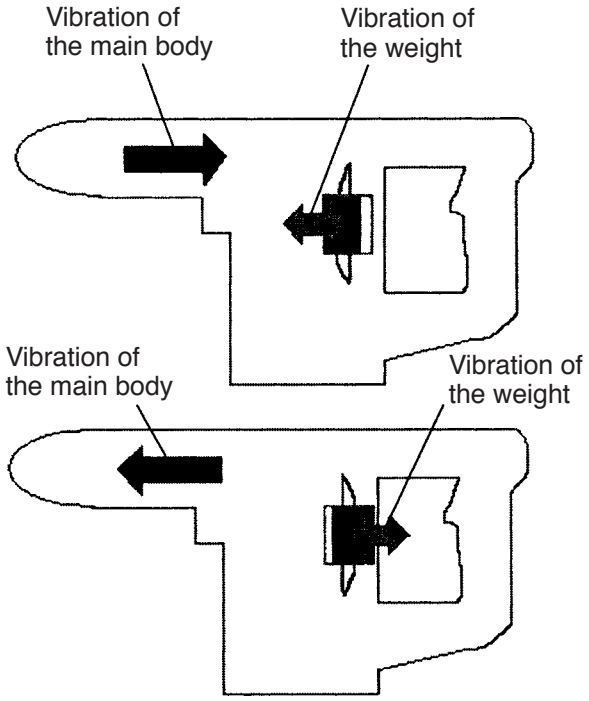


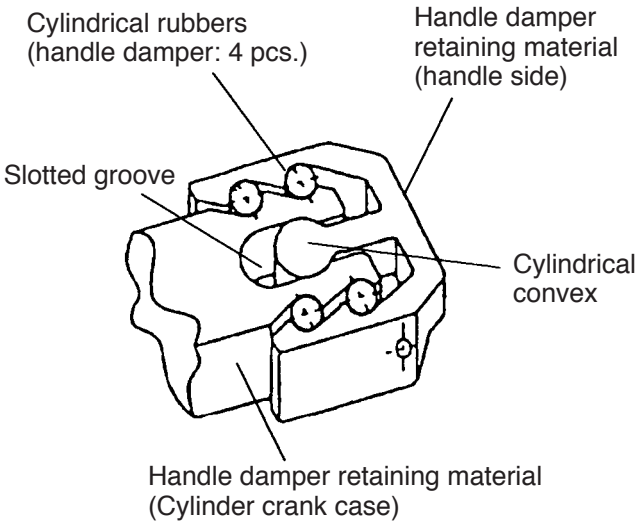
Fig. 3

8-3. Vibration-proof Handle thanks to the Transatory Unit and the Neidhardt Spring

The Model H 45MRY has the vibration-proof handle equipped with the transatory unit and the Neidhardt spring.

○ Structure of the transatory unit

The main body (cylinder crank case) is connected to the upper handle through four cylindrical rubbers (handle dampers). These rubbers are rolled and compressed on the inclined surface to absorb the vibration. Since the transatory unit has nonlinear spring characteristics, the spring constant is lower than the conventional shearing type vibration-proofing structure. Thus the Model H 45MRY can provide high vibration-proofing effect with good cushioning properties. The joint of the slotted groove and the cylindrical convex is provided at the center to prevent the handle from being pulled out by twisting or pulling in hammering operation (Fig. 4).



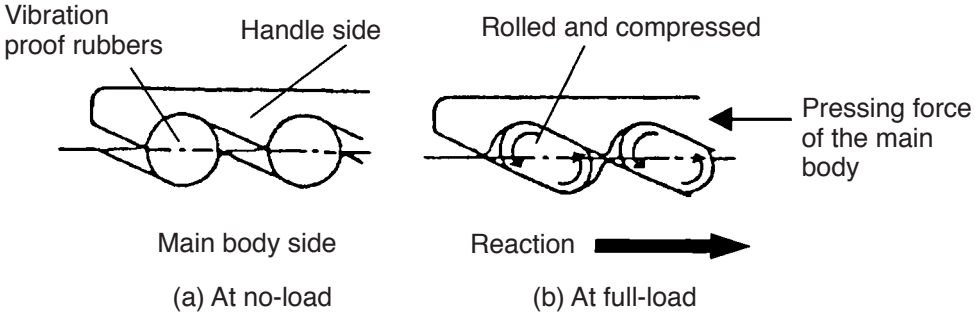


Fig. 4

○ Structure of the Neidhardt spring

The main body (back cover) is connected to the lower handle through four cylindrical rubbers (handle dampers). The shaft fixed to the handle is turned in conjunction with the handle movement and the rubbers are rolled and compressed to absorb the vibration. The Neidhardt spring prevents the handle from moving horizontally. Thus the Model H 45MRY can provide high vibration-proofing effect without hindering the operability by twisting. In addition, the handle is prevented from being pulled out (Fig. 5).

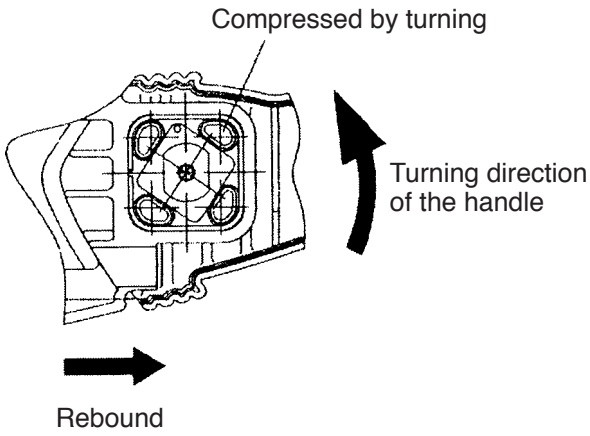


Fig. 5

8-4. Idling-proof Mechanism

When the bull point is released from the concrete surface, the slide sleeve and the second hammer are forcibly moved to the position illustrated in Fig. 6 by spring (B), and the striker moves out of striking position. When this occurs, the air holes located at the position unaffected by the rebound of the striker at no load are opened and the pressure within the air chamber remains unchanged even though the piston continues to reciprocate, thereby preventing striking operation.

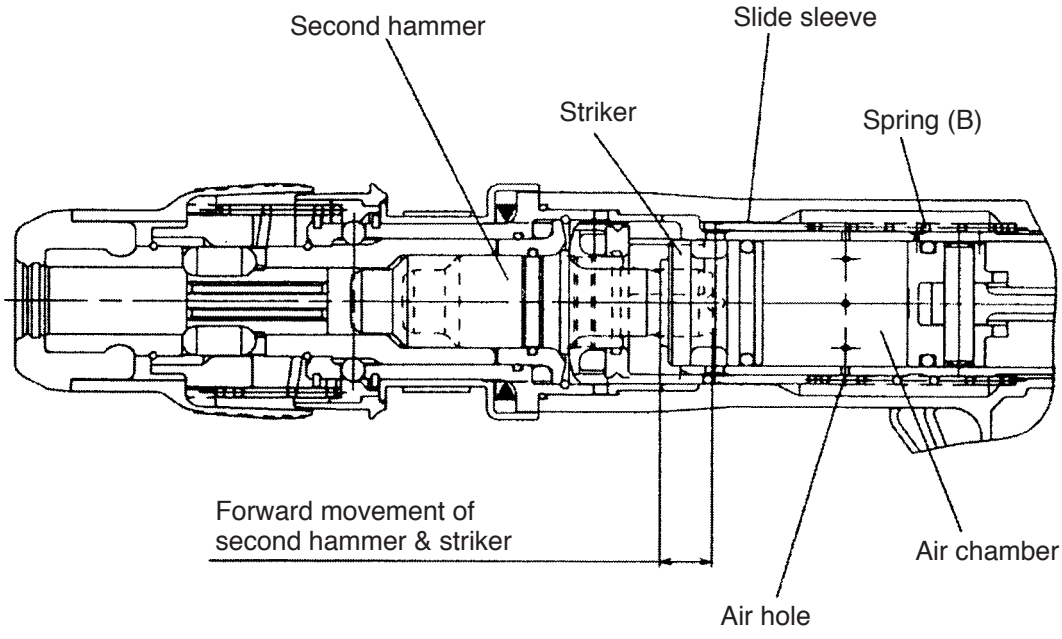


Fig. 6

8-5. Shock-absorbing Mechanism

At the instance of releasing the bull point from the concrete by moving the main body up, the second hammer contacts hammer holder (A) as shown in Fig. 7 then the cushion (damper (A)) provided between hammer holder (A) and the front cover absorbs the striking force of the second hammer. Thus the durability of the Model H 45MRY is greatly increased because the second hammer does not strike the tool retainer directly.

