

## § 29.361

(b) To produce the load required in paragraph (a) of this section, in unaccelerated flight with zero yaw, at forward speeds from zero up to  $0.6 V_{NE}$ —

(1) Displace the cockpit directional control suddenly to the maximum deflection limited by the control stops or by the maximum pilot force specified in § 29.397(a);

(2) Attain a resulting sideslip angle or  $90^\circ$ , whichever is less; and

(3) Return the directional control suddenly to neutral.

(c) To produce the load required in paragraph (a) of the section, in unaccelerated flight with zero yaw, at forward speeds from  $0.6 V_{NE}$  up to  $V_{NE}$  or  $V_H$ , whichever is less—

(1) Displace the cockpit directional control suddenly to the maximum deflection limited by the control stops or by the maximum pilot force specified in § 29.397(a);

(2) Attain a resulting sideslip angle or  $15^\circ$ , whichever is less, at the lesser speed of  $V_{NE}$  or  $V_H$ ;

(3) Vary the sideslip angles of paragraphs (b)(2) and (c)(2) of this section directly with speed; and

(4) Return the directional control suddenly to neutral.

[Amdt. 29-26, 55 FR 8002, Mar. 6, 1990, as amended by Amdt. 29-41, 62 FR 46173, Aug. 29, 1997]

## § 29.361 Engine torque.

The limit engine torque may not be less than the following:

(a) For turbine engines, the highest of—

(1) The mean torque for maximum continuous power multiplied by 1.25;

(2) The torque required by § 29.923;

(3) The torque required by § 29.927; or

(4) The torque imposed by sudden engine stoppage due to malfunction or structural failure (such as compressor jamming).

(b) For reciprocating engines, the mean torque for maximum continuous power multiplied by—

(1) 1.33, for engines with five or more cylinders; and

(2) Two, three, and four, for engines with four, three, and two cylinders, respectively.

[Amdt. 29-26, 53 FR 34215, Sept. 2, 1988]

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### CONTROL SURFACE AND SYSTEM LOADS

#### § 29.391 General.

Each auxiliary rotor, each fixed or movable stabilizing or control surface, and each system operating any flight control must meet the requirements of §§ 29.395 through 29.399, 29.411, and 29.427.

[Amdt. 29-26, 55 FR 8002, Mar. 6, 1990, as amended by Amdt. 29-41, 62 FR 46173, Aug. 29, 1997]

#### § 29.395 Control system.

(a) The reaction to the loads prescribed in § 29.397 must be provided by—

(1) The control stops only;

(2) The control locks only;

(3) The irreversible mechanism only (with the mechanism locked and with the control surface in the critical positions for the effective parts of the system within its limit of motion);

(4) The attachment of the control system to the rotor blade pitch control horn only (with the control in the critical positions for the affected parts of the system within the limits of its motion); and

(5) The attachment of the control system to the control surface horn (with the control in the critical positions for the affected parts of the system within the limits of its motion).

(b) Each primary control system, including its supporting structure, must be designed as follows:

(1) The system must withstand loads resulting from the limit pilot forces prescribed in § 29.397;

(2) Notwithstanding paragraph (b)(3) of this section, when power-operated actuator controls or power boost controls are used, the system must also withstand the loads resulting from the limit pilot forces prescribed in § 29.397 in conjunction with the forces output of each normally energized power device, including any single power boost or actuator system failure;

(3) If the system design or the normal operating loads are such that a part of the system cannot react to the limit pilot forces prescribed in § 29.397, that part of the system must be designed to withstand the maximum loads that can be obtained in normal operation. The minimum design loads must, in any