

## SOP 3.00

## EQUIPMENT

A large percentage of personnel injuries occur while participating in routine activities at or around the station. By observing proper safety practices and adopting a safety conscious attitude, most of these injuries could be prevented.

### 3.01 STATION GUIDELINES

**1. Care of Station** – Heating controls in winter should stay at 65-68 degrees and air conditioning should not be lower than 72-73 degrees in the summer.

**2.a Maintenance of Station-** Shall consist of inspecting the building on a weekly basis as follows:

Electric	All Doors
Plumbing	Building Structure
Heating and Air Conditioning	

Inspections will be performed as indicated by duty roster.

### 2.b Physical Security

- i. Individuals will make sure all lighting is turned off prior to leaving the building unless otherwise posted.
- ii. The last person to exit the building will physically check all exterior doors to make sure the station is secured.

### 3. Station Maintenance/Security

Many personnel injuries could be avoided through a policy of safety conscious station maintenance.

Efforts should be made to keep apparatus floors free from slippery substances and obstructions; water, oil, hydraulic fluid, etc., should be mopped up whenever accumulations appear, especially on the traffic areas around and between apparatus.

Station floors also must be free of slippery substances. Traffic route areas, hallways, stairs, etc. should be clear of unnecessary obstacles and obstructions.

### 4. Grounds Maintenance

Safety precautions shall be observed when using power lawn equipment: mowers, trimmers, edgers, etc.

a. The blade guard on power edgers and trimmers shall be serviceable and in the proper position for the intended user before operating.

b. When trimming or pruning certain trees and bushes.

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## **3.02 APPARATUS GUIDELINES**

1. Care and maintenance will be performed on a monthly basis per duty schedule and any other time that it is deemed necessary.

2. Maintenance will be recorded on the Vehicle Check list and any defects found will be reported to the maintenance officer or assistant. Recorded on the checklist also will be the Hour Meter Readings from small engines as well as vehicle engine as applicable.

### **3. UTILIZE “INSPECTION SHEET”**

a. List all problems or discrepancies whether maintenance request is submitted or not.

b. When an apparatus or equipment is taken out of service due to a malfunction, it is sometimes difficult to get accurate information about the problem. A note left with the apparatus, which describes what has happened or what the indications are would be helpful in getting the apparatus repaired. Be as specific and detailed and possible about what the problem is – not just “out of service”. For apparatus or any major equipment removed from service, notify a chief officer right away as well, so arrangements can be made for repair or replacement promptly.

#### Check

- i. Engine Oil
- ii. Engine Coolant (2 hours after shut down)
- iii. Water level in the booster tank
- iv. Primer Fuel
- v. Fuel level
- vi. Check tire inflation
- vii. Check for loose nuts, bolts, studs, pins, etc.

## **4. BRAKES**

Drive your apparatus at speeds at which your brakes will stop you. A 26,000 pound engine is much harder to stop than a 4,000 pound automobile. Use good judgment in braking. Keep hard stops to a minimum. The more hard stops you make, the less effective your brakes will be, due to the excessive amount of heat generated.

Air brake systems have a quick-recovery feature. They have one small tank that fills before the larger tanks fill. You should be able to build approximately 60 psi air pressure in about 20 to 30 seconds when the engine is running at speed (1200-1500 RPM) such as you would have while awaiting for air pressure to answer an alarm. If you have doubts about the recovery time, test it.

House starting an engine just to build air pressure is undesirable and unnecessary if it is kept plugged into an air hose or shoreline system. You may eliminate the need to build air pressure by applying the brakes and holding for a second or two which clears the dirt

particles and you can build up the air pressure to maximum before shutting off the engine. Sometimes that will require that you dump some of your air pressure so that the compressor will engage and fill the tanks to maximum pressure.

Use of chokes to start a cold gasoline-powered apparatus can be beneficial if used properly. When starting a cold gasoline engine, pull the choke out all the way. Then, after the engine has turned over several times, push it in about halfway. After the engine has started, adjust the choke in or out for best performance.

## **5. IDLING**

There is nothing good to be said for unnecessary prolonged engine idling of any Fire Department vehicle. Idling should be kept to a minimum. If idling is necessary, increase the idle speed to a fast idle, approximately 1000 RPM on units equipped with a throttle. On units equipped with a fast idle solenoid, use it.

The oil pressure gauge should be checked frequently along with water temperature and other gauges while the engine is running. The appearance of the oil can give information about the engine. Oil will darken due to combustion products. Water contamination will color the oil dusty brown to gray to frothy dirty white. Gasoline contamination will thin the oil and can be smelled on the dip stick.

