

MODEL

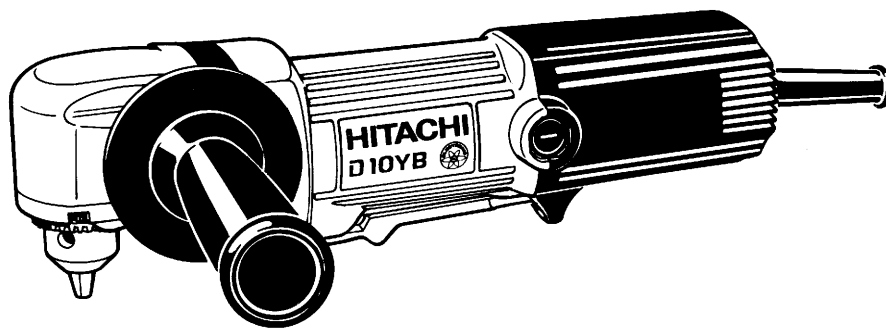
D 10YB

HITACHI
POWER TOOLS

ANGLE DRILL
D 10YB

TECHNICAL DATA
AND
SERVICE MANUAL

D



LIST No. 0193

Jun. 2000

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

Notice for use

Specifications and parts are subject to change for improvement.
Refer to Hitachi Power Tool Technical News for further information.

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1. PRODUCT NAME

Hitachi Angle Drill, Model D 10YB

2. MARKETING OBJECTIVE

The Model D 10YB has been developed based on the current Model D 10YA (10 mm) to meet the market demand for an angle drill with a forward/reverse changeover switch, a small-diameter housing, and a small head.

The key features of the Model D 10YB are as follows.

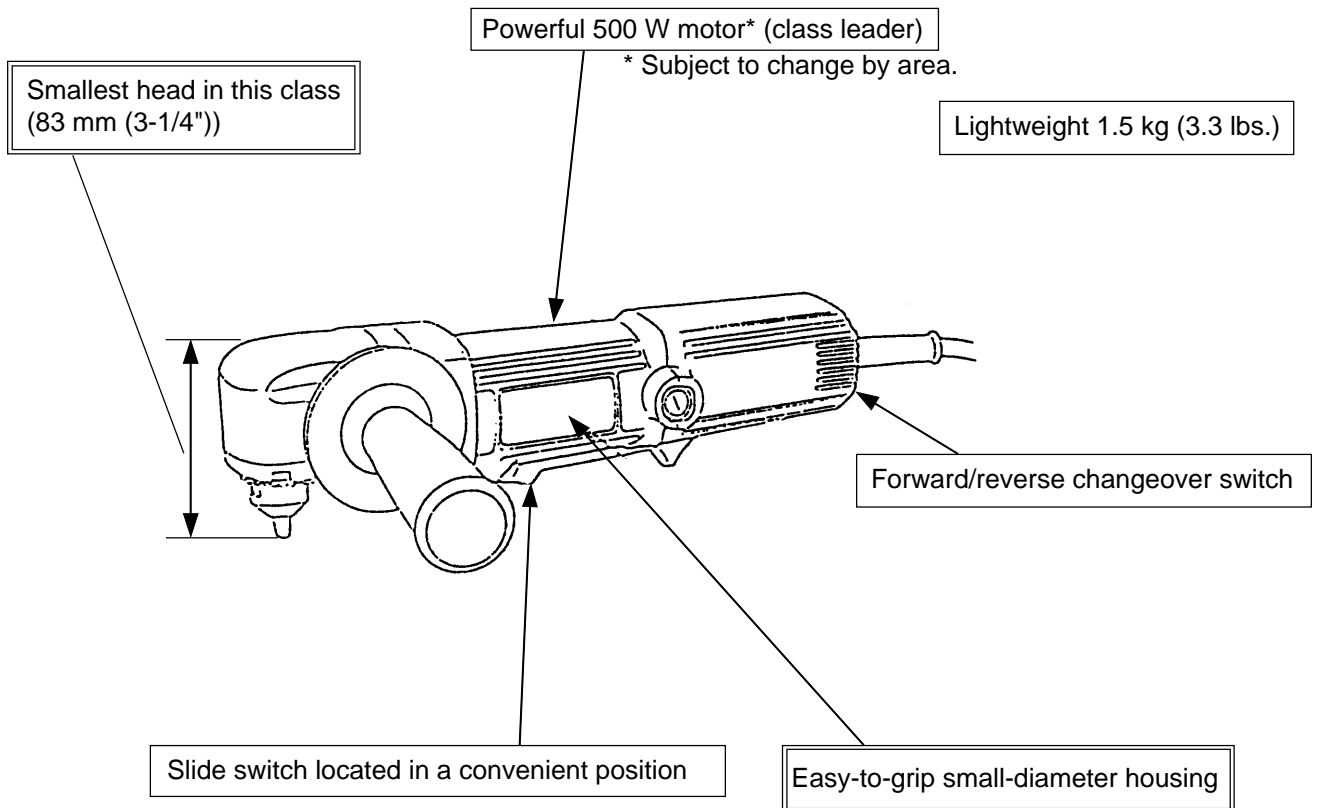
- (1) Easy-to-grip small-diameter housing
- (2) Forward/reverse changeover switch
- (3) Small head
- (4) Powerful 500 W motor
- (5) Fast drilling speed

With the introduction of the Model D 10YB, we aim to make the angle drill series more competitive and to expand the market share.

3. APPLICATIONS

Drilling in metal, wood and plastics

4. SELLING POINTS



4-1. Selling Point Descriptions

4-1-1. Easy-to-grip small-diameter housing

As in the case of disc grinders, a small-diameter housing makes it easy to grip and improves operability. The slide switch located on the lower portion of the housing can be operated while gripping the tool.

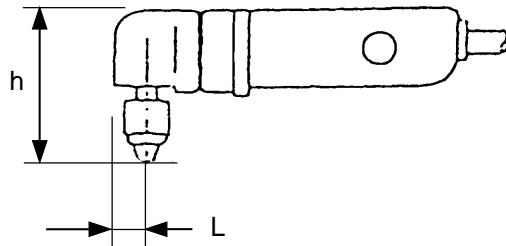
4-1-2. Forward/reverse changeover switch

The Model D 10YB is equipped with a forward/reverse changeover switch. This switch expands the application range to such tasks as loosening screws and locked drill bits.

4-1-3. Smallest head in this class

The Model D 10YB has the smallest head (head height (h) 83 mm, center height (L) 22.5 mm) in this class for efficient drilling in confined spaces.

Maker • Model		Hitachi		B	C
		D 10YB	D 10YA		
h (Head height)	mm	83 (3-1/4")	96 (3-3/4")	88 (3-1/2")	87 (3-3/8")
L (Center height)	mm	22.5 (7/8")	23 (15/16")	23 (15/16")	25 (1")



4-1-4. Powerful 500 W motor

Thanks to the powerful 500 W motor, the maximum drilling capacity in wood is increased to 22 mm dia. The Model D 10YB can be used for a wider range of drilling work.

