

## Senate Review Australia's general aviation industry – 2020 – Submission

### About myself.

I have been a Licenced Aircraft Maintenance Engineer (LAME) with some 50 years of experience. I have worked in the following aviation environments, Airline- Domestic and International, General Aviation, Aircraft Manufacturing, working overseas in Oman, India, Vietnam, Brunei. Currently a retired CASA Airworthiness inspector (AWI) of more than 10 years but still involved as a part time Quality controller for an Approved Maintenance Organisation.

### Looking at both General Aviation (GA) and the Airline aspects.

I realise this enquiry is primarily for the GA sector of the industry however there are many aspects that affect both fields within the broader aviation environment, therefore my submission will be broad and general.

### Organisational Instability, Change of Direction and Purpose.

Looking at this primarily from an Airworthiness aspect --- ICAO Publishes an Airworthiness Manual (DOC 9760) Part II: of that manual sets out, among other matters, the requirements for “Airworthiness Organisation Structure and Responsibilities of States” chapter 3 specifically describes the structure of an Airworthiness Organisation, also known as a Civil Aviation Authority (NAA), for Australia that is CASA.

As an ex CASA employee, I have observed a progressive de-skilling of the of the inspectorate with each change of Director/CEO. This industry is a fast developing one with significant advances in technology, little opportunity is provided to staff to upskill and/or maintain their tradecraft knowledge base. From a regulatory aspect most CASA based staff training courses are designed to be a tick and flick exercise to meet external audit expectations, these external audits (typically ICAO and the FAA) do not delve sufficiently enough to look at course feedback and interview employees as to the worth/effectiveness or adequacy of the training.

ICAO does provide adequate guidance as to their expectations that a CAA (also known as National Airworthiness Authority (NAA)) should meet excerpt from Doc 9760 see below. (Note: CAA means Civil Aviation Authority for Australia that is CASA)

#### *“3.1.3 Staffing and training*

*3.1.3.1 In order to meet its responsibilities, the airworthiness organization must be staffed with qualified and experienced personnel capable of successfully undertaking the wide variety of required tasks. CAAs should ensure they attract and retain technically competent staff with the credibility and competence to interact with industry in an efficient and effective manner. It is essential that the staff be selected with considerable care. Some specialized skills may be obtained from external sources as needed.*

*3.1.3.3 The CAA should have a programme for induction of new personnel that includes training in organizational responsibilities, appropriate airworthiness standards and policy, organizational working procedures, and the role of a regulator.*

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*3.1.3.4 The CAA should have a structured programme to educate the staff on appropriate new CAA standards, policies, and procedures as they are being implemented.*

*3.1.3.5 The staff needs to keep abreast of new industry developments in the design, construction and maintenance of aircraft and associated equipment. A programme should be developed that provides for the staff, at regular intervals, to visit appropriate facilities and attend technical training and symposia to gain first-hand knowledge of new developments, including management principles. As a general policy, it is not desirable for individual staff members to obtain technical training or licenses from those entities under their direct regulatory jurisdiction.*

*3.1.3.6 In order for the CAA to benefit from the retention of experienced staff on the job and to maintain the necessary continuity of the organization, it is important that staff members are provided with conditions of service and remuneration reasonably consistent with that of industry, given the same education, technical knowledge, experience, and the responsibilities of their position.”*

### **What can we do about it ?**

The structure of CASA needs to be more appropriately defined and fixed rather than left to the interpretation of the ever changing streams of Directors/CEO's and to some extent the CASA Board, Australia states that it follows the principles of ICAO so perhaps it is worthwhile embedding the ICAO structure within the Australian Legislation. One again the ICAO DOC 9760 describes in Part II chapter 3 para 3.1 those functional responsibilities and in following paragraphs an expanded expectation of their functions and responsibilities.

There is probably merit in describing in our legislation or other CASA policy documents either as a definition or by enumerating within the text the ICAO annexes for which CASA responsible.

### How is CASA Perceived by Industry:

Let us look at what CASA has achieved in the last 23 odd years, it has been struggling to introduce a new regulatory framework to align our regulations with, initially the American Federal Aviation Authority (FAA) with an about face in around 2001/2002 to align with the European Aviation Safety Authority (EASA). The latest change in tactic appears to be an alignment of our General Aviation sector with the FAA, what a mishmash of directional changes. This function has been hindered by numerous enquiries, reviews and reports, there has been a green paper and a white paper produced at great expense to the tax payer with very few of the recommendations introduced despite CASA's agreement to do so.

This situation has been aggravated by the attrition of dedicated, experienced, highly qualified staff, inadequate training and supervision for new employees added to that the dumbing down of the broader inspectorate by reduction in scope of delegated functions previously held by front line inspectors and withdrawn and assigned only to managers. This situation continues in spite of being identified in a 1998 Plane Safe Report and again in an Australian National Audit Office (ANAO) Audit Report No.19 1999–2000. I do not degrade the quality of ex-military applicants however their experience is not from a civil environment, granted that the Military Airworthiness regulations are modelled on the European regulations it is generally agreed that those applicants for CASA jobs need some civil experience before joining the inspectorate.

