Rural Fire Command

by

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Crafting Your Drafting

Drafting ingenuity & tricks for your toolbox

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Training America's Rural Fire & Emergency Responders

A Message the Author, Larry Davis

In October 2002, I started writing the monthly "Rural Fire Command" column for *FireRescue Magazine*. Since that time, the RFC column has been carried in just about every subsequent issue of the magazine.

As time has passed, several readers have contacted me about obtaining back issues of the column. Some expressed an interest in acquiring the articles in Powerpoint format for use in training programs.

This led to, my adaptation of the RFC columns to the PowerPoint format. These PowerPoint programs are being made available through the combined efforts of *FireRescue Magazine* and the Rural Firefighting Institute.

Crafting Your Drafting

Drafting ingenuity & tricks for your toolbox

Although some no will undoubtedly disagree, a good pump operator is the most valuable person on the rural fireground. This is the person who can make or break an operation regardless of how experienced and knowledgeable Command is and regardless of the resources available. What's a good pump operator? A driver operator who has had all of the training required by NFPA 1002 and has passed the certification test? Or is it the person who knows how to move water and if needed could draft from a thimble to get water?

Figure 1 shows a classic example of how a good operator can save Command's bacon by improvising to get the job done. Drafting operations often require creative thinking both before and during operations. Anything that works to make drafting easier or more reliable, or increase flow should be done.

The photos that follow show some other forms of ingenuity shown by rural firefighters — and I'm sure they just touch the tip of the iceberg of rural creativity. (If you have an idea or a story to tell, send me some photos and your story so we can share it)

A good pump operator is the most valuable person on the rural fireground, because they can make or break an operation.

Figure 1. This photo was taken during a pump operator's course Roy Hoffman, a fellow instructor and long time friend, was teaching. This 1250-gpm pumper hooked-up to this 4" dry hydrant (the piping can be seen in the stream to the right center of the photo). This resulted in a maximum flow of 500 gpm. To get more flow, the remaining 10-ft length of suction was connected to the short length pre-connected to the front suction (for drafting from porta-tanks), and a low-level strainer connected. The strainer is just under the water. The resultant flow was 1000 gpm, a 100% increase. Most likely, if a floating strainer and 20 feet of suction were used from the side, the flow would have been 1250 gpm or more.

An SCBA cylinder saves the day

Figure 2. During a water-on-wheels course in Wedowee, Alabama, I wanted to demonstrate how a pump's delivery rate can be increased with a second suction line. Here Wedowee's 1250-gpm pumper drafts with a 6" suction from each side. The problem we had was that the pond was very shallow and only one floating strainer was available.

Figure 3. The floating strainer can be seen to the right. To the left is the innovative approach of a couple of the students. Without waiting for someone to tell them what to do, they grabbed an SCBA cylinder and lashed it to the suction hose to keep the barrel strainer off the bottom.

Figure 4. The students proved that if you lash an SCBA cylinder to a suction line the cylinder thinks it's a floating strainer and works just fine to fix a problem. The result was that the pumper exceeded 2000 gpm. A simple solution — especially since most pumpers carry SCBA cylinders and rope

Empty Water Bottles & Spare Tires

I had a project that involved testing a 2500-gpm trailer pump that utilized three 6” suction connections. The problem was that no floating strainers were available and the pond bottom was nothing but muck that would plug up the barrel strainers. One of firefighters went to the shed and brought back empty 5-gallon water bottles to use as floats to hold the barrel strainers up off the pond bottom.

Empty Water Bottles

Figure 5. Empty water bottles also get the job done when floating strainers are not available.

