58th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS

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AGENDA ITEM 3:   AVIATION SAFETY

TRAINING OF AVIATION PERSONNEL

(Presented by Singapore, co-sponsored by Hong Kong, China, New Zealand, the

Philippines, Republic of Korea and Japan)

SUMMARY

The aviation industry is facing a shortage of aviation personnel which will only become more acute as traffic volume increases. Challenges include job attractiveness, extensive training and training duration, training methodology and remuneration. While efforts to improve the attractiveness of the aviation sector to young professionals must be multi-faceted, one aspect that States and aviation industry, together with ICAO can directly influence, pertains to training. This paper proposes for ICAO standards and guidance material on the training of aviation personnel to be reviewed to ensure their continued relevance as training paradigms evolve, to cater to the next generation of aviation professionals.

TRAINING OF AVIATION PERSONNEL

1. **INTRODUCTION**

1.1   The Asia Pacific region is expected to lead air traffic growth over the next few decades. This will drive corresponding demand for licensed aviation personnel such as pilots and aircraft maintenance engineers (AMEs). Boeing's 2023 Pilot and Technician Outlook report has projected that the aviation industry will need some 262,000 new pilots and 288,000 new AMEs over the next 20 years to keep up with the aviation growth. The aviation industry, however, is facing a shortage of aviation personnel which will only become more acute as traffic volume increases.

CHALLENGES IN ATTRACTING NEXT GENERATION AVIATION PERSONNEL

1.2   The challenges faced by the industry in attracting the next generation aviation personnel are multi-fold, and can be distilled into the following key issues:

a) **Job attractiveness:** It is challenging to attract the next generation to join certain aviation professions. Some aviation careers often involve shift work, and some like AMEs are physically demanding and require personnel to work in all weather conditions, at height and in confined spaces. A career as an aviation professional also requires commitment at a young age to acquiring specialised technical skills that are not be easily transferrable to other jobs. Many of the younger generation do not aspire to such careers. They are drawn to jobs that offer attractive wide-ranging learning opportunities and are quick to switch jobs.

b) **Extensive training and training duration:** Given the need to ensure aviation safety, the training of aviation personnel is subject to regulatory requirements involving several years of specialised technical training. An individual seeking to be a pilot or AME will have to undergo an approved training programme, pass a series of knowledge examinations, undergo skills assessments and acquire practical experience before they can be licensed and gainfully deployed. Pilot training can take as long as 2 years while the AME can take up to 4 years to complete, which can be a barrier to entry for young individuals who have other career options available. The challenge is exacerbated as the aviation industry seeks to attract more highly educated individuals who would already have spent 3 to 4 years pursuing a tertiary education.

c) **Training methodology:** The conventional style of classroom training may have further diminished interest among the younger generation as they are more attracted to self/E-learning which offers greater experiential learning via the use of simulation/game-like devices. Chalk and talk style of training do not appeal to them as they grew up in the information technology age.

d) **Remuneration.** In some cases, a trainee would only receive a trainee's remuneration (or no remuneration at all if the training is self-funded) during training lasting 2 to 4 years, adding to the lack of attractiveness of the vocation. The remuneration of some aviation personnel may also not be comparable to other competing industries.

1.3   The aviation industry will face a challenge retaining the necessary competencies within the system if it is unable to attract new aviation personnel to rejuvenate the workforce. This is especially so with many experienced aviation personnel having left the industry during the COVID-19 pandemic, and many more expected to retire in the coming years.

2.   DISCUSSION

2.1   While efforts to improve the attractiveness of the aviation sector to young professionals need to be multi-faceted, one aspect that States and aviation industry, together with ICAO can directly influence, pertains to training.

2.2   ICAO guidance materials are important references used by States in the design of their aviation training regulations and programmes. It is important for the guidance material to incorporate updated training concepts. For example, ICAO Doc 7192 Part D-1 prescribes the duration of training for qualifying an AME in the areas of knowledge, skills and experience. In today's context where AME applicants are more academically qualified, many of whom have tertiary education, States could reduce the duration of knowledge training and give credits to relevant subjects taken at the tertiary level. Doc 7192 could provide relevant guidance, for example on how evaluations can be conducted to determine the level of equivalence between regulatory knowledge requirements and the content of relevant tertiary courses.

2.3   In addition, ICAO's guidance material could be updated to include the latest training methods. The younger generation has different approach to learning compared to previous generations. They tend to learn faster through self-exploration and hands-on activities. The use of simulation tools such as virtual or augmented reality can be strong learning aids, potentially reducing training time and improving the quality of training.

2.4   The introduction of Competency-based Training and Assessment (CBTA) in Doc 9868 is a positive move that has the potential to optimise the training of pilots and AMEs. However, more guidance is needed to support regulators and training organisations to effectively implement CBTA. For example, a critical element of CBTA is the need to ensure inter-rater reliability, which is the level of consistency in the assessments carried out by different assessors. Other aspects of CBTA that would benefit from additional guidance include the analysis of training and assessment data, and the evaluation of the effectiveness of the CBTA programmes.

2.5   The current requirements in Annex 1 are also not compatible with CBTA. Training durations are not explicitly prescribed in a competency-based approach as it would be dependent on the performance of each trainee. Annex 1 however prescribes fixed training durations for some licence types. For example, ICAO Annex 1 states that a minimum of 2 years of experience is required for an AME who has undergone an approved course of training. Instead of prescribing a 2-year period to gain experience in this case, Annex 1 could provide for alternate means of compliance through CBTA.

3.   ACTION BY THE CONFERENCE

3.1   The Conference is invited to:

   e)   note the strong demand for aviation personnel and the challenges in attracting next generation aviation personnel needed to support projected traffic growth in the region in the coming years; and

   f)   call for ICAO, in consultation with States and the aviation industry, to review and update the relevant standards and guidance material on the training of licensed aviation personnel to address barriers in attracting the next generation aviation personnel to the aviation industry.

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