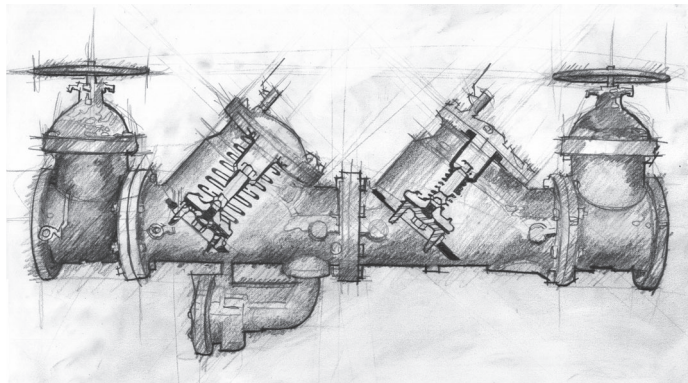


Backflow Assembly Field Test Procedures

*Using Three-Valve & Five-Valve
Test Kits*



Bureau of Water
South Carolina Department of Health
and Environmental Control

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5-Valve Test Procedure for a Reduced Pressure Principal Backflow Preventer (RP)(Pres. Differential test)

PREPARING TO TEST THE ASSEMBLY	Test#2 BACKPRESSURE ON # 2 CHECK VALVE
<ul style="list-style-type: none"> <input type="checkbox"/> Notify the customer <input type="checkbox"/> Inspect the area for safety <input type="checkbox"/> Determine if the assembly is Approved & Appropriate <input type="checkbox"/> Record Make, Model #, Serial # & Assembly Type 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. If gauge is steady during test #1 and No Water is Dripping from the Relief Valve, the # 2 Check Valve is Considered to be Tight.
FLUSHING OF TEST COCKS	Test #3. DIFFERENTIAL VALUE ON # 1 CHECK VALVE (5psid>)
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Place Test Adapters on Test Cocks 1, 2, 3, and 4 <input type="checkbox"/> 2. Open TC # 4 – Let flow <input type="checkbox"/> 3. Open TC # 1, then close <input type="checkbox"/> 4. Open TC # 2, then close <input type="checkbox"/> 5. Open TC # 3, then close <input type="checkbox"/> 6. Close TC # 4 <input type="checkbox"/> 7. Make sure all 5 Valves on the Gauge are CLOSED!!! 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close the By-Pass Valve!!! – <u>Close the By-Pass</u> <input type="checkbox"/> 2. Open TC # 2 <input type="checkbox"/> 3. Open Low Side Bleed Valve, to Cause Reading to Rise, Then Close Low Side Bleed Valve <input type="checkbox"/> <u>Read the Gauge and Record Value</u> <ul style="list-style-type: none"> A) If the Pressure Differential Gauge Reading is 5 PSID or Above, Record the #1 Check Valve as tight.
ATTACHING THE TEST KIT	Test #4. RELIEF VALVE OPENING POINT(2psid>)
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Attach High Side Hose to TC # 2 <input type="checkbox"/> 2. Attach Low Side Hose to TC # 3 <input type="checkbox"/> 3. Slowly open TC#3 <input type="checkbox"/> 4. Open Low Side Bleed Valve (Leave Open) <input type="checkbox"/> 5. Open TC #2 <input type="checkbox"/> 6. Open High Side Bleed Valve, Bleed Air, Then Close <input type="checkbox"/> 7. Close Low Side Bleed Valve <input type="checkbox"/> 8. Attach By-Pass Hose to TC # 4 <input