

Date Published 30/5/2022	NEWSLETTER	Volume 19 – Issue May – 2022
------------------------------------	-------------------	--

Personnel Training Safety Standards

This issue is dedicated to the most important variables in aviation safety and they are pilots and maintenance personnel. The pilot aspects are left for other associated groups to discuss.

It is globally recognised the aviation maintenance profession is in dire straits with the worldwide fleet of aircraft now growing at a rapid rate, numbers of new maintenance personnel entering the field have diminished, and those of us actively engaged struggle to keep up with ever-evolving technology. Training standards promulgated by North America/EU do not exist in Australia.

So what are the core competencies needed to achieve success today and in the future?

Over two decades back, employers asked government to provide vocational education training courses that actually provided the competencies to support each of the licence categories issued by the civil aviation regulator. Now CASA.

Compared to the US, Canada, EU, ASEAN and Britain, our AME training has gone backwards over the last two to three decades instead of advancing in line with the new technologies continually being added. **CASR Part 147 has not provided licence specific courses.**

Hasn't happened for two major reasons:

- A, Partially adopted (EASA) AME licence system but did not adopt associated training course standards; and
- B. The Federal Education Department is currently not (Convention) responsible for providing trade and licence training courses. Another lower difference.

CASA is adopting the same principles when partially adopting FAR Part 43 and its Repairman.

- No inclusion of training requirements for the unique “AMT” (**US Repairman**).
- The decline in skills once again is perpetuated by the Civil Aviation ~~Safety~~ Authority

CASA implemented CASR Part 147 but does not approve any courses to support each licence. Career pathways academic qualifications obtained under the NVET system not required by CASA.

NZ has successfully done it with their aviation maintenance personnel training just like North America, EU and ASEAN countries have all been able to implement formal training courses.

To make matters worse, CASA now wants the *FAA Repairman* to appear globally, by retitling as an “**AMT**”, as an Annex 1 Chapter 4 licence. (FAR [Part 147, Aircraft Maintenance Technician School](#) – i.e. the FAA AMT licence holding an A&P mechanic certificate). What an ignominy.

CASA regulations do not apply global AME course standards set by the Annexes.

It appears that CASA goes out of its way to create regulations to prevent international acceptance of Australian products and maintenance personnel. Regulations have to be Convention Annexes compliant to enable recognition and acceptance by other NAAs and countries.

Without adopting associated course standards from EASA and/or FAA, we have no standards for our aviation maintenance personnel. Experience alone cannot replace NVET qualifications.

Other Subjects

1.	ICAO Maintenance Personnel Course Training Standards.....	2
2.	NZ Maintenance Personnel Course Training Standards.....	3
3.	EASA Maintenance Personnel Course Training Standards	3
4.	FAA Maintenance Personnel Course Training Standards.....	4
5.	Better skills were available under the CAR 31 Licencing Structure	5

1. ICAO Maintenance Personnel Course Training Standards

NOT APPLIED IN AUSTRALIA (CASA adopted EASA LAME)

If government does not specify the courses time, as is specified in both EASRs & FARs, then you end up with lower skill outcomes. CASA’s predecessors dropped the training course requirements and left it to employers and unions to negotiate the hours applied to the training. The employer groups, looking for reductions in costs, and unions have ended up with much lower course duration than applied by major aviation countries. All major aviation countries promulgate class room hours.

Both EASA and FAA base their training standards on the ICAO Annex 1 & 8 standards. Australia was last compliant with these ICAO standards under the **repealed Civil Aviation Regulation 31** licencing of maintenance personnel. A review of the recommended standards promulgated by ICAO to support maintenance personnel training, to meet licencing, is specified in Convention Annexes 1 & 8 maintenance personnel requirements. These ICAO subjects recommended course hours are reduced when courses are designed to support EACH licence by using recommended training classroom hours.

ICAO AME course Knowledge training		ICAO AME course Skill Training	
• General:	545 hrs	• Airframe:	1825 hrs
• Airframes:	800 hrs	• Engines:	1000 hrs
• Engine & Propellers:	750 hrs	• Avionics:	3075 hrs
• Electrical & Instruments	1350 hrs		
• AFCS/Nav/Radio:	785 hrs		
• Human Factors:	30 hrs		
• Avionics knowledge training hrs:	2710 hrs	• Avionic skill training hours:	3075 hrs
• Mechanical knowledge training hrs:	2125 hrs	• Mechanical skill training hours	2825 hours
• Avionic total course training hours:	5785 hrs	• Mechanical total course training hours:	4950 hrs

CAR 31 AME licencing standards included the above topics in State VET trade training RTOs prior to the enforced regulatory change to partially adopt the EASA system. The original training was based on practical avionics (Inst/Elect/Radio), mechanical (airframe/engines with privileges in E,I,R) and ‘Structures’ (used in airlines and major AMOs). It worked but is no longer available.

