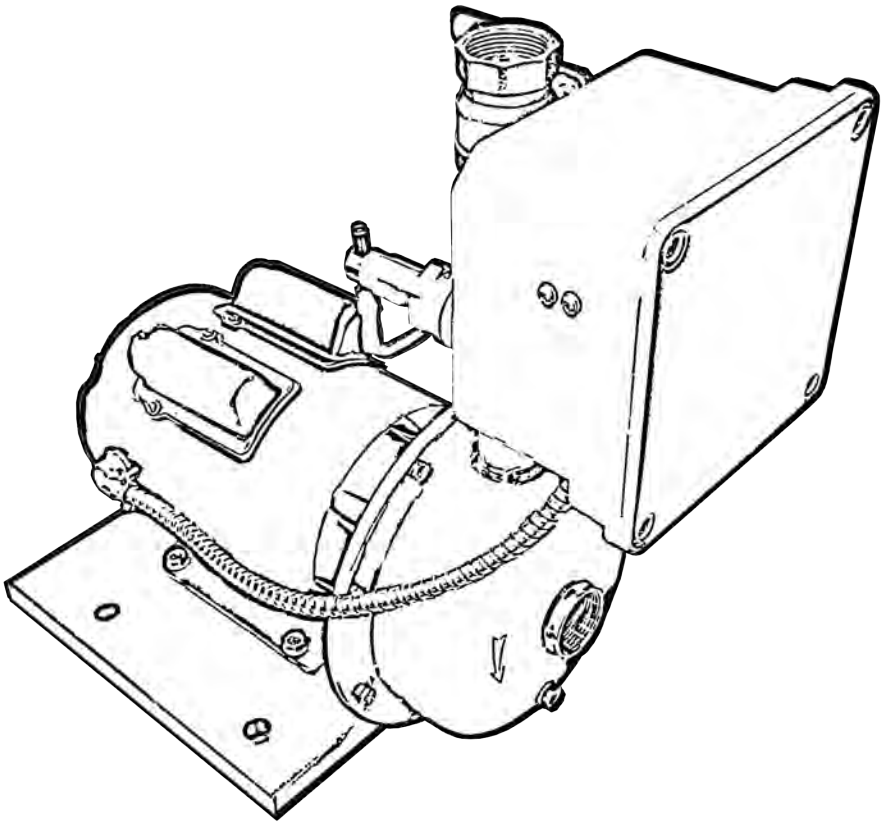
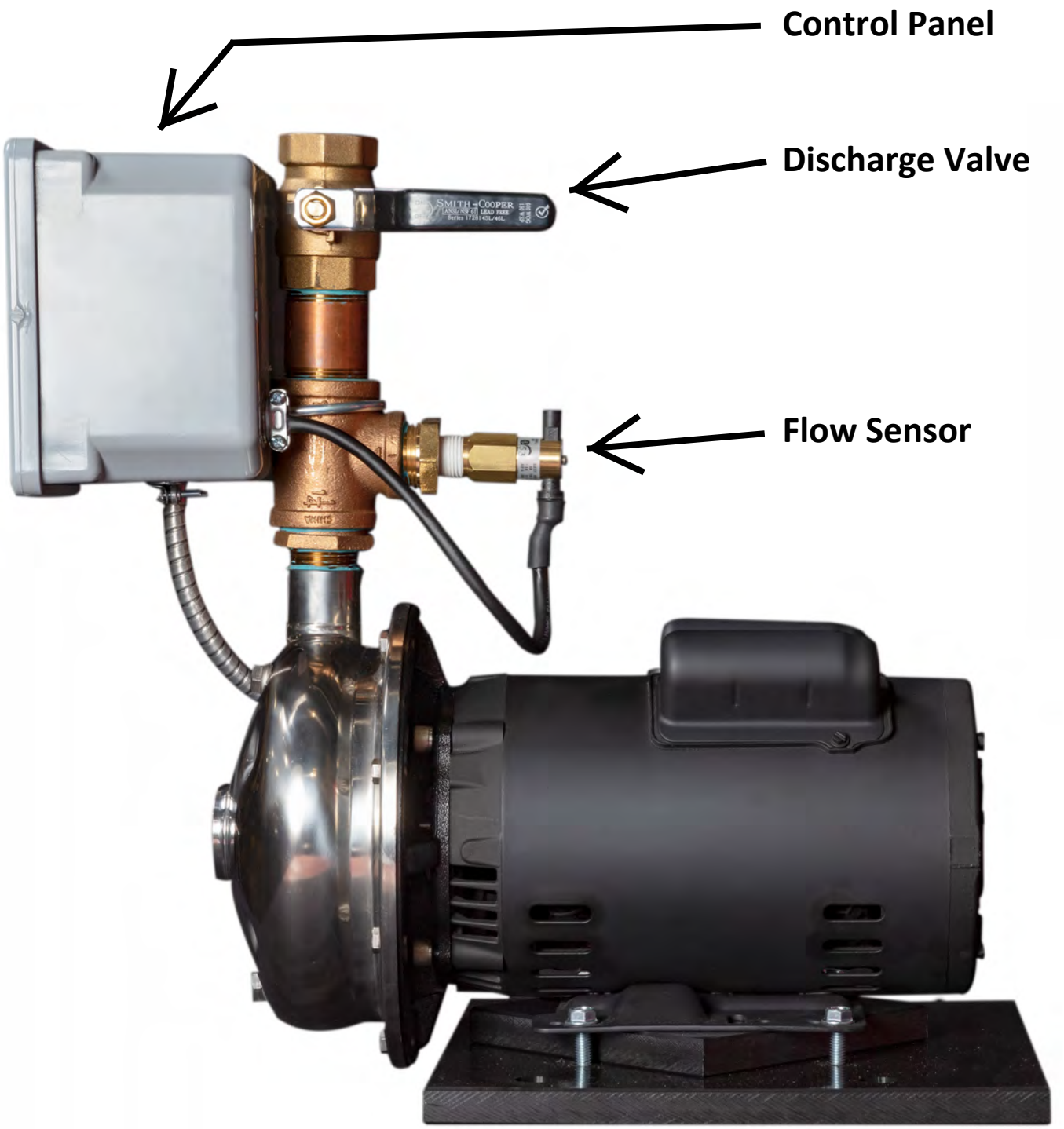
TALCO FIRE SYSTEMS