type="checkbox"/> 9. Open High Side Control Valve (one full turn) <input type="checkbox"/> 10. Open By-Pass Valve (1/4 Turn) <input type="checkbox"/> 11. Loosen By-Pass Hose at TC # 4 to Bleed Air, Then Tighten <input type="checkbox"/> 12. S-L-O-W-L-Y Open Low Side Bleed Valve to Cause Differential Reading to Rise – Then Close (Reset) <input type="checkbox"/> 13. Record System Pressure (If Required) 	<ul style="list-style-type: none"> <input type="checkbox"/> <u>1. Place the Top of Your Hand Under the Relief</u> <input type="checkbox"/> 2. <u>S-L-O-W-L-Y</u> Open Low Valve <input type="checkbox"/> 3. As Soon as You Feel the First Drop of Water on Your Hand. <u>Read the Gauge and Record Value(2psid>)</u> <input type="checkbox"/> Close Low Control Valve
Test #1. TIGHTNESS OF # 2 SHUT OFF VALVE	Test #5. TIGHTNESS OF # 2 CHECK (1psid>)
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close Shutoff valve #2 <input type="checkbox"/> 2. Open TC # 4 <input type="checkbox"/> 3. Close TC # 2 – Pause to Allow Gauge to Readjust <input type="checkbox"/> 4. <u>Read the Gauge & Record (ex: Closed Tight)</u> <ul style="list-style-type: none"> • If the Pressure Differential Gauge Remains Steady, Record the #2 Shut Off Valve as Tight. Test procedure PASSES; • If the Pressure Differential Gauge Drops to ZERO and no water is coming from the relief valve, this means the #2 Shut Off Valve is Not Holding. Assembly is not in a static condition. 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close TC # 2 <input type="checkbox"/> 2. Close TC # 3 <input type="checkbox"/> 3. Close TC # 4 <input type="checkbox"/> 4. Remove By-pass Hose from TC # 4 <input type="checkbox"/> 5. Remove Low Side Hose from TC # 3 and place it on TC # 4 <input type="checkbox"/> 6. Remove High Side Hose from TC # 2 and Place it on TC # 3 <input type="checkbox"/> 7. Open TC # 3 <input type="checkbox"/> 8. Open High Side Bleed Valve – Bleed Air, Then Close <input type="checkbox"/> 9. Open TC # 4 <input type="checkbox"/> 10. Open Low Side Bleed Valve – Bleed Air, Then Close <input type="checkbox"/> <u>9. Read the Gauge & Record Value</u>
RESTORE SYSTEM	
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close All Test Cocks <input type="checkbox"/> 2. Remove Hoses <input type="checkbox"/> 3. Open All Valves on the Test Kit and Drain Water <input type="checkbox"/> 4. Restore Water to Building by Opening # 2 Shut Off Valve on Assembly 	

