Series 746-LPA

INSTRUCTIONS FOR INSTALLING AND REPAIRING SERIES 746-LPA DRY ACCELERATORS

IMPORTANT INFORMATION

⚠ WARNING

- **Read and understand all instructions before attempting to perform maintenance on any Victaulic piping products.**
- **Wear safety glasses, hardhat, and foot protection.**

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

⚠ WARNING

- **Depressurize and drain the piping system before attempting to remove, adjust, or perform maintenance on any Victaulic piping products.**

Failure to follow this instruction could result in serious personal injury and/or property damage.

The following information is a guide for proper installation of Victaulic 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.

SECTION VIEW DRAWING AND DESCRIPTION – SERIES 746-LPA DRY ACCELERATOR

The Series 746-LPA Dry Accelerator is a quick-opening device, which exhausts air from Series 767/776/798 Actuators to speed valve operation.

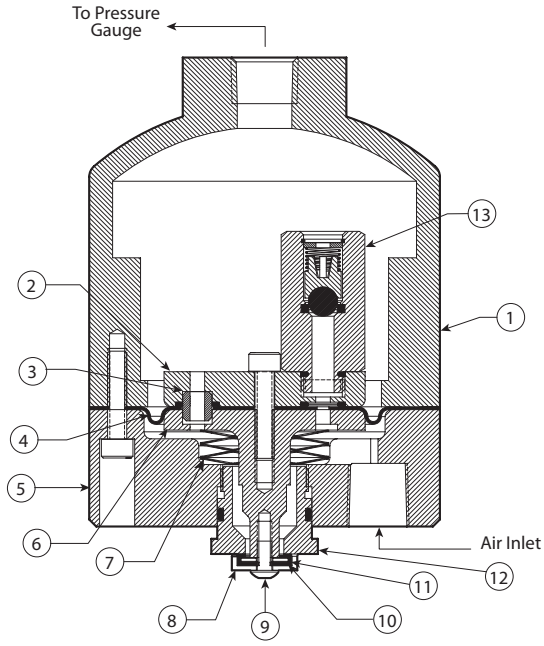
A diaphragm separates the Series 746-LPA Dry Accelerator into two chambers. The closing chamber contains a compression spring, which maintains the chamber in the closed position. The closed position is maintained as long as the pressure differential between the opening and closing chambers is less than 3 psi/21 kPa.

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 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/21 – 34 kPa, 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.

BILL OF MATERIALS

1	Opening/Air Chamber	8	Seal Support
2	Piston	9	Button-Head Cap Screw
3	Restrictor	10	Closing Chamber Seal
4	Diaphragm	11	Washer
5	Closing Chamber	12	Adjustable Seat
6	Actuator Shaft	13	Check Valve
7	Compression Spring		



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

Exaggerated for clarity

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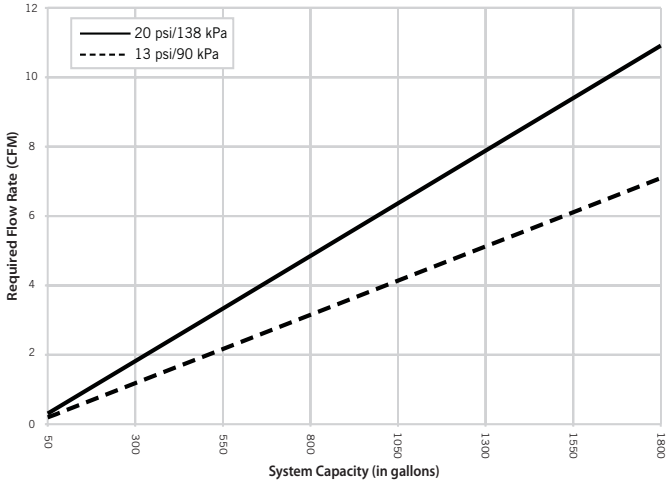
AIR SUPPLY REQUIREMENTS

Systems with air pressure higher than 18 psi/124 kPa require the addition of a Series 746-LPA Dry Accelerator.

