



VALVE INTEGRAL TIP (VIT) NOZZLE MANUAL

INSTRUCTIONS FOR INSTALLATION, SAFE OPERATION AND MAINTENANCE

⚠ WARNING

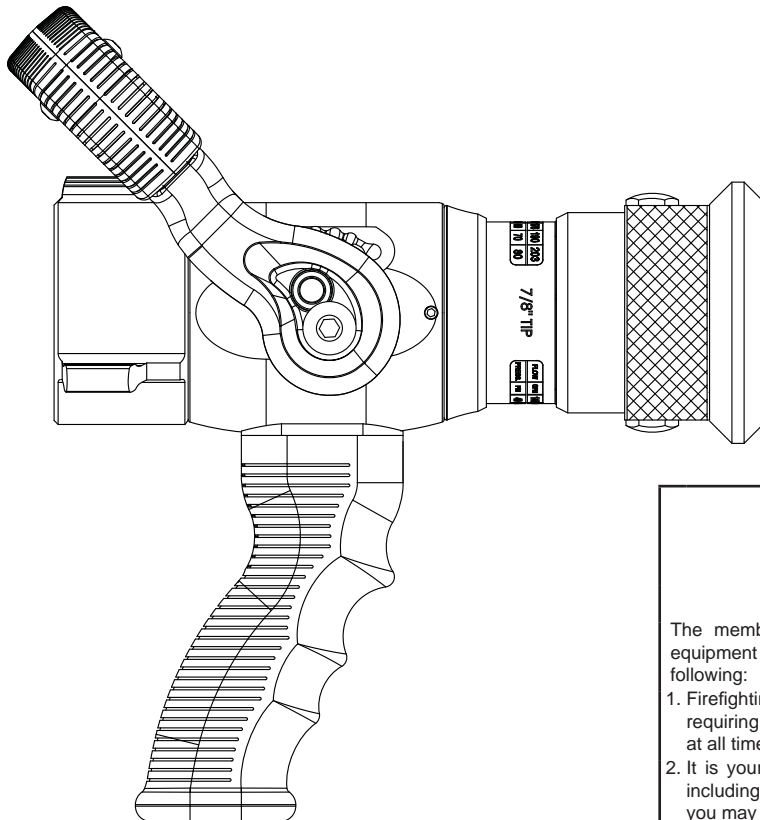
Read instruction manual before use. Operation of this nozzle without understanding the manual and receiving proper training can be dangerous and is a misuse of this equipment. Call 800-348-2686 with any questions.

⚠ WARNING

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

⚠ WARNING

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



⚠ DANGER

PERSONAL RESPONSIBILITY CODE

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

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



Fire and Emergency Manufacturers and Service Association
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TASK FORCE TIPS, INC.
MADE IN USA • www.tft.com





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Table Of Contents

1.0	MEANING OF SIGNAL WORDS	4.0	FIRE GROUND USE OF VIT NOZZLES
2.0	GENERAL INFORMATION	5.0	FIELD INSPECTION
2.1	VARIOUS MODELS AND TERMS	6.0	INSPECTION CHECKLIST
2.2	NOZZLE COUPLING	7.0	ANSWERS TO YOUR QUESTIONS
2.3	COLOR CODED HANDLES	8.0	EXPLODED VIEW & PARTS LIST
3.0	FLOW CHARACTERISTICS and CHARTS	9.0	WARRANTY

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 VIT nozzles are designed to provide excellent performance under most fire fighting conditions. Their rugged construction is compatible with the use of fresh water as well as fire fighting foam solutions. Other important operating features include:

- Changeable front end smooth bore tip
- Stream straightener removable through back coupling
- Retracting thread protector
- TFT's five-year warranty and unsurpassed customer service

	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 Nozzle reaction will vary as supply conditions change: such as opening or closing other nozzles, hose line kinks, changes in pump settings, etc. Changes in spray pattern or flushing will also affect nozzle reaction. The nozzle operator must always be prepared in the event of those changes. Failure to restrain nozzle reaction can cause firefighter injury from loss of footing and/or stream protection.
	WARNING If nozzle gets out of control or away from the operator, retreat from nozzle immediately. Do not attempt to regain control of nozzle while flowing water. Injury from whipping can occur.
	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; Weather the stream is solid or broken; Purity of the water. ¹
	CAUTION Fire streams are capable of injury and damage. Do not direct water stream to cause injury or damage to persons or property.

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

2.1 VARIOUS MODELS AND TERMS

The TFT VIT nozzle is available with several different tip sizes. The VIT nozzle can be ordered with either 1.5" or 2.5" inlet coupling, and with or without a pistol grip.

HVIT <input type="checkbox"/>		SMOOTHBORE OUTLET DIAMETER					
Without Pistol Grip		7/8"	15/16"	1.0"	1-1/8"	1-1/4"	1 - 3/8"
Thread Inlet Diameter	1.5" NH	11	12	13	14	15	16
	2.5" NH	21	22	23	24	25	26

HVIT <input type="checkbox"/>		SMOOTHBORE OUTLET DIAMETER					
With Pistol Grip		7/8"	15/16"	1.0"	1-1/8"	1-1/4"	1 - 3/8"
Thread Inlet Diameter	1.5" NH	G11	G12	G13	G14	G15	G16
	2.5" NH	G21	G22	G23	G24	G25	G26

For example, Model HVITG12 is 1.5" NH female thread inlet, pistol grip, 15/16" diameter outlet nozzle.

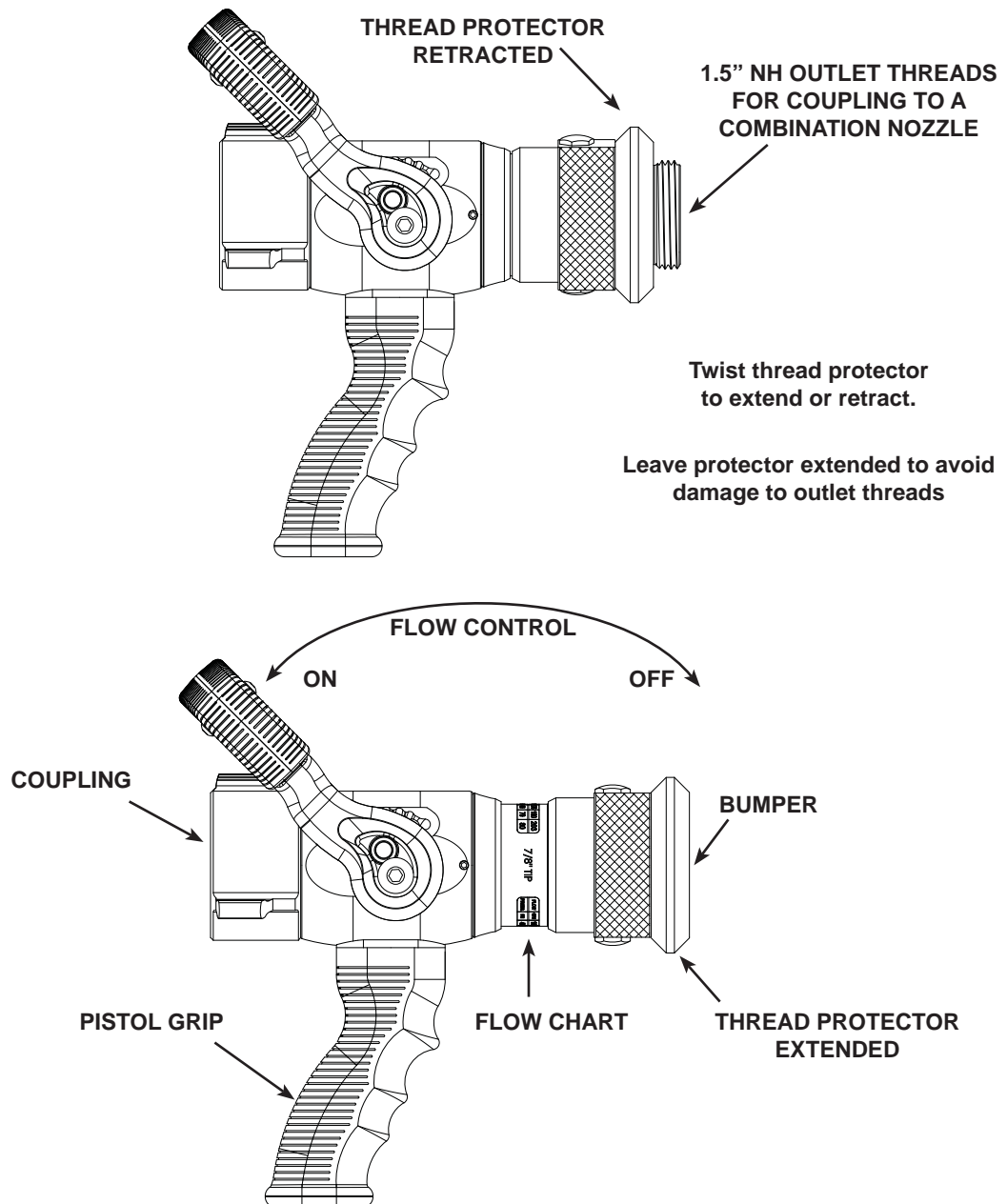


Figure 2.1 Common Model and Terms

2.2 NOZZLE COUPLINGS

NH (National Hose Threads per NFPA #1963) threads are standard on all nozzles. Other threads such as NPSH (National Pipe Straight Hose threads per ANSI/ASME #B1.20.7) can be specified at time of order.



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



Dissimilar metals coupled together can cause galvanic corrosion that can result in the inability to unscrew the threads or complete loss of thread engagement over time. Per NFPA 1962 (2008 edition), if dissimilar metals are left coupled together an anti-corrosive lubricant should be applied to the threads. Also, the coupling should be disconnected and inspected at least quarterly.

