



**Figure 13-98.** A brake metering valve from a Boeing 737. A machined slide or spool moves laterally to admit the correct amount of hydraulic system fluid to the brakes. The pressure developed is in proportion to the amount the rudder/brake pedal is depressed and the amount the slide is displaced. The slide/spool also simultaneously controls the return of fluid to the hydraulic system return manifold when brake pressure is released.

side of the diaphragm to operate the brakes in case of an emergency. It is forced out of the accumulator into the brakes through the system lines under enough stored pressure to slow the aircraft. Typically, the accumulator is located upstream of the brake control/metering valve to capitalize on the control given by the valve. [Figure 13-101]

Some simpler power brake systems may use an emergency source of brake power that is delivered directly to the brake assemblies and bypasses the remainder of the brake system completely. A shuttle valve immediately upstream of the brake units shifts to accept this source when pressure is lost from the primary supply sources. Compressed air or nitrogen is sometimes used. A pre-charged fluid source can also be used as an alternate hydraulic source.

### Parking Brake

The parking brake system function is a combined operation. The brakes are applied with the rudder pedals and a ratcheting system holds them in place when the parking brake lever on the flight deck is pulled. [Figure 13-102]

At the same time, a shut-off valve is closed in the common return line from the brakes to the hydraulic system. This traps the fluid in the brakes holding the rotors stationary. Depressing the pedals further releases the pedal ratchet and opens the return line valve.

### Brake Deboosters

Some aircraft brake assemblies that operate on aircraft hydraulic system pressure are not designed for such high pressure. They provide effective braking through a power brake system but require less than maximum hydraulic system pressure. To supply the lower pressure, a brake deboost器 cylinder is installed downstream of the control valve and anti-skid valve. [Figure 13-103] The deboost器 reduces all pressure from the control valve to within the working range of the brake assembly.

Brake deboosters are simple devices that use the application of force over different sized pistons to reduce pressure. [Figure 13-104] Their operation can be understood through the application of the following equation: