

CLARKE®

Start··charge



INTELLIGENT BATTERY CHARGER-STARTER

MODEL NO: WBC200

PART NO: 6261520

OPERATION & MAINTENANCE INSTRUCTIONS



ORIGINAL INSTRUCTIONS

DL0921

INTRODUCTION

Thank you for purchasing this CLARKE Intelligent Battery Charger-Starter.

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 Battery Charger will give you long and satisfactory service.

GUARANTEE

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.

ENVIRONMENTAL RECYCLING POLICY













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.

SAFETY SYMBOLS

	Wear Eye Protection		Wear Protective Clothing
	Wear Protective Gloves		WEEE Directive
	Indoor Use Only		Class 1 Appliance
	Warning: Battery Charging		Warning: Risk of Electrical Shock
	Explosive Gases: Prevent flames & sparks and provide ventilation during charging		Not suitable for use with Li-Ion or Li-Poly batteries

ELECTRICAL CONNECTIONS



WARNING! READ THESE ELECTRICAL SAFETY INSTRUCTIONS THOROUGHLY BEFORE CONNECTING THE PRODUCT TO THE MAINS SUPPLY.

Before switching the product on, make sure that the voltage of your electricity supply is the same as that indicated on the rating plate. This product is designed to operate on 230VAC 50Hz. Connecting it to any other power source may cause damage.

This product may be fitted with a non-rewireable plug. If it is necessary to change the fuse in the plug, the fuse cover must be refitted. If the fuse cover becomes lost or damaged, the plug must not be used until a suitable replacement is obtained.

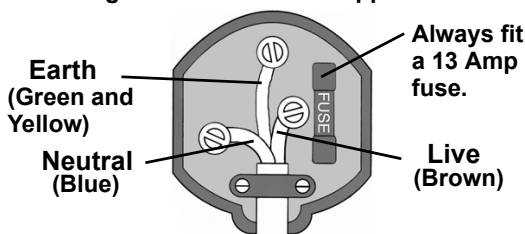
If the plug has to be changed because it is not suitable for your socket, or due to damage, it should be cut off and a replacement fitted, following the wiring instructions shown below. The old plug must be disposed of safely, as insertion we would emphasise the electrical hazard.



**WARNING: WIRES IN THE MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE:
GREEN/YELLOW = EARTH, BLUE = NEUTRAL, BROWN = LIVE.**

- The **BLUE** wire must be connected to the terminal marked **N** or coloured black.
- The **BROWN** wire must be connected to the terminal marked **L** or coloured red.
- The **YELLOW AND GREEN** wire must be connected to the terminal marked **E** or \perp or coloured green.

Plug must be BS1363/A approved.

