

2021 Hankook Tire **Tire Service Guide** (For Original Equipment)



**OFFICIAL TIRE OF
MAJOR LEAGUE
BASEBALL**



For North America
Passenger Car, Light Trucks Tires

Tire Service Guide

(For Original Equipment)

For your safety and protection against serious injury or death, the following safety precaution and maintenance instruction must be observed at all times.

IMPORTANT SAFETY CHECK LISTS:

- Check tire air pressure periodically.
- Inspect tire for uneven treadwear, cracks, bulges or any sign of foreign material or trauma.
- Remember to check your tire load carrying capacity and speed ratings.
- Check your tire life. Tires must be replaced when tread is worn down to 2/32nds".
- Never overload your vehicle, check tire load carrying capacity or vehicle owner's manual for the maximum recommended load.

TIRE INFLATION

Warning

Under inflated and/or overloaded tires pose a safety risk. The National Highway Traffic Safety Administration (NHTSA) estimates that under inflated tires contribute to more than 600 fatalities and 33,000 injuries each year. A tire can lose up to half of its air pressure and not appear to be flat! Do you know your tires are more likely than not under-inflated? Results of a tire pressure survey conducted by U.S. Tire Manufacturers Association show:

- 9% of vehicles had all 4 tires properly inflated.
- 50% of vehicles had at least 1 tire under inflated.
- 19% of vehicles had at least 1 tire under inflated by 8 PSI.
- 26% of vehicles had at least 1 tire under inflated by 6 PSI.
- 38% of vehicles had at least 1 tire under inflated by 4 PSI.

UNDER INFLATION

Under inflation (or tire over loading) lead to tire failures, which often result in serious personal injury or death. Among the modes of tire failures are tread/belt separations, sidewall flex breaks and crack formation, among others. Tires run hotter when under inflated which can lead or contribute to tire failure. Under Inflation also adversely affect fuel economy, tire wear and vehicle handling.

CHECK TIRE INFLATION PRESSURE REGULARLY

Tire inflation pressure must be checked at least once a month and before each and every long trip. The tire air pressure must be checked when the tires are cold, in the morning, before doing any driving. At all times visually check tires for nails or other objects embedded in the tread which can cause air leak. Also never bleed or reduce inflation pressure when tires are hot. Over inflation must also be avoided as it can cause uneven wear at the center of tire tread and make the tire more susceptible to road hazards.

PROPER INFLATION

Proper tire inflation is essential for optimum performance and longevity of the tire. A U.S. Department of Energy study shows that “properly inflated tires can improve fuel efficiency by 3.3%.” So, what is the proper inflation for my tires and where can I find it? For original equipment tires or replacement tires with the same size and load rating, proper inflation is specified by the vehicle manufacturer shown on a placard that can be found on the door edge, door post, glove compartment door or gas tank door. It can also be found in the owner’s manual. For plus sized replacement tires consult your local dealer or tire manufacturer. Proper inflation information is NOT stamped on the sidewall of the tire. The inflation pressure shown on the sidewall of the tire is the maximum inflation pressure for that tire.

TIRE PRESSURE MONITORING SYSTEM (TPMS)

All new passenger, SUV, and light truck vehicles manufactured on or after September 1, 2007 are required to be equipped with a tire pressure monitoring system. This system will warn drivers when a tire is 25% (8 PSI if the recommended inflation pressure is 32 PSI) under inflated. This warning may be too late to prevent tire damage caused by under inflation. TPMS units are NOT a replacement for monthly tire pressure checks with a tire gauge.

SPEED RATING

Warning

It is recommended that the replacement tire speed rating be equal to or greater than the OEM tire speed rating. If a lower speed rated tire is selected, then the vehicle top speed becomes limited to that of the lower speed rating selected. The customer must be informed of the new speed restriction & the vehicle’s handling may be adversely impacted. When replacing tires, consult the placard or the owner’s manual for correct size and speed rating. The speed rating of the replacement tires must be equal to or greater than the speed rating of the tire being replaced to maintain the speed capability of the vehicle. Speed ratings do not imply that the vehicle can be safely driven at the maximum speeds for which the tire is rated.

Serious injury or death may take place if you drive your vehicle in an unsafe or unlawful manner. Hankook’s speed symbol designations are verified and comply with regulatory indoor test in accordance with ECE-R30, 54 test (Economic Council for Europe : Procedure load / Speed performance test for tires). These symbols are not applicable to repaired tires.

Speed symbol can be shown from the tire size for example:

P205/60R15 90 H

Category	Maximum Speed		Category	Maximum Speed	
G	90 km/h	55 mph	R	170 km/h	105 mph
J	100 km/h	62 mph	S	180 km/h	112 mph
K	110 km/h	68 mph	T	190 km/h	118 mph
L	120 km/h	74 mph	U	200 km/h	124 mph
M	130 km/h	80 mph	H	210 km/h	130 mph
N	140 km/h	87 mph	V	240 km/h	149 mph
P	150 km/h	93 mph	W	270 km/h	168 mph
Q	160 km/h	99 mph	Y	300 km/h	186 mph

TIRE LOAD

The load carrying capacity of the replacement tire must always equal or exceed the load carrying capacity of the original equipment tire. Tires that are loaded in excess of allowable maximum can build up heat to cause sudden air loss.



Tire and loading information

SEATING CAPACITY | Total 6 | Front 3 | Rear 3

The combined weight of the occupants and cargo should never exceed 611kg or 1348lbs.

Tire	Size	Cold Tire Pressure	See owner's Manual for additional information
Front	P245/70R17 108S	240 kPa, 35PSI	
Rear	P245/70R17 108S	240 kPa, 35PSI	
Spare	P245/70R17 108S	240 kPa, 35PSI	

CHECK TIRE LIFE

Tires have six built-in treadwear indicators that warn you when it is time to replace your tires. These indicators are raised ribs 2/32nds inches height 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 immediately.

TIRE DAMAGE

Inspect your tires frequently for uneven wear, scrapes, bulges, separations, cuts, snags and other damage from road hazards. Damage from impact can occur to the inner part of your tire without being visible to the outside. If you have any doubt that your tire has been damaged from hitting a pothole, curb or debris on the road, tires must be removed from the wheel and inspected for damage by a qualified person such as Hankook authorized dealer. Uneven wear can lead to internal damage or separation.

TIRE REPAIR

Warning

Tire repairs should only be completed by a qualified trained tire service professional. Improper repairs are dangerous and may cause a tire to suddenly fail. Tire repairs should be done following the U.S. Tire Manufacturers Association established guidelines. Hankook warranty does not cover any repair or inspection. Tire must be removed from wheel assembly for inspection and repair.



Repairs should only be made in the tread area (puncture repair area). None of the repair should extend into shoulder area. Puncture must be 1/4 inch (6mm) or smaller in diameter. Plug/stem and patch combination is only proper repair method. Repairs cannot overlap. Never repair an existing improper repair or tire worn down to 2/32nds of an inch. Contact Hankook Tire Technical Services for any repair on non- conventional tires (eg. Runflat, foam-lined)

MOUNTING RECOMMENDATION

Tire mounting and inflation can be dangerous and shall be done only by specially trained persons using proper tools and procedures. Always refer to the U.S. Tire Manufacturers Association mounting procedure. Serious physical injury or death may result from explosion of tire/rim assembly due to improper mounting. A tire bead diameter must always match the diameter of the rim on which it is being mounted. When inflating/dismounting RV tires, approved OSHA safety cages must be used. Never stand, lean or reach over the assembly while inflating tires.

MOUNTING PRECAUTION

There is extreme danger in attempting to install a tire of one rim diameter on a rim of a different rim diameter. Always replace a tire on a rim with another tire of exactly the same diameter tire designation and suffix letters. For example, a 16" tire goes with a 16" rim. Never mount a 16" size diameter tire on a 16.5" rim. While it is possible to pass a 16" diameter tire over the lip or flange of a 16.5" size diameter rim, it cannot be inflated enough to position itself against the rim flange. If an attempt is made to seat the tire bead by inflating, the tire bead may break with explosive force and could cause serious bodily injury or death. Rims of different diameters and tapers cannot be interchanged.

**Death or serious injury may result from:
Tire failure due to under-inflation/over loading.
follow owner's manual or tire placard in vehicle.
explosion of tire/rim assembly may result from
improper mounting. Do not exceed 40 psi to
seat beads.**

Only Specially Trained Persons Should Mount Tires.

