DIGITAL STARTER/CHARGER/TESTERS
INSTRUCTIONS FOR MODEL NOS:

ELECTROSTART 300.V2
ELECTROSTART 500.V3

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. PLEASE KEEP INSTRUCTIONS SAFE FOR FUTURE USE.**

1. SAFETY INSTRUCTIONS

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 that all portable electrical appliances, if used on business premises, are 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 leads and plugs for wear and damage and power connections to ensure that none is loose or damaged.

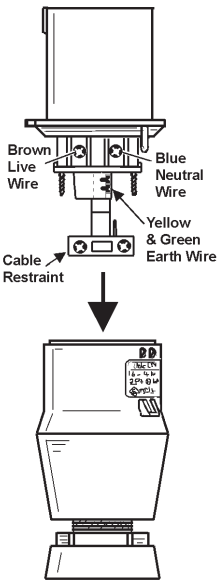
1.1.6. **Important:** Ensure that the voltage marked on the appliance matches the power supply to be used and that the plug is fitted with the correct fuse - see fuse rating at right.

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.

1.1.10. This product requires an electrical supply in excess of 13 amps, and NO plug is fitted. You must therefore contact a qualified electrician to ensure that a 30 amp supply is available. We recommend that you discuss the installation of a industrial round pin plug and socket with your electrician. Ensure that the unit is correctly earthed via a three-pin plug, as shown.
- ***a) Connect the GREEN/YELLOW earth wire to the earth terminal ⏚ .***
- ***b) Connect the BROWN live wire to live terminal 'L'.***
- ***c) Connect the BLUE neutral wire to the neutral terminal, 'N' or unmarked.***
- ***d) After wiring, check that there are no bare wires, that all wires have been correctly connected, that the external insulation extends beyond the cable restraint and that the restraint is tight.***



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.

NOTE: If the unit is to be consistently used to start larger car engines and commercial vehicles it is recommended that the unit should be connected to a 3-phase supply - contact a qualified electrician for further advice.

THE SUPPLY TO THE ELECTROSTARTS 300 & 500 MUST BE FITTED WITH A
30 AMP
FUSE OR BREAKER

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 manufacturer 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

✓ When working with or near a lead-acid battery ensure there is another person within hearing range and close enough to come to your aid, should a problem arise.
✓ 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 high enough to weld a ring or the like to metal, which may cause severe burns.
✓ Ensure hands and clothing, including belts, are clear of fan blades and other moving or hot parts of the engine. Remove ties and contain long hair.
✓ DO NOT smoke or allow a spark or flame in the vicinity of the battery or the engine.

1.3. GENERAL SAFETY INSTRUCTIONS

✓ Familiarise yourself with the applications, limitations and potential hazards relating to the starter/charger. Also refer to the vehicle manufacturer's handbook. *IF IN ANY DOUBT CONSULT A QUALIFIED ELECTRICIAN.*
✓ Ensure the starter/charger is in good order and condition before use. If in any doubt, do not use the unit and contact an electrician.
✓ Only use genuine parts. To use unapproved parts may be dangerous and will invalidate your warranty.
✓ Use the starter/charger in the horizontal position only and ensure it stands on a stable surface which will adequately support the weight.

