

Guarding of Farm Equipment

Self-Inspection Checklist



Optional Information

Name of School:
Date of Inspection:
Career-Technical program/course/room:
Signature of inspector:

Guidelines:

This checklist covers regulations issued by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) under the agricultural standard 29 CFR 1928.57. It applies to hazards associated with moving machinery parts of farm field equipment and farmstead equipment. The regulations cited apply only to private employers and their employees, unless adopted by a State agency and applied to other groups such as public employees. Definitions of terms in bold type are provided at the end of the checklist. This checklist does not address the regulations dealing with cotton gins. If cotton gins are encountered, consult 29 CFR 1928.57.

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U.S. Centers for Disease
Control and Prevention
National Institute for
Occupational Safety and Health

Safety Checklist Program for Schools
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1		<p>Have operating instructions been provided at the time of initial assignment and at least annually thereafter to all who come in contact with covered equipment? Do instructions discuss the safe operation and servicing of all farm equipment and include at least the following practices? [29 CFR 1928.57 (a)(6)]</p> <ol style="list-style-type: none"> 1. Keep all guards in place when the machine is in operation. 2. Permit no riders on farm field equipment other than those required for instruction or assistance in machine operation. 3. Stop engine, disconnect the power source, and wait for all machine movement to stop before servicing, adjusting, cleaning, or unclogging the equipment. If the machine must be running to be properly serviced or maintained, the teacher should instruct the students as to all steps and procedures that are necessary to service and maintain the equipment safely. 4. Make sure everyone is clear of machinery before starting the engine, engaging power, or operating the machine. 5. Lock out electrical power before performing maintenance or service work on farmstead equipment. <i>Note: Many injuries occur while machinery is cleaned, repaired, and adjusted. The service person must make sure that the equipment is shut off with the key removed or the power locked out, and that the machinery or components (such as headers or buckets) cannot come down on him or her. On hydraulically raised equipment, use the manufacturer's hydraulic cylinder safety stops if they were provided. If cylinders stops are not available, use solid blocking. Once cylinders are blocked, the engine is shut off, and the key is removed, rock the hydraulic control levers to relieve the pressure for the hydraulic cylinders. Sufficient pressure can be stored in the hydraulic system to inject fluid under the skin of a worker attempting to service the system, causing severe infection or injury.</i> <p>If jacks are needed, place them on firm, level surfaces, but use solid blocks to hold the machine in position. Do not rely on jacks or hydraulic for support; these can slip or develop leaks and the service person can be crushed.</p> <p>Trying to stop rotating machinery with a piece of wood or metal can draw the service person into the machine, or cause injury with flying pieces. Always service rotating machinery according to manufacturers specifications. For example, observe the manufacturer's torque specifications when replacing a knife, blade, or rotating equipment. At the speeds farm equipment rotates, a loose nut, bolt, or part can become a lethal projectile.</p>
2		<p>Have all students and teachers been protected against contact with the hazards created by moving machine parts by either of the following methods? [29 CFR 1928.57(a)(7)]</p> <ol style="list-style-type: none"> 1. Through the installation and use of a guard or shield or guarding by location. 2. By a guardrail or fence whenever a guard or shield or guarding by location is not possible. <i>Note: The clothing worn while working around moving machine parts can also help prevent entanglement. Work clothing should be well-fitting, zippered or buttoned, and not open. Frayed clothes, jackets, and sweat-shirts with drawstrings, and boots or shoes with long shoelaces should be avoided. A shoelace or loose string, thread, flap of cloth, or the corner of a jacket can become easily entangled. Long hair can be a hazard when working with farm machinery; it can be easily entangled.</i>
3		<p>When guards are used to provide protection required by this section, are they designed and located to protect against contact with the hazard being guarded? [29 CFR 1928.57(a)(8)]</p>
4		<p>Unless otherwise specified, is each guard and its support capable of withstanding the force that a 250-pound person, leaning on or falling against the guard, would exert on that guard? [29 CFR 1928.57(a)(8)(ii)]</p>
5		<p>Are all guards free from burrs, sharp edges, and sharp corners, and securely fastened to the equipment or building? [29 CFR 1928.57(a)(8)(iii)]</p>
6		<p>Whenever a moving machinery part presents a hazard during servicing or maintenance, is the engine stopped, the power source disconnected, and all machine movement stopped before servicing or maintenance is performed? [29 CFR 1928.57(a)(11)] <i>Note: Exceptions to this requirement are as follows: (a) the equipment must be running to be properly serviced or maintained; (b) the equipment cannot be serviced or maintained while a guard or guards required by this standard are in place; and (c) the servicing or maintenance can be safely performed.</i></p>

