



Special Inspection of Commuters

Evaluations are only as constructive as the appropriateness of the industry's response to them.

—
by

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Because of the number of accidents and incidents involving commuter air carriers certificated under U.S. Federal Aviation Regulation (FAR) Part 135, the industry has been the subject of special attention, evaluations and inspections by concerned government agencies in that country. The purpose of those activities is simple and similar. Expose the problems and make recommendations that will reduce or eliminate the sore spots and, thereby, improve the safety of commuter operations.

Evaluations and Inspections

The U.S. General Accounting Office (GAO) responded to a request from Senator Robert C. Byrd (D-W.Va.), evaluated commuter pilot training and issued a report, "Enhanced Requirements Can Improve Commuter Pilot Training," (*Accident Prevention* Vol. 45, No. 11, November 1988). The need for additional pilot training in the areas of standard operating procedures, cockpit resource management and decision making were stressed.

The U.S. Federal Aviation Administration (FAA) has now released the results of a special inspection program of commuter air carriers that was undertaken at the direction of then FAA Administrator T. Allan McArtor. Also concerned with the increase in accidents, McArtor wanted to evaluate the industry's compliance with FARs and its ability to establish corrective programs when safety violations were identified.

The FAA Administrator's View

"While some operators were found to be in full compli-

ance with safety requirements," said McArtor in the opening statement of the report, "others demonstrated the need for significant improvement. I am particularly concerned about what appear to be systemic deficiencies with management personnel. The most serious findings of the inspections reflected a lack of management knowledge of, and experience with, complex commuter air carrier regulations, as well as substandard administration of training and deficient aircraft inspection programs."

How The FAA Inspected

The FAA defined commuter air carriers as those that operate at least five round-trip passenger flights per week according to published flight schedules, using aircraft that carry less than 30 passengers or have a payload not exceeding 7,500 pounds.

The inspection program was organized into three phases. Phase I, which was completed April 30, 1988, involved the analysis of historical data such as accidents, incidents, enforcement information and previous inspection results to design special emphasis inspection methods. Thirty-five commuters were selected for in-depth inspections and 13 focus areas were identified:

- Operations;
- Airworthiness;
- Management;
- Training;
- Weight and balance;
- Crew coordination;
- Flight time limitations;

- Rest requirements;
- Check airmen;
- Airworthiness Directives (ADs);
- Maintenance Inspection Programs;
- Minimum Equipment Lists; and,
- Service Difficulty Reports.

Phase II was the execution of the 35 on-site inspections by 15 inspection teams, consisting of six inspectors each.

Phase III was the publication of the report: “Special Inspection FAR 135 Commuter Air Carriers,” National Aviation Safety Inspection Program (NASIP), U.S. Department of Transportation, Federal Aviation Administration, Flight Standards Service.

General Findings

There were a total of 1,284 findings. Of those, 73 percent occurred in three focus areas:

- Management, (operations and airworthiness) 516 findings;
- Training (operations and airworthiness), 203 findings; and,
- Maintenance inspection programs, 217 findings.

The FAA report stated that the preponderance of findings in the management area emphasizes the impact of management on the companies’ overall compliance posture and adherence to proper procedures. Inspection teams identified instances where the lack of management oversight resulted in required programs deviating from approved procedures and regulations. For example, one finding identified a chief pilot who lacked the knowledge of flight time limitations and rest requirements which resulted in the lack of sufficient rest time for some personnel.

Findings were classified in one of the following three categories:

- Class I — noncompliance with FARs which result in an Enforcement Investigative Report (EIR). Class I findings are alleged violations that may or may not be sustained in final actions;
- Class II — contrary to FARs but which do not result in an EIR;
- Class III — nonconformance with FAA written guidance or written company procedures.

Operational Requirements

Commuters operate under applicable parts of FAR Part 135 and Special Federal Aviation Regulations (SFAR) 38-2. Commuter operators utilizing aircraft with 30 pas-

senger seats or less and providing a maximum payload of 7,500 pounds or less are bound by SFAR 38-2 to comply with the certification requirements of, and conduct operations in accordance with, FAR Part 135.

FAR Part 135 also has breakpoints in certification and operations requirements that are dependent on the size of the operation and aircraft, as follows:

- A commuter that utilizes aircraft type-certificated for 10 or more passenger seats must have a maintenance program in its manual that complies with specific maintenance criteria identified in FAR Part 135.
- Aircraft with 10 or more passenger seats must comply with special aircraft performance and other requirements similar to those applied to air carriers operating under FAR Part 121.
- Operators using aircraft with nine or fewer seats maintain and inspect their aircraft under FAR Parts 43 and 91, utilizing the manufacturer’s recommended maintenance instructions or an FAA-approved maintenance program, the same as required for aircraft with 10 or more passenger seats.
- All commuters, except for an operator who uses only one pilot in its operation, must prepare and keep current a manual which is acceptable to the FAA and sets forth the operator’s procedures and policies.