✓ Ensure the charger is switched off and disconnected from the mains power supply before attaching the power clamps to the battery.
✓ Check the “OFF” LED to ensure the charger is “OFF” before handling the power cables.
✓ Keep tools and other items away from the engine and ensure that you can see the battery and working parts of the engine clearly.
❒ **WARNING!** *For nickel-cadmium batteries, ensure you understand the element numbers before charging.*
✓ If the battery has removable caps to access the battery fluid, remove the caps and check the fluid level before connecting the power leads. If necessary top-up the battery with distilled water by referring to the battery manufacturer’s instructions, (*apply the personal safety precautions described in para. 1.2.)*.
✗ DO NOT dis-assemble the starter/charger for any reason. It must be checked by qualified service personnel only.
✓ 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 starter/charger receives a sharp knock or blow, the unit must be checked by a qualified service agent before using.
✓ When not in use, store the starter/charger carefully in a safe, dry, childproof location.
✓ Ensure the voltage on the charger is set to the same voltage as the battery.
✓ Keep children and unauthorised persons away from the work area.
✗ DO NOT try to charge a non-rechargeable battery.
✗ DO NOT try to start with a frozen battery. Do not attempt to charge a frozen battery.
❒ **WARNING!** *DO NOT allow metal tools to touch both battery terminals at the same time. The resulting spark or short circuit may cause an explosion.*
✗ DO NOT pull the cables or clamps from the battery terminals.
✗ DO NOT use this product to perform a task for which it is not designed.
❒ **WARNING!** *DO NOT simultaneously charge different types of batteries (i.e. traditional, gel or Ni-Cd).*
❒ **WARNING!** *If a fuse blows, ensure that it is replaced with one of identical type and rating.*
✓ If the battery terminals are corroded or dirty, clean them before attaching the starter/charger clamps.
✗ DO NOT use the starter/charger outdoors, or in damp, or wet locations, and DO NOT operate within the vicinity of flammable liquids or gases.
✗ DO NOT situate charger inside a vehicle or under the vehicle bonnet. Ensure that there is sufficient ventilation and do not cover or obstruct the starter/charger ventilation louvres.
✗ DO NOT allow clamps to touch each other or to make accidental contact with any part of the vehicle.
✗ DO NOT cross-connect power leads from starter/charger to the battery. Ensure positive (+ RED) is to positive and negative (- BLACK) is to negative. If symbols cannot be distinguished, remember that the negative terminal is normally the one directly connected to the vehicle bodywork.

2. INTRODUCTION & SPECIFICATION

Fully electronic, microprocessor controlled battery starter/charger designed to meet the requirements of modern battery technology. Powerful and ‘intelligent’ charging and boost starting from heavy-duty transformers. Suitable for Gel, Lead Acid, Lead Calcium, Ni-Cad and Silver Calcium batteries. Instant visual check of battery condition, charge current, voltage and charging rate on LED readout. Instant control of power delivery prevents polarity reversal by cutting output power - no fuses to blow and no trips to reset. Stabilised charging current allows improved charging efficiency and reduced charging times using Intellicharge circuitry. Fitted with standby feature - provides stabilised power to vehicle’s electronic circuits through accessory socket enabling battery to be disconnected. Includes circuitry to provide surge and spike protection during charging and starting thus preventing damage to vital systems such as ABS, air bag sensors, ignition and music systems. Turbo-Fan cooled, heavy-duty transformer. Suitable for a wide range of vehicles. Wipe-clean touch-sensitive control panel.

MODEL	**ELECTROSTART300.V2**
Power Supply	230V - 1ph
Absorbed Power (Charge/Starting)	1.1/7kW
Charging Voltages	6-12-24V
Starting Voltages	12-24V
Effective Charge Current	50A
Rated Current (EN60335-2-29)	30A
Starting Current	230A
Rated Current (EN60335-2-29)	210A
Rated Reference Capacity	10-450Ah
Charge Current Setting	Continuously Variable
Size	390 x 260 x 230mm
Weight	16.3kg

MODEL	**ELECTROSTART500.V3**
Power Supply	230V - 1ph
Absorbed Power (Charge/Starting)	1.5/9.5kW
Charging Voltages	6-12-24V
Starting Voltages	12-24V
Effective Charge Current	75A
Rated Current (EN60335-2-29)	40A
Starting Current	400A
Rated Current (EN60335-2-29)	300A
Rated Reference Capacity	10-600Ah
Charge Current Setting	Continuously Variable
Size	390 x 260 x 230mm
Weight	20kg

3. CONTROL PANEL DESCRIPTION

❒ **WARNING!** Ensure you have read and understood the safety instructions and operational instructions before connecting starter/charger power clamps to the battery. Only when you are sure that you understand the charging modes and procedures is it safe to proceed with the actual charging process. Each button has up to five associated options which can be selected by repeatedly pressing the button to cycle through the alternatives. Each option has an associated LED which lights up when that option is operative.

