

Systems Releasing Module Installation

GENERAL

This instruction sheet covers the installation of the Systems Releasing Module (SRM and SRM-D). Please refer to the Buckeye Kitchen Mister Restaurant Cooking Area Fire Suppression System Technical Manual, Model BFR-TM, for additional details on limitations and installation of other components not covered in this instruction sheet.

WARNING: Buckeye Certified Training is required to become Authorized to perform these procedures. Buckeye Fire Equipment will not be responsible for system(s) designed, installed, or maintained by individuals or companies not trained and Authorized by Buckeye Fire Equipment.

SYSTEMS RELEASING MODULE (SRM or SRM-D) INSTALLATION

Mounting Directly on Cylinder Valve: Align the mounting holes in the SRM base with the holes in the interface gasket and cylinder valve. Using a 3/16" hex wrench, secure the SRM to cylinder valve with four 1/4-20 x 7/8" Socket Head mounting screws. See **Figure 1**.

Wall Mounting (pneumatically actuating a single cylinder remotely): See **Figure 2**.

1. Fill the mounting screw holes in the bottom of the SRM using four (4) 1/4-20 socket head screws.

2. Apply thread sealer or Teflon tape to threads and tightly screw the 1/8" NPT - 1/4" OD tube adapter fitting into the bottom of the SRM.

3. Remove the four (4) small knock-outs in the back of the enclosure, and then using four screws (not provided) securely mount the SRM to a wall.

4. Mount the agent cylinders making sure not to exceed the maximum length of tubing allowed. See **Table 1**.

5. Install a **Model BFR-CAP** Valve Cap Assembly (purchased separately) on the cylinder valve. Use the four (4) 1/4"-20 x 7/8" socket head screws provided with the cylinder assembly to fasten the Valve Cap Assembly to the top of the cylinder valve.

6. Connect the SRM to the agent cylinder using 1/4" OD copper tubing. DO NOT crimp or break the copper tubing and securely tighten all connections.

Wall Mounting (pneumatically actuating a multiple cylinders remotely): See **Figure 3**.

The SRM cannot be mounted directly to the valve when used to actuate multiple cylinders. When actuating multiple cylinders remotely, follow steps given for actuating a single cylinder remotely, with the following exceptions: See **Figure 3**.

1. The Valve Cap Assembly, **Model BFR-CAP**, used with the last cylinder valve is not changed, and the extra 1/8" NPT - 1/4" OD tube adapter fitting is installed in the SRM. The **Vent Plug (or ball check) must be left installed in the BFR-CAP used on the last cylinder valve**. The 1/4" copper tubing leading to the proceeding cylinder is connected to the 1/8" NPT - 1/4" OD tube adapter fitting already installed in the BFR-CAP.

2. For all other Valve Cap Assemblies (one for each additional cylinder being actuated), the Vent Plug needs to be removed and replaced with the extra 1/8" NPT-1/4" OD tube adapter fitting.

3. Using 1/4" OD copper tubing and staying within the stated limitations (Refer to **Table 1**) connect each cylinder to the proceeding cylinder, then to the adapter in the SRM.

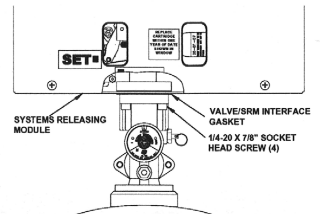


Figure 1.
Systems Releasing Module Mounted Directly to Cylinder Valve

Figure 2.
Systems Releasing Module Shown Actuating a Single Agent Cylinder

CAUTION: Each connection and adapter fitting **MUST** be made secure and tight so as prevent any leakage of the actuating gas.

Setting the Systems Releasing Module

After installing the fusible link line, pull station line, and gas valve line, back to the location of the SRM, the SRM can be connected and put into the "set position". When penetrating the SRM only the appropriate knockouts and 1/2" EMT connectors can be used. See **Figure 4**.

Step #1: Connecting the Remote Pull Station Cable. (Refer to **Figure 5**.)

1. Feed Remote Manual Pull Station cable through the top right knockout of the SRM.
2. Insert the cable through the hole in Manual Release Lever.
3. Slide a crimp onto the end of the cable and loop the cable back through the crimp so that as small a loop as possible is exposed, then install crimp. There should be approximately 1" of cable left between the crimp and the Manual Release Lever.
4. Remove the excess cable.

