

# CLARKE®

## Start·N·charge



### STARTER/CHARGER

MODEL NO: BC205N

PART NO: 6261032

## OPERATION & MAINTENANCE INSTRUCTIONS



ORIGINAL INSTRUCTIONS

GC01/19

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## INTRODUCTION

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Thank you for purchasing this CLARKE Starter/ Charger. This unit is suitable for charging both 12 Volt and 24 Volt lead acid batteries and for providing a boost charge in the case of a flat battery.

Please read this manual thoroughly before attempting to operate and carefully follow all instructions given.

It is vitally important that ALL precautions are taken as specified, which will not only provide protection for yourself and that of others around you, but will also ensure that the product will give you long and satisfactory service.

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## GUARANTEE

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This CLARKE product is guaranteed against faulty manufacture for a period of 12 months from the date of purchase. Please keep your receipt as proof of purchase.

This guarantee is invalid if the product is found to have been abused or tampered with in any way, or not used for the purpose for which it was intended.

Faulty goods should be returned to their place of purchase, no product can be returned to us without prior permission.

This guarantee does not effect your statutory rights.

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## ENVIRONMENTAL RECYCLING POLICY

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Through purchase of this product, the customer is taking on the obligation to deal with the WEEE in accordance with the WEEE regulations in relation to the treatment, recycling & recovery and environmentally sound disposal of the WEEE.

In effect, this means that this product must not be disposed of with general household waste. It must be disposed of according to the laws governing Waste Electrical and Electronic Equipment (WEEE) at a recognised disposal facility.

If disposing of this product or any damaged components, do not dispose of with general waste. This product contains valuable raw materials. Metal products should be taken to your local civic amenity site for recycling of metal products.

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## SAFETY PRECAUTIONS

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**WARNING: HIGHLY INFLAMMABLE HYDROGEN GAS IS RELEASED IN THE PROCESS OF BATTERY CHARGING. ALWAYS REMEMBER TO SWITCH OFF THE CHARGER/STARTER FIRST TO AVOID SPARKING.**

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Battery acid is very corrosive. If spilled, clean the area immediately and wash with water. If battery acid comes into contact with the eyes, get medical help immediately.

1. Do not expose this charger/starter to rain.
  2. Never touch the negative and positive leads on this unit together while the charger is switched on.
  3. Never attempt any electrical or mechanical repair other than replacement of fuses. If you have a problem with your charger contact your local stockist for service information.
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**WARNING: CERTAIN TYPES OF SEALED OR MAINTENANCE-FREE BATTERIES NEED EXTRA CARE WHEN CHARGING. PLEASE CONSULT THE BATTERY MANUFACTURERS INSTRUCTIONS BEFORE USING THIS CHARGER/STARTER**

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**WARNING: TOXIC FUMES MAY BE RELEASED DURING BATTERY CHARGING. ONLY USE THIS CHARGER/STARTER IN A WELL VENTILATED AREA.**

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4. Before charging, ensure the battery terminals are clean, and that the cells are filled to the correct level by adding distilled water where necessary.
  5. This charger is not intended for use by persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the charger/starter by a person responsible for their safety. Keep children well away from the charger/starter.
  6. After charging, secure the vehicle battery leads to the correct terminals which should be clean and lightly smeared with petroleum jelly to prevent corrosion. Finally, re-check the battery electrolyte level.
  7. Do not use this charger/starter unless you are aware of vehicle electrical systems, and battery charging techniques.
  8. Always consult the vehicle manufacturers instructions for disconnecting / charging the vehicle battery.
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# ELECTRICAL CONNECTIONS



