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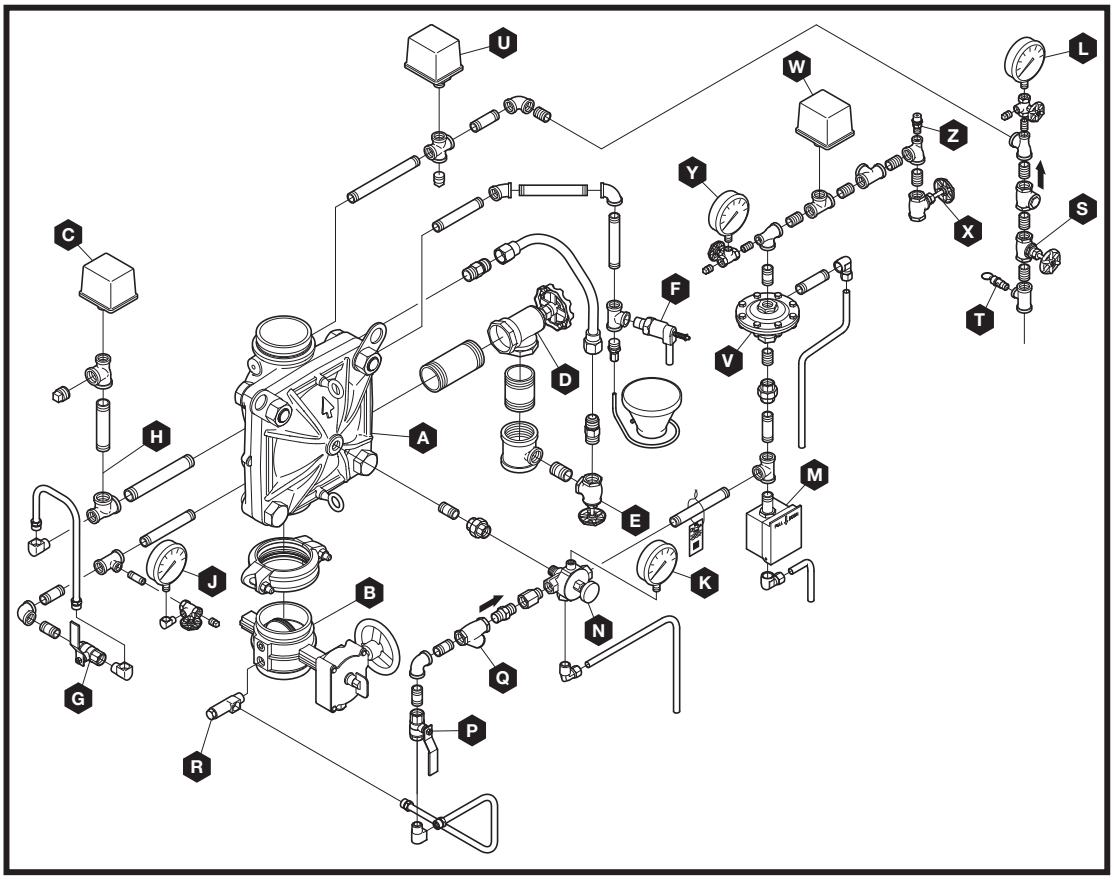
Summary Instructions DV-5A Automatic Water Control Valve Single Interlock Preaction Dry Pilot Actuation Fire Protection Systems

NOTICE

The procedures provided are summary instructions of the complete procedures appearing in Technical Data Sheet TFP1416. If problems occur, consult full document.



