SEALEY Professional TOOLS
Auto Service Line

INSTRUCTIONS FOR:
BATTERY SUPPORT UNIT & CHARGER 12V-25A 24V-12.5A
MODEL No: **BSCU25**

Thank you for purchasing a Sealey product. Manufactured to a high standard this product will give you years of trouble free performance if these instructions are carefully followed and the product is correctly maintained.

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

1. SAFETY INSTRUCTIONS

THE FOLLOWING STATEMENTS ON ELECTRICAL SAFETY MUST BE READ AND UNDERSTOOD BEFORE USING THE CHARGER.

1.1. ELECTRICAL SAFETY. ❒ WARNING! It is the user's responsibility to check the following:
You must check all electrical equipment and appliances to ensure they are safe before using. You must inspect power supply leads, plugs and all electrical connections for wear and damage. You must ensure the risk of electric shock is minimised by the installation of appropriate safety devices. An RCCB (Residual Current Circuit Breaker) should be incorporated in the main distribution board.
We recommend that an RCD (Residual Current Device) is used with all electrical products. It is particularly important to use an RCD with portable products that are plugged into an electrical supply not protected by an RCCB. If in 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 person, 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 the appliance and the safety of the appliance operator. If in any doubt about electrical safety, contact a qualified electrician.

1.1.3. **DO** ensure the insulation on all cables and the product itself is safe before connecting to the mains power supply. See 1.2.1. above and use a Portable Appliance Tester (PAT).

1.1.4. **DO** ensure that cables are always protected against short circuit and overload.

1.1.5. **DO** regularly inspect power supply, leads, plugs for wear and damage and all electrical connections to ensure that none is loose.

1.1.6. **DO** check that the voltage marked on the product is the same as the electrical power supply to be used and check that all fused plugs are fitted with the correct capacity fuse.

1.1.7. **DO NOT** pull or carry the powered appliance by its power supply lead and do not pull plug by the cable. Products must not be pulled or carried by their output cables.

1.1.8. **DO NOT** use worn or damage leads, plugs or connections. Immediately replace or repair by a qualified electrician.

1.1.9. If an extension reel is used, it must be fully unwound before connection to an RCD protected circuit. The cable core must be a minimum of 1.5mm².

1.1.10. **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 below. When a BS 1363/A 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 in diagram. **DO NOT** connect either wire to the earth terminal.

