Installation Instructions

For

B&C Batteries

B & C Specialty Products
P.O. Box B
Newton, KS 67114
(316) 283-8000

Out Of The Box:

All B&C batteries are shipped fully charged. If the battery's voltage is 12.65 volts or greater, simply follow the installation instructions. If the battery's voltage measures below 12.65 volts, charge the battery per the instructions below.

Worry-Free Shipping:

All B&C batteries with their valve regulated sealed design have been approved for shipment by air by both the US Department of Transportation (USDOT) and International Air Transport Association (IATA).

Maintenance-Free Operation:

As valve regulated sealed batteries, of a B&C battery there is no need to check the specific gravity of the electrolyte or add water during the service life. The battery is totally sealed, recycling nearly all gases internally under normal operating conditions and needs only charging maintenance once the battery measures 12.65 volts or below. There is no corrosive gas generation during normal use and no corrosion of the positive terminal or corrosion to the surrounding area.

Storage:

All B&C batteries should be fully charged prior to storage. The battery should be stored in a cool dry place. The battery voltage should be checked periodically and if the battery voltage drops to 12.0 volts it should be recharged immediately to avoid permanent battery damage. Periodic charging is required every 60 to 90 days to prevent the battery from discharging due to normal internal leakage current. During extended storage at a constant charge state the battery plates will sulfate, increasing the battery's internal resistance until the battery is unserviceable. The battery voltage naturally decreases with time and with increased temperature. A maximum shelf life of 18 months should be expected.

Installation:

1. Carefully disconnect the cables from your old battery and remove it from your aircraft.

2. Inspect existing battery cables for corrosion, acid damage or insulation deterioration. Replace as needed.

3. Position your B&C battery in the battery box/holder and fasten firmly.
   ***Note:** It is best to mount the battery upright, but it can be laid on its side if necessary. In aerobatic aircraft, it is very important that the bracket holding the battery down spreads the clamping loads evenly over the top of the battery. When you're upside down, this bracket becomes the base. Therefore, the clamping loads should be spread over the top of the battery just as evenly as they are spread under the battery.

4. Connect the positive cable from your ignition to the positive (+) terminal.

5. Connect the negative cable from your engine or chassis to the negative (-) terminal.

Charging Temperature:

All B&C batteries should be charged at an ambient temperature within the range of 40° to 95°F. Charging at temperatures below 32°F or over 104°F is not recommended; the battery might be deformed by heat, or not charged enough. Do not charge the battery in an air tight compartment.

Charging:

In your aircraft:

All B&C batteries should be charged at 14.6 ± .2 volts. Charging in excess of 14.8 volts will shorten the life of the battery. Charging at less than 14.4 volts increases the time required to reach full charge. Because of this, it is very important that you have an adjustable voltage regulator.

To set an adjustable regulator to charge at the correct charging voltage:

1. Connect a hand-held digital voltmeter directly to the battery posts.

2. Run the engine with the alternator turned ON; most equipment in the aircraft turned OFF; and adjust the regulator until the voltage at the battery reads the appropriate voltage.

   *This is a good time to check the accuracy of your panel mounted voltmeter.

Charging:

With a battery charger:

If you use a regular automotive or motorcycle battery charger (including trickle chargers), you will shorten the life of the battery. Most chargers will start out at around 13 volts, but as the battery reaches a fully charged condition, the voltage will increase until it reaches 15 to 16 volts.

If you want to use a charger without shortening the life of your battery, you have two options:

1. Use a regular automotive charger, monitor the voltage it is charging at, and remove the battery from the charger when it reaches 14.6 volts.

2. Use an automatic charger which has additional electronics built-in to automatically limit the charging voltage. You would need to adjust the charger to shut OFF at 14.6 volts. Chargers which switch to a "Float" or "Maintenance" mode as the battery reaches full charge are usually acceptable. Check that the float voltage is 13.8 volts. This voltage may be left on the battery for extended periods of time. If you would like to purchase an automatic charger, we have battery chargers available with voltage limiters.

Deep Discharge:

These batteries have good deep discharge recovery capability. However, if the battery is repeatedly discharged below 10.5 volts, the battery life will be shortened due to developed sulfated oxide, making it very difficult to recover. If the sulfation condition is well developed, it may not be possible to achieve full capacity. This condition is not a warrantable claim as it is not the result of a factory manufacturing defect but abuse or neglect in the application. Therefore, we do not recommend using the BC103-1, 12AH battery on aircraft not equipped with an alternator. Furthermore, we do not recommend using either the BC103-1, 12AH battery or the BC116-1, 16AH battery on aircraft equipped with PM (permanent magnet) type starters.

Deep Discharge Recovery Instructions:

1. With the charger connected attempt a full recharge. Monitor the battery temperature and if it should get hot to the touch (125+ F, 51 C), stop charging and allow the battery to cool.

2. Once at room temperature, reengage charging and allow to fully charge.

3. Test for capacity and if still low, discharge to 10.0 volts and recharge again and retest.

   A fully charged B&C battery will read 12.84 volts verifying a full charge.

Troubleshooting:

Any extra resistance between the battery and the starter can have a detrimental effect on how the battery-starter system operates.

Listed below are some common problems:

1. Starter cable smaller than #2 AWG copper wire.

2. Bad starter solenoid. If the studs rotate as the nuts are tightened, you lose 95% of the contact area. We recommend using a solenoid available from B&C (S811-1 or S702-1).

3. The bonding strap from your engine to the airframe can be too small. The bonding strap should be the same size as the cable that supplies the (+) power to the starter.

4. The resistance of your steel airframe which is used as ground back to your battery negative terminal is the source of more resistance than most people would think.

5. A long starter cable. The shorter this cable is, the less resistance.