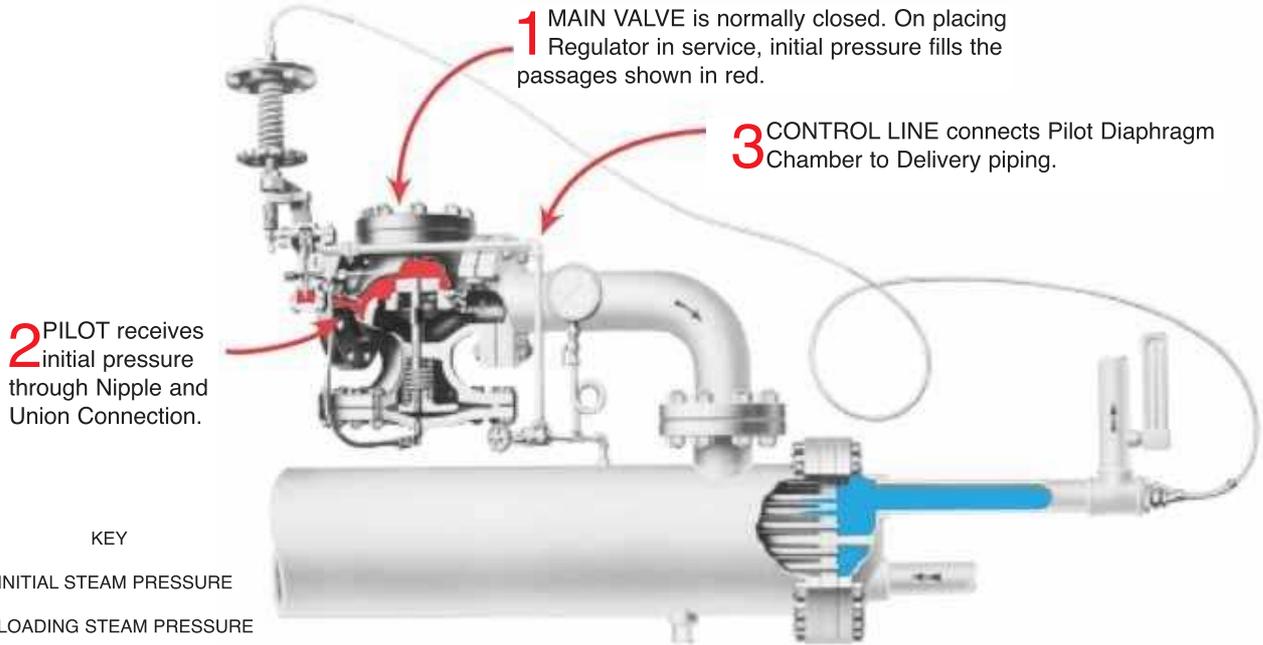


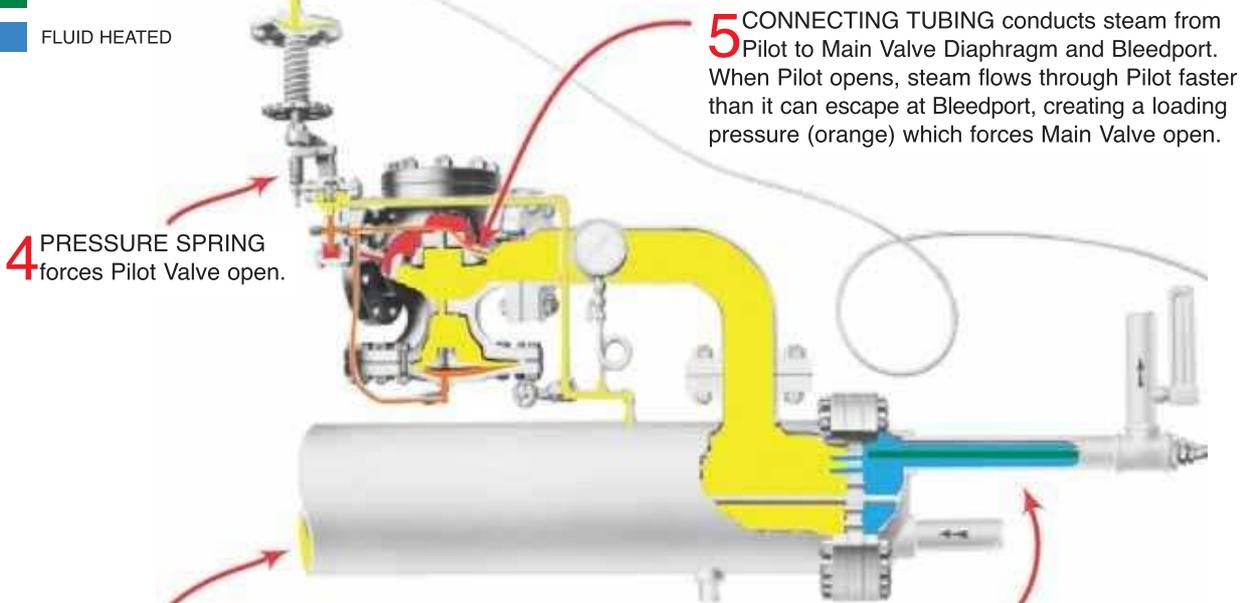
THE OPERATING CYCLE OF A SPENCE TEMPERATURE REGULATOR

The Type ET134 has been selected to illustrate the operation of a SPENCE Pilot Operated Temperature Regulator. This presentation describes the successive steps in the mechanical cycle of the Regulator.



KEY

- INITIAL STEAM PRESSURE
- LOADING STEAM PRESSURE
- DELIVERY STEAM PRESSURE
- VAPOR PRESSURE
- FLUID HEATED



6 HEATER, Delivery Pipe and Control Line are now being filled with steam flowing through Main Valve.

As delivery pressure (yellow) rises, it overcomes the force exerted by Pressure Spring and Pilot throttles. This, in turn allows Main Valve to throttle just enough to maintain the set delivery pressure.

7 THERMOSTAT ELEMENT (vapor tension type) is connected into heater outlet. The rising temperature of the fluid (blue) being heated creates a vapor pressure (green) on the Temperature Diaphragm. When this pressure has reached a point sufficient to overcome the Temperature Adjusting Spring, it applies a force on the Lever so as gradually to decrease the spring loading on the Pressure Diaphragm. This produces a stem-by-step reduction in the delivery pressure as the temperature rises through several degrees.

If the desired temperature is exceeded, the vapor pressure on the Pilot Temperature Diaphragm overcomes the forces of the Spring. This allows Pilot and Main Valve to close tight.