

**Hoosier**<sup>®</sup>  
RACING TIRE

# Tire Care and Safety Guidelines



## R7 & A7

*For Additional Safety Warnings*

SEE: Tire Spec Catalog • VISIT: [hoosiertire.com/safetywarnings](http://hoosiertire.com/safetywarnings) • READ: Tire Sidewall

**“TIRES DESIGNED FOR CHAMPIONS”<sup>®</sup>**

[www.hoosiertire.com](http://www.hoosiertire.com)

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# Hoosier<sup>®</sup>

## RACING TIRE

### WARNING NOT FOR HIGHWAY USE

**NOT FOR HIGHWAY USE:** All Hoosier Racing Tires including DOT labeled Hoosier Racing Tires are designed for competition purposes only on specified racing surfaces and are **not to be operated on public roadways**. DOT labeled Hoosier Racing Tires meet Department Of Transportation requirements for marking and performance only and are **NOT INTENDED FOR HIGHWAY USE**. It is unsafe to operate any Hoosier Racing Tire including DOT tires on public roads. The prohibited use of Hoosier Racing Tires on public roadways may result in loss of traction, unexpected loss of vehicle control, or sudden loss of tire pressure, resulting in a vehicle crash and **SERIOUS PERSONAL INJURY OR DEATH**.

#### **READ TIRE MOUNTING SAFETY INSTRUCTIONS BEFORE MOUNTING TIRE.**

The R7 and A7 have been developed to improve wear and consistency without any sacrifice of performance. In many cases, the performance will even improve over previous models. The new tire models are an evolution in the continuing effort to provide the best tire for racers.

### TIRE BREAK-IN PROCEDURE

Proper break-in will not affect initial performance but will increase the competitive life of the tire.

The procedure can be broken down into phases.

1st phase: The initial run

2nd phase: The length of the time the tire is allowed to “cure”

### THE INITIAL RUN HEAT CYCLE

#### *A7/R7 Roadrace*

The first laps for the tire are critical for setting up the durability and competitive life. The first session should consist of no more than 10-15 minutes of running. The early part of the session should be run at an easy pace, with the speed gradually increased until the end of the session. The final lap should be run at the fastest possible speed. The intent is to achieve maximum tire temp on the last lap. At this point the car should be brought in and the tires allowed to cool at a normal rate.

During the initial run-in process, the inflation pressure should be 3-5 psi higher than you would normally use. The best progression would have the driver taking 4-7 laps to accomplish this break-in. Each lap should be approximately 7-10 seconds a lap faster than the previous lap. The goal is to have the tire temp as high as possible on the last lap without “shocking” the tire during the warm up laps. In essence, no wheelspin, late braking, or sliding. The last lap should be at, or very close, the maximum possible.

#### *A7 Autocross*

For autocrossing, the A7 does not need the same break in procedure as the R7. The A7 needs a minimal scuff-in session before the first autocross run. This “session” can comprise of simply driving around the event site at minimal speeds on the A7 set of tires. By scrubbing off the newness of the tread (no or minimal shininess remaining) prior to your first competitive run, the A7 tires will be more consistent in handling, grip and responsiveness on the first run. If this is not completed, running on un-scuffed A7 tires on your first run may result in the tires not gripping properly, or feeling like they “skate” over the course surface. You are welcome to run 3 - 5 psi higher when scuffing in a new set of A7's, but be sure to reset them to the correct operating pressures before your first autocross run. As you compile autocross runs on your new A7's, they should become more consistent in run times.

#### *“Cure” Time*

After completing the initial run phase, the length of time the tire is allowed to set is possibly more important. The barest minimum for this process to be beneficial is 24 hours. (Not “the next day”). Any less than this is a waste of time. The best situation would allow a week before using the tire again.

Proper tire management is a difficult process. To accomplish this almost always requires a second set of wheels. The payoff is greatly increased competitive tire life.

**Following the recommended break-in procedure will require a lot of planning to make it work. The benefits to doing it right include greatly increased tire life as well as consistent performance and durability under stress. Please make an effort to educate your team on the importance of this. It can save you a lot of money.**

#### *Tire Temperature Recommendations*

For best performance the expected temperature range will vary from track to track. Generally, optimum traction will be generated when the pit lane temps show 180-200 degrees for the R7 in Roadrace applications, and 110-140 degrees for the A7 in an Autocross application.