## **6. BACK SHIFTING**

Back shifting is necessary to maintain engine RPM so as not to lug the engine. Maintaining engine RPM also improves steering performance. Its primary purpose is **NOT** to slow down the apparatus. Back shifting is to be used for ***braking purposes only in an emergency situation***. Low gears should be used when operating in close situations such as entering stations. This allows the driver to maintain some RPM without having to slip the clutch to keep down the speed.

## **7. CARE AND SERVICING OF VEHICLES**

Due to the assignment of emergency vehicles and equipment for immediate response to all types of emergencies, it is imperative that all emergency equipment receive proper servicing.

Any employee found responsible for negligence in respect to servicing emergency equipment will be subject to immediate suspension or other disciplinary action as the Fire Chief may direct.

Drivers shall have the responsibility of servicing all apparatus with oil, water, and fuel. The service check shall be made when reporting for duty and after returning to the station from a run. Reserve apparatus are to be properly serviced when returned to assigned station. Reserve apparatus are to be maintained with a full load of hose and assigned equipment, if available.

Fuel tanks on fire apparatus are to be kept above the three-quarters (3/4) mark of the gauge.

Cooling systems should be checked and the proper fluid level maintained at the stations. Preferably, radiators should be checked when the engine is cooled.

Keeping the fire apparatus door and panel screws tight, checking the general condition, keeping the apparatus clean, lubricating discharge and tank valves are the responsibility of the driver.

Ladder locks also require a good inspection to determine that they are closed properly and that all pins and retainers are in place.

## **7. CARE AND SERVICING OF VEHICLES CONTINUED**

Approximately every 60 days, clean, polish and wax all Fire Department vehicles and report same to the Chief or Assistant Chief.

Do not use a water stream to wash wheels, wheel wells, or under fender after an apparatus has been driven and the brakes are hot. The heat build-up in brake drums is proportional to the number or degrees of brake applications. All brake drums are subject to heat checking due to the desired effect of braking. In the event that water is applied to hot brake drums, they can and have broken, resulting in brake failure. (To alleviate this situation, do not wash wheels, wheel wells, or under fenders with a water stream for at least two hours after parking apparatus.) Whenever possible, clean wheels, wheel wells and under fenders with a damp sponge instead of a water stream. This situation can also occur while driving a vehicle when there is water on roadway. If possible, avoid water on the roadway, especially water that is several inches or more in depth. Water also has an adverse effect on wheel rims, causing them to rust and deteriorate.

Do not fill booster tanks from a metered water source if it can be avoided. (Use hydrants).

When filling apparatus tanks from hydrants, flush the hydrant before using, as sand has gotten into the tanks on some pumpers, causing clogged nozzles.

Vehicles with low oil pressure, high temperature, and alternator output light require frequent checking. These indicators should light up and be checked while the ignition switch is in an on position prior to the vehicle being started. If these bulbs burn out or malfunction, you will have no indication of a problem until after the damage is done. When an automatic transmission-equipped pumper is pumping at or over its rated capacity, it would be desirable to use another pumper for additional lines in preference to adding more lines to the original pumper.

## **8. BATTERIES**

All batteries should be checked frequently for corrosion, broken wires, etc. If they are "Maintenance Free" batteries they will specifically say they are and will not have fill caps on the top, therefore water will not have to be added. All batteries are to be tested with a hydrometer and placed on a charger if the reading is 1225 or less, as applicable. If water is added, the battery must be put on the charger, regardless of the reading, until it is properly mixed.

When batteries need charging or water added, they should be put on "charge" and left until they reach 1250 specific gravity. When batteries are put on charge, re-test them before deciding whether they are okay and removing them from the charger.

**DO NOT** switch battery selector switches while the apparatus engine is running. If the battery selector switch is changed while the engine is running and the alternator is

charging, there is a momentary dead head. This can be compared to the waterhammer when a nozzle is shut off abruptly. The system then has to absorb the load.

Batteries may need to have distilled water added to them frequently during hot weather due to evaporation. Add only distilled water. Keep battery posts and battery boxes clean. Often just flushing with clear water will keep the battery compartments in good condition. When charging batteries with the house charger, plug in only one charger cable at a time. Attempting to charge both sets of batteries of a dual battery system at the same time will result in both sets of batteries being run down.

## **9. HYDRAULIC JACKS**

When hydraulic jacks are used, they are to be placed directly under the axle. Be careful to place the jack so that the lifting pad contacts a surface that is flat. On an uneven surface, or if the lifting pad contacts the axle at an angle, a dangerous situation has been set up. At best, this will cause undue and unnecessary strain or damage to the jack. At worst, it can result in serious injury.

Hydraulic jacks should be stored in an upright position. When they are lying on their sides, they tend to leak fluid. Also, the release valve should be closed during storage to avoid leakage. If the ram does not extend fully, it is probably due to low fluid and the jack should be sent for service. A light coating of motor oil on the extension screw will keep it free and easy to operate and prevent rust.

### **3.03 SELF-CONTAINED BREATHING APPARATUS**

1. Storage of all SCBA bottles will be in a manner to keep from damaging valves, gauges or cylinders.
2. SCBA guidelines will be followed as set forth in the current edition of *Essentials of Fire Fighting*.
3. All personnel that are subject to functioning in area of toxic gases or other atmospheric contamination shall be equipped with and trained in the proper use and maintenance of Self-Contained Breathing Apparatus (SCBA).
4. Each member of the Department shall be accountable for SCBA on their apparatus. SCBA will be checked each week and after each use, or at any other time it may be necessary. (An SCBA maintenance sheet will be established.)
5. Each crew member shall be responsible for the proper use of SCBA. If an SCBA is found to be functioning improperly, it shall be taken out of service, tagged, reported and replaced as soon as possible. If a (2215 psi) cylinder is below 1800 psi, it will be filled immediately to the proper level.
6. All personnel shall utilize the SCBA when encountering the following environments:
  - a. Atmospheres contaminated by the smoke and gases generated by any fire other than an outside, natural vegetation fire.
  - b. Incidents where toxic gases and vapors have been released.
  - c. Atmospheres that may be oxygen deficient.
7. \*SCBA are also intended to protect the wearer's eyes from the smoke irritants and particles that not only cause pain and soreness, but may interfere with a person's faculties at critical times when all of the senses must be operating at top efficiency.
8. Resist the tendency to prematurely remove breathing apparatus during routine fire situations. Be aware of the respiratory hazards that exist in ordinary as well as the extraordinary fire situation. Often, carbon monoxide (CO) levels increase during overhaul, due to the incomplete combustion of smoldering materials. CO monitoring should be used to authorize the discontinuation of SCBA use.
9. Do not remove your SCBA until the atmosphere has been determined to be safe to operate within.
10. The determination to remove breathing apparatus will be made by Company or Sector Officers in routine situations. In complex situations, particularly when toxic material is involved, the Safety Officer, Training Officer, and/or Hazardous Materials Officer should be consulted on this decision. An evaluation of all members of the Operations Division in the use of the SCBA shall be conducted annually. Each member shall be able to demonstrate a high level of proficiency and compatibility with the SCBA under conditions comparable to those the

member is expected to function under as a job requirement. This training may be in a drill or in company training at the station level.

**11. ALL FIREFIGHTERS WHO WEAR SCBA'S IN COLD TEMPERATURES SHOULD TAKE PARTICULAR NOTE OF THE FOLLOWING PRECAUTIONS:**

- a. When leaving an extremely hot environment, such as a fire scene, and entering cold air (below or near freezing), always place the SCBA face piece in your turnout coat to keep it warm if it is to be quickly reused. When not being actively breathed, SCBA's can freeze up very quickly.
- b. SCBA alarms can fail in low temperatures, therefore, visual checks of remaining service time should be made when SCBA's are used in sub-freezing conditions.
- c. SCBA's are NIOSH (National Institute of Occupational Safety and Health) laboratory approved for use in temperatures down to -25 degrees F.

More emphasis needs to be placed on the care of your SCBA's. When working in snow, rain, or other conditions which can cause problems with SCBA's, take a little extra time to insure that your SCBA will not become contaminated or otherwise rendered inoperable.

## **Procedure for filling SCBA Bottles**

### **Rationale:**

Filling compressed gas cylinders carries with it inherent risks, both to personnel and equipment, which can be minimized by following safety standards established by the fire services and the Compressed Gas Industry. Due to the extreme importance of reliable and safe SCBA, only those specifically authorized to do so are to fill cylinders from the Department's cascade system. Failure to follow these procedures, and particularly violation of any of the safety rules, will result in the member involved permanently being barred from future use of the cascade system, and may subject them to other disciplinary action.

