



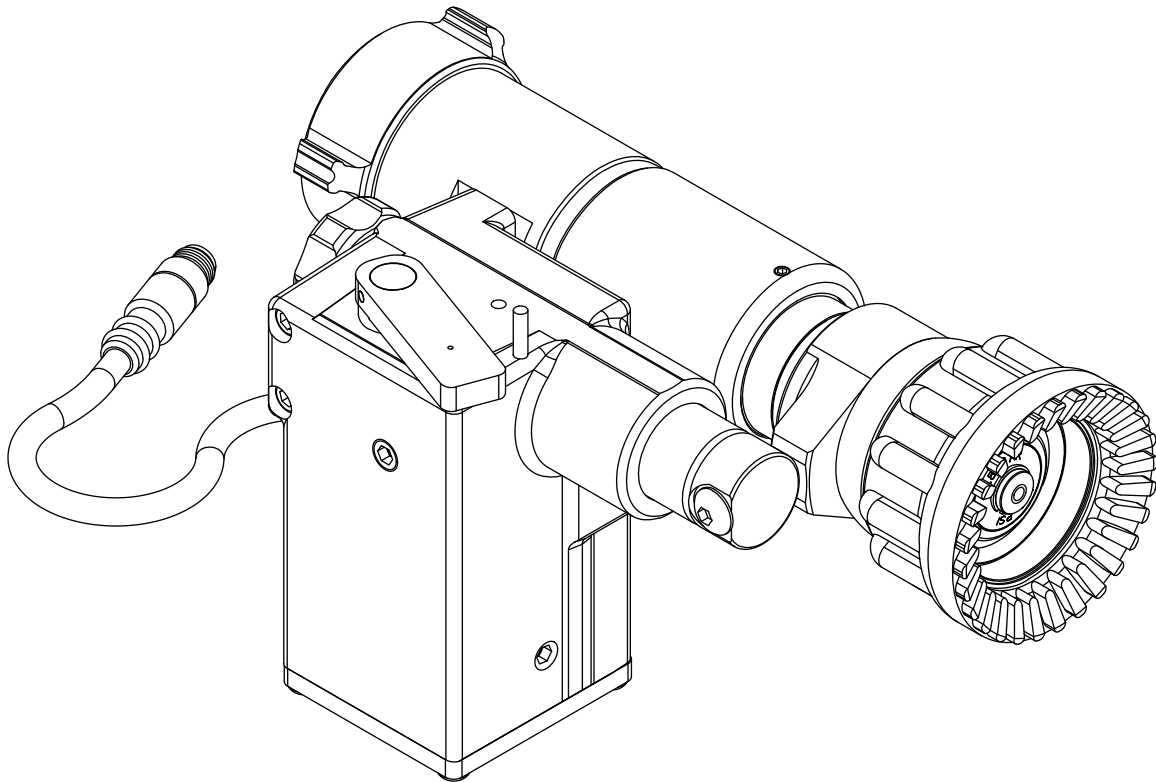
MANUAL: *Ultimatic ER Monitor Nozzles*

INSTRUCTIONS FOR INSTALLATION, SAFE OPERATION AND MAINTENANCE

⚠ WARNING

Read instruction manual before use. Operation of this device without understanding the manual and receiving proper training is a misuse of this equipment. A person who has not read and understood all operating and safety instructions is not qualified to operate the Ultimatic ER Nozzle. Call 800-348-2686 with any questions.

This instruction manual is intended to familiarize firefighters and maintenance personnel with the operation, servicing and safety procedures associated with the nozzle. This manual should be kept available to all operating and maintenance personnel.



TASK FORCE TIPS, INC.
MADE IN USA • www.tft.com

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



PERSONAL RESPONSIBILITY CODE

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 GENERAL INFORMATION

The Task Force Tips Ultimatic ER nozzles are designed to provide excellent performance under most firefighting conditions. Their rugged construction is compatible with the use of fresh water (see section 2.5 for saltwater use). Other important operating features are:

- Quick-acting pattern control from straight stream to wide fog
- “Power fog teeth” for full-fill fog
- Easily flushable while flowing to clear trapped debris
- TFT’s five-year warranty and unsurpassed customer service


 **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. 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** 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 water¹

