

CHARGING SEALED MF, GEL, AGM BATTERIES

- You cannot reach the liquid electrolyte in a sealed battery. Do not overcharge batteries and so you will protect the battery life.
- Slow charge; frequently check voltage at the battery terminals by means of a regular tester.
- Stop charging when voltage reaches 14.4 Volt for 12-Volt batteries; 7.2 Volt for 6-Volt batteries; 28.8 Volt for 24-Volt batteries.
- The battery charger is not fitted with an automatic charge stop and must be disconnected once charge is completed so as not to damage the battery.

SIMULTANEOUS CHARGING OF A NUMBER OF BATTERIES

- Clearly, charging time increases in proportion to the sum of the capacities of the batteries being charged.
- Do not charge at the same time different types of batteries, batteries of different capacities (Ah), or at different charge levels.

STARTER CONNECTION: SEQUENCE OF OPERATIONS IMPORTANT FOR STARTING:

- Before starting the battery charger, make sure that the battery voltage selected is the right one. Incorrect battery voltage can damage objects and injure people.
- To protect the electronic components on the vehicle, carefully read the instructions by the car manufacturer and the battery m
- To protect the vehicle electronics:
- Do not use the quick start procedure if the battery is sulphated or faulty.
- Do not use the quick start procedure if the battery is not connected to the vehicle: The presence of the battery is essential to eliminate any overvoltage that may be created as the result of energy accumulated in the connecting cables at the quick start phase.
- To facilitate a quick start, it is advisable to make a quick charge of 10-15 minutes.
- Observe the quick start / pause cycles on the rating plate or in the technical data so that the battery charger does not overheat: For example, 5" ON / 10" OFF 5 Cycle.
- Do not repeatedly try quick starts if the motor does not start: This may damage the battery or the vehicle electric system.

SAFETY FUSE THAT PROTECTS AGAINST SHORT CIRCUITS AND REVERSE POLARITY

- This fuse interrupts the electric circuit every time there is surcharge caused by a short circuit at the clamps or the battery cells, or by reverse polarity at the battery terminals (+; -).
- However, there may be other irregular situations that the fuse cannot protect against. (For instance, a battery with a very low charge connected and the polarity is reversed).
- Always make sure that the polarity is correct so as not to injure people or damage things.
- Disconnect the battery charger from the mains before replacing fuses.
- The appliance is equipped with a thermostatic cut-out with automatic reset which is tripped in case of thermal overload to protect the device against any overheating.

>> Set the charging current (MIN, MED, MAX) using the three-way switch on the front panel (for the models which have this), depending on the charging current required; - for battery chargers with adjustable charging current the directions given by the manufacturer of the battery should be followed. Charging normally takes about 10 hours with a current of 1/10 (0, 1) of the capacity in Ah of the battery. E. g.: 40 Ah battery recommended charging current = $40/10 = 4A$ for a minimum of 10 hours; - after connecting the wires to the battery, supply the battery charger with a voltage which is equal to the voltage stated on the data plate; - once charging is finished, turn the battery charger off by means of the main switch (if any) or by removing the plug from the power supply, disconnect the + and - clamps from the terminals and close the battery with the caps provided; - CAUTION! if the battery is left connected to the battery charger for many hours after charging has finished, the battery could be damaged since the current never switches off and this could cause excessive heating of the plates and the liquid contained in the battery may start to "boil". If this phenomenon also occurs during charging, the charging current should be decreased (for models which have a regulator) or charging should be interrupted in order to avoid damaging the battery.

TYPES OF BATTERIES

Model :	Lead battery
No. of elements :	3, 6
Rated Ah capacity :	See data plate on battery charger

MAINTENANCE

Replacement of fuses: (for the models which are equipped with fuse)

- 1) Disconnect the power supply cable of the battery charger (remove the plug from the power supply socket);
- 2) Unscrew the fastening screws and open the battery charger. CAUTION! never use the battery charger while it is open.
- 3) Remove the protective cover of the fuse and replace the fuse with a fuse of the same value (The correct value of the fuse is stated on the data plate and near the fuse itself);
- 4) Dose the battery charger and tighten the fastening screws;

Replacement Of Power Supply Cable (for the models where the replacement can be done without a special tool)

- 1) Disconnect the power supply cable of the battery charger (remove the plug from the power supply socket);
- 2) Unscrew the fastening screws and open the battery charger. CAUTION! never use the battery charger while it is open.
- 3) Withdraw the connectors of the power supply cable;
- 4) Replace the power supply cable, making sure that it is placed as before;
- 5) Close the battery charger and tighten the fastening screws.

TROUBLE-SHOOTING

BATTERY CHARGER NOT CHARGING:

- Check that the negative (-) and positive (+) clamps are connected to the correct terminals on the battery;
- If there is more than one battery in series, check the connection between the batteries (negative terminal of one battery to the positive terminal of the other). Check this against the various connection diagrams;
- Check that the power supply cable is connected;
- Check that the thermal protection has not been activated (for models with reset of the external protection), by means of a button, wait about a minute and press the button on the front panel of the battery charger.

GENERAL OPERATION INSTRUCTIONS FOR BATTERY CHARGER/STARTER

- The starting of a vehicle using a starter is required when the battery does not have enough power to make the starting motor turn.
 - Proceed to fast charge for minimum 10 minutes with a current adequate to the battery on use. Immediately set the switch to **BOOSTER** and attempt to **BOOST START** (do not insist longer than the time shown on the technical data table).
- IMPORTANT:** when the engine is running, **SWITCH OFF** the Charger **IMMEDIATELY**. Failure to do so could cause damage to any of the vehicles' electronic devices. After several attempts at starting, the internal protection thermostat of the appliance may intervene, which automatically resets after 10-15 minutes.

OPERATION INSTRUCTIONS FOR PORTABLE STARTER

- The range of battery-chargers/starters contains two versions. The first version operates with only 12 output volts and is fitted with a charger-starter switch and a battery indicator which is suitable for the reading of the charging current (first part of the graduated scale) and the starting current (final part of the scale).
- The second version operates with 12/24 output volts and in addition to the battery indicator and the charger-starter switch, it also has two sockets marked with 12 V and 24 V (which can be used separately depending on the voltage of the battery). If the appliance is to be used as a battery charger, connect the black clamp to the - terminal and the red clamp to + terminal of the battery. Then connect the power supply cable to a mains socket with sufficient power and turn the switch to the most suitable position for battery recharging, following the instructions given for ordinary battery chargers.
- If the appliance is to be used as a starter follow the general operation instructions as above.

OPERATION INSTRUCTIONS FOR STARTER ON WHEELS

- Turn the function switch (slow-fast charge-starter) to the required position.
- For the models equipped with timer, fast charge operations are only possible if the timer has been set with a specific charging time. Once this time has elapsed, the appliance will automatically switch off.
- When the switch is in **STARTER** position, the timer will not operate.
- For models with remote control, which can be used for starting, energy is delivered to the battery by pressing the remote-control button, when the function switch is in "Remote Control" position.

ATTENTION

Inside the plastic battery charger there is a fuse protection against short circuit (contact between positive pliers (+) and negative pliers (-)). If the unit doesn't work, **DETACH THE PLUG OF THE POWER SUPPLY CABLE FROM THE WALL OUTLET**, open the battery charger and control the inside fuse is in order. If fuse is wrong, replace it with one of the same value.