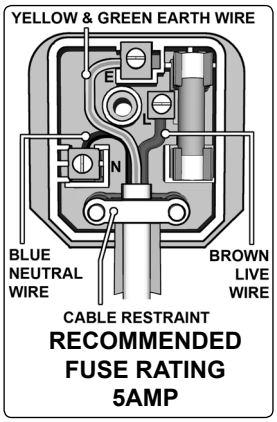


fig.1

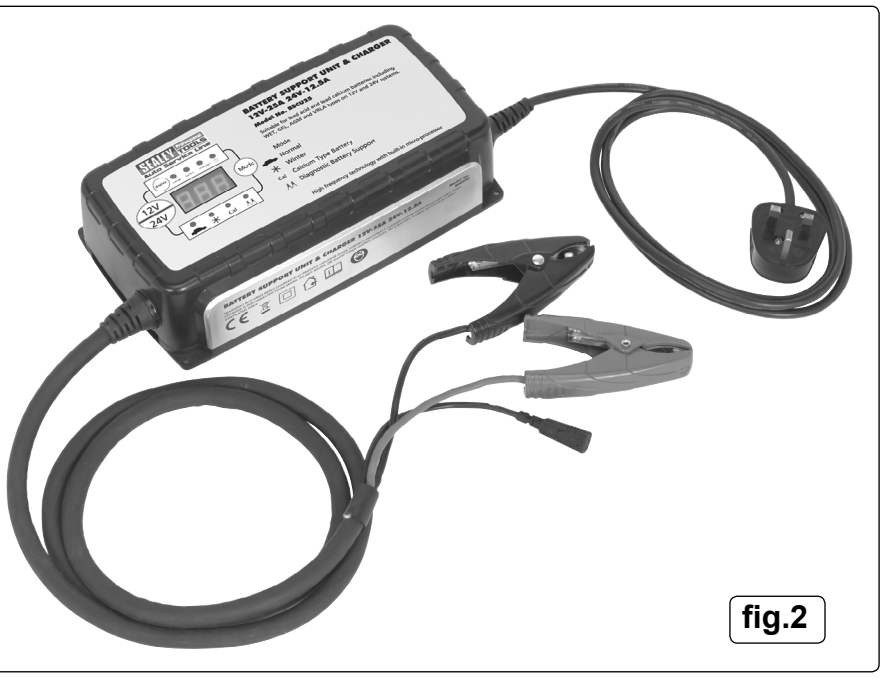


fig.2

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 manufacturer 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. GENERAL SAFETY INSTRUCTIONS

✓ Familiarise yourself with the application, limitations and potential hazards relating to the chargers. Also refer to the vehicle manufacturer's hand book. *IF IN ANY DOUBT CONSULT AN ELECTRICIAN.*
✓ Ensure the charger is in good order and condition before use. If in any doubt do not use the unit and contact an electrician.
✓ Only use recommended attachments and parts. To use non-recommended items may be dangerous and will invalidate your warranty.
✓ Use the charger in the horizontal position only and ensure it is placed on a stable surface.
✓ Ensure the charger is 'Off' 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 moving parts of the engine clearly.
✓ Ensure the voltage on the charger is set to the same voltage as the battery. Check position of positive battery cable.
✓ If the 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 section 1.3).
✓ The cables may become hot with excessive use. If so, allow a few minutes for them to cool down before attempting to re-use.
✓ 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 work 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 an engine, or to charge a battery, if the battery is *frozen. (* In prolonged extremely cold conditions a battery could become frozen. A frozen battery could explode if charged. Cold cranking will put additional strain on the engine and the battery.)
❒ **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 parts 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. In the unlikely event symbols cannot be distinguished, on most modern vehicles the negative terminal is the one directly connected to the vehicle bodywork.
✗ **DO NOT** pull the cables or clamps from the battery terminals and **DO NOT** remove power clamps while the charger is 'On'.
✗ **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 the charger inside vehicle or inside engine compartment. Ensure there is sufficient ventilation and do not cover or obstruct charger ventilation louvres.
✗ **DO NOT** use this product to perform a task for which it is not designed.
❒ **WARNING!** *If a fuse blows, ensure it is replaced with an identical fuse type and rating.*
✓ When not in use, store the charger carefully in a safe, dry, childproof location.

1.3. PERSONAL PRECAUTIONS

✓ Ensure there is another person within hearing range of your voice, or 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.
✓ 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** smoke or allow a spark or flame in the vicinity of battery or engine.

2. INTRODUCTION

High frequency inverter type unit designed to both charge a battery and provide support for the battery during prolonged electronic diagnostic checks. Charge cycle has 9 profiles designed to optimise the condition of the battery and the speed of the charge. It will recover a discharged battery (>2V) to almost 100% of its original capacity. Designed for use with lead acid and lead calcium batteries including WET, GEL, AGM and VRLA types on 12V and 24V systems. Temperature sensor allows accurate charging of battery even when cold. Safety circuitry prevents sparks or polarity reversal. Once fully charged, the battery may be left connected to be automatically conditioned and maintained.

3. SPECIFICATIONS

MODEL NO:	**BSCU25**
Type:	9 Cycle with Support
Input Voltage:	230V 1ph
Input Current:	2.4A
Charging Voltage:	12V/24V
Charging Current 12V System:	25A
Charging Current 24V System:	12.5A
Battery Types:	WET,MF,AGM GEL(VRLA)
Battery Support Mode:	<300W
Battery Capacity (12V):	75-500AH
Battery Capacity (24V):	45-250AH
Housing Protection:	IP20
Dimensions L x W x H:	390 x 200 x 85mm
Weight:	2kg

4. OPERATING INSTRUCTIONS

❒ **WARNING! Ensure you have read and understood all safety instructions before using the charger.**

4.1. PREPARATION

IMPORTANT! It is important to correctly prepare for charging ensuring you follow Section 1 safety regulations carefully. Check that the capacity of the battery is compatible with the charger output.

