

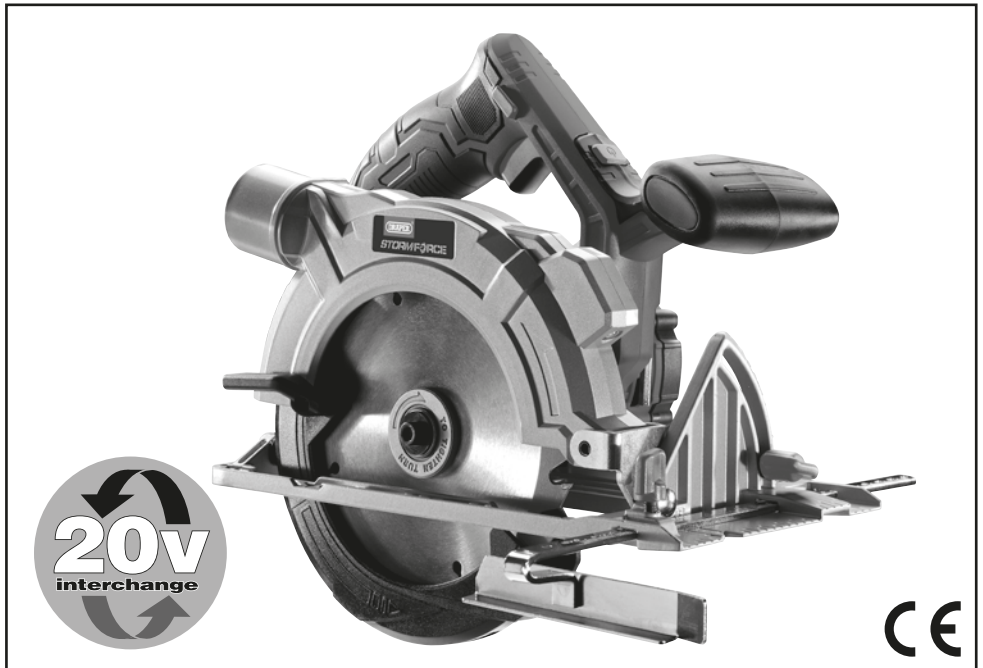


DRAPER[®]

STORMFORCE

20V
**CIRCULAR
SAW**

89451



These instructions accompanying the product are the original instructions. This document is part of the product, keep it for the life of the product passing it on to any subsequent holder of the product. Read all these instructions before assembling, operating or maintaining this product.

This manual has been compiled by Draper Tools describing the purpose for which the product has been designed, and contains all the necessary information to ensure its correct and safe use. By following all the general safety instructions contained in this manual, it will ensure both product and operator safety, together with longer life of the product itself.

All photographs and drawings in this manual are supplied by Draper Tools to help illustrate the operation of the product.

Whilst every effort has been made to ensure the accuracy of information contained in this manual, the Draper Tools policy of continuous improvement determines the right to make modifications without prior warning.

1. TITLE PAGE

1.1 INTRODUCTION:

USER MANUAL FOR: 20V Circular Saw

Stock No: 89451

Part No: CCS20SF

1.2 REVISIONS:

Date first published June 2018.

As our user manuals are continually updated, users should make sure that they use the very latest version.

Downloads are available from: <http://drapertools.com/manuals>

Draper Tools Limited
Hursley Road
Chandler's Ford
Eastleigh
Hampshire
SO53 1YF
UK

Website: drapertools.com

Product Helpline: +44 (0) 23 8049 4344

General Fax: +44 (0) 23 8026 0784

1.3 UNDERSTANDING THIS MANUALS SAFETY CONTENT:

WARNING! – Information that draws attention to the risk of injury or death.

CAUTION! – Information that draws attention to the risk of damage to the product or surroundings.

1.4 COPYRIGHT © NOTICE:

Copyright © Draper Tools Limited.

Permission is granted to reproduce this publication for personal and educational use only. Commercial copying, redistribution, hiring or lending is prohibited.

No part of this publication may be stored in a retrieval system or transmitted in any other form or means without written permission from Draper Tools Limited.

In all cases this copyright notice must remain intact.

2. CONTENTS

1. TITLE PAGE	
1.1 INTRODUCTION	2
1.2 REVISION HISTORY	2
1.3 UNDERSTANDING THIS MANUAL	2
1.4 COPYRIGHT NOTICE	2
2. CONTENTS	
2.1 CONTENTS.....	3
3. GUARANTEE	
3.1 GUARANTEE	4
4. INTRODUCTION	
4.1 SCOPE.....	5
4.2 SPECIFICATION	5
4.3 HANDLING AND STORAGE	6
5. HEALTH AND SAFETY INFORMATION	
5.1 GENERAL SAFETY INSTRUCTIONS FOR POWER TOOL USE	7
5.2 GENERAL SAFETY INSTRUCTIONS FOR ALL SAWS	8
5.3 PENDULUM GUARDS.....	9
5.4 ADDITIONAL SAFETY INSTRUCTIONS FOR CIRCULAR SAW BLADES	9
5.5 ADDITIONAL SAFETY INSTRUCTIONS FOR LASER PRODUCTS	10
5.6 RESIDUAL RISK	10
5.7 SAFETY INSTRUCTIONS FOR MAINS POWERED BATTERY PACKS AND	
CHARGERS (sold separately)	11
5.8 CONNECTION TO THE POWER SUPPLY (CHARGER (sold separately))	12
6. TECHNICAL DESCRIPTION	
6.1 IDENTIFICATION	13
7. UNPACKING AND CHECKING	
7.1 PACKAGING	14
7.2 WHAT'S IN THE BOX.....	14
7.3 20V POWER INTERCHANGE BATTERY PACKS/CHARGERS (sold separately)	14
8. PREPARING THE CIRCULAR SAW	
8.1 BATTERY PACK CHARGING	15
8.2 BATTERY PACK CHARGE STATUS.....	16
8.3 BATTERY PACK EFFICIENCY AND CHARGING ADVICE	16
8.4 BLADE REPLACEMENT AND INSTALLATION	17
8.5 LASER.....	17
9. OPERATION	
9.1 ON/OFF TRIGGER SWITCH	18
9.2 DUST EXTRACTION	18
9.3 CUTTING DEPTH ADJUSTMENT	18
9.4 CUTTING ANGLE ADJUSTMENT	18
9.5 PARALLEL GUIDE	19
9.6 LASER GUIDE	19
9.7 SAW OPERATION	19
10. MAINTENANCE AND TROUBLESHOOTING	
10.1 MAINTENANCE	20
10.2 TROUBLESHOOTING	20
11. DISPOSAL	
11.1 DISPOSAL.....	21
11.2 BATTERY PACK DISPOSAL INFORMATION	21
12. EXPLANATION OF SYMBOLS	
12.1 EXPLANATION OF SYMBOLS	22
DECLARATION OF CONFORMITY	ENCLOSED

3. GUARANTEE

3.1 GUARANTEE

Draper tools have been carefully tested and inspected before shipment and are guaranteed to be free from defective materials and workmanship.

