



# MANUAL: MASTER FOAM FIXED GPM SELF-EDUCTING FOAM NOZZLE SERIES

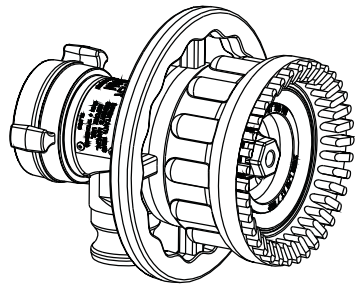
## INSTRUCTIONS FOR SAFE OPERATION AND MAINTENANCE

### ⚠ WARNING

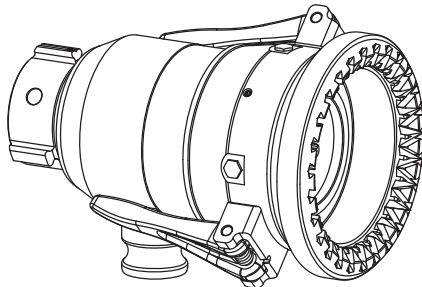
Understand manual before use. Operation of this device without understanding the manual and receiving proper training is a misuse of this equipment. Obtain safety information at [tft.com/serial-number](http://tft.com/serial-number)

This instruction manual is intended to familiarize firefighters and maintenance personnel with the operation, servicing, and safety procedures associated with the MASTER FOAM self-educating nozzle.

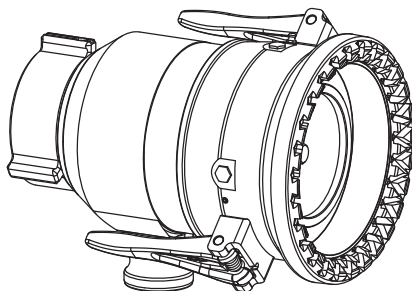
This manual should be kept available to all operating and maintenance personnel.



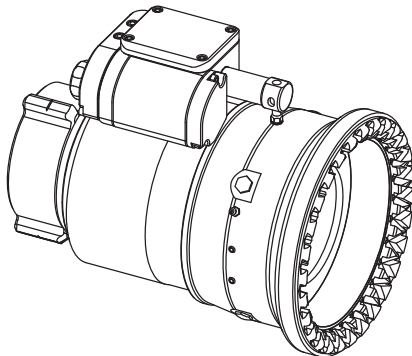
**Fixed Flow Rate:**  
250, 350, 500 or 750 gpm  
950, 1325, 1900 or 2900 l/min  
**Nominal Pressure:**  
100 psi (7bar)  
**Nominal Foam Percentages:**  
0.5%, 1%, 3%, or 6%



**Fixed Flow Rate:**  
1000 or 1250 gpm  
3800 or 4800 l/min  
**Nominal Pressure:**  
100 psi (7bar)  
**Nominal Foam Percentages:**  
1%, or 3%



**Fixed Flow Rate:**  
1500 or 2000 gpm  
5700 or 7600 l/min  
**Nominal Pressure:**  
100 psi (7bar)  
**Nominal Foam Percentages:**  
1%, or 3%



**RC Fixed Flow Rate:**  
1000 or 1250 gpm  
3800 or 4800 l/min  
1500 or 2000 gpm  
5700 or 7600 l/min  
**Nominal Pressure:**  
100 psi (7bar)  
**Nominal Foam Percentages:**  
1%, or 3%



#### 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)

# Table Of Contents

- 1.0 MEANING OF SAFETY SIGNAL WORDS
- 2.0 SAFETY
- 3.0 GENERAL INFORMATION
  - 3.1 VARIOUS MODELS AND TERMS
  - 3.2 SPECIFICATIONS
    - 3.2.1 MECHANICAL
  - 3.3 ELECTRICAL INSTALLATION
  - 3.4 USE WITH SALT WATER
  - 3.5 NOZZLE COUPLING
- 4.0 FLOW CHARACTERISTICS
  - 4.1 FIXED FLOW
  - 4.2 USE WITH FOAM
    - 4.2.1 CLASS A FOAM
    - 4.2.2 CLASS B FOAM
    - 4.2.3 SETTING UP MASTERFOAM
    - 4.2.4 SETTING FOAM PERCENTAGE
    - 4.2.5 USE OF FOAMJET LX
    - 4.2.6 CLEANING AFTER USE
- 5.0 REACH AND TRAJECTORY
- 6.0 OPERATION
  - 6.1 PATTERN CONTROL
  - 6.2 FLUSHING DEBRIS
- 7.0 DRAWINGS AND PART LISTS
  - 7.1 MASTERFOAM 250, 350, 500, 750 GPM
  - 7.2 RC MASTERFOAM
  - 7.3 MASTERFOAM 1000, 1250 GPM
  - 7.4 MASTERFOAM 1500, 2000 GPM
- 8.0 WARRANTY
- 9.0 MAINTENANCE
  - 9.1 SERVICE TESTING
    - 9.1.1 FLOW TESTING
    - 9.1.2 RECORDS
  - 9.2 REPAIR
- 10.0 ANSWERS TO YOUR QUESTIONS
- 11.0 INSPECTION CHECKLIST

## 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 Z535.6-2011, the definitions of the four signal words are as follows:

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

## 2.0 SAFETY

### **⚠ DANGER**

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.

### **⚠ WARNING**

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.

### **⚠ WARNING**

**WARNING** Injury can result from an inadequately supported monitor. The monitor mount must be capable of supporting 661 lbs (301 kg) of nozzle reaction force.

Flow		Reaction Force	
gpm	l/min	Pounds	Kilograms
250	950	132	60
350	1325	185	84
500	1900	265	120
750	2900	397	180
1000	3800	529	240
1250	4800	661	301
1500	5700	794	360
2000	7600	1058	480

### **⚠ WARNING**

Some volatile liquids can be ignited by static discharge.

Static build-up can occur from:

- Electrochemical separation of charge as water drains through low conductivity, refined products
- Applying foam over a low conductivity liquid of sufficient depth to retain the charge created as the foam blanket drains
- Streaming currents as water or foam is introduced into the storage tank<sup>1</sup>

### **⚠ WARNING**

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
- Whether the stream is solid or broken
- Purity of the water<sup>2</sup>

### **⚠ WARNING**

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. Use care in directing the stream.

### **⚠ WARNING**

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.

### **⚠ CAUTION**

Nozzle must be mated to a hose with matched threads. Mismatched or damaged threads may cause nozzle to leak or uncouple under pressure and could cause injury.

### **⚠ CAUTION**

Do not connect aluminum to brass or brass to aluminum. Dissimilar metals coupled together can cause galvanic corrosion that will freeze the threaded joint or cause complete loss of thread engagement. If dissimilar metals must be coupled together, the effects of corrosion can be greatly delayed by various coatings on the metal such as powder paint, hard anodizing, or silicone grease.

### **NOTICE**

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

<sup>1</sup> Electrostatic Hazards of Foam Blanketing Operations by Peter Howels. Industrial Fire Safety July/August 1993

<sup>2</sup> The Fire Fighter and Electrical Equipment, The University of Michigan Extension Service, Fourth Printing 1983. Page 47.

### 3.0 GENERAL INFORMATION

TFT MASTER FOAM nozzles are rugged self-educing foam fixed orifice fog nozzles made from heat treated, hard anodized aluminum.

MASTER FOAM nozzles come in three ranges. Each range determine water flow with baffle options. The removable baffle allows for flushing debris. On most MASTER FOAM nozzles, changing the baffle changes the nozzle's water flow rate.

A vacuum created by water velocity pulls foam concentrate into the nozzle. Foam concentrate enters the peripheral jet uniformly at discharge without causing turbulence. Mixing and aeration happen immediately resulting in superior stream quality and reach. MASTER FOAM nozzles use no clog prone small passageways.

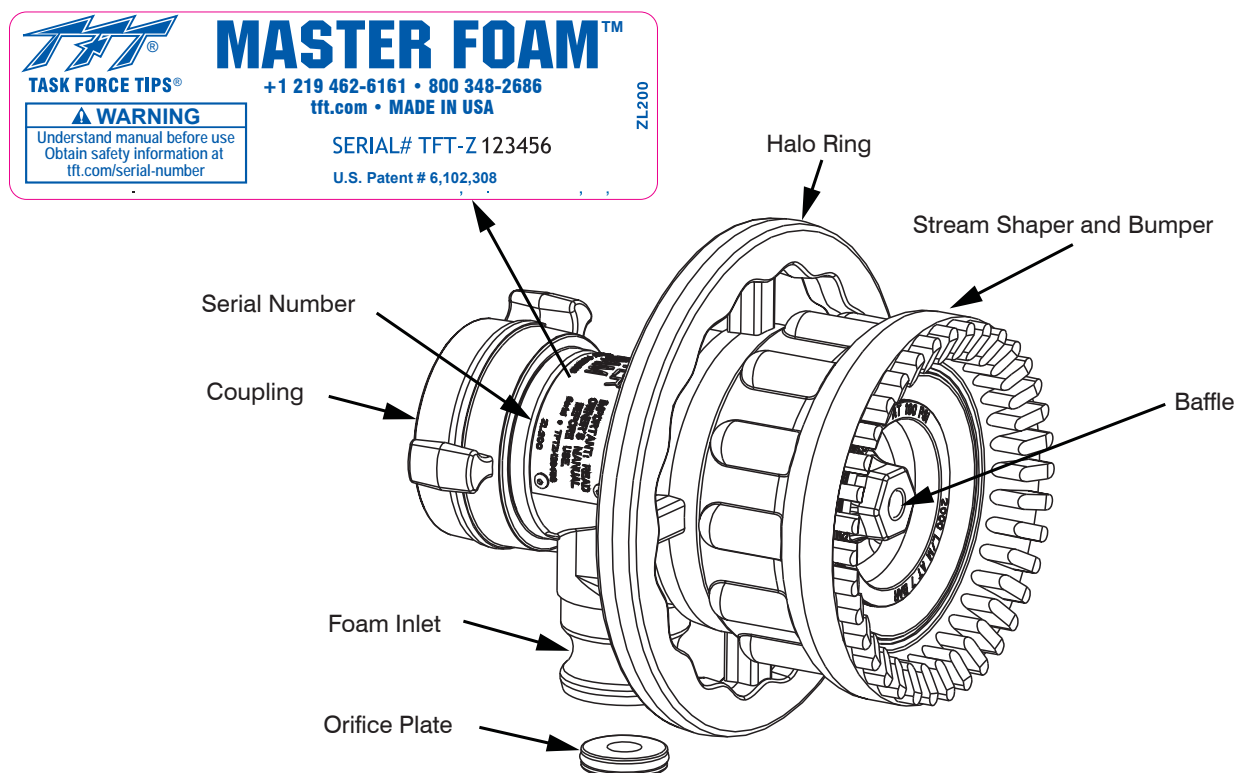
MASTER FOAM Nozzles come with calibrated orifice plates to set the foam percentage. Orifice plates are easily inserted into the side foam port. A concentrate hose with camlock fitting (military standard MS27019) connects to the foam port capturing the orifice plate.

