

# **Sample**

**California State University, Chico  
Agricultural Training and Research Center  
Injury and Illness Prevention Plan**

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## Introduction and Procedures

### Responsibility

The Injury and Illness Prevention Program (IIP Program) administrator,

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has the authority and responsibility for implementing the provisions of this program for the Agricultural Training and Research Center, California State University, Chico

All managers and supervisors are responsible for implementing and maintaining the IIP Program in their work areas and for answering worker questions about the IIP Program. A copy of this IIP Program is available from each manager and supervisor.

### Compliance

Management is responsible for ensuring that all safety and health policies and procedures are clearly communicated and understood by all employees. Managers and supervisors are expected to enforce the rules fairly and uniformly.

All employees are responsible for using safe work practices, for following all directives, policies and procedures, and for assisting in maintaining a safe work environment.

Our system of ensuring that all workers comply with the rules and maintain a safe work environment include:

- Informing workers of the provisions of our IIP Program;
- Creating a working environment that encourages a safety conscious culture,
- Evaluating the safety performance of all workers;
- Recognizing employees who perform safe and healthful work practices;
- Providing training to workers whose safety performance is deficient;
- Disciplining workers for failure to comply with safe and healthful work practices; and
- Initial and reoccurring safety training.

### Communication

We recognize that open, two-way communication between management and staff on health and safety issues is essential to an injury-free, productive workplace. The following system of communication is designed to facilitate a continuous flow of safety and health information between management and staff in a form that is readily understandable and consists of one or more of the following checked items:

- New worker orientation including a discussion of safety and health policies and procedures.
- Review of our IIP Program.

- Workplace safety and health training programs.
- Regularly scheduled safety meetings.
- Effective communication of safety and health concerns between workers and supervisors, including translation where appropriate.
- Posted or distributed safety information.
- A system for workers to anonymously inform management about workplace hazards.
- Our establishment has less than ten employees and communicates with and instructs employees orally about general safe work practices and with respect to hazards unique to each employee's job assignment.
- A labor/management safety and health committee that meets regularly, prepares written records of the safety and health committees meetings, reviews results of the periodic scheduled inspections, reviews investigations of accidents and exposures and makes suggestions to management for the prevention of future incidents, reviews investigations of alleged hazardous conditions, and submits recommendations to assist in the evaluation of employee safety suggestion.

### Hazard Assessment

Periodic inspections to identify and evaluate workplace hazards shall be performed by the following competent observer(s) in the following areas of our workplace:

Competent Observer	Area

Periodic inspections are performed according to the following schedule:

- Monthly
  - When we initially established our IIP Program;
  - When new substances, processes, procedures or equipment which present potential new hazards are introduced into our workplace;
  - When new, previously unidentified hazards are recognized;
  - When occupational injuries and illnesses occur;
  - When we hire and/or reassign permanent or intermittent workers to processes, operations, or tasks for which a hazard evaluation has not been previously conducted;
- and

- ❑ Whenever workplace conditions warrant an inspection.

Periodic inspections consist of identification and evaluation of workplace hazards utilizing applicable sections of the attached Hazard Assessment Checklist and any other effective methods to identify and evaluate workplace hazards.

### **Accident/Exposure Investigations**

Procedures for investigating workplace accidents and hazardous substance exposures include:

- Visiting the accident scene as soon as possible;
- Interviewing injured workers and witnesses;
- Examining the workplace for factors associated with the accident/exposure;
- Determining the cause of the accident/exposure;
- Taking corrective action to prevent the accident/exposure from reoccurring; and
- Recording the findings and corrective actions taken.

### **Hazard Correction**

Unsafe or unhealthy work conditions, practices or procedures shall be corrected in a timely manner based on the severity of the hazards. Hazards shall be corrected according to the following procedures:

- When observed or discovered;
- When an imminent hazard exists which cannot be immediately abated without endangering employee(s) and/or property, we will remove all exposed workers from the area except those necessary to correct the existing condition. Workers necessary to correct the hazardous condition shall be provided with the necessary protection; and
- All such actions taken and dates they are completed shall be documented on the appropriate forms.

### **Training And Instruction**

All workers, including managers and supervisors, shall have training and instruction on general and job-specific safety and health practices. Training and instruction shall be provided as follows:

- When the IIP Program is first established;
- To all new workers, except for construction workers who are provided training through a Cal/OSHA approved construction industry occupational safety and health training program;
- To all workers given new job assignments for which training has not previously provided;
- Whenever new substances, processes, procedures or equipment are introduced to the workplace and represent a new hazard;
- Whenever the employer is made aware of a new or previously unrecognized hazard;

- To supervisors to familiarize them with the safety and health hazards to which workers under their immediate direction and control may be exposed; and
- To all workers with respect to hazards specific to each employee's job assignment.

Workplace safety and health practices for all industries include, but are not limited to, the following:

- Explanation of the employer's IIP Program, emergency action plan and fire prevention plan, and measures for reporting any unsafe conditions, work practices, injuries and when additional instruction is needed.
- Use of appropriate clothing, including gloves, footwear, and personal protective equipment.
- Information about chemical hazards to which employees could be exposed and other hazard communication program information.
- Availability of toilet, hand-washing and drinking water facilities.
- Provisions for medical services and first aid including emergency procedures.

In addition, we provide specific instructions to all workers regarding hazards unique to their job assignment, to the extent that such information was not already covered in other training.

## **Recordkeeping**

We have checked one of the following categories as our recordkeeping policy.

- Category 1. Our establishment is on a designated high hazard industry list. We have taken the following steps to implement and maintain our IIP Program:
  1. Records of hazard assessment inspections, including the person(s) or persons conducting the inspection, the unsafe conditions and work practices that have been identified and the action taken to correct the identified unsafe conditions and work practices, are recorded on a hazard assessment and correction form; and
  2. Documentation of safety and health training for each worker, including the worker's name or other identifier, training dates, type(s) of training, and training providers are recorded on a worker training and instruction form. We also include the records relating to worker training provided by a construction industry occupational safety and health program approved by Cal/OSHA.

Inspection records and training documentation will be maintained according to the following checked schedule:

- For three years, except for training records of employees who have worked for less than one year which are provided to the worker upon termination of employment; or
- Since we have less than ten workers, including managers and supervisors, we maintain inspection records only until the hazard is corrected and only maintain a

log of instructions to workers with respect to worker job assignments when they are first hired or assigned new duties.

- Category 2. We are a local governmental entity (any county, city, or district, and any public or quasi-public corporation or public agency therein) and we are not required to keep written records of the steps taken to implement and maintain our IIP Program.

### **List Of Training Subjects**

We train our workers about the following checked training subjects:

- The employer's Code of Safe Practices.
- Confined spaces.
- Safe practices for operating any agricultural equipment.
- Good housekeeping, fire prevention, safe practices for operating any construction equipment.
- Safe procedures for cleaning, repairing, servicing and adjusting equipment and machinery.
- Safe access to working areas.
- Protection from falls.
- Electrical hazards, including working around high voltage lines.
- Crane operations.
- Trenching and excavation work.
- Proper use of powered tools.
- Guarding of belts and pulleys, gears and sprockets, and conveyor nip points.
- Machine, machine parts, and prime movers guarding.
- Lock-out/tag-out procedures.
- Chemical and materials handling.
- Chainsaw and other power tool operation.
- Tree falling/bucking procedures and precautions, including procedures for recognizing and working with hazard trees, snags, lodged trees, and unsafe weather conditions.
- Yarding operations, including skidding, running lines, unstable logs, rigging and communication.
- Landing and loading areas, including release of rigging, landing layout, moving vehicles and equipment, and log truck locating, loading and wrapping.
- Fall protection from elevated locations.
- Use of elevated platforms, including condors and scissor lifts.
- Driver safety.
- Slips, falls, and back injuries.
- Ergonomic hazards, including proper lifting techniques and working on ladders or in a stooped posture for prolonged periods at one time.
- Personal protective equipment.
- Respiratory Equipment.
- Hazardous chemical exposures.
- Hazard communication.
- Physical hazards, such as heat/cold stress, noise, and ionizing and non-ionizing radiation.

- Laboratory safety.
- Bloodborne pathogens and other biological hazards.

## **Hazard Assessment Checklist**

### **General Work Environment**

- Are all worksites clean and orderly?
- Are work surfaces kept dry or appropriate means taken to assure the surfaces are slip-resistant?
- Are all spilled materials or liquids cleaned up immediately?
- Is combustible scrap, debris and waste stored safely and removed from the worksite promptly?
- Is accumulated combustible dust routinely removed from elevated surfaces, including the overhead structure of buildings?
- Is combustible dust cleaned up with a vacuum system to prevent the dust going into suspension?
- Is metallic or conductive dust prevented from entering or accumulation on or around electrical enclosures or equipment?
- Are covered metal waste cans used for oily and paint-soaked waste?
- Are all oil and gas fired devices equipped with flame failure controls that will prevent flow of fuel if pilots or main burners are not working?
- Are paint spray booths, dip tanks and the like cleaned regularly?
- Are the minimum number of toilets and washing facilities provided?
- Are all toilets and washing facilities clean and sanitary?
- Are all work areas adequately illuminated?
- Are pits and floor openings covered or otherwise guarded?

### **Personal Protective Equipment & Clothing**

- Are protective goggles or face shields provided and worn where there is any danger of flying particles or corrosive materials?
- Are approved safety glasses required to be worn at all times in areas where there is a risk of eye injuries such as punctures, abrasions, contusions or burns?
- Are employees who need corrective lenses (glasses or contacts lenses) in working environments with harmful exposures, required to wear only approved safety glasses, protective goggles, or use other medically approved precautionary procedures?
- Are protective gloves, aprons, shields, or other means provided against cuts, corrosive liquids and chemicals?
- Are hard hats provided and worn where danger of falling objects exists?
- Are hard hats inspected periodically for damage to the shell and suspension system?
- Is appropriate foot protection required where there is the risk of foot injuries from hot, corrosive, poisonous substances, falling objects, crushing or penetrating actions?
- Are approved respirators provided for regular or emergency use where needed?
- Is all protective equipment maintained in a sanitary condition and ready for use?
- Do you have eye wash facilities and a quick drench shower within the work area where employees are exposed to injurious corrosive materials?
- Where special equipment is needed for electrical workers, is it available?

- When lunches are eaten on the premises, are they eaten in areas where there is no exposure to toxic materials or other health hazards?
- Is protection against the effects of occupational noise exposure provided when sound levels exceed those of the Cal/OSHA noise standard?

### **Walkways**

- Are aisles and passageways kept clear?
- Are aisles and walkways marked as appropriate?
- Are wet surfaces covered with non-slip materials?
- Are holes in the floor, sidewalk or other walking surface repaired properly, covered or otherwise made safe?
- Is there safe clearance for walking in aisles where motorized or mechanical handling equipment is operating.
- Are spilled materials cleaned up immediately?
- Are materials or equipment stored in such a way that sharp projectiles will not interfere with the walkway?
- Are changes of direction or elevations readily identifiable?
- Are aisles or walkways that pass near moving or operating machinery, welding operations or similar operations arranged so employees will not be subjected to potential hazards?
- Is adequate headroom provided for the entire length of any aisle or walkway?
- Are standard guardrails provided wherever aisle or walkway surfaces are elevated more than 30 inches above any adjacent floor or the ground?
- Are bridges provided over conveyors and similar hazards?

### **Floor & Wall Openings**

- Are floor openings guarded by a cover, guardrail, or equivalent on all sides (except at entrance to stairways or ladders)?
- Are toeboards installed around the edges of a permanent floor opening (where persons may pass below the opening)?
- Are skylight screens of such construction and mounting that they will withstand a load of at least 200 pounds?
- Is the glass in windows, doors, glass walls that are subject to human impact, of sufficient thickness and type for the condition of use?
- Are grates or similar type covers over floor openings such as floor drains, of such design that foot traffic or rolling equipment will not be affected by the grate spacing?
- Are unused portions of service pits and pits not actually in use either covered or protected by guardrails or equivalent?
- Are manhole covers, trench covers and similar covers, plus their supports, designed to carry a truck rear axle load of at least 20,000 pounds when located in roadways and subject to vehicle traffic?
- Are floor or wall openings in fire resistive construction provided with doors or covers compatible with the fire rating of the structure and provided with self-closing feature when appropriate?

## **Stairs & Stairways**

- Are standard stair rails or handrails on all stairways having four or more risers?
- Are all stairways at least 22 inches wide?
- Do stairs have at least a 6'6" overhead clearance?
- Do stairs angle no more than 50 and no less than 30 degrees?
- Are stairs of hollow-pan type treads and landings filled to noising level with solid material?
- Are step risers on stairs uniform from top to bottom, with no riser spacing greater than 7-1/2 inches?
- Are steps on stairs and stairways designed or provided with a surface that renders them slip resistant?
- Are stairway handrails located between 30 and 34 inches above the leading edge of stair treads?
- Do stairway handrails have a least 1-1/2 inches of clearance between the handrails and the wall or surface they are mounted on?
- Are stairway handrails capable of withstanding a load of 200 pounds, applied in any direction?
- Where stairs or stairways exit directly into any area where vehicles may be operated, are adequate barriers and warnings provided to prevent employees stepping into the path of traffic?
- Do stairway landings have a dimension measured in the direction of travel, at least equal to width of the stairway?
- Is the vertical distance between stairway landings limited to 12 feet or less?

## **Elevated Surfaces**

- Are signs posted, when appropriate, showing the elevated surface load capacity?
- Are surfaces elevated more than 30 inches above the floor or ground provided with standard guardrails?
- Are all elevated surfaces (beneath which people or machinery could be exposed to falling objects) provided with standard 4-inch toeboards?
- Is a permanent means of access and egress provided to elevated storage and work surfaces?
- Is required headroom provided where necessary?
- Is material on elevated surfaces piled, stacked or racked in a manner to prevent it from tipping, falling, collapsing, rolling or spreading?
- Are dock boards or bridge plates used when transferring materials between docks and trucks or rail cars?

## **Exiting Or Egress**

- Are all exits marked with an exit sign and illuminated by a reliable light source?
- Are the directions to exits, when not immediately apparent, marked with visible signs?

- Are doors, passageways or stairways, that are neither exits nor access to exits and which could be mistaken for exits, appropriately marked "NOT AN EXIT", "TO BASEMENT", "STOREROOM", and the like?
- Are exit signs provided with the word "EXIT" in lettering at least 5 inches high and the stroke of the lettering at least 1/2 inch wide?
- Are exit doors side-hinged?
- Are all exits kept free of obstructions?
- Are at least two means of egress provided from elevated platforms, pits or rooms where the absence of a second exit would increase the risk of injury from hot, poisonous, corrosive, suffocating, flammable, or explosive substances?
- Are there sufficient exits to permit prompt escape in case of emergency?
- Are special precautions taken to protect employees during construction and repair operations?
- Is the number of exits from each floor of a building, and the number of exits from the building itself, appropriate for the building occupancy load?
- Are exit stairways which are required to be separated from other parts of a building enclosed by at least two hour fire-resistive construction in buildings more than four stories in height, and not less than one-hour fire resistive construction elsewhere?
- When ramps are used as part of required exiting from a building, is the ramp slope limited to 1- foot vertical and 12 feet horizontal?
- Where exiting will be through frameless glass doors, glass exit doors, storm doors, and such are the doors fully tempered and meet the safety requirements for human impact?

### **Exit Doors**

- Are doors that are required to serve as exits designed and constructed so that the way of exit travel is obvious and direct?
- Are windows that could be mistaken for exit doors, made inaccessible by means of barriers or railings?
- Are exit doors openable from the direction of exit travel without the use of a key or any special knowledge or effort, when the building is occupied?
- Is a revolving, sliding or overhead door prohibited from serving as a required exit door?
- Where panic hardware is installed on a required exit door, will it allow the door to open by applying a force of 15 pounds or less in the direction of the exit traffic?
- Are doors on cold storage rooms provided with an inside release mechanism that will release the latch and open the door even if it's padlocked or otherwise locked on the outside?
- Where exit doors open directly onto any street, alley or other area where vehicles may be operated, are adequate barriers and warnings provided to prevent employees stepping into the path of traffic?
- Are doors that swing in both directions and are located between rooms where there is frequent traffic, provided with viewing panels in each door?

## Portable Ladders

- Are all ladders maintained in good condition, joints between steps and side rails tight, all hardware and fittings securely attached, and moveable parts operating freely without binding or undue play?
- Are non-slip safety feet provided on each ladder?
- Are non-slip safety feet provided on each metal or rung ladder?
- Are ladder rungs and steps free of grease and oil?
- Is it prohibited to place a ladder in front of doors opening toward the ladder except when the door is blocked open, locked or guarded?
- Is it prohibited to place ladders on boxes, barrels, or other unstable bases to obtain additional height?
- Are employees instructed to face the ladder when ascending or descending?
- Are employees prohibited from using ladders that are broken, missing steps, rungs, or cleats, broken side rails or other faulty equipment?
- Are employees instructed not to use the top 2 steps of ordinary stepladders as a step?
- When portable rung ladders are used to gain access to elevated platforms, roofs, and the like does the ladder always extend at least 3 feet above the elevated surface?
- Is it required that when portable rung or cleat type ladders are used the base is so placed that slipping will not occur, or it is lashed or otherwise held in place?
- Are portable metal ladders legibly marked with signs reading "CAUTION" "Do Not Use Around Electrical Equipment" or equivalent wording?
- Are employees prohibited from using ladders as guys, braces, skids, gin poles, or for other than their intended purposes?
- Are employees instructed to only adjust extension ladders while standing at a base (not while standing on the ladder or from a position above the ladder)?
- Are metal ladders inspected for damage?
- Are the rungs of ladders uniformly spaced at 12 inches, center to center?

## Hand Tools & Equipment

- Are all tools and equipment (both, company and employee-owned) used by employees at their workplace in good condition?
- Are hand tools such as chisels, punches, which develop mushroomed heads during use, reconditioned or replaced as necessary?
- Are broken or fractured handles on hammers, axes and similar equipment replaced promptly?
- Are worn or bent wrenches replaced regularly?
- Are appropriate handles used on files and similar tools?
- Are employees made aware of the hazards caused by faulty or improperly used hand tools?
- Are appropriate safety glasses, face shields, and similar equipment used while using hand tools or equipment that might produce flying materials or be subject to breakage?
- Are jacks checked periodically to assure they are in good operating condition?
- Are tool handles wedged tightly in the head of all tools?

- Are tool cutting edges kept sharp so the tool will move smoothly without binding or skipping?
- Are tools stored in dry, secure location where they won't be tampered with?
- Is eye and face protection used when driving hardened or tempered spuds or nails?

### **Portable (Power Operated) Tools & Equipment**

- Are grinders, saws, and similar equipment provided with appropriate safety guards?
- Are power tools used with the correct shield, guard or attachment recommended by the manufacturer?
- Are portable circular saws equipped with guards above and below the base shoe?
- Are circular saw guards checked to assure they are not wedged up, thus leaving the lower portion of the blade unguarded?
- Are rotating or moving parts of equipment guarded to prevent physical contact?
- Are all cord-connected, electrically operated tools and equipment effectively grounded or of the approved double insulated type?
- Are effective guards in place over belts, pulleys, chains, and sprockets, on equipment such as concrete mixers, air compressors, and the like?
- Are portable fans provided with full guards or screens having openings 1/2 inch or less?
- Is hoisting equipment available and used for lifting heavy objects, and are hoist ratings and characteristics appropriate for the task?
- Are ground-fault circuit interrupters provided on all temporary electrical 15 and 20 ampere circuits, used during periods of construction?
- Are pneumatic and hydraulic hoses on power-operated tools checked regularly for deterioration or damage?

### **Abrasive Wheel Equipment Grinders**

- Is the work rest used and kept adjusted to within 1/8 inch of the wheel?
- Is the adjustable tongue on the top side of the grinder used and kept adjusted to within 1/4 inch of the wheel?
- Do side guards cover the spindle, nut, and flange and 75 percent of the wheel diameter?
- Are bench and pedestal grinders permanently mounted?
- Are goggles or face shields always worn when grinding?
- Is the maximum RPM rating of each abrasive wheel compatible with the RPM rating of the grinder motor?
- Are fixed or permanently mounted grinders connected to their electrical supply system with metallic conduit or other permanent wiring method?
- Does each grinder have an individual on and off control switch?
- Is each electrically operated grinder effectively grounded?
- Before new abrasive wheels are mounted, are they visually inspected and ring tested?
- Are dust collectors and powered exhausts provided on grinders used in operations that produce large amounts of dust?
- Are splashguards mounted on grinders that use coolant, to prevent the coolant reaching employees?
- Is cleanliness maintained around grinder?

### **Powder Actuated Tools**

- Are employees who operate powder-actuated tools trained in their use and carry a valid operator's card?
- Do the powder-actuated tools being used have written approval of the Division of Occupational Safety and Health?
- Is each powder-actuated tool stored in its own locked container when not being used?
- Is a sign at least 7" by 10" with bold type reading "POWDER-ACTUATED TOOL IN USE" conspicuously posted when the tool is being used?
- Are powder-actuated tools left unloaded until they are actually ready to be used?
- Are powder-actuated tools inspected for obstructions or defects each day before use?
- Do powder-actuated tools operators have and use appropriate personal protective equipment such as hard hats, safety goggles, safety shoes and ear protectors?

