

Tools and Equipment

This section is intended to aid in recognizing and use of tools and equipment used at Pendleton Fire. In addition to understanding the **T**ool, **U**se, **M**aintenance, and **S**afety, firefighters should know the location(s) of all of the tools and equipment carried on the apparatus or in the station at which they are assigned.

The care and maintenance of tools is very important. Tools should be cleaned and restored properly after use. Metal tools should be kept free of rust and may be lightly oiled or painted depending on the tool. Cutting edges of tools should be kept sharp. Those tools with working parts should be clean and well lubricated to allow free movement and efficient operation. Wooden handled tools must be sanded smooth and given a coat of linseed oil or other approved water-resistant varnish.

This Chapter will be broken down into the following sections:

- 2.1** Hand tools
- 2.2** Power tools
- 2.3** Portable extinguishers
- 2.4** Hose connections, master streams, and nozzles
- 2.5** Wildland tools
- 2.6** Miscellaneous tools and equipment
- 2.7** Breathing Air Center operating instructions
- 2.8** Tire chain installation
- 2.9** Tool Talks (TUMS= tool, use, maintenance, safety)



Section 2.1

Hand Tools

- **“A” Tool (Officer’s Tool)**- The “A” Tool or Officer’s Tool is forcible entry tool used by firefighters. It consists of a rounded steel handle approximately 18 inches long, with one end tapering to a flattened tip for prying or punching and the other terminated with a perpendicular steel head. The head is four inches long and has a steel forked end opposite a striking end. The A-tool, like the smaller K-tool is used to remove the lock cylinders, such as on rim locks, police locks, dead-bolts, or key-in-the-knob locks. This tool is carried on both structure engines.
- **Axes**- The pick head axe was developed and is manufactured exclusively for firefighting. It is used for forcible entry, ventilation, and overhaul work. The head of the pick head axe has a blade, a peen, and a flat surface. The Flathead axe is often paired with a Halligan tool to create a set of “irons” or an “entry set”. The flat head axe has a blade and a flat head side used like a sledgehammer to strike other tools or be used for overhaul to reduce the chances of the cutting edge becoming stuck in the material(s) being struck. Axes are carried on engines, truck, tender, and rescue.
- **Bar (Crow)** - The crow bar is a tool with a straight bar and a hook like end on the other. It is often forked. It is a prying tool and has many uses.
- **Bar (Wrecking)** - The wrecking bar is long and straight with a point on one end and a flattened chisel end on the other. It is useful for prying and forcible entry/rescue applications.
- **Battle Lantern**- Large flashlights mounted and wired in to the apparatus’ for charging. They are found on the engines and truck. Useful for search and rescue, backing an apparatus at night, marking an egress location, etc.
- **Bolt cutter**- The bolt-cutter is a scissor-like tool with a hardened steel jaws; the leverage being provided by the handles. These are useful for forcible entry work. Padlocks, metal fencing, heavy wire, small bars, etc. are typical items bolt cutters may be used on. They are found on the engines, truck, and wildland apparatus.
- **Halligan Tool (with axe)** - Forcible entry tool and is often combined with a flathead axe. May also be used for overhaul, prying, etc. They are found on the engines and truck.
- **Hydra Ram II**- Single man hydraulic forcible entry tool. This tool comes with a mallet and should be tapped into place in the door seam with mallet if needed. Weighs 13 lbs. Length 15" long. 10,000 lbs. of force. 6" spread opening. They are found on the engines.
- **Hydrant Wrench**- A hydrant wrench is a tool used to remove fire hydrant caps and open the valve of the hydrant. They are adjustable so as to fit different sized hydrant nuts. They have a spanner on the head for tightening/loosening couplings. They are found on all of the apparatus that has a fire pump.
- **Hydrant bag**- located on the rear officer side of the engine and truck, the hydrant bag has the adapters and spanners necessary for connecting to a hydrant.

- **“K” Tool**- The K tool consists of a steel block roughly 3 inches by 3 inches by 1 inch thick with a K-shaped notch on one side, having sharp edges that grip the cylinder, and a U-shaped flange on the other side. The notch is slipped over the lock cylinder, and then forced down by striking with the flat side of the axe or maul. The Halligan is then inserted into the flange and used to pry the K-tool off the door, thereby pulling the entire key cylinder out. The bolt is then retracted from the inside of the cylinder hole using a turning tool, such as a screwdriver. This tool can help prevent unnecessary damage to a door. The K tool is found on the engine.
- **Ladder Belt**- Safety belt used when operating on the aerial device. Includes a belt and a strap with carabiner style clips for attaching to ladder rungs, platform, etc. They are found on the Truck.
- **Mallet (Rubber)** - The mallet is a rubber headed hammer that can be used to assist in the shutting of some valves and tightening of some fittings. It can also be used to check tires during daily inspections. Mallets are found on the fire apparatus.
- **Pike Pole**- Modern firefighting pike poles are usually of fiberglass, between 4 feet to 12 feet long, and used to search for fires hidden behind walls and ceilings, to pull items from intense heat and flames, and to ventilate structures by breaking windows. They may or may not have a “D” handle based on length. Commonly used in overhaul.
- **Rescue 42 strut/jack**- These tools are located on the Rescue unit and are used for stabilizing and/or lifting a vehicle or object. They can be utilized as a stationary device or with a jack attachment. They can also be used in conjunction with chain for lifting.
- **Rubbish Hook**- The rubbish hook is carried on the Truck. It has a fiberglass pole, D handle, and a forked end for pulling. It is useful for overhaul, sounding a roof, ventilation, etc.
- **Shovels**- These hand tools come in various sizes and configurations. Shovels can be used for overhaul, spills (for example spreading absorbent on fuel spill) and for wildland firefighting.
- **Shove Tool**- Small Forcible Entry tool. See Forcible Entry Chapter 9.
- **Spanners**- Fire hose spanner wrenches are used to loosen two hoses apart or to tighten two hoses together. There are spanners, pin spanners, and Storz spanners for different hose coupling styles. Spanners are found on all apparatus with a fire pump.
- **Thermal Imaging Camera (TIC)**- The TIC is commonly used to search for victims in an IDLH environment, while searching for hotspots during overhaul, or while attempting to locate the seat of the fire when visibility or void spaces may hide fire conditions.
- **Wheel Chocks**- Wheel chocks (or chocks) are wedges of sturdy material placed closely against a vehicle's wheels to prevent accidental movement. Chocks are placed for safety in addition to setting the brakes.

