MSCA TAILGATE SAFETY TALKS

Based on the most common hazards in service work

Safety Excellence

Mechanical Service Contractors of America
MSCA

MECHANICAL CONTRACTORS ASSOCIATION OF AMERICA

MSCA TAILGATE SAFETY TALKS

INTRODUCTION

These ***Tailgate Safety Talks*** include 52 of the most common hazards which may be encountered by service workers in the daily course of their activities. By providing these ***Talks*** to each service worker within your company, it is hoped that each employee will become more attuned to the hazards of the trade and will take all the necessary precautions to prevent accidents and injuries.

It is highly recommended that all service companies provide a copy of ***Tailgate Safety Talks*** to each of their service workers. These booklets are available from the MSCA for a nominal fee. In addition, you are urged to set aside time each week for a safety training class for your workers on each of the safety topics. Upon completion of the class, each employee, as well as his/her supervisor, should sign and date the appropriate ***Talk***. In addition, the last page of each booklet can be utilized by supervisors to keep a record of employees' attendance at service training classes. The supervisor can either sign by the appropriate ***Talk*** at the conclusion of each class in each employee's booklet; or, the supervisor can initially collect this last sheet from each employee and maintain a notebook or file for all employees. Then both the supervisor and employee should initial by the appropriate ***Talk*** after each class. Either way, it is important for both the employee and the supervisor to maintain a record of attendance at safety training classes.

We are hopeful that ***Tailgate Safety Talks*** will become an integral part of your company's safety training program. In addition, by providing each of your employees with a copy, your company's commitment to worker safety is further reinforced.

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MSCA Tailgate Safety Talks

EMPLOYEE NAME: _____

SUPERVISOR NAME: _____

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Tailgate Safety Talks # 2	_____	Tailgate Safety Talks # 28	_____
Tailgate Safety Talks # 3	_____	Tailgate Safety Talks # 29	_____
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Supervisor to date and both supervisor and employee to initial after completion of each talk.

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The High Cost of Accidents

#1

On April 10, 1996 at 3:48 p.m., a 36-year-old worker picked up a 12 foot long piece of 4 inch PVC and tossed it to get it out of his way. One end of the pipe hit a lip of soil and bounced back toward the mechanic. The other end of the pipe caught him on the side of his nose breaking the cartilage and causing a severe laceration. The worker received 150 stitches and had to endure several follow up surgeries. In addition to the costs covered by workers' compensation insurance this incident cost the company more than $30,000.

- A single worker injury that does not result in a lost workday case costs a company an average of $1,200.
- Approximately $500 out of the $1,200 are covered by workers' compensation insurance. The remaining $700 comes directly out of the company's profits.
- Assuming that a company's profit is about 1% of total job revenue, a company would have to earn $70,000 in total job revenue to make up the $700 lost out of profits for a single injury that does not result in a lost workday case.
- A single worker injury that results in one or more lost workdays costs a company an average of $25,000.
- Approximately $7,000 out of the $25,000 is covered by workers' compensation insurance. The remaining $18,000 comes directly out of the company's profits.
- Again assuming that a company's profit is about 1% of total job revenue, a company would have to earn approximately $1,800,000 in total job revenue to make up the $18,000 lost out of profits from a single lost workday case injury.
- All worker injuries, but especially lost workday injuries, cause workers' compensation premiums to increase substantially.

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Defensive Driving

#2

The leading cause of all occupational fatalities each year is highway accidents. There are so many other hazards to think about that we forget how hazardous a road trip can be. Whether you are traveling from one job site to another or just leaving the job site for lunch, don't forget to drive defensively.

- Defensive driving means anticipating what other drivers are going to do and adjusting your driving to avoid a collision. For example, it's usually fairly easy to tell when another driver is going to cut in front of you from another lane. When you see it about to happen, slow down and let the driver in.

- Always buckle up, even for short trips. The impact of being struck by another vehicle doesn't change just because you are only driving a few blocks for lunch.

- Obey the speed limits. Even a five mile per hour collision will make your head whip back sharply. The faster you go, the more force your body will have to endure if there is a collision.

- Remember that heavier vehicles take longer to stop than lighter vehicles. A truck loaded with materials will take several seconds longer to stop than the same empty truck going the same speed.

- Adjust your speed and driving habits based on weather conditions. It takes longer to stop on wet roads and even longer to stop on icy roads. Be especially careful on bridges and overpasses when the temperature is at freezing or below.

- Leave several extra vehicle lengths between your vehicle and the vehicle you are following. Remember it will take a few seconds for you to react to what is happening ahead.

- Obey all traffic rules and regulations. Watch carefully for signs and read each of them as you go. Don't drive any vehicle unless you know it is in good mechanical condition.

- Avoid driving aggressively. Aggressive drivers are dangerous drivers.

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Vehicle Ladder & Materials Racks

#3

The service business frequently requires the transportation ladders and materials on vehicles equipped with special racks. Improperly installed racks or materials improperly secured to the rack can be extremely hazardous to others on the road.

- Make sure the racks are securely bolted in place. Use lock washers to keep the nuts from vibrating loose.
- Check the rack frequently to make sure it is secured in place.
- When using a pickup truck, install a steel grate over the back window to keep objects from flying through due to a collision or sudden stop.
- Install safety stops on racks for vans and pickups.
- Avoid overloading the racks with too much material.
- Avoid stacking the load too high in the rack as well. Place the load so the tie-downs will work effectively.
- Use nylon straps with ratchets, chain binders or come-alongs as tie-downs to secure the load to the rack.
- Use as many tie-downs as you need to effectively secure the load you are transporting.
- Recheck the security of the tie-downs before you begin.
- Secure ladders to the rack in the same way.
- Use warning flags to mark the end of materials or ladders sticking out over the back of the rack. This helps to alert other drivers.

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Falls From Portable Straight Ladders

#4

On December 5, 1996, a 34 -year- old service worker was descending a ladder from a rooftop. His weight on the ladder caused the rain gutter to break and the ladder to fall. He fell 18 feet to his death.

- Falls from ladders are the leading cause of injury among service workers.
- Reaching out from ladders and carrying tools, equipment and materials by hand are the leading causes of falls from ladders. Keep your hands free to climb and pull other items up by rope after you are safely off the ladder.
- Ladders are classified by the weight they are designed to hold safely. Make sure your ladder is designed to hold your weight plus the weight of your tool belt. Look for the ladder rating on the rails.

  -Type IA - ladders are rated up to 300 pounds.
  -Type I - ladders are rated up to 250 pounds.
  -Type II - ladders are rated up to 225 pounds.
  -Type III - ladders are rated up to 200 pounds.

- Inspect the ladder each time you are going to use it. If there is any damage to the ladder such as cracked, broken or missing rungs, cracked side rails, missing feet or any other damage, remove it from service.
- Set the ladder at the proper pitch. For each four feet of height the ladder should be one foot out from vertical. For example, a ladder accessing a 24-foot high landing from a level surface should be pitched out six feet from vertical.
- Set the ladder up on a level, non-slippery surface and secure it in place by bracing it at the bottom and/or tying it at the top.
- Make sure the ladder you choose extends at least three feet above the roof, deck, platform or landing area.
- Make sure there is no mud or grease on the rungs or on your shoes or boots.

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Falls From Stepladders

#5

On March 3, 1996, a 29-year-old service worker was using a three foot stepladder to reach the overhead work area. He fell only three feet to the plywood floor below. However, the force of the fall caused his aorta to rupture killing him instantly.

- Falls from ladders is the leading cause of injury among mechanical service workers. Stepladders are involved in a large percentage of these falls.
- Inspect your stepladder before you use it. If there is any damage, such as cracks, missing rungs, missing rivets, bending, warping, etc., take it out of service immediately.
- Check each step for ice, mud, snow, grease, oil or anything else that could cause a slip. If one of these slip hazards is present, clean the ladder off thoroughly before using it.
- Check the bottom of your work shoes or boots before using the ladder. There may be mud or grease on them as well.
- Never use any stepladder as a straight ladder. They are designed to support your weight only in a fully open position.
- Never use the top platform and the first rung from the top as steps.
- Don't use the supports on the back of the ladder as steps. They are not made to support your weight.
- Never use stepladders as scaffold or platform supports. They are not made to support or balance the weight that would be placed upon them.
- Make sure the ground is level under all four feet and that the ladder is locked in the fully open position before starting to climb.

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Falls From Scaffolds While Working

#6

On May 9, 1995, a 55-year-old service worker on a mobile scaffold was removing a strap from an air conditioning duct. The duct fell down striking the scaffold. The worker lost his balance and fell 11 feet to the concrete floor below. He died from the injuries to his head.

- Falls from scaffolds are a leading cause of injuries to service workers. All falls from scaffolds can be prevented, no matter what type of scaffold you are using, if you follow a few simple rules.

- Inspect scaffolds before you start to work on them. Make sure the access ladders and guardrails are secured in place. Be sure all work areas are fully planked. If the scaffold does not look level and plumb, stay off it and report to your supervisor.

- When working 10 feet or more above a lower level, use a guardrail system for fall protection.

- When access ladders are not a permanent part of the scaffold, make sure the portable access ladder extends at least three feet above the platform and secure it from slipping. Make sure it is set up on a level and solid base.

