

HUDSONOTES

Column of Mechanical Miscellany
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Tiring Topics

A GIRL AT the bakery counter didn't even smile when I looked into the showcase and said, "Bias-ply French doughnuts—again? Why don't you make some modern radial-ply ones?" She probably would not have been very interested to know that the typical angular cuts around these doughnuts much resemble the layout of cords around a standard bias-ply tire.

Today, however, the question of bias vs. radial-ply tires remains of great interest to the owners of older collector cars. About a year ago I received a letter from Kenneth (Rod) Hudson, of Florida, who suggests some possible reasons why Sam Roth, Ohio (Nov./Dec. '95 WTN) asserted that his '57 Hudson was "all over the road" when it was driven on bias-ply tires. Rod points out that many miles of highways in Florida and perhaps other states have perceptible grooves or ruts in the surface (caused mostly by heavy semi-trailer trucks) —and bias-ply tires, he observes, have a noticeable tendency to climb out of the ruts, thus requiring constant correction and counter-correction to hold them in a straight line on such roads. Your columnist has not seen much of this condition on Wisconsin highways (and has not checked out the roads in Ohio), but agrees that this could be a significant factor in some areas.

On the other hand, Rod concludes by stating, "the reality is that cars handle better all the time with radials" —and on this point many of us will seriously disagree. It does seem likely,

however, that not only inflation pressures but also wheel alignment specifications are part of the equation here.

We also need to rule out marginally defective tires (cords biased not quite equally to the right and left, tread pattern applied not quite straight, etc.); likewise mechanical problems such as badly-worn or bent (or unlubricated) front-end parts, frame damage, one or more weak shock-absorbers, or springs (rear ones included), defective stabilizer bars, bushings, or links (front or rear), excessively loose steering (at gearbox, center arm, tie rod ends, etc.), and so on. We can be sure that these Hudsons—the stepdown models especially—were not "all over the road" when they were new; and many of us would prefer to find and correct the problem rather than merely to mask it by the use of inauthentic tires.

INSUFFICIENT CASTER at the front wheels can contribute seriously to the "wandering" problem, and if the rear of the car is riding high, or not loaded, this may add slightly to the effect. There are indications, too, that in the years just before power steering, many Brand X's (and even Hudson to a small degree) tended to understate the preferred amount of caster. The purpose, of course, was to reduce manual steering effort a trifle; but unfortunately this was done at a cost of reduced tracking ability and stability on the road, and it was especially unsuited to the standard bias-ply tires at that time.

In radial-ply tires the sidewall cords tend to take a slight "set" in one direction as a new tire is broken in, and hence we are advised not to switch one of these tires later to the other side of the car, where it must rotate in the opposite direction. Even if a good radial tire manages

eventually to take a new opposite set without causing a lumpy or noisy ride, the added stress on sidewalls can lead to premature tire failure.

Normally, however, the set of the cords apparently helps to shift the tire's contact patch on the road slightly rearward, thus making radial tires slightly "self-castering"—and this may add to tracking ability, if not to steering responsiveness. Bias-ply tires, of course, have their cords carefully arranged to prevent this, and so their caster or tracking effect is controlled almost entirely by the car's suspension adjustment, and there is rarely any problem when requiring them later to rotate in the opposite direction.

Hudson's caster specification for most years 1948 and up was about 1 degree (or $\frac{1}{2}$ to $1\frac{1}{2}$ deg.). Some books show that for a short time c. 1949 the recommendation was changed to 0 degrees caster—evidently not an improvement, since the figure soon was changed back to $\frac{1}{2}$, 1, $1\frac{1}{2}$ deg.

This writer, however, when having a 1949 and later a 1950 Hudson aligned, and then trying them on the road (using bias tires), has found even these figures to be a bit low for best tracking and roadholding. Caster of approximately $1\frac{3}{4}$ to 2 degrees seems to give better results, and the added steering effort, if any (with 18" Hudson wheel) has not been noticeable.

Some small sports cars may use 5 degrees or more of caster, but such an angle on a full-sized vehicle would doubtless cause it to fight the steering wheel unpleasantly whenever forced to deviate from its straight-ahead path.

