ROSSI®

12V/24V Heavy-Duty Battery Charger

User Manual

[Revision 2.0 November 2017]

READ THIS MANUAL CAREFULLY BEFORE USE – FAILURE TO DO SO MAY RESULT IN INJURY, PROPERTY DAMAGE AND MAY VOID WARRANTY. • KEEP THIS MANUAL FOR FUTURE REFERENCE. • Products covered by this manual may vary in appearance, assembly, inclusions, specifications, description and packaging.

E&OE

Safety

Safety messages are designed to alert you to possible dangers or hazards that could cause death, injury or equipment or property damage if not understood or followed. Safety messages have the following symbols:

You WILL be KILLED or SERIOUSLY INJURED if you do not follow instructions.

You CAN be KILLED or SERIOUSLY INJURED if you do not follow instructions.

You CAN be INJURED if you do not follow instructions or equipment damage may occur.

It is vital that you read and understand this user manual before using the product, including safety warnings, and any assembly and operating instructions. Keep the manual for future reference.

Safety precautions and recommendations detailed here must be fully understood and followed to reduce the risk of injury, fire, explosion, electrical hazard, and/or property damage.

Safety information presented here is generic in nature – some advice may not be applicable to every product. The term "equipment" refers to the product, be it electrical mains powered, battery powered or combustion engine powered.

- **Before Use** - If you are not familiar with the safe operation/handling of the equipment, or are in any way unsure of any aspect of suitability or correct use for your application, you should complete training conducted by a person or organization qualified in safe use and operation of this equipment, including fuel/electrical handling and safety.
- Do NOT operate the equipment in flammable or explosive environments, such as in the presence of flammable liquids, gases or dust. The equipment may create sparks or heat that may ignite flammable substances.
- Keep clear of moving parts.
- Equipment may be a potential source of electric shock or injury if misused.
- Do NOT operate the equipment if it is damaged, malfunctioning or is in an excessively worn state.
- Do NOT allow others to use the equipment unless they have read this manual and are adequately trained.
- Keep packaging away from children - risk of suffocation! Operators must use the equipment correctly. When using the equipment, consider conditions and pay due care to persons and property.

General Work Area Safety

- Work areas should be clean and well it.
- Do not operate the equipment if bystanders, animals etc are within operating range of the equipment or the general work area.
- If devices are provided for connecting dust extraction / collection facilities, ensure these are connected and used properly. Dust collection can reduce dust-related hazards.

General Personal Safety

- Wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect from eye and ear injury, poisoning, burns, cutting and crush injuries. Protective equipment such as safety goggles, respirators, non-slip safety footwear, hard hat, hearing protection etc should be used for appropriate equipment / conditions. Other people nearby should also wear appropriate personal protective equipment. Do not wear loose clothing or jewellery, which can be caught in moving parts. Keep hair and clothing away from the equipment.
- Stay alert and use common sense when operating the equipment. Do not over-reach. Always maintain secure footing and balance.
- Do not use the equipment if tired or under the influence of drugs, alcohol or medication.
- This equipment is not intended for use by persons with reduced physical, sensory or mental capabilities.

General Fuel Safety

- Petrol/fuel/gasoline is extremely flammable – keep clear of naked flames or other ignition sources.
- Do not spill fuel. If you spill fuel, wipe it off the equipment immediately – if fuel gets on your clothing, change clothing.
- Do NOT smoke near fuel or when refuelling.
- Always shut off the engine before refuelling.
- Do NOT refuel a hot engine.
- Open the fuel cap carefully to allow any pressure build-up in the tank to release slowly.
- Always refuel in well ventilated areas.
- Always check for fuel leakage. If fuel leakage is found, do not start or run the engine until all leaks are fixed.

General Carbon-Monoxide Safety

- Using a combustion engine indoors **CAN KILL IN MINUTES**. Engine exhaust contains carbon-monoxide – a poison you cannot smell or see.
- Use combustion engines OUTSIDE only, and far away from windows, doors and vents.

