



MODELS FDV 12T/FDV 12V/FDV 15T/FDV 15V

1. PRECAUTIONS IN SALES PROMOTION:

In the interest of promoting the safest and most efficient use of the Models, FDV 12V,FDV 12T,FDV 15V and FDV 15T Impact Drills by all of our customers, it is very importance that at the time of sale the salesman carefully ensures that the buyer seriously recognizes the importance of the contents of the Handling Instructions, and fully understands the meaning of the precautions listed on the Caution Plate attached to each tool.

1-1. Handling Instructions:

Although every effort is made in each step of design, manufacture, and inspection to provide protection against safety hazards, the dangers inherent in the use of any electric tool cannot be completely eliminated. Accordingly, general precautions and suggestions for the use of electric power tools, and specific precautions and suggestions for the use of the electric impact driver drill are listed in the Handling Instructions to enhance the safe, efficient use of the tool by the customer.

Salesmen must be thoroughly familiar with the contents of the Handling Instructions to be able to offer appropriate guidance to the customer during sales promotion.

1-2. Caution Plate:

Each tool is provided with a Caution Plate (illustrated below) which lists basic safety precautions in its use. Carefully ensure that the customer fully understands and follows these precautions before using the tool.

- Standard (Europe, etc.)

CAUTION

- Read thoroughly **HANDLING INSTRUCTIONS** before use.

- For F.R. Germany, Austria and Switzerland

AUHTUNG

- Bedienungsanleitung vor Inbetriebnahme lesen.

- For France

ATTENTION

- TRES IMPORTANT: Lire avec attention la notice d'utilisation.

- For the U.S.A.

CAUTION

- For safe operation, see instruction manual.
- When servicing, use only identical replacement parts.

2. DISASSEMBLY/REASSEMBLY GUIDE:

2-1. Disassembly:

The circled numbers in the descriptions below correspond to the item numbers in the Parts List and exploded assembly diagram for the Model FDV 12V. The circled numbers in parentheses are for the Model FDV 15V. For the Models FDV 12T and FDV 15T, carefully check the Parts Lists and exploded assembly diagrams.

(1) Removal of the Drill Chuck:

For Model FDV 15V only, first fully open the jaws of the Drill Chuck ③ and remove the left-hand threaded Special Screw ① by turning it clockwise with a minus screwdriver.

For all models, the Drill Chuck ② (③) is fixed to the Spindle Ass'y ③ (④) by a UNF1/2"-20 right-hand thread. As illustrated in Fig. 2, fit a J-78 Ring Ass'y (special repair tool) onto the Drill Chuck body, and secure it in a vise. At this time, ensure that the pin of the Ring Ass'y is properly inserted into the chuck wrench mounting hole on the body portion. Then, fit a 14 mm Wrench to the flat surfaces on the Spindle, and rotate it counter-clockwise to loosen and remove the Drill Chuck.

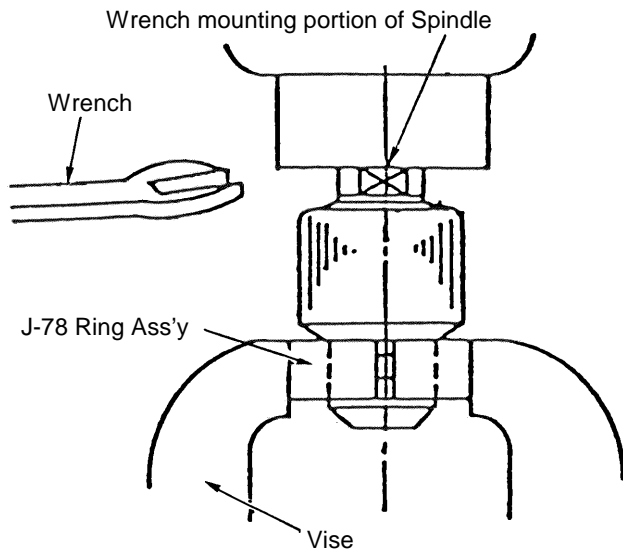


Fig. 2

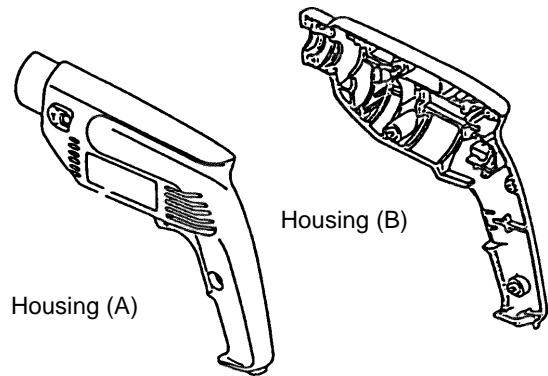


Fig. 3

(2) Removal of Housing (B): (See Fig. 3)

