

# AMROBA<sup>®</sup>inc

AVIATION MAINTENANCE REPAIR & OVERHAUL BUSINESS ASSOCIATION, INC  
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## NEWSLETTER

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### ***1. The positive aspects of implementing quality systems in manufacturing and maintenance organisations.***

Now that CASA has accepted the benefits of implementing quality systems in manufacturing, then it should become a formality that quality systems should also be in maintenance. The industry working group is encouraging CASA to rely on quality systems.

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*CASA provides lead to adopting quality systems in manufacturing.*

### ***2. Basic General Aviation Ideas Needed.***

Why is North America (USA/Canada) general aviation flourishing and of such size? There are basically two principles applied and that is to provide pilots and maintenance personnel with the appropriate practical skills. In the last newsletter we identified that ICAO GA standards places organisation responsibilities on the pilot and LAME. North America adopts that principle.

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*CASA still seems to be working on making an organisation responsible rather than the individual.*

### ***3. Design organisations get a shake-up and will play a greater role in certification.***

CASA suggests a more cost effective system for design organisations by proposing to set minimum standards & requirements in outcome based regulations and standards. Comparing how the FAA has devolved functions to enhance safety will bring cost savings to the industry.

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*This is very positive and will enable design organisations to perform CASA functions too.*

### ***4. AME Licencing is still not internationally compatible.***

CASA has promulgated its long awaited changes to the Part 66 MoS to implement the GA “Group” licence ratings but still has to come to terms with changing the LAME role in aviation maintenance. The whole training environment needs a new model.

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*The GALAME needs a better training package than is currently supported by CASA.*

## 1. *The positive aspects of implementing quality systems in manufacturing and maintenance organisations.*

Now that CASA has accepted the benefits of implementing quality systems in manufacturing, then it should become a formality that quality systems should also be in maintenance. The industry working group is encouraging CASA to rely on quality systems.

If you have a maintenance contract with a government entity or a large business, or you are manufacturing and selling products, the requirement for quality systems is usually part of the contract. Though aviation started down this path as far back as the 1980s, it has stalled during the regulatory “development” processes since 1998.

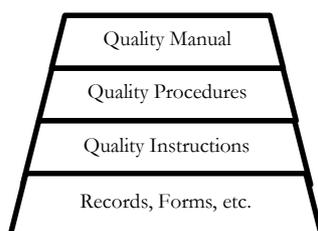
There is, however, some misconception by some that these quality systems do not address aviation regulatory requirements. This is an anomaly as over a decade ago these aviation specific standards were amended to include statutory and regulatory requirements.

The SAE AS 9100 series sets the basic quality levels expected in all areas of aviation and aerospace. Developed by the **International Aerospace Quality Group** (IAQG), the standards covers the entire supply chain including companies that design and manufacture equipment, supply accessories or replacement parts, as well as those that offer supply and maintenance or overhaul and repair services. The standard is universally adopted but comes under a different name in different continents. The **AS 9100** is the name used in the Americas, at the same time in Europe it is called **EN 9100** and in the Asia-Pacific region **JISQ 9100**. The SAE **AS 9100** is the basic quality system and **AS 9110** sets criteria for aviation and aerospace businesses.

The **AS 9110** standard sets criteria for businesses providing commercial, private and military aircraft maintenance, repair and overhaul. This standard also applies to companies manufacturing aircraft parts and components seeking Parts Manufacturing Approval (PMA) from the FAA. **AS9110** does not replace, but complements your other regulatory and contractual requirements.

Underpinning all quality systems is the costing of product development lifecycle that can help aviation aerospace companies to accurately estimate the costs associated with developing and producing components and products, and take timely decisions throughout the product development lifecycle. Costing control keeps the design engineers aware of movements in product cost and enables them to select most economical designs for manufacturing, improve material utilization, reduce number of features and relax tolerance during new product development. It also helps designers analyse the design and make timely trade-off decisions with respect to cost and functionality.

Quality systems are scalable depending on size of organisations. However, they all have the basic principle.



Within the documented system, the company quality manual provides management responsibilities. Procedures can be included in the manual or referred to in the manual. Instructions used to implement the procedures can be separate and usually adjacent to where work is done. In addition, the records, forms, process and certification task cards/sheets are also separate documents.

A small business may include procedures and instructions in one manual similar to current manuals used in general aviation. A directly supervised small business can further reduce the manual as only one person is accountable.

**AS 9100 & AS9110** is an international standard and does not rely on individual likes or dislikes. It should underpin businesses quality systems in this country as was intended when CAR30 was made in 1990. CASR Part 145 is an enigma when compared to EASR and FAR Part 145. These NAAs also have different responsibilities to CASA.

Our aircraft/parts manufacturers will also be approved to manage small variations in manufacturing processes just like they did in the past. This is a step in the right direction.

AMROBA also sees a modified version of the USA FBO system can underpin a more formal approved small AMO system. The answer for Australia is there if CASA consults and works with industry for the right solution for Australia – we are not North America or Europe, we have a very different demographic to them.

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## 2. **Basic General Aviation Ideas Needed.**

Why is North America (USA/Canada) general aviation flourishing and of such size? There are basically two principles applied and that is to provide pilots and maintenance personnel with the appropriate practical skills. In the last newsletter we identified that ICAO GA standards places organisation responsibilities on the pilot and LAME. North America adopts that principle.

*General aviation covers private operations to aerialwork, charter and small airline operations and maintenance, manufacturing and training activities. It ranges from small and informally organised individuals and organisations servicing private and other non-passenger commercial businesses through to structurally organised businesses servicing commercial operators.*

GA is a very broad area of employment so what works in one sector in many cases does not work in another sector. For example, small aviation businesses in rural locations need to employ from the local community to retain the employee on completion of training – it is an employee retention issue.

Training is the major issue for many local communities as learning to fly or becoming an aircraft tradesperson usually means travelling, at great costs, to a location where specific training is available with additional costs.

**Major Issue - Training.** There has to be a concerted re-think on the provision of pilot and maintenance training so that training is brought to the local community rather than centralising training at a limited number of locations, mainly near major cities.

In the USA, a person interested in learning to fly can access a website and find the nearest independent flight instructor. Example Website: [Independent Flight Instructors](#) or flying school Website: [Flying Schools](#). What the US system does is provide various pathways to obtain a pilot licence.

The same applies in the maintenance fields, e.g. training schools website: [Online website](#). In the US, community schools and FAA Part 147 approved schools share the training almost evenly with very similar A&P practical and knowledge pass marks. There is a small

percentage that self study, gain experience and pass the practical and knowledge tests. It is the flexibility in the FAA regulatory system that was copied by EASA.

EASA provides a similar flexible approach to the FAA but Australia adopted only one of three ways provided by EASA. It has not worked. See item 4 for more detail on AME training flexibility. A system that sees many aircraft not being flown or low utilisation of aircraft has systemic problems with the overall system.

**Aviation depends on renewal. New pilots, new aircraft and new support personnel.**

**Safety improvement relies on the transfer of knowledge and experience from one generation to the next.**

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### ***3. Design organisations get a shake-up and will play a greater role in certification.***

CASA suggests a more cost effective system for design organisations by proposing to set minimum standards & requirements in outcome based regulation and standards. Comparing how the FAA has devolved functions to enhance safety will bring cost savings to the industry. The future looks a lot better than it did at the end of 2015.

At the design/certification working group meeting with CASA it was refreshing to hear CASA supporting minimum outcome based regulations and clarifying industry responsibilities and capabilities.

An issue that was raised is the definition of “aeronautical product”. The legalised definition created by CASA in the past is hindering the adoption of FAR and EASR requirements for aircraft products. The ICAO definition is: ‘***An aeronautical product is an aircraft, an aircraft engine, a propeller or appliance.***’ Whereas, the CAA Act definition for an ‘***aeronautical product means any part or material that is, or is intended by its manufacturer to be, a part of or used in an aircraft, unless excluded by the regulations.***’

The Act definition stops commercial off the shelf material and parts being treated in the same manner as they are elsewhere in the world because they become aeronautical products in Australia. This matter was raised at the DPM Aviation Industry Consultative Committee meeting last Friday with a commitment to amend the Act.

The open discussion is that regulatory reform is not restricted by definition and sections of the Act. To attain the requirements being proposed may need current Act or Regulations amended to achieve the proper outcome.

We also proposed the Act should be totally reviewed so aviation can meet its true potential. AMROBA will provide a list of sections of the Act that need to be modernised.

At the next design/certification working group meeting, the responsibilities and roles of CASA and industry organisations and authorised persons will be the major agenda item.

After years of debating with CASA, the attitude was quite different and agreement was reached over many on-going controversial issues that have prevented any unity with industry. The problem is that industry wants a similar system to the FAA.

The next step is to clarify what regulatory functions can be devolved to design organisations and authorised persons. CASA has a direct role in aircraft type certification prior to issue of a type certificate. CASA also has a role in a STC or modification that will change the aircraft flight handling and characteristics. Clarifying roles of CASA and industry needs to be completed to remove confusion. In many cases, CASA thinks they should be involved instead of placing the responsibility with industry.

2016 looks like a better outcome will be achieved in the design, certification and manufacturing sectors. The CASA engineering staff that chaired these meetings did a good job without the CASA middle management being present. Peter Nikolic did seem to support the meeting outcomes so maybe CASA cultural change is happening.

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#### ***4. AME Licencing is still not internationally compatible***

CASA has promulgated its long awaited changes to the Part 66 MoS to implement the GA “Group” licence ratings but still has to come to terms with changing the LAME role in aviation maintenance. The whole training environment needs a new model.

Thankfully, the long awaited government changes in the Federal Education Department and remodelling of Industry Reference Groups with new Skill Councils are starting to be rolled out by Minister Hartsuyker. Hopefully, by mid-year the real issues are addressed so that the AME training, Australia wide, is based on international standards as it was until CASA abandoned promulgating the ICAO syllabi for AMEs.

However, it is really about how and when the training is applied taking into consideration the demographics of Australia and the capability and use of e-media available.

The European Part 66 system has the same flexibility that CAR 31 provides in Australia. The failure to adopt the flexibility of the EASR system has done some damage to the NVET trade training system.

This industry has had to endure the inflexibility that has been applied under the CASRs and CASA not recognising the National Vocational Education Training system. CASA’s direction to the Education Department approved RTOs has put maintenance training back decades. This system has to be re-built and will rely on CASRs including the following regulatory provision that EASA made available to each European country.

##### ***EASR 147.B.25 Exemptions***

*(a) The competent authority may exempt a State education department school from:*

- 1. being an organisation as specified in 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 Part-147.*
- 3. having recourse to the independent audit part of a quality system subject to the department operating an independent schools inspectorate to audit the maintenance training organisation at the frequency required by this Part.*

*(b) All exemptions granted in accordance with Article 10(3) of the basic Regulation shall be recorded and retained by the competent authority.*

Without the above regulation, duplication and red tape of administrative processes between government departments and agencies simply adds unnecessary costs to the process of obtaining national academic qualifications that employers can utilise.

What this provision enables is CASA can recognise a NVET RTO without any Part 147 approval. Part of the Exemption would include a provision for CASA to provide regulatory oversight of the AQF aircraft maintenance courses being provided. E.g.

- Aircraft maintenance engineer (pathways to match licence/ratings)
  - Avionics
  - Mechanical (includes structures)
- Aircraft welders
- Aircraft structures
- Weight & Balance
- NDI (excluding dye processes)
- Aircraft finishers
- Maintenance management
- Etc. etc.

This was the direction CASA was following until its change of direction under Byron. Under the current review by the Department of Education, recreating a trade level with additional training for LAME ICAO responsibilities will be possible – the ICAO LAME privileges should be similar to the FAA A&P Inspection Authorisation training to meet ICAO Annex 1 privileges.

To get the NVET system providing skills and knowledge applicable to international AME training standards, as previously done in Australia, will take multi-government department and agencies cooperation with industry. It is starting to happen.

The following EASRs has to be included in CASR Part 66/147 to enable the trade training system to be rebuilt.

**EASR 66.A.25 (a)** *An applicant for an aircraft maintenance licence or the addition of a category or subcategory to such an aircraft maintenance licence shall demonstrate, by examination, a level of knowledge in the appropriate subject modules in accordance with Appendix I to this Part. The basic knowledge examinations shall be conducted by a training organisation appropriately approved under Part-147 or by the competent authority*

**Note:** Under this EASR provision, if applied in Australia, either a CASR Part 147 RTO or CASA shall continue with “Basic Examinations”. An EASR Part 147 can be approved just to provide the “Basic Examinations” so that a person that self-studies can be tested. There should be some regulatory saving provisions that recognises the current workforce.