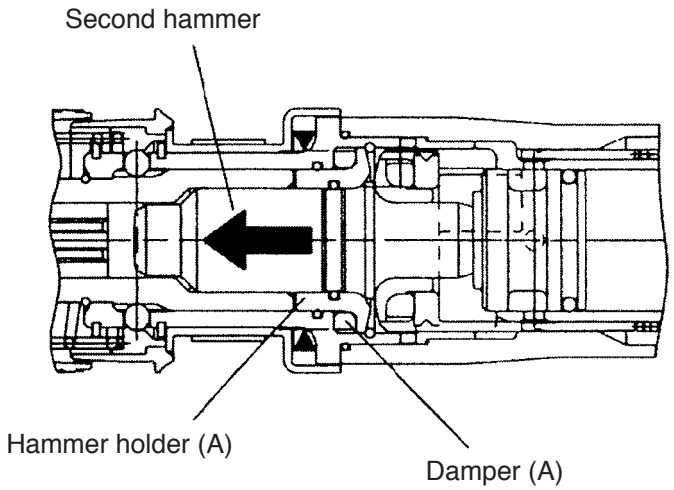


Fig. 7

8-6. Sealed and Dustproof Construction

The cylinder crank case is sealed by five O-rings and an oil seal which serve to prevent leakage of the grease, as well as to prevent dust and dirt from entering the mechanism (Fig. 8).

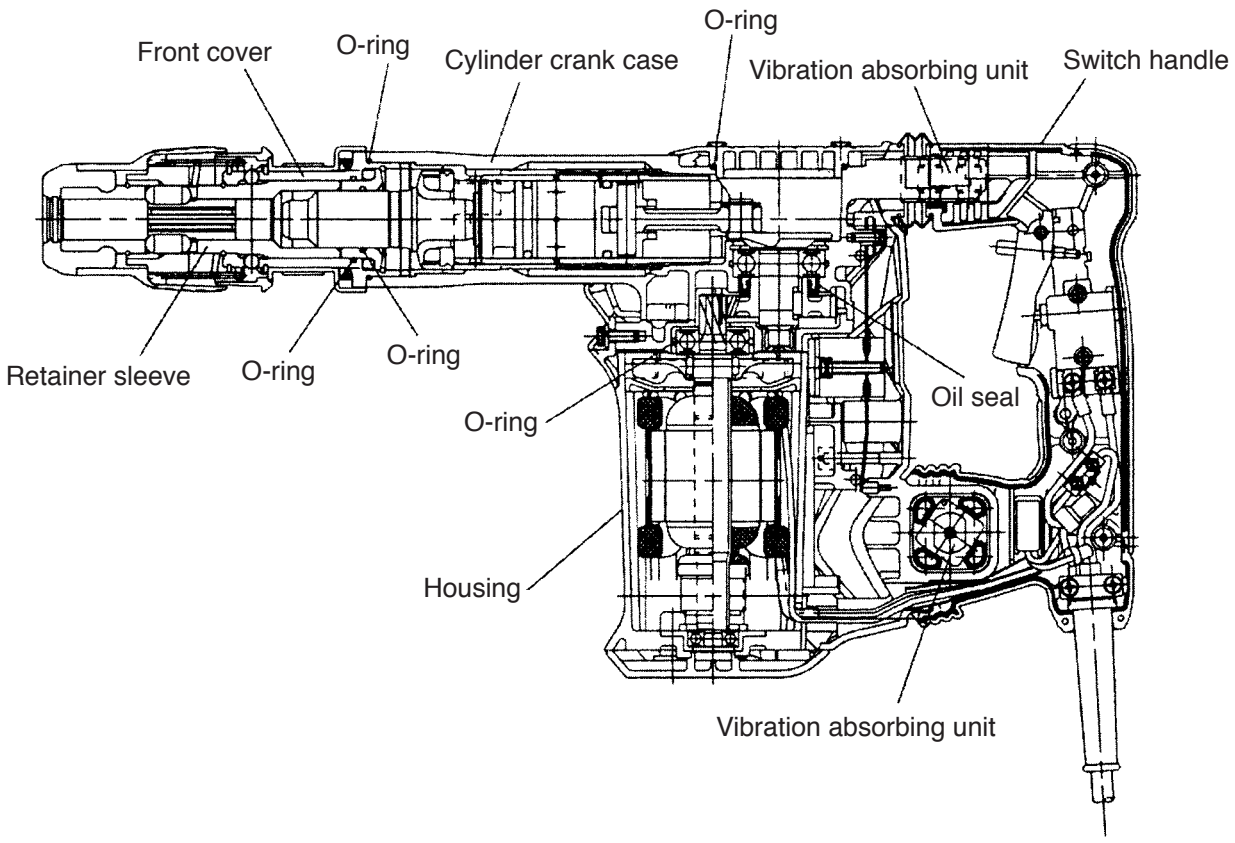


Fig. 8

8-7. Tool Retainer

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

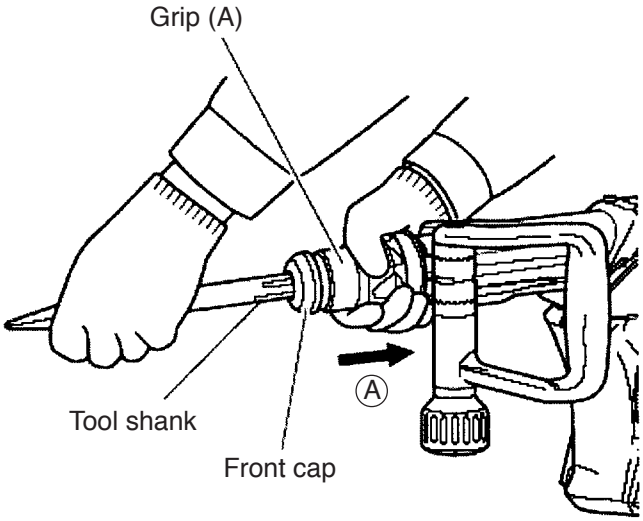


Fig. 9

8-8. Adjusting Mechanism for the Tool Swivel Angle

The tool swivel angle can be easily changed in 12 steps. The tool swivel angle can be set freely to the desired position by pushing out grip (B) ahead in Ⓐ direction and then turning grip (A) in Ⓑ (Fig. 11).

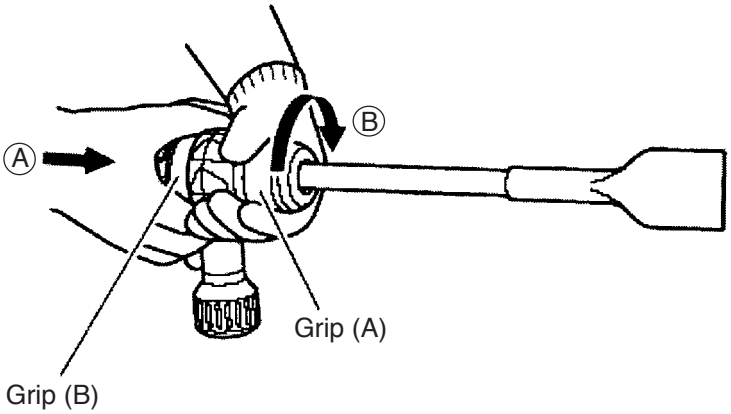


Fig. 10

8-9. Side Handle

The side handle can be adjusted by 360˚ rotation and also allows operation from front to rear. Loosen the handle by turning the grip in Ⓐ direction and adjust the handle to a convenient position. Turn the grip in Ⓑ direction to fix the side handle (Fig. 11).

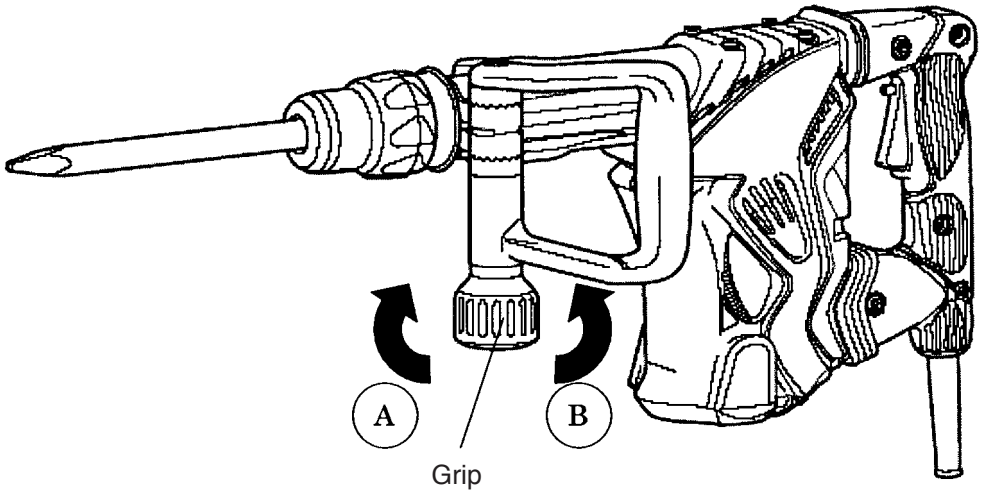


Fig. 11

9. REPAIR GUIDE

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

The numbers in **[Bold]** correspond to the item numbers in the Parts List and the exploded assembly diagrams of the Model H 45MRY.

