



# MANUAL: FLIP TIP™ NOZZLE

PATENTS PENDING

## INSTRUCTIONS FOR INSTALLATION, SAFE OPERATION AND MAINTENANCE

### ⚠ WARNING

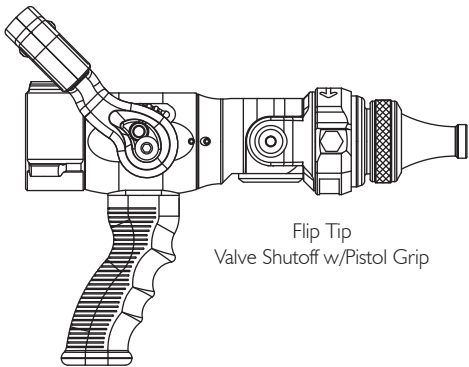
Understand manual before use. Operation of this device without understanding the manual and receiving proper training is a misuse of this equipment. Obtain safety information at [www.tft.com/serial-number](http://www.tft.com/serial-number)

### ⚠ WARNING

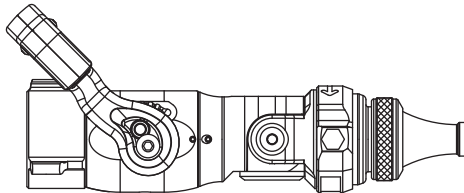
This instruction manual is intended to familiarize firefighters and maintenance personnel with the operation, servicing and safety procedures associated with the Flip Tip fire fighting nozzles.

### ⚠ WARNING

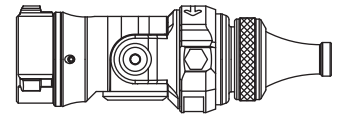
This manual should be kept available to all operating and maintenance personnel.



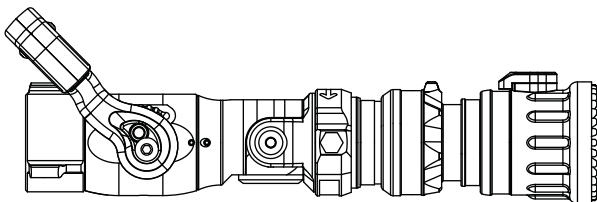
Flip Tip  
Valve Shutoff w/Pistol Grip



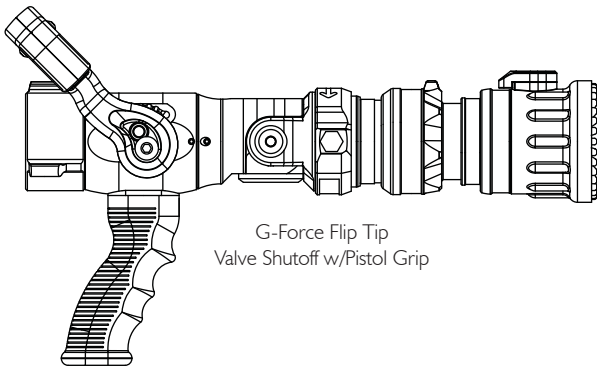
Flip Tip  
Valve Shutoff



Flip Tip Only  
No Shutoff



G-Force Flip Tip  
Valve Shutoff



G-Force Flip Tip  
Valve Shutoff w/Pistol Grip

## ⚠ DANGER

### PERSONAL RESPONSIBILITY CODE

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

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



Fire and Emergency Manufacturers and Service Association  
P.O. Box 147, Lynnfield, MA 01940 • [www.FEMSA.org](http://www.FEMSA.org)

**TASK FORCE TIPS, INC.**  
MADE IN USA • [www.tft.com](http://www.tft.com)





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

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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:

	<b>DANGER</b> indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	<b>WARNING</b> indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	<b>CAUTION</b> indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
	<b>NOTICE</b> is used to address practices not related to personal injury.

## 2.0 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 coupling
- TFT's five-year warranty and unsurpassed customer service

	<b>WARNING</b> 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.
	<b>WARNING</b> 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 those changes. Failure to restrain nozzle reaction can cause firefighter injury from loss of footing and/or stream protection.
	<b>WARNING</b> If nozzle gets out of control or away from the operator, retreat from nozzle immediately. Do not attempt to regain control of nozzle while flowing water. Injury from whipping can occur.
	<b>WARNING</b> 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; Weather the stream is solid or broken; Purity of the water. <sup>1</sup>
	<b>CAUTION</b> 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.]

