

NOTICE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

N 8900.362

National Policy

Effective Date:
5/9/16

Cancellation Date:
5/9/17

SUBJ: Policy for Installation of ADS-B OUT Systems

1. Purpose of This Notice. This notice provides Federal Aviation Administration (FAA) policy regarding installation of Automatic Dependent Surveillance-Broadcast (ADS-B) OUT systems into civil aircraft certificated under Title 14 of the Code of Federal Regulations (14 CFR) parts 23, 25, 27, 29, and their predecessor regulations, for compliance with 14 CFR part 91, §§ 91.225 and 91.227.

2. Audience. The primary audience for this notice is certificate-holding district offices (CHDO) including Flight Standards District Offices (FSDO) and certificate management offices (CMO), and aviation safety inspectors (ASI) and aviation safety technicians (AST). The secondary audience includes Flight Standards (AFS) branches and divisions in regions and headquarters (HQ).

3. Where You Can Find This Notice. You can find this notice on the MyFAA employee Web site at https://employees.faa.gov/tools_resources/orders_notices. Inspectors can access this notice through the Flight Standards Information Management System (FSIMS) at <http://fsims.avs.faa.gov>. This notice is available to the public at http://www.faa.gov/regulations_policies/orders_notices.

4. Background. This policy is related to the approval and installation of ADS-B Out systems for the purpose of compliance with §§ 91.225 and 91.227.

Note: Compliance with §§ 91.225 and 91.227 requires installation of equipment meeting the performance requirements of Technical Standard Order (TSO)-C166b or TSO-C154c equipment after January 1, 2020.

5. Initial Approval of ADS-B OUT Systems. Initial ADS-B OUT system pairings (transmitter and Global Positioning System (GPS)) must be approved for installation using the Type Certificate (TC), amended TC, or Supplemental Type Certificate (STC) process. The appropriate Aircraft Certification Office (ACO) should be consulted to determine the approval process for new system pairings. Once the performance of the initial pairing has been established, the FAA considers follow-on installations of the same pairing to be approved.

Note: Organization Designation Authorization (ODA) holders can issue amended TCs and STCs when authorized by their FAA Organization Management Team (OMT).

6. Follow-On Installations of Approved ADS-B Transmitter and GPS Pairings. After initial approval, ADS-B OUT systems that have previously received FAA approval and meet all of the following conditions may be installed and returned to service on other aircraft without further data approval:

a. Technical Standard Orders. The ADS-B OUT equipment is manufactured under TSO-C166b or TSO-C154c.

b. Position Sensor. The Global Navigation Satellite System (GNSS) position sensor is manufactured under TSO-C129 or later, TSO-C145a/C146a or later, or TSO-C196 or later.

c. Compliance Statement. The installer has a statement of compliance (SOC) from the applicable manufacturer(s) or STC holder that the equipment (self-contained) or specific equipment pairing (ADS-B OUT transmitter and GNSS position sensor) have been shown, via TC, amended TC, or STC, to comply with all § 91.227 requirements. This SOC may be included in the applicable installation instructions. The installation instructions must address how the equipment is to be installed and maintained to comply with not only the applicable TSOs but also § 91.227 requirements.

d. Permission to Use Approved Data. The installer has documentation from the STC holder(s) (per § 91.403(d)) that indicates the owner/operator of the aircraft has permission to use the STC data for the alteration.

e. System Connections. The ADS-B OUT equipment, GNSS position sensor, and interconnect wiring are connected in accordance with the applicable manufacturer's or STC installation instructions.

f. Configuration Settings. The installation is performed in accordance with documentation from the manufacturer(s) or STC holder indicating what configuration settings, if applicable, are to be used for the ADS-B OUT system to meet § 91.227 requirements which include, but may not be limited to:

(1) FAA assigned Mode S/International Civil Aviation Organization (ICAO) code address (hexadecimal/octal format) associated with current aircraft registration;

(2) Emitter Category (refer to the current edition of Advisory Circular (AC) 20-165, Airworthiness Approval of Automatic Dependent Surveillance—Broadcast OUT Systems, Chapter 3);

(3) System Integrity Level (SIL);

(4) System Design Assurance (SDA);

(5) Flight Identification (FLT ID) (e.g., N-number); and

(6) GNSS sensor settings required to correctly communicate with the ADS-B OUT equipment.