### **Machine Guarding**

- Is there a training program to instruct employees on safe methods of machine operation?
- Is there adequate supervision to ensure that employees are following safe machine operating procedures?
- Is there a regular program of safety inspection of machinery and equipment?
- Is all machinery and equipment kept clean and properly maintained?
- Is sufficient clearance provided around and between machines to allow for safe operations, set up and servicing, material handling and waste removal?
- Is equipment and machinery securely placed and anchored, when necessary to prevent tipping or other movement that could result in personal injury?
- Is there a power shut-off switch within reach of the operator's position at each machine?
- Can electric power to each machine be locked out for maintenance, repair, or security?
- Are the noncurrent-carrying metal parts of electrically operated machines bonded and grounded?
- Are foot-operated switches guarded or arranged to prevent accidental actuation by personnel or falling objects?
- Are manually operated valves and switches controlling the operation of equipment and machines clearly identified and readily accessible?
- Are all emergency stop buttons colored red?
- Are all pulleys and belts that are within 7 feet of the floor or working level properly guarded?
- Are all moving chains and gears properly guarded?
- Are splashguards mounted on machines that use coolant, to prevent the coolant from reaching employees?
- Are methods provided to protect the operator and other employees in the machine area from hazards created at the point of operation, ingoing nip points, rotating parts, flying chips, and sparks?
- Are machinery guards secure and so arranged that they do not offer a hazard in their use?
- If special hand tools are used for placing and removing material, do they protect the operator's hands?

- Are revolving drums, barrels, and containers required to be guarded by an enclosure that is interlocked with the drive mechanism, so that revolution cannot occur unless the guard enclosure is in place, so guarded?
- Do arbors and mandrels have firm and secure bearings and are they free from play?
- Are provisions made to prevent machines from automatically starting when power is restored after a power failure or shutdown?
- Are machines constructed so as to be free from excessive vibration when the largest size tool is mounted and run at full speed?
- If machinery is cleaned with compressed air, is air pressure controlled and personal protective equipment or other safeguards used to protect operators and other workers from eye and body injury?
- Are fan blades protected with a guard having openings no larger than 1/2 inch, when operating within 7 feet of the floor?
- Are saws used for ripping, equipped with anti-kick back devices and spreaders?
- Are radial arm saws so arranged that the cutting head will gently return to the back of the table when released?

### **Lockout/Blockout Procedures**

- Is all machinery or equipment capable of movement, required to be de-energized or disengaged and blocked or locked out during cleaning, servicing, adjusting or setting up operations, whenever required?
- Is the locking-out of control circuits in lieu of locking-out main power disconnects prohibited?
- Are all equipment control valve handles provided with a means for locking-out?
- Does the lockout procedure require that stored energy (i.e. mechanical, hydraulic, air,) be released or blocked before equipment is locked-out for repairs?
- Are appropriate employees provided with individually keyed personal safety locks?
- Are employees required to keep personal control of their key(s) while they have safety locks in use?
- Is it required that employees check the safety of the lock out by attempting a start up after making sure no one is exposed?
- Where the power disconnecting means for equipment does not also disconnect the electrical control circuit:
  - Are the appropriate electrical enclosures identified?
  - Is means provide to assure the control circuit can also be disconnected and locked out?

### **Welding, Cutting & Brazing**

- Are only authorized and trained personnel permitted to use welding, cutting or brazing equipment?
- Do all operator have a copy of the appropriate operating instructions and are they directed to follow them?
- Are compressed gas cylinders regularly examined for obvious signs of defects, deep rusting, or leakage?

- Is care used in handling and storage of cylinders, safety valves, relief valves, and the like, to prevent damage?
- Are precautions taken to prevent the mixture of air or oxygen with flammable gases, except at a burner or in a standard torch?
- Are only approved apparatus (torches, regulators, pressure-reducing valves, acetylene generators, manifolds) used?
- Are cylinders kept away from sources of heat?
- Is it prohibited to use cylinders as rollers or supports?
- Are empty cylinders appropriately marked their valves closed and valve-protection caps on?
- Are signs reading: DANGER NO-SMOKING, MATCHES, OR OPEN LIGHTS, or the equivalent posted?
- Are cylinders, cylinder valves, couplings, regulators, hoses, and apparatus keep free of oily or greasy substances?
- Is care taken not to drop or strike cylinders?
- Unless secured on special trucks, are regulators removed and valve-protection caps put in place before moving cylinders?
- Do cylinders without fixed hand wheels have keys, handles, or non-adjustable wrenches on stem valves when in service?
- Are liquefied gases stored and shipped valve-end up with valve covers in place?
- Are employees instructed to never crack a fuel-gas cylinder valve near sources of ignition?
- Before a regulator is removed, is the valve closed and gas released from the regulator?
- Is red used to identify the acetylene (and other fuel-gas) hose, green for oxygen hose, and black for inert gas and air hose?
- Are pressure-reducing regulators used only for the gas and pressures for which they are intended?
- Is open circuit (No Load) voltage of arc welding and cutting machines as low as possible and not in excess of the recommended limits?
- Under wet conditions, are automatic controls for reducing no-load voltage used?
- Is grounding of the machine frame and safety ground connections of portable machines checked periodically?
- Are electrodes removed from the holders when not in use?
- Is it required that electric power to the welder be shut off when no one is in attendance?
- Is suitable fire extinguishing equipment available for immediate use?
- Is the welder forbidden to coil or loop welding electrode cable around his body?
- Are wet machines thoroughly dried and tested before being used?
- Are work and electrode lead cables frequently inspected for wear and damage, and replaced when needed?
- Do means for connecting cables' lengths have adequate insulation?
- When the object to be welded cannot be moved and fire hazards cannot be removed, are shields used to confine heat, sparks, and slag?
- Are firewatchers assigned when welding or cutting is performed, in locations where a serious fire might develop?
- Are combustible floors kept wet, covered by damp sand, or protected by fire-resistant shields?

- When floors are wet down, are personnel protected from possible electrical shock?
- When welding is done on metal walls, are precautions taken to protect combustibles on the other side?
- Before hot work is begun, are used drums, barrels, tanks, and other containers so thoroughly cleaned that no substances remain that could explode, ignite, or produce toxic vapors?
- Is it required that eye protection helmets, hand shields and goggles meet appropriate standards?
- Are employees exposed to the hazards created by welding, cutting, or bracing operations protected with personal protective equipment and clothing?
- Is a check made for adequate ventilation in and where welding or cutting is preformed?
- When working in confined places are environmental monitoring tests taken and means provided for quick removal of welders in case of an emergency?

### **Compressors & Compressed Air**

- Are compressors equipped with pressure relief valves, and pressure gauges?
- Are compressor air intakes installed and equipped to ensure that only clean uncontaminated air enters the compressor?
- Are air filters installed on the compressor intake?
- Are compressors operated and lubricated in accordance with the manufacturer's recommendations?
- Are safety devices on compressed air systems checked frequently?
- Before any repair work is done on the pressure system of a compressor, is the pressure bled off and the system locked-out?
- Are signs posted to warn of the automatic starting feature of the compressors?
- Is the belt drive system totally enclosed to provide protection for the front, back, top, and sides?
- Is it strictly prohibited to direct compressed air towards a person?
- Are employees prohibited from using highly compressed air for cleaning purposes?
- If compressed air is used for cleaning off clothing, is the pressure reduced to less than 10 psi?
- When using compressed air for cleaning, do employees use personal protective equipment?
- Are safety chains or other suitable locking devices used at couplings of high pressure hose lines where a connection failure would create a hazard?
- Before compressed air is used to empty containers of liquid, is the safe working pressure of the container checked?
- When compressed air is used with abrasive blast cleaning equipment, is the operating valve a type that must be held open manually?
- When compressed air is used to inflate auto tires, is a clip-on chuck and an inline regulator preset to 40 psi required?
- Is it prohibited to use compressed air to clean up or move combustible dust if such action could cause the dust to be suspended in the air and cause a fire or explosion hazard?

### **Compressed Air Receivers**

- Is every receiver equipped with a pressure gauge and with one or more automatic, spring-loaded safety valves?
- Is the total relieving capacity of the safety valve capable of preventing pressure in the receiver from exceeding the maximum allowable working pressure of the receiver by more than 10 percent?
- Is every air receiver provided with a drainpipe and valve at the lowest point for the removal of accumulated oil and water?
- Are compressed air receivers periodically drained of moisture and oil?
- Are all safety valves tested frequently and at regular intervals to determine whether they are in good operating condition?
- Is there a current operating permit issued by the Division of Occupational Safety and Health?
- Is the inlet of air receivers and piping systems kept free of accumulated oil and carbonaceous materials?

### **Compressed Gas & Cylinders**

- Are cylinders with a water weight capacity over 30 pounds equipped with means for connecting a valve protector device, or with a collar or recess to protect the valve?
- Are cylinders legibly marked to clearly identify the gas contained?
- Are compressed gas cylinders stored in areas which are protected from external heat sources such as flame impingement, intense radiant heat, electric arcs, or high temperature lines?
- Are cylinders located or stored in areas where they will not be damaged by passing or falling objects, or subject to tampering by unauthorized persons?
- Are cylinders stored or transported in a manner to prevent them creating a hazard by tipping, falling or rolling?
- Are cylinders containing liquefied fuel gas, stored or transported in a position so that the safety relief device is always in direct contact with the vapor space in the cylinder?
- Are valve protectors always placed on cylinders when the cylinders are not in use or connected for use?
- Are all valves closed off before a cylinder is moved, when the cylinder is empty, and at the completion of each job?
- Are low pressure fuel-gas cylinders checked periodically for corrosion, general distortion, cracks, or any other defect that might indicate a weakness or render it unfit for service?
- Does the periodic check of low pressure fuel-gas cylinders include a close inspection of the cylinders' bottom?

### **Hoist & Auxiliary Equipment**

- Is each overhead electric hoist equipped with a limit device to stop the hook travel at its highest and lowest point of safe travel?
- Will each hoist automatically stop and hold any load up to 125 percent of its rated load, if its actuating force is removed?

- Is the rated load of each hoist legibly marked and visible to the operator?
- Are stops provided at the safe limits of travel for trolley hoist?
- Are the controls of hoists plainly marked to indicate the direction of travel or motion?
- Is each cage-controlled hoist equipped with an effective warning device?
- Are close-fitting guards or other suitable devices installed on hoist to assure hoist ropes will be maintained in the sheave groves?
- Are all hoist chains or ropes of sufficient length to handle the full range of movement for the application while still maintaining two full wraps on the drum at all times?
- Are nip points or contact points between hoist ropes and sheaves which are permanently located within 7 feet of the floor, ground or working platform, guarded?
- Is it prohibited to use chains or rope slings that are kinked or twisted?
  
- Is it prohibited to use the hoist rope or chain wrapped around the load as a substitute, for a sling?
- Is the operator instructed to avoid carrying loads over people?
- Are only employees who have been trained in the proper use of hoists allowed to operate them?

### **Industrial Trucks - Forklifts**

- Are only trained personnel allowed to operate industrial trucks?
- Is substantial overhead protective equipment provided on high lift rider equipment?
- Are the required lift truck operating rules posted and enforced?
- Is directional lighting provided on each industrial truck that operates in an area with less than 2 foot candles per square foot of general lighting?
- Does each industrial truck have a warning horn, whistle, gong or other device which can be clearly heard above the normal noise in the areas where operated?
- Are the brakes on each industrial truck capable of bringing the vehicle to a complete and safe stop when fully loaded?
- Will the industrial truck's parking brake effectively prevent the vehicle from moving when unattended?
- Are industrial trucks operating in areas where flammable gases or vapors, or combustible dust or ignitable fibers may be present in the atmosphere, approved for such locations?
- Are motorized hand and hand/rider trucks so designed that the brakes are applied, and power to the drive motor shuts off when the operator releases his/her grip on the device that controls the travel?
- Are industrial trucks with internal combustion engine operated in buildings or enclosed areas, carefully checked to ensure such operations do not cause harmful concentration of dangerous gases or fumes?

### **Spraying Operations**

- Is adequate ventilation assured before spray operations are started?
- Is mechanical ventilation provided when spraying operation is done in enclosed areas?
- When mechanical ventilation is provided during spraying operations, is it so arranged that it will not circulate the contaminated air?

- Is the spray area free of hot surfaces?
- Is the spray area at least 20 feet from flames, sparks, operating electrical motors and other ignition sources?
- Are portable lamps used to illuminate spray areas suitable for use in a hazardous location?
- Is approved respiratory equipment provided and used when appropriate during spraying operations?
- Do solvents used for cleaning have a flash point of 100E F or more?
- Are fire control sprinkler heads kept clean?
- Are "NO SMOKING" signs posted in spray areas, paint rooms, paint booths, and paint storage areas?
- Is the spray area kept clean of combustible residue?
  
- Are spray booths constructed of metal, masonry, or other substantial noncombustible material?
- Are spray booth floors and baffles noncombustible and easily cleaned?
- Is infrared drying apparatus kept out of the spray area during spraying operations?
- Is the spray booth completely ventilated before using the drying apparatus?
- Is the electric drying apparatus properly grounded?
- Are lighting fixtures for spray booths located outside of the booth and the interior lighted through sealed clear panels?
- Are the electric motors for exhaust fans placed outside booths or ducts?
- Are belts and pulleys inside the booth fully enclosed?
- Do ducts have access doors to allow cleaning?
- Do all drying spaces have adequate ventilation?

### **Entering Confined Spaces**

- Are confined spaces thoroughly emptied of any corrosive or hazardous substances, such as acids or caustics, before entry?
- Before entry, are all lines to a confined space, containing inert, toxic, flammable, or corrosive materials valved off and blanked or disconnected and separated?
- Is it required that all impellers, agitators, or other moving equipment inside confined spaces be locked-out if they present a hazard?
- Is either natural or mechanical ventilation provided prior to confined space entry?
- Before entry, are appropriate atmospheric tests performed to check for oxygen deficiency, toxic substance and explosive concentrations in the confined space before entry?
- Is adequate illumination provided for the work to be performed in the confined space?
- Is the atmosphere inside the confined space frequently tested or continuously monitor during conduct of work?
- Is there an assigned safety standby employee outside of the confined space, whose sole responsibility is to watch the work in progress, sound an alarm if necessary, and render assistance?

- Is the standby employee or other employees prohibited from entering the confined space without lifelines and respiratory equipment if there is any questions as to the cause of an emergency?
- In addition to the standby employee, is there at least one other trained rescuer in the vicinity?
- Are all rescuers appropriately trained and using approved, recently inspected equipment?
- Does all rescue equipment allow for lifting employees vertically from a top opening?
- Are there trained personnel in First Aid and CPR immediately available?
- Is there an effective communication system in place whenever respiratory equipment is used and the employee in the confined space is out of sight of the standby person?
- Is approved respiratory equipment required if the atmosphere inside the confined space cannot be made acceptable?
- Is all portable electrical equipment used inside confined spaces either grounded and insulated, or equipped with ground fault protection?
  
- Before gas welding or burning is started in a confined space, are hoses checked for leaks, compressed gas bottles forbidden inside of the confined space, torches lighted only outside of the confined area and the confined area tested for an explosive atmosphere each time before a lighted torch is to be taken into the confined space?
- If employees will be using oxygen-consuming equipment such as salamanders, torches, furnaces, in a confined space, is sufficient air provided to assure combustion without reducing the oxygen concentration of the atmosphere below 19.5 percent by volume?
- Whenever combustion-type equipment is used in confined space, are provisions made to ensure the exhaust gases are vented outside of the enclosure?
- Is each confined space checked for decaying vegetation or animal matter, which may produce methane?
- Is the confined space checked for possible industrial waste, which could contain toxic properties?
- If the confined space is below the ground and near areas where motor vehicles will be operating, is it possible for vehicle exhaust or carbon monoxide to enter the space?

### **Environmental Controls**

- Are all work areas properly illuminated?
- Are employees instructed in proper first aid and other emergency procedures?
- Are hazardous substances identified which may cause harm by inhalation, ingestion, skin absorption or contact?
- Are employees aware of the hazards involved with the various chemicals they may be exposed to in their work environment, such as ammonia, chlorine, epoxies, and caustics?
- Is employee exposure to chemicals in the workplace kept within acceptable levels?
- Can a less harmful method or product be used?
- Is the work area's ventilation system appropriate for the work being performed?
- Are spray painting operations done in spray rooms or booths equipped with an appropriate exhaust system?
- Is employee exposure to welding fumes controlled by ventilation, use of respirators, exposure time, or other means?

- Are welders and other workers nearby provided with flash shields during welding operations?
- If forklifts and other vehicles are used in buildings or other enclosed areas, are the carbon monoxide levels kept below maximum acceptable concentration?
- Has there been a determination that noise levels in the facilities are within acceptable levels?
- Are steps being taken to use engineering controls to reduce excessive noise levels?
- Are proper precautions being taken when handling asbestos and other fibrous materials?
- Are caution labels and signs used to warn of asbestos?
- Are wet methods used, when practicable, to prevent the emission of airborne asbestos fibers, silica dust and similar hazardous materials?
- Is vacuuming with appropriate equipment used whenever possible rather than blowing or sweeping dust?
- Are grinders, saws, and other machines that produce respirable dusts vented to an industrial collector or central exhaust system?
- Are all local exhaust ventilation systems designed and operating properly such as airflow and volume necessary for the application? Are the ducts free of obstructions or the belts slipping?
- Is personal protective equipment provided, used and maintained wherever required?
- Are there written standard operating procedures for the selection and use of respirators where needed?
- Are restrooms and washrooms kept clean and sanitary?
- Is all water provided for drinking, washing, and cooking potable?
- Are all outlets for water not suitable for drinking clearly identified?
- Are employees' physical capacities assessed before being assigned to jobs requiring heavy work?
- Are employees instructed in the proper manner of lifting heavy objects?
- Where heat is a problem, have all fixed work areas been provided with spot cooling or air conditioning?
- Are employees screened before assignment to areas of high heat to determine if their health condition might make them more susceptible to having an adverse reaction?
- Are employees working on streets and roadways where they are exposed to the hazards of traffic, required to wear bright colored (traffic orange) warning vest?
- Are exhaust stacks and air intakes located that contaminated air will not be recirculated within a building or other enclosed area?
- Is equipment producing ultra-violet radiation properly shielded?

### **Flammable & Combustible Materials**

- Are combustible scrap, debris and waste materials (i.e. oily rags) stored in covered metal receptacles and removed from the worksite promptly?
- Is proper storage practiced to minimize the risk of fire including spontaneous combustion?
- Are approved containers and tanks used for the storage and handling of flammable and combustible liquids?
- Are all connections on drums and combustible liquid piping, vapor and liquid tight?

- Are all flammable liquids kept in closed containers when not in use (e.g. parts cleaning tanks, pans)?
- Are bulk drums of flammable liquids grounded and bonded to containers during dispensing?
- Do storage rooms for flammable and combustible liquids have explosion-proof lights?
- Do storage rooms for flammable and combustible liquids have mechanical or gravity ventilation?
- Is liquefied petroleum gas stored, handled, and used in accordance with safe practices and standards?
- Are liquefied petroleum storage tanks guarded to prevent damage from vehicles?
- Are all solvent wastes and flammable liquids kept in fire-resistant covered containers until they are removed from the worksite?
- Is vacuuming used whenever possible rather than blowing or sweeping combustible dust?
- Are fire separators placed between containers of combustibles or flammables, when stacked one upon another, to assure their support and stability?
- Are fuel gas cylinders and oxygen cylinders separated by distance, fire resistant barriers or other means while in storage?
- Are fire extinguishers selected and provided for the types of materials in areas where they are to be used?
- Class A: Ordinary combustible material fires.
- Class B: Flammable liquid, gas or grease fires.
- Class C: Energized-electrical equipment fires.
- If a Halon 1301 fire extinguisher is used, can employees evacuate within the specified time for that extinguisher?
- Are appropriate fire extinguishers mounted within 75 feet of outside areas containing flammable liquids, and within 10 feet of any inside storage area for such materials?
- Is the transfer/withdrawal of flammable or combustible liquids performed by trained personnel?
- Are fire extinguishers mounted so that employees do not have to travel more than 75 feet for a class "A" fire or 50 feet for a class "B" fire?
- Are employees trained in the use of fire extinguishers?
- Are extinguishers free from obstructions or blockage?
- Are all extinguishers serviced, maintained and tagged at intervals not to exceed one year?
- Are all extinguishers fully charged and in their designated places?
- Is a record maintained of required monthly checks of extinguishers?
- Where sprinkler systems are permanently installed, are the nozzle heads directed or arranged so that water will not be sprayed into operating electrical switchboards and equipment?
- Are "NO SMOKING" signs posted where appropriate in areas where flammable or combustible materials are used or stored?
- Are "NO SMOKING" signs posted on liquefied petroleum gas tanks?
- Are "NO SMOKING" rules enforced in areas involving storage and use of flammable materials?
- Are safety cans used for dispensing flammable or combustible liquids at a point of use?
- Are all spills of flammable or combustible liquids cleaned up promptly?