Maker • Model			Hitachi		B	C
			D 10YB	D 10YA		
Drilling capacity	Steel	mm	10 (3/8")	10 (3/8")	10 (3/8")	10 (3/8")
	Wood	mm	22 (7/8")	15 (5/8")	22 (7/8")	15 (5/8")
Power consumption	W		500 (0.67 HP)	400 (0.54 HP)	400 (0.54 HP)	300 (0.40 HP)

6. COMPARISONS WITH SIMILAR PRODUCTS

6-1. Specification Comparisons

Item				Hitachi		B	C
				D 10YB	D 10YA		
Catalog specifications	Capacity	Steel	mm	10 (3/8")	10 (3/8")	10 (3/8")	10 (3/8")
		Wood	mm	22 (7/8")	15 (5/8")	22 (7/8")	15 (5/8")
	Drill chuck capacity		mm	10 (3/8")	10 (3/8")	10 (3/8")	10 (3/8")
	Input		W	500* (0.67HP)	400 (0.54HP)	400 (0.54HP)	300 (0.40HP)
	No-load rotation speed		/min.	500 to 2,300	300 to 2,300	0 to 1,100	0 to 1,400
	Weight**		kg	1.5 (3.3 lbs.)	1.7 (3.8 lbs.)	1.6 (3.5 lbs.)	1.6 (3.5 lbs.)
Characteristics	Full-load rotation speed		/min.	1,650	1,700	950	1,130
	Full-load output		W	250 (0.34 HP)	230 (0.31 HP)	120 (0.16 HP)	120 (0.16 HP)
	Max. output		W	490 (0.66 HP)	460 (0.62 HP)	260 (0.35 HP)	250 (0.34 HP)
	Max. torque		N•m	12	11	10	10
	No-load sound pressure level		dB(A)	78	78	81	83
Structural features	Side handle			Equipped	Equipped	None	None
	Cord		m	2.5 (8.2 ft.)	2.5 (8.2 ft.)	2.5 (8.2 ft.)	2.0 (6.6 ft.)
	Dimensions	Length x Width	mm	290 x 74 (11-7/16" x 2-29/32")	268 x 78 (10-9/16" x 3-1/16")	290 x 59 (11-7/16" x 2-5/16")	270 x 76 (10-5/8" x 3")
		Head height	mm	83 (3-1/4")	96 (3-3/4")	88 (3-1/2")	87 (3-3/8")
		Center height	mm	22.5 (7/8")	23 (15/16")	23 (15/16")	25 (1")

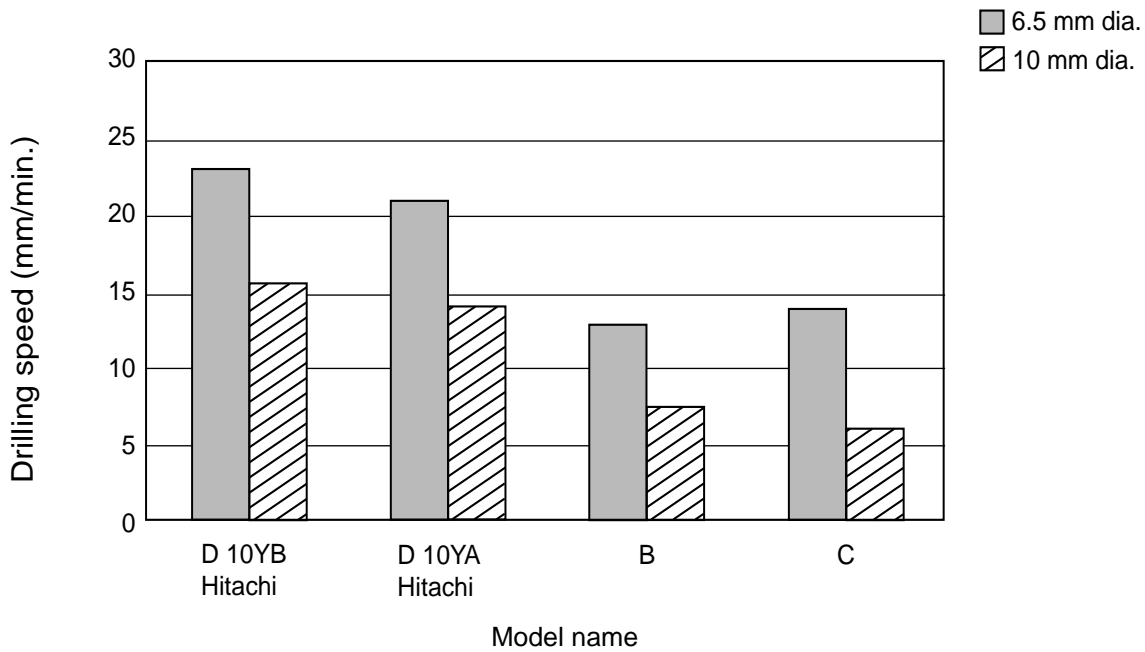
* Power input is subject to change by areas.

** Weight excludes cord.

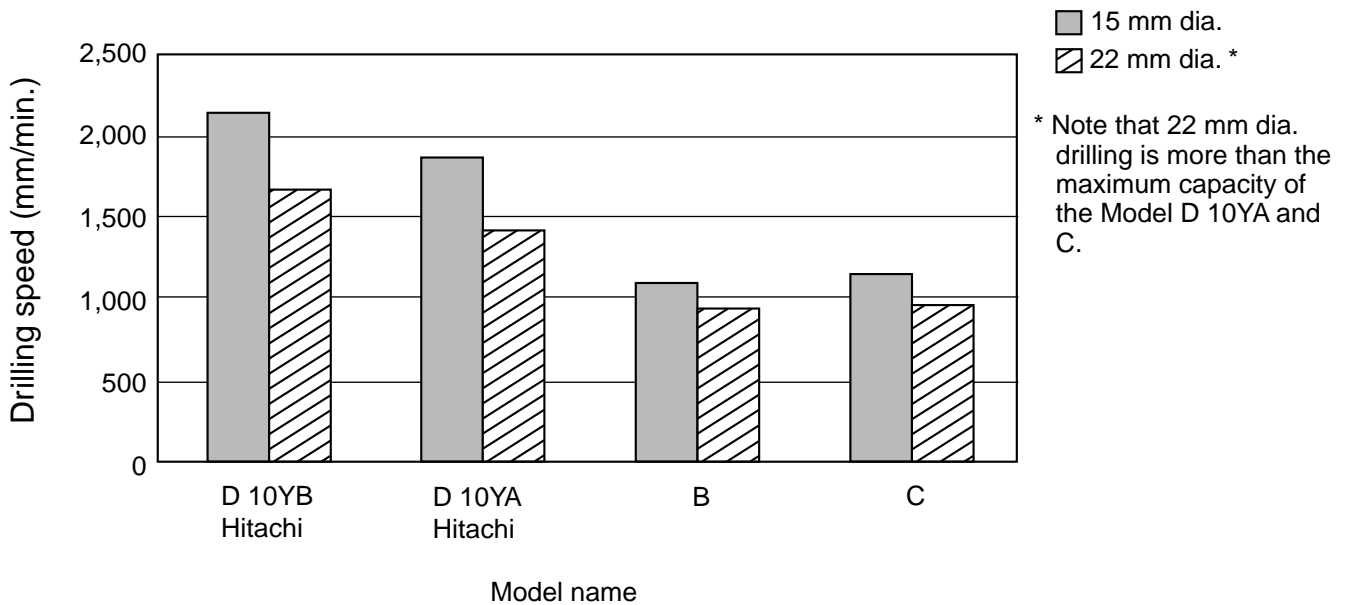
6-2. Drilling Speed Comparisons

The figures below show the drilling speed of the Model D 10YB compared with the competitors' existing models.

(1) Drilling in steel



(2) Drilling in wood



7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Model D 10YB Angle Drill by all of our customers, it is very important that at the time of sale 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 Name 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 Angle 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 on Name Plate

Each Model D 10YB unit is provided with a Caution Plate (illustrated below) which lists basic safety precautions for its use. Carefully ensure that the customer fully understands and follows these precautions before using the tool.

(1) For Australia, New Zealand and China

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 instruction manual.

AVERTISSEMENT

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

8. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY

The **[Bold]** numbers in the descriptions below correspond to the item numbers in the parts list and exploded assembly diagram.

