

# Service Manual

Cordless Off-set Drill &amp; Driver

EY6780

## SPECIFICATIONS

### DRILL/DRIVER

Motor voltage	: 9.6V DC
No load speed	: 120 ~ 800 min <sup>-1</sup> (RPM)
Maximum torque	: 5.9Nm (60kg-cm, 52in. lbs.)
Maximum clutch torque	: 4.4Nm (45kg-cm, 39in. lbs.) at 21 positions
Overall length	: 213mm (8-22/32")
Mass (Weight)	: 1.5kg (3.3lbs.) (with battery pack)

### BATTERY PACK EY9086 (Compact Type)

Storage battery	: Ni-Cd battery
Battery voltage	: 9.6V DC ( 1.2V × 8 cells)
Battery Capacity	: 1200mAh

### BATTERY PACK EY9182

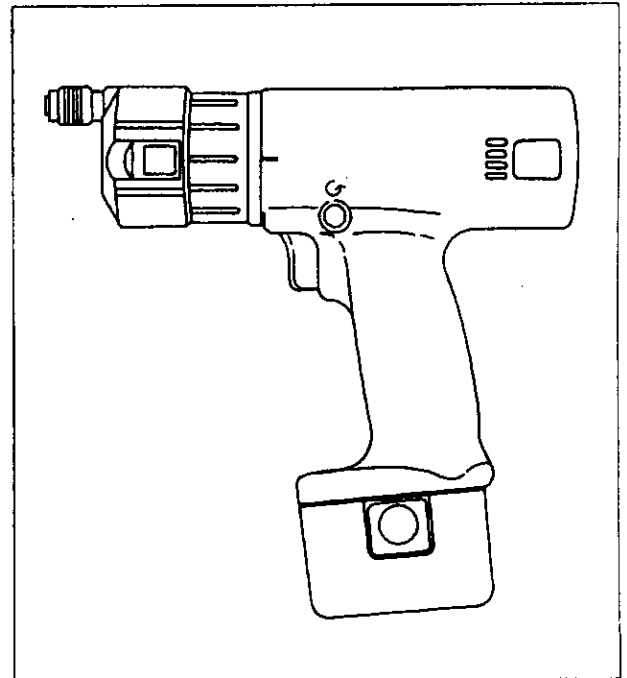
Storage battery	: Ni-Cd battery
Battery voltage	: 9.6V DC ( 1.2V × 8 cells)
Battery Capacity	: 1600mAh

### BATTERY CHARGER

Input	: 120, 230, 240V AC separately available
Mass (Weight)	: 0.66kg (1.45lbs.)
Charging time	: Approx. 15 min. (with compact type battery pack) Approx. 20 min. (with high capacity type battery pack)

### STANDARD EQUIPMENT

Battery charger , Battery pack , Phillips bit #2 (75mm)



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# Panasonic

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**⚠ WARNING**

This service literature is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

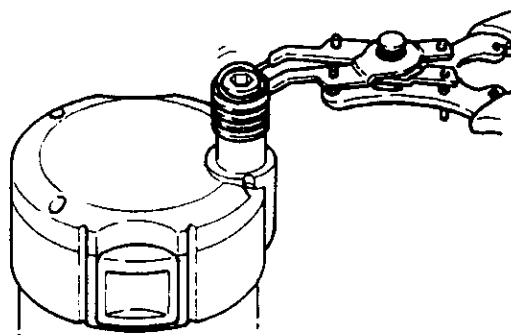
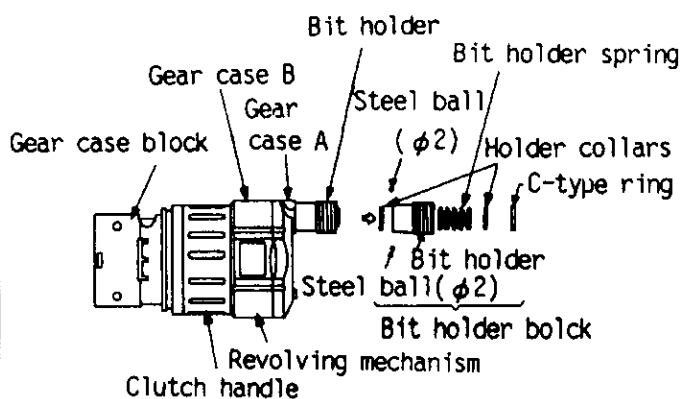
**DISASSEMBLY / ASSEMBLY INSTRUCTIONS**

