

Models No. ▶ BDF430F

Description ▶ Cordless Driver Drill 13mm

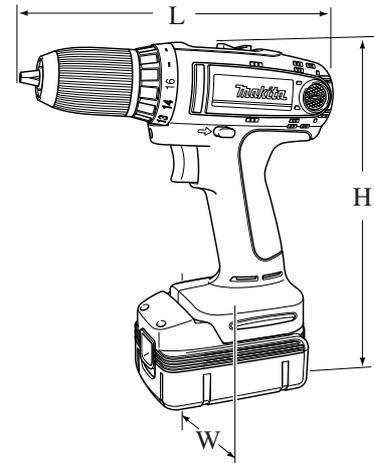
CONCEPT AND MAIN APPLICATIONS

Model BDF430F has been added to MAKSTAR series models. The brief features of the new 12V driver drills are;

- *Compact design with an overall length of 198mm (7-3/4")
- *Extra-lightweight with the newly designed, compact and light 12V batteries, BH1220C or BH1233C
- *All metal gear construction for high transmission durability
- *Single sleeve keyless drill chuck allows easy bit replacement.

This new product is available in the following variations.

| Model No. | Battery | | Charger |
|------------|------------------------------------|------|---------|
| | Type | Q'ty | |
| BDF430FSAE | Ni-MH Battery BH1220C (12V, 2.0Ah) | 2 | DC14SC |
| BDF430FSJE | Ni-MH Battery BH1233C (12V, 3.3Ah) | 2 | |



| Dimensions: mm (") | | |
|----------------------|-------------|-------------|
| | w/ BH1220C | w/ BH1233C |
| Length (L) | 198 (7-3/4) | |
| Width (W) | 80 (3-1/8) | |
| Height (H) | 228 (9) | 236 (9-1/4) |

Note: All of the above models come with the items listed below in the "Standard equipment" in addition to the items listed above.

► Specification

| | | | |
|---------------------------------|------------|-----------------------------|-----------------------------|
| Battery | Voltage | 12 V | |
| | Cell | Ni-MH | |
| | Capacity | 2.0 Ah (Battery BH1220C) | 3.3 Ah (Battery BH1233C) |
| No load speed: (min-1 = rpm) | High | 0 - 1300 | |
| | Low | 0 - 380 | |
| Chuck capacity: mm (") | | 1.5 (1/16) - 13 (1/2) | |
| Max fastening torque (N. m) | Hard joint | 36 | |
| | Soft joint | 22 | |
| Drilling capacity | Steel | 13 (1/2) | |
| | Wood | 27 (1-1/16) | |
| Net weight: kg (lbs) | | 1.6 (3.5) w/battery BH1220C | 1.8 (4.0) w/battery BH1233C |

For detailed specifications, see the comparison table on next page.

► Standard equipment

- *Philips bit 2-65 1 pc.
- *Plastic carrying case 1 pc.

Note: The standard equipment for the tool shown may differ from country to country.

► Optional accessories

- *Battery BH1220
- *Battery BH1220C
- *Battery BH1233
- *Battery BH1233C
- *Charger DC14SA
- *Charger DC14SC
- *Charger DC24SA
- *Hook (Belt clip)

► Features and benefits

All Metal Gear Construction
For high transmission durability

Single Sleeve Keyless Chuck
Allows fast and easy one-hand bit installation.

LED Job Light
For illuminated operation in dark locations

Easy-to-Operate Large Trigger Switch for Variable Speed Control
Features constant speed control for minimum speed reduction when loaded.

Compact and Lightweight 12V Batteries of New Design
Ensures operation with reduced hand fatigue.
BH1220C, 2.0Ah: 120g lighter than BH1220
BH1233C, 3.3Ah: 110g lighter than BH1233

Compact Design with an Overall Length of Only 198mm (7-3/4")

High Performance D28 Type DC Motor
*Lightweight yet powerful thanks to the same rare earth magnet as used for the motor of Model BTD123
[Max output/Net weight Comparison]
BDF430F: 190W/1.6 kg (1.8kg)
6316D: 200W/2.2kg
6317D: 205W/2.0kg
*Extended service life obtained by efficient cooling, replaceable armature, and externally accessible carbon brush

Push-Button F/R Switch
For one-handed operation

Rubberized Soft Grip
Fits your palm perfectly for comfortable operation with more control.

