

Thank you for purchasing a Sealey product. Manufactured to a high standard, this product will, if used according to these instructions, and properly maintained, give you years of trouble free performance.



IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS & CAUTIONS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. KEEP THESE INSTRUCTIONS SAFE FOR FUTURE USE.

1. SAFETY

Safety Markings/Symbols



Read Instructions Before Use.



Do Not Expose To Rain.



Risk Of Explosion.



Caution: Risk of Electric Shock.



Use In A Well Ventilated Area.

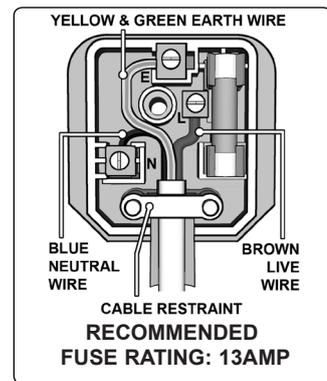


Keep Away From Sparks & Flame - Battery Could Emit Explosive Gases.

1.1. ELECTRICAL SAFETY

WARNING! It is the responsibility of the owner and the operator to read, understand and comply with the following: You must check all electrical products, before use, to ensure that they are safe. You must inspect power cables, plugs, sockets and any other connectors for wear or damage. You must ensure that the risk of electric shock is minimised by the installation of appropriate safety devices. A Residual Current Circuit Breaker (RCCB) should be incorporated in the main distribution board. We also recommend that a Residual Current Device (RCD) is used. It is particularly important to use an RCD with portable products that are plugged into a supply which is not protected by an RCCB. If in any doubt consult a qualified electrician. You may obtain a Residual Current Device by contacting your Sealey dealer. **You must** also read and understand the following instructions concerning electrical safety.

- 1.1.1. The **Electricity at Work Act 1989** requires all portable electrical appliances, if used on business premises, to be tested by a qualified electrician, using a Portable Appliance Tester (PAT), at least once a year.
- 1.1.2. The **Health & Safety at Work Act 1974** makes owners of electrical appliances responsible for the safe condition of those appliances and the safety of the appliance operators. **If in any doubt about electrical safety, contact a qualified electrician.**
- 1.1.3. Ensure that the insulation on all cables and on the appliance is safe before connecting it to the power supply. See 1.1.1. and 1.1.2. and use a Portable Appliance Tester.
- 1.1.4. Ensure that cables are always protected against short circuit and overload.
- 1.1.5. Regularly inspect power supply cables and plugs for wear or damage and check all connections to ensure that none is loose.
- 1.1.6. Important: Ensure that the voltage marked on the appliance matches the power supply to be used and that the plug is fitted with the correct fuse - see fuse rating at right.
- 1.1.7. **DO NOT** pull or carry the appliance by the power cable.
- 1.1.8. **DO NOT** pull the plug from the socket by the cable.
- 1.1.9. **DO NOT** use worn or damaged cables, plugs or connectors. Immediately have any faulty item repaired or replaced by a qualified electrician. When an ASTA/BS approved UK 3 pin plug is damaged, cut the cable just above the plug and dispose of the plug safely. Fit a new plug according to the following instructions (UK only).



- a) Connect the **GREEN/YELLOW earth wire to the earth terminal 'E'.**
- b) Connect the **BROWN live wire to the live terminal 'L'.**
- c) Connect the **BLUE neutral wire to the neutral terminal 'N'.**
- d) **After wiring, check that there are no bare wires, that all wires have been correctly connected, that the cable outer insulation extends beyond the cable restraint and that the restraint is tight.**

Double insulated products, which are always marked with this symbol , are fitted with live (brown) and neutral (blue) wires only. To rewire, connect the wires as indicated above - **DO NOT** connect either wire to the earth terminal.

- 1.1.10. Products which require more than 13 amps are supplied without a plug. In this case you must contact a qualified electrician to ensure that a suitably rated supply is available. We recommend that you discuss the installation of an industrial round pin plug and socket with your electrician.
- 1.1.11. If an extension reel is used it should be fully unwound before connection. A reel with an RCD fitted is preferred since any appliance plugged into it will be protected. The cable core section is important and should be at least 1.5mm², but to be absolutely sure that the capacity of the reel is suitable for this product and for others which may be used in the other output sockets, we recommend the use of 2.5mm² section cable. If extension reel is to be used outdoors, ensure it is marked for outdoor use.