Should the tool develop a fault, please return the complete tool to your nearest distributor or contact

Draper Tools Limited, Chandler's Ford, Eastleigh, Hampshire, SO53 1YF. England.

Telephone Sales Desk: (023) 8049 4333 or Product Help Line (023) 8049 4344.

A proof of purchase must be provided with the tool.

If upon inspection it is found that the fault occurring is due to defective materials or workmanship, repairs will be carried out free of charge. This guarantee period covering labour is 12 months from the date of purchase except where tools are hired out when the guarantee period is 90 days from the date of purchase. The guarantee is extended to 24 months for parts only. This guarantee does not apply to any consumable parts, any type of battery or normal wear and tear, nor does it cover any damage caused by misuse, careless or unsafe handling, alterations, accidents, or repairs attempted or made by any personnel other than the authorised Draper warranty repair agent.

Note: If the tool is found not to be within the terms of warranty, repairs and carriage charges will be quoted and made accordingly.

This guarantee applies in lieu of any other guarantee expressed or implied and variations of its terms are not authorised.

Your Draper guarantee is not effective unless you can produce upon request a dated receipt or invoice to verify your proof of purchase within the guarantee period.

Please note that this guarantee is an additional benefit and does not affect your statutory rights.

Draper Tools Limited.

4. INTRODUCTION

4.1 SCOPE

Suitable for sawing of sheet wood or sizing of wooden doors. The laser allows for more accurate sawing operations. This item is intended for domestic and light commercial use only. Any other application is considered misuse.

This power product is supplied "naked" without battery pack or charger. Draper 20V Power Interchange tools all use universal 2.0 and 4.0Ah batteries and chargers, enabling each battery pack to fit all tools within the range (see the table on page 14 for the batteries and chargers available).

4.2 SPECIFICATION

Stock No. 89451

Part No. CCS20SF

Saw blade:

Diameter.....165mm

Bore Ø.....20mm

Thickness.....1.6mm

Maximum depth of cut:

90°55mm

45°41mm

Revolutions per minute (no load):4,200r/min

Laser:

Type.....Class 2

Output power.....1mW

Wavelength650nm

Sound pressure level*:79.2dB(A), K=3 db(A)

Sound power level**:90.2dB(A), K=3 db(A)

Vibration level:2.02m/s², K=1.5m/s²

Weight (machine only):2.5kg

Battery packs (sold separately):

Stock No. 8943789433

Part No..... B202LISF..... B20LISF

Type Li-ion Li-ion

Rated Voltage 20V 20V

Rating 2.0Ah..... 4.0Ah

Chargers (sold separately):

Stock No. 8942523793

Part No..... CB20 CB203.5

Rated Voltage 230V~..... 230V~

Rated Frequency 50Hz..... 50Hz

Rated D.C. output voltage 21.5V 21.5V

Rated D.C. output current 2.4A3.5A

Protective device rated current..... 8A.....8A

Construction Class II Class II

* Continuous A-Weighted Sound Pressure Level at the workstation in accordance to prEN ISO 15744:1999 and declared according to EN ISO 4871.

** A-Weighted Sound Power Level in accordance to prEN ISO 15744:1999 and declared according to EN ISO 4871.

4. INTRODUCTION

4.3 HANDLING & STORAGE

- Care must be taken when handling this product.
 - Dropping this power tool could have an effect on its accuracy and could also result in personal injury. This product is not a toy and must be respected.
- Environmental conditions can have a detrimental effect on this product if neglected.
 - Exposure to damp air can gradually corrode components.
 - If the product is unprotected from dust and debris, components will become clogged.
 - If not cleaned and maintained correctly or regularly, the machine will not perform at its best.

5. HEALTH AND SAFETY INFORMATION

5.1 GENERAL SAFETY INSTRUCTIONS FOR POWER TOOL USE

When using any type of power tool there are steps that should be taken to make sure that you, as the user, remain safe.

Common sense and a respect for the tool will help reduce the risk of injury.

Read the instruction manual fully. Do not attempt any operation until you have read and understood this manual.

Most important you must know how to safely start and stop this machine, especially in an emergency.

Keep the work area tidy and clean. Attempting to clear clutter from around the machine during use will reduce your concentration. Mess on the floor creates a trip hazard. Any liquid spilt on the floor could result in you slipping.

Find a suitable location. If the machine is bench mounted, the location should provide good natural light or artificial lighting as a replacement. Avoid damp and dust locations as it will have a negative effect on the machine's performance. If the machine is portable do not expose the tool to rain. In all cases do not operate power tools near any flammable materials.

Keep bystanders away. Children, onlookers and passers by must be restricted from entering the work area for their own protection. The barrier must extend a suitable distance from the tool user.

Unplug and house all power tools that are not in use. A power tool should never be left unattended while connected to the power supply. They must be housed in a suitable location, away locked up and from children. This includes battery chargers.

Do not overload or misuse the tool. All tools are designed for a purpose and are limited to what they are capable of doing. Do not attempt to use a power tool (or adapt it in any way) for an application it is not designed for. Select a tool appropriate for the size of the job. Overloading a tool will result in tool failure and user injury: This covers the use of accessories.

Dress properly. Loose clothing, long hair and jewellery are all dangerous because they can become entangled in moving machinery: This can also result in parts of body being pulled into the machine. Clothing should be close fitted, with any long hair tied back and jewellery and neck ties removed. Footwear must be fully enclosed and have a non-slip sole.

Wear personal protective equipment (PPE). Dust, noise, vibration and swarf can all be dangerous if not suitably protected against. If the work involving the power tool creates dust or fumes wear a dust mask. Vibration to the hand, caused by operating some tools for longer periods must be protected against. Wear vibration reducing gloves and allow long breaks between uses. Protect against dust and swarf by wearing approved safety goggles or a face shield. These are some of the more common hazards and preventions, however, always find out what hazards are associated with the machine/work process and wear the most suitable protective equipment available.

Do not breathe contaminated air. If the work creates dust or fumes connect the machine (if possible) to an extraction system either locally or remotely. Working outdoors can also help if possible.