Detector Assemblies:

RPDA Type I: 1) Test main assembly as normal using approved RP procedures. Remember to isolate the bypass before testing main assembly.
2) Then test bypass assembly separately using approved RP procedures.

RPDA Type II: 1) Test mainline RP as normal using approved RP procedures. Remember to isolate bypass before testing main assembly.
2) Test bypass single check valve using normal approved check #2 test procedures.

5-Valve Test Procedure / Double Check Valve Assembly (Pressure Differential test)

PREPARING TO TEST THE ASSEMBLY	Test #1 TIGHTNESS OF # 2 SHUT OF VALVE
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Notify the customer <input type="checkbox"/> 2. Inspect the area for safety <input type="checkbox"/> 3. Determine if the assembly is Approved & Appropriate <input type="checkbox"/> 4. Record Make, Model #, Serial # and Static Working Pressure on test report form 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Turn Off Shut Off Valve # 2 <input type="checkbox"/> 2. Open TC # 4 <input type="checkbox"/> 3. Close TC # 2 – Pause to Allow Gauge to Readjust <input type="checkbox"/> 4. Read the Gauge & Record (Example: Tight) *If the Pressure Differential Gauge Remains Steady, Record the #2 Shut Off Valve as Tight.
FLUSHING OF TEST COCKS	Test #2 TIGHTNESS OF #1 CHECK
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Place Test Adapters on Test Cocks (TC) 2, 3, and 4 <input type="checkbox"/> 2. Open TC # 1, Bleed, then Close <input type="checkbox"/> 3. Open TC # 2, Bleed, then Close <input type="checkbox"/> 4. Open TC # 3, Bleed, then Close <input type="checkbox"/> 5. Open TC # 4, Bleed, then Close <input type="checkbox"/> 6. Make sure all 5 valves on Gauge are closed 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close TC # 4 <input type="checkbox"/> 2. Close High Valve <input type="checkbox"/> 3. Remove By-Pass Hose from TC #4 <input type="checkbox"/> 4. Open TC # 2 <input type="checkbox"/> 5. S-L-O-W-L-Y Open Low Side Bleed Valve to Cause Differential Reading to Rise – Then Close <input type="checkbox"/> 6. Read the Gauge & Record Value The Pressure Differential Gauge Reading should be 1 PSID or Above.
ATTACHING THE TEST KIT	Test #3 TIGHTNESS OF # 2 CHECK
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Attach High Side Hose to TC # 2 <input type="checkbox"/> 2. Attach Low Side Hose to TC # 3 <input type="checkbox"/> 3. Open TC # 2 <input type="checkbox"/> 4. Open TC #3 <input type="checkbox"/> 5. Open High Side Bleed Valve, Bleed Air, Then Close <input type="checkbox"/> 6. Open Low Side Bleed Valve, Bleed Air, Then Close <input type="checkbox"/> 7. Attach By-Pass Hose to TC # 4 <input type="checkbox"/> 8. Open High Side Valve (1/4 Turn) <input type="checkbox"/> 9. Open By-Pass Valve <input type="checkbox"/> 10. Loosen By-Pass Hose at TC # 4 to Bleed Air, Then Tighten <input type="checkbox"/> 11. S-L-O-W-L-Y Open Low Side Bleed Valve to Cause Differential Reading to Rise – Then Close 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close TC # 2 <input type="checkbox"/> 2. Close TC # 3 <input type="checkbox"/> 3. Remove Low Side Hose from TC # 3 and place it on TC # 4 <input type="checkbox"/> 4. Remove High Side Hose from TC # 2 and Place it on TC # 3 <input type="checkbox"/> 5. Open TC # 3 <input type="checkbox"/> 6. Open High Side Bleed Valve – Bleed Air, Then Close <input type="checkbox"/> 7. Open TC # 4 <input type="checkbox"/> 8. Open Low Side Bleed Valve – Bleed Air, Then Close <input type="checkbox"/> 9. Read the Gauge & Record Value A) If the Pressure Differential Gauge Reading Should be 1 PSID or Above.
	RESTORE SYSTEM
	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close All Test Cocks <input type="checkbox"/> 2. Remove Hoses <input type="checkbox"/> 3. Open All Valves on the Test Kit and Drain Water <input type="checkbox"/> 4. Restore Water to building by Opening # 2 Shut Off Valve on Assembly

Detector Assemblies: To verify flow through the bypass, open test cock #4 and the meter should move.

DCDA Type I: 1) Test main assembly as normal using approved DCVA procedures. Remember to isolate the bypass before testing main assembly.
2) Then test bypass assembly separately using approved DCVA procedures.

DCDA Type II: 1) Test mainline DCVA as normal using approved DCVA procedures, Remember to isolate bypass before testing main assembly. 2) Test bypass single check valve using normal approved check #2 test procedures.

5-Valve Test Procedure for a Double Check Valve Assembly (DCVA) (Direction of Flow test)

Preparation	Check Valve #2
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Notify customer <input type="checkbox"/> 2. Inspect the area for safety <input type="checkbox"/> 3. Determine if the assembly is Approved & Appropriate <input type="checkbox"/> 4. Record Make, Model, Serial #, Size & Type <input type="checkbox"/> 5. Install test adapter fittings (if required) <input type="checkbox"/> 6. Flush TC # 1, 2, 3, 4 <input type="checkbox"/> 7. close all valves on gauge 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Move vertical tube from TC #3 to TC #4* <input type="checkbox"/> 2. Move high hose to TC #3 <input type="checkbox"/> 3. Open high bleed valve <input type="checkbox"/> 4. Open TC #3 slowly <input type="checkbox"/> 5. close high bleed valve when air stops <input type="checkbox"/> 6. Open TC #4 to fill vertical tube <input type="checkbox"/> 7. Close TC #4 <input type="checkbox"/> 8. Close shut-off valve #1 <input type="checkbox"/> 9. Center gauge with top of vertical tube <input type="checkbox"/> 10. Open TC #4 <input type="checkbox"/> 11. Record status of check valve #2 (closed tight @ 1psid> or leaking)
Test #1: Check Valve #1	Final
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Install vertical tube on TC #3 <input type="checkbox"/> 2. Open High bleed valve on gauge <input type="checkbox"/> 3. Attach high hose to TC #2 <input type="checkbox"/> 4. Open TC #2 slowly <input type="checkbox"/> 5. Close high bleed valve when air stops <input type="checkbox"/> 6. Open TC #3 to fill vertical tube <input type="checkbox"/> 7. Close TC #3 <input type="checkbox"/> 8. Close shut-off valve #2 <input type="checkbox"/> 9. Record service line pressure (if Required) <input type="checkbox"/> 10. Close shut-off valve #1 <input type="checkbox"/> 11. Center gauge with top of vertical tube <input type="checkbox"/> 12. Open TC #3 <input type="checkbox"/> 13. Record status of check valve #1 (closed tight @ 1psid> or leaking) <input type="checkbox"/> 14. Close TC #2 and TC #3 <input type="checkbox"/> 15. Open shut-off valve #1 	<ul style="list-style-type: none"> <input type="checkbox"/> Close TC #3 & #4 <input type="checkbox"/> Remove all hoses <input type="checkbox"/> Open shut-off valve #1 <input type="checkbox"/> Open shut-off valve slowly #2

Detector Assemblies: To verify that there is flow through the bypass, open test cock #4 and meter should move.

DCDA Type I: 1) Test main assembly as normal using approved DCVA procedures. Remember to isolate the bypass before testing main assembly. 2) Then test bypass assembly separately using approved DCVA procedures.

DCDA Type II: 1) Test mainline DCVA as normal using approved DCVA procedures, Remember to isolate bypass before testing main assembly. 2) Test bypass single check valve using normal approved check #2 test procedures.

5 - Valve Test Procedure Pressure Vacuum Breaker(PVB) (Direction of Flow)

PREPERATION	STEP # 2 - Check Valve Value
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Notify the customer <input type="checkbox"/> 2. Inspect the area for safety <input type="checkbox"/> 3. Determine if the assembly is Approved & Appropriate <input type="checkbox"/> 4. Record Make, Model #, Serial # and Static Working Pressure on test report form <input type="checkbox"/> 5. Close All Valves on Test Gauge <input type="checkbox"/> 6. Remove Low Side Hose from Gauge (if on gauge) <input type="checkbox"/> 7. Remove Canopy and Clean Debris Around Air Inlet <input type="checkbox"/> 8. Flush TC#1 <input type="checkbox"/> 9. Flush TC#2 <input type="checkbox"/> 10. Turn Off The # 2 Shut off Valve <input type="checkbox"/> 11. Open High Side Bleed Valve 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Attach High Side Hose to TC #1 <input type="checkbox"/> 2. SLOWLY Open TC # 1 <input type="checkbox"/> 3. Close High Side Bleed Valve <input type="checkbox"/> 4. Turn Off The # 1 Shut off Valve <input type="checkbox"/> 5. Center Gauge with PVB <input type="checkbox"/> 6. SLOWLY Open TC # 2 and Record PSID Value When Water Stops Flowing from TC #2 <input type="checkbox"/> 7. Close TC #2 & TC #1 <input type="checkbox"/> 8. Remove Hose from TC#1
TEST # 1 : Air Inlet Opening	Restore system by:
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Attach high hose to TC #2 <input type="checkbox"/> 2. SLOWLY - Open TC #2 <input type="checkbox"/> 3. Close High Side Bleed Valve (when air stops) <input type="checkbox"/> 4. Turn Off The # 1 Shut off Valve <input type="checkbox"/> 5. Center Gauge with PVB <input type="checkbox"/> 6. SLOWLY Open High Side Bleed Valve and Observe PSID Recording when Air Inlet Pops <input type="checkbox"/> 7. Close TC # 2 <input type="checkbox"/> 8. Turn on the # 1 Shut off Valve 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Open the # 1 Shut off Valve First <input type="checkbox"/> 2. Open the # 2 Shut off Valve