DANGER! BE AWARE, LEAD-ACID BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS VERY IMPORTANT TO READ AND FOLLOW THESE INSTRUCTIONS CAREFULLY, EACH TIME YOU USE THE CHARGING EQUIPMENT.

Follow these instructions and those published by the battery and vehicle manufacturers, and the maker of any equipment you intend to use in the vicinity of the battery. Remember to review warning marks on all products and on engines.

1.2. PERSONAL PRECAUTIONS

- ✓ Ensure there is another person within hearing range of your voice and close enough to come to your aid, should a problem arise when working near a lead-acid battery.
- ✓ Wear safety eye protection and protective clothing. Avoid touching eyes while working near battery.
- ✓ Have fresh water and soap nearby in case battery acid contacts skin, clothing or eyes.
- ✓ Wash immediately with soap and water if battery acid contacts skin or clothing. If acid enters eye, flush eye immediately with cool, clean running water for at least 15 minutes and seek immediate medical attention.
- ✓ Remove personal metallic items such as rings, bracelets, necklaces and watches. A lead-acid battery can produce a short-circuit current which is high enough to weld a ring or the like to metal, which would cause severe burns.
- ✓ Ensure hands, clothing (especially belts) are clear of fan blades and other moving or hot parts of engine, remove ties and contain long hair.
- ✗ **DO NOT** use whilst under the influence of drugs, alcohol or intoxicating medication.

1.3. GENERAL SAFETY INSTRUCTIONS

- ✗ **DO NOT** smoke or allow a spark or flame in the vicinity of battery or engine.
- ✓ Familiarise yourself with the application and limitations of the charger as well as the potential hazards. Also refer to the vehicle manufacturer's hand book. **IF IN ANY DOUBT CONSULT A QUALIFIED ELECTRICIAN.**
- ✓ Ensure the charger is in good order and condition before use. If in any doubt do not use the unit, contact your Sealey Dealer.
- ✓ Only use recommended parts. The use of unauthorised parts may be dangerous and will invalidate your warranty.
- ✓ Use the charger in the upright position only and ensure it is placed on a stable surface which will adequately support its weight.
- ✓ Ensure the charger is disconnected from the mains supply before attaching/detaching the power clamps to/from the battery.
- ✓ Keep tools and other items away from the engine and ensure you can see the battery and working parts of engine clearly.
- ✓ Ensure the output of the charger is the same voltage as the battery.
- ✓ If battery has caps to access the battery fluid, remove the caps and check the fluid level before connecting the power clamps. If necessary top-up the battery with distilled water by referring to the battery manufacturer's instructions (Apply the personal safety precautions described in part 1.2).
- ✓ If the charger receives a sharp knock or blow the unit must be checked by a qualified service agent before using.
- ✓ If the battery terminals are corroded or dirty clean them before attaching the power clamps.
- ✓ Keep children and unauthorised persons away from the working area.
- ✗ **DO NOT** dis-assemble the charger for any reason. The charger must only be checked by qualified service personnel.
- ✗ **DO NOT** try to charge a non-rechargeable battery.
- ✗ **DO NOT** try to start engine when charger is connected to battery.
- ✗ **DO NOT** try to charge battery if battery fluid is frozen.
- ☐ **WARNING!** *To prevent the risk of sparking, short circuit and possible explosion **DO NOT** drop metal tools in the battery area, or allow them to touch the battery terminals.*
- ✗ **DO NOT** allow power clamps to touch each other or to make contact with any metallic part of the vehicle.
- ✗ **DO NOT** cross connect power leads from charger to battery. Ensure positive (+/RED) is to positive and negative (-/BLACK) is to negative.
- ✗ **DO NOT** pull the cables or clamps from the battery terminals.
- ✗ **DO NOT** use the charger outdoors, or in damp, or wet locations and **DO NOT** operate within the vicinity of flammable liquids or gases.
- ✗ **DO NOT** use charger inside vehicle or inside engine compartment.
- ✓ Ensure there is effective ventilation to prevent a build-up of explosive gases, and do not cover or obstruct charger ventilation louvres.
- ✗ **DO NOT** use the charger for a task for which it is not designed.
- ☐ **WARNING! DO NOT** *simultaneously charge batteries of different capacities or discharge levels.*
- ☐ **WARNING!** *If a fuse blows, ensure it is replaced with an identical fuse type and rating. Use only genuine Sealey parts.*
- ✓ When not in use, store the charger carefully in a safe, dry, childproof location.