- Eliminate trip hazards by keeping scaffold work platforms clear of debris and unnecessary materials, tools and equipment.

- Watch carefully for slip hazards such as mud, grease or oil, ice, snow, etc. Check the scaffold ladder, platforms and walkways and check the bottoms of your work shoes or boots. Immediately remove all slip hazards.

- When using a mobile, rolling type scaffold be sure to lock the caster brakes before you climb aboard. And don't ride on it when it is being moved by someone below.

- Avoid carrying tools, materials and equipment by hand when climbing aboard the scaffold. Pull them up by rope after you are on the platform.

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Falls From Scaffolds During Erection & Disassembly

#7

On May 6, 1995, at approximately 1:00 p.m., two service workers were dismantling a tubular welded frame scaffold. While one of the workers was lowering a scaffold frame to a lower level, it got caught on another part of the scaffold. While trying to free the scaffold frame, the worker lost his footing and fell 24 feet to his death. He was only 29-years-old.

- The two major hazards encountered by service workers while erecting or dismantling scaffolds are falls and electrocutions. Make sure you have received proper training before you begin to erect or dismantle a scaffold.

- Keep in mind that a scaffold must be capable of supporting its own weight plus four times the maximum intended load. If anything you see indicates that a scaffold won't do this, stop the process and tell your supervisor immediately.

- Always keep the scaffold base on a solid, level foundation and keep every section level and plumb. Use all of the braces, hardware and equipment. Use only scaffold grade planking and make sure the platforms on all working levels are fully planked between the uprights and guardrail supports.

- "Supported Scaffolds" are used most frequently in our industry. Supported Scaffolds are any scaffolds supported by legs, poles, upright posts, frames, outrigger beams, brackets or similar rigid support. Supported Scaffolds more than four times higher than the width of the base must be kept from tipping by tying, bracing or guying. Check the manufacturer's recommendations on where and when to use ties, braces or guys.

- Watch carefully for sources of electrical power while erecting and dismantling scaffolds and avoid any contact with these sources.

- Discard any defective scaffold parts so they won't be used by others.

- Be sure all working areas on the scaffold are fully planked. When working on a scaffold more than 10-feet from a lower level, use fall protection such as guardrails and/or personal fall arrest systems.

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Falls With Supported Scaffolds

#8

On November 10, 1995, two service workers were placing steel platforms on a scaffold approximately 12 feet off the ground. The scaffold was not braced or supported at the time. The weight caused the scaffold to break. The platforms fell and the workers rode the platform to the ground. The 48-year-old worker died from his injuries and the 44-year-old worker was hospitalized.

- Falls with falling scaffolds kill a significant number of service workers every year. If a scaffold fails, it's because it was either not erected properly or more weight was added to it than it was intended to support. Falling scaffolds can always be prevented.

- Someone who has knowledge of and experience with the specific type of scaffold being erected should supervise the entire erection process.

- Inspect each and every part of the scaffold as it goes up. Discard any defective parts in such a way that others will not use them.

- Place scaffold legs, posts, polls, frames or uprights on base plates and mud sills or on other firm foundations. Make sure footings or anchorages for scaffolding are solid, level and capable of supporting the load without settling or displacement.

- Check the planking to be sure it is scaffold grade. If it is, it will be marked as such on the planks. If you are not sure do not use them.

- When the scaffold is more than four times higher than the base is wide, keep it from tipping by tying or bracing it to the structure or by using guys. The person supervising the erection will tell you when and where to place them.

- Build each section level and plumb and use all of the braces.

- Install the railings in sequence with the erection process.

- Avoid overloading the scaffold with materials and equipment by bringing up with you only those items that you need right away.

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Falls Involving Aerial Lifts

#9

On November 10, 1995, two service workers were inside a new structure working from an aerial lift. The 20-year-old worker was moving behind the other worker to reposition himself. He lost his balance and fell backwards off the lift 22 feet to his death.

- Aerial lifts are devices used to elevate workers and materials to work areas not accessible from ground level. They include extendable boom platforms, aerial ladders, articulating boom platforms, vertical towers or any combination of these.

- Service workers are injured each year in falls from aerial lifts and in falls with aerial lifts when they fall over.

- To protect yourself from falling off an aerial lift, get the proper training before you operate or work on the lift. Secure the safety rails in place before beginning work.

- To keep the lift from falling over, use it only on stable, level ground. Keep the platform as low as possible. Set the brakes and use the outrigger before starting work.

- Make sure that the opening to the platform has a swinging gate or chain to keep workers from stepping, backing or falling through it. As soon as you reach the platform, secure the gate or chain in the closed position.

- Keep your feet firmly on the platform floor. Avoid sitting or climbing on the edges or other areas of the lift.

- Wear a full body harness and lanyard and attach it to the boom or basket. Do not attach the lanyard to any adjacent structures or objects.

- When there is another worker on the platform with you, communicate clearly with each other before you change positions on the platform and before the platform is moved. Let the other worker know where you are and what you are going to do.

- Be careful climbing into and out of the platform. Falls from short distances injure service workers each year, too.

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Falls From Roof Openings

#10

On April 12, 1996, at approximately 11:30 a.m., two service workers moved an existing rooftop unit to enlarge the roof opening for a new system. While cutting out the roof decking, a 37-year-old worker fell 18 feet, sustaining massive head injuries. He died 4 days later from his injuries.

- Each time you prepare to work on a roof, remember that service mechanics frequently fall through roof openings and that the resulting injuries are usually very serious.
- When working on roofs with holes large enough for a person to fall through use floor covers, guardrails or personal fall arrest systems to prevent falls.
- When working on a roof with a small hole, cover it with material that is strong enough to support at least twice the load that could be placed on it.
- Secure all floor covers in place so they can't be easily removed or unintentionally kicked off the hole. For example, a thick, strong plywood cover could be nailed to the roof.
- Label the cover boldly with the words "hole" or "cover."
- If it is a large hole, such as a hole for a large air conditioning unit, protect the hole with guardrails and toeboards.
- If guardrails are used, build them to withstand 200 pounds of any outward or downward force applied within 2 inches of the top edge at any point.
- If covers or guardrails are not available, use a personal fall arrest system which includes an anchorage, connectors, body harness and lanyard or lanyard/deceleration device.
- Holes in roofs that are not big enough to fall through, such as holes cut for pipe, etc., can still be hazardous. A worker could easily trip in the hole and fall over the edge or into an object. Be sure to cover even the smaller holes.

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Falls From Edges

#11

On August 7, 1996, two service workers were carrying materials on a roof. One worker, a 37-year-old man, walked out to the end of a leading edge. He lost his balance and fell to his death.

- An edge is any elevated surface where any end of the surface leads to a drop to a lower elevation. For example, the ends of the upper floors of a multi-story building which is still being built are considered edges. When working on edges, protect yourself from falls by using guardrails, personal fall arrest systems or safety nets.

- When guardrails are used, build them to withstand 200 pounds of any outward or downward force applied within 2 inches of the top at any point.

- When personal fall arrest systems are used, be sure the system will arrest a fall before there is contact with a surface or structure below.

- Full body harnesses and double locking snap hooks provide the best protection on personal fall arrest systems.

- When nets are used, make sure they are high enough to prevent a falling worker from contacting the surface or any structure below. Keep the nets clear of construction debris at all times.

- Remember to extend nets outward from the outermost projection of the work surface as follows:

  - for work performed up to 5 feet above the surface of the net, it should extend out 8 feet;

  - for work performed from 5 to 10 feet above the surface of the net, it should extend out 10 feet; and

  - for work performed over 10 feet above the surface of the net, it should extend out 13 feet.

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Falls From/With Scissor Lifts

#12

Falls from elevations are the leading cause of fatalities among mechanical service workers. Falls with and from scissor lifts account for a significant number of these fatalities.

- Before operating a scissor lift, inspect the entire area in which the lift will be used. If you find potential hazards such as drop offs, floor holes, bumps or debris in the path of travel, take the time to remove or otherwise protect yourself from the hazards.

- Also, inspect the area overhead for obstructions such as sprinkler equipment and ceiling beams and electrical hazards such as live wires and light fixtures.

- Plan ahead on how to carefully work around the obstructions.

- If you have been assigned to work near electrical hazards, have the source of electricity de-energized. If this can't be done, stay well away from the electrical hazards until insulated barriers can be used to prevent contact with the hazards.

- Inspect the lift itself before starting it. Look for hydraulic system leaks and check all of the fluid levels, especially the hydraulic fluid.

- Inspect the tires for wear. Remember that the stability of the lift depends on the tires. Take your time and do a thorough inspection. Also check all controls, safety devices, personal protective devices and warning placards or control markings.

- After starting the lift, perform a functional test by testing all the controls and safety devices. If any part of the lift during the inspection or the functional test appears even slightly defective, take the lift out of service immediately and report to your supervisor.

- Make sure you have received training on the same brand and model lift that you will be using for work.

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Carbon Monoxide

#13

There are a significant number of occupational fatalities each year from over-exposure to carbon monoxide (CO). Be aware of carbon monoxide hazards.

