



MODELS SV 12V/SV 12SD/SV 12SE

1. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY:

Disassembly and reassembly procedures which require particular attention are described below. As the Models SV 12V, SV 12SD, and SV 12SE are essentially the same in basic structure, the Model SV 12V is utilized for example. Accordingly, the circled numbers in the descriptions correspond the Parts List and exploded assembly diagram for the Model SV 12V, and will differ for the other two models.

1-1. Disassembly:

(1) Disassembly of the Armature (50):

- A. Loosen the two D4 x 20 Tapping Screws (27), and remove the Top Cover (38).
- B. Lift up the rear portions of the Brush Holders (41), and take them out of the Housing (42).
- C. Remove the Carbon Brushes (40) from the Brush Holders (41).
- D. Loosen the four M5 x 60 Machine Screws (39), and disassemble the Housing (42) from the Frame (4).
- E. Loosen the six M5 x 14 Machine Screws (26), and remove the Pad (24).
- F. Remove the Cover Ass'y (22) from the Bottom Plate (18).
- G. Fit the Wrench Ass'y (Special Repair Tool, Code No 936522) into the holes provided on the Balance Weight (21) to hold it in position. Then turn the Armature (50) counterclockwise by hand to loosen and remove it from the Bottom Plate (18).
- H. Finally, lightly tap on the tip of the Armature (50) with a wooden or plastic hammer to loosen and remove the Armature (50) from the Frame (4).

(2) Disassembly of the Stator (46):

- A. Following the procedures described in Items A to D above, remove the Housing (42) from the Frame (4).
- B. Loosen the two D4 x 20 Tapping Screws (27), and remove the Handle Cover (28).
- C. Disconnect the Speed Controller (52) leadwire from the Switch (30).
- D. Cut off and remove the Speed Controller (52) leadwire and the Internal Wire (44).
- E. As illustrated in Fig. 5, insert a small, slender minus-head screwdriver into the stator terminal portion of the Stator (46), and gently bend back portion "a" just enough so that the Control Circuit (52) leadwire can be withdrawn. (At this time, be very careful not to excessively bend portion "a" within the stator terminal. If it is deformed, the leadwire cannot be properly secured when it is reinserted.)
- F. Loosen the two D5 x 55 Hexagon Hd. Tapping Screws (48), and lightly tap the end surface of the Housing (42) with a wooden or plastic hammer to loosen and remove the Stator (46) from the Housing (42).

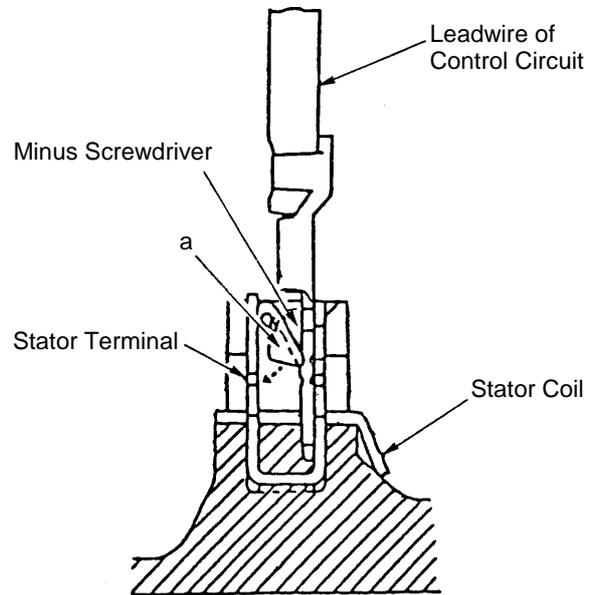


Fig. 5

(3) Remove the Levers (6):

- A. Following the procedures described in Items A to F in Paragraph (1) (Disassembly of the Armature) above, remove the Bottom Plate (18).
- B. Loosen the two M4 x 16 Machine Screws (8), and remove the two Levers (6).

(4) Remove the Paper Holders (14):

- A. Following the procedures described in Items A to F in Paragraph (1) (Disassembly of the Armature) above, remove the Bottom Plate (18).
- B. With a minus screwdriver or similar tool, disconnect the ends of the two Springs (15) from the projections provided on the Bottom Plate (18) (see Fig. 6)
- C. Finally, extract the two Holder Bars (17) (from the sides on which their D3 E-Type Retaining Rings (16) are mounted), and remove the two Paper Holders (14).