NOTE: This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience or knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the device.

2. INTRODUCTION

Powerful 20Amp output microprocessor controlled battery charger, suitable for batteries up to 230Ah. Digital display and 150A max engine start function, make this unit ideal for every workshop. Patented Speed Charge technology maximises charge input and is self-adjusting with variable charge rates. Ensures shortest possible charge time while minimizing the risk of gassing and damage to the battery. Charges 6V or 12V batteries up to 3 times quicker than conventional battery chargers. Dedicated charging programmes for AGM/gel, conventional, leisure and stop/start batteries with fully automated charging algorithms including de-sulphating mode. Deep discharge battery programme to help the recovery of deeply discharged batteries. The charge rate selector allows the operator to override the standard charge rate and choose a soft start programme for very cold batteries which also enables the charging and maintenance of small batteries. Fast charge programme for larger batteries and 3A slow charge programme for charging and maintaining smaller batteries. Includes automatic maintenance mode to keep batteries at optimum levels for extended periods of time. Reverse polarity protection and automatic shut-off are included as standard. Includes built-in digital voltmeter and state-of-charge test with wipe clean touch pad controls.

3. SPECIFICATION

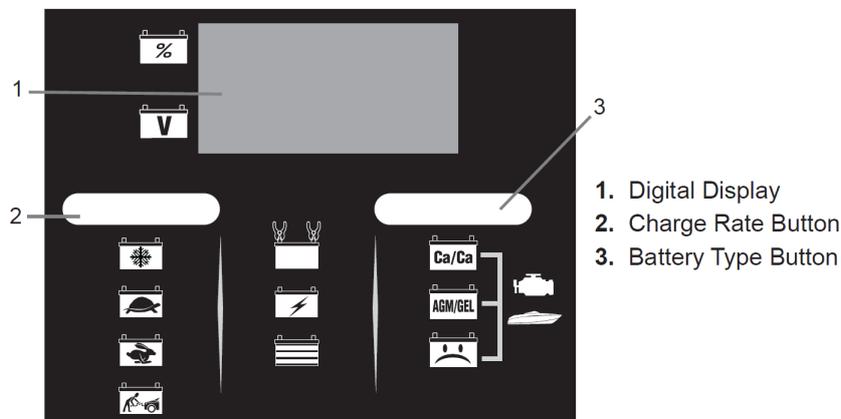
Model No: **SCI90S**
Output Charge: 3/5/20A
Output Start: 6/12V
Battery Range: 12-230Ah
Cable & Clamp Length: 1.8m
Engine Start Output: 150A
Weight: 5.82kg

4. PREPARATION

- ☐ **WARNING! RISK OF CONTACT WITH BATTERY ACID. BATTERY ACID IS A HIGHLY CORROSIVE SULPHURIC ACID.**
- 4.1. Remove all cord wraps and uncoil the cables prior to using the battery charger.
- 4.2. If it is necessary to remove the battery from the vehicle to charge it, always remove the grounded terminal first. Make sure all of the accessories in the vehicle are off to prevent arcing.
- 4.3. Clean the battery terminals before charging the battery. During cleaning, keep airborne corrosion from coming into contact with your eyes, nose and mouth. Use baking soda and water to neutralize the battery acid and help eliminate airborne corrosion. **DO NOT** touch your eyes, nose or mouth.