8.1 Disassembly

(1) Replacement of the drill chuck

- (a) Insert the Chuck Handle 10TLRD **[26]** into the Drill Chuck 10TLRD **[25]** until the Drill Chuck 10TLRD **[25]** is secured to the Chuck Cover **[21]** (See Fig. 1). To avoid damage to the Chuck Cover **[21]**, put a cloth between the Chuck Cover **[21]** and the Chuck Handle 10TLRD **[26]**.
- (b) Insert a flat-blade screwdriver into the Drill Chuck 10TLRD **[25]** and remove the Flat Hd. Screw (Left Hand) M5 x 15 **[27]**.
- (c) The Drill Chuck 10TLRD **[25]** is secured to the Spindle **[19]** with screws. Insert the Chuck Handle 10TLRD **[26]** into the Drill Chuck 10TLRD **[25]** and strongly tap it with a wooden hammer counterclockwise viewing from the Drill Chuck 10TLRD **[25]** side. Then the Drill Chuck 10TLRD **[25]** can be removed.

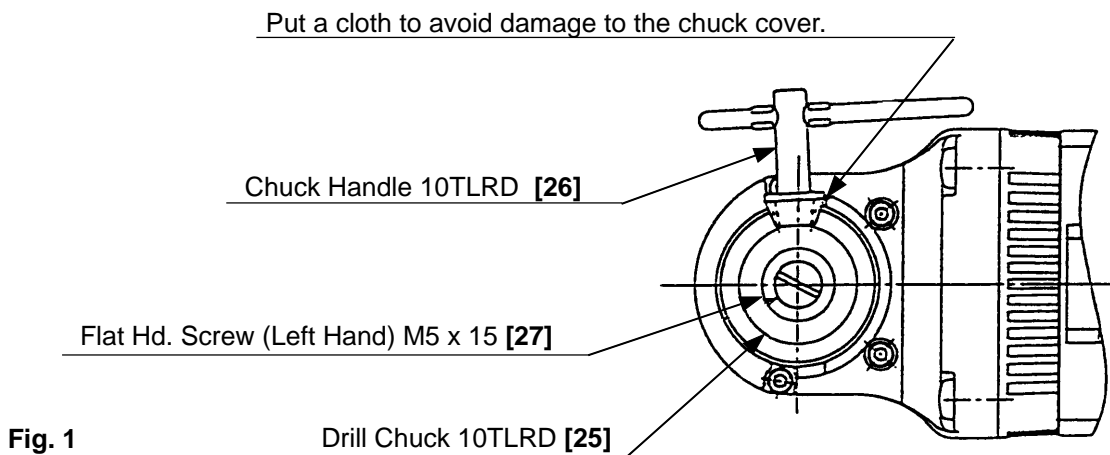


Fig. 1

(Note) When the drill chuck cannot be removed by tapping:

- Remove the four Tapping Screws D5 x 40 **[1]** and the pinion ass'y (assembly of the First Gear **[5]**, Ball Bearing **[3]** and the Second Pinion **[4]**).
- Remove the four Seal Lock Hex. Socket Hd. Bolts M3 x 12 **[22]** and tap the Gear Cover **[2]** strongly with a wooden hammer to remove the Chuck Cover **[21]**, Spindle **[19]** and others together (See Fig. 2). At this time, be sure to tap on the two screw holes, not the center of the Gear Cover **[2]**. Otherwise, the Gear Cover **[2]** may be deformed.
- Secure the J-309 tool in a vise. Insert the pin of the J-309 tool into the hole at the rear of the Gear **[20]** and loosen the Drill Chuck 10TLRD **[25]**. When it is difficult to loosen the Drill Chuck 10TLRD **[25]** with a hex. bar wrench, use another tool such as a pipe to lengthen the handle and increase leverage (See Fig. 3).

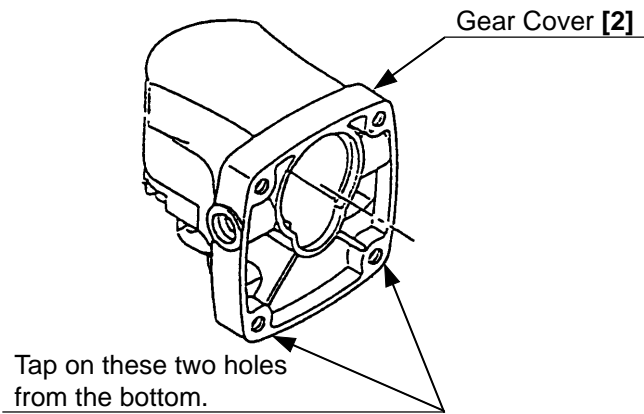


Fig. 2

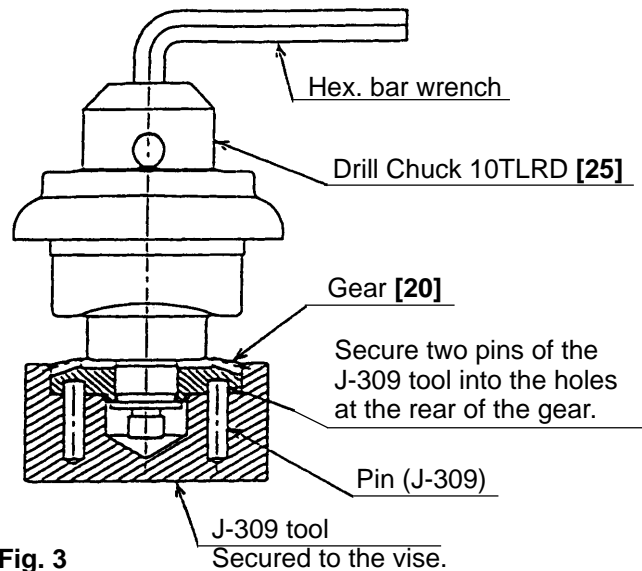


Fig. 3

(2) Disassembly of the spindle section

- (a) Remove the four Seal Lock Hex. Socket Hd. Botls M3 x 12 [22] and remove the Chuck Cover [21].
- (b) Remove the four Tapping Screws D5 x 40 [1] from the Gear Cover [2] and remove the Gear Cover [2] from the Inner Cover [8]. At this time, the pinion ass'y (assembly of the Ball Bearing [3], Second Pinion [4] and First Gear [5]) can be removed. If the pinion ass'y remains in the Inner Cover [8], tap the end surface of the Inner Cover [8], and the pinion ass'y can be removed.
- (c) Tap the flush surfaces of the Gear Cover [2] and the Inner Cover [8] with a wooden hammer. Then the pinion ass'y (assembly of the Ball Bearing [3], Second Pinion [4] and First Gear [5]) can be removed from the Gear Cover [2] with the First Gear [5] and the Ball Bearing [3] press-fitted.
- (d) Use the J-310 tool for disassembly of the Spindle [19] because the Spindle [19] is press-fitted to the Ball Bearing [18] which is secured to the Gear Cover [2] with the two Flat Fillister Hd. Screws M4 x 10 [17]. Set up the J-310 tool as shown in Fig. 4 and then pull out the Spindle [19] by turning the sleeve clockwise with a wrench.
- (e) Place the Gear [20] on a cylindrical jig and press down on the Spindle [19] to remove the Gear [20] from the Spindle [19] (See Fig. 5).
- (f) Remove the Flat Fillister Hd. Screw M4 x 10 [17] from the Ball Bearing [18] and tap the Gear Cover [2] with a wooden hammer. Then, the Ball Bearing [18] can be removed.