Section 2.2

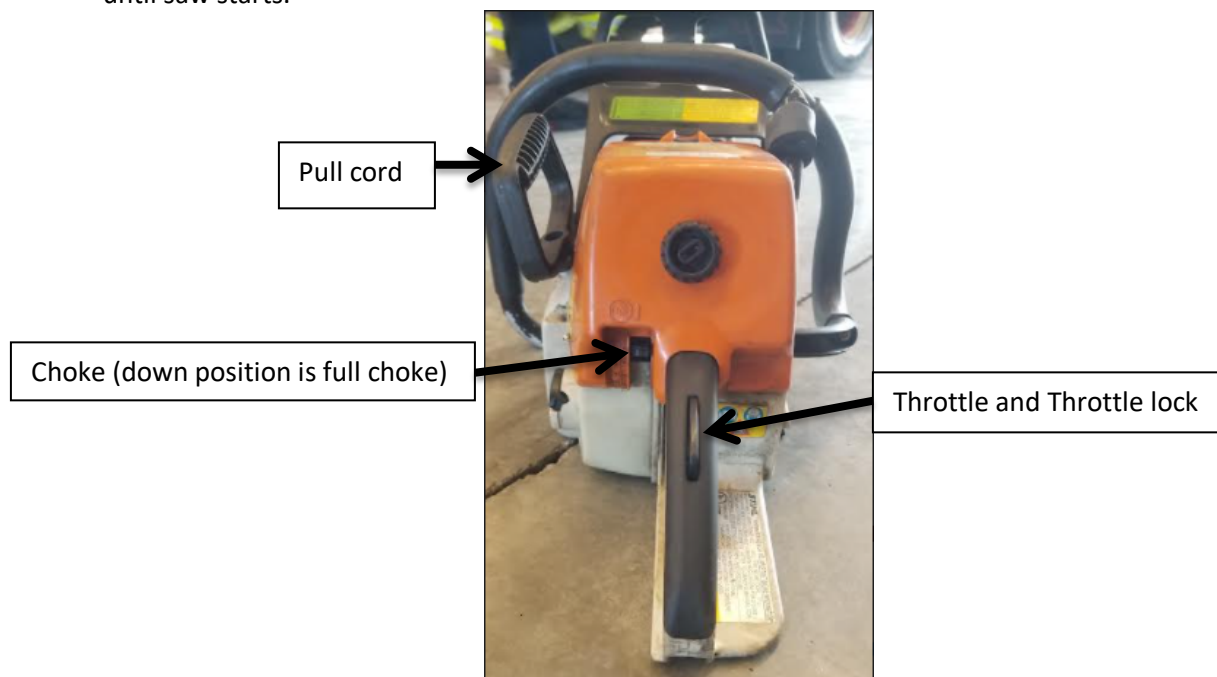
Power Tools

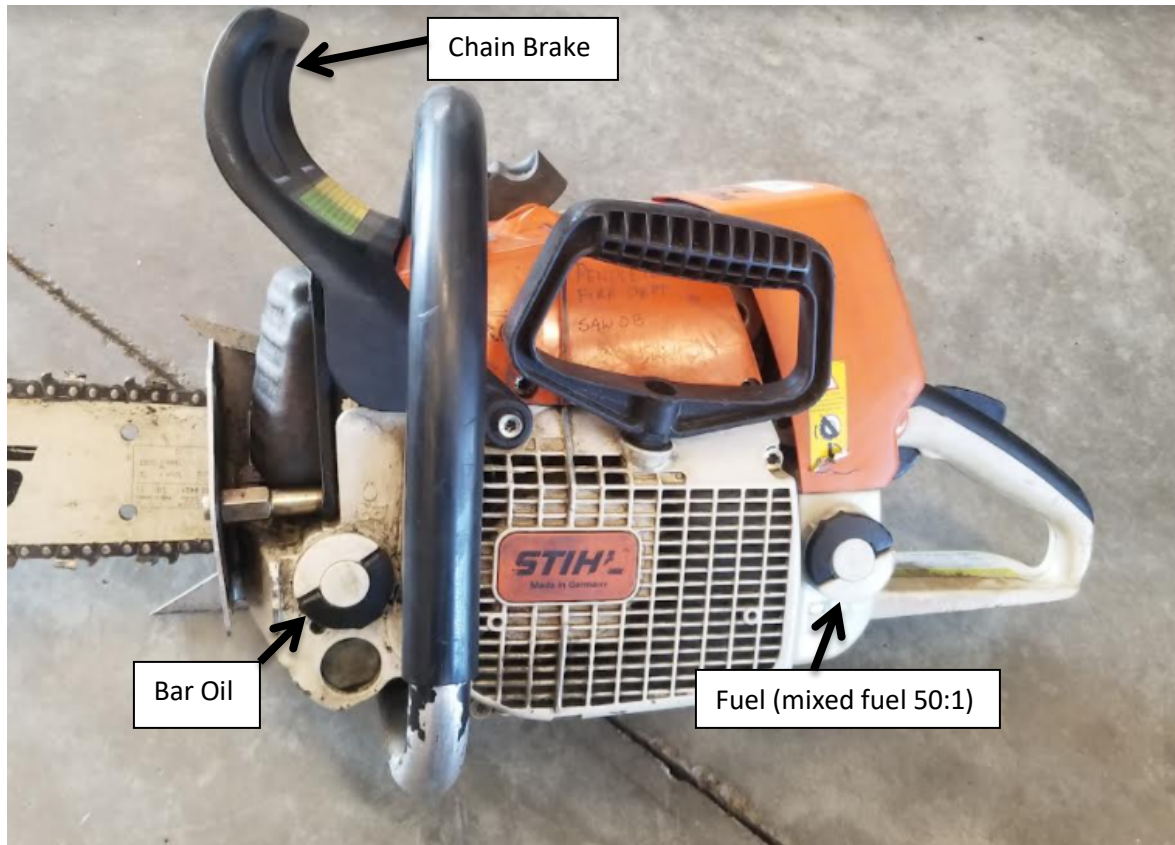
- **Air bags**- Airbags are carried on the Rescue unit and are attached to an SCBA cylinder via regulator and hose. These valves are manipulated to operate the airbags for lifting vehicles or other heavy items. Always use cribbing when using airbags or other tools used to lift heavy items.
- **Air Chisel (AJAX)** - This tool is located on the Rescue unit. It is most often used for vehicle or machinery extrication when sheet metal needs to be removed. It also has socket attachments for removal of nuts/bolts. The air chisel is attached to an SCBA cylinder via regulator and hose and is adjusted for the appropriate PSI determined by the bit used.
- **Chain Saw**- The Stihl Rescue Magnum is carried on the structure apparatus for ventilation purposes. It is powered by a 2 stroke 76.5 cc engine and runs on mixed fuel. It has a 20inch bar and a firefighting specific chain. The Stihl chainsaws on the brush apparatus are utilized for cutting wood and organic materials in the wildland setting.
- **Electric PPV Fan**- The electric PPV fan is carried on the Truck and is used for either positive or negative pressure ventilation. It is powered by the on-board extension reels on the Truck.
- **Gas PPV Fan**- Each engine in the fleet has a gas powered PPV fan. It is powered by a 4-stroke engine and runs on unleaded fuel.
- **Generator**- Each engine and the Rescue have a portable Honda generator. These generators are powered by a 4-stroke engine and run on unleaded fuel. They can be utilized for operation of lighting, tools, etc.
- **E-Tools (Hurst Tools)** - The Hurst E-tools are primarily used in extrication operations. There are 4 types at Pendleton Fire: The spreader/cutter (carried on each ambulance with the exception of transfer ambulance), spreaders, cutters, and ram (located on the Rescue). These tools are powered by batteries that must be rotated periodically. To use these tools, press the power switch to "ON" and operate the rotary control.
- **Rotary Saw**- The rotary saw is a circular cutting device. It is used for forcible entry and ventilation operations when the material is not appropriate for a chainsaw (i.e. steel cross bar). This saw is powered by a 2-stroke engine and runs on mixed fuel. Each engine and Truck has a rotary saw and replacement blades.
- **Sawzall**- the Sawzall is a reciprocating saw used for extrication, ventilation, and other cutting operations. It is carried on the Rescue unit and must be powered by the generator. It has an assortment of blades for cutting different materials.

