§ 25.147 Directional and lateral control.

(a) Directional control; general. It must be possible, with the wings level, to yaw into the operative engine and to safely make a reasonably sudden change in heading of up to 15 degrees in the direction of the critical inoperative engine. This must be shown at 1.3 $V_{SR1}$ for heading changes up to 15 degrees (except that the heading change at which the rudder pedal force is 150 pounds need not be exceeded), and with—

1. The critical engine inoperative and its propeller in the minimum drag position;
2. The power required for level flight at 1.3 $V_{SR1}$, but not more than maximum continuous power;
3. The most unfavorable center of gravity;
4. Landing gear retracted;
5. Flaps in the approach position; and

(b) With the wings level, it must be possible to yaw into the operative engine and to safely make a reasonably sudden change in heading of up to 15 degrees in the direction of the critical inoperative engine. This must be shown at 1.3 $V_{SR1}$ for heading changes up to 15 degrees (except that the heading change at which the rudder pedal force is 150 pounds need not be exceeded), and with—

1. The critical engine inoperative and its propeller in the minimum drag position;
2. The power required for level flight at 1.3 $V_{SR1}$, but not more than maximum continuous power;
3. The most unfavorable center of gravity;
4. Landing gear retracted;
5. Flaps in the approach position; and

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3. The most unfavorable center of gravity;
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§ 25.149 Minimum control speed.

(a) In establishing the minimum control speeds required by this section, the method used to simulate critical engine failure must represent the most critical mode of powerplant failure with respect to controllability expected in service.

(b) $V_{MC}$ is the calibrated airspeed at which, when the critical engine is suddenly made inoperative, it is possible to maintain control of the airplane with that engine still inoperative and maintain straight flight with an angle of bank of not more than 5 degrees.

(c) $V_{MC}$ may not exceed 1.13 $V_{SR}$ with—

(1) Maximum available takeoff power or thrust on the engines;

(2) The most unfavorable center of gravity;

(3) The airplane trimmed for takeoff;

(4) The maximum sea level takeoff weight (or any lesser weight necessary to show $V_{MC}$);

(5) The airplane in the most critical takeoff configuration existing along the flight path after the airplane becomes airborne, except with the landing gear retracted;

(6) The airplane airborne and the ground effect negligible; and

(7) If applicable, the propeller of the inoperative engine—

(i) Windmilling;

(ii) In the most probable position for the specific design of the propeller control; or

(iii) Feathered, if the airplane has an automatic feathering device acceptable for showing compliance with the climb requirements of §25.121.

(d) The rudder forces required to maintain control at $V_{MC}$ may not exceed 150 pounds nor may it be necessary to reduce power or thrust of the operative engines. During recovery, the airplane may not assume any dangerous attitude or require exceptional piloting skill, alertness, or strength to