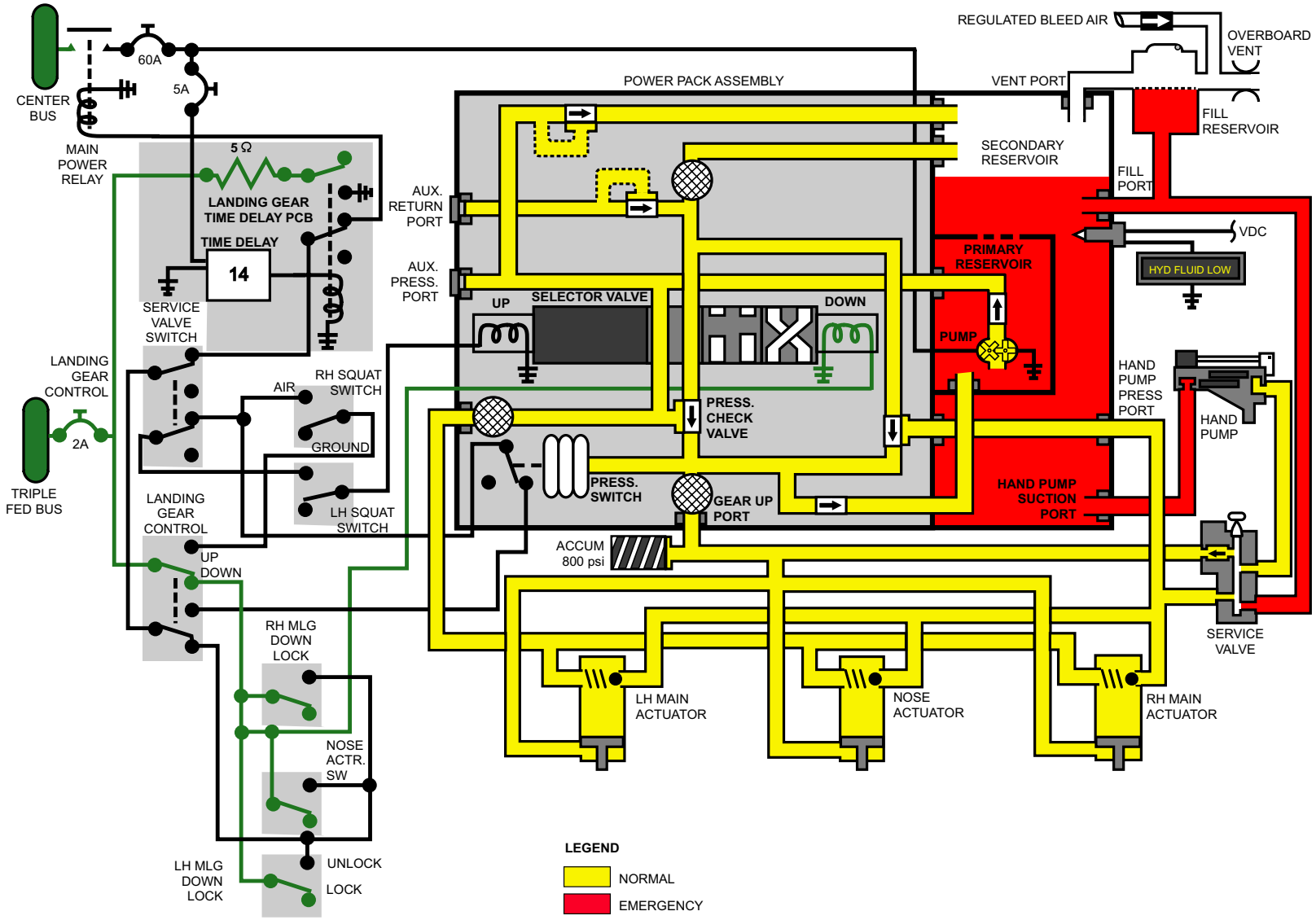
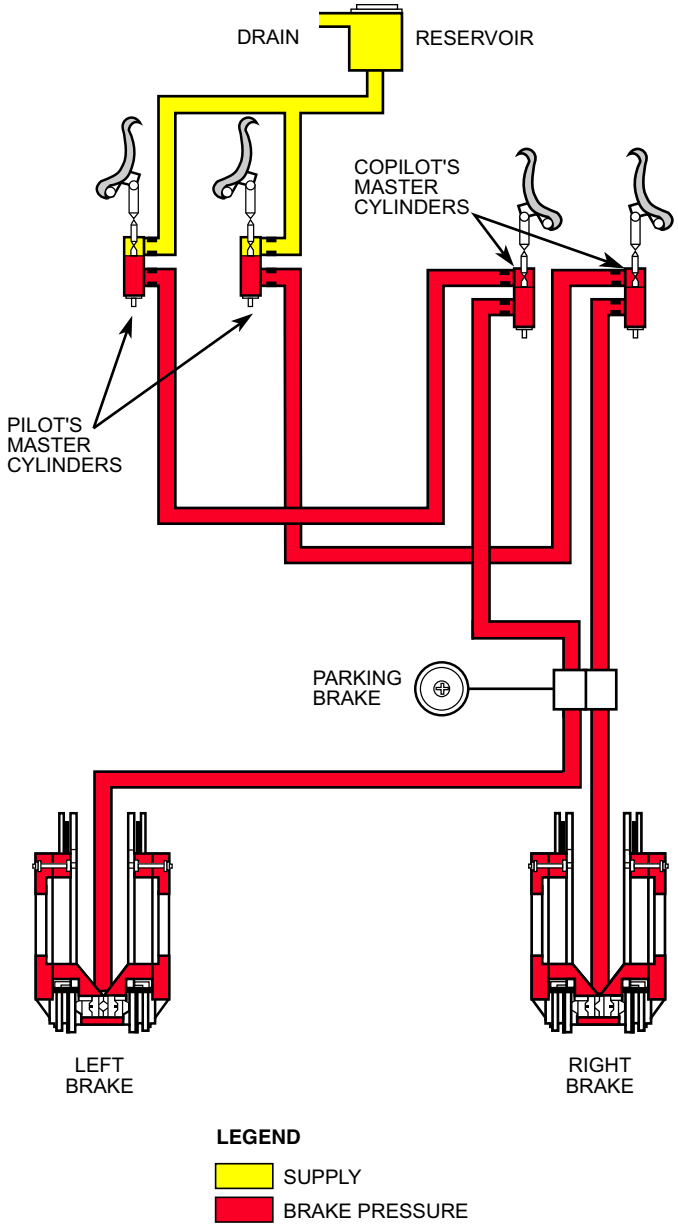
Hydraulic Landing Gear System