CATBO 2430

BATTERY CHARGER

CAUTION

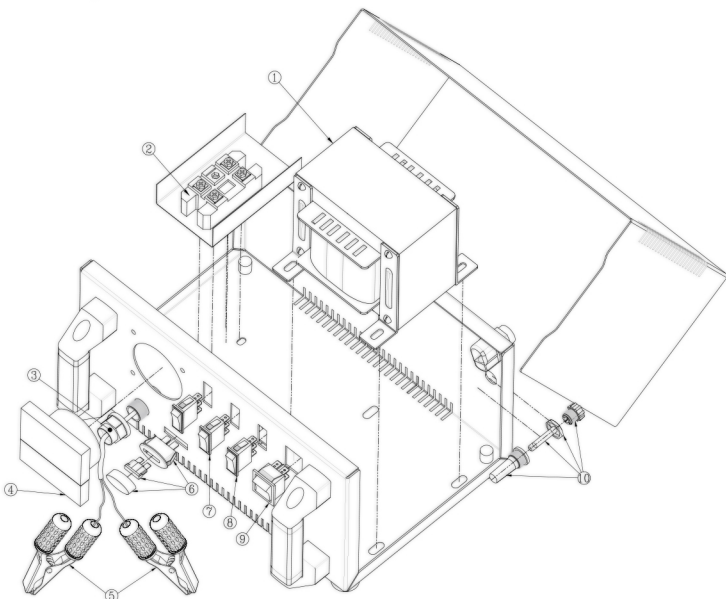
BEFORE INSTALLING, OPERATING OR CARRYING OUT MAINTENANCE ON THE BATTERY CHARGER, READ THIS SHEET CAREFULLY, PAYING PARTICULAR ATTENTION TO THE SAFETY RULES. IN THE EVENT OF THESE INSTRUCTIONS NOT BEING CLEAR PLEASE CONTACT YOUR SUPPLIER.

WARNING

The attempt to charge damaged batteries or the continuous short circuit between the pliers for longer than necessary, may irreparably damage the thermal protection inside the battery charger.

SAFETY RULES AND GENERAL WARNINGS

- Remove (disconnect) the power supply before connecting or disconnecting the battery terminals
- CAUTION!** Explosive gases. Avoid formation of flames or sparks. This battery charger contains parts which could cause electric arcs or sparks: therefore, If the battery charger is used in a garage or similar environment, keep the battery charger in a suitable place or housing.
- Do not expose to rain;
- CAUTION!** do not re-charge, the non-rechargeable batteries;
- While recharging the vehicles having alternators, the wire should be disconnected from the positive terminal of the battery;
- Do not place the battery charger on the battery during charging.
- Avoid rubbing the positive (+) clamp with the negative (-) clamp in order to check whether the battery charger is working or not. Because, this may burn-off the Fuse of the charger.



TECHNICAL SPECIFICATION KEYS

Sl. No.	Specifications	CATBO 2430
1	Input Voltage	230 VAC
2	Output Voltage	24.8 - 29.5
3	Output Fuse Capacity	30 Amp
4	Input Fuse	2 Amp
5	No. of selection modes	4
6	Input Cable provided	1.4 mm
7	Output Cable provided	4 mm
8	Maximum battery capacity	120 AH
9	Kind of battery that can be charged	GEL/ LIQUID
10	Size of the device	245 x 245 x 145
11	Weight	4950 g

OPERATION

- Check the battery which is to be recharged.
- make sure that the case is in good condition, with no leaks and that the clamps are not oxidized;
- Remove the caps from the battery to allow the gases which are produced during charging to easily come out. If necessary, add distilled water, until the internal elements of the battery are covered (correct value = 5-10 mm above the elements)

CAUTION! THE ELECTROLYTE IS A HIGHLY CORROSIVE ACID

- Connect the Red coloured charging clamp to the positive (+) terminal of the battery and the Black clamp to the negative terminal of the battery;
- Set the correct required charging selection by select switch.
- Switch on the main switch of the charger.

During the charging stage, the value shown by the ammeter will decrease as charging progresses, until it reaches approximately zero, depending on the conditions and the capacity (Ah) of the battery being charged;

OVERVIEW AND WARNINGS

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

This battery charger can be used to charge lead-acid batteries of the following types only:

- "WET"** cells: Sealed, with liquid electrolyte inside. Low maintenance or maintenance free (MF), "AGM", "GEL".
 - Never attempt to charge batteries that cannot be recharged or other types than those indicated.
 - Never charge frozen batteries that might explode.



- Batteries generate explosive gas (hydrogen) during normal operation and even greater quantities during recharging.



Avoid creating flames or sparks.

