The Aviation Maintenance Engineering Workforce - Addressing Challenges and Shortages

A paper for the Aviation Council

March 2025

Introduction

1. The Aviation Action Plan (AAP) was launched by Hon James Meager, the Associate Minister of Transport in September 2025 at the Aviation Industry Association New Zealand (AIANZ) Conference in Wellington. The AAP "sets out a shared industry and government ambition for an efficient, resilient and innovative aviation sector".

2. A key ambition in the AAP is centred on workforce saying that "aviation is a desirable career path: we have the talented and skilled people we need for the sector to grow".

3. The AIANZ, together with the Airline Pilots Association (ALPA), has been given responsibility to develop and lead workforce initiatives within the plan, to support pilots, engineers and air traffic controllers.

4. This paper has been prepared by AIANZ, working with members in its engineering division, other divisions, the wider aviation sector and Government agencies that have a stake in the success of the sector. These agencies include Service IQ, the Tertiary Education Commission (TEC), the Industry Skills Boards (ISBs) and the Nelson Marlborough Institute of Technology (NMIT).

5. The objective of the paper is to set out a range of solutions to address critical aviation workforce shortages in the aviation engineering industry. Research in 2024 completed by the AIANZ with support from Ringa Hora (ceased operation on 31 December 2025) and Scarlatti evidenced a shortage of around 300 aviation engineers on an annual basis https://aianz.org.nz/aviation-workforce-insights/ .

Commentary

Shortages

6. New Zealand faces a critical shortage of skilled Aircraft Maintenance Engineers (AMEs) driven by:

    - An ageing engineering workforce compounded by exits from the industry during the pandemic, some of whom did not return to this workforce.

- A rate of engineers leaving industry is greater than replacement training can generate (refer AIANZ/Ringa Hora/Scarlatti research, para. 5 above).
- Sustained national and international demand for maintenance, engineers, both licenced and non-licenced. Six categories of aviation engineers are on the Immigration New Zealand (INZ) Green List, which is the only way shortages are currently being filled.

7. This shortage presents a direct economic and operational risk, not only now but for future growth which will affect:

- Aircraft downtime leading to flight cancellations and delays.
- Tourism disruption.
- Ability to train pilots due to aircraft availability.
- Emergency services disruption (Air Ambulance, Rescue Helicopters and assistance to Fire and Emergency New Zealand (FENZ)).
- Loss of national aviation capability and competitiveness.

Breadth of Aviation Engineering Practice

8. Aviation engineering practitioner requirements are broad, and competence cannot be delivered through a single training model or narrow programme. Current New Zealand industry practice spans:

- Airline and large transport aircraft maintenance, repair and overhaul (MRO.)
- Avionic systems and integrated aircraft electronics as well as design and export work.
- General Aviation (GA) fixed-wing modern and legacy aircraft.
- Rotorcraft (helicopter) maintenance, repair and overhaul.
- Agricultural specialist aircraft.
- Military aviation.
- Historic aircraft restoration.
- Specialist overhaul work (engines, propellers, components).
- Aerospace products and emerging drone/UAS technologies.

9. This skill requirement diversity means engineers require strong, transferable fundamentals; not just task-based training aligned to one aircraft category or type. To safely operate across this range of vocational requirements, initial training must prioritise:

- Engineering science fundamentals.
- Mechanical principles.
- Electrical and electronic theory.

- Materials and structural understanding.

10. These applied fundamentals must be delivered to an acceptable international aviation standard, enabling engineers to:

    - Adapt across aircraft types and sectors.
    - Progress toward licensing.
    - Maintain long-term competence in a rapidly evolving industry.

National Resilience

11. Global instability and international competition for skilled labour reinforce the need for domestic aviation maintenance capability. This means a skilled maintenance workforce is essential to maintaining and growing New Zealand's aviation economy.