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



In the event a compressor becomes inoperative, a properly sized tank-mounted air compressor provides the greatest protection for systems installed with a Series 746-LPA Dry Accelerator. In this situation, air can be supplied continuously to the sprinkler system for an extended time period. **NOTE:** The Series 757 Regulated AMTA should be used with a tank-mounted air compressor to supply air to a system when the Series 746-LPA Dry Accelerator is used. The use of an air regulator with a base or riser-mounted compressor could cause short cycling, resulting in premature wear of the compressor.

Set the air regulator of the Series 757 Regulated Air Maintenance Trim Assembly (AMTA) to a minimum of 13 psi/90 kPa.

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 system installed with a Series 746-LPA Dry Accelerator.

THE SERIES 757P AIR MAINTENANCE TRIM ASSEMBLY WITH PRESSURE SWITCH MUST NOT BE USED ON A SYSTEM INSTALLED WITH A 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 Series 746-LPA Dry Accelerator per the drawing provided.
3. Install the Series 746-LPA Dry Accelerator into the trim of the actuator in the location designated on the applicable trim drawing. Make sure the end of the Series 746-LPA 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.

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REPAIR KIT INSTRUCTIONS

⚠ 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.**

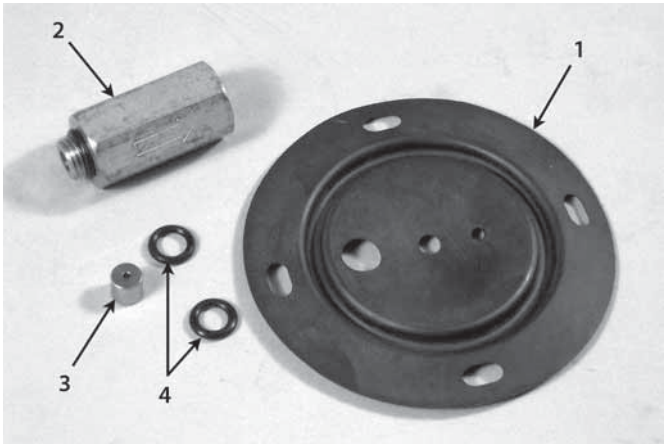
Failure to follow these instructions could result in serious personal injury and/or property damage.

⚠ CAUTION

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

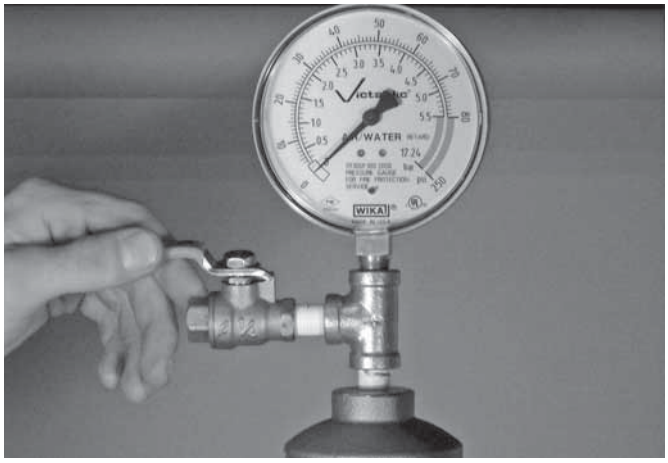
Failure to follow this instruction could cause the valve to false trip, resulting in property damage.