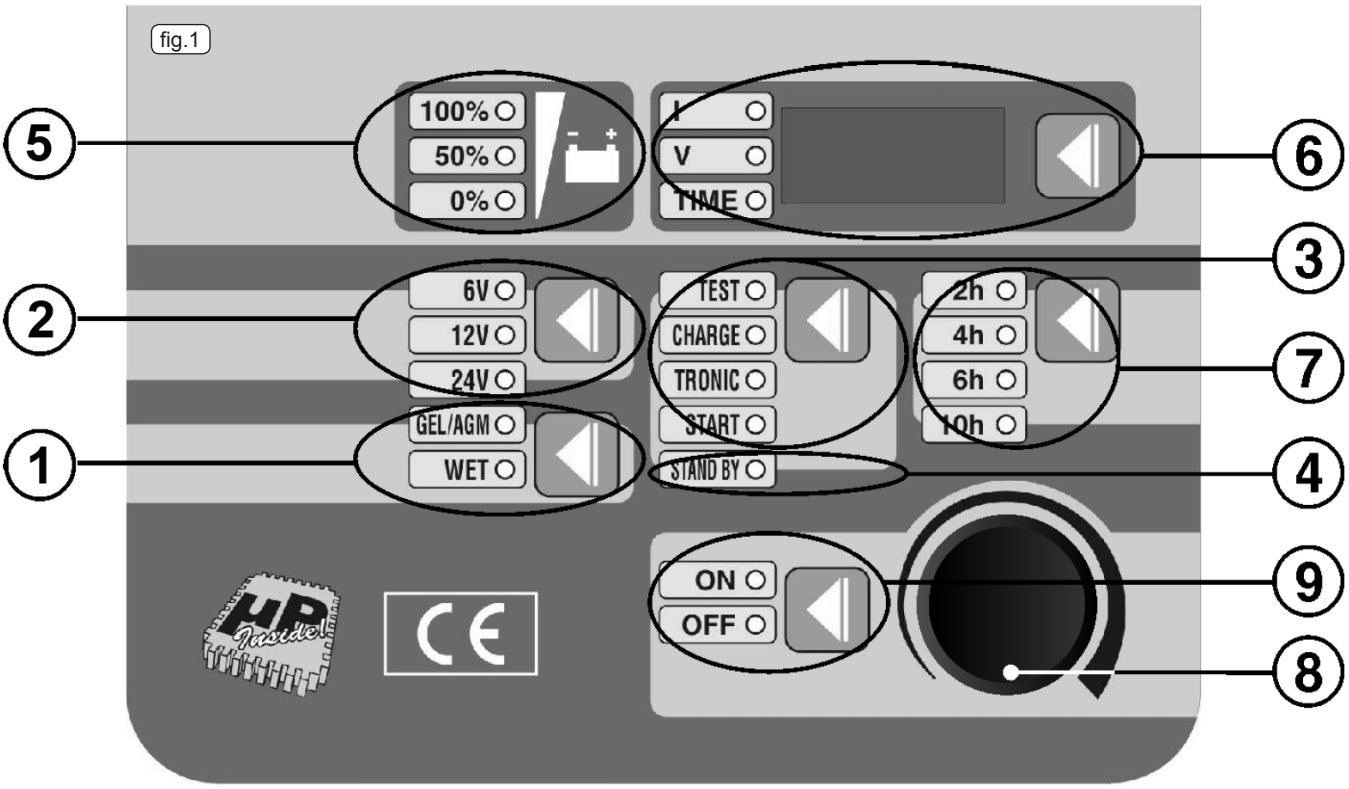
3.1 SELECTING BATTERY TYPE, fig.1-1.
The battery threshold is automatically modified with each selection.
GEL/AGM: ..... Lead acid battery with solid electrolyte.
WET: ..... Lead acid battery with liquid electrolyte.

3.2 SELECTING THE BATTERY VOLTAGE, fig.1-2.
The available voltages are as follows: **6V**(3 elements), **12V**(6 elements), **24V**(12 elements).

3.3 SELECTING THE OPERATING MODE, fig.1-3.

3.3.1 **TEST MODE:** This mode has the following options.
3.3.2 Check the actual voltage and condition of the battery.
3.3.3 Enter the settings for the battery voltage and type.
3.3.4 Check errors. If there is an error in the connection or settings the display will flash the message ‘Err’ until the problem has been resolved.
3.3.5 **CHARGE MODE:** In this mode the battery or batteries can be charged at a constant current (depending on the settings made) and in relation to the battery capacity. Charging current should be no more than one tenth of the Ah rating (e.g. 60Ah battery - max. charge current 6A). If the battery is particularly low, the charger limits the charge current until the battery reaches the safety voltage of 1.5 volts per element. In these circumstances the display will show the fixed current value alternating with ‘LCC’ (Limit charging current). The ‘LCC’ function can be switched off if required. See 5.9 SAFEGUARDS. When the battery has reached a set voltage level towards the end of charging this value will be maintained until the set charging time has passed.