General Equipment Use and Care

- The equipment is designed for domestic use only.
- Handle the equipment safely and carefully.
- Before use, inspect the equipment for misalignment or binding of moving parts, loose components, damage or any other condition that may affect its operation. If damaged, have the equipment repaired by an authorised service centre or technician before use.
- Prevent unintentional starting of the equipment - ensure equipment and power switches are in the OFF position before connecting or moving equipment. Do not carry equipment with hands or fingers touching any controls. Remove any tools or other items that are not a part of the equipment from it before starting or switching on.
- Do not force the equipment. Use the correct equipment for your application. Equipment will perform better and be safer when used within its design and usage parameters.
- Use the equipment and accessories etc. in accordance with these instructions, considering working conditions and the work to be performed. Using the equipment for operations different from those intended could result in hazardous situations.
- Always keep equipment components (engines, hoses, handles, controls, frames, housings, guards etc) and accessories (cutting tools, nozzles, bits etc) properly maintained. Keep the equipment clean and, where applicable, properly lubricated.
- Store the equipment out of reach of children or untrained persons. To avoid burns or fire hazards, let the equipment cool completely before transporting or storing. Never place or store the equipment near flammable materials, combustible gases or liquids etc.
- The equipment is not weather-proof, and should not be stored in direct sunlight, at high ambient temperatures or locations that are damp or humid.
- Do not clean equipment with solvents, flammable liquids or harsh abrasives.
- For specific equipment safety use and care, see Equipment Safety.

General Electrical Safety

- Inspect electrical equipment, extension cords, power bars, and electrical fittings for damage or wear before each use. Repair or replace damaged equipment immediately.
- Ensure all power sources conform to equipment voltage requirements and are disconnected before connecting or disconnecting equipment.
- When wiring electrically powered equipment, follow all electrical and safety codes.
- Wherever possible, use a residual current device (RCD).
- High voltage / high current power lines may be present. Use extreme caution to avoid contact or interference with power lines. Electrical shock can be fatal.

General Electrical Safety

- Electrically grounded equipment must have an approved cord and plug and be connected to a grounded electrical outlet.
- Do NOT bypass the ON/OFF switch and operate equipment by connecting and disconnecting the electrical cord.
- Do NOT use equipment that has exposed wiring, damaged switches, covers or guards.
- Do NOT use electrical equipment in wet conditions or in damp locations.
- Do NOT use electrical cords to lift, move or carry equipment.
- Do NOT coil or knot electrical cords, and ensure electrical cords are not trip hazards.

General Service Information

- The equipment must be serviced or repaired at authorised service centres by qualified personnel only.
- Replacement parts must be original equipment manufacturer (OEM) to ensure equipment safety is maintained.
- Do NOT attempt any maintenance or repair work not described in this manual.
- After use, the equipment and components may still be hot – allow the equipment to cool and disconnect spark plugs and/or electrical power sources and/or batteries from it before making adjustments, changing accessories or performing repair or maintenance.
- Do NOT make adjustments while the equipment is running.
- Perform service related activities in suitable conditions, such as a workshop.
- Replace worn, damaged or missing warning/safety labels immediately.