TIRE MOUNTING PRECAUTIONS, TO AVOID INJURY

Warning

1. Clean rim. Lubricate rim and beads.
2. Be sure beads are centered.
3. Do not stand over tire while inflating.
4. After beads seat, adjust to recommended inflation.

Warning

Moisture trapped inside tires can cause damage.

1. Store tires in dry area.
2. Dry interior before mounting.
3. Inflate with cold dry air.

SUV / LIGHT TRUCK / TRUCK ROLLOVER HAZARD

Due to their size, weight and higher center of gravity, vehicles such as SUVs and light trucks do not have the same handling characteristics as automobiles. Because of these different characteristics, failure to operate your SUV/truck in a proper and safe manner can increase the likelihood of vehicle rollover. Modifications to your SUV/truck tire size, tire type, wheels or suspension can change your vehicle's handling characteristics and further increase the likelihood of vehicle rollover. Whether your SUV/truck has the original equipment configuration for tires, wheels and suspension or whether any of these items have been modified, always drive safely, avoid sudden sharp turns or lane changes and obey traffic laws. Failure to do so may result in loss of vehicle control leading to an accident and serious injury or death.

TIRE MIXING

Warning

Driving your vehicle with an improper mix of tires is dangerous. Your vehicle's handling characteristics may be seriously affected. You could have an accident resulting in serious personal injury or death. Consult your vehicle owner's manual, tire information placard, and a qualified tire service professional for proper tire replacement.

Unless otherwise specified by the vehicle manufacturer, it is recommended that all road tires be the same size, type, and speed rating. Never mix different size tires on an axle, except for temporary use of a spare. When it is necessary to replace one or more tires, consider that applying new tires in pairs on an axle, or to all wheel positions, helps to optimize vehicle performance and avoid malfunction of mechanical or electronic vehicle systems (i.e. drive-train transmission, anti-lock brakes, traction control).

Replace Fewer than Four Tires: Whether your vehicle is front-, rear-, or all-wheel drive, if your rear tires lose traction because of hydroplaning on a wet road, an oversteer skidding condition may result and lead to loss of control, particularly in a turn. Generally, new tires provide increased resistance to hydroplaning due to their full tread depth. With the new tires on the rear, oversteer skidding condition may be more easily avoided. Therefore, if replacing only one or two tires at a time:

- Two new tires should be placed on the rear axle.
- One new tire should be paired with another tire from the vehicle with the deepest tread depth, and then both should be placed on the rear axle.
- Additional or alternate recommendations may apply for some vehicles. Always refer to and follow the vehicle manufacturer's tire replacement and tire application recommendations; consult your vehicle owner's manual and tire information placard.

SERVICE LIFE OF A TIRE

There is no hard and fast rule to measure service life of a tire. Tires are made with various types of raw materials and a variety of rubber compounds all having varying performance properties. Once a tire is designed and manufactured to achieve given performance property and put into use, it is still subjected to varying conditions such as weather, storage, and still further varying use conditions such as load, speed, inflation pressure, maintenance and road condition. Since all these factors affect the service life of a tire, it just is not possible to predict with accuracy or scientific validity service life of a tire.

Tires unquestionably degrade over time, whether in use or not in use. Some tire and vehicle manufacturers published warnings to consumers of their products to the effect that tires should be replaced after six years of manufacture. Certain industry organizations issued statements concurring with six year service life for tires. Depending on severity of adverse use conditions or non-use, many tires degrade fast enough to require replacement before 6 years of service life. Others in perfectly favorable use conditions may enjoy service life of more than six years.

GENERAL RECOMMENDATIONS

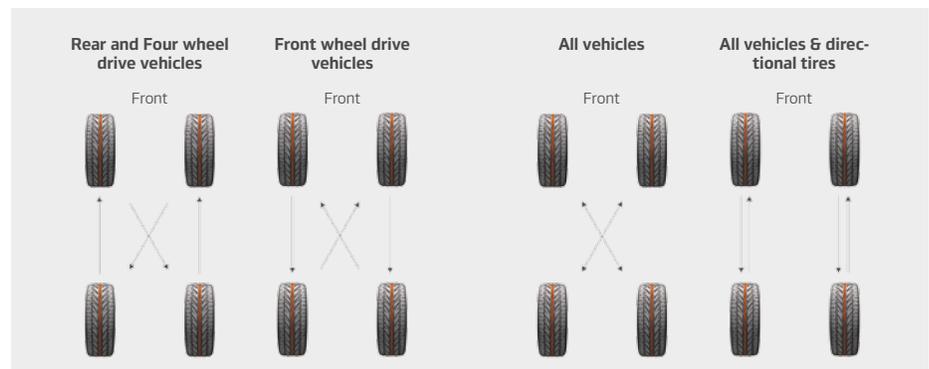
The following recommendations are intended to give consumers some idea concerning service life of a tire. Hankook always insists and mandates that consumers properly maintain and periodically inspect their tires. Even if a consumer properly maintains and periodically inspects the tire, most tires will require replacement before 10 years of manufacture regardless of tread-wear. It is recommended that tires in service 10 years or more from the date of manufacture must be replaced even if it was never used. Date of manufacture can be determined by reading the Department of Transportation (DOT) code on the sidewall. The entire code will be printed on outbound side of the tire. The DOT code will end with the week and year of manufacture. For example, a tire with DOT code reading 1GFN AVN 1408, was manufactured during the 14th week of 2008. Consumers must regularly have tires inspected by qualified tire dealers throughout its life. Furthermore, tires that are over five years of age should be inspected at least twice a year and more frequently if the use is heavy.

Consumers must always be vigilant of their tires performance, condition, inflation pressure, and any other issues that could affect the life of a tire. Consumers must properly maintain, including proper inflation pressures, and periodically inspect your tires. Failure to do so might result in separation or performance loss resulting in vehicle damage, injury or even death.

For original equipment tires, acquired when purchasing a new vehicle, consumers should follow all of the vehicle manufacturer's recommendations.

TIRE ROTATION

For safety and maximizing tire life, rotate your tires at least every 7,500 miles or at the vehicle manufacturer's recommended mileage, if sooner. Each tire pressure must be checked after rotation and adjusted to the vehicle recommendation for the tire's new location on the vehicle. If irregular wear is evident, vehicle alignment or other mechanical problem should be checked.



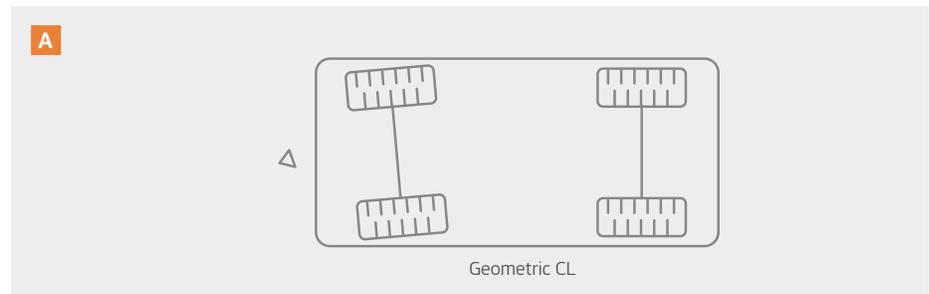
* Tire Rotation variation patterns; refer to proper pattern for asymmetrical, directional tires

WHEEL ALIGNMENT

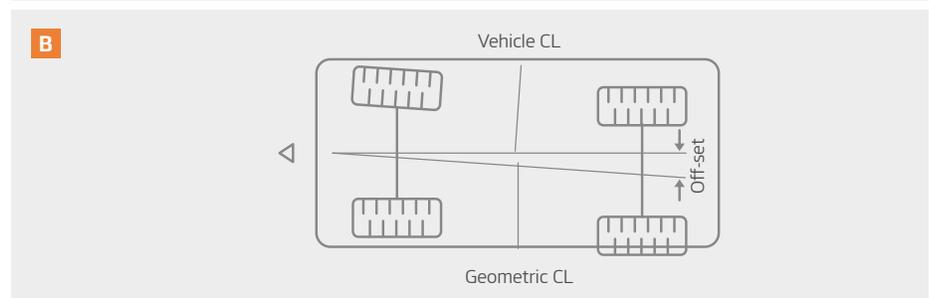
The vehicle center line of the chassis/body is found by measuring in equal distance from both sides of the vehicle. The geometric center line is something a little different. It is determined by the midpoint between the front wheels and rear wheels. If the wheels or axles are not offset to one side, the geometric center line and vehicle center line will be identical. Should the front wheels or rear axle be slightly off center, however, the geometric center line will be at an angle to the vehicle center line. When the two lines do not coincide, tracking problems result. The rear wheels will not follow the front wheels because one set of wheels is offset from true center.

