

Engine escalation

by Robin Campbell

No, that is not putting a P&W R-985 into a Tiger! This new term is what we currently understand as the operation of engines beyond TBO (time between overhauls).

Many of you will be aware that some significant changes to CAA Rules Part 91 (General Operating and Flight Rules) came into effect on 30 March 2007. Those changes will have an impact on the way we maintain light aircraft, one area affected being the operation of engines beyond their normal overhaul life. That has been managed on a very informal basis in the past.

Gipsy Majors have commonly operated well beyond their usual engine overhaul life until either rising maintenance costs make it uneconomic to continue or else a major component failure occurs. During that process of arriving at the TBO level, the engine would have undergone several top overhauls and major component replacements, and this process in the past has been approved by the CAA under the scope of Advisory Circular AC 43-5A.

What has changed from these past arrangements is the introduction of requirements brought about by the revised Rule 91. It now obliges operators to comply with manufacturers' schedules with respect to engine life. You can escape this only if you have an escalation programme acceptable to the Director — that is what the Tiger Moth Club is now doing.

Gipsy Major engines, which traditionally have an overhaul life of 1500 hours and no calendar life imposed, fall into three categories as they enter the escalation process.

1. An engine that has more than 300 hours to go to the manufacturer's overhaul life. (i.e. less than 1200 hours since overhaul). With these engines it should be a relatively easy task to commence entry into the escalation programme by following the monitoring procedures we propose.
2. An engine that is currently operating within 300 hours of the overhaul life (1200 to 1500 hours since overhaul). These engines should still be able to enter the programme with heightened monitoring procedures prior to entry at TBO.
3. An engine that is currently operating beyond the manufacturers overhaul life (more than 1500 hours since overhaul). These are a little more difficult to accommodate. A transitional programme needs to be established to accommodate this group during the introduction process of the rules. These engines may well be capable of extension but have not had the monitoring regime established and analysed. A more intensive monitoring and management process will need to be employed.

Note: Engines in the second two categories will evaporate as the full process of the escalation programme becomes established.

In essence, you need to constantly monitor the health of your engine as it progresses through its life prior to reaching TBO. There are several ways this can be accomplished and the cost is low and the task relatively uncomplicated.

The important consideration is that all of this must be documented to support the case for your engine to be approved. The best you can do as an individual owner is to commence monitoring your engine to ensure the preliminary steps are in place to gain extension of your engine operations beyond 1500 hours.

The Tiger Moth Club has completed the planning of the

processes of how we would wish to manage an escalation process for Gipsy engines. The next step is to gain CAA approval of that process, and that approval will be sought shortly.

There is nothing to stop you getting your own approval from the CAA, but the costs will be quite high. We intend to establish a group approval that will cover all members who comply with the steps we have developed and wish to participate. It will be along similar lines to the AOPA scheme for Cessna aircraft.

In the first instance we need to get a feel for what engines are out there, how many hours they currently have on them and the hours that you do annually. We can then have a database of information to manage. At Taumarunui I will have forms you can complete so that we can get the database up and running.

Others can send me the following information — Aircraft registration, engine installed & serial number, current engine hours, anticipated annual utilisation, contact person and address. It will also be invaluable for the maintenance programme outlined on page 4.

Auster bungee replacement

With the recent and much regretted demise of ZK-AYO through an undercarriage bungee breaking and sending the Auster a-hedging and a-ditching, this little item nipped with acknowledgement and thanks from the Antique Aeroplane Association of Australia's latest *Rag & Tube* magazine, seems timely:

Those Auster owners who have been members of the AAAA for some time will have seen various methods described in *R&T* for replacing the undercarriage bungees.

One of the most popular, because it needs no special equipment, involves placing a long pole through the cockpit with a stepladder fulcrum on the other side. One loop of the bungee is placed on one bobbin and a piece of seat belt webbing or similar material is looped through the other end and tied around the pole. By heaving the pole upwards, the bungee is stretched to a point where it can be levered onto the other bobbin.

Even with a good long pole, the effort required to stretch the bungee is substantial and holding it there while somebody levers the bungee onto the bobbin can strain even the most robust back muscles.

I was confronting this task with Harvey McBain at Nelson last March. He reassured me that his wife would be able to assist me with stretching the bungees. Having done this task a couple of times before, I wasn't so sure and wasn't looking forward to it. Then I spotted Harvey's hydraulic engine hoist lurking in the back of the hangar, and the problem disappeared!

So there it is, the ultimate Auster bungee replacement method. Simply use the engine hoist to raise the pole. You can do it nice and slowly and take all the time you need to place the bungees into position. No more struggling and gasping crew members on the end of the pole with panicky engineers trying to get the rubber onto the bobbins as quickly as possible. No more perspiration. No more strained backs!