

## **Model RC-1 Retard Chamber For Variable Pressure Wet Pipe Sprinkler Systems 300 psi (20,7 bar)**

### **General Description**

The Model RC-1 Retard Chamber is required in installations that will be subject to pressure variations, as are generally associated with public water supplies in order to help prevent false alarms. The RC-1 is specifically intended for use as a separately ordered item for the Model AV-1-300 (TFP910) and AV-1-175 (TFP912) Alarm Check Valves. It can, however, also be used as a separately ordered item for changing out older style Retard Chambers used with the Central Model F/G, Gem Model A, or Star Model E/F Alarm Check Valves.

The Model RC-1 Retarding Chamber is a redesignation for the Gem Model F211 for use with Gem Model F20/F200/F2001 Alarm Check Valves, as well as the Star Model S310 for use with Star Model S30/S300/S3001 Alarm Check Valves.

#### **WARNING**

*The Model RC-1 Retard Chamber described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the integrity of this device.*

*The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted relative to any questions.*

### **Technical Data**

#### **Approvals**

UL and ULC Listed, as well as FM, LPCB, and VdS Approved for use with the following Alarm Check Valves:

Model AV-1-175  
Gem Model F20/F200/F2001  
Gem Model A  
Star Model S30/S300/S3001

UL and ULC Listed, as well as FM Approved for use with the Model AV-1-300 Alarm Check Valves.

#### **Working Water Pressure**

300 psi (20,7 bar)

#### **Construction**

The Model RC-1 Retard Chamber shown in Figure 1 is cast iron, and a 3/4" x 1/2" x 3/4" Tee is provided at the outlet (top) for connection of a pressure alarm switch and/or water motor alarm. The Restriction Assembly shown in Figure 2 is comprised of brass restrictions assembled to a cast iron or malleable iron threaded tee fitting. The screen is stainless steel.

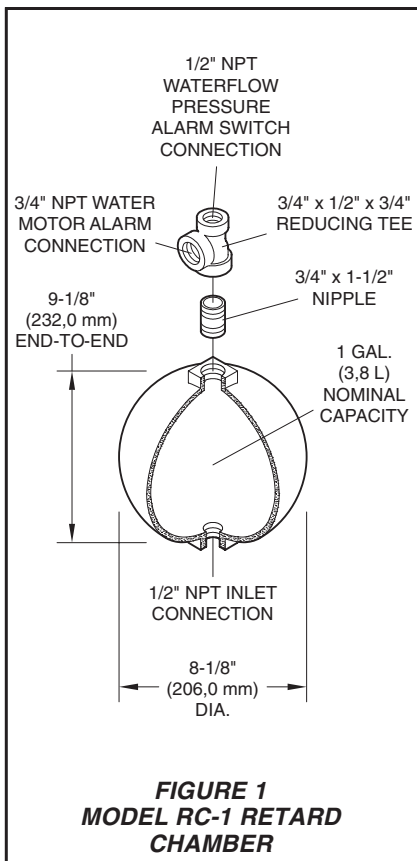
### **Operation**

When there is a steady flow of water into the sprinkler system due to a sprinkler operation, the Clapper in the Alarm Check Valve opens as shown in Figure 3. Water is then permitted to flow into the centrally located groove in the Seat Ring and out through the alarm port towards the Restriction Assembly (Figure 2). When the flow through the inlet restriction of the Restriction Assembly exceeds the flow out through the outlet restriction, the Retard Chamber begins to fill. Subsequently, the water motor alarm and/or the pressure alarm switch will be actuated. The alarms will continue to be actuated as long as the Clapper in the Alarm Check Valve remains open. Water in the alarm lines will auto-

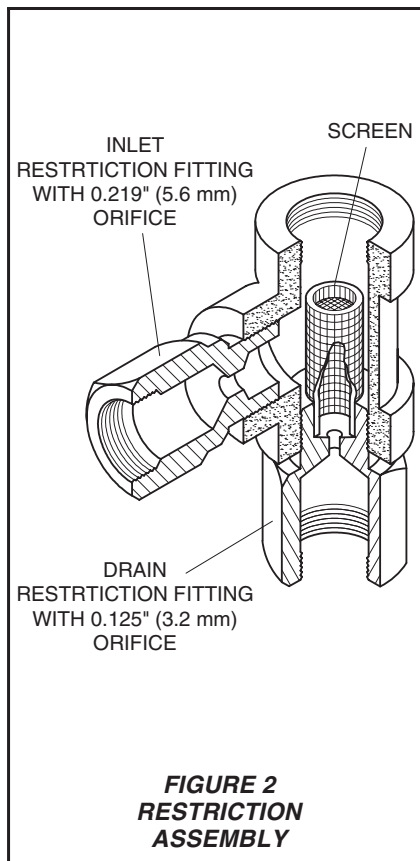


matically drain out through the 1/8" (3,2 mm) drain orifice in the Restriction Assembly (Figure 2) when the Alarm Valve Clapper closes (due to a discontinuation in the flow of water into the sprinkler system).

In the case of variable pressure systems, a transient surge in supply pressure that is sufficient to only momentarily open the Alarm Valve Clapper will not cause a false alarm, since the volume of the Retard Chamber is sufficiently large enough that it will not have filled to operate the connected alarm devices. Any water in the alarm line is then automatically drained, further reducing the possibility of a false alarm due to a successive transient surge in supply pressure.



**FIGURE 1**  
**MODEL RC-1 RETARD CHAMBER**



**FIGURE 2**  
**RESTRICTION ASSEMBLY**

## Installation

The Model RC-1 Retard Chamber must be installed in accordance with the specific instructions provided with the Tyco Fire Products Model AV-1-300 (TFP910) or Model AV-1-175 (TFP912) Alarm Check Valves. The standard trim for these Alarm Check Valves includes all of the necessary components including the Restriction Assembly shown in Figure 2.

In the case of retrofitting Central Model F/G Alarm Check Valves refer to Figure 4; In the case of retrofitting Gem Model A Alarm Check Valves refer to Figure 5; and, in the case of retrofitting Star Model E/F Alarm Check Valves refer to Figures 6 and 7.

### NOTE

When retrofitting per Figures 4, 5, 6, or 7, the Restriction Assembly, Y-Strainer, and associated pipe nipples and fittings must be ordered separately to complete the installation.

Apply pipe thread sealant sparingly to male threads only.

## Care and Maintenance

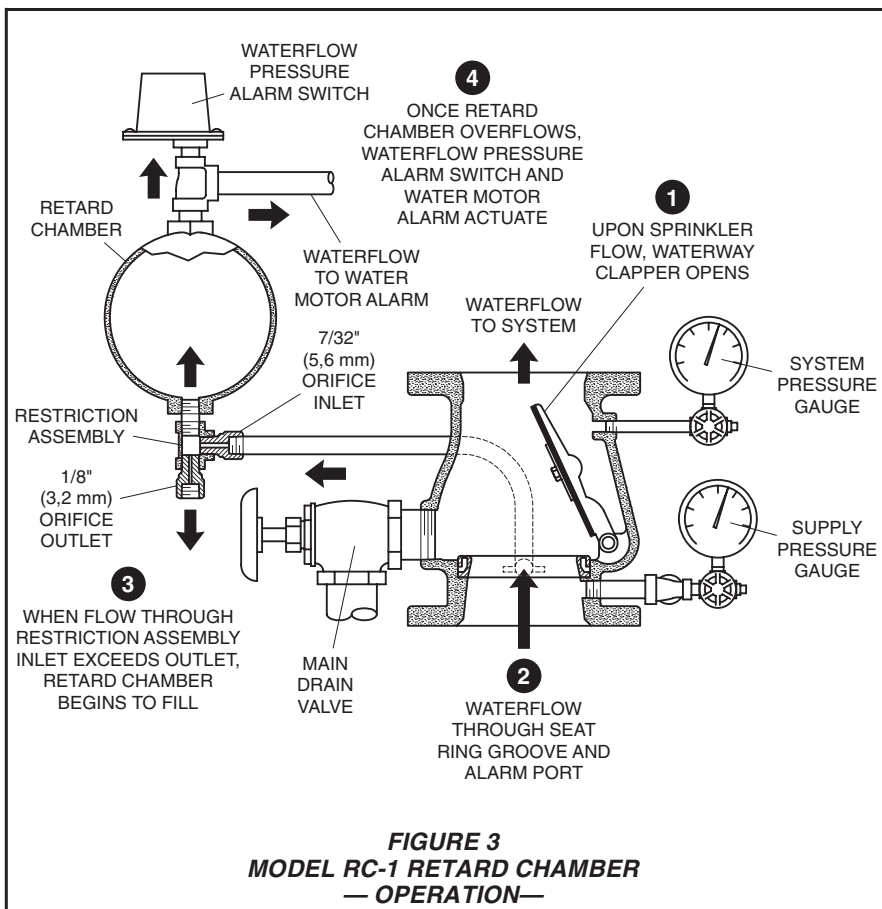
The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any authority having jurisdiction. The installing contractor or product manufacturer should be contacted relative to any questions.

