



## Hoosier Road Course Endurance Specification (RCES)

### Tire Care and Safety Guidelines



**For Additional Safety Warnings:**

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



## HOOSIER ROAD COURSE ENDURANCE SPECIFICATION (RCES)

### TIRE CARE AND SAFETY GUIDELINES

The Hoosier RCES is designed specifically to meet the unique needs of NASA racers competing in the Spec Iron, American Iron, Camaro Mustang Challenge, Spec E46 and 944 Spec race classes.

#### 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

##### Hoosier RCES – Road Course Endurance Spec

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, to the maximum possible.

##### "Cure" Time

After completing the initial run phase, the length of time the tire is allowed to set is possibly more important. The bare 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 160-240°F for Hoosier RCES in Roadrace applications.

*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 RCES requires 2.5-3.5 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. In instances where camber is limited by class specific rules, or when the vehicle has limited negative camber higher pressures are needed. Hoosier Tire recommends 1/8th/in toe out on the front axle and 1/8th/in toe in on the rear axle for optimum performance.



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#### TIRE PRESSURE RECOMMENDATIONS

Hoosier RCES tires require higher pressures than other brands. Hoosier recommends a starting minimum cold pressure based on the vehicle application chart below.

##### Roadrace

NASA RCES Setup Guide			
	Min. Race Weight	Min. Recom. Hot Pressure	Min. Recom. Cold Pressure
Spec E46	2850	30 psi+	22 psi+
944 Spec	2600	34 psi+	26 psi+
Spec Iron	3350	34 psi+	22 psi+
American Iron	2900	30 psi+	20 psi+
CMC	3100-3300	32-34 psi+	22-24 psi+
Spec Miata	2275-2450	30+	22+

+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 in an attempt 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 RCES tires 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.

##### Aero Package

When using an aftermarket aero package, a higher pressure needs to be considered for cold starting pressure.

#### 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 RCES 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.



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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.

**Wheel Widths**

Please refer to Your NASA class rules for approved rim widths.

**Driving Style/Braking**

Driving style has also shown to significantly affect tire wear. Drivers who achieve their speed by "tossing" the car, run the risk of increased 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 RCES 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 Hoosier RCES tire model carries a W speed rating of 168 mph.

**ROTATIONAL GUIDELINES FOR TIRES WITHOUT DIRECTIONAL ARROWS**

Hoosier RCES 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

**SERVICE LIFE**

**Service Life for 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."**

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)

**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.



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#### 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

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 Tires should never be used for Off Exhibition or for Land Speed Record Vehicles including Jet or Rocket Powered Cars

#### FREEZE WARNING

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## TIRES DESIGNED FOR CHAMPIONS

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