3.4 TRONIC MODE: In this mode the battery or batteries are charged automatically with preset voltage thresholds.
3.5 START MODE: In this mode an engine can be started using a cycle of ‘4 seconds ON’ and ‘40 seconds OFF’.
3.6 STANDBY MODE: fig.1-4. The standby function gives a stabilised output power supply of 12VDC-1.5A which can be used to maintain the vehicles essential electronic functions when the battery is disconnected. When the plug of the standby connector is inserted into the vehicle’s cigarette lighter socket the standby LED will illuminate automatically. This function is automatically enabled by, and can be used in conjunction with, ‘Charge mode’.



3.7 BATTERY CHARGE STATUS INDICATOR, fig 1-5:
The charge voltage is constantly monitored in 'Charge' or 'Tronic' mode and the battery status is indicated by illuminating one of the three LEDs. The top LED indicates a charged battery with a battery voltage reading greater than or equal to the voltage setting. The middle LED indicates that the battery is able to receive more current and the bottom LED indicates that the battery is flat. Refer to fig.5.

3.8 DISPLAY (CURRENT/VOLTAGE/TIME INDICATOR), fig.1-6:
The key to the right of the display selects the three display options:
"I", ...displays the output current in amps, both in "CHARGE", and "TRONIC" modes.
"V", ... displays the output voltage across the battery terminals in volts.
"TIME", ... displays the length of time that has elapsed during "CHARGE" mode, in minutes.
The display can also show a set of letters representing the current condition/mode (See fig.5).
In "START-PAUSE" mode the display shows the time remaining during the forced pause, in seconds.

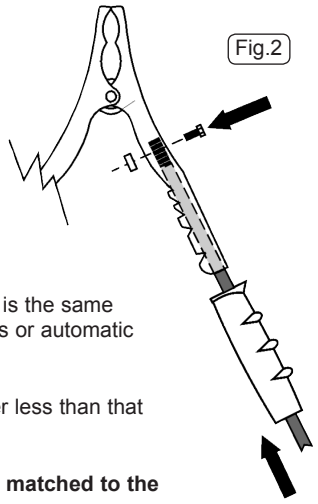
3.9 SELECTING CHARGING TIME, fig1-7:
This key is used to select the charging time for the "CHARGE" function; the following times are available: **2/4/6/10 hours.**
In "CHARGE" mode, if the preset time passes before the end-of-charge voltage is reached, the battery charger will automatically charge for 2 more hours and then switch off.

3.10 POTENTIOMETER, fig1-8:
This potentiometer is used to set the charge current in both "CHARGE" and "TRONIC" modes and is variable from 1 to 30amps.

3.11 SWITCHING ON/OFF, fig1-9:
This key switches the current to the battery/ies ON or OFF.
WARNING: the battery charger is still powered even when the OFF LED is lit.

4. INSTALLATION & SET-UP

Fig.2



4.1 Unpack the battery charger and assemble the battery clips to the cables, as indicated in Fig.2, if necessary.

4.2 POSITIONING THE BATTERY CHARGER
Position the battery charger on a solid level suface, making sure that it is stable and that there is no obstruction of the air intake vents.

4.3 CONNECTION TO THE MAIN SUPPLY
The battery charger plug should be connected as shown in section 1. Check that the mains voltage is the same as the voltage of the equipment. Check that the power supply is protected by systems such as fuses or automatic switches, sufficient to support the maximum current absorption of the equipment.
The connection to the main supply has to be made using a suitable cable.
If you put an extension to the primary cable, the section should be adequate and, in any case, never less than that of the cable supplied.

4.4 CHECKS BEFORE CHARGING
NB: Before charging check that the capacity of the battery which is to be charged is suitably matched to the output of the charger.
Remove the caps of the battery (if fitted) so as to let the gas produced go out.
Check that the level of the electrolyte covers the plates of the battery. If they are not covered add distilled water until it covers the plates by 5-10 mm.

