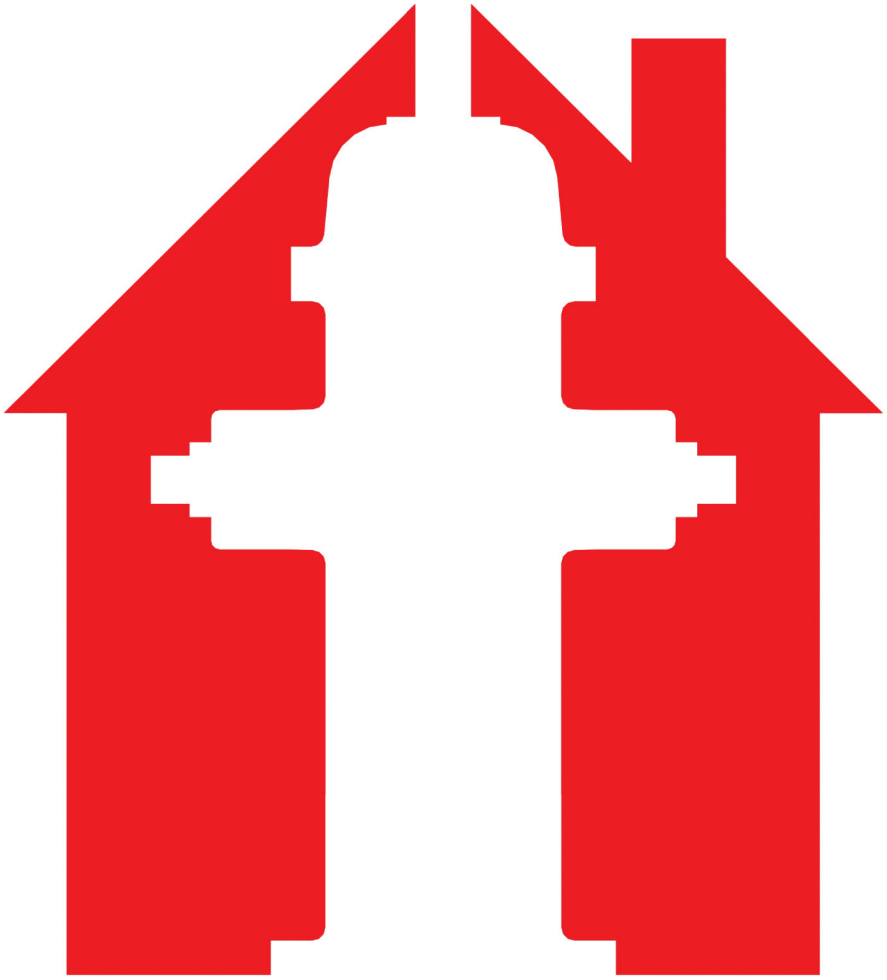
O&M INSTRUCTION MANUAL

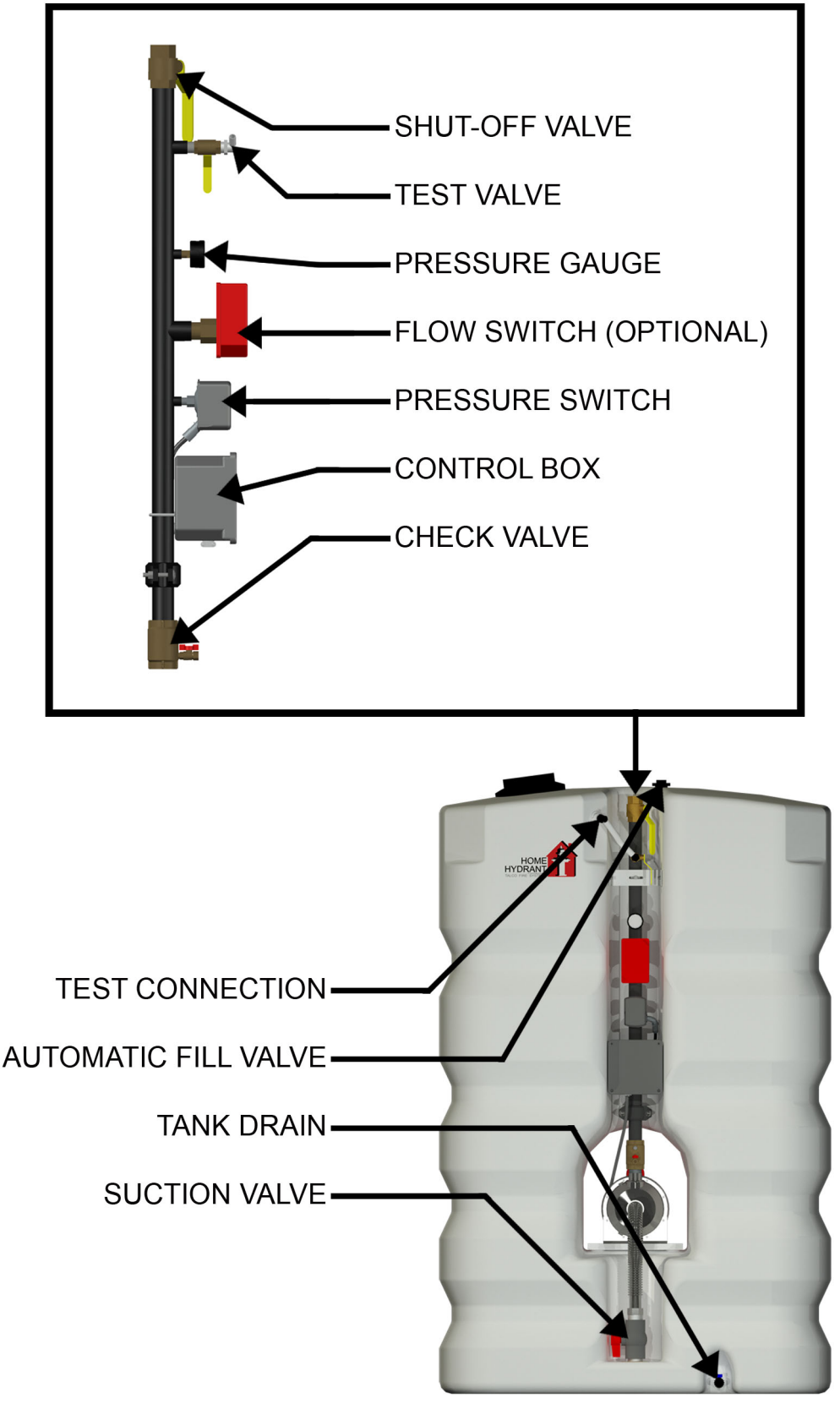


HOME HYDRANT®

TALCO FIRE SYSTEMS

U.S. PATENTS #8,678,032 & #8,905,069

OVERALL VIEW OF HOME HYDRANT



CAUTION

The TALCO Home Hydrant must be installed in such a manner that the tank is readily accessible for regular maintenance or replacement in case of tank failure. Units shall be installed in a location that protects them from direct sunlight, inclement weather in general, and freezing temperatures in particular. Installation in a secured room is recommended to prevent vandalism or tampering with control settings. Not following the guidelines above may cause the unit to malfunction or fail prematurely.

Do not install the unit in a manner that requires removal of any wall or portion of the structure.

TALCO FIRE SYSTEMS will not be held liable for any cost that may be incurred due to removal or replacement of walls, doors, etc. in order to replace the tank or any equipment that may require service or replacement, or fail while in service due to improper installation; including, but not limited to, installation in an unprotected area.

NOTE: Home Hydrant electrical system components are not watertight and must be protected accordingly.

SAFETY INSTRUCTIONS

TO AVOID SERIOUS OR FATAL INJURY OR MAJOR PROPERTY DAMAGE, READ AND FOLLOW ALL SAFETY INSTRUCTIONS IN MANUAL AND ON PRODUCT.

THIS MANUAL IS INTENDED TO ASSIST IN THE INSTALLATION AND OPERATION OF THIS UNIT AND MUST BE KEPT WITH THE UNIT.

UNIT NOT DESIGNED FOR USE WITH HAZARDOUS LIQUIDS OR FLAMMABLE GASSES. THESE CAN CAUSE FIRE, BURNS, OR DEATH.

The following safety **SAFETY SYMBOLS** in the manual or on the product warn of **HAZARDS** that can cause death, personal injury, or property damage as described below.

Warns of **ELECTRICAL HAZARDS** that can cause death, serious personal injury, or major property damage.

Warns of **NON-ELECTRICAL HAZARDS** that can cause personal injury or property damage.

IMPORTANT:

1.1 Inspect unit for damage. Report damage to carrier or distributor immediately.

1.2 Electrical supply must be a separate branch circuit with fuses or circuit breakers, wire sizes, etc. per national and local electrical codes.