- 4.4. Add distilled water to each cell until the battery acid reaches the level specified by the battery manufacturer. **DO NOT** overfill. For a battery without removable cell caps, such as valve regulated lead-acid batteries (VRLA), carefully follow the manufacturer's recharging instructions.
- 4.5. Read, understand and follow all instructions for the charger, battery, vehicle and any equipment used near the battery and charger. Study all of the battery manufacturer's specific precautions while charging and recommended rates of charge.
- 4.6. Determine the voltage of the battery by referring to the vehicle owner's manual. This charger is equipped with Auto Voltage Detection of 6 or 12 volts.
- 4.7. Make sure that the charger cable clips make tight connections.
- 4.8. Included with your charger are two cord wrap cleats for storage of the clip cables. To install, align the two tabs with the two receptacles on the back of the charger and push until you hear a snap.
- 4.9. **Charger Location**
- WARNING! RISK OF EXPLOSION AND CONTACT WITH BATTERY ACID.**
- 4.9.1. Locate the charger as far away from the battery as the DC cables permit.
- 4.9.2. Never place the charger directly above the battery being charged; gases from the battery will corrode and damage the charger.
- 4.9.3. **DO NOT** set the battery on top of the charger.
- 4.9.4. Never allow battery acid to drip onto the charger when reading the electrolyte specific gravity or filling the battery.
- 4.10. **Follow these instructions when the battery is installed in a vehicle.**
- WARNING! A SPARK NEAR THE BATTERY MAY CAUSE A BATTERY EXPLOSION. REDUCE THE RISK OF A SPARK NEAR THE BATTERY:**
- 4.10.1. Position the mains and DC cables to reduce the risk of damage by the bonnet, door and moving or hot engine parts. **NOTE:** If it is necessary to close the bonnet during the charging process, ensure that the bonnet does not touch the metal part of the battery clips or cut the insulation of the cables.
- 4.10.2. Stay clear of fan blades, belts, pulleys and other parts that can cause injury.
- 4.10.3. Check the polarity of the battery posts. The POSITIVE (POS, P, +) battery post usually has a larger diameter than the NEGATIVE (NEG, N, -) post.
- 4.10.4. Determine which post of the battery is earthed (connected) to the chassis.
- 4.10.5. For a negative-earthed vehicle, connect the POSITIVE (RED) clip from the battery charger to the POSITIVE (POS, P, +) non earthed 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 carburetor, fuel lines or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
- 4.10.6. For a positive-earthed vehicle, connect the NEGATIVE (BLACK) clip from the battery charger to the NEGATIVE (NEG, N, -) non earthed 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.
- 4.10.7. Connect charger mains cable to electrical outlet.
- 4.10.8. When disconnecting the charger, disconnect the mains, remove the clip from the vehicle chassis and then remove the clip from the battery terminal.
- 4.11. **Follow these steps when the battery is outside the vehicle.**
- WARNING! A SPARK NEAR THE BATTERY MAY CAUSE A BATTERY EXPLOSION. REDUCE THE RISK OF A SPARK NEAR THE BATTERY**
- 4.11.1. Check the polarity of the battery posts. The POSITIVE (POS, P, +) battery post usually has a larger diameter than the NEGATIVE (NEG, N, -) post.
- 4.11.2. Attach at least a 24-inch (61 cm) long 6-gauge (AWG) insulated battery cable to the NEGATIVE (NEG, N, -) battery post.
- 4.11.3. Connect the POSITIVE (RED) charger clip to the POSITIVE (POS, P, +) post of the battery.
- 4.11.4. Position yourself and the free end of the cable you previously attached to the NEGATIVE (NEG, N, -) battery post as far away from the battery as possible – then connect the NEGATIVE (BLACK) charger clip to the free end of the cable.
- 4.11.5. **DO NOT** face the battery when making the final connection.
- 4.11.6. Connect charger mains cable to an electrical outlet.
- 4.11.7. 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.
- 4.11.8. A marine (boat) battery must be removed and charged on shore. To charge it onboard requires equipment specially designed for marine use.

5. CONTROL PANEL



NOTE: See the Operating Instructions section for a complete description of the charger modes.

5.1. Charge Rate Button

5.1.1. Use this button to set the maximum charge rate. Press the button until the desired charge rate is selected.



– Charges and maintains small batteries. Maintains large batteries.



– Charges small batteries, such as those commonly used in garden tractors and motorcycles. Not for charging large batteries.



– Charges automotive, marine and light truck batteries.



– Provides high amperage for cranking an engine with a weak or run-down battery.

5.2. Battery Type/Mode Button

5.2.1. Set the type of battery to be charged, or Desulphation Mode:

 (Calcium) – Calcium batteries are acid batteries impregnated with calcium.



(Absorbed Glass Mat/Gel) – AGM batteries have electrolyte absorbed in separators consisting of a sponge-like mass of matted glass fibre. Gel batteries contain gelled electrolytes. These batteries are sealed with valves and should not be opened.



