



MANUAL: FLIP TIP™ NOZZLE

PATENT 9,138,754

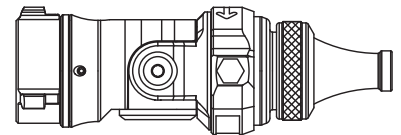
INSTRUCTIONS FOR INSTALLATION, SAFE OPERATION AND MAINTENANCE

⚠ WARNING

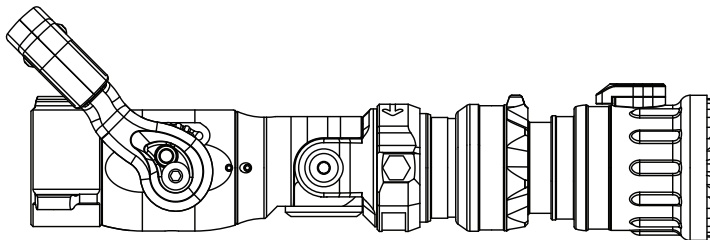
Understand manual before use. Operation of this device without understanding the manual and receiving proper training is a misuse of this equipment. Obtain safety information at tft.com/serial-number

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

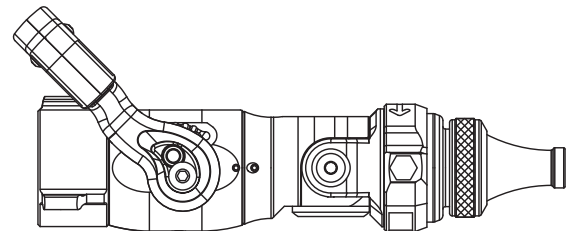
This manual should be kept available to all operating and maintenance personnel.



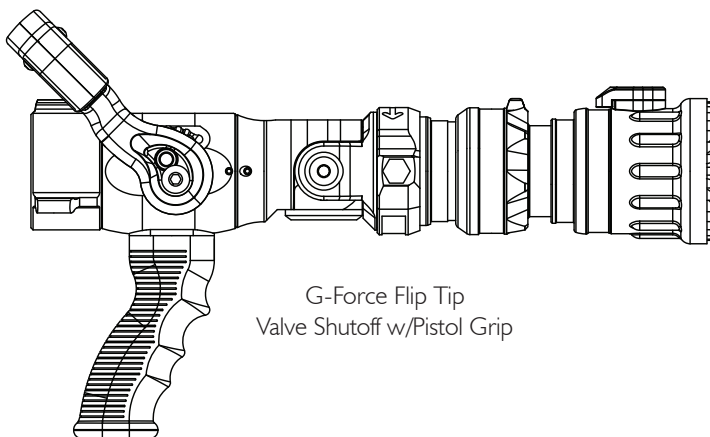
Flip Tip Only
No Shutoff



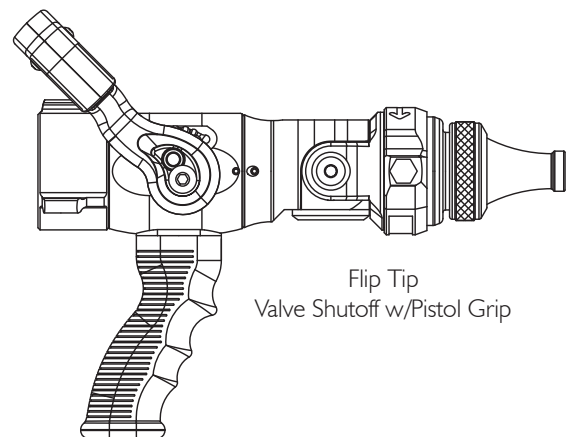
G-Force Flip Tip
Valve Shutoff



Flip Tip
Valve Shutoff



G-Force Flip Tip
Valve Shutoff w/Pistol Grip



Flip Tip
Valve Shutoff w/Pistol Grip

TASK FORCE TIPS LLC
MADE IN USA • tft.com

3701 Innovation Way, Valparaiso, IN 46383-9327 USA
800-348-2686 • 219-462-6161 • Fax 219-464-7155



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

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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 standard Z535.6-2006, 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, may result in minor or moderate injury.



NOTICE is used to address practices not related to personal injury.

2.0 SAFETY



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



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



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.



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 prepared in the event of these changes.



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. Injury from whipping can occur.



Water is a conductor of electricity. Application of water 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 water¹

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



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

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

3.0 GENERAL INFORMATION

The Task Force Tips Flip Tip 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. Other important operating features include:

- Changeable smooth bore tips
- Stream straightener removable through back of standard 1.5" coupling. If a 2.5" coupling is required, contact TFT for details.
- TFT's five-year warranty and unsurpassed customer service

3.1 VARIOUS MODELS AND TERMS

The TFT Flip Tip nozzle is available in several different configurations. The Flip Tip nozzle can be ordered with or without a pistol grip. Figure 3.1 shows the various models.