Move the machine as instructed. If the machine is hand held, do not carry it by the power supply cable. If the product is heavy, employ a second or third person to help move it safely or use a mechanical device. Always refer to the instructions for the correct method.

Do not overreach. Extending your body too far can result in a loss of balance and you falling. This could be from a height or onto a machine and will result in injury.

Maintain your tools correctly. A well maintained tool will do the job safely. Replace any damaged or missing parts immediately with original parts from the manufacturer. As applicable, keep blades sharp, moving parts clean, oiled or greased, handles clean, and emergency devices working.

5. HEALTH AND SAFETY INFORMATION

Wait for the machine to stop. Unless the machine is fitted with a safety brake, some parts may continue to move due to momentum. Wait for all parts to stop, then unplug it from the power supply before making any adjustments, carrying out maintenance operations or just finishing using the tool.

Remove and check setting tools. Some machinery requires the use of additional tools or keys to set, load or adjust the power tool. Before starting the power tool always check to make certain they have been removed and are safely away from the machine.

Prevent unintentional starting. Before plugging any machine in to the power supply, make sure the switch is in the OFF position. If the machine is portable, do not hold the machine near the switch and take care when putting the machine down, that nothing can operate the switch.

Carefully select an extension lead. Some machines are not suitable for use with extension leads. If the tool is designed for use outdoors, use an extension lead also suitable for that environment. When using an extended lead, select one capable of handling the current (amps) drawn by the machine in use. Fully extend the lead regardless of the distance between the power supply and the tool. Excess current (amps) and a coiled extension lead will both cause the cable to heat up and can result in fire.

Concentrate and stay alert. Distractions are likely to cause an accident. Never operate a power tool if you are under the influence of drugs (prescription or otherwise), including alcohol or if you are feeling tired. Being disorientated will result in an accident.

Have this tool repaired by a qualified person. This tool is designed to conform to the relevant international and local standards and as such should be maintained and repaired by someone qualified, using only original parts supplied by the manufacturer. This will ensure the tool remains safe to use.

5.2 ADDITIONAL SAFETY INSTRUCTIONS FOR ALL SAWS

Keep hands away from cutting area and the blade. Keep your second hand on the auxiliary handle, or motor housing. If both hands are holding the saw, they cannot be cut by the blade.

Do not reach underneath the workpiece. The guard cannot protect you from the blade below the workpiece.

Adjust the cutting depth to the thickness of the workpiece. Less than a full tooth of the blade teeth should be visible below the workpiece.

Never hold piece being cut in your hands or across your leg. Secure the workpiece to a stable platform. It is important to support the work properly to minimise body exposure, blade binding or loss of control.

Hold power tool by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord. Contact with a "live" wire will also make exposed metal parts of the power tool "live" and shock the operator.

When ripping always use a rip fence or straight edge guide. This improves the accuracy of cut and reduces chance of blade binding.

Always use blade with correct size and shape (diamond versus round) of arbour holes. Blades that do not match the mounting hardware of the saw will run eccentrically, causing loss of control.

Never use damaged or incorrect blade washers or bolt. The blade washers and bolt were specially designed for your saw, for optimum performance and safety of operation.

Causes and operator prevention of kickback:

- kickback is a sudden reaction to a pinched, bound or misaligned saw blade, causing an uncontrolled saw to lift up and out of the workpiece towards the operator.
- When the blade is pinched or bound tightly by the kerf closing down, the blade stalls and the motor reaction drives the unit rapidly back towards the operator.
- If the blade becomes twisted or misaligned in the cut, the teeth at the back edge of the blade can dig into the top surface of the wood causing the blade to climb out of the kerf and jump back toward the operator.

5. HEALTH AND SAFETY INFORMATION

- Kickback is the result of saw misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below.
 - Maintain a firm grip with both hands on the saw and position your arms to resist kickback forces. Position your body to either side of the blade, but not in line with the blade. Kickback could cause the saw to jump backwards, but kickback forces can be controlled by the operator, if proper precautions are taken.
 - When blade is binding, or when interrupting a cut for any reason, release the trigger and hold the saw motionless in the material until the blade comes to a complete stop. Never attempt to remove the saw from the work or pull the saw backward while the blade is in motion or kickback may occur. Investigate and take corrective actions to eliminate the cause of blade binding.
 - When restarting a saw in the workpiece, centre the saw blade in the kerf and check that saw teeth are not engaged into the material. If saw blade is binding, it may walk up or kickback from the workpiece as the saw is restarted.
 - Support large panels to minimise the risk of blade pinching and kickback. Large panels tend to sag under their own weight. Supports must be placed under the panel on both sides, near the line of cut and near the edge of the panel.
 - Do not use dull or damaged blades. Unsharpened or improperly set blades produce narrow kerf causing excessive friction, blade binding and kickback.
 - Blade depth and bevel adjusting locking levers must be tight and secure before making cut. If blade adjustment shifts while cutting, it may cause binding and kickback.
 - Use extra caution when making a “plunge cut” into existing walls or other blind areas. The protruding blade may cut objects that can cause kickback.

5.3 PENDULUM GUARDS

Check lower guard for proper closing before each use. Do not operate the saw if lower guard does not move freely and close instantly. Never clamp or tie the lower guard into the open position. If the saw is accidentally dropped, the lower guard may be bent. Raise the lower guard with the retracting handle and make sure it moves freely and does not touch the blade or any other part, in all angles and depths of cut.

Check the operation of the lower guard spring. If the guard and spring are not operating properly, they must be serviced before use. The lower guard may operate sluggishly due to damaged parts, gummy deposits, or a build up of debris.

Lower guard should be retracted manually only for special cuts such as “plunge cuts” and “compound cuts”. Raise lower guard by retracting handle and as soon as the blade enters the material, the lower guard must be released. For all other sawing, the lower guard should operate automatically.

Always observe that the lower guard is covering the blade before placing saw down on bench or floor. An unprotected, coasting blade will cause the saw to walk backwards, cutting whatever is in its path. Be aware of the time it takes for the blade to stop after the switch is released.

5.4 ADDITIONAL SAFETY INSTRUCTIONS FOR CIRCULAR SAW BLADES

Safe Working Practice

Maximum speed. The maximum speed marked on the tool shall not be exceeded. Where stated, the speed range shall be adhered to.

Circular saw blades

- Circular saw blades, the bodies of which are cracked, shall be scrapped (repairing is not permitted).
- Composite (tipped) circular saw blades, where the tip dimension is reduced to less than 1mm, shall be taken out of service.