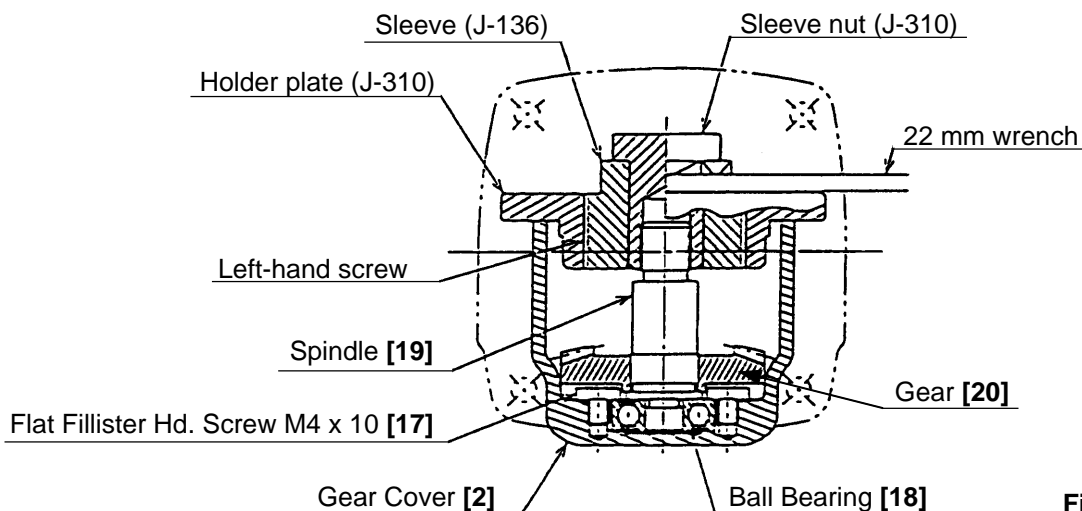


Fig. 4

(3) Disassembly of the second pinion

- (a) Place the end surface of the First Gear [5] on a cylindrical jig and press down on the Second Pinion [4] with a hand press. Then the Second Pinion [4] can be removed (See Fig. 6).

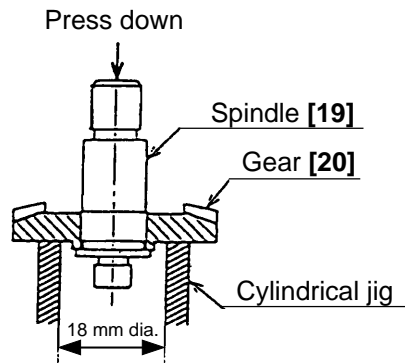


Fig. 5

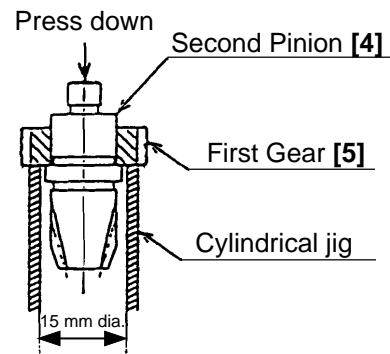


Fig. 6

(4) Disassembly of the power source section

- (a) Loosen the two Tapping Screws (W/Flange) D4 x 16 [41], remove the Tail Cover [40] from the Housing Ass'y [32] and then remove the Spring [47].
- (b) Disconnect the terminal of the neutral conductor internal wire (transparent) for the noise suppressor coming from the Controller Circuit Holder [34] from the Housing Ass'y [32] (only the products with noise suppressor).
- (c) The Connector 50091 [49] which clamps the internal wire (black) coming from the Controller Circuit Holder [34] and the internal wire coming from the Stator Ass'y [13] is secured at the protrusion of the Controller Circuit Holder [34]. Remove the Connector 50091 [49] by lifting the tip portion with a small screwdriver (See Fig. 7).

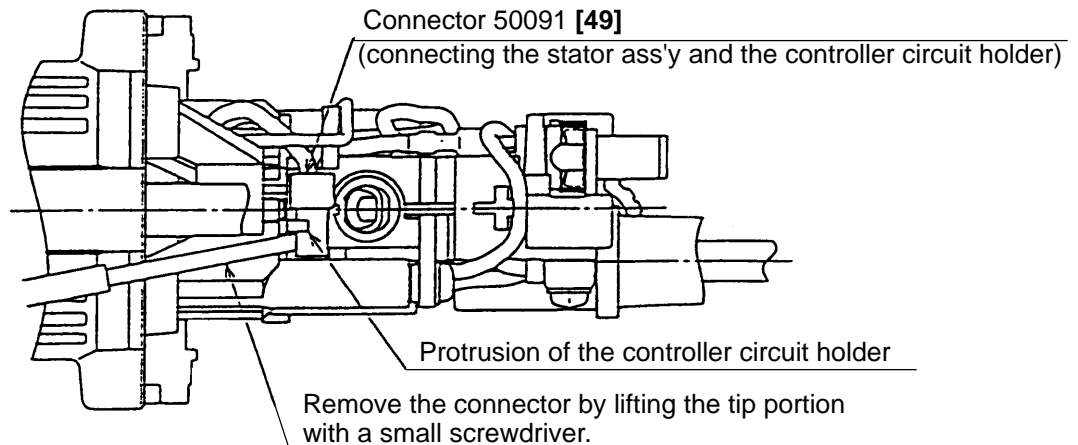


Fig. 7

- (d) Remove the Brush Holder [28] from the Housing Ass'y [32]. Pull out the terminals of the internal wires (blue and brown) from the Reversing Switch [48] from the Brush Holder [28].
- (e) Remove the Reversing Switch [48] by slightly pushing the protrusion of the Controller Circuit Holder [34] which holds the Reversing Switch [48]. Be careful not to apply excessive force to the protrusion to prevent damages to the protrusion.
- (f) Disconnect the two internal wires of the Stator Ass'y [13] from the Reversing Switch [48] terminals.
- (g) Loosen the two Tapping Screws (W/Flange) D4 x 16 [36] on the Cord Clip [35] and the machine screw M3.5 on the Switch [46]. Remove the Cord [42] from the Controller Circuit Holder [34].

- (h) Remove the Switch [46] by slightly pushing the two protrusions of the Controller Circuit Holder [34].
Be careful not to apply excessive force to the protrusions to prevent damages to the protrusions.
- (i) Loosen the two Tapping Screws (W/Flange) D4 x 20 [37] and remove the Controller Circuit Holder [34] from the Housing Ass'y [32].

(5) Disassembly of the armature and the stator

- (a) Remove the four Tapping Screws D5 x 40 [1] from the Gear Cover [2] and insert a screwdriver between the Inner Cover [8] and the Housing Ass'y [32]. Pry the assembly of the Gear Cover [2], Inner Cover [8] and Armature [10] off with the screwdriver. At this time, be sure to remove the Carbon Brushes [29].
- (b) Remove the Fan Guide [11]. Remove the two Hex. Hd. Tapping Screws D4 x 70 [12] from the Stator Ass'y [13] and tap the end surface of the Housing Ass'y [32] slightly with a wooden hammer. Then, the Stator Ass'y [13] can be removed. Before removing the Stator Ass'y [13], disconnect the internal wires and remove the Brush Holders [28] from the Housing Ass'y [32].

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 Reassembly of the spindle section

- (1) First, mount the Chuck Cover [21], Felt Packing (A) [23], Felt Packing [24] and the Drill Chuck 10TLRD [25] and then tighten the Spindle [19] and the Drill Chuck 10TLRD [25] at the proper tightening torque using the J-309 tool. Next, tighten the Flat Hd. Screw (Left Hand) M5 x 15 [27] (See Fig. 8).
- (2) Secure the Ball Bearing [18] to the Gear Cover [2] with the Flat Fillister Hd. Screw M4 x 10 [17]. Hold the head of the Gear Cover [2] and press down on the end surface of the Drill Chuck 10TLRD [25] with a hand press to press-fit the spindle section into the above assembly.