4.1.1. Follow any vehicle manufacturer's instructions for charging the battery. Especially instructions for charging batteries which should not ordinarily be removed from the vehicle for this process.
4.1.2. If the battery is removed, place in an appropriate safe area, according to Section 1, ready for charging.
4.1.3. **A boat battery must be removed and charged on shore.**

4.2. CONNECTING THE CHARGER TO A BATTERY INSTALLED ON THE VEHICLE.

4.2.1. Ensure the charger black and red crocodile clips are not "short circuited" at any time.

4.2.2. Identify the polarity of the battery terminals and check that they are free of corrosion deposits. Clean if required.

4.2.3. Identify the polarity of the battery terminal connected to the vehicle chassis (earth), normally the negative terminal.

4.2.4. Identify the system voltage of the vehicle, 12V or 24V (2 x 12V batteries).

4.2.5. Remove the battery electrolyte cover or caps, when applicable, to allow the gases produced by charging to escape.

4.2.6. If not a "sealed for life" battery, check electrolyte levels and *composition, add distilled water in each cell according to manufacturer's instructions or 5-10 mm above the plates if information not available ***(remember the electrolyte is a corrosive acid).*** For sealed batteries refer to manufacturers recharging instructions.

4.2.7. Connect the charger POSITIVE (Red or +) lead to the POSITIVE (+) terminal of the battery and the NEGATIVE (Black or -) lead to the NEGATIVE (-) terminal of the battery. Lay the thermostatic control sensor in close proximity to the battery..

4.2.8. Plug the charger into an isolated mains and switch on the mains. The LED will flash "000"; the 'standby status' in table (fig.9). Select either 12V or 24V on the selector switch, a green LED will be illuminated against the selected voltage.

4.3. CONNECTING THE CHARGER TO A BATTERY NOT INSTALLED OR TO BE REMOVED FROM THE VEHICLE.

4.3.1. Check the battery to ensure the NEGATIVE & POSITIVE terminals are clearly identifiable before removing the battery from the vehicle.

4.3.2. Disconnect and remove the battery from the vehicle and place in an appropriate safe well ventilated area ready for charging.

4.3.3. Follow instructions 4.2.6; 4.2.7; 4.2.8.

4.3.4. The charging status of a battery will be displayed digitally in the LED window of the charger, it can also be determined by use of a hydrometer which measures the specific gravity of the electrolyte. The following information indicates kg/l at 20°C:
1.28 = Fully charged 1.21 = Half charged 1.14 = Fully discharged battery.
❒ **WARNING! Be cautious and vigilant as the electrolyte is highly corrosive.**

4.4. CHARGING THE BATTERY - If we look at the graphs (fig.7 and fig.8), the projected voltage is represented by the lower line and the projected current is represented by the upper incremental line. Stages and time are represented by the numbers 1 - 9 (fig.7) for lead acid batteries and 1 - 10 (fig.8) for lead calcium acid batteries.

4.4.1. Select the required charging mode (fig.3) by pressing the "MODE" button (fig.5). The 'vehicle' icon indicates normal charging, the 'snowflake' icon indicates low temperature environment charging, the 'Cal' indicates calcium type battery charging and is also a repair mode for sulphated batteries. The 'battery clips' icon indicate battery support mode, this mode provides power for the battery during prolonged electronic diagnostic checks. **If either the 'Cal' icon or the 'battery clip" icon mode is required; from the initial flashing "000" standby mode, press the mode button in quick succession** (*before the "R E P" appears in the LED window) **and follow the illuminated icon indicators to the required mode.** Press three times for "Cal", four times for 'battery clips', five times for back to standby status. For further explanation of charging modes see table fig.6. *If a charging mode selection is made; after a few seconds "R E P" appears in the LED window, this extinguishes after 5 flashes to read the selected 'voltage/current/ charging %' from fig.4 . Selection of 'Cal' (amber) and 'battery clip icon' (red) are now inhibited and cannot be selected.

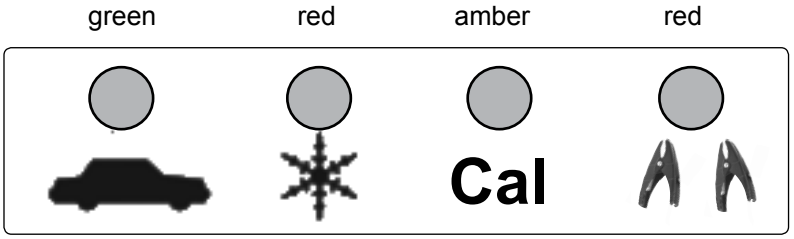


fig.3

4.4.2. Select the required 3 figure digital display by pressing the "display" button (fig.4) for 'voltage', press again for 'current' and again for 'charging %'. The exclamation mark indicates a fault condition. Inboard short circuit protection and overload protection instantly shuts the charger down in a fault condition. For further explanation of displayed LED readings see table fig.6.

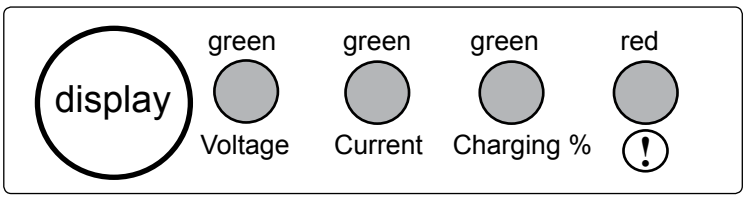


fig.4

4.4.3. Check the current delivery to the battery by pressing the "display" button (fig.4). Initially, there will be a high rate of charge which will slowly decrease according to the capacity and condition of the battery. Press again for 'current' and again for 'charging %' values.

4.4.4. When fully charged the ammeter reading 'current' should be "0.00" or close to “0.00” and the electrolyte in the battery should begin to gas (not visible on vented sealed for life modern batteries). Press the "display" button to check the 'charging %', if the LED reads "F U L" the battery is fully charged. If the LED reads "C H E" (stage 9 in graphs), wait whilst the charger checks the battery. If the battery is fully charged the LED will normally change to "F U L" within 60 seconds.

4.4.5. Unless battery support mode is required, isolate mains power and unplug charger from the mains. On completion of all tasks disconnect the power clamps, the earthed clamp first, clean the charger and store in a safe, dry area.

4.4.6. Replace the battery electrolyte cover or caps when applicable. Wipe up any splashes or spillage ***(remember the electrolyte is a corrosive acid)***. Return the battery to the vehicle, if required, secure according the manufacturer’s instructions and re-connect the power leads. Check to ensure all tools are removed before closing the bonnet.

