



International Civil Aviation Organization

**FIFTEENTH MEETING OF THE
COMMUNICATIONS/NAVIGATION/SURVEILLANCE AND
METEOROLOGY SUB-GROUP (CNS/MET SG/15) OF APANPIRG**

Bangkok, Thailand, 25 – 29 July 2011

Agenda Item 19: Any other business

**TRAINING MANUAL (DOC 7192) PART E-2
AIR TRAFFIC ELECTRONIC PERSONNEL (ATSEP)**

(Presented by the Secretariat)

SUMMARY

Part E-2, ICAO Training Manual (Doc 7192) was published in 2011 to provide guidance to the ANSP on the matters of training for Air Traffic Electronic Personnel (ATSE). This paper provides a brief introduction to the information included in the manual and urges the States to develop their training programme based on the guidance provided in this manual.

This paper relates to:

Strategic Objective:

C – Environmental Protection and Sustainable Development of Air Transport

Global Plan Initiatives:

GPI-21 Navigation Systems

GPI-22 Communication Infrastructure

1. Introduction

1.1 During an exchange of views between the Commissioners of ICAO Air Navigation Commission, ICAO Secretariat and Members of International Federation of Air Traffic Safety Electronics Associations (IFATSEA) on the occasion of 30th Assembly of the IFATSEA, it was highlighted that personnel involved in the maintenance and installation of Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM) systems were trained to different standards. Also, it was agreed that there was a lack of universally established principles to govern the exercise of this profession. Subsequently, this need of training, qualification and competency of Air Traffic Safety Electronics professionals was expressed in the 11th Air Navigation Conference in September 2003.

1.2 It was appreciated that the personnel involved in the maintenance and installation of CNS/ATM systems should be trained based on uniform requirements on a worldwide basis. ICAO, hence decided to develop a new Part of the ICAO Training Manual to address the training requirements for this technical group of personnel, which is recognized as Air Traffic Safety Electronics Personnel (ATSEP).

2. Discussion

2.1 As an outcome of the discussion that took place between the Commissioners of ICAO Air Navigation Commission, members of ICAO Secretariat and the members of International Federation of Air Traffic Safety Electronics Associations (IFATSEA), ICAO decided to develop a new Part of the ICAO *Training Manual* (Doc 7192, Part E2) to address the training requirements for the technical group of personnel who are responsible for the maintenance and installation of CNS/ATM systems. First edition of the document was published in 2011.

2.2 The document recognizes that the main duties of the AT Safety Electronics professionals are to maintain, modify, repair and develop communication, navigation, surveillance and air traffic management systems that provide essential tools for the delivery of air navigation services.

2.3 Document envisages that the States or the organization authorized by the States to provide CNS/ATM services should establish methods of determining job competencies. All personnel directly engaged in operation, maintenance and installation activities of CNS/ATM systems should be qualified for their job functions. State regulatory norms should define the requirements with respect to age, knowledge, experience, skill and attitude which define ATSEP competency. Principle duties of ATSEP, as indicated in the document are:

- a) Maintenance of CNS/ATM systems and equipment which include
 - i) Calibration of flight and ground radio navigation aids
 - ii) Certification of CNS/ATM systems and equipment
 - iii) Modification of operational CNS/ATM equipment
 - iv) Corrective maintenance; and
 - v) Preventive maintenance
- b) Installation of CNS/ATM systems and equipment;
- c) Management, monitoring and control of operational CNS/ATM systems and equipment; and
- d) Development, review and modification of CNS/ATM systems and equipment and maintenance procedures and standards.