- Carbon monoxide (abbreviated CO) is a colorless, odorless, tasteless gas.
- It is produced by any process where fossil fuels such as gasoline, diesel fuel, propane and home heating oil are burned.
- If you ever feel dizzy, nauseous, or get a headache while working near a source of CO, assume that there is a CO problem and get to fresh air immediately. Alert everyone else that could be exposed to stay out of the area. Shut off the source of CO only if you can do so without being exposed. Otherwise call the local fire department for help. Firefighters will enter the area with self contained breathing apparatuses.
- If you are working where carbon monoxide is being produced make sure the area you are working in has good ventilation.
- For example, if you are in a poorly ventilated space and plan to use a propane torch, install a temporary ventilation system before you light the torch.
- Also, when you are working in trenches or excavations, remember that CO is only slightly lighter than air. If there is equipment operating close by, like a backhoe or a loader and conditions are right, the CO may accumulate in the trench or excavation and you may be overcome by it.
- Be sure that all vehicles in your work area have well maintained exhaust systems.
- Be especially alert when working on a job site where other trades are present. They may not be aware of CO hazards and you may be exposed.
- If a co-worker is overcome by CO, move the co-worker to fresh air away from the CO source. If you know how to administer mouth-to-mouth resuscitation and CPR, do so if needed. Call Emergency Medical Services for help.

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Contact With Acids

#14

Each year service workers receive severe burns, eye damage and other injuries from direct contact with acids. If you work around acids, be aware of the hazards they present.

- Acids are chemical compounds. The acids you are most likely to encounter on your job sites are:

  -Electrolyte Corrosive (battery acid)
  -Sulfuric Acid
  -Muriatic and Hydrochloric Acid
  -Nitric Acid
  -Perchloric Acid
  -Hydrofluoric Acid

- The major hazards associated with acids are burns to the skin and eyes, damage to lungs and other parts of the respiratory system, and fire. Prevent dangerous reactions by avoiding adding water to an acid. Always read the warning labels on acid containers.

- Check the Material Safety Data Sheet (MSDS) for the acid you may be exposed to. Check for the types of hazards the acid may present. Find out about the appropriate types of personal protective equipment needed and what to do if you or a co-worker are directly exposed.

- Make sure the area you will be working in has adequate ventilation.

- Personal protective equipment is always required for work with acids. At a minimum, wear splash-proof goggles and gloves designed specifically for use with acids.

  If acid gets into yours or a co-workers eyes flush the eyes immediately with water and get emergency medical assistance promptly. Acid on the skin should be washed off immediately with water as well.

- Respiratory protection may also be required depending on the type of acid and the amount of ventilation in the work area.

- You may want to use a face shield and an impermeable apron or bib. If you get acid on your clothes, immediately remove them and rinse the exposed area thoroughly with water.

- If an acid fire occurs, immediately evacuate and call the fire department.

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Asbestos

#15

Asbestos is a widely used, mineral based material that is resistant to heat and chemical corrosion. Prior to 1980, it was used in the production of building materials such as pipe wrap, boiler wrap, ceiling tiles, floor tiles, insulation and wall board. Asbestos can be harmful to service workers if it is inhaled or swallowed.

- Asbestos fibers are lightweight and become airborne with the slightest movement of the air around them. The fibers are harmful while airborne because they are too small to see and are easily inhaled and swallowed.

- Mechanical service workers may be exposed to airborne asbestos fibers when working in older buildings where pipe wrap, boiler wrap and other building materials become friable. This means that the materials are so worn that they easily crumble sending the lightweight fibers into the air.

- Workers who are exposed to asbestos can suffer adverse health effects such as the lung disease called asbestosis or cancer of the lungs, esophagus, stomach, colon and rectum. It may take 15 to 40 years following the exposure before symptoms appear.

- Smokers are 90 times more likely to get lung cancer than non-smokers with the same exposure to asbestos.

- While performing service work in existing buildings, beware of construction materials that may contain asbestos. If there are friable building materials in your work area and you believe they could contain asbestos, stop working in the area until a qualified person can determine whether there is exposure to airborne asbestos fibers. If their is no exposure it is safe to resume work as usual.

- If there is exposure to asbestos in your work area you may be required to use respiratory protection. If so your employer will see to it that you get the proper training and equipment to do your work safely.

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Heat Stroke

#16

On July 11, 1995, at around 2:50 p.m., a 22-year-old service worker on the roof of a building collapsed for no apparent reason. The air temperature that day was 101 degrees Fahrenheit and the humidity was 35%. The worker died that day from heat stroke. His core body temperature was 108 degrees Fahrenheit at the time of his death.

- In service work we are often exposed to extreme heat. Working in confined spaces, buildings that are not air conditioned/ventilated, or on roofs in the hot sun can be very hazardous.
- The worst potential hazard is heat stroke which is a life threatening condition. Heat stroke occurs when the body loses its ability to sweat (the first sign of heat stroke is failure of the body to sweat). The body must sweat to keep its temperature within its normal range.
- When heat stroke occurs, the body temperature can get so high that brain damage and death can happen fairly quickly.
- Symptoms of heat stroke include hot, red skin, very small pupils and very high body temperature.
- To protect yourself from this hazard, take frequent breaks in a cool shady place.
- Drink plenty of water each time you break.
- Choose lightweight clothing with breathable fabric if your type of work allows it. Avoid dark clothing which absorbs heat.
- If you are wearing heavy protective clothes to weld, etc., do the work early in the morning or later in the afternoon to avoid mid-day heat.
- If you see any co-worker exhibit heat stroke symptoms, send someone to call for Emergency Medical Services. Place the worker on his or her back in a shady place and apply cool water or cool wet towels. Prop the worker's feet up 8 to 10 inches above the ground to treat for shock.

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Heat Exhaustion & Heat Cramps

#17

Heat exhaustion and heat cramps occur frequently when service workers are performing work in hot environments. Although they are not initially life-threatening, they can lead to more serious problems.

- Symptoms of heat exhaustion include pale and moist skin, heavy sweating, dilated pupils, headache, nausea, dizziness and vomiting.

- When you are working hard in a hot environment and your body is working properly, you are sweating heavily to cool your body. The loss of fluid in your body causes blood flow to slow which could result in a form of shock.

- Protect yourself from heat exhaustion by keeping fluids in your body. Drink water frequently throughout the day. Take breaks to cool down and replace body fluids.

- If a co-worker shows any symptoms get him or her to a cool place and call for Emergency Medical Services. Treat for shock by placing them on their back and prop their feet up 8 to 10 inches above the ground.

- Cool the victim by loosening his/her clothing, fanning and placing cold packs on top of the clothes. If the person is fully conscious and can safely drink water, give him or her 1/2 glass every 15 minutes.

Heat cramps are muscle spasms from heavy exertion. The cramps are usually in the stomach or legs.

- Protect yourself from heat cramps by keeping plenty of fluid in your body. Drink water frequently throughout your work day.

- If you or a co-worker show signs of heat cramps get to a cool place. Drink 1/2 glass of salt water every 15 minutes for an hour. The recommended mixture is 1/4 teaspoon of salt mixed with one quart of water.

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MSCA Tailgate Safety Talks

Hypothermia & Frostbite

#18

Mechanical service workers are frequently exposed to cold conditions especially in the winter. There are two potential hazards associated with cold conditions. They are hypothermia and frostbite.

- Conditions do not have to be extremely cold for workers to suffer from hypothermia. Hypothermia results from the loss of body temperature. It can occur even when the temperature is well above freezing. Symptoms of hypothermia include shivering, apathy, loss of consciousness, decreasing pulse rate and decreasing breathing rate. Death can occur as well. Protect yourself from hypothermia by dressing properly. Whenever you will be exposed to cold for any period of time, wear warm clothes and pay attention to what your body tells you.

- Remember that most body heat escapes from the head, underarms and groin area. Block the heat from escaping in these areas and dress in layers so you can remove some clothes when you get hot and put them back on when you start to get cold. If you start to shiver uncontrollably, get out of the cold. Warm back up, then return to work. Eating nourishing food will help keep your body warm, too.

- Avoid getting wet, especially when dressed in cotton clothing. Wool provides much better insulation even when its wet.

- If a co-worker shows signs of hypothermia immediately call for emergency medical services. Get the victim out of the cold and warm his or her body quickly. Don't give them food or drink and don't allow them to smoke.

Frostbite occurs in freezing weather. Frostbite results from ice crystals forming in body tissue, usually on the ears, nose, cheeks, chin, fingers or toes. The symptoms of frostbite are slightly flushed skin (first sign), white or grayish yellow skin and, finally, blueish gray skin. Pain is usually felt at first, but may go away.

- To protect yourself from frostbite, keep your ears, nose, cheeks, chin, fingers and toes covered with warm clothing when exposed to freezing weather. Anytime any body part gets so cold that it starts to hurt, get out of the cold. Get warm, then go back to work.

- If you or a co-worker show signs of frostbite, get to a warm place. Place the frozen body part in warm water (not hot). Call a health care provider.

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MSCA Tailgate Safety Talks

Hazardous Substances

#19

Service workers are frequently exposed to a variety of hazardous substances. Most of them are chemical substances needed for the job. If they are not used properly, they can become extremely hazardous and result in permanent health loss and possibly death.

- If you are working around any chemical substances in the form of gases, mists, vapors, fumes, particles, liquids, solids or any other form, you have the right to know what hazards are associated with those substances.