2.3 COLOR CODED VALVE HANDLE AND PISTOL GRIP

The TFT VIT is supplied with black valve handle covers. Handle covers are available from TFT in various colors for those departments wishing to color code the nozzle to the discharge controls. A colored handle cover set will be sent upon receipt of the warranty card and color selection form by TFT. Your department's name can also be engraved on the covers (see color selection form for more information).

Handle covers are replaceable by removing the four screws that hold the handle covers in place. Use a 3/32" allen wrench when replacing screws. Pistol grip is replaceable by following TFT instruction sheet LTT-108.

For standardization NFPA 1901-2009 (A.16.9.1) recommends the following color code scheme:

Preconnect #1 or Front Bumper Jump Line	Orange	Other Colors Available:
Preconnect #2	Red	
Preconnect #3 or discharge #1	Yellow	
Preconnect #4 or discharge #2	White	
Discharge #3	Blue	
Discharge #4	Black	
Discharge #5	Green	
Foam Lines	Red w/ White border (Red/White)	
Booster Reels	Gray	

3.0 FLOW CHARACTERISTICS AND CHARTS

The VIT nozzle has fixed orifice sizes. Relationship of flow and nozzle pressure at each orifice size is shown below. **If the VIT nozzle is connected behind a different nozzle, use the flow charts for the outlet nozzle.** Contact the factory or visit the website (www.tft.com) for range and trajectory data.

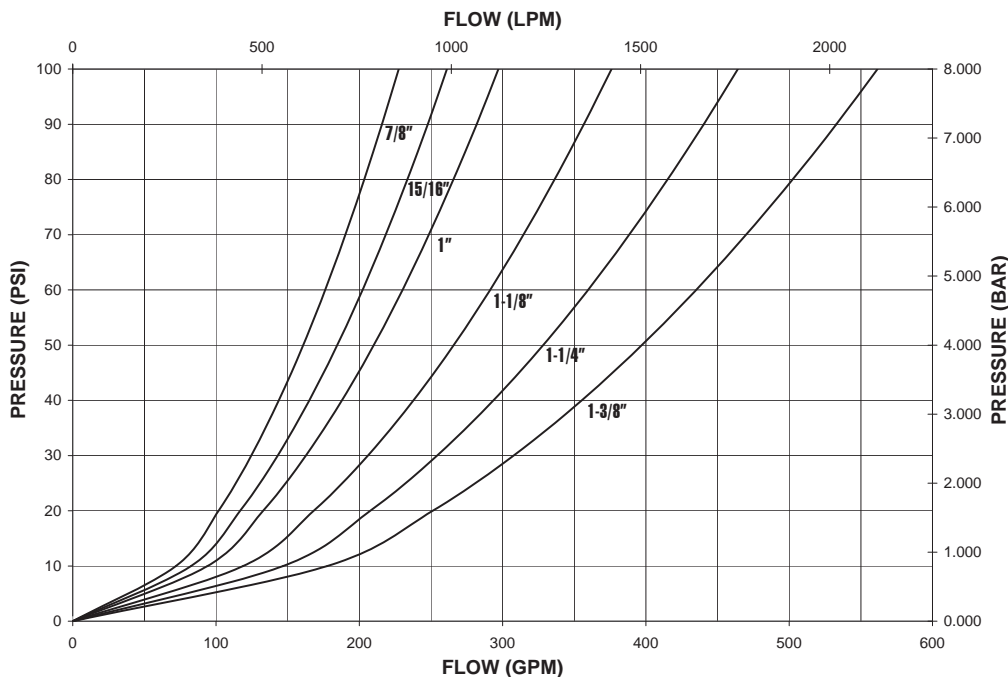


Figure 3.1 VIT Flow Chart

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

7/8" TIP	
PRESSURE	FLOW
PSI	GPM
40	144
50	161
60	176
70	190
80	203

15/16" TIP	
PRESSURE	FLOW
PSI	GPM
40	165
50	185
60	202
70	218
80	234

1" TIP	
PRESSURE	FLOW
PSI	GPM
40	188
50	210
60	230
70	249
80	266

1-1/8" TIP	
PRESSURE	FLOW
PSI	GPM
40	238
50	266
60	291
70	315
80	336

1-1/4" TIP	
PRESSURE	FLOW
PSI	GPM
40	294
50	328
60	360
70	388
80	415

1-3/8" TIP	
PRESSURE	FLOW
PSI	GPM
40	355
50	397
60	435
70	470
80	502



An inadequate supply of nozzle pressure and/or flow will cause an ineffective stream and can result in injury, death or loss of property. See flow chart in Figure 3.1 or call 800-348-2686 for assistance.

4.0 FIREGROUND USE OF VIT NOZZLES

IT IS THE RESPONSIBILITY OF THE INDIVIDUAL FIRE DEPARTMENT OR AGENCY TO DETERMINE PHYSICAL CAPABILITIES AND SUITABILITY FOR AN INDIVIDUAL'S USE OF THIS EQUIPMENT.

Many factors contribute to the extinguishment of a fire. Among the most important is delivering water at a flow rate sufficient to absorb heat faster than it is being generated. The flow rate depends largely on the pump discharge pressure and hose friction loss. The pump discharge pressure can be calculated using a hydraulic equation such as:

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

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

5.0 FIELD INSPECTION

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



Nozzle must be inspected for proper operation and function according to the inspection checklist in Section 6.0 before each use. Any nozzle that fails inspection is dangerous to use and must be repaired before using.

Performance tests shall be conducted on the VIT nozzle after a repair, or anytime a problem is reported to verify operation in accordance with TFT test procedures. Consult factory for the procedure that corresponds to the model and serial number of the nozzle. Any equipment which fails the related test criteria should be removed from service immediately. Troubleshooting guides are available with each test procedure, or equipment can be returned to the factory for service and testing.

Factory service is available with repair time seldom exceeding one day in our facility. Factory serviced nozzles are repaired by experienced technicians to original specifications, fully tested and promptly returned. Any returns should include a note as to the nature of the problem, who to reach in case of questions and if a repair estimate is required.

Repair parts and service procedures are available for those wishing to perform their own repairs. Task Force Tips assumes no liability for damage to equipment or injury to personnel that is a result of user service.



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

All Task Force Tips nozzles are factory lubricated with high quality silicone grease. This lubricant has excellent washout resistance and long term performance. If your department has unusually hard or sandy water, the moving parts may be affected. Foam agents and water additives contain soaps and chemicals that may break down the factory lubrication.

The moving parts of the nozzle should be checked on a regular basis for smooth and free operation, and signs of damage. **IF THE NOZZLE IS OPERATING CORRECTLY, THEN NO ADDITIONAL LUBRICATION IS NEEDED.** Any nozzle that is not operating correctly should be immediately removed from service and the problem corrected.

