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for Airworthiness (FSAW)

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BULLETIN TITLE: Guidance Addressing Operational Check
Flights Following Maintenance of Air
Carrier Aircraft

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1. PURPOSE. The purpose of this bulletin is to provide national policy and guidance to Flight Standards Airworthiness Inspectors who have certificate management responsibilities for Title 14 of the Code of Federal Regulations (14 CFR) parts 121, 125, 135, and 145 certificate holders. This policy and guidance addresses operational check flights, otherwise known as "functional check flights," of an operator's aircraft following the accomplishment of maintenance. This guidance will assist Airworthiness Inspectors in ensuring that the air carrier's operational check flight procedures meet the requirements of the regulations.

NOTE: The term "functional check flight" indicates that the flight is conducted to a test standard. The term "operational check" flight, as referenced in section 91.407(b), is a more appropriate term when referring to verification that the maintenance performed on the aircraft was accomplished to approved standards of repair and that the aircraft is operational.

2. BACKGROUND. Historically, the air carrier industry has been conducting check flights following the accomplishment of maintenance in accordance with approved procedures in their maintenance manual. Following the completion of the check flight, the aircraft "airworthiness release" block in the

aircraft logbook is signed, returning the aircraft to revenue service. Recently this procedure has surfaced as a concern based on the reading of the regulations that governs how the maintenance organization releases the aircraft to service following maintenance. It is the opinion of a few Aviation Safety Inspectors (ASI) that the airworthiness release block in the logbook for air carrier aircraft should be signed following all maintenance and that no check flight is required. Therefore, the Flight Standards Service has been asked by ASIs in the field offices to develop national policy and guidance for those in the inspector work force with surveillance responsibility of certificate holders who conduct functional check flights. Additional questions have been raised about whether air carriers are authorized to conduct check flights, and whether the airworthiness release needs to be signed before or after the check flight is performed.

3. DISCUSSION. The regulatory language in 14 CFR sections 91.407(a) and 121.709 states in part that no certificate holder may operate an aircraft following maintenance, preventive maintenance, rebuilding, or alterations unless the certificate holder prepares or causes to be prepared an approval to return the aircraft to service by authorized persons in accordance with section 43.7. This return to service is accomplished by a maintenance record entry in accordance with sections 43.9 or 43.11 into the aircraft logbook or the signing of the designated airworthiness release block in accordance with the air carrier's airworthiness release procedures. It is this regulatory language that concerned some field inspectors who disagree with the industry practice of conducting check flights as a maintenance task before the air carrier airworthiness release block is signed and the possibility that further maintenance tasks may be accomplished following the check flight.

A. Is a Check Flight Required?

(1) In accordance with the regulatory sequence of section 91.407(a), a maintenance release of the aircraft must be accomplished first before an operational check flight is conducted. This maintenance release can be either an entry in the logbook or the air carrier maintenance release form.

(2) Section 91.407(b) permits an operator (e.g., air carrier) two options to verify the accomplishment of the previously performed maintenance.

(a) An operational check flight can be performed if any of the maintenance, preventive maintenance, rebuilding, or alterations may have appreciably changed the flight characteristics or substantially affected the aircraft flight operations. If any additional maintenance is required following an operational check flight, then the aircraft is returned to maintenance, requiring a new maintenance release to service.

(b) The operator or air carrier may opt not to conduct an operational check flight by verifying the performance of the aircraft maintenance through ground checks or inspections, if appropriate.

B. Are Air Carriers Authorized to Conduct Check Flights?

(1) Regulation 14 CFR section 91.407(b) states: "no person may carry any person (other than crewmembers) in an aircraft that has been maintained, rebuilt, or altered in a manner that may have appreciably changed its flight characteristics or substantially affected its operation in flight until an appropriately rated pilot with at least a private pilot certificate flies the aircraft, makes an operational check of the maintenance performed or alteration made, and logs the flight in the aircraft records."

(2) The applicability of this regulation is derived from section 91.401, which states in part that the rules of this subpart apply to all U.S.-registered civil aircraft operating within or outside of the United States. It further lists several sections of this subpart which do not apply to an aircraft maintained in accordance with a continuous airworthiness maintenance program as provided in part 121, 129, or section 135.411(a)(2). Section 91.407 is not included in that list; hence, the regulation is applicable to all aircraft, and the conduct of operational check flights is permitted.

C. Must an Airworthiness Release be Signed before Accomplishment of the Check Flight?

(1) Air carrier maintenance regulation 14 CFR section 121.709 applies only to the recording of maintenance, not the conducting of operational check flights. The applicability of this regulation is based on section 121.681, which states: "this subpart prescribes requirements for the preparation and maintenance of records and reports for all certificate holders." Before an operational check flight is conducted on an air carrier aircraft, the regulatory provisions in section

121.709(b) must be complied with. Therefore, the recording of all maintenance accomplished on an air carrier aircraft is noted by an airworthiness release or logbook entry meeting the provisions of section 121.709(b). Section 135.443 is also viewed in a similar manner in the conduct of a post maintenance operational check flight.

(2) In conclusion, the regulations do not prohibit an operator's option to conduct post maintenance aircraft operational check flights for all U.S.-registered civil aircraft. Once this is accomplished on an air carrier aircraft following any additional maintenance, the air carrier will sign the logbook again, returning the aircraft to service in accordance with its manual procedures and the regulations.

4. GUIDANCE. Based on the discussion in this bulletin of the regulatory basis for the conduct of an operational check flight, it is the policy of this office that an air carrier can perform a post maintenance operational check flight on an aircraft after the aircraft is returned to service. Furthermore, the airworthiness release block in the air carrier's logbook should only be signed following the accomplishment of all maintenance to the aircraft, returning the aircraft to service in accordance with its manual procedures and the regulations. These and any additional procedures should be detailed in the air carrier's manual in accordance with the applicable regulations.

5. INQUIRIES. This FSAW was developed by the Aircraft Maintenance Division, Air Carrier Maintenance Branch, AFS-330. Any questions regarding the guidance in this bulletin should be directed to AFS-330 at 202-267-3440.

6. EXPIRATION. This bulletin will expire on 12-31-04.

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Aircraft Maintenance Division