

## Employee Handout - Skid control

### 1. Discuss the major causes of skids.

Content: Excessive speed for conditions is one of the major causes of skids. Drivers need to remain aware of road and weather conditions and adjust their vehicle speed accordingly. There are several vehicle maneuvers that contribute to skids (overbraking, oversteering, and overacceleration):

1. Overbraking is braking too hard and locking up the wheels. Skids can also occur when using the speed retarder on a slippery road.
2. Oversteering is turning the wheels more sharply than the vehicle can turn.
3. Overacceleration is supplying too much power to the drive wheels, causing them to spin.

The most common type of skid is caused when the rear wheels lose traction through excessive braking or acceleration.

Skids caused by acceleration usually occur on an icy or slippery roadway. The driver can stop an acceleration-caused skid by taking his/her foot off the accelerator

Rear wheel braking skids happen when the rear drive wheels lock. Because locked wheels have less traction than rolling wheels, the rear wheels slide sideways to try and catch up with the front wheels. When dealing with vehicles towing trailers, a drive-wheel skid can let the trailer push the towing vehicle sideways, causing a sudden jackknife. Remember, a locked or spinning wheel wants to lead.

Notes: Use visuals to help demonstrate what can cause a skid. A toy tractor-trailer modified so you can lock up one or several wheels when rolling it across a smooth surface (table top, plastic, etc.) can help in demonstrating your point. There are also several videos and slide presentations available that can help introduce the topic.

Exercises: None

### 2. Discuss tractor/trailer skids.

Content: Tractor-trailer skids are often classified based on what happens during the skid. There are four major types of skids:

- \* trailer jackknife;
- \* tractor jackknife;
- \* front wheel skid; and

\* all-wheel skid.

1) Trailer jackknife. Overbraking and/or oversteering can cause a trailer jackknife.

When overbraking, the trailer will continue moving forward at a higher speed than the tractor. The trailer will not be able to continue its forward movement, causing it to slide around, toward the front of the unit.

When taking a curve too fast for surface conditions, the rear of the trailer may continue in the same direction it was originally heading, while the tractor and front of the trailer turn.

There are several precautions a driver can take to help prevent a trailer jackknife:

- \* inspect the air system and check brake adjustment;
- \* adjust vehicle speed to suit conditions;
- \* read the road ahead;
- \* avoid braking in curves; and
- \* avoid hard braking.

2) Tractor jackknife. A tractor jackknife occurs when the drive wheels lose traction. The drive wheels attempt to overtake the front wheels causing the rear of the tractor to swing out. The tractor follows the path of least resistance while the trailer continues in its original direction. As the trailer pivots, it pushes the rear of the tractor outward, resulting in a jackknife.

There are several things a driver can do to prevent a tractor jackknife: avoid overbraking, overacceleration, and sudden downshifts. Load and secure cargo properly. Drivers also need to pay special attention to the brake system and tire tread when conducting required inspections.

3) Front wheel skid. Front wheel skids are often caused by reduced front wheel traction, lack of tread on front tires, hydroplaning, oversteering, or brake system malfunction.

A solid, detailed inspection and a reduction of speed on wet or slippery pavement are the best ways to prevent this type of skid.

4) All-wheel skids. In an all-wheel skid all wheels are locked. Friction (traction) changes from rolling to sliding (the wheels can't turn). Usually, during an all-wheel skid, the rig continues in a straight line despite the driver's efforts to steer. Many all-wheel skids are caused by overbraking on slippery surfaces.

Avoiding excessive braking (especially on slippery surfaces) is the best way to prevent an all-wheel skid.

Notes: Again, the use of a toy tractor-trailer is a good way to help drivers visualize the different types of skids. You may also want to open your session to discussion. Ask drivers to share their skid/skid control experiences. Ask them to explain the situation (snow, ice, sudden stop in traffic, etc.), explain what happened, and if they had to deal with the situation again what would they do differently or the same.

Exercises: None

3. Discuss skid recovery.

Content: There are several procedures a driver can use to help in recovering from a skid. The procedures range from countersteering to stopping braking.

1) Stop braking or accelerating. Push in the clutch and steer. This will allow the wheels to roll, and keep them from sliding any further.

2) Turn quickly. When the vehicle begins to slide sideways, quickly steer in the direction you want the vehicle to travel (on the road). The key is turning the wheel quickly.

3) Countersteer. As the tractor turns back on course, it has a tendency to keep turning. Unless the driver turns the steering wheel the other way (quickly) the vehicle may skid in the opposite direction.

To recover from a skid, drivers need to remember to stay off the brake, turn the steering wheel quickly, and remember to countersteer (when necessary).

Notes: Distribute the Skid Control handout included in this training program as a review of your lesson.

The best place to demonstrate and then practice skid recovery is on a range or skid pad. The more practice a driver gets the better he/she will be able to deal with a real-life situation. If your company doesn't have the facilities needed for a hands-on lesson, check with schools in your area. Some offer behind-the-wheel sessions for working drivers.

Also, there are several videos available that can help illustrate skid recovery.

Exercises: None