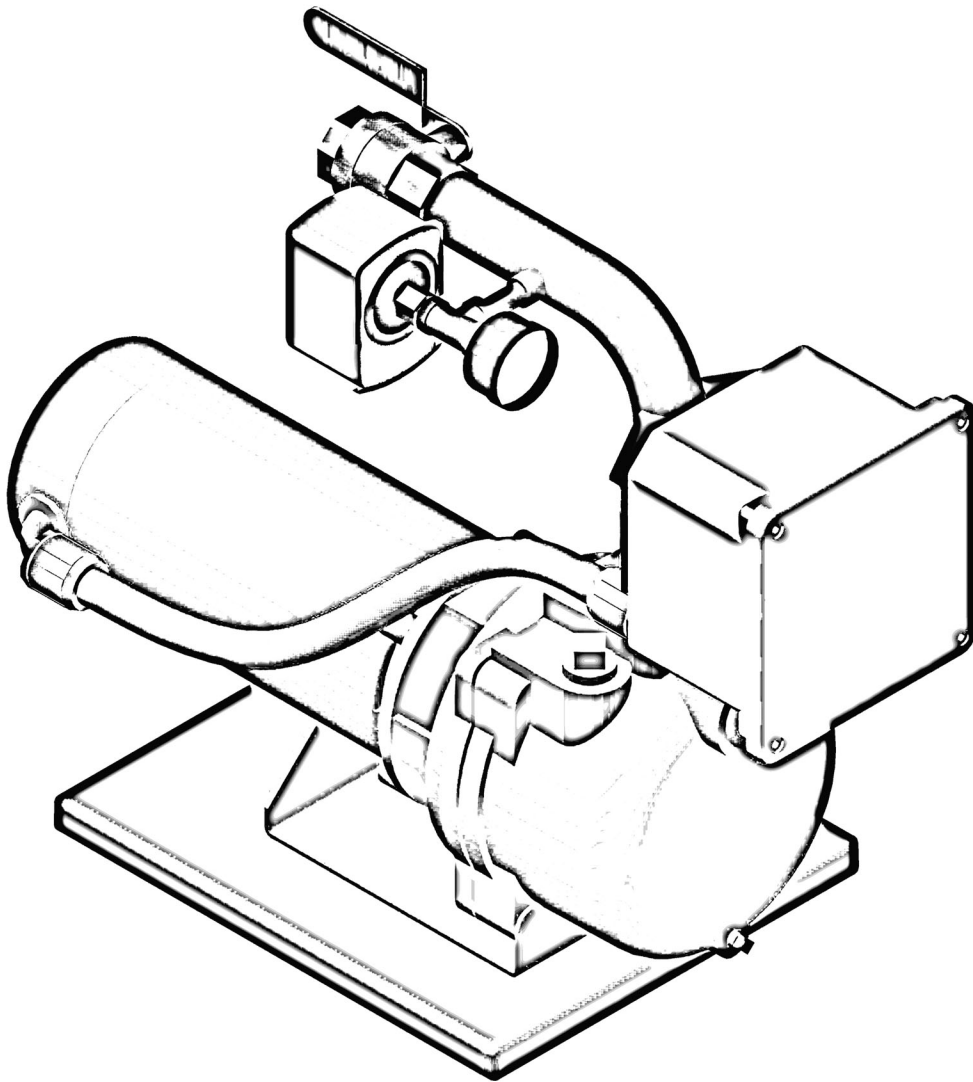




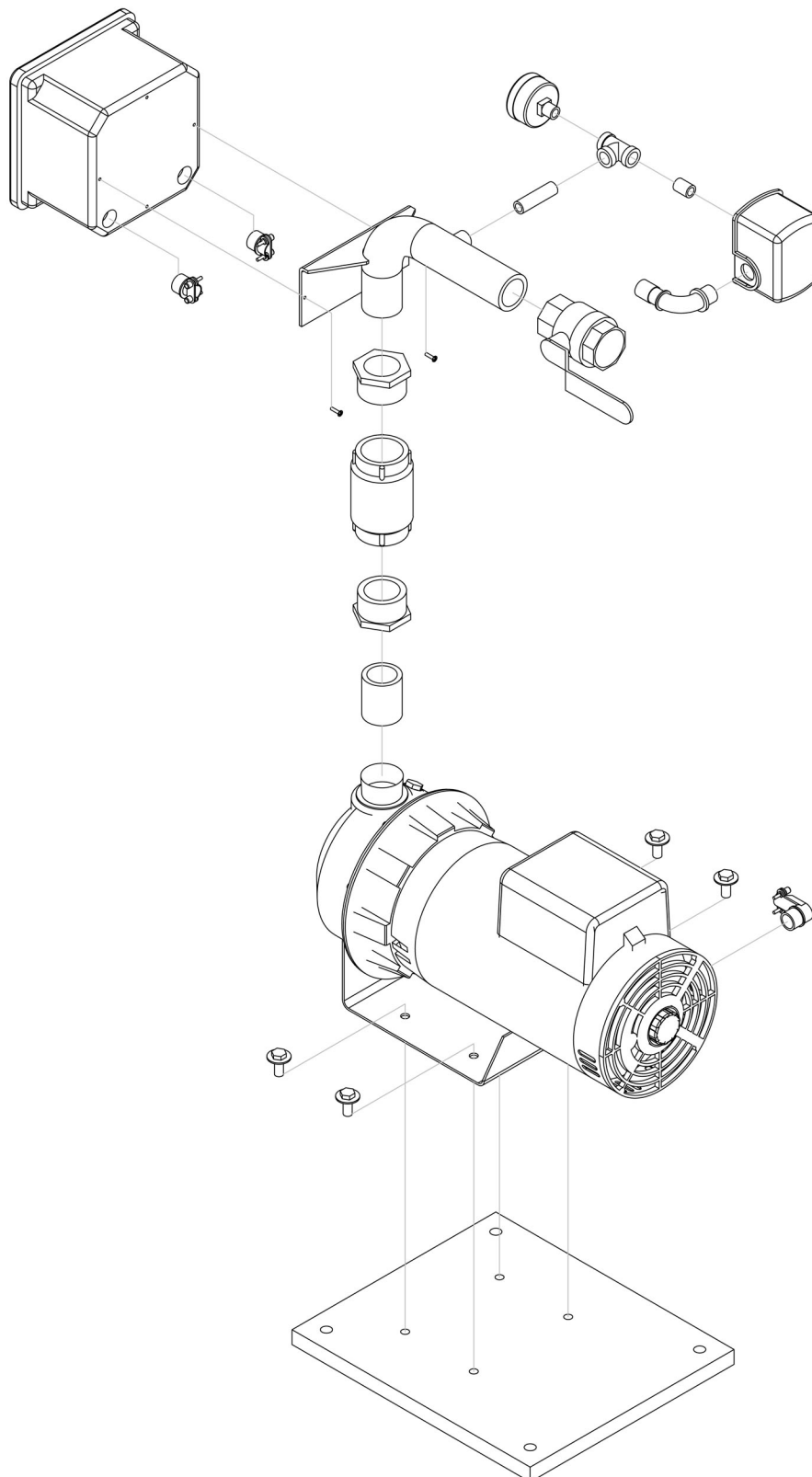
# O&M INSTRUCTION MANUAL

## LSF



# RESIDENTIAL FIRE PUMP SYSTEM

# OVERALL VIEW OF LSF



# 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**.

## **An important note about LSF booster pump service:**

The *LSF-150SP* has a maximum working pressure of 75PSI and is NOT suitable for booster pump service.

For safe operation do not exceed 17psi incoming pressure.

The *LSF-150C* has a maximum working pressure of 125PSI.

For safe operation do not exceed 75PSI incoming pressure.

The *LSF-300C* has a maximum working pressure of 125PSI.

For safe operation do not exceed 63PSI incoming pressure.

The *LSF-500CIF* has a maximum working pressure of 150PSI.

For safe operation do not exceed 72PSI incoming pressure.

The *LSF-500CIG* has a maximum working pressure of 150PSI.

For safe operation do not exceed 62PSI incoming pressure.

LSF systems utilize a pressure switch to control their "AUTO" function. Pressure switches are sized by Talco on assumption that the water supply for an LSF is a water storage tank.

If an LSF is to be used for booster pump service Talco may install the appropriate pressure switch if notified of the incoming pressure at the time of order.

If an LSF system is utilized as a booster pump and Talco was not informed at the time of order, pressure switch adjustment or replacement may be necessary.

If a booster pump is operating at a pressure range above the settings of the pressure switch the pump may not run in "AUTO" even if a test port is opened. Refer to page 8 for pressure switch adjustment information.



# 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 LSF 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 LSF systems are not designed for unprotected outdoor installation.**



1.5 It is imperative that the surface the LSF 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 1-1/2" pump suction to water supply. All connecting piping must be supported independently of the LSF and be naturally aligned.



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

**2.2** Do not install a check valve in discharge piping.



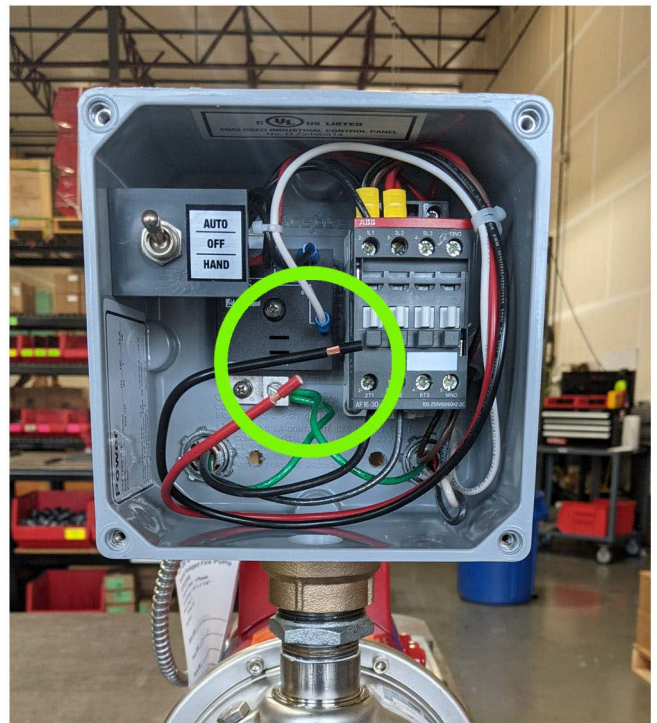
**Duplicating the check valve installed on the LSF will cause unstable operation.**

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



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

**2.4** 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 two existing ground wires via the included lug or other approved method.



**Do not connect incoming power to the pressure switch.**



## **START-UP:**

- 3.1** Be sure there is water in the pump. Bleed air at all high points in the system and at the plug located next to the discharge in the top of the pump casing. If possible, allow water to flow through the pump and system drain.
- 3.2** Once all air is bled from the pump volute and piping, close the discharge valve and turn the pump on by placing the toggle switch in the "MANUAL" position. Observe the discharge pressure gauge and note the "churn" (zero flow) pressure. You may compare the gauge reading with the test sheet on the last page of this manual to confirm proper operation.
- 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. If the pump does build pressure quickly, flip the toggle switch from "MANUAL" to "AUTO" and let the pump run. If the pump will not run in "AUTO" bleed pressure from the system drain to cycle the pressure switch. If the pump still does not run in "AUTO" see the "TROUBLESHOOTING" section for help.
- 3.4** Once the pump starts in "AUTO" it should quickly build enough pressure to trip the pressure switch (you should hear it click if you listen closely). Allow the pump to run until the minimum-run timer (factory set at 3 minutes) expires and the pump cycles off. Now partially open the discharge ball valve. The pump should turn back on and fill the system. Once the system is charged to the maximum pressure noted earlier and the pump cycles off fully open the discharge ball valve. The system is now ready for normal operation.

