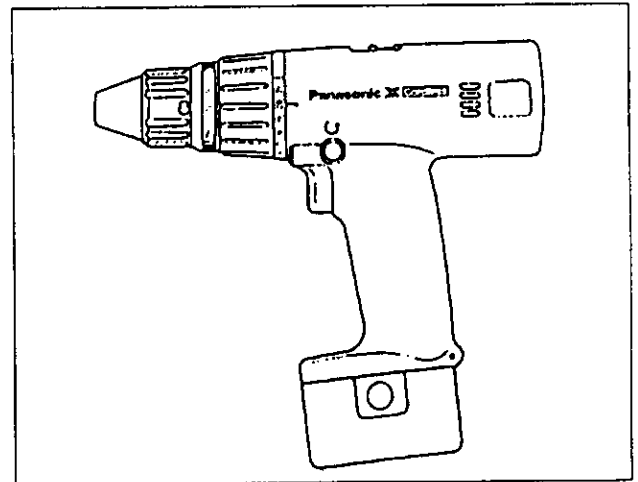


Service Manual

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

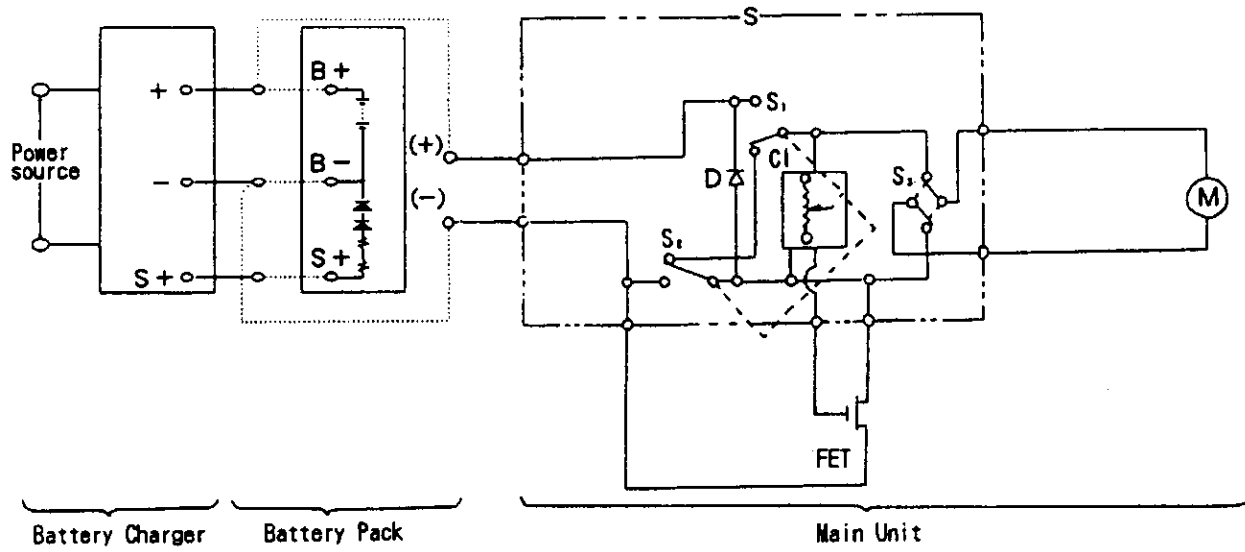
<Standard equipment>
 Battery charger
 Battery pack
 Lock release rod

