

Training Module: Rollover Protective Structures (ROPS)

Objective: To understand risk of tractor overturns, and the effectiveness of the proper use of ROPS.

Trainer's Note: Discuss safe driving practices for farm tractors and machinery. Focus on the following safety precautions in preventing rollovers.

Background

Tractor rollovers account for 50% of tractor related fatalities in the United States. Distracted operators, speed, and rough or uneven ground are leading causes of tractor rollover. Rollover protective structures (ROPS) became available for tractors in the mid 1960's and were not available for all new tractors until the mid-70's. However, they were not standard equipment on new tractors until 1985. Many tractors built before that time are still in use and they contribute to the tractor fatality rate because they are not ROPS and seat belt equipped. Use of ROPS and seatbelt are 99.9% effective in preventing deaths due to tractor overturns.

OSHA requires ROPS and seatbelts to be installed on all tractors operated by employees.

For tractors that are not equipped with a ROPS, check with the manufacturer or dealer for the



availability of ROPS retrofit kits. If they are available, the tractor should be retrofitted. Install and use seat belts on tractors with ROPS. Seatbelts ensure that the operator stays within the “zone of protection” offered by the ROPS during a tractor mishap. Seatbelts should not be used on tractors without ROPS. Rollover protective structures do not prevent rollovers, but 99.9% effective in preventing death or serious injury. Distracted operators, speed, slopes, and uneven ground are leading causes of tractor rollover.

There are two types of rollover protective structures:

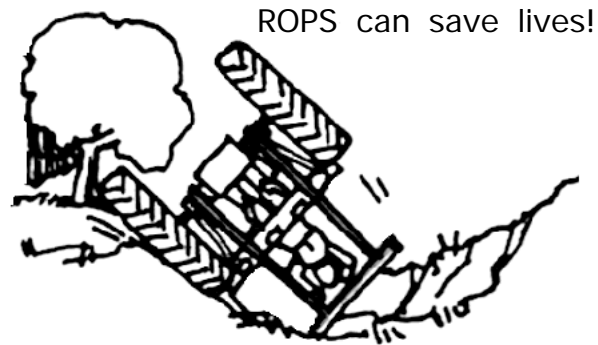
- Rollover Protective Frame
- Rollover Protective Enclosure

Rollover Protective Frame

These are either two or four post frames which are securely mounted to the main body of the tractor. Use the provided seat belt to keep the operator within the protected area.

Rollover Protective Enclosure

A rollover protective enclosure utilizes the protective frame, but totally encloses the frame with metal and glass. Seat belts are provided and must be used to contain the operator within the protected area. In addition, this cab enclosure gives protection from weather, dust, noise and vibration.



Enclosures on older tractors were designed for operator comfort not for rollover protection and they are not considered ROPS. ROPS must meet regulations and standards that certify that they provide adequate protection in a tractor rollover. To find out if a frame or enclosure is certified, look for a certification label, contact the manufacturer, or check for the presence of a manufacturer installed seatbelt.

Reducing the risk of a side rollover:

- Set wheels as far apart as possible.
- Lock the brake pedals together before high speed road travel.
- Match speed to operating conditions and loads. Do not let the front wheels bounce.
- Slow down before turning.
- Use engine braking when going downhill.
- Avoid crossing steep slopes. Watch for depressions on the downhill side and bumps on the uphill side. Turn downhill, not uphill, if stability becomes a problem.
- Stay at least as far from ditches and rivers as banks are deep.
- Keep front-end loader buckets as low as possible when moving.
- If right front tire goes off the road into the ditch--turn downward rather than attempting to turn back onto the roadway.

Reducing the risk for rear overturn:

- Always hitch loads at the drawbar.
- Use front weights to increase tractor stability.
- Start forward motion slowly and change speed gradually.
- If possible, avoid backing downhill.
- Drive around ditches.
- Back out or be towed out of ditches or mud.

Review The Following Points

- Install and use seat belts on tractors with ROPS.
- ROPS do not prevent rollovers from occurring.
- Most rollovers involve tractor speed, operator error, or unsafe driving conditions.
- Follow safety steps to prevent rollovers.

True or False Answer Key

1. T, 2. T, 3. T, 4. T, 5. F

Rollover Protective Structures (ROPS) Quiz

True or False

Name _____

- | | | |
|--|---|---|
| 1. There are two types of rollover protective frames used on tractors. | T | F |
| 2. Seat belts are to be worn on tractors with ROPS. | T | F |
| 3. Fifty percent of all tractor related deaths in the United States are the result of rollovers. | T | F |
| 4. To find out if a tractor frame or enclosure is certified, read posted label on equipment. | T | F |
| 5. All cab tractors are equipped with ROPS. | T | F |