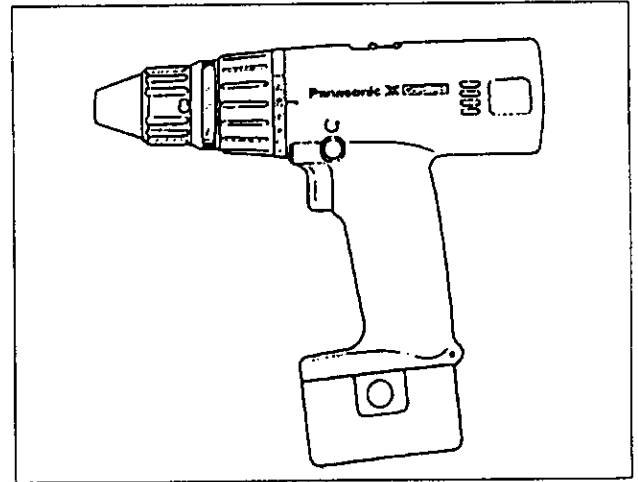


Service Manual

Cordless Drill & Driver

EY6100

EY6181



<Specifications> EY6100
 DRILL/DRIVER
 Motor voltage : 12V DC
 No load speed
 LOW : 50~ 350 min⁻¹ (RPM)
 HIGH : 180~ 1,300 min⁻¹ (RPM)
 Maximum torque
 (with battery pack EY9101 for EY6100EQK)
 (with battery pack EY9006 for EY6100CRK)
 LOW : 19.6Nm, 200kg-cm, 174in. lbs.
 HIGH : 5.9Nm, 60kg-cm, 52in. lbs.
 Maximum clutch : 4.4Nm, 45kg-cm, 39in. lbs.
 torque at 21 positions
 Overall length : 218mm, 8-21/32"
 Mass (Weight) (with battery pack)
 EY6100EQK : 1.74kg, 3.8lbs.
 EY6100CRK : 1.60kg, 3.5lbs.

BATTERY PACK
 Storage battery : Ni-Cd battery
 Battery voltage : 12V DC (1.2V × 10 cells)

BATTERY CHARGER
 Input : 120, 220, 230, 240V AC
 separately available

Mass (Weight)
 EY0202 : 0.66kg, 1.45lbs.
 EY0001 : 1.40kg, 3.10lbs.
 Charging time
 EY0202 : Approx. 20 min.
 (with high capacity type battery pack)
 EY0001 : Approx. 1 hour

<Standard equipment>
 Battery charger
 Battery pack
 Lock release rod

<Specifications> EY6181
 DRILL/DRIVER
 Motor voltage : 9.6V DC
 No load speed
 LOW : 50~ 350 min⁻¹ (RPM)
 HIGH : 150~ 1,000 min⁻¹ (RPM)
 Maximum torque
 (with battery pack EY9086 for EY6181CRK)
 LOW : 17.6Nm, 180kg-cm, 156in. lbs.
 HIGH : 5.9Nm, 60kg-cm, 52in. lbs.
 Maximum clutch : 4.4Nm, 45kg-cm, 39in. lbs.
 torque at 21 positions
 Overall length : 218mm, 8-21/32"
 Mass (Weight) (with battery pack)
 EY6181CRK : 1.5kg, 3.3lbs.

BATTERY PACK
 Storage battery : Ni-Cd battery
 Battery voltage : 9.6V DC (1.2V × 8 cells)

BATTERY CHARGER
 Input : 120, 220, 230, 240V AC
 separately available

Mass (Weight) : 1.2kg, 2.7lbs.
 Charging time : Approx. 1 hour

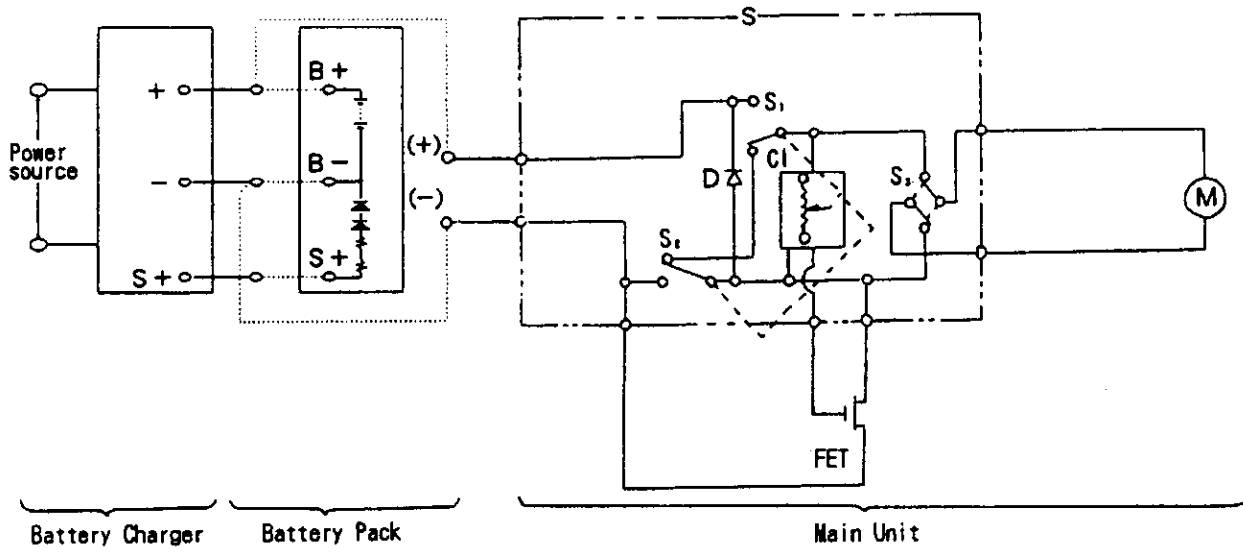
<Standard equipment>
 Battery charger
 Battery pack
 Lock release rod

