



Trailer Manual & Tire Safety

2023 Rev. A

UB16' and UB18' Models

Bumper Pull Utility Trailer

To avoid safety issues, please read and understand this manual before operating your trailer. If you have any questions regarding information listed in this manual, please consult your dealer first. Please have the VIN number available for the dealer. Ground Zero Shelters, Co. (Crowline by GZ) will be referred to in this manual as Crowline.

Your VIN number is _____ Date of Purchase _____

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REPORTING SAFETY DEFECTS

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Crowline.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Crowline.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153), go to <http://www.safercar.gov> or write to: Administrator, NHTSA, 400 7th Street SW, Washington, DC, 20590. You may also obtain other information about motor vehicle safety from www.safercar.gov. Contact Crowline at 580-336-1351 Option 2, or products.crowline@gmail.com.

Warning: Injury, damage, or death can occur if trailer is not inspected properly before use.

TIRE SAFETY:

Inspect each tire before each tow. If there are any signs of wear and tear or defects, replace the tire before towing. If you notice uneven tire wear, check the inflation of the tires. Tire failure may result from improper tire pressure. Please refer to the label on the trailer for recommended cold tire pressure. Inspect tire tread for worn or bald spots. Tread depth should be greater than 1/16th inch at any lowest point. Replace the tire before towing the trailer if the tire treads have less than 1/16th inch depth or the bands are immediately visible.

How To Check Tire Pressure

1. Remove the cap from the air valve on the tire, and place it in a safe location.
2. Press the tire gauge against the open valve stem for a second or two.
3. Read the air pressure gauge.
4. Compare this number with the recommended tire pressure (label). Page 2
5. Replace the tire's air valve cap.

Tire And Loading Information (For Crownline 16' & 18' 7K Bumper Pull Utility Trailers)

Front Tire: ST205/75D15LRC

Rear Tire: ST205/75D15LRC

ST -- Special Trailer for utility trailers

205 -- Section Width of tire in millimeters

75 -- Aspect ratio (section height)

Meaning section height of tire is 75% of the 205 mm width

D -- Internal Construction of the tire

Meaning diagonal or bias ply construction: tire body plies inside tire will crisscross

15 -- Wheel diameter in inches

LRC -- Load Range is 6 ply rated tire: Max load rating is 1820 lbs at 50 psi

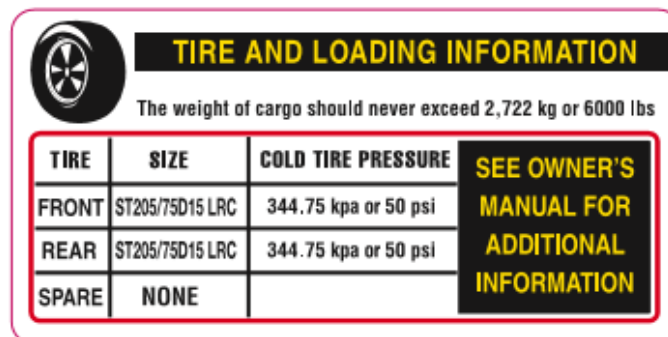
Load Weight

The total weight of the load plus the empty weight of the trailer should not exceed the Gross Vehicle Weight Rating (GVWR). When loading the trailer, the weight must be distributed so that the load on an axle does not exceed the Gross Actual Weight Rating (GAWR). Be sure to check that none of the axles are overloaded. Uneven distribution can cause tire, wheel, axle, or structural failure. To ensure towing stability, keep the center of gravity as low as possible.

Steps for Determining Correct Load Limit

1. Locate the statement "The weight of the cargo should never exceed xxx kg or xxx lbs." on your trailer placard.
2. This figure equals the available amount of cargo load capacity.
3. Determine the combined weight of cargo being loaded on the vehicle. That weight may not safely exceed the available cargo load capacity.

NATM Note: The trailer's placard refers to the Tire Information Placard attached adjacent to or near the trailer's VIN (Certification) label at the left front of the trailer.



The placard features a tire icon on the left, a title bar, a weight limit statement, a table with tire specifications, and a callout box for additional information.

TIRE AND LOADING INFORMATION			
The weight of cargo should never exceed 2,722 kg or 6000 lbs			
TIRE	SIZE	COLD TIRE PRESSURE	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
FRONT	ST205/75D15 LRC	344.75 kpa or 50 psi	
REAR	ST205/75D15 LRC	344.75 kpa or 50 psi	
SPARE	NONE		

KG-13 INTERNATIONAL

WARNING

COUPLING TRAILER TO TOW VEHICLE:

Safety Check A:

1. Check the hitch ball and coupler to make sure the size and rating match. (Located on each)
2. Wipe clean and inspect to make sure there are no defects, such as cracks or pits.
3. Make sure ball is tight to the hitch.
4. Inspect coupler to make sure it is tight to the trailer frame.
5. The bottom of the coupler should be above the top of the hitch ball.

Safety Check B:

1. Lower the trailer tongue until fully engaged with the hitch ball. If needed, adjust the position of the tow vehicle.
2. Close the latch and connect locking mechanism (Pin).
3. You can check to see if it is secure by trying to raise the towing vehicle using the trailer jack.
4. Check function of safety breakaway. With trailer hooked up and jack stowed pull breakaway key out. Pull gently against brakes. Trailer should not move. Reinstall breakaway key. It is safe to continue inspection.

NOTE: Battery could be dead if the trailer is not pulled for a significant amount of time. Charge before towing.

Safety Check C:

1. Check safety chains for any wear or damage. Replace if needed.
2. Attach safety chains to towing vehicle, making sure the chains cross under the coupler.
3. Attach chains to the hole from below.
4. Be sure there is enough slack for tight turning but not dragging on the road.
5. Connect harness for lights.
6. Check to be sure all lights are working properly. If not, be sure to repair or replace before towing.

UNCOUPLING TRAILER FROM TOW VEHICLE:

Be sure the brakes are applied to the towing vehicle. Block the wheels of your trailer to avoid it rolling. Disconnect safety chains and electrical lines. Unlock the coupling attachment and extend the jack until it touches the ground. If your trailer seems stable, slowly move the towing vehicle forward away from the trailer.

DO NOT use the breakaway for a parking brake.

CAUTION

LOADING:

Improper loading may cause accidents or death. To safely load a trailer you should consider the following:

1. Load weight

The trailer axles will carry most of the total weight of the trailer and its contents. The remainder of the total weight is carried by the tow vehicle hitch. To ensure safe towing, the trailer tongue and tow vehicle hitch should carry the proper amount of the loaded trailer weight. Otherwise, the trailer may begin to sway at towing speeds or the rear of the towing vehicle may become overloaded.

2. Load weight distribution

By ensuring proper load weight distribution, no area of the trailer will be loaded beyond its rating. Load heaviest items first and over the axles. While loading other items, be sure to maintain weight distribution

on each side and in the tongue area. The total weight rating of the trailer (GVWR) must never be exceeded.

TOWING:

The extra weight behind the tow vehicle could affect the tow vehicles ability to stop quickly and navigate sharp turns. Safe towing requires the driver to give a wider berth than usual around corners. Allow for longer stopping distances, anticipate problems ahead, and be ready to react if needed. When possible, driving in the right lane on highways will allow you to get to the shoulder easier if you should experience a blowout. Be sure to check that your trailer's electrical wiring system is properly connected to the tow vehicle.

While towing, allowance for more distance and time when passing another vehicle or when being passed by a vehicle is needed. Passing on a two-lane road should almost never happen. Be sure to leave plenty of room to get your vehicle safely up to speed with the trailer in tow.

When pulling into a parking lot, consider the length and maneuverability of your vehicle-and-trailer setup to avoid getting stuck.

Check the ramp storage to be sure the pins are connected to hold them in place.

IMPORTANT

INSPECTION SERVICE & MAINTENANCE:

You must inspect, maintain, and service your trailer regularly to insure safe and reliable operation. If you cannot or are unsure how to perform these items, contact your dealer to do them. Note: In addition to this manual, also check the relevant component manufacturer's manual.

If your trailer's axles are equipped with a grease zerk on the ends, the bearings must be greased every six months or 6,000 miles to ensure functionality. To apply the grease, remove the rubber plug from the axle and place the grease gun on the zerk. Pump grease until new grease begins to appear. Be sure to use a wheel bearing high temp grease.

It is important to re-torque the lug nuts on your trailer after 25 miles, 50 miles, and then monthly, or 150 miles after that to mfg recommendation of 100 ft lbs.

It is recommended that you check and adjust your trailer brakes every 3,000 miles or 3 months.

Adjusting Trailer Brakes:

1. Jack up the trailer. Be sure to place the jack under the trailer frame not the axle. Raise the jack until the wheel spins freely.
2. Remove the brake access cover, cap, or plug (can use flat head screwdriver) carefully to access the brake chamber and adjustment wheel.
3. Using a brake spoon, brake adjustment tool, or flathead screwdriver, turn the star wheel adjuster inside the brake chamber, typically located below the brake drum. Pushing down so the adjuster wheel is pried upward will tighten the brake pads or shoes. Turn the wheel one click at a time, spinning the tire between each click to make sure it spins freely.
4. Once the tire becomes difficult to turn, stop tightening the adjuster. You can pull up on the adjustment tool to loosen the adjuster wheel if necessary.
5. Replace the cover on the trailer brake access point, making sure to torque the lug nuts to manufacture's specification of 100 ft lbs. Then remove the jack stand and safely lower the trailer. Repeat on the other side.

