

Are our Aviation Regulatory Requirements ICAO Compliant?

In April 2007, AMROBA published an article on AMROBA's Association News, "Is CASA 'Unknowingly' Creating Unsafe Conditions?" This article questioned CASA promulgated requirements at that time. Has anything changed to set minimum airworthy standards? Basically, NO - **19 years of no action.**

Maybe it is better to phrase it another way, why have we different airworthiness & maintenance regulatory requirements to ICAO, NZ, FAA etc., etc.

CASA's "inspection standards" for GA aircraft is unique in the world. Extremely low standards promulgated in advisory documents because there is no regulatory standard.

US manufacturers' manuals do not override FAR airworthiness requirements. FAR 91/43 specifies the regulatory requirements, in addition to the manufacturers' manuals, to maintain US aircraft as airworthy. NZ has adopted those standards, why won't CASA.

Globally, GA aircraft inspections are normally based on the FAR "routine" 100 hourly inspection using inspection access panels and a "detailed" annual inspection by the IA that requires disassembly so the inspector can certify the aircraft structures and systems continue to comply with its applicable airworthiness requirements (i.e. design & operating standards).

CAAP 42B-1, amended January 2016

6.4 All items are to be **inspected for GENERAL CONDITION** together with specific requirements where nominated.

6.5 The term **GENERAL CONDITION** **includes, but is not limited to**, the following:

- correct operation, full and free movement in the correct sense;
- correct rigging, alignment and tension;
- appropriate lubrication;
- correct fluid quantities or levels;
- correct air and/or nitrogen pressures;
- security, cleanliness;
- wear is within acceptable limits;
- no loose or missing fasteners;
- vents are free from obstruction;
- correct clearance;
- bonding straps correctly positioned, undamaged and secure;
- **freedom from excessive:**
 - leakage;
 - corrosion, deterioration of protective treatments;
 - cracking and disbonds;
 - deformation, wear, scoring, chafing, flat spots and fraying;
 - obstruction or other obvious damage; or
 - burning, arcing or heat damage; and
- that hoses are within inspection and testing periods.

Add Schedule 5, para 2.7 Unless otherwise indicated in the table, where the table requires a thing to be inspected, the inspection is to be a **thorough check made to determine whether the thing will continue to be airworthy until the next periodic inspection.**

Contradictory statement when compared to the low standards in the CAAP. It is only a 'check' not a 'routine' or 'detailed' inspection. 'Check', 'routine' & 'detailed' all have aviation technical maintenance definitions not used in our regulatory standards or advisory material.

Safety under our system relies on the “duty of care” AMOs and LAMEs apply not the published “standards”. If we follow CASA’s standards, all aircraft could deteriorate to the point of being scrapped. GA does not have an ageing problem, it has deficient CASA GA airworthiness and maintenance standards.

A court last year accepted that this (CASA) CAAP’s standard means: *in the opinion of the person performing the inspection of the aircraft, it only has to be safe to fly for 12 months even though it is corroded and otherwise deteriorated, even if the next inspection may ground the aircraft for excessive corrosion, etc.*

No other regulatory system has such an inspection/maintenance standard. It does not comply with ICAO standards in Annex 8. AMROBA has made many submissions over the last decade to have this CAAP amended or cancelled. Never changes – CASA must think it is appropriate.

Compare CASA’s standard in the CAAP to FAR Part 43 – ‘NZ adopted the FAA standard.’

§ 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.**

The FAR correctly implements the ICAO standard in Annex 8 – i.e. **meets all applicable airworthiness standards**. This is explained as follows.

Airworthy. *The status of an aircraft, engine, propeller or part when it conforms to its approved design and is in a condition for safe operation*

Double barrel standard, conforms to design standards and is serviceable.

This CAAP inspection standards should be scrapped ASAP and replaced by a detailed annual inspection verifying the aircraft conforms to its design standards. The CAAP does not meet the international standard; nor does it meet the country of manufacture regulatory standards.

This should also apply to doing maintenance tasks without including any quality control of the maintenance or assurance that the aircraft is left in an airworthy state. In the past, pre 1990, aircraft had to be inspected and certified as being **airworthy** post maintenance being completed. Since 1990, this has not been a requirement. Annex 8 states:

Continuing airworthiness. *The set of processes by which an aircraft, engine, propeller or part complies with the applicable airworthiness requirements and remains in a condition for safe operation throughout its operating life.*

The current regulatory system does not require a LAME certification that the aircraft, or parts of the aircraft, complies with the **applicable airworthiness requirements**. There is no regulatory requirement to inspect/maintain aircraft and/or aircraft components to meet **airworthiness requirements**. Annex 8 states:

Appropriate airworthiness requirements. *The comprehensive and detailed airworthiness codes established, adopted or accepted by a Contracting State for the class of aircraft, engine or propeller under consideration (see 3.2.2 of Part II of this Annex 8).*

ICAO Annex 8 states: 3.5 Temporary loss of airworthiness. *Any failure to maintain an aircraft in an airworthy condition as defined by the **appropriate airworthiness requirements** shall render the aircraft ineligible for operation until the aircraft is restored to an airworthy condition.*

Our regulatory system does not require aircraft to be maintained in an airworthy condition. Look at the growing number of registered aircraft that do not fly. Should their certificate of airworthiness remain valid?

