



ALAEA

Australian Licenced Aircraft Engineers Association

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**Submission to the Senate Committee for
Employment,
Workplace Relations and Education
Inquiry into Workforce Challenges
In the Transport Industry**

March 2007

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1. Preamble

The Australian Licenced Aircraft Engineers Association (ALAEA) represents certifying Licenced Aircraft Maintenance Engineers throughout the Australian domestic, international, regional and General Aviation industries.

The ALAEA welcomes the opportunity to respond to the Senate Committee for Employment, Workplace Relations and Education *'Inquiry into Workforce Challenges in the Transport Industry'*.

The ALAEA welcomes the inquiry given the timeliness, appropriateness and relevance of conducting such a review with respect to current and future employment trends in the aviation industry and associated issues such as strategies for enhanced recruitment, training and retention. We believe it essential that significantly greater effort needs to be put into attracting young people into the aviation and airline industry throughout the world and, particularly within Australia.

- The ALAEA would be pleased to appear before the Committee to answer any questions the Committee might have regarding this Submission and to provide further evidence and amplification if requested.

About the ALAEA

The ALAEA is an organisation founded in 1960 to advance the professional, technical and industrial interests of Aircraft Maintenance Engineers who are licensed by the Civil Aviation Safety Authority (CASA) to certify for work performed on aircraft within Australia. Currently the ALAEA has 4200 members employed in all sectors of the industry – in the major airlines as well as in regional operations and the general aviation sector. The motto of the ALAEA is:

“To undertake, supervise and certify for the safety of all who fly”.

2. Executive Summary

- The inspection and maintenance of aircraft to ensure the aircraft is safe to fly (airworthy) is the basic foundation and underpinning of the travelling public being able to arrive safely at their destinations.
- The Federal Government drove apprenticeship and Trade training numbers, up until the privatisation of Australian Airlines and Qantas and the Qantas share float.
- Post Qantas/Australian Airlines privatisation, airlines have not filled the trade training gap and it is growing.
- Australian Industry, State and Federal Governments need to be more pro-active in re-establishing and greatly enhancing apprenticeship training resources and positions.
- Without a concerted and combined effort involving industry stake-holders and Government, the aviation maintenance industry in Australia will steadily decline and eventually disappear.
- There is direct correlation between Australia's air transport safety record and its high standard of training of aircraft trades people and Licenced Aircraft Engineers.
- Australia has one of the best safety records in air travel in the world and Qantas is the world's best. That is because Australia's regulatory regime has been stringent and its aviation maintenance workforce trained and competence maintained at a very high standard. Such standards should not be diminished in any way as the price in safety may too horrendous to imagine. Without quality effective inspection and maintenance hence an airworthy aircraft there is nothing, pilots or flight attendants can do to ensure the safety of the travelling public

- Maintaining an effective aircraft trade-training capability hinges on airlines having their heavy maintenance on aircraft done in Australia.

- The loss of aircraft maintenance work overseas provides any easy excuse for such companies to not commit to further capital expenditure in Australia as it reduces its workforce cuts back on training thus causing an ever diminishing spiral as more and more work cannot be done in Australia due to lack of facilities and manpower. A “Catch 22 decay” in skilled labour supply.

- Aircraft engineers are a specialised trade and in short supply in Australia and around the world and the trend is to greater shortages.

- The basic reasons for the shortfall of experienced licenced aircraft maintenance engineers are:
 - aircraft fleet growth,
 - retirements of skilled personnel,
 - attrition to other industries,
 - costs of training
 - lack of desire by companies to train
 - lack of corporate responsibility to the general community
 - contracting out and the inability or lack of desire of contractors to train
 - offshoring of work
 - and companies attempting to down-play the role and function of the licenced engineer
 - base remuneration less than outside aircraft industry positions of similar or lower qualifications

- The imperative to address the worsening skills shortfall has never been more urgent. Governments, the industry and key stake-holders must work together immediately to address the fundamental structural issues which are allowing this crisis to mount.

- Herein lies a fundamental matter of public interest for the Government to address. Is it in the national interest to maintain an aircraft heavy maintenance industry hence trade training capability in Australia or not?

- The ALAEA's view is that it is in the national interest to do so for the following reasons:
 - Supply of suitably qualified and competent overseas labour cannot be guaranteed
 - Australia from a defence strategic viewpoint needs to have a capability to maintain aircraft.
 - Aircraft maintenance is both at the forefront of technological development hence the generator of high technology skilled labour supply
 - Airline/aircraft maintenance is a significant contributor to GDP
 - Australia has the potential to become a net exporter of labour services for aircraft maintenance industry worldwide
 - It is detrimental to the Australian balance of payments to become a net importer of aircraft maintenance labour services .i.e. if we offshore aircraft maintenance overseas because of inadequate Australian labour supply it becomes an import cost.
 - Australian quality of training, trade competence and quality of workmanship in the aircraft maintenance industry is known worldwide for it's high standard. E.g. as reflected in Australia's very low major airline aircraft incident statistics.

- Any aircraft operator who wishes to operate into Australia should be required by regulation to train and hire Australian labour. The Civil Aviation Act 1988 should be amended to enable regulations to be made to require an aircraft operator to either train or facilitate the training of aircraft maintenance engineers through the Australian vocational training system. Number of trainee quotas should be established depending on the size of the operation and a dollar value for the quota.

- Similar to the Maritime & Shipping Industry, Aircraft Maintenance Engineers trade streams need to be recognised for the unique specialised trades that they are by Government Departments administering Education and Training and funding employment incentive schemes.
- It is imperative we maintain the total independence and unbiased authority of the Civil Aviation Safety Authority to regulate the industry and accredit it's participants to ensure the highest possible safety, in aviation, for the public and national security.
- The immigration of appropriately qualified foreigners is welcomed by the Aircraft Industry providing the legislative guidelines are followed and appropriate local apprenticeship training opportunities are not forgone for young Australians.
- It is imperative that the high quality education and training resources available through government and private organisations are co-ordinated to address inequities in contribution to the training of skilled labour.

3. Submission

3.1 Aircraft Maintenance is Safety for the Travelling Public

The inspection and maintenance of aircraft to ensure the aircraft is safe to fly (airworthy) is the basic foundation and underpinning of the travelling public being able to arrive safely at their destinations. Without quality effective inspection and maintenance hence an airworthy aircraft there is nothing, pilots or flight attendants can do to ensure the safety of the travelling public. Australia has one of the best safety records in air travel in the world and Qantas is the worlds best and that is because Australia's regulatory regime has been stringent and its aviation maintenance workforce trained and competence maintained at a very high standard. Such standards should not diminished in any way as the price may too horrendous to imagine. It follows that a drop in the quantity of supply of skilled aircraft maintenance engineers or lowering of the quality standards in training or maintenance will directly affect the safety of the travelling public at some stage.

The ALAEA is alarmed at a continuing trend which sees airline and aviation companies, operating in an intensely cost-competitive environment, pushing regulatory boundaries unchecked, in order to cut costs and often at the expense of sensible safety risk management.

The loss of aircraft maintenance work overseas provides any easy excuse for such companies to not commit to further capital expenditure in Australia as it reduces its workforce cuts back on training thus causing an ever diminishing spiral as more and more work cannot be done in Australia due to lack of facilities and manpower. A "Catch 22 decay" in skilled labour supply. For example, in February 2007 Qantas engineering management confirmed with the ALAEA that the reason for the most recent outsourcing to Singapore was that it was not short of hangar space, tooling or equipment to perform a 30,000 manhour aircraft check it was because it was short of the labour so the aircraft was sent overseas. This was direct result of Qantas incremental outsourcing of heavy maintenance aircraft work overseas steadily increasing over the past five years and Qantas making redundant, in March 2006, approximately 400 aircraft engineer positions in

Sydney, 256 being Licenced Aircraft Maintenance Engineers all as a result of a cost cutting campaign to boost short term profits. In Qantas Board's and engineering management's view the option to close Sydney Heavy Maintenance was seen as a more prudent step in the current political and public opinion environment. This option was seen as the lesser of two evils as totally closing Australian heavy maintenance options and work being outsourced to countries with lesser maintenance quality regimes had the potential to severely alienate its customer base, most of which prefer Qantas because of its safety record. The ALAEA fears that the Board's more prudent approach still involves the total offshoring strategy but incrementally stepped over a longer time frame so as to ease the travelling public and Governments into it and not damage the "brand". The ALAEA has been made aware by Qantas engineering management that some factions within the Qantas Executive support the immediate total offshoring of Qantas Heavy Maintenance to other Maintenance Repair Organisations (MROs) as recommended by to it by consultants Seabury Airline Planning Group in 2005.

