ADJUSTING FRONT WHEEL BEARINGS

Oily BITS

My experience is that the left front wheel bearings on a P6 are prone to developing some slackness fairly soon after being correctly adjusted. You get a perception of this slackness by means of a clicking noise whenever the left front wheel is driven over a sharp small step such as when reversing into the garage. It is a kind of click which could easily be mistaken for a worn front suspension ball joint.

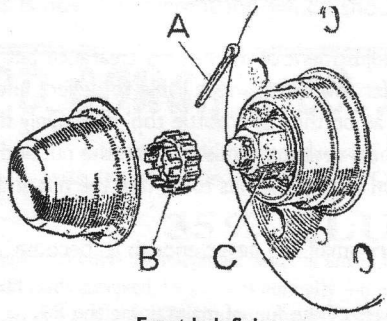
The recommendation is that there should be absolutely no slackness whatsoever in these bearings. On the other hand, these bearings, being of the taper roller bearing type, are easily over tightened without realising it.

Slackness in these taper roller bearings results in some relative movement between the hub and the stub axle shaft. What I am calling slackness, the standard technical jargon refers to as end float and a diagram which I am reproducing from the workshop manual shows the professional method of checking it. The process consists of having some end float to start with and then the 15/16 inch AF nut is slowly tightened a little at a time until all end float just disappears. If over tightened, there will be no indication until the bearings are overheated and ruined. The visual sign that this has happened is blueing of the bearings, as the original heat treatment of the chrome steel material the manufacturer applied, is altered. Of course, one will not be able to see the change in colour of the bearings unless the hub is dismantled. But the bearings are ruined nevertheless and will produce a harsh or grating sound. Listening to bearing noises like these is part of the MOT test and if the tester detects them, that is a reason for rejection.

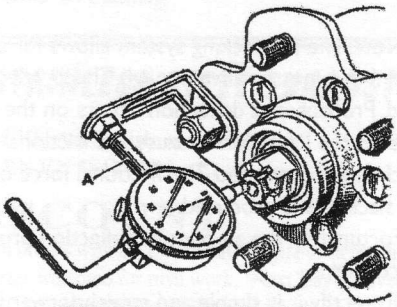
On the other hand, during an MOT, the tester will hold each road wