

# Working Fire™ Handheld Nozzle

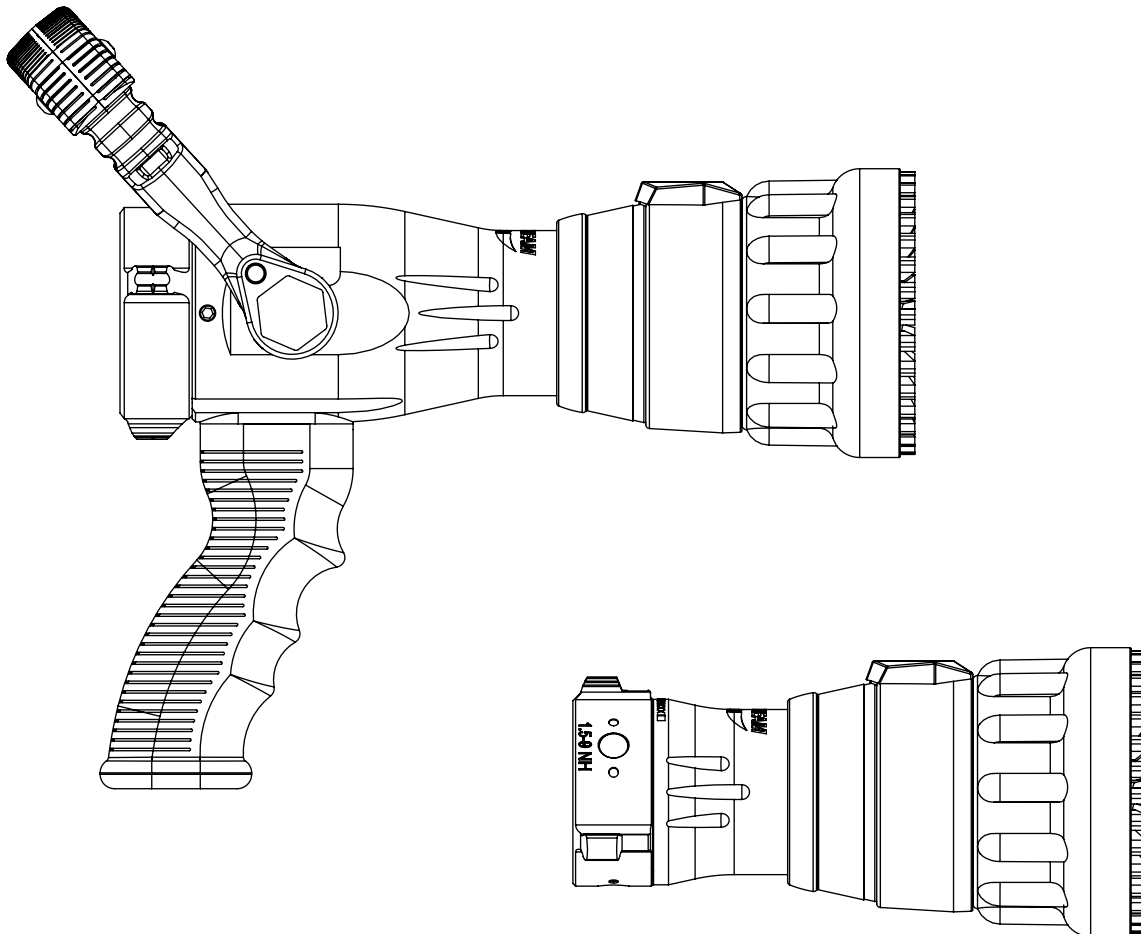
## INSTRUCTIONS FOR INSTALLATION, SAFE OPERATION, AND MAINTENANCE

### **WARNING**

Understand manual before use. Operation of this device without understanding the manual and receiving proper training is a misuse of this equipment. Obtain safety information at [tft.com/serial-number](http://tft.com/serial-number).

This equipment is intended for use by trained and qualified emergency services personnel for firefighting. All personnel using this equipment shall have completed a course of education approved by the Authority Having Jurisdiction (AHJ).

This instruction manual is intended to familiarize firefighters and maintenance personnel with the operation, servicing, and safety procedures associated with this product. This manual should be kept available to all operating and maintenance personnel.