5. HEALTH AND SAFETY INFORMATION

One piece tools

- Clamping screws shall be tightened according to instructions provided by the manufacturer. Where instructions are not provided, clamping screws shall be tightened in sequence from the centre outwards.
- Use of loose rings or bushes to “make up” bore sizes on circular saw blades shall not be permitted.
- Use of fixed rings, e.g. pressed or held by adhesive fixing, in circular saw blades or flanged bushes for other tools shall be permitted if made to the manufacturers specification.
- Resin shall only be removed from light alloys with solvents that do not affect the mechanical characteristics of these materials.

Repair of tools

- Repair of tools is only allowed according to the tool manufacturers instructions. Particular attention is drawn to the following.
- The design of composite (tipped) tools shall not be changed in the process of repair.
- Composite tools shall be repaired by a competent person, i.e. a person of training and experience, who has knowledge of the design requirements and understands the levels of safety to be achieved.
- Repair shall therefore include, e.g. use of spare parts which are in accordance with the specification of the original parts provided by the manufacturer.
- Tolerances which ensure correct clamping shall be maintained.
- For one piece tools care shall be taken that regrinding of the cutting edge will not cause weakening of the hub and the connection of the cutting edge to the hub.

5.5 ADDITIONAL SAFETY INSTRUCTIONS FOR LASER PRODUCTS

- Laser radiation. **DO NOT STARE INTO BEAM!** Class 2 laser product.
- Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers and microscopes) with a distance of 100mm may pose an eye hazard.
- Viewing the laser output with certain optical instruments designed for use at a distance (for example, telescopes and binoculars) may pose an eye hazard.
- **Caution:** Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- **NEVER** direct the beam towards a person's eyes!
- Avoid positioning the laser such that it may lead to unintentional eye exposure to any potential passing pedestrians/traffic.
- **DO NOT** direct the beam towards animals.
- **DO NOT** use in the vicinity of children.
- **DO NOT** direct the beam onto reflective surfaces.
- Always switch off when not in use and do not leave unattended. Remove the batteries before storing the circular saw away.
- This laser product has no serviceable parts. Do not attempt to disassemble or repair.



5.6 RESIDUAL RISK

Important note: Although the safety instructions and operating manuals for our tools contain extensive instructions for safe working with power tools, every power tool involves a certain residual risk which can not be completely excluded by safety mechanisms. Power tools must therefore always be operated with caution!

5. HEALTH AND SAFETY INFORMATION

5.7 SAFETY INSTRUCTIONS FOR MAINS POWERED BATTERY PACKS AND CHARGERS (sold separately)

Chargers

- The charger is for indoor use only.
- Prior to plugging the charger in to the supply, check that the plug and the cable are in good repair. If either are damaged, have the defective item replaced immediately by a suitably qualified person. If the casing of the battery charger is damaged, it is good policy to have the charger checked over by a suitably qualified person.
- Only use a correctly rated mains outlet to provide power, do not plug into site generators, attach to engine generators or D.C. sources. Do not use a mains socket outlet that is not switched.
- Use the correct Draper charger in conjunction with its corresponding battery pack (see the table on page 11 for information).
- Do not charge any other batteries with Draper chargers. Any other application is considered misuse.
- Do not attempt to charge battery packs that are too hot (over 30°C) or too cold (under 5°C), if these conditions apply set the battery pack aside to “normalise” before proceeding with the charging operation.
- Set up the charger and cable in a safe place where it won't be knocked, tripped over, stepped on, etc. and where it is well ventilated. Make sure the ventilation slots in the charger case are not obstructed, plug the charger into the socket outlet.
- Inspect the battery pack for damage, if it is undamaged, plug it into the charger, ensuring the correct orientation. (Most chargers and batteries have 'keys' etc, to make sure the battery pack is not inserted incorrectly, if you are having to 'force' the battery pack into the charger, the chances are you have it the wrong way round, check and try again.)
- Switch the charger on and check that the correct indicators illuminate, allow the battery pack to charge (see the specific instructions for your charger). Once charging is complete, switch the charger off, remove the battery pack and store, repeat the procedure if you have more than one battery pack to charge.

Caution: When the battery charger has been continuously used, the battery charger will be hot. Once the charging has been completed, give 15 minutes rest until the next charge.

- After charging is complete, unplug the charger from the socket outlet by pulling on the plug. Do not pull on the cable. Store the charger in a dry secure place.
- If, when the charger was switched on, the correct indications did not occur, leave for two or three minutes to allow the charger to stabilise, if the correct indications occur, allow the charging cycle to proceed as normal. If no indication appears at all, switch off, remove the battery pack, unplug the charger, check that the charger contacts and the battery contacts are clean and repeat the process. If there is still no indication, switch off, remove the battery pack, unplug the charger and check the fuse. If the fuse is blown, replace and repeat the process. If the fuse blows again, or if the fuse was intact, attempt no further action. Refer the charger to a suitably qualified person for repair.

Battery packs

- Before charging, read the instructions.
- For indoor use. Do not expose to rain.
- Only use Draper battery packs with stock numbers 89437 and 89433 in conjunction with this product.
- Do not charge any other manufacturer's battery packs using Draper chargers. Any other application is considered misuse.
- The battery must be removed from the appliance before it is recycled.

7. UNPACKING AND CHECKING

- The charger must be disconnected from the supply mains when removing the battery.
- The battery is to be disposed of in-line with local Authority procedures.
- Do not use any other than the designated Draper batteries/chargers with this product.
- Do not crush, open or burn the battery. Exposure to potentially harmful materials may occur.
- In case of fire use CO₂ or dry chemical extinguisher.
- Do not expose to high temperatures >50°C. The battery may degrade at high temperatures.
- Charge battery in conditions between 5°C to 30°C with the specified charger designed for this battery.
- Do not use battery if it has been stored at 5°C or less. Allow it to “normalise” at room temperature before usage/changing.

Warning!

- Leaking battery packs
 - The electrolyte in battery packs is corrosive. Avoid contact with the skin.
 - If contact is made, flush the area with running water, pat dry and seek medical attention and advice at the earliest opportunity.
 - Inform medical personnel that the contaminant is a “high alkaline, corrosive liquid”.
 - If electrolyte comes into contact with the eyes, flush with copious amounts of water only. Seek medical attention immediately, relaying the information above.

5.8 CONNECTION TO THE POWER SUPPLY (CHARGER (sold separately))


Make sure the power supply information on the machine’s rating plate are compatible with the power supply you intend to connect it to.

This charger comes supplied with a UK standard 3 pin plug. It is designed for connection to a domestic power supply rated at 230V AC.

This charger is Class II† and is designed for connection to a power supply matching that detailed on the rating label and compatible with the plug fitted.

If an extension lead is required, use an approved and compatible lead rated for this appliance.