O&M INSTRUCTION MANUAL

Flow-To-Start



RESIDENTIAL FIRE PUMP SYSTEM


Control Panel
Discharge Valve
Flow Sensor

IMPORTANT SAFETY INFORMATION

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 GASES. THESE CAN CAUSE FIRE, BURNS, DAMAGE, OR FATALITIES.

To avoid serious or fatal injury, or major property damage, read and follow all safety instructions in this manual and on the product.

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

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

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

Warns of common installation mistakes. This symbol may denote both **ELECTRICAL HAZARDS** and **NON-ELECTRICAL HAZARDS**.

Important Information About FTS Booster Pump Service:

The FTS-75A has a maximum working pressure of 125PSI.
For safe operation do not exceed 94PSI incoming pressure.

The FTS-100A has a maximum working pressure of 125PSI.
For safe operation do not exceed 88PSI incoming pressure.

The *FTS-150C* has a maximum working pressure of 125PSI.
For safe operation do not exceed 74PSI incoming pressure.

The *FTS-300C* has a maximum working pressure of 125PSI.
For safe operation do not exceed 63PSI incoming pressure.

The *FTS-200A* has a maximum working pressure of 125PSI.
For safe operation do not exceed 55PSI incoming pressure.

The *FTS-300A* has a maximum working pressure of 125psi.
For safe operation do not exceed 45PSI incoming pressure.

The *FTS-500CIF* has a maximum working pressure of 150PSI.
For safe operation do not exceed 72PSI incoming pressure.