WARNING: USE THE MAXIMUM CAUTION DURING THIS OPERATION AS THE ELECTROLYTE IS A HIGHLY CORROSIVE ACID.
Please remember that the exact charge status of the battery can only be determined by using a battery fluid tester which allows the measurement of the specific gravity of the electrolyte. The following indicate approximate density values for the solution (kg/l at20°C):
1.28 = charged battery
1.21 = half-charged battery
1.14 = flat battery.

WARNING: When handling the cables, make sure that the unit has been set to the "OFF" position indicated by an illuminated LED on the front panel.

4.5 Check the battery voltage and make sure that the settings on the battery charger panel are compatible with the specifications for the battery being charged.

4.6 Check the polarity of the battery terminals: positive for the + symbol and negative for the - symbol. NOTE: If it is impossible to distinguish between the symbols, bear in mind that the positive terminal is generally the one that is not connected to the vehicle chassis.

4.7 Connect the red charge clamp to the positive terminal of the battery (+symbol).

4.8 Connect the black charge clamp to the vehicle chassis, far away from the battery and from the fuel system. NOTE: If the battery is not installed in the vehicle, connect the black clamp directly to the negative terminal on the battery (-symbol).

4.9 Power the battery charger by inserting the power supply plug into the mains socket outlet. Position the switch on the back to the (I) position.

4.10 Set the operating mode to 'TEST'.

4.11 Check the battery voltage and make sure that the settings on the battery charger panel are compatible with the specifications for the battery being charged. These checks should be carried out in "TEST" mode.

4.12 Set an appropriate current value using the potentiometer on the front panel.

5. OPERATION

5.1 CHARGING

5.1.1 Set the operating mode to "CHARGE" . Switch the battery charger to "ON" and confirm that the 'ON' led is illuminated.

5.1.2 Monitor the battery voltage and charge current parameters using the "I/V/TIME" key next to the display. (See fig.1-6).

5.1.3 The ammeter will show the charge current (in amps) for the battery. At the end of this phase you will see that the value shown on the ammeter will decrease slowly to very low values, according to the capacity of the battery and its condition.

5.2 AUTOMATIC CHARGING

Set the operating mode to "TRONIC". Switch the battery charger to "ON" and confirm that the 'ON' led is illuminated. In this mode the battery charger constantly monitors the voltage over the battery terminals, automatically supplying or cutting off the charge current to the battery as necessary. When it is cut off the display will show the message "END". Also in this case it is possible to monitor the battery voltage and charge current on the display using the 'I/V/TIME"key. The charge current can also be set.

5.2.1 **Simultaneous charging of more than one battery**. Take very great care when carrying out this type of operation.
WARNING: Do not carry out simultaneous charging of batteries of different capacities or types, or if their charge conditions differ.
Batteries that are to be charged simultaneously can be connected in "series" or in "parallel". Of the two systems, we recommend connecting in series because in this way it is possible to monitor the current circulating in each battery, which will be the same as that shown by the ammeter.
NOTE: If two batteries with rated voltages of 12V are connected in series, the battery charger MUST be set to the 24V position.

fig.3

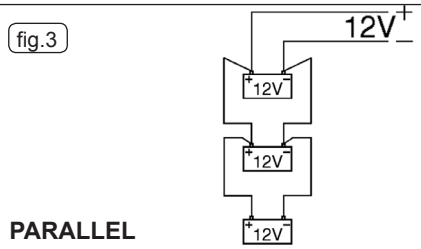
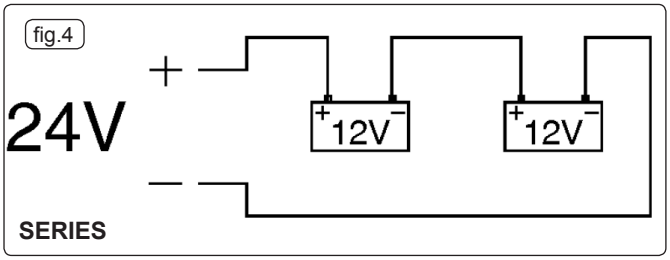


fig.4

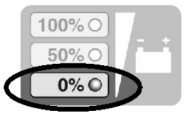
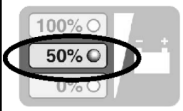
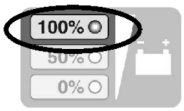
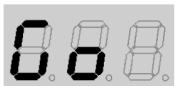


