

Finding the Right Vision?

Civil aviation engineering businesses, especially in general aviation & manufacturing, should be providing many more jobs in Australia than it currently does. Refer item 3, *Resurrecting micro and small businesses*. From high employment levels with great variety pre the making of new legislation and regulations to create the CAA (1988), to immediate reduction in jobs should have raised alarm bells. In addition, further legislation and regulations to create CASA also implemented further reduction in jobs in civil aviation.

Aviation Regulatory Reform has resulted in Aviation Regulatory Restrictions.

International recognition of Australia’s civil aviation businesses, government aviation approval documents and government aviation airworthiness control documents like the government’s *Authorised Release Certificate* has not been achieved. This means civil aviation businesses’ products and services are restricted to a domestic market instead of the global civil aviation market. Many Australian companies have moved overseas so their products and services are globally recognised and accepted in their own right.

Why, **after 34 years** of government agency (CAA/CASR) management of aviation’s legislative/regulatory reform, civil aviation is not growing domestically or participating in global civil aviation markets?

We are not North America, nor are we Europe. In most cases, where these large economies use large businesses, Australia uses medium to small businesses; where these economies use medium businesses, Australia uses small to micro businesses.

- 1938 to 1988 (50 yrs) civil aviation was in an increasing job and business creation mode.
- 1988 to 2022 (34 yrs) civil aviation has been in a declining job and businesses restriction mode.



Causal factor: A change from government department control to a government agency control applied a different vision that, in hindsight, restricted civil aviation job growth and participation.

Was it the members of the original Departments that had pioneering visions for civil aviation; was it the policy of these Departments that created 50 years of continual growth or was it government direction/support or both? Has this government agency or government the vision to create jobs?

Australia needs ‘A Globally Focused Job Creating Safe Civil Aviation Industry.’

There needs to be a different concept to the government department/agency thinking that reverses their “the GA industry will need to continue to adapt to the changing nature and structure of the aviation environment to ensure its continuing safe and sustainable operation.” A government enforced environment that has resulted in a critical shortage of maintenance personnel and pilots. **Wrong Policy!**

Maybe the government needs to adapt to the growth capabilities of Australia’s civil aviation and bring their regulations into line with our potential local civil aviation industry. Other countries do.

The more Australia can harmonise globally, the more chances Australia’s civil aviation businesses can participate in the global civil aviation markets to ensure viability.

Conclusion: By reducing the burden of regulation and making compliance easier will typically increase the net benefits of micro and small businesses regulation. This improvement results from increasing compliance rates and reduced compliance costs.

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1. Maintenance of Each Aircraft Classification – By Whom?

CASR Parts 66/147 have been a regulatory failure resulting in a critical shortage of qualified maintenance personnel. The following is an AMROBA guide to remove Parts 66/147 regulatory restrictions.

CASA and its predecessors have never properly included the training required for maintenance personnel into Australia's vocational education system since the Department moved to Canberra. The links between the department personnel in Melbourne and Education Department was not continued by new Canberra management. Attempts to resurrect these links in the late 1990s including links to the Trade Recognition Authority identified what had to be done but was never finalised due changing CASA management.

CASA'S role is to promulgate clear and concise maintenance personnel standards that have not been achieved. If done properly, the VET system would have been able to develop training packages required.

There are two ways of writing the standards associated with maintenance personnel so they will be supported by Australia's NVET system development of applicable training packages.

- Use the CAR31 approach (aligns with ICAO) and list what each licence holder can do; or
- Use the option to list the technical subjects in curricula for each licence/certificate CASA issues.

In both cases, it requires CASA to work with the applicable Federal Department and Agency (DEWR/ASQA) responsible for vocational training so the educator includes this training in the national vocational education system. CASA "standards" must meet Australia's education training standards.

When adopting foreign personnel standards, the foreign terminology must be retained to enable global recognition of our licencing and trade qualifications. The default terminology is ICAO.

Industry required NVET qualifications (CASR imposed)

The current Aeroskills VET system qualifications are inappropriate for the below required qualifications. They only underpin the airline AME licences and are not acceptable or understood by other nations thus affecting global acceptance of our maintenance product and services.