Panasonic

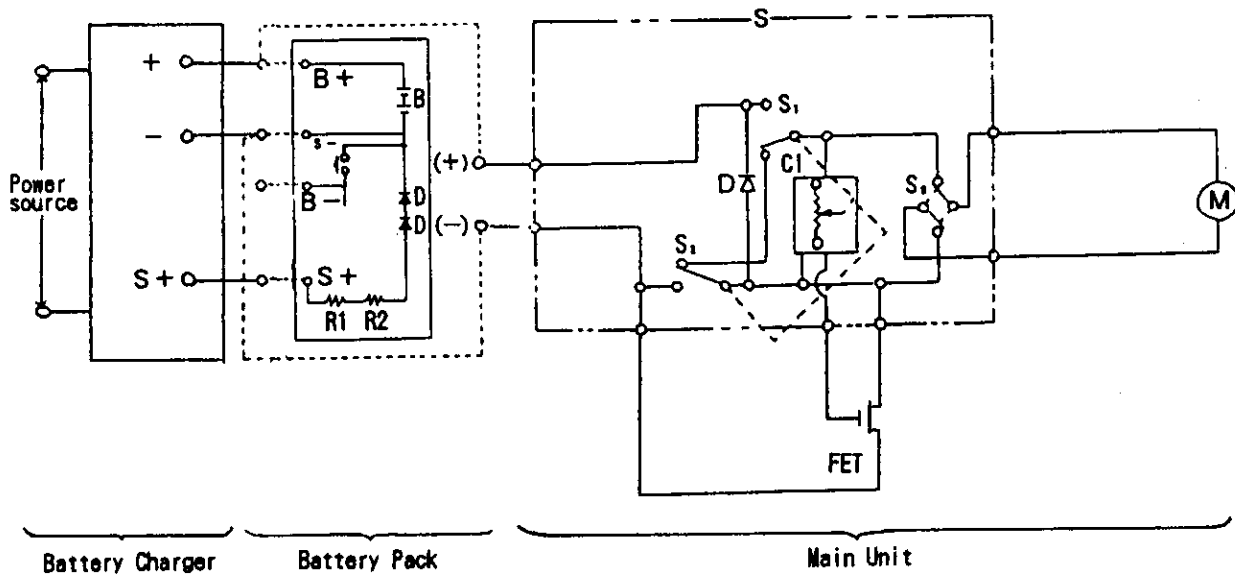
Matsushita Electric Corporation of America
 One Panasonic Way, Secaucus, New Jersey 07094