Fog angle is user adjustable between 90° wide fog and straight stream. Higher flow (1000 GPM and higher) nozzles provide a set screw for locking in a fog angle.

RANGE	SMALL	MEDIUM	LARGE
INLET COUPLING	2.5" (65mm) NH, NPSH, or BSP	3.5" (89mm) NH, NPSH, or BSP	3.5" (89mm) NH 4.0" (100mm) BSP
RATED PRESSURE	100 psi (7bar)	100 psi (7bar)	100 psi (7bar)
FLOW RATINGS	250, 350, 500 or 750 gpm (950, 1325, 1900 or 2900 l/min)	1000 or 1250 gpm (3800 or 4800 l/min)	1500 or 2000 gpm (5700 or 7600 l/min)
FOAM ORIFICE PLATES	0.5%, 1%, 3% and 6%	1% and 3%	1% and 3%
CONCENTRATE HOSE SIZE	10' x 1.5" diameter (2.4m x 38mm) UV resistant	10' 1.5" x 2.0" diameter (2.4m 38mm x 52mm) UV resistant	10' x 2.0" diameter (2.4m x 52mm) UV resistant
CAMLOCK CONNECTION ON NOZZLE	1.5" (38mm)	1.5" (38mm)	2.0" (52mm)
FOG ADJUSTMENT	Halo ring is made from a non-corroding high temperature polymer	All aluminum. Rotate with folding handles	All aluminum. Rotate with folding handles
FOG TEETH	Molded rubber bumper and fog teeth	Cut metal fog teeth, hard anodized aluminum	Cut metal fog teeth, hard anodized aluminum
OPTIONAL FOAM ASPIRATOR	FJ-LX-M FoamJet low expansion air-aspirating attachment	n/a	n/a

### 3.1 VARIOUS MODELS AND TERMS

The figures below show the Master Foam nozzles and identifies the various parts and controls.



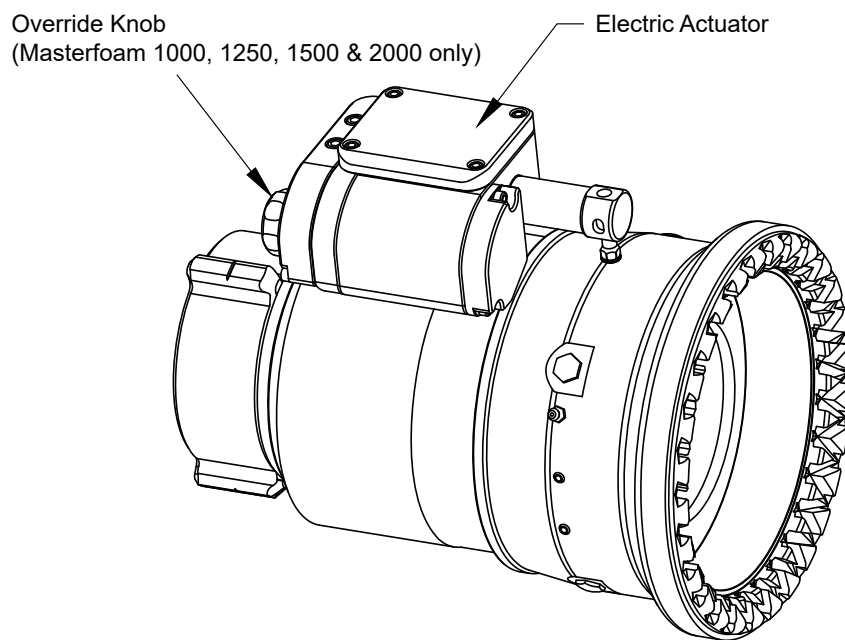
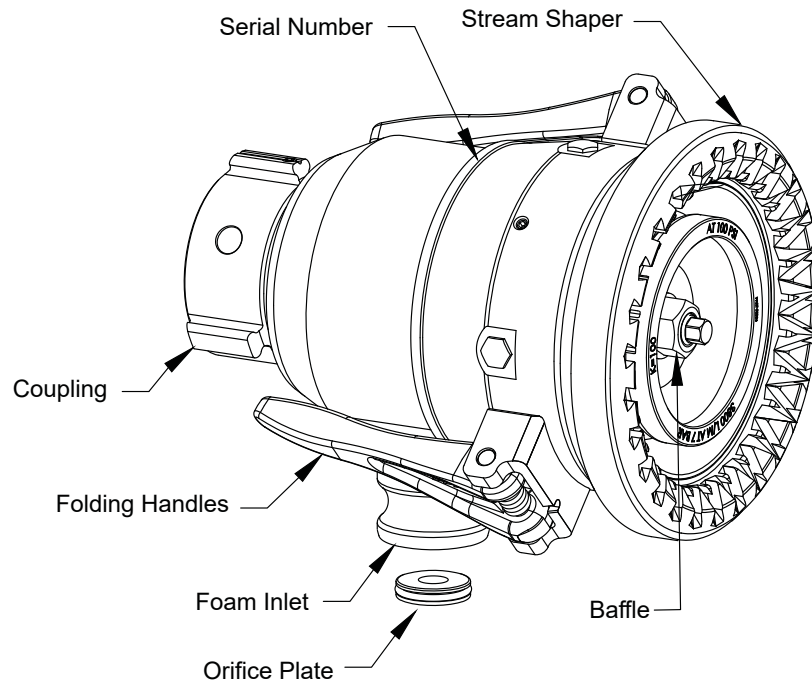


Fig 3.1  
Master Foam Nozzle Parts Identification

## 3.2 SPECIFICATIONS

### 3.2.1 MECHANICAL

Nominal Flow	250 GPM 950 l/min	350 GPM 1325 l/min	500 GPM 1900 l/min	750 GPM 2900 l/min	1000 GPM 3800 l/min	1250 GPM 4800 l/min	1500 GPM 5700 l/min	2000 GPM 7600 l/min
Nominal Operating Pressure	100 PSI / 690 KPa / 7 Bar							
Mass	7.3 lb / 3.3 kg	7.3 lb / 3.3 kg	7.3 lb / 3.3 kg	7.3 lb / 3.3 kg	16.9 lb / 7.7 kg	16.9 lb / 7.7 kg	23.0 lb / 10.4 kg	23.0 lb / 10.4 kg
Max. Flow	306 GPM 1160 l/min	428 GPM 1620 l/min	612 GPM 2320 l/min	918 GPM 3475 l/min	1224 GPM 4630 l/min	1530 GPM 5790 l/min	1830 GPM 6930 l/min	2450 GPM 9270 l/min
Max. Operating Pressure	150 PSI 10.3 Bar							
Max. Fog Angle	90°							
Operating Temperatures	-40°F to 135°F -40°C to 57°C							
Materials Used	Cast Aluminum, Extruded Aluminum, Stainless Steel, Nitrile Rubber, Nylon							

## 3.3 ELECTRICAL INSTALLATION

Nozzles with electric stream shaper actuation are shipped with a wiring diagram (TFT item #LIN-040). Other documentation is available on request. The actuator is not rated as ignition proof, explosion proof or intrinsically safe. NOTE: Masterstream 1000, 1250s, 1250, 1500 and 2000 nozzles are equipped with manual override in case of electrical power failure. Refer to figure 1E for manual override instructions.

### **⚠ WARNING**

The electric motor and other components are ignition sources. The electric stream shaper should be operated only in areas where there is adequate ventilation and no hazard of flammable vapor buildup.

## 3.4 USE WITH SALT WATER

Use with salt water is permissible provided 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.

For saltwater compatibility with foam, refer to foam supplier's technical data

## 3.5 NOZZLE COUPLING

The MASTER FOAM nozzle is available with 2.5 inch female threads (NH, NPSH or BSP) for 250, 350, 500, 750, 1000, and 1250 versions. 1500 and 2000 version have a 3.5" coupling as standard. When tightening the coupling, make sure the foam inlet is pointing downward for ease of attaching the concentrate inlet hose.



## 4.0 FLOW CHARACTERISTICS

### 4.1 FIXED FLOW

Figure 4.1 gives the flow characteristics of the MASTER FOAM nozzle. Pressure on the graph is the nozzle inlet pressure. Losses through piping and monitor must be taken into account to deliver the desired pressure to the nozzle. Flow on the graph is the water flow entering the nozzle. Any foam educted adds to this flow.

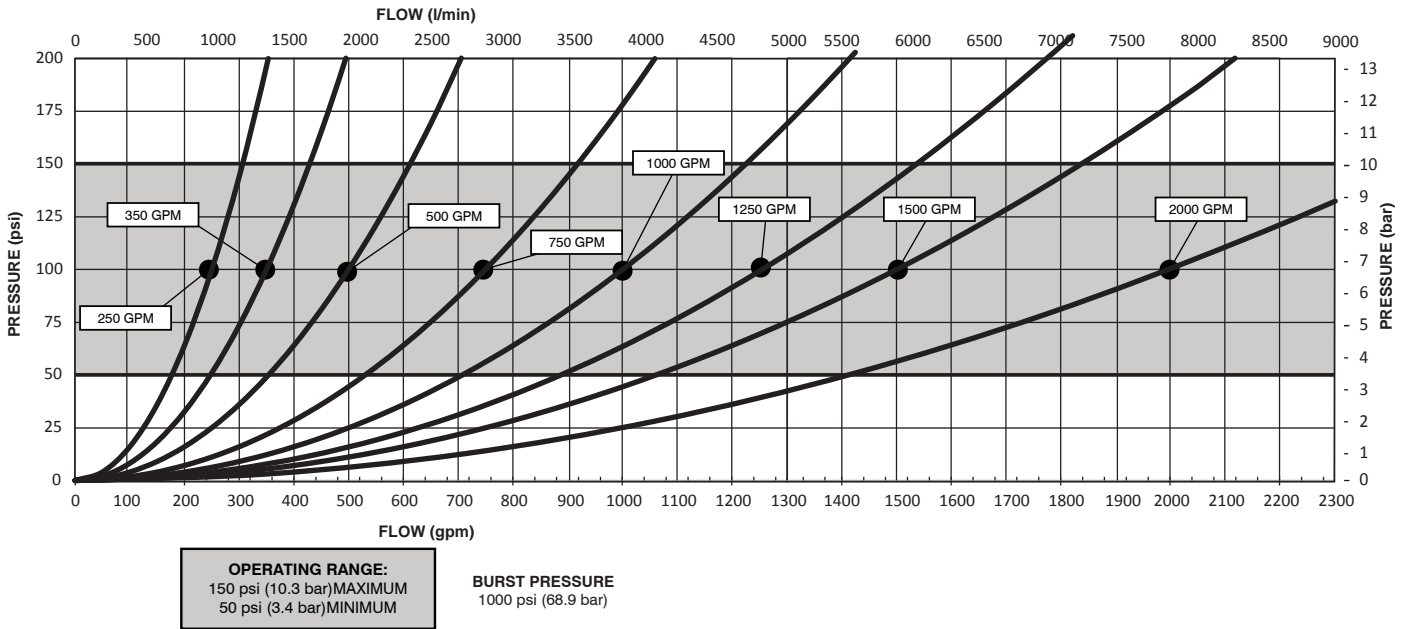


Fig 4.1 MASTER FOAM Flows

### CAUTION

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 graph or call 800-348-2686 for assistance.

### 4.2 USE WITH FOAM

Refer to fire service training 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.

Assure that:

- Application rate is sufficient (see NFPA 11 or foam manufacturer's recommendations)
- Enough concentrate is on hand to complete task (see NFPA for minimum duration time requirements)
- Foam logistics have been carefully planned.

Allow for such things as:

- Storage of foam in a location not exposed to the hazard it protects
- Personnel, equipment, and technique to deliver foam at a rapid enough rate
- Removal of empty foam containers
- Clear path to deliver foam, as hoses and other equipment and vehicles are deployed

### WARNING

Improper use of foam can result in injury or damage to the environment. Follow foam manufacturer's instructions and fire service training to avoid:

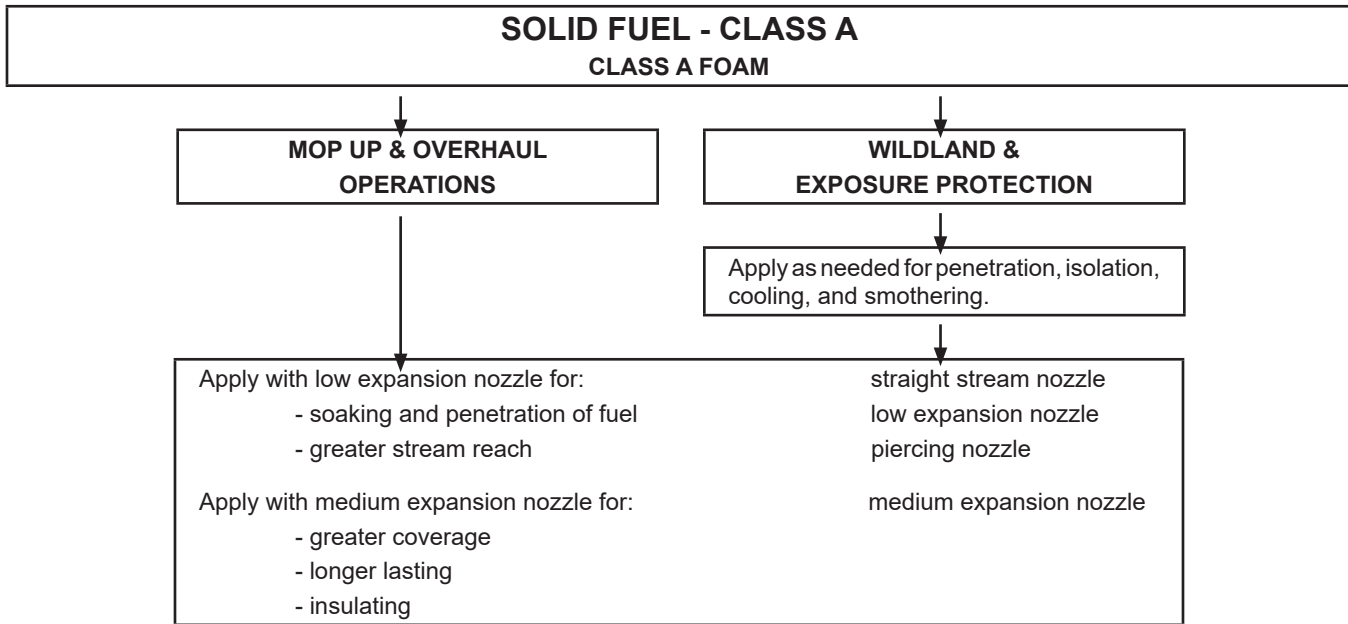
- Using wrong type of foam on a fire, i.e. Class A foam on a Class B fire.
- Mishandling of concentrates, some of which are flammable.
- Plunging foam into pools of burning liquid fuels.
- Causing environmental damage.
- Directing stream at personnel.

### WARNING

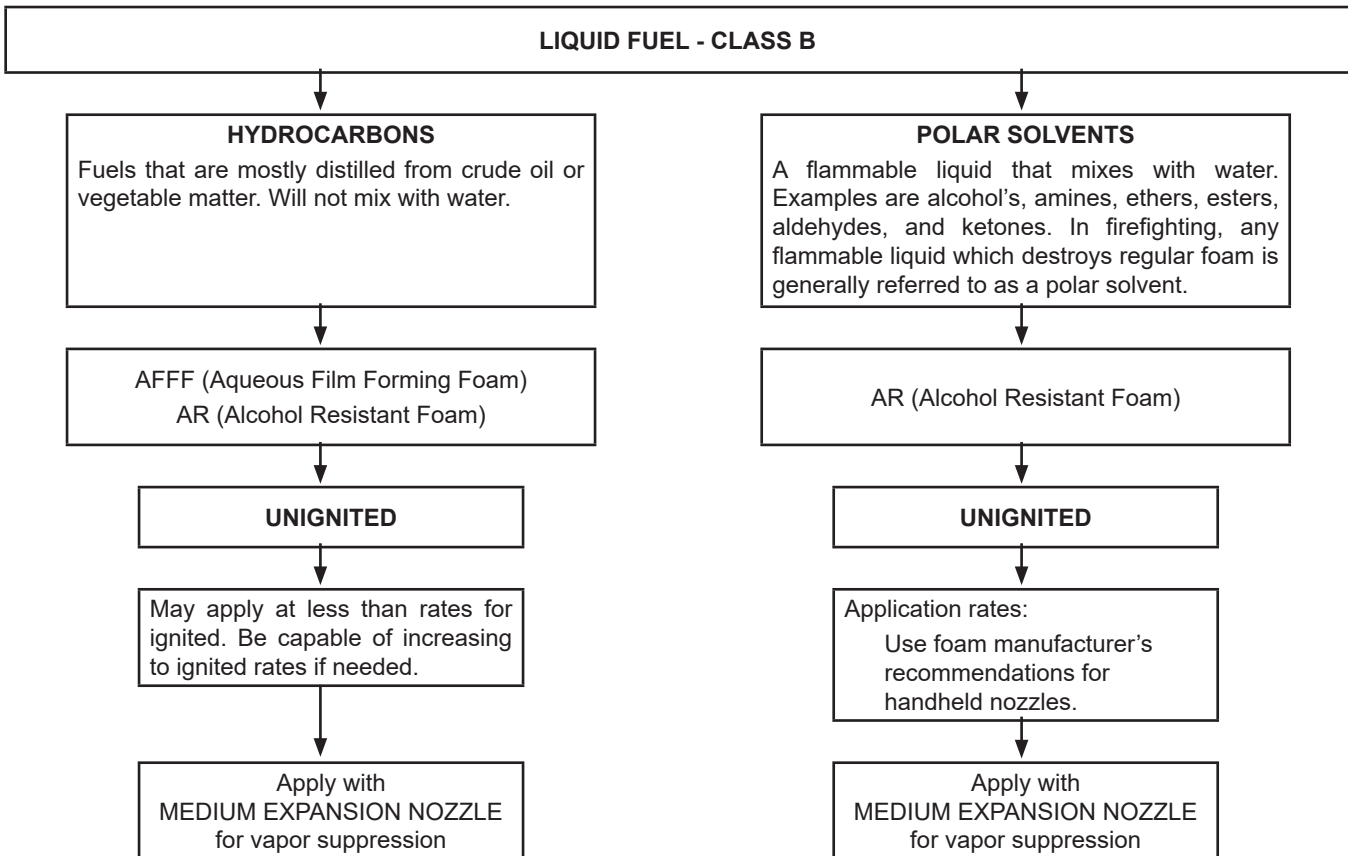
There are a wide variety of foam concentrates. Each user is responsible for verifying that any foam concentrate chosen is suitable for the purpose intended.

## 4.2.1 CLASS A FOAM

It is recommended that the Class A foam used meets USDA Forest Service 5100-307A "Specification for Fire Suppressant Foam for Wildland Firefighting (Class A Foam)", NFPA 298 "Fire Fighting Foam Chemicals for Class A Fuels in Rural, Suburban, and Vegetated Areas", or NFPA 1150 "Foam Chemicals for Fires in Class A Fuels".



## 4.2.2 CLASS B FOAM



### 4.2.3 SETTING UP MASTERFOAM

Refer to fire service training or department SOP for proper set up. Figure 4.2.3 shows typical Master Foam set ups.

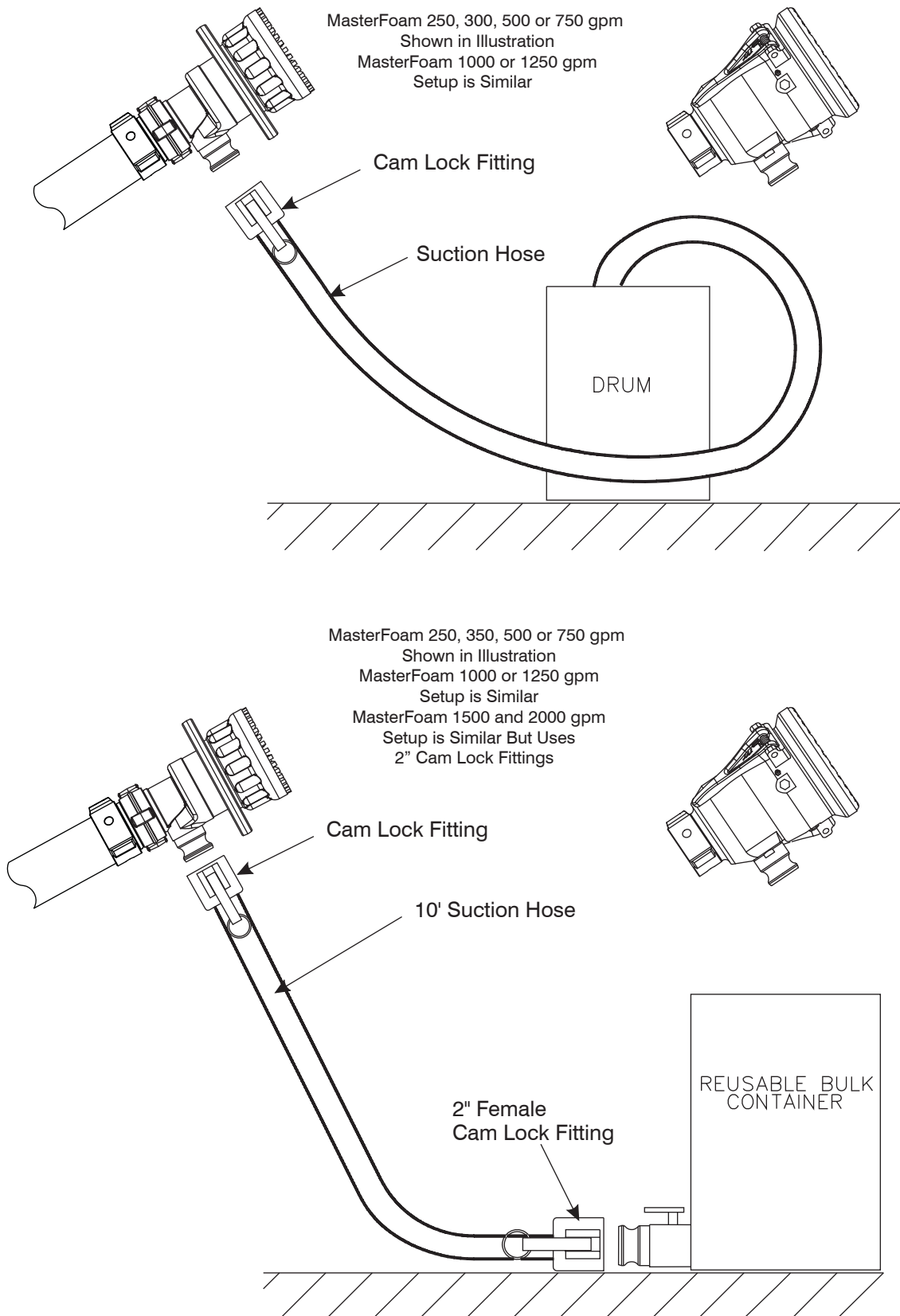


Fig 4.2.3 Typical Master Foam Set Ups

## 4.2.4 SETTING FOAM PERCENTAGE

The foam percentage is controlled by an orifice plate that is installed in the nozzle at the mouth of the concentrate inlet. Depending on the nozzle chosen, the MASTER FOAM comes with orifice plates for 0.5%, 1%, 3%, or 6%. Each orifice plate is marked with the percentage and nozzle flow rate. The flow rate on the orifice plate must match the flow rate marked on the nozzle's baffle. The chart in figure 4.2.4b gives the nominal rates of foam usage. Accuracy of proportioning is fairly insensitive to nozzle inlet pressure. The graph in figure 4.2.4c gives expected percentages for various inlet pressures.

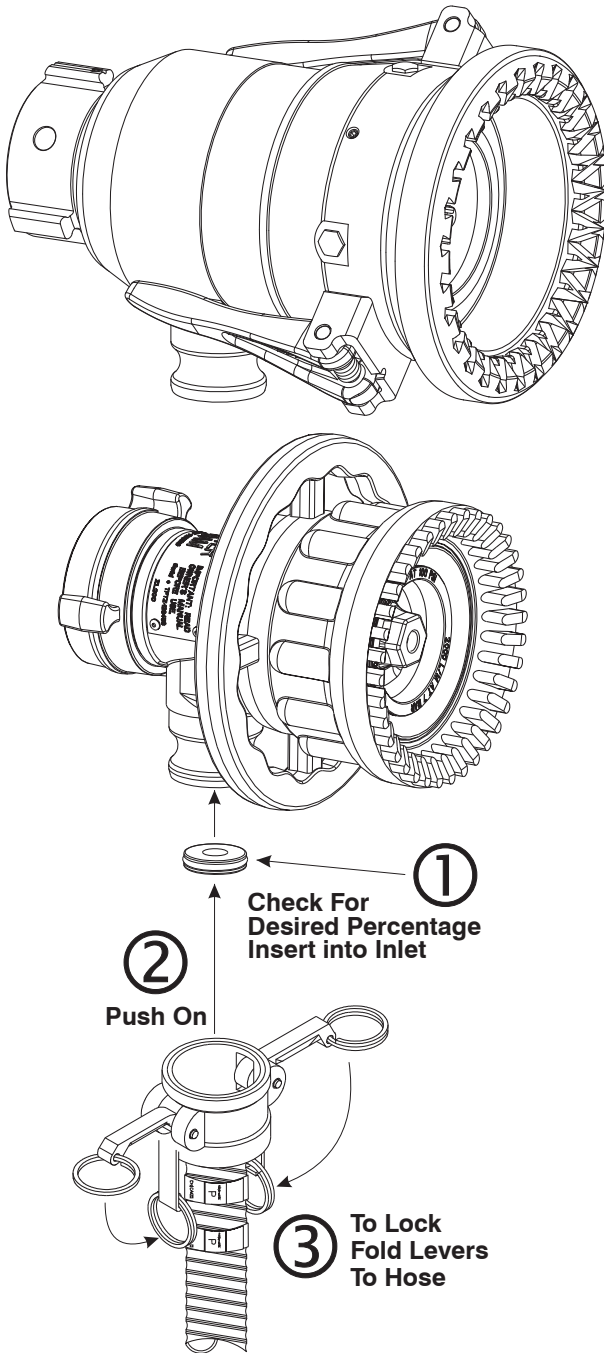


Fig 4.2.4a Orifice Plate and Concentrate Hose Connection

To install the orifice plate in the nozzle simply push it into the bore at the concentrate inlet on the nozzle. The orifice plate has an O-ring to hold it in place.

**MasterFoam 250, 350, 500 or 750 gpm**  
**Shown in Illustration**  
**MasterFoam 1000, 1250, 1500 or 2000 gpm**  
**Setting Foam Percentage is Similar**

To remove the orifice plate, hook a small object (such as a screwdriver or Allen wrench) into the hole in the orifice plate and pull it out. Take care not to damage the orifice. Note: The hole in the 6% orifice plate is big enough that your finger can be used to pull it out instead of a tool.

CONCENTRATE FLOW RATE IN GPM

WATER FLOW (GPM)	FOAM PERCENTAGE			
	0.5%	1%	3%	6%
250	1.3	2.5	7.7	16.0
350	1.8	3.5	11.0	22.0
500	2.5	5.1	15.0	32.0
750	3.8	7.6	23.0	48.0
1000	—	10.0	31.0	—
1250	—	13.0	39.0	—
1500	—	16.0	45.0	—
2000	—	20.0	60.0	—

**EXAMPLE:** 500 GPM OF WATER AT 3% USES 15.0 GPM OF CONCENTRATE

**NOTE:** FLOWS SHOWN ARE NOMINAL. ACTUAL RESULTS MAY VARY BASED ON BRAND AND CONDITION OF FOAM

Fig 4.2.4b Flow Rate Chart

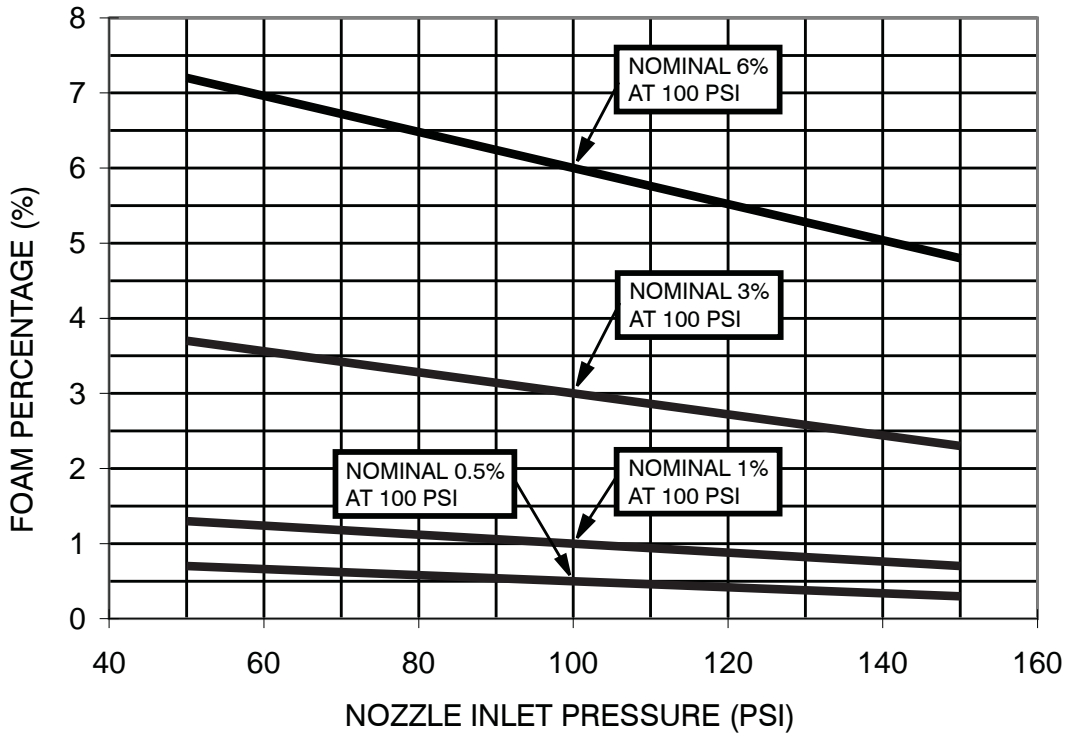


Fig 4.2.4c Proportioning Accuracy With Pressure Variation

Note: In any eductor type system the accuracy of proportioning depends on the viscosity of the foam concentrate. The orifice plates for the MASTER FOAM nozzle have been calibrated at 70 degrees F as follows:

PERCENT 250, 350, 500 & 750 Nozzles	FOAM USED FOR CALIBRATION
0.5% and 1%	Class A foam of 20 centipoise viscosity
3%	3M ATC 3 AR-AFFF product code ATC-603
6%	3M ATC-AFFF product code FC-600F
PERCENT 1000 & 1250 Nozzles	FOAM USED FOR CALIBRATION
1%	Williams Thunderstorm ATC AR-AFFF FC-601A
3%	Williams Thunderstorm ATC AR-AFFF FC-601A
PERCENT 1500 & 2000 Nozzles	FOAM USED FOR CALIBRATION
1%	National Universal Gold NFC420
3%	National Universal Gold NFC420

Foam pickup in the widest fog position (90°) is not guaranteed.

