

PRO/pak® *Portable Multi-Purpose Foam System*

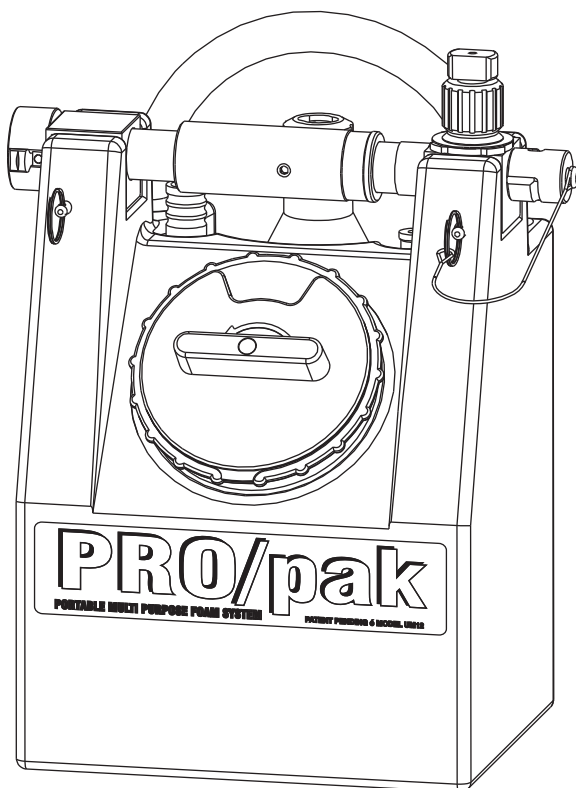
INSTRUCTIONS FOR OPERATION, AND MAINTENANCE

⚠ 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.



RATED FLOW
12 GPM at 100 PSI
45 L/MIN at 7.0 BAR

Minimum Operating Condition
7 GPM at 40 PSI
30 L/MIN at 3 BAR

Maximum Operating Condition
27 GPM at 500 PSI
100 L/MIN at 40 BAR

ADDITIVE SETTINGS
CLASS A RANGE: OFF, 0.1% TO 1.0% continuously adjustable
CLASS B RANGE: OFF, 1%, 3%, 6%

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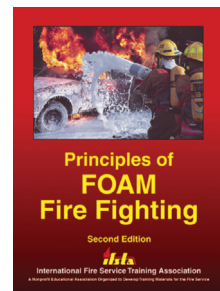


This Operator Manual is not intended as a substitute for proper training in the use of equipment as taught from credible sources such as the National Fire Protection Association (NFPA), The International Fire Service Training Association (IFSTA), or sources approved by the Authority Having Jurisdiction (AHJ).

Examples of recent publications:



NFPA 1145 - Guide for the Use of Class A Foams in Fire Fighting



IFSTA Principles of Foam Fire Fighting

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 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, could result in minor or moderate injury.



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

2.0 SAFETY

This portable decontamination system can be used in potentially dangerous situations. The following must be observed at all times:



Lack of foam can place operator at risk of injury or death. Establish foam flow and adequate supply of concentrate for the task before advancing into hazardous situations.



Improper use of agent could result in death or serious injury, including damage to the eyes. To reduce the risk of injury, avoid directing agent onto the faces of yourself and other personnel. Always wear PPE, including eye protection, as directed by the AHJ.



Improper use of foam or using the wrong type of foam can result in illness, injury, or damage to the environment. Follow foam manufacturer's instructions and fire service training as directed by the AHJ.

3.0 GENERAL INFORMATION

The PRO/pak Portable Foam System is a very versatile eductor-type foam application appliance. It can be used with 0.1%-1% Class A foam concentrates for wildland, rural and urban fire suppression on Class A fuels (wood, paper, combustible materials). On Class A materials the PRO/pak is intended to be used for direct extinguishment, overhaul, and wetting of fuels. Some foam concentrates are corrosive, we recommend using only Class A concentrates that have received USDA and USFS approval.

On Class B materials, the PRO/pak is primarily intended to be used for vapor suppression. It can be used with 1% and 3% AFFF Class B concentrates on flammable liquids that do not contain alcohol. It can be used with 3% and 6% Alcohol Resistant AFFF Class B concentrates on flammable liquids containing polar solvents. It can also be used with 3% X 6% or 6% Class B foam concentrates. Whenever possible, back up the PRO/pak with additional water/foam capabilities for added safety.

