

# DRAPER®

## INSTRUCTIONS FOR Lead Acid Battery Starter/Chargers

Stock No.25354  
25355

Part No.BCSD130  
BCSD190

**IMPORTANT:** PLEASE READ THESE INSTRUCTIONS CAREFULLY TO ENSURE THE SAFE AND EFFECTIVE USE OF THIS PRODUCT.

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DRAPER®

### GENERAL INFORMATION

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

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## **1.1 INTRODUCTION:**

USER MANUAL FOR:

## **LEAD ACID BATTERY STARTER CHARGERS.**

Stock nos. 25354, 25355.

Part nos. BCSD130, BCSD190.

## **1.2 REVISIONS:**

\_\_\_\_\_  
Date first published August 2012.  
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As our user manuals are continually updated, users should make sure that they use the very latest version.

Downloads are available from: <http://www.drapertools.com/b2c/b2cmanuals.pgm>

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## **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:**

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## 3. GUARANTEE

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### 3.1 GUARANTEE

Draper tools have been carefully tested and inspected before shipment and are guaranteed to be free from defective materials and workmanship for a period of 12 months from the date of purchase except where tools are hired out when the guarantee period is ninety days from the date of purchase.

A proof of purchase must be provided with the tool.

Should the machine develop any fault, please return the complete tool to your nearest authorized warranty repair agent or contact Draper Tools Limited, Chandler's Ford, Eastleigh, Hampshire, SO53 1YF. England. Telephone Sales Desk: (023) 8049 4333 or Product Helpline (023) 8049 4344.

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 does not apply to normal wear and tear, nor does it cover any damage caused by misuse, careless or unsafe handling, alterations, accident, 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 12 month period.

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

Draper Tools Limited

## 4. INTRODUCTION

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### 4.1 SCOPE

For charging of lead acid automotive batteries. Starting facility to aid in starting a vehicle engine when the vehicles battery has been depleted.

### 4.2 SPECIFICATION

Stock no .....	25354 .....	25355
Part no .....	BCSD130.....	BCSD190
Input power supply .....	230V~50Hz .....	230V~50Hz
Input current .....	690W MAX.....	1004W MAX.
Charging current RMS.....	30A.....	60A
Charging current average (EN60335).....	20A.....	40A
Cranking current RMS.....	120A.....	180A
Cranking current average (EN60335).....	70A.....	120A
Battery capacity range .....	20-400Ah .....	40-700Ah
Fuse .....	1x50A.....	1x50A
Dimensions (cm) .....	293 x 260 x 210mm .....	293 x 260 x 210mm
Weight (kg).....	7.75kg .....	8.7kg
Ingress protection rating .....	IP20 .....	IP20

### 4.3 HANDLING & STORAGE

These battery chargers are portable requiring only a single person to safely move them. When transferring them, care should be taken to prevent damage.

The working environment of this type of machine can very often be harmful to it's working life. Make sure the machine is disconnected from the power supply and stored in a clean, dry atmosphere out of the reach of children.

## 5. HEALTH & SAFETY INFORMATION

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### **5.1 GENERAL SAFETY INSTRUCTIONS FOR BATTERY CHARGERS**

**WARNING! Explosive gases.** When a battery is charged it can produce hydrogen gas which is explosive. Charging should be carried out in a well ventilated area and away from sources of heat flames and sparks.

**Indoor use only.** This charger must not be used outside in rain or snow conditions.

**Disconnect the mains cable.** Before making or breaking the connection to the battery terminals, remove the plug from the power supply.

**Connect the charger carefully.** Make sure the red clamp is attached to the battery positive terminal. The black clamp attaches to the negative. Do not reverse the clamps or allow them to touch each other.

**Refer to the vehicle manufacturers information.** Follow these instructions fully to make sure no damage occurs to the vehicle or it's equipment.

**Do not cover the charger.** Allow air to the charger as it will overheat. The charger is equipped with a time-lag fuse inside. Over-heating will trip the fuse to prevent damage and will not reset until sufficiently cooled.

**Do not use the charger within the vehicle.** Stand it on a level firm surface to prevent damage to the charger or vehicle.