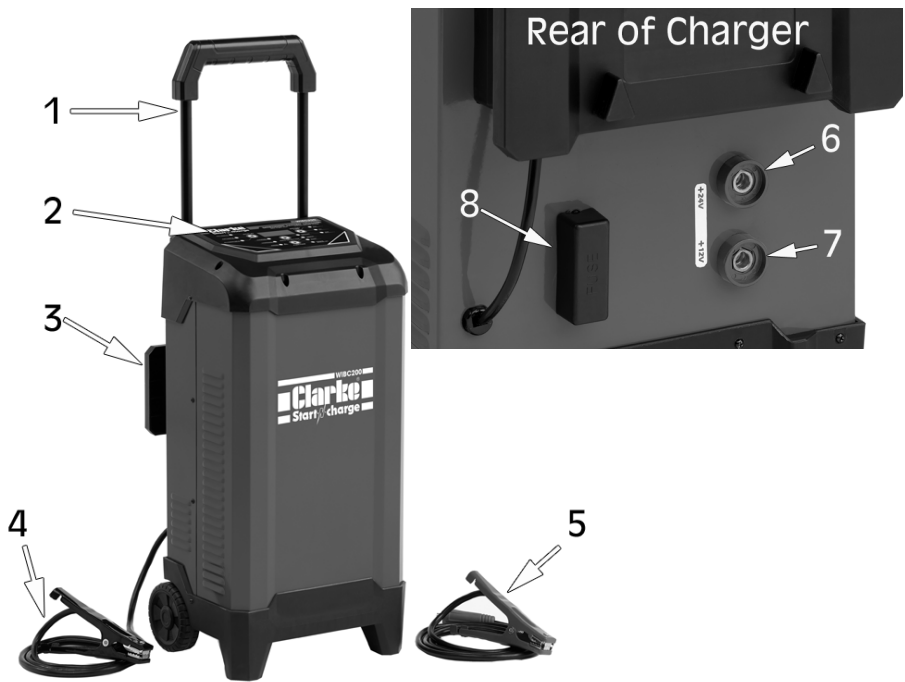


Ensure that the outer sheath of the cable is firmly held by the clamp

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

If in any doubt, consult a qualified electrician. **DO NOT** attempt any repairs yourself.

WIBC200 OVERVIEW



1	Handle	5	Positive (Red) Lead
2	Display & Control Panel	6	Positive Lead Terminal +24V
3	Cable Rack	7	Positive Lead Terminal +12V
4	Negative (BLACK) Lead	8	Fuse Cover

SPECIFICATIONS

Model Number	WIBC200
Dimensions (D x W x H)	300 x 300 x 850
Weight	16.5 kg
IP Rating	IP20
Suitable Battery Type	12V & 24V WET, MF, EFB, STD, GEL & AGM
Min. Charging Battery Size	4 Ah
Max. Charging Battery Size	400 Ah
Operating Temp. Range	0°C to 40°C
Input Voltage @50Hz	230 V AC
Boost Duty Cycle	5 sec On / 240 sec Off

	Max. Input Power	Max. Input Current	Output (Charging/ Starting)	Charging Voltage
Charge-12V-40A	840W	5.3A	41A	12V
12V-Start(6V)	3778W	19.4A	200A	6V
12V-Start(3V)	4680W	24A	250A	3V
Charge-24V-40A	1360W	8.5A	40A	24V
24V-Start(10V)	6450W	36A	200A	10V
24V-Start(8V)	6580W	38A	230A	8V

SAFETY PRECAUTIONS



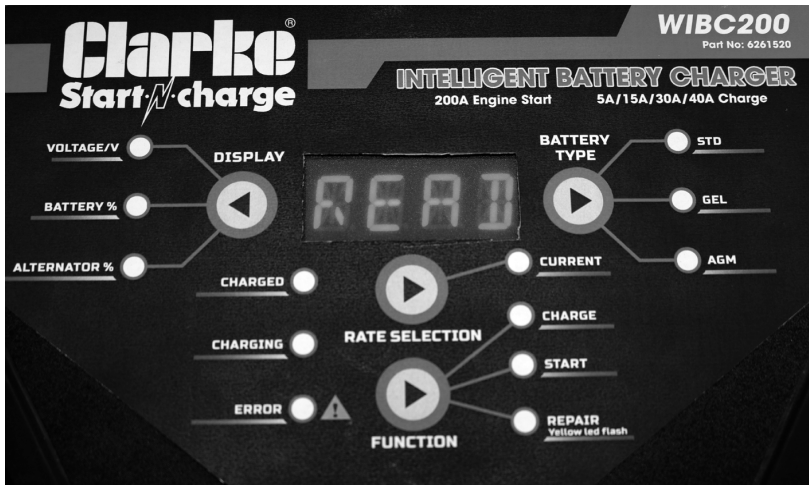
WARNING: ALWAYS SWITCH OFF THE CHARGER WHEN CONNECTING OR DISCONNECTING LEADS TO AVOID SPARKING AS HIGHLY INFLAMMABLE HYDROGEN GAS CAN BE RELEASED IN THE PROCESS OF BATTERY CHARGING

PLEASE READ BEFORE USING THIS UNIT

1. Batteries can generate explosive gases during normal operation. **ALWAYS** use in well ventilated area.
2. **DO NOT** smoke, strike a match or cause a spark in the vicinity of the battery or engine. Avoid explosive gas, flames and sparks.
3. Remove all personal jewellery, such as rings, bracelets, necklaces and watches while working with a vehicle battery. These items may produce a short circuit and could cause severe burns.
4. Be extra cautious to reduce the risk of dropping a metal tool onto the battery. It may spark or short circuit the battery or other electrical hardware which may cause an explosion or fire.
5. Wear complete eye protection, hand and clothing protection. **AVOID** touching eyes while working near a battery.
6. Study all battery manufacturers specific precautions, such as removing or not removing cell caps while charging and recommended rates of charge.
7. Clean battery terminals before connection with the charger. Be careful to keep corrosion from coming in to contact with eyes.
8. When it is necessary to remove the battery from the vehicle to charge, always remove grounded terminal from the battery first. Make sure all accessories in the vehicle are switched off in order to prevent an arc.
9. This charger is **NOT** intended to supply power to an extra low voltage electrical system or to charge dry cell batteries. Charging dry cell batteries may cause the battery to burst and cause injury to person or property.
10. **NEVER** charge a frozen, damaged, leaking or non rechargeable battery.
11. If battery electrolyte contacts skin or clothing, wash immediately with soap and water. If electrolyte enters your eye, immediately flood eye with running clean cold water for at least 15 minutes and seek medical attention immediately.
12. **DO NOT** place the charger in the engine compartment, near moving parts or near the battery. Place as far away from them as the cable permits.

13. **NEVER** place the charger directly above the battery being charged, gases or fluids from the battery will corrode and/or damage the charger.
14. **DO NOT** cover the charger while charging.
15. **DO NOT** expose to rain or wet conditions.
16. Connect and disconnect the DC output connections only after disconnecting the charger from the mains power supply.
17. Use of an attachment not recommended or sold by the manufacturer may result in a risk of fire, electric shock or injury to persons.
18. **DO NOT** overcharge batteries by selecting the wrong charge mode.
19. To reduce the risk of damage to the electric plug and cord, pull by the plug rather than the cord when disconnecting charger from mains power supply.
20. To reduce risk of electric shock, unplug charger from mains power supply before attempting any maintenance or cleaning.
21. Operate with caution if the charger has received a direct hit of force or been dropped. Have it checked and repaired if damaged.
22. **NEVER** attempt any repairs yourself. If you have a problem with your charger contact your local CLARKE dealer or contact service@clarkeinternational.com
23. When charging is complete, ensure that the vehicle battery leads are secured to the proper terminals which should be clean, and lightly smeared with petroleum jelly to prevent corrosion. Finally, re-check the electrolyte level.

DISPLAY & CONTROL PANEL



DISPLAY BUTTON

Press the DISPLAY button until the following LED is lit:

1. **VOLTAGE (V)** - When the charger is NOT charging a battery, the digital display will show the battery voltage.
2. **BATTERY (%)** - When in charging mode, the digital display shows an estimated charge percentage of the battery connected to the charger's battery clamps.
3. **ALTERNATOR (%)** - The digital display shows an estimated output percentage of the vehicle's charging system connected to the charger's battery clamps, compared to a properly functioning system.

BATTERY TYPE, RATE SELECTION & FUNCTION BUTTONS

1. Press the **BATTERY TYPE** button to choose the type of battery to be charged: STD, GEL or AGM
2. Press the **RATE SELECTION** button to choose the charging current required: 5A, 15A, 30A or 40A.
3. Then press the **FUNCTION** button until the **CHARGING** LED is lit (digital display will show CHARGE-ON).