The Pro/pak can be used on ignited liquid fuels, but its foam application rate is very limited. Based on NFPA 11 this unit should not be used on ignited Class B fuels with an area greater than 120 square feet (10 x 12 feet) or 11 square meters. The PRO/pak should not be used on burning Polar Solvents with an area greater than 60 square feet (6 x 10 feet) or 5.5 square meters.

These statements are meant for general guidance only. Always ensure you use the PRO/pak system in accordance with the direction of the AHJ.

The PRO/pak is designed for Class A and Class B foam concentrates, but it has been used with other concentrates for other uses. If you intend to use the PRO/pak for liquids other than Class A and Class B concentrates and water, we urge you to contact the Task Force Tips Engineering Department. The use of other liquids may void the warranty and subject the user to hazards not addressed in this manual. The user assumes all risks for non-intended uses.

3.1 SPECIFICATIONS

	US Units	Metric Units
Tank Capacity (to bottom of fill port)	2.5 gal	9.5 liters
Nominal Flow (all nozzles)	12 gpm @ 100 psi	45 l/min @ 7.0 bar
Weight Empty	11.5 lb	5.2 kg
Weight Full	30.1 lb	13.6 kg
Length x Width x Height	13.5" x 10.75" x 17"	345mm x 275mm x 430mm
Operating Pressure Max/Min	500/40 psi	40/3 bar
Straight Stream Nozzle Reach	50 feet @ 100 psi	15 meters @ 7.0 bar
Low Expansion Nozzle Reach	37 feet @ 100 psi	11 meters @ 7.0 bar
Medium Expansion Nozzle Reach	9 feet @ 100 psi	3 meters @ 7.0 bar

3.2 PART IDENTIFICATION

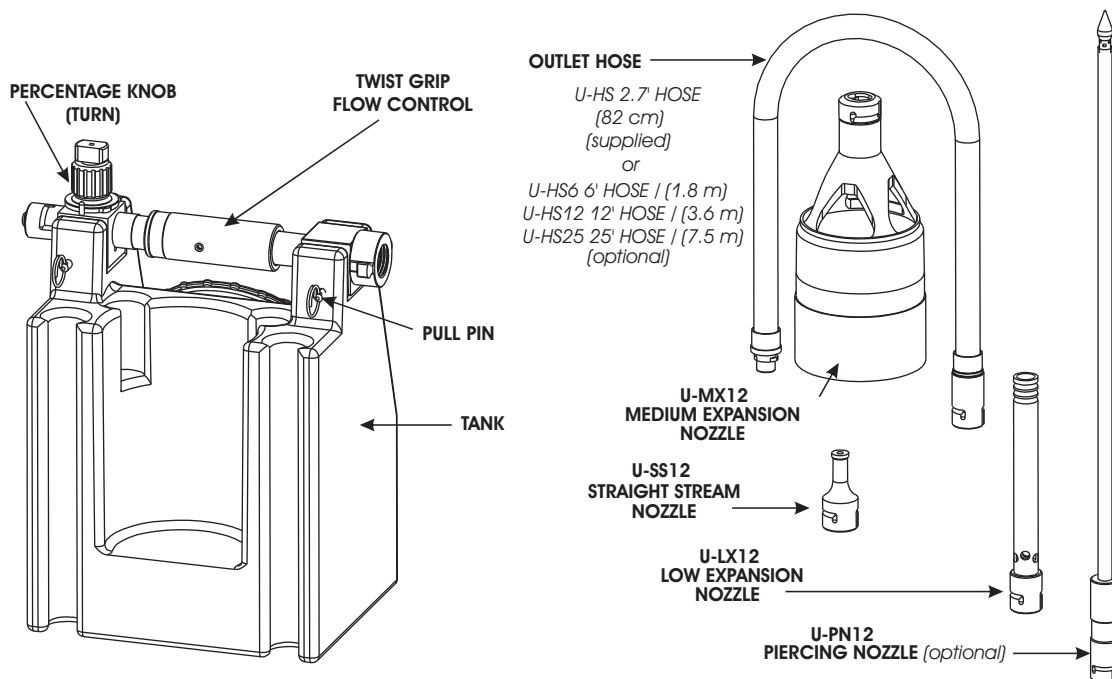


Figure 3.2

3.3 LEFT OR RIGHT HAND OPERATION

The Control Block and Valve Assembly can be mounted on the Tank for right or left hand operation. To switch hands, remove the Shoulder Strap from the Pull Pins. Remove the Circle Cutters from the Pull Pins and remove the Pull Pins themselves. Pull the Control Assembly straight up and out of the tank. Turn the Control Unit around and reinstall the Pull Pins, the Circle Cutters, and the Shoulder Strap.

3.4 DILUTION EQUIVALENTS

Agents used in the PRO/pak are to be diluted according to the manufacturer's specifications. The following chart describes percentages and dilution ratios.

Percentage	ml/l	Oz/gal	or	Ratio
0.23%	2.3	0.3	2 US teaspoons	1:427
0.39%	3.9	0.5	1 US tablespoon	1:256
0.50%	5.0	0.64	1-1/4 US tablespoons	1:200
0.78%	7.8	1	2 US tablespoons	1:128
1.0%	10	1.3	2-1/2 US tablespoons	1:100
3.1%	31	4	1/2 US cup	1:32
6.3%	67	8	1 US cup	1:16

Table 3.4



Agent concentrates can be ineffective if not used at the correct concentration ratio. Ineffective agents can increase the potential for injury or death. Ensure that the Percentage Knob is set to the correct concentration ratio for the type of agent being used prior to flowing.

4.0 FLOW CHARACTERISTICS

PRO/pak FLOW CHARACTERISTICS (with valve fully open)

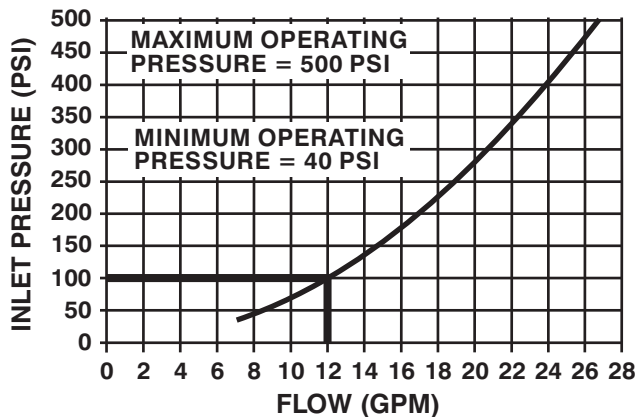


Figure 4.0A

MINUTES TO USE 2-1/2 GALLONS OF CONCENTRATE AT 12 GPM	
PERCENT	MINUTES
0.1	208
0.2	104
0.3	69
0.4	52
0.5	42
1	21
3	7
6	3.5

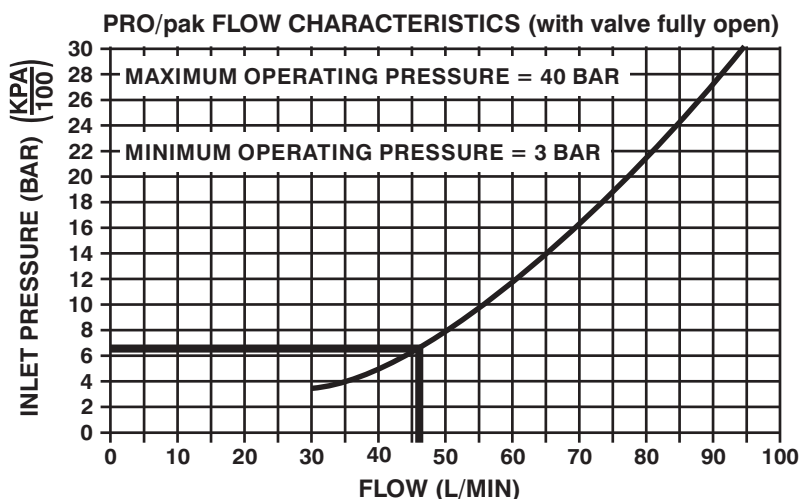


Figure 4.0B

MINUTES TO USE 10 LITRES OF CONCENTRATE AT 45 l/min	
PERCENT	MINUTES
0.1	208
0.2	104
0.3	69
0.4	52
0.5	42
1	21
3	7
6	3.5

5.0 FOAM SELECTION

In any eductor type system the accuracy of the foam concentrate to water ratio will depend upon the viscosity (thickness) of the foam concentrate. The more viscous, or thick, the foam concentrate, the greater the amount of energy required to draw the concentrate into the eductor. The viscosity of most foam concentrates changes with temperature, with some thickening to a gel at temperatures of 40°F (4°C).

The PRO/pak percentage knob has two sides, the green Class A side was calibrated for 20 Centipoise Class A foam concentrates and the red, Class B, side was calibrated with National Foam's Universal Gold® AFFF concentrate.

Actual foam concentrations may vary with changes in water flow, foam concentrate temperature, and viscosity. The user must verify that the performance of the concentrate is suitable for the application. In all cases, follow the concentrate manufacturer's recommendation.



Agent concentrates can be ineffective if not used at the correct concentration ratio. Ineffective agents can increase the potential for injury or death. Ensure that the Percentage Knob is set to the correct concentration ratio for the type of agent being used prior to flowing.

5.1 USING 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)", or NFPA 1150 "Foam Chemicals for Fires in Class A Fuels".

WARNING

Improper use of foam or using the wrong type of foam can result in illness, injury, or damage to the environment. Follow foam manufacturer's instructions and fire service training as directed by the AHJ.

WARNING

For Class B fires, lack of foam or interruption in the foam stream can cause a break in the foam blanket and greatly increase the risk of injury or death. Follow procedures established by the AHJ for the specific fuel and conditions.

5.2 AGENT COMPATIBILITY

DANGER

Mixing different types of agent concentrates or agents of the same type from different manufacturers can cause the contents of the agent reservoir to gel and produce unpredictable results, increasing risk of serious injury or death. To reduce the risk:

- Clean tank and agent passages thoroughly when changing agent types.
- Check agent manufacturer's documentation for recommendations.
- Always identify the contents of the reservoir per the agent manufacturer's Technical Data Sheet.

NOTICE

Components may be subject to degradation, including corrosion, by harsh chemicals such as sodium hypochlorite (Bleach), D-limonene, Hydrogen Peroxide, and other strong solvents. To reduce the risk of equipment damage:

- Avoid long-term storage of agents that may damage the tank, lid, or other components.
- Empty and rinse the reservoir between use.

It is the responsibility of the end user to determine the chemical compatibility between the device and any solutions to be stored in it. Effects of corrosion by bleach and other disinfecting concentrates are not covered under warranty.

NOTICE

Actual mix ratio may differ from label setting. Disinfecting concentrates have significantly lower viscosity than firefighting foams resulting in stronger solutions. Mix ratio **INCREASES** at pressures below 100 PSI (7bar), and **DECREASES** as pressure is increased above 100 PSI (7 bar). Verify concentration is appropriate for the intended use.

6.0 NOZZLE SELECTION

Straight Stream Nozzle - is for Class A foam solutions. Foam expansion will be negligible. It should be used where maximum reach or penetration is desired.

Low Expansion Nozzle - can be used with either Class A or B foam solutions. Reach is slightly less than the smooth bore.

Medium Expansion Nozzle - produces the greatest expansion ratios.

