

MODELS

D 10VC2

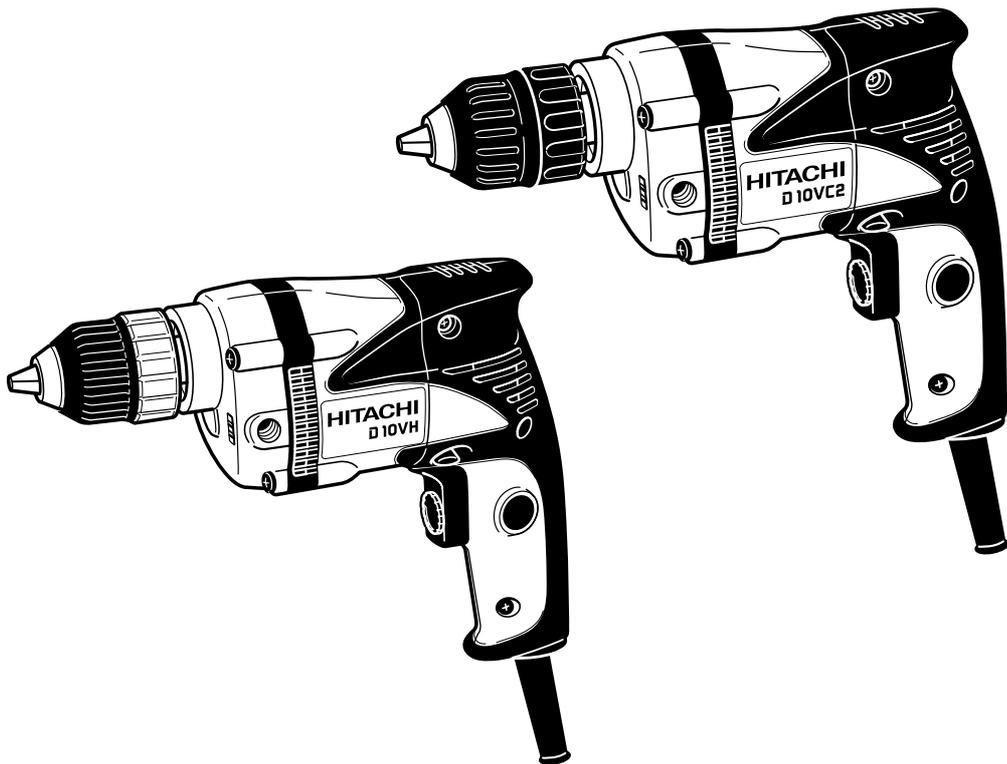
D 10VH

HITACHI

POWER TOOLS

10 mm (3/8") DRILLS D 10VC2
D 10VH

TECHNICAL DATA
AND
SERVICE MANUAL



LIST Nos. D 10VC2: 0199
D 10VH: E101

DEC. 2002

REMARK:

Throughout this TECHNICAL DATA AND SERVICE MANUAL, a symbol(s) is(are) used in the place of company name(s) and model name(s) of our competitor(s). The symbol(s) utilized here is(are) as follows:

Symbols Utilized	Competitors	
	Company Name	Model Name
C	MAKITA	6410 6408
B	BOSCH	GBM10RE GBM450RE
P	DEWALT	DW106

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1. PRODUCT NAME

Hitachi 10 mm (3/8") Drills, Model D 10VC2

Model D 10VH

2. MARKETING OBJECTIVE

The new Models D 10VC2 and D10VH are the upgraded versions of the previous Model D 10VC, developed under the concept for more efficient, convenient and low-noise models while maintaining the merits of the previous Model D 10VC such as compact, lightweight and sturdy.

The outstanding features are as follows:

- (1) Compact and lightweight
- (2) Low operating noise
- (3) Sturdy construction thanks to the cylindrical housing
- (4) Class-top drilling speed
- (5) Easy-to-operate 2-finger sized trigger switch with variable speed control dial and push-button type forward/reverse changeover switch
- (6) Nonskid soft grip handle

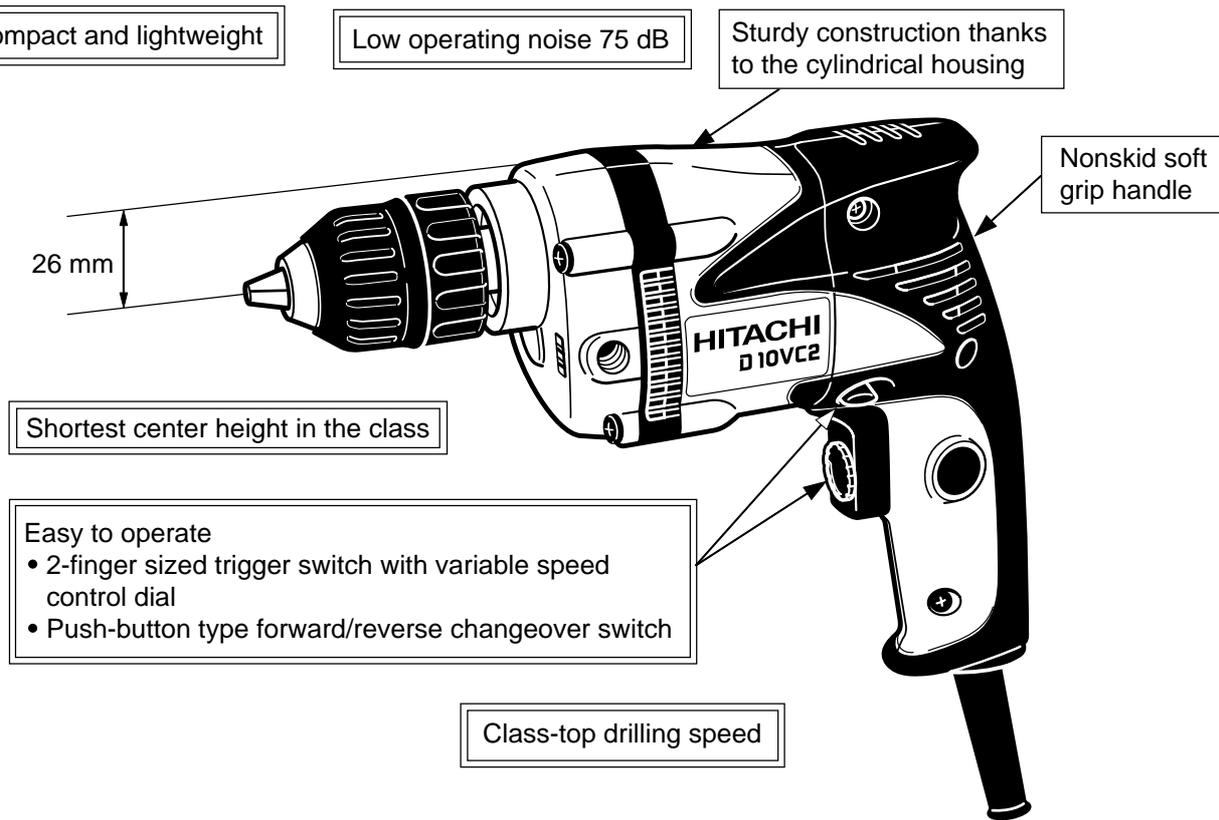
The Models D 10VC2 and D 10VH are provided with two kinds of drill chucks (keyed/key-less). In addition, the side handle and the hook (two kinds) are provided as optional accessories to meet various customer demands. For the Model D 10VC2, special emphasis was placed on making it lightweight at designing. While the motor size of the Model D 10VC2 is equivalent to that of the previous Model D 10VC, the maximum output is about 15% greater than that of the Model D 10VC. No-load speed range is from 0 to 2,300/min. and the weight is 1.3 kg (equivalent to the Model D 10VC).

For the Model D 10VH, special emphasis was placed on making it powerful rather than lightweight at designing. The motor lamination is thickened by 5 mm and the maximum output is about 40% greater than that of the previous Model D 10VC. No-load speed range is from 0 to 2,500/min. and the weight is 1.4 kg (about 100 g heavier than the Model D 10VC2).

3. APPLICATIONS

Drilling into metal, wood and plastic

4. SELLING POINTS



4-1. Selling Point Descriptions

(1) Compact and lightweight

To make both the Models D 10VC2 and D 10VH compact is the first priority at designing because it is a merit of the previous Model D 10VC. Entire length of the Models D 10VC2 and D 10VH is 238 mm and the center height is 26 mm. The Model D 10VC2 weighs 1.3 kg and the Model D 10VH weighs 1.4 kg. These are the most compact and lightweight drills in this class.

