

Flying to Recovery Plan?

In 2017, AMROBA promulgated a paper on [creating jobs in civil aviation](#) and it is still relevant today. This is an industry that can provide so many different types of jobs beside flying that it is in the best interest of government to nurture its expansion and growth to create those jobs. Why are we still debating whether global standards promulgated by ICAO should be implemented in Australia?

1. Aviation Activities

Aviation is so much more than passenger carrying operations. It is also freight and emergency services (firefighting, flood relief, medivac, etc.) **and** an engineering industry sector that includes manufacture, maintenance, airworthiness control, servicing of aircraft, plus administrative and legal services.

To realise the real potential for growth and jobs, the whole industry needs to be as harmonised with the Convention's Annexes so government can attain recognition by other nations, in their own rights, the various engineering sectors of civil aviation manufacturing and maintenance activities..

ICAO's Classification of Activities include:

- **Civil Aviation Manufacturing;**
- **Aviation Training;**
- **Maintenance & Overhaul;**
- **Regulatory Functions;**
- Other Activities.

Massive potential to create jobs.

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2. Should CASA Consult or Educate?

What needs consulting and what needs educating?

Implementing the Convention Annexes' Standards should be no different to creating regulations to give effect to an Act of Parliament.

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3. Global Participation.

So government can negotiate recognition/trade agreements with other nations, the **lower the number of differences** there is to the Annexes standards, the easy it is to attain agreements.

- This raises the question why do we create unique requirements different to other nations?
- We do fly imported aircraft, the same aircraft as are used in many other countries.

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4. Apprenticeships.

There needs to be a new national trade training system to support aeroplane, helicopter and avionics trade training streams that underpin part 66 licences. This is discussed further in this newsletter.

Return to the Convention Annex Standards that underpinned CAR 31 licences.

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5. Manufacturing Concepts Must Change

Australian civil aviation manufacturers, aircraft and parts, need to participate in the global civil aviation market to survive. We need to ensure that this industry's regulatory framework aligns with our biggest market, North America.

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6. LAME Responsibilities

With so many regulatory & industrial changes since the CAR 31 licence and rating system was originally introduced, many seem to misunderstand the [AME licence's responsibilities](#).

1. The knowledge and skill to coordinate and supervise work so he/she can sign the release to service; and
2. To certify maintenance that affects the validity of the certificate of airworthiness.

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7. CASA Actions Needed

One of the most important things CASA should do is to focus on implementing the ICAO Standards & consulting on the Recommended Practices.

Engineering is affected more by not harmonising than any other activity classified by ICAO.

Whether it is design standards, manufacturing standards, maintenance standards or personnel standards, businesses need these ICAO promulgated standards to be implemented without differences.

Adopting these standards reduces costs and opens the global civil aviation markets if government also obtains trading agreements.

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1. Aviation Activities -cont.

Keeping differences to the Annexes means increase capability of opening trade markets in other nations or enabling approved maintenance organisation to perform work on foreign aircraft or components. This is the only way Australia will stop the loss of Australian manufacturing and maintenance businesses from relocating to countries whose aviation engineering sectors are accepted globally. The International Civil Aviation Organisations (ICAO) minimum Standards & Recommended Practices (SARPs) are the basic referenced standards to be applied within Australia.

The potential of the aviation engineering industry is high IF the right regulatory system is adopted. To be successful, red tape has to be reduced and industry individuals and organisations must be treated more maturely than at present by empowering industry to make their own determinations and decisions and be legislatively responsible for those determinations and decisions. E.g. copy the FAA process.

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2. Should CASA Consult or Educate? cont.

CASA's consultation has been criticised by our members simply because CASA's own process is not clear. Consultation is only needed where industry can input to the final result. E.g. When implementing Ministerial directions it is not consultation, it is education. The same applies to ICAO Annex Standards – educate industry on the outcomes of implementing these global standards.

Australia's global obligation is **to adopt as near as practicable** the Convention's Annexes 'Standards and Recommended Practices'. should not be consulted, they should be implemented by educating industry.

- These should not be consulted whether we adopt or not; just adopt.
- Like Ministerial directions, ICAO Standards are the basics that must form our [globally recognised] civil aviation regulatory system.

