



CITY OF SAN ANTONIO  
**SOLID WASTE MANAGEMENT  
DEPARTMENT**



# Heavy Truck & Equipment Services **SAFETY HANDBOOK**



<b>Critical Safety Rules</b>	<b>4</b>
<b>General Shop Safety Guidelines</b>	<b>5</b>
General	5
Bay Doors	5
Cell Phones and Two-way Talking Devices	5
Container for Out-of-Service Tires	5
Service Pit	5
Visitors	6
Wash Bay	6
<b>Physical Safety and Safety Equipment</b>	<b>7</b>
Defibrillator	7
Eye Wash Station	7
Fire Extinguishers	7
Inspections	7
Extinguishing Fires	8
Hand Signals	9
Lifting	11
Lock-out / Tag-out	11
PPE	12
General	12
Body PPE	12
Ears, Eyes, and Nose PPE	13
Feet PPE	14
Tourniquets	14
Working Alone	15
<b>Manual Tools &amp; Equipment</b>	<b>16</b>
General	16
Safety Guidelines by Manual Tool and Equipment Type	16
Bench for Arm Lifts	16
Hinge Pins	16
Hose Reels	17
Ladders	17

Torque Wrenches	18
Wheel Dollies	18
<b>Power Tools &amp; Equipment</b>	<b>19</b>
Safety Guidelines for All Power Tools	19
Safety Guidelines by Power Source Type	20
Electrical Tools and Equipment	20
Fuel-powered Tools and Equipment	20
Hydraulic Power Tools and Equipment	21
Pneumatic Tools and Equipment	21
Safety Guidelines by Power Tool and Equipment Type	22
Air Guns	22
Band Saw	22
Chop Saw	23
Floor Jacks	23
Forklifts	24
Gas-powered Air Compressor	24
Grease Guns	25
Grinders	25
Hand-held Drill	26
Impact Wrench	27
Plasma Cutter	27
Porta Power Kit	28
Presses	28
Pressure Regulators	30
Tire Balancing Machine	31
Tire Changing Machine	31
Tub Grinders	31
Welders	31
<b>Lifting and Pulling Mechanism</b>	<b>33</b>
Chains	33
Cranes	33
General and In-shop Cranes	33

Vehicle-mounted Cranes	34
Hand Signals for Crane Operations	35
Lifting Straps/Slings	37
Jacks for Vehicles and Equipment	37
Vehicle Lifts	37
<b>Vehicles</b>	<b>38</b>
Fueling	38
Servicing	38
Hot Shot Mechanic Truck	39
<b>Chemicals and Hazardous Material Safety</b>	<b>40</b>
General	40
Bulk Fluid Tanks	40
Chemical Spills	40
Compressed Oxygen or Fuel Gas, Acetylene, and Oxygen Cylinders	41
Disposing of Hazardous Waste	42
Labeling and Storing Hazardous Materials	42
<b>Fleet Shop Supervisors/Manager Health and Safety Responsibilities</b>	<b>43</b>

# CRITICAL SAFETY RULES

- a. **For any emergency, immediately call 9-1-1.**
- b. Do not operate any tool or equipment unless you are authorized and trained on how to operate it.
- c. Always wear the required personal protective equipment (PPE) for the work being performed.
- d. Before using any tool or equipment, inspect it to ensure there are no signs of damage and that it's working correctly. Do not use it if damaged and report it to management.
- e. Do not use a cell phone or two-way talking device while working on or operating a vehicle.
- f. Before servicing a vehicle, apply lock-out/tag-out procedures.
- g. Always wear seat belts and safety restraints while operating vehicles.
- h. Never exceed speed limits.
- i. Do not damage or tamper with vehicles, equipment, or tools.
- j. Do not allow unauthorized individuals to use City vehicles, equipment, and tools.
- k. Comply with safety rules at vendor sites and always have on at a minimum a vest, hard hat, and your SWMD ID.



## GENERAL

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- a. Do not allow unauthorized visitors in the shop.
- b. Report missing or worn safety signage to management.
- c. No horseplay.
- d. Do not use and report damaged shop components, tools, and equipment to management.
- e. Clean up after yourself and put away tools and equipment in their designated area after use.
- f. Keep floors and walking surfaces clean, dry, and free of slip, trip, and injury hazards.

## BAY DOORS

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- a. Must be either fully open or fully closed.
- b. When fully open, ensure the safety chain is in place to prevent entering.
- c. Vehicles must be fully inside or outside the shop.

## CELL PHONES AND TWO-WAY TALKING DEVICES

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- a. COSA-provided:
  - 1. Do not use while working on or operating a vehicle.
  - 2. Can use in shop area ONLY to contact a vendor for assistance.
- b. Personal: not allowed on the shop floor without approval from management.

## CONTAINER FOR OUT-OF-SERVICE TIRES

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- a. Only for the containment of unusable tires that have been removed.
- b. Use the rack for overflow; safely secure tires on the rack.

## SERVICE PIT

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- a. Close off the pit with a cover when not in use.

# GENERAL SHOP SAFETY GUIDELINES

- b. If no cover available, place a safety barrier around the pit (example: cones or retractable rope barriers) to ensure staff maintains a minimum of two feet from the edge of the pit.
- c. Ensure it is clear of any debris.
- d. Ensure it is adequately lighted.
- e. Ensure oil tank overflow sensors are working properly by doing a manual dip and checking results up against the sensor.
- f. Clean the pit and surrounding area when done using it.

## VISITORS

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- a. Must be accompanied by facility personnel.
- b. Must have on safety glasses at all times.
- c. If shadowing mechanics, must have on the PPE required for the work being performed.