When in charging mode, pressing the **BATTERY TYPE** button will not work. To stop charging, press **FUNCTION** button again and **CHARGING** LED will turn off (digital display will show **CHARGE-OFF**)

GENERAL PREPARATION

CHARGER LOCATION

1. Place the charger as far away from the car battery as possible.
2. **DO NOT** let battery acid drip on anything when reading specific gravity or when topping up the battery.
3. **DO NOT** operate the charger in an enclosed space, such as inside the vehicle. **NEVER** cover the battery charger when in use.
4. **DO NOT** stand the battery on top of the charger.
5. **ALWAYS** stand the battery charger on a firm, level floor.
6. During charging, make sure that the area around the battery has good ventilation.

OPERATING INSTRUCTIONS

Before charging, make sure the capacity of the battery to be charged is not lower than 4Ah. On the rear of the charger you will find separate connectors for 12V and 24V batteries making sure the correct cable is connected to the appropriate battery.

CONNECTING TO A BATTERY INSTALLED IN THE VEHICLE

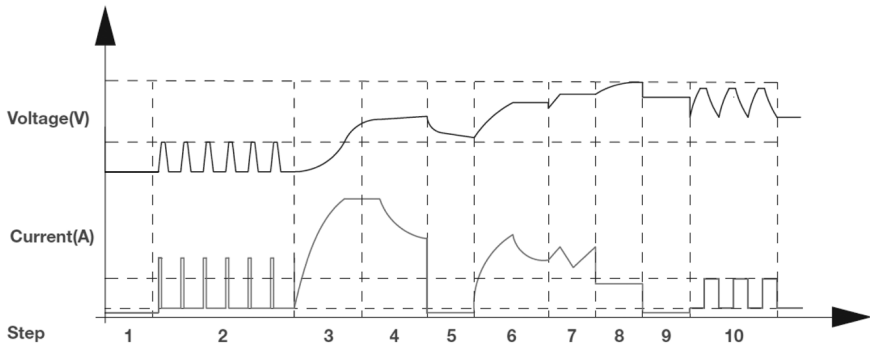
1. Arrange the leads carefully to reduce the risk of damage caused by sharp edges.
2. Identify the voltage of the battery to be charged (12v or 24v) and attach the POSITIVE (RED) lead to the appropriate terminal on the rear of the charger.
3. Identify the polarity of the battery posts. The positive battery terminal is typically marked by the letters/symbols: POS, P or +. The negative battery terminal is typically marked by the letters/symbols: NEG, N or -.
4. **DO NOT** make any connections to the carburetor, fuel lines or thin metal parts.
5. Consult the vehicle manual to confirm if the vehicle has a Negative or Positive earth.
 - For negative earth vehicles, connect the POSITIVE (RED) lead and clamp from the battery charger to the POSITIVE terminal on the battery. Then connect the NEGATIVE (BLACK) lead and clamp to the vehicle frame or engine block away from the battery.

- For positive earth vehicles, connect the NEGATIVE (BLACK) lead and clamp from the battery charger to the NEGATIVE terminal on the battery. Connect the POSITIVE (RED) lead and clamp to the vehicle frame or engine block away from the battery.
 - **DO NOT** connect the lead to ancillary engine components.
6. Where appropriate we recommend that the non-earthed lead on the battery is disconnected prior to charging. It is possible that damage may occur to the vehicle's electronic equipment.
 7. When charging is completed, switch off the charger/starter and unplug it. Remove the leads and clamps in the reverse sequence taken in the relevant step 5.
 8. A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for maritime use.