Ref. No. 1	Procedure 1A	Removal of the housings.
<p>1. Remove 8 housing screws.                  Hint : Remove the 2 lead wires from the switch may help to do efficient work.</p>		
Ref. No. 2	Procedure 1A → 2	Removal or attachment of the motor.
<p>(Removal of the motor.)</p> <ol style="list-style-type: none"> <li>1. Remove the motor with the gear box block from housing.</li> <li>2. Separate the motor from the gear box block by twisting the motor to unlock tabs in the direction of the arrow.</li> </ol>		<p>(Attachment for the motor.)</p> <ol style="list-style-type: none"> <li>3. Adjust the tabs of gear box block to the groove of motor in the counter-direction of the arrow.</li> </ol>

Ref. No. 3A

Procedure 1A → 2 → 3A

Removal of the revolving mechanism.



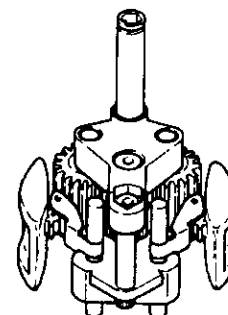
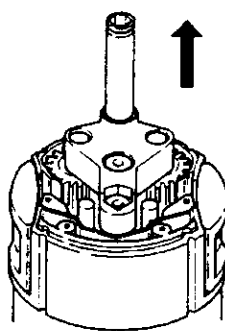
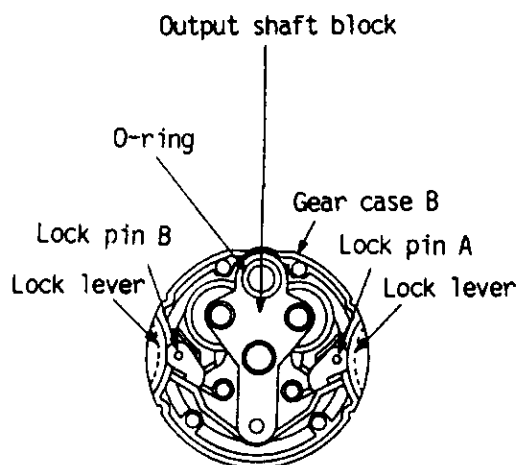
1. Remove the C-type ring at the top of the bit holder with snap ring pliers.

- \* C-type ring are lively and could be lost, handle accordingly.
- \* Be careful not to lose 2 pieces of steel balls( $\phi 2$ ) and 2 holder collars.

Ref. No. 4A

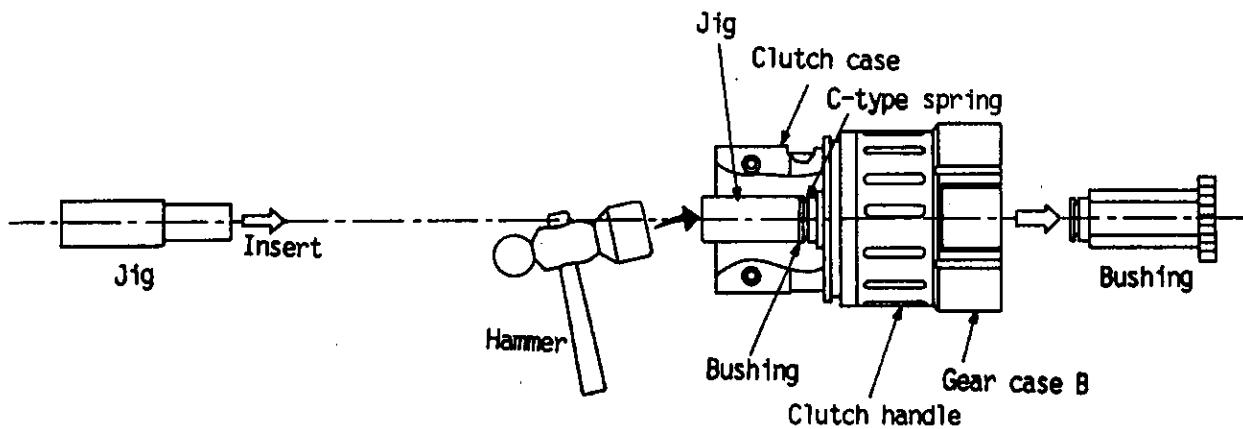
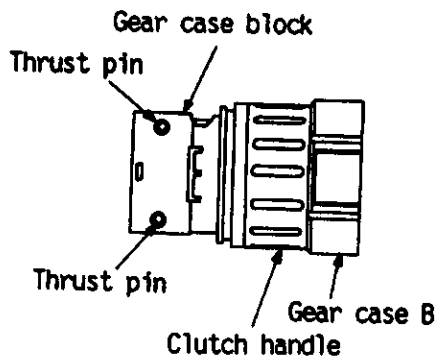
Procedure 1A → 2 → 3A → 4A