6.0 INSPECTION CHECKLIST

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

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

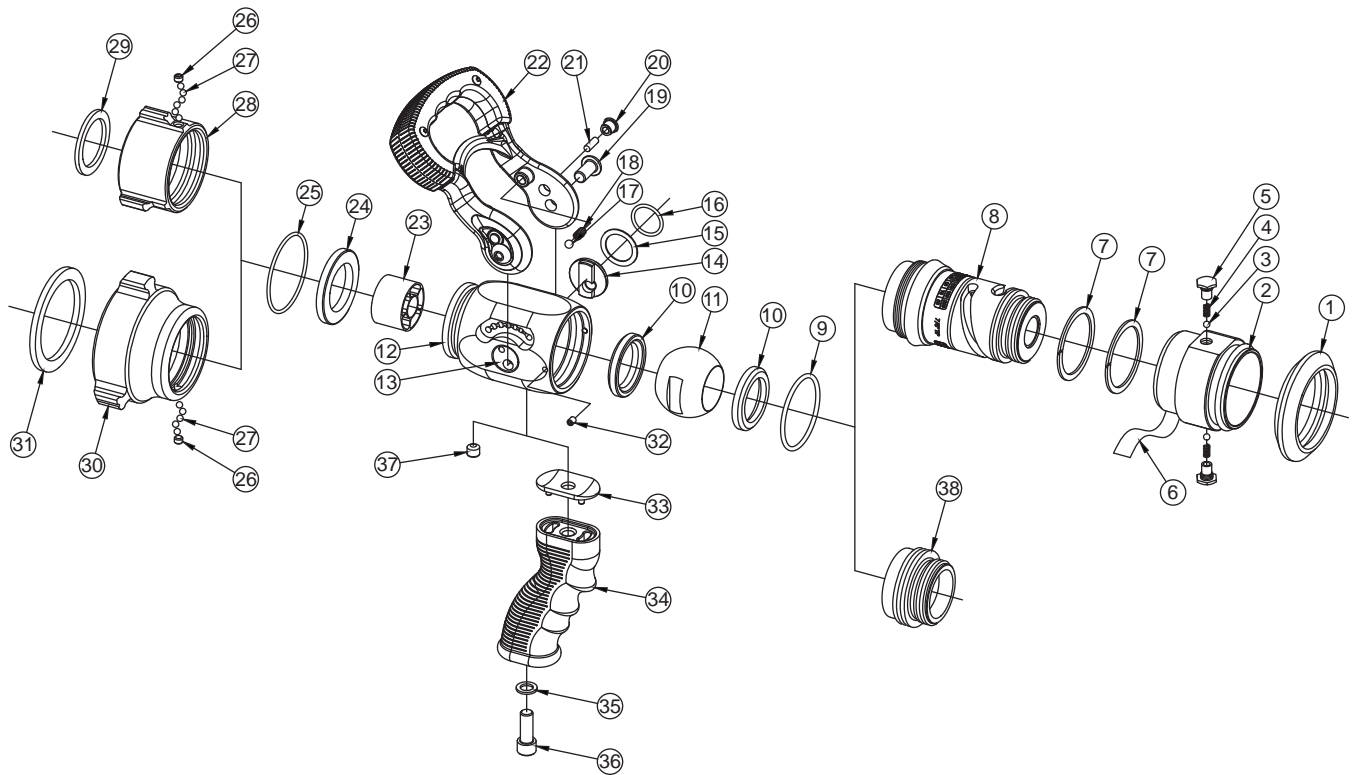


Any VIT nozzle failing any part of the inspection checklist is unsafe and must have the problem corrected before use. Operating a nozzle that fails any of the above inspections is a misuse of this equipment.

7.0 ANSWERS TO YOUR QUESTIONS

We appreciate the opportunity of serving you and making your job easier. If you have any problems or questions, our toll-free "Hydraulics Hotline", 800- 348-2686 or 1-219-462-6161 is normally available to you 24 hours a day, 7 days a week.

