

2024 – What Will it Bring?

What is the global Standard for Approved Aircraft Maintenance Organisations?

“When law is internationalised, it changes. It is denationalised, modernised, and liberalised, sometimes intentionally, sometimes inadvertently.”

All sustainable aviation outcomes start with the Convention Annexes and AMOs are defined in Annex 8 and the need for an approved AMO is identified in Annex 6.

In 2011, as part of transitioning from CAR to CASR, CASA **partially** adopted the EASA Part 145 Approved Aircraft Maintenance Organisation system without integrating it with other Australian Acts & Regulations.

In doing so, it also partially adopted EASR Part M into CASR Part 42 that included Subpart “F” approved maintenance organisations. A totally unused Part of CASRs. **Why?**

**CASR 42.525 Privileges for Subpart 42.F organisations:
A Subpart 42.F organisation may provide maintenance services that it is approved to provide.**

CASA’s Board and Executive management changes have stop/started the transition to CASRs and changed direction for the CAR30 AMO several times.

So why hasn’t Part 42 Subpart F been amended to make it CAR30 compatible?

- CAR 30 is a far superior and proven regulation than Subpart F.
- Only missing Human Factors and Safety Management.

Why is a ‘maintenance organisation’ hidden inside CASR Part 42 instead of being in the CASR 140 series? AMROBA’s recommendation is to transition CASR Part 42 Subpart F AMO to a new CASR Part 146 harmonising with CAR 30 at the same time. E.g. rebadge CAR 30.

The cost of transition to CASR should be almost zero as it is basically rebadging CAR30 as CASR Part 146.

- This would also enable the unused CASR Part 42F to be repealed.

The privileges of the Part 145 & 146 AMOs would need to be clarified – e.g. A Part 146 AMO could upgrade to a Part 145 but not vice-versus.

Irrespective whether the aircraft is operated commercially or not, the Convention’s Annex 6, Parts I, II, and III, aeroplane and helicopter, state that aircraft are to be maintained either by an approved Annex 8 maintenance organisation OR by a ‘person or organisation’ law procedures that are authorised by CASA.

In other words, it is the State’s responsibility to determine when approved AMOs are used and what privileges they exercise. Using government’s own regulation guidelines, the **net benefit is the recommended option.**

“Regulation should not be the default option: the policy option offering the greatest net benefit — regulatory or non-regulatory — should always be the recommended option.”

PRIVILEGES – Greatest Net Benefit		
CASR Part 145	Subpart F, CAR 30 CASR 146	Individual
Domestic/international market.	Domestic General aviation market	Privately employed
Servicing air transport airlines Servicing domestic/international	Servicing general aviation, aerial work, air taxi/charter, etc.	Owners, aero clubs, flying training, etc.
Similar FAA/EASA 145 /TCA 573	Similar EASA Part CAO	Similar FAR 43/AC150.5190

EASA, besides individuals, has 3 separate approved AMO pathways: *Part M Subpart F, Part CAO & Part 145* **thus offering the greatest net benefit to their industry.**

Annex 6, in accordance with “*procedures authorised by CASA*”, supported the previous ANR/ANO “direct supervision” AMOs based on the FAA Parts 91/43 unapproved Repair Stations supporting many levels of aviation excluding large Air Transport operations. FAA advisory material **authorise** the ‘**procedures**’ used.

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Repairs – Various Interpretation & Application

The decision to determine that maintenance damage/wear is subject to repair and whether it is major repair is dependent on the LAME skills and experience.

It is extremely important that LAME training include determining which repairs are major.

Annex 8: “Repair. *The restoration of an aircraft, engine, propeller or associated part to an airworthy condition in accordance with the appropriate airworthiness requirements after it has been damaged or subjected to wear.*

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.”*

These definitions often lead to controversy when deciding how to classify a proposed repair. The FAA published an advisory circular AC 120-77 - *Maintenance and Alteration Data*. In that document is a decision chart (opposite) that can be reasonably used to determine major and minor repairs as long as we stay FAA harmonised..

