

CSU Channel Islands Heavy Equipment Program

1.0 REQUIREMENT

This program is intended to address Industrial Tractors, Haulage Vehicles, and Earthmoving Equipment as defined in CCR § 3649, Elevated Work Platforms and Aerial Devices as defined in CCR § 3637, and Mobile Ladder Stands and Scaffolds as defined in CCR § 3621.

2.0 PURPOSE

To reduce the risk of work related injury or fatality by maximizing personal safety during heavy equipment operation. It should be noted that there are no generalized OSHA Standards for Heavy Equipment Operators. The University recognizes the hazards associated with the operation of heavy equipment, and has developed this program to establish safety procedures and training requirements for Operations Planning and Construction (OPC) employees. The safety procedures developed in this program are considered supplemental to the Manufacturer's Operator and Safety Manuals.

3.0 SCOPE

This program applies to all heavy equipment that may be propelled by gasoline, propane, diesel or electricity power. Heavy Equipment used at this campus, and covered by this program, include:

- Aerial Lifts (including Boom Lift, Bucket Lift, and Man-Lift)
- Backhoe
- Dingo (Mini-Excavators and attachments)
- Dump Truck (vehicle mounted Dump Body)
- Forklifts
- Scissor Lift
- Skip Loader / Loader
- Tractor

[See Appendix D for a current list of equipment]

This program establishes requirements to work in or around heavy equipment. Only competent personnel may operate heavy equipment. An individual's competency must be demonstrated by successful completion of the training and evaluation process specified in this program.

4.0 DEFINITIONS

Aerial Lift: a vehicle-mounted device with telescoping or articulated arms used to position a platform to access work area at heights. Other types of elevating and rotating lifts: Extensible Boom Platforms, Aerial Ladders, Articulating Boom Platforms, Platform Lift, Vertical Towers, Ladder Trucks, Bucket Lift, and Man Lift.

Attachments: The use of specialized removable equipment that may be required to perform a specialized function or any task approved by the manufacturer of the particular equipment.

Authorization: Authorized (in reference to an employee's assignment). Selected by the employer for that purpose.

Backhoe: a tractor with an articulating hydraulically powered folding boom extending from the rear of the unit. The boom may accept attachments such as a bucket to remove materials such as earth, dirt, sand to create trenches or pits, or rollers to flatten and compact recently filled trenches or pits.

Certification: documentary proof of the successful completion of a course of training.

Industrial Tractor/ Tractor: a high power low speed industrial vehicle designed primarily to tow non-powered trucks, trailers or other mobile loads.

Forklift: A mobile, power driven vehicle used for lifting, moving and stacking/tiering materials. Also referred as a Powered Industrial Truck or PIT.

Loader: a self-propelled machine with a shovel or bucket at the end of articulated arms, used to raise earth or other material and load it into a dump truck. Also, called a front loader, front-end loader, track loader, bucket loader, or skip loader.

ROPS: a structure which covers the machine operator in a manner that will minimize the possibility of injury from falling objects or equipment roll over. Roll Over Protective Structure.

Scissor Lift: a self-propelled machine with an elevating platform which can be moved into place, then raised and lowered to various heights to access work; and be powered by electricity, gasoline, and diesel.

5.0 RESPONSIBILITIES

5.1 Environmental Health & Safety

- Assist with the development of accident prevention methods, procedures and/or programs as related to Heavy Equipment (this program).
- May conduct inspections of all work sites on campus utilizing heavy equipment.
- Ensure that safety concerns, accidents, and hazardous conditions are investigated and corrective actions are implemented.

5.2 Department Managers

Department Managers are responsible for:

- Identifying the specific jobs or individuals to whom this program applies.
- Identifying all heavy equipment in their department.
- Ensuring that a competent person is available for heavy equipment training and evaluations.
- Ensure that operators of heavy equipment equipment are trained, evaluated, observed and given skills needed to operate the equipment safely.
- Assuring that operator's manuals and manufacturer's safety information is available for all heavy equipment and vehicles identified in the department.

- Ensuring that safety procedures outlined in this and other CSUCI programs, as well as in Manufacturer's Operator's and Safety Manuals are implemented and enforced.
- Maintaining training and certification records for all operators of heavy equipment.

5.3 Supervisors

Due to their constant contact with employees, supervisors must take a primary role in the prevention of accidents and the safety of employees under their supervision.

Supervisor's responsibilities include:

- Observing and evaluating the use of heavy equipment by employees and correcting any unsafe conditions or practices and reporting or correcting any found.
- Checking and ensuring that heavy equipment is properly maintained and in safe operating condition.
- Remove from service, any heavy equipment that is not safe.
- Promptly investigating all accidents and completing required reports.
- Encouraging employees to report all unsafe conditions and practices.
- Being familiar with and enforcing all safety procedures and practices applicable to work done by their employees.