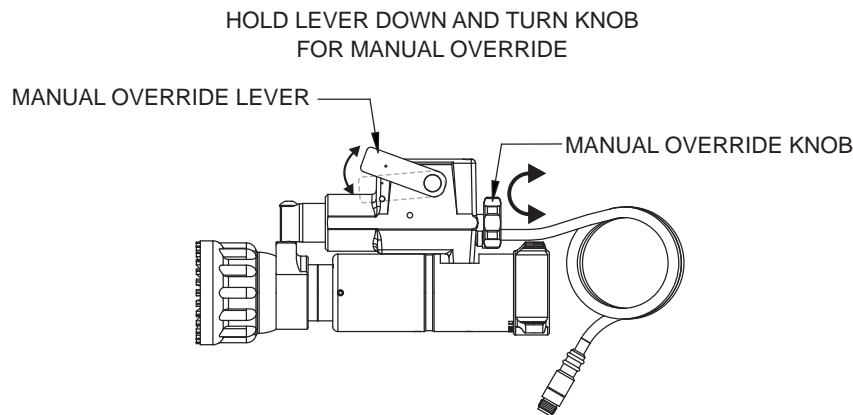
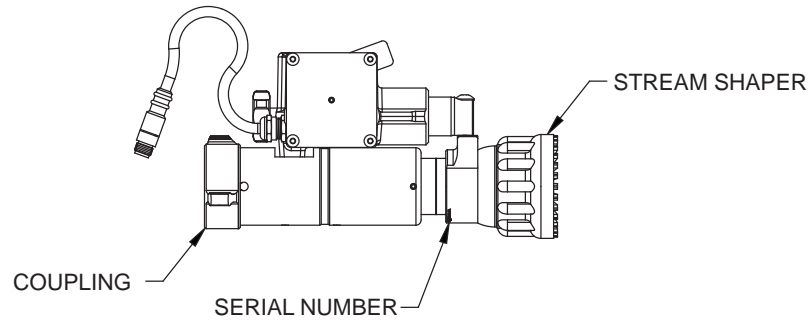
¹ The Fire Fighter and Electrical Equipment, The University of Michigan Extension Service, Fourth Printing 1983. Page 47.

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

2.1 MODELS AND TERMS

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

Ultimatic® ER Series: Fog and straight stream monitor nozzles with constant pressure/variable flow control. There are four different pressure ranges. Electrically operated pattern control (with manual over-ride) adjusts from straight stream to 120° wide fog. The nozzle can flush large debris without shutting down.



B-TO-ERP WITH 6-PIN PLUG FOR TFT MONITORS

Figure 2.1
Models and Terms

2.2 MECHANICAL SPECIFICATIONS

Weight	6.4 lbs	2.9 kg
Hydrostatic burst pressure minimum	1200 psi	83 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
Actuation Force	173 lbs	78.5 kg
Speed Stream-Fog	3.4 sec.	3.4 sec.
Materials used	Aluminum 6000 series hard anodized MIL8625 class 3 type 2, stainless steel 300 series, nylon 6-6, nitrile rubber	

2.3 ELECTRICAL SPECIFICATIONS

Nominal operating voltage:	12 or 24 VDC (auto sense)			
Motor current:	Nominal*		Limit	
	@ 12 VDC	@24 VDC	@ 12 VDC	@24 VDC
Nozzle motor:	1 amp	0.5 amps	5 amps	2.5 amps
	*with rated water pressure applied			
Recommended fuse or circuit breaker size:	Refer to TFT Literature LIM-040			
Operating temperature range:	-30F to +120F (-34C to +49C)			
Environmental Rating:	All components designed to meet minimum rating of NEMA 4 (IP65).			

2.4 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.



Nozzle must be properly connected. Mismatched or damaged threads may cause nozzle to leak or uncouple under pressure and could cause injury.



Do not couple aluminum to brass. Dissimilar metals coupled together can cause galvanic corrosion that can result in inability to unscrew threads or complete loss of thread engagement.