- Are storage tanks adequately vented to prevent the development of excessive vacuum or pressure as a result of filling, emptying, or atmosphere temperature changes?
- Are storage tanks equipped with emergency venting that will relieve excessive internal pressure caused by fire exposure?
- Are spare portable or butane tanks, which are used by industrial trucks stored in accord with regulations?

### **Fire Protection**

- Do you have a fire prevention plan?
- Does your plan describe the type of fire protection equipment and/or systems?
- Have you established practices and procedures to control potential fire hazards and ignition sources?
- Are employees aware of the fire hazards of the material and processes to which they are exposed?
- Is your local fire department well acquainted with your facilities, location and specific hazards?
- If you have a fire alarm system, is it tested at least annually?
- If you have a fire alarm system, is it certified as required?
- If you have interior standpipes and valves, are they inspected regularly?
- If you have outside private fire hydrants, are they flushed at least once a year and on a routine preventive maintenance schedule?
- Are fire doors and shutters in good operating condition?
- Are fire doors and shutters unobstructed and protected against obstructions, including their counterweights?
- Are fire door and shutter fusible links in place?
- Are automatic sprinkler system water control valves, air and water pressures checked weekly/periodically as required?
- Is maintenance of automatic sprinkler system assigned to responsible persons or to a sprinkler contractor?
- Are sprinkler heads protected by metal guards, when exposed to physical damage?
- Is proper clearance maintained below sprinkler heads?
- Are portable fire extinguishers provided in adequate number and type?
- Are fire extinguishers mounted in readily accessible locations?
- Are fire extinguishers recharged regularly and noted on the inspection tag?
- Are employees periodically instructed in the use of extinguishers and fire protection procedures?

### **Hazardous Chemical Exposures**

- Are employees trained in the safe handling practices of hazardous chemicals such as acids, caustics, and the like?
- Are employees aware of the potential hazards involving various chemicals stored or used in the workplace--such as acids, bases, caustics, epoxies, and phenols?
- Is employee exposure to chemicals kept within acceptable levels?

- Are eye wash fountains and safety showers provided in areas where corrosive chemicals are handled?
- Are all containers, such as vats and storage tanks labeled as to their contents--e.g. "CAUSTICS"?
- Are all employees required to use personal protective clothing and equipment when handling chemicals (i.e. gloves, eye protection, and respirators)?
- Are flammable or toxic chemicals kept in closed containers when not in use?
- Are chemical piping systems clearly marked as to their content?
- Where corrosive liquids are frequently handled in open containers or drawn from storage vessels or pipelines, is adequate means readily available for neutralizing or disposing of spills or overflows properly and safely?
- Have standard operating procedures been established and are they being followed when cleaning up chemical spills?
- Where needed for emergency use, are respirators stored in a convenient, clean and sanitary location?
- Are respirators intended for emergency use adequate for the various uses for which they may be needed?
- Are employees prohibited from eating in areas where hazardous chemicals are present?
- Is personal protective equipment provided, used and maintained whenever necessary?
- Are there written standard operating procedures for the selection and use of respirators where needed?
- If you have a respirator protection program, are your employees instructed on the correct usage and limitations of the respirators?
- Are the respirators NIOSH approved for this particular application?
- Are they regularly inspected and cleaned sanitized and maintained?
- If hazardous substances are used in your processes, do you have a medical or biological monitoring system in operation?
- Are you familiar with the Threshold Limit Values or Permissible Exposure Limits of airborne contaminants and physical agents used in your workplace?
- Have control procedures been instituted for hazardous materials, where appropriate, such as respirators, ventilation systems, handling practices, and the like?
- Whenever possible, are hazardous substances handled in properly designed and exhausted booths or similar locations?
- Do you use general dilution or local exhaust ventilation systems to control dusts, vapors, gases, fumes, smoke, solvents or mists which may be generated in your workplace?
- Is ventilation equipment provided for removal of contaminants from such operations as production grinding, buffing, spray painting, and/or vapor decreasing, and is it operating properly?
- Do employees complain about dizziness, headaches, nausea, irritation, or other factors of discomfort when they use solvents or other chemicals?
- Is there a dermatitis problem--do employees complain about skin dryness, irritation, or sensitization?
- Have you considered the use of an industrial hygienist or environmental health specialist to evaluate your operation?
- If internal combustion engines are used, is carbon monoxide kept within acceptable levels?

- Is vacuuming used, rather than blowing or sweeping dusts whenever possible for clean up?
- Are materials, which give off toxic asphyxiant, suffocating or anesthetic fumes, stored in remote or isolated locations when not in use?

### **Hazardous Substances Communication**

- Is there a list of hazardous substances used in your workplace?
- Is there a written hazard communication program dealing with Material Safety Data Sheets (MSDS) labeling, and employee training?
- Who is responsible for MSDSs, container labeling, employee training?
- Is each container for a hazardous substance (i.e. vats, bottles, storage tanks,) labeled with product identity and a hazard warning (communication of the specific health hazards and physical hazards)?
- Is there a Material Safety Data Sheet readily available for each hazardous substance used?
- How will you inform other employers whose employees share the same work area where the hazardous substances are used?
- Is there an employee training program for hazardous substances?
- Does this program include:
  - An explanation of what an MSDS is and how to use and obtain one?
  - MSDS contents for each hazardous substance or class of substances?
  - Explanation of "Right to Know"?
  - Identification of where employees can see the employer's written hazard communication program and where hazardous substances are present in their work area?
  - The physical and health hazards of substances in the work area, how to detect their presence, and specific protective measures to be used?
  - Details of the hazard communication program, including how to use the labeling system and MSDSs?
  - How employees will be informed of hazards of non-routine tasks, and hazards of unlabeled pipes?

### **Electrical**

- Are your workplace electricians familiar with the Cal/OSHA Electrical Safety Orders?
- Do you specify compliance with Cal/OSHA for all contract electrical work?
- Are all employees required to report as soon as practicable any obvious hazard to life or property observed in connection with electrical equipment or lines?
- Are employees instructed to make preliminary inspections and/or appropriate tests to determine what conditions exist before starting work on electrical equipment or lines?
- When electrical equipment or lines are to be serviced, maintained or adjusted, are necessary switches opened, locked-out and tagged whenever possible?
- Are portable electrical tools and equipment grounded or of the double insulated type?
- Are electrical appliances such as vacuum cleaners, polishers, vending machines grounded?
- Do extension cords being used have a grounding conductor?

- Are multiple plug adapters prohibited?
- Are ground-fault circuit interrupters installed on each temporary 15 or 20 ampere, 120 volt AC circuit at locations where construction, demolition, modifications, alterations or excavations are being performed?
- Are all temporary circuits protected by suitable disconnecting switches or plug connectors at the junction with permanent wiring?
- Is exposed wiring and cords with frayed or deteriorated insulation repaired or replaced promptly?
- Are flexible cords and cables free of splices or taps?
- Are clamps or other securing means provided on flexible cords or cables at plugs, receptacles, tools, and equipment and is the cord jacket securely held in place?
- Are all cord, cable and raceway connections intact and secure?
- In wet or damp locations, are electrical tools and equipment appropriate for the use or location or otherwise protected?
- Is the location of electrical power lines and cables (overhead, underground, underfloor, other side of walls) determined before digging, drilling or similar work is begun?
- Are metal measuring tapes, ropes, handlines or similar devices with metallic thread woven into the fabric prohibited where they could come in contact with energized parts of equipment or circuit conductors?
- Is the use of metal ladders prohibited in area where the ladder or the person using the ladder could come in contact with energized parts of equipment, fixtures or circuit conductors?
- Are all disconnecting switches and circuit breakers labeled to indicate their use or equipment served?
- Are disconnecting means always opened before fuses are replaced?
- Do all interior wiring systems include provisions for grounding metal parts of electrical raceways, equipment and enclosures?
- Are all electrical raceways and enclosures securely fastened in place?
- Are all energized parts of electrical circuits and equipment guarded against accidental contact by approved cabinets or enclosures?
- Is sufficient access and working space provided and maintained about all electrical equipment to permit ready and safe operations and maintenance?
- Are all unused openings (including conduit knockouts) in electrical enclosures and fittings closed with appropriate covers, plugs or plates?
- Are electrical enclosures such as switches, receptacles, junction boxes, etc., provided with tight-fitting covers or plates?
- Are disconnecting switches for electrical motors in excess of two horsepower, capable of opening the circuit when the motor is in a stalled condition, without exploding? (Switches must be horsepower rated equal to or in excess of the motor hp rating).
- Is low voltage protection provided in the control device of motors driving machines or equipment, which could cause probably injury from inadvertent starting?
- Is each motor disconnecting switch or circuit breaker located within sight of the motor control device?
- Is each motor located within sight of its controller or the controller disconnecting means capable of being locked in the open position or is a separate disconnecting means installed in the circuit within sight of the motor?

- Is the controller for each motor in excess of two horsepower, rated in horsepower equal to or in excess of the rating of the motor is serves?
- Are employees who regularly work on or around energized electrical equipment or lines instructed in the cardiopulmonary resuscitation (CPR) methods?
- Are employees prohibited from working alone on energized lines or equipment over 600 volts?

### **Noise**

- Are there areas in the workplace where continuous noise levels exceed 85 dBA? (To determine maximum allowable levels for intermittent or impact noise, see Title 8, Section 5097.)
- Are noise levels being measured using a sound level meter or an octave band analyzer and records being kept?
- Have you tried isolating noisy machinery from the rest of your operation?
- Have engineering controls been used to reduce excessive noise levels?
- Where engineering controls are determined not feasible, are administrative controls (i.e. worker rotation) being used to minimize individual employee exposure to noise?
- Is there an ongoing preventive health program to educate employees in safe levels of noise and exposure, effects of noise on their health, and use of personal protection?
- Is the training repeated annually for employees exposed to continuous noise above 85 dBA?
- Have work areas where noise levels make voice communication between employees difficult been identified and posted?
- Is approved hearing protective equipment (noise attenuating devices) available to every employee working in areas where continuous noise levels exceed 85 dBA?
- If you use ear protectors, are employees properly fitted and instructed in their use and care?
- Are employees exposed to continuous noise above 85 dBA given periodic audiometric testing to ensure that you have an effective hearing protection system?

### **Fueling**

- Is it prohibited to fuel an internal combustion engine with a flammable liquid while the engine is running?
- Are fueling operations done in such a manner that likelihood of spillage will be minimal?
- When spillage occurs during fueling operations, is the spilled fuel cleaned up completely, evaporated, or other measures taken to control vapors before restarting the engine?
- Are fuel tank caps replaced and secured before starting the engine?
- In fueling operations is there always metal contact between the container and fuel tank?
- Are fueling hoses of a type designed to handle the specific type of fuel?
- Is it prohibited to handle or transfer gasoline in open containers?
- Are open lights, open flames, or sparking or arcing equipment prohibited near fueling or transfer of fuel operations?
- Is smoking prohibited in the vicinity of fueling operations?

- Are fueling operations prohibited in building or other enclosed areas that are not specifically ventilated for this purpose?
- Where fueling or transfer of fuel is done through a gravity flow system, are the nozzles of the self-closing type?

### **Identification Of Piping Systems**

- When nonpotable water is piped through a facility, are outlets or taps posted to alert employees that it is unsafe and not to be used for drinking, washing or other personal use?
- When hazardous substances are transported through above ground piping, is each pipeline identified at points where confusion could introduce hazards to employees?
- When pipelines are identified by color painting, are all visible parts of the line so identified?
- When pipelines are identified by color painted bands or tapes, are the bands or tapes located at reasonable intervals and at each outlet, valve or connection?
- When pipelines are identified by color, is the color code posted at all locations where confusion could introduce hazards to employees?
- When the contents of pipelines are identified by name or name abbreviation, is the information readily visible on the pipe near each valve or outlet?
- When pipelines carrying hazardous substances are identified by tags, are the tags constructed of durable materials, the message carried clearly and permanently distinguishable and are tags installed at each valve or outlet?
- When pipelines are heated by electricity, steam or other external source, are suitable warning signs or tags placed at unions, valves, or other serviceable parts of the system?

### **Material Handling**

- Is there safe clearance for equipment through aisles and doorways?
- Are aisleways designated, permanently marked, and kept clear to allow unhindered passage?
- Are motorized vehicles and mechanized equipment inspected daily or prior to use?
- Are vehicles shut off and brakes set prior to loading or unloading?
- Are containers or combustibles or flammables, when stacked while being moved, always separated by dunnage sufficient to provide stability?
- Are dock boards (bridge plates) used when loading or unloading operations are taking place between vehicles and docks?
- Are trucks and trailers secured from movement during loading and unloading operations?
- Are dock plates and loading ramps constructed and maintained with sufficient strength to support imposed loading?
- Are hand trucks maintained in safe operating condition?
- Are chutes equipped with sideboards of sufficient height to prevent the materials being handled from falling off?
- Are chutes and gravity roller sections firmly placed or secured to prevent displacement?
- At the delivery end of rollers or chutes, are provisions made to brake the movement of the handled materials.

- Are pallets usually inspected before being loaded or moved?
- Are hooks with safety latches or other arrangements used when hoisting materials so that slings or load attachments won't accidentally slip off the hoist hooks?
- Are securing chains, ropes, chockers or slings adequate for the job to be performed?
- When hoisting material or equipment, are provisions made to assure no one will be passing under the suspended loads?
- Are Material Safety Data Sheets available to employees handling hazardous substances?

### **Transporting Employees & Materials**

- Do employees who operate vehicles on public thoroughfares have valid operator's licenses?
- When seven or more employees are regularly transported in a van, bus or truck, is the operator's license appropriate for the class of vehicle being driven?
- Is each van, bus or truck used regularly to transport employees, equipped with an adequate number of seats?
- When employees are transported by truck, are provision provided to prevent their falling from the vehicle?
- Are vehicles used to transport employees, equipped with lamps, brakes, horns, mirrors, windshields and turn signals in good repair?
- Are transport vehicles provided with handrails, steps, stirrups or similar devices, so placed and arranged that employees can safely mount or dismount?
- Are employee transport vehicles equipped at all times with at least two reflective type flares?
- Is a full charged fire extinguisher, in good condition, with at least 4 B:C rating maintained in each employee transport vehicle?
- When cutting tools with sharp edges are carried in passenger compartments of employee transport vehicles, are they placed in closed boxes or containers which are secured in place?
- Are employees prohibited from riding on top of any load, which can shift, topple, or otherwise become unstable?

### **Control Of Harmful Substances By Ventilation**

- Is the volume and velocity of air in each exhaust system sufficient to gather the dusts, fumes, mists, vapors or gases to be controlled, and to convey them to a suitable point of disposal?
- Are exhaust inlets, ducts and plenums designed, constructed, and supported to prevent collapse or failure of any part of the system?
- Are clean-out ports or doors provided at intervals not to exceed 12 feet in all horizontal runs of exhaust ducts?
- Where two or more different type of operations are being controlled through the same exhaust system, will the combination of substances being controlled, constitute a fire, explosion or chemical reaction hazard in the duct?
- Is adequate makeup air provided to areas where exhaust systems are operating?

- Is the intake for makeup air located so that only clean, fresh air, which is free of contaminants, will enter the work environment?
- Where two or more ventilation systems are serving a work area, is their operation such that one will not offset the functions of the other?

### **Sanitizing Equipment & Clothing**

- Is personal protective clothing or equipment, that employees are required to wear or use, of a type capable of being easily cleaned and disinfected?
- Are employees prohibited from interchanging personal protective clothing or equipment, unless it has been properly cleaned?
- Are machines and equipment, which processes, handle or apply materials that could be injurious to employees, cleaned and/or decontaminated before being overhauled or placed in storage?
- Are employees prohibited from smoking or eating in any area where contaminants are present that could be injurious if ingested?
- When employees are required to change from street clothing into protective clothing, is a clean changeroom with separate storage facility for street and protective clothing provided?
- Are employees required to shower and wash their hair as soon as possible after a known contact has occurred with a carcinogen?
- When equipment, materials, or other items are taken into or removed from a carcinogen regulated area, is it done in a manner that will not contaminate non-regulated areas or the external environment?

### **Tire Inflation**

- Where tires are mounted and/or inflated on drop center wheels is a safe practice procedure posted and enforced?
- Where tires are mounted and/or inflated on wheels with split rims and/or retainer rings is a safe practice procedure posted and enforced?
- Does each tire inflation hose have a clip-on chuck with at least 24 inches of hose between the chuck and an in-line hand valve and gauge?
- Does the tire inflation control valve automatically shut off the airflow when the valve is released?
- Is a tire restraining device such as a cage, rack or other effective means used while inflating tires mounted on split rims, or rims using retainer rings?
- Are employees strictly forbidden from taking a position directly over or in front of a tire while it's being inflated?

### **Emergency Action Plan**

- Are you required to have an emergency action plan?
- Does the emergency action plan comply with requirements of T8CCR 3220(a)?
- Have emergency escape procedures and routes been developed and communicated to all employees?

- Do employees, who remain to operate critical plant operations before they evacuate, know the proper procedures?
- Is the employee alarm system that provides a warning for emergency action recognizable and perceptible above ambient conditions?
- Are alarm systems properly maintained and tested regularly?
- Is the emergency action plan reviewed and revised periodically?
- Do employees know their responsibilities:
- For reporting emergencies?
- During an emergency?
- For conducting rescue and medical duties?

### **Infection Control**

- Are employees potentially exposed to infectious agents in body fluids?
- Have occasions of potential occupational exposure been identified and documented?
- Has a training and information program been provided for employees exposed to or potentially exposed to blood and/or body fluids?
- Have infection control procedures been instituted where appropriate, such as ventilation, universal precautions, workplace practices, and personal protective equipment?
- Are employees aware of specific workplace practices to follow when appropriate? (Hand washing, handling sharp instruments, handling of laundry, disposal of contaminated materials, reusable equipment.)
- Is personal protective equipment provided to employees, and in all appropriate locations?
- Is the necessary equipment (i.e. mouthpieces, resuscitation bags, and other ventilation devices) provided for administering mouth-to-mouth resuscitation on potentially infected patients?
- Are facilities/equipment to comply with workplace practices available, such as hand-washing sinks, biohazard tags and labels, needle containers, detergents/disinfectants to clean up spills?
- Are all equipment and environmental and working surfaces cleaned and disinfected after contact with blood or potentially infectious materials?
- Is infectious waste placed in closable, leak proof containers, bags or puncture-resistant holders with proper labels?
- Has medical surveillance including HBV evaluation, antibody testing and vaccination been made available to potentially exposed employees?
- Training on universal precautions?
- Training on personal protective equipment?
- Training on workplace practices, which should include blood drawing, room cleaning, laundry handling, clean up of blood spills?
- Training on needlestick exposure/management?
- Hepatitis B vaccinations?

### **Ergonomics**

- Can the work be performed without eyestrain or glare to the employees?
- Does the task require prolonged raising of the arms?

- Do the neck and shoulders have to be stooped to view the task?
- Are there pressure points on any parts of the body (wrists, forearms, back of thighs)?
- Can the work be done using the larger muscles of the body?
- Can the work be done without twisting or overly bending the lower back?
- Are there sufficient rest breaks, in addition to the regular rest breaks, to relieve stress from repetitive-motion tasks?
- Are tools, instruments and machinery shaped, positioned and handled so that tasks can be performed comfortably?
- Are all pieces of furniture adjusted, positioned and arranged to minimize strain on all parts of the body?

### **Ventilation For Indoor Air Quality**

- Does your HVAC system provide at least the quantity of outdoor air required by the State Building Standards Code, Title 24, Part 2 at the time the building was constructed?
- Is the HVAC system inspected at least annually, and problems corrected?
- Are inspection records retained for at least 5 years?

### **Crane Checklist**

- Are the cranes visually inspected for defective components prior to the beginning of any work shift?
- Are all electrically operated cranes effectively grounded?
- Is a crane preventive maintenance program established?
- Is the load chart clearly visible to the operator?
- Are operating controls clearly identified?
- Is a fire extinguisher provided at the operator's station?
- Is the rated capacity visibly marked on each crane?
- Is an audible warning device mounted on each crane?
- Is sufficient illumination provided for the operator to perform the work safely?
- Are cranes of such design, that the boom could fall over backward, equipped with boomstops?
- Does each crane have a certificate indicating that required testing and examinations have been performed?
- Are crane inspection and maintenance records maintained and available for inspection?

## **Facility Inspections**

Monthly inspections are to be conducted by all supervisors. Individual units will be notified prior to periodic committee inspections.

Results of inspections will be reviewed by the Safety Committee and addressed according to priority. Problems identified by each inspection will be corrected immediately, or by a specified time to be determined by the Facility Maintenance Supervisor.