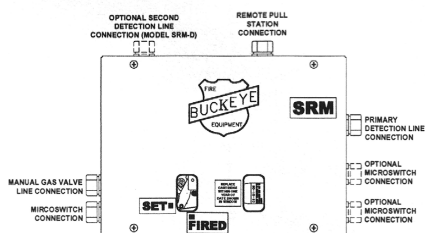


Figure 4.
Systems Releasing Module Connection Points

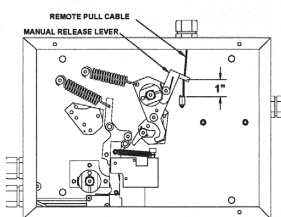


Figure 5.
Manual Pull Station Cable Connection

Figure 3.
Multiple Cylinder Actuation Using the Systems Releasing Module

CAUTION: The Manual Release Lever's movement **MUST NOT** be restricted or impeded by the Remote Manual Pull Station cable.

Step #2: Connecting and Applying Tension to the Fusible Link Line.

1. Feed the Fusible Link Line cable through the top right-side knockout as shown. See Figure 4.
2. Pull all the excess slack from detection line. **Note: Fusible Link Holders and links must be installed prior to removing excess cable.**
3. Pull the cable to the opposite end of SRM and cut the cable.
4. Connect the link line to the fusible link ratchet wheel. See Figure 6.

Option #1: Install a crimp at the end of the fusible link cable and insert the crimp in the center slot of the fusible link ratchet wheel. Make sure to leave enough free cable to allow for two complete wraps around the ratchet wheel when the line is tensioned.

Option #2: Slide the detection cable through the hole in the fusible link ratchet wheel and crimp the end of the cable, making sure to leave enough free cable to allow for two complete wraps around the ratchet wheel when the line is tensioned.

5. Correctly position the fusible links in the plenum (refer to technical manual, BFR-TM).
6. Check that the Catch is in the neutral position, so that the Detection Arm Assembly engages the Catch properly. See Figure 7.
7. Using a ratchet (3/8" drive) rotate the Fusible Link Ratchet clockwise until all slack has been removed from the cable and the Detection Arm hits its stop, fully engaging the Catch. The cable should not wrap more than four (4) times around the Detection Spool. Remove ratchet and check detector positions to ensure that they are still in their appropriate positions and all excess slack has been removed. See Figure 8.

CAUTION: Do not over tighten the detection line once the Detector Arm Assembly has come in connect with the stop and has fully engaged the Catch.

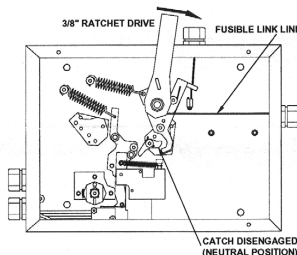


Figure 7.
Connecting Fusible Link Line to Systems
Releasing Module

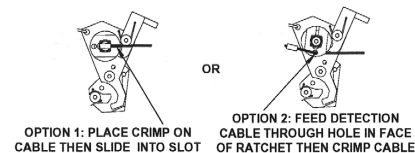


Figure 6.
Two Methods of Connecting Fusible Link
Line to Fusible Link Ratchet

Note: The Detection Cable must be positioned so that it stays in the channel (smaller diameter) of the Fusible Link Ratchet.

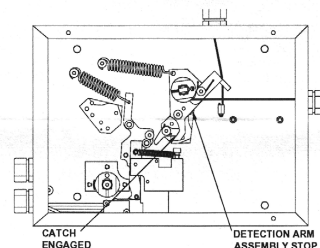


Figure 8.
Fusible Link Line in Set Position

Step #3: Placing the Systems Releasing Module in the "Set" Position.

Using a 3/16" hex (Allen) wrench or ratchet with a 3/16" hex-bit socket, rotate the Detection Trigger in a clockwise motion to the right until the Catch snaps into place, locking the Trigger in the SET position. The Actuation Lever will also move and engage the Gas Valve Ratchet and return the DPDT micro-switches to their SET positions. See Figure 9 & Figure 10.