CAMBER AND TOE-IN, at the same time, have been kept within factory recommendations, and in any case these must remain in proper relation-

ship to each other. Stepdown Hudson specifications are 1 degree camber (or $\frac{1}{2}$ to $1\frac{1}{2}$ deg.), along with toe-in of $\frac{1}{32}$ inch (or 0 to $\frac{1}{16}$ inches).

Wrong camber (wheel tilted slightly inward or outward at top), and/or wrong toe-in of wheels, will cause abnormal tire wear. The usual stock advice, as stated in lighter terms, is that your car should be very slightly bowlegged, and also a tiny bit pigeon-toed—but never knock-kneed or splay-footed.

Caster, on the other hand, does not affect tire wear, but greatly affects handling and tracking. It is caster, too, which causes the front wheels to return to their straight-ahead position if steering wheel is released while car is moving ahead. (For comparison, consider the small caster wheels used under furniture, which have the kingpin set far enough ahead of the wheel spindle so that the wheel will always cast itself at the correct angle to allow moving furniture in the desired direction.)

My own suggestion, if your Hudson does not track or hold the road properly with original-type bias tires, after other possible causes such as bad suspension wear, broken spring leaves, mismatched tire sizes or treads, bent wheel rims, loose bearings, a binding brake, etc., etc. have been eliminated, is that a small amount of extra caster angle should be tried. Test the car on a smooth dry (and uncrowded) road, and then perhaps on a rougher and/or slightly rutted surface as well.

Except on the older solid-front-axle models, the adjustment is easily reversible and can be put back to standard specifications if results are not satisfactory. If steering pulls somewhat to one side, it is usually away from the side with less caster—or more wear at outer shoulder of front tire. Sometimes a slight side

pull can be remedied temporarily by underinflating the tire on side opposite the pull. WTN readers may also wish to let us know what their own experiences with Hudson wheel alignment and caster adjustments have been.

Looseness of worn kingpins and other front-end parts can be temporarily reduced by filling a small gun with old-style heavy wheel-bearing grease, and inserting this in place of ordinary chassis grease.

TREAD DESIGNS in Hudson's earliest years were merely smooth rubber, much as on modern "racing slicks." Advantages included more rubber in contact with road surface (when road surface was dry), and also quiet running. Tread patterns designed for better traction under adverse conditions appeared soon afterward, the first apparently being Firestone's "non-skid," which consisted of the raised molded letters NON SKID in biased rows on the road surface. This remains the best-remembered early tread pattern since it has been generously reproduced in later years for use on antique cars.

The reproductions began as early as 1935, when several friends of Harvey Firestone who were pioneer old-car hobbyists persuaded him to bring back a few of the old sizes. Since factories were under-utilized at the time, and some original molds still existed, this presented no great problem. Halted by World War II, the program resumed after the war to serve a much-enlarged antique-car hobby, and also the "classic car" movement 1948 and up. Some classics with large-size wheels had to be run on truck tires until suitable reproductions became available.

For many years the "Firestone" name on tires—even for an ordinary family car—had a very special glamour, partly because of

the historic reproduction tires, and also the "Firestone Hour" weekly classical-music program on AM radio; but especially the great success of Firestone tires on the racetrack. On Indianapolis racers this tire name was often touched up with white paint in order to photograph properly, and this in fact was the original inspiration for the "white-letter" tire vogue of subsequent years. Today, however, due no doubt to a change in management, the company's glamour has vanished, along with its racing and reproduction tires (which now are available from other makers). It is quite possible, of course, that the company's prosaic utilitarian consumerist-type skins at present are as serviceable as they ever were...but does anyone really care much any more?

Only recently auto magazines have reported that, after an absence since the 1970's a few Firestone racing tires have begun to reappear in competition during the past two or three years, and hence there may be a hope of the brand eventually regaining some of its former prestige. No doubt a return of the classical Firestone Hour program (which was also on television in the 1950's) would help too.

One other famous early tread pattern was Goodyear's "Diamond Tread." Versions of this remained popular throughout the solid axle era, but they did not wear as evenly or well with independent wheel suspensions.

Among the other early tread designs, several button or "knobby" versions were available, and at least one brand had the buttons hollowed out to form small suction cups. They were noisy, but the manufacturer claimed this to be "The Sound of Safety," particularly on wet streets.

