

Hitachi Power Tools

SERVICE MANUAL

LIST No.
CM 4ST: E725
Aug. 2010

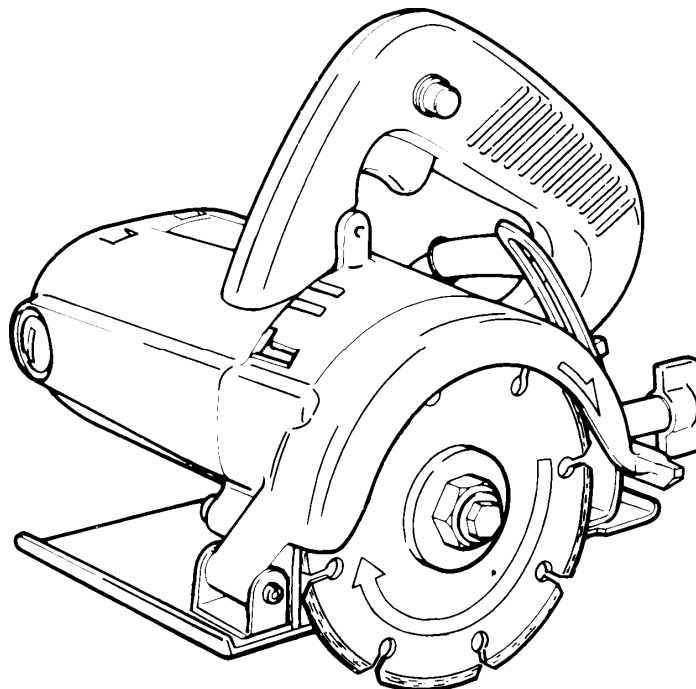
PRODUCT NAME

Hitachi 4" Cutter

Model CM 4ST

C

CONTENTS	Page
REPAIR GUIDE	1
1. Precautions on disassembly and reassembly	1
STANDARD REPAIR TIME (UNIT) SCHEDULES	5



HITACHI

 **Hitachi Koki Co., Ltd.**
International Sales Division

REPAIR GUIDE

1. Precautions on Disassembly and Reassembly

[Bold] numbers in the descriptions below correspond to item numbers in the Parts List and exploded assembly diagram for the Model CM 4ST.

Disassembly

Note on disassembly: Before starting disassembly, be sure to disconnect the power plug from the power supply.

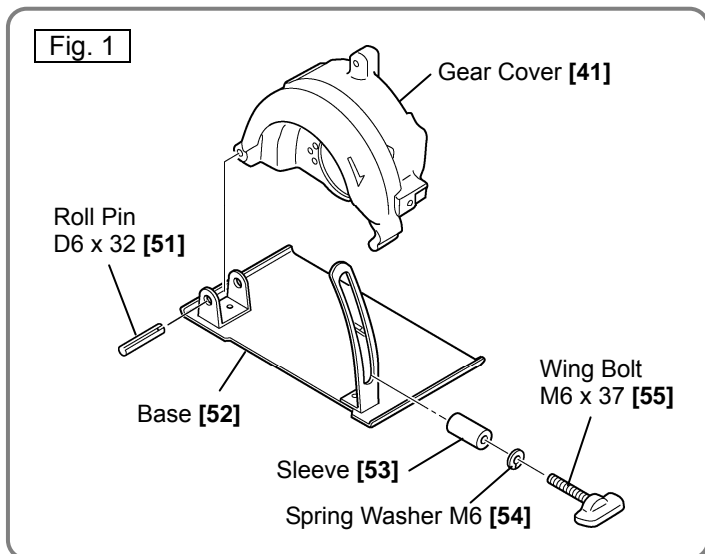
1. Removal of the diamond wheel

Remove the diamond wheel while being very careful to avoid damaging it and causing possible injury.

(Note that the Bolt (Left Hand) M7 x 15 [49] that secures the diamond wheel in place is left-hand threaded.)

