



Truck Tire Operator's Manual and Limited Warranty

(Including Limited Warranty Coverage for Consumer Use)

INDEX

	Page		Page
MICHELIN® Truck Tire Limited Warranty	2-6	High Speed Driving	9
About This Warranty.....	2	Wheel Alignment, Tracking And Balancing.....	10
What Is Covered And For How Long – Commercial Use	2	Do Not Overload.....	10
What Is Covered And For How Long – Consumer Use	3	Tire Mixing	11
What Is Not Covered.....	4	Tire Alterations	11
How Replacement Charges Are Calculated	4-5	Retreads And Repairs.....	11-12
What You Must Do When Making A Claim	5	Storage.....	12
Conditions And Exclusions.....	5	Mounting Recommendations.....	13-14
Consumer Rights	6	Preparation Of Wheels And Rims	15
Safety Maintenance Information.....	6	 	
 		MICHELIN® X One® Tire Specific Information	16
Safety And Maintenance Recommendations	7-15	Pressure Maintenance	
Warning.....	7	Vehicle Handling	
Check Cold Inflation Pressures	7-8	Rapid Pressure Loss Techniques	
Inspect Your Tires	8	 	
Wear Bars	9	MICHELIN® Consumer Care Information	17

► MICHELIN® TRUCK TIRE LIMITED WARRANTY

► ABOUT THIS WARRANTY

As the original purchaser of a MICHELIN® brand truck tire, you are covered by all the benefits and conditions (subject to the maintenance recommendations and safety warnings) contained in this booklet. To ensure your understanding of and compliance with the terms and conditions of this warranty, please read it carefully. It is essential that you also read and understand the Safety and Maintenance Recommendations for your tires beginning on Page 7.

► WHAT IS COVERED AND FOR HOW LONG – COMMERCIAL USE

Workmanship and Materials

Except as limited below, MICHELIN® truck tires bearing the MICHELIN® name and complete serial and identification numbers, used in commercial service, according to the instructions contained in this Operator's Manual, are covered by this limited warranty

against defects in workmanship and materials for the life of the original tread. At that time, all warranties, express or implied, expire.

Certain MICHELIN® truck tires used only in long-haul service according to the instructions contained in this Operator's Manual, are covered by this limited warranty against defects in workmanship and materials for 700,000 miles, and up to 3 retreads for 7 years from the date of manufacture when retreaded by an authorized Michelin Retread Technologies (MRT) Dealer. At that time, all warranties, express or implied, expire. These products are identified with the designation "7 Year / 700,000 Mile / 3-Retread Manufacturer's Limited Casing Warranty" in the commercial literature.

Tires covered by this Extended Warranty must have been inspected by a MICHELIN® Truck Tire Retailer and retreaded by an authorized Michelin Retread Technologies (MRT) Dealer, in accordance with the repair and retreading standards set by the Tire Industry Association and Michelin Retread Technologies, Inc., (MRTI).

▶ **WHAT IS COVERED AND FOR HOW LONG – CONSUMER USE**

Workmanship and Materials

MICHELIN® truck tires bearing the MICHELIN® name and complete serial and identification numbers, used in consumer service, such as on a motorhome, according to the instructions contained in this Operator's Manual, are covered by this limited warranty against defects in workmanship and materials for the life of the original tread or five years from the date of purchase, whichever occurs first. At that time, all warranties, expressed or implied, expire.

Definitions

The life of the original usable tread is the original tread down to the level of the treadwear indicators – 2/32nds of an inch (1.6 mm) of tread remaining. Date of purchase is documented by new vehicle

registration or tire sales invoice. If no proof of purchase is available, coverage will be based on the date of manufacture, as molded on the sidewall. The date of manufacture is based on the original MICHELIN® DOT* number molded on the tire sidewall. The mileage received will be based on fleet records. Replacement will be made in accordance with the terms and conditions described under “HOW REPLACEMENT CHARGES ARE CALCULATED” on Page 4.

