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# **Summary of Public Submissions Received on Part 66 Aircraft Maintenance Personnel Licensing**

March 2015

# Table of Contents

- Executive summary ..... 3
- Introduction ..... 4
- Feedback ..... 5
  - Licensing structure ..... 5**
    - International alignment ..... 5*
    - Privileges ..... 5*
    - Keeping pace with technological evolution..... 6*
    - Certificate of Maintenance Approval ..... 7*
  - Avionics ..... 7**
    - Privileges ..... 7*
    - Inspection Authorisation ..... 8*
    - Weight and balance ..... 9*
    - Introduction of new technology ..... 9*
  - Training, currency, and experience ..... 10**
    - Recurrency training ..... 10*
    - Relationship between aviation maintenance engineer training and the licensing mechanism ..... 11*
    - Practical experience requirements ..... 12*
    - Recognition of NZDF qualifications, training and experience ..... 13*
    - Introduction of new technology ..... 14*
  - Examinations and syllabi ..... 15**
    - Oral examinations ..... 15*
    - Cheating ..... 17*
    - Pass mark ..... 17*
    - Costs ..... 18*
  - Medical certification and drug and alcohol requirements..... 18**
  - Other issues ..... 19**

## Executive summary

1. The Civil Aviation Authority (CAA) issued a consultation document on 14 August 2014. The purpose was to gather aircraft maintenance engineers' and the industry's views on what improvements could be made to the aircraft maintenance engineering licensing system. The comment period closed on 13 October 2014.
2. Civil Aviation Rule Part 66 (Aviation Maintenance Personnel Licensing) has not had a comprehensive review since its initial publication on 1 April 1997. In that period aviation and aviation maintenance practices and technology have evolved rapidly, raising potential safety and economic risks. The current review is also timely given the pending introduction of Part 147 (Maintenance Training Organisations) and economic incentives to align with international practice to the extent possible.
3. The majority of the submissions welcomed the opportunity for this review and were generally supportive of the proposals made. Respondents raised several common considerations to ensure engineers, aviation organisations and the civil aviation system would benefit from any proposed changes. These considerations were:
  - a. An acknowledgement that the engineering licensing system is not broken and can certainly benefit from adjustments and updates;
  - b. Improvements to safety must drive any proposed changes;
  - c. Ensure that the engineer licensing system was not made more complicated by any changes, ensuring clarity and simplicity in the language used;
  - d. A balance must be struck between aligning with the licensing systems of other jurisdictions and ensuring the New Zealand system remained relevant and appropriate to the local context;
  - e. Any actual changes are to be developed through further consultation with industry;
  - f. Consideration must be given to the cost of changes; and
  - g. Consideration must be given to how to grandfather privileges currently held if the licensing structure is amended.
4. Parallel to development of this summary, and considering all feedback received as summarised here, the CAA continues to work with a reference group that includes industry representatives and licensing specialists to analyse policy options and to outline possible actions (for example rule amendment, advisory material amendment, education, etc.).
5. We intend to provide recommendations for any possible changes to the CAA executive leadership by September 2015, with potential rule development work through late 2015 and early 2016. Where applicable, amended Rules would be planned to be submitted to the Minister of Transport for review and approval by March 2016.

## Introduction

6. The purpose of this review is to ensure the New Zealand aviation maintenance engineering licensing system remains fit for purpose in a rapidly evolving aviation sector where both traditional and emerging challenges exist.
7. The consultation document was structured around four broad categories and 20 questions. The categories were:
  - a. Licensing structure – the structure of categories, groups and ratings; international alignment; clarity of privileges;
  - b. Technology – enable rule adaptability to new and emerging technology; account for increasing technological reliability;
  - c. Training, currency and experience – the training, examination and licensing processes; ensure New Zealand has the skill set and workforce to install, test and maintain new and emerging technology; ensure licensed aircraft maintenance engineers are up-to-date with their training and knowledge;
  - d. Other regulatory matters – medical requirements and certification; defence force training; minor rule fix-ups.
8. An appendix was also included detailing possible options, regulatory and non-, for resolving the issues identified.
9. The consultation document was posted on the CAA website and emailed to 1490 correspondents, 1401 of them individuals and 89 organisations.
10. Sixty six written submissions were received. All but two submissions were made by individuals. One of the two represented the views of an engineering association, the other a Part 145 maintenance organisation.
11. The feedback received is grouped here into themes that emerged from the comments:
  - a. Licensing structure – international alignment; privileges; keeping pace with technological evolution; Certificate of Maintenance Approval;
  - b. Avionics – privileges; Inspection Authorisation; weight and balance; introduction of new technology;
  - c. Training, currency and experience – recurrency training; relationship between aviation maintenance engineer training and the licensing mechanism; recognition of NZDF qualifications, training and experience; introduction of new technology;
  - d. Examinations and syllabi – oral examinations; cheating; pass mark; costs;
  - e. Medical certification, and drug and alcohol requirements; and
  - f. Other issues.