(2) Low operating noise 75 dB

These models are so constructed that the motor cooling air is discharged quietly. Thanks to the new construction, the operating noise level is 75 dB. The Models D 10VC2 and D 10VH can be used indoors without concern for the operating noise. This is the smallest noise level in this class.

(3) Class-top drilling speed

Thanks to the powerful motor, the Models D 10VC2 and D 10VH can drill at the class-top speed while they are compact, lightweight and quiet.

(4) Easy-to-operate 2-finger sized trigger switch with variable speed control dial

The pulling amount of the trigger can be adjusted on the dial in the same manner as the Model D 10VC. It is convenient for operation keeping at a desired speed. The large variable speed control dial and the 2-finger sized trigger switch are easy to operate.

(5) Easy-to-operate push-button type forward/reverse changeover switch

The Models D 10VC2 and D 10VH are equipped with the push-button type forward/reverse changeover switch that is more convenient and reliable than the lever-type switch. In addition, this switch is properly shaped and located not to make the push button an obstruction at drilling.

5. SPECIFICATIONS

5-1. Specifications

Model			D 10VC2	D 10VH
Capacities	Steel	Twist bit	10 mm (3/8")	
	Wood	Flat spade bit	25 mm (1")	
		Auger bit	16 mm (5/8")	
Drill chuck		Mount type	UNF 3/8" - 24	
		Capacity	10 mm (3/8")	
Power source			AC single phase 50/60 Hz	
Rated voltage (by areas)			110 V, 220 V, 230 V, 240 V	120 V
Rated current			110 V: 4.4 A 220 V: 2.2 A 230 V: 2.1 A 240 V: 2.0 A	120 V: 6.0 A * ¹
Power input			460 W (0.62 HP)	680 W (0.91 HP) * ¹
Power output		Full-load	230 W (0.31 HP)	350 W (0.47 HP)
		Max.	430 W (0.58 HP)	510 W (0.68 HP)
Speed		No-load	0 – 2,300/min.	0 – 2,500/min.
		Full-load	1,400/min.	1,500/min.
Type of motor			AC single phase series commutator motor	
Enclosure	Housing and handle		Glassfiber reinforced polycarbonate resin + elastomer	
	Gear cover and inner cover		Glassfiber reinforced polycarbonate resin	
Insulation structure			Double insulation	
Type of switch			Variable speed control trigger switch with reversing switch	
Overall length			238 mm (9-3/8")	
Weight	Net (without cord)		1.3 kg (2.9 lbs.)	1.4 kg (3.1 lbs.)
	Gross	with case	3.1 kg (6.8 lbs.)	3.2 kg (7.1 lbs.)
		with carton box	1.9 kg (4.2 lbs.)	2.0 kg (4.4 lbs.)
Packaging		with case	Plastic case (in corrugated cardboard sleeve)	
		with carton box	Corrugated cardboard box	
Cord			2-core cabtire cord 2.5 m (8.2 ft.)	
Standard accessories			Chuck wrench ... ^{1*2}	

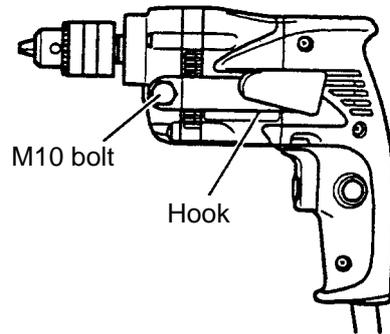
*¹ For USA and Canada only

*² Spec. for the keyed chuck only

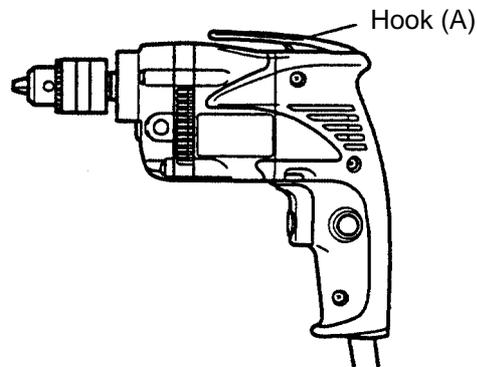
5-2. Optional Accessories

- Hook (Code No. 982593) Side attaching type

The hook is mountable with the M10 bolt at either left or right hole for mounting the side handle. The M10 bolt is an accessory of the hook.



- Hook (A) (Code No. 321612) Top attaching type

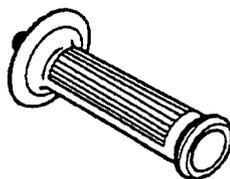


* To attach Hook (A), it is necessary to disassemble the handle portion which covered the tool's electrical system.

For customers continued safety and electrical shock protection, installing Hook (A) on this drill should **ONLY** be performed by a HITACHI AUTHORIZED SERVICE CENTER.

For attaching procedure of Hook (A), refer to "Attaching Hook (A)" in this manual.

- Side handle (Code No.981205)



6. COMPARISONS WITH SIMILAR PRODUCTS

6-1. Specification Comparisons

< D 10VC2 >

			HITACHI		B		C
			D 10VC2	D 10VC			
Capacities	Steel	mm (in.)	10 (3/8")	10 (3/8")	10 (3/8")	10 (3/8")	10 (3/8")
	Wood	mm (in.)	25 (1")	16 (5/8")	25 (1")	25 (1")	25 (1")
Rated power input		W (HP)	460 (0.62)	350 (0.47)	450 (0.60)	450 (0.60)	350 (0.47)
No-load speed		/min.	0 – 2300	0 – 1800	0 – 2200	0 – 2500	0 – 2200
Max. torque		N·m (in·lbs.)	10.1 (89.5)	8.8 (77.9)	*11.1 (98.3)	*9.3 (82.4)	*6.6 (58.5)
Gear ratio			12.2	12.2	13.5	11.25	11.25
Gear train			Single	Single	Double	Single	Single
Motor size			φ 56 x 30	φ 56 x 30	φ 58 x 36.5	φ 61 x 36.5	φ 55 x 30
No-load noise level		dB	75	85	*82	*80	*76
Housing structure			Cylindrical	Cylindrical	Clamshell	Clamshell	Clamshell
Soft grip handle			○	×	×	×	×
Speed control dial			○	○	×	×	×
Type of reversing switch			Pushing button	Lever	Lever	Pushing button	Lever
Overall length		mm (in.)	238 (9-3/8")	242 (9-1/2")	*286 (11-1/4")	*273 (10-3/4")	*252 (9-15/16")
Chuck offset		mm (in.)	26 (1-1/32")	27 (1-1/16")	*28.5 (1-1/8")	*28 (1-3/32")	*28 (1-3/32")
Weight (catalog)		kg (lbs.)	1.3 (2.9)	1.4 (3.1)	1.4 (3.1)	1.5 (3.3)	1.2 (2.6)
Actual weight		kg (lbs.)	1.3 (2.9)	1.3 (2.9)	*1.6 (3.5)	*1.5 (3.3)	*1.3 (2.9)

Note that the data marked with asterisk is the factory test result.

< D 10VH >

			HITACHI		P	C
			D 10VH	D 10VC		
Capacities	Steel	mm (in.)	10 (3/8")	10 (3/8")	10 (3/8")	10 (3/8")
	Wood	mm (in.)	25 (1")	16 (5/8")	25 (1")	25 (1")
Rated current		A	6.0	3.2	5.4	4.9
No-load speed		/min.	0 – 2500	0 – 1800	0 – 2500	0 – 2500
Max. torque		N·m (in·lbs.)	12.2 (108.1)	8.8 (77.9)	*8.9 (78.8)	*10.4 (92.1)
Gear ratio			12.2	12.2	11.25	11.75
Gear train			Single	Single	Double	Single
Motor size			φ 56 x 35	φ 56 x 30	φ 57 x 30	φ 55 x 35
No-load noise level		dB	75	85	*84	*78
Housing structure			Cylindrical	Cylindrical	Clamshell	Clamshell
Soft grip handle			○	×	×	×
Speed control dial			○	○	×	×
Type of reversing switch			Pushing button	Lever	Lever	Lever
Overall length		mm (in.)	238 (9-3/8")	242 (9-1/2")	*258 (10-5/32")	*263 (10-11/32")
Chuck offset		mm (in.)	26 (1-1/32")	27 (1-1/16")	*27.5 (1-5/64")	*26 (1-1/32")
Weight (catalog)		kg (lbs.)	1.4 (3.1)	1.4 (3.1)	1.5 (3.3)	1.4 (3.1)
Actual weight		kg (lbs.)	1.4 (3.1)	1.3 (2.9)	*1.5 (3.3)	*1.5 (3.3)

Note that the data marked with asterisk is the factory test result.