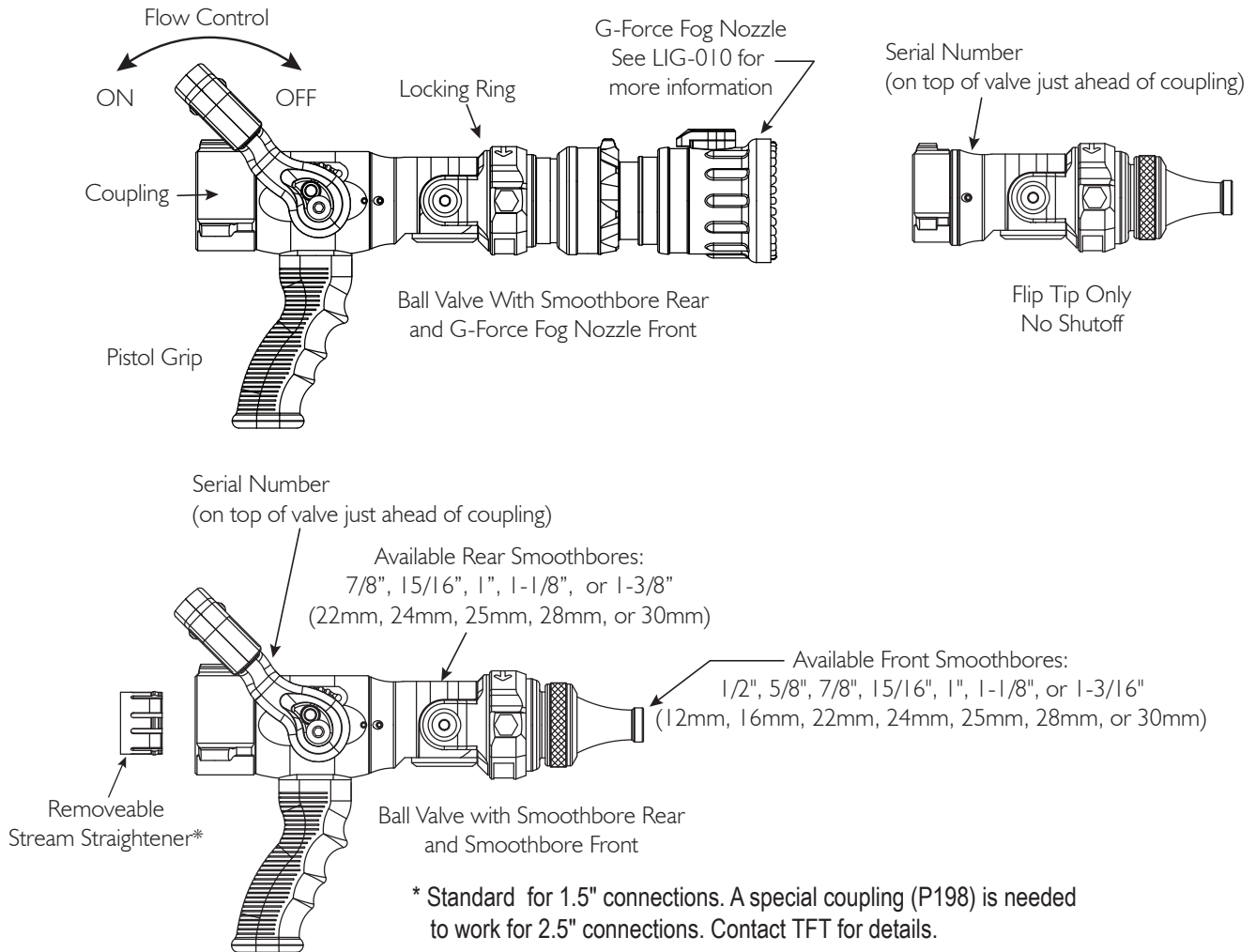


Figure 3.1 Common Models and Terms

3.2 SPECIFICATIONS

Maximum nozzle inlet pressure with valve shutoff*	300 psi	20 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 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

Dissimilar metals coupled together can cause galvanic corrosion that can result in the inability to unscrew the threads or complete loss of thread engagement over time. Per NFPA 1962 (2008 edition), if dissimilar metals are left coupled together an anti-corrosive lubricant should be applied to the threads. Also, the coupling should be disconnected and inspected at least quarterly.

3.4 USE WITH SALTWATER

Use with salt water is permissible provided the 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.

4.0 FLOW CHARACTERISTICS AND CHARTS

The Flip Tip 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.

