

### U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

N 8900.648

**National Policy** 

Effective Date: 12/15/22

Cancellation Date: 12/15/23

**SUBJ:** OpSpec/MSpec/LOA A355, Automatic Dependent Surveillance-Broadcast (ADS-B) In Operations

- 1. Purpose of This Notice. This notice announces a nonmandatory revision to operations specification (OpSpec)/management specification (MSpec)/Letter of Authorization (LOA) A355. It provides new guidance for Federal Aviation Administration (FAA) responsible Flight Standards offices and Principal Operations Inspectors (POI) assigned to operators conducting airplane operations under Title 14 of the Code of Federal Regulations (14 CFR) parts 91 subpart K (part 91K), 121, 125 (including part 125 Letter of Deviation Authority (LODA) holders), 135, and 121/135 combined certificate holders (CH).
- **2.** Audience. The primary audience for this notice is the aviation safety inspectors (ASI) within Flight Standards (FS) Safety Assurance offices who have oversight responsibilities for certificated operators under parts 91K, 121, 125 (including part 125 LODA holders), 135, and 121/135 combined CHs.
- **3.** Where You Can Find This Notice. You can find this notice on the MyFAA employee website at https://employees.faa.gov/tools\_resources/orders\_notices and the Dynamic Regulatory System (DRS) at https://drs.faa.gov. Operators and the public can find this notice on the FAA's website at https://www.faa.gov/regulations policies/orders notices and DRS.

#### 4. Background.

- a. Automatic Dependent Surveillance-Broadcast (ADS-B). ADS-B is an enabling Next Generation Air Transportation System (NextGen) surveillance technology in the National Airspace System (NAS) and exists in two different capabilities: ADS-B Out and ADS-B In. ADS-B Out is the automatic broadcast of own-ship's position, velocity, and other information for use by air traffic control (ATC) ground systems as well as nearby ADS-B In-equipped aircraft. ADS-B In is the capability to receive and display ADS-B Out information from nearby aircraft and uplinked from ground stations. ADS-B In enables cockpit-centric applications and is the subject of this notice.
- **b. ADS-B In is Optional.** Operators may equip with ADS-B In at their option to obtain operational benefits offered by new ADS-B In applications. These new applications, currently under development, will require common certified ADS-B In equipment and software. It is likely that each newly developed application will be more complex and will build on the capabilities of

Distribution: Electronic Only Initiated By: AFS-400

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earlier applications. Operators may wish to obtain authorizations incrementally, or to obtain only specific authorizations which suit their operation.

- **c. ADS-B In Authorization.** OpSpec/MSpec/LOA A355 is a single authorization for multiple ADS-B In applications. With this revision, inspectors can now authorize Cockpit Display of Traffic Information (CDTI) Assisted Visual Separation (CAVS) operations and/or Interval Management (IM) operations. The OpSpecs/MSpecs/LOAs are constructed to permit issuance of one or both of the existing ADS-B In authorizations.
- **d. ADS-B for Situational Awareness.** OpSpec/MSpec/LOA A355 does not apply to operators who choose to equip their aircraft with ADS-B In for situational awareness only. There is no authorization required to use ADS-B In for situational awareness. The subparagraph authorizing the use of ADS-B In equipment to supplement the pilot's situational awareness has been deleted with this revision.
- e. A355 Application Requirements and Process. Because some ADS-B In applications are new and under continued refinement, A355 issuance will require Office of Safety Standards (OSS) division approval. The operator and principal inspector (PI) or Flight Standards District Office (FSDO) must use the nonstandard request process described in FAA Order 8900.1, Volume 3, Chapter 18, Section 2, Automated Operations Safety System.
- **5. Guidance.** This notice contains the following:
  - The sample OpSpec A355 template in Appendix A applies to part 121.
  - The sample OpSpec A355 template in Appendix B applies to part 125.
  - The sample OpSpec A355 template in Appendix C applies to part 135.
  - The sample OpSpec A355 template in Appendix D applies to part 121/135.
  - The sample MSpec A355 template in Appendix E applies to part 91K.
  - The sample LOA A355 template in Appendix F applies to part 125 A125 LODA holders.
- **6. Action.** Upon receipt of an application for ADS-B In authorization, FAA responsible Flight Standards offices and POIs should refer to Order 8900.1, Volume 3, Chapter 18, Section 3, Part A Operations Specifications—General, OpSpec/MSpec/LOA A355 for guidance on how to process the application.
- 7. **Disposition.** We will incorporate the information in this notice into Order 8900.1, Volume 3, Chapter 18, Section 3 before this notice expires. Direct questions or comments concerning the information in this notice to the Flight Technologies and Procedures Division (AFS-400) Flight Operations Group (AFS-410) at 202-267-8790.