SCHMATIC DIAGRAM

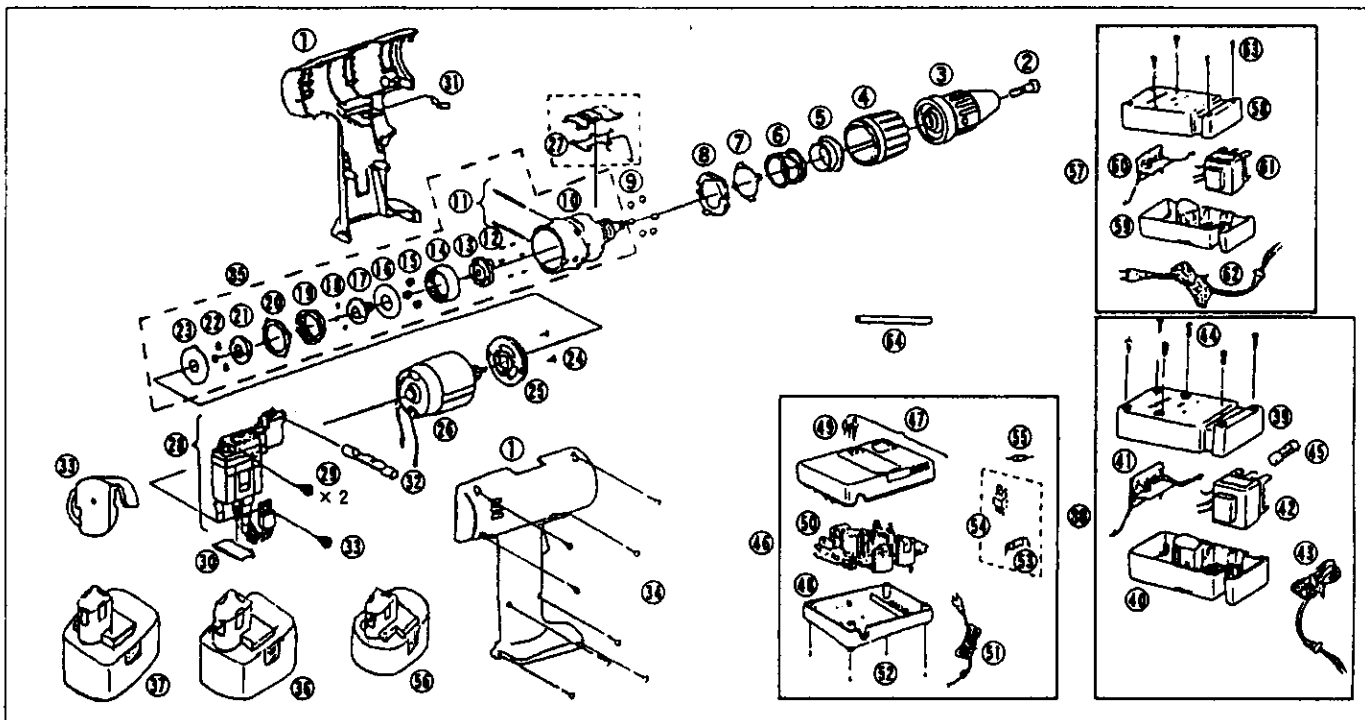
■EY6100EQK



■EY6100CRK • EY6181CRK



EXPLODED VIEW



REPLACEMENT PARTS LIST

Ref No.	EY6100	EY6181	Parts Name & Descriptions	Per set	Remarks
	Parts No.	Parts No.			
1	EY6100K3078	EY6181K3078	HOUSING AB SET	1	
2	EY57086807	EY57086807	CHUCK FASTENING SCREW	1	
3	EY9791B	EY9791B	KEYLESS DRILL CHUCK	1	
4	EY6481H3227	EY6481H3227	CLUTCH HANDLE	1	
5	EY6481L0637	EY6481L0637	ADJUSTING SCREW	1	
6	EY6100L0168	EYT184L0167	SPRING FOR CLUTCH	1	
7	EY6481L0457	EY6481L0457	CLICK PLATE	1	
8	EYT184L0577	EYT184L0577	CLUTCH PLATE	1	
9	EY56086967	EY56086967	STEEL BALL	12	* B
10	EY6481L1067	EY6481L1067	DRIVING BLOCK	1	
11	EY6481L0357	EY6481L0357	THRUST PIN SET	2	
12	EY6207B0377	EY6207B0377	ROLLER PIN	6	* B
13	EY6207B1117	EY6283L1117	CARRIER	1	
14	EY56081457	EY56081457	RING GEAR A	1	
15	EY6200B1357	EY56081357	PLANET GEAR A	3	* B
16	EY6200B0857	EY6200B0857	THRUST PLATE	1	
17	EY6401L1357	EY6481L1357	CARRIER	1	
18	EY6207B1347	EY56081367	PLANET GEAR SET	3	* B
19	EY6481L1457	EY6481L1457	RING GEAR A	1	
20	EY6481L1467	EY6481L1467	RING GEAR B	1	
21	EY6401B1107	EY6481L1107	CARRIER A	1	
22	EY6200B1367	EY6200B1367	PLANET GEAR B	3	* B
23	EY6481L0887	EY6481L0887	THRUST PLATE	1	
24	EYT184L6077	EYT184L6077	SCREW FOR MOTOR	2	
25	EY6100L0028	EY6100L0028	MOTOR MOUNTNG PLATE	1	
26	EY6100L1008	EY6181L1008	MOTOR	1	
27	EY6100H3238	EY6100H3238	CHANGE-GEAR HANDLE	1	
28	EY6100Y2008	EY6100Y2008	SWITCH BLOCK	1	
29	EY6207Y6027	EY6207Y6027	SCREW	2	* C
30	EY6481L0207	EY6481L0207	DUST PREVENTIVE PLATE	1	

