Before and Beyond your Engine Change

When the time comes to change an engine, there are many more considerations to make beyond the options of new versus exchange versus overhaul. A primary consideration is the choice of maintenance provider for carrying out the exchange and whether their philosophy and approach to the job is the best fit for your long-term (or short-term) ownership plans for the aircraft. KiwiFlyer recently spoke with Peter McCarty at Hawker Pacific Ardmore regarding the issues to consider and opportunities that are available to aircraft owners at engine change time.

THE FIRST option to consider for many operators is the lowest cost approach of a basic engine out, engine in, fly-away again deal. Hawker Pacific currently offer just such a deal for Lycoming and TCM engines (new, exchange or overhaul) purchased through them. Installations costs can be as low as $2290+gst fly-away.

There's much more to consider during an engine change than just the engine. Opportunities abound for preventative maintenance and future cost saving.

Making the most of the process

Of course, other necessary maintenance may be uncovered during the exchange process. As well as this though, Peter points out that an engine exchange is an ideal opportunity to undertake optional surrounding area work that can be done very economically while the engine is removed from the aircraft. This is a time to make the most of preventative maintenance opportunities and of caring for components that you wouldn't normally address until more serious (and costly) problems arise.

For example, evaluate the condition of the engine mounts/frame and mounting bolts, bearing in mind that these bolts are subject to the full thrust and torque of the engine. At the same time, closely inspect and address any corrosion on the firewall.

Evaluate the condition of oil, fuel and air lines. Older aircraft may have copper pressure lines that harden with time. A few extra dollars spent now while everything is accessible may pay a handsome dividend in avoiding a more difficult exercise later. Be aware too, that some mandated replacements may be required (Cessna 172 mixture and throttle cables for example). Consider also the condition of magneto and alternator wiring and shielding as well as whether this is a good chance to replace instrument senders, especially if they are known to give trouble over time. It may also be worth taking a close look at the aircraft fuel system and flushing the tanks as a preventative maintenance measure.

Consideration should be given to overhauling baffle systems. It is a missed opportunity to fit a new engine and still have the same old cooling and heating problems. This is a time to address baffle integrity, corrosion (and erosion), and sealing, since it goes without saying that a well baffled engine will run cooler and last longer. It is also good to pay particular attention to exhaust gas flows to ensure gases can't invade the cabin, and to revisit any repairs that might have previously been made to exhaust systems on the aircraft.

Review the state of engine cowls for wear, fretting and chafing, as well as all fasteners. It may well be worth taking advantage of any STCs available to rectify identified problems in this area since some such fittings can be quite inaccessible once the engine is back in. Also check the life remaining on ancillary components such as vacuum pumps, air conditioning units, alternator, etc. Replace belts and fit spares if desired.

Given the aircraft is having major maintenance, to help minimise future downtime it may be worth updating the ARA or avionics inspections if nearly due.

Especially for higher performance engines, give some thought to recalibrating some of the performance indicating gauges such as manifold pressure, fuel flow, oil pressure, cylinder temperature, etc. You don't want to base your engine health monitoring or new engine setup process on faulty readings and it is not uncommon for some older engine tachometers to under-read by 10 to 15%.

On the subject of performance, consider also the state of the propeller. The best performance return on your new engine will only be achieved if the propeller is in good condition.

Once the new engine is in, take appropriate post installation care by using specified running in oils, power settings and flight practices. If this and the above issues are adequately attended to, an engine change can facilitate extended component life and reduced ongoing maintenance costs well beyond that achieved by the engine change alone.

Maintenance for the long term

Peter says that he is quite able to meet the needs of a customer who wants a quick engine swap and to fly away the next day. In fact, Peter recalls performing one such exchange on a beach with a hiab crane borrowed from the local power company. However, with a desire to see long term customer satisfaction from proper maintenance care and reduced ongoing costs, the quick swap option is a little "against the grain".

The team at Hawker Pacific have a wealth of maintenance experience and can fit an engine to "anything we have sold it for". The advantage of their experience is that operators can expect good advice on preventative maintenance options, even if their preference remains for a "bare bones installation" at minimum cost. Peter says they are happy to accommodate the requirements of different owners and operators – private owners may well want to reduce cost in the short term, whereas commercial operators often need to reduce downtime and minimise long term costs.

For more information

As Lycoming and TCM resellers, Hawker Pacific are directly backed by the manufacturer and can fully administer factory warranties, spares requirements, and support programmes. Contact Hawker Pacific at Ardmore on 0800 429 722 and speak to Peter about the maintenance aspects of your engine change requirements, or to Tony for factory new, exchange and overhaul Lycoming and TCM engine pricing.
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