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AVIATION MAINTENANCE REPAIR & OVERHAUL BUSINESS ASSOCIATION, INC
ADVOCATE OF THE AVIATION MRO INDUSTRY

Date Published 30/8/2022	NEWSLETTER	Volume 19 – Issue 8 August — 2022

New Government – New Direction

Whenever a new government takes over, changes are slow until the new ministers settle into their portfolios. There is a massive difference from being in opposition to being in government.

A change of government is not always negative, in most cases it is positive to the industry as a Labour government have always been supportive of trade training. This can be seen in the allocation of responsibilities of training and education to a number of Ministers.

For instance, Catherine King, *Minister for Infrastructure (etc)* has one of the biggest portfolios to cover so changes that need political involvement may take some time before they are all addressed. This being the case, the new government announcement of bringing back proper trade training is very important to this sector of aviation.

The Minister has an *Assistant Minister for Infrastructure and Transport*, Senator Carol Brown

Senator Brendon O'Conner, *Minister of Skills & Training* will be important to bring about the improved skills to meet global standards. Nothing will happen immediately but we expect positive change, like making the Federal Education Department responsible for AME/LAME training standards to global standards.

Jason Clare, *Minister of Education* is another Minister that will be involved with ensuring technical trade training returns to TAFE colleges as aircraft maintenance is a job creating industry. Without doubt, this aspect of aircraft maintenance has been a blight on previous governments before the Part 66 EU AME licencing system being introduced.

Tony Burke, the *Minister of Employment and Workplace Relations* also has a role in aircraft maintenance and manufacturing employment that could double in size if red tape was cut to a minimum and as long as government can negotiate aviation trade agreements with other nations.

Senator Don Farrell, *Minister for Trade and Tourism,* is another important politician who, we assume, is responsible for obtaining trade agreements with other nations for recognition of government aviation documents like the "Authorised Release Certificate", recognition of CASA approval certificates issued by CASA to manufacturers and/or maintenance providers by other nations and the recognition of Australian trained Aircraft Maintenance Engineers and CASA licenced aircraft maintenance engineers in their own right.

The problem is, all sectors of transport have issues and non-major airline sectors of aviation seem to have a lower importance but these sectors can provide employment. Manufacturing can be brought back to Australia if global recognition in our own right happens.

Global recognition requires harmonisation which is the intent of the Conventions associated with aviation. Other nations concentrate on obtaining agreements from the major aviation countries from North America and the European Union.

Global standards reduce red tape and enhance safety – that is the aim of ICAO.

This government has a chance to resurrect civil aviation domestically & opening our domestic market to international participation.

Other Subjects

1. Global Trends – Electric Power?

This is a reality in aviation but not yet a subject within the government and its agencies.

Industry is already entering the future with discussions on what will become a reality in 2023 and on. It is time to plan and educate the workforce to be prepared for the future.

Where is the government plan to prepare industry and the workforce for the next major change in aviation?

Just like the automotive industry, aerospace has its sights set on going electric — but flying with battery-powered engines is a tougher proposition than rolling. **Wright** is among the start-ups looking to change the math and make electrified flight possible at scales beyond small aircraft — and its 2-megawatt engine could power the first generation of large-scale electric passenger planes.

Electric cars have proven to be a huge success, but they have an advantage over planes in that they don't need to produce enough lift to keep their own mass in the air. Electric planes have been held back by this fundamental conundrum, that the weight of the batteries needed to fly any distance with passengers aboard means the plane is too heavy to fly in the first place.

In order to escape this conundrum, the main thing to improve is efficiency: how much thrust can be produced per watt of power. Since reducing the mass of batteries is a long, slow process, it's better to innovate in other ways: materials, airframe and of course the engine, which in traditional jets is a huge, immensely heavy and complex internal combustion one.

Electric engines are generally lighter, simpler and more reliable than fuel-powered ones, but in order to achieve flight you need to reach a certain level of efficiency. After all, if a jet burned a thousand gallons of fuel per second, the plane couldn't hold the amount needed to take off. So it falls to companies like **Wright** and **H3x** to build electric engines that can produce more thrust from the same amount of stored energy.

Wright's engine is a 2-megawatt motor that produces the equivalent of 2,700 horsepower, at an efficiency of around 10 kilowatts per kilogram. "It's the most powerful motor designed for the electric aerospace industry by a factor of 2, and it's substantially lighter than anything else out there."

Pipistrel, as the world's first producer of the TC electric aircraft engines is now offering its propulsion systems to aircraft designers and manufacturers globally.

The E-811 is the first electric engine certified for use in General Aviation by the European Union Aviation Safety Agency (EASA). Enjoy the benefits of a type-certified electric engine or boost the development process of your powered sailplane, UL, LSA, VLA or Part-23 Level-1 aircraft.

All-Electric Aircraft

Design Concept Hybrids

After extensive research and numerous flight test hours on electric and hybrid electric platforms, Diamond Aircraft is positioned to offer an all-electric solution to the General Aviation market – the eDA40.

Creating an eco-conscious and cost-effective option for the training market has always been at the core of Diamond Aircraft. The eDA40, a derivative of the existing and certified DA40 platform, will be the first EASA/FAA Part 23 certified electric airplane with DC fast charging.

Initial flights of the eDA40 are scheduled for **Q4 2022**. Certification is expected end of 2023/beginning of 2024. AME/LAME training must be made available locally.

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2. Creating Jobs

The Australian government must address the future and the kind of aircraft maintenance engineers and licenced aircraft maintenance engineers that will be needed within a decade.