**WARNING: READ THESE ELECTRICAL SAFETY INSTRUCTIONS THOROUGHLY BEFORE CONNECTING THE HEATER TO THE MAINS SUPPLY.**

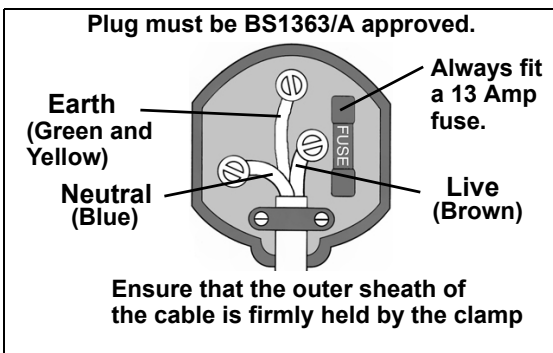
Connect the mains lead to a standard, 230 Volt (50Hz) electrical supply through an approved 13 amp BS 1363 plug or a suitably fused isolator switch. If the plug has to be changed because it is not suitable for your socket, or because of damage, it must be removed and a replacement fitted, following the wiring instructions shown below. The old plug must be discarded safely as insertion into a power socket could cause an electrical hazard.




**WARNING: THE WIRES IN THE POWER CABLE OF THIS PRODUCT ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE:  
BLUE = NEUTRAL    BROWN = LIVE    YELLOW AND GREEN = EARTH**

If the colours of the wires in the power cable do not agree with the markings on the plug.

- The BLUE wire must be connected to the terminal which is marked N or coloured black.
- The BROWN wire must be connected to the terminal which is marked L or coloured red.
- The YELLOW AND GREEN wire must be



connected to the terminal which is marked E or  or coloured green.

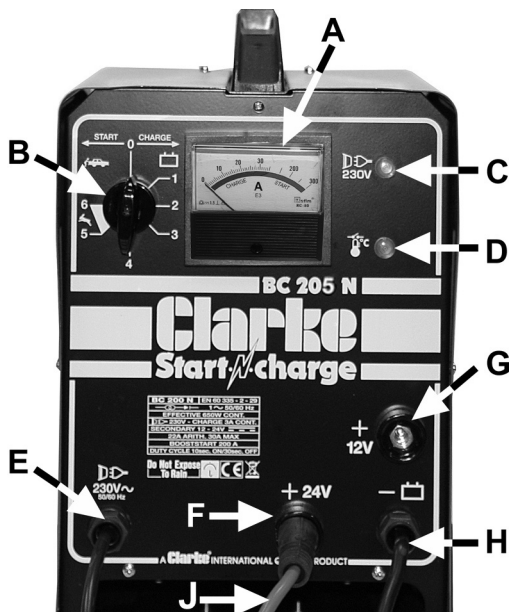
**We strongly recommend that this machine is connected to the mains supply through a Residual Current Device (RCD)**

If you are not sure, consult a qualified electrician.

## OVERVIEW

The unit is provided with a pair of leads complete with clamps for connection to a car battery and is provided with appropriate outlet connections as shown below. The charging rate as displayed on the ammeter.

The illustration below identifies the various components.



- A. Ammeter
- B. Amperage control knob
- C. Function indicator lamp
- D. Overload indicator lamp
- E. Mains lead
- F. 24V charge socket
- G. 12V charge socket
- H. Black/negative lead
- J. Red/positive lead
- Not shown-fuse on back panel

## ASSEMBLY

1. From the bag of loose parts, locate the four screws with washers and nuts with which to secure the foot to the base of the unit. Ensure the washers are at the screw heads. DO NOT fully tighten the nuts. Note that the foot is located at the front of the charger and the axle housing towards the rear.
2. Slide a wheel on to the axle, then insert the axle into position between the foot and the body of the charger. Slide the second wheel on to the axle and secure by pushing on the special locking washer, noting that the angled tines point outwards.
3. Tighten the four foot securing screws.
4. Slide the handle into its socket on top of the unit and secure with the single screw provided.