9-1-1. Disassembly

● Retainer disassembly (See Figs. 12 and 13.)
Pull Grip (A) **[2]** fully in the arrow direction as shown in Fig. 12 and remove the Front Cap **[1]** (since the Front Cap **[1]** is made of rubber and engaged firmly with the Retainer Sleeve **[16]**, pull it strongly to remove). This allows Grip (A) **[2]** to be separated from the Retainer Sleeve **[16]**.

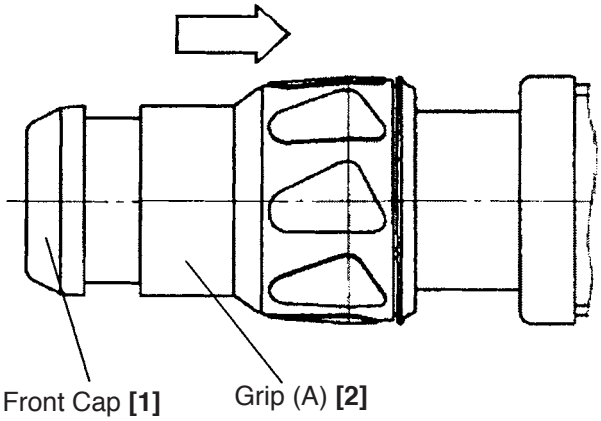


Fig. 12

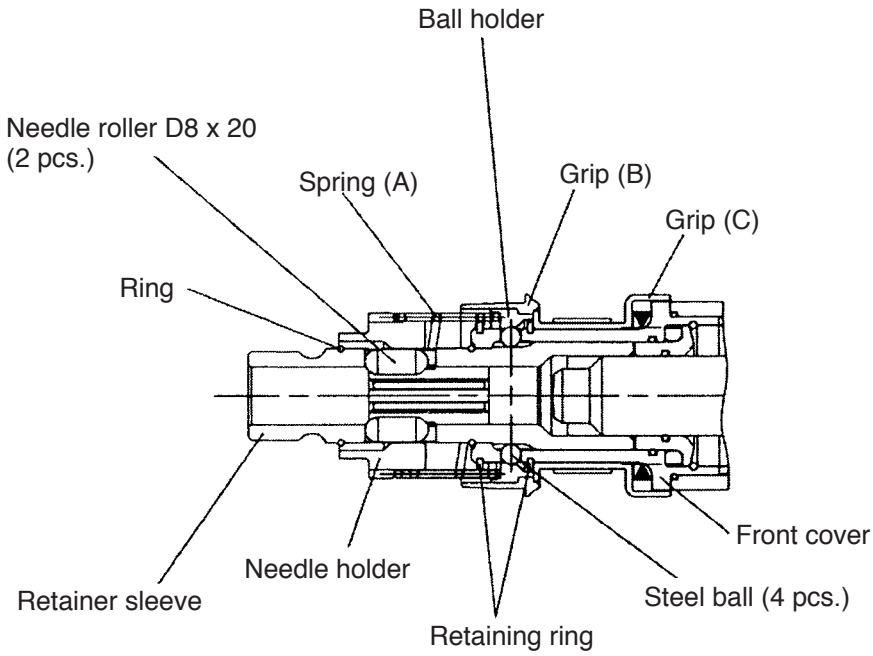


Fig. 13

Remove the Ring **[3]** by means of a snap ring remover, then the Needle Holder **[4]**, two Needle Rollers D8 x 20 **[15]** and Spring (A) **[5]** can be removed from the Retainer Sleeve **[16]**. Remove the Retaining Ring D42 **[6]** by means of a snap ring remover, then the Ball Holder **[7]**, Grip (B) **[8]** and four Steel Balls D6.35 **[10]** can be removed from the Front Cover **[12]**. Furthermore, remove the Retaining Ring D42 **[6]** by means of a snap ring remover, then Grip (C) **[9]** can be removed from the Front Cover **[12]** (Fig. 13).

● Removal of hammer holder (A), damper (A) and retainer sleeve

Remove the Seal Lock Hex. Socket Hd. Bolt M6 x 25 **[11]** from the Front Cover **[12]**. Then the Front Cover **[12]** and the Retainer Sleeve **[16]** can be removed from the Cylinder Crank Case **[47]**. Insert a small flat-blade screwdriver into the groove of the Front Cover **[12]** and remove Ring (B) **[20]**. Then Hammer Holder (A) **[18]** and Damper (A) **[17]** can be removed from the Front Cover **[12]**. Remove the Ring **[3]** to remove the Retainer Sleeve **[16]** from the Front Cover **[12]** (Fig. 14).

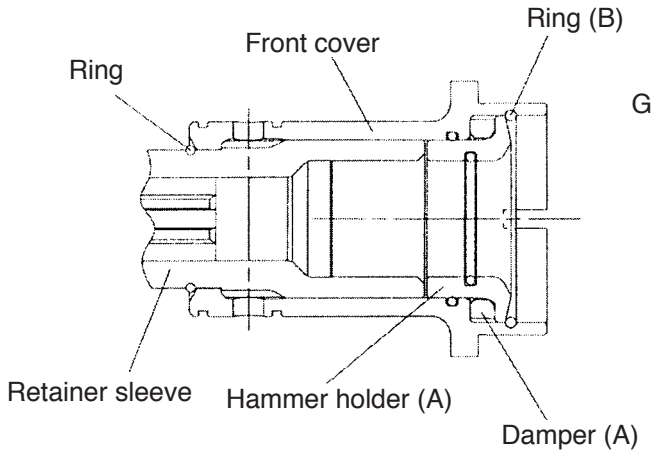


Fig. 14

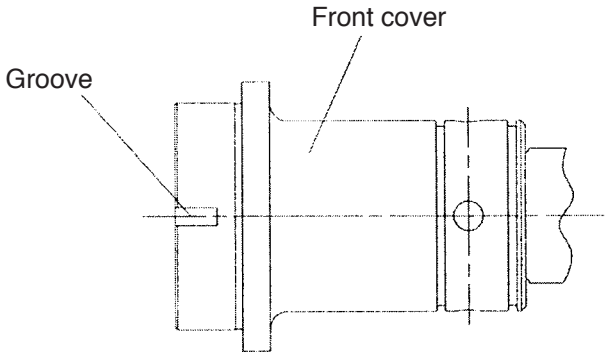


Fig. 15

● Removal of the piston and the striker

Remove the Seal Lock Hex. Socket Hd. Bolt M6 x 25 **[11]** from the Front Cover **[12]**. Then the Front Cover **[12]**, Retainer Sleeve **[16]**, Second Hammer **[21]**, Hammer Holder (B) **[24]**, Damper (B) **[25]**, Hammer Holder (C) **[27]**, Damper (C) **[22]** and Sleeve (A) **[23]** can be removed from the Cylinder Crank Case **[47]**.

The Cylinder **[30]**, Striker **[28]**, Slide Sleeve **[31]** and Spring (B) **[32]** are remained in the Cylinder Crank Case **[47]**. Lightly tap the Front Cover **[12]** side of the Cylinder Crank Case **[47]** with a plastic hammer to remove the Cylinder **[30]**. Then the Slide Sleeve **[31]** and Spring (B) **[32]** can be removed from the Cylinder Crank Case **[47]**. The Striker **[28]** can be removed by tapping the Cylinder **[30]** lightly with a plastic hammer.

The Piston **[35]** is remained in the Cylinder Crank Case **[47]**. Remove the Seal Lock Hex. Socket Hd. Bolt M5 x 16 **[39]** from the Crank Cover **[40]** to remove the Crank Cover **[40]** from the Cylinder Crank Case **[47]**. Remove the Retaining Ring for D10 Shaft **[37]** using a retaining ring puller and remove the Connecting Rod **[36]** from the Crank Shaft **[42]**.

● Removal of the first gear and the crank shaft

Degrease the Connecting Rod **[36]** side and the First Gear **[60]** side of the Cylinder Crank Case **[47]**. Place the Cylinder Crank Case **[47]** on a workbench facing the Connecting Rod **[36]** side downward. Apply light pressure on the end surface of the Crank Shaft **[42]** with a hand press and pull out the Retaining Ring for D40 Hole **[43]** that fixes the Ball Bearing 6203DDCMPS2L **[45]** from the groove of the Cylinder Crank Case **[47]**. Before removal, move the crank pin of the Crank Shaft **[42]** as shown in Fig. 16 so that the hole of the Retaining Ring for D40 Hole **[43]** can be seen.