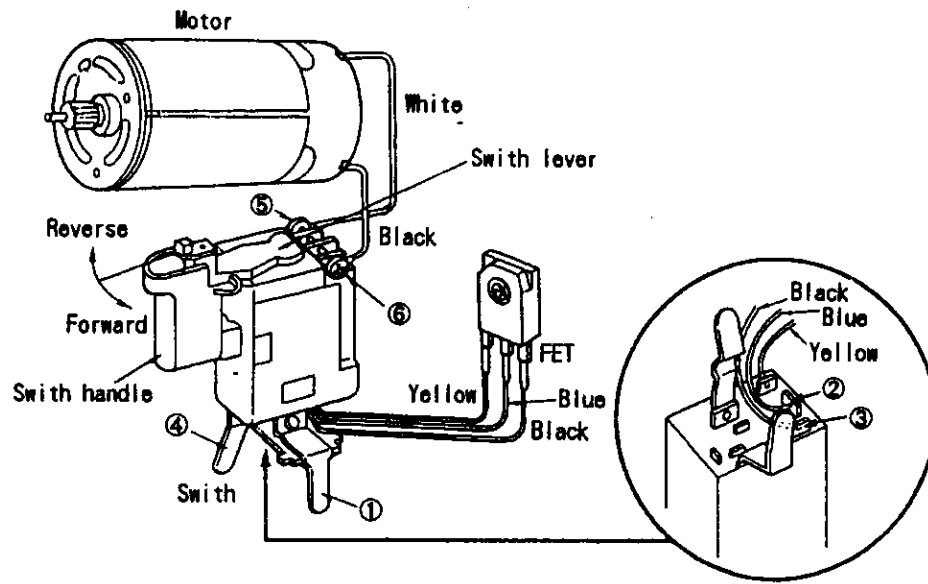
Model EY6100-EY6181

Ref No.	EY6100	EY6181	Parts Name & Descriptions	Per set	Remarks
	Parts No.	Parts No.			
31	EY6481L0177	EY6481L0177	CLICK SPRING	1	
32	EY6481H3247	EY6481H3247	SELECTOR HANDLE	1	
33	EYT184L2567	EYT184L2567	RADIATING PLATE (W/SCREW)	1	
34	EY6100K9068	EY6100K9068	TAPPING SCREW	8	
35	EY6100L1458	EY6181L1458	GEAR BOX BLOCK	1	
36	EY9006B11	_____	BATTERY PACK	1	* A
37	EY9101B11	_____	BATTERY PACK	1	* A
38	EY0001B	_____	BATTERY CHARGER	1	* A
39	EY0001B3098	_____	HOUSING A FOR CHARGER	1	
40	EY0001B3028	_____	HOUSING B FOR CHARGER	1	
41	EY0001B2128	_____	MODULE	1	
42	EY0001B2238	_____	POWER TRANSFORMER	1	
43	EY0001B2058	_____	POWER CORD	1	
44	EY0001B9038	_____	TAPPING SCREW FOR CHARGER	6	
45	EY0001B5278	_____	FUSE	1	
46	EY0202B7658	_____	BATTERY CHARGER	1	* A
47	EY0202B3098	_____	HOUSING A FOR CHARGER	1	
48	EY0202B3028	_____	HOUSING B FOR CHARGER	1	
49	EY0200C0547	_____	LAMP COVER	1	
50	EY0202B2128	_____	MODULE	1	
51	EY0202B2058	_____	POWER CORD	1	
52	EY0001B6237	_____	TAPPING SCREW FOR CHARGER	4	* C
53	EY0202B5258	_____	FUSE	1	
54	EY0202B5028	_____	FUSE & FET SET	1	
55	EY0202B5098	_____	ZENER DIODE	1	
56	_____	EY9086B11	BATTERY PACK	1	* A
57	_____	EY570B7659	BATTERY CHARGER	1	* A
58	_____	EY570B3101	HOUSING A FOR CHARGER	1	
59	_____	EY570B3031	HOUSING B FOR CHARGER	1	
60	_____	EY570B2127	MODULE	1	
61	_____	EY570B2238	POWER TRANSFORMER	1	
62	_____	EY570B2058	POWER CORD	1	
63	_____	EY56186117	TAPPING SCREW FOR CHARGER	6	* C
64	EY570B0347	EY570B0347	LOCK RELEASE ROD	1	

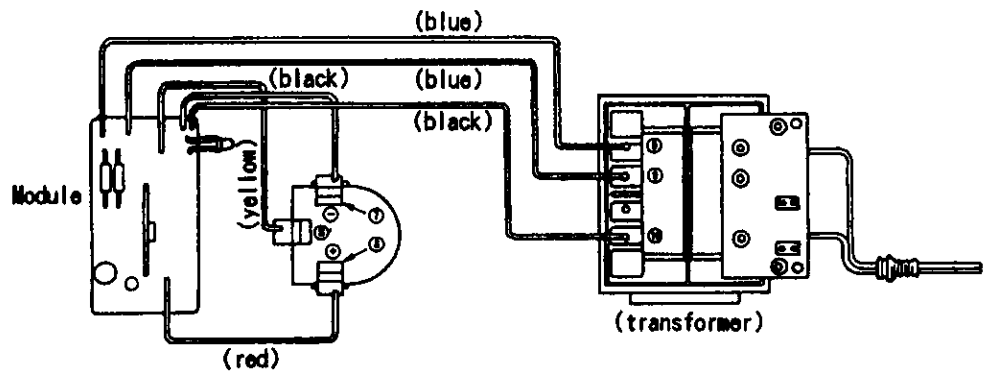
Note : *A ... available as an optional accessory
 *B ... only available as set
 *C ... available individually

WIRING CONNECTION DIAGRAM

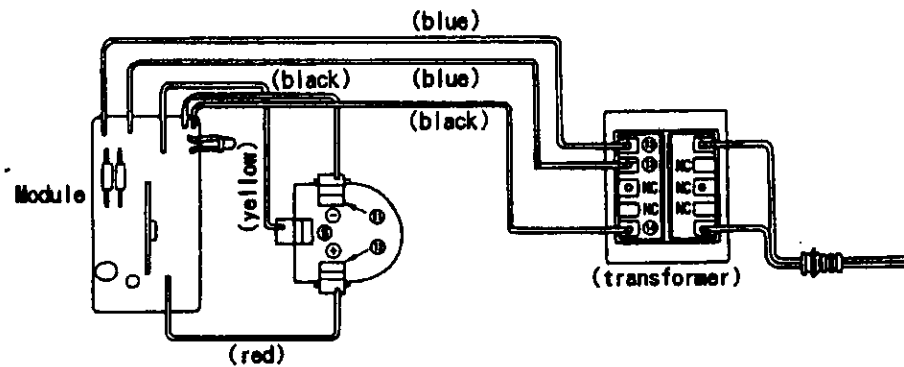
■ Main Unit



■ Battery Charger (EY0001)



■ Battery Charger (RE570)



TROUBLESHOOTING GUIDE (Refer to WIRING CONNECTION DIAGRAM)

< TROUBLE >

< CHECK >

< REMEDY >

Does not operate.

