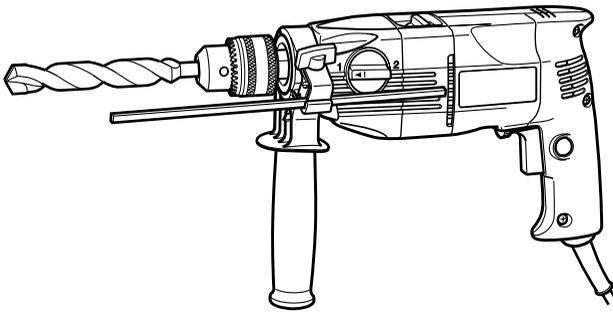


# HITACHI

## IMPACT DRILL

### MODEL DV 20VB • DV 20T2

## HANDLING INSTRUCTIONS



DV 20VB

**Note:**

Before using this Electric Power Tool, carefully read through these HANDLING INSTRUCTIONS to ensure efficient, safe operation. It is recommended that these INSTRUCTIONS be kept readily available as an important reference when using this power tool.



## GENERAL OPERATIONAL PRECAUTIONS

**WARNING!** When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury, including the following.

Read all these instructions before operating this product and save these instructions.

For safe operations:

1. Keep work area clean. Cluttered areas and benches invite injuries.
2. Consider work area environment. Do not expose power tools to rain. Do not use power tools in damp or wet locations. Keep work area well lit. Do not use power tools where there is risk to cause fire or explosion.
3. Guard against electric shock. Avoid body contact with earthed or grounded surfaces. (e.g. pipes, radiators, ranges, refrigerators).
4. Keep children away. Do not let visitors touch the tool or extension cord. All visitors should be kept away from work area.
5. Store idle tools. When not in use, tools should be stored in a dry, high or locked up place, out of reach of children.
6. Do not force the tool. It will do the job better and safer at the rate for which it was intended.
7. Use the right tool. Do not force small tools or attachments to do the job of a heavy duty tool. Do not use tools for purposes not intended; for example, do not use circular saw to cut tree limbs or logs.
8. Dress properly. Do not wear loose clothing or jewellery, they can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors. Wear protecting hair covering to contain long hair.
9. Use eye protection. Also use face or dust mask if the cutting operation is dusty.
10. Connect dust extraction equipment. If devices are provided for the connection of dust extraction and collection facilities ensure these are connected and properly used.
11. Do not abuse the cord. Never carry the tool by the cord or yank it to disconnect it from the receptacle. Keep the cord away from heat, oil and sharp edges.
12. Secure work. Use clamps or a vise to hold the work. It is safer than using your hand and it frees both hands to operate tool.
13. Do not overreach. Keep proper footing and balance at all times.
14. Maintain tools with care. Keep cutting tools sharp and clean for better and safer performance. Follow instructions for lubrication and changing accessories. Inspect tool cords periodically and if damaged, have it repaired by authorized service center. Inspect extension cords periodically and replace, if damaged. Keep handles dry, clean, and free from oil and grease.
15. Disconnect tools. When not in use, before servicing, and when changing accessories such as blades, bits and cutters.

16. Remove adjusting keys and wrenches. Form the habit of checking to see that keys and adjusting wrenches are removed from the tool before turning it on.
17. Avoid unintentional starting. Do not carry a plugged-in tool with a finger on the switch. Ensure switch is off when plugging in.
18. Use outdoor extension leads. When tool is used outdoors, use only extension cords intended for outdoor use.
19. Stay alert. Watch what you are doing. Use common sense. Do not operate tool when you are tired.
20. Check damaged parts. Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, free running of moving parts, breakage of parts, mounting and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated in this handling instructions. Have defective switches replaced by an authorized service center. Do not use the tool if the switch does not turn it on and off.
21. Warning  
The use of any accessory or attachment, other than those recommended in this handling instructions, may present a risk of personal injury.
22. Have your tool repaired by a qualified person. This electric tool is in accordance with the relevant safety requirements. Repairs should only be carried out by qualified persons using original spare parts. Otherwise this may result in considerable danger to the user.