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Industry has experienced a down turn in the number and skill base of Licenced Aircraft Engineers (LAME's), especially since the attrition of LAME's due to retirement and the devolution of training and conducting examinations have been outsourced to Part 147 approved training organisations. Unfortunately these organisations are primarily East Coast based and the added expense for students in travel, accommodation and living expenses when relocating to the areas where those facilities are, granted CASA has in recent months raised a project that may facilitate people being able to obtain their AME licences through the previous scheme of Self Study, CASA conducted examinations and a schedule of experience. This has significant merit and has in the past served both the industry and CASA well providing well trained and experienced AME's that progress to their LAME status within cost effective and labour effective constraints.

It is interesting to note that a University of Sydney paper dated October 2015 entitled "*The Future of Aircraft Maintenance in Australia*"

*"However, each of these threats is overshadowed by the most important development since this program began: the strengthening evidence that the world will shortly face a serious shortage of skilled aircraft maintenance labour. This now appears to be of sufficient proportions to merit the description of a crisis, and is starting to emerge already as a practical problem for MRO providers in some parts of the world. Unless Australia takes proactive measures to build up its capacity to service its own fleet, we believe that by next decade this skills crisis will represent the largest single threat to the safety of Australian aircraft users since the jet era began.*

*Boeing has also produced its own projections, updated every year, which can be assumed to incorporate a lot of corporate knowledge unavailable to the broad policy and research community. According to these projections, the world aviation industry will need somewhere around a million new qualified aircraft maintenance technicians by the early 2030s."*

Therefore, whatever CASA can do to allow the industry to train the required industry participants will provide the basis for a safer robust industry and in line with CASA's Corporate Vision of

### **SAFE SKIES FOR ALL**

It is unfortunate that industry perceives CASA as a road block to industry expansion in both the Airline environment and G.A. sectors, many industry participants view the requirements imposed, both regulatory and financial, by the move to European Aviation Safety Authority (EASA) style regulation suite as onerous and expensive, they forget that CASA introduced the regulatory change based on what industry stated that they (industry) wanted.

The basic technical requirements that sit behind the EASA legislation has changed little since the early 2000's. Both the EASA and CASA have of course updated those requirements in line with the International Civil Aviation Organisations (ICAO) known as the Chicago Convention Standards and Recommended Practises (SARP's) which Australia has elected to follow unless they notify ICAO of a Difference.

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### Where to from here?

Firstly, CASA need to define what it wants to be – that of a Regulator or that of a partner to industry.

The Civil Aviation Act clearly requires that CASA, as a Regulatory Authority, works in cooperation with the aviation community to maintain and enhance aviation safety and that CASA, under paragraph 9(2)(b) of the CAA, must promote full and effective consultation and communication with all interested parties on aviation safety issues with the additional requirement to provide comprehensive safety education and training programs and mentoring for both industry and staff.

There has to be a point in time where, for a mature operator (either an Approved Maintenance Organisation (AMO) or an Air Operators Certificate of Approval holder (AOC)), education/mentoring content has to transition to the role of a Regulator.

In 1999 The ANAO undertook an Aviation Safety Compliance Audit in response to a 1998 Plane Safe report one of the thirteen recommendations from that audit was that CASA should enhance procedures for identifying those operators with a significant history of noncompliance and developing appropriate enforcement strategies, including ensuring that the quality of the evidence collected is able to expedite any enforcement action. CASA persists with a Risk Based regime for identifying operators that need closer attention. Although the Risk Based process is a relevant tool in the armoury for detecting recalcitrant or non-compliant operators it does not identify systemic issues revealed by system audits or the deficient outcomes identified by product audits. The broader inspectorate needs more front line “troops” and better/relevant training.

CASA controls the entry of operators into the aviation industry through the certification process for issuing AOCs and Certificates of Approval. Subject to conditions in the Civil Aviation Act, Regulations and Orders, CASA issues, re-issues and varies certificates to those applicants who demonstrate they can comply and will continue to comply with air safety regulations. There are set procedures that the inspectorate needs to follow to provide the recommendation to the Delegate to issue such approvals yet CASA Management has decreed that overseas AMO's do not require site visits to confirm compliance with the submissions made by the operator supporting the issue of a Certificate of Approval. I was recently advised that CASA no longer supports type training for Flight Operations or Airworthiness Inspectors for aircraft types that they are operated by AOC holders that they are required to oversight.

An extract from the Auditor General's Audit Report No. 19 1999-2000 alludes to a continuing deficiency.