5.4 Employees (Heavy Equipment Operators)

Employee responsibilities include:

- Reading, understanding and complying with owner's manuals and manufacturer-provided safety information before using heavy equipment.
- Reading, understanding and following the procedures and practices outlined in this program.
- Completing the Heavy Equipment Pre-Use Checklist before use. (Appendix A)
- Report any inspection deficiencies with equipment to their immediate supervisor for maintenance or further action prior to operation of the equipment
- Using all appropriate safety equipment and devices, including but not limited to seatbelts.
- Immediately reporting all work related accidents, fuel spills, fires, and injuries to their supervisors.
- Obey traffic signs and signals and audible or visual warning devices.
- Immediately reporting all unsafe conditions and practices to their supervisors, safety coordinator, and/or Department Head.
- Attending appropriate training as recommended by their supervisors.

5.5 Competent Person (designated Heavy Equipment Trainer/s):

- Train and evaluate equipment operators in classroom, hands-on training process and refreshers.
- Be knowledgeable and experienced in the particular equipment operation and how to train. Seek appropriate training and/or knowledge to be the "Equipment Trainer."
- Document evaluations and training.

6.0 OPERATOR TRAINING

6.1 Safe Operation

An employer must ensure that each heavy equipment operator is competent to operate the equipment safely, as demonstrated by the successful completion of the training and evaluation specified in this section.

Prior to permitting an employee to operate heavy equipment (except for training purposes), the University must ensure that each operator has successfully completed the training required by this section.

6.2 Training Program Implementation

Trainees may operate heavy equipment only:

- Under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence.
- Where such operation does not endanger the trainee or other employees.

Training will consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance on the job-site. Training may be conducted in-house, or by using a training vendor.

6.3 Training Program Content

Heavy Equipment Operators must receive initial training in the following topics, except those topics that the employer can demonstrate are not applicable to safe operation of the equipment in the employer's workplace. Training will be documented on the Heavy Equipment Operator Training Certification Form presented as Appendix B. The Department Head will maintain all training documentation.

Equipment-Related Topics

- Operating instructions, warnings, and precautions for the types of equipment the operator will be authorized to operate.
- Employee will read and understand Owners/Operators Manual and any other safety information provided by the manufacturer of the equipment.
- Trainer will review this information with the trainee, and should incorporate additional information about specific equipment based on previous experiences with the equipment.
- Differences between the equipment and an automobile (e.g., turn radius, braking ability, visibility of surroundings, blind spots, etc.)
- Equipment controls and instrumentation; where they are located, what they do, and how they work.
- Engine or motor operation.
- Steering and maneuvering.
- Visibility (including restrictions due to loading).
- Implement and attachment adaptation, operation, and use limitations.
- Equipment capacity.
- Vehicle stability.
- Any equipment inspections the operator will be required to perform.
Heavy Equipment Pre-Use Checklist (See *Appendix A*)

- Refueling and/or charging and recharging of batteries.
- Refer to OPC's Fueling and Fuel Handling Safety Procedures.
- Operating limitations.
- Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of equipment that the employee is being trained to operate.

Workplace-Related Topics

- Surface conditions where the equipment will be operated.
- Composition of loads to be carried and load stability.
- Load maneuvering, loading, and unloading.
- Pedestrian traffic in areas where the equipment will be operated.
- Confined areas and other restricted places where equipment will be operated.
- Hazardous (classified) locations where the equipment will be operated.
- Ramps and other sloped surfaces that could affect the vehicle's stability.
- Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause buildup of carbon monoxide or diesel exhaust.
- Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

6.4 Refresher Training and Evaluation

Refresher training, including an evaluation of the effectiveness of that training, must be conducted as required below to ensure that the operator has the knowledge and skills needed to operate the heavy equipment. Refresher training in relevant topics will be provided to the operator when:

- The operator has been observed to operate the equipment in an unsafe manner.
- The operator has been involved in an accident or near-miss incident.
- The operator has received an evaluation that reveals that the operator is not operating the equipment safely.
- The operator is assigned to operate a different type of equipment.
- A condition on the job-site changes in a manner that could affect safe operation of the equipment.

An evaluation of each heavy equipment operator's performance will be conducted *at least once every three years*. Certification will be documented on the form provided as *Appendix C*.

6.5 Certification

The University will certify that each operator has been trained and evaluated as required by this section. The certification will include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation. *Appendix C* presents a Heavy Equipment Operator Evaluation/Employer Certification Form that will be completed upon initial or refresher training of the operator, and at a minimum frequency of every three years thereafter.

6.6 Avoidance of Duplicative Training

If an operator has previously been trained and certified to operate specific heavy equipment, and the employee has no history of accidents and/or disciplinary actions (as related to the use of the specific equipment), the department of Operations Planning & Construction (OPC) may determine an employee to be a certified and competent operator in the use of the specific heavy equipment. However, all operators are subject to refresher training as specific in this section.

Heavy Equipment Operation

7.0 GENERAL SAFETY REQUIREMENTS

Only trained and authorized operators shall be permitted to operate the designated equipment.

A. Personal Protective Equipment (PPE) is mandatory and may include the following:

- Boots or Safety Shoes
- Body Harness- Fall Protection, when operating aerial lifts
- Long Pants
- Hearing Protection
- Eye/Face Protection
- Hard Hat
- Gloves
- Respirator, if required
- Safety Vest

B. Pre-Start/Walk around inspection:

- All vehicles in use must be checked at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use:
 - Horn
 - Parking System (hand brake)
 - Emergency Stopping System (Brakes)
 - Operating Controls
 - Service Brakes (Including any trailer brake connections)
 - Steering Mechanism
 - Seat Belts
 - Safety Devices
 - Tires
- All known defects will be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

Operators will complete the Heavy Equipment Pre-Use Checklist (*Appendix A*) every day that a piece of equipment is used, prior to using the equipment.