CONNECTING TO A BATTERY REMOVED FROM THE VEHICLE

1. Make sure that you know the polarity of the battery posts.
2. Identify the voltage of the battery to be charged (12v or 24v), and attach the POSITIVE (RED) lead to the appropriate terminal on the rear of the charger.
3. **ALWAYS** remove the grounded (earth) terminal from the battery first, making sure that all electrical accessories in the vehicle are switched off to prevent sparking.
4. Clean the battery terminals. Be careful to prevent battery electrolyte from coming in contact with your eyes.
5. Except for sealed units, add distilled water to each cell until the battery acid reaches the level specified by the battery manufacturer.
 - This helps drive unwanted gas from the cell. Do not overfill. For a battery without cell caps, consult the manufacturer's instructions.
6. Follow all the battery manufacturer's specified precautions: for example, removing or not removing cell caps while being charged, and recommended rates of charge.
7. Connect the POSITIVE (RED) lead and clamp to the POSITIVE post on the battery.
8. Connect the NEGATIVE (BLACK) lead and clamp at arms length to the NEGATIVE post on the battery.
9. When you disconnect the charger/starter from the battery, **ALWAYS** do it in the opposite order to the sequence of connection and remove the first connection at arms length from the battery.

CHARGING STEPS



1. **ANALYSING 1:** Checks if battery is connected with the charger.
2. **DESULPHATION:** Pulsing charging to remove sulphate.
3. **SOFT START:** Charges with gradually increasing charging current.
4. **CONTROLLED CURRENT CHARGE:** Adjusts the charging current intelligently.
5. **ANALYSING 2:** Tests if the battery can absorb charge.
6. **CONSTANT OUTPUT CHARGE:** Charges with constant voltage and compensates fake full charge caused by high current charging.
7. **RECOVERY CYCLE CHARGE:** Absorbs more charge and compensates side effect of reduced charging current.
8. **ABSORPTION:** Charges with constant trickle current for maximum battery voltage.
9. **ANALYSING 3:** Tests if the battery can hold charge.
10. **MAINTENANCE:** Continuously monitors the battery and charges with trickle current once the voltage is lower than threshold.

STARTING A CAR - BOOST

The battery charger can be used to start a car if the battery is low. Follow all safety instructions and precautions for charging your battery. Wear eye protection and protective clothing. The procedures are as follows:



WARNING: USING THE ENGINE START FEATURE WITHOUT A BATTERY INSTALLED IN THE VEHICLE WILL DAMAGE THE VEHICLES ELECTRICAL SYSTEM.

1. Connect the charger to the battery following the instructions given on page 10.
2. With the charger plugged in and connected to the battery and chassis, press the **FUNCTION** button until the **START LED** is lit.
3. Turn on the vehicles ignition until it starts or 3 seconds have passed. If the engine does not start, wait 4 minutes before trying again. This allows the charger and battery to cool down.
4. If the engine fails to start, use the **CHARGE** maximum rate (40A) to charge for some minutes before trying to attempt to start the engine again.
5. After the engine has started, unplug the AC power cord before disconnecting the battery charger clamps from the vehicle.

During the starting sequences listed above, the charger is set to one of three states:

1. **START-READY:** The charger waits until the engines ignition is activated before delivering the amps for the engine start.
2. **CRANKING:** When the ignition is detected, the charger will automatically deliver up to its maximum output as required by the starting system for up to 5 seconds.
3. **COOL DOWN:** After ignition, the charger enters a mandatory 240 seconds cool down state (Pressing any button will not work). The digital display indicates the remaining cool down time in seconds. It starts at 240 and counts down to 0. After 240 seconds, the digital display will change from displaying the countdown to displaying **START-READY**.

REPAIR FUNCTION

Press the **FUNCTION** button until the **REPAIR LED** is lit to enter this mode (digital display shows **REPAIR-ON**). It is an advanced battery recovery mode for repairing old, idle, stratified or sulfated batteries. Not all batteries can be recovered. For optimal results, take the battery through a full charge cycle, bringing the battery to full charge, before using this mode. This mode uses a high charging voltage and may cause some water loss in WET cell batteries. Some batteries and electronics may be sensitive to high charging voltages. To minimise the risks, disconnect the battery from the vehicle before using this mode. To stop repairing, press the **FUNCTION** button again and the **REPAIR LED** will turn off (digital display will show **REPAIR-OFF**).

