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ASSEMBLY — 41ST SESSION

REPORT OF THE TECHNICAL COMMISSION ON AGENDA ITEM 31

(Presented by the Chairperson of the Technical Commission)

The attached report on Agenda Item 31 has been approved by the Technical Commission. Resolutions 31/1 and 31/2 are recommended for adoption by the Plenary.

Note.— After removal of this covering sheet, this paper should be inserted in the appropriate place in the report folder.

(15 pages)

Agenda Item 31: Aviation Safety and Air Navigation Standardization

Standardization process

31.1 The Commission reviewed A41-WP/58, presented by the Council, which contained information on progress achieved by the Integrated Communications, Navigation, Surveillance and Spectrum (ICNSS) project. Noting that the ultimate objective of the ICNSS project was to propose a set of recommendations for endorsement by the next Assembly, the Commission expressed its satisfaction with the efforts underway and encouraged States, international organizations and other stakeholders to support the continued development and implementation of a medium to long-term roadmap for the evolution of ICNSS and a new streamlined framework for communications, navigation, surveillance (CNS) and frequency spectrum standardization.

Standards-making process and the Integrated Communications, Navigation, Surveillance and Spectrum (ICNSS) Project

31.2 The Commission reviewed A41-WP/84, presented by the International Coordinating Council of Aerospace Industries Associations (ICCAIA), Airports Council International (ACI), International Air Transport Association (IATA), International Federation of Air Line Pilots' Associations (IFALPA), International Federation of Air Traffic Controllers' Associations (IFATCA), the Civil Air Navigation Services Organization (CANSO), co-sponsored by Brazil and the Flight Safety Foundation (FSF). The Commission supported the paper, which highlighted the importance of a mechanism and engagement from industry to ensure the foreseen ICNSS roadmaps and concepts to be addressed across all ICAO activities.

31.3 The Commission reviewed A41-WP/107, presented by New Zealand, which highlighted the effectiveness of developing and applying performance-based regulations in response to rapidly evolving technological innovations in the aviation sector. The Commission expressed support for the paper and recalled the ongoing work at ICAO related to the development and implementation of performance-based Standards and Recommended Practices (SARPs). Recognizing that the implementation of performance based regulatory frameworks required a number of critical elements to be considered, the Commission encouraged ICAO to continue its work on performance-based SARPs as well as on guidance material to promote their implementation in support of innovative and emerging technologies.

31.4 The Commission reviewed A41-WP/108, presented by Bangladesh, which noted challenges faced by States in incorporating complex SARPs and Procedures for Air Navigation Services (PANS) into their national regulations. The Commission agreed with the conclusions of this paper, encouraging States and industry stakeholders to enhance coordination and cooperation in support of the continued development and implementation of their ongoing Integrated CNS/ATM projects, and encouraging ICAO to continue to develop and finalize a new streamlined framework for CNS and frequency spectrum standardization.

31.5 The Commission reviewed A41-WP/233, presented by Brazil, supported by the Latin American Civil Aviation Commission (LACAC) Member States[1] and co-sponsored by ICCAIA, which outlined general principles of regulatory governance to improve regulatory practices under ICAO when developing SARPs and other guidance material. The Commission supported the content of this

paper, which highlighted that the Standards-making process must continue to evolve and improve in order to be aligned with the global best practices, considering a structured, sustainable, and systematic process of improving its regulatory governance.

31.6 The Commission noted that A41-WP/58, A41-WP/84, A41-WP/107, A41-WP/108 and A41-WP/233 shared the common subject of optimizing and enhancing the current Standard making process, a subject also addressed under Agenda Item 23. Noting the importance of consultation with Member States, the Commission agreed that the efforts to streamline the Standards making process as well as to implement performance based Standards should continue.

31.7 The Commission agreed to forward the contents of A41-WP/84, A41-WP/107, A41-WP/108 and A41-WP/233 to the appropriate expert groups with activities on these subjects. Furthermore, the Commission agreed that ICAO should continue its efforts to develop and finalize a new streamlined framework for CNS and frequency spectrum standardization, considering the perspectives expressed during the discussion, including the importance of transparency and consultation with Member States.

SARPs, PANS and guidance material

31.8 The Commission reviewed A41-WP/239, presented by South Africa, regarding the implementation of Article 33 of the *Convention on International Civil Aviation* (Chicago Convention, Doc 7300), where it was noted that the matter was within the scope of the existing ICAO work programme. In further noting the comments raised with respect to the discussion on A41-WP/239, the Commission agreed that the content of the working paper should be referred to the appropriate expert groups for further consideration.

31.9 The Commission reviewed A41-WP/364, presented by Argentina and supported by 19 Member States[2] of LACAC, which proposed to incorporate provisions related to air traffic services contingency plan into the *Procedures for Air Navigation Services — Aeronautical Information Management* (PANS-AIM) (Doc 10066), Appendix 2. The Commission agreed to refer A41-WP/364 to the relevant expert group for consideration.