Optional belt clip can be attached.

► Comparison of products

| Model No. | | Makita | | | | A | B |
|---------------------------------|------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | | BDF430F | 6317D | 6316D | 6314D | A | B |
| Battery | Voltage: V | 12 | 12 | 12 | 12 | 12 | 12 |
| | Capacity: Ah | 2.0/ 3.3 | 2.6 | 2.6 | 2.6 | 2.0/ 3.0 | 3.5 |
| | Cell | Ni-MH | Ni-MH | Ni-MH | Ni-MH | Ni-MH | Ni-MH |
| Charging time: min. | | 30/ 50 with DC14SC | 60 with DC1414 | 60 with DC1414 | 60 with DC1414 | N/A | 55 |
| No load speed (min-1= rpm) | High | 0 - 1,300 | 0 - 1,300 | 0 - 1,100 | 0 - 1,100 | 0 - 1,200 | 180 - 1,300 |
| | Low | 0 - 380 | 0 - 400 | 0 - 350 | 0 - 350 | 0 - 350 | 50 - 400 |
| Max output: W | | 190 | 205 | 200 | 110 | N/A | N/A |
| Keyless chuck | Type | Single sleeve | Dual sleeve | Dual sleeve | Dual sleeve | Single sleeve | Single sleeve |
| | Capacity: mm (") | 1.5 - 13 (1/16 - 1/2) | 1.5 - 13 (1/16 - 1/2) | 1.5 - 13 (1/16 - 1/2) | 1.5 - 13 (1/16 - 1/2) | 1.5 - 13 (1/16 - 1/2) | 1.0 - 13 (1/32 - 1/2) |
| Max. fastening torque: N.m | Hard joint | 36 | 60 | 35 | 25 | N/A | 33.1 |
| | Soft joint | 22 | 25 | 15 | 14 | N/A | 22.6 |
| Drilling capacity: mm (") | Steel | 13 (1/2) | 13 (1/2) | 13 (1/2) | 13 (1/2) | 13 (1/2) | 13 (1/2) |
| | Wood | 21 (1-1/16) | 25.4 (1) | 30 (1-3/16) | 24 (15/16) | 27 (1-1/16) | 27 (1-1/16) |
| Constant speed (Trigger switch) | | Yes | No | No | No | Yes | Yes |
| LED job light | | Yes | No | No | No | No | No |
| Hook (= optional Belt clip) | | Yes | No | No | No | Yes | No |
| Externally accessible brush | | Yes | Yes | Yes | Yes | Yes | No |
| Soft grip | | Yes | Yes | No | No | Yes | Yes |
| Torque setting | | 16 stage + drill mode | 22 stage + drill mode | 18 stage + drill mode |
| Dimensions | Length: mm (") | 198 (7-3/4) | 243 (9-9/16) | 255 (10) | 208 (8-3/16) | 203 (8) | 208 (8-3/16) |
| | Width: mm (") | 80 (3-1/8) | 94 (3-11/16) | 94 (3-11/16) | 94 (3-11/16) | 70 (2-3/4) | 82 (3-1/4) |
| | Height: mm (") | 228/ 236 (9)/ (9-1/4) | 243 (9-9/16) | 240 (9-1/2) | 235 (9-1/4) | 220/ 229 (8-5/8)/ (9) | 228 (9) |
| Net weight: kg (lbs) | | 1.6 (3.5)/ 1.8 (4.0) | 2.0 (4.4) | 2.2 (4.9) | 1.7 (3.7) | 1.6(3.5)/1.7(3.7) | 1.9 (4.2) |

▶ Comparison of products

Drilling Performance Comparison

Numbers in chart below are relative values when the capacities of Model 6316D are indexed at 100.

Note: The test results depend to a great extent on the hardness of the material, etc.

Test 1

Drilled in 25mm thick melapi with 15mm gimlet (auger bit) at high speed.

[Work speed]

[Work volume]

(on a single full battery charge)

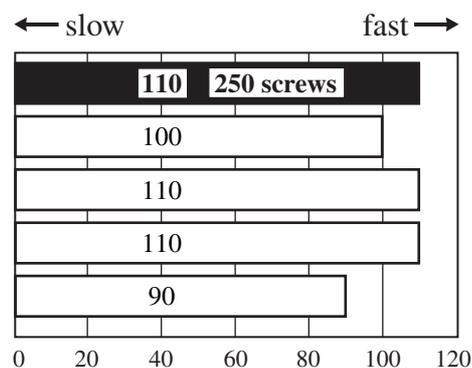
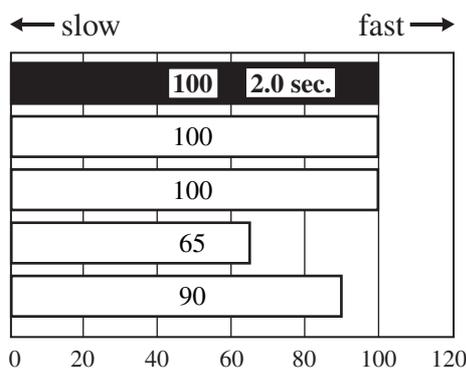
Makita BDF430F (3.3Ah)

Makita 6316D (3.0Ah)

Makita 6317D (3.0Ah)

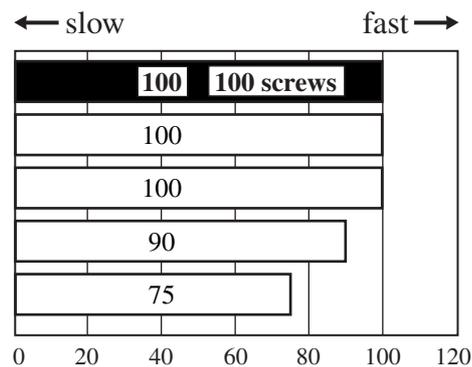
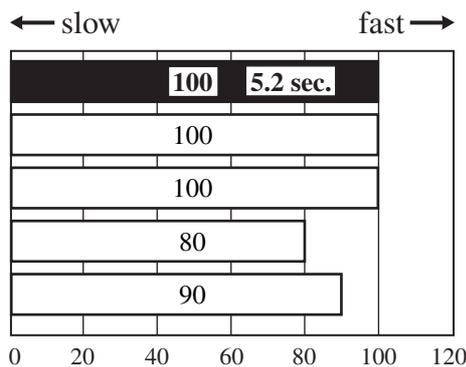
Makita 6314D (3.0Ah)

Competitor A's Model A
(3.0Ah)



Test 2

Drilled in 25mm thick melapi with 24mm gimlet (auger bit) at high speed.



► Repair

[1] Removal/Installation of Drill Chuck

When replacing Gear assembly, remove drill chuck beforehand as described below.
(It is not necessary to remove Drill chuck when disassembling Housing only.)

REMOVAL

- 1) After fully opening Chuck jaws, remove the chuck screw (M6x22 (-) Flat head screw) by turning it clockwise.
If it is difficult to remove, use a Makita Impact wrench.
- 2) Slide Speed change lever to the position of "Low", and turn Change ring to "Drill mode".
And then secure one end of a hex wrench with Chuck jaws. Hold the machine firmly, and then remove Drill chuck by hitting the other end of the hex wrench using plastic hammer to turn Drill chuck counterclockwise. (Fig. 1)

INSTALLATION

- 1) Secure one end of a hex wrench with Chuck jaws, and the other with vise.
Shift Speed change lever to "1" (low), and set the machine in the mode of drilling in forward rotation. Hold the grip of the machine firmly so that your hand cannot be pulled away by reaction torque. And then fasten Spindle to Drill chuck by pulling the trigger of Switch until Spindle is locked. (Fig. 2)
Note: Release the trigger of Switch just after Spindle is locked. Do not keep on pulling the trigger for longer than one second.
- 2) Fasten Drill chuck to Spindle with the chuck screw (M6x22 (-) Flat head screw) by turning it counterclockwise.

