Hudsonotes

Column of Mechanical Miscellany
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Although not everyone admires the "self-adjusters" used on late-model auto brakes, these gadgets have probably done something good in conditioning drivers to expect a healthy full-height brake pedal at all times. Before that, it was all too easy (even though we knew better) to become accustomed bit by bit to a brake pedal which would go perhaps halfway to the floor before it started to do its thing. True, Hudson owners rarely let it sink much below halfway, since if they did there was likely to be a firm warning (hard pedal; rear brakes taking hold before front) that system was riding on the mechanical safety linkage. Today, however, even a mild case of "low pedal" is usually noticed at once on any car, new or old.

Manual-type brake adjusters found on Hudson and other older cars still have the distinct advantage that it is possible to set brake shoes more accurately (and reliably) by hand than by any of the automatic devices . . . and also to keep them that way. However, this last does require somewhat more frequent adjustment than was usual when the cars were young. Stepdown owner manuals do not list a specific mileage interval for brake adjustment, but we may be sure the average in practice was no oftener than 10,000 miles — if that. This was sufficient to maintain usable (if not ideal) brake performance in nearly all cases, and it still is. But there are advantages in checking the adjustment more often, especially for those who are able to do it themselves at home. My own experience with Hudson stepdowns and similar cars suggests that, given reasonably enthusiastic driving, an adjustment interval of perhaps 5000 miles for all four wheels (and half that, or 2500, for the front ones alone) is closer to the ideal.

Better control of the car at all speeds, owing to a brake pedal which always operates at its correct height, is just one advantage of keeping brakes perfectly adjusted. Another is that brake linings will last for many more miles if they are held in position to wear evenly, rather than mostly at their upper ends. They will also hold more efficiently.

Though most Hudson brake adjusters can be reached with an ordinary large screwdriver if necessary, the standard brake-adjustment tool with bent flat blade at either end works far better. It is a tool well worth having, even if only an inexpensive imported one.

Brake fade — the alarming loss of grip when brakes are hot — is not a problem for which Hudsons were noted, owing to the fairly good size (and cooling) of brake assemblies in relation to car weight. Nevertheless, fade can occur under strenuous conditions; and when it does, the first cause that usually comes to mind is poor-quality or too-soft linings which are unfit for any vigorous driving. Often this is correct. But another cause sometimes overlooked is that the linings may be making solid contact at only a small area (an area which quickly overheats and fades, of course) because they do not fit the drum evenly. Generally the poor fit is due merely to normal wear, and can be corrected by adjusting the shoes (spreading them outward at bottom) for better contact. This will reduce brake fade noticeably in most cases, especially at the front wheels. However, if brakes have been neglected, two or three adjustments, with a few thousand miles of driving in between, may be necessary before contact is again fairly uniform.

Another factor in brake fade is that the drums, when heated, tend to expand slightly away from the shoes. This is ordinarily not serious, but it can become so if drum-to-lining clearance is already excessive with the brakes cold. Pedal may then go practically to the floor, with very little braking effect, when brakes become hot.

The self-adjusters on many late models, in attempting to compensate for drum expansion, are likely to set the linings much too tight if they are operated (by repeatedly backing car) while the brakes are still very hot after severe use. Manual adjusters, as on Hudson, do not have that problem, but for best accuracy they too should be set with the brakes at normal room temperature.

Uneven brake contact is not always due to wear or heat. It can also occur with brand-new linings, if their surface does not quite match the curvature of the brake drum. They will of course "wear in" eventually, but this may require several thousand miles, along with frequent readjustment, before the new linings become fully efficient.

A better way is to measure the inside surface of brake drum carefully (resurfacing it first on lathe if necessary), and then to grind the new linings to match it exactly. This is not as commonly done now as it once was . . . perhaps a good initial fit is considered less important with automatic adjusters, or with drum brakes used on

rear wheels only . . . but many shops still are equipped for it, and it does allow better brake performance without long break-in or extra adjustments. It also eliminates the slight pedal mushiness which results from brake shoe flex when linings fit poorly. Grinding does "waste" a bit of the new lining, true; but this is negligible unless standard-size linings must be used with an oversize drum.