31.10 The Commission reviewed A41-WP/235, presented by China, regarding the need to develop in-flight turbulence standards for different aircraft types. The Commission recalled that the Standard in-flight turbulence intensity level had been recently updated and included in Annex 3 — *Meteorological Service for International Air Navigation*, and agreed that A41-WP/235 be referred to the relevant expert group for further consideration.

31.11 The Commission reviewed A41-WP/418, presented by Venezuela (Bolivarian Republic of), which highlighted the activities undertaken by the State for implementing the ICAO Meteorological Information Exchange Model (IWXXM) and the offer to support other States in converting aerodrome routine meteorological report (METAR) and aerodrome forecast (TAF) messages from the Traditional Alpha-numeric Code (TAC) format to XML-based format (IWXXM). The Commission agreed that A41-WP/418 be referred to the relevant expert group for further consideration.

31.12 The Commission reviewed A41-WP/319, presented by the Russian Federation, seeking SARPs to ensure the quality of fuel used in various types of aircraft. The Commission noted that

discussion on the subject was complex, which would involve multiple stakeholders with diverse operational requirements. The Commission therefore agreed to refer the contents of A41-WP/319 to relevant expert groups to identify the need and scope of the work required prior to its inclusion in the ICAO work programme.

31.13 The Commission reviewed A41-WP/190, presented by the Republic of Korea, seeking amendments related to advanced surface movement guidance and control systems (ASMGCS) level 5 implementation in Annex 14 — *Aerodromes*, Volume I — *Aerodrome Design and Operations* and in the *Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual* (Doc 9830). The Commission noted the ongoing work of ICAO in this area and agreed to refer the proposals to relevant expert groups for further study.

31.14 The Commission reviewed A41-WP/159, presented by the United Arab Emirates, which highlighted the need to develop guidance on managing passenger evacuation at airports. The Commission noted the ongoing work of ICAO in this area and agreed to refer the contents of A41-WP/159 to the relevant expert group for further study.

31.15 The Commission reviewed A41-WP/170, presented by Bangladesh, which highlighted the challenges faced by various States in the provision of safety surveillance in the different areas of air navigation services (ANS). The paper called for ICAO to consider providing guidance on ANS regulatory oversight and certification of ANS providers. Noting the ongoing applicability of Recommendation 3.5/3 – Certification of ANSPs arising from the Thirteenth Air Navigation Conference (AN-Conf/13), the Commission agreed to refer the contents of A41-WP/170 to the appropriate expert group.

31.16 The Commission reviewed A41-WP/127, presented by ICCAIA, which provided a summary of the development of wake energy retrieval operations. The Commission noted the potential for fuel savings and consequent emissions reduction where wake energy retrieval operations were applied, and agreed that the proposal to develop provisions necessary to enable such operations be referred to the Council for further consideration, subject to existing priorities funded through the 2023-2025 Budget and the availability of extra budgetary resources.

31.17 The Commission reviewed A41-WP/197, presented by the United Arab Emirates, which considered the interpretation of the Standards of Annex 6 — *Operation of Aircraft*, relating to terrain clearance requirements. The Commission agreed that a review of said provisions would be beneficial and that this should be referred to the Council for further consideration, subject to existing priorities funded through the 2023-2025 Budget and the availability of extra-budgetary resources.

31.18 The Commission reviewed A41-WP/184, presented by Brazil, requesting guidance material to clarify the boundaries between Mandatory Continuing Airworthiness Information (MCAI) and other manufacturer publications. The Commission recognized the benefit of a common understanding of what information composes MCAI under Annex 8 — *Airworthiness of Aircraft* and agreed to refer recommendations to the appropriate expert group for consideration.

31.19 The Commission reviewed A41-WP/91, presented by ICCAIA and supported by IFALPA, on the multilateral recognition of certification for aerial firefighting aircraft but did not reach consensus on the need to develop provisions for aircraft certification based on the proposed use of the aircraft. Therefore, the Commission agreed that this issue should be forwarded to the Council for further

consideration, subject to existing priorities funded through the 2023-2025 Budget and the availability of extra budgetary resources.

31.20 The Commission reviewed A41-WP/96, presented by the ICCAIA and supported by IFALPA, highlighting the risks associated with the candidate agents to replace halon in aircraft fire suppression systems being subject to the proposed ECHA (European Chemical Agency) per- and polyfluoroalkyl substances (PFAS) regulation. The Commission noted the need to ensure availability of options halon replacement technology for aircraft fire extinguishing agents through consideration of exemptions from regulation for halon replacement technologies. The Commission further noted the need for States and industry to provide their inputs to various decision-making bodies to ensure their needs were considered.

