

Honda Aircraft Company

HA-420 POM

SYSTEMS DESCRIPTION

WHEELS AND BRAKES

Main Landing Gear Wheel and Tire Assembly

A single 17.5 x 5.75 R9, tubeless, radial tire with a speed rating of 190 mph (165 kts) is mounted on each MLG. If the brakes become overheated, three fusible plugs on the wheel will melt to decrease the tire pressure.

Nose Landing Gear Wheel and Tire Assembly

The single nose tire is a 16 x 4.4 R8, tubeless, radial, dual chined tire with a speed rating of 190 mph (165 kts). A pressure release plug on the wheel releases tire pressure to prevent over pressurizing.

Normal Brakes

Each main landing gear is equipped with a multiple-disc brake that uses four rotating steel discs and three stationary steel discs.

Two (2) brake wear indicator pins are installed on the pressure plate and protrude through the cylinder housing. When the wear indicators are flush with the cylinder housing with the brakes fully applied, the brake pads are worn and need replacement. An automatic adjuster keeps clearance as brake wear occurs.

Brake application is initiated by applying a force to the top of the rudder pedals, which supplies a control pressure at the master cylinders. The amount of braking force is proportional to the force applied to the rudder pedals.

Anti-skid protection is available when the aircraft wheel speed is above approximately 10 knots and below approximately 165 kts (190 mph). Wheel skid, as measured by the wheel-speed transducer, is signaled to the control unit which outputs a signal to the power brake / anti-skid control valve to release both brake pressures at the same time.

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Revision B

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Normal Brakes (continued)

The automatic anti-skid function resumes its standby mode after any wheel skid stops or brake pedal pressure is decreased below the wheel skid threshold level. Power brakes will still be available if the anti-skid system fails.

Touchdown protection prevents brake application until wheel spin-up occurs. After weight-on-wheels has been true for three seconds, power braking is enabled with or without a wheel speed signal.

Locked wheel crossover protection starts if either wheel slows significantly below the speed of the other when aircraft speed is above 25 kts. When the sensed speed of either main landing gear wheel slows to 30% or less when compared to the other wheel speed, a full brake release occurs which removes the locked wheel condition.

Wheel spin-down braking applies minimum wheel braking pressure during landing gear retraction to insure that the main landing gear wheels have stopped rotating before they retract into the wheel well.

Emergency/Parking Brake

The emergency / parking brake system is a mechanically actuated power brake valve that meters brake pressure to both brakes in proportion to the emergency / parking brake handle movement.

Parking brake function is supplied by locking the emergency/parking brake handle at the parking position.

The emergency / parking brake system has a thermal relief valve to prevent over-pressurization of the hydraulic tubes and brake assemblies when there is a change in thermal environment.

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Indications

A white PARKING BRAKE icon is displayed below the landing gear indicator and on the STATUS synoptic page when the parking brake is set and pressure is sufficient. The color changes to amber if the brake is set but the pressure is insufficient or the brake is set in flight. Emergency/parking brake pressure is displayed on the HYDRAULICS synoptic page.

NOSEWHEEL STEERING

The nosewheel steering (NWS) system contains one steering control unit (SCU), one steering control valve and actuator assembly (SCVA) installed on the nose landing gear, and two pedal stroke transducers (XDCR) installed on the rudder pedal mechanism.

The nosewheel steering angle is scheduled based on pedal deflection and ground speed. Maximum steering angle is $\pm 60^\circ$. The nosewheel is free castering during landing until approximately 2 seconds after NLG weight on wheels.

The NWS can be disabled by selecting the NOSE WHEEL STEERING switch to OFF or setting the parking brake.