

## HAND HELD AUTOMATIC DUAL PRESSURE NOZZLES

### MID-FORCE, CAFS-FORCE, and DUAL-FORCE

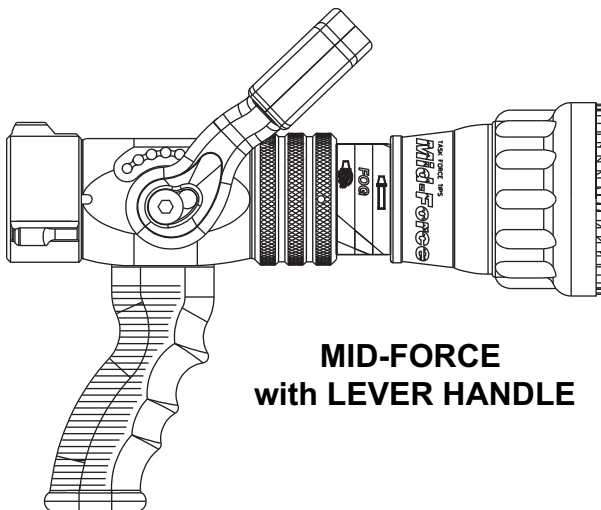
#### INSTRUCTION FOR INSTALLATION, OPERATION, AND MAINTENANCE

#### **⚠ WARNING**

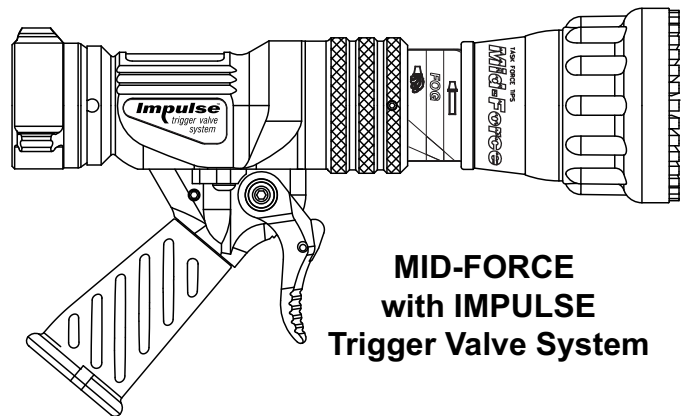
Understand manual before use. Operation of this device without understanding the manual and receiving proper training is a misuse of this equipment. Obtain safety information at [tft.com/serial-number](http://tft.com/serial-number).

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).

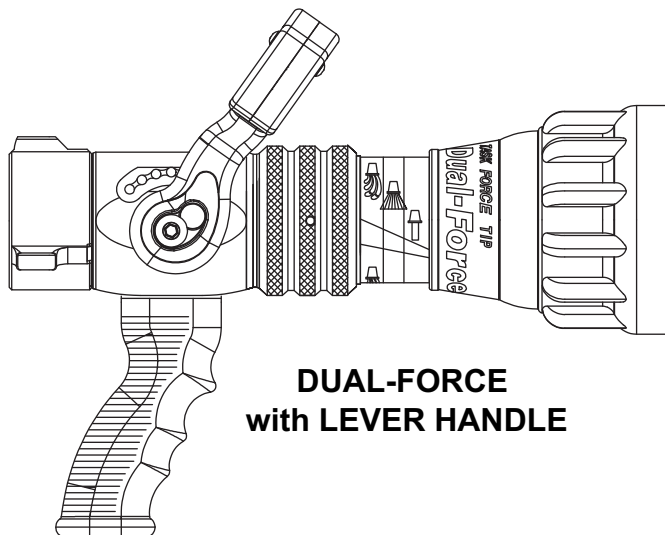
This instruction manual is intended to familiarize firefighters and maintenance personnel with the operation, servicing, and safety procedures associated with this product. This manual should be kept available to all operating and maintenance personnel.



**MID-FORCE  
with LEVER HANDLE**



**MID-FORCE  
with IMPULSE  
Trigger Valve System**



**DUAL-FORCE  
with LEVER HANDLE**

# 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 on 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.

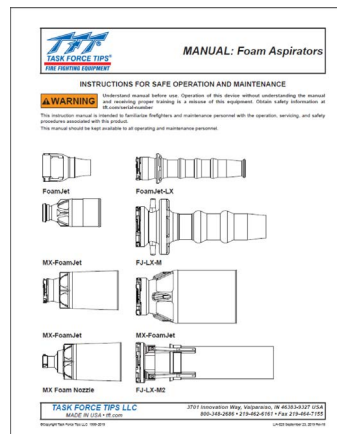
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**FEMSA**

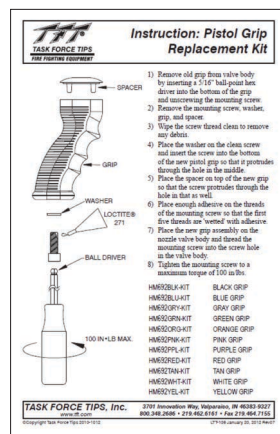
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### SUPPORTING MATERIALS

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



LIA-025  
Manual: Foam Aspirators



LTT-108  
Instruction: Pistol Grip Replacement Kit

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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 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 Task Force Tips MID-FORCE, CAFS-FORCE, and DUAL-FORCE nozzles are designed to provide excellent performance under most fire fighting conditions. Their rugged construction is compatible with the use of fresh water as well as fire fighting foam solutions. Turning the pressure control knob at the front of the nozzle allows the user to quickly change from standard to low pressure mode.

### 3.1 VARIOUS MODELS AND TERMS

SERIES	FLOW RANGE		NOMINAL PRESSURE		STANDARD COUPLING*
	GPM	L/min	PSI	BAR	
MID-FORCE	70-200	265-760	100	7	1-1/2 NH
MID-FORCE	70-200	265-760	75	5	1-1/2 NH
DUAL-FORCE	95-300	360-1150	100	7	1-1/2 NH
DUAL-FORCE	95-300	360-1150	75	5	1-1/2 NH
CAFS-FORCE1	70-200	265-760	75	5	1-1/2 NH
CAFS-FORCE2	95-250	360-950	75	5	1-1/2 NH

\* Other threads, coupling sizes, or connector styles can be specified at time of order.

Table 3.1

MID-FORCE, CAFS-FORCE, and DUAL-FORCE nozzles are available in several models. Some common models are shown below:

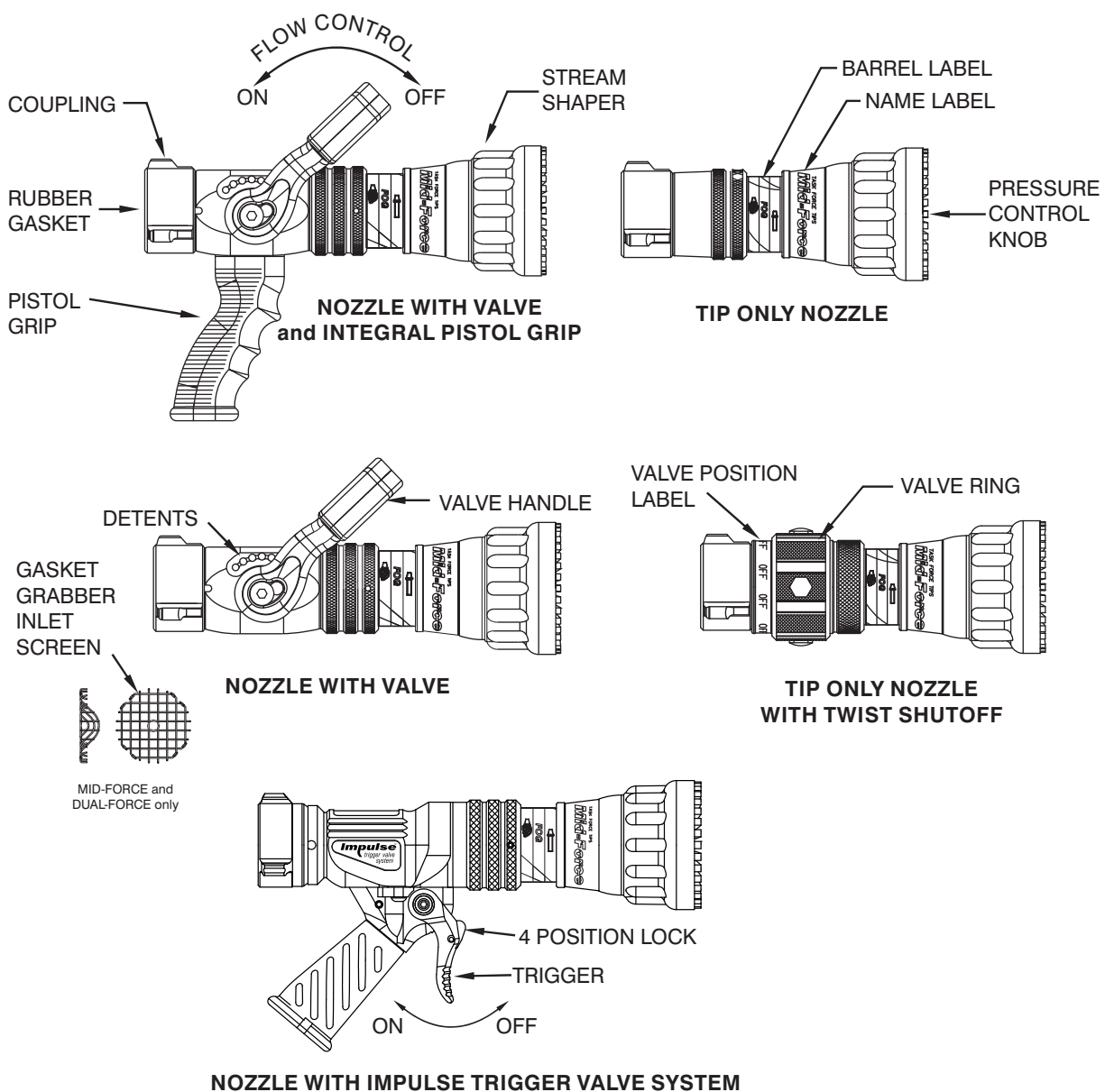


Figure 3.1

### 3.2 SPECIFICATIONS

Maximum operating pressure (with valve shut off)		300 psi	21 bar
Operating temperature range 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 MIL8625 class 3 type 2, stainless steel 300 series, nylon 6-6, nitrile rubber	

Table 3.2

### 3.3 NOZZLE COUPLINGS

NH (National Hose) threads are standard on all nozzles. Other threads such as NPSH (National Pipe Straight Hose) may 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

The following graphs show the typical performance of MID-FORCE, CAFS-FORCE, and DUAL-FORCE nozzles.