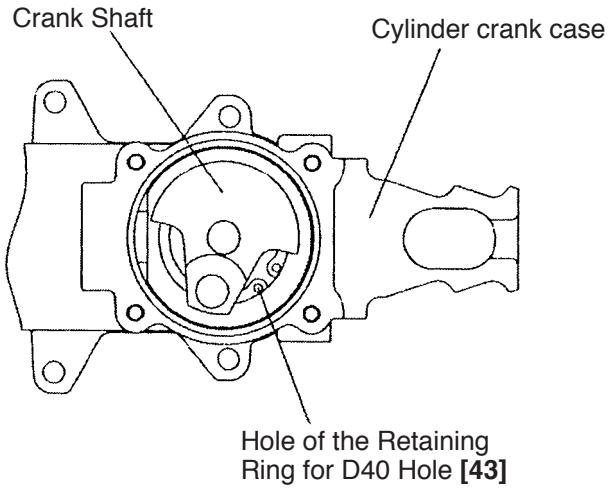


Fig. 16

Place the Cylinder Crank Case **[47]** on a workbench facing the Connecting Rod **[36]** side downward. Apply light pressure on the end surface of the Crank Shaft **[42]** with a hand press to remove the First Gear **[60]** and the Crank Shaft **[42]** (Fig. 17). Before removal, be sure to check that the Retaining Ring for D40 Hole **[43]** is removed from the groove of the Cylinder Crank Case **[47]**.

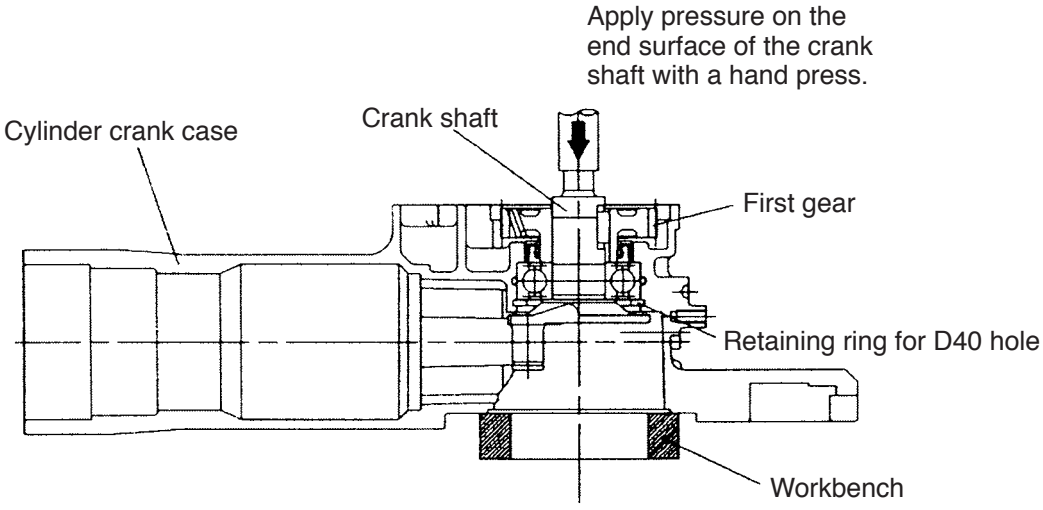


Fig. 17

9-1-2. Reassembly

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

● Mounting hammer holder (A)

Set the Retainer Sleeve **[16]**, O-ring (S-34) **[14]**, Damper (A) **[17]** and Hammer Holder (A) **[18]** in the Front Cover **[12]**. Supporting the flange portion of the Front Cover **[12]** with a proper jig, lightly push in Ring (B) **[20]** using a proper jig of 44 mm outside dia. and a hand press. At this time, check that Ring (B) **[20]** is fitted in the groove of the Front Cover **[12]** securely (Fig. 18).

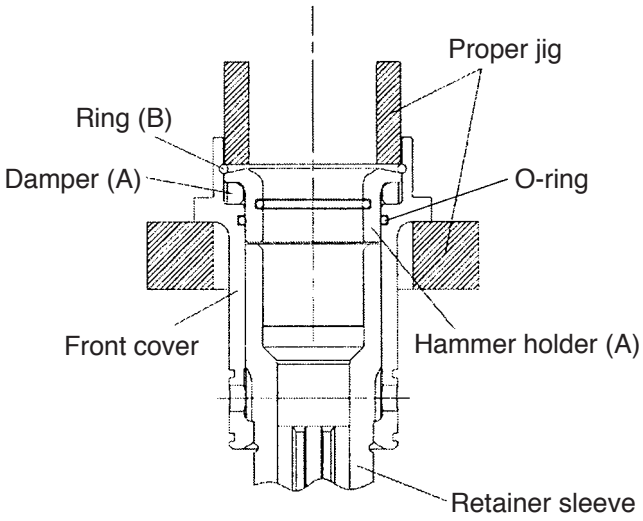


Fig. 18

● Mounting the first gear and the crank shaft

Mount the O-ring (S-40) **[44]** to the Cylinder Crank Case **[47]**. Press-fit the Ball Bearing 6203DDCMPS2L **[45]** and mount the Retaining Ring for D40 Hole **[43]** using a retaining ring puller. Press-fit the Crank Shaft **[42]** in the Ball Bearing 6203DDCMPS2L **[45]** and mount the Oil Seal **[46]**. Put one Feather Key 4 x 4 x 10 **[38]** in the groove of the Crank Shaft **[42]**. Supporting the flat portion of the Crank Shaft **[42]** with a proper steel bar, press-fit the First Gear **[60]** with a proper jig. Before press-fitting, check that the key groove of the Feather Key 4 x 4 x 10 **[38]** is aligned with the key groove of the First Gear **[60]** (Fig. 19).

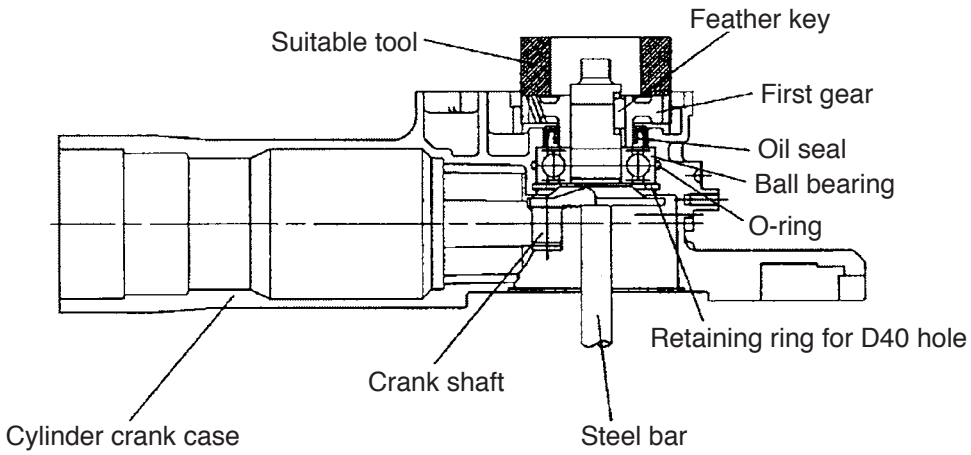


Fig. 19

● Mounting the piston

Insert the Piston Pin **[34]** into the 8-mm dia. hole (marked) of the Piston **[35]** and the Connecting Rod **[36]** then press-fit it. Mount the O-ring (I.D 27.2) **[33]** to the Piston **[35]**. At this time, do not protrude the Piston Pin **[34]** from the outside of the Piston **[35]**. Move the crank pin of the Crank Shaft **[42]** to the bottom dead center and insert the piston ass'y into the Crank Shaft **[42]** from the cylinder case of the Cylinder Crank Case **[47]**. Mount the Retaining Ring for D10 Shaft **[37]** using a retaining ring puller (Fig. 20).