Follow all the instructions supplied with the extension lead. If using an extension lead, follow the instructions that came with your lead regarding maximum load while cable is wound, if in doubt ensure that the entire cable is unwound. Using a coiled extension lead will generate heat which could melt the lead and cause a fire.

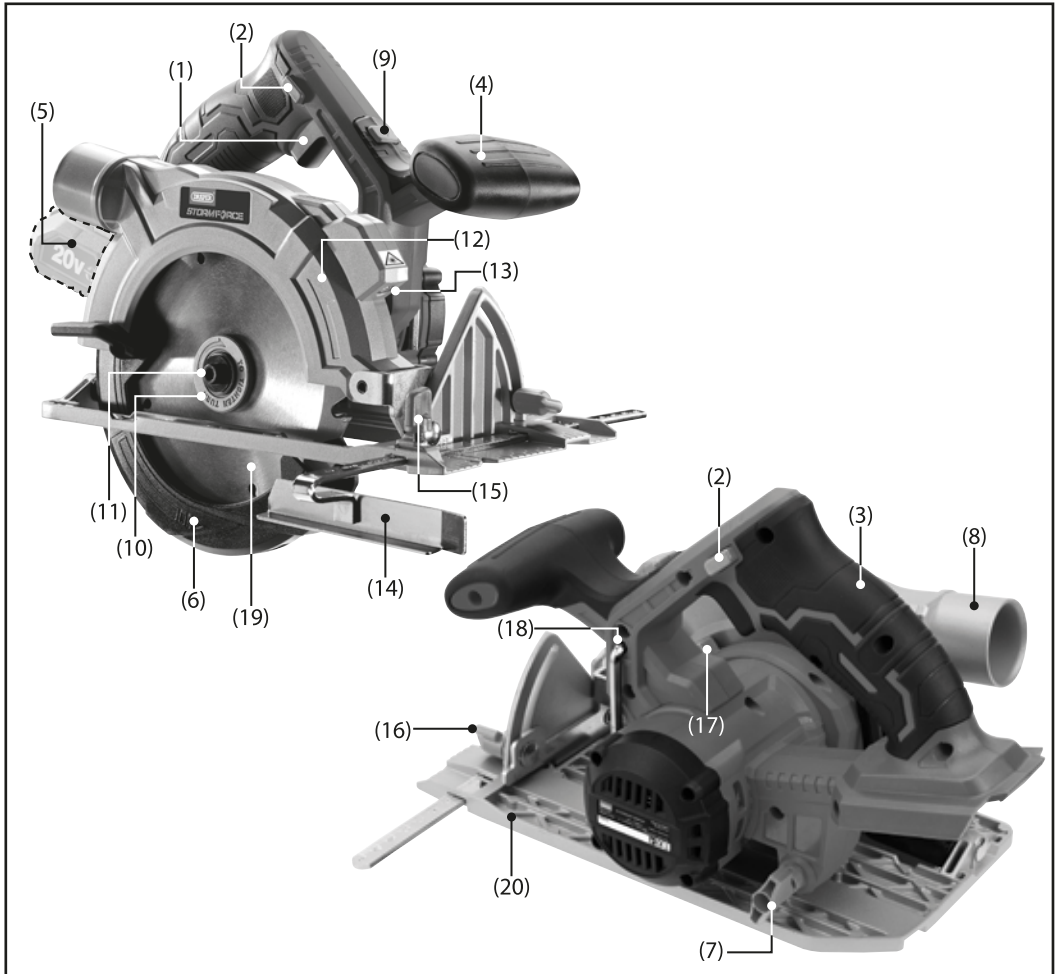
†Double insulated : This product requires no earth connection as supplementary insulation is applied to the basic insulation to protect against electric shock in the event of failure of the basic insulation.

This product requires no earth connection as supplementary insulation is applied to the basic insulation to protect against electric shock in the event of failure of the basic insulation.

Apart from replacing the fuse in the plug, no other electrical work is recommended on this product.

6. TECHNICAL DESCRIPTION

6.1 IDENTIFICATION



- (1) Trigger switch.
- (2) Safety release button.
- (3) Rear handle.
- (4) Auxiliary handle.
- (5) 20V Li-ion battery pack (sold separately).
- (6) Lower blade guard (pendulum).
- (7) Cutting depth adjustment knob.
- (8) Dust extraction outlet.
- (9) On/off switch (laser).
- (10) Saw blade locking flange.
- (11) Saw blade locking hex. bolt.
- (12) Directional rotation arrow.

- (13) Laser beam aperture.
- (14) Parallel guide.
- (15) Parallel guide locking knob.
- (16) Angle adjustment locking knob.
- (17) Spindle lock button.
- (18) Hex. key/hex. key storage location.
- (19) Blade.
- (20) Baseplate.

7. UNPACKING AND CHECKING

7.1 PACKAGING

Carefully remove the product from the packaging and examine it for any sign of damage that may have happened during shipping. Lay the contents out and check them against the parts shown below. If any part is damaged or missing, please contact the Draper Help Line (the telephone number appears on the Title page) and do not attempt to use the product.

The packaging material should be retained at least during the guarantee period: in case the machine needs to be returned for repair.

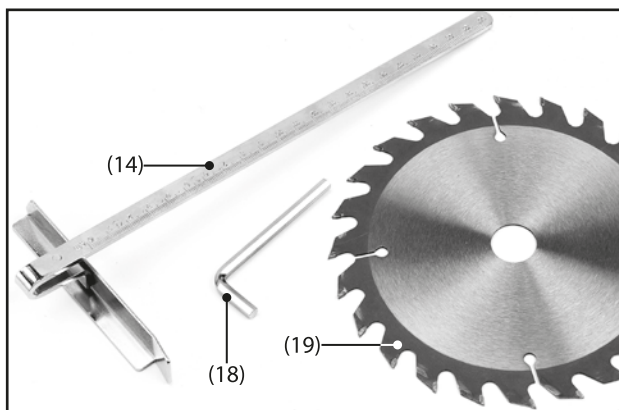
Warning!

- Some of the packaging materials used may be harmful to children. Do not leave any of these materials in the reach of children.
- If any of the packaging is to be thrown away, make sure they are disposed of correctly, according to local regulations.

7.2 WHAT'S IN THE BOX

As well as the main product, there are also several other parts not fitted or attached to it:

- (14) Parallel guide.
- (18) Hex. key.
- (19) Blade.



7.3 20V POWER INTERCHANGE BATTERY PACKS/CHARGERS (sold separately)

This power product is supplied “naked” without battery pack or charger.

The table below shows the Draper 20V Power Interchange compatible batteries and chargers available for this product.

