

**Air Carrier Training Aviation Rulemaking Committee (ACT ARC)**

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**ACT ARC Recommendation 21-9  
Flight Standardization Board Evaluations for Related Aircraft and Same Type Rating**

**I. Submission**

The recommendations below are submitted by the Flight Standardization Board Workgroup (FSB WG) for consideration by the Air Carrier Training Aviation Rulemaking Committee (ACT ARC) Steering Committee at its April 28, 2021, meeting. The ACT ARC Steering Committee adopted the recommendations, and they are submitted to the Federal Aviation Administration (FAA) as ACT ARC Recommendation 21-9.

**II. Statement of the Issue**

FAA Advisory Circular (AC) 120–53B, Change 1, Guidance for Conducting and Use of Flight Standardization Board (FSB) Evaluations, provides guidance for evaluating manufactured or modified aircraft by the use of standard systems, processes, and tests necessary to determine pilot training and qualification requirements. The AC indicates that once a Handling Qualities Comparison Between Aircraft test (T2) is passed, the applicant can proceed with a Systems Differences Test and Validation of Training and Checking (T3). The AC also mentions the line-oriented flying (LOF) phase of the T3 which, when included at the discretion of the FSB, “examines the implications” of mixed fleet flying (MFF). The AC does not presently discuss a specific focus or process for FSB analysis of the number and magnitude of systems, procedural, and human-machine interface changes to determine if two aircraft can reasonably be designated as related aircraft or if a new variant can be considered the same type rating. Although the AC states that the failure of a T2 test, “means that major handling differences exist during critical phases of flight or that numerous less critical differences were identified that warrant training in [a full flight simulator (FFS)] or aircraft”, in past FSB evaluations there has been a greater emphasis on handling qualities during the T2 test as the determining pass/fail factor. Similarly, the T3 addresses the subject of number and magnitude of systems differences only obliquely, and only when discussing the LOF and MFF. The AC states that the LOF is used to examine implications of MFF and further, that unsatisfactory performance in the LOF is a failure of the T3 test. However, the LOF is not a mandatory requirement of the T3 test. Although the current T2/T3 evaluation process may speak in general terms to the need for an analysis of the impact of the number and magnitude of systems, procedural, and human-machine interface changes between related aircraft and variants, no direct statement or emphasis on this critical subject currently exists or is documented in AC 120–53B. As a consequence, the implications of such difference complexities may be unresolved when MFF evaluations and approvals are undertaken at the operator level by local FAA offices.

**III. Recommendations**

The ACT ARC recommends the FAA consider the following actions:

The FAA should consider revising AC 120–53B to update its policy for FSB evaluations to directly address and emphasize that an analysis of the number and magnitude of systems, procedural, and human-machine interface changes and/or differences should be part of an

evaluation for two aircraft to be the same type rating and/or designated as related aircraft.

#### **IV. Rationale and Discussion**

When determining if two aircraft can reasonably be designated as related aircraft or if a new variant can be considered the same type rating, the ACT ARC agrees that it is important for the candidate aircraft not to have significant differences in handling qualities from the base aircraft. However, there are other factors to consider when ensuring aircraft are safely operated in this manner that should also be considered during an FSB evaluation.

Paragraph 7.i. of Appendix 2 to AC 120–53B, Change 1, FAA Review and Approval of Operator Programs, speaks to Principle Operating Inspector (POI) approval for air carriers to operate more than two related aircraft. The ACT ARC believes that it would be beneficial if much of this guidance was applied to the FAA's FSB review and evaluation of an applicant's application for related aircraft and/or type rating designations.

The ACT ARC believes that by emphasizing that there are considerations in addition to handling qualities for determining if a candidate aircraft is the same type rating and/or related to the base aircraft, the FAA will be able to manage this process more effectively while setting the expectations of the applicant. This process will serve to inform the applicant early in the planning phases whether or not the number and magnitude of design changes and/or differences would be too great for aircraft to be considered to be related and/or the same type rating.

#### **V. Background Information**

Recommendation 21-9 addresses Items 1 and 3.a-c in the FSB WG Scope of Work and ACT ARC Initiative #43 (see below):

##### FSB WG Scope of Work:

1. Examine whether the FAA should reconsider its current process of an FAA operational evaluation.
3. In developing proposed recommendations responsive to (1) and (2), consider, at minimum, the following:
  - a. Would the new or improved operational evaluation include some or all of the elements that are currently included in an FAA operational evaluation?
  - b. Would the new or improved operational evaluation include elements that are not included in a current FAA operational evaluation?
  - c. What standards should be used to ensure the consistent conduct of operational evaluations?

##### ACT ARC Initiatives:

- Initiative #43: Examine how the FAA could improve its current Flight Standardization Board (FSB) Process and product (FSB Report) to meet the interests of all stakeholders.

##### JATR Recommendations and Findings:

- Recommendation R9.1: The FAA should revise AC 120–53B and FAA Order 8900.1 Volume 8, Chapter 2 to include an assessment of the cumulative effects

of changed products, such as differences in aircraft systems, displays, flight characteristics, and procedures.

- Observation O9.1-A: AC 120–53B does not require the cumulative effects on system changes to be considered.

References

- FAA AC 120–53B, Change 1
- FAA Order 8900.1