<CHECK BATTERY PACK.>

If no less than 12 V DC for EY6100
9.6V DC for EY6181
is available across the (+) and (-) terminals,
the battery pack is OK.

Note: The battery pack is sold separately
as shown in REPLACEMENT PARTS LIST. The
battery pack has a limited life. The pack
should be replaced if

- after being charged for the rated
charging time the battery voltage is
less than 12 V DC for EY6100
9.6V DC for EY6181
- or the usable time is extremely short.
- the battery leaks. Check battery for
leaks and terminals for corrosion.

NO

Replace battery pack.

OK

<CHECK TERMINAL CONNECTIONS BETWEEN
MAIN UNIT AND BATTERY PACK.>
Check for proper terminal contacts.

NO

Repair the contacts.

OK

<CHECK MOTOR.>

The motor normally operates with its white (+)
and black (-) lead wires connected to 12 V DC
for EY6100 or 9.6V DC for EY6181.

NO

Replace the motor.

OK

<CHECK SWITCH BLOCK.>

(See WIRING CONNECTION DIAGRAM)

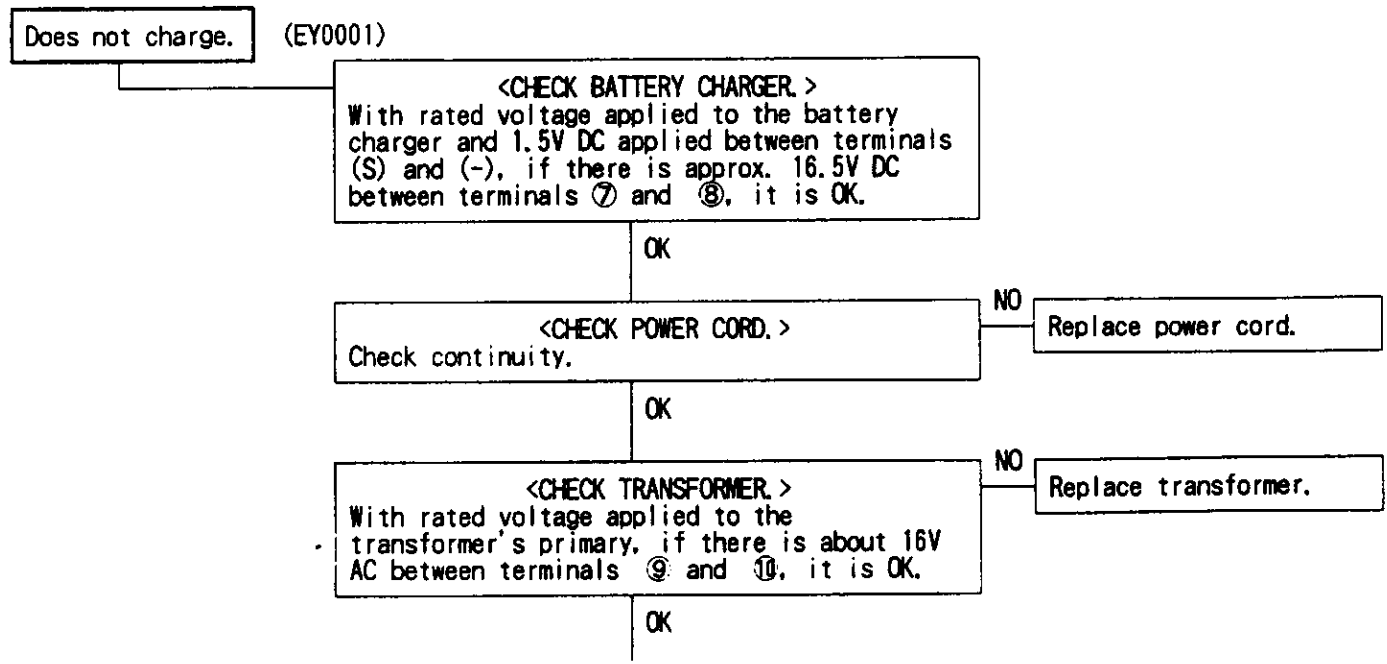
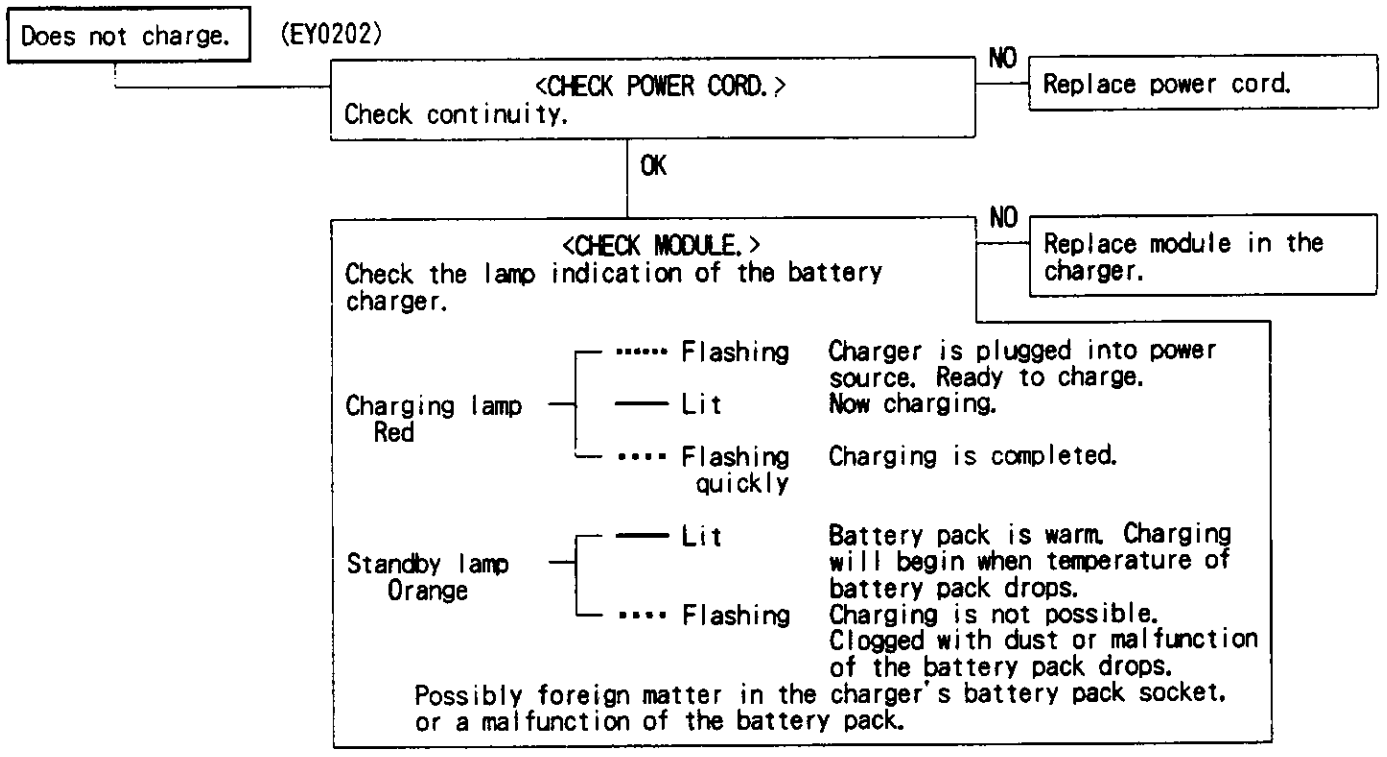
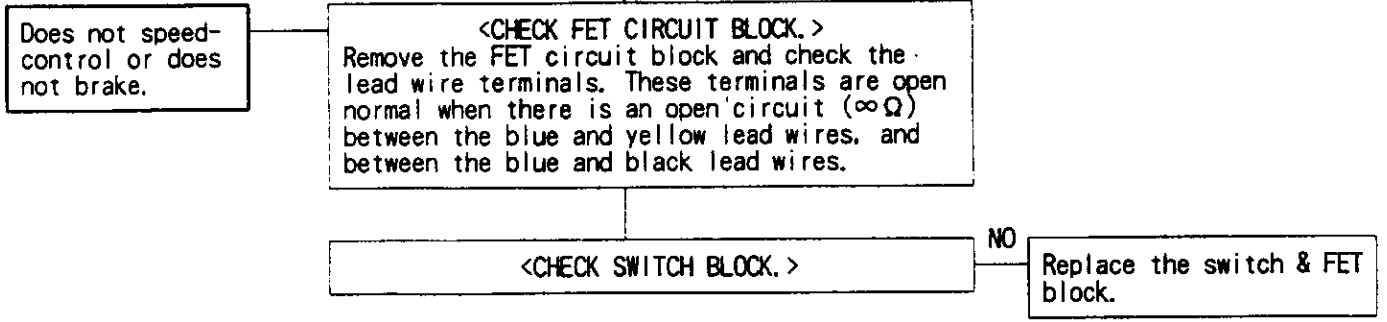
With touching (+) terminal of Volt-Ohm meter,
check continuity between following terminals.
* Check by switch depression amount.

- (a) When the switch handle is pulled
approximately 3mm :
 - There should be continuity between ④
- ③, and between ④ - ②.
 - (b) When the handle is pulled all the way :
 - There should be continuity between ④
- ③, and between ④ - ②.
- * Inspection of the forward / reverse
selection switch.
- (c) When the switch handle is depressed all
the way :
 - There should be 0Ω between ① - ⑤,
and between ④ - ⑥ ; when the switch
lever is set to the forward side.
 - There should be 0Ω between ① - ⑥,
and between ④ - ⑤ ; when the switch
lever is set to the reverse side.

NO

Contacts in the switch
block are defective.
Replace the switch & FET
block.