20V Power Interchange tools all use universal 2.0 and 4.0Ah battery packs and chargers, enabling each battery pack to fit all tools within the range.



Item	Stock No.	Part No.	Voltage
Battery pack.	89437	B202LISF	20V/2.0Ah
Battery pack.	89433	B20LISF	20V/4.0Ah
Charger (for Stock No.89437).	89425	CB20	20V/2.4A
Charger (for Stock No.89433).	23793	CB203.5	20V/3.5A

8. PREPARING THE CIRCULAR SAW

8.1 BATTERY PACK CHARGING – FIGS. 1 – 2

This power product is supplied “naked” without battery pack or charger. Compatible batteries, chargers and accessories are available through Draper Tools stockists.

- Consult the table on page 11 of these instructions for a guide to the available battery packs and chargers compatible with this product.

Important: Only Draper designated battery packs and chargers can be used in conjunction with this product. Use of any other third party battery packs/chargers with this product is considered misuse and will invalidate the product’s warranty.

Once connected to the mains supply recharging of the battery pack can be left generally unsupervised requiring minimal attention. Complex circuit construction monitors the battery pack condition adjusting the recharge current to suit. When the recharge cycle is complete and to maintain the full capacity a low output current will continue as required.

Warning!

- Check the condition of the charger and battery prior to each charge. If there is any sign of damage then do not commence charging, seek advice from Draper Tools.

To charge the battery pack (5), it must first be removed from the tool.

To release the battery pack:

- Press the battery pack release button (5.1) and gently slide the battery pack off (Fig.1).
- Plug the battery charger unit (21) into a 230V/AC 13amp, three pin socket.
- The green LED (21.1) will illuminate to show the charger has power.
- Slide the battery pack into place ensuring the battery terminals and the charger terminals make a good connection Fig.2.
- After a few seconds delay the red LED (21.2) will light to show the battery pack is being charged and the green LED will go out.

Warning!

- Ensure battery pack is connected correctly. (Fig.2). Sliding the battery pack on incorrectly may cause damage to the battery/charger.
- When the battery pack is fully charged, the green LED (21.1) will light.

Warning!

- If the indicator lights fail to illuminate during the charging cycle, unplug the charger from the power supply socket outlet and replace the battery pack.

Completing the charging cycle:

- Disconnect battery charger from the power supply.

Caution: Do not pull the plug out of the power supply by pulling on the cord.

- Make sure to grasp the plug when removing from power supply to avoid damaging the cord.

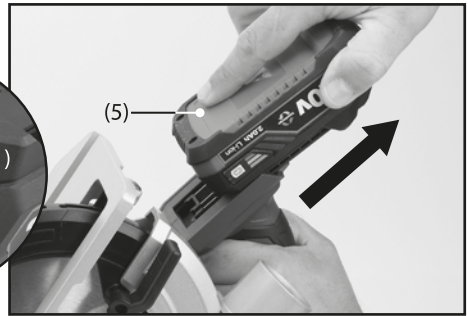
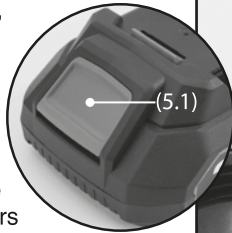
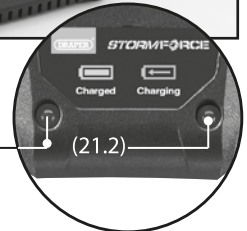


FIG.1



FIG.2



8. PREPARING THE CIRCULAR SAW

- Remove the battery pack from the battery charger.
 - Supporting the battery charger with hand, pull out the battery pack from the battery charger.
 - Make sure to grasp the plug when removing from power supply to avoid damaging the cord.

Caution: When the battery charger has been continuously used, the battery charger will be hot. Once the charging has been completed, give 15 minutes rest until the next charge.

If the battery pack is charged when it is warm due to battery use or exposure to sunlight, the battery pack will not be recharged. In such a case, let the battery pack cool before charge.

If the red indicator flickers rapidly at 0.2 second intervals, check for and take out any foreign objects in the charger's battery slot. If there are no foreign objects, it is probable that the battery pack or charger is malfunctioning. Allow battery/charger to normalise and try again. If a fault remains after trying this then contact Draper Tools.

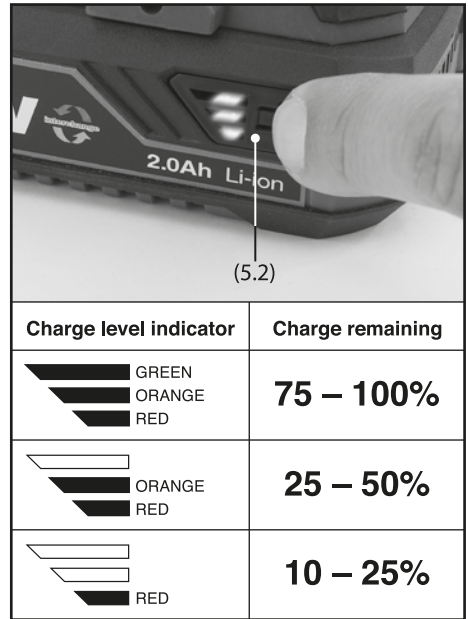


FIG.3

8.2 BATTERY PACK CHARGE STATUS – FIG.3

To display the amount of charge left in the battery pack press the charge level indicator button (5.2).

8.3 BATTERY PACK EFFICIENCY AND CHARGING ADVICE

- Recharge the battery packs before they become completely exhausted.
- When you feel that the power of the tool becomes weaker, stop using the tool and recharge the battery packs. If you continue to use the tool and exhaust the electric current, the battery pack may become damaged.
- Avoid recharging at high temperatures. A rechargeable battery pack will be hot immediately after use. If such a battery pack is recharged immediately after use, its internal chemical substance will deteriorate, and the battery life will be shortened. Leave the battery pack and recharge it after it has cooled for a while.
- The battery pack should only be used and/or charged when battery pack temperature is between 5°C and 30°C.
- The battery pack needs to be warmed-up or cooled down in order to prevent damage to the batteries internal components.

Note: Failure to warm up or cool down a battery pack could result in serious damage to the battery, charger and user.

8. PREPARING THE CIRCULAR SAW

Warning! Do not use abrasive wheels. Only use saw blades recommended.

