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TASK FORCE TIPS

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TASK FORCE TIPS

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# GPM/PP/360

Training to a level of measurable performance is key to most successful fire ground operations, and fire streams management is no exception. A commonly accepted performance benchmark for initial attack fire flows is to measure **Gallons Per Minute/Per Person within the First Three Minutes** after arrival. For instance, a three firefighter company that pulls a pre-connected 1-3/4" line and flows 150 GPM would have a 50 GPM/PP rating. If the same crew deploys a 2-1/2" attack line flowing 250 GPM, an 83 GPM/PP rate is noted. Now, with the introduction of TFT's new Blitzfire portable monitor, it is common to find responding companies achieving an outstanding 165 GPM/PP rating on interior and exterior structural attacks.

Now, these sorts of results just don't happen without continued training, drills, and qualified recommendations. To support your performance-based training and evaluations, TFT maintains ELEVEN completely equipped training and demonstration vehicles throughout North America. Staffed by experts in all aspects of fire streams management issues, TFT's commitment to continuing education is legendary in our industry. If you are working to increase the performance of your initial attack fire crews, contact Task Force Tips, Inc. to arrange for one of our instructor's support.

## IN THIS ISSUE



2800 EAST EVANS AVENUE VALPARAISO, INDIANA 46383-6940
(219) 462-6161 (800) 348-2686 US & CANADA

# WELCOME

With the vast number of technical and presentation resources available to today's training officer, it is often hard to know where to turn for accurate, reliable training materials. Along with the Task Force TIPS quarterly newsletter, we offer a wide range of well-designed and accurately produced tools for your training staff.

Here are just three of the dozens of fire streams management training aids that we can provide your agency:

- ***The Guide to Nozzles – an in-depth look at the design and operational characteristics of fixed, selectable, and automatic nozzles.***
- ***Buckets to Blitz Attack – our award-winning video review of nozzles from the days of leather hose to the present.***
- ***TFT's CD-ROM Version 2.0 – combines all technical information with extensive PowerPoint training programs, videos, and technical documentation.***

Taking advantage of the information technology available to you through the World Wide Web in your training programs will ensure that the information you offer is the most current available. Stop by www.tft.com and review the extensive on-line training library we have provided to make your job easier. TFT technical representatives are also as close as dialing our toll-free number, or clicking on 911 while on our site. Let us know how we can support your training needs.

***Regards,***

***Stewart McMillan***
***President***

## INDUSTRIAL



# FOAM AS A RISK MANAGEMENT TOOL

If you are responsible for reducing and managing the risk of loss from fire within your facility, consider Class A foam as yet another tool in your arsenal.

The potential for catastrophic loss has long been documented as it relates to issues surrounding "hot work" in production facilities. Often, the dollar losses associated with actual fire damage pale in comparison to the overall loss of production as a facility is put back "on line." "Hot work" is often the broad term used to describe cutting and welding operations that produce an ignition source.

As a professional risk manager, committing a "fire watch" team or fire brigade members to fire prevention duty during "hot work" activities often strips limited resources from other responsibilities. But, with the huge potential losses of an unabated fire, fire prevention and suppression remains a number one priority when establishing "hot work" permit procedures.

One tool that is gaining wide acceptance is the use of a foam blanket immediately below the "hot work." Acting as a fire block, environmentally safe Class A foam acts as a smothering and cooling blanket, catching sparks, hot embers, and molten materials. There are two main reasons that foam applications are gaining wider use.

Instead of committing multiple members of the fire brigade to stand watch, a single member working with a PRO/pak and a small one-inch supply line from a standpipe connection can maintain a fire blanket without additional personnel.

Class A foam is environmentally safe and easily quenches any "hot work" sparks or burning debris that falls into it. After work is completed, a simple wash down of the area, and fire prevention personnel are back in service quickly.

The PRO/pak is the perfect tool for providing a long lasting fire preventing blanket:

- ***It is easily operated by a single person.***
- ***It operates efficiently on water supply pressures as low as 50 PSI.***
- ***Carrying 2-1/2" gallons of foam, the unit can be operated for extended periods without refill.***
- ***The unit is provided with different nozzles for multiple foam and water only stream choices.***
- ***The PRO/pak can be mounted preconnected on standpipe stations, carried in mobile apparatus, or is easily carried by operators.***

If your responsibilities include "hot work" and "fire watch" duties, and you want to reduce fire loss potential while maximizing your personnel's time, consider using Class A foam applications in your safety procedures.

