



**TASK FORCE TIPS**  
FIRE FIGHTING EQUIPMENT

# MANUAL: Selectable Gallonage ER Nozzles Instruction Manual

## INSTRUCTIONS FOR SAFE OPERATION AND MAINTENANCE

### **WARNING**

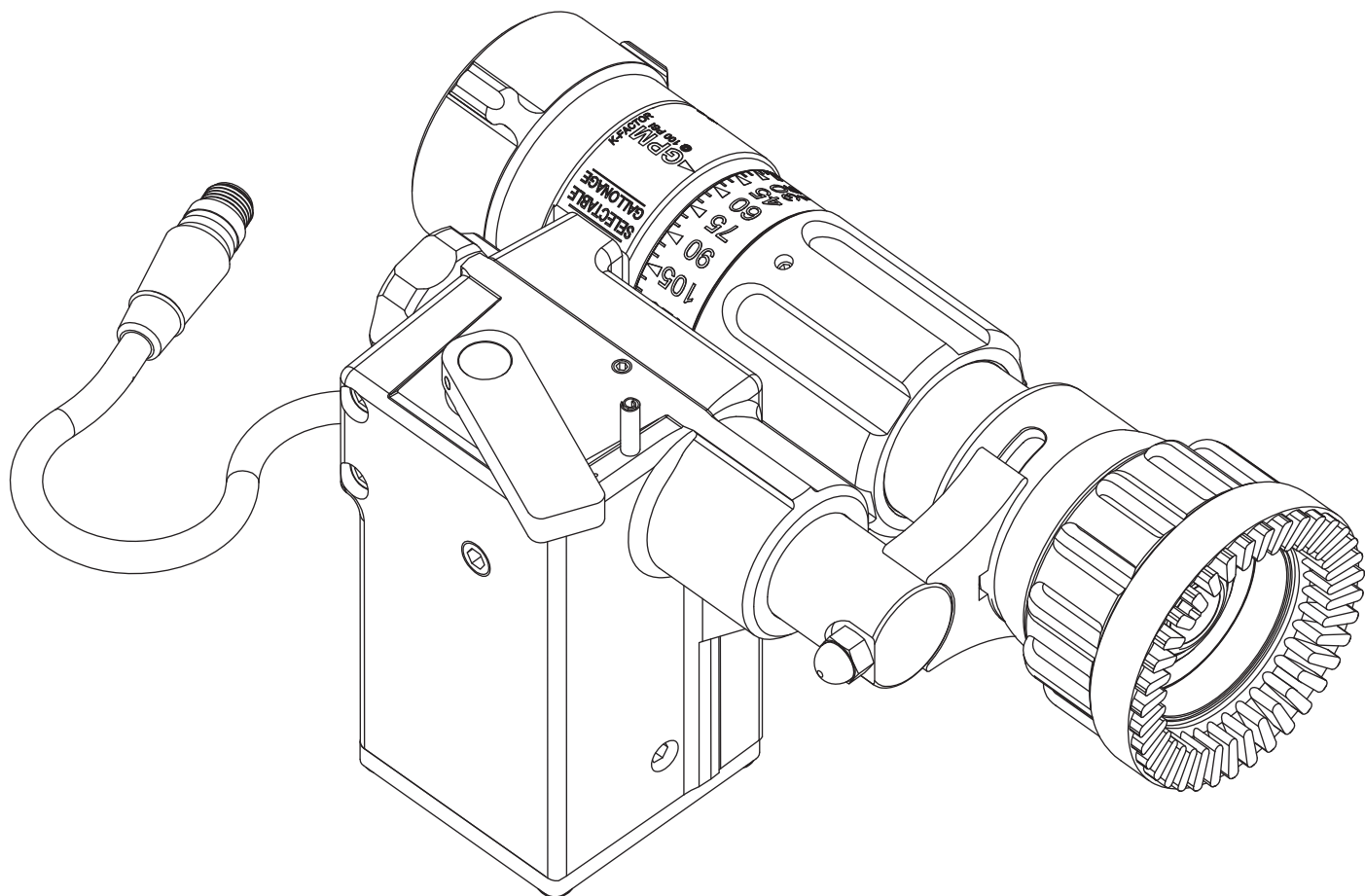
Read instruction manual before use. Operation of this nozzle without understanding the manual and receiving proper training can be dangerous and is a misuse of this equipment. Call 800-348-2686 with any questions.