CONTENTS OF REPAIR KIT

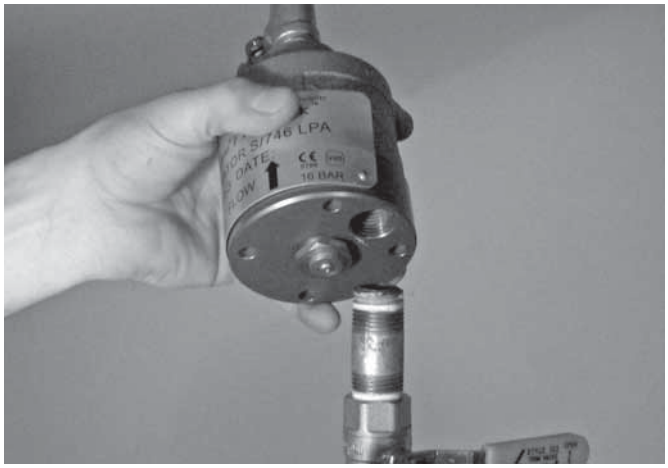


Item	Qty.	Description
1	1	Diaphragm
2	1	Check Valve with O-Ring
3	1	Restrictor
4	2	O-Ring

1. Close the isolation ball valve of the Series 746-LPA Dry Accelerator.



2. Open the ¼-turn vent ball valve of the Series 746-LPA Dry Accelerator. Confirm that the gauge on the accelerator reads 0 psi/0 Bar.



3. Remove the Series 746-LPA from the nipple above the isolation ball valve, as shown.

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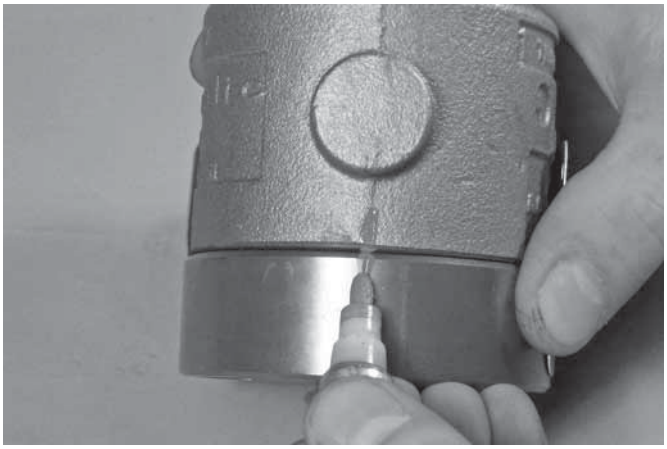
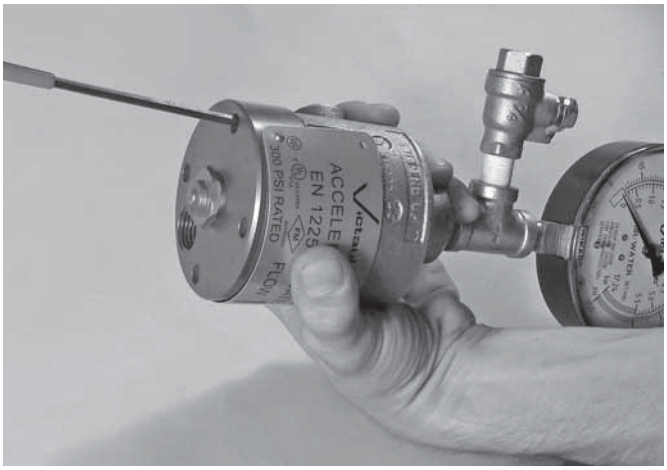
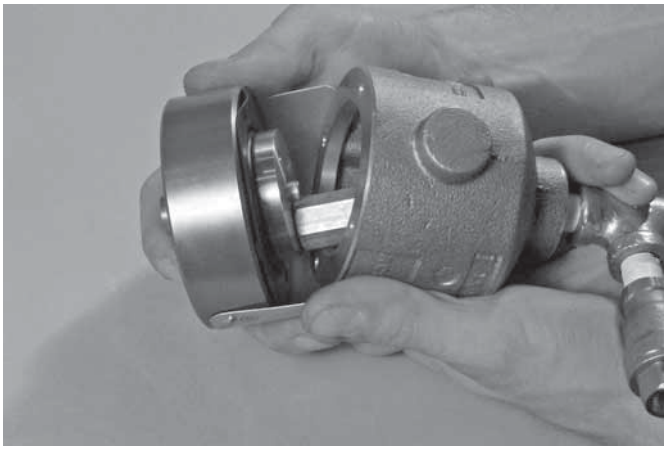