**To get accurate hot tire temperatures, you should use a needle probe. An IR sensor surface temperature device will read cold and this may cause you to miss your hot target temperatures.**

#### *Chassis Setup Recommendations*

For optimum performance the Hoosier P-Metric radial tires require about 3 degrees of negative camber. There will be a trade off in maximum performance to maximize wear. Generally, 1/2 degrees less than optimum will result in the best compromise for wear and speed. Less than 2.5 degrees negative can result in excessive wear on the outer shoulder junction. Higher pressures are needed when the vehicle has limited negative camber.

The Hoosier tires typically offer better performance with spring/shock rates higher than previous brands you may have run.

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## TIRE PRESSURE RECOMMENDATIONS FOR COMPETITION

Traditionally, Hoosier tires have often required higher pressures than other brands. Hoosier recommends a starting minimum cold pressure of 26 psi on all DOT radials.

### Roadrace/Track Applications

VEHICLE SIZE	RECOMMENDED HOT PRESSURE	COLD PRESSURE
1800-2200 LBS.	32-34+	26-28
2200-2600 LBS.	34-36+	26-28
2600-3000 LBS.	36-40+	26-30
OVER 3000 LBS.	40-42+	30-34

**Please contact a Hoosier Tire representative for cold pressure settings for vehicles over 3000 LBS.**

*+Higher pressures will improve the performance capability but will require a more sensitive feel to take advantage of the increase.*

### Air Pressures

One characteristic of new tires is the feeling of lower traction initially (when inflation pressures are correct). It is important to resist lowering the pressure to eliminate this feeling. Dropping the pressure too far may improve the "feel" of the tire however it will also lower the performance and increase the wear rate.

Never drop hot tire pressures back down to cold pressure set points. Tires will be severely under inflated as a result of dropping hot pressures to cold pressure set points which will lead to increased tread wear and possible tire separation. Hot pressures will gradually return to the cold starting pressure as the tires cool off.

For every 10 degrees F increase in air temperature, the tire pressure will gain approximately .7 psi. As Air Temperatures increase throughout the day, so will the Air Pressures in your tires. It is critical to maintain or manage your HOT air pressures throughout the day. Also, keeping the tires in the shade or out of direct sunlight will assist with consistent air pressure settings.

Keep in mind that using compressed air (with moisture) and nitrogen (little to no moisture), will offer quite different air pressure increases. Compressed air will cause a faster increase of HOT air pressures while Nitrogen air pressure will cause a slower increase of operating HOT pressures. Using Nitrogen, cold air pressure settings need to be started at 2-3 psi higher compared to compressed air pressure settings. Also, depending on the morning air temperatures (50-60 degrees), both compressed air and Nitrogen require higher cold pressure settings to achieve the HOT pressures sooner. Using Nitrogen will offer more consistent air pressure readings, repeatable tire performance and improved overall results.

### Banked Oval / Road Courses

Hoosier DOT radials are not intended for high banked super speedway or high speed and banked tracks like Watkins Glen International, however on these type of course configurations with the proper settings the tires can be used. In these situations, the loaded side tires should be elevated five (5) psi cold and hot above the normal road course pressure recommendations. Camber settings should be reduced to or below -2.0 degrees.

### Autocross Applications

For autocross applications, your starting pressure for the first run should be within 1-2 psi of the recommended hot pressures shown above. After the first run and each subsequent run, keep resetting the pressures back to your target hot pressures before taking the next run. This way your tires are at the proper pressure during the bulk of every run you take.

The above chart is a general recommendation which is intended for a standard configuration vehicle (i.e. front engine, rear wheel drive). Factors which can radically affect your pressure set up would include front wheel drive, independent rear suspension, rear engine, McPherson vs. control arm front suspension.

### Front Wheel Drive

Vehicles configured with FWD are probably the most difficult application for a tire setup. The combination of steering, braking and accelerating on the front tires, combined with higher corner weights for the front positions produce a harsh environment for the tire. These vehicles will typically have a strut type of suspension which limits camber gain. All these factors result in conditions which require the tire do more work than a simple chart for pressures can accommodate.