Caitlin Locke

Acting Deputy Executive Director, Flight Standards Service

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## Appendix A. Sample OpSpec A355, Automatic Dependent Surveillance-Broadcast (ADS-B) In Operations: 14 CFR Part 121

a. The certificate holder is authorized to conduct flight operations using ADS-B In equipment and procedures as specified in this operations specification.

#### b. Limitations and Provisions.

- (1) <u>Airworthiness Requirements</u>. ADS-B In operations are approved only for those aircraft with ADS-B equipment installed per type certificate (TC) or Supplemental Type Certificate (STC) as amended. The certificate holder must verify through routine maintenance inspections that the ADS-B Out/In system continues to meet required performance standards.
- (2) <u>ADS-B In Equipment Requirements</u>. For aircraft authorized to conduct ADS-B In operations, a Cockpit Display of Traffic Information (CDTI) is required. The ADS-B In equipment must comply with Technical Standard Order (TSO)-C195b, Avionics Supporting Automatic Dependent Surveillance Broadcast (ADS-B) Aircraft Surveillance Applications (ASA), or later, or be found acceptable to the Administrator.
- (3) <u>Airplane Flight Manual (AFM)</u>. The FAA-approved AFM, and/or Airplane Flight Manual Supplement (AFMS), FAA-approved Company Flight Manual (CFM), or pilot's operating handbook (POH), as applicable, must incorporate a description and procedures for operation of the approved ADS-B In systems.
- (4) <u>Required Pilot Training</u>. Participating pilots must complete the certificate holder's training program that includes operating procedures and limitations of the installed ADS-B equipment prior to conducting the ADS-B In operations in this operations specification. ADS-B In training must include: ADS-B Out/In system overview and operations and limitations, normal procedures, minimum equipment list (MEL) procedures, equipment limitations, use of the CDTI software, non-normal procedures, and specific crew coordination procedures.
- (5) <u>Required Training for Persons Authorized to Exercise Operational Control</u>. Participating persons authorized to exercise operational control must complete the certificate holder's training program that includes ADS-B Out/In system overview and operations and limitations, normal procedures, MEL procedures, non-normal procedures, and ADS-B flight planning, including region/country/airport-specific requirements or limitations on use.

#### c. Authorized Operations.

(1) <u>CDTI Assisted Visual Separation (CAVS) on Approach</u>. The certificate holder is authorized to use CAVS on approach with the aircraft approved for CAVS in Table 1 when instructed to maintain visual separation in accordance with the procedures described in the Aeronautical Information Manual (AIM). If the certificate holder has operations specification C077, the requirement to "maintain visual contact with the traffic to be followed" is met by the training program and installed aircraft equipment specific to CAVS.

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(a) CAVS may only be conducted in visual meteorological conditions (VMC); in the event that VMC cannot be maintained, the pilots must inform air traffic control (ATC) and request further instructions.

- (b) The CAVS aircraft must remain clear of clouds.
- (c) The CAVS pilots must visually acquire out-the-window (OTW) traffic-to-follow (TTF) and correlate it with position displayed on the CDTI.

**Note:** The pilots must correlate the TTF by matching all relevant ADS-B In information with the information provided by ATC (e.g., range/distance, relative bearing, and identification of the TTF) before it may be used as a substitute for visual separation.

