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INSTRUCTION MANUAL

DEWALT®

**DW502, DW504
1/2" (13 mm) Hammerdrill**

Definitions: Safety Guidelines

The definitions below describe the level of severity for each signal word. Please read the manual and pay attention to these symbols.

⚠ DANGER: Indicates an imminently hazardous situation which, if not avoided, **will** result in **death or serious injury**.

⚠ WARNING: Indicates a potentially hazardous situation which, if not avoided, **could** result in **death or serious injury**.

⚠ CAUTION: Indicates a potentially hazardous situation which, if not avoided, **may** result in **minor or moderate injury**.

NOTICE: Indicates a practice **not related to personal injury** which, if not avoided, **may** result in **property damage**.



WARNING: To reduce the risk of injury, read the instruction manual.

General Power Tool Safety Warnings

⚠ WARNING! Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

The term “power tool” in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

1) WORK AREA SAFETY

- Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.

- Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

2) ELECTRICAL SAFETY

- Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.
- Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.** Use of an RCD reduces the risk of electric shock.

3) PERSONAL SAFETY

- Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- Use personal protective equipment. Always wear eye protection.** Protective equipment such as dust mask, non-

skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

- c) **Prevent unintentional starting. Ensure the switch is in the off position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.
- d) **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.
- g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.

4) POWER TOOL USE AND CARE

- a) **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- b) **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- c) **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.

- d) **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
- e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- f) **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- g) **Use the power tool, accessories and tool bits etc., in accordance with these instructions taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.

5) SERVICE

- a) **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

Additional safety instructions for drills

- **Wear ear protectors.** Exposure to noise can cause hearing loss.
- **Use auxiliary handles supplied with the tool.** Loss of control can cause personal injury.
- **Hold power tool by insulated gripping surfaces only, when performing an operation where the cutting accessory may contact hidden wiring or its own cord.** Cutting accessory contacting a "live" wire may make exposed metal parts of the power tool "live" and shock the operator.

- **An extension cord must have adequate wire size (AWG or American Wire Gauge) for safety.** The smaller the gauge number of the wire, the greater the capacity of the cable, that is 16 gauge has more capacity than 18 gauge. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. When using more than one extension to make up the total length, be sure each individual extension contains at least the minimum wire size. The following table shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

Voltage (Volts)	Total length of cord in meters (m)			
	0 - 7	7 - 15	15 - 30	30 - 50
120 - 127V	0 - 7	7 - 15	15 - 30	30 - 50
220 - 240V	0 - 15	15 - 30	30 - 60	60 - 100
Rated Ampere range	Minimal cross-sectional area of the cord in meters (mm ²)			
	0 - 6A	1.0	1.5	2.5
6 - 10A	1.0	1.5	2.5	4.0
10 - 12A	1.5	1.5	2.5	4.0
12 - 16A	2.5	4.0	Not Recommended	

⚠ WARNING: Always use eye protection that conforms to ANSI Z87.1.

⚠ WARNING: Always wear proper personal hearing protection that conforms to ANSI S12.6 (S3.19) during use. Under some conditions and duration of use, noise from this product may contribute to hearing loss.

⚠ WARNING: Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead-based paints,
- crystalline silica from bricks and cement and other masonry products, and
- arsenic and chromium from chemically-treated lumber (CCA).

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

- **Avoid prolonged contact with dust from power sanding, sawing, grinding, drilling, and other construction activities. Wear protective clothing and wash exposed areas with soap and water.** Allowing dust to get into your mouth, eyes, or lay on the skin may promote absorption of harmful chemicals.

⚠ WARNING: Use of this tool can generate and/or disburse dust, which may cause serious and permanent respiratory or other injury. Always use NIOSH/OSHA approved respiratory protection appropriate for the dust exposure. Direct particles away from face and body.

⚠ WARNING: ALWAYS USE SAFETY GLASSES. Everyday eyeglasses are NOT safety glasses. Also use face or dust mask if cutting operation is dusty. All users and bystanders MUST ALWAYS wear certified safety equipment:

- ANSI Z87.1 eye protection (CAN/CSA Z94.3),
- ANSI S12.6 (S3.19) hearing protection,
- NIOSH/OSHA/MSHA respiratory protection.

- The label on your tool may include the following symbols. The symbols and their definitions are as follows:

V	volts	A.....	amperes
Hz	hertz	W.....	watts
min.....	minutes	~	alternating current
===	direct current	⎓	alternating or direct current
⚠	Class I Construction	no.....	no load speed
.....	(grounded)	⊕	earthing terminal
□	Class II Construction	⚠	safety alert symbol
.....	(double insulated)	BPM..	beats per minute
.../min ..	per minute	RPM..	revolutions per minute
sfpm	surface feet		
	per minute (sfpm)		

DESCRIPTION (Fig. 1)

⚠ WARNING: Never modify the power tool or any part of it. Damage or personal injury could result.