**Do not tamper with this product.** Repairs and maintenance must be carried out by an authorized service agent. Only use genuine Draper spare parts. Do not modify this product in any way.

**Wear approved safety goggles (not safety glasses) and latex/nitrile gloves.** Before charging a maintenance type battery the electrolyte (battery acid) must be filled to the maximum marked levels. Never use tap water. Distilled water or electrolyte must be used.

**Never attempt to charge non-rechargeable batteries.** Only charge lead acid batteries within the voltage and amp hour capacities of the charger.

**Never attempt to charge a frozen battery.**

**Never attempt to charge a damaged or distorted battery.**

**Keep out of the reach of children.**

The battery terminal not connected to the chassis has to be connected first. The other connection is to be made to the chassis, remove from the battery and fuel line. The battery charger is then to be connected to the mains.

## 5. HEALTH & SAFETY INFORMATION

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When working around batteries, remove metal jewellery and take care where any tools are placed, e.g. spanners. A short circuit caused by bridging the live terminal and ground can result in severe burns.

If battery acid contacts the skin or eyes, flush immediately with clean water for 15 minutes and then seek medical attention.

### ***5.2 CONNECTION TO THE POWER SUPPLY***

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

Because it is constructed mostly of metal parts, it is a Class 1 machine; meaning, it must have an earth connection in the power supply. This is to prevent electrocution in the event of a failure.

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

This machine comes supplied with a 13 Amp 3 pin domestic plug which will be sufficient for most charging functions; however, to use the start feature; connection must be made to a dedicated 25 Amp supply. A suitable plug must be fitted by a qualified electrician. Do not use in conjunction with an extension lead.

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## 6. TECHNICAL DESCRIPTION

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### 6.1 IDENTIFICATION

**BCSD130 SHOWN.**



- |   |                                |   |                         |
|---|--------------------------------|---|-------------------------|
| ① | Carry strap                    | ⑥ | 12/24V connections      |
| ② | Ammeter                        | ⑦ | Fuse                    |
| ③ | Power on/off switch            | ⑧ | Front cable storage     |
| ④ | MIN/BOOST function switch      | ⑨ | Battery terminal clamps |
| ⑤ | Charge/Starter function switch | ⑩ | Plug                    |

# 7. UNPACKING & CHECKING

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## 7.1 PACKAGING

Carefully remove the charger from the packaging and examine it for any sign of damage that may have happened during shipping. If the charger is damaged or any parts are missing; please contact the Draper Helpline (the telephone number appears on the Title page) and do not attempt to use the charger.

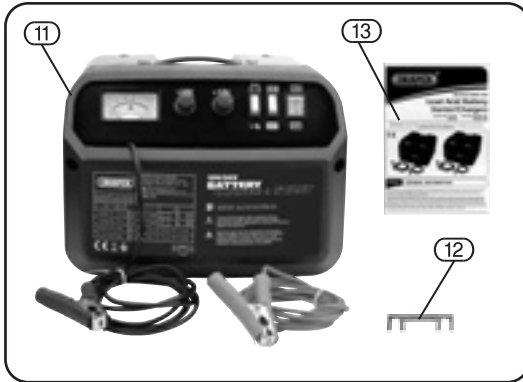
The packaging material should be retained at least during the guarantee period: in case the machine needs to be returned for repair.

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 charger/starter; there are several parts not fitted to it.



- ① Battery starter charger.
- ② Spare 50A fuse.
- ③ Manual.

## 8. PREPARING TO CHARGE A BATTERY

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### 8.1 APPLICATION GUIDE

Before beginning the charge of any battery, make sure the battery is of the correct type and within the recommended amperage range (see table below.)

PART No.	RECOMMENDED MIN. Ah.	RECOMMENDED MAX. Ah.
BCSD130	20Ah	400Ah
BCSD190	40Ah	700Ah

If the battery amperage rating is not stated or you are unsure about the rating please see table below.

Examples of Typical Vehicle Battery Ah Ratings (For guidance only).

Engine Capacity					
<1300cc	5 - 15Ah	15 - 30Ah	35 - 45Ah	-	60 - 110Ah
>1300cc	-	-	45 - 65Ah	45 - 65Ah	60 - 110Ah
Diesel	-	-	60 - 90Ah	60 - 90Ah	60 - 110Ah

### 8.2 MAINTENANCE TYPE BATTERY

Maintenance batteries have caps to access the chambers containing the plates and the **electrolyte**. For a battery to function correctly and to ensure its working life, the level of the electrolyte must be kept up to the maximum mark inside the chambers. This is particularly important before charging. When topping up it is vitally important that eye protection and rubber gloves are worn. It is necessary to maintain the **electrolyte** levels with distilled water, never use tap water. When adjusted, the caps should remain off through out the charging process.

## 9. CONNECTING THE BATTERY

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**WARNING!** Do not make any of the following adjustments with the charger connected to the power supply.

### **9.1 CONNECTING THE CHARGER TO THE BATTERY (Fig 3.)**

**NOTE:** We recommend that the battery is disconnected from the vehicle. This will avoid any possible damage to the alternator. The loss of codes for audio and security systems can be avoided by connecting a Draper Memory Saver (Part No.SMS, Stock No.22277 12V socket type or Part No.EMS, Stock No.22231 EOBD TYPE) before disconnecting the battery. Check that the battery voltage matches that of the charger.

Before connecting the battery charger to the battery ensure that the charger and battery are on a level surface. If the battery has cell filler caps, loosen or remove them to assist the escape of charging gases.

If the battery to be charged is maintenance type, see section 8.2.

- i. Adjust the 12V/24V positive cable so that it is connected to the thread pillar connection that is correct for the battery you will charge.
- ii. Connect the red positive cable (+) to the positive (+) terminal on your battery.
- iii. Connect the black negative lead (-) to the negative (-) terminal on your battery.

**CAUTION!** Double check the polarity connection before proceeding. Incorrectly setting 24V for a 12V battery will result in damage.

# 10. PREPARING THE CHARGER/STARTER

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## **10.1 INSTALLATION**

**CAUTION:** Ensure that you read and fully understand the machines capabilities and controls before first use.

To ready the starter charger for use you should first perform a visual check of the machine and it's power supply cable to ensure that the product is complete and has not suffered any transit damage.

Set the charger on a flat level surface near the battery to be charged. Ensure that all leads are positioned safely and do not present a trip hazard.

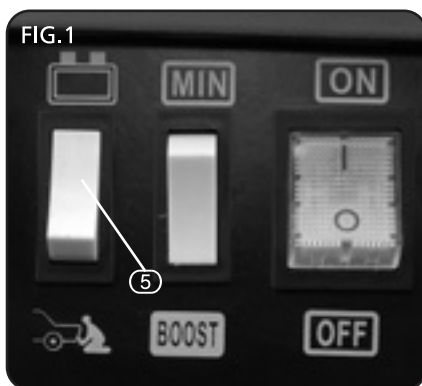
After familiarising yourself with the machines functions and how to control them via the machines switches, you can set the machine to the correct positions for charging your battery. Follow the next section carefully to charge your battery.

# 11. CHARGING SEQUENCE

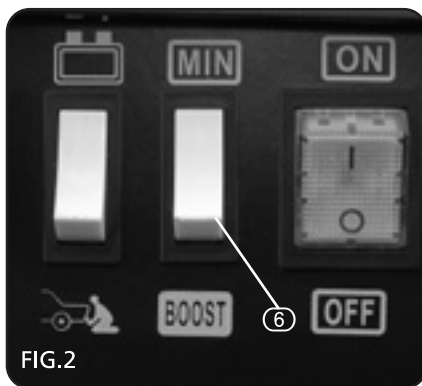
## 11.1 CHARGING SEQUENCE (Fig.1)

During the charging process the battery voltage must be continually monitored and the charging output current adjusted.

1. To begin to charge the battery set the charge/start switch to charge.



2. Set the MIN or BOOST switch to MIN (Fig.2).
3. Connect the charger to your mains supply and set the On/off switch to ON.
4. Monitor the batteries voltage with a suitable meter and when the batteries voltage reaches 12V (or 24V accordingly), switch the chargers MIN/BOOST switch to BOOST.
5. Continue to monitor the batteries voltage as it charges and when the battery reaches a full charge, around 14V (or 27V accordingly) the input current displayed on the ammeter will reduce to zero. At this point switch off the charger.
6. Disconnect the mains supply prior to removing the charging leads from the battery.