## Feedback

### Licensing structure

#### *International alignment*

12. There is broad support for alignment of New Zealand engineer licensing requirements with international standards. Forty three respondents favoured some form of alignment, with EASA emerging as the preferred option (31 responses).
13. Several arguments were made in favour of alignment: increased competitiveness through global acceptance of the New Zealand standards, possibilities to cross-recognise or convert licences across borders, and a logical streamlining of standards in what is a global industry. One respondent commented:

*Strategically structuring the issue of license to maintenance personnel iaw International Conventions will support commonality between airworthiness regulators. This therefore should be a reference considered as the way forward for the future.*

14. Opponents to international alignment (14 responses) generally argued that they could not see a direct benefit to New Zealand, feared the domestic system would get more complex, could not see a preferred jurisdiction to align with, or had not seen any solid rationale for alignment.
15. There was a strong response (about a third of respondents), even among those favouring some form of alignment, that any alignment should be conditional on:
  - § Taking into account New Zealand idiosyncrasies, for instance the general aviation sector;
  - § A thorough review of how to conduct any alignment;
  - § Not adding any complexity to the New Zealand licensing system;
  - § Picking the best practices from overseas to benefit New Zealand engineers; and
  - § New Zealand not leading the world, but rather adopting globally accepted standards led by ICAO.

#### *Privileges*

16. Responses regarding privileges were varied and touched upon many subjects, some of which were very discrete and technical. Generally, the feedback was that the system of provision of privileges was either working well as it is and no change was required (10 responses) or that it would benefit from targeted improvements and clarifications in the Rule and/or advisory circulars (AC) (12 responses). One respondent noted:

*There is a need to update the licencing system to provide an accurate and suitable system for future changes in the industry [...] to provide a more logical*

*system for the future. The current system no longer provide the clarity of the privileges each category or rating grant.*

17. Respondents suggested that any changes to the Part 66 privileges should provide clarification in the areas of:

- § Who could perform compass swing tests (five responses);
- § Specialist test equipment and tooling requirements (four responses);
- § Aircraft complexity rather than aircraft weight (three responses);
- § Avionics and software upgrades (three responses);
- § Cross-over between avionics and Electrical, Instrument, and Radio (EIR) and airframe at a time when new technology seems to be increasingly integrated (two responses);
- § The requirements, including exams, to be met to expand one's privileges with similar aircraft (two responses);
- § APU ratings (one response);
- § Explaining the limitations of privileges according to categories or groups (one response); and
- § Additional privileges.

18. Additional privileges was the single issue that elicited the most responses (20). Respondents sought better explanations of these privileges, a greater enforcement of the regulatory provisions by the regulator, and two respondents sought their complete removal. Eleven respondents were particularly concerned with additional avionics privileges being given to non-avionics-licensed engineers, some of whom may be carrying out avionics work beyond their privileges and diminishing the avionics licence.

19. Several suggestions were made to increase the use of ACs rather than the Rule to list and explain privileges and limitations, providing more flexibility and clarity, and to improve cross-referencing between certain Rule Parts to improve engineers' understanding of their obligations, namely Rule Parts 43, 66, and 145 (and the pending 147).