OK



<CHECK MODULE.>
With rated voltage applied to the battery charger and 1.5V DC applied between terminals (S) and (-), if there is approx. 16.5V DC between terminals ⑦ and ⑧, it is OK.

NO

Replace module.

Does not charge.

(RE570)

<CHECK BATTERY CHARGER.>
With rated voltage applied to the battery charger and 1.5V DC applied between terminals (S) and (-), if there is approx. 11.7V DC between terminals ① and ②, it is OK.

OK

<CHECK POWER CORD.>
Check continuity.

NO

Replace power cord.

OK

<CHECK TRANSFORMER.>
With rated voltage applied to the transformer's primary, if there is about 13.4V AC between terminals ⑬ and ⑭, it is OK.

NO

Replace transformer.

NOTE: Power transformer is fused internally.
(See SCHEMATIC DIAGRAM.)

OK

<CHECK MODULE.>
With rated voltage applied to the battery charger and 1.5V DC applied between terminals (S) and (-), if there is approx. 11.7V DC between terminals ① and ②, it is OK.

NO

Replace module.

DISASSEMBLY / ASSEMBLY INSTRUCTIONS

(Drill Chuck Removal) (Fig. 1 - 4)

1. The main housing A and B can be disassemble without removing the chuck.
2. Disassembling the keyless drill chuck.

Note : Set the clutch handle to position 1.

(1) Turn the lock handle counterclockwise to open the chuck jaws. (Fig. 1)

(2) Use a screwdriver to turn the chuck fastening screw inside the chuck clockwise, and remove the screw.

* If the chuck fastening screw will not come loose, insert the lock release rod into the chuck and lightly tap in the clockwise direction with a hammer to tighten the chuck, and then loosen the chuck fastening screw. (Fig. 2)

(3) Insert the allen wrench into the chuck, and turn counterclockwise with holding the unit by the vise to remove the chuck. (Fig. 3)

※ Fit the lock release rod into the chuck and lightly tap in the counterclockwise direction with a hammer to loosen and remove the chuck. (Fig. 4)

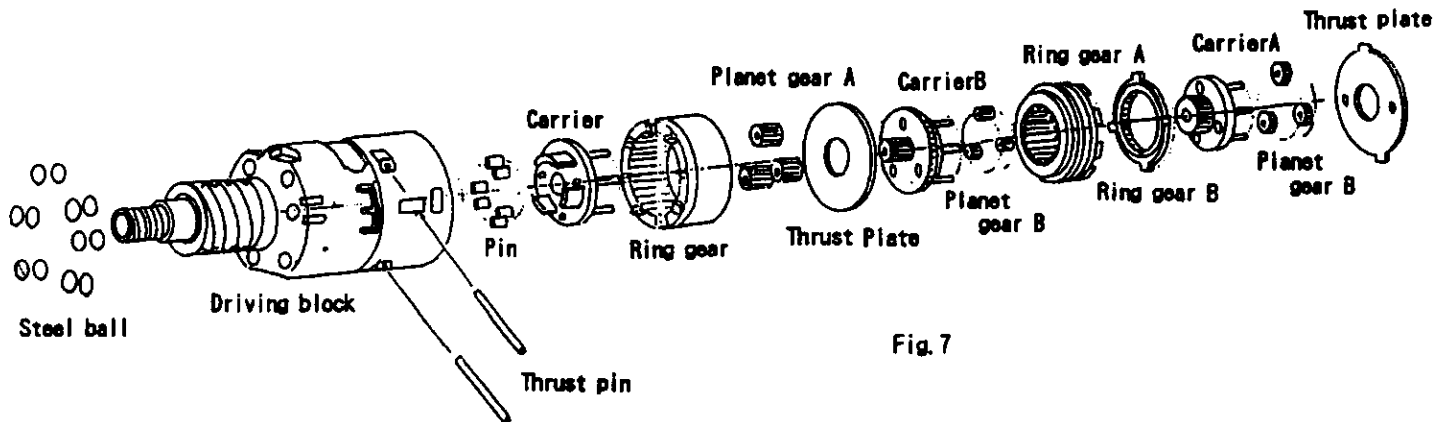
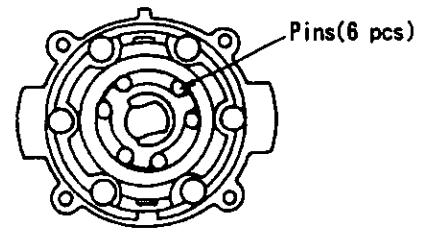
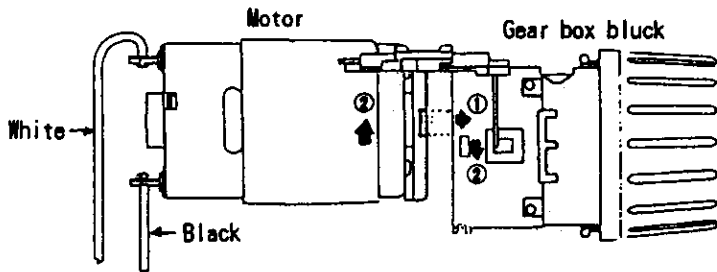
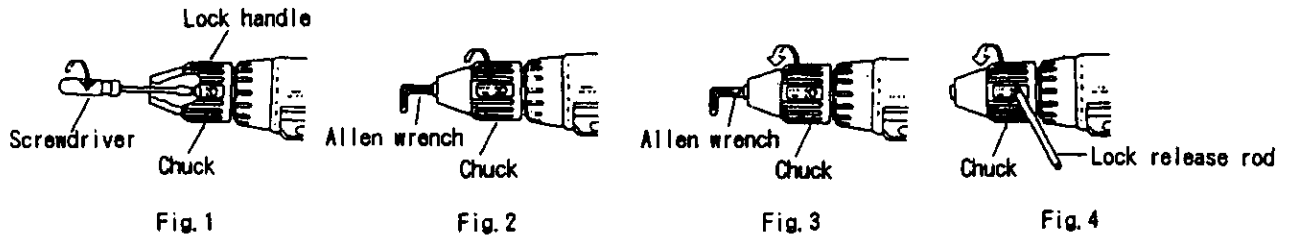
(Motor Removal / Replacement) (Fig. 5)

