YUA900MACH Charger & Maintainer

1. Safety

READ AND SAVE THIS SAFETY AND INSTRUCTION MANUAL

1. This manual contains important safety and operating instructions for this battery charger/maintainer. Please read, understand and follow these instructions and precautions carefully.

2. Use this charger only on 6volts & 12 volts LEAD ACID, AGM and GELLED ELECTROLYTE (GEL-CELL) and 12V LIfepo4 batteries. Do not attempt to use other voltages and types of batteries (DRY CELL, NICKEL CADMIUM, NICKEL METAL HYDRIDE, etc.) commonly found in small home appliances. This may cause chargers and batteries to burst, resulting in damage or injury to people and property.

3. Do not expose this charger to direct sunlight, rain or snow.

4. If the battery is installed, please make sure that the vehicle is turned off all loads and no loads are presented.

5. Do not use attachments to this charger that are not recommended. Non-recommended attachments may result in injury, electric shock, or fire and voids the warranty.

6. If it is necessary to use an extension cord, it should be properly grounded cord. Use of improper extension cord could result in a risk of fire and electric shock.

a. The pins on plug of extension cord are the same number, size, and shape as those of plug on charger.
b. The extension cord is properly wired and in good electrical condition.
c. The wire size is large enough for ac ampere rating of charger as specified in Table.

AWG size of cord			
Length of cord, feet (m)			
25 (7.6)	50 (15.2)	100 (30.5)	150 (45.6)
18	18	18	16

7. Do not operate a charger if it receives a sharp blow, been dropped, or otherwise damaged in any way; take it to an authorized service center for repair.

8. To prevent injury during cleaning or maintenance, disconnect all batteries and move them to clear access to the unit. Unplug this charger from the wall outlet. Use a slightly dampened cloth to clean the housing and lead sets. Do not use solvents or soaps.

9. Never attempt to charge a frozen battery. Allow the battery to return to room temperature before connection. Suggested operation range 0 C (32 F) to 50 C (122 F) in ambient temperature.

10. Never use this charger in or on any boat or watercraft directly. You must remove the battery from the boat or watercraft and charge the battery at the properly installed location of this charger.

11. It is not suggested to expose the charger to moisture and should not be subjected to inclement weather.

WARNING – RISK OF EXPLOSIVE GASES.

1. Working in vicinity of a lead-acid battery is dangerous. Batteries generate explosive gas during normal battery operation. For this reason, it is of utmost importance that you follow the instructions each time you use the charger.

2. To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer and manufacturer of any equipment you intend to use in vicinity of battery.

RISK OF EXPLOSIVE GASES

1. Working in the vicinity of a lead acid battery is dangerous. Battery generates

explosive gases during operation. For this reason, it is of utmost importance that you follow the instructions each time you use the charger.

2. To reduce the risk of battery explosion, follow these instructions and those published by the battery manufacturer and manufacturer of any equipment you intend to use in the vicinity of the battery. Observe cautionary markings on these items.

3. Someone should be within range of your voice or close enough to come to your aid when you work near a lead acid battery.

4. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing or eyes.

5. Wear complete eye protection and protective clothing.

6. Avoid touching eyes while working near battery.

7. Be extra cautious to reduce the risk of dropping a metal tool onto the battery. It could spark or short-circuit the battery or other electrical parts and could cause an explosion.

8. Remove personal metal items such as rings, bracelets, necklaces and watches when working with a lead acid battery. It can produce a short circuit current high enough to weld a ring or the like to metal causing a severe burn.

9. This appliance is not intended for use by persons (including children) 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 appliance by a person responsible for their safety.

10. Children should be supervised to ensure that they do not play with the appliance.

11. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters user's eyes, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.

12. NEVER smoke or allow a spark or flame in vicinity of battery or engine.

13. Use a charger for charging a LEAD-ACID battery only. It is not intended to supply power to a low voltage electrical system other than in a starter-motor application. Do not use battery chargers for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.

2. Preparation for charging

RISK OF CONTACT WITH BATTERY ACID. BATTERY ACID IS A HIGHLY CORROSIVE SULFURIC ACID

1. Be sure the area around battery is well ventilated while battery is being charged. Gas can be forcefully blown away by using a piece of cardboard or other nonmetallic material as a fan.

2. Clean battery terminals. Be careful to keep it from user's eyes.
3. Inspect the battery for cracked or broken case or cover. If the battery is damaged, do not use the charger.
4. If the battery is not sealed maintenance free, add distilled water in each cell until battery acid reaches the level specified by the manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions.
5. If necessary to remove battery from vehicle to charge, always remove ground terminal from battery first. Make sure all accessories in the vehicle are off to ensure you do not cause any arcing.
6. Study all battery manufacturer's specific precautions such as
7. removing or not removing cell caps while charging and recommended rates of charge.
8. Determine voltage of battery by referring to car owner's manual and make sure it matches output rating of battery charger.
9. If the battery and terminals have a white or bluish crust on them, the charging system may be having a problem. These problems should be corrected before the battery is replaced after charging.

