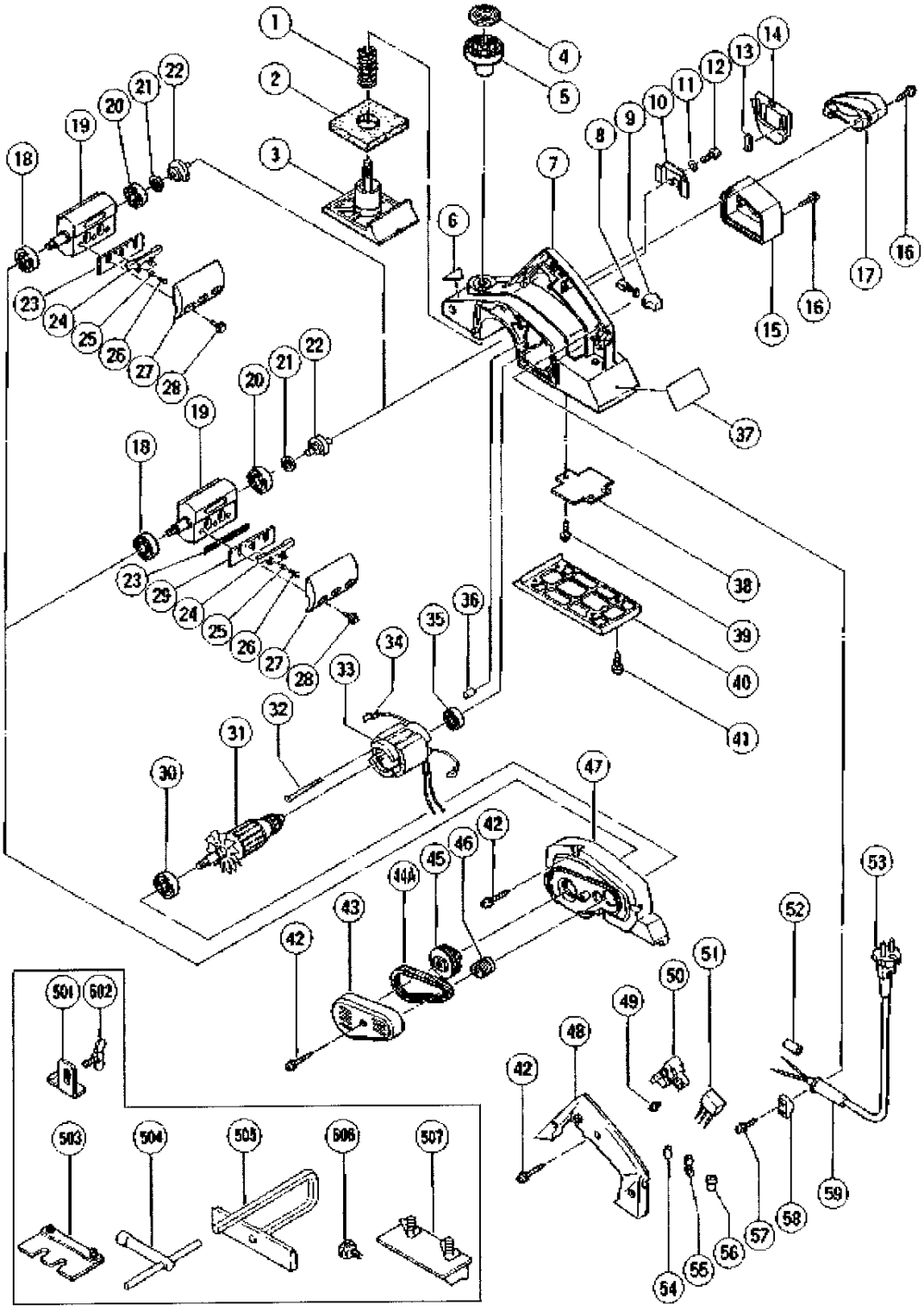
HITACHI

LIST NO. 0662

ELECTRIC TOOL PARTS LIST

■ PLANER
Model P 20SA2

2001·6·1
(E1-1)