**Mid-Force**  
meets NFPA flow requirements

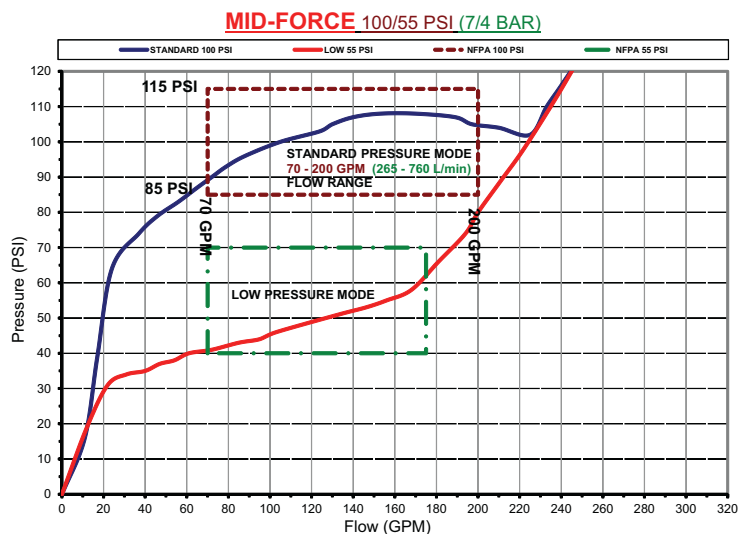


Figure 4.0A

**Mid-Force**  
meets NFPA flow requirements

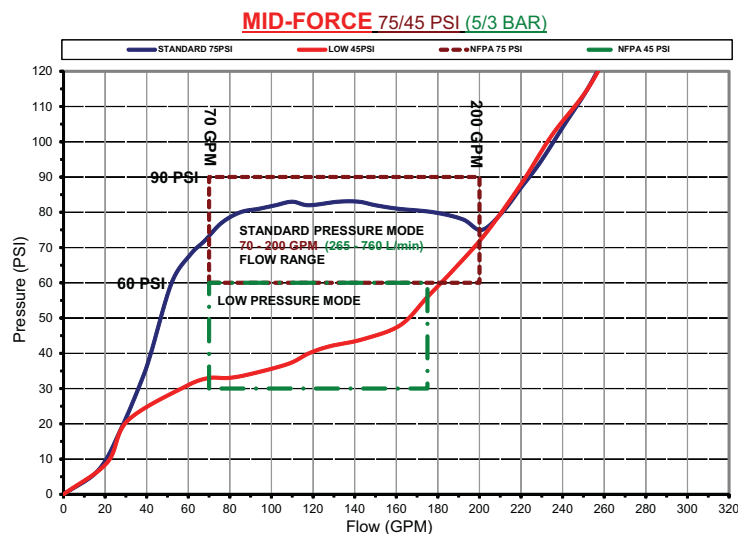


Figure 4.0B

**CAFS-FORCE 1**

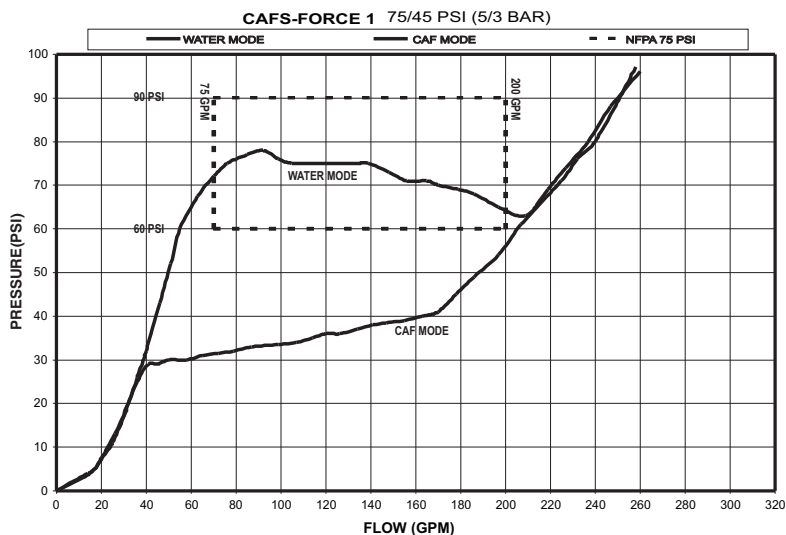


Figure 4.0C

**Dual-Force**  
meets NFPA flow requirements

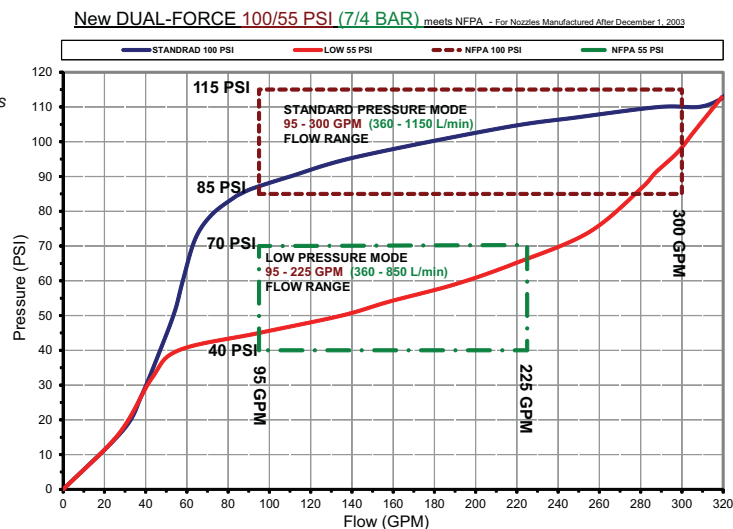


Figure 4.0D

**Dual-Force**  
meets NFPA flow requirements

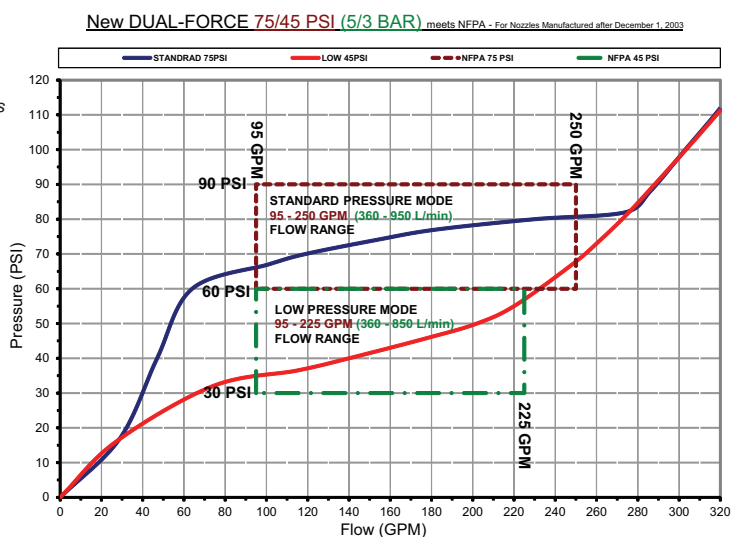


Figure 4.0E

**CAFS-FORCE 2**

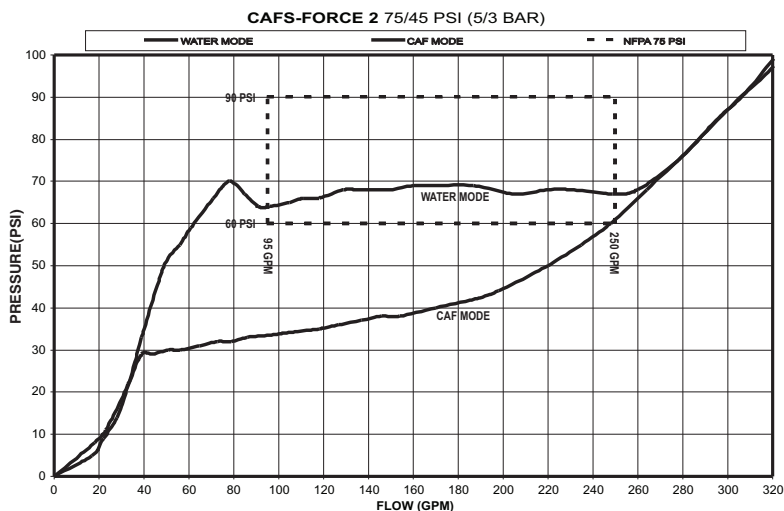


Figure 4.0F



## 4.7 REACH AND TRAJECTORY



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.