3. CHARGING WHEN BATTERY IS INSTALLED IN VEHICLE

A SPARK NEAR THE BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE RISK OF A SPARK NEAR BATTERY:

Position the AC and DC cables to reduce the risk of damage by the hood, door and moving or hot engine parts.

> **NOTE:** that if it is necessary to close the hood during the charging process, ensure that the hood does not touch the metal part of the battery clips or cut the insulation of the cables.

1. Stay clear of fan blades, belts, pulleys and other parts that can cause injury.
2. Determine which post of the battery is grounded (connected) to the chassis. If the negative post is grounded to the chassis (as in most vehicles), see step to negative-grounded vehicle. If the positive post is grounded to the chassis, see step to positive-grounded vehicle.
3. Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has larger diameter than NEGATIVE (NEG, N, –) post.
4. When disconnecting charger, disconnect AC cord, remove clip from vehicle chassis, and then remove clip from battery terminal.

FOR A NEGATIVE-GROUNDED VEHICLE

Connect the POSITIVE (red) clip from the battery charger to the POSITIVE (POS, +) ungrounded post of the battery. Connect the NEGATIVE (black) clip to the vehicle chassis or engine block away from the battery. Do not connect the clip to the vehicle chassis or engine

block sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.

FOR A POSITIVE-GROUNDED VEHICLE

Connect the NEGATIVE (black) clip from the battery charger to the NEGATIVE (NEG, -) ungrounded post of the battery. Connect the POSITIVE (red) clip to the vehicle chassis or engine block away from the battery. Do not connect the clip to the carburetor, fuel lines or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block. Connect the AC supply cord to the electrical outlet for processing the charging.

4. CHARGING WHEN BATTERY IS OUTSIDE VEHICLE

A SPARK NEAR THE BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE RISK OF A SPARK NEAR BATTERY:

--Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N, –) post.

--Attach at least a 60 CM-long 6-gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, –) battery post.

--Do not face battery when making final connection.

--POSITION YOURSELF AND THE FREE END OF CABLE AS FAR AWAY FROM BATTERY AS POSSIBLE, THEN CONNECT THE NEGATIVE (BLACK) CHARGER CLIP TO FREE END OF CABLE.

1. Connect the POSITIVE (red) charger clip to the POSITIVE (POS, +) post of the battery.
2. Connect the NEGATIVE (black) charger clip to the NEGATIVE (NEG, -) post of the battery.
3. Connect the AC supply cord to the electrical outlet.
4. When disconnecting the charger, always do so in the reverse order of the connecting procedure and break the first connection while as far away from the battery as practical.

NOTE: that a marine battery must be removed and charged on shore. Charging it onboard requires equipment specially designed for marine use.

