



U.S. Department
of Transportation
Federal Aviation
Administration

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Advisory Circular

Subject: USE OF ADVANCED TRAINING DEVICES
(Airplane Only)

Date: 6/12/87
Initiated by: AFS-250

AC No: 120-46
Change:

1. PURPOSE. This advisory circular (AC) sets forth an acceptable means, but not the sole means, of showing compliance for the use of airplane Advanced Training Devices (ATD's) in training conducted under Part 135 of the Federal Aviation Regulations (FAR). Technical requirements and criteria for ATD evaluations is discussed in AC 120-45, Advanced Training Devices (Airplane Only) Evaluation and Qualification, issued by the Federal Aviation Administration's (FAA) Southern Region.

2. BACKGROUND.

a. Over the past three decades, FAA has made extensive provisions in its regulations to encourage the use of flight simulation for pilot training and checking. Despite advances made in this area, there remains a need within the aviation community for still broader uses of flight simulation media in training and checking. While the FAA is continuing to address these needs, the lack of a comprehensive, systematic analysis of this type of media, increases in fidelity, increased simulation costs, and other factors have stifled previous efforts to improve the system.

b. In recognition of the attendant problems surrounding these needs, a joint team consisting of FAA representatives and private industry researchers gathered to analyze the system used for certificating, training, and checking airmen. The team subsequently developed a report entitled "A Systematic Determination of Skill and Simulator Requirements for Airline Transport Pilot Certification" (DOT/FAA/VS-84/2). This report provided information which indicated that a non-motion, non-visual training device meeting an established level of fidelity for aerodynamic programming, control loading, flight instrument response, systems replication, and aural cueing may be appropriately used in pilot training or checking activities under Title 14 of the Code of Federal Regulations (CFR). This AC outlines the application of this type of training device under FAR Part 135. The report is available to the public through the National Technical Information Service (NTIS) Springfield, Virginia 22161.

c. The FAA intends to continue its encouragement of the use of flight simulation media in pilot training and checking activities. One step in this ongoing effort is to allow an ATD to be used in FAR Part 135 training programs. However, the FAA does not intend that the use of an ATD erode or degrade the currently established simulator media and its associated training and checking authorizations and requirements. Additionally, as a part of its overall

evaluation of the use of this type of flight simulation media, the FAA will continue to evaluate the authorizations contained in this AC, at least to the extent that such authorizations may be addressed in future rulemaking, to determine whether they have met, and continue to meet, expected objectives.

3. DISCUSSION.

a. An ATD must be qualified to the standards outlined by the National Simulator Program Manager (NSPM) in AC 120-45, and then is recommended to an operator's principal operations inspector (POI) or certificate-holding district office, as appropriate, for approval/use within that operator's training program. The listing of a particular maneuver or procedure in this AC is not, in itself, sufficient justification for that maneuver or procedure to be authorized to be performed in an ATD in an operator's Part 135 training program. Based on the finding by NSPM that a device meets the standards specified for an ATD, the POI will conduct a review of the procedures to be used by the operator for each of the maneuvers authorized to be conducted in the ATD prior to granting approval for its use in a particular training program. Additionally, it is the responsibility of the POI or certificate-holding district office, as appropriate, to ensure the continuing efficacy of any training program, including the use of an ATD, and to withdraw approval when any program, or portion of a program, fails to meet an established level of productivity and/or success.

b. Operators contracting to lease an ATD already evaluated as meeting the appropriate standards and approved for an aircraft type will be required to obtain their POI's approval (as above) to use that ATD in their approved training program(s).

4. TRAINING AND CHECKING AUTHORIZATIONS.

a. When accomplished in accordance with an operator's FAA-approved FAR Part 135 training program, the maneuvers and procedures listed in subparagraph 4b (selected from FAR Part 61, Appendix A) may be approved to be conducted in an ATD in lieu of the actual airplane when conducted in accordance with the following regulations:

- (1) Competency checks in accordance with FAR Section 135.293;
- (2) Instrument proficiency checks in accordance with FAR Section 135.297;
- (3) Pilot initial, transition, upgrade, and differences flight training or checking in accordance with FAR Section 135.347; and
- (4) Pilot recurrent training in accordance with FAR Section 135.351.

Note: While an ATD may be used in conjunction with an approved FAR Part 135 training program as outlined above, an ATD may not be used in any pilot certification or type rating activity conducted in accordance with the requirements of FAR Part 61, Appendix A, except as a training device.

b. <u>Maneuver/Procedure</u>	<u>Training</u>	<u>Checking</u>
(1) Use of the prestart checklist, appropriate control system checks, starting procedures (including normal, abnormal, and/or emergency starting procedures), radio and electronic equipment checks, and selection of proper navigation and communications radio facilities and frequencies prior to flight.	All	All
(2) Powerplant Checks	All	All
(3) Rejected Takeoffs	All	All
(4) Area Departure/Area Arrival	All	All
(5) Holding	All	All
(6) Approaches to Stall (for those airplanes equipped with a stall warning device)	All	All
(7) Steep Turns	All	All
(8) Normal ILS Approaches (all engines operating, <u>1/</u> straight-in only)	All	All
(9) Nonprecision Approaches (all engines operating, <u>1/</u> straight-in only)	All	All
(10) Missed Approaches (all engines operating <u>1/</u>)	All	All
(11) Normal and Abnormal Procedures (excluding engine, propeller, or flight control malfunctions <u>1/</u>)	All	All

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Maneuver/ProcedureTrainingChecking

(12) Emergency Procedures
(excluding engine, propeller,
or flight control failure 1/)

All

All

1/ Training in the procedures for those situations/conditions resulting in asymmetrical flight conditions may be accomplished in the ATD. However, in all such situations/conditions, training for the maneuver itself and the demonstration of proficiency in both the application of the procedures and the maneuver itself, must be accomplished in either a flight simulator approved for the maneuver or the airplane.


William T. Brennan
Acting Director of Flight Standards

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800 Independence Ave. S.W.
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