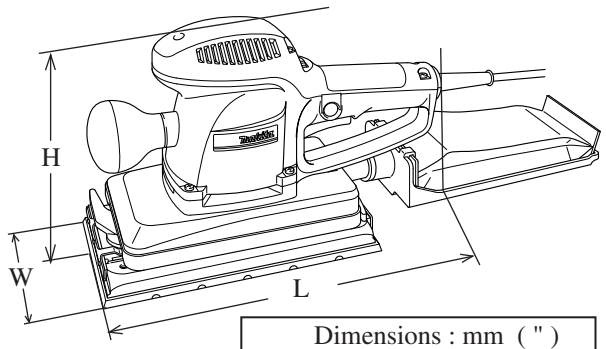
TECHNICAL INFORMATION

Model No. ► BO4900V, BO4900, BO4901

Description ► Finishing Sander

CONCEPT AND MAIN APPLICATIONS

The above finishing sanders are the advanced version of Model 9045N or 9045B.
Their features and benefits are
* Incredible minimized vibration
* Large clamping lever for quick and easy changing abrasive paper
* Palm-fitting soft grip
* More efficient dust collection system
* Both paper clamp type and hook and loop type of abrasive papers are applicable.
(For model BO4901, pad complete which is an optional accessory, is required for attaching hook and loop type abrasive paper.)



Dimensions : mm (")	
Length (L)	289 (11-3/8)
Height (H)	190 (7-1/2)
Width (W)	115 (4-1/2)

► Specification

Voltage (V)	Current (A)	Cycle (Hz)	Continuous Rating (W)		Max. Output(W)
			Input	Output	
110	3.2	50 / 60	330	170	200
120	2.9	50 / 60	330	170	200
220	1.6	50 / 60	330	170	200
230	1.5	50 / 60	330	170	200
240	1.4	50 / 60	330	170	200

Model No.		BO4900V	BO4900	BO4901
Pad size : mm (")		115 x 229 (4-1/2 x 9)		
Paper size : mm (")		115 x 232 (4-1/2 x 9-1/8)		115 x 280 (4-1/2 x 11)
Paper type	Clamp type	Yes	Yes	Yes
	Hook and loop	Yes	Yes	Yes*
Orbit per min : opm = min-1		4,000 - 10,000	10,000	
Orbit diameter : mm (")		2.6 (3/32)		
Stroke per min. : spm = min-1		8,000 - 20,000	20,000	
Speed control dial		Yes	No	
Dust collecting	Integrated	Yes	Yes	
	with vacuum cleaner			Yes
Protection from electric shock		By double insulation		
Cord length : m (")		For Europe : 4.0 (13.1)	For Australia : 2.0 (6.6)	For others : 2.5 (8.2)
Net weight : Kg (lbs)		2.8 (6.2)		

***Note:** Optional Pad complete is required.

► Standard equipment

* Abrasive paper (grit 120) ..... 1 pc.
* Paper pack set (Paper pack holder and paper pack) for dust collecting ..... 1 pc.

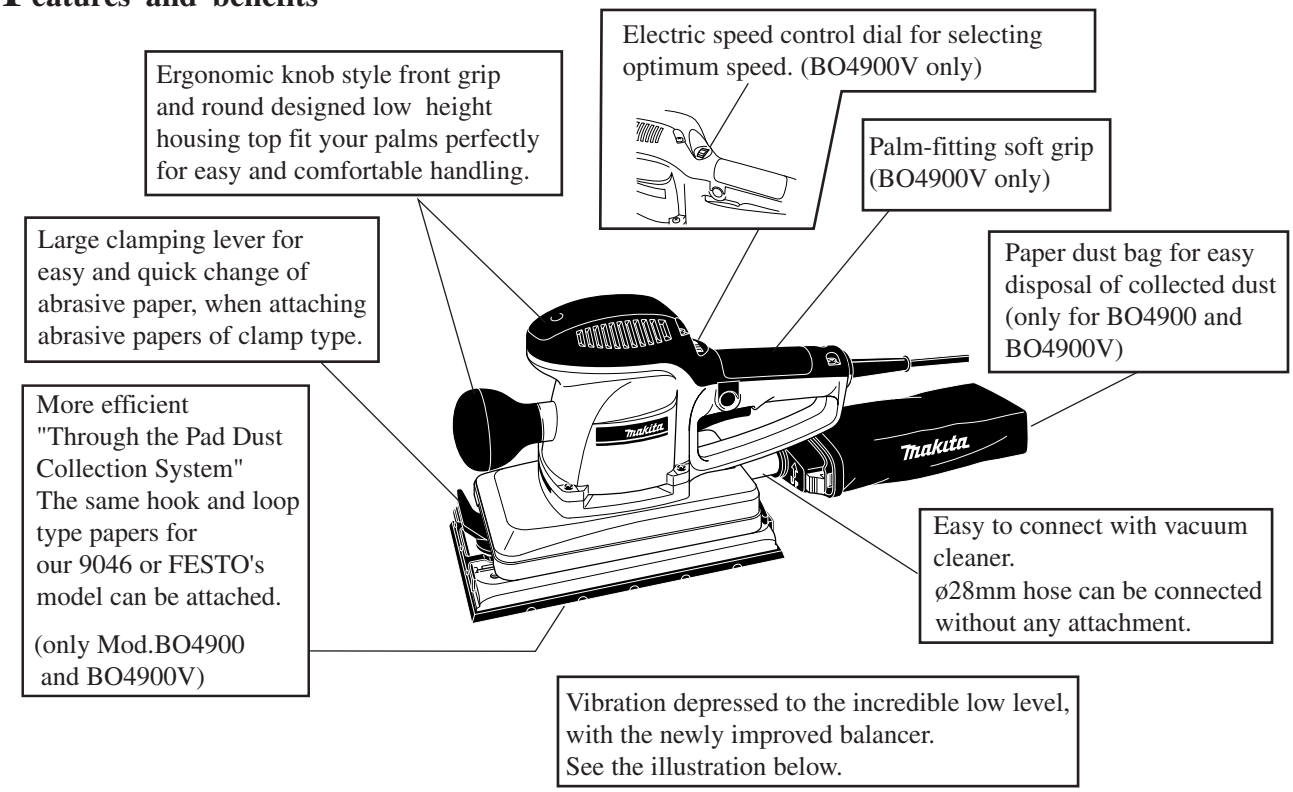
< Note > The standard equipment for the tool shown may differ from country to country.

► Optional accessories

* Clamp type pad
* Hook and loop type pad
* Punch plate
* Dust bag (made of paper)
* Dust bag (made of cloth)
* Paper pack set
* Hose complete 28 set
* Joint 25

* Clamp type abrasive papers w/o punched holes (10 pcs. per pack), grit 60, 80, 100, 120, 150, 180,
* Clamp type abrasive papers w/ punched holes (10 pcs. per pack), grit 60, 80, 100, 120, 150, 180, 240
* Hook and loop type abrasive papers w/ punched holes (5 pcs. per pack), grit 60, 80, 100, 120, 150, 180, 240

Features and benefits



The conventional balancing

The vibration of finishing sander is mostly produced by the orbital action of base. In order to suppress it, a balancer is so equipped at the axis, that its center of gravity comes to the opposite side of the center of gravity of base.
In the conventional balancing system, it was difficult to suppress the vertical vibration. Because, the both centers of gravity are not on the same level as illustrated in Fig. A.

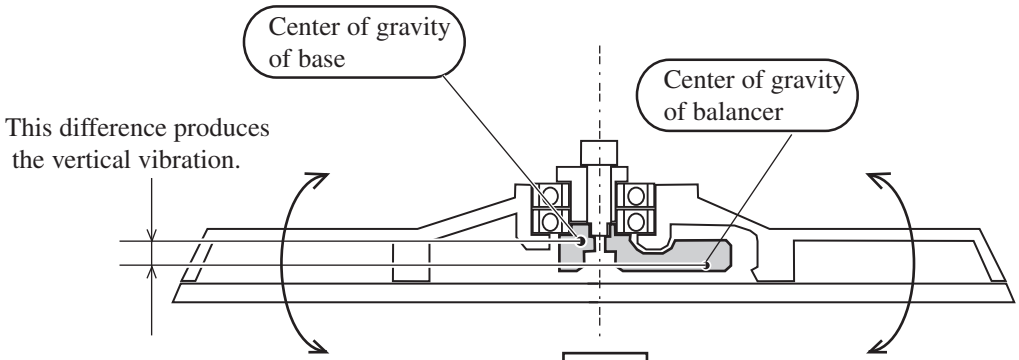


Fig. A

The balancing in BO4900V, BO4900 and BO4901

In case of BO4900V, BO4900 and BO4901, even the vertical vibration is suppressed by the new formed balancer, by bringing both centers of gravity to the same level as illustrated in Fig. B.