In severe cases front tire pressures for FWD vehicles can run in the 48-52 psi (hot) range. In cases where the tire size is limited to a relatively small tire, the required pressure can run even higher. The front to rear pressure differential on FWD cars can have extreme ranges of inflation, depending on the driver preference, suspension tuning, and track configuration.

### Rear Engine Vehicles

When matching a race tire to your rear engine vehicle, it is very critical in matching the OE (Original Equipment) rear tire diameter or size to the race tire. Having the same diameter or greater race tire will offer a higher load carrying capacity. If a shorter diameter tire is used, the race tire will overheat, overload and eventually fail. The same or taller diameter race tire will also offer a higher spring rated tire which will help absorb the shock of forward acceleration, provide higher cornering grip and less wheel spin during corner exit under power. More air pressure (2-3 psi) should also be used in the rear tires with this vehicle configuration.

### Aero Package

Cold starting pressure needs to be considered setting at a higher pressure when using an aftermarket aero package. An aero package will produce more down force and will damage race tires if air pressure is not increased.

## *Independent Rear Suspension*

With IRS and proper geometry up front, tire pressures can be reduced from the recommendations listed above. When there is adequate camber gain and good roll control, the Hoosier radial tire will perform very well at the reduced air pressure. This results in a bigger "sweet spot" and easier control at the limit.

When tuning at reduced pressures use the following formula to determine the minimum safe pressure: Divide the total vehicle weight, including fuel and driver, by 100 to arrive at the minimum safe pressure. Example: Your car weighs 2750 lbs. as raced. The minimum safe (cold) pressure is 27.5 psi.

**Extreme care should be taken when tuning at reduced pressure. Tire damage can occur that is not visible to external inspection.**

Vehicles equipped with independent rear suspension (IRS) have a distinct advantage over non-IRS cars when using radial tires. This is true for two reasons. First, it is possible to setup some amount of static negative camber on IRS suspensions, if needed. Second, the IRS geometry can provide the proper camber gain to achieve the dynamic camber needed for a radial tire. This is a great benefit because it then becomes possible to better address front tire grip when the rear of the car can be optimized closer to the tire's potential.

## **THINGS TO CONSIDER**

These tires are molded to their designed tread depth. They do not require shaving to be prepared for competition use.

Due to extremely light construction, Hoosier tires have a much lower polar moment of inertia than other radial tires. This translates to a very low rotational mass, which is a good thing for performance applications. The down side to this feature is that the tires do not resist "spikes" in braking force as well as a heavier tire might. As a result, there is a tendency for drivers to "flatspot" a tire the first time really getting to the limit. Vehicles equipped with ABS will benefit from its use. If you do not use ABS it is recommended that you make an effort to minimize stabbing the brakes until you have some experience with the feel of the tire under hard braking.

The light construction also provides less protection from impact damage and punctures. Off course excursions or running over debris on the track will likely result in tire damage.

Once some wear has occurred it may be desirable to flip the tire on the wheel in order to even out the wear and maximize tire life.

### *Wheel Widths*

Wheel width dramatically affects wear and performance of the Hoosier P-Metric radial tires.

There is about a one inch window of optimum width. The trick is to figure out that window. A good rule of thumb to use for determining proper width is to use the tread width of the tire. Measure the tread width. Plus or minus 1/2 inch from the tread dimension will indicate the proper rim sizing. It is possible to use narrower wheels, but at a sacrifice to shoulder wear and cornering power.

### *"Measured" rim vs. "Recommended" rim*

In our printed product catalog and on our website tire specifications you will see two columns of information regarding rim dimensions. In most cases, the "measured rim" and the "recommended rim" will be the same. However in the case of DOT tires, the information may appear contradictory. The reason for the differences lies in the Department of Transportation requirements for publishing tire dimensions on any tire that carries a DOT certification. Each tire size has a specific rim that must be used when taking measurements for tire comparison. This is intended to allow consumers a consistent way to compare tire sizes between brands.

With respect to the Hoosier P-Metric line, the recommended rim size will typically be wider than the DOT standardized wheel.

The fact that a tire will "fit" on a rim is not an indication that it will work effectively in that condition. Radial tires are extremely sensitive to wheel widths. The performance characteristics of the tire can change significantly within the recommended range of application. Mounting a tire on a rim that is outside of the recommendation is not a good idea.

