



2.5" FlipTip 2™ NOZZLE

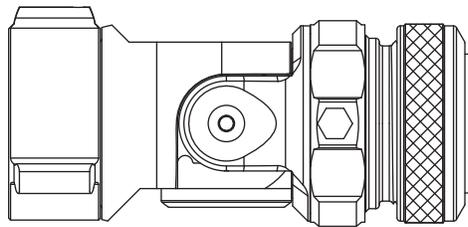
INSTRUCTION FOR OPERATION AND MAINTENANCE

WARNING

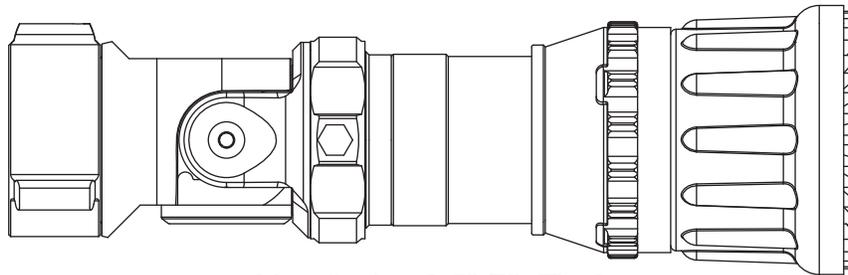
Understand manual before use. Operation of this device without understanding the manual and receiving proper training is a misuse of this equipment. Obtain safety information at tft.com/serial-number.

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.



2.5" FlipTip 2 Tip Only
No Shutoff



Max Series 2.5" FlipTip 2
No Shutoff

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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.



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

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SUPPORTING MATERIALS

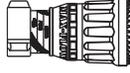
The following document contains supporting safety and operating information pertaining to the equipment described in this manual.



Max Series Nozzles
With Automatic Pressure Control
or Fixed Gallonage

INSTRUCTIONS FOR SAFE OPERATION AND MAINTENANCE
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:
WARNING 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.





MAX-FORCE™
Dual-Pressure Automatic
Normal Pressure Setting
100 - 500 GPM @ 100 PSI
400 - 2000 LPM @ 7 BAR (700 KPA)

Low Pressure Setting
100 - 500 GPM @ 50 PSI
400 - 2000 LPM @ 4 BAR (400 KPA)

MAX-MATIO™
100 PSI, Single-Pressure Automatic
100 - 500 GPM @ 100 PSI
400 - 2000 LPM @ 7 BAR (700 KPA)

80 PSI, Single-Pressure Automatic
100 - 500 GPM @ 80 PSI
400 - 2000 LPM @ 5.5 BAR (550 KPA)

MAX-FLOW™
500 gpm, Fixed Gallonage
500 GPM @ 100 PSI
2000 LPM @ 7 BAR (700 KPA)

All models available in manual and Electric Remote versions.

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LIM025 June 20, 2010 Revised

LIM-025 Manual - Max Series Nozzles

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.



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 very 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

Task Force Tips FlipTip 2 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.

3.1 VARIOUS MODELS AND TERMS

The TFT FlipTip 2 nozzle is available in several configurations. Figure 3.1 shows the common models.