#### 4.2.5 USE OF FOAMJET LX

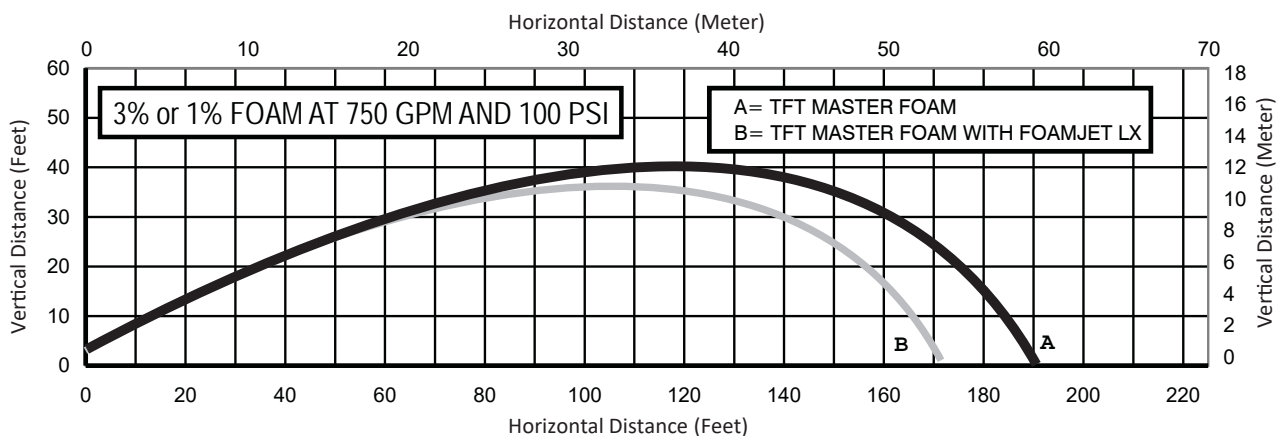
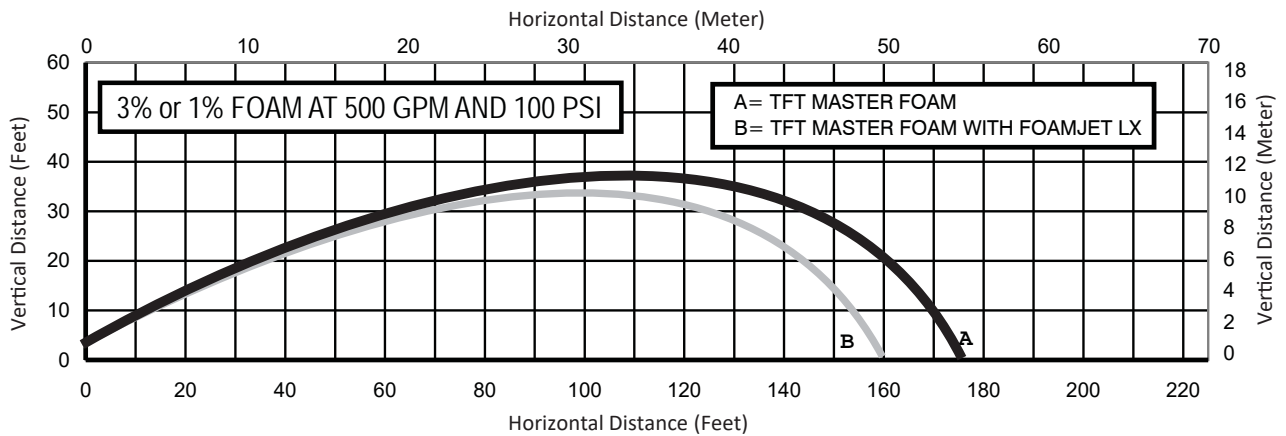
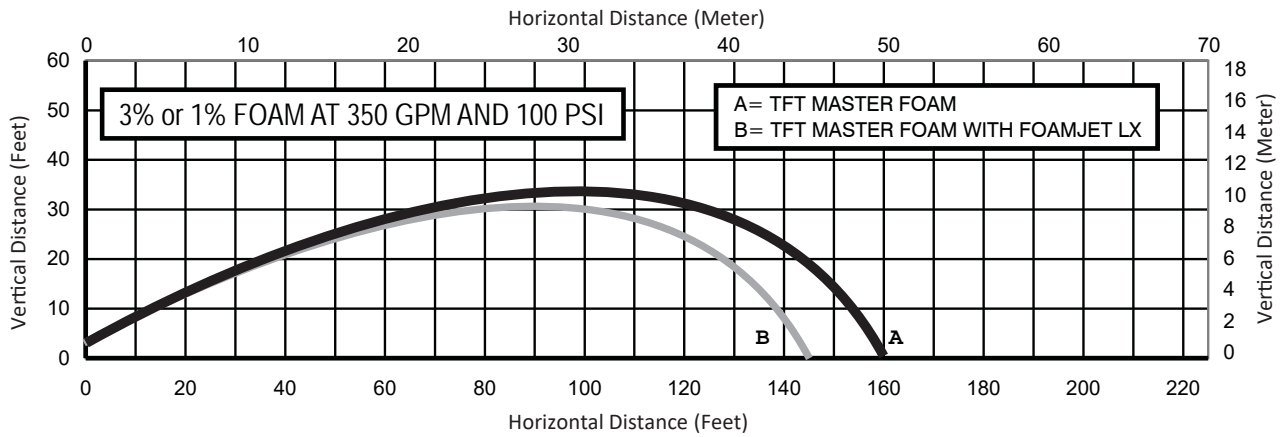
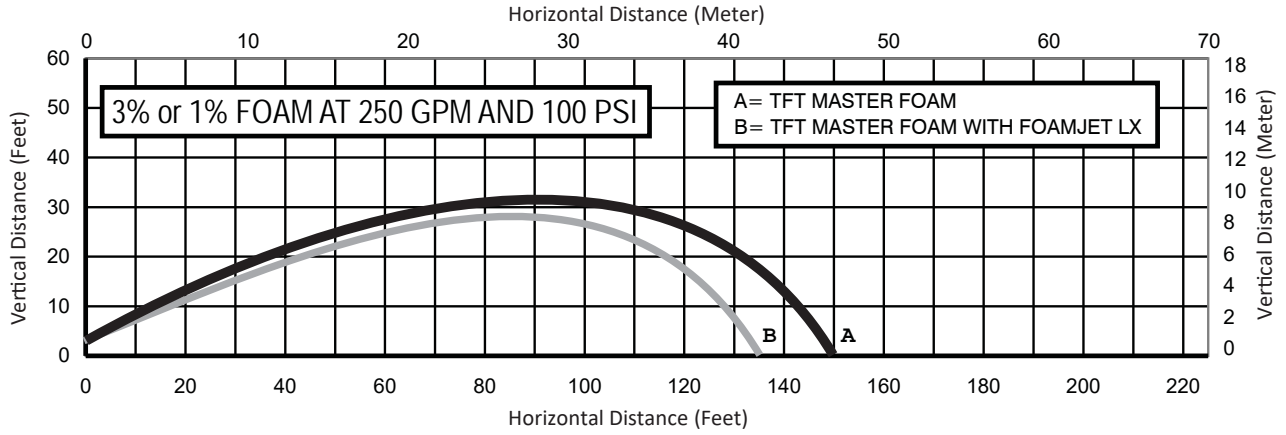
To increase the expansion ratio, Task Force Tips' "Foamjet LX" (model FJ-LX-M) may be used on nozzles rated to 750 gpm. This low expansion foam tube attaches and removes quickly from the nozzle. Note: As expansion ratio is increased the reach of the nozzle will be decreased due to the greater amount of bubbles in the stream and their inability to penetrate the air. Figure 5.0.1 gives approximate stream trajectory information with and without Foamjet LX. Actual results will vary based on brand of foam, hardness of water, temperature, etc.

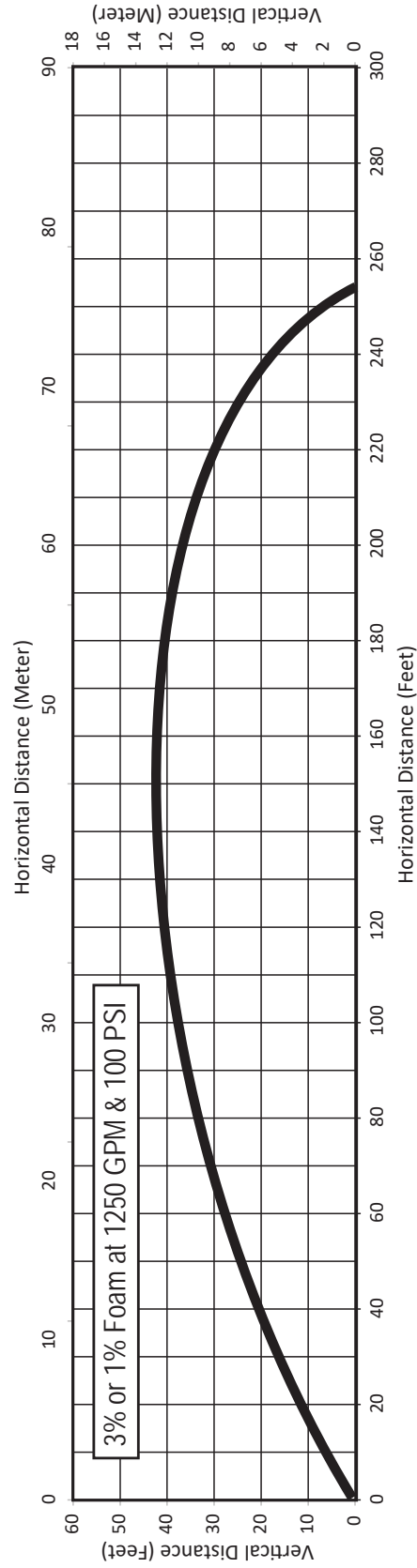
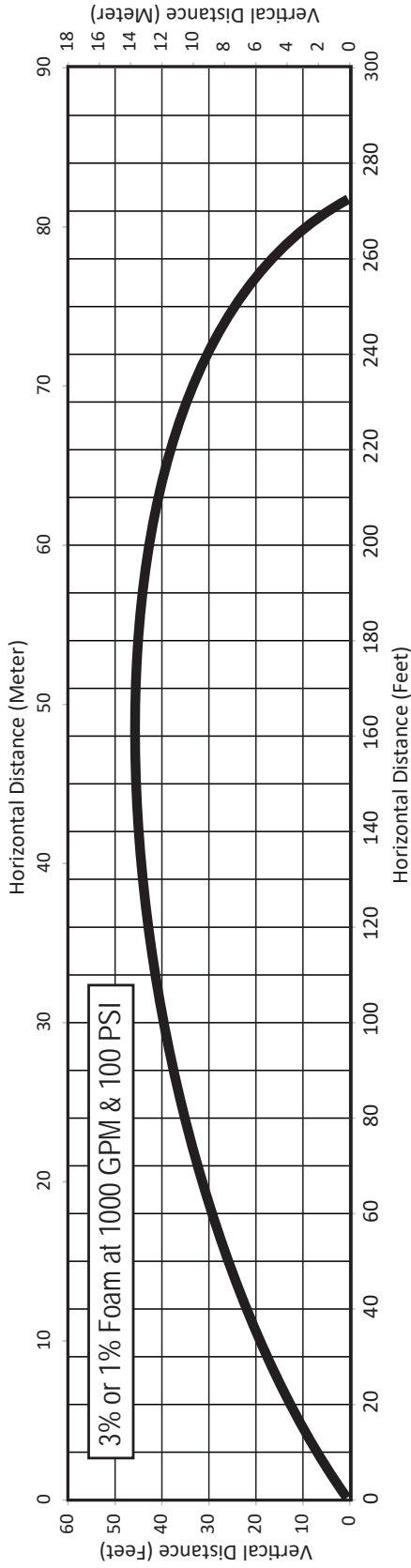
#### 4.2.6 CLEANING AFTER USE

After educting foam it is recommended that water be educted in through the concentrate hose and inlet. This will wash out foam concentrate residue in the hose, orifice plate, and nozzle passages. If not removed, any residue may dry and adversely affect the accuracy of proportioning.

