Electrical Maintenance at Aeromotive

PILOTS GENERALLY understand that all is well when the engine continues to consume fuel and create the correct amount of noise. It is often the parts attached to the engine which don't produce noise that can become a cause of concern. Such items related to the electrical well being of an aircraft provide good reason to find a competent electrical shop.

Hamilton based Aeromotive have overseen the general aviation electrical requirements of both fixed wing and rotary aircraft in New Zealand for more than 25 years. Today the electrical bay is busier than ever servicing the requirements of an industry not only from the wider Waikato but nationwide. Under their Part 145 certification, Aeromotive also have the capability to service aircraft beyond the 5700kg category - including supporting the Aeromotive operation at Ohakea that services PAC CT4Es and Beechcraft B200 KingAirs on lease to the RNZAF. Aeromotive also has a contract to service the nearby training fleet at CTC Aviation which has an increasing number of late model Diamond aircraft equipped with very modern technology.

The electrical bay is headed by Chuck Osborne who gained his experience in Zimbabwe and more recently South Africa. Chuck brings experience as a line engineer specifically covering electrical components, radios and instruments. Larger aircraft he has catered for range from DC9 through to Gulfstream 3, as well as Embraer EMB 110 and 120 series. He is assisted by Ross Weinberg who has a wealth of experience in aircraft electrical loom layout, repair and overhaul.

Chuck recognises there are economies of scale involved in a general aviation workshop. He notes that if the factory manual is on hand then there is every chance the defective unit can be returned to service. His exposure to working in resource strapped locations and on components from Eastern European manufacturers has added a wealth of experience in fault diagnosis. Chuck is well able to ascertain when certain units are cost effective to repair.

The electrical bay is often called upon to support Aeromotive's engine overhaul shop for servicing starters, generators and magnetos. An extensive associated stores facility enables a wide range of commonly used items to be held in readiness. This along with usual fare of generator control units, actuators, flap and landing gear motors make up the bay's broad workload.

A broad scope

Work in the electrical bay is not limited to fixed wing aircraft. There is considerable interaction within the group of companies of which Aeromotive is a part.

'Chuck' Osborne at work in the Aeromotive Electrical Bay: Running up a freshly overhauled generator (above) and making repairs to the circuitry of a rudder trim actuator (below).

Aeromotive's sister company Oceania Aviation carries out overhauls for helicopters and forwards its completed starter generators to the Hamilton shop for testing prior to release to service. This reinforces the move to concentrate related test and development equipment at the Hamilton site.

Tighter economic times bring customer relationships closer to shop. Dialogue has moved from, 'fit a unit and let's be out of here', to ascertaining what is best for the customer in the long term. To overhaul a component in house may not be economic and the alternative to fit an already overhauled or new unit may sometimes be a better option for the customer. Chuck says that "It's not necessarily a customer demanding a certain course of action, it's more from this side giving the customer enough information to make a more informed choice. I need to have done the homework and lay out these options. As a result of this action the bay is very sharp on its costings for work in this facility."

Service engineers in the field benefit too from this greater attention to customer needs. Chuck notes an increasing amount of diagnosis either over the phone or otherwise and the offer of testing units and supplying a suitable report for other sectors of the industry is increasing.

Aeromotive has long had a comprehensive set of test rigs for generators, starters and magnetos. A very recent modification to the starter generator rig is in the form of a variable current input controller. This enables a wider rpm range to be utilised. Where a starter/generator is to be tested at 12,000 rpm an overspeed function test to 14,000 rpm (and higher if required) is now possible. A similar variable current controller has also been fitted to the magneto test rig.

For general aviation Aeromotive believes it is steadily covering the field. "There is expanding interest from the wider community," says Engineering Manager Brett Puddle, " but we need to look to the future and this involves a certain amount of planning and setting up of both processes and procedures to deal with the next generation of general aviation and recreational aircraft, both large and small."

"While that part of the industry steadily grows there is also the opportunity to utilise our Part 145 capability to more advantage. Larger aircraft are of particular interest and there are moves afoot to increase the amount of heavier aircraft, particularly in the KingAir and similar types. Where there are service requirements to carry out maintenance reviews and ARAs the side shops will benefit. This is not only good for the financial health of the company but staff benefit with exposure to a wider range of aircraft and their associated systems."

For more information

Contact Brett Puddle on 07 843 3199, email: brett.puddle@aeromotive.co.nz or visit **www.aeromotive.co.nz**