

Personal Protective Equipment/SCBA

As a firefighter your personal protective equipment (PPE) is the most crucial piece(s) of equipment you have. It is of utmost importance not only to have all of the proper PPE for the job, but also to know its capabilities and limitations. It is equally, if not more important to know your own capabilities and limitations while wearing or using your PPE. Whether it be turnout/bunker gear for structure firefighting and extrication, wildland attire for grass and brush fires, ladder belts for aerial ladder operations, or rope rescue harness' for a rope rescue incident, you must be familiar with and have an understanding of all of your equipment. With this PPE also comes your self-contained breathing apparatus (SCBA) which is to be worn whenever entering an area of immediate danger to life and health (IDLH). For the purpose of this manual, the following sections will focus on the PPE related to structure firefighting. Wildland PPE will be addressed in the Wildland Firefighting chapter.

This chapter will be broken down into the following sections:

- 4.1 Structure firefighting PPE (turnouts)
- 4.2 Maintenance of structure firefighting PPE
- 4.3 Self-contained breathing apparatus (SCBA)
- 4.4 Maintenance of Self-contained breathing apparatus (SCBA)
- 4.5 Rapid Intervention Team bag (RIT)
- 4.6 Ladder belts



Section 4.1

Structure Firefighting PPE

Structure firefighting PPE consists of several garments. These garments are from head to toe:

- Helmet (with face shield)
- Nomex hood
- Turnout jacket
- Radio with or without lapel microphone
- Structure firefighting gloves
- Turnout pants
- Turnout boots

*other items such as helmet lights, right angle lights, work gloves, wedges, multi-tools, rescue tools, bail out kits, webbing (utility strap), and any other tools should also be added to turnout gear for use in emergency situations.



The sequence for donning your turnout gear is as such:

1. Put on Nomex hood
2. Step into boots and pull pants up with suspenders (boots in pants prior to donning) secure pants with zipper and Velcro
3. Put on turnout jacket and secure turnout jacket with zipper and Velcro
4. Put on helmet and secure with chin strap
5. Put on gloves appropriate for the task (structure or leather work gloves)

*Variations of this sequence that better suit the individual are acceptable if they do not compromise time and efficiency of donning PPE.

Section 4.2**Maintenance of Structure Firefighting PPE**

Turnout or Bunker gear is used to protect firefighters from heat and flame within an IDLH environment, hose and couplings on the fire ground and training ground, and from many other potentially dangerous operations such as vehicle extrication. It is important to maintain and inspect your structure PPE regularly for and defects or excessive wear. This can include inspection of your ensemble such as the outer shells, inner liners, zippers, Velcro, gloves, boots, and helmet. Also you should check your lights and radio regularly for battery life. When you are finished using your PPE in an IDLH environment, proper cleaning, inspection, and storage is necessary for the maintenance and life of your PPE.

Turnout/Bunker Gear cleaning procedures:

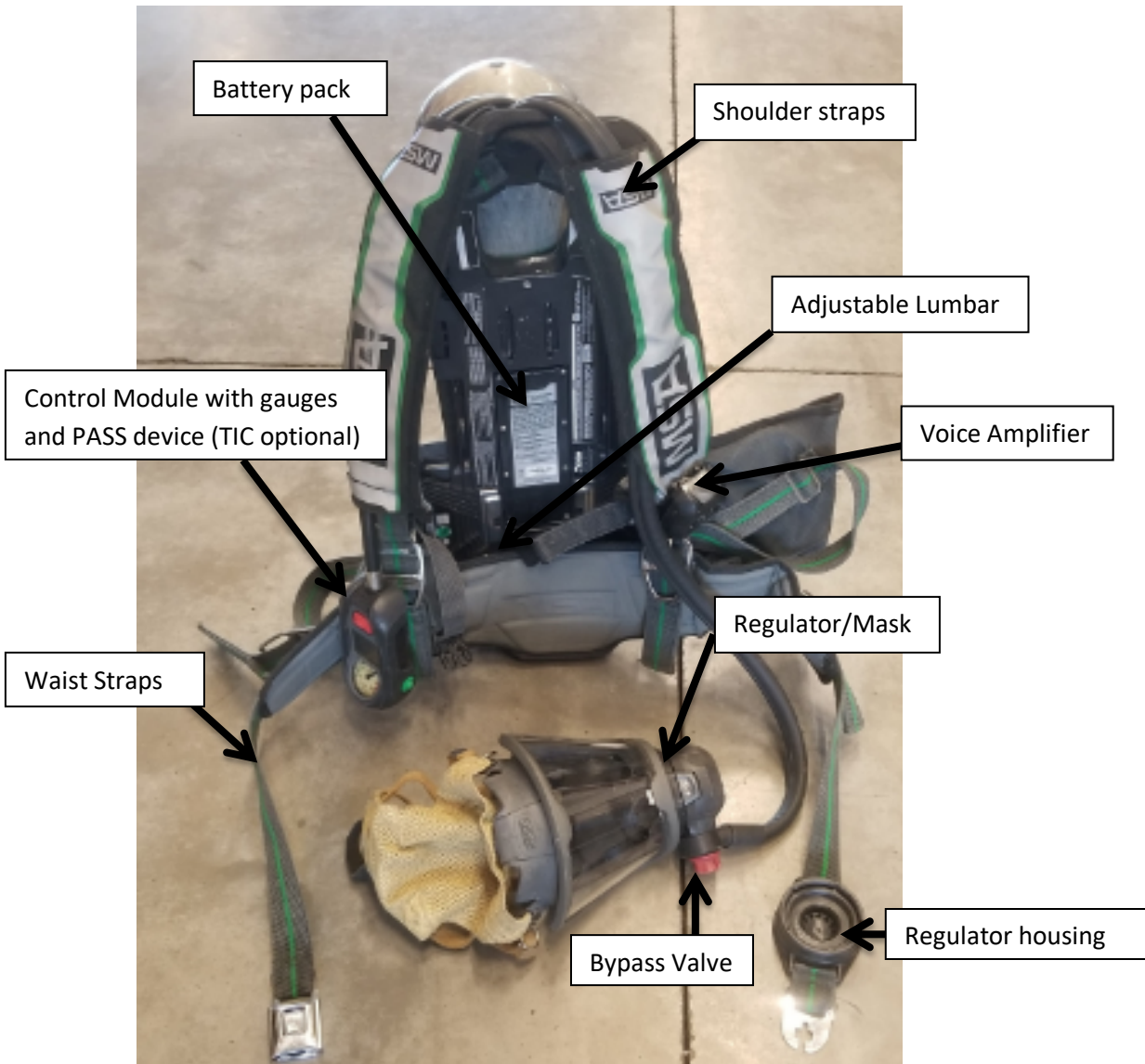
1. **CLEAN BEFORE YOU LEAVE THE SCENE**- Gently brush or lightly hose gear to remove the large, gross contaminants following overhaul. If an on-scene cleaning is not sufficient, the PPE requires an advanced cleaning.
2. **INSPECT AND DISSASSEMBLE**-. Separate the outer shells from the liner system and remove the drag rescue device. Look for deep stains, tears, holes, and other damage; any physical damage needs to be repaired before the gear is able to be returned to service. Turn the liner inside out for cleaning, and close all of the outer shell's zippers, clasps, and hook and loop tapes. It is suggested to wear exam gloves and eye protection during this process
3. **PRESOAK AND WASH**- Pretreat heavily soiled or spotted areas prior to machine laundering. Shells and liners are washed separately in a front loader washer/extractor; do not use an agitator. For advanced cleaning, wash water temperature should not be higher than 105°F and the detergent must have a pH factor between 6 and 10.5. Use the extractor at Station #1 decontamination room with PPE detergent.
4. **RE-INSPECT**- Once the clothing has been washed, inspect it again. If the gear is not clean, repeat the previous step (step 3).
5. **DRYING** - Dry the gear in an area with good ventilation or in a drying cabinet; never dry in direct sunlight, which can degrade the high-temperature fabrics. When machine drying, fasten all closures and use a no-heat or air-dry option. Do not allow the area used for drying to exceed 105°F.
6. **REASSEMBLE**- When the gear is fully dry; follow the manufacturer's instructions to reinstall the drag rescue device in the jacket and to insert the liners into the outer shells. Check that all of the closures are properly secure and that the drag rescue device is properly installed.
7. **STORAGE**- Keep clean gear in a dry, well-ventilated area out of direct sunlight and away from indoor light sources; they also produce harmful UV rays. Do not store in extreme hot or cold temperatures, or in airtight containers. This will keep the materials that make up the PPE from degrading while being stored.