ALTERNATOR CHECK

To check the alternator percentage, carry out the following steps:

1. Connect the charger to the battery following the instructions given on page 10.
2. With the charger plugged in and connected to the battery and chassis, press the **DISPLAY** button until the **ALTERNATOR%** is lit.
3. Start the vehicle and turn the vehicles headlights on. The percentage will show on the display screen.

The alternator percentage range is from 0% to 100%. readings below 0% will read LO and readings above 100% will read HI. If you get a HI or LO reading, have the electrical system checked by a qualified technician.

CHARGING TIME DURATION

Different battery capacity, residual voltage and charging current will all affect charging time. The following table is for guidance in the case of a fully discharged battery.

Battery Size - Ah	Approx. Time to Charge					
	12V			24V		
	5A	10A	20A	5A	10A	20A
10	2h	1h	33mins	2h	1h	33mins
20	4h	2h	1h	4h	2h	1h
40	8h	4h	2h	8h	4h	2h
80	17h	8h	4h	17h	9h	4h
160	33h	17h	8h	33h	17h	9h
320	65h	33h	17h	65h	33h	17h
400	81h	41h	21h	81h	41h	21h

FUSES

1. The starter/charger is equipped with a safety fuse which will protect the unit under the following circumstances:
 - Overload - too high a current to the battery.
 - Short Circuit - clamps touch or cross connection to battery.
 - Prolonged starting attempts.

REPLACING THE FUSE

The fuse fitted is rated at 50A and is fitted behind the clip-on cover on the rear of the charger for easy replacement.

1. Switch the unit off and disconnect from the mains.
2. Allow the unit to cool down and establish the reason for the failure and correct.
3. Pull off the fuse cover before unscrewing the nuts to remove the fuse. Replace only with an identical fuse and with the same rating, as supplied with your charger.



MAINTANENCE

This charger requires minimal maintenance. As with any appliance or tool, a few common sense rules will prolong the life of the battery charger.



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

-
1. Clean the case and leads with a moist cloth.
 2. Clean corrosion from the clamps with a solution of water and baking soda.
 3. Examine the leads at regular intervals for damage and have them replaced if necessary