Also, monthly inspection results will be discussed during safety meetings. Employees are encouraged to discuss and bring forward their ideas and thoughts regarding any safety items mentioned or of concern to them.

## **Vehicle and Power Equipment Inspections**

All equipment and machinery will be inspected daily by their assigned technicians or operators.

If any safety or mechanical problems are found, they are to be reported immediately to the automotive and equipment repair facilities reporting station.

The equipment is not to be used under any circumstance until repairs have been made and/or authorized approval to use has been issued.

## **Action Plans**

Safety items identified during monthly inspections will be submitted to the Facility Maintenance Supervisor (structural) or the Fleet Maintenance Supervisor (equipment) for review, and an action plan will be developed to resolve each specific safety item (hazards, needed policies, etc.) by a set completion date, and by those assigned responsibility. The action plan form will be used to document-identified problems, steps to be taken, and completion deadline.

## **Safety Meeting Procedure**

1. **GENERAL SAFETY MEETINGS** of all Production Managers, technicians, and Skilled Tradesmen will be held quarterly. The main purpose of these meetings will be to report safety committee actions, and discuss the results of safety inspections, accident investigations, and safety suggestions. General safety topics and other topics of interest may also be addressed, including the overall operation of the safety program.
2. **SPECIFIC SAFETY MEETINGS** will be held monthly for training in specific areas, but broad enough to interest most of the farm laboratory work force. Topics will include such things as tractor safety, pesticides and respirators, shop safety, electrical safety, safe animal handling, and ergonomics. Attendance will be voluntary, but employees should remember that safety records and program participation would be part of performance evaluations.
3. **SPECIAL SAFETY MEETINGS** such as forklift certification, specific chemical training, tailgate sessions, etc., will be held as necessary to accomplish needed training on specialized topics. This training will usually be conducted by the employee's immediate-supervisor on equipment, materials, and procedures used on the job. When new substances, processes, procedures, equipment, or previously unrecognized hazards are identified, appropriate additional training will be given.
4. **SAFETY COMMITTEE MEETINGS** will be held quarterly, prior to the general safety meetings, to review safety inspections, accident investigations, and safety suggestions. Assignments will be made to implement and follow up on actions taken to remedy problems discovered in these activities. Permanent members of the safety committee are as follows: the Associate Dean for Ag Operations, Farm Supervisor, Farm Maintenance Supervisor, Farm Machinery Center, Supervisor, and Crop Protection Technician. One representative each from the Plant Science, Animal Science, and Skilled Trades areas will serve rotating three-month terms as members of the safety committee.

## **Forms**

### Hazard Identification and Safety Suggestion

Name _____ Date _____		FOR OFFICE USE	
		YEAR	LOG #
Current Condition or Unsafe Practice	Corrective Action(s) Needed	ACTION TAKEN	
		INITIAL	DATE

FOR OFFICE USE:

First Review By \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

IS LOCK-OUT/TAG-OUT NEEDED DUE TO IMMINENT HAZARD? \_\_\_\_\_

Person Responsible For Correction \_\_\_\_\_ Copy Provided \_\_\_\_\_  
Date/Time

Final Action Notice Returned To Originator \_\_\_\_\_  
Date

Reviewed By Safety Committee \_\_\_\_\_  
Date

## Employee Safety Training Checklist

This report is to be completed by the supervisor and employee within 10 days of employment or new job assignment and filed with the Farm Operations office.

Date Employed \_\_\_\_\_ Department: \_\_\_\_\_

Employee Name: \_\_\_\_\_ SS# \_\_\_\_\_  
(Print) Last First M.I.

Supervisor will ask employee: "Do you have any physical conditions or handicaps which might limit your ability to perform this job? If so, what reasonable accommodation can be made by us?" Any Work restrictions indicated at time of employment? If so, please explain \_\_\_\_\_

The supervisor and employee are to review the following safety concerns, check and discuss those that apply:

<u>DATE</u>	<u>INITIAL</u>	<u>DISCUSS WHERE APPROPRIATE</u>
_____	_____	Company safety policies and programs
_____	_____	Safety rules, both general and specific to the job assignment
_____	_____	Safety rule enforcement procedures, including possible disciplinary action
_____	_____	Use of tools and equipment
_____	_____	Importance of good housekeeping
_____	_____	Maintenance of equipment safety guards and grounding of power tools
_____	_____	Safe lifting techniques and use of specific lifting equipment
_____	_____	Proper work shoes and other personal protective equipment
_____	_____	Fire Safety and extinguisher locations
_____	_____	Special hazards, including chemicals or other hazardous materials
_____	_____	How, when and where to report injuries, accidents, or unsafe conditions
_____	_____	First aid and emergency procedures
_____	_____	Safe operation of vehicles

Safety is a high priority, and all employees are responsible for accident prevention. This checklist will be reviewed after the probationary period, and employee's safety performance will be part of all evaluations.

Employee Signature \_\_\_\_\_ Date \_\_\_\_\_

Supervisor/Trainer Signature \_\_\_\_\_ Date \_\_\_\_\_

## Employee Training Documentation

Employee Name \_\_\_\_\_

Training Subject \_\_\_\_\_

Trainer Name \_\_\_\_\_

### Training Materials Used

- Operators Manuel
- Safe Operating Procedures
- Other \_\_\_\_\_

### Area Covered In Training

- The potential hazards in general in the work area and associated with my job assignment.
- The Safe Operating Procedures, which indicate the safe work conditions, safe work practices and personal protective equipment required for my work.
- The hazards of any chemicals to which I may be exposed and my right to information contained on the Material Safety Data Sheets for those chemicals, and how to understand this information.
- My right to ask any questions or provide any information to the employer on safety either directly or anonymously without any fear of reprisal.
- Disciplinary procedures the employer will use to enforce compliance with Safe Operating Procedures.

I hereby certify that I received and understand this training as described above, and agree to comply with all Safe Operating Procedures for my work area:

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Trainer Signature

\_\_\_\_\_  
Date

## Sample Tailgate Topics



# Agricultural Tailgate Safety Training

Agricultural Safety Program

## Training Module: Tractors and Highway Safety

**Objective:** To use safe highway procedures for tractors.

**Trainer's Note:** Accidents occur because highway safety precautions are not followed. It is difficult to avoid highway travel when going between farm sites. Discuss procedures for traveling on highways with agricultural equipment. Common sense and good judgment should be emphasized. Discuss driving safely on highways.

### Background

When hauling a tractor for some distance, it is best to transport it on a truck or trailer.

#### Safe highway procedures for hauling include:

- Haul tractors and implements on a flatbed.
- Obey the laws for height and width regulation.
- Remove, cover or turn SMV signs when tractors are transported on another vehicle.
- Use the correct flags, lights, and reflectors on the transport vehicle to warn other drivers.

For shorter distances, tractor highway travel is appropriate. For the safety of everyone on the road, some safety provisions should be followed. Only operate machinery in good repair on the highway. Properly hitch implements with adequate safety chains before beginning the journey. Do not use makeshift hitch pins.

#### Before traveling on public roads remember:

- Lock brake pedals.
- Adjust mirrors for good vision.
- Make sure that all warning flashers, lights, and SMV emblems are in proper operating condition, clean, and easily visible.
- Check tire inflation pressures. Inflate the tires to the maximum recommended pressure for long distance travel.
- Check the wheels to see if the bolts are tight.
- Make sure the tractor is balanced properly.

When pulling onto a public road, use a wide shoulder if available. If the shoulder is not wide enough, stay on the road. Allow extra time to reach full speed. Tractors do not accelerate rapidly, especially when towing equipment.

#### When traveling on public roads:

- Watch for pot holes or obstacles that could tip tractor.
- Listen for cars. Often vehicles will rapidly approach from the rear at 3 to 4 times the speed of the tractor.
- Stay alert at all times to avoid a serious accident.
- Keep a constant lookout for pedestrians, animals, and road obstacles.
- Slow down for sharp curves.
- Slow down when going down a hill.

Vehicles traveling on public roads at 25 mph or less are legally required to have a slow-moving vehicle sign. Equipment traveling faster than 25 mph is defined as a trailer and is not permitted to display the SMV emblem, but must be equipped with turn signals, brakes, and lights. Lighting regulations for slow-moving vehicles vary. Before installing any warning light system on a tractor, check the regulations. Generally the lighting and marking laws for tractors or self propelled machines are consistent with the recommendations by the American Society of Agricultural Engineers (ASAE) and the Society of Automotive Engineers (SAE). Only one vehicle classified as farm machinery may be towed by the licensed motor vehicle.

**ASAE recommendations include:**

- Two headlights.
- At least one tail lamp, mounted on the left side facing the rear of the tractor.
- At least two amber warning lights, visible from front and rear, mounted at the same level at least 42 inches above ground level.
- At least two red reflectors, visible from the rear and mounted on either side.

Lights and emblems must be clearly visible. If lights or emblems are blocked during towing, attach lights and emblems to the rear of the implements. Most tractors can be equipped with auxiliary connectors allowing implement electrical systems to be plugged into the circuit operating the tractor lights.

**Review The Following Points**

- Know the Law concerning highway travel for tractors.
- Watch for highway traffic.
- Use common sense and obey traffic patterns when traveling on the highway with a tractor.

**True or False Answer Key**  
1. T, 2. T, 3. F, 4. T, 5. T



## Agricultural Tailgate Safety Training

Agricultural Safety Program

### True or False

Name \_\_\_\_\_

- |  |   |   |
|--|---|---|
| 1. When tractors or implements must be transported long distances, it is safest to haul them on a flatbed. | T | F |
| 2. Stay alert at all times to avoid a serious accident.  | T | F |
| 3. There is no need to use an SMV sign if traveling only five miles.                                       | T | F |
| 4. Slow the tractor speed down when going through a sharp curve or down a hill.                            | T | F |
| 5. Make sure that all lights and warning signals are in working order before traveling on the road.        | T | F |

Road



# Agricultural Tailgate Safety Training

**Agricultural Safety Program**

## Training Module: Pesticide Exposure

**Objective:** To know the types and causes of pesticide exposure and how to prevent exposures.

**Trainer's Note:** Discuss how personal protective equipment can protect the applicator from the different types of exposure. The modules: Pesticide Protective Equipment and Reading Pesticide Labels can provide additional information.

### Background

There are four ways toxic materials can be taken into the body. They are: oral, dermal, inhalation, and ocular exposures, with dermal be the most common type of exposure. These types of exposures are explained in the chart below.

Type of Exposure	Definition	Cause of Exposure
Oral Exposure	Swallow or ingest a pesticide	<ul style="list-style-type: none"> <li>• Not washing hands before eating, drinking, smoking or chewing tobacco.</li> <li>• Mistaking a pesticide for food or drink.</li> <li>• Accidentally applying pesticides to food.</li> <li>• Splashing pesticide into the mouth through carelessness or accident.</li> </ul>
Dermal Exposure	Having pesticide on your skin.	<ul style="list-style-type: none"> <li>• Not washing hands after handling pesticides or their containers.</li> <li>• Splashing or spraying pesticides on unprotected skin.</li> <li>• Applying pesticides in windy weather.</li> <li>• Wearing inadequate personal protective equipment while handling pesticides or their containers.</li> </ul>
Inhalation Exposure	Breathing in a pesticide.	<ul style="list-style-type: none"> <li>• Prolonged contact with pesticides in closed or poorly ventilated spaces.</li> <li>• Breathing vapors from fumigants and other pesticides.</li> <li>• Breathing vapors, dust, or mist while handling pesticides without appropriate protective equipment.</li> <li>• Inhaling vapors immediately after a pesticide is applied.</li> <li>• Using the wrong respirator, or an improperly fitted respirator, or using filters, cartridges, or canisters that are "full" of chemicals, dust, etc.</li> </ul>

Type of Exposure	Definition	Cause of Exposure
Ocular Exposure	Pesticide gets in the eye.	<ul style="list-style-type: none"> <li>• Splashing or spraying pesticides in eyes.</li> <li>• Applying pesticides in windy weather without eye protection.</li> <li>• Rubbing eyes with contaminated gloves or hands.</li> <li>• Pouring dust, granules or powder formulations without eye protection.</li> </ul>

**Exposure is considered:**

**Acute:** One-time case of pesticide exposure. For example: a spill on the body. Exposure is usually easy to determine.

**Chronic:** Low-level exposure over a longer period of time. Exposure is usually difficult to determine.

A combination of the two exposures can be dangerous. For example, daily exposure to a pesticide through contaminated clothing combined with an acute exposure like spilling a pesticide on your skin poses the greatest risk because the body may not be able to deal with the acute exposure.

**Avoiding Exposure:**

In order to avoid exposure, it is important to avoid the causes of exposure. For example, by wearing the proper eye protection you can prevent a pesticide from getting in the eyes.

**To avoid exposure:**

- Wear proper personal protective equipment (Refer to the module: Pesticide Personal Protective Equipment).
- If you do start to breathe pesticide mist or dust, move away from that area as quickly as possible and get into fresh air.
- Use a closed handling system.
- Maintain and clean personal protective equipment.
- Wash exposed body parts often to reduce dermal exposure.
- Read pesticide labels thoroughly (Refer to module: Reading Pesticide Labels).

**Review the Following Points:**

- Dermal exposure to a pesticide means that it gets on the skin.
- Ocular exposure to a pesticide means that it gets in the eye.
- Oral exposure to a pesticide is swallowing or ingesting it.
- Inhalation exposure is inhaling a pesticide.
- Using improper personal protective equipment can lead to exposure to the pesticide.

## **Guides for Safe Equipment and Machinery Operation**

## Tractor

### Read and understand operator's manual

1. Safety is the responsibility of the operator
2. Use the steps and handholds provided in getting up and down from a tractor. Keep steps, pedals and footwear clean of mud and oil to avoid slips. Do not jump from a tractor or climb up and down from the rear.
3. Tractors have a high center of gravity; therefore they are easy to overturn. To avoid tipping over, reduce speed when:
  - a. Making turns, especially on rough and muddy surfaces.
  - b. Going across a slope.
  - c. Pulling heavy or unstable loads.
4. Go up steeper slopes in reverse. Avoid slopes too steep for safe operation.
5. Avoid driving near ditches, holes, levees, trees, and electrical poles.
6. Operate the tractor smoothly, without sudden turns, stops or starts.
7. Before getting down for whatever reason, but especially for making adjustments on implements:
  - a. Come to a standstill.
  - b. Put the Power Takeoff in neutral.
  - c. Lower the implement to the ground.
  - d. Set the brakes.
  - e. Turn off the motor.
  - f. Put the key in your pocket.
8. Hitch implements only to the traction bar, using the recommended hitch points. Use the proper hitch pin, along with its safety pin. Attach the safety chain.
9. Sit down before starting the motor. Remain seated while driving.
10. Use the safety belt if the tractor has a Rollover Protective Structure (ROPS), so the tractor or its ROPS won't crush you if the tractor overturns.
11. Do not allow anyone to ride on the tractor, drawbar or implements.
12. Let the engine cool before checking the radiator or refueling, to avoid burns to the hands or face. Do not smoke while refueling.
13. Always keep the Power Take Off shields in place.
14. Do not wear loose clothes, rings, or long hair, because they can get caught on the tractor, in the PTO, or the implements.

15. Use personal protective equipment when necessary: goggles, hearing protectors, dust masks or respirators (for chemicals).
16. Report all mechanical problems to the repair facility, no matter how small.
17. Drive only when you are physically able to do it safely.

## **Tractor Loader Backhoe**

### **Read and understand operator's manual.**

1. Ensure any attached equipment or accessories are correctly installed, are approved for use with the tractor, do not overload the tractor and are operated and maintained in accordance with the instructions issued by the equipment or accessory manufacturer.
2. Use an approved ROPS or safety cab and seat belt for safe operation. Overturning a tractor without a ROPS or safety cab can result in death or injury.
3. Always use the seat belt with the ROPS or safety cab.
4. Use the handholds and step plates when getting on and off the tractor to prevent falls. Keep steps and platform clear of mud and debris.
5. Do not permit anyone but the operator to ride on the tractor there is no safe place for extra riders.
6. Remember that your tractor if abused or incorrectly used can be dangerous and become a hazard both to the operator and bystanders. Do not overload or operate with attached equipment, which is unsafe, not designed for the particular task or is poorly maintained.
7. Replace all missing, illegible, or damaged safety decals.
8. Keep safety decals clean of dirt and grime.

### **Operating the unit:**

9. Position the transmission in neutral and apply the parking brake before starting the tractor.
10. Do not start the engine or operate controls while standing beside the tractor. Always sit in the tractor seat when starting the engine or operating the controls.
11. Do not bypass the safety start switch. Use booster cables only in the recommended manner. Improper use can result in a tractor runaway.
12. Avoid accidental contact with the gearshift lever or power-reversing lever while the engine is running. Unexpected tractor movement can result from such contact.
13. Do not get off the tractor while it is in motion.
14. Never attach chains, ropes or cables to the loader, ROPS or backhoe for pulling purposes.
15. Never leave the tractor without first lowering the backhoe and loader buckets to the ground.
16. Stop the engine, apply the parking brake and put the gearshift lever and power-reversing lever into neutral before dismounting.

17. Do not engage the parking brake while the tractor is in motion.
18. Never leave the tractor when it is parked on an incline. Always park the tractor on level ground where possible. If the tractor is to be parked on an incline, always lower the buckets so that the cutting lips contact the ground, apply the parking brake, and securely block the wheels.
19. Always keep a lookout for bystanders.
20. Always check overhead clearance, particularly when transporting the tractor.
21. If the engine or power steering ceases operating, stop the tractor immediately.
22. Do not run the engine in a closed building without adequate ventilation, as exhaust fumes can suffocate you.
23. Always carry out the recommended checks before commencing work each day.
24. Always place the torque converter shuttle lever in neutral before operating the backhoe.
25. Do not enter the platform from the rear.
26. Always check the location of gas and electrical lines before you start to dig.
27. Watch out for overhead and underground high-voltage electrical lines when operating the loader or backhoe.
28. To prevent upsets, avoid full reach and swinging the bucket to the downhill side when operating on a slope.
29. Never operate the controls when standing on the ground.
30. Always deposit the spoil on the uphill side when operating on a slope.
31. Always travel slowly over uneven ground.
32. Take special care when excavating with a high capacity bucket.
33. Always use the recommended amount of counterweighing to ensure good stability.
34. Do not transport anyone in the loader bucket.
35. Always carry the loader bucket low for maximum stability and visibility, whether the bucket is loaded or empty.
36. Be careful when handling round objects such as oil drums, pipes or poles. Lifting too high or rolling back too far could result in these objects rolling rearward down the loader arms onto the operator.

**Driving the unit:**

37. Always drive with care and at speeds compatible with safety, especially when operating over rough ground crossing ditches or slopes or when turning.
38. Never allow the tractor to over-run when going downhill. Do not coast or free wheel down hills.
39. Always use the transport lock when transporting the tractor.
40. Lock the foot brake pedals together when traveling on the highway to provide two-wheel braking.
41. Do not engage the differential lock when turning the tractor. When engaged, the lock will prevent the tractor turning.
42. Always sit in the driver's seat and wear your seat belt when driving the tractor.
43. Ensure the tractor lights are adjusted to avoid blinding 'an oncoming driver.
44. Use the flasher/turn signal lights and SMV signs when traveling on public roads both day and night.
45. A void accidental contact with the gearshift lever or power reversing lever while the engine is running. Unexpected tractor movement can result.
46. Any towed vehicle whose total weight exceeds that of the towing tractor must be equipped with brakes, for safe operation.
47. When the tractor is stuck, back out to prevent upset.

**Diesel fuel:**

48. Under no circumstances should gasoline, alcohol or blended fuels be added to diesel fuel. These combinations can create an increased fire or explosive hazard. In a closed container such as a fuel tank such blends are more explosive than pure gasoline. **Do not use these blends.**
49. Never remove the fuel cap or refuel with the engine running or hot.
50. Do not smoke while refueling or when standing near fuel.
51. Maintain control of the fuel filler nozzle when filling the tank.
52. Do not fill the fuel tank to capacity. Allow room for expansion.
53. Wipe up spilled fuel immediately.
54. Always tighten the fuel tank cap securely.

55. If the original fuel tank cap is lost, replace it with an approved cap. A non-approved, proprietary cap may not be safe.
56. Keep equipment clean and properly maintained.
57. Do not drive equipment near open fires.
58. Never use fuel for cleaning purposes.

**Safety Cab or ROPS:**

59. Your Ford tractor is equipped with a safety cab or ROPS. It must be maintained in a serviceable condition. Be careful when driving through doorways or working in confined spaces with low headroom.
60. Under no circumstances:
61. Modify, drill or alter the ROPS frame or cab in anyway as doing so could render you liable to legal prosecution.
  - a. Attempt to straighten or weld any part of the ROPS frame or cab or retaining brackets, which have suffered damage. By doing so you may weaken the structure and endanger your safety.
  - b. Secure any parts of the ROPS frame or attach your cab or ROPS frame with other than the special high tensile bolts and nuts specified.
  - c. Attach chains or ropes to the ROPS frame or cab for pulling purposes.
  - d. Take unnecessary risks even though your cab or ROPS frame affords you the maximum protection possible.