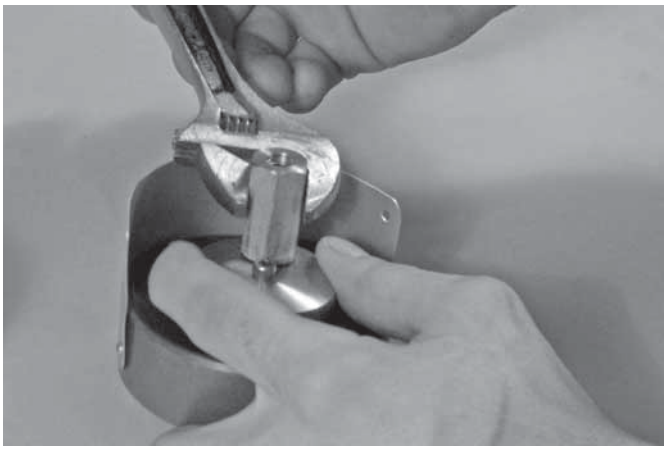
4. Using a marker, place a mark on the upper and lower housings. This mark will aid in aligning the upper and lower housings during re-assembly.



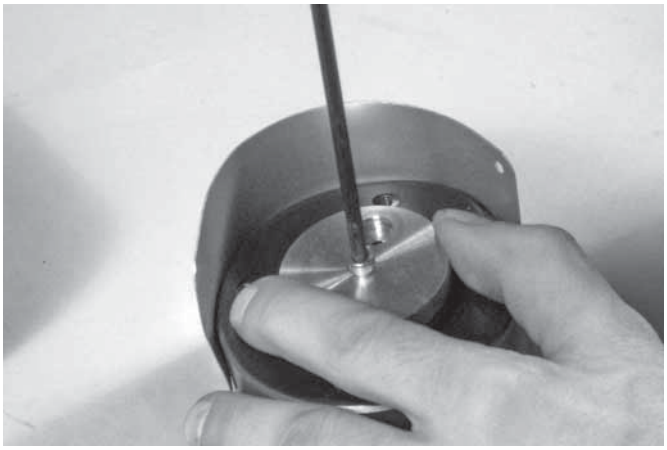
5. Using a 9⁄64-inch hex wrench, remove the four cap screws from the lower housing. Keep these cap screws for re-installation.



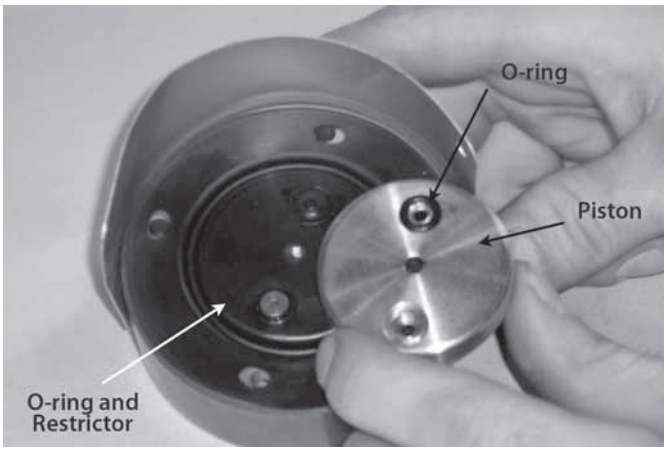
6. Separate the lower housing from the upper housing.



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



8. Using a 9⁄64-inch hex wrench, remove the cap screw that retains the piston. Keep this cap screw for re-installation.



9. Remove the piston, the two o-rings, the restrictor, and the diaphragm. Keep the piston for re-assembly. Discard the restrictor, diaphragm, and two o-rings.
10. Remove any debris from the sealing areas of the lower housing with a soft rag and non-abrasive cleaner.