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3-Valve Reduced Pressure Backflow Preventer (RPBP) (Pressure Differential)

PREPARING TO TEST THE ASSEMBLY	Test #2: BACKPRESSURE TEST FOR # 2 CHECK
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Notify the customer <input type="checkbox"/> 2. Inspect the area for safety <input type="checkbox"/> 3. Determine if the assembly is Approved & Appropriate <input type="checkbox"/> 4. Record Make, Model #, Serial # & Assembly Type 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. If gauge Remains Steady during Test #1 & No Water is Dripping from the Relief Valve, the # 2 Check Valve is Considered to be Tight.
FLUSHING OF TEST COCKS	Test #3: CHECK VALVE #1 DIFFERENTIAL VALUE (5psid>)
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Place Test Adapters on Test Cocks (If Applicable) <input type="checkbox"/> 2. Open TC # 4 – Let flow <input type="checkbox"/> 3. Open TC # 1, then close <input type="checkbox"/> 4. Open TC # 2, then close <input type="checkbox"/> 5. Open TC # 3, then close <input type="checkbox"/> 6. Close TC # 4 <input type="checkbox"/> 7. Make sure High & Low Valves on the Gauge are CLOSED!! <input type="checkbox"/> 8. Open Vent/Bypass Valve on gauge <input type="checkbox"/> 8. Close Shutoff valve #2 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close TC#4 <input type="checkbox"/> 2. Close High Control Valve <input type="checkbox"/> 3. Remove Vent/Bypass hose from TC#4 <input type="checkbox"/> 4. Open TC # 2 <input type="checkbox"/> 5. Open Low Side Control Valve, to Cause Reading to Rise, Then Close... (Basically a Reset) <input type="checkbox"/> <u>Read the Gauge and Record Value</u>
ATTACHING THE TEST KIT	Test #4: RELIEF VALVE OPENING VALUE
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Attach High Side Hose to TC # 2 <input type="checkbox"/> 2. Attach Low Side Hose to TC # 3 <input type="checkbox"/> 3. Slowly open TC#3 <input type="checkbox"/> 4. Open Low Side Control Valve (Leave Open) <input type="checkbox"/> 5. Open TC #2 <input type="checkbox"/> 6. Open High Side Control Valve, Bleed Air, Then Close <input type="checkbox"/> 7. Close Low Side Control Valve <input type="checkbox"/> 8. Close Vent/Bypass Valve on gauge 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close Vent/Bypass Valve on gauge <input type="checkbox"/> 2. Open High Control Valve <input type="checkbox"/> 3. S-L-O-W-L-Y Open Low Valve <input type="checkbox"/> 4. <i>Place the Top of Your Hand Under the Relief (2psid>)</i> <input type="checkbox"/> 5. As Soon as You Feel the First Drop of Water on Your Hand. <u>Read the Gauge and Record Value</u> <input type="checkbox"/> 6. <i>Close High & Low Control Valves on the Gauge</i>
Test #1: TIGHTNESS OF # 2 SHUT OF VALVE	Test #5: TIGHTNESS OF # 2 CHECK (1psid>) (SC Unique)
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Attach Vent/Bypass Hose to TC # 4 <input type="checkbox"/> 2. Open High Side Control Valve <input type="checkbox"/> 3. Open Vent/Bypass Valve on gauge <input type="checkbox"/> 4. Loosen Vent/Bypass Hose at TC # 4 to Bleed Air, Then Tighten <input type="checkbox"/> 5. Open TC # 4 <input type="checkbox"/> 6. Close TC # 2 – Pause to Allow Gauge to Readjust <input type="checkbox"/> 7. <u>Read the Gauge & Record (ex: Closed Tight)</u> <ul style="list-style-type: none"> ○ If the Pressure Differential Gauge Remains Steady, Record the #2 Shut Off Valve as Tight. 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close TC # 2 <input type="checkbox"/> 2. Close TC # 3 <input type="checkbox"/> 3. Remove Low Side Hose from TC # 3 and place it on TC # 4 <input type="checkbox"/> 4. Remove High Side Hose from TC # 2 and Place it on TC # 3 <input type="checkbox"/> 5. Open TC # 3 <input type="checkbox"/> 6. Open Vent/Bypass Valve on gauge <input type="checkbox"/> 7. Open High Side Control Valve – Bleed Air, Then Close <input type="checkbox"/> 8. Open TC # 4 <input type="checkbox"/> 9. Open Low Side Control Valve – Bleed Air, Then Close <input type="checkbox"/> 10. Close Vent/Bypass Valve on gauge <input type="checkbox"/> <u>11. Read the Gauge & Record Value</u>
	RESTORE SYSTEM
	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close All Test Cocks <input type="checkbox"/> 2. Remove Hoses <input type="checkbox"/> 3. Open All Valves on the Test Kit and Drain Water <input type="checkbox"/> 4. Restore Water by Opening # 2 Shut Off Valve

Detector Assemblies: To verify flow through the bypass, open test cock #4 and the meter should move.

RPDA Type I: 1) Test main assembly as normal using approved RP procedures. Remember to isolate the bypass before testing main assembly.
2) Then test bypass assembly separately using approved RP procedures.

RPDA Type II: 1) Test mainline RP per normal approved procedures, Remember to isolate bypass before testing main assembly.
2) Test bypass single check valve using normal approved check #2 test procedures.

3 Valve Test Procedure for Double Check Valve Assembly (DCVA) (Pressure Differential)

PREPERATION	Test #1: TIGHTNESS OF # 2 SHUT OF VALVE
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Notify the customer <input type="checkbox"/> 2. Inspect the area for safety <input type="checkbox"/> 3. Determine if the assembly is Approved & Appropriate <input type="checkbox"/> 4. Record Make, Model #, Serial # and on test report form 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Open TC # 4 <input type="checkbox"/> 2. Close TC # 2 – Pause to Allow Gauge to Readjust <input type="checkbox"/> 3. Read the Gauge & Record(Example: Tight) *If the Pressure Differential Gauge Remains Steady, Record the #2 Shut Off Valve as Tight.
FLUSHING OF TEST COCKS	Test #2 TIGHTNESS OF #1 CHECK
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Place Test Adapters on Test Cocks (if Applicable) <input type="checkbox"/> 2. Open TC # 1, Bleed, then Close <input type="checkbox"/> 3. Open TC # 2, Bleed, then Close <input type="checkbox"/> 4. Open TC # 3, Bleed, then Close <input type="checkbox"/> 5. Open TC # 4, Bleed, then Close <input type="checkbox"/> 6. Close High & Low control valves <input type="checkbox"/> 7. Leave Open Vent/Bypass valve <input type="checkbox"/> 8. Turn off Shut Off Valve # 2 on assembly 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close TC # 4 <input type="checkbox"/> 2. Close High Valve <input type="checkbox"/> 3. Remove Vent/Bypass Hose from TC #4 <input type="checkbox"/> 4. Open TC # 2 <input type="checkbox"/> 5. (Reset) Open Low Side Control Valve to Cause Differential Reading to Rise – Then Close <input type="checkbox"/> 6. Read the Gauge & Record Value <ul style="list-style-type: none"> ○ Pressure Differential Gauge Reading should be 1 PSID or Above.
ATTACHING THE TEST KIT	Test #3 TIGHTNESS OF # 2 CHECK
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Attach High Side Hose to TC # 2 <input type="checkbox"/> 2. Attach Low Side Hose to TC # 3 <input type="checkbox"/> 3. Open TC # 2 <input type="checkbox"/> 4. Open High Side Control Valve, Bleed Air, Then Close <input type="checkbox"/> 5. Open TC #3 <input type="checkbox"/> 6. Open Low Side Control Valve, Bleed Air, Then Close <input type="checkbox"/> 7. Attach Vent/Bypass Hose to TC # 4 <input type="checkbox"/> 8. Open Low Control Side Valve <input type="checkbox"/> 9. Loosen By-Pass Hose at TC # 4 to Bleed Air, Then Tighten <input type="checkbox"/> 10. Close Low Control Valve <input type="checkbox"/> 11. Open High Control Valve <input type="checkbox"/> 12. Record Static Working Pressure (If Required) 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close TC # 2 <input type="checkbox"/> 2. Close TC # 3 <input type="checkbox"/> 3. Remove Low Side Hose from TC # 3 and place it on TC # 4 <input type="checkbox"/> 4. Remove High Side Hose from TC # 2 and Place it on TC # 3 <input type="checkbox"/> 5. Open TC # 3 <input type="checkbox"/> 6. Open High Side Bleed Valve – Bleed Air, Then Close <input type="checkbox"/> 7. Open TC # 4 <input type="checkbox"/> 8. Open Low Side Bleed Valve – Bleed Air, Then Close <input type="checkbox"/> 9. Read the Gauge & Record Value <ul style="list-style-type: none"> A) If the Pressure Differential Gauge Reading Should be 1 PSID or Above.
RESTORE SYSTEM	
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Close All Test Cocks <input type="checkbox"/> 2. Remove Hoses <input type="checkbox"/> 3. Open All Valves on the Test Kit and Drain Water <input type="checkbox"/> 4. Restore Water to building by Opening # 2 Shut Off Valve 	