It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified Inspection Service.

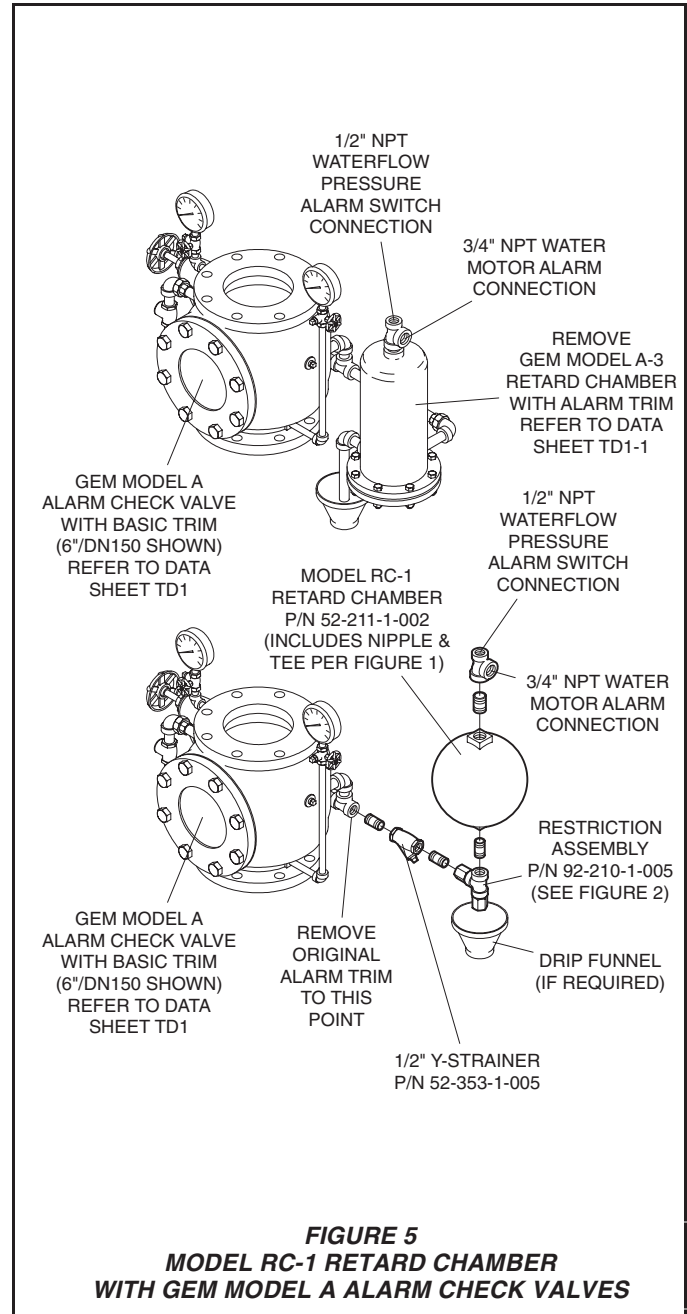
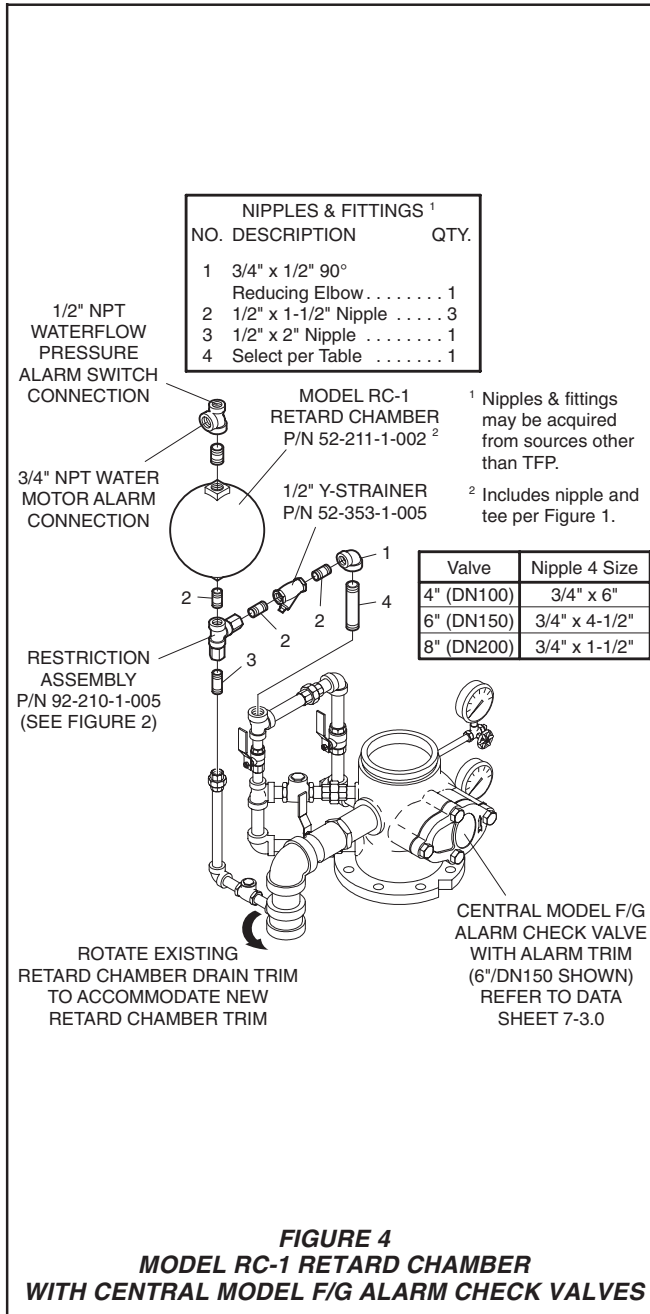
Specific consideration must be given to cleaning the Screen within the Restriction Assembly, as well as the Y-Strainer. More frequent cleaning than that required by NFPA 25 may be necessary as determined after the first inspection and is a function of the water quality with respect to water borne debris.

