§ 91.217

(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 upward to 10,000 feet MSL; and

(5) All aircraft except any aircraft which was not originally certified with an engine-driven electrical system or which has not subsequently been certified 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 the airspace at and below 2,500 feet above the surface; and

(ii) In the airspace from the surface to 10,000 feet MSL within a 10-nautical-mile radius of any airport listed in appendix D, section 2 of this part, excluding the airspace below 1,200 feet outside of the lateral boundaries of the surface area of the airspace designated for that airport.

(c) Transponder-on operation. While in the airspace as specified in paragraph (b) of this section or in all controlled airspace, each person operating an aircraft equipped with an operable ATC transponder maintained in accordance with §91.413 of this part shall operate the transponder, including Mode C equipment if installed, and shall reply on the appropriate code or as assigned by ATC.

(d) ATC authorized deviations. Requests for ATC authorized deviations must be made to the ATC facility having jurisdiction over the concerned airspace within the time periods specified as follows:

(1) For operation of an aircraft with an operating transponder but without operating automatic pressure altitude reporting equipment having a Mode C capability, the request may be made at any time.

(2) For operation of an aircraft with an inoperative transponder to the airport of ultimate destination, including any intermediate stops, or to proceed to a place where suitable repairs can be made or both, the request may be made at any time.

(3) For operation of an aircraft that is not equipped with a transponder, the request must be made at least one hour before the proposed operation.

(Approved by the Office of Management and Budget under control number 2120–0005)


§ 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—

(i) Alert the pilot—

(ii) 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;

(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 preselected altitude, by an aural signal;

(2) Provide the required signals from sea level to the highest operating altitude approved for the airplane in which it is installed;

(3) Preselect altitudes in increments that are commensurate with the altitudes at which the aircraft is operated;

(4) Be tested without special equipment to determine proper operation of the alerting signals; and

(5) Accept necessary barometric pressure settings if the system or device operates on barometric pressure. However, for operation below 3,000 feet AGL, the system or device need only provide one signal, either visual or aural, to comply with this paragraph.

A radio altimeter may be included to provide the signal if the operator has an approved procedure for its use to determine DA/DH or MDA, as appropriate.

(c) Each operator to which this section applies must establish and assign procedures for the use of the altitude alerting system or device and each flight crewmember must comply with those procedures assigned to him.

(d) Paragraph (a) of this section does not apply to any operation of an airplane that has an experimental certificate or to the operation of any airplane for the following purposes:

(i) Ferrying a newly acquired airplane from the place where possession of it was taken to a place where the altitude alerting system or device is to be installed.

(ii) Continuing a flight as originally planned, if the altitude alerting system or device becomes inoperative after the airplane has taken off; however, the flight may not depart from a place where repair or replacement can be made.

(iii) Ferrying an airplane with any inoperative altitude alerting system or device from a place where repairs or replacements cannot be made to a place where it can be made.

(iv) Conducting an airworthiness flight test of the airplane.

(v) Ferrying an airplane to a place outside the United States for the purpose of registering it in a foreign country.

(vi) Conducting a sales demonstration of the operation of the airplane.

(vii) Training foreign flight crews in the operation of the airplane before ferrying it to a place outside the United States for the purpose of registering it in a foreign country.

§ 91.221 Traffic alert and collision avoidance system equipment and use.

(a) All airspace: U.S.-registered civil aircraft. Any traffic alert and collision avoidance system installed in a U.S.-registered civil aircraft must be approved by the Administrator.

(b) Traffic alert and collision avoidance system, operation required. Each person operating an aircraft equipped with an operable traffic alert and collision avoidance system shall have that system on and operating.

§ 91.223 Terrain awareness and warning system.

(a) Airplanes manufactured after March 29, 2002. Except as provided in paragraph (d) of this section, no person may operate a turbine-powered U.S.-registered airplane configured with six or more passenger seats, excluding any pilot seat, unless that airplane is equipped with an approved terrain awareness and warning system that as a minimum meets the requirements for Class B equipment in Technical Standard Order (TSO)-C151.