- Check for loose or worn parts and repair or replace immediately.
- Check all/fluid/coolant levels.

Caution: Open the radiator cap only when the engine is cooled.

- Inspect hydraulic line connectors and hoses for leaks before applying pressure to the system. Use paper or cardboard, not your hands, to search for leaks.

Caution: Hydraulic fluid escaping under pressure can penetrate skin and cause serious bodily harm.

- Check tires for cuts, bulges, irregularities, abnormal wear and proper inflation.
- A fire extinguisher and first aid kit shall be mounted in the cab.

C. Maintenance:

- When servicing equipment, fasten a “Do Not Operate” tag on the steering wheel. Review Lock Out/Tag Out Procedures prior to servicing any equipment.
- Ensure the cab area is clean and free of debris and tools.
- Clean windshield, mirrors and lights.
- Remove all oil, grease, or mud from grab irons, hand rails, steps, pedals, and floor to prevent slips and falls.
- Remove or secure any loose items such as tools, chains, or lunch boxes from the cab.

D. Work Site:

- Check and mark the area for underground cables, gas lines, and water mains.
- Know work area clearances - watch for overhead or underground objects, holes, drop-offs, and partially hidden obstacles and wires.

E. Mount properly:

DO NOT GET ON OR OFF A MACHINE THAT IS IN MOTION

- Maintain a 3-point contact with the steps and handrails while getting on/into the machine. Do not use the controls or steering wheel as a handhold.
- Do not operate the machine with wet, greasy, or muddy hands or shoes.

F. Starting and Testing:

EXHAUST FUMES ARE DANGEROUS - ALWAYS HAVE A RUNNING MACHINE IN A WELL-VENTILATED AREA.

- Fasten your seat belt and adjust the seat prior to starting.
- Controls should be in neutral and the parking brake set before starting engine.
- Start the engine only from the operator's seat.
- Warn personnel in the area that you are starting the engine.
- Check all gauges, light, instruments and warning devices to assure that they are functioning properly and the readings are within normal range.
- Test steering right and left.
- Test brakes against ground speed to be certain there is no malfunction.
- Ensure all implement controls are operating properly.

G. Machine Operation

SMOKING IS PROHIBITED AT ALL TIMES.

- Secure all tools and materials to prevent movement when transported in the same compartment with operator.
- *Always use the seat belt.* Most heavy equipment is required to have a seat belt and rollover protection (ROPS). OSHA takes the position that seat belts are personal protective equipment, and failure to use them is grounds for a citation.
- Acquaint yourself with the controls before operating the machine.
- Only the operator is permitted to ride on the machine.
- While backing up use extra care and sound the horn to clear the area.
- If a malfunction is observed, "DO NOT OPERATE" until the proper repairs have been made.
- Drive at speeds compatible with working conditions.
- DO NOT coast downhill. Select a gear that will prevent excessive speed when going downhill. Do not park on a steep incline.
- Know the stopping distance at any given working speed.
- DO NOT permit anyone to stand or pass under the bucket or lift arms.
- Follow the manufacturer's load capacity limits. Identification plates are attached to all machines.
- If the machine is stuck, back it out or stop engine and get help.
- DO NOT make mechanical adjustments while the unit is in motion.
- Always follow the manufacturer's recommendations for pulling or towing.
- Lower all the hydraulic equipment before shutting down or getting off the machine.

H. Ether - Cold Start Precautions

- Diesel cold start systems contain ether, which is explosive. Keep away from heat, sparks, and open flames. Work in a well-ventilated area.
- If swallowed, breathed or contacted on skin or eyes seek medical attention immediately. Follow recommendations on the MSDS sheets.
- Point the openings of the valve, tube or atomizer away from yourself and others while testing the diesel cold start system.
- Store replacement ether cylinders in a cool dry place away from direct sunlight. Do not keep them in the operator's compartment.

I. Operating equipment with Power Take-Off (PTO)

- Shut off the engine and wait until the PTO stops completely before getting off, disconnecting or servicing the PTO unit.
- Wear snug fitting clothing when operating the power take-off, or when near rotating equipment.
- When operating stationary PTO equipment, always apply the parking brake and block the rear wheels front and back to prevent any unnecessary movement.
- PTO shields are mandatory on all PTO-driven equipment.

J. Refueling

- Shut off and cool the engine and any electrical equipment before fueling.
- Ensure the fueling area is well ventilated.
- DO NOT smoke while refueling. Keep open flames and sparks away from area.
- Ground the funnel or fuel nozzle against the filler neck to avoid sparks when refueling.
- DO NOT use gasoline or diesel fuel for cleaning parts.
- Check the battery and electrolyte levels according to manufacturers instructions.
- Know where the fire extinguishers are located.

K. Road Rules

- When turning, use hand or turn signals.
- Obey all traffic regulations. Know local traffic laws regarding lights, warning signs, load limits, and slow moving equipment on highways/roadways.
- When backing up traffic, pull over and allow the vehicles to pass.

