to any symptoms, the probable behavior of the airplane, and the recommended recovery procedures.

(3) The maneuvering speed established under §25.1507 and statements, as applicable to the particular design, explaining that:

(i) Full application of pitch, roll, or yaw controls should be confined to speeds below the maneuvering speed; and

(ii) Rapid and large alternating control inputs, especially in combination with large changes in pitch, roll, or yaw, and full control inputs in more than one axis at the same time, should be avoided as they may result in structural failures at any speed, including below the maneuvering speed.

(4) The flap extended speed $V_{FE}$ and the pertinent flap positions and engine powers.

(5) The landing gear operating speed or speeds, and a statement explaining the speeds as defined in §25.1515(a).

(6) The landing gear extended speed $V_{LE}$ if greater than $V_{LO}$, and a statement that this is the maximum speed at which the airplane can be safely flown with the landing gear extended.

(b) Powerplant limitations. The following information must be furnished:

(1) Limitations required by §25.1521 and §25.1522.

(2) Explanation of the limitations, when appropriate.

(3) Information necessary for marking the instruments required by §§25.1549 through 25.1553.

(c) Weight and loading distribution. The weight and center of gravity limitations established under §25.1519 must be furnished in the Airplane Flight Manual. All of the following information, including the weight distribution limitations established under §25.1519, must be presented either in the Airplane Flight Manual or in a separate weight and balance control and loading document that is incorporated by reference in the Airplane Flight Manual:

(1) The condition of the airplane and the items included in the empty weight as defined in accordance with §25.29.

(2) Loading instructions necessary to ensure loading of the airplane within the weight and center of gravity limits, and to maintain the loading within these limits in flight.

(3) If certification for more than one center of gravity range is requested, the appropriate limitations, with regard to weight and loading procedures, for each separate center of gravity range.

(d) Flight crew. The number and functions of the minimum flight crew determined under §25.1523 must be furnished.

(e) Kinds of operation. The kinds of operation approved under §25.1525 must be furnished.

(f) Ambient air temperatures and operating altitudes. The extremes of the ambient air temperatures and operating altitudes established under §25.1527 must be furnished.

(g) [Reserved]

(h) Additional operating limitations. The operating limitations established under §25.1533 must be furnished.

(i) Maneuvering flight load factors. The positive maneuvering limit load factors for which the structure is proven, described in terms of accelerations, must be furnished.


§ 25.1585 Operating procedures.

(a) Operating procedures must be furnished for—

(1) Normal procedures peculiar to the particular type or model encountered in connection with routine operations;

(2) Non-normal procedures for malfunction cases and failure conditions involving the use of special systems or the alternative use of regular systems; and

(3) Emergency procedures for foreseeable but unusual situations in which immediate and precise action by the crew may be expected to substantially reduce the risk of catastrophe.

(b) Information or procedures not directly related to airworthiness or not under the control of the crew, must not be included, nor must any procedure that is accepted as basic airmanship.

(c) Information identifying each operating condition in which the fuel system independence prescribed in §25.953
is necessary for safety must be furnished, together with instructions for placing the fuel system in a configuration used to show compliance with that section.

(d) The buffet onset envelopes, determined under §25.251 must be furnished. The buffet onset envelopes presented may reflect the center of gravity at which the airplane is normally loaded during cruise if corrections for the effect of different center of gravity locations are furnished.

(e) Information must be furnished that indicates that when the fuel quantity indicator reads “zero” in level flight, any fuel remaining in the fuel tank cannot be used safely in flight.

(f) Information on the total quantity of usable fuel for each fuel tank must be furnished.

§25.1587 Performance information.

(a) Each Airplane Flight Manual must contain information to permit conversion of the indicated temperature to free air temperature if other than a free air temperature indicator is used to comply with the requirements of §25.1303(a)(1).

(b) Each Airplane Flight Manual must contain the performance information computed under the applicable provisions of this part (including §§25.115, 25.123, and 25.125 for the weights, altitudes, temperatures, wind components, and runway gradients, as applicable) within the operational limits of the airplane, and must contain the following:

1. In each case, the conditions of power, configuration, and speeds, and the procedures for handling the airplane and any system having a significant effect on the performance information.
2. $V_{SR}$ determined in accordance with §25.103.
3. The following performance information (determined by extrapolation and computed for the range of weights between the maximum landing weight and the maximum takeoff weight):
   (i) Climb in the landing configuration.
   (ii) Climb in the approach configuration.
   (iii) Landing distance.

4. Procedures established under §25.101(f) and (g) that are related to the limitations and information required by §25.1533 and by this paragraph (b) in the form of guidance material, including any relevant limitations or information.

5. An explanation of significant or unusual flight or ground handling characteristics of the airplane.

6. Corrections to indicated values of airspeed, altitude, and outside air temperature.

7. An explanation of operational landing runway length factors included in the presentation of the landing distance, if appropriate.


Subpart H—Electrical Wiring Interconnection Systems (EWIS)


§25.1701 Definition.

(a) As used in this chapter, electrical wiring interconnection system (EWIS) means any wire, wiring device, or combination of these, including termination devices, installed in any area of the airplane for the purpose of transmitting electrical energy, including data and signals, between two or more intended termination points. This includes:

1. Wires and cables.
2. Bus bars.
3. The termination point on electrical devices, including those on relays, interrupters, switches, contactors, terminal blocks and circuit breakers, and other circuit protection devices.
4. Connectors, including feed-through connectors.
5. Connector accessories.
7. Electrical splices.
8. Materials used to provide additional protection for wires, including wire insulation, wire sleeving, and conduits that have electrical termination for the purpose of bonding.
9. Shields or braids.