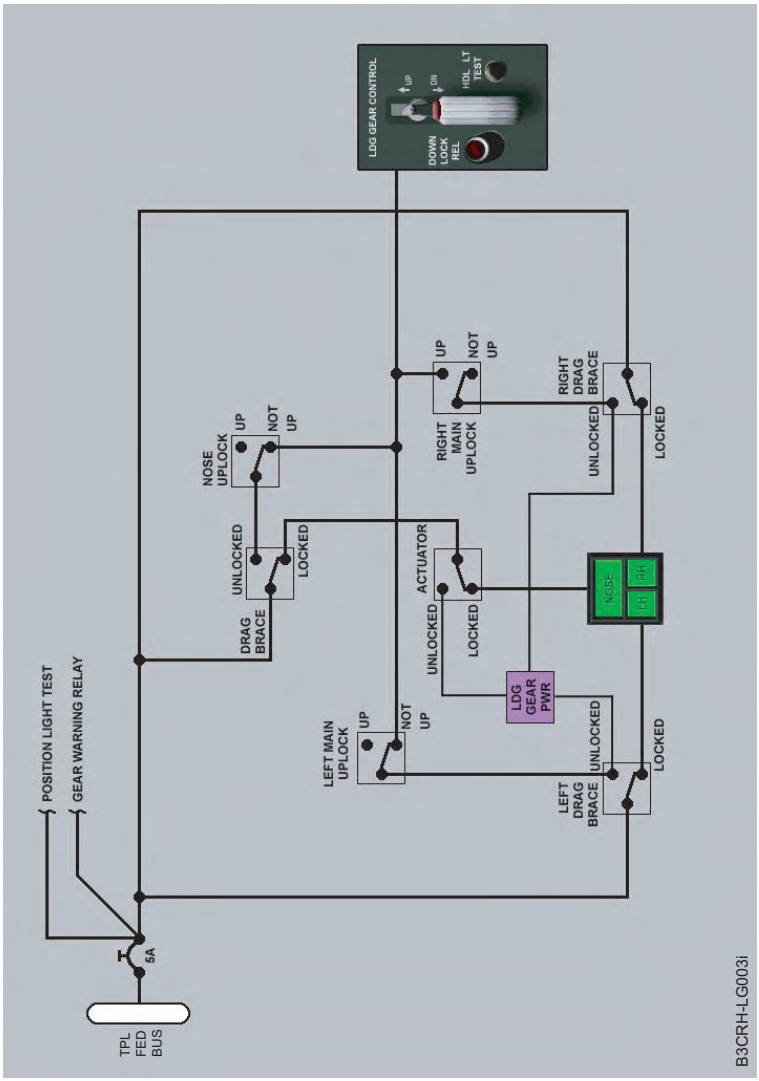


B3CRH-LG001I

Brakes System



Landing Gear Indicating System



Landing Gear and Brakes

The aircraft has an electro-hydraulic, tricycle-type landing gear. The nose and main gear have conventional air/oil struts to absorb taxi and landing shocks. A position indicating system provides indication of safe and unsafe landing gear configuration.