2. Disassembly of the gear cover and base (Fig. 1)

- (1) Loosen the three Machine Screw (W/Washers) M5 x 25 [20] that fasten the Housing Ass'y [16] and Gear Cover [41], and then remove the Gear Cover.
- (2) Loosen the Wing Bolt M6 x 37 [55] that couples the Base [52] and Gear Cover [41], and then remove the Spring Washer M6 [54] and Sleeve [53].
- (3) Extract the Roll Pin D6 x 32 [51] that fastens the Base [52] and Gear Cover [41], and then remove the Base [52].

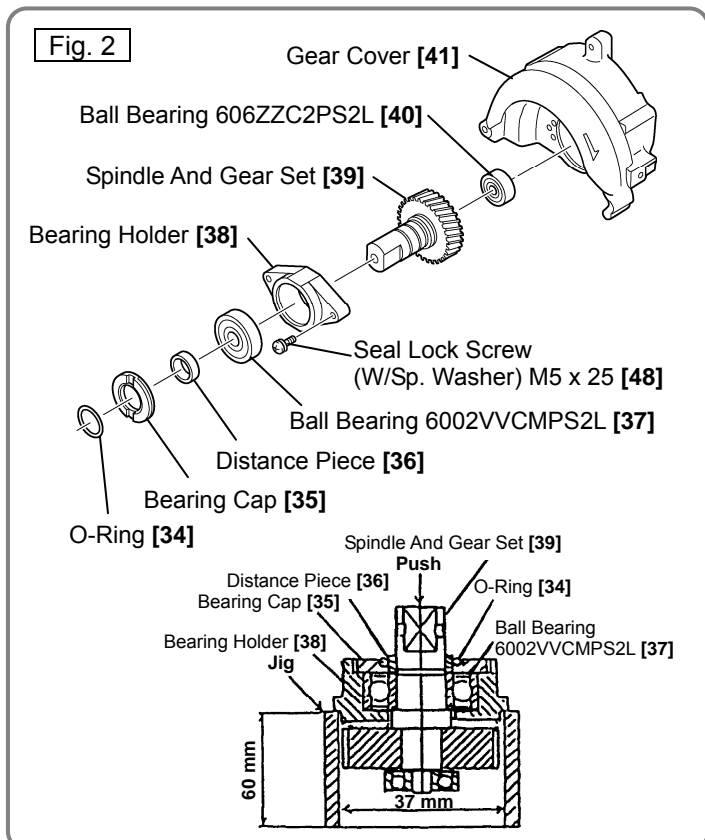


3. Disassembly of the spindle gear

- (1) Loosen the two Seal Lock Screw (W/Sp. Washer) M5 x 25 [48], and then use a wooden or plastic hammer to gently tap on the end surface of the Gear Cover [41] to loosen and remove the Bearing Holder [38], Spindle And Gear Set [39], and related parts as shown in Fig. 2.
- (2) Support the Bearing Holder [38] with an appropriate jig, and then use a hand press to push down on the end surface of the spindle, to order to remove the Spindle And Gear Set [39], Distance Piece [36], and O-Ring [34].

CAUTION:

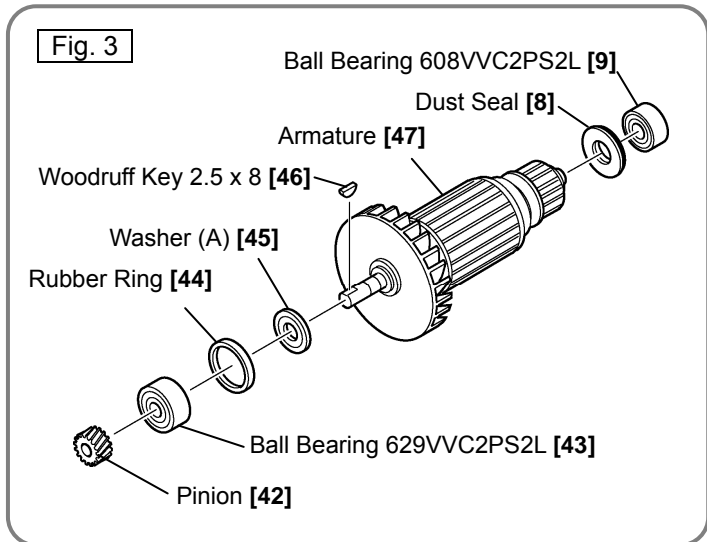
If the spindle must be replaced, replace both the spindle and gear without fail. As both parts are joined by keyless pressure fitting, attempting to join old and new components will reduce the fitting strength.



