TASK FORCE TIPS®
FIRE FIGHTING EQUIPMENT

ThunderFog, QuadraFog, and QuadraCup

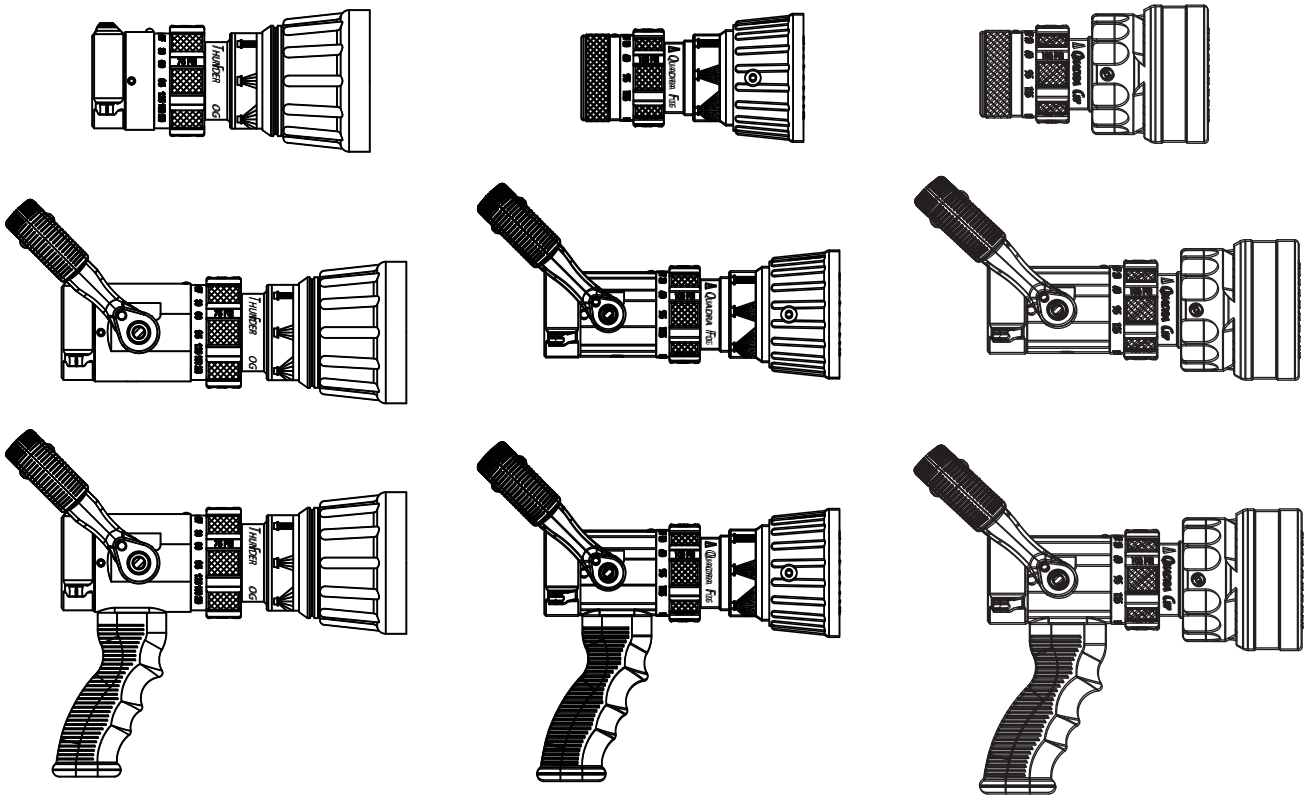
INSTRUCTIONS FOR INSTALLATION, OPERATION, AND MAINTENANCE

⚠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.

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.



ThunderFog Series **QuadraFog Series** **QuadraCup Series**

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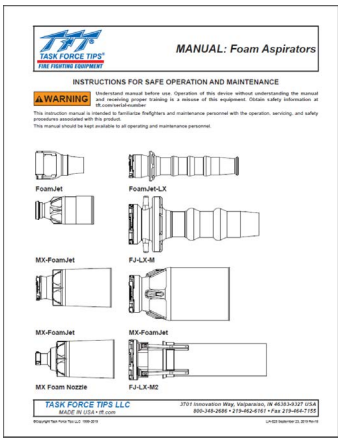
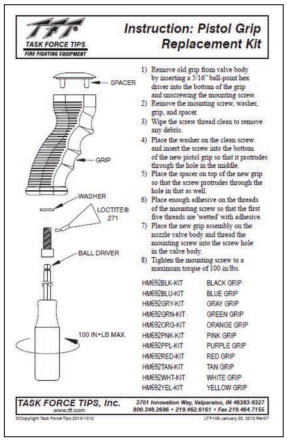
SUPPORTING MATERIALS