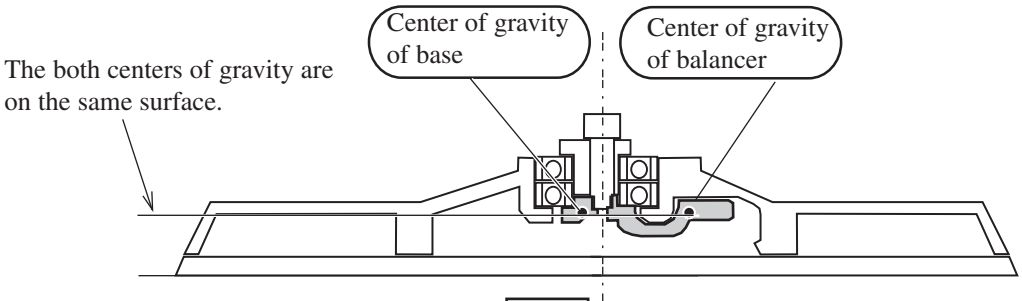


Fig. B

► Comparison of products

Model No. / Specifications		Integrated dust collecting type					
		MAKITA		Competitor A	Competitor B	Competitor C	Competitor D
		a: BO4900 b; BO4900V	9045N	a: Mod. A-1 b; Mod.A-2	Mod. B	a: Mod. C-1 b; Mod. C-2	Mod. D
Power input : W		**330**	520	330	330	350	300
Orbit per min : opm.(min.-1)		**a; 10,000 b; 4,000 - 10,000**	10,000	a; 10,000 b; 4,000 - 10,000	5,500 - 11,000	a; 11,000 b; 6,000 - 11,000	10,000
Stroke per min : spm.(min.-1)		**a; 20,000 b; 8,000 - 20,000**	20,000	a; 20,000 b; 8,000 - 20,000	11,000 - 22,000	a; 22,000 b; 12,000 - 22,000	20,000
Orbit diameter: mm (")		**2.6 (3/32)**	2.4 (3/32)	2.6 (3/32)	2.4 (3/32)	2.5 (3/32)	—
Paper type		**Hook and Loop**	Sheet	Hook and Loop	Hook and Loop	Hook and Loop	Sheet
Palm fitting soft grip		**a; No b; Yes**	No	No	Yes	Yes	No
Speed control		**a; No b; Yes**	No	a; No b; Yes	Yes	a; No b; Yes	No
Vibration : m/sec.2	No Load	**1.7**	8.7	5.6	2.3	6.1	5.5
	* Loaded	**2.7**	6.1	1.9	5.6	5.0	9.3
Noise : dB (A)	No Load	**69**	89	73	71	77	72
	* Loaded	**72**	99	68	68	75	72
Dimensions	Length : mm (")	**289 (11-3/8)**	268 (10-1/2)	294 (11-5/8)	298 (11-3/4)	285 (11-1/4)	298 (11-3/4)
	Width : mm (")	**115 (4-1/2)**	132 (5-3/16)	115 (4-1/2)	115 (4-1/2)	112 (4-3/8)	115 (4-1/2)
	Height : mm (")	**190 (7-1/2)**	160 (6-5/16)	192 (7-9/16)	191 (7-1/2)	191 (7-1/2)	183 (7-3/16)
Net weight : kg (lbs)		**2.8 (6.2)**	2.8 (6.2)	2.5 (5.5)	2.6 (5.7)	a: 2.7 (6.0) b: 2.8 (6.2)	2.8 (6.2)

* The figures about vibration and noise are based on our own measurement.

* Loaded : Pressure load 50 N.m (5.1 kgf) is added to the products.

Model No. / Specifications		Dust collecting with vacuum cleaner	No dust collecting
		MAKITA	
		BO4901	9045B
Power input : W		**330**	520
Orbit per min : opm.(min.-1)		**10,000**	10,000
Stroke per min : spm.(min.-1)		**20,000**	20,000
		2.6 (3/32)	2.4 (3/32)
Paper attaching system		**Paper clamp**	Paper clamp
Palm fitting soft grip		**No**	No
Speed control		**No**	No
Vibration : m/sec.2	No Load	*** 3.4**	—
	* Loaded	*** 4.5**	—
Noise : dB (A)	No Load	**71**	—
	* Loaded	**73**	—
Dimensions	Length : mm (")	**289 (11-3/8)**	240 (9-1/2)
	Width : mm (")	**115 (4-1/2)**	115 (4-1/2)
	Height : mm (")	**190 (7-1/2)**	160 (6-5/16)
Net weight : kg (lbs)		**2.8 (6.2)**	2.6 (5.7)

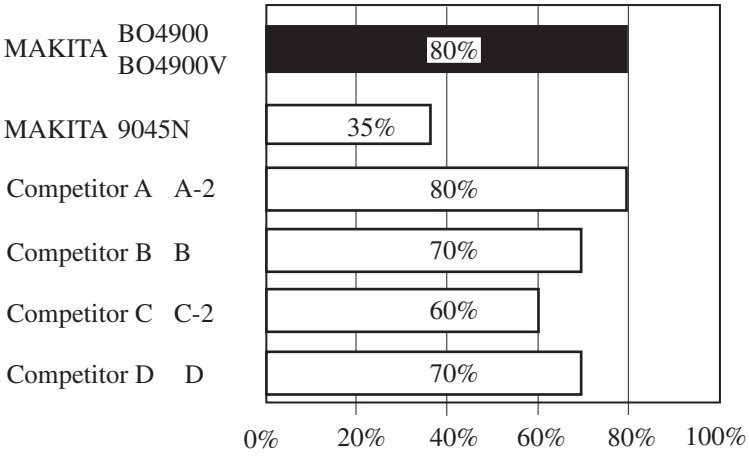
* Loaded: Pressure of 50 N.m (5.1 kgf) was loaded on the products.

*** 3.4 and * 4.5 : The vibration of BO4901 is a little bit bigger than BO4900V and BO4900, because the weight of pad for BO4901 is different from BO4900V and BO4900.**

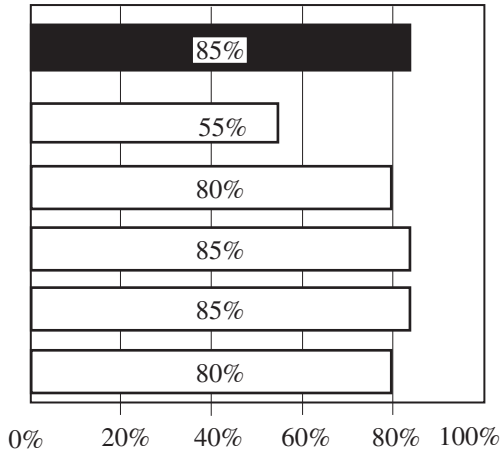
Comparison of products

Comparison in dust collection (Suction rate)

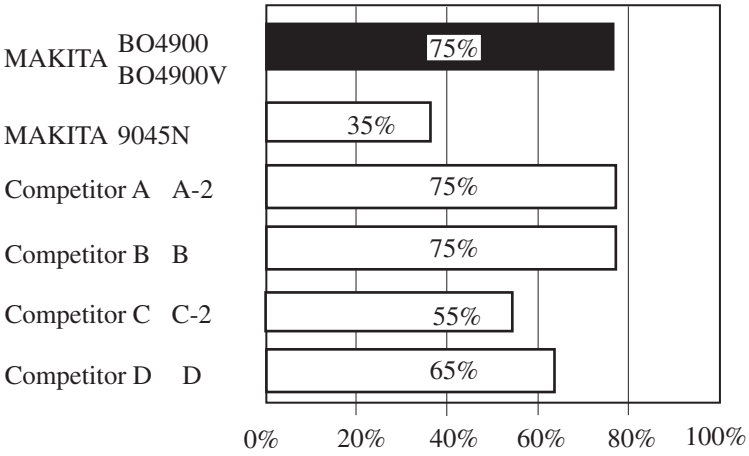
Material : Spruce produced in USA.
Grit : 60