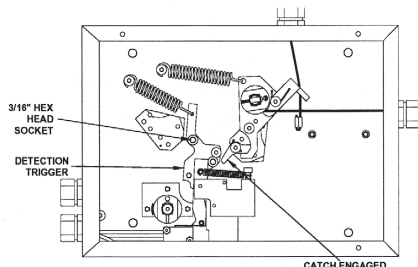


Figure 9.
Setting Detection Trigger

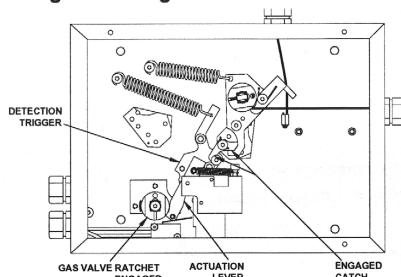


Figure 10.
Detection Trigger Set

NOTE: In the SRM-D (Dual Detection), the Secondary Detection Line must be connected and tensioned, before the Actuation Lever will move into the SET position. See section on dual detection (Step #3A) for details.

Step #3A: Connecting and Setting Optional Secondary Detection Line (For Model SRM-D, Systems Releasing Module, Dual Detection).

The Buckeye Fire Equipment Systems Releasing Module can also be supplied with a secondary, independent detection line. To have this option available it is necessary to order the **Model SRM-D**. Follow the same procedures given in Steps 2 and 3, with the following exceptions:

1. The secondary detection line will enter the enclosure from the top left knock out as shown in Figure 11.
2. Place the Keeper Safety Pin into the Primary Detection Arm Assembly to prevent the accidental release of the Detection Cable. See Figure 12.

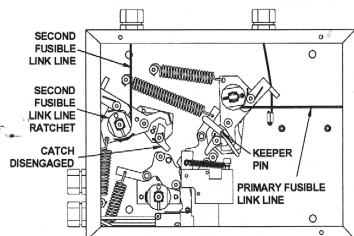


Figure 11.
Connecting Secondary Fusible Link
Line to Systems Releasing Module

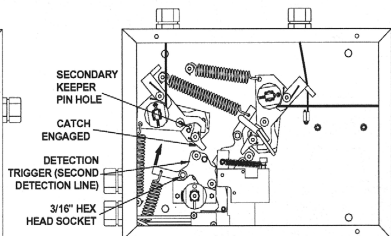


Figure 12.
Setting Secondary Fusible
Link Line

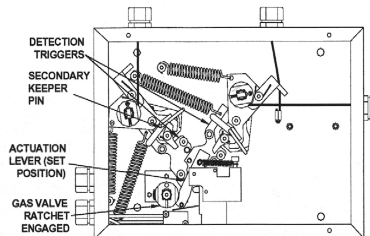


Figure 13.
Setting Secondary
Detection Trigger

NOTE: When using a **Model SRM-D** both Keeper Pins must be removed before putting the control head into service. All other steps are the same for the **Model SRM** and **Model SRM-D**.

3. Using a 3/16" hex wrench or ratchet with a 3/16" hex-bit socket, rotate (in a clockwise motion) the Detection Trigger upwards, until the Catch snaps into place, locking the Trigger in the SET position. Insert second Keeper Pin if desired. See Figure 13.

Step #4: Setting the Mechanical Gas Valve. (Refer to Figures 14)

1. Feed the gas valve cable into the SRM through the top left-side knockout as shown.

2. Remove excess slack from the line and cut cable about 3" past Gas Valve Ratchet. Attach the gas line cable to the Gas Valve Ratchet in the same manner as the fusible link line (Refer to Figure 6).
3. Rotate the Gas Valve Ratchet clockwise until all slack has been removed from the cable and the Mechanical Gas Valve stem is fully extended and the Gas Valve is in its full open position. Remove ratchet or wrench and check the Gas Valve to ensure that it is in its full open position.

CAUTION: Do not over tighten the Mechanical Gas Valve line once the Mechanical Gas Valve stem has been extended to its full open position. Damage to the Gas Valve could result. Refer to gas valve manufacture's instructions for proper distance that the Gas Valve stem should be extended to obtain its full open position.

Step #6: Wiring of Micro-switches. (Refer to Figure 15.)

The SRM (or SRM-D) come with two (2) factory installed micro-switches that are in their normal position when the SRM is in the **SET** position. The leads for these switches are approximately two feet long and need to be passed through the bottom left knock-out.

NOTE: All electrical connections **MUST** be made outside the SRM enclosure in an approved junction box. All applicable electrical codes apply and must be complied with.

The SRM is also equipped to have two (2) additional micro-switches field installed, with the switch lever actuated when the Actuation Lever is in the **SET** position.

Using the two (2) 4-40 x 1" screws and lock washers provided in the kit, the switches are mounted to the front of the manifold mounting block. The leads are to be fed out of the bottom right-side knock-out and connections made in an approved junction box.

Step #7: System Checkout After Installation.

Before putting the system into service all components must be checked for proper operation. This is accomplished by test firing each of the SRM (or SRM-D) actuation methods.

NOTE: If the SRM (or SRM-D) is connected directly to the cylinder valve be sure that the nitrogen cartridge is **NOT** installed while checking SRM (or SRM-D) functions.

CAUTION: Do not test fire nitrogen cartridge if the SRM is mounted directly to the cylinder valve or with the Valve Cap(s) attached to the cylinder valve. Actuation of the Cylinder Valve will occur if connected.

Option #1: SRM mounted directly to Cylinder Valve: (Nitrogen cartridge is **NOT** installed).

1. Remove the Keeper Pin(s) from the hole in the detection arm assembly mounting block.
2. To check the satisfactory operation of the fusible link system, cut the "S" Hook attached to the terminal link. This will release tension on the fusible link line causing the following to occur:
 - a. The SRM will operate, causing the detection arm assembly to move back to the left, disengaging the trigger, and allowing the actuation arm to operate, pushing the puncture pin into the manifold block and releasing the Gas Valve Ratchet.
 - b. The gas valve will close, stopping gas flow to any gas fueled appliances.
 - c. All auxiliary devices connected to the dry contacts provided in the SRM will have operated.
3. After testing the fusible link line, repair the terminal link and re-set the control head as described previously.
4. Check the manual pull station by pulling the handle on the remote pull station and making sure that the following occurs:
 - a. The SRM will operate, causing the detection arm assembly to move back to the left, disengaging the trigger, and allowing the actuation arm to operate, pushing the puncture pin into the manifold block and releasing the Gas Valve Ratchet.
 - b. The gas valve will close, stopping gas flow to any gas fueled appliances.
 - c. All auxiliary devices connected to the dry contacts provided in the SRM will have operated.

WARNING: If any of these events do not occur when the terminal link is cut or the manual pull station is pulled, determine the cause of the problem and repeat the above steps. **DO NOT** put the system into service until the cause of the problem is determined, the appropriate steps are taken to solve the problem, and the system is successfully re-tested.

5. Reset the manual pull station by pulling the crimped end of the cable 1" below the manual release lever. At the pull station, feed the remaining cable slack back into the pull station, insert the pull handle and replace and secure the break glass.
6. If testing a SRM-D, test the independent secondary fusible link line by following Steps 1 thru 3 but using the secondary line instead of the primary line.

After assuring that the SRM (or SRM-D) and remote devices are functioning properly, the nitrogen cartridge can be installed and the system put into service. See **Option #2, Step #7**.

Option #2: SRM mounted remotely from Cylinder Valve(s):

To test the SRM remotely mounted from the cylinder valve it is necessary to use a Test Valve Assembly, **Model BFR-TVA** with each Valve Cap Assembly, **Model BFR-CAP**. One of the two nitrogen cartridges needs to be fired during one of the actuation methods

