



Emergency Engine Operations

By Bill Whitney

During the first few minutes of any incident, the busiest “mutha” on the fireground is typically the Driver/Operator (DO), aka: “the chauffeur or the engineer”. Once you arrive, the first five or ten minutes of their job is a flurry of activity that encompasses tasks such as providing water, taking a supply if necessary, lowering the ladder rack, setting up apparatus scene lights, calculating the supply potential, etc. The D/O must move quickly to accomplish their tasks and be nothing short of a ninja in bunker gear! We all practice our craft to obtain proficiency and speed as “time and conditions” will always affect the outcome of the job. Normally the D/O tasks happen with little fanfare and they achieve the same positive results each time. But what do they do when things go wrong while setting up the pump? As firefighters, we continually hone our skills for RIT/RIC/FAST (term dependent upon where you live) in case we have issues or are tasked with handling a Mayday situation. Who does the D/O rely on if the water doesn’t come out of the pump? Where is their “Water RIT”? I think you’ll find the vast majority of D/Os have heard about placing the pump into manual operation, but have never attempted the process. Therein lies part of the problem that we all need to work at.

If you experience a “pump issue” and the second, third, or fourth due are arriving in short order, the issue may be handled as easily as moving in a replacement engine. That’s a piece of cake....right? Disconnect the hoses and move them to the next apparatus and life is good with one small exception. The element of “time” and personnel to move the hose(s) now comes into play. Someone has to disconnect and drag each line to the next apparatus. Additional lengths may need to be added to make up for added footage to the “next engine”. Now we’re battling “time and conditions” again without a contingency plan for resources to tackle the next challenge.

Why don’t we regularly train our D/Os on the skillset of emergency pump operations? They, too, need to learn how to troubleshoot the situation and come up with a game plan just as the Company Officer needs to adapt and adjust their game plan for their combat situation.

Let’s look at how the D/O can prepare for this very, very low frequency event that can potentially produce devastating results if not handled properly. For the most part, the pump shift operation happens pneumatically, electronically, manually, hydraulically or by pure magic. No matter how you engage your pump during your “in cab procedure”, you start with a process of changing the transfer case from “road to pump”. The D/O sets the transmission to “drive” and if everything happens as it should, they’ll hear the pump SMOOTHLY engage. At this point, they are well on their way to supplying water for the tasks dictated by the company officer or incident commander. If the D/O hears what sounds like an M-1 tank being sucked into the engine of an F-22 fighter jet (as well as everyone else within a quarter mile) or complete silence, they will now need to take evasive action to correct the issue. Try using the following steps to correct the problem of when the pump does not engage.



- Step 1 – “The initial reset”
 - a. Place the transmission into Neutral and change your pump shift back to “road”;
 - b. Do the initial “in cab procedure” again (Road to Pump & transmission to drive);
 - c. Check the results to be certain you have the proper indicator lights and the speedometer indicates a change. If you don’t have success, proceed to Step 2;

- Step 2 – “The Shimmy”
 - a. Place the “pump switch” back to “road”
 - b. Set the transmission momentarily into either Drive or Reverse in order to do a little “shimmy” move for the transmission by using the torque from the idling engine;
 - c. Do the initial “in cab procedure” again (Road to Pump & transmission to drive);
 - d. Check the results to be certain you have the proper indicator lights and the speedometer indicates a change. If you don’t have success, proceed to Step 3;

- Step 3 – “The Shake”
 - a. Consider notifying your company officer or incident commander that you are having pump issues and are continuing to work towards a resolution;
 - b. Put your foot on the brake pedal and check the pneumatic brakes to be certain they are set;
 - c. Place the pump shift back into “road”;
 - d. Place the transmission into either “Drive” or “Reverse”;
 - e. Remove the foot brake and move the apparatus forward or backwards (depending on the gear you selected) about a foot or so;
 - f. Reapply the appropriate brakes;
 - g. Do the initial “in cab procedure” again (Road to Pump & transmission to drive);
 - h. Check the results to be certain you have the proper indicator lights and the speedometer indicates a change. If you don’t have success, proceed to Step 4;

- Step 4 - If you are at the point where the forces of evil are really working against you and nothing has allowed the pump to go into gear so far, then we’ll need to “manually” engage the pump.
 - a. Place your “pump shift” into the neutral position;
 - b. Check to be certain your brake is set;
 - c. Exit the cab towards the pump panel and locate the “manual shift” lever;
 - d. Depending on your apparatus, pull or push the manual shift lever to engage it;
 - e. Go back to the cab and you should now notice a light indicating the pump is engaged;
 - f. Place the “pump shift” into pump;
 - g. Place the transmission into Drive;
 - h. You should now see the second indicator light letting you know it is okay to pump and presumably you’ll notice the speedometer indicates something like 10 or 15 mph.



Steps 1 & 2 are relatively quick to perform and may have very little impact on the total company operation. Steps 3 & 4 will impact the timely supply of water. There is a step 5 where you literally and manually engage the pump, but you'll need to do so with the engine turned off, crawl underneath and get dirty! It is literally a lot easier to show you this than to try to type it out and have everyone misunderstand why I'm trying to do! Actually, all of this is easier to "see" than to "read" and hopefully you'll get the idea. Likewise, by the time you get to that point, another engine should have arrived and you can move operations to that apparatus.

You will also want to check your department guidelines regarding when to notify your company officer or command that you are experiencing pump issues. Likewise, check with your apparatus manufacturer to see if they have steps that are more specific to your apparatus. The provided information is generic and will be close, but it is always good to clarify your particular apparatus information. As a D/O, it's your responsibility to practice and perfect your craft. The fireground is not the time to see if you can remember what you read one time about how to resolve pump issues. The drill ground, however, IS the perfect place to practice your craft.

Today we seem to find ourselves with a lesser number of resources at each incident or the resources take longer to arrive at the scene. Therefore, we must be proficient at handling our own "pump Maydays". You can practice these easy steps in the bay or better yet, practice them during company evolutions where you flow water and where you can "see your results". You'll then be able to completely execute the steps with speed and confidence should you ever need to handle this particular piece of a Pump Mayday. Practice these steps on a regular basis and build them as "muscle memory", just like you do with your SCBA.

Stay strong, be safe, and go practice!