

### GENERAL

The landing gear is electrically controlled and hydraulically actuated. Each landing gear assembly uses a single wheel assembly and an oil over air strut. The nose gear has a chine tire for water and slush deflection. The main landing gear doors are mechanically connected to the main gear struts and extend and retract with the individual gear assemblies. The nose gear utilizes three doors. The rear door is mechanically connected to the nose gear strut and extends aft, or retracts forward with the nose gear assembly. The two forward double action doors are mechanically linked to the nose gear. These doors remain open with the nose gear fully extended.

The gear actuators incorporate an internal lock to hold the gear in the extended position. They are held retracted by mechanical uplocks that are normally released hydraulically. The landing gear completes a retraction or extension cycle in less than 6 seconds. The gear can be extended at airspeeds up to 250 KIAS ( $V_{LO}$  extend). It can be retracted at speeds up to 200 KIAS ( $V_{LO}$  retract). With the landing gear extended, the maximum speed is 250 KIAS ( $V_{LE}$ ).

### CONTROL

The landing gear control panel contains the landing gear handle, an audible warning system, three gear safe indicators and a red gear unlocked indicator. The landing gear handle has two positions: full down and full up. The gear handle must be pulled out to clear a detent before it can be repositioned. Operation of the gear and doors will not begin until the handle has been positioned in one of the two detents. A gear handle locking solenoid activated by the left main gear squat switch, physically prevents inadvertent movement of the gear handle while on the ground.

### EXTENSION AND RETRACTION

In a landing gear retraction cycle, the following takes place:

1. With weight off the left landing gear squat switch, power is applied to the solenoid lock, allowing the landing gear handle to be placed in the UP position.
2. Actuation of the gear handle to the UP position:
  - a. Lights the GEAR UNLOCK warning light when a gear unlocks.
  - b. Closes the hydraulic bypass valve, pressurizing the system as required.
  - c. Positions the landing gear control valve to route hydraulic fluid to the retract side of the hydraulic cylinders.
3. The landing gear are hydraulically retracted and held in place by mechanical uplatches.
4. Actuation of the three gear up microswitches:
  - a. Opens the bypass valve in the hydraulic system returning it to open center operation and low pressure.
  - b. Removes power from the landing gear control valve.
  - c. Extinguishes GEAR UNLOCKED indicator light.

The sequence during a gear extension is identical with the following exceptions:

1. Solenoid lock on landing gear handle is not in use.
2. Gear handle to the DOWN position causes fluid to be routed by the control valve through the uplocks to release them, and then to the extend side of the actuating cylinders. The green LH, RH and NOSE gear indicating lights illuminate as each gear locks down. After all gear are down and locked, the gear down microswitches return the hydraulic system to open center operation.

## POSITION AND WARNING SYSTEM

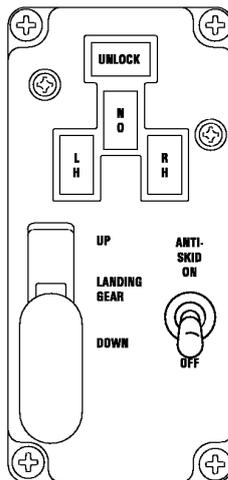
The landing gear position and warning system provides visual and audible indication of landing gear position. Three green safe lights and a red GEAR UNLOCK light are located in a group adjacent to the gear control handle. Each green light corresponds to one gear, NOSE, LH or RH and indicates that it is in the down and locked position. The red light indicates an unsafe gear position (in transit or not locked). The landing gear warning system sounds an audible warning when one of the following three conditions exist:

1. Gear not down and locked, both throttles retarded below approximately 70% N<sub>2</sub>, and flaps greater than 15°.
2. Gear not down and locked, both throttles retarded below approximately 70% N<sub>2</sub>, and valid radio altimeter signal indicates less than 500 feet AGL.
3. Gear not down and locked, both throttles retarded below approximately 70% N<sub>2</sub>, and, a non-valid radio altimeter signal and airspeed below 150 KIAS.

The audible warning system cannot be silenced until the conditions which initiated warning system activation are corrected.