All reach data was taken in still air conditions at an elevation of 30 degrees.

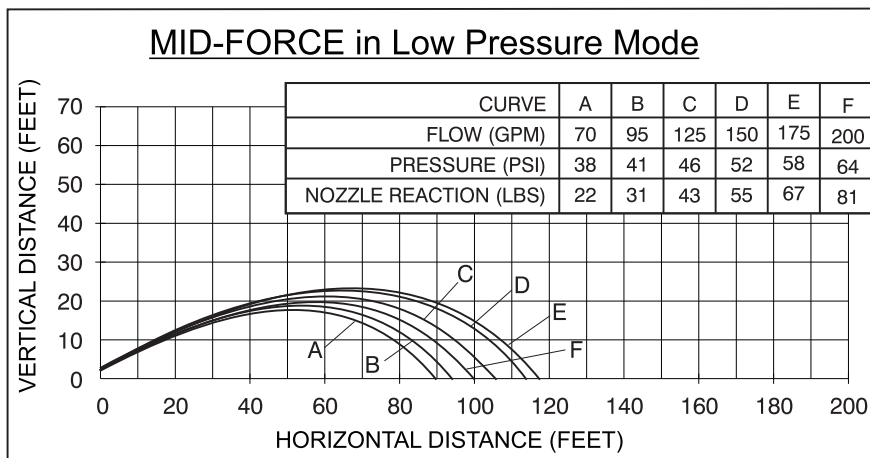


Figure 4.7A

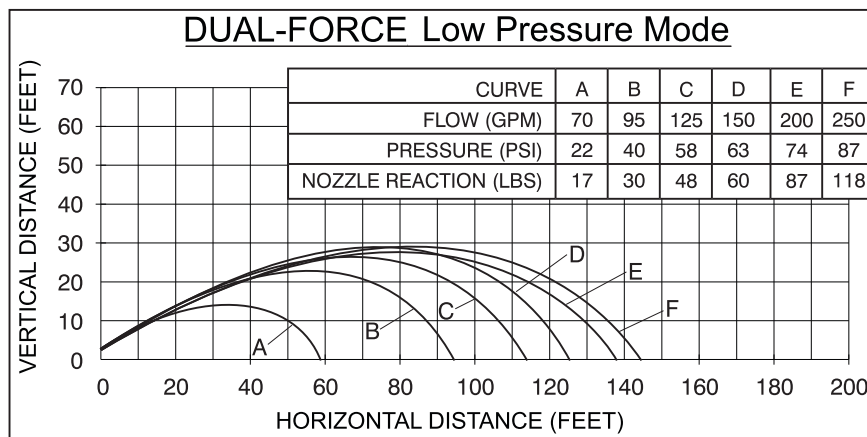


Figure 4.7B

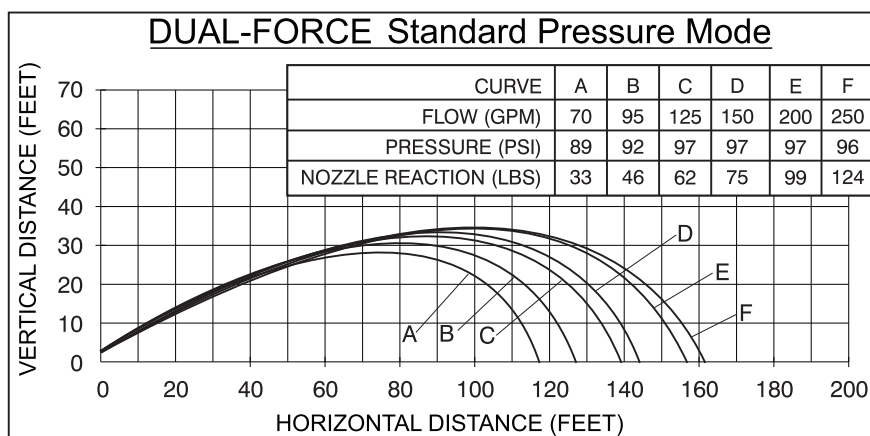


Figure 4.7C

## 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 (SLIDE VALVE)

On models that use a lever type valve handle, the nozzle is shut off when the handle is fully forward. Slide valve models have detented flow positions. These detent positions allow the nozzle operator to regulate the flow of the nozzle depending on the need or what can be safely and effectively handled. 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.

