



## Series 746 and 746-LPA Dry Accelerators

### INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS

#### IMPORTANT INFORMATION

! WARNING	
	<ul style="list-style-type: none"> <li>• Read and understand all instructions before attempting to perform maintenance on any Victaulic piping products.</li> <li>• Wear safety glasses, hardhat, and foot protection.</li> </ul> <p>Failure to follow these instructions could result in serious personal injury, property damage, and/or product failure.</p>

! WARNING	
	<ul style="list-style-type: none"> <li>• Depressurize and drain the piping system before attempting to remove, adjust, or perform maintenance on any Victaulic piping products.</li> </ul> <p>Failure to follow this instruction could result in serious personal injury and/or property damage.</p>

The following information is a guide for proper installation of Victaulic Series 746 and Series 746-LPA Dry Accelerators. Always refer to the installation, maintenance, and testing manual for the applicable valve for detailed system setup, operation, and maintenance instructions.

**NOTE: THE SERIES 746 DRY ACCELERATOR SHOULD NOT BE USED ON VALVES EQUIPPED WITH SERIES 776 LOW-PRESSURE ACTUATORS, SERIES 767 ELECTRIC/PNEUMATIC ACTUATORS, OR SERIES 798 DOUBLE-PNEUMATIC ACTUATORS. FOR THESE INSTALLATIONS, A SERIES 746-LPA DRY ACCELERATOR MUST BE USED.**

Dry Accelerators are quick-opening devices, which exhaust air from the actuator to speed valve operation.

A diaphragm separates the Dry Accelerator into two chambers. The closing chamber contains a compression spring, which maintains the chamber in the closed position. The closed position is maintained as long as the pressure differential between the opening and closing chambers is less than 3 psi/0.2 Bar.

When the system introduces air pressure into the dry accelerator, air enters the closing chamber and passes through a check valve to the opening chamber. The check valve, which allows flow into the opening chamber, prevents pressure from escaping the opening chamber. Therefore, air can escape only through the flow restrictor.

When a rapid loss of system air pressure occurs, such as an open sprinkler, air escapes from the closing chamber faster than it escapes from the opening chamber. As the sprinkler system's pressure continues to decay, a differential pressure develops across the diaphragm. When this differential pressure reaches 3 – 5 psi/0.2 – 0.3 Bar, the opening chamber's pressure overcomes the compression spring's closing force, causing the closing chamber to open to the atmosphere. The closing chamber opens immediately and releases pressure from the actuator, resulting in valve operation.

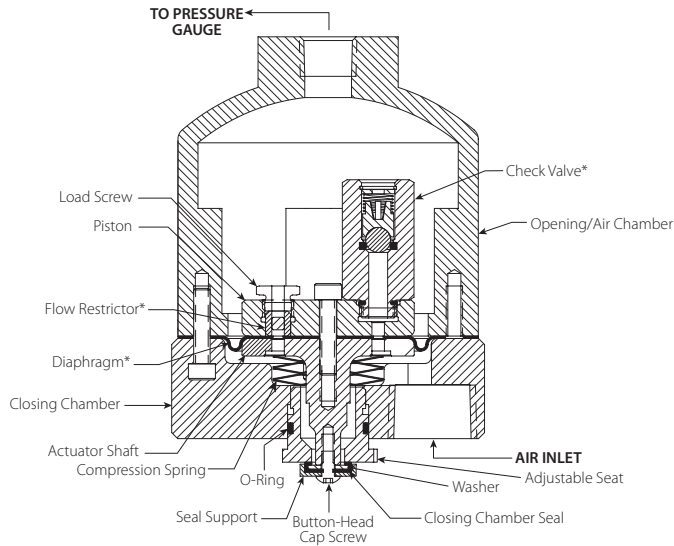
**NOTE:** The Series 746-LPA Dry Accelerator must be used only on systems operating below 20 psi/1.4 Bar of air. If air pressure higher than 20 psi/1.4 Bar is required, the Series 746 Dry Accelerator should be used.

# Series 746 and 746-LPA Dry Accelerators

## INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS

### SECTION VIEW DRAWINGS

**DESIGN "A"**  
(INSTRUCTIONS START ON PAGE 7)

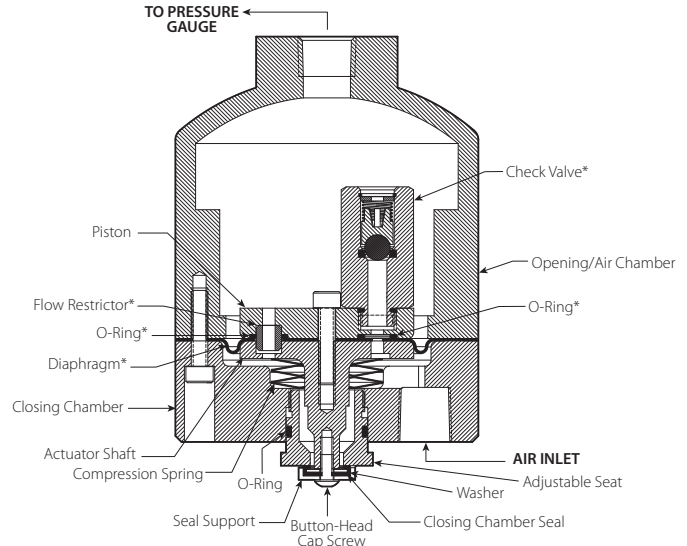


CROSS-SECTION WITH UPPER CHAMBER ROTATED 45° AND BOLT REMOVED FOR CLARITY

*Illustration is exaggerated for clarity*

\* Denotes components that can be replaced in the field

**DESIGN "B"**  
(INSTRUCTIONS START ON PAGE 11)

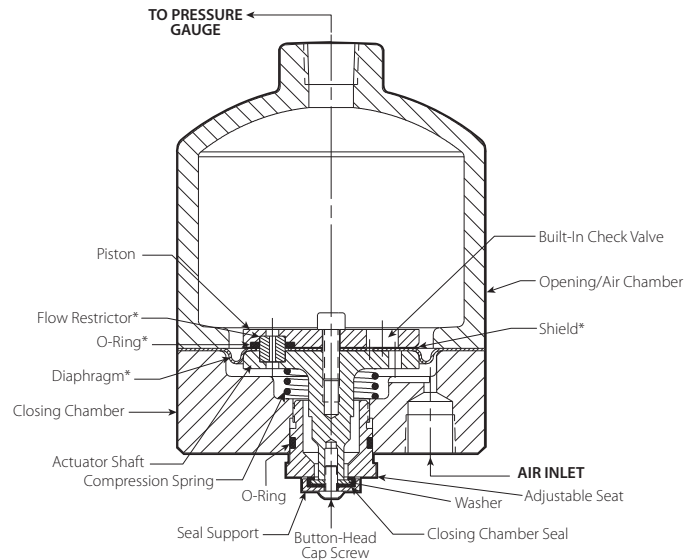


CROSS-SECTION WITH UPPER CHAMBER ROTATED 45° AND BOLT REMOVED FOR CLARITY

*Illustration is exaggerated for clarity*

\* Denotes components that can be replaced in the field

**DESIGN "C"**  
(INSTRUCTIONS START ON PAGE 14)



*Illustration is exaggerated for clarity*

\* Denotes components that can be replaced in the field

# Series 746 and 746-LPA Dry Accelerators

## INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS

### AIR SUPPLY REQUIREMENTS FOR SERIES 746 DRY ACCELERATORS

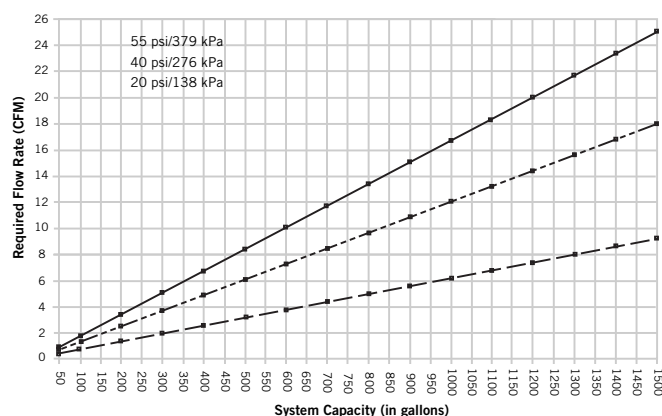
If multiple FireLock Valves are installed with a common air supply, isolate the systems with a spring-loaded, soft-seated ball check valve to ensure air integrity for each system. Good practice is to include a ball valve for isolation and service of each individual system. Multiple valves require shop air or a tank-mounted air compressor.