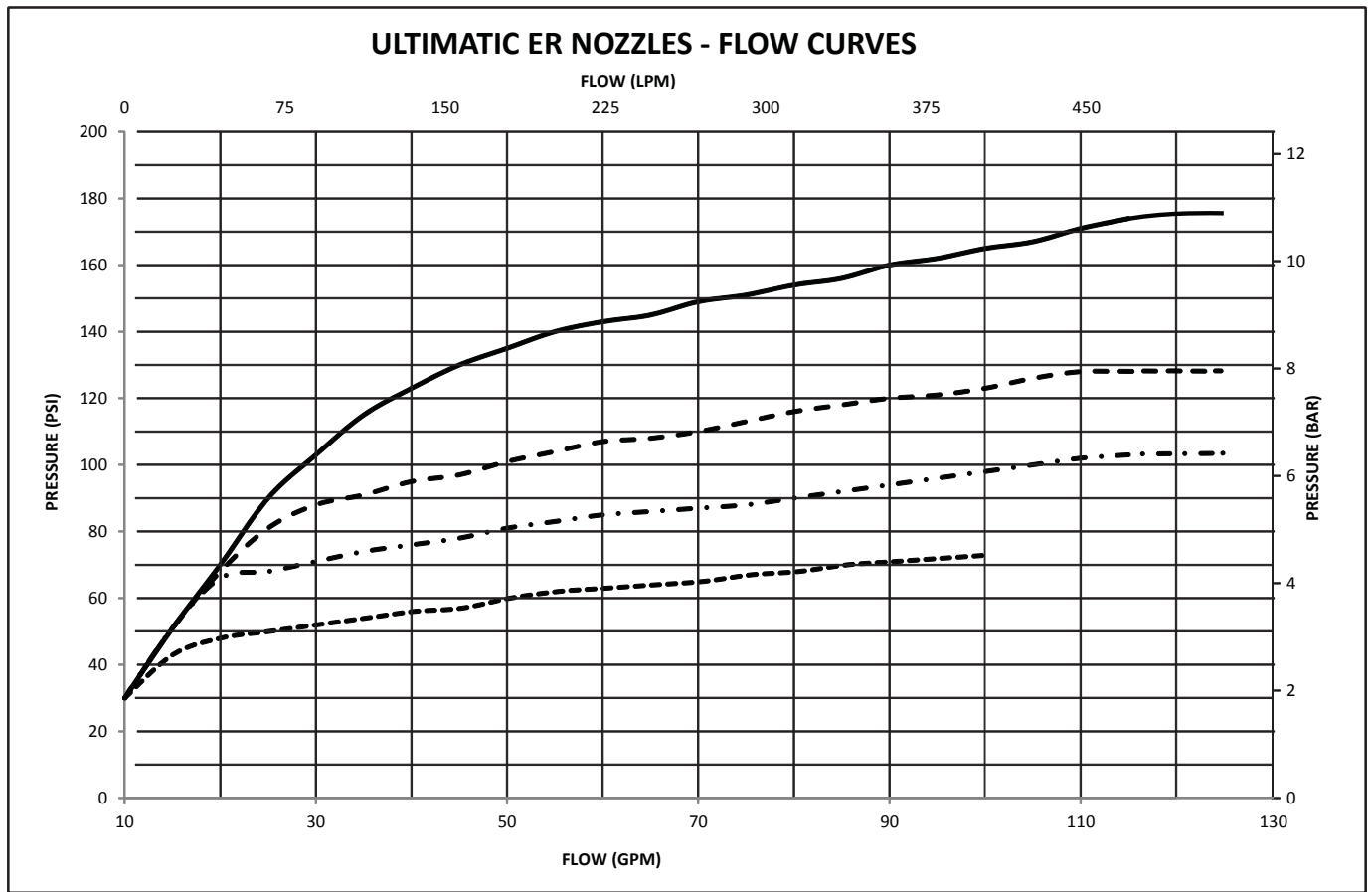
2.5 USE WITH SALT WATER

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.

3.0 FLOW CHARACTERISTICS

Each Ultimatic ER nozzle has a pressure rating on the face of the baffle which can be seen by looking at the front end of the nozzle. Make sure that the pump system that is being used is capable of the flows and pressures of the selected Ultimatic ER Model.

