

Modern Tires For Classic Sportscars

Re-shoeing with radials

By Kelvin Dodd

One of the most frequently asked questions faced by the Moss Motors technical department is, “What size tire should I buy?” In response, here’s a size-matters look at the four black round things that keep your sportscar from dragging on the ground.

Luckily, British sportscars were originally designed with a fairly limited range of wheel and tire combinations (see OEM Sizes chart, page 18). So, we can begin by lumping some applications together. In the interest of simplicity, the original fittings are followed by some caveats. (Purists please note: We are quite aware of the minor production differences and have chosen the most popular OE sizes.)

Behind The Numbers

These factory-fitment tires have Numeric System sizing. The first digits indicate the nominal cross-sectional width of the tire, and the last digits are the wheel rim diameter. The approximate diameter of the tires can be determined by digging into auld tire lore. An aspect ratio is the percentage of the section height to section width, and Numeric System tires had a nominal 88-92 aspect ratio. Compare this to modern tires with 50-60 aspect ratios (commonly called “series”) and it becomes obvious that

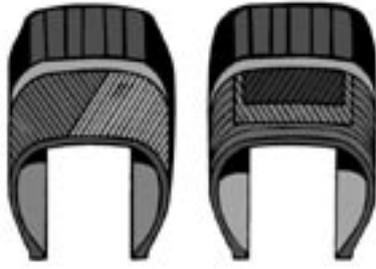
your classic chariot was designed to operate on tires that were very tall and skinny in comparison to the rubber strips masquerading as tires on today’s sport-compact street racers.

Original-style bias-ply (known to Brits as “cross-ply”) tires have a much narrower tread width or contact patch than modern radial tires. This becomes an important issue when understanding the

loading experienced by early suspension designs. With a typical tread width of less than 4”, the original bias-ply tires break free easily, reducing the loading on the wheels and suspension. Watching early sportscar racing footage shows that the current sport-compact “drifting” craze is far from a modern phenomena. Going sideways around corners with the tail hanging out was the real test of sportscar driving.



Vintage racer Michael Jacobsen prefers to keep the period-correct look for his '34 MG N-Type, although his Rudge wheels measure 16 inches as opposed to the stock 18-inchers.



Bias-Ply

Radial

Tires were originally made with stiff-carcassed bias-ply construction. Michelin patented the radial design in 1946. Radials offer several performance advantages over bias-plyes because the sidewalls are more compliant. (Courtesy Coker Tire)

Even with these early tires, wheel failure was a problem, and most manufacturers had to increase wheel strength to withstand spirited driving.

As tire technology advanced, these changes influenced factory chassis engineering. Radial tires were first fitted as options, then later as standard equipment.

The first radial tires to see service on British sportscars were labeled in the Metric Sizing System, which again did not have a stated aspect ratio. By this time, “low profile” tires were popular, and the aspect ratio ranged from 78 to 82 depending on manufacturer and date, the earlier tires being taller. Comparing the original-fitment radial tires with the earlier OE bias-ply sizes shows how little the diameter—and hence, gearing—changed (see Original Fitment Sizes chart, page 18).

Unfortunately, many of the original sizes are no longer available, so wider, lower-profile tires are substituted. The resulting domino effect causes changes in gearing and steering effort—and often a decrease in safety and handling. Much of these cars’ charm comes from their nimble feeling, which is often lost with overly wide tires. Heavy low-speed steering and a lack of crispness when cornering are symptoms of too wide a tire. At a certain point, wider isn’t better, and it’s important to check wheel widths and choose tires that are matched correctly to the wheel. In some cases this means ordering tires from companies that specialize in vintage

Radial Recommendations

Here are tire sizes that will ensure safe handling and maintain an original look.

| | |
|--|---|
| A-H Sprite/MG Midget and Triumph Spitfire with stock 4" steel or wire wheels | 145/80 or 155/80 |
| Later Triumph Spitfire with 4.5" or 5" steel wheels | 165/80 or 175/70 |
| Triumph TR7/TR8 | The original 185/70 tires are readily available. 205/60 tires may be safely fitted. |
| Early MGB with 4" steel wheel | 155/80 or 165/80 |
| MGB with wire wheels | 165/80 or 175/70 |
| MGB with “Rostyle” 5" wheels | 175/70 or 185/70 |
| MGB with 5.5" alloy wheels | 185/70 or 195/65 (check for clearance on the inner and outer rear fenders) |
| A-H 100, MG TD/TF, MGA, TR2-4 with original early 4" steel or 48-spoke wire wheels | 155/80 or 165/80 |
| A-H 100/100-6, MGA, TR2-4A with 4.5" steel or 60-spoke wire wheels | 165/80 or 175/80 |
| A-H 100-6, MGA, TR2-4A with 5.5" 72-spoke wire wheels | 175/80, 185/70, 195/70 (check for clearance on the wider tires) |
| 6-cylinder Jaguar E-Type, TR250/6 with original 5.5" wheels | 185/80, 195/75, 205/70 |
| 12-cylinder Jaguar E-Type and XJ sedan | 205/70 |

**Tire Diameter =
(Cross-Section Width X Aspect Ratio/100) X 2
+ Wheel Diameter.**

tires because modern radials are too wide to be safe on the original wheels.