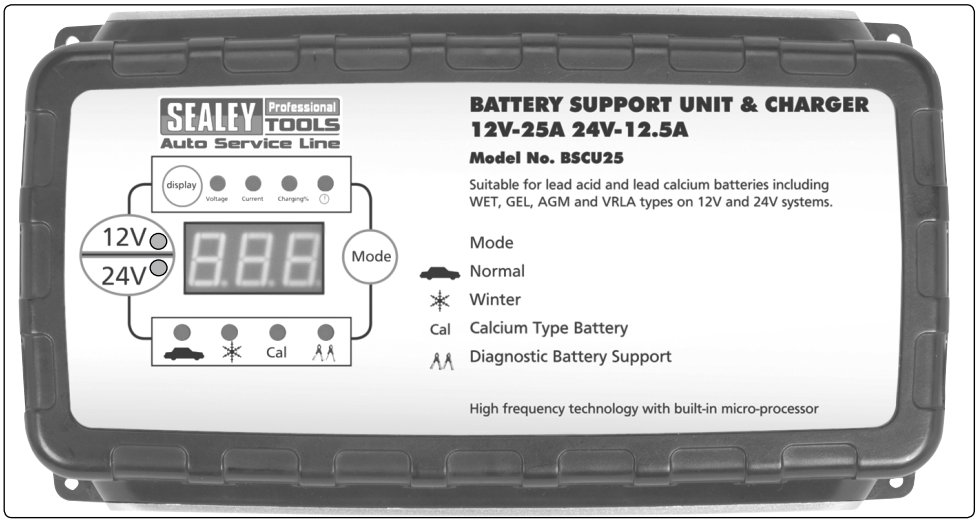


fig.5

12V / 24V	Select the required voltage. A single press of the button will change voltage illuminating a green indicator.		Digital LED display to show Voltage, Current, and Charging %. It will also display status, functions and fault conditions. See section on Trouble Shooting.
MODE	To select charging mode or re-set during charging. A single press of the button moves to next mode.	display	Press display button once to illuminate Voltage, press again to illuminate Current, press again to illuminate Charging %. Read values in the LED window.
	Mode : 14.4V 25.0A or 28.8V 12.5A. This mode is normally used for all types of batteries. On selection the charger cooling fan starts.	Voltage	Read values in the LED window.
	Mode : 14.7V 25A or 29.4V 12.5A. This setting is recommended at temperatures below 5°C. Not recommended when temperatures exceed 5°C.	Current	Read values in the LED window.
Cal	Mode : Calcium select for all calcium batteries. Also batteries with voltages below 10.5V without capacity to absorb charging current. The charger will automatically pulse charge up to 16V to recover battery. If the battery cannot be recovered after 2 hours a fault (!) icon will illuminate. New battery required.	Charging %	Read values in the LED window.
	Mode : DC supply (13.5V 25A) Provides support for the battery during prolonged electronic diagnostic checks.	!	When the exclamation mark indicator illuminates, it is accompanied by a high pitched audible alarm. A fault condition has been detected and will be identified in the LED window as F 0 1, F 0 2, F 0 3, F 0 4 and F 0 5, see section 6 "TROUBLE SHOOTING".