In Australia an unlicenced aircraft engineer (AME) must carry out his duties under the guidance and supervision of a licenced aircraft engineer (LAME) who checks and certifies for the unlicenced engineer on completion of his work. A LAME may Certifies for his own work and in some cases requires a second LAME to check his work, which is then dual Certified.

In Australia depending on aircraft size, it would be normal at any one time (shift) that between 40-80 engineers both licenced and unlicenced would be working on the aircraft at a heavy maintenance facility. It has been discussed between the ALAEA and Qantas management that the correct mix of licenced to unlicenced engineers should not drop below 30% licenced. This provides for a minimum number of licenced engineers at any one time working in an Australian maintenance facility at 12 supervising for the work of 40 engineers including themselves or one LAME supervising, inspecting, checking and certifying for his own work and up to 3 others. This mix has proven to be effective for quality assurance and efficiency purposes.

There is an increasing trend among airlines to out-source maintenance to third world countries due to labour costs. There is increasing anecdotal evidence as to the lower level of quality of work being carried out at these facilities, but airlines are keen not to reveal the quantity of rectification work required to be carried out by Australian based staff, prior to an aircraft returning to service after maintenance has been carried out by overseas MRO facilities. The amount of work outsourced from Australia is significant for example a “D” Class Maintenance Check on a B747- 400 aircraft ranges from 45,000 to 70,000 man-hours of work.

Some members of the ALAEA have recently visited the two current facilities in Asia maintaining Qantas and Jetstar aircraft. At the Manilla facility where A330 aircraft are maintained it is reported that at any one time only 2 Licenced engineers are working alongside 44 unlicenced engineers. These 2 locally employed licenced engineers are required to check and certify for their own work and that of 21 others at the same time. It is virtually impossible to check the quantity and quality of that work to a sufficient assurance standard.

The Singapore site that has been maintaining a constant stream of Qantas 747 aircraft since May last year will have up to 60 engineers working at any one time of which a maximum of 5 are licenced. The 5 locally employed licenced engineers are required to check and certify for their own work and that of 11 others at the same time. From time to time LAMEs in Singapore are required to supervise the work of prisoners brought in from Singaporean prison to supplement the workforce as free labour working on aircraft.

Thankfully in Australia we currently do not have such deficient maintenance regimes, however should there not be an adequate supply of skilled aircraft maintenance trades labour in Australia more of Australia’s aircraft will be maintained offshore in substandard regimes, which eventually will impact on Australia’s air travel industry safety.

Many airlines around the world are increasing their levels of out-sourcing of maintenance work, which poses further safety risks, and they are justifying their needs on:

- a lack of skilled work force; and
- the cost of employing and training such skilled work force.
- various Maintenance Repair Organisations (MROs) costs are lower because they receive significant Government subsidies and tax concessions depending on their country of location
- need to sell off Assets to finance debt burdens

3.2 Restructure of the Airline/Aircraft Industry – Detrimental to Training of Skilled Labour?

A significant and major driver of Licenced Aircraft Engineers skills shortage is the structure of the market place, economy and the trend toward contracting out. In the late 80's prior to privatisation and corporatisation the industry consisted of two Government Airlines i.e. Qantas and Australian Airlines, one private major Airline i.e. Ansett a number of regional and charter airlines e.g. Hazleton, Eastern, Sunstate, General Aviation (GA) being the smaller aircraft operators and the Commonwealth Aircraft Corporation later to be renamed AASTAS being an aircraft manufacturing and repair organisation also existed.

The Government organisations Qantas, Australian, Dept of Defence, AASTAS all had significant intakes of apprentices and trades training programmes partly because there existed a need to replace labour, a sense of public service to the wider community to provide training and job opportunities for school leavers and it seemed like the right thing to do at the time. Private industry in a way was “embarrassed” into keeping their apprenticeship and trade training numbers up as significant public pressure could be brought in the market place against a player who wasn't doing the right thing by the community whose standard was in fact set by the Government entities and the two airline policy. Whilst the public through Government effectively owned the major airlines in Australia the majority of

apprenticeship and trade training in the airline/aircraft industry was funded by the public.

In the early 90's Qantas and Australian were privatised and merged resulting in approximately 4000 redundancies not all in trades areas. ASTAAS closed its doors after dwindling profitability and continual industrial unrest. What were three separate apprentice training organisations all significant employers in numbers terms of apprentices became one. The apprentice intake was reduced accordingly over the following years as Qantas embarked on cost cutting programmes and enhancing profitability for the merged entity "Qantas". Qantas was then corporatised and publicly floated on the share market. With effectively, the two previous apprentice training resources being halved, that entity being exposed to the nuances of the fluctuating share market, the need to continually raise profits to attract shareholders, the resulting continual cost cutting and need to renew the 'fleet' saw less of a "desire" to fund "non-core business". Unfortunately, providing apprenticeship training and young people employment opportunity is considered as "non-core business" by corporations. Whilst the Qantas Sale Act placed obligations on the corporation to maintain its business management operations in Australia it did not provide obligations to maintain apprenticeship and trade training positions.

During the above period successive Governments cut back Defence funding for apprenticeship intake but Ansett, Qantas and the regional airlines still maintained a level of apprenticeship intake. The Government Defence Depts. also set about contracting out maintenance, hence trade training opportunities.

In 2000 Virgin Blue Airlines entered the Australian airways market. It contracted a subsidiary of Flight West Airlines in Queensland "Jet Care Pty Ltd" to maintain its aircraft. The FlightWest group of companies considering their relative size was a significant contributor to apprenticeship opportunity numbers.

In 2001 Ansett Airlines ceased operations, including some its associated regional airline companies and FlightWest. A significant number of apprenticeship training

opportunities were lost. Some of Ansett's apprentices who had not finished training were taken on by Qantas with a subsequent lowering of an already low Qantas apprentice intake. Jet Care continued to exist and was later purchased by Patrick Corporation but its apprenticeship training was relatively insignificant compared with the size of the aircraft fleet it maintained for Virgin Blue. Virgin Blue's subsidiary maintenance company Virgin Tech is also an insignificant provider of apprentice training resources as both organisations are ostensibly Line Maintenance providers. Within a 9 year period the industry saw a major decline in apprenticeship training opportunities and resources.

Despite major financial incentives provide by the Queensland Government Virgin Blue has not come anywhere near the apprenticeship training opportunity levels of Ansett or Qantas. Whilst Virgin Blue derives almost all of its income from Australia it continues to outsource its heavy maintenance of aircraft to New Zealand denying employment opportunities for young people in Australia. This has left Qantas as the only major provider of apprenticeship training with a significant trade training resource capability.

Qantas has established major Heavy Maintenance facilities in Brisbane and Avalon Victoria but with subsequent closures of Heavy Maintenance in Sydney.

New airlines entering the Australian market do not generally train Australian apprentices.

In effect, the moderator in the supply of labour, which used to be the Government operations has been marginalized. There now exists a massive inequity in the training and supply of skilled labour. The supply heavily relies on Qantas who are unlikely to train surplus labour to their needs. An inequity is created when other operators who do not contribute to the supply of skilled labour poach Qantas's skilled labour and the burden then continues to fall on the major operator as they have to put on more apprentices/trainees to cater for the attrition.

Whilst the industry suffered a significant restructuring the major airlines are using more and contracting out. For example Qantas outsourcing of heavy maintenance aircraft work overseas has steadily increased over the past five years. In March 2006 Qantas made redundant approximately 400 aircraft engineer positions in Sydney, 256 being Licenced Aircraft Maintenance Engineers as a result of a cost cutting campaign. In Qantas Board's and engineering management's view this option was the lesser of two evils in that some factions within Qantas supported the total offshoring of Qantas Heavy Maintenance to other MROs as recommended by to it by consultants Seabury Airline Planning Group.

Overseas MROs performing work on Australian aircraft do not train Australian Apprentices as there is no obligation to and it would make them less competitive.

Similarly local maintenance contractors to Australian or overseas Airlines operating in Australia do not have the incentive or obligation to provide training opportunities for Australian apprentices.

A further restructuring of the industry may occur if and when Qantas is bought by the overseas funded (hence controlled) private equity consortium. Such private equity consortiums are known for cost cutting, asset stripping and sell offs. If this happens the only Australian airline/aircraft industry apprentice training resource will more than likely cease to exist in any significant format. With Qantas now 30,000 manhours short of meeting its Heavy Maintenance workload a drive in Qantas to reduce costs further, catalysing further outsourcing it is unlikely such a consortium would spend money on increasing the workforce, replace capital and equipment or replace the skills necessary to maintain a Heavy Maintenance operation in Australia at all. Then no major apprenticeship training resources will exist in the aircraft industry in Australia.

Herein lies a fundamental matter of public interest for the Government to address. Is it in the national interest to maintain an aircraft heavy maintenance hence trade training capability in Australia or not?

