» TIRE WEAR CONDITIONS

Alternate Lug Wear

Appearance

What's Happening

The tire's lugs are not wearing consistently because they are not making uniform contact with the highway.

Probable Causes

- mismatched duals
- inconsistent dual inflation (10 PSI or greater)
- tread design/tire design

Corrective Action

Alternate lug wear may routinely develop on certain tread types. The only solution may be to select a different tread design. Inflate tires to fleet standard. Match duals by tire brand, size and series (difference of no more than 1/4" in overall diameter).

What to do with the tire

Continue to run tire. To obtain maximum mileage from the tread, rotate the tire to a different drive wheel position.

Both Shoulder Wear

Appearance

What's Happening

The tread is not making flat contact with the highway. The outer portions of the tread are carrying most of the load because the tire is underinflated for the load.

Probable Causes

- inflation pressure and load

Corrective Action

Refer to tire manufacturer's load and inflation table for recommended inflation pressure at the speeds the tire will operate. Establish a fleet standard inflation and maintain tire inflation to fleet standard.

What to do with the tire

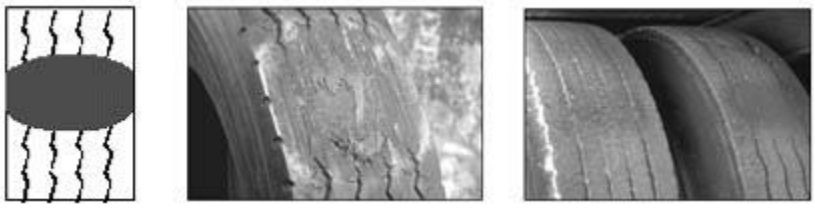
Because this tire has run underinflated for the load, it may have been damaged internally. Running underinflated can lead to zipper rupture, a very dangerous tire condition. Use extreme caution in handling this tire.

If tire inflation pressure is less than 80 per cent of fleet standard, deflate the tire by removing the valve core, then remove tire and wheel (or rim) assembly from vehicle. Demount tire. Ask your tire dealer to inspect the tire for evidence of run flat damage and, if none is found, to retread tire.

If tire inflation pressure is over 80 per cent of fleet standard, inflate (or deflate) tire to fleet standard and continue to run it.

Brake Skid

Appearance



What's Happening

The tire slid across the road surface, scuffing away the tread in one area. This generally happens as a result of brakes locking up due to brake malfunction or the driver aggressively applying the brakes in an emergency situation. Flat spotting can also occur if the tire sat in oil, fuel or chemicals.

Probable Causes

- brake lock due to malfunction or unbalanced brake system
- aggressive brake application
- tire sitting in oil, fuel or chemicals

Corrective Action

Look for scratches and directional abrasion in and near the flat spot. If you find them, the flat spot is due to brake lock. You will find similar abrasion on the mated dual. Check the dual tires on the opposite end of the axle. If they don't have similar flat spots, only one brake locked, indicating a single brake problem. Correct the brake problem.

If you find softened or discoloured rubber adjacent to the flat spot, chances are the tire sat in oil, fuel or chemicals. Avoid allowing tires to sit in such materials.

What to do with the tire

Tire must be removed from service. If a tire with a flat spot is mated with a normal tire, the normal tire will also develop a flat spot. Your tire dealer may be able to repair the damage. If damage is deeper than the top of the belt package, the tire must be scrapped.

Spotty Wear

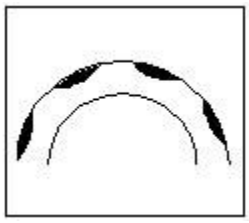
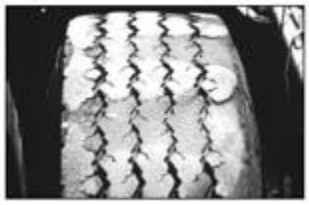
Appearance

Probable Causes

- mismounted tire/wheel assembly
- loose wheel bearings
- worn bearings, shocks, springs or other suspension components
- mismatched duals
- inconsistent dual inflation
- out of balance wheel assembly
- brake lock due to malfunction or unbalanced brake system
- aggressive brake application
- tire sitting in oil, fuel or chemicals

Cupping/Scalloping

Appearance


What's Happening

The tire is not tracking straight down the highway, but is bouncing sideways during parts of its rotation. It may be wobbling on the axle or rim. On trailers, the condition is aggravated by running empty. Because of the light load, the trailer begins to bounce, creating more irregular wear, which creates more bouncing, and so forth. The bouncing can create vehicle suspension component wear.

Probable Causes

- loose wheel bearings
- mismounted tire/ wheel assembly
- out of balance wheel assembly

- tread design/ tire design
- worn bearings, shocks, springs or other suspension components
- mismatched duals
- inconsistent dual inflation (10 PSI or greater)

Corrective Action

Tighten wheel bearings. Check wheel assembly for proper mounting of tire on wheel (or rim) and for proper mounting of axle. If you have many tires of the same tire brand and tread design with cupping/scallop wear, test other tire brands, tire series or tread designs. Match duals by the tire brand, size and series (differences no more than 1/4" in overall diameter). Inflate tires to fleet standard.