Removal of the gear case block.



1. Remove 4 screws for gear case A.
  2. Disassemble the lock pin AB and the lock lever.
- \* Be careful not to lose 2 springs attached to the gear case A.

3. Take out the output shaft block from the gear case B.
- \* Make sure to attach the O-ring with output shaft.
4. Make sure when assembling, the lock pin AB have their own directions.



1. When removing the 2 thrust pins, the driving shaft, the ring gear and the planet gear etc. remove one after another.

\* Be careful not to lose the 12 pieces of steel balls ( $\phi 5$ ).

(Removal of the bushing.)

2. Remove the C-type spring from the bushing.
3. Set and knock the jig to remove the bushing out from the clutch case.

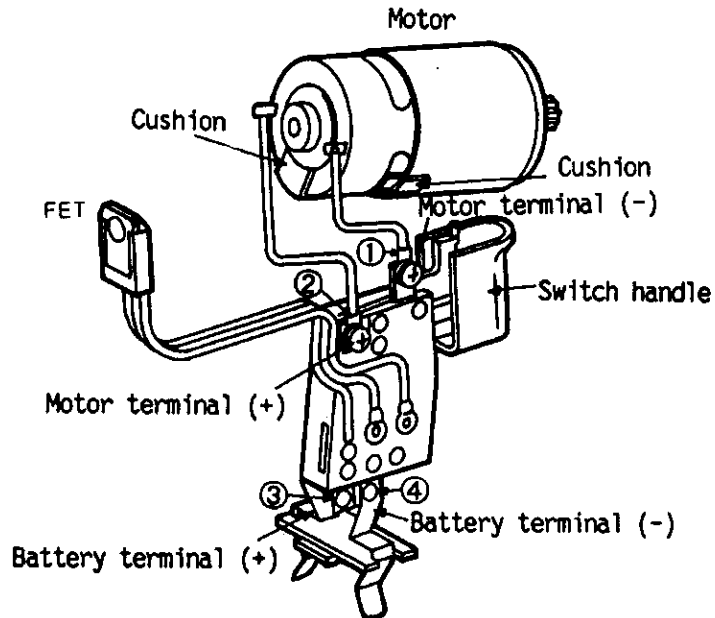
(Attachment for the bushing.)

4. Set the bushing to the clutch case from the side of gear case B. Knock the jig until the bushing is inserted completely.
  5. Set the C-type spring to the bushing.
- \* Be careful not to break or deform the gear case rib when knocking the bushing.