4. Disassembly of the armature

(Fig. 3)

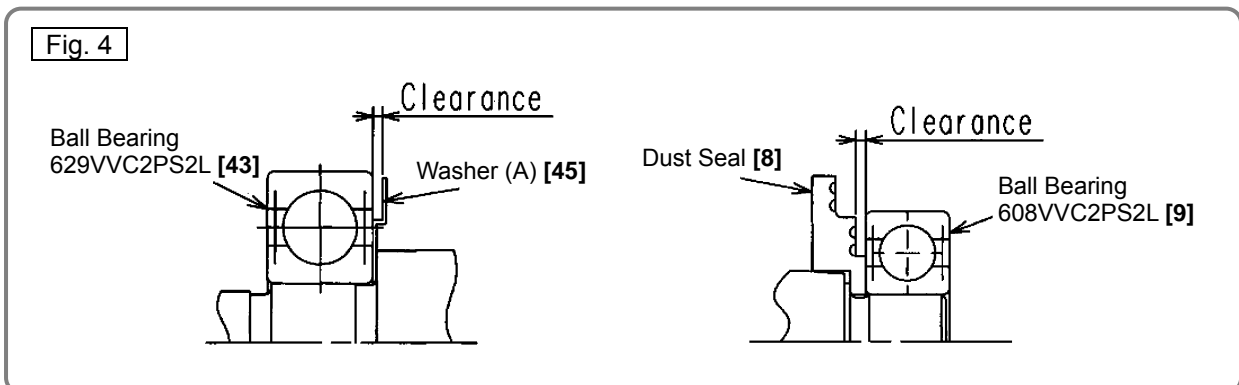
- (1) Use a wooden or plastic hammer to gently tap on the end surface of the Housing Ass'y [16], in order to loosen and remove the Armature [47].
- (2) Use a bearing puller to extract the Pinion [42] and Ball Bearing 629VVC2PS2L [43], and then remove Washer (A) [45] and the Woodruff Key 2.5 x 8 [46].
- (3) Finally, use the bearing puller to extract the Ball Bearing 608VVC2PS2L [9], and then remove the Dust Seal [8].



Reassembly

Reassembly can be conducted by reversing the disassembly procedures. However, special attention should be given to the following items.

- (1) Ensure that the Rubber Ring [44] is properly inserted into the bearing chamber of the Gear Cover [41]. During reassembly, be very careful not to damage the Rubber Ring [44].
- (2) When only replacing the Ball Bearing 629VVC2PS2L [43] and Ball Bearing 608VVC2PS2L [9], be very careful to ensure that Washer (A) [45] and the Dust Seal [8] are reassembled in the proper direction, as shown in Fig. 4.



Application of lubricant

- Insert 5 g of grease (Nippeco SEP-3A, Code No.930035 recommended) into the gear chamber of the Gear Cover [41].
- Grease the teeth of the Pinion [42] and the gear of the Spindle And Gear Set [39] (by using a brush).
- Liberally apply grease (Nippeco SEP-3A, Code No.930035 recommended) to the inner and outer surfaces of the Rubber Ring [44] and O-Ring [34].