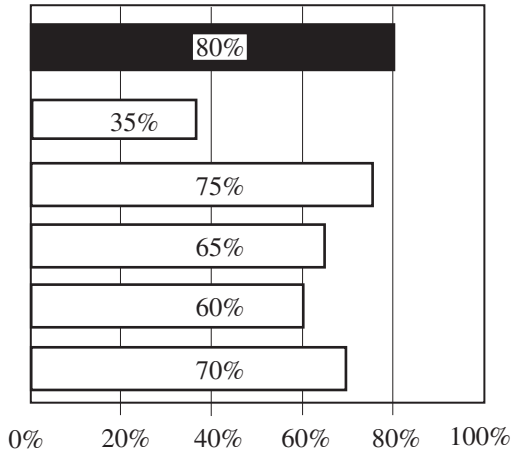
Material : Kwila produced in Malaysia (Hard wood)
Grit : 60



Material : Spruce produced in USA.
Grit : 120



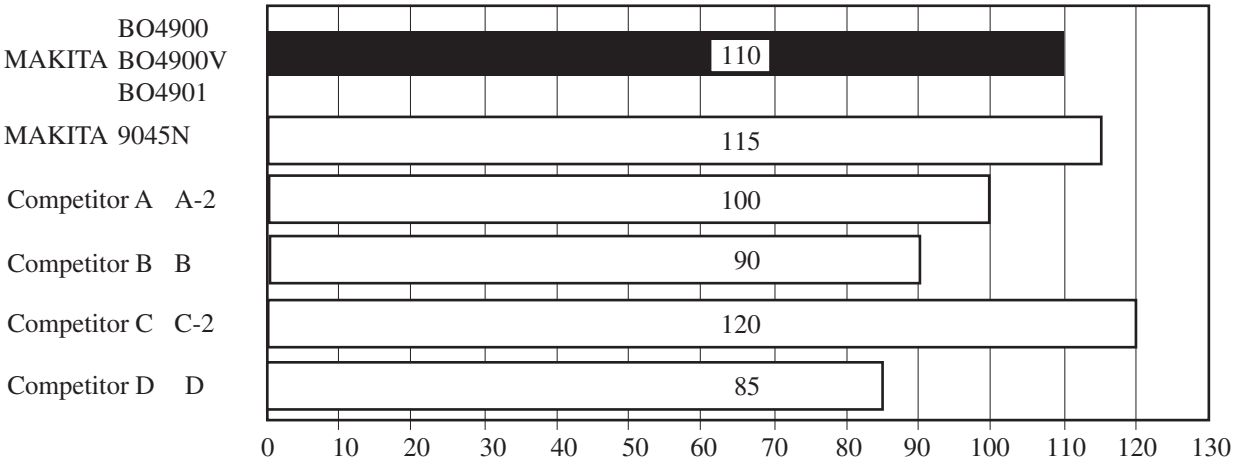
Material : Kwila produced in Malaysia (Hard wood)
Grit : 120



Comparison in sanding work

Numbers in chart below are relative values when setting FESTO model RS2E 's capacity as 100.

Material : Spruce produced in USA.
Grit : 120



Repair

< 1 > Lubrication

Apply a bit of MAKITA grease N. No.2 to the following portions marked with black triangle to protect parts and product from unusual abrasion. See Fig.1.

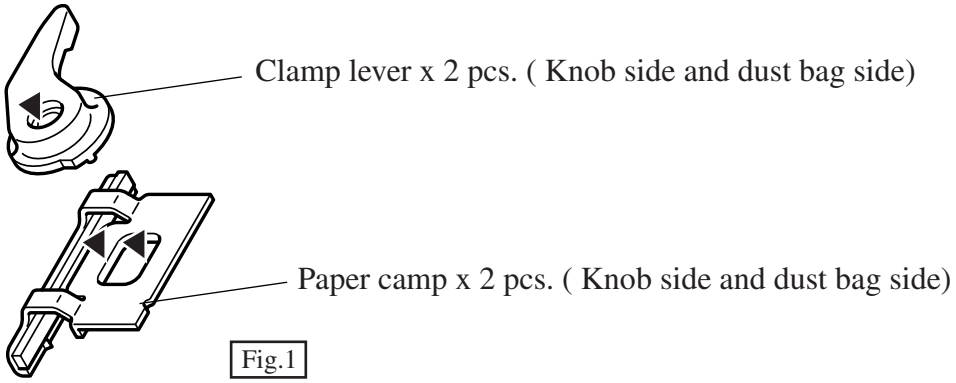


Fig.1

< 2 > Disassembling base section

1. Separate pad from base by unscrewing 8 pcs. of pan head screws M4 x 12. And disassemble under cover and O ring 75 from base. See Fig. 2.

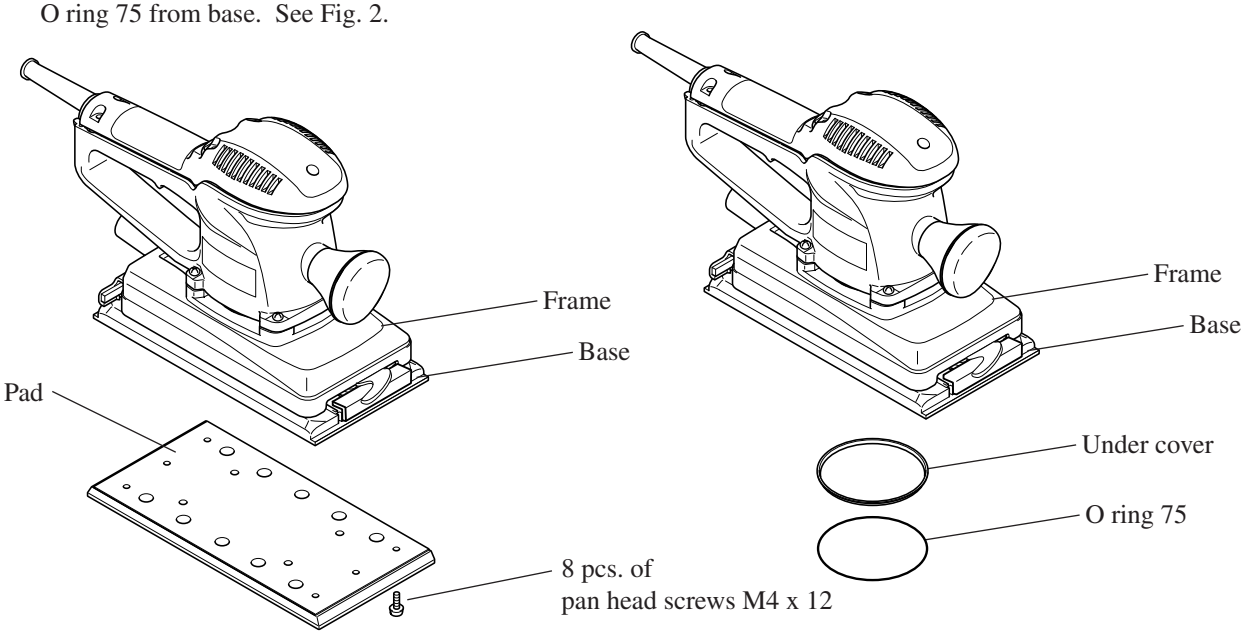
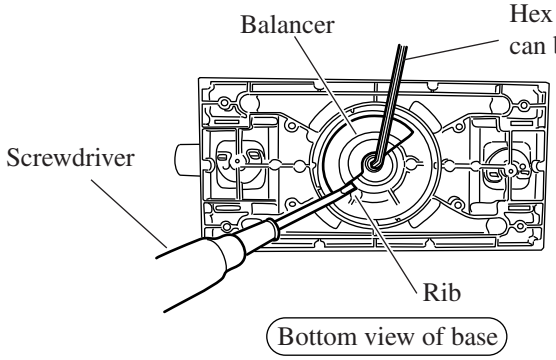


Fig.2

2. Lock balancer with screwdriver inserted at the rib of base, and take off hex socket head bolt M5 x 16 with hex wrench, or with impact driver. Then balancer can be separated from base. See Fig. 3.