Always disconnect electrical power when working on or handling pump controls.

1.3 Unit must be wired for 230V single phase 60hz power. Follow all national and local electrical codes. Size electrical supply accordingly.

1.4 Protect from freezing or flooding.

INSTALLATION:

DO NOT USE THE PUMP PIPING AS A MEANS OF LIFTING OR MOVING THE UNIT

2.1 When moving the unit over rough or uneven surfaces it is recommended that the unit is carefully laid on its back, pump and piping facing upwards. Using ratcheting straps, or other similar straps, wrap them around the indentations on each end of the tank. On the four corners at each ratcheting strap pass a rope or strap under the ratcheting strap and tie it in a loop to make a lifting handle. Ensure the ratcheting straps are tight so they do not slip off the tank during the moving operation. Use a pipe or 2x4 passed through the loop to pick unit up to move it. (*see example pictures on next page*)

SAFETY INSTRUCTIONS

INSTALLATION (cont.):

2.2 Connect 1-1/4” discharge piping to sprinkler system. All connecting piping must be supported independently of the Home Hydrant and be naturally aligned.

Do not force pipe connections into place in order to make them line up.

2.3 **Do not install check valve in discharge piping.** Duplicating the check valve installed on the Home Hydrant will cause unstable operation.

2.4 Install an isolation valve in sprinkler piping if allowed by local code.

2.5 Install Float Valve Assembly in hole provided in top of tank (Bulkhead fitting uses left-hand threads). Connect water supply to 3/4“ bulkhead fitting (Right-hand threads). Install isolation valve in fill line if allowed by local code.

2.6 Pipe drain line from 1” overflow fitting located on end of tank near the top to a suitable drain loacation.

Failure to properly connect the overflow to a drain can result in serious property damage.

2.7 Connect electrical supply to fire pump control box as seen in fig. 1 (see next page).

DO NOT APPLY POWER.
Breaker should be in off position until all installation steps are completed.

Electrical connections to be completed by a qualified licensed electrical contractor.