8.0 EXPLODED VIEW AND PARTS LIST



ITEM	DESCRIPTION	QTY	PART #
1	GAUGE BUMPER	1	P177
2	THREAD PROTECTOR RING	1	P175
3	3/16" TORLON BALL	2	V2120-TORLON
4	SPRING	2	VM4195
5	CAM DETENT SCREW	2	HD790
6	VIT FRONT RING LABEL	1	P163
7	TEFLON WEAR RING	2	P172
8	FRONT END - 7/8" TIP	1	P181*
	FRONT END - 15/16" TIP		P182*
	FRONT END - 1.0" TIP		P183*
	FRONT END - 1 1/8" TIP		P184*
	FRONT END - 1 1/4" TIP		P185*
	FRONT END - 1 3/8" TIP		P186*
	FRONT END - 1 3/16" TIP		P187*
9	O-RING-227	1	VO-227
10	BALL SEAT VALVE	2	P104
11	DELFIN VALVE BALL	1	P103
12	DETENT VALVE BODY	1	P110
13	TRUNNION - LEFT	1	P120L
14	TRUNNION - RIGHT	1	P120R
15	TEFLON TRUNNION SHIM	2	P170
16	O-RING-118	2	VO-118
* - CONSULT FACTORY FOR SPECIAL THREADS			

ITEM	DESCRIPTION	QTY	PART #
17	.243"TORLON BALL	2	VB243TO
18	DETENT SPRING	2	HM770
19	3/8-24 X 3/4 BUTTON HEAD	2	VT37E24BH750
20	TRUNNION DRIVER	2	HX650
21	3/16 X 9/16 HDP SPIROL	2	V2005
22	HANDLE SUBASSEMBLY	1	HX920
23	STREAM STRAIGHTENER	1	P116
24	ANTI GG RING VO	1	P147
25	O-RING-141	1	VO-141
26	3/16" SS BALL	38	V2120
27	1/4-28 X 3/16 SOCKET SET SCREW	1	VT25-28SS187
28	COUPLING 1.5"F ROCKERLUG	1	H694*
29	1.5" GASKET	1	V3130
30	COUPLING 2.5"F ROCKERLUG	1	P198*
31	2.5" GASKET	1	V3190
32	10-32 X 1/4 SOCKET SET SCREW	2	VT10-32SS250
33	GRIP SPACER HANDLINE	1	HM693-H
34	PISTOL GRIP - BLACK	1	HM692-BLK
35	WASHER	1	VM4901
36	3/8-16 X 1 SOCKET HEAD SCREW	1	VT37-16SH1.0
37	3/8-16 X 5/16 SOCKET SET SCREW	1	VT37-16SS312
38	FRONT RING VO 1.5"M	1	P150*
* - CONSULT FACTORY FOR SPECIAL THREADS			

9.0 WARRANTY

Task Force Tips, Inc., 3701 Innovation Way, Valparaiso, Indiana 46383-9327 USA ("TFT") warrants to the original purchaser of its VIT series nozzles ("equipment"), and to anyone to whom it is transferred, that the equipment shall be free from defects in material and workmanship during the five (5) year period from the date of purchase.

TFT's obligation under this warranty is specifically limited to replacing or repairing the equipment (or its parts) which are shown by TFT's examination to be in a defective condition attributable to TFT. To qualify for this limited warranty, the claimant must return the equipment to TFT, at 3701 Innovation Way, Valparaiso, Indiana 46383-9327 USA, within a reasonable time after discovery of the defect. TFT will examine the equipment. If TFT determines that there is a defect attributable to it, TFT will correct the problem within a reasonable time. If the equipment is covered by this limited warranty, TFT will assume the expenses of repair.

If any defect attributable to TFT under this limited warranty cannot be reasonably cured by repair or replacement, TFT may elect to refund the purchase price of the equipment, less reasonable depreciation, in complete discharge of its obligations under this limited warranty. If TFT makes this election, claimant shall return the equipment to TFT free and clear of any liens and encumbrances.

This is a limited warranty. The original purchaser of the equipment, any person to whom it is transferred, and any person who is an intended or unintended beneficiary of the equipment, shall not be entitled to recover from TFT any consequential or incidental damages for injury to person and/or property resulting from any defective equipment manufactured or assembled by TFT. It is agreed and understood that the price stated for the equipment is in part consideration for limiting TFT's liability. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above may not apply to you.

TFT shall have no obligation under this limited warranty if the equipment is, or has been, misused or neglected (including failure to provide reasonable maintenance) or if there have been accidents to the equipment or if it has been repaired or altered by someone else.

THIS IS A LIMITED EXPRESS WARRANTY ONLY. TFT EXPRESSLY DISCLAIMS WITH RESPECT TO THE EQUIPMENT ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE. THERE IS NO WARRANTY OF ANY NATURE MADE BY TFT BEYOND THAT STATED IN THIS DOCUMENT.

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