The ALAEA's view is that it is in the national interest to do so for the following reasons:

- Australian quality of training, trade competence and quality of workmanship in the aircraft maintenance industry is known worldwide for its high standard and directly correlates to Australia world leading aircraft safety record.
- Supply of suitably qualified and competent overseas labour cannot be guaranteed
- Australia from a defence strategic viewpoint needs to have a capability to maintain aircraft.
- Aircraft maintenance is at the forefront of technological development hence the generator of high technology skilled labour supply.
- Airline/aircraft maintenance is a significant contributor to GDP
- Australia has the potential to become a net exporter of labour services for aircraft maintenance industry worldwide
- It is detrimental to the Australian balance of payments to become a net importer of aircraft maintenance labour services i.e. if we offshore aircraft maintenance overseas because of inadequate Australian labour supply it becomes an import cost.
- Aircraft Heavy Maintenance is the training resource and environment that provides the appropriate quality training experience and competency.

3.3 Role of the Licenced Aircraft Maintenance Engineer

When a licenced aircraft maintenance engineer certifies work, he/she is certifying to say that the work carried out has been properly carried out in accordance with the correct manuals, the correct procedures were followed, the correct tools were used, that the appropriate checks and tests were carried out, that the component or system is fully and correctly functional, and the aircraft is safe to fly i.e. airworthy.

Aircraft maintenance engineers typically require three levels of training, Basic Training, Advanced Type Training, and Specialised or Specific Training.

- Basic training is the first step to becoming an aircraft engineer. There are several training schemes ranging from national vocational training to international standardised training.
- Advanced Type Training is focused on the aircraft type to be maintained and the training programme involves significant practical tasks on the aircraft type in question.
- Specialised or Specific training is qualifying for a specialised task/s such as welding, composite repair, Boroscope inspections.

To progress to becoming a Licenced aircraft maintenance engineer (LAME) in addition to the above the AME must complete further training and competency assessment.

3.4 The Australian Aircraft Engineer Licence Competency System and Training

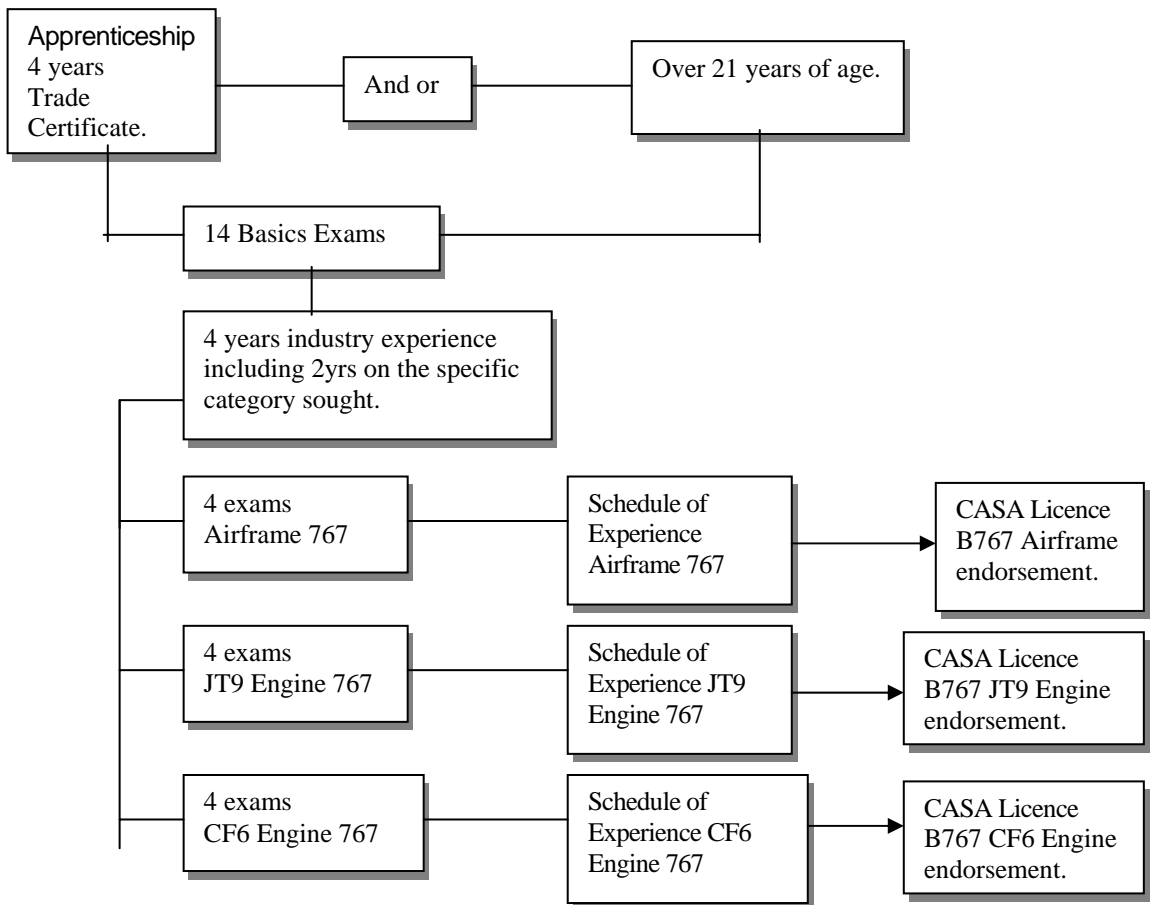
The current Licencing requirements in regard to competency and its Regulation have proven to be effective. The regime ensures a high minimum standard of knowledge and expertise in a complex technical industry. The concept that a LAME gains the appropriate competency to become a Licence holder, by working through a structured engineering career progression has proven to be immensely logical and effective. It is a system that may need fine tuning and continual adjustment but its practical base is the key to maintaining high quality engineering maintenance. Reducing the opportunity for acquiring of practical applied experience and dilution of independent Licence competency assessment by CASA can only lead to a lowering of quality standards, which may have grave ramifications.

A typical Airline LAME career path is exemplified as follows:

Stage	Duration	Qualification	Completion Approx. Age
AME	4years	Trade Certificate	20 – 22 Depends on

Apprenticeship			start age.
LAME	3 to 6 years	1 st Licence	23 - 28
LAME	At least one additional year per licence.	Additional licences.	On going

The accreditation system is based on Trades Certificate and then competency training to Licence level. For example an AME wishing to obtain a B767 aircraft dual licence (i.e. engine plus airframe) would need to sit approximately 14 basic knowledge modules exams. These assessments are either performed by CASA, or CASA Approved Training Providers. A typical progression to mechanical LAME for a B767 aircraft under the current system would be:



CASA requirements for issuing of Licences and endorsements are attached in Appendix 1. CASA Syllabi for Licences training are attached in Appendix 2.

CASA's role as the community representative in establishing competency standards and maintaining accreditation through licencing independently must not be diminished in any way. The Licencing system establishes a minimum standard for competency and because of CASA's independence from the financial pressures companies suffer, the minimum standards are not compromised. Hence the risk, of lower standards of maintenance and to passenger's safety, is minimized.

The above system is about to undergo a significant and major change to align Australia with the European system of training, accreditation and Licencing. The training load and content however will not be any lower and may in fact be more complicated and time consuming.

The alignment would be a significant step toward making Australian Licenced engineers even more attractive labour supply to overseas MRO's and may exacerbate future skilled shortages in Australia by enabling Australian Licenced maintenance engineers to pursue the higher rates paid overseas with little or no international competency and accreditation recognition barriers. Such further shortage could only exacerbate the 'Catch 22 decay' effect and the demise of the industry in Australia in the long term.

3.5 Skill Shortages

The "Australian Job Search – Careers – Job Outlook" web site provides some interesting statistical data with respect to Aircraft Maintenance Engineers. Recent surveys carried out by 'ABS Labour Force', provides statistical data with relation to 'Occupation Size', 'Weekly Earnings', 'Job Prospects', 'Key Indicators', 'Main Employing Industries', 'Working Full Time', 'Median Age' 'Gender Breakdown', 'Unemployment' and 'Regional'.

The total number of Aircraft Maintenance Engineers documented in the survey reveals there are 13000 workers employed in this occupation. Of this 13000 there are approximately 6000 employees who are actually Licenced Aircraft Maintenance Engineers, i.e. Engineers who can legally sign ‘a return to service’ for the airworthiness of an aircraft. These are licences issued by CASA for the Certification of aircraft maintenance. The remaining 7000 odd employees are “un-licenced” aircraft maintenance engineers, as can be seen by the CASA statistics in graphed in Figure 1. below, hence the DEWRS statistical data does not identify licenced aircraft maintenance engineers specifically. In effect the problem is worse than this set of data shows and it is not improving with current trends with employers.

