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WORKING PAPER

ASSEMBLY — 39TH SESSION

TECHNICAL COMMISSION

Agenda Item 37: Other issues to be considered by the Technical Commission

THE INCLUSION OF AIR TRAFFIC SAFETY ELECTRONICS PERSONNEL INTO ANNEX 1

(Presented by the International Federation of Air Traffic Safety Electronics Associations (IFATSEA))

EXECUTIVE SUMMARY

Programs for modernizing the air navigation infrastructure in both CNS and ATM are well underway around the globe. The implementation of new technologies will bring significant benefits to air navigation service providers and their customers. At the same time, a new set of regulations are being established for the implementation and efficient operation of future CNS/ATM systems.

Air Traffic Safety Electronics Personnel (ATSEP) are the authorized personnel who are proven competent to install, operate, maintain, release and return into operations CNS/ATM equipment. Member States need to ensure they have qualified and competent ATSEP in order to install maintain and operate, at optimum performance and resilience, these globally interconnected and complex CNS/ATM systems.

ICAO Annex 1 does not yet include licensing for Air Traffic Safety Electronic Personnel (ATSEP). Although this was decided in principle by Assembly 36 and Assembly 38 decided to request the ICAO Council to identify the safety case.
Yet investigations of various incidents and accidents such as Uberlingen, Korean Air in GUAM and Linate Airport have demonstrated the strong safety relationship between CNS systems and ATSEP tasks.

Action: IFATSEA invites the Assembly to note the information contained in this Working Paper and request the Council to undertake the necessary steps to develop licensing requirements for ATSEP including updating ICAO Annex 1 “Personnel Licensing”

Strategic Objectives:	This working paper relates to the Safety, Air Navigation Capacity and Efficiency and Security & Facilitation Strategic Objectives.
Financial implications:	The cost of implementing a licensing system for ATSEP is expected to be minimal since it simply endorses the current implementation of Competency Based Training described in Doc 10057 (not published yet) and Doc 9863
References:	Annex 1 — *Personnel Licensing* Annex 10 — *Aeronautical Telecommunications*, Volumes I, II, III and IV Doc 8071, *Manual on Testing of Radio Navigation Aids* Doc 9683, *Human Factors Training Manual* Doc 9868, PANS-TRG Doc 7192, *Training Manual*, Part E-2 Doc 10057, *Manual on Air Traffic Safety Electronics Personnel Competency-based Training and Assessment*

[1] English, Arabic, Chinese, French, Russian and Spanish versions provided by IFATSEA.

1. INTRODUCTION

1.1 Civil aviation is based on a worldwide interoperable system involving air and ground infrastructure, procedures, and regulations to ensure safe, efficient and effective operations. These interconnected systems pose cybersecurity challenges in the area of ATM. ATSEP are in the forefront of addressing cybersecurity issues as soon as they arise in them.

1.2 The Competency Based Training Concept described in the ICAO NGAP Programme applies to Cockpit Crew, ATCO and ATSEP. Competency is confirmed by issuing licenses to pilots and ATCOs but not yet to ATSEP. IFATSEA respectfully submits that as long as ATSEP remain out of such provisions, a link is missing in the ground to air safety chain. Indeed, EASA following a study by ECORYS has identified the ATSEP profession as safety critical alongside the ATCO profession.

2. DISCUSSION

2.1 ATSEP are the authorised personnel who are proven competent to install, operate, maintain, release and return into operations CNS/ATM systems.

2.2 Performance and cost relevance

2.2.1 ATSEP are responsible for ensuring the integrity and availability of the information used by both pilots and ATCO. Services performed by ATSEP have been proven throughout the years as critical to ensuring safety and efficiency in the civil aviation.

2.2.2 ATSEP are responsible for the provision of required communication, navigation and surveillance performance, which are critical enablers to ensure Performance-Based Navigation (PBN) in any given airspace as stipulated by ICAO. High availability, accuracy, continuity and resilience of this service are very important factors in the aviation business. Unreliable CNS services lead to delays and increased pilot and controller workload. Thus the availability and continuity of ATM/CNS services impacts efficiency and increases user costs. Similarly, an ATM system failure can have major consequences. Traffic patterns of an entire flight information region can be affected with significant impact on flight schedules, increased fuel burn, and a more complex air traffic control environment.

2.2.3 It is worth noting that after the sabotage in 2015 in Chicago ATC Center, ATSEP were the first ones to be allowed in the premises of the ACC in order to expedite the replacement of the central communications network so as to restore service for ATC[2].