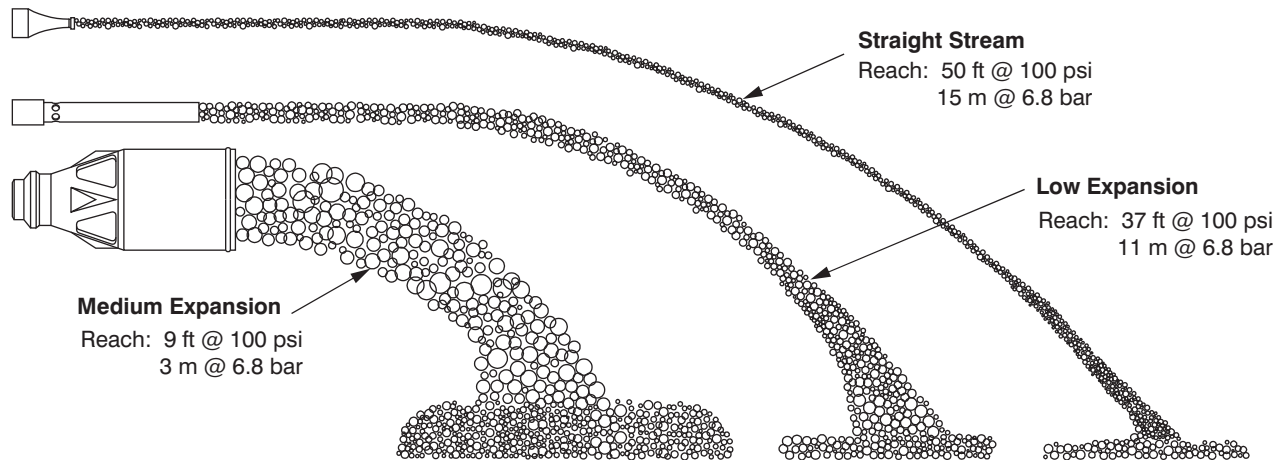


Figure 6.0A

Piercing Nozzle - is for use with Class A foam solutions in deep-seated fires. Foam expansion will be negligible. It can be used where an application of solution is needed but the location is inaccessible. The piercing nozzle is not designed to pierce metal and other hard objects. To use behind hard surfaces, punch a hole first.