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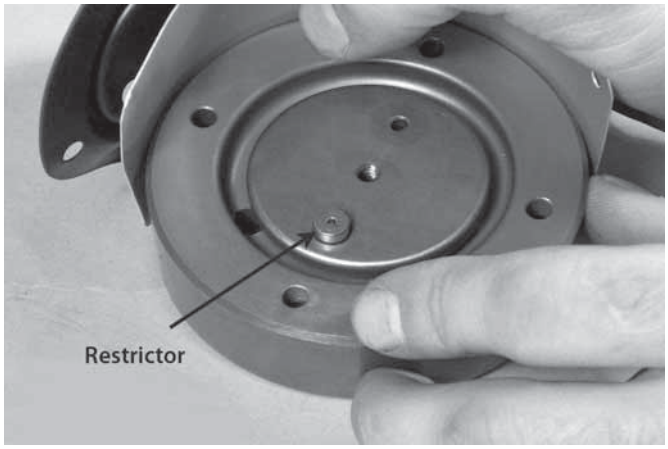
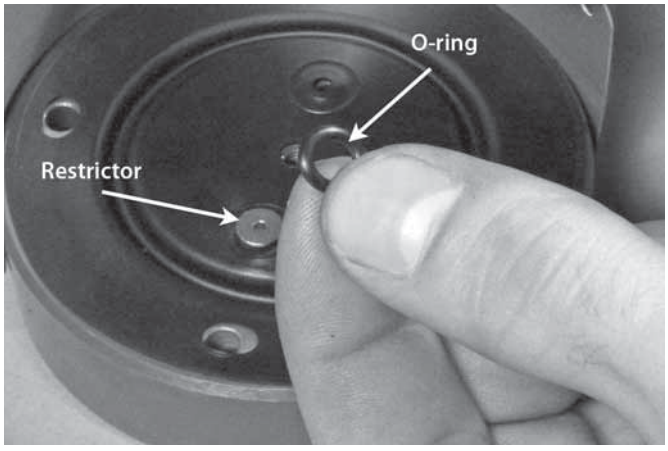
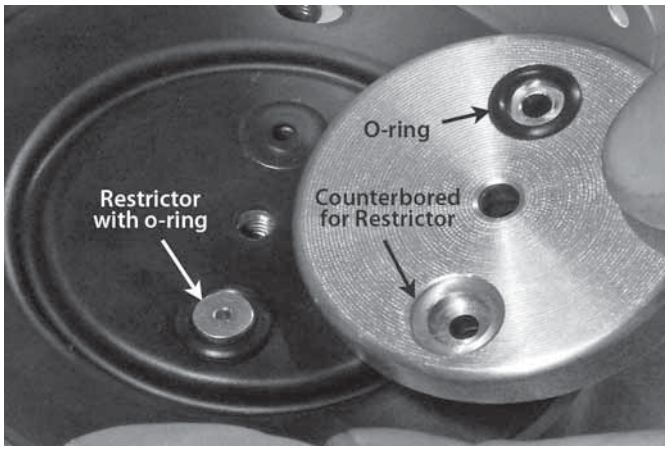


11. Insert the NEW restrictor, provided with the kit, into the lower housing, as shown above.

12. 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 and that it engages with the recess. Position the diaphragm so that the largest hole in the center portion of the diaphragm aligns with the recess where the restrictor is installed, as shown above.