< Note >
The hex socket head bolt M5 x 16 is an adhesive screw.

Fig.3

3. After taking off balancer, tighten the hex socket head bolt M5x16 again loosely. And slightly hit this hex socket head bolt. Then base can be separated from frame. See Fig. 4.

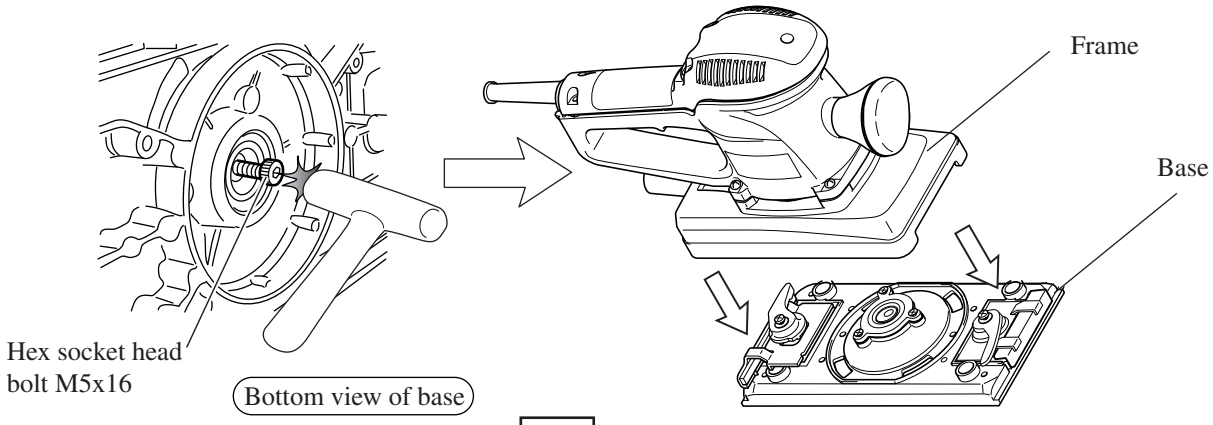


Fig. 4

< 3 > Assembling base section

1. Make sure that 4 pcs. of foot has been assembled to the correct positions, before assembling base. See Fig. 5.
2. Lock balancer with screwdriver inserted at the rib of base, and fasten hex socket head bolt M5 x 16 with hex wrench, or with impact driver. Then balancer can be assembled to base. See Fig. 6.

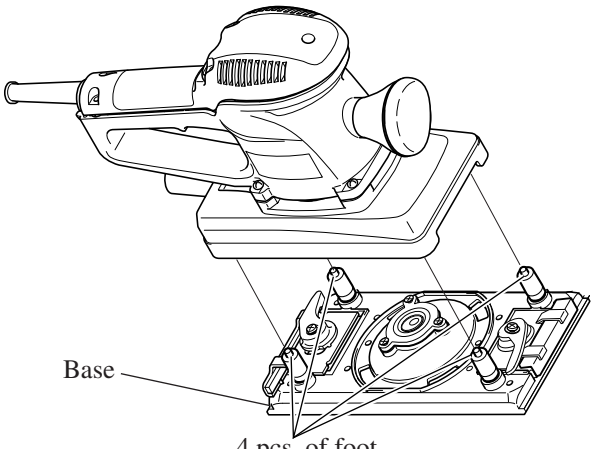
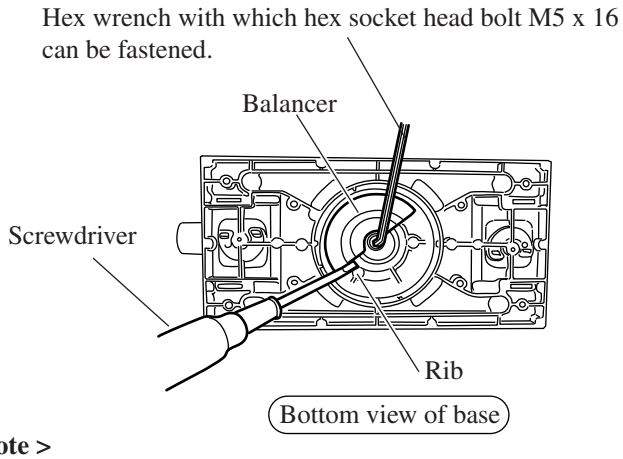


Fig. 5



< Note >
The hex socket head bolt M5 x 16 is an adhesive screw. Do not fasten the base with the used bolt. Replace with the fresh adhesive hex socket head bolt M5 x 16.

Fig. 6

3. Assemble under cover with aligning its slit with the guide rib of base as illustrated in Fig.7.
4. Assemble O ring 75 by pushing it with screwdriver into the space between under cover and the wall of base. See Fig. 7A.

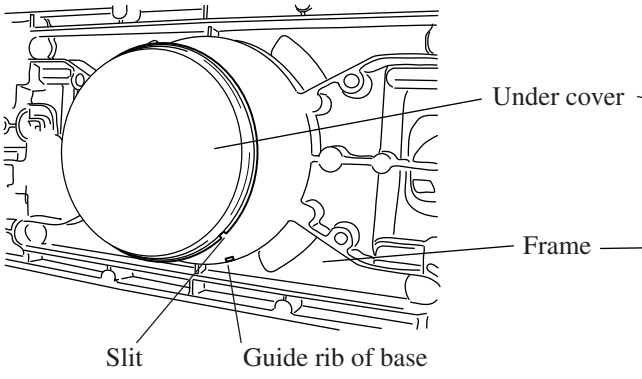


Fig. 7

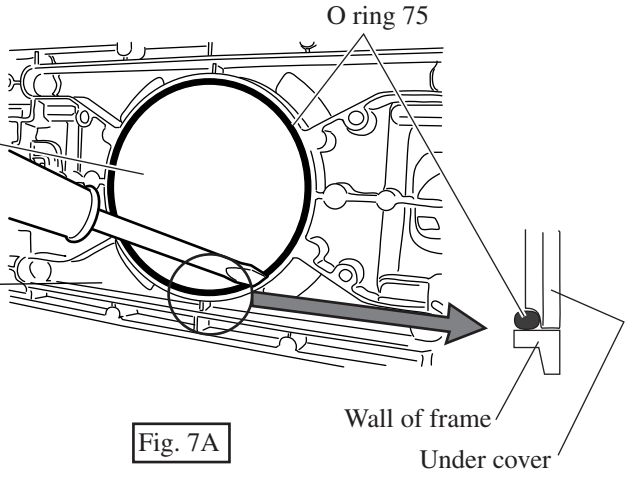


Fig. 7A

< 4 > Disassembling ball bearings 6002LLB

1. Disassemble bearing 24 and thin washer 15 by unscrewing 3 pcs.of tapping screws as illustrated in Fig. 8.

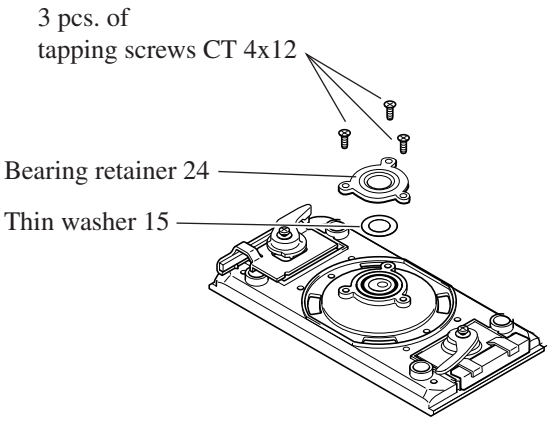
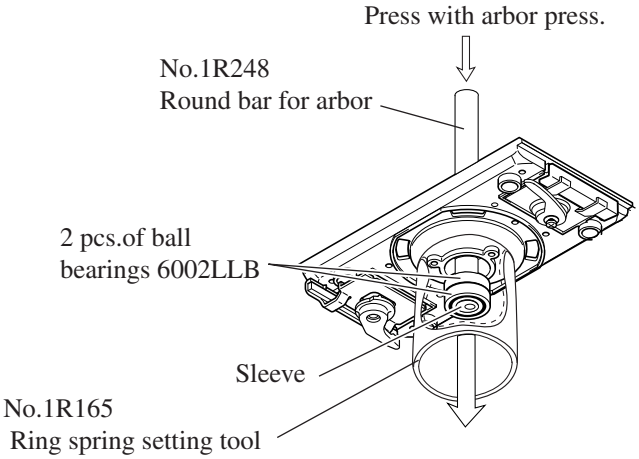


Fig. 8

2. Holding the base with 1R165 "Ring Spring Setting Tool", disassemble 2 pcs.of ball bearings 6002LLB by pressing No.1R24 "Round Bar for Arbor" with arbor press as illustrated in Fig. 9.