**Starting the tractor with booster cables:**

62. If it is necessary to use booster cables to start the tractor, proceed as follows:
  - a. Operate the starting motor only from the operator's seat. If the neutral start switch is bypassed the engine may be started inadvertently with the transmission in gear.
  - b. Wear eye protection when charging the battery or starting the tractor engine with the slave battery.
  - c. Connect one end of the booster cable to the tractor battery positive (+) terminal and the other to the auxiliary battery positive (+) terminal.
  - d. Connect one end of the second booster cable to the auxiliary battery negative (-) terminal and the other end to the tractor engine block, following this procedure will prevent sparks occurring near the batteries. Follow the starting procedure previously described.

## **Stalk Shredder & Rotary Mower**

### **Read and understand operator's manual.**

1. Make sure that lock pins are installed into upper and lower link pins on hitch.
2. Add front-end weights as required to maintain enough weight on front wheels for safe steering.
3. Slow down in curves and in rough places to maintain safe steering weight on front wheels.
4. Never start or accelerate suddenly so that safe steering can be maintained.
5. Use caution when lifting implement while going up steep slopes.
6. These implements use a PTO driven driveline so:
  - a. Keep hands, feet, hair and clothing away from PTO shaft.
  - b. Disengage tractor PTO and set the brakes, turn engine off before dismounting. Always dismount from side -never over driveline.
  - c. Implement should not be operated unless tractor master shields, and all gear box input and output shields are in place.
  - d. Check proper placement of PTO shaft shield.
  - e. Driveline shields should turn freely by hand without PTO being engaged.
  - f. Ensure that u-joint yokes are locked properly onto tractor and implement shafts.
  - g. Look and listen for evidence of rotation.
7. Keep everyone clear when implement is being raised or lowered. Raise or lower slowly and cautiously.
8. Keep yourself and other persons clear of this machine while in operation since objects can be thrown out at a very high velocity.
9. Wear goggles or safety glasses, hearing, and dust protection while operating.
10. Check blades and blade bolts for wear and looseness daily.
11. Do not clean, lubricate, or make repairs or adjustments to this machine until PTO is disengaged, tractor is shut off, and blade carrier has stopped rotating.
12. Transport information: Before operating or moving on highways, clean off reflectors, make certain "Slow Moving Vehicle" sign is clearly visible, and install safety chain, if required. Also make sure mower is raised as high as possible.

## **Mechanical Transplanter**

### **Read and understand operator's manual**

1. Check and secure all bolts.
2. Check seats for stability.
3. Instruct transplanter operators to remain seated until tractor has stopped movement and operator has signaled approval for dismount.
4. Tractor operator must keep periodic visual and audio contact with transplanter operators.
5. Transplanter operators should only be seated on transplanter for transplanting operations and not for transportation.
6. Use caution at all times of moveable parts such as gears, chains and pocket disc assembly. Secure all guards.
7. Driver should signal transplanter crew of all changes in tractor operation involving ground speed, height adjustment, change in direction, etc.
8. No one should ride on transplanter without being in proper seat.
9. Periodic breaks are suggested due to the intensive pace of operation.

## **Dandi Mower**

1. Observe all safety rules for tractor operation.
2. Carefully hook up three-point hitch of tractor to mower. Do not allow anyone to stand between tractor and mower.
3. Hook up PTO and check that it is properly engaged. Make sure PTO guard is in place.
4. Grease all fittings.
5. When driving down road -watch right side carefully because it extends far to right.
6. When in area to be mowed carefully adjust mower to cut as low as possible without hitting dirt.
7. Keep everyone well away from machine when it is operating because of flying objects coming from under the machine.
8. Wear proper protective equipment - goggles/safety glasses and earplugs.

## **Almond Shaker**

### **Read and understand operator's manual.**

1. Keep all shields in place. Be sure the cover is on the shaker head drive chain before operating the machine. Fingers or loose clothing may be caught in chain if operated with cover off.
2. Make sure all on-lookers are far enough away from the machine to avoid being hit by material shaken from the tree.
3. Always turn the engine off before performing any maintenance or adjustments to this equipment; this will prevent accidentally turning on any component, which may cause bodily harm.
4. Always allow only the operator to ride on this machine as it is not designed to carry more than one person and there is danger of being thrown off.
5. Always start the engine from the operator's seat or you may not be able to control the machine.
6. Use caution when transporting on rough road or highway.
7. Always shut the engine off when refueling. Always extinguish all smoking material before filling the fuel tank, as fumes from the fuel will ignite easily.
8. Add coolant to the radiator only when the engine is shut off or idling slowly. Turn the radiator cap slowly and allow the pressure to escape before removing the cap. Be aware that the coolant can be very hot and can burn you.
9. Disconnect the battery before making electrical system repairs. Be careful of sparks near the battery as the battery fumes can ignite causing serious burns to operator or equipment.
10. Periodically check all nuts and bolts for tightness, especially the wheel lug nuts. These precautions can prevent injury to personnel and damage to equipment.
11. Periodically check the condition of the hydraulic hoses. Hydraulic oil can be very hot and under high pressure. If a hose should break, it could cause injury to the operator.
12. Always operate machinery so any portion of shaker is at least ten feet away from power lines. Operating close to power lines could allow boom to come in contact with lines resulting in serious electrical shock to operator.
13. Always lower the boom to the ground before leaving the machine. Also, when it is necessary to work under the boom, be sure the boom, and head is properly secured on a support such as the bed of a truck, saw horses, or forklift. A hydraulic hose could possibly break causing the boom to fall, resulting in serious injury to personnel under the boom.
14. Park the machinery where children cannot easily reach it.

15. Only inflate tires to maximum pressures. Tires could burst causing serious injury.
16. Drive slowly with the boom lowered when traveling uphill or downhill. Failure to do so could result in vehicle becoming improperly balanced resulting in serious injury.
17. Avoid sharp turns at high speeds. This could result in the machine turning over.

## **Almond Sweeper**

1. Check gas, water and oil. Plus, clean air filters twice a day.
2. Check tires for proper air pressure.
3. Check to see if everyone is clear of machine.
4. Start engine.
5. Carefully engage lever for forward or reverse movement.
6. Driver must always remember that the sweeper has no brakes. The machine stops by putting movement lever in neutral position.
7. Driver must wear goggles, dust mask and coveralls because of dust.
8. When driving in orchard, watch for low limbs.
9. Make your turns slowly.
10. When transporting sweeper raise sweeper bar, turn off sweeper bar, and turn off blower fan.

## **Almond Elevator**

1. Do not wear loose fitting clothing when working around elevator.
2. Carefully back almond trailer over belt on elevator. Do not allow anyone to stand behind trailer.
3. Check gas and oil in elevator engine.
4. Start engine only when everyone is clear of machine.
5. Check to see that elevator belt is clear.
6. Carefully engage elevator belt.
7. After elevator belt is moving -slowly dump almonds from almond trailer onto elevator belt.
8. After trailer and elevator belt is empty, turn off moving belt, then turn off engine.
9. Pull almond trailer off elevator.
10. Clear all branches and other debris from feed unit.

## **Almond Trailer**

1. Carefully back tractor and hook up trailer tongue to tractor drawbar. Insert draw bar pin and click pin.
2. Do not allow anyone between tractor and trailer with tractor in gear and running.
3. When raking almonds on trailer - stop trailer first and then rake almonds.
4. Be careful when getting on and off trailer. Vehicle must be stopped.
5. Remain seated inside of trailer when it is moving.

## International 386 Planting Unit

### Read and understand operator's manual.

1. Transporting
  - a. Never ride or permit others to ride on equipment unless there is a seat or area designed to carry people safely.
  - b. When transporting the planter on a smooth surface road, do not exceed maximum tractor speed. Reduce speed considerably when traveling over rough ground.
  - c. When transporting the planter on a road or highway at night or during the day, use accessory lights and devices for adequate warning to operators of other vehicles. In this regard, check local governmental regulations.
2. Planter Operation
  - a. Always lower the planter to the ground when not in use. Wherever possible, perform service work and adjustments with the planter on the ground.
  - b. Make certain to lower park stands before detaching from tractor.
  - c. Permit only one person, the operator, on the tractor platform while tractor and planter are in operation.
  - d. Be careful when operating on hillsides because the tractor may tip sideways if it strikes a hole, ditch, or other irregularity.
3. Do not wear loose fitting clothing, which may catch, in moving parts.
4. For noise protection-wear a suitable hearing protective device such as earmuffs or earplugs to protect against hearing loss due to loud noise.
5. Lubrication-do not grease, oil, adjust or attempt to remove any obstruction from planter while it is in motion.
6. Additional front-end ballast (brief case weights) may be required for stability.
7. If using hydraulic markers:
  - a. Caution: to avoid injury from escaping hydraulic oil under pressure, relieve the pressure in the system by shutting off tractor and moving remote cylinder operating levers in both directions before attaching hoses to or detaching hoses from the breakaway couplers.
  - b. Install marker hoses into tractor breakaway couplers.
  - c. Checking hydraulic system -Caution: escaping hydraulic oil under pressure can have sufficient force to penetrate the skin, causing serious personal injury.
  - d. Hydraulic oil escaping from a very small hole can be ~ almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.
  - e. If injured by escaping hydraulic oil, report accident to your supervisor immediately and see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.
  - f. After applying pressure to the system, check all hydraulic connections and hoses for leaks.

- g. The hydraulic markers should raise and lower and fold smoothly. If not, it may be necessary to bleed the hydraulic system of trapped air.
  - h. To bleed air from the hydraulic cylinders and hoses it may be necessary to raise and lower or fold the hydraulic markers several times until all air is removed.
  - i. **IMPORTANT:** Be certain to check tractor hydraulic oil level after filling cylinders with oil for the first time.
8. If using John Deere gauge wheels do not extend turnbuckle beyond 5-1/2 inches (140mm) of thread showing on either end. Always make sure there are adequate threads on any blind connection.
9. If using fertilizer hopper drive raise planter completely to relieve spring pressure before adjusting drive wheel spring pressure.
10. If using granular herbicide attachment use caution! Agricultural chemicals can be dangerous. Handle and apply with care following instructions of the chemical manufacturer.
11. If cleaning fertilizer attachment do not use a torch to free frozen augers! Certain types of fertilizers may explode when heated.
12. Always use the proper tools or equipment for the job at hand. After servicing, be sure all tools and extra parts are removed from machine.

## **Sidedresser**

### **Read and understand operator's manual.**

1. Check and secure all bolts.
2. Keep hands clear of chain and gears; secure all shields and guards
3. Follow chemical manufacturer's instructions per substance being applied.
4. Be aware of tool bar width and allow for during turns.
5. When connecting or disconnecting be cautious of equipment stand stability due to the top-heavy weight distribution.
6. Use reasonable road speeds for conditions.

## **Spray Rig --- Ground Sprayer**

1. Observe all safety rules for tractor operation.
2. Grease fittings.
3. Back up tractor to spray rigs and carefully hook up to three-point hitch. Do not allow anyone to stand between tractor and sprayer.
4. Connect PTO shaft and check that it is properly engaged with cover in place.
5. Raise tank from ground before driving forward. Damage to equipment will result if not raised.
6. Avoid overfilling to eliminate spills.
7. Wear proper spray clothing before mixing or applying spray material.
8. Triple-rinse any empty containers into spray tank.
9. Close lid and fasten properly after filling to eliminate spills.
10. When using handgun for spraying -be sure it is not leaking.
11. When using booms do not allow you or others to be exposed to spray when making adjustments.
12. When finished spraying -clean spray rig.

## **Corn Head for John Deere Combine**

### **Read and understand operator's manual.**

1. Only the operator should be allowed on the operator's platform when the combine is in operation.
2. Never clean, lubricate, or adjust the corn head or combine while either is running or in motion. Keep hands and clothing away from all moving parts.
3. Clothing worn by operator should be fairly tight and belted. Loose jackets, shirts, or sleeves should never be worn because of the danger of getting into moving parts.
4. Make certain everyone is clear of the combine before starting the combine engine so no one can be struck by moving parts.
5. Be sure shields and guards are in place and in good condition before starting in field. Never run with shields removed or tipped up.
6. Escaping hydraulic fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

If injured by escaping hydraulic fluid, notify supervisor immediately and see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

7. Never use a cornstalk or stick to clean the stalk rolls of an obstruction while the corn head is running. If, for any reason, the corn head should become clogged, stop the combine engine and remove the obstruction from the corn head.
8. When transporting the corn head and combine on a road or highway at night or during the day, use accessory lights and devices for adequate warning to operators of other vehicles. In this regard, check local governmental regulations.
9. Red reflective tape is attached to the rear of the outer gatherer sheets. Amber reflective tape is attached to the front of the left-hand mainframe tube. When transporting the combine and corn head on a road or highway, make sure reflective tapes are clean and in place.
10. Provide a first aid kit for use in case of accident. Use proper antiseptics on scratches and cuts without delay, to prevent the possibility of infection.
11. When the corn head is raised, never crawl under the corn head to make adjustments, etc. until you have lowered the combine hydraulic cylinder safety stop. The cylinder safety stop prevents the corn head from lowering. To lower safety stop, first extend hydraulic cylinders.

Disconnect support chain from safety stop and position safety stop on piston rod. After completing the work on the corn head, attach safety stop to support chain for storage.

12. Avoid rocks and other obstructions in the row when running gatherers close to the ground.
13. Keep an appropriate fire extinguisher nearby when operating combine.

## **Cotton Picker -John Deere 9910**

### **Read and understand operator's manual.**

1. Do not operate picker with more than one person on platform.
2. Do not start engine with gears or levers engaged.
3. Come to a complete stop before reversing direction.
4. Do not operate close to a ditch or creek. The picker has a high center of gravity and will tip over.
5. Slow down when turning or driving over rough ground.
6. Do not dump on a slope or grade, or when someone is near picker.
7. Do not drive picker with the basket raised.
8. Wear hearing protective devices to protect against exposure to loud noise.
9. Keep an appropriate fire extinguisher nearby when operating picker.
10. Do not dump basket near electrical wires.
11. Do not dump into wind. Wind could blow lint onto hot engine.
12. Do not refuel with the engine running.
13. Do not smoke when refueling.
14. Transport safely:
  - a. DO NOT transport without first raising the picking units.
  - b. When driving the cotton picker on a road or highway at ~ night or during the day, use necessary lights and devices for adequate warning to operators of other vehicles.
  - c. DO NOT fail to latch the brake pedals together before moving.
  - d. Stop slowly to avoid "nose-diving".
  - e. Keep the SMV emblem and reflectors clean and in place.
15. Avoid contact with moving parts:
  - a. Shut off engine and remove key before making any adjustment or unplugging picker.
  - b. Keep hands, feet, and clothing away from moving parts.
16. Practice Safe Maintenance:
  - a. DO NOT oil or adjust picker when it is in motion.
  - b. Block units when working under them.
  - c. DO NOT check the water level in a hot radiator.
  - d. Shut off engine and remove key when working on picker unless specifically told to leave engine running.

- e. Replace any guards and shields removed for servicing.
  - f. When mounting a tire on a wheel or rim, failure to follow proper procedure can produce an explosion, which can result in serious injury or death. Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.
  - g. Escaping hydraulic fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipe and hoses are not damaged.
  - h. Hydraulic fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.
  - i. If injured by escaping hydraulic fluid, report the accident to your supervisor immediately and see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.
17. Before starting engine, be sure there is plenty of ventilation and that no one is standing on or near picker.
18. Using starting aids -starting fluid is highly flammable. Do not use near fire, sparks, or flame. Read and follow directions on container.
19. Filling water tank -do not use a flammable petroleum-moistening agent because it increases fire hazard.
20. Battery -gas given off by batteries is explosive. Avoid sparks near battery.
21. Adjust headlights so they are not objectionable to on-coming traffic.
22. When cleaning air cleaner element beware of sharp edges inside of housing.
23. Tires -when putting air in tires, never exceed 35 psi. Rim may explode.
24. If washing engine, do not use gasoline or any flammable solvent.

## **Posthole Digger**

### **Read and understand operator's manual.**

1. To prevent possible personal injury during assembly, installation, operation, adjustment, or removal of the implement, it is recommended that gloves and safety glasses or face shields be worn.
2. Do not operate equipment unless guards and safety shields are in place.
3. Do not wear loose clothing or have long hair worn in a down position while operating or working around the digger.
4. Do not attempt to work around the digger with PTO shaft revolving.
5. Shut off tractor engine, set brakes and lower implement to ground before leaving tractor seat.
6. At no time will the auger be operated without tractor operator on tractor and in position to disengage PTO immediately.
7. Keep all spectators clear of auger when it is in operation.
8. Do not oil or attempt to make any adjustments while implement is in operation.
9. Do not exceed 540 rpm while operating this PTO powered implement.
10. Do not attempt to operate implement on steep hillsides.
11. Reduce speed while transporting over rough ground.
12. Keep all bolts and nuts tight. Replace any damaged or worn parts immediately.
13. When the use of hand tools is required to perform any part of assembly, installation, removal or adjustment of the implement, be sure the tools used are designed and recommended by the tool manufacturer for the specific task they will be used for.

## **Grain Drill**

### **Read and understand operator's manual.**

1. Follow seed manufacturer's directions regarding treated seed.
2. Keep clear of moving parts during operation.
3. Do not attempt to adjust or unclog parts while equipment is in motion.
4. Do not ride on grain drill during operation.
5. Be aware of machine width when in motion.
6. Use reasonable road speeds for conditions.
7. Secure all pins and safety clips.
8. Make sure all guards are in place prior to use.

## **Front End Loader**

### **Read and understand operator's manual.**

1. Always use seat belts when the tractor is equipped with a ROPS. Never use the seat belt when the tractor is not equipped with a ROPS.
2. Do not lift or carry anybody on the loader or in the bucket or attachment.
3. Never allow anyone to get under the loader bucket or reach through the lift arms when the bucket is raised.
4. Do not walk or work under the raised loader or bucket or attachment unless it is securely blocked or held in position.
5. Improper use of a loader can cause serious injury or death.
6. Operate the loader from the "Operator's Seat Only".
7. Add recommended wheel ballast or rear weight to provide good stability.
8. Move the wheels to the tractor manufacturer's widest recommended settings to increase stability.
9. Move and turn the tractor at low speeds.
10. Carry loader arms at a low position during transport.
11. Exercise caution when operating the loader with a raised loaded bucket or fork.
12. Avoid loose fill, rocks and holes. They can be dangerous for loader operation or movement.
13. Be extra careful when working on inclines.
14. Avoid overhead wires and obstacles when loader is raised. Contacting electric lines can cause electrocution.
15. Allow for the loader length when making turns.
16. Stop the loader arms gradually when lowering or lifting.
17. Use caution when handling loose or shiftable loads.
18. Lower all loader hydraulic arms, stop engine and lock brakes before leaving the tractor seat.
19. Make sure all parked loaders on stands are on a hard, level surface. Engage all safety devices.
20. Operate the loader controls only when properly seated at the controls.

21. Visually check for hydraulic leaks and broken, missing, or malfunctioning parts. Make necessary repairs. Inform your repair facility.
22. Escaping hydraulic oil under pressure can have sufficient force to penetrate the skin, causing serious personal injury. If injured by escaping fluid, notify your supervisor and obtain medical treatment immediately.
23. Before disconnecting hydraulic lines, relieve all hydraulic pressure.
24. Do not tamper with the relief valve setting. The relief valve is pre-set at the factory. Changing the setting can cause overloading the loader and tractor and serious operator injury may result.
25. Using front-end loaders for handling large heavy objects, such as large round or rectangular bales, logs and oil drums is not recommended.
26. Handling large heavy objects can be extremely dangerous due to:
  - a. Danger of rolling the tractor over.
  - b. Danger of upending the tractor.
  - c. Danger of the object rolling or sliding down the loader arms onto the operator.
27. If you must perform this sort of work (item #27), protect yourself by:
  - a. Never lifting the load higher than necessary to clear the ground when moving.
  - b. Ballast the tractor rear to compensate for the load.
  - c. Never lifting large object with equipment that does not have an anti-roll device.
  - d. Move slowly and carefully, avoiding rough terrain.
28. Always wear safety goggles when servicing or repairing the machine.
29. When servicing or replacing pins in cylinder ends, buckets, etc. always use a brass drift and hammer. Failure to do so could result in injury from flying metal fragments.

## **Servo -Brush Shredder**

1. Observe all safety rules for tractor operation.
2. Carefully back tractor to shredder tongue. Insert drawbar pin and then put in click pin. Do not allow anyone to stand between tractor and shredder.
3. Clean hydraulic hose couplings and couplings on tractor and shredder.
4. Insert couplings and check that they are secure and operating.
5. Lift shredder to help with hooking up PTO.
6. Grease fittings and check oil in gearbox.
7. Check that PTO guard is secure.
8. Raise shredder and check that all cutting blades are o.k.
9. When beginning shredding operation -slowly and carefully engages PTO and after reaching PTO speed, gradually lower shredder to begin shredding brush or cutting grass.
10. Keep all persons well away from shredder because of flying objects thrown from shredder.
11. If any noticeable vibrations are felt, shut down and inspect.
12. If inspection of shredder is required, stop tractor engine; put key in pocket, and block machine prior to inspection under or above machine.