Set the air pressure to the required system air pressure. Air pressure differing from the required system air pressure could delay system operation response time.

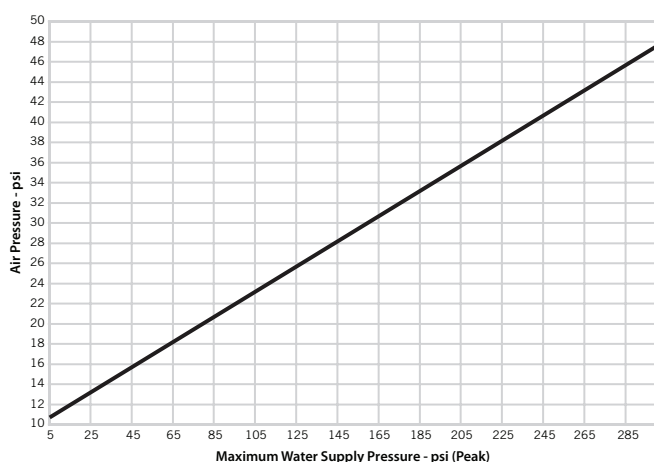
The engineer/system designer is responsible for sizing the compressor so that the entire system is charged to the required air pressure within 30 minutes. DO NOT oversize the compressor to provide more airflow. An oversized compressor will slow down or possibly prevent valve operation.

If the compressor fills the system too fast, it may be necessary to restrict the air supply. Restricting the air supply will ensure that air being exhausted from an open sprinkler or manual release valve is not replaced by the air supply system as fast as it is being exhausted.

#### COMPRESSOR SIZING



#### RECOMMENDED AIR PRESSURES



#### NOTICE

- The Series 757P AMTA must not be used in any system installed with a Series 746 Dry Accelerator, unless a tank and an air regulator are added.

### AIR SUPPLY REQUIREMENTS FOR SERIES 746-LPA DRY ACCELERATORS

The required air pressure for FireLock NXT Valves is 13 psi/0.9 Bar minimum, regardless of the system supply water pressure. Normal air pressure should not exceed 18 psi/1.2 Bar. Failure to maintain air pressure within the 13 psi/0.9 Bar to 18 psi/1.2 Bar range may reduce system operation response time.

Systems with air pressure higher than 18 psi/1.2 Bar may require the addition of a Series 746-LPA Dry Accelerator. **NOTE:** The Series 746-LPA Dry Accelerator must be used only on systems operating below 20 psi/1.4 Bar of air. If air pressure higher than 20 psi/1.4 Bar is required, the Series 746 Dry Accelerator should be used.

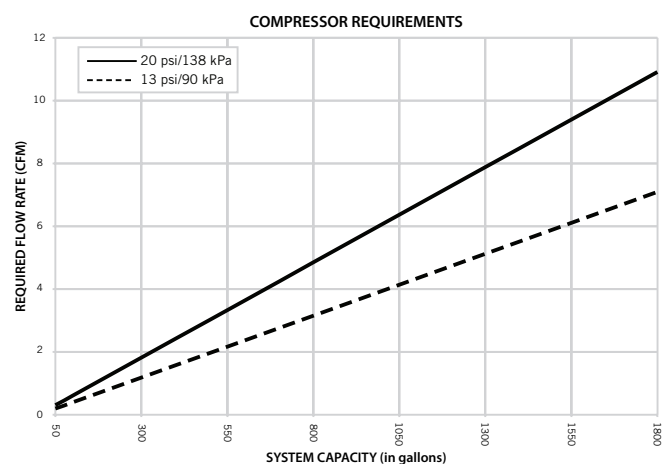
If multiple FireLock NXT Valves are installed with a common air supply, isolate the systems with a spring-loaded, soft-seated ball check valve to ensure air integrity for each system. Good practice is to include a ball valve for isolation and service of each individual system. Multiple valves require shop air or a tank-mounted air compressor.

Set the air pressure to the required system air pressure. Air pressure differing from the required system air pressure could delay system operation response time.

The engineer/system designer is responsible for sizing the compressor so that the entire system is charged to the required air pressure within 30 minutes. DO NOT oversize the compressor to provide more airflow. An oversized compressor will slow down or possibly prevent valve operation.

If the compressor fills the system too fast, it may be necessary to restrict the air supply. Restricting the air supply will ensure that air being exhausted from an open sprinkler or manual release valve is not replaced by the air supply system as fast as it is being exhausted.

#### COMPRESSOR SIZING



#### NOTICE

- A tank-mounted air compressor with a Series 757 Regulated AMTA must be used to supply air to a FireLock NXT Valve installed with a Series 746-LPA Dry Accelerator.

# Series 746 and 746-LPA Dry Accelerators

## INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS

### COMPRESSOR REQUIREMENTS AND SETTINGS FOR SYSTEMS INSTALLED WITH SERIES 746 OR SERIES 746-LPA DRY ACCELERATORS

A tank-mounted air compressor with a Series 757 Regulated AMTA must be used to supply air to system installed with a Series 746 or Series 746-LPA Dry Accelerator. In the event a compressor becomes inoperative, a properly sized tank-mounted air compressor provides the greatest protection, since air can be supplied continuously to the sprinkler system for an extended time period. In addition, a properly-sized tank-mounted air compressor prevents clogging of the dry accelerator's orifice.

**FOR SERIES 746-LPA DRY ACCELERATORS:** Set the air regulator of the Series 757 Regulated AMTA to a maximum of 20 psi/1.4 Bar. If air pressure higher than 20 psi/1.4 Bar is required, the Series 746 Dry Accelerator should be used.

The air regulator of the Series 757 Regulated AMTA is a relief-type design. Any pressure in the system that is above the set point of the air regulator will be released. Therefore, charging the air regulator above the set point could cause premature operation of a valve installed with a Series 746 or Series 746-LPA Dry Accelerator.

### INSTALLATION

For proper operation and approval, the valve and any accessories must be installed in accordance with the specific trim diagrams included with the shipment.

#### CAUTION

- **Make sure no foreign material gets into the pipe nipples and openings in the accelerator.**
- **If using any material other than Teflon\* tape, use extra caution so that no material gets into the trim.**

**Failure to follow these instructions could cause improper valve operation, resulting in personal injury and/or property damage.**

1. Apply a small amount of pipe joint compound or Teflon\* tape to the external threads of all threaded pipe connections. DO NOT get any tape, compound, or other foreign material into the pipe nipples and openings in the accelerator.
2. Assemble the Dry Accelerator per the drawing provided.
3. Install the Dry Accelerator into the trim of the actuator in the location designated on the applicable trim drawing. Make sure the end of the Dry Accelerator with the vent seal "button" is facing toward the trim of the actuator.