	ITEM No.	CODE No.	DESCRIPTION	No. USED	REMARKS
	1	958-709	SPRING	1	
	2	958-708	RUBBER PACKING	1	
	3	958-831Z	FRONT BASE	1	
	4	316-417	SCALE	1	
	5	942-328	KNOB	1	
*	6		HITACHI LABEL	1	
	7	990-658	HOUSING ASS'Y	1	INCLUD.32,36
	8	999-041	CARBON BRUSH (1 PAIR)	2	
	9	955-203	BRUSH HOLDER	2	
	10	958-838Z	COVER	1	
	11	949-453	SPRING WASHER M4 (10 PCS.)	2	
	12	949-217	MACHINE SCREW M4X12 (10 PCS.)	2	
	13	958-839Z	MAGNET	2	
	14	958-837Z	BLADE COVER	1	
	15	958-835Z	TAIL COVER	1	
	16	307-811	TAPPING SCREW (W/FLANGE) D4X16 (BLACK)	4	
	17	958-836Z	CHIP GUIDE	1	
	18	620-1VV	BALL BEARING 6201VVCMPS2L	1	
	19	316-418	CUTTER BLOCK ASS'Y (W/B.B)	1	INCLUD.18,20-22
	20	629-VVM	BALL BEARING 629VVC2PS2L	1	
	21	958-915	WASHER (A)	1	
	22	958-824Z	SHAFT (B)	1	
*	23	314-746	PLANER BLADES 82MM (1 PAIR)	2	
*	23	879-418	PLANER BLADES (1 PAIR)	2	FOR NZL,GBR,FRG,FRA,HOL,FIN,AUT,NOR,ESP,
*					SUI
	24	314-754	SET PLATE (A)	2	
	25	949-423	WASHER M4 (10 PCS.)	4	
	26	949-213	MACHINE SCREW M4X5 (10 PCS.)	4	
	27	958-850Z	BLADE HOLDER (1 PAIR)	2	
	28	990-669	BOLT (W/WASHER) M6X18	6	
*	29	314-740	SET PLATE (B) (1 PAIR)	2	
	30	620-0VV	BALL BEARING 6200VVCMPS2L	1	
*	31	990-652C	ARMATURE 110V-127V	1	
*	31	990-652E	ARMATURE 220V-230V	1	
*	31	990-652F	ARMATURE 240V	1	
	32	963-712	HEX. HD. TAPPING SCREW D4X65	2	
*	33	990-651K	STATOR ASS'Y 110V	1	INCLUD.34
*	33	990-651E	STATOR ASS'Y 220V-230V	1	INCLUD.34
*	33	990-651H	STATOR ASS'Y 240V	1	INCLUD.34

*:ALTERNATIVE PARTS

	ITEM No.	CODE No.	DESCRIPTION	No. USED	REMARKS
*	33	990-651G	STATOR ASS'Y 230V	1	INCLUD.34 FOR NZL
*	33	990-651J	STATOR ASS'Y 220V-230V	1	INCLUD.34 FOR GBR,SAF,ITA,FRG,FRA,HOL,
*					FIN,AUT,NOR,ESP,SUI
*	34	941-615	BRUSH TERMINAL	2	
*	34	958-857Z	BRUSH TERMINAL	2	FOR GBR,SAF,ITA,FRG,FRA,HOL,FIN,AUT,NOR,
*					ESP,SUI
	35	608-VVM	BALL BEARING 608VVC2PS2L	1	
	36	963-227	BEARING LOCK	1	
	37		NAME PLATE	1	
	38	958-844Z	PLATE	1	
	39	930-446	TAPPING SCREW (W/WASHER) D4X16	1	
	40	958-833Z	REAR BASE	1	
	41	954-004	TAPPING SCREW D4X16	4	
	42	307-028	TAPPING SCREW (W/FLANGE) D4X25 (BLACK)	8	
	43	958-830Z	BELT COVER	1	
	44A	317-747	BELT	1	
	45	990-661	PULLEY (B)	1	
	46	990-660	PULLEY (A)	1	
	47	990-659	END BRACKET	1	
	48	958-854Z	HANDLE COVER	1	
*	49	305-499	MACHINE SCREW (W/WASHER) M3.5X6	2	
*	50	957-747	SWITCH (A) (1P SCREW TYPE) W/LOCK	1	
*	50	971-667Z	SWITCH (2P PILLAR TYPE) W/LOCK	1	FOR SAF
*	50	963-756Z	SWITCH (2P PILLAR TYPE) W/SAFETY LOCK	1	FOR NZL,AUS,GBR,ITA,FRG,FRA,HOL,FIN,AUT,
*					NOR,ESP,SUI
*	51	994-273	NOISE SUPPRESSOR	1	FOR NZL,AUS,GBR,SAF,ITA,FRG,FRA,HOL,FIN,
*					AUT,NOR,ESP,SUI
*	52	981-373	TUBE (D)	2	FOR CORD
*	53	500-212Z	CORD	1	(CORD ARMOR D8.8)
*	53	500-439Z	CORD	1	(CORD ARMOR D8.8) FOR NZL,AUS
*	53	500-435Z	CORD	1	(CORD ARMOR D8.8) FOR GBR (230V)
*	53	500-247Z	CORD	1	(CORD ARMOR D10.2) FOR FIN,NOR
*	53	500-234Z	CORD	1	(CORD ARMOR D8.8) FOR ITA,FRG,FRA,HOL,
*					AUT,ESP,SAF
*	53	500-248Z	CORD	1	(CORD ARMOR D10.2) FOR SUI
*	53A	500-461Z	CORD	1	(CORD ARMOR D8.8) FOR GBR (110V)
*	54	981-373	TUBE (D)	2	FOE NZL,GBR,SAF,ITA,FRG,FRA,HOL,FIN,AUT,
*					NOR,ESP,SUI
*	55	959-144	TERMINAL 50051 (10 PCS.)	1	FOR NOISE SUPPRESSOR

*:ALTERNATIVE PARTS

	ITEM No.	CODE No.	DESCRIPTION	No. USED	REMARKS
*	56	959-140	CONNECTOR 50091 (10 PCS.)	1	
	57	984-750	TAPPING SCREW (W/FLANGE) D4X16	2	
	58	937-631	CORD CLIP	1	
*	59	303-662	CORD ARMOR D8.8	1	
*	59	980-193	CORD ARMOR D10.2	1	

STANDARD ACCESSORIES

	ITEM No.	CODE No.	DESCRIPTION	No. USED	REMARKS
	501	958-840Z	DEPTH GUIDE	1	
	502	949-395	WING BOLT M5X6 (10 PCS.)	1	
	503	316-419	SET GAUGE	1	
	504	940-543	BOX WRENCH 10MM	1	
	505	958-842Z	GUIDE	1	
	506	940-650	STOPPER SCREW M5X14	1	
*	507	314-767	BLADE SHARPENING ASS'Y	1	FOR THA,ITA,HOL

*:ALTERNATIVE PARTS

MODEL P 20SA2

1. MAINTENANCE GUIDE

As suggestions for the use and general maintenance of the planer are covered in the Handling Instructions, only special suggestions relative to planer blade adjustment, disassembly, reassembly and repair are described here. Thorough attention in handling should be exercised at all times to carefully maintain the flatness and alignment between the front base and rear surface of the base, and to avoid possible injury when installing, adjusting or handling the planer blades. In addition, ensure without fail that the power cord is disconnected from the power outlet prior to carrying out maintenance, cleaning, blade replacement, etc. The **[Bold]** numbers in the descriptions below correspond to the item numbers in the Parts List and exploded assembly diagram.

1-1. Planer Blade Adjustment

The procedures for blade height adjustment are described in the Handling Instructions. Accordingly, only supplementary information is presented here.

1-2. Planer Blade Height Adjustment

A. Resharpenable type (for Asia, etc.) (See Figs. 1 and 2.)

(1) Loosen the two machine screws holding the blade and set plate (A).

(2) Make the bent surface of set plate (A) flush with wall surface (b) after contacting the blade tip with wall surface (a) of set gauge. Then, tighten them with the two screws.

B. Double edged type (for Europe, etc.) (See Figs. 1 and 3.)

(1) Loosen the two machine screws holding the blade, set plate (A) and set plate (B).

(2) Adjust the planer blade height in the same procedure as in above.