## **PERIODIC TESTING:**

**The system can be tested at any time by slowly opening a system drain 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:

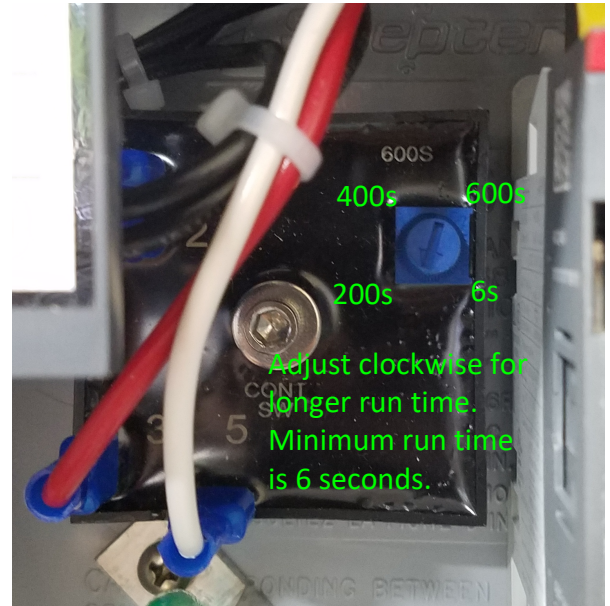
## Adjustable Run Timer

The control box timer is factory set at approximately 3 minutes. This is a good general setting for the majority of installations. We do not recommend changing this setting without first contacting Talco.

The timer works as a "delay-on-break" system, referencing the pressure switch opening and then adding in an adjustable delay before shutoff.

Use caution when setting the timer. A pump that runs for a prolonged period without discharging water is subject to overheating and damage, while a pump with too short of a run time may cycle on and off repeatedly when there is low demand.

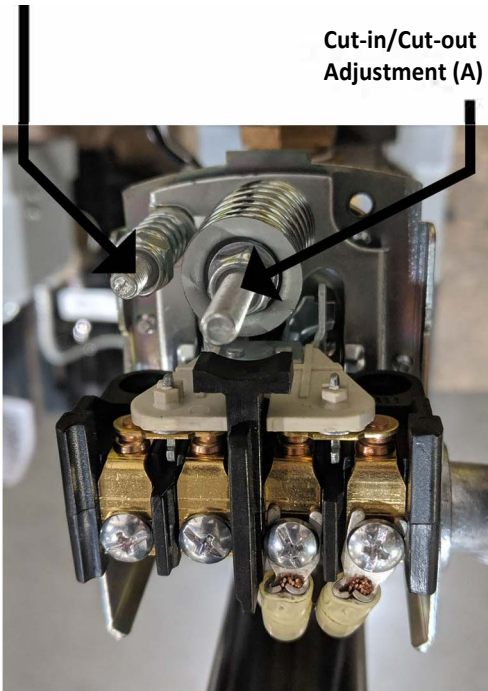
It is acceptable to carefully adjust the timer while the system is running, but use extreme caution. Do not touch any wires, contacts, or other components when adjusting the timer. Use of a thin, insulated screwdriver is advised.



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

Pressure Differential Adjustment (B)

Cut-in/Cut-out Adjustment (A)



## 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 the cut-out only.

***Note: We do not recommend changing this setting.***



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

# 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 System pressure is too high.** Open the test valve/system drain and drop the pressure.
- 5.1.3 Pressure switch settings are incorrect.** Cut-in is set too low and must be adjusted.
- 5.1.4 Incorrect incoming power.** Check to make sure the pump is wired 230volt 1phase.
- 5.1.5 Pump is turned off inside control box.** The pump will only function in "Auto" or "Hand".