### **Procedure:**

1. Place the bottle to be filled in the steel filling cylinder container, ensure that it is secure. Or lay the bottle to be filled flat, in such a way that it will not roll.
2. Examine the tank valve and filler hose to ensure that they are free of dirt, oil, and moisture. Check the hydro test dates. If the date is past five years since manufacture or its last listed test, take the tank out of service and do not fill.
3. Make sure all valves are closed.
4. Open the cascade tank marked "high", and be sure that the pressure on the pressure gauge on the right- the filler hose pressure- is set at 2200 psi. If necessary, adjust the pressure regulator to the correct pressure.
5. Attach the filler hose to the tank to be filled, and open the tank valve only.
6. Open the "low" tank valve slowly. Once it has pressurized the system, slowly open the valve at the end of the filler hose, allowing the tank to fill. You should just barely be able to see that the tank pressure gauge needle is moving. Fill at no faster than 300-500 psi per minute.
7. Once the tank pressure has reached that of the "low" tank, or the SCBA tank is full, shut the "low" tank valve off and close the filler hose valve. If the tank is not full, slowly open the "medium" tank, and repeat the procedure, again until the tank is full or the pressure is equal. Repeat with the "high" tank if needed.
8. Once the tank is full, be sure all cascade tank valves are closed, close the SCBA tank valve and the filler hose valve. Open the bleed valve to relieve pressure in the filler hose connection, and remove the filler hose. Place the tank back in service.

### **Extremely Important Rules:**

1. Absolutely no SCBA tank in the Department is ever to be filled beyond its rated capacity. All cylinders are rated at 2216 psig. Overfilling is one of the worst things that can be done to an SCBA cylinder. It has never been legal to fill any aluminum or wound cylinder beyond their rated pressure. If you have been taught that you can overfill tanks, **forget you ever heard it.**
2. Always fill tanks dry. Filling in water has been shown not to effectively dissipate heat, but does increase the risk of getting moisture inside and causing corrosion. It

may also give you a false sense of security by making the outside feel cool. If the tank is getting warm, you are filling too fast, and water will not help that.

3. Always fill slowly. Fast filling is the other worst thing that you can do to a tank, 300-500 psi per minute is the absolute limit.

**Note: Damage from overfilling or rapid filling is cumulative, irreversible, and cannot be seen upon external exam. Second to physical/mechanical damage, is the primary cause of catastrophic (sometimes fatal) cylinder failure. Saving one minute, or getting three extra seconds worth of air in cylinder isn't worth it.**

### **3.04 Equipment Guidelines**

1. Tools, equipment care and maintenance- Tools should be cleaned, serviced and then properly stored after each use.
2. Shop equipment includes the following items:
  - a. Washer/Dryer
  - b. High pressure washer
  - c. Lawn maintenance equipment
  - d. Hand Tools
  - e. Hydraulic Jacks
  - f. Air Compressor
3. Hand tools will be wiped down and returned to their proper storage bins and will be maintained in accordance to the check list for that equipment.

## 3.05 Purchasing of Equipment and Supplies

### **Rationale:**

This Department has three primary sources of funding to operate with. The Firemen's Relief Association maintains an account that is funded through revenue from the State derived from fire insurance premiums, and is governed by strict statutes and regulations as to how it can be spent. The Volunteer Firefighter's Fund is money that has been raised by the members, and is owned by the members. It is the only account that is not public funds, and its use is governed by the membership. The largest fund is the Department budget, which is public funds, received through property taxes and other sources. It is under County control, and subject to numerous regulations concerning the use of public funds. The Fire Board's primary function is to provide oversight and accountability on the use of this budget, and has established the following guidelines:

### **Procedure:**

1. All purchases from the Department budget must be approved in advance by the Chief.
2. The Chief may approve purchases up to \$500 without prior approval from the Fire Board. Purchases over that amount require prior Board approval, and the Board should be notified of any purchase over \$250.
3. Purchases over \$500 will require comparative pricing, unless it is determined that only one vendor can meet our needs.
4. There are three exceptions to the above requirements for prior approval:
  - a. Emergency repairs required to keep key equipment operational or to keep the Department able to fulfill our mission do not require prior approval of the Board. The Chief shall be notified first if possible, but if he/she is not available, the repairs may proceed.
  - b. Scheduled, required maintenance and repairs do not require prior Board approval, provided they are done in the most cost-effective manner available.
  - c. Emergency expenditures such as operational supplies or provisions during an emergency do not require prior approval except by the Incident Commander.

In either of these situations, if the amount exceeds the amount requiring Board approval, the Board shall be notified as soon as practical after the emergency situation is resolved.