L. Shut Down/Parking

- Park on level ground.
- When parking on a grade, block the wheels and set the parking brakes.
- When parking, lower all loader, buckets, and hydraulics to the ground.

7.1 PRINCIPLES OF SAFE OPERATION

It is the expectation of CSUCI that anyone who operates heavy equipment will do so in a manner that does not increase the possibility of an accident. The commitment to safe operation takes place long before heavy equipment gets used. The following are considered leading indicators of safe operation.

- a) Appropriate training that leads to certification, licensing and authorization.
- b) Using pre-use checklists, setting minimal operational standards, and operators' commitment to using fully functional equipment.
- c) Knowing, understanding and following all applicable standards as well as manufacturer's recommendations on every piece of equipment in operation.
- d) Recognition of site-specific conditions through use of Job Safety Analysis (JSA).
- e) Supervisions' ability to enforce safe work practices.

By adhering to these practices every time heavy equipment is used the risk of loss is significantly reduced. Any operation *inconsistent* with these references is considered unsafe and subject to disciplinary action. The following are examples of safe operation:

1. Stunt driving and horse play are strictly forbidden.
2. All operators must obey any posted speed limits signs, postings, audible, and visual warning devices under all travel conditions.

3. Wear appropriate PPE for equipment and task being performed (i.e., safety vest for visibility, body harness for aerial lifts, etc).
4. Operators are responsible to keep equipment under control at all times and shall slow down for conditions of wet or slippery ground/floors, limited work access, high traffic areas of vehicles, and pedestrians and weather factors. Keep speeds low on rough terrain. Bouncing, bucking, or side hopping because of excessive speed may cause loss of control of the machine.
5. Equipment operators shall keep both hands free to operate the mobile equipment; eating, drinking, reading, texting, and talking on a phone are prohibited while operating any mobile equipment.
6. Operator shall not walk under or allow anyone to work under an elevated or suspended load.
7. Operators shall keep all body parts inside the vehicle while traveling and wear seatbelts when installed on equipment.
8. Riders are not permitted unless the equipment has additional seating.
9. All equipment rated capacities shall not be exceeded; the capacity shall be readily visible to the equipment operator.
10. There must be adequate overhead clearance maintained from lights, sprinklers, pipes or any other overhead obstructions.
11. Employees should stay at least 10 feet away from energized or live overhead power lines and maintain safe distances from any other energy sources. (Refer to the CSUCI Electrical Safety program)
12. Equipment operators should avoid sudden movements of any control levers; always maintain smooth control of the equipment.
13. Equipment operators must have knowledge of controls and emergency procedures for manual lowering of any lift in case of power failure.
14. Interlocks or other safety devices shall not be altered.
15. Never drive up to anyone standing in front of a fixed object.
16. Equipment operators shall maintain safe distances from edges, such as excavations, elevated ramps, platforms, and people. Use extreme caution when approaching or operating near excavations, the weight of the machine or vibration may cause the edges to collapse.

17. When leaving free moving equipment unattended (greater than 25 feet is abandoned), the equipment operator shall place the bucket/basket/attachment on the ground/floor; put the equipment in neutral; set the brakes; shut-off the equipment, remove the key; and block the wheels if on a ramp.
18. While negotiating turns, ramps, inclines or change in grades, the operating speed must be reduced to a safe level. Equipment operators must know that most heavy equipment does not maneuver as an automobile and properly operate the equipment as needed.
19. Equipment operators must avoid running over loose materials, uneven or soft surfaces and slippery areas. All travelling surfaces shall be able to support the weight of the equipment and the load.
20. Do not reach through the door, mast, or over railing to operate the equipment from the floor or ground unless the equipment is made for that type of operation.
21. A spotter for heavy equipment is required during transportation of oversized loads, traveling outside of CSUCI facilities, or when lifting personnel in OSHA approved safety cages. (Currently CSUCI utilizes aerial lifts and/or scissor lifts for personnel access to inaccessible work areas rather than using an OSHA approved safety cage.

7.2 SERVICE AND MAINTENANCE

If at any time heavy equipment is found to be in need of repair, defective, or in any way unsafe, the machine will be taken out of service until it has been restored to safe operating condition.

- Fuel tanks must not be filled while the engine is running.
- Spillage of oil or fuel must be carefully washed away or completely evaporated and the fuel tank cap replaced before restarting engine.
- No equipment will be operated with a leak in the fuel system until the leak has been repaired.
- Open flames must not be used for checking electrolyte level in storage batteries or gasoline level in fuel tanks.
- ONLY authorized personnel will make all repairs.
- No repairs will be made in Class I, II, and III locations.

Class I	Class II	Class III
Locations in which flammable gasses or vapors are, or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures.	Locations which are hazardous because of the presence of combustible dust.	Locations where easily ignitable fibers are present but not likely to be in suspension in quantities sufficient to produce ignitable mixtures.

- Those repairs to the fuel and ignition systems, which involve fire hazards, will be conducted only in locations designated for such repairs.
- Equipment in need of repairs to the electrical system will have the battery disconnected prior to such repairs.

- Heavy equipment parts requiring replacement will be replaced with parts equivalent as to safety with those used in the original design.
- Equipment will NOT be altered so that the relative positions of the various parts are different from what they were when originally received from the manufacturer, nor will they be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts, except for fuel system conversions.
- Equipment will be examined before being placed in service, and will not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Inspections will be made at least daily.
- Where heavy/mobile equipment is used on a round-the-clock basis, it will be examined after each shift. Defects when found will be immediately reported and corrected.
- Water mufflers must be filled daily or as frequently as is necessary to prevent depletion of the supply of water below 75 percent of the filled capacity. Vehicles with mufflers having screens or other parts that may become clogged will not be operated while such screens or parts are clogged. Any vehicle that emits hazardous sparks or flames from the exhaust system will immediately be removed from service and not returned to service until the cause for the emission of such sparks and flames has been eliminated.
- When the temperature of any part of any equipment is found to be in excess of its normal operating temperature, thus creating a hazardous condition, the equipment will be removed from service and not returned to service until the cause for such overheating has been eliminated.
- Heavy/mobile equipment will be kept in a clean condition, free excess oil, and grease.
- Noncombustible agents should be used for cleaning equipment. Low flash point (below 100 F.) solvents must not be used. High flash point (at or above 100 F.) solvents may be used. Precautions regarding toxicity, ventilation, and fire hazard will be in agreement with the agent or solvent used.
- All equipment left unattended at night, adjacent to a roadway in normal use, or adjacent to construction areas where work is in progress, will have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, to identify the location of the equipment.
- A safety tire rack, cage, or equivalent protection will be provided and used when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locking rings or similar devices.
- Heavy machinery, equipment, or parts thereof, which are suspended or held aloft by use of slings, hoists, or jacks will be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between them.
- Equipment with any type of dumping body capability will be either fully lowered or blocked when being repaired or when not in use. All controls will be in a neutral position, with motors stopped, and brakes set unless work being performed requires otherwise.
- Whenever the equipment is parked, the parking brake will be set. Equipment parked on inclines will have the wheels chocked and the parking brake set.

- The use, care and charging of all batteries will conform to the following:
 - Ventilation will be provided to ensure diffusion of the gases from the battery and to prevent the accumulation of an explosive mixture.
 - Face shields, aprons, and rubber gloves will be provided for workers handling acids or batteries.
 - Facilities for quick drenching of the eyes and body will be provided within 25 feet of battery handling areas.
 - Facilities will be provided for flushing and neutralizing spilled electrolyte and for fire protection.

8.0 ADDITIONAL SAFETY GUIDELINES

Many injuries involving heavy equipment do not occur to the operator, but are inflicted on ground personnel working in or around the vicinity of moving machines.

Always be aware of the location of personnel working near your machine. Heavy equipment operations frequently require the aid of ground personnel who should be thoroughly familiar with the procedures of your operation and the capabilities of the machine. Usual operating procedures should not be changed without first notifying ground personnel.

Never assume that assigned ground workers will watch out for themselves. Always know the location of ground personnel. If they are not visible, **DO NOT MOVE THE MACHINE OR ANY IMPLEMENTS!** When working in conjunction with ground personnel, never operate equipment at speeds that would necessitate ground personnel to work in a careless manner. *REMEMBER*, ground personnel depend on the skill and judgment of a trained operator, as do all personnel in the immediate work area.

- Read the operators manual and operate the equipment only if trained and authorized to do so.
- Do a walk around to make sure the area is clear before moving the machine.
- Start machine only while sitting in the operator's seat and all personnel are clear.
- Ensure all controls are in the neutral position before starting the machine.
- Keep tires properly inflated. Improper inflation may cause the machine to tip over under load.
- Check for overhead lines or obstructions before raising any overhead implement.
- DO NOT allow the tires to spin when picking up or pushing a load.
- DO NOT walk, work, or allow personnel under any raised part of heavy equipment.
- DO NOT use heavy equipment for demolition of structures that are taller than the machine without overhead protection sufficient to withstand the debris likely to impact the cab.

- DO NOT under-cut a bank that is higher than the machine.
- Use extreme caution when approaching or operating near excavations, the weight of the machine or vibration may cause the edges to collapse.
- Dust suppression and control is required where dust seriously limits visibility.
- Pre-wet soil to make loading easier and to aid in dust control.
- DO NOT use heavy equipment as a battering ram.
- In tight turns, make sure the machine has clearance in front and rear if equipped with rear implements.
- DO NOT place any part of your body under any raised implement at any time unless it is properly blocked.
- All underground utilities in the work area must be located prior to digging. Utility companies must be notified of your intention to excavate within established, or customary, response times. When excavations approach the estimated location of underground utilities, the exact location must be determined and marked.
- Wherever equipment operations encroach on a public thoroughfare, a system of traffic controls must be used.
- Flaggers are required at all locations where barricades or warning signs cannot control moving traffic.
- NEVER use an elevating part of heavy equipment as a man-lift.

Using well-trained employees, along with properly maintained and serviced equipment, increases the productivity and safety of heavy equipment operation. A well laid out worksite and work plan always improves efficiency and safety on the jobsite.

9.0 REQUIRED POSTINGS

OSHA Operating Rules for Industrial Trucks must be posted and enforced (Appendix E)

OSHA Agricultural-Industrial Tractors Employee Operating Instructions must be posted and enforced (Appendix F)

10.0 REFERENCE

The University has developed this program in accordance with:

- ◆CCR Title 8, subchapter 7, Group 4- General Mobile Equipment and Auxiliaries
 - Article 23- Mobile Ladder Stands and Scaffolds
 - Article 24- Elevating Work Platforms and Aerial Devices
 - Article 25- Industrial Trucks, Tractors, Haulage Vehicles, and Earthmoving Equipment

- ◆29 CFR 1926.453, .602, and .952- Aerial Lift; Material Handling Equipment; and Mechanical Equipment
- ◆29 CFR 1910.67 Vehicle-Mounted Elevating and Rotating Platforms
- ◆Statement of Best Practices, Aerial Work Platform Equipment, Feb. 2010 Edition (developed by the Association of Equipment Manufacturers, the Scaffold Industry Association, the Associated Equipment Distributors, American Rental Association, and the International Powered Access Federation).

APPENDIX A

CSUCI- Heavy Equipment Program
Pre-Use Checklist

Aerial Lift# <input type="checkbox"/>	6 UW\ cY# <input type="checkbox"/>	Dingo and attachments <input type="checkbox"/>	Dump Truck / Dump Body <input type="checkbox"/>	: cf_`jz <input type="checkbox"/>	HfUWcf <input type="checkbox"/>
Make/Model #	Location	Asset #			
Operator / Employee Name:	Date:	🕒 Time OUT:	🕒 Time IN:		
<u>Every operator must inspect equipment before use.</u>					
“N” means <u>no</u> defects, damage or anything that would limit use					
“Y” means defects or damage found which <u>compromises</u> use or safety- SERVICE REQUIRED					
Pre-Start			"N"	"Y"	
Operators manual, nameplate, and warning labels					
Leaks – fuel, hydraulic, engine,					
Tires – condition and pressure					
Levels – fuel, hydraulic, engine,					
Battery – secure, no leaks or damage					
Seat Belt					
No visible damage- ROPS, shields/guards, platforms, extenders, attachments,					
<u>For any defects or damage - contact Fleet Mechanics for service!</u>					
NOTES:					
Warm-up			"N"	"Y"	
Gauges/Instruments - functioning					
Lights, horn, back-up alarm					
Accelerator - smooth					
Drive control (Fwd & Rev) - smooth					
Braking - smooth					
Operator Controls – functional					
Auxiliary Controls, if equipped					
<u>For any defects or damage – contact Fleet Mechanics for service!</u>					
NOTES:					
Operator Signature:			Date:		

APPENDIX B

**CSUCI
HEAVY EQUIPMENT OPERATOR
TRAINING CERTIFICATION FORM**

Employee Name:	
Department / Shop:	
Location:	
Equipment / Make / Model:	
Trainer Name:	
Training Date(s):	

Training included the following topics. Instructor should indicate and initial the dates that a particular topic was completed.

Equipment-Related Topics

Date	Topic	Trainers Initials
	Operating instructions, warnings, and precautions for the types of equipment the operator will be authorized to operate.	
	Differences between the equipment and an automobile (e.g., turn radius, braking ability, visibility of surroundings, blind spots, etc.).	
	Equipment controls and instrumentation; where they are located, what they do, and how they work. Engine or motor operation.	
	Steering and maneuvering.	
	Visibility (including restrictions due to loading).	
	Implement and attachment adaptation, operation, and use limitations.	
	Equipment capacity.	
	Equipment stability.	
	Equipment Inspection and Maintenance Requirements. (including the Heavy Equipment Pre-Use Checklist)	
	Refueling and/or charging and recharging of batteries.	
	Operating limitations.	
	Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of equipment that the employee is being trained to operate.	

Workplace-Related Topics

Date	Topic	Trainers Initials
	Surface conditions where the equipment will be operated.	
	Composition of loads to be carried and load stability.	
	Load maneuvering, loading, and unloading.	
	Pedestrian traffic in areas where the equipment will be operated.	
	Hazardous (classified) locations where the equipment will be operated.	
	Ramps and other sloped surfaces that could affect the vehicle's stability.	
	Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause buildup of carbon monoxide or diesel exhaust.	
	Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.	

I have been instructed in the safe operation of the equipment identified at the top of this form. Training included the topics identified above. I have read, understand and agree to abide by CSUCI Heavy Equipment Program *as well as the manufacturer's User's Manual/Safety Guidelines for the equipment.*

Employee/Operator Signature:		Date:	
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The individual identified above has been instructed in and evaluated on the safe operation of the equipment identified at the top of this form. Instruction included the topics identified in the tables presented above.

Trainer Signature:		Date:	
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APPENDIX C

**HEAVY EQUIPMENT OPERATOR
EVALUATION/EMPLOYEE CERTIFICATION FORM**

Employee/Operator Name:	
Department / Shop:	
Equipment / Make / Model:	
Date:	
Evaluator Name:	
Department Head:	

This evaluation is to be completed upon completion of initial or refresher training of the Heavy Equipment Operator, and at a minimum frequency of every three years thereafter.