Spare Tires

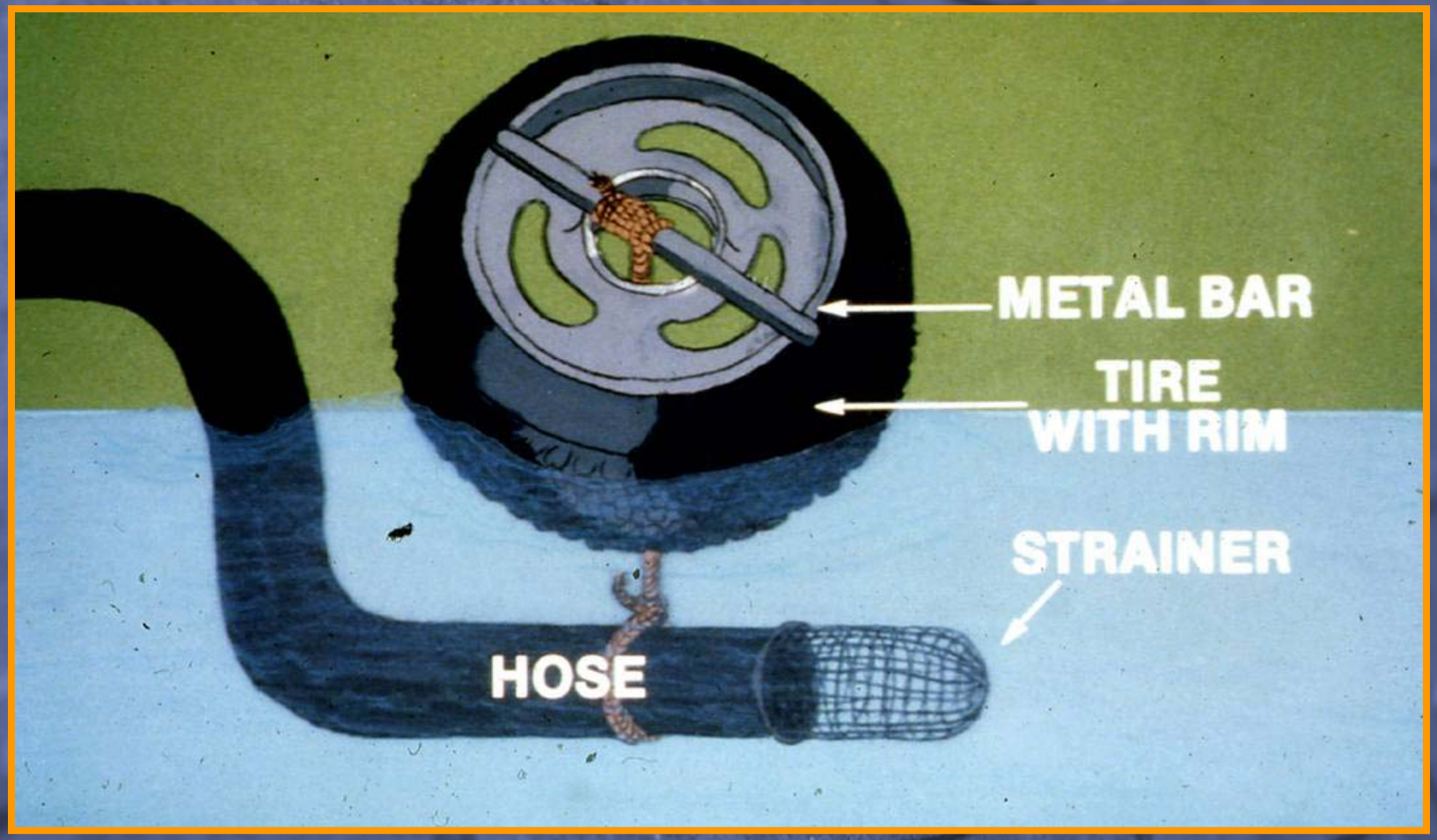

Figure 6. Another method of solving the problem of having to keep a barrel strainer off the bottom is to use a spare tire. Another example of common sense (and inexpensive) ingenuity.

Styrofoam & Fiberglass

A department in Connecticut wanted a floating strainer for use with 2-1/2” suction for their portable pump. They took a big chunk of styrofoam and with a fiberglass kit made a float to support the barrel strainer. Figure 7 shows the results.

Styrofoam & Fiberglass

Figure 7. Styrofoam floats and the fiberglaskit makes the styrofoam waterproof. Attach a bolt and chain and you have a float that holds the barrel strainer at the level you need it.