Total number of Australian LAMEs

Includes all LAMEs with active and valid licences during the period January 2000 to June 2006.

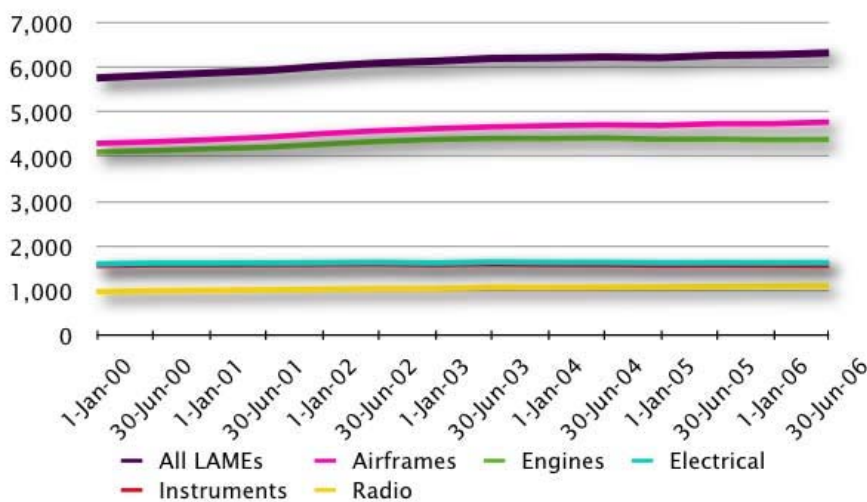
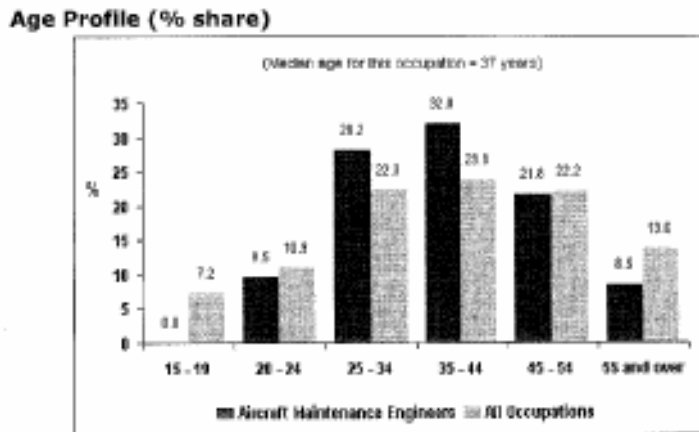


Figure 1. Source: <http://www.casa.gov.au/ame/amestats.htm>

The ratio of LAMEs to AMEs therefore appears to be approximately 45%. The ratio appears to be higher than that reported for the major airlines and may be because most AMEs to get work in the General Aviation sector have more work opportunity if they are Licenced. Also the General Aviation industry consists of many small maintenance workshops where the LAME performs the work and Certifies. In addition a number of older LAMEs once retired from the general workforce maintain veteran and vintage aircraft as a hobby and keep their licences current.

Other data reflected in the ABS Labour Force survey covers the age demographics of Licenced Aircraft Engineers. The survey shows the median age of aircraft maintenance engineers as 37 as in Figure 2. below:



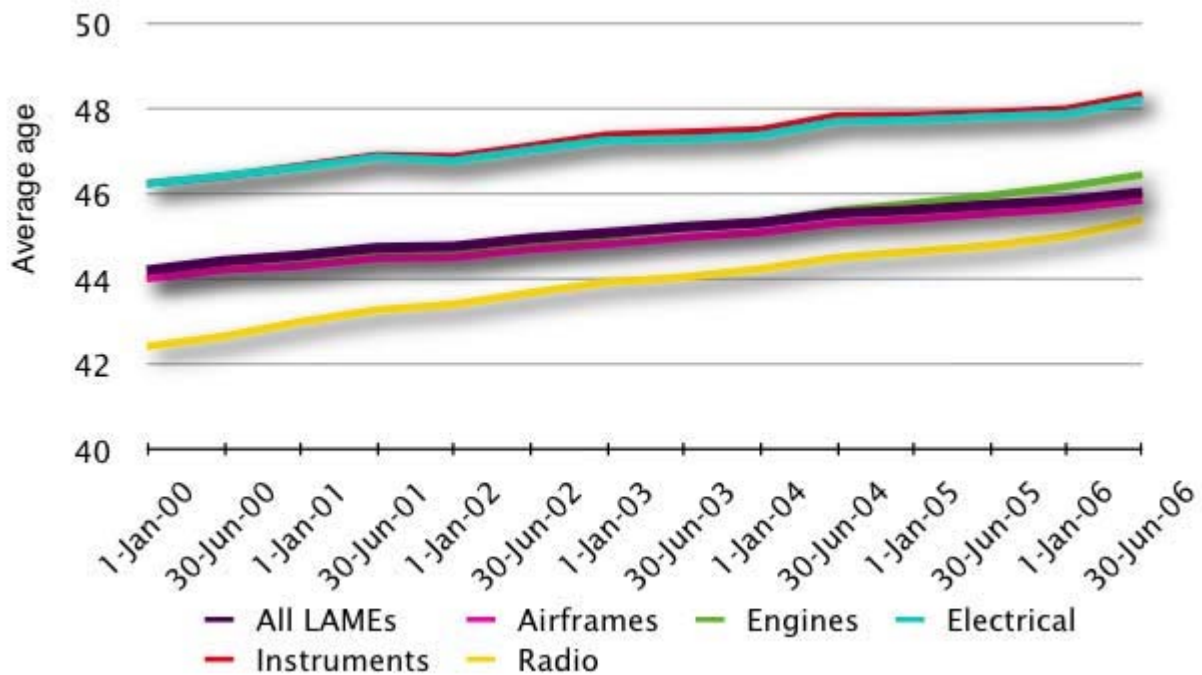
The graph shows the share of employment (per cent) by age group for this occupation, compared with all occupations. Source: ABS Labour Force Survey, Australia - average 2005.

Figure 2..

However, current CASA data reflects the average age of 'licenced' aircraft maintenance engineers as being in the mid forties and not getting lower as shown in Figure 3.(a) and (b) below:

Average age of Australian LAMEs

Includes all LAMEs with active and valid licences during the period January 2000 to June 2006.



Active Australian LAMEs by age group

Includes all LAMEs with active and valid licences during the period January 2000 to June 2006.

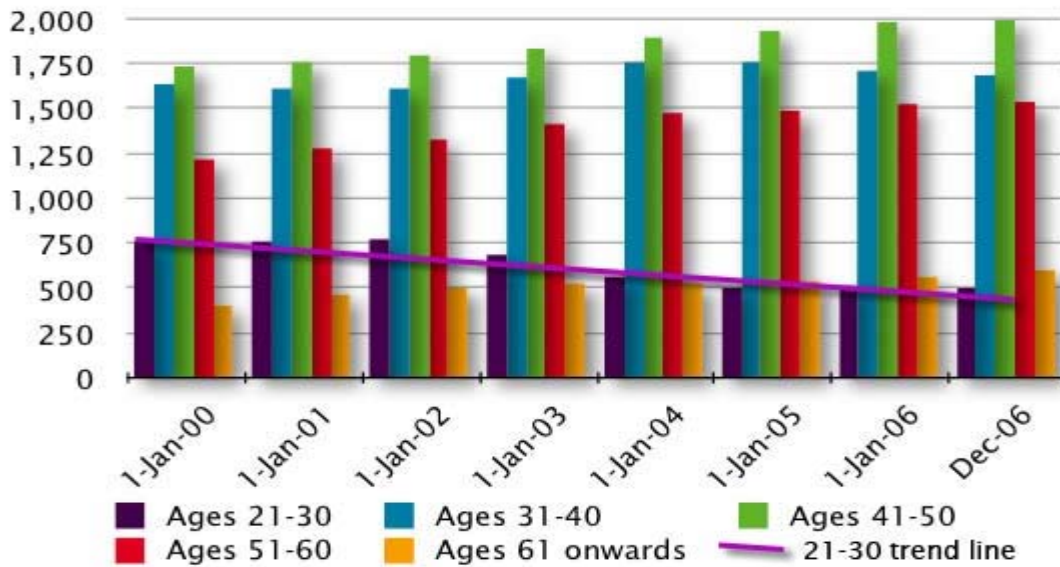


Figure 3.(b) Source: <http://www.casa.gov.au/ame/amestats.htm>

Note the 21 to 30 years age demographic trend in Figure 3.(b) showing a steady rate of decline of approximately 50 per year. With that rate of decline in new younger Licenced people coming into the Licenced area cumulatively with retirements expected of say 500 from the Ages 61 onward and say 50% of the Ages 51-60 demographic (being 750 approximately) retiring as well in 5 years time unless replaced the industry will be short of approximately 1800 Licences. This is based on the assumption that 100% LAMEs shown as being Licenced are in fact now working in the industry. Qantas being the major trainer has currently 500 apprentices who will come out of their times spread over the next 4 years at say 150 per year, with total NSW industry apprentices/trainees at 1046 with say 150 in other States giving an approximate total of say 1200, a 600 shortfall.