Operations Management

In the operations management area, there were 283 total findings with 26 percent being Class I. Most frequent occurrences by percent of total were:

- Inaccurate, incomplete or inadequate management procedures, 56 percent;
- Operations specifications, nine percent; and,
- Administrative errors or actions contrary to the regulations, four percent.

More specifically, the FAA cited the following:

- Required management positions not filled;
- Lack of required experience;
- Inadequate assignment of duties and responsibilities;
- Failure to provide for operational control;
- Lack of basic knowledge; and,
- Lack of qualification.

One of the findings revealed a chief pilot who failed to meet the regulatory experience level that was required and another finding uncovered another chief pilot who did not know what the flight time limitations and rest requirements were. In three cases, required management

positions were vacant at the time of the inspection.

The FAA summarized the following findings, not related to management requirements but directly affected by management practices:

- Record keeping;
- Omissions in training;
- Revision of required manuals;
- Refueling procedures;
- En route qualification procedures;
- Passenger briefing procedures;
- Emergency procedures;
- Minimum equipment lists;
- Weight and balance procedures; and,
- Manuals not available to ground and flight personnel.

Several findings involved the failure to delete obsolete material such as maintenance requirements for aircraft no longer operated by the carrier, authority to operate certain categories or classes of aircraft that the carrier no longer used and areas of operation not being specified.

The FAA noted that management personnel and the oversight they provide were the framework of an effective and efficient commuter operation. To the FAA, if deficiencies were noted in management, other problems were likely to surface in other programs and the FAA felt that this theory was proven by the inspection results.

Operations Training

There were 165 total findings in this area with 28 percent noted as Class I. The most frequent occurrences by percent of total findings were:

- Required training not included in the training program, 47 percent;
- Pilots employed did not complete the required competency checks, 21 percent;
- Administrative errors, 15 percent;
- Incomplete or no training records, 12 percent;
- Incomplete or failure to give required training, five percent; and,
- Obsolete testing standards, three percent.

The FAA found that the training most often omitted was:

- Emergency training required by regulation or other guidance material;
- Instruction for specific instrument approach procedures that are authorized in the commuter's operations specifications;
- Training to ensure pilot competence for each type of aircraft used by the commuter;
- Required training such as provisions to acquire In-

dividual Operational Experience (IOE), upgrade, initial, transition, instructor, check airman, and recurrent training.

Some commuters thought that inclusion of recurrent training was unnecessary because of the interpretive language of FAR Part 135.293(c) which states that the instrument proficiency check required by FAR Part 135.197 (pilot-in-command six-month instrument check) may be substituted for the competency check required under the provisions of FAR Part 135.293, "Initial and Recurrent Pilot Testing Requirements."

Some of the subjects the FAA picked up as not in training programs included:

- Altitude awareness;
- Descriptions of training aids;
- Hazardous materials;
- Special airspace restrictions;
- Loss of visual cues on descent;
- Meteorology; and,
- Failure to include completion standards for flight training that is consistent with the original certification requirements of current practical test standards for commercial pilots and instrument ratings, or the Airline Transport Pilot flight test guide.

Of the findings, 29 involved pilots who did not complete pilot testing requirements and 13 of those failed to take a required competency check. Thirteen additional pilots had taken and passed a required flight check given by an unqualified check airman, which made those checks invalid. Two pilots did not take a recheck after a previous failure.

The FAA concluded that operators were observed giving training they believed essential but some of the training was not included in their approved programs. Ground and flight instructors were often unable to relate the training they were giving to the approved course of training. The absence of lesson plans and training aids was also observed. Such omissions or inadequacies in the operator's training program, said the FAA, would eventually be reflected in the performance of the company's entire pilot population.

Operations Check Airmen

There were 39 total findings with 36 percent in Class I. Most frequent occurrences by percent of total findings were:

- Lack of check airmen qualifications, 46 percent;
- Failure to record required information, 13 percent; and,
- Flight check failure procedures, five percent.

