



ASSEMBLY — 40TH SESSION

TECHNICAL COMMISSION

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

COMPETENCY-BASED FLIGHT INSPECTOR TRAINING PROGRAM ADOPTED BY THE BRAZILIAN CIVIL AVIATION AGENCY – ANAC/BRAZIL

(Presented by Brazil)

EXECUTIVE SUMMARY

This information paper describes the Competency-Based Flight Inspector Training Program implemented by ANAC - Brazil. The program aims to promote and provide actions and learning strategies that enable ANAC inspectors to acquire and improve competencies (knowledge, skills and attitudes) that contribute to professional development, Standards and acceptable level of safety necessary to fulfill the institutional mission of ANAC and ICAO.

Considering of the low adherence of ICAO Member States to the Critical Element - 4 (*Personnel Qualifications and Training*) and in accordance with the spirit of global cooperation established in the ICAO Member State Cooperation Program to improve safety levels worldwide (“*No country left behind*”), ANAC-Brazil presents its competency-based training program to promote cooperation and profitable discussions among Member States.

<i>Strategic Objectives:</i>	This working paper relates to the Safety Strategic Objective.
<i>Financial implications:</i>	No financial implications.
<i>References:</i>	4 th Critical Element (<i>CE-4 - Personnel Qualifications and Training</i>) Doc 10070 – <i>Manual on the Competencies of Civil Aviation Safety Inspectors</i> Doc 9734 – <i>Safety Oversight Manual</i> Doc 8335 – <i>Manual of Procedures for Operations Inspection, Certification and Continued Surveillance</i> ICAO CMA Report 2015 – <i>Continuous Monitoring Approach Results</i>

1. INTRODUCTION

1.1 In 2017, the Brazilian National Civil Aviation Agency – ANAC, established a priority project specifically to address the issues raised by ICAO in relation to the 4th Critical Element (*CE-4 Personnel Qualifications and Training*), and to Doc 10070 – *Manual on the Competencies of Civil Aviation Safety Inspectors*, Doc 9734 – *Safety Oversight Manual*, Doc 8335 – *Manual of Procedures for Operations Inspection, Certification and Continued Surveillance* and the notes presented in the *Continuous Monitoring Approach Results – CMA Report 2015*. Due to the dynamic pace of innovation in

the aeronautics industry, there was an urgent need to establish a continuing training program for its flight inspectors, to improve institutional performance while addressing the efficient use of ANAC's financial resources.

2. DISCUSSION

Competency-Based Flight Inspector Training Program

2.1 ANAC's workforce is diversified, with a variety of qualification levels and professional backgrounds. Therefore, there is a need to provide training that meets the different profiles of all personnel, while at the same time allocating them to working activities and training events that are suitable to their expertise. By establishing a competency-based training program, we can provide meaningful training to all personnel at a reduced cost for the State.

2.2 Per ANAC's analysis, even personnel with a highly qualified background may not have the required competencies to work in the aviation authority certification processes. For instance, an experienced professional airline pilot may not have the necessary expertise to evaluate the effectiveness of a training program, even though that pilot went through training many times before. Important concepts like instructional design and transfer of training may be unfamiliar even to experienced airline instructors – and that is further compounded by industry innovations like evidence-based training.

2.3 Thus, in the past year, Brazil developed a new training program for its flight operations personnel. Using competency-based training, the program was developed in a way that allows personnel to maintain a suitable qualification for their tasks, while providing a high degree of flexibility in training execution.

2.4 ANAC-Brazil compiled a list of activities done by flight operations inspectors, by mapping the competencies, KSAs (Knowledge, Skills and Attitudes), national and ICAO regulations and elements related to each activity and distributed the activities into matching blocks of overlapping competencies. Based on that study and on the analysis of the Brazilian aircraft fleet, it was possible to develop a program that allows the assignment of personnel with different backgrounds and previous qualification levels to appropriate tasks and duties.

2.5 A total of 83 (eighty-three) mapped activities were assigned to 7 different training tracks, with training events on each track designed to enable development of pertinent competencies. Appendix A presents the distribution of the activities across training tracks.

2.6 The Program defines training tracks at three levels of learning - Basic, Specialized and Advanced, with different staff pre-qualification requirements. These tracks cover the entire range of activities performed by flight inspectors. Activities that have the more common competencies and that do not depend on specific aircraft training were assigned to the Basic Qualification track. This track provides a generalist qualification. The activities covered by Specialized and Advanced qualifications are more complex, requiring higher levels of training and skills, with the provision of training in aircrafts that are representative of the local fleet. An overview of the training tracks is provided in Appendix B.

2.7 A characteristic of the training track design is that it promotes specialization of personnel into specific work areas, at higher levels, enabling the aviation authority to lower total training costs, while maintaining appropriately qualified flight personnel that can keep pace with industry changes, and at the same time providing a high degree of flexibility in the execution and operation of the training program. Thus, ANAC-Brazil now has the option of keeping a larger pool of generalist inspectors, and a

smaller pool of highly qualified experts, with the competency map readily available to help identify any gaps that may arise due to personnel changes.