The *FTS-500CIG* has a maximum working pressure of 150PSI.
For safe operation do not exceed 62PSI incoming pressure.

THEORY OF OPERATION:

FTS systems utilize a flow sensor to control their "AUTO" function. Flow Sensors require a flow of no less than 5GPM through the pump to activate.

A sprinkler system utilizing an FTS must be capable of providing 5GPM to the farthest, lowest-flowing sprinkler head with municipal water pressure only, that is without the pump operating. It is only after this flow threshold is reached that the pump will activate and boost the water pressure.

FTS systems are only suitable for booster pump service. Do not attempt to utilize an FTS without sufficient flow, such as when a water storage tank is the supply.

The Flow Sensor in an FTS is only used for pump control and cannot be used to trigger an alarm. Do not attempt to rewire the Flow Sensor.

PREPARATION:

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. Adhere to all applicable laws, standards, and codes when wiring. Installation by a licensed electrical contractor is recommended.

1.3 The TALCO FTS must be installed in such a manner that the unit is readily accessible for regular maintenance or replacement in case of failure. **Do not install the unit in a manner that requires removal of any wall or portion of the structure.**

1.3.1 TALCO FIRE SYSTEMS will not be held liable for any cost that may incur due to removal or replacement of walls, doors, etc. in order to replace the unit 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.

1.4 Units shall be installed in a location that protects them from inclement weather in general, and freezing temperatures in particular. Installation in a secured room is strongly recommended to prevent vandalism or tampering with control settings. Not following these guidelines may cause the unit to malfunction or fail prematurely.

1.4.1 FTS systems are not designed for unprotected outdoor installation. Installing the FTS unprotected outdoors will VOID manufacturer warranty.

1.5 It is imperative that the surface the FTS is installed on is capable of supporting the weight of the unit and attached piping, when filled with water, and is level and solid in nature. Do not hang the unit on a wall. Do not install the unit upside-down or sideways. Do not bury the unit. Do not install the unit on gravel, dirt, grass, or other substrates which may shift or contain materials which may damage the system.

1.6 Ensure that there is sufficient water flow to the suction to feed the pump demand.

1.6.1 Pumps do not create water, nor will they overcome insufficient pipe sizing. A pump will not "pull more water" through a suction line that does not already have sufficient flow.

INSTALLATION:

2.1 Connect 1-1/4" discharge piping to sprinkler system and pump suction to municipal water supply. All connected piping must be supported independently of the FTS and be naturally aligned. **Always use a "backup" wrench during installation to prevent piping/valves from rotating. Never rely on thread sealant alone to prevent fitting rotation.**

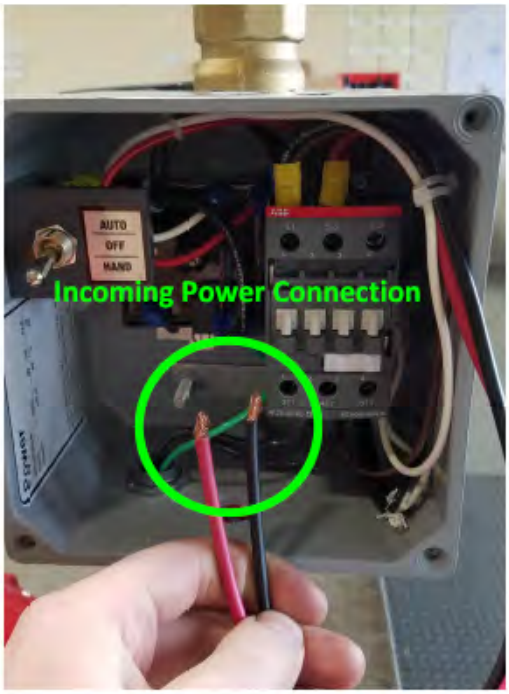
Do not force pipe connections into place to make them line up

2.2 Install an isolation valve and disconnecting means in the sprinkler piping if allowed by local code.

2.3 **Installation of pressure gauges in the sprinkler system, located before and after the pump, is strongly recommended.** While the FTS does not rely on pressure to activate, it can be beneficial to monitor system status and operation through the use of reliable pressure gauges.