Primary problem areas noted by the FAA were:

- Conducting required flight checks when the check airmen were not authorized to do so;
- Check airmen did not receive required training or pass required flight checks;
- Checks were given by check airmen whose authorization had expired;
- Rechecks after flight check failure were conducted by check airmen — rechecks must be done by FAA;
- Continued use of a check airman authorization after the authorized check airman had terminated employment; and,
- Continued use of a check airman authorization after terminating employment with one commuter and being hired by another.

Some check airmen conducted checks that were not authorized by the FAA. When the appropriate checks were given, the required information was not always correctly recorded. Instead of failing a pilot on a required check, some operators would discontinue the check and record it as training which could result in a pilot continuing to fly in scheduled operations without meeting the flight check requirements.

Operations Crew Coordination

There were a total of 17 findings with 29 percent in Class I. Most frequent occurrences by percent of total findings were:

- Failure to provide appropriate passenger briefings, 29 percent;
- No crew coordination guidance in company manuals, 29 percent;
- Aircraft system checks not being performed, 18 percent; and,
- Crew performing unnecessary duties during critical phase of flight, 12 percent. Some inspection teams commented on nonstandard procedures used by flight crews. For example, pretakeoff, climb, descent, and approach briefings varied greatly in content and use.

The principal findings in this area involved inadequate passenger briefings and insufficient written guidance pertaining to crew coordination. A number of findings related to cockpit distractions during periods of cockpit sterilization, when the flight deck crew should not be distracted by irrelevant communications or conversations.

The FAA concluded that lack of standardization in flight crew performance was an indicator of failure to adequately emphasize crew coordination in company instructions, training programs and flight check procedures.

Flight and Rest Requirements

In this area there were 50 total findings with 70 percent in Class I. Most frequent occurrences by percent of total were:

- Insufficient rest periods between flights, 49 percent;
- Records not kept in sufficient detail to determine compliance, 29 percent;
- Failed to keep any records, 12 percent; and,
- Operators scheduled pilots for flights that exceeded flight time limitations, six percent.

Seventeen commuters provided insufficient rest for crew members prior to flight. Ten did not keep records with sufficient information to establish regulatory compliance. In six instances, operators failed to retain any records or did not keep records for the required periods of time. In three cases, commuters exceeded the flight time limitations.

A contributing factor to having crews assigned to flight duty without receiving the required rest was the inadequacy of record keeping and dispatch systems. The systems did not accommodate situations where crew members exceeded scheduled flight times and did not provide for the required extended rest periods prior to the next scheduled flight.

Operations Weight and Balance

There were 51 total findings in this area with 45 percent in Class I. Most frequent occurrences by percent of total were:

- Load manifest omissions and errors, 43 percent;
- Inadequate or lack of procedures in the operations manual, 24 percent;
- Operated out of the center-of-gravity range or over gross weight, 11 percent; and,
- Administrative, 11 percent.

In several cases, procedures failed to provide for the computation and use of maximum allowable takeoff weight. Commuters operating large aircraft with reciprocating engines or turboprops and a seating capacity of 10 or more, were often listing the maximum certificated takeoff weight on their load manifests without considering performance requirements that could limit the weight of the aircraft. Those performance requirements include one-engine inoperative takeoff flight path, en route climb, accelerate-stop, and balked landing climb and landing distance; any of which could reduce the maximum allowable takeoff weight to a value below the maximum certificated takeoff weight.

A second group of findings involved inadequate, im-

proper or absent weight and balance procedures in the operations manual. Those findings included the use of winter weights during the summer for weight and balance computations and average weights for baggage which were less than the actual weights. Some commuters operating aircraft with nine or less seats used average weights not authorized for that size aircraft. Commuters operating aircraft with 10 or more seats used average weights when they had not conducted a survey to determine the average weights that could be used for their operation. Additional findings included baggage being carried in other than approved areas, and the computation of weight and balance that was contrary to the operations manual guidance.

The FAA concluded that problems of omissions, incorrect data, failure to compute maximum allowable takeoff weight in load manifests and inadequate, or lack of, weight and balance procedures in operations manuals were directly related to the lack of accurate and complete manual guidance, training and audits as the principal means to assure that procedures are carried out properly.

Airworthiness Management

There were 233 total findings in this area with 36 percent in Class I. Most frequent occurrences by percent of total were:

- Management operations and maintenance manuals, 12 percent;
- Use of aircraft not shown to be airworthy, 11 percent;
- Maintenance manuals not available to maintenance personnel or not kept current, nine percent;
- Incomplete manuals, six percent;
- Operations Specifications, Part D, five percent; and,
- Improper or incomplete record keeping procedures, three percent.