What is the foundation of safe aircraft maintenance? Ignoring the “what” and “when” for a moment, the person performing overhaul, repair, inspection, replacement of an aeronautical product, modification or defect rectification must be skilled and qualified to do the maintenance tasks.

- The higher the skills the lower the risk of induced errors and missed defects/discrepancies.

Maintain the aircraft in an “airworthy condition” means those performing repairs, inspection, modification and defect rectification need a very good understanding of the **appropriate airworthiness requirements** for each of these maintenance actions. In particular, the person performing inspections would need to understand the **appropriate airworthiness requirements** as the standard by which the inspection is carried out.

ICAO Annex 8 states: 3.2.3 A Certificate of Airworthiness shall be renewed or shall remain valid, subject to the laws of the State of Registry, provided that the State of Registry shall require that the continuing airworthiness of the aircraft shall be determined by a periodical inspection at appropriate intervals having regard to lapse of time and type of service **or, alternatively, by means of a system of inspection**, approved by the State, that will produce at least an equivalent result.

The periodic inspection for the annual re-issue of the certificate of airworthiness was replaced by an on-going inspection system that included the “3-year major inspection” and continual airworthy “stage” inspections that hardly exists in the regulatory airworthiness requirements today. Schedule 6, ‘stage inspections’ is a remaining requirement with no advisory material to explain the interaction with the validity of the certificate of airworthiness.

For a certificate of airworthiness to remain valid, as it is in Australia, then CASA must provide a periodical inspection approved by the State that will produce *at least an equivalent result* and an on-going inspection post maintenance to certify as airworthy. In other words, an fixed and on-going inspection system that ensures the aircraft continues to meet its **appropriate airworthiness requirements**.

ICAO Annex 8 states: 3.2.1 A *Certificate of Airworthiness* shall be issued by a Contracting State on the basis of satisfactory evidence that the aircraft complies with the design aspects of the **appropriate airworthiness requirements**.

Large aircraft manufactured utilising the MSG method of maintenance have included inspection tasks that meet the applicable design standards inspection criteria. However, other aircraft, including many in general aviation do not have such a detailed maintenance program because US manufacturers realise the FARs places that responsibility on the A&P mechanic holding an Inspection Authorisation to perform an annual inspection to ensure compliance with **appropriate airworthiness requirements**.

ICAO Annex 8 states: *On 7 October 2003, the Air Navigation Commission reviewed the recommendations of the Airworthiness Panel and in light of the observation that small aircraft of a maximum certificated take-off mass greater than 750 kg but not exceeding 5 700 kg are more engaged in international air navigation, it agreed to include in the Annex, for the first time, airworthiness standards for small aeroplanes, making the text of Annex 8 consistent with its international use.*

Repair. The restoration of an aeronautical product to an airworthy condition as defined by the **appropriate airworthiness requirements**

Annex 8. 3.2.1 A Certificate of Airworthiness shall be issued by a Contracting State on the basis of satisfactory evidence that the aircraft complies with the design aspects of the **appropriate airworthiness requirements.**

Basically, the current regulatory system does not meet international airworthiness and maintenance standards, nor does it meet the regulatory requirements of the FARs under which the majority of GA aircraft, on the CASA aircraft register, were manufactured.

Precis.

The current regulatory requirements associated with the airworthiness and maintenance, including maintenance personnel, is really in a major need of review. A review must not transition flaws with the current regulatory system into regulatory change.

To remove the regulatory flaws that have been introduced over the last 2 ½ decades step by step, will take years unless we adopt the FAR system that covers general aviation and commercial passenger operations by mainly using performance based regulations.

Adoption of the FARs associated with these sectors is simpler than re-writing the current legislative requirements that have become unworkable. E.g. recording maintenance:

§ 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** [**repaired**] 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** [**overhauled**] 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.

This terminology aligns with US manufacturers' promulgated maintenance and airworthiness documentation. A good reason for adoption.

In addition to the performance based requirements of the FAR system, the following FAR provision would remove a totally unworkable system that is structured to entrap not to provide safety.

§ 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~~CASA, 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~~CASA, 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.

Australia can adopt foreign requirements as they have done in adopting EASR requirements so it is totally false to state you cannot adopt the FARs. They become "standards".

Read CASR Parts 66/145 and all they do is allow CASA to adopt, supposedly, the EASR provisions. This can be done by adopting FAR Part 43 with a high level regulation.

Conclusion.

The current regulatory system is not conducive for adopting safety and improving the safety reliability of the Australian aircraft fleet.

The structure of the aviation regulatory system is flawed as it does not provide, in plain English, the standards that are to be applied and by whom.

The system is written for CASA prosecution purposes, not to achieve safety.

The real reason we don't get "safety" requirements is because public servants are hell bent on providing "rule by the regulator" instead of creating "rule of law" provisions.

The current system has given us much lower standards than ICAO or the US in general aviation.

Recommendation

To meet the recommendation of the ASRR to have high level regulation and detailed standards, we recommend that a high level Part 43 be recreated and adoption of FAR Part 43 as the airworthiness standards would return safety standards to the regulations.