### **WARNING**

This instruction manual is intended to familiarize firefighters and maintenance personnel with the operation, servicing and safety procedures associated with the fire fighting nozzle.

### **WARNING**

This manual should be kept available to all operating and maintenance personnel.




**TASK FORCE TIPS, Inc.**  
Made in USA • [www.tft.com](http://www.tft.com)

2800 E Evans Ave • Valparaiso, IN 46383-6940 USA  
800-348-2686 • 219-462-6161 • Fax 219-464-7155

# TABLE OF CONTENTS


- 1.0 MEANING OF SIGNAL WORDS
- 2.0 GENERAL INFORMATION
  - 2.1 MODELS AND TERMS
  - 2.2 NOZZLE COUPLINGS
- 3.0 FLOW CHARACTERISTICS
- 4.0 NOZZLE CONTROLS
  - 4.1 FLOW CONTROL
  - 4.2 PATTERN AND FLUSH CONTROL
    - 4.2.1 PATTERN CONTROL
    - 4.2.2 FLUSH CONTROL
- 5.0 FIREGROUND USE
- 6.0 FIELD INSPECTION
- 7.0 REPAIRS
- 8.0 ANSWERS TO YOUR QUESTIONS
- 9.0 INSPECTION CHECKLIST
- 10.0 WARRANTY

**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 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 Services Association, Inc.  
P.O. Box 147, Lynnfield, MA 01940 • [www.FEMSA.org](http://www.FEMSA.org)

## 1.0 MEANING OF 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 standard Z535.4-1998 the definitions of the three signal words are as follows:

-  **DANGER** DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
-  **WARNING** WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
-  **CAUTION** CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

## 2.0 GENERAL INFORMATION

The Task Force Tips Selectable Gallonage ER nozzles are designed to provide excellent performance under most fire fighting conditions. Their rugged construction is compatible with the use of fresh water (see section 6.0 for saltwater use) as well as fire fighting foam solutions. Other important operating features are:

- Quick-acting pattern control from straight stream to wide fog
- "Power fog teeth" for full-fill fog
- Easily flushable while flowing to clear trapped debris
- TFT's five-year warranty and unsurpassed customer service

### **⚠ DANGER**

**An inadequate supply of nozzle pressure and/or flow will cause an ineffective stream and can result in injury, death or loss of property. Call 800-348-2686 for assistance.**

### **⚠ WARNING**

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

### **⚠ WARNING**

**Failure to restrain nozzle reaction can cause firefighter injury from loss of footing and/or stream protection. Nozzle reaction will vary as supply conditions change: such as opening or closing other nozzles, hose line kinks, changes in pump settings, etc. Changes in spray pattern or flushing will also affect nozzle reaction. The nozzle operator must always be positioned to restrain the nozzle reaction in the event of those changes.**

### **⚠ WARNING**

**Injury from whipping can occur. If nozzle gets out of control or away from operator, retreat from nozzle immediately. Do not attempt to regain control of nozzle while flowing water.**

### **⚠ WARNING**

**Water is a conductor of electricity. Application of water solutions on high voltage equipment can cause injury or death by electrocution. The amount of current that may be carried back to the nozzle will depend on the following factors:**

- Voltage of the line or equipment
- Distance from the nozzle to the line or equipment
- Size of the stream
- Whether the stream is solid or broken
- Purity of the water<sub>1</sub>

1 The Fire Fighter and Electrical Equipment,  
The University of Michigan Extension Service, Fourth Printing 1983. Page 47.

