



DEWALT DCG413 - Paddle Switch Small Angle Grinder Manual

Contents

1 Definitions: Safety Alert Symbols and Words

2 GENERAL POWER TOOL SAFETY WARNINGS

2.1 Work Area Safety

2.2 Electrical Safety

2.3 Personal Safety

2.4 Power Tool Use and Care

2.5 Battery Tool Use and Care

2.6 Service

3 SAFETY INSTRUCTIONS FOR ALL OPERATIONS

3.1 Safety Warnings Common for Grinding, Sanding, Wire Brushing or Abrasive Cutting-Off Operations

3.2 Kickback and Related Warnings

3.3 Safety Warnings Specific for Grinding and Abrasive Cutting-Off Operations

3.4 Additional Safety Warnings Specific for Abrasive Cutting-Off Operations

3.5 Safety Warnings Specific for Sanding Operations

3.6 Safety Warnings Specific for Wire Brushing Operations

3.7 Additional Safety Information

4 BATTERIES AND CHARGERS

4.1 Important Safety Instructions for All Battery Packs

4.1.1 Transportation

4.1.2 Fuel Gauge Battery Packs (Fig. B)

4.2 Important Safety Instructions for All Battery Chargers

4.3 Charging a Battery (Fig. C)

4.3.1 Charger Operation

4.3.2 Hot/Cold Pack Delay

4.3.3 Electronic Protection System

4.4 Wall Mounting

4.5 Charger Cleaning Instructions

4.6 Important Charging Notes

4.7 Storage Recommendations

5 COMPONENTS (FIG. A)

5.1 Intended Use

5.2 Features

5.2.1 E-Switch Protection

5.2.2 E-Clutch

5.2.3 Kickback Brake

5.2.4 Power-OFF Overload Protection

5.2.5 Electronic Soft Start

6 ASSEMBLY AND ADJUSTMENTS

6.1 Attaching Side Handle (Fig. D)

6.2 Rotating the Gear Case (Fig. E)

6.3 Guards

6.3.1 Adjusting and Mounting Guard (Fig. F)

6.4 Flanges and Wheels

6.4.1 Mounting Non-Hubbed Wheels (Fig. G)

6.4.2 Mounting Sanding Backing Pads (Fig. A, H)

6.4.3 Mounting and Removing Hubbed Wheels (Fig. A)

6.4.4 Mounting Wire Cup Brushes and Wire Wheels (Fig. A)

6.5 Prior to Operation

7 OPERATION

7.1 Installing and Removing the Battery Pack (Fig. I)

7.2 Proper Hand Position (Fig. J)

7.3 Paddle Switch (Fig. A)

7.4 Spindle Lock Button (Fig. K)

7.5 Surface Grinding, Sanding and Wire Brushing (Fig. L)

7.5.1 Precautions To Take When Working on a Painted Workpiece

7.6 Edge Grinding and Cutting (Fig. M)

8 MAINTENANCE

8.1 Cleaning

8.2 Accessories

8.3 Repairs

[8.4 Register Online](#)

[9 Documents / Resources](#)

[9.1 References](#)

[9.2 Download manual](#)

Definitions: Safety Alert Symbols and Words

This instruction manual uses the following safety alert symbols and words to alert you to hazardous situations and your risk of personal injury or property damage.

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

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

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

(Used without word) Indicates a safety related message.

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

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

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

If you have any questions or comments about this or any DeWALT tool, call us toll free at:

1-800-4-DeWALT (1-800-433-9258).

GENERAL POWER TOOL SAFETY WARNINGS

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.

Work Area Safety

- a. *Keep work area clean and well lit. Cluttered or dark areas invite accidents.*
- b. *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.

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

Electrical Safety

- a. 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.*
- b. 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.*
- c. Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.*
- d. 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.*
- e. 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.*
- f. If operating a power tool in a damp location is unavoidable, use a ground fault circuit interrupter (GFCI) protected supply.*

Use of a GFCI reduces the risk of electric shock.

Personal Safety

- a. *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.*
- b. *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 energizing 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 jewelry. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry 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.*

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.*

Battery Tool Use and Care

- a. *Recharge only with the charger specified by the manufacturer. A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.*
- b. *Use power tools only with specifically designated battery packs. Use of any other battery packs may create a risk of injury and fire.*
- c. *When battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws, or other small metal objects, that can make a connection from one terminal to another. Shorting the battery terminals together may cause burns or a fire.*
- d. *Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help. Liquid ejected from the battery may cause irritation or burns.*

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.*

SAFETY INSTRUCTIONS FOR ALL OPERATIONS

Safety Warnings Common for Grinding, Sanding, Wire Brushing or Abrasive Cutting-Off Operations

- a. *This power tool is intended to function as a grinder, sander, wire brush or cut-off tool. Read all safety warnings, instructions, illustrations and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.*
- b. *Operations such as polishing are not recommended to be performed with this power tool. Operations for which the power tool was not designed may create a hazard and cause personal injury.*
- c. *Do not use accessories which are not specifically designed and recommended by the tool manufacturer. Just because the accessory can be attached to your power tool, it does not assure safe operation.*
- d. *The rated speed of the accessory must be at least equal to the maximum speed marked on the power tool. Accessories running faster than their rated speed can break and fly apart.*