Home Hydrant Carry Recommendations

The best way to move a Home Hydrant is just to push it into place. If that is not an option the pump and tank can be carefully carried on its back. Attempting to carry a Home Hydrant by the suction or discharge piping can lead to damage. DO NOT attempt to carry a Home Hydrant by the suction or discharge manifold.

Unit on its back with ratchet straps and loops at each corner.

Can be carried via the loops at each corner.

Tanks can also be carried with 2x4s or pipe.
(Lift with your legs, not your back!)

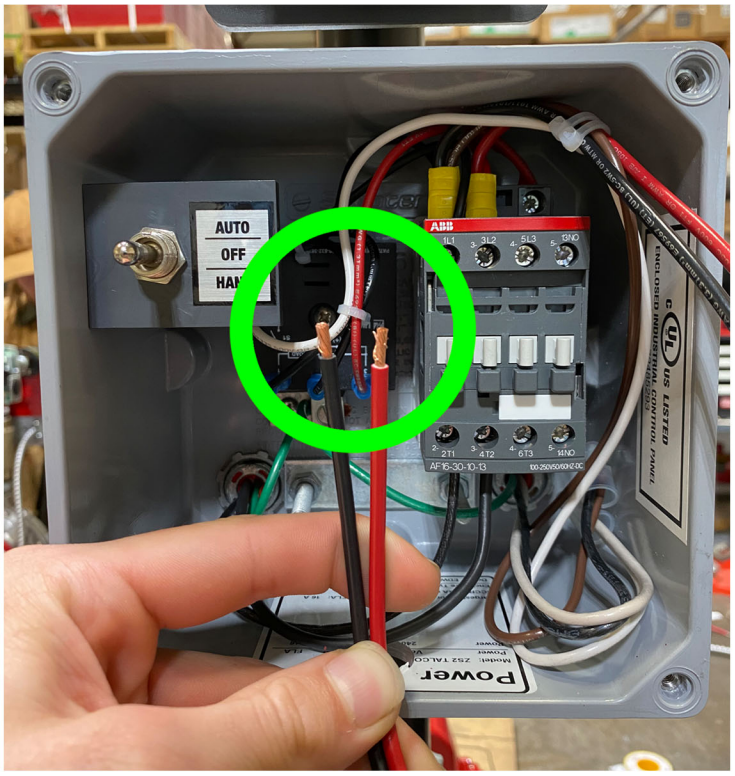
SAFETY INSTRUCTIONS

INSTALLATION (cont.):

Do not connect incoming power to the pressure switch!!!

2.8 Open the gray control box above the fire pump. Set control box toggle switch to “off” before making electrical connections. A dedicated 230V single-phase circuit is required for the fire-pump. Incoming power goes to the red and black wires within the gray control box. Connect the ground wire to one of the two included ground lugs.

DO NOT APPLY POWER.
Breaker should be in off position until all installation steps are completed.



Talco residential fire pumps do not require the use of a neutral.

2.9 Fill the tank with water. Observe the tank for leaks as it fills. If a leak is observed, **stop filling the tank**. Repair the leak and then proceed.

2.10 The automatic fill valve may need to be adjusted to shut off just below the level of the over-flow fitting. Gently bend the float rod for small adjustments or loosen the thumb-screw and change assembly angle for larger adjustments.

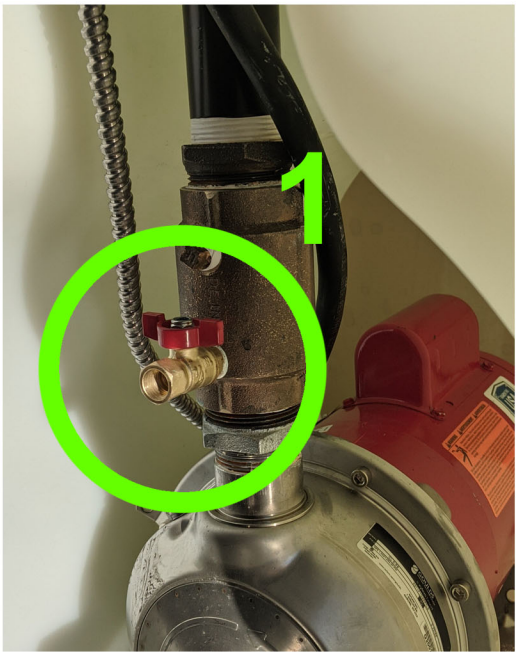
2.11 The optional flow switch will signal anytime sufficient water flows in the system (10 gallons per minute or more). It can be connected to an alarm bell or wired into a home security system.

SAFETY INSTRUCTIONS

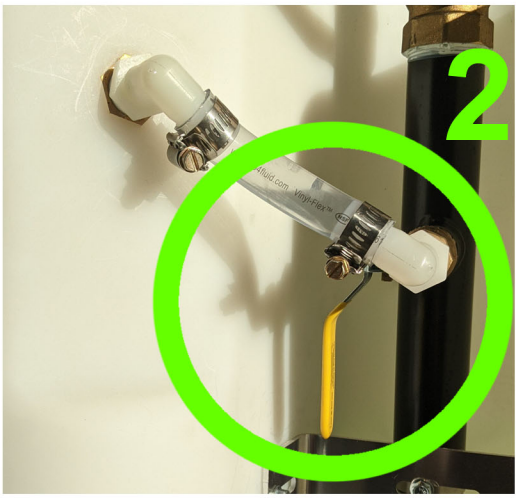
START-UP:

The pump will not operate properly until all air is removed from the pump casing.