*DOT - Department of Transportation

► WHAT IS NOT COVERED

Tires/casings which become unserviceable due to:

- Road hazard injury (e.g., a cut, snag, bruise, impact damage or puncture);
- Incorrect mounting of the tire, tire/wheel imbalance, improper retread or improper repair;
- Misapplication, improper maintenance, racing, underinflation, overinflation or other abuse resulting in casing damage or fatigue;
- Accident, fire, chemical corrosion, contamination, tire alteration or vandalism;
- Flat spotting caused by improper storage;
- The addition of liquid, solid or gaseous materials other than air, nitrogen or carbon dioxide;
- Uses other than long haul service for any extended warranty casing claims;
- Uneven or rapid wear caused by mechanical irregularity in the vehicle, such as wheel misalignment, resulting in damage to the under-tread, carcass or steel belts;
- Ozone or weather checking.

► HOW REPLACEMENT CHARGES ARE CALCULATED

Workmanship and Materials

A tire which becomes unserviceable due to a condition covered by this workmanship and materials limited warranty will be replaced with a comparable new MICHELIN® truck tire, for a pro rata charge. The MICHELIN® Truck Tire Retailer will determine the charge by multiplying the percentage of the original usable tread worn by the current selling price at the adjustment location or the price on the current MICHELIN® Truck Tires Base Price List, whichever is lower.

You pay the cost of mounting, balancing, and any other service charges and applicable taxes.

Long Haul Tires with Extended Warranty

If your Long Haul tire covered by the “7 Year / 700,000 Mile / 3-Retread Manufacturer’s Limited Casing Warranty” becomes unserviceable due to a condition covered by this warranty before providing 700,000 miles and 3 retreads of service, Michelin will provide casing credit based on the following schedule:

<u>Life of Casing up to 7 Years</u>	<u>Casing Credit</u>
Original Tread	\$130.00
First, Second or Third retread	\$100.00

► WHAT YOU MUST DO WHEN MAKING A CLAIM

When making a claim under the terms of this limited warranty, you must present your tire/casing to a MICHELIN® Truck Tire Retailer. **You pay any service charges for normal vehicle and tire maintenance.**

► CONDITIONS AND EXCLUSIONS

Unless this limitation is prohibited by state law, this warranty does not provide compensation for loss of time, loss of use of vehicle, inconvenience, or incidental or consequential damages.

Tires/casings presented for claim remain the property of the owner/consumer, and MICHELIN® brand accepts no responsibility for loss of, or damage to, tires/casings, which are in the custody or control of a MICHELIN® Truck Tire Retailer for the purpose of inspection for warranty adjustment.

Tires accepted for claim become the property of Michelin North America, Inc, (MNA).

In the event of a disputed claim, the owner/consumer must make the tire available for further inspection.

No Michelin representative, employee or retailer has the authority to make or imply any representation, promise or agreement, which in any way varies the terms of this limited warranty.

This limited warranty applies **only** in the United States.

► **CONSUMER RIGHTS**

This limited warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

► **SAFETY MAINTENANCE INFORMATION**

Read the MICHELIN® Truck Tire Service Manual, the Truck Tire Operator's Manual and Limited Warranty, the information on the sidewall of your tires, your vehicle owner's manual and vehicle tire information placard for essential safety and maintenance information.

When Service Is Required:

1. Contact a MICHELIN® Truck Tire Retailer listed in the dealer locator on www.michelintruck.com.
2. If additional assistance is needed in locating a MICHELIN® Truck Tire Retailer, please call or write to MICHELIN® Consumer Care listed on Page 17.

► SAFETY AND MAINTENANCE RECOMMENDATIONS

► WARNING

Disregarding any of the safety precautions and instructions contained in this manual may result in tire failure or explosion causing serious personal injury or death.

► DRIVING ON ANY TIRE THAT DOES NOT HAVE THE CORRECT INFLATION PRESSURE IS DANGEROUS

Any underinflated tire builds up excessive heat that may result in sudden tire destruction. For replacement tires, the correct inflation pressure will be provided by your MICHELIN® Truck Tire Retailer. If not, refer to the vehicle placard.