## LANDING GEAR POSITION WARNING

A35123



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Figure 2-10

## EMERGENCY GEAR EXTENSION

In the event of normal system malfunction, a manually operated system is provided to release the landing gear for free-fall extension.

The manual system is actuated by the red AUX GEAR CONTROL T-handle located under the pilot's instrument panel. The handle is pulled and rotated clockwise to lock. This action mechanically disengages the landing gear uplocks, allowing the landing gear to free-fall to the down and locked position and also unlocks the red, collar-type, blow down knob. Lowering the landing gear by the free fall method is not advisable at speeds above 200 KIAS, as the gear may not fully extend above that speed. Approximately 150 KIAS with flaps up is the optimum speed/configuration for free fall extension.

## Cessna Citation XLS - Landing Gear

Yawing the airplane may be required to achieve green light indications and the pneumatic system should always be used to assure positive locking of all three gear actuators. If the landing gear down and locked lights are not illuminated, verify that the gear is out of the up and locked position before utilizing the blowdown system.

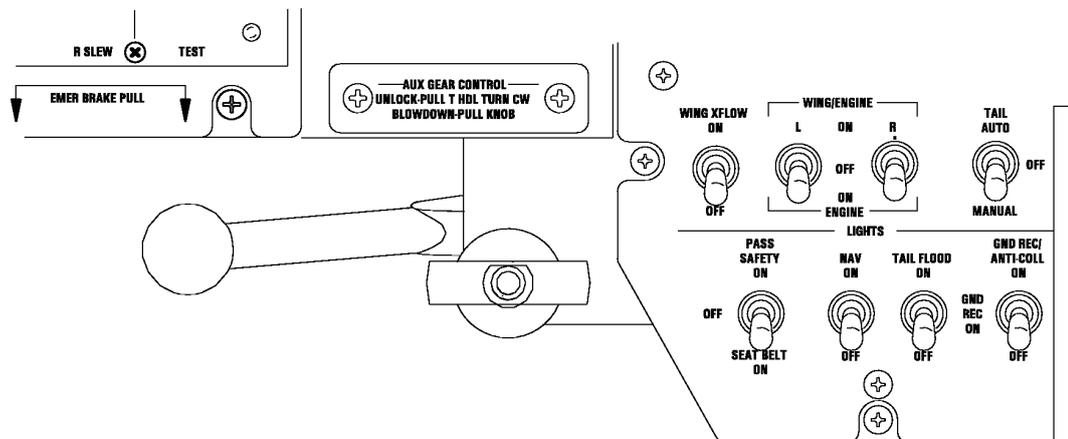
Pulling the red, collar-type knob on the T-handle shaft mechanically ports the emergency air bottle into the extend side of all three landing gear actuators. The gear is driven to the down and locked position and normal indications will appear in the cockpit providing the gear handle is down. After actuation of the pneumatic system, the knob and T-handle should be reset. After each use, the system must be reserviced.

An air bottle which provides for emergency extension of the landing gear and/or emergency braking is located on the left side of the forward pressure bulkhead. The bottle is properly serviced at 1500-2000 PSI and can be checked on preflight by a gage visible in the left side of the nose avionics compartment. A relief valve on the bottle will open at 4000 PSI if the bottle becomes overpressurized.

The bottle has outlets to the vent line, the gear auxiliary extension line, and the brake air pressure line. In normal system configuration the landing gear auxiliary extension line is connected to the vent line through the position of the control valve.

## EMERGENCY GEAR EXTENSION

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Figure 2-11

Emergency braking is controlled through a manually operated three-way pressure regulating valve. Air from the bottle is connected directly to the inlet port of the valve by the brake air pressure line. The outlet port is connected to the brakes and, when the emergency brake handle is in NORMAL position, is vented to an exhaust line. When the emergency brakes are applied, the vent is closed, the inlet port opens and high pressure air is applied to the brakes. Releasing the emergency brake handle opens the vent, relieving pressure. This allows modulation of the system to obtain the desired braking force. Each time the handle is cycled some air pressure is vented overboard, reducing the emergency bottle supply.