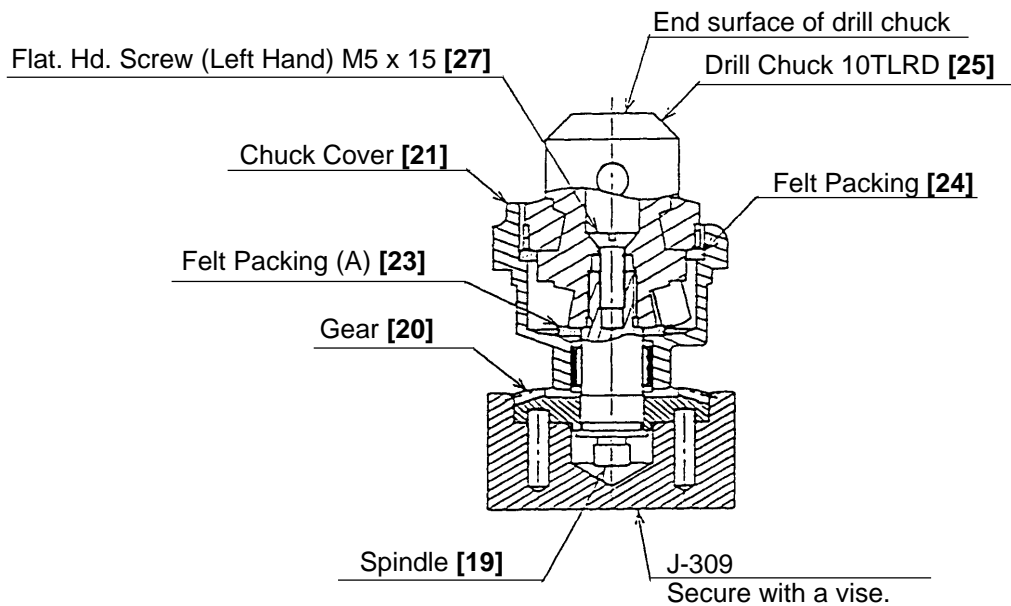


Fig. 8

8.2.2 Reassembly of the power source section

- (1) Before inserting the Stator Ass'y [13] into the Housing Ass'y [32], be sure to mount the Slide Bar [45].
- (2) Insert the Stator Ass'y [13] into the Housing Ass'y [32] in the direction shown in Fig. 9, paying attention to the direction of the internal wires of the Stator Ass'y [13]. Connect the four internal wires of the Stator Ass'y [13] to the parts specified in Fig. 9.

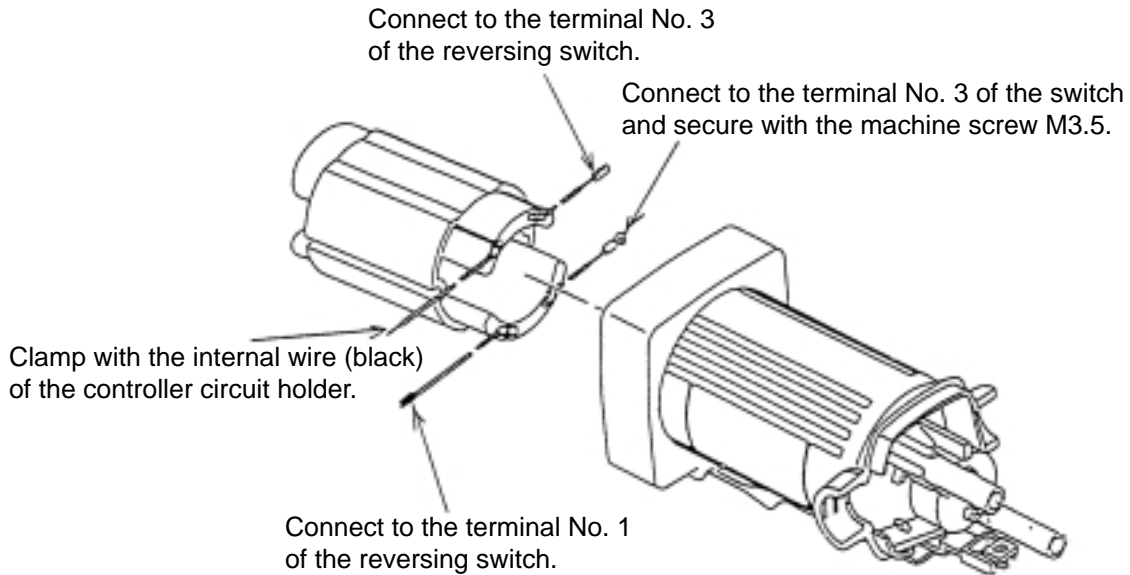


Fig. 9

- (3) Secure the Connector 50091 [49] that clamps the internal wires (black) of the Stator Ass'y [13] and the Controller Circuit Holder [34] under the protrusion of the Controller Circuit Holder [34] by pushing it in as shown in Fig. 10.
- (4) Be sure to push the internal wire (brown) coming from the Reversing Switch [48] in the gap shown in Fig. 10. Otherwise, the internal wire may be caught by the Spring [47] and the switch may be out of work.

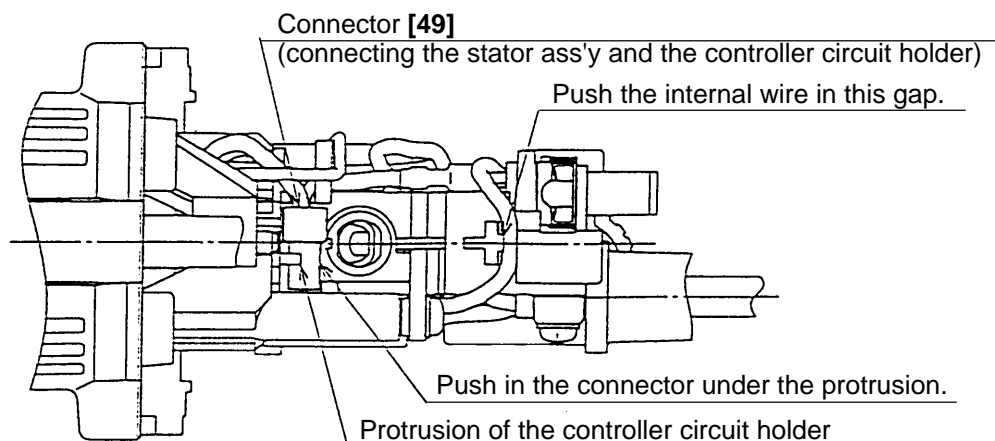
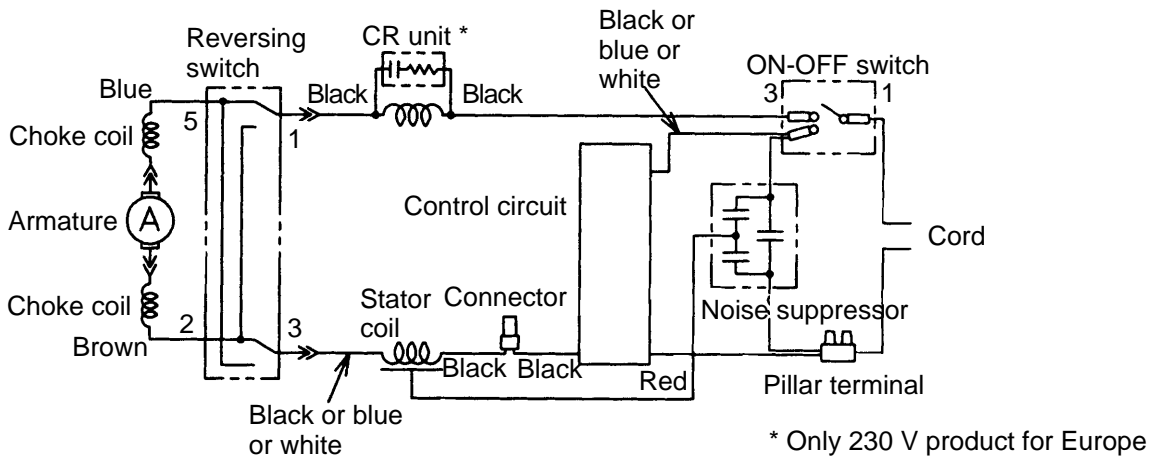