EMPLOYER CERTIFICATION

I certify that the individual identified above has been instructed and evaluated in the safe operation of the equipment identified at the top of this form. Training and evaluation were conducted in accordance with the CSUCI Heavy Equipment Program. The operator has been evaluated and been deemed competent in his performance of the following:

- Safely operates and does not abuse the equipment.
- Completion of pre-use equipment checklist.
- Keeping equipment clean and serviceable.
- Practices good driving habits.
- Identifying and reporting equipment wear, malfunctions, and damage.

Evaluator Signature:		Date:	
Department Head Signature:		Date:	

APPENDIX D

CSUCI Equipment in Fleet Service

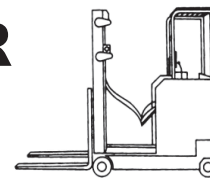
To follow is a list of specific equipment covered under the Heavy Equipment Program and currently in use at CSU Channel Islands. The Manufacturer's Owner's Manual and/or Operator's Manual for each piece of equipment will be maintained and available in the Fleet Services office.

Common Name	Equipment
Aerial Lift, to include: Boom Lift	Genie Z-60/34 Articulating Platform
Bucket Lift	Altec Lift on Ford F-550 Super Duty XL
Scissor Lift	JLG Industries, Platform Models 1932E2
Man Lift (single person lift)	Genie AWP-24 Man Lift
Backhoe	John Deere 310SG Backhoe Loader with 315SG Side Shift Loader
Dingo (Mini-Excavators)	Toro Dingo TX 420 with TX 425 Compact Utility Loader Auger Head & Swivel Head attachments Concrete Breaker attachment Hydraulic Trencher attachments
Dump Truck	Rugby Dump Body on Ford Triton F-450 Super Duty with
Skip Loader / Loader	J.I. Case 480C Loader Backhoe
Tractor	Ford 2910 Tractor, Model BA4140 John Deere Tractor 5065E

APPENDIX E (1)



OPERATING RULES FOR INDUSTRIAL TRUCKS



General Industry Safety Order 3664 Operating Rules (Part (a))

- (a) Every employer using industrial trucks or industrial tow tractors shall post and enforce a set of operating rules including the appropriate rules listed in Section 3650.

General Industry Safety Order 3650 Industrial Trucks. General (Part(s))

- (t) Industrial trucks and tow tractors shall be operated in a safe manner in accordance with the following operating rules:
- (1) Only drivers authorized by the employer and trained in the safe operations of industrial trucks or industrial tow tractors pursuant to Section 3668 shall be permitted to operate such vehicles.
 - (2) Stunt driving and horseplay are prohibited.
 - (3) No riders shall be permitted on vehicles unless provided with adequate riding facilities.
 - (4) Employees shall not ride on the forks of lift trucks.
 - (5) Employees shall not place any part of their bodies outside the running lines of an industrial truck or between mast uprights or other parts of the truck where shear or crushing hazards exist.
 - (6) Employees shall not be allowed to stand, pass, or work under the elevated portion of any industrial truck, loaded or empty, unless it is effectively blocked to prevent it from falling.
 - (7) Drivers shall check the vehicle at the beginning of each shift, and if it is found to be unsafe, the matter shall be reported immediately to a foreman or mechanic, and the vehicle shall not be put in service again until it has been made safe. Attention shall be given to the proper functioning of tires, horn, lights, battery, controller, brakes, steering mechanism, cooling system, and the lift system for forklifts (forks, chains, cable, and limit switches).
 - (8) No truck shall be operated with a leak in the fuel system.
 - (9) Vehicles shall not exceed the authorized or safe speed, always maintaining a safe distance from other vehicles, keeping the truck under positive control at all times and all established traffic regulations shall be observed. For trucks traveling in the same direction, a safe distance may be considered to be approximately 3 truck lengths or

General Industry Safety Order 3650 Industrial Trucks. General (Part(s)) Continued

- preferably a time lapse — 3 seconds — passing the same point.
- (10) Trucks traveling in the same direction shall not be passed at intersections, blind spots, or dangerous locations.
 - (11) The driver shall slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing.
 - (12) Operators shall look in the direction of travel and shall not move a vehicle until certain that all persons are in the clear.
 - (13) Trucks shall not be driven up to anyone standing in front of a bench or other fixed object of such size that the person could be caught between the truck and object.
 - (14) Grades shall be ascended or descended slowly.
 - (A) When ascending or descending grades in excess of 10 percent, loaded trucks shall be driven with the load upgrade.
 - (B) On all grades the load and load engaging means shall be tilted back if applicable, and raised only as far as necessary to clear the road surface.
 - (C) Motorized hand and hand/rider trucks shall be operated on all grades with the load-engaging means downgrade.
 - (15) The forks shall always be carried as low as possible, consistent with safe operations.
 - (16) When leaving a vehicle unattended (the operator is over 25 feet (7.6 meters) from or out of sight of the industrial truck), the brakes are set, the mast is brought to the vertical position, and forks are left in the down position, either:
 - (A) The power shall be shut off and, when left on an incline, the wheels shall be blocked; or
 - (B) The power may remain on provided the wheels are blocked, front and rear.
 - (17) When the operator of an industrial truck is dismounted and within 25 feet (7.6 meters) of the truck which remains in the operator's view, the load engaging means shall be fully lowered, controls placed in neutral, and the brakes set to prevent movement.

