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A Civil Aviation Safety Issue – 2006-2025

Issue 1: Critical shortage of *aircraft maintenance engineers* (AME) and *licenced aircraft maintenance engineers* (LAME), especially in the aeroplane – piston powered and helicopter sectors.

- **i.e. Small aeroplane & helicopter maintenance engineers trade/licence shortage.**

Issue 2: The regulator failed, in 2006, to adopt the European AME licencing system's "trade skills and course requirements" for each training course underpinning each CASA Part 66 licences or sub-licences.

Does Someone/Somebody Care

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Regulatory Imposed Shortages

Issue 2 created the shortage of maintenance personnel in the above civil aviation sectors and should be raising yellow safety flags with applicable government departments, agencies and employee unions. Our experience over time is **NOBODY CARES.**

> Our members have been demanding that apprenticeship to trade pathways in the helicopter and aeroplane – piston powered sectors be resurrected ASAP.

It has been identified as a major safety issue by AMROBA and other employer groups.

This critical safety issue has been raised with the Civil Aviation Safety Authority (CASA) for over a decade. CASA does not believe competency-based training needs "course durations" or "skills" to be specified and obviously do not see a qualified aviation maintenance personnel shortage as a safety issue.

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- CASA only adopted the "knowledge" elements from the European Aviation Safety Regulations (EASR and did not adopt the trade skills and training course regulations.

Australia's National Vocational Education Training (NVET) system includes CBT Aeroskills courses for the airline *avionic*, *mechanical* and *structures* AMEs and CASR Part 66 airline B1.1 mechanical and AME licence B2 avionic AME licence only. AQF IV and AQF V qualifications available only for full avionics and large aeroplanes.

Lobbying Has Had Little Effect

AMROBA has lobbied, since 2006, government, departments, agencies and politicians for the "*skills and courses regulations"* to be adopted from the EASR Parts 66/147 trade based licencing system. In addition, EASR subsequent changes to their Part 66 trade licencing system should also be adopted to make the trade-based licences more appropriate and beneficial to the Australian nonairline sectors.

Licence Post 2006	B1.1	B1.2	B1.3/4	B2
Post 2006	Mechanical turbines aeroplanes	Mechanical piston aeroplanes	Mechanical Helicopters piston/turbine	Avionics
Pre 2006	Mechanical			Avionics
Licences	5 Basic system licence pathways + add system ratings + type ratings			

Why Were EASR Parts 66/147 Partially Adopted?

The persons responsible have long departed CASA and taken employment in the airline sector. The licencing system adopted provided the airlines with a 'Base' and 'Line' LAME, cost saving for airlines, and provided new defined knowledge standards and licences for the helicopter and small aeroplane sectors.

When introduced in 2006, the EU trade training, skills and course requirements were not adopted that has led to personnel shortages because there are no academia pathways in the Australian VET system for the helicopter and small aeroplane sectors.

EASA	Mechanical turbine aeroplanes	Mechanical piston aeroplanes	Mechanical Helicopters	Avionics	Avionics Basic	Avionic/ Mechanical
	Mechanical			Avionics		Aeroplane <2000Kg
Licence	B1.1	B1.2	B1.3/4	B2	B2L	B3
	Group Ratings	Group Ratings	Group Ratings	Group Ratings	Add Systems	Group Ratings

NB: Blue blocks adopted licences by CASA but not the training or ratings in yellow boxes.

Helicopter and aeroplane piston powered employers have been raising safety concerns with CASA for a long time. AMROBA has raised this issue with CASA, Departments and Ministers for a decade without achieving corrective action to remove this safety concern.

International civil aviation (ICAO) and all major NAAs specify knowledge, **skills and course durations,** even those with competency-based training. EASR Parts 66/147 comply with global standards knowledge, skills and licencing standards.

Our employers would rather employ Australian training, as long as meet global training and qualifications standards as other major civil aviation countries, instead of having to rely on foreign trained licenced aircraft maintenance engineers.

Currently, foreign LAMEs are better trained than locally trained.

AMPLIFICATION

In 2006, the Civil Aviation Safety Authority partially adopted the European Aircraft Maintenance Engineer Trade Based Licencing System from the EASA Regulations Part 66 and Part 147. Full adoption and remaining harmonised would have prevented any shortages as well as maintaining global personnel standards.

The failure to adopt the full EASA maintenance personnel trade skills and course regulations in their entirety, as well as remaining harmonised, is the reason we have civil aviation regulations that are not compatible with the NVET system overseen by the Australian Skills Qualification Authority (ASQA).

Missing EU regulations, which need to be adopted, then Australianised to be compatible to the NVET system to provide training courses and qualifications that would underpin the trade standards for the the CASA Part 66 B1.2, B1.3 & B1.4 mechanical licences and helicopter and aeroplane, piston powered, AMEs.

A major concern of our members with any change is their current employees' qualifications must be preserved. Their experience provides skills and knowledge above what is be proposed to be adopted.