(Desulphation Mode) – A special mode of operation designed for sulphated batteries.

NOTE: When charging a battery that is not marked, check the manual of the item which uses the battery for the correct battery type. Make sure the charger is used for charging LEAD-ACID batteries only. It is not intended to power a low voltage electrical system. **DO NOT** use this charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons or damage to property.

5.3. Digital Display

The Digital Display gives a digital indication of voltage, % of charge or time. The display will show the battery VOLTAGE when the charger is not charging a battery. When it goes into charging mode, the display will automatically change to ON (to show charging has started) and then show the percent-of-charge of the battery being charged and either 6 or 12 (the voltage the charger determined the battery is). If you manually stop the charging process (by pressing the CHARGE RATE button) before the battery is fully charged the display will show OFF.

- Battery % – The digital display shows an estimated charge percentage of the battery connected to the charger battery clips.

- Voltage – The digital display shows the voltage at the charger battery clips in DC volts.

NOTE: Once the charger has started charging the battery; if you press the Charge Rate button once, the output current is shut off and the display will show OFF and then the battery voltage. If you press the Charge Rate button again, the current will go back on at the same setting it was when it was turned off. For example: The charger is charging a battery at the slow charge rate setting. If you press the Charge Rate button, the output is turned off. If you press the Charge Rate button again, the output will turn back on at the slow charge rate setting.

6. OPERATION

 **WARNING!** This battery charger must be properly assembled in accordance with the assembly instructions before it is used, see 4.8.

6.1. Battery Information

This charger can be used with 6 and 12V batteries with rated capacities of 12 Ah to 230 Ah.

6.2. Charging

6.2.1. Ensure that all of the charger components are in place and in good working condition, for example, the plastic boots on the battery clips.

6.2.2. Connect the battery following the precautions listed in sections 1 and 4.

6.2.3. Connect the mains supply.

6.2.4. Select the appropriate settings for your battery.

IMPORTANT: This charger does not have an ON/OFF switch. ON and OFF are controlled by plugging in the charger to the mains outlet. The charger will not supply current to the battery clips until a battery is properly connected. The clips will not spark if touched together.

6.3. **Startup Defaults:** When first turned on, the charger will default to the following startup settings:

- Battery Type: AGM/GEL

- Charge Rate: OFF (No charge rate selected)

After 10 minutes, if no charge rate is selected, the charger will automatically start charging at the following defaults:

- Charge Current: The lowest charge rate setting available, 3 amps.

- Charge Voltage: If no battery type is selected, 14.7V (for AGM/GEL); if CA/CA is selected, 16V; if Desulphation button is selected, charger goes into Desulphation Mode.

6.4. Battery Connection Indicator

If the charger does not detect a properly connected battery, the CONNECTED  LED will not light. Charging will not begin if the CONNECTED  LED is not on.

6.5. Automatic Charging Mode

6.5.1. When a charge rate is selected, the charger is set to perform an automatic charge. When an automatic charge is performed, the charger switches to the maintain mode automatically after the battery is charged.

6.6. Aborted Charge

6.6.1. If charging cannot be completed normally, charging will abort. When charging aborts, the charger's output is shut off, all of the LEDs are turned off and the digital display will show an error code (see Error Codes). In that state, the charger ignores all buttons. To reset after an aborted charge, unplug the charger.

6.7. Desulphation Mode

IMPORTANT: Battery must be removed from the car when using this mode, or damage to the car's electrical system may result.

If the battery is left discharged for an extended period of time, it could become sulphated and not accept normal charge. If you select  the charger will switch to a special mode of operation designed for sulphated batteries. If successful, the charger will fully desulphate and charge the battery, then the green LED will go on. If desulphation fails, the charger will abort and the CHARGING  (yellow) LED will flash.

6.8. Completion Of Charge

6.8.1. Charge completion is indicated by the CHARGED  LED. When lit, the charger has stopped charging and switched to the Maintain Mode of operation.

6.9. Maintain Mode

6.9.1. When the CHARGED  LED is lit, the charger has started Maintain Mode. In this mode, the charger keeps the battery fully charged by delivering a small current when necessary. The voltage is maintained at a level determined by the battery type selected.

NOTE: If the charger has to provide its maximum maintain current for a continuous 12 hour period it will go into Abort Mode. This is usually caused by a drain on the battery or the battery could be bad. Make sure there are no loads on the battery. If there are, remove them. If there are none, have the battery checked or replaced.

