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. 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 blow-down 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.

PNEUMATIC

GENERAL

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 gauge visible in the left side of the nose avionics compartment. A relief valve on the bottle will rupture 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

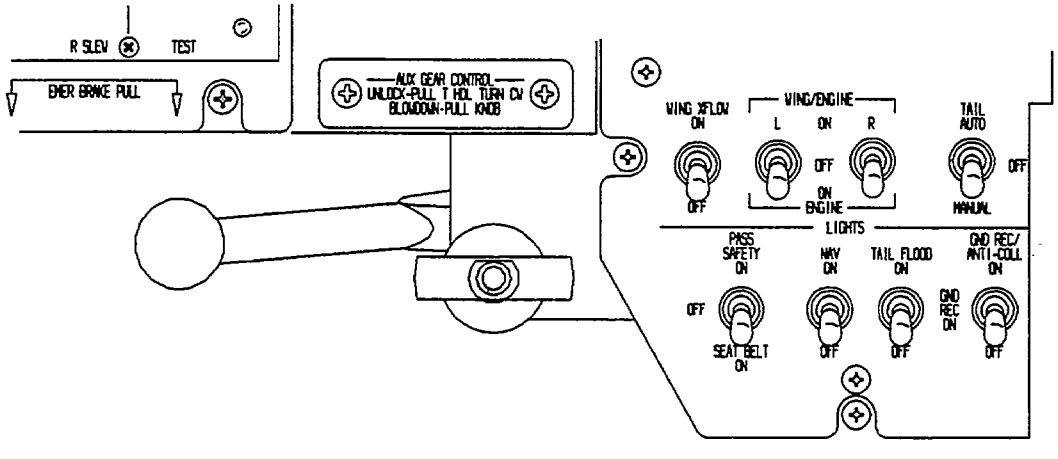

Figure 2-11

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.

FLIGHT CONTROLS

GENERAL

All aerodynamic controls, with the exception of the flaps, speed brakes and two-position stabilizer are mechanically actuated by cables. The ailerons, elevator and rudder have trimmed control surfaces and cockpit trim position indicators.

Flaps are hydraulically powered and can be operated to 15 degrees at 200 KIAS or below and 35 degrees (full travel) at 175 KIAS or below. Spoiler-type speed brakes are hydraulically actuated and electrically controlled and can be extended throughout the flight envelope.

AILERONS AND TRIM TAB

The ailerons provide excellent lateral control throughout the entire operating envelope. Full range of travel is 19 degrees, +1 or -1 degree up and 15 degrees, +1 or -1 degree down. One trim tab, located on the left aileron, is mechanically controlled by a knob on the center pedestal. An indicator on the pedestal shows the amount of trim selected in relation to a neutral position. Full travel of the tab is 20 degrees, +2 or -2 degree up and down.

ELEVATORS AND TRIM TABS

Elevator control is mechanical through four cable assemblies. Full elevator travel is through a range of 19 degrees, +1 or -0 degree up, to 15 degrees, +1 or -1 degree down. Elevator trim tabs installed on each elevator can be positioned electrically or mechanically through cockpit trim tab actuators. Full travel of the tabs is 5 degrees, +1 or -1 degrees up and 15 degrees, +1 or -1 degrees down. An elevator trim wheel on the pedestal provides manual trim control. A trim switch, located on the left side of the pilot's control wheel, controls an electric trim motor which in turn positions the elevator tabs. The copilot's trim switch is located on the right side of the copilot's control wheel. The pilot's trim switch has priority and will interrupt and override the copilot's control. If the electric trim malfunctions, it can be overridden by the manual trim system, or momentarily disabled by pressing the AP/TRIM DISC switch on the pilot's or copilot's yoke.