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## PROCEDURE FOR NORMAL CHARGING

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**WARNING: NEVER ATTEMPT TO RE-CHARGE NON-RECHARGEABLE BATTERIES.**

CAUTION: SOME ELECTRONIC EQUIPMENT CAN BE DAMAGED BY CHARGING OR USE OF START FACILITY. CHECK YOUR VEHICLE HANDBOOK BEFORE USING YOUR STARTER/CHARGER. IF IN DOUBT CONSULT THE VEHICLE MANUFACTURER.

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**NOTE:** *Before charging or boosting, ensure that, where applicable, the cells are filled with electrolyte to the correct level, by adding distilled water.*

1. When charging a car battery in situ, we recommend that the non earthed lead on the battery is disconnected prior to charging. (On most vehicles, this would be the RED, positive lead - but check the vehicle handbook if you are unsure).
  - This precaution is necessary as it is possible that damage could occur to any electronically controlled system fitted to the vehicle, such as engine management system, anti-theft alarm, alternator etc.
2. Check the mains supply is OFF and the amperage control knob (B) is in the OFF position.
3. Connect the red positive lead (J) to either the (+ve) 24V terminal (F), or the (+ve) 12V terminal (G) as appropriate, by inserting the jack plug and twisting clockwise to a locked position.
4. On most modern cars this is the RED, positive clamp connected to the RED, positive terminal of the battery, but check your handbook if unsure. Then connect the other clamp to the chassis (or a suitable engine bolt) away from the battery and fuel line.
5. Remove the battery filler caps if applicable during charging, in order to prevent the any build up of dangerous gases within the battery.
6. Switch ON the mains supply.
7. Turn the amperage control knob (B) clockwise to the position necessary to obtain the desired charging rate as indicated on the ammeter (A) (see notes below).
8. Keep the battery on charge until the ammeter reads zero (or 0-2 amps) or has stopped moving down, then switch the amperage control knob (B) to the off position.
9. When disconnecting the charger, disconnect:- 1) Supply, 2) Chassis Conductor and 3) Battery Conductor, in that order.

## NOTES ON CHARGING PROCEDURE

- A complete charge is best done slowly in order to protect your battery so we recommend the MIN setting as described above. A complete charge may take up to 10 hours.
- If a low amperage reading (2 amps or less) is registered on the gauge at either the MIN or MAX setting, this may indicate that the battery is either (a) already fully charged or (b) at the end of its useful life and in need of replacement.
- Do not charge the battery for longer than is necessary.



**WARNING: IF THE FIXED POSITIVE LEAD AND THE FIXED NEGATIVE LEAD ARE CONNECTED TO THE WRONG TERMINALS, THEN A FLASH WILL OCCUR WHEN THE 2ND CLAMP IS ATTACHED. DAMAGE TO THE CHARGING UNIT AND THE BATTERY WILL BE AVOIDED AS THIS CHARGER IS FITTED WITH A POLARITY PROTECTION FEATURE.**

CAUTION: IT WILL HOWEVER BE NECESSARY TO REPLACE THE INTERNAL FUSE. REMOVE THE BLACK PLASTIC COVER (MARKED FUSE) AND REPLACE THE BURNT FUSE.

## PROCEDURE FOR ENGINE STARTING

**NOTE:** We recommend that before attempting to boost start, you charge the battery for 10-15 minutes. This will improve the chance of a first time start, particularly with bigger engines. When the battery is completely flat, you must charge the battery for 10 -15 minutes before attempting to start, otherwise you may cause damage to the vehicle electronic systems.

1. Check that the mains supply is OFF and that the amperage controller knob (B) is in the OFF position.
2. Connect the cables as for normal charging.
3. Switch ON the mains supply.
4. Turn the key in the vehicles ignition to 'start', and get an assistant to turn the amperage control knob (B) in the BOOST START position.
5. Turn the amperage control knob to the OFF position immediately the engine starts, or after a maximum of 10 seconds if the engine fails to start. Failure to do this may cause damage to some electronic equipment. If in doubt consult vehicle handbook or manufacturer.
6. Turn the key in the vehicles ignition to 'start'.