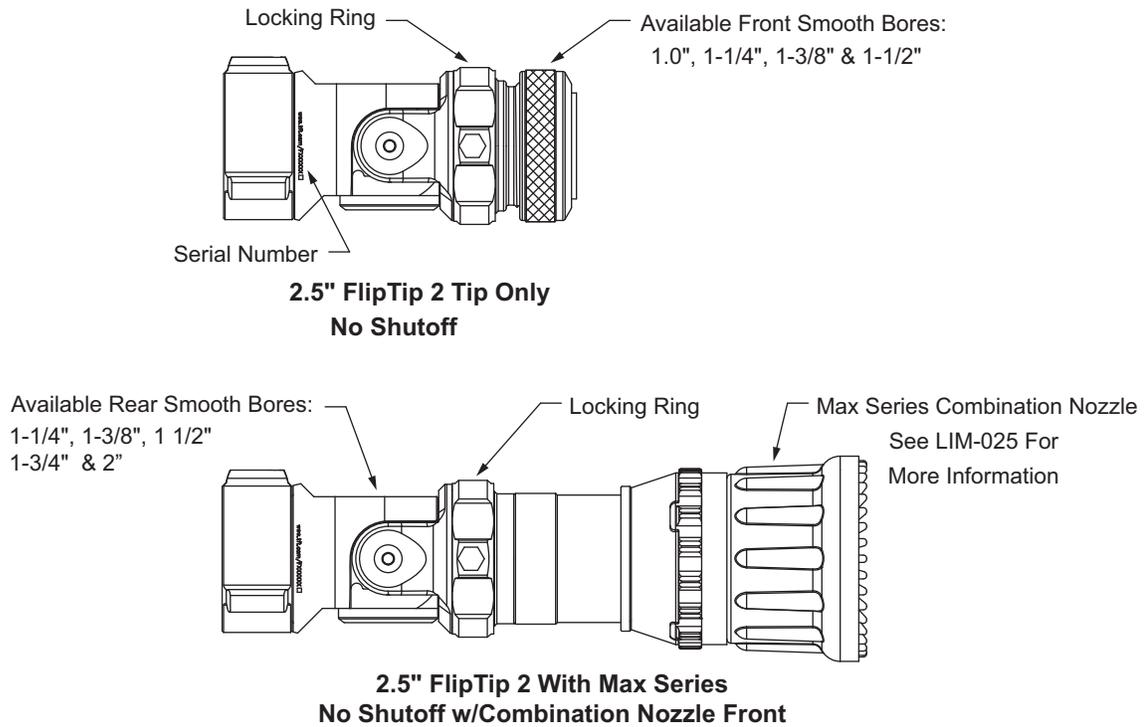


Figure 3.1

3.2 SPECIFICATIONS

Maximum operating pressure	250 psi	17 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	
*Consult factory for higher pressure applications		

3.3 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.

3.4 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 1930, 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.

4.0 FLOW CHARACTERISTICS

The FlipTip 2 nozzle has fixed orifice sizes. Relationship of flow and nozzle pressure at each orifice size is shown below. If the nozzle is connected behind a different nozzle, use the flow charts for the outlet nozzle.

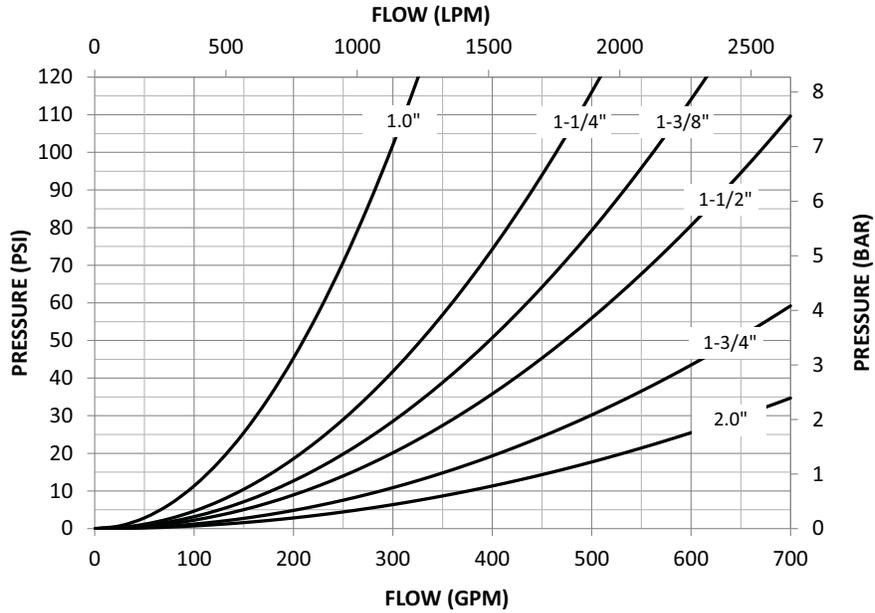


Figure 4.0A

Flows at specific pressures for each orifice size are as follows:

1.0" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	190	60
50	210	80
60	230	90
70	250	110
80	270	130
90	280	140
100	300	160

1-1/4" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	290	100
50	330	120
60	360	150
70	390	170
80	420	200
90	440	220
100	460	240

1-3/8" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	360	120
50	400	150
60	440	180
70	470	210
80	500	240
90	530	270
100	560	300

