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ASSEMBLY — 40TH SESSION

TECHNICAL COMMISSION

Agenda Item 30: Other issues to be considered by the Technical Commission

MULTI-PRONGED APPROACH TO ENHANCING PILOT TRAINING AND COMPETENCY DURING A PERIOD OF ANTICIPATED GROWTH AND COMPLEXITY

(Presented by Canada, Singapore and the United States and supported by
Flight Safety Foundation (FSF) and International Air Transport Association (IATA))

EXECUTIVE SUMMARY

Projected rapid global growth in commercial aviation makes a pragmatic, data-driven approach to pilot training essential to the continued improvement of the industry's safety performance. The industry and national civil aviation authorities need to embrace, and have the flexibility to adopt, competency- or evidence-based training and assessment methods that target real-world risk and ensure a progressive and satisfactory performance standard.

Action: The Assembly is invited to support a multi-pronged approach to enhancing pilot training and competencies via key strategies as outlined in Section 4.

Strategic Objectives:	This working paper relates to (a) the ICAO Strategic Objective to improve the quality of and to standardize aviation training on a worldwide basis and (b) Global Aviation Safety Plan (GASP) goal to achieve a continuous reduction of operational safety risks.
Financial implications:	None identified.
References:	GASP, ICAO Strategic Objectives

1. INTRODUCTION

1.1 The commercial aviation industry is at a crossroads, and the practices it adopts now relative to how the pilots of the future are selected, trained and mentored will have critical safety ramifications during this period of projected rapid global growth. A pragmatic, data-driven approach to pilot training is essential to the continued improvement of the industry's safety performance. Both the industry and national civil aviation authorities need to embrace and have the flexibility to adopt, competency-based training and assessment (including evidence-based training) methods that target real-world risk and ensure a progressive and satisfactory performance standard. It cannot be assumed that critical skills and knowledge will be obtained through experience or current training methods alone. As technology evolves in the cockpit environment, we need to ensure that the training and licensing of pilots remains fit for purpose.

2. BACKGROUND

2.1 Today's outstanding safety record in commercial aviation is largely the result of a wide variety of diligent efforts by thousands of aviation professionals around the world who design increasingly reliable aircraft, engines, and parts; maintain, repair and overhaul aircraft; regulate and enforce performance-based safety rules; investigate accidents and incidents; manage air traffic; develop sophisticated avionics and navigational aids; operate airports; and fly sophisticated aircraft in increasingly complex environments.

2.2 Equally important, our improvement in aviation safety has come at a time when we are able to use the power of a growing pool of data and information, through safety management systems and state safety programs, to analyze, predict and mitigate risks before they lead to accidents. These efforts have led to demonstrable improvements in aviation safety. These improvements have been delivered and maintained despite the absence of a global pilot training standard.

3. DISCUSSION

3.1 Pilot competence has historically been associated with the number of flight hours accumulated over a pilot's career. Accumulation of a specific minimum number of flight hours usually is required for every license (private, commercial, air transport pilot, etc.) and any endorsement. Although for many years, the number of accumulated flight hours has been the baseline for determining competence, what is often overlooked in the pilot experience equation is the quality of flight time. Quality can encompass a number of factors, including, but not limited to, training received, operational context, single-engine or multi-engine flight time, multi-crew operations and weather-related flight experience. Relying solely on a number of hours does not always effectively capture a pilot's true competence. The training received and the value of flight experience must be considered to provide meaning to the number.

3.2 Many different career paths can lead to a job as an airline pilot, including paths through the military, corporate operations, academia and flight instruction. Once a private pilot's license has been attained, the next step is to accumulate sufficient hours for a commercial pilot's license. From there, further hours are accumulated through a variety of means that may entail working for many different organizations with different organizational cultures; some of these cultures may be positive and professional, and others may be deficient in this area.

3.3 The experiences, attitudes and behaviors of a given selection of pilots with the same number of hours may vary considerably. For example, hours may have been accumulated predominantly in day visual flight rules conditions through such activities as parachute operations, flight instruction and banner towing. While a multi-engine endorsement and instrument rating may be attained along with these hours, that experience is quite different from the experience of someone who may have obtained hours as part of a well-designed and implemented *ab initio* program to prepare pilots for air carrier operations.

3.4 The industry has reached a crossroads in determining how pilots need to be selected, hired, trained and professionally mentored for career growth. The quality of pilot training, which depends on factors such as the capacity and maturity of the training organizations, structure of training programs, specificities and training tools and qualification of ground and flight instructors, as well as adequacy of safety oversight by regulators, deserves much attention.

3.5 In addition to formal military and aviation university flight training programs, a number of ab initio programs and multi-crew pilot license regimes exist in several regions of the world; some of these programs have been in place for many years. These programs have been tailored to the needs of individual carriers, some are managed through universities or accredited organizations. These programs, which often are attractive to air carriers that do not have their own similar programs, provide training with multi-engine and instrument flying experience. Nevertheless, a recent IATA survey has illustrated, first, that operators are experiencing licensing training limitations at the Approved Training Organization/Flight Training Organization level and, secondly, that the pilot standard of performance achieved at the end of the training is not always aligned with the standard of performance expected by the operators. There is a need to ensure that training programs focus on the quality of pilots they produce. Also, there is opportunity for flight training standardization and enhancement across the globe.

3.6 Specific questions need to be asked as we contemplate the training requirements for future first officers and captains:

a) will we achieve the levels of safety required to meet the growth demand based on today’s criteria?

b) are we utilizing technology, data and experience to maximize the efficiency and effectiveness of today’s training programs? and

c) will we maintain a sustainable quantity and quality of pilots from our current approach?

We believe the answer to these questions is no, and now is the time to adopt a multi-pronged approach.

3.7 Pilot training programs should utilize data-driven competency- or evidence-based training methods that ensure a progressive and satisfactory standard has been reached throughout training. Because graduates may have attained less flight time than is required for an air transport pilot certificate or its equivalent, the quality of their training and level of competence as they advance through a course must be measured to ensure they are adequately prepared for airline operations. They must also address real-world risks and equip pilots with skills and knowledge for decision making and threat and error management, including a deep understanding of automation and human factors.

4. CONCLUSION

4.1 The Assembly is invited to consider and support a multi-pronged approach to enhancing pilot training and competency that includes the following strategies:

a) an improved screening process and training for basic non-technical competencies that are usually obtained through experience, such as communication, situation awareness, workload management, problem solving and decision making, leadership and teamwork;

b) a renewed focus on the competency and quality of training providers to ensure training programs are developed and delivered to meet established safety standards based on a recognized quality/performance criteria and to produce qualified, competent pilots;

c) training that carefully integrates the effective aspects of traditional programs with competency-based training and assessment (including evidence-based training) methods;

d) training programs that are responsive to changes in pilot licensing requirements, or introduction of new technology;

e) training programs that maximize the use of simulation and are designed to prepare pilots for air carrier operations;

f) training programs that emphasize an understanding of the appropriate use of automation and appropriate manual flying skills;

g) training programs that recognize the value of, and provide instruction in, effective crew resource management;

h) data-driven training programs that are continually updated, based on trainee performance in those programs;

i) ab initio programs with operator sponsorship and support;

j) a partnership with the International Civil Aviation Organization and industry to define rules, recommendations, guidelines and the expected quality and performance required of flight academies;

k) internationally recognized proficiency and qualification standards that cannot be compromised; and

l) programs that place a high value on the knowledge, competence and experience of instructors.

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