31.21 The Commission reviewed A41-WP/161, presented by China, related to global aircraft dismantling activities and the harmonization of policies for managing them. The Commission highlighted that the removal, disposition and reuse of parts and materials from non-airworthy aircraft might not be consistent with the intent of Annex 8. It was noted that a clear distinction should be made between an aircraft parted out for the scope of reusing components while re-introducing them into the aircraft supply chain, and the recycling of the raw material from decommissioned aircraft due to the safety and environmental impact. The Commission agreed to refer recommendations to the appropriate expert group for consideration.

31.22 The Commission reviewed A41-WP/147, presented by China and co-sponsored by Singapore, which proposed that ICAO develop appropriate airworthiness requirements for electric powered aircraft. The Commission noted the ongoing work of ICAO in this area and recognized that the relevant expert groups were currently addressing these tasks. The Commission agreed that ICAO should continue its work in this area.

Communications, navigation, and surveillance (CNS) resilience and global navigation satellite system (GNSS) interference mitigation

31.23 The Commission reviewed A41-WP/97, presented by Czechia on behalf of the Member States[3] of the European Union, other Member States[4] of the European Civil Aviation Conference (ECAC), the Member States[5] of the African Civil Aviation Commission (AFCAC), the European Organisation for the Safety of Air Navigation (EUROCONTROL), and co-sponsored by Brazil, New Zealand, Singapore and the United States, which provided information on a growing number of occurrences of GNSS radio frequency interference (RFI), notwithstanding the actions agreed by the 40th Session of the Assembly and reiterated in State letter AN 7/5-20/89. Accordingly, the paper called for further action to mitigate GNSS and strengthen CNS system resilience.

31.24 The Commission reviewed A41-WP/196, presented by the United Arab Emirates, which reiterated a strong concern regarding ongoing harmful interference to GNSS and invited the Assembly to urge States to adopt and implement measures as suggested in the *Global Navigation Satellite System (GNSS) Manual* (Doc 9849) to manage and reduce the impacts of such anomalies.

31.25 The Commission reviewed A41-WP/198, presented by Japan, which reported on Japan's activities aiming to mitigate GNSS vulnerabilities. The paper also stressed the importance of monitoring and reporting GNSS RFI and the need to support ICAO activities on the development of an alternative

position navigation and timing (APNT) strategy to maintain air navigation services to the maximum extent possible, in the event of a GNSS signal outage.

31.26 The Commission noted the common aim to strengthen CNS systems resilience and mitigate harmful interference to GNSS as presented in A41-WP/97, A41-WP/196 and A41-WP/198. To this end, the Commission supported the proposed new Appendix to Assembly Resolution 35-15: Consolidated statement of continuing ICAO policies and practices related to a global air traffic management (ATM) system and communications, navigation and surveillance/air traffic management (CNS/ATM) systems as presented in A41-WP/97 and agreed to submit for adoption by the Plenary the following resolution to supersede Assembly Resolution A35-15:

Resolution 31/1: Consolidated statement of continuing ICAO policies and practices related to a global air traffic management (ATM) system and communications, navigation, and surveillance/air traffic management (CNS/ATM) systems

Whereas it is considered desirable to consolidate Assembly resolutions on the Organization's policies and practices related to CNS/ATM in order to facilitate their implementation and practical application by making their text more readily available and logically organized;

The Assembly:

1. *Resolves* that the Appendices attached to this resolution constitute the consolidated statement of continuing ICAO policies and practices related to CNS/ATM, as these policies exist at the close of the ~~35th~~41st Session of the Assembly;

2. *Resolves* to continue to adopt, at each ordinary session of the Assembly for which a Technical Commission is established, a consolidated statement of continuing ICAO policies and practices related to CNS/ATM; and

3. *Declares* that this resolution supersedes ~~A33-15~~A35-15.

APPENDIX A
General policy

[...]

APPENDIX B
Harmonization of the implementation of the ICAO CNS/ATM systems

[...]

APPENDIX C
Ensuring the resilience of ICAO CNS/ATM systems and services

Whereas the CNS/ATM systems are evolving and so are the associated CNS threats and vulnerabilities;

Whereas the occurrences of interferences against satellite-based CNS systems and global navigation satellite system (GNSS), in particular, have significantly increased;

Whereas CNS resiliency to interference needs to be addressed at a global level with a holistic approach, ensuring an efficient and coordinated evolution between the infrastructure architecture, improved technological capabilities, civil and military operational procedures, radio regulatory authorities and civil-military coordination;

Recognizing that resiliency to interference needs to be improved by maximizing the integration of all suitable ground infrastructure, space infrastructure and airborne components in a complementary and cooperative manner to be as robust as possible to cases of satellite-based service disruption or environments where false or deceptive signals are present;

Recognizing that both the aircraft on-board and ground infrastructure complementing the satellite-based CNS systems need to be adapted to include, where appropriate, interference detection, mitigation and reporting functions to support the resolution of operationally encountered performance anomalies;

Believing that, combined with the use of the appropriate legal framework, such capabilities and measures will allow for the relevant authorities to act upon harmful interferences caused by the illegal operation of transmitters and avoid the proliferation and the use of such illegal transmitters and the misuse of test and maintenance equipment;

Believing that, with appropriate coordination and application of best practices, military and State authorities can conduct GNSS-related testing and other interventions using radio equipment as necessary and without causing an undue impact on civil aviation;

Believing that civil-military coordination should facilitate the sharing of relevant information with airspace users, especially when flying in the vicinity of a conflict zone; and

Acknowledging that loss of crew's situational awareness from malicious origin is classified as a cyber-security threat and cannot be tolerated in civil aviation; and that intentionally sending misleading signals to replace the accurate signal is a far more serious threat to flight safety than the loss of this signal.

The Assembly:

1. *Encourages* States to transition towards optimized, secure CNS systems based on complementary integration of suitable and independent aircraft capabilities, satellite- and ground-based infrastructure which maximize resiliency and robustness to any type of interference;

2. *Encourages* standardization bodies and industry to develop appropriate interference detection, mitigation and reporting capabilities for the aircraft on-board, satellite- and ground-based CNS system components, in order to ensure higher CNS resiliency, continuity of operations and prevent any cascading effects from the use of compromised position, velocity or time data;

3. *Encourages* States to ensure that sufficient terrestrial CNS capabilities remain available to ensure safe operations and complement aircraft-level integration of position, velocity and time with independent surveillance information;

4. *Invites* ICAO to develop high-level principles on how to integrate CNS ground, space and on-board systems and capabilities to obtain more resilient positioning and timing services;

5. Urges States to apply necessary measures to avoid the commercialization/proliferation and the use of illegal transmitters such as jammers and the misuse of test and maintenance equipment which may impact CNS systems;

6. Urges States to ensure close collaboration between aviation authorities, military authorities, service providers, radio regulatory and spectrum enforcement authorities to put in place any special measures required to ensure that spectrum used by all CNS systems, and GNSS in particular, is free from harmful interference;

7. Urges States to refrain from any form of jamming, or spoofing affecting civil aviation;

8. Urges States to coordinate and notify to the maximum extent possible in advance with the air navigation services provider (ANSP) responsible for the affected airspace in case of military or other State-authorized security or defence-related operations or training, potentially causing any form of jamming, or spoofing affecting civil aviation; and

9. Urges States and operators, when assessing the interference risks associated with conflict zones, to consider that the use of satellite-based CNS systems can potentially be impacted beyond those zones.

31.27 The Commission reviewed A41-WP/162, presented by Saudi Arabia, co-sponsored by Bahrain, Kuwait, Oman, Qatar and United Arab Emirates, which emphasized the importance of ICAO's leading role in developing new provisions to reduce safety and security hazards, risks and threats related to the public availability and sharing, on the internet, of the automatic dependent surveillance — broadcast (ADS-B) information related to flights. Noting that careful consideration of positive and negative aspects of public availability of ADS-B positioning, including safety, security, performance and cost effectiveness, will be required, the Commission agreed to refer the proposal to the relevant expert groups for further consideration and evaluation.

31.28 The Commission reviewed A41-WP/353 and A41-WP/400, presented by Argentina with the support of 20 LACAC Member States[6]. Both papers recognized the need to improve the descriptions of surveillance radar testing, ADS-B and multilateration, as contained in the Appendices to the *Manual on Testing of Radio Navigation Aids*, Volume III — *Testing of Surveillance Radar Systems* (Doc 8071) and *Aeronautical Surveillance Manual* (Doc 9924). The Commission agreed to refer the proposals to the relevant expert groups.

31.29 The Commission reviewed A41-WP/214, presented by the United Arab Emirates and A41-WP/229, presented by Brazil and supported by LACAC Member States[1], where both highlighted the need for a harmonized international approach on the regulation of light sports aircraft. Working paper A41-WP/229 also pointed to the need to evaluate alternative strategies for product regulation (such as the use of industry consensus standards and declaration models). A consistent approach to the issuance of a Certificate of Airworthiness (or applicable airworthiness standards) and pilot licencing would reduce the limitations currently impacting the development of this sector and simplify the operation of this category of aircraft on international flights. The Commission noted the existence of certification Standards in Annex 8 — *Airworthiness of Aircraft*, and guidance in the *Airworthiness Manual* (Doc 9760), which could be further reviewed to ensure they accommodate the light sport aircraft category authorization and recognition. It further noted that work was already underway with regard to pilot licencing. The

Commission, therefore, agreed to refer the contents of A41-WP/214 and A41-WP/229 to the relevant expert groups.

