CAUTION: DO NOT PERFORM A DIELECTRIC TEST UNLESS THE ELECTROMAGNET ASSEMBLY HAS BEEN REPLACED OR AN ELECTRICAL PROBLEM IS SUSPECTED. DAMAGE CAN OCCUR FROM EXCESSIVE TESTS.

3. B. Perform dielectric check. (See Figure 701)

(1) With valve in the open position, connect Pins A, B and C together.

(2) Apply 750 vac 60 cycle between the pins and case for one minute.

(3) There must be no indication of damage, arcing, breakdown or current drain in excess of 0.5 mA.

(4) Replace electromagnet assembly (2, IPL Figure 3) if dielectric leakage is indicated.

(5) Write the result in the Test Data Sheet, Table 703.

(6) Reduce the voltage to zero vac.

C. Perform the proof pressure test. (See Figures 701 and 702)

NOTE: Manual detent shaft is designed to operate through 90 degrees travel between AUTO position and MAN OFF position and is spring-loaded to require a torque of 7.5 to 11.0 pound-inches (0,847 to 1,243 Nm) to actuate. At approximately 45 degrees of travel, the force load must peak and an over-center force must be felt which tends to carry the motion of the lever through to 90 degrees of travel from starting point in either direction of lever movement. Motion must be positive and smooth with no tendency to assume any position except at 90 degrees of travel.

Unit contains switches to cut off electrical circuits when valve is in open and closed positions. Determine that switches operate properly at each position change.

(1) (Codes AA - FA) Remove the plug from the drain port.

(2) Put the actuating arm in the MAN OFF position to close the valve.

(3) Open the outlet port to ambient.

(4) Adjust the inlet shutoff valve to get an inlet pressure of 1490 to 1510 psig (10273 to 10411 kPa) for a period of two minutes.

(5) There must be no evidence of deformation, deterioration or excessive external leakage.

(6) Leakage from the drain port and/or the outlet port must not exceed 50 cc each minute.

(7) Write the result in the Test Data Sheet, Table 703.

(8) Reduce the inlet pressure to zero.

3. C. (9) Put the actuating arm in the AUTO position.

(10) Cap the outlet port.

(11) Momentarily apply 24 to 28 vdc to Pins A and C to open the valve.

(12) Adjust the inlet shutoff valve to get an inlet pressure 1490 to 1510 psig (10273 to 10411 kPa) for two minutes.

(13) There must be no evidence of deformation, deterioration or excessive external leakage.

(14) (Codes AA - FA) Leakage from the drain port must not be more than 50 cubic centimeter each minute.

(15) Write the result in the Test Data Sheet, Table 703.

(16) Adjust the inlet shutoff valve to get an inlet pressure of zero.

D. Perform a pressure drop test. (See Figure 702)

(1) Remove the cap from the outlet port and connect to the discharge plumbing.

(2) Open the discharge shutoff valve.

(3) Slowly adjust the inlet shutoff valve to get an inlet pressure 173 to 177 psig (1193 to 1220 kPa) at the inlet port.

(4) Regulate test fluid flow using the discharge shutoff valve to get 497 to 503 pounds (225,4 to 228,1 kg) each hour.

(5) Readjust the inlet shutoff valve as necessary until both inlet pressure and flow requirements are met.

(6) Subtract the outlet pressure gage reading from the inlet pressure gage reading to get delta P.

(7) Pressure drop across the valve must be less than 60 psig (414 kPa).

(8) Write the result in the Test Data Sheet, Table 703.

(9) Reduce the inlet pressure to zero.

(10) Close the discharge shutoff valve.

3. E. Perform a functional test. (See Figure 702)

(1) Open the return orifice shutoff valve and make sure the discharge shutoff valve is closed.

(2) Make sure the actuating arm (11, IPL Figure 1) is in the AUTO position.

(3) Momentarily apply 24 to 28 vdc to Pins A and C to open the valve.