Starting/Operating Procedures

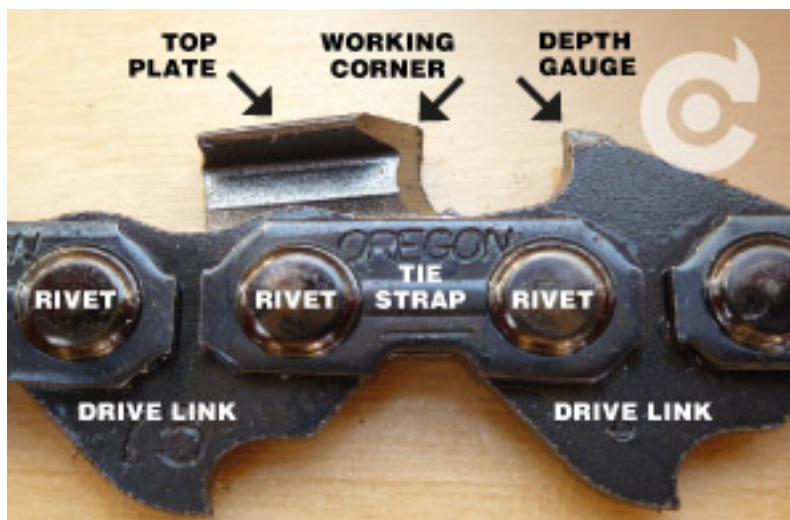
Chainsaw:

1. Choose a stable platform to start saw.
2. Check the fuel and bar oil.
3. Check the chain teeth and chain tension
4. Clear area of bystanders. Particularly in front of and behind saw.
5. Make sure chain brake is engaged.
6. For a cold engine push the control lever of the choke all the way down to the full choke position while grasping the throttle handle to depress throttle lockout lever and squeeze the throttle trigger. (Note that trigger cannot be moved unless the throttle lockout lever is depressed.)
7. While squeezing the trigger, push and hold in the throttle lock then let go of throttle trigger.
8. Throttle trigger should be locked in full open position.
9. Crank repeatedly with full choke.
10. As soon as the engine coughs or fires a few times, go to half choke and crank to start. Half choke is one position up from the full choke position.
11. When engine runs, smoothly move the control lever to the open position, which is one up from the half choke position. Too much delay and the engine may die from lack of air.
12. Squeeze the trigger unlocking the throttle lockout lever and allow the engine to idle.
13. To stop, move the control lever to the "STOP" position, which is all the way up.
14. While the engine is still warm from recent operation, it can be started without the choke and without latching the throttle latch. When it has begun to cool, however, try starting at half-choke position with the trigger latched. If this does not work, crank to start at full choke. If flooded, you may have a partner hold down on throttle with choke in open position and crank until saw starts.



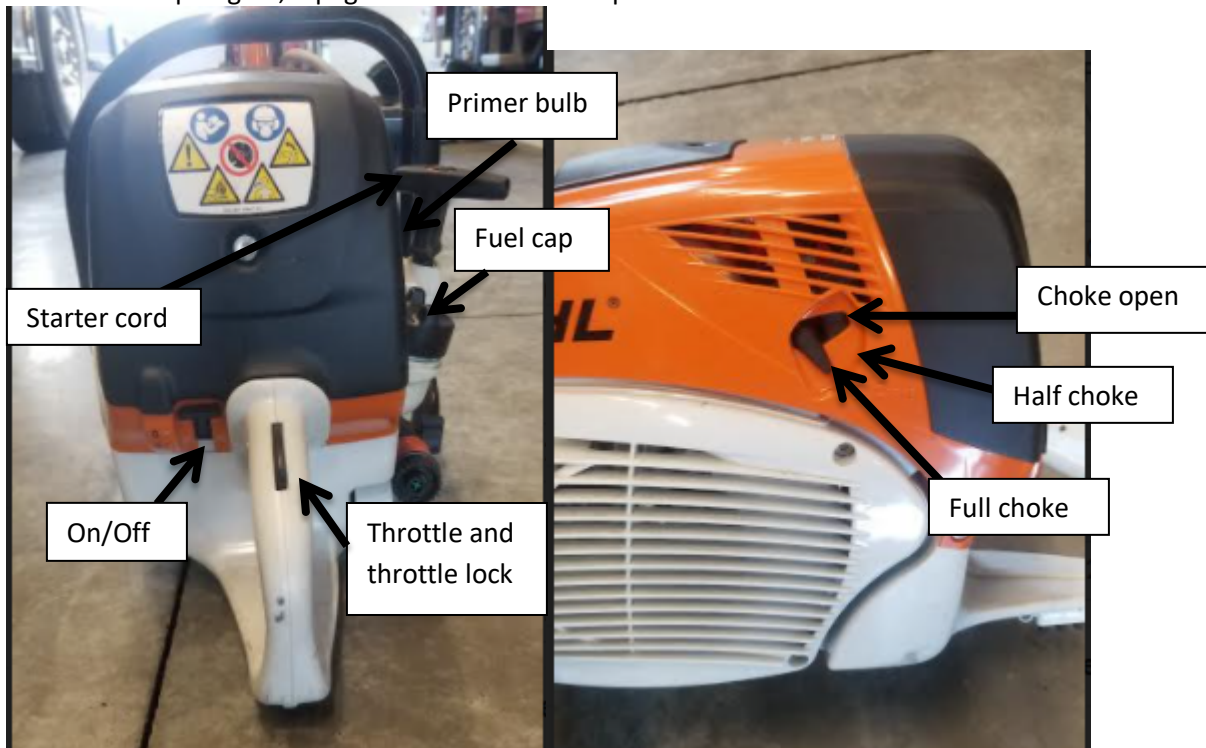


When running the chain saw, allow the saw to run at idle for 2-5 minutes. Proceed to bring the saw up to full RPM in safe area and with hearing protection on. Always check the saw for fuel and bar oil levels any discrepancies prior to starting and stowing. The chain of a chainsaw should never be overly tight, and should show between 5-7 drive links when pulled away from the bar for proper tightness. Also be sure the chain is on in the correct direction and the saw is clean of debris before stowing.



Rotary Saw:

1. Choose a stable platform to start saw.
2. Clear area of bystanders particularly in front of and behind saw.
3. Ensure blade is on and secure.
4. Check safety guard
5. Check fuel level
6. Push primer bulb to ensure fuel is in bulb
7. Flip ignition switch to "on" position.
8. Move choke to full choke.
9. Squeeze throttle trigger and lock on with throttle lock.
10. Place foot inside trigger handle and hold on to handle bar with hand.
11. Pull starter cord just enough to engage the starter pawls.
12. Crank engine smartly with a quick pull. Do not pull cord to end, and do not let cord snap back into starter.
13. When the engine starts, disengage throttle trigger and move choke to half choke and the open.
14. To stop engine, flip ignition switch to "off" position.



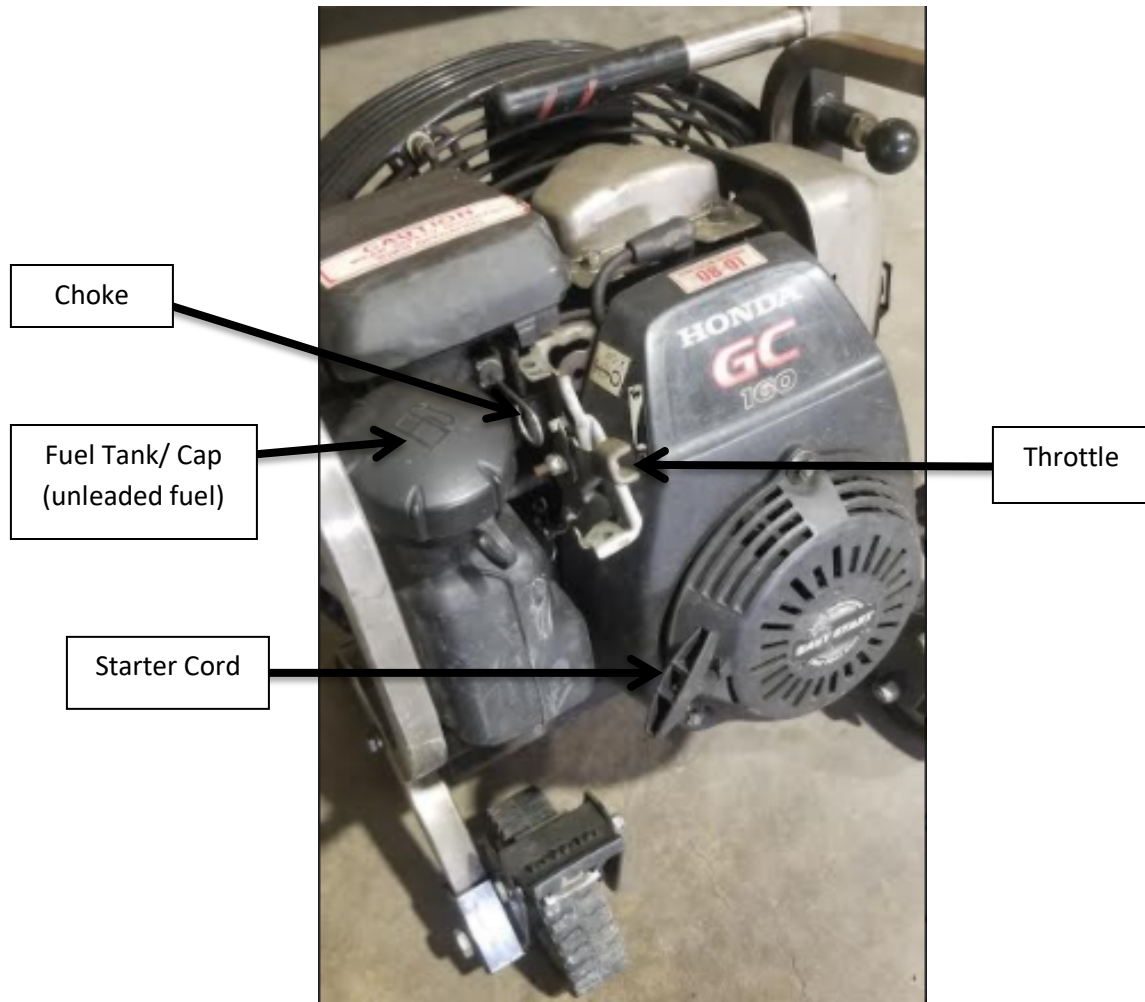


When running the rotary saw, allow the saw to run at idle for 2-5 minutes. Proceed to bring the saw up to full RPM in safe area and with hearing protection on. Always check the saw for fuel and any discrepancies prior to starting and stowing. Check the tightness of the arbor that holds the blade in place and make sure the blade is secure.

The rotary saw also has a **decompression valve** which releases some of the compression from the combustion chamber during the starting procedure, making the engine easier to turn over when pulling the recoil rope. The decompression valve is located on the top of the saw as shown above, and can be helpful for starting the saw, but is not required to start the saw.