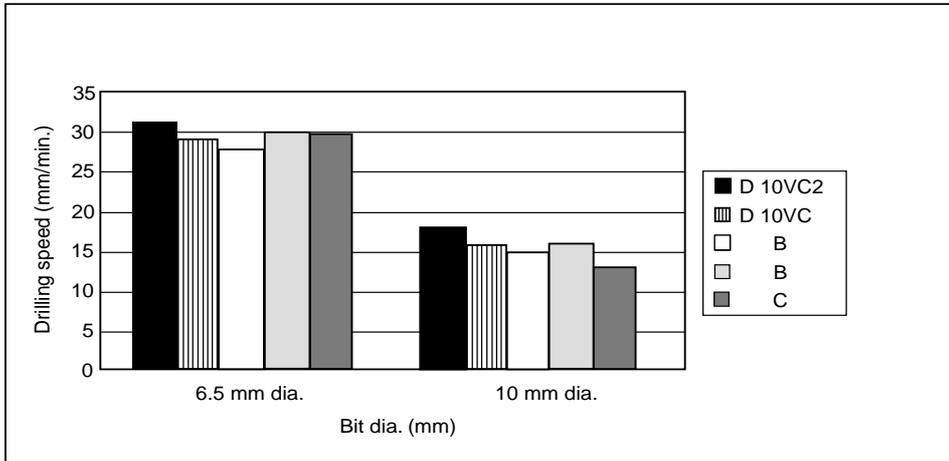
6-2. Drilling Speed Comparisons

Drilling speed depends on the operating conditions. The following test results are based on actual factory tests, and should be used as a reference only.

< D 10VC2 >

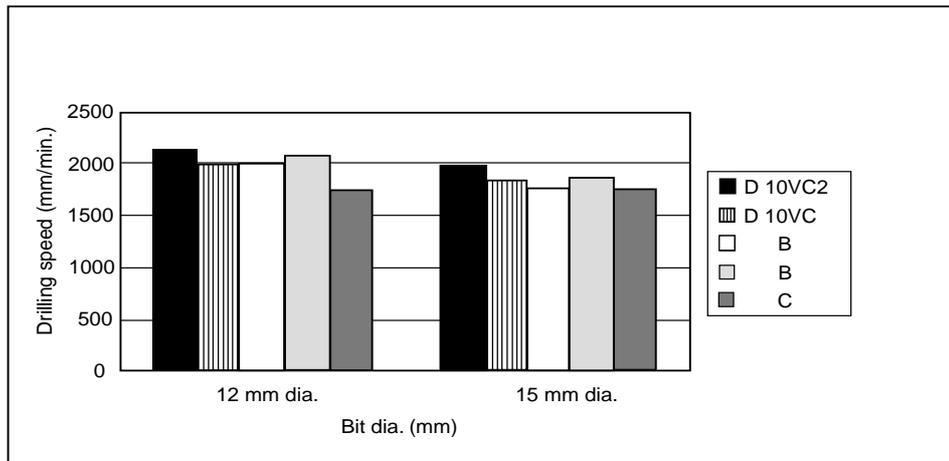
- Twist bit

Test material: Mild steel Thrust: 300 N



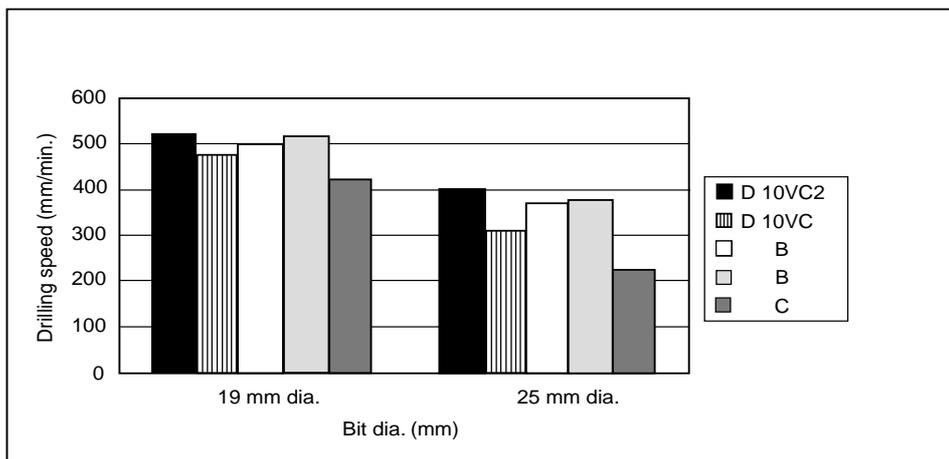
- Auger bit

Test material: Western hemlock



- Flat spade bit

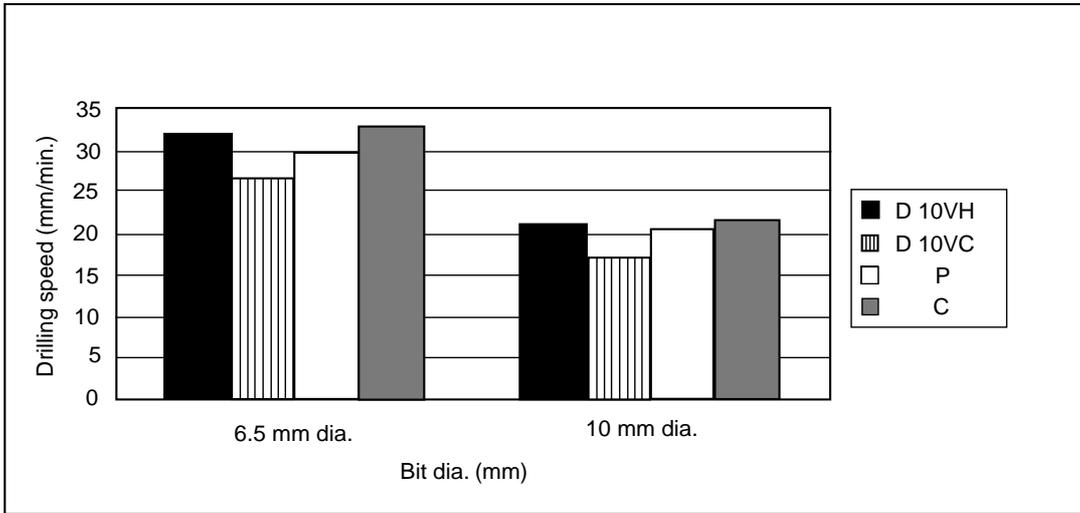
Test material: Western hemlock Thrust: 150 N



< D 10VH >

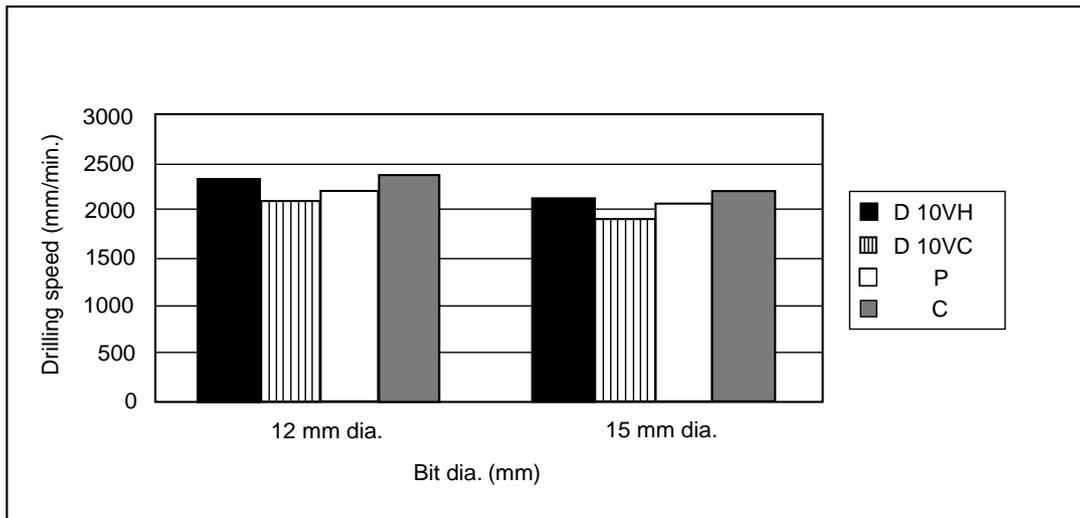
- Twist bit

Test material: Mild steel Thrust: 300 N



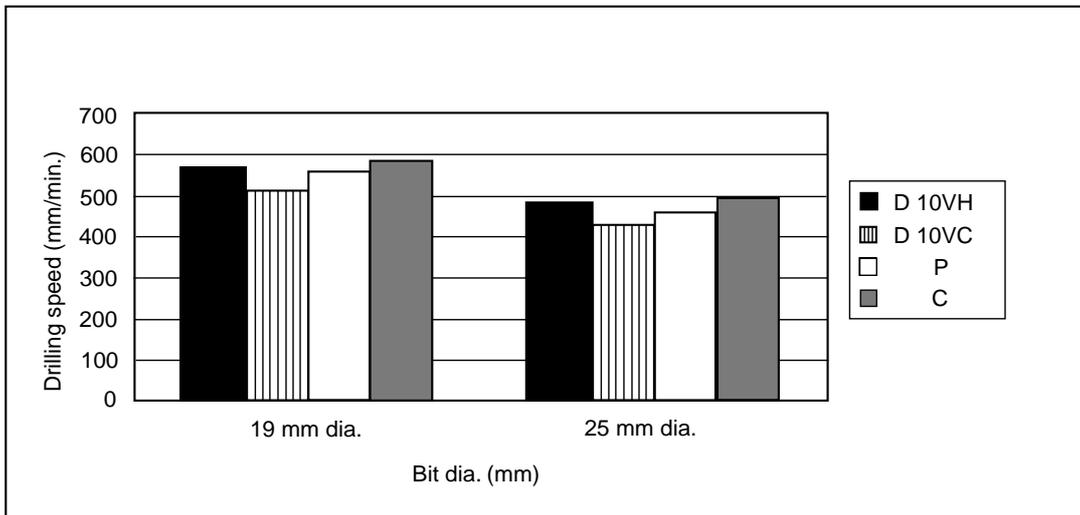
- Auger bit

Test material: Western hemlock



- Flat spade bit

Test material: Western hemlock Thrust: 150 N



7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Models D 10VC2 and D 10VH Drills by all of our customers, it is very important that at the time of sales the salesperson 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.

7-1. 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 power 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 Drills are listed in the Handling Instructions to enhance the safe, efficient use of the tool by the customer. Salespersons must be thoroughly familiar with the contents of the Handling Instructions to be able to offer appropriate guidance to the customer during sales promotion.

7-2. Caution Plate

The following basic safety precautions are listed on the Caution Plate attached to the main body of each tool.

(1) For Oceania and Asia

CAUTION

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

(2) For the U.S.A. and Canada

WARNING

- **To reduce the risk of injury, user must read and understand the instruction manual.**

AVERTISSEMENT

- **Afin de réduire le risque de blessures, l'utilisateur doit lire et bien comprendre le mode d'emploi.**

These precautions are not listed on the Name Plates of the products destined for Europe.

7-3. Attaching Hook (A)

The numbers in the descriptions below correspond to the item numbers in the Parts List and exploded assembly diagram. The **[23]** numbers are for the Model D 10VC2, and the **<21>** numbers for the Model D 10VH.

- (1) Loosen the Tapping Screw (W/Flange) D4 x 20 (Black) **[23]** **<21>** and remove the Handle Cover **[24]** **<22>**.
- (2) Insert the mounting foot of hook (A) into the air vent of the Housing **[17]** **<17>** as shown in Fig. 1.
- (3) Mount the Handle Cover **[24]** **<22>**.

Refer to "8-2-3. Tightening torque" for tightening torque of each screw. Be careful not to catch the internal wires when mounting the handle cover.

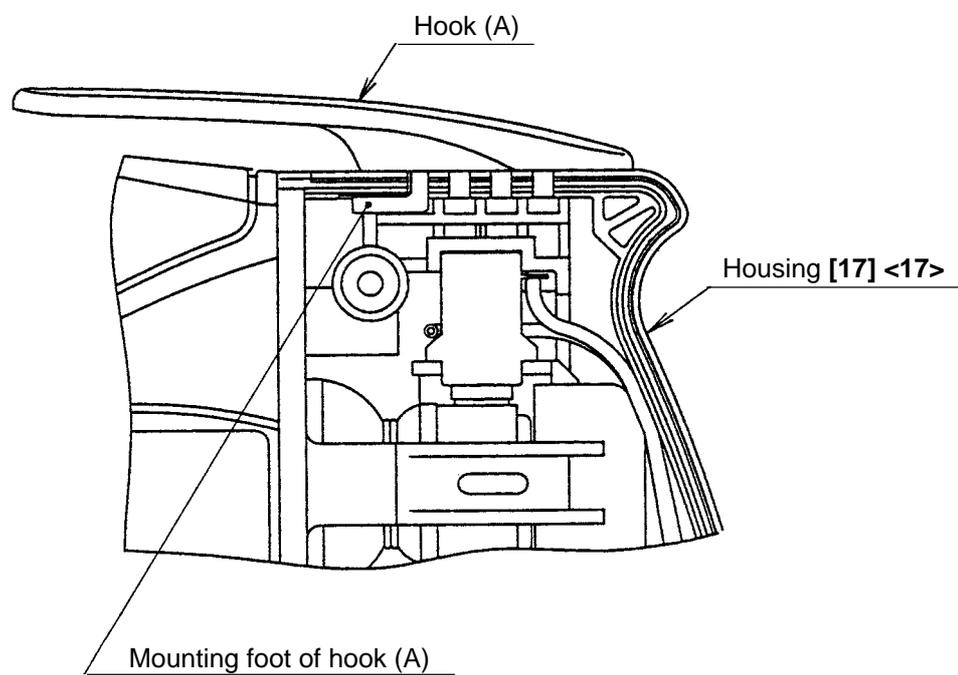


Fig. 1

8. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY

The numbers in the descriptions below correspond to the item numbers in the Parts List and exploded assembly diagram. The **[Bold]** numbers are for the Model D 10VC2 and the **<Bold>** numbers for the Model D 10VH.

8-1. Disassembly

8-1-1. Motor section disassembly

(1) Removal of the handle cover

Loosen the Tapping Screw (W/Flange) D4 x 20 (Black) **[23]** **<21>** and remove the Handle Cover **[24]** **<22>**.

(2) Removal of the carbon brushes

With a small slotted head screwdriver, slightly lift the Brush Holders **[28]** **<26>**. Then, while pushing the Carbon Brushes **[27]** **<25>** to the bottom of the Brush Holders **[28]** **<26>**, gently pull out and disconnect the internal wire terminals. (Figs. 2 and 3)

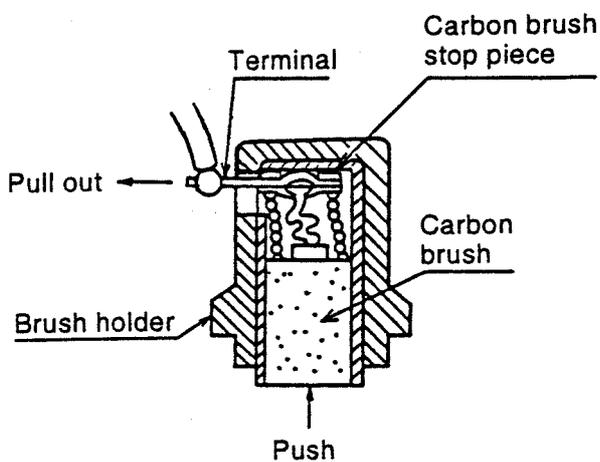


Fig. 2

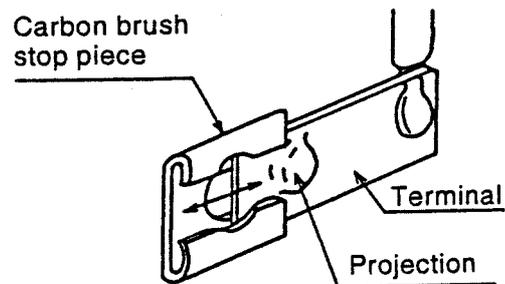


Fig. 3

(3) Removal of the gear cover from the housing

Loosen the Tapping Screw (W/Flange) D4 x 30 (Black) **[5]** **<5>** and Tapping Screw (W/Flange) D4 x 45 **[8]** **<8>**, and separate the Gear Cover **[9]** **<9>** from the Housing **[17]** **<17>**. Then, remove the Inner Cover **[11]** **<11>** together with the Armature **[13]** **<13>** from the Housing **[17]** **<17>**.