Equipment Safety

- Locate the charger as far away from the battery as the charger cables allow.
- Do NOT charge a frozen battery. If battery fluid (electrolyte) is frozen, place the battery in a warm area to thaw before charging.
- Do NOT allow battery acid to contact the charger or any of its components.
- Do NOT place a battery on top of the charger.
- Do NOT place the charger directly above a battery being charged. Gases from the battery may corrode and damage the charger.
- Do NOT allow the battery terminal clamps to touch at any time when the charger is energized.
- Do NOT start a vehicle engine with the charger connected to the vehicle battery.
- Boat batteries should be removed from the boat and charged on land.
- Always select the correct voltage of the battery being charged. Do NOT charger a battery using a different voltage to the battery rating.
- Always follow battery manufacturer instructions for battery charging.
- Always follow vehicle manufacturer instructions for in-vehicle battery charging or jump-starting.
- When using the equipment, basic safety precautions detailed here must always be followed to reduce the risk of fire, electric shock, personal injury and material damage.
- To provide a good electrical connection, ensure that the battery terminals and battery charging clamps are clean before connecting them.
- Ensure the electrical supply conforms to the equipment requirements.
- To reduce risk of electric shock, disconnect the equipment from the electrical supply before connecting batteries, cleaning etc.
- Do not use an extension cord unless necessary. Use of an improper extension cord could result in fire or electric shock. If an extension cord must be used, make sure that:
- The extension cord socket is compatible with the charger plug.
- The extension cord is properly wired and in good condition.
- The extension cord wire gauge is suitable for the charger current rating.

Table of Contents

Parts and Functions Identification

Note: Spare fuses may be supplied.

No.	Name	No.	Name
1	Charger Body	9	Fuse
2	POSITIVE (+) Charging Cable and Clamp	10	Output Current Meter (Digital or Analogue)
3	NEGATIVE (-) Charging Cable and Clamp	11	Charge Rate Switch
4	Wheel (2)	12	Charge Mode Switch
5	Axle	13	Charger Mode Switch
6	Washer (4)	14	ON / OFF Switch
7	Circlip (4)	15	+12V Output Cable Terminal
8	Wheel Cap (2)	16	+24V Output Cable Terminal

Wheel Assembly

1. Slide the axle through the hole in the lower-rear part of the charger body.
2. On each side of the axle, place a circlip in the inner groove (circlip pliers may be required), followed by a washer.
3. On each side of the axle, place a wheel, followed by a washer.
4. On each side of the axle, place a circlip in the outer groove (circlip pliers may be required), followed by a wheel cap.

Operation

Substances used in batteries and gases or vapours produced when charging may be extremely flammable – keep clear of naked flames or other ignition sources. • Correct battery polarity MUST be followed. Incorrect polarity may present an explosion or fire hazard. • Do NOT attempt to charge a frozen battery. • Do NOT connect to or charge the battery of a running engine. • **Failure to correctly follow the vehicle manufacturer instructions for in-vehicle charging or jump-starting may damage vehicle electronics**. • Do NOT connect the battery connect clamps to any part of the fuel system or sensitive electrical components. • Position all charger cables so they cannot contact conductive parts of the vehicle (except the battery terminals), be pinched or caught etc. • Always select the correct voltage of the battery being charged. Do NOT charger a battery using a different voltage to the battery rating. • Always follow battery manufacturer instructions for battery charging. • If applicable, before charging, remove any battery cell ventilation caps and check that the cell electrolyte level is adequate. After charging, check electrolyte level and re-install battery cell ventilation caps. • Do NOT use "boost" charge mode for longer than necessary to "revive" the battery.

The battery charger is suitable for charging a range of high-capacity (120 to 320Ah) 12V and 24V lead-acid batteries. The charger features a logic controlled charging program that monitors battery charge and switches modes automatically to ensure the battery charge is as close to 100% of the original capacity as possible.

The charger can restore almost completely discharged batteries using the "boost" charge mode. This mode continuously charges at 5A (it does not deviate) and, therefore, cannot be used for the full charge cycle, but to "revive" the battery sufficiently so it can be charged normally. In "normal" charge mode, it is possible to leave the charger connected to a battery indefinitely, in which case it will maintain battery charge as required.

Charging Currents and Times

The battery charger does NOT automatically switch off when a battery is charged. It MUST be switched off manually. Charging must be monitored often to prevent overcharging of the battery. Over-charging a battery could cause personal injury and/or property damage.