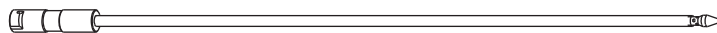


Figure 6.0B

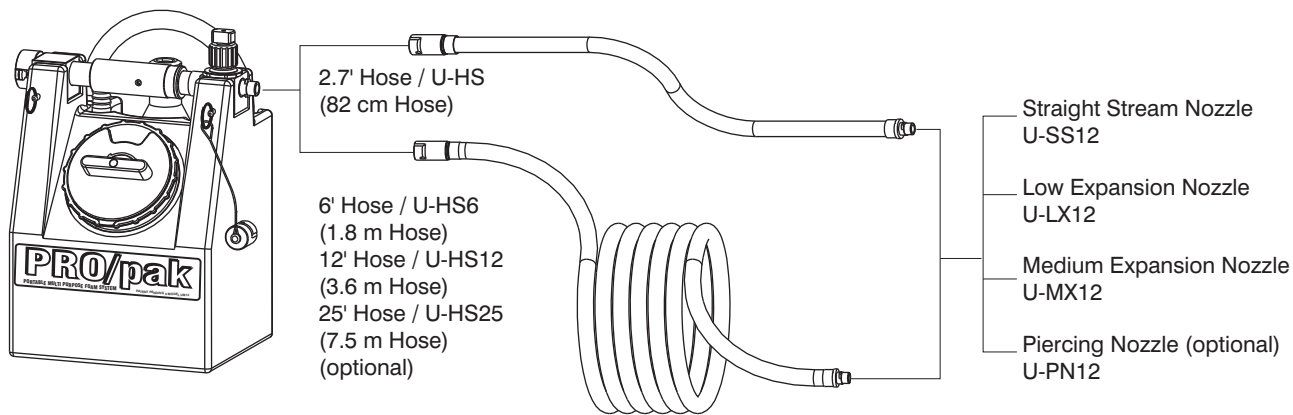


Figure 6.0C

7.0 OPERATION

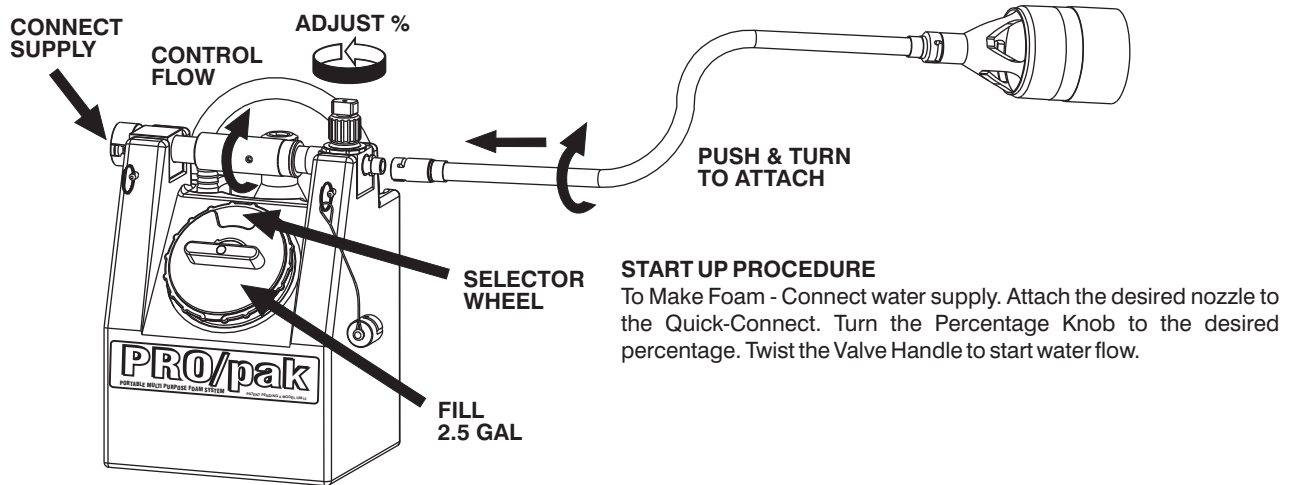


Figure 7.0

7.1 HOSE CONNECTION

Attach inlet fire hose to the coupling on the inlet end of the PRO/pak. Larger hoses may be used with an adapter. For maximum maneuverability, we recommend attaching 1" hose to the PRO/pak itself.

7.2 FILLING THE TANK

Unscrew the fill port lid by turning counterclockwise. Fill tank to bottom of fill port. Agent may seep out the vents if overfilled. Close the fill port lid by turning clockwise.

7.3 CONNECTING DISCHARGE HOSE AND NOZZLE

The nozzle may be attached directly to the quick-connect fitting on the control block or to the end of the outlet hose which is then attached to the control block.

1. Align the marks on the quick-connect male fitting with the marks on the female fitting and push the two pieces together.
2. Twist the nozzle or hose one quarter turn to the right to latch the quick-connect fitting.
3. To remove fan nozzle, remove set screw.
4. Hose lengths available. TFT part U-HS6, U-HS12, and U-HS25.

CAUTION

The PRO/pak's eductor will not function if the back pressure from the outlet hose or nozzle is too high. To reduce the risk of injury or death due to a non-functioning unit:

- Never use hose longer than the 25' (7.5m) U-HS25 optional hose.
- Never add additional hose, or use other manufacturer's hose assemblies and nozzles.

CAUTION

There is no check valve in the PRO/pak eductor system. Installing a shut off valve between the PRO/pak and the fan nozzle can cause the agent tank to fill with water and dilute the agent concentrate resulting in ineffective agent. Never install a shut off valve between the PRO/pak and the fan nozzle.

7.4 SETTING CONCENTRATION

Remove the nut on top of the percentage knob and lift the knob to select the proper foam concentrate type. Replace the knob nut. Turn the knob to the desired concentrate percentage. The percentage knob may be turned to the OFF position for water only use. Be sure to use the foam manufacturer's recommended concentrate ratio.

7.5 CONTROLLING FLOW

Pressurize the hose line. Turn the flow control valve to start water flowing through the PRO/pak. Flow may be reduced by partially closing the control valve.

7.6 FOAM QUALITY

Foam quality with the Medium Expansion Nozzle will depend upon the velocity of the foam solution exiting the nozzle. When pumping high pressures to the PRO/pak, it may be necessary to partially close the flow control valve to make good foam with the Medium Expansion Nozzle. If the foam exiting the Medium Expansion Nozzle is not a coherent continuous stream, close the flow control valve slightly until the foam becomes a coherent continuous rope-like stream.

TO SHUT DOWN

To prevent concentrate from drying in the agent passages the following is recommended. While still connected to water supply, remove Circle Cotters and Pull Pins. Remove Control Unit from tank. Attach the Cap directly to the Quick-Connect on the Control Block. Turn the valve halfway on until the discharge is agent free. This will backflush a small amount of water through the agent passage. Rotate the Percentage Knob back and forth to make sure all agent passages are flushed.

