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RC REPORT

BATTERY SAFETY TIPS FOR YOU AND YOUR CUSTOMERS

Although there are still a few holdouts, electricity has gained a decisive position as the primary power source for model aviation. Even for the glow fuel and gas planes, batteries are needed for receivers and ignition systems and, of course, our transmitters.

Proper battery care is vital to maintain battery health over the long term. Hobbyists, especially those with multiple vehicles and batteries, will need the proper tools, such as a high-quality multi-chemistry charger/discharger for this maintenance. Soldering irons, heat shrink and connectors are also useful. Your shop will need to supply quality chargers and advice, and if possible, the added value of battery maintenance and repairs.

I have multiple go-to chargers: A high-power dual unit from HRP and a medium power unit from Hitec. Both perform great on or off the field, but more often I use the Hitec on the bench to test and prep batteries. The Hitec's PC interface and front panel menus are very intuitive.

If your customers hang up their RC gear for the cold season, proper battery preparation and storage are essential for a smooth start for the next season.

Another cold weather top tip: Don't allow batteries to freeze. If you do, their power output will be significantly reduced.

In the RC world we see the following types of batteries: NiMh, LiPo, LiFe and to a lesser extent, NiCad. Though there are some hold-

outs, NiCads have mostly faded away due to environmental issues and their maintenance needs. NiCads can follow the NiMh process if needed.

NiMh batteries are usually found in ground and water vehicles. They are rugged and can be abused with minimal consequences so they are a great starter battery. They're still popular with aircraft flight and ignition packs, although LiFe and LiPos are becoming more dominant.

When first used, NiMh packs need to be cycled, or charged and discharged, multiple times before they provide maximum power. This is evident when your customer returns with the holiday gift that is "broken, it ran for 30 seconds and died" syndrome.

A good charger can prevent headaches for you and your customers. The Hitec RDX Series Charger easily cycles batteries. I suggest you keep a small stash of prepared batteries for sales with new vehicles. Note that the charger must be set for the correct battery type. Always refer to the manual for settings and verify all is correct when performing any functions with the charger. Never set up a process and leave it unattended! The chargers are smart, but bad things could happen if a battery has an issue.

Cycling is the process of charging and discharging a battery multiple times to draw out its maximum capability. It is usually done five times but could take more. Say you have a 2200ma 6 cell NiMh pack. I would set up the Hitec charger to charge at 2200ma (1C or 2.2amps) and discharge at 2200ma (2.2amps). The rated battery capacity is what power it can provide for an hour. Note that most discharge capabilities are around 50 watts. With larger voltage packs, you will not be able to use the 1c rated discharge, so try dropping it by 1/10 the rating until you get the amps you programmed. Dropping the discharge rate by 1/10 adds 6 minutes to the discharge time. The cycle mode on the charger will display a charge time and a discharge time for each cycle.

During this process, the first few cycles charge times will be much less than 60 minutes. This is what your customers experience the first time out. As you progress through the remaining cycles, the time to discharge and charge will increase and be very close to or greater than the battery capacity. Then do a final charge and have these batteries for sale at your shop. You and your customers will be happier.

New LiPo and LiFe batteries do not require the same cycling process. However, as a battery ages, cycling can be beneficial to see if the battery has degraded in capacity. The same process is used, but you will focus on the amount the capacity has diminished from the labeled value.

Let's talk about storage. NiMh and NiCads will need to be cycled a few times during the offseason to maintain their health. Every month or two is a good rule of thumb. Older NiCads were notorious for developing memory if they were charged without a discharge cycle. NiMh batteries corrected 90% of that problem, but both types should be cycled during the off-season for the best performance.

LiPos and LiFe packs, if not used for a long time, should be put into Storage Mode, using the function on the charger. This step discharges the battery to about 75% of the full charge. Store them in a cool, dry place and use a fireproof container for added safety. A hot location, in my experience, can cause a pack to swell or puff. If any pack shows this condition, it should immediately be taken out of service and disposed of safely.

As my mom said, "A little knowledge can be Dangerous!" Well, with some of the new batteries' chemistries, this could be true. Put safety first and respect them, and they will perform well. **HM**