Detector Assemblies: To verify flow through the bypass, open test cock #4 and the meter should move.

DCDA Type I: 1) Test main assembly as normal using approved DCVA procedures. Remember to isolate the bypass before testing main assembly. 2) Test bypass assembly separately using approved DCVA procedures.

DCDA Type II: 1) Test mainline DCVA as normal using approved DCVA procedures, remember to isolate bypass before testing main assembly. 2) Test bypass single check valve using normal approved check #2 test procedures.

3-Valve Test Procedure for a Double Check Valve Assembly (DCVA) (Direction of Flow)

PREPARATION	TEST #2: CHECK VALVE #2
<ul style="list-style-type: none"> <input type="checkbox"/> Notify customer <input type="checkbox"/> Inspect the area for safety <input type="checkbox"/> Determine if the assembly is Approved & Appropriate <input type="checkbox"/> Record Make, Model, Serial #, Size & Type <input type="checkbox"/> Install test adaptor fittings (if required) <input type="checkbox"/> Flush TC # 1, 2, 3, 4 <input type="checkbox"/> Open High & Low control valves and Bypass valve on gauge <p>*Attach High Hose Only on Gauge*</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Move vertical tube from TC #3 to TC #4 * <input type="checkbox"/> Move high hose from TC #2 to TC #3 <input type="checkbox"/> Open TC #3 slowly <input type="checkbox"/> Open high control valve then close high control valve <input type="checkbox"/> Open TC #4 to fill vertical tube <input type="checkbox"/> Close TC #4 <input type="checkbox"/> Close #1 shut-off valve <input type="checkbox"/> Open TC #4 <input type="checkbox"/> Record value of check valve #2 (1.0 psid or > to pass)
TEST #1: CHECK VALVE #1	RECORD SHUT-OFF VALVES
<ul style="list-style-type: none"> <input type="checkbox"/> Install vertical tube on TC #3 * <input type="checkbox"/> Install High hose on TC #2 <input type="checkbox"/> Close Low control valve <input type="checkbox"/> Open TC #2 slowly <input type="checkbox"/> Close High control valve when air stops <input type="checkbox"/> Open TC #3 to fill vertical tube, then close <input type="checkbox"/> Close shut-off valve #2 <input type="checkbox"/> Record supply pressure (if required) <input type="checkbox"/> Close #1 shut-off valve <input type="checkbox"/> Center gauge with top of vertical tube <input type="checkbox"/> Open TC #3 <input type="checkbox"/> Record value of check valve #1 (1.0 psid. or > to pass) <input type="checkbox"/> Close TC #2 and TC #3 <input type="checkbox"/> Open #1 shut-off valve 	<ul style="list-style-type: none"> <input type="checkbox"/> Record shut-off valve #1 & #2 <ul style="list-style-type: none"> <input type="checkbox"/> (closed tight or leaking)
	RESTORE SYSTEM
	<ul style="list-style-type: none"> <input type="checkbox"/> Close TC #3 & #4 <input type="checkbox"/> remove all hoses <input type="checkbox"/> Open shut-off valve #1 <input type="checkbox"/> Open shut-off valve #2