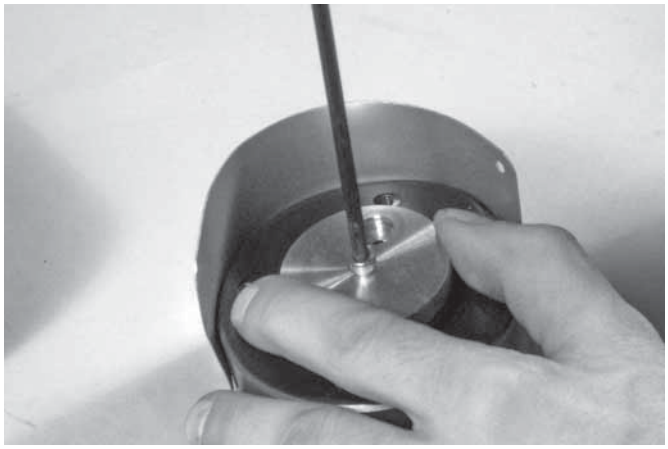


13. Install a NEW o-ring, provided with the kit, around the restrictor.



14. Install a NEW o-ring, provided with the kit, into the recess in the piston that IS NOT counterbored, as shown above.

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



16. Insert the cap screw into the piston assembly. Using a 9/64-inch hex wrench, fully tighten the cap screw.

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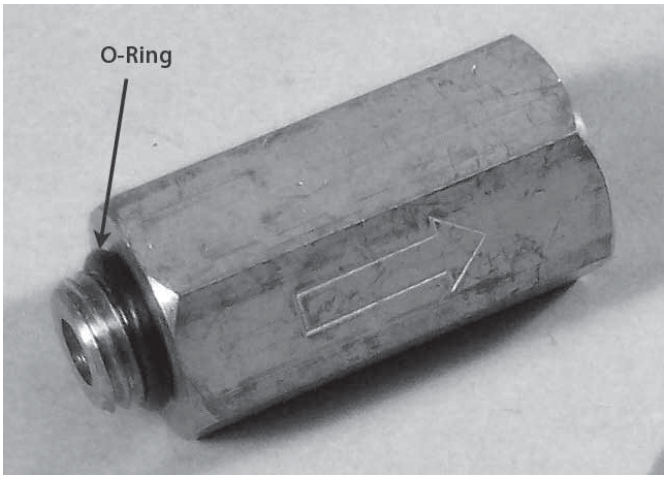
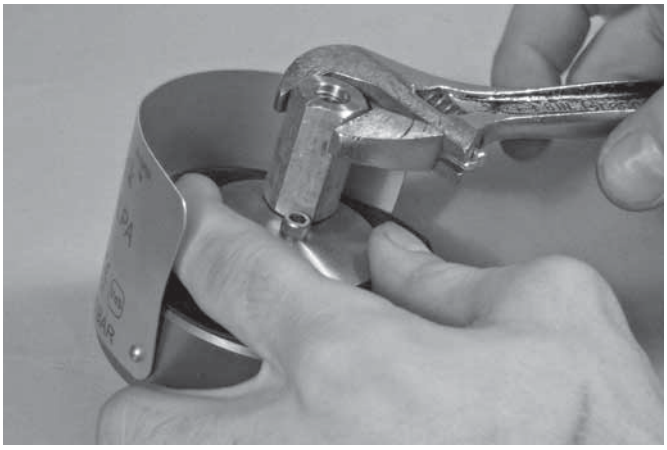
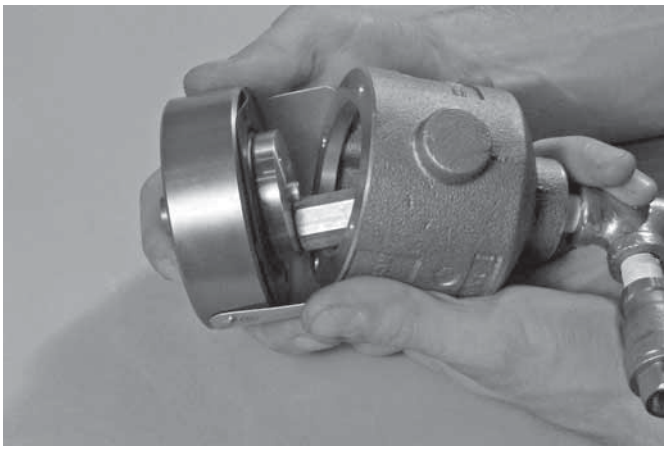