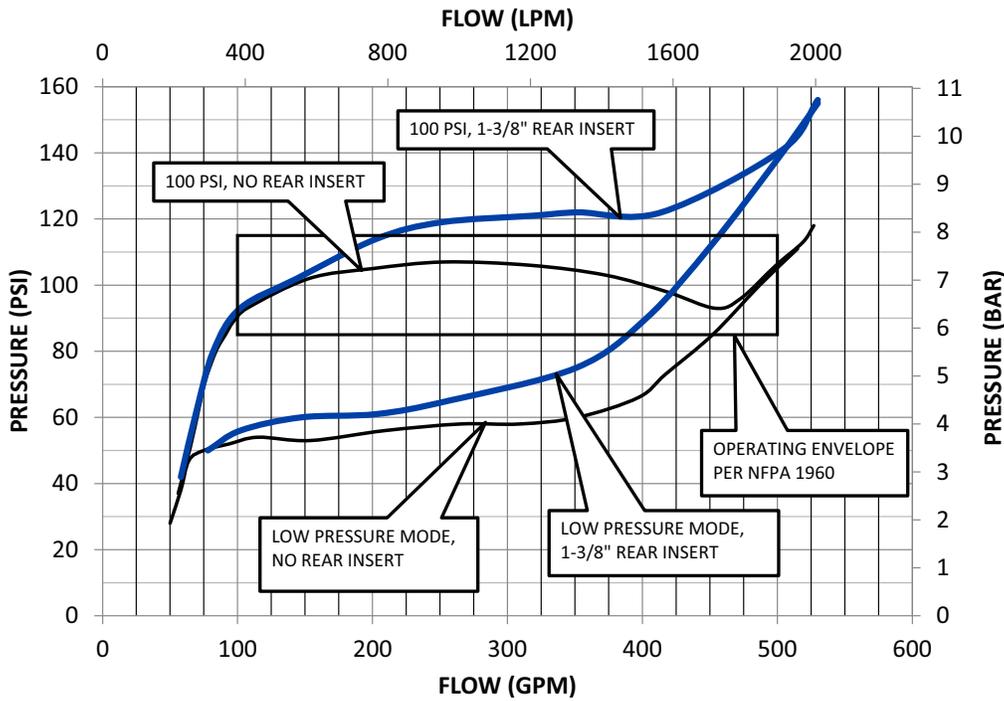
1-1/2" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	420	140
50	470	180
60	520	210
70	560	250
80	600	280
90	630	320
100	670	350

1-3/4" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	580	190
50	640	240
60	700	290
70	760	340
80	810	380
90	860	430
100	910	480

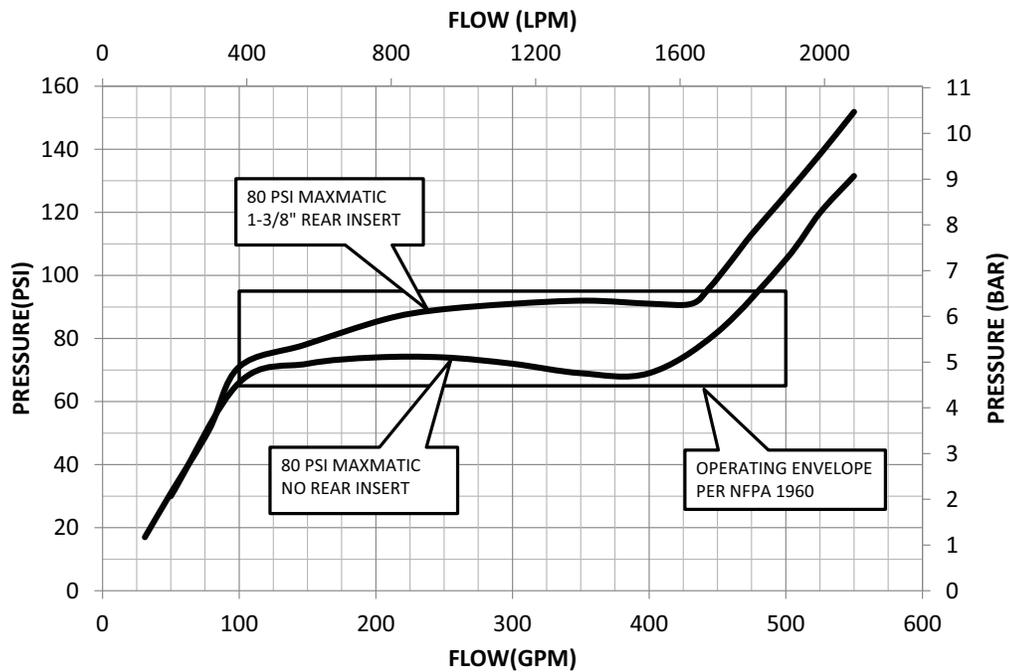
2.0" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	750	250
50	840	310
60	920	380
70	990	440
80	1060	500
90	1130	570
100	1190	630