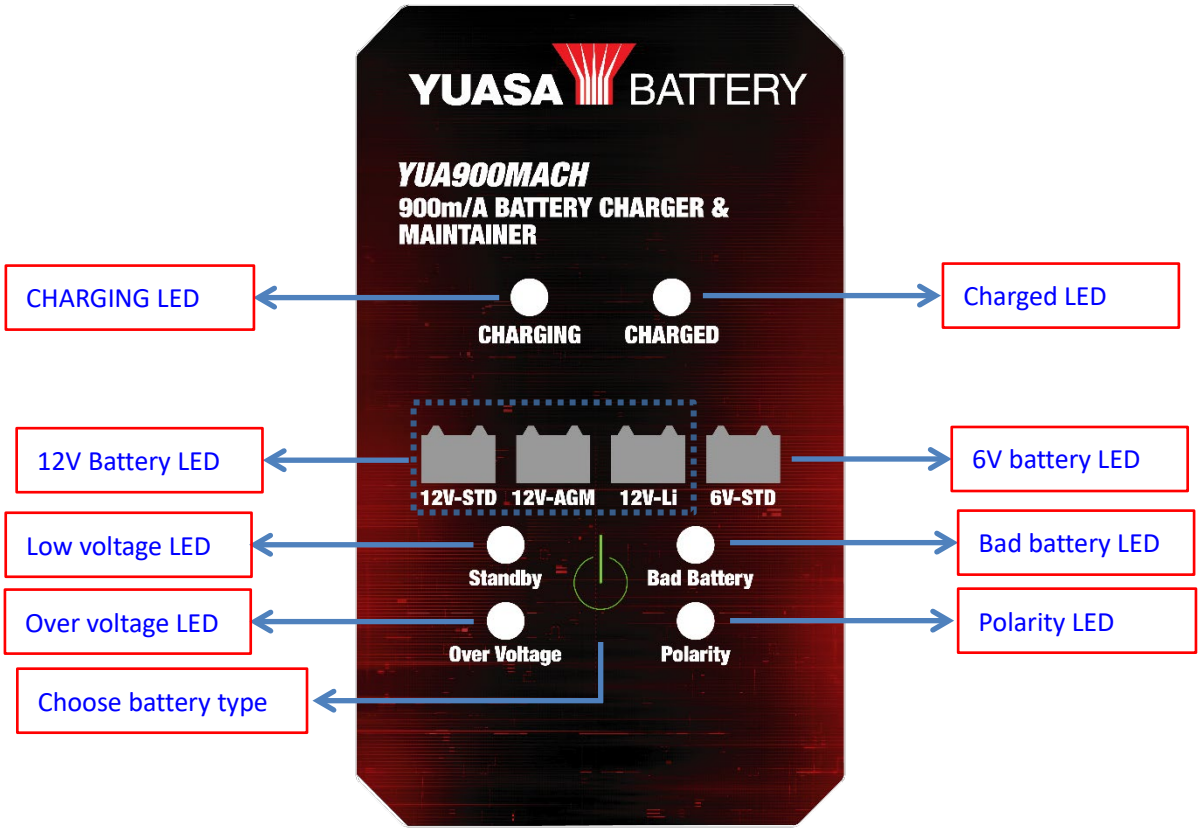
5. Charger / Maintainer location

RISK OF EXPLOSION AND CONTACT WITH BATTERY ACID.

1. Locate charger as far away from battery as DC cables permit.
2. Never place charger directly above battery being charged. Gases from battery will corrode and damage the charger.
3. Never allow battery acid to drip on charger when reading gravity or filling battery.
4. Do not operate a charger in a closed area or restrict ventilation in any way.

6. Setting up and operation

Warning: Do not charge the battery types out of the charger's working capability.



Battery Maintainer Settings

Plug AC power cord into an AC power source. All LEDs will light momentarily, then Low voltage LED "Standby" and the LEDs corresponding to charging settings should stay lit. The charger is in Standby Mode now or battery voltage below 1V error indication.

To charge a battery:

1. If the "Standby" LED is on, check the battery connection or whether the battery voltage is below 1V.
   If the "POLARITY" LED is on, check the battery connection.
2. Choose a battery type setting.
   To charge 12V Standard and Maintenance Free Flooded? Acid batteries, press the Battery Type button until the "12V-STD" LED is on.
   To charge 12V AGM and Spiral Wound? batteries, press the Battery Type button until the "12V-AGM" LED is on.
   To charge a 12V LiFePO4 battery, press the Battery Type button until the "12V-Li" LED is on.
   To charge 6v Standard and Maintenance Free Flooded Acid batteries, press the Battery Type button until the "6V-STD" LED is on.

3. Wait for 2-3S the charger will automatically start and complete the charging process.
4. When the battery is nearly fully charged and enters the completion phase, the CHARGED LED will turn on, and the CHARGING LED will begin flashing. At this point, the battery can be used immediately. However, to achieve a true 100% charge, the charger should remain connected until it enters the resting phase, at which point only the solid green CHARGED LED will be lit.
5. When the charging process is finished, disconnect AC power, then disconnect DC leads from battery correctly.

7 · Features

Multi-Stage Charging Process

The charger uses a multi-stage charging process designed to efficiently charge and maintain the battery. This process includes a pulsing charging phase, which is particularly useful for properly charging deeply discharged batteries and is beneficial for the long-term health of the battery. The final step in the charging routine is Maintenance Mode, which allows the charger to remain connected to the battery and maintain an optimal charge level.

Smart Clamp Technology

The charger will supply power to the output leads only when a correct connection is made.

Multiple Battery Compatibility

The charger could charge different battery types, including 12V Conventional, Maintenance Free, AGM, Gel Cell, LiFePO4 , Deep Cycle batteries and 6V Conventional, Maintenance Free batteries.

Multiple Output Options

The charger comes complete with DC output clamps and ring terminals to charge or maintain battery.

Reverse Polarity Protection

Reverse Polarity LED will flash, and power will be cut off if the clamps connect reversely.

Battery Fault Protection

“Standby”LED warning: Means standby or the battery voltage is less than 1V,.

“Over voltage” LED warning: Means the battery voltage is above 16V in 12V mode (8V in 6V mode).

“Bad battery” LED waning: The battery is damaged and stop charging

8 · Regular maintenance

Read and follow the manual. Please clean the case and all the accessories for the charger frequently or after every use. Do not expose the charge on rainy day or snowing day.