In-Line Leak Testing Procedure for Checking Skotch Trifecta Gas Safety Shut-off Valve Systems

Figure 1: Testing Schematic of Skotch Valve System with pipe system as required to test the Double Block Valves. A supervisory cock in the vent line, and a downstream isolation valve are required in addition to the Skotch Valve System with the optional "Outlet Test Port" configuration.

Figure 1 Color Legend:
- **Black**: Skotch Base Valve System
- **Red**: Customer Piping (portions may be supplied on request from ITT)
- **Blue**: Required Leak Test Equipment
**Description of Terms:**

**Skotch Gas Valve System** – Double “plug” block valve, with automatic vent valve incorporated into a singular housing/actuation package.

**Port A** - Skotch test port on actuation end of the valve system – used to test for SSOV #1 leakage, and to pressurize the SSOV #2 for leakage testing. This port is plugged during normal valve operation.

**Port B** - Skotch “Outlet Test Port”, incorporated into Skotch housing, downstream of the SSOV #2; used to detect in-line leakage of SSOV #2.

**Downstream Isolation Valve** – Manual valve downstream of the Skotch System; used to isolate the downstream piping during SSOV #2 leakage testing.

**Supervisory Cock** – Normally open cock, used in the closed position for in-line leak testing only.

**Test Valve** – manual valve used to control test port gas flow into the water cup.

**Water Cup** – leakage rate bubble capturing device. Should include a 100cc graduated cylinder for accurate measurements.

**TEST PROCEDURE** *(see Figure 1):*

1. Close supervisory cock on the vent line.
2. Verify that the Skotch Valve System is in the closed position.
3. SSOV #1 Leak testing:
   a. Open Test Port A, and connect up testing apparatus: manual valve (closed), hose, and bubble capture equipment.
   b. Verify that the upstream pressure gage is reading 50psig maximum.
   c. Open the manual test valve on Port A, evacuate any trapped pressure, and begin testing for 2 minutes. Record results based on a 2 minute test.
4. SSOV #2 Leak Testing.
   a. Remove the testing apparatus from Test Port A, and attach a regulated pressure line of Nitrogen gas supply to Test Port A.
   b. Verify that the Nitrogen gas supply pressure reading is 50psi maximum.
   c. Open Test Port B, and connect up testing apparatus: manual valve (closed), hose, and bubble capture equipment.
   d. Close the downstream isolation valve.
   e. Open the manual test valve on Port B, evacuate any trapped pressure, and begin testing for 2 minutes. Record results based on a 2 minute test.
5. Remove Nitrogen supply from Test Port A, and replace plug.
6. Open supervisory cock on vent line.
7. Open downstream isolation valve.
8. Remove testing apparatus from Test Port B, and replace plug.