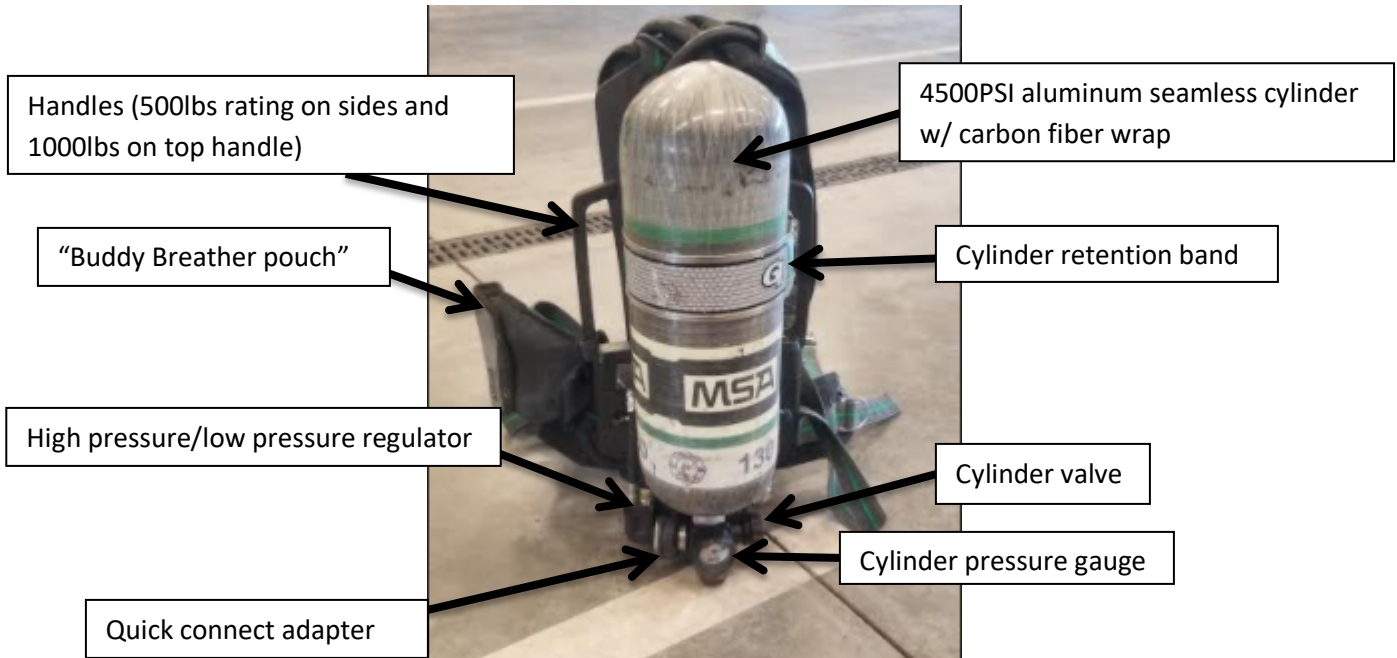
*Be sure to also wash/clean helmets, gloves, Nomex hoods, radios/microphones, boots, etc. with the appropriate detergents or wipes.

Section 4.3

Self-Contained Breathing Apparatus (SCBA)

A **self-contained breathing apparatus (SCBA)** is a device worn to provide breathable air in an atmosphere that is immediately dangerous to life or health. The term *self-contained* means that the SCBA is not dependent on a remote supply of breathing gas. The SCBA used at Pendleton Fire is the MSA G1. These units were put into service in 2017. Some of the SCBAs at PFD are equipped with an integrated thermal imaging camera (TIC). Being familiar with your SCBA and PPE is vital to safe operations in emergency incidents. The G1 has a 45 minute rated bottle when filled to 4500psi. This allows for approximately 15 minutes for entering, 15 minutes for working, and 15 minutes for exiting a structure (in theory). All members at Pendleton Fire should be able to manipulate and identify the parts of the SCBA.