We repeat, current CASRs only provide trade and licencing "knowledge" standards for all licences and sub-licences. Only the large aeroplanes B1.1 mechanical and the full B2 avionic licences have NVET training courses.

EASA Exempts NVET Training System – Not Adopted

Before listing the missing EU regulations, the following EU regulation should have been adapted so Australia's NVET system training organisations did not have to be also approved by CASA to provide Basic Training Courses underpinning each CASA Part 66 Licence and Sub-licence.

EASR 147.B.25 Exemptions (Australianised)

Regulation (EU) 2019/1383

(a) *The ~~competent authority~~ National and State Vocational Education Training Organisations are ~~may~~ exempt ~~a State education department~~ ~~school~~ from:*

1. *being a~~n~~ (CASA approved) organisation as specified in point 147.A.10.*
2. ~~*having an accountable manager, subject to the limitation that the department appoint a senior person to manage the training organisation and such person has a budget sufficient to operate the organisation to the standard of this Annex (Part-147).*~~

AMROBA: *This exemption should have been adapted and applied to the VET system when CASA decided to adopt the EASA AME licencing system. DITRDSCA should have made DEWR MISA/ASQA responsible for providing training packages and courses in line with the following AME basic course training standards specified by EASA.*

NB: Never adopted by Government to empower ASQA – national vocational education and training (VET) regulator who regulate the NVET system.

In AMROBA's opinion, it is the portfolio department's responsibility to allocate responsibility for Convention Annexes to government departments and/or agencies.

The Fix, if anybody cares.

- DITRDSCA assign DEWR (ASQA) to be responsible for providing Annex 1, Chapter 4 AME training courses to underpin CASA's EU trade based licencing system.

Missing Regulations

The following are EASR regulations NOT adopted by CASA when they adopted the EASA AME trade based licencing system in 2006. Because these important trade training standards associated with AME basic training course standards have not been adopted, applicable NVET basic AME trade training courses have not been made to underpin the B1.2, B1.3 & B1.4 trade-based licences.

AMROBA, to ensure clarity, has added comments in red

EASA Part 147, Subpart C — Approved Basic Training Courses

AMROBA: Adopt and make DEWR/ASQA responsible to implement as it is the NVET systems responsibility to provide. It is basic trade training to support each of the licences issued by CASA.

- DEWR's MISA is quite capable of producing these training courses, however adopted.

Adopt regulations with brackets { } verify the rest are already covered by current NVET regulations and standards.

147.A.200 The [NVET] approved basic [AME] training course

Regulation (EU) No 1321/2014

(a) *The [NVET] approved [competency based] basic training course shall consist of knowledge training, knowledge examination, practical training and a practical assessment.*

(b) *The knowledge training element shall cover the subject matter for a trade category or subcategory aircraft maintenance engineer licence as specified in ~~Annex III (Part-66)~~ CASR Part-66 MoS Appendix 1.*

(c) *The knowledge examination element shall cover a representative cross section of subject matter from the point (b) training element.*

(d) *The practical training element shall cover the practical use of common tooling/equipment, the disassembly/assembly of a representative selection of aircraft parts and the participation in representative maintenance activities being carried out relevant to the particular CASR Part-66 MoS complete module.*

(e) *The practical assessment element shall cover the practical training and determine whether the student is competent at using tools and equipment and working in accordance with maintenance manuals.*

(f) ***The duration of basic training courses shall be in accordance with Appendix I.***

(g) *The **duration of conversion courses between (sub)categories** shall be determined through an assessment of the basic training syllabus and the related practical training needs.*

AMROBA: Basic trade training is, or should be, part of the NVET system.

AMC 147.A.200(b) The approved basic training course

ED Decision 2015/029/R

Each licence category or subcategory basic training course ~~may be~~ have been subdivided into modules or sub-modules of knowledge and may be intermixed with the practical training elements **subject to the required time elements** of 147.A.200(f) and (g) being satisfied.

AMROBA: Current Aeroskills NVET training courses meet the requirements of airlines.

AMC 147.A.200(d) The approved basic training course

ED Decision 2015/029/R

1. *Where the [ASQA approved] maintenance training organisation ~~approved under Part 147~~* ***contracts the practical training element either totally or in part to another organisation in*** *accordance ~~(with 147.A.100d)~~, ASQA Standards, the maintenance organisation in question should ensure that the practical training elements are properly carried out.*

2. *At least 30% of the practical training element should be carried out in an actual maintenance working environment.*

CBT standards system [Employers/apprentices/trainees standard process]

AMC 147.A.200(f) The approved basic training course

ED Decision 2015/029/R

1. *In order to follow pedagogical and human factors principles, the maximum number of training hours per day for the theoretical training should not be more than 6 hours. A training hour means 60 minutes of tuition excluding any breaks, examination, revision, preparation, and aircraft visit. In exceptional cases, the competent authority may allow deviation from this standard when it is properly justified that the proposed number of hours follows pedagogical and human factors principles. These principles are especially important in those cases where:*

   – Theoretical and practical training are performed at the same time;

   – Training and normal maintenance duty/apprenticeship are performed at the same time.