- Check the label on the substance you are concerned about. If there is not enough information there, check the Material Safety Data Sheet (MSDS) to find out what you are working with, what the hazards are and how you can protect yourself.

- The three primary ways workers get hazardous substances into their bodies are by inhaling them, swallowing them or absorbing them through their skin. Check the label and MSDS for each substance.

- You need to know how they get into your body to know how to protect yourself from them. If a substance presents an inhalation hazard, you may need special ventilation or may need to wear a respirator.

- If a substance can be swallowed, you will need to keep food and drinks away from the work area and wash yourself thoroughly before eating and drinking. It may also require the use of a respirator.

- If a substance can be absorbed through the skin, you will have to keep the substance off your skin by wearing protective clothing and gloves.

- The label and MSDS will give you all of this information. Follow their instructions carefully and you should have adequate protection.

- If you are not sure about any substance check the MSDS.

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MSCA Tailgate Safety Talks

Working Under The Influence Of Alcohol Or Drugs

#20

Working while under the influence of alcohol or drugs temporarily changes people, both mentally and physically. Frequently the effects of the changes cause individuals to make decisions or do things that they wouldn't otherwise do. These individuals are much more likely to be involved in a job site vehicle accident.

- Remember that being under the influence includes illegal drugs, alcohol, some prescription drugs and some non-prescription drugs.

- Mental and physical changes that take place while still under the influence are as follows:

  -It changes the way you ordinarily think.
  -It becomes very difficult to concentrate on what you are doing.
  -Your mind loses its ability to make good judgements.
  -Your reflexes are slowed.
  -You lose depth perception.
  -It changes sleep patterns so you are unlikely to get the sleep you need.

- Remember that you can still be under the influence for many hours after taking a substance, especially after partying heavily on a night before you have to work.

- How long you are impaired depends on what you are using, the amount you use, your body weight and what other substances you have in your body.

- Some over-the-counter and prescription drugs, for example, cause severe impairment when mixed with alcohol. It may take several hours or more before the effects wear off.

- Now that you know the effects of drugs and alcohol on the mind and body would you want to be performing a hazardous task with co-workers who are still under the influence? . . . Neither would they.

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MSCA Tailgate Safety Talks

Working Under the Influence of Fatigue

#21

Service workers tend to work long, hard, physically laborious hours and are frequently working in environments that add to these fatigue factors. Heat, cold, loud noise and other environmental factors help contribute to worker fatigue. Also, with today's work schedules, chores, errands, and many other obligations, most Americans average only 7 hours of sleep each night. One third of the population averages only 6 hours of sleep each night. Sleep requirements vary from person to person, but most people need 8 hours of sound sleep each night to be properly rested the next day.

- When service mechanics are working while fatigued they are less alert, less productive, less efficient, more prone to making errors in judgement and more prone to accidents and injuries.
- Make sure you are rested when you come to work each day.
- Try to get a solid 8 hours of sleep each night.
- When you feel yourself starting to get tired at work be aware that you are not as alert as you are when you are rested.
- Take the breaks you are allotted throughout the day.
- Get off of your feet for awhile.
- Sit down in a quiet comfortable place and rest until its time to return to work.
- Try to complete the more hazardous tasks earlier in the day whenever possible.
- Never attempt a hazardous task when you have reached the point of exhaustion. Wait until you are rested.
- Know yourself...don't push your own limits.

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MSCA Tailgate Safety Talks

Airborne Pathogens

#22

Mechanical service workers can sometimes be exposed to certain airborne pathogens. Pathogens are microorganisms that cause disease in humans. Mechanics can easily protect themselves from the airborne pathogens they are most likely to encounter.

- The diseases that are most likely to affect service mechanics through airborne pathogens are Legionnaires Disease and Tuberculosis.
- Legionnaires Disease comes from bacteria called Legionella which has been found in plumbing systems, evaporative condensers, humidifiers, air handling systems and cooling towers.
- If you are working on a system where moisture, oxygen and algae (slime) are present in temperatures between [50-140 F] Legionella may be present. For example, a condensate drain pan from an air handling unit creates a perfect environment for Legionella.
- Since Legionella is transmitted only by aerosol mist you can protect yourself from exposure by using respiratory protection.
- Talk to your supervisor before using a respirator. Doing so requires special training, fit testing and a careful respirator selection process.
- Tuberculosis is a concern for service mechanics when they are servicing air systems or equipment or renovating, repairing or maintaining areas of buildings that could contain aerosolized Tuberculosis. Examples of places where Tuberculosis may be present include hospitals, homeless shelters, nursing homes, drug treatment centers, correctional facilities and hospices.
- If you are planning to work in an area where Tuberculosis may be present you can protect yourself with the proper respiratory protection.
- Talk to your supervisor before using a respirator. Doing so requires special training, fit testing and a careful respirator selection process.

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MSCA Tailgate Safety Talks

Bloodborne Pathogens

#23

Service workers are sometimes required to work in areas where Bloodborne Pathogens may be present. Bloodborne Pathogens are microorganisms present in human blood that cause diseases in humans. Mechanics can protect themselves by preventing their exposure to human blood and other potentially infectious body fluids such as urine, mucus and saliva.

- The diseases that are most likely to affect service mechanics through exposure to Bloodborne Pathogens are Hepatitis B (HBV) and Human Immunodeficiency Virus (HIV) leading to (AIDS).

- To protect yourself from these diseases treat all blood and body fluids as if they are infectious.

- If you are attempting to help an injured worker make sure you are wearing the proper personal protective equipment.

- At a minimum you should wear rubber gloves and goggles designed for the purpose.

- A breathing mask with a one way valve should also be used if mouth to mouth resuscitation is required.

- The Personal Protective Equipment should be readily accessible inside your service vehicle.

- Also, wear rubber gloves and a full face shield when you are working in areas where blood and body fluids could be present. Examples are plumbing drain pipes, (especially those in hospitals, urgent care clinics, funeral homes, etc.) and waste water treatment plants.

- If you come in contact with blood or body fluids you should consider getting a Hepatitis B vaccination within 24 hours following the exposure. Your employer is required to provide the vaccine if you decide to get one. Contact your supervisor immediately when there is an exposure.

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MSCA Tailgate Safety Talks

Flammable & Combustible Liquids

#24

On July 7, 1996, at approximately 4:00 p.m. a service worker was using gasoline to clean parts inside a building under renovation. The vapors were ignited probably by the furnace pilot. The worker died after suffering 3 rd degree burns over 100% of his body.

- Flammable and combustible liquids used in and around service work can be very hazardous. Especially since there are so many potential sources of ignition such as electrical sparks, flames from acetylene cutting torches, propane torches, brazing operations, cigarettes, etc.

- Common flammable and combustible liquids used in the business include gasoline, other petroleum products, benzene and other cleaning solvents.

- Whenever possible substitute flammable or combustible liquids with non-flammable/combustible liquids that do the same job. Eliminating the hazard is the best option.

- When you can't substitute, keep the quantities of flammable/combustible liquids as small as possible. Keep only the amount you will use right away.

- Keep these liquids in containers designed specifically for their use. Metal safety cans with self-closing lids and flash arresters that are UL Approved are a good choice.

- Every container should be properly and clearly labeled so workers won't unintentionally use the wrong liquid. For example, don't use a container labeled for gasoline to store a cleaning solvent. Doing so could lead to a hazardous situation.

- Be constantly aware of the location of these liquids in relation to sources of ignition. Keep them well away from ignition sources even though they are in approved containers.

- Static electricity can be a source of ignition. When transferring one of these liquids from a drum to a smaller container protect yourself from this ignition source by grounding the drum first. Then bond the drum and container by attaching a conductive wire from the drum to the container.

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MSCA Tailgate Safety Talks

Flammable & Explosive Gases

#25

On November 11, 1995, a 25-year-old service worker entered a manhole. The worker was carrying a propane torch. While he was working, the propane canister fell over. The force of the fall caused the regulator to break off. The released propane gas was ignited by the torch. The worker died in the structure.

- Flammable gases are prevalent in service work.
- Mechanical service workers use flammable fuel gases regularly.
- The most common fuel gases used in our business are propane, butane and acetylene.
- Because there are so many potential sources of ignition in our work, it is vital to keep fuel gases from being released into the air.
- Uncontrolled burning gases are serious hazards as are gases that become explosive.
- An explosion is nothing more than rapidly accelerated combustion. That's why oxygen can be very hazardous.
- Think about how much more rapidly acetylene burns when oxygen is added. If the right amount of oxygen is released into the air with a flammable fuel gas and the mixture is ignited, an explosion will occur.
- Even though oxygen by itself is not flammable it should be treated like other fuel gases. Avoid releasing it into the air around you.
- Be especially careful to keep oxygen from coming into contact with oil, grease or other petroleum based substances.
- Fuel gases and oxygen must be stored properly. For example, propane should not be stored inside a building. Ask your supervisor about proper storage.

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MSCA Tailgate Safety Talks

Explosions

#26

On March 8, 1995, a 42-year-old service worker was working in an excavation at an existing waste water treatment plant. He was using an acetylene cutting torch to cut into a pipe. The pipe contained oxygen and the worker died from the ensuing explosion.

- Explosions occur in mechanical service work each year. However, they can be prevented by keeping ignition sources away from explosive substances.