# ⚠ DANGER

## PERSONAL RESPONSIBILITY CODE

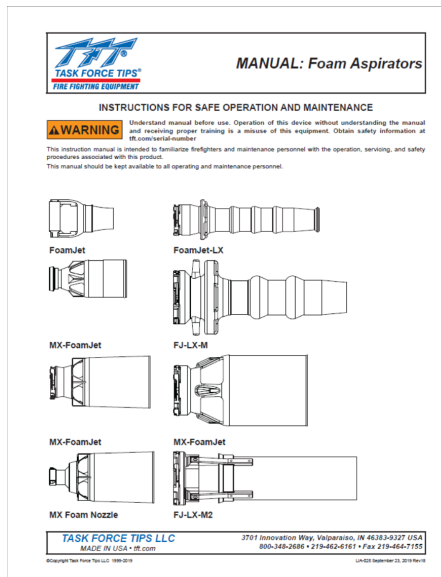
The member companies of FEMSA that provide emergency response equipment and services want responders to know and understand the following:

1. Firefighting and Emergency Response are inherently dangerous activities requiring proper training in their hazards and the use of extreme caution at all times.
2. It is your responsibility to read and understand any user's instructions, including purpose and limitations, provided with any piece of equipment you may be called upon to use.
3. It is your responsibility to know that you have been properly trained in Firefighting and /or Emergency Response and in the use, precautions, and care of any equipment you may be called upon to use.
4. It is your responsibility to be in proper physical condition and to maintain the personal skill level required to operate any equipment you may be called upon to use.
5. It is your responsibility to know that your equipment is in operable condition and has been maintained in accordance with the manufacturer's instructions.
6. Failure to follow these guidelines may result in death, burns or other severe injury.



Fire and Emergency Manufacturers and Service Association  
P.O. Box 147, Lynnfield, MA 01940 • www.FEMSA.org

**The following documents contain supporting safety and operating information pertaining to the equipment described in this manual.**



LIA-025  
Manual: Foam Aspirators

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## 1.0 MEANING OF SAFETY SIGNAL WORDS

A safety related message is identified by a safety alert symbol and a signal word to indicate the level of risk involved with a particular hazard. Per ANSI Z535.6, the definitions of the four signal words are as follows:



**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION** indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.



**NOTICE** is used to address practices not related to physical injury.

## 2.0 SAFETY



An inadequate supply of pressure and/or flow will cause an ineffective stream and can result in injury or death. Choose operating conditions to deliver adequate fire suppression. See flow graphs.



This equipment is intended for use by trained personnel for firefighting. Use of this equipment for other purposes may involve hazards not addressed by this manual. Seek appropriate guidance and training to reduce risk of injury.



Equipment may be damaged if frozen while containing significant amounts of water. Such damage may be difficult to detect visually. Subsequent pressurization can lead to injury or death. Any time the equipment is subject to possible damage due to freezing, it must be tested and approved for use by qualified personnel before being considered safe for use.



Failure to restrain nozzle reaction can cause firefighter injury from loss of footing and/or stream protection. Opening and closing other nozzles, hose line kinks, changes in pump settings, nozzle pattern, or flushing will cause changes in nozzle reaction. Nozzle operator must always be prepared in the event of these changes.



If nozzle gets out of control while flowing, violent whipping motion will occur. Serious injury or death could result. Retreat from the nozzle immediately. Do not attempt to regain control of nozzle while flowing.



Application of water or foam solutions on energized electrical equipment could cause electrocution. Serious injury or death could result. Assume circuits are energized until confirmed to be de-energized. Do not apply water or foam to energized electrical equipment.



The stream exiting a nozzle is powerful and capable of causing injury and property damage. Make sure the nozzle is securely attached and pointing in a safe direction before water is turned on. Do not direct water stream to cause injury or damage to persons or property.



To prevent mechanical damage, do not drop or throw equipment.

### 3.0 GENERAL INFORMATION

The Working Fire nozzle operates as a fixed orifice fog nozzle up to its rated flow.

When flow is increased beyond the rated flow, a pressure relief feature keeps the nozzle pressure from rising sharply so that nozzle reaction remains lower than a traditional fixed orifice nozzle.

The nozzle is adjustable from straight stream to wide fog, with a quick-acting pattern adjustment. A detent secures the straight stream pattern from unintentional movement if the nozzle is dragged on the ground. The nozzle is easily flushable while flowing to clear trapped debris.

The nozzle is controlled by a stainless steel ball valve that includes a quick-change rear valve seat.

### 3.1 VARIOUS MODELS AND TERMS

Working Fire nozzles are available in several different models and inlet connections. Basic body styles are shown below. All models deliver the rated flow rate when the rated pressure is supplied to the nozzle inlet. Hose diameters of 1.5" (38mm) or larger are recommended to achieve the intended flow and stream reach.

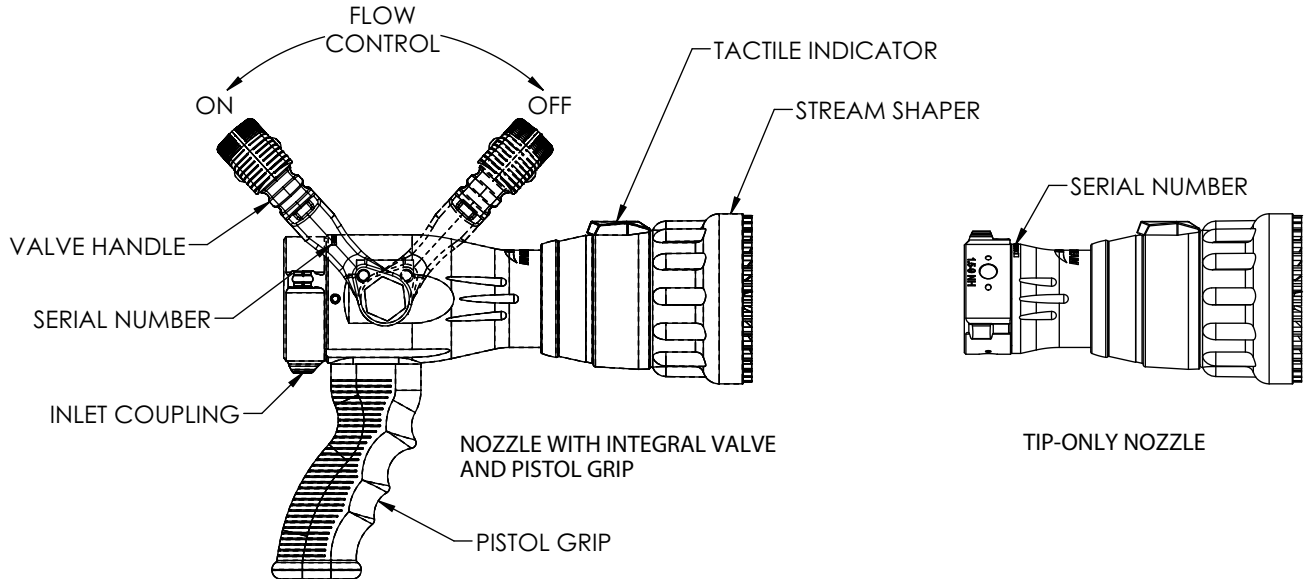


Figure 3.1

### 3.2 SPECIFICATIONS

Maximum nozzle inlet pressure with valve shut off	300 psi	21 bar
Operating temperature of fluid	33 to 120°F	1 to 50°C
Storage temperature range	-40 to 150°F	-40 to 65°C
Materials used	Aluminum 6000 series hard anodized MIL 8625 class 3 type 2, stainless steel 300 series, nylon 6-6, nitrile rubber	

Table 3.2

### 3.3 NOZZLE COUPLINGS

NH (National Hose Threads) threads are standard on all nozzles. Other threads such as NPSH (National Pipe Straight Hose) can be specified at time of order.



**Mismatched or damaged waterway connections may cause equipment to leak or uncouple under pressure. Failure could result in injury. Equipment must be mated to matched connections.**



**Dissimilar metals coupled together can cause galvanic corrosion that can result in the inability to uncouple the connection, or complete loss of engagement over time. Failure could cause injury. Per NFPA 1962, if dissimilar metals are left coupled together, an anti-corrosive lubricant should be applied to the connection and the coupling should be disconnected and inspected at least quarterly.**

### 3.4 USE WITH SALT WATER

Use with salt water is permissible provided the equipment is thoroughly cleaned with fresh water after each use. The service life of the equipment may be shortened due to the effects of corrosion, and is not covered under warranty.

