HUDSONOTES

Column of Mechanical Miscellany
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Time to Re-Tire

THE ABOVE TITLE was for many years the sales slogan for Fisk tires, and was accompanied by a picture of a very sleepy small boy carrying an old-time flat candlestick. Other picturesque tire trademarks have included Goodyear's winged Hermes or Mercury sandal, Firestone's old-English lettering, and of course Michelin's smiling rubber-doughnut man.

Goodyear, during the '50's or earlier, also sponsored annual double-page magazine ads picturing one car model for each year since 1915, and stating that in each of those years, more new cars were equipped with Goodyear tires than any other brand. Free full-color reprints of the ads were also available. Specific models chosen for each year varied somewhat, but usually included a Nash c. '42, a wartime Jeep for '44, and a Hudson for '49. This new-car usage, of course, was meant to be taken as a great endorsement, despite the fact that the "standard equipment" tires (also sometimes called "first-line" or "100 level") furnished with most new cars have not been top-of-the-line in either quality or size. Does anyone recall a tire maker advertising the largest-selling optional premium or heavy-duty or high-speed tire for new-car usage? Maybe the U.S. Rubber (now Uniroyal) "Tiger Paw" was a step in that direction.

These days, perhaps, we can all be vastly reassured by the government's "D.O.T." (Department of Transportation) marking on each new tire. Unfortunately the government tests are pertinent only to driving at slow, legal, and conservative speeds such as the double-nickel, and so tell us very little about a tire's actual performance potential—or lack thereof. (Anyone

Time to Re-tire?

for official testing of wooden oxcart wheels?)

Although tire companies do strive for effective brand recognition, a complaint has sometimes been heard that all too often, the only time an average motorist takes any notice of tires names is when a tire faithlessly goes flat and needs to be changed! Most chain-store or private-brand tires, which are made as a sideline by major tire manufacturers (often with an obviously replaceable nameplate in the mold), are relatively low on picturesque appeal; yet some of them have proven very serviceable. This writer's family during the '50's had good results with Montgomery Ward's Riverside brand, and no doubt readers can cite other examples. Usually we had six wheels for our car, carrying one snow tire as a spare in the summer, and one rear street tire as a spare in winter.

We also had good results with Sieberling tires. Frank Sieberling was another early rubber industry entrepreneur, and his tire brand was a familiar one for years although not as well distributed in our area as some of the others. Denman tires are well known to many old-car owners not only for their quality, but because for some years they (along with Vogue) had almost the only classic wide whitewalls still available.

In the mid-1950's near the end of the wide-whitewall era, U.S. Rubber also offered wide "colorwalls." These could be had in a choice of at least three pastel tints: pale green, powder blue, and pink; hence a color could be chosen to harmonize best with the car's paint job. No doubt these tires would be appropriate on any AMC-built Hudson.

APPARENTLY NOT MUCH attention was given to the exact balancing of auto wheels and tires until the introduction of modern drop-center rims in the 1930's, along with smaller tire diameters (and hence higher wheel r.p.m. for a given road speed). Another factor at that time was the gradual introduction of independently-suspended front wheels, which were much more sensitive to "dynamic" (anti-wobble) balance than are wheels on a solid axle. Hudson for 1934 featured a system called "Axleflex," which had an I-beam front axle, but with its ends hinged on needle bearings to permit some independent compliance. Hudsons and Terraplanes a few years later, however (including 1936-39) had what is described as a "conventional I-beam front axle with Elliott-type ends." All of these models retained leaf-type front springs. The familiar independent-suspension layout with front coil springs and upper and lower control arms was used on Hudsons 1940 and thereafter.

During those years before World War II, wheel balancing equipment (for shop use, off-car) was offered by Weaver, Bear, and others, along with the typical lead clip-on balancing weights (a few also were all-steel). Wheel and tire were usually bolted to a special hub which could be motor-driven at high speed. If anyone knows of balancing equipment being used earlier (mid-1930's or before), we hope that we will write

and tell us.

Perhaps, too, someone can tell us when stationary "bubble balancers" for auto wheels first appeared. Although these offer much less precision than spin-balancers, they are compact, handy, and sometimes adequate. Many are still in use, including some by home mechanics.

Wheel balancers for on-car use, including a portable electric motor with friction drive pulley for the tire, became very popular during the 1950's. For accurate results, of course, the wheel and tire needed to be clean and also free of significant brake drag. However, the main advantage of this equipment is that it could compensate for any imbalance in the brake drum (and even in the wheel cover) as well as in the tire.

SOME MOTORISTS FOR years, it's true, seemed to regard wheel balancing as a needless mechanical frill, a few perhaps as late as the postwar '40's. These were probably the same motorists who usually held up openroad traffic at 30 m.p.h. Sometimes they could also be identified by the cupping or other odd wear patterns in their tires. Today, as for the past half-century and more, the proper balancing of wheels and tires is essential to preserve the tires, wheel bearings, and suspension parts, not to mention the rest of the car, along with the driver and passengers.

It's only logical, too, that some older solid-axle models needed at least approximate "static" (ordinary vertical or anti-tramping) wheel balancing, and probably still do, if they are driven fast. WTN writer Harry Kraus notes that some early mechanics at any rate tried to avoid gross imbalance—for example, be installing a second boot in a tire 180 degrees from the one which was needed. Some wire wheels may be found with small wire coils added to a few spoke ends to improve balance. On any rim—new or old—upon which standard clip-on weights do not fit, usually modern "stick-on" lead strips can be inconspicuously used.

Static balance of front wheels can be checked at home by raising them free of the ground. They should turn freely, but with no tendency to swing to any one position. If necessary, remove any mud or pebbles, and perhaps also loosen the brake shoe adjustment (be sure to tighten it again later). To re-use old weights, wire-brush them clean, and tighten the clips slightly with pliers or vise. Home wheel balancing by this method may not be very accurate, but it is far better than nothing. When only static (not dynamic) balance can be checked, it is safest to divide any needed weight about in half, placing a part of it on the inner rim and the rest on the outer one. For best appearance, weights can be touched up with matching wheel enamel.

NEW TIRES (and even some used ones placed back in service) are likely to change their balance somewhat as they break in during the first few hundred miles; hence they need have only rudimentary balancing at first, and a more precise re-balancing later. If they are of good quality, they should change relatively little after this. Sometimes the balancing weights are still of about the right size but need to be shifted slightly around the rim. A few tire men say that tube-type tires are almost impossible to balance accurately. This is an exaggeration but it does remind us that the inner tube, too, is likely to shift position slightly during the first few miles.

Careful dynamic balancing may compensate partly for a tiny wobble in tire or wheel, but it cannot correct eccentricity or out-of-roundness. Also, in rare cases a tire and wheel are found which appear normal but which prove impossible to balance by any method. The cause is nearly always water (or other loose material) inside the tire. Remove from rim, mop dry inside (and look for other stray objects); then reassemble. Water inside an inner tube is harder to remove (does anyone have suggestions?). Usually the source of this water is the accumulated condensation in an air hose or compressor tank. Even a small amount inside tire can cause an abnormal pressure rise as the tire heats up in use. Some purists, indeed, object not only to water but to chemically active oxygen inside tires, and prefer to inflate with inert nitrogen or argon.

Tire imbalance is usually most noticeable at one particular speed (and its double—for example, 40 and 80 m.p.h.), but it can also stress and damage wheel and suspension parts at other speeds, whether felt or not. "Shimmy" (which is named for the "chemise" dancers of yesteryear) is a violent sideways shaking, made worse by worn or misaligned wheels or suspension. If the shimmy comes and goes at random, the cause is usually dynamic imbalances in both front wheels, which sometimes reinforce each other, but sometimes cancel out instead.

Do rear tires on a solid-rear-axle car need to be balanced? Probably not, for moderate speeds and if the error is less than an ounce. But too often it is more than that, especially with the thicker treads of mud-&-snow tires, and this needs

to be corrected (statically, at least).

IF A TIRE is slightly out-of-round but otherwise sound, is there any practical way of correcting it? In the bias-ply era a few years ago, some tire shops had special "skiving" machines with knives that could slice an extremely thin coat of rubber from any "high spots" on the tread of an inflated tire. Except for the added cost, this treatment was reportedly quite successful.