Apprenticeship/Trainee Approvals

2003	2004	2005	2006	2007	Total
301	324	175	206	40	1046

Source: Statistics supplied by NSW Dept. Education and Training

There may not be enough apprentices in training at the moment to cater for the existing industry let alone an expanding one in the future.

It takes approximately on average 8 to 10 years of training and experience to become a Licenced Aircraft Engineer.

The total number of Aircraft Apprentices/Trainees is shown below in Figure 4.

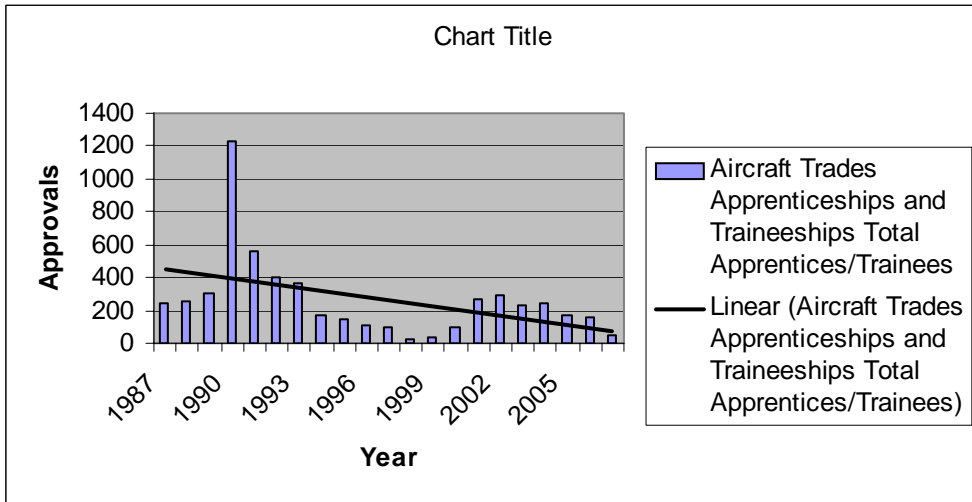


Figure 4. Statistics supplied by NSW Dept. Education and Training

In regard to Figure 4., in 1993 the Australian Airlines and Qantas merger was completed and Qantas floated on the stock market apprenticeship numbers steadily declined. In 2000/2001 Virgin Blue commenced and Ansett and Qantas saw some movement in engineering personnel to the new airline, which may have influenced an increased intake. In September 2001 Ansett collapsed and its apprentices were taken on by Qantas. The overall trend in numbers is downward.

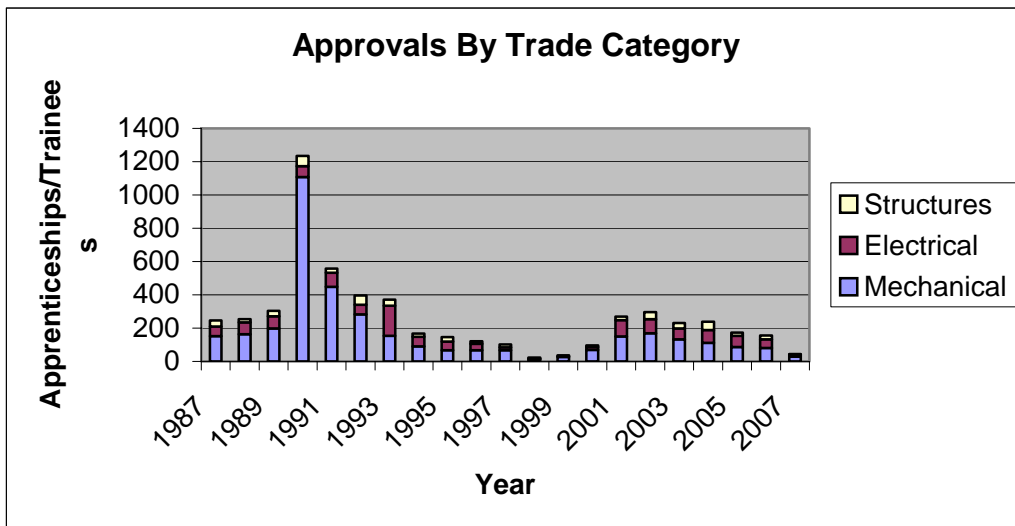


Figure 5. Statistics supplied by NSW Dept. Education and Training

Figure 5. shows the numbers of apprenticeships/traineeships by broad trade categories of Electrical (potential Avionics Licence), Mechanical (potential Airframe and Engine Licences) and Structures (potential Airframe Licence). Currently the industry faces a shortfall in Avionics Licencing, which are usually sourced through the aircraft electrical trade stream. This may explain the upward trend for Avionic trades in proportional intake mix displayed below in Figure 6. while mechanical is trending downward and structures relatively stable in the mix.

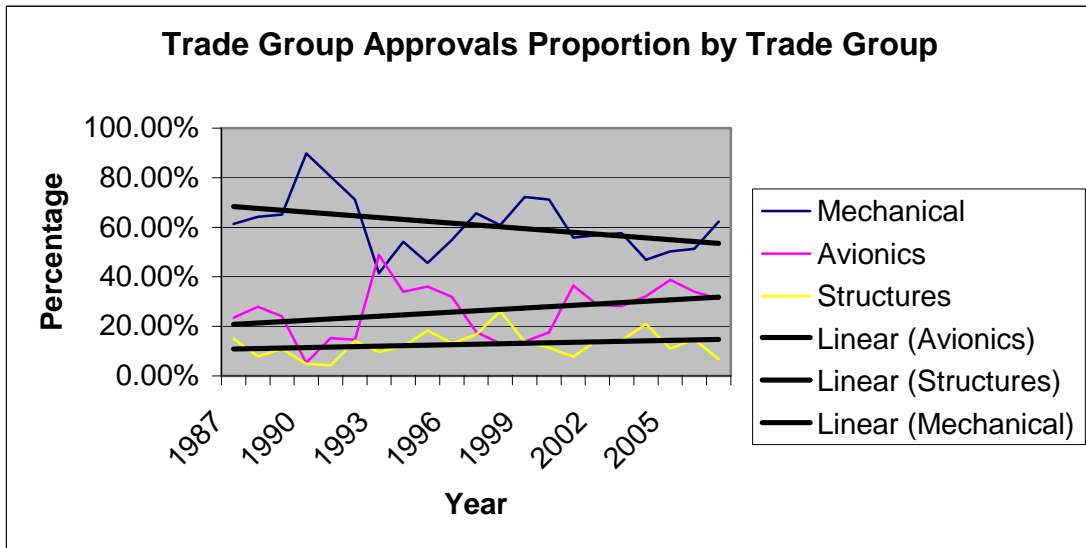


Figure 6. Statistics supplied by NSW Dept. Education and Training

The above statistics are put into perspective by comparing the increase in size of the Australian registered aircraft fleet as shown in Figure 7. to the numbers of Apprentices/trainees being trained and Licence holder numbers in the industry.

Aircraft on CASA Register, 1990 – 2005

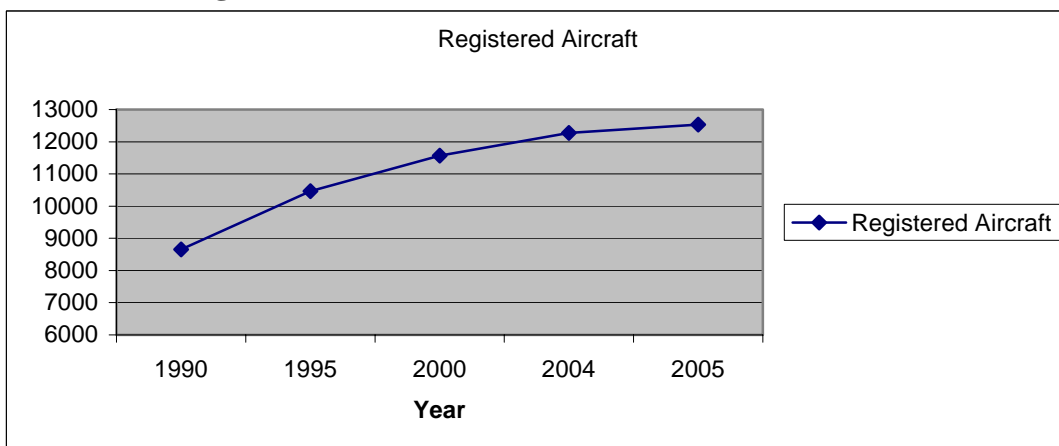


Figure 7. Source <http://www.casa.gov.au/casadata/register/graph.htm>

The Australian registered aircraft fleet has grown by approximately 45% since 1990 whilst the number of Licenced aircraft engineers servicing the industry has grown by approximately 6 to 8%.