## 4.0 FLOW CHARACTERISTICS

### WF1\*-173 MODELS 150 GPM @ 75 PSI (570 L/min @ 5 bar)

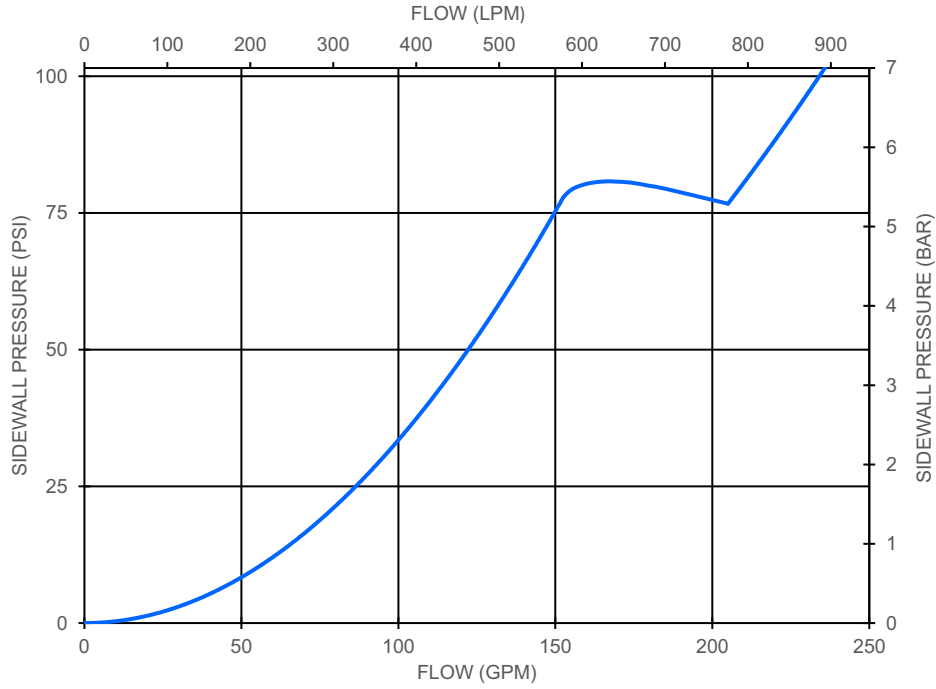


Figure 4.0A

### WF1\*-226 MODELS 160 GPM @ 50 PSI (600 L/min @ 3.4 bar)

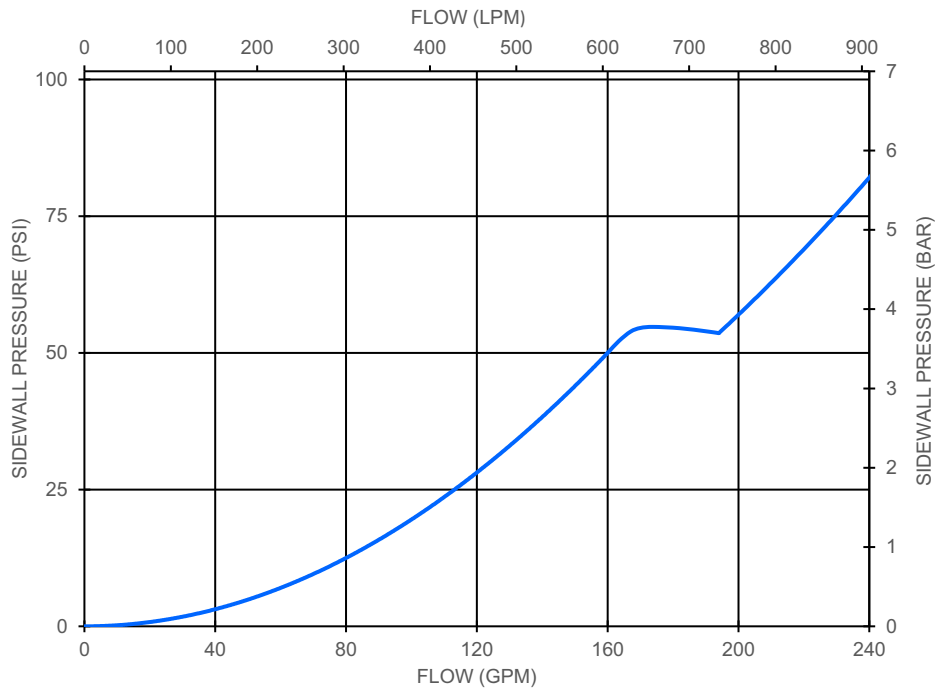


Figure 4.0B

## 5.0 NOZZLE CONTROLS

### 5.1 FLOW CONTROL

#### **NOTICE**

Control valves must be opened slowly to eliminate unnecessary strain on the hose and couplings, and reduce pressure surges.