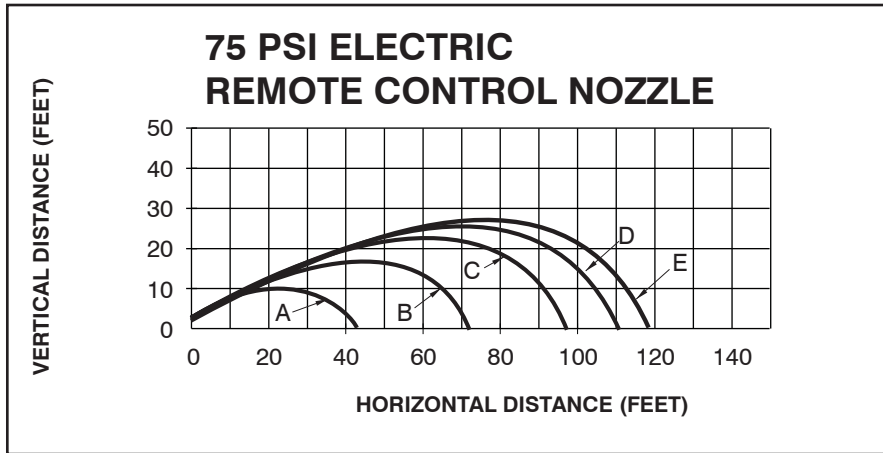
Automatic nozzles operate by sensing the pressure at the nozzle's inlet and adjusting the discharge opening to maintain a constant pressure throughout the flow range of the nozzle. For example, when the pressure at the inlet increases, the exit area is automatically increased until the inlet pressure returns to the nominal pressure of the nozzle.



- B-TO-ERP-150: 10-125 gpm @ 150 psi (40-500 l/min @ 10 bar)
- - B-TO-ERP-120: 10-125 gpm @ 120 psi (40-500 l/min @ 8 bar)
- . - B-TO-ERP: 10-125 gpm @ 100 psi (40-500 l/min @ 7 bar)
- - - BL-TO-ERP: 10-100 gpm @ 75 psi (40-400 l/min @ 5 bar)

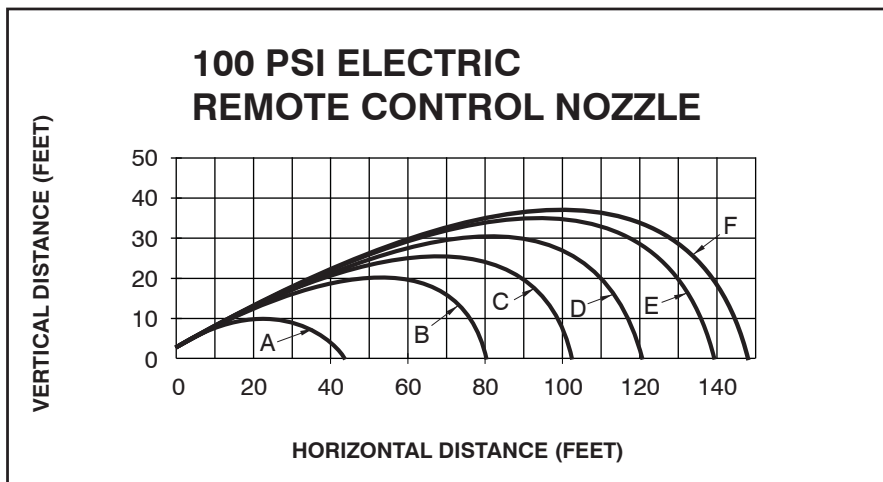
Fig 3.0

3.1 TRAJECTORY CHARTS



CURVE	GPM FLOW	PSI INLET PRESSURE	LBS REACTION
A	10	26	3
B	25	46	9
C	50	59	19
D	75	69	31
E	100	80	45

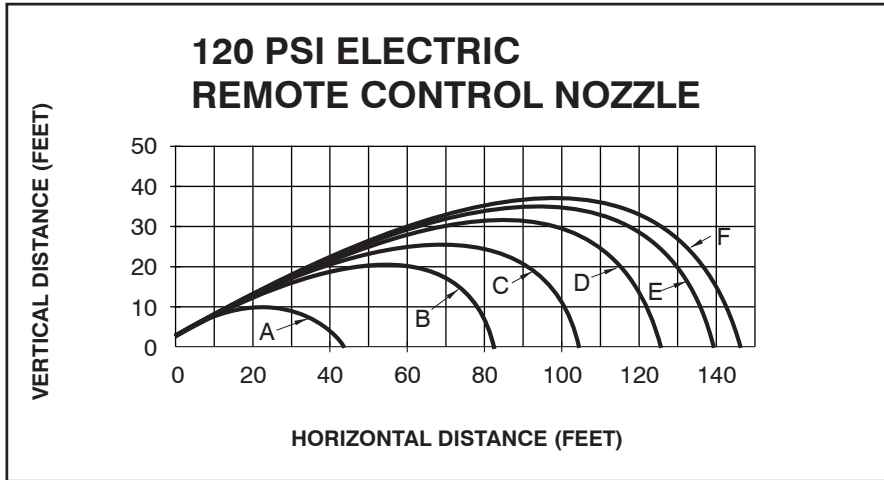
CURVE	LPM FLOW	KG/CM ² INLET PRESSURE	KGF REACTION
A	38	1.8	1.4
B	95	3.2	4.0
C	190	4.1	8.6
D	284	4.8	14
E	379	5.6	20