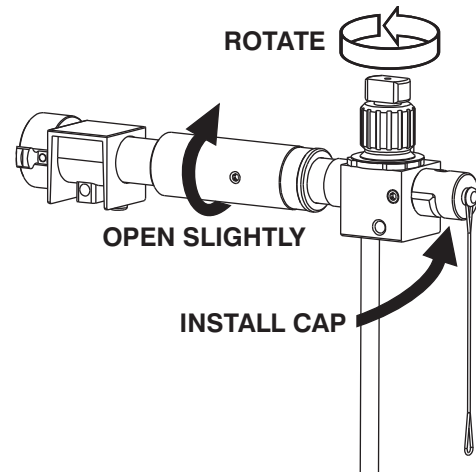


Figure 7.6A

TO CLEAN OUT IF PLUGGED

Remove screw #2, spring #3, and knob #4. Inspect the underside of the knob. Make sure the agent passages are clear. Do not scratch the flat face of the knob. Inspect the 2 holes in the top of the Control Block #5. If they are plugged, pull pins #1, remove Block Assembly and clean out Pickup Tube and holes.

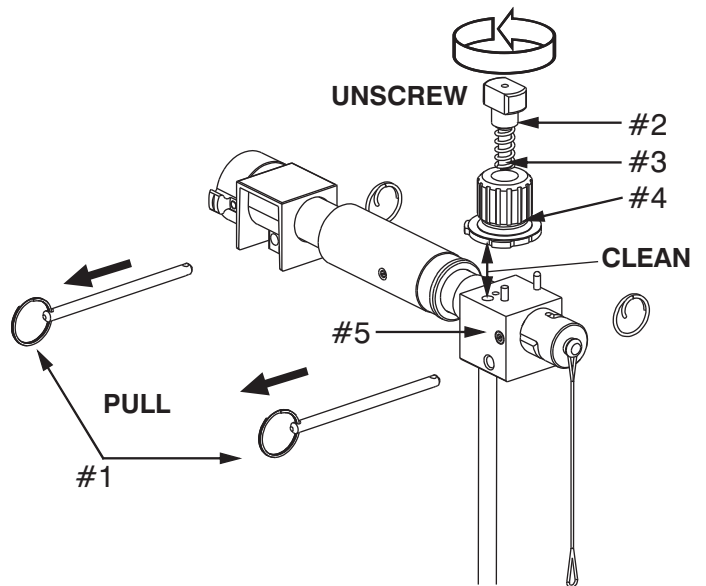


Figure 7.6B

7.7 SHUT DOWN AFTER USE (FLUSHING)

PRO/pak should be flushed with water after each use to prevent agent concentrate from drying out inside of the Control Block and Percentage Knob.

1. Reduce pump pressure to 100 psi or less.
2. Remove the nozzle and/or hose from the quick-connect on the front of the Control Block.
3. Remove the Circle Couters and pull out the two Pull Pins that hold the Control Unit to the tank.
4. Pull straight up to remove the Control Unit and Pickup Tube from the tank.
5. Make sure the Percentage Knob is NOT in the OFF position.
6. Install the Cap on the outlet of the Control Block.
7. Turn the Flow Control valve until a trickle of clean water is flowing from the end of the Pickup Tube.
8. Turn the Percentage Knob back and forth to make sure all agent passages are flushed.
9. Shut off water and reinstall the Control Unit on the tank and insert the Pull Pins and circle couters.
10. Remove the Cap.

The exterior of the PRO/pak can be washed off with the hose or straight stream nozzle, with the percentage knob in the OFF position.

7.8 STORAGE

The PRO/pak can be stored with agent concentrate in it. Make sure the control block and valve assembly is mounted on the tank and the fill port is securely closed to prevent evaporation. Storage in the upright position is recommended to avoid agent leaking when the PRO/pak is not in use.

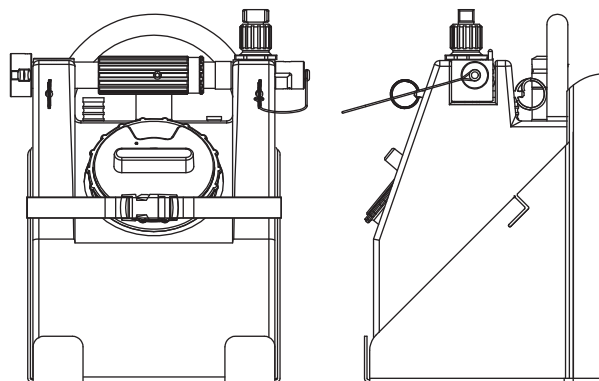


Figure 7.8

8.0 WARRANTY

Go to tft.com for all warranty information.