3.1 Open the pump volute air bleed valve located on the discharge check valve (1). This will allow any air in the pump case to escape and prime the pump (Suction valve has to be open). Close valve when the air has cleared and water comes out. Now open the test valve at the top of the manifold (2) to allow all air to clear from the discharge manifold. Close the test valve once all the air has cleared.



3.2 Open the discharge ball valve at the very top of the discharge manifold and allow water to fill the top pipe section (3). Close the discharge ball valve.



3.3 Verify that the pump toggle switch is in the “OFF” position and energize the pump by turning on the appropriate breaker in the house electrical panel.

3.4 Flip the toggle switch to “HAND”. Observe the discharge pressure gauge. The pump should start immediately and build pressure. If the pump fails to quickly build pressure, makes excessive noise, or vibrates turn it off immediately and see the “TROUBLESHOOTING” section for help.

3.5 If the pump does build pressure quickly, flip the toggle switch from “HAND” to “AUTO” and let the pump run. If the pump will not run in “AUTO” bleed pressure from the test valve to start the pump, then fully close the test valve. If the pump still will not run in “AUTO” see the “TROUBLESHOOTING” section for help.

3.6 Once the pump starts in “AUTO” allow it to run until the 3-minute minimum-run timer expires and the pump cycles off. Now slowly open the discharge ball valve allowing the pump to slowly fill the system. Once the system is charged to the maximum pressure noted earlier and the pump cycles off, fully open the valve. The system is now ready for automatic operation.

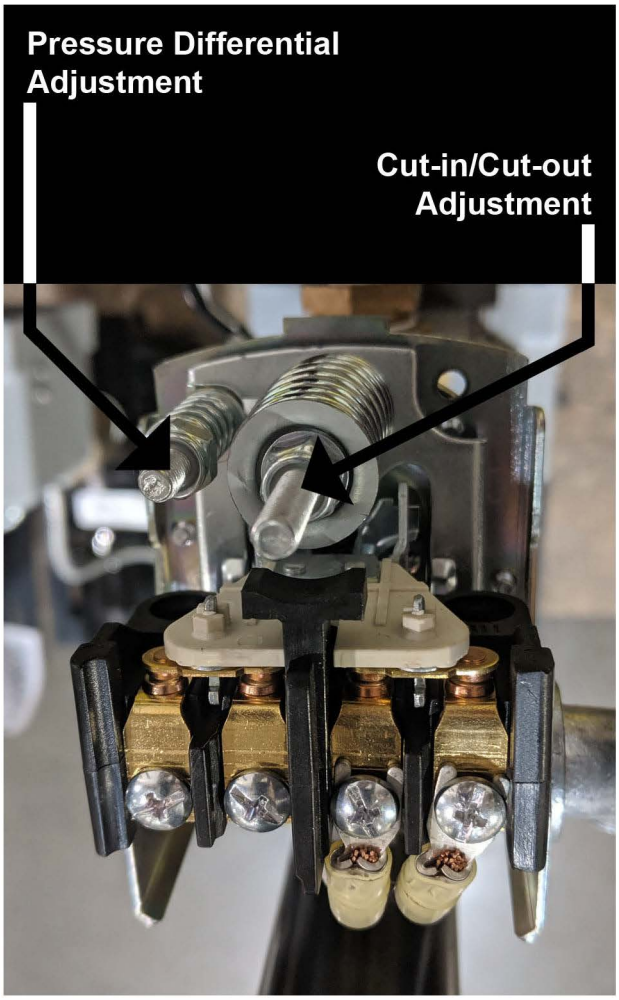
SAFETY INSTRUCTIONS

TESTING:

4.1 Initial testing is required to verify proper operation. Monthly (at a minimum) testing is required to ensure the ongoing reliability of the pumping unit. Testing can be performed at any time.

4.2 Close the system discharge valve (1) to isolate the water tank from the sprinkler system. Open the system test valve (2). The pump should start. Allow the pump to run with the valve open for 1-3 minutes.

4.3 Close the system test valve then open the system discharge valve. The pump will continue to run until the 3 minute minimum run time elapses and then shut off. Your system is now ready for automatic operation.



PRESSURE SWITCH ADJUSTMENT:

The pressure switch has been factory wired and adjusted. In the unlikely event adjustment of the pressure switch is required please note the following:

A) The large spring affects both the cut-in and cut-out points equally. Turn the adjusting nut clockwise to equally raise the pressure for both.

Note: If the cut-out pressure has been raised above the maximum pressure of the pump the system will not shut off.

B) The small spring controls the differential between cut-in and cut-out pressure. This is factory set for a 20PSI differential. Turn the adjusting nut clockwise to increase.

Note: We do not recommend changing this setting.

HAZARDOUS VOLTAGE: Disconnect power before working on the motor or the pressure switch.

SAFETY INSTRUCTIONS

TROUBLESHOOTING:

1) PUMP WONT START:

   A) Check for incoming power. Check the circuit breakers feeding the pump and reset as necessary.

   B) Check pressure switch operation, cut-in/cut-out setting may be too low.

   C) Motor overloads have tripped due to excessive load caused by debris in the pump or other cause of binding.

2) PUMP WONT SHUT OFF:

   A) Make sure pump is making adequate discharge pressure and/or adjust pressure switch cut-in/cut-out setting.

   B) Check for air in pump. Bleed system of air.

3) MOTOR RUNS BUT PUMP MAKES NOISE:

   A) Check for debris in the pump case.

   B) Check to make sure there is adequate water from the supply.