### *Driving Style/Braking*

Driving style has also shown to significantly effect tire wear. Drivers who achieve their speed by "tossing" the car run the risk of increased tire wear. Radial tires develop their highest cornering power at relatively low slip angles. Smooth driving yields faster lap times and better tire wear.

Drivers need to develop a sensitivity for the limits under braking. This takes time and practice. Failure to apply this will result in flatspotted tires.

Particular care needs to be taken when selecting brake pad compounds. It is possible to have a pad that is too aggressive. This will make it very difficult to develop good braking feel for threshold braking.

### *Rain Tires*

The Hoosier D.O.T. Radial tires are extremely good in dry conditions, however they do not make very good wet weather tires. Having dedicated rain tires available will be necessary for your team to be properly prepared.

Hoosier Racing Tire also offers a D.O.T. Radial Wet tire. This tire has a molded tread of symmetrical design. Check the product catalog for the available sizes. The compound for these tires is intended for wet weather use only.

When using rain tires, always increase your starting cold air pressure 2-4 psi over your dry tire starting pressures.

### *Speed Rating*

The A7/R7 tire model carries a W Speed Rating of 168 mph.

## **SERVICE LIFE**

**Service Life for Race Tires:** Old tires can fail in use, causing loss of vehicle control and personal injury. Environmental conditions like temperature extremes, exposure to sunlight, electric arc, solvents, automotive fluids, and atmospheric pollutants accelerate the aging process. Hoosier Racing Tire strongly recommends that new (sticker) tires should be put in service within 2 years of date of purchase. Used (scuffed) tires have a shorter service life than new (sticker) tires. Poor storage and infrequent use accelerate the aging process.

## **NO WARRANTY POLICY**

**HOOSIER RACING TIRE CORP.** offers racing tires for sale only upon the conditions and the terms contained in this disclaimer of liability and indemnity. Due to many varied and different conditions which Hoosier Racing Tires and Tubes are exposed and because of the manner in which racing is conducted, Hoosier Racing Tire Corp. makes absolutely **no warranty**, expressed or implied, as to the fitness for a general or particular purpose or of merchantability in connection with any offer of sale of Hoosier Racing Tires and tubes. **"HOOSIER RACING TIRES AND TUBES ARE SOLD AS IS."** Race tires are not tested or labeled to meet FMVSS 109, 119, 139 or ECE36 Safety Standards. Therefore it is dangerous and illegal to sell race tires for use on public highways. Any person selling Hoosier Racing Tires or Tubes for highway use agrees to indemnify and reimburse Hoosier Racing Tire Corp. for all loss, damage, or liability Hoosier Racing Tire Corp. may suffer because of such sales. Not applicable where prohibited by law. Not following these warnings can cause **SERIOUS PERSONAL INJURY OR DEATH.** For more information read tire labels, follow manufacturer's warnings as molded in tire sidewalls and visit [hoosiertire.com](http://hoosiertire.com).

# DIRECTION OF ROTATION / MOUNTING INSTRUCTIONS

## ROTATIONAL GUIDELINES FOR TIRES WITH DIRECTIONAL ARROWS

All Hoosier tires having directional arrows must be mounted so that the tire travels in the direction of the arrow. Hoosier tires having directional arrows will have them on both sidewalls. Directional arrows may not be on a tire that can have both left and/or right side application. All Hoosier tires not having directional arrows should be mounted as detailed below.

## ROTATIONAL GUIDELINES FOR TIRES WITHOUT DIRECTIONAL ARROWS

Every Hoosier race tire has a four character serial code embossed into ONE sidewall of the tire. All Hoosier DOT tires will also have two additional codes as required by the Department of Transportation. (Example: J7AB 4AX8 3709)

**CIRCLE TRACK RACING TIRES:** (Includes both dirt and asphalt tires)

Hoosier tires must be mounted with the **serial code** located toward the infield.

**ROAD RACING TIRES:** (Includes catalog numbers beginning with 43, 44, 45, 46)

In most cases, Hoosier tires used in Road Race applications should be mounted with the **serial code** toward the center of the vehicle. Once a tire has been run in the proper orientation it is acceptable to remount the tire in the opposite direction to even out the wear.