*Keeping pace with technological evolution*

20. Twenty five respondents agreed that it would be a good idea to specify different technologies and the associated privileges in an AC rather than in Part 66. They considered that ACs are easier to update, which will allow the regulatory system to better keep up with technological change. One respondent commented:

*I believe this is appropriate as it will expedite the integration of new technology into the New Zealand aviation industry thus enabling us to keep pace with a rapidly changing global aviation industry.*

21. Among this group a few additional comments were made:

- § The process to amend ACs is still too slow (two responses);

- § ACs are not being used to their full potential (one response stating that “These are a great way of giving certain common engineering tasks a set of generic approved data as demonstrated in AC43-14”);
  - § The description of the privileges must be definitive (one response); and
  - § The AC should have a mandatory power (one response).
22. Eleven respondents disagreed with this proposal, stating that ACs were not rules and did not have the force of law. They preferred that the privileges remain in the rules. One respondent suggested using appendices, while another suggested a subpart for “advancements in technology”.
23. Seven respondents were unsure on the issue, suggesting alternatives:
- § A new layer of regulation between the rules and ACs (one response);
  - § General privileges in the Rule, with reference to the AC for details (two responses). One suggestion was leaving groups and ratings in the Rule, with technologies, makes and models in the AC;
  - § General privileges in the Rule, with details on the licence (one response); and
  - § The location of the privileges did not matter, the issue was about familiarity and training (one response), or clarity and detailed description thereof (one response);

#### *Certificate of Maintenance Approval*

24. Six comments were received on the use of Certificate of Maintenance Approval (CMA), with no particular consensus emerging. The issues raised related to:
- § Making CMAs more flexible to make them relevant to special jobs, equipment, or particular aircraft systems instead of groups, as it is not always possible to achieve the combined experience and training requirements for certain privileges (two responses);
  - § Making the process of issuing a CMA more transparent to ensure they are awarded for the right reasons (two responses);
  - § Reviewing the experience requirements for new aircraft types (one response); and
  - § Issuing CMAs for five years (one response).

## **Avionics**

### *Privileges*

25. Almost half the respondents (32) agreed that the restructuring of the Electrical, Instrument and Radio (EIR) ratings into a single Avionics rating could be considered given recent technological evolutions and current industry practices.
26. Ten respondents were opposed to a single avionics rating, stating that
- § The subject and associated exams would be too complex (five responses);

- § A single rating would not be flexible enough to manage either quickly evolving technology or the dichotomy between older and newer technology (two responses);
  - § Some engineers would be disadvantaged when their jobs did not require them to hold all EIR ratings (two responses); and
  - § The structure of these privileges might be made more complex through exclusions and limitations (two responses).
27. The submitters who favoured restructuring raised several conditions under which the restructuring should be considered, namely:
- § Grandfathering to ensure current privileges were not lost, including retaining additional privileges for mechanical engineers (five responses);
  - § Ensuring the training and experience requirements were at least equivalent to the current requirements (three responses);
  - § Ensuring the exam syllabus and assessment requirements were at least equivalent to the current requirements and ensuring they were appropriately updated (two responses);
  - § Considering some form of sub-categorisation so engineers need not obtain a whole avionics rating if not relevant to their scope of work, and how this could be managed by exclusions or limitations (three responses). Two submitters suggested certificates of maintenance approval could be an option;
  - § Ensuring ratings relevant to older, “un-integrated” technological systems were maintained or catered for (one response); and
  - § Considering the relevancy of a single avionics rating according to different aircraft weight break, in particular under 5,700 kg (one response).
28. This can be summed up with the comments from two respondents:

*I do not see any major issues with combining to an “avionics” rating. The boundaries between the three ratings are now so blurred as to be unrecognizable. A problem could be that an existing LAME with only one or two of the ratings and converting them to an avionics rating. Would that require a restriction placed on his licence for the rating not held?*

*As long as the training and experience requirements for an “Avionics” rating are equivalent to the joint requirements for current “E,I and R” ratings I believe it will enhance safety by reducing confusion regarding crossover privileges.*

#### *Inspection Authorisation*

29. A majority of respondents (48) were in favour of creating a specific avionics certificate of Inspection Authorisation (IA). Ten respondents were opposed, stating issues of a lack of demand or need for the extra privilege, additional costs to operators and expressing doubts regarding the depth of knowledge required about the wider aircraft for IA tasks.

30. The proponents stated reasons for having this new certificate included the increased prevalence and complexity of avionics installation, and the risks associated with the limited avionics knowledge that airframe-only IA holders may have (11 responses).
31. While favouring this option, submitters were also very clear on the conditions under which these certificates should be awarded, namely:
- § Limiting the privilege to the certification of the conformity of installations of avionics modifications, and not extending it to the conduct of reviews of airworthiness (22 responses) and making this limitation very clear in the licensing structure and regulations;
  - § Ensuring the same prerequisites as the current certificate were met, i.e. examinations, training, knowledge, experience (nine responses);
  - § Ensuring some form of general aircraft and mechanical knowledge (four responses); and
  - § Limiting the privilege to the relevant categories, groups and ratings held by the E, I, R licensed engineer (three responses).

32. One of the responses reflected the points made:

*Avionics engineers should hold limited IA's specifically for conformity of avionics modifications. With avionics systems becoming more and more complicated I think it unrealistic to expect a Mechanical IA to carry out conformity checks on Avionics mods*

*Weight and balance*

33. Seven comments were received on who should certify a weight and balance determination. Five of these suggested all LAMEs should be able to, and that it was unfair avionics LAMEs were not given this privilege, given the basic licence exams and abilities were the same for all engineers.
34. Two disagreed, suggesting that an avionics engineer would not possess the experience to review weight and balance data in an annual review of airworthiness, or should first obtain a Group 1 Aeroplane rating if they wished to perform a weight and balance check.

*Introduction of new technology*

35. Apart from training – which is addressed later in this summary report – respondents found that the greatest challenges in the introduction of new technologies were:
- § The access and use of appropriate installation and testing equipment (12 responses). Two respondents even suggested the use of some very complex equipment should only be limited to Part 145 certificated maintenance organisations; and
  - § The availability of appropriate data and information (eight responses). This included the need for greater clarity on software upgrade and modification

requirements, and more forthcoming and timely information from manufacturers so the industry could prepare for changes.

36. A half-dozen respondents noted that many manufacturers were based overseas and were large enough to impose potentially unfair commercial conditions. They considered this would put pressure on cost and access to equipment, making training on such technology particularly difficult for the general aviation sector to manage.

## Training, currency, and experience

### *Recurrency training*

37. A majority of respondents (43) were in favour of recurrency training, though the responses were mixed as to whether this should be mandated or not, and which form this should take.
38. Most respondents did not propose a specific frequency of recurrency checks. Those suggestions that were made included: two years (six persons), three years (five persons), or five years (eight persons).
39. Among those who accepted that the issue of recurrency should be addressed, eight clearly stated their opposition to mandating it. In this group, some cited questions of cost, or that recurrency should only be targeted at engineers who had been out of trade for a period of time or even on a case-by-case basis, or suggested that some form of general process of learning and on-going training would be sufficient.
40. Many alternative forms of training or proof of recurrency were offered to provide flexibility and means to control the costs for engineers:
  - § Requirement for a course delivered by the CAA or a certificated training organisation. This could be similar to the idea of the Inspection Authorisation renewal (13 responses);
  - § Conferences and conventions (seven responses);
  - § Manufacturer courses (six responses);
  - § Online courses (four responses);
  - § Seminars (three responses);
  - § Peer reviews with colleagues / rated LAMEs (two responses);
  - § Association events (e.g. electronics industry association) (one response); and
  - § Points system similar to FAA (one response).
41. Nine respondents suggested no specific recurrency requirements were needed, citing:
  - § The possibility of CAA running roadshows or seminars (three responses);
  - § Engineers getting experience and recurrency through their work practice (two responses);
  - § The onus on the individual engineer to keep up to date with technology and experience (one response);

- § Some requirements already in the rules (one response); and
- § The issue was more about how engineers were initially granted their privileges (one response).

*Relationship between aviation maintenance engineer training and the licensing mechanism*

42. Comments were quite divided on this issue. Twenty one respondents were of the opinion that the two processes — engineer training on the one hand and engineer licensing on the other — could benefit from some alignment. These responses covered a range of possibilities:
- § Cross-referencing, recognising or crediting training institution courses (for instance NMIT) to achieving the CAA syllabus (four responses);
  - § Integrating training courses and syllabi with a goal of achieving the Part 66 licence (four responses);
  - § Aligning the licensing exam subjects and the relevant aviation trade unit standards of the New Zealand Qualifications Authority (NZQA) (five responses); and
  - § Gearing up training establishments to conduct CAA licensing exams at the end of their curricula (two responses).