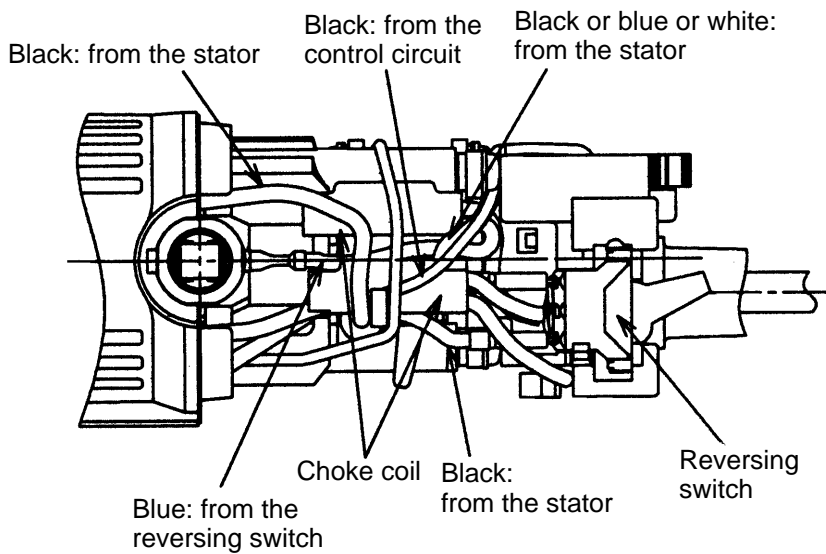
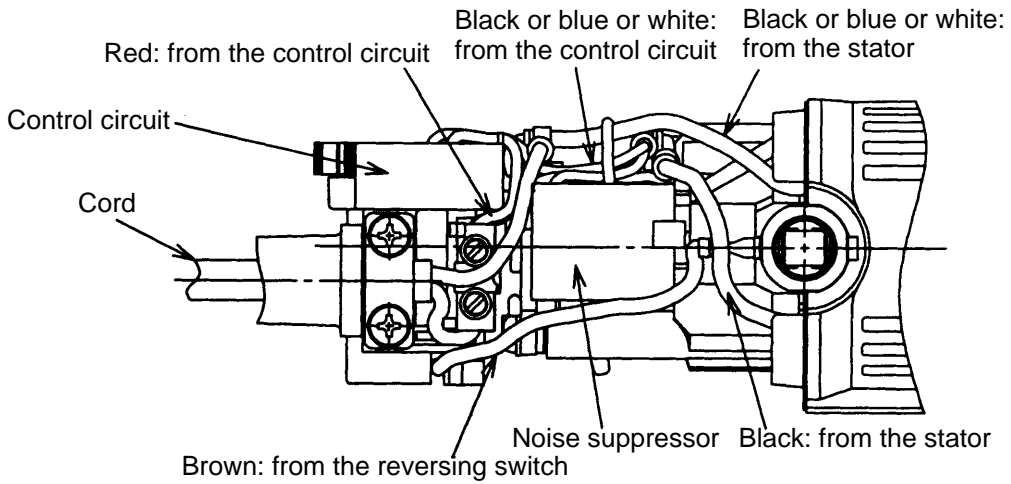
Fig. 10

8-3. Wiring Diagram and Internal Wire Arrangement

(1) For models with noise suppressor and choke coils

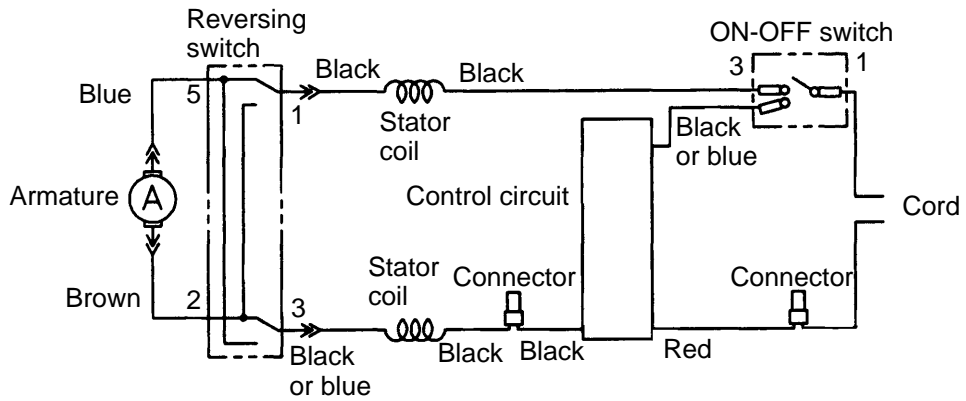


Wiring diagram

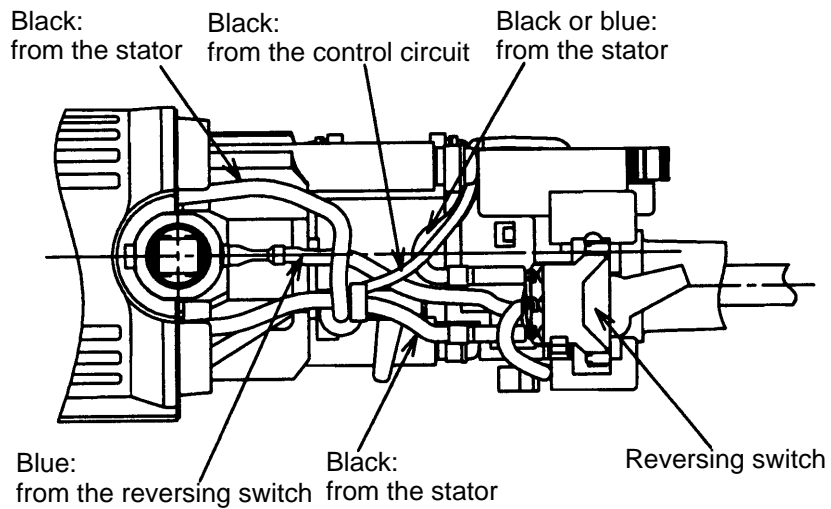
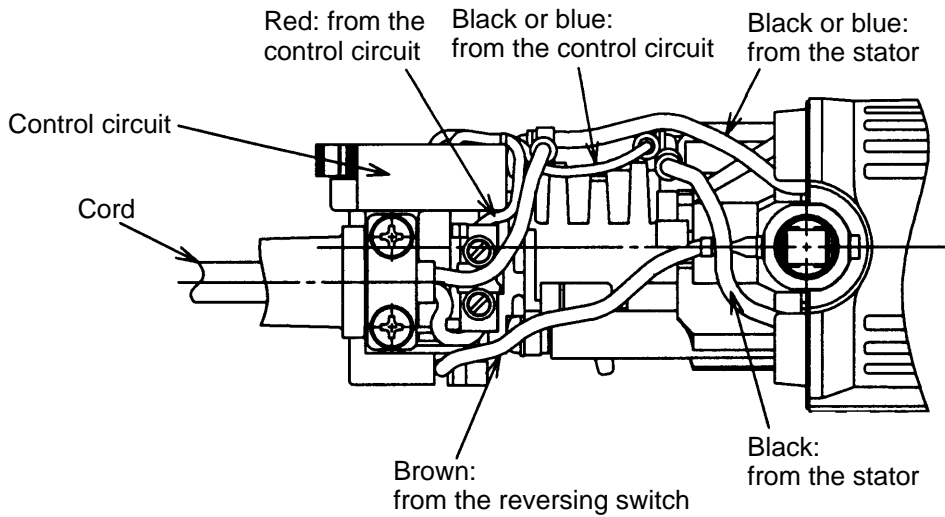