Proposed Solution

Aviation-Specific Private Training Establishment (PTE) for Maintenance Engineering Trainees

Action - establish *New Zealand Aviation (NZA)*

12. Secure Aviation Council endorsement for TEC funding support for *New Zealand Aviation (NZA)* - an aviation-specific Private Training Establishment (PTE) to develop a sustainable, competent aircraft maintenance engineering workforce critical to New Zealand's aviation system and economy.

13. It is proposed that NZA be established as a standalone aviation-specific PTE or operated in partnership with existing experienced aviation educational facilities like the Nelson-Marlborough Institute of Technology, to reduce establishment cost and time. (the AIANZ has already had initial conversations with the NMIT - AIANZ has supported the NMIT as the preferred provider for the ServiceIQ aviation suite of training products).

14. In terms of Governance, the AIANZ would see oversight being provided by a Governance group with relevant knowledge and skills, but with endorsement from the Aviation Council.

15. The NZA would work in collaboration with polytechnics, other PTEs and/or the Service IQ engineering assessors to complement rather than replace workplace assessment and employer-led training.

Training Model (indicatively 50/50 between on-the-job and off-the-job training)

On-the-job training

16. AIANZ envisages this to be:

- Structured workplace mentorship by Licensed Aircraft Maintenance Engineers (LAMEs) and senior engineers.
- Unit standard assessment delivered at member maintenance organisations.
- Trainees typically enter directly as school leavers or allied trade employees transitioning into aviation.
- Other acceptable pre-employment and internationally acceptable employment candidates.

17. The key characteristics of this training are:
    - Strong hands-on skill development.
    - Problem solving skills.
    - Exposure to operational environments.
    - Trainees normally undertake self-study for licencing subjects.
    - Attend additional industry and manufacturers courses.
    - Attend complimentary skills training and qualification in related professions, welding, NDT, machining and project management.

Off-the-Job Training

18. For off-the-job training, the key characteristics would be:
    - NZQA-approved qualifications at Level 4 and above
    - Delivered via partner institutions (e.g. NMIT), and includes:
        - Engineering fundamentals.
        - Avionic and structural modules.
        - Electrical and systems theory.
        - Other associated skills.

19. Student skill requirements vary significantly depending on their intended practice area but include:
    - Airline or General Aviation (GA).
    - Fixed wing or helicopter.
    - Overhaul, specialist or line maintenance.
    - Aerospace and emerging technologies.
    - Military aircraft.

20. Graduates must complete workplace placement experience to achieve full operational competence.

Outcome

21. Both pathways produce safe, competent, hands-on practitioners capable of maintaining aircraft in accordance with regulatory and operational requirements.

Funding Requirements (TEC 2026)

Rate	Description	Amount
F3	Work-based engineering trainees	$7,945
F4	Priority engineering Level 5+ work-based	$9,285
F4	Priority engineering Level 5+ work-based	$15,142

Key Requests

- Amend TEC criteria to include Level 4 aeronautical engineering under F4 priority funding.
- Fund block courses or subsidise employers ($2,000 per trainee per year)
- Without these changes, workforce decline will continue despite industry training efforts.

Trainee Profile

22. Successful trainees typically demonstrate:

- Practical mechanical aptitude and safe tool use.
- Basic STEM knowledge (applicable NCEA level).
- Reliability, attention to detail, and strong work ethic.
- Commitment to ongoing learning and licencing.

23. Recruitment will be inclusive, drawing from all communities and socio-economic backgrounds.

Outcome

24. A sustainable pipeline of competent AMEs will support the aviation industry in New Zealand and provide essential, timely and operational continuity.

Recommendations

25. AIANZ asks the Aviation Council to:

- Endorse the establishment of NZA.

- Support advocacy to TEC for Level 4 aeronautical engineering priority funding.
- Incentivise employers to increase apprentice intake.

Conclusion

26. NZA will deliver the competent workforce required to support New Zealand's aviation safety, operational reliability, and economic growth, now and into the future. By recognising the breadth of aviation engineering and prioritising international-standard fundamentals, the model will help the country remain competitive in an increasingly complex global aviation environment.

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