“Use of the text of the Annex in national regulations. The Council, on 13 April 1948, adopted a resolution inviting the attention of Contracting States (Australia) to the **desirability of using in their own national regulations**, as far as practicable, the **precise language of those ICAO Standards** which are of a regulatory character and also of indicating departures from the Standards, including and additional regulations that are important to safety or regulatory of air navigation. Wherever possible, the provisions of this Annex **have been written in such a way as would facilitate incorporation, without major textual changes in national legislation.**”

ICAO has, since 1948, written the Annexes in such a way that Australia only has to adopt the wording straight into our own regulations. It is extremely important from an engineering point of view to adopt the wording and terms and to use ICAO definitions of those words and terms.

Standardisation/Harmonisation.

Government, whether CASA or other agency, needs a change in the education implementation process to ensure all participants affected by an Annex amendment understands the change.

Annex amendments are usually to enhance safety and apply the changes globally.

For instance, in July this year, changes were made to both Annex 1, AME licencing and Annex 8, Airworthiness of Aircraft. A proactive government department and/or agency would be implementing to meet the global timeframe set by ICAO so we maintain harmonisation globally.

Annex 8 Chapter 6.6 personnel standards have been updated to include competency based training.

Annex 8 Part V – Small Aeroplanes has been divided into:

PART VA — *Aeroplanes **over 750 Kg but not exceeding 5 700 Kg for which Application for Certification was Submitted on or after 13 December 2007 but before 7 March 2021.***

Note: this standard no longer exists – cont.

PART VB — *Aeroplanes not exceeding 5 700 Kg for which Application for Certification was Submitted on or after 7 March 2021.*

PART VIII – Remotely Piloted Aeroplanes will be applicable in 2026

PART IX – Remotely Piloted Helicopters will be applicable in 2026.

PART X – Remote Pilot Station will also be applicable in 2026

APPENDIX Approved Maintenance organisation (AMO) certificate has been added to assist global trade.
2022

It is interesting to note that the 750Kg limit has been removed and all these aeroplanes now fall under the Part 23 aeroplane standards. What ramifications does this change have on new recreational aircraft?

In many cases, ICAO definitions also differ from the Macquarie Dictionary definition, the basis for Australian legislation. So foreign manufacturer's manuals are not properly interpreted by our manufacturing and maintenance establishments, unless these ICAO definitions be adopted into our legislation/regulations.

In addition, if CASA decides to use the regulations from another country to meet these Standards, then the definitions from that country must also be adopted.

ICAO Standards are minimum Standards that should be applied as long as industry is educated in the consequences of these Standards amendments.

If government and its agencies were proactive as they were pre the CAA/CASA era, then many changes to the Annexes over the last 2 decades to add to the safety of air navigation would have been progressively adopted and included in civil aviation regulatory requirements.

DITRDC and/or CASA need to be able to inform/educate industry participants of Annex amendments as they are implemented into Australian civil aviation regulatory requirements.

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3. Global Participation – cont.

Look at Singapore, civil aviation started in 1984. They recently received full marks in seven of the eight areas, including legislation, licensing and training of aviation personnel, as well as the airworthiness of aircraft. The only area that Singapore did not score 100 per cent in was air navigation services, with ICAO giving them a score of 98.1 per cent.

Positive Public Service Results. Recent ICAO Council elections for the top ten countries. “The 10 elected countries – each receiving between 147 and 152 votes – comprised **Australia**, Brazil, Canada, China, France, Germany, Italy, Japan, the UK and USA.” The second round included 12 more countries elected; Argentina, Austria, Egypt, Iceland, India, Mexico, Nigeria, Saudi Arabia, Singapore, South Africa, Spain and Venezuela. Once again, Australia retained its position in the top ten ICAO level 1 nations.

How any nation would rate Australia's compliance with SARPs is very questionable when they can access, on the Aircservices website, the [differences](#) Australia has lodged with ICAO to the Annexes to the Convention. We would argue that whoever lodged the differences did so by only looking at CASA, ATSB & DITRDC and not Australia. How else would you lodge a difference as not having competency based training in legislation when Australia's education system is based on competency based training.

[The obligations, spelt out by ICAO, of Australia](#) is to implement and harmonise with the Annexes Standards & Recommendations. This is crucial to obtain global recognition of our manufacturers including designs, maintenance organisations and maintenance training organisations,

Time for CASA and industry to re-focus regulatory changes on adopting the ICAO Standards as a given like the requirements of the Act and Minister Directions. These Standards should not be debated and only in extreme situations, especially in engineering disciplines, should there be a difference lodged.