43. These suggestions were supported by arguments of greater efficiency, more flexibility and options in the training and qualification pathways, as well as a way to incentivise young persons to embark on an engineering career. One respondent noted:

*Any proposed changes need to create an incentive for young prospective engineers to qualify as LAME's. The training for, and issue of, a AME licence must be more streamlined. Appropriate aviation engineering qualifications should be such that they are accepted for by CAA for LAME licence issue.*

44. Of respondents that saw benefits in some form of alignment, three were very clear that any alignment should be driven by the regulator as controlling agency of the licensing syllabus, and that training institutions would need to demonstrate increased standards to meet the syllabus requirements, rather than the syllabus requirements being reduced to align with training / NZQA standards. This can be summarised by one respondent's comment:

*The world wide Industry reality is that for AME Licencing purposes within ICAO Contracting States the only Basic Subject Examinations that count are those of the respective National Authority CAA (irrespective of whether they are conducted by an outside Contracting Organisation on behalf of that National Authority). These are the only Examinations which produce Maintenance Engineers on the Hangar or Workshop floor [...] To be really meaningful towards the provision of ab initio Industry Training, any semi parallel system run by others should lead to the sitting of the relevant National Authority Examinations at stages during that particular Organisation's Course of Training.*

45. There were 14 responses suggesting the separate processes were not a concern, given that:

- § Any training must meet the requirements of the CAA/ASL exam subjects seen as the safety standard; “the exam is what counts” (one response);
- § A clearer learning roadmap could help engineering students (one response);
- § Training schools should promote the achievement of the licence, not just the engineering course (two responses);
- § Improvements could be made to find a better integration of practical and theory training (two responses); and
- § It was important to keep the demarcation between knowledge, experience and examination (one response).

#### *Practical experience requirements*

46. Forty three respondents agreed that practical experience requirements needed to be more tailored to the aircraft or technology for which a rating was sought and this should be reflected in the rules. How this would be specified or implemented generated many different responses:

- § There was a specific need for training in new technologies, composites and avionics systems in particular (nine responses);
- § Specific courses would need to be recognised or mandated (four responses);
- § The specifications should be kept broad (not down to aircraft type), simple, and “achievable” (three responses);
- § Staggering the experience requirements such that the requirements for gaining additional ratings are shorter than those for the initial rating obtained by the engineer (three responses);
- § Finding better or alternative ways of proving experience, including personal training records (PTRs), attendance at seminars, etc. (three responses);
- § Broadening the scope of experience requirements to include training in management and supervision (one response); and
- § Using the ACs rather than the rules for specifying the experience requirements (one response).

47. For most of these respondents, this issue was part of their broader concerns regarding engineers’ experience in general. Several topics were touched upon, summarised as follows:

- § The high cost of training staff (five responses);
- § The need to support knowledge training with practical, on-the-job training and experience. Three suggestions were made to mandate initial, full-time practical training before a licence was granted, ranging from two to four years;
- § A desire for more training: on modern systems, on achieving the licence papers, refresher CAA courses similar to IA renewals, avionics courses (seven responses);

- § Foreign licence holders seeking to convert to a New Zealand licence should “undergo formal legislation training” (two responses); and
  - § Lack of factory / manufacturer training in New Zealand (one response).
48. Two respondents elaborated in length on the fact that an important issue was the lack of appropriate system to determine the competence of candidate engineers, which includes “Experience, Skill, Knowledge, & Correct Attitude”.
49. The following comment provides a good summary of the general flavour of the responses:

*The one size fits all model of type rating experience is no longer appropriate for modern aircraft. In addition to tailoring experience requirements to the aircraft and with the proposed changes to licensing training it should be a mandatory requirement to include aircraft specific practical training as part of an approved type rating course. The first benefit of this would be engineers being issued with type ratings and part 145 approvals faster than is currently the norm. [...]. Being able to use the rating or approval sooner also enables the newly rated engineer to apply the knowledge gained from the course while it is still fresh.*

50. There were seven responses suggesting that the current system for experience requirements was adequate, given that:
- § A tailored system would be too difficult or complex to implement due to the number of possible variations (three responses);
  - § The rules already provided adequate or too strenuous experience requirements (two responses); and
  - § The lack of training avenues and resources was the real issue, including manufacturer courses, seminars, CAA-sponsored events, etc. (one response).

