TIRE SECTIONS

- Crown
- Shoulder
- Sidewall
- Bead
- Interior
Causes of Irregular Wear
Worn-Out Tires

Act as a messenger to indicate possible mechanical or tire maintenance problems
Irregular Wear Categories

• Consistent Circumferential Irregular Wear -- a wear pattern all the way around the tire

• Spotty Irregular Wear -- wear pattern in various places on the tire
Causes of Circumferential Irregular Wear

Maintenance Related
- Vehicle Alignment
- Inflation Pressure
- Mismatched Duals
- Inconsistent Dual Inflation

Operational Related
- Overloaded Axles
- Lateral Scrub
- Torque Stress
- Tread Design
FEATHER EDGE WEAR

- **Appearance**
  - One edge of each rib higher than the other
- **What’s happening**
  - Tire not tracking straight down highway
- **Probable causes**
  - Vehicle misalignment
    - toe
    - rear axle
- **Corrective action**
  - Steer tire
    - Correct toe in or toe out
    - Correct rear axle misalignment
  - Drive or trailer tires
    - Align axles
ONE-SIDED WEAR

• Appearance
  - Excessive wear on one side of the tire
  - May begin as feather edge wear and advance to one-sided wear

• What’s happening
  - Tire is worn from corrective steering due to vehicle thrust, cocked, tilted, or axle is bending

• Probable causes
  - Vehicle misalignment
    - rear axle
    - toe
    - camber
  - Overloaded axles
ONE-SIDED WEAR Continued

• Corrective action
  - Steer tires
    - Correct rear axle misalignment
    - correct toe in or toe out
    - check and correct camber
    - check load specifications on axles
  - Drive or trailer tires
    - align axles
EROSION/RIVER/CHANNEL WEAR

- **Appearance**
  - Wavy channel wear along rib edges following major tread voids

  **What’s happening**
  - Frequently occurs in free rolling wheel position
  - Typical of tires with *slow rate of wear*

- **Probable causes**
  - Tread element movement laterally

- **Corrective Action**
  - Continue to run tire
ALTERNATE LUG WEAR

• Appearance
  - Alternate lugs wearing faster than adjacent lugs
  - May skip some lugs

• What’s happening
  - Lugs not wearing consistently
  - Lugs not making uniform contact with highway

• Probable causes
  - Tread design
  - Inconsistent dual inflation
  - Mismatched duals

• Corrective Action
  - Consider different tread design
  - Inflate tires to fleet standard
  - Match duals by tread design and tires size
CAUSES OF CIRCUMFERENTIAL IRREGULAR WEAR

- Vehicle Misalignment
CAUSES OF CIRCUMFERENTIAL IRREGULAR WEAR

- Inflation Pressure And Load
  - Properly inflated for load
  - Under-inflated for load
  - Over-inflated for load
Air Pressure and Tire Inspection
Master Gauge and Monthly Checks
Single Axle with 3,000 pounds
Same Axle with 8,000 pounds
Same Axle with 18,000 pounds
ANY TIRE WITH LESS THAN 80% OF RECOMMENDED AIR PRESSURE IS SUSPECT TO ZIPPER
CAUSES OF CIRCUMFERENTIAL IRREGULAR WEAR

- **Mismatched Duals**

  The smaller tire has a smaller circumference, it should take more revolutions to cover the same distance as the larger tire. But because both tires are bolted together, they have to make an identical number of revolutions to cover a given stretch of road.
When Dual Tires Don’t Match Diameters

The only way the smaller tire can do that is to slip and skid as it is dragged along by the larger tire. The big tire wears out the smaller tire, while the smaller tire acts as a brake on the larger tire. This is one reason dual matching is so important.
Dual Matching

- Old rule – Anything less than 4/32nds tread depth variance was acceptable
- All tires are not created equal
- R195 can be ¾ inch smaller than a G302 casing
- Match casing manufacturer and model
- Measure with some type of tool
SPOTTY IRREGULAR WEAR
CONDITIONS OF SPOTTY IRREGULAR WEAR

- Cupping/scallop wear
- Diagonal wear
- Brake skid/flat spot wear
- Rib punch
CAUSES OF SPOTTY IRREGULAR WEAR

- 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 Misapplication
- Aggressive brake application
CUPPING/SCALLOP WEAR

- **Appearance**
  - Irregular, scalloped outer rib wear

- **What’s happening**
  - Tire not tracking straight down highway
  - Tire bouncing slightly sideways

- **Probable causes**
  - Loose wheel bearings
  - Mismounted tire/wheel assembly
  - Out of balance wheel assembly
  - Tread design
  - Worn bearings, shocks, springs or other suspension components
  - Mismatched duals
  - Inconsistent dual inflation
CUPPING/SCALLOP WEAR

Continued

- Corrective Action
  - Tighten wheel bearings
  - Check wheel assembly for proper mounting of tire on wheel and axle
  - Match duals by tread design and tire size
  - Inflate tires to fleet standard
DIAGONAL WEAR

- Appearance
  - Flat spots worn diagonally across tread, repeated around tire circumference
  - Tire pounding on highway
  - Tire vibration

- What’s happening
  - Tire not tracking straight down highway
  - Tire bouncing slightly sideways
Probable causes
- Loose wheel bearings
- Mismounted tire/wheel assembly
- Out of balance wheel assembly
- Tread design
- Worn bearings, shocks, springs or other suspension components
- Mismatched duals
- Inconsistent dual inflation

Corrective Action
- Tighten wheel bearings
- Check wheel assembly for proper mounting of tire on wheel and axle
- Test other tire brands, tire series or tread design
- Match duals by tread design and tire size
- Inflate tires to fleet standard
RIB PUNCH

- **Appearance**
  - Random wear in one or more ribs
  - May be in short sections or all the way around tire
- **What’s happening**
  - Worn areas are scrubbing the highway
- **Probable causes**
  - Misapplication
  - Tire manufacturing problem
- **Corrective Action**
  - Consider different tire manufacturer, tire series or tread design
Centering Hub
Piloted Wheel Systems
Tru-Balance is the first tool to provide accurate centering of UNI-Mount (hub-piloted) truck wheels. This tool was designed to minimize the wheel vibration that creates Mini/Maxi tire wear. This occurs when the wheel is not accurately centered on the studs. These easy-to-use tools are manufactured from mild steel and then heat-treated for wear, and to ensure perfect wheel alignment of 19.5, 22.5 and 24.5 UNI-Mount truck wheels. One set comes complete with three tools and a handy"
How to Use Your Tru-Balance Centering Pins

1. Wear safety glasses!

2. Jack up the vehicle until the tire is off the ground. Always use adequate jack stands.

3. Lubricate tool and install Tru-Balance tool at 1-2-4-8 o'clock positions. DO NOT USE AN IMPACT WRENCH.

4. Install wheel with Tru-Balance in place.

5. Install 7 wheel nuts and lightly tighten.

6. Remove Tru-Balance tools and replace with the 3 remaining nuts.

7. Tighten all nuts to wheel/stud manufacturer's specifications.

Care of Tru-Balance Tool

- DO NOT USE AN IMPACT WRENCH. Use of impact wrench will damage tool and void the warranty.
- Do not force into wheel stud hole.
- Do not use tool on cones. Use factory studs.
- Remove tools before moving truck.
- Tru-Balance is not responsible for improper use of tool.
THANK YOU

WE AT POMP’S TIRE SERVICE APPRECIATE YOUR BUSINESS