**IMPORTANT:** You must switch the amperage control switch back to the off position after a maximum of 10 seconds on boost start - wait at least 30 seconds before repeating. Failure to do this may damage your battery and the charger unit, and may invalidate your guarantee.

## **THERMAL OVERLOAD**

If the starter/charger is overloaded at any time, a thermal cut out will automatically come into operation, rendering it inoperative. This unit is equipped with a thermal overload indicator lamp which will illuminate. Allow approximately 5-10 minutes or wait for the indicator light to go out before using the unit again.

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## **MAINTANENCE**

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This charger requires minimal maintenance but general care will prolong the life of the product.



**WARNING: ALWAYS BE SURE THE CHARGER IS UNPLUGGED FROM THE MAINS AND ANY BATTERY BEFORE PERFORMING ANY MAINTENANCE OR CLEANING.**

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1. Clean the case and leads with a moist cloth if required.
  2. Clean corrosion from the clamps with a solution of water and baking soda.
  3. Examine the connecting leads at regular intervals for damage and have them replaced if necessary.
  4. Wind up the leads and power cable when not in use and store in the compartment when not being used
  5. Store in a clean, dry area.
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**WARNING: ALL OTHER SERVICING/REPAIRS SHOULD BE DONE BY QUALIFIED SERVICE PERSONNEL ONLY.**

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# DECLARATION OF CONFORMITY



**Clarke**<sup>®</sup>  
**INTERNATIONAL**

Hemnoll Street, Epping, Essex CM16 4LG

## DECLARATION OF CONFORMITY

This is an important document and should be retained.

We hereby declare that this product(s) complies with the following directive(s):

2014/30/EU *Electromagnetic Compatibility Directive.*

2014/35/EU *Low Voltage Equipment Directive.*

2011/65/EU *Restriction of Hazardous substances*

The following standards have been applied to the product(s):

*EN 60335-2-29:2004+A2:2010, EN 60335-1:2012+A11:2014, EN 55014-1:2006+A1:2009+A2:2011,*

*EN 55014-2:2015, EN 61000-3-2:2014, EN 61000-3-3:2013.*

The technical documentation required to demonstrate that the product(s) meet(s) the requirement(s) of the aforementioned directive(s) has been compiled and is available for inspection by the relevant enforcement authorities.

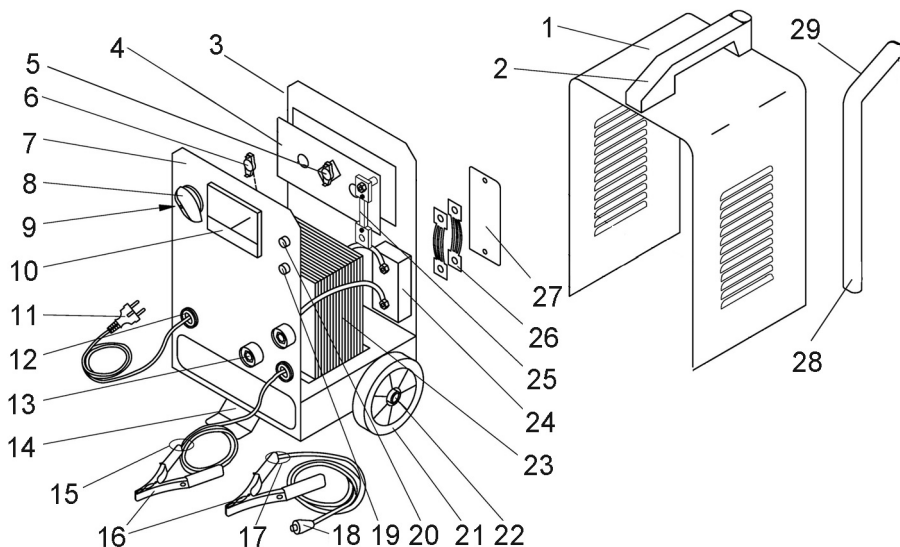
The CE mark was first applied in: 2017

**Product Description:** Battery Chargers  
**Model number(s):** BC205N, BC410E, BC430N.  
**Serial / batch Number:** n/a  
**Date of issue:** 19/10/2017