31.30 The Commission reviewed A41- WP/458, presented by Argentina and supported by 18 Member States[7] of LACAC, which sought amendments related to a runway starter extension in Annex 14 — *Aerodromes*, Volume I — *Aerodrome Design and Operations*. The Commission noted that the task had been approved by the Air Navigation Commission and work on the matter was in progress. The Commission reviewed A41-WP/285, presented by Uruguay, co-sponsored by Argentina, Brazil, Bolivia, Chile, Colombia, Dominican Republic, Ecuador, El Salvador Guatemala, Guyana, Panama, Paraguay, Peru and Venezuela (Bolivarian Republic of), which described difficulties and obstacles in implementing the processes described in the roadmap for the transition from aeronautical information service (AIS) to aeronautical information management (AIM) and the delay in integrating aeronautical information into a broader approach to aeronautical information management. The Commission underscored the importance of the matter and reiterated its continued support for the transition to digital information management to enable global ATM operations.

31.31 The Commission reviewed A41-WP/123, presented by Iran (Islamic Republic of), which called for the development of a standard phrase for air traffic controllers to use in warning pilots when doubt existed about the aircraft approach or where the possibility of an "unstabilized approach" existed. In noting the concerns expressed that called into question the suitability of advancing this development, the Commission agreed to refer the contents of A41-WP/123 to the appropriate expert groups for evaluation.

31.32 The Commission reviewed A41-WP/250, presented by Indonesia, concerning the challenges encountered by States who use English as a second language in understanding five-letters name codes (5LNC) radiotelephony phonetics. The Commission encouraged States to be aware of linguistic differences in various parts of the world for the sake of improving aviation safety. The Commission agreed to refer the contents of A41-WP/250 to the appropriate expert groups.

31.33 Information papers provided by: Brazil (A41-WP/276, A41-WP/294); Canada (A41-WP/567); China (A41-WP/482, A41-WP/492); New Zealand (A41-WP/576); the United States (A41-WP/507, A41-WP/550, A41-WP/556, A41-WP/573); AFCAC[5] (A41-WP/298, A41-WP/304); the European Organisation for Civil Aviation Equipment (EUROCAE) on behalf of Aeronautical Radio, Incorporated (ARINC) Industry Activities, RTCA and the Society of Automotive Engineers (SAE) International (A41-WP/560); the Interstate Aviation Committee (IAC) (A41-WP/89) and ICCAIA, co-sponsored by Brazil, (A41-WP/320) were noted.

New entrants and advanced air mobility

31.34 The Commission reviewed A41-WP/245, presented by the United States and co-sponsored by Japan, Republic of Korea, Singapore, Thailand and the Flight Safety Foundation (FSF), and A41-WP/160, presented by Japan and co-sponsored by the United States, on the need to establish an appropriate expert group to develop a common vision and concept of operation for advanced air mobility (AAM) and to consider the development of provisions and/or guidance material related to electric vertical take-off and landing (eVTOL) aircraft. The Commission recognized the rapidly evolving AAM ecosystem – a collection of new and emerging technologies being applied to the aviation ecosystem. While the Commission recognized the importance of domestic and regional regulatory developments

related to AAM and eVTOLs – and their potential added value for the development of future global provisions and guidance – it was recognized that international operations may require a globally harmonized framework. Furthermore, the Commission recognized that the leadership role of ICAO was essential to achieve such global harmonization, and therefore the Commission expressed support for the establishment of an expert group to develop a holistic vision, framework, as well as to advise ICAO on activities in this area. The Commission called upon States to support AAM activities through in-kind resources, and expressed broad support for the content of A41-WP/245 and A41-WP/160. The Commission suggested that the expert group conduct a gap analysis on existing practices and provisions and on what might be required, and that States be updated on the outcome of said analysis at the next high-level meeting.

31.35 The Commission reviewed A41-WP/83, presented by Czechia on behalf of the Member States[3] of the European Union, other Member States[4] of ECAC, the Member States[5] of the African Civil Aviation Commission (AFCAC), EUROCONTROL and co-sponsored by Brazil, China, Singapore and the Flight Safety Foundation (FSF), related to flight rules. The Commission recognized that existing flight rules contained in Annex 2 — *Rules of the Air* were limiting States' possibilities to adequately regulate certain unmanned aircraft systems (UAS) operations. The Commission recommended that ICAO consider flight rules when analyzing the applicability of SARPs to UAS and assess the need for additional guidance material in the interim. The evolution of flight rules would allow for a full integration of new entrants, including AAM, while also striving for global harmonization. The Commission encouraged all stakeholders to continue sharing their best practices related to UAS and unmanned aircraft systems traffic management (UTM) regulations.

31.36 The Commission reviewed A41-WP/177, presented by the United Arab Emirates, which discussed the challenges faced in facilitating new entrants in the current ICAO airspace classification system. The Commission noted that this paper was linked to A41-WP/83 with regard to the applicability of current flight rules, and agreed that both papers should be referred to the appropriate expert group.