Skill shortages exist when employers are unable to fill or have considerable difficulty in filling vacancies for an occupation and/or specialised skills needs within that occupation. Current comparative low levels of base rate remuneration and conditions of employment are significant contributors to skills shortages in the aviation/airline industry. The movement of remuneration in other sectors such as mining makes it less attractive to stay in the aircraft/airline industry.

Aircraft maintenance engineering has a low profile as a potential career and links between employers and potential employees needs to be fostered. Approximately 6 years ago the ALAEA produced pamphlets for distribution to schools and TAFE colleges displaying the role of the various branches of aircraft maintenance engineering and further supports the development of additional careers promotional material.

Recruitment difficulties are due to the characteristics of the industry, occupation or employer, such as relatively low remuneration, poor working conditions, poor image of the industry, unsatisfactory or unappealing working hours, remote locations not well serviced by public transport, inadequate recruitment or firm-specific and highly-specialised skills needs.

A Licence Aircraft Engineer's training is necessarily long and detailed to ensure the required level of competency required to inspect, maintain and certify for an aircraft's safety (airworthiness) is met. Large corporations such as Qantas and Virgin or Government Departments can perform and carry such onerous training regimes, however smaller operators including contractors do not necessarily have the facilities, expertise, capital or desire to conduct such training.

Many employees approaching retirement age are not being replaced with new recruits particularly in Qantas due to cost cutting measures, but there is also the

influence of growing competition from the more lucrative contract market in other industries.

A document titled “Evidence of Skill Shortages in the Engineering Trades” produced by the “National Centre for Vocational Education Research (NCVER) Ltd’ dated 2002, detailed:

“Skill shortages affect levels of production and increase the costs of recruitment and retention activities. They impact on the ability to be competitive, a factor that is increasingly important in a rapidly changing global market.

Skill shortages exist for many reasons:

- *Strong employment growth causing increased demand for skilled workers*
- *Factors affecting the supply of skilled workers, for example attrition rates in apprenticeship and trainee-ship training and lower take-up of traditional apprenticeships*
- *Demographic changes, in particular the ageing workforce and impending retirement rates*
- *Problems attracting and retaining people because of the poor image of some occupations and industries, community emphasis on higher education as opposed to vocational education, and poor salaries and working conditions*
- *Changing employment arrangements, for example casualisation of the workforce leading to a declining investment in training*
- *Changing skills needs within occupations such as those relating to new technology*
- *The demand for generic skills across a wide range of industries, for example problem-solving, communication, adaptability and literary skills*
- *Cyclical factors such as fluctuations in training and the size of the workforce in many trades such as construction, and seasonal factors such as those that occur in agriculture”.*

3.6 Worldwide Shortfall of Licenced Aircraft Maintenance Engineers

The ALAEA is concerned that not enough is being done in Australia to increase the number of licenced aircraft maintenance engineers. With the rapidly ageing population of maintenance engineers, particularly in Australia, much more needs to be done to attract young people into the industry. At the March 2005 Avalon Airshow a Summit was convened by the Australian Aviation Council (AUSAC), *'to address key issues which will confront the aviation industry over the next decade.'* The Summit concluded: *'Foremost among these concerns was the issue of human resources and industry skills, notably of flight crew and maintenance engineers. The growth surge coincides with an ageing industry population, where the average age of licensed aircraft engineers is in the mid fifties and the average professional pilot is aged in the late forties.'*

AUSAC President, Captain John Siebert, said, *"These are not problems which can be solved by quick fixes. Training professionals in these areas can take anything from four to seven years. As an industry we need to come to grips with this looming problem before it becomes endemic."* The training period quoted is purely to gain a 'basic aircraft maintenance' licence but it takes considerably longer to gain vital expertise and experience on specific aircraft types e.g. Group 20/21 typically, pressurised RPT (regular public transport) passenger aircraft that is crucial to the industry and the major market sector.

An article titled "Qualitair and the European Perspective on the Technician Shortage", written by Michael Donohoe, states, *'The world is running out of enough qualified aircraft maintenance engineers to ensure the proper servicing and safety of all those fleets of passenger and cargo aircraft criss-crossing the skies. Without enough qualified and experienced aviation engineers, there will be far fewer aircraft in the air. This will result in damage to both local and national economies. It is even possible that air safety may be compromised. Something has to be done, and done soon.'* Mr Donohoe goes on to add, *'The single, most fundamental, rock-solid and incontestable reason for the shortage of aviation engineers in the U.K. and the rest of Europe has been the short-sighted, cost-cutting policies of most aviation companies from the mid-1980s onward, in discarding apprenticeship and other training programs'.*

Mr Donohoe further states, *'And in none of these alternative careers (finance, marketing, and other white-collar jobs; or even, better pay packets as washing-machine or TV repairmen), does anyone have to put up with the overwhelming amount of regulation paperwork that is endemic in the aviation industry, not to mention unsociable hours worked by engineers in aviation to keep aircraft in the air 24 hours a day'*.

How can skilled aviation maintenance engineers be attracted to work in Australia when there is a world-wide shortage and wages and conditions here are lower than in many overseas countries?

3.7 Skills Migration From Overseas

As has already been stated, there is a world-wide shortage of skilled licenced aircraft maintenance engineers and the rewards on offer in Australia are insufficient to attract highly skilled migrants. General Aviation within Australia cannot afford to pay rates, which will attract and retain good quality aircraft engineers while mainstream airlines within Australia are consistently trying to drive down pay and conditions for their employees whilst reaping the benefits of burgeoning profits.

Unfortunately some in the industry see the relaxation of Regulation, lowering maintenance training standards and eliminating risk preventing inspection regimes as being the cure for the industry's own inability to cater for its skilled labour needs. The reality is that major airlines within Australia (Qantas, Jetstar and Virgin Blue), have not filled the training gap that used to be filled by what was effectively Government driven apprenticeships through Government owned enterprises. These airlines are endeavouring to erode the standard of safety and preventive maintenance by eliminating some of the duties and responsibilities of the licenced aircraft maintenance engineer for example, by passing a number of safety related tasks such as 'Before, After Flight and Turnaround inspections' to pilots, and inspections of aircraft panels around doors to baggage handlers at receipt and dispatch of aircraft at gates. Pilots and baggage handlers are not

trained in nor competent in aircraft maintenance unless they have completed the full Licencing competency requirements. These tasks are an integral part of the licenced engineer for which he/she is trained over many years. To have employees who are not trained in Engineering carrying out these tasks and in effect being incompetent in maintenance repair and inspection regimes on aircraft is flirting with disaster.

The document previously referred to 'Evidence of Skill Shortages in the Engineering Trades' produced by the NCVER states:

“Migration as a source of engineering skills

Migration of skilled labour is a source of skills that supplements the domestic skill base in the engineering trades.

DEWRSB reports that in recent years net migration of engineering tradespersons has fluctuated around 600-700, with arrivals of around 1900 partly offset by departures of about 1200. Thus migration is an insignificant source of skills for the engineering trades in Australia, a situation not likely to change. Even if governments were to open up immigration intakes, it is highly unlikely that such a policy would increase net intakes in a significant way because of the global demand for skills in the engineering fields.

The potential for increased migration as a source of new skills in the engineering trades in Australia:

- *Net migration is an insignificant source of skills for the engineering trades in Australia with about 700 per year (compared to a skilled trades workforce in this area of 217000.*
- *Growing global demand for engineering skills means that migration is likely to remain an insignificant source of such skills for Australia in the future”.*

3.8 Regulatory Review

Part of CASA's regulatory review into Air Legislation including aircraft maintenance and engineer licencing, encompasses the introduction of an 'A' licence for engineers. The 'A' licence basically introduces a lower level licence of

engineer with much less training allowing employees to certify for particular servicings, aircraft checks and rectifications of a minor level. The ‘A’ licence will be issued by CASA subject to CASA being satisfied that the applicant has met the appropriate criteria. Part of the criteria is that applicants must have a minimum of 2 years experience in the industry. The ALAEA is opposed to this level of experience requirement in such a high technology industry regardless of the simplicity of tasks being approved to be carried out by these inexperienced people.