<Note>
Sleeve is disassembled together
with 2 pcs. of ball bearings 6002 LLB.

Fig. 9

3. Holding the ball bearings 6002LLB with No.1R232 "Pipe 30", separate sleeve from ball bearings by pressing it with arbor press as illustrated in Fig. 10.

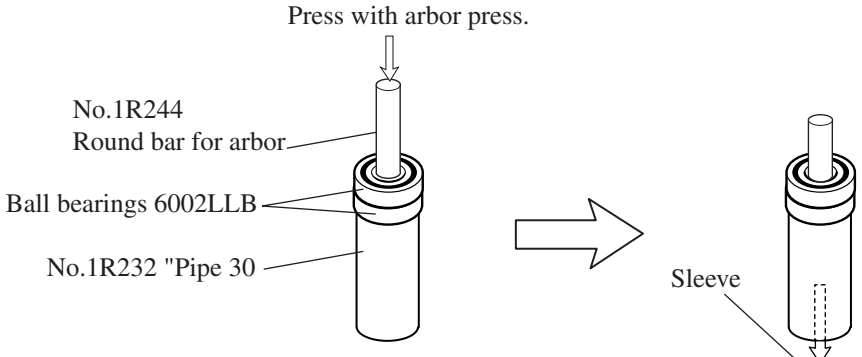


Fig.10

< 5 > Assembling ball bearings 6002LLB

1. Holding the ball bearings 6002LLB with No.1R232 "Pipe 30", insert sleeve into ball bearings by pressing it with arbor press as illustrated in Fig. 11.
2. Assemble the ball bearings 6002LLB (with sleeve) to base by pressing with arbor press as illustrated in Fig. 12.
3. Assemble thin washer 15 and bearing retainer 24 by fastening them with 3 pcs. of tapping screws CT 4x12 as illustrated in Fig. 13.

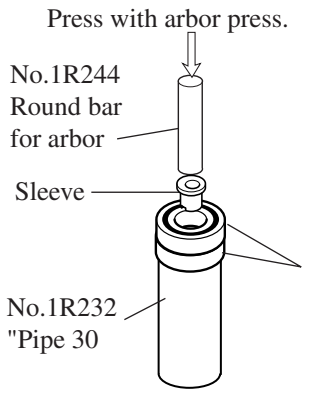


Fig. 11

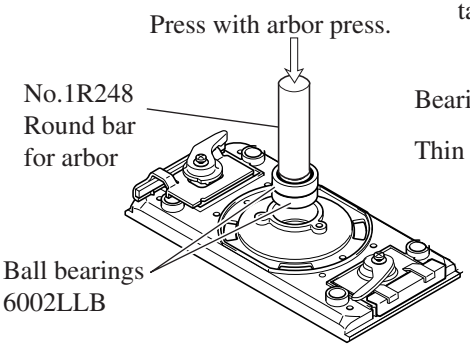


Fig. 12

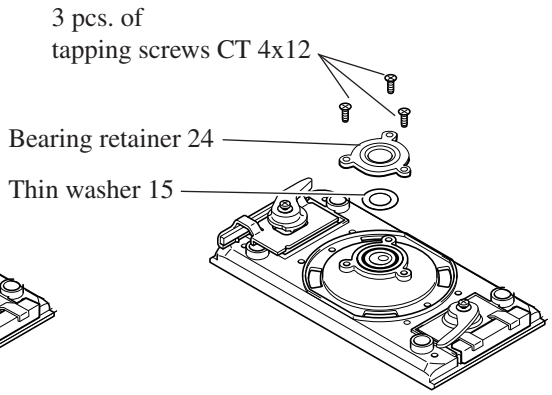


Fig. 13

< 6 > Disassembling armature

1. Disassemble top cover by unscrewing 5 pcs. of tapping screws 4x18. And disassemble carbon brushes as illustrated in Fig. 14.
2. Separate motor housing from frame after unscrewing 4 pcs. of tapping screws bind CT 4x20 as illustrated in Fig. 15.
3. Slightly hit the armature shaft with plastic hammer as illustrated in Fig. 16. Then armature can be separated from frame.

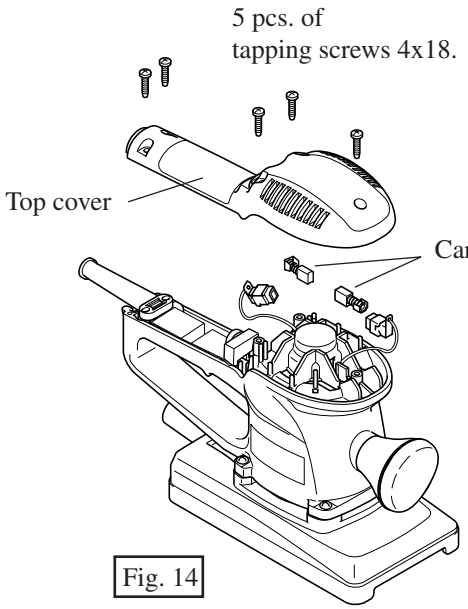


Fig. 14

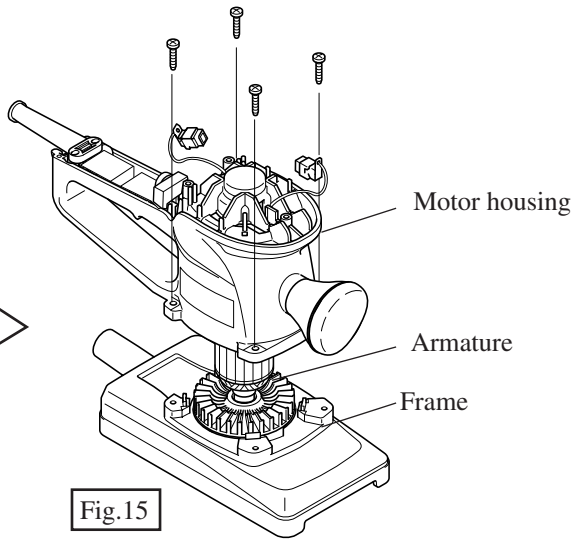


Fig.15

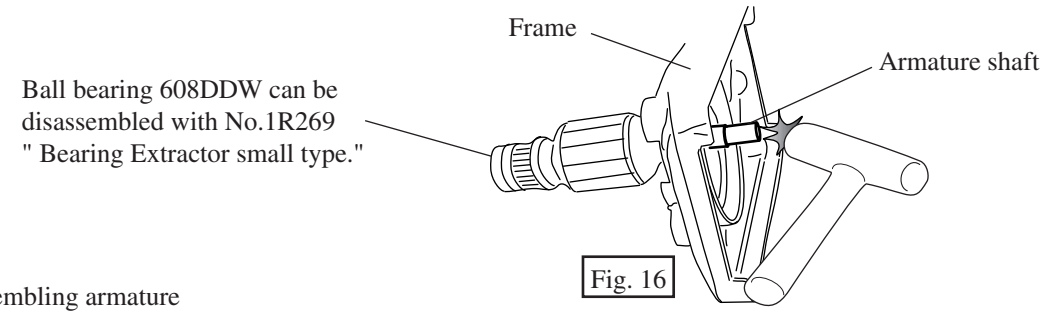


Fig. 16

< 7 > Assembling armature

Take the reverse steps of Fig.13 - Fig.15.

