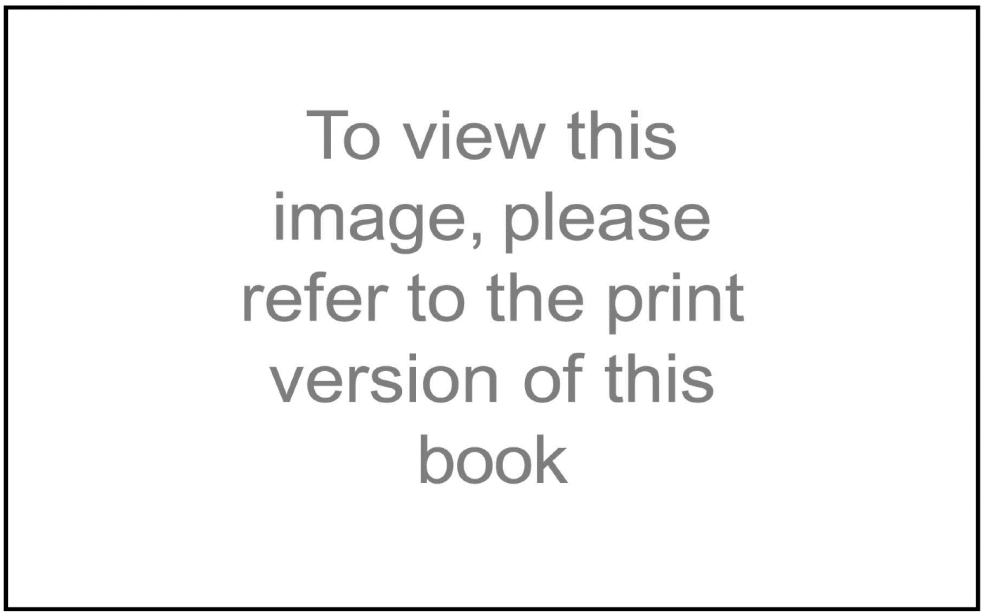

Fig. 12-2. *Cessna 421 turbosystem schematic.*

THE OUTFLOW VALVE

The outflow valve, which vents the cabin to the outside air, has three main functions: negative pressure relief, isobaric control, and differential control. Negative pressure relief is automatic, so the aircraft is never subjected to an outside air pressure greater than cabin pressure; higher pressure air always can flow freely through the outflow valve into the aircraft.

Isobaric control typically maintains cabin pressure within +0.05 psi from what the pilot selects on the manual controller. If the cabin pressure exceeds that selected on the controller, the outflow valve increases to compensate; as the pressure falls below, the opening decreases slightly.

Differential control is preset by the factory. The isobaric pressure requested by the pilot will be maintained until cabin pressure reaches the maximum pressure differential, then the differential control overrides the isobaric mode so the cabin altitude will vary directly with aircraft altitude.

If the outflow valve were to stick closed, excessive cabin pressure would build up quickly. To prevent overpressurization resulting from a stuck outflow valve, the system has a safety valve, which functions to relieve negative pressure, to provide backup differential control, and to act as a solenoid-operated cabin-pressure dump mechanism that can be operated from the flight deck or by a gear squat switch.

RAPID DEPRESSURIZATION

One of the most misunderstood aspects of cabin pressurization is rapid depressurization. Often inappropriately referred to as "explosive decompression," movies have depicted