Although the ALAEA supports in a broad sense the concept of standardising the Australian Air Legislation and licencing system with that of EASA, there is a trend developing of diminishing the role of the licenced aircraft maintenance engineer to a lower level with the introduction of ‘A’ certifiers. Industry is certain to push the boundaries further to suit its needs and seek unilateral changes. As stated previously any diminution of inspection and maintenance standards may have the same effect on the safety of the aircraft.

CASA is establishing a committee of industry representatives to review training/competency requirements for prospective licenced aircraft maintenance engineers (B3 licence) for the GA sector of the industry. The ALAEA, at this point in time are not invited to join the committee, yet, as a licenced aircraft maintenance engineer group, has the knowledge, experience and expertise to assist in the process of developing such requirements for a licenced engineer to be employed in the GA environment. It is obvious that industry is the key driver, as many owner operators and small airline charter operators have consistently lobbied various governing bodies to enable them to perform their own maintenance, consequently saving costs by not having to employ a licenced engineer to carry out the work. There is critical safety implications involved in this matter.

3.9 “Line Maintenance” and “Heavy Maintenance” Trade Training Resources

Operating airlines in Australia have two basic types of aircraft maintenance resources. Line Maintenance and Heavy Maintenance.

Line Maintenance is the maintenance required and performed on aircraft whilst the aircraft is in service flying between destinations on a day- to-day basis. It consists mainly of inspection and minor maintenance repair to keep an aircraft airworthy. There is little trade training opportunity in a Line Maintenance environment.

Light/Heavy Maintenance involves major inspection, repair and replacement of components and airframe usually in a hangar or fixed environment in short or long periods whilst the aircraft is out of service. Heavy Maintenance is usually supported by significant component workshops. Such work is more conducive to quality apprenticeship training and has been the mainstay of trade labour supply hence LAMES.

3.10 Heavy Engineering - Good Training Resource – National Interest

It is recognized that some LAMEs may have gained their training and accreditation by other means rather than through the heavy maintenance path. However, the importance of the relationship between an efficient heavy maintenance operation and its consequential effects on the line maintenance environment is often overlooked in today's modern aviation industry and to do so ignores many fundamental principals in the developmental and educational processes required to produce aircraft maintenance engineers both in Australia and worldwide.

The heavy maintenance operations of Australia's major airlines allow our engineers to develop the skills and techniques that are used extensively in the line maintenance environment. These skills must be learnt and developed and must

form the basic building blocks of knowledge experience that are relied on everyday.

Heavy maintenance by its very existence provides engineers with the opportunity to examine and experience in minute detail the mechanical, structural and avionic systems that together constitute highly complex RPT aircraft.

It is in such an environment that the necessary safety culture has time to develop and be nurtured into a fundamental cornerstone of an engineer's future life. The ethos that "near enough is never good enough" has to be learnt and the consequences for its neglect understood by the engineer or the apprentice.

It would not be unreasonable to suggest that such schemes enjoy the support of the majority of practicing engineers currently employed in the Australian aviation industry and should form a compulsory part of the education and training of all prospective aircraft maintenance engineers in this country.

General aviation engineers enjoy the luxury of a constant intermix of exposure to the heavy maintenance and line maintenance environments and their expertise benefits from such exposure. During the heavy maintenance phase they have the ability to experience the aircraft in its most fundamental forms and its most basic components. Knowledge gained here can then be translated into an effective, troubleshooting, decision making process in the line environment because the systems and their interrelationships are understood and appreciated in the necessary detail to ensure safety while meeting airline schedules.

Indeed anecdotal evidence from at least one of Australia's major airlines tends to suggest that heavy maintenance engineers are highly regarded and actively sought to fill line maintenance vacancies both within Australian line stations and in foreign ports as station engineers and technical representatives.

The heavy maintenance operation exposes engineers to tasks and techniques not seen in the line environment. Maintenance documentation such as structural repair

manuals and technical drawings become part of the maintenance engineer's way of life and the information that they contain can be used in making decisions effecting the current and future maintenance operations applied to aircraft.

Any maintenance system that condones the education of maintenance personnel without an adequate grounding in the fundamentals of heavy maintenance risks producing a workforce whose skills and experience is severely restricted and can often hinder the maintenance process. An analogy to this is the case of General Practitioner doctors, could they do their role effectively if in their training they had never looked at a body and its internal workings and components?

Line maintenance LAMEs often have occasion to consult with heavy maintenance personnel concerning a line maintenance task as their exposure to certain tasks is less detailed than heavy maintenance LAMEs. They have the current knowledge on the most appropriate process to accomplish certain tasks because they are exposed to them on an ongoing basis. Without this opportunity to confer Line maintenance LAMEs work becomes progressively more difficult to perform and time consuming and consequently more expensive to the operator.

Australia currently has well established heavy maintenance bases for aircraft. There are thousands of people employed in the heavy maintenance sector. Unfortunately Licenced Engineers positions have decreased in recent years. The ALAEA is aware that major airlines have an increasing demand and workload for heavy maintenance whilst there is a growing shortage of the appropriately skilled labour in Australia. The major carriers are investigating ways to cope now and in the future with their heavy maintenance needs including such options as heavy maintenance being conducted off shore. Such moves have resulted in significant job losses in Australia and a severe diminution of the core aviation expertise in Australia. One of the flow on effects maybe that in the future the appropriate qualified people would have to be imported into Australia for both heavy and line maintenance where in essence we should be seen as a bona fide source of expertise, that is, an exporter. In fact, currently, Australian airlines and

maintenance providers e.g. Forstaff Aviation Avalon are sourcing an increased amount of labour from overseas.

It is the ALAEA's view that it is in the National Interest for Heavy Maintenance of aircraft to be maintained, enhanced and developed in Australia. The Government should ensure by the appropriate legislation that airlines providing services in Australia and from Australia contribute to the maintenance of expertise in Australia. Severe disincentives should be put in place to guard against moving heavy maintenance out of Australia. Airlines who have Heavy Maintenance operations have been the mainstay resource for apprenticeship trade and Licence training. Whilst ever Australia has Heavy Maintenance facilities there will be an apprenticeship training resource for the airline/aircraft industry.

3.11 Costs involved in Training

The main reason for the lack of young people entering into training to become a licenced aircraft maintenance engineer are the costs involved and the time to complete the required training. Ongoing or recurrent costs are payable to CASA for licence renewal every two years (although under new legislation under development, aircraft maintenance engineers licenses will be perpetual), and examination costs for Basic, Type Specific and general costs exceed those required to be paid by pilots.

CASA is currently drafting new legislation with respect to licensing of aircraft maintenance personnel. The new legislation is proposed for release in 2008. The pathway to licensing of aircraft maintenance engineers will be competency based training with appropriate pathways developed by Aeroskills Australia. The quantity of competency standard levels to achieve licensing in aircraft maintenance is such that the costs to potential students could be out of their reach. In addition, the approved National Training schools may well be located hundreds of kilometres away from home meaning potential students need to relocate hence incurring additional living away from home costs.

Currently State and Federal Government assistance is available to students but this was due to cease at the end of 2006. Centrelink assistance, such as living away from home allowance and travel assistance is available to country students but it does not guarantee students will continue in the industry. Other factors come into play such as finding a suitable employer.

Typically the work is a 24 hour a day 7 days a week type at the front line, facing deadlines and making critical decisions every hour. Maintenance Repair and Overhaul organisations (MROs) and small GA operators are standard Monday to Friday operations but Regional, Domestic and International airlines operate around the clock every day of the year. The unsociable hours, combined with low wages and often poor conditions, are very unattractive to modern day youth.

Employers typically look for some level of knowledge and experience among entry-level Aircraft Maintenance Engineers (AMEs), and also require problem-solving and learning skills and a positive attitude and good work ethic.

3.12 Industry Training Co-operation and Coordination

The industry already has a number of CASA approved Training Providers for example see Appendix 3. Currently these resources do not provide a coordinated response to skills demand particularly for new apprentices/trainees. Once approved by CASA they basically run their own show and are subject to the financial constraints and business philosophy of the owning company or airline.

The Association believes that the lack of new industry entrants is reaching a critical level and as such future training should be consolidated and coordinated on a national basis to ensure a steady flow of skilled aviation personnel and maintain Australia's competitive expertise in aviation engineering and avoid the "Catch 22 training decay" syndrome.