Your columnist once bought a tire (for $2) which was O.K. except for bad cupping and uneven wear. Mounted on a Hudson front wheel, it was noisy and rough running, so I raised it off the ground, and placed a belt-driven grinding wheel and electric motor (mounted on a plank) so that high spots on the tread could be ground away, bit by bit, while low spots were not touched, as the tire was very slowly rotated. Surprisingly, the experiment was a success, and the tire (re-balanced, of course) ran smoothly and quietly for many miles thereafter.

The skiving process mentioned here (which is similar to the method used for splitting leather hides) must not be confused with another kind of cutting process, named "siping" after its inventor, one Mr. Sipe, who attempted (c. 1930) to improve tire traction on wet and icy surfaces. His method was to make many small thin cuts crosswise in the tread rubber, thus presenting many additional sharp rubber edges to the road surface. Siping did improve traction (reportedly without much loss in durability), and the process was available commercially in some areas for years; but little has been heard of it recently. Perhaps it is not as well suited to present-day tread compounds or radial cord layouts.

Tires with worn tread patterns have sometimes been "re-grooved," usually by means of a special hot-iron grooving tool. This is most effective on large truck tires with specially thick treads. On thinner passenger-car tires there is a greater risk of grooving too deeply and thus dangerously exposing the tire cords. (A few unscrupulous individuals reportedly used black rubber paint to hide the cords.) Here in Wisconsin some years ago an enterprising lady activist persuaded the state legislature to outlaw all regrooving of passenger tires, and this was reported with righteous fanfare in the press.

Occasionally in an emergency a good-quality tube-type tire is mounted without an inner tube. Sometimes this seems to work well, although one cannot be sure long-term results. Check for possible air loss and/or ply separation (especially on recaps).

THE FIRST HUDSONS, 1909-10, featured differing tire sizes front and rear (though a single larger size all around was optional). Later Hudsons, of course, used one size all around. It is especially important that both rear tires be of the same diameter. If they are not, the small differential pinion gears can compensate for the inequality only by turning constantly all the time the car is moving. This may cause excessive wear, since these gears were designed for only occasional movement (as when the car turns a corner).

Hudson stepdown models, 1948-54, along with many other cars, appear to be built with a slight suspension pre-load on the right rear wheel. Purpose is to improve traction by counteracting the tendency of driveshaft torque to lift this wheel during hard acceleration. However, this pre-load also applies equally to the opposite or left-front wheel; and since the front end is more softly sprung, some of these Hudsons when old may be found to sag a trifle at the left front corner, giving the car somewhat of a weary (or at least resigned) look.

A quick fix is simply to use a tire one or two sizes larger (taller) on the left front wheel. A better permanent repair is to install a C-shaped aluminum or rubber spacer ring, $\frac{1}{2}$ inch thick, at the bottom end of the left front coil spring. This is much preferable to the type of spacers that fit between the coils and so disable one or more turns of the spring.

"ASPECT RATIO" is a tire term occasionally encountered during these last few decades. If refers to the shape of the air chamber as viewed in cross-section. Auto and cycle tires for many years had a height (from rim to road), and a casing width, which were practically equal. On a 29 x 5 (or 5.00-19) tire, for instance, the 5 inches would approximately represent both width and height, and such a tire would have an aspect ratio of about 100%.

By the 1940's most auto tires were slightly wider in cross-section than they were high, with an aspect ratio of perhaps 90-95%; and the $6\frac{1}{2}$ inches for tire size 6.50-16 (as an example) meant nominal width.

The next tire fashion change, in the 1960's, brought us the "low profile" tire, with still less height in relation to section width, for as aspect ratio of about 83%. The "78-series" tires (nominal aspect ratio, 78%) followed a few years later, along with the still-lower 70-series and even 60-series for special applications.

We are not sure how much farther this trend can go, but it can present a problem to collector-car owners. The "roller-skate" effect of modern wide low-type tires used on an older car is not attractive, and there are also questions of ground clearance, harder rolling (and steering stability (on the old narrower rims), reduced load capacity, and speedometer error. The best suggestion for shoeing a collector car is to use tires of perhaps one size larger than the originals, but of similar aspect ratio and general design.