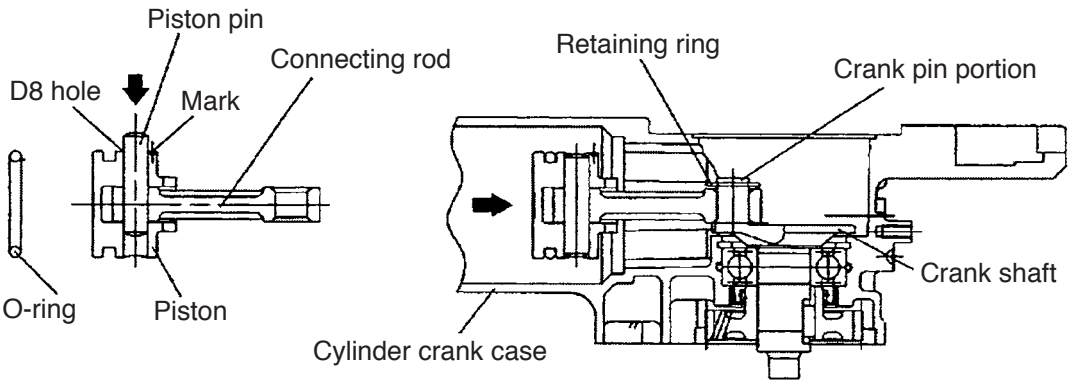


Fig. 20

● Mounting the cylinder

Insert the concave side of the Slide Sleeve **[31]** into the Cylinder **[30]**. Insert the assembly of the Striker **[28]** and the O-ring (I.D 27.2) **[29]** into the Cylinder **[30]** (Fig. 21).

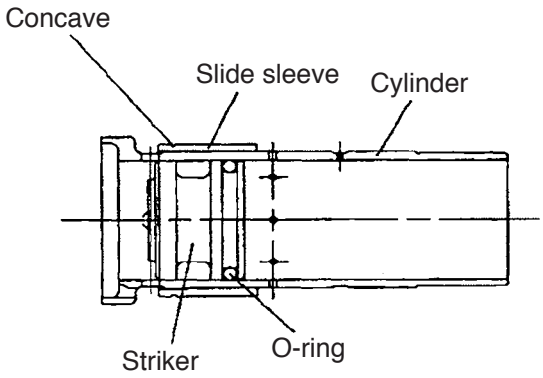


Fig. 21

Move the crank pin of the Crank Shaft **[42]** then move the Piston **[35]** to the top dead center. Insert Spring (B) **[32]** into the cylinder case of the Cylinder Crank Case **[47]** then insert the assembly of the Cylinder **[30]**, Slide Sleeve **[31]** and Striker **[28]** into the Cylinder Crank Case **[47]** (Fig. 22).

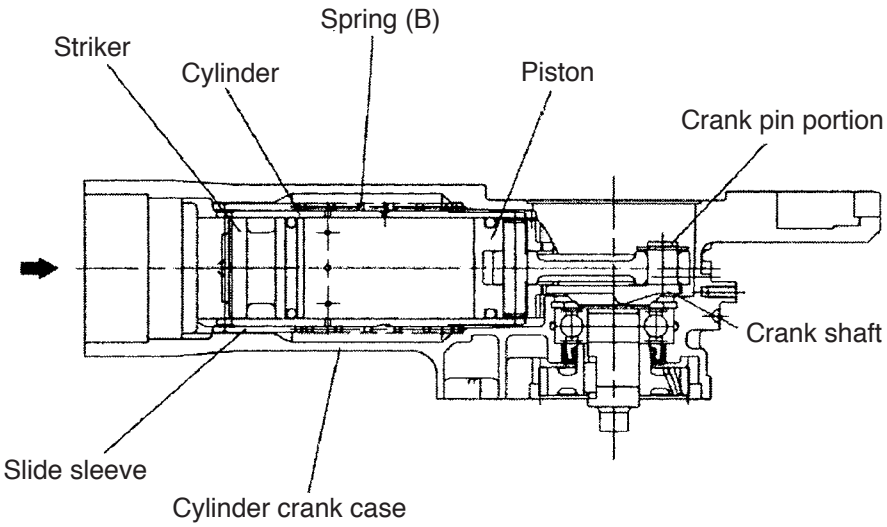


Fig. 22

● Mounting the fan guide

Mount the Fan Guide **[106]** to the Housing Ass'y **[114]** paying attention to the direction of the 0.05 convex line (Fig. 23).

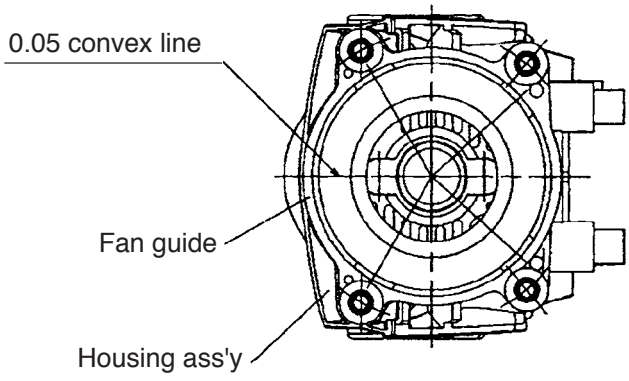


Fig. 23

● Mounting the handle shaft and handle (A)

Push the Holder **[88]** in the Back Cover **[76]** by hand. At this time, check that the clearance of the Holder **[88]** does not protrude from the main body and the Holder **[88]** does not protrude from the end surface of the Back Cover **[76]**. Check that the convex mark of the Back Cover **[76]** aligns with the convex mark of the Handle Shaft **[87]**. Then mount the Handle Shaft **[87]** and push the four Handle Dampers **[86]** in the clearances between the Holder **[88]** and the Handle Shaft **[87]** by hand being careful not to protrude the Handle Dampers **[86]** from the end surface of the Back Cover **[76]** (Fig. 24).

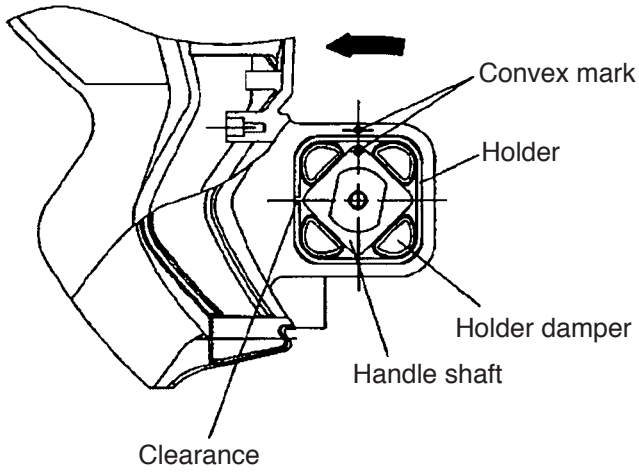


Fig. 24

To mount Handle (A).(B) Set **[81]**, turn the Handle Shaft **[87]** by about 10˚ and fit the Transatory Unit **[90]** and the Handle Shaft **[87]** in Handle (A).(B) Set **[81]** together.

● Mounting the leaf spring

Sandwich the Leaf Spring **[51]** between Weight (A) **[59]** and Weight (B) **[58]** and fix it with the Seal Lock Hex. Socket Hd. Bolt M5 x 22 **[56]**. Sufficiently degrease the adhering surface of Weight (B) **[58]** and adhere Rubber Sheet (C) **[57]** securely. Be careful that the Leaf Spring **[51]** is curved to Weight (B) **[58]**. At this time, do not misalign Weight (A) **[59]** and Weight (B) **[58]**, and do not turn the Leaf Spring **[51]** (Fig. 25).

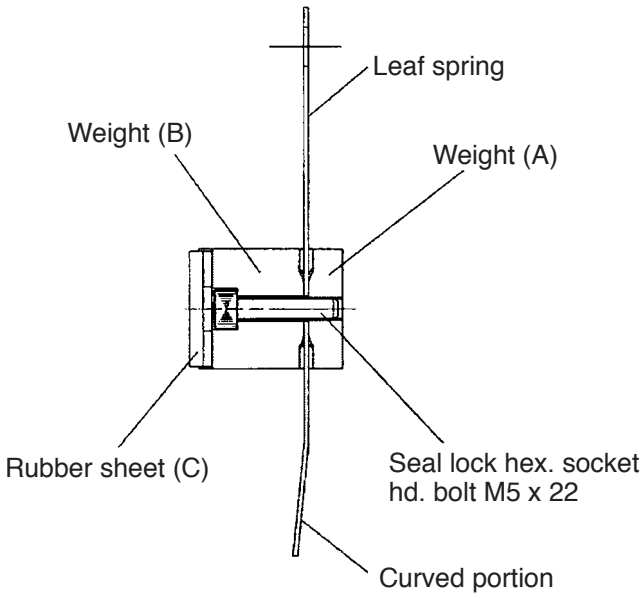


Fig. 25

Mount the Spring Base **[115]** to the Housing Ass'y **[114]** being careful of the mounting direction. Mount one Needle Roller **[55]** to the Cylinder Crank Case **[47]** and three Needle Rollers **[55]** to the Spring Base **[115]**. Before mounting, apply grease to the Needle Rollers **[55]** to avoid being removed (Fig. 26).

