The antiskid system is enabled by selecting ON or OFF on the ANTI-SKID switch on the landing gear control panel, and a landing gear squat switch. The motor will then run in response to signals from the motor pressure switch. When the landing gear squat switch senses the airplane is on the ground and the antiskid switch is on it signals the antiskid electronic control box, which enables the antiskid system. With the control switch in the OFF position, the ANTISKID INOP light on the annunciator panel will illuminate and the pilot will have power braking available without the antiskid function. If the power system should fail, braking will only be available through the back-up pneumatic system. The antiskid control module incorporates test circuitry which continually monitors the antiskid system. If a fault is detected, the ANTISKID INOP light will illuminate on the annunciator panel. If hydraulic pressure in the power system drops below 750 PSI while the gear is selected down, the PWR BRK LOW PRESS light will illuminate.

The antiskid system receives electrical power through a 5-ampere circuit breaker on the left circuit breaker panel, which is labeled SKID CONTROL. The SKID CONTROL circuit breaker is in series with a 20-ampere power brake circuit breaker (BRAKE SYSTEM) which provides power to the antiskid system as well as to the power brake motor/pump. The antiskid system will be inoperative if the SKID CONTROL circuit breaker is disengaged but power braking will still be available. Disengagement of the BRAKE SYSTEM circuit breaker disables the antiskid and the power brake system. Braking is then available only by means of the pneumatic brake system.

PARKING BRAKE

The parking brake is a part of the normal brake system and employs controllable check valves that can prevent the return of fluid after the brakes have been set. Parking brakes are set by depressing the toe brakes and pulling out the black parking brake handle located under the lower left side of the instrument panel. The parking brake should not be set if the brakes are very hot. This increases brake cool-down time due to decreased airflow, and may result in sufficient heat transfer from the brakes to cause the parking brake thermal relief valves to open or to melt the thermal relief plugs in the wheel, causing deflation of the tire.

EMERGENCY BRAKING

In the event of normal hydraulic braking system failure, a pneumatic system is available. The pneumatic pressure required is contained in the emergency air bottle and is controlled by a lever with red knob located to the left of the AUX GEAR CONTROL T-handle. Pulling the lever aft will apply equal pressure to both main landing gear brake assemblies. Releasing the back pressure on the lever and allowing it to move forward will relieve the pressure. The air pressure to the brakes may be modulated to provide any braking rate desired, but differential braking and antiskid will not be available. The emergency air bottle, when fully charged, contains sufficient pressure for ten or more full brake applications. For the most efficient use of the system, apply sufficient air pressure to the brakes to obtain the desired deceleration rate. Maintain that pressure until airplane is stopped. When the handle is released, residual air pressure from the brakes is exhausted overboard. Normal braking should not be applied while using the pneumatic brakes. Depressing the pedals could reposition the shuttle valves in the brake lines to open, allowing high pressure air from the brake housing to enter the brake hydraulic reservoir, which might possibly rupture it. Adequate emergency braking for most conditions will be available from a properly serviced air bottle, even if the landing gear have been extended pneumatically. After stopping and clearing the runway, it is recommended to shut down the engines and have the airplane towed to the ramp, as there is no warning in the cockpit when the air bottle is depleted.

PNEUMATIC

GENERAL

An air bottle that provides for emergency extension of the landing gear and/or emergency braking is located on the right side of the forward pressure bulkhead. The standby air bottle is

properly serviced at 1800-2050 PSI and can be checked on preflight by a gage visible in the right forward baggage 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.

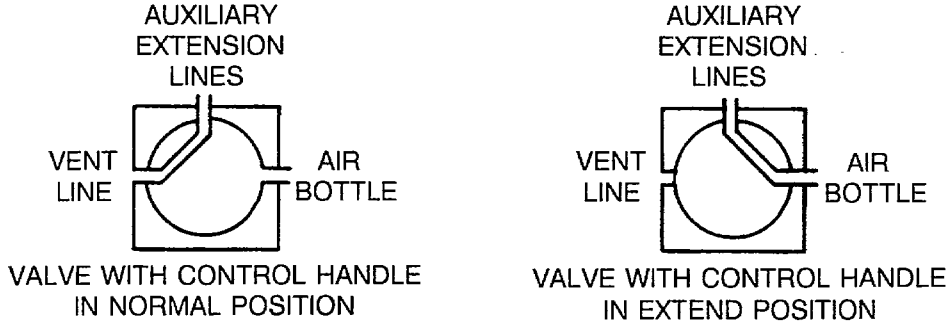

Figure 2-13. Emergency Air Bottle Control Valve

When the collar-type knob on the AUX GEAR CONTROL T-handle shaft is pulled, a valve is repositioned to direct air from the bottle through the auxiliary extension lines to the landing gear uplocks and the extend side of the landing gear actuators.

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 and speed brakes, are mechanically actuated by cables. The ailerons, elevator and rudder have manually trimmed control surfaces and cockpit trim position indicators. The elevator also trims electrically.

Flaps are hydraulically powered and can be operated to 15 degrees at 200 KIAS or below, to 35 degrees at 161 KIAS or below, and to 60 degrees (ground flaps) on the ground. Spoiler-type speedbrakes are hydraulically actuated and electrically controlled and can be extended throughout the flight envelope.

AILERONS

The ailerons provide excellent lateral control throughout the entire operating envelope. Full range of travel is 23.5 degrees, +1 or -1 degree up and 20.5 degrees, +1 or -1 degree down. One trim tab, located on the left aileron, is mechanically controlled by a knob on the