Fig. 1

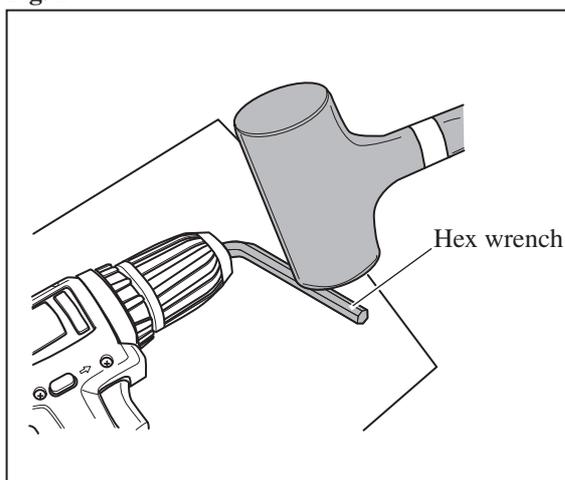
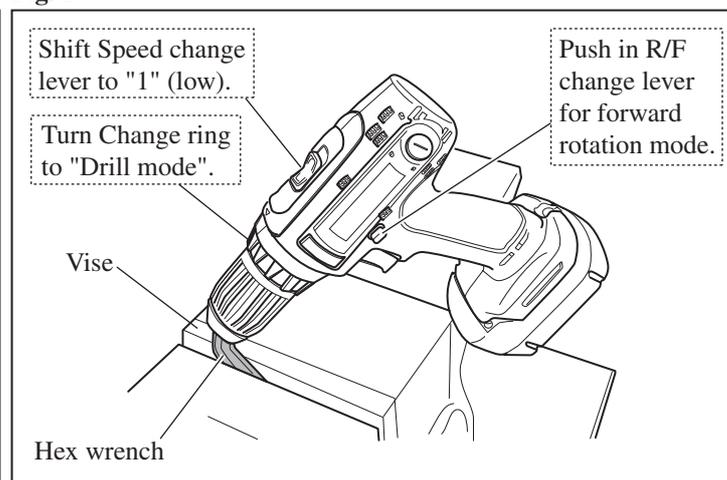


Fig. 2



[2] Installing Motor on Gear Assembly

- 1) First insert the spur gear portion of Motor into the hole in Gear assembly, and make sure that the spur gear is engaged with the internal gears of gear assembly.
And then push Motor for secure installation onto Gear assembly. (Fig. 3)
- 2) Engaging the protrusion on Housing (L) with the notch in Yoke of Motor, install the unit of Motor and Gear assembly on Housing (L). (Fig. 4)

Fig. 3

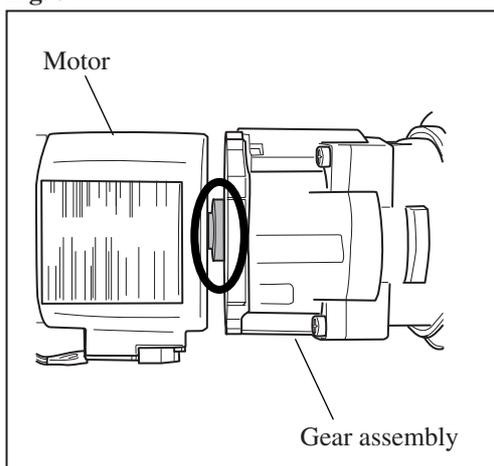
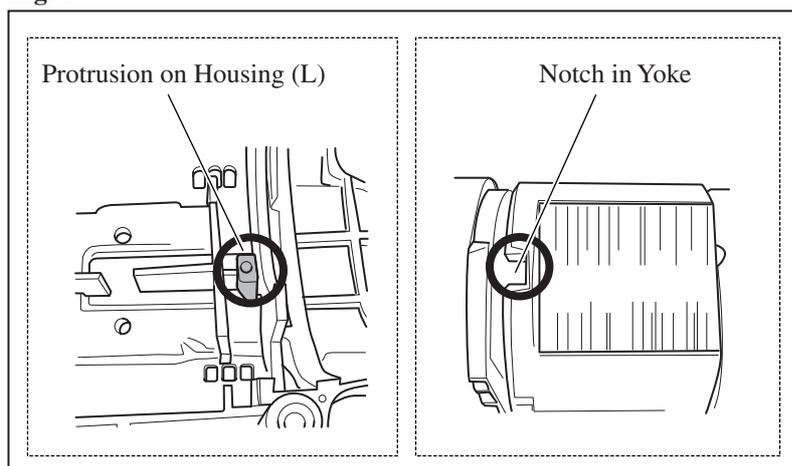