#### **NOTICE**

Nozzles attached to an in-service hose shall be stored in the off position.

#### 5.1.1 LEVER TYPE FLOW CONTROL (BALL VALVE)

Models with a ball valve are shut off when the valve handle is fully forward. Pulling back on the handle opens the valve. TFT recommends the use of a pistol grip for easier handling. For additional stress reduction, a hose rope or strap may also be used. This permits more effective use and ease of advancement, while minimizing strain and fatigue.

#### **NOTICE**

In partially open positions, a ball valve will cause turbulence and adversely affect stream quality.

#### 5.1.2 TIP ONLY NOZZLES

Tip only nozzles have NO shut-off valve within the nozzle and MUST be used with a separate ball valve attached to the nozzle. Using a nozzle without a shutoff is an unsafe practice and should never be done.

### 5.2 PATTERN CONTROL

TFT nozzles have full pattern control from straight stream to wide fog. Turning the stream shaper clockwise (as seen from the operating position behind the nozzle) moves the shaper to the straight stream position. Turning the shaper counterclockwise will result in an increasingly wider pattern.

Since the stream trim point varies with flow, the stream should be “trimmed” after changing the flow to obtain the straightest and farthest reaching stream. To properly trim the stream, first open the pattern to narrow fog. Then close the stream to parallel to give maximum reach. Turning the shaper further forward will cause stream crossover and reduce the effective reach of the nozzle.

#### **WARNING**

The nozzle reaction is greatest when the shaper is in the straight stream position. Sudden changes in pattern can cause changes in reaction, leading to loss of footing or an out of control nozzle. The nozzle operator must be prepared for a change in reaction as the pattern is changed.

#### **CAUTION**

Dents or nicks in the nozzle tip can seriously affect the stream reach or pattern, which may increase the risk of injury due to exposure. Care must be taken to avoid dents or nicks in the nozzle tip.

### 5.3 FLUSH CONTROL

Small debris may get caught inside the nozzle. This trapped material will cause poor stream quality, shortened reach, and reduced flow. To remove small debris, the nozzle may be flushed as follows:

- While still flowing water, rotate the shaper counterclockwise (as viewed from behind the nozzle) to the Flush setting. This will open the nozzle allowing debris to pass through.
- During flush the nozzle reaction will decrease as the pattern becomes wider and the pressure drops. The nozzle operator must be prepared for an increase of nozzle reaction when returning the nozzle from the flush position to retain control of the nozzle.
- Rotate the shaper out of flush to continue normal operations.

#### **WARNING**

Large amounts or pieces of debris may be unflushable and can reduce the flow of the nozzle resulting in an ineffective flow. In the event of a blockage, it may be necessary to retreat to a safe area, uncouple the nozzle and remove debris.

## 6.0 USE WITH FOAM

The nozzle may be used with foam solutions. Refer to fire service training by the Authority Having Jurisdiction (AHJ) for the proper use of foam.



**For Class B fires, lack of foam or interruption in the foam stream can cause a break in the foam blanket and greatly increase the risk of injury or death. Follow procedures established by the AHJ for the specific fuel and conditions.**



**Improper use of foam or using the wrong type of foam can result in illness, injury, or damage to the environment. Follow foam manufacturer's instructions and fire service training as directed by the AHJ.**



**Use of compressed air foam (CAF) with hand held nozzles can cause sudden surges in nozzle reaction force resulting in risk of injury or death from loss of footing or hose whipping. Be prepared for sudden changes in nozzle reaction caused by:**

- **Slug loading (Loss of foam concentrate sends slugs of air and water into the nozzle)**
- **Sudden release of built-up pressure in the hose when opening a nozzle**

## 6.1 FOAM ASPIRATING ATTACHMENTS

Multi-expansion or low expansion aspirating attachments may be used with nozzles to increase the expansion ratio. These foam tubes attach and detach quickly from the nozzle. As expansion ratio is increased, the reach of the nozzle will decrease due to the greater amount of bubbles in the stream and their ability to penetrate the air. Generally, the straight stream reach with foam is approximately 10% less than with water only. Actual results will vary based on brand of foam, hardness of water, temperature, etc. For specific information, see LIA-025 (MANUAL: Foam Attachments for TFT Nozzles).

