Federal Aviation Administration, DOT

§ 23.499 Supplementary conditions for nose wheels.

In determining the ground loads on nose wheels and affected supporting structures, and assuming that the shock absorbers and tires are in their static positions, the following conditions must be met:

(a) For aft loads, the limit force components at the axle must be—
   (1) A vertical component of 2.25 times the static load on the wheel; and
   (2) A drag component of 0.8 times the vertical load.

(b) For forward loads, the limit force components at the axle must be—
   (1) A vertical component of 2.25 times the static load on the wheel; and
   (2) A forward component of 0.4 times the vertical load.

(c) For side loads, the limit force components at ground contact must be—
   (1) A vertical component of 2.25 times the static load on the wheel; and
   (2) A side component of 0.7 times the vertical load.

(d) For airplanes with a steerable nose wheel that is controlled by hydraulic or other power, at design take-off weight with the nose wheel in any steerable position, the application of 1.33 times the full steering torque combined with a vertical reaction equal to 1.33 times the maximum static reaction on the nose gear must be assumed. However, if a torque limiting device is installed, the steering torque can be reduced to the maximum value allowed by that device.

(e) For airplanes with a steerable nose wheel that has a direct mechanical connection to the rudder pedals, the mechanism must be designed to withstand the steering torque for the

(1) Suitable design loads must be established for the tail wheel, bumper, or energy absorption device; and

(2) The supporting structure of the tail wheel, bumper, or energy absorption device must be designed to withstand the loads established in paragraph (c)(1) of this section.