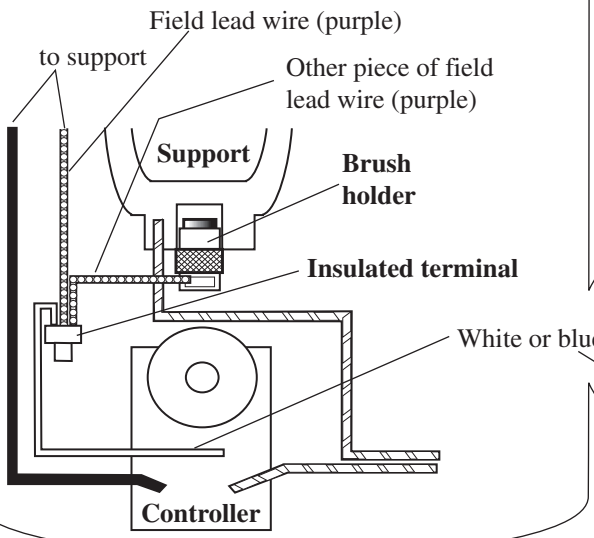
Circuit diagram

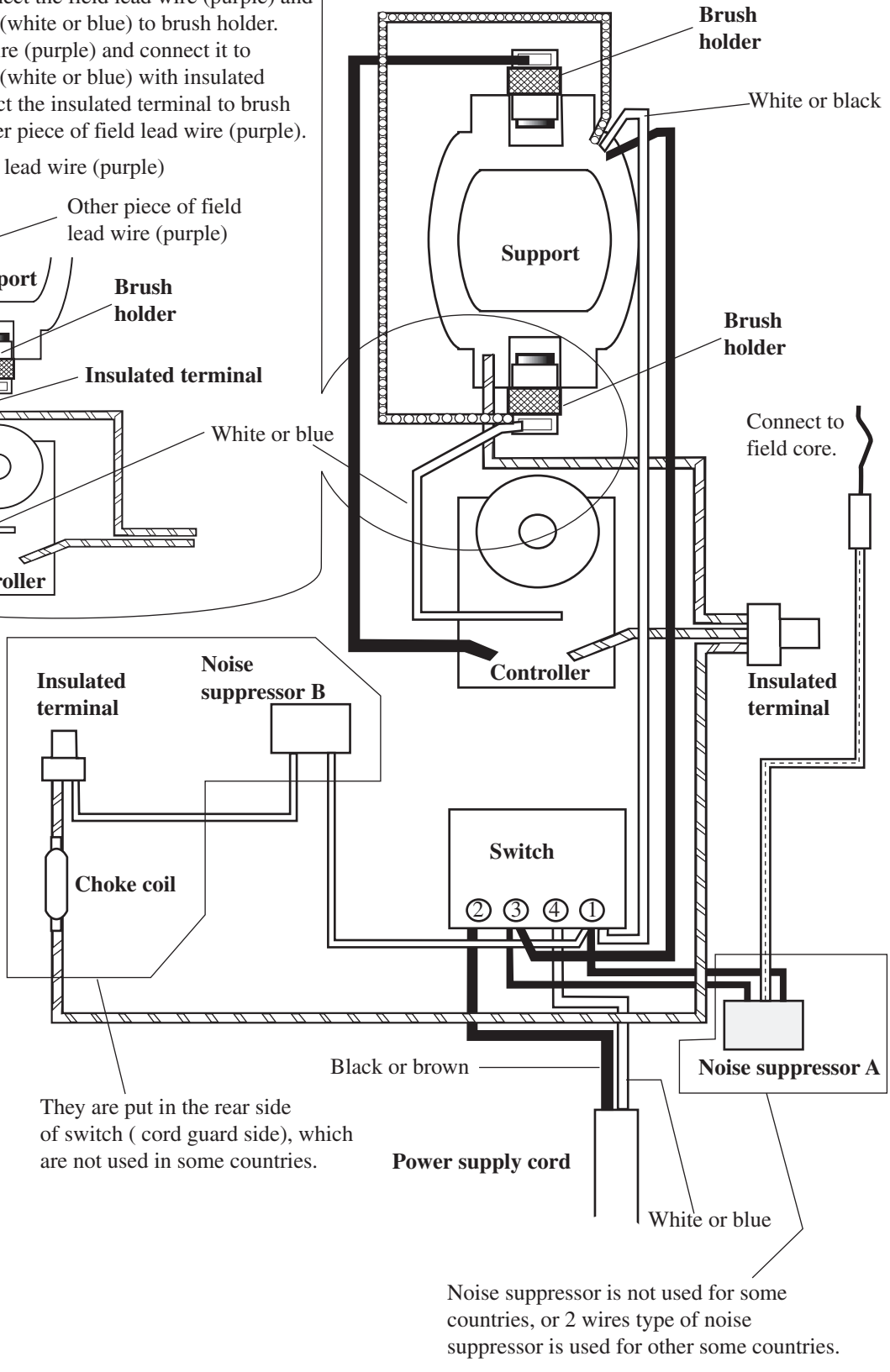
Color index of lead wires	
Black	
White	
Orange	
Purple	
See-through	

BO4900V

Note in repairing

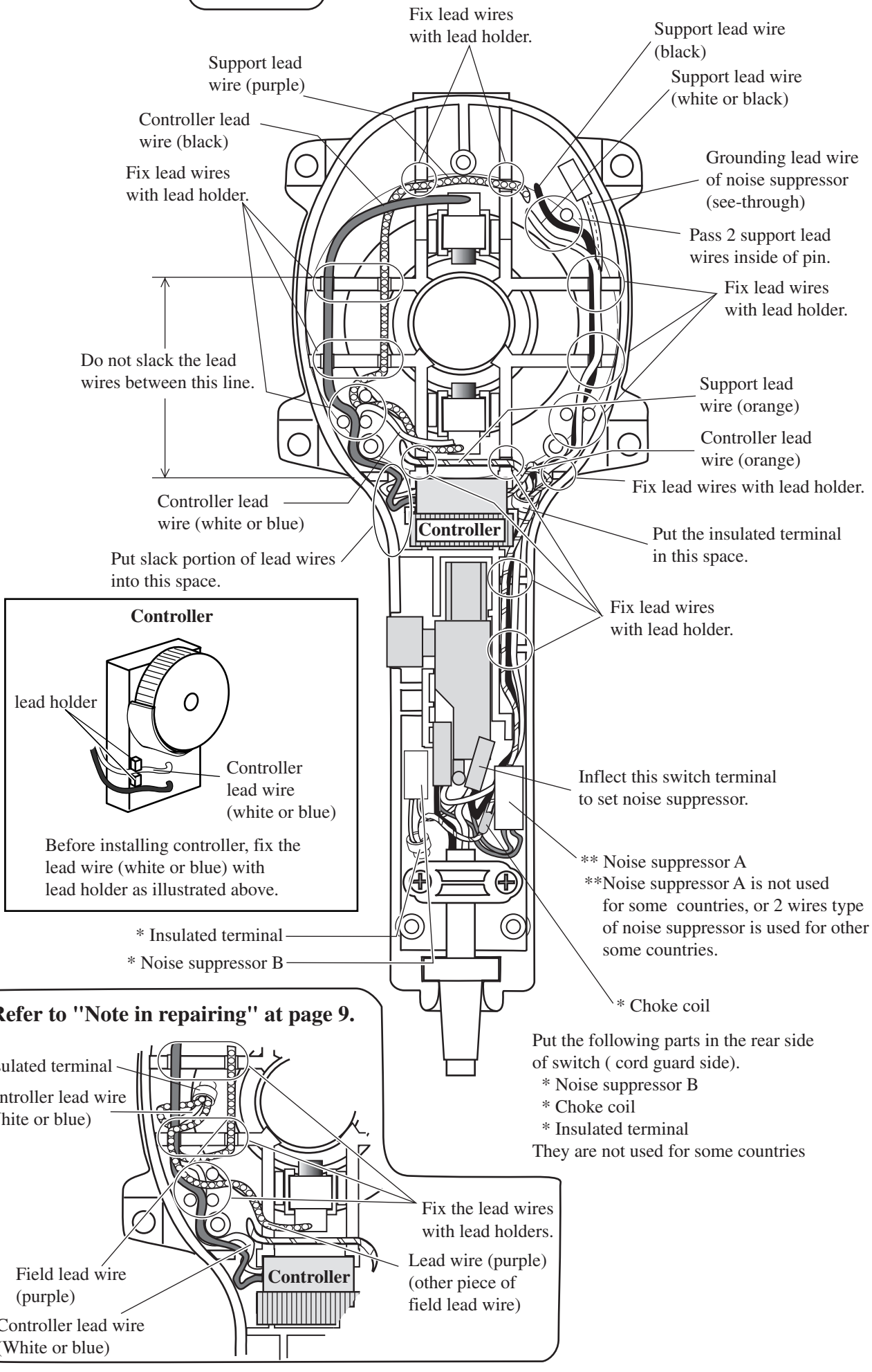
Do not directly connect the field lead wire (purple) and controller lead wire (white or blue) to brush holder. Cut the field lead wire (purple) and connect it to controller lead wire (white or blue) with insulated terminal, and connect the insulated terminal to brush holder with the other piece of field lead wire (purple).