*The ANAO examined the application of these procedures to a sample of cases in seven CASA area/airline offices (formerly district offices).<sup>3</sup> Of the sample operators examined, the audit found that the assessment process had been either fully or mostly documented in only 55 per cent of flying operations and 75 per cent of airworthiness cases. Although acknowledging the small size of the sample, seven out of 12 assessments involving Regular Public Transport (RPT) operations lacked appropriate documentation. In these cases, it was difficult to determine if the applications had been properly assessed or how the delegates had satisfied themselves that the operators were suitable to hold certificates and had the ability to comply with the legislated safety requirements.*

Secondly, the Australian Government needs to ensure appropriate funding to ensure that CASA is appropriately staffed and trained front line inspectorate. It is notable that ICAO in their Document

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9760 - Airworthiness Manual Chapter 3 describes the requirements for an Airworthiness Organisation one of the sections within the manual 3.1.3 sets out the staffing and training of a Civil Aviation Authority to which I referred earlier.

Thirdly, there needs to be some method of ensuring that the organisational structure ensure the proper balance (ratio) of front line staff to the various levels of management.

Fourthly, CASA has a current project for CASR Part 43 - Maintenance of aircraft in private and aerial work operations. Generally classified as General Aviation. There is some merit with the proposal however there are significant safety risks with the path that CASA is following. These are too numerous to enumerate in this submission but I shall identify a number.

First a very brief explanation of the differing trade categories and skills required for each trade group.

1. Prior to the introduction of the current B1 & B2 CASR Part 66 licence categories the Aircraft Maintenance Engineers Licence groups were allocated under CAR 32 as Airframes, Engines, Instrument, Electrical and Radio. The Mechanical trade streams Airframe and Engines were combined as B1 licences and the Instrument, Electrical and Radio trade streams were combined as B2 Avionic Licences.
2. At transition from CAR 32 to CASR Part 66 those LAMES who did not satisfy the requirements for a "full" B1 or B2 licences were issued those category licences with exemptions for the trade stream that they did not hold the licence for under the CAR 32 system. For example, a B2 LAME that previously only held a Radio licence under CAR 32 were under CASR Part 66 issued a B2 licence with exemptions against the instrument and electrical category meaning one could only certify for maintenance in for the Radio systems category.
3. The B1 and B2 AME licences are further divided into sub categories depending upon whether they are Helicopters or Aeroplanes, Piston or Turbine engines (Powerplants)

What is also important, is an understanding of the implications of the new legislation, that permits LAME's to perform aircraft component maintenance.

The practical training and theory syllabus for a Licenced Aircraft Maintenance Engineer (LAME) is based around Aircraft Maintenance, which is fundamentally different for aircraft component maintenance and unless the person has actually been employed in a component maintenance environment that person will have little understanding of the practical aspects of maintaining those components.

The training as a LAME provides an understanding of how those components function within the aircraft system, generally to block diagram level, but not necessarily the detailed knowledge of how the components process the input commands and data to provide an output that directs the movement of flight or engine controls or provides the operating crew with critical environmental, navigation and flight information nor are constructed and maintained. For example how would you feel sending your car to be maintained in a workshop where the mechanic has done an apprenticeship and qualified as a motor mechanic but has ever only worked on two stroke engines in mowers, chain saws etc,. Your car has the latest fuel injected turbo charged engine. Sure, the person has the knowledge to maintain it but not the practical experience.

There are matters in the legislation where an understanding of the difference in those attributes of persons they are permitting to maintain aircraft components.

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Among those concerns is that the proposed legislation permits independent LAME's ( not working for an approved maintenance organisation) to maintain any aircraft for which their licence covers or maintain most aircraft components.

This effectively destroys the businesses that have gone through the hoops to establish an AMO with the tooling, maintenance data/manuals, procedures etc required by CASA, these overheads are expensive and necessary yet an independent LAME can operate out of the boot of a car without meeting any AMO standards.

The proposal also permits the independent LAME or a civil repair facility to maintain an aircraft component without having to issue an Authorised Release Certificate, in fact it permits anyone to make a statement on a blank piece of paper that the component is serviceable. Similarly, there is no need for the independent LAME to maintain records of work that he/she has performed on an aircraft other than a brief statement in the Aircraft Log Book.

Under current rules an Authorised Release Certificate is required from an AMO to ensure that a component being fitted to an aircraft has had the maintenance carried out and properly certified as evidence to the LAME fitting and certifying for the fitment as to the level of serviceability and Airworthiness Directive (AD) status.

Such regulations can lead to purchase of bogus or unauthorised parts by an aircraft owner from E-bay or other sources for a person to fit to their aircraft.

This erodes significant levels of previously inbuilt safety and in the event of an accident can hinder ATSB's investigation into the accident and promulgating findings that could prevent future similar failures.

I sincerely hope that my submission casts some light on issues and concerns that others have not considered.