Ref. No. 6	Procedure 1A → 2 → 3 → 4 → 5	Attachment for the adjusting screw and the clutch handle.
<div data-bbox="251 341 812 683" data-label="Image"> <p>The diagram illustrates the assembly of the adjusting screw and clutch handle. It shows three main components: the Clutch '7' on the left, the Adjusting screw in the middle, and the Click plate on the right. The Adjusting screw has a Projection and a Tab. The Click plate has a Tab and a mark. The Clutch handle has a mark. The Adjusting screw is shown being inserted into the Clutch '7' and the Click plate. The Projection of the Adjusting screw is shown fitting into the groove of the Clutch handle. The Tab of the Click plate is shown fitting into the groove of the Adjusting screw. The mark of the Adjusting screw is shown aligning with the mark of the Clutch handle. The Tab of the Click plate is shown aligning with the Projection of the Adjusting screw.</p> </div> <div data-bbox="186 942 1518 1170" data-label="List-Group"> <ol style="list-style-type: none"> <li>1. Align the ○ mark of adjusting screw with 'A' part of the clutch case.</li> <li>2. Turn the adjusting screw into driving block about one rotation for clockwise direction.</li> <li>3. Align the ○○ mark of adjusting screw with 'A' part of the clutch case.</li> <li>4. Adjust the tabs of click plate to the projection of adjusting screw.</li> <li>5. Set the clutch handle with position 7 toward A part of the clutch case.</li> <li>6. Insert the clutch handle with adjusting the tabs of adjusting screw and of click plate to the groove of inside clutch handle.</li> </ol> </div>		
Ref. No. 7	Procedure 1B	Removal or attachment of the battery charger.
<div data-bbox="186 1263 1518 1730" data-label="List-Group"> <p>(Removal of the battery charger.)</p> <ol style="list-style-type: none"> <li>1. Remove 4 housing screws.</li> </ol> <p>(Attachment for the battery charger.)</p> <ol style="list-style-type: none"> <li>2. Reassemble the module block (power cord, power transformer, and module) to housing A, be certain that LED appears through the hole in housing A.</li> <li>3. Set the bushing for power cord to the housing A.</li> </ol> <p>NOTE : Avoid pinching lead wires, dress into housing recess and around screw posts etc.</p> <ol style="list-style-type: none"> <li>4. After assembly, test for proper voltage. Measure the battery terminals between (S) and (-). It is OK, if it is approx. 3V DC.</li> </ol> </div>		