- (d) The CDTI and CAVS information may only be used as a substitute for OTW visual separation when the actual distance to TTF is greater than 1.4 nautical miles (NM) as indicated by the ADS-B In equipment. If closer than 1.4 NM, the flightcrew must have visual contact OTW, or notify ATC that they have lost visual contact and proceed accordingly.
- (e) The pilot is responsible for determining and maintaining safe separation from the assigned TTF aircraft in accordance with established visual separation procedures.
- (f) The CAVS pilots must comply with the applicable Traffic Alert and Collision Avoidance System (TCAS) Resolution Advisories (RA).
  - (g) The CAVS aircraft and the TTF must be on approach to the same airport runway.
- (2) <u>Interval Management (IM)</u>. The certificate holder is authorized to conduct IM with the aircraft approved for IM in Table 1, when issued an IM clearance by the controlling U.S. ATC facility.
- (a) In addition to IM clearances given by U.S. ATC facilities, the certificate holder is authorized to comply with IM clearances issued by the air navigation service providers (ANSP) listed in "Limitations, Provisions, and Special Requirements" in operations specification B050.
- (b) When operating in compliance with an IM clearance, the certificate holder will comply with the IM speeds generated by the ADS-B In system as a substitute for speed instructions issued by the air traffic controller responsible for that aircraft.
- d. <u>Aircraft Authorization</u>. The certificate holder is authorized to conduct the ADS-B In operations as specified in subparagraph c using the approved aircraft in Table 1 below in accordance with the limitations and provisions specified for the authorized operation.

Aircraft M/M/S	Aircraft Registration #	ADS-B In Procedure(s)
		Dropdown list values: CAVS IM

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## Appendix B. Sample OpSpec A355, Automatic Dependent Surveillance-Broadcast (ADS-B) In Operations: 14 CFR Part 125

a. The certificate holder is authorized to conduct flight operations using ADS-B In equipment and procedures as specified in this operations specification.

#### b. Limitations and Provisions.

- (1) <u>Airworthiness Requirements</u>. ADS-B In operations are approved only for those aircraft with ADS-B equipment installed per type certificate (TC) or Supplemental Type Certificate (STC) as amended. The certificate holder must verify through routine maintenance inspections that the ADS-B Out/In system continues to meet required performance standards.
- (2) <u>ADS-B In Equipment Requirements</u>. For aircraft authorized to conduct ADS-B In operations, a Cockpit Display of Traffic Information (CDTI) is required. The ADS-B In equipment must comply with Technical Standard Order (TSO)-C195b, Avionics Supporting Automatic Dependent Surveillance Broadcast (ADS-B) Aircraft Surveillance Applications (ASA), or later, or be found acceptable to the Administrator.
- (3) <u>Airplane Flight Manual (AFM)</u>. The FAA-approved AFM, and/or Airplane Flight Manual Supplement (AFMS), FAA-approved Company Flight Manual (CFM), or pilot's operating handbook (POH), as applicable, must incorporate a description and procedures for operation of the approved ADS-B In systems.
- (4) <u>Required Pilot Training</u>. Participating pilots must complete the certificate holder's training program that includes operating procedures and limitations of the installed ADS-B equipment prior to conducting the ADS-B In operations in this operations specification. ADS-B In training must include: ADS-B Out/In system overview and operations and limitations, normal procedures, minimum equipment list (MEL) procedures, equipment limitations, use of the CDTI software, non-normal procedures, and specific crew coordination procedures.
- (5) <u>Required Training for Persons Authorized to Exercise Operational Control</u>. Participating persons authorized to exercise operational control must complete the certificate holder's training program that includes ADS-B Out/In system overview and operations and limitations, normal procedures, MEL procedures, non-normal procedures, and ADS-B flight planning, including region/country/airport-specific requirements or limitations on use.

#### c. Authorized Operations.

- (1) <u>CDTI Assisted Visual Separation (CAVS) on Approach</u>. The certificate holder is authorized to use CAVS on approach with the aircraft approved for CAVS in Table 1 when instructed to maintain visual separation in accordance with the procedures described in the Aeronautical Information Manual (AIM).
- (a) CAVS may only be conducted in visual meteorological conditions (VMC); in the event that VMC cannot be maintained, the pilots must inform air traffic control (ATC) and request further instructions.

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- (b) The CAVS aircraft must remain clear of clouds.
- (c) The CAVS pilots must visually acquire out-the-window (OTW) traffic-to-follow (TTF) and correlate it with position displayed on the CDTI.