## **Brush Pusher**

1. Observe all safety rules for tractor operation.
2. Check diesel, water and oil in tractor.
3. Carefully back up tractor and hook up three point connections.
4. Tighten sway chains to keep brush pusher straight.
5. Watch for possible brush limbs coming around or through the brush pusher.
6. If ground conditions are dusty -wear dust mask, goggles and maybe coveralls.
7. Watch for other workers and especially other vehicles as you come out of orchard.

## **Wire Stretchers**

1. Inspect chain and jaws prior to operation.
2. Wear gloves and safety glasses.
3. Never use a "cheater" bar to increase tension.
4. Exercise caution when operating wire stretchers. Be aware that wire could break at any time and recoil.

## **Pruning Shears**

1. Check mechanical condition of shears.
2. Be very careful when sharpening the shears so you won't cut yourself.
3. Never hang pruning shears on ladder while moving ladder.
4. Never hang pruning shears on tree or vine while moving ladder or moving under tree or vine.
5. Always handle pruning shears carefully, especially when her people are near you.

## **Pneumatic Pruning Shears & Saws**

1. Observe all safety rules for tractor operation.
2. Check diesel, water and oil in tractor.
3. Carefully back tractor to air compressor and hook up three-point hitch and PTO.
4. Grease fittings on PTO shaft.
5. Check the PTO cover and all other safety guards.
6. Check oil level in automatic oiler.
7. When in orchard securely hook up air hoses, check ends of hoses to be sure they are clean.
8. Carefully hook up pneumatic pruning shears or saw.
9. Slowly engage PTO to build up pressure to 120 psi.
10. Keep shears or saw well away from any people.
11. Keep shears or saw out of dirt.
12. When finished with pruning -turn off PTO, slowly release air pressure, disconnect pneumatic tools and keep tools out of dirt.
13. Carefully roll up air hoses and put in compartment.

## **Gasoline & Electric Cut Off Saws**

### **Read and understand operator's manual.**

1. Filling Tank:
  - a. Gasoline is extremely flammable. Use extreme caution when handling gasoline or oil/gasoline fuel mixture. Do not smoke or allow any source of heat or sparks near gasoline or fuel.
  - b. Fill tank outdoors in a well-ventilated area on a bare surface at least 10 feet (3m) away from the cutting area.
  - c. Wipe up any spilled fuel and check for leakage.
  - d. Do not run saw with fuel leaks.
2. Check Area:
  - a. Place saw in an open area, cleared of all objects, on a firm; level surface at least 10 feet (3m) away from where it was fueled.
  - b. Your cut-off saw is strictly a one-person saw. Make sure no one else is near the saw but make sure there is someone in the area in case of accident.
3. Check Guard:
  - a. Check that blade guard is set so that rear section will be close to the work piece and will direct particles away from operator.
  - b. Never use saw without guard and always make sure guard is undamaged, unmodified and is adjusted for the work piece.
4. Starting:
  - a. Start when saw is clear of all objects and is on a firm level surface.
  - b. Never drop start; you may lose control of saw.
  - c. Never start saw with wheel in cut. This could cause kickback and serious injury.
  - d. On cold starts, wheel will turn as soon as engine is started.
  - e. Hold saw so that wheel does not touch anything including the ground.
  - f. Always cut at wide-open throttle.
  - g. Start cut gently, do not bump or jam wheel.
  - h. Use high wheel speed.
  - i. Move wheel slowly back and forth.
  - j. Use small portion of wheel's cutting edge.
  - k. Use only the cutting edge of the wheel for cutting.
  - l. Absolutely never cut with the side of the wheel; it almost certainly will be damaged, break, and is likely to cause severe injury.
  - m. Cut with blade straight up and down-at right angle to work piece.
  - n. Do not bend saw to one side or wheel may bind or break causing human injury or damage.
5. Water-Cooling:
  - a. Water-cooling, used only on gasoline saws and when cutting masonry type material, helps cool and lengthen the life of the wheel and to hold down the dust.

- b. After wet cutting, run an abrasive wheel at operating speed for 30 seconds after water sprinkling has ceased to allow all water to be thrown off.
6. Always use safety footwear; snug fitting clothing, safety goggles, hearing, and head dust protection devices while using a cutting-off machine.
7. Always hold the machine with both hands when the engine is running. Use a firm grip with thumbs and fingers encircling the handles.
8. Keep all parts of your body away from the cutting-off wheel when the engine is running.
9. Always carry the machine with the engine stopped and the muffler away from your body.
10. Keep the handles dry, clean and free of oil or fuel.
11. Operate the machine only in well-ventilated areas.
12. Don't transport or store a cutting-off machine with the wheel mounted on the machine
13. Do not operate a cutting-off machine that is damaged, improperly adjusted, or not completely and securely assembled.
14. Do not operate any machine when you are tired or fatigued.
15. Do not use a wheel that has been dropped.

## **Airless Paint Sprayer (Campbell & Hausfeld Model #22033)**

### **Read and understand operator's manual.**

1. Never point gun at anyone or any part of your body. High-pressure spray can cause injury by penetrating the skin. If penetration occurs, immediate medical aid must be obtained notify your supervisor.
2. This unit is capable of producing 2,500 psi. All components in this system are rated equal to or above this pressure. Do not substitute parts having working pressure less than 2,500 psi.
3. Make sure the object being sprayed is grounded to prevent static spark. If an extension cord is used, it must be of the 115 volt three wire grounded type.
4. Before servicing, cleaning or removing any parts turn motor switch to off position, relieve pressure and pull gun trigger.
5. Always keep trigger lock in locked position when gun is not in use.
6. During cleaning unit and spray gun with solvent, ground gun to solvent container to prevent static spark.
7. When spraying a flammable paint, keep area well ventilated.
8. Always wear eye protection while working with airless sprayer.
9. Never leave gun unattended without releasing pressure and engaging trigger lock.
10. Use care when moving the airless sprayer. The hot motor, if touched, will cause burns.

## **Edger**

### **Read and understand operator's manual.**

1. Owner's manual is on file with technician.
2. Do not remove safety equipment/shields from unit.
3. Wear shoes (not sandals) and required goggles, earplugs, etc.
4. Keep hands and feet away from moving parts.
5. Do not make operating adjustments while machine is running.
6. Do not operate equipment in an unsafe manner.
7. Do not operate equipment when there is a danger to bystanders.
8. Check oil/fuel levels before operating.
9. Check belts for excessive wear (contact technician).
10. Clean dirt, grass, etc. from machine before garaging.
11. Technician will make height adjustments if necessary.
12. Report any broken or unsafe equipment to technician.
13. Do not operate equipment deemed unsafe.

## **Power Mower (Ride)**

### **Read and understand operator's manual.**

1. Owner's manual is on file with technician.
2. Do not remove safety equipment/shields from unit.
3. Wear shoes (not sandals) and required goggles, earplugs, etc.
4. Keep hands and feet away from moving parts.
5. Do not make operating adjustments while machine is running.
6. Do not operate equipment in an unsafe manner.
7. Do not operate equipment when there is a danger to bystanders.
8. Check oil/fuel levels before operating.
9. Check belts for excessive wear (contact technician).
10. Clean dirt, grass, etc. from machine before garaging.
11. Technician will make height adjustments if necessary.
12. Report any broken or unsafe equipment to technician.
13. Do not operate equipment deemed unsafe.
14. Remain seated during operation of machine.

## **Power Mower (Walk)**

### **Read and understand operator's manual.**

1. Owner's manual is on file with technician.
2. Do not remove safety equipment/shields from unit.
3. Wear shoes (not sandals) and required goggles, earplugs, etc.
4. Keep hands and feet away from moving parts.
5. Do not make operating adjustments while machine is running.
6. Do not operate equipment in an unsafe manner.
7. Do not operate equipment when there is a danger to bystanders.
8. Check oil/fuel levels before operating.
9. Check belts for excessive wear (contact technician).
10. Clean dirt, grass, etc. from machine before garaging.
11. Technician will make height adjustments if necessary.
12. Report any broken or unsafe equipment to technician.
13. Do not operate equipment deemed unsafe.

## **Rototiller**

### **Read and understand operator's manual.**

1. Owner's manual is on file with technician.
2. Do not remove safety equipment/shields from unit.
3. Wear shoes (not sandals) and required goggles, earplugs, etc.
4. Keep hands and feet away from moving parts.
5. Do not make operating adjustments while machine is running.
6. Do not operate equipment in an unsafe manner.
7. Do not operate equipment when there is a danger to bystanders.
8. Check oil/fuel levels before operating.
9. Check belts for excessive wear (contact technician).
10. Clean dirt, grass, etc. from machine before garaging.
11. Technician will make height adjustments if necessary.
12. Report any broken or unsafe equipment to technician.
13. Do not operate equipment deemed unsafe.

## **Hayliner Baler Model 505**

### **Read and understand operator's manual.**

1. Do not make any adjustments, clean or lubricate while baler is running.
2. Do not engage the clutch until you are certain that everyone is clear of the machine and have made sure no tools are lying on the machine.
3. Do not work around the baler in loose clothing that might catch in any of the moving parts.
4. Do not attempt to pull hay from any part of the baler while engine is running.
5. Do not fill the fuel tank while the engine is running.
6. Do not operate baler without any of the shields that are standard.
7. Do not ride on baler at any time.
8. Do not attempt to unplug baler while it is running.

## **Balewagon -- Stackcruiser 1075**

### **Read and understand operator's manual.**

1. Do not clean, lubricate or make any adjustments on the bale wagon while it is in motion.
2. Make sure to use the second table prop when servicing or making adjustments beneath the table.
3. Do not make any adjustments or reach under any of the tables while they are loaded even though the hydraulic system is disengaged.
4. Do not exceed 30 mph when wagon is loaded.
5. Do not leave operation platform while the bale wagon is in operation.
6. Extreme caution should be used when operating the machine on uneven soil surfaces.

## **Fork Lift -- Lift Truck**

(Requires Employee Certification For Operation)

### **Read and understand operator's manual.**

1. Before you use equipment, give your lift truck a thorough operational check. Check the oil, coolant and battery levels. Give the truck a general inspection, looking for cracked hoses or fittings.
2. Report faulty performance or damage immediately.
3. Make sure you know the load capacity of your truck and don't exceed it.
4. Always lift with the load placed squarely on the forks, with the mast vertical or tilted slightly back.
5. Tilt the elevated load forward only when directly over the unloading point, and always travel with the load as low as possible.
6. When traveling with a load, carry load as close to the floor as possible with mast tilted slightly back.
7. Never lift or lower loads while traveling.
8. Slow down at cross aisles, sharp curves, ramps, dips, and blind corners or on wet, slippery or rough surfaces.
9. Check your loads. Do not move a questionable or unsafe load. If a load looks poorly balanced, loose or too heavy check it out.
10. Always position your loads evenly on the forks for proper balance.
11. Ramps require another special technique. Always drive in reverse when you are carrying a load down a ramp or incline and look in the direction of travel.
12. Always keep the load well back against the backrest and the, mast tilted backward.
13. When lifting, lowering or carrying loads keep the mast vertical or tilted back...never forward.
14. Start and stop your lift truck gradually to protect against load damage and shifting.
15. Observe speed limits and keep lift truck travel speeds slow when encountering uneven or rough surfaces.
16. Keep a safe distance between your lift truck and other lift trucks, industrial vehicles, or pedestrians working in the area.
17. Don't use your lift truck to haul riders or a load for which it was not intended.

18. Keep arms, legs and other parts of the body within the lift truck and overhead guard area.
19. When parking lift truck make sure forks are completely lowered and tilted forward slightly to keep ends against floor.
20. Park the truck in neutral, shut off the engine, set parking brake and remove ignition key.
21. Protect against accidents and damage by making sure that the load weight does not exceed floor limits, and that raised mast or overhead guard clear all overhead obstacles, water and steam pipes, eaves of building, etc.
22. Make sure your counterweight swings clear of merchandise, racks and equipment, and pedestrians when rounding corners, or maneuvering.
23. Don't allow fork tips to strike any object, and when working in areas with blind corners or aisle ways, travel in reverse if necessary.
24. Always watch for loose or poorly stacked loads, overhead obstacles and hazards, and falling objects.
25. Where applicable, wear a hard hat.
26. Pay special attention to load swing when; turning, or load shifts which may upset your truck's balance.
27. Careless operation around a loading dock can mean serious injury, or damage to your equipment and merchandise.
28. Elevated loads are supported by powerful hydraulics, but play it safe. Do not walk or stand under elevated forks, or load.
29. Lift truck refueling or battery changes should take place only in a safe, designated area. Remember: one careless spark or cigarette can mean death and disaster.
30. Always apply the rules of common sense, courtesy and safety when operating lift trucks or working in lift truck area.

## Chain Saw

### Read and understand operator's manual.

1. Personal Safety:
  - a. Use safety footwear, snug-fitting clothing and eye, hearing and head protection.
  - b. Wear non-slip gloves to improve your grip. Do not wear scarves, jewelry, or neckties which could be drawn into the engine or catch on the chain or underbrush.
  - c. Always hold the chain saw with both hands when the engine is running. Use a firm grip with thumbs and fingers encircling the chain saw handle.
2. Guard Against Kickback:
  - a. Hold the chain saw firmly with both hands. Don't overreach. You cannot maintain good control of the saw ~ if you cut above shoulder height.
  - b. Don't let the nose of the guide bar contact a log, branch, the ground or any other obstruction. Keep the anti- kickback device properly mounted on the guide bar.
  - c. Throttles up before letting the chain contact the wood. Do all cutting at full throttle-
  - d. Keep the chain sharp. Don't operate with a loose chain. Maintain the correct tension of the chain as prescribed in the owner's manual.
3. Guard against the effects of a long or continuous exposure to noise; such as involved in the operation of a chain saw.
4. Never operate a chain saw when you are fatigued.
5. Keep all parts of your body away from the saw chain when the engine is running.
6. Precautions With Chain Saws:
  - a. Always carry the chain saw with the engine stopped the guide bar and saw chain to the rear, and the muffler away from your body. When transporting your chain saw, use the appropriate guide bar scabbard.
  - b. Always use caution when handling fuel. Move the chain saw at least 10 feet (3m) from the fueling point before starting the engine.
  - c. Keep the handles dry, clean and free of oil or fuel mixture.
  - d. Before you start the engine, make sure the saw chain is not contacting anything.
  - e. Shut off the engine before setting down the saw. Do not leave the engine running unattended.
  - f. Operate the chain saw only in well-ventilated areas.
  - g. Never operate chain saw that is damaged, improperly adjusted, or is not completely and securely assembled. Be sure that the saw chain stops moving when the throttle control trigger is released.
7. Precautions About Maintenance: competent chain saw service personnel should perform all chain saw service. If improper tools are used to remove the flywheel or clutch, or if an improper tool is used to hold the flywheel in order to remove the clutch, structural damage to the flywheel could occur which could subsequently cause the flywheel to burst.

8. Precautions In Cutting/Work Area:
  - a. Do not operate a chain saw in a tree unless you have been specifically trained to do so.
  - b. Keep bystanders and animals out of the work area.
  - c. Never start cutting until you have a clear work area, ~ secure footing, and a planned retreat path from the falling tree.
  - d. Use extreme caution when cutting small size brush and saplings, because slender material may catch the saw chain and be whipped toward you or pull you off balance.
  - e. When cutting a limb that is under tension, be alert for spring back so that you will not be struck when the tension in the wood fibers is released.

## **General Power Tools**

### **Read and understand operator's manual.**

1. Learn the power tool's applications and limitations as well as the specific potential hazards peculiar to the tool you are using.
2. Ground all tools unless double insulated. If the tool is equipped with a three-prong plug, it should be plugged into a three hole electrical receptacle. If an adapter is used to accommodate a two-hole receptacle, the grounding ear must be attached to a known ground. Never remove the third prong.
3. Keep guards in place and in working order.
4. Keep work areas clean. Cluttered areas and benches invite accidents.
5. Avoid dangerous environments. Don't expose power tools to rain or use in damp or wet locations. Do not use tool in presence of flammable liquids or gases. Keep the work area well it.
6. Keep children away. All visitors should be kept a safe distance from the work area. Do not let visitor's contact tool or extension cords.
7. Store idle tools. When not in use, tools should be stored in a dry, high or lock -up place -out of reach of children.
8. Don't force tool. It will do the job better and safer at the rate for which it was designed.
9. Use right tool. Don't force a small tool or attachment to do the job of a heavy-duty tool. Don't use tool for a purpose it was not designed for, such as using a circular saw for cutting tree limbs or logs.
10. Wear proper apparel. No loose clothing or jewelry to get caught in moving parts. Rubber gloves and insulated non-skid footwear is recommended when working outdoors. Wear f protective covering to contain long hair.
11. Use safety glasses at all times. Also, use a face or dust mask if cutting operation is dusty.
12. Don't abuse cord. Never carry the tool by its cord or yank it to disconnect from the receptacle. Keep cord from heat, oil and sharp edges.
13. Secure work. Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
14. Don't overreach. Keep proper footing and balance at all times.
15. Disconnect tools- when not in use; before servicing; when changing accessories such as blades, bits, cutters, etc.

16. Guard against electric shock. Prevent body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerator enclosures.
17. Remove adjusting keys and wrenches. Form a habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
18. Maintain tools with care. Keep tools sharp and clean at all times for best and safest performance. Follow instructions for lubricating and changing accessories. Keep handles dry clean and free of oil or gas. Inspect switches, tool cords and extension cords periodically and have them repaired or replaced by an authorized service facility if damaged. Check moving parts for alignment and binding as well as for breakage and improper mounting.
19. Avoid accidental starting. Don't carry a plugged-in tool with your finger on the switch. Be sure the switch is turned off before plugging in a tool. Do not use a tool if the switch does not turn it on or off.
20. Wear ear protectors when using for extended periods.
21. Accessories -the use of any accessories other than what is listed or recommended for this particular tool may be hazardous.
22. Keep hands away from all moving parts, blades, bits, etc.
23. Use insulated surfaces. A double-insulated or grounded tool may be made live if the blade or bit comes in contact with live wiring in a wall, floor, ceiling, etc. Always check the work area for live wires and hold the tool by the insulated surfaces when "blind " sawing.
24. Stay alert. Watch what you are doing and use common sense. Do not operate tool when you are tired.
25. Grounding Instructions
  - a. Double Insulated- Tools with Two Prong Plugs.
  - b. Tools marked with the words "Double Insulated" are equipped with a two-prong plug.
  - c. Grounded- Tools with Three Prong Plugs.
26. These tools must be grounded while in use to protect the user from electric shock. The tool is equipped with an approved, three-conductor cord and three-prong grounding type plug to fit the proper grounding-type receptacle. The green conductor in the cord is the grounding wire. Never connect a green wire to a live terminal.

