§ 91.215 ATC transponder and altitude reporting equipment and use.

(a) All airspace: U.S.-registered civil aircraft. For operations not conducted under part 121 or 135 of this chapter, ATC transponder equipment installed must meet the performance and environmental requirements of any class of TSO-C74b (Mode A) or any class of TSO-C74c (Mode A with altitude reporting capability) as appropriate, or the appropriate class of TSO-C112 (Mode S).

(b) All airspace. Unless otherwise authorized or directed by ATC, no person may operate an aircraft in the airspace described in paragraphs (b)(1) through (b)(5) of this section, unless that aircraft is equipped with an operable coded radar beacon transponder having either Mode 3A 4096 code capability, replying to Mode 3A interrogations with the code specified by ATC, or a Mode S capability, replying to Mode 3A interrogations with the code specified by ATC and intermediate and Mode S interrogations in accordance with the applicable provisions specified in TSO C–112, and that aircraft is equipped with automatic pressure altitude reporting equipment having a Mode C capability that automatically replies to Mode C interrogations by transmitting pressure altitude information in 100-foot increments. This requirement applies—

1. All aircraft. In Class A, Class B, and Class C airspace areas;

2. All aircraft. In all airspace within 30 nautical miles of an airport listed in appendix D, section 1 of this part from the surface upward to 10,000 feet MSL;

3. Notwithstanding paragraph (b)(2) of this section, any aircraft which was not originally certificated with an engine-driven electrical system or which has not subsequently been certificated with such a system installed, balloon or glider may conduct operations in the airspace within 30 nautical miles of an airport listed in appendix D, section 1 of this part provided such operations are conducted—

i. Outside any Class A, Class B, or Class C airspace area; and

ii. Below the altitude of the ceiling of a Class B or Class C airspace area designated for an airport or 10,000 feet MSL, whichever is lower; and

4. All aircraft in all airspace above the ceiling and within the lateral boundaries of a Class B or Class C airspace area designated for an airport or 10,000 feet MSL, whichever is lower; and

5. All aircraft except any aircraft which was not originally certificated with an engine-driven electrical system or which has not subsequently been certificated with such a system installed, balloon, or glider—

i. In all airspace of the 48 contiguous states and the District of Columbia at and above 10,000 feet MSL, excluding...
§ 91.217 Data correspondence between automatically reported pressure altitude data and the pilot’s altitude reference.

(a) No person may operate any automatic pressure altitude reporting equipment associated with a radar beacon transponder—

(1) When deactivation of that equipment is directed by ATC;

(2) Unless, as installed, that equipment was tested and calibrated to transmit altitude data corresponding within 125 feet (on a 95 percent probability basis) of the indicated or calibrated datum of the altimeter normally used to maintain flight altitude, with that altimeter referenced to 29.92 inches of mercury for altitudes from sea level to the maximum operating altitude of the aircraft; or

(3) Unless the altimeters and digitizers in that equipment meet the standards of TSO-C10b and TSO-C88, respectively.

(b) No person may operate any automatic pressure altitude reporting equipment associated with a radar beacon transponder or with ADS–B Out equipment unless the pressure altitude reported for ADS–B Out and Mode C/S is derived from the same source for aircraft equipped with both a transponder and ADS–B Out.


§ 91.219 Altitude alerting system or device: Turbojet-powered civil airplanes.

(a) Except as provided in paragraph (d) of this section, no person may operate a turbojet-powered U.S.-registered civil airplane unless that airplane is equipped with an approved altitude alerting system or device that is in operable condition and meets the requirements of paragraph (b) of this section.

(b) Each altitude alerting system or device required by paragraph (a) of this section must be able to—

(1) Alert the pilot—

(i) Upon approaching a preselected altitude in either ascent or descent, by a sequence of both aural and visual signals in sufficient time to establish level flight at that preselected altitude; or

(ii) Upon approaching a preselected altitude in either ascent or descent, by a sequence of visual signals in sufficient time to establish level flight at that preselected altitude, and when deviating above and below that