# 12. STARTER FUNCTION

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## 12.1 STARTING PROCEDURE

Engine cranking requires a large amount of current and as such will heat the components inside this product. For this reason the On/off cycles stated in this manual **must** be followed exactly.

The engine that requires starting must be in good mechanical condition as prolonged cranking is not possible.

When attempting to start vehicles fitted with large capacity batteries or in severe (cold) climates it will be necessary to charge the battery for 15 minutes to avoid the appliance drawing excess amperage and tripping the mains supply.

Caution! It is not possible to use the start facility connected to a standard 13 amp domestic supply. To use the appliance to its full potential it is required to fit a plug suitable for use on a 25 amp supply.

Warning! The fitting of a plug suitable for a 25 amp supply **must** be performed by a suitably qualified electrician.

## 12.2 START AN ENGINE

1. Connect the starter charger to the vehicles battery ensuring the correct terminal polarity is maintained.
2. Connect the starter charger to the mains supply and turn on the starter charger.

Note: You will need an assistant to sit in the vehicle whilst you operate the starter facility.

3. Begin cranking the car at the same time as setting the charge/start switch to "Start" for 3 seconds maximum. After each 3 seconds of cranking you must allow a minimum of 120 seconds (2 minutes) for the machine to cool before cranking for a further 3 seconds.
4. If after 5 start attempts, the vehicle has no started you must wait for the machine to cool down, continuing with the start attempts will raise the temperature of the cable and will result in damage to the machine and may cause the mains supply to trip.

# 13. TROUBLESHOOTING

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## 13.1 TROUBLESHOOTING

Remove the plug from the socket before carrying out any adjustment, servicing or maintenance.

<b>FAULT</b>	<b>POSSIBLE CAUSE</b>	<b>SOLUTION</b>
No power light while switched on (before using).	Blown fuse in mains plug.	Check and replace with an identical fuse.
No power light while switched on (during use).	Overheating caused time delay fuse to activate.	Switch off machine and allow time for charger to cool. The fuse will reset itself.
Power light with no output current.	Overcurrent fuse blown.	Check fuse on front panel and replace. Check connection polarity.



# 14. MAINTENANCE

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## ***14.1 MAINTENANCE***

After use the machine should be cleaned of any dirt or grease before coiling up the leads and storing it away in a dry, clean environment out of the reach of children.

Apart from charging the fuse no other work should be carried out on this machine. This machine should only be worked only by a Draper authorised repair agent.

# 15. EXPLANATION OF SYMBOLS

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## 15.1 EXPLANATION OF SYMBOLS



Do not dispose of WEEE\* as unsorted municipal waste.  
(General household rubbish).



For indoor use only.



Warning!



Danger! explosive gases.



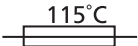
Read instruction manual before use.



Positive.



Negative.



115°C time delay fuse.

\*Waste Electrical & Electronic Equipment.

# 16. DISPOSAL

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## 16.1 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 abandon in the environment.
- Do not dispose of WEEE\* as unsorted municipal waste.



\* Waste Electrical & Electronic Equipment.

# 17. GLOSSARY

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## 17.1 GLOSSARY

### *Alphabetical list of words relating to this manual*

<b>Ammeter</b>	Analogue dial displaying amps (A).
<b>Electrolyte</b>	The hazardous liquid solution in which lead plates are submerged, made up of sulphuric acid and other chemicals.
<b>Parallel</b>	Multiple batteries wired together (positive of all batteries are linked together, negative of all batteries are linked together). The voltage remains constant but the amperage increases. e.g. 12V 48A + 12V 48A = 12V 144A.
<b>Series</b>	Multiple batteries wired together (negative terminal of first battery is connected to the positive terminal of the second). The voltage increases but the amperage remains the same. e.g. 12V 48A x 12V 48A = 24V 48A.



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