There were numerous findings where aircraft were prematurely approved for return to service, and those findings included incomplete inspections, deferred maintenance items which were not repaired during inspections, and required special tools or test equipment that were either not used or not available.

Several manuals were not current, and applicable sections of some manuals were not available to personnel. Some manuals did not contain all the necessary procedures, required inspection items, procedures standards or limits for periodic inspection of precision tools, or measuring devices and test equipment.

The FAA concluded that those in management positions have a direct impact on the compliance posture and adherence to acceptable procedures. The FAA found that

some management personnel did not hold the required certificates or have adequate knowledge of their operations and regulations. Some directors did not understand the contents of their maintenance manuals.

Airworthiness Training

There were 38 total findings in this area with 37 percent in Class I. Most frequent occurrences by percent of total were:

- Maintenance training of personnel required to determine the adequacy of work done in accordance with approved procedures, 41 percent; and,
- Training those personnel authorized to perform Required Inspection Item (RII) inspections.

The FAA concluded that many certificate holders began as small operators, have expanded and now operate aircraft certificated for 10 or more passengers. Some of the operators' management did not possess the experience needed to manage the maintenance and training programs for the larger, more complex aircraft.

Airworthiness Directives

There were 54 total findings in this area with 65 percent in Class I. Most frequent occurrences by percent of total were:

- Did not make required entries to show compliance with an applicable Airworthiness Directive in accordance with FAR Part 135.439, for those operators with aircraft seating 10 or more passengers, 45 percent;
- Did not make necessary entries to show compliance with an applicable Airworthiness Directive in accordance with FAR Parts 135 and 91 for those operators with aircraft seating nine or fewer passengers, 41 percent; and,
- Operating aircraft that did not meet the requirements of an applicable Airworthiness Directive, 12 percent.

The FAA concluded that inadequate record keeping procedures were a contributing factor to those findings dealing with commuters exceeding prescribed inspection intervals required by recurring Airworthiness Directives.

Maintenance Inspection Programs

There were 217 total findings in this area with 46 percent in Class I. Most frequent occurrences by percent of total were:

- Inspection and maintenance programs that were incomplete regarding required inspection items and procedures, 14 percent;
- Operation of aircraft with discrepancies that exceed specific wear limits, use of manuals that were not current, or returning aircraft for service without the availability

or use of specialized equipment, 10 percent; and,

- Use of unqualified personnel to perform Required Inspection Item (RII) functions, incomplete or missing lists of personnel with RII authorization and incomplete lists that identify RIIs, six percent.

Of 27 commuters operating aircraft with 10 or more seats, 52 percent had Class I findings dealing with deficiencies of inspection programs, returning aircraft for service with incomplete programs, returning aircraft for service with incomplete inspections and failure to follow the procedures and policies outlined in the manuals.

The FAA concluded that the findings in this area indicated that some maintenance personnel were not knowledgeable with the more complex maintenance requirements associated with 10 or more passenger aircraft. This also indicated to FAA a lack of adequate training or the absence of the management controls and experience necessary to the operation of these aircraft.

Minimum Equipment Lists

There were 87 total findings with 10 percent in Class I. Misuse of minimum equipment lists, 39 percent, and use of minimum equipment lists that were not current, seven percent, were the most frequent occurrences.

The FAA found that the significant problems dealt with commuters flying aircraft with uncorrected maintenance items for extended periods ranging from 45 days to 600 days. Commuters were also using MELs less restrictive than the applicable Master Minimum Equipment List (MMEL) because the operators' MELs were not revised in a timely manner. Other problem areas included inadequate or no placarding procedures, aircraft released for service with inoperative systems which were not covered by a MEL, and the use of a MEL that was not applicable to the particular make and model aircraft.

The FAA concluded that management personnel might not be familiar with the MEL provisions and that the high turnover in flight crew and maintenance personnel could directly impact the need for improved training for compliance with MEL provisions and procedures.

Airworthiness Weight and Balance

There were 36 total findings in this area with 30 percent in Class I. Most frequent occurrences by percent of total were: requirement to weigh multi-engine aircraft every 36 calendar months, 29 percent; currency of available weight and balance information on board the aircraft, 18 percent; and, use of improper or uncalibrated equipment to weigh multi-engine aircraft.

The FAA requires weighing each multi-engine aircraft every 36 months but found that commuters were using scales of insufficient capacity or scales that were not calibrated. Procedures for updating necessary weight and balance forms were not addressed in all company manuals.

The FAA concluded that improper loading can have a severe impact on the performance and flight characteristics of aircraft, and that flight crews must have current and accurate weight and balance information. ♦

About the Author

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