**Note:** The pilots must correlate the TTF by matching all relevant ADS-B In information with the information provided by ATC (e.g., range/distance, relative bearing, and identification of the TTF) before it may be used as a substitute for visual separation.

- (d) The CDTI and CAVS information may only be used as a substitute for OTW visual separation when the actual distance to TTF is greater than 1.4 nautical miles (NM) as indicated by the ADS-B In equipment. If closer than 1.4 NM, the flightcrew must have visual contact OTW, or notify ATC that they have lost visual contact and proceed accordingly.
- (e) The pilot is responsible for determining and maintaining safe separation from the assigned TTF aircraft in accordance with established visual separation procedures.
- (f) The CAVS pilots must comply with the applicable Traffic Alert and Collision Avoidance System (TCAS) Resolution Advisories (RA).
  - (g) The CAVS aircraft and the TTF must be on approach to the same airport runway.
- (2) <u>Interval Management (IM)</u>. The certificate holder is authorized to conduct IM with the aircraft approved for IM in Table 1, when issued an IM clearance by the controlling U.S. ATC facility.
- (a) In addition to IM clearances given by U.S. ATC facilities, the certificate holder is authorized to comply with IM clearances issued by the air navigation service providers (ANSP) listed in "Limitations, Provisions, and Special Requirements" in operations specification B050.
- (b) When operating in compliance with an IM clearance, the certificate holder will comply with the IM speeds generated by the ADS-B In system as a substitute for speed instructions issued by the air traffic controller responsible for that aircraft.
- d. <u>Aircraft Authorization</u>. The certificate holder is authorized to conduct the ADS-B In operations as specified in subparagraph c using the approved aircraft in Table 1 below in accordance with the limitations and provisions specified for the authorized operation.

Aircraft M/M/S	Aircraft Registration #	ADS-B In Procedure(s)
		Dropdown list values: CAVS IM

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## Appendix C. Sample OpSpec A355, Automatic Dependent Surveillance-Broadcast (ADS-B) In Operations: 14 CFR Part 135

a. The certificate holder is authorized to conduct flight operations using ADS-B In equipment and procedures as specified in this operations specification.

#### b. Limitations and Provisions.

- (1) <u>Airworthiness Requirements</u>. ADS-B In operations are approved only for those aircraft with ADS-B equipment installed per type certificate (TC) or Supplemental Type Certificate (STC) as amended. The certificate holder must verify through routine maintenance inspections that the ADS-B Out/In system continues to meet required performance standards.
- (2) <u>ADS-B In Equipment Requirements</u>. For aircraft authorized to conduct ADS-B In operations, a Cockpit Display of Traffic Information (CDTI) is required. The ADS-B In equipment must comply with Technical Standard Order (TSO)-C195b, Avionics Supporting Automatic Dependent Surveillance Broadcast (ADS-B) Aircraft Surveillance Applications (ASA), or later, or be found acceptable to the Administrator.
- (3) <u>Airplane Flight Manual (AFM)</u>. The FAA-approved AFM, and/or Airplane Flight Manual Supplement (AFMS), FAA-approved Company Flight Manual (CFM), or pilot's operating handbook (POH), as applicable, must incorporate a description and procedures for operation of the approved ADS-B In systems.
- (4) <u>Required Pilot Training</u>. Participating pilots must complete the certificate holder's training program that includes operating procedures and limitations of the installed ADS-B equipment prior to conducting the ADS-B In operations in this operations specification. ADS-B In training must include: ADS-B Out/In system overview and operations and limitations, normal procedures, minimum equipment list (MEL) procedures, equipment limitations, use of the CDTI software, non-normal procedures, and specific crew coordination procedures.
- (5) <u>Required Training for Persons Authorized to Exercise Operational Control</u>. Participating persons authorized to exercise operational control must complete the certificate holder's training program that includes ADS-B Out/In system overview and operations and limitations, normal procedures, MEL procedures, non-normal procedures, and ADS-B flight planning, including region/country/airport-specific requirements or limitations on use.

#### c. Authorized Operations.

(1) <u>CDTI Assisted Visual Separation (CAVS) on Approach</u>. The certificate holder is authorized to use CAVS on approach with the aircraft approved for CAVS in Table 1 when instructed to maintain visual separation in accordance with the procedures described in the Aeronautical Information Manual (AIM). If the certificate holder has operations specification C077, the requirement to "maintain visual contact with the traffic to be followed" is met by the training program and installed aircraft equipment specific to CAVS.

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(a) CAVS may only be conducted in visual meteorological conditions (VMC); in the event that VMC cannot be maintained, the pilots must inform air traffic control (ATC) and request further instructions.

- (b) The CAVS aircraft must remain clear of clouds.
- (c) The CAVS pilots must visually acquire out-the-window (OTW) traffic-to-follow (TTF) and correlate it with position displayed on the CDTI.

**Note:** The pilots must correlate the TTF by matching all relevant ADS-B In information with the information provided by ATC (e.g., range/distance, relative bearing, and identification of the TTF) before it may be used as a substitute for visual separation.

- (d) The CDTI and CAVS information may only be used as a substitute for OTW visual separation when the actual distance to TTF is greater than 1.4 nautical miles (NM) as indicated by the ADS-B In equipment. If closer than 1.4 NM, the flightcrew must have visual contact OTW, or notify ATC that they have lost visual contact and proceed accordingly.
- (e) The pilot is responsible for determining and maintaining safe separation from the assigned TTF aircraft in accordance with established visual separation procedures.
- (f) The CAVS pilots must comply with the applicable Traffic Alert and Collision Avoidance System (TCAS) Resolution Advisories (RA).
  - (g) The CAVS aircraft and the TTF must be on approach to the same airport runway.
- (2) <u>Interval Management (IM)</u>. The certificate holder is authorized to conduct IM with the aircraft approved for IM in Table 1, when issued an IM clearance by the controlling U.S. ATC facility.
- (a) In addition to IM clearances given by U.S. ATC facilities, the certificate holder is authorized to comply with IM clearances issued by the air navigation service providers (ANSP) listed in "Limitations, Provisions, and Special Requirements" in operations specification B050.
- (b) When operating in compliance with an IM clearance, the certificate holder will comply with the IM speeds generated by the ADS-B In system as a substitute for speed instructions issued by the air traffic controller responsible for that aircraft.
- d. <u>Aircraft Authorization</u>. The certificate holder is authorized to conduct the ADS-B In operations as specified in subparagraph c using the approved aircraft in Table 1 below in accordance with the limitations and provisions specified for the authorized operation.

Aircraft M/M/S	Aircraft Registration #	ADS-B In Procedure(s)
		Dropdown list values: CAVS IM

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## Appendix D. Sample OpSpec A355, Automatic Dependent Surveillance-Broadcast (ADS-B) In Operations: 14 CFR Part 121/135

a. The certificate holder is authorized to conduct flight operations using ADS-B In equipment and procedures as specified in this operations specification.

#### b. Limitations and Provisions.

- (1) <u>Airworthiness Requirements</u>. ADS-B In operations are approved only for those aircraft with ADS-B equipment installed per type certificate (TC) or Supplemental Type Certificate (STC) as amended. The certificate holder must verify through routine maintenance inspections that the ADS-B Out/In system continues to meet required performance standards.
- (2) <u>ADS-B In Equipment Requirements</u>. For aircraft authorized to conduct ADS-B In operations, a Cockpit Display of Traffic Information (CDTI) is required. The ADS-B In equipment must comply with Technical Standard Order (TSO)-C195b, Avionics Supporting Automatic Dependent Surveillance Broadcast (ADS-B) Aircraft Surveillance Applications (ASA), or later, or be found acceptable to the Administrator.
- (3) <u>Airplane Flight Manual (AFM)</u>. The FAA-approved AFM, and/or Airplane Flight Manual Supplement (AFMS), FAA-approved Company Flight Manual (CFM), or pilot's operating handbook (POH), as applicable, must incorporate a description and procedures for operation of the approved ADS-B In systems.
- (4) <u>Required Pilot Training</u>. Participating pilots must complete the certificate holder's training program that includes operating procedures and limitations of the installed ADS-B equipment prior to conducting the ADS-B In operations in this operations specification. ADS-B In training must include: ADS-B Out/In system overview and operations and limitations, normal procedures, minimum equipment list (MEL) procedures, equipment limitations, use of the CDTI software, non-normal procedures, and specific crew coordination procedures.
- (5) <u>Required Training for Persons Authorized to Exercise Operational Control</u>. Participating persons authorized to exercise operational control must complete the certificate holder's training program that includes ADS-B Out/In system overview and operations and limitations, normal procedures, MEL procedures, non-normal procedures, and ADS-B flight planning, including region/country/airport-specific requirements or limitations on use.