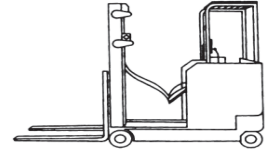
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APPENDIX E (2)

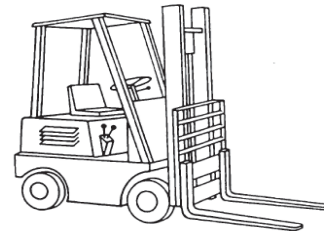
General Industry Safety Order 3650 Industrial Trucks. General (Part(s))

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- Exception:** Forks on fork-equipped industrial trucks may be in the raised position for loading and unloading if the forks are raised no more than 42 inches above the level where the operator/loaders are standing, and the power is shut off, controls placed in neutral and the brakes set. If on an incline, the wheels shall be blocked.
- (18) Vehicles shall not be run onto any elevator unless the driver is specifically authorized to do so. Before entering an elevator, the driver shall determine that the capacity of the elevator will not be exceeded. Once on an elevator, the industrial truck's power shall be shut off and the brakes set.
 - (19) Motorized hand trucks shall enter elevators or other confined areas with the load end forward.
 - (20) Vehicles shall not be operated on floors, sidewalk doors, or platforms that will not safely support the loaded vehicle.
 - (21) Prior to driving onto trucks, trailers and railroad cars, their flooring shall be checked for breaks and other structural weaknesses.
 - (22) Vehicles shall not be driven in and out of highway trucks and trailers at loading docks until such trucks or trailers are securely blocked or restrained and the brakes set.
 - (23) To prevent railroad cars from moving during loading or unloading operations, the car brakes shall be set, wheel chocks or other recognized positive stops used, and blue flags or lights displayed in accordance with Section 3333 of these Orders and Title 49, CFR, Section 218.27 which is hereby incorporated by reference.
 - (24) The width of one tire on the powered industrial truck shall be the minimum distance maintained from the edge by the truck while it is on any elevated dock, platform, freight car or truck.
 - (25) Railroad tracks shall be crossed diagonally, wherever possible. Parking closer than 8 1/2 feet from the centerline of railroad tracks is prohibited.
 - (26) Trucks shall not be loaded in excess of their rated capacity.
 - (27) A loaded vehicle shall not be moved until the load is safe and secure.
 - (28) Extreme care shall be taken when tilting loads. Tilting forward with the load engaging means elevated shall be prohibited except when picking up a load. Elevated loads shall not be tilted forward except when the load is being deposited onto a storage rack or

- equivalent. When stacking or tiering, backward tilt shall be limited to that necessary to stabilize the load.
- (29) The load engaging device shall be placed in such a manner that the load will be securely held or supported.
 - (30) Special precautions shall be taken in the securing and handling of loads by trucks equipped with attachments, and during the operation of these trucks after the loads have been removed.
 - (31) When powered industrial trucks are used to open and close doors, the following provisions shall be complied with:
 - (A) A device specifically designed for opening or closing doors shall be attached to the truck.
 - (B) The force applied by the device to the door shall be applied parallel to the direction of travel of the door.
 - (C) The entire door opening operation shall be in full view of the operator.
 - (D) The truck operator and other employees shall be clear of the area where the door might fall while being opened.
 - (32) If loads are lifted by two or more trucks working in unison, the total weight of the load shall not exceed the combined rated lifting capacity of all trucks involved.
 - (33) When provided by the industrial truck manufacturer, an operator restraint system such as a seat belt shall be used.



Operating rules for industrial trucks contained on this poster are current through Register 2009, No. 44 California Code of Regulations (operative 11-27-2009). Other rules may also apply.

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APPENDIX F

AGRICULTURAL – INDUSTRIAL TRACTORS

GENERAL INDUSTRY SAFETY ORDER 3664



(b) Every employee who operates an agricultural or industrial tractor shall be instructed in the following procedures and in any other practices dictated by the work environment. Such information shall be provided at the time of initial assignment and at least annually thereafter. Copies of these instructions, printed in a language understood by the majority of the employees, shall be conspicuously posted at a place frequented by the drivers.

EMPLOYEE OPERATING INSTRUCTIONS

1. Securely fasten your seat belt if the tractor has a ROPS.
2. Where possible, avoid operating the tractor near ditches, embankments, and holes.
3. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.
4. Stay off slopes too steep for safe operation.
5. Watch where you are going, especially at row ends, on roads, and around trees.
6. Do not permit others to ride.
7. Operate the tractor smoothly--no jerky turns, starts, or stops.
8. Hitch only to the drawbar and hitch points recommended by tractor manufacturers.
9. When tractor is stopped, set brakes securely and use park lock if available.

(c) Every employee who operates an agricultural or industrial tractor shall be required to check the tractor prior to operation each day and if it is unsafe report the matter immediately to a foreman or mechanic and shall not use the tractor again until it has been made safe.

(d) Employees shall be prohibited from stunt driving or horseplay while operating an agricultural or industrial tractor.

(e) No repairs shall be performed on any agricultural or industrial trucks or tractors until arrangements have been made to reduce the probability of injury to repairmen or others caused by sudden movement or operation of such equipment or its parts.

Department of Industrial Relations
Cal/OSHA Research and Education Unit
www.dir.ca.gov/dosh/puborder.asp
March 2006 – S-504