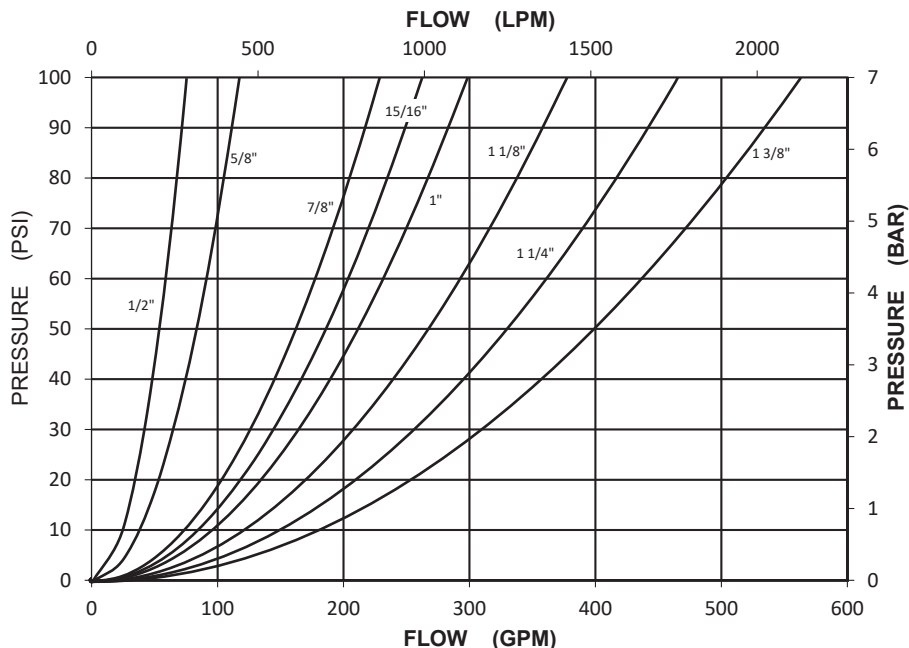


Figure 4.0 Flip Tip Flow Chart

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

1/2" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	47	16
50	53	20
60	58	24
70	62	27
80	66	31

5/8" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	73	25
50	82	31
60	90	37
70	97	43
80	104	49

7/8" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	144	48
50	161	60
60	176	72
70	190	84
80	203	86

15/16" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	165	55
50	185	69
60	202	83
70	218	97
80	234	110

1" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	188	63
50	210	79
60	230	90
70	249	110
80	266	126

1-1/8" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	238	79
50	266	99
60	291	119
70	315	139
80	336	159

1-1/4" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	294	98
50	328	123
60	360	147
70	388	172
80	415	196

1-3/8" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	355	119
50	397	148
60	435	178
70	470	208
80	502	237



An inadequate supply of nozzle pressure and/or flow will cause an ineffective stream and can result in injury, death or loss of property. See flow chart in Figure 4.0 or call 800-348-2686 for assistance.

5.0 NOZZLE CONTROLS

5.1 REMOVABLE STREAM STRAIGHTENER

Stream quality is generally improved with use of an integral stream straightener at the Flip Tip Inlet. The Flip Tip may be used without the straightener if so desired.

The removable stream straightener is a standard option for 1.5" connections.

Our 2.5" connections utilize an optimized waterway in place of the stream straightener. If so desired, the straightener can still be used with a special 2.5" coupling (P198). Contact TFT for details.

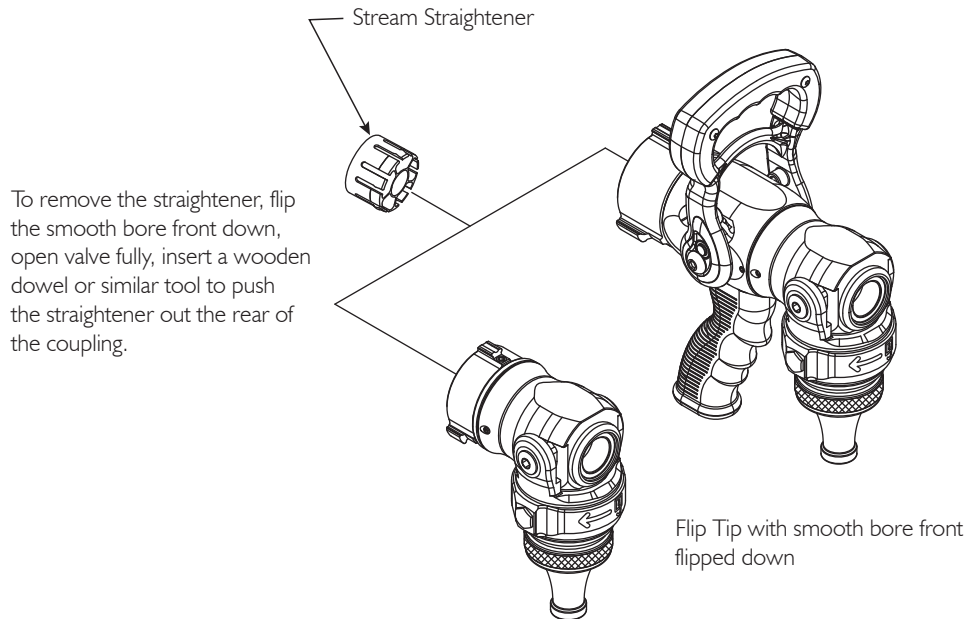


Figure 5.1 Removable Stream Straightener

5.2 FLIP TIP LOCK

The front nozzle is locked in both positions. To change positions follow the steps in figure 2.5.