## 2.1 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 2.1 shows the various models.

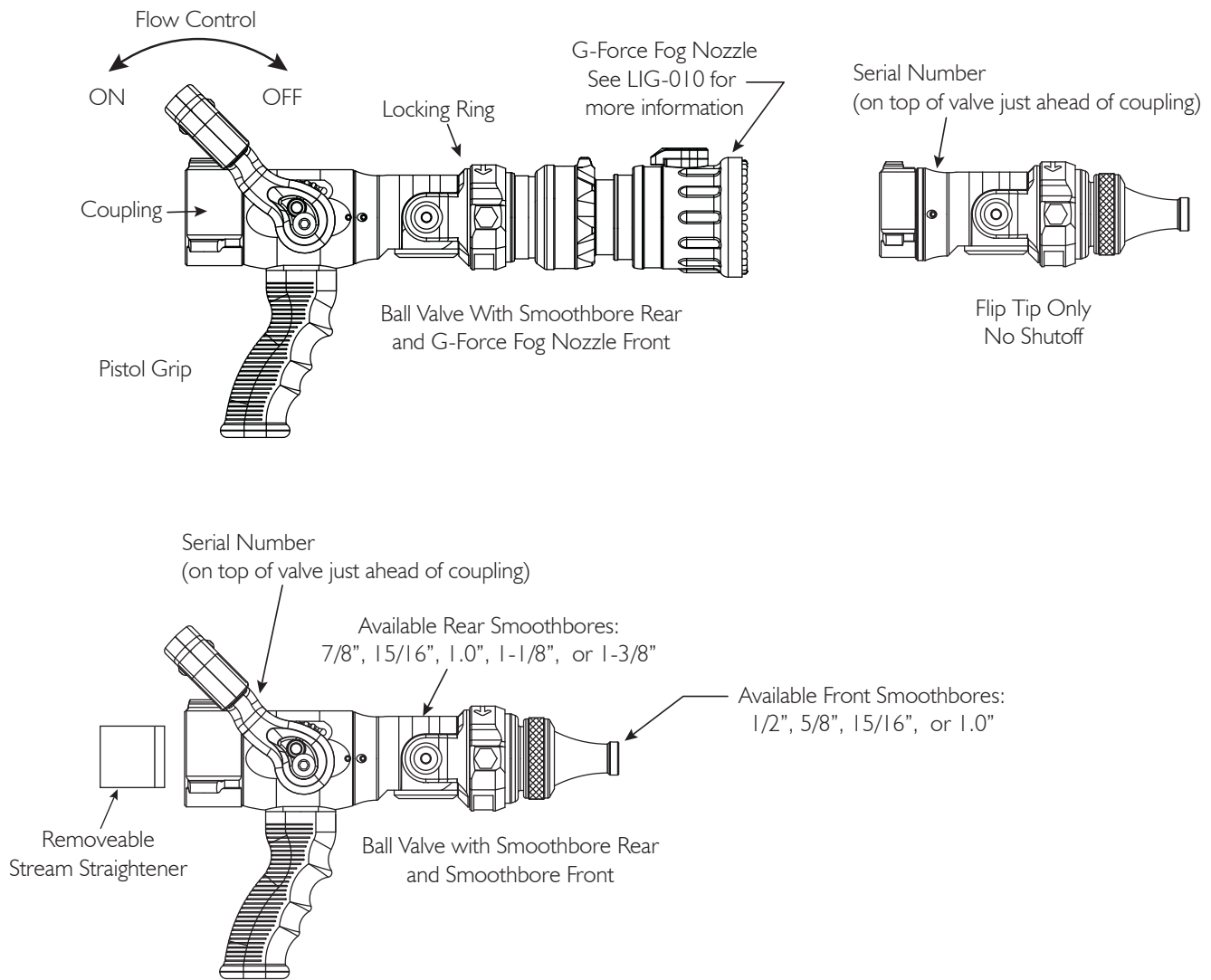


Figure 2.1 Common Models and Terms

## 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

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.