Panasonic

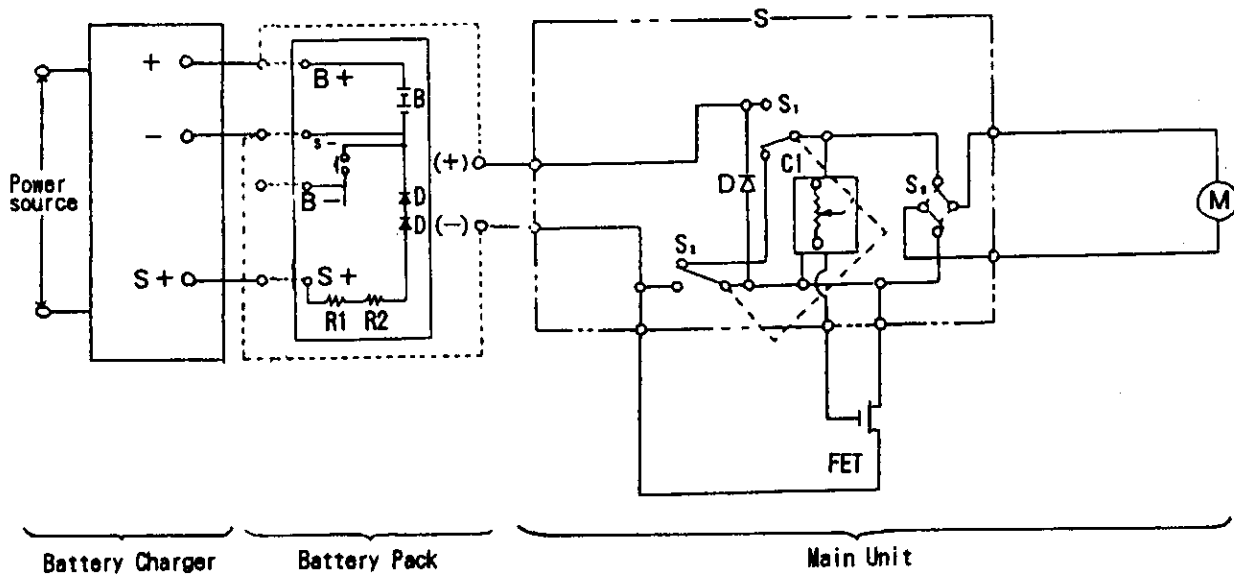
Matsushita Electric Corporation of America
 One Panasonic Way, Secaucus, New Jersey 07094