The placard indicates the minimum inflation pressures which must be maintained. However, do not exceed the maximum inflation pressure for the tire or for the wheel on which it is mounted.

► CHECK THE COLD INFLATION PRESSURES IN ALL YOUR TIRES, INCLUDING THE SPARE, AT LEAST ONCE EACH WEEK

Failure to maintain correct inflation pressure may result in improper vehicle handling and may cause rapid and irregular tire wear, sudden tire destruction, loss of vehicle control and serious personal injury. Therefore, inflation pressures should be checked at least once each week and always prior to long distance trips.

Pressures should be checked when tires are cold; in other words, before they have been driven on. The ideal time to check tire pressures is early morning. Driving, even for a short distance, causes tires to heat up and pressure to increase.

Never bleed air from hot tires. Bleeding air from hot tires could result in underinflation.

Use an accurate tire gauge to check pressures. Never allow children to inflate or deflate tires.

If your pressure check indicates that one of your tires has lost

pressure of four pounds or more, look for signs of penetration, valve leakage or wheel damage that may account for the pressure loss.

Any tire suspected of having been run flat or run at very low pressure (less than 80% of normal operating pressure) should not be re-inflated without careful inspection of the entire tire. Visit a MICHELIN® Truck Tire Retailer.

► **INSPECT YOUR TIRES DAILY—IF YOU SEE ANY DAMAGE TO YOUR TIRES OR WHEELS, VISIT A MICHELIN® TRUCK TIRE RETAILER AT ONCE**

Hazards

Driving over potholes, curb, glass, metal, rocks, wood debris and the like, can damage a tire and should be safely avoided. Unavoidable contact with such hazards should prompt a thorough tire inspection.

If you see damage to your tires or wheels, replace with a spare and immediately visit a MICHELIN® Truck Tire Retailer for advice.

Inspection

Always examine your tires for bulges, cracks, cuts, penetrations and abnormal tire wear, particularly on the edges of the tire tread, which may be caused by misalignment or underinflation. If any such damage is found, the tire must be inspected by a MICHELIN® Truck Tire Retailer at once. Use of a damaged tire could result in rapid pressure loss and sudden tire destruction. Failure to control a vehicle when one or more tires experience a sudden pressure loss can lead to an accident.

All tires will wear out faster when subjected to high speeds as well as hard cornering, rapid starts, sudden stops, frequent driving on surfaces which are in poor condition, and off-road use. Surfaces with holes and rocks or other objects can damage tires and cause vehicle misalignment. When driving on such surfaces, drive carefully and slowly, and before driving again at normal or highway speeds, examine your tires for any damage, such as cuts, bulges, penetrations, unusual wear patterns, etc.

► WEAR BARS

MICHELIN® truck tires contain “Wear Bars” in the grooves of the tire tread which show up when only 2/32nds of an inch (1.6 mm) of tread is remaining. At this stage, tires must be replaced. Tires worn beyond this stage are dangerous.

(Federal law requires the tires on front axles of a Bus, Truck or Truck Tractor to have at least 4/32nds of an inch of tread depth remaining.)

► HIGH SPEED DRIVING CAN BE DANGEROUS

Correct inflation pressure is especially important.

However, at high speeds, even with the correct inflation pressure, a road hazard, for example, is more difficult to avoid and, if contact is made, has a greater chance of causing tire damage than at lower speeds. Moreover, driving at high speeds reduces the reaction time available to avoid accidents and bring your vehicle to a safe stop.

If you see any damage to a tire or wheel, replace it with the spare at once and visit a MICHELIN® Truck Tire Retailer.

The maximum speed at which MICHELIN truck tires can be operated is indicated in the MICHELIN® Truck Tire Data Book. This speed varies for each type of tire and depends on the type of application. Consult a MICHELIN® Truck Tire Retailer for assistance in determining the maximum speed for your application.

Exceeding this maximum speed will cause the tire to build up excessive heat, which can cause tire damage that could result in sudden pressure loss and rapid tire destruction. Failure to control a vehicle when one or more tires experience sudden pressure loss can lead to an accident, property damage, and personal injury.

In any case, you should not exceed reasonable speeds as indicated by the legal limits and driving conditions.

► **WHEEL ALIGNMENT, TRACKING, AND BALANCING ARE IMPORTANT FOR SAFETY AND MAXIMUM MILEAGE FROM YOUR TIRES—CHECK HOW YOUR TIRES ARE WEARING AT LEAST ONCE EACH MONTH**

If your tires are wearing unevenly, such as the inside shoulder of the tire wearing faster than the rest of the tread, your vehicle may be out of alignment. This condition not only shortens the life of your tires but also adversely affects the handling characteristics of your vehicle, which could be dangerous. If you detect irregular wear, have the alignment of the wheels and the parallelism of the axles checked immediately. Also check to see that your tires are properly inflated. Tires which have been run underinflated will show more wear on the shoulders than in the center of the tread. Tires which have been run overinflated will show more wear in the center of the tread than on the shoulders.

For optimum tire life and performance, the front end alignment on trucks equipped with MICHELIN® truck tires should be in accordance with the recommendations of the vehicle manufacturer.

It is recommended that you have your tires and wheels dynamically balanced. Tires and wheels which are not balanced may cause steering difficulties, a bumpy ride and irregular tire wear.

► **DO NOT OVERLOAD – DRIVING ON ANY OVERLOADED TIRE IS DANGEROUS**

The maximum load rating marked on the tire sidewall of any truck tire is based on a specific maximum speed of operation. Consult a MICHELIN® Truck Tire Data Book for complete information on allowable loads for the tires in your application. Tires which are loaded beyond their maximum allowable loads for the particular application will build up excessive heat that may cause sudden tire destruction, property damage and personal injury.

In the case of dual mounted tires, if one of the tires is run underinflated or flat then the other tire will become severely overloaded which could lead to tire failure. “Limping in” is illegal and should never be attempted.

► TIRE MIXING

FOUR WHEEL TRUCKS

For best performance it is recommended that the same size and type of tire be used on all four wheel positions. If only two MICHELIN® radial truck tires are mounted with two non-radial tires, the radial tires should be mounted on the rear axle.

Before mixing different types of tires in any configuration on any vehicle, be sure to check the vehicle manufacturer's owner's manual for its recommendations.

It is especially important to check the vehicle manufacturer's owner's manual when mixing, matching or replacing tires on 4-wheel drive vehicles, as this may require special precautions.

TRUCKS WITH MORE THAN FOUR WHEEL POSITIONS

For best performance, it is strongly recommended that radial and non-radial tires not be mixed in a dual fitment.

► TIRE ALTERATIONS

Do not make or allow to be made any alteration to your tires. Alterations may prevent proper performance, leading to tire damage which can result in an accident. Tires which become unserviceable due to alterations such as, but not limited to, truing, addition of balancing or sealant liquids, or the use of tire dressings containing petroleum distillates, are excluded from warranty coverage.

► IMPROPERLY RETREADED AND/OR REPAIRED TIRES ARE DANGEROUS AND CAN CAUSE TIRE DESTRUCTION, PROPERTY DAMAGE AND PERSONAL INJURY

Retreading and repairing of MICHELIN® truck tires should be performed only by qualified personnel with proper equipment using the procedures contained in MICHELIN® Retread and Repair manuals.

If any MICHELIN® tire sustains a puncture, have the tire demounted and thoroughly inspected by a MICHELIN® Truck Tire Retailer for possible damage that may have occurred.

Plug-only repairs done on-the-wheel are considered improper and are therefore not recommended. Such repairs are not reliable and may cause further damage to the tire and may result in tire failure.

