Corporate operators have little guidance for modifying manufacturers' checklists.

BY DAVID M. BJELLOS

Checklist Confusion

Unlike airliner manufacturers that typically produce relatively simple checklists, knowing their customers will modify them to fit their operating needs, business aircraft manufacturers produce checklists that tend to be overly long and better suited to engineers and flight test crews than to pilots. However, corporate aviation department managers and chief pilots do not have the regulatory direction or clear guidance afforded their air carrier counterparts, and much confusion exists about the acceptability and legality of modifying manufacturers' checklists.

Program managers at the major flight training centers in the United States estimate that well in excess of 50 percent of corporate operators of transport category turbine aircraft use modified checklists during normal flight operations. During simulator training, however, their pilots are required either to use "approved" checklists — almost exclusively those provided by the original equipment manufacturers (OEMs) — or to comply with specific U.S. Federal Aviation Administration (FAA) provisions to use their modified checklists during required recurrent training and proficiency checks. The FAA still requires the use of an approved checklist for aircraft type-specific initial training.

To use a modified checklist at an FAA-approved training center, a company operating under the general operating and flight rules of U.S. Federal Aviation Regulations Part 91 must apply directly to the OEM for a "letter of no objection" (LONO). The application must include the modified checklist and a summary of the differences between the modified checklist and the OEM checklist. A LONO is issued if the OEM's flight operations staff finds no technical objections to the use of the modified checklist for training. The company then must send the LONO and the modified checklist to the training center before its pilots arrive for training.

Real-World Disconnect

The process of gaining approval to use a modified checklist for training is onerous, time-consuming and problematic. Thus, pilots typically use the OEM checklist for training and their modified version operationally. This constitutes a disconnect between operating the aircraft in the "real world" and in the training environment.

The disconnect negates the concept of "train as you fly, fly as you train." And it begs the question: If Part 91 allows us to use any checklist we feel fulfills the need for safe flight operations, why must we comply with restrictions on the use of that checklist in the simulator?

Based on its investigation of the fatal Hawker accident in Owatonna, Minnesota, the U.S. National Transportation Safety Board (NTSB) has recommended to the FAA that Part 135 air taxi and commuter operators, and Part 91 Subpart K fractional ownership operators be allowed to use the same checklists in simulator training that they use in normal line operations (see story, p. 16).

The implications and intent of this recommendation are clear and compelling, and it should apply to other Part 91 operators.

Normalization of Deviance

The term *normalization of deviance* was coined after the space shuttle Challenger disaster and underscores the importance of identifying repeated, error-prone actions that have become "normal operations."

The shuttle was so technologically advanced and required such tedious attention to detail that actual inspection and repair times far overran the planned turnaround times. Checks that were mandatory became optional, and subtle clues were overlooked or ignored. The mold was cast for failure, and when failure occurred, it did so in dramatic fashion.

Identifying and correcting error-prone activities are at the core of safety management system (SMS) philosophy. The FAA should apply this philosophy to the situation in which crews train with one checklist and fly with another, and it should reappraise its requirements for Part 142 training centers.

FAA Recommendations

While researching this topic, the author requested a formal response from the FAA to the following questions:

- What expectations does the FAA have, and what steps can an aviation department take, to address customizing a checklist for its individual needs?

- What position does the FAA take on those of us (Part 91 corporate flight departments) who use customized checklists?

- What steps would the FAA recommend that Part 91 corporate flight departments take to ensure our checklists meet the "acceptable standard" that exists for Part 121 and Part 135 operators?

The response from the FAA's Flight Standards Service on March 25 was as follows:

"For Part 91 operators that are not operating under Subpart K, there is

no FAA requirement for acceptance or approval of modified checklists. … The FAA encourages all Part 91 operators to utilize checklists when appropriate and ensure their (aircraft manufacturer or operator modified) checklist is complete and contains no errors. Part 91 operators, especially those operating large aircraft, may want to consider the following information prior to making modifications to a manufacturer's checklist:

- "Advisory Circular (AC) 120-71A, *Standard Operating Procedures for Flight Deck Crewmembers*, contains information on proper checklist usage;

- "FAA Order 8900.1, Volume 3, Chapter 32, Section 12, contains the guidance that FAA inspectors use when accepting or approving checklists for Part 121 and 135 operators. While this guidance does not apply to Part 91 operators, it may be useful when reviewing Part 91 checklist modifications;

- "Run validation tests of nonstandard, abnormal and emergency checklists in realistic real-time scenarios in a simulator;

- "Seek assistance and cooperation of the manufacturer or other operator that has already conducted a validation test of a procedure or checklist;

- "Determine the safety and effectiveness of any addition, deletion or change of sequence in the steps of checklists, through validation testing;

- "When using a curriculum in a Part 142 training center, noncertificated operators must follow

and complete FAA procedures required to replace the center's approved checklist with the operator's checklist. Operators must also ensure the center's personnel are trained on differences (see FAA Order 8900.1, Volume 3, Chapter 54, Section 6); [and,]

- "Emphasize correct checklist usage in training. For example, operators should emphasize and train crewmembers to not overlook items on checklists, verify settings visually, and minimize outside interruption of checklist verification."

While the FAA's response provides a great deal of data for review, it does not address the fundamental question of exactly what is acceptable.

Best Practice vs. Regulation

The FAA and the European Aviation Safety Agency exert little or no oversight of business aircraft operators in such critical areas as flight and duty time limitations; fatigue management and long-range flight planning; overwater operations; security; and functional training beyond the Part 61.58 requirement for pilot-in-command proficiency checks.

Instead, most corporate aviation operators have adopted industry best practices formulated by organizations including Flight Safety Foundation and the International Business Aviation Council (IBAC). The keystone is the Industry Standard for Business Aviation Operations (IS-BAO), which was "developed by the industry for the benefit of the industry," according to IBAC. Voluntary in nature, IS-BAO certification shows the regulator that an operator is complying with industry best practices and operating to the highest standards possible.

Business aircraft manufacturers defer the use of checklists to the discretion of their customers. The OEMs are required to provide revisions as necessary to meet compliance and operational issues, but the time that would be involved in formulating and issuing revisions to checklists tailored to a specific customer's needs likely would be outstripped by the rapid pace of technology and airspace system design changes.

Corporate flight operations are as diverse as the business purposes they serve. Yet, the level of safety that business aviation provides is extraordinary. Professionally crewed Part 91 aircraft have a safety record that is statistically equal to that of their Part 121 counterparts. That may explain why aviation managers, chief pilots and flight crews take such a vested and passionate interest in checklist construction and content.

There has been no civil liability precedent in U.S. courts regarding alleged misuse of modified checklists. However, a legal basis for liability exists for improper use of an OEM checklist, so a valid argument cannot be made that using only an OEM checklist will reduce liability and satisfy SMS criteria for risk mitigation. In any event, the post-accident outcome in a court of law could be determined by the savvy arguments of the attorneys, rather than the good intentions of operators, despite the aviation department's best efforts. Proper use of either a modified or OEM checklist is critical to safe and conservative flying. ⌐

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