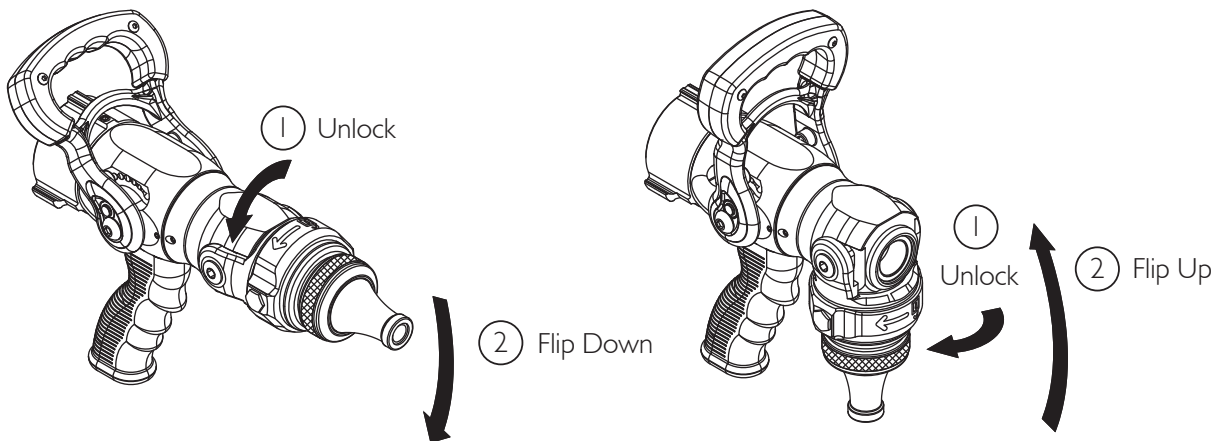


Figure 5.2 Using the Flip Tip Lock



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



CAUTION The Flip Tip 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.

5.3 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.

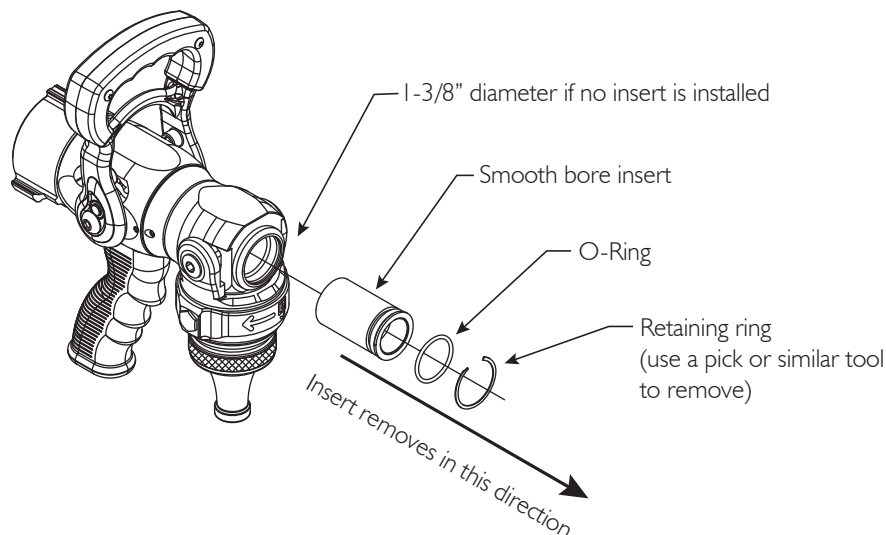


Figure 5.3 Rear Smooth Bore Inserts

5.4 FRONT SMOOTH BORE NOZZLE

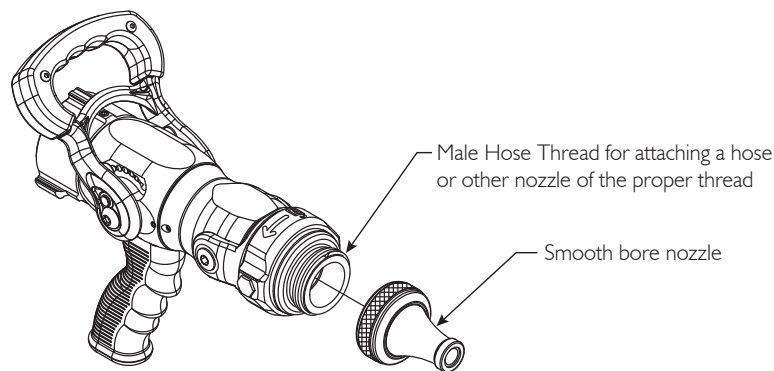


Figure 5.4 Front Smooth Bore Nozzles

5.5 FRONT G-FORCE FOG NOZZLE

The Flip Tip with G-Force fog nozzle allows selection between a smooth bore and a fog nozzle. The G-Force fog nozzle is available in fixed opening, selectable, or automatic versions. See the G-Force owners manual LIG-010 for details.