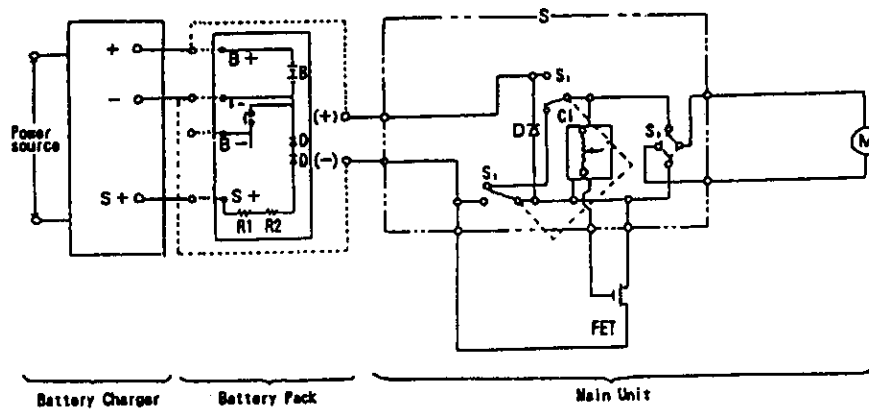
## WIRING CONNECTION DIAGRAM

■ Main unit

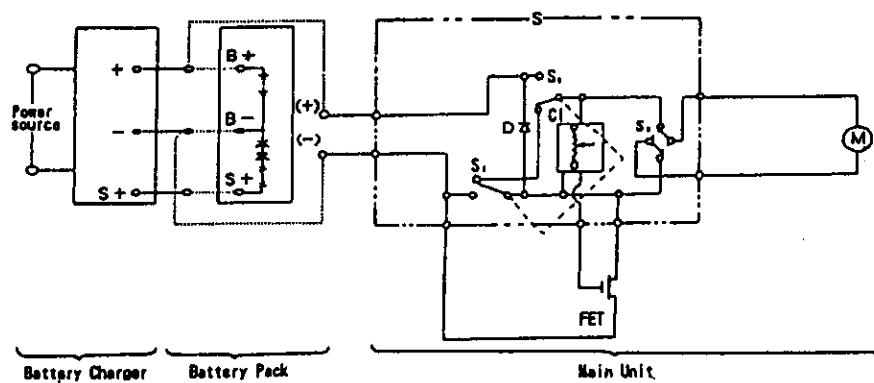


## SCHEMATIC DIAGRAM

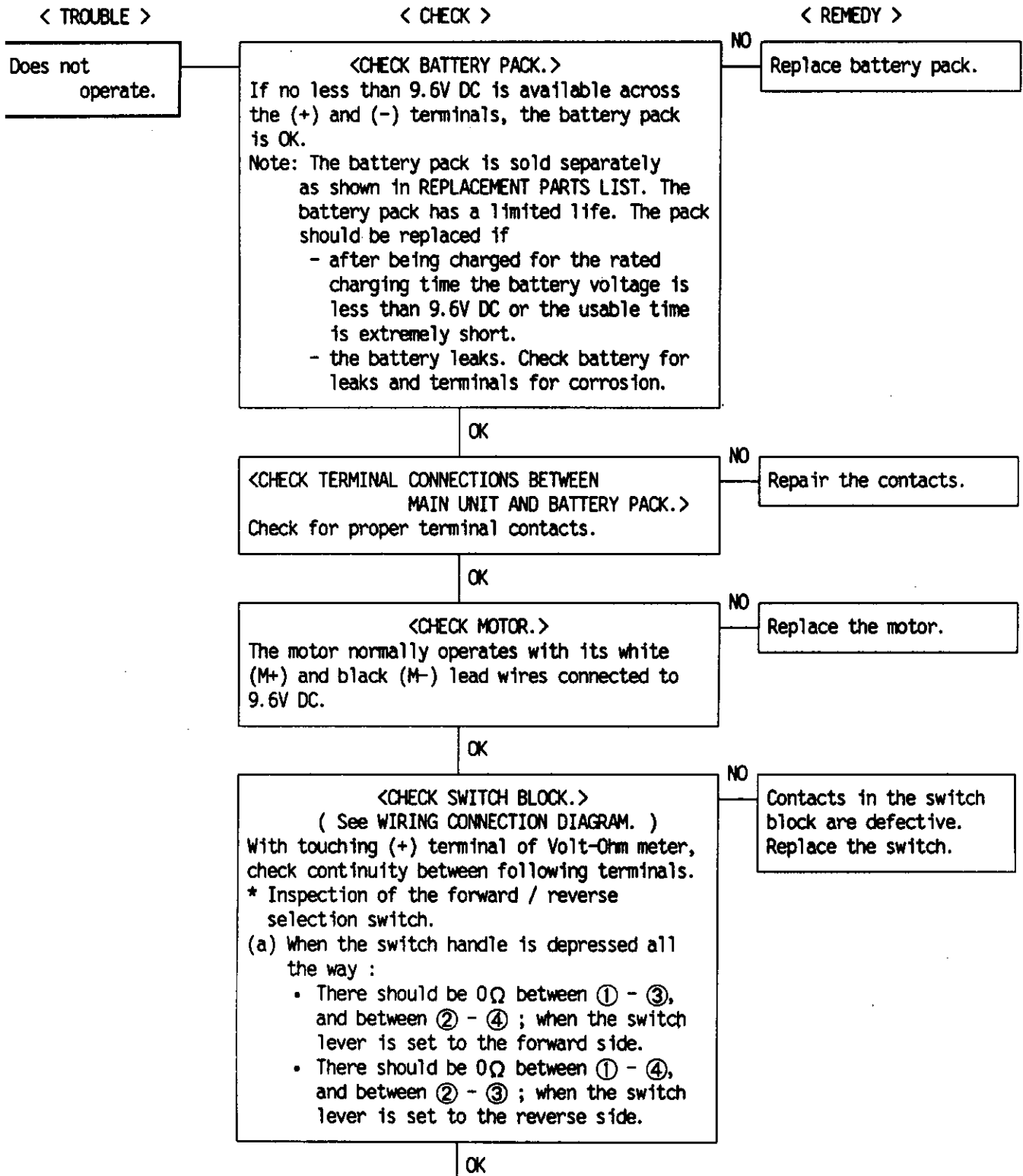
■ EY6780EQK



■ EY6780CQK



# TROUBLESHOOTING GUIDE ( Refer to WIRING CONNECTION DIAGRAM )



( to be continued )

Does not speed-control or does not brake.