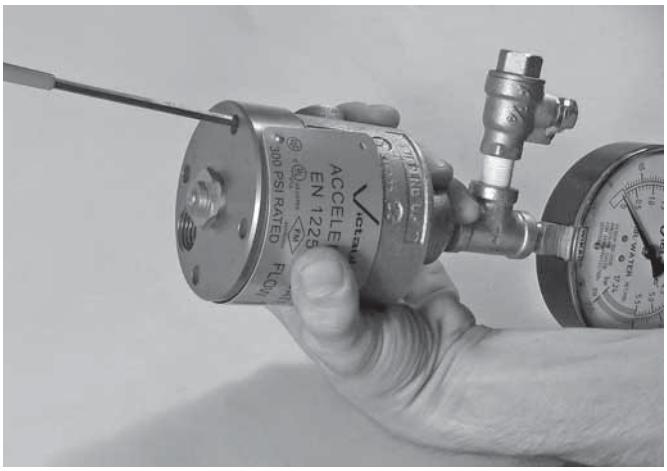
17. Make sure a NEW o-ring is installed on the NEW check valve, as shown above.



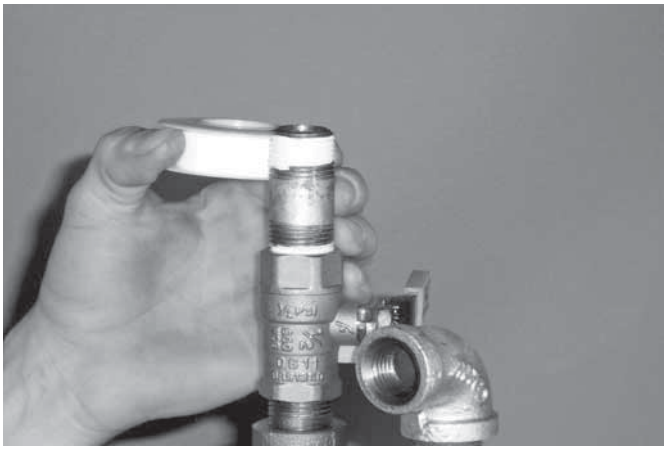
18. Using an adjustable wrench, install the NEW check valve into the piston, as shown above.



19. Align the bolt holes of the upper and lower housings. **NOTE:** Since one set of bolt holes is offset, use the marks made in step 4 to aid in alignment.



20. Insert a cap screw into each of the four holes. Using a 9/64-inch hex wrench, fully tighten the four cap screws.



21. 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 accelerator.