1. Remove the motor with the gear box from housing.
2. Separate the motor from the gear box by twisting motor to unlock tabs.
3. For reassembly, adjust the tabs of gear box block to the groove of motor (⇒①) and twist them each other (↓↑②).

(Gear Block Disassembly / Assembly) (Fig. 6 & 7)

1. After removing the gear block from the motor block, the internal parts of the gear block can be removed one after another. When doing this, be careful not to lose the 6 roller pins.
2. For reassembly, start from inserting 6 pins into the driving block as shown in the Fig. 6, and reassemble the other parts in order as shown in the Fig. 7.

Note : Carrier, ring gear, and ring gear A have their own correct directions for proper reassembly.



(Clutch Disassemble & Assemble) (Fig. 8 & 9)

1. Set the steel balls, clutch plate, click plate, and clutch spring to the driving block.
Note : When removing the clutch plate, 6 sets (12pcs) of steel balls may fall out.
When reinstalling place 1 set into each of the 6 holes.
Clutch plate, click plate, and clutch spring have their own correct directions for proper reassembly.
2. First, adjust the ○ mark of driving block to the ○ mark of adjusting screw.
And drive the adjusting screw into the driving block about one rotation for right direction.
Then adjust the ○ mark of driving block to the ○ mark of adjusting screw again.
Secondly, adjust the tabs of click plate to the projection of adjusting screw.
Third, set the position for 'position 7' of clutch handle to the A part of driving block.
And insert the clutch handle with adjusting the tabs of adjusting screw and of click plate to the groove of inside clutch handle.

(Battery Charger Disassembly)

Remove the 4 holding screws for EY0202 and RE570 or the 6 holding screws for EY0001, and separate housings.

(Battery Charger Assembly)

1. When reassembling the module block (power cord, power transformer, and module) to housing A, be certain that LED appears through the hole in the housing A.
2. Connect the charging terminals as see as WIRING CONNECTION DIAGRAM.
3. Set the bushing for power cord to the housing A.
4. Avoid pinching lead wires, dress into housing recess and around screw posts etc.
5. After reassembly, test for proper voltage at battery terminals <(+) and (-) for approx. 11.7V DC for RE570 or for approx. 16.7V DC for EY0001.>
6. For EY0001, measure from (-) to (S) terminal your reading should be approx. 3V DC.

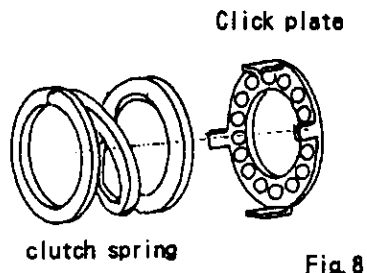


Fig. 8

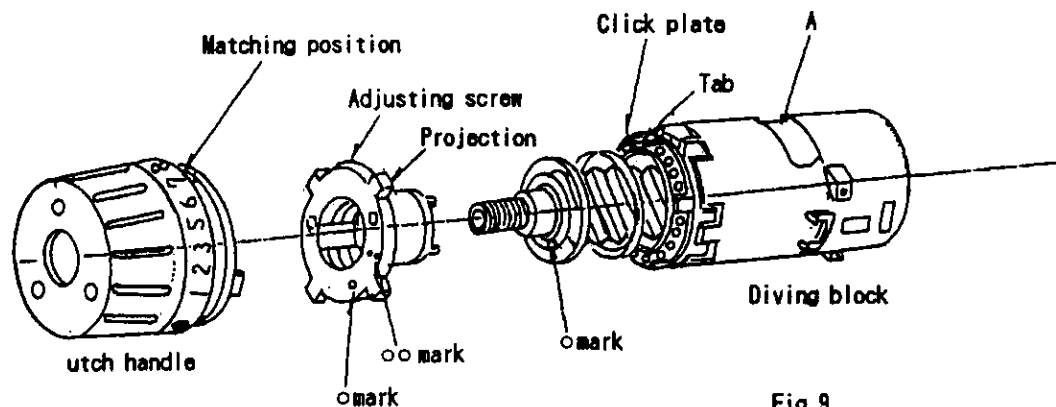


Fig. 9