What to do with the tire

Continue to run tire.

Diagonal Wear

Appearance

What's Happening

The tire is not tracking straight down the highway. But is bouncing slightly sideways during parts of its rotation. It may be wobbling on the axle or rim. On trailers, the condition is aggravated by running empty. Because of the light load, the trailer begins to bounce, creating more irregular wear, which creates more bouncing, and so forth. The bouncing can create vehicle suspension component wear.

Probable Causes

- loose wheel bearings
- mismounted tire/ wheel assembly
- out of balance wheel assembly
- tread design/ tire design
- worn bearings, shocks, springs or other suspension components
- mismatched duals
- inconsistent dual inflation (10 PSI or greater)

Corrective Action

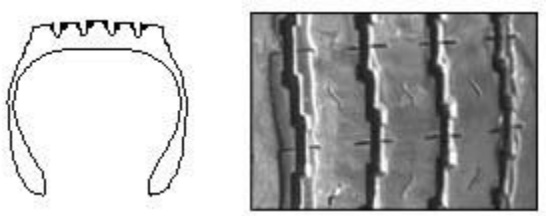
Tighten wheel bearings. Check wheel assembly for proper mounting of tire on wheel (or rim) and for proper mounting of axle. If you have many tires of the same tire brand and tread design with cupping/scallop wear, test other tire brands, tire series or tread designs. Match duals by the tire brand, size and series (differences no more than 1/4" in overall diameter). Inflate tires to fleet standard.

What to do with the tire

Continue to run tire.

Erosion Wear

Appearance



What's Happening

This condition happens most frequently in free rolling wheel positions and is typical of tires with a slow rate of wear. The longer a tire operates, the more likely it will develop this condition. This condition is not linked to any maintenance practices.

Probable Causes

The cause of this condition is tread element movement laterally, but it is not seen as a major problem since the tread on the tire is wearing so slowly and the accumulated mileage on the tread will be so great.

Corrective Action

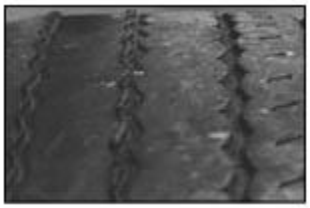
Continue to run tire.

What to do with the tire

Continue to run tire.

Feather Edge Wear

Appearance

What's Happening

The tire is not tracking straight down the highway, but is cocked slightly to the side.

Probable Causes

- vehicle misalignment

Corrective Action

Steer Tires

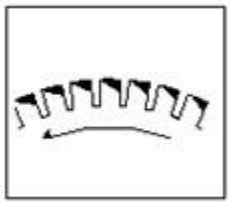
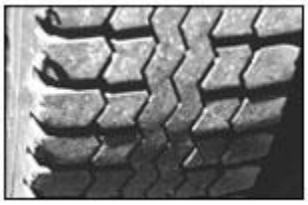
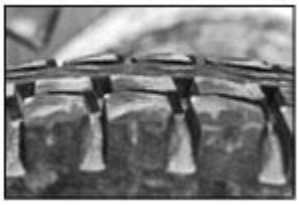
- If sharp edges on both steer tires are pointed to the centre of the vehicle, the cause is toe in. If the sharp edges on both steer tires are pointed toward the outside if the vehicle, the cause is toe out. Correct alignment
- If sharp edges point in on one tire and out on the other tire, the cause is rear axle misalignment. Correct alignment
- If only one of the steer tires has feather edge wear, the cause is a combination of incorrect toe and rear axle misalignment. Correct both. Drive or Trailer Tires
- align axle perpendicular to frame rail and parallel to other axles

What to do with the tire

Continue to run tire.

Heel/Toe Wear

Appearance

What's Happening

The trailing portion of the lugs are scuffing like a rubber eraser. The lugs are distorting during acceleration or during operation so they are not making flat contact with the highway.

Probable Causes

- mismatched duals
- inconsistent dual inflation (10 psi or greater)
- torque stress
- tread design/tire design

Corrective Action

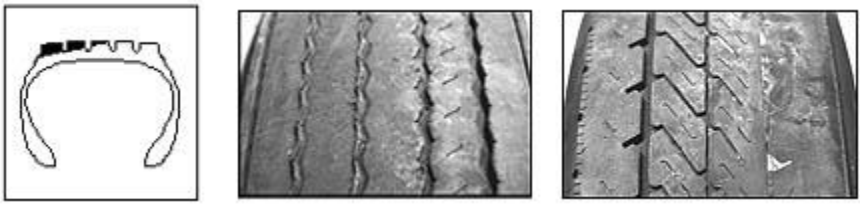
Match duals by tire brand, size and series (difference no more than 1/4" in overall diameter). Inflate tires to fleet standard. If the tractor has a single drive axle, torque stress may be unavoidable. Also, in some applications, heel/toe wear may routinely develop on certain tread types. The only solution may be a tread design with larger, more stable tread elements or solid outer ribs.

