

**TRUBLE-SHOOTING GUIDE**

SYMPTOM	CAUSE	CORRECTIVE ACTION
Check valve fails to hold 1 psid.	A. Shut-off valve not completely closed. B. Check valve fouled with debris.	A. Close outlet shut-off valve. B. Inspect and clean seat disc and seat.

**SPECIFICATIONS**

Maximum working water pressure: 175 psi  
 Maximum working water temperature: 140° F  
 Hydrostatic test pressure: 350 psi  
 End connections: NPT per ANSI/ASME B1.20.1

SIZE	FLOWRATE @ 7.5 ft/s (gpm)	RATED FLOW (gpm)
1-1/2"	48	100
2"	78	160

**INSTALLATION, OPERATION, AND MAINTENANCE INSTRUCTIONS**

**"Apollo" Valves**  
 Made In The USA  
 Manufactured by Conbraco Industries, Inc.

**1-1/2" & 2"  
 Model DCDA4A  
 Model DCDALF4A  
 Model DCDA24A  
 Model DCDA2LF4A**

**Double Check Detector Assembly**

Consult [www.apollovalves.com](http://www.apollovalves.com) for a complete maintenance manual for this device including repair parts.

PROPOSITION 65 WARNING: This product contains a chemical known to the state of California to cause birth defects or other reproductive harm.  
 INSTALLER: California law requires that this warning be given to the consumer.

SAVE THESE INSTRUCTIONS

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I-9748-00 REV C 8

**DESCRIPTION**

The Apollo Double Check Detector Assembly is designed to control cross-connections between potable water lines and substances that are objectionable, but not health hazards. The Model DCDA24A consists of a mainline double check valve with a Type 2 bypass consisting of a single check (SCV) and meter bypassing the mainline second check to prevent backflow while accurately measuring all flows up to 2 gpm while the mainline 2nd check remains closed. Model DCDA4A with the optional Type 1 bypass consist of a double check valve and meter which bypass both mainline checks and accurately meter all flows up to 2 gpm with the mainline checks closed. NOTE: ASSE and UL installations must include indicating type shut-off valves.

**OPERATION**

During normal flow conditions, the two check valves are held off their seats, supplying water downstream. Each check valve is designed to maintain a minimum of 1 psi across the check during normal operation. If at any time the pressure downstream increases to within 1 psi of supply pressure, both check valves will close to prevent a backflow condition from occurring.

**MAINTENANCE INSTRUCTIONS (MAINLINE)**

**A. Disassembly - Check Valves (SEE NOTE)**

- Close #2 shut-off valve, then close #1 shut-off valve.
- Bleed pressure from the assembly by opening #2, #3, and #4 test cocks.
- Unscrew cap using hex head provided.
- Push down and turn the spring retainer 90 degrees to remove. Remove the spring. Remove the poppet from the check seat.

**B. Disassembly - Check Valve Poppet**

**CAUTION:** Do not use pliers or other tools, which may damage or scratch the plastic stem.

- Holding the poppet assembly in one hand, remove screw and retaining washer.
- Remove the seat disc.
- All parts should be carefully inspected for any damage or excessive wear and thoroughly rinsed in clean water prior to reassembly. Replace worn parts as necessary.

**C. Assembly - Check Valve Poppet**

- Install new disc in poppet and secure with washer and screw.

**D. Assembly - Check Valve (SEE NOTE)**

- If the check seat was removed, install the new O-ring and lubricate with Apollo lubricant, DOW® 111 or equal. Line up seat with the bore and push it firmly into place.
- Place and center the poppet assembly in the check seat.
- Install the spring onto the poppet.
- Install the spring retainer onto the spring by pushing down into the grooves of the check seat and turning 90 degrees.
- Apply a thin coat of Apollo lubricant, DOW® 111 or equal on cap o-ring.
- Install cap.

**NOTE: The first and second mainline checks utilize different springs. Ensure the correct spring is installed in each location during reassembly.**

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**PIECE ONE - FRONT**

**PIECE ONE - BACK**

Continued from page 5

**NOTE:** If water continues to discharge from test cock No. 4, then a leaking shut-off valve is evident and should be repaired or bypassed before testing continues. If the water recedes from the test cock opening, then move the gage to a point level with the centerline of the check seat area and record the gage reading as the static pressure differential across check valve No. 2.

**RESTORE OPERATION:**

Close all test cocks, Open all test valves, and remove and drain all test equipment. Slowly open the inlet shut-off valve and then slowly open the outlet shut-off valve.

**MAINTENANCE INSTRUCTIONS (BYPASS CHECK)**

**A. Disassembly - Check Valve**

- Close both bypass line shut-off valves.
- Bleed pressure from the bypass line by opening the bypass line test cocks.
- Unscrew cap using hex head provided.
- Push down and turn the spring retainer 90 degrees to remove. Remove the spring. Remove the poppet from the check seat.

**B. Disassembly - Check Valve Poppet**

**CAUTION:** Do not use pliers or other tools, which may damage or scratch the plastic stem.

- Holding the poppet assembly in one hand, remove screw and retaining washer.
- Remove the seat disc.
- All parts should be carefully inspected for any damage or excessive wear and thoroughly rinsed in clean water prior to reassembly. Replace worn parts as necessary.