## WASH BAY

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- a. Ensure the drains are clear and the area is clean before and after use.
- b. Report any missing or damaged components to management.
- c. Do not operate the pressure washer when climbing or descending the elevated platform ladder.





**For any emergency, immediately call 911.**

## DEFIBRILLATOR

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- a. Defibrillators are available BUT ONLY operate one if you have been trained on how to use one.

## EYE WASH STATION

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- a. Keep surrounding area clear of obstructions.
- b. If the eye(s) comes into contact with any chemical, immediately
  1. Go to an eye wash station or alert someone so they can walk you to one.
  2. Remove contact lenses, if wearing them.
  3. Do not rub your eye(s); it could cause more damage.
  4. Hold eye(s) open.
  5. Continuously run water on eye(s) for 15 minutes and roll your eye(s).
  6. Report the incident to management and, if necessary, seek medical attention.

## FIRE EXTINGUISHERS

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### Inspections

Fire extinguishers inside the facility and those mounted in the hot-shot mechanic trucks are visually inspected monthly by a supervisor-appointed employee and annually by a contracted professional company. Those in hot-shot mechanic trucks are charged ABC fire extinguisher with at least a 10-pound rating for controlling or extinguishing the following fires: A - ordinary combustibles (examples: paper, leaves, general trash); B - flammable liquids (examples: diesel fuel, hydraulic oil, motor oil), and C - electrical (example: vehicle's electrical wiring system).

- a. Check for the following:
  1. In its designated area and secured in place.

2. Visible, easily accessible, and clear of obstructions.
  3. No damage to tank.
  4. No signs of leaks from any part of the tank.
  5. Safety pin in place and not damaged.
  6. Anti-tamper seal not broken.
  7. Handle not damaged.
  8. Pressure gauge in the green.
  9. Hose and nozzle not damaged or clogged.
  10. Labels on tank are in good shape and can be read.
  11. Annual inspection tag indicates it was professionally inspected within the past 12 months.
- b.** After completing the monthly inspection, date and initial the monthly inspection tag.
- c.** If discharged, notify management for replacement.

### Extinguishing Fires

- a.** If the fire grows beyond a small fire or becomes unmanageable, immediately call 9-1-1 and notify your supervisor.
- b.** Extinguish small fires using the P.A.S.S. method. Remember, don't fight smoke, fight fire.
  1. Pull the pin.
  2. Aim at the base of the flame.
  3. Squeeze the handle to releases the extinguishing agent.
  4. Sweep from side to side.

## HAND SIGNALS

Eye contact between the driver and person giving the hand signals (spotter) should always be maintained. If the driver loses sight of the spotter, the driver should stop immediately.

- a. Move vehicle in a straight line either forward or backward.



*Forward: Always face palms in the direction of desired travel. Bend both arms repeatedly toward head and chest, and then extend.*



*Backward: Always face palms in the direction of desired travel. Bend both arms repeatedly toward head and chest, and then extend.*

- b. Move the vehicle either to the right or left while vehicle is moving.



*Point on arm to indicate the direction of turn. Bend monitoring arm repeatedly toward head to indicate continued turning.*



- c. Provide the driver a visual reference of the distance to the stop point.



*Face palms forward, with hands above head. Bring elbow forward and hands together.*

- d. Stop.



*Cross both arms above head.*

- e. Stop all movement of the vehicle immediately.



*Start with hands clasped over head. Extend downward repeatedly until vehicles stops.*

## LIFTING

- Don't lift anything that weighs more than 40 pounds.
- Before you lift an object, test to see how heavy it is.
- Use lifting mechanisms when available.
- Check objects for hazards before lifting (examples: jagged edges, holes).
- Use correct lifting technique.

### Right



### Wrong



## LOCK-OUT / TAG-OUT

Perform when required to bypass a safety guard and when any part of the body is within the equipment while performing maintenance or repairs.

- Have on your required PPE.
- Park vehicle on level ground and put into neutral gear.
- Set the parking breaks and use wheel chocks.
- Lower the vehicle arm and extend the blade to release stored energy.

## PHYSICAL SAFETY AND SAFETY EQUIPMENT

- e. Shut off the engine and put the key in your pocket.
- f. Make sure the air and hydraulic pressure have been released.
- g. Turn the battery disconnect switch to the off position.
- h. Check that all energy sources have been disconnected and equipment will not turn by operating the controls.
- i. Put a wheel cover or a lock-out/tag-out tag on the steering wheel. If a tag is used, write in reason for lock out and place it where it is easily visible.

### PPE

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#### General

- a. Only wear the Department approved and provided uniform.
- b. Always wear the required PPE for the work being performed.
- c. Inspect PPE before use. Don't use if defective and report it to management.
- d. Tie back long hair so there are no loose hair strands.
- e. Do not wear loose fitting clothing or jewelry to prevent from getting anything caught in moving parts.
- f. Do not wear jewelry that is conductive while working on equipment to avoid electrical shock.

#### Body PPE

- a. Wear a hard hat when in an area where there are overhead hazards (examples: hanging equipment, objects that can fall, or anything that you can bump your head against).
- b. Wear the appropriate protective gloves and clothing for the work being performed and for the equipment being used.
- c. Change out of clothing that is saturated with grease, oil, or gasoline.
- d. Wear flame-retardant PPE when the work being performed could ignite your uniform.

### Ears, Eyes, and Nose PPE

- a.** Wear hearing protection when the tool being used by you or someone near you has a maximum noise levels of 85 decibels or higher (examples: air impact wrench, angle grinder, air chisel, engine running inside the shop, tub grinder, paver, milling machine).
- b.** Wear eye protection (examples: safety glasses/goggles, welding shield) when exposed to elements that can damage vision (examples: flying sparks, debris, chemical splashes, hazardous vapors, or radiant light).
- c.** Employees that require prescription glasses must wear safety glasses designed to fit over prescription glasses, a face shield, or prescription safety glasses.
- d.** Use a respirator when exposed to dust, vapors, fumes, or hazardous waste.



## Feet PPE

- a. Wear City-approved protective footwear at all times:
  1. Impact rating: I/75 (ANSI standard).
  2. Compression rating: C/75 (ANSI standard).
  3. Work boot styles: Slip on, pull up, lace up (but must wear lace covers when required) or cowboy-boot style.
  4. Covers the ankle.
  5. Has a defined heel.
  6. Slip and oil-resistant sole.
- b. Wear flame resistant shoe covers if shoe is of a full-leather body and if the work being performed exposes you to sparks.
- c. Wear rubber overshoes when needing to enter shallow water.

## TOURNIQUETS

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If a tourniquet is required to stop bleeding, always use a Department-provided tourniquet first.

- a. Place the band above the injury, preferably on bare skin.
- b. Do not place the band over a joint.
- c. Once in place, tighten and fasten the band.
- d. Twist the rod to apply pressure and lock the rod into place.
- e. Once the blood flow has stopped, stop tightening.
- f. Do not remove the tourniquet.



## WORKING ALONE

- a. Ensure your supervisor knows you will be working alone; supervisor/managers must check on staff working alone on a regular basis.
- b. Keep a mobile device or two-way radio on your person.



## GENERAL

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- a. **Always wear the required PPE for the work being performed.**
- b. **Before using any tool or equipment**
  - 1. **Inspect all its components for damage.**
  - 2. **Check for any signs of tampering.**

**If damage or tampering are identified, do not use it, do not attempt to repair it, report it to management, and place a tag indicating why it cannot be used.**

- c. Use tools and equipment only for tasks they are intended for and only as indicated within their respective manual.
- d. Hold tools securely to prevent them from slipping out of your grip.
- e. Give full attention to the work being performed while using manual tools and equipment.
- f. Return tools to their designated locations after using.
- g. Clean all tools after using and clean the work area.

## SAFETY GUIDELINES BY MANUAL TOOL AND EQUIPMENT TYPE

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### Bench for Arm Lifts

Before operating the arm lift on the bench

- a. Ensure the arm lift is secured onto the bench with mounting bolts.
- b. Ensure the arm lift has no hydraulic leaks.
- c. Rope off the work with retractable rope barriers. Allow for a minimum of four feet from the sides and eight feet from the front. Put the barriers away in their designated location after use.

### Hinge Pins

When removing hinge pins (examples: ASL arm pins, claw pins, off-road track pins)

- a. Have on all required PPE including a welding apron to protect you from flying debris.
- b. Removing a hinge pin requires hitting it with a hammer.

1. Before hammering it, mark the pin so you are able to see if the pin has moved after hammering it.
  2. If the pin does not move after hammering up to five times, it is an indication that something is wrong (examples: pin is jammed, too much wear and tear on the pin).
  3. Stop hammering it.
  4. Remove the pin with a press, if available.
  5. If press not available, inform your supervisor who will contact the vendor for assistance.
- c.** Do not remove the pin by putting a bolt into a threaded hole on the pin with or without washers stacked and hammering it. This method is incorrect and could result in the bolt breaking and/or washers breaking and flying out.

## Hose Reels

- a.** Ensure your PPE includes leather gloves for safe handling.
- b.** When pulled for the length needed, engage the hose reel lock.
- c.** Do not pull out the full length of the hose; you will not be able to retract it. If this does happen,
  1. The lock on the hose reel must be released manually with the assistance of a second individual.
  2. To unlock the wheel, turn it, release the lock, and release the wheel back slowly; use caution because it has spring tension.
- d.** Clean any grease off the hose before retracting it.
- e.** Use your hands to guide the hose while it retracts and do not allow it to retract on its own.
- f.** For hose reels mounted on vehicles, maintain distance between you and the rotating drum when retracting the hose.

## Ladders

Includes H-frame and A-frame ladders, elevated platform ladders, and stepladders.

- a.** Must be in good working condition and not damaged.

- b.** Must be labeled with its safety weight rating.
- c.** Ensure it is free of any slippery substances (example: oil from grease gun use).
- d.** Do not position them in front of doors; if need to, block, lock, or have someone guard the door.
- e.** Face the ladder, use both hands to grip the side rails, and maintain three-points of contact when climbing or descending.
- f.** Do not carry anything that would interfere with safely ascending or descending the ladder.
- g.** Never use the top rung from the top of H- and A-frame ladders.
- h.** Do not overreach when on a ladder. Move the ladder closer.
- i.** When working on both sides of a vehicle, place ladders on both sides; do not use the top of the vehicle to get across.

### Torque Wrenches

- a.** Refer to the tool's manual to identify the required torque for the nut/bolt being tighten.
- b.** Stop tightening the nut/bolt when you hear the click. It means the required torque was reached.
- c.** Store them at the lowest setting to release tension when not in use.
- d.** If dropped, do not use it. Report it to management to have it sent to the vendor to be calibrated.
- e.** Always clean after use.

### Wheel Dollies




- a.** Use only on hard and level surfaces.
- b.** Use only to position or transport tires.
- c.** Never use to pry tires loose.
- d.** Never use if damaged in any way or missing parts.
- e.** If adjustable, adjust to fit the size of the wheel.

## SAFETY GUIDELINES FOR ALL POWER TOOLS

- a. Always use the proper and required PPE for the tool or equipment being used.
- b. Do not use any tool or equipment if you have not been trained on how to use it.
- c. Before using any tool or equipment, do the following.
  1. Inspect all its components for damage.
  2. Check the power cord and plug for damage, if applicable.
  3. Check for any signs of tampering.

If damage or tampering are identified, do not use it, do attempt to repair it, report it to management, and place a tag indicating why it cannot be used.

- d. Use tools and equipment only for tasks they are intended for and only as indicated within their respective manual.
- e. Use two hands with all high-power tools.
- f. Clean the area where a tool or equipment will be used and after use.
- g. Make sure to use suitable power for the tool or equipment being used.
- h. Avoid distractions and pay attention when operating power tools.

<b>25 - 50</b> Feet Extension Cords		16 Gauge (1 - 13 Amps) 14 Gauge (14 - 15 Amps) 12 - 10 Gauge (16 - 20 Amps)
<b>100</b> Feet Extension Cords		16 Gauge (1 - 10 Amps) 14 Gauge (11 - 13 Amps) 12 Gauge (14 - 15 Amps) 10 Gauge (16 - 20 Amps)
<b>150</b> Feet Extension Cords		14 Gauge (1 - 7 Amps) 12 Gauge (8 - 10 Amps) 10 Gauge (11 - 15 Amps)

### Cord length and amperage limits

- i. Ensure a safe clearance when there are hazards to bystanders from tools and equipment being used.
- j. Do not leave tools and equipment unattended while in operation.
- k. Never remove safety guards from tools and equipment; they are

there to protect against hazards and pinch points.

- l.** Do not your hold finger over the switch button when carrying portable power tools.
- m.** Disconnect the power source when servicing or cleaning tools and equipment.

### **SAFETY GUIDELINES BY POWER SOURCE TYPE**

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#### Electrical Tools and Equipment

- a.** Turn off electrical equipment when not in use.
- b.** Turn off and unplug electrical equipment before adjusting or maintaining them.
- c.** Pull on the plug and not the cord to disconnect.
- d.** Ensure electrical panels are free of obstructions, not damaged, and breakers are clearly labeled.
- e.** Store electric tools in a dry place.
- f.** Don't connect multiple electrical devices into a single outlet.
- g.** Ensure cords from electric tools do not present tripping hazards.
- h.** Use the appropriate cord for the required power.

#### Fuel-powered Tools and Equipment

- a.** Prevent breathing in hazardous emissions such as carbon monoxide when operating fuel-powered equipment:
  - 1.** Don't operate in enclosed areas.
  - 2.** Keep the bay doors open to ensure the work area is well ventilated.
  - 3.** Ensure exhaust fans on fuel-run generators are operational.
  - 4.** Use exhaust tubes on small vehicles when ventilation is limited.
  - 5.** Park the vehicle outside of the shop if running the engine and bay doors are closed.
- b.** Always wear hearing protection. Fuel-powered equipment is very loud.

- c. Make sure there are no fluid leaks (examples: coolant, fuel, oil). If leaking, do not use and report it to management.

### Hydraulic Power Tools and Equipment

- a. Before changing any of the hydraulic system's components,
  1. Ensure it has cooled down to prevent burns from the hydraulic fluid.
  2. Release the hydraulic pressure to prevent the impact of an item under high pressure coming toward you (examples: porta power tool, hydraulic press).
- b. Always use the manufacturer recommended pounds per seconds (PSI) pressure rating for hoses, valves, pipes, filters, and other fittings and for the job being performed.
- c. Inspect hydraulic lines for leaks before using:
  1. Wear required PPE to include hand and eye PPE to prevent injuries.
  2. Never check for oil leaks with your hands.
  3. Run the system, stay a minimum of 10 feet from the hydraulic lines, and look for leaks.

*TIP: Put dye in the system before running to more easily see if there are leaks.*

### Pneumatic Tools and Equipment

- a. **Do not use tools powered with compressed air to clean equipment, surfaces, or yourself. Instead, ONLY use a blow-off system for cleaning purposes.**
- b. Ensure compressed air used is clean and moisture free.
- c. Ensure gauges, connectors, and hoses are not damaged before using.
- d. Ensure the air hose is securely fastened before using.
- e. Ensure pneumatic tools are lubricated before using.
- f. Disconnect tools when not in use.
- g. Use only attachments that correspond to the tool or that are recommended by the manufacturer.

- h. When done using and before disconnecting the hose, make sure to release the pressure.
- i. Always use the manufacturer recommended PSI pressure rating for hoses.

### **SAFETY GUIDELINES BY POWER TOOL AND EQUIPMENT TYPE**

#### Air Guns

- a. Never point toward anyone.
- b. Do not carry the air gun by its hose; this can damage it or disconnect it.
- c. Never store it when loaded.
- d. Make sure it has the correct PSI rating gauge.

#### Band Saw

- a. Ensure it is secured to the floor or bench.
- b. Do not use if the guard is not working properly.
- c. Ensure the guard is as close as possible to the table without interfering with movement of the material.
- d. Only the piece being worked on should be on the table.
- e. When the piece hangs off the table, use a stand for support.
- f. Do not use a band saw if the piece is too large to be safely cut; instead, cut it on a welding table with a different tool.
- g. Check blades for tightness.
- h. Do not force material into the blade.
- i. When guiding the piece as it's being cut, keep your hands away from the blade.
- j. When debris results from cutting or when material fragments get stuck between the blade and the throat plate, completely stop the machine and clean the surface area before restarting.
- k. New blades in their packaging are coiled up and under tension. To uncoil it safely, hold it securely when removing from its packaging, clear and secure floor area, and release the blade onto the floor to allow it to uncoil on its own.



## Chop Saw

- a.** Check the cutting wheel for any damage; discard and replace if damaged.
- b.** Select the correct blade for the material being cut.
- c.** Make sure the blade is up and above the piece before turning it on.
- d.** Make sure the blade is going at top speed before lowering to start cutting.
- e.** Clean the blade before and after use to prevent built up debris and residue from flying off when used.
- f.** Ensure a minimum clearance of 5 feet from other staff and apply an additional safety measure to protect them from sparks and debris that may fly out when cutting.
  - 1.** Use a shield to redirect sparks.
  - 2.** Use a welding blanket to create a barrier.
  - 3.** Hook up a heat-resistant hose to redirect sparks into a metal container.
- g.** Ensure no flammables are close by to prevent a fire hazard.
- h.** If using a chop saw on the ground to cut steel, place the saw on a flat surface and use packers to support the steel.

## Floor Jacks

- a.** Always use jack stands when using a floor jack; never solely rely on a floor jack to support a vehicle.
- b.** Use only on a flat surface.
- c.** Never rest the jack stand on anything to raise it (example: wood block).
- d.** Use only on the manufacturer designated jack points for the vehicle being worked on.
- e.** Always ensure the vehicle weight is less than the floor jack's maximum weight capacity.

### Forklifts

- a.** Users must have a Forklift Operators Certificate.
- b.** Only the forklift operator can operate it.
- c.** Never allow passengers.
- d.** Always wear the seatbelt while operating it.
- e.** Keep load close to the ground and tilt it slightly back.
- f.** Operate only at a low speed and on hard and level surfaces.
- g.** Make slow and wide turns to prevent it from tipping over.
- h.** Avoid driving over loose objects.
- i.** Drive in reverse up steep inclines.
- j.** Keep away from edges of elevated ramps or platforms.
- k.** Keep hands, legs, and arms inside the forklift.
- l.** Secure attachments with safety straps.
- m.** Use electric/battery operated forklifts inside building and when there is little to no ventilation (examples: SWMD Warehouse, Alamodome, Convention Center).

### Gas-powered Air Compressor

- a.** Ensure the safety valve is operational.
- b.** Check the oil level of the compressor pump and engine.
- c.** Ensure there are no leaks. If leaks are present, do not use it and report it to management.
- d.** Ensure it operates properly by running the compressor for one cycle and having it reach its maximum air pressure capacity.
- e.** Do not exceed the maximum air pressure indicated on the compressor.
- f.** After every use, drain moisture from the tank by opening the valve to prevent moisture build up, which leads to rusting from the inside out.

## Grease Guns

- a. Clean the tips and the hose before and after using.
- b. Return it to its designated spot after using. Do not leave it on the floor.
- c. If hose is broken, report it to management to have it changed out.
- d. If using a pneumatic grease gun, use the correct air pressure for the work being done.
- e. If grease hose is on a retractable reel, always guide the hose with your hands when retracting.

## Grinders

### Bench Grinder

- a. Ensure it is securely mounted to the floor or bench.
- b. Inspect the grinding wheel. If damaged (examples: cracked, chipped), replace it. If worn (example: groove down the middle of the wheel), dress the front of the wheel.
  1. Use a grading wheel dressing tool only.
  2. Re-adjust the tool rest to 1/8 of an inch at maximum from the grinding wheel after finished dressing the wheel.
- c. Inspect the wire brush and replace if bristles too worn or damaged.



- d.** Do not operate the grinding wheels beyond the speed recommended by the manufacturer.
- e.** If machine wobbles or vibrates when turned on, stop using it and report it to management.
- f.** Do not remove the spark shield; ensure it is on tight and positioned about  $\frac{1}{4}$  of an inch from the wheel.
- g.** Ensure the work rest remains in place and positioned very close to the work wheel.
- h.** Do not remove the covers around the grinding wheel.
- i.** Ensure the tongue guard is  $\frac{1}{4}$  inch from the wheel at maximum to keep debris from being ejected.
- j.** Ensure the tool rest is tight up against the wheel with a  $\frac{1}{4}$  inch gap.
- k.** Use a tool rest to support the piece you are working on.
- l.** When grinding a small piece, never use your hands to hold the piece in place. Use locking pliers or clamps.
- m.** Only grind on the front facing side of the wheel.

### Hand Grinder

- a.** When cutting a small piece, never hold it in your hand. It must be fixed to an object or secured down with a vice grip.
- b.** Ensure wheel guards are in place and not damaged.
- c.** Use the grinding disc required for the work being done.
- d.** Ensure grinding discs are in operable condition.
- e.** Never use a grinding disc to cut metal.
- f.** Never use a cutting disc to grind.
- g.** Never tamper with the power switch to hold it on the on position.
- h.** Always wear required PPE to include leather gloves, a face shield, and ear protection.

### Hand-held Drill

- a.** Always use the correct bit for the work being done.
- b.** Ensure the drill bits are not damaged or dull.

- c. Drill slowly at the start and end to prevent your wrist from twisting.
- d. When drilling a small piece, never hold it in your hand. It must be fixed to an object or secured down with a vice grip.
- e. Never tamper with the power switch to keep it on the on position.

### Impact Wrench

- a. Hold firmly with both hands when operating to maintain control and prevent it from twisting your wrist.
- b. Attach a side handle, if available, to allow you to use two hands and maintain better control.
- c. If it has a permanent handle, ensure the handle is fixed firmly to the impact wrench.
- d. Use the manufacturer's recommended torque for the socket used.
- e. Ensure any accessories used on the impact wrench are compatible with it to prevent accidents.

### Plasma Cutter

- a. Protect your eyes from potential damaged from radiant light emitted when operated by always using safety glasses or safety goggles and a face shield with minimum #5 shade.
- b. Put up welding curtains to contain sparks, prevent a fire or damage, and to block off the intense radiant light.
- c. Ensure the work area is properly ventilated.
- d. Ensure there are no flammables on the floor or close to the work area.
- e. Have a fire extinguisher close to the work area.
- f. Ensure the amperage and air pressure controls are set to what is appropriate for the materials being worked on.
- g. Make sure to use the correct cutting tips required for the work being done.
- h. Keep cylinder fittings and hoses oil and grease free.
- i. Do not cut anything thicker than the plasma cutter is rated to cut.

### Porta Power Kit

- a.** Do not exceed the ram's rated pressure capacity.
- b.** Do not disconnect the hydraulic connections when ram is under pressure.
- c.** Ensure the ram is on a stable base to support load while it is being pushed or lifted.
- d.** Center the load on the ram to distribute the weight of the load evenly.
- e.** If used to lift a load, support the load through blocking or cribbing.
- f.** Keep hands and feet away from the ram while using.
- g.** Do not connect a ram to a pump with a higher-pressure rating capacity.
- h.** Do not handle a hose while it is pressurized.

### Presses

#### General

- a.** Do not use a press if you have not been trained on how to use it.
- b.** Keep fingers away from pinch zones and from moving parts.
- c.** Know where the emergency stop button is before using.

#### Drill Press

- a.** Do not put too much pressure on the drill while cutting.
- b.** Drill slowly at the start and at the end to prevent breaking of the drill bit and debris from flying off.
- c.** Lubricate the drill bit to drill easier onto the metal and keep the drill bit from overheating.
- d.** Use extreme caution when holding material with hands close to the ram during operation.
- e.** Always use the safety cage during operation.
- f.** Check equipment for signs of damage that could lead to an injury when used:
  - 1.** Overheating.

2. More than normal vibrations.
  3. Unusual noises.
- g. Ensure it is securely bolted to the surface (platform or floor).
  - h. Do not remove guards/covers when being used.
  - i. Clear the drill press table of everything but the work piece before starting to drill.
  - j. Only use bits that are equal or less than the capacity of the drill press.
  - k. Ensure the drill bit is properly attached and centered to the chuck before using.
  - l. Remove the chuck key before using.
  - m. Do not exceed the recommended speeds for the type and size of drill bit used or type of work piece being drilled.
  - n. Always clamp down the piece being worked on.
  - o. Keep fingers away from the spinning bit.
  - p. Do not touch the drill bit or shavings immediately after drilling; they will be hot.
  - q. Clear the drill press table of any debris using a bench brush or shop vacuum; do not use your hands.

### Hydraulic Press

- a. Inspect hoses and seals for damage and ensure there are no fluid or oil leaks before using.
- b. Check equipment for signs of damage that could lead to an injury when used:
  1. Oil leaks.
  2. Overheating.
  3. Pressure loss.
  4. More than normal vibrations.
  5. Unusual noises.
- c. Set up retractable rope barriers around the work area and place a sign where it is visible alerting other shop staff of the machine

being in use and not to enter the barricaded work area.

- d.** Keep away from the press area and ram while machine is operating.
- e.** If equipped with a corded remote control, use it to operate it from afar for added protection.
- f.** If operating the machine from up close, move from the front to the side of the press if any of the following are present to protect yourself from the potential of flying debris that may result from the object being pressed.
  - 1.** Object pressed bottoms out.
  - 2.** Pressure gauge reading is high. On some gauges, high pressure is reached when the gauge reading reaches the yellow and red zone.

### Kingpin Press

- a.** Do not use it beyond its rated capacity.
- b.** Use extreme caution when holding material with hands close to the ram during operation.
- c.** Keep fingers away from pinch zones and from moving parts.
- d.** Check equipment for signs of damage that could potential lead to an injury when used:
  - 1.** Oil leaks.
  - 2.** Overheating.
  - 3.** Pressure loss.
  - 4.** More than normal vibrations.
  - 5.** Unusual noises.

### Pressure Regulators

- a.** Never stand in front of or behind a regulator when opening the valve. Instead, always stand to the side of the regulator face in case it explodes or breaks off the cylinder.
- b.** Before removing a regulator, ensure the system is off, valve is closed, and pressure is released.
- c.** Ensure it is at the proper setting for the work being performed.



- d.** Have an airline filter attached to the regulator to help prevent moisture.

### Tire Balancing Machine

- a.** Remove rocks and other types of debris that may be wedged in the tire tread.
- b.** Ensure a safe clearance before operating the machine in case debris not removed flies off creating a safety hazard.
- c.** Ensure to use proper technique when mounting or removing tires to prevent injury.
- d.** Use a lift assist or request assistance from a second person when mounting or dismounting tires.
- e.** Use the correct size cone to center the tire correctly.

### Tire Changing Machine

- a.** Ensure to use proper technique when mounting or removing tires to prevent injury.
- b.** Use a lift assist or request assistance from a second person when mounting or dismounting tires.

### Tub Grinders

- a.** Welding not allowed in the tub grinder operation area.
- b.** Before servicing it, perform lock-out/tag-out steps.
- c.** When servicing it will take more than an hour, move it to an area away from brush grinding operations.
- d.** Must wear a hard hat along with all other required PPE.

### Welders

#### Electric Mig Welders

- a.** Clean work area and remove any potential fire hazards.
- b.** Ensure a fire extinguisher is close by.
- c.** Have on welding-specific PPE: welding helmets with a minimum #10 shade, welding gloves and apron, and lace covers, if applicable.

- d. Do not weld in a confined space.
- e. Ensure there is enough ventilation to prevent inhalation of fumes.
- f. Put up welding curtains to contain sparks, prevent a fire or damage, and to block off the intense radiant light.
- g. Do not weld on a wet surface.
- h. Clean the tips to ensure the right mix of material and prevent a hazard.
- i. Ensure welding tip and cover are not burnt; replace if burnt.
- j. Secure the gas cylinder in its holder and the chain to prevent it from shifting and falling.
- k. Check for gas leaks from the gas regulator, hoses, and connections.
- l. Ensure to set gas flow settings per the manufacturer's recommendations.
- m. When welding, ensure the regulator is not all the way open, instead, crack it open, and always close after use.

### Gas Powered / Electric Arc Welders

These welders are stored in the hot-shot mechanic vehicles.

- a. Ensure welding cables are not damaged.
- b. Ensure gauges are working properly before using.
- c. Ensure to have the correct voltage for the work being done; too much or too little voltage will not cut correctly.

### Oxy Acetylene Welders

- a. Ensure to set gas flow settings per the manufacturer's recommendations.
- b. Clean the tips to remove any debris. Run a file through the tip to ensure it is clean and not clogged.
- c. Inspect the hoses for any damage.
- d. Purge the gas lines before and after using.
- e. If a flashback occurs, immediately turn off the oxygen first then the acetylene.

## CHAINS

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- a. Must have the rated capacity.
- b. Do not use a chain beyond its safe working load.
- c. Do not use a chain if it has kinks or knots.
- d. Do not alter the length of the chain in any way.
- e. Do not use if chain hook is damaged in any way.
- f. Ensure the chain hook matches or exceed the chain's rated capacity.
- g. Do not use it to lift anything by wrapping it around the body of the item.

## CRANES

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### General and In-shop Cranes

- a. Before operating a crane, go through the crane inspection checklist.
- b. Do not operate any type of crane if you have not been trained and certified.
- c. Always abide by the crane's load capacity specifications; do not exceed them.
- d. Keep individuals not involved in the crane operation a minimum of 10 feet from the crane and its load.
- e. Ensure the crane when fully extended will not come into contact with anything (examples: power lines, individuals, tree limbs).
- f. Never perform a lift if the crane operator cannot see the load. If there is low or no visibility of the load, have another staff member assist using approved and standard vocal or hand signals.
- g. Never leave a load suspended and unattended.
- h. Never use a crane to hoist an individual.
- i. Never operate when anyone is under the boom or load.
- j. When lifting a load, keep it as close to the ground as possible.
- k. Do not exceed hook load ratings.

# LIFTING AND PULLING MECHANISM

## Vehicle-mounted Cranes

- a. Ensure no one is within the farthest reach of the stabilizers before deploying them.
- b. Before deploying the stabilizers/outriggers, ensure the vehicle is on a flat surface, parking break is on, and transmission in neutral.
- c. When the surface is not level or soft, place leveling pads under the stabilizers.
- d. Always fully deploy the stabilizers to help with stability.
- e. Never over extend the stabilizers past the last pin hole.
- f. Use the level gauge to ensure the vehicle with deployed stabilizers is not tilted.
- g. When operating the crane, monitor the gauge on the crane that informs the operator of the reached lifting degree and weight.



## Hand Signals for Crane Operations

### a. Stop.



*Arm extended, palm down, move arm back and forth horizontally.*

### b. Emergency stop.



*Both arms extended, palm down, move arms back and forth horizontally.*

### c. Hoist.



*With forearm vertical, forefinger pointing up, move hand in small horizontal circle.*

### d. Raise boom.



*Arm extended, fingers closed, thumb pointing upward.*

- e. Raise the boom and lower the load.



*With arms extended, thumb pointing up, flex fingers in and out as long as load movement is desired.*

- f. Lower the boom and raise the load.



*With arms extended, thumb pointing down, flex fingers in and out as long as load movement is desired.*

- g. Lower the boom.



*Arm extended, fingers closed, thumb pointing downward.*

- h. Travel / tower travel.



*Arm extended forward, hand open and slightly raised, make pushing motion in direction of desired travel.*

## LIFTING STRAPS/SLINGS

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- a. Never exceed the rated load capacity on a sling.
- b. Make sure straps are not frayed. Do not use if they are.
- c. Ensure straps are not oily; clean before using if oily. If saturated with oil, discard and replace.

## JACKS FOR VEHICLES AND EQUIPMENT

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- a. Must have tag with rated capacity.
- b. Do not use beyond the manufacturer's safe load capacity.
- c. Use a jack stand under the vehicle when raised.

## VEHICLE LIFTS

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- a. Never exceed the rated load capacity on a vehicle lift.
- b. Ensure it sits on the lift correctly before raising.
- c. Inspect it for air leaks.
- d. When the vehicle is raised, ensure the locking mechanism is securely latched before servicing.



## FUELING

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- a. Shut down the vehicle before fueling.
- b. Ensure the correct fuel is selected.
- c. Do not engage in any other action while fueling.
- d. Stay at the fuel pump the entire time while fueling.
- e. Do not wedge objects in the handle to dispense fuel.
- f. Do not smoke or use electronic devices within 50 feet of the fueling area.

## SERVICING

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- a. Never walk behind a moving vehicle.
- b. Always use a ground guide when backing heavy-duty vehicles and when driving vehicle onto vehicle ramps.
- c. Use a wheel chock on vehicles being serviced, if on vehicle ramps, and if parked inside or directly outside the shop.
- d. Ensure vehicle components to be worked on are not hot before touching.
- e. Move the vehicle completely outside when performing a process where
  1. High-levels of exhaust fumes will be emitted.
  2. The noise level of the process is high (example: vehicle regeneration).
- f. When working on tall vehicles, prevent falls by
  1. Using ladders.
  2. Using a harness and having someone on the ground monitor your movement if work requires being on the vehicle roof.
- g. When performing a lube service
  1. Have quick and easy access to spill containment supplies.
  2. Ensure tanks into which oil will drain into are not damaged, empty, and the cut off valve on the pan is closed.
  3. Ensure to always be present when any type of fluid is being transferred to tanks.