(4) Removal of the armature ass'y from the inner cover

As illustrated in Fig. 4, support the Inner Cover [11] <11> with a tubular jig, and push down on the top of the pinion of the Armature [13] <13>.

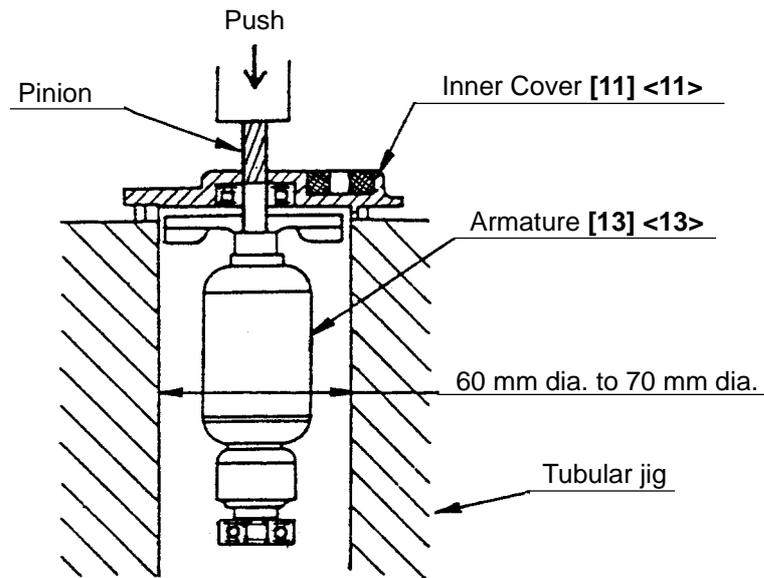


Fig. 4

(5) Removal of the stator from the housing

First, disconnect the internal wires from the Switch (1P Pillar Type) [25] <23>. To disconnect the internal wires from switch, insert a small flat-blade screwdriver into the windows near the terminals and pull out the internal wires. Remove the Tapping Screws D4 [15] <15> and tap the end surface of the Housing [17] <17> slightly with a wooden hammer. Then the stator can be removed from the housing.

8-1-2. Removal of the drill chuck

The Drill Chuck [2] <2> is secured to the Spindle [4] <4> with 3/8"-24 UNF (Right hand).

Hold the Spindle [4] <4> with the open-end wrench secured to the vise as shown in Fig. 5. Mount the pipe to the hex. bar wrench. Turn the hex. bar wrench counterclockwise to loosen the drill chuck. (Fig. 5)

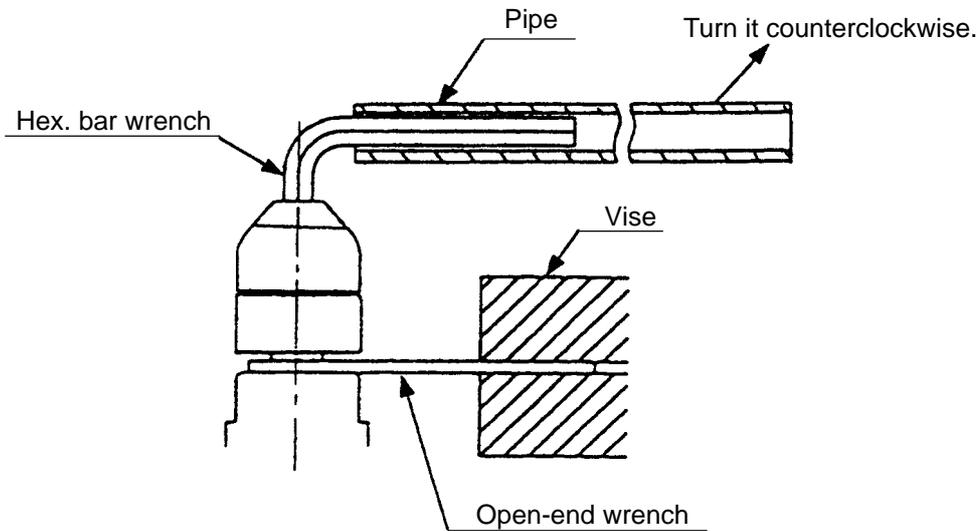


Fig. 5

8-1-3. Removal of the spindle

Remove the Retaining Ring for D32 Hole [3] <3>. Place the end surface of the Gear Cover [9] <9> on the tubular jig and press down on the Spindle [4] <4> with a hand press. Then the spindle can be removed together with the Ball Bearing 6002VVCMP2L [6] <6> and the Retaining Ring for D15 Shaft [7] <7>. The Gear [10] <10> can be removed from the spindle. (Fig. 6)

< Caution > Be sure to replace both the spindle and the gear with new ones.

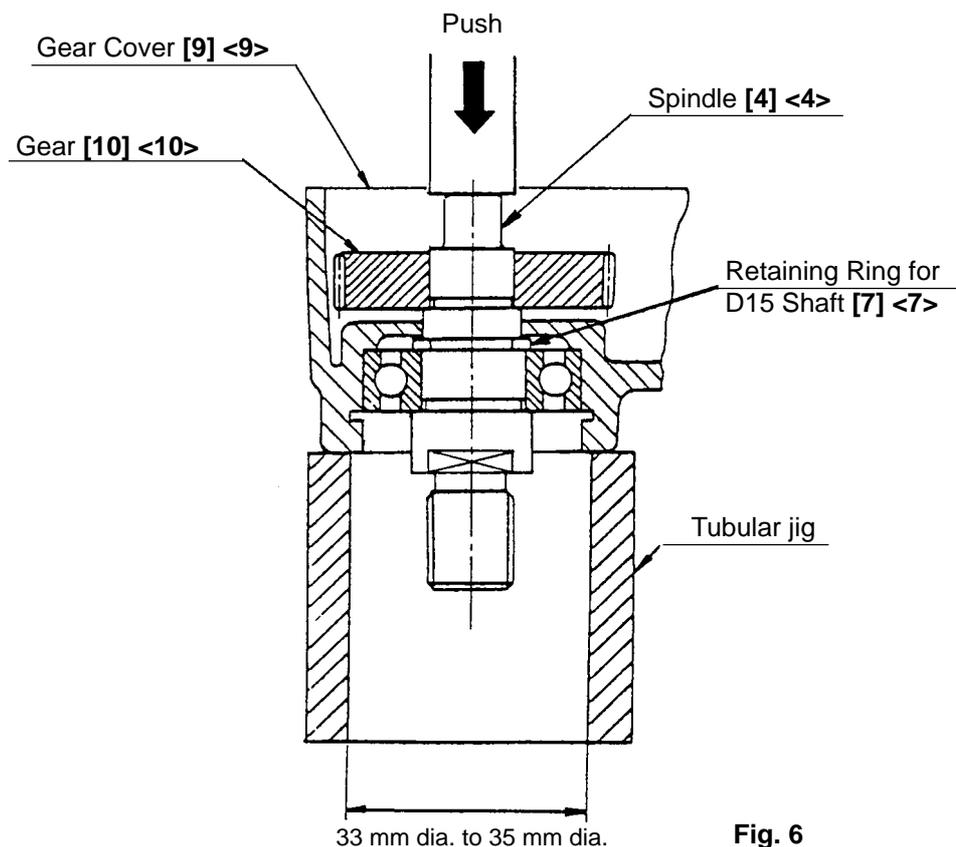


Fig. 6

8-2. Reassembly

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

8-2-1. Internal wire arrangement

- (1) Arrange the internal wires according to "8-4. Internal Wire Arrangement and Wiring Work".
- (2) Be careful not to catch the internal wires when mounting the handle cover.

8-2-2. Lubrication

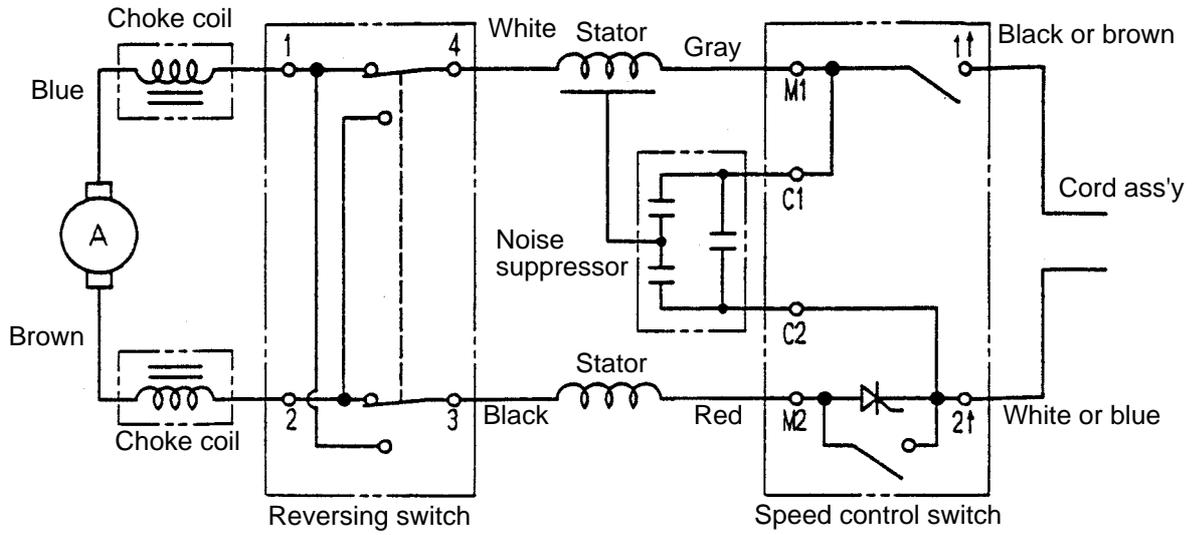
- (1) Apply SEP-3A Grease to the following portions.
 - Teeth of the Armature [13] <13> (with a brush)
 - Metal portion of the Inner Cover [11] <11>
 - Inside of Gear Cover [9] <9>: 7 g

8-2-3. Tightening torque

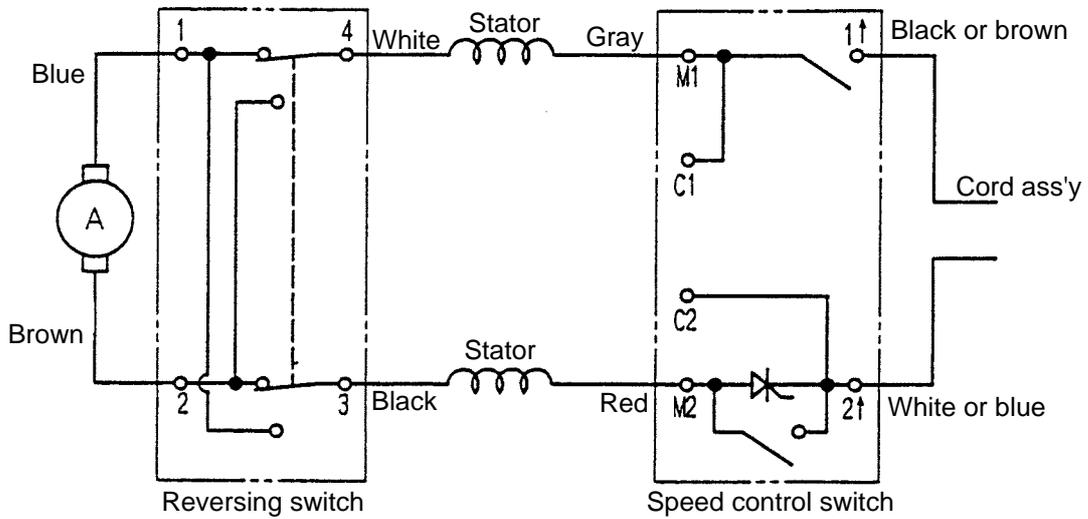
- (1) Tapping Screw D4 1.5 to 2.5 N•m (13.3 to 22.1 in-lbs.)
- (2) Drill Chuck 27.5 to 32.5 N•m (243.6 to 287.9 in-lbs.)
- (3) Machine Screw M3 (Switch (1P Pillar Type) [25] <23>) 0.4 to 0.8 N•m (3.5 to 7.1 in-lbs.)

8-3. Wiring Diagram

(1) For products with noise suppressor



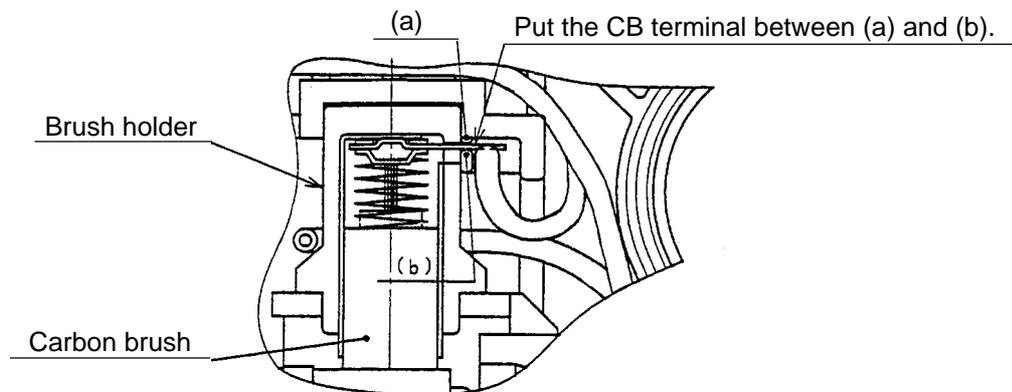
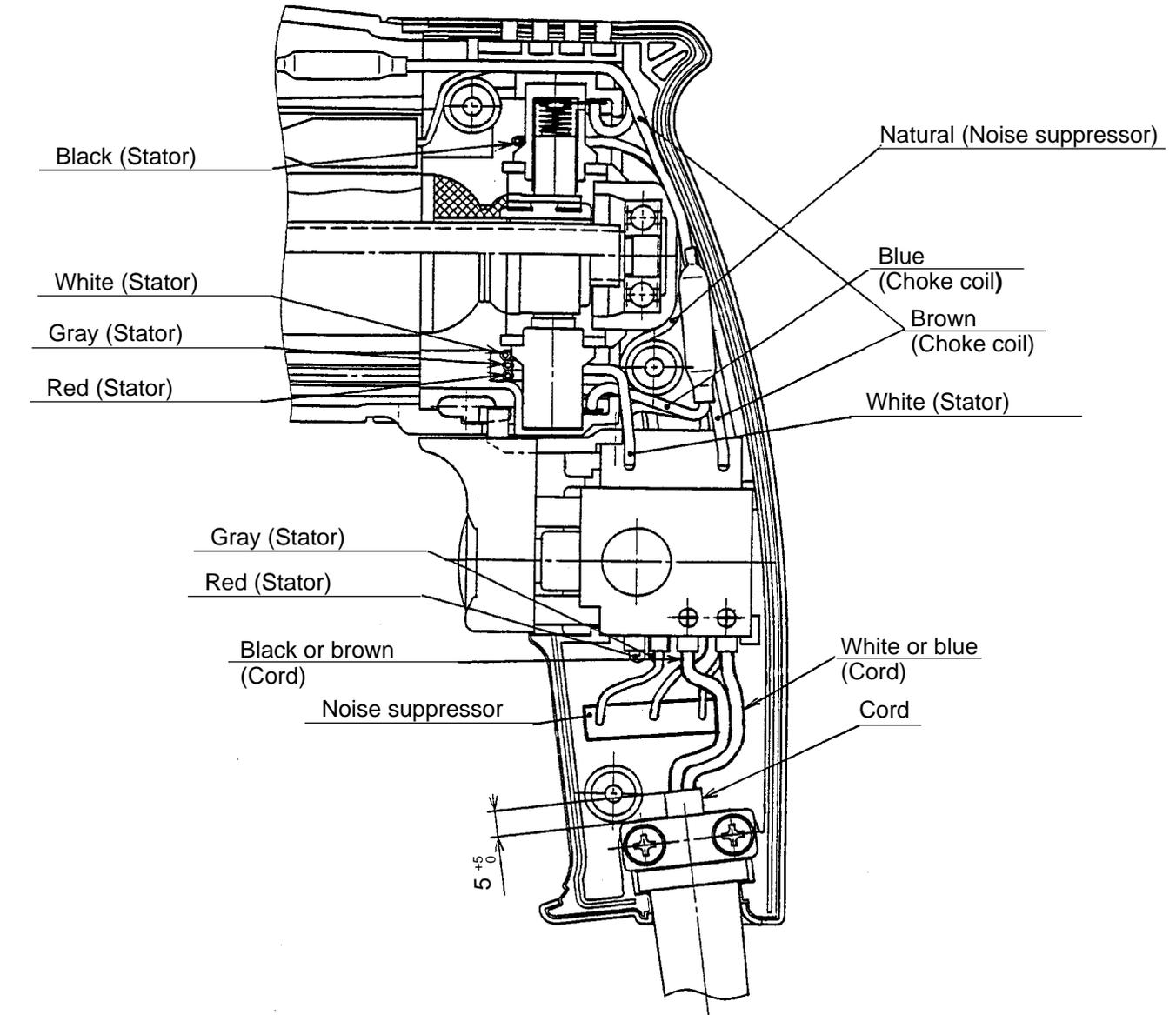
(2) For products without noise suppressor