PPV Fan:

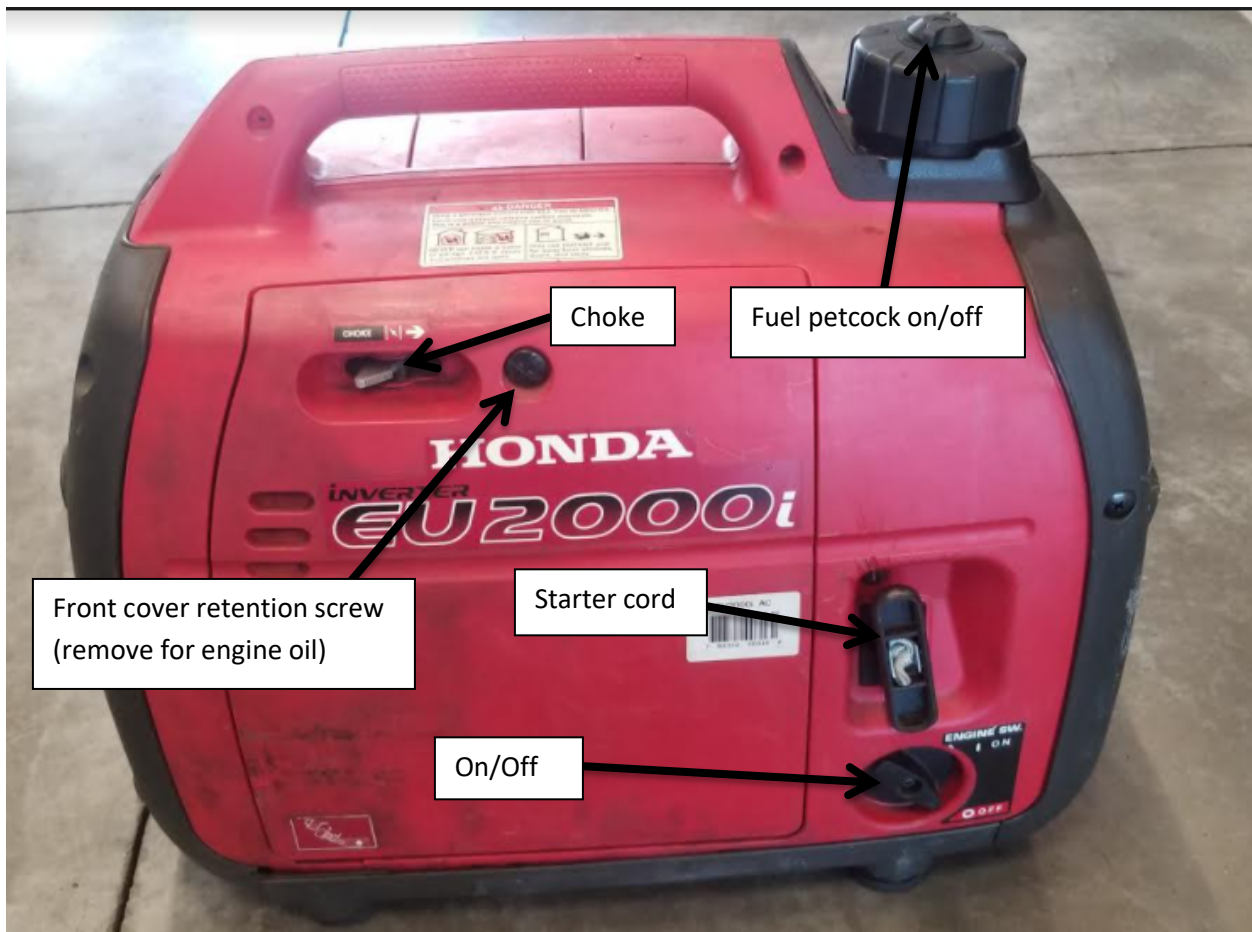
1. Check fuel level
2. Turn on/off switch to "ON" (If fan has kill switch)
3. Open fuel petcock/fuel line
4. Close choke
5. Pull starter cord
6. After engine runs, open choke. Adjust throttle for desired RPM. To stop either turn on/off switch to "OFF" or move choke to full choke.



Generator:

1. Check fuel level
2. Switch on/off switch to "ON"
3. Open fuel petcock
4. Close choke
5. Pull starter cord. Turn choke to open after start up. To stop turn on/off switch to "OFF" or move choke to full choke.

*Do not start in ECO MODE



AJAX Tool/ Air Chisel:

1. Check air chisel and tools for defects
2. Attach regulator female threaded fitting to SCBA bottle (check SCBA for pressure/defects)
3. Attach male end of hose line to regulator
4. Connect air chisel to female end of hose
5. Open SCBA bottle
6. Adjust air pressure on regulator to desired setting (pressure settings listed inside of AJAX tool box)



Airbags:

1. Open air bag kit(s) and check airbags and connections/hose for defects.
2. Attach regulator with threaded fitting to SCBA bottle (check SCBA bottle for pressure/defects)
3. Attach female fitting of short black hose to regulator.
4. Attach male fitting of short black hose to control regulator (has red and green buttons for inflation/deflation). Also has 2 pressure gauges with red and green areas for desired pressure/pressure limits
5. Attach male end of colored hose (longer hose) to control regulator.
6. Attach female end of colored hose to quarter turn valves (used for deflating air bags when hoses are removed)
7. Attach female end of quarter turn valve to air bag.
8. Move quarter turn valve to "Open" position.
9. Turn SCBA bottle on.
10. Adjust regulator at SCBA bottle for desired pressure. Inflate airbags to desired height using control regulator. Be cautious not to over pressurize air bags. ALWAYS USE CRIBBING when lifting objects.
11. To deflate bags either disconnect hose from quarter turn valve and open quarter turn valve, or use control regulator to decrease pressure with red buttons on control regulator.



Section 2.3

Portable Extinguishers

Each fire apparatus has portable extinguishers on board. Pendleton Fire has (2) types of portable extinguishers. The appropriate choice of extinguisher used is dependent upon the type of material to be extinguished.

- **Class A extinguisher**: - This is often referred to as the “water can” ordinary combustibles. Used for fires that involve materials such as cloth, wood, paper, rubber, and many plastics. These extinguishers hold 2.5 gallons of water and are pressurized via compressed air. This extinguisher is metallic stainless steel in appearance. It has a reach of 20-30 feet and extinguishes by cooling. Use a gloved finger over end of nozzle for fog type stream.
- To refill: first empty, then fill with 2 ½ gallons of water (do not overfill), replace top and hand tighten, pressurize to 100psi (inside green).
- **Class ABC extinguisher**- The ABC extinguisher can extinguish ABC fires. It extinguishes fires by interrupting the chemical chain reaction. It has a reach of 5-20 feet. It is pressurized with either CO2 or nitrogen. This extinguisher is red in appearance. These extinguishers can be very useful for vehicle fires in the early stages.