The nose is a single wheel assembly while the main gear is a two-wheel assembly with dual hydraulic brakes.

Hydraulic Landing Gear

The King Air 350 aircraft has a electro-hydraulic landing gear system with an electric-driven hydraulic pump (powerpack), selector valve, hydraulic gear actuators, accumulator, and related plumbing and valves.

Placing the landing gear lever to DN actuates the power pack down solenoid. Hydraulic fluid is pumped to the extend side of the actuators. As the actuator piston extends the landing gear, fluid on the other side of the actuators exits through the retract port and flows back to the power pack through retract plumbing. Fluid from the pump flows through the selector valve, opens a pressure check valve, and then allows the return fluid to flow into the primary reservoir.

When the actuator piston positions to fully extend the nose gear, an internal actuator downlock switch interrupts power to the nose gear portion of the power pack. Additionally, this internal locking mechanism holds the nose gear drag brace in an over-center condition.

The main gear is held in the extended position by a mechanical over-center lock hook and a lock-pin assembly on the drag brace. The downlock switches, along with the right nose gear squat switch, interrupt power to the power pack main power relay.

Moving the landing gear handle to UP provides hydraulic fluid under pressure to the retract side of the gear actuators. As the actuator pistons move to retract the gear, the fluid in the other side of the actuators exits through the extend port and flows back to the power pack through the extend plumbing.

When the gear reaches the fully retracted position, hydraulic system pressure holds the gear in the up position. When hydraulic pressure reaches approximately 2,775 PSI, the uplock pressure switch opens the landing gear relay to interrupt current to the pump motor. The same pressure switch actuates the pump that increases hydraulic pressure if it drops below 2,475 PSI. The normal landing gear cycle takes approximately 7 seconds. Should the pump motor run longer than 14 seconds, power is removed from the main power relay, and the landing gear control circuit breaker is shorted.

Up and down position switches on the nose and main landing gear illuminate the landing gear handle's red intransit light and the three green down-and-locked lights. The intransit light illuminates when either landing gear up and down position switch is de-actuated (i.e., with a landing gear transitioning between positions).

The red intransit light illuminates whenever:

- the landing gear handle is in the up position with weight-on-wheels.
- any landing gear is between the fully retracted and down-and-locked position (i.e., intransit).
- landing gear is not down-and-locked with a power lever set below 84% to 86% N_1.
- landing gear is up and flaps are extended past the approach position. Warning horn can be silenced by extending landing gear or raising the flaps to the UP or APPR position.

If the normal landing gear system fails, manually extend with a hand-operated hydraulic pump. Pull the LANDING GEAR RELAY CB on the pilot inboard subpanel to interrupt electrical power and then place the landing gear handle in the DOWN position. Remove the LANDING GEAR ALTERNATE EXTENSION hand pump handle from the securing clip and pump up and down until three green indicator lights illuminate. The hand pump supplies fluid to the extend side of the gear actuators. Refer to the AFM Abnormal Procedures for detailed instruction about landing gear manual extension.

If the landing gear system hydraulic reservoir level drops to a critical level for more than four seconds, an optical sensor illuminates the yellow HYD FLUID LOW annunciator. When the annunciator illuminates, sufficient hydraulic fluid remains to manually extend the landing gear.

Brakes

Each main gear wheel carries a multiple disc brake assembly. Each assembly consists of two rotating discs keyed to the wheel, a piston housing, carrier and lining (stationary disc), and torque plate. The stationary disc and torque plate provide a friction surface for the rotating discs.

Depressing either set of brake pedals compresses the master cylinders' piston rod. Piston rod movement generates hydraulic pressure that flows through rigid and flexible lines to the brake assembly. The brake assembly pistons then extend to force the linings and discs together; braking occurs. Releasing brake pressure allows the brake assembly pistons to retract, the linings to move away from the discs, and release of the brakes.

With either the pilot or copilot brake pedals depressed and brake pressure applied, pulling the PARKING BRAKE handle out closes left and right brake valve assemblies. Trapped fluid in the brake lines then maintains pressure against the multi-disc wheel brake assemblies. The parking brake can be released by depressing with the pilot or copilot brake pedals and then releasing the PARKING BRAKE handle.