Contact Information for the following components: Axle, Coupler, or Break Away System

Contact your dealer first who will then contact Crownline by GZ.



LIMITED TRAILER WARRANTY

Ground Zero Shelters, Co. (Crownline by GZ) warrants that each Ground Zero Shelters, Co. (Crownline by GZ) trailers operated by the original purchaser under normal use in the continental United States or Canada will be free from defects in materials and workmanship for one year following the original purchase, subject to the requirements, exclusions and limitations stated below. The obligation of this warranty shall be limited to repairing or replacing any part or parts, which in the opinion of the factory are defective in materials or workmanship under normal use and service during the warranty period commencing with the date of the first retail purchase. If the trailer is rented or used for commercial hauling this Limited Warranty is null and void.

YOU MUST SEND US YOUR PROOF OF PURCHASE

In order to validate this Limited Warranty, you must document your purchase. A registration card is attached to the Manufacturer's Certificate of Origin provided with each trailer. Complete the registration card and mail it to Ground Zero Shelters, Co. (Crownline by GZ), 4600 Independence, Perry, OK 73077, or emailed to products.crownline@gmail.com no later than thirty (30) days following the purchase of your Ground Zero Shelters, Co. (Crownline by GZ) trailer. Failure to complete and return this warranty registration within the above period will void the warranty.

LIMITED WARRANTY - STRUCTURE

Subject to the requirements, exclusions and limitations stated below, the structure of your Ground Zero Shelters, Co. (Crownline by GZ) trailer is warranted to the original retail purchaser against defects in materials and workmanship by Ground Zero Shelters, Co. (Crownline by GZ) from normal use for a period of one (1) year for utility trailers from the date of purchase. The structure is that portion of the trailer, which includes the main frame, consisting of the bottom rails, cross members, side posts, and the sub-frame, excluding the floorboards and running gear. GZ warrants its finishes to be consistent with industry standards for one (1) year after the date of original retail purchase, with the exception of "normal use" limitations set forth below and of deterioration due to use, physical damage, or exposure, such as chipping, scratching, fading, cracks in caulk seams, road salt, tar, or pressure washing. Rust streaking originating from areas where it is virtually impossible to achieve total paint or powder coat coverage, i.e. behind rub rails or where two or more metals adjoin, are consistent with industry standards and not covered. Any repairs made will be done so with liquid paint.

ONE YEAR LIMITED WARRANTY

Subject to the requirements, exclusions and limitations stated below, all other components (electrical, lights, mechanical jacks, ramps, sealants, locks and couplers) of your Ground Zero Shelters, Co. (Crownline by GZ) trailer are warranted to the original retail purchaser against any defect in the materials and workmanship by Ground Zero Shelters, Co. (Crownline by GZ) arising from normal use for a period of one (1) year from the date of purchase.

EXCLUSION OF ITEMS WARRANTED BY OTHER MANUFACTURERS

Expressly excluded from the Limited Warranty are any claims related to items that are warranted by their manufacturer. These items include, but are not limited to: tires, rims, axles, and axle components including, without implied limitation, tow in/tow out and camber on axle; brake components; springs and suspension components; couplers and jacks; and any other items purchased and installed by Ground Zero Shelters, Co. (Crownline by GZ). Any claims related to these items must be presented to their manufacturer for

adjustment. Subject to the other terms of this Limited Warranty, Ground Zero Shelters, Co. (Crownline by GZ) warrants proper installation of the above listed items.

OTHER EXCLUSIONS NOT COVERED BY THIS LIMITED WARRANTY

This Limited Warranty covers only defects in original components which arise from normal use and does not apply if the trailer has been subject to negligence, accident, abuse, misuse, improper loading or has been repaired or altered without the prior written consent of Ground Zero Shelters, Co. (Crownline by GZ). Damages caused by failure to provide proper maintenance and repair, lose or improperly torqued lug nuts, use of incorrect or altered hitch ball or improper latching or loose nuts, bolts and screws (maintaining necessary tightness is the owners responsibility) are not covered by this Limited Warranty. In addition to the above exclusions, Ground Zero Shelters, Co. (Crownline by GZ) expressly excludes from this Limited Warranty the following: tow vehicle wiring, replacement and work performed or options installed by others; deterioration of paint and appearance due to use and exposure; loss of time, inconvenience, loss of use of trailer, rental of substitute equipment, loss of revenues, or other commercial loss; and tow vehicle wear. The trailer covered by this Limited Warranty is designed to be towed by a vehicle with up to one (1) ton capacity and any use of the trailer that exceeds the tow vehicle manufacturer's specific limitations, such as improper load weight or securing cargo incorrectly, are not covered by this Limited Warranty.