Lead wire arrangement

(2) For models without noise suppressor and choke coils (except for U.S.A. and Canada)

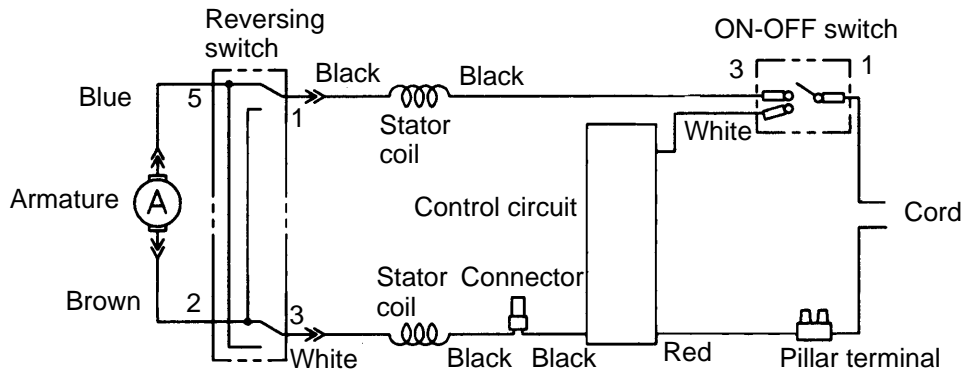


Wiring diagram

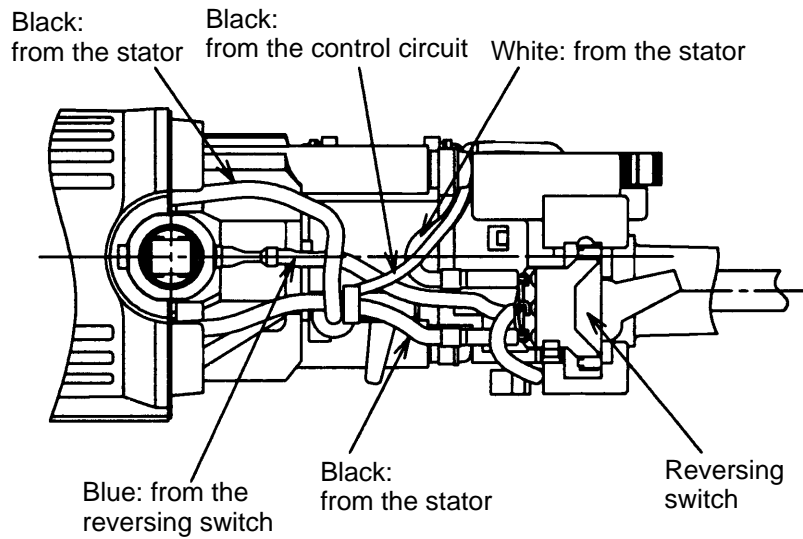
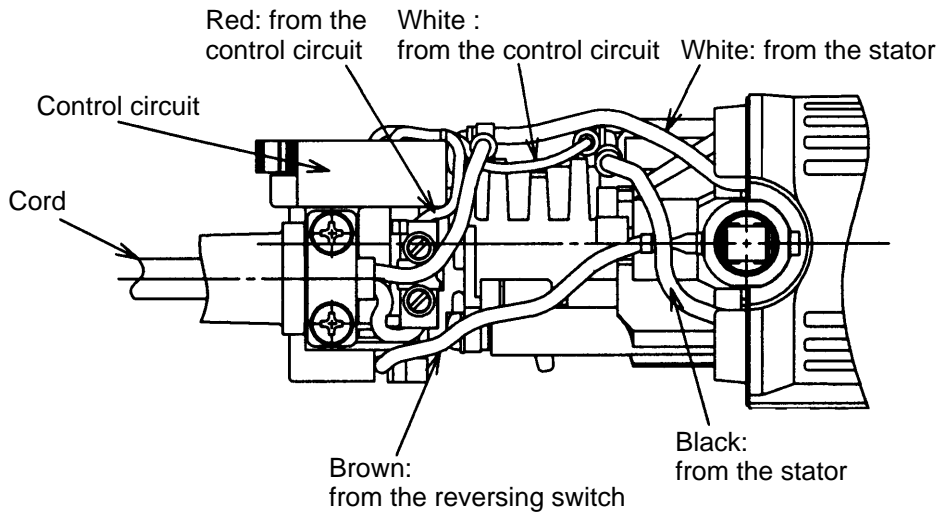


Internal wire arrangement

(3) For U.S.A. and Canada



Wiring diagram



Internal wire arrangement

8-4. Lubrication

(1) Grease to be used: Motor Grease No. 29

(Code No. 930035) ... 100 g tube

(Code No. 930038) ... 2.5 kg can

(2) Apply Motor Grease No. 29 to the following portions.

- Inside of the Gear Cover **[2]** (Apply 5 g of this grease to a new gear cover.)
- Needle bearing in the Chuck Cover **[21]**
- Tooth portion of the Gear **[20]**
- Pinion portion of the Second Pinion **[4]**
- Tooth portion of the First Gear **[5]**
- Pinion portion of the Armature **[10]**

8-5. Tightening Torque

- | | |
|---|--------------------------------------|
| (1) Hex. Hd. Tapping Screw D4 x 70 [12] | 2.0 ± 0.5 N•m (20 ± 5 kgf•cm) |
| (2) Tapping Screw (W/Flange) D4 x 16 [36] | 2.0 ± 0.5 N•m (20 ± 5 kgf•cm) |
| (3) Tapping Screw (W/Flange) D4 x 20 [37] | 2.0 ± 0.5 N•m (20 ± 5 kgf•cm) |
| (4) Tapping Screw (W/Flange) D4 x 16 (Black) [41] | 2.0 ± 0.5 N•m (20 ± 5 kgf•cm) |
| (5) Tapping Screw D5 x 40 (Black) [1] | 2.9 ± 0.5 N•m (30 ± 5 kgf•cm) |
| (6) Flat Fillister Hd. Screw M4 x 10 [17] | 1.5 ± 0.3 N•m (15 ± 3 kgf•cm) |
| (7) Machine Screw M3.5 (for securing the Switch [46]) | 0.59 ± 0.15 N•m (6 ± 1.5 kgf•cm) |
| (8) Seal Lock Hex. Socket Hd. Bolt M3 x 12 [22] | 2.45 ± 0.49 N•m (25 ± 5 kgf•cm) |
| (9) Flat Hd. Screw (Left Hand) M5 x 15 [27] | 3.4 ± 0.7 N•m (35 ± 7 kgf•cm) |
| (10) Drill Chuck 10TLRD [25] | 24.5 to 29.4 N•m (250 to 300 kgf•cm) |

8-6. Insulation Tests

On completion of disassembly after repair, measure the insulation resistance and conduct a 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 – 115 V

(except U.K. products)

