Close

Keeping the Pressure On

BY KEVIN KALMUS

Your engine company is the first pumping apparatus on the scene of a structure fire. After securing a hydrant, Engine 1 and Engine 10 crews have deployed your two 200-foot, preconnected crosslays, consisting of 1¾-inch handlines. Engine 1 stretched its line into the building as an attack line, and Engine 10 is protecting an exposure on the B side. Both lines require a 125-psi discharge pressure. Engine 11's personnel stretched your 250-foot, 2½-inch line (attached to the driver's side rear outlet) into the building to back up Engine 1; it requires a 110-psi discharge pressure. To protect a nearby apartment building, Quint 11 has deployed a small quick-attack ground monitor connected by a 200-foot, 2½-inch hose to your rear passenger side outlet; it needs a 100-psi pump discharge pressure (photo 1).

(1) Photos by author.

Everything is going fine, when suddenly your intake pressure drops to just above 10 psi. Your radio begins to crackle with calls for more pressure from all of your lines, and the interior crews report that the fire is overrunning them. You quickly realize that an aerial master stream deployed to knock down fire on the roof of the exposed apartment building is robbing much-needed hydrant pressure from your operation. Without rereading the scenario, look at photo 2. What actions should you take, and what information do you need to keep the crews operating inside the structure safe?

(2)

THREE KEY QUESTIONS

The three most important questions the pump operator needs to answer regarding each individual handline are as follows: What discharge pressure is needed? Which unit is operating the line? and, most importantly, Is the line operating on the interior or exterior of the building? All these answers must be available for immediate reference during fire operations. A simple way to keep track of this information is to make notes on the pump panel using a dry-erase marker. Dry-erase markers are cheap, are readily available, and come in multiple colors and sizes; you can quickly erase and update their marks as needed.

The pump operator should first mark the discharge pressure. This allows the pump operator to easily manage pressures on multiple gauges and to recognize pressure changes immediately. This is especially important when managing multiple hoselines. Once you have made the necessary hydraulic calculations, simply mark the gauge at the required pressure (photo 3).

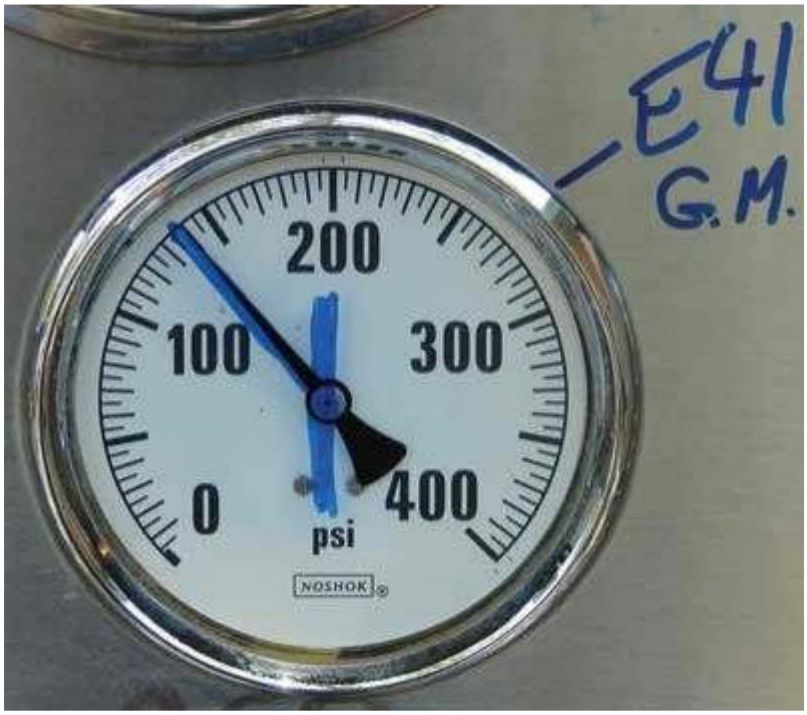
(3)

The second mark should identify the crew operating the line and any special crew information—the crew is operating a ground monitor [which represents a significant source of gallons per minute (gpm)], or it is operating as a rapid intervention crew, for example. These data simplify the pump operator's job when dealing with radio calls from crews assigned to different lines (photo 4).

(4)

The final mark should categorize the lines by level of importance—i.e., which lines are critical and must

be maintained and which can be shut down to support the critical ones. These lines are normally those that are advanced into the structure; a single vertical line on the gauge indicates their importance (photo 5).



(5)

At a glance, the three marks made on the gauge in photo 5 tell the pump operator that Engine 41 is operating a ground monitor in the fire building's interior, and it requires a 140 psi discharge pressure.

SCENARIO APPLICATION

Now let's apply the marking system to the original scenario (photo 6). By making notes as he sets up the hoselines, the pump operator can easily keep track and reference them when needed. Now to answer the original questions: What actions must be taken and what information is needed to take those actions? The immediate actions needed should support the firefighters in the most danger. In this scenario, the marking system tells the pump operator that Engine 1 and Engine 11 must be supported because they are operating in the building's interior and have reported on the radio that they are being overrun. Engine 10 and Quint 11 crews are operating outside of the structure and will not be in danger if their lines are shut down. The pump operator also knows that Quint 11 is operating a ground monitor that, even though it is small, is designed to flow between 300 and 500 gpm. Shutting down the two exterior lines will add the much-needed gpm to the remaining lines and hopefully bring the intake pressure up to an acceptable level.

(6)

Once the interior lines have regained the needed flow to protect a retreat, if needed, the pump operator then has time to communicate with those in command and inform them of the situation. If the pump operator had not been monitoring the crews, their locations, and the pump pressures they need, a situation that took only seconds to address could have taken several minutes to correct. Even though most of us never thought we would have to do math to fight fire until we were exposed to the wonderful world of hydraulics, it's time to step back into the classroom, grab a dry-erase marker, and start taking notes again.

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