- e. *The outside diameter and the thickness of your accessory must be within the capacity rating of your power tool. Incorrectly sized accessories cannot be adequately guarded or controlled.*
- f. *Threaded mounting of accessories must match the grinder spindle thread. For accessories mounted by flanges, the arbor hole of the accessory must fit the locating diameter of the flange. Accessories that do not match the mounting hardware of the power tool will run out of balance, vibrate excessively and may cause loss of control.*
- g. *Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheels for chips and cracks, backing pad for cracks, tear or excess wear, wire brush for loose or cracked wires. If power tool or accessory is dropped, inspect for damage or install an undamaged accessory. After inspecting and installing an accessory, position yourself and bystanders away from the plane of the rotating accessory and run the power tool at maximum no-load speed for one minute. Damaged accessories will normally break apart during this test time.*
- h. *Wear personal protective equipment. Depending on application, use face shield, safety goggles or safety glasses. As appropriate, wear dust mask, hearing protectors, gloves and workshop apron capable of stopping small abrasive or workpiece fragments. The eye protection must be capable of stopping flying debris generated by various operations. The dust mask or respirator must be capable of filtering particles generated by your operation. Prolonged exposure to high intensity noise may cause hearing loss.*

- i. *Keep bystanders a safe distance away from work area. Anyone entering the work area must wear personal protective equipment. Fragments of workpiece or of a broken accessory may fly away and cause injury beyond immediate area of operation.*
- j. *Hold the power tool by insulated gripping surfaces only, when performing an operation where the cutting tool may contact hidden wiring. Contact with a "live" wire will also make exposed metal parts of the power tool "live" and could give the operator an electric shock.*
- k. *Never lay the power tool down until the accessory has come to a complete stop. The spinning accessory may grab the surface and pull the power tool out of your control.*
- l. *Do not run the power tool while carrying it at your side. Accidental contact with the spinning accessory could snag your clothing, pulling the accessory into your body.*
- m. *Regularly clean the power tool's air vents. The motor's fan will draw the dust inside the housing and excessive accumulation of powdered metal may cause electrical hazards.*
- n. *Do not operate the power tool near flammable materials. Sparks could ignite these materials.*
- o. *Do not use accessories that require liquid coolants. Using water or other liquid coolants may result in electrocution or shock.*
- p. *Do not use Type 11 (flaring cup) wheels on this tool. Using inappropriate accessories can result in injury.*
- q. *Always use side handle. Tighten the handle securely. The side*

handle should always be used to maintain control of the tool at all times.

- r. When starting the tool with a new or replacement wheel, or a new or replacement wire brush installed, hold the tool in a well protected area and let it run for one minute. If the wheel has an undetected crack or flaw, it should burst in less than one minute. If the wire brush has loose wires, they will be detected. Never start the tool with a person in line with the wheel. This includes the operator.*
- s. Use of accessories not specified in this manual is not recommended and may be hazardous. Use of power boosters that would cause the tool to be driven at speeds greater than its rated speed constitutes misuse.*
- t. Use clamps or another practical way to secure and support the workpiece to a stable platform. Holding the work by hand or against your body leaves it unstable and may lead to loss of control.*
- u. Avoid bouncing the wheel or giving it rough treatment. If this occurs, stop the tool and inspect the wheel for cracks or flaws.*
- v. Always handle and store wheels in a careful manner.*
- w. Do not operate this tool for long periods of time. Vibration caused by the operating action of this tool may cause permanent injury to fingers, hands, and arms. Use gloves to provide extra cushion, take frequent rest periods, and limit daily time of use.*
- x. Air vents often cover moving parts and should be avoided.*

Loose clothes, jewelry or long hair can be caught in moving parts.

Kickback and Related Warnings

Kickback is a sudden reaction to a pinched or snagged rotating wheel, backing pad, brush or any other accessory. Pinching or snagging causes rapid stalling of the rotating accessory which in turn causes the uncontrolled power tool to be forced in the direction opposite of the accessory's rotation at the point of the binding.

For example, if an abrasive wheel is snagged or pinched by the workpiece, the edge of the wheel that is entering into the pinch point can dig into the surface of the material causing the wheel to climb out or kick out. The wheel may either jump toward or away from the operator, depending on direction of the wheel's movement at the point of pinching. Abrasive wheels may also break under these conditions.

Kickback is the result of tool misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below:

- a. Maintain a firm grip on the power tool and position your body and arm to allow you to resist kickback forces. Always use auxiliary handle, if provided, for maximum control over kickback or torque reaction during start up. The operator can control torque reaction or kickback forces, if proper precautions are taken.*

- b. *Never place your hand near the rotating accessory. Accessory may kickback over your hand.*
- c. *Do not position your body in the area where power tool will move if kickback occurs. Kickback will propel the tool in direction opposite to the wheel's movement at the point of snagging.*
- d. *Use special care when working corners, sharp edges etc. Avoid bouncing and snagging the accessory. Corners, sharp edges or bouncing have a tendency to snag the rotating accessory and cause loss of control or kickback.*
- e. *Do not attach a saw chain woodcarving blade or toothed saw blade. Such blades create frequent kickback and loss of control.*

Safety Warnings Specific for Grinding and Abrasive Cutting-Off Operations

- a. *Use only wheel types that are recommended for your power tool and the specific guard designed for the selected wheel. Wheels for which the power tool was not designed cannot be adequately guarded and are unsafe.*
- b. *The grinding surface of center depressed wheels must be mounted below the plane of the guard lip. An improperly mounted wheel that projects through the plane of the guard lip cannot be adequately protected.*
- c. *The guard must be securely attached to the power tool and positioned for maximum safety, so the least amount of wheel*

is exposed towards the operator. The guard helps to protect the operator from broken wheel fragments, accidental contact with wheel and sparks that could ignite clothing.

- d. Wheels must be used only for recommended applications. For example: do not grind with the side of cut-off wheel. Abrasive cut-off wheels are intended for peripheral grinding, side forces applied to these wheels may cause them to shatter.*
- e. Always use undamaged wheel flanges that are of correct size and shape for your selected wheel. Proper wheel flanges support the wheel thus reducing the possibility of wheel breakage. Flanges for cut-off wheels may be different from grinding wheel flanges.*
- f. Do not use worn down wheels from larger power tools. Wheel intended for larger power tool is not suitable for the higher speed of a smaller tool and may burst.*

Additional Safety Warnings Specific for Abrasive Cutting-Off Operations

- a. Do not "jam" the cut-off wheel or apply excessive pressure. Do not attempt to make an excessive depth of cut. Overstressing the wheel increases the loading and susceptibility to twisting or binding of the wheel in the cut and the possibility of kickback or wheel breakage.*
- b. Do not position your body in line with and behind the rotating wheel. When the wheel, at the point of operation, is moving away from your body, the possible kickback may propel the spinning wheel and the power tool directly at you.*

- c. *When wheel is binding or when interrupting a cut for any reason, switch off the power tool and hold the power tool motionless until the wheel comes to a complete stop. Never attempt to remove the cut-off wheel from the cut while the wheel is in motion otherwise kickback may occur. Investigate and take corrective action to eliminate the cause of wheel binding.*
- d. *Do not restart the cutting operation in the workpiece. Let the wheel reach full speed and carefully reenter the cut. The wheel may bind, walk up or kickback if the power tool is restarted in the workpiece.*
- e. *Support panels or any oversized workpiece to minimize the risk of wheel pinching and kickback. Large workpieces tend to sag under their own weight. Supports must be placed under the workpiece near the line of cut and near the edge of the workpiece on both sides of the wheel.*
- f. *Use extra caution when making a "pocket cut" into existing walls or other blind areas. The protruding wheel may cut gas or water pipes, electrical wiring or objects that can cause kickback.*

Safety Warnings Specific for Sanding Operations

- a. *Do not use excessively oversized sanding disc paper. Follow manufacturers recommendations, when selecting sanding paper. Larger sanding paper extending beyond the sanding pad presents a laceration hazard and may cause snagging, tearing of the disc or kickback.*

Safety Warnings Specific for Wire Brushing Operations

- a. *Be aware that wire bristles are thrown by the brush even during ordinary operation. Do not overstress the wires by applying excessive load to the brush. The wire bristles can easily penetrate light clothing and/or skin.*
- b. *If the use of a guard is recommended for wire brushing, do not allow any interference of the wire wheel or brush with the guard. Wire wheel or brush may expand in diameter due to work and centrifugal forces.*
- c. *Safety goggles or safety glasses with side shields and a full face shield compliant with ANSI Z87.1 MUST be worn by the operator and others that are within 50' (15.2 m) of the use of this product.*

Additional Safety Information

ALWAYS use safety glasses. Everyday eyeglasses are NOT safety glasses. Also use face or dust mask if cutting operation is dusty. 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.*

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California 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.*

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.*

Use of this tool can generate and/ or disperse 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.

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.

When not in use, place tool on its side on a stable surface where it will not cause a tripping or falling hazard. Some tools with large battery packs will stand upright on the battery pack but may be easily knocked over.

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

V: volts

Hz: hertz

min: minutes

or DC: direct current

: Class I Construction (grounded)

.../min: per minute

BPM: beats per minute

IPM: impacts per minute

RPM: revolutions per minute

sfpm: surface feet per minute

SPM: strokes per minute

A: amperes

W: watts

or AC: alternating current

or AC/DC: alternating or direct current

: Class II Construction (double insulated)

n_0 : no load speed

n: rated speed

: earthing terminal

- : safety alert symbol
- : visible radiation
- : wear respiratory protection
- : wear eye protection
- : wear hearing protection
- : read all documentation

BATTERIES AND CHARGERS

The battery pack is not fully charged out of the carton.

Before using the battery pack and charger, read the safety instructions below and then follow charging procedures outlined. When ordering replacement battery packs, be sure to include the catalog number and voltage.

Your tool uses a DeWALT charger. Be sure to read all safety instructions before using your charger. Consult the chart at the end of this manual for compatibility of chargers and battery packs.

READ ALL INSTRUCTIONS

Important Safety Instructions for All Battery Packs

Read all safety warnings and all instructions for the battery pack, charger and power tool. Failure to follow the warnings and instructions may result in electric shock, fire and/ or serious injury.

- *Do not charge or use the battery pack in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Inserting or removing the battery pack from the charger may ignite the dust or fumes.*
- *NEVER force the battery pack into the charger. DO NOT modify the battery pack in any way to fit into a non-compatible charger as battery pack may rupture causing serious personal injury. Consult the chart at the end of this manual for compatibility of batteries and chargers.*
- *Charge the battery packs only in designated DeWALT chargers.*
- *DO NOT splash or immerse in water or other liquids.*
- *Do not store or use the tool and battery pack in locations where the temperature may reach or exceed 104°F (40°C) (such as outside sheds or metal buildings in summer). For best life store battery packs in a cool, dry location.*

NOTE: Do not store the battery packs in a tool with the trigger switch locked on. Never tape the trigger switch in the ON position.
- *Do not incinerate the battery pack even if it is severely damaged or is completely worn out. The battery pack can explode in a fire. Toxic fumes and materials are created when lithium ion battery packs are burned.*
- *If battery contents come into contact with the skin, immediately wash area with mild soap and water. If battery liquid gets into the eye, rinse water over the open eye for 15 minutes or until irritation ceases. If medical attention is needed, the battery electrolyte is composed of a mixture of liquid organic carbonates and lithium salts.*

- *Contents of opened battery cells may cause respiratory irritation. Provide fresh air. If symptoms persist, seek medical attention.*

Burn hazard. Battery liquid may be flammable if exposed to spark or flame.