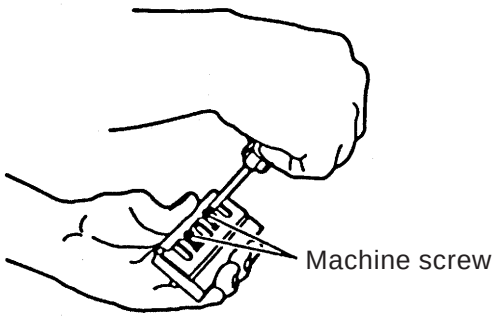


Fig. 1

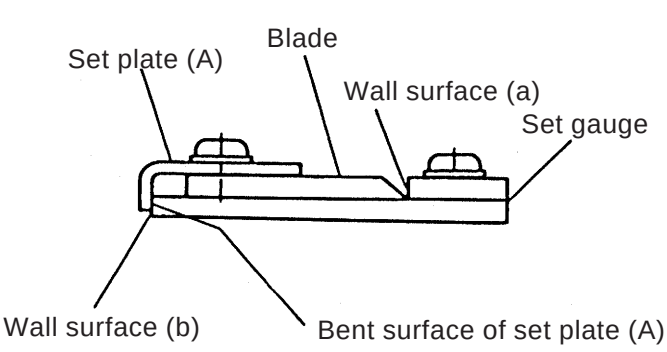


Fig. 2

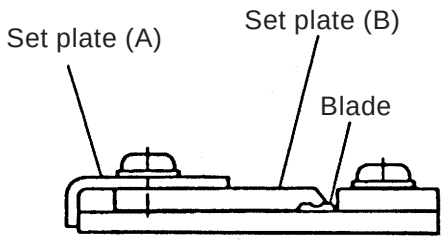


Fig. 3

1-3. Troubleshooting Guide

General troubleshooting and repair of the Model P 20SA2 can be conducted by referring to Table 1 below, which is based on the troubleshooting guide for electric power tools utilizing commutator motors.

Table 1. Troubleshooting guide

Failure	Possible cause	Check method	Countermeasure
1. Motor does not rotate.	• Power outlet	• Check power source	Replace fuse/Turn ON breaker
	• Damaged cord	• Check conductivity	Repair/Replace
	• Open circuit in armature or stator	• Inspect	Repair/Replace
	• Faulty switch	• Check conductivity	Replace
	• Worn carbon brushes	• Inspect	Adjust/Replace
2. Excessive current or blown fuse	• Short circuit in armature or stator	• Inspect	Replace
	• Mechanical malfunction	• Disassemble/Inspect	Replace damaged parts
	• Incursion of foreign materials	• Disassemble/Inspect	Remove foreign materials
	• Defective insulation	• Measure resistance	Repair/Replace damaged parts
3. Motor rotates • with excessive noise	• Defective cutter block ass'y • Defective carbon brush contact • Defective ball bearings	• Inspect • Check carbon brush • Check for damage or lack of lubricant	Repair/Replace Adjust/Replace Lubricate/Replace
• with excessive vibration	• Armature imbalance • Worn ball bearings • Defective belt • Defective pulleys • Imbalanced cutter block ass'y	• Inspect • Inspect • Inspect • Inspect • Inspect	Replace Replace Adjust/Replace Repair/Replace Repair/Replace
• irregularly rotation or with overheating	• Short circuit in armature or stator • Open circuit in armature • Belt slippage • Worn mechanical parts • Loose circuit connection • Faulty switch	• Inspect • Inspect • Inspect belt • Inspect mechanism • Inspect circuit • Inspect	Replace Replace Reduce load if necessary Replace damaged or worn parts Repair Replace
• with excessive sparks from carbon brushes	• Defective carbon brush contact • Worn carbon brushes	• Inspect carbon brush and commutator surface of armature • Inspect	Adjust carbon brush/ Replace armature if necessary Adjust/Replace
• but no-load rotation too slow	• Mechanical failure • Source voltage drop • Short circuit in armature	• Inspect mechanism • Check power source with voltmeter • Check armature with growler	Lubricate/Replace damaged parts Consult power company Replace
• but no-load rotation too fast	• Short circuit in stator • Excessive voltage	• Check stator with universal tester • Check power source with voltmeter	Replace Consult power company

1-4. Disassembly

1-4-1. Armature, Cutter Block, and End Bracket Disassembly (See Figs. 4 and 5)

(1) Loosen the two D4 x 16 ⊕-Hd. Tapping Screws **[16]**, and remove the Tail Cover **[15]**.

(2) Remove the Carbon Brushes **[8]** and the Brush Holders **[9]** by slightly prying the brush holders upward. Then, loosen the two D4 x 14 ⊕-Hd. Machine Screws **[12]** and remove the Cover **[10]** and Blade Cover **[14]** together.