What to do with the tire

Continue to run tire. To obtain maximum mileage from the tread, rotate the tire to a different drive wheel position.

One-Sided Wear

Appearance



What's Happening

This tire is worn from corrective steering due to vehicle thrust (rear axle misalignment), cocked (toe in or out), tilted (camber) or the axle is bending due to overloading.

Probable Causes

- vehicle misalignment
- overloaded axles

Corrective Action

Steer Tires

- If one-sided wear is on the inside of one steer tire and the outside of the other steer tire, the cause is rear axle misalignment. Correct alignment
- If one-sided wear is on the outside of both steer tires, the cause is either toe in or camber. Check both and correct
- If one-sided wear is on the inside of both steer tires, the cause is either toe out, camber or overloaded axles. Check and correct toe and camber settings. Check load specifications on the axle and keep loads within specs

Drive or Trailer Tires

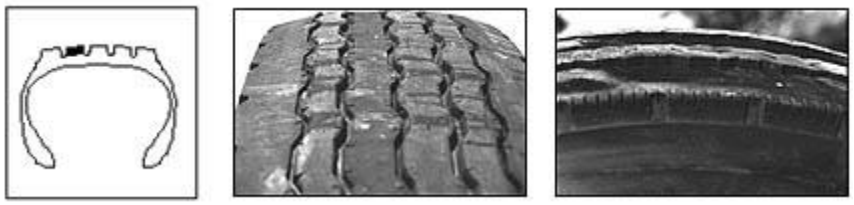
- align axle perpendicular to frame rail and parallel to other axles. If the axle is bending, check the load specifications on the axle and keep loads within specs

What to do with the tire

Continue to run tire. To obtain maximum mileage from the tread, rotate the tire to a different drive wheel position.

Rib Punch

Appearance



What's Happening

The worn areas are scrubbing the highway because the tread area is distorting in the footprint.

Probable Causes

Lack of shock absorber control in some suspension types, mismatched tire sizes and/or inflation pressures, loose or worn bearings, assembly non-uniformity such as improper bead seating and out-of-balance condition, aggravated by high speed empty hauls.

Corrective Action

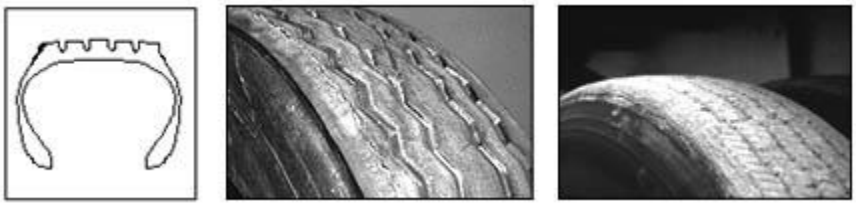
Probe the casing in the tread area and feel the liner for separation. If you cannot find one, contact your tire dealer for warranty consideration. If you have many tires with rib punch, consider a different tire manufacturer, tire series or tread design.

What to do with the tire

Remove tire from service and send it to your tire dealer.

Shoulder Scrubbing

Appearance



What's Happening

The tire is being dragged sideways (lateral scrubbing). This is commonly seen in vehicles operating in spread axle or multi-axle configurations and on trailers subjected to tight turning maneuvers.

Probable Causes

- lateral scrub

Corrective Action

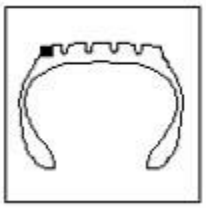
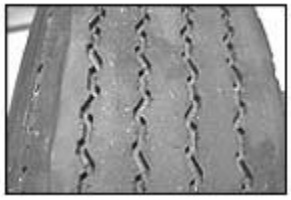
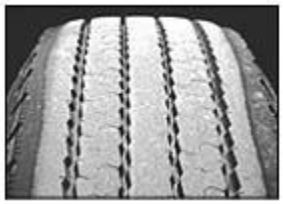
Lateral scrub may be unavoidable for some applications. Some treads are designed to overcome the problem of lateral scrubbing. Your tire dealer can also employ retreading procedures to help overcome the problem of lateral scrubbing.

What to do with the tire

Continue to run tire if wear has not reached tread wear indicators and scrubbing has not damaged the integrity of the casing. To obtain maximum mileage from the tread, rotate the tire to a different wheel position.

Shoulder Step

Appearance

What's Happening

This condition is typical of certain tire brands and long wearing tread designs. This condition is not linked to any maintenance practices.

Probable Causes

This condition is related to tread designs that provide extremely long wear. It is not seen as a major problem since the tread on the tire is wearing so slowly and the accumulated mileage on the tread will be so great.

Corrective Action

Tires with decoupling grooves appear to have a lower incidence of shoulder step/chamfer wear. If you have many tires with this condition, consider a tread design with a decoupling groove.

What to do with the tire

Continue to run tire.