6.10. Maintaining a Battery (3A Charge Rate)

This charger has a maintenance setting that maintains both 6 and 12 volt batteries, keeping them at full charge. On this setting, it can charge small batteries and maintain both small and large batteries. **We do not recommend charging a large battery on the maintenance setting.**

NOTE: The maintain mode technology utilized in this charger allows you to safely charge and maintain a healthy battery for extended periods of time. However problems with the battery, electrical problems in the vehicle, improper connections or other unanticipated conditions could cause excessive current draws. As such, occasionally monitoring your battery and the charging process is recommended.

6.11. Using the Engine Start feature

6.11.1. Your battery charger can be used to jumpstart your car if the battery is low. Follow these instructions on how to use the ENGINE START feature.

IMPORTANT: Using the ENGINE START feature WITHOUT a battery installed in the vehicle could cause damage to the vehicle's electrical system.

NOTE: If you have charged the battery and it still will not start your car, do not use the ENGINE START feature, it could damage the vehicle's electrical system.

6.11.2. With the charger plugged in and connected to the battery and chassis (see section 4), press the CHARGE RATE button until the ENGINE START  LED is lit.

6.11.3. This product is rated for 5 seconds of engine cranking. Crank the engine until it starts or 5 seconds pass. If the engine does not start, wait 3 minutes before cranking again. This allows the charger and battery to cool down.

NOTE: During extremely cold weather, or if the battery is under 2 volts, charge the battery for 5 minutes before cranking the engine.

6.11.4. If the engine fails to start, charge the battery for 5 more minutes before attempting to crank the engine again.

IMPORTANT: DO NOT leave the charger in Engine Start Mode for more than ten minutes at a time, or you may damage the charger.

NOTE: If the engine does turn over but never starts, there is not a problem with the starting system; there is a problem somewhere else with the vehicle. STOP cranking the engine until the problem has been diagnosed and corrected.

6.12. Engine Starting Notes

During the starting sequence listed above, the charger is set to one of three states:

Wait for cranking – The charger waits until the engine is actually being cranked before delivering the amps for engine start and will reset if the engine is not cranked within 15 minutes. (If the charger resets, it sets itself to the default start up settings). While waiting for cranking, the digital display shows $r d y$.

Cranking – When cranking is detected, the charger will automatically deliver up to its maximum output as required by the starting system for up to 5 seconds or until the engine cranking stops.

The digital display shows a countdown of the remaining crank time.

Cool Down – After cranking, the charger enters a mandatory 3 minute (180 second) cool down state. The digital display indicates the remaining cool down time in seconds. It starts at 180 and counts down to 0. After 3 minutes, the digital display will change from displaying the countdown to displaying $r d y$. The CHARGING  LED will then be lit.

6.13. Using the Battery Voltage Tester

6.13.1. With the charger unplugged from the mains outlet, connect the charger to the battery following the instructions given in sections 4.

6.13.2. Plug the charger mains cable into a mains outlet.

6.13.3. If necessary, press the BATTERY TYPE button until the correct type is indicated.

6.13.4. Read the voltage on the digital display.

NOTE: After 10 minutes, the charger will automatically switch from tester to charger.

6.14. **Tester and Charger:** When first turned on, the unit operates only as a tester, not as a charger.

6.14.1. Selecting a charge rate activates the battery charger and deactivates the tester. Pressing the CHARGE RATE button when the ENGINE START LED is lit (except during the 180 second cool down) will shut off the charger and activate the tester.

6.15. **Power-Up Idle Time Limit:** If no button is pressed within 10 minutes after the battery charger is first powered up, the charger will automatically switch from tester to charger if a battery is connected. In that case, the charger will be set to the start up default settings.

6.16. **Testing After Charging:** After the unit has been changed from tester to charger (by selecting a charge rate), it remains a charger. To change the battery charger back to a tester, press the CHARGE RATE button until all charge rate LEDs are off.

NOTE: The battery tester is only designed to test batteries. Testing a device with a rapidly changing voltage could yield unexpected or inaccurate results.

6.17. Using the Alternator Performance Tester

6.17.1. With the charger unplugged from the mains outlet, connect the charger to the battery following the instructions given in Section 4.