DO NOT APPLY POWER. The building breaker should be in the off position until the system is ready for start-up procedures.
Starting a pump dry will cause immediate seal damage and will void manufacturer warranty.

2.3 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 incoming ground wire to the existing ground wire via the included lug or other approved method.



2.4 Verify the flow sensor lead is in the correct "up" position. If the flow sensor is not in the correct position it has shifted during transport or installation. If necessary, loosen the two screws on the faceplate and slide the lead upwards until it stops. Re-tighten the screws. Do not use excessive force.

Correct

Incorrect

START-UP:

3.1 **Ensure there is water in the pump before starting.** Open a system drain and flow water through the pump and connected piping until all air is dislodged, then close the system drain.

3.2 Once all air is bled from the pump volute and piping turn the pump on by placing the toggle switch in the "HAND" position. Observe a discharge pressure gauge and note the "churn" (zero flow) pressure. Do not run the pump at churn for longer than a few minutes at a time or overheating may occur.

3.2.1 Note that the churn pressure will be equal to the incoming pressure plus the pump "0 GPM" churn pressure located on the test sheet at the back of this manual. If this value exceeds the maximum working pressure of the pump it will be damaged.

3.3 If the pump fails to quickly build pressure, makes excessive noise, or vibrates, turn it off immediately and see the "TROUBLESHOOTING" section for help.

3.4 Place the toggle switch in the "AUTO" position and wait for the pump to stop running. If the pump does not shut off after a few moments check and adjust the adjustable run timer setting (page 8).

3.5 Open a system drain of sufficient size to activate the pump (this drain must flow 5GPM or greater at the municipal supplied pressure). Observe the pump and ensure it activates reliably. Repeat this test multiple times to ensure proper system operation.

3.6 If the FTS is operating properly then installation is complete and the system is ready for automatic operation.

PERIODIC TESTING:

The system can be tested at any time by opening a system drain of sufficient size until the pump starts. After the pump starts slowly close the system drain, observe the discharge pressure, and verify the pump stops automatically when the minimum run timer expires.

ADJUSTMENTS AND SETTINGS:

Adjustable Run Timer

The control box timer is factory set at approximately 6 seconds. This is a good general setting for the majority of FTS installations. We do not recommend changing this setting without first contacting Talco.

The timer works as a "delay-on-break" system, adding in an adjustable delay before shutoff after water flow has ceased.

Use caution when setting the timer. A pump that runs for a prolonged period without discharging water is subject to overheating and damage.

It is acceptable to carefully adjust the timer while the system is running, but use extreme caution. Do not touch any wires, contacts, or other components when adjusting the timer. Use of a thin, insulated screwdriver is advised.

Adjust clockwise for a longer run timer and counterclockwise for shorter. The minimum is 6 seconds. The maximum is 10 minutes.

TROUBLESHOOTING:

WE STRONGLY RECOMMEND THAT A QUALIFIED ELECTRICIAN OR PUMP TECHNICIAN PERFORM ALL TROUBLESHOOTING AND REPAIR PROCEDURES

5.1 Pump won't start.

5.1.1 Tripped breaker. Cycle the breaker if necessary. Ensure the breaker is sized correctly and is of the "slow trip" type.