2.8 Therefore, ANAC-Brazil believes that a Competency-Based Program can help to extend the region's Universal Safety Oversight Audit Programme (USOAP) Effective Implementation Level (EI) as the program is easily adaptable to different pre-existing scenarios and levels of qualification.

3. CONCLUSION

3.1 With the implementation of a Competency-Based Flight Inspector Training Program, Brazil stimulates an organizational environment that favors innovation, scientific research, qualification and specialization of inspectors and promotes the generation of advanced knowledge, especially those of special interest for the civil aviation system. In addition, ANAC-Brazil believes that a significant improvement in institutional performance and a reduced cost for the State can be achieved through the use of this approach.

3.2 Considering of the low adherence of the signatory countries to the CE-4 and in the spirit of global cooperation established in the ICAO Program for Cooperation among Member States to Improve Operational Safety Levels around the world, Brazil invites other States to learn about its competency-based training program, aid with local adaptation and/or implementation of similar programs.

3.3 Based on the experience gained in developing a competency training program for its flight inspectors, ANAC-Brazil makes itself available to other Member States interested in establishing cooperation initiatives on the subject or other forms of partnership and proposes the creation of ad hoc group to exchange experiences on the topic. We also look forward to expanding the methodology to encompass personnel from areas such as airworthiness and aerodrome certification.

3.4 The Assembly is invited to:

- a) note the information provided by Brazil regarding its experience on the competency-based flight inspector training program;
- b) encourage Member States to learn about the procedures related to the program;
- c) support Member States on local adaptation or implementation of similar programs; and
- d) request the Council to create an ad hoc group to exchange experiences on the topic.

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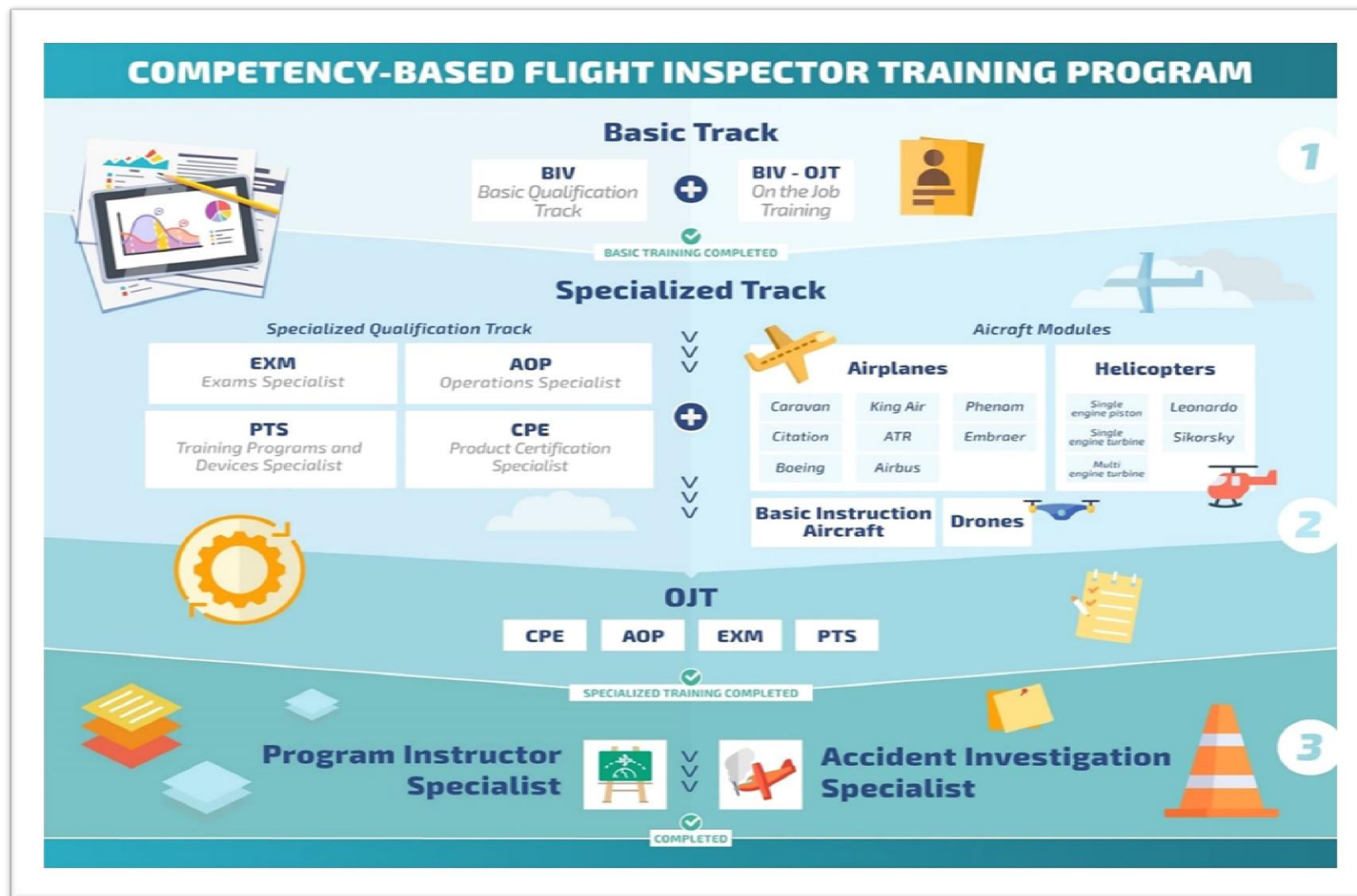
APPENDIX A