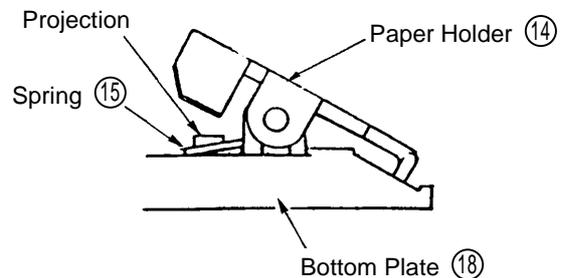


Fig. 6

- (5) Remove the Balance Weight (21):
 - A. Following the procedures described in Items A to F in Paragraph (1) (Disassembly of the Armature) above, remove the Bottom Plate (18).
 - B. As illustrated in Fig. 7, support the Bottom Plate (18) with a tubular jig (inner dia. $\phi 69 - \phi 71$ mm, outer dia. $\phi 81$ mm or less), and place a sleeve (inner dia. $\phi 18$ mm, outer dia. $\phi 21$ mm) on the Felt (19) mounted above the 6203DDCM Ball Bearing (20). Then press down on the sleeve with a hand press to remove the Balance Weight (21) together with the 6203DDCM Ball Bearing (20) and the Felt (19).

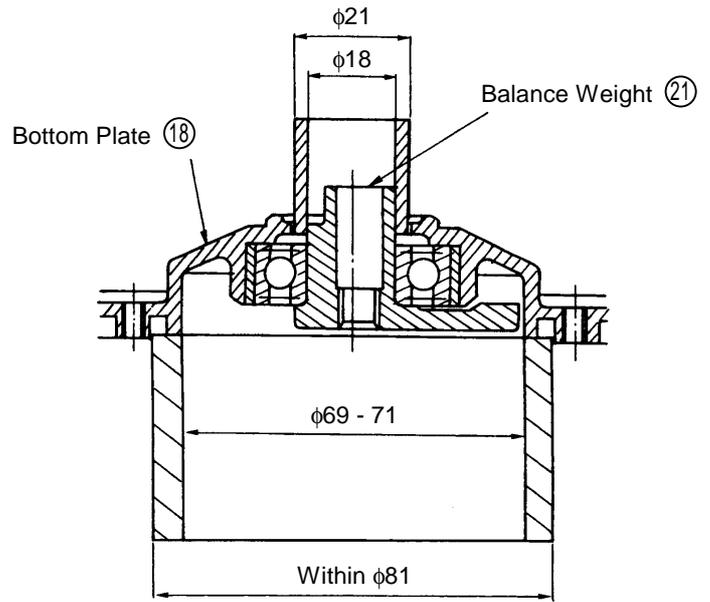


Fig. 7

1-2. Reassembly:

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

- (1) Reassembly of the Paper Holder Section:
 - A. First mount the D3 E-Type Retaining Rings (16) on the Holder Bars (17).
 - B. Place the Spring (15) onto the Bottom Plate (18) so that the projecting coil of the Spring fits into the elongated hole, as illustrated in Fig. 8.
 - C. Then, mount the Paper Holder (14) onto the paper holder fulcrums, and pass the Holder Bar (17) through the paper holder fulcrums, Paper Holder (14), and Spring (15) so that the D3 E-Type Retaining Ring (16) is positioned on the side marked "b" in Fig. 8.
 - D. Finally, insert a J-187 Hook (special Repair Tool, Code No. 970968) through the Paper Holder (14) hole and into the elongated hole of the Bottom Plate (18). Then, as illustrated in Fig. 9, pry the projecting coil of the Spring (15) upward and over so that it hooks onto the projection provided on the Bottom Plate (18), and fixes the Spring (15) in position.
- (2) Reassembly of the Balance Weight Section:

If there is even slight looseness or misalignment of the Balance Weight (21) and the 6203 DDCM Ball Bearing (20), it will cause excessive vibration and poor operation

