

437-002-0223 Oregon Rules for Commercial and Industrial Vehicles.**Roll-Over Protective Structures: Overhead Protection**

(1) Application. Roll-over protective structures (ROPS) shall be provided, installed and maintained on industrial vehicles which were manufactured after July 1, 1969. ROPS requirements apply to the following types of industrial vehicles and equipment: Rubber-tired self-propelled scrapers; front-end loaders and dozers; skid-steer equipment; wheel-type industrial tractors; crawler tractors; crawler-type loaders; and motor graders, with or without attachments, that are used in industrial work. This requirement does not apply to sideboom pipe laying tractors, or other vehicles whose structure prevents overturn, or to tractors used only in farming operations.

(2) ROPS – General Requirements.

(a) Roll-over protective structures and their supporting attachments to industrial vehicles shall be capable of supporting twice the weight of the vehicle, applied at the point of impact.

(b) The design objective for roll-over protective structures on industrial vehicles shall be to minimize the likelihood of a complete vehicle overturn, and to minimize the possibility of the operator being crushed.

(c) A vertical clearance of at least 52 inches between the work deck and the ROPS canopy is required for ingress and egress.

(d) ROPS which have been removed for any reason, shall be remounted with equal quality, or better, bolts or welding as required for the original mounting.

(3) Defects.

(a) Defects in ROPS shall be repaired by equal quality or better materials and welding as required for the original structure.

(b) Minimum performance criteria for roll-over protective structures for designated vehicles are contained in the following Society of Automotive Engineers (SAE) standards:

(A) Prime movers, for scrapers, water wagons, bottom dump wagons, side dump wagons, rear dump wagons, towed fifth wheel attachments. (SAE J320, September 1972)

(B) Wheeled front-end loaders and wheeled dozers. (SAE J394a, September 1972)

(C) Track-type tractors and front-end loaders. (SAE J395a, September 1972)

(D) Motor graders. (SAE J396a, September 1972)

(E) Wheel-type agricultural and industrial tractors. (SAE J167, 1971)

(F) Falling object protective structures (FOPS). (SAE J231, May 1971)

(4) Identification of ROPS. Each ROPS shall have the following information permanently affixed to the structure:

- (a) Manufacturer or fabricator's name and address;*
- (b) ROPS model number, if any; and*
- (c) Machine make, model, or series number that the structure is designed to fit.*

(5) Approved Structures. Any machine in use, equipped with roll-over protective structures, shall be deemed in compliance with OAR 437-002-0223(1) through (5) if it meets the roll-over protective structure requirements of the U. S. Army Corps of Engineers, or the Bureau of Reclamation of the U. S. Department of the Interior, in effect on April 5, 1972. The requirements in effect are:

- (a) U. S. Army Corps of Engineers: General Safety Requirements, EM-385-1-1 (March 1967).*
- (b) Bureau of Reclamation, U. S. Department of the Interior: Safety and Health Regulations for Construction, Part II (September 1971).*

Bridges, Roadways, and Ramps

(6) Roadways.

- (a) Roadways shall be of sufficient width and evenness to ensure the safe operation of equipment.*
- (b) Sufficient turnouts shall be provided and a safe side clearance shall be maintained along roads and runways.*
- (c) Low clearance areas under conveyors which could present a hazard to mobile equipment operations shall be identified by a suitable means, such as signs, contrasting colors, or flags.*
- (d) Broken planking, deep holes, large rocks, logs or other dangerous surface defects shall be corrected before any equipment is used thereon.*
- (e) Obstructions to clear view at intersections or on sharp curves shall be removed or all reasonable precautions taken to relieve the hazards of these conditions.*
- (f) An ample supply of nonskid materials, such as coarse sand or finely crushed rock, shall be available and used on slippery surfaces.*
- (g) Road grades shall not be too steep for safe operation of vehicles which operate over them and shall not exceed 20 percent in any case unless an auxiliary means of lowering vehicles is provided or unless vehicles are specifically designed and approved for operation on grades in excess of 20 percent.*

(7) Access Roadways, Grades.

(a) No employer shall move, or cause to be moved, vehicles upon any access roadway or grade unless the access roadway or grade is constructed and maintained to accommodate safely the movement of the equipment and vehicles involved.

(b) Every emergency access ramp and berm used by an employer shall be constructed to restrain and control runaway vehicles.

(c) Elevated bridges, runways or ramps and loading docks shall be constructed to safely support at least four times the weight of any load to which it may be subjected. Ramps shall be covered with a material which will minimize the danger of skidding.

(d) The maximum inclination of a ramp used for wheeled equipment shall not exceed 20 percent from horizontal.

(e) Elevated bridges, ramps or runways used for the travel of wheeled equipment shall have exposed sides guarded with a substantial bull rail or sheer rail of sufficient height to prevent wheeled equipment from going over the rail.

Stat. Auth.: ORS 654.025(2) and 656.726(4).

Stats. Implemented: ORS 654.001 to 654.295.

Hist: WCB Admin. Order, Safety 30-1974, f. 7/5/74, ef. 9/1/74.
WCB Admin. Order, Safety 23-1976, f. 9/8/76, ef. 11/15/76.
WCB Admin. Order, Safety 3-1977, f. 3/18/77, ef. 6/1/77.
WCD Admin. Order, Safety 7-1980, f. 6/20/80, ef. 7/1/80.
WCB Admin. Order, Safety 15-1984, f. 10/25/84, ef. 11/1/84.
WCB Admin. Order, Safety 3-1985, f. 2/22/85, ef. 3/1/85.
APD Admin. Order 4-1988, f. 3/14/88, ef. 3/14/88.
APD Admin. Order 2-1989, f. 3/1/89, ef. 3/1/89.
OR-OSHA Admin. Order 4-1990, f. 1/23/90, ef. 1/23/90.
OR-OSHA Admin. Order 13-1993, f. 8/20/93, ef. 11/1/93.
OR-OSHA Admin. Order 1-1996, f. 2/16/96, ef. 2/16/96.
OR-OSHA Admin. Order 6-2000, f. 6/26/00, ef. 6/26/00.
OR-OSHA Admin. Order 12-2001, f. 10/26/01, ef. 10/26/01.
OR-OSHA Admin. Order 2-2003, f. 1/30/03, ef. 1/30/03.
OR-OSHA Admin. Order 6-2007, f. 9/26/07, ef. 9/26/07.