9.0 TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	REMEDY
PRO/pak will not make foam	Out of agent	Refill tank
	Percentage knob is in OFF	Select desired percentage
	Percentage knob is plugged	Remove screw on Percentage Knob, inspect and clean holes in top of control block and agent passages in bottom of Percentage Knob
	Non-standard outlet hose being used which is too long or too small in diameter	Order other hose option TFT part U-HS, U-HS6 or U-HS25b
	Foam tank is nearly empty	Refill tank
Foam delivery is intermittent	PRO/pak is tilted	Keep twist grip horizontal
	Air vents are plugged	Make sure that the small black rubber valve on the inside of the agent tank lid is not stuck down with dried agent concentrate
Poor quality foam	Debris in nozzle	Inspect nozzle, look for plugged holes
	Debris under knob	Unscrew knob, inspect and clean
	Foam solution velocity too high	Partially close flow control
	Foam gets thick when cold	Select a different foam

Table 9.0

10.0 CLEAN UP AND MAINTENANCE

Turn the percentage knob to any percentage setting other than the OFF position. Use the hose, or hose and nozzle, to rinse off the PRO/pak. Reset percentage knob to proper percentage when finished. For years of service, periodically inspect your PRO/pak. Make sure the hose and fan nozzle are in place. Look for debris in the bottom of the tank and flush if necessary.

10.1 DRAIN HOLE

If the PRO/pak is often used for different agent concentrates, it may be helpful to install a drain to aid in emptying the tank. Drill and tap the left front ear of the tank and install a 1/4" NPT Pipe plug. Plastic or Brass preferred.

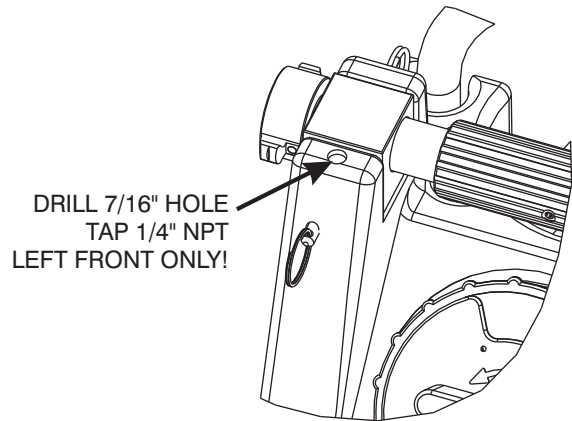


Figure 10.0

11.0 DRAWINGS AND PART LISTS

Exploded View Drawings and Part Lists available at tft.com/serial-number.

12.0 OPERATION AND INSPECTION CHECKLIST

BEFORE EACH USE, the device must be inspected to this checklist:

1. All controls smoothly.
2. The waterway and foam passages are clear of obstructions.
3. There is no debris in the tank.
4. There is no damage to any thread or other type connection.
5. Gaskets are in good repair
6. There is no damage to the appliance (e.g., dents, cracks, corrosion, or other defects that could impair operation).
7. All swiveling connections rotate freely.
8. There are no missing parts or components.
9. Device is clean and all markings are legible.
10. There are no missing, broken, or worn lugs on couplings.

BEFORE BEING PLACED BACK IN SERVICE, the device must be inspected to this checklist:

1. The device is flushed and cleaned per Sections 7.7 & 10.0.
2. All controls smoothly.
3. The waterway and foam passages are clear of obstructions.
4. There is no debris in the tank.
5. There is no damage to any thread or other type connection.
6. Gaskets are in good repair
7. There is no damage to the appliance (e.g., dents, cracks, corrosion, or other defects that could impair operation).
8. All swiveling connections rotate freely.
9. There are no missing parts or components.
10. Device is clean and all markings are legible.
11. There are no missing, broken, or worn lugs on couplings.



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.

TASK FORCE TIPS LLC

MADE IN USA · tft.com

3701 Innovation Way, Valparaiso, IN 46383-9327 USA

800-348-2686 · 219-462-6161 · Fax 219-464-7155