▶ STORAGE

Tires contain waxes and emollients to protect their outer surfaces from ozone and weather checking. As the tire rolls and flexes, the waxes and emollients continually migrate to the surface, replenishing this protection throughout the normal use of the tire. Consequently, when tires sit outdoors, unused for long periods of time (a month or more), their surfaces become dry and more susceptible to ozone and weather checking, and the casing becomes susceptible to flat spotting. Also serious problems occur with tube-type tires when mounted with water trapped between the tire and the tube. Due to pressurization, the liquid can pass

through the inner liner and into the casing plies. **For these reasons, tires should always be stored in a cool, dry, clean indoor environment. Failure to store tires in accordance with these instructions could result in premature aging of the tires and sudden tire failure.**

When tires are stored, be sure they are placed away from sources of heat and ozone, such as hot pipes and electric generators. Be sure the surfaces on which tires are stored are clean and free from grease, petroleum products or other substances which could deteriorate the rubber. (Tires exposed to these materials during storage or driving could be subject to sudden failure.)

▶ FOLLOW THESE MOUNTING RECOMMENDATIONS TO PREVENT TIRE DESTRUCTION, PROPERTY DAMAGE AND PERSONAL INJURY

Regulations and recommendations published by the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA) deal in detail with mounting and demounting of tires for trucks. You should ensure that you are always in compliance with these regulations and recommendations. **In addition, Michelin urges you to bear in mind the following considerations:**

Tire changing can be dangerous and must be done by professionally trained persons using proper tools and procedures as specified by the Rubber Manufacturers Association (RMA).

Tires should be mounted on wheels of the correct size and type which are in good, clean condition. Bent, chipped, or rusted wheels or rim components may cause tire damage and can also malfunction causing an accident.

All wheel components (i.e. flanges, lock rings, rim base, etc.)

must match. Be sure to check wheel manufacturer's specifications.

When changing any tire, always deflate the tire before loosening any wheel or rim lugs. Always install new valve cores with new mountings.

FOR ALL MICHELIN® TUBE-TYPE TIRES

TUBES: Always fit a new MICHELIN® tube of the proper size in a new mounting. A tube through normal use will experience growth; therefore, if an old tube is re-used, there is a probability of creasing it with subsequent chafing and eventual failure of the tube causing tire damage. MICHELIN® tubes are made of butyl rubber and marked with the trade name "AIRSTOP®." It is essential to use an "AIRSTOP®" tube with a MICHELIN® 'X'® tire. These tubes are made with an overlap splice which is stronger than the butt splice used in many other tubes. The use of other tubes, not designed for MICHELIN® 'X'® radial tires, could result in tube failure causing tire damage.

FLAPS: Always install a new MICHELIN® flap when you install a new tire. After a limited time the flap will develop a set to match the tire and wheel in which it is fitted; therefore, it will not exactly match a new tire/wheel combination.

FOR ALL MICHELIN® TIRES

LUBRICANT: Always use a proper lubricant when mounting tires. Use only an approved tire mounting lubricant. Never use anti-freeze, silicones or petroleum-based lubricants. Do not allow excess lubricant to run down and collect inside the tire.

SAFETY CAGE: Always use a safety cage or other OSHA approved restraining devices when inflating a truck tire. Ensure that the safety cage is large enough to accommodate wide base tires when inflating MICHELIN® X One® tires. Never stand over the tire or in front of the valve when inflating. Use an inline gauge and stand to the side. Before final inflation, check the assembly carefully for signs of weakness or irregularities.

VALVE CAPS: It is essential that all valves be fitted with pressure-sealing metal valve caps, which are the PRIMARY seal of the valve, to avoid leaks. After mounting, check the assemblies for leaks. When wheel assemblies are mounted on a vehicle, be sure that the valves do not touch the brake drums or any mechanical part of the vehicle.

DUAL MOUNTING: Tires mounted in duals must be matched so that the maximum difference between the diameters of the tires does not exceed 1/4 inch. Failure to properly match dual tires will result in the tire with the larger diameter carrying a disproportionate share of the load which can cause sudden tire destruction, property damage and personal injury.

Proper dual spacing must be provided to prevent the tires from rubbing together and to allow for the flow of cooling air. Consult the MICHELIN® Truck Tire Data Book or visit a MICHELIN® Truck Tire Retailer for information on the minimum dual spacing required for a particular tire/wheel fitment.