## 5.0 REACH AND TRAJECTORY

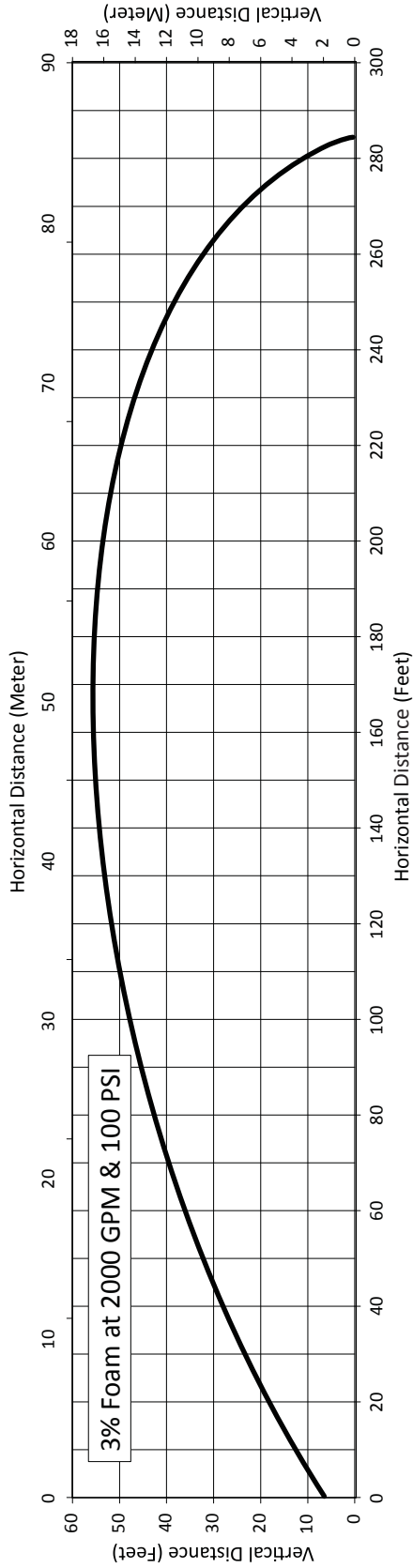
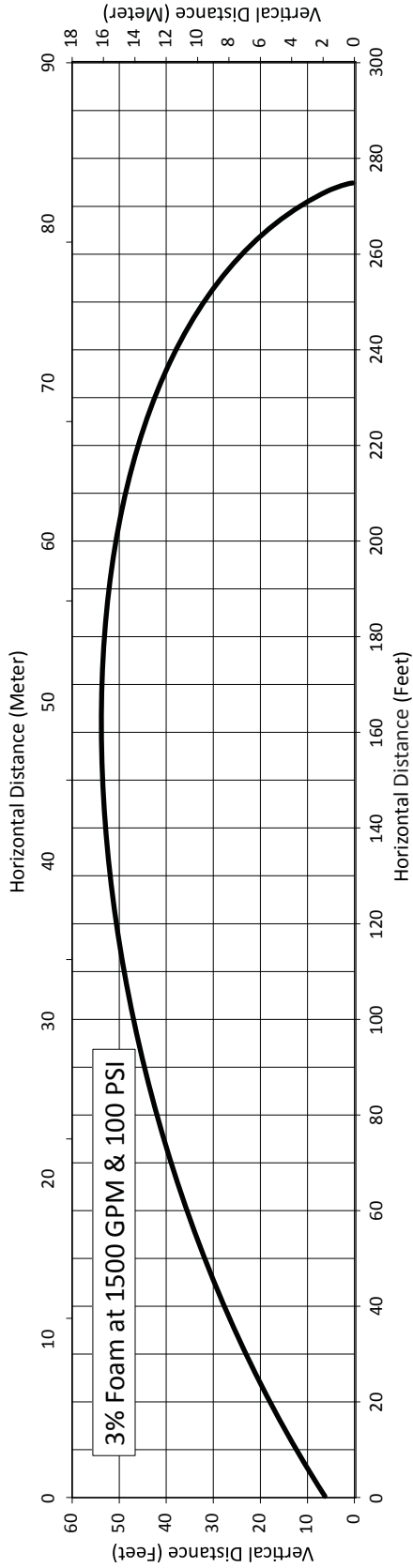
Care must be taken to avoid dents or nicks in the nozzle tip because they can seriously affect the stream reach.





- Approximate Effective Stream Trajectory At 30 Degree Elevation In No Wind Conditions. Distance To Last Foam Drop Approximately 10% Farther.
- Trajectories Shown Are For 3% Foam. Effective Reach With Water Is Approximately 10% Further
- Tail Or Head Winds Of 20 Mph May Increase Or Decrease The Range Approximately 30%.

Fig 5.0 Approximate Master Foam Stream Trajectory



- Approximate Effective Stream Trajectory At 30 Degree Elevation In No Wind Conditions. Distance To Last Foam Drop Approximately 10% Farther.
- Trajectories Shown Are For 3% Foam. Effective Reach With Water Is Approximately 10% Further
- Tail Or Head Winds Of 20 Mph May Increase Or Decrease The Range Approximately 30%.

Fig 5.0 Approximate Master Foam Stream Trajectory



## 6.0 OPERATION

### 6.1 PATTERN CONTROL

The MASTER FOAM's spray pattern is adjustable from straight stream to a 90° wide fog. On models with manual shapers turning the stream shaper clockwise (as seen from the operating position behind the nozzle -see figure 6.1A.) moves the shaper to the straight stream position. Turning the shaper counterclockwise will result in an increasingly wider pattern. Only 90° of rotation is required to go from wide fog to a straight stream. The widest pattern is useful for protection and cooling but doesn't educt foam.

RC Masterfoam nozzles actuate differently than manual versions. A drive pin controls the location of the shaper along cam grooves manipulating the stream (see Fig. 6.1B). When the drive pin is at the forward end stop the nozzle will project a straight stream. Likewise, at the back end stop the nozzle will project a wide fog pattern.

Since the stream trim point varies with flow, the stream should be "trimmed" after establishing a steady flow. To properly trim the stream, first open to a narrow fog. Then close the stream to parallel to give maximum reach. NOTE: Turning the shaper further forward will cause stream crossover and reduce the reach of the nozzle.

**⚠ WARNING** 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. Failure to restrain nozzle reaction can cause firefighter injury from loss of footing and/or stream protection.

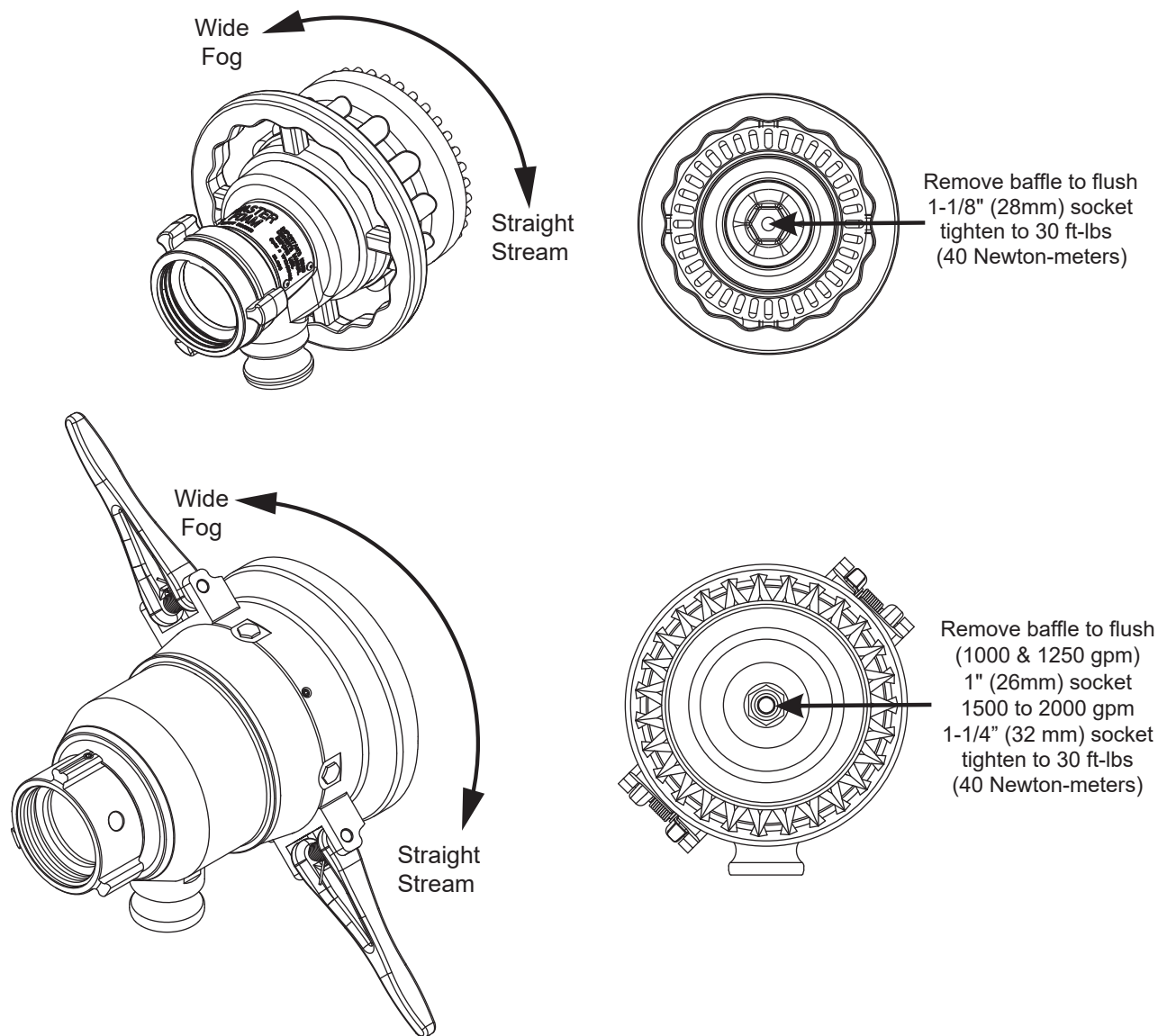


Fig 6.1A  
Pattern Control and Flushing

## 6.2 FLUSHING DEBRIS

Debris in the water may get caught inside the nozzle. This trapped material will cause poor stream quality, shortened reach and reduced flow. To remove debris trapped in the nozzle:

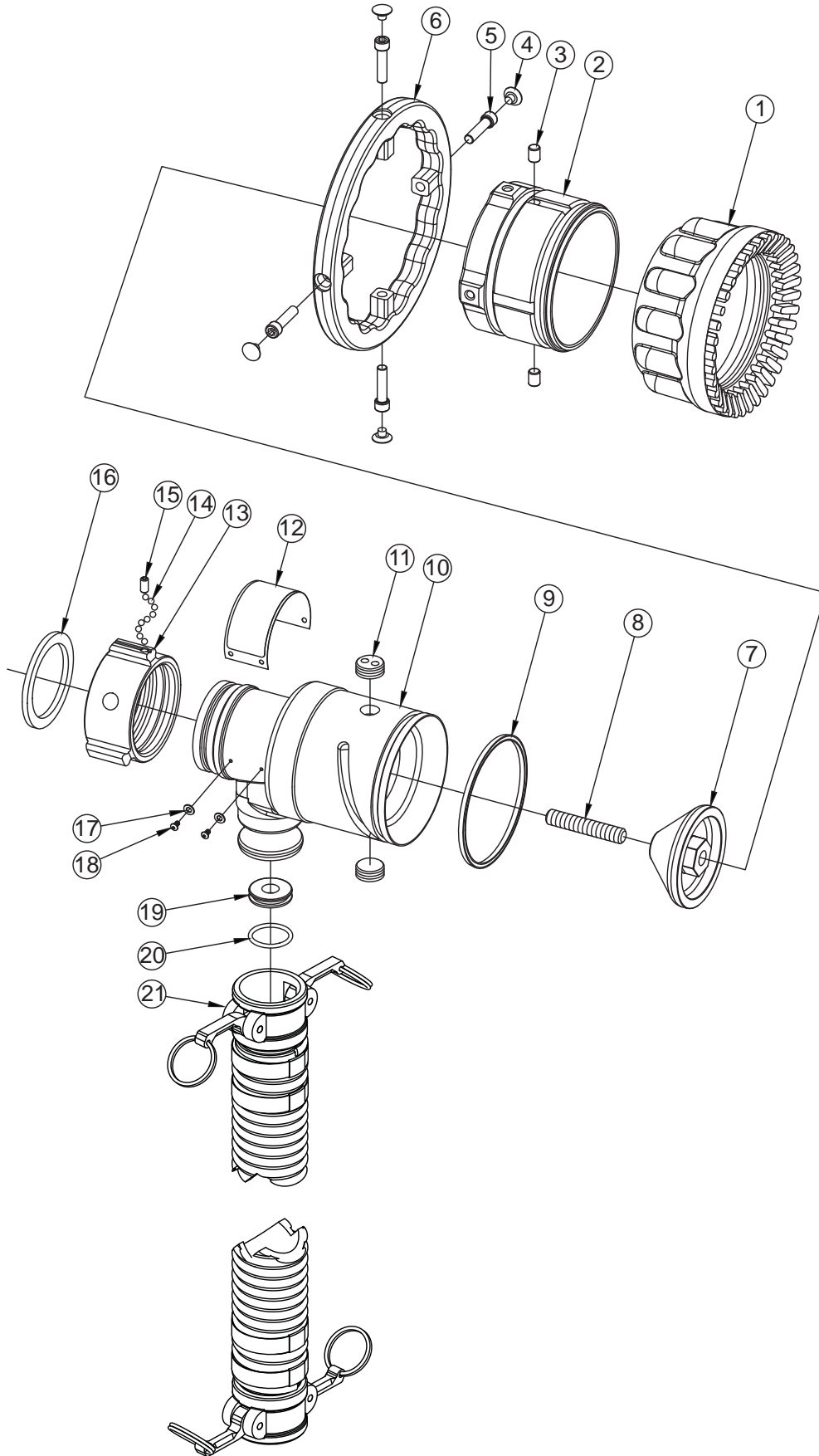
- Shut off flow to the nozzle.
- Unscrew baffle using socket specified in figure 6.1
- Remove debris. Flow water to flush if necessary.
- Reinstall baffle. Tighten to approximately 30 ft-lbs (40 Newton-Meters).

### **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.**

7.0 DRAWINGS AND PART LISTS

7.1 MASTERFOAM 250, 350, 500, 750 GPM

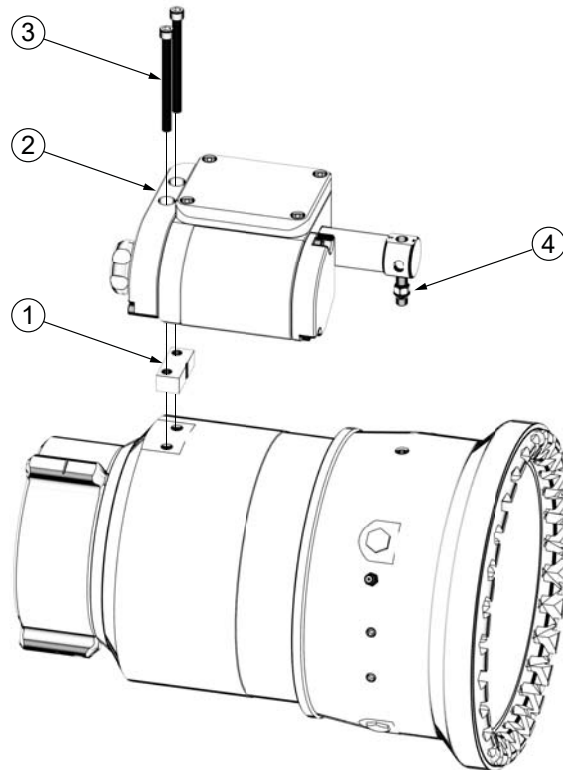


## 7.1 MASTERFOAM 250, 350, 500, 750 GPM (cont)

#	DESCRIPTION	QTY	PART #
1	MASTER BUMPER	1	M700
2	SHAPER	1	Z501
3	CAM PIN	2	Z660
4	HALO CAP	4	M231
5	5/16-18 X 1-1/4 SOCKET HEAD SCREW	4	VT31-18SH1.2
6	HALO RING	1	Z502
7	BAFFLE 250 GPM	1	Z250A
	BAFFLE 350 GPM		Z350A
	BAFFLE 500 GPM		Z500A
	BAFFLE 750 GPM		Z750A
8	1/2-13 X 2-3/4 STUD - FULL THREAD	1	VT50-13SD2.7
9	SHAPER SEAL	1	Z630
10	BODY	1	Z600A
11	HANDLE PLUG	2	U241
12	NAMEPLATE	1	ZL200-R
13	COUPLING 2.5"	1	M307**
14	3/16" SS BALL	48	V2120
15	1/4-28 X 1/2 SOCKET SET SCREW	1	VT25-28SS500
16	2.5" GASKET	1	V3190
17	WASHER	4	VW375-156-30
18	6-32 X 1/4 BUTTON HEAD SCREW	4	VT06E32BH250
19	ORIFICE PLATE .5% @350 GPM	1	Z610-350-.5*
	ORIFICE PLATE 1% @350 GPM		Z610-350-1*
	ORIFICE PLATE 3% @350 GPM		Z610-350-3*
	ORIFICE PLATE 6% @350 GPM		Z610-350-6*
20	O-RING-217	1	VO-217
21	10' HOSE WITH 2 CAMLOCKS 1.5" & 2.0" CAMLOCK X 1.5" HOSE DIA	1	Z625A
-	DUST CAP (NOT PICTURED)		Z621

\*\* - CONSULT FACTORY FOR SPECIAL THREADS

## 7.2 RC MASTERFOAM

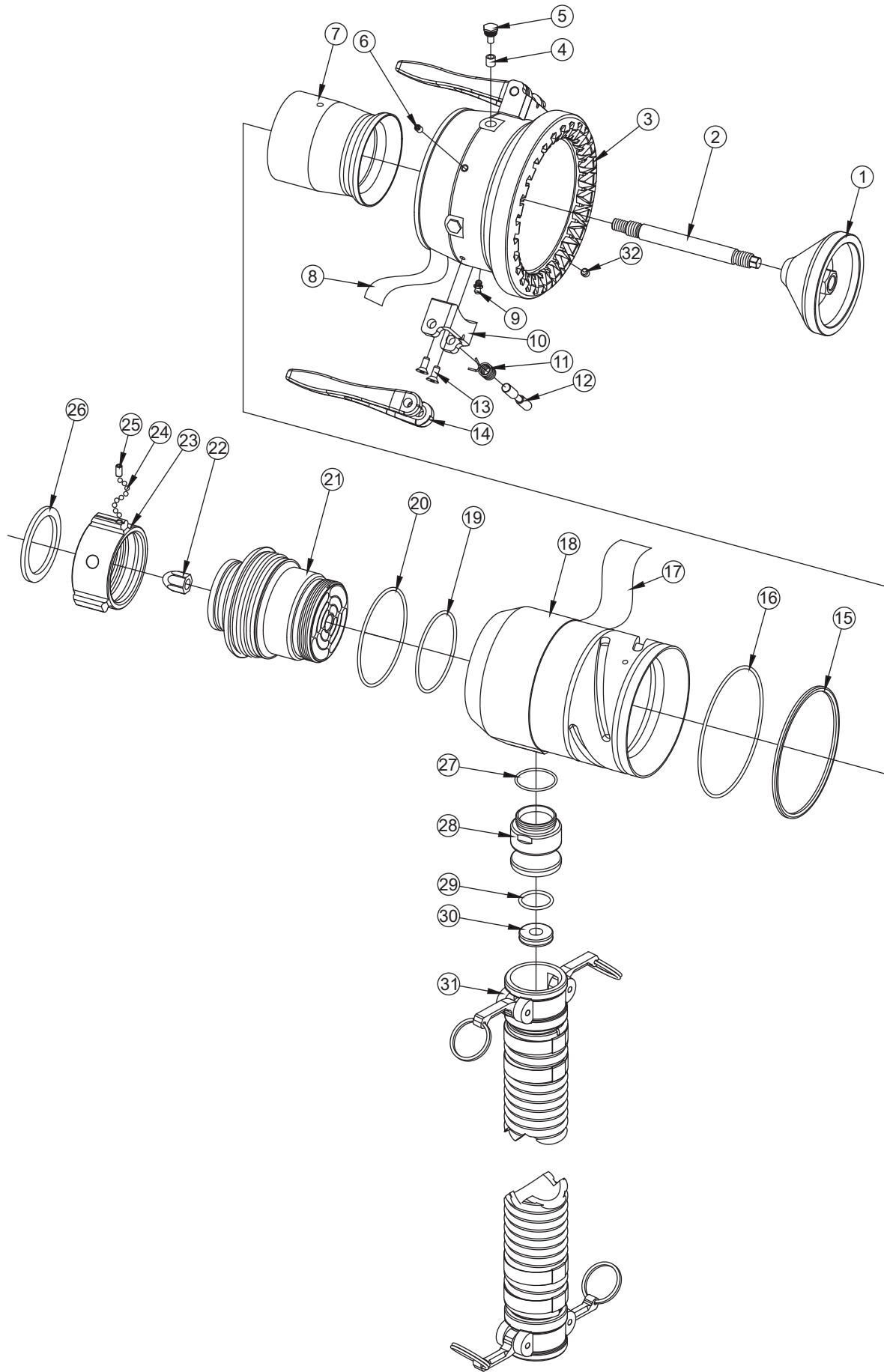


#	DESCRIPTION	QTY	PART #
1	MOTOR SPACER	1	MS059
2	ACTUATOR	1	Y6200
3	1/4-20 X 2 3/4 SOCKET HEAD CAP SCREW	2	VT25-20SH2.75
4	DRIVE PIN	1	V6119

Masterfoam: 1000, 1250, 1500, and 2000 are available with a remote control actuator. The remote control is a factory installed option only. Manual MasterFoam nozzles cannot be upgraded with remote control functionality.

The components in the exploded view above are included with all Masterfoam RC finished goods. \*Note: the drive pin in the actuator will take the place of the VT31-18SS375 set screw.