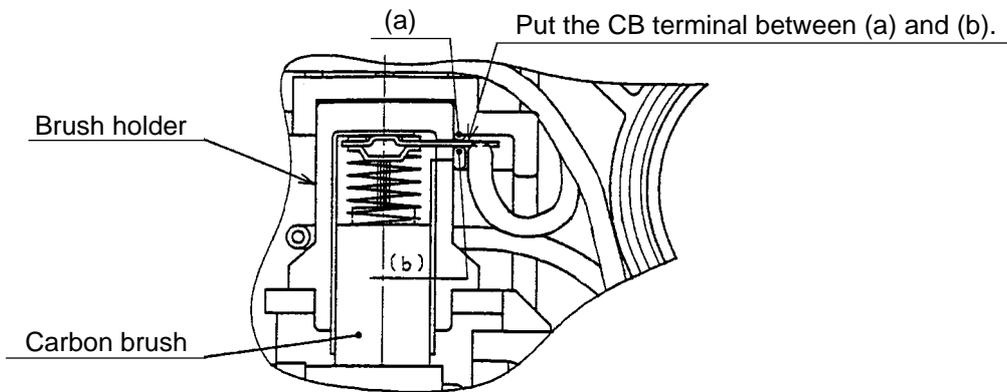
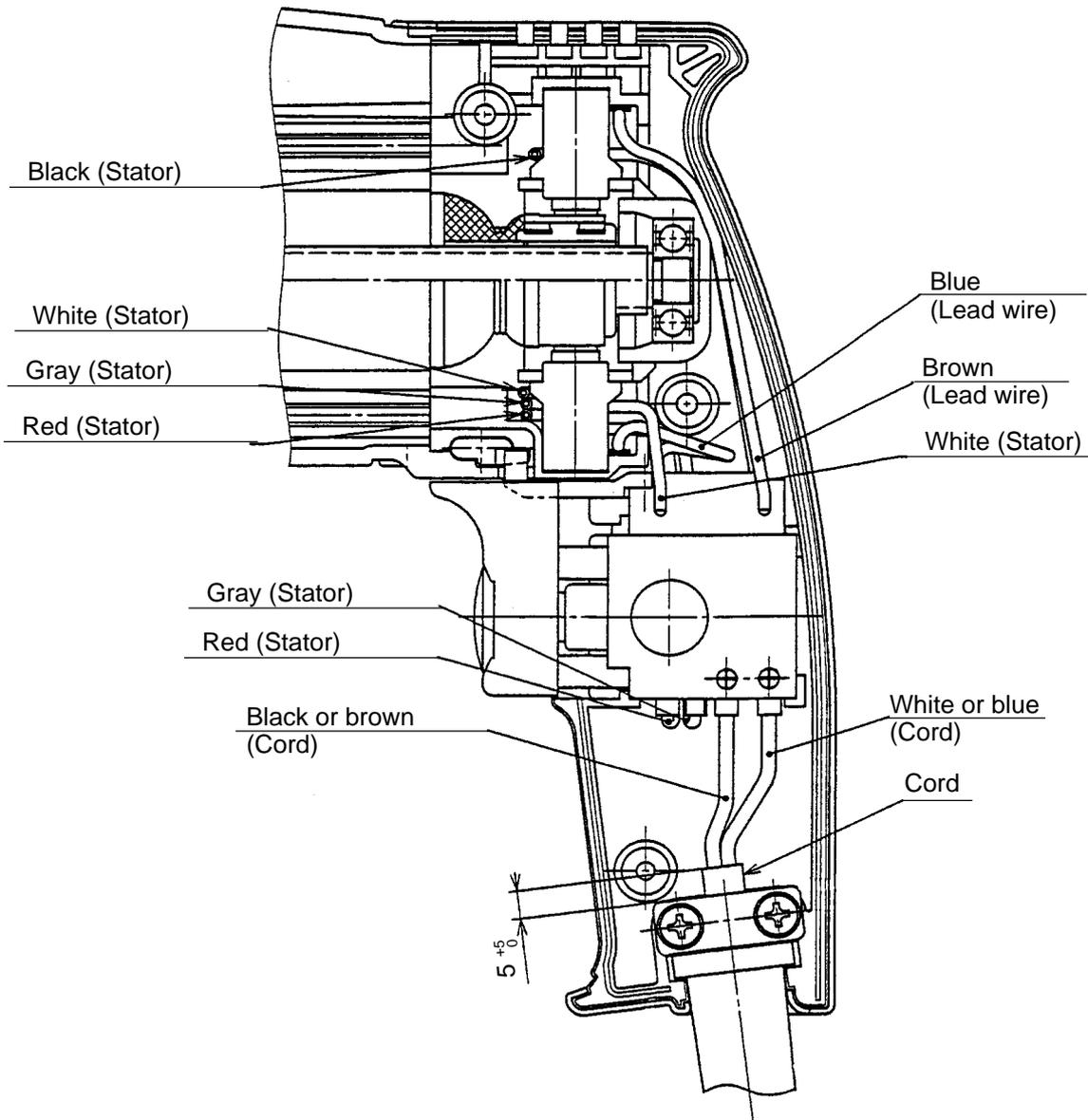
8-4. Internal Wire Arrangement and Wiring Work

A. Internal wire arrangement

(1) For products with noise suppressor

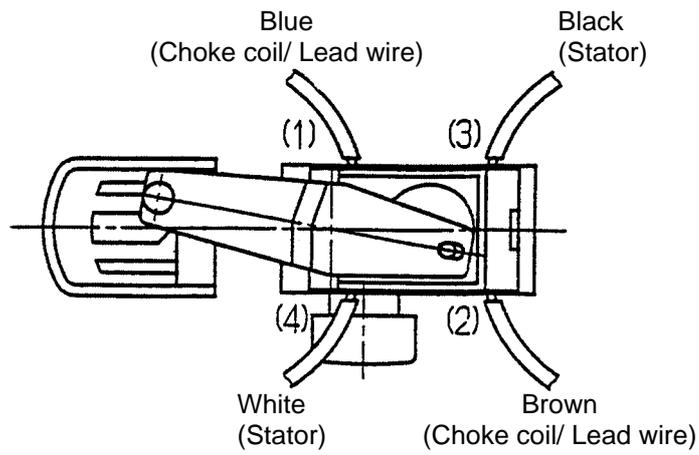


(2) For products without noise suppressor

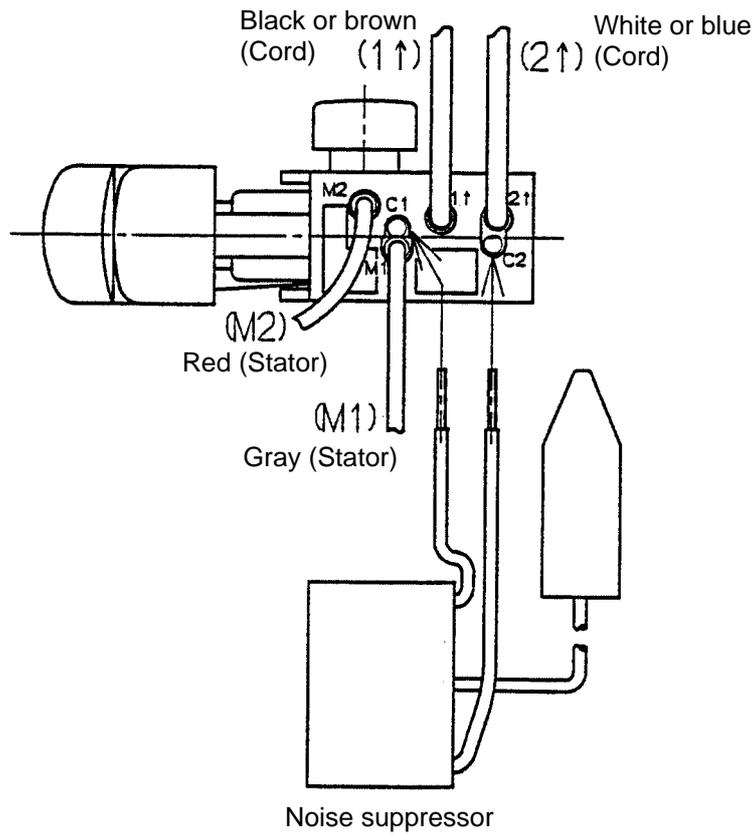


B. Switch connection

(1) Wiring of reversing switch



(2) Wiring of speed control switch



8-5. Insulation Tests

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

Insulation resistance: 7 MΩ or more with DC 500 V Megohm Tester

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

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

8-6. No-Load Current Value

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

Voltage (V)	110	120	220	230	240
Current (A) Max.	2.2	2.2	1.2	1.2	1.2

9. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
(D 10VC2) (D 10VH)		Work Flow						
			Switch Cord Handle Cover					
		(General Assembly)		Armature Ball Bearing (608VV) x 2 Inner Cover				
				Gear Cover Gear Spindle Ball Bearing (6002VV)				
			Drill Chuck					
					Housing Stator			

