



MICHELIN TECH TALK



TIPS & ADVICE:
THE USUAL SUSPECTS
IRREGULAR TYRE
CONDITIONS & WEAR
PATTERNS



IRREGULAR STEER TYRE WEAR PATTERNS



ONE SIDED WEAR

Appearance	Wear increasing from one side to the other.
Probable Cause	Out of alignment specification parameters (camber, toe, axle parallelism).
Corrective Action	Check alignment and inspect for worn parts.
Tyre Disposition	Continue to run until minimum tread depth is reached.



SHOULDER STEP WEAR

Appearance	Partial or full depression of the inside or outside shoulder tread rib.
Probable Cause	This condition is common on radial tyres in slow wearing operations.
Corrective Action	None
Tyre Disposition	Continue to run or rotate.



EROSION/RIVER WEAR

Appearance	Circumferential worn area situated on the sides of the tread ribs.
Probable Cause	Condition most commonly occurs on slow-wearing radial tyres in steer or trailer position (free rolling).
Corrective Action	None
Tyre Disposition	Continue to run.



DEPRESSION WEAR (INTERMEDIATE)

Appearance	One or more interior ribs (not center) depressed more than adjacent ribs.
Probable Cause	Incorrect air pressure, worn mechanical part, or non-uniformity such as mismatch.
Corrective Action	Check air pressure and mechanical issues.
Tyre Disposition	Rotate or retread.



DIAGONAL WEAR

Appearance	Manifests in the form of oblique wear patches. Can appear singularly or repeat around the circumference of the tyre.
Probable Cause	Misalignment, radial and lateral runout, severely out of balance, loose wheel bearings or steering parts.
Corrective Action	Check for mismatch and worn parts.
Tyre Disposition	Reverse direction of tyre or retread.



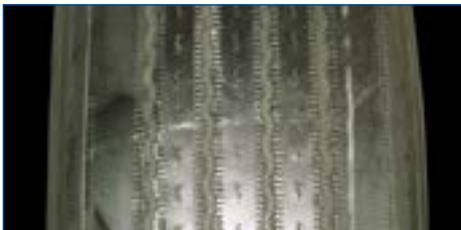
FEATHERING

Appearance	Feathering at the edge of the tread ribs.
Probable Cause	Usually the result of continued exposure to lateral force, such as excessive toe. Can also form as a result of counter-steering to compensate for drive axle misalignment.
Corrective Action	Check alignment.
Tyre Disposition	Rotate to another position or retread.



MULTIPLE FLAT SPOTTING WEAR

Appearance	Multiple radially worn areas around the tyre.
Probable Cause	Faulty shocks, loose/worn wheel bearings, severe balance issues, mismatched pressures or tyre diameters, excessive high-speed empty operation.
Corrective Action	Check for mechanical issue; check air pressure.
Tyre Disposition	Continue to run or retread.



DEPRESSION WEAR (SHOULDER)

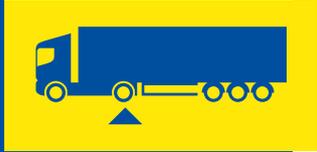
Appearance	Localized wear patch on the shoulder rib of the tyre. This patch can repeat around the circumference of the tyre.
Probable Cause	Faulty shocks, lateral runout, loose wheel bearings, mismatch, severe balance issue.
Corrective Action	Check for mechanical problem.
Tyre Disposition	Continue to run until minimum tread depth is reached.



DEPRESSION WEAR (CENTER)

Appearance	Circumferential depression wear of the center tread rib.
Probable Cause	Overloaded/underinflated, faulty shocks, loose wheel bearings, mismatch, high speed empty haul conditions.
Corrective Action	Check air pressures/load weight and worn parts.
Tyre Disposition	Continue to run, rotate or retread.

IRREGULAR DRIVE TYRE CONDITIONS



MULTIPLE CUTS/CHUNKING

Appearance	Numerous small cuts to the tread surface with portions of tread removed, giving a rough appearance.
Probable Cause	Vehicle operation on rough surfaces (misapplication of tread compound).
Corrective Action	Review tyre selection and operation.
Tyre Disposition	Minor damage; should return to service. Consult retreader for possible repair and retread.



VEHICLE/SPIN DAMAGE

Appearance	Cuts or lines 360 degrees around the tyre.
Probable Cause	Contact with vehicle components (mud flap brackets, bumpers), or spinning the tyres on ice or loose road surface.
Corrective Action	Analyze cause. Ensure tyre does not contact vehicle components. Review driver practices.
Tyre Disposition	Return to service if damage is not below base of tread groove. If deeper, retread or scrap.



BRAKE SKID DAMAGE

Appearance	Localized spot of excessive wear across tread face showing abrasion marks. Damage may extend into casing.
Probable Cause	New brakes (not worn in), unbalanced brake system, frozen brake lines, driver abuse.
Corrective Action	Check brake system.
Tyre Disposition	May be repaired or retreaded if casing is undamaged; otherwise, scrap.



STONE RETENTION/DRILLING

Appearance	Stones or gravel embedded between tread blocks, sometimes reaching steel cables.
Probable Cause	Condition is common with vehicles operating on gravel surfaces. Overinflation, misapplication of the tyre.
Corrective Action	Remove stones & return to service. Maintain proper inflation pressures.
Tyre Disposition	Continue to run unless there are multiple spots reaching steel cables. Consult retreader or tyre manufacturer.



HEEL/TOE WEAR

Appearance	Each lug around tyre worn high to low from front to back edge.
Probable Cause	Mismatched inflation pressure or tyre diameters in a dual assembly. High torque conditions, mountainous terrains, and high inflation pressures aggravate this condition.
Corrective Action	Review tyre maintenance practices. Consult tyre manufacturer when selecting tyre for operation.
Tyre Disposition	Continue to run. If severe, change direction of rotation.



CUPPING/SCALLOP/ALTERNATE LUG WEAR

Appearance	Localized cupped-out areas of fast wear around the tyre. Alternate lugs worn to different tread depths around the tyre.
Probable Cause	Mismatched inflation pressure or tyre diameters in a dual assembly. Aggravated by slow rate of wear, poorly maintained suspension components.
Corrective Action	Check for mechanical problem.
Tyre Disposition	Check for worn components, inflation pressures and matching tread depths.

IRREGULAR TRAILER TYRE CONDITIONS



DEPRESSION WEAR (INTERMEDIATE)

Appearance	One or more interior ribs (not center) worn below adjacent ribs around the tyre's circumference.
Probable Cause	Worn suspension components, mismatched dual diameter or inflation pressures, underinflation, improper bearing adjustment. Aggravated by high speed/light loads.
Corrective Action	Diagnose mechanical condition and correct.
Tyre Disposition	Continue to run until pull point, then retread.



DIAGONAL WEAR

Appearance	Localized flat spots worn diagonally across the tread, often repeating around the tyre.
Probable Cause	Improper bearing adjustment, misalignment, mismatched dual tyre diameter and/or inflation pressure. May start as brake skid. Aggravated by high speed/light loads.
Corrective Action	Analyze cause and correct.
Tyre Disposition	Reverse direction of rotation. If excessive, submit for retreading.



BRAKE SKID DAMAGE

Appearance	Localized spot of excessive wear across tread face showing abrasion marks. Damage may extend into casing.
Probable Cause	New brakes (not worn in), unbalanced brake system, frozen brake lines, driver abuse.
Corrective Action	Check brake system.
Tyre Disposition	May be repaired or retreaded if casing is undamaged; otherwise, scrap.



DEPRESSION WEAR (SHOULDER)

Appearance	Localized areas of wear in shoulder, generally less than 12" in length.
Probable Cause	Improper inflation pressure or tyre mismounted on wheel. Can also be caused by some other type of wheel end imbalance.
Corrective Action	Review tyre and wheel end maintenance practices.
Tyre Disposition	Continue to run until pull point, then retread.



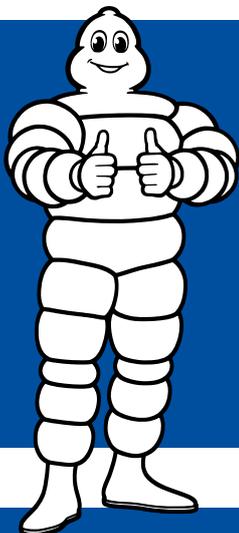
SHOULDER STEP WEAR

Appearance	Tyre worn on edge of one shoulder, greater than 12" in circumference.
Probable Cause	Excessive camber, misaligned or damaged axle, improper bearing adjustment.
Corrective Action	Diagnose misalignment and/or mechanical condition and correct.
Tyre Disposition	Reverse direction of rotation. If excessive, submit for retreading.



CUPPING / SCALLOP WEAR

Appearance	Random areas of fast wear around the tyre. Erratic in some instances.
Probable Cause	Mismatched inflation pressure or tyre diameters in a dual assembly. Aggravated by high speeds/light loads, poorly maintained suspension components.
Corrective Action	Check for worn components, inflation pressures and matching tread depths.
Tyre Disposition	Continue to run until pull point, then retread.



AT MICHELIN, WE UNDERSTAND THAT THE LIFESPAN OF THE TYRES IN YOUR FLEET IMPACTS YOUR BUSINESS. AND THEREFORE **WE ARE COMMITTED** TO HELPING YOU OPTIMISE THIS AND MAKE EVERY MILLIMETRE COUNT.