SCHMATIC DIAGRAM

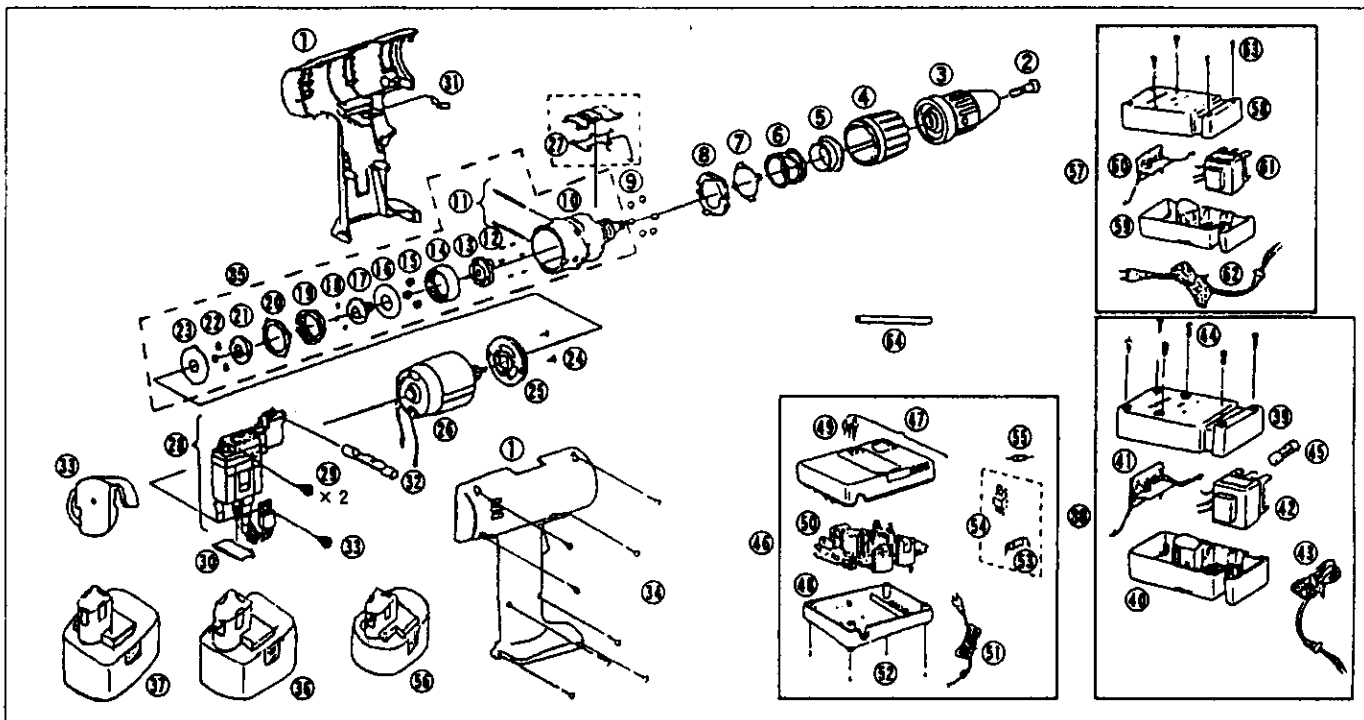
■EY6100EQK



■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 MOUNTING 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 | |

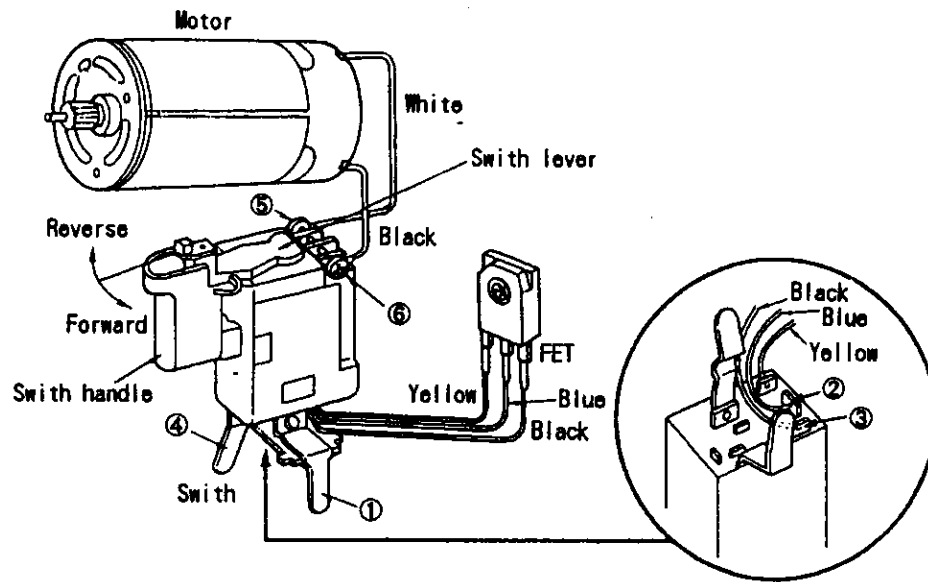