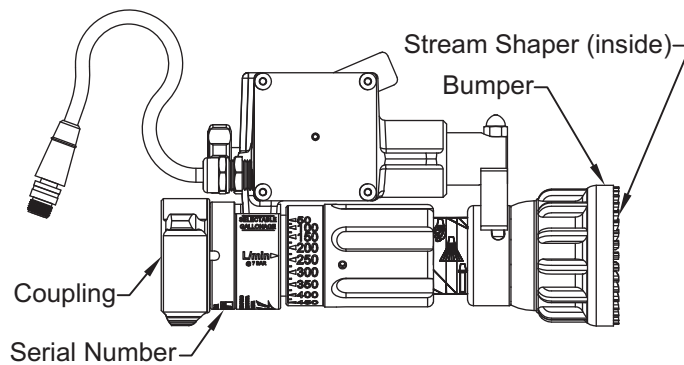
### **⚠ CAUTION**

**Fire streams are capable of injury and damage. Do not direct water stream to cause injury or damage to persons or property.**

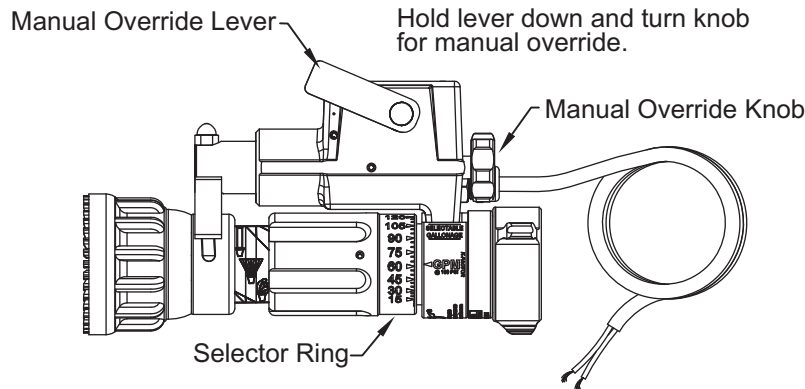
## 2.1 MODELS AND TERMS

**Selectable Gallonage (Adjustable Flow):** A nozzle with a discharge orifice that can be set to a user selected position. In each position the nozzle acts as a fixed orifice nozzle.

**Tip Only:** a nozzle without an integral ball shutoff valve.



B-TOS-ERP with 6-pin plug for TFT monitors



B-TOS-ER with 6ft of non-terminated remote wire

**FIGURE 1 MODELS AND TERMS**

## 2.2 NOZZLE COUPLINGS

NH(National Hose Threads per NFPA #1963) threads are standard on all nozzles. Other threads such as NPSH (National Pipe Straight Hose threads per ANSI/ASME #B1.20.7) can be specified at time of order.

**CAUTION** Nozzle must be properly connected. Mismatched or damaged threads may cause nozzle to leak or uncouple under pressure and could cause injury.

**CAUTION** Do not couple aluminum to brass. Dissimilar metals coupled together can cause galvanic corrosion that can result in inability to unscrew threads or complete loss of thread engagement.

### 3.0 FLOW CHARACTERISTICS

At each flow setting the nozzle is set to a predetermined fixed orifice. Relationship of flow and nozzle pressure at each setting is shown in figure 2. Contact the factory or visit the website ([www.tft.com](http://www.tft.com)) for range and trajectory data.