CURVE	GPM FLOW	PSI INLET PRESSURE	LBS REACTION
A	10	26	3
B	25	69	10
C	50	84	23
D	75	91	36
E	100	110	53
F	125	122	70

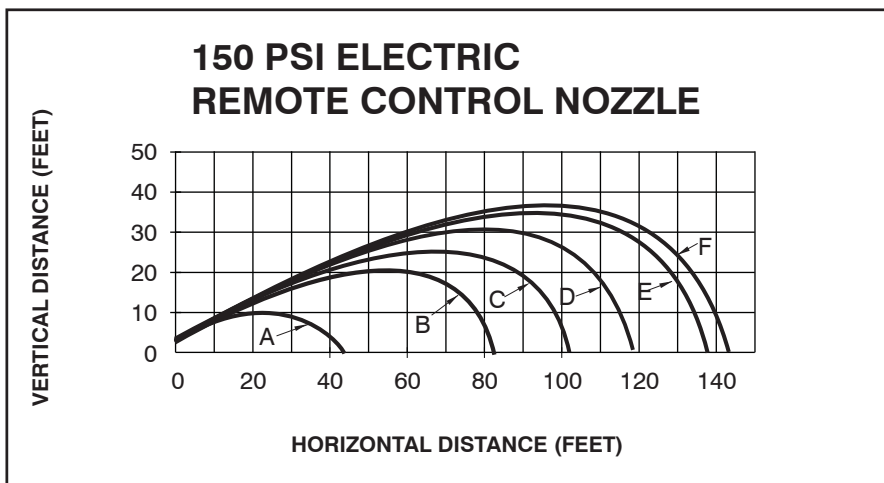
CURVE	LPM FLOW	KG/CM ² INLET PRESSURE	KGF REACTION
A	38	1.8	1.4
B	95	4.8	4.5
C	190	4.1	10.4
D	284	6.4	16.3
E	379	7.7	24.0
E	473	8.6	31.8

These trajectories, reach and reaction numbers are provided for reference. All data based on 30 degree nozzle discharge angle, in straight stream setting. Actual trajectories, reach and reactions may vary with wind conditions, fluid type, fluid/water ratio, fluid temperature, pressure and flow at the nozzle. It is the operator's responsibility to determine that the system provides adequate reach for the intended purpose.



CURVE	GPM FLOW	PSI INLET PRESSURE	LBS REACTION
A	10	27	3
B	25	83	12
C	50	102	27
D	75	113	42
E	100	123	59
F	125	128	75

CURVE	LPM FLOW	KG/CM ² INLET PRESSURE	KG F REACTION
A	38	1.9	1.4
B	95	5.8	5.4
C	190	7.2	12.2
D	284	7.9	19.0
E	379	8.6	26.8
F	473	9.0	34.0



CURVE	GPM FLOW	PSI INLET PRESSURE	LBS REACTION
A	10	27	3
B	25	90	13
C	50	135	31
D	75	151	49
E	100	165	68
F	125	175	87

CURVE	LPM FLOW	KG/CM ² INLET PRESSURE	KG F REACTION
A	38	1.9	1.4
B	95	6.3	5.9
C	190	9.5	14.0
D	284	10.6	22.2
E	379	11.6	30.9
F	473	12.3	39.5

These trajectories, reach and reaction numbers are provided for reference. All data based on 30 degree nozzle discharge angle, in straight stream setting. Actual trajectories, reach and reactions may vary with wind conditions, fluid type, fluid/water ratio, fluid temperature, pressure and flow at the nozzle. It is the operator's responsibility to determine that the system provides adequate reach for the intended purpose.