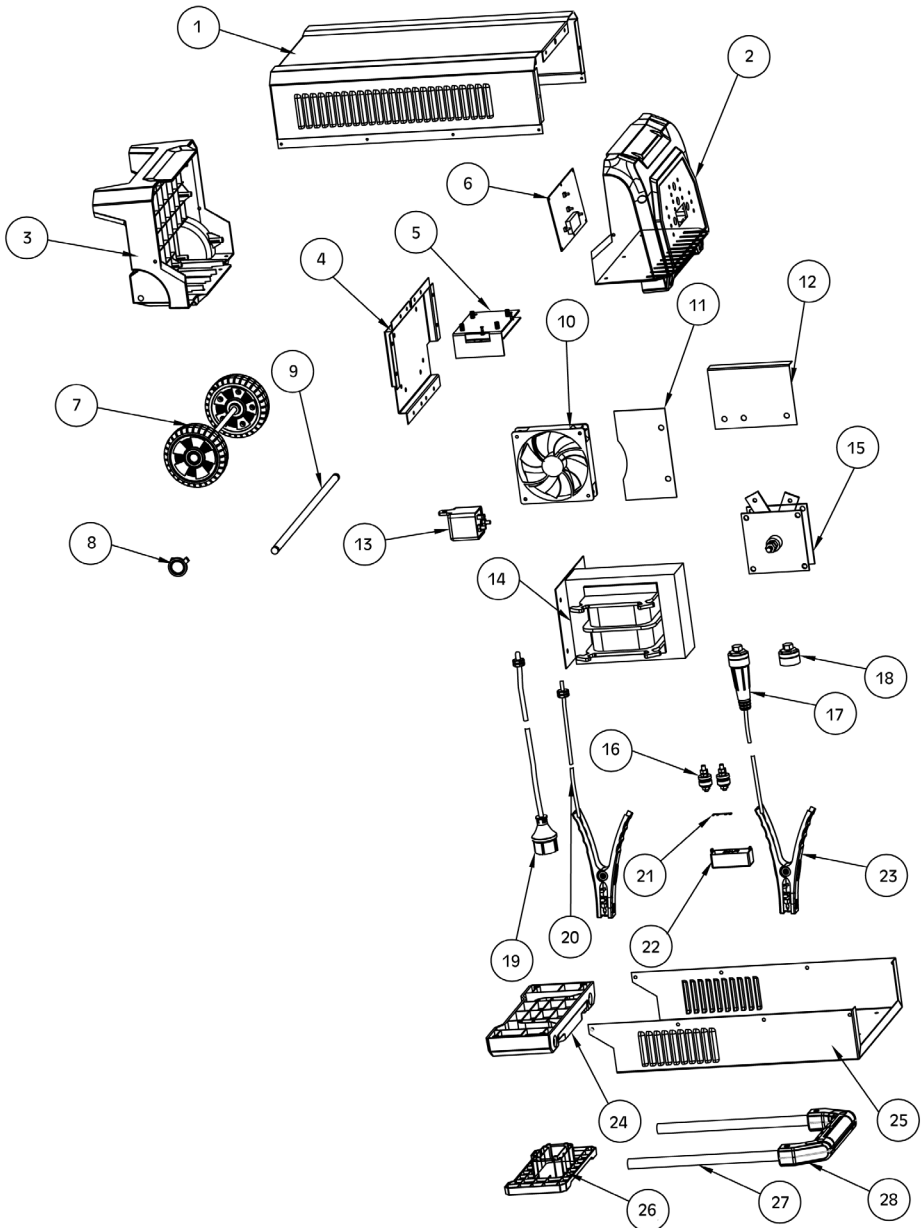


WARNING: ALL OTHER SERVICING/REPAIRS SHOULD BE DONE BY QUALIFIED SERVICE PERSONNEL ONLY.

STORAGE

1. Wind up the connecting leads and power cable onto the cable rack when not in use.
2. Store in a clean, dry area.

WIBC200 PARTS DIAGRAM



WIBC200 PARTS LIST

NO	DESCRIPTION
1	Front Cover
2	Upper Cover
3	Bottom Cover
4	Base Plate
5	Main PCB Radiator
6	Control PCB
7	Wheels
8	Wheel Button
9	Roller
10	Fan
11	Fan Holding Plate
12	Rectifier Bridge Holding Plate
13	Relay
14	Transformer

NO	DESCRIPTION
15	Rectifier Bridge
16	Fuse Posts
17	12V Positive Cable Joint (Showing Positive Cable Attached)
18	24V Positive Cable Joint
19	Power Cable
20	Negative (Black) Cable & Clamp
21	Fuse
22	Fuse Cover
23	Positive (Red) Cable & Clamp
24	Handle Rod Support Frame
25	Back Cover
26	Cable Rack
27	Handle Rod
28	Handle

ERROR MESSAGES

1. E01 Display + **ERROR LED** lit: Reverse connection
2. E02 Display + **ERROR LED** lit: Temperature in charger is too high
3. E03 Display + **ERROR LED** lit: The battery cannot store electric charge (dead battery)
4. E04 Display + **ERROR LED** lit: No battery connected/battery voltage is lower than 1 volt (dead battery)
5. **REPAIR-ON** displayed + **REPAIR LED** flashing: Charger automatically enters repairing mode
6. **REPAIR-ON** displayed + **REPAIR LED** solid lit: Manually choose repairing mode

TROUBLESHOOTING

Problem	Cause	Solution
Battery does not charge	Lack of AC input power.	Make sure that the charger is plugged into AC outlet.
	Faulty connections to battery terminals.	Unplug the charger and check the battery connection; ensure that there is a good connection at the battery terminal/post and/or vehicle chassis.
	Wrong charge voltage selection.	Check that the correct charge voltage was selected for the battery being charged.
	Battery voltage too low.	Ensure enough charging time was allowed to charge battery.
	Charging a very cold battery.	If the battery being charged is extremely cold (below freezing), it will not accept a high rate of charge, so the initial charger rate will be slow. The rate of charge will increase as the battery warms. NEVER attempt to charge a frozen battery.