## PRECAUTIONS ON USING IMPACT DRILL

1. Before drilling into walls, ceilings or floors, ensure that there are no concealed power cables inside.
2. For DV20VB only.  
When boring concrete or similar hard materials in IMPACT mode, set the bit rotation switch lever to the R-side. (Fig. 1)

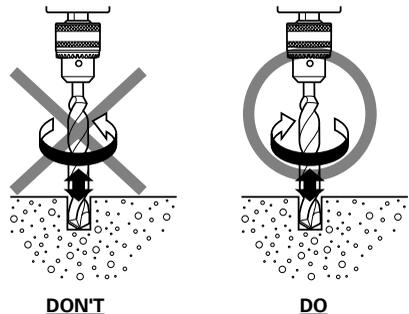


Fig. 1

## SPECIFICATIONS

Model	DV20VB		DV20T2	
Voltage (by areas)*	(230V, 240V) ~			
Power input	750W*			
Reversible	Yes		No	
Speed change	1	2	1	2
No load speed	0-850/min	0-2600/min	1100/min	2600/min
Capacity	Steel	13 mm	8 mm	13 mm
	Concrete	20 mm	13 mm	20 mm
	Wood	40 mm	25 mm	40 mm
Full load impact rate	14000/min	36000/min	14000/min	36000/min
Weight (without cord)				
Spec. for chuck fitted with chuck wrench			2.3 kg	
Spec. for keyless chuck			2.5 kg	

\*Be sure to check the nameplate on product as it is subject to change by areas.

## STANDARD ACCESSORIES

- (1) Chuck Wrench (Spec. only for chuck fitted with chuck wrench)..... 1
- (2) Side Handle..... 1
- (3) Depth Gauge..... 1

Standard accessories are subject to change without notice.

## OPTIONAL ACCESSORIES (sold separately)

- (1) Impact Drill Bit (for concrete)  
3.2 mm – 20 mm dia.
- (2) Drill Stand (Model D10-DS)

Optional accessories are subject to change without notice.

## APPLICATIONS

- By combined actions of ROTATION and IMPACT:  
Boring holes in hard materials (concrete, marble, granite, tiles, etc.)
- By ROTATIONAL action:  
Boring holes in metal, wood and plastic.

## PRIOR TO OPERATION

### 1. Power source

Ensure that the power source to be utilized conforms to the power requirements specified on the product nameplate.

### 2. Power switch

Ensure that the power switch is in the OFF position. If the plug is connected to a receptacle while the power switch is in the ON position, the power tool will start operating immediately, inviting serious accident.

### 3. Extension cord

When the work area is removed from the power source. Use an extension cord of sufficient thickness and rated capacity. The extension cord should be kept as short as practicable.

### 4. Mounting and dismounting of the bit.

#### For Drill chuck with chuck wrench (Fig. 2)

Fit the drill bit into the chuck and use the chuck wrench to secure it, tightening the chuck by each of the three holes in turn.

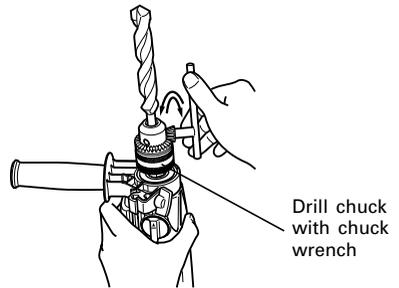


Fig. 2

#### For keyless chuck (Fig. 3, 4)

##### (1) Mounting the bit

Turn the lock collar in the direction "UNLOCK" and open the chuck. After inserting the drill bit into the chuck as far as it will go, turn the lock collar in the "LOCK" direction. Grip the retaining ring and close the chuck by turning the sleeve clockwise as viewed from the front.

##### (2) Dismounting the bit

Turn the lock collar in the direction "UNLOCK" to release the chucking force. Grip the retaining ring and open the chuck by turning the sleeve counter-clockwise.

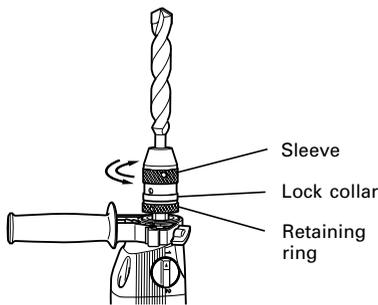


Fig. 3

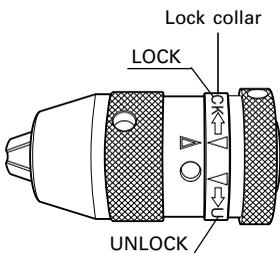


Fig. 4

**NOTE**

When the sleeve does not become loose any further, fix the side handle to retaining ring, hold side handle firmly, then turn the sleeve to loosen by hand. (Fig. 5)