Don’t Forget the Duct Tape

While NFPA standards don’t require it, a roll of duct tape should be kept on every pumper. It’s another one of things you may never need. But, when you need it, you need it bad.

Don’t Forget the Duct Tape

Figure 8. Everything looks great as this pumper drafts through a front suction at a dump site. However, things did not start off so good.

Figure 9. When the 6” suction was connected to the 6” butterfly valve and the primer engaged, the suction line could not be primed because of an air leak at the suction hose connection. Fortunately, a roll of duct tape saved the day. Liberal use of duct tape can do wonders for air leaks.

Whirlpool Stoppers

One of the problems we can encounter when drafting from shallow water with a barrel strainer is the whirlpool that can develop allowing air to enter the suction line causing the pump to lose its prime and the boss to have a bad day. Special tools which I call whirlpool-stoppers for lack of a proper name can save the day. Such was the case in Pictou Landing, Nova Scotia, during a rural water supply class.

Whirlpool Stoppers

Figure 12. Two 750-gpm pumpers draft from a stream and feed a 4” line to a tanker fill site.

Figure 13. These departments that understood the problems with whirlpools carried 4’ x 4’ sheets of plywood that were placed over the strainer and held in place with rope and a pry bar driven into the stream bed.

Backboard to the Rescue

Figure 14. Another department used a backboard as a whirlpool stopper. Use whatever you need to get the job done.

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Beach Balls & Buoys

Departments that draft from porta-tanks understand the problem with whirlpooling and how it can cause a pump to lose its prime. The solution is to carry the proper tools to stop whirlpools as shown in Figures 13 and 14.