# U P C O M I N G  S H O W S

***FDIC West***
***May 3-5, 2001***
***Sacramento, CA***
***Booth #2321***
***Rod Carringer, VP Sales and Marketing and Doug O'Donnell, Regional Manager, will be in attendance with the local demonstration vehicle.***

***NFPA Conference***
***May 14-16, 2001***
***Anaheim, CA***
***Booth #1013***
***Rod Carringer, VP Sales and Marketing, Arthur Cuenca, VP International Sales, and Paul Neely, Industrial Manager will all be in attendance.***

***Pennsylvania Fire Expo***
***May 18-20, 2001***
***Harrisburg, PA***
***Jim Cottrell and Chris Carson, TFT Regional Managers, will be in attendance with their demonstration vehicles.***

***New York Chief's Conference***
***June 7-9, 2001***
***Syracuse, NY***
***Jim Cottrell and Chris Carson, TFT Regional Managers, and Rod Carringer, VP Sales and Marketing, will be in attendance with their demonstration vehicles.***

***New England Fire/Rescue***
***June 23-25, 2001***
***W. Springfield, MA***
***Jim Cottrell and Chris Carson, TFT Regional Managers, and Rod Carringer, VP Sales and Marketing, will be in attendance with their demonstration vehicles.***

***Firehouse Expo***
***July 25-28, 2001***
***Baltimore, MD***
***Jim Cottrell and Chris Carson, TFT Regional Managers, and Rod Carringer, VP Sales and Marketing, will be in attendance with their demonstration vehicles.***

***Missouri Valley Chiefs***
***July 12-13, 2001***
***Casper, WY – Dave Burns, Regional Manager, and his demonstration vehicle will be in attendance.***

TFT®
TASK FORCE TIPS

# BIG FIRE EQUALS BIG WATER

Many times high fire loads encountered upon arrival quickly preclude the use of standard handlines for an initial attack. In these cases, the movement of water and the establishment of a solid, constant water supply become crucial. Fires requiring large quantities of water for suppression (a high critical application rate) will dictate the water supply and delivery operation from the initial setup. If a fire has burned past you on the fire curve, additional handlines may provide no relief. The commitment to use high flow portable monitors and truck-mounted master streams (500-2000 GPM) also comes with the commitment to supply the necessary water for continued operation. Keeping in mind these additional supply requirements, the use of portable monitors or truck-mounted master stream devices can offer some of the following benefits:

- ***Higher initial fire flows and increased reach can offer improved firefighter protection by keeping either interior or exterior operations in a more tenable atmosphere, while providing higher knockdown potential.***
- ***In limited staffing situations, higher fire flows can safely be provided with minimal personnel. For flow-based operations, more GPM per person can be delivered than with any combination of handlines.***
- ***A single line put in place with a portable monitor can deliver flows from 500 GPM up to 1250 GPM, providing a wide range of options to meet changing fire ground conditions. The new lightweight features of portable monitors offer fast deployment and the ability to better utilize pump capacity and available water supply during initial attacks. Faster knockdown translates to an overall reduction in stress levels of attack personnel.***
- ***A single large blitz line can have as much effectiveness as up to five handlines with hose and necessary support. This can amount to a large savings in time and resources.***
  - ***Higher flow rates can translate to increased reach and better penetration than handlines.***
  - ***These high flowing devices can support a more effective allocation of personnel resources on the fire ground and provide a single engine company with more tactical versatility.***
  - ***Portable monitors can provide unparalleled safety in hazmat and vapor mitigation procedures, exposure protection, and high flow foam applications with a self-eductor master stream nozzle.***
  - ***The "scale up" feature of a single line supply followed with a second supply line (either 2-1/2" or 3") can be used for primary initial attack or upgraded to surround-and-drown defensive operations as required by command.***

Even with all of the noted benefits of using high-flow portable or truck mounted devices, successful suppression strategies often fail due to some of the following issues:

- ***Lack of training will always affect the procedures used in proper deployment, placement, advancement, and operation of attack lines.***
- ***Though 3" lines are flexible and mobile, their flow rates are limited. The use of 5" supply will provide high flows, but restrict advancement of the line after flow has been initiated.***
- ***The idea is that these sorts of high flows and the associated devices are either unnecessary or unwise. Typically, for most calls this is true, but for the small percentage of fires that cause our largest dollar losses, low-flow handlines normally are proven ineffective as the move inevitably is made towards defensive operations.***
- ***Higher flows translate to higher nozzle reactions and a much heavier stream, which sometimes can create unsafe operations on the fire ground. Due to poor training, when required, tie down straps are infrequently used, and the portable monitor is often placed in service well below the elevation safety stop pin.***
  - ***Improper or inadequate training on this type of attack can result in extensive water usage and potential collapse in the fire structure.***
- ***The choice of supply line to the portable monitor will, in some way, affect its use. Portable monitor use will focus either on highest flows (up to 1250 GPM) through 5" LDH lines, or on maximum maneuverability (up to 500 GPM) through 3" lines.***
- ***The perception is that these lines and associated streams are strictly for defensive situations.***

By initiating an aggressive attack utilizing a pre-piped master stream device or a portable pre-connected monitor, you can attack the fire using your total capabilities. As long as the device and stream are carefully and accurately placed, and personnel operating the devices are mindful of the method of attack being used, the results will typically be successful. If, on the other hand, all components of your high-flow initial attack were initiated properly and the fire still surpassed your ability to suppress it, there was probably little else you could have done.
Remember: **BIG FIRE = BIG WATER**.

# SPEAKING EDUCTOR-EEZE

A common misconception in the fire service revolves around the successful use of an automatic nozzle with a foam eductor. It is a common belief that because you may not know the flow of your automatic nozzle, the eductor will not function properly. Let's review a common fire ground operational eductor setup.

By-pass or in-line eductors are pre-engineered systems that require specific inlet pressures for operation, usually 200 PSI. A large amount of that inlet pressure is lost in creating the vacuum necessary to allow foam concentrate to flow into the water. The pressure at the exit of the eductor is called backpressure. If the backpressure is more than 65-70% of the inlet pressure, then the eductor stops producing a vacuum, and foam cannot be made. The actual back pressure at the eductor is the combination of nozzle pressure plus friction loss in the hose and elevation loss.

Now, lets look at an Automatic Mid-Force Dual Pressure Nozzle on 1-3/4" hose:

Both of these layouts work since the actual back pressure of 118 PSI for the 100 PSI setting and 104 PSI for the low pressure setting are both less than the maximum allowable back pressure of 140 PSI.

The automatic nozzle will maintain the correct operating pressure, so foam can be made.

As long as the inlet pressure to the eductor is within the manufacturer's recommended guidelines, and the hose and nozzle combination does not exceed 65-70% of inlet pressure, foam pickup in the correct proportion will occur.

You will note immediately that the low-pressure setting on the nozzle offers increased flexibility in the total possible length of the attack line. While 200 feet of 1-3/4" hose is about the maximum using the 100 PSI setting, over 450 feet of 1-3/4" can be laid in the low-pressure setting.

Here are just some of the operational enhancements you can expect when using the low-pressure setting of the Mid-Force:

- ***Increased hose lengths***
- ***Improved foam quality (drain time)***
- ***Improved foam quantity (expansion ratio)***

Air-aspirating devices, such as the TFT MX – Multi-Expansion foam attachment, allow a wider selection of foam concentrates to be used and can produce a better quality of finished foam.

When used with AFFF, for example, air-aspirating attachments will:

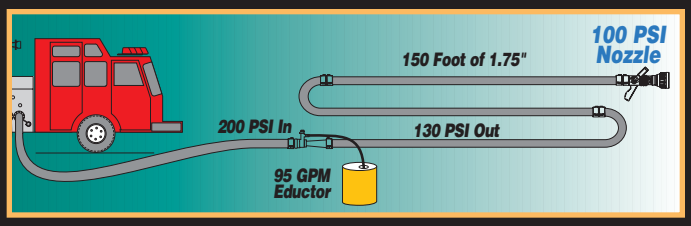
- ***Improve the 1/4 drain time***
- ***Produce a more uniform bubble***
- ***Improve the burn back resistance of the finished foam, and***
- ***Result in a visibly-thicker foam blanket***