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

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 **DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.**

WARNING **WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.**

CAUTION **CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.**

NOTICE **NOTICE is used to address practices not related to physical injury.**

2.0 SAFETY

DANGER **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.**

WARNING **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.**

WARNING **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.**

WARNING **Failure to restrain nozzle reaction can cause firefighter 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.**

WARNING **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.**

WARNING **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.**

WARNING **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.**

NOTICE **To prevent mechanical damage, do not drop or throw equipment.**

3.0 GENERAL INFORMATION

This manual describes nozzles calibrated at 100 psi (7 bar) and 75 psi (5 bar). Contact the factory for data specific to models that operate with metric flow calibrations. ThunderFog, QuadraFog, and QuadraCup are economical, lightweight, and dependable nozzles. Their rugged construction is compatible with the use of fresh water as well as firefighting foam solutions.

3.1 VARIOUS MODELS AND TERMS

The nozzle is available in several different models and inlet connections. Basic body styles are shown below.

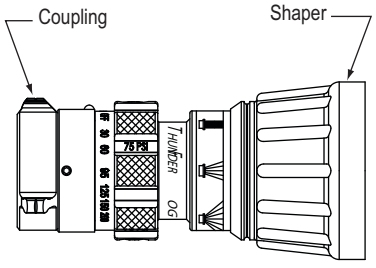
Selectable Flow: A nozzle with a discharge orifice that can be set to a user selected position. In each position the nozzle acts as a fixed orifice nozzle.

Tip Only: A nozzle without an integral ball shuttoff valve.

ThunderFog, QuadraFog, and QuadraCup nozzles are available in a variety of flow ranges and configurations. All models deliver the selected flow when the rated pressure is supplied to the nozzle. Flow settings and recommended hose sizes are:

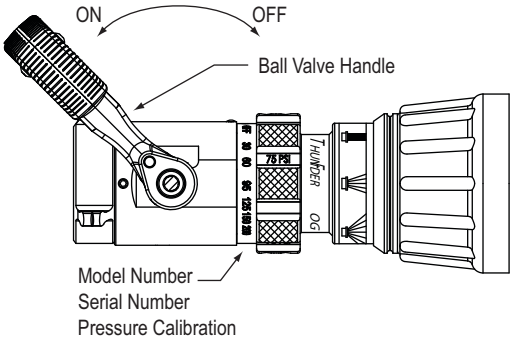
SERIES	RECOMMENDED HOSE SIZE		FLOW SETTINGS @100 PSI (7 bar)		NOZZLE TYPE
	in	mm	gpm	l/min	
1” QUADRAFOG	3/4, 1	19, 25	5, 10, 24, 40	20, 40, 100, 150	Selectable Flow
1” QUADRAFOG	3/4, 1	19, 25	5, 10, 24, 40, 60	20, 40, 100, 150, 230	
1.5” QUADRAFOG	1-1/2	38	30, 60, 95, 125	115, 230, 360, 475	Selectable Flow
1.5” QUADRACUP	1-1/2	28	30, 60, 95, 125	115, 230, 360, 475	Selectable Flow, Foam
1.5” THUNDERFOG	1-1/2 to 1-3/4	38 to 45	30, 60, 95, 125, 150, 200	115, 230, 360, 475, 550, 750	Selectable Flow
2.5” THUNDERFOG	1-1/2 to 2-1/2	38 to 64	95, 125, 150, 200, 250	360, 475, 550, 750, 950	Selectable Flow
*Other threads, coupling sizes, or connector types can be specified at the time of order. ThunderFog, QuadraFog, and QuadraCup nozzles are available in several models.					