### PLACING THE SYSTEM IN SERVICE

When the system is ready to be placed in service, refer to the installation, maintenance, and testing manual for the applicable valve for detailed setup instructions.

\*TEFLON IS A REGISTERED TRADEMARK OF THE DUPONT COMPANY.

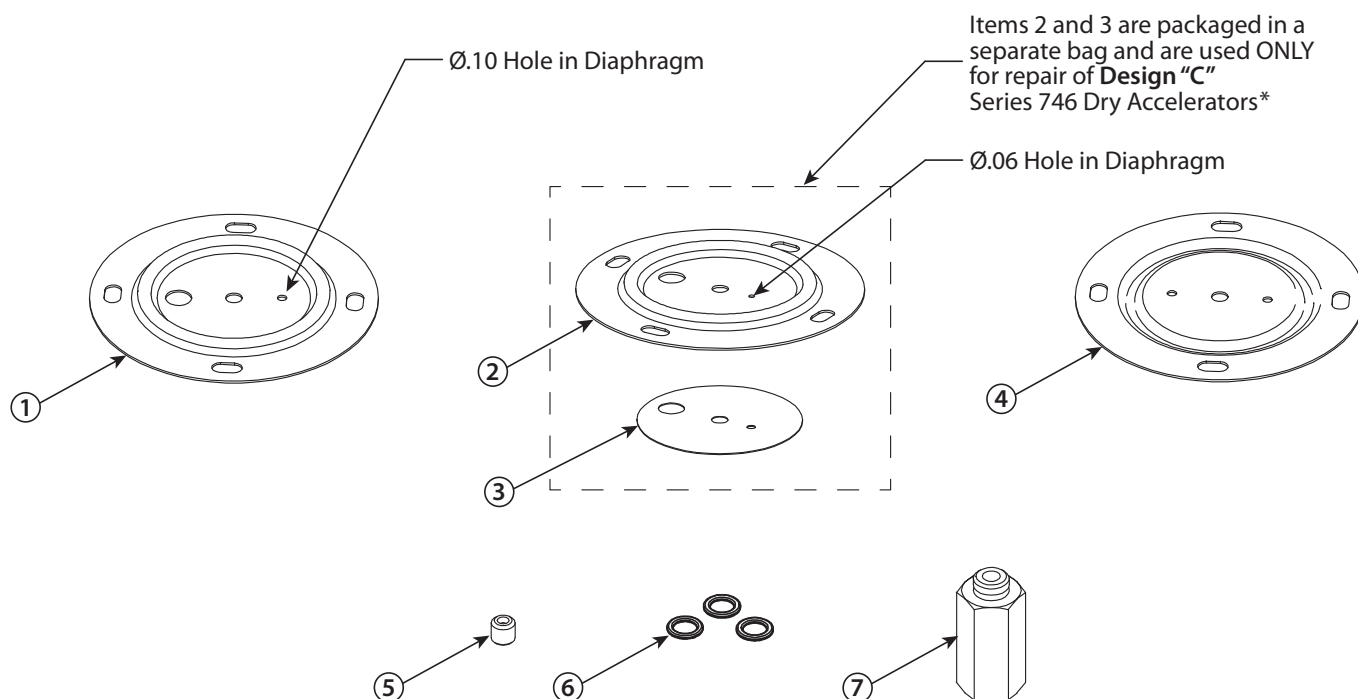


## Series 746 and 746-LPA Dry Accelerators

### INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS

#### IMPORTANT INFORMATION - DRY ACCELERATOR REPAIR KIT CONTENTS

The Dry Accelerator Repair Kit is shipped with three different diaphragms that look similar. It is important to determine the correct diaphragm and other internal components that are required during disassembly of the Series 746 or Series 746-LPA Dry Accelerator.



Item	Qty.	Description
1	1	Diaphragm for use in <b>Design "B"</b> Series 746-LPA Dry Accelerators or <b>Design "B"</b> Series 746 Dry Accelerators
2	1	Diaphragm for use in <b>Design "C"</b> Series 746 Dry Accelerators ONLY
3	1	Shield for use in <b>Design "C"</b> Series 746 Dry Accelerators ONLY
4	1	Diaphragm for use in <b>Design "A"</b> Series 746-LPA Dry Accelerators or <b>Design "A"</b> Series 746 Dry Accelerators
5	1	Flow Restrictor
6	3	O-Ring
7	1	Check Valve

# Series 746 and 746-LPA Dry Accelerators

## INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS

### REMOVING THE SERIES 746 OR SERIES 746-LPA DRY ACCELERATOR FROM SERVICE

#### ⚠ CAUTION



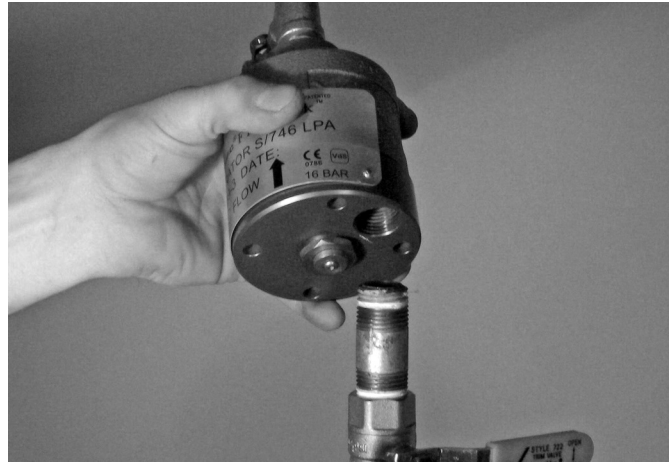
- Any activities that require taking the valve out of service may eliminate the fire protection provided.
- Before servicing or testing the system, notify the authority having jurisdiction.
- Consideration of a fire patrol should be given in the affected areas.

Failure to follow these instructions could result in serious personal injury and/or property damage.

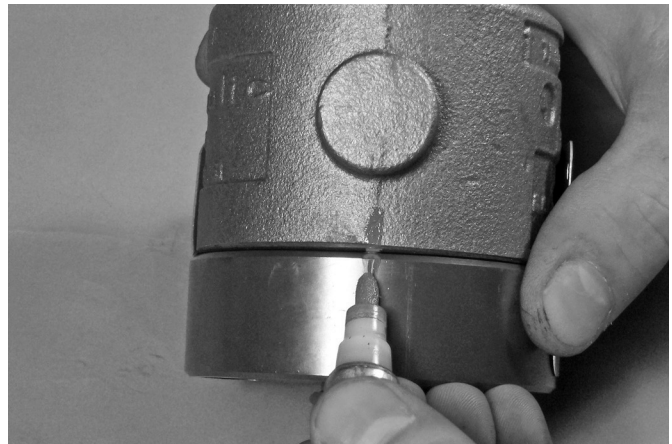
#### ⚠ CAUTION

- The isolation ball valve **MUST** remain closed during the following procedures.

Failure to follow this instruction could cause the valve to false trip, resulting in property damage.



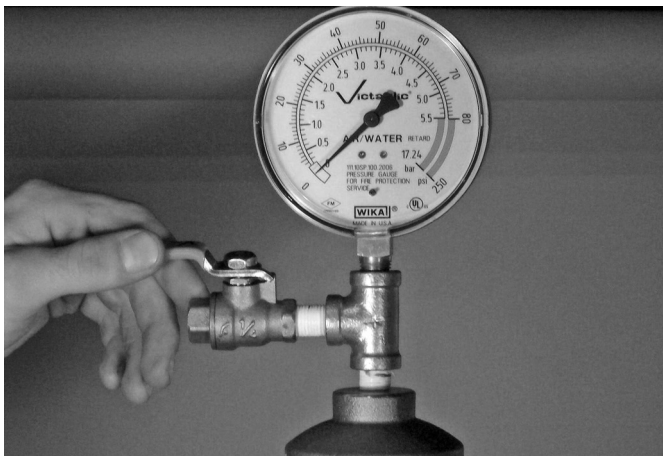
3. Remove the Dry Accelerator from the nipple above the isolation ball valve.



