

in vertical and horizontal coordinates is less than 30 seconds and the closest approach is expected to be within 500 feet vertically and 0.5 nautical miles laterally.

**(b) TIS Traffic.** TIS traffic data is displayed.

**(c) Coasting.** The TIS display is more than 6 seconds old. This indicates a missing uplink from the ground system. When the TIS display information is more than 12 seconds old, the “No Traffic” status will be indicated.

**(d) No Traffic.** No intruders meet proximate or alert criteria. This condition may exist when the TIS system is fully functional or may indicate “coasting” between 12 and 59 seconds old (see (c) above).

**(e) TIS Unavailable.** The pilot has requested TIS, but no ground system is available. This condition will also be displayed when TIS uplinks are missing for 60 seconds or more.

**(f) TIS Disabled.** The pilot has not requested TIS or has disconnected from TIS.

**(g) Good-bye.** The client aircraft has flown outside of TIS coverage.

**NOTE–**

*Depending on the avionics manufacturer implementation, it is possible that some of these messages will not be directly available to the pilot.*

**5.** Depending on avionics system design, TIS may be presented to the pilot in a variety of different displays, including text and/or graphics. Voice annunciation may also be used, either alone or in combination with a visual display. FIG 4–5–7, Traffic Information Service (TIS), Avionics Block Diagram, shows an example of a TIS display using symbology similar to the Traffic Alert and Collision Avoidance System (TCAS) installed on most passenger air carrier/commuter aircraft in the U.S. The small symbol in the center represents the client aircraft and the display is oriented “track up,” with the 12 o’clock position at the top. The range rings indicate 2 and 5 NM. Each intruder is depicted by a symbol positioned at the approximate relative bearing and range from the client aircraft. The circular symbol near the center indicates an “alert” intruder and the diamond symbols indicate “proximate” intruders.

**6.** The inset in the lower right corner of FIG 4–5–7, Traffic Information Service (TIS), Avionics Block Diagram, shows a possible TIS data block display. The following information is contained in this data block:

**(a)** The intruder, located approximately four o’clock, three miles, is a “proximate” aircraft and currently not a collision threat to the client aircraft. This is indicated by the diamond symbol used in this example.

**(b)** The intruder ground track diverges to the right of the client aircraft, indicated by the small arrow.

**(c)** The intruder altitude is 700 feet less than or below the client aircraft, indicated by the “–07” located under the symbol.

**(d)** The intruder is descending >500 fpm, indicated by the downward arrow next to the “–07” relative altitude information. The absence of this arrow when an altitude tag is present indicates level flight or a climb/descent rate less than 500 fpm.

**NOTE–**

*If the intruder did not have an operating altitude encoder (Mode C), the altitude and altitude trend “tags” would have been omitted.*

**d. Limitations.**

**1.** TIS 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 (see paragraph 5–5–8, See and Avoid). TIS must not be used for avoidance maneuvers during IMC or other times when there is no visual contact with the intruder aircraft. TIS is intended only to assist in visual acquisition of other aircraft in VMC. Avoidance maneuvers are neither provided nor authorized as a direct result of a TIS intruder display or TIS alert.

**2.** While TIS is a useful aid to visual traffic avoidance, it has some system limitations that must be fully understood to ensure proper use. Many of these limitations are inherent in secondary radar surveillance. In other