However to do this would either require a large incentive (financial subsidy) type approach or alternately a disincentive (regulatory) approach. The ALAEA

proposes a hybrid approach to bring equity in providing the supply of competent labour. Such approach is similar to the carbon banking concept for greenhouse emissions. In other words you get rewarded for training and punished if you don't. Such similar systems were considered by the NSW Government in 1980-82 in regard to the coal industry whereby it proposed to place obligations on coal companies seeking new leases to train a quota of apprentices to alleviate the skills shortage at the time and poaching of trade labour thus driving up labour costs by competing coal companies. Such a disincentive approach resulted in the NSW Colliery Proprietors establishing the NSW Coal Industry Group Apprenticeship Scheme which trained approximately 400 apprentices from 1982 to 1988. In other words individual coal companies pooled resources to overcome the proposed disincentive. Without such a "stick" type approach it is unlikely that the industry would have done anything to contribute to averting the looming trade skills shortage at large.

Such an approach is now needed for the Aviation industry to correct the inequity in supply of training resources and the demise of Government contribution to aircraft industry trade training. Any aircraft operator who wishes to operate into Australia should be required by regulation to train and hire Australian labour. The Civil Aviation Act 1988 should be amended to enable regulations to be made to require an aircraft operator to either train or facilitate the training of aircraft maintenance engineers through the Australian vocational training system. Number of trainee quotas should be established depending on the size of the operation and a dollar value for the quota. Should the operator not meet the quota then they would be required to pay to an approved Aircraft Maintenance Vocational Training provider the dollar value so set for the shortfall in the quota. The approved Aircraft Maintenance Vocational Training provider would then be obligated to use such money contributed to provide training positions for Aircraft Maintenance apprentices/trainees. For example Qantas performs heavy maintenance work and has apprentice training resources in Australia. Virgin Blue sends its heavy maintenance offshore and trains a very small number of apprentices given the size of Virgin's aircraft fleet. The quota for Virgin is say 40 apprentices it can only cater for 20 in its or its contractors Line Maintenance

operation given its lack of desire to perform heavy maintenance on its aircraft in Australia it would then have to pay Qantas or another approved Aircraft Maintenance Vocational Training provider the balance of the dollar value of the quota and Qantas would then train the balance of the apprentices. There would be no obligation on either party to employ the apprentices once completed their time.

Conjunctively an industry Group Training Scheme could be established by co-operation of the CASA approved training providers to take responsibility for the Employment of apprentices and trainees in the aviation industry under contracts of training (apprenticeships) and would use industry stakeholders to provide the practical requirements of the apprenticeship.

The Joint Venture would offer trainees to all industry operators, particularly those who:

- are reluctant to employ trainees up to a full four year term for economic reasons or fluctuating workloads
- are reluctant to employ due to previous problems
- have restricted training facilities
- operate specialised processes and are unable to fully train in the breadth of skills necessary to reach trade standard.
- The trainees would be equipped with their tools, overalls, safety boots and glasses, and the joint venture would arrange workers compensation, taxation, superannuation, sick leave, annual leave, TAFE fees and attendance.

Following completion of their training, the Industry Group Scheme would place trainees in the employment of operators who have a need for trained personnel. Participant operators in the scheme would have first priority in employing graduating apprentices.

The joint venture scheme would take the responsibility of recruiting, and converting the qualifications of persons qualified in allied trades. Practical experience and placement after training would be in the same terms as above.

The venture could co-ordinate the employment, conversion of qualification, and training of foreign trained aviation personnel.

3.13 Raising the profile of the industry

It is generally acknowledged that the links between industry and educational facilities, particularly secondary schools, is poor. A great deal more can be done in schools to make students aware of aircraft maintenance engineering and its benefits. Teachers and students could be encouraged to spend a day (or negotiated time frame) visiting aviation companies to learn what aviation has to offer and what skills are required.

Aircraft maintenance engineering does not have a high public profile as a career. Companies have particular problems recruiting talented school leavers and awareness of aircraft maintenance engineering in schools is limited. Young people who are aware of the trade seem to regard it as a 'dirty hands' job as compared to other more glamorous occupations.

There has been a trend by Government bodies and regulators to lump the Airline/Aircraft Industries into the general category of "Transport". Such categorisation causes the impression that the skills and competencies necessary to function in the airline industry are akin to railways, or trucking or taxis when this is not the case. The fundamental difference is if your train, truck or car stops it doesn't fall some thousands of meters to stop. The risk involved in running an airline and maintaining it is significantly different in substance. Hence the difference in risk is acknowledged historically by Governments and International Regulators by specific legislation and regulation of the airline/aircraft industry down to the necessary competency required to operate or maintain in that industry. Similarly to the Maritime & Shipping Industry, Aircraft Maintenance

Engineers trade streams need to be recognised for the unique specialised trades that they are by Government Departments administering Education and Training and funding employment incentive schemes.

4. Conclusion

The aviation industry is a huge industry globally. In Australia it is a significant contributor to gross national product directly and indirectly. In global comparison terms Australia could be seen as a small but not insignificant player in passenger transportation but not as large a player on the world heavy maintenance stage. However it is in the national interest to maintain a significant heavy maintenance resource in Australia as this is where our skill base is trained and all airline operators and relevant Government departments should be required to contribute to that training resource.

There is or will be in the short-term future a large skilled labour supply shortage in the Australian aircraft industry. Australian airline traffic is continually growing disproportionately to the skilled labour supply, which is facing a crucial “age” hiatus. The symptoms are evident now and unless drastic major action is taken to train more young tradespersons then the industry may well contract in an ever-diminishing cycle to the extent that Heavy Maintenance of aircraft will not be able to be performed in Australia training resources will disappear and a viable competitive and high quality standard industry will be lost.

The industry has established high safety standards with Australian standards being among the world leaders if not the leader. Maintaining and improving the safety record could be very difficult if trained and qualified maintenance personnel are in short supply and not trained or accredited to Australian standards. Any diminution of standards could be detrimental to the success of the industry and therefore to the Australian economy as a whole.

It is imperative we maintain the total independence and unbiased authority of the Civil Aviation Safety Authority to regulate the industry and accredit it's participants to ensure the highest possible safety, in aviation, for the public and

national security. The immigration of appropriately qualified foreigners is welcomed by the Aircraft Industry providing the legislative guidelines are followed and appropriate local apprenticeship training opportunities are not forgone for young Australians.

It is imperative that the high quality education and training resources available through government and private organisations are co-ordinated to address inequities in contribution to the training of skilled labour.

The Australian Licenced Aircraft Engineers Association would welcome the opportunity to participate in any Government initiative into future training programs that may be initiated from this inquiry.

5. Recommendations

1. The Aircraft Maintenance Trades, apprenticeship and traineeships need to be recognised by Government for their uniqueness and regulatory responsibilities as one industry category group i.e. Aircraft Maintenance Industry, and not lumped into the general category of “transport” or “manufacturing”.

2. The ALAEA proposes Governments (both Federal and all States and Territories), in conjunction with the industry key stake-holders, work cohesively together to address the fundamental structural issues facing the Australian aircraft maintenance industry to promote, introduce and enhance apprenticeship training programs to reduce the shortfall of licensed aircraft maintenance engineers in Australia and maintain an aircraft heavy maintenance resource in Australia.

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3. CASA have been under-going a review of Air Legislation and Regulations since 1996. This process should be completed with a view to closer ‘harmonisation’ of Australia’s regulations with ICAO, European Aviation Safety Authority (EASA) and Federal Aviation Authority (FAA) regulations, without

diminishing Australian safety standards. Australian standards of trade training should not be diminished.

4. To correct the inequity in the supply of trade training by airline operators the Civil Aviation Act 1988 Regulations (CARS) should be amended to include the making of an obligation on an approved maintenance organisation (CAR30) to train such a proportion of apprentices/trainees relative to the fleet size of the aircraft maintained.

5. The Federal Government defence departments should include in contracts for the provision of aircraft maintenance services requirements for contractors to facilitate training of a proportion of trainees/apprentices in relation to type and size of contract awarded.

6. The ALAEA recommends a forum be convened consisting of ALAEA representatives, airline, regional and general aviation leaders, manufacturers and relevant government ministers to assess the future manpower and skills needs of the aviation industry in Australia. Such a forum may discuss and make recommendations on:

- An appropriate mechanism or organisation to co-ordinate and optimise the aircraft industry skills training resources in relation to demand and supply.
- Address inequity in contributions to training resources and numbers of trainees/apprentices.
- Retaining aircraft heavy maintenance facilities in Australia that can train trainees and apprentices.
- Training and skills shortages which would enable the industry to flourish and produce a strategy which would combine government assistance and corporate planning to maintain the industry in Australia.

5. References

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- “Qualitair and the European Perspective on the Technician Shortage”, as part of the Annual Salary Survey, European Supplement (http://www.nvlt.org/archief/Annual_Salary_Survey.htm)
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7. Appendices

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| Appendix 1. | CASA requirements for issuing of Licences and endorsements |
| Appendix 2. | CASA Syllabi for Licences training |
| Appendix 3. | CASA approved Training Providers |

Appendix 1

Appendix 2.

Appendix 3.