



BATTERY SUPPORT UNIT & CHARGER

MODEL NO: **SPBC30, SPBC40**

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.



Refer to instructions



Wear eye protection



Warning



Electrical shock hazard



Indoor use only



Keep in dry area protect from rain



Keep away from sources of ignition

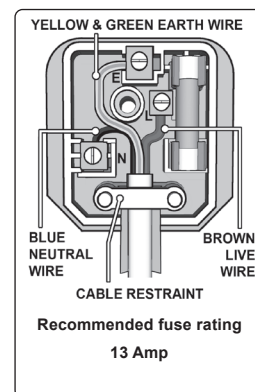


Use in well ventilated areas

1. SAFETY

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. You must also read and understand the following instructions concerning electrical safety.
- ✓ Ensure that cables are always protected against short circuit and overload.
- ✓ Regularly inspect power supply cables and plugs for wear or damage and check all connections to ensure that none are loose.
- ✓ 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.
- ✗ **DO NOT** use worn or damaged cables, plugs or connectors. Have any faulty item repaired or replaced immediately by a competent electrician.
- ✓ It is recommended that this device is wired directly to a fused isolator switch. If, however, a plug is fitted, the following applies:
- ✓ 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, and that the cable restraint is tight.



1.2. GENERAL SAFETY

- ▲ **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 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.
- WARNING!** Modern vehicles contain extensive electronic systems.
You are required to check with the vehicle manufacturer, for any specific instructions regarding the use of this type of equipment on each vehicle.
- ✓ No liability will be accepted for damage/ injury, where this product is not used in accordance with all instructions.

1.3. 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** smoke or allow a spark or flame in the vicinity of battery or engine.

1.4. CHARGING SAFETY INSTRUCTIONS

- ✓ 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 stockist.
- ✓ Use the starter/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 1.3).
- ✓ 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 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 Sealey genuine parts.
- ✓ When not in use, store the charger carefully in a safe, dry, childproof location.
- ✓ An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result in a risk of fire and electric shock. If an extension cord must be used, make sure:
 - That the pins on the plug of the extension cord are the same number, size and shape as those of the plug on the charger.
 - That the extension cord is properly wired and in good electrical condition.
 - That the wire size is large enough for the AC ampere rating of the charger as specified.
- ✓ To reduce the risk of electric shock, unplug the charger from the outlet before attempting any maintenance or cleaning. Simply turning off the controls will not reduce this risk.
- ✓ A marine (boat) battery must be removed and charged on shore. To charge it on-board requires equipment specially designed for marine use.

CAUTION: Only allow children at least 8 years old to use the battery charger. Give sufficient instruction so that the child is able to use the battery charger in a safe way and explain that it is not a toy and must not be played with. Instruct the child not to try and recharge non-rechargeable batteries because of the risk of eruption. Examine the battery charger regularly for damage, it must not be used until it has been repaired. This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

2. INTRODUCTION

Fully automatic 7-stage battery charger, designed for charging a variety of EFB & AGM (stop/start), GEL, lead acid and calcium batteries with auto chemistry selection. Additional function to charge lithium batteries via selection button on front of unit. Zero volt battery charging, enabling recovery and charging of a completely discharged battery (providing any load removed from the rechargeable battery). Old battery sulfation repair function. 13.5V DC power supply for battery support function providing support for the battery during prolonged electronic diagnostic checks. Reverse polarity, short circuit, over temperature and overcharging protection. Built-in cooling fan that only operates when required. Intuitive LED screen displays charging voltage, current, battery capacity percentage, automatically selected 6V/12V or 24V charging, lithium charging mode, DC power supply mode and illuminated charging stages. Compact design with mounting brackets for permanent fitting.

3. SPECIFICATION

Model	SPBC30	SPBC40
Supply:	230V	230V
Output:	6V/12V/24V	6V/12V/24V
Output Charge:	30A @ 6/12V (16A @24V)	40V @ 6/12V (21V @ 24V)
Battery Range:	60Ah – 300Ah	80Ah – 400Ah
Battery Support Mode:	13.5V dc – 30A	13.5V dc – 40A
Cable Length:	2m	2m
IP Rating:	IP20	IP20
Dimensions:	210mm x 76mm x 225mm	202mm x 76mm x 282mm
Electrical Class:	1	1
Electrical Fuse Rating:	13A	13A

4. OPERATION

- ☐ **WARNING!** The charger does have an on/off switch. The on and off commands are controlled by the on/off switch on the back of the unit which is only operational once the ac plug of the spbc30 & spbc40 has been plugged into the ac electrical wall socket.