Model EY6100-EY6181

| 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 | |

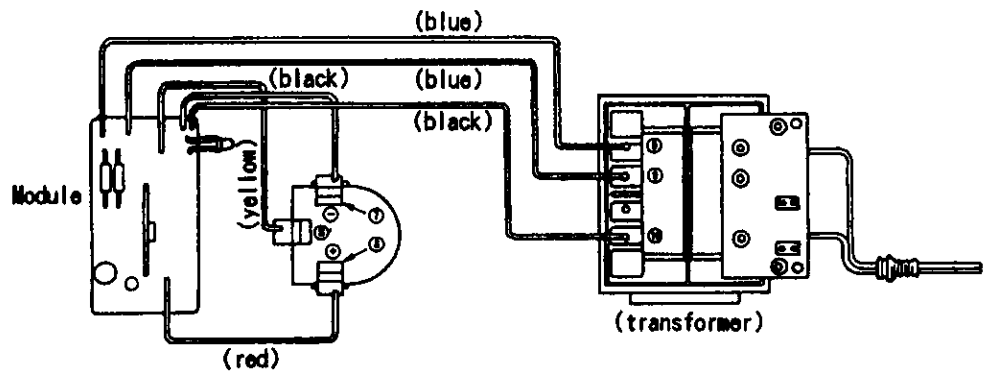
Note : *A ... available as an optional accessory
 *B ... only available as set
 *C ... available individually