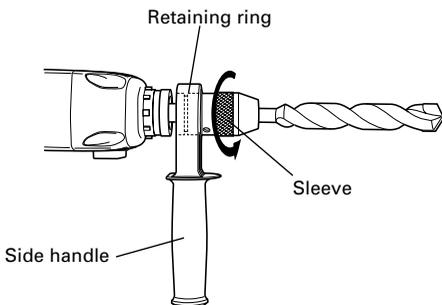


Fig. 5

**5. Selecting the appropriate drill bit**

- When boring concrete or stone  
Use the drill bits specified in the Optional Accessories.
- When boring metal or plastic  
Use an ordinary metalworking drill bit.
- When boring wood  
Use an ordinary woodworking drill bit.  
However, when drilling 6.5 mm or smaller holes, use a metalworking drill bit.

**6. Confirm the direction of bit rotation (Fig. 6)**

The bit rotates clockwise (viewed from the rear side) by pushing the R-side of the reversing switch lever. The L-side of the lever is pushed to turn the bit counterclockwise. (for DV20VB only)

**CAUTION**

Always use the impact drill with clockwise rotation, when using it as an impact drill.

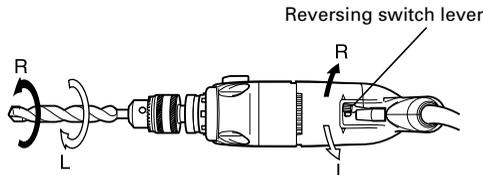


Fig. 6

**7. Fixing the side handle (Fig. 7)**

Loosen the wing bolt on the side handle, and attach the side handle to the gear cover in a position convenient for drilling. Match the projecting part of the handle to the groove on the gear cover, and firmly tighten the wing bolt. To remove the side handle, loosen the wing bolt and rotate the handle. To attach a depth gauge on the side handle, insert the gauge into the U-shaped groove on the side handle, adjust the position of the depth gauge in accordance with the desired depth of the hole, and firmly tighten the wing bolt.

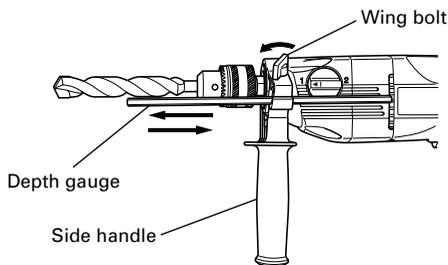


Fig. 7

**8. IMPACT to ROTATION changeover (Fig. 8)**

The Impact Drill can be switched from IMPACT (impact plus rotation) to ROTATION (rotation only) by turning the change lever. When boring concrete, stone, tile or similar hard materials, turning the change lever to IMPACT side. The drill head impacts against the material while continuing to rotate. When boring metal, wood or plastic, turning the change lever to ROTATION side. The drill rotates as an ordinary electric drill.

**CAUTION**

- Do not use the Impact Drill in the IMPACT function if the material can be bored by rotation only. Such action will not only reduce drill efficiency, but may also damage the drill tip.
- The change lever may not turn smoothly when changing from impact drill mode to drill mode. (Fig. 8)

In this case, switch ON and operate the machine for few seconds.  
The spindle shaft will then be pushed forward, and the change lever can be moved smoothly.

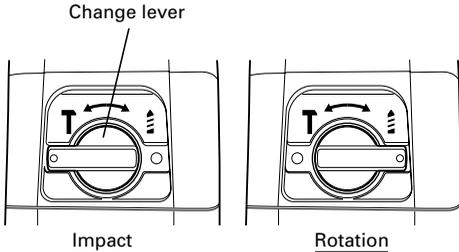


Fig. 8

### 9. High-speed/Low-speed changeover

To change speed, rotate the gear shift dial as indicated by the arrow in Fig. 9. The numeral "1" engraved on the drill body denotes low speed, the numeral "2" denotes high speed.

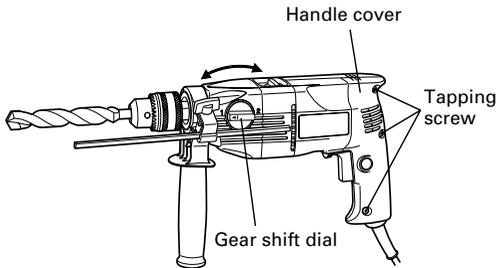


Fig. 9

## PRACTICAL HANDLING PROCEDURES

### 1. Speed adjustment and switch operation

- The drill speed can be adjusted from 0 through full speed by regulating the trigger-squeezing force. The more the trigger is squeezed, the faster the drill rotates. When the trigger is squeezed fully, the speed is the maximum. (for DV20VB only)
- Pulling the trigger switch and pushing the stopper, keeps the switched-on condition which is convenient for continuous running. When switching off, the stopper can be disconnected by pulling the trigger again.

### 2. When using as a Drill or an Impact Drill

- (1) Pressing force of the drill  
You cannot drill holes more quickly even if you press the drill with a stronger force than necessary. It not only damages tip of drill bit and decreases the efficiency of operation, but also shortens the life of the drill tip.
- (2) In case of penetrating holes  
Drill bits can be broken when the material being drilled is penetrated. It is important to decrease pressing force just before penetrating.

## CAUTION

In continuous operation, conduct no-load operation for five seconds after completing a drilling job.

- (3) When a thick drill bit is used  
Your arm is subjected to larger reaction force when a thicker drill bit is used. Be careful not to be moved by the reaction force. For this, establish a foothold, hold the unit tightly with both hands perpendicularly to the material being drilled.

## MAINTENANCE AND INSPECTION

### 1. Inspecting the drill bit

Continued use of a worn and/or damaged drill bit will result in reduced drilling efficiency and may seriously overload the drill motor. Inspect the drill bit frequently and replace it as necessary.

### 2. Inspecting the mounting screws

Regularly inspect all mounting screws and ensure that they are properly tightened. Should any of the screws be loose, retighten them immediately. Failure to do so could result in serious hazard.

### 3. Maintenance of the motor

The motor unit winding is the very "heart" of the power tool. Exercise due care to ensure the winding does not become damaged and/or wet with oil or water.

### 4. Inspecting the carbon brushes (Fig. 10)

The motor employs carbon brushes which are consumable parts. Since an excessively worn carbon brush can result in motor trouble, replace the carbon brushes with new ones having the same carbon brush No. shown in the figure when they become worn to or near the "wear limit". In addition, always keep carbon brushes clean and ensure that they slide freely within the brush holders.

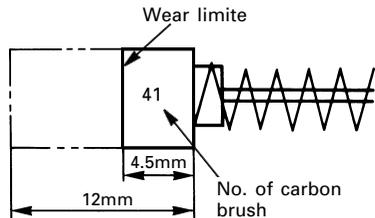


Fig. 10

### 5. Replacing carbon brushes: (Fig. 11)

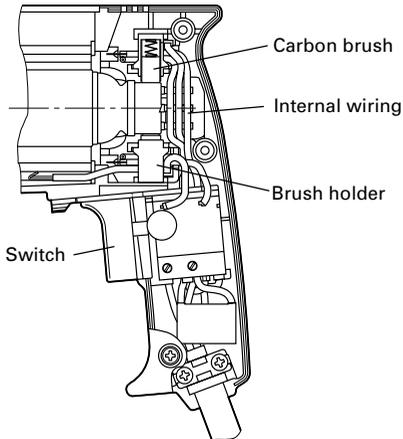
#### ○ Disassembling:

- (1) Loosen the three screws on the handle cover, and remove the handle cover.
- (2) Lift out the brush holders together with the carbon brushes, while being very careful not to forcibly pull the lead wires within the brush holders.
- (3) Withdraw the brush terminals, and remove the carbon brushes from the brush holders.

#### ○ Reassembling:

- (1) Place new carbon brushes into the brush holders, and connect the brush terminals to the carbon brushes.
- (2) Return the brush holders and other parts to their original positions, as illustrated in Fig. 11.

- (3) Place the lead wires in the specified position.  
Be very careful not to allow the lead wires to contact the armature or rotating parts of the motor.
- (4) Mount the handle cover, while being careful to ensure it does not pinch the lead wires, and secure it firmly with the three screws.



**Fig. 11**

**CAUTION**

Should the lead wire be pinched by the handle cover or come in contact with the armature or rotating parts of the motor, a serious danger of electric shock to the operator will be created. Exercise extreme caution in disassembling and reassembling the motor, follow the above procedure exactly. DO NOT attempt to disassemble any parts other than those necessary to effect replacement of the carbon brushes.

