Southern Rolling Plains
Prescribed Burn Association

Rx Fire Trailer Equipment List and Procedures
This is a Wildfire Pacific pump package that will fit on most, if not all, UTVs and pickups. There will be 1 pump package per cache of equipment. It has a Mini-Striker single stage fire pump that is very easy to operate and is rated at 32 gallons per minute at 50 psi.

To start the pump:

1) turn the red electrical switch to the on position
2) turn the black plastic fuel lever to the open position
3) apply the choke with the gray plastic lever (in situations where the pump has not been running for a while or it is cold outside)
4) adjust the throttle to a medium speed with the metal lever
5) once the engine cranks, you can adjust the throttle to achieve the desired pressure, usually full speed or near full speed when pumping and the lowest speed where the engine stays running when not spraying.

NEVER operate the engine when the tank is dry or when the pump is not primed when drafting out of a water source. It will heat the mechanical seal in the engine and quickly (within minutes) lead to engine failure. Similarly, NEVER operate the engine with all of the valves closed. The water in the pump will heat up and cause similar damage to the mechanical seal. Proper valve positions for different situations will be shown later.

In this photo, the hose reel is fitted with a ¾” Garden Hose Thread (GHT) shutoff valve, a ¾” GHT to 1” National Pipe Straight Hose (NPSH) thread, and a 1” NPSH Forestry Nozzle. This is the same nozzle used by professional wildland firefighters because it offers the options of a high pressure straight stream for applying water to the base of fire in fine fuels (grass and leaf litter), a low pressure fog pattern which is ideal for mop-up and wetting down smoldering logs while simultaneously scraping with a hand tool, or a combination of the 2. It is designed to operate at 50 psi nozzle pressure and will deliver 7 gallons per minute at this pressure. In order to achieve this on level ground, the pump pressure will need to read 53 psi, due to the friction loss of the hose. However, because the recirculation valve will need to be cracked open any time nozzles are in use, a pump pressure of 60 psi or 70 psi will be needed to account for this. Any additional pressure is unnecessary, unless pumping uphill, where the pump pressure should be increased by 1 psi for every 2 foot elevation rise (pumping downhill would be negative). The additional nozzle and the fitting that are sitting on the base of the pump package will be explained in the next 2 slides.
This is a ¾” GHT adjustable barrel nozzle. There will be 1 in every cache of equipment. It is designed to operate at 100 psi nozzle pressure and will deliver 6-14 gallons per minute at this pressure. In order to achieve this on level ground, the pump pressure would need to read over 110 psi, due to the friction loss of the hose. This pump will only pump approximately 85 psi, so it should be run wide open when using this nozzle.
This is a 1 ½” National Hose (NH) thread blowout fitting. There will be 1 in every cache of equipment. It is used during the winterization of the pump, something that needs to be done after every use prior to returning the equipment.

To winterize the pump:

1) with water circulating, run the pump out of fuel  
2) screw this fitting onto the water inlet  
3) with all valves closed (handle pointing perpendicular to the direction of water flow) and the water inlet valve arrows pointing to the pump and the fitting, pressurize slightly with air from an air compressor  
4) remove the hose nozzle and store in the half open position  
5) open the hose reel valve (handle pointing parallel with the direction of water flow), allowing air to push water out of the hose  
6) closed the hose reel valve (handle pointing perpendicular to the direction of water flow)  
7) pressurize the system  
8) open the hose reel valve (handle pointing parallel with the direction of water flow)  
9) repeat steps 5-7 until no water is coming out the end of the hose  
10) close the hose reel valve (handle pointing perpendicular to the direction of water flow)  
11) pressurize the system  
12) open the 1 ½” overboard discharge valve (handle pointing parallel with the direction of water flow)  
13) close the 1 ½” overboard discharge valve (handle pointing perpendicular to the direction of water flow)  
14) repeat steps 10-12 several times  
15) pressurize the system  
16) open the recirculation valve (handle pointing parallel with the direction of water flow)  
17) close the recirculation valve (handle pointing perpendicular to the direction of water flow)  
18) repeat steps 14-16 several few times  
19) screw this fitting onto the 1 ½” overboard discharge valve  
20) opening the 1 ½” overboard discharge valve (handle pointing parallel with the direction of water flow)  
21) blow air and water out the inlet until no water is remaining  
22) turn the water inlet valve 90 degrees so that the arrows point to the pump and the tank  
23) blow air and water into the tank until no water is remaining  
24) put all valves except the foam valves into the half open position (this includes the valves for all nozzles and shut-offs) in order to prevent any water trapped between the valve seat and the valve ball from freezing and damaging the valve