Remove the seven D4 x 20 Tapping Screws ①⑨ (②⑩) and separate Housing (B) from Housing (A).

(3) Removal of the Armature Ass'y and Stator Ass'y:

- A. Remove the Brush Holders ②① (②②) from housing (A), and take out the Carbon Brushes ②① (②①).
- B. While lifting up the Change Knob ⑨ (⑩), take out Spring (A) ①① (①②). The Holder ①② (①③) Armature ①④ (①⑤), Stator ①⑤ (①⑥), Gear ⑦ (⑧) and associated parts can then be removed in a single body.
- C. From the Holder ①② (①③) withdraw the Spindle ③ (④) together with the Gear ⑦ (⑧) and other assembled parts in a single body. At this time, be very careful not to lose the D4.76 Steel Ball ⑧ (⑨).
- D. From the Holder ①② (①③) withdraw the Armature ①④ (①⑤) together with the attached Ball Bearings ①③ (①④) and ①⑥ (①⑦). Remove the Ball Bearings with a bearing puller.
- E. Disconnect the Stator ①⑤ (①⑥) leadwires, the Noise Suppressor, and the Cord from the Switch ②④ (②⑤).

(4) Removal of the Gear and Spindle:

By pressing the Spindle ③ (④) against the Chuck-side surface of the Gear ⑦ (⑧), the Gear, Spring ④ (⑤), and D12 Retaining Ring ⑥ (⑦) can be removed.

2-2.Reassembly:

Reassembly can be accomplished by following the disassembly procedures in reverse. However, special attention should be given to the following items.

(1) Wiring:

Connect the Internal Wires of the Noise Suppressor, Stator ①⑤ (①⑥), and Cord to the Switch ②④ (②⑤) as illustrated in Fig. 4. (For further details, please refer to the wiring diagrams in Paragraph 2-5.)