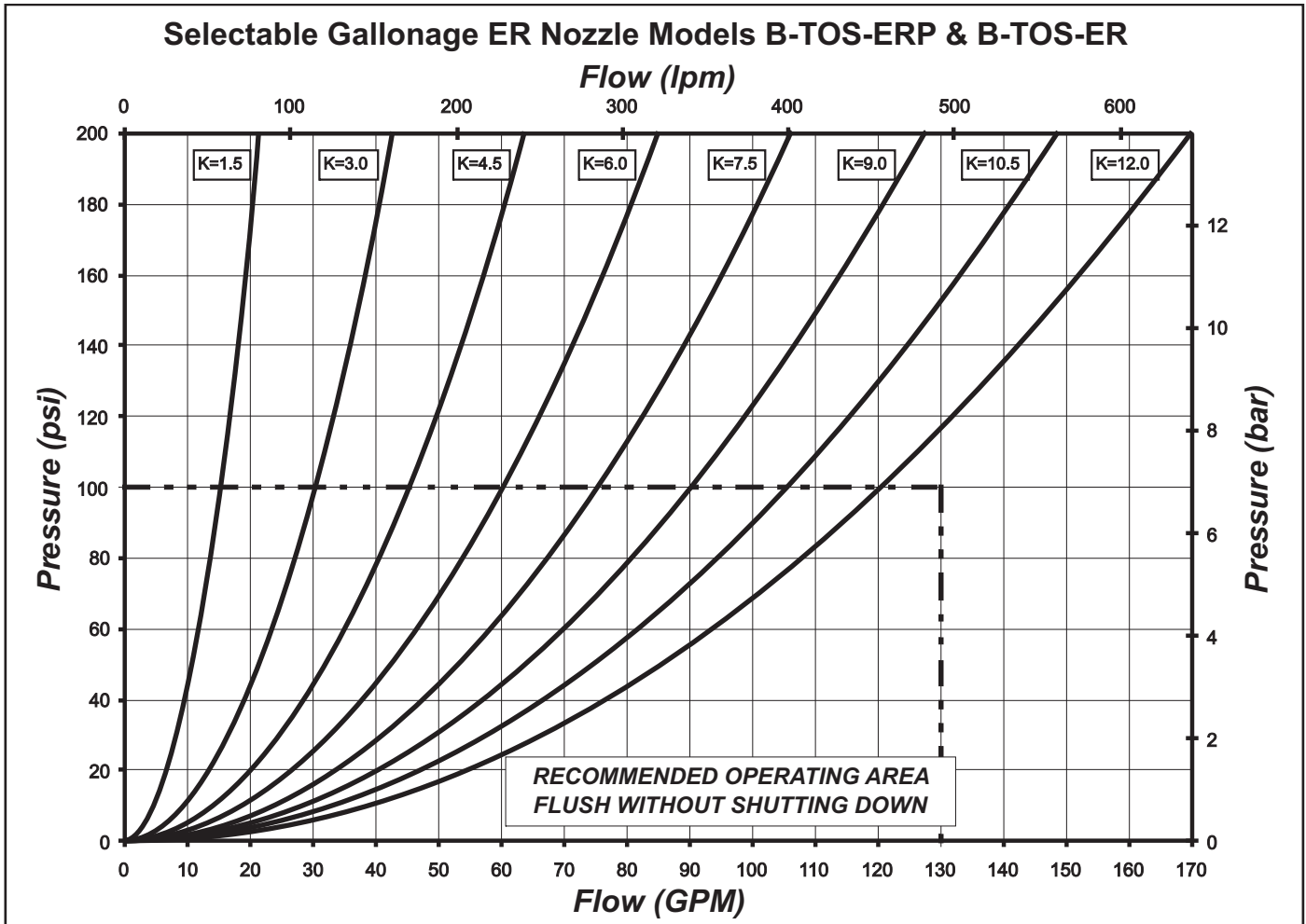


FIGURE 2

### 4.0 NOZZLE CONTROLS

#### 4.1 FLOW CONTROL

The selector ring is marked with various flow settings. To adjust the flow rate, twist the selector ring so that desired setting lines up with the arrow on the base, indicating GPM or L/min, shown in Figure 3. The desired setting may be locked by tightening one of two set screws on the selector ring. To restore adjustability, loosen the set screw. **The nozzle will flow the indicated amount when the pressure at the nozzle is 100 PSI (7 bar). K-factors are provided on the selector ring to calculate flow at other nozzle pressures, using the following formula:**

$$\text{Flow} = K \cdot \sqrt{\text{Pressure}} \text{ — for flows in GPM and pressures in PSI.}$$