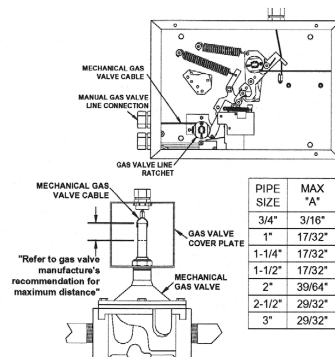


Figure 14.
Setting the Mechanical Gas Valve Cable

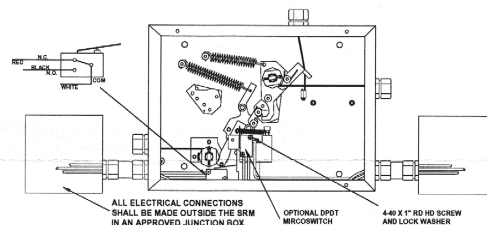


Figure 15.
SRM Micro-switches

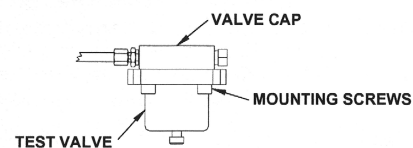


Figure 16.
Mounting Test Valve Assembly

1. Remove the Valve Cap Assembly(s) from each of the cylinder valves by unscrewing the four (4) 1/4-20 x 7/8 socket head screws holding the valve cap to the cylinder valve.
2. Insert a Test Valve Assembly onto each of the valve cap assemblies and secure with the four screws used with the cylinder. If the indicator screw on the bottom of the test valve is extended out, push the screw back into the body as far as possible. See **Figure 16**.
3. Remove the Keeper Pin from the hole in the detection arm assembly.
4. Before installing the Nitrogen Cartridge it is necessary to make sure that the Actuating Pin is moving freely. Insert the Actuation Pin Resetting Tool into the threaded hole of the Manifold Mounting Block where the Nitrogen Cartridge is installed. See **Figure 17**.
5. Screw the test nitrogen cartridge into the manifold block. See **Figure 18**.
6. To check the satisfactory operation of the fusible link system, cut the "S" Hook attached to the terminal link. This will release tension on the fusible link line causing the following to occur:
 - a. The SRM will operate, causing the detection arm assembly to move back to the left, disengaging the trigger, and allowing the actuation arm to operate, releasing the Gas Valve Ratchet; pushing the puncture pin into the manifold block, puncturing the Nitrogen Cartridge and releasing the nitrogen gas which will push all of the actuation indicators to their extended position.
 - b. The gas valve will close, stopping gas flow to any gas fueled appliances.
 - c. All auxiliary devices connected to the dry contacts provided in the SRM will have operated.

CAUTION: Do not test fire nitrogen cartridge if the SRM is mounted directly to the cylinder valve or with the Valve Cap(s) attached to the cylinder valve. Actuation of the Cylinder Valve will occur if connected.

WARNING: If any of these events do not occur when the terminal link is cut or the manual pull station is pulled, determine the cause of the problem and repeat the above steps. **DO NOT** put the system into service until the cause of the problem is determined, the appropriate steps are taken to solve the problem, and the system is successfully re-tested.

7. After testing the fusible link line, remove the nitrogen cartridge, repair the terminal link and re-set the control head as described previously.
8. Follow steps 4 through 6 given in **Option #1**.
9. Remove each of Test Valve Assemblies and mount each Valve Cap Assembly onto their respective cylinder valve using the four mounting screws.

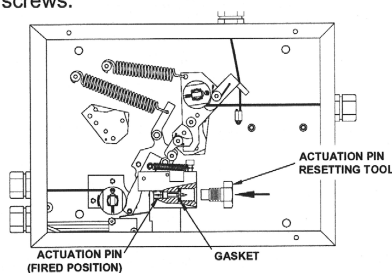


Figure 17.
Setting Actuation Pin

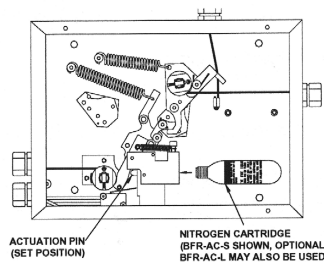


Figure 18.
Installing Nitrogen Cartridge

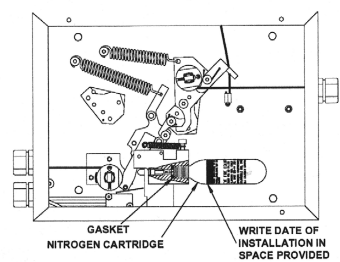


Figure 19.
Dating Nitrogen Cartridge

CAUTION

Before installing the Nitrogen Actuation Cartridge the installer shall inspect the sealing cap for punctures or other damage and verify that the cartridge weighs more than the stated minimum gross weight stamped on the cartridge. If any evidence of damage, puncture or if the cartridge weighs less than minimum gross weight, discard and replace.

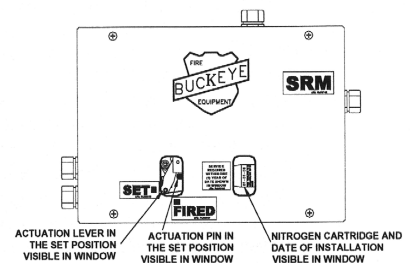


Figure 20.
Installing Systems Releasing Module Cover

Step #8: Installing the Nitrogen Actuation Cartridge. (Refer to Figure 17 through 19.)

1. To ensure that the Actuating Pin is moving freely, insert the Actuation Pin Resetting Tool into the threaded hole of the Manifold Mounting Block where the Nitrogen Cartridge is installed. The pin must move freely.
2. **ONLY** the Buckeye Nitrogen Actuation Cartridge may be used in the SRM (or SRM-D). Carefully hand-tighten the Nitrogen Cartridge completely into the threaded hole of the Manifold Mounting Block. This should take approximately ten (10) full turns of the cartridge.
3. In the grey area provided, write the "date of installation" on the Nitrogen Cartridge.