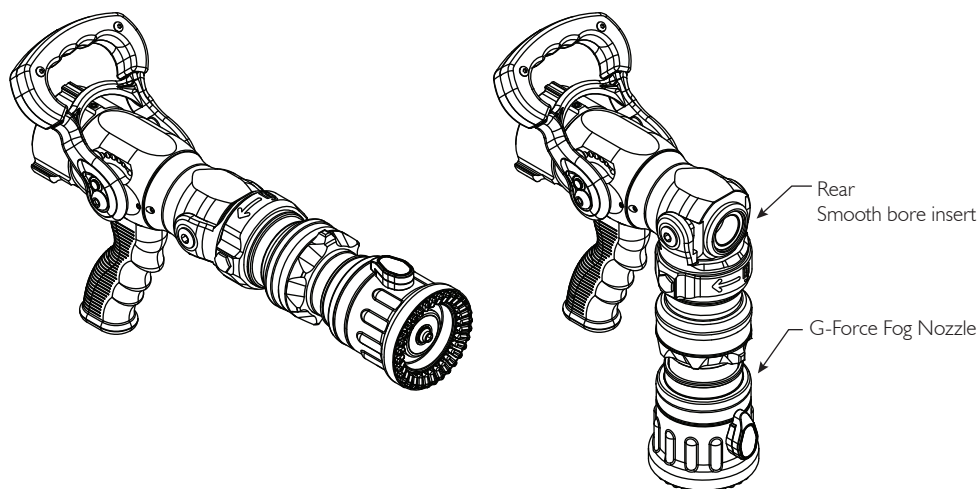


Figure 5.5 Front G-Force Fog Nozzle



The lock for the front nozzle is not designed to withstand the full force of the nozzle reaction. Do not use the front nozzle in the down position as a handle to restrain the nozzle reaction. Injury from inadvertent unlocking may result.

6.0 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. The pump discharge pressure 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

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



The nozzle may become damaged if allowed to freeze while containing water. Always drain after use to avoid damage and possible loss of use.

7.0 APPROVALS

Flip Tip 1.5" and 2.5" NH threaded nozzles meet the requirements of NFPA 1962 (2013) and NFPA 1964 (2008).

8.0 COLOR CODED VALVE HANDLE AND PISTOL GRIP

The TFT Flip Tip is supplied with black valve handle covers and black pistol grip. Handle covers are available from TFT in various colors for those departments wishing to color code the nozzle to the discharge controls. A colored handle cover set will be sent upon receipt of the warranty card and color selection form by TFT. Your department's name can also be engraved on the covers (see color selection form for more information).

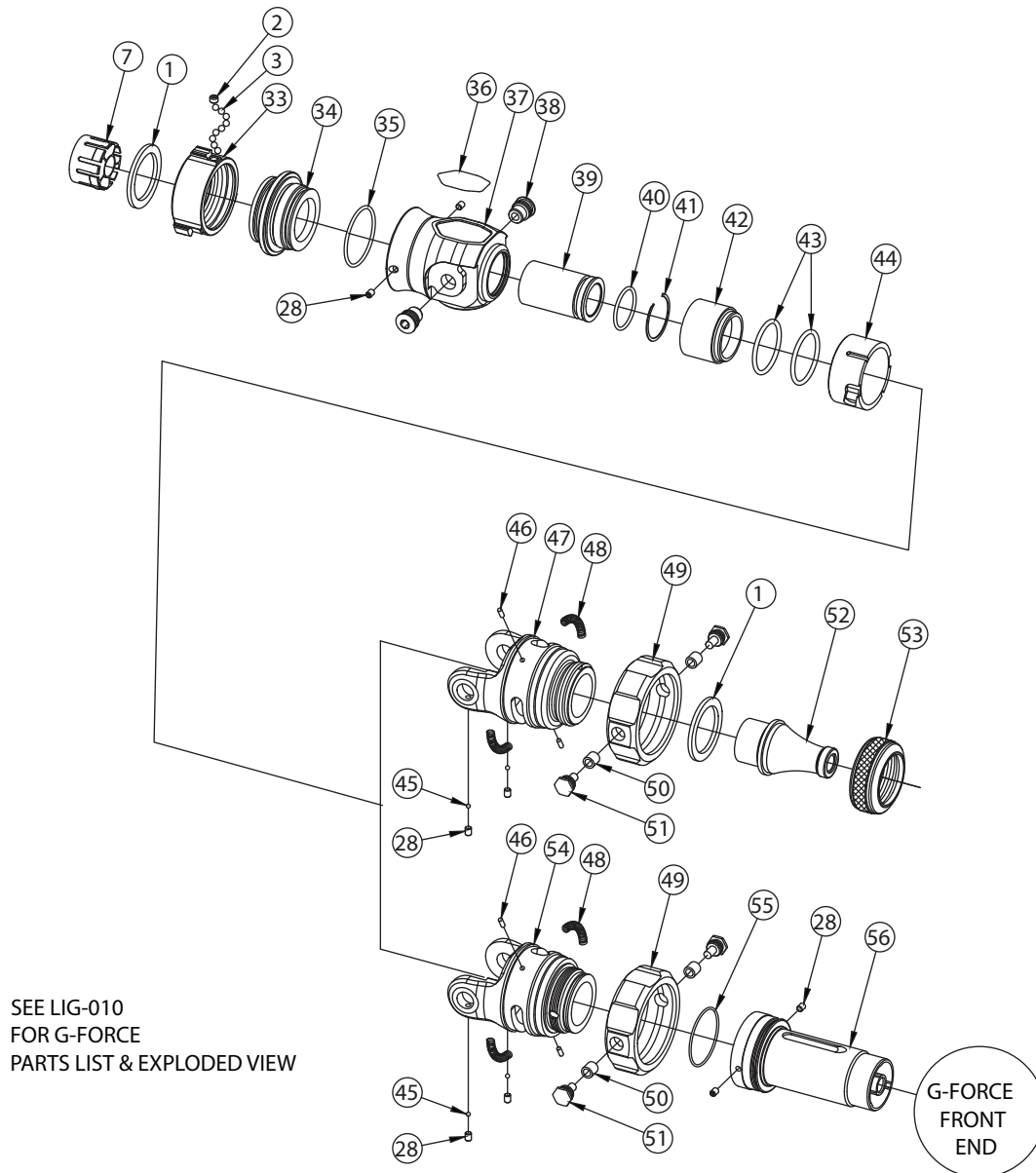
Handle covers are replaceable by removing the four screws that hold the handle covers in place. Use a 3/32" allen wrench when replacing screws. Pistol grip is replaceable by following TFT instruction sheet LTT-108.