Item	Description
A	DV-5A Valve
B	System Main Control Valve
C	Waterflow Pressure Switch
D	Main Drain Valve
E	System Drain Valve
F	Automatic Drain Valve
G	Alarm Test Valve
H	Alarm Control Valve (Optional)
J	Water Supply Gauge
K	Diaphragm Gauge
L	System Gauge
M	Manual Control Station

Item	Description
N	Manual Reset Actuator
P	Diaphragm Supply Valve
Q	Diaphragm Supply Strainer
R	Inverted Flare Shut-Off Valve
S	Supervisory Air Supply Valve
T	Supervisory Air Pressure Relief Valve
U	Supervisory Low Pressure Switch
V	Dry Pilot Actuator
W	Dry Pilot Low Pressure Switch
X	Dry Pilot Air Supply Valve
Y	Dry Pilot Line Gauge
Z	Dry Pilot Air Pressure Relief Valve

Valve Setting Procedure

1. Close System Main Control Valve (B), Diaphragm Supply Valve (P), and Supervisory Air Supply Valve (R).

2. Open Main Drain Valve (D), System Drain Valve (E), and all auxiliary drains. Close auxiliary drain valves and System Drain Valve (E) after water ceases to discharge. Leave Main Drain Valve (D) open. Ensure Pressure Gauge Valves and Alarm Control Valve (H), as applicable, are open.

3. Depress Automatic Drain Valve (F) plunger to verify it is open.

4. Clean Diaphragm Supply Strainer (Q). Flush strainer by opening Diaphragm Supply Valve (P).

5. Replace any operated sprinklers as applicable.

6. Reset automatic actuation system. Replace operated pilot sprinklers and/or reset remote Manual Control Stations.

7. Open Manual Control Station (M), then open Diaphragm Supply Valve (P). After aerated water ceases to discharge from Manual Control Station (M) drain tube, slowly close operating lever. Do not close hinged cover at this time.

8. After aerated water stops discharging, reset Manual Reset Actuator (N) until water stops flowing from its drain tube and pressure reaches approximately 15 psi (1,0 bar) on the Diaphragm Gauge (K).

9. Crack open Inspector's Test Connection and any other vent valves. After air has stopped discharging, close vent valves and Inspector's Test Connection.

10. With diaphragm chamber pressurized, temporarily close Diaphragm Supply Valve (P) and observe Diaphragm Gauge (K) for a drop in pressure. If a pressure drop is noted, replace DV-5A Diaphragm and correct any leaks before proceeding.

11. If Diaphragm Gauge (K) indicates no drop in pressure, re-open Diaphragm Supply Valve (P) and proceed.

12. Open Supervisory Air Supply Valve (S) to reestablish supervisory system air pressure at nominally 10 psi (0,68 bar).

13. Partially open System Main Control Valve (B). Slowly close Main Drain Valve (D) as water discharges from Main Drain Valve (D). Observe Automatic Drain Valve (F) for leaks. If there are leaks, correct the leakage problem.

14. Close hinged cover of Manual Control Station (M). Insert a new break rod in the small hole through the top of the enclosing box.

15. Open System Main Control Valve (B).

16. After setting a fire protection system, notify proper authorities and advise those responsible for monitoring proprietary and/or central station alarms.

Drop in Water Supply Pressure Below Normal Range

1. Note water supply pressure by the Diaphragm Gauge (K) and determine if the pressure is within normally expected range.

2. If below normal range, correct any leakage from diaphragm chamber prior to resetting the system.

3. When water supply pressure is restored, reset DV-5A Valve in accordance with the Valve Setting Procedure.

Waterflow Alarm Test Procedure

1. Open Alarm Test Valve (G), allowing water to flow to Waterflow Pressure Switch (C) and/or Water Motor Alarm. Close the Alarm Test Valve (G) when test is completed.

2. Depress plunger on Automatic Drain Valve (F) to drain alarm line.

Supervisory Low Pressure Alarm Test Procedure

1. Open System Drain Valve (E) enough to slowly relieve supervisory air pressure from system. Verify Supervisory Low Pressure Switch (U) is operational and low pressure set point is approximately 5 psi (0,34 bar).

2. Close System Drain Valve (E) and allow system supervisory pressure of 10 ± 2 psi (0,69 ± 0,14 bar) to be automatically re-established. Supervisory Low Pressure Switch (U) should return to its normal condition.

