

§§ 23.1459, 25.1459, 27.1459, or 29.1459 of this chapter, as appropriate, need be established only on one aircraft of a group of aircraft:

- (i) That are of the same type;
- (ii) On which the flight recorder models and their installations are the same; and
- (iii) On which there are no differences in the type designs with respect to the installation of the first pilot's instruments associated with the flight recorder. The most recent instrument calibration, including the recording medium from which this calibration is derived, and the recorder correlation must be retained by the certificate holder.

(2) For airplanes manufactured after August 18, 2000, each flight data recorder system required by this section must be installed in accordance with the requirements of § 23.1459(a) (except paragraphs (a)(3)(ii) and (6)), (b), (d) and (e), or § 25.1459(a) (except paragraphs (a)(3)(ii) and (7)), (b), (d) and (e) of this chapter. A correlation must be established between the values recorded by the flight data recorder and the corresponding values being measured. The correlation must contain a sufficient number of correlation points to accurately establish the conversion from the recorded values to engineering units or discrete state over the full operating range of the parameter. Except for airplanes having separate altitude and airspeed sensors that are an integral part of the flight data recorder system, a single correlation may be established for any group of airplanes—

- (i) That are of the same type;
- (ii) On which the flight recorder system and its installation are the same; and
- (iii) On which there is no difference in the type design with respect to the installation of those sensors associated with the flight data recorder system. Documentation sufficient to convert recorded data into the engineering units and discrete values specified in the applicable appendix must be maintained by the certificate holder.

(g) Each flight recorder required by this section that records the data specified in paragraphs (a) and (b) of this section must have an approved device

to assist in locating that recorder under water.

(h) The operational parameters required to be recorded by digital flight data recorders required by paragraphs (i) and (j) of this section are as follows, the phrase “when an information source is installed” following a parameter indicates that recording of that parameter is not intended to require a change in installed equipment.

- (1) Time;
- (2) Pressure altitude;
- (3) Indicated airspeed;
- (4) Heading—primary flight crew reference (if selectable, record discrete, true or magnetic);
- (5) Normal acceleration (Vertical);
- (6) Pitch attitude;
- (7) Roll attitude;
- (8) Manual radio transmitter keying, or CVR/DFDR synchronization reference;
- (9) Thrust/power of each engine—primary flight crew reference;
- (10) Autopilot engagement status;
- (11) Longitudinal acceleration;
- (12) Pitch control input;
- (13) Lateral control input;
- (14) Rudder pedal input;
- (15) Primary pitch control surface position;
- (16) Primary lateral control surface position;
- (17) Primary yaw control surface position;
- (18) Lateral acceleration;
- (19) Pitch trim surface position or parameters of paragraph (h)(82) of this section if currently recorded;
- (20) Trailing edge flap or cockpit flap control selection (except when parameters of paragraph (h)(85) of this section apply);
- (21) Leading edge flap or cockpit flap control selection (except when parameters of paragraph (h)(86) of this section apply);
- (22) Each Thrust reverser position (or equivalent for propeller airplane);
- (23) Ground spoiler position or speed brake selection (except when parameters of paragraph (h)(87) of this section apply);
- (24) Outside or total air temperature;
- (25) Automatic Flight Control System (AFCS) modes and engagement status, including autothrottle;