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4. Apprenticeships

One of the biggest decision our industry can make is to employ an apprentice but there are many reasons why this is not happening:

- Uncertainty of the industry’s future based on regulatory changes proposed and unknown. No aviation engineering “big picture” proposed by Government.
- The reduced number of TAFE colleges providing basic aviation apprentice training.
- Lack of clarity/confidence in the avionic and mechanical trade training system.
- Students no longer have basic technical skills taught in secondary schools.

NZ took action over a decade back to address the lack of hand skills by introducing a pre-employment TAFE training that is based on providing the basic hand skills needed in the maintenance engineering industries. International training standard are promulgated in [ICAO document 7192 Part D-1](#), Aircraft Maintenance Engineer Training Manual.

Basic Training:

- Chapter 10A – Airframe Practical Maintenance Skills,
- Chapter 11A – Engines Practical Maintenance Skills, and
- Chapter 12A – Avionics Practical Maintenance Skills.

A basic pre-employment workshop practices course would attain knowledge of the tools and associated processes that are likely to be used in hangars and workshops.

Such a course would underpin avionics & mechanical trade streams and would be a TAFE based pre-trade training course as they have in NZ.

Section B of the above Chapters lists what tooling and equipment a training establishment should have to provide aviation avionic and mechanical trade training.

To progress further, the ICAO document provides knowledge requirements for:

- Chapter 5 – Airframes & systems – both fixed & rotary wing;
- Chapter 6 – Engines/Powerplants – both piston and turbine;
- Chapter 7 – Electrical and Instruments – both basic and digital;
- Chapter 8 – AFCS/Navigation/Radio – both fixed and rotary wing.

These are the trade pathways for avionics (7 & 8) and mechanical (5, 6 & 7)

A review of North America (USA & Canada) and the EU including GB, LAME training clearly identifies their compliance with adopting these training skills to underpin the trade training and licencing training.

This same ICAO manual recommends an additional (knowledge-based) [130 classroom hours](#) to add to the AME training to achieve the [global AME licence training standard](#).

The government’s obligation to train Australia’s AME under the Convention must be clearly allocated to the Federal Government’s Department of Education and Workplace Relations as has been done in NZ and Canada. There needs to be a globally recognisable VET qualification for *Aircraft Maintenance Engineers* so Australian businesses can compete in the global civil aviation maintenance market.

AQF 5	AME Mechanical Licence			AME Avionics Licence
AQF 4	Airframes Fixed Wing Stream	Airframes Rotary Wing Stream	Electrical / Instruments	Automatic Flight Control Systems / Navigation / Radio
AQF 3	Pre employment training mechanical			Pre-employment training avionics

Attached to the AQF 4 level is a number of other associated trades such as, structures, welding, NDI, engines – piston/turbine, propellers and many other specialised trades an apprentice can obtain if the national training system can be upgraded to global standards.

We have lobbied, with positive feedback, the new government to make DEWR responsible for AME training. CASA, DEWR & DITRDC support **but the Public Service moves slowly.**

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5. Manufacturing Concept Must Change.

Australian Civil Aviation manufacturers must really wonder about the approach by government to their industry. Once you decide to be a civil aviation manufacturer, then you must aspire to market your product(s) in the global aviation market.

To be able to sell in the global aviation market, other nations have to accept the Federal Government's aviation release documents, CASA organisation approval documents, certifications standards, etc. that a government approved civil aviation business can use.

There are global standards applied, under the Annexes, to these documents and who may use them.

We all know Australia is seen as a Level One ICAO contracting State but which government Department is responsible obtaining recognition of our manufactured products?

Annex 8 Amdt 106 (12th Edition) states "*Approval and global recognition of approved maintenance organisations; design standards; continuing airworthiness provisions; halon replacement in cargo compartment fire suppression systems; and electronic maintenance records*".

Other 'Level One' ICAO nations are proactive and stay current and compliant with these changing standards so government can attain acceptance and recognition globally of Australian civil aviation engineering manufacturing and maintenance companies.

Which government department is responsible?

How many countries accept the CASA Form One, Government's Authorised Release Certificate?

In the words of one owner of a large high tech manufacturing business that fully relocated to the USA last year: When the FAA & EASA fully accepts Australian government documents, without conditions, then he would relocate his business back to Australia. The documents:

1. Authorised Release Certificate, Form 1;
2. AMO Certificate, Part 145. Return to service; and
3. ADO Certificate, Part 21. Design Standards.