#### c. Authorized Operations.

(1) <u>CDTI Assisted Visual Separation (CAVS) on Approach</u>. The certificate holder is authorized to use CAVS on approach with the aircraft approved for CAVS in Table 1 when instructed to maintain visual separation in accordance with the procedures described in the Aeronautical Information Manual (AIM). If the certificate holder has operations specification C077, the requirement to "maintain visual contact with the traffic to be followed" is met by the training program and installed aircraft equipment specific to CAVS.

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(a) CAVS may only be conducted in visual meteorological conditions (VMC); in the event that VMC cannot be maintained, the pilots must inform air traffic control (ATC) and request further instructions.

- (b) The CAVS aircraft must remain clear of clouds.
- (c) The CAVS pilots must visually acquire out-the-window (OTW) traffic-to-follow (TTF) and correlate it with position displayed on the CDTI.

**Note:** The pilots must correlate the TTF by matching all relevant ADS-B In information with the information provided by ATC (e.g., range/distance, relative bearing, and identification of the TTF) before it may be used as a substitute for visual separation.

- (d) The CDTI and CAVS information may only be used as a substitute for OTW visual separation when the actual distance to TTF is greater than 1.4 nautical miles (NM) as indicated by the ADS-B In equipment. If closer than 1.4 NM, the flightcrew must have visual contact OTW, or notify ATC that they have lost visual contact and proceed accordingly.
- (e) The pilot is responsible for determining and maintaining safe separation from the assigned TTF aircraft in accordance with established visual separation procedures.
- (f) The CAVS pilots must comply with the applicable Traffic Alert and Collision Avoidance System (TCAS) Resolution Advisories (RA).
  - (g) The CAVS aircraft and the TTF must be on approach to the same airport runway.
- (2) <u>Interval Management (IM)</u>. The certificate holder is authorized to conduct IM with the aircraft approved for IM in Table 1, when issued an IM clearance by the controlling U.S. ATC facility.
- (a) In addition to IM clearances given by U.S. ATC facilities, the certificate holder is authorized to comply with IM clearances issued by the air navigation service providers (ANSP) listed in "Limitations, Provisions, and Special Requirements" in operations specification B050.
- (b) When operating in compliance with an IM clearance, the certificate holder will comply with the IM speeds generated by the ADS-B In system as a substitute for speed instructions issued by the air traffic controller responsible for that aircraft.
- d. <u>Aircraft Authorization</u>. The certificate holder is authorized to conduct the ADS-B In operations as specified in subparagraph c using the approved aircraft in Table 1 below in accordance with the limitations and provisions specified for the authorized operation.

Aircraft M/M/S	Aircraft Registration #	ADS-B In Procedure(s)
		Dropdown list values: CAVS IM

12/15/22 N 8900.648 Appendix E

## Appendix E. Sample MSpec A355, Automatic Dependent Surveillance-Broadcast (ADS-B) In Operations: 14 CFR Part 91K

a. The program manager is authorized to conduct flight operations using ADS-B In equipment and procedures as specified in this management specification.