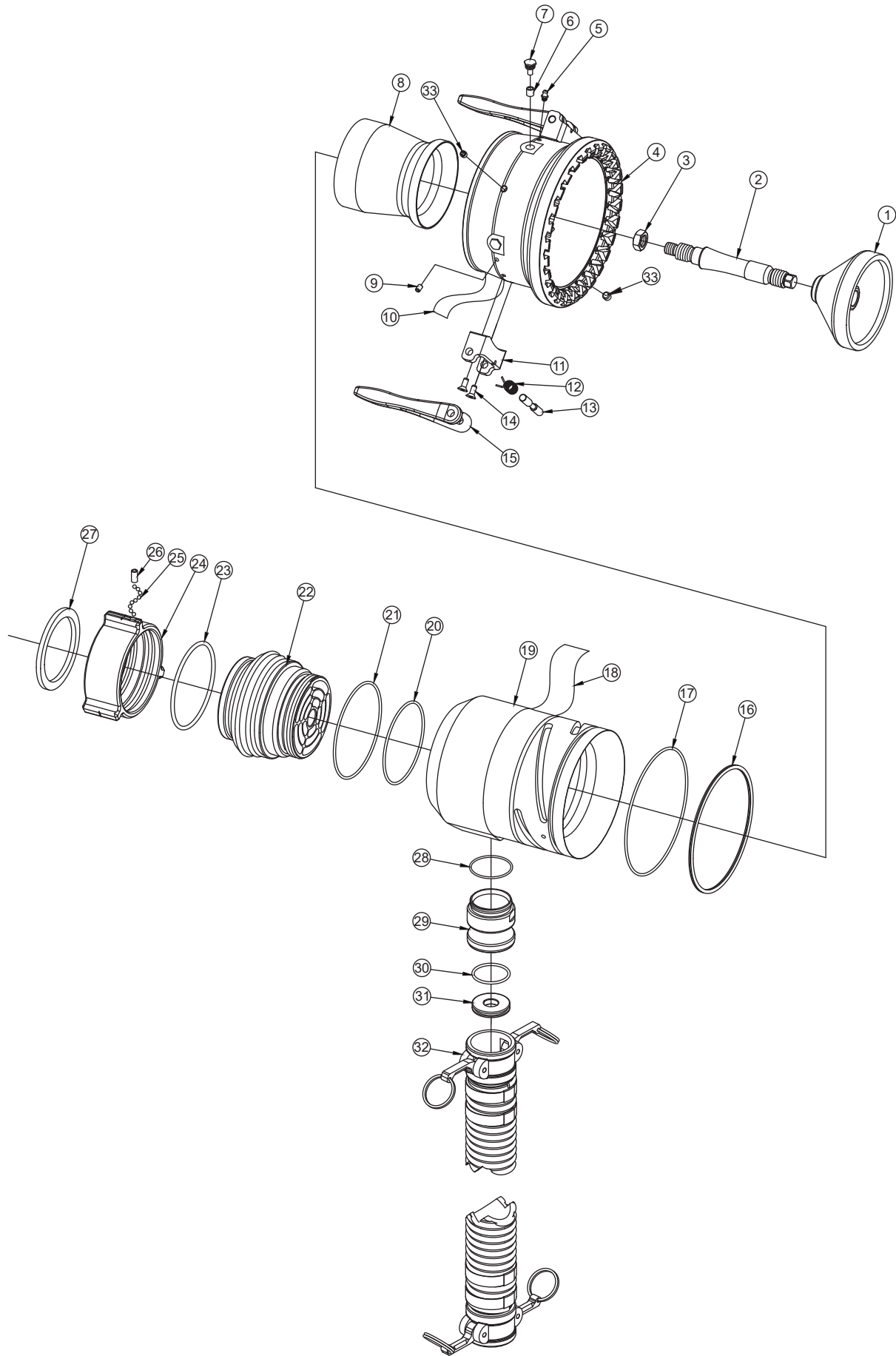
### 7.3 MASTERFOAM 1000 & 1250 GPM



#	DESCRIPTION	QTY	PART #
1	NOZZLE BAFFLE 1000	1	Z804
	NOZZLE BAFFLE 1250		Z806
2	NOZZLE SHAFT	1	Z805
3	FOAM NOZZLE SHAPER	1	Z807
4	NYLON BUSHING	4	AY307
5	CAM SCREW	4	FF126
6	1/4-28 X 3/8 SOCKET SET SCREW	2	VT25-28SS375
7	NOZZLE BARREL CONE	1	Z803
8	BARREL LABEL: MASTER FOAM	1	Z810
9	GREASE FITTING 1/4-28	1	VT25-28ZERK
10	HINGE BLOCK	2	Z801
11	HANDLE TORSION SPRING	2	A4263
12	PIVOT PIN	2	A4262
13	1/4-28 X 1/2 FLAT HEAD SCREW	4	VT25-28FH500
14	STORZ FOLDING HANDLE	2	A4261
15	QUAD-RING-355	1	VOQ-4355
16	WEAR STRIP	1	Z813
17	NAME LABEL: MASTER FOAM	1	Z811
18	FOAM NOZZLE OUTER BODY	1	Z808
	ER OUTER BODY	1	Z819
19	O-RING-236	1	VO-236
20	O-RING 2-242	1	VO-242
21	NOZZLE BASE	1	Z802
22	FOAM NOZZLE NOSE CONE	1	Z809
23	COUPLING 2.5"F	1	M307*
24	3/16" SS BALL	48	V2120
25	1/4-28 X 1/2 SOCKET SET SCREW	1	VT25-28SS500
26	2.5" GASKET	1	V3190
27	O-RING-129	1	VO-129
28	1.5" CAMLOCK CONNECTOR	1	Z800
29	O-RING-217	2	VO-217
30	ORIFICE PLATE 1% @1000 GPM	1	Z610-1000-1
	ORIFICE PLATE 1% @1250 GPM		Z610-1250-1
	ORIFICE PLATE 3% @1000 GPM		Z610-1000-3
	ORIFICE PLATE 3% @1250 GPM		Z610-1250-3
31	10' HOSE WITH 2 CAMLOCKS 1.5" & 2.0"CAMLOCK X 2.0"HOSE DIA	1	Z626
32	5/16-18 x 3/8 POCKET SET SCREW CUP POINT	1	VT31-18SS375
-	DUST CAP (NOT PICTURED)		Z621

\*\* - CONSULT FACTORY FOR SPECIAL THREADS

# 7.4 MASTERFOAM 1500 & 2000 GPM





#	DESCRIPTION	QTY	PART #
1	NOZZLE BAFFLE 1500	1	Z825
	NOZZLE BAFFLE 2000		Z826
2	NOZZLE SHAFT	1	Z827
3	5/8-18 JAM NUT	1	VT62-18NT
4	FOAM NOZZLE SHAPER	1	Z828
5	GREASE FITTING 1/4-28	1	VT25-28ZERK
6	NYLON BUSHING	4	AY307
7	CAM SCREW	4	FF126
8	NOZZLE BARREL CONE 1500	1	Z823
	NOZZLE BARREL CONE 2000	1	Z824
9	1/4-28 X 3/8 SOCKET SET SCREW	2	VT25-28SS375
10	BARREL LABEL: MASTER FOAM	1	Z830
11	HINGE BLOCK	2	Z821
12	HANDLE TORSION SPRING	2	A4263
13	PIVOT PIN	2	A4262
14	1/4-28 X 5/8 FLAT HEAD SCREW	4	VT25-28FH625
15	FOLDING HANDLE	2	A4261
16	QUAD-RING-363	1	VOQ-4363
17	WEAR STRIP	1	Z832
18	NAME LABEL: MASTER FOAM	1	Z831
19	FOAM NOZZLE OUTER BODY	1	Z829
	ER OUTER BODY	1	Z819
20	O-RING-244	1	VO-244
21	O-RING 250	1	VO-250
22	NOZZLE BASE	1	Z822
23	O-RING 348	1	VO-348
24	COUPLING 3.5" NH ROCKERLUG	1	MS687*
25	1/4" SS BALL	54	V2125
26	5/16-24 X 5/8 SOCKET SET SCREW	1	VT31-24SS625
27	3.5" GASKET	1	V3196
28	O-RING-137	1	VO-137
29	2" CAMLOCK CONNECTOR	1	Z820
30	O-RING-224	2	VO-224
31	ORIFICE PLATE 1% @1500 GPM	1	Z833-1500-1
	ORIFICE PLATE 1% @2000GPM		Z833-2000-1
	ORIFICE PLATE 3% @1500 GPM		Z833-1500-3
	ORIFICE PLATE 3% @2000 GPM		Z833-2000-3
32	10' HOSE WITH 2 CAMLOCKS 2.0"CAMLOCK X 2.0"HOSE DIA	1	Z628-R
33	5/16-18 X 3/8 SOCKET SET SCREW CUP POINT	1	VT31-18SS375
-	2" MASTER FOAM DUST CAP (NOT PICTURED)	1	Z627-R

\*\* - CONSULT FACTORY FOR SPECIAL THREADS

## 8.0 WARRANTY

Task Force Tips, Inc., 3701 Innovation Way, Valparaiso, Indiana 46383-9327 USA (“TFT”) warrants to the original purchaser of its nozzles and other equipment (“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, it 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 or countries 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 THE DOCUMENT.**

This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

## 9.0 MAINTENANCE

TFT nozzles are 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. Do not drop or throw equipment.

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.

### 9.1 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.

#### 9.1.1 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  $\pm 2$  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:

Constant Gallonage Nozzles shall flow no less than and no more than 10 percent over the rated flow at the rated pressure at each predetermined flow selection.

*NFPA 1962: Standard for the care, use, inspection, service testing, and replacement of fire hose, couplings, nozzles and fire hose appliances. (2013 ed., Section 5.3). Quincy, MA: National Fire Protection Agency.*

## 9.1.2 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 5.3). Quincy, MA: National Fire Protection Agency.*

## 9.2 REPAIR

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 wet tested, 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 [www.tft.com](http://www.tft.com) for parts lists, exploded views, test procedures and troubleshooting guides.

Performance tests shall be conducted on each 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



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

For additional information on care, maintenance and testing, refer to: NFPA 1962: Standard for the Care, Use, Inspection, Service Testing, and Replacement of Fire Hose, Couplings, Nozzles, and Fire Hose Appliances, 2013 Edition

## 10.0 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, is normally available to you 24 hours a day, 7 days a week.

## 11.0 INSPECTION CHECKLIST

### **WARNING**

The nozzle may be damaged if frozen while containing sufficient 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 from freezing, it must be hydrostatically tested by qualified personnel before being considered safe for use.

**BEFORE EACH USE**, the nozzle must be inspected for proper operation and function according to this checklist:

1. There is no damage to the nozzle that could impair safe operation (e.g. dents, cracks, corrosion, missing, broken or loose parts, damaged markings, or other defects)
2. The waterway is clear of obstructions
3. Coupling is tight and leak free
4. Gaskets are in good condition
5. Shaper moves smoothly to all positions
6. Nozzle flow is adequate as indicated by pump pressure and nozzle reaction

**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 is no damage to the nozzle that could impair safe operation (e.g. dents, cracks, corrosion, missing, broken or loose parts, damaged markings, 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

*NFPA 1962: Standard for the care, use, inspection, service testing, and replacement of fire hose, couplings, nozzles and fire hose appliances. (2013 ed., Section 5.3). Quincy, MA: National Fire Protection Agency.*

### **WARNING**

Any 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.