



BATTERY CHARGER

AC70 - CC40 - CC60 - CC80 - CC120

OPERATING & MAINTENANCE INSTRUCTIONS

0502

- ### SAFETY PRECAUTIONS
- **IMPORTANT: ALWAYS disconnect the battery from the vehicle electric BEFORE connecting the charger leads. This is a safety precaution to avoid the possibility of damage being caused to the vehicle's electronic systems.**
 - This Battery Charger is designed for INDOOR use ONLY. Do not use outdoors, exposed to the elements.
 - This Battery Charger is for charging 12V Lead-Acid type batteries only. Do not use for any other type of battery, or supply power to low voltage electrical systems.
 - Ensure the voltage of the battery being connected is the same as the output voltage of the charger.
 - Do not attempt to charge a battery with a capacity exceeding that indicated in the Specifications.
 - Do not operate charger if any of the cables are damaged. Consult your Clarke dealer for repair or replacement of the parts.
 - Do not operate charger if case is damaged. Consult your Clarke dealer or a qualified person for inspection and repair.
 - Do not disassemble the charger, incorrect reassembly may result in electric shock or fire.
 - Ensure the battery posts and battery clamps are perfectly clean before use.

TABLE OF ABBREVIATIONS

V	-	Voltage
VAC	-	Volts, Alternating Current (Mains)
VDC	-	Volts, Direct Current (Battery Voltage)
A	-	Amps
AH	-	Ampere Hours
+ve	-	Positive
-ve	-	Negative
LED	-	Light Emitting Diode

LIMITATIONS OF USE

This Battery Charger is limited to use with Lead Acid Batteries ONLY.

DO NOT attempt to charge other types of battery

- Connect the battery clamps to the battery terminals before plugging in to the mains power supply.
 - Disconnect from mains power supply before making or breaking connections to the battery.
 - Make sure the battery is topped up with distilled water, (where applicable), to its proper level, before connecting the charger.
 - Unscrew the battery filler caps fully, (where applicable), and leave them loose for the duration of charge, to ensure that gases are allowed to escape freely.
- NOTE: ALWAYS clean around the filler caps thoroughly before unscrewing, to ensure that no dirt can enter the battery cell. Ensure the breather holes, in the caps, are perfectly clear before screwing in again.**
- When charging is complete, disconnect the supply, negative conductor and positive conductor **in this order**.
 - Always place the charger in an environment which is
 - well ventilated
 - out of the reach of children
 - not exposed to direct sunlight or heat source
 - not exposed to rain or other adverse conditions
 - away from water / moisture, oil and grease
 - away from explosive gases, flames, and sparks
 - away from any flammable substance

Thank you for purchasing this CLARKE Battery Charger. 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

ELECTRICAL CONNECTIONS

THIS APPLIANCE IS DOUBLE INSULATED

This appliance is fitted with a 13 amp, BS 1363 plug which should be connected to a standard 230 VAC (50Hz) electrical supply. If the plug is replaced, the replacement must be to the same specification and wired in accordance with the following code:

Blue	-	Neutral
Brown	-	Live

As the colours of the flexible cord of this appliance may not correspond with the coloured markings identifying terminals in your plug proceed as follows:

- Connect BROWN cord to terminal marked with a letter "L" or coloured RED
- Connect BLUE cord to terminal marked with a letter "N" or coloured BLACK

If in doubt, consult a qualified electrician.

In the event a moulded plug is fitted, and is subsequently cut from the electric cable, the replacement plug MUST be an approved 13 amp, BS 1363 plug and wired in accordance with the above instructions. Additionally, please note:

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1. The plug must be thrown away as there is a danger of electric shock if it is subsequently inserted into a socket outlet.
2. Never use the plug without the fuse cover fitted.
3. Should you wish to replace a detachable fuse carrier, ensure that the correct replacement is used (as indicated by marking or colour code).
4. Replacement fuse covers can be obtained from your local dealer or most electrical stockists.

FUSE REPLACEMENT

The fuse in the plug must be replaced with one of the same rating (3 amps) and this replacement must be ASTA or BSI approved to BS1362.

EXTENSION CABLES

If an extension cable is used, the conductors in the cable MUST be a minimum 1.5mm². Additionally, ensure the cable is completely unwound from the drum.



CONNECTING CHARGER TO BATTERY

Ensure the battery to be charged is rated at 12V (6V or 12V in the case of model CC80) and that it is not, damaged or in an overly discharged state, otherwise it may draw too big a current from the charger and damage may result.

If the battery is still in the vehicle, ensure the battery terminals are disconnected from the vehicle's electrics. Disconnect the negative (EARTH) terminal first, followed by the positive terminal. (When reconnecting, do so in reverse order).

Connect the red battery clamp from the charger to the positive (+ve) battery terminal, and the black clamp to the negative (-ve) terminal, making sure the connections are firm and secure.

