

A Summary of Interviews with Owners of Radial Ply Tires

Henry Kucera

Many new choices face the buyer of automobile tires today: bias, bias belted, and radial belted cord arrangements; conventional, 78, 70, or 60 aspect (height to width) ratios; rayon, nylon, fiberglass, polyester, and steel cords are a few of the choices to consider in tire selection. Testing every new tire would be an expensive, continuing program. The United States Department of Transportation now conducts tests to be sure all tires manufactured meet minimum standards of strength and safety.

A recent introduction to the United States market is the radial ply tire (Figure 1). These tires, though old in the European market, are being manufactured and imported into the United States in increasing quantities. To gain first hand experience with them, several vehicles were equipped with radial ply tires and users of radial ply tires were interviewed. The results obtained are summarized below.

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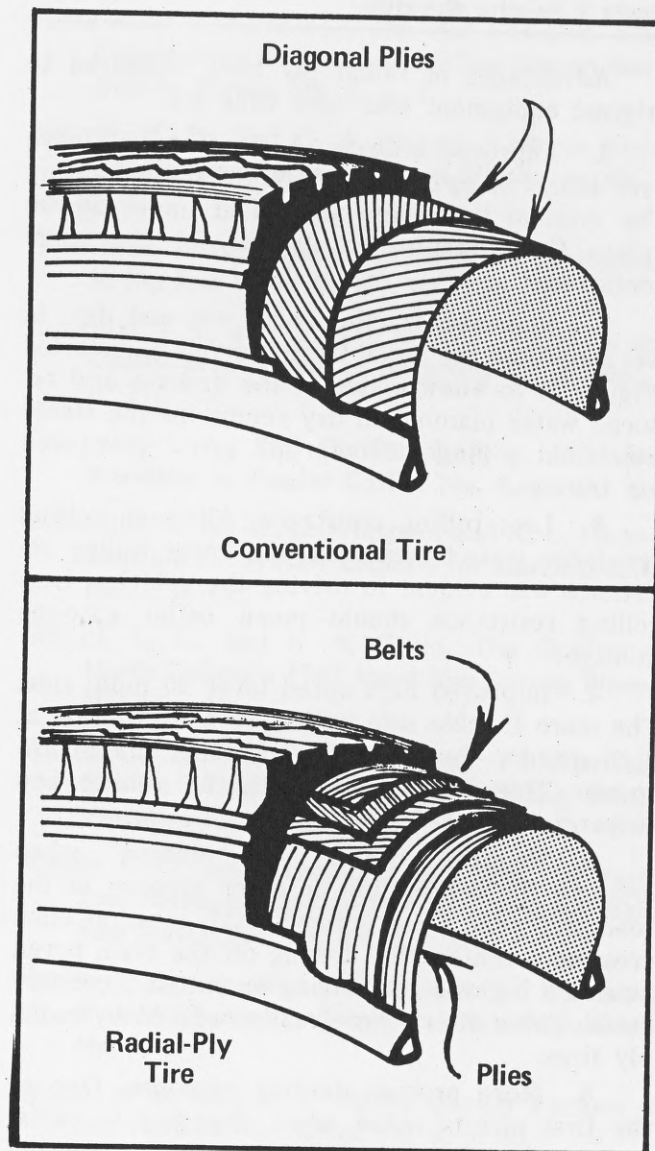


Figure 1. Types of tires.

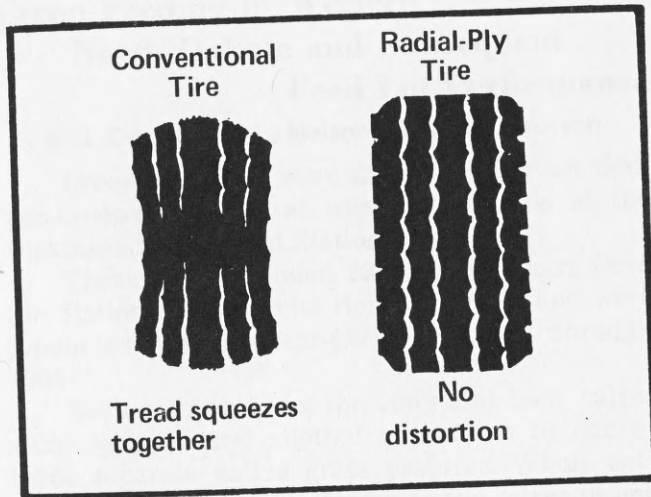


Figure 2. Relative distortion.

Advantages of radial ply tires compared to original equipment bias cord tires are:

1. Improved mileage. A set of radials gave over 45,000 miles on a heavy NDSU station wagon. The original tires were smooth at under 20,000 miles. These results are typical for the users contacted.
2. Improved traction, both wet and dry. In wet conditions the radial tread remains undistorted (Figure 2) to allow water in the grooves and reduced water planing. In dry conditions the stable tread and a longer "footprint" gives more area for traction.
3. Less rolling resistance. Although rolling resistance wasn't measured, the lower rolling resistance was evident in driving the vehicles. Less rolling resistance should mean better gasoline mileage.
4. Improved high speed (over 40 mph) ride. The more flexible side walls give a better ride at high speed — but may give a harsher ride at low speeds. This effect varies with the vehicle and suspension.
5. Reduced "waver" or "nibbing" when crossing the center line or other grooves in the road. Everyone has experienced this reaction when crossing a center line, driving off the main paved lane of a highway, or driving on rutted secondary roads. These effects are greatly reduced by radial ply tires.
6. More precise steering response. One of the first effects noted when changing to radial tires is the more positive response to any steering motion.

7. Cooler running tires. Because of the criss-crossed ply cords in conventional tires there is a constant squirming of plies and tread ribs as road contact is made. This builds up heat. The radial tires construction reduces this and provides a cooler running, longer life tire.

Disadvantages

1. Cost. Today radial cord tires average about 50 per cent higher in price compared to original equipment conventional tires. Even with this increased first cost, the longer mileage expected should alone equalize the cost.
2. Heavy steering effort for parking or low speeds. Because of the longer tread contact (or foot print) more steering effort is required. Without power steering this may be objectionable.
3. A possible harsh low speed ride (No. 4 above).
4. Noise. Some of the tread designs used with radial cord tires are noisier than regular tires.
5. Radial tires always look "half flat". At recommended pressures the belt around radial tires keeps the tire diameter constant. Deflection at the road surface gives a "low tire" look. This in no way hurts the tire.
6. Use in sets. It is best to install any tires in matched sets. This is more important with different types of tires now available. A complete set (four) radial tires is recommended. If only two radial ply tires are installed, some manufacturers recommend they be put on the rear wheels — never only on the front. Our experience shows satisfactory results with radials only on the rear.

General Tire Recommendations for Satisfactory Service

1. Keep wheels aligned and balanced.
2. Rotate tires as recommended in the operator's manual.
3. Maintain recommended air pressures and do not overload.
4. Watch your driving habits: stops, starts, turns, high speed, etc.

Many tires manufactured today are superior to those available only a few years ago. We look forward to "spareless" vehicles where the tires are as long lasting and reliable as the mechanical components of the vehicle.

"Tires" from the August 1968 *Consumers Reports* magazine, covers types of tires, rupture resistance, traction, life, cost, care and mixing of tires, and finally tests of many of the new types of tires now available for automobiles. A March 1967 *Readers Digest* article, "Radial Plies — A Dramatic Advance in Tires" covers the general characteristics of these tires.