## 2.3 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: <ul style="list-style-type: none"><li>• Pink</li><li>• Tan</li><li>• Purple</li></ul>
Preconnect #2	Red	
Preconnect #3 or discharge #1	Yellow	
Preconnect #4 or discharge #2	White	
Discharge #3	Blue	
Discharge #4	Black	
Discharge #5	Green	
Foam Lines	Red w/ White border (Red/White)	
Booster Reels	Gray	

## 2.4 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.

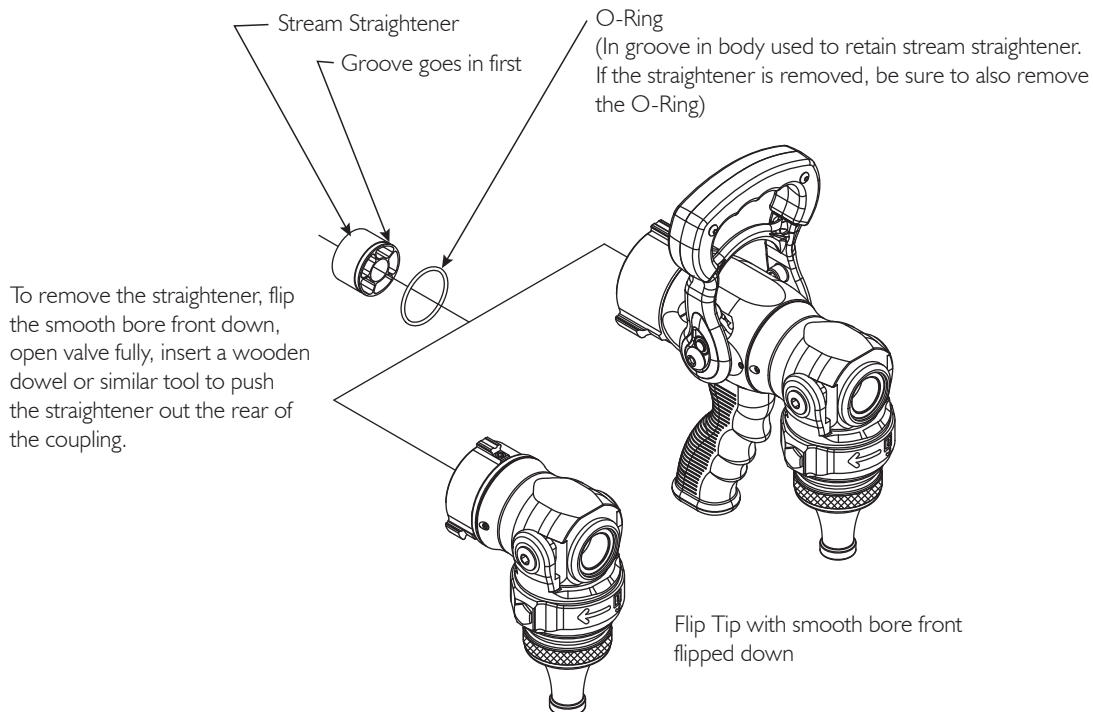


Figure 2.4 Removable Stream Straightener

## 2.5 FLIP TIP LOCK

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

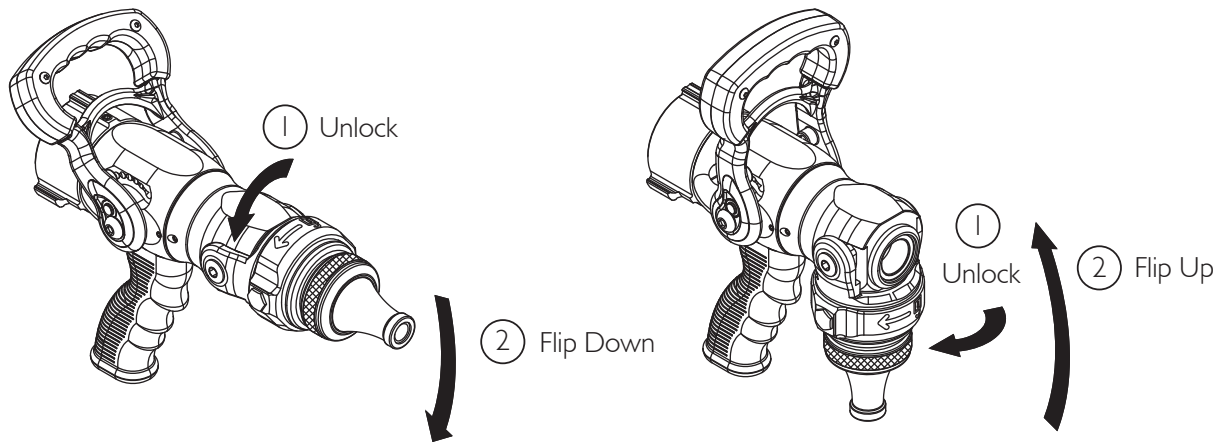


Figure 2.5 Using the Flip Tip Lock

### **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.

## 2.6 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.

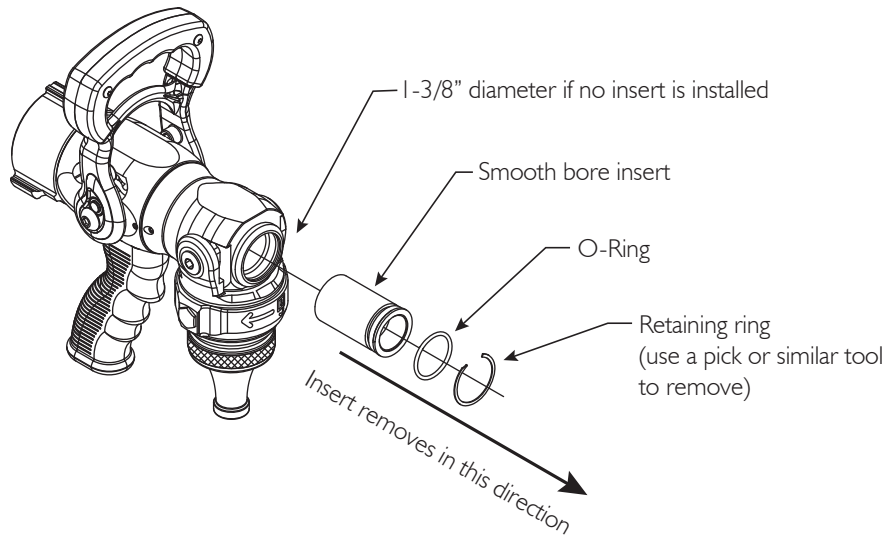