**C. Assembly - Check Valve Poppet**

- Install new disc in poppet and secure with washer and screw.

**D. Assembly - Check Valve**

- If the check seat was removed, install the new O-ring and lubricate with Apollo lubricant, DOW® 111 or equal. Line up seat with the bore and push it firmly into place.
- Place and center the poppet assembly in the check seat.
- Install the spring onto the poppet.
- Install the spring retainer onto the spring by pushing down into the grooves of the check seat and turning 90 degrees.
- Apply a thin coat of Apollo lubricant, DOW® 111 or equal on cap o-ring.
- Install cap.

**INSTALLATION INSTRUCTIONS**

Choose a conveniently accessible location for installing this Double Check Detector Assembly (DCDA) device. Adequate clearances should be provided to facilitate periodic field testing and maintenance. This device may be installed in the horizontal or vertical position.

Installing this device in a pit requires consideration for future maintenance and repair. Along with necessary clearances, there must be adequate drainage within the pit to deter potential accumulation of standing water. Check with local codes and/or inspectors prior to making such installations.

Do not install in areas subject to freezing without using a properly designed backflow enclosure.

Flush upstream piping thoroughly to remove foreign matter prior to installation.

As in any piping system, provisions should be made to minimize water hammer and pressure rise due to thermal expansion as these conditions can create damaging and dangerously high internal pressures.

**START UP PROCEDURES**

With the device installed, verify that both inlet and outlet shut-off valves are closed. Pressurize the device by opening the inlet shut-off valve. Purge air from the device by opening the #4 test cock. Open the outlet shut-off valve to allow flow to system.

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**PIECE TWO - FRONT**

**PIECE TWO - BACK**

**FIELD TESTING PROCEDURE**

It is important that this device be tested periodically as required by local codes, but at least annually or more as service conditions warrant.

Equipment Required: Differential Pressure Test Kit such as Apollo's model ATK3 (3-Valve) or ATK5 (5-Valve).

**TEST NO. 1**

**PURPOSE:** To determine the static pressure drop across mainline check valve No. 1.

**REQUIREMENT:** The static pressure drop across check valve No. 1 must be 1.0 psid minimum.

**PROCEDURE:** Eliminate debris and purge assembly of air. Open test cock #4. Open and close test cocks #2 and #3. Close test cock #4.

- Open test valves No. 1 (High Side) and No. 2 (Low Side) on the gage and close test valve No. 3 (Bypass).
- Connect the high side hose to test cock No. 2.
- Bleed all air from the gage and high side hose by slowly opening test cock No. 2.
- Slowly close test valve No. 2 (Low Side).
- Close the outlet shut-off valve.
- Close the inlet shut-off valve.
- Slowly open test cock No. 3.
- After the gage reading stabilizes and water stops flowing out of test cock No. 3, the static pressure drop across check valve No. 1 is indicated by the gage and is recorded as such.

**NOTE:** If water continues to discharge from test cock No. 3, then a leaking shut-off valve is evident and should be repaired or bypassed before testing continues. If the water recedes from the test cock opening, then move the gage to a point level with the centerline of the check seat area and record the gage reading as the static pressure differential across check valve No. 1.

**TEST NO. 2**

**NOTE: This test is to be repeated for detector line check, using test cocks on detector line.**

**PURPOSE:** To determine the static pressure drop across mainline check valve No. 2.

**REQUIREMENT:** The static pressure drop across check valve No. 2 must be 1.0 psid minimum.

**PROCEDURE:**

- Open the inlet shut-off valve and test valves No. 1 and No. 2 on the gage. Test valve No. 3 (Bypass) remains closed.
- Attach high side hose to test cock No. 3.
- Bleed all air from the gage and high side hose by slowly opening test cock No. 3.
- Slowly close test valve No. 2 (Low Side).
- Close the inlet shut-off valve.
- Slowly open test cock No. 4.
- After the gage reading stabilizes and water stops flowing out of test cock No. 4, the static pressure drop across check valve No. 2 is indicated by the gage and is recorded as such.

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- NOTES:**
- USE FRONT AND BACK OF (2) 8.5" X 11" SHEETS.
  - ALL TEXT TO BE TYPE SET USING ARIAL FONT.
  - MATERIAL TO BE 20 LB. WHITE PAPER WITH BLACK PRINT. ☑
  - STAPLE ON FOLD LINE AND FOLD.

11.00

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REV.	CHANGE DESCRIPTION	ECN NO.	BY	DATE
C	DELETED 1" SIZE; DELETED 1" FLOW CURVE; CHANGED MATERIAL SPEC	M15482	MMB	11/17/15
B	UPDATED FLOW CURVES AND REVISION LEVEL	M14356	JCH	4/29/14
A	RELEASE NEW DRAWING	M14239	JCH	2/27/14

NAME: BOOKLET, INSTALLATION INSTRUCTIONS, 1"-2", DCDA, 4A SERIES  
 UNDESIGNED TOLERANCES: Decimal: X = ±.03, XX = ±.015, XXX = ±.005, ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED, ANGULAR: ± 1/2°

MATERIAL: NOTED

EXP. NO.	SCALE: 1:1	DRN: JCH	DATE: 2/20/14	CHKD: JCH	APPD: GDG	NO. I-9748-00	REV. C
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