Farm Field Equipment

7	Are all power takeoff shafts, including rear-, mid-, or side- mounted shafts, guarded either by a master shield or by other protective guarding? [29 CFR 1928.57(b)(1)(i)]
8	Are all tractors equipped with an agricultural tractor master shield on the rear power take-off, except when the design of the power take-off driven equipment requires removal of the shield? [29 CFR 1928.57(b)(1)(ii)]
9	Does the master shield have sufficient strength to prevent permanent deformation of the shield when a 250-pound operator mounts or dismounts the tractor using the shield as a step? [29 CFR 1928.57(b)(1)(ii)]
10	Is power takeoff-driven equipment guarded to protect against employee contact with positively driven rotating members of the power-drive system, including the portion of the tractor power takeoff shaft that protrudes from the tractor if the master shield is removed? [29 CFR 1928.57(b)(1)(iii)]
11	Do signs placed at prominent locations on tractors and power takeoff-driven equipment specify that power takeoff-driven system safety shields must be kept in place? [29 CFR 1928.57(b)(1)(iv)]
12	Is the mesh or nip points of all power-driven gears, belts, chains, sheaves, pulleys, sprockets, and idlers guarded? [29 CFR 1928.57(c)(2)(i) and 29 CFR 1928.57(b)(2)(i)]
13	Are all revolving shafts, including projections such as bolts, keys, or set screws guarded, except smooth shaft ends protruding less than one-half the outside diameter of the shaft and its locking means? [29 CFR 1928.57(b)(2)(ii)]
14	Are ground driven components guarded? [29 CFR 1928.57(b)(2)(iii)]
15	Are the following components, which must be exposed for proper function, guarded as much as possible in a manner that will not interfere with normal functioning of the component: choppers, snapping or husking rolls, straw spreaders and choppers, cutterbars, flail rotors, rotary beaters, mixing augers, feed rolls, conveying augers, rotary tillers, rotary beaters, mixing augers, feed rolls, conveying augers, grain spreaders, stirring augers, sweep augers, and feed augers? [29 CFR 1928.57(b)(3) and 29 CFR 1928.57(c)(3)(i)]
16	Are guards, shields, and access doors in place when equipment is in operation? [29 CFR 1928.57(b)(4)(i)]
17	<p>If removal of a guard or access door will expose a person to any component that continues to rotate after the power is disengaged, has the teacher provided, in the immediate area, the following? [29 CFR 1928.57(b)(4)(ii)]</p> <ol style="list-style-type: none"> 1. A readily visible or audible warning of rotation 2. A safety sign warning the student to <ol style="list-style-type: none"> a. look and listen for evidence of rotation, and b. do not remove the guard or access door until all components have stopped.

Farmstead Equipment

18	Are all power take-off shafts including rear, mid-, or side- mounted shafts, guarded either by a master shield or other protective guarding? [29 CFR 1928.57(c)(1)(i)]
19	Is power takeoff-driven equipment guarded to protect against contact with positively driven rotating members of the power- drive system? [29 CFR 1928.57(c)(1)(ii)]
20	If power takeoff-driven equipment is of a design requiring removal of the tractor master shield, does the equipment also include protection for that portion of the tractor takeoff shaft that protrudes from the tractor? [29 CFR 1928.57(c)(1)(ii)]
21	Are signs placed at prominent locations on power takeoff- driven equipment specifying that power driven system safety shields must be kept in place? [29 CFR 1928.57(c)(1)(iii)]
22	Are all revolving shafts, including projections such as bolts, keys, or set screws, guarded? [29 CFR 1928.57(c)(2)(ii)] <i>Note: Exceptions to this requirement include (a) smooth shafts and shaft ends (without any projecting bolts, keys, or set screws) revolving at less than 10 rpm on feed handling equipment used on the top surface of material in bulk storage facilities; and (b) smooth shaft ends protruding less than one-half the outside diameter of the shaft and its locking means.</i>

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Farmstead Equipment		
23	Are sweep-arm material-gathering mechanisms used on top surfaces of materials within silo structures guarded? [29 CFR 1928.57(c)(3)(ii)]	
24	Is the lower or leading edge of the guard located no more than 12 inches above the material surface and no less than 6 inches in front of the leading edge of a rotating member of the gathering mechanism? [29 CFR 1928.57(c)(3)(ii)]	
25	Is the guard parallel to, and extended to the fullest practical length of, the material-gathering mechanism? [29 CFR 1928.57(c)(3)(ii)]	
26	Is exposed auger flighting on portable grain augers guarded with either grating type guards or solid baffle-style covers as follows? [29 CFR 1928.57(c)(3)(iii)] <ol style="list-style-type: none"> 1. The largest dimension or opening in grating-type guards through which materials are required to flow shall be 4-3/4 inches. The area of each opening shall be no larger than 10 square inches. The opening shall be located no closer to the rotating flighting than 2-1/2 inches. 2. Slotted openings in solid baffle-style covers shall be no wider than 1-1/2 inches or closer than 3-1/2 inches to the exposed flighting. 	
27	Are guards, shields, and access doors in place when the equipment is in operation? [29 CFR 1928.57(c)(4)(i)]	
28	Is the application of electrical power from a location not under the immediate and exclusive control of the person maintaining or servicing the equipment prevented by one of the following methods? [29 CFR 1928.57(c)(5)(i)] <ol style="list-style-type: none"> 1. Providing an exclusive, positive locking means on the main switch that can be operated only by the student or students performing the maintenance or servicing. 2. In the case of material handling equipment located in a bulk storage structure, by physically locating on the equipment an electrical or mechanical means to disconnect the power. 	
29	Are all circuit protection devices (including those that are an integral part of a motor) of the manual reset type, except in the following cases? [29 CFR 1928.57(c)(5)(ii)] <ol style="list-style-type: none"> 1. The teacher can establish that because of the nature of the operation, distances involved, and the amount of time normally spent by students in the area of the affected equipment, use of the manual reset device would not be possible. 2. An electrical disconnect switch is available to students within 15 feet of the equipment on which maintenance or service is being performed. 3. A sign is prominently posted near each hazardous component warning the student that unless the electrical disconnect switch is used, the motor could automatically reset while the student is working on the hazardous component. 	

Definitions

Farm field equipment: tractors, implements (including self-propelled implements), or any combination thereof used in agricultural operations.

Farmstead equipment: agricultural equipment normally used in a stationary manner. This includes materials handling equipment and accessories for such equipment, whether or not the equipment is an integral part of a building.

Guarding by location: a situation when, because of its location, no employee can come into contact with a hazard during operation, maintenance, or servicing.