TWISTER® BARREL NOZZLES

INSTRUCTIONS FOR 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.

DESIGNED TO MEET REQUIREMENTS OF USFS 5100-239

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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 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). Contact the factory for data specific to models that operate with metric flow calibrations. Task Force Tips Twister nozzles are economical, lightweight, and dependable. Their rugged construction is compatible with the use of fresh water as well as firefighting foam solutions. The Twister Barrel Nozzle is designed to meet the requirements of USFS 5100-239.

3.1 SPECIFICATIONS

Maximum Nozzle Inlet Pressure	300 psi	20 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 3.1

3.2 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.

3.3 NOZZLE COUPLINGS

The Twister Barrel nozzle comes standard with 1.0” NPSH threads. Consult the factory for availability of NH (National Hose) or other thread types.

⚠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 1930, 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.**

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 (www.tft.com) for range and trajectory data.

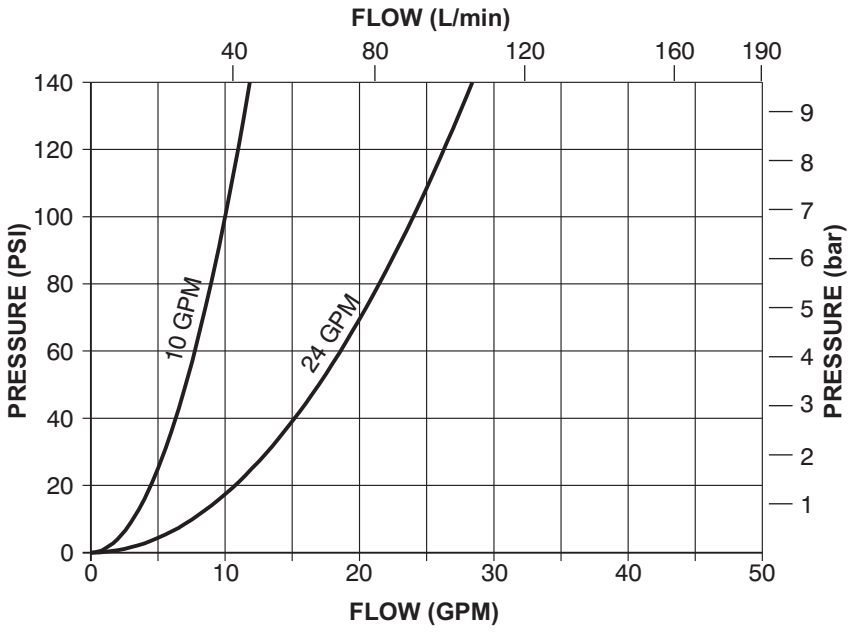

Figure 4.0

5.0 FLOW CHARTS

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.

5.1 STANDARD

3/4" HOSE

FLOW SETTING		100 ft.		200 ft.		300 ft.	
		10	24	10	24	10	24
PUMP PRESSURE (psi)	50	7	13	6	11	6	10
	100	9	19	9	16	9	14
	150	12	23	11	20	11	17
	200	13	27	13	23	12	20
	250	15	30	14	25	14	22
	300	16	33	16	28	15	24
	350	18	35	17	30	16	26
	400	19	38	18	32	17	28
	450	20	40	19	34	18	30
	500	21	42	20	36	19	32
	550	22	44	21	37	20	33
	600	23	46	22	39	21	35

1" HOSE

FLOW SETTING		100 ft.		200 ft.		300 ft.	
		10	24	10	24	10	24
PUMP PRESSURE (psi)	50	7	16	7	16	7	15
	100	10	23	10	22	10	21
	150	12	28	12	27	12	26
	200	14	33	14	31	14	30
	250	16	36	16	35	15	34
	300	17	40	17	38	17	37
	350	19	43	18	41	18	40
	400	20	46	20	44	20	43
	450	21	49	21	47	21	45
	500	22	51	22	50	22	48
	550	23	54	23	52	23	50
	600	24	56	24	54	24	52

Table 5.1

- Number in each box is flow in gallons per minute.
- Actual flows may vary with brand and condition of hose.
- Flows are approximate and do not account for losses in preconnected piping or changes in elevation.

5.2 METRIC

19 mm HOSE

FLOW SETTING		30 Meters		60 Meters		90 Meters	
		10	24	10	24	10	24
PUMP PRESSURE (bar)	3.5	25	50	25	40	25	40
	7	35	70	35	60	35	55
	10	45	85	40	75	40	65
	14	50	100	50	85	45	75
	17	55	115	55	95	55	85
	21	60	125	60	105	55	90
	24	70	130	65	115	60	100
	28	70	145	70	120	65	105
	31	75	150	70	130	70	115
	34	80	160	75	135	70	120
	38	85	165	80	140	75	125
	41	85	175	85	150	80	130

25 mm HOSE

FLOW SETTING		30 Meters		60 Meters		90 Meters	
		10	24	10	24	10	24
PUMP PRESSURE (bar)	3.5	25	60	25	60	25	55
	7	40	85	40	85	40	80
	10	45	105	45	100	45	100
	14	55	125	55	115	55	115
	17	60	135	60	130	55	130
	21	65	150	65	145	65	140
	24	70	165	70	155	70	150
	28	75	175	75	165	75	165
	31	80	185	80	180	80	170
	34	85	195	85	190	85	180
	38	85	205	85	195	85	190
	41	90	210	90	205	90	190

Table 5.2

- Number in each box is flow in liters per minute.
- Actual flows may vary with brand and condition of hose.
- Flows are approximate and do not account for losses in preconnected piping or changes in elevation.
- 1 bar = 100 kPa

6.0 NOZZLE CONTROLS

6.1 FLOW CONTROL

Twister nozzles have a twist shut off valve contained within the nozzle. Turn the nozzle shaper to the end of travel in the clockwise direction to shut off.

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.**

6.2 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, and eventually to OFF. Turning the shaper counterclockwise will result in an increasingly wider pattern as well as the nozzle's higher flow setting.

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.**

⚠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 WARRANTY

Go to tft.com for all warranty information.

8.0 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.

8.1 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.**

8.2 SERVICE TESTING

In accordance with NFPA 1930, 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.

8.3 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.**

9.0 EXPLODED VIEWS AND PARTS LISTS

Exploded views and parts lists are available at tft.com/serial-number.

10.0 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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