The third line we must deal with is the thrust line. This imaginary line also runs the length of the vehicle, and is determined by the total toe of the rear wheels. The thrust line divides the total toe in half. If toe for both rear wheels is zero (which is where it should be), the thrust line would be 90 degrees to the rear axle right up the center of the car.

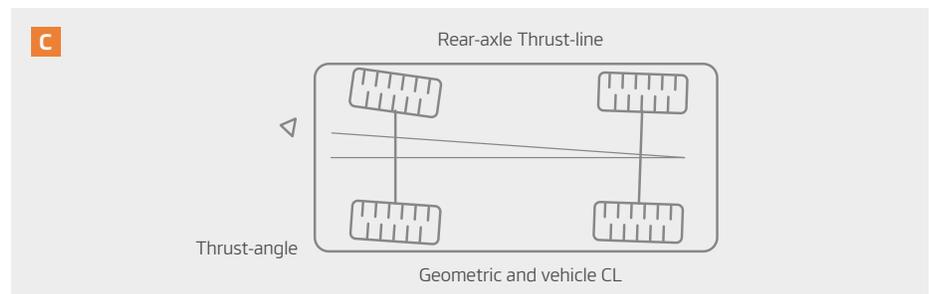
The geometric and vehicle center lines are one in the same in a properly aligned vehicle - shown in **A**



If the rear axle is offset to one side **B** the geometric and vehicle center lines will be at an angle.



If the rear axle or wheels are toed to one side, **C** the thrust line will not match up with the center line and the vehicle will pull—in this case—to the left.



Out-of-alignment conditions occur when the suspension and steering systems are not operating at their desired angles. Out-of-alignment conditions are most often caused by spring sag or suspension wear (ball joints, bushing, etc.) on an older vehicle. They can also be the result of an impact with a pothole or curb or a change in vehicle ride height (lowered or raised) on any vehicle regardless of age. Incorrect alignment settings will usually result in more rapid tire wear.

CONTROLLING A VEHICLE WHEN TIRE FAILURE OCCURS

If a tire failure occurs, you may hear a loud noise, feel a vibration, and/or the vehicle may pull toward the side of the failed tire. It is most important that you. **DO NOT BRAKE OR ABRUPTLY TURN THE STEERING WHEEL.** Slowly remove your foot from the accelerator and hold the steering wheel firmly while steering to remain in your lane. Once the vehicle has slowed and is fully under control, apply the brakes gently; safely pull over to the shoulder and come to a stop. Inspect the tires. If one or more looks flat or low, shows detachment or other damage, remove tire assembly and replace it with a properly inflated spare. Bumps or bulges may indicate detachment within the tire body and require inspection by a qualified tire technician.

TIRE SPINNING

Spinning a tire to extract a vehicle stuck in mud, ice, snow, or wet grass can be dangerous. A tire spinning at a speedometer reading above 35 mph (55 km/h) can in a matter of seconds, reach a rotation speed capable of disintegrating a tire with explosive force. Under some conditions, a tire may be spinning at a speed twice that shown on the speedometer. This could cause serious personal injury or death to a bystander or passenger. Never spin a tire above a speedometer reading of 35 mph (55 km/h).

WINTER DRIVING

Tires which meet the U.S. Tire Manufacturers Association definition of snow tires are marked M/S, M+S, or M&S. On such tires, this designation is molded into the sidewall. Tires without this notation are not recommended for winter driving. While All-Season tires are designed to provide reliable performance in some winter conditions, the use of 4 winter tires is recommended for optimal performance. Tires designated for use in severe winter conditions are marked on at least one sidewall with the letter "M" and "S" plus a pictograph of a mountain with a snowflake on it.

ADDITIONAL INFORMATION • CUSTOMER SERVICE

If you have any questions or concerns regarding product warranty, please first contact your nearest Hankook Tire Dealer.

For dealer information, or if your question has not been handled to your satisfaction, contact the Hankook Tire Technical Department.

HANKOOK TIRE AMERICA CORPORATION

Technical Department 1-800-Hankook 333 Commerce Street,
Suite 600 Nashville, TN 37201.

For additional warranty information, please visit: hankooktire.com