The unit has various charge output currents depending on selections:

Selection	BT-280	BT-750
MIN + 1	26A / 0.65kW	31A / 0.80kW
MIN + 2	31A / 0.80kW	36A / 1.30kW
BOOST + 1	33A / 1.00kW	43A / 1.60kW
BOOST + 2	36A / 1.30kW	50A / 2.00kW

Use the following formula to calculate the approximate charge time for a battery:

Charge Time = Battery Capacity (Ah) / Charge Current (A) x Discharge Level (%)

For example, a 200Ah battery being charged at 50A from a 70% discharged state would be:

200 / 50 x 0.7 = 2.8 hours (168 minutes)

For example, a 320Ah battery being charged at 36A from a 40% discharged state would be:

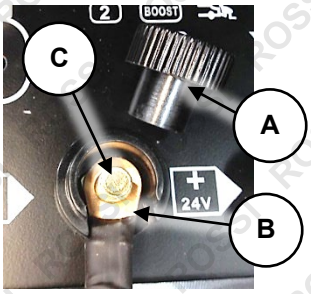
320 / 36 x 0.4 = 3.6 hours (213 minutes)

Using Charging Cables

The charging (output) cables are colour-coded for polarity – **RED** = *POSITIVE* and **BLACK** = *NEGATIVE*. To use, squeeze the clamp to open the jaw, then place the jaw over the battery terminal and release the clamp. Ensure that the clamp is firmly attached to the battery terminal.

Charging a Battery

Do NOT use "Boost" charge mode for longer than necessary to "revive" the battery. A battery may be permanently damaged if over-charged. Calculate charge time before charging. • For batteries in vehicles, consult the vehicle manufacturer instructions for connecting a charger to the battery. **Failure to correctly follow the vehicle manufacturer instructions for in-vehicle charging may damage vehicle electronics**. • For batteries connected in series, consult a automotive electrician for advice on how to charge the batteries.



1. Connect the **POSITIVE** charging cable to the required output connection terminal (+12V or +24V) on the charger. To attach the cable, remove (rotate left) the terminal nut (**A**), then place the "eye" of the cable connector (**B**) onto the terminal screw (**C**). Re-install the terminal nut (rotate right) and tighten firmly by hand.
2. Connect the **POSITIVE** clamp to the battery **POSITIVE** terminal, the connect the **NEGATIVE** clamp to the battery **NEGATIVE** terminal.
3. Connect the charger to a 240VAC electrical supply and switch the supply ON.
4. Switch the battery charger ON at the **ON** / **OFF** switch.
5. Set the **Charge Mode** switch to **MIN** for "normal" battery charging. Set to **BOOST** if the connected battery is discharged to the point that normal charging cannot be used.
6. Set the **Charge Rate** switch to **1** for batteries under 200Ah, or **2** for batteries over 200Ah.
7. Set the **Charger Mode** switch to  .

To stop charging:

1. Switch the battery charger OFF at the **ON** / **OFF** switch.
2. Switch the electrical supply to the charger OFF.
3. Remove the clamp from the **NEGATIVE** terminal, then remove the clamp from the **POSITIVE** terminal.

Jump-Starting

Consult the vehicle manufacturer instructions for jump-starting. **Failure to correctly follow the vehicle manufacturer instructions for jump-starting may damage vehicle electronics**.

1. Connect the **POSITIVE** charging cable to the required output connection terminal (+12V or +24V) on the charger.
2. Connect the **POSITIVE** clamp to the battery **POSITIVE** terminal, the connect the **NEGATIVE** clamp to the battery **NEGATIVE** terminal.
3. Connect the charger to a 240VAC electrical supply and switch the supply ON.
4. Switch the battery charger ON at the **ON** / **OFF** switch.
5. Set the **Charge Mode** switch to **BOOST**.
6. Set the **Charge Rate** switch to **2**.
7. Set the **Charger Mode** switch to  .
8. Start the engine. Do NOT crank the engine continuously for more than 3 seconds. If the engine fails to start, set the **Charger Mode** switch to  , and charge the battery for a minimum 15 minutes.
9. Switch the battery charger OFF at the **ON / OFF** switch, then switch the 240VAC electrical supply to the charger OFF.
10. Disconnect the charging cables – **NEGATIVE** first, then **POSTIVE**.

