

(c) Except as provided in paragraph (1) of this section, no person may operate an airplane specified in paragraph (b) of this section unless it is equipped, before May 26, 1995, with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. The following information must be able to be determined within the ranges, accuracies and recording intervals specified in appendix B of this part:

- (1) Time;
- (2) Altitude;
- (3) Airspeed;
- (4) Vertical acceleration;
- (5) Heading;
- (6) Time of each radio transmission either to or from air traffic control;
- (7) Pitch attitude;
- (8) Roll attitude;
- (9) Longitudinal acceleration;
- (10) Control column or pitch control surface position; and
- (11) Thrust of each engine.

(d) No person may operate an airplane specified in paragraph (b) of this section that is manufactured after May 26, 1989, as well as airplanes specified in paragraph (a) of this section that have been type certificated after September 30, 1969, unless it is equipped with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. The following information must be able to be determined within the ranges, accuracies, and recording intervals specified in appendix B of this part:

- (1) Time;
- (2) Altitude;
- (3) Airspeed;
- (4) Vertical acceleration;
- (5) Heading;
- (6) Time of each radio transmission either to or from air traffic control;
- (7) Pitch attitude;
- (8) Roll attitude;
- (9) Longitudinal acceleration;
- (10) Pitch trim position;
- (11) Control column or pitch control surface position;
- (12) Control wheel or lateral control surface position;

(13) Rudder pedal or yaw control surface position;

- (14) Thrust of each engine;
- (15) Position of each thrust reverser;
- (16) Trailing edge flap or cockpit flap control position; and
- (17) Leading edge flap or cockpit flap control position.

For the purpose of this section, *manufactured* means the point in time at which the airplane inspection acceptance records reflect that the airplane is complete and meets the FAA-approved type design data.

(e) After October 11, 1991, no person may operate a large airplane equipped with a digital data bus and ARINC 717 digital flight data acquisition unit (DFDAU) or equivalent unless it is equipped with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. Any parameters specified in appendix B of this part that are available on the digital data bus must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified.

(f) After October 11, 1991, no person may operate an airplane specified in paragraph (b) of this section that is manufactured after October 11, 1991, nor an airplane specified in paragraph (a) of this section that has been type certificated after September 30, 1969, and manufactured after October 11, 1991, unless it is equipped with one or more flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium. The parameters specified in appendix B of this part must be recorded within the ranges, accuracies, resolutions, and sampling intervals specified.

(g) Whenever a flight recorder required by this section is installed, it must be operated continuously from the instant the airplane begins the takeoff roll until it has completed the landing roll at an airport.

(h) Except as provided in paragraph (i) of this section, and except for recorded data erased as authorized in this paragraph, each certificate holder shall keep the recorded data prescribed in paragraph (a), (b), (c), or (d) of this