**EASR 66A.30 (a)** *An applicant for an aircraft maintenance licence shall have acquired:*

1. *for category A and subcategories B1.2 and B1.4:*
  - i. *three years of practical maintenance experience on operating aircraft, if the applicant has no previous relevant technical training; or*
  - ii. *two years of practical maintenance experience on operating aircraft and completion of training considered relevant by the competent authority as a skilled worker, in a technical trade; or*
  - iii. *one year of practical maintenance experience on operating aircraft and completion of a Part-147 approved basic training course.*
2. *for category B2 and subcategories B1.1 and B1.3:*
  - i. *five years of practical maintenance experience on operating aircraft if the applicant has no previous relevant technical training; or*
  - ii. *three years of practical maintenance experience on operating aircraft and completion of training considered relevant by the competent authority as a skilled worker, in a technical trade; or*
  - iii. *two years of practical maintenance experience on operating aircraft and completion of a Part-147 approved basic training course.*

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**EASR 66A.30 e)** Notwithstanding paragraph (a), aircraft maintenance experience gained outside a civil aircraft maintenance environment shall be accepted when such maintenance is equivalent to that required by this Part as established by the competent authority. Additional experience of civil aircraft maintenance shall, however, be required to ensure understanding of the civil aircraft maintenance environment.

**Note:** The EASA system provides 3 ways of obtaining the experience and knowledge to sit for the “Basic Examinations” for an AME licence.

1. 3 or 5 years’ experience and pass the knowledge based Basic Examinations provided by a Part 147 or the NAA.
2. 3 years’ experience if the person has completed a technical trade (aircraft or allied trade) and pass the knowledge based Basic Examinations provided by a Part 147 or the NAA.
3. 2 years’ experience and completion of an aviation trade course.

CASA was “captured” by vested interests with the system they have promulgated in Parts 66/147 – a system that has failed the wider aviation community.

In addition to clarity and flexibility in the EASR system, EASA also recognised that the GA required “group” ratings for general aviation – why wasn’t it adopted?

3. The [EASA] groups shall consist of the following:

**i. for category B1 or C:**

- helicopter piston engine
- helicopter turbine engine
- aeroplane single piston engine—metal structure
- aeroplane multiple piston engines—metal structure
- aeroplane single piston engine—wooden structure
- aeroplane multiple piston engines—wooden structure
- aeroplane multiple piston engines—wooden structure
- aeroplane single piston engine—composite structure
- aeroplane multiple piston engines—composite structure
- aeroplane turbine—single engine
- aeroplane turbine—multiple engine

**ii. for category B2 or C:**

- aeroplane
- helicopter

The damage that has been done by the narrow and inflexible CASR Parts 66/147 can and will be corrected during 2016. The problems with maintenance skills have been raised at Ministerial level and there is government (Department/CASA) Executive support to correct the problems during 2016.

Under new Industry Reference Groups being implemented in 2016, AMROBA will be pushing for a new approach to training and encouraging CASA to provide more flexibility in the regulations and standards by using outcome based requirements. Some issues are:

1. **Practical Skills.** We need to accept that basic practical skill standards meeting international standards must be developed for the AQF 1 & 2 levels so they can be taught in technical secondary schools and/or colleges prior to employment.
2. **AMEs are quasi professional.** The knowledge required far exceeds the practical skills and theoretical knowledge can be taught through multiple mediums from class room to e-learning.
3. **Experience.** This is needed to hone practical skills and understand the application of the knowledge being attained.

Competency based training, as currently applied, has failed this industry. Vested interests have helped create a system that would work in the military and major airline system but not compatible with the rural demographics of Australia.

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The practical training standards prescribed by ICAO can be fully subjected to competency based training like it did a few decades ago but the additional knowledge prescribed by ICAO should not be subject to these competency based training.

At this stage, there are some positive signs being demonstrated by government education representatives and Ministerial support is helping recreate one of the world's best training environments. Get it right, and Australia will attract foreign students.

Get it right and rural Australia will once again become the provider of qualified persons needed in the aviation industry.

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Safety All Around