POTTER
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FOR SMALL PIPE

VSR-S
VANE TYPE WATERFLOW ALARM SWITCH WITH RETARD

Stock No. 1144440

WARNING

Installation must be perfomed by qualified personnel and in accordance with all national and local codes and ordinances.

Shock hazard. Disconnect power source before servicing. Serious injury or death could result.

Risk of explosion. Not for use in hazardous locations. Serious injury or death could result.

UL, ULC, CSFM Listed and NYMEA Accepted

Service Pressure: Up to 300 PSI (20,7 BAR)

Flow Sensitivity Range for Signal: 4-10 GPM (15-38 LPM) UL

Maximum Surge: 18 FPS (5,5 m/s)

Enclosure: Die-cast, red enamel finish
Cover held in place with tamper resistant screws

Contact Ratings: Two sets of SPDT (Form C)
10.0 Amps at 125/250 VAC
2.0 Amps at 30 VDC Resistive
10mAmps min. at 24 VDC

Conduit Entrances: Two openings provided for 1/2" conduit. Individual switch compartments suitable for dissimilar voltages.

Usage: Listed plastic, copper and schedule 40 iron pipe. Fits pipe sizes - 1" (25mm), 1 1/4" (32mm), 1 1/2" (38mm) and 2" (50mm)
Note: 12 paddles are furnished with each unit, one for each pipe size of threaded and sweat TEE, one for 1" (25mm) CPVC, one for 1" (25mm) CPVC (Central), one for 1" threaded Nibco CPVC, and one for 1 1/2" (38mm) threaded (Japan).

Environmental Specifications:

- NEMA-4/IP54 Rated enclosure suitable for indoor or outdoor use with factory installed gasket and die-cast housing when used with appropriate conduit fitting.
- Temperature range: 40° F to 120° F, (4,5° C to 49° C) UL

Service Use:

Automatic Sprinkler	NFPA-13
One or two family dwelling	NFPA-13D
Residential occupancy up to four stories	NFPA-13R
National Fire Alarm Code	NFPA-72

Optional: Cover Tamper Switch Kit, Stock No. 0090148
(See Fig. 7 for terminations)

Replaceable Components: Retard/Switch Assembly, stock no. 1029030

The Model VSR-S is a vane type waterflow switch for use on wet sprinkler systems that use 1" (25mm), 1¼" (32mm), 1½" (38mm) or 2" (50mm) pipe size. The unit may also be used as a sectional waterflow detector on large systems.

The unit contains two single pole double throw snap action switches and an adjustable, instantly recycling pneumatic retard. The switches are actuated when a flow of 10 gallons per minute (38 LPM) or more occurs downstream of the device. The flow condition must exist for a period of time necessary to overcome the selected retard period.

Enclosure

The VSR-S switches and retard device are enclosed in a general purpose, die-cast housing. The cover is held in place with two tamper resistant screws which require a special key for removal. A field installable cover tamper switch is available as an option which may be used to indicate unauthorized removal of the cover. See bulletin number 5401103 for installation instructions of this switch.

Installation

These devices may be mounted in horizontal or vertical pipe. On horizontal pipe they should be installed on the top side of the pipe where they will be accessible. The units should not be installed within 6" (15cm) of a valve, drain or fitting which changes the direction of the waterflow. Select the proper paddle for the pipe size and type of TEE used see Fig. 1 for instructions on changing paddle. The unit has a 1" NPT bushing for threading into a non-corrosive TEE. See Fig. 2 for proper TEE size, type and installation. Use no more than three wraps of teflon tape.

Screw the device into the TEE fitting as shown in Fig. 2. Care must be taken to properly orient the device for the direction of waterflow.

The vane must not rub the inside of the TEE or bind in any way. The stem should move freely when operated by hand.

The device can also be used in copper or plastic pipe installations with the proper adapters so that the specified TEE fitting may be installed on the pipe run.

Note: Do not leave cover off for an extended period of time.

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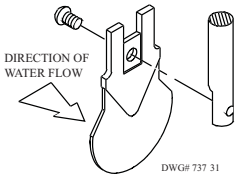
FOR SMALL PIPE

VSR-S
VANE TYPE WATERFLOW ALARM SWITCH WITH RETARD

Fig. 1

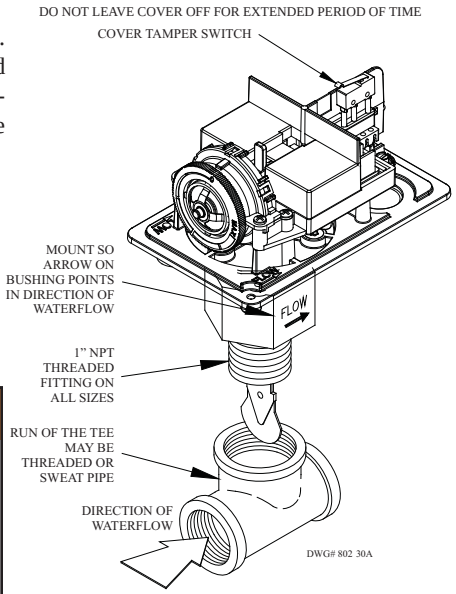
Retard Adjustment

The time delay is factory set at 30 ± 10 seconds. The delay can be adjusted by rotating the retard adjustment knob from 0 to the max setting (60-90 seconds). The time delay should be set at the minimum required to prevent false alarms.