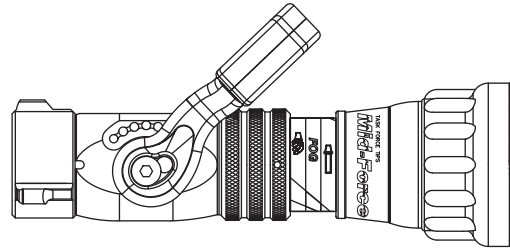


Figure 5.1.1

#### 5.1.2 TIP ONLY

Tip Only nozzles have NO shut-off valve within the nozzle and MUST be used with a separate ball valve attached to the nozzle.

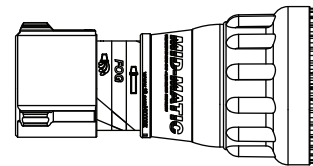


Figure 5.1.2

#### 5.1.3 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. The ball valve allows the nozzle operator to regulate the flow of the nozzle depending on the need or what can be safely and effectively handled. 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. **Note: In partially open positions, a ball valve will cause turbulence and adversely affect stream quality.**

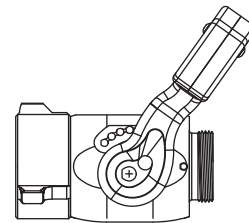


Figure 5.1.3

#### 5.1.4 TWIST SHUTOFF

On models that use a twist flow control, the valve is opened or closed by rotating the valve ring. Rotating the ring clockwise (as seen from the operating position behind the nozzle) closes the valve, while counterclockwise rotation opens it. Detents are provided at intermediate positions. The position of the valve is shown by the exposed valve position label.

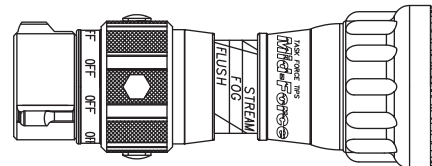


Figure 5.1.3

## 5.1.5 IMPULSE TRIGGER FLOW CONTROL

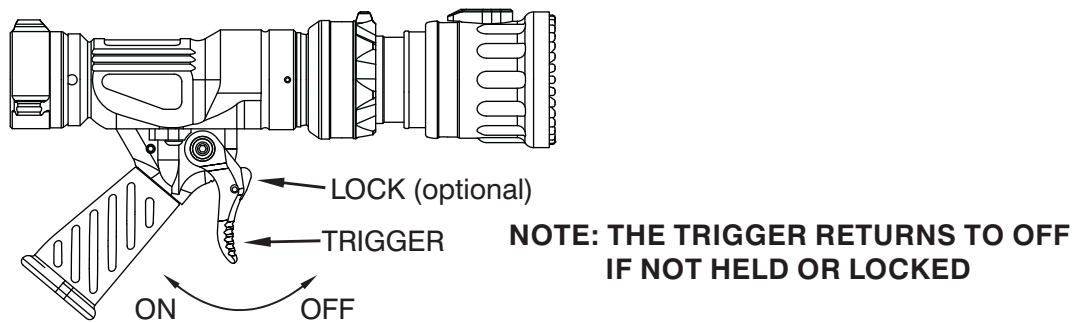
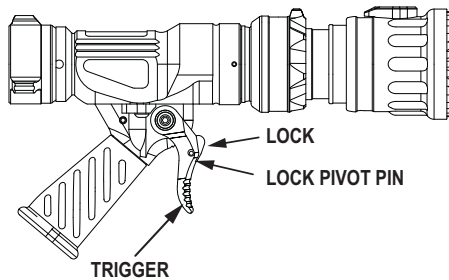


Figure 5.1.5



Releasing grip on a nozzle while flowing will result in an out of control nozzle. Serious injury or death could result. Do not attempt to regain control of a nozzle while flowing.

### 5.1.5.1 IMPULSE TRIGGER LOCK



Use an 1/8" (3mm) punch to push out pin and remove lock if the lock is not desired.

Figure 5.1.5.1

**To Lock:** Push on the lock while pulling back the trigger to engage one of the four locked positions.

**To Unlock:** Pull back slightly on the trigger without any pressure on the lock. The spring loaded lock should automatically move to the unlocked position.



When the trigger lock is engaged, the nozzle will not shut off if dropped. Always shut off the nozzle before releasing the pistol grip to avoid injury from an out of control nozzle.

### 5.1.5.2 IMPULSE FLOW CONTROL SPEED ADJUSTMENT

The IMPULSE valve contains a slow close mechanism to prevent the nozzle from slamming off if the trigger is suddenly released. The closing speed is set at the factory to be slow enough to reduce water hammer, ("water hammer" is always present in any valve when it is shut off. The slow close mechanism will reduce this but cannot eliminate it completely) but fast enough to reduce the potential danger of hose whipping from a dropped nozzle. The closing speed may be adjusted as shown.

Do not unscrew the adjuster past the end of the hand grip (to unscrew it too far could result in the loss of dampening fluid.)

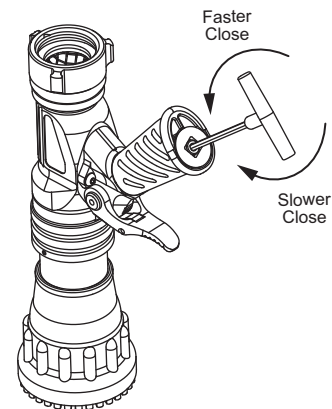


Figure 5.1.5.2



A closing time that is too slow increases the risk of an out of control nozzle. Loss of control could result in injury or death. Use caution when adjusting the closing speed, always verify performance after adjustment, and ensure that all adjustments are made by qualified personnel under the direction of the AHJ.



A closing time that is too quick increases the risk of water hammer from a suddenly released trigger valve. Loss of control or a burst hose could result in injury or death. Use caution when adjusting the closing speed, always verify performance after adjustment, and ensure that all adjustments are made by qualified personnel under the direction of the AHJ.