Mapped activities

TRACK	ACTIVITIES
BASIC	<ol style="list-style-type: none"> 1. Accident or Incident Report response action 2. Airshow proposal evaluation 3. Approval for landing in unregistered areas 4. Conduct audits 5. Conduct ramp inspections 6. Documental analysis 7. EFB approval 8. Evaluate aircraft load and balance procedures 9. Evaluation of aircraft performance for route requirements 10. Evaluation of RBAC 121 fuel requirements in place of RBAC 135 fuel requirements 11. Instructional records analysis 12. Interview technical personnel 13. MEL Analysis and approval 14. Offer technical opinion on minimum performance and efficiency standards 15. Offer technical opinion on rules of the air 16. Operational data analysis 17. Participate in studies, propose regulations and offer technical opinions regarding minimum operational standards 18. PBN operations approval (except RNP-AR) 19. Propose updates to personnel certification standards and procedures 20. Route guide analysis 21. RVSM operations approval
EXAMS SPECIALIST	<ol style="list-style-type: none"> 1. Conduct agricultural pilot proficiency exam 2. Conduct aircraft competence exam 3. Conduct ATPL proficiency exam 4. Conduct class proficiency exam 5. Conduct commercial pilot proficiency exam 6. Conduct CPL proficiency Exam 7. Conduct designated pilot exams 8. Conduct en route exam 9. Conduct free balloon proficiency exam 10. Conduct glider proficiency exam 11. Conduct IFR exam 12. Conduct Instructor observation exam 13. Conduct instructor proficiency exam 14. Conduct license validation proficiency exam (foreign) 15. Conduct MPL Proficiency Exam 16. Conduct private pilot proficiency exam 17. Conduct RPAS pilot exam 18. Conduct special medical flight test 19. Conduct special proficiency exams 20. Conduct type certification proficiency examination

TRACK	ACTIVITIES
	21. Evaluate pilot exam written test questions 22. Oversight and surveillance of designated pilot examiners 23. Participate as subject matter expert in English Proficiency testing 24. Pilot reexamination
TRAINING PROGRAMS AND DEVICES SPECIALIST	1. Analyze, approve and evaluate AQP training programs 2. Analyze, approve and evaluate competency-based and MPL training programs 3. Analyze, approve and evaluate CRM training programs 4. Analyze, approve and evaluate EBT training programs 5. Analyze, approve and evaluate initial pilot course manuals 6. Analyze, approve and evaluate pilot training programs 7. Evaluate a flight simulation training device 8. Evaluate a modification to a flight simulation training device 9. Evaluate an aircraft for operational suitability 10. Propose and review rules concerning flight training
OPERATIONS SPECIALIST	1. Analyze and evaluate external cargo manuals and procedures 2. Analyze and evaluate General Operations Manuals 3. Analyze and evaluate Standard Operating Procedures 4. Conduct line operations oversight flights 5. Conduct operational validation testing 6. Conduct proving flights 7. Evaluate a flight data analysis program 8. Evaluate and approve ETOPS operations 9. Evaluate and approve external cargo operations 10. Evaluate and approve Low-visibility operations 11. Evaluate and Approve NVIS operations 12. Evaluate and approve PinS PBN operations 13. Evaluate and approve RNP-AR PBN operations 14. Evaluate anti-icing and deicing programs 15. Evaluate procedures for international operations 16. Evaluate RPAS special operations and procedures 17. Evaluate the use of an autopilot in place of a second-in-command 18. Examine pilots for external cargo operations
PRODUCT CERTIFICATION SPECIALIST	1. Analyze and approve an aircraft checklist or QRH 2. Analyze and approve an aircraft flight or operations manual 3. Conduct production flights on an aircraft 4. Evaluate an aircraft for human factors and ergonomics 5. Flight test an aircraft
PROGRAM INSTRUCTOR SPECIALIST	1. Act as an instructor in the program training events 2. Act as an On-the-job training instructor 3. Act as base-aircraft instructor 4. Develop and prepare in-class materials
ACCIDENT INVESTIGATION SPECIALIST	1. Represent ANAC-Brazil in aviation accident investigations

APPENDIX B



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