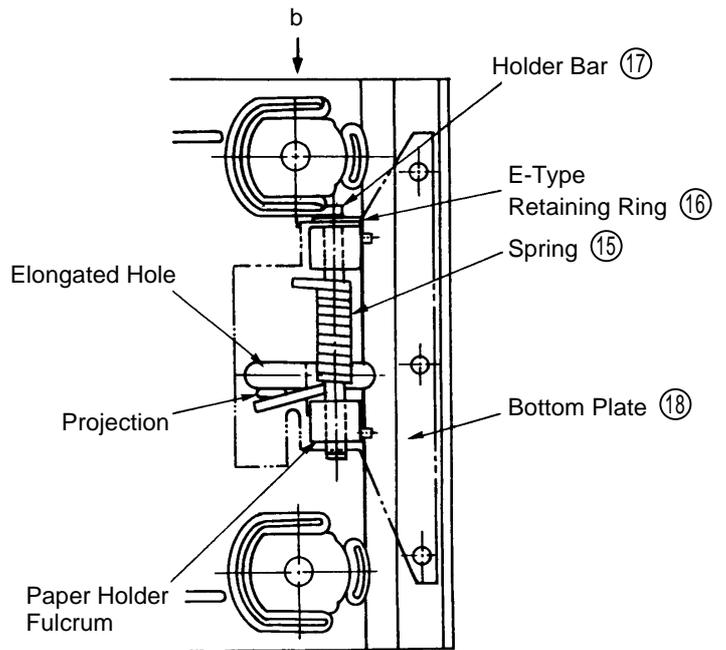


Fig. 8

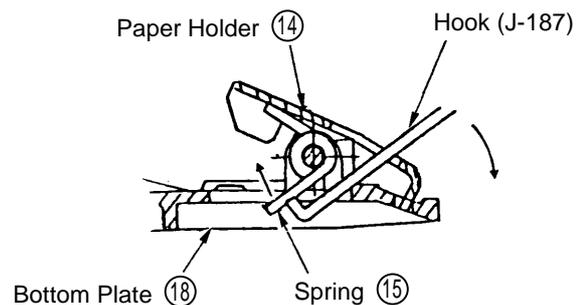


Fig. 9

of the tool. Once a Balance Weight ⑳ has been removed from tool, it must not be used again. Accordingly, if it is necessary to replace the 6203DDCM Ball Bearing ㉑, the Balance Weight ㉑ must also be replaced with a new one.

- A. Press fit the 6203DDCM Ball Bearing ㉑ onto the new Balance Weight ㉑ with a hand press.
- B. Fit the Felt ㉒ onto the $\phi 17\text{mm}$ shaft of the Balance Weight ㉑.