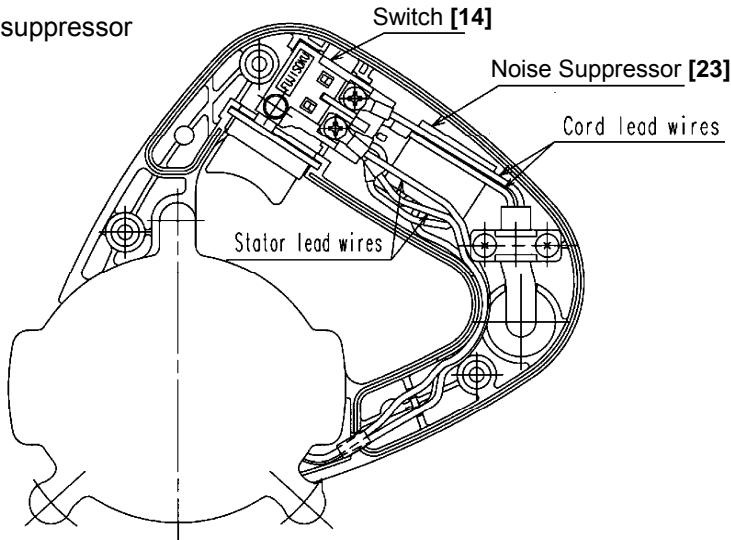
Screw Tightening Torques

- Tapping Screw (W/Flange) D4 x 20 (Black) [18] -----2.0 ± 0.5 N•m (20 ± 5 kgf•cm)
- Hex. Hd. Tapping Screw D5 x 65 [3] -----3.4 ± 0.5 N•m (35 ± 5 kgf•cm)
- Machine Screw (W/Washers) M5 x 25 [20]-----3.4 ± 0.7 N•m (35 ± 7 kgf•cm)
- Seal Lock Screw (W/Sp. Washer) M5 x 25 [48] -----3.9 ± 1.0 N•m (40 ± 10 kgf•cm)
- Machine Screw M3.5 (Switch [14]) -----0.6 ± 0.2 N•m (6 ± 1.5 kgf•cm)

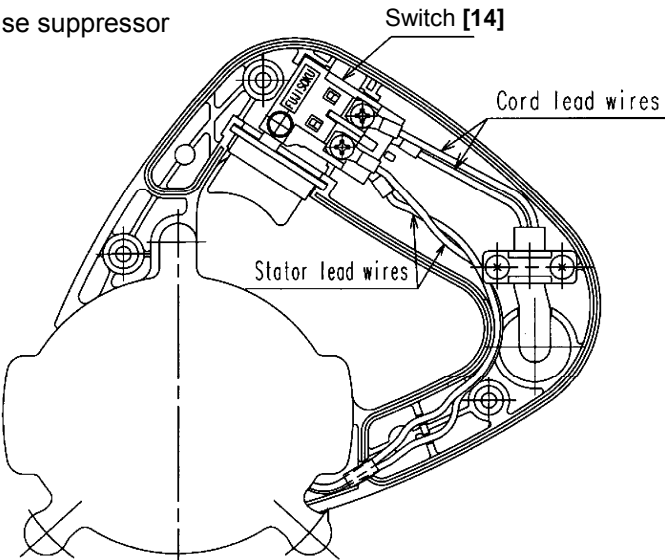
Internal Wiring

Fig. 5

(1) For products with noise suppressor



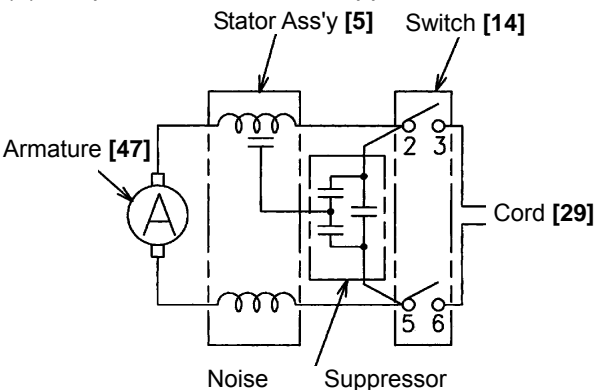
(2) For products without noise suppressor



