

Sec. 23.735

Brakes.

(a) Brakes must be provided. The landing brake kinetic energy capacity rating of each main wheel brake assembly must not be less than the kinetic energy absorption requirements determined under either of the following methods:

(1) The brake kinetic energy absorption requirements must be based on a conservative rational analysis of the sequence of events expected during landing at the design landing weight.

(2) Instead of a rational analysis, the kinetic energy absorption requirements for each main wheel brake assembly may be derived from the following formula:

$$KE = \frac{0.0443WV^2}{N}$$

where--

KE = Kinetic energy per wheel (ft.-lb.);

W = Design landing weight (lb.);

V = Airplane speed in knots. V must be not less than $V_s \sqrt{}$, the poweroff stalling speed of the airplane at sea level, at the design landing weight, and in the landing configuration; and

N = Number of main wheels with brakes.

(b) Brakes must be able to prevent the wheels from rolling on a paved runway with takeoff power on the critical engine, but need not prevent movement of the airplane with wheels locked.

(c) During the landing distance determination required by Sec. 23.75, the pressure on the wheel braking system must not exceed the pressure specified by the brake manufacturer.

(d) If antiskid devices are installed, the devices and associated systems must be designed so that no single probable malfunction or failure will result in a hazardous loss of braking ability or directional control of the airplane.

(e) For airplanes required to meet Sec. 23.55, the rejected takeoff brake kinetic energy capacity rating of each main wheel brake assembly may not be less than the kinetic energy absorption requirements determined under either of the following methods--

(1) The brake kinetic energy absorption requirements must be based on a conservative rational analysis of the sequence of events expected during a rejected takeoff at the design takeoff weight.

(2) Instead of a rational analysis, the kinetic energy absorption requirements for each main wheel brake assembly may be derived from the following formula--

$$KE = 0.0443 WV^2/N$$

where;

KE = Kinetic energy per wheel (ft.-lbs.);

W = Design takeoff weight (lbs.);

V = Ground speed, in knots, associated with the maximum value of V1 selected in accordance with Sec. 23.51(c)(1);

N = Number of main wheels with brakes.

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CAR 3 Requirements

BRAKES

§ 3.363 Brakes. Brakes shall be installed which are adequate to prevent the airplane from rolling on a paved runway while applying take-off power to the critical engine, and of sufficient capacity to provide adequate speed control during taxiing without the use of excessive pedal or hand forces.