Wiring diagram

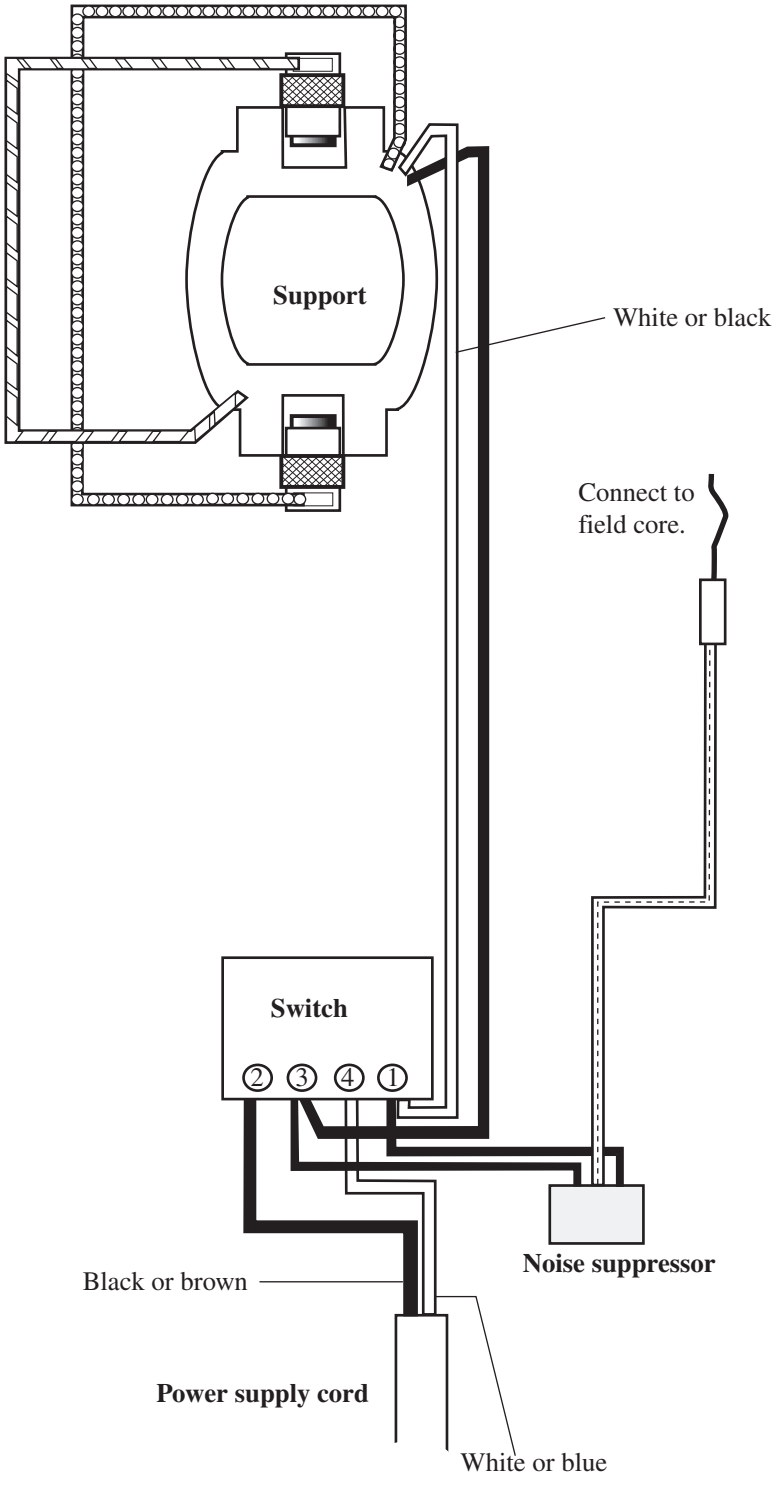
BO4900V



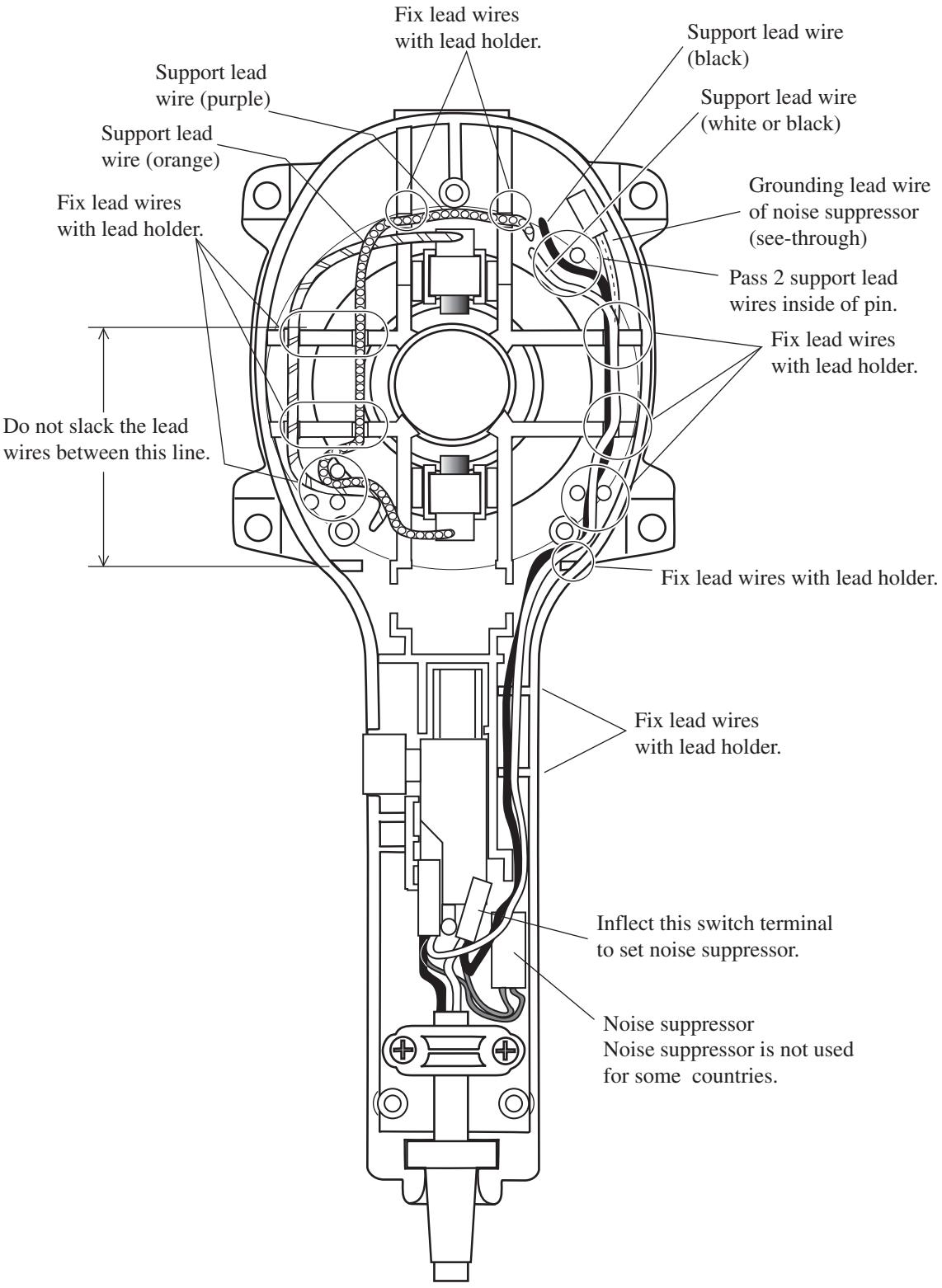
Circuit diagram

Color index of lead wires	
Black	
White	
Orange	
Purple	
See-through	

BO4900 (except Taiwan and Great Britain, low voltage area)
BO4901

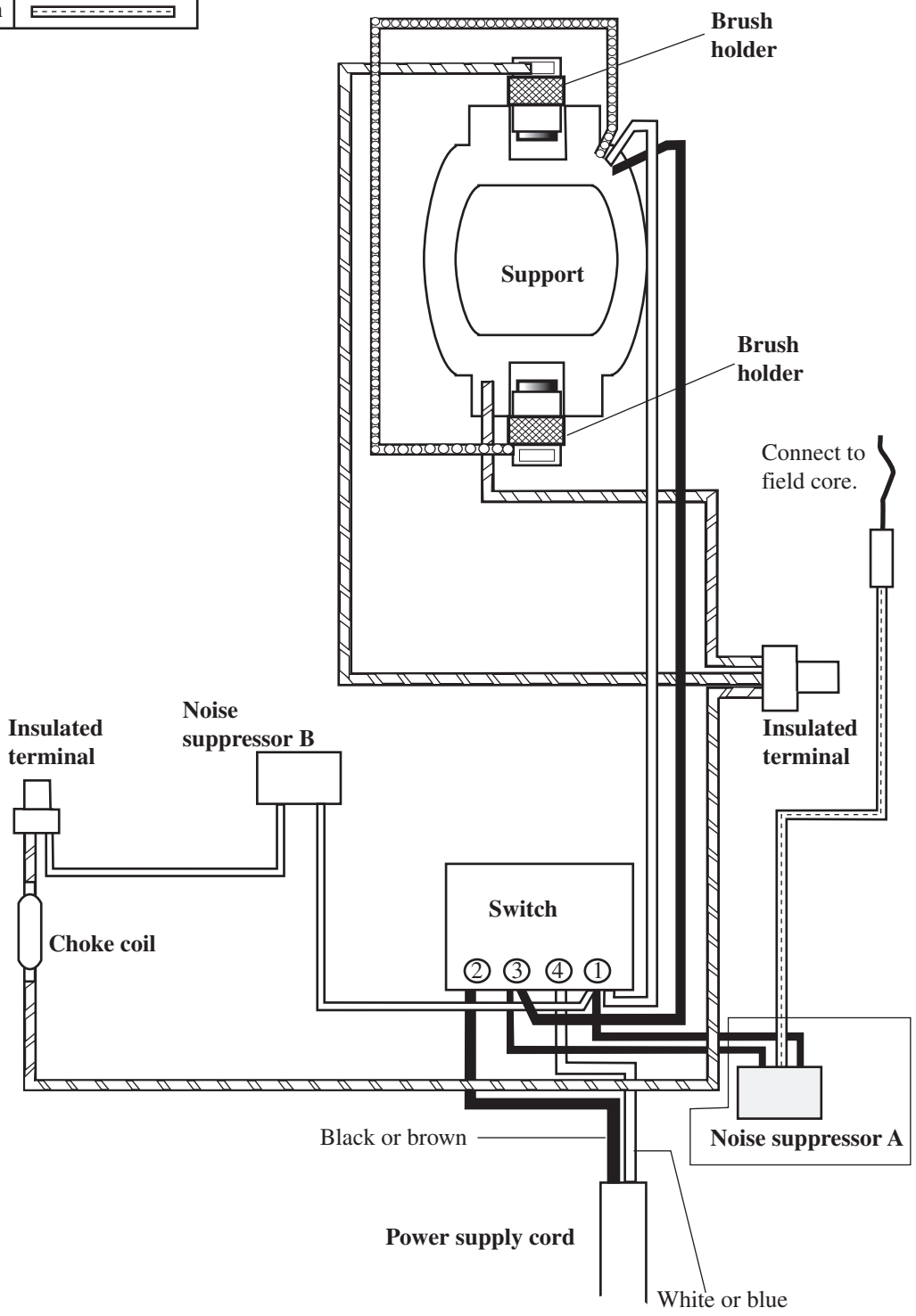