2. *The* ***minimum participation time for the trainee to meet the objectives of the course should not be less than 90 % of the tuition hours****. Additional training may be provided by the training organisation in order to meet the minimum participation time. If the minimum participation defined for the course is not met, a certificate of recognition should not be issued.*

AMROBA: All of this is covered under Australia's CBT system.

AMC 147.A.200(g) The [NVET] approved basic training course

ED Decision 2020/002/R

Typical conversion durations are given below*:*

(a) The approved basic training course to qualify for ***conversion*** *from holding a Part-66 aircraft maintenance engineer licence in subcategory* ***A1*** *to subcategory* ***B1.1 or B2*** *should not be less* ***than 1600*** *hours and for trade conversion from holding a Part-66 aircraft maintenance engineer licence in subcategory A1 to subcategory B1.1 combined with B2 should not be less* ***than 2200 hours****. The trade-based course should include between 60% and 70% knowledge training.*

(b) The approved basic trade training course to qualify for ***conversion*** *from holding a Part-66 aircraft maintenance engineer licence in subcategory* ***B1.1 to B2*** *or category* ***B2 to B1.1*** *should not be less* ***than 600 hours,*** *and should include between 80% and 85% knowledge training.*

(c) The approved basic trade training course to qualify for conversion from holding a Part-66 aircraft maintenance engineer licence in subcategory B1.2 to subcategory B1.1 should not be less ***than 400 hours****, and should include between 50% and 60% knowledge training.*

(d) The approved basic trade training course to qualify for conversion from holding a Part-66 aircraft maintenance engineer licence in one ***subcategory A*** *to another* ***subcategory A*** *should not be less than* ***70 hours*** *and should include between 30% and 40% knowledge training.*

(e) The approved trade basic training course to qualify for conversion from holding a Part-66 aircraft maintenance engineer licence in any subcategory A to category B2L (with any system rating) should not be less ***than 800 hours*** *and should include between 60 and 70 % of knowledge training.*

AMROBA: Current CBT standards except specified trade course training hours.

147.A.205 Basic knowledge examinations

Regulation (EU) No 1321/2014

Basic knowledge examinations shall:

(a) Meet licencing standards specified in CASR Part 66, Annex 1.

cover a representative cross section of subjects from the particular module of training completed in accordance with Annex I (Part-66 MoS).

AMROBA: CASA competency-based assessment needs 70% knowledge pass to satisfy licencing pathways, trade is based on meeting competency assessment.

AMC 147.A.205 Basic knowledge examinations

ED Decision 2015/029/R

AMROBA: These aspects are already covered in Australia's CBT system.

147.A.210 Basic practical assessment

Regulation (EU) No 1321/2014

AMROBA: These aspects are already covered in Australia's CBT system

AMC 147.A.210(a) Basic practical assessment

ED Decision 2015/029/R

AMROBA: These aspects are already covered in Australia's CBT system.

AMC 147.A.210(b) Basic practical assessment

ED Decision 2015/029/R

AMROBA: These aspects are already covered in Australia's CBT system.

Appendix III to AMC to Part-66 provides criteria for the competence assessment performed by the designated assessors (and their qualifications).

AMROBA: These aspects are already covered in Australia's CBT system

HIGHLY IMPORTANT TO ADOPT THESE COURSE DURATION STANDARDS.

Easr Part 147 Appendix I — Basic training course duration

The minimum duration of a complete basic training course shall be as follows:

(this chart must be adopted)

Basic Course	Duration (in hours)	Theoretical Training Ratio (in %)
A1	800	30–35
A2	650	30–35
A3	800	30–35
A4	800	30–35
B1.1 (AQF IV)	2 400	50–60
B1.2 (AQF IV)	2 000	50–60
B1.3 (AQF IV)	2 400	50–60
B1.4 (AQF IV)	2 400	50–60
B2 (AQF IV)	2 400	50–60
B2L	1 500 (*)	50–60
B3	1 000	50–60

(*) This number of hours shall be increased as follows, depending on the additional system ratings selected:

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

AMROBA: B2L & B3 not yet adopted by CASA – Modular avionics training, avionics systems based and GA aeroplane maintenance trade/licence. Urgently Needed]

Suggested Government Corrective Action.

WHY IS GOVERNMENT DUPLICATING REGULATORY CONTROL OF BASIC TRADE/LICENCING TRAINING? ASQA NOT CASA

AMROBA: Adopt the missing EU aviation regulations and so the trade training for general aviation and the helicopter sectors can be provided through the (N)VET system.

Outcome: It would also remove CASA's duplication of the ASQA approval of Recognised Training Organisations (RTOs).

- Duplication of approvals of training establishments adds unnecessary costs
- ASQA requirements and CASRs are different.
- CASA is not a basic trade educational approval authority.

Another benefit would be that many foreign nations in the Asia-Pacific-Region that have also adopted the EASA Part 66 AME licences would once again recognise ASQA approved RTOs issued qualifications re aircraft maintenance engineer's basic trades.