#### *Recognition of NZDF qualifications, training and experience*

51. Thirty eight respondents stated that there could be some form of recognition or crediting of experience, training or exams gained in maintaining aircraft in the New Zealand Defence Force towards obtaining a Part 66 licence. Some believed that the NZDF was at times a source of well trained, skilled maintenance personnel. These responses, however, were quite varied in the approaches, proposals, or conditions they considered necessary before any recognition was granted:
- § Eight respondents suggested training and experience could be recognised, but all CAA exams should be sat and passed before a CAA licence could be granted;
  - § Twelve respondents suggested some defence exams could be cross credited, but some specific CAA examination subjects should be passed, such as “basics and regulations”, law (oral and written), with the same minimum pass marks;
  - § Five respondents suggested the NZDF should first align their training / exam syllabus to the CAA one; this could lead, according to one submission, to the NZDF giving the CAA exams;

- § Ten respondents suggested that any recognition should be conditional on a formal comparison, assessment and confirmation of the equivalency of the civil and military training and examination subjects and standards;
  - § Two persons suggested any form of recognition should be formalised through an official agreement;
  - § Three persons suggested additional training before a CAA licence could be granted. This could be in the form of, for instance, a “differences course”, training on civil aviation record keeping, regulatory structure and environment, quality assurance and management systems, responsibilities of LAMEs, etc.; and
  - § Six respondents also wished to see relevant experience either demonstrated or a transition period of civil experience before a CAA licence was granted.
52. Nine respondents were not favourable to closer recognition or crediting of NZDF experience, training or exams, stating that:
- § The responsibilities of the LAME in the civil aviation system was quite different (one response);
  - § The amount and nature of relevant practical experience acquired in the NZDF was not sufficient (three responses); among these respondents, licensing should not be considered unless 18-24 months experience was acquired in the civil aviation system; and
  - § The training methods were not common between civil and military (two responses), the latter being NZQA-based according to one respondent.

#### *Introduction of new technology*

53. Training and gaining experience were seen as the greatest challenge in the introduction of new technologies. Twenty three respondents stated that strong training requirements were essential to meeting these challenges, while nine submitters felt the industry would struggle to find the capacity in skills and numbers to meet these challenges. The suggestions made to enhance training included:
- § Compulsory training on new and complex systems (six responses);
  - § Including systems and computer training in the curriculum (four responses).
  - § Encouraging manufacturers to provide more training with products (four responses);
  - § Training requirements at different phases of a career (initial, recurrency, formal and informal) (three responses); and
  - § Specific training requirements stipulated in ACs (two responses).
54. Four respondents identified the high reliability of new technologies and the greater time between checks as a challenge to maintaining currency and keeping skills relevant.
55. A dozen respondents identified access to training on new systems, including costs, as a major hurdle to gaining skills and experience with new systems, given that many manufacturers were based overseas and were large enough to impose potentially unfair commercial conditions. A few respondents suggested some alternative

approaches such as belonging to a professional association, pooling resources, or getting the regulator to sponsor training events.

56. Ten respondents suggested new technologies were not a major issue, given that:

- § The aviation industry had always evolved and adapted (three responses);
- § Engineers were responsible for keeping their knowledge and skills current (three responses);
- § Manufacturers were responsible for providing training on new equipment (three responses); and
- § New technologies usually made engineers' jobs easier (one response).

57. Seven respondents identified hurdles in the regulatory system to adapt to new technologies, stating that:

- § The rules needed to be more flexible, including new provisions for recurrency requirements in line with the pace of technological change (two responses); and
- § The CAA was not understanding or keeping up with the changes taking place (three responses).

58. Finally, five respondents highlighted the risk that new technologies might overshadow the need to keep old technology maintained and safe, a task for which they felt young engineers might not be prepared for.