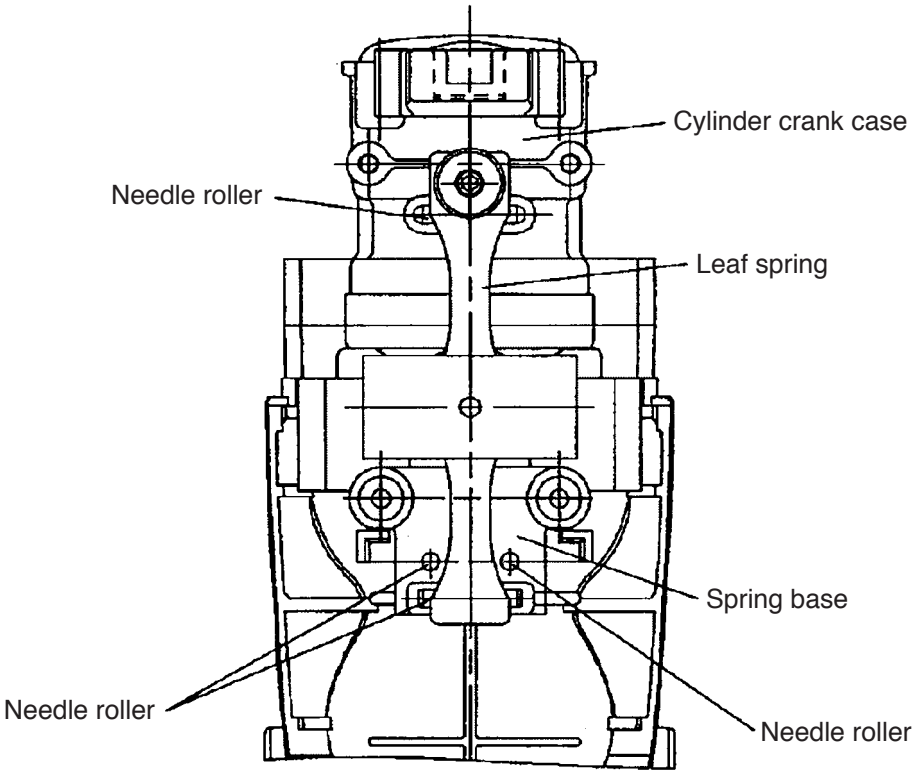


Fig. 26

Mount the assembly of the Leaf Spring **[51]**, Weight (A) **[59]** and Weight (B) **[58]** to the Cylinder Crank Case **[47]**. Then mount Spring Bumper (A) **[52]** and Washer M4.5 **[53]** to the Cylinder Crank Case **[47]** in this order and fix it with the Seal Lock Hex. Socket Hd. Bolt M4 x 10 **[54]**. At this time, check that the Leaf Spring **[51]** is fitted in the center of the Needle Rollers **[55]** mounted to the Spring Base **[115]** and the Leaf Spring **[51]** is curved to the housing.

Apply grease to Spring Bumper (B) **[75]** and mount it to the Back Cover **[76]** being careful of the mounting direction. To replace Rubber Sheet (A) **[74]**, sufficiently degrease the adhering surface of the Back Cover **[76]** and adhere Rubber Sheet (A) **[74]** securely.

Mount the Back Cover **[76]** to the Cylinder Crank Case **[47]** and the Housing Ass'y **[114]**. At this time, check that Spring Bumper (B) **[75]** and Rubber Sheet (A) **[74]** are adhered and the Needle Rollers **[55]** are mounted to the Cylinder Crank Case **[47]** and the Spring Base **[115]** (Fig. 27).

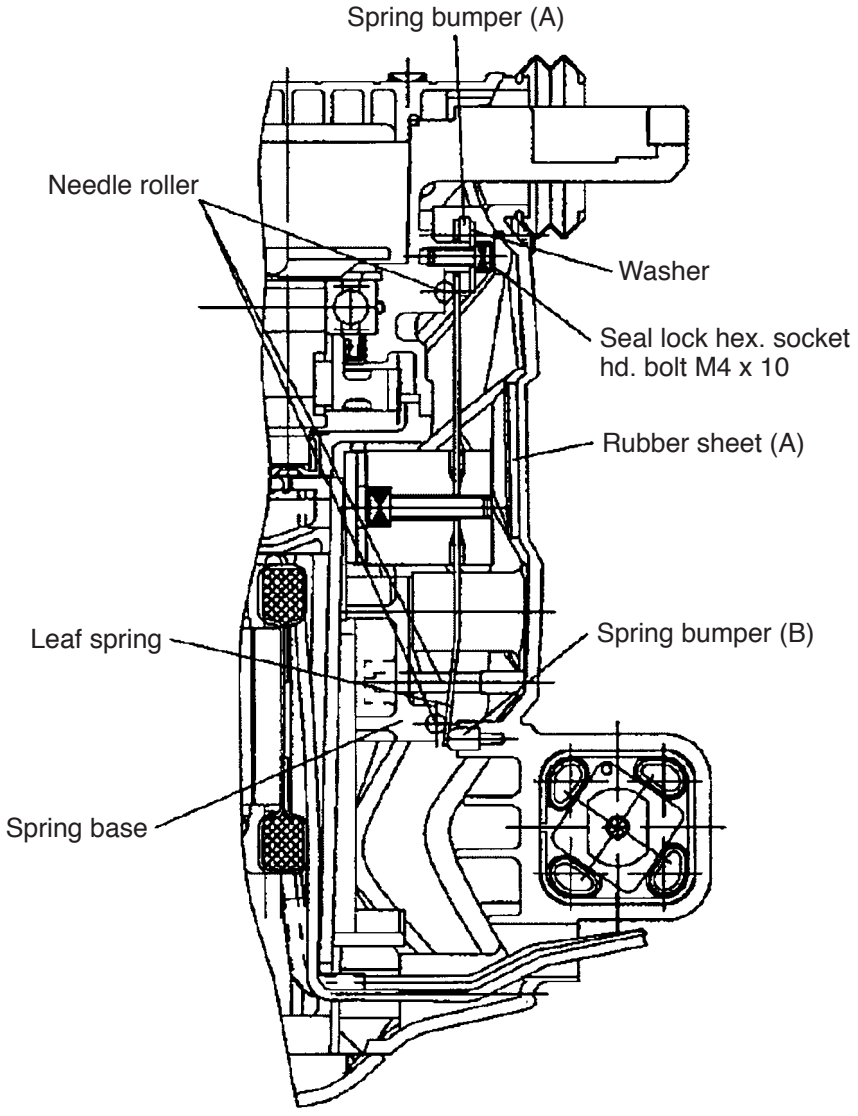


Fig. 27

● Lubrication

Apply special grease (grease for hammer and hammer drill) to the inner circumference of the Connecting Rod **[36]**, O-rings (I.D 27.2) **[29]** in the Striker **[28]** and in the Piston **[35]**, outer circumference of the Retainer Sleeve **[16]**, sliding portion of the Second Hammer **[21]**, Oil Seal **[46]**, Damper (A) **[17]**, Damper (B) **[25]**, Damper (C) **[22]**, inner circumference of the Slide Sleeve **[31]**, Hammer Holder (B) **[24]**, Hammer Holder (C) **[27]**, and the end surface of Spring (A) **[5]**. Seal 27 g of the special grease into the Cylinder Crank Case **[47]** (the Connecting Rod **[36]** side).

Apply Hitachi Motor Grease No. 29 to the Needle Bearing (M661) **[61]**, pinion portion of the Armature Ass'y **[67]**, Needle Roller D8 x 20 **[15]** and Steel Ball D6.35 **[10]**. Seal 20 g of the Hitachi Motor Grease No. 29 into the Cylinder Crank Case **[47]** (the First Gear **[60]** side).

Oil seals

● Be very careful not to damage the O-ring (1AS-50) **[13]** on the Front Cover **[12]**, O-ring (S-34) **[14]** in the Front Cover **[12]**, O-ring (S-25) **[19]** in Hammer Holder (A) **[18]**, O-ring **[41]** in the Crank Cover **[40]**, O-rings (I.D 27.2) **[29]** in the Striker **[28]** and in the Piston **[35]**, O-ring (S-40) **[44]** and Oil Seal **[46]** in the Cylinder Crank Case **[47]**, and O-ring (S-32) **[63]** in the Gear Cover Ass'y **[62]**.