The rear nozzle restricts flow somewhat to the Max-Series front nozzle. The smaller the rear nozzle the greater the effect. The following graphs show the range from no rear insert to a 1 3/8 inch rear smooth bore. 1 3/8 inch is the smallest size available for use with a Max-Series front end.

2-1/2" FlipTip 2 100 PSI MAXFORCE AND MAXMATIC FRONT END



2-1/2" FlipTip 2 80 PSI MAXMATIC



2-1/2" FlipTip 2 500 GPM MAXFLOW

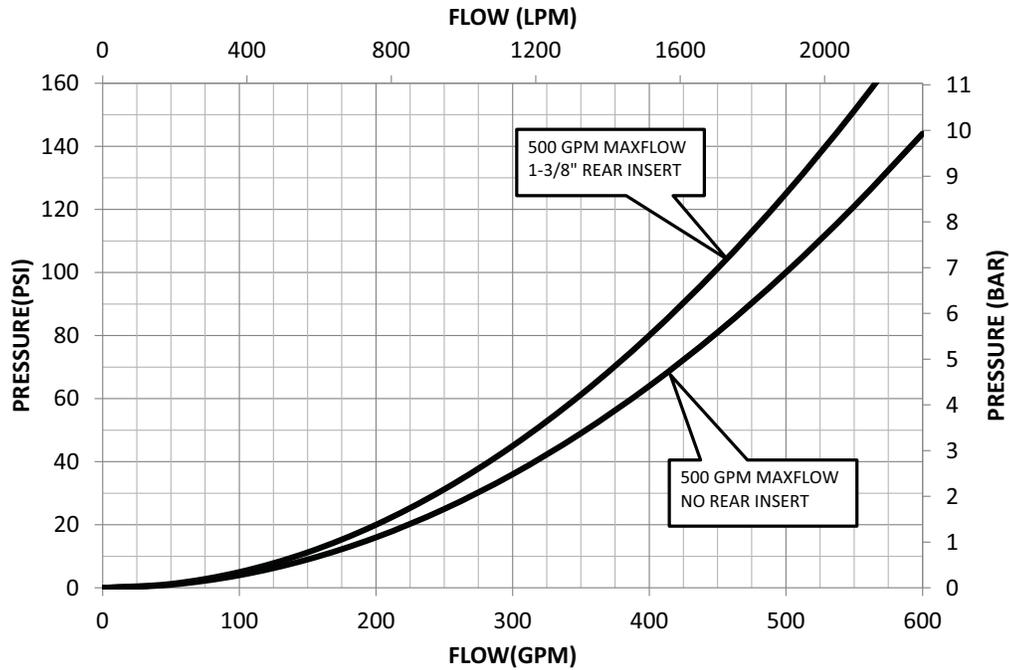


Figure 4.0D

5.0 FlipTip 2 CONTROLS

5.1 FlipTip 2 LOCK

The front nozzle is locked in both the up and down positions. To change positions, follow the steps below.

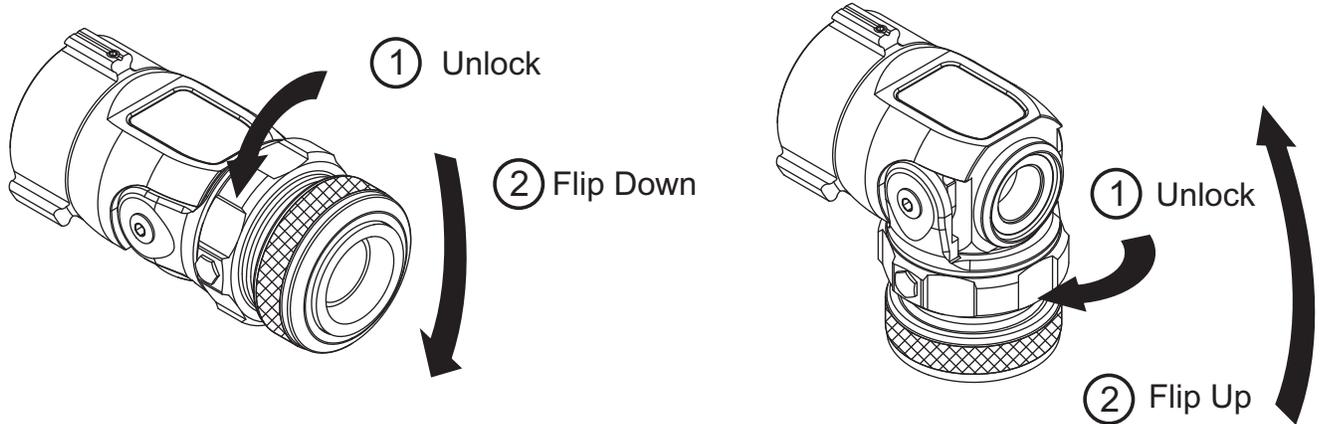


Figure 5.1

NOTICE

The FlipTip pivoting joint is not sealed between the fully up and fully down positions. Shut off water flow before changing the front nozzle position to avoid spraying in unintended directions.

NOTICE

When the front nozzle is in the down position, the sealing surfaces are exposed. Avoid actions which can damage the sealing surfaces to prevent possible leakage and repairs.

5.2 REAR SMOOTH BORE INSERTS

The rear smooth bore inserts may be removed by removing the retaining ring and pulling the insert out the front of the nozzle.