5.3 END OF CHARGING

It is possible to end charging by pressing the "OFF" key or the battery charger can be left to switch itself automatically to "OFF" when the time runs out. Disconnect the power supply to the battery charger by removing the power supply cable from the mains socket. Disconnect the black charge clamp from the vehicle chassis or from the negative terminal of the battery (- symbol). Disconnect the red charge clamp from the positive terminal of the battery (+ symbol). Store the battery charger in a dry place. Close the battery cells using the appropriate caps (if present).

fig.5

LED DISPLAY MESSAGES

	 VERY FLAT OR SULPHATED BATTERY	 HALF CHARGED BATTERY
 CHARGED BATTERY	 WAITING FOR USER TO OPERATE STARTER	 4 SECONDS OF STARTING CURRENT (FOLLOWED BY A 40 SECOND PAUSE)
 TEST MODE CONNECTION / SETTING ERROR	 TRONIC MODE PAUSE PHASE	 CHARGE AND/OR TRONIC MODE CHARGE CURRENT LIMITATION ON
 MAXIMUM PROTECTION LEVEL SETTING/CONNECTION DETECTION ON. CHARGE CURRENT LIMITATION ON	 INTERMEDIATE PROTECTION LEVEL SETTING/CONNECTION DETECTION ON	 ALL SAFEGUARDS DISABLED
 OVERHEATING PROTECTION	 TOO HIGH VOLTAGE RIPPLE	 OUTPUT OVER VOLTAGE

5.4. STARTING (Refer to vehicle manufacturers instructions before commencing the starting process).

5.4.1. Establish the battery type and voltage.

5.4.2. Plug starter/charger into mains power supply, switch on at rear panel.

5.4.3. Before connecting the clamps to the battery terminals ensure that the unit is OFF, fig.1-9. Confirm that the OFF LED is illuminated before proceeding.

5.4.4. Connect the clamps to the battery terminals, ensuring correct polarity.

5.4.5. Before starting, the battery should be given a rapid charge for 5 to 10 minutes. Press the mode key to switch the unit to charge mode and confirm that the charge LED is illuminated. Set battery type, voltage and charging current.

5.4.6. Turn the unit on by pressing the key next to the current setting knob, fig.1-9.

5.4.7 Monitor the voltage by pressing the key next to the display until the 'V' LED is illuminated.

5.4.8 When an increase in voltage is noted, press the mode key to change from 'Charge' to 'Start', fig.1-3.

5.4.9 **When activated the unit will provide a starting current for 4 seconds followed by a pause of 40 seconds.**

5.4.10. When the display shows the word 'GO' operate the vehicle starter (nothing will happen until the starter is operated). There will be 4 seconds of starter current and the display will show the word 'RUN' followed by 40 seconds "down time" during which the display will show the remaining time in seconds. After the 40 seconds, the starter may be operated again, for a further 4 seconds. Do not persist if the vehicle engine does not start: this could seriously damage the battery or even the electrical and electronic equipment in the vehicle. **It is essential to allow the starting phase of the battery charger, indicated by "RUN" on the display, to conclude even if the vehicle engine does not start to turn.**

5.4.11. **Never ever start vehicles with the battery terminals disconnected from their respective clamps; the presence of the battery is essential for eliminating any possible voltage spikes that could be generated by the energy accumulating in the connecting cables during the starting phase. Failure to observe these instructions may damage the vehicle electronics.**

5.5. WHEN CHARGE/START IS COMPLETE

When the battery is charged/engine started, switch the starter/charger off and unplug from the mains power supply. Detach power clamps from battery terminals.

Carefully wipe any spillage of acid from the battery top and replace the caps. Disconnect the auxiliary cable if used. Ensure all tools etc. are removed before closing the bonnet.

Clean the starter/charger and store in a safe, dry, childproof location.

5.6 AUTOMATIC OVERVOLTAGE PROTECTION

This battery charger/starter is a microprocessor-controlled electronic appliance that is able to protect the vehicle electronics from overvoltage that may be generated when charging particularly flat or sulphated batteries. When the "ON" key is pressed the unit instantly evaluates the condition of the battery and automatically interrupts charging on detection of overvoltage risks that are a danger to vehicle appliances which are connected electrically to the battery terminals.