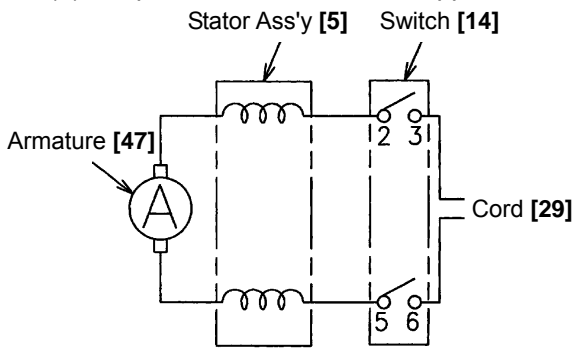
Wiring Diagram

Fig. 6

(1) For products with noise suppressor



(2) For products without noise suppressor



Insulation Tests

Upon completing reassembly after repair, measure the insulation resistance and conduct a dielectric strength test.

Insulation resistance: 7 MΩ or more using AC 500 V megohm tester

Dielectric strength: AC 4,000 V/1 minute, with no abnormalities (220 V to 240 V)

AC 2,500 V/1 minute, with no abnormalities (110 V to 127 V)

No-Load Current Value

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

Voltage (V)	110	120	127	220	230	240
Current (A) Max.	5.0	4.4	4.6	2.7	2.6	2.7

Product Accuracy

Diamond wheel runout: Deflection of the diamond wheel must be 0.6 mm or less at the 100 mm dia. points.

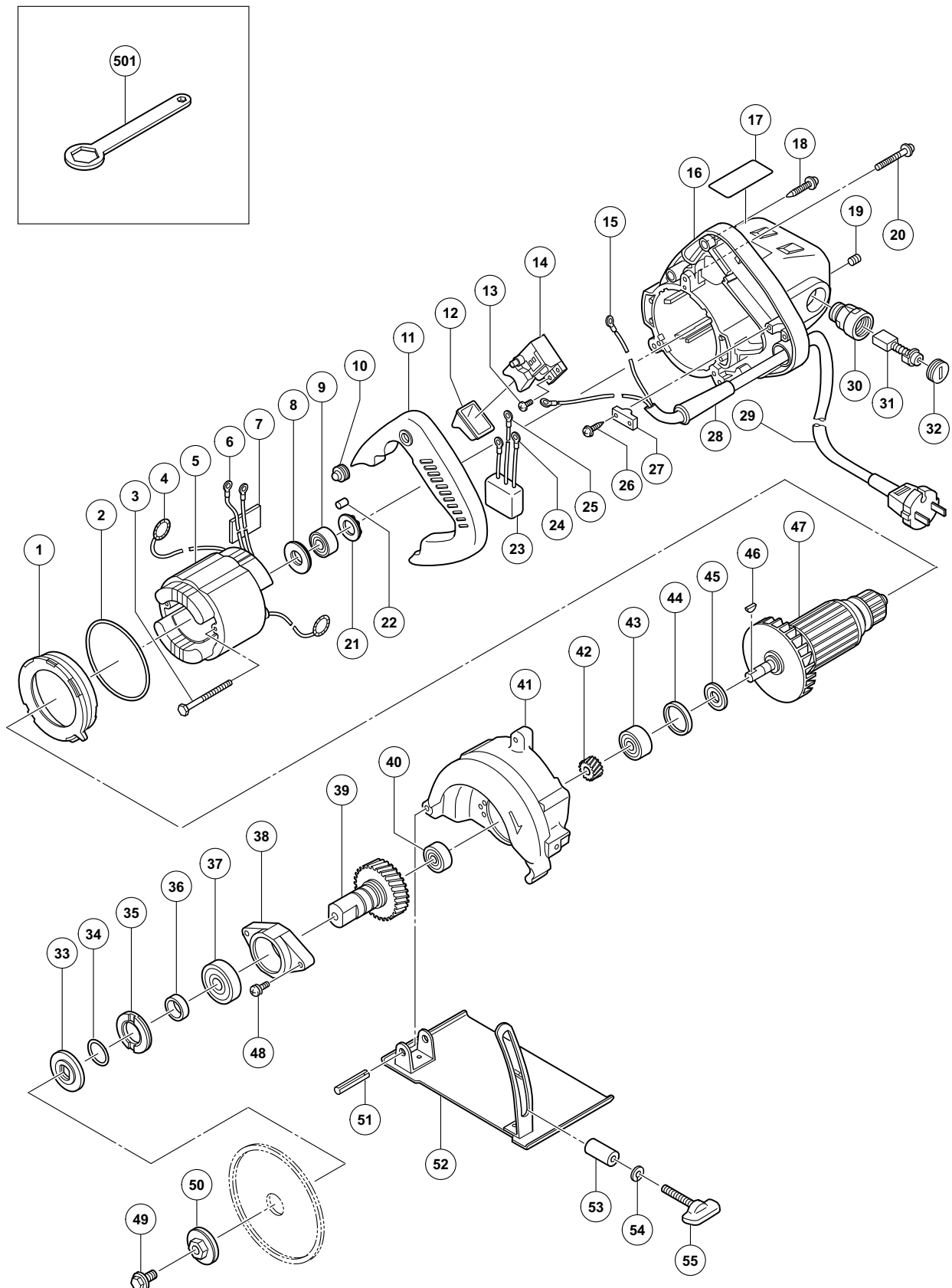
STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
CM 4ST		Work Flow						
			Handle Cover Cord Cord Armor Switch					
					Housing Ass'y Stator Ass'y			
		General Assembly		Armature Ball Bearing 608VVC2PS2L Ball Bearing 629VVC2PS2L				
			Pinion Gear Cover Spindle And Gear Set Bearing Holder Bearing Cap Ball Bearing 606ZZC2PS2L Ball Bearing 6002VVCMP2SL					
		Base						