Table 3.1



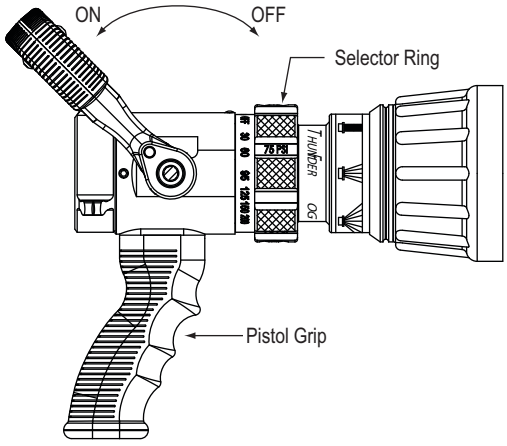
TIP ONLY

Figure 3.1A

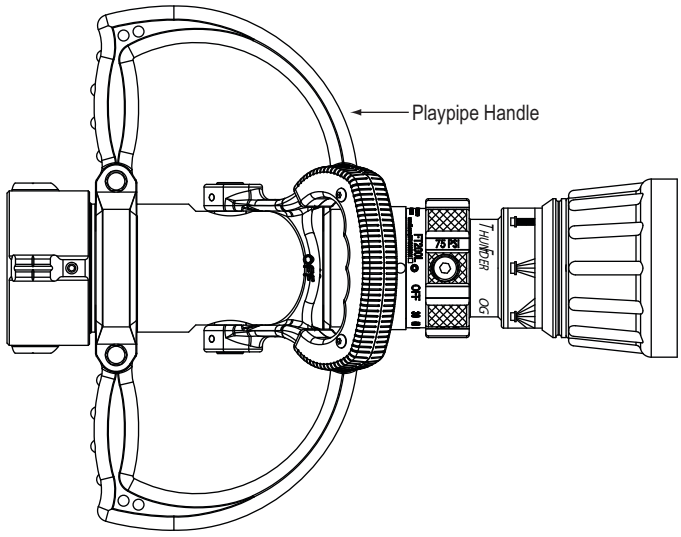


BALL VALVE

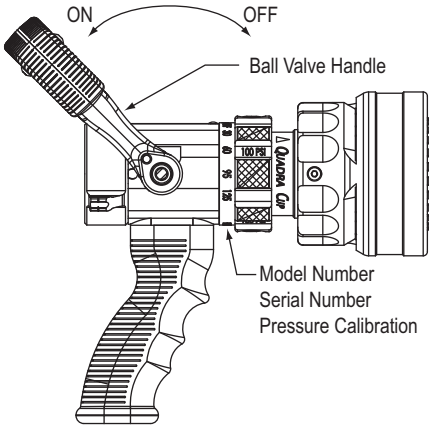
Figure 3.1B



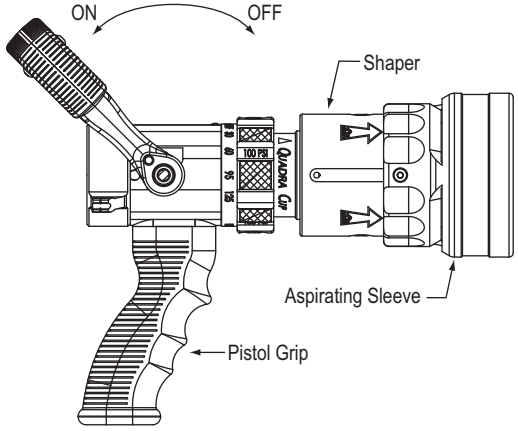
BALL VALVE WITH PISTOL GRIP
Figure 3.1C



PLAYPIPE
Figure 3.1D



QUADRACUP
RETRACTED POSITION
Figure 3.1E



QUADRACUP
EXTENDED POSITION
Figure 3.1F

3.2 SPECIFICATIONS

Maximum nozzle inlet pressure with valve shut off	1” QuadraFog	300 psi Standard Model	21 bar
	1” QuadraFog	800 psi High Pressure Model	55 bar
	1.5” QuadraFog & QuadraCup	300 psi	21 bar
	1.5” & 2.5” ThunderFog	300 psi	21 bar
Operating temperature 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 MIL 8625 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.

⚠CAUTION **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.**

⚠CAUTION **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

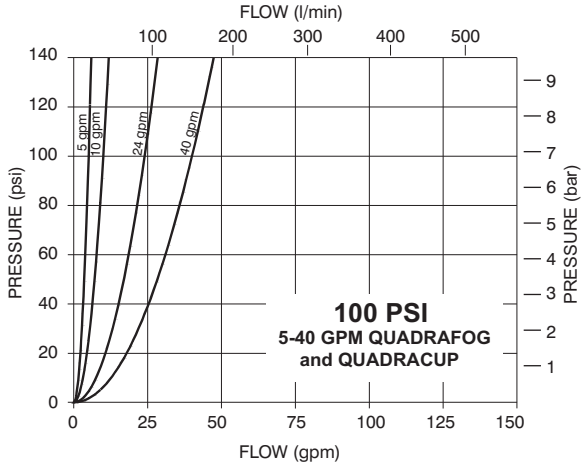
Use with salt water is permissible provided the equipment is thoroughly cleaned with fresh water after each use. The service life of the equipment may be shortened due to the effects of corrosion, and is not covered under warranty.