Maintenance and Troubleshooting

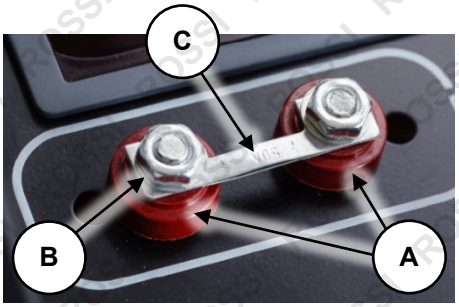
Do not use the charger if any of the electrical cords or terminal clamps have been damaged in any way. If the power supply cord is damaged, it must be replaced by the manufacturer, its service agent or qualified person to avoid a hazard. • Some activities described may be beyond the scope of some users. For procedures that you are not comfortable with or have the tools, knowledge or experience for, or if problems persist after following all suggested actions, contact a service centre or qualified technician.

Follow these steps below to maintain the charger in optimum condition:

- After each use, clean the battery charger clamps - be sure to remove any battery fluid as this will cause corrosion of the copper material.
- Clean the outside case of the charger with a soft cloth and, if necessary, mild soap solution.
- Keep the charger cords loosely coiled during storage to prevent damage to them.

Replacing the Fuse

1. Lift the fuse cover from the charger to expose the fuse and terminals (**A**).
2. Using a suitable spanner, loosen the terminal nuts (**B**), then remove the blown fuse.
3. Insert the new fuse. Note that the fuse "blades" (**C**) are rated at 50A, therefore, use 2 for a 100A fuse.
4. Firmly tighten the terminal nuts, then re-install the fuse cover.



Troubleshooting

The following information may assist in identifying a problem and rectifying it.

Battery not being charged

Possible Fault	Action
Poor electrical connection to battery	Ensure that the battery connection cables to the battery are secure. Check that the battery terminals/clamps are clean and not corroded, to provide a good electrical connection.
DC output fuse blown	check to see if the fuse "blade" is broken. If it is, replace the fuse. Use replacement fuses of the same rating.

Specifications

Electrical Requirements	240VAC / 50Hz.
Battery Compatibility	12V / 24V Lead-Acid types.
Output Current	See here.

Some experts believe that the incorrect or prolonged use of almost any product may cause serious injury or death. To help reduce your risk of serious injury or death, refer to the information below. For more information, see www.datastreamserver.com/safety

- Consult all documentation, packaging and product labelling before use. Note that some products feature documentation available online. It is recommended to print and retain the documentation.
- Before each use, check the product for loose/broken/damaged/missing parts, wear or leaks (if applicable). Never use a product with loose/broken/damaged/missing parts, wear or leaks.
- Products must be inspected and serviced (if applicable) by a qualified technician every 6 months. This is based on average residential use by persons of average size and strength, and on a property of average metropolitan size. Use beyond these recommendations may require more frequent inspections/servicing.
- Ensure that all users of the product have completed a suitable industry recognised training course before being allowed access to the product.
- The product has been supplied by a general merchandise retailer that may not be familiar with your specific application or description of application. Be sure to attain third-party approval from a qualified specialist for your application before use, regardless of any assurances from the retailer or its representatives.
- This product is not intended for use where fail-safe operation is required. As with any product (for example, automobile, computer, toaster), there is the possibility of technical issues that may require the repair or replacement of parts, or the product itself. If the possibility of such failure and the associated time it may take to rectify could in any way inconvenience the user, business or employee, or financially affect the user, business or employee, then the product is not suitable for your requirements. This product is not intended for use where incorrect operation or a failure of any kind, including but not limited to, a condition requiring product return, replacement, parts replacement or service by a technician may cause financial loss, loss of employee time or an inconvenience requiring compensation.
- If this product has been purchased in error when considering the information presented here, contact the retailer directly for details of their returns policy, if required.