Donning the SCBA: (to be done in conjunction with turnout/bunker ensemble)

1. Turn on cylinder (ensure SCBA is functioning properly and has >4000psi)
2. Put on SCBA pack and secure shoulder straps and waste straps for snug fit
3. Put on SCBA mask and tighten straps for snug face/mask seal
4. Cover SCBA head net and any exposed skin with Nomex hood
5. Connect regulator to mask
6. Replace helmet and adjust to fit snug with SCBA mask and Nomex hood

*Variations of this sequence that better suit the individual are acceptable if they do not compromise time and efficiency of donning PPE.

Firefighters responding to a call for Fire, Smoke, Gas leak, Fire alarm, Water flow alarm, or any possible IDLH should have SCBA harness on and secure prior to arriving on scene if the apparatus in which they are responding allows them to do so (I.E. Engine or Truck).

Section 4.4**Maintenance of Self-Contained Breathing Apparatus**

The SCBA(s) should be checked and maintained at the start of each tour of duty or after any event that requires the use of the SCBA. Due to vibrations in vehicles, movement of equipment, training, and etc., SCBAs may not always be in proper working order. The easiest way to check an SCBA at the start of each tour is to follow the sequence of events for checking an SCBA.

Daily check of SCBA:

1. Check batteries- press and hold green button for 3 seconds. Press the green button on the control module once. To toggle back to the graphical display hold the green button on the control module for 3 seconds. For those units with a Thermal Imaging Camera you can also access by holding the green button on the control module for 3 seconds.
2. Check all straps and connections
3. Fully open cylinder after ensuring adequate pressure >4000psi
4. Ensure that electronics and control module power on. Remove the battery back using the supplied battery removal tool on the waist-belt. Recharge/replace battery pack located in the SCBA Room Shop at Station 1 and office at Station 2.
5. The graphical display and analog gauge should be consistent within a 5% range with the cylinder pressure
6. Listen for leaks
7. Check regulator and purge/bypass valve (Red Knob)
8. Check PASS device by activating manually (Press and hold the red alarm button located on the front of the control module. To reset press the green button twice within 1 second.
9. Fully close cylinder
10. Bleed air from purge/bypass valve
11. Press green button on the control module twice within 1 second to power down
12. Press the button on the voice amplification unit for 2 seconds to turn the unit off and on

*If a discrepancy is noted that cannot be remedied, place SCBA in SCBA room (near breathing air compressor) and mark OOS (lockout/tag out). Follow up on out of service pack by contacting your supervisor.