Matching factory tire diameter is also necessary to retain correct odometer accuracy, ride height, and final-drive gearing. Aesthetically, a tire that’s too short may look out of place in the wheelwell. The Typical Modern Tire Sizes charts that follow on page 18 give calculated dimensions

of available tires; compare these diameters and recommended wheel widths. (Wheel width is measured between the two bead mounting surfaces of the wheel, not from edge to edge.)

When completing a restoration, many choices affect safety. Maintaining the car’s original look and handling are important to many

OEM Sizes

| Application | Size |
|--|---------|
| A-H Sprite/MG Midget and Triumph Spitfire | 5.20x13 |
| MGB | 5.60x14 |
| Austin-Healey 100-3000, MG TD/TF, MGA, TR2-TR4 | 5.90x15 |
| Jaguar E-Type | 6.40x15 |

Original Fitment Sizes

| Designation | Aspect Ratio | Width | Diameter |
|----------------|--------------|--------------|---------------|
| 5.20x13 | 90 | 5.20" | 22.36" |
| 145R13 | 82 | 5.71" | 22.36" |
| 5.60x14 | 90 | 5.60" | 24.08" |
| 155R14 | 82 | 6.10" | 24.01" |
| 5.90x15 | 90 | 5.90" | 25.62" |
| 165R15 | 82 | 6.50" | 25.65" |
| 6.40x15 | 90 | 6.40" | 26.52" |
| 185R15 | 82 | 7.28" | 26.94" |

- Recommended fitments are in bold.

Typical Modern Tire Sizes (actual sizes vary by manufacturer)

Modern 13" Tires

Original 5.20x13 Tire Diameter Approx. 22.5"

| Size | Width | Diam. | Wheel Width |
|------------------|--------------|---------------|------------------|
| 145/80R13 | 5.71" | 22.13" | 4.0"-5.5" |
| 155/80R13 | 6.10" | 22.76" | 4.0"-5.5" |
| 165/80R13 | 6.50" | 23.39" | 4.5"-5.5" |
| 165/70R13 | 6.50" | 22.09" | 4.5"-5.5" |
| 175/70R13 | 6.89" | 22.65" | 5.0"-6.0" |
| 175/60R13 | 6.89" | 21.27" | 5.0"-6.0" |
| 185/70R13 | 7.28" | 23.20" | 5.0"-6.5" |
| 205/60R13 | 8.07" | 22.69" | 5.5"-7.5" |

- Recommended fitments are in bold.
- Wire wheels and early Sprite/Midget and Spitfire steel wheels were 4.0" wide. Rostyle and later Spitfire wheels were 4.5" wide.
- The 1980 Spitfire was fitted with 5.0"-wide steel wheels.
- TR7s/TR8s were fitted with 5.5" wheels.

Modern 14" Tires

Original 5.60x14 Tire Diameter Approx. 24.0"

| Size | Width | Diam. | Wheel Width |
|------------------|--------------|---------------|------------------|
| 165/80R14 | 6.50" | 24.39" | 4.0"-5.5" |
| 165/65R14 | 6.50" | 22.44" | 4.0"-5.5" |
| 175/80R14 | 6.89" | 25.02" | 4.5"-6.0" |
| 175/70R14 | 6.89" | 23.65" | 4.5"-6.0" |
| 175/65R14 | 6.89" | 22.96" | 4.5"-6.0" |
| 185/70R14 | 7.28" | 24.20" | 5.0"-6.5" |
| 185/65R14 | 7.28" | 23.47" | 5.0"-6.5" |
| 185/60R14 | 7.28" | 22.74" | 5.0"-6.5" |
| 195/65R14 | 7.68" | 23.98" | 5.5"-7.0" |
| 195/60R14 | 7.68" | 23.21" | 5.5"-7.0" |
| 205/60R14 | 8.07" | 23.69" | 5.5"-7.5" |

- Recommended fitments are in bold.
- Early MGB roadster steel wheels were 4.0".
- Wire wheels and early GT steel wheels were 4.5".
- Rostyle and Alloy wheels are 5.0"

Typical Modern Tire Sizes (cont'd) (actual sizes vary by manufacturer)

Modern 15" Tires

Original 5.90x15 Tire Diameter Approx. 25.6"

| Size | Width | Diam. | Wheel Width |
|------------------|--------------|---------------|------------------|
| 155/80R15 | 6.10" | 24.76" | 4.0"-5.5" |
| 165/80R15 | 6.50" | 25.39" | 4.0"-5.5" |
| 175/80R15 | 6.89" | 26.02" | 4.5"-6.0" |
| 175/65R15 | 6.89" | 23.96" | 4.5"-6.0" |
| 185/70R15 | 7.28" | 25.20" | 5.0"-6.5" |
| 185/65R15 | 7.28" | 24.47" | 5.0"-6.5" |
| 195/70R15 | 7.68" | 25.75" | 5.5"-7.0" |

- Recommended fitments are in bold.
- A-H 100, MG TD/TF, MGA, and early TR2-4 were equipped with 4" steel or 48-spoke wire wheels.
- Later A-H 100-6/3000, MGA, and TR3-4A were equipped with 4.5" steel or 60-spoke wire wheels.

