Electric Motors versus Gas Engines

The Great AeroModelling Debate

Contributed by Janice Angus

NOW THAT daylight saving has ended it is time to reflect on the fact that our summer flying season is rapidly drawing to a close. The days are getting colder and the wind chillier, with the opportunity for outdoor flying activities about to become severely curtailed. Thoughts turn toward planning the new plane building projects and repair schedule for the winter to while away the hours indoors. Perhaps this is a good opportunity to consider electric power – cross over to the "dark side" and embrace the growing phenomenon that is the electric powered model aircraft.

Electric motors for model aircraft have been around for some time but more in the fringe interest group arena. Some of these were specially adapted from electric drill motors or similar small battery operated appliances. At best, the performance and endurance of many of these early examples was marginal.

In the last few years electric aircraft have been growing more and more popular due to the fact that they have become more affordable, smaller, lighter, with increased power and speed capabilities, and are more readily available. Today many popular models can be purchased off the shelf with minimum construction required. These rugged plug and play aircraft kits are ideal for the learner as they are virtually indestructible, with many being built of EPP (a robust, heavy duty type of polystyrene like material), and easy to fly.

The development of the lithium polymer battery has been a major advance for electric model flying. These battery packs are lightweight, relatively quick charging and give extended flight duration. As they become more main stream, they are now cheaper to purchase which means you can afford to buy multiple packs to ensure longer flights.

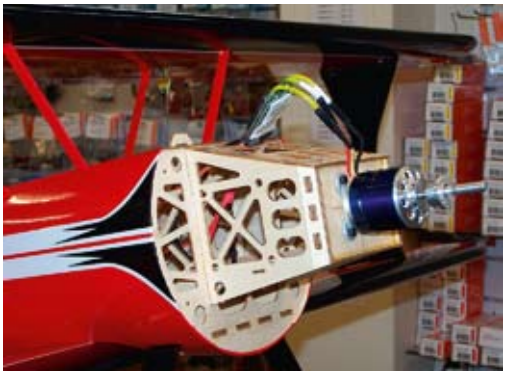
Recent advances in electronic technology has seen the availability of more powerful brushless in-runner and out-runner motors, Electronic Speed Controllers (ESCs) and a wider spectrum of battery packs.

There are distinct fundamental differences between flying electric and gas powered aircraft. Many spirited debates have occurred between "glow fuel devotees" and the "electron junkies" on the merits of one form of power over the other.

David Chan and Ian Lewis. "Trojan's Rule"

DC-3 airborne. Yes it is electric.

Ian Lewis hand launching his Mustang.



Don't let the size fool you. Small but powerful.

The main advantages to electric motors are that they are clean to run - no oily, sticky residue smeared all over your aircraft. They are quieter, so less likely to disturb nearby residents - particularly important when flying in urban park areas. You do not have the potential for "dead stick", the motor will not cut out unexpectedly as can be a factor with gas engines. Electrics are easy to start. There are no hassles with glow plugs, starters, priming your motor or need to flick the prop. For scale and more authentic models you are more likely to be able to fit the engine inside the cowl, so no need to have the exhaust or carburettor protruding and spoiling the appearance of the model.

More and more dedicated electric model aircraft kits are becoming available but if you feel inclined, it is relatively easy to convert a gas powered kit to run on an electric motor. There is no doubt that electric powered model aircraft are here to stay and will become more prevalent and continue to grow in popularity.

On the down side, buying the initial power train (motor, speed controller and battery packs) can be quite expensive. A good quality charger is essential but as it is a one off purchase you can expect to get many years use from it. Many electric flyers justify the expense of the batteries as a case of "purchasing all your fuel at once" compared with gas powered aircraft where the cost of fuel is an ongoing expense.

That said, there are many who are passionate about flying with gas powered engines and would never consider an electric powered model as anything but a fad and a toy. They enjoy the challenge and mechanics of getting that gas engine finely tuned and performing at its optimum. Many gas engines actually sound quite authentic and are a joy to experience in the small scale or larger type models. Some electric motors, when flying at speed, sound like demented mosquitoes and can be equally irritating to bystanders. Gas powered aircraft will continue to be the preferred option for many flyers and I expect model aero clubs will see examples of both types of aircraft being flown as a normal occurrence.

The world is turning towards more environmentally friendly products and this trend is reflected in all aspects of daily life. The perception of having a "clean, environmentally friendly pastime" with electric powered models may even bring more people into the sport and that is a good thing. It's great to have choice and different options – this is what keeps aero modeling such an interesting and vibrant pastime.