Electric Starter Effect on Glow Plug Operation and Engine Starting

Cox TD .051/H engines usually start easily, but some LMH-100 fliers have reported difficulties starting their engine even after reviewing the Engine Trouble Shooting section in the LMH-100 Operator's Guide. Some mention that their engine starts easily by hand when run on a bench with a propeller, but will not start in their LMH-100 helicopter.

On-going difficulty with engine starting is often a sign of a field-equipment problem. Many R/C fliers have a field box with a small 5 Ah Motorcycle battery that is used to light the glow plug and turn the electric starter motor when starting the engines in their models. Common electric starters are designed to start .40 and .60 sized engines, and therefore draw high current from the field box battery.

Even though a glow plug may appear to glow orange (hot) when connected to the field box battery by itself, it may cool substantially when the electric starter is operated. This means that the glow plug will stop working just as the starter motor begins to spin the engine, so the engine may not start. The plug will heat up again when the starter motor is turned off, making it appear as though the plug is working properly.

To see this effect, plug a glow plug clip and a standard electric starter into a power panel. Connect the glow plug clip to a glow plug, and cup your hands around the plug to keep it out of direct sunlight. The coil should glow bright orange. BE CAREFUL, THE PLUG WILL GET HOT QUICKLY.

Turn on the electric starter. If the field box battery is small, old, or low on charge, the plug coil will cool and stop glowing. Turn off the starter and the plug will again glow orange. Also try operating the starter in one second pulses. Notice that the glow plug remains hot longer if the starter is pulsed.

The following are suggested to detect/correct equipment-related engine starting problems:

1. Test glow plug with electric starter running
2. Recharge field box battery before every flying session
3. Replace old (worn-out) field box battery with new battery
4. Run large starters in short (one second) pulses.
5. Connect field box battery to a car battery for higher electrical current.
6. Use a smaller starter made for starting small engines
7. Power glow plug and starter with separate batteries.
8. Shorten leads on glow plug clip to reduce the electrical resistance caused by long wires.