Original 6.40x15 Tire Diameter Approx. 26.5"

| Size | Width | Diam. | Wheel Width |
|------------------|--------------|---------------|------------------|
| 185/80R15 | 7.28" | 26.65" | 5.0"-6.5" |
| 195/75R15 | 7.68" | 26.52" | 5.5"-7.0" |
| 195/70R15 | 7.68" | 25.75" | 5.5"-7.0" |
| 195/65R15 | 7.68" | 24.98" | 5.5"-7.0" |
| 195/60R15 | 7.68" | 24.21" | 5.5"-7.0" |
| 205/70R15 | 8.07" | 26.30" | 5.5"-7.5" |
| 205/60R15 | 8.07" | 24.69" | 5.5"-7.5" |

- Recommended fitments are in bold.
- TR250/6 were fitted with 5.5" steel and 72-spoke wire wheels.
- 6-cylinder Jaguar E-Types and early sedans were fitted with 5" wire wheels.
- 12-cylinder E-Types and the XJ series were fitted with 6" wheels.

restorers, yet when it comes time to choose tires, cost and availability often outweigh aesthetics. Luckily, a few companies (some of which are listed below) specialize in stock, period-correct bias-ply tires for British sportscars for those who want to accurately restore early cars. If driving safety is a priority, though, modern-tech radials are available that fit well and offer increased handling and safety. Just don't be tempted to install an incorrect-size tire because it's on sale. Use this article to help enjoy your sportscar the way its engineers intended.

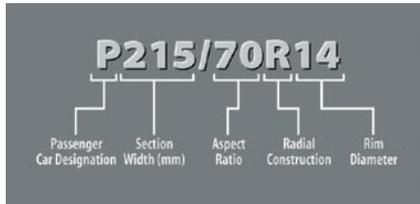
Sources

- Coker Tire, (800) 251-6336, www.coker.com
- Hoosier Tire, (574) 784-3152, www.hoosiertire.com
- Kelsey Tire, (800) 325-0091, www.kelseytire.com
- Michelin, (800-847-3435), www.michelin-us.com
- Yokohama, (800) 366-8473, www.yokohamatire.com 

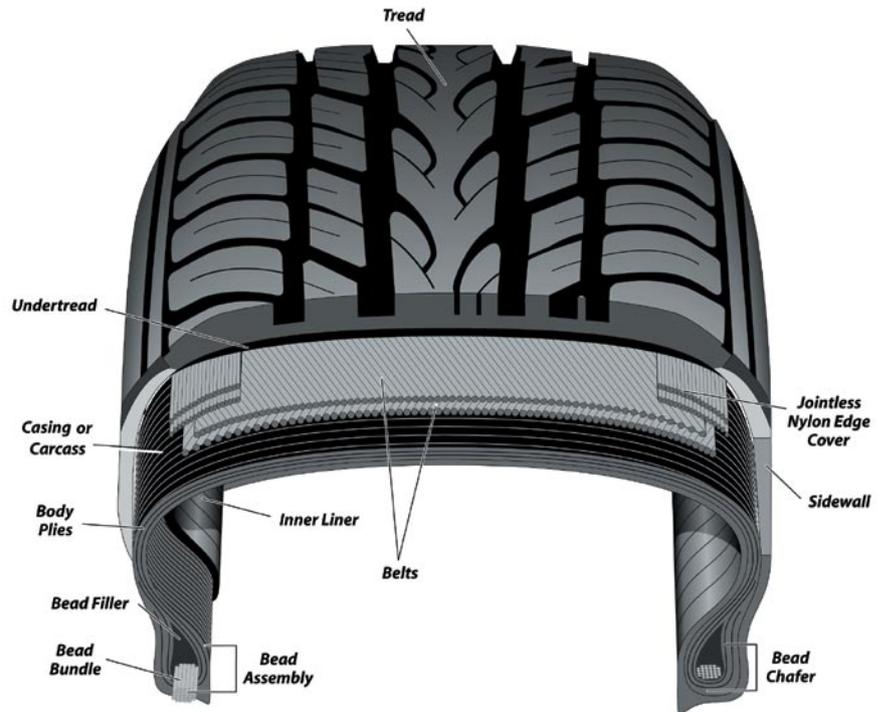
Anatomy Of A Radial Tire



Numeric sizing was the standard through the late-sixties. Section widths ending in zero were 92-series, and 82 aspect ratios were indicated by section widths ending in numbers other than zero. (Courtesy Yokohama)



Metric sizing uses millimeter measurements instead of inches. P-metric sizing appeared in 1976 for small cars that require higher inflation pressures. (Courtesy Yokohama)



(Courtesy Yokohama)

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