Date Published 30/9/2024	NEWSLETTER	Volume 21 Issue 9 September — 2024

Table of Contents

The Basic Safety Levels of Aviation Businesses?

Irrespective whether you are a design organisation, a manufacturer or maintenance organisation, the basic structure of any of these businesses is based on three levels of productive personnel. The flexibility to be able to apply this to a one-man, two-man or three-man organisation needs to be in regulatory standards.

Irrespective of which discipline of engineering, the basic model is based on three stages of work, the worker, quality and the coordinator releasing the product to service. 3 basic manpower stages.

Stages	Part 21J ADO	Part21 PAH	Part 145	Part43
Release to service	Engineering coordinator	Production Manager	LAME	LAME AMTC
Quality Inspection	Verification Engineer	Quality Inspection	LAME	LAME AMTC
Base	Designers	AMT/Others	AME	AME AMT

So where should the safety focus be concentrating on? The skills of the worker or quality personnel.

- In many cases during maintenance you cannot inspect safety post the maintenance, so full reliance is placed on the actual worker to self-inspect as they do their work. The critical stage of aviation safety.
- In most cases, the person performing the function is also qualified to provide the quality function except in critical situations. E.g. flight controls.
- In many cases, modern aircraft also have system self-test programs to assist with quality control.

Focusing on skills/agreements

Employers focus on the skills of their employees and their ability to perform all work the employer carries out. The first point that is addressed by an employer is does the staff have the skills to do the work that is to be performed. **Examples**:

- Where are all the APMAs and ATSOs that was expected post CASR Part 21?
- Why hasn't aircraft/parts release doc., '*Government/CASA Form 1*' international recognition?
- Where are the AMEs/AMTs applying for Part 66 licences?

When a regulatory system is not producing the right outcomes, then it is time for change.

Lack of international acceptance of CASA Form One; lack of number of pilots and LAMEs, what more can be said. The regulatory environment is not conducive to supporting the current system or growth.

What then is the future under this government/department/agency?

Where is the regulatory reform to address these issues?

Aircraft Maintenance Personnel (AMP) Skills (ICAO)

Australia's previous training system was based on meeting ICAO's avionics and mechanical trade streams because there was no "National" Vocational Education and Training (NVET) system only VET. DCA/CAA/CASA provided a basic examination system to ensure the trade training knowledge across Australia had provided not only the practical skills but the knowledge, at higher than trade level standards, needed for the LAME to make airworthiness decisions.

However, since the introduction of competency-based training, this examination pass mark has not been reviewed to accept competency principles used by all other NVET competency-based-training.

When will CASA adopt?

*"**ICAO Doc 10098, Manual on 'Aircraft Maintenance Personnel' Competency-based Training and Assessment, 2021**. This manual provides guidance on a new approach of applying competency-based training and assessment to aircraft maintenance personnel."* (***Old approach*** in Australia).

MISA CBT Courses

The aviation industry is becoming more globalised and with maintenance outsourced, ***there is a need for the AMP competency to be harmonised to enable the global transferability of aircraft maintenance personnel***. To ensure the quality of maintenance and the safe operation of aircraft, the aviation industry has to find solutions to these additional training demands and requirements while ensuring acceptable competency standards for all AMPs.

For 30 years the NVET system has been producing CBT courses, it is now time for MISA to confirm compliance for proposed new NVET AMP training courses and qualifications that CASA must accept.

Civil Aviation Adjusting to Current & New Transport Modes

In Australia, there is a lot of debate whether a person should own their own aircraft for private use. Red tape, airport costs, etc. are rising, including restrictions around many locations. I was referred to a USA article on the WWW by Ken Hyde: Top 15 Affordable Personnel Aircraft for Private Use.

Another article stated when to rent when to buy:

- 1-10 hours per year of flying = rent when required.
- 10-100 hours per year of flying = join a flying club
- 100-200 hours per year of flying = become a partner in a plane
- 200 + hours per year flying = get your own plane

Get use to Regional Air Mobility (RAM) and Urban Air Mobility (UAM) in the near future. Things have changed since the 1950s/60s.

However, a McKinsey & Company on-line article "*Short-Haul flying redefined: The promise of Regional Air Mobility*" discusses the near future innovative propulsion and flight-control technologies, combined with a better customer experience, that could usher in a new era of frequent, convenient passenger flights on small regional aircraft.

Some OEMs are developing novel propulsion powertrains that can be retrofitted into existing aircraft, a more straightforward path to market. RAM is adjacent to the more widely discussed urban air mobility (UAM), but is different in a few important ways.

Overall, the trends suggest that RAM's time has come. The world may soon discover this revived form of air travel, which is more sustainable and capitalizes on underutilized infrastructure that we already have today. Re-energizing short-haul air travel will help increase equity for rural communities and stimulate economies beyond major metropolitan hubs.

UAM operations will be conducted day and night in both visual and instrument meteorological conditions. The aircraft will be powered by electric propulsion and employ onboard and ground-based systems to provide functions currently provided by pilots. Electric propulsion will eliminate direct carbon emissions and reduce energy consumption. Uncrewed operations monitored and commanded by multi-vehicle supervisors will reduce the cost of flight, thereby increasing affordable access.