For standardization NFPA 1901-2009 (A.16.9.1) recommends the following color code scheme:

Preconnect #1 or Front Bumper Jump Line	Orange	Other Colors Available:
Preconnect #2	Red	
Preconnect #3 or discharge #1	Yellow	• Pink
Preconnect #4 or discharge #2	White	• Tan
Discharge #3	Blue	• Purple
Discharge #4	Black	
Discharge #5	Green	
Foam Lines	Red w/ White border (Red/White)	
Booster Reels	Gray	

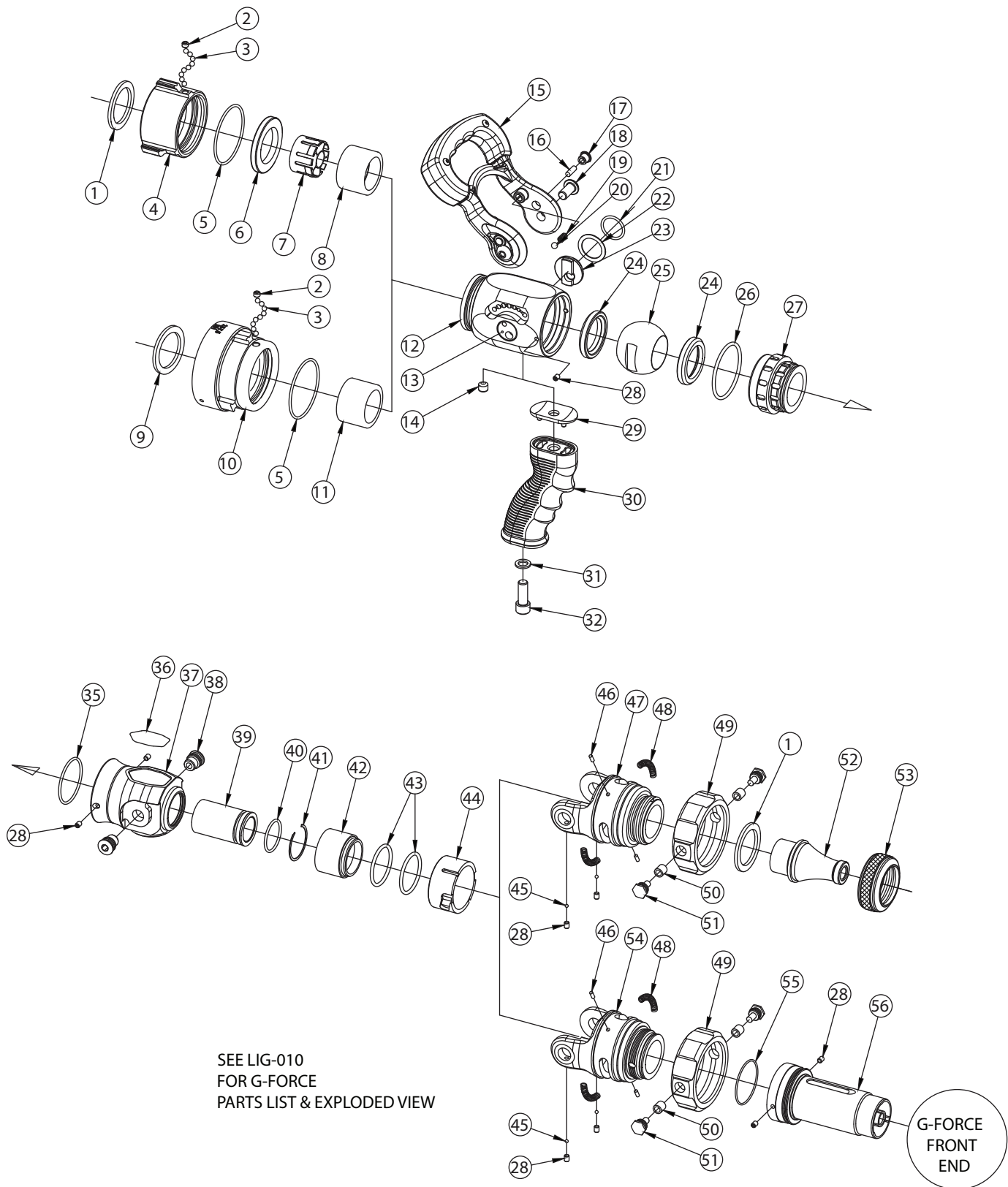
9.0 EXPLODED VIEWS AND PARTS LISTS

9.1 TIP ONLY FLIP TIP



ITEM	DESCRIPTION	QTY	PART #
1	GASKET - 1.5"	2	V3130
2	1/4-28 X 3/16 SOCKET SET SCREW	1	VT25-28SS187
3	3/16" SS BALL	38	V2120
7	STREAM STRAIGHTENER	1	P116
28	10-32 X 1/4 SET SCREW - NYLOK	8	VT10Y32SS250
35	O-RING-132	1	VO-132
36	NAME LABEL	1	FF102L
37	BASE	1	FF102
38	TRUNNION	2	FF110
39	7/8" SMOOTH BORE INSERT	1	FF111
	15/16" SMOOTH BORE INSERT		FF112
	1.0" SMOOTH BORE INSERT		FF113
	1 1/8" SMOOTH BORE INSERT		FF114
40	O-RING-123	1	VO-123
41	SMALLEY RING	1	V4232
42	SEAT	1	FF140
43	O-RING-222	2	VO-222
44	LOCK	1	FF120
45	1/8" ACETAL BALL	2	VB125AC
46	DRAG NUBS	2	B650
47	YOKE 1.5"	1	FF150*
48	SLIDE SPRING	2	XG141
49	LOCK RING	1	FF125
50	NYLON BUSHING	2	AY307
51	CAM SCREW	2	FF126
52	1/2" SMOOTH BORE	1	FF151
	5/8" SMOOTH BORE		FF152
	15/16" SMOOTH BORE		FF153
	1.0" SMOOTH BORE		FF154
	1 1/8" SMOOTH BORE		FF155