In many cases, a repair, major or minor, may be corrected by replacement of the damaged/worn part(s). This is not a ‘major’ repair needing approved repair data. A replacement part may be obtained from the OEM, an approved PMA/TSO item or a FITCOM/MITCOM part made by the AMO performing the maintenance.

“Repair” can also be interpreted differently by major NAAs. Typical interpretations can mean to fix, maintain, repair by replacement, repair by modification/alteration. However, better clarity will be provided if FAR Part 43, Appendix A is adopted: *“involving the strengthening, reinforcing, splicing, and manufacturing of primary structural members or their replacement, when replacement is by fabrication such as riveting or welding, are airframe major repairs”*.

Note: EASA requires “approved” data to be used for both “minor” and “major” repairs whilst Australia has traditionally followed the FAA repair requirements for “approved data” for “major” repairs and “acceptable” data for minor repairs.

Some of the different types of repairs that can be made to aircraft:

Aircraft Structural Repairs

Structural repairs are made to aircraft that have sustained damage to the structure (i.e., external skin, stringers, formers, bulkheads, etc.) Repaired iaw SRM or EO.

Component repairs

Component repairs range from simple part replacements to an entire overhaul. These procedures are done in accordance with the component manufacturers maintenance manuals (CMM) or an EO.

Systems Repairs

Some repairs to aircraft systems (i.e., hydraulic, pneumatic, fuel, etc.) simply consist of replacing a part or component. The faulty part is removed and replaced with a new part.

Engine Repairs

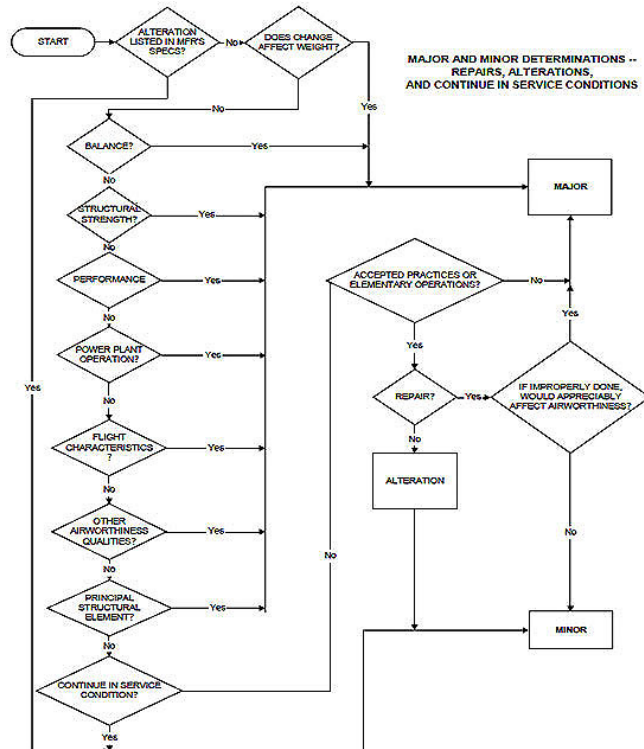
Some limited repairs can be done while the engine is on the aircraft. Those repairs usually consist of parts replacements. Major engine repairs are normally done in a shop that is qualified to completely disassemble, clean, inspect, repair, reassemble and test the engine.

Avionics Repairs

Avionics repairs are treated a bit differently than other components because of their delicate circuit boards and small fragile electrical or electronic parts. Special clean rooms are used to perform repairs to these types of components.

The FARs are years ahead of Australia, maybe adopt the FARs would be the simplest and best answer.

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Approved versus Acceptable

Approved Maintenance Data

This unique Australian regulation places our regulatory requirements in conflict with manufacturers' documentation. Most manufacturer's maintenance manuals are not approved by the responsible NAA, except for the Airworthiness Limitations Section. Most manuals include a statement that the manual is a guide for the LAME when doing maintenance.

e.g. Maintenance of US manufactured aircraft are iaw the FAA system and EU manufactured aircraft iaw the EASA system and Canadian manufactured aircraft iaw the Canadian system.

EASA regulations (Commission Regulation European Community [EC] 2042/2003 Annex I Part M) require "approved" data for both minor and major classifications of airplane repairs. This policy contrasts with the FAA system which requires "**approved**" data for major repairs only and "**acceptable**" data for minor repairs.

Canada, like our previous CAOs, clearly identifies '*approved*', '*acceptable*', and '*specified*' data that the LAME can use. Australia needs this clarity to be applied to data used during maintenance.

"**approved data**" - includes:

- (a) type certificates, supplemental type certificates, part design approvals, Canadian technical standard order (CAN-TSO) design approvals or repair design approvals, including equivalent foreign documents which have undergone the type design examination process set-out in Subpart 521 of the CARs or are otherwise accepted in Canada; and
- (b) other drawings and methods approved by the Minister or a delegate in conformity with paragraph 4.2(o) and subsection 4.3(1) of the *Aeronautics Act*.

"**acceptable data**" - includes:

- (a) drawings and methods recommended by the manufacturer of the aircraft, component, or appliance;
- (b) Transport Canada advisory documents; and,
- (c) advisory documents issued by foreign airworthiness authorities with whom Canada has entered into airworthiness agreements or memoranda of understanding such as current issues of Advisory Circular 43.13-1 and -2 issued by the FAA, Civil Aviation Information Publications (CAIPs) issued by the Civil Aviation Authority (CAA) of the United Kingdom, or Advisory Circular, Joint (ACJs) issued by the Joint Aviation Authority (JAA) or Acceptable Means of Compliance (AMC) issued by the European Aviation Safety Agency (EASA); and,
- (d) drawings and methods found appropriate by a delegate in conformity with paragraph 4.2(o) and subsection 4.3(1) of the *Aeronautics Act*.

"**specified data**" - is information contained in authoritative documents which, although not approved by the Minister, has been specified by the Minister as appropriate for the purpose of major modifications and major repairs, in conformity with section 571.06 of the CARs. The following are examples of specified data:

- (a) drawings or methods described or referenced in Airworthiness Directives;
- (b) data issued by the manufacturer or type certificate holder of the aircraft, component or appliance, such as modification orders, service bulletins, or engineering orders, which include a statement of approval by the applicable regulatory authority or a delegated representative of such an authority. Where the data issued by the aircraft manufacturer are incompatible with those of the component or appliance manufacturer, the data of the aircraft manufacturer shall prevail;
- (c) manufacturer's Structural Repair Manuals;
- (d) FAA Advisory Circulars AC 43.13-1 and AC 43.13-2, subject to the following conditions:
 - (i) the aircraft is a small aircraft, and the alteration does not affect dynamic components, rotor blades, structure that is subject to pressurization loads, or the primary structure of a rotorcraft;
 - (ii) the alteration does not affect an existing limitation (including the information contained on mandatory placards) or change any data contained in the approved sections of the Aircraft Flight Manual, or equivalent;
 - (iii) the data are appropriate to the product being altered, and are directly applicable to the alteration being made; and,
 - (iv) the data are not contrary to the aircraft manufacturer's data.

(2) The criteria to be used to determine which data applies to modifications and repairs is as follows:

- (a) All major modifications and major repairs shall be performed in accordance with either "approved" data or "specified" data. A statement of "No technical objection", or similar wording, by the manufacturer does not constitute "approved", "acceptable", or "specified" data and shall not be used without further approval by the Minister.
- (b) All other modifications and repairs shall be performed in accordance with "acceptable" data.

Information Note:

Additional guidance for the classification of modifications and repairs can be found in Appendix A of this standard."