### NOTES

Before closing a fire protection system control valve for inspection or maintenance work on the fire protection system that it controls, permission to shut down the affected fire protection system must first be obtained from the proper authorities, and all personnel



**FIGURE 3**  
**MODEL RC-1 RETARD CHAMBER**  
**— OPERATION —**



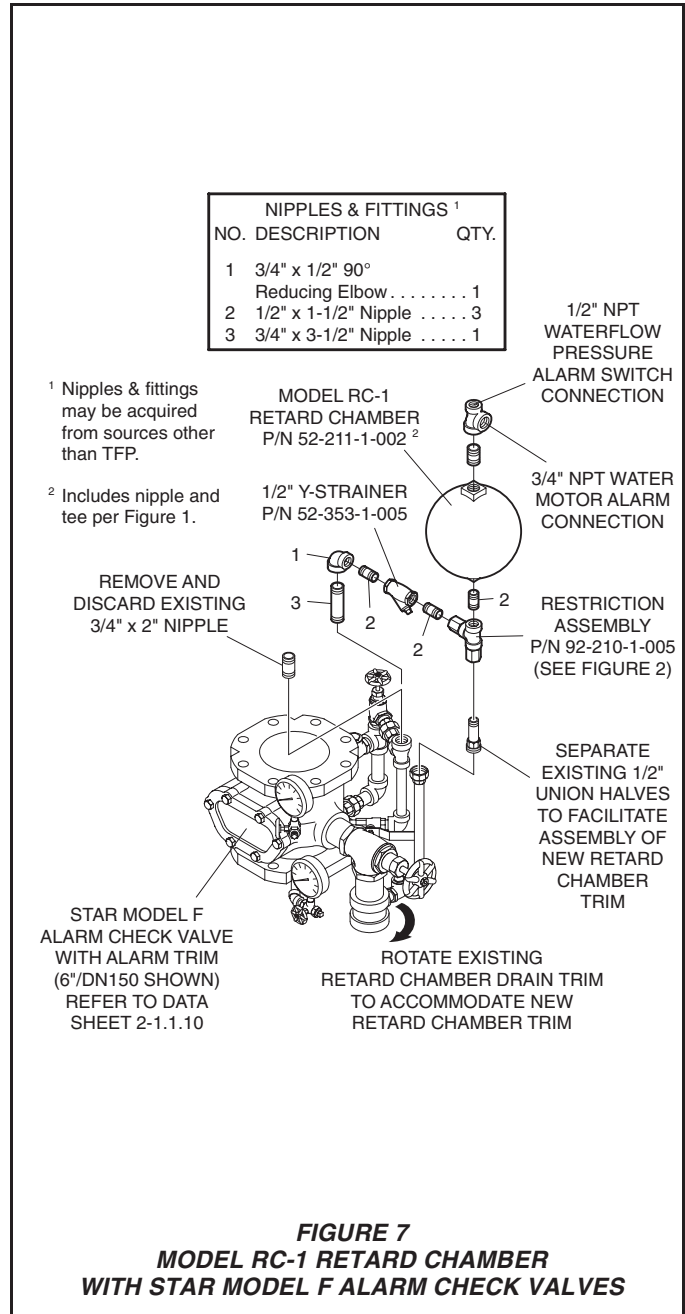
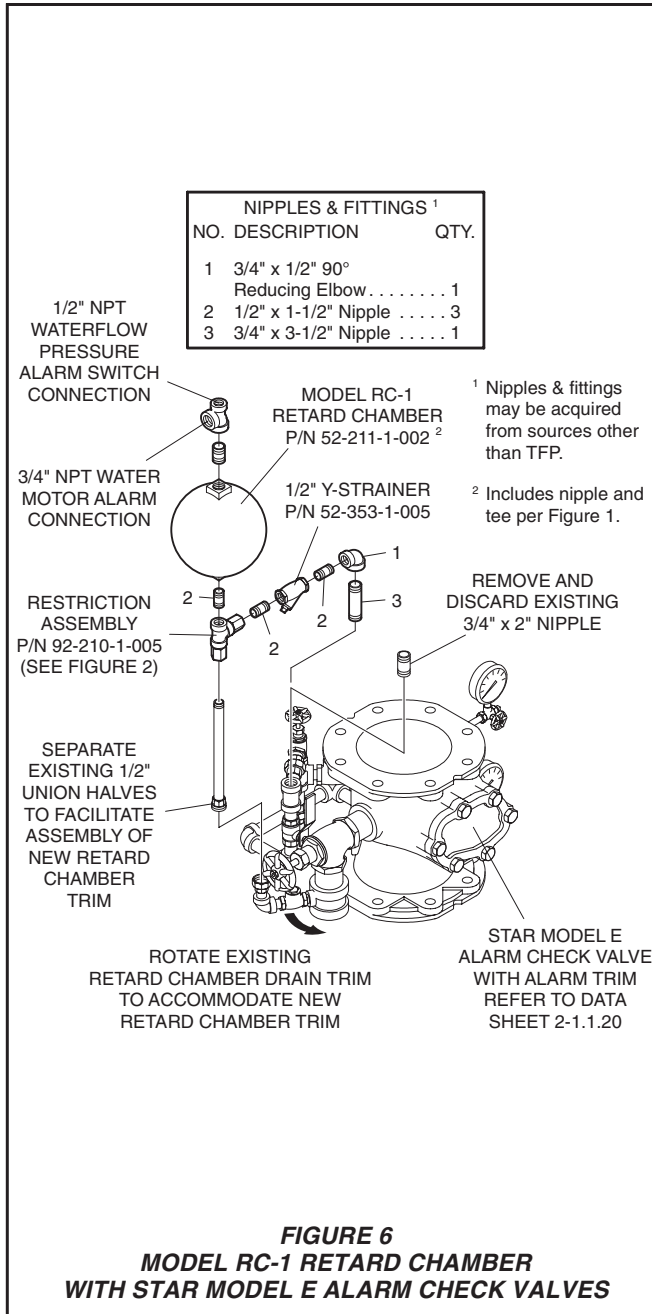
who may be affected by this action must be notified.

After placing a fire protection system in service, notify the proper authorities and advise those responsible for monitoring proprietary and/or central station alarms.

## Limited Warranty

Products manufactured by Tyco Fire Products are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by Tyco Fire Products. No warranty is given for products or components manufactured by companies not affiliated by ownership with Tyco Fire Products or for products and

components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by Tyco Fire Products to be defective shall be either repaired or replaced, at Tyco Fire Products' sole option. Tyco Fire Products neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. Tyco Fire Products shall not be responsible for sprinkler



system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

IN NO EVENT SHALL TYCO FIRE PRODUCTS BE LIABLE, IN CONTRACT, TORT, STRICT LIABILITY OR UNDER ANY OTHER LEGAL THEORY, FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LABOR CHARGES, REGARDLESS OF WHETHER TYCO FIRE PRODUCTS WAS INFORMED ABOUT THE POSSIBILITY OF SUCH DAMAGES, AND IN NO EVENT SHALL TYCO FIRE PRODUCTS' LI-

ABILITY EXCEED AN AMOUNT EQUAL TO THE SALES PRICE.

**THE FOREGOING WARRANTY IS MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

## Ordering Information

Orders for the RC-1 and additional components, as applicable, must in-

clude the description and Part Number (P/N).

**RC-1:**  
Specify: Model RC-1 Retard Chamber w/galvanized steel fittings, P/N 52-211-2-002.

### NOTE

When retrofitting per Figures 4, 5, 6, or 7, the Restriction Assembly, Y-Strainer, and associated pipe nipples and fittings must be ordered separately to complete the installation.