4.1. BATTERY CHARGER PROTECTION SYSTEMS

4.1.1. Over-charging protection

The battery charger contains an advanced microchip monitoring and controlling system to ensure that the battery does not become overcharged which can result in the loss of electrolyte or in internal short circuit which can cause damage to the battery.

4.1.2. **Overload protection**

Overload protection will activate when the current exceeds 120% of the maximum working current.

4.1.3. **High temperature protection**

High temperature protection will activate when the internal temperature of the charger rises above 50°C. If this occurs, the charger output is automatically reduced. Once the temperature is below approximately 35°C, the charger output will return to normal. This feature is designed to protect the battery and the battery charger when they are being used in environments with very high ambient temperatures.

4.1.4. **Even charging function**

By slowly raising the voltage, the batteries cells with a lower voltage are not charged too quickly which can overheat individual battery cells, compared to battery cells with a higher voltage.

4.1.5. **Reverse polarity protection**

When reverse connected, the screen LED will flash and the output power will be cut off. This protection will protect both the charger and the battery from damage. If you have accidentally made a reverse polarity connection, please switch battery charger off from AC power, and correct the battery clamp connections to the correct polarities.

4.1.6. **Short circuit protection**

No output when clamps are connected together, power output only occurs when connected to a battery. This prevents charger malfunction if clamps accidentally come in contact with each other.

4.2. **BATTERY CHARGING INSTRUCTIONS**

4.2.1. Step 1. Connect battery charger cables to battery charger, using the supplied nuts to the correct polarity terminals on the front of the charger – (Red + Positive) / (Black – Negative). Please **DO NOT** over-tighten nuts on front panel.

4.2.2. Step 2. Electrolyte Level Check (where applicable). For sealed maintenance free batteries check the state of charge indicator.

NOTE: Refer to the vehicles manufacturers' owner manual.

4.2.3. Step 3. Connect battery charger to battery.

NOTE: Refer to the vehicles manufacturers' owner manual.

Ensure the battery is in a safe location on a stable surface with adequate ventilation.

Ensure the correct Personal Protective Equipment is being worn i.e. Gloves and Eye Wear.

Plug the battery charger into the mains power source ensuring that the power is OFF.

Connect the RED lead (Battery Clamp) to the Positive Terminal (+/positive) on the battery.

Connect the BLACK lead (Battery Clamp) to the Negative Terminal (-/negative) on the battery or to a metal grounded non-moving part of the vehicle.

Turn the mains power source ON, and switch the power switch on the rear of the unit to ON to commence charging.

4.3. LITHIUM BATTERY ONLY – Press and hold MODE button for 3 seconds until LITHIUM LED indicator lights up. Lithium Mode will automatically turn off when charger power is disconnected.

The battery charger will commence working automatically without the need for any further user input. Once the battery is fully charged turn the power switch on the rear of the unit OFF, and disconnect the mains power source.

Disconnect the BLACK lead (Battery Clip) from the Negative Terminal (-/negative).

Disconnect the RED lead (Battery Clip) from the Positive Terminal (+/positive).

Refit battery into vehicle and correctly reconnect using the vehicle manufacturer's recommendations, or If required, replace or tighten the vent caps on the battery

4.3.1. **Step 4.** Charging Sequence

- Once connected the LED Battery Charge display will illuminate and show:
- Charging Voltage
- Percentage of Charge
- Charging output current
- Lithium mode (on or off)
- Power Supply mode (on or off)
- Charging Stage progress (charging graph)
- If there is a fault with the battery or one of the battery's cells, the battery charger will automatically switch off; no charge will be sent to the battery.
- If the battery leads are placed on the reverse polarity terminals of the battery the Screen LED will flash, indicating that the battery charger has been incorrectly connected to the battery. Immediately disconnect the battery charger from the battery terminals and correctly fit the battery cables to the correct battery terminals.

