

D12/120 - 12 Volt, 120 Amp

D24/45 - 24 Volt, 45 Amp

D24/80 - 24 Volt, 80 Amp

D48/35 - 48 Volt, 35 Amp

SAFETY

- Do not use this battery charger in confined spaces. Make sure the area is well ventilated.
EXHAUST FUMES CAN BE ORDORLESS AND DEADLY
- Fuel should be stored in approved fuel containers.
- When traveling with the battery charger, the fuel shut off valve must be in the closed "OFF" position.
- Do not smoke or place the machine near an open flame.
- Always turn the engine off and cool down engine before re-fuelling. Avoid spilling, use a funnel.
- Keep exhaust outlet away from dry grass or combustible materials.
- Do not attempt to charge recharge non-rechargeable batteries.
- Repairs should only be carried out by qualified service people.
- Operate on a clean level surface, vibrating equipment should not be left unattended unless secured in place to protect from falling over which could cause a fire.
- Disconnect battery charger leads from battery as soon as charging process is complete.
- Lead acid batteries contain a sulphuric acid electrolyte, which is a highly corrosive gas when charged and can explode if ignited which can cause serious injury or possibly death.

OPERATING INSTRUCTIONS

1. Check the engine oil and fuel levels before starting. Fill engine oil to the top of the filler hole with the engine on a level surface.
2. Always connect the battery leads to the charger control panel first and then connect the alligator clamps to the battery before starting.
3. Battery cable clamps should be connected: **POSITIVE [+] TO POSITIVE [+] AND NEGATIVE [-] TO NEGATIVE [-]**
4. HIGH/OFF/LOW control panel switch must be in the "OFF" position before starting engine.
5. **Pull Start** - Turn the engine switch on, turn the fuel switch on, then turn the choke lever to the on, or choke closed position and pull cord to start. Idle the engine for a minute to warm up, turn the choke lever to the open position.
Electric Start - Turn the fuel switch on, turn the choke lever to the closed position and then turn the key switch to start. Idle the engine for a minute to warm up, turn the choke lever to the open position.
6. Select the HIGH/OFF/LOW control panel switch to "LOW" (float 2.33vpc) position, accelerate engine to 2/3 of maximum throttle then flick the "START CHARGE" switch, check that the LED "CHARGING" light is "ON" (battery cables must be connected to excite field).
7. If the charger is used for stand-by use purposes, it is advised to maintain the charge on the "LOW" position for a float charge.
8. For a fast charge time, switch the HIGH/OFF/LOW control panel switch to the "HIGH" position for a bulk charge. If the engine becomes overloaded on this setting due to a larger current drag from larger battery banks, keep the switch on "LOW" to slowly increase the battery voltage, before switching back to "HIGH".
9. Before removing the battery cable clamps from the battery, switch the HI/OFF/LOW control panel switch to "OFF".
10. ALWAYS DISCONNECT THE BATTERY CABLE FROM THE BATTERY WHEN THE ENGINE IS NOT RUNNING.

NEVER REVERSE THE LEADS AS THIS MAY CAUSE PERMANENT OR SEVERE DAMAGE TO THE CHARGER AND BATTERIES.

MAINTENANCE

- Check fuel and oil levels before starting. Fill engine oil to the top of the filler hole with the engine on a level surface. Use manufacturers recommended type of oil.
- Always use clean, fresh ultra low (or low) sulphur diesel fuel . Some fuels deteriorate over time, causing hard starting. Check fuel and oil levels before starting. Fill engine oil to the top of the filler hole with the engine on a level surface.
- If vibration noises increase over time, check for loosened nuts and bolts on the unit.

REFER TO THE ENGINE MANUAL FOR FURTHER ENGINE MAINTENANCE PROCEDURES

NOTE

Always remember, batteries can fail and this battery charger cannot re-charge an unserviceable battery, however the unit can provide a steady current to operate DC loads even when the batteries cannot store or deliver power.

CHARGER ENCLOSURES

- Remember to address ventilation when fabricating an enclosure for this diesel motor battery charger as warranty may be void due to overheating of the motor.
- Enclosures must be constructed with ventilation on all sides or by an alternate motorized ventilation system.

BATTERY CARE

- Running any battery completely flat may result in permanent battery failure, or significantly decrease the life of the battery. Lead acid batteries are best kept clean and dry at a moderate 70°F/20°C temperature and fully charged for best performance. Cranking batteries will recharge quickly due to the internal design while deep cycle batteries re-charge more slowly.
- Batteries can be severely damaged if repeatedly discharged beyond 80% of their rated capacity, whether it is a deep cycle or cranking battery. A fully charged battery (once stabilized) will measure 12.6 volts (approx.) or measure 1.260 specific gravity. A flat battery will measure 11.9 volts (approx.) or measure 1.150 specific gravity.
- Whenever handling or working with a lead-acid battery, consult the battery manual or specification sheets for instructions and safety precautions. Lead-acid batteries produce hydrogen-oxygen gases than can be highly explosive and sulphuric acid can cause severe burns.

STATE OF CHARGE	SPECIFIC GRAVITY	12 VOLT BATTERY
100 %	1.265	12.7
75 % *	1.225	12.4
50 %	1.190	12.2
25 %	1.155	12.0
Discharged	1.120	11.9

* Sulfation of batteries starts when specific gravity falls below 1.225 or voltage measures less than 12.4 (12volt Battery when stabilized). Check electrical connections, keep batteries topped up, and keep batteries clean and dry.

THIS BATTERY CHARGER SHOULD NOT BE RELIED ON FOR CRITICAL EMERGENCY SITUATIONS OR RUNNING MEDICAL EQUIPMENT