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Resurrection of CASR Part 43

Proposal: Adopt/adapt FAR Part 43 and applicable FAR Part 91 requirements.

When the regulatory format was first adopted in the late 1990s, the decision to adopt the FAR regulatory framework structure was made for many reasons, one being that the FAR system applied to the far majority of the aircraft on the Civil Aircraft Register, especially the ageing general aviation fleet. FAR Part 43 is the core of the FAR system with regards to airworthiness and maintenance – it includes inspection and maintenance standards not included in our current system. (CAR or CASR)

A review of the general aviation aircraft fleet in the late 1990s determined that the fleet was not being maintained to the continuing airworthiness and maintenance requirements specified by the State of Design/Manufacturer for the majority of the aircraft on the CASA register. Research clearly verified that US manufacturer's manuals regularly reference the FARs to support their continuing airworthiness and maintenance requirements, including inspection standards, in particular FAR Parts 43 & 91. Manufacturers' data is subservient to these regulatory requirements.

CASR Part 43 is still in the CASR framework marked (reserved).

Ageing aircraft, low maintenance inspections standards, corroded aircraft, frayed cables, etc. etc. would not be an issue today if FAR Part 43 & applicable Part 91 requirements were part of our regulatory system. They were consulted & accepted by industry in 2002. It was CASA that opposed this sector's preferences for FARs.

FAR Part 43 is founded on performance based requirements and is very clear who is responsible, such as AMO, AME & LAME, to ensure aircraft are airworthy and serviceable before being returned to service.

Without FAR Part 43, the majority of the aircraft fleet being maintained to ***CAR Schedule 5*** or ***aircraft manufacturer's schedules*** are **inspected to lower standards** than what is promulgated in the FARs. (Refer CAAP 42B-1, paragraph 6.2 and on)

FAR Parts 43/91 aircraft requirements are also complementary to CASR Part 21 which is also based on FAR Part 21.

General aviation aircraft maintainers and operators still fully support the adaption of FARs Parts 43 & 91 as the basis for the non-major airline airworthiness control and maintenance requirements. Reiterated by associations and industry consistently.

There are many reasons why the FAR system is superior to the Australian or European system for the non-major airline sectors. The major airline sectors are excluded from this submission even though we believe the FAR system is now a better, more cost efficient and safer system than EASRs which are not appropriate for general aviation.

The FAA general aviation safety record is second to none and the FAA supportive library is not large because of the clarity of these FARs. Their advisory material can be adopted by reference if needed.

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Background Information:

Most US manufactured general aviation aircraft maintenance manuals include references throughout the manual to FARs Part 43 and/or 91. However, the most missed reference contained in the preamble of most US manufacturers' manuals is a statement that the "*manual is a guide and does not override the regulatory responsibility of the airframe and powerplant mechanic*". i.e The LAME. In addition, there is no delineation in CARs/CASRs between "normal" and "detailed" inspections carried out by appropriate persons with the skills to determine airworthiness requirements.

The following are examples from US manufacturer's manuals:

Samples of US manufacturer's statements.

Cessna even include the manufacturer's 'get out of jail' clause in their SIDs:

> "*The **inspection guidelines contained in this section** are not intended to be all-inclusive, **for no such charts can replace the good judgment of certified airframe and power plant mechanics in performance of their duties**.*"

The Turbo Thrush has a similar clause:

> *"This manual **contains information** on aircraft systems and operating procedures required for safe and effective maintenance. **It shall not be used as a substitute for sound judgement of certified airframe and power plant mechanics in performance of their duties**."*

Hawker Beechcraft Bonanza clause:

> *"This **inspection guide is not intended to be all-inclusive**, for no such guide **can replace the good judgment of a certified airframe and power plant mechanic in the performance of his duties**."*

Just about every US manufacturer has such a clause somewhere in their manual. It shifts the responsibility for airworthiness to their LAME whether employed by an AMO or not. Pre 1990, Australian LAMEs had the same responsibility.

Those regulatory responsibilities contained in FAR Parts 43/91, especially the performance based requirements (PBR) in FAR Part 43 places responsibilities on the appropriate entities in maintenance.

The only way CASA can be confident that aircraft in Australia are maintained to the State of Design and Manufacture standards is to adopt, not re-write, FAR Part 43 into a CASR Part 43 MoS. FAR Part 43 PBRs are the world's best practice.

The FAR places the responsibility on their A&P mechanic/IA (LAME) to do the inspections/maintenance in compliance with the performance based rules in FAR Part 43 and "what/when" maintenance is required is specified in FAR 91.409 (continuing airworthiness and maintenance requirements for all aircraft). FAR Part 91 includes other "what/when" requirements currently included in CAO 100.5.

Major Benefit of adopting FAR Part 43.

Current AMOs/LAMEs contact US manufacturers on a regular basis seeking interpretations and technical advice to maintain the airworthiness of US aircraft and products. Under FAR Part 43, that technical advice is acceptable to the FAA to enable the manufacturers' technical advice to be used to keep their products airworthy.

Examples of Performance Based Requirements.