Beach Balls & Buoys

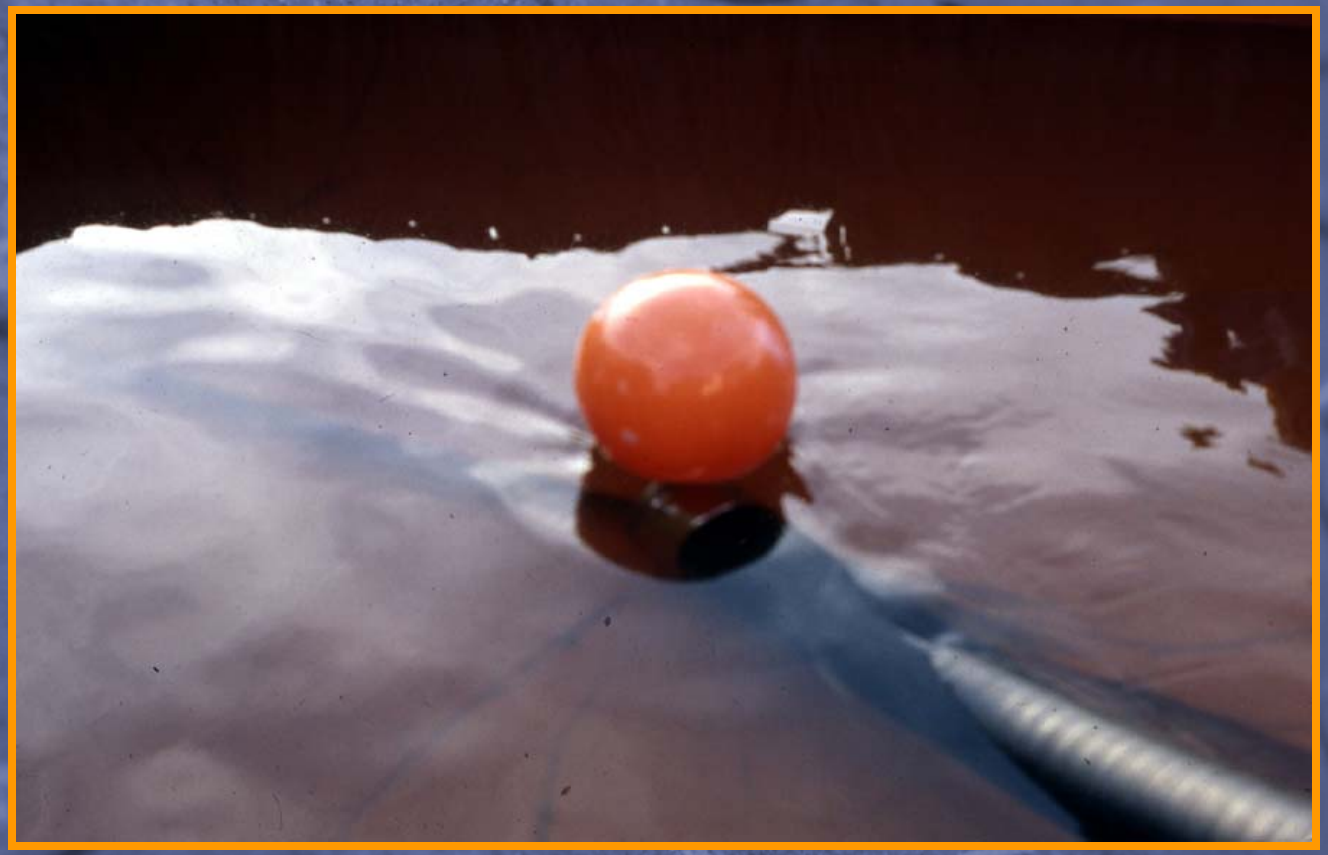

Figure 10. A beach ball, basketball, or any other ball such as the one shown above can be thrown into the porta-tank. If a whirlpool starts to develop, place the ball in the whirlpool to help prevent air from entering the strainer. This may only be a temporary fix if a tanker is close to dumping but it can buy enough time to get people out of dangerous places before the water runs out. If a ball isn't available, a firefighters helmet works just fine as well.

Figure 11. This Nova Scotia department recruited a buoy to help prevent whirl-pooling. Another example of innovation and ingenuity.

When It's Time to Plug the Strainer

Another staple that should be carried on every pumper that might be expected to draft is a supply of heavy duty trash bags. These come in handy when a low-level strainer or floating strainer isn't available and you have to draft from a shallow pool of water (or porta-tank that's really running low).

By wrapping the top of the barrel strainer with the plastic bag, atmospheric pressure forces the plastic into the holes to seal them so the strainer only drafts from the bottom.

Figure 15. This garbage bag sealed the strainer long enough for another tanker to arrive and the department to not run out of water during a performance test for ISO.

When it comes to drafting, no idea is too crazy.

Last, But Not Least…
Using One Pumper to Prime Another

Sometimes we get so busy teaching driver/operators what they need to know that we forget what they need to know. Years ago (as Figure 16 attests to) when I went to my first pump class, George Sacco, the "pump instructor's guru" of Western Pennsylvania taught us how to use one pumper to prime another. Why? Because if you get a pumper into a source and get it all set up to draft and then find that the primer doesn't work, you can bring another pumper to prime it. Another one of those tricks that you may never need, but can sure bail you out of big trouble.

Figure 16. The pumper to the left was set up to draft from a pond. To demonstrate how another pumper could prime the first, 20 feet of suction was connected between the intakes of the two pumpers. The pumper on the right then primed the pumper on the right.

A Final Note

When it comes to drafting — no idea is too crazy to try. And when it comes to training pumping operators give them the opportunity to practice creative thinking — it may bail you out of big trouble someday.

For Questions or comments on this or any of the Rural Fire Command articles, contact the author at ldavis@RFI411.org

About the Author

Larry Davis is a full member of the Society of Fire Protection Engineers, a Certified Fire Protection Specialist, and a Certified Fire Service Instructor II with more than 30 years experience as a fire service instructor. He is Vice President of GBW Associates, and Chairman of the Rural Firefighting Institute.

Davis has conducted more than 400 Rural Firefighting Tactics and Rural Water Supply Operations seminars throughout the United States and Canada. In addition, he has written numerous fire service texts, including *Rural Firefighting Operations*, books I, II, and III. Most recently, Davis co-wrote the *Rural Firefighting Handbook* and *Foam Firefighting Operations*, book I with Dominic Colletti.

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