Fire hazard. Never attempt to open the battery pack for any reason. If the battery pack case is cracked or damaged, do not insert into the charger. Do not crush, drop or damage the battery pack. Do not use a battery pack or charger that has received a sharp blow, been dropped, run over or damaged in any way (e.g., pierced with a nail, hit with a hammer, stepped on). Damaged battery packs should be returned to the service center for recycling.

Transportation

Fire hazard. Do not store or carry the battery pack so that metal objects can contact exposed battery terminals. For example, do not place the battery pack in aprons, pockets, tool boxes, product kit boxes, drawers, etc., with loose nails, screws, keys, etc. Transporting batteries can possibly cause fires if the battery terminals inadvertently come in contact with conductive materials such as keys, coins, hand tools and the like. The US Department of Transportation Hazardous Material Regulations (HMR) actually prohibit transporting batteries in commerce or on airplanes in carry-on baggage UNLESS they are properly protected from short

circuits. So when transporting individual battery packs, make sure that the battery terminals are protected and well insulated from materials that could contact them and cause a short circuit.

Shipping the DeWALT FLEXVOLT™ Battery

The DeWALT FLEXVOLT™ battery has two modes: Use and Shipping.

Use Mode: When the FLEXVOLT™ battery stands alone or is in a DeWALT 20V Max* product, it will operate as a 20V Max* battery. When the FLEXVOLT™ battery is in a 60V Max* or a 120V Max* (two 60V Max* batteries) product, it will operate as a 60V Max* battery.

Shipping Mode: When the cap is attached to the FLEXVOLT™ battery, the battery is in Shipping Mode. Strings of cells are electrically disconnected within the pack resulting in three batteries with a lower Watt hour (Wh) rating as compared to one battery with a higher Watt hour rating. This increased quantity of three batteries with the lower Watt hour rating can exempt the pack from certain shipping regulations that are imposed upon the higher Watt hour batteries.

The battery label indicates two Watt hour ratings (see example). Depending on how the battery is shipped, the appropriate Watt hour rating must be used to determine the applicable shipping requirements. If utilizing the shipping cap, the pack will be considered 3 batteries at the Watt hour rating indicated for "Shipping". If shipping without the cap or in a tool, the pack will be considered one battery at the Watt hour rating indicated next to "Use".

Example of Use and Shipping Label Marking

For example, Shipping Wh rating might indicate 3 x 40 Wh, meaning 3 batteries of 40 Watt hours each. The Use Wh rating might indicate 120 Wh (1 battery implied).

Fuel Gauge Battery Packs (Fig. B)

Some DeWALT battery packs include a fuel gauge which consists of three green LED lights that indicate the level of charge remaining in the battery pack.

The fuel gauge is an indication of approximate levels of charge remaining in the battery pack according to the following indicators:

To actuate the fuel gauge, press and hold the fuel gauge button. A combination of the three green LED lights will illuminate designating the level of charge left. When the level of charge in the battery is below the usable limit, the fuel gauge will not illuminate and the battery will need to be recharged.

NOTE: The fuel gauge is only an indication of the charge left on the battery pack. It does not indicate tool functionality and is subject to variation based on product components, temperature and end-user application.

For more information regarding fuel gauge battery packs, please contact call 1-800-4-DeWALT (1-800-433-9258) or visit our website www.dewalt.com.

Important Safety Instructions for All Battery Chargers

Read all safety warnings and all instructions for the battery pack, charger and power tool. Failure to follow the warnings and instructions may result in electric shock, fire and/ or serious injury.

- *DO NOT attempt to charge the battery pack with any chargers other than the ones in this manual. The charger and battery pack are specifically designed to work together.*
- *These chargers are not intended for any uses other than charging DeWALT rechargeable batteries. Any other uses may result in risk of fire, electric shock or electrocution.*
- *Do not expose the charger to rain or snow.*
- *Pull by the plug rather than the cord when disconnecting the charger. This will reduce the risk of damage to the electric plug and cord.*
- *Make sure that the cord is located so that it will not be stepped on, tripped over or otherwise subjected to damage or stress.*
- *Do not use an extension cord unless it is absolutely necessary. Use of improper extension cord could result in risk of fire, electric shock or electrocution.*
- *When operating a charger outdoors, always provide a dry location and use an extension cord suitable for outdoor use. Use of a cord suitable for outdoor use reduces the risk of electric shock.*

- *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 lower the gauge number, the heavier the cord.*

Minimum gauge for Cord sets

Volts		Total Length of Cord in Feet (meters)			
120 V		25 (7.6)	50 (15.2)	100 (30.5)	150 (45.7)
240 V		50 (15.2)	100 (30.5)	200 (61.0)	300 (91.4)
Ampere Rating		American Wire Gauge			
More Than	Not More Than				
0	6	18	16	16	14
6	10	18	16	14	12
10	12	16	16	14	12
12	16	14	12	Not Recommended	

- *Do not place any object on top of the charger or place the charger on a soft surface that might block the ventilation slots and result in excessive internal heat. Place the charger in a position away from any heat source. The charger is ventilated through slots in the top and the bottom of the housing.*
- *Do not operate the charger with a damaged cord or plug.*
- *Do not operate the charger if it has received a sharp blow, been dropped or otherwise damaged in any way. Take it to an*

authorized service center.

- *Do not disassemble the charger; take it to an authorized service center when service or repair is required. Incorrect reassembly may result in a risk of electric shock, electrocution or fire.*
- *Disconnect the charger from the outlet before attempting any cleaning. This will reduce the risk of electric shock. Removing the battery pack will not reduce this risk.*
- *NEVER attempt to connect 2 chargers together.*
- *The charger is designed to operate on standard 120V household electrical power. Do not attempt to use it on any other voltage. This does not apply to the vehicular charger.*

Shock hazard. Do not allow any liquid to get inside the charger. Electric shock may result.

Burn hazard. Do not submerge the battery pack in any liquid or allow any liquid to enter the battery pack. Never attempt to open the battery pack for any reason. If the plastic housing of the battery pack breaks or cracks, return to a service center for recycling.

Burn hazard. To reduce the risk of injury, charge only DeWALT rechargeable battery packs. Other types of batteries may overheat and burst resulting in personal injury and property damage.

NOTICE: Under certain conditions, with the charger plugged into the power supply, the charger can be shorted by foreign material. Foreign materials of a conductive nature, such as, but not limited to, grinding dust, metal chips, steel wool, aluminum foil or any buildup of metallic particles should be kept away from the charger cavities. Always unplug the charger from the power supply when there is no battery pack in the cavity. Unplug the charger before attempting to clean.

Charging a Battery (Fig. C)

1. Plug the charger into an appropriate outlet before inserting battery pack.
2. Insert the battery pack 10 into the charger, making sure the battery pack is fully seated in the charger. The red (charging) light will blink continuously indicating that the charging process has started.
3. The completion of charge will be indicated by the red light remaining ON continuously. The battery pack is fully charged and may be used at this time or left in the charger. To remove the battery pack from the charger, push the battery release button 11 on the battery pack.

NOTE: To ensure maximum performance and life of lithium-ion battery packs, charge the battery pack fully before first use.

Charger Operation

Refer to the indicators below for the charge status of the battery pack.

* DCB107, DCB112, DCB113, DCB115, DCB118, DCB132:

The red light will continue to blink, but a yellow indicator light will be illuminated during this operation. Once the battery pack has reached an appropriate temperature, the yellow light will turn off and the charger will resume the charging procedure.

The compatible charger(s) will not charge a faulty battery pack. The charger will indicate faulty battery pack by refusing to light or by displaying a problem pack or charger blink pattern.

NOTE: This could also mean a problem with a charger.

If the charger indicates a problem, take the charger and battery pack to be tested at an authorized service center.

Hot/Cold Pack Delay

When the charger detects a battery pack that is too hot or too cold, it automatically starts a Hot/Cold Pack Delay, suspending charging until the battery pack has reached an appropriate temperature. The charger then automatically switches to the pack charging mode. This feature ensures maximum battery pack life.

A cold battery pack will charge at a slower rate than a warm battery pack. The battery pack will charge at that slower rate throughout the entire charging cycle and will not return to maximum charge rate even if the battery pack warms.

The DCB118 charger is equipped with an internal fan designed to cool the battery pack. The fan will turn on automatically when the battery pack needs to be cooled.

Never operate the charger if the fan does not operate properly or if ventilation slots are blocked. Do not permit foreign objects to enter the interior of the charger.

Electronic Protection System

Li-Ion tools are designed with an Electronic Protection System that will protect the battery pack against overloading, overheating or deep discharge.

The tool will automatically turn off if the Electronic Protection System engages. If this occurs, place the lithium-ion battery pack on the charger until it is fully charged.

Wall Mounting

DCB107, DCB112, DCB113, DCB115, DCB118, DCB132

These chargers are designed to be wall mountable or to sit upright on a table or work surface. If wall mounting, locate the charger within reach of an electrical outlet, and away from a corner or other obstructions which may impede air flow. Use the back of the charger as a template for the location of the mounting screws on the wall. Mount the charger securely using drywall screws (purchased separately) at least 1" (25.4 mm) long, with a screw head diameter of 0.28-0.35" (7-9 mm), screwed into wood to an optimal depth leaving approximately 7/32" (5.5 mm) of the

screw exposed. Align the slots on the back of the charger with the exposed screws and fully engage them in the slots.

Charger Cleaning Instructions

Shock hazard. Disconnect the charger from the AC outlet before cleaning. Dirt and grease may be removed from the exterior of the charger using a cloth or soft non-metallic brush. Do not use water or any cleaning solutions.

Important Charging Notes

1. Longest life and best performance can be obtained if the battery pack is charged when the air temperature is between 65°F and 75°F (18 ° - 24°C). DO NOT charge the battery pack in an air temperature below +40°F (+4.5°C), or above +104°F (+40°C). This is important and will prevent serious damage to the battery pack.
2. The charger and battery pack may become warm to the touch while charging. This is a normal condition, and does not indicate a problem. To facilitate the cooling of the battery pack after use, avoid placing the charger or battery pack in a warm environment such as in a metal shed or an uninsulated trailer.
3. If the battery pack does not charge properly:
 - a. Check operation of receptacle by plugging in a lamp or other appliance;

- b. Check to see if receptacle is connected to a light switch which turns power off when you turn out the lights;
 - c. Move the charger and battery pack to a location where the surrounding air temperature is approximately 65°F – 75°F (18 ° – 24°C);
 - d. If charging problems persist, take the tool, battery pack and charger to your local service center.
4. The battery pack should be recharged when it fails to produce sufficient power on jobs which were easily done previously. **DO NOT CONTINUE** to use under these conditions. Follow the charging procedure. You may also charge a partially used pack whenever you desire with no adverse effect on the battery pack.
5. Foreign materials of a conductive nature such as, but not limited to, grinding dust, metal chips, steel wool, aluminum foil, or any buildup of metallic particles should be kept away from charger cavities. Always unplug the charger from the power supply when there is no battery pack in the cavity. Unplug the charger before attempting to clean.
6. Do not freeze or immerse the charger in water or any other liquid.

Storage Recommendations

1. The best storage place is one that is cool and dry, away from direct sunlight and excess heat or cold.

2. For long storage, it is recommended to store a fully charged battery pack in a cool dry place out of the charger for optimal results.

NOTE: Battery packs should not be stored completely depleted of charge. The battery pack will need to be recharged before use.

