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OSHA Machinery Guarding Standard for Agriculture

Joseph F. Gerling
Extension Safety Specialist

On March 9, 1976, the Occupational Safety and Health Administration (OSHA) issued a Machinery Guarding Standard for Agriculture. The purpose of the standard is to protect agricultural employees from hazards associated with the moving machinery parts of farm field equipment, farmstead equipment and cotton gins. Farm field equipment is equipment normally used in field operations. Included would be tractors, combines, balers, tillage equipment and other similar types of equipment. Farmstead equipment is equipment normally used in a stationary manner. Included in this group would be augers, grinder-mixers and other similar types of equipment. The purpose of this publication is to provide a clear summary of what the standard requires.

Complying with the standard

If you are a farm or ranch employer engaged in agricultural operations, effective October 25, 1976, you must comply with the safety requirements outlined in the following paragraphs.

1. All power take-off shafts and power take-off driven equipment must be guarded to prevent employee contact with the "positively driven rotating members of the power drive systems" (PTO shafts). This means that you, as a farm or ranch employer, cannot permit any of your employees to operate any tractor or PTO driven equipment, *regardless of the date of manufacture*, unless the power drive between the tractor and the implement is guarded.

This provision also requires that employee-operated tractors, again regardless of the date of manufacture, must be equipped with a master shield or other appropriate guarding device to prevent employer contact with the PTO shaft or stub that protrudes from the tractor.

Where original guarding devices have been misplaced or damaged beyond repair, PTO guards or shields equal to what the manufacturer originally provided with the tractor or implement must be installed. The best source of supply for these guards is the original manufacturer. Another possible source is salvage yards. As a last resort some employers may wish to fabricate their own guards in which case the fabricated guards must meet the following requirements.

- Each guard and its supports must be capable of withstanding the force that a 250-pound individual would exert when leaning on or falling against it.
- Each guard must be free from burrs, sharp edges, and sharp corners. It must be securely fastened to the equipment involved.

Also required are signs which must be placed in prominent locations on tractors and power take-off driven equipment specifying that PTO shields must be kept in place. This requirement applies to all employee-operated equipment *regardless of date of manufacture*. The most likely source of these signs is your farm equipment dealer.

2. Effective October 25, 1976, and at least annually thereafter, all employee operators must be instructed in the safe operation and servicing of the tractors, field equipment and farmstead equipment that they operate. (See section on Employee Training.)

3. On equipment manufactured *before* October 25, 1976, which has components that continue to rotate after the power is disengaged, you must provide a safety sign in the immediate vicinity of any guard or door which covers that component. This sign must warn your employees to look and listen for evidence of rotation and not to remove the door or guard until all movement has stopped. Again, the most likely source of these signs is your farm equipment dealer.

For employee-operated equipment manufactured *after* October 25, 1976, there must also be a readily visible or audible warning of rotation or such components. This would be something like a flashing light, bell or clicking sound. The responsibility of the employer here is to be sure that any new equipment purchased after October 25, 1976, is equipped with such warning devices.

4. All farm equipment *manufactured after October 25, 1976*, which is to be operated by an employee, must meet additional guarding requirements specified in the standard. The responsibility the employer has in regards to these requirements is to be sure that any new equipment purchased be equipped with all OSHA required guards and that these guards are kept in place.

Specifically, the standard states that on employee-operated equipment *manufactured after October 25, 1976*, the following requirements are in effect.

- The nip-points, also call "pinch" or "mesh" points on all driven gears, belts, chains, sheaves, pulley sprockets, idlers and rollers must be guarded.
- All revolving shafts must be guarded by either "free-turning" cylinder guards, rigid shields or be positioned inside the machine where employees can't contact the shaft when the machine is operating.
- Functional components (i.e. husking rolls, cutter bars, rotary beaters, grain spreaders etc.) on farmfield and farmstead equipment must be guarded to the fullest extent possible without interfering with their normal operation.
- Sweep arm materials gathering mechanisms used on the top surface of materials within silo structures must be guarded.
- Exposed auger flighting on portable grain auger elevators must be guarded with either grated or solid baffle style covers.

It is the responsibility of the employer to provide farm field and farmstead equipment that protects employees from coming in contact with moving machinery parts. You should be cautious when selecting new equipment and make sure it is equipped with all required guards before you buy.

5. All employee-operated electrically powered farmstead equipment, regardless of date of manufacture, must be equipped with mechanical or electrical disconnect devices designed to prevent the equipment from being inadvertently or accidentally started while it is being serviced or repaired. Appropriate disconnect devices include:

- a. A locking means (lock-out) on the main switch which can be operated only by the individual performing the maintenance or servicing, or
- b. in the case of material handling equipment located in bulk storage structures (for example, silo unloaders, bottom unloading augers in grain and feed bins and the like), by installing an electrical or mechanical means to disconnect the power on the equipment. This can be a manual switch or mechanical clutch—or any other mechanical or electrical device that will provide positive disconnection of power.

6. All circuit protection devices must be manual reset types including those which are an integral part of an electric motor. With electrically powered labor-saving equipment like center pivot irrigators and well pumps for livestock watering, automatic resets will be allowed where the employer establishes that due to the nature of the operation, manual resets are "unduly burdensome". However, if you do utilize automatic resets on the previously mentioned pieces of equipment, you must provide an electrical disconnect within 15 feet of the equipment so that your employees can shut the power off before servicing the equipment.

Also, a sign must be prominently posted near all electrically powered equipment equipped with automatic

resets, which warns your employees that unless the electrical disconnect switch is utilized, the motor could automatically restart while the employee is working on the component.

7. The standard also required that whenever a moving machinery part presents a danger during service or maintenance operations, the engine must be stopped, the power source disconnected and all machine movement stopped before the servicing or maintenance is performed. An exception to this rule is allowed when the employer establishes that the equipment must be running to be serviced properly or that servicing cannot take place while guards are in place.

Cotton gins

The guarding requirements for cotton gins are effective June 30, 1977. These requirements contain provisions for guarding of all main powered drives and all miscellaneous drives of the gin stand. More detailed information concerning the guarding requirements for cotton gins is being prepared and will be available in the near future.

Employee training

The employee operating instructions required by this standard must include at least the following five points:

1. Keep all guards in place when the machine is in operation.
2. Permit no riders on farm field equipment other than persons required for instruction or assistance in machine operation.
3. Stop the engine, disconnect the power source, and wait for all machine movement to stop before servicing, adjusting, cleaning or unclogging the equipment. (In cases where the machine must be running to be properly serviced or maintained, the employer must outline the steps and procedures necessary to safely service or maintain the equipment.)
4. Make sure everyone is clear of the machinery before starting the engine, engaging power, or operating the machine.
5. Lock out electrical power before performing maintenance or service on farmstead equipment.

For more information

For more information on the OSHA Machinery Guarding Standard or other OSHA Standards contact the OSHA area offices in Oklahoma.

For Eastern Oklahoma contact:

Occupational Safety and Health Administration
Room 514 Petroleum Building
420 S. Boulder
Tulsa, Oklahoma 74103
Phone: 918/581-7676

For Western Oklahoma contact:

Occupational Safety and Health Administration
500 Penn Place, Suite 408
Oklahoma City, Oklahoma 73118
Phone: 405/231-5353