MAKING SENSE OF YOUR BODY
Type 1 or Type 2 Saturn TAAT

The illustrations below show the common PR valve set-up used in both Type 1 and Type 2 TAAT transmissions. As in most designs, there is a PR valve with a large balance spring. A spring seat on the left end and a spring guide on the right hold the spring under compression. As line pressure begins to build, pressure entering the balance circuit begins to build and stroke the valve against the spring. Unlike many systems where the PR valve strokes to open an exhaust port as a means of regulating pressure, this system regulates line by "exhausting" it to the lube and converter circuits. The lube circuit has a blow-off valve further downstream that allows some pressure to be maintained in the lube circuit but limits any excess by allowing it to blow off.

In this case the lube circuit is performing the function you would see done by a direct exhaust off the PR valve. This part of the system is similar in both the 1st and 2nd designs. The additional line pressure control needed to raise or lower line for the various demands is the main difference between the two systems.

In the Type 2 design, signal from the line pressure control solenoid surrounds the sleeve and enters at the right-hand end of the line pressure control plunger or boost valve. As this valve moves left, the small cushion spring becomes compressed between the two valves. Pressure on the boost valve helps the balance spring pressure keep the PR valve away from the point of regulation until a higher line pressure is reached. In the 1st design, the boost sleeve had two feed passages and two valves. The line pressure control plunger, closer to the PR valve, was fed the same pressure control signal and worked in the same manner as the single valve in the 2nd design. The smaller line boost valve was fed line pressure off the manual valve in the manual second position to stroke over and provide additional force and increased line rise.

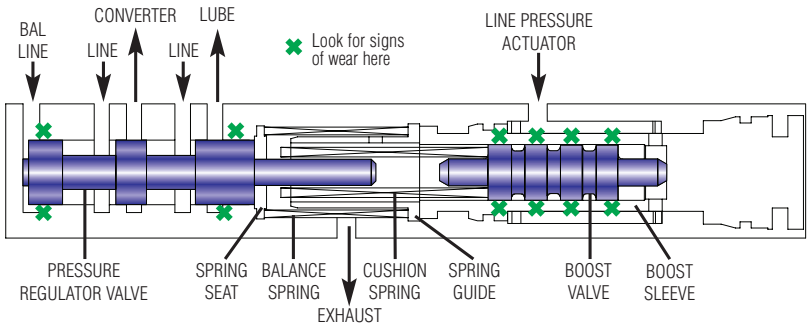
Problem Areas in the Saturn TAAT

Cushion springs:
This problem can be found in both Type 1 and 2 units. Broken sections of spring get hung up inside the spring guide and can restrict the line control or boost valve from stroking the PR valve toward higher line pressure. Low line pressure results, causing delays, soft shifts and premature clutch failures.

PR valve or valve bore wear:
This is also common to both early- and late-design units. Wear on the balance end creates a leak that prevents the valve from stroking to regulation. Wear in the area of the line and lube ports causes premature exhausting of intended line or a low line situation, often first observed as a delayed reverse.

Type 2 boost valve wear:
The single boost valve and sleeve in this system are prone to wear and leakage. This leakage results in loss of line rise and may also be noticed first as a delayed reverse.

TYPE 2 DESIGN



TYPE 1 DESIGN