INTENDED USE

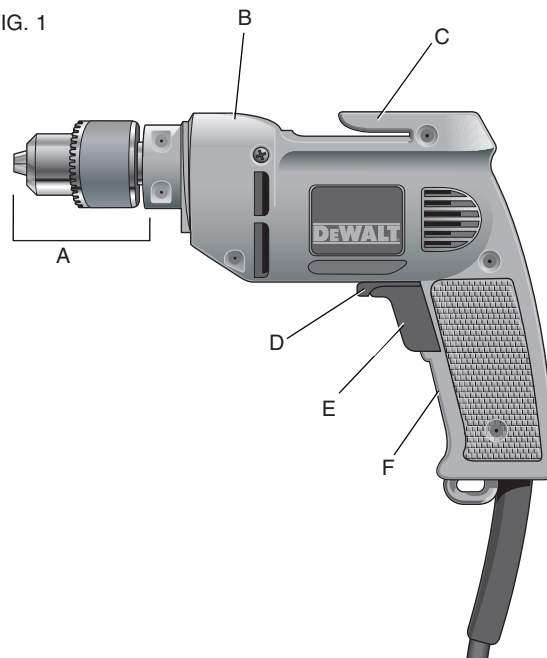
Your Percussion Drill has been designed for professional drilling and screwdriving applications.

DO NOT use under humid conditions or in presence of flammable liquids or gases.

These percussion drills are professional power tools. **DO NOT** let children come into contact with the tool. Supervision is required when inexperienced operators use this tool.

- A. 1/2" (13 mm) chuck
- B. Mode selector
- C. Clamp for belt carrying
- D. Reverse slider
- E. Trigger-type switch
- F. Trigger lock

FIG. 1



ASSEMBLY AND ADJUSTMENTS

⚠ WARNING: To reduce the risk of injury, turn unit off and disconnect machine from power source before installing and removing accessories, before adjusting or changing set-ups or when making repairs. Be sure the trigger switch is in the OFF position. An accidental start-up can cause injury.

Selecting the Operating Mode (Fig. 1)

The tool can be used in two operating modes:



ROTATION DRILLING

for steel, wood and plastics.

PERCUSSION DRILLING

simultaneous rotating and impacting for concrete and masonry drilling operations.

Select the required operating mode by rotating the mode selector (B) to the required position.

Trigger Lock (Fig. 1)

To lock it, pull the trigger and push the trigger lock (F) up. To release it, pull the trigger completely.

Mounting

⚠ WARNING: Before attaching or changing any accessories on your tool, disconnect the plug from the main outlet.

Inserting and Removing a Bit (Fig. 1)

KEYED CHUCK

1. Open the chuck by turning the sleeve counterclockwise and insert the bit shank.
2. Put the chuck key (not shown) into each hole in the side of the chuck and turn clockwise until tight.

To remove the bit, proceed in reverse order.

Fitting the Side Handle (Fig. 2)

The side handle (G) can be fitted to suit both right-hand and left-hand users.

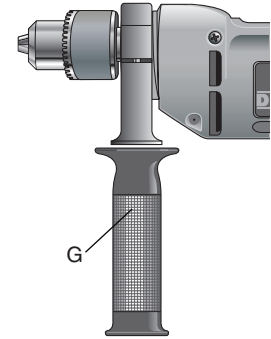
⚠ WARNING: Always use the drill with the side handle properly assembled.

⚠ WARNING: For safe operation, always use the side handle, particularly when working in percussion mode.

1. Loosen the side handle.
 - For right-hand users, slide the side handle clamp over the collar behind the chuck, handle at the left.
 - For left-hand users, slide the side handle clamp over the collar behind the chuck, handle at the right.
2. Rotate the side handle to the desired position and tighten the handle.

NOTE: For operation convenience, the side handle can be turned 360 degrees.

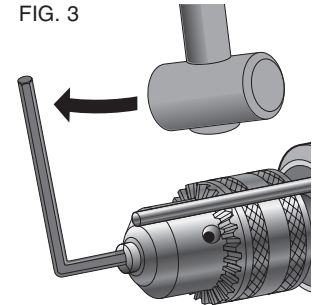
FIG. 2



Chuck Removal (Fig. 3)

1. Open the chuck jaws as far as possible.
2. Tighten a hex key into the chuck and strike it with a hammer as shown.

FIG. 3



OPERATION

⚠ WARNING: To reduce the risk of injury, turn unit off and disconnect tool from power source before installing and removing accessories, before making any adjustments or removing/installing attachments or accessories.

⚠ WARNING: Be aware of the location of pipework and wiring.

⚠ WARNING: Apply only a gentle pressure to the tool. Excessive force does not speed up drilling but decreases tool performance and may shorten tool life.