5. It shall be the standing policy of the Department that we shall pay for Firefighter I training and certification, and First Responder training and certification for active members without additional approval, with the following guidelines:

- a. The member must provide for their own funding, and will be reimbursed upon submission of evidence of successful completion of the program.
- b. Books, class fees, testing fees and the like will be paid.
- c. A member who is not already a First Responder or EMT and who wishes to take EMT instead of First Responder may do so, and the Department will pay the equivalent cost of FR towards EMT.
- d. Other training may be considered by the Chief and the Board on a case-by-case basis, and may be funded based on the cost-benefit analysis, and how directly the training relates to the mission of the Department, and how it will benefit the Department and community.
- e. Travel, lodging, and subsistence will be considered on a case-by-case basis.

### **Contractual/Professional Services**

As a volunteer department, made up of members with a variety of expertise and professional skills, there will be times the department is in need of professional skills or services that members provide as a business or for-profit venture outside the department. When the need for such services arises, if the member wishes to donate his/her expertise and services, the department can reimburse for actual, direct expenses incurred by the member in providing the services, upon being provided written receipts for those costs. These may include materials, fuel, and supplies or similar direct expenses. No member will be obligated, by virtue of their membership, to donate professional services or supplies that they do not wish to donate. If the member wishes to provide the services on a professional/for profit basis as part of their business, conflicts can arise both within the department, where others may choose to donate their services, and outside, where other businesses may feel they did not have a fair opportunity to provide or compete for the opportunity to provide those services before "insiders" were hired. Therefore, to avoid conflicts or apparent conflicts of interest, if a member is going to be paid a fee for any form of professional services, several providers of that service will be contacted for price quotes or estimates, and those quotes provided to the fire board for a decision as to where to obtain the services.

## 3.06 Monthly Vehicle/Station Checks

### **Purpose:**

This SOG outlines the Vehicle/Station Check Procedures/Requirements of all personnel of Blue Township Fire Department (BTFD).

### **GENERAL INFORMATION**

Monthly Checks are meant to keep the department's vehicles in the minimum acceptable condition necessary to fulfill the mission of BTFD and keep our stations living and working facilities presentable to the public, clean and safe for our personnel and visitors.

All personnel are individually responsible for fulfilling the requirements and procedures of this SOG. For any member failing to follow these guidelines for three consecutive months without providing a valid reason, this will be noted and the individual may be removed from the rolls of the department.

### **FOUNDATION**

1. Each vehicle will be assigned a minimum of two individuals on a quarterly basis.
2. It will be the senior assigned member's responsibility to ensure that the minimum requirements are consistently maintained on a monthly basis.
3. The senior member will schedule and ensure that all assigned personnel participate in the monthly check of that vehicle.
4. Care and maintenance will be performed on a minimum monthly basis and any other time that it is deemed necessary.
5. the senior member may be contacted to have his crew assist Maintenance Coordinator in performing other in house maintenance (oil changes, etc.) on that vehicle.
6. It will be the senior member's responsibility to insure the monthly check is completed by the **Second Regular Meeting** of that month.

### **ROUTINES**

1. Maintenance will be recorded on the Vehicle Check list and any defects found will be reported to the Maintenance Coordinator. Recorded on the checklist also will be the Hour Meter Readings from small engines as well as vehicle engine as applicable.

**2. UTILIZE “INSPECTION SHEET”**

- a. List all problems or discrepancies whether maintenance request is submitted or not.
- b. When an apparatus is taken out of service due to a malfunction, it is sometimes difficult to get accurate information about the problem. A note left with the apparatus, which describes what has happened or what the indications are, is essential in getting the apparatus repaired. Be as specific and detailed as possible. Notify a chief officer immediately if a vehicle or major piece of equipment is out of service.

**3. GENERAL VEHICLE AREA**

Responsibilities include the organization and cleanliness of the general area in front, back and to either side of the vehicle. Areas of station duties (bathroom, trash, classroom, etc.) are assigned to each truck assignment,.

**NOTE:** This will have to be checked and possibly performed more than once a month depending on call volume.

4. **REPAIRS** In case of simple problems such as burned out light bulbs, etc., every effort should be made to repair those at the time of the truck check. Supplies for such repairs are on hand. If equipment is missing, it should be replaced or restocked from supplies on hand. Only if this cannot be done should it be left for the maintenance coordinator or others to address.

**MAINTENANCE COODINATOR**

1. The Maintenance Coordinator will be responsible for spot checks as are deemed necessary.
2. The Maintenance Coordinator will be responsible for insuring deficiencies are corrected in a timely manner.
3. The Maintenance Coordinator will be responsible for insuring that DOT checks are done on an annual basis.
4. The Maintenance Coordinator will be responsible for requesting assistance from Truck Captain and crew when performing in house maintenance on that vehicle.