	1 3/16" SMOOTH BORE		FF156
	7/8" SMOOTH BORE		FF157
53	COUPLING 1.5"	1	FF145*
54	YOKE G-FORCE	1	FF160
55	O-RING-031	1	VO-031
56	BODY G-FORCE AUX TIP	1	FF161
* - CONSULT FACTORY FOR SPECIAL THREADS			

9.2 FLIP TIP WITH INTEGRATED VALVE



ITEM	DESCRIPTION	QTY	PART #
1	GASKET - 1.5"	2	V3130
2	1/4-28 X 3/16 SOCKET SET SCREW	1	VT25-28SS187
3	3/16" SS BALL	38	V2120
4	COUPLING 1.5"	1	H694*
5	O-RING-141	1	VO-141
6	ANTI GG RING VO	1	P147
7	STREAM STRAIGHTENER	1	P116
8	REDUCTION INSERT F	1	P119F
9	GASKET - 2.5"	1	V3190
10	COUPLING 2.5"	1	P205
11	REDUCTION INSERT J	1	P119J
12	DETENT VALVE BODY	1	P110
13	TRUNNION - LEFT	1	P120L
14	3/8-16 X 5/16 SOCKET SET SCREW	1	VT37-16SS312
15	HANDLE SUBASSEMBLY	1	HX920
	BLACK HANDLE COVER	2	HM625-BLK
	HANDLE	1	HX620
	8-14 X 3/8 PUSHTITE BUTTON HEAD	4	VT08-14PT375
16	HDP SPIROL	2	V2005
17	TRUNNION DRIVER	2	HX650
18	3/8-24 X 3/4 BUTTON HEAD	2	VT37E24BH750
19	DETENT SPRING	2	HM770
20	.243" TORLON BALL	2	VB243TO
21	O-RING-118	2	VO-118
22	TEFLON TRUNNION SHIM	2	P170
23	TRUNNION - RIGHT	1	P120R
24	BALL SEAT VALVE	2	P104
25	DELTRIN VALVE BALL	1	P103
26	O-RING-227	1	VO-227
27	ADAPTER VALVED BASE	1	FF101
28	10-32 X 1/4 SET SCREW - NYLOK	8	VT10Y32SS250
29	GRIP SPACER HANDLINE	1	HM693-H
30	PISTOL GRIP	1	HM692
31	WASHER	1	VM4109
32	3/8-16 X 1 SOCKET HEAD SCREW	1	VT37-16SH1.0