(3) Loosen the single D4 x 25 ⊕-Hd. Tapping Screw **[42]** and remove the Belt Cover **[43]**. Next, loosen the four D4 x 25 ⊕-Hd. Tapping Screw **[42]** that secure the End Bracket **[47]** to the Housing Ass'y **[7]**. Finally, tap the end bracket side of the housing ass'y gently with a wooden or plastic hammer, and the End Bracket **[47]**, Armature **[31]**, and Cutter Block Ass'y **[19]** should come off simultaneously.

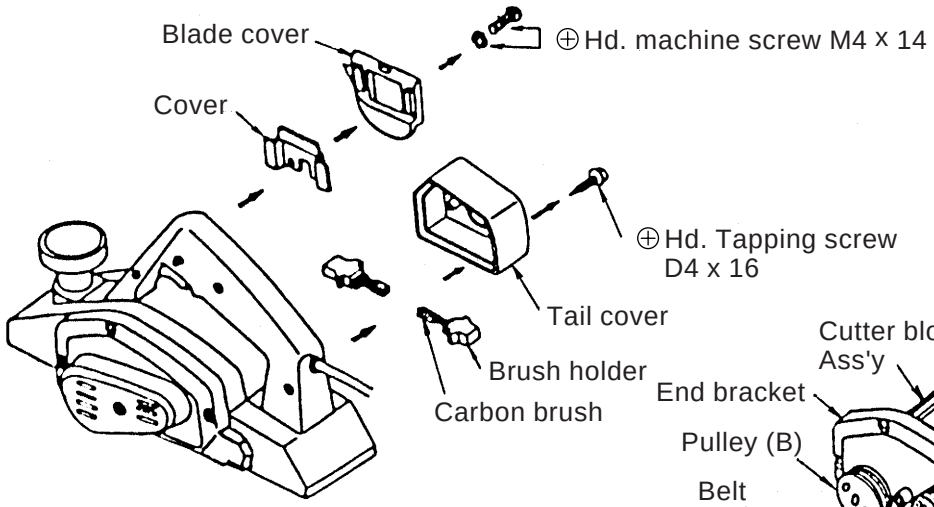


Fig. 4

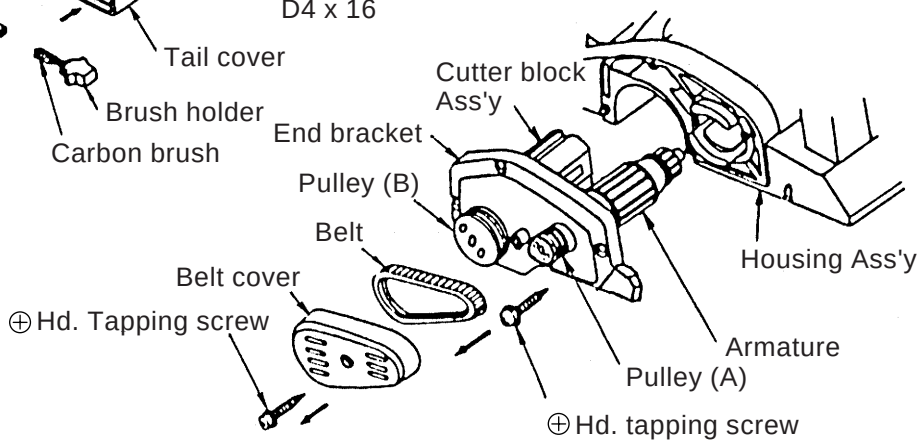


Fig. 5

1-4-2. Pulley (A) and Pulley (B) Disassembly (See Figs. 6 and 7)

(1) Slightly lift the Belt **[44]**, and remove it from the pulleys by rotating them manually.

(2) Pulley (A) **[46]** (right-hand threaded) and Pulley (B) **[45]** (left-hand threaded) are screwed onto the armature shaft and the cutter block spindle respectively. To remove Pulley (A), fix the Armature **[31]** firmly in a vise, and unscrew the pulley in a clockwise direction with a wrench.

(3) To remove Pulley (B), fix the cutter block firmly in a vise, and unscrew pulley (B) in a counterclockwise direction with the wrench. It is recommended that gloves or a thick rag be used to prevent injury to fingers and hands.