## Examinations and syllabi

### *Oral examinations*

59. Twenty one respondents suggested that oral examinations should be retained in their current structure. The arguments in favour of keeping the status quo included:

- § Oral examinations were an opportunity to test the character and attitude of the candidates, a more personal assessment of their attitude and deeper understanding of issues (11 responses);
- § The oral as a language test (two responses);
- § The possibility to discover relevant medical issues (two responses);
- § The need for oral examinations for both group and type ratings (two responses);
- § The importance of oral examinations at the initial granting of privileges (two responses);
- § An opportunity to test the candidate's awareness and understanding of their responsibilities (one response); and
- § A test of verbal rather than writing skills (one response).

60. One respondent commented:

*This step of the licencing process is a chance to face up to the applicant and assess his suitability as a practically competent person to hold an aviation document. It is all academic up until this oral exam.*

61. Some of these respondents did however raise some issues about the current state and suggested some improvements:

- § Oral examinations should be carried out by approved, skilled examiners (one response);
- § Make the questions tougher and broaden the scope of questioning (one response);
- § Ensure the focus of oral exams is safety and quality assurance, not regurgitating written material (one response); and
- § Update the content of the examination material (one response);

62. Twenty seven respondents suggested most oral examinations should be discontinued, keeping only a limited set. The main arguments made for discontinuation were: examinations not being relevant to product and task knowledge; poor articulation of questions and limitations in the capabilities of examiners; a waste of time and money.

63. However, most of these suggestions indicated that the air law exam should be kept (23 responses) as a "useful safeguard / safety-net" for testing the quality of candidates, assessing their competence and their knowledge of process in the civil aviation system. One respondent suggested this exam could be the main test to fast-track recognition of overseas licence applicants.

64. This comment is reflective of the arguments of this group of respondents:

*I think oral examinations for every rating is not beneficial and expensive, however a one off oral will give the examiner a chance to see what experience/knowledge the applicant can demonstrate.*

65. Some of the respondents suggesting the discontinuation of most oral examinations proposed other options for limited examinations, namely:

- § Specific, targeted examination, the content of which should be determined after a review (two responses);
- § A form of English language test (two responses);
- § Oral examinations should be carried out by approved, skilled examiners (one response);
- § Examination for specific, complex technologies / subjects, in particular avionics (one response);
- § A case-by-case examination for certificates of maintenance approval (one response);
- § A different form of competency test (one response);
- § Combining it with the fit and proper person test process (one response); and

§ Examination included in certain manufacturer courses (one response).

### *Cheating*

66. Twenty eight out of 35 respondents felt strongly that cheating was not an acceptable behaviour and some form of action was required to address the issue.

67. Respondents suggested a variety of approaches to deal with the issue:

§ Increase the intensity and forms of penalties for cheating with bans, stand-down periods, or re-assessments for people caught cheating (12 responses). This included life-time bans (four responses); prescribed time scales for being allowed to re-sit or re-apply (five responses); additional exams (one response); a formal authorisation by the Director of Civil Aviation to re-enter the system (one response); alignment with other civil aviation authorities (one response); a psychological assessment (one response);

§ A CAA procedure to formally investigate where the failure was if cheating is found (two responses);

§ Frequently updating the exam question banks (one response);

§ A requirement stipulated in the legislation (one response); and

§ Banning capture/transmitting technology in exam rooms (one response).

68. Six respondents did not see a case for change, arguing there was no evidence of problems, that the current system was adequate, or that penalties in the engineering requirements were higher than those for pilots.

### *Pass mark*

69. Responses on this issue were quite mixed, with 23 respondents suggesting an alignment with international practice at 75%, 19 respondents wishing to keep the status quo at 70%, and six respondents suggesting a deeper review would be required to decide.

70. Those in favour of a 75% pass mark argued that alignment would benefit New Zealand in providing better recognition of its standards. One respondent suggested that certain subjects should have their own specific pass marks. Another suggested Subject 21 (Air Law) should have a 100% pass mark. One respondent also emphasised that other means to determine competence should be developed.

71. The submissions favouring the status quo argued that the current pass mark was adequate given that:

§ The different question structure of New Zealand exams (4 questions rather than 3) mean 70% is more appropriate (three responses);

§ The 5% difference was not as important as the way questions were posed and what abilities of candidates they were meant to test (three responses);

§ Exams were not everything, and theory and practice needed to be balanced (four responses);

§ There was no evidence of a problem (two responses);

- § The emphasis should be shifted to oral examinations (two responses); and
  - § Examinations should be more relevant to actual practice (two responses).
72. The respondents suggesting a further review argued that the pass mark could only be aligned with international practice if the exam format and objective were re-assessed in line with “desired learning outcomes” (five responses), or the exams were the same (two responses), or the transferability of exam results between jurisdictions could be demonstrated (one response).