SAVE THESE INSTRUCTIONS FOR FUTURE USE

COMPONENTS (FIG. A)

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

1. Paddle switch
2. Lock-off lever
3. Spindle lock button
4. Spindle
5. Side handle
6. Backing flange
7. Locking flange
8. Guard
9. Guard release lever

10. Battery pack

11. Battery release button

Intended Use

Your heavy-duty small angle grinder has been designed for professional grinding, sanding, wire brush, and cut-off applications at various work sites (i.e., construction sites).

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

Your heavy-duty small angle grinders is a professional power tool. DO NOT let children come into contact with the tool. Supervision is required when inexperienced operators use this tool.

Features

E-Switch Protection™

The ON/OFF paddle switch has a no-volt release function. In the event of an unexpected shut down, the paddle switch will need to be released then depressed to restart tool.

E-Clutch™

This unit is equipped with an E-Clutch™ (Electronic Clutch), which in the event of a high-load, the unit will shut off to reduce the reaction torque to the user. The paddle switch will need to be

released then depressed to restart tool.

Kickback Brake™

When a pinch, stall, or bind-up event is sensed, the electronic brake engages with maximum force to quickly stop the wheel, reduce the movement of the grinder, and shut the grinder off. The paddle switch will need to be released then depressed to restart tool.

Power-OFF™ Overload Protection

The power supply to the motor will be reduced in case of motor overload. With continued motor overload, the tool will shut off. The paddle switch will need to be released then depressed to restart tool. The tool will power off each time the current load reaches the overload current value (motor burn-up point). If continued overload shutdowns occur, apply less force/weight on the tool until the tool will function without the overload engaging.

Electronic Soft Start

This feature limits the initial start up momentum, allowing the speed to build up gradually over a 1 second period.

ASSEMBLY AND ADJUSTMENTS

To reduce the risk of serious personal injury, turn unit off and

remove the battery pack before making any adjustments or removing/ installing attachments or accessories. An accidental start-up can cause injury.

Attaching Side Handle (Fig. D)

Before using the tool, check that the handle is tightened securely.

Screw the side handle 5 tightly into one of the holes on either side of the gear case. The side handle should always be used to maintain control of the tool at all times.

Rotating the Gear Case (Fig. E)

To improve user comfort, the gear case will rotate 90° for cutting operations.

1. Remove the four corner screws attaching the gear case to motor housing.
2. Without separating the gear case from motor housing, rotate the gear case head to desired position.

NOTE: If the gear case and motor housing become separated by more than 1/8" (3.17 mm), the tool must be serviced and re-assembled by a DeWALT service center. Failure to have the tool serviced may motor and bearing failure.

3. Reinstall screws to attach the gear case to the motor housing. Tighten screws to 12.5 in.-lbs. torque. Overtightening could

cause screws to strip.

Guards

Guards must be used with all grinding wheels, cutting wheels, sanding flap discs, wire brushes, and wire wheels. The tool may be used without a guard only when sanding with conventional sanding discs. Refer to Figure A to see guards provided with the unit. Some applications may require purchasing the correct guard from your local dealer or authorized service center.

NOTE: Edge grinding and cutting can be performed with Type 27 wheels designed and specified for this purpose; 6.35 mm thick wheels are designed for surface grinding while thinner Type 27 wheels need to be examined for the manufacturer's label to see if they can be used for surface grinding or only edge grinding/cutting. A Type 1 guard must be used for any wheel where surface grinding is forbidden. Cutting can also be performed by using a Type 41 wheel and a Type 1 guard.

NOTE: See the *Accessories Chart* to select the proper guard/accessory combination.

Adjusting and Mounting Guard (Fig. F)

To reduce the risk of serious personal injury, turn tool off and disconnect battery pack before making any adjustments or removing/installing attachments or accessories. An accidental

start-up can cause injury.

BEFORE operating the tool, identify which guard adjustment option your tool is set to.

Adjustment Options

For guard adjustment, the guard release lever 9 engages one of the alignment holes 14 on the guard collar using a ratcheting feature.

One-touch™: In this position the engaging face is slanted and will ride over to the next alignment hole when guard is rotated in a clockwise direction (spindle facing user) but self-locks in the counter-clockwise direction.

Mounting guard (Fig. F)

Prior to mounting guard, ensure the screw, lever, and spring are fitted correctly before mounting the guard.

1. With the spindle facing the operator, press and hold the guard release lever 9.
2. Align the lugs 12 on the guard with the slots 13 on the gear case cover.
3. Push the guard down until the guard lugs engage and rotate them in the groove on the gear case cover. Release the guard release lever.

4. To position the guard, rotate the guard clockwise into the desired working position. Press and hold the guard release lever 9 to rotate the guard in the counterclockwise direction.

NOTE: The guard body should be positioned between the spindle and the operator to provide maximum operator protection.

The guard release lever should snap into one of the alignment holes 14 on the guard collar. This ensures that the guard is secure.

5. To remove the guard, follow steps 1-3 of these instructions in reverse.

Flanges and Wheels

Turn unit off and unplug the tool before making any adjustments or removing or installing attachments or accessories.

Mounting Non-Hubbed Wheels (Fig. G)

Failure to properly seat the flanges and/or wheel could result in serious injury (or damage to the tool or wheel).

Included flanges must be used with depressed center Type 27/42 grinding wheels and Type 1/41 cutting wheels. See the Accessories Chart for more information.

A closed, two-sided cutting wheel guard is required when using abrasive cutting wheels or diamond coated cutting wheels.

Use of a damaged flange or guard or failure to use proper flange and guard can result in injury due to wheel breakage and wheel contact. See the Accessories Chart for more information.