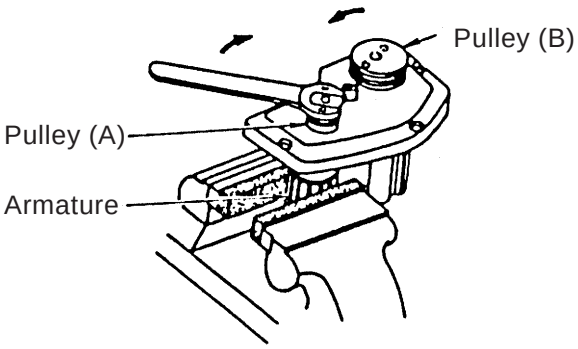


Fig. 6

1-4-3. Front Base Disassembly (See Fig. 7)

Rotate the Knob **[5]** counterclockwise, and the Front Base **[3]**, Rubber Packing **[2]**, and Spring **[1]** can then be disassembled.

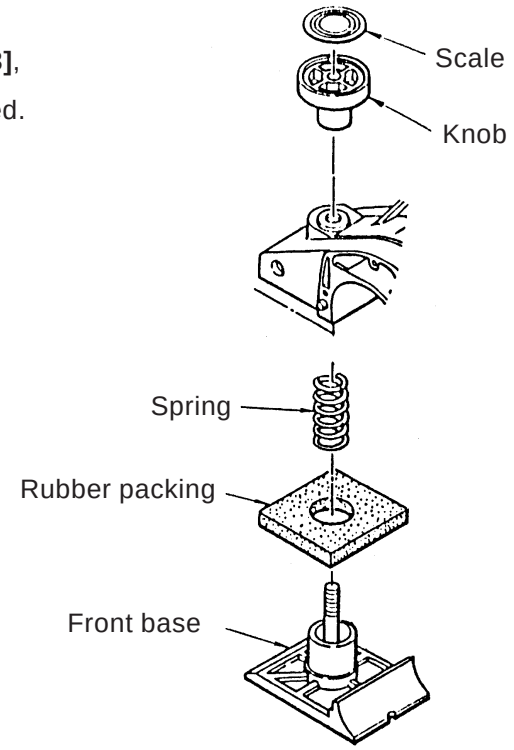


Fig. 7

1-4-4. Stator Ass'y Disassembly for Model P 20SA2 (See Figs. 8 and 9)

(1) After the Armature has been removed, loosen the three M4 x 25 ⊕-Hd. Tapping Screws **[42]** and remove the Handle Cover **[48]**.

(2) Loosen the two M4 x 65 Hex. Hd. Tapping Screws **[32]** which retain the two stator lead wires on the Switch **[50]** and disconnect the lead wires. Then, loosen the four D4 x 16 ⊕-Hd. Tapping Screws **[41]** which secure the Rear Base **[40]** and remove the Rear Base **[40]** and the Plate **[38]**. Finally, pull the two stator lead wires out from the handle section of the housing to permit easy removal of the stator.

(3) After removing the stator Brush Terminals **[34]** from the Brush Holders **[9]**, loosen the two M4 x 65 Hex. Hd. Tapping Screws **[32]** that secure the Stator Ass'y **[33]** to the Housing Ass'y **[7]**. Next, turn the end bracket connection side of the housing ass'y downward. Then, by lightly tapping the side surface with a wooden or plastic hammer while pushing the lead wires into the housing, the Stator Ass'y **[33]** will slide easily out of the Housing Ass'y **[7]**.

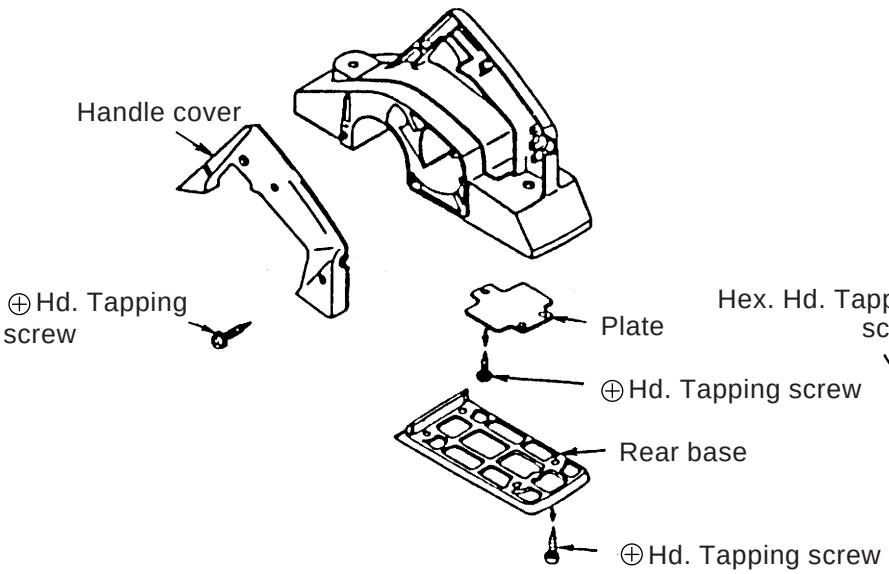


Fig. 8

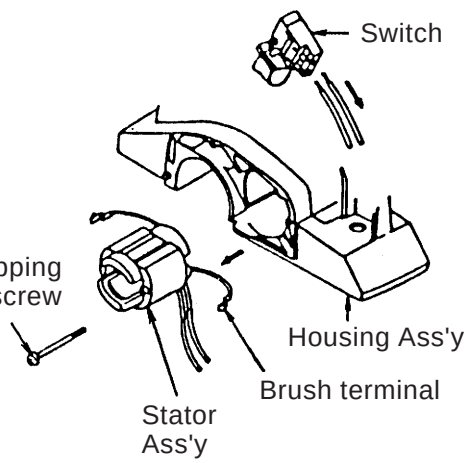


Fig. 9

1-5. Reassembly

Perform reassembly in the reverse order of disassembly.

1-6. Screw Tightening Torque

D4 Tapping Screw **[16]**,**[32]**,**[39]**,**[41]**,**[42]**,**[57]** ····· 2.0 ± 0.5 N·m (20 ± 5 kgf·cm)

M4 Machine Screw **[12]**,**[26]** ····· 1.8 ± 0.4 N·m (18 ± 4 kgf·cm)

M6 x 18 Bolt **[28]** ····· 9.8 - 14.7 N·m (100 - 150 kgf·cm)

1-7. Wiring Diagrams

[A] Without noise suppressor

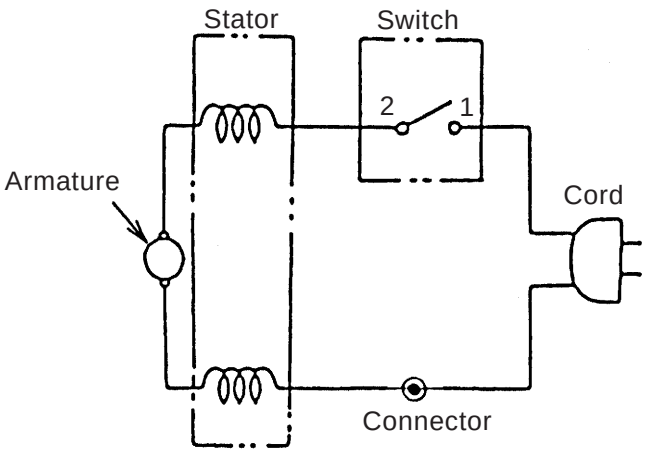


Fig. 10

[B] With noise suppressor

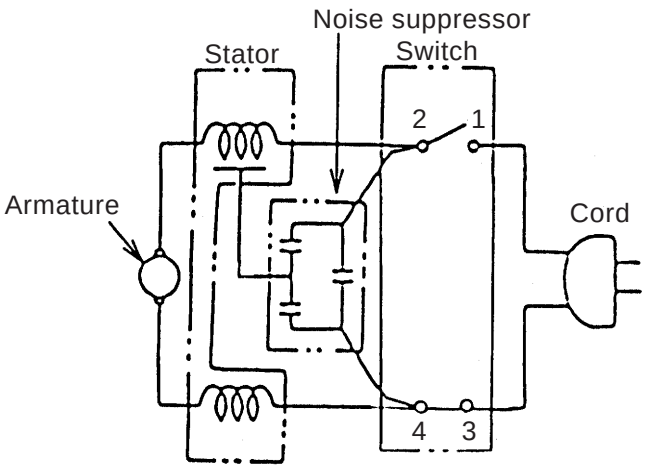


Fig. 11

1-8. Insulation Test

On completion of reassembly after repair, measure the insulation resistance and conduct the dielectric strength test.

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

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

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

1-9. No-Load Current Values

After no-load operation for 30 minutes, the no-load current values should be as follows.

Voltage (V)	110	115	127	220	230	240
Current (A) Max.	3.9	3.8	3.4	2.0	1.8	1.7

2. STANDARD REPAIR TIME (UNIT) SCHEDULES