#### *Costs*

73. Six respondents commented that the high cost of examinations was a barrier to entry into the aviation system for young engineers, and three noted their concerns about the lack of accountability around the examination cost structure.

#### **Medical certification and drug and alcohol requirements**

74. Twenty seven respondents did not see a case for different medical requirements for LAMEs than are currently in place. The main reason put forward (11 responses) was the lack of evidence of any medical-related safety issues. Other arguments put forward were:
- § Medical certification would add another financial and regulatory burden with no proven benefit (six responses);
  - § The aviation system should rely on the integrity of engineers to remove themselves from duty if unfit to carry it out (five responses);
  - § There were enough checks and balances in the system, including the fit and proper person test and health and safety legislation (four responses); and
  - § The safety risks were far lower than for personnel who require medical certification such as pilots (three responses).
75. Seventeen respondents favoured new medical requirements, but there was a large variety of responses in terms of what these requirements could be. The leading suggestion was some form of eyesight / hearing testing (seven responses). Responses did suggest that any medical certification system for LAMEs should be kept simple, including such things as:
- § Using other medical certification approaches such as that for drivers’ licences (including bus) or Private Pilot Licence (four responses);
  - § An age-based system for older engineers (four responses);
  - § Aligning with the CASA model (four responses);
  - § A self-reporting system (three responses);
  - § Using the fit and proper person test or a form of statutory statement (two responses); and
  - § GP visits (one response).

76. Fourteen respondents were undecided about imposing new medical requirements, but suggested alternative forms of medical assurance or checks:
- § Producing a standard general medical certificate (four responses);
  - § Voluntary disclosures of conditions that would impair judgement or self-reporting systems (three responses);
  - § Mandatory reporting of medical conditions (two responses);
  - § Relying on organisational systems such as SMS to carry out the appropriate checks (one response); and
  - § A system applicable to engineers above 75 years only (one response).
77. Eight respondents indicated the need for drug and alcohol checks. The feedback did not suggest any clear preferred approach, but included flexible requirements, random compulsory testing, a focus on employer obligations, or following international standards.

### Other issues

78. This section captures other, less frequently discussed matters that were not specifically covered in the discussion document.
79. Four respondents made submissions on the review process itself, commenting:
- § That any changes would add to the regulatory burden through increase compliance and business costs (seven responses);
  - § That the scope might be too broad and trying to address too much (one response);
  - § On the perceived lack of indicators or evidence driving the review (one response); and
  - § On the need for a careful review of further actions to ensure impacts are well understood, and advocating more consultation (one response).
80. Eight respondents made comments on the regulatory oversight system pertaining to maintenance and engineering activities:
- § There should be greater oversight of Part 43 maintenance activities outside certificated maintenance organisations (five responses);
  - § The personnel authorisation processes in Part 145 maintenance organisations should be better monitored (three responses); and
  - § This review might also be an opportunity to better know the industry and its make up (one response).
81. Several other one-off comments were made on varying subjects, such as:
- § Improving the readability of the Rule and making the engineer licensing system as simple as possible;
  - § Mandatory human factors training in New Zealand;
  - § Mandatory confidential occurrence reporting for LAMEs;
  - § A review of engineer duty time requirements;

- § Improving the format of and information on the licence card;
- § Comparing the benefits and requirements of Part 145 maintenance vs. Part 43;
- § Introducing a definition of LRU (Line Replaceable Unit);
- § Introducing literacy tests;
- § Giving IA holders the privilege to issue certificates of airworthiness;
- § Addressing the increased sophistication of microlights and the impact on maintenance standards;
- § The capability of small maintenance organisations to obtain the appropriate maintenance equipment;
- § Recognising the pressures engineers are put under and the responsibilities they hold;
- § Trying to convey the importance of shielding aircraft from electromagnetic interference;
- § Improving the cross-referencing between Part 43 and Part 66; and
- § Making the licensing system more relevant to maintenance *certification* duties.