► PREPARATION OF WHEELS AND RIMS

Prior to fitment, wheel assemblies should be thoroughly inspected for cracks, warpage, deformation of flanges, side rings, lock rings, etc. The condition of the stud holes on wheels should also be checked. If any of these conditions are discovered, the wheel should be discarded. All burrs, welds, hammer dents, etc., that are present on the tire side of the rim must be made smooth with a file and/or emery cloth. Remove rust with a wire brush and apply a rust inhibiting paint. Make sure the tires are being mounted on the correct wheel **size** and **type**. The wheels and rim components should be in good condition and clean.

Failure To Observe Any Of The Recommended Precautions Contained In This Owner's Manual Can Lead To Erratic Vehicle Behavior And/Or Tire Damage Possibly Resulting In An Accident.

Federal Motor Carrier Safety Regulations, 9 C.F.R. § 395.75 (d), specify that "no bus shall be operated with regrooved, recapped or retreaded tires on the front wheels."

► MICHELIN® X ONE® TIRE SPECIFIC INFORMATION

All drivers of vehicles equipped with MICHELIN® X One® Tires should be aware of the following :

Pressure Maintenance

Drivers have commented that an underinflated MICHELIN® X One® tire is more likely to be detected with a simple visual inspection than duals. However, pressure is difficult to gauge visually even for the most experienced driver. **Drivers** should always use a properly calibrated gauge when verifying the pressure of a MICHELIN® X One® tire and should not rely on the aspect of the tire. If the tire is 20% below the recommended pressure, it must be considered flat, removed and inspected for punctures or other damage. Failure to do so may cause tire failure.

Vehicle Handling

Drivers have commented that the wide, stable footprint of the MICHELIN® X One® tire can provide the feel of a much more stable truck compared to traditional dual tires. Most MICHELIN® X One®

fitments allow the track of the tractor and trailer to be widened. However, **drivers** should not let the outstanding handling of the MICHELIN® X One® tire give them a false sense of stability in curves. **Drivers** should always respect all posted speed limits regardless of tire fitment. Failure to do so may cause vehicle to tip.

Rapid Pressure Loss Techniques

Extensive testing has shown that rapid pressure loss on a MICHELIN® X One® tire will not compromise the stability and behavior of the vehicle. However, with one tire on each axle end, the loss of pressure will allow the wheel and axle end to drop and possibly contact the road surface. To avoid additional damage to the tire, wheel and axle due to tire/wheel lock-up and brake drag, **drivers** should be encouraged to decelerate gradually through down shifting, use of trailer brake (when appropriate) or by pumping the brakes during the initial phase of deceleration to allow some rotation of the assembly. Failure to do so may cause irreparable damage to the tire, wheel, axle components and vehicle.

Any time you see damage to your tires or wheels, contact your local MICHELIN® Truck Tire Retailer listed in the dealer locator on www.michelintruck.com at once. If further assistance is required, contact:

In the United States

Call: 1-888-622-2306

Or Write: Consumer Care
P.O. Box 19001
Greenville, SC 29602-9001

REMEMBER . . . TO AVOID DAMAGE TO YOUR TIRES AND A POSSIBLE ACCIDENT:

- Check tire pressures at least once each week when tires are cold
- Maintain the proper pressure in the tires for the load being carried
- Do not underinflate
- Do not overload
- Do not overinflate
- Drive at moderate speeds, observe legal speed limits
- Avoid driving over potholes, obstacles, curbs or edges of pavement
- If you see any damage to a tire, replace with a spare and visit a MICHELIN® Truck Tire Retailer at once
- If you have any questions, contact a MICHELIN® Truck Tire Retailer

Michelin North America, Inc.

One Parkway South
Greenville, SC 29615
Consumer Care: 1-888-622-2306

Copyright ©2011 Michelin North America, Inc. All rights reserved.
An Equal Opportunity Employer MWE40021 (Rev. 08/11)