PRIOR WRITTEN CONSENT REQUIRED AND RETURN OR DEFECTIVE PARTS REQUIRED

No reimbursement will be made to any dealer or owner for repairs made without the prior written consent of Ground Zero Shelters, Co. (Crownline by GZ). Any defective part(s) must be sent by prepaid freight to Ground Zero Shelters, Co. (Crownline by GZ) in order to qualify for replacement or reimbursement under this Limited Warranty.

TRANSPORTATION COST EXCLUDED

Transportation of any trailer to and/or from the distributor or any approved repair facility shall be the responsibility of the trailer owner. GZ shall not be liable for any such costs.

LIMITATION

GROUND ZERO SHELTERS, CO. (CROWNLIN BY GZ) RESPONSIBILITY UNDER THIS LIMITED WARRANTY SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF PARTS AT THE GROUND ZERO SHELTERS, CO. (CROWNLIN BY GZ) MANUFACTURING PLANT, OR FOR A REASONABLE ALLOWANCE, AT ANOTHER PLACE APPROVED IN WRITING BY GROUND ZERO SHELTERS, CO. (CROWNLIN BY GZ) IF SUCH WARRANTY FAILS BECAUSE ATTEMPTS AT REPAIR ARE NOT COMPLETED WITHIN A REASONABLE TIME, OR IT FAILS FOR ANY OTHER REASON, ANY DAMAGES AND COSTS/FEEES ARE SUBJECT TO NONPAYMENT OR NOT COVERED UNDER WARRANTY. ALL OTHER OBLIGATIONS OR LIABILITIES, INCLUDING INCIDENTAL OR CONSEQUENTIAL DAMAGES OR CONTINGENT LIABILITIES ARISING OUT OF THE FAILURE OF ANY PARTS TO OPERATE PROPERLY ARE HEREBY EXCLUDED, INCLUDING BUT NOT LIMITED TO ANY DAMAGES RESULTING FROM LOSS OF USE, INCONVENIENCE, LOSS OF TIME, COMMERCIAL LOSS OR ANY OTHER TYPE OF DAMAGES, GENERAL OR SPECIFIC, FORESEEN OR UNFORESEEN, UNLESS APPLICABLE STATE LAW PROVIDES OTHERWISE.

DISCLAIMERS

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTY NOT EXPRESSLY PROVIDED HEREIN WHICH BUT FOR THIS PROVISION MIGHT ARISE BY OPERATION OF LAW, INCLUDING ANY EXPRESS WARRANTIES MADE OUTSIDE THIS LIMITED WARRANTY, IMPLIED WARRANTIES OF MERCHANTABILITY, IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY REMEDY FOR BREACH OF CONTRACT. THESE WARRANTIES ARE HEREBY EXPRESSLY EXCLUDED AND DISCLAIMED. IF THEY CANNOT BE DISCLAIMED, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE ARE EXPRESSLY LIMITED TO A TERM OF ONE (1) YEAR, UNLESS ANY APPLICABLE STATE LAW PROVIDES OTHERWISE. UNDER NO CIRCUMSTANCES SHALL GROUND ZERO SHELTERS, CO. (CROWNLIN BY GZ) BE LIABLE TO PURCHASER OR ANY OTHER PERSON FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER ARISING OUT OF BREACH OF WARRANTY, BREACH OF CONTRACT, TORT OR OTHERWISE, UNLESS ANY STATE LAW PROVIDES OTHERWISE. NO ONE, INCLUDING AUTHORIZED GROUND ZERO SHETLERS, CO. (CROWNLIN BY GZ) DEALER, IS AUTHORIZED TO MAKE FURTHER OR ADDITIONAL WARRANTIES ON BEHALF OF GROUND ZERO SHELTERS, CO. (CROWNLIN BY GZ)

Crowline by Ground Zero

REGISTRATION FORM

Today's Date:		
<i>Customer's Information</i>		
First name:	Middle:	Last:
Address:		
Home phone no.:	Cell phone no.:	
Email:		
<i>Product Information</i>		
Type of Product:		
VIN Number:		
PLEASE PROVIDE PROOF OF PURCHASE (Mail or Email within 30 days) (product.crowline@gmail.com ATTN: Warranty Form) Mailing Address: 4600 Independence Perry, OK 73077		
The above information is true to the best of my knowledge.		
signature		Date

Tire Safety – Everything Rides on it

Studies of tire safety show that maintaining proper tire pressure, observing tire and vehicle load limits (not carrying more weight in your vehicle than your tires or vehicle can safely handle), avoiding road hazards, and inspecting tires for cuts, slashes, and other irregularities are the most important things you can do to avoid tire failure, such as tread separation or blowout and flat tires. These actions, along with other care and maintenance activities, can also:

- Improve vehicle handling • Help protect you and others from avoidable breakdowns and accidents
- Improve fuel economy
- Increase the life of your tires.

This booklet presents a comprehensive overview of tire safety, including information on the following topics:

- Basic tire maintenance
- Uniform Tire Quality Grading System
- Fundamental characteristics of tires
- Tire safety tips.

Use this information to make tire safety a regular part of your vehicle maintenance routine. Recognize that the time you spend is minimal compared with the inconvenience and safety consequences of a flat tire or other tire failure.

Safety First—Basic Tire Maintenance

Properly maintained tires improve the steering, stopping, traction, and load-carrying capability of your vehicle. Underinflated tires and overloaded vehicles are a major cause of tire failure. Therefore, as mentioned above, to avoid flat tires and other types of tire failure, you should maintain proper tire pressure, observe tire and vehicle load limits, avoid road hazards, and regularly inspect your tires.

Finding Your Vehicle’s Recommended Tire Pressure and Load Limits

Tire information placards and vehicle certification labels contain information on tires and load limits. These labels indicate the vehicle manufacturer’s information including:

- Recommended tire size
- Recommended tire inflation pressure
- Vehicle capacity weight (VCW—the maximum occupant and cargo weight a vehicle is designed to carry)
- Front and rear gross axle weight ratings (GAWR—the maximum weight the axle systems are designed to carry).

Both placards and certification labels are permanently attached to the vehicle door edge, door post, glove-box door, or inside of the trunk lid. You can also find the recommended tire pressure and load limit for your vehicle in the vehicle owner’s manual.

Understanding Tire Pressure and Load Limits

Tire inflation pressure is the level of air in the tire that provides it with load-carrying capacity and affects the overall performance of the vehicle. The tire inflation pressure is a number that indicates the amount of air pressure—measured in pounds per square inch (psi)—a tire requires to be properly inflated. (You will also find this number on the vehicle information placard expressed in kilopascals (kPa), which is the metric measure used internationally.)

Manufacturers of passenger vehicles and light trucks determine this number based on the vehicle's design load limit, that is, the greatest amount of weight a vehicle can safely carry and the vehicle's tire size. The proper tire pressure for your vehicle is referred to as the "recommended cold inflation pressure." (As you will read below, it is difficult to obtain the recommended tire pressure if your tires are not cold.)

Because tires are designed to be used on more than one type of vehicle, tire manufacturers list the "maximum permissible inflation pressure" on the tire sidewall. This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

Remember, however, that the vehicle manufacturer, not the tire manufacturer, determines the correct tire pressure for the tires on your vehicle.

Checking Tire Pressure

It is important to check your vehicle's tire pressure at least once a month for the following reasons:

- Most tires may naturally lose air over time.
- Tires can lose air suddenly if you drive over a pothole or other object or if you strike the curb when parking.
- With radial tires, it is usually not possible to determine underinflation by visual inspection.

For convenience, purchase a tire pressure gauge to keep in your vehicle. Gauges can be purchased at tire dealerships, auto supply stores, and other retail outlets.

The recommended tire inflation pressure that vehicle manufacturers provide reflects the proper psi when a tire is cold. The term cold does not relate to the outside temperature. Rather, a cold tire is one that has not been driven on for at least three hours. When you drive, your tires get warmer, causing the air pressure within them to increase. Therefore, to get an accurate tire pressure reading, you must measure tire pressure when the tires are cold or compensate for the extra pressure in warm tires.

Steps for Maintaining Proper Tire Pressure

Step 1: Locate the recommended tire pressure on the vehicle's tire information placard, certification label, or in the owner's manual.

Step 2: Record the tire pressure of all tires.

Step 3: If the tire pressure is too high in any of the tires, slowly release air by gently pressing on the tire valve stem with the edge of your tire gauge until you get to the correct pressure.

Step 4: If the tire pressure is too low, note the difference between the measured tire pressure and the correct tire pressure. These "missing" pounds of pressure are what you will need to add.

Step 5: At a service station, add the missing pounds of air pressure to each tire that is underinflated.

Step 6: Check all the tires to make sure they have the same air pressure (except in cases in which the front and rear tires are supposed to have different amounts of pressure).

If you have been driving your vehicle and think that a tire is underinflated, fill it to the recommended cold inflation pressure indicated on your vehicle's tire information placard or certification label. While your tire may still be slightly underinflated due to the extra pounds of pressure in the warm tire, it is safer to drive with air pressure that is slightly lower than the vehicle manufacturer's recommended cold inflation pressure than to drive with a significantly underinflated tire. Since this is a temporary fix, don't forget to recheck and adjust the tire's pressure when you can obtain a cold reading.

Tire Size

To maintain tire safety, purchase new tires that are the same size as the vehicle's original tires or another size recommended by the manufacturer. Look at the tire information placard, the owner's manual, or the sidewall of the tire you are replacing to find this information. If you have any doubt about the correct size to choose, consult with the tire dealer.

Tire Tread

The tire tread provides the gripping action and traction that prevent your vehicle from slipping or sliding, especially when the road is wet or icy. In general, tires are not safe and should be replaced when the tread is worn down to 1/16 of an inch. Tires have built-in treadwear indicators that let you know when it is time to replace your tires. These indicators are raised sections spaced intermittently in the bottom of the tread grooves. When they appear "even" with the outside of the tread, it is time to replace your tires. Another method for checking tread depth is to place a penny in the tread with Lincoln's head upside down and facing you. If you can see the top of Lincoln's head, you are ready for new tires.

Tire Balance and Wheel Alignment

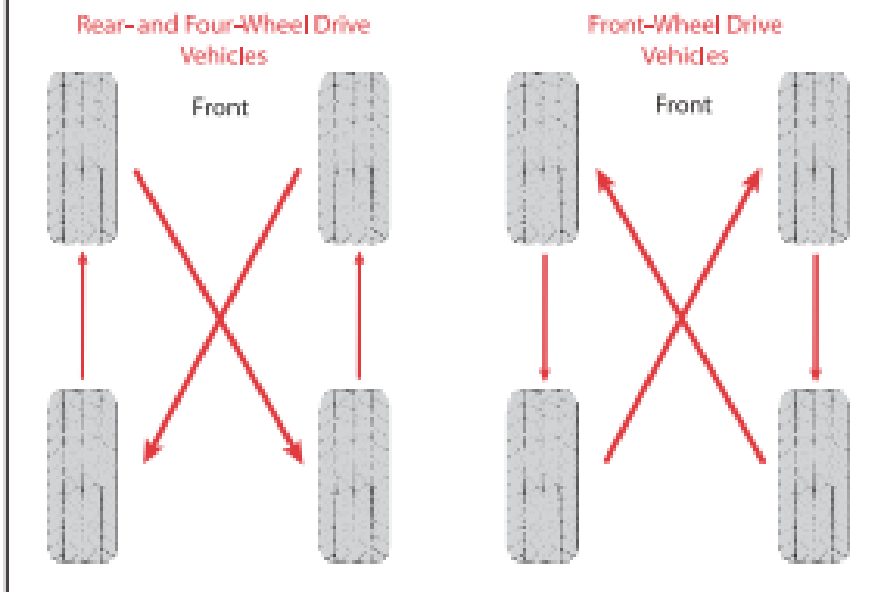
To avoid vibration or shaking of the vehicle when a tire rotates, the tire must be properly balanced. This balance is achieved by positioning weights on the wheel to counterbalance heavy spots on the wheel-and-tire assembly. A wheel alignment adjusts the angles of the wheels so that they are positioned correctly relative to the vehicle's frame. This adjustment maximizes the life of your tires and prevents your car from veering to the right or left when driving on a straight, level road. These adjustments require special equipment and should be performed by a qualified technician.

Tire Rotation

Rotating tires from front to back and from side to side can reduce irregular wear (for vehicles that have tires that are all the same size). Look in your owner's manual for information on how frequently the tires on your vehicle should be rotated and the best pattern for rotation.

A Tire Rotation Example

For maximum mileage, rotate your tires every 5,000 miles. Follow the correct rotation patterns.



Tire Repair

The proper repair of a punctured tire requires a plug for the hole and a patch for the area inside the tire that surrounds the puncture hole. Punctures through the tread can be repaired if they are not too large, but punctures to the sidewall should not be repaired. Tires must be removed from the rim to be properly inspected before being plugged and patched.

Uniform Tire Quality Grading System (UTQGS) To help consumers compare a passenger car tire's treadwear rate, traction performance, and temperature resistance, the federal government requires tire manufacturers to grade tires in these three areas. This grading system, known as the Uniform Tire Quality Grading System, provides guidelines for making relative comparisons when purchasing new tires. You also can use this information to inquire about the quality of tires placed on new vehicles.

Although this rating system is very helpful when buying new tires, it is not a safety rating or guarantee of how well a tire will perform or how long it will last. Other factors such as personal driving style, type of car, quality of the roads, and tire maintenance habits have a significant influence on your tire's performance and longevity.

Treadwear grades are an indication of a tire's relative wear rate. The higher the treadwear number is, the longer it should take for the tread to wear down. For example, a tire grade of 400 should wear twice as long as a tire grade of 200.

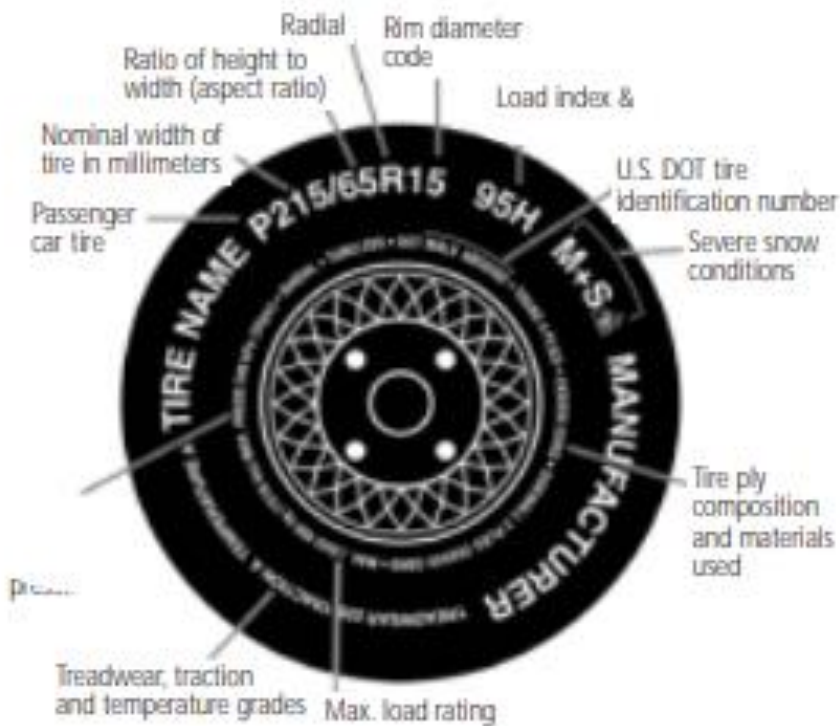
Traction grades are an indication of a tire's ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as "AA", "A", "B", and "C".

Temperature grades are an indication of a tire's resistance to heat. Sustained high temperature (for example, driving long distances in hot weather), can cause a tire to deteriorate, leading to blowouts and tread separation. From highest to lowest, a tire's resistance to heat is graded as "A", "B", or "C".

Tire Fundamentals

Federal law requires tire manufacturers to place standardized information on the sidewall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a tire identification number for safety standard certification and in case of a recall.

Information on Passenger Vehicle Tires Please refer to the diagram below.



P The “P” indicates the tire is for passenger vehicles.

Next number This three-digit number gives the width in millimeters of the tire from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

Next number This two-digit number, known as the aspect ratio, gives the tire’s ratio of height to width. Numbers of 70 or lower indicate a short sidewall for improved steering response and better overall handling on dry pavement.

R The “R” stands for radial. Radial ply construction of tires has been the industry standard for the past 20 years.

Next number This two-digit number is the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

Next number This two- or three-digit number is the tire’s load index. It is a measurement of how much weight each tire can support. You may find this information in your owner’s manual. If not, contact a local tire dealer. Note: You may not find this information on all tires because it is not required by law.

M+S The “M+S” or “M/S” indicates that the tire has some mud and snow capability. Most radial tires have these markings; hence, they have some mud and snow capability.

Speed Rating The speed rating denotes the speed at which a tire is designed to be driven for extended periods of time. The ratings range from 99 miles per hour (mph) to 186 mph. These ratings are listed below. Note: You may not find this information on all tires because it is not required by law.

Q 99 mph	H 130 mph
R 106 mph	V 149 mph
S 112 mph	W 168 mph*
T 118 mph	Y 186 mph*
U 124 mph	

* For tires with a maximum speed capability over 149 mph, tire manufacturers sometimes use the letters ZR. For those with a maximum speed capability over 186 mph, tire manufacturers always use the letters ZR.