(4) Adjust the inlet shutoff valve to get an inlet pressure of 470 to 530 psig (3240 to 3654 kPa) at the inlet port.

(5) Outlet pressure must be a minimum of 300 psig (2068,4 kPa).

(6) Move the actuating arm to the MAN OFF position and then back to AUTO position.

(7) There must be zero pressure on the outlet pressure gage.

(8) Write the result in the Test Data Sheet, Table 703.

F. Perform a minimum voltage test. (See Figure 702)

(1) Adjust the inlet shutoff valve to get an inlet pressure of 19 to 21 psig (131 to 145 kPa).

(2) Momentarily apply 10.5 vdc maximum to Pins A and C to open the valve.

(3) The valve must remain open as indicated by pressure on the outlet pressure gage.

(4) Write the result in the Test Data Sheet, Table 703.

(5) Adjust the inlet shutoff valve to get an inlet pressure of 570 to 630 psig (3930 to 4344 kPa).

(6) Momentarily apply 17.0 vdc maximum to Pins B and C to close the valve.

(7) The valve must close as indicated by zero pressure on the outlet pressure gage.

(8) Write the result in the Test Data Sheet, Table 703.

3. G. Perform a manual closing test.

(1) Momentarily apply 24 to 28 vdc to Pins A and C to open the valve.

(2) Adjust the inlet shutoff valve to get an inlet pressure of 570 to 630 psig (3930 to 4344 kPa).

(3) Use a torque wrench and slowly turn the actuating arm to the MAN OFF position and monitor the torque reading.

(4) The valve must close.

(5) Monitor the torque reading and turn the actuating arm back to the AUTO position.

(6) The valve must stay closed.

(7) Torque must be 7.5 to 11 pound-inches (0,847 to 1,243 Nm) in each direction.

NOTE: If the unit fails to meet these requirements, remove cover and reselect leaf springs. Refer to ASSEMBLY.

(8) Write the result in the Test Data Sheet, Table 703.

H. Perform an outlet port leakage test. (See Figure 702)

(1) (Codes AA - FA) Cap the drain port.

(2) Turn the actuating arm to the MAN OFF position.

(3) Adjust the inlet shutoff valve to get an inlet pressure of 990 to 1010 psig (6825,8 to 6963,7 kPa).

(4) Measure the outlet port leakage.

(5) Leakage must be a maximum of 0.03 cubic centimeter in two minutes.

(6) Write the result in the Test Data Sheet, Table 703.

(7) Move the actuating arm to the AUTO position.

(8) Adjust the inlet shutoff valve to get an inlet pressure of zero.

(9) Momentarily apply 24 to 28 vdc to Pins A and C to open the valve.

(10) Momentarily apply 24 to 28 vdc to Pins B and C to close the valve.

(11) Adjust the inlet shutoff valve to get an inlet pressure of 990 to 1010 psig (6826 to 6964 kPa).

(12) Measure the outlet port leakage.

(13) Leakage must be a maximum of 0.03 cubic centimeter in two minutes.

3. H. (14) Write the result in the Test Data Sheet, Table 703.

(15) Adjust the inlet shutoff valve to get an inlet pressure of 1365 to 1385 psig (9411 to 9549 kPa).

(16) Measure the outlet port leakage.

(17) Leakage must be a maximum of 100 cubic centimeter each minute.

(18) Write the result in the Test Data Sheet, Table 703.

I. (Codes AA - FA) Perform a drain port leakage test.

(1) Adjust the inlet shutoff valve to get an inlet pressure of zero.

(2) Turn the actuating arm to the AUTO position.

(3) Cap the outlet port.

(4) Remove the drain port cap.

(5) Momentarily apply 24 to 28 vdc to Pins A and C to open the valve.

(6) Adjust the inlet shutoff valve to get an inlet pressure of 1365 to 1385 psig (9411 to 9549 kPa) for two minutes.