*Class A and Class ABC Extinguishers-

Hose Connections

Connections:

- **Adapters** – There are times when our fire hose such as the 5” inch supply line will not connect to hydrant readily due to a lack of a large steamer port. There are adapters to allow connection to a water source regardless of hydrant style. These are commonly found in the hydrant bag on structure apparatus such as the engines, tower, and tender.
- **Camlock adapter**- The Cam lock or cam and groove adapter is a quick connect and disconnect fitting that can be utilized for water supplies from some static and mobile sources with grooved connections.
- **Double Connections**- Double connections are commonly found in 1”, 1.5”, and 2.5” sizes and may be either double male threaded or double female threaded. Some wildland double connections may be NH to NPSH to accommodate other agencies thread pitch on certain wildland hose and fittings.
- **Eductor, Foam**- The foam eductor is used in-line with fire hose to utilize foam directly from its container.
- **Five-inch Hose adapters** the most common 5” Storz adapter used is the 4.5” NH (female) to 5” Storz. This is used to connect the 5” LDH supply line to the 6” steamer port on the hydrant. There are also adapters for 2.5” NH to 5” Storz. Storz couplings are “sexless”.
- **Gate valve** There are (2) types of gate valves carried at Pendleton Fire. The most commonly used is the 2.5” gate with ball valve. This takes one quarter turn to operate. The other gate valve is operated by rotating the handle multiple times to either open or close the vertical gate.
- **Gated wye**- The gated wye is used to divide a single hose line into two or more lines. These take a larger diameter line and divide them into smaller diameter lines such as a 2.5” down to two 1.75” lines. Gated wyes have ball valves with a quarter turn operation. There are also smaller diameter gated wyes for wildland firefighting applications.
- **LDH Manifold**- the LDH or 5” manifold is used to reduce a 5” supply line down to (3) 2.5” dischargers with individual ball valve gates. This is used for such things as a reverse supply hose lay where 5” hose must be reduced down to 2.5” discharges.
- **Reducers**- These connections are used to connect two different size hose or fittings. Reducers come in a variety of sizes and can be used to reduce hose lines. A common reducer would be a 2.5” female thread to 1.5” male thread. As with double connections, some wildland reducers may be NH to NPSH or visa- versa.
- **Siamese**- the Siamese is used to reduce two hose lines into one. For instance (2) 2.5” lines could be reduced down to (1) 2.5” line in order to increase water flow to an appliance.
- **Strainer (suction)** - although not a connection, the strainer is used in conjunction with hard suction tubing for drafting operations.

Master Stream Devices

- **Deck gun-** Deck guns or Turrets are permanently mounted to the apparatus and allow for vertical and horizontal adjustment either via a handle or a set of electronic controls that operate gears. These are utilized primarily for defensive/transitional operations. The wildland engines may also have turrets attached to them such as on the front bumper.
- **Elevated Master Stream-** An elevated master stream usually refers to the turret on the tip or platform of an aerial device.
- **Portable Monitor-** portable monitors are intended for producing large streams from any point on the fire ground. The portable monitors at Pendleton Fire are supplied by either 2.5" hose or 5" hose and are found on the engines and truck.

Nozzles

- **Bresnan Distributor-** the Bresnan style distributor is a circulating nozzle equipped with a 2.5" female connection. These nozzles can produce around 250 GPM with an 80 PSI nozzle pressure and can cover an area approximately 30 feet in diameter.
- **Fog Nozzle-** Fog nozzles are available in a variety of sizes, shapes and types. Fog nozzles can be adjusted from a wide fog pattern to a straight stream. They are also available for turrets and portable monitors. Fog nozzles are used extensively in the wildland setting.
- **Piercing nozzle-** The piercing nozzle is designed to be driven through walls, vehicle/cargo trailer bodies, etc. by striking the blunt end with something such as a flat head axe or sledge hammer.
- **Smooth Bore Nozzle-** smooth bore nozzles produce streams that are powerful and have long reach. These nozzles are carried in 1.5" and 2.5" sizes. There are also smoothbore stacked tips for use on portable monitors or turrets.
- **Wildland/Forestry nozzles-** wildland nozzles come in 1" and 1.5" sizes and are commonly fog nozzles that may or may not have a ball valve attached.

Section 2.5

Wildland tools

- **Bladder bag (backpack pump)**- A collapsible backpack portable sprayer made of neoprene or high-strength nylon fabric fitted with a pump.
- **Chain saw**- Chainsaws are carried on every wildland engine and are used for clearing debris and felling trees. Chains for wildland saws are made for cutting wood and other organic materials.
- **Chaps (chainsaw)**- Chainsaw chaps are carried in wildland engines and should be worn over wildland Nomex pants whenever using the chainsaw.
- **Drip torch**- The drip torch consists of a canister for holding fuel with a handle attached to the side, a spout with a loop to prevent fire from entering the fuel canister, a breather valve to allow air into the canister while fuel is exiting through the spout, and a wick from which flaming fuel is dropped to the ground. The wick is ignited and allows the fire to be directed as needed. The spout and wick can be secured upside down inside the canister for storage or transport. Typically the fuel used is a mixture of gasoline and diesel. Gasoline 30%/ Diesel 70%.
- **Fusee**- fusees are used to light fires much in the same way as the drip torch in wildland firefighting operations. Fusees have a limited burn time. They come with a cap that also acts as a striker.
- **Glow stick**- glow sticks are carried on wildland apparatus and can be used for personnel identification, to mark entrance points in wild land, hydrant or water supply point, etc.
- **Hose clamp**- wildland hose clamps are hinged and allow the firefighter to extend a hose line without shutting down the hose line in wildland operations.
- **McLeod**- the McLeod tool is a two-sided blade — one a rake with coarse tines, one a flat sharpened hoe — on a long, wooden handle. It is a standard tool during wildfire suppression and trail restoration.
- **Pulaski**- the Pulaski is a wildland tool that combines an axe head and adze in one tool. It is useful for digging fire line and cutting debris/vegetation.
- **Shovel**- the shovel is used for digging line, mop up, etc.



Section 2.6

Misc. Tools and Equipment

- **Breathing air center**- The breathing air center or BAC is located in the workshop/SCBA room of Station 1. The BAC is used to fill SCBA bottles (3) at a time. It can also be used to fill the breathing air cylinder attached to the aerial device on the Truck. See section 2. For BAC operating instructions.
- **Tire chains/chain tool**- Tire chains are used in winter/snow conditions. Each apparatus has a corresponding set of tire chains that is matched to that apparatus. See section 2. For installation instructions.
- **Spill kit**- the spill kits located on the engines and truck are used for containing spill or stopping leaks with things such as fuel. It consists of absorbents, bucket, plug 'n' dike, etc.
- **Lath**: lath is used to secure plastic sheeting over windows, doors, or ventilation holes cut into structures to prevent further damage from water/weather.
- **Lazy Susan**- the Lazy Susan is located on each engine and truck to aid in loading hose when hose is rolled in a coil/doughnut roll.
- **Big Easy**- The "Big Easy" is a tool used to manipulate and unlock car doors of various makes and configuration. They are carried on each engine in the back of the cab.
- **Plastic sheeting (visqueen)**- can be used in combination with lath, nails, and hammer to secure and cover openings left in a structure after a fire or incident as part of salvage operations.
- **Hose strap (pud)**- The hose strap (sometimes referred to as a "pud") is a piece of webbing between 8-12 feet long that is tied in a loop using a water knot. It has many uses on the fire ground such as assisting in carrying/moving hose, tying off the tip of ground ladders, tying securing hose to a ladder or object, making a webbing harness, rescue operations, tying off a bale or gated wye, etc. Additionally a carabiner should be added to the hose strap for instances when a harness or attachment point is needed. Keep the hose strap in a turnout pocket.
- **Salvage covers**: used during salvage operations to cover belongings or property and to prevent further damage from water or smoke. Salvage covers are nothing more than a large heavy duty tarp.
- **Scene Lights (Portable)**- Small portable battery operated lights for emergency scenes. Carried on each engine.

Section 2.7

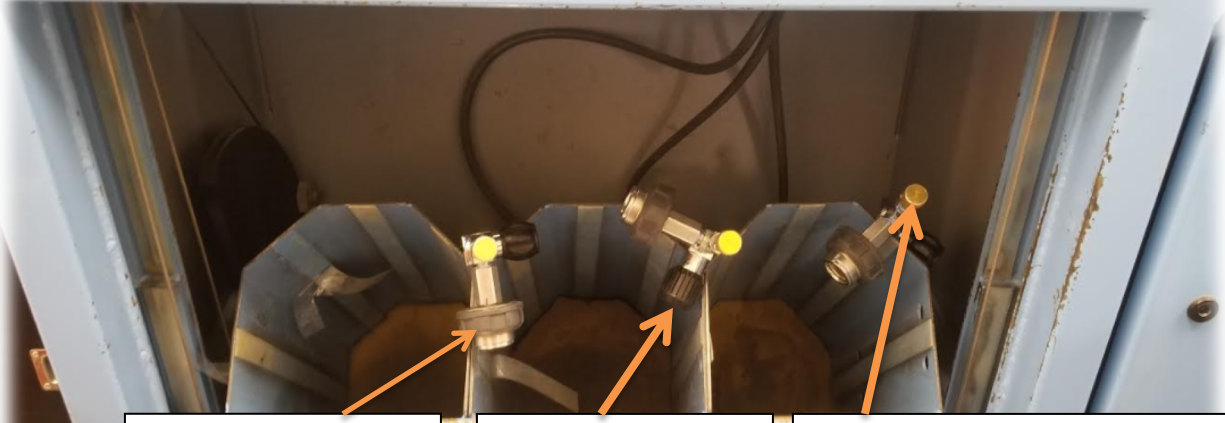
Operating BAC

The **Mako Breathing Air Center** is used for filling SCBA cylinders. It has a slide open door with (3) slots for cylinders, allowing for a maximum of filling 3 cylinders at a time. The Cylinders are attached to the connections inside the compartment and are to be fully opened. The black knob near the connection to the cylinder located on the fill hose should also be fully opened before filling. Make sure the small brass bleeder valve is closed. Also ensure after connecting the cylinders to the fill hose(s) that you shut the door completely. Filling will not occur even if the door is slightly cracked open. To fill, first ensure there is adequate pressure in one of the four “**Banks**”. If there is not adequate pressure in any of the banks (above 4500psi), simply close all of the valves labeled “**From Bank**” and “**Fill Valve**”. Then open at least one, if not all of the valves labeled “**To Bank**”. Then press the white “power on” button and wait for the compressor to fill however many of the (4) banks you have left open. The compressor will shut off when the bank(s) are full. When all of the desired banks are full, shut off all of the “**to bank**” valves. To begin filling cylinders, open one of the “**from bank**” valves, usually starting with bank 1. Then slowly open the “**fill valve**”. Be sure to monitor the bottle pressure gauge while filling. Also, be sure to fill slowly otherwise bottles may be “hot filled” and will lose pressure as they cool. When bottles are full, shut off all valves, open compartment door, and shut all valves on fill hoses and on cylinders. Lastly, bleed off excess air with the brass bleeder valves. Below is a **step by step instruction for filling cylinders**:

1. Ensure adequate pressure in at least 1 of 4 banks
2. Close all “To Bank” and “From Bank” valves on panel
3. Close Fill Valve on panel
4. Open door and attach SCBA cylinders to quick connect connection on fill hose(s)
5. Close bleeder valves on fill hose(s)
6. Open SCBA cylinder valve(s)
7. Open Fill Valve(s) on fill hose(s)
8. Shut compartment door completely
9. Open one “From Bank” valve from bank with lowest pressure(or bank 1 if all banks are full)
10. Turn Regulator Dial to “REGULATED” (regulated outlet pressure is 4500psi)
11. Open Fill Valve on Panel slowly.
12. Monitor Bottle Pressure until full. (Bottle will fill to set outlet pressure if “REGULATED”)
13. Shut Fill Valve on panel.
14. Shut “From Bank” valve on panel
15. Turn Regulator Dial to “OFF”
16. Open compartment door
17. Shut Fill Valve on fill hose(s)
18. Shut SCBA cylinder valve
19. Bleed air off with brass bleeder valve
20. Remove SCBA cylinders
21. Open Fill Valves on fill hose(s) and bleed off excess air
22. Shut door and shut off all valves

* When you are completely done with the Breathing Air Center, shut all valves off on the panel, open the door, and bleed off the air in the lines by opening the fill valves on the fill hoses. Ear protection is recommended.