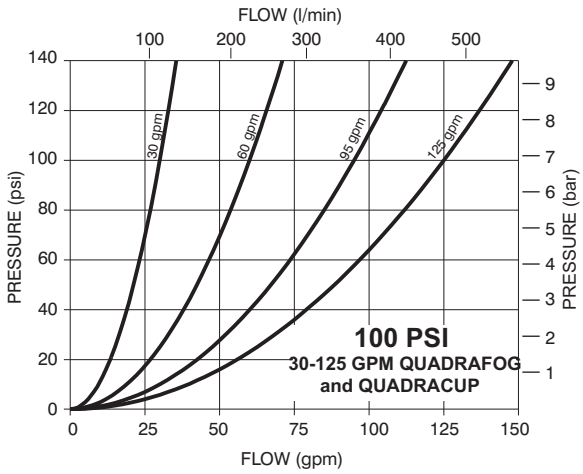
4.0 FLOW CHARACTERISTICS

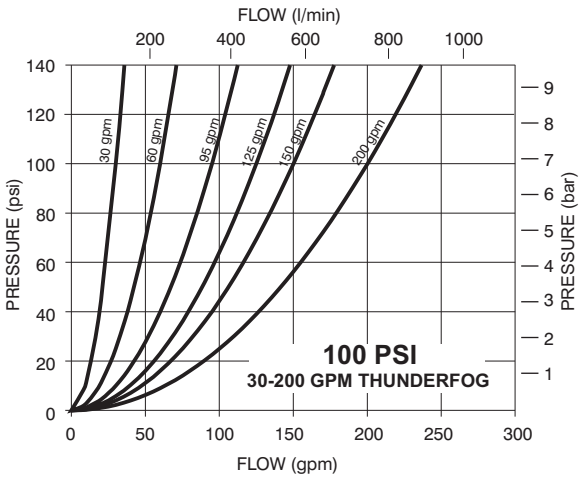
At each flow setting, the nozzle is set to a predetermined fixed orifice. Relationship of flow and nozzle pressure at each setting is shown below. Contact the factory or visit the website (tft.com) for range and trajectory data.

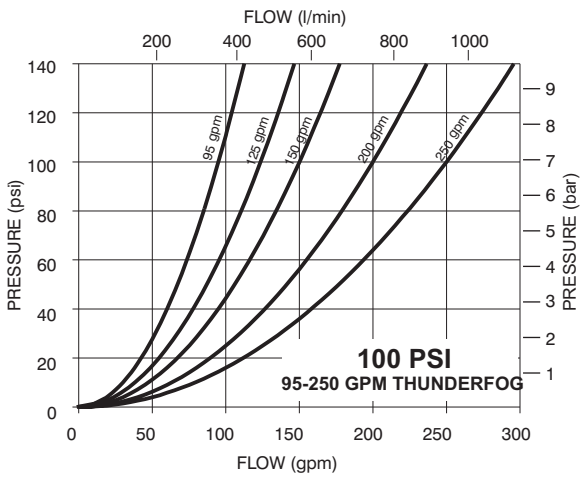
SPECIAL CONFIGURATIONS If nozzles are made according to the special marking or performance requirements of the fire department, the characteristics may differ from the published data in this manual. Repair parts specific to each serial number may differ from those shown in the service procedure. The required parts for each serial number are available online by entering tft.com/F123456 with the numbers corresponding to the serial number engraved on the product.

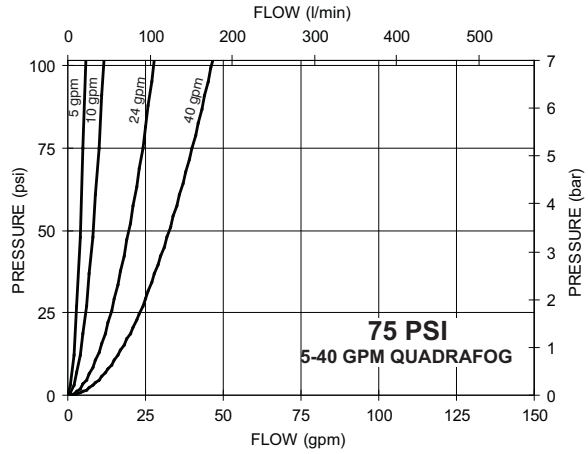
The charts in this document give specific examples of pump pressure and flow for various hoses and lengths. Losses may vary due to differences in hose construction resulting in flows different than shown. For situations or lengths of hose not listed on the chart, approximate flows can be calculated using conventional hydraulics.