2.2.4 ATSEP must ensure the resilience of the whole system in a standardised manner. For example, the memorandum of cooperation between USA and EU (NAT-I-9406 / 3-3-2011) is aimed at ensuring global technical and operational interoperability between SESAR and NEXTGEN.

2.2.5 Having a global licensing system as a standard for ATSEP competence ensures a uniform level of service thereby contributing to enhanced performance, mobility and cost savings in addition to greater efficiency as well as higher revenue for ANSPs and for airspace users.

[2] https://www.faa.gov/news/press_releases/news_story.cfm?newsId=17254

2.3 Regulatory relevance

2.3.1 ATSEP are the key professionals responsible for safe and secure air navigation services. The need for proven competency, responsibility and accountability for ATSEPs is already stipulated and supported with a strong rational in ICAO Doc 10057 (former 7192-Part E2-ICAO ATSEP Training Manual) as well as in Doc 9683 *Human Factors Training Manual*.

2.3.2 ICAO Annex 1 — *Personnel Licensing* sets Standards and Recommended Practices on licensing and ratings for pilots, flight crew members, ATCOs and aircraft maintenance engineers but not ATSEP yet. Many States have developed national requirements for licenses and ratings for ATSEP. However, this State-based approach creates dissimilarities between States. ICAO Doc 10057 (former 7192-Part E2), makes certain provisions for ATSEP training but the implementation remains at each State's discretion. A solution is to include ATSEP Licensing requirements in Annex 1 thus rendering such provisions imperative and binding.

2.3.3 Moreover, ATSEP training, competency and licensing will be subject to ICAO audits within critical elements CE-6 and CE-4 applicable to ANS Personnel only. In Europe, NSAs perform oversight and confirm competence and training requirements of ATSEPs being based on national standards. The training defined in Doc 7192 Part-E2 (updated by doc 10057) is also included in the new European Regulation. The cost of implementing a licensing system for ATSEP is expected to be minimal because it simply endorses the current implementation of Competency-Based Training described in Doc 10057 and Doc 9863.

2.3.4 Licensing of aviation professionals has considerably enhanced safety by providing regulatory standards that guarantee global application of the requirements. It only makes sense that ATSEP also be covered by the SARPS of Annex 1.

2.4 Safety Relevance

2.4.1 Examples of the safety relevance of the ATSEP profession (related to ATSEP duties and tasks) are found in:

a) The Report of National Aerospace Laboratory NLR on "Aviation safety management in Switzerland" (NLR-CR-2003-316) proposed ATSEP licensing as a safety recommendation (Recommendation 7-3)

b) ICAO State Letter AN 7/5-01/52 on incidents caused by operational use of ILS signals radiated during testing and maintenance procedures by ATSEP after a NCFIT accident Guam Korean Air accident and related FAA advisory (NTSB/AAR-00/01)

c) Technical systems for Low Visibility operations rely on the duty of ATSEPs

2.4.2 The ATSEP Profession has been recognized by EASA, through a Study by ECORYS in 2013, as Safety Critical alongside with ATCOs (ref.: Study on safety-related and safety-critical functions and related jobs in ATM/ANS, D7: Final Report)

2.4.3 ICAO Annex 10 Vol I already contains an accident fault tree due to CNS failures.

2.4.4 For convenience, IFATSEA has collected all above documents and uploaded them in our E-Library at https://ifatsea.box.com/v/icao-wp-annex1.

2.5 Cybersecurity relevance

2.5.1 New cybersecurity challenges in the area of CNS/ATM (e.g. Remote Towers) come through SWIM. ATSEP are in the forefront of addressing cybersecurity issues and threats equally in the networked ATM systems, at remote CNS facilities or for the 'signal in space'. These professionals need to be trusted, competent and responsible. Identifying a technical failure from a cybersecurity breach is a significant responsibility for ATSEP.

2.5.2 In the recent European Regulation on Common Requirements, EASA already foresees and includes specific security training for ATSEP. SESAR Joint Undertaking is also considering the problem along the same lines in relation to Systems Monitoring and Control capability in CNS/ATM, a task performed by ATSEP.

3. CONCLUSION

3.1 The International Federation of Air Traffic Safety Electronics Associations fully supports the Next Generation of Aviation Professionals (NGAP) program and looks forward to supporting ICAO on the development of the safety case and licensing of ATSEP.

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