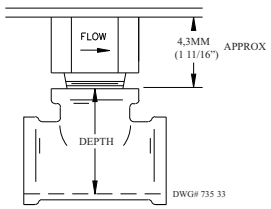
⚠ WARNING

There are 12 paddles furnished with each unit. One for each size of threaded, sweat or plastic TEE as described in Fig. 2. These paddles have raised lettering that shows the pipe size and type of TEE that they are to be used with. The proper paddle must be used. The paddle must be properly attached (see drawing) and the screw that holds the paddle must be securely tightened.



Shown with optional Cover Tamper Switch Kit

Fig. 2



Screw the device into the tee fitting as shown. Care must be taken to properly orient the device for the direction of waterflow. On sweat tees, no threaded bushings, inserts, or adapters are permitted, unless they comply with the dimensions listed in the chart below.

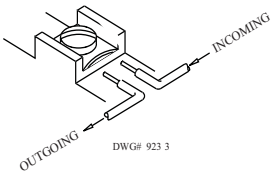
Important - The depth to the inside bottom of the tee should have the following dimensions:

Approximate Depth Requirement			
Tee Size	Threaded	Sweat	CPVC
1" x 1" x 1"	2 1/16"	1 3/4"	2 7/16"
1 1/4" x 1 1/4" x 1"	2 7/16"	2 7/16"	N/A
1 1/2" x 1 1/2" x 1"	2 11/16"	2 1/4"	N/A
2" x 2" x 1"	3 3/16"	2 3/4"	N/A

⚠ WARNING

Do not use more than three wraps of teflon tape

Fig. 3 Switch Terminal Connections Clamping Plate Terminal



⚠ WARNING

An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire become dislodged from under the terminal. Failure to sever the wire may render the device inoperable risking severe property damage and loss of life.

Fig. 7 Cover Tamper Switch Wiring

(Shown with cover in place)

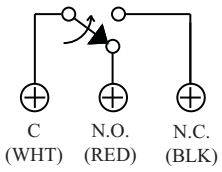
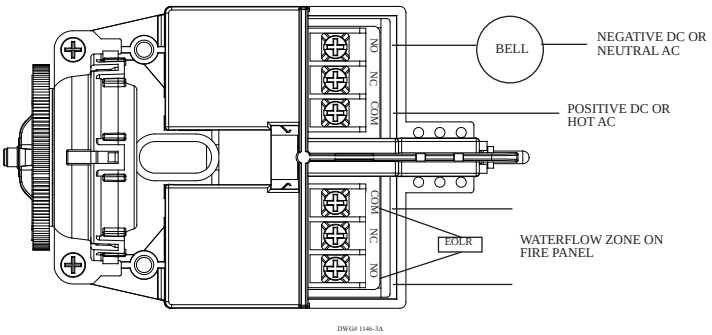


Fig. 4 Typical Electrical Connections



Notes:

1. The Model VSR-S has two switches, one can be used to operate a central station, proprietary or remote signaling unit, while the other is used to operate a local audible or visual annunciator.
2. For supervised circuits see "Switch Terminal Connections" drawing and caution note (Fig. 3).

Fig. 5

To remove knockouts: Place screwdriver at edge of knockouts, not in the center.

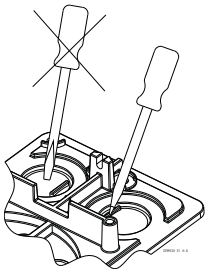
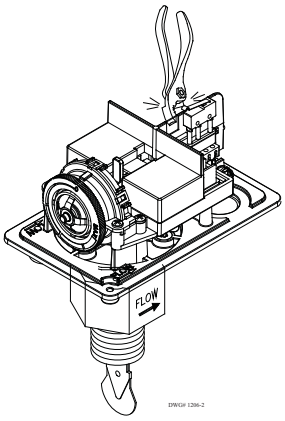


Fig. 6

Break out thin section of cover when wiring both switches from one conduit entrance.



POTTER
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FOR SMALL PIPE

VSR-S
VANE TYPE WATERFLOW ALARM SWITCH WITH RETARD

Testing
The frequency of inspection and testing for the Model VSR-S and its associated protective monitoring system should be in accordance with applicable NFPA Codes and Standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently.)
An inspector's test valve (usually located at the end of the most remote branch line) should always be used for test purposes. If there are no provisions for testing the operation of the flow detection device on the system, application of the VSR-S is not recommended or advisable.
A minimum flow of 10 gpm (38 Lpm) is required to activate this device.

NOTICE Please advise the person responsible for testing of the fire protection system that this system must be tested in accordance with the testing instructions.

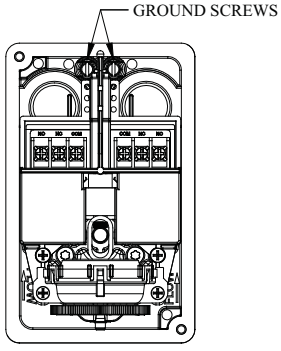
Maintenance
Inspect detectors monthly for leaks. If leaks are found, replace the detector. The VSR-S waterflow switch should provide years of trouble-free service. The retard and switch assembly are easily field replaceable. In the unlikely event that either component does not perform properly, please order replacement retard switch assembly stock #1029030. There is no maintenance required, only periodic testing and inspection.