The traditional method of achieving a good fit in old enlarged drums without excess waste was to rivet a piece of spacing material (usually .030 inch thick) between lining and shoe. This still works, although it may reduce heat transfer slightly. Today the preferred method is to use oversized brake linings, .030 or even .060 inch thicker than stock. Usually these oversize linings are supplied bonded to the shoes, but riveted ones can often be had on special order, if you are willing to shop around for them. These linings too may require slight grinding for a perfect fit, but there is plenty of thickness to allow for it.

How tight is tight enough, when adjusting brakes? Manuals for Hudsons 1941 to 1954 recommend tightening the adjusting "star wheel" at each wheel of car "until brake drum can just be turned by hand," and then loosening the adjustment exactly 14 notches. Often this gives satisfactory results and is all that is needed.

Sometimes, however, it appears after making this adjustment that brake pedal height and firmness are still not sufficient, and that a slightly tighter shoe setting might be desirable. One hesitates, of course, to differ with factory recommendations involving a part of the car which is essential to safety, such as the brake system. Nevertheless, my own experience, for whatever it is worth, with the brakes on Hudson stepdowns indicates that the following procedure is likely to give better results:

First be sure that problems at pedal are not the result of trouble in hydraulic system (low fluid, worn master cylinder, air in lines, etc.). Next tighten the star adjuster at each wheel until it is nearly impossible to rotate the wheel and tire unless you have unusual strength. Then loosen the adjuster, usually by no more than 12 teeth (1 complete turn of the stare wheel). You should now be able to turn wheel and tire comfortably by hand. A perceptible amount of drag will be felt, but this appears to be harmless. Try brake pedal, and test car on road, being sure that tires are firmly — and uniformly — inflated. Adjustment can be loosened by a few more teeth if necessary, but if a very unequal setting seems to be needed at right and left wheels for even braking, drums should be removed and all brake parts inspected.

Effective brake cooling is dependent largely upon good air flow around the drums, and thus can be affected somewhat by the size and kind of wheels used on car. For example, a change from 15-inch to 14-inch rims, even if the latter fit perfectly, will often cause poorer recovery from fade, due simply to reduced ventilation space. On the other hand, classic wire wheels and most other open-spoke designs allow more air circulation and hence better cooling. Even standard pressed-steel wheels are slightly better when used with hubcaps only (or hubcaps and beauty rings) rather than with full wheel covers, since the small "spoke holes" are thus left open to the air. Large-size optional hubcaps used on many Hudson stepdowns are made with a free-standing outer edge which conceals the holes without blocking air flow through them. (More about brakes in *Hudsonotes* next time.)

Despite best efforts to keep the information in this column accurate, a few errata managed to find their way into the April issue:

The semi-electric Warner overdrive used on 1940 Hudsons was a late type R-6. It much resembled the R-7 (Warner's final semi-electric design), since it did include the electric kickdown feature, which earlier R-6 types did not. Hence the confusion . . . which was promptly noted by Jon Battle, and possibly by other readers. Today these '40 Hudson overdrive boxes are much in demand, since they can be fitted to nearly any 1934-40 Hudson vehicle, providing a highly useful cruising gear with as little trouble or loss of authenticity as possible (they'll even accomodate Electric Hand and/or Vacuum Clutch satisfactorily, I'm told).

A recent check of the "timing" section on my '49 Hudson overdrive relay, and its wiring, showed that engine stalling on kickdowns was being caused a short circuit at one harness plug. It also served to remind me that the instructions for adjusting relay time lag should have read: "by tightening or loosening the coil spring on *taller* relay unit — the one which has only a single pair of contact points." To shorten the interval, bend hook to tighten spring. Be sure stranded wire attached to movable armature (on some late unite) cannot interfere. The ;main control relay unit, with 6 contact points and a stiffer spring, seldom needs adjustment unless its points do not contact uniformly.

Inch marks and quotation marks (") look alike on the typewriter, and this may explain what befell one other sentence, which was intended to say: " . . . Hudsons 1948-49 bore no external marking for engine, transmission, or series name — and even the dashboard figure-6 or figure-8 ornament was reserved for Commodores only."