



Piston Engine in-flight Failures to Return!!!!

Australia's civil aviation safety hasn't happened by accident. Over many years, regulators have tweaked regulatory requirements over the years to address safety issues to bring about Australia's excellent safety record.

To change a regulatory requirement, internal CASA research of the particular requirement file to find the reason for including the regulatory requirement in the first place happens.

CASA files record exactly why a regulatory requirement is amended, added or removed from the regulatory system. To remove a current regulatory requirement, it was the practice to ensure safety would not be lowered by recording an in-depth safety case on the file.

CASR Part 43 is proposing a change that will resurrect a system that caused aircraft accidents, some fatal. In fact, the proposal will enable the AMTC Class 1 to "overhaul" a piston engine. Australia's past experience results, when a LAME could do this, was not a safe environment.

To reduce/stop the accidents, Schedule 7 was amended to prevent the splitting of the crankcase by a LAME.

I know the reasons, as I was one that investigated a fatal aircraft accident due to engine failure. The engine was "overhauled" by an individual LAME.

It is now proposed in Part 43 MoS for an AMTC1 privileges to be broader than a current Part 66 B1 with piston engine rating.

AMTC means an aircraft maintenance technician certificate.

- **AMTC1** means a **class 1** aircraft maintenance technician certificate.
 - for kinds of maintenance activities

MoS Example: *If the AMTC1 is for the purpose of overhauling an aircraft engine, aircraft propeller or other aeronautical product and approval of its return to service – provide documents that show that the applicant has or has access to:*

- (i) *the overhaul data that applies for the overhaul and*
- (ii) *premises for carrying out the maintenance that provide for protection from environmental damage or contamination and*
- (iii) *any special tools or testing equipment that the overhaul data specifies for use.*

Reintroduction of past practice that was the reason for many accidents, some fatal.

Based on an in-depth safety study by the Authority, pre-CASA, Schedule 7 was amended to stop these engine failures caused by LAME maintenance. Basically, the Authority adopted the FAA system with a bit more clarity – **accidents were reduced noticeably**.

FAA Comparison: *“In most cases, an FAA-certificated airframe and powerplant (A) technician can legally ‘overhaul’^{***} your piston aircraft engine and return it to service, **providing it doesn't need any major repairs**. FAR Part 43, Appendix A (b)(2), states a **major engine repair** is one of three things: (i) **Separation or disassembly of a crankcase or crankshaft** of a reciprocating engine equipped **with an integral supercharger**; (ii) **Separation or disassembly of a crankcase or crankshaft** of a reciprocating engine equipped **with other than spur-type propeller reduction gearing**; and (iii) **Special repairs to structural engine parts by welding, plating, metalizing, or other methods.**”*

*****Note:** the FAA interpretation of “**overhaul**” specified in FAR 43.2 para (a)(1) and (2), state: *“unless it has been disassembled, cleaned, inspected, **repaired as necessary**, and reassembled.”*

“**Overhaul**”, as defined in the Macquarie Dictionary, is described in the FARs as “**rebuilt**”. Without splitting the crankcase, it is what was commonly referred to as a “top overhaul”.

Proposal not harmonised with FARs.

Note: The provision that prevents the FAA A&P technician from **splitting the crankcase** is in FAR 65.87 **Powerplant rating; additional privileges** para “(a)..... *inspected its maintenance or alteration (excluding major repairs and major alterations).*”

Note: The same applies to **propellers** under the FAR System. FAR 65.81, specifically excludes certificated and rated airframe and powerplant mechanics **from performing major repairs and/or major alterations on aircraft propellers.**

In other words, CASA is totally ignoring past history and is proposing that the AMTC1 can split a crankcase, but the qualified certificated A&P technician cannot split the crankcase, neither can the LAME as long as Schedule 7 exists.

FAA AC 20-37E Aircraft Propeller Maintenance states for example: “Penetrant inspection on propellers is conducted in a rated repair station”, and

“Confirmation of airworthiness requires complete disassembly and inspection of the propeller by an **appropriately rated propeller repair station** in accordance with the propeller maintenance manual.”

“**14 CFR part 145, section 145.201**, provides that an appropriately rated repair station may perform such major repairs or alterations provided the work is done in accordance with technical data approved by the Administrator. Part 145 also **specifies the personnel qualifications** and other requirements **applicable to propeller repair stations.**”

These phrases appear in FAA ACs for both engine, propeller and component maintenance.

The following FAA statement is also of interest.

“In the case of shops not operating as a repair station, i.e. not approved under Part 145, often the only time the FAA gets involved with an individual mechanic is by specific complaint or an aircraft accident! **In the case of problems with an overhaul, the FAA cannot proceed against the company, only the individual.**

Beware, the company may attempt to lay the blame at the feet of the mechanic who signed off the overhaul. It will cite FAR 43.7 laying the responsibility on the individual because the company is NOT certificated.”

Note: We assume CASA would take the same action.

In accordance with the **FAA Repairman Certificate Portability Final Report 2 June 2024**, the Repairman certificate will be replaced with a **Limited Maintenance Certificate.**

In other words, a limited licence under CASR Part 66. E.g. B1.2 limited.

CASA approach is uniquely Australian and cannot be based on a safety case or past experience within Australia or in the USA or EU.

Where is the “reduction of accidents” mentality they supposed to have?

Where is CASA’s safety case to override the Authority’s previous safety case that implemented similar FAA restrictions and included these provisions in CAR 1988 Schedule 7 after numerous engine failures, some fatal, in Australia?

- What economic effect will this have on current CASA approved engine & propeller organisations?
- Will certificated aircraft, engines and components be able to be used on Part 42 aircraft?
- Will foreign NAA accept Australian aircraft maintenance certifications if an aircraft is sold off-shore?

Insurance, required for FAA maintenance FBOs, is not even mentioned.

We all know the economic pressures that individuals come under by owners of aircraft.

We know whatever we have raised will be ignored and the provisions of the MoS will be made.

Why would anyone want to work in this industry and accept individual responsibilities and personnel liability that is being imposed by changing requirements?