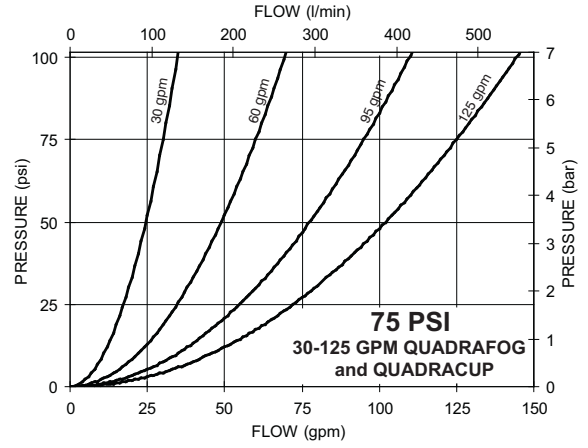









FLOW (l/min)
0
100
200
300
400
500
PRESSURE (psi)
PRESSURE (bar)
5 gpm
10 gpm
24 gpm
40 gpm
75 PSI
5-40 GPM QUADRAFOG
FLOW (gpm)
0
25
50
75
100
125
150


FLOW (l/min)
0
100
200
300
400
500
PRESSURE (psi)
PRESSURE (bar)
30 gpm
60 gpm
95 gpm
125 gpm
75 PSI
30-125 GPM QUADRAFOG
and QUADRACUP
FLOW (gpm)
0
25
50
75
100
125
150

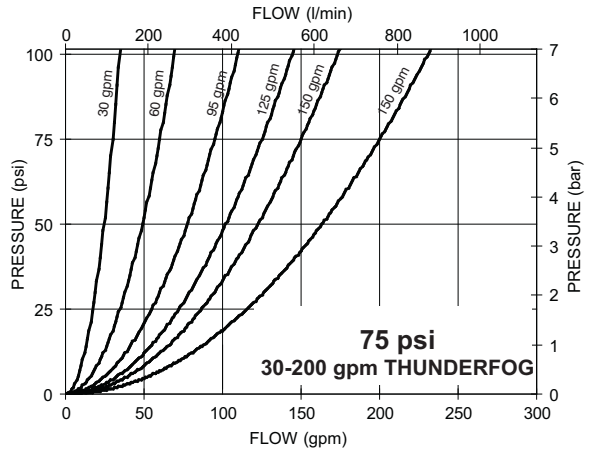

FLOW (l/min)
0
200
400
600
800
1000
PRESSURE (psi)
PRESSURE (bar)
30 gpm
60 gpm
95 gpm
125 gpm
150 gpm
150 gpm
75 psi
30-200 gpm THUNDERFOG
FLOW (gpm)
0
50
100
150
200
250
300

Figure 4.0

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 (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. 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.

NOTICE **In partially open positions, a ball valve will cause turbulence and adversely affect stream quality.**

5.2 INDEX RING

5.2.1 FLOW SETTING

The index ring is marked with various flow settings. Turn the index ring so the desired setting lines up with the silver indicator pin. A spring-loaded detent is provided at each flow setting. The nozzle will flow the indicated amount when the pressure at the nozzle is 100 psi (7 bar) on standard versions, or 75 psi (5 bar) on low pressure versions.

5.2.2 FLUSH CONTROL

Debris 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 index ring counterclockwise (as viewed from behind the nozzle) to the Flush setting. 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 index ring out of flush to continue normal operations.

⚠WARNING **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.**

5.2.3 SHUTOFF SETTING (TIP ONLY MODELS)

On Tip Only models, the index ring has a shutoff setting to stop the nozzle flow. To shut off the nozzle, rotate the index ring clockwise (as seen from the operating position behind the nozzle) into the “OFF” position. Rotate counterclockwise into a flow setting to open the nozzle.

5.3 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.

⚠WARNING **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.**

⚠CAUTION **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.**

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

5.4 QUADRACUP NOZZLES

The QuadraCup nozzle is capable of producing aspirated foam as well as conventional straight stream and wide protective fog patterns. The QuadraCup functions just like the QuadraFog nozzle when the aspirating sleeve is in the retracted position.

To use the aspirating feature of the QuadraCup, slide the aspirating sleeve portion of the nozzle forward. Rotation of the shaper while the sleeve is extended provides the nozzle operator control of reach and aspiration. If an immediate wide protective fog pattern is needed, the sleeve can be retracted instantly to its regular position.

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).

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)	

8.0 WARRANTY

Go to 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.

⚠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.**

9.2 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.

9.3 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.**

10.0 EXPLODED VIEWS AND PARTS LISTS

Exploded views and parts lists are available at 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

⚠WARNING **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.**

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