31.37 The Commission reviewed A41-WP/226, presented by India, which discussed the lack of a common altitude reference between conventional and unmanned aircraft flying at low altitudes, and agreed to refer the issue to the appropriate expert group.

31.38 The Commission reviewed A41-WP/224, presented by Canada, Japan and co-sponsored by New Zealand and the Flight Safety Foundation (FSF), and A41-WP/253, presented by Singapore and the Flight Safety Foundation (FSF), respectively discussing the increasing levels of automation, their impact on the role of the pilots and how to assess the technical and regulatory readiness for increased automation with the goal of future autonomy. The Commission recognized that increased levels of automation and certain autonomous capabilities might significantly impact the role and responsibilities of the pilot, as well as other aviation personnel sharing the responsibilities of flight safety. In noting that an expert group was currently working on the reliance on automation by pilots and the potential impact on pilot skills and proficiency, and welcoming that this activity be continued, the Commission supported that the wider scope of automation and autonomy, and the changing nature of the responsibilities during flight operations, be considered by an appropriate expert group. The Commission, in noting the work of FSF on autonomy, recognized that appropriate processes were needed to develop, regulate and implement increased automation and autonomy in the aviation ecosystem and requested that ICAO work with States, and international organizations, including FSF, when addressing increased automation and autonomy.

31.39 The Commission reviewed A41-WP/85, presented by Czechia on behalf of the Member States[3] of the European Union, other Member States[4] of ECAC, EUROCONTROL and co-sponsored by Singapore, on higher airspace operations (HAO). The Commission noted a number of issues related to HAO and the need for measures to be undertaken to ensure a standardized, globally harmonized approach to address them. In lieu of a new resolution, the Commission noted that higher airspace operations were addressed in Assembly Resolution A40-7: *New entrants* and therefore recommended amendments thereto.

31.40 The Commission reviewed A41-WP/121, presented by China, which highlighted the need for provisions to be developed to support and enable UAS operations in the urban environment and the economic regulations for UAS logistics.

31.41 The Commission reviewed A41-WP/180, presented by Saudi Arabia, calling for ICAO to develop a strategy related to low-level operations of new entrants, and A41-WP/179, presented by Japan, calling for provisions to be developed for high-risk beyond visual line-of-sight (BVLOS) flights.

31.42 The Commission reviewed A41-WP/405 and A41-WP/424, presented by Venezuela (Bolivarian Republic of), supported by the Dominican Republic and Panama, and A41-WP/403, presented by Venezuela (Bolivarian Republic of), supported by Costa Rica, the Dominican Republic and Panama, which respectively highlighted the need for remote identification, tracking and authorizations for UAS, the incorporation of remotely piloted aircraft system (RPAS) in the flight plan (FPL) form, and the need for ICAO to develop guidance material related to UTM.

31.43 The Commission reviewed A41-WP/254, presented by Singapore, United Kingdom, Flight Safety Foundation (FSF) and the World Food Programme (WFP) and co-sponsored by New Zealand, and A41-WP/277, presented by the WFP, discussing challenges related using UAS to provide humanitarian assistance.

31.44 The Commission reviewed A41-WP/249, presented by Canada and co-sponsored by New Zealand, discussing the medical requirements for RPAS operations. The Commission noted that remote pilot licence provisions with regard to medical certificates were already contained in Amendment 175 to Annex 1 — *Personnel Licensing*, which became effective on 16 July 2018 and will become applicable on 3 November 2022.

31.45 The Commission recognized the impact of new entrants for low-altitude airspace, including in urban areas, and the increase in the pace of their development and implementation, thereby underscoring the need to accommodate new airspace users in the lower airspace. Noting the work of ICAO related to the UTM Framework and the UAS model regulations, the Commission agreed that: a regulatory strategy for the integration of new entrants in the lower airspace; further ICAO guidance material (including on UTM); as well as provisions, as appropriate, related to UAS other than RPAS, would facilitate new entrants' operations, bring safety enhancement, support harmonization, and have a significant positive impact on humanitarian assistance. The Commission supported that ICAO, working collaboratively with international organizations, further develop tools and guidance in support of BVLOS operations, as well as fit-for-purpose airworthiness and operational provisions to facilitate the certification and operation of certain UAS categories, and that the proposals warranted further study by appropriate expert groups. The Commission encouraged expert groups, when addressing those items, to leverage external material to avoid duplication of efforts. The Commission noted the on-going survey by FSF and

reaffirmed the importance of harmonized UAS national regulatory frameworks to be established to allow humanitarian stakeholders, such as WFP, to leverage the benefits of UAS during humanitarian assistance operations. The Commission called on States to use the ICAO UAS model regulations and UTM framework and to share their experience regulating UAS operations and UTM implementation, including at regional level. The Commission noted that the incorporation of RPA in the flight plan was already ongoing as part of the work programme of relevant expert groups of ICAO.