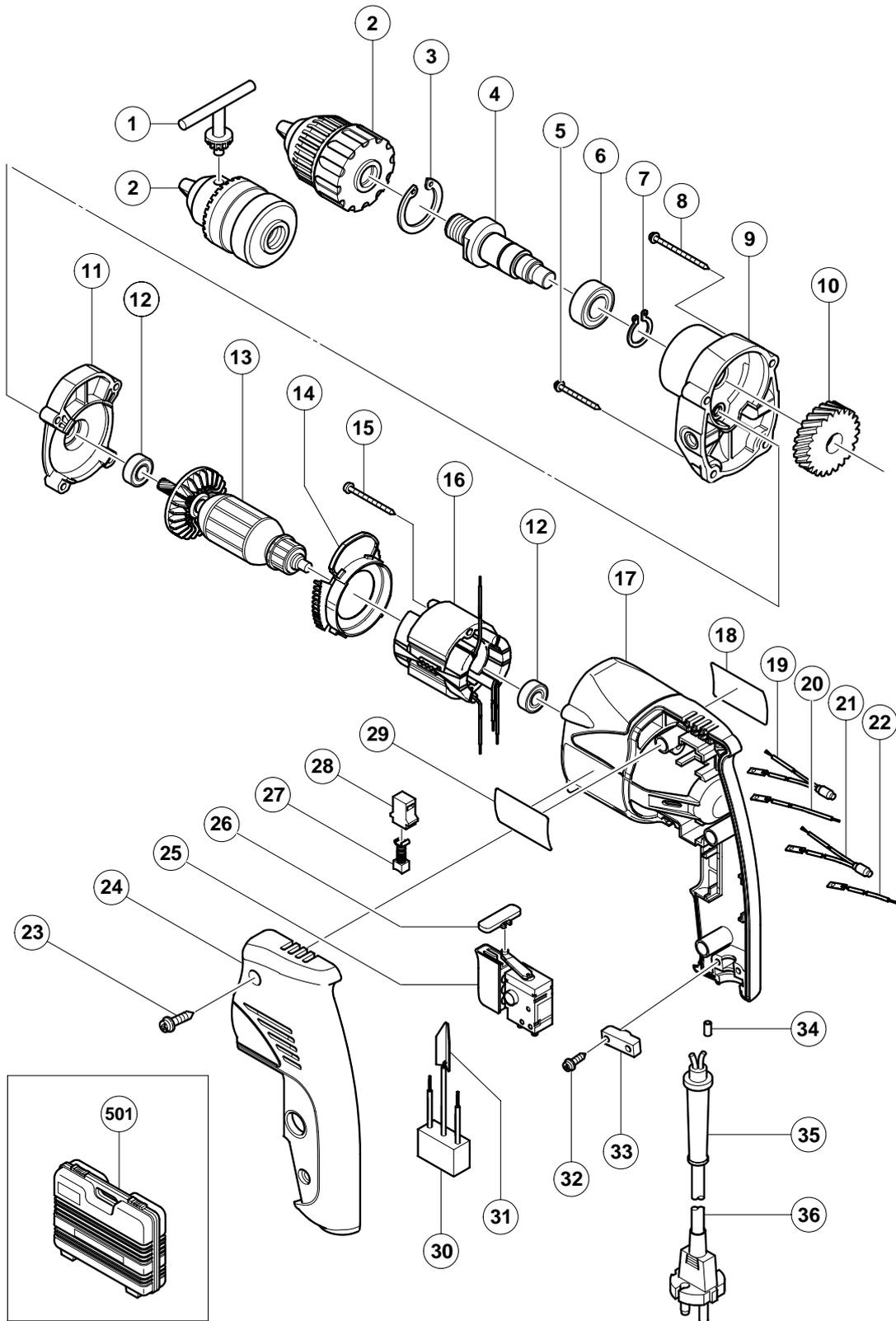
ELECTRIC TOOL PARTS LIST

■ DRILL

2002 • 12 • 10

Model D 10VC2

(E1)



PARTS

D 10VC2

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
* 1	980-057	CHUCK WRENCH 10TL2	1	FOR HKG, NZL, FIJ, HOL
* 2	950-292	DRILL CHUCK 10TLRA	1	INCLUD. 1 FOR HKG, NZL, FIJ, HOL
* 2	312-516	DRILL CHUCK 10TLRD-N (W/O CHUCK WRENCH)	1	EXCEPT FOR NZL, FIJ
3	948-001	RETAINING RING FOR D32 HOLE	1	
4	321-626	SPINDLE	1	
5	305-490	TAPPING SCREW (W/FLANGE) D4X30 (BLACK)	2	
6	600-2VV	BALL BEARING 6002VVCMP2L	1	
7	939-544	RETAINING RING FOR D15 SHAFT (10 PCS.)	1	
8	301-815	TAPPING SCREW (W/FLANGE) D4X45	2	
9	321-625	GEAR COVER	1	
10	321-627	GEAR	1	
11	321-624	INNER COVER	1	
12	608-VVM	BALL BEARING 608VVC2PS2L	2	
* 13	360-596C	ARMATURE 110V	1	
* 13	360-596G	ARMATURE 220V	1	
* 13	360-596E	ARMATURE 230V-240V	1	
14	321-623	FAN GUIDE	1	
15	950-514	TAPPING SCREW D4X40	2	
* 16	340-547C	STATOR 110V	1	
* 16	340-547G	STATOR 220V	1	
* 16	340-547E	STATOR 230V	1	
* 16	340-547F	STATOR 240V	1	
17	321-622	HOUSING	1	
* 18		NAME PLATE	1	
* 19	321-633	CHOKE COIL (BROWN) 110V-240V	1	EXCEPT FOR SIN, MAL, SRI, HKG
* 20	321-630	INTERNAL WIRE (BROWN) 100L	1	FOR SIN, MAL, SRI, HKG
* 21	321-634	CHOKE COIL (BLUE) 110V-240V	1	EXCEPT FOR SIN, MAL, SRI, HKG
* 22	321-631	INTERNAL WIRE (BLUE) 55L	1	FOR SIN, MAL, SRI, HKG
23	301-653	TAPPING SCREW (W/FLANGE) D4X20 (BLACK)	3	
24	321-629	HANDLE COVER	1	
25	321-632	SWITCH (1P PILLAR TYPE)	1	
26	321-628	PUSHING BUTTON	1	
27	999-041	CARBON BRUSH (1 PAIR)	2	
28	955-203	BRUSH HOLDER	2	
29		HITACHI LABEL	1	
* 30	994-273	NOISE SUPPRESSOR	1	EXCEPT FOR SIN, MAL, SRI, HKG
* 31	992-635	EARTH TERMINAL	1	EXCEPT FOR SIN, MAL, SRI, HKG
32	984-750	TAPPING SCREW (W/FLANGE) D4X16	2	
33	937-631	CORD CLIP	1	
* 34	981-373	TUBE (D)	2	FOR CORD
35	953-327	CORD ARMOR D8.8	1	
* 36	500-409Z	CORD	1	(CORD ARMOR D8.8)
* 36	500-423Z	CORD	1	(CORD ARMOR D8.8) FOR SIN, MAL, SRI
* 36	500-439Z	CORD	1	(CORD ARMOR D8.8) FOR NZL, FIJ, AUS
* 36	500-435Z	CORD	1	(CORD ARMOR D8.8) FOR HKG, GBR (230V)
* 36	500-237Z	CORD	1	(CORD ARMOR D8.8) FOR GBR (110V)
* 36	500-247Z	CORD	1	(CORD ARMOR D8.8) FOR FIN, NOR
* 36	500-447Z	CORD	1	(CORD ARMOR D8.8) FOR SUI