### 5.1.5.3 NORMAL OPERATING POSITION

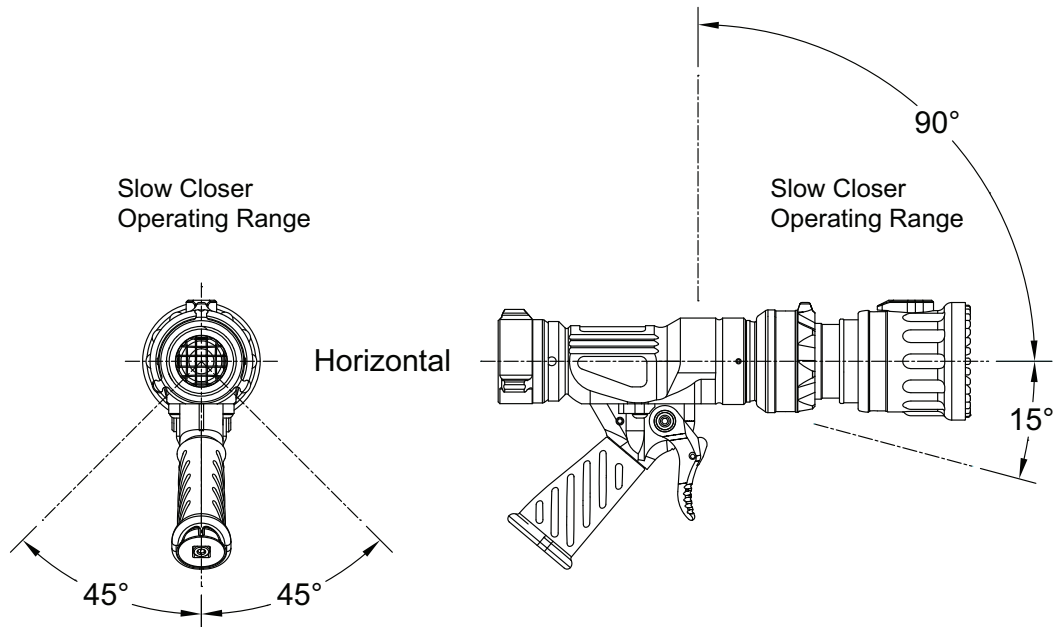


Figure 5.1.5.3



Quickly releasing the trigger outside normal operating orientation will likely cause faster valve shut off, increasing risk of a burst hose. This could result in injury. Slowly release the trigger when operating outside of the nozzle's normal orientation.

## 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.



**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.**



**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.**



**Turning the shaper further forward will cause stream crossover and reduce the reach of the nozzle.**

### 5.2.1 FLUSH CONTROL

Small debris passes through the debris screen (if so equipped) and 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 position. (increased resistance will be felt on the SHAPER as the nozzle goes into flush) 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.

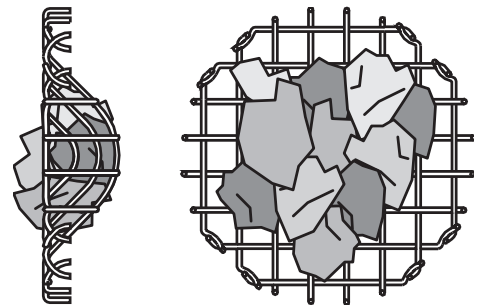


Figure 5.2.1



**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.**

## 5.3 STANDARD/LOW PRESSURE KNOB MID-FORCE & DUAL-FORCE

For situations where the standard pressure setting at the nozzle is impractical, the MID-FORCE or DUAL FORCE may be switched to a low pressure mode. In the low pressure mode the nozzle pressure is reduced by about 50% while maintaining a usable stream and increasing the flow. The nozzle operator must be prepared for a change in reaction when changing modes.

To switch to the low pressure mode:

1. Shut off water flow with valve
2. Turn knob at front of nozzle counterclockwise (when viewed from front).
3. Reopen valve to flow water at reduced pressure.

Repeat the process, except turn knob clockwise, to return to standard pressure operation.

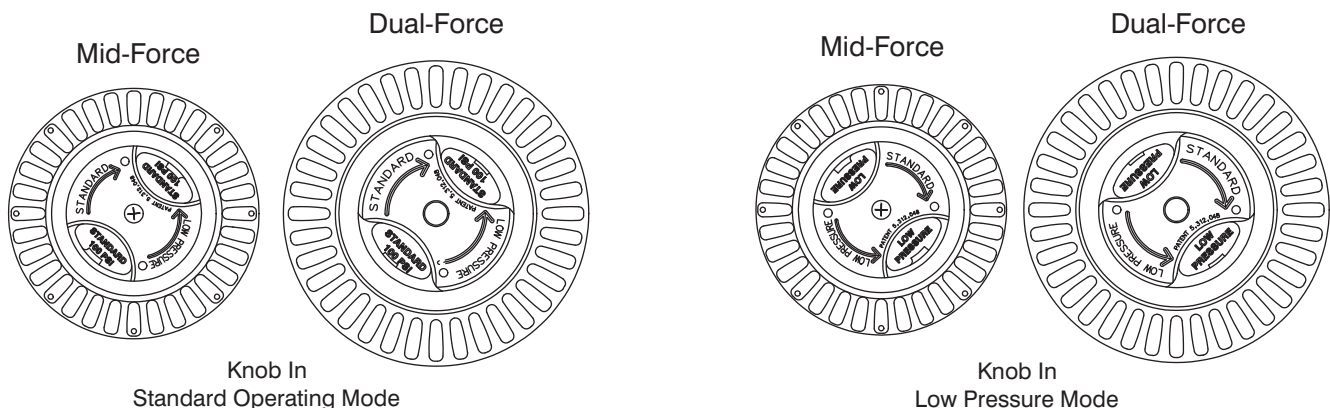


Figure 5.3

## 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.

### **⚠ WARNING**

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.

### **⚠ WARNING**

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.

### **⚠ WARNING**

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).

## 6.2 CAFS-FORCE 1 & CAFS-FORCE 2 NOZZLES

The CAFS-FORCE 1 and CAFS-FORCE 2 nozzles are optimized for use with compressed air foam systems, CAFS. They have a streamlined flow path with no gasket grabber. The CAFS-FORCE nozzles have two settings: Standard pressure/Water and Low Pressure/CAFS. The CAFS-FORCE tip can be removed to use the valve as a smoothbore.

To switch to the low pressure CAF mode:

1. Shut off water flow with valve
2. Turn knob at front of nozzle counterclockwise (when viewed from front).
3. Reopen valve to flow at reduced pressure.

Repeat the process, except turn knob clockwise, to return to standard pressure water mode.

Hose handling techniques with compressed air foam (CAF) differ considerably from liquid filled hoses as a result of the added energy stored by pressurized air. The Authority Having Jurisdiction (AHJ) must establish safe CAF operational procedures and insure appropriate training.

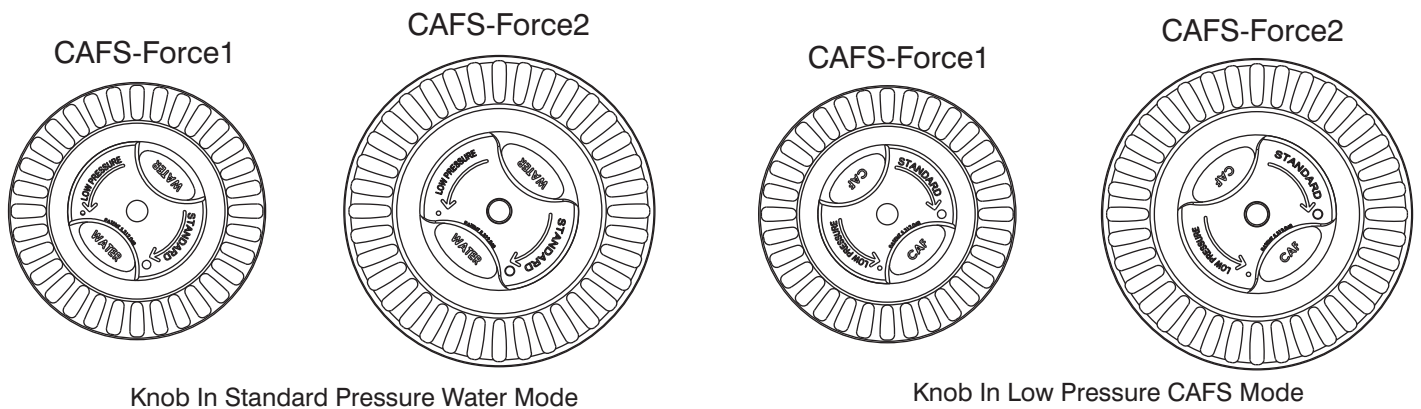


Figure 6.2

### **⚠ WARNING**

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

## 7.0 COLOR CODED HANDLE COVER AND PISTOL GRIPS

Nozzles with lever type valve handles are supplied with black valve handle covers and pistol grips. The handle covers and pistol grips are available from TFT in various colors for those departments wishing to color code the nozzle to the discharge controls.

Handle covers are replaceable by removing the four screws that hold the handle covers in place. Use a 3/32" hex key when removing and replacing screws. Pistol grip is replaceable by following TFT instruction sheet LTT-108.

For standardization NFPA 1900 recommends the following color code scheme:

Preconnect #1 or Jump Line	Orange	Other Colors Available:
Preconnect #2	Red	- Gray
Preconnect #3	Yellow	- Pink
Preconnect #4	White	- Purple
Preconnect #5	Blue	- Tan
Preconnect #6	Black	
Preconnect #7	Green	
Foam Lines	Red w/ White Border (Red/White)	

### 7.1 IMPULSE TRIGGER VALVE SYSTEM NOZZLE COLORED PISTOL GRIPS

The TFT Impulse Trigger Valve System nozzles are supplied with black pistol grip covers. The pistol grip covers are available from TFT in various colors for those departments wishing to color code the nozzle to the discharge controls. Follow the steps below to change the pistol grip cover.

1. Orient nozzle vertically. This keeps the dampening fluid in the pistol grip from spilling out.
2. Remove the Cap. (1/2" square drive) The Adjusting Screw (3/16" Allen Wrench) may need to be turned in or removed to be able to engage the square pocket in the cap. Note the position of the Adjusting Screw before moving it.
3. Slide off the Pistol Grip Cover and install a new one. Be sure the internal rib of the Pistol Grip Cover is toward the back of the nozzle.
4. Reinstall the Cap until it bottoms out on its shoulder.
5. Reinstall or reposition the Adjusting Screw if it has been moved from its original location.
6. Flow nozzle to check performance of slow closer. Adjust as needed.

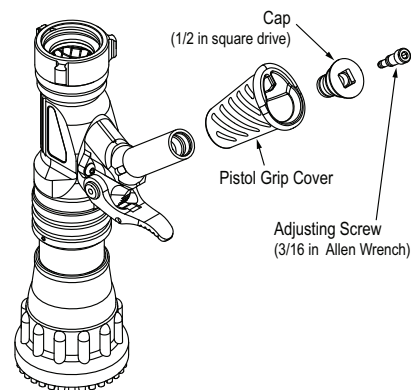


Figure 7.1

## 8.0 WARRANTY

Go to [tft.com](http://tft.com) for all warranty information.

## 9.0 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.

### 9.1 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. If your agency 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.**



## 9.2 FIELD LUBRICATION (SLIDE VALVE AND PATTERN CONTROLS)

### PART ONE - COUPLING DOWN

Position the nozzle at a 45-degree angle with the COUPLING end down. CLOSE the valve handle and set the pattern to STRAIGHT STREAM. Then spray a short burst into these areas:

#### #1 FRONT PATTERN CONTROL SEAL

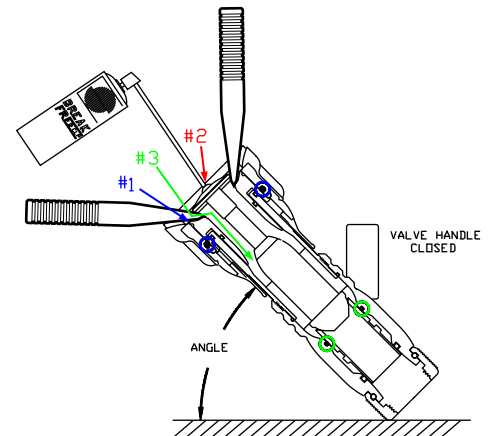
Spray between the pattern control and the barrel.