**DRAG RACING TIRES, INCLUDING DOT DRAG TIRES:** (Includes catalog numbers beginning with 17, 18)

Hoosier drag tires can be mounted to rotate in either direction. Hoosier drag tires can also be flipped or reversed to provide even wear.

## WARNING TIRE MOUNTING IS DANGEROUS

**Special Tire Mounting Instructions:** Tire mounting should be done only by trained personnel using proper tools and procedures. Failure to follow safe mounting procedures could cause faulty positioning of the tire and cause the assembly to burst with explosive force sufficient to cause **SERIOUS PERSONAL INJURY OR DEATH**. Always inspect tire for kinked beads or other possible damage that may have occurred in shipping or storage. Clean rim and lubricate beads with rubber lubricant. Always lock rim on mounting machine or place in safety cage. Use a clip on chuck, an in-line valve with a pressure gauge or adjustable regulator and remote inflation/deflation device. Have enough air hose to stay out of the trajectory. Stand back.

## WARNING VERIFY RIM SIZE

**Verify Correct Wheel and Bead Flange:** All tires are designed to be used on wheels that are manufactured to Tire and Rim Association (T&RA) specifications and tolerances. Some rims are non-standard or damaged and it is necessary to inspect the rim flange to assure proper fit. Consult your specific rim manufacturer to determine if your rim can be used in this application. Never attempt to install and inflate a tire of one bead diameter on a rim or wheel of a different bead diameter. Use of Hoosier Racing Tires on wheels with incorrect bead flanges or wheels that do not meet T&RA standards can cause the assembly to fail and burst with explosive force sufficient to cause **SERIOUS PERSONAL INJURY OR DEATH**. Use a certified wheel rim disk tape to confirm wheel rim flange size.

## WARNING BEAD / RIM SEATING

When seating beads never exceed maximum bead seating pressure as molded in tire sidewall. Never exceed manufacturer's maximum inflation pressure. Always seat beads with wheel locked to mounting machine or placed in a safety cage. A damaged tire or wheel can fail during bead seating and burst with enough force sufficient to cause **SERIOUS PERSONAL INJURY OR DEATH**. Always use a clip on chuck, an in-line valve with a pressure gauge or adjustable regulator and remote inflation/deflation device. Have enough air hose to stay out of the trajectory. Stand back. If the beads will not seat at the manufacturer's maximum bead seating pressure, STOP, deflate tire, return the tire to the place of purchase.

## WARNING DO NOT ALTER TIRES

**Chemical Treatment of Tires:** Hoosier Racing Tires strictly forbids any chemical alteration of the tire carcass and/or tread compound such as tire "soaking" or use of tread "softener." Hoosier Racing Tire strictly forbids the physical defacement (removal, altering or covering), of tire sidewall markings in any manner. Failure to comply with this warning could result in premature or catastrophic tire failure and may result in **SERIOUS PERSONAL INJURY OR DEATH**.

## WARNING MISUSE / MISAPPLICATION

**Application/Misuse:** All Hoosier Racing Tire products are designed for a specific purpose. Consult with Hoosier Racing Tire Corp. for specific fitment and application. Utilizing Hoosier Tires in any form outside of their intended use constitutes **misuse** of the product and can cause **SERIOUS PERSONAL INJURY OR DEATH**. Hoosier Racing Tire products are designed and manufactured for racing purposes only, within a closed course designed for organized competition. Not for recreational use. Hoosier Tires should never be used for Off Track Exhibition or for Land Speed Record Vehicles including Jet or Rocket Powered Cars.

## FREEZE WARNING

**Freeze Crack Advisory:** This advisory addresses proper storage and use of Hoosier tires in cold conditions. Hoosier Tires, especially asphalt and hard compound tires, may experience Rubber Cracking if the tires are transported, crushed, flexed or stressed when frozen. The following guidelines are provided to avoid this problem.

1. Always store Hoosier Racing Tires indoors at temperatures above 32° F.
2. If tires have been subject to 32° F or less, allow them to warm to room temperature (about 70° F) for a minimum of 24 hrs before the tire is mounted, transported or flexed.
3. Always use spare tires not intended for future competition to store vehicles for prolonged periods of time or winter transport.
4. If below freezing temperatures are expected, please consider shipping tires once more favorable conditions exist.

**Do not use tires that have evidence of Freeze Crack Damage.**

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