4. Using a marker, place a mark on the upper (opening/air chamber) and lower (closing chamber) housings. This mark will aid in aligning the upper and lower housings during re-assembly.



1. Close the isolation ball valve of the Dry Accelerator.



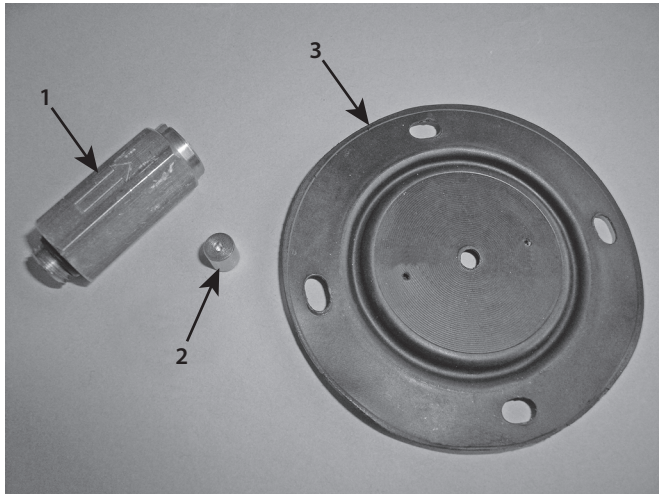
2. Open the 1/4-turn vent ball valve of the Dry Accelerator. Confirm that the gauge on the accelerator reads 0 psi/0 Bar.

# Series 746 and 746-LPA Dry Accelerators

## INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS

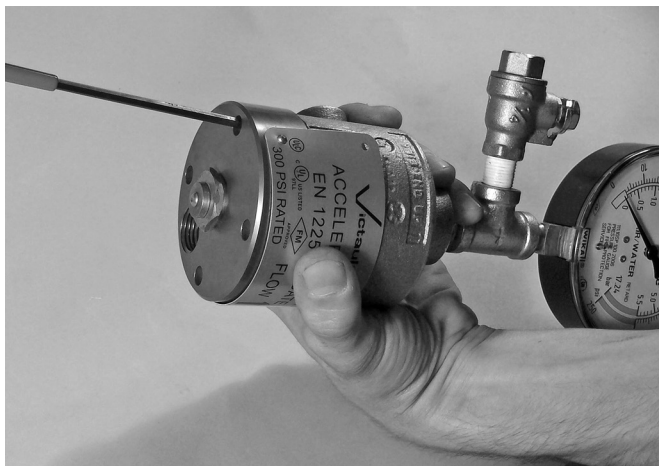
### REPAIR KIT INSTRUCTIONS - DESIGN "A"

#### ITEMS NEEDED FROM REPAIR KIT FOR DESIGN "A" DRY ACCELERATORS



Item	Qty.	Description
1	1	Check Valve with O-Ring
2	1	Flow Restrictor
3	1	Diaphragm

1. Follow all instructions in the "Removing the Series 746 or Series 746-LPA Dry Accelerator from Service" section.



2. Using a 5/16-inch hex wrench, remove the four cap screws from the lower housing. Keep these cap screws for re-installation.



3. Separate the lower housing from the upper housing.



4. Using an adjustable wrench, remove and discard the check valve and o-ring.

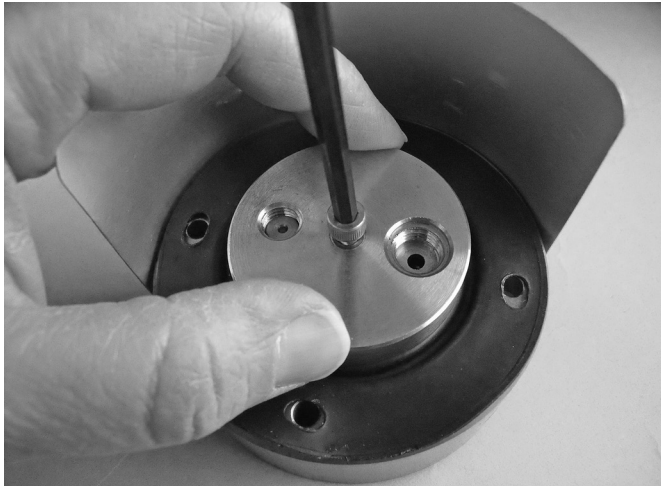


5. Remove the load screw. Keep this load screw for re-installation.



## Series 746 and 746-LPA Dry Accelerators

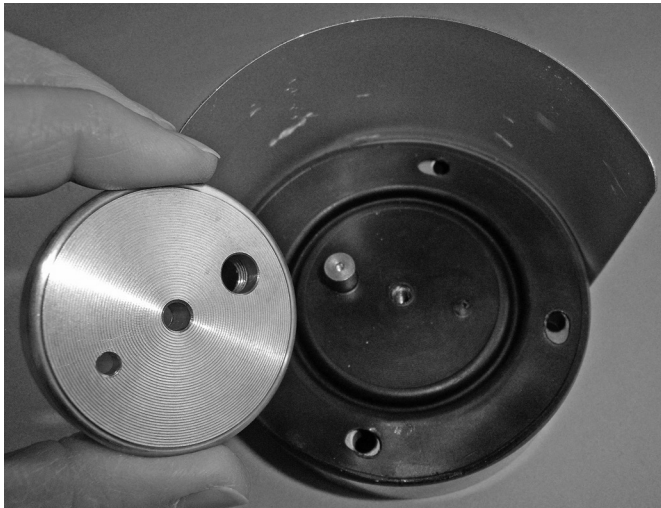
### INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS



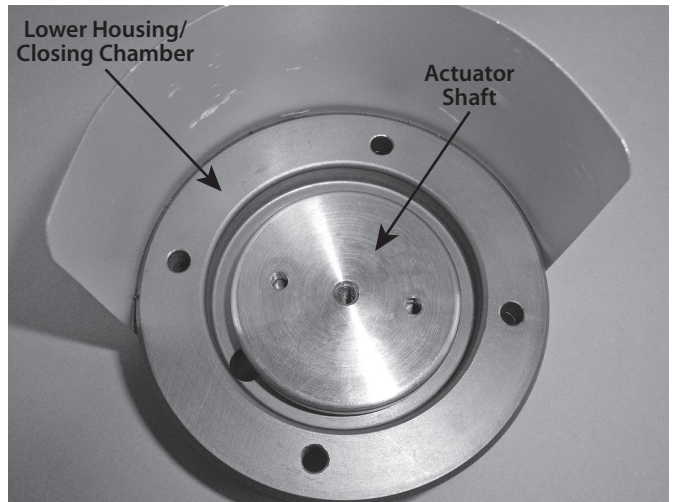
6. Using a  $\frac{1}{4}$ -inch hex wrench, remove the cap screw that retains the piston. Keep this cap screw for re-installation.