fig.6

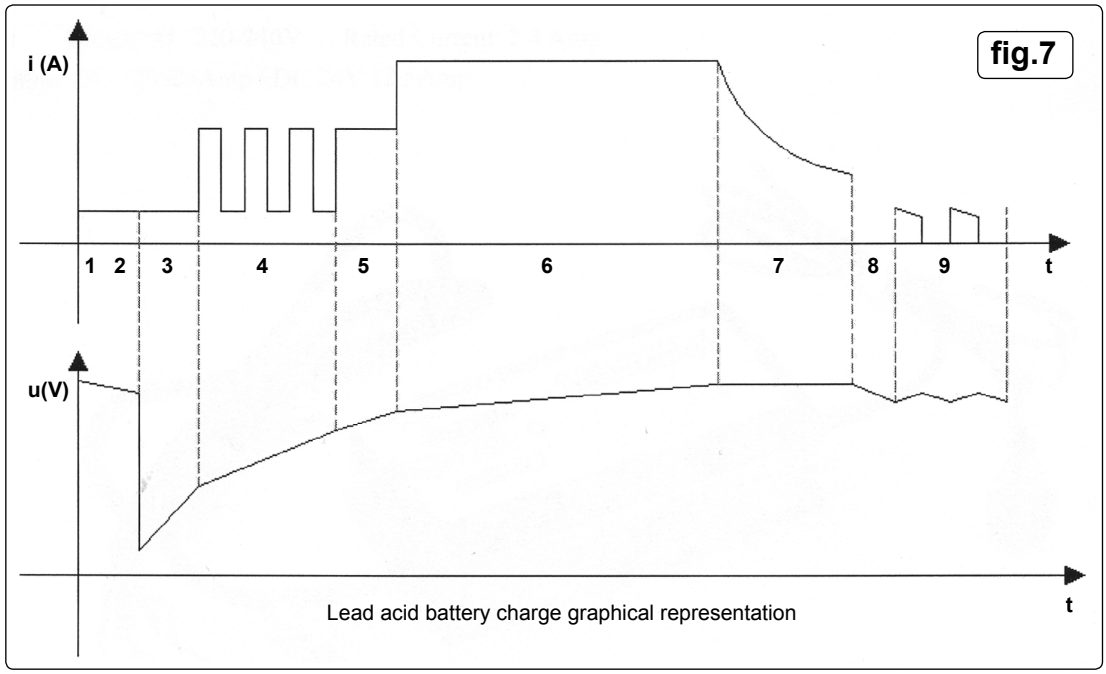
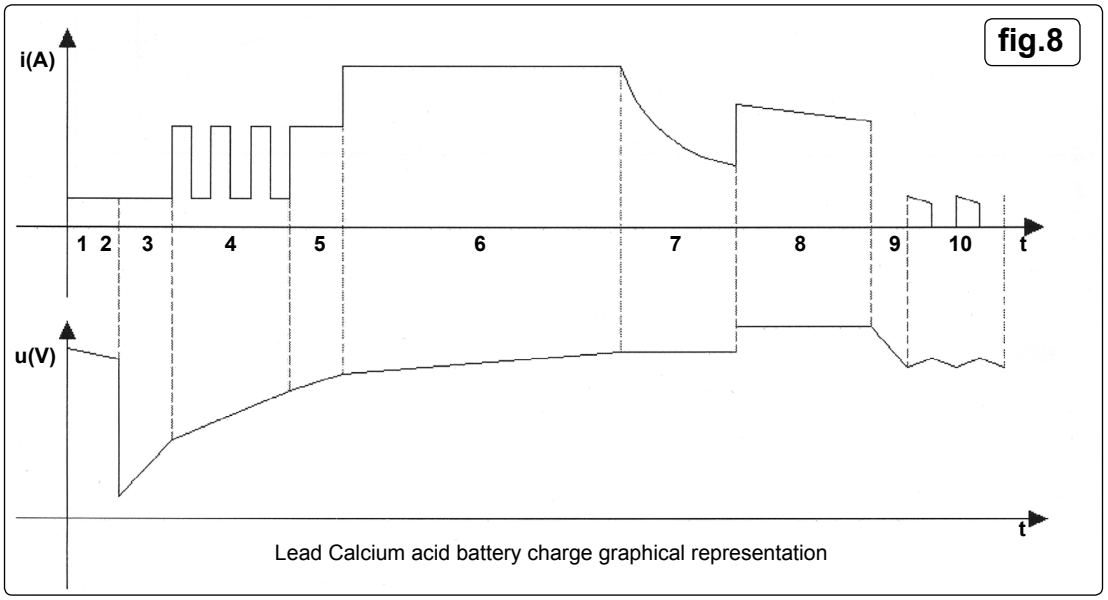


fig.7

Charging stages (9 steps)
1 - Qualification
2 - Battery recovery
3 - Soft start
4 - Pulse mode
5 - Recondition
6 - Bulk
7 - Absorption
8 - Equalisation
9 - Check



Lead Calcium acid battery charge graphical representation

5. CARE AND MAINTENANCE

5.1. After each use clean the charger clamps, removing corrosive battery fluids.
5.2. Clean the charger casing and charger leads with a soft cloth and mild detergent solution.
5.3. Keep the charger leads loosely coiled during storage without snagging or crushing.
5.4. **DO NOT** attempt to repair damaged leads, these must be replaced by your Sealey service agent or a qualified person.
5.5. **DO NOT** attempt to repair charger electronics, this must be done by your Sealey service agent or a qualified person.

6. TROUBLE SHOOTING

CODES	DESCRIPTION	TROUBLE SHOOTING
000	Standby status.	
CHE	Check battery status before charging.	Battery already fully charged.
REP	Charger is repairing battery	Temporary indication of start. Repair mode for sulphated batteries.
F01	1) No connection to battery 2) Short circuit 3) Reversed polarity connection	1) Reconnect terminal 2) Check all connections 3) Reverse connections
F02	Clip loosened during charging. The charger stops,an audible alarm will sound in 25secs.	Check connections and start charging process again.
F03	Battery voltage too high.	Battery voltage not as voltage setting.
F04	Current leakage inside battery.	Start charging again, if fault condition reoccurs, replace battery.
F05	Charger internal temperature too high.	Cooling fan not working. Ambient temperature too high. (40°C)
FUL	Battery fully charged. Voltage held until power removed.	

fig.9

Environmental Protection.

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

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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