5.1.2 Insufficient flow. The test drain may be too small to flow the required 5GPM.

5.1.3 Incorrect incoming power. Check to make sure the pump is wired 230volt 1phase.

5.1.4 Pump is turned off inside control box. The pump will only function in "Auto" or "Hand".

5.2 Pump won't shut off after flow stops.

5.2.1 System is incorrectly wired. Ensure that the incoming power is wired per this manual.

5.2.2 Timer setting is too high. See page 8 for timer information. Adjust as necessary.

5.3 Pump runs but the discharge pressure is low.

5.3.1 Air in the pump. Open the bleed plug/system drain to purge any air.

5.3.2 Incorrect incoming power. Check to make sure the pump is wired 230volt 1phase.

5.3.3 Inadequate water supply to suction. Check for closed suction valves or improperly sized suction lines.

5.3.4 Municipal water pressure is low. Check the incoming water pressure to see if it is lower than usual, expected, or required.

5.4 Pump makes "gravelly" or "grumbling" noise.

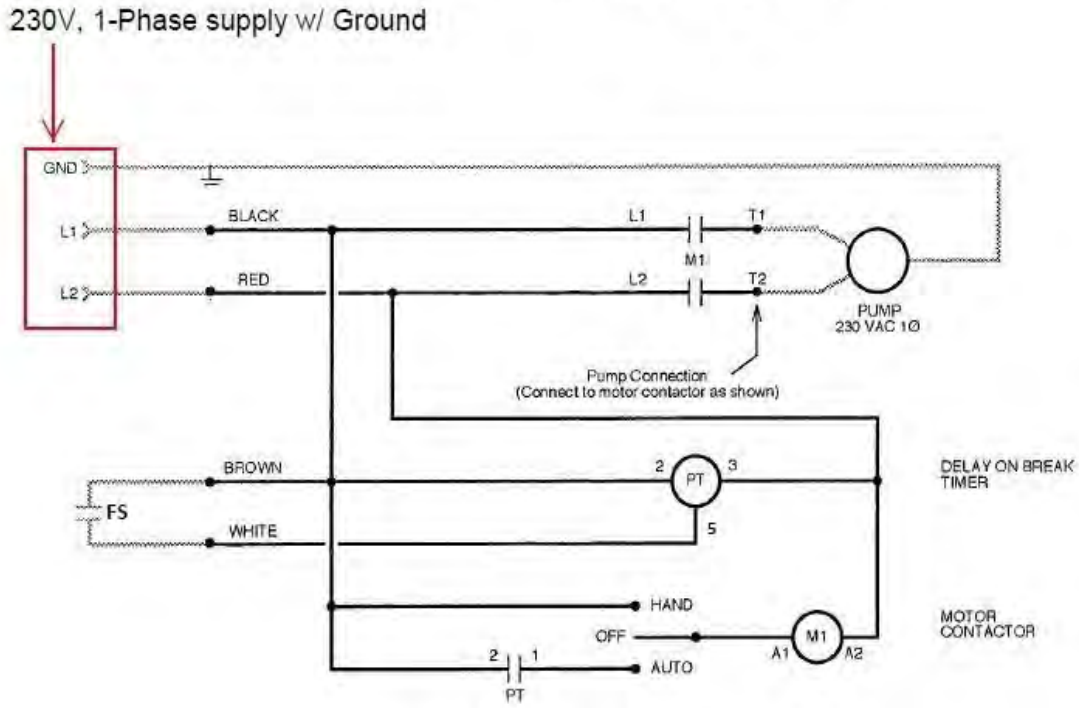
5.4.1 Air in the pump. Open the bleed plug/system drain to purge any air.

5.4.2 Inadequate water supply to suction. Check for closed suction valves or improperly sized suction lines.

5.4.3 Debris in the pump casing. Pump removal and inspection is advised.

5.4.4 Leak in the suction piping. Ensure the pump is not receiving air through a leak in the suction piping.

Talco FTS Wiring Diagram



Connect incoming power (230V 1PH ONLY) to the pre-stripped Red and Black wires only.

Connect a dedicated ground to the existing green ground wires in the controller using either the attached lug or other approved method.

Do NOT connect a neutral wire.

Do NOT alter the Flow Switch wiring.

Do NOT alter any factory wiring.

Do NOT attempt to connect any other device to the Control Panel.

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 or by email: support@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.