4.0 PATTERN & FLUSH CONTROL

4.1 PATTERN CONTROL

TFT's nozzles have full pattern control from straight stream to wide fog. The pattern can be adjusted using the linear actuator either by electronic control or by depressing the MANUAL OVERRIDE LEVER and twisting the KNOB in either direction. The STREAM SHAPER moving forward transitions the STREAM SHAPER to the straight stream position. The STREAM SHAPER moving rearward results in an increasingly wider stream 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 a stream, first open the pattern to a narrow fog. Then close the stream to parallel to give maximum reach.

Note: Moving the shaper further forward will cause stream crossover and reduce the effective reach of the nozzle.

4.2 FLUSH CONTROL

Debris may become trapped in the nozzle causing poor stream quality, shortened reach and reduced flow. To remove trapped debris the nozzle can be flushed as follows: while still flowing water, move the STREAM SHAPER rearward past the full fog position until it stops traveling.* This opens the nozzle allowing debris to pass through. Move the SHAPER forward and out of the flush position to continue normal operation. During flush, the nozzle reaction decreases as the pattern becomes wider and the pressure drops. The nozzle reaction increases when returning the nozzle from the flush position.

***When used with a TFT RC Monitor equipped with Smart Stream technology, the Fog button must be pressed and held a second time to reach the Flush position, after having reached Full Fog. The purpose of the Smart Stream feature is to prevent unintentional flushing of the nozzle, which will reduce reach and increase the flow rate, potentially depleting the water supply more quickly.**

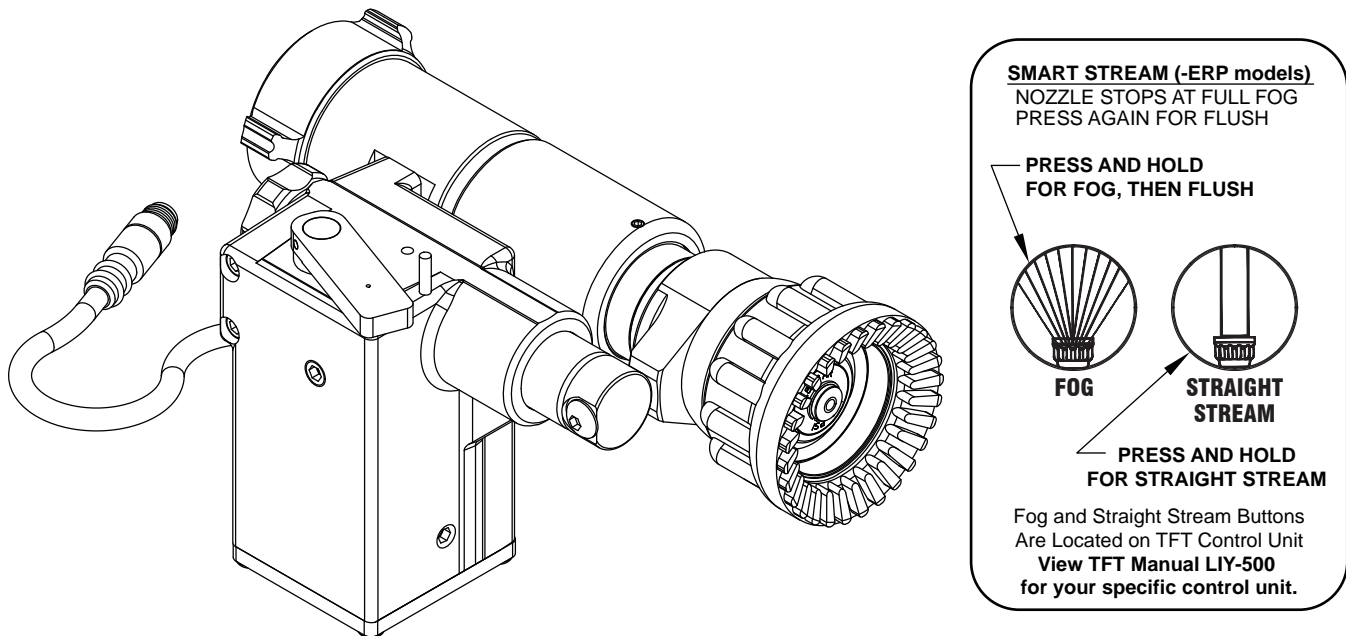


Figure 4.2.2

5.0 FIRE GROUND USE

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 may be calculated using a hydraulic equation such as:

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

$$PDP = NP + FL + DL + EL$$

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

6.0 FIELD INSPECTION

TFT's Ultimatic ER Nozzles are designed and manufactured to be damage resistant and require minimal maintenance. However, as the primary fire fighting tools upon which your life depends, they should be treated accordingly.