4.4. **CHARGING STAGES**

4.4.1. **Analysis / Desulfation**

A small voltage pulse is applied to the battery to ensure it can effectively and safely accept a charge. Desulfation uses pulse reconditioning to gently remove any sulfation build up on the battery plates and prevents oxidization. Stabilizes electrolyte consistency and minimises the battery temperature rising while charging, recovers battery capacity and can help extend battery life.

4.4.2. **Soft Start**

The soft start function improves the batteries charging capability, reduces gas and heat build-up and can improve electrolyte consistency which can become uneven in the battery's cells from day to day use. A steadily increasing current is applied over a set time so as not to initially overload the battery. This stage prepares the battery for the more intense charging stages to follow.

4.4.3. **Bulk charge**

Maximum charge current is delivered to the battery to minimize charge times.

4.4.4. **Absorption**

Reduces the current supplied to the battery and ensures that the battery has been completely charged without the risk of being overcharged.

4.4.5. **Analysis – Testing the battery while charging**

The charger shuts off power and measures voltage drop over a set time. If unacceptable readings are measured this may indicate an internal short or other issue inside the battery.

If the battery has a fault the charger will stop charge, the charger will cut output and will not continue charging until it is either switched off, or the battery is removed. Faulty Battery indicators will activate if the battery being charged is completely dead and cannot be charged. Depending on what battery is being charged, 6V or 12V or 24V LED will flash if battery is faulty.

4.4.6. Boost/ equalisation charge

Once the battery is fully charged, the charger will equalize all of the battery cells by providing a steady set voltage over a programmed period of time, at low current.

4.4.7. Float charge:

After the boost/equalisation charge stage, the current will drop to low amperage to maintain the battery in a fully charged and ready to use state.

4.4.8. Maintenance charge

After the float charge stage, the voltage will maintain at a constant level with a small pulse frequency. Current is dropped to a very low level.

4.4.9. Power Supply Mode:

This battery charger is fitted with a DC power supply mode. This mode will deliver a constant 13.5 Volts at 30/40 Amps and can be used for powering 12V DC appliances, lighting or used for testing 12V devices. The DC power supply also has overload and short circuit protection.

4.4.9.1. To enter the DC power supply mode:

- Ensure unit is switched off before making any connections.
- Switch the 240V AC and the power switch on the unit ON.
- Press the MODE button twice until the DC SUPPLY LED indicator is illuminated.
- Connect the RED lead (Battery Clip) to the positive input on the device.
- Connect the Black lead (Battery Clip) to the negative input on the device.
- To switch off power supply; first turn the power switch on the back of the unit off, then turn off or unplug the AC power.
- Disconnect the DC power leads from the device.
- The DC power mode will automatically turn off and revert to Battery Charging when the charger is turned off and powered back on.

4.4.9.2. **WARNING: DO NOT ENABLE DC POWER SUPPLY MODE WHEN CONNECTED TO A BATTERY IN ORDER TO PREVENT SEVERE BATTERY FAILURE.**

5. MAINTENANCE

- ❑ **WARNING!** After use and before performing maintenance, unplug and disconnect the battery charger.
- 5.1. Cleaning and user maintenance should be carried out by competent persons.
- 5.2. Use a dry cloth to wipe all battery corrosion and other dirt or oil from the battery connectors, cords, and the charger case.
- 5.3. Ensure that all of the charger components are in place and in good working condition, for example, the plastic boots on the battery clips.
- 5.4. Servicing does not require opening the unit, as there are no serviceable parts.
- 5.5. All other servicing should be performed by qualified service personnel.
- 5.6. If the mains cable is damaged, **DO NOT** use until repaired.
- 5.7. Store the charger unplugged, in an upright position. The cord will still conduct electricity until it is unplugged from the mains.
- 5.8. Store inside, in a cool, dry place.
 - ✗ **DO NOT** store the connectors clipped together, on or around metal, or clipped to cables. If the charger is moved around the shop or transported to another location, take care to avoid/prevent damage to the cables, connectors and charger. Failure to do so could result in personal injury or property damage.



ENVIRONMENT 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 any fluids (if applicable) into approved containers and dispose of the product and 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 is required for any claim.

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