



## ASSEMBLY — 35TH SESSION

### TECHNICAL COMMISSION

#### Agenda Item 25: A global design code for aircraft

#### STATUS OF ACTIONS TOWARDS A GLOBAL DESIGN CODE FOR AIRCRAFT

(Presented by the United States, the European Aviation Safety Authority (EASA) and the Joint Aviation Authorities (JAA))

#### INFORMATION PAPER

##### SUMMARY

In recognition that multiple certifications/re-certifications resulting from different national certification requirements provide little additional safety value, an international working group of representatives of civil aviation authorities and the aviation industry was tasked to conduct a study on a Single Worldwide Airworthiness and Environmental Code. ICAO and its Contracting States endorsed this activity through the adoption of Resolution A33-11. The working group's final report was published in May 2002 and forwarded to ICAO for information and any further action deemed to be appropriate. In June 2002, the international aviation community decided to disband the international working group and pursue harmonized regulations on a voluntary basis due to priorities associated with other safety-related issues and the transition taking place in Europe.

#### 1. INTRODUCTION

1.1 The United States Federal Aviation Administration (FAA) and the Joint Aviation Authorities (JAA) of Europe have worked at removing significant technical differences between their respective airworthiness and environmental codes, covering all aeronautical products, since 1988. Approximately 90 per cent of the established tasks have been completed.

1.2 An FAA/JAA-sponsored working group was tasked in response to industry's claim, supported by safety data, that little additional safety value is gained through multiple or repetitive certification

programmes. The group's charter was to work toward: 1) a single worldwide airworthiness and environmental code; and then 2) a single certification process. Work began on task 1) in March 2001.

## 2. DISCUSSION

2.1 At the 17th FAA/JAA Annual International Conference in Chicago (June 2000), the aviation manufacturing industry presented data on the multitude of product certifications by different aviation authorities, sometimes with additional and different national certification requirements. Industry stated that these different reviews provide little additional safety value and requested that the authorities move towards a "Single Worldwide Certification." FAA and JAA agreed to task an International Working Group to conduct a study of the feasibility of a Single Worldwide Airworthiness and Environmental Code.

2.2 At the 33rd General Assembly in September 2001, ICAO and its Contracting States endorsed the activity through the adoption of Resolution A33-11, *a global design code for aircraft*. This endorsement facilitated representation in the International Working Group from global industry and aviation authorities. The aviation authorities participating were from Brazil, Canada, Commonwealth of Independent States (CIS), Israel, Japan, Ukraine, the United States, the Joint Aviation Authorities, as well as ICAO.

2.3 The International Working Group surveyed the ICAO Contracting States, and confirmed that the FARs and the JARs are widely used all around the world. Noting that most Contracting States currently adopt or base their airworthiness code on either the FAR or the JAR and that the FAR and JAR are nearly harmonized, the working group concluded that it was reasonable to presume that the ICAO Contracting States could recognize these codes as a worldwide design code for aircraft. The group also considered each code independently as well as other concepts.

2.4 The possible global end products consisted of the current codes (the FAR, JAR, Harmonized FAR/JAR) and two new concepts — International Aviation Requirement (IAR), and Industry Standards. The three ways of reaching global implementation were the current processes (voluntary adoption, ICAO adoption) and a new possibility (a new international agreement). Combining five possible code/end products and three possible paths to their global implementation led to fifteen options which the working group evaluated (see summary table below).

Globalized Code/End Product	Voluntary Adoption	Adopted through ICAO	New Global Agreement/Convention
FAR	Option 1	Option 2	Option 3
JAR	Option 4	Option 5	Option 6
Harmonized FAR/JAR	Option 7	Option 8	Option 9
IAR	Option 10	Option 11	Option 12
Industry Standards	Option 13	Option 14	Option 15

2.5 The working group established criteria to measure the desirability of the options and used a paired comparison to establish their relative weight. The following is a list of criteria in order of importance:

- Expected degree of global implementation
- Political and legal barriers
- Commitment
- Transparency
- Flexibility
- Resource requirements
- Time to implement

2.6 Using these criteria, the working group evaluated and ranked each of the options with an analytical hierarchy process tool. The top three options were as follows, respectively: Option 8: “A code based on the harmonized FAR/JAR and adopted by ICAO”; Option 11: “International Aviation Requirements adopted by ICAO”; and Option 7: “A code based on the harmonized FAR/JAR and adopted on a voluntary basis.”