Fig. 4



► Repair

[3] Installing Speed change Lever

- 1) Make sure that two Compression springs are set in place on Speed change lever as illustrated in **Fig. 5**.
 - 2) Install Speed change lever onto the protrusion on Gear assembly as illustrated in **Fig. 6**.
- After installation, slide Speed change lever to either side. (**Fig. 7**)

Fig. 5

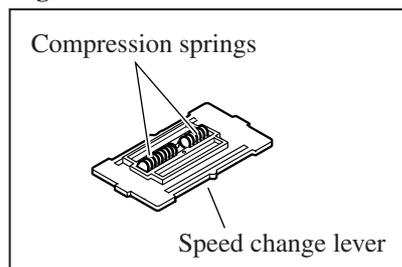


Fig. 6

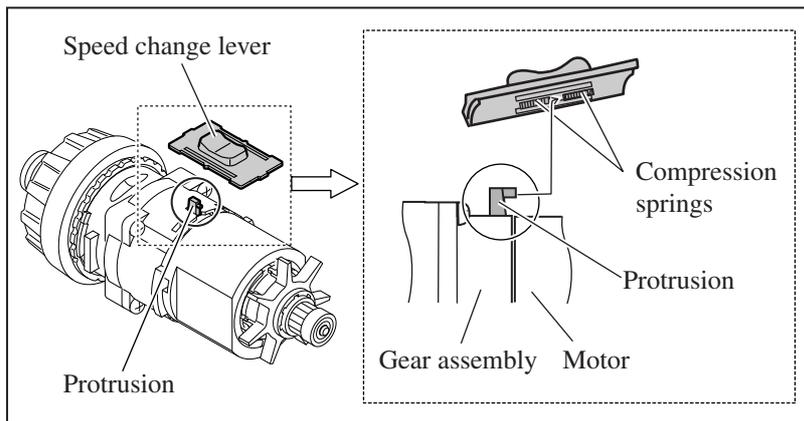
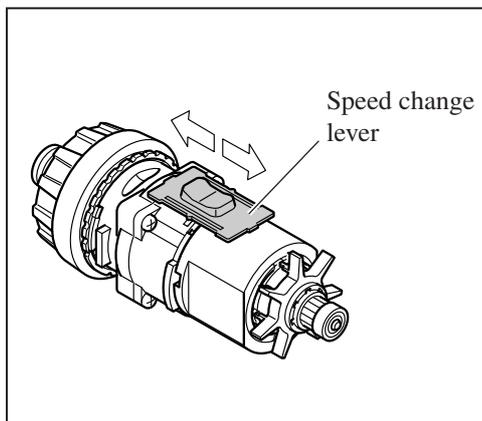


Fig. 7



► **Repair**

[4] Installing Inner Electrical Parts and Fastening Housing (R) to (L)

- 1) Before installation of inner electrical parts, remember to set Leaf spring in place on housing (L) as illustrated in **Fig. 8**.
- 2) Install inner electrical parts on Housing (L) in the following order for the easiest installation;
 1. Light unit, 2. Terminal, 3. Switch and F/R Change lever, 4. Lead wires to FET, 5. Unit of Gear assembly and Motor
 When installing, remember to follow the instructions on routing of lead wires described in **Fig. 9**.
- 3) Being careful not to pinch lead wires, fasten Housing (R) to (L) with nine 3x16 Tapping screws.

Fig. 8

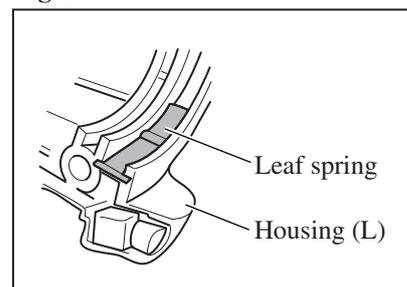


Fig. 9

Three lead wires that connect Trigger switch
Place the loose portion between the two ribs as illustrated below.

rib

FET

Trigger switch

Lead wire (black) from End bell complete
Route below the rib as illustrated below.

rib

Trigger switch

Lead wires from Terminal
Route between ribs so that these wires cannot be pinched.