Figure 2.6 Rear Smooth Bore Inserts

## 2.7 FRONT SMOOTH BORE NOZZLE

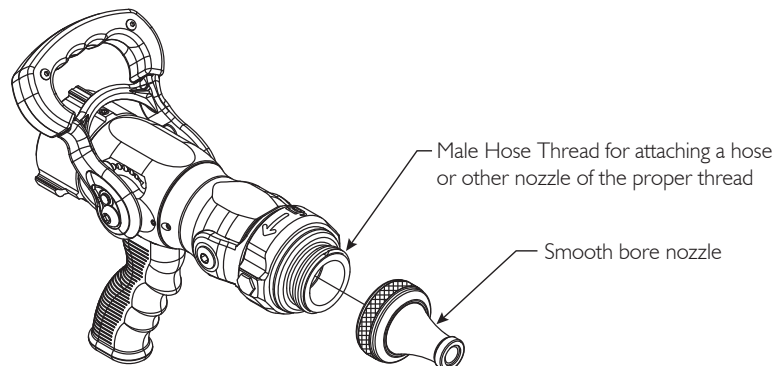


Figure 2.7 Front Smooth Bore Nozzles

## 2.8 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.

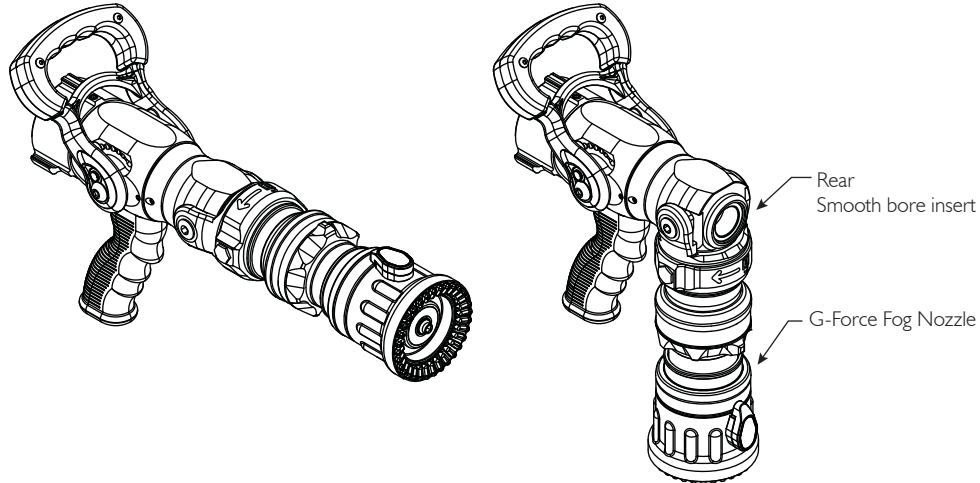


Figure 2.8 Front G-Force Fog Nozzle



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.

## 2.9 MECHANICAL 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		

## 3.0 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.**

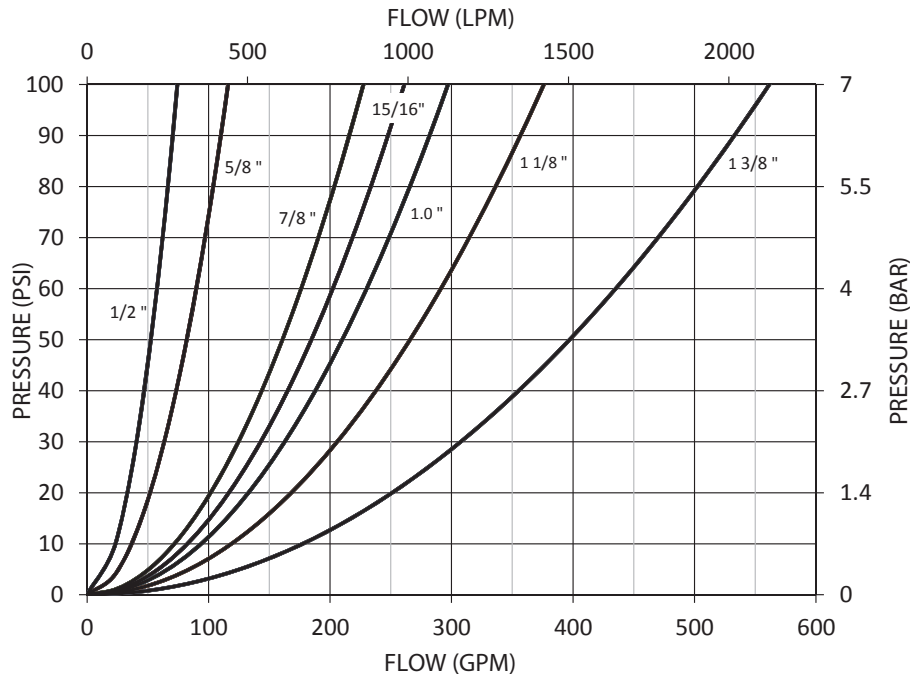


Figure 3.0 Flip Tip Flow Chart

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

1/2" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	47	15
50	53	19
60	58	23
70	62	26
80	66	30

5/8" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	73	23
50	82	29
60	90	35
70	97	41
80	104	47

7/8" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	144	46
50	161	57
60	176	69
70	190	80
80	203	92

15/16" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	165	53
50	185	66
60	202	79
70	218	92
80	234	106

1" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	188	60
50	210	75
60	230	90
70	249	105
80	266	120

1-1/8" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	238	76
50	266	95
60	291	114
70	315	133
80	336	152

1-3/8" TIP		
PRESSURE	FLOW	REACTION
PSI	GPM	LBS
40	355	113
50	397	142
60	435	170
70	470	199
80	502	227



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 3.1 or call 800-348-2686 for assistance.