2.7 Option 8 was a code based on the harmonized FAR/JAR developed by FAA and JAA and adopted by ICAO. In this option FAA and JAA would be responsible for developing and maintaining the harmonized code FAR/JAR. Besides the FAA and European States, other Contracting States are usually not involved in the development (except the usual consultation phase), but may be invited. ICAO adoption would follow the appropriate ICAO process. Other Contracting States could adopt the FAR/JAR completely or by reference, or States could adopt or refer to the ICAO document. National variants were possible and could be listed in an ICAO document. This option was ranked first.

2.8 Option 11 was the creation of new International Aviation Requirements (IAR) developed through a cooperation agreement and adopted by ICAO. In this option Contracting States could develop international requirements using a cooperation agreement. ICAO could perform this development. In this option all Contracting States and interested parties are entitled to participate. It is expected that the harmonized FAR/JAR will be the basis for the IAR. Contracting States could adopt the IARs completely or by reference, or States could adopt or refer to the ICAO document. ICAO “adoption” would follow the appropriate ICAO process. National variants would be minimized and listed in an ICAO document. This option was ranked second.

2.9 Option 7 was a code based on the harmonized FAR/JAR developed by FAA and JAA and adopted on a voluntary basis by individual States. In this option FAA and JAA would be responsible for developing and maintaining the FAR/JARs. FAA and JAA States would be directly involved in the development. Other Contracting States may be invited to participate. Contracting States could adopt the FAR/JAR completely or by reference. National variants were possible as compared to the parent code. This option was ranked third.

2.10 The International Working Group recommended Option 8 as the optimal solution of the fifteen options evaluated. They further recommended that Option 8 be pursued through a phased approach. Phase I was to promote the current FAR/JAR harmonization programme. Phase II called for developing a concept of having the harmonized FAR/JAR recognized under the ICAO umbrella. Phase III was to seek ICAO agreement and to implement the harmonized FAR/JARs. The working group recommended that an individual or group should be specifically tasked to undertake and monitor the implementation of the recommended option.

2.11 At the 19th FAA/JAA Annual International Conference in Phoenix (June 2002) the recommendations of the International Working Group were discussed. The practicality of some of the options was a concern and a diverse range of views were expressed. It was finally agreed that the first six steps of Phase I should be implemented. These six steps are:

- 1) increase awareness of the status of the FAA/JAA harmonization work programme;
- 2) encourage States that have not already done so, to adopt the FARs or JARs into national laws;
- 3) encourage minimization of national variants;
- 4) complete harmonization under the FAA/JAA work programme;
- 5) give further consideration of inviting other authorities/interested parties to participate in the development of the harmonized FAR/JARs; and
- 6) assess level of implementation.

2.12 At that conference it was further agreed to pursue a harmonized FAR/JAR adopted by States on a voluntary basis and to forward the results of the working group to ICAO for consideration.

2.13 At the 20th FAA/JAA Annual International Conference in Reykjavik, Iceland the status of the project was reviewed. It was concluded that while steps 1 and 2 are constant activities, steps 3, 4 and 5 above are completed. There was also recognition that the establishment of a new single aviation safety agency in Europe meant that different certification specifications would replace the JARs. Given the transition activities taking place in Europe and other pressing safety-related issues, further work on this initiative has been suspended indefinitely.

2.14 No work has been undertaken on the second task of the working group regarding a single certification process. While the issue of developing a single certification “process” was a goal for this project, the participating aviation authorities could not resource new work because of other safety related issues and resources required for the establishment of a new regulatory system in the European Union.

### 3. CONCLUSION

3.1 The International Working Group chartered by the FAA and JAA has completed its work towards a global design code for aircraft. The group determined that most national airworthiness and certification standards are based on or are similar to the United States FARs and the European JARs. It is reasonable to presume that ICAO Contracting States could recognize these requirements as a “worldwide code.” It was envisioned that the FARs/JARs could be part of “technical instructions” referred to in ICAO Annex 8, and adopted voluntarily by other countries.

3.2 Contracting States are encouraged to use the FARs/JARs by reference as their design code for aircraft. The final report from the International Working Group has been forwarded to ICAO for further action if deemed appropriate.