This thicker foam blanket has better vapor suppression and is longer lasting than foam from non-aspirated nozzles. The final expansion ratio and, therefore, the amount of finished foam, depends on the type of foam concentrate being used. It must be remembered that when using any nozzle with an eductor, the nozzle must be fully open to prevent excessive backpressure, which will prevent foam pickup. Although originally designed for use with 1-1/2" hose and a nozzle of matching GPM, most eductors will function better with an automatic nozzle and 1-3/4" hose. By experimenting with various engine pressures on the training ground, correct operation can be assured for actual fire conditions. Dual-pressure automatic nozzles have an excellent performance record when used as structural fire fighting nozzles. If these guidelines are followed, they will perform equally as well as foam-making nozzles.

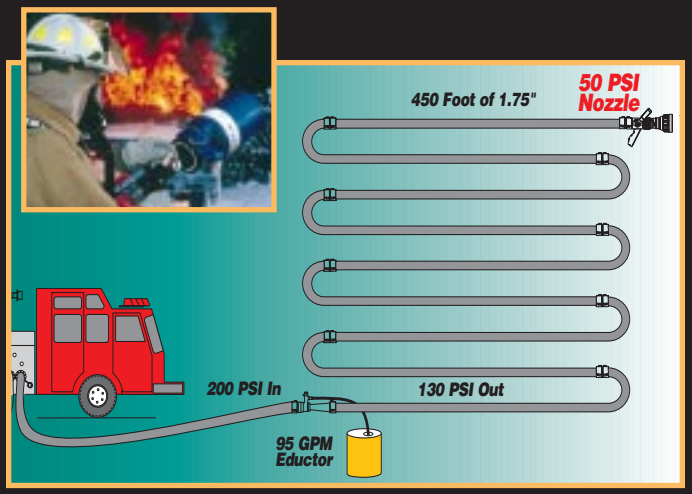
**FLOW RATING OF EDUCTOR 95 GPM**

**INLET PRESSURE TO EDUCTOR 200 PSI**

**MAXIMUM ALLOWABLE BACK PRESSURE ON EDUCTOR 140 PSI**




| | |
|---|---|
| Nozzle Pressure (Blue 100 PSI Setting) | 100 PSI |
| Friction Loss from 150 ft. of 1-3/4" hose | 18 PSI |
| Elevation Loss / Gain (zero for level ground) | 0 PSI |
| Actual Back Pressure Total 118 PSI | |




| | |
|---|---|
| Nozzle Pressure (Red 50 PSI Setting) | 50 PSI |
| Friction Loss from 450 ft. of 1-3/4" hose | 54 PSI |
| Elevation Loss / Gain (zero for level ground) | 0 PSI |
| Actual Back Pressure Total 104 PSI | |