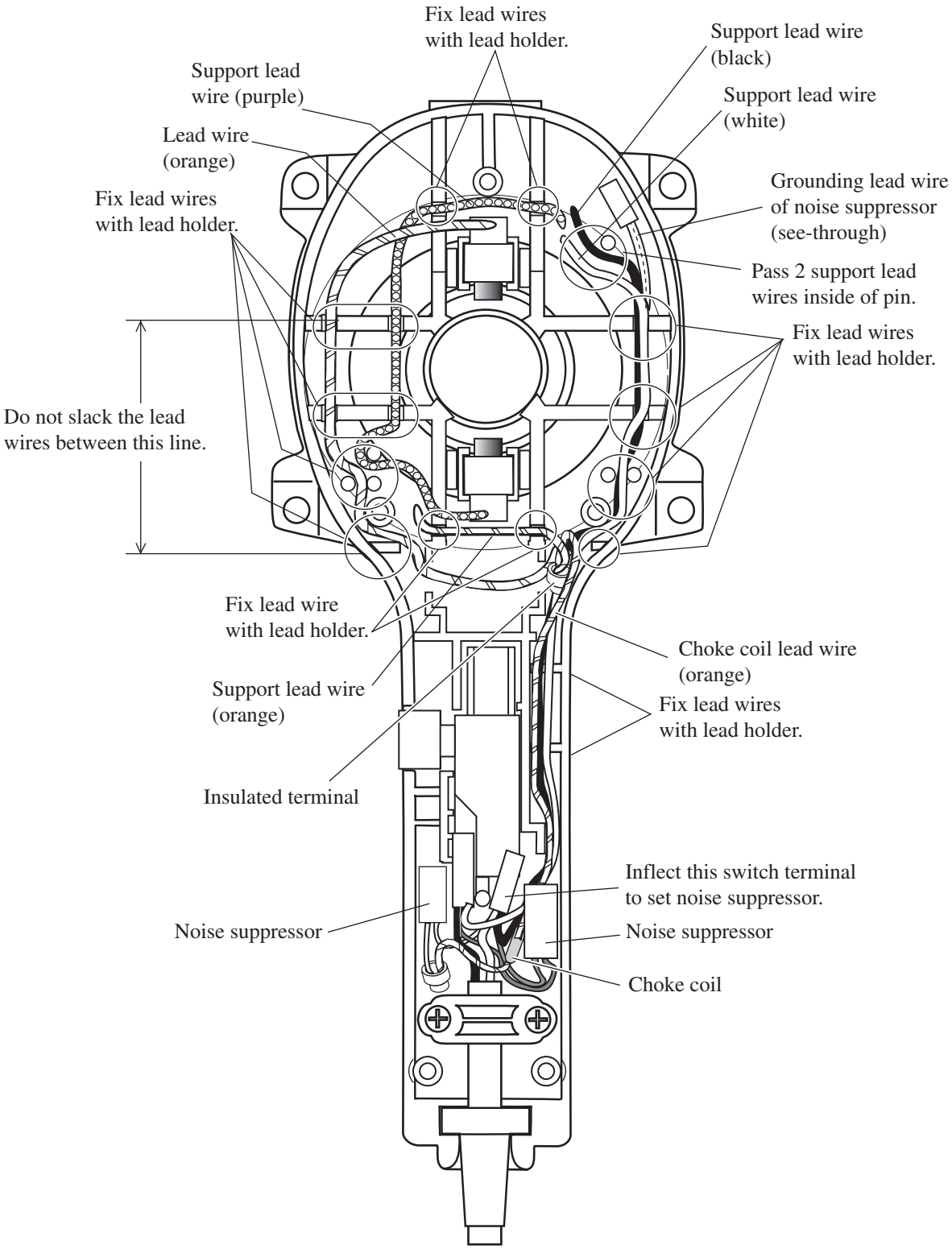


BO4900 (except Taiwan and Great Britain, low voltage area)
BO4901



BO4900 (Taiwan and Great Britain, low voltage area)

Color index of lead wires	
Black	
White	
Orange	
Purple	
See-through	



BO4900 (Taiwan and Great Britain, low voltage area)