8.4 BLADE REPLACEMENT AND INSTALLATION – FIGS. 4 – 6

- Press and hold the spindle lock button (17). The spindle may rotate slightly before the spindle lock fully engages.
- Loosen the saw blade locking hex. bolt (11) anti-clockwise.
- Remove the hex. bolt (11) and the saw blade locking flange (10). If the rear flange (10.1) is removed for cleaning, ensure it is replaced in its correct orientation.
- Slide the lower blade guard (6) back using tab (6.1) and hold.
- Ensure the specification of the replacement blade conforms with the machine (i.e. outer diameter, width, rpm and type, e.g. woodcutting etc.). Before fitting the new blade wipe a drop of oil on the inner and outer flanges where the arbor locates.
- Insert the new blade.

Note: Install the blade with the direction of rotation arrow matching the direction of rotation arrows on the machine. The teeth face upward at the front of the saw.

- Reassemble the locking flange and secure the locking hex. bolt (11) firmly.

Note: This saw is not designed to cut metal or masonry. It is intended for cutting wood and analogous materials only.

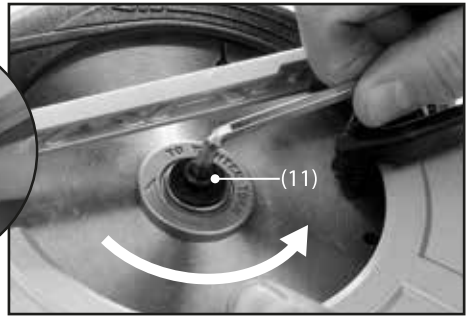
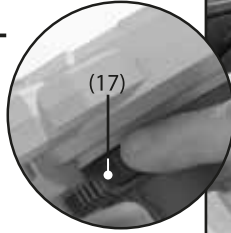


FIG.4

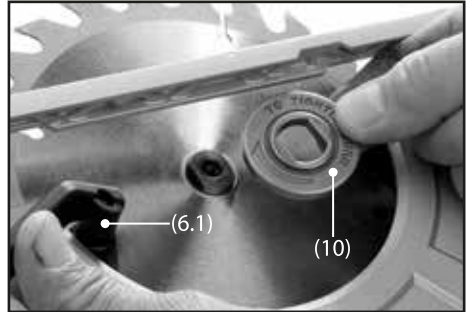


FIG.5

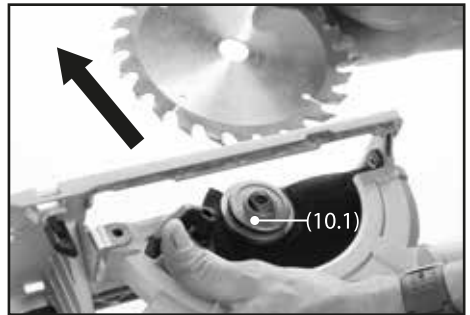


FIG.6

9. BASIC CIRCULAR SAW OPERATIONS

9.1 ON/OFF TRIGGER SWITCH – FIG.7

The trigger switch (1) is operated in conjunction with a safety release button (2) so that it is not possible to start the circular saw by accident.

- To start the saw, press the safety button (2) first and then depress the trigger switch (1).
 - Always wear ear defenders during use.

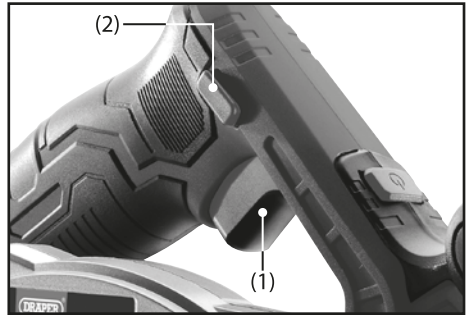


FIG.7

9.2 DUST EXTRACTION – FIG.8

Inhalation of dust particles can be detrimental to health. The dust outlet (8) must be connected with a dust extraction machine.

Note: Due to the outlet diameter, a size adaptation may be necessary.

Warning! All wood dust (including dust from composites like chipboards and fibre boards etc.) is hazardous to health. It can affect the nose, the respiratory system and the skin. For example MDF (medium density fibreboard) which contains formaldehyde is a known carcinogen. In addition to the above measures a correctly fitted dust mask, suitable for the activity and in accordance to the relevant standard, must be worn. For work activities involving exposure to fine wood dust a mask rated to at least FFP2 should be used.

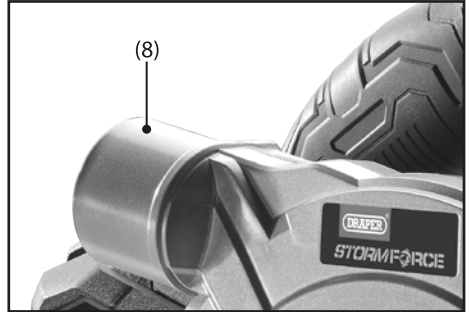


FIG.8

9.3 CUTTING DEPTH ADJUSTMENT – FIG.9

- To adjust the cutting depth, loosen the cutting depth adjustment knob (7).
- Set the required cutting depth, using the depth scale markings as a guide.

Note: For greater accuracy measure the tip of the blade back to the base.

- Re-tighten the cutting depth adjustment knob (7) when the required depth is set.

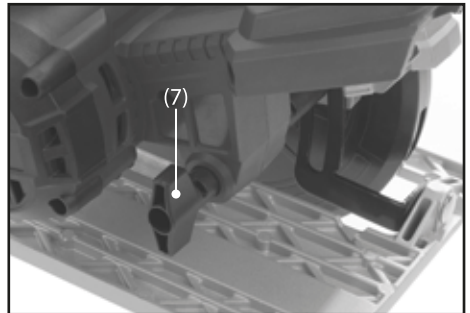


FIG.9

9.4 CUTTING ANGLE ADJUSTMENT – FIG.10

To alter the angle between 0° to 45°, loosen the angle adjustment locking knob (16).

Note: The scale is a guide. If more accuracy is required a protractor should be used off the underside of the base against the blade.

- When the required angle is set, re-tighten the angle adjustment locking knob (16).

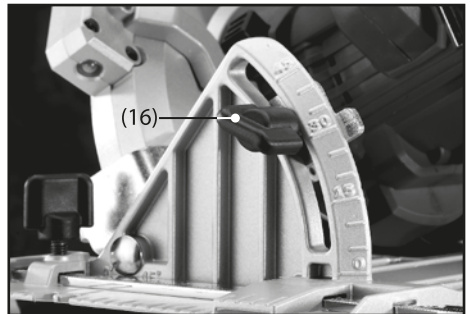


FIG.10

9. BASIC CIRCULAR SAW OPERATIONS

9.5 PARALLEL GUIDE – FIG.11

- Pass the parallel guide (14) through the slots in the base and secure with locking knob (15).
- Set the required cutting width, using the width scale markings as a guide.
- Make a test cut on a scrap piece of timber prior to making any cuts on the workpiece and adjust accordingly.
- For greater accuracy, measure between the edge of the blade allowing for the kerf of the blade and the parallel guide's face.