## 7.0 USE OF NOZZLES

IT IS THE RESPONSIBILITY OF THE INDIVIDUAL FIRE DEPARTMENT OR AGENCY TO DETERMINE PHYSICAL CAPABILITIES AND SUITABILITY FOR AN INDIVIDUAL'S USE OF THIS EQUIPMENT.

Many factors contribute to the extinguishment of a fire. Among the most important is delivering water at a flow rate sufficient to absorb heat faster than it is being generated. The flow rate depends largely on the pump discharge pressure and hose friction loss. It can be calculated using a hydraulic equation such as:

$$PDP = NP + FL + DL + EL$$

**PDP** = Pump Discharge Pressure in psi

**NP** = Nozzle Pressure in psi

**FL** = Hose Friction Loss in psi

**DL** = Device Loss in psi

**EL** = Elevation Loss in psi

This Safety Manual is not intended as a substitute for proper training in the use of rescue systems as taught from credible sources such as the National Fire Protection Association (NFPA), the International Fire Service Training Association (IFSTA), or sources approved by the Authority Having Jurisdiction (AHJ).

## 8.0 COLOR CODED NOZZLE COMPONENTS

Working Fire nozzles are available with Black, Blue, Red, or Yellow handle covers, pistol grip, and tactile indicator at the time of order. These field replaceable components are also available to departments wishing to change the color coding after order. Contact [tft.com](http://tft.com) or your dealer to order color coded components.



## 9.0 WARRANTY

Task Force Tips LLC, 3701 Innovation Way, Valparaiso, Indiana 46383-9327 USA ("TFT") warrants to the original purchaser of its products ("equipment"), and to anyone to whom it is transferred, that the equipment shall be free from defects in material and workmanship during the five (5) year period from the date of purchase. TFT's obligation under this warranty is specifically limited to replacing or repairing the equipment (or its parts) which are shown by TFT's examination to be in a defective condition attributable to TFT. To qualify for this limited warranty, the claimant must return the equipment to TFT, at 3701 Innovation Way, Valparaiso, Indiana 46383-9327 USA, within a reasonable time after discovery of the defect. TFT will examine the equipment. If TFT determines that there is a defect attributable to it, TFT will correct the problem within a reasonable time. If the equipment is covered by this limited warranty, TFT will assume the expenses of repair.

If any defect attributable to TFT under this limited warranty cannot be reasonably cured by repair or replacement, TFT may elect to refund the purchase price of the equipment, less reasonable depreciation, in complete discharge of its obligations under this limited warranty. If TFT makes this election, claimant shall return the equipment to TFT free and clear of any liens and encumbrances.

This is a limited warranty. The original purchaser of the equipment, any person to whom it is transferred, and any person who is an intended or unintended beneficiary of the equipment, shall not be entitled to recover from TFT any consequential or incidental damages for injury to person and/or property resulting from any defective equipment manufactured or assembled by TFT.

It is agreed and understood that the price stated for the equipment is in part consideration for limiting TFT's liability. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above may not apply to you.

TFT shall have no obligation under this limited warranty if the equipment is, or has been, misused or neglected (including failure to provide reasonable maintenance) or if there have been accidents to the equipment or if it has been repaired or altered by someone else.

**THIS IS A LIMITED EXPRESS WARRANTY ONLY. TFT EXPRESSLY DISCLAIMS WITH RESPECT TO THE EQUIPMENT ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE. THERE IS NO WARRANTY OF ANY NATURE MADE BY TFT BEYOND THAT STATED IN THIS DOCUMENT.**

This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

## 10.0 MAINTENANCE

TFT products are designed and manufactured to be damage resistant and require minimal maintenance. However, as the primary firefighting tool upon which your life depends, it should be treated accordingly. To help prevent mechanical damage, do not drop or throw equipment.