#### b. Limitations and Provisions.

- (1) <u>Airworthiness Requirements</u>. ADS-B In operations are approved only for those aircraft with ADS-B equipment installed per type certificate (TC) or Supplemental Type Certificate (STC) as amended. The program manager must verify through routine maintenance inspections that the ADS-B Out/In system continues to meet required performance standards.
- (2) <u>ADS-B In Equipment Requirements</u>. For aircraft authorized to conduct ADS-B In operations, a Cockpit Display of Traffic Information (CDTI) is required. The ADS-B In equipment must comply with Technical Standard Order (TSO)-C195b, Avionics Supporting Automatic Dependent Surveillance Broadcast (ADS-B) Aircraft Surveillance Applications (ASA), or later, or be found acceptable to the Administrator.
- (3) <u>Airplane Flight Manual (AFM)</u>. The FAA-approved AFM, and/or Airplane Flight Manual Supplement (AFMS), FAA-approved Company Flight Manual (CFM), or pilot's operating handbook (POH), as applicable, must incorporate a description and procedures for operation of the approved ADS-B In systems.
- (4) <u>Required Pilot Training</u>. Participating pilots must complete the program manager's training program that includes operating procedures and limitations of the installed ADS-B equipment prior to conducting the ADS-B In operations in this management specification. ADS-B In training must include: ADS-B Out/In system overview and operations and limitations, normal procedures, minimum equipment list (MEL) procedures, equipment limitations, use of the CDTI software, non-normal procedures, and specific crew coordination procedures.
- (5) <u>Required Training for Persons Authorized to Exercise Operational Control</u>. Participating persons authorized to exercise operational control must complete the program manager's training program that includes ADS-B Out/In system overview and operations and limitations, normal procedures, MEL procedures, non-normal procedures and ADS-B flight planning, including region/country/airport-specific requirements or limitations on use.

#### c. Authorized Operations.

- (1) <u>CDTI Assisted Visual Separation (CAVS) on Approach</u>. The program manager is authorized to use CAVS on approach with the aircraft approved for CAVS in Table 1 when instructed to maintain visual separation in accordance with the procedures described in the Aeronautical Information Manual (AIM).
- (a) CAVS may only be conducted in visual meteorological conditions (VMC); in the event that VMC cannot be maintained, the pilots must inform air traffic control (ATC) and request further instructions.

- (b) The CAVS aircraft must remain clear of clouds.
- (c) The CAVS pilots must visually acquire out-the-window (OTW) traffic-to-follow (TTF) and correlate it with position displayed on the CDTI.

**Note:** The pilots must correlate the TTF by matching all relevant ADS-B In information with the information provided by ATC (e.g., range/distance, relative bearing, and identification of the TTF) before it may be used as a substitute for visual separation.

- (d) The CDTI and CAVS information may only be used as a substitute for OTW visual separation when the actual distance to TTF is greater than 1.4 nautical miles (NM) as indicated by the ADS-B In equipment. If closer than 1.4 NM, the flightcrew must have visual contact OTW, or notify ATC that they have lost visual contact and proceed accordingly.
- (e) The pilot is responsible for determining and maintaining safe separation from the assigned TTF aircraft in accordance with established visual separation procedures.
- (f) The CAVS pilots must comply with the applicable Traffic Alert and Collision Avoidance System (TCAS) Resolution Advisories (RA).
  - (g) The CAVS aircraft and the TTF must be on approach to the same airport runway.
- (2) <u>Interval Management (IM)</u>. The program manager is authorized to conduct IM with the aircraft approved for IM in Table 1, when issued an IM clearance by the controlling U.S. ATC facility.
- (a) In addition to IM clearances given by U.S. ATC facilities, the program manager is authorized to comply with IM clearances issued by the air navigation service providers (ANSP) listed in "Limitations, Provisions, and Special Requirements" in management specification B050.
- (b) When operating in compliance with an IM clearance, the program manager will comply with the IM speeds generated by the ADS-B In system as a substitute for speed instructions issued by the air traffic controller responsible for that aircraft.
- d. <u>Aircraft Authorization</u>. The program manager is authorized to conduct the ADS-B In operations as specified in subparagraph c using the approved aircraft in Table 1 below in accordance with the limitations and provisions specified for the authorized operation.

Aircraft M/M/S	Aircraft Registration #	ADS-B In Procedure(s)
		Dropdown list values: CAVS IM

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# Appendix F. Sample LOA A355, Automatic Dependent Surveillance-Broadcast (ADS-B) In Operations: 14 CFR Part 125 (A125 LODA Holder)

1. The Operator/Company, authorized to conduct operations in accordance with the Letter of Deviation Authority (LODA A125), is authorized to conduct flight operations using ADS-B In equipment and procedures as specified in this Letter of Authorization (LOA).