Signed:

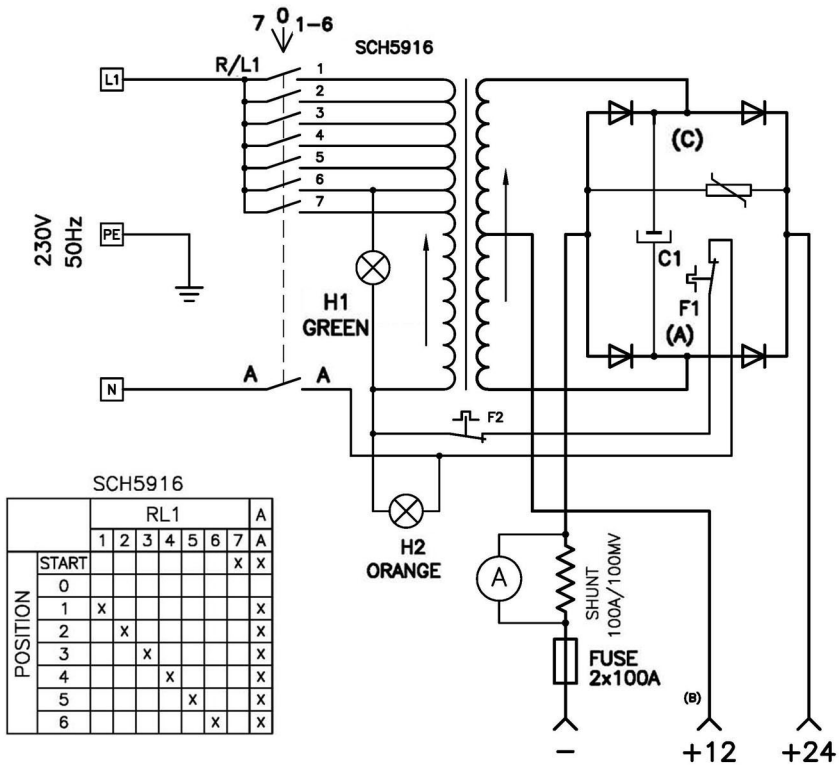
J.A. Clarke  
Director

## PARTS LIST - BC205N



No	Description	Part No	No	Description	Part No
1	Upper panel	EM33705007	16	Earth clamp 120A	EM22110067
2	Handle	EM21600004	17	Red cable	EM43200026
3	Back panel	EM33715037	18	Dinse plug	EM22100001
4	Rectifier pms	EM22400096	19	Orange pilot lamp	EM22610012
5	Thermostat	EM04600113	20	Green pilot lamp	EM22610006
6	Thermostat support	EM04600261	21	Wheel 125mm	EM21625006
7	Lower panel	EM33700024	22	Axle	EM55200012
8	Switch knob	EM21690015	23	Transformer 12/24V	EM44105077
9	Switch	EM22205012	24	Fuse holder box	EM21690113
10	Ammeter	EM22600064	25	Amp'metric Shunt	EM22600030
11	Input cable	EM20220014	26	Fuse100A	EM22220030
12	Cable clamp	EM04600233	27	Small fuse cover	EM21690109
13	Female dinse plug	EM22100002	28	Handle	EM33725029
14	Foot	EM33740015	29	Cap	EM21610018
15	Black cable	EM43200086			

# WIRING CIRCUIT DIAGRAM BC205N



## SPECIFICATIONS

Part No	6261032
Dimensions (D x W x H)	345 x 390 x 822 mm
Weight	21 kg
Supply Voltage @50Hz	230 V AC
Max charge	30A (continuous)
Max Boost	200A
Boost/Charge	12V/24V
Duty Cycle	Max 10 secs on /30 secs off

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