(7) Measure leakage from the drain port.

(8) Leakage must be a maximum of 50 cubic centimeter each minute.

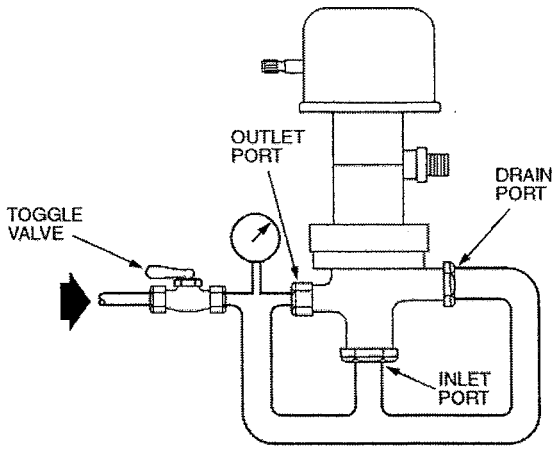
(9) Write the result in the Test Data Sheet, Table 703.

(10) Adjust the inlet shutoff valve to get an inlet pressure of 49 to 51 psig (338 to 352 kPa).

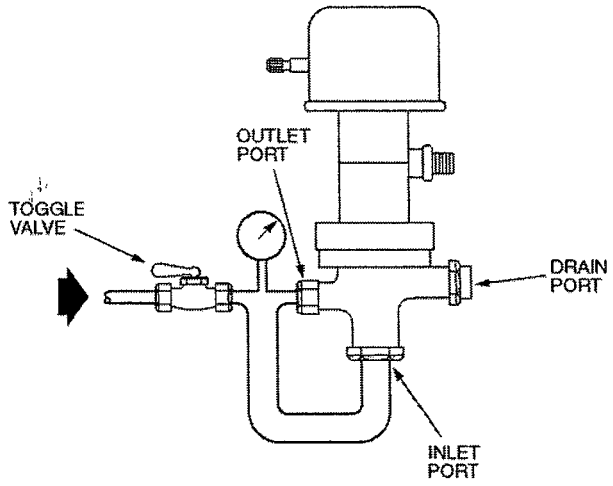
(11) Measure leakage from the drain port.

(12) Leakage must be a maximum of 50 cubic centimeter each minute.

(13) Write the result in the Test Data Sheet, Table 703.



(CODE AA - FA)



(CODE GA)

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Test Setup for External Leakage
Figure 703

3. J. Perform an external leakage test. (See Figure 703)

(1) (Codes AA - FA) Connect inlet and drain ports together with the outlet port.

(2) (Code GA) Connect inlet port together with the outlet port.

(3) Install a toggle valve and pressure gage as shown.

(4) Increase test fluid pressure to 98 to 102 psig (675,6 to 703,2 kPa) to the toggle valve.

(5) Open the toggle valve and crack all fittings and B-nuts to make sure removal of all air trapped in the valve and test lines.

(6) Tighten all fittings and B-nuts.

(7) Close the toggle valve and monitor the pressure gage.

(8) Pressure must not decay more than 2 psig (13,8 kPa) in two minutes.

(9) Write the result in the Test Data Sheet, Table 703.

(10) Open the toggle valve.

(11) Increase test fluid pressure to 1365 to 1385 psig (9411 to 9549 kPa).

(12) There must be no evidence of external leakage.

(13) Write the result in the Test Data Sheet, Table 703.

(14) Decrease the test fluid pressure to zero.

(15) Turn off the power source.

(16) Remove the solenoid valve from test setup.

Checkpoint: After completion of testing, a thorough visual inspection of the unit should be performed, including inspection for loose nuts, bolts, screws and tubing connections; missing or incorrectly installed lockwire; and damage paint.

In addition, the unit nameplate should be checked for correct identification of any changes that may have been incorporated by service bulletin compliance, as specified in each service bulletin.