ELECTRIC TOOL PARTS LIST

CUTTER
Model CM 4ST

2010·8·16
(E1)



PARTS

CM 4ST

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	317-758	FAN GUIDE	1	
2	317-756	O-RING	1	
3	960-251	HEX. HD. TAPPING SCREW D5 X 65	2	
4	930-703	BRUSH TERMINAL	2	
*	5	340-783C	1	STATOR ASS'Y 110V INCLUD. 4
*	5	340-783G	1	STATOR ASS'Y 110V INCLUD. 4 FOR TPE
*	5	340-783D	1	STATOR ASS'Y 120V-127V INCLUD. 4
*	5	340-783E	1	STATOR ASS'Y 220V INCLUD. 4
*	5	340-783F	1	STATOR ASS'Y 230V-240V INCLUD. 4
6	930-804	TERMINAL M4.0 (10 PCS.)	2	
7	983-858	SEAL PACKING	1	
8	317-757	DUST SEAL	1	
9	608-VVM	BALL BEARING 608VVC2PS2L	1	
10	956-866	RUBBER COVER (B)	1	
11	333-137	HANDLE COVER	1	
12	303-328	SWITCH RUBBER COVER	1	
13	305-499	MACHINE SCREW (W/WASHER) M3.5 X 6	4	
14	325-531	SWITCH (1P SCREW TYPE) W/LOCK	1	INCLUD. 13
*	15	980-063	2	TERMINAL
*	15	930-804	2	TERMINAL M4.0 (10 PCS.) FOR VEN, TPE, BRA (127V)
16	317-752	HOUSING ASS'Y	1	INCLUD.19,30
17		NAME PLATE	1	
18	301-653	TAPPING SCREW (W/FLANGE) D4 X 20 (BLACK)	3	
19	938-477	HEX. SOCKET SET SCREW M5 X 8	2	
20	317-751	MACHINE SCREW (W/WASHERS) M5 X 25	3	
21	316-394	THRUST WASHER	1	
22	931-701	BEARING LOCK	1	
*	23	994-273	1	NOISE SUPPRESSOR FOR TPE,KOR
*	24	980-063	2	TERMINAL FOR NOISE SUPPRESSOR
*	25	938-108	1	TERMINAL FOR NOISE SUPPRESSOR
26	984-750	TAPPING SCREW (W/FLANGE) D4 X 16	2	
27	960-266	CORD CLIP	1	
*	28	953-327	1	CORD ARMOR D8.8
*	28	938-051	1	CORD ARMOR D10.1
*	29	500-234Z	1	CORD (CORD ARMOR D8.8)
*	29	500-474Z	1	CORD (CORD ARMOR D10.1) FOR VEN, TPE
*	29	500-423Z	1	CORD (CORD ARMOR D8.8) FOR SIN, KUW
*	29	500-468Z	1	CORD (CORD ARMOR D8.8) FOR THA
*	29	500-435Z	1	CORD (CORD ARMOR D8.8) FOR HKG
*	29	500-434Z	1	CORD (CORD ARMOR D8.8) FOR MEX, PAN (120V)
*	29	500-488Z	1	CORD (BRA) (CORD ARMOR D8.8) FOR BRA (127V)
*	29	500-487Z	1	CORD (CORD ARMOR D8.8) FOR BRA (220V)
30	958-900	BRUSH HOLDER	2	
31	999-043	CARBON BRUSH (1 PAIR)	2	
32	945-161	BRUSH CAP	2	
*	33	956-879	1	WASHER (B)
*	33	333-125	1	WASHER (C) FOR KOR
34	944-486	O-RING (1AP-20)	1	
35	956-872	BEARING CAP	1	
36	303-323	DISTANCE PIECE	1	

PARTS

CM 4ST

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
37	600-2VV	BALL BEARING 6002VVCMP2L	1	
38	333-240	BEARING HOLDER	1	
39	333-241	SPINDLE AND GEAR SET	1	
40	606-ZZM	BALL BEARING 606ZZC2PS2L	1	
41	333-126	GEAR COVER	1	
42	333-242	PINION	1	
43	629-VVM	BALL BEARING 629VVC2PS2L	1	
44	318-647	RUBBER RING	1	
45	958-915	WASHER (A)	1	
46	940-220	WOODRUFF KEY 2.5 X 8	1	
* 47	360-900C	ARMATURE 110V	1	
* 47	360-900D	ARMATURE 120V-127V	1	
* 47	360-900E	ARMATURE 220V	1	
* 47	360-900F	ARMATURE 230V-240V	1	
48	303-327	SEAL LOCK SCREW (W/SP. WASHER) M5 X 25	2	
49	303-326	BOLT (LEFT HAND) M7 X 15	1	
50	956-878	WASHER (A)	1	
51	949-576	ROLL PIN D6 X 32 (10 PCS.)	1	
52	317-759	BASE	1	
53	303-330	SLEEVE	1	
54	949-455	SPRING WASHER M6 (10 PCS.)	1	
55	303-331	WING BOLT M6 X 37	1	

STANDARD ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
501	941-057	WRENCH (HEX. SOCKET 10/19.2MM)	2	

OPTIONAL ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
601	303-648	WATER PLUG	1	
602	956-885	RUBBER CONNECTOR	1	
603	956-883	HOSE	1	
* 604	321-192	DIAMOND WHEEL (SEGMENT) 106MM-D20 HOLE	1	EXCEPT FOR KOR
* 605	939-586	DIAMOND WHEEL (RIM) 100MM-D20 HOLE	1	EXCEPT FOR KOR
* 606	939-587	DIAMOND WHEEL (RIM) 110MM-D20 HOLE	1	EXCEPT FOR KOR