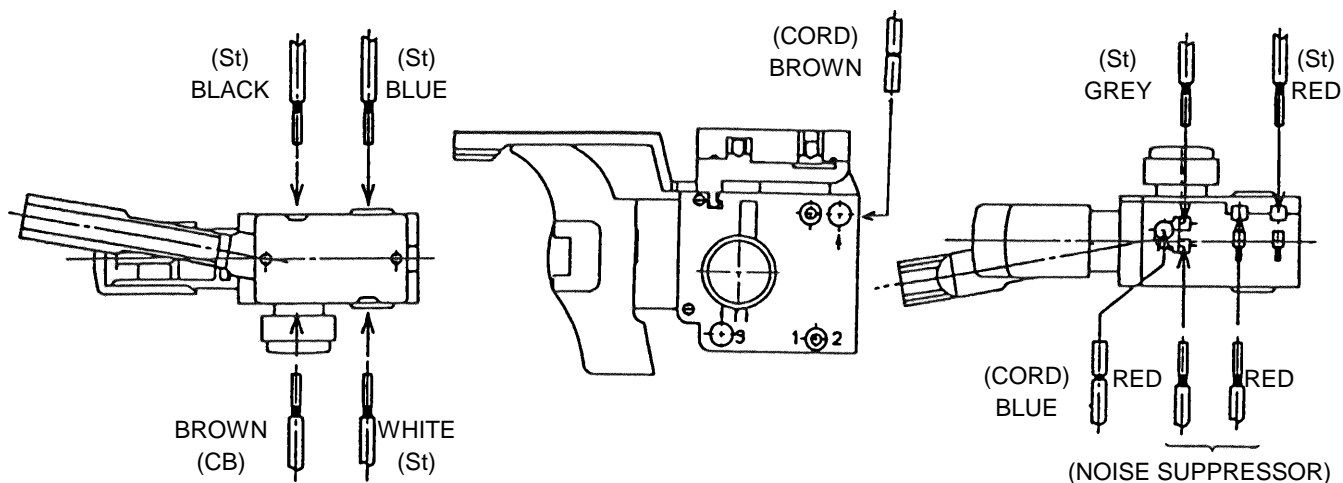


Fig. 4 FDV 12V and FDV 15V Wiring Diagram

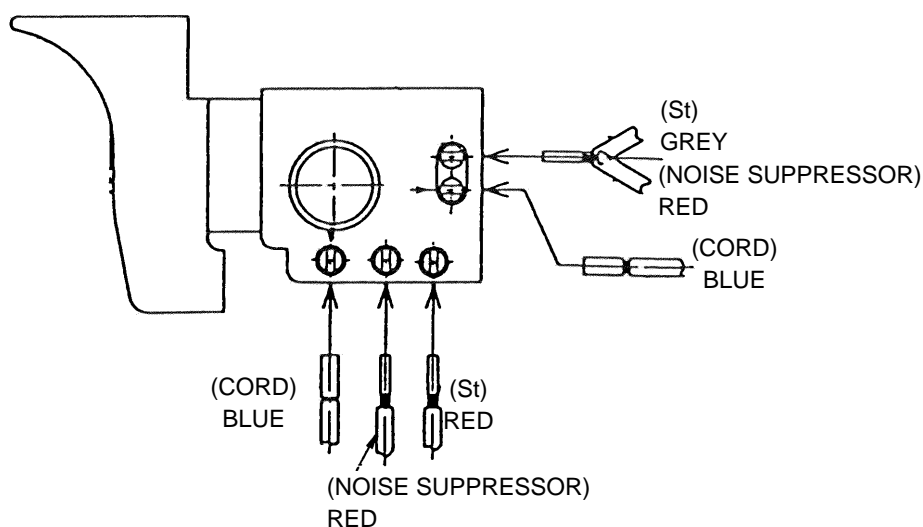


Fig.5 FDV 12T and FDV 15T Wiring Diagram

(2) Reassembly of the Holder Section:

When reassembling the Change Plate ⑩ (⑪) and Spring (A) ⑪ (⑫) in the Holder ⑫ (⑬), be very careful to ensure that each part is properly aligned. (See Fig. 6)

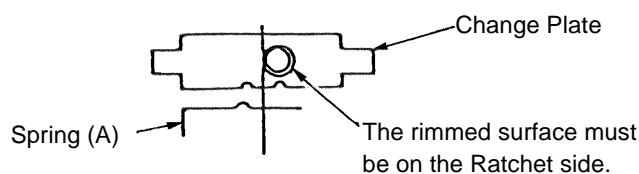


Fig. 6

(3) Reassembly of the Armature and Stator:

Reassemble the Armature ⑭ (⑮), gear ⑦ (⑧), Spindle ③ (④) and their related parts onto the Holder ⑫ (⑬), and insert the completed assembly into the Stator ⑮ (⑯). Be very careful not to forget the D4.76 Steel Ball ⑧ (⑨). Prior to inserting the D4.76 Steel Ball, apply grease (Hitachi Motor Grease is recommended) to the Ball receiving chamber on the Spindle Ass'y ③ (④). After mounting Housing (A), ensure that the fan on the Armature ⑭ (⑮) will rotate easily when touched lightly by hand.

(4) Other:

Carefully ensure that each leadwire is properly positioned without excessive slack, and not pinched between parts during assembly. (See Fig. 9,10)

2-3. Lubrication Guide:

Lubrication Points	Recommended Lubricant
Gear Chamber	Hitachi Motor Grease No. 29 (3 g)
Gear Teeth portion	
Gear Ratchet Portion	
Spindle Ball Chamber	
Holder Metal	

2-4. Tightening Torque Guide:

Part Name	Tightening Torque
Drill Chuck	300 - 400 kgf-cm
D4 Tapping Screws	14 - 22 kgf-cm

2-5. Wiring Diagrams and Internal Wiring Arrangements:

Arrange and connect wiring in accordance with the following illustrations.