#### 4.0 FIREGROUND USE OF FLIP TIP 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:

<b>PDP = NP + FL + DL + EL</b>	
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.

#### 4.1 USE WITH SALT WATER

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.



## 5.0 FIELD INSPECTION

TFT'S Flip Tip is designed and manufactured to be damage resistant and require minimal maintenance. However, as the primary fire fighting tool upon which your life depends, it should be treated accordingly.



**Nozzle must be inspected for proper operation and function according to the inspection checklist in Section 6.0 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 Flip Tip 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.

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.

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.



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

All Task Force Tips 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.

## 6.0 INSPECTION CHECKLIST

Nozzle must be inspected for proper operation and function according to the checklist before each use. Check that:

- 1) There is no obvious damage such as missing parts, broken or loose parts, damaged labels, etc.
- 2) Coupling is tight and leak free
- 3) Valve handle moves freely through full range, and shuts off flow.
- 4) "OFF" position does fully shut off and flow is stopped.
- 5) Nozzle flow is adequate as indicated by the pump pressure and nozzle reaction.
- 6) Front end is tight and leak free
- 7) Locking ring operates smoothly.

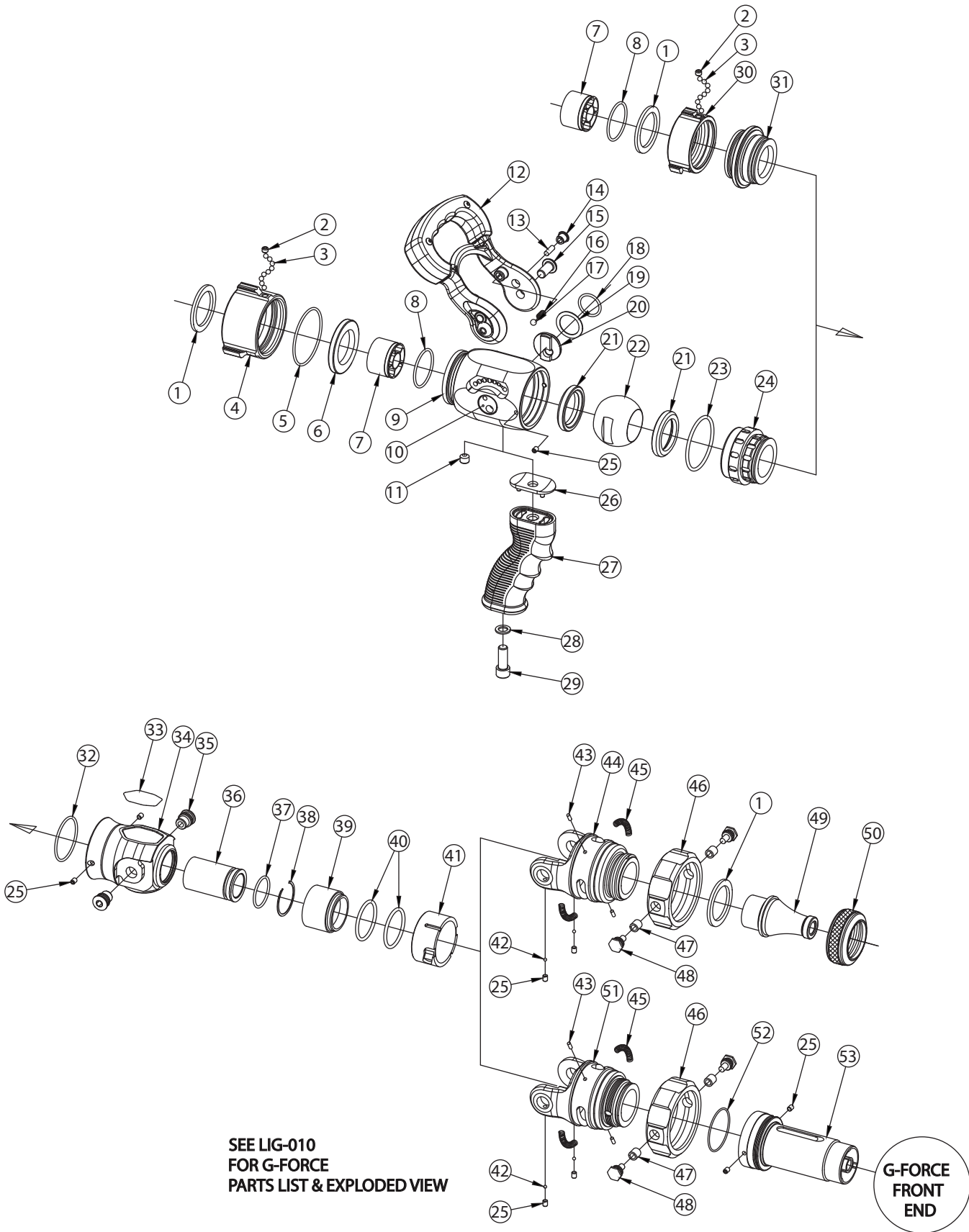


**Any Flip Tip nozzle failing any part of the inspection checklist is unsafe and must have the problem corrected before use. Operating a nozzle that fails any of the above inspections is a misuse of this equipment.**

## 7.0 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.

## 8.2 FLIP TIP WITH INTEGRATED VALVE



ITEM	DESCRIPTION	QTY	PART #