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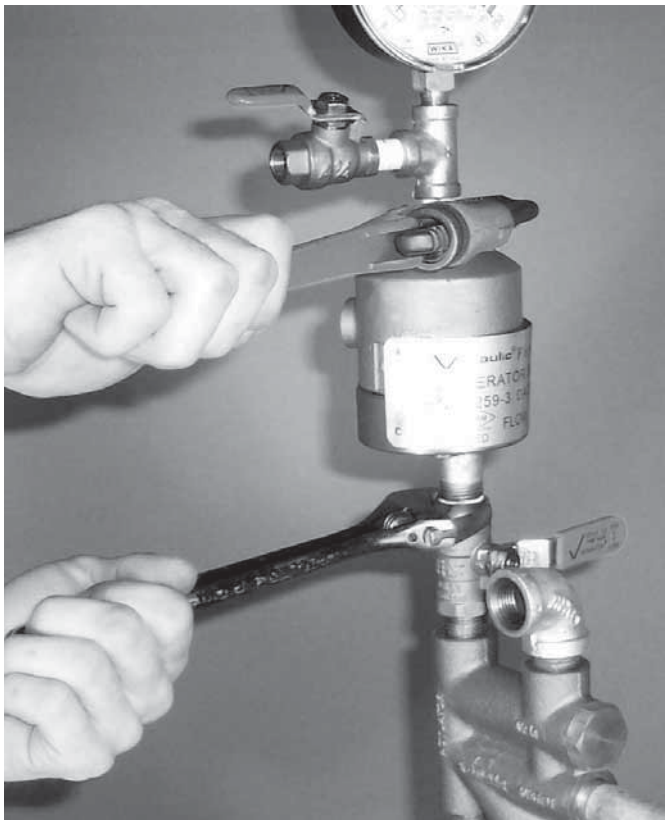
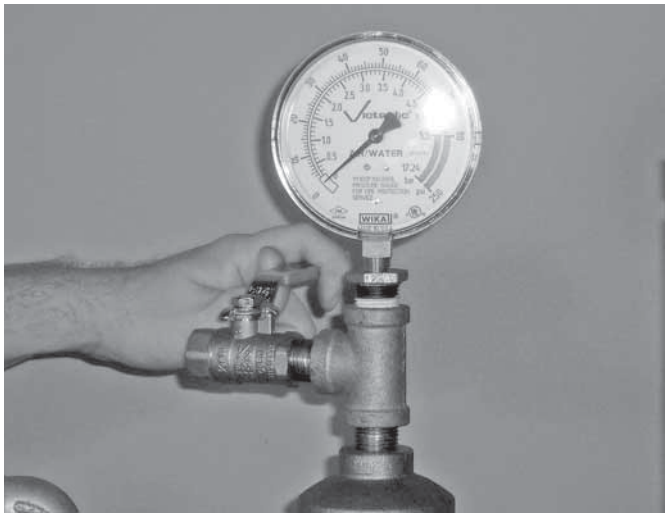
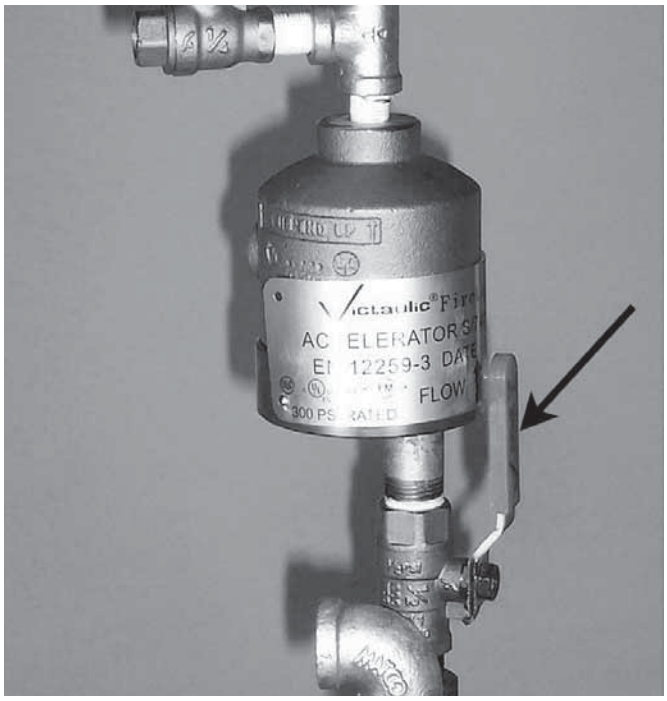


22. Install the repaired Series 746-LPA Dry Accelerator assembly onto the nipple above the isolation ball valve.



23. Close the ¼-turn vent ball valve of the Series 746-LPA Dry Accelerator.



24. Open the isolation ball valve of the Series 746-LPA Dry Accelerator. This will set the accelerator.
25. 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.
26. Notify the authority having jurisdiction that the valve has been placed back in service.

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TROUBLESHOOTING – SERIES 746-LPA DRY ACCELERATOR

PROBLEM	POSSIBLE CAUSE	SOLUTION
The valve operates without sprinkler activation.	There is a loss of air pressure in the lower inlet chamber of the Series 746-LPA 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 air maintenance trim assembly (AMTA) is operating properly.
The Series 746-LPA Dry Accelerator does not operate within a 5-psi/34-kPa pressure drop in system air pressure.	There is a loss of air pressure in the upper air chamber of the Series 746-LPA Dry Accelerator.	Apply soapy water to all joints around the Series 746-LPA 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 Series 746-LPA 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 Series 746-LPA Dry Accelerator is installed upside-down.	Remove the Series 746-LPA Dry Accelerator from the trim, and turn the unit around so that the vent seal "button" is facing down (toward the actuator).

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WCAS-6TMG37

UPDATED 10/2006
I-746.LPA 4603 REV A Z000746LPA