WARNING

Nozzle must be inspected for proper operation and function according to inspection checklist before each use. Any nozzle that fails inspection is dangerous to use and must be repaired before using. The electric actuator which drives the stream shaper is not user serviceable. Do not attempt repairs to this component.

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.

CAUTION

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

All 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.

7.0 REPAIRS

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.

Task Force Tips assumes no liability for damage to equipment or injury to personnel that is a result of user service.

Repair kits and repair parts are stocked for immediate shipment. Contact the factory or visit the website at www.tft.com for any parts lists, exploded views, test procedures and troubleshooting guides that may be available.

8.0 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.

9.0 INSPECTION CHECKLIST

Nozzle must be inspected for proper operation and function according to this checklist before each use.

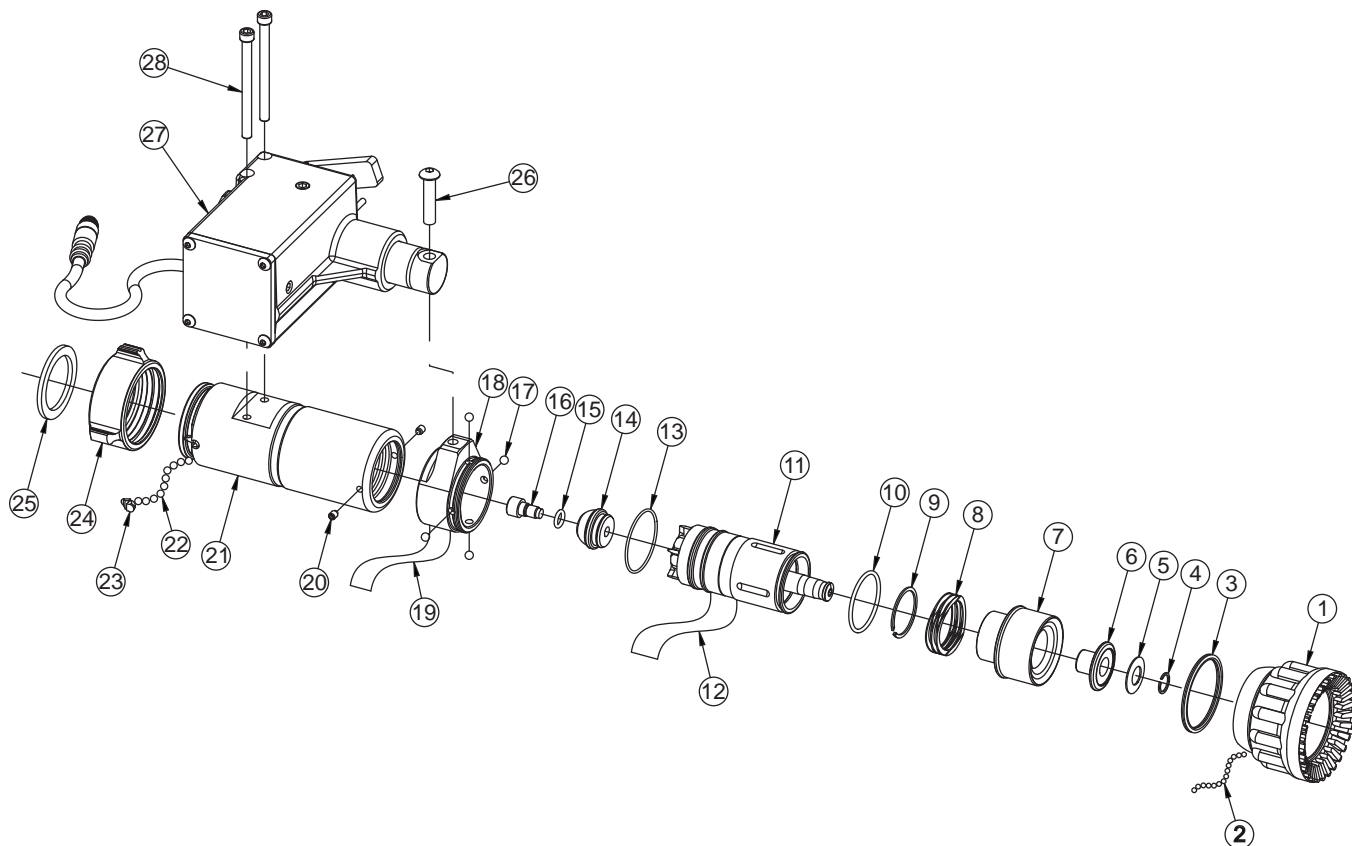
Check that:

- 1) There is no obvious damage such as missing, broken or loose parts, damaged labels, frayed or cracked wiring, etc.
- 2) Coupling is tight and leak free.
- 3) Nozzle flow is adequate as indicated by pump pressure and nozzle reach.
- 4) Shaper moves freely and adjusts pattern through full range by electric and manual control.
- 5) Shaper moves into full flush and out of full flush with normal flow and pressure restored by electric and manual control.
- 6) Electric remote actuator mountings are tight.
- 7) Manual override controls operate freely and through full range of motion.

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.

10.0 DRAWING AND PARTS LIST



INDEX	DESCRIPTION	QTY.	PART NUMBER
1	SHAPER WITH BUMPER	1	B500
2	1/8" NYLON BALL	46	V2135
3	QUAD-RING-225	1	VOQ-4225
4	SMALLEY RING	1	V4280
5	SPRING WASHER - 75 PSI	1	B567
	SPRING WASHER - 100 PSI	1	B565
	SPRING WASHER - 120 PSI	1	B563
	SPRING WASHER - 150 PSI	1	B566
6	BAFFLE	1	B560
7	BARREL CONE	1	B525
8	FLUSH WAVE SPRING	1	B785
9	SMALLEY RING	1	V4270
10	O-RING-128	1	VO-128
11	BARREL SUB ASS 75 PSI	1	B820-ER-75
	BARREL SUB ASS 100 PSI	1	B820-ER-100
	BARREL SUB ASS 120 PSI	1	B820-ER-120
	BARREL SUB ASS 150 PSI	1	B820-ER-150
12	BARREL LABEL - BLUE	1	B740
	BARREL LABEL - RED	1	B740-RED

INDEX	DESCRIPTION	QTY.	PART NUMBER
13	O-RING-030	1	VO-030
14	VALVE PLUG	1	B590
15	O-RING-109	1	VO-109
16	I/O SCREW	1	B595
17	7/32" TORLON BALL	4	V2130-TORLON
18	ER SHAPER GUIDE	1	B514
19	NAME LABEL - BLUE - 75 PSI	1	B745F
	NAME LABEL - RED - 100 PSI	1	B745
	NAME LABEL - BLUE - 120 PSI	1	B745-120
	NAME LABEL - BLUE - 150 PSI	1	B745-150
20	10-32 X 1/4 SET SCREW	2	VT10Y32SS250
21	BASE ER SWIVEL	1	B663
22	3/16" SS BALL	34	V2120
23	PORT PLUG	1	B770
24	COUPLING 1.5"NH ROCKER LUG	1	F10097N
25	GASKET - 1.5" HOSE COUPLING	1	V3130
26	5/16-18 X 1-7/16 BUTTON HEAD SCREW	1	V31-18BH1.4
27	ACTUATOR W/PLUG ULTIMATIC 12-24VDC	1	B945
28	1/4-20 X 3 SOCKET HEAD SCREW	2	VT25-20SH3.0

NOTICE

For Installations on Non-TFT RC Monitors

If this nozzle is being installed on a non-TFT monitor, it will be necessary to purchase and install part #Y5475 Female Plug. This female plug includes a 6-wire cable that is 28" long.

- 1) Cut the green, red/yellow, red/black and red/blue wires from the loose end of the cable.
- 2) Connect the red and red/white wires to customer control system.
- 3) Test nozzle motor direction. If direction is opposite of desired function, reverse red and red/white wires.
- 4) Do not make any modifications inside TFT actuator housing. This will void warranty.

11.0 WARRANTY

Task Force Tips, Inc., 3701 Innovation Way, Valparaiso, IN 46383-9327 USA ("TFT") warrants to the original purchaser of its nozzles, 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, IN 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 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.