5.7 CHARGING VERY FLAT OR SULPHATED BATTERIES

WARNING: Under these charge conditions the vehicle electronics are not protected, therefore it is absolutely necessary to disconnect the battery from the vehicle. To be able to charge such batteries it is necessary to override the intrinsic property of the battery charger, which provides protection against overvoltage that could destroy the vehicle electronics. The user has the possibility of totally or partially removing these safeguards (3 protection LEVELS) by adopting the following procedure:

5.7.1 In "TEST" mode press the "I / V / TIME" key for about 4 seconds until the current display disappears and either "L1","L2"or"L3" is displayed.

5.7.2 Press the "HOURS" key to select the desired protection level:
"L1" = Maximum protection with detection of connection and/or setting error enabled and limitation of actual charge enabled;
"L2" = Intermediate protection with only detection of connection and/or setting error enabled, overvoltage and ripple protection enabled;
"L3"= All safeguards disabled.

5.7.3 Save the choice of protection level by pressing the "I / V /TIME" key for about 4 seconds.
Every time the battery charger is switched on it automatically returns to the maximum protection level "L1".

5.8 STARTING WITH VERY FLAT OR SULPHATED BATTERIES (NOT RECOMMENDED)

If batteries are sulphated or very flat it may be necessary to start the vehicle without the support of the electronic safeguards (NOT RECOMMENDED). In any case, in order to prevent damage to on-board electronics (a possibility with sulphated or very flat batteries) it is NECESSARY to allow the starter to conclude the 4-second start cycle even if the vehicle engine does not start to turn.

5.9 SAFEGUARDS

The battery charger is fitted with safeguards that trigger in the case of:

5.9.1 Over-charging (excess current output to the battery);

5.9.2 Overvoltage (battery or instant charging voltage too high);

5.9.3 Short circuit (charge clamps in contact with one another);

5.9.4 Reverse polarity on battery terminals;

5.9.5 If it is necessary to replace fuses in appliances fitted with them, use compatible replacements with the same rated current value. WARNING: Using replacement fuses with different current values from those indicated on the rating plate could cause damage to people or objects. For the same reason, never ever replace the fuse with bridges in copper or other material. The operation to replace the fuse should always be carried out with the power supply cable DISCONNECTED from the main power supply. All the alarm events prevent current output to the battery, except for the auxiliary power supply which has independent safeguards.

5.10 USEFUL ADVICE

5.10.1 Clean the positive and negative terminals to remove oxide incrustation and ensure good contact with the clamps.

5.10.2 Never ever allow the two clamps to touch one another when the battery charger is connected to the mains; do not connect the clamps to the battery or disconnect them while the battery charger is in operation.

5.10.3 If the battery on which you intend to use this battery charger is permanently installed in the vehicle, consult the vehicle instruction and/or maintenance handbook under the heading "ELECTRICAL SYSTEM" or "MAINTENANCE". Before proceeding with charging it is preferable to disconnect the positive cable that is part of the vehicle's electrical system. Follow the same advice for the instructions provided by the battery manufacturer.

5.10.4 Check the battery voltage before connecting it to the battery charger, bearing in mind that 3 caps signify a 6 volt battery while 6 caps signify 12 volts. In some cases there may be two 12 volt batteries in series and in this case 24 volts is needed to charge both. Make sure they have the same characteristics in order prevent unbalanced charging.

5.10.5 Before starting always carry out a rapid charge for several minutes: this will limit the starting current, and also require a lower current from the main supply. Rapid charge should be carried out only and exclusively with the battery charger in charge mode and not in start mode. Before starting the vehicle, always remember to make sure the battery is properly connected to the respective clamps (+ and -) and that it is in good condition (not sulphated or failed).
Never ever start a vehicle if the battery is disconnected from cables; the presence of the battery is essential for eliminating any possible overvoltage that could be generated by the energy accumulating in the connecting cables during the starting phase.

5.10.6 During the starting phase respect the ON and OFF cycles of the battery charger.

5.10.7 Starting should absolutely always be carried out with the battery connected properly, see the section on STARTING.

5.10.8 Carry out charging in well-ventilated areas to prevent gas build-up.

DIGITAL STARTER / CHARGER / TESTERS

MODEL Nos:

ELECTROSTART 300.V2
ELECTROSTART 500.V3

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.

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