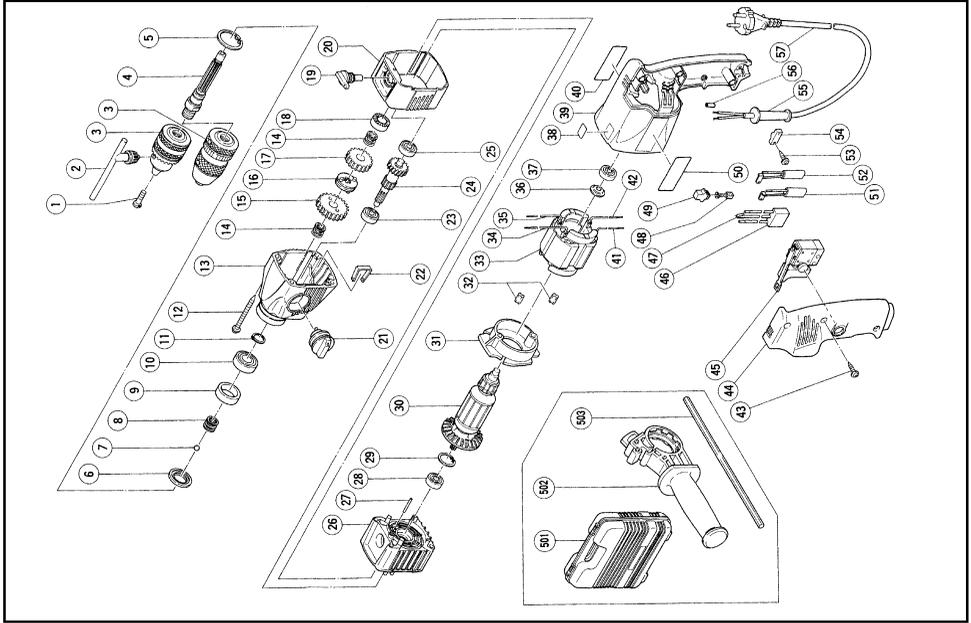
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**NOTE**

Due to HITACHI's continuing program of research and development, the specifications herein are subject to change without prior notice.

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**DV20VB** The exploded assembly drawing should be used only for authorized service center.



Item No.	Part Name
1	Flat Hd. Screw (A) (Left Hand) M6x25
2	Chuck Wrench
3	Drill Chuck
4	Spindle
5	Retaining Ring For D32 Hole
6	Dust Seal
7	Steel Ball
8	Spring (A) D4.76
9	Distance Ring
10	Ball Bearing (6002DDUCMPS2S)
11	Retaining Ring For D15 Shaft
12	Tapping Screw (W/Flange) D5x60
13	Gear Cover
14	Spring
15	Low Speed Gear
16	Clutch Disk
17	High Speed Gear
18	Ratchet (A)
19	Change Lever
20	Outer Cover
21	Shift Lever
22	Shift Spring
23	Ball Bearing (627VVMC2EPS2S)
24	Second Pinion
25	Ball Bearing (608VVMC2EPS2L)
26	Inner Cover Ass'y
27	Needle D2.5x25.8
28	Ball Bearing (608DDMC2EPS2S)
29	Retaining Ring For D22 Hole
30	Armature Ass'y
31	Fan Guide Ass'y
32	Rubber Bushing
33	Stator
34	Internal Wire (A)
35	Internal Wire (A)

Item No.	Part Name
36	Dust Seal
37	Ball Bearing (608VVMC2EPS2L)
38	Label (CE-Mark)
39	Housing
40	Name Plate
41	Internal Wire (A)
42	Internal Wire (B)
43	Tapping Screw (W/Flange) D4x20
44	Handle Cover
45	Speed Control Switch
46	Noise Suppressor
47	Earth Terminal
48	Carbon Brush
49	Brush Holder
50	HITACHI Label
51	Choke Coil (A)
52	Choke Coil (A)
53	Tapping Screw (W/Flange) D4x16
54	Cord Clip
55	Cord Armor
56	Tube (D)
57	Cord
501	Case
502	Side Handle
503	Depth Gauge

Parts are subject to possible modification without notice due to improvements. The drawing and the list are parts structural drawing and parts list of model DV20VB. For model DV20T2 refer to the drawing and the list.

**Hitachi Koki Co., Ltd.**

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