In other words, the government needs a dedicated public service task force from multi departments and agencies (CASA, DITRDC, DFAT) to actively open civil aviation nations in the global civil aviation market that recognises the above documents.

Each nation may need a "differences" agreement like the FAA has with EASA.

Without government to government, regulator to regulator technical agreements, the private manufacturing and maintenance establishments cannot compete in the global aviation market without individually obtaining approvals from each foreign State.

The government must task Infrastructure and CASA to obtain foreign technical agreements from potential trading nations that recognise our manufacturer's in their own rights. The same aspect also applies to maintenance services.

Air Service Agreements are proactively addressed whenever an Australian airline wants to open a new route but the same vigour is not applied by government to our manufacturers to be recognised.

Even the Bilateral with the USA can still be improved to include maintenance.

Every other country will want to know that our manufactured aircraft and/or components and parts are accepted by one or both the FAA and EASA.

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LAME Responsibilities

A few points we should all be aware of. Interesting how practical the Canadians are.

Annex 1, 4.2.2.2 The privileges of the holder of an aircraft maintenance licence specified in 4.2.2.1 shall be exercised only:

a) in respect of such:

- 1) aircraft as are entered on the licence in their entirety either specifically or under broad categories; or
- 2) airframes and engines and aircraft systems or components as are entered on the licence either specifically or under broad categories; and/or
- 3) aircraft avionic systems or components as are entered on the licence either specifically or under broad categories;

Canadian recency requirements

566.05 Recency Requirements

(1) No person shall exercise the privileges of an AME licence unless, within the preceding 24 months; they have successfully completed the *regulatory requirements examination*, or have, for at least six months:

- (a) performed aircraft maintenance;
- (b) supervised the performance of maintenance, either directly or in an executive capacity; or
- (c) provided aviation maintenance instruction within an ATO, or an approved training program in an AMO or directly supervised the delivery of such instructions.

(2) An AME who attempts the regulatory requirements examination as required by subsection 566.05(1) and fails will not be entitled to renewal until the examination has been successfully completed.

Note: the *Canadian Regulatory Requirement Examination* is the same as the *AA examinations* previously used under the CAR 31 license system.

Licencing

There seems to be a blurring of trade training & qualifications and the licencing responsibilities.

Trade skill training provides the skills to do the work and qualifications to perform and sign for completion of that maintenance including supervision of others. Read AQF training standards.

Licencing is adding responsibilities beyond the trade level for certifying as airworthy aircraft, or parts of an aircraft and/or aircraft system. In addition, licence holder must be able to coordinate and manage the whole maintenance to the extent that the licence holder can release the aircraft to service by signing the maintenance release.

The licence holder also has the responsibility for the design re-certification requirements associated with maintaining compliance of the aircraft's certificate of airworthiness. This role requires the LAME to make airworthiness determinations – i.e., the aircraft or part of the aircraft continues to meet its design standards.

The training that an AME needs to attain a licence/rating is specified by ICAO.

The training promulgated by [ICAO covers from a base LAME through to a management LAME](#). Should know. CASR Part 42 needs to be reviewed and aligned with the EASR when CASR Part 66 is reviewed.

Design Standards LAME knowledge

Basic LAME

- Do you know the aircraft and its systems' airworthiness requirements?
- Do you know the aircraft's operating regulations?
- Do you understand the requirements of your licence?
- Do you understand CASA's role?
- Do you understand type certification: aircraft, engine and/or propeller?
- Do you understand individual aircraft type certification & the airworthiness certificate?

Management LAME

- Do you understand approved maintenance organisation?
- Do you understand air transport operations, if applicable?
- Do you understand the organisation and management of the operator, if applicable?
- Do you understand the aircraft operator’s economics relating to maintenance?
- Do you understand continuing airworthiness?

These are all subjects that a basic LAME and/or a management LAME should know above the trade training qualifications to carry out the quality, supervisory, coordination and management roles of the LAME.

EASA

EASA has set standards for all levels of maintenance licences - plus added licence certificates.

Maintenance on aircraft structure, power plant and mechanical and electrical systems; radio, Emergency Locator Transmitters (ELT) and transponder systems; and work on other avionics systems requiring simple tests to prove their serviceability.