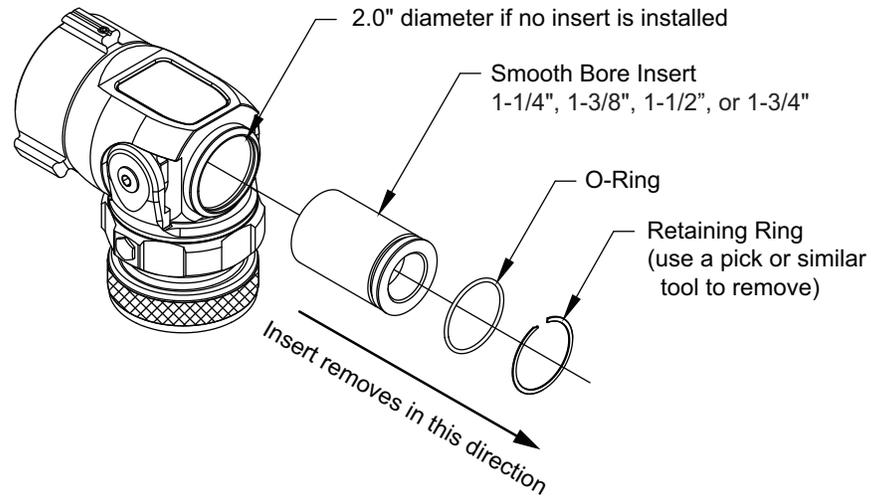


Figure 5.2

5.3 FRONT SMOOTH BORE NOZZLE

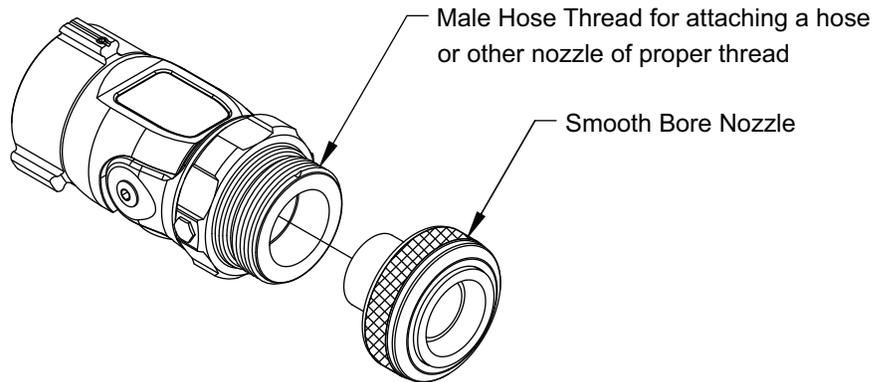


Figure 5.3

5.4 FRONT MAX SERIES COMBINATION NOZZLE

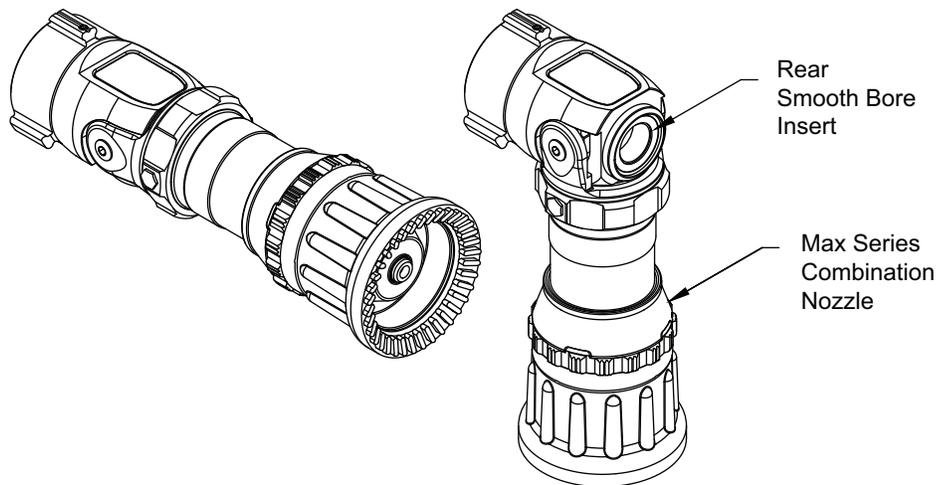


Figure 5.4



The lock for the front nozzle is not intended to withstand nozzle reaction force. To reduce the risk of injury from unintended unlocking due to nozzle reaction, do not use the front nozzle in the down position as a handle to restrain nozzle reaction.

6.0 COMBINATION NOZZLE CONTROLS

6.1 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.



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.

6.2 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. This will open the nozzle allowing debris to pass through. Increased resistance will be felt on the SHAPER as the nozzle goes into flush.
- 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.

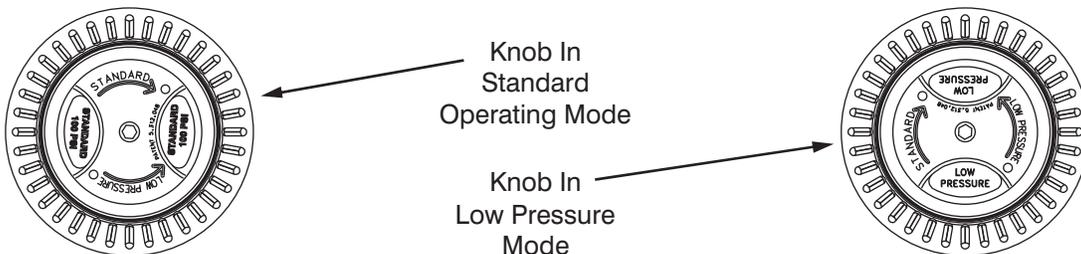


Large amounts or pieces of debris may be unflushable and can reduce the flow of the nozzle resulting in an ineffective flow. In the event of a blockage, it may be necessary to retreat to a safe area, uncouple the nozzle and remove debris.

6.3 STANDARD/LOW PRESSURE KNOB (MAX-FORCE)

For situations where 100 psi at the nozzle is impractical, the Max-Force dual pressure knob may be switched to 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, shut off water flow to nozzle and turn knob at front of nozzle counterclockwise (when viewed from front). Nozzle will now operate at reduced pressure. Repeat the process, except turn knob clockwise, to return to 100 psi operation.



7.0 WARRANTY

Go to tft.com for all warranty information.

8.0 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.

8.1 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.

CAUTION 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.

8.2 SERVICE TESTING

In accordance with NFPA 1930, 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.

8.3 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.

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 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.

9.0 EXPLODED VIEWS AND PARTS LISTS

Exploded views and parts lists are available at tft.com/serial-number.

10.0 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. Nozzle flow is adequate as indicated by pump pressure and nozzle reaction
5. Shaper turns freely and adjusts pattern through full range
6. Nozzle smoothly moves into full flush and out of flush with normal flow and pressure restored
7. 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. There are no broken or missing parts
3. There is no damage to the nozzle that could impair safe operation (e.g. dents, cracks, corrosion or other defects)
4. The thread gasket is in good condition
5. The waterway is clear of obstructions
6. Nozzle is clean and markings are legible
7. Coupling is retightened properly
8. Shaper is set to desired pattern



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.