Dry Pilot Actuation Operation Test Procedure

1. Close System Main Control Valve (B)

2. Open Main Drain Valve (D).

3. Open System Main Control Valve (B) one turn beyond position at which water just begins to flow from Main Drain Valve (D).

4. Slowly close Main Drain Valve (D).

5. Open Inspector's Test Connection.

6. Verify DV-5A Valve has tripped, as indicated by the flow of water into system.

7. Close System Main Control Valve (B).

8. Close Diaphragm Supply Valve (P).

9. Reset DV-5A Valve in accordance with Valve Setting Procedure.

Dry Pilot Actuator Test Procedure

1. Close System Main Control Valve (B).

2. Open Main Drain Valve (D).

3. Open Inspector's Test Connection on the Dry Pilot Line.

4. Verify water flow from Dry Pilot Actuator (V) drain connection.

5. Verify Diaphragm Chamber pressure decreases to below 25% of water supply pressure.

6. Close Inspector's Test Connection and allow the dry pilot line pressure to re-establish. Water stops draining from Dry Pilot Actuator (V) but continues draining from Manual Reset Actuator (N).

7. Press Reset Knob on Manual Reset Actuator (N) and hold until water stops flowing from drain valve.

8. Pressure will then build up in DV-5A Diaphragm Chamber.

9. After system pressure is restored, inspect Dry Pilot Actuator (V) and Manual Reset Actuator (N) for leaks at drain tubes. Any leaks must be corrected before proceeding.

10. Partially open System Main Control Valve (B). Slowly close Main Drain Valve (D) as water discharges from Main Drain Valve (D) then close Main Drain Valve (D). Observe Automatic Drain Valve (F) for leaks. If there are leaks, correct the leakage problem. If there are no leaks, DV-5A Valve is ready to be placed in service and System Main Control Valve (B) must then be fully opened.

Internal Valve Inspection

1. Ensure that Steps 1 to 4 of the Valve Setting Procedure are completed prior to proceeding with the Internal Valve Inspection.

2. Ensure Diaphragm Supply Valve (P) is closed. If provided as part of the valve trim, close Inverted Flare Shut-Off Valve (R).

3. Remove the Supply Line between the Diaphragm Supply Valve (P) and the System Main Control Valve (B). If provided as part of the valve trim, remove the Supply Line between the Diaphragm Supply Valve (P) and Inverted Flare Shut-Off Valve (R).

4. Loosen union securing Actuation Trim and remove Actuation Trim.

5. Remove union between Diaphragm Cover and MRA-1 Manual Reset Actuator (N). Remove MRA-1 Manual Reset Actuator (N) subassembly.

6. Remove Diaphragm Valve Cover hardware, slowly remove Diaphragm Cover and perform internal valve inspection. Clean valve interior and replace parts as necessary.

7. Ensure Diaphragm is properly oriented and proper hardware arrangement is utilized.

8. Insert Long Hex Bolts. Align Diaphragm with Valve Body, and then align Diaphragm Cover with Valve Body. Insert Short Hex Bolts. Han d-tighten all fasteners.

9. Using crossdraw sequence, wrench-tighten Long Hex Bolts and Short Hex Bolts. Repeat crossdraw sequence two to three times at incremental torque valves.

10. Inspect to assure all Hex Bolts are securely tightened.

11. Using the union, secure the MRA-1 Manual Reset Actuator (N) to the Diaphragm Cover.

12. Using union, secure Actuation Trim.

13. Replace the Supply Line between the Diaphragm Supply Valve and the System Main Control Valve (B). If provided as part of the valve trim, replace Supply Line between Diaphragm Supply Valve (P) and Inverted Flare Shut-Off Valve (R).

14. Ensure unions and flare fittings are securely tightened.

15. If provided with the valve trim, and with Diaphragm Supply Valve (P) closed, fully open Inverted Flare Shut-Off Valve (R) stainless steel screw (approximately 1/2 in.) until resistance is met.

16. Proceed with Step 5 of the Valve Setting Procedures.