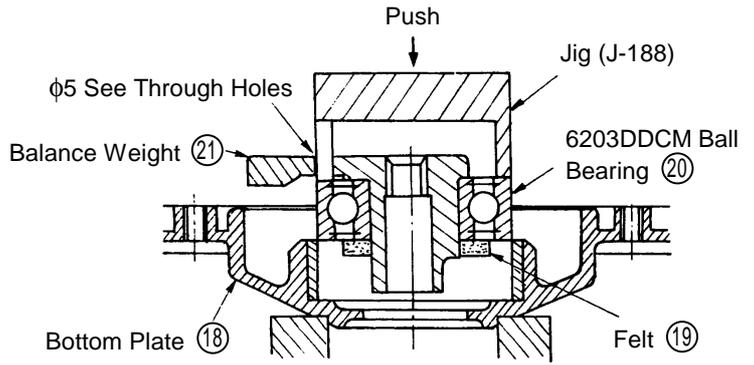


Fig .10

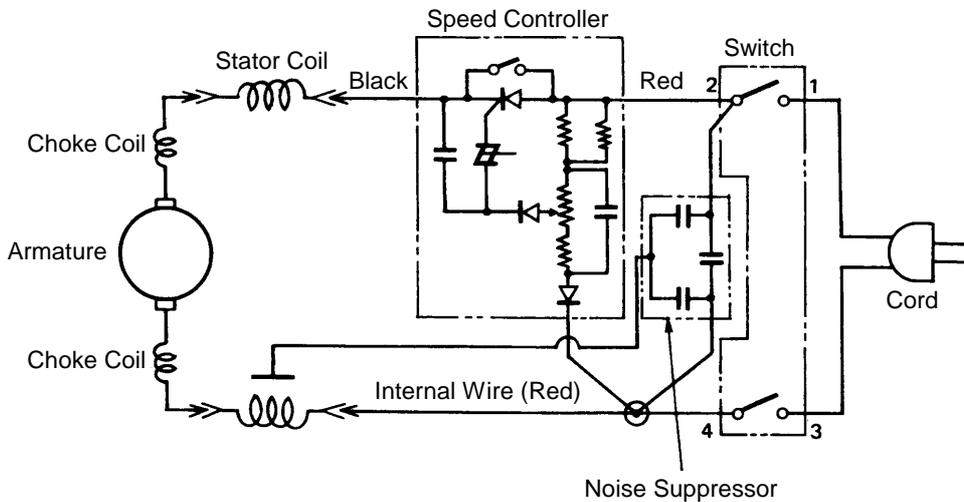
- C. Finally, as illustrated in Fig. 10, mount a J-188 Jig (Special Repair Tool, Code No. 970969 and press fit the assembled Balance Weight ㉑, 6203DDCM Ball Bearing ㉑ and Felt ㉒ into the Bottom Plate ㉓.

1-3. Screw Tightening Torque:

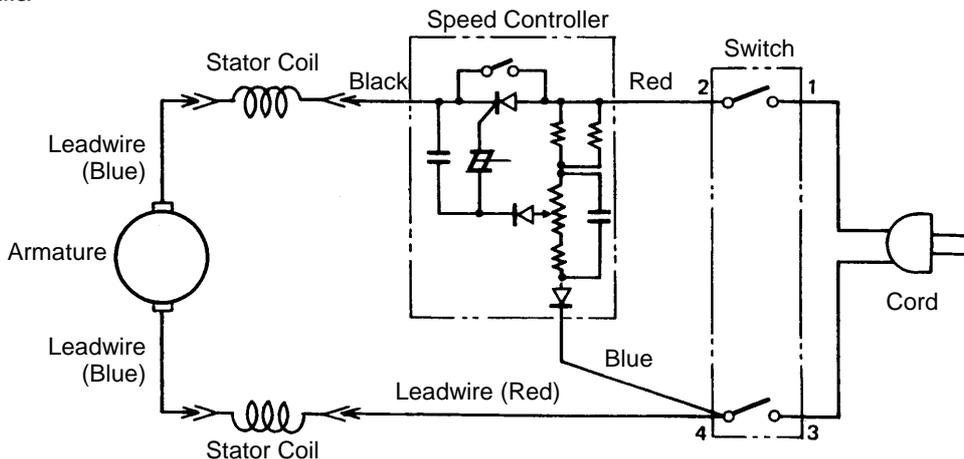
- (1) D5 Tapping Screws 25 - 35 kgf-cm (22 - 30 lb-in)
- (2) D4 Tapping Screws 15 - 25 kgf-cm (13 - 22 lb-in)
- (3) Balance Weight 60 - 90 kgf-cm (53 - 80 lb-in)

1-4. Wiring Diagram:

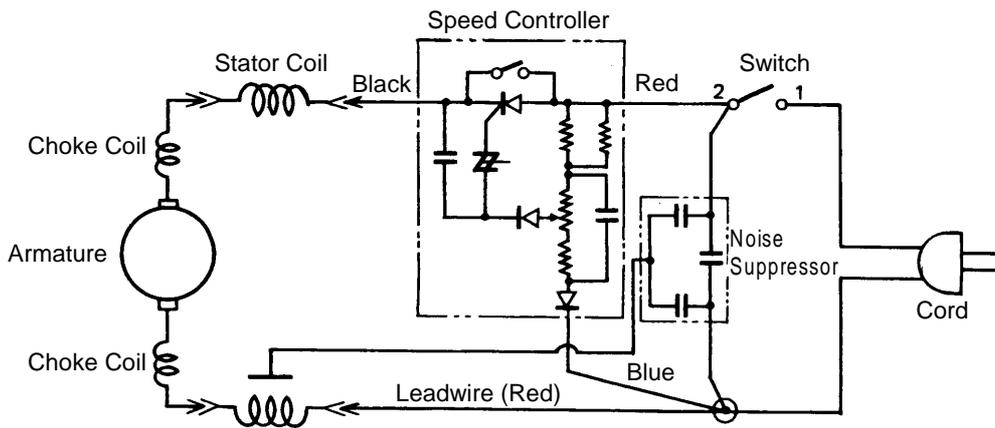
- (1) SV 12V
- A. For European countries