Urban Air Mobility

You know that UAM is close to maturing when major manufacturers become involved: e.g. Boeings: "***Concept of Operations for Uncrewed Urban Air Mobility***". In addition, the CAES on line article addresses maintenance issues: **Identifying challenges in maintenance planning for on-demand UAM fleets using agent-based simulations.**

This study is the first work to research a potential maintenance schedule for UAMVs and the interlinking between maintenance and on-demand operation for UAM. It is meant as a basis for further explorations in the field of UAM maintenance and its scheduling.

No UAMV has been certified nor has a corresponding Certification Specification (CS) been issued. Hence, no UAMV maintenance manuals exist and a UAM maintenance schedule must be derived.

The overview of all maintenance intervals and the corresponding costs are shown in Table 1.

Intervals	MMHs	C_{Lab} [$]	C_{Mat} [$]	$C_{C,I}$ [$]
100 FH	24 h	1680	320	2000
200 FH	40 h	2800	640	3440
1750 FC	60 h	4200	6400	10,600
3500 FC	80 h	5600	16,000	21,600

From: **Identifying challenges in maintenance planning for on-demand UAM fleets using agent-based simulations**

Consequently, the simple and generic maintenance intervals for UAMVs are condensed from two AMMs, one for a CS-23 and one for a CS-27 aircraft. Both reference aircraft are four-seater driven by piston engines.

General aviation is changing, and the new emerging technology is another major change to absorb.

Are Australian Airports Hospitable to UAMs, RAMs & Privately owned Aircraft?

According to the Airport Association Deloitte's Report state: Airports provide the infrastructure necessary to support medical and emergency response operations, aerial work and charter services. These are crucial to supporting Australia's regions, providing support for primary industries and connecting workers across the country. *Back to the Front Page*

Global Recognition – Export CASA Approved Aviation Products

Aircraft and aircraft parts manufacturing has its ups and downs, especially since combing aviation and other transport sectors in a single federal government department that is now part of a bigger Department.

Australia has never addressed the problems associated with certification of aircraft and aeronautical products for exporting businesses and the need for government Bilateral Airworthiness Agreement (BAA).

These agreements generally state that for those requirements in the two countries' regulations that overlap, the importing country will accept the exporting country's certification of compliance.

Requirements imposed by the importing country that are not included in the exporting country's regulations must be separately shown to have been met.

The United States, for example, negotiates BAAs primarily with countries who have an aeronautical product they desire to export to the United States.

When a request is made to establish a BAA, the FAA must evaluate the foreign airworthiness authority's technical competence, capabilities, and regulatory authority, and the country's airworthiness laws and regulations to ensure **that an equivalent level of safety will be met**.

Currently, the United States has 24 such agreements. BAAs are not considered to be trade agreements; they are technical agreements, existing only to facilitate the reciprocal acceptance of certification.

However, a business cannot trade their aeronautical product without such agreements.

In the United States, the Federal Aviation Administration (FAA) implements BAAs through the export and import certification regulations of FAR Part 21.

> ***Which Australian government Department/Agency is responsible for negotiating these "technical agreements" so businesses can export Australian aircraft and/or aeronautical products to another country?***

A review of department and agencies legislation involved in certification/manufacture of these products can find no department or agency responsible for obtaining "technical agreements" so Australian businesses can export their products to other countries.

To be viable in aviation, manufacturers' need a global market, not just a domestic market.

Global Recognition of the Form One, "Authorised Release Certificate"

The Government/CASA '***Authorised Release Certificate***' Form 1, (header below) that manufacturers and maintenance organisations must use to release an aeronautical product to service has virtually no recognition from possible trading nations, thus preventing aviation businesses trading in foreign nations.

This is a government Form based on the global standard that all countries use.

What is reciprocal acceptance? Acceptance has two parts. First, in plain language "acceptance" is when an importing authority acknowledges an exporting authority's *Authorised Release Certificate* and treats it with the same validity as if they had made the issue. Because of this, the exporting authority's issuance can be used within the importing authority's jurisdiction without further action.

An example of reciprocal acceptance is spelt out in the March 22, 2018 communique explaining the Reciprocal Arrangements between the FAA,TCCA and EASA.

Based on this document, it is apparent that CASA is responsible for signing such technical agreements, (reciprocal acceptance) with each country our manufacturers want to export Australian aeronautical products to.

Roadblock. **Until the Civil Aviation Act is amended to require CASA to obtain *Technical Agreements* and *Reciprocal Acceptance* of the Authorised Release Certificate, Form 1, with other nations that manufacturers want to export their products to, then aircraft and aeronautical product manufacture in Australia will have its ups and downs.**

Even though Australia has a BASA with Australia, there has been no success in getting reciprocal acceptance of this Form 1 and CASA issued organisation certificates. Without that acceptance, Australian manufacturers will continue to move offshore or close. *Back to the Front Page*