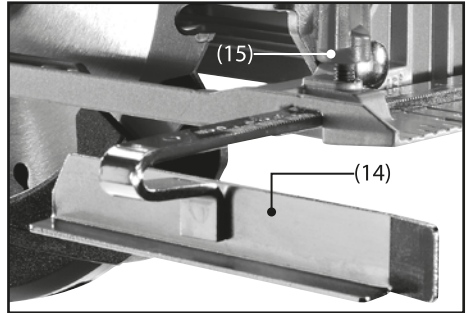


FIG.11

9.6 LASER GUIDE – FIG.12

Warning! Laser radiation. Do not stare into beam. Class 2 laser product.

The laser beam aperture (13) is activated by pressing button (9) and will stay on until the button is pressed again.

- Mark the line of the cut on the workpiece.
- Adjust the depth and/or bevel angles of the cut as required.
- Turn on the laser guide by pressing the laser on/off button (9) and align the line of the cut on the workpiece.
- When the blade is at its maximum speed (approx. 2 sec.) make the cut.
- On completion of the cut, switch off the laser.

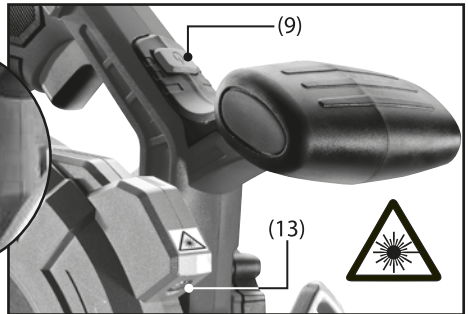
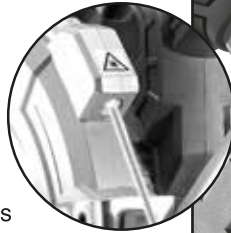


FIG.12

9.7 SAW OPERATION – FIG.13

Caution: When using, always cut forward in a straight line without forcing the saw. Forcing or twisting the saw will put a strain on the motor, and at the very least result in decreased battery efficiency or possible overheating damage. More seriously, it could cause dangerous kickback of the saw resulting in severe injury.

- Always operate the saw firmly, using the rear and auxiliary handles.
- Offer the base of the saw to the workpiece without blade contact.
- Switch on and wait until full speed is attained, then advance the saw, keeping it flat and cutting smoothly until the cut is complete – Straight line sawing at a uniform speed of advance will obtain the best clean cuts.
- After releasing the trigger switch, wait until the blade has fully stopped before withdrawing.



FIG.13

10. MAINTENANCE AND TROUBLESHOOTING

10.1 MAINTENANCE

Regular inspection and cleaning reduces the necessity for maintenance operations and will keep your tool in good working condition.

The motor must be correctly ventilated during tool operation. Avoid blocking the air inlets and vacuum the ventilation slots regularly.

10.2 TROUBLESHOOTING

Problem	Possible Cause	Remedy
Motor does not start.	1. Battery no charge.	1. Re-charge battery.
	2. Battery faulty or damaged.	2. Replace battery.
	3. Blown fuse in charger plug.	3. Replace fuse.
Motor runs, but slowly/ losing power.	1. Battery no charge.	1. Re-charge battery.
	2. Battery faulty or damaged.	2. Replace battery.
Poor cutting performance.	1. Saw blade blunt.	1. Replace saw blade.
	2. Saw blade incorrectly mounted.	2. Remove & refit saw blade as per instructions.
	3. Incorrect saw blade selection.	3. Seek advice on suitable saw blades.
Saw vibrates.	1. Saw blade distorted.	1. Stop machine immediately & replace blade.
	2. Saw blade incorrectly mounted.	2. Stop machine immediately. Remove & refit saw blade as per instructions.

11. DISPOSAL

11.1 DISPOSAL

- At the end of the machine's working life, or when it can no longer be repaired, ensure that it is disposed of according to national regulations.
- Contact your local authority for details of collection schemes in your area.

In all circumstances:

- Do not dispose of power tools with domestic waste.
- Do not incinerate.
- Do not dispose of WEEE* as unsorted municipal waste.



* Waste Electrical & Electronic Equipment.

11.2 BATTERY PACK DISPOSAL INFORMATION

Warning!

- Do not put battery pack in fire or mutilate – cells may burst or release toxic materials.
- Do not short circuit cells, may cause burns.
- The battery pack must be removed from the appliance before it is scrapped.
- The battery pack is to be disposed of safely.
- Do not mutilate batteries, corrosive electrolyte will be released.
- Do not dispose of batteries or cells in a charged condition.

Expired batteries must be recycled/disposed of in accordance with the appropriate regulation or legislation. They should be returned to your local warranty agent/stockist.

12. EXPLANATION OF SYMBOLS

12.1 EXPLANATION OF SYMBOLS



Read the instruction manual.



Wear face mask and safety glasses.



Wear ear defenders.



Wear protective gloves.



Do not abandon into the environment.



Keep out of the reach of children.



Warning!



Warning!
Laser product

WARNING: LASER RADIATION – DO NOT STARE INTO BEAM	
Class 2 LASER PRODUCT	
Maximum Output Power	1mW
Emitted Wavelength	650nm
EN60825-1:1994 Safety of Laser Products	



Single value noise marking.
(Maximum declared A-Weighted sound power level in decibels).



Class II construction
(Double insulated).



WEEE –

Waste Electrical & Electronic Equipment.

Do not dispose of Waste Electrical & Electronic Equipment in with domestic rubbish.



Lithium-ion product.

Li-ion



Do not incinerate or throw onto fire.



For indoor use only.
Do not expose to rain.



Short-circuit-proof safety isolating transformer



Fuse.



Polarity indication.



Rated voltage.

CONTACTS

Draper Tools Limited, Hursley Road,
Chandler's Ford, Eastleigh, Hampshire. SO53 1YF. U.K.

Helpline: (023) 8049 4344

Sales Desk: (023) 8049 4333

Internet: drapertools.com

E-mail: sales@drapertools.com

General Enquiries: (023) 8026 6355

Service/Warranty Repair Agent:

For aftersales servicing or warranty repairs, please contact the
Draper Tools Helpline for details of an agent in your local area.

YOUR DRAPER STOCKIST

PJCH0518

©Published by Draper Tools Limited.

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical photocopying, recording or otherwise without prior permission in writing from Draper Tools Ltd.