9. Remove and discard the diaphragm.



7. Remove the piston. Keep this piston for re-assembly.



8. Remove and discard the flow restrictor.

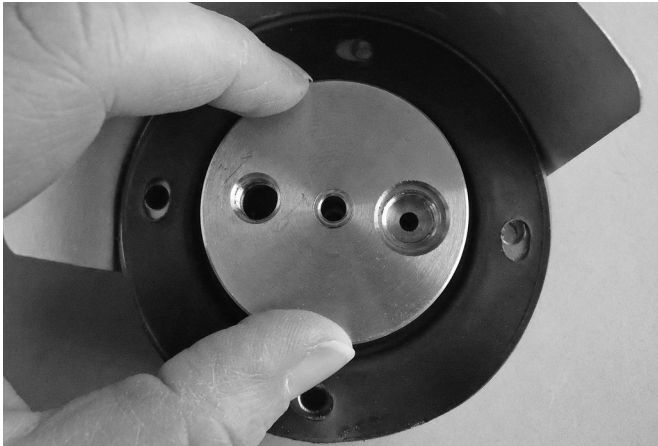


10. Remove any debris from the sealing areas of the lower housing and actuator shaft with a soft rag and non-abrasive cleaner. Install the NEW diaphragm (provided with the kit) onto the lower housing. Make sure the raised portion of the diaphragm is installed toward the lower housing. Align the holes in the diaphragm with the holes in the actuator shaft and lower housing.

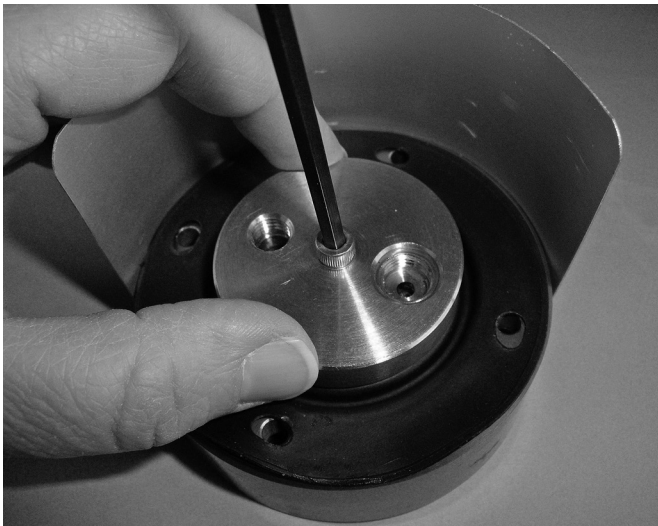


## Series 746 and 746-LPA Dry Accelerators

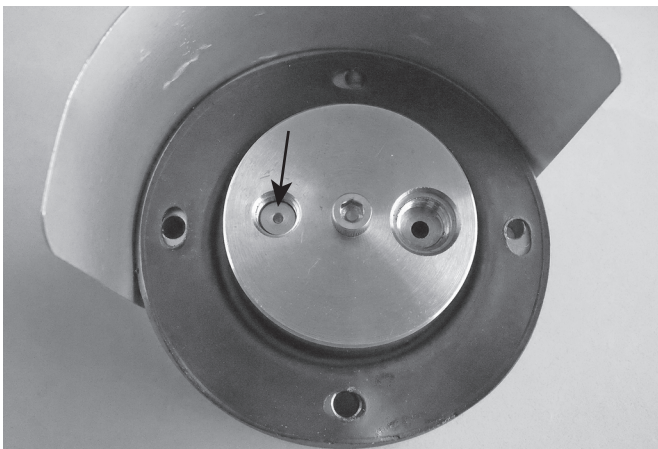
### INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS



11. Align the holes of the piston with the holes in the diaphragm/actuator shaft.



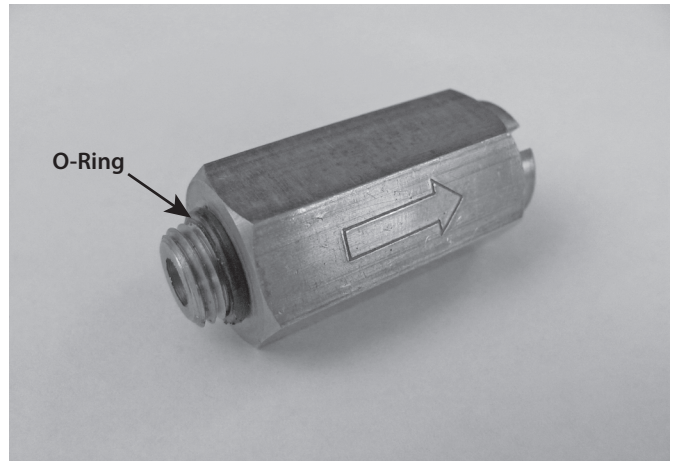
12. Insert the cap screw into the piston and actuator shaft. Using a  $\frac{1}{4}$ -inch hex wrench, fully tighten the cap screw. **NOTE:** Use caution to prevent the piston/diaphragm assembly from rotating during tightening of the cap screw.



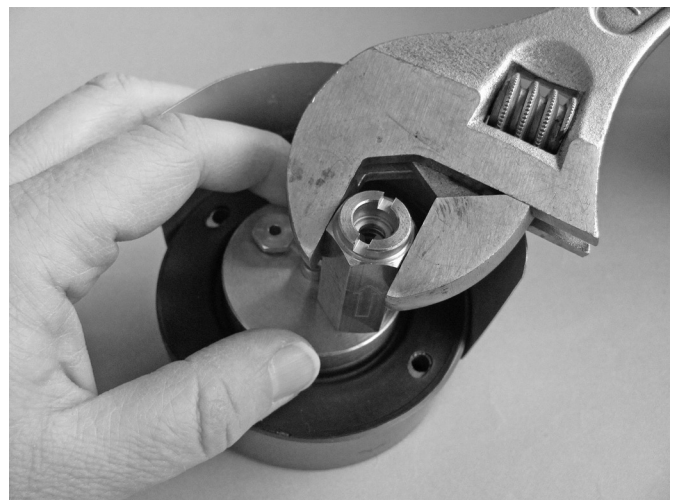
13. Install the NEW flow restrictor (provided with the kit) into the piston.



14. Tighten the load screw into the piston to retain the flow restrictor.



15. Make sure the NEW o-ring is installed on the NEW check valve.



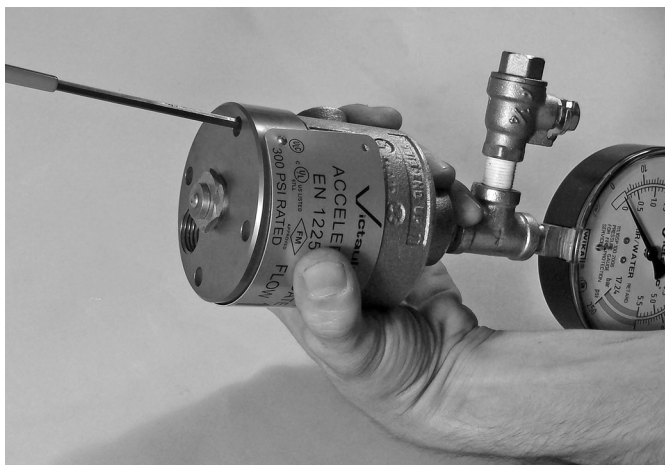
16. Using an adjustable wrench, install the NEW check valve with o-ring into the piston.

## Series 746 and 746-LPA Dry Accelerators

### INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS



17. Align the bolt holes of the upper and lower housings. **NOTE:** Since one set of bolt holes is offset, use the marks made in the "Removing the Series 746 or Series 746-LPA Dry Accelerator from Service" section to aid in alignment.



18. Insert a cap screw into each of the four holes. Using a  $\frac{1}{4}$ -inch hex wrench, fully tighten the four cap screws.
19. **Follow all instructions in the "Placing the System Back in Service Section."**

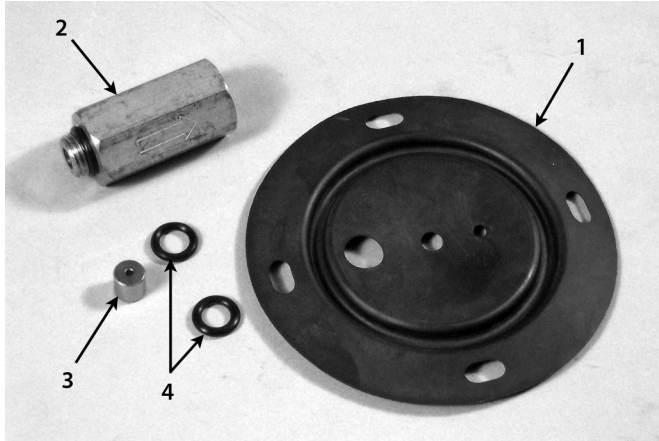


# Series 746 and 746-LPA Dry Accelerators

## INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS

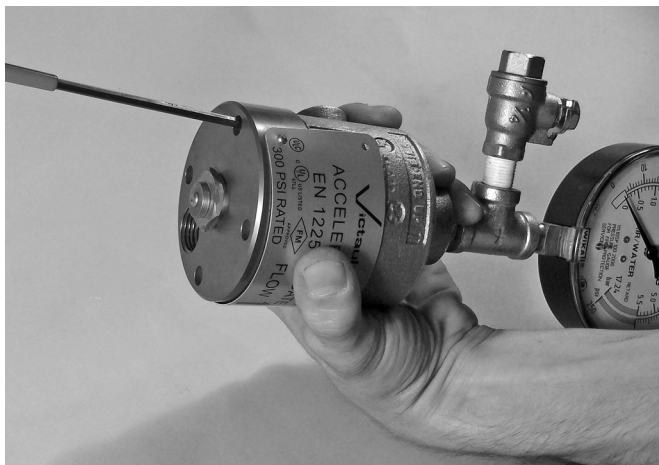
### REPAIR KIT INSTRUCTIONS - DESIGN "B"

#### ITEMS NEEDED FROM REPAIR KIT FOR DESIGN "B" DRY ACCELERATORS



Item	Qty.	Description
1	1	Diaphragm
2	1	Check Valve with O-Ring
3	1	Flow Restrictor
4	2	O-Ring

1. Follow all instructions in the "Removing the Series 746 or Series 746-LPA Dry Accelerator from Service" section.



2. Using a 1/4-inch hex wrench, remove the four cap screws from the lower housing. Keep these cap screws for re-installation.



3. Separate the lower housing from the upper housing.



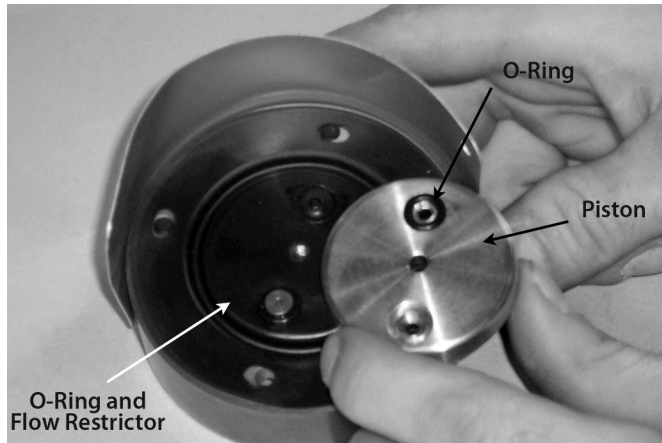
4. Using an adjustable wrench, remove and discard the check valve and o-ring.



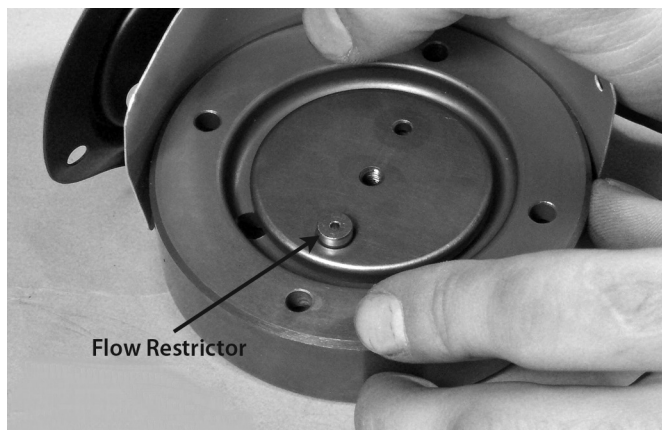
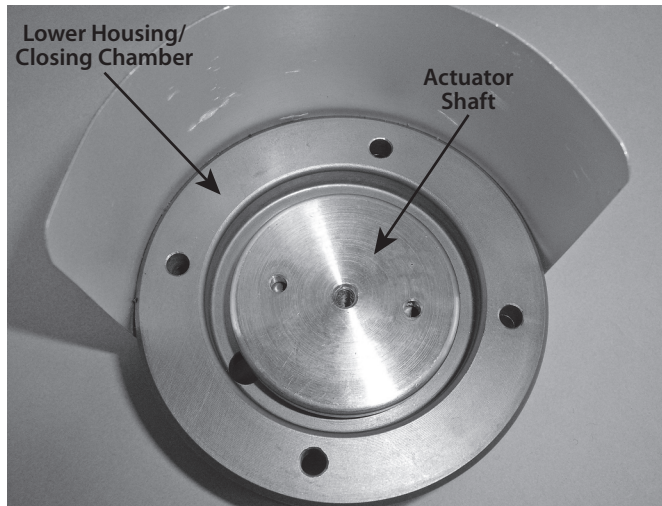
5. Using a 1/4-inch hex wrench, remove the cap screw that retains the piston. Keep this cap screw for re-installation.

# Series 746 and 746-LPA Dry Accelerators

## INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS



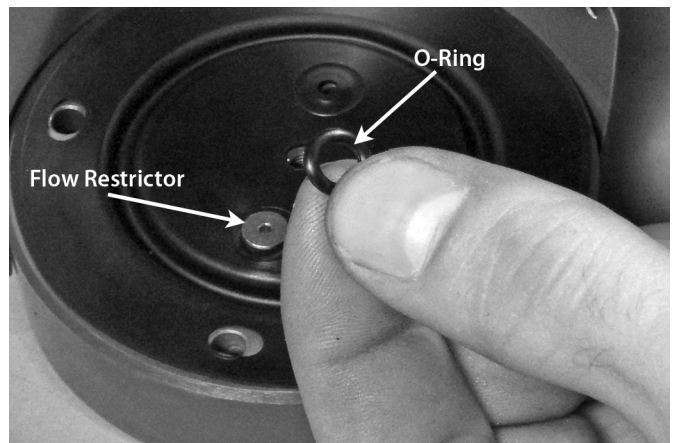
6. Remove the piston, the two o-rings, the flow restrictor, and the diaphragm. Keep the piston for re-assembly. Discard the flow restrictor, diaphragm, and two o-rings.