CASR Part 147 has decimated trade training for general aviation aeroplane and helicopter sectors. Today, many, probably most GA employers and LAMEs would support a return to CAR 31 for all but the airlines. The CASR Part 66/147 experiment has never fitted into the Australian education and training system. The current skills have reduced practical/knowledge skills which is a safety concern. CASA no longer require formal training standards for obtaining an AME licence which means government should lodge another difference to Annex 1 and **inform the world that CASA does not apply recommended AME training course standards.**

Lowering or removing skill standards does not save costs, red tape reduction save costs.

Without implementing global training standards, global recognition of civil aviation products and maintenance services will never happen.

EASR Part 66/147 training course standards were not adopted; no current courses exist for the B1.2, B1.3, B1.4 licence even though CASA took over the RTOs that were providing trade courses supporting aviation careers. This takeover collapsed the trade training system and totally ignored the trade training process in Australia. Trade practical training has all but disappeared.

Where was, and is, the intergovernmental cohesion that should exist to implement this change.

[Back to the Top](#)

2. NZ Maintenance Personnel Course Training Standards

NZ has a complete NVET training system with courses to support just about all jobs in aviation maintenance and manufacture. Hours of course training is based on Annex 1 recommended hours. **Initial Training:** A **36 week introduction to basic aircraft maintenance** (delivered **over 39 weeks** which includes two semester break/work experience opportunities) On successful completion, graduates can apply for an apprenticeship in the industry with employers.

For example, a B1.1 or Avionic training courses have a duration of **46** weeks.

Atypical [NZ training schools providing AME training](#) lists all the aviation courses available.

Another [provider of training in NZ](#). They have courses to support GA and AT.

Component workshops like engine overhaul have a specific course in the NZ system.

NZ training courses hours are promulgated like other mature aviation countries. This confirms to all countries that NZ comply with the Annex personnel training standards.

By combining like subjects into a training program, most mature aviation countries can reduce the ICAO training course duration into a time duration somewhere between 2000 and 3000 course duration hours based on the avionic/mechanical approach of ICAO.

NZ has done it correctly by providing a 36 hour foundation training course **BEFORE** starting an apprenticeship. This is the practical skills training missing from the Australian VET system today. It was what pre Part 147 Education approved RTOs provided.

[Back to the Top](#)

3. EASA Maintenance Personnel Course Training Standards

NOT APPLIED IN AUSTRALIA (CASA adopted the EASA licences names only)

Adopted by Australia but not promulgated in regulations.

Basic Course	Duration (in hours)	Theoretical training ratio (in %)
A1	800	30 to 35
A2	650	30 to 35
A3	800	30 to 35
A4	800	30 to 35
B1.1	2400	50 to 60
B1.2	2000	50 to 60
B1.3	2400	50 to 60
B1.4	2400	50 to 60
B2	2400	50 to 60
B2L	1500 (*) (next chart)	50-60
B3	1000	50-60

B2L System Rating	Duration (in hours)	Theoretical Training Ratio (in %)
COM/NAV	90	50-60
INSTRUMENTS	55	
AUTOFLIGHT	80	
SURVEILLANCE	40	
AIRFRAME SYSTEMS	100	

Items highlighted not adopted by CASA removing benefits of EASA LAME system.

EASA includes Certificates for LSA that resemble the FAA Repairman LSAs below.

EASR LAME plus EASR Part 66/147 L Certificates that were also not adopted									
Category/subcategory AME Part 66 Licences Part 66 Groups	A, B1 & B2	B2	Not Adopted		(LSA) “L” Certificates				
			B2L	B3	L1C & L1	L2C & L2	L3H & L3G	L4H & L4G	L5
1 — Complex motor-powered aircraft — Multi-engine helicopters — Pressurised aeroplanes above FL290 — Aircraft with fly-by-wire systems — Any other aircraft as defined by the Agency	X	X							
1 — Gas airships other than ELA2		X							X
2 (see below) 2a: Single turboprop aeroplanes 2b: Single turbine helicopters 2c: Single piston helicopters	X	X	X						
3 — Piston engine aeroplanes	X	X	X						
3 — Piston engine aeroplanes (non-pressurised of 2 000 kg MTOM and below)	X	X	X	X					
3 — ELA1 piston engine aeroplanes	X	X	X	X		X			
4 — Sailplanes — Powered sailplanes — Balloons — Airships not in Group 1		X X X X	X X X X		X	X X	X	X	X
E Aircraft with electrical propulsion	X	X	X	X		X			X

Note “E” Rating that addresses **electric powered aircraft** – already included in EU and North America. All of the above EU licences/certificates have training course hours assigned similar to the FAR AMT and Repairman EASA/FAA courses.

[Back to the Top](#)

4 FAA Maintenance Personnel Course Training Standards

NOT APPLIED IN AUSTRALIA

The FAA **Aircraft Maintenance Technician (A&P) course hours** are in FAR Part 147:-

“§ 147.21 *General curriculum requirements.*

The curriculum must offer **at least** the following number of hours of instruction for the rating shown, and the instruction unit hour shall not be less than 50 minutes in length -

- (1) Airframe - 1,150 hours (400 general plus 750 airframe).
- (2) Powerplant - 1,150 hours (400 general plus 750 powerplant).
- (3) Combined airframe and powerplant - **1,900 hours** (400 general plus 750 airframe and 750 powerplant).