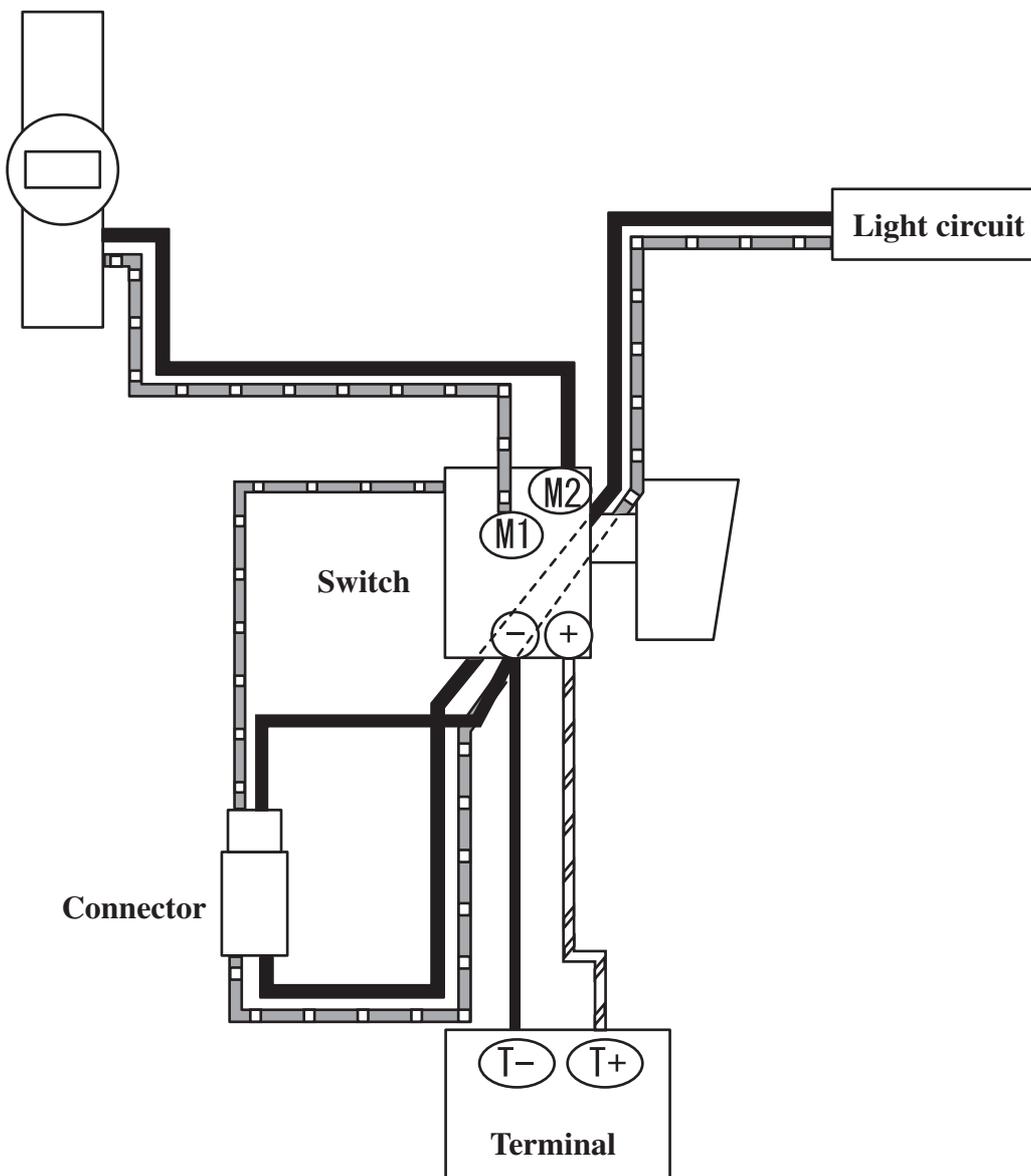
Lead wires from Light circuit
Remember to hold securely with lead wire holders.