DECLARATION OF CONFORMITY - UKCA

**UK
CA**

Clarke[®]
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 statutory requirement(s):

Electromagnetic Compatibility Regulations 2016

Electrical Equipment (Safety) Regulations 2016

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

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

EN 61000-6-1:2007, EN 61000-6-3:2007+A1:2011, EN 60335-2-29:2004+A2:2010,

EN 60335-1:2012 +A11:2014 + A13:2017, EN 62233:2008, IEC 62321-2:2013, IEC 62321-1:2013,

IEC 62321-3-1:2013, IEC 62321-5:2013, IEC 62321-7-1:2015, IEC 62321-7-2:2017,

IEC 62321-6:2015, IEC 62321-8:2017.

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

The UKCA mark was first applied in: 2021

Product Description: 12/24V intelligent battery charger 200A

Model number(s): WIBC200

Serial / batch Number: N/A

Date of Issue: 13/07/2021

Signed:



J.A. Clarke

Director

DECLARATION OF CONFORMITY - CE



Clarke[®]
INTERNATIONAL

Fitzwilliam Hall, Fitzwilliam Place, Dublin 2

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 (Amendment EU 2015/863).*

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

*EN 61000-6-1:2007, EN 61000-6-3:2007+A1:2011, EN 60335-2-29:2004+A2:2010,
EN 60335-1:2012 +A11:2014 + A13:2017, EN 62233:2008, IEC 62321-2:2013, IEC 62321-1:2013,
IEC 62321-3-1:2013, IEC 62321-5:2013, IEC 62321-7-1:2015, IEC 62321-7-2:2017,
IEC 62321-6:2015, IEC 62321-8:2017.*

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: 2021

Product Description: 12/24V intelligent battery charger 200A
Model number(s): WIBC200
Serial / batch Number: N/A
Date of Issue: 13/07/2021

Signed:

J.A. Clarke
Director

ASSOCIATED PRODUCTS

<p>10 Tonne Body Repair Kit - CS10BRK</p>	<p>Car Creeper - CMC40</p>	<p>1 Tonne Folding Workshop Crane - CFC100</p>
		
<ul style="list-style-type: none"> • 10 tonne hydraulic pump, ram & hose. • Housed in a tough metal carry case. • Part No. 7617005 	<ul style="list-style-type: none"> • Integral parts and tool storage • Padded oil resistant vinyl base • Part No. 7630189 	<ul style="list-style-type: none"> • Lifting capacity of 250kg to 1000kg in 4 stages • Max Lifting Height: 2010mm • Part No. 7611005
<p>3 Tonne Low Entry Quick Lift Jack - CTJ3LQLPRO 3</p>	<p>Towing Bar - TB-2</p>	<p>Manual Tyre Changer - CMTC1</p>
		
<ul style="list-style-type: none"> • Saddle Height: 95mm to 505mm • 2 speed action release for controlled lowering. • Part No. 7623250 	<ul style="list-style-type: none"> • 2 tonne maximum towing capacity • Distance between hooks: 1800mm • Part No. 7630435 	<ul style="list-style-type: none"> • Features a bead breaker and demount/mounting tools • Suitable for wheels up to 19" • Part No. 7640280

A SELECTION FROM THE VAST RANGE OF

Clarke®

QUALITY PRODUCTS



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Submersible, electric and engine driven for DIY, agriculture and industry.

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Angle grinders, cordless drill sets, saws and sanders.

STARTERS/CHARGERS

All sizes for car and commercial use.

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