## Pipe and Bolt Threading Machine

### Read and understand operator's manual.

1. Warning: Clothing/gloves can be caught in moving parts; fingers, hands, arms or other body parts can be crushed or broken.
  - a. Use footswitch.
  - b. Do not wear gloves.
  - c. Keep sleeves and jacket buttoned.
  - d. Do not reach across machine because clothing can be drawn into moving parts.
  - e. Operate machine from switch side only.
  - f. Do not disconnect or block footswitch.
  - g. Keep footswitch in working order.
  - h. Make sure switch is in the "off" position before plugging in power cord.
  - i. Make sure you can quickly remove your foot from the footswitch.
2. Personal Safety:
  - a. Wear snug fitting clothes, safety shoes, hardhat and safety glasses. Cover up or tie up long hair. Do not wear loose clothing, gloves, unbuttoned jackets, loose sleeve cuffs, neckties, rings, watches or other jewelry.
  - b. Wear hearing protectors, earplugs or muffs if you use the machine daily or in a very noisy area.
  - c. Operate machine from the side with the REV /OFF/FOR (\ switch.
  - d. Keep good footing and balance. Do not overreach.
  - e. Do not operate machine when you are tired.
3. Electrical Safety:
  - a. Ground machine. Use approved three-conductor cord and three-prong grounding type plug in a grounded receptacle. The green (or green and yellow) conductor in the cord is the grounding wire. Do not connect the green (or green and yellow) wire to a live terminal. If your unit is for use on less than 150 volts, it has a 120V plug. If it is for use on 150 to 250 volts, it has a 230V plug.
  - b. Connect machine to an AC power supply that matches the nameplate specifications. Do not use D.C. power.
  - c. Use only three-wire extension cords, which have three-prong grounding plugs and three-pole receptacles, which accept the machines, plug. Replace or repair damaged, frayed, broken or worn cords.
  - d. When using an extension cord, be certain that the conductor size is large enough to prevent excessive voltage drop which will cause loss of power.
  - e. When using an extension cord outdoors, use cords marked with the suffix "W -A II following the cord type designation. For example, SJTW -A indicates that the cord is acceptable for outdoor use.
  - f. Do not use machine in damp or wet locations. Do not expose to rain.
  - g. Unplug power cord when adjusting, servicing or changing accessories.
4. Work Area Safety:

- a. Keep children and visitors out of work area. If visitors must be in an area keep them far away from the machine and extension cord.
  - b. Keep work areas clean, uncluttered and well lighted.
  - c. Keep floors dry and free of slippery materials.
  - d. Clear machine and bench of all objects such as wrenches or tools before turning machine on.
5. Machine Safety:
- a. The machine is made to thread and cut pipe or bolts. Other uses may increase risk of injury.
  - b. Secure machine to bench or stand to keep it from tipping over.
  - c. Tighten chuck hand wheel and engage rear-centering device on the work before turning on machine.
  - d. Support long, heavy work from the floor with a pipe support to prevent tipping of machine.
  - e. Use recommended accessories. Use of other accessories may increase the risk of injury.
  - f. Check for broken or damaged parts before using machine. Repair or replace damaged guards or other machine parts by an authorized service center to insure proper operation of the machine.
  - g. Do not use machine if switches are broken.
  - h. Keep covers in place. Do not operate machine with covers removed.
6. Machine Maintenance:
- a. Use sharp cutting tools.
  - b. Follow instructions for lubricating and changing accessories.
  - c. Inspect machine cord. Replace damaged, frayed, broken or worn machine cord.
  - d. Inspect extension cords. Repair or replace damaged, ~ frayed, broken or worn cords.
  - e. Keep handles dry and clean. Keep free from oil and grease.
  - f. When not being used, store machine in a secured, locked area, out of reach of children and people unfamiliar with the threading machine.
  - g. Lock footswitch when not in use to avoid accidental starting.

### **Grinders & Wire Wheels (Bench Type)**

1. Always use proper safety glasses, shields, and gloves.
2. Check condition of grinder disc or wire wheel.
3. Check to see that safety shields are properly in place.
4. When grinding, keep your hands clear from wheels.
5. Watch for hot materials after grinding.
6. Take your time, don't rush.

### **Floor Jacks (Hydraulic)**

1. Make sure that jack makes secure contact with the frame of equipment.
2. Be sure contact point is strong enough to not be damaged or unstable.
3. Always use jack stands to support equipment while performing repairs.
4. Put all equipment back in proper location.
5. Be sure to clean area of oil, grease and dirt.

## **Battery Charging**

1. Check instructions for proper settings and clamp positioning.
2. Caution -overcharging may damage battery. Also, be aware that heavy arcing at battery terminals can cause battery to explode.
3. After charging battery, turn charger off, remove cables one at a time, wipe-off batteries.
4. Put all equipment back in proper location.

## **Proper Jump Starting with Cables**

1. Must know the proper signs for positive (+) and negative (-) posts on batteries.
2. Connect to both terminals on jumper battery vehicle first.
3. Make sure that clamps are in the proper order. Positive (+) of one battery to positive (+) of the other battery. Clamp color, for example: red-to-red and black-to-black.
4. Connect one clamp to the non-ground terminal of the battery that is low. Then contact other clamp to ground, away from battery, and watch for excessive arcing.
5. Place clamp on ground terminal, keeping face away from battery.
6. Caution -heavy sparks can cause battery to explode. If heavy sparks occur, this is a sign of a problem. Recheck connections.
7. After starting, remove cables one at a time without arcing cables together.

## **Hand Tool Safety**

- Do not continue to work if your safety glasses become fogged. Stop work and clean the glasses until the lenses are clear and defogged.
- Use tied off containers to keep tools from falling off of scaffolds and other elevated work platforms.
- Carry all sharp tools in a sheath or holster.
- Tag worn, damaged or defective tools "Out of Service" and do not use them.
- Do not use a tool if its handle has splinters, burrs, cracks, splits or if the head of the tool is loose.
- Do not use impact tools such as hammers, chisels, punches or steel stakes that have mushroomed heads.
- When handing a tool to another person, direct sharp points and cutting edges away from yourself and the other person.
- When using knives, shears or other cutting tools, cut in a direction away from your body.
- Do not chop at heights above your head when you are working with a hand axe.
- Do not carry sharp or pointed hand tools such as screwdrivers, scribes, aviation snips, scrapers, chisels or files in your pocket unless the tool or your pocket is sheathed.
- Do not perform "make-shift" repairs to tools.
- Do not use "cheaters" on load binders or "boomers".
- Do not carry tools in your hand when you are climbing. Carry tools in tool belts or hoist the tools to the work area using a hand line.
- Do not throw tools from one location to another, from one employee to another, from scaffolds or other elevated platforms.
- Transport hand tools only in tool boxes or tool belts. Do not carry tools in your clothing.

### **Knives/Sharp instruments**

- When handling knife blades and other cutting tools, direct sharp points and edges away from you.
- Cut in the direction away from your body when using knives.
- Use the knife that has been sharpened; do not use knives that have dull blades.
- Use knives for the operations for which they are named.
- Do not use knives that have broken or loose handles.
- Do not use knives as screwdrivers, pry bars, can openers or ice picks.
- Do not leave knives in sinks full of water.
- Do not pick up knives by their blades.
- Carry knives with their tips pointed towards the floor.
- Do not carry knives, scissors or other sharp tools in your pockets or an apron unless they are first placed in their sheath or holder.
- Do not attempt to catch a falling knife.
- Store knives in knife blocks or in sheaths after using them.
- Follow this procedure for picking up any bags that have sharp objects protruding from them: Grab the top of the bag above the tie-off, using both hands, and hold the bag away from your body.
- Do not submerge hot glass in cold water nor submerge cold glass in hot water.
- When opening cartons use the safety box cutters. Do not cut with the blade extended beyond the guard.
- Do not use honing steels that do not have disc guards.

### **Files/Rasps**

- Do not use a file as a pry bar, hammer, screwdriver or chisel.
- When using a file or a rasp, grasp the handle in one hand and the toe of the file in the other.
- Do not hammer on a file.

### **Chisels**

- Use the chisel that has been sharpened; do not use a chisel that has a dull cutting edge.
- Do not use chisels that have "mushroomed" striking heads.
- Hold a chisel by using a tool holder if possible.
- Clamp small workpieces in the vise and chip towards the stationary jaw when you are working with a chisel.

## **Hammers**

- Use a claw hammer for pulling nails.
- Do not strike nails or other objects with the "cheek" of the hammer.
- Do not strike a hardened steel surface, such as a cold chisel, with a claw hammer.
- Do not strike one hammer against another hammer.
- Do not use a hammer if your hands are oily, greasy or wet.
- Do not use a hammer as a wedge or a pry bar, or for pulling large spikes.
- Use only the sledge type hammer on a striking face wrench.

## **Saws**

- Keep control of saws by releasing downward pressure at the end of the stroke.
- Do not use an adjustable blade saw such as a hacksaw, coping saw, keyhole saw or bow saw, if the blade is not taut.
- Do not use a saw that has dull saw blades.
- Oil saw blades after each use of the saw.
- Keep your hands and fingers away from the saw blade while you are using the saw.
- Do not carry a saw by the blade.
- When using the hand saw, hold the workpiece firmly against the work table.
- Use the circular saw guard when using the circular saw.

### **Screwdrivers**

- Always match the size and type of screwdriver blade to fit the head of the screw.
- Do not hold the workpiece against your body while using a screwdriver.
- Do not put your fingers near the blade of the screwdriver when tightening a screw.
- Use a drill, nail, or an awl to make a starting hole for screws.
- Do not force a screwdriver by using a hammer or pliers on it.
- Do not use a screwdriver as a punch, chisel, pry bar or nail puller.
- When you are performing electrical work, use the screwdriver that has the blue handle; this screwdriver is insulated.
- Do not carry a screwdriver in your pocket.
- Do not use a screwdriver if your hands are wet, oily or greasy.
- Do not use a screwdriver to test the charge of a battery.
- When using the spiral ratchet screwdriver, push down firmly and slowly.

## **Wrenches**

- Do not use wrenches that are bent, cracked or badly chipped or that have loose or broken handles.
- Do not slip a pipe over a single head wrench handle for increased leverage.
- Do not use a shim to make a wrench fit.
- Use a split box wrench on flare nuts.
- Do not use a wrench that has broken or battered points.
- Use a hammer on striking face wrenches.
- Discard any wrench that has spread, nicked or battered jaws or if the handle is bent.
- Use box or socket wrenches on hexagon nuts and bolts as a first choice, and open end wrenches as a second choice.

## **Pliers**

- Do not use pliers as a wrench or a hammer.
- Do not attempt to force pliers by using a hammer on them.
- Do not slip a pipe over the handles of pliers to increase leverage.
- When you are performing electrical work, use the pliers that have the blue rubber sleeves covering the handle; these pliers are insulated.
- Do not use pliers that are cracked, broken or sprung.
- When using the diagonal cutting pliers, shield the loose pieces of cut material from flying into the air by using a cloth or your gloved hand.

### **Vises & Clamps**

- When clamping a long workpiece in a vise, support the far end of the workpiece by using an adjustable pipe stand, saw horse or box.
- Position the workpiece in the vise so that the entire face of the jaw supports the workpiece.
- Do not use a vise that has worn or broken jaw inserts, or has cracks or fractures in the body of the vise.
- Do not slip a pipe over the handle of a vise to gain extra leverage.
- Do not use the C-clamp for hoisting materials.
- Do not use the C-clamp as a permanent fastening device.

## **Snips**

- Wear your safety glasses or safety goggles when using snips to cut materials.
- Wear your work gloves when cutting materials with snips.
- Do not use straight cut snips to cut curves.
- Keep the blade aligned by tightening the nut and bolt on the snips.
- Do not use snips as a hammer, screwdriver or pry bar.
- Use the locking clip on the snips after you have finished using them.

### **Tool Boxes/Chests/Cabinets**

- Use the handle when opening and closing a drawer or door of a tool box, chest, or cabinet.
- Tape over or file off sharp edges on tool boxes, chests or cabinets.
- Do not stand on tool boxes, chests or cabinets to gain extra height.
- Lock the wheels on large tool boxes, chests or cabinets to prevent them from rolling.
- Push large chests, cabinets and tool boxes; do not pull them.
- Do not open more than one drawer of a tool box at a time.
- Close and lock all drawers and doors before moving the tool chest to a new location.
- Do not use a tool box or chest as a workbench.
- Do not move a tool box, chest or cabinet if it has loose tools or parts on the top.

## Farm Workshop Safety Check

Numerous accidents, some fatal and many serious, occur in workshops every year. Observing some fundamental shop safety rules could prevent most of these accidents. A few minutes of prevention can save hours, weeks, and sometimes years of misery and agony. Listed below are component parts of the workshop and associated power equipment. Each should be inspected periodically (at least once every six months) and the necessary corrective measures taken to ensure a safe work area and safety in the use of shop tools and equipment.

### Workshop Area

- Grounded electric outlets
- Good shadow-free lighting-30 foot-candles (fc) general area, 50 fc on work areas, 100 fc for delicate repair work
- Debris-free, orderly, uncluttered area dry floors
- Fire fighting equipment available first aid kit available and stocked
- Adequate ventilation
- Adequate space for tools and machines adequate and safe storage for paints, thinners, chemicals, and other flammable materials adequate exits from work area
- Safety goggles, glasses, face shields available suitable receptacles for oily rags, scrap wood, scrap metal, used oil
- Appropriate warning signs displayed

### **Power Saws**

- Power cords in good condition
- Free area to work
- Saw blades properly selected, sharpened, installed, and adjusted
- Blade guard and anti-kickback devices in place and in good working order
- Eye protection available push stick available
- Switch in prominent and convenient place
- Lock-out switch (to prevent children operating)
- Roller stands available for long stock
- Saw properly anchored
- Saw blade safety clutch (if present) properly adjusted
- Electric or hand brake (if present) operable and properly adjusted

### **Power Grinders**

- Power cords in good condition
- Switch in prominent and convenient place lock-out switch (to prevent children operating)
- Cooling container nearby and filled
- Grinding wheel of the right type and in good condition with no cracks,
- Wheel diameter over half -of original size
- Wheel dresser available
- Tool rests in place and properly set within 1/8" from wheel
- Grinding wheel housing in place
- Spark deflector in place and properly set 1/4" from wheel
- Illuminated shatterproof grinding shield in place
- Plastic face shield available

### **Jointer**

- Power cord in good condition
- Switch in prominent and convenient place
- Lock-out switch (to prevent children operating)
- Blades sharp and in good condition
- Blade guards in place
- Jointer in proper adjustment
- Material stands available for long stock
- Push stick available

### **Planer**

- Power cords in good condition
- Switch in prominent and convenient place
- Lockout switch (to prevent children operating)
- Knives sharp, properly adjusted
- Feed rolls clean, free of sawdust, chips, resin
- Guards in place

### **Welding Area**

- Area dry and free of debris
- Flammable material removed from area
- Adequate ventilation with exhaust hood
- Fire fighting equipment (dry chemical extinguisher) easily accessible
- Tongs available for use
- Protective clothing and gloves available

### **Electric Arc Welding Equipment**

- Case properly grounded
- Cable terminals guarded or insulated cables in good condition
- Lock-out main switch (to prevent child play) ground clamp serviceable
- Electrode holder serviceable
- Welding helmet or shield with at least number 10 lens, clean and in good condition

### **Oxy-Acetylene Welding Equipment**

- Tanks held securely
- Hoses in good condition
- Connections tight (use soap suds to test) torches serviceable
- Gauges functioning accurately
- Flint lighter in good condition, accessible tip cleaner in good condition, accessible anti-flashback devices properly installed
- Welding goggles in acceptable condition
- Spare tanks held securely; oxygen and acetylene stored separately
- All spare tanks stored with metal valve covers in place

## **Drill Press**

- Cords in good condition
- Switch in prominent and convenient place
- Chuck key in convenient place
- Drill press vise and/or other clamping device available for securing material while drilling
- Drilling lubricant or coolant available
- Drill-speed chart available
- Drills sharp and in good condition
- Auxiliary support for long material
- Plastic face shield available

### **Misc. Portable Power Tools**

- Adequate electrical grounding or double-insulated case or housing
- Face and eye protection available
- Electrical cords in good condition with three wire types properly grounded
- Tools serviceable, well maintained, clean

## **Safety Color Code**

The following safety color code adopted by OSHA and commonly used by industry is recommended to improve vision and identify specific danger areas:

*Red* designates danger, fire, and stop

- Danger
- Fire protection equipment
- Emergency stop controls

*Orange* designates hazardous areas or parts

- Energized equipment
- Exposed gears, cutting devices
- Movable guards

*Yellow* designates caution

- Operating controls
- Flammable liquid storage
- Physical hazards

*Green* designates safety areas, equipment parts, or supplies

- First aid equipment and supplies
- Safety equipment
- Safety signs

*Blue* is used for informational or warning signs

*Black and white* designates traffic or housekeeping markings;

*White* or *ivory* is used on edges of equipment, benches, and fixed tools

*Light gray* is used for equipment stands, workbench surfaces, cabinets, etc.

Walls and ceilings should be painted a light color (soft blue-green, ivory, cream) to improve visibility and contribute to a safe working area.

Accidents can be reduced by placing a brief operating instruction or checklist on or near each piece of equipment. The owner's manual should be read thoroughly and each operational instruction and safety precaution or rule heeded carefully before plugging in the cord of a new stationary or portable power tool.

## **Safety Instructions to Be Observed in All Shop Areas**

- Walk—do not run—in shop areas.
- Horseplay has no place in the shop.
- Secure permission from supervisor/instructor for special set-ups.
- Be considerate of the safety of others.
- Adhere to safety rules pertinent to a specific shop.
- Do not use tools or equipment until instruction relative to safe handling has been given.
- Persons not operating power tools or instructed to observe the operation thereof should keep clear of operators.
- Do not stop or start a machine for another person except in an emergency.
- Only one person will operate machines at a time.
- Report unsafe conditions to supervisor.
- Form correct habits under normal conditions so you will automatically do the correct thing if required to work under pressure.
- Read and follow the precautions and information from safety posters.
- Do not use machines for trivial operations, or when hand tools would best accomplish the task.
- Students working in shop areas must confine their long hair and avoid wearing apparel subject to catching on or in machinery. Rings, bracelets, watches, etc., should not be worn.
- Never throw objects in shop. Distraction or injury can result.
- Do not tamper with adjustments or play with machinery at any time. Serious accidents can be caused by such action.
- Do not lean on machines; you may press a switch or throw a control, which, upon starting, could endanger the safety of the operator or the machine.
- Gloves should be worn when raw materials such as rough boards, metal subject to burrs or sharp edges, glass, or other materials in the rough are handled.
- Eye protection is mandatory.
- Compressed air must never be used for other than specific purposes.
- Stop all power machinery to oil, adjust, or clean.
- Allow revolving machinery to stop on its own. Resist the desire to grab chucks, spindles, or other rotating parts with the hand.
- Set up shields to stop flying chips, sparks, or particles.
- Replace grinding wheels showing cracks, those out of balance, or those worn too small to allow proper clearance (not more than 1/8") between tool rest and stone.
- Keep cutting tools sharp.
- Oily rags and other highly combustible materials must be kept in a closed metal container.
- Ground all portable and stationary power tools.
- Keep hoses and electrical cords trip-free.
- Never mount a grinding wheel unless the speed of the motor and the speed of the wheel are known and the two are appropriate.
- Store flammable liquids in approved safety containers.
- Avoid using electric drills or other electrical apparatus while standing on wet floors.

- Make certain hands are free of oil or grease and that hammer, screwdriver, chisel, etc. handles are free of oil and grease.
- When starting a machine, allow it to reach its proper operating RPM before using.
- When finished with a tool, clean and replace it so it cannot fall.
- Cords are to be disconnected when portable tools are not in use.
- Vise handles should hang free when not in use.
- Know and follow the specific requirements of the kind and type of machine you are going to operate.
- Use the correct tool for the job.
- Check for frayed electrical cords and for chafed or worn air hoses.
- Floors are to be kept free of accumulation of materials or scrap and should be of non-skid surface.
- The area should be swept daily and cleaned thoroughly periodically.
- Workstations are to be closed at the end of each class period.
- Shop area is to be neat and orderly in appearance at all times. Cluttered or dirty shops are good sites for accidents. Neat and orderly shops help eliminate unsafe working conditions.
- Aisles should be kept clear by putting stock away promptly after using.
- Shops should be properly ventilated. Serious disorders can be caused by uncontrolled vapors, mists, gases, and fumes.
- Light is essential for sight. Sight is essential for safety. Keep windows, light bulbs, reflectors, and walls bright but without glare. Replace burned-out bulbs at once.
- Fire extinguishers must be available and instructions given for proper use.
- Fire regulations pertinent to the shop should be studied and familiar so you can assist in closing windows, make proper exit, etc.
- Wear protective clothing and equipment for the use intended for its wear. Avoid wearing anything, which may be pulled into machinery.
- Sleeves are to be kept rolled up, shirttails in, and long ties and jewelry removed. Aprons should be snugly secured.
- A person feeling ill should not operate a machine—report to supervisor.
- Use proper lifting techniques when moving heavy objects.
- Report any injury to supervisor immediately.
- Have cuts, burns, or bruises—however minor—treated immediately by the school nurse or other qualified person.
- Neither supervisor nor employees are to treat or remove particles from the eye.
- Eyestrain is a frequent cause of accidents. If the job subjects you to eyestrain, provide additional light.
- Avoid placing hands to mouth or eyes while working.

### **Safety Instructions for Using a Bench Vice**

- Mount the vise firmly. Keep it tight on bench. A loose vise is dangerous and inefficient.
- Lock swivel base securely. Tapered-gear lock bolt prevents slippage.
- Do not hammer the handle. Too much pressure may damage the work.
- Never use handle extension. Normal leverage will hold work securely in place.
- Do not hammer the beam. Your vise will give almost unlimited use. But it will not stand continued abuse.
- Oil the screw. Remove front jaw. Use oil or light grease. This should be done frequently to prevent screw wear.
- Keep jaw faces clean. Use wire brush or file card to remove chips and dust.