<CHECK SWITCH BLOCK.>  
FET block could be damaged.

NO

Replace the switch & FET block.

■ EY0202

Does not charge.

<CHECK POWER CORD.>  
Check continuity.

NO

Replace power cord.

OK

NOTE: Loose connection are possible.  
Check for loose capacitor.  
If so, resolder.  
Check for loose choke (coil).  
If so, resolder.

<CHECK MODULE.>  
Check the lamp indication of the battery charger.

NO

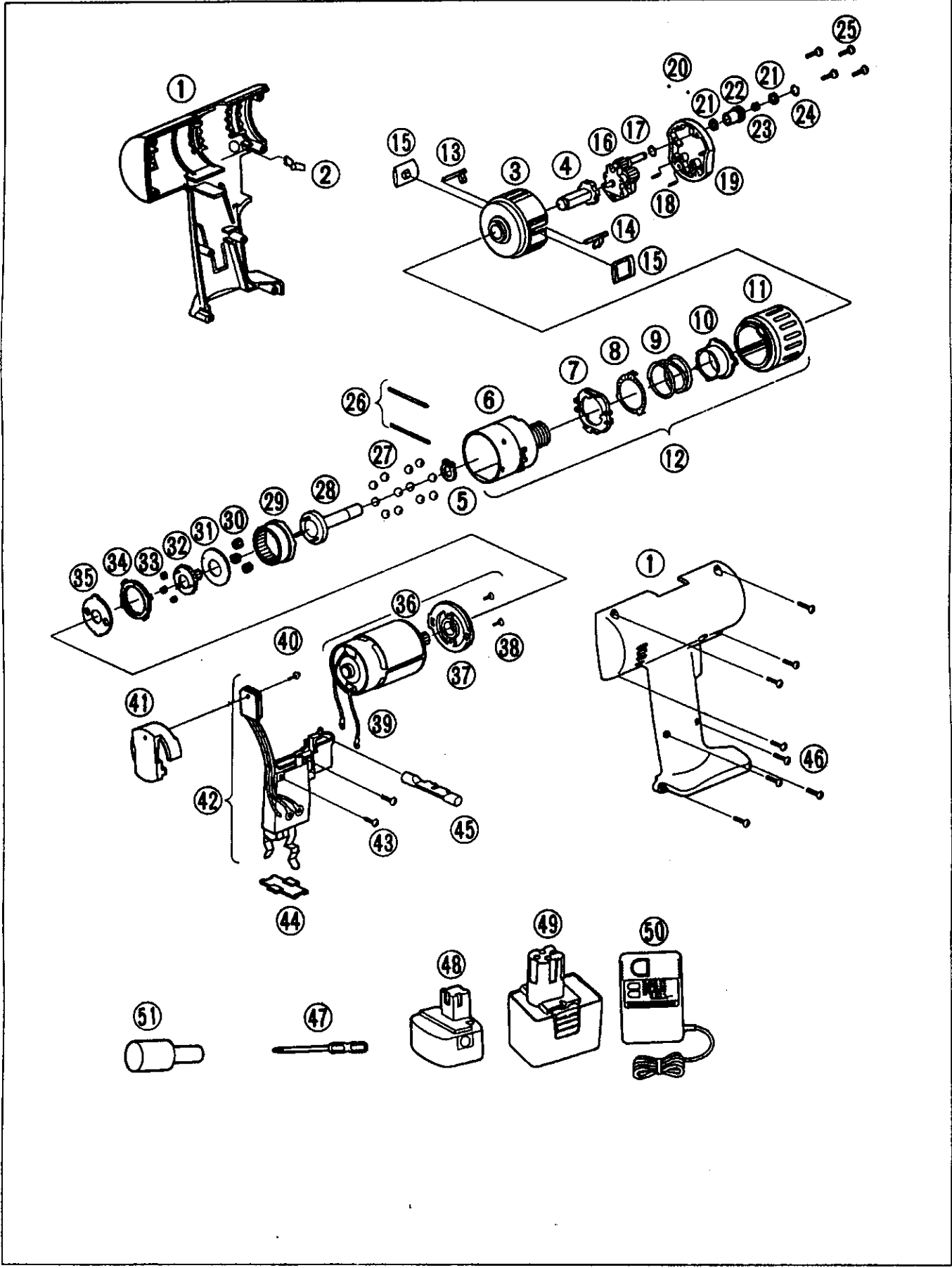
Replace module in the charger.