U.S. DOT Tire Identification Number

This begins with the letters “DOT” and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code where it was manufactured, and the last four numbers represent the week and year the tire was built. For example, the numbers 3197 means the 31st week of 1997. The other numbers are marketing codes used at the manufacturer’s discretion. This information is used to contact consumers if a tire defect requires a recall.

Tire Ply Composition and Materials Used

The number of plies indicates the number of layers of rubber-coated fabric in the tire. In general, the greater the number of plies, the more weight a tire can support. Tire manufacturers also must indicate the materials in the tire, which include steel, nylon, polyester, and others.

Maximum Load Rating

This number indicates the maximum load in kilograms and pounds that can be carried by the tire.

Maximum Permissible Inflation Pressure

This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

UTQGS Information

Treadwear Number

This number indicates the tire’s wear rate. The higher the treadwear number is, the longer it should take for the tread to wear down. For example, a tire graded 400 should last twice as long as a tire graded 200.

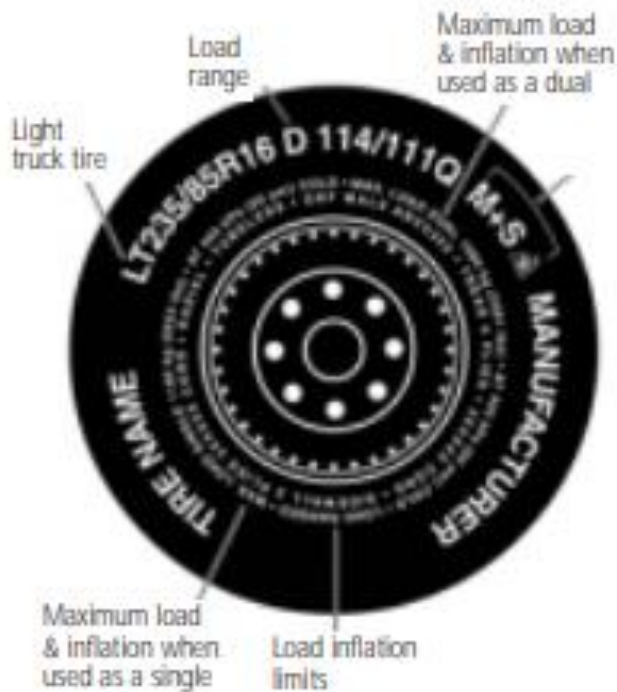
Traction Letter

This letter indicates a tire’s ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as “AA,” “A,” “B,” and “C”.

Temperature Letter

This letter indicates a tire's resistance to heat. The temperature grade is for a tire that is inflated properly and not overloaded. Excessive speed, underinflation or excessive loading, either separately or in combination, can cause heat build-up and possible tire failure. From highest to lowest, a tire's resistance to heat is graded as "A", "B", or "C".

Additional Information on Light Truck Tires Please refer to diagram below.



Tires for light trucks have other markings besides those found on the sidewalls of passenger tires.

LT The "LT" indicates the tire is for light trucks.

Max. Load Dual kg(lbs) at kPa(psi) Cold This information indicates the maximum load and tire pressure when the tire is used as a dual, that is, when four tires are put on each rear axle (a total of six or more tires on the vehicle).

Max. Load Single kg(lbs) at kPa(psi) Cold This information indicates the maximum load and tire pressure when the tire is used as a single.

Load Range This information identifies the tire's load-carrying capabilities and its inflation limits.

Snow Tires

In some heavy snow areas, local governments may require true snow tires, those with very deeply cut tread. These tires should only be used in pairs or placed on all four wheels. Make sure you purchase snow tires that are the same size and construction type as the other tires on your vehicle.

Tire Safety Tips

Preventing Tire Damage

- Slow down if you have to go over a pothole or other object in the road.
- Do not run over curbs or other foreign objects in the roadway, and try not to strike the curb when parking.

Tire Safety Checklist

- ✓ Check tire pressure regularly (at least once a month), including the spare.
- ✓ Inspect tires for uneven wear patterns on the tread, cracks, foreign objects, or other signs of wear or trauma.
- ✓ Remove bits of glass and other foreign objects wedged in the tread.
- ✓ Make sure your tire valves have valve caps.
- ✓ Check tire pressure before going on a long trip.
- ✓ Do not overload your vehicle. Check the tire information placard or owner's manual for the maximum recommended load for the vehicle.
- ✓ If you are towing a trailer, remember that some of the weight of the loaded trailer is transferred to the towing vehicle.

For more information, visit www.nhtsa.gov or call 1-888-327-4236

Tire Safety - Everything Rides on it

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