NOTE: The cartridge must be replaced within one (1) year of installation.

WARNING
After installing the nitrogen cartridge, the system is in the SET position and is ready to actuate.

Step #9: Installing the Systems Releasing Module Cover Plate.

1. Check that the Keeper Safety Pin(s) have been removed and all cables have been properly set.
2. Place the SRM Enclosure Cover on the SRM, making sure that the Labels are properly oriented and the four (4) mounting holes line up.
3. Check that "Date of Installation" on the Nitrogen Cartridge, the Actuation Pin and Lever are all visible in their respective windows.
4. Secure the Cover to the Enclosure using the four (4) 10-24 X 3/8" self-tapping screws provided. See **Figure 20**.

The Buckeye Fire Equipment Kitchen Mister Fire Suppression System is now fully functional. The system's operation and what is required of the End User should be reviewed with the End User or their designated representative. Refer to Owner Manual and Maintenance Section of the Buckeye Kitchen Mister Restaurant Cooking Area Fire Suppression System Technical Manual, **Model BFR-TM** manual for additional details.

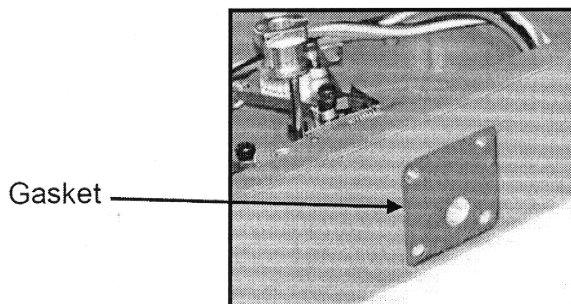
NOTE

Make sure to give the owner of the system or their designated representative, the Owners Manual (**Model BFR-OM**) and explain to them how the system works and their responsibility in assuring the system is in proper working order.

***IMPORTANT* PLEASE READ CAREFULLY**

REVISED INSTRUCTION SHEET **MOUNTING SRM DIRECTLY TO CYLINDER VALVE**

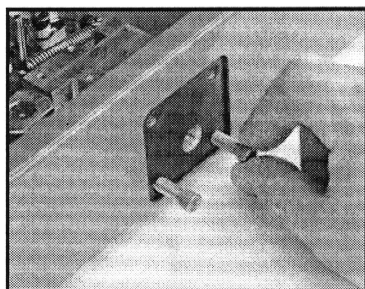
Step #1 – Before installing the SRM onto the valve make sure the interface gasket is intact and in place.



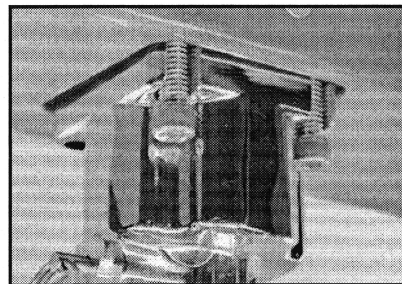
Caution

Failure to ensure that the Interface Gasket is in place and not damaged may result in system failure.

Step #2 – After checking the interface gasket, the back screws can now be partially installed in the SRM. Make sure to leave about 1/2" of thread exposed so the SRM slides easily onto the valve.



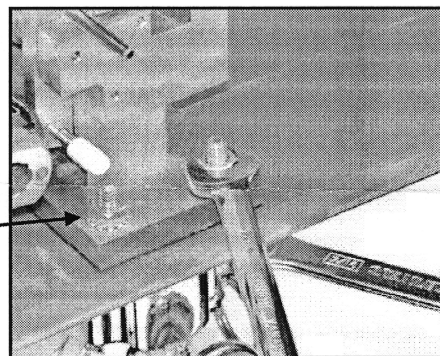
Install Back Screws



Slide SRM onto Valve

Step #3 – Install the front bolts by inserting them through the front mounting holes in the valve into the SRM. Thread the nuts onto the bolts and tighten them with a 7/16" wrench.