* OK to use test cocks as long as gauge can be centered on Test Cocks

Detector Assemblies: To verify flow through the bypass, open test cock #4 and the meter should move.

DCDA Type I: 1) Test main assembly as normal using approved DCVA procedures. Remember to isolate the bypass before testing main assembly. 2) Test bypass assembly separately using approved DCVA procedures.

DCDA Type II: 1) Test mainline DCVA as normal using approved DCVA procedures, remember to isolate bypass before testing main assembly.

2) Test bypass single check valve using normal approved check #2 test procedures.

3-Valve Test Procedure for a Pressure Vacuum Breaker Assembly (PVB)

(Direction of Flow)

PREPERATION	TEST #2 - CHECK VALVE VALUE
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Notify the customer <input type="checkbox"/> 2. Inspect the area for safety <input type="checkbox"/> 3. Determine if the assembly is Approved & Appropriate <input type="checkbox"/> 4. Record Make, Model #, Serial # and Static Working Pressure on test report form <input type="checkbox"/> 5. Close All Valves on Test Gauge <input type="checkbox"/> 6. Remove Canopy and Clean Debris Around Air Inlet <input type="checkbox"/> 7. Flush TC#1 <input type="checkbox"/> 8. Flush TC#2 <input type="checkbox"/> 19. Turn Off The # 2 Shut off Valve <p style="text-align: center;"><u>*Attach High Hose Only on Gauge*</u></p>	<ul style="list-style-type: none"> <input type="checkbox"/> Attach High Side Hose to TC #1 <input type="checkbox"/> <u>SLOWLY</u> Open TC # 1 <input type="checkbox"/> Bleed Air, Then Close Vent/Bypass Valve <input type="checkbox"/> Turn Off The # 1 Shut off Valve <input type="checkbox"/> With the Gauge Centerline at Elevation of PVB <input type="checkbox"/> <u>SLOWLY</u> Open TC # 2 Fully and Record PSID Value When Water Stops Flowing from TC #2 <input type="checkbox"/> Close Both Test Cocks and Remove hose
TEST #1: AIR INLET OPENING	RESTORE SYSTEM
<ul style="list-style-type: none"> <input type="checkbox"/> 1. Attach high hose to TC #2 <input type="checkbox"/> 2. SLOWLY - Open TC #2 <input type="checkbox"/> 3. Open High Side Control Valve <input type="checkbox"/> 4. Open Vent/Bypass Valve, Bleed Air <input type="checkbox"/> 5. Close Vent/Bypass valve <input type="checkbox"/> 6. Turn Off The # 1 Shut off Valve <input type="checkbox"/> 7. Center Gauge to PVB <input type="checkbox"/> 8. SLOWLY Open Vent/Bypass Valve and Observe PSID Recording when Air Inlet Pops (record Value) <input type="checkbox"/> 9. Close TC # 2 & Remove Hose <input type="checkbox"/> 10. Turn on the # 1 Shut off Valve 	<ul style="list-style-type: none"> <input type="checkbox"/> 1. Open Shut off Valve #1 First <input type="checkbox"/> 2. Open Shut off Valve #2