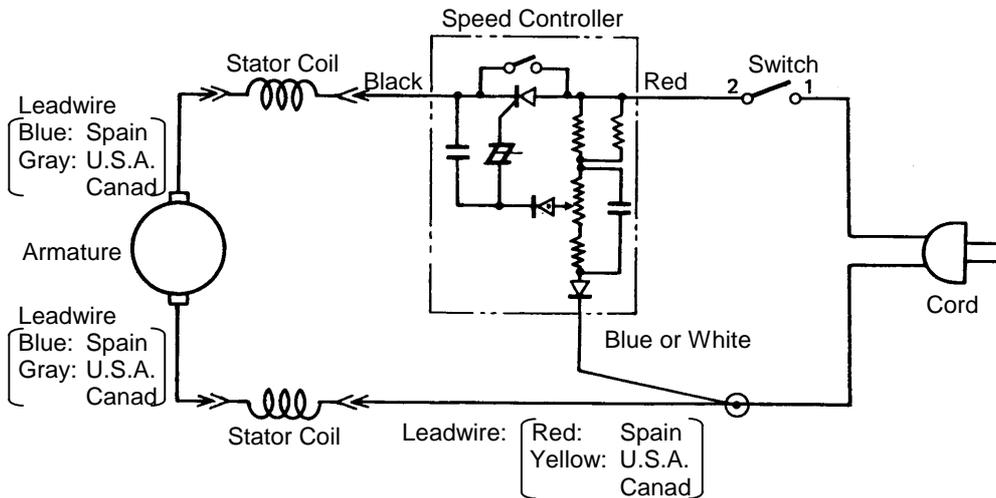
- B. For Australia



C. For New Zealand

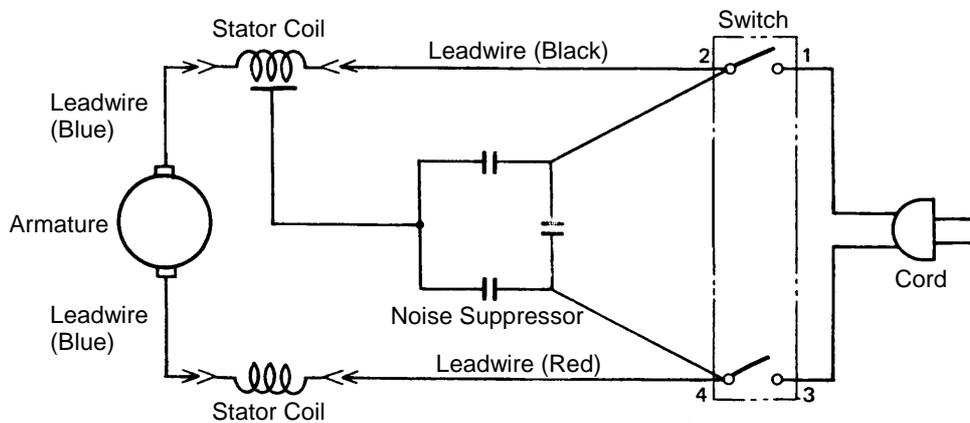


D. For U.S.A., Canada and Spain

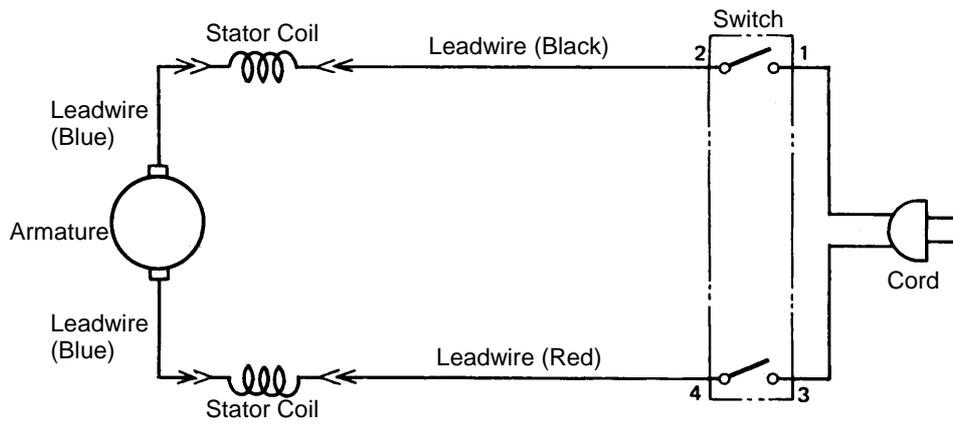


(2) SV 12SD and SV 12SE

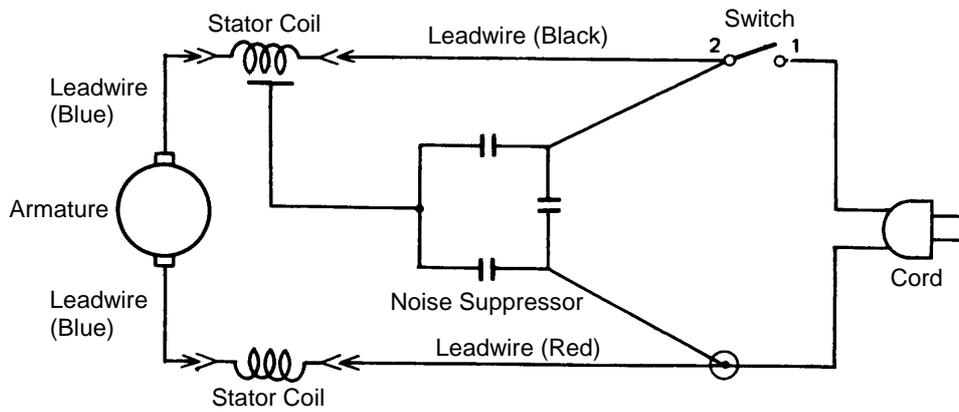
A. For European countries



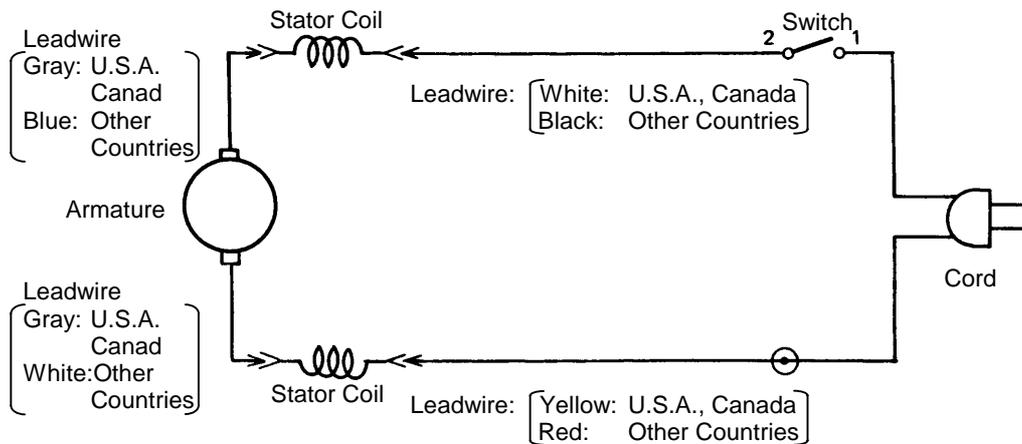
B. For Australia



C. For New Zealand and South Africa



D. For other countries



1-5. Insulation Tests:

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

Insulation Resistance: 7MΩ or more with DC500V Megohm Tester.

Dielectric Strength: AC4000V/1 minute, with no abnormalities 220V - 240V (and 110V for U.K. products)
AC2500V/1 minute, with no abnormalities 110V - 127V (except U.K. products)

1-6. No-Load Current Value:

After no-load operation for 30 minutes, the current value should be as follows:

Voltage	110V	115V	120V	127V	220V	230V	240V
Current (Max.)	2.4A	2.2A	2.1A	2.0A	1.2A	1.2A	1.1A