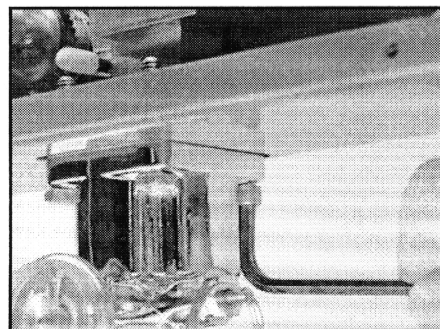
Locking Nuts
(provided)



Step #4 - After the front bolts have been installed and properly tightened, the back screws can now be tightened using either a 3/16" Allen wrench or a Model BFR-FHD Flexible Hex Driver.

Caution

Failure to properly tighten mounting screws/bolts may result in system failure.

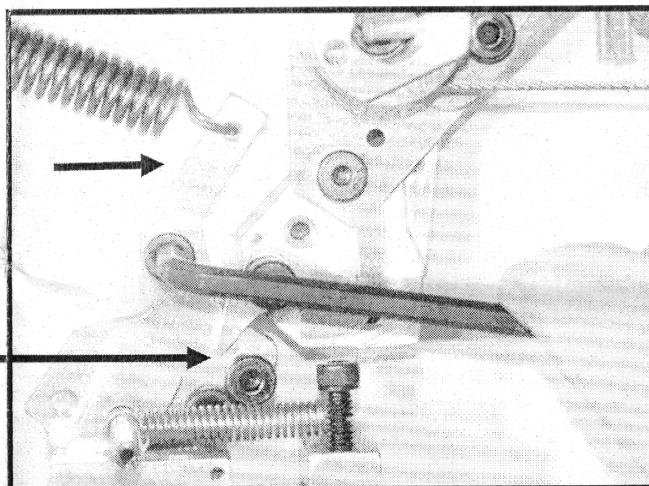


Keeper Pin Installation

Step 1

After removing the activation cartridge, rotate the Detection Arm $\frac{1}{4}$ " to the right using a $\frac{3}{16}$ " hex wrench or the Model BFR-FHD Flexible Hex Wrench as shown.

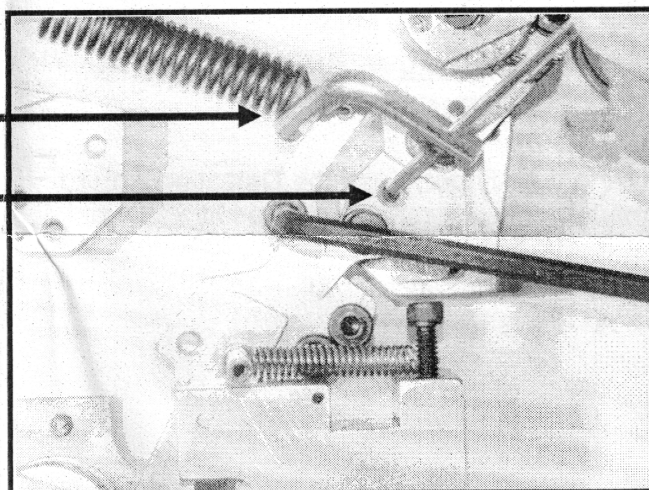
Gap



Step 2

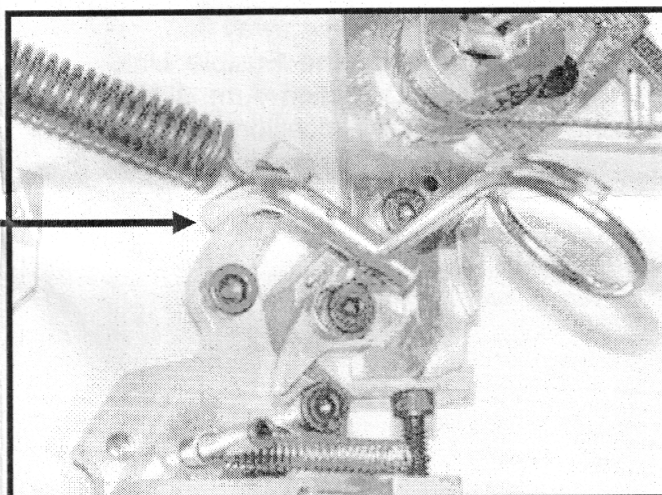
The keeper pin hole is located here. Insert the keeper pin in the hole and slide the hook over the Detection Trigger.

Hook



Step 3

The $\frac{3}{16}$ " hex wrench or the BFR-FHD Flexible Hex Wrench can now be removed. The Detection Trigger is now held in place by the keeper pin.

