

LANDING GEAR

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 chined 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 bypass valve in the hydraulic return line, 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

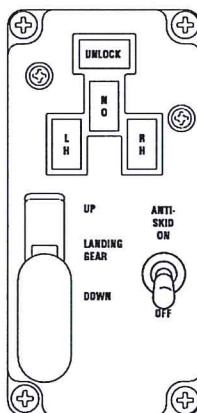
The landing gear position and warning system provides visual and audible indication of landing gear position. Three green safe lights and a red GEAR UNLOCK light are located in a group adjacent to the gear control handle. Each green light corresponds to one gear, NOSE, LH or RH and indicates that it 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_2 , and flaps greater than 15°.
2. Gear not down and locked, both throttles retarded below approximately 70% N_2 , and valid radio altimeter signal indicates less than 500 feet AGL.
3. Gear not down and locked, both throttles retarded below approximately 70% N_2 , and, a non-valid radio altimeter signal and airspeed below 150 KIAS.

The audible warning system will not silence until the conditions which initiated warning system activation are corrected.

LANDING GEAR POSITION WARNING

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Figure 2-10