WIRING CONNECTION DIAGRAM

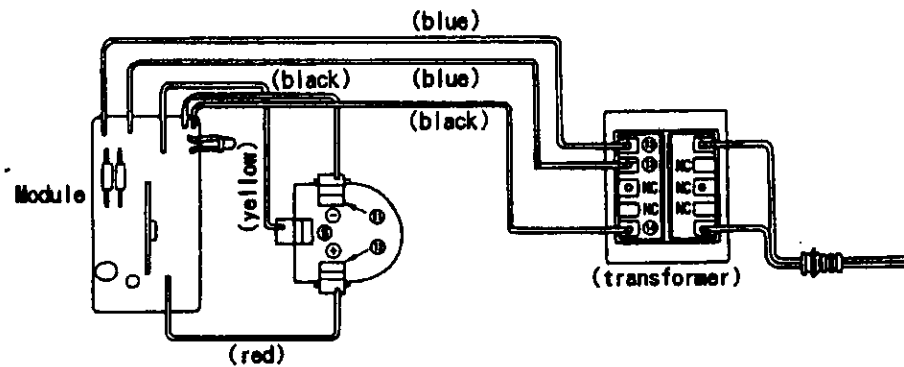
■ Main Unit



■ 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.

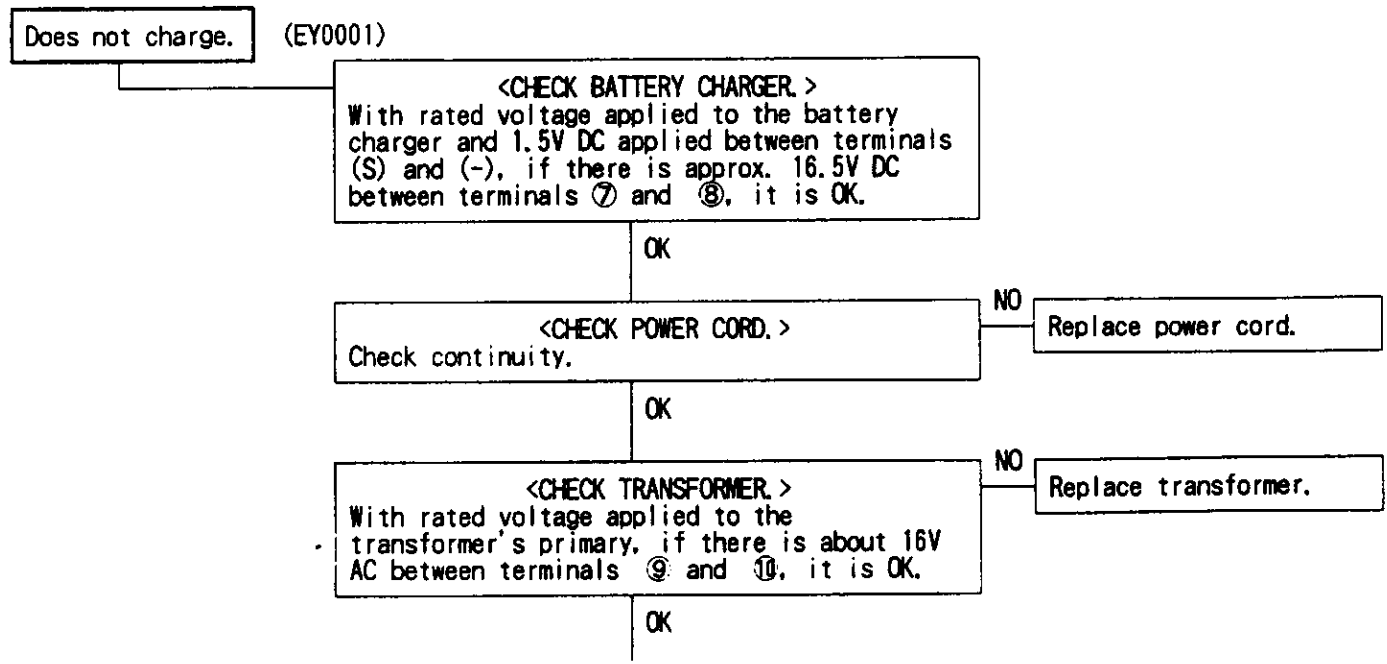
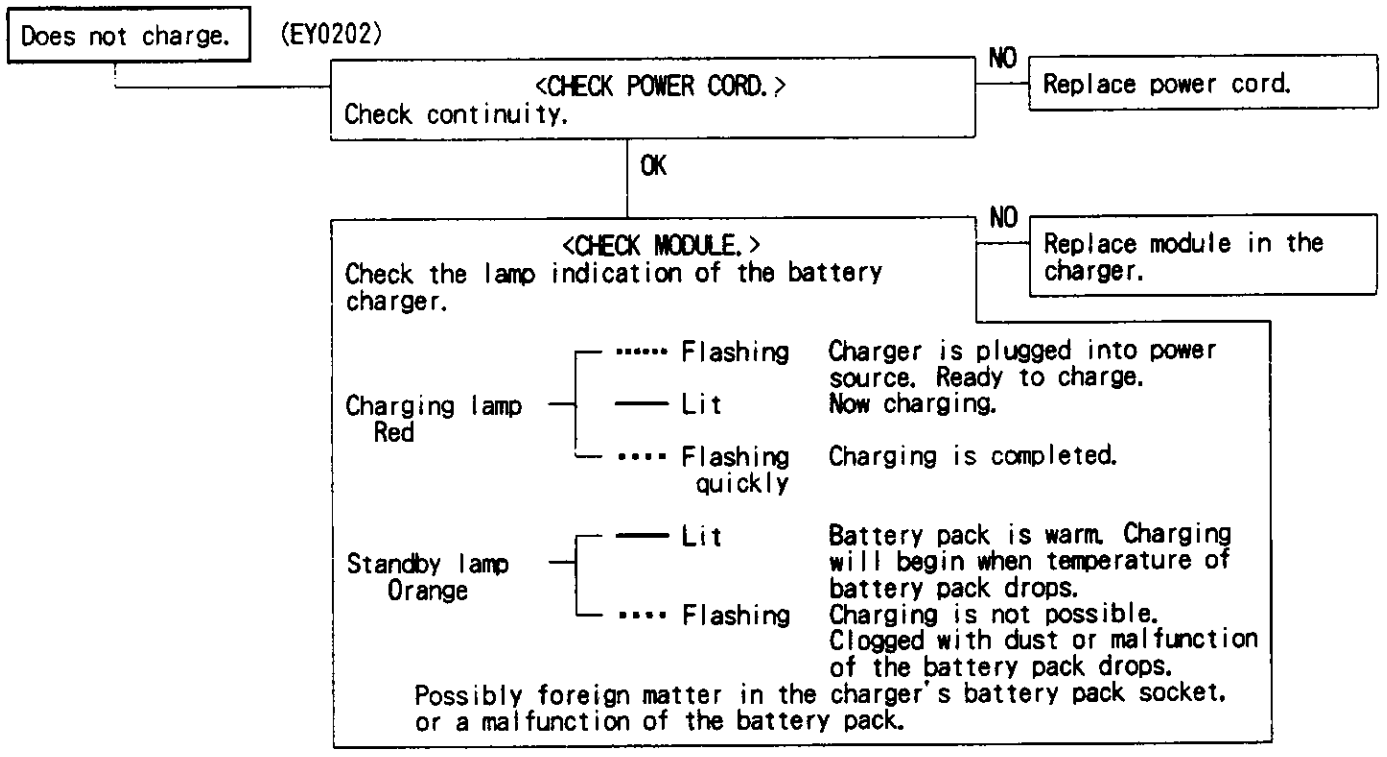
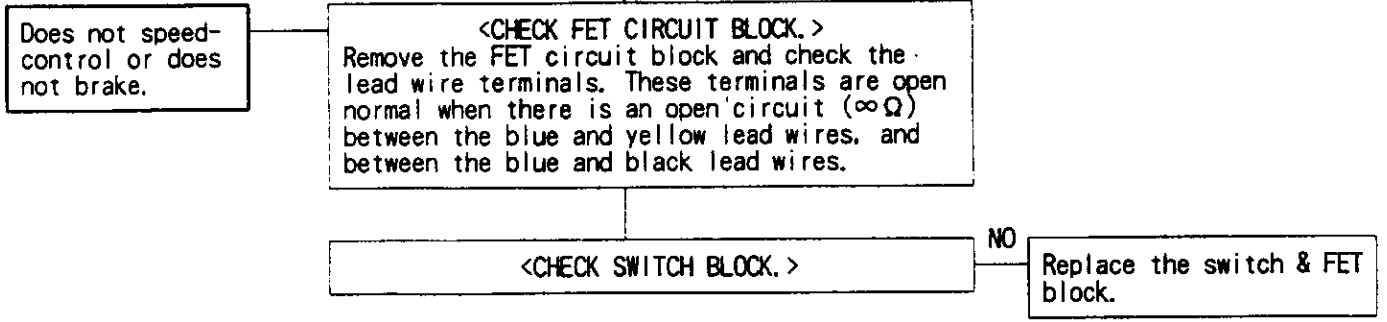
* Check by switch depression amount.

