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DEPT. OF TRANSPORTATION
COCKPITS

My research was accomplished using the FAA website and Gleim Publications (FAR 135).

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The Regulatory Background:

- Current 135 and 121 verbiage states that operators must develop and have approved an in house training program re: 135.321 through 135.351.
- With regard to aircraft simulators and other flight training devices (FTDs) 135.323 (e) states that these devices may be used in the certificate holder's training program if approved by the Administrator.
- Sec.135.335 Approval of aircraft simulators and other training devices states (b) Each aircraft simulator and other training device that is used in a training course or in checks required under this subpart must meet the following requirements:
 - (1) It must be specifically approved for--
 - (i) The certificate holder; and
 - (ii) The particular maneuver, procedure, or crewmember function involved.
 - (2) It must maintain performance, functional, and other characteristics that are required for approval.
 - (3) Additionally, for aircraft simulators, it must be –
 - (i) Approved for the type aircraft and, if applicable, the particular variation within type for which the training or check is being conducted; and
 - (ii) Modified to conform with any modification to the aircraft being simulated that changes the performance, functional, or other characteristics required for approval.

Operations Inspectors Handbook 8400.10, Volume 3, section 479 (Flight Training Devices and Flight Simulators) states: Before any level 1 through level 5 flight training device can be used, it must be evaluated by the POI to determine that it meets the prescribed requirements for the appropriate level of flight training device. There is a further note that states: The functional and technical descriptions for the first three levels of flight training devices are presently under development and are not applicable to FAR part 121 or FAR part 135 flight training.

The Problem:

Technology gains in the electronics and computer industries have made available off the shelf software, computer equipment, electronics including visual and sound systems, that in years past were cost prohibitive to the average person. FTD Original Equipment Manufacturer (OEMs) and others have taken advantage of this technology to design develop and fabricate flight simulation devices (FSDs), FTDs, and Flight Simulators of ever increasing fidelity. FTDs

that were state-of-the-art just 20 years ago are far less capable than current production FSDs. OEMs have been able to achieve simulation results that outperform standard flight training devices by using this new technology that is widely affordable.

An industry team in response to this new technology and under the guidance of AFS – 800 and coordinated with the National Simulator Program developed a standard and an evaluation handbook(s) to grant approval for such devices (for both rotary and fixed wing aircraft). As the technology is new, the devices were placed under the category as an equivalency FTD level 1.

Under the current regulations the devices may be used to train, conduct Instrument Competency Check Rides, maintain proficiency as well as perform IFR testing for part 61 and 141 flight schools.

These FSDs have been purchased by both 135 & 121 operators. Under current regulations, these same devices do not have any allowable credit given under 135 or 121 approved training programs.

The Rationale:

POI's following the aforementioned regulations and the Operations Inspectors Handbook referenced above have no choice and do not allow FSDs to be used in 135 & 121 flight training operations.

The regulations do not allow the FSD(s) not because of FARs themselves, but because in the inspectors handbook, it states that Levels 1, 2, and 3 FTDs may not be used because the functional and technical descriptions are in re-write. The re-write effort is in its 5th or 6th year since the start of the project.

FSDs are currently being used world-wide to enhance flight school training and the results so far have been very impressive. Students that utilize such devices are generally better equipped and more skillful than those who do not. This was stated at Sun and Fun 2003 by a DPE who had recently completed his 36th check ride of students using the new technology.

Organizations that have purchased devices that replicate the aircraft being flown have also seen extremely positive results. Using the affordable devices they have been able to use them to standardize pilot training and more importantly document the essential training and level that the pilot demonstrates. As a result insurance companies, even before FAA approval, are granting some reduction in premiums. None the less, without a way to get some sort of credit, organizations are hard pressed to sway financial decision makers to make the acquisition despite the affordable cost.

Recommendation:

As the current regulation gives FSDOs and POIs considerable latitude already in making judgment calls on such devices (a FSDO can authorize on an individual basis an approval for a device used in 61 or 141 training), it would follow that the same authority should be granted when New Technology FSDs are to be used. A possible solution would be to remove the note from the hand book and replace it with a note that might state: after evaluation and at the POIs discretion the Flight Simulation Device may be approved for use in the 135/121 operators training program. Maneuvers and checks are limited to: (a description that is developed jointly between the operator and his POI) xyz, etc. "This approval is to be reviewed yearly to stay in force", the result would enhance training and more importantly safety. As is often said, "a simulator is the only place that an operator can practice emergencies that if practice in the aircraft would compromise safety.

Rewriting the current verbiage is a win win for the aviation community.