With the battery correctly connected, charging may commence, taking the following into account:

Please note that the CC80 is provided with a 30amp fuse, at its base, as shown. The fuse may be pised out and replaced when necessary. It is possible that this fuse may blow in the event of a thermal overload.



FEATURES

Whenever a fault condition exists, the circuitry automatically disengages the normal operation of the charger.

All Models except CC60

THERMAL OVERLOAD

The thermal overload protector provides the safeguard against an excessively large charging current being drawn by the battery for prolonged periods.

The chargers' fully automatic protection features are designed so that the charger will turn itself "ON" or "OFF", according to preset safety operating parameters.

SHORT CIRCUIT

The charger is fully protected against short circuits, i.e. the clamps coming into contact, directly or indirectly when the unit is switched ON.

REVERSE POLARITY

The charger is fully protected against the possibility of the clamps being incorrectly connected.

Models CC40 & CC60

These models are provided with a **10 Amp** spade fuse, located at the base of the unit. The fuse protects against short circuits, reverse polarity and excessive charge.

CC40 & CC60

Plug in and switch ON at the mains supply.

These models are provided with LED's which indicate the state of charge of the battery.

Allow state of charge is indicated when the bottom LED illuminates, half charge - middle LED and fully charged - the top LED.

Disconnect the charger when charging is complete, otherwise damage to the battery could occur should the charger be left connected for a prolonged period.

CC80

BEFORE plugging in to the mains supply, you MUST ensure the voltage selector switch is set to the correct voltage for the battery being charged...6 or 12 volt. Additionally, set the HIGH/LOW charge switch according to the chart on pages 14 & 15, for the capacity of the battery you are attempting to charge. Plug in and switch ON at the mains supply. The ammeter will show the charge rate.

Initial charge may be quite low to begin with, but this will quickly rise to a maximum level, depending upon the state and the capacity of the battery, and taper off as the battery becomes fully charged.

Disconnect the charger when charging is complete, otherwise damage to the battery could occur should the charger be left connected for a prolonged period.

CC120

This model operates in a similar manner to CC80, except it is for use with 12 volt batteries only. It is however capable of charging batteries with a higher capacity. (See Specifications).

AC70

This model is a fully automatic charger, and will regulate the charge for any type of battery up to a capacity of 100AH.

Five LED's are provided on the front panel and, once the charger is plugged in and switched ON at the mains supply, are indicators for the following:

From the top,

RED - Battery charger is correctly connected and the battery charge state is greater than 2V.

RED - Mains ON

YELLOW - 1st stage charging has commenced. After a period of time (depending upon battery condition) this will extinguish and the 2nd yellow LED will illuminate.

YELLOW - 2nd stage charging has commenced, again this will eventually extinguish and the Green LED will illuminate, if the battery is in good condition.

GREEN - Charging complete

The charger may be left connected if required, as it will monitor battery state and provide a top up charge as and when necessary.

SPECIFICATIONS

Model	Voltage (VDC)	MAX Charge (Amps)	Battery Capacity (Ah)	Dims (mm)	Weight (kg)	Part No.	Comments
CC40	12	2.7	12-48	187x 154x 85	1.65	6266100	For use with low capacity batteries
CC60	12	4	20-80	187x 154x 85	1.65	6266105	For batteries in vehicles up to 1600cc
CC80	12/6	(12V) 6 (6V) 3	28-112 10-40	165x 110x 275	2.55	6266110	For batteries in vehicles up to 2000cc
CC120	12	8.5	40-160	185x 100x 123	2.55	6266115	For batteries in diesel engine and >2000cc veh's.
AC70	12	4	20-100	174x 174x 100	2.15	6266200	Deep cycle leisure batteries...golf carts, marine etc.

NOTE: A Spade fuse is also incorporated in the base of Model CC80. This fuse is a rectifier protection fuse, to provide protection in the event of a large power surge. It is not therefore expected that this fuse will ever need replacing.

GENERAL NOTES ON BATTERY LIMITATIONS

LOWER LIMIT - 9V DC

At this limit the battery has only about 25% charge left & ceases to be efficient. Discharging should be stopped or battery could be damaged.

UPPER LIMIT - 13V DC

The battery is about 90% charged and the charging current is very small - 0.5 AMP to 1 AMP. Equilibrium is reached i.e. the electrical energy being pushed into the battery is totally converted into heat energy and dissipated.

NOTE:

1. When the battery voltage is 14V, the charging voltage can be as high as 15V.
2. If the voltage is below 9V, the battery may be damaged and not recover to a value where the charger will operate. Moving the battery to a warm environment may induce the battery voltage to rise to within the safety limits.

PARTS AND SERVICE

For Spare Parts and Service, please contact your nearest dealer, or CLARKE International, on one of the following numbers.

PARTS & SERVICE TEL: 020 8988 7400
PARTS & SERVICE FAX: 020 8558 3622

or e-mail as follows:

PARTS: Parts@clarkinternational.com

SERVICE: Service@clarkinternational.com