31.46 The Commission reviewed A41-WP/287, presented by AFCAC on behalf of 54 Member States[5], discussing the importance of UAS for Africa and how to support its development. In recognizing the benefits brought by UAS to Africa, the Commission supported that further harmonization be undertaken at regional level, ICAO UAS training and implementation activities be continued and potentially be expanded after a gap analysis, and that ICAO, together with industry partners, continue to serve as a forum to exchange information and best practices in the UAS domain. The Commission encouraged States to promote the use of UAS as a means to leverage new mobility and efficiency opportunities, and expressed overall support for the contents of A41-WP/287.

31.47 The Commission expressed broad support for the contents of A41-WP/121, A41-WP/179, A41-WP/180, A41-WP/254, A41-WP/277, A41-WP/287, A41-WP/403, A41-WP/405, A41-WP/424 and the intent of the proposals of A41-WP/249 to develop a lower tier, fit-for-purpose, set of medical provisions for remote pilots, while noting the reservations expressed by several States for ICAO to develop provisions and guidance for non-international operations. The Commission agreed that the proposals warranted further study by appropriate expert groups, subject to existing priorities funded through the 2023-2025 Budget, the availability of extra budgetary resources, and the capacity of the Organization to address the overall demand for activities to be conducted in this domain.

31.48 Information papers were provided by: Brazil (A41-WP/289 and A41-WP/292); China (A41-WP/443, A41-WP/444 and A41-WP/451); India (A41-WP/532); Italy (A41-WP/459); Republic of Korea (A41-WP/531 and A41-WP/547); Saudi Arabia (A41-WP/513); Singapore and the United States, supported by Australia, China, India, Indonesia, Japan, New Zealand, the Republic of Korea (A41-WP/452) and; the United States (A41-WP/552, A41-WP/554 and A41-WP/555).

31.49 In light of the above, the Commission agreed to submit, for adoption by the Plenary, the following resolution to supersede Assembly Resolution A40-7:

Resolution 31/2: New Entrants

Whereas the Preamble of the Convention on International Civil Aviation stipulates that signatories thereto had “agreed on certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically”;

Whereas Annex 11 to the Convention requires a Member State to determine those portions of airspace over its territory within which air traffic services will be provided and, thereafter, to arrange for such services to be established and provided;

Recognizing that, for the purposes of this Resolution, the term “New Entrants” refers to higher airspace operations (HAO) and unmanned aircraft system (UAS) traffic management (UTM) operations;

Recognizing that there is an increasing need to facilitate, within a global, harmonized framework, operations by New Entrants and that there is a large disparity in performance in the types of vehicle expected to comprise this new airspace user group;

Recalling resolution A40-26 on Commercial Space Transport (CST);

Recognizing that ICAO provisions may need to be amended or expanded in order to ~~support~~ ensure the safety, regularity and efficiency of operations by "New Entrants" and the integration of such operations into the existing air traffic management framework;

Recognizing that significant progress has been made concerning the facilitation of operations by New Entrants through regional and State initiatives; and

Recalling that the ICAO Global ATM Operational Concept states that all airspace should be a usable resource, any restriction on the use of any particular volume of airspace should be considered transitory, and all airspace should be managed flexibly;

The Assembly:

1. *Directs* ICAO to review Standards and Recommended Practices (SARPs) relating to, inter alia, the rules of the air, air traffic services, certification, licencing, liability and the environment, for amendment or expansion as necessary, and to develop specific concepts and guidance to facilitate the operation of New Entrants within a global, harmonized framework, taking into account regional frameworks and practices;

2. *Calls* on Member States to arrange their regulations and procedures governing the operation of New Entrants as well as the common use by all airspace users of certain facilities and services so as to facilitate the integration of these operations, while not compromising safety and security, duly addressing environmental implications, and, where necessary, ensuring that these new operations comply with the rules of the air in Annex 2 — *Rules of the Air*;

3. *Calls* on Member States to ensure that the common use by all users of airspace and certain facilities and services does not disproportionately affect the regularity, environmental protection and efficiency of civil and military operations; ~~and~~

4. *Recognizes* ICAO's role as an international forum to facilitate improved cooperation, collaboration and the sharing of best practices in support of regional initiatives, and to undertake the necessary follow-up activities that build on those initiatives by encouraging increased dialogue between States, New Entrants, existing aviation stakeholders and the space community~~.~~; and

5. *Declares* that this resolution supersedes A40-7.

Certification and health

31.50 The Commission reviewed A41-WP/70, presented by the International Air Transport Association (IATA), requesting a review of the upper age limit based on the latest scientific evidence due to pilot shortages and age being a potential barrier to pilot employment. The Commission supported the

proposal and requested that a review of the age limit of licensed aviation personnel be conducted. The Commission noted the ongoing work within the relevant expert groups, reviewing the upper age limit on the basis of the risk to aviation safety, within the operational context, by following an evidence-informed approach and considering the most recent scientific studies and State best practices.