g. Installation Compliance. The installation is performed in accordance with 14 CFR part 43. Acceptable methods, techniques, and practices may be found in the current edition of AC 43.13-2, Acceptable Methods, Techniques, and Practices—Aircraft Alterations.

h. System Performance Verification. The installed ADS-B OUT system has been verified to comply with both the system configuration and equipment performance requirements of § 91.227. The system configuration aspects of § 91.227 requirements include the ICAO code address, emitter category, SIL, SDA, FLT ID code, etc. Performance aspects of § 91.227 requirements include Navigation Integrity Category (NIC), Navigation Accuracy Category for Position (NACp), Navigation Accuracy Category for Velocity (NACv), etc. Acceptable compliance verification methods include:

(1) Operational Flight Evaluation. Conduct an operational flight evaluation (OFE) per § 91.407(b) and request an FAA ADS-B compliance report at the following email address 9-AWA-AFS-300-ADSB-AvionicsCheck@FAA.gov. Include the aircraft registration number (N-number) and the ADS-B transmitter and GPS equipment make/model information when submitting requests to the FAA for ADS-B OUT system OFE performance checks. Following receipt of the applicable OFE compliance report, the installer must verify the installed ADS-B OUT system complies with all § 91.227 performance requirements and the system configuration is correct for the aircraft; or

(2) Ramp Test Equipment (§ 91.407(c)). Use ramp test equipment to verify proper system configuration and compliance with § 91.227 equipment performance requirements.

i. Maintenance Record. The ADS-B OUT alteration must be documented in the aircraft maintenance record per part 43, § 43.9(a) and include the statement, “The installed ADS-B OUT system was shown to meet the equipment performance requirements of 14 CFR part 91, § 91.227.”

Note: Submit FAA Form 337, Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance), to document ADS-B OUT alterations. On FAA Form 337, Block 8, include the following compliance statement, “The installed ADS-B OUT system was shown to meet the equipment performance requirements of 14 CFR part 91, § 91.227,” along with the applicable ADS-B OUT transmitter and GPS make/model information. Submit the completed FAA Form 337 to the Aircraft Registration Branch, AFS-750, P.O. Box 25504, Oklahoma City, Oklahoma 73125. The FAA Form 337 can be submitted directly without FAA approval in Block 3.

Note: ADS-B OUT alterations performed on aircraft operated by certificated operators may be documented in a manner acceptable to the Administrator.

7. ADS-B OUT Systems Requiring Additional Data Approval. ADS-B OUT systems that fail to meet the requirements for installation without further data approval, per paragraph 6, must be performed using approved data through appropriate means (refer to the current edition of

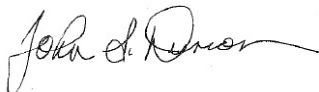
FAA Order 8300.16, Major Repair and Alteration Data Approval). Document applicable ADS-B OUT major alterations, per § 43.9, and include the required statements and equipage information specified in paragraph 6 in the aircraft maintenance record and on FAA Form 337, Block 8.

8. Aircraft Flight Manual (AFM) Revision. Following installation of a compliant ADS-B OUT system the General section of the AFM must be revised to include the following statement, “The installed ADS-B OUT system has been shown to meet the equipment performance requirements of 14 CFR part 91, § 91.227.” Applicable AFM revisions do not require FAA approval.

9. Modifying an Approved Aircraft Design for ADS-B OUT. Modification of aircraft to comply with ADS-B OUT performance requirements that meet the criteria specified in paragraph 6 may do so under a minor change in type design. Some installations may not constitute a major change in type design so the use of a TC amendment or STC is an acceptable method for approval. Once a specific ADS-B OUT system pairing receives design approval, use of this same pairing on a different aircraft type is a minor aspect of the design change. If other aspects of the design change are evaluated and determined to be minor, the overall design change may be made as a minor change to type design. Pursuant to 14 CFR part 21, § 21.95, minor changes in type design may be approved under a method acceptable to the FAA before submitting to the FAA any substantiating or descriptive data.

Note: For aircraft requiring initial installation of ADS-B OUT equipment consult your ACO regarding applicability for a major change in type design.

10. Disposition. The information in this notice will be incorporated into FAA Order 8900.1 before this notice expires. Please direct questions concerning the information in this notice to the Aircraft Maintenance Division (AFS-300), ADS-B Focus Team, at 202-267-1707.



John S. Duncan
Director, Flight Standards Service

Appendix A. ADS-B Alteration Flowchart