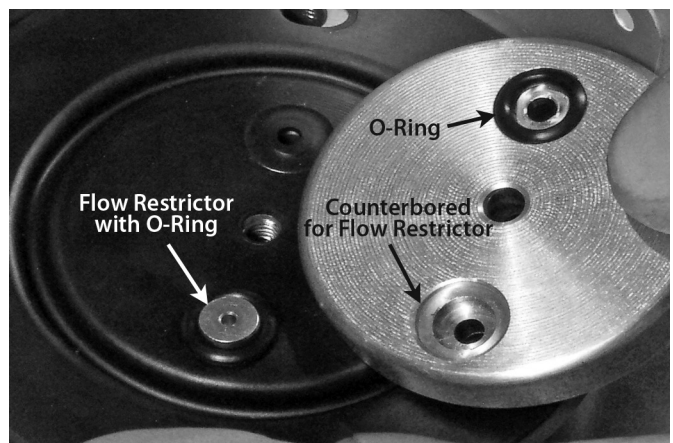
7. Remove any debris from the sealing areas of the lower housing and actuator shaft with a soft rag and non-abrasive cleaner. Insert the NEW flow restrictor (provided with the kit) into the actuator shaft.



8. Install the NEW diaphragm (provided with the kit) onto the lower housing. Make sure the raised portion of the diaphragm is installed toward the lower housing. Position the diaphragm so that the largest hole in the center portion of the diaphragm aligns with the recess where the flow restrictor is installed.



9. Install a NEW o-ring (provided with the kit) around the flow restrictor.



10. Install a NEW o-ring (provided with the kit) into the recess in the piston that IS NOT counterbored.



# Series 746 and 746-LPA Dry Accelerators

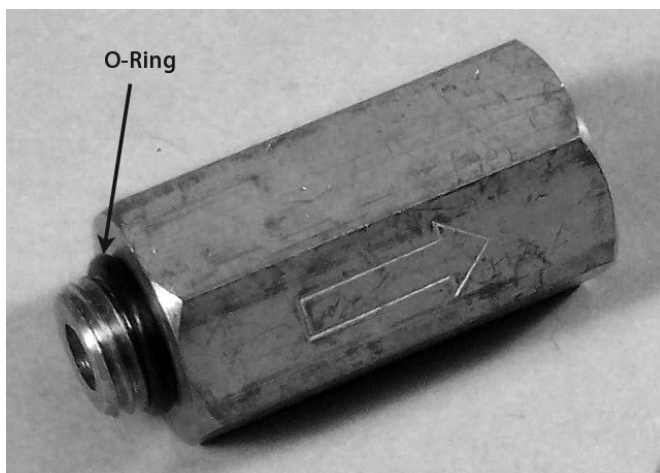
## INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS



11. Align the recesses in the piston with the holes in the diaphragm. **NOTE:** The counterbore of the piston must align with the flow restrictor.



12. Insert the cap screw into the piston and actuator shaft. Using a  $\frac{1}{4}$ -inch hex wrench, fully tighten the cap screw. **NOTE:** Use caution to prevent the piston/diaphragm assembly from rotating during tightening of the cap screw.



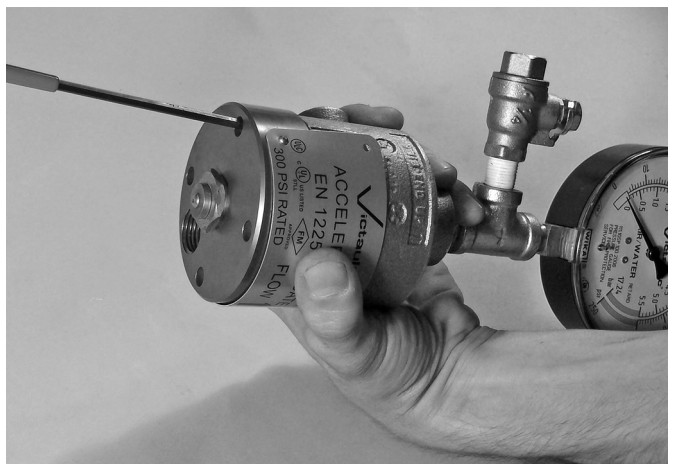
13. Make sure a NEW o-ring is installed on the NEW check valve.



14. Using an adjustable wrench, install the NEW check valve with o-ring into the piston.



15. Align the bolt holes of the upper and lower housings. **NOTE:** Since one set of bolt holes is offset, use the marks made in the "Removing the Series 746 or Series 746-LPA Dry Accelerator from Service" section to aid in alignment.



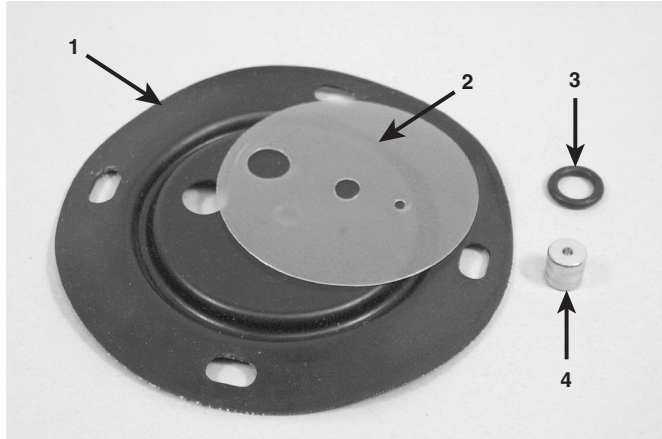
16. Insert a cap screw into each of the four holes. Using a  $\frac{1}{4}$ -inch hex wrench, fully tighten the four cap screws.
17. **Follow all instructions in the "Placing the System Back in Service" section.**

# Series 746 and 746-LPA Dry Accelerators

## INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS

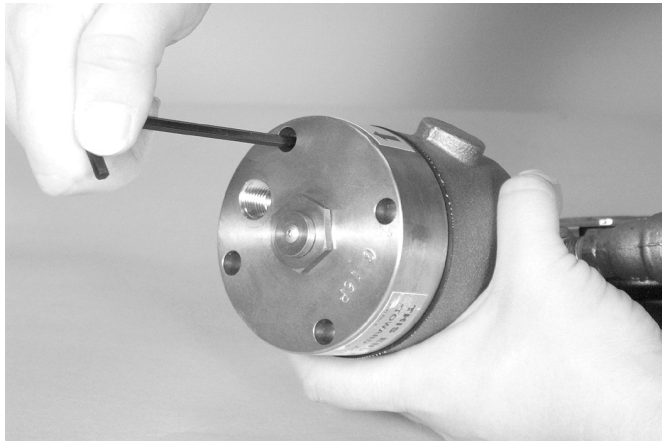
### REPAIR KIT INSTRUCTIONS – DESIGN “C”

#### ITEMS NEEDED FROM REPAIR KIT FOR DESIGN “C” DRY ACCELERATORS



Item	Qty.	Description
1	1	Diaphragm
2	1	Shield
3	1	O-Ring
4	1	Restrictor

1. Follow all instructions in the “Removing the Series 746 or Series 746-LPA Dry Accelerator from Service” section.



2. Using a 1/4-inch hex wrench, remove the four cap screws from the lower housing. Keep these cap screws for re-installation.