## **5.2 Pump makes churn pressure but won't shut off.**

- 5.2.1 Pressure switch settings are incorrect.** Cut-out is set too high and must be adjusted.
- 5.2.2 System is incorrectly wired.** Ensure that the incoming power is wired per this manual.
- 5.2.3 Timer setting is too high.** See page 7 for timer information. Adjust as necessary.

## **5.3 Pump runs but the pressure is too low/the pump doesn't shut off.**

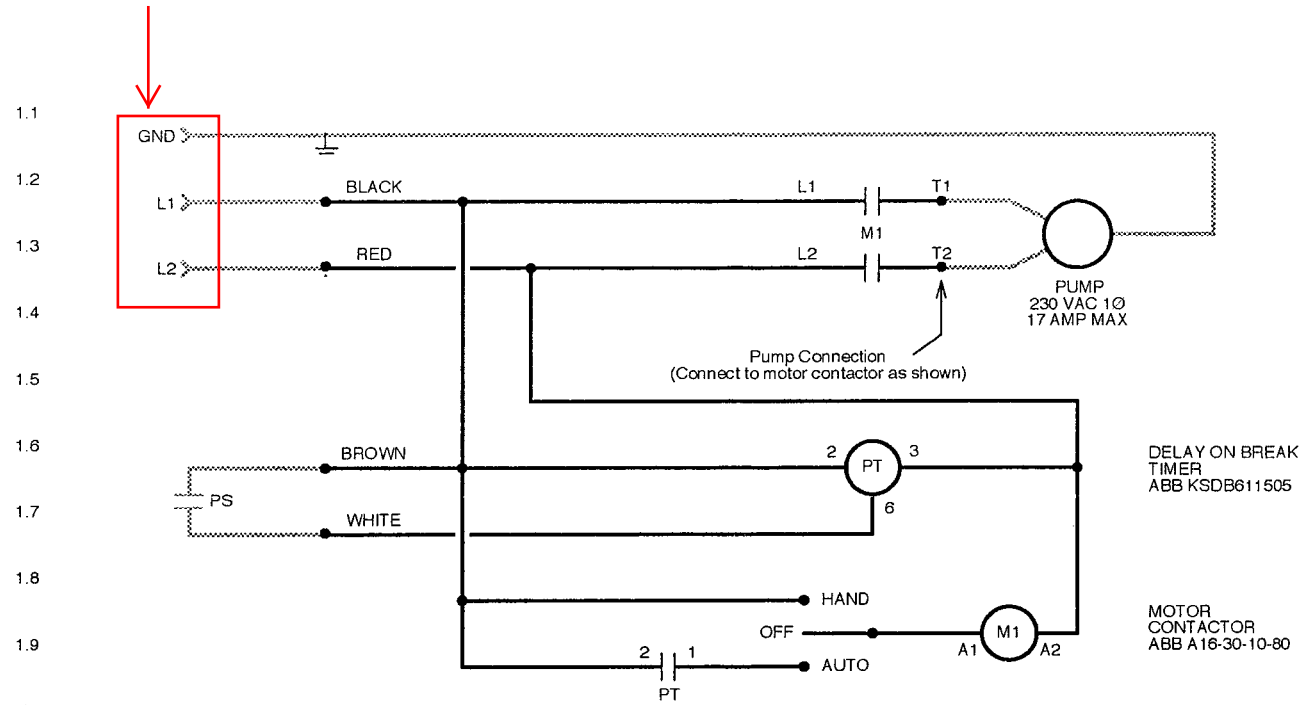
- 5.3.1 Air in the pump.** Open the bleed plug/system drain to purge any air.
- 5.3.2 Incorrect incoming power.** Check to make sure the pump is wired 230volt 1phase.
- 5.3.3 Inadequate water supply to suction.** Check for closed suction valves, improperly sized suction lines, or empty water tanks.

## **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, improperly sized suction lines, or empty water tanks.
- 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 pulling in air through a leak in the suction piping.

# Talco LSF Wiring Diagram

230V, 1-Phase supply w/ Ground



Pressure switch is factory wired.

Do not modify.

Field connections inside main controller.



# 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.