2.4 Degree of responsibilities given to ATSEP varies from State to State and from ANSP to ANSP, but broadly this may include:

- a) Carrying out technical duties related to developmental work concerning the electro-mechanical and computerized equipment of air navigation system, and the testing of prototypes;

- b) Providing technical support in the design and layout of specific interface circuitry for air navigation and aircraft detection tracking systems;
- c) Preparing or contributing to cost estimates and technical and training specifications for air traffic control and safety equipment;
- d) Providing or assisting with the technical supervision of construction, installation and operation of ground based air navigation equipment;
- e) Ensuring that system and equipment standards and specifications are met;
- f) Applying the knowledge and skills of air traffic safety engineering principles and practices, in order to identify and solve problems arising in the course of their work;
- g) Developing, modifying and debugging system software;
- h) Modifying CNS/ATM systems and equipment in order to improve capability, reliability and integrity, or to facilitate air traffic control procedures and airspace designation;
- i) Controlling and monitoring CNS/ATM equipment;
- j) Calibrating ground-based air navigation systems or equipment to ensure maximum accuracy and safety of flight, take-off and landing operations;
- k) Certifying CNS/ATM systems and equipment; and
- l) Providing technical training.

2.5
below:

The document also prescribes minimum entry level qualification of the ATSEPs as

- a) A minimum education level of successful completion of secondary school;
- b) A minimum of 1600 hours of post-secondary, college or military education, specialized in electronic technology; and
- c) A minimum twenty years of age.

2.6

Document, published as a single volume contains following chapters:

- Chapter 1: Training Principles
- Chapter 2: General Recommendations
- Chapter 3: Familiarization with air navigation services
- Chapter 4: Training for each qualification
- Chapter 5: Communication Systems
- Chapter 6: Radio Navigation Aids

Chapter 7: Surveillance
Chapter 8: Data processing
Chapter 9: Power Supply
Chapter 10: System Safety Training
Chapter 11: System/Equipment rating training
Chapter 12: Continuation Training
Chapter 13: Developmental Training
Chapter 14: Human Factors

2.7 Training Concept

Document recommends that the training should be divided into following levels:

- a) *Basic Training*: Fundamental knowledge and skills appropriate to the discipline to be pursued in the CNS/ATM environment;
- b) *Qualification Training*: Job-category-related knowledge and skills appropriate to the discipline to be pursued in CNS/ATM environment. Various applications have been identified that apply to the five corresponding discipline qualifications of Communication, Navigation, Surveillance, Data Processing and Power Supply;
- c) *System and Equipment Rating*: System and equipment knowledge and skills leading to recognized competency. It includes on-the-job training (OJT), which is a practical integration of previously acquired knowledge and skills, under the supervision of a qualified on-the-job training instructor, in operational environment;
- d) *Continuation Training*: Designed to augment existing knowledge and skills and/or prepare for new technologies. It includes refresher, emergency and conversion training. Refresher and emergency training are sometimes called the “recurrent training”
 - i) *Refresher Training*: Designed to review, reinforce or upgrade existing knowledge and skills, including team skills;
 - ii) *Emergency Training*: Includes training in emergencies, in unusual situations and in degraded system performance. Most of the training is site specific or may make use of incident/accident analysis;
 - iii) *Conversion Training*: Designed to provide knowledge and skills appropriate to change in either job category (new discipline or new type rating), environment (new procedures) or systems (upgrade or change);
 - iv) *Developmental Training*: Training designed to provide additional knowledge and skills demanded by a change in the job profile (for example flight check inspector, system monitoring and control, training instructor, installation or engineering technologist, or any other career development).

2.7.1 Document adequately covers the suggested subjects for training at all the levels. In addition to covering the core functions of an ATSEP's job, the document also includes aspects of electric power supply and safety systems.

2.7.2 Adoption of the document for guidance in providing training for the AT Safety Electronics professionals will bring a uniformity in the maintenance and repairs procedures. The document also provides about the specifics of each level of training and goes on to include coverage on various chapters. It is felt that a wide adoption of the guidance provided in the document will help the States in developing their training programmes and will support uniform level of maintenance of the CNS/ATM Systems. To support this adoption, following draft Conclusion is proposed for recommendation to APANPIRG:

Draft Conclusion 15/xx - Training Manual (Doc 7192) Part E-2

That, States be urged to develop their training programme for the Air Traffic Safety Electronics professionals in line with the guidance provided in the Training Manual (Doc 7192) Part E-2 Air Traffic Safety Electronics Personnel (ATSEP).

3. Action required by the Meeting

3.1 Meeting is invited to review Training Manual (Doc 7192) Part E-2 and recommend draft Conclusion placed at para 2.7.2 for adoption by APANPIRG.