Divided into the following subcategories certificates:

- L1C: composite sailplanes,*
- L1: sailplanes,*
- L2C: composite powered sailplanes and composite ELA1 aeroplanes,*
- L2: powered sailplanes and ELA1 aeroplanes,*
- L3H: hot-air balloons,*
- L3G: gas balloons,*
- L4H: hot-air airships,*
- L4G: ELA2 gas airships,*
- L5: gas airships other than ELA2.*

CASA has proposed in CASR Part 43 another level of licencing as AMTs that adds more confusion to Australia’s VET training system. It is time to combine all under one CBT system

Ideals.

The ideal situation that Australia should have been able to achieve is a national training system where a person maintaining balloons, airships, gliders, etc would all have a pathway to expand and/or broaden their skills to progressively work their way to more complex aircraft and into supervising, planning and management of maintenance.

This is why we desperately need DEWR to be responsible for trade and skills training.

AQL Levels – the progressive qualifications that lead to trade, licence and then management.

AQF explanation of levels can be attained at most State TAFE training websites .	
Level 6 Advanced Diploma	Management level complex A/C
Level 5 Diploma	Basic licencing level
Level IV Certificate	Trade avionic or mechanical
Level III Certificate	Basic trade level
Level II Certificate	Apprentice entry level
Level I Certificate	Basic entry level

We live and dream.

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6. CASA Actions Required.

We need CASA to (a) *Set national standards that support the ICAO SARPs*; Canadian Act words.

From an industry point of view, the development of the legislative system we work under is CASA's responsibility but implementing ICAO Standards are not always included.

Section 98 of the Civil Aviation Act states: (c) for the purpose of carrying out and giving effect to the provisions of the [Chicago Convention](#) relating to safety.

Australia had more international recognition in our engineering fields when it focused on implementing the ICAO Standards and, where practical, ICAO Recommended Practices.

Because they are the product of a treaty, then Australia has an obligation to make law to give effect to these Standards that all mature aviation nations have included in their nation's regulatory requirements.

“ The provisions of an international treaty to which Australia is a party do not form part of Australian law unless those provisions have been incorporated into domestic law by statute and cannot operate as a direct source of individual rights and obligations under the law”.

The failure to follow this harmonisation concept is why regulatory development has not been as successful over the last two decades. Every regulatory change effects the dynamics with other legislation and regulations. For instance, under the TTMRA (Trans-Tasman Mutual Recognition Agreement) Australia and New Zealand set out to 'balance' personnel qualifications so that each country's work force qualifications could be recognised in each other's country. That was totally abandoned under Part 66.

In addition, close cooperation with the Trade Recognition Authority was available so AME trade qualification standards were compared with other country's AME qualification standards to enable the differences to be documented to improve movement of a labour force in & out of Australia.

That link has also been abandoned as CASA took on regulatory reform without consultation with other government departments and agencies. This has to change.

CASA must re-engage with other government departments to bring about a cost-effective trade training system, adoption of ICAO Standards wherever possible without any differences and utilisation of existing government departments and agencies without duplication of approvals.

1. CASA must work with the Education Department's regulator, the Australian Skills Qualification Authority so CASA can accept a VET Australian Qualification Framework (AQF) qualification to underpin the [trade](#) and [licencing](#) requirements. This may require Part 66/147 MOS requirements to be amended to accept the ASQA Australian training standards. We are not Europe.
2. CASA must adopt ICAO Standards and Recommended Practice as soon as possible and then attain technical agreements with other nation's airworthiness regulators, agreements that recognise our engineering businesses by other NAAs. Where necessary, work with other government departments to attain nation to nation recognition of our engineering businesses in their own right to trade in their civil aviation market.
3. Due to the certification requirements for new aeroplanes below 5700Kg, the major NAA systems of Canada, Europe and USA all took regulatory steps to approve maintenance personnel training prior to issuing NAA licences, however described, to those that maintain these kinds of aeroplanes. CASA should, in the interest of safety, adopt either the EASA "L" licence/Certificate ratings, training requirements and delegate the sport associations to administer as they have done to different degrees in Europe, Canada and USA. In our opinion, Canada is the best option for these kinds of aircraft.

Australia needs to take on a more proactive global harmonisation approach to regulatory reform and write regulations that places responsibility on industry participants by removing CASA in-service authorisation and approval requirements.

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