- (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.

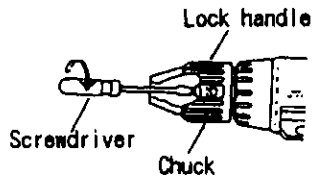


Fig. 1

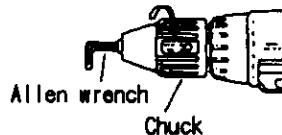


Fig. 2

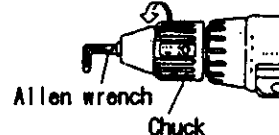


Fig. 3



Fig. 4

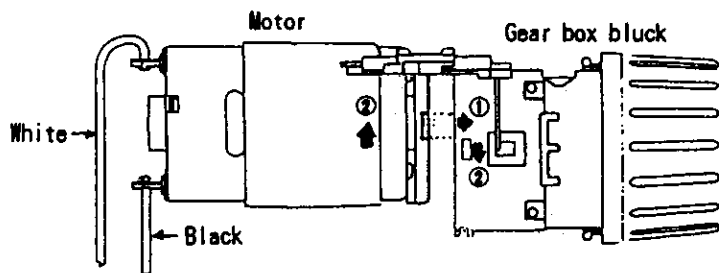


Fig. 5

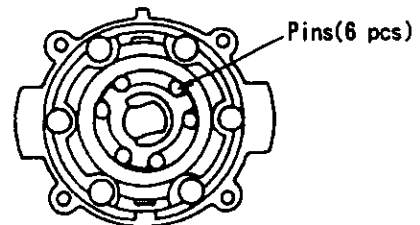


Fig. 6

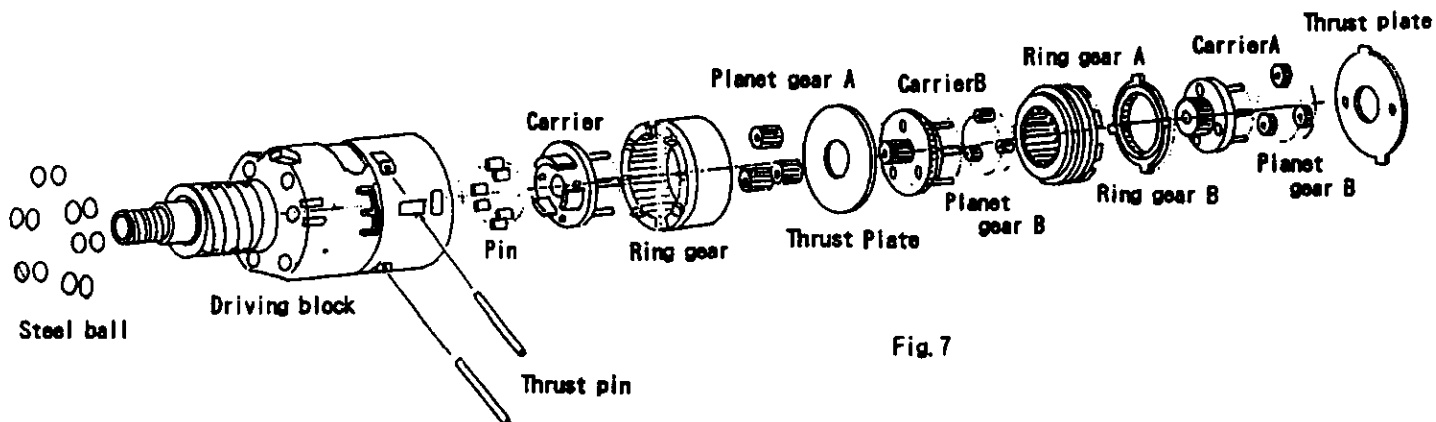


Fig. 7

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

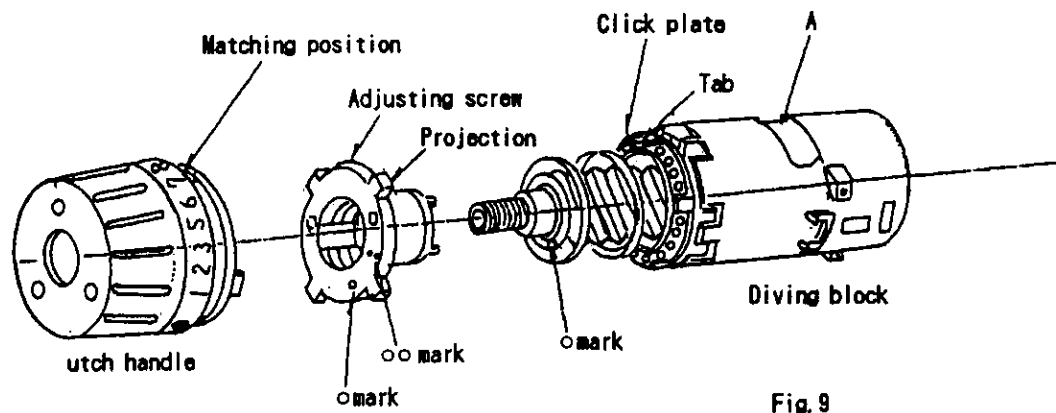
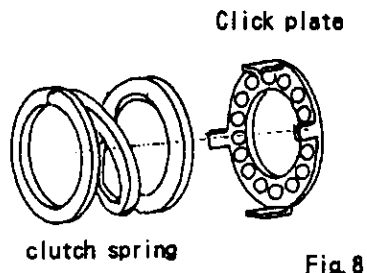
1. Set the steel balls, clutch plate, click plate, and clutch spring to the driving block.
Note : When removing the clutch plate, 6 sets (12pcs) of steel balls may fall out.
When reinstalling place 1 set into each of the 6 holes.
Clutch plate, click plate, and clutch spring have their own correct directions 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.



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