Cleaning of SCBA

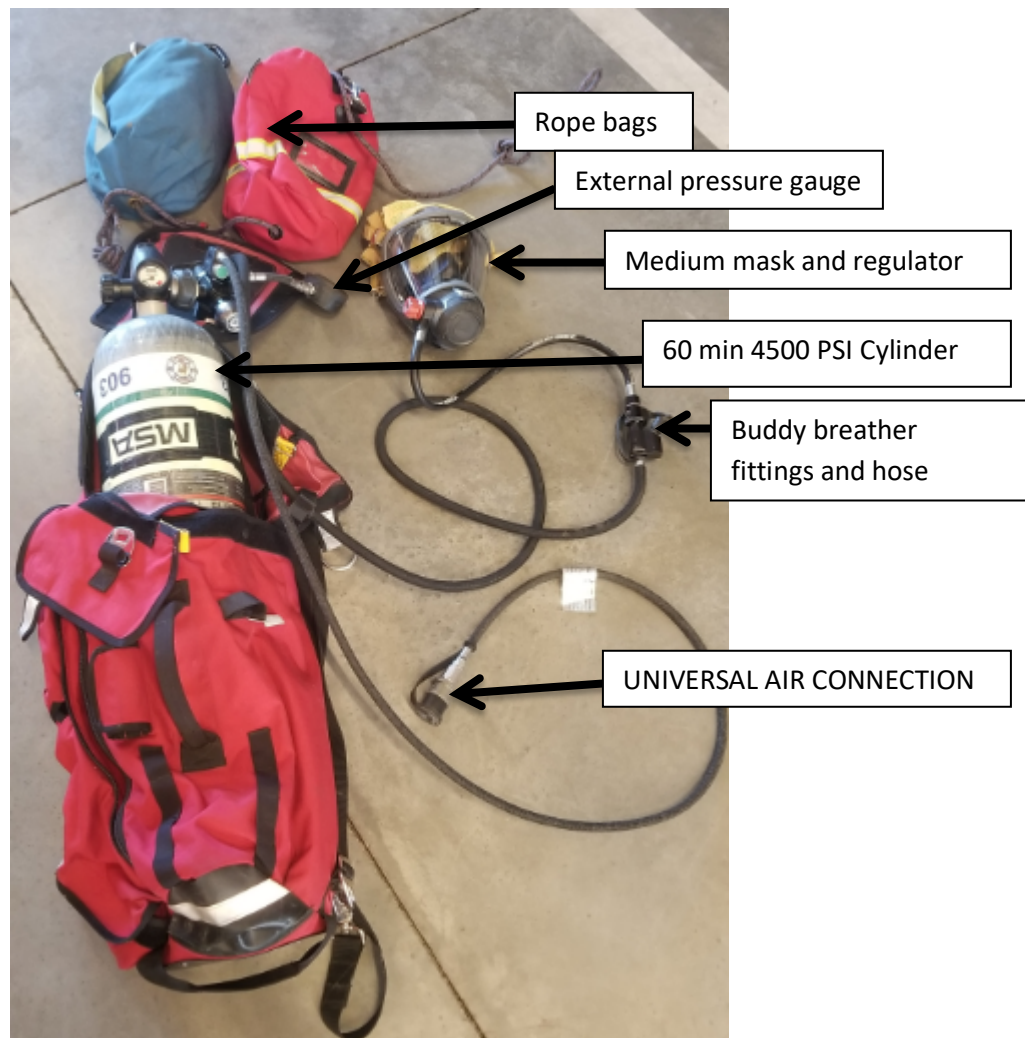
After use in fire/IDLH environment, cleaning of the SCBA and mask are necessary. To clean the SCBA frame, cylinder, and straps use a mild detergent and scrub brush. Rinse thoroughly and allow to air dry in apparatus compartment with door open or other dry location as necessary. To clean SCBA mask, remove nose cone and clean all parts in a bucket labeled "SCBA MASK" with mild detergent such as Dawn Dish soap. Be sure to scrub the harness/head net and clean nose cone out well. Reattach and reassemble all parts and wipe dry before allowing to air dry. Always check face mask after cleaning and reassembling for any discrepancies.

Section 4.5

Rapid Intervention Team (RIT) Bag/Equipment

The Rapid Intervention Team is a crew of at least two firefighters and is a necessary function for interior firefighting operations. The responsibility of the RIT crew is to be prepared and ready to rescue a firefighter if the need should ever arise. The main piece of equipment a RIT crew will need to effectively rescue a down or trapped firefighter with the exception of hand and/or power tools is the RIT bag. The RIT bag consists of:

- 1 hour SCBA cylinder
- Cylinder pressure gauge and external pressure gauge (outside of bag)
- Universal Air Connection hose and connection
- "Buddy Breather" hose with regulator and medium mask attached
- Tag line rope bag x2
- Cutting tools (tin snips, trauma sheers, wire cutters, etc.)



RIT Bag restored and ready



The RIT bag is designed to be closed and has a hard plastic base for sliding across floors/ground. It is to be used in combination with forcible entry tools, thermal imaging camera, and other hand tools and power tools as needed.

The RIT team is comprised of at least (2) firefighters and the team may be mobile and involved in other activities on the fire scene such as movement of equipment, rehab, etc. Although the RIT team may be involved in other activities, they shall not stray far from their post and should always be monitoring the radio traffic of interior crews and operations during an incident until the incident is stabilized.

Section 4.6

Ladder Belts

Ladder belts are a necessary piece of equipment/PPE when operating on the aerial ladder. They are located on the engineer's side of the ladder truck in the rear compartment. These belts and the fall protection that couples with them are to be worn anytime that you are working from the ladder or platform. The aerial operator at the turntable does not need to wear a ladder belt to operate the ladder from the turntable. Ladder belts should be worn tight/snug for best protection. (Shown below over duty uniform for demonstration.)