- You don't have a whole lot of exposure to explosives in mechanical service work but you do have exposure to a number of flammable substances including gasoline, benzene, cleaning solvents, propane, butane and acetylene. Any of these substances mixed with the right amount of oxygen and an ignition source can explode.

- Remember that oxygen, by itself, is not flammable or combustible but it does rapidly accelerate the rate of burning. Keep oxygen from releasing into the air around you by keeping oxygen cylinder valves shut off when not in use.

- In confined spaces the release of flammable liquid vapors or gases and the right amount of regular breathing air can be hazardous. If the mixture is just right and there is an ignition source, an explosion will occur.

- Keep all flammable substances away from ignition sources and sources of oxygen. And keep only small quantities of flammable liquids on hand. Store them in approved containers.

- Keep oxygen and acetylene cylinders separate when they are not being used. Store them at least 20 feet apart or keep a 5 foot high 1/2-hour rated noncombustible barrier between them.

- Make sure the valves on fuel gas cylinders are closed tightly when you finish working with them. Also inspect the valves and pressure gauges for leaks before and after you use the cylinders. If there is a leak, warn others to keep ignition sources away from the cylinder and report it to your supervisor immediately.

- Remove gauges and hoses when work is completed.

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MSCA Tailgate Safety Talks

Pressure Testing (Oil and Refrigerants Under Pressure)

#27

Service workers are frequently required to perform leak or pressure tests or purge systems containing oil or refrigerants. Doing so can be hazardous when not done properly. The potential hazards are violent rupture of a pressurized system component, suffocation from displacement of oxygen and explosions. You can easily protect yourself from these potential hazards.

- Never use pressurized air, oxygen or any flammable or combustible gas to leak test, purge lines or pressure test a machine. Doing so could result in an explosion.
- When using nitrogen for testing remember that the pressure in a nitrogen cylinder at room temperature is well above the bursting pressure of the system components. Always use a nitrogen pressure reducing valve or regulator between the cylinder and the system and secure the cylinder to keep it from falling at all times.
- Heavy concentrations of nitrogen in enclosed or confined spaces can displace enough oxygen to cause suffocation.
- Never enter an enclosed or confined space where nitrogen has been released into the air until the space has been tested and the oxygen content is acceptable.
- Be sure not to exceed specified field test pressures.
- Always verify the field test pressure prior to each test. Remember that testing at the design pressure, indicated on the equipment nameplate, requires special safety precautions.
- Check with your supervisor before attempting to test at the design pressure.
- Never use the system compressor to build up the pressure for testing.
- Always secure cylinders to keep them from falling.

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MSCA Tailgate Safety Talks

Hard Hats

#28

Hard hats are designed to protect workers from falling objects and other potential sources of head injuries, including sharp objects, whenever there is exposure.

- Falling objects include, tools, debris and materials. They may fall from the edge of a roof, work platform or scaffold platform or through a floor, wall or roof opening. Other potential sources of head injury include being hit by other workers carrying materials or backing up into stationary objects like pipe or duct work, etc.

- Hard hats are designed to absorb the force of falling objects. The force is distributed throughout the head, neck, spine and shoulders and not concentrated in one spot as it would be without a hard hat.

- To protect yourself from head injuries always wear your hard hat. Most hard hats only weigh 14 ounces and some of the newer ones weigh considerably less. Hard hats are easy to get used to wearing. Wear it everyday for a few days and you will forget it's there.

- Many workers believe the hats make them too hot. The truth is hard hats help to keep your head cooler than the outside air. Tests done at 110 degrees showed that the temperature inside the hard hat was 5 to 12 degrees cooler than the outside air.

- Be sure not to turn your hard hat around backwards like a baseball catcher because the bill in the front is designed to deflect falling objects away from your eyes and face. It also helps keep the sun out of your eyes and the rain off your face.

- Always inspect your hard hat before you wear it. If there are any defects whatsoever, discard the hat and get a new one.

- Never drill holes in your hard hat to let heat escape. Even a single hole will weaken it. Don't paint your hard hat either because paint covers up defects and weakens it as well. Hats with holes or paint are worthless and should be discarded. A sticker or two is okay as long as they are approved specifically for hard hats. Adhesives on some stickers weaken hard hats.

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MSCA Tailgate Safety Talks

Eye & Face Protection

#29

Mechanical service workers are exposed to eye hazards every day on the job. Countless workers have been spared from eye injuries and blindness because they chose to wear eye protection. Not as important but still worth consideration is the use of face protection for certain tasks.

- Depending on the source, flying particles can strike with a little bit of force or with a tremendous amount of force. When flying particles hit an eye, the potential damage ranges from temporary irritation to permanent blindness.
- Wear eye protection whenever there is potential exposure to flying particles, chemicals or other eye hazards such as ultraviolet radiation, infrared radiation or visible glare.
- Wear safety glasses with side shields for protection against flying particles. If you wear regular glasses you can have prescription safety glasses with side shields made up for you.
- Wear flash goggles with side shields under your welding helmet.
- Wear splash proof safety goggles when working with chemicals such as solvents or acids. If you wear regular glasses there are goggles made to fit over them.
- Wear shaded goggles designed specifically for cutting when using cutting torches. Use shaded lenses #2 for soldering, #3 for brazing and #5 for oxygen/acetylene tasks.
- Attach a shaded filter plate to your welding helmet. The shade you need depends on the type of welding, size of the electrode and the amount of electrical current you are using. If you are not sure about the correct shade, use a #10 shade (minimum) or check with your supervisor.
- Wear face shields when using chemicals, grinding, chipping, wire brushing, etc.
- Always wear the appropriate safety glasses or goggles with the face shield. The shield by itself is not made to protect your eyes.

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MSCA Tailgate Safety Talks

Hearing Protection

#30

Service workers are constantly exposed to noise from power tools, machinery, construction equipment and other sources. Noise can be harmful under certain conditions if you don't take measures to protect yourself.

- Whether noise is harmful depends on how loud it is and the length of time you are exposed to it. Determining what is too loud is difficult to do.

- Noise is measured in decibels. Exposure to 90 decibels over an 8 hour period is a recognized threshold for hearing damage. When you are exposed to this much noise for anywhere close to 8 hours make sure you protect your hearing. Noise levels below 90 decibels over an 8 hour period can still be damaging to some people so it's a good idea to always protect your hearing.

- Since noise above 90 decibels is even more damaging to your hearing, it's a good idea to protect yourself all the time no matter how long you are exposed to it.

- Since you don't have the equipment to measure noise on the job site, remember that an air compressor runs at around 90 decibels and a circular saw at around 100 decibels. Use this knowledge to gauge the noise around you.

- Another way to gauge the noise level is to determine whether you can hear a co-worker standing 3 feet away from you when he or she is not shouting. If not, it's probably too noisy.

- Also, if you hear a ringing sound or feel a tickling sensation in your ears, it's too noisy. Whenever it's that noisy, wear hearing protection.

- There are different types of hearing protection and each blocks out a certain amount of noise. Ear muffs block out more noise than ear plugs. Some types of ear muffs block out more noise than other types of ear muffs. The same goes for ear plugs, too. Whatever you choose, make sure it blocks out enough sound to protect your hearing, but not so much that you can't hear what is going on around you. Make sure you can still hear a warning shout from a co-worker or a back-up alarm on a piece of equipment.

- Learn how to properly install your ear plugs to get the best protection.

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MSCA Tailgate Safety Talks

Foot Protection

#31

With all of the safety concerns in mechanical service work, it's easy to forget about protecting your feet. However, foot injuries in mechanical service work occur each year to workers who don't protect their feet from potential foot hazards.

- Foot hazards in service work include:

  -dropping tools, materials or equipment on your feet;
  -setting down heavy objects on your feet;
  -equipment/materials rolling up on your feet; and
  -objects with wheels like vehicles, mobile lifts, mobile scaffolds, etc. rolling over your feet.

- The best means of protection is to avoid these potential foot hazards and any others by staying alert and thinking ahead about what could happen.

- Avoid carrying objects which are too heavy for one person alone. Also, avoid carrying too many items which could cause you to drop them.

- When carrying or moving a piece of equipment, machine or other heavy object, think about where your feet are before setting it down. Communicate constantly with those helping you and keep your feet clear.

- Make sure materials are properly secured against falling off the stack onto your feet.

- When working around a vehicle, mobile scaffold, mobile lift or anything else on wheels, be extra alert. Know where it is at all times and work as far away from it as possible.

- Always wear protective footwear on the job. Wear work boots or work shoes with steel toes designed to protect you. Never wear soft shoes.

- When working around very heavy objects that could fall on your feet, wear metatarsal guards over your steel toed boots or shoes.

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MSCA Tailgate Safety Talks

Hand Protection

#32

Hand injuries occur needlessly every day in service work. Some are severe, while others are minor, but they do occur frequently. Workers need injury-free hands to do their jobs as effectively as possible. So protect your hands from the obvious hand hazards.

- The obvious hand hazards include:

  -pinch points where hands or fingers get pinched between materials or equipment (for example, pinching your hands between drive belts);
  -sharp or jagged edges on materials;
  -getting rings or bracelets caught in tools, materials or equipment;
  -unguarded tools and machines;
  -chemical burns and frostbite.

- Stay alert to avoid the hand pinch hazards. Think about what you are doing and what will happen next.

- Inspect materials before you move them. Wear leather gloves when handling objects with sharp or jagged edges or when you are exposed to hot metal or sparks. Always wear welding gloves when welding.

- Take off all rings and bracelets before you start work.

- Check for guards on all tools and machines that are supposed to have them. If any one of them is missing, damaged or otherwise inoperable, don't use the tool or machine.

- When working with acids, solvents or other chemicals, use neoprene gloves. Use general purpose latex gloves for work with detergents and mastics. Check the label or Material Safety Data Sheet (MSDS) if you are not sure what type of glove to use.

- Wear gloves when it's cold and don't touch frozen metal with bare hands. If your fingers get so cold they hurt, stop work and warm them slowly.

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MCAA Tailgate Safety Talks

Manual Handling Of Materials

#33

December 30, 1995, a 29-year-old service worker was working alone attempting to move a crated water boiler into the basement of a building. He lost control of the boiler and fell down the basement steps. The 500 pound unit crushed his head killing him.

- Manual handling of materials is a leading cause of nonfatal injuries in the service industry.
- Before moving materials check to see whether there is materials handling equipment available. If so, don't move them by hand.
- If materials must be moved by hand, make an assessment as to how heavy and bulky the materials are. If you can't handle them easily by yourself, get help from one or more co-workers.
- When lifting materials, always use proper lifting techniques. Keep the object as close to your body as possible. Keep your back straight by keeping your butt down and your head up. Lift with your legs and avoid twisting your back while you lift and carry the materials.
- Be aware of situations where your hands could get pinched or crushed between materials and objects and avoid them. For example, if you are storing materials on a concrete floor place a pallet or rack on the ground first so your fingers won't get pinched between the materials and the floor.
- Be aware of sharp edges. Protect your hands by wearing leather gloves.
- Watch carefully for hazards that could make you slip, trip, or fall while moving materials. Move the hazards or carefully go around them.
- If you are moving materials from overhead, such as stacked tubing, always wear your hard hat.
- Wear steel toed boots or shoes if heavy materials could roll or be dropped onto your feet.

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MSCA Tailgate Safety Talks

Backs & Lifting

#34

Most back injuries that occur while performing service work are from improper lifting techniques or other improper manual handling of materials. By following a few simple steps you can protect yourself from back injuries.

- Many back injuries can be prevented by stretching the back muscles before you begin work. This is particularly true if you have to lift heavy objects during the day. Remember to re-stretch following lunch or long break periods. Suggested stretching exercises follow.

- **Stretching upper back** - Stand erect with your hands in front of your thighs and palms facing your body. Lift your hands toward your chin while exhaling. Keep elbows pointed out. Hold the position for a moment and slowly lower your hands. Do 2 sets of 12 with a minute rest between sets.

- **Stretching middle back** - Stand erect and raise your shoulders toward your ears. Hold the position for a moment and slowly lower your shoulders. Do 2 sets of 12 with a minute rest between sets.

- **Stretching lower back** - Get on your hands and knees and allow your back to sag. Arch your back upwards like a cat and bend your head forward. Hold the position for a moment and slowly return to the starting position. Do 2 sets of 20 with a minute rest between sets.

- Before moving any materials or equipment assess their weight as best you can. If there is any question in your mind about your ability to easily move them, don't go it alone. Get help from a co-worker.

- When preparing to lift an object, whether you are by yourself or getting help from a co-worker, follow these steps:
  - -get a firm grip on the object;
  - -get your body as close to the object as possible;
  - -get your back straight by putting your butt down and head up; and
  - -lift with your legs, keeping your back straight the whole time.

- Once you have the object up be sure not to twist your back. Move your whole body and always keep your back straight.

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MSCA Tailgate Safety Talks

Hazards From Electric Arc Welding

#35

On July 27, 1995, a 51-year-old service worker was using his arc welder while lying on a metal duct. The welder became conductive because his clothes were drenched with sweat from the heat in the tight quarters. He was electrocuted by as much as 135 amps of current traveling from the electrode to ground through his body.

- The biggest hazard in arc welding is not from heat, sparks, fumes or intense infrared radiation but from electrical current (electrocution).
- On most manual arc welding operations, the electric current ranges from 10 amps to 600 amps. Remember that it only takes 70 to 100 milliamps to kill most people and 70 milliamps is only a small part of one single amp.
- The trick is to keep yourself from becoming the easiest path to ground.
- Inspect the stinger leads for damage. There can be no damage in the first 10 feet of active stinger lead. Minimal lead damage elsewhere can be repaired with vulcanizing or heat shrinking kits.
- Always keep yourself insulated from the electrode and electrode holder, especially if you are wet from sweat or some other source. Use well insulated electrode holders and welding cables.
- Keep your clothes and hands as dry as possible. Use insulation between your body and the ground such as a welding mat, where possible.
- Cover or otherwise arrange the cables to prevent falling sparks from burning through the insulation.
- Avoid changing electrodes with bare hands or wet gloves.
- Ground the welding unit according to the National Fire Protection Association's National Electrical Code (NFPA 70).

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MSCA Tailgate Safety Talk

No Ground Fault Circuit Interrupters

#36

On September 25, 1996, a 25-year-old service worker entered a crawl space under a building to inspect the duct work. The drop light he was using came into contact with standing water under the building. The mechanic became the quickest path to ground and was electrocuted. There was no Ground Fault Circuit Interrupter in use.

- Ground Fault Circuit Interrupters (GFCI) can protect workers from some electrical hazards.
- If a worker is standing on a damp floor using a power tool with a damaged cord and comes into contact with either the hot or neutral wire, he or she will become the easiest path to ground. The current will flow through the worker to ground.
- GFCI prevents some electrocutions by detecting a difference in the amount of current flowing between the source of electricity and the tool. If there is even a slight difference it automatically shuts off the circuit.
- When a difference in current of 5 milliamps or more is detected, the GFCI trips the circuit in as little as 1/40th of a second.
- Most power tool receptacles are designed to trip at around 15 amps. But death from electrical shock can occur for most people at between 70 to 100 milliamps.
- Inspect GFCI protected circuits regularly because, like any man made device, they could fail.
- Also, use GFCI in conjunction with an assured equipment grounding program because GFCI won't detect line-to-line faults.
- In one case, a worker was electrocuted while using a power tool. The investigation showed that a drywall nail had been driven into a non-metallic cable, nicking the hot and ground wires. The ground wire became energized and the worker was electrocuted when he touched the metal casing of the power tool. The GFCI in use at the time did not pick up the line-to-line fault.

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MSCA Tailgate Safety Talks

Contact With Live Wires

#37

On January 11, 1996, a 36-year-old service worker was taking down an extension ladder by walking it down. The ladder struck an overhead power line carry 7,200 volts. The worker was electrocuted.

- Electrical accidents are a leading cause of fatalities in our industry.
- Typical overhead distribution lines carry 7,200 volts per line. Major transition lines carry 500,000 volts. Lines from a power pole to a residence carry 110 volts each. Even one residential line carries much more electrical current than is needed to kill a person.
- Electricity always takes the easiest path to ground so you must keep yourself from becoming grounded. The worker electrocuted on January 11th allowed himself to become the easiest path to ground. Aluminum ladders are highly conductive and the worker was standing on the ground when he allowed the ladder to contact the power line. The current went straight through the ladder and the worker to ground.
- If you have to work around electrical power sources, have the power cut off by the power company if at all possible. Make sure they lock out access to the power switch so it can't be turned on while you are working.
- If power can't be cut off, the power company can put insulators over power lines where there could be an exposure.
- Remember that the weather insulation on power lines is not designed to insulate you from electrical current. Avoid all contact with power lines.
- Remind everyone working around you about the electrical hazards. A co-worker could unintentionally charge the work area around you and expose you to the current.
- Assume that all wires are live wires and treat them accordingly.

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MSCA Tailgate Safety Talks

No Grounding

#38

On August 21, 1995, a 29-year-old service worker was in a crawl space using a power tool which was plugged into a ground receptacle. However, the ground prong on the tool cord had been removed and the tool was not grounded. The worker became the most conductive path to ground and was electrocuted.

- Electrocutions are a leading cause of fatalities in our industry. Many of them occur because electric powered tools and equipment are not properly grounded.
- Electricity always attempts to travel to ground, takes the path of least resistance and travels at the speed of light (186,000 miles per second).
- When working with electric powered tools and equipment, you can ensure that the current has a safe, easy, path to ground. If you don't, the easiest path to ground may be through your body causing severe injuries or death.
- Inspect the plug each time you prepare to use a tool or piece of equipment. If the tool or equipment has the two-prong type plug, it is probably double insulated to protect you from the current. Look for writing on the equipment that tells you it is double insulated. If there is no writing, look for the square inside the square symbol. Either of these assures you that it is. If you are not sure, don't use it. Report to your supervisor immediately.
- If it is the three-prong type plug and one of the prongs has been removed, do not use it. Take it out of service immediately and ensure that it stays out of service until the plug is replaced by someone qualified to do it properly.
- Keep a circuit tester with you and check the receptacle before you plug into it to be sure it is grounded.
- The tester is easy to use and read. Simply plug it in and read the lights. If it indicates that the receptacle is not grounded, do not use it. Report it to your supervisor immediately.
- When using a portable generator, ground it properly before you start to use it.
- Always use Ground Fault Circuit Interrupters (GFCI) for added protection against ground faults, especially in damp environments.