ITEM	DESCRIPTION	QTY	PART #
35	O-RING-132	1	VO-132
36	NAME LABEL	1	FF102L
37	BASE	1	FF102
38	TRUNNION	2	FF110
39	7/8" SMOOTH BORE INSERT	1	FF111
	15/16" SMOOTH BORE INSERT		FF112
	1.0" SMOOTH BORE INSERT		FF113
	1 1/8" SMOOTH BORE INSERT		FF114
40	O-RING-123	1	VO-123
41	SMALLEY RING	1	V4232
42	SEAT	1	FF140
43	O-RING-222	2	VO-222
44	LOCK	1	FF120
45	1/8" ACETAL BALL	2	VB125AC
46	DRAG NUBS	2	B650
47	YOKE 1.5"	1	FF150*
48	SLIDE SPRING	2	XG141
49	LOCK RING	1	FF125
50	NYLON BUSHING	2	AY307
51	CAM SCREW	2	FF126
52	1/2" SMOOTH BORE	1	FF151
	5/8" SMOOTH BORE		FF152
	15/16" SMOOTH BORE		FF153
	1.0" SMOOTH BORE		FF154
	1 1/8" SMOOTH BORE		FF155
	1 3/16" SMOOTH BORE		FF156
	7/8" SMOOTH BORE		FF157
53	COUPLING 1.5"	1	FF145*
54	YOKE G-FORCE	1	FF160
55	O-RING-031	1	VO-031
56	BODY G-FORCE AUX TIP	1	FF161
* - CONSULT FACTORY FOR SPECIAL THREADS			

10.0 WARRANTY

Task Force Tips LLC, 3701 Innovation Way, Valparaiso, Indiana 46383-9327 USA (“TFT”) warrants to the original purchaser of its Flip Tip 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 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.

11.0 MAINTENANCE

TFT nozzles 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.

11.1 FIELD INSPECTION



Nozzle must be inspected for proper operation and function according to the inspection checklist in Section 12.0 before each use. Any nozzle that fails inspection is dangerous to use and must be repaired before using.



Any alteration to the nozzle and its markings could diminish safety and constitutes a misuse of this product.

11.2 REPAIR

Factory service is available with repair time seldom exceeding one day in our facility. Factory-serviced nozzles are 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 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 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.

11.3 FIELD LUBRICATION

All Task Force Tip 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.

11.4 SERVICE TESTING

In accordance with NFPA 1962 (2013), nozzles must be tested a minimum of annually. Nozzles failing any part of this test must be removed from service, repaired and retested upon completion of the repair.

11.4.1 HYDROSTATIC TESTING

Each nozzle with a shut off mechanism shall be tested in the following manner.

1. *The nozzle shall be placed in a device capable of holding it and the shut off shall be closed.*
2. *A device capable of exerting a hydrostatic pressure of 300 psi (2070 kPa) or 1.5 times the maximum operating pressure, whichever is higher, shall be attached to the nozzle.*
3. *All air shall be bled from the system.*
4. *The gage pressure shall be increased by 50 psi (3.5 bar or 345 kPa) increments, held for 30 seconds at each pressure up to the maximum pressure for which the nozzle is being tested, and then held for one minute without leakage.*
5. *There shall be no sign of leakage through the valve or shut off.*

11.4.2 FLOW TESTING

Flow testing must be conducted in the following manner.

1. *The nozzle shall be mounted so that the flow rate and pressure through the nozzle and the pressure at the inlet can be accurately measured.*
2. *With the shut off fully open, the inlet pressure shall be adjusted to the rated pressure ± 2 percent.*
3. *The valve or shut off and pattern controls shall be operated through their full range of motion at 100 psi (6.9 bar or 690 kPa) with no signs of leaking, binding or other problems.*
4. *Evaluate the flow of nozzles as defined by NFPA 1964 in the following manner:*

Basic Spray Nozzles shall flow no less than and no more than 10 percent over the rated flow at the rated pressure in the straight stream and wide-angle fog settings.

11.4.3 RECORDS

A record of testing and repairs must be maintained from the time the nozzle is purchased until it is discarded. Each TFT nozzle is engraved with a unique serial number which, if so desired, can be used to identify nozzle for documentation purposes.

The following information, if applicable, must be included on the test record for each nozzle:

1. *Assigned identification number*
2. *Manufacturer*
3. *Product or model designation*
4. *Vendor*
5. *Warranty*
6. *Hose connection size*
7. *Maximum operating pressure*
8. *Flow rate or range*
9. *Date received and date put in service*
10. *Date of each service test and service test results*
11. *Damage and repairs, including who made the repairs and the cost of repair parts*
12. *Reason removed from service*

NFPA 1962: Standard for the care, use, inspection, service testing, and replacement of fire hose, couplings, nozzles and fire hose appliances. (2013 ed., Section 5.5.4). Quincy, MA: National Fire Protection Agency.

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) Internal vanes are free of debris
- 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) 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. (2013 ed., Section 5.2.2). Quincy, MA: National Fire Protection Agency.



Any nozzle 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 a nozzle that has failed the checklist is a misuse of this equipment.

13.0 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 or 1-219-462-6161 is normally available to you 24 hours a day, 7 days a week.