3. Separate the lower housing from the upper housing.



4. Using a 1/4-inch hex wrench, remove the cap screw that retains the piston. Keep this cap screw for re-installation.

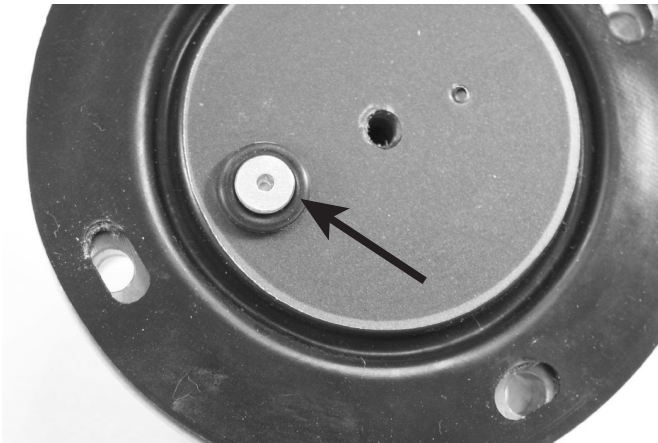


5. Remove the piston. Keep the piston for re-assembly.



## Series 746 and 746-LPA Dry Accelerators

### INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS



6. Remove and discard the o-ring and restrictor



7. Remove and discard the shield.



8. Remove and discard the diaphragm.



9. Remove any debris from the sealing areas of the lower housing with a soft rag and non-abrasive cleaner.



10. Install the NEW diaphragm, provided with the kit, onto the lower housing. Make sure the raised portion of the diaphragm is installed toward the lower housing. The largest hole in the center portion of the diaphragm must align with the whole where the restrictor is normally installed, as shown above.



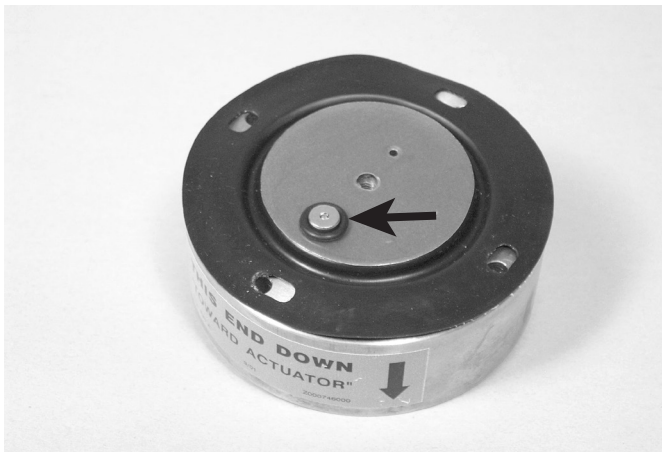
11. Install the NEW shield, provided with the kit. Make sure the three holes in the shield align properly with the three holes in the diaphragm, as shown above.

## Series 746 and 746-LPA Dry Accelerators

### INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS



12. Install the NEW restrictor, provided with the kit, into the largest hole of the shield/diaphragm.



13. Install the NEW o-ring, provided with the kit, around the restrictor.



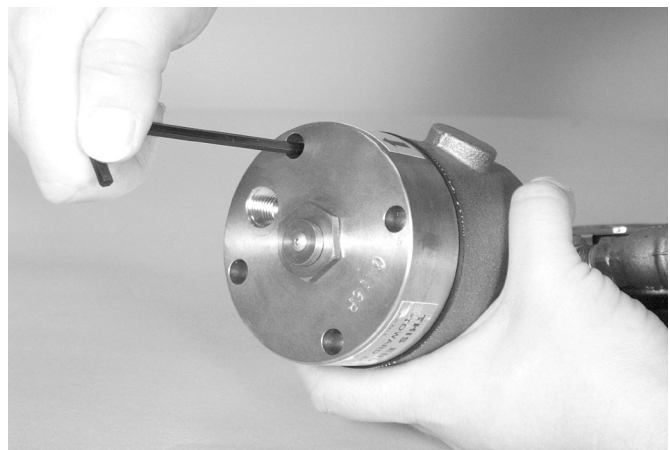
14. Align the holes in the piston with the holes in the shield/diaphragm. **NOTE:** The counterbore of the piston must align with the restrictor, as shown above.



15. Insert the cap screw into the piston assembly. Using a  $\frac{3}{4}$ -inch hex wrench, fully tighten the cap screw.



16. Align the bolt holes of the upper and lower housings. **NOTE:** Since one set of bolt holes is offset, use the marks made in the "Removing the Series 746 or Series 746-LPA Dry Accelerator from Service" section to aid in alignment.



17. Insert a cap screw into each of the four holes. Using a  $\frac{3}{4}$ -inch hex wrench, fully tighten the four cap screws.
18. Follow all instructions in the "Placing the System Back in Service Section."



# Series 746 and 746-LPA Dry Accelerators

## INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS

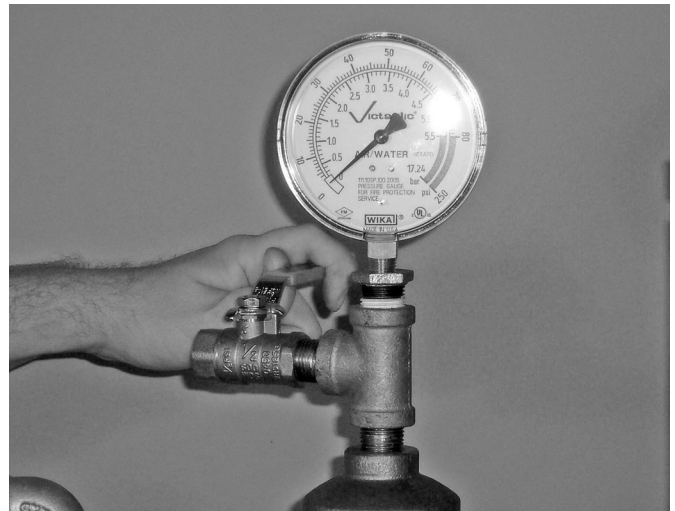
### PLACING THE SYSTEM BACK IN SERVICE



1. Re-apply a small amount of pipe joint compound or Teflon\* tape to the nipple above the isolation ball valve. DO NOT get any tape, compound, or other foreign material into the nipple or openings in the Dry Accelerator.



2. Install the repaired Dry Accelerator assembly onto the nipple above the isolation ball valve.



3. Close the 1/4-turn vent ball valve of the Dry Accelerator.



4. Open the isolation ball valve of the Dry Accelerator. This will set the accelerator.
5. Observe the system air pressure over a 24-hour period to confirm system integrity. If there is degradation in system air pressure, find and correct all leaks. **NOTE:** NFPA requires less than 2-psi/14-kPa leakage in 24 hours.
6. Notify the authority having jurisdiction that the valve has been placed back in service.

\*TEFLON IS A REGISTERED TRADEMARK OF THE DUPONT COMPANY.

## Series 746 and 746-LPA Dry Accelerators

### INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS

#### TROUBLESHOOTING – SERIES 746 AND SERIES 746-LPA DRY ACCELERATORS

Problem	Possible Cause	Solution
The valve operates without sprinkler activation.	There is a loss of air pressure in the lower inlet chamber of the Dry Accelerator.	Check for air loss at the lower chamber seal. If a leak is present, turn the adjustment nut counterclockwise to seal.
		Check for any leaks in the system and trim. Confirm that the AMTA is operating properly.
The Dry Accelerator does not operate within a 5-psi/0.3-Bar pressure drop in system air pressure.	There is a loss of air pressure in the upper air chamber of the Dry Accelerator.	Apply soapy water to all joints around the Dry Accelerator to check for leaks. Repair any leaks and re-test.
	The air decay rate of the system is too slow.	Make sure there are no restrictions in the remote system test valve (inspector's test connection).
		If the above procedures do not work, contact Victaulic.
The Dry Accelerator does not set up properly (cannot get pressure on the upper gauge, and the button pops up immediately when pressure is introduced).	The Dry Accelerator is installed upside-down.	Remove the Dry Accelerator from the trim. Turn the unit around so that the vent seal "button" is facing down (toward the actuator).

## Series 746 and 746-LPA Dry Accelerators

INSTRUCTIONS FOR INSTALLING AND REPAIRING DRY ACCELERATORS

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For complete contact information, visit [www.victaulic.com](http://www.victaulic.com)

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