9-1-3. Screw locking agent TB1401

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

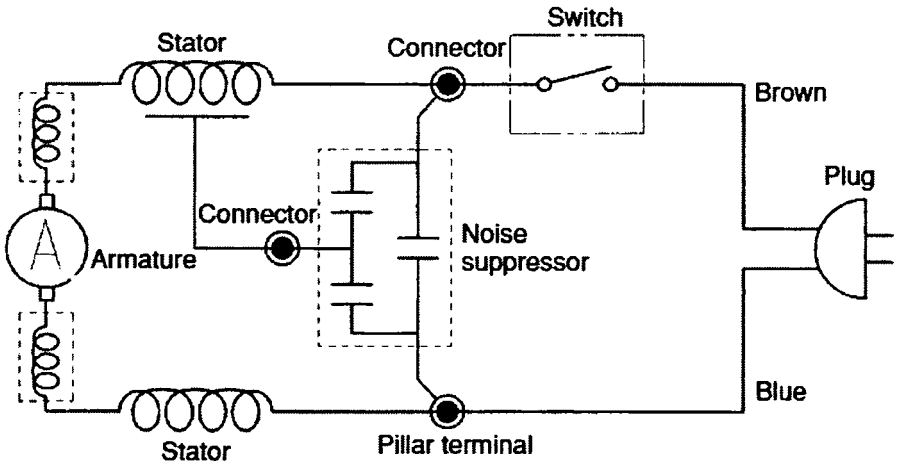
CAUTION: If bolts are loosened by vibration, they could cause damage to the hammer body. Ensure without fail that screw locking agent is applied to the threaded portions of the bolts prior to reassembly.

9-1-4. Tightening torque

(1) Attached bolts of the front cover (Hex. socket hd. bolts M6 x 25)	13.7 ± 1.96 N·m (140 ± 20 kgf·cm, 121.5 ± 17.4 in-lbs.)
(2) Tapping screw D4	1.96 ± 0.49 N·m (20 ± 5 kgf·cm, 17.4 ± 4.3 in-lbs.)
(3) Tapping screw D5	2.94 ± 0.49 N·m (30 ± 5 kgf·cm, 26.0 ± 4.3 in-lbs.)
(4) Hex. socket hd. bolts M6 x 45	9.8 ± 0.98 N·m (100± 10 kgf·cm, 86.8± 8.7 in-lbs.)
(5) Attached bolts of the crank cover (Hex. socket hd. bolts M5 x 16)	$7.84\ ^{+1.96}_{0}$ N·m ($80\ ^{+20}_{0}$ kgf·cm, $69.4\ ^{+17.4}_{0}$ in-lbs.)
(6) Attached bolts of the handle (Hex. socket hd. bolts M5 x 12)	$4.9\ ^{+1.96}_{0}$ N·m ($50\ ^{+20}_{0}$ kgf·cm, $43.4\ ^{+17.4}_{0}$ in-lbs.)
(7) Attached bolts of the back cover (Hex. socket hd. bolts M5 x 30	3.92 ± 0.49 N·m (40 ± 5 kgf·cm, 34.7 ± 4.3 in-lbs.)
(8) Attached bolts of the leaf spring (Hex. socket hd. bolts M5 x 22)	$7.84\ ^{+1.96}_{0}$ N·m ($80\ ^{+20}_{0}$ kgf·cm, $69.4\ ^{+17.4}_{0}$ in-lbs.)
(9) Attached bolts of the hood (Hex. socket hd. bolts M5 x 12)	3.92 ± 0.49 N·m (40 ± 5 kgf·cm, 34.7 ± 4.3 in-lbs.)
(10) Attached bolts of the leaf spring (Hex. socket hd. bolts M4 x 10)	4.41 ± 0.49 N·m (45 ± 5 kgf·cm, 39.1 ± 4.3 in-lbs.)

9-1-5. Internal wiring

● Wiring diagram for products with noise suppressor



9-1-6. Insulation tests

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

Insulation resistance: 7 M Ω or more with DC 500 V megohm tester

Dielectric strength: AC 4,000 V/1 minute, with no abnormalities ·····220 V ─ 240 V

(and 110 V for U.K. products)

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	230
Current (A) (Max.)	3.8	2.1

10. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable / Fixed	10	20	30	40	50	60 min.
H 45MRY		Work Flow					
		Handle (A).(B) Set Transatory Unit Switch (B) Cord Handle Damper Handle Damper Handle Shaft Holder				Gear Cover Ass'y Needle Bearing (A)	Housing Ass'y Stator Ass'y
		Tail Cover				Armature Ass'y Ball Bearing (6201DD) Ball Bearing (608VV) Dust Washer (B) Washer (A) Bearing Holder O-ring	
		Crank Cover O-ring					
	General Assembly			Back Cover Leaf Spring Spring Bumper (A)		Crank Shaft Feather Key Ball Bearing (6203DD)	Cylinder Crank Case
		Front Cap Grip (A) Needle Holder Ball Holder Grip (B) Grip (C)	Front Cover O-ring O-ring Retainer Sleeve Spring (A) Damper (A) Hammer Holder (A) O-ring Second Hammer Damper (B) Damper (A) Hammer Holder (B) Hammer Holder (C)	Rubber Sheet (C) Weight (B) Weight (A) Spring Bumper (B)		Oil Seal First Gear O-ring	
				Striker O-ring Piston Piston Pin Connecting Rod O-ring		Cylinder Sleeve Spring (B) Cylinder	

Hitachi Power Tools

LIST NO. E495

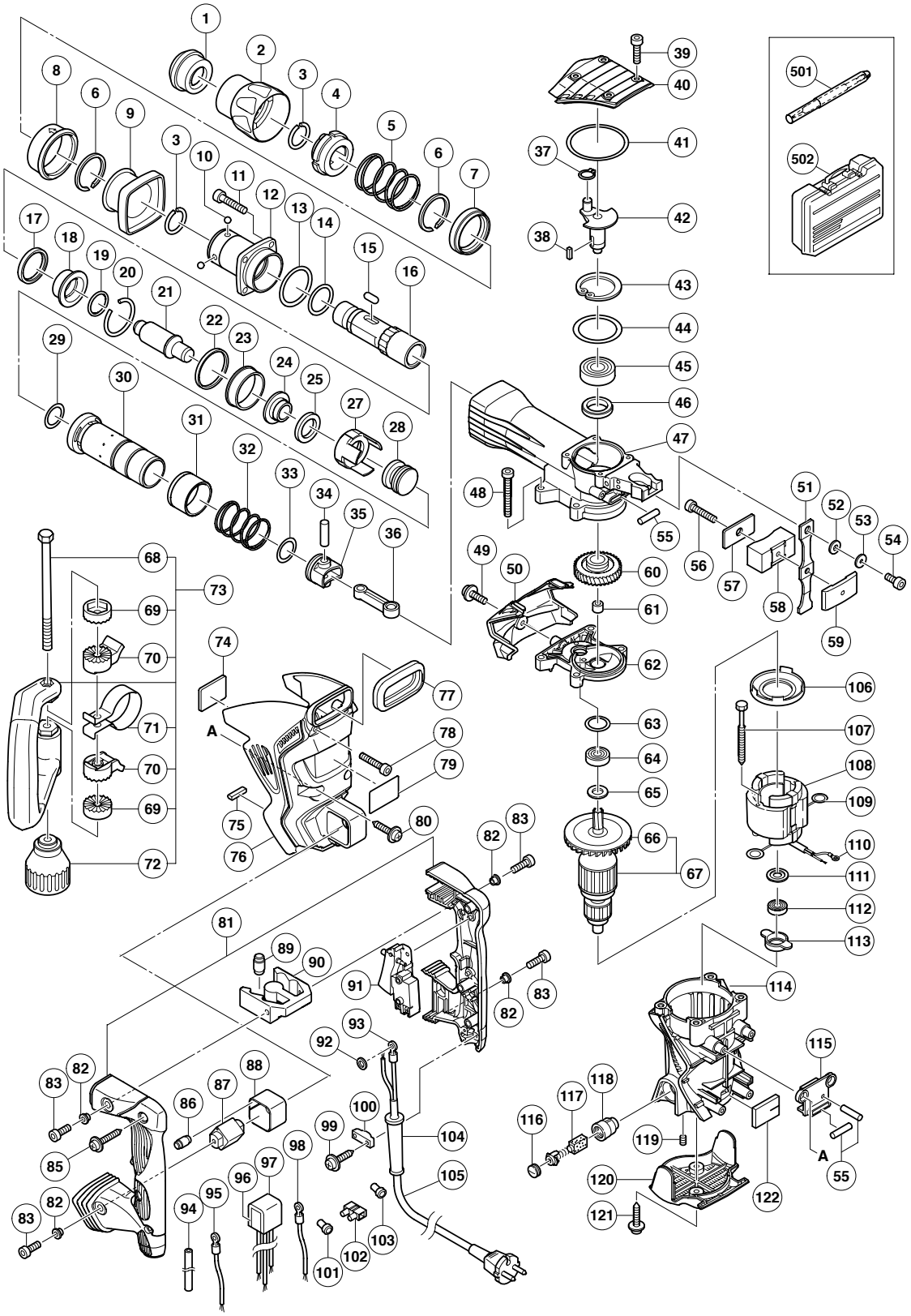
ELECTRIC TOOL PARTS LIST

■ HAMMER

2006 · 8 · 3

Model H 45MRY

(E1)



ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	315-529	FRONT CAP	1		
2	320-802	GRIP (A)	1		
3	320-803	RING	2		
4	320-804	NEEDLE HOLDER	1		
5	320-806	SPRING (A)	1		
6	317-088	RETAINING RING D42	2		
7	320-810	BALL HOLDER	1		
8	320-807	GRIP (B)	1		
9	320-808	GRIP (C)	1		
10	959-150	STEEL BALL D6.35 (10 PCS.)	4		
11	981-942	SEAL LOCK HEX. SOCKET HD. BOLT M6X25	4		
12	326-494	FRONT COVER	1		
13	990-067	O-RING (1AS-50)	1		
14	980-879	O-RING (S-34)	1		
15	313-421	NEEDLE ROLLER D8X20	2		
16	320-805	RETAINER SLEEVE	1		
17	322-528	DAMPER (A)	1		
18	326-379	HAMMER HOLDER (A)	1		
19	319-572	O-RING (S-25)	1		
20	326-380	RING (B)	1		
21	326-381	SECOND HAMMER	1		
22	326-662	DAMPER (C)	1		
23	326-495	SLEEVE (A)	1		
24	320-814	HAMMER HOLDER (B)	1		
25	320-815	DAMPER (B)	1		
27	326-382	HAMMER HOLDER (C)	1		
28	326-383	STRIKER	1		
29	325-297	O-RING (I.D 27.2)	1		
30	326-496	CYLINDER	1		
31	326-497	SLIDE SLEEVE	1		
32	326-498	SPRING (B)	1		
33	325-297	O-RING (I.D 27.2)	1		
34	324-917	PISTON PIN	1		
35	326-384	PISTON	1		
36	326-385	CONNECTING ROD	1		
37	939-540	RETAINING RING FOR D10 SHAFT (10 PCS.)	1		
38	930-511	FEATHER KEY 4X4X10	1		
39	990-079	SEAL LOCK HEX. SOCKET HD. BOLT M5X16	4		
40	326-500	CRANK COVER	1		
41	326-501	O-RING	1		
42	326-499	CRANK SHAFT	1		
43	948-391	RETAINING RING FOR D40 HOLE	1		
44	996-363	O-RING (S-40)	1		
45	620-3DD	BALL BEARING 6203DDCMPS2L	1		
46	310-119	OIL SEAL	1		
47	326-502	CYLINDER CRANK CASE	1		
48	986-940	SEAL LOCK HEX. SOCKET HD. BOLT M6X45	4		
49	998-471	HEX. SOCKET HD. BOLT (W/FLANGE) M5X12	1		
50	326-503	HOOD	1		
51	326-386	LEAF SPRING	1		
52	326-375	SPRING BUMPER (A)	1		

	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
	53	326-477	WASHER M4.5	1		
	54	878-356	SEAL LOCK HEX. SOCKET HD. BOLT M4X10	1		
	55	878-418	NEEDLE ROLLER	4		
	56	317-245	SEAL LOCK HEX. SOCKET HD. BOLT M5X22	1		
	57	326-515	RUBBER SHEET (C)	1		
	58	326-508	WEIGHT (B)	1		
	59	326-507	WEIGHT (A)	1		
	60	320-830	FIRST GEAR	1		
	61	939-299	NEEDLE BEARING (M661)	1		
	62	326-510	GEAR COVER ASS'Y	1	INCLUD. 61	
	63	872-767	O-RING (S-32)	1		
	64	620-1DD	BALL BEARING 6201DDCMPS2L	1		
	65	302-429	DUST WASHER (B)	1		
	66	321-640	FAN	1		
*	67	360-571C	ARMATURE ASS'Y 110V	1	INCLUD. 66	
*	67	360-571E	ARMATURE ASS'Y 220V-230V	1	INCLUD. 66	
	68	317-107	BOLT M8	1		
	69	317-106	HANDLE HOLDER (B)	2		
	70	317-105	HANDLE HOLDER (A)	2		
	71	320-635	BAND	1		
	72	317-108	GRIP	1		
	73	317-103	SIDE HANDLE ASS'Y	1	INCLUD. 68-72	
	74	326-487	RUBBER SHEET (A)	1		
	75	326-376	SPRING BUMPER (B)	1		
	76	326-505	BACK COVER	1		
	77	326-378	BELLOWS	1		
	78	306-061	SEAL LOCK HEX. SOCKET HD. BOLT M5X30	2		
	79		NAME PLATE	1		
	80	302-089	TAPPING SCREW (W/FLANGE) D5X20 (BLACK)	4		
	81	326-485	HANDLE (A).(B) SET	1		
	82	991-711	DISTANCE PIECE (B)	4		
	83	991-690	SEAL LOCK HEX. SOCKET HD. BOLT M5X12	4		
	85	307-028	TAPPING SCREW (W/FLANGE) D4X25 (BLACK)	3		
	86	310-124	HANDLE DAMPER	4		
	87	326-377	HANDLE SHAFT	1		
	88	326-479	HOLDER	1		
	89	310-124	HANDLE DAMPER	4		
	90	310-123	TRANSATORY UNIT	1		
	91	306-143	SWITCH (B) (1P SCREW TYPE) W/LOCK	1		
	92	949-423	WASHER M4 (10 PCS.)	1		
*	93	980-063	TERMINAL	1	FOR CORD	
	94	326-541	VINYL TUBE (I.D.9.5XT0.56X85)	1		
	95	326-509	INTERNAL WIRE L75	1		
	96	325-566	NOISE SUPPRESSOR	1		
	97	317-492	SUPPORT (B)	1		
	98	994-190	INTERNAL WIRE	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	959-140	CONNECTOR 50091 (10 PCS.)	1		
	102	938-307	PILLAR TERMINAL	1		

PARTS

	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
	103	959-141	CONNECTOR 50092 (10 PCS.)	1		
	104	953-327	CORD ARMOR D8.8	1		
*	105	500-390Z	CORD	1	(CORD ARMOR D8.8)	
*	105	500-454Z	CORD	1	(CORD ARMOR D8.8) FOR GBR (110V)	
*	105	500-446Z	CORD	1	(CORD ARMOR D8.8) FOR GBR (230V)	
*	105	500-391Z	CORD	1	(CORD ARMOR D8.8) FOR SUI	
	106	321-320	FAN GUIDE	1		
	107	953-174	HEX. HD. TAPPING SCREW D5X55	2		
*	108	340-681C	STATOR ASS'Y 110V	1	INCLUD. 109	
*	108	340-681E	STATOR ASS'Y 220V-230V	1	INCLUD. 109	
	109	930-703	BRUSH TERMINAL	2		
	110	930-804	TERMINAL M4.0 (10 PCS.)	1		
	111	982-631	WASHER (A)	1		
	112	608-VVM	BALL BEARING 608VVC2PS2L	1		
	113	326-484	BEARING HOLDER	1		
	114	326-481	HOUSING ASS'Y	1		
	115	326-506	SPRING BASE	1		
	116	935-829	BRUSH CAP	2		
	117	999-073	CARBON BRUSH (AUTO STOP TYPE) (1 PAIR)	2		
	118	971-001	BRUSH HOLDER	2		
	119	938-477	HEX. SOCKET SET SCREW M5X8	2		
	120	326-504	TAIL COVER	1		
	121	302-089	TAPPING SCREW (W/FLANGE) D5X20 (BLACK)	2		
	122	326-488	COVER (A)	1		

STANDARD ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
501	313-471	BULL POINT (SDS MAX) 280L	1		
502	326-511	CASE (PLASTIC)	1		

OPTIONAL ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
601	981-840	GREASE (A) FOR HAMMER. HAMMER DRILL (30G)	1		
602	308-471	GREASE FOR HAMMER. HAMMER DRILL (70G)	1		
603	980-927	GREASE FOR HAMMER. HAMMER DRILL (500G)	1		
604	313-472	BULL POINT (SDS MAX) 400L	1		
605	313-473	COLD CHISEL (SDS MAX) 280MM	1		
606	313-474	COLD CHISEL (SDS MAX) 400MM	1		
607	313-475	CUTTER (SDS MAX) W50X400L	1		
608	313-476	SCOOP (SDS MAX) 400L	1		
609	313-478	RAMMER (SDS MAX) 150MM X 150MM	1		
610	313-477	BUSHING TOOL (SDS MAX)	1		
611	313-479	SHANK (SDS MAX) FOR RAMMER, BUSHING TOOL	1		

* ALTERNATIVE PARTS

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