NVET Courses Qualification			CASA Licence/ratings	
VET Qualifications Needed	CASA Category	Sub category	Add Module 10	Rating
'Aircraft Maintenance Engineer' (Aeroplanes)	Mechanical Aeroplane (Basic/Complex)	Basic Airframes structures/systems	Licence	B1.2 & B1.2 Groups
		Complex Airframes	Licence	B1.1
		Piston/turbine engines	Licence	Ratings
		Aeroplane Types	Type Course	Type
		Structures	—	
'Aircraft Maintenance Engineer' (Helicopters)	Mechanical Helicopter (Basic/Complex)	Basic Airframes structures/systems	Licence	B1.4
		Complex Airframes	Licence	B1.3
		Piston/turbine engines	Licence	Ratings
		Helicopter Types	Type Course	Type
		Licencing	Licence	All
'Aircraft Maintenance Engineer' (Avionics)	Avionic Systems (Basic/Complex)	Basic avionics	Licence	B2(L)
		Complex Avionics	Licence	B2
		Aircraft Types	Type Course	Type
CASA Proposed Part 43 adoption of the FAR Repairman also need each Repairman curricula promulgated so ASQA can develop the appropriate training.				

It makes no sense to have personnel education requirements in civil aviation regulations unless there is a whole-of-government commitment to adopt and implement education qualifications and appropriate training packages to support CASR standards. Where are DITRDCA/DEWR & CASA/ASQA agreements?

History Background

The current training and qualification of Australian maintenance personnel is in a mess and, if we are to fix permanently, we need to end up with a training and qualification system for now and the future.

The changes that were made to Part 23 aeroplane standards a few years back has ended with aircraft made to ASTM agreed standards and other aircraft manufactured to transport (Part 25/29) category aircraft.

The most crucial element to airworthiness is the **inspections skills of maintenance personnel** to ensure the aircraft/components continues to meet its design standard and altered state. Altered state includes approved modifications and repairs. In other words, continue to meet all aircraft design standards.

Airworthiness inspections to confirm design and serviceability inspections are different tasks. It is why the standards state the aircraft meets its design standard and is in a safe condition for flight.

The aircraft inspection standards for an ultralight is different to a type certificated aeroplane or helicopter because they have different certification standards.

- **Airworthiness inspection** certification are only required for type certificated aircraft.
 - Inspectors need to understand the applicable design standards so they can state the aircraft, or part of the aircraft being inspected, is airworthy.
- **Serviceability inspections** apply to all aircraft, type certificated or not.

It is a pity that this is not universally understood by many decision makers in government and industry.

Both FAA and EASA systems includes this aspect in their maintenance regulations and standards.

Both regulatory systems use a form of inspectorate within their Part 145 system and a classification of a LAME performing airworthiness inspections outside the Part 145 regulatory system. The FAR system has the greater clarity in detailing what an A&P *Inspection Authority* responsibilities are.

Pre the splitting of the mechanical LAME scope during the airlines demarcation dispute into mechanical and structures, the Australian LAME could determine that an aircraft or part of an aircraft was airworthy.

Back in the Department controlled period of civil aviation, they provided clarity of a LAME responsibility. In addition, the Australian LAME at that time was more globally recognised which is not the case today.

Privileges of a LAME – Past performance based standards.

DCA Publication No. 35. Privileges and Responsibilities of Licence Holders. [para 6 – approved data]

4. *The privileges that may be exercised by a Licenced Aircraft Maintenance Engineer include certification of safety of flight of an aircraft; certification of documents for the issue or renewal of a Certificate of Airworthiness; approval of subsequent flight tests; certifications for issue of an aircraft maintenance release; certification of work carried out under regular maintenance schedules; certification after replacement of components; rectification of defects; and maintenance inspections.*

5. *The exercise of these privileges involves the acceptance of responsibilities and briefly stated they are as follows:-*