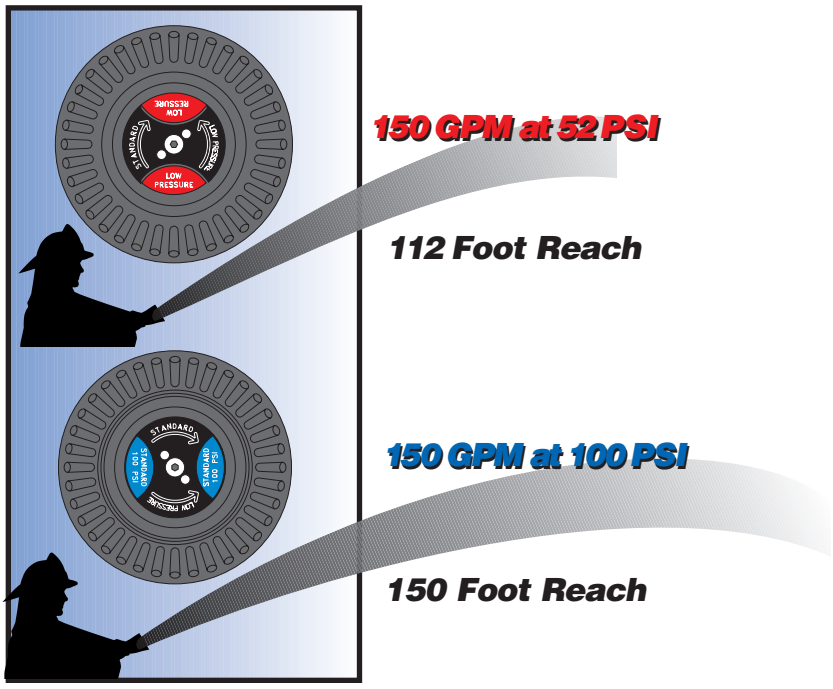
# STREAMS UNDER PRESSURE

The wide acceptance and now NFPA compliance of low-pressure and dual-pressure nozzles have created some confusion among fire streams management instructors. Using 100 PSI as the standard nozzle pressure for figuring everything from engine pressures to establishing foam eductor operations has been the accepted rule for decades. Now, with the use of low-pressure nozzles in high-rise packs, industrial fixed system applications, and even commonly used pre-connects, we must rethink the performance of our equipment as it relates to pressure.

TFT's Mid-Force dual-pressure automatic nozzle is the perfect example to review. At 150 gallons per minute fire flow set in the "regular pressure" setting (100 PSI), water exits the nozzle at about 80 miles per hour. Set in the "low pressure" setting (52 PSI), water exits the nozzle at about 60 miles per hour. It is easy to see that the same mass is exiting both nozzles; only the water exiting from the 100 PSI setting is traveling about 20 miles per hour faster. The result – better reach and penetration from the higher exit velocity.

Inversely, if your operations require maximum flow over reach and penetration, the low-pressure mode (52 PSI) will provide the same flow at almost 1/2" of the nozzle operating pressure and substantially less nozzle reaction. Also, the low operating pressure mode provides maximum flexibility when establishing foam eductor operations and foam application.

The Mid-Force dual-pressure automatic nozzle provides complete nozzle operator flow control, as well as benefits of maximum reach and penetration in the blue setting or maximum flow in the red setting.
For more information on Task Force Tips, Inc. unique Mid-Force nozzle, request a copy of the Mid-Force video today.





***TFT's new VIT (Valve Integral Tip) ball valve series is designed to be the most versatile smooth bore / ball valve combination available. Delivered with 7/8",15/16", 1" and 1-1/8" smooth bore tips, the VIT series is available in 1-1/2" and 2 -1/2" versions and can be ordered with color-coded pistol grips or TFT's unique playpipe configuration. Providing outstanding smoothbore performance, the VIT series is easily matched to fixed, selectable, or automatic tip-only nozzles for "break-and-extend" operations.***

***Designed for rapid extinguishment of stubborn chimney fires, TFT's new Chimney Snuffer is easily carried on steep roofs and connects rapidly to either a 1" or 3/4" garden hose supply line. The kit contains 25' of rubber 1" hose, a 1" ball shut-off, the unique Snuffer nozzle, a 1" to 3/4" reducer, a lightweight water resistant carrying bag, and TFT's patented Res-Q-Rench. With today's high home heating costs and chimney fires rapidly increasing, the Chimney Snuffer is the ideal tool for every engine company.***

# ASK THE EXPERT

Mike Grcich
Service Manager

**Q:** ***Can the operating pressure of TFT's 150-1250 GPM Master Stream Nozzles be adjusted in the field?***

**A:** Yes it can. Located in the front top center of the pressure control unit is the adjusting screw for the operating pressure of the nozzle. This is pre-set and tested to operate at 100 PSI from our facility. By turning this adjusting screw counter clockwise, the pressure is lowered. It is best to place an in-line pressure gage at the base of the nozzle, turn the adjusting screw out approximately a quarter of a turn, then flow water and check the base pressure. 80 PSI is a common setting though operating pressures much lower than this may affect reach and stream quality.

**Q:** ***Can TFT's full size handlines, the 50-350 GPM series, be converted to a low pressure or even a dual pressure nozzle?***

**A:** Yes, these can be converted to have an operating pressure of 75 PSI or TFT's unique 100/55 PSI dual pressure  Both of these conversions do require the nozzle to be returned to our Service Department. The typical cost of a conversion is $275.

Upon receipt, the entire nozzle is disassembled; new pressure control units are installed along with new labels. The shaper guide is also replaced when doing the dual force conversion so that the nozzle is visibly different from the standard 50-350 versions. When this conversion is completed and wet tested, the nozzle is returned with a 5-year warranty on the parts and workmanship that were replaced.

*Register for Your Copy of the Task Force Tips Newsletter On-line at www.tft.com*

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