The pump is now winterized.
This is a spanner wrench. There will be 1 in every cache of equipment. It is used to remove the 1 ½” NH blowout fitting or suction hose from the 1 ½” overboard discharge or the water inlet.
This is the standard valve positions to be used when using the hose reel.

- The water inlet valve will have its arrows pointing to the pump and the tank, indicating that the pump will be receiving water from the tank (unless also simultaneously drafting from a water source).
- The hose reel valve will be fully open (handle pointing parallel with the direction of water flow).
- The 1 ½” overboard valve will be fully closed (handle pointing perpendicular to the direction of water flow).
- The recirculation valve will be cracked open just enough for a small amount of water to go back into the tank. Too much will reduce nozzle pressure, while not enough will allow water in the pump to heat up when the nozzle is closed, causing damage to occur in the pump.
- The foam valve may be either open or closed, depending upon whether the use of foam is desired (the foam hose will need to be submerged in a jug of firefighting foam). Please remember, if foam is used, the entire unit will need to be flushed with at least 1 tank full of water after the foam valve is closed.
This is the standard valve positions to be used when using the 1 ½” overboard discharge. This would be used if pumping through 1 ½” NH or 1” NPSH forestry hose. We do not currently have the hose or adapters necessary for this, but the option is there for those who do. This configuration is handy when a water source is present, such as a swimming pool during structure protection. Additionally, this can be used with tank water during mop-up.

- The water inlet valve will have its arrows pointing to the pump and the tank, indicating that the pump will be receiving water from the tank (unless also simultaneously drafting from a water source).
- The hose reel valve will be fully closed (handle pointing perpendicular to the direction of water flow).
- The 1 ½” overboard valve will be fully open (handle pointing parallel with the direction of water flow).
- The recirculation valve will be cracked open just enough for a small amount of water to go back into the tank. Too much will reduce nozzle pressure, while not enough will allow water in the pump to heat up when the nozzle is closed, causing damage to occur in the pump.
- The foam valve may be either open or closed, depending upon whether the use of foam is desired (the foam hose will need to be submerged in a jug of firefighting foam). Please remember, if foam is used, the entire unit will need to be flushed with at least 1 tank full of water after the foam valve is closed.
This is the standard valve positions to be used when drafting water from a water source.

- The water inlet valve has arrows pointing to the water inlet and the pump, indicating that the pump will be receiving water from a water source through a suction hose (shown later).
- The hose reel valve, 1 ½” overboard valve, and foam valve will be fully closed (handles pointing perpendicular to the direction of water flow).
- The recirculation valve will be fully open (handle pointing parallel with the direction of water flow).

In order to draft, the suction hose will need to first be full of water. This can be accomplished by submerging the hose until it is full and then connecting it to the inlet. Water can then be pushed into the pump by pushing and pulling the suction hose back and forth under water. This is accomplished through the use of the foot valve inside the strainer on the end of the suction hose. This foot valve allows water to enter the hose but not flow back out. This step is generally not necessary if water is remaining in the tank, as the pump will already be primed in this case.

It is preferred that some water remains in the tank prior to refilling for 2 reasons:

1) the pump is never run dry
2) there is water left in reserve if it is needed in an emergency.

Please remember that only clean water sources should be used. In cases where vegetation may be sucked into the suction hose, place a bucket over the strainer to reduce the amount of vegetation drawn into the suction hose.
Remember

- **When closing valves, do it slowly.** Quickly closing valves can cause a condition called water hammer which will lead to cavitation of the pump, nozzles, or valves. There is no reason to slam the valves shut.