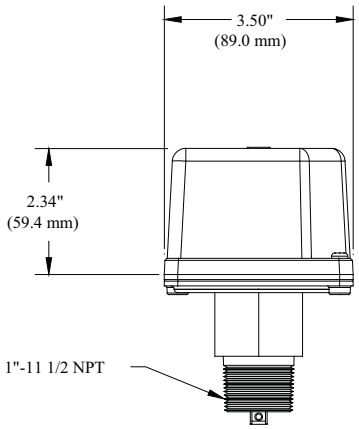
Removal
- To prevent accidental water damage, all control valves should be shut tight and the system completely drained before waterflow detectors are removed or replaced.
- Turn off electrical power to the detector, then disconnect wiring.
- Use a wrench on the flats of the bushing. Turn the switch counterclockwise to disengage the pipe threads.
- Gently lift with your fingers, roll the vane so it will fit through the hole while continuing to lift the waterflow detector.
- Lift detector clear of pipe.

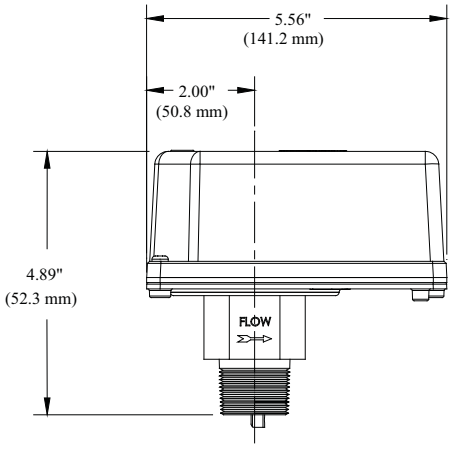
⚠ CAUTION

Waterflow switches that are monitoring wet pipe sprinkler systems shall not be used as the sole initiating device to discharge AFFF, deluge, or chemical suppression systems. Waterflow switches used for this application may result in unintended discharges caused by surges, trapped air, or short retard times.

Mounting Dimensions







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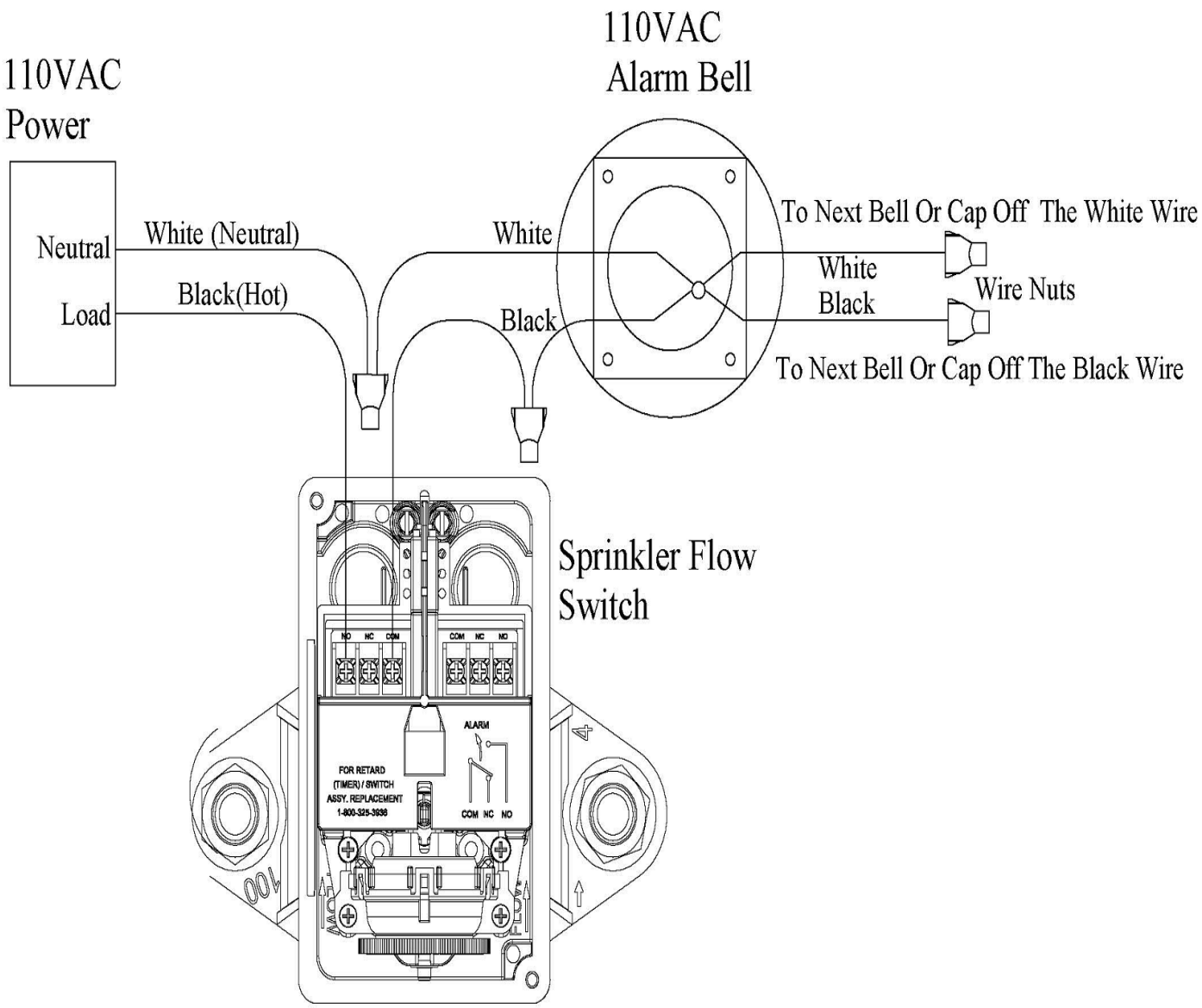
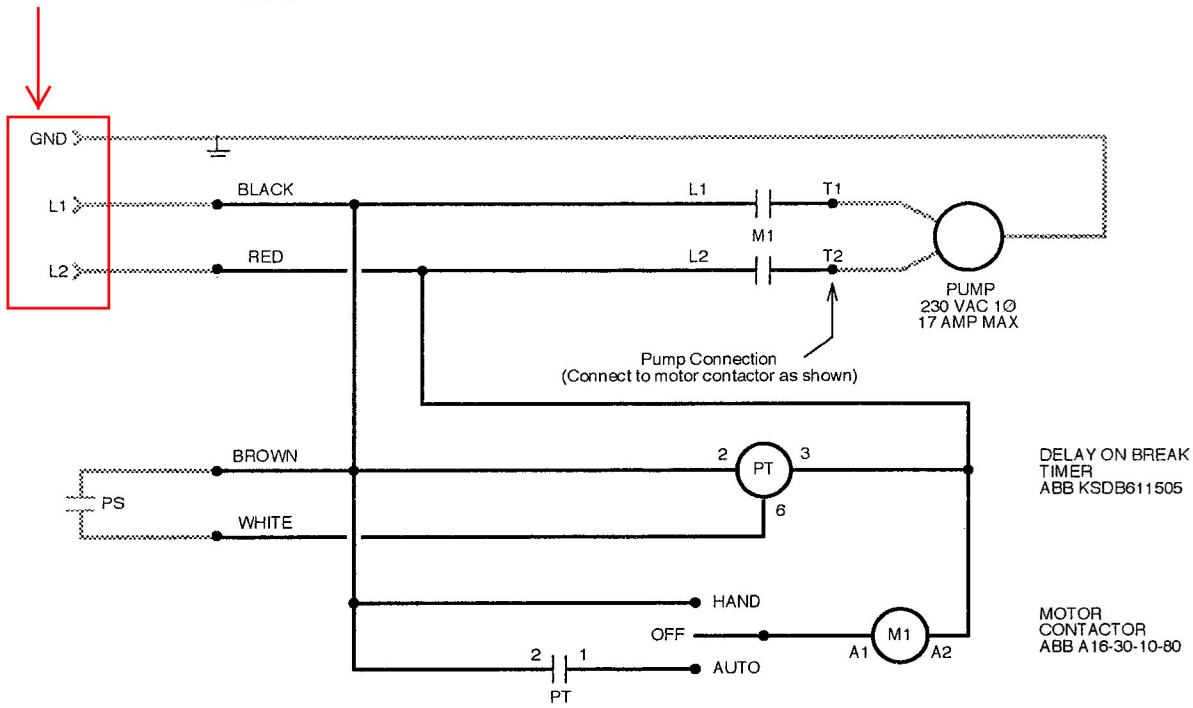