6.17.2. Plug the charger mains power cable into the mains outlet.

6.17.3. Start the vehicle, and turn on the vehicle's headlights. Read the voltage on the digital display. If you get a reading between 13.4 volts and 14.6 volts, the alternator is working properly. If the reading is less than 13.4 volts or more than 14.6 volts, have the charging system checked by a qualified technician.

6.18. **Fan:** The charger is designed to control its cooling fan for efficient operation. It is normal for the fan to start and stop when maintaining a fully charged battery. Keep the area near the charger free of obstructions to allow the fan to operate efficiently.

7. MAINTENANCE

7.1. After use and before performing maintenance, unplug and disconnect the battery charger (see section 4).

7.2. Use a dry cloth to wipe all battery corrosion and other dirt or oil from the battery clips, cords and the charger case.

7.3. Ensure that all of the charger components are in place and in good working condition, for example, the plastic boots on the battery clips.

7.4. Servicing does not require opening the unit, as there are no user-serviceable parts.

7.5. All other servicing should be performed by qualified service personnel.

7.6. Storage

7.6.1. Store the charger unplugged, in an upright position. The cord will still conduct electricity until it is unplugged from the outlet.

7.6.2. If the charger is moved around or transported to another location, take care to avoid/prevent damage to the cords, clips and charger. Failure to do so could result in personal injury or property damage.

8. ERROR CODES

ERROR CODE	DESCRIPTION	CAUSE
F01	The battery voltage is still under 10V (for a 12V battery) or 5V (for a 6V battery) after 2 hours of charging.	Could be caused by trying to charge a 6 volt battery on the 12V setting, or the battery could be defective; have it checked or replaced.
F02	The charger cannot desulphate the battery.	The battery could not be desulphated; have it checked or replaced.
F03	The battery was unable to reach the "full charged" voltage.	Could be caused by trying to charge a large battery or bank of batteries on too low of a current setting, or the battery may have shorted cell. Try again with a higher current setting, or get the battery checked or replaced.
F04	The connections to the battery are reversed.	The battery is connected backwards. Unplug the charger and reverse the connections to the battery.
F05	The battery was unable to keep the battery fully charged in maintain mode.	The battery won't hold a charge. Could be caused by a drain on the battery, or the battery could be defective. Make sure there are no loads on the battery. If there are, remove them. If there are none, have the battery checked or replaced.
F06	The charger detected that the battery may be getting too hot (thermal runaway).	The charger automatically shuts the current off if it detects the battery may be getting too hot or the battery may have a shorted cell. Have the battery checked or replaced.

If you get an error code, check the connections and settings and/or replace the battery.

9 . TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
CONNECTED  LED is not on.	The battery is not connected correctly. Battery voltage is at zero volts. Input fuse is blown. Output breaker has tripped.	Check for correct connection to the battery. Turn off everything in the car and try to connect again. Replace the fuse (5 Amp fuse). Push button to reset the breaker.
CHARGING  LED is flashing.	Charger is in Abort Mode Battery is sulphated. Battery is defective.	Unplug the charger from the mains supply and plug it back in. Use  (Desulphation Mode) for 8 hours. Have the battery checked.
FULL CHARGE  LED is on, but battery is not fully charged.	Surface charge voltage is high. Battery voltage is very low and the charger detects it as 6V not 12V.	Replace the battery. Unplug the charger from the mains supply and plug it back in.
All LEDs are lit in an erratic manner.	A button may have been pressed while the charger was being plugged in.	Unplug the charger from the mains supply and plug it back in, without touching the control board.

Environmental Protection



Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment.

When the product becomes completely unserviceable and requires disposal, drain off any fluids (if applicable) into approved containers and dispose of the product and the fluids according to local regulations.

WEEE Regulations

Dispose of this product at the end of its working life in compliance with the EU Directive on Waste Electrical and Electronic Equipment (WEEE). When the product is no longer required, it must be disposed of in an environmentally protective way. Contact your local solid waste authority for recycling information.



NOTE: It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice.

IMPORTANT: No liability is accepted for incorrect use of this product.

WARRANTY: Guarantee is 12 months from purchase date, proof of which will be required for any claim.

INFORMATION: For a copy of our latest catalogue and promotions call us on 01284 757525 and leave your full name and address, including postcode.



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