8-7. No-load Current Value

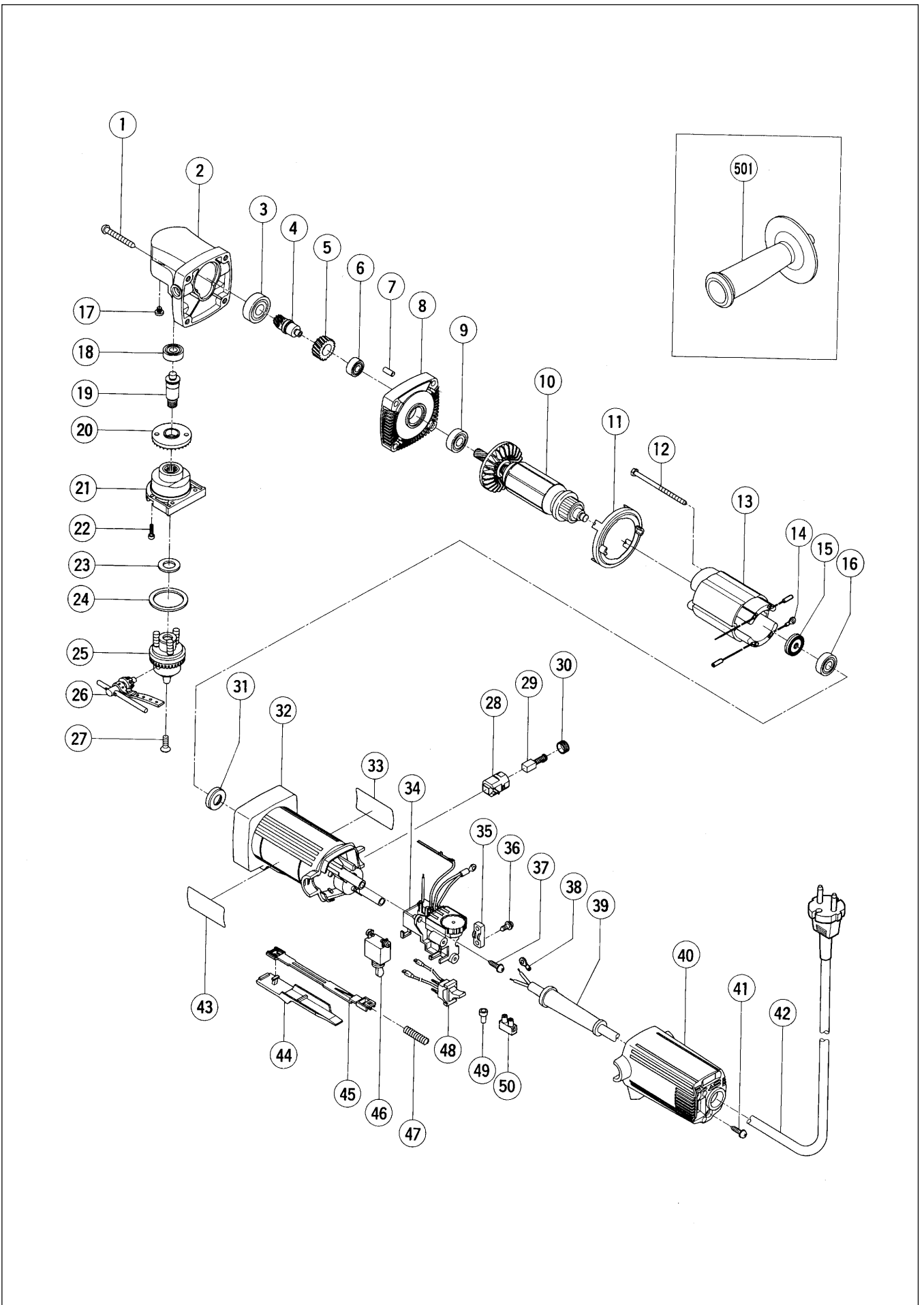
After no-load operation for 30 minutes, the no-load current values should be as follows (dial setting "5"):

Voltage (V)	110	115	220	230	240
Current (A) max.	2.1	2.2	1.0	1.1	1.1

9. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
D 10YB		Work Flow						
	General Assembly			First Gear Ball Bearing (606ZZ) Second Pinion Ball Bearing (6001VV)	Inner Cover Ball Bearing (608DD) Ball Bearing (626VV) Armature	Gear Cover Ball Bearing (607VV) Spindle Gear Chuck Cover	Housing Ass'y Stator Ass'y	
			Tail Cover Cord Controller Circuit Holder Switch Reversing Switch					

Assembly Diagram for D 10YB



PARTS

D 10YB

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	316-458	TAPPING SCREW D5X40 (BLACK)	4		
2	318-828	GEAR COVER	1		
3	600-1VV	BALL BEARING 6001VVCMP2L	1		
4	318-833	SECOND PINION	1		
5	318-834	FIRST GEAR	1		
6	606-ZZM	BALL BEARING 606ZZC2PS2L	1		
7	931-701	BEARING LOCK	1		
8	318-827	INNER COVER	1		
9	608-DDM	BALL BEARING 608DDC2PS2L	1		
*	10	360-528U	ARMATURE ASS'Y 110V-115V	1	INCLUD.9,15,16
*	10	360-528E	ARMATURE 220V-230V	1	
*	10	360-528F	ARMATURE 240V	1	
	11	306-840	FAN GUIDE	1	
	12	982-021	HEX. HD. TAPPING SCREW D4X70	2	
*	13	340-469C	STATOR ASS'Y 110V-115V	1	INCLUD.14
*	13	340-469G	STATOR ASS'Y 220V-230V	1	INCLUD.14
*	13	340-469E	STATOR ASS'Y 220V-230V	1	INCLUD.14 FOR NZL,AUS,GBR(230V),ITA, FRG,FRA,HOL,FIN,AUT,NOR,ESP,SUI,CHN
*	13	340-469F	STATOR ASS'Y 240V	1	INCLUD.14
	14	980-063	TERMINAL	1	
	15	313-775	DUST SEAL	1	
	16	626-VVM	BALL BEARING 626VVC2PS2L	1	
	17	985-414	FLAT FILLISTER HD. SCREW M4X10	2	
	18	607-VVC	BALL BEARING 607VVC2PS2L	1	
	19	318-830	SPINDLE	1	
	20	318-829	GEAR	1	
	21	318-831	CHUCK COVER	1	
	22	318-832	SEAL LOCK HEX. SOCKET HD. BOLT M3X12	4	
	23	936-973	FELT PACKING (A)	1	
	24	943-153	FELT PACKING	1	
	25	318-835	DRILL CHUCK 10TLRD	1	INCLUD.26
	26	319-070	CHUCK HANDLE 10TLRD	1	
	27	317-995	FLAT HD. SCREW (LEFT HAND) M5X15	1	
	28	313-777	BRUSH HOLDER	2	
	29	999-021	CARBON BRUSH (1 PAIR)	2	
	30	936-551	BRUSH CAP	2	
	31	309-929	RUBBER BUSHING	1	
	32	318-839	HOUSING ASS'Y	1	INCLUD.31
	33		NAME PLATE	1	
*	34	319-059	CONTROLLER CIRCUIT HOLDER	1	
*	34	319-060	CONTROLLER CIRCUIT HOLDER	1	FOR UAE,AUS
*	34	319-058	CONTROLLER CIRCUIT HOLDER	1	FOR GBR (110V),USA
	35	937-631	CORD CLIP	1	
	36	984-750	TAPPING SCREW (W/FLANGE) D4X16	2	
	37	305-095	TAPPING SCREW (W/FLANGE) D4X20	2	
*	38	980-063	TERMINAL	1	FOR CORD
	39	953-327	CORD ARMOR D8.8	1	
	40	318-836	TAIL COVER	1	
	41	307-811	TAPPING SCREW (W/FLANGE) D4X16 (BLACK)	2	
*	42	500-409Z	CORD	1	(CORD ARMOR D8.8)
*	42	500-468Z	CORD	1	(CORD ARMOR D8.8) FOR THA,CHN

* : ALTERNATIVE PARTS

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