# FAA Aeronautical Information Manual (Excerpts)

## Chapter 4 – Air Traffic Control / Section 5 – Surveillance Systems

### 4-5-8. Traffic Information Service- Broadcast (TIS-B)

TIS-B is the broadcast of ATC derived traffic information to ADS-B equipped (1090ES or UAT) aircraft from ground radio stations. The source of this traffic information is derived from ground-based air traffic surveillance radar sensors. TIS-B service will be available throughout the NAS where there are both adequate surveillance coverage (radar) from ground sensors and adequate broadcast coverage from ADS-B ground radio stations. The quality level of traffic information provided by TIS-B is dependent upon the number and type of ground sensors available as TIS-B sources and the timeliness of the reported data.

**a. TIS-B Requirements.**

In order to receive TIS-B service, the following conditions must exist:

**1.** Aircraft must be equipped with an ADS-B transmitter/receiver or transceiver, and a cockpit display of traffic information (CDTI).

**2.** Aircraft must fly within the coverage volume of a compatible ground radio station that is configured for TIS-B uplinks. (Not all ground radio stations provide TIS-B due to a lack of radar coverage or because a radar feed is not available).

**3.** Aircraft must be within the coverage of and detected by at least one ATC radar serving the ground radio station in use.

**b. TIS-B Capabilities.**

**1.** TIS-B is intended to provide ADS-B equipped aircraft with a more complete traffic picture in situations where not all nearby aircraft are equipped with ADS-B Out. This advisory-only application is intended to enhance a pilot's visual acquisition of other traffic.

**2.** Only transponder-equipped targets (i.e., Mode A/C or Mode S transponders) are transmitted through the ATC ground system architecture. Current radar siting may result in limited radar surveillance coverage at lower altitudes near some airports, with subsequently limited TIS-B service volume coverage. If there is no radar coverage in a given area, then there will be no TIS-B coverage in that area.

**c. TIS-B Limitations.**

**1.** TIS-B is NOT intended to be used as a collision avoidance system and does not relieve the pilot's responsibility to “see and avoid” other aircraft, in accordance with 14CFR §91.113b. TIS-B must not be used for avoidance maneuvers during times when there is no visual contact with the intruder aircraft. TIS-B is intended only to assist in the visual acquisition of other aircraft.

***NOTE-***
*No aircraft avoidance maneuvers are authorized as a direct result of a TIS-B target being displayed in the cockpit.*

**2.** While TIS-B is a useful aid to visual traffic avoidance, its inherent system limitations must be understood to ensure proper use.

**(a)** A pilot may receive an intermittent TIS-B target of themselves, typically when maneuvering (e.g., climbing turns) due to the radar not tracking the aircraft as quickly as ADS-B.

**(b)** The ADS-B-to-radar association process within the ground system may at times have difficulty correlating an ADS-B report with corresponding radar returns from the same aircraft. When this happens the pilot may see duplicate traffic symbols (i.e., “TIS-B shadows”) on the cockpit display.

**(c)** Updates of TIS-B traffic reports will occur less often than ADS-B traffic updates. TIS-B position updates will occur approximately once every 3-13 seconds depending on the type of radar system in use within the coverage area. In comparison, the update rate for ADS-B is nominally once per second.

**(d)** The TIS-B system only uplinks data pertaining to transponder-equipped aircraft. Aircraft without a transponder will not be displayed as TIS-B traffic.

**(e)** There is no indication provided when any aircraft is operating inside or outside the TIS-B service volume, therefore it is difficult to know if one is receiving uplinked TIS-B traffic information.

**3.** Pilots and operators are reminded that the airborne equipment that displays TIS-B targets is for pilot situational awareness only and is not approved as a collision avoidance tool. Unless there is an imminent emergency requiring immediate action, any deviation from an air traffic control clearance in response to perceived converging traffic appearing on a TIS-B display must be approved by the controlling ATC facility before commencing the maneuver, except as permitted under certain conditions in 14CFR §91.123. Uncoordinated deviations may place an aircraft in close proximity to other aircraft under ATC control not seen on the airborne equipment and may result in a pilot deviation or other incident.

### d. Reports of TIS-B Malfunctions

Users of TIS-B can provide valuable assistance in the correction of malfunctions by reporting instances of undesirable system performance. Reporters should identify the time of observation, location, type and identity of the aircraft, and describe the condition observed; the type of avionics system and its software version used. Since TIS-B performance is monitored by maintenance personnel rather than ATC, it is suggested that malfunctions be reported in anyone of the following ways:

**1.** By radio or telephone to the nearest Flight Service Station (FSS) facility.

**2.** By FAA Form 8740-5, Safety Improvement Report, a postage-paid card is designed for this purpose. These cards may be obtained from FAA FSSs, Flight Standards District Offices, and general aviation fixed-based operators.

**3.** By reporting the failure directly to the FAA Surveillance and Broadcast Services Program Office at 1-877-FLYADSB or **http://www.adsb.gov**.

*Ref:* *http://www.faa.gov/air_traffic/publications/ATpubs/AIM/*