Tread patterns (and tread rubber compounds) have under-

gone much continued research through the years, in order to combine as well as possible the four main requirements: long wear, freedom from chunking or cracking, good traction (side-ways as well as fore-and-aft), and smooth quiet operation. Modern tread patterns are less picturesque than the early ones, but are far more efficient. Bias-ply and radial-ply tires require slightly different designs, but both must include grooving that will quickly drain away any water on the road surface, and thus prevent the entire tread from "aquaplaning" or riding on a water film—a film which could easily cause skidding and loss of control. This is especially important with the very wide tire treads of today.

Also, the individual repeated design elements in a tread pattern may appear to be all of the same size around the tire—but they are not. Some irregularity is essential to prevent an orderly vibration or hum which would be heard when the tire rolls rapidly.

SPECIAL MUD-&-SNOW treads for winter use were available in the 1930's or earlier, but did not become popular until after World War II. The tire recapping industry had grown greatly during the war when new civilian tires were nearly unavailable. Afterward, when the market for street-type recaps dwindled, some cappers remained in business by concentrating on mud-&-snow treads at a lower cost than for new snow tires. New or recapped, these treads were not quiet, but offered good fore-and-aft traction, and for many motorists eliminated a need for tire chains. Later versions offered somewhat less noise and more side traction. Today, compromise "all-weather" treads outsell standard snow tires.

High-quality recapped bias-ply

tires can still serve very well, if they can be found. It is generally conceded that they are a better choice than cheaply-made new tires which were hardly worth being given even their original tread caps. However, recaps (snow or even street types) need to be checked with especial care for concentricity, balance, and straight running (and also for neatly vulcanized edges, particularly on wide whitewalls). Occasionally an older "tubeless" tire (recapped or not) is found which is in good condition except that it does not hold air well, so that it needs to be used with an inner tube. Check inside tire for any sharp or abrasive spots (which can be covered with a smooth patch) before inserting tube.

For maximum road grip and silence (no squeal), a softer-than-normal tread rubber compound is best, but although much used for racing, the soft rubber wears more rapidly, and in fact may give no more than 8000 miles or so in highway use. However, safety and control are excellent, and this writer recalls that in past years with a pair of special soft recaps on the front wheels, he and his '49 Hudson were able to terrorize owners of late model wide-tired muscle cars on winding roads without difficulty.

Treads on reproduction tires for antique cars also tend to be softer than average, since the extra traction is much more important here than is extended mileage, especially on 2-wheel-braked models. The soft rubber may also have less tendency to harden and crack with age.

Truck tires, on the other hand, usually feature harder-than-average tread rubber, which gives much longer mileage, but at a sacrifice in traction and cornering ability (and quiet).

IN A FUTURE column (part 4 of this tire series): tire repairs

and corrections, size numbering, inner tubes, rim dimensions, aspect ratios, etc.; also any comments which you wish to send. Hope to hear from you.

This past summer I attended two old-car show/swap meets—one at Iola, and the smaller one at Manitowoc, Wisconsin. They were O.K., except for my usual complaint: more Hudsons and Hudson parts should be seen at these all-make shows. Iola did feature a spectacular large 1913 Hudson roadster, yellow with contrasted striping, and right-hand drive. There was also a green '49 Commodore sedan, recently purchased and quite solid, but needing detailing and accessories (I recommended Vacuum Clutch and fog and backup lights, and maybe electric gas cap). Manitowoc had a neat blue '21 touring car (also seen in previous years). But I had almost no luck finding Hudson parts or literature.

Speaking of printed materials, a dozen or more HET members in the past have sent me attractive Hudson calling or business cards (or letterheads or envelopes), which help publicize their Hudson hobby. Some have a Hudson factory or club logo; others a car illustration, or a combination of these. A few feature 2-color printing (and one is full color, on photo print stock). One or two have raised (engraved-style) lettering. Most of the cards appear to be photo-lithographs, but a few may be metal-printed from materials originally provided by the factory for dealer use. In any case, they make an interesting collection on my wall here.

New-car note: A special transmission, named "Autostick," is available for some Chrysler-built vehicles (Eagle; Prowler); and similar units are being offered by Porsche and BMW. They permit the driver to change in-

stantly from manual stick shift to automatic operation (and vice versa) at will. It's a great idea, and we wonder where it originated...or do we?

AGAIN AT this season of the year: sincere good wishes to HET members and all of our readers for happy holidays and a neat '97!

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