Light circuit

► **Circuit diagram**

| Color index of lead wires' sheath | |
|-----------------------------------|---|
| Black |  |
| Red |  |

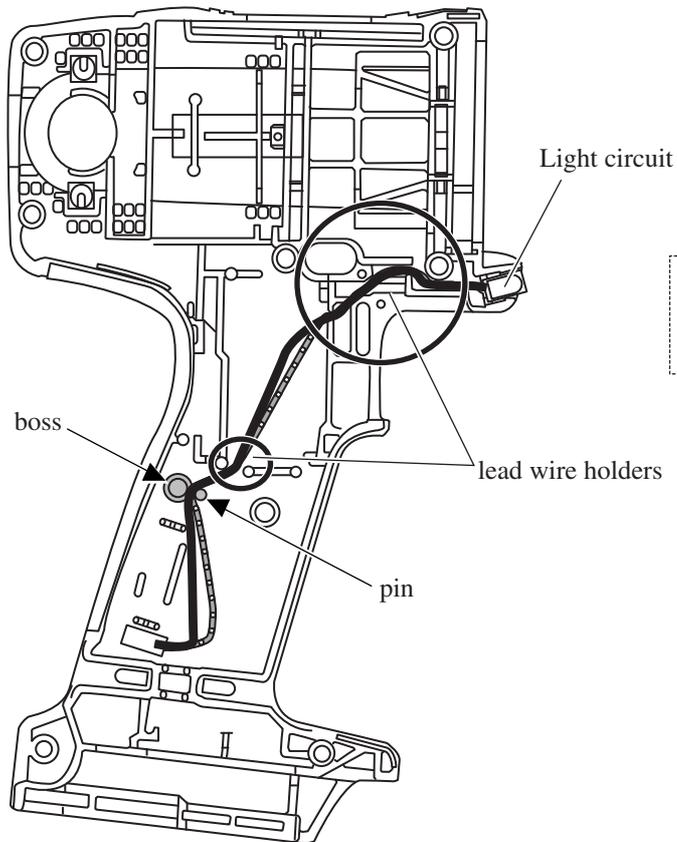
End bell complete



► **Wiring diagram**

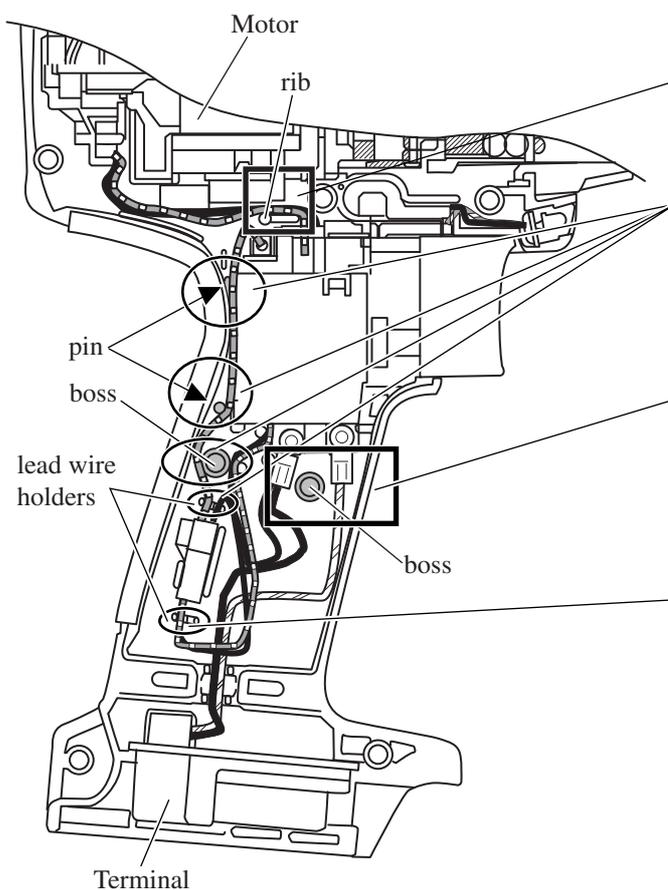
Fig. 10

[Before Installation of Inner Electrical Parts]



Fasten the lead wires (black and white) securely with lead wire holders, and route them between the boss and the pin.

[After Installation of Inner Electrical Parts]



Route the lead wire from End bell complete above the rib. (Also refer to page 5.)

Route the lead wire (red) from Switch between the pins and Switch, and between the boss and the housing wall. And hold securely with the lead wire holder.

Install the insulated terminal on Switch so that they cannot touch the boss.

Hold the lead wire (red) from Light circuit securely with the lead wire holder.