## HOT SHOT MECHANIC TRUCK

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- a. Perform a pre- and post-trip vehicle inspection daily.
- b. Ensure the truck is equipped with a first aid kit, fire extinguisher, and spill kit.
- c. Ensure tools on vehicles are inspected and in working condition.
- d. Keep the inside of the cab organized and clean.
- e. Ensure every tool and piece of equipment on the truck is in its designated spot and safely secured before driving.
- f. Ensure all other items on the truck are safely secured using ties or ratchet straps before driving (examples: removed parts, water coolers, lunch boxes).
- g. Never exceed the power inverter capacity. Ensure it is rated high enough for the device being powered.



## GENERAL

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- a. Refer to a chemical's safety data sheet if not sure how to safely handle a chemical.
- b. Block off spills immediately and clean them up.
- c. Do not use cleaning solvents to wash hands.
- d. If chemicals enter the eye, immediately go to an eye wash station (stationary or portable) or alert someone so they can walk you to one (see page 7).

## BULK FLUID TANKS

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- a. Before using clean or waste oil and coolant bulk fluid tanks, check the tanks and plumbing connections for damage, leaks, and substance levels.

## CHEMICAL SPILLS

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- a. Control the Spill
  1. Immediately contact your supervisor.
  2. Have on appropriate PPE.
  3. Do everything possible to stop the leak or spill (examples: activate the shut-off valve if a vehicle hydraulic line is broken or to stop the flow of fluid from a hydraulic oil tank).
  4. Isolate the area around the spill; keep people at least 30 feet away from the spill.
  5. Barricade the contaminated area by using warning triangles or yellow caution signs.
  6. Contain the spill to as small of an area as possible. Keep it from spreading or from going into storm drains or nearby bodies of water.
    - Use a spill containment kit to construct a dam, if available.
    - Spread absorbent material (examples: sand, vermiculite, or kitty litter) over the entire spill.
  7. Do not use road flares; this could ignite the spilled chemical.

## **b. Clean Up the Spill**

- 1.** Scoop up the used absorbent material.
- 2.** Used absorbent material must be properly contained in their designated container and discarded at the household hazardous waste location.
- 3.** Clean the vehicle or equipment if it became contaminated with the spilled material.

## **COMPRESSED OXYGEN OR FUEL GAS, ACETYLENE, AND OXYGEN CYLINDERS**

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- a.** Ensure all cylinders are clearly labeled with its contents; if not labeled and contents undetermined, mark it “unusable/unknown contents” and report it to management.
- b.** Do not use compressed gas for anything other than its intended purpose.
- c.** Never drag or push cylinders across the floor.
- d.** When empty, label them “empty” and place them in their designated area away from the full tanks.
- e.** Never throw away in the trash pressurized cylinders.
- f.** Ensure the safety cap is on over the valve when a gas cylinder is not being used.
- g.** Store them in an upright position and secure them with a chain to keep them from falling over.
- h.** Store different types of compressed gas cylinders (examples: acetylene, oxygen, and argon) at least 20 feet away from one another.
- i.** Before attaching the regulator and using, briefly open the valve to clear it of any debris.
- j.** Never turn compressed acetylene cylinders on their side. These cylinders also contain acetone and turning it on its side may cause it to leak and damage cylinder components.

## **DISPOSING OF HAZARDOUS WASTE**

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Dispose of

- a. Grease rags in their designated and marked metal containers only.
- b. Used oil and oil filters each in their designated and marked tanks.
- c. Used vehicle metal parts in their designated metal bin. Remove any fluid and contaminants before placing in bin (example: oil).
- d. Used absorbent in their designated container and take to the household hazardous waste location.

## **LABELING AND STORING HAZARDOUS MATERIALS**

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- a. All containerized hazardous material must be labeled, to include daily-use containers.
- b. Aerosol chemicals must be in a fire proof storage cabinet.



- a.** Ensure all current and new employees
  - 1.** Read, understand, and abide by the contents of this handbook.
  - 2.** Receive proper training for existing and new tools, equipment, and operational and safety procedures, and document that training took place.
  - 3.** Know the location of all safety equipment and supplies.
- b.** Ensure the use of PPE.
- c.** Check on employees that are working alone and with no one else around.
- d.** Remind staff to report any damaged tools and equipment and ensure they are removed from inventory and repaired or replaced.
- e.** Ensure tools and equipment requiring preventative maintenance undergo their scheduled PM.
- f.** Ensure all safety signage and communication is in its designated spot and in good condition.
- g.** Ensure the wash pit and grease pit are cleaned on a weekly basis.
- h.** Ensure the following equipment is inspected and record the inspection:
  - 1.** Air compressors: annually by a certified third party.
  - 2.** Bulk fluid tanks: weekly; ensure it undergoes a deep clean every six months.
  - 3.** Eye wash station: weekly; ensure it is activated and inspection log filled out.
  - 4.** First aid kits: once per month.
  - 5.** Fire extinguishers in buildings and in hot-shot mechanic vehicles: monthly; Building and Equipment Services Department (BESD) staff responsible for annual inspection of building fire extinguishers by a certified third party.
  - 6.** Fire risers: annually by BESD; ensure they are not used as storage.
  - 7.** Smoke detectors in the fleet shops and battery room: bi-annually by a third party; attend to any equipment

troubleshooting calls from vendor.

8. Spill kits: minimum of once per month.
9. Torque wrenches: annually by a certified third party and remind staff to check them before every use.
10. Vehicle lifts: annually by a certified third party.