31.51 The Commission reviewed A41-WP/256, presented by Australia and co-sponsored by New Zealand, proposing a change in the approach to medical certification due to mental illness, towards a salutogenic model that supports the individual maintaining engagement and accessing support within the aviation community. The Commission agreed that mental health is key to aviation safety and recognized the importance of a trust relationship, just culture and additional measures to support mental health in aviation personnel. The Commission noted the ongoing work of ICAO in the mental health domain and agreed to forward the proposal to consider the salutogenic approach to the relevant expert group.

31.52 The Commission reviewed A41-WP/357, presented by Venezuela (Bolivarian Republic of), supported by Argentina, Bolivia (Plurinational Republic of), Colombia, Ecuador, El Salvador, Guatemala, Guyana, Mexico, Panama, Paraguay, Peru, Surinam and Uruguay. The paper highlighted the need for assessing psychological and physical fitness, including conducting surveys and studies to explore the mental health status of aviation personnel. The Commission noted the ongoing work within the relevant ICAO expert groups, including developing a standardized approach to surveys relating to medical fitness. The Commission reviewed A41-WP/396, presented by the Dominican Republic, which proposed the development and implementation of preventive health programmes for air traffic controllers. The Commission recalled the health promotion Standards in Annex 1 — *Personnel Licensing* (Standards 1.2.4.2 and 1.2.4.3), noted the ongoing work of ICAO and recognized that more data is required to enhance the programmes. The Commission reviewed A41-WP/382, presented by Venezuela (Bolivarian Republic of), supported by Costa Rica, the Dominican Republic and Panama, which highlighted the importance of quality assurance competency training for aircraft maintenance personnel. The Commission noted the proposals, acknowledging that ICAO initiatives were in place to address the issues raised and acknowledged the willingness of certain States to offer support in the matter.

31.53 The Commission reviewed A41-WP/119, presented by China, which proposed to optimize the licensing system for aircraft maintenance personnel. The Commission noted the benefit of the proposal and recommended that the item be referred to the Council for further consideration, subject to existing priorities funded through the 2023 – 2025 Budget and the availability of extra budgetary resources.

31.54 The Commission reviewed A41-WP/165, presented by China, which proposed to take measures to strengthen aircraft type training standards/specification. The Commission evaluated the benefit of the proposition for better standardization, but determined that it warranted further study by the appropriate expert groups. The Commission recommended that the item be referred to the Council for further consideration, subject to existing priorities funded through the 2023 – 2025 Budget and the availability of extra budgetary resources

31.55 The Commission reviewed A41-WP/122, presented by the International Federation of Air Traffic Safety Electronics Associations (IFATSEA), which highlighted the need to update existing air traffic safety electronics personnel (ATSEP) cybersecurity training objectives and development of new ATSEP cybersecurity training objectives. The Commission recognized that cyber hazards were becoming a safety concern to the aviation industry, considering the increasing connectivity of its systems and

components. The Commission agreed to forward the content of A41-WP/122 to the appropriate expert group for further consideration, subject the approved Air Navigation Work Programme and triennial budget of the Organization.

31.56 The Commission reviewed A41-WP/99, presented by ICCAIA, A41-WP/101, presented by Czechia on behalf of the Member States[3] of the European Union, other Member States[4] of ECAC, EUROCONTROL and co-sponsored by New Zealand and A41-WP/323, presented by Costa Rica and the International Federation of Air Line Pilots' Associations (IFALPA), which concerned the potential development of new concepts of extended minimum crew operations (eMCO) and single pilot operations (SiPO). The Commission noted the views expressed on safely integrating new technical developments in automation and the interests of different parties on the issues. It was agreed that further work was needed to develop a structured plan, based on a clear concept of operations, for safely addressing extended minimum crew operations, including potential single pilot operations to achieve at least an equivalent or higher level of safety compared to that achieved in current operations. The Commission recommended that the item be referred to the Council for further consideration, subject to existing priorities funded through the 2023 – 2025 Budget and the availability of extra budgetary resources.

31.57 The Commission noted the information paper provided by the United States (A41-WP/569).

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[1] Argentina, Aruba (Kingdom of the Netherlands), Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

[2] Aruba (Kingdom of the Netherlands), Belize, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Dominican Republic, Uruguay and Venezuela (Bolivarian Republic of).

[3] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

[4] Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, North Macedonia, Norway, San Marino, Serbia, Switzerland, Türkiye, Ukraine and the United Kingdom.

[5] Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cabo Verde, Central African Republic, Chad, Comoros, Congo, Cote d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia and Zimbabwe.

[6] Aruba (Kingdom of the Netherlands), Belize, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Uruguay and Venezuela (Bolivarian Republic of).

[7] Aruba (Kingdom of the Netherlands), Belize, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Uruguay and Venezuela (Bolivarian Republic of).