1	GASKET - 1.5" HOSE COUPLING	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	O-RING-128	1	VO-128
9	DETENT VALVE BODY	1	P110
10	TRUNNION - LEFT	1	P120L
11	3/8-16 X 5/16 SOCKET SET SCREW	1	VT37-16SS312
12	HANDLE SUBASSEMBLY	1	HX920
	BLACK HANDLE COVER	2	HM625-BLK
	HANDLE	1	HX620
	8-14 X 3/8 PUSHTITE BUTTON HEAD	4	VT08-14PT375
13	HDP SPIROL	2	V2005
14	TRUNNION DRIVER	2	HX650
15	3/8-24 X 3/4 BUTTON HEAD	2	VT37E24BH750
16	DETENT SPRING	2	HM770
17	.243" TORLON BALL	2	VB243TO
18	O-RING-118	2	VO-118
19	TEFLON TRUNNION SHIM	2	P170
20	TRUNNION - RIGHT	1	P120R
21	BALL SEAT VALVE	2	P104
22	DELTRIN VALVE BALL	1	P103
23	O-RING-227	1	VO-227
24	ADAPTER VALVED BASE	1	FF101
25	10-32 X 1/4 SET SCREW - NYLOK	8	VT10Y32SS250
26	GRIP SPACER HANDLINE	1	HM693-H
27	PISTOL GRIP	1	HM692
28	WASHER	1	VM4109
29	3/8-16 X 1 SOCKET HEAD SCREW	1	VT37-16SH1.0

ITEM	DESCRIPTION	QTY	PART #
30	COUPLING 1.5" ROCKERLUG	1	FF197*
31	COUPLING ADAPTER	1	FF100
32	O-RING-132	1	VO-132
33	NAME LABEL	1	FF102L
34	BASE	1	FF102
35	TRUNNION	2	FF110
36	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
37	O-RING-123	1	VO-123
38	SMALLEY RING	1	V4232
39	SEAT	1	FF140
40	O-RING-222	2	VO-222
41	LOCK	1	FF120
42	1/8" ACETAL BALL	2	VB125AC
43	DRAG NUBS	2	B650
44	YOKE 1.5"	1	FF150*
45	SLIDE SPRING	2	XG141
46	LOCK RING	1	FF125
47	NYLON BUSHING	2	AY307
48	CAM SCREW	2	FF126
49	1/2" SMOOTH BORE	1	FF151
	5/8" SMOOTH BORE		FF152
	15/16" SMOOTH BORE		FF153
	1.0" SMOOTH BORE		FF154
50	COUPLING 1.5"	1	FF145*
51	YOKE G-FORCE	1	FF160
52	O-RING-031	1	VO-031
53	BODY G-FORCE AUX TIP	1	FF161
* - CONSULT FACTORY FOR SPECIAL THREADS			

## 9.0 WARRANTY

Task Force Tips, Inc., 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.