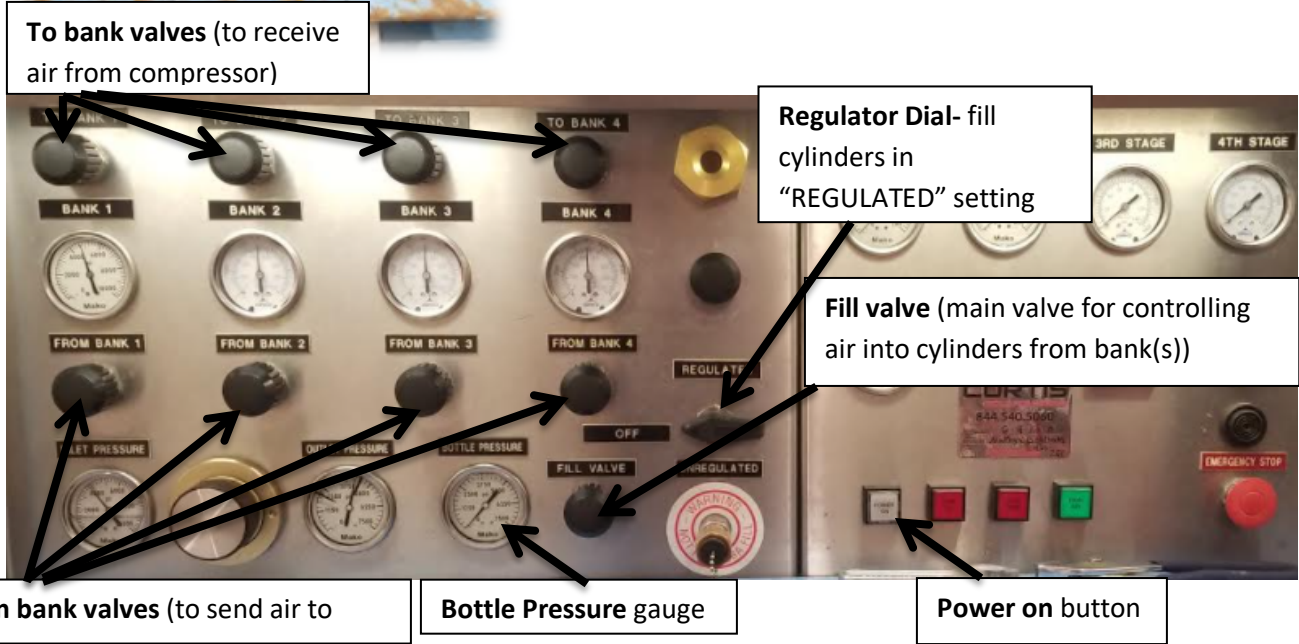
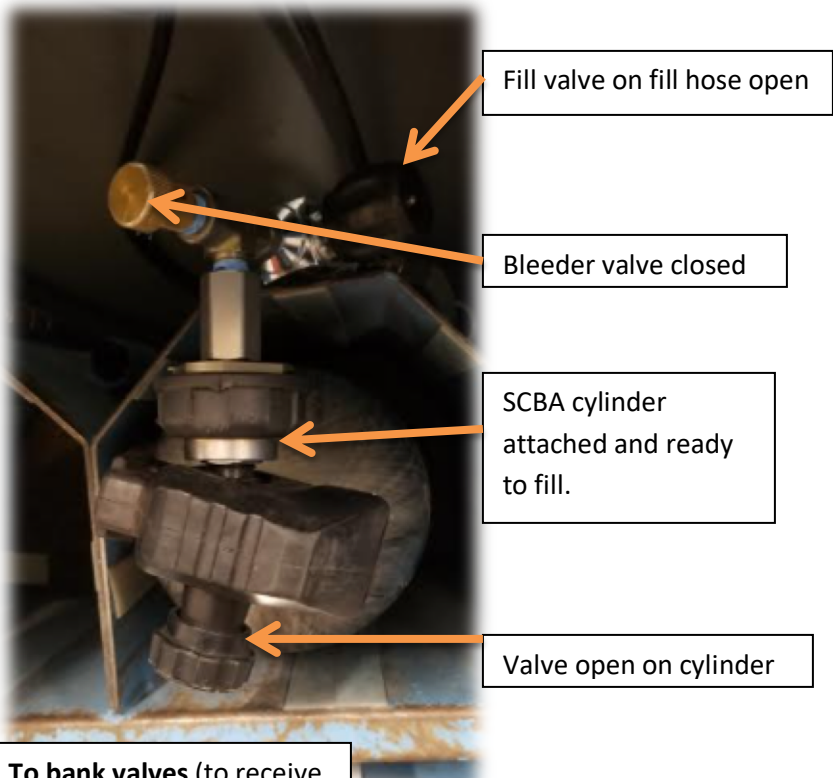


Quick connect connections for SCBA cylinder(s)

Fill valve on fill hose, be sure to open before filling and close before removing full cylinders

Brass bleeder valve. Use to bleed air off between fill valve and SCBA cylinder before removing full cylinder, but only after closing both fill valve on hose and SCBA valve.





Filling breathing air cylinder on Tower-1

To fill the breathing air cylinder located on the aerial device, attach to fill hose as seen below. Be sure to tighten the hose firmly to ensure a good connection, otherwise it will not allow air to pass through the connection. Keep the regulator dial turned to “off”. Make sure the SCBA cylinder door is shut. Begin filling one bank at a time just as you would with SCBA cylinders. Monitor bottle pressure gauge and be sure to have another firefighter on the aerial device to monitor the bottle pressure at the cylinder. Communication with the firefighter on the aerial device is critical for safe and accurate filling. When the bottle pressure is ~ 4500 PSI, bleed of air at the bleeder valve located on the aerial device’s cylinder, and remove the hose. Fill breathing air cylinder in “Regulated” Setting.



Section 2.9

This section is designed to provide guidance when preparing for a presentation on a tool or piece of equipment. This acronym can easily breakdown all pertinent points when teaching or presenting to the crew.

TUMS (Tool, Use, Maintenance, Safety) example:**Water Extinguisher****Tool:**

Components:

- Cylinder
- Pressure gauge
- Secured safety pin
- Hose with nozzle
- Handle with squeeze trigger

Rating of 2A with 2 ½ gallons @ 100psi

Use:

- Extinguishes class A fires ONLY
- Extinguishes by cooling
- Discharge in straight stream or semi fog
- Reach of 20-30 feet
- use PASS acronym to discharge:
 1. pull pin
 2. aim nozzle
 3. squeeze trigger
 4. sweep

Maintenance:

- Check cylinder for external damage
- Check condition of hose and nozzle
- Check safety pin/seal to ensure they are intact
- Check condition of squeeze trigger
- Check maintenance tag for expiration
- Mark with apparatus number
- To refill: first empty, then fill with 2 ½ gallons of water (do not overfill), replace top and hand tighten, pressurize to 100psi (inside green).

Safety:

- Wear full PPE
- Be cautious of reignition
- Approach uphill/upwind if possible
- Use appropriate extinguisher for the job