(Actual training courses at Part 147 AMT Schools exceed 2000 course training hours.)

(c) The curriculum must cover the subjects and items prescribed in **appendixes [147] B, C, or D, as applicable.** Each item must be taught to at least the indicated level of proficiency, as defined in appendix A,”

The FAA even defines what is knowledge and practical training and tests practical and knowledge.

The **FAA Repairman certificate training hours are also specified.** The FAR Part 145 Repairman is normally at a level to manage workshops based on the Part 65/147 A&P mechanic level. The Repairman for LSA aircraft (airplane, weight-shift control aircraft, powered parachutes, lighter than air and gliders) are all spelt out in FAR Part 65.107.

107. (3)A repairman certificate (light sort aircraft) with a maintenance rating:

- (i) Meet the requirements of paragraph (a)(1) of this section, and
- (ii) **Complete a training course acceptable to the FAA** on maintaining the particular class of light-sport-aircraft for which you intend to exercise the privileges of the rating. The training course must, at a minimum, provide the following number of hours of instruction:
 - (A) For **airplane class** privileges – **120** hours;
 - (B) For **weight shift control aircraft** privileges – **104** hours;
 - (C) For **powered parachute** privileges – **104** hours;
 - (D) For **lighter than air** privileges – **80** hours; and
 - (E) For **glider** privileges – **80** hours

The FAR specified course hours far exceed the course hours applied in Australia. CASA is lowering standards well below EASA/FAA training course hours by not promulgating hours and not imposing any course standards. CASA has done the same for LAME training.

All major aviation countries promulgate maintenance personnel training course training hours.

The question has to be asked; why won't CASA include course duration training standards?

ICAO also provides the practical skills for an avionics and/or mechanical that an AME needs to attain before they work on in-service aircraft.

[Back to the Top](#)

5. Better skills were available under the CAR 31 Licencing Structure

CASA dumped a world standard AME licencing and training system with industry specific group ratings that matched the experience attainment capability of AMEs in rural Australia; and replaced it with a system that no longer provides training courses applicable to the licences now included in CASR Part 66. The trade training system has been virtually diminished.

The VET training was based on the practical skills specified by ICAO with aviation knowledge associated with the practical skills as applied doing maintenance work.

These standard were nationally applied because CASA predecessors promulgated ICAO Annex 1 recommended training course standards. A past CASA management removed these promulgated curriculum standards and our training standards have slipped well below world standards.

Future technology is already in the country but training is not available because CASA has not promulgated basic training courses and their duration based on EASA course duration hours.

HOW WILL AUSTRALIA's civil aviation manufactured products and maintenance services be able to obtain recognition in their own right from foreign countries if CASA continues to de-skill maintenance personnel standards well below EASA or FAA maintenance personnel training standards?

Why does CASA work against global acceptance of the regulatory system?

Time for CASA management to concentrate on meeting the Convention's Annexes standards if they are serious about helping Australian products and maintenance services to be recognised by other nations in their own right.

ICAO provides practical training standards that underpin both the avionics and mechanical trade skills. Why won't Australia make our engineering disciplines globally accepted?

Since the formation of the CAA, maintenance personnel trade training standards have been removed from aviation regulations. Why?

"The reason that the Australian government signed the Chicago Convention and then ratified it in Acts of Parliament, was not only to be able to operate in global airspace, it was also so Australia could adopt foundational rules and standards to enable Australia to be part of the global aviation industry. The CASRs prevent this from ever happening.

Since the creation of CAA/CASA the personnel training course standards not promulgated are simply lower than the Annexes standards, let alone lower than those applied by the FAA or EASA. ASEAN countries have adopted either the EASA AME training standards, including course duration, or the FAA training course duration.

So why isn't CASA imposing them in the engineering fields of maintenance?

- EASA Part 66/147 complies
 - CASA's partial adoption of EASRs Part 66/147 does not.
- FAA Part 43, and associated regulations, Orders and ACs comply.
 - CASR proposed partial adoption of FAR Part 43 does not.
- **CASA partially adopts but not the associated training/course safety standards.**

CASA has created "*Fortress Australia*" and further removes civil aviation from the global market.

"In addition to setting forth the foundational rules of airspace, the Chicago Convention established a mechanism for developing uniform global standards and recommended practices (SARPs) for air navigation and safety.

Preamble to the Chicago Convention

"WHEREAS the future development of international civil aviation can greatly help to create and preserve friendship and understanding among the nations and peoples of the world, yet its abuse can become a threat to the general security; and

WHEREAS it is desirable to avoid friction and to promote that cooperation between nations and peoples upon which the peace of the world depends;

THEREFORE, the undersigned governments having agreed on certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically;

Have accordingly concluded this Convention to that end."

Read Chapter VI, International Standards and Recommended Practices and make Australian requirements like other mature nations.

"Each contracting State undertakes to collaborate in securing the highest practicable degree of uniformity in regulations, standards, procedures, and organization in relation to aircraft, personnel, airways and auxiliary services in all matters in which such uniformity will facilitate and improve air navigation."

[Back to the Top](#)