Charging lamp Red	.... Flashing	Charger is plugged into power source. Ready to charge.
	— Lit	Now charging.
	..... Flashing quickly	Charging is completed.
Standby lamp Orange	— Lit	Battery pack is warm. Charging will begin when temperature of battery pack drops.
	.... Flashing	Charging is not possible. Clogged with dust or malfunction of the battery pack drops.

Possibly foreign matter in the charger's battery pack socket, or a malfunction of the battery pack.



# EXPLODED VIEW



<b>REPLACEMENT PARTS LIST</b>
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Note : \*A ... available as an optional accessory  
 \*B ... only available as set

\*C ... available individually

Ref No.	Parts No.	Parts Name & Descriptions	Per set	Remarks
1	EY6780K3078	HOUSING AB SET	1	
2	EY6481L0177	CLICK SPRING	1	
3	EY6780K3117	GEAR CASE B	1	
4	EY6780L0337	BUSHING	1	
5	EY6800B0447	C-TYPE RING	1	
6	EY6780L3227	CLUTCH CASE	1	
7	EY6780L0577	CLUTCH PLATE	1	
8	EY6780L0457	CLICK PLATE	1	
9	EY6780L0167	SPRING FOR CLUTCH	1	
10	EY6283L0637	ADJUSTING SCREW	1	
11	EY6780H3237	CLUTCH HANDLE	1	
12	EY6780L1487	CLUTCH CASE BLOCK	1	
13	EY6780L0507	LOCK PIN A	1	
14	EY6780L0597	LOCK PIN B	1	
15	EY6780Y0368	LOCK LEVER	2	*B
16	EY6780L4537	OUTPUT SHAFT BLOCK	1	
17	EY6780L0977	O-RING	1	
18	EY6780L0177	SPRING FOR LOCK LEVER	2	*B
19	EY6780K3107	GEAR CASE A	1	
20	EY6780K6977	STEEL BALL	10	*B
21	EY6780L0837	HOLDER COLLAER	2	*B
22	EY6780K3717	BIT HOLDER	1	
23	EY6780L0197	HOLDER SPRING	1	
24	EY6780K0187	C-TYPE SPRING	1	
25	EY57489037	TAPPING SCREW	4	*C
26	EY6481L0357	THRUST PIN SET	2	*B
27	EY560B6967	STEEL BALL	12	*B
28	EY6780L1127	DRIVING SHAFT	1	
29	EY560B1457	RING GEAR A	1	
30	EY6780L1357	PLANET GEAR A	3	*B
31	EY6200B0857	THRUST PLATE	1	
32	EY6780L1377	TRANSMISSION GEAR	1	
33	EY560B1367	PLANET GEAR B SET	3	*B
34	EY6481L1467	RING GEAR B	1	
35	EY6481L0887	THRUST PLATE	1	
36	EY6780L1008	MOTOR	1	
37	EYT184L0027	MOTOR MOUNTING PLATE	1	
38	EYT184L6077	SCREW FOR MOTOR	2	*C
39	EY6780L2947	LEAD WIRE SET	1	
40	EY6780L6027	TAPPING SCREW	1	
41	EYT184L2567	RADIATING PLATE (W/SCREW)	1	
42	EY6780Y2008	SWITCH BLOCK	1	
43	EY6780L6037	SCREW	2	*C
44	EY6481L0207	DUST PREVENTIVE PLATE	1	
45	EY6481H3247	SELECTOR HANDLE	1	
46	EY563B9217	TAPPING SCREW	8	*C
47	EY502B7957	PHILLIPS BIT #2	1	
48	EY9086	BATTERY PACK	1	*A
49	EY9182	BATTERY PACK	1	*A
50	EY0202	BATTERY CHARGER	1	*A
51	EY6780L7867	JIG FOR BUSHING	1	
-	EY9592	TOOL CASE	1	*A

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