FAR Part 43.15 (a) (1) covers Part 91 – no reference to maintenance approved data, just airworthiness requirements when inspecting.

§43.15 Additional performance rules for inspections.

(a) *General.* Each person performing an inspection required by part 91, 125, or 135 of this chapter, shall—

(1) Perform the inspection **so as to determine** whether the aircraft, or portion(s) thereof under inspection, meets **all applicable airworthiness requirements**; and

(2) If the inspection is one provided for in part 125, 135, or §91.409(e) of this chapter, perform the inspection in accordance with the instructions and procedures set forth in the inspection program for the aircraft being inspected.

Australia has not had performance based inspection and maintenance requirements since pre 1990 when the "major inspection" was cancelled. Pre 1990, the requirements in ANOs/CAOs had included the FAR requirements except the FAA "annual inspection" was replaced by a 3 year "major inspection". The 1990 regulatory change adopted the FAR annual "major inspection" without the FAR processes and standards being applied.

e.g. FAR Part 43.13 is the normal performance based **"how to"** rules. It requires the use of manufacturers' data or FAA acceptable methods, techniques and practices. e.g. the FAA ACs. It encourages AMOs/LAMEs to consult with manufacturers. It would replace a multitude of current prescriptive and confusing requirements.

§43.13 Performance rules (general).

(a) Each person performing maintenance, alteration, or preventive maintenance on an aircraft, engine, propeller, or appliance **shall use** the methods, techniques, and practices prescribed in the current manufacturer's maintenance manual or Instructions for Continued Airworthiness **prepared by its manufacturer, or other methods, techniques, and practices acceptable to the Administrator**, except as noted in §43.16. He shall use the tools, equipment, and test apparatus necessary to assure **completion of the work in accordance with accepted industry practices**. If special equipment or test apparatus is recommended by the manufacturer involved, he must use that equipment or apparatus **or its equivalent** acceptable to the Administrator.

(b) Each person maintaining or altering, or performing preventive maintenance, **shall do that work in such a manner and use materials of such a quality**, that the condition of the aircraft, airframe, aircraft engine, propeller, or appliance worked on **will be at least equal to its original or properly altered condition** (with regard to aerodynamic function, structural strength, resistance to vibration and deterioration, and other qualities affecting airworthiness).

(c) *Special provisions for holders of air carrier operating certificates and operating certificates issued under the provisions of Part 121 or 135 and Part 129 operators holding operations specifications.* Unless otherwise notified by the administrator, the methods, techniques, and practices contained in the maintenance manual or the maintenance part of the manual

of the holder of an air carrier operating certificate or an operating certificate under Part 121 or 135 and Part 129 operators holding operations specifications (that is required by its operating specifications to provide a continuous airworthiness maintenance and inspection program) constitute acceptable means of compliance with this section.

Note: Para (c) above creates no change for operators using an approved maintenance program.

Industry has been lobbying for CASR Part 43, based on FAR Part 43, for the non-Part 121 operators for over 30 years and this would enable CASR Part 42 to be restricted to the major airline operators (CAMO requirements etc.).

Finally, the FAR Part 43 "standards" for performing maintenance, expanded in many US manufacturer's maintenance manuals, is contained in the "maintenance certification" aspects of FAR 43.2.

Terminology: The FAR word "***overhauled***" is our "***repaired***" and the FAR word "***rebuilt***" is our understanding of "***overhaul***".

§ 43.2 Records of overhaul and rebuilding.

(a) No person may describe in any required maintenance entry or form an aircraft, airframe, aircraft engine, propeller, appliance, or component part as being **overhauled** unless—

(1) Using methods, techniques, and practices acceptable to the Administrator, it has been disassembled, cleaned, inspected, **repaired as necessary**, and reassembled; and

(2) It has been tested in accordance with approved standards and technical data, or in accordance with current standards and technical data acceptable to the Administrator, which have been developed and documented by the holder of the type certificate, supplemental type certificate, or a material, part, process, or appliance approval under part 21 of this chapter.

(b) No person may describe in any required maintenance entry or form an aircraft, airframe, aircraft engine, propeller, appliance, or component part as being **rebuilt** unless it has been disassembled, cleaned, inspected, repaired as necessary, reassembled, and tested to the same tolerances and limits as a new item, using either new parts or used parts that either conform to new part tolerances and limits or to approved oversized or undersized dimensions.

Adopting the FAR definitions also aligns with manufacturers' manuals terminology.

Summary

The re-introduction of CASR Part 43, based on FAR Part 43, will regain industry confidence in CASA as it did during a previous open consultation during 1997-2002 when industry and CASA had come to agreement with implementing FAR based continuing airworthiness and maintenance standards to match the aircraft fleet.

The FARs associated with airworthiness and maintenance are homogeneous with USA aircraft and product manufacturers' maintenance manuals.

Without doubt, adopting and implementing the FAR aircraft and component airworthiness and maintenance provisions will lift Australia's regulatory airworthiness and maintenance standards back to safer levels.

The FAR system has clarity that the current system lacks. It is globally understood and used when maintaining US aircraft and products.