#### #2 PRESSURE CONTROL UNIT

Place check sticks behind baffle while shaper is in flush. Cycle baffle in and out using check sticks several times to work lubrication into O-rings.

#### #3 FRONT SLIDER SEAL

- A. Rotate shaper into FLUSH position.
- B. Spray down the front end of the nozzle to dribble lubricant into the clearances between the shaper and the valve body.



While holding nozzle at the angle, wait 30 seconds for the lubricant to penetrate into the clearances. Cycle the valve handle and rotate the shaper from straight stream to full flush several times, and then proceed to the next section.

### PART TWO - COUPLING UP

Position the nozzle at a 45-degree angle with the BUMPER end down. OPEN the valve handle and set the pattern to FLUSH. Spray a short burst in these areas:

#### #4 REAR SHAPER SEAL

Spray down the clearance between the label and the shaper guide.

#### #5 PRESSURE CONTROL UNIT

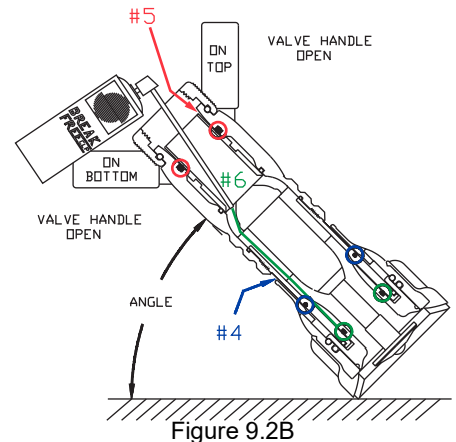
Spray into the clearance between the slider and the valve body.

#### #6 FRONT SLIDER SEAL

- A. With the handle on the top, spray down into the nozzle. The aerosol extension tip will help direct the spray into clearances leading to the O-Ring.
- B. Rotate nozzle so the valve is on the bottom and spray another short burst.

#### #7 DETENTS IN THE HANDLE

Spray a small amount on the detent followers located in the handle.



While holding the nozzle at an angle, wait 30 seconds for the lubricant to penetrate into the clearances. Cycle the valve handle several times. Rotate the pattern control from straight stream to full flush several times. The pattern control should move freely and easily. The barrel cone should move forward to within 1/16" of the baffle before the shaper reaches straight stream position. Wipe off excess lubricant.

**IF THIS PROCEDURE DOES NOT RESTORE SMOOTH OPERATION OF THE NOZZLE,  
FACTORY SERVICE IS NEEDED. • 24-HOUR HOT LINE — 800-348-2686 • tft.com**



### 9.3 IMPULSE TRIGGER VALVE LUBRICATION

1. Insert tube from BreakFree into drain hole in pistol grip.
2. With nozzle upside down spray a 2 second burst into the pistol grip. Holding a rag around the tube here can help keep excess BreakFree from the outside of the nozzle.
3. Keep nozzle upside down for at least 10 seconds to allow the BreakFree to flow into the valve area.
4. Check for smooth and free operation of the trigger. Repeat a second time if needed.

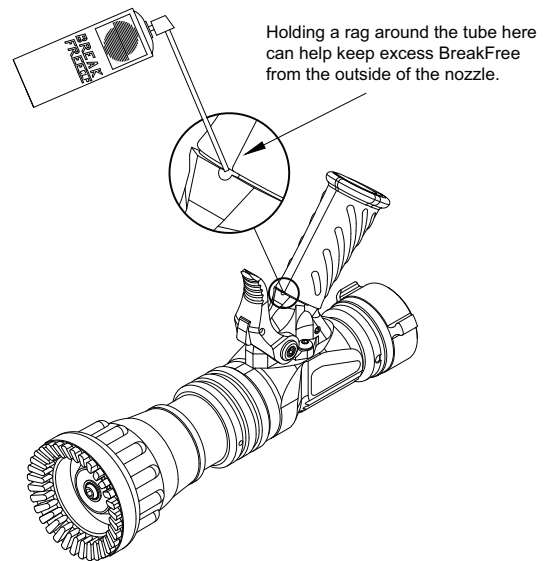


Figure 9.3

**IF THIS PROCEDURE DOES NOT RESTORE SMOOTH OPERATION OF THE IMPULSE TRIGGER SYSTEM, THEN FACTORY SERVICE IS NEEDED. • 24-HOUR HOT LINE — 800-348-2686 • tft.com**

### 9.4 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.

### 9.5 REPAIR

Factory service is available. Factory serviced equipment is repaired by experienced technicians, wet tested to original specifications, and promptly returned. Call TFT service department at 1-800-348-2686 to troubleshoot and, if needed, directions for return. A return for service form can also be obtained at [tft.com/Support/Returning-an-Item-for-Service](http://tft.com/Support/Returning-an-Item-for-Service).

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.

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.

#### **WARNING**

**It is the responsibility of service technicians to ensure the use of appropriate protective clothing and equipment. The chosen protective clothing and equipment must provide protection from potential hazards users may encounter while servicing equipment. Requirements for protective clothing and equipment are determined by the Authority Having Jurisdiction (AHJ).**

#### **CAUTION**

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

#### **NOTICE**

**All replacement parts must be obtained from the manufacturer to assure proper performance and operation of the device.**

### 10.0 EXPLODED VIEWS AND PARTS LISTS

Exploded views and parts lists are available at [tft.com/serial-number](http://tft.com/serial-number).

## 11.0 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 shuts off fully 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 tightened properly
9. Shaper is set to desired pattern
10. Shutoff handle (if so equipped) is stored in the OFF position



**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.**

**TASK FORCE TIPS LLC**

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