tire temperatures from reaching unsafe levels.


§ 25.735 Brakes and braking systems.

(a) Approval. Each assembly consisting of a wheel(s) and brake(s) must be approved.

(b) Brake system capability. The brake system, associated systems and components must be designed and constructed so that:

(1) If any electrical, pneumatic, hydraulic, or mechanical connecting or transmitting element fails, or if any single source of hydraulic or other brake operating energy supply is lost, it is possible to bring the airplane to rest with a braked roll stopping distance of not more than two times that obtained in determining the landing distance as prescribed in § 25.125.

(2) Fluid lost from a brake hydraulic system following a failure in, or in the vicinity of, the brakes is insufficient to cause or support a hazardous fire on the ground or in flight.

(c) Brake controls. The brake controls must be designed and constructed so that:

(1) Excessive control force is not required for their operation.

(2) If an automatic braking system is installed, means are provided to:

(i) Arm and disarm the system, and

(ii) Allow the pilot(s) to override the system by use of manual braking.

(d) Parking brake. The airplane must have a parking brake control that, when selected on, will, without further attention, prevent the airplane from rolling on a dry and level paved runway when the most adverse combination of maximum thrust on one engine and up to maximum ground idle thrust on any, or all, other engine(s) is applied. The control must be suitably located or be adequately protected to prevent inadvertent operation. There must be indication in the cockpit when the parking brake is not fully released.

(e) Antiskid system. If an antiskid system is installed:

(1) It must operate satisfactorily over the range of expected runway conditions, without external adjustment.

(2) It must, at all times, have priority over the automatic braking system, if installed.

(f) Kinetic energy capacity—(1) Design landing stop. The design landing stop is an operational landing stop at maximum landing weight. The design landing stop brake kinetic energy absorption requirement of each wheel, brake, and tire assembly must be determined. It must be substantiated by dynamometer testing that the wheel, brake and tire assembly is capable of absorbing not less than this level of kinetic energy throughout the defined wear range of the brake. The energy absorption rate derived from the airplane manufacturer’s braking requirements must be achieved. The mean deceleration must not be less than 10 fps².

(2) Maximum kinetic energy accelerate-stop. The maximum kinetic energy accelerate-stop is a rejected takeoff for the most critical combination of airplane takeoff weight and speed. The accelerate-stop brake kinetic energy absorption requirement of each wheel, brake, and tire assembly must be determined. It must be substantiated by dynamometer testing that the wheel, brake, and tire assembly is capable of absorbing not less than this level of kinetic energy throughout the defined wear range of the brake. The energy absorption rate derived from the airplane manufacturer’s braking requirements must be achieved. The mean deceleration must not be less than 6 fps².

(3) Most severe landing stop. The most severe landing stop is a stop at the most critical combination of airplane landing weight and speed. The most severe landing stop brake kinetic energy absorption requirement of each wheel, brake, and tire assembly must be determined. It must be substantiated by dynamometer testing that, at the declared fully worn limit(s) of the brake heat sink, the wheel, brake and tire assembly is capable of absorbing not less than this level of kinetic energy. The most severe landing stop need not be considered for extremely improbable failure conditions or if the maximum kinetic energy accelerate-stop energy is more severe.

(g) Brake condition after high kinetic energy dynamometer stop(s). Following
§ 25.737 Skis.

Each ski must be approved. The maximum limit load rating of each ski must equal or exceed the maximum limit load determined under the applicable ground load requirements of this part.

§ 25.731 Skis.

(a) A buoyancy of 80 percent in excess of that required to support the maximum weight of the seaplane or amphibian in fresh water; and

(b) Not less than five watertight compartments approximately equal in volume.

§ 25.753 Main float design.

Each main float must be approved and must meet the requirements of §25.521.

§ 25.755 Hulls.

(a) Each hull must have enough watertight compartments so that, with any two adjacent compartments flooded, the buoyancy of the hull and auxiliary floats (and wheel tires, if used) provides a margin of positive stability great enough to minimize the probability of capsizing in rough, fresh water.

(b) Bulkheads with watertight doors may be used for communication between compartments.

§ 25.771 Pilot compartment.

(a) Each pilot compartment and its equipment must allow the minimum flight crew (established under §25.1523) to perform their duties without unreasonable concentration or fatigue.

(b) The primary controls listed in §25.779(a), excluding cables and control rods, must be located with respect to the propellers so that no member of the minimum flight crew (established under §25.1523), or part of the controls, lies in the region between the plane of rotation of any inboard propeller and the surface generated by a line passing through the center of the propeller hub making an angle of five degrees forward or aft of the plane of rotation of the propeller.

(c) If provision is made for a second pilot, the airplane must be controllable with equal safety from either pilot seat.

(d) The pilot compartment must be constructed so that, when flying in rain or snow, it will not leak in a manner that will distract the crew or harm the structure.