(1) Wiring Diagrams

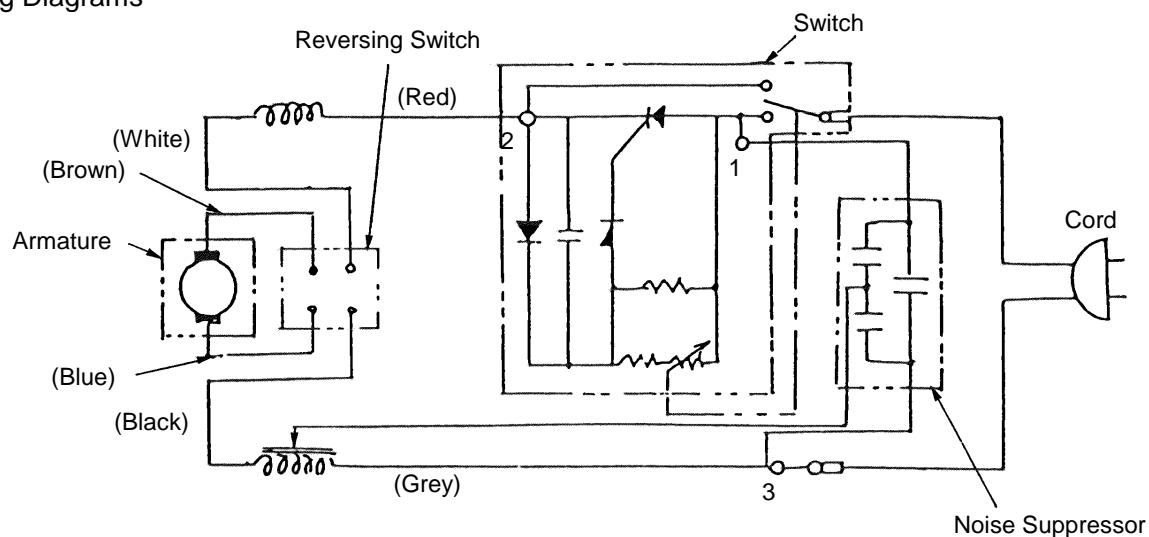


Fig. 7 Models FDV 12V and FDV 15V

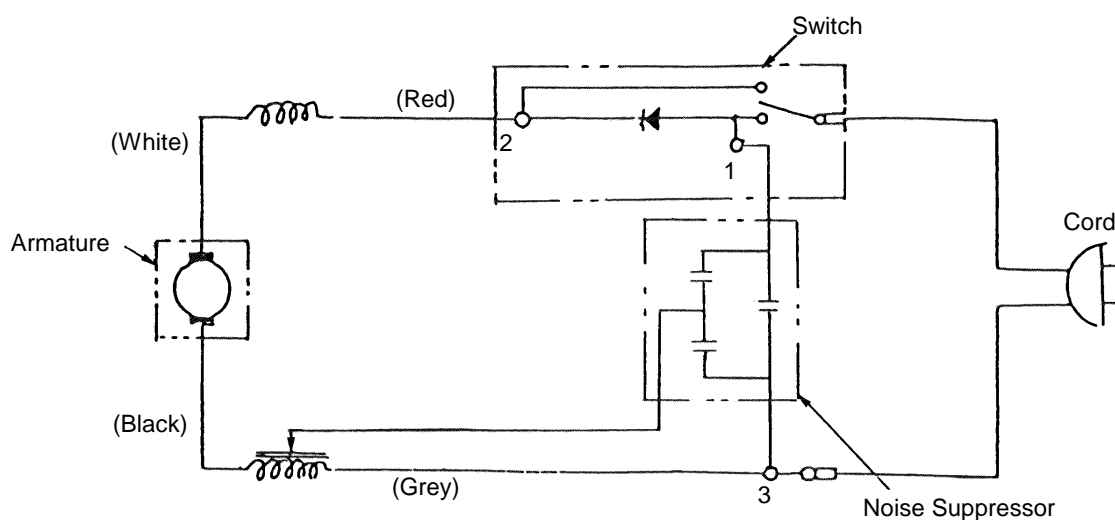


Fig. 8 Models FDV 12T and FDV 15T

(2) Internal Wiring

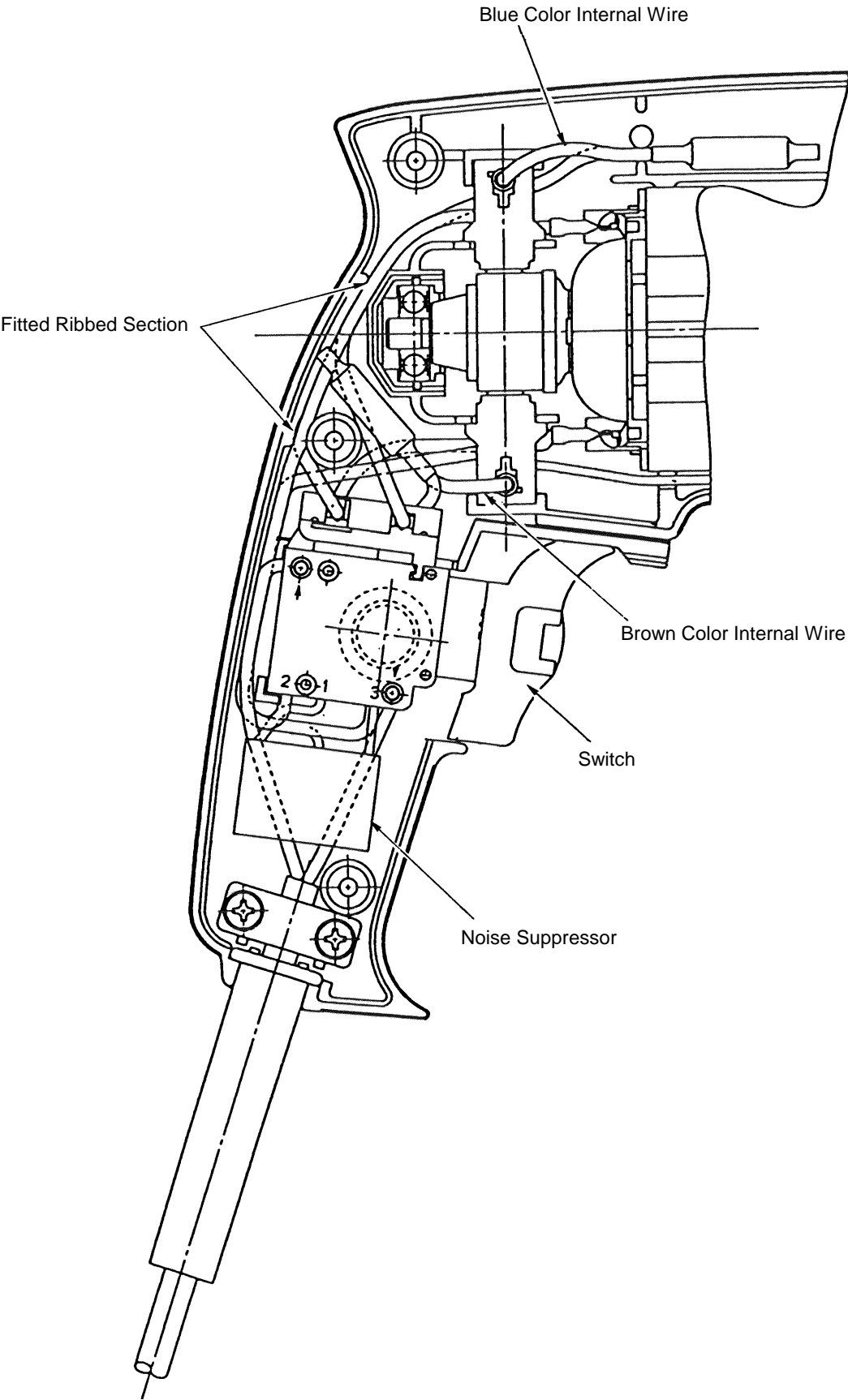


Fig. 9 Models FDV 12V and FDV 15V

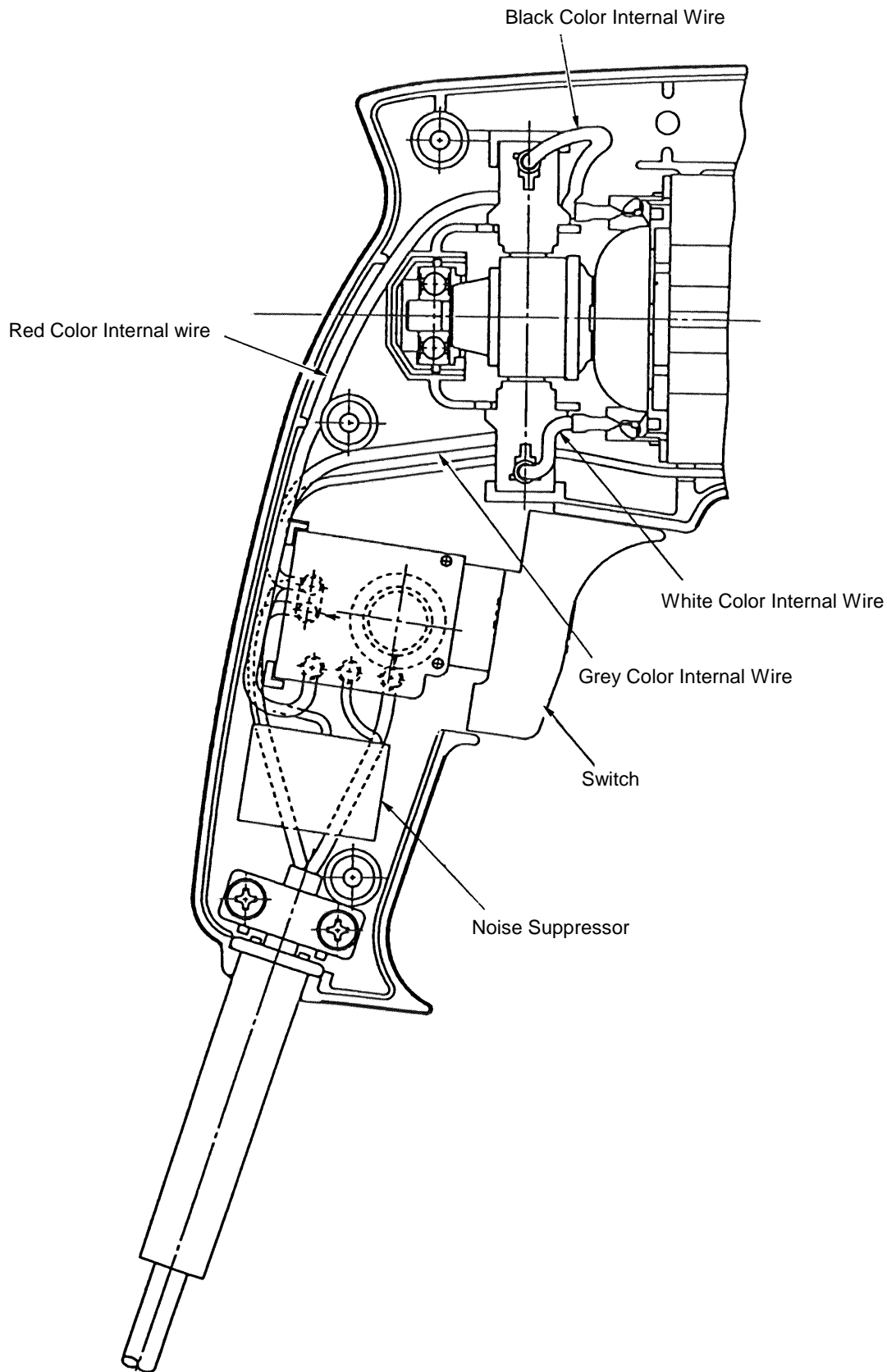


Fig. 10 Models FDV 12T and FDV 15T

(NOTE) The wiring diagram and internal wire arrangement for products without a Noise Suppressor are the same as that illustrated in Fig. 9 and 10 above with exception of the Noise Suppressor section.

2-6. Insulation Tests:

On completion of disassembly and repair, measure the insulation resistance and conduct dielectric strength test.

Insulation Resistance: 7M Ω or more with DC500V Megohm Tester.

Dielectric: Strength: AC 4,000V/1 minute, with no abnormalities
220 - 240V Products (and 110V for U.K. products)

AC 2,500V/1 minute, with no abnormalities
110 - 127V Products (except U.K. products)