110VAC
Power
Neutral
Load
White (Neutral)
Black(Hot)
110VAC
Alarm Bell
White
Black
To Next Bell Or Cap Off The White Wire
White
Black
Wire Nuts
To Next Bell Or Cap Off The Black Wire
Sprinkler Flow
Switch
NO NC COM
COM NC NO
ALARM
FOR RETARD
(TIMER) / SWITCH
ASSY. REPLACEMENT
1-800-325-3936
COM NC NO
100
4

Talco Home Hydrant Wiring Diagram

230V, 1-Phase supply w/ Ground



Pressure switch is factory wired.

Do not modify. Field connections inside main controller.

EDW-WD-OEM-3
Rev. 2.0 @ 6/19/07

TALCO FIRE SYSTEMS

Limited Warranty

All goods are warranted to be free of defects in material and workmanship for a period of one year from start-up or (18) months from the date of shipment, whichever comes first. Except as specifically indicated, TALCO makes no warranties, expressed or implied, oral or written, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose.

THIS WARRANTY IS SPECIFICALLY SUBJECT TO THE FOLLOWING:

1. The limited warranty is limited to replacement or repair of defective materials and workmanship at the discretion of TALCO.
2. Equipment sold, but not manufactured by TALCO, is subject to the manufacturer's warranty only. TALCO makes no warranties, either expressed or implied, for goods manufactured by others.
3. The limited warranty is conditioned on the purchaser giving TALCO notice within five days of discovery of any alleged defect. Notice should be directed to TALCO FIRE SYSTEMS, by mail: 6040 NE 112th Ave, Portland OR, 97220; by fax: (503) 688-1234; or via E-mail: admin@talcofire.com.
4. The limited warranty shall be considered null and void if any product or part of the packaged system has been repaired or altered in any way by others without prior authorization from TALCO. Fitting leaks and electrical damage are considered the responsibility of the installing contractor.
5. TALCO shall not be liable for any incidental or consequential loss, damage or expense arising directly or indirectly from the use of any goods subject to this limited warranty, nor shall TALCO be liable for any damages or charges for labor or expense in making repairs or adjustments to the goods. TALCO shall not be liable for any damages or charges sustained in the adaptation or use of its engineering data or services.
6. This warranty shall not apply to any goods subject to misuse due to common negligence or accident, nor to any goods manufactured by TALCO which are not operated in accordance with TALCO printed instructions.
7. The liability of TALCO is limited to material replacements FOB Portland, Oregon.
8. All shipments are FOB TALCO dock and it will be the responsibility of the purchaser to check the goods when they are received and report to the Freight Company any damage that might have occurred.