#### 2 Limitations and Provisions.

- a. <u>Airworthiness Requirements</u>. ADS-B In operations are approved only for those aircraft with ADS-B equipment installed per type certificate (TC) or Supplemental Type Certificate (STC) as amended. The Operator/Company must verify through routine maintenance inspections that the ADS-B Out/In system continues to meet required performance standards.
- b. <u>ADS-B In Equipment Requirements</u>. For aircraft authorized to conduct ADS-B In operations, a Cockpit Display of Traffic Information (CDTI) is required. The ADS-B In equipment must comply with Technical Standard Order (TSO)-C195b, Avionics Supporting Automatic Dependent Surveillance Broadcast (ADS-B) Aircraft Surveillance Applications (ASA), or later, or be found acceptable to the Administrator.
- c. <u>Airplane Flight Manual (AFM)</u>. The FAA-approved AFM, and/or Airplane Flight Manual Supplement (AFMS), FAA-approved Company Flight Manual (CFM), or pilot's operating handbook (POH), as applicable, must incorporate a description and procedures for operation of the approved ADS-B In systems.
- d. <u>Required Pilot Training</u>. Participating pilots must complete the Operator/Company's training program that includes operating procedures and limitations of the installed ADS-B equipment prior to conducting the ADS-B In operations in this LOA. ADS-B In training must include: ADS-B Out/In system overview and operations and limitations, normal procedures, minimum equipment list (MEL) procedures, equipment limitations, use of the CDTI software, non-normal procedures, and specific crew coordination procedures.
- e. <u>Required Training for Persons Authorized to Exercise Operational Control</u>. Participating persons authorized to exercise operational control must complete the Operator/Company's training program that includes ADS-B Out/In system overview and operations and limitations, normal procedures, MEL procedures, non-normal procedures, and ADS-B flight planning, including region/country/airport-specific requirements or limitations on use.

#### 3. Authorized Operations.

- a. <u>CDTI Assisted Visual Separation (CAVS) on Approach</u>. The Operator/Company is authorized to use CAVS on approach with the aircraft approved for CAVS in Table 1 when instructed to maintain visual separation in accordance with the procedures described in the Aeronautical Information Manual (AIM).
- (1) CAVS may only be conducted in visual meteorological conditions (VMC); in the event that VMC cannot be maintained, the pilots must inform air traffic control (ATC) and request further instructions.

- (2) The CAVS aircraft must remain clear of clouds.
- (3) The CAVS pilots must visually acquire out-the-window (OTW) traffic-to-follow (TTF) and correlate it with position displayed on the CDTI.

**Note:** The pilots must correlate the TTF by matching all relevant ADS-B In information with the information provided by ATC (e.g., range/distance, relative bearing, and identification of the TTF), before it may be used as a substitute for visual separation.

- (4) The CDTI and CAVS information may only be used as a substitute for OTW visual separation when the actual distance to TTF is greater than 1.4 nautical miles (NM) as indicated by the ADS-B In equipment. If closer than 1.4 NM, the flightcrew must have visual contact OTW, or notify ATC that they have lost visual contact and proceed accordingly.
- (5) The pilot is responsible for determining and maintaining safe separation from the assigned TTF aircraft in accordance with established visual separation procedures.
- (6) The CAVS pilots must comply with the applicable Traffic Alert and Collision Avoidance System (TCAS) Resolution Advisories (RA).
  - (7) The CAVS aircraft and the TTF must be on approach to the same airport runway.
- b. <u>Interval Management (IM)</u>. The Operator/Company is authorized to conduct IM with the aircraft approved for IM in Table 1, when issued an IM clearance by the controlling U.S. ATC facility.
- (1) In addition to IM clearances given by U.S. ATC facilities, the Operator/Company is authorized to comply with IM clearances issued by the air navigation service providers (ANSP) listed in "Limitations, Provisions, and Special Requirements" in LOA B050.
- (2) When operating in compliance with an IM clearance, the Operator/Company will comply with the IM speeds generated by the ADS-B In system as a substitute for speed instructions issued by the air traffic controller responsible for that aircraft.
- 4. <u>Aircraft Authorization</u>. The Operator/Company is authorized to conduct the ADS-B In operations as specified in subparagraph 3 using the approved aircraft in Table 1 below in accordance with the limitations and provisions specified for the authorized operation.

Aircraft M/M/S	Aircraft Registration #	ADS-B In Procedure(s)
		Dropdown list values: CAVS IM