Emergency Safety Alert: Lithium Battery Fires (Added 4/23/04)

Lithium batteries are becoming very popular for powering the control and power systems in our models. This is true because of their very high energy density (amp-hrs/wt. ratio) compared to Nickel Cadmium (NiCds) or other batteries. With high energy comes increased risk in their use.

The principal risk is *fire*, which can result from improper charging, crash damage, or shorting the batteries. All vendors of these batteries warn their customers of this danger and recommend extreme caution in their use.

In spite of this *many* fires have occurred as a result of the use of Lithium Polymer (Li-Poly) batteries, resulting in loss of models, automobiles, and other property. Homes and garages and workshops have also burned.

A lithium battery fire is *very* hot (several thousand degrees) and is an excellent initiator for ancillary (resulting) fires. Fire occurs due to contact between lithium and oxygen in the air. *It does not need any other source of ignition or fuel to start*, and burns almost explosively.

These batteries must be used in a manner that precludes ancillary fire. The following is recommended:

1. **Store and charge in a fireproof container**, never in your model.
2. Charge in a protected area devoid of combustibles. Always stand watch over the charging process. **Never leave the charging process unattended**.
3. In the event of damage from crashes, etc., carefully remove to a safe place for at least a half hour to observe. Physically damaged cells could erupt into flame. After sufficient time to ensure safety, damaged cells should be discarded in accordance with the instructions, which came with the batteries. **Never attempt to charge a cell with physical damage** regardless of how slight.
4. Always use chargers designed for the **specific** purpose, preferably having a fixed setting for your particular pack. Many fires occur in using selectable/adjustable chargers improperly set. Never attempt to charge lithium cells with a charger that is not specifically designed for charging lithium cells. **Never use chargers designed for NiCd batteries.**
5. Use charging systems that monitor and control the charge state of each cell in the pack. Unbalanced cells can lead to disaster if it permits overcharge of a single cell in the pack. If the batteries show **any sign of swelling**, discontinue charging and **remove them to a safe place—outside**—as they could erupt into flames.
6. Most important: **NEVER PLUG IN A BATTERY AND LEAVE IT TO CHARGE UNATTENDED OVERNIGHT.** Serious fires have resulted from this practice.
7. Do not attempt to make your own battery packs from individual cells.

These batteries *cannot* be handled and charged casually such as has been the practice for years with other types of batteries. The consequence of this practice can be very serious and result in major property damage and/ or personal harm.

—AMA Safety Committee