



Safe Guarding of Agriculture Machinery

Guarding of Machinery

Farm machinery is subject to the requirements of the Health and Safety in Employment Act 1992 and Health and Safety in Employment Regulations 1995 which requires hazardous machinery to be identified, assessed and controlled. The Machinery Act 1950 requires all prime movers (engines, motors etc.), transmission machinery and dangerous parts of machinery to either be securely fenced or safe by position.

Securely Fenced

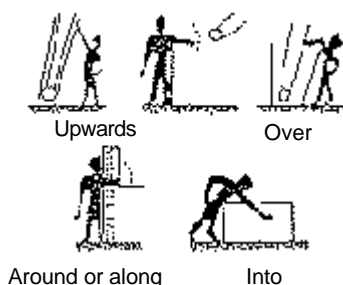
If the prime mover, transmission or dangerous parts of a machine are not safe by position, the machine shall be securely fenced by a fixed or interlock guard or automatic device that prevents access to the dangerous part.

Guards should be made of substantial materials such as sheet steel wire mesh wood or other rigid materials that cannot be damaged and securely fitted around the dangerous part.

Safe by Position

For machinery to be considered safe by position a person must not be able to reach the parts of the machine that may cause harm in accordance with the reasonable reach principles contained in the OSH publication, *The Ergonomics Of Machine Guarding*.

Reach



A person can reach: upwards, over, around or along and into. These capacities are illustrated below.

Reach is limited by the arms and, in the case of openings, by fingers and hands also. The distance a person can reach determines the minimum height of certain kinds of guards, or the minimum distance of barriers from the machines they are intended to fence.

Transmission Machinery

Transmission machinery is defined as “any shaft, driving belt and pulley, system of fast and loose pulleys, gearing, coupling, chain drive, or device where motion is transmitted or received by an engine or motor”.

Exposed v-belts and pulleys (examples include vacuum pumps; milk lift pumps and water pumps).

- Fit a guard which totally encloses the transmission.
- Fit a barrier around the transmission so it is totally enclosed.

Chain and sprocket drives (found on silage wagons etc.).

- Completely enclose the transmission.

Exposed Shafts and Moving Parts

Tractor stub shaft

- Fit a stub shaft shield to cover the universal.
- When not in use, fit a screw-on cover.

Power takeoff shaft

- Fit a guard over the full length of the PTO shaft and universal, which remains stationary while the shaft turns inside it.

Vacuum pump spindle

- Cut the spindle off flush.
- Fit a sleeve or cap-type guard.

Dangerous Part of Machinery

A dangerous part of a machine shall be securely fenced (guarded) unless it is in such a position or so constructed as to be safe to every person employed. Case law determines that, while secure fencing is decided on the layout-purpose of each piece of machinery, the provision made must be of the best known method. Its design requires it to protect not only the diligent and safe-minded worker but also a worker who is careless or even wilfully disobedient.

Shearing shed grinder

- Fit a periphery guard around the disc edge.

Screw elevator

- Enclose the screw auger with a tube or casing.
- The intake and out-feed should be securely fenced if it is not safe by position.

Power wool presses (Trapping area between the pressure plate and edge of the box or platen.)

- Fit a mechanically or electrically interlocked guard to prevent access to trapping area while in motion.

Baler conventional/round

- No involvement with operation of machine unless completely stopped/isolated.
- Do not pull baling twine out of the knotter while in operation. Remove twine before re-feeding bales; baling twine is too strong to break if anyone gets entangled. Never feed broken bales by hand—use a pitchfork or drive over again. On round balers the mechanical gate safety lock should be engaged before entering the open rear gate area. Don't rely on the hydraulic controls.

Flail mowers

- The sides down to the sled and top of the mower should cover the blades to prevent ejection of debris.
- Fit pivot bolts recommended by the manufacturer.
- Fitting a rubber skirt or chain around mower openings can reduce stones and objects being thrown.

Hydraulic Machinery

- The direction of movement of controls should correspond logically to the motion of the moving parts.
- Controls should be of a 'dead-man' or 'hold-to-run' type so that if released, the motion of the machine ceases.
- Controls are to be clearly identified.

- Ensure safety valves are fitted to relieve excess pressure.
- Know the safe working pressure of the system.
- Regularly check for hydraulic leaks.
- Shut-off valves and drain valves should be fitted to allow maintenance to be carried out safely.
- Because component failures may cause parts to move violently, hydraulic components and pipe work need to be positioned away from areas where people may be at risk. Alternatively they can be guarded.
- Tip truck decks and buckets on front-end loaders, etc. should not be left in the up position. Suitable support devices should be used if work is carried out under raised hydraulic machinery.

Have You Assessed the Critical Factors for Safeguarding Agricultural Machinery on the *Critical Factors Chart*?

- Is machinery adequately guarded or safe by position?:
 - V-belts and pulleys.
 - Chain drives and sprockets.
 - Spindles and shafts.
 - Dangerous parts of machinery.

References

Further information is contained in:

- Health and Safety in Employment Act 1992.
- Health and Safety in Employment Regulations 1995.
- Machinery Act 1950.
- *Guidelines for the Provision of Safety, Health and Accommodation in Agriculture*, available from OSH.
- *Guarding Farm Machinery*, available from OSH.
- *Farm Health and Safety Manual*, available from Federated Farmers.
- *Guarding of Floor-to-Floor Wool Presses*, available from OSH.
- *Guarding of Screw Conveyers*, available from OSH.
- *Ergonomics of Machine Guarding*, available from OSH.
- *Critical Factors Chart* available from OSH. (A guide for farmers to manage hazards in the workplace).