- In any situation where water is being pumped through nozzles, **the recirculation valve must be cracked open** so that water can recirculate when nozzles are closed.

- **The pump and hoses will have to be flushed** with at least 1 tank full of fresh water prior to turning it back in following the use of foam or following the use of pond, creek, or stock tank water.

- **The pump package must be winterized** prior to turning it back in.
This is an 8’ section of suction hose with a foot valve and strainer. There will be 2 8’ sections and 1 foot valve and strainer in every cache of equipment.
This is another 8’ section of suction hose with a 1 ½” Female NH to 1 ½” Male NPSH adapter. There is 1 adapter in every cache of equipment.
There will be enough rebuild kits and/or extra valves to repair or replace all valves on the pump package if they become damaged.
This is an ATV sprayer. There will be 1 in every cache of equipment. The sprayer should be emptied and then the pump and hose run dry prior to returning.
These ratchet straps can be used for strapping down the pump package and/or the ATV sprayer, among other uses. There will be 4 straps in every cache of equipment.
This is a bladder pump. There will be 2 in every cache of equipment. They can be worn like a backpack and used to quickly apply water to spotfires or used during mop-up. They should be emptied and squirted dry prior to returning.
There is an assortment of personal protective equipment in every cache of equipment. There should be 6 pairs of assorted-sized Nomex pants, 6 assorted-sized Nomex shirts, 6 fire hard hats, and 8 radio harnesses in every cache of equipment. Also shown in the photo are a belt weather kit and a drip torch.
This is a belt weather kit. There will be 1 in every cache of equipment. It contains a weather record book, a compass, a wind meter, a sling psychrometer, a bottle for distilled water to be used with the sling psychrometer, a slide rule to use to determine relative humidity from the sling psychrometer readings, and a pencil.
This is a radio, charger, and AA battery adapter. There will be 8 radios, 8 chargers, and 4 (or more) AA battery adapters in every cache of equipment. There are 16 channels in the radios. Channels 1-8 are frequencies for which we have a license from the FCC. This is not an exclusive license, so if someone else is using a particular frequency, select another. Channels 9-15 are the NOAA weather radio channels. One or more should be audible anywhere we go. Channel 16 is a Texas Interoperability fire channel (VFIRE21) which is not legal for us to use unless we are working with an entity that is authorized to use this channel and authorizes us to use it due to the fact that they are assisting and cannot program in our frequencies. Most Federal and State firefighting resources will have this channel, as well as most Fire Departments. Radios should be returned fully charged.

We are authorized to simultaneously operate no more than 50 radios at no more than 35 Watts on the following channels:
Channel SRPPBA_1: 151.5050
Channel SRPPBA_2: 151.5125
Channel SRPPBA_3: 151.6250
Channel SRPPBA_4: 151.7000
Channel SRPPBA_5: 151.7600
Channel SRPPBA_6: 154.5275
Channel SRPPBA_7: 158.4000
Channel SRPPBA_8: 158.4075
These are our 5-gallon fuel jugs, 15-gallon fuel transfer tank (for mixed drip torch fuel), and drip torches. There will be 2 5-gallon fuel jugs, 1 15-gallon fuel transfer tank, and 4 drip torches in every cache of equipment.
These hand tools are (from left to right) a swatter (for starving low flames of oxygen), a combination tool (for digging and scraping in soil or rocks), a McLeod (for cutting and raking, usually in timbered or shrubby vegetation), a Rogue Hoe (for cutting and scraping in grass or heavier fuel), a fire shovel (for scraping in looser soil or leaf litter), a fire (or Council) rake (for cutting and raking in grass or shrub fuels), and a Pulaski (for chopping or grubbing in most any fuel). There will be at least 1 swatter, 1 combination tool, 1 McLeod, 2 Rogue Hoes, 1 fire shovel, 1 fire (or Council) rake, and 1 Pulaski in every cache of equipment.
These are “Caution Smoke Ahead” signs. The text is on one side and the orange and white striping is on the other side. There will be 2 in every cache of equipment. If you are the first user, you will have to fill them with sand or dirt. There are white plastic funnels in the Action Packer storage box (not pictured) to make this easier.