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MSCA Tailgate Safety Talks

Non-Conductive Ladders

#39

On January 11, 1996, a 23-year-old service worker was moving an aluminum extension ladder near an overhead power line. The ladder made contact with the 7,200 volt line. The mechanic was electrocuted. Later that same year two 33-year-old workers were electrocuted while attempting to retract an aluminum extension ladder which was stuck in the raised position. They accidently leaned the ladder backwards into an overhead power line.

- Out of 50 construction related electrocutions reported to OSHA in 1996 eight of them were the result of workers placing metal ladders in contact with overhead power lines.
- Metal ladders are excellent conductors of electricity.
- If you are touching an energized metal ladder your body may become the easiest path to ground and cause electric current to flow through your body to ground.
- Use non-conductive ladders whenever possible where the potential for contact with live wires or other sources of electricity exists.
- Non-conductive ladders are made out of fiberglass or plastic.
- Non-conductive ladders are recommended for use around electrical hazards.
- Wooden ladders are also non-conductive as long as they are not wet.
- Wet, wooden ladders are conductive and can be just as deadly as metal ladders if they are placed in contact with a source of electricity.

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MSCA Tailgate Safety Talks

Damaged Power Tools & Equipment

#40

On July 12, 1995, an 18-year-old service worker entered a crawl space with a drop light to service a section of duct work. While he was working, the drop light cord was cut on the sharp edge of the duct work. The worker came into contact with the exposed wires and died from the shock.

- Each year in the United States there are more than 20,000 electrical accidents and 700 electrical related deaths. Many of them occur as work-related deaths in the service industry.
- A significant number of those worker fatalities are due to working with damaged electrical tools and equipment.
- Electrical tools can be extremely hazardous if they become damaged enough to cause the user to contact exposed live wires.
- Inspect each tool carefully before you use it. If there are cracks, cuts or abrasions on the cord take the tool out of service until it can repaired by a person qualified to do so properly. Don't try to fix it yourself.
- If the casing of a tool is broken or cracked anywhere discard the tool in such a way that it won't be used by others.
- Check the plug carefully, too. If the plug is the three-prong type and a prong is missing, take the tool out of service until the plug is properly replaced.
- Before using the tool, check the area carefully for objects with sharp edges and other areas where the cord could be pinched, scraped or cut. Avoid these areas whenever possible. If you can't avoid them, take whatever measures are necessary to protect the cord.
- Store electric power tools in a waterproof tool box when they are not in use. Remember that the cords and other parts of tools become weather beaten if not stored properly and insulation can rot away exposing the wires.
- Avoid using all electrical powered tools in wet or damp locations.

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MSCA Tailgate Safety Talks

Working With Live Circuits

#41

Service mechanics are frequently required to work on units while they are energized. This is especially true when troubleshooting to find and fix a control problem. When this is the case certain precautions should be taken to protect yourself from electrocution.

- Always de-energize the power to the main motor starter whenever possible before you start work.
- When the unit cannot be de-energized, make sure you have the proper training before you attempt a test or repair.
- When working on energized units make sure all of your tools are properly insulated against electrical current.
- Wear appropriate eye protection against electric arcs and flashes or flying objects generated by electrical explosions.
- Wear non-conductive head gear whenever there is potential for making head contact with energized parts.
- When necessary use approved insulating materials such as rubber gloves and insulated floor mats to prevent any part of your body from coming into contact with energized parts.
- Never wear conductive apparel such as rings, watches, bracelets, key chains, etc. while on the job.
- Always be conscious of the fact that one wrong move can kill you.
- If possible work with one hand behind your back or in a pocket to prevent accidental contact with an energized part.

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MSCA Tailgate Safety Talks

Uncontrolled Sources Of Energy (Lockout/Tagout)

#42

On September 18, 1995, a 38-year-old service mechanic was checking out a flood damaged air conditioning unit. The mechanic reached out to move damaged duct work and contacted the unit. Current to the unit had not been shut off. The worker was electrocuted.

- Unprotected sources of stored energy can be very hazardous to mechanical service workers. Examples of stored energy that may be encountered on a job site include:
  - -electrical (such as panel boxes);
  - -mechanical (such as fans);
  - -hydraulic (such as an aerial lift);
  - -pneumatic (such as an air compressor); or
  - -thermal (such as steam lines).

- Workers can be protected from these hazards if the sources of energy are locked out and tagged out. Lockout means that the source of energy can't be turned on because a locking device has been placed on the switch, lever, valve, etc. Tagout means there is a warning tag attached to the energy source controls to stop others from turning on the source of energy.

- If a worker has to perform maintenance or repair on any machinery, equipment or process with stored energy, it should be locked out or tagged out. Only qualified mechanics should engage in lockout/tagout operations.

- Electricity should be locked out or tagged out at the panel box.

- Steam, hydraulic and air-line systems should be shut off and bled out. Otherwise even when the valves are in the off position, there is still hazardous energy stored in the pipes. The valves should be locked out or tagged out.

- Only the person who locked out or tagged out a source of energy should remove the lock and tag.

- Always make sure your procedures comply with your company's lockout/tagout program.

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Poor Housekeeping

#43

Poor housekeeping on the job site is a frequent cause of workplace accidents and worker injuries. These types of accidents can easily be prevented by keeping the workplace clean. Good housekeeping makes jobs more efficient and safer.

- Many of the injuries that occur from poor housekeeping are caused by materials, scrap, debris and trash left lying around the job site.
- Anything left lying around becomes a slipping or tripping hazard.
- Keep all of the materials stored on the job site in a neat and orderly way.
- Clean up scraps, debris and trash as the work progresses.
- Focus on keeping walkways, ramps, ladder platforms, scaffolds and stairways free from excess materials, scrap and debris.
- If you are not using tools and equipment at the time, don't leave them lying around.
- Put tools away in your service truck as you finish with them.
- Keep hoses, power cords and welding leads from lying in or across heavily traveled areas.
- Keep mud and other slick substances off walkways, ramps, ladders, platforms, scaffolds and stairways.
- If you see slippery surfaces while you are working clean them up with an absorbent material.
- Throw away greasy, oily rags and other flammable materials in approved storage containers.
- Remember that a cleaner job site is always a much safer job site.

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The First Days On The Job

#44

The first days of work on the job are the most hazardous. If you are consciously aware of this when you start work, you will be in the best position to prevent injuries to yourself and others.

- Injuries occur most frequently to workers when:

  -workers are new to the business;
  -workers are experienced in one skill, but change to another; or
  -workers change from one company to another even when performing the same skill.

- If you fit into any of these categories, remember that over 90% of all accidents are caused by unsafe acts committed by workers.

- Get all the training you can before you start. Pay close attention to what the instructors are saying and ask specific questions about the safety and health aspects of the job.

- Much of what you need to know will come from on-the-job training. In other words you will learn it as you go.

- Always be thinking about working safely.

- Watch the veterans carefully and ask questions of them.

- Learn from them the tricks of the trade that allow you to perform your work more safely.

- Be aware when you are working with others who are in their first days as well. They may not be aware of how hazardous the job can be at first. Teach them what you have learned about working safely.

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Confined Spaces

#45

In service work we frequently enter confined spaces. A confined space is any space that is large enough for an employee to enter and work but which has limited access and which is not designed for continuous worker occupancy. Examples are pits, process vessels, utility vaults, bins, pipelines, tunnels, shafts, manholes, boilers, ducts, crawl spaces and machine rooms.

- The primary hazards in confined spaces are lack of oxygen, toxic gases or vapors and flammable or explosive atmospheres. Never trust your senses to detect lack of oxygen or toxic substances. Human senses can't detect lack of oxygen or toxic gases and vapors which are odorless and tasteless.

- Avoid entering a confined space until you know it has been tested by someone qualified to do so.

- If you have to work in a confined space that may lack oxygen or contain toxic or harmful substances, don't enter until you receive the proper training.

- Do as much work as possible outside the space to limit the time inside and ventilate the space as well as possible.

- Make sure pipelines are valved off and locked or tagged out before entering.

- If you have to do welding, cutting or brazing inside a confined space, you are creating a hazardous atmosphere. Be sure to use an adequate ventilation system.

- Sometimes conditions in confined spaces change while you are working. There should always be an attendant outside the confined space who is in constant contact with the worker inside. The attendant should be properly trained in confined space rescue procedures.

- If a co-worker collapses in a confined space, do not attempt a rescue. Call Emergency Medical Services for a trained rescue crew.

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MSCA Tailgate Safety Talks

Missing Portable Tool Guards

#46

On August 3, 1995, a 30-year-old service worker was using a grinder. The guard on the grinding wheel had been removed. The wheel flew off the grinder and broke up into pieces. A fragment of the wheel ricocheted upward and struck the worker in the forehead. He died from the injury to his head.

- Tool guards are devices attached to tools to protect the user from the tool's point of operation. The point of operation is the area on the tool where the work is actually being performed.
- The guards are designed specifically to protect the user. However, they are frequently removed from tools because they seem to get in the way of the work. Guards protect the user from rapidly moving parts such as abrasive wheels, wire brushes and saw blades.
- Guards also protect the user and others in the area from flying fragments and sparks.
- Inspect the tool and tool guard before you start to use it.
- Never remove a tool guard except to clean the tool. Make sure the power source is shut off. Then clean the tool and immediately replace the guard. Avoid using materials to wedge guards open.
- Before you use the tool, make sure the guard is adjusted properly. The manufacturer's instruction will tell you how the guard should be adjusted.
- On grinders, the guard should cover the spindle end, nut and flange projections.
- If you find portable tools with missing or defective guards, take them to your supervisor immediately.
- Only use attachments such as abrasive wheels, wire brushes, blades, etc. that are designed specifically for the tool being used. Never modify an attachment to fit and never use off sizes.

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MSCA Tailgate Safety Talks

Welding and Hot Metal Hazards

#47

There are a significant number of occupational injuries from welding operations each year. Hazards from welding include electrocutions, eye damage, burns, toxic inhalants and fire. If you are welding or working around welding operations, be aware of these hazards.

- The biggest hazard from welding is the potential for electrocution. Be sure to insulate yourself from the work, the electrode and the electrode holder. Avoid becoming the easiest path to ground.

- To protect your eyes from ultraviolet and infrared radiation burns, put on proper eye protection before looking at an arc even for an instant. Different shades of filter plates can be attached to welding helmets. The shade needed depends on the type of welding, size of the electrode and the amount of electrical current. Check with your electrode supplier for the appropriate shade needed. If you are in doubt, use a #10 shade at a minimum.

- Be aware of hot metal. Remember that molten metal will be propelled into the air if it comes into contact with moisture.

- Wear flash goggles with side shields under your helmet to protect your eyes from slag fragments and other flying particles.

- Wear clothing that will protect your body from hot sparks such as flame resistant coveralls, welding gloves, flame resistant leggings and leather high top boots.

- Choose clothes that don't have pockets or cuffs in the legs or sleeves.

- Make sure your work area is well ventilated to protect you from inhalation hazards. If your work area can't be properly ventilated, you may need respiratory protection. Check with your supervisor before proceeding.

- Keep at least one Class ABC fire extinguisher readily accessible.

- Stop work at least 1/2 hour before leaving the site and check the welding area for smoldering materials.

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Compressed Gas Cylinder Hazards

#48

Compressed gas cylinders present several potential hazards to mechanical service workers. The main hazards are fire, explosion and cylinders propelled by escaping gas when valves get broken (cylinders will move out like a rocket destroying everything in their way).

- Whether you are using, transporting or storing cylinders, always keep them secured in their upright position with chains, strong wire or straps.
- Keep them away from all sources of electricity, sparks, flames and other sources of heat. Avoid subjecting them to heat over 125 degrees Fahrenheit. When they are not being used, always protect the valves by replacing the valve protection caps.
- Store oxygen cylinders separately from acetylene or other gas fuel cylinders. Always keep cylinders in the vertical position and secure them in your service vehicle to prevent them from falling.
- Never take cylinders into confined spaces.
- Inspect all cylinders, hoses, valves and torches before using them. Take all defective parts out of service immediately and replace them with good ones. Clean out torch tips before use. Also, before connecting a regulator to a cylinder valve, clean out the valve by standing to one side so the valve is not pointing at you and quickly open and close the valve.
- Inspect the hoses and cutting torch valves for leaks after opening the cylinder valve. If there are any leaks, turn the cylinder valves off immediately. Take the hose and cutting torch assembly out of service.
- Only use friction lighters to light torches. Never light a torch with a match, cigarette or any other source.
- Before removing a regulator close the cylinder valve and bleed the gas lines.
- Leave the wrench on the stem of the cylinder valve so it can be turned off quickly in an emergency.

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Struck By Falling Objects

#49

On April 17, 1996, a 52-year-old service worker was walking under a scaffold which was being dismantled. A scaffold hanger bracket was inadvertently dropped from above. It struck the worker in the head. He was not wearing his hard hat when the bracket hit him. He died from the head injuries.

- Falling objects present serious hazards for mechanical service workers.
- Falling objects include tools, building materials, and equipment. Even hardware (such as nails, nuts and bolts) can cause severe injuries if they fall far enough. To protect yourself always wear your hard hat and, where you can, erect some type of canopy to keep objects from hitting you at all.
- It's usually uncomfortable to wear a hard hat at first. The muscles in your neck and shoulders may even get sore. But the typical hard hat only weighs 14 ounces. Newer hard hats weigh considerably less. You can get used to wearing any hard hat just by wearing it regularly. Before long you will forget it's there.
- Many workers complain that hard hats are too hot to wear, particularly in the summer. The truth is that the temperature inside the hard hat can be much cooler than the temperature outside the hat. Tests done at 110 degrees showed that the temperature inside the hard hat was 5 to 12 degrees cooler than the outside air. Never drill holes in your hat to let heat escape. Even a single hole will significantly weaken your hard hat.
- Hard hats are designed to absorb the force of falling objects. The force received by the head, neck, spine and shoulders is significantly less than the force received on top of the hard hat.
- Always wear your hard hat while working.
- If you have to work under a scaffold, roof, leading edge, ladder, open door or window or any area where objects could fall, consider erecting some type of canopy to protect yourself. Place toeboards and screens on overhead guardrails, hang a sturdy net or erect a solid canopy overhead.

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MSCA Tailgate Safety Talks

Clothing Caught In Equipment

#50

On December 5, 1996, a 40-year-old worker was using a ladder to reach the overhead work area. The ladder was placed next to an operating conveyor. The worker's dangling safety lanyard became entangled in the conveyor and pulled the worker into the rotating auger. The worker died from his injuries.

- Injuries from clothing caught in rotating fans and shafts, belts and other moving parts can be extremely serious.
- Since we may not know from day-to-day what equipment, machines or tools we will be working with, it's best to dress each day as if there will be an exposure.
- Always wear clothing that is fairly snug against your body.
- Tuck in your shirt before starting work, even if it's just a T-shirt.
- Avoid long sleeved shirts when weather permits. When you do wear a long sleeved shirt, roll the sleeves up in a way that will keep them from getting caught in equipment or tools.
- When wearing a sweatshirt with a hood or a hooded jacket, choose one with a hood that fits snugly. If you take the hood off while working, don't let it hang back. Tuck it inside the garment.
- Make sure that all safety guards that protect the point of operation on equipment, machines and tools are in place before turning them on.
- Leave jewelry at home. Rings, bracelets, necklaces, watches and even hair bands can be caught up in moving parts.
- If you have long hair, wear it up or tuck it inside your hard hat.
- When job site conditions and work tasks permit, wear clothing that will easily tear away from your body if you do get tangled up in power equipment or tools.

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Struck By Equipment

#51

On September 18, 1995, a materials handling truck backed over a 26-year-old service worker who was wearing ear plugs, and a hooded sweatshirt and rain jacket with the hood up. The worker did not hear the truck and was killed by the impact.

- Another hazard in service work is the presence of moving vehicles and other moving equipment.
- It is easy to become desensitized to equipment backup alarms. You may hear the alarm, but subconsciously not make the connection between the alarm and danger.
- Make a conscious effort to listen for backup alarms.
- Make sure the equipment operators in your area know you are there.
- Make sure any equipment operators can see you.
- If you have to be out of the field of view of an operator for any period of time, make sure you communicate with the operator clearly before you leave their view.
- Be especially aware of equipment being used by workers who may not know you are there.
- If there is equipment operating without backup alarms let the operator know immediately.
- Be aware of operators trying to position equipment in awkward places without someone to guide them. Stay well away from those areas until the equipment is in place.
- Be careful about wearing hooded garments or other clothes that may obstruct your view.
- Make sure that the hearing protection you choose does not completely block out the sound of horns, backup alarms or equipment engines.

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Trench & Excavation Hazards

#52

On May 16, 1996, a 63-year-old service worker was in a 5' deep trench repairing a broken pipe. There was no protective system in place and the trench caved-in on the worker. Although he was alive after being extracted from the trench, he died 4 days later in the hospital from internal injuries.

- A cubic foot of soil (1 foot by 1 foot by 1 foot)) weighs 90 to 140 pounds. A cubic yard (3 feet by 3 feet by 3 feet) weighs over 3000 pounds. That's about the weight of a small pickup truck.

- Even a seemingly small amount of soil can crush a person. Imagine being underneath a falling Ford Ranger.

- Even shallow trench collapses kill workers. Partially buried workers are frequently killed in collapses.

- Before entering a trench or excavation make sure a protective system is in place. The walls should be sloped back, benched back, supported by bracing or shoring or equipped with shields such as trench boxes.

- If at least one of these protective systems is not in place, or if you are not sure, don't enter the trench. Ask your supervisor for help.

- While working in a trench or excavation, if you see any change in the condition of the soil such as a crack in a wall or the appearance of water, get out immediately and report to your supervisor. Always have a ladder or other means of quick exit available within 25 feet of every worker.

- Keep large spoil piles, pipe, other materials and equipment away from the sides of the trench or excavation. Their weight may cause a collapse. Keep spoil piles at least 2 feet away from the edge.

- If you are around when a trench collapses, do not attempt to rescue your co-workers. All too frequently, untrained rescuers are killed after entering the collapsed trench or excavation.

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