#### 4.2 PATTERN AND FLUSH CONTROL

##### 4.2.1 PATTERN CONTROL

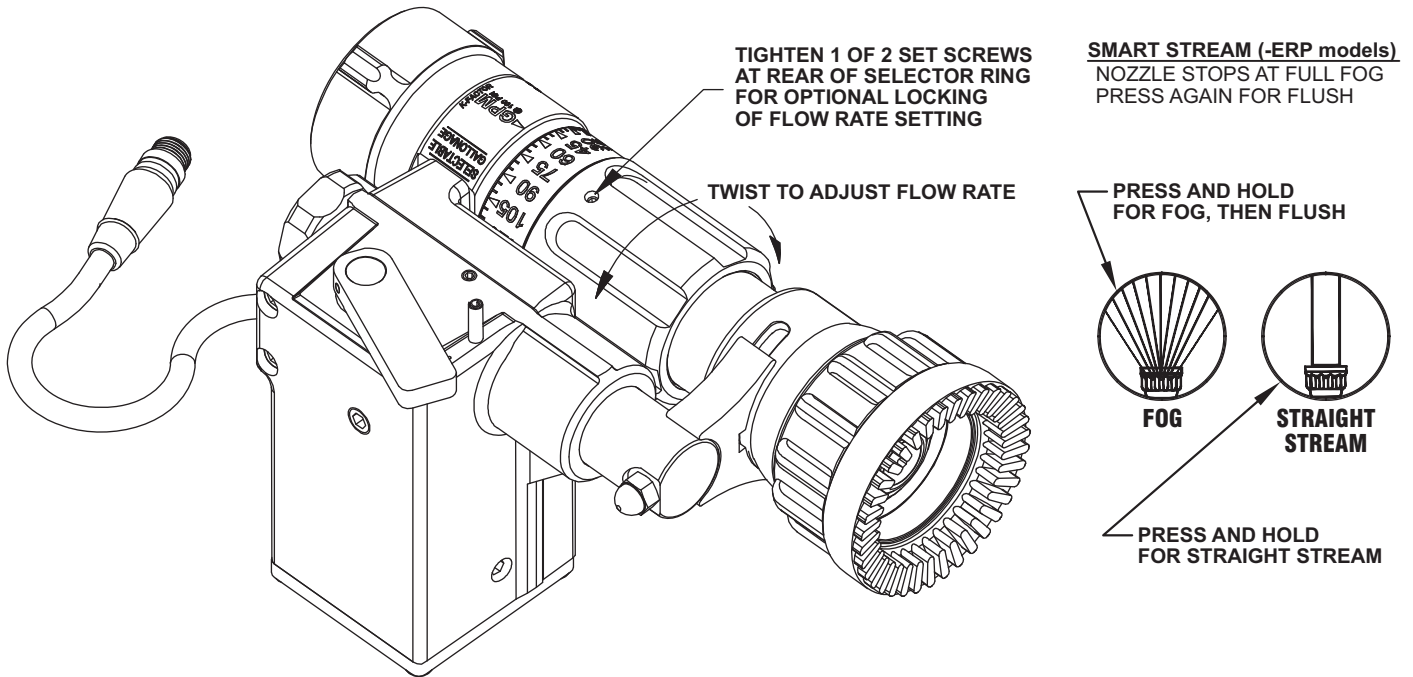
TFT's Selectable Gallonage ER nozzles have full pattern control from straight stream to wide fog. The pattern can be adjusted using the linear actuator either by electronic control or by depressing the MANUAL OVERRIDE LEVER and twisting the KNOB in either direction. Moving the STREAM SHAPER forward transitions the SHAPER to the straight stream position. Moving the SHAPER rearward will result in an increasingly wider pattern. Since the stream trim point varies with the flow, the stream should be "trimmed" after changing the flow to obtain the straightest and farthest reaching stream. To properly trim a stream, first open the pattern to a narrow fog. Then close the stream to parallel to give maximum reach. **NOTE: Moving the shaper further forward will cause stream crossover and reduce the effective reach of the nozzle.**

The nozzle reaction is greatest when the shaper is in the straight stream position. The nozzle operator must be prepared for a change in reaction as the pattern is changed.