The current government promises to prepare for the future. It is urgent in the civil aviation manufacturing and maintenance industries.

Or, will Australia be left out of the changing technology and rely on other nations.

When you think of air travel, you probably think of the pilots who fly the planes and the flight attendants who make sure you have a safe and comfortable flight. But it takes many other people working behind the scenes to keep those planes flying smoothly – none more important than aviation maintenance personnel. They are the men and women who do the hands-on work on aircraft at airports or at repair stations across the country. The problem is there is a looming shortage of aviation maintenance personnel.

'It's a challenge that we have really embraced over the last five years in the airline industry because without technicians, the planes don't fly, just as surely as they don't fly without pilots," said Bob Ireland, A4A managing director for engineering and maintenance, who moderated a panel discussion on the topic at SAE International's annual AeroTech event, California earlier this month. "Our challenge is to get people into this profession."

With commercial aviation expected to grow in the years to come, a Boeing study estimates 132,000 new aviation maintenance technicians will be needed in the U.S. alone over the next 20 years.

Is there a solution? Aviation experts point to the importance of inspiring the next generation of aviation technicians.

"The romanticism of aviation needs to be cultivated again for the current generation… to create the next generation of aviation that we need to have," said AA Crew Chief David Mansker. "The major airlines, of course, are in a competition to get this value and scarce talent. We have an obligation to reach out and grab these individuals."

Indeed, airlines and aviation manufacturers are making a concerted effort to do just that, offering apprenticeships, internships and scholarships in an effort to inspire young people to join the industry.

"As we move forward, we have to be able to reach out, grab these young minds and show them the path," said Federal Aviation Administration Safety Team Program Manager Louis McGraw. "It's our opportunity, I would say, to reach out with outreach programs through community centres, through schools," added McGraw.

The advanced technologies and digital platforms utilized in aviation maintenance should draw interest from young people if presented to them in a way that appeals to them.

"I do think this is great career for young people," said Anita Sengupta, the CEO and founder of Hydroplane, Ltd., a company developing hydrogen fuel cell power plants for general aviation and urban air mobility aircraft. She said the appeal of new, cutting-edge aircraft should also be a draw for young people.

"Who are going to be the technicians to maintain those aircraft? That's a brand-new area… It's an opportunity here to get really excited about these different forms of flying that never existed before," Sengupta added. "There doesn't exist a group of people who can do this from an aviation maintenance perspective, so there's a huge opportunity there."

And that "huge opportunity" for young people beginning to choose their career paths is an absolute necessity for the aviation industry."

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3. Growing GA

First change: Include Competency based training in aircraft maintenance training regulations, Annex 1 & 8 refers, so CASR Part 66/147 is compatible with NVET competency-based-training.

Aviation maintenance is a dynamic career field. Now and in the future, aircraft maintenance will continue to change. This is due to the introduction of new designs and materials in aircraft construction and the interface between complex space-age systems, such as navigation computers, fly-by-wire and solid-state fuel controls, and improvements in the time proven systems such as hydraulics, flight controls, and propellers.

The long-term employment picture for aviation maintenance is bright. A well-trained, qualified, licenced individual with a strong background in technical subjects will have little trouble finding a life-time career in aviation.

The majority of mechanical and avionics maintenance personnel work in hangars, on flight lines, or maintenance organisations located on or near large airports. They use hand and power tools as well as sophisticated test equipment. The noise level both indoors and on the flight line can be very high. Those maintenance personnel performing flight line maintenance often work in all kinds of weather and temperatures.

a. All aircraft maintenance personnel must perform moderate to heavy physical activity, from climbing ladders to crawling under wings, the physical demands can be arduous. Frequent lifts or pulls of up to 50 pounds/25.5Kg in weight are not uncommon.
b. Stress is another factor that aircraft maintenance personnel must deal with. Working for a scheduled airline, the pressure to meet a gate time, or to meet a deadline for a corporation aircraft can be high. However, a licenced aircraft maintenance engineer must never sacrifice the high standards of workmanship and public trust just to meet a schedule.

EU Restrictions

In 1992, the European Treaty expressly prohibited any EU policy aimed at educational standardisation. It is why the EASAs cannot impose an EU education standard for aircraft maintenance engineer training. It explains why EASRs are written in the manner of meeting licencing standards examinations.

FAA is an Educator

The FAA does not have this imposition so CASA needs to set the qualification standards for each aircraft maintenance engineer licence, state that CBT is an acceptable method of obtaining competency (Australia's Annex responsibility – competency).

GA Fragility

General Aviation as a whole is fragile and it needs to be supported. Flying is expensive, especially on one's own money. In the competition with other priorities such as student loans, a first home, or a new family, flight training often falls to the bottom of the list. **Buying your own aircraft, though often a more cost-effective way to train than renting, doesn't even register on the scale for many.** However, in a generation of Instagrammers and Youtubers, flying can, and does often, virtually sell itself.

Compound that with lack of available space in the local flight school, which in many cases weathered the hard times by seeking out lucrative foreign training contracts, and what should be the first step on a gradual upward career trajectory seems more impossible at every juncture.

It also means that pilots have a duty to future generations to introduce new people to airplanes and connect those potential pilots with the opportunities to realize their dreams. Whether volunteering at a youth aviation event, donating back to the scholarship program that helped them get started, or simply by taking a friend for an airplane ride. Otherwise, there will be no J-3 Cub, either for the students or the 747 captains.

The growth of aviation is dependent on the growth of pilot numbers.

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