1. Place the tool on a table, guard up.
2. Install the backing flange 6 on spindle 4 with the raised center (pilot) facing the wheel. Press the backing flange into place.
3. Place wheel 18 against the backing flange, centering the wheel on the raised center (pilot) of the backing flange.
4. While depressing the spindle lock button and with the hex depressions facing away from the wheel, thread the locking flange 7 on spindle so that the lugs engage the two slots in the spindle.
5. While depressing the spindle lock button, tighten the locking flange 7 by hand or using the wrench supplied. (Only use a locking flange if it is in perfect condition.) Refer to *Accessory Chart* to see flange details.
6. To remove the wheel, reverse the above procedure.

Mounting Sanding Backing Pads (Fig. A, H)

NOTE: Use of a guard with sanding discs that use backing pads, often called fiber resin discs, is not required. Since a guard is not required for these accessories, the guard may or may not fit correctly if used.

Failure to properly seat the clamp nut and/or pad could result in serious injury (or damage to the tool or wheel).

Proper guard must be reinstalled for grinding wheel, cutting wheel, sanding flap disc, wire brush or wire wheel applications after sanding applications are complete.

1. Place or appropriately thread backing pad 15 on the spindle.
2. Place the sanding disc 19 on the backing pad 15.
3. While depressing spindle lock button 3, thread the sanding clamp nut 17 on spindle, piloting the raised hub on the clamp nut into the center of sanding disc and backing pad.
4. Tighten the clamp nut by hand. Then depress the spindle lock button while turning the sanding disc until the sanding disc and clamp nut are snug.
5. To remove the wheel, grasp and turn the backing pad and sanding pad while depressing the spindle lock button.

Mounting and Removing Hubbed Wheels (Fig. A)

Hubbed wheels install directly on the spindle. Thread of accessory must match thread of spindle.

1. Remove backing flange by pulling away from tool.
2. Thread the wheel on the spindle 4 by hand.
3. Depress the spindle lock button 3 and use a wrench to tighten the hub of the wheel.
4. Reverse the above procedure to remove the wheel.

NOTICE: Failure to properly seat the wheel before turning the tool on may result in damage to the tool or the wheel.

Mounting Wire Cup Brushes and Wire Wheels (Fig. A)

Failure to properly seat the brush/wheel could result in serious injury (or damage to the tool or wheel).

To reduce the risk of personal injury, wear work gloves when handling wire brushes and wheels. They can become sharp.

To reduce the risk of damage to the tool, wheel or brush must not touch guard when mounted or while in use. Undetectable damage could occur to the accessory, causing wires to fragment from accessory wheel or cup.

Wire cup brushes or wire wheels install directly on the threaded spindle without the use of flanges. Use only wire brushes or wheels provided with a threaded hub. These accessories are available at extra cost from your local dealer or authorised service center.

1. Place the tool on a table, guard up.
2. Thread the wheel on the spindle by hand.
3. Depress spindle lock button 3 and use a wrench on the hub of the wire wheel or brush to tighten the wheel.
4. To remove the wheel, reverse the above procedure.

NOTICE: To reduce the risk of damage to the tool, properly seat the wheel hub before turning the tool on.

Prior to Operation

- Install the guard and appropriate disc or wheel. Do not use excessively worn discs or wheels.
- Be sure the backing flange and locking flange are mounted correctly. Follow the instructions given in the *Accessory Chart*.
- Make sure the disc or wheel rotates in the direction of the arrows on the accessory and the tool.
- Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheels for chips and cracks, backing pad for cracks, tear or excess wear, wire brush for loose or cracked wires. If power tool or accessory is dropped,

inspect for damage or install an undamaged accessory. After inspecting and installing an accessory, position yourself and bystanders away from the plane of the rotating accessory and run the power tool at maximum no-load speed for one minute. Damaged accessories will normally break apart during this test time.

OPERATION

To reduce the risk of serious personal injury, turn unit off and remove the battery pack before making any adjustments or removing/ installing attachments or accessories. An accidental start-up can cause injury.

Installing and Removing the Battery Pack (Fig. I)

NOTE: For best results, make sure your battery pack is fully charged.

To install the battery pack 10 into the tool handle, align the battery pack with the rails inside the tool's handle and slide it into the handle until the battery pack is firmly seated in the tool and ensure that it does not disengage.

To remove the battery pack from the tool, press the release button 11 and firmly pull the battery pack out of the tool handle. Insert it into the charger as described in the charger section of this manual.

Proper Hand Position (Fig. J)

To reduce the risk of serious personal injury, ALWAYS use proper hand position as shown.

To reduce the risk of serious personal injury, ALWAYS hold securely in anticipation of a sudden reaction.

Proper hand position requires one hand on the side handle 5, with the other hand on the body of the tool, as shown in Figure J.

Paddle Switch (Fig. A)

Hold the side handle and body of the tool firmly to maintain control of the tool at start up and during use and until the wheel or accessory stops rotating. Make sure the wheel has come to a complete stop before laying the tool down.

Before inserting the battery, depress and release the paddle switch 1 once to ensure that the switch is off. Depress and release the paddle switch as described below after any interruption in power supply to the tool, such as motor overload, pinch, stall or bind-up event, or any other unexpected tool shutdown.

NOTE: To reduce unexpected tool movement, do not switch the tool on or off while under load conditions. Allow the grinder to run up to full speed before touching the work surface. Lift the tool

from the surface before turning the tool off. Allow the tool to stop rotating before putting it down.

1. To turn the tool on, push the lock-off lever 2 toward the back of the tool, then depress the paddle switch 1. The tool will run while the switch is depressed.
2. Turn the tool off by releasing the paddle switch.

Spindle Lock Button (Fig. K)

The spindle lock button 3 is provided to prevent the spindle from rotating when installing or removing wheels. Operate the spindle lock only when the tool is turned off, when the battery has been removed, and has come to a complete stop.

NOTICE: To reduce the risk of damage to the tool, do not engage the spindle lock while the tool is operating. Damage to the tool will result and attached accessory may spin off possibly resulting in injury.

To engage the lock, depress the spindle lock button 3 and rotate the spindle until you are unable to rotate the spindle further.

Surface Grinding, Sanding and Wire Brushing (Fig. L)

Always use the correct guard per the instructions in this manual.

To perform work on the surface of a workpiece:

1. Allow the tool to reach full speed before touching the tool to the work surface.
2. Apply minimum pressure to the work surface, allowing the tool to operate at high speed. Material removal rate is greatest when the tool operates at high speed.
3. Maintain an appropriate angle between the tool and work surface. Refer to the chart according to particular function.

Function	Angle
Grinding	20°-30°
Sanding with Flap Disc	5°-10°
Sanding with Backing Pad	5°-15°
Wire Brushing	5°-10°

4. Maintain contact between the edge of the wheel and the work surface.
 - If grinding, sanding with flap discs or wire brushing move the tool continuously in a forward and back motion to avoid creating gouges in the work surface.
 - If sanding with a backing pad, move the tool constantly in a straight line to prevent burning and swirling of work surface.

NOTE: Allowing the tool to rest on the work surface without moving will damage the work piece.
5. Remove the tool from work surface before turning tool off. Allow the tool to stop rotating before laying it down.

Use extra care when working over an edge, as a sudden sharp movement of grinder may be experienced.

Precautions To Take When Working on a Painted Workpiece

1. Sanding or wire brushing of lead based paint is NOT RECOMMENDED due to the difficulty of controlling the contaminated dust. The greatest danger of lead poisoning is to children and pregnant women.
2. Since it is difficult to identify whether or not a paint contains lead without a chemical analysis, we recommend the following precautions when sanding any paint:

Personal safety

1. No children or pregnant women should enter the work area where the paint sanding or wire brushing is being done until all clean up is completed.
2. A dust mask or respirator should be worn by all persons entering the work area. The filter should be replaced daily or whenever the wearer has difficulty breathing.
NOTE: Only those dust masks suitable for working with lead paint dust and fumes should be used. Ordinary painting masks do not offer this protection. See your local hardware dealer for the proper NIOSH-approved mask.
3. NO EATING, DRINKING or SMOKING should be done in the work area to prevent ingesting contaminated paint particles. Workers should wash and clean up BEFORE eating, drinking or smoking. Articles of food, drink, or smoking should not be left in the work area where dust would settle on them.

Environmental safety

1. Paint should be removed in such a manner as to minimize the amount of dust generated.
2. Areas where paint removal is occurring should be sealed with plastic sheeting of 4 mils thickness.
3. Sanding should be done in a manner to reduce tracking of paint dust outside the work area.

Cleaning and Disposal

1. All surfaces in the work area should be vacuumed and thoroughly cleaned daily for the duration of the sanding project. Vacuum filter bags should be changed frequently.
2. Plastic drop cloths should be gathered up and disposed of along with any dust chips or other removal debris. They should be placed in sealed refuse receptacles and disposed of through regular trash pick-up procedures. During clean up, children and pregnant women should be kept away from the immediate work area.
3. All toys, washable furniture and utensils used by children should be washed thoroughly before being used again.

Edge Grinding and Cutting (Fig. M)

Do not use edge grinding/cutting wheels for surface grinding

applications because these wheels are not designed for side pressures encountered with surface grinding. Wheel breakage and injury may result.

Wheels used for edge grinding and cutting may break or kick back if they bend or twist while the tool is being used. In all edge grinding/cutting operations, the open side of the guard must be positioned away from the operator.

NOTICE: Edge grinding/cutting with a Type 27 wheel must be limited to shallow cutting and notching — less than 13 mm in depth when the wheel is new. Reduce the depth of cutting/notching equal to the reduction of the wheel radius as it wears down. Refer to the Accessories Chart for more information. Edge grinding/cutting with a Type 41 wheel requires usage of a Type 1 guard.

1. Allow the tool to reach full speed before touching the tool to the work surface.
2. Apply minimum pressure to the work surface, allowing the tool to operate at high speed. Grinding/cutting rate is greatest when the tool operates at high speed.
3. Position yourself so that the open-underside of the wheel is facing away from you.
4. Once a cut is begun and a notch is established in the workpiece, do not change the angle of the cut. Changing the angle will cause the wheel to bend and may cause wheel breakage. Edge grinding wheels are not designed to withstand side pressures caused by bending.

5. Remove the tool from the work surface before turning the tool off. Allow the tool to stop rotating before laying it down.

MAINTENANCE

To reduce the risk of serious personal injury, turn unit off and remove the battery pack before making any adjustments or removing/ installing attachments or accessories. An accidental start-up can cause injury.

Cleaning

Blow dirt and dust out of all air vents with clean, dry air at least once a week. To minimize the risk of eye injury, always wear ANSI Z87.1 approved eye protection when performing this.

Never use solvents or other harsh chemicals for cleaning the non-metallic parts of the tool. These chemicals may weaken the plastic 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

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. If you need assistance in locating any accessory, please contact DeWALT Industrial Tool Co., 701 East Joppa Road, Towson, MD 21286, call 1-800-4-DeWALT (1-800-433-9258) or visit our website: www.dewalt.com.

Repairs

The charger and battery pack are not serviceable.

To assure product SAFETY and RELIABILITY, repairs, maintenance and adjustment (including brush inspection and replacement, when applicable) should be performed by a DeWALT factory service center or a DeWALT authorized service center. Always use identical replacement parts.

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References

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