PRIOR TO OPERATION

- Insert the appropriate bit.
- Mark the spot where the hole is to be drilled.

Switching On and Off (Fig. 1)

To run the tool, press the variable speed switch (E). The pressure exerted on the variable speed switch determines the tool speed.

If necessary, press the lock-on button (F) for continuous operation and release the switch.

The lock-on button works only in full speed, forward rotation.

To stop the tool, release the switch.

To stop the tool in continuous operation, press the switch briefly and release it. Always switch off the tool when work is finished and before unplugging.

Reversible Variable Speed Electric Control (Fig. 1)

The pressure that is put on the trigger sets the tool speed, which makes it easier to operate when it is used as an electric screwdriver.

Use low speed to begin the hole and then accelerate the drill by putting more pressure on the trigger.

Keep the motor on while pulling the drill out of the hole as this prevents it from getting stuck.

To select the rotation direction, check the direction of the arrows near the reverse slider (D), which is located just above the trigger. Wait for the motor to stop before reversing the rotation direction.

Screwdriving

Select forward or reverse rotation.

Percussion Drilling (Fig. 1)

1. Select the percussion mode.
2. Press the switch (E).

Rotary Drilling

1. Select the rotary drilling mode.
2. Proceed as described for percussion drilling.

Drilling

1. Use sharp drill bits only. For WOOD, begin with low speed and use twist drill bits, spade bits, power auger bits or hole saws. For METAL, begin with low speed and use steel twist drill bits or hole saws. Use a cutting lubricant when drilling metals. The exceptions are cast iron and brass which should be drilled dry.

NOTE: Large [5/16" (8 mm) to 1/2" (13 mm)] holes in steel can be made easier if a pilot hole [5/32" (4 mm) to 3/16" (5 mm)] is drilled first.

2. Always apply pressure in a straight line with the bit. Use enough pressure to keep drill biting, but do not push hard enough to stall the motor or deflect the bit.
3. Hold tool firmly with both hands to control the twisting action of the drill.

⚠ WARNING: Drill may stall if overloaded causing a sudden twist. Always expect the stall. Grip the drill firmly with both hands to control the twisting action and avoid injury.

4. **IF DRILL STALLS**, it is usually because it is being overloaded or improperly used. **RELEASE TRIGGER IMMEDIATELY**, remove drill bit from work, and determine cause of stalling. **DO NOT CLICK TRIGGER ON AND OFF IN AN ATTEMPT TO START A STALLED DRILL — THIS CAN DAMAGE THE DRILL.**
5. To minimize stalling or breaking through the material, reduce pressure on drill and ease the bit through the last fractional part of the hole.
6. Keep the motor running when pulling the bit back out of a drilled hole. This will help prevent jamming.
7. With variable speed drills there is no need to center punch the point to be drilled. Use a slow speed to start the hole and accelerate by squeezing the trigger harder when the hole is deep enough to drill without the bit skipping out.

MAINTENANCE

⚠ WARNING: *To reduce the risk of injury, turn unit off and disconnect tool from power source before installing and removing accessories, before making any adjustments or removing/installing attachments or accessories.*

Your DEWALT power tool has been designed to operate over a long period of time with a minimum of maintenance. Continuous satisfactory operation depends upon proper tool care and regular cleaning.

Lubrication

Your power tool requires no additional lubrication.

Cleaning

⚠ WARNING: *Blow dirt and dust out of the main housing with dry air as often as dirt is seen collecting in and around the air vents. Wear approved eye protection and approved dust mask when performing this procedure.*

⚠ WARNING: *Never use solvents or other harsh chemicals for cleaning the non-metallic parts of the tool. These chemicals may weaken the materials used in these parts. Use a cloth dampened only with water and mild soap. Never let any liquid get inside the tool; never immerse any part of the tool into a liquid.*

Accessories

⚠ WARNING: *Since accessories, other than those offered by DEWALT, have not been tested with this product, use of such accessories with this tool could be hazardous. To reduce the risk of injury, only DEWALT, recommended accessories should be used with this product.*

Recommended accessories for use with your tool are available at extra cost from your local dealer or authorized service center.

Repairs

To assure product SAFETY and RELIABILITY, repairs, maintenance and adjustment (including brush inspection and replacement) should be performed by authorized service centers or other qualified service personnel, always using identical replacement parts.

SPECIFICATIONS

	DW502	DW504
Power	650	650
Voltage	120V	120V
RPM	0-3000	0-3000
Impacts per minute	0-50000	0-50000

MANUFACTURED BY / MANUFACTURADO
POR/ FABRICADO POR:
BLACK & DECKER DO BRASIL LTDA.
ROD. BR 050, S/Nº - KM 167
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MADE IN BRASIL

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