- The battery charger has components such as switches that may create sparks. If the product is used in a garage or similar places, position it adequately far from the battery; it should not be inside the vehicle or the engine compartment.
- To avoid creating sparks, make sure that the clamps cannot get detached from the battery terminals when the battery is being charged.
- Never let the cable clamps touch each other.
- It is strictly forbidden to reverse polarity when you connect the clamps to the battery.



- Make sure that the plug is unplugged from the socket before connecting or disconnecting the cable clamps.



- Provide adequate ventilation during charging

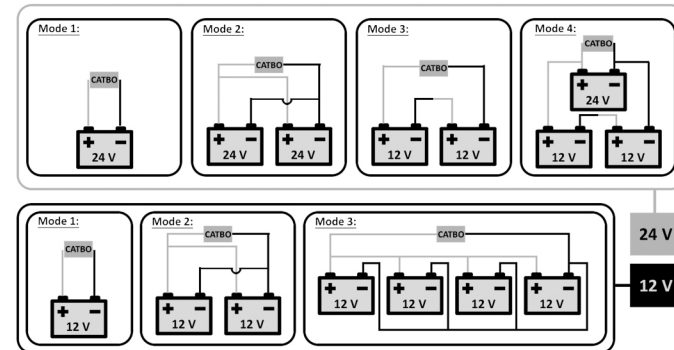


- Always wear safety goggles closed at the sides, acid-proof safety gloves, and acid-proof clothing.



- Never use the battery charger with damaged cables or whenever the charger has been subjected to impact or damaged.
- Never dismantle the battery charger: take it to an authorized service centre.
- Supply cable must be replaced by qualified people.
- Never position the battery charger on flammable surfaces.
- Never place the battery charger and its cables in the water or on wet surfaces.
- Position the battery charger with adequate ventilation; never cover it with other objects or close it inside containers or closed shelves.

ASSEMBLY AND ELECTRICAL CONNECTION



Battery Wiring Diagram - Model : 2430

- Put together the separate parts contained in the package.
- The device must be connected only to a supply system, with an earthed 'neutral' lead.

Supply plug: If the device does not have a plug, connect a standardized plug of suitable capacity to the power supply cable, (2P+E for 1Ph).

BATTERY CHARGER DESCRIPTION

Controls and indications Fig.1:

- ON/OFF switch.
- BATTERY CHARGER/BOOST START switch.
- Output amps adjustment (charging current).
- Fuse.



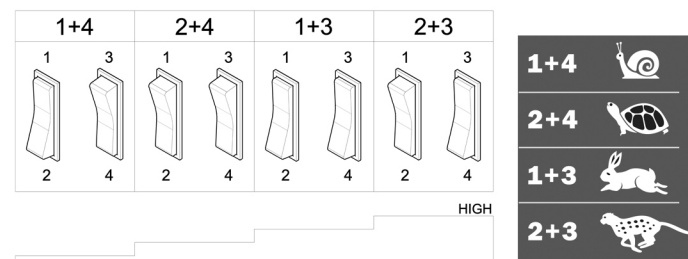
BATTERY CHARGER CONNECTION



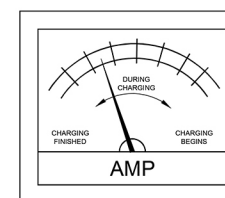
Before starting the battery charger, make sure that the battery voltage selected is the right one. Incorrect battery voltage can damage objects and injure people. To protect the electronic components on the vehicle, carefully read the instructions by the car manufacturer and the battery manufacturer before charging a battery or using the Quick start procedure.

- Connect red charging clamp to positive (+) battery terminal and black charging clamp (-) to negative battery terminal.
- If the battery is installed on a motor vehicle, first connect the clamp to the battery terminal that is not connected to the bodywork. Afterwards, connect the second clamp to the bodywork at a point far from both the battery and the petrol pipes.
- To stop charging the battery.** In the following order, cut off the power supply, remove the clamp from the bodywork or the negative (-) terminal, and remove the clamp from the positive (+) terminal.

BATTERY CHARGER CONNECTION



LOW



- The ammeter may not indicate any value if the charger is set to Min and connected to a well charged battery.
- Once a battery is charged and bubbles form in the liquid electrolyte, it is advisable to end the charging so that the battery does not get damaged.