*When work and inspections the Licenced Aircraft Maintenance Engineer **must** ensure that he/she has adequately supervised the work, that established standards have been maintained and that the resulting condition is satisfactory in all respects. This means that he/she must satisfy himself/herself that all work or processes leading up to the end result and that which is the product of other approved persons or organisations, have been properly certified.*

7. *In performing or supervising work the LAME is responsible for ensuring work is performed iaw the requirements of authorising documents, and the following conditions have also been met:-*

- (a) *Adequate technical data was available and used;*
- (b) *Specialist advice was sought when required;*
- (c) *Appropriate equipment was properly employed;*
- (d) *Properly released (certified) components and materials were used throughout.*

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2. Classification of Aircraft. What Could be Adopted.

Globally, there has been a change in the classification of aircraft and subsequent regulatory changes of the airworthiness control and standards of maintenance personnel in each classification. The future is already here and we urgently need a regulatory system for this future, not for the present or the past.

Aircraft Classifications – Design Standards Australia Adopts.							
Experimental Aircraft	Sailplanes & Powered Sailplanes (EASA/CASR Part 22, FAR Part 23) Utility & Aerobatic	Normal Category Aeroplanes (Part 23) Pax seating configuration of 19 or less and a maximum certified take-off mass of 8 618 kg (19 000 pounds) or less. (includes LSAs)			Transport Category Aeroplanes (Part 25) Aeroplanes that meet the transport category airworthiness requirements.	Normal/Transport Category Rotorcraft (Part 27/29)	
		Level	Cert. Std	Perf. Levels		Normal	Transport
A special airworthiness certificate in the experimental category is issued to operate an aircraft that does not have a type certificate or does not conform to its type certificate but is in a condition for safe operation.	(1) sailplanes the maximum weight of which does not exceed 750 kg; (2) single engined powered sailplanes the design value W/b2 of which is not >3(W[kg], b[m]) and the maximum weight of which >850 kg; and (3) sailplanes and powered sailplanes the number of occupants of which does not exceed two.	Level 1	Max pax seating 0 – 1	Low Speed VNO or VMO ≤ 250 KCAS or MMO ≤ 0.6	Transport aeroplanes are aeroplanes for which a type certificate is applied for under Part 21 in the transport category and that meet the transport category airworthiness requirements. Multi-engine airplanes with > 19 seats or a MTOW > 19,000 lbs (1818 kg) must be certificated in the transport category.	These are rotorcraft with a maximum take-off weight (MTOW) up to 3,175 kg (1440 lbs) and up to 9 pax seats.	These are rotorcraft of any weight or pax numbers certified to the transport standards.
		Level 2	Max pax seating 2 – 6				
		Level 3	Max pax seating 7 – 9	High Speed VNO or VMO > 250 KCAS or MMO > 0.6			
		Level 4	Max pax seating 10 – 19				

Note 1: There is no minimum weight for Part 23 aeroplanes and max weight limit has increased to 8618 kg and 19 passenger seats (includes old commuter category). This means Part 23 modern aeroplanes can be as complex as transport aeroplanes. [Refer Cirrus SF50](#)

Note 2: Avionic systems used in many experimental and recreational aircraft mirror the complexity of modern Part 23/25 aeroplanes avionic systems.

Note 3: Ultralight Aircraft (Part 103 operations)

- **FAA:** weighs, unpowered > 155 lbs or powered > 254 lbs, excluding floats & safety devices, fuel capacity > 5 US gallons, 55 CAS and has power off stall speed not exceeding 24 knots CAS.
- **EASA:** most of these types of aircraft are covered by EU member nations national rules.

Note: Amateur built aircraft can be a LSA, ULA, or other class.

➤ **Canadian Ultralights and Advanced Ultralights.** [cost effective system]

[Design Standards for Advanced Ultra-light Aeroplanes.](#)

Australia should align with the Canadian Ultralight/Advanced Ultralight standards to operate under Part 103 without the need for a Part 149. The more cost effective method is to use Australia's legislative/regulatory delegation process where the industry sector associations are delegated to authorise aircraft, pilots and maintenance personnel. Model our processes on the proven TCA methods in delegating recreational associations. It has a safe working history. Look at how the Gliding Federation was delegated.