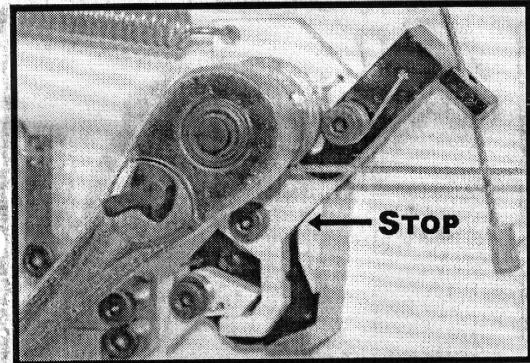


TIPS FOR TECHNICIANS

APPLYING PROPER TENSION TO THE FUSIBLE LINK LINE

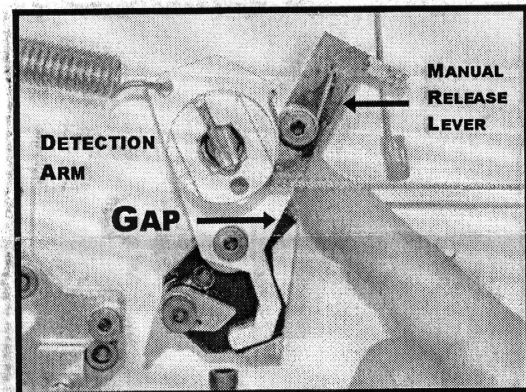
STEP #1 – TAKING UP THE SLACK

After attaching the fusible link line to the Fusible Link Ratchet, manually take up as much slack as possible by turning the ratchet clockwise with your hand. Once you've removed as much slack as possible, insert a 3/8" drive ratchet into the center of the Fusible Link Ratchet and rotate it clockwise until the Detection Arm hits its stop position.



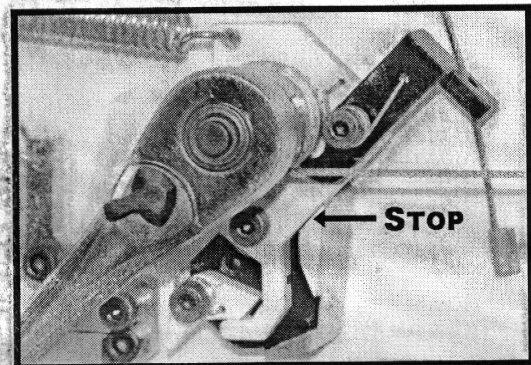
STEP #2 – REMOVE ANY ADDITIONAL SLACK

Using your finger, push the Detection Arm to the left; this will remove any additional slack from the fusible link line. **DO NOT** push on the Manual Release Lever.



STEP #3 – TAKING UP THE SLACK

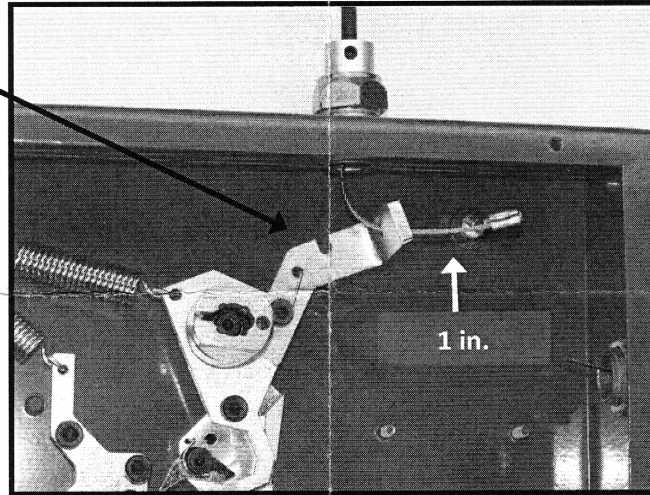
If the Detection Arm moves away from its STOP position, rotate the Fusible Link Ratchet until the Detection Arm **JUST** touches its STOP position again. Repeat this procedure until the Detection Arm cannot be moved from the STOP position when pushed with your finger.



****IMPORTANT NOTE****

New Manual Release Lever In SRM

New Manual
Release Lever



The Systems Releasing Module is now equipped with a **NEW Manual Release Lever**. It will make inserting the RPS-M cable and crimping it quicker and easier. As always, we recommend leaving a gap of approximately 1 inch between the Manual Release Lever and the crimp (as shown).

Part Number: PIS10492

Rev. --, Rev Date: 02/20/12