### 10.1 FIELD LUBRICATION

All Task Force Tips nozzles are factory lubricated with high quality silicone grease. This lubricant has excellent wash out resistance, providing long term performance in firefighting nozzles. If your department has unusually hard or sandy water, the moving parts of the nozzle may be affected. Foam agents and water additives contain soaps and chemicals that may break down the factory lubrication.

The moving parts of the nozzle should be checked on a regular basis for smooth and free operation, and for signs of damage. **IF THE NOZZLE IS OPERATING CORRECTLY, THEN NO ADDITIONAL LUBRICANT IS NEEDED.** Any nozzle that is not operating correctly should be immediately removed from service. The nozzle can be returned to the factory at any time for a complete checkup and re-lubrication with silicone grease.

The field use of Break Free CLP (spray or liquid) lubricant will help to temporarily restore the smooth and free operation of the nozzle. These lubricants do not have the washout resistance and long-term performance of the silicone grease. Once Break Free CLP is applied, re-application will be needed on a regular basis until the nozzle can be returned to the factory for a complete checkup and re-lubrication with silicone grease.



**Aerosol lubricants contain solvents that can swell O-Rings if applied in excess. The swelling can inhibit smooth operation of the moving parts. When used in moderation, as directed, the solvents quickly evaporate without adversely swelling the O-Rings.**

### 10.2 SERVICE TESTING

In accordance with NFPA 1962, equipment must be tested a minimum of annually. Units failing any part of this test must be removed from service, repaired and retested upon completion of the repair.

### 10.3 REPAIR

Factory service is available with repair time seldom exceeding one day in our facility. Factory serviced equipment is repaired by experienced technicians, wet tested to original specifications, and promptly returned. Repair charges for non-warranty items are minimal. Any returns should include a note as to the nature of the problem and whom to reach in case of questions.

Repair parts and service procedures are available for those wishing to perform their own repairs. Task Force Tips assumes no liability for damage to equipment or injury to personnel that is a result of user service. Contact the factory or visit the web site at [tft.com](http://tft.com) for parts lists, exploded views, test procedures and troubleshooting guides. All replacement parts must be obtained from the manufacturer to assure proper operation of the product, and to maintain approval of the device.

Performance tests shall be conducted on the equipment after a repair, or anytime a problem is reported to verify operation in accordance with TFT test procedures. Consult factory for the procedure that corresponds to the model and serial number of the equipment. Any equipment which fails the related test criteria should be removed from service immediately. Troubleshooting guides are available with each test procedure or equipment can be returned to the factory for service and testing.



**Any alterations to the product or its markings could diminish safety and constitutes a misuse of this product.**

## 11.0 DRAWINGS AND PART LISTS

Exploded View Drawings and Part Lists available at [tft.com/serial-number](http://tft.com/serial-number)



## 12.0 OPERATION AND INSPECTION CHECKLIST

**BEFORE EACH USE**, the nozzle must be inspected to this checklist:

1. There is no obvious damage such as missing, broken or loose parts, damaged labels etc.
2. Waterway is clear of obstructions
3. Coupling is tight and leak free
4. Valve operates freely through full range and regulates flow
5. "OFF" position does fully shut off and flow is stopped
6. Nozzle flow is adequate as indicated by pump pressure and nozzle reaction
7. Shaper turns freely and adjusts pattern through full range
8. Nozzle smoothly moves into full flush and out of flush with normal flow and pressure restored
9. Shaper detent (if so equipped) operates smoothly and positively.

**BEFORE BEING PLACED BACK IN SERVICE**, nozzles must be inspected to this checklist:

1. *All controls and adjustments are operational*
2. *Shut off valve (if so equipped) closes off the flow completely*
3. *There are no broken or missing parts*
4. *There is no damage to the nozzle that could impair safe operation (e.g. dents, cracks, corrosion or other defects)*
5. *The thread gasket is in good condition*
6. *The waterway is clear of obstructions*
7. *Nozzle is clean and markings are legible*
8. *Coupling is retightened properly*
9. *Shaper is set to desired pattern*
10. *Shutoff handle is stored in the OFF position*

NFPA 1962: Standard for the care, use, inspection, service testing, and replacement of fire hose, couplings, nozzles and fire hose appliances. Quincy, MA: National Fire Protection Agency



**Equipment failing any part of the checklist is unsafe for use and must have the problem corrected before use or being placed back into service. Operating equipment that has failed the checklist is a misuse of this equipment.**