List of aircraft included in the [Canadian's Advanced Ultralight aeroplanes](#)

➤ **Canadian Owner-maintained Certificate of Airworthiness.** [Many owners support]

Australia should also align with the Canadian Owner-maintained Certificate of Airworthiness aircraft types and models of aircraft that TCA has evaluated and found to meet the requirements for the owner maintenance classification. This is cost effective safe proven system.

The types and models of aircraft are listed [Appendix H to Standard 507](#) that can be issued with a special certificate of airworthiness - owner maintenance.

This is a cost effective system – most Canadian owners have the engine maintained by a LAME so it does not lose its type certification status. It does mean the aircraft surrenders its type certification status.

CASA and TCA were in close discussions during the 1990s and the owner-maintained process was included in CASA's development possibility in the late 1990s. The Canadians refined and implemented.

There is an international protocol for maintaining type certificated aircraft from other countries.

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3. Resurrecting Micro and Small Businesses

Micro and small businesses is the only option for permanent growth in civil aviation engineering. The scale of Australia's domestic business is a light year away from the scale of businesses within major aviation markets.

(Excerpts from a paper by Justin Douglas and Amy Land Pejaska)

“Concerns about the impact of regulation on micro and small business are not new.

Small businesses experience the burden of regulation more keenly than larger businesses because small businesses have fewer resources and are unable to take advantage of ‘economies of scale’ in order to understand, comply with and benefit from regulation.

Regulation should only be imposed when the societal benefits exceed the costs.

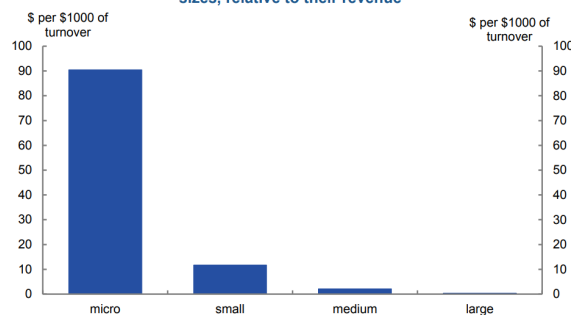
A European Commission study has estimated that on a per employee basis, small businesses (defined in Europe as those with less than ten employees) face regulatory compliance costs that are, on average, ten times higher than those of large businesses.

The complexity of the law contributes to the disproportionate impact of compliance costs on small businesses because it increases fixed compliance costs and increases the need to use experts who specialise in understanding regulation, which many small business cannot afford. It follows that reducing the complexity of the law will benefit small business. While volume of law does not necessarily indicate that law is complex, volume of law is proportionately harder for small businesses to cope with than large businesses, because of the time it would take to understand whether regulation was relevant. The volume of law at the Commonwealth, State and Territory level has increased very substantially over the decades.

This highlights the difficulty that ordinary citizens and small businesses would have in dealing with the complexity of Australian federal law, let alone the interactions between Commonwealth laws, and State laws and Local by-laws.

Eliminating excessive regulation and reducing complexity will disproportionately benefit small business, even where regulatory reforms are not ‘tiered’ or targeted at small business, and would also benefit large businesses.”

Chart 1: Estimates of tax related compliance costs faced by businesses in Australia of various sizes, relative to their revenue



AMROBA still believes that CASA can develop clear and concise performance based regulations and standards that micro & small aviation businesses can meet without having to apply for CASA approvals/authorisations that adds so much costs to micro/small businesses.

The USA does this with their non-approved Fixed Based Operator system. A FBO must employ a FAA certificated person (LAME/Pilot with Instructor rating, etc.).

Pre-Civil Aviation Regulations, ANRs/CAOs had LAME/Pilot **directly-supervised** maintenance organisations and flight training operators. They only had to comply with standards specified in Regulations and Orders. No company CASA approved manuals, forms or other matter.

The challenge to CASA is to develop regulations and standards that reduce the 90% of turnover being dedicated to compliance costs for small businesses.

It is not a hard task if the CASA project staff understand what real performance based regulations are.

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