## 4.2.2 FLUSH CONTROL

Debris may become trapped in the nozzle causing poor stream quality, shortened reach and reduced flow. To remove trapped debris the nozzle can be flushed as follows: while still flowing water, move the SHAPER rearward past the full fog position until it stops traveling.\* This will open the nozzle allowing debris to pass through. Move the SHAPER forward and out of the flush position to continue normal operation. During flush, the nozzle reaction will decrease as the pattern becomes wider and the pressure drops. The nozzle reaction will increase when returning the nozzle from the flush position.

\*When used with a TFT RC Monitor equipped with Smart Stream technology, the Fog button must be pressed and held a second time to reach the Flush position, shown in Figure 3. The purpose of the Smart Stream feature is to prevent unintentional flushing of the nozzle, which will reduce reach and increase the flow rate, potentially depleting the water supply more quickly.



**FIGURE 3**

## 5.0 FIREGROUND USE

***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. The pump discharge pressure may be calculated using a hydraulic equation such as:

For additional information on calculating specific hose layouts, consult an appropriate fire service training manual, *A Guide to Automatic Nozzles*, or call TFT's "Hydraulics Hotline" at 800-348-2686.

$$\mathbf{PDP = NP + FL + DL + EL}$$

**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

## 6.0 FIELD INSPECTION

TFT's Selectable Gallonage ER Nozzles are designed and manufactured to be damage resistant and require minimal maintenance. However, as the primary fire fighting tools upon which your life depends, they should be treated accordingly.

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

**⚠ WARNING** Nozzle must be inspected for proper operation and function according to inspection checklist on last page before each use. Any nozzle that fails inspection is dangerous to use and must be repaired before using.

Performance tests shall be conducted on the nozzle 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 nozzle. 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.

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

All nozzles are factory lubricated with high quality silicone grease. This lubricant has excellent washout resistance and long term performance. If your department has unusually hard or sandy water, the moving parts 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 signs of damage. IF THE NOZZLE IS OPERATING CORRECTLY, THEN NO ADDITIONAL LUBRICATION IS NEEDED. Any nozzle that is not operating correctly should be immediately removed from service and the problem corrected.

## 7.0 REPAIRS

Factory service is available with repair time seldom exceeding one day in our facility. Factory serviced nozzles are repaired by experienced technicians to original specifications, fully tested and promptly returned. Any returns should include a note as to the nature of the problem, who to reach in case of questions and if a repair estimate is required.

Task Force Tips assumes no liability for damage to equipment or injury to personnel that is a result of user service.

Repair kits and repair parts are stocked for immediate shipment. Contact the factory or visit the website at [www.tft.com](http://www.tft.com) for any parts lists, exploded views, test procedures and troubleshooting guides that may be available.

## 8.0 ANSWERS TO YOUR QUESTIONS

We appreciate the opportunity of serving you and making your job easier. If you have any problems or questions, our toll-free "Hydraulics Hotline", 800-348-2686, is normally available to you 24 hours a day, 7 days a week.

## 9.0 INSPECTION CHECKLIST

Nozzle must be inspected for proper operation and function according to this checklist before each use.

Check that:

- 1) There is no obvious damage such as missing, broken or loose parts, damaged labels etc.
- 2) Coupling is tight and leak free.
- 3) Valve operates freely through full range and regulates flow.
- 4) Nozzle flow is adequate as indicated by pump pressure and nozzle reaction.
- 5) Shaper moves freely using linear actuator and adjusts pattern through full range.
- 6) Shaper moves into flush position and out of flush with normal flow and pressure restored.

**⚠ WARNING** Any nozzle failing any part of the inspection checklist is unsafe and must have the problem corrected before use. Operating a nozzle that fails any of the above inspections is a misuse of this equipment.

## 10.0 WARRANTY

Task Force Tips, Inc., 2800 East Evans Avenue, Valparaiso, Indiana 46383 ("TFT") warrants to the original purchaser of its Selectable Gallonage ER series nozzles ("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 2800 East Evans Avenue, Valparaiso, Indiana 46383, 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.

**TASK FORCE TIPS, Inc.**  
Made in USA • [www.tft.com](http://www.tft.com)

2800 E Evans Ave • Valparaiso , IN 46383-6940 USA  
800-348-2686 • 219-462-6161 • Fax 219-464-7155