### **General Safety Instructions for Operating Power Tools**

- Know your power tool. Read operator's manual carefully. Learn its applications and limitations as well as the specific potential hazards peculiar to this tool.
- Ground all tools—unless double-insulated. If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle. If adapter is used to accommodate two-prong receptacle, the adapter wire must be attached to a known ground. (Usually the screw secures the receptacle cover plate.) Never remove third prong.
- Keep guards in place and in working order.
- Keep work area clean. Cluttered areas and benches invite accidents.
- Avoid a dangerous environment. Do not use power tool in damp or wet locations. And keep work area well lighted.
- Keep children away. All visitors should be kept safe distance from work area.
- Store idle tools. When not in use, tools should be stored in a dry, high, or locked place.
- Don't force a tool. It will do the job better and safer at the rate for which it was designed.
- Use the right tool. Do not force a small tool or attachment to do the job of a heavy-duty tool.
- Wear proper apparel. Wear no loose clothing or jewelry to get caught in moving parts. Rubber gloves and footwear are recommended when working outdoors.
- Use safety glasses with most tools. Also face or dust mask should be used if cutting operation is dusty.
- Do not abuse cords. Never carry tool by its cord or yank the cord to disconnect the tool from receptacle. Keep cords from heat, oil, and sharp edges. ~
- Secure work. Use clamps or a vise to hold work. Using a vise or clamp is safer than using your hand, and both hands are free to operate the tool.
- Do not over-reach. Keep proper footing and balance at all times.
- Maintain tools with care. Keep tools sharp at all times, and keep them clean for the best and safest performance. Follow instructions for lubricating and changing accessories.
- Disconnect tools when they are not in use, before servicing, and when changing attachments, blades, bits, cutters, etc.
- Remove adjusting keys and wrenches. Form the habit of checking to see that keys and adjusting wrenches are removed from the tool before turning it on.
- Avoid accidental starting. Do not carry a plugged-in tool with your finger on switch.

### **Safety Instructions for Operating a Grinder**

- Operate only after you have received instruction.
- Wear proper clothing.
- Wear face shield, safety glasses, or goggles and use glass safety guard on grinder.
- See that the guard is in place.
- Set tool rest 1/16 inch to 1/8 inch from the wheel.
- Dress wheel when necessary.
- Make sure that no one but you is inside the operator's area.
- Adjust grinder for your job before turning power on
- Stand to one side of wheel when turning power on. The wheel may be cracked, causing it to break up.
- Turn on power after permission is given.
- Keep hands away from the wheel while it is in motion
- Hold work with your hands. Ask permission to grind small pieces.
- Use the face of the wheel only
- Press materials against wheel with correct amount of pressure.

### **Safety Instructions for Operating a Horizontal Band Saw**

- Operate only after you have received instruction.
- Remove jewelry, eliminate loose clothing, and confine long hair.
- Make sure all guards are in place and operating correctly
- Always use proper eye protection
- All adjustments to the chip-removal brushes, blade tension, guides, vise, or drive system should be done with the power off.
- Be sure blade guides are properly adjusted to both the blade and the work size or vise before starting cut.
- Adjust feed rate so blade does not bounce or plunge into work when starting the cut.
- Be sure work is tightly clamped in the vise and properly positioned for an efficient, safe cut.
- Keep hands away from cutting area and brush away chips only when the machine is turned off.
- If the material requires coolant, be sure that the system is working and that the correct coolant is used.

### **Safety Instructions for Operating a Portable Air Impact Wrench**

- Operate only after you have received instruction.
- Remove jewelry, eliminate loose clothing, and confine long hair.
- Always use proper eye protection
- Be sure throttle is in the "off" position before connecting to air supply
- Always use impact-type sockets designed for use with power equipment.
- Make sure work is secure or held with clamps or tightly in a vise.
- Set torque control for correct tightness before starting the job.
- Be sure both hands are free to properly operate an impact tool
- Maintain balance and firm footing at all times.
- Always use the tool in short bursts of power.
- Quick-change coupling should be at end of hose whip, not at the tool
- Always disconnect the tool when not in actual use

### **Safety Instructions for Operating a Portable Disc Sander/Grinder**

- Operate only after you have received instruction.
- Wear proper clothing. Remove jewelry, eliminate loose clothing, and confine long hair.
- Make sure all guards are in place and operating properly
- Wear face shield, goggles, or safety glasses.
- Before connecting to the power source, be sure the switch is in the "off" position.
- Make sure back-up pad and disc are securely fastened to the tool. Unplug the sander when changing discs.
- Do not allow the edge of the disc to touch the edge of the stock
- Stand clear of the spark line or spark area.
- Sand or finish with a stroking motion; do not pause in one spot.
- Set sander on back or on rubber stand when not in use and disconnect from power source.

### **Safety Instructions for Operating a Portable Electric Drill**

- Operate only after you have received instruction.
- Remove jewelry, eliminate loose clothing, and confine long hair.
- Always use proper eye protection.
- "Unplug" the drill when changing bits.
- Make sure switch is off and chuck key removed before connecting to power source.
- Mark hole location with center punch (metal) or AWL (wood) before drilling.
- Be sure work is tightly clamped or otherwise secure before drilling.
- Drill with straight, even, steady pressure.

### **Safety Instructions for Operating an Oxygen-Acetylene Welder**

- Operate only after you have received instruction.
- Be sure that you wear welding goggles. All assistants and observers must also wear welding goggles.
- Close cylinder valve and replace protective cover before moving cylinder
- Fasten cylinders with a chain or other suitable device as a protection against falling or rolling.
- Keep welding equipment free of oil and grease. Use only clean rags for wiping off welding equipment.
- Inspect hose before using.
- Make sure that hose is properly connected and that all connections are tight.
- Report any leaking of cylinders or connections to supervisor immediately
- Make sure you have ample ventilation.
- Keep all flammable material away from working area.
- Release regulator pressure screw. Open cylinder valves gradually
- Open acetylene cylinder valve 1 1/4 turns or less. Keep wrench in place so that valve may be shut off quickly if necessary.
- Keep acetylene pressure in the hose below 15 pounds per square inch
- Use a flint lighter to ignite torch.
- Close acetylene valve first if torch backfires.
- Make certain lighted torch always points away from you and other students.
- Keep sparks and flame away from cylinders.
- Close cylinder valve when you have finished your welding job.
- Quench section of metal that has been welded or mark with chalk or soapstone the word "hot" on the metal if it is necessary for you to leave your work.

### **Safety Instructions for Operating an Electric Welder**

- Operate only after you have received instruction.
- Wear a hood with proper observation window, treated gauntlet gloves, and treated leather apron. All assistant and observers must also wear this equipment.
- Rubber-soled shoes, without tacks, should be worn when electric welding.
- Operator of electric welder is to allow no one to look at the arc without the dark shield (No. 10-12 lens).
- Make sure electric welding is done only in a correctly constructed booth or room, or behind proper screens.
- Make sure there is ample ventilation
- Keep all flammable material away from working area.
- See that floor area is clear of all obstructions.
- Report to supervisor at once if electrode holder, holder cable connection, cable, or cable terminals at the welding machine, ground clamps, lugs, or cable get hot.
- While removing scale from the work, wear ordinary safety glasses or goggles.
- Have a dry-chemical fire extinguisher handy when electric welding.
- Hang up electrode holder and turn off welder when work is being changed or when work has been completed.

### **Safety Instructions for Operating a TIG and MIG Welder**

- Operate only after you have received instruction.
- Remove jewelry, eliminate loose clothing, and confine long hair.
- Make sure all guards are in place and operating correctly
- Always use proper eye protection,
- Always buff using the lower half of the buffing wheel
- Additional protective welding clothing, including a helmet, long-sleeve jacket, and gloves, must be worn to prevent burns from ultraviolet and infrared rays emitted while arc welding.
- The helmet used for TIG or MIG welding should be equipped with a minimum number-12 density shade.
- Be certain that the welder equipped with a high-frequency stabilizing unit is installed, maintained, and used according to the recommendations of both the manufacturer and Federal Communication Commission.
- Never touch the tungsten electrode or MIG wire while the welder is turned on. It is electrically "hot" and can cause a serious shock.
- Never use the high frequency when performing shield metal arc (stick electrode) welding.

### **Safety Instructions for Operating a Gas Forge**

- Operate only after you have received instruction.
- Keep flammable materials away from forge area.
- Read manufacturer's instructions or follow this procedure to light the forge:
- Wear appropriate eye protection.
- Run air for about two minutes.
- Turn off air.
- Place lighted piece of paper in the forge.
- Create draft by turning on air slowly.
- Turn on gas slowly.
- Adjust valves to confine all flame within the forge.
- Practice handling work with appropriate pliers or tongs *before* heating it.
- Be careful in handling long or heavy pieces.
- Be careful when carrying hot metal. Warn other by calling out "hot metal!"
- Consider all metal around the furnace and the furnace itself as being hot.
- If it is necessary to leave hot work, mark it "hot" with chalk or soapstone or use a special sign.
- Inspect hammer faces and handles before using.
- Never strike hammer on hammer or hammer on anvil. Hardened faces may fracture and send chips of metal flying.
- Protect your face when quenching metal.
- To turn off furnace, shut off GAS first; then shut off the air .
- Quench hot tongs before returning to their storage place.
- Keep area well ventilated.
- Clean up work area.

## **General Safety Instructions for Operating Power Woodworking Machines and Tools**

- Check to insure that:
- All sleeves are rolled up when the operation to be performed requires it.
- Goggles, glasses, or face shields are *worn* at all power machines.
- Long hair is controlled by hairnet or appropriate cap.
- The tool rest of the grinder is set properly.
- Tool rest on lathes which are in operation are secured,
- Tools and scraps are not left on the floor.
- Oily rags are placed in a metal safety can.
- Oil spots are wiped from the floor.
- No tools with mushroomed heads or loose or broken handles are used.
- All files have handles before students use them.
- All accidents are reported to the supervisor and taken care of properly,
- No “horseplay” of any kind occurs in the shop.
- The tool room has no defective tools in the rack
- No safety guards are removed from machinery.
- No operator walks away from his/her machine and leaves it running.
- All danger zones are marked.
- No one talks to or touches anyone operating a machine.
- Shirt tails are to be tucked in at ALL times.
- Coats or sweaters are not worn while students are working.

## Safety Instructions for Operating a Table Saw

- Operate only after you have received instruction.
- Wear proper clothing while operating machine.
- Wear safety goggles or glasses.
- Make sure saw guards are in place and operative. Guards must be kept down over the saw while machine is being operated.
- The saw must not be raised above the table *more* than absolutely necessary to make the cut, approximately 1/8 inch.
- A push stick must be used when ripping narrow pieces of lumber.
- The clearance block must be fastened to fence when cutting off short pieces of stock.
- Fence must not be adjusted until saw is at a dead stop,
- Sawdust underfoot is slippery; keep floor around saw area clean
- Use brush to keep table clear of scraps; never use the hands.
- Fingers must be kept clear of track of saw, and hands must never be allowed to cross saw line in advance of the end of the board while machine is in operation.
- Reaching over the saw blade or passing wood over saw blade is prohibited.
- All special set-ups and dado heads must be inspected by supervisor before power is turned on.
- The dado head must be taken off the saw arbor after use,
- When helping to "tail-off" the saw, students must never pull on a board being ripped. They should hold board up and allow operator to push stock through saw.
- Re-sawing must not be done on circular saw without special permission of the supervisor.
- Cylindrical stock must not be cut on circular saw.
- Never lower pieces of stock down over the saw. This operation is sometimes performed when cutting holes in rails for drawer fronts. Special permission should be obtained from the supervisor for doing this type of work.
- Ripping stock without using the ripping fence or cross-cutting stock without using the sliding cross-cutting fence is extremely dangerous and is absolutely forbidden. This rule applies to dado head work.
- See that no fence or set-up will be in line of saw before starting work or turning on power.
- Be sure that saw or tilting arbor saw will clear on both sides when sawing angles before power is turned on.
- Never stand directly behind the blade; stay to the left.
- Only operator turns machine on and off.
- Only operator should be in safety area of the saw.

### **Safety Instructions for Operating a Band Saw**

- Operate only after you have received instruction.
- Wear proper clothing while operating machine.
- Wear safety goggles or glasses.
- Always keep guards in place. Both upper and lower wheels, as well as most of the blade itself, shall be guarded.
- Adjust the guard to about 1/4 inch above thickness of stock,
- The upper and lower guides shall be properly adjusted when machine is stopped completely, so that there will be a minimum of blade breakage.
- A clicking or cracked blade should be stopped immediately,
- The saw shall be allowed to stop itself naturally in order that the blade may not be damaged.
- Plan your cuts carefully; layout and make release cuts before cutting long curves.
- If the stock binds or pinches the blade, do not attempt to back out until power has been shut off and the machine stops.
- Proper blade width for the diameter of work being cut shall be used
- The right side of the machine is generally the most dangerous place to stand in case of blade breakage.
- Proper blade tension shall be maintained.
- The blade shall be sharp and properly set at all times.
- Remove scrap material from saw table with a stick or brush,
- If the blade breaks, shut off power and stand clear until machine stops entirely,
- Make cuts always under power--never while machine is coasting.
- Leave the machine only after power is turned off and blade has stopped moving. This is especially important with the band saw.

### **Safety Instructions for Operating a Jig/Scroll Saw**

- Operate only after you have received instruction.
- Wear proper clothing while operating this machine.
- Wear face shield, safety glasses, or goggles.
- Cut only stock with a flat surface on bottom.
- Make adjustments only when machine is at a dead stop.
- Install saw blades to cut on the downstroke.
- Tighten blade securely in lower vise, then in upper vise. Check blade for correct tension.
- Make sure the saw blade is the proper size for the job.
- Adjust hold-down so it will be as close as possible to the work
- Turn machine by hand to make sure all parts are clear.
- Make sure that no one but you is inside the operator's line.
- Select correct machine speed
- Lower the hold-down foot to press lightly on the surface of the wood.
- Turn on power after permission is given.
- Hold material firmly.
- Feed the material into the machine at a moderate rate of speed.
- Keep fingers away from saw and hands out of the path of saw.
- Report mechanical defects or a broken blade to the supervisor.
- Turn off power after using scroll saw and stand by until the machine has stopped
- Clear away scraps of wood on the table only after saw stops running,

### **Safety Instructions for Operating a Radial Arm Saw**

- Operate only after you have received instruction.
- Wear proper clothing while operating machine.
- Wear safety goggles or glasses.
- Always keep guards in place.
- Before starting the machine, all clamping devices should be tight.
- Saw must be kept well sharpened
- Be sure saw swings clear and free.
- Place stock snugly against backstop, and flat on the table.
- Set the anti-kickback device 1/8 inch above the material to be cut.
- While ripping, the rip lock should be tight.
- Two people are necessary while ripping
- Operate the saw with your left hand,
- Before making special adjustment, the saw must be fully stopped.
- While ripping, be sure to feed the material from the infeed end of the saw guard, never from the kickback end. Make no exception to this rule.
- Before starting the motor, make sure everything is clear of the cutter.
- Remove scraps from the path of the radial-saw blade with a piece of wood while the saw is at a dead stop.
- Stand to one side and keep your hands away from the direction of travel of the radial-saw blade.
- A radial arm saw is used primarily for crosscutting stock.

### **Safety Instructions for Operating a Planer/Surfacer**

- Operate only after you have received instruction.
- Wear proper clothing
- Wear safety glasses or goggles.
- Make sure guards are in place and operative.
- Do not plane two or more pieces of stock with various thicknesses. It could be kicked out. Plane only one thickness at a time. (Note: Some planers have sectional feed rollers, which could allow planing various thicknesses. supervisors make appropriate decision.)
- Keep your fingers from under the stock as it is fed through the planer.
- Stock must be at least 15 inches long or greater than the distance between centers of infeed and outfeed rollers. True one face of the stock on the jointer before leaving, Always make sure machine is turned off before leaving. Make sure everyone is from behind machine while in operation. Always stand erect and to one side of work being planed.
- Do not look into the planer as board passes through
- Plane no thickness less than 3/8 inch.
- Stock that is 8 inches in width or less should not be planed more than 1/16" per cut.
- Stop the planer and run all pieces through, reducing all to the same thickness.
- With a rule, measure the thickness of the stock at the thickest point.
- Place the stock on the bed of the planer with the working face down and the grain turned so that the knives will cut with the grain. Hold the board flat on the feed-in table when starting the cut. The knives on a single-surface planer cut on the upper side and revolve in a direction opposite to the direction of feed.
- Never attempt to plane cross-grain.

### **Safety Instructions for Operating a Motorized Miter Box**

- Operate only after you have received instruction.
- Wear proper clothing. Confine long hair.
- Make sure all guards are in place and are operating properly.
- Wear face shield, goggles, or safety glasses.
- Be sure power is disconnected before making angle adjustments or changing blades.
- Always hold the work firmly against the fence and table.
- Install a new table if adequate support has been cut away.
- Allow motor to reach full speed before starting to cut.
- Use the brake to stop the blade before removing scrap or chips from the work area.

### **Safety Instructions for Operating a Portable Jig Saw**

- Operate only after you have received instruction.
- Remove jewelry, eliminate loose clothing, and confine long hair.
- Make sure all guards are in place and are operating correctly,
- Always use proper eye protection
- Make sure the blade is the correct type for the material and that it is tightly clamped in the chuck.
- Be sure the switch is off before connecting to the power source.
- Use vise or clamps to securely hold material to be cut.
- Keep cutting pressure constant; do not force the blade into the work
- Always keep the base tightly against the materials being cut.
- Do not set the saw down on the bench until it has stopped,
- If the blade is in the tool, be sure and lay the tool on its side.

### **Safety Instructions for Operating a Portable Circular Saw**

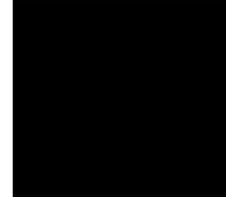
- Operate only after you have received instruction.
- Wear proper clothing. Remove jewelry, eliminate loose clothing, and confine long hair.
- Make sure all guards are in place and operating properly.
- Wear face shield, goggles, or safety glasses.
- Make sure the telescoping guard returns automatically to cover the blade after each cut.
- Check the base setting for the proper depth of cut.
- Make sure the power cord is clear of the blade.
- Be sure the material you are cutting is adequately supported.
- Do not start the cut until the blade has reached full speed
- Advance the saw slowly, straight through the work. Do not twist or turn.
- If the saw blade binds or smokes, stops cutting immediately.
- The blade should be extended below the work until the blade gullets clear the material.
- Do not set the saw down until the blade stops.

### **Safety Instructions for Using a Woodworker's Vice**

- Keep the vise tight on the bench. A loose vise is inefficient.
- Keep your work clean. Never oil or grease a woodworker's vise.
- Do not over-tighten. Normal handle leverage holds jaws securely. 5. Do not hammer the handle. Never pound to tighten or loosen. 6. Do not use handle extension.
- Avoid using woodworker's vise to clamp glue joints. Dried glue on vise screw, etc., makes vise operation difficult.

## Gas Power Cement Mixer Safety

- Transport and handle fuel only when contained in approved safety container.
- Do not smoke when refueling or during any other fuel handling operation.
- Do not refuel while the engine is running or while it is still hot.
- If fuel is spilled during refueling, wipe it off of the engine immediately and discard the rag in a safe place.
- Do not operate the equipment if fuel or oil leaks exist - repair immediately.
- Never operate this equipment in an explosive atmosphere.
- Avoid contact with hot exhaust systems and engines.
- Allow all components in the engine compartment to cool before performing any service work.
- Never leave mixer unattended while running.
- Mix only concrete.
- Never perform any work on the mixer while it is running.
- Before working on the mixer, stop the engine and disconnect the spark plug wire(s) to prevent accidental starting. On electric models, disconnect the electric cord at the mixer.
- Keep cowl closed and latched during the operation, close and latch cowl immediately after starting.
- Keep hands, clothing and jewelry away from all moving parts.
- Keep all guards in place, including drum guards.
- Never place your hands or any solid object into the drum while the mixer is in operation.
- Starting fluid (ether) is highly flammable, do not use or an explosion or fire may result.
- Never operate unit in a poorly ventilated or enclosed area.
- Avoid prolonged breathing of exhaust gases.
- Engine exhaust fumes can cause sickness or death.



## WEAR PROTECTIVE CLOTHING

- Wear close fitting clothing and safety equipment appropriate to the job.
- Prolonged exposure to loud noise can cause impairment or loss of hearing.
- Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.
- Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.

## PREPARE FOR EMERGENCIES

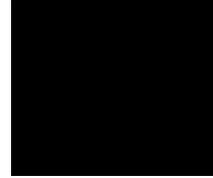
- Be prepared if a fire starts.
- Keep a first aid kit and fire extinguisher handy.
- Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

### **Eye Protection**

- Always wear splash goggles when operating mixer.

### **Warning-Towing**

- Warning: Do not tow the mixer with the drum in the dump position. Mixer may become unstable and tip over when hitting a curb, pothole, or other obstruction.
- Warning: Always properly attach safety chains before mixer is towed. Maximum towing speed 55 m.p.h. (90 km/hr). Reduce speed according to highway conditions.
- Use safety chains and hitch pins with a safety pin.



### **Practice Safe Maintenance**

- Understand service procedure before doing work. Keep area clean and dry.
- Never lubricate service or adjust machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.
- Securely support any machine elements that must be raised for service work.
- Keep all parts in good condition and properly installed. Repair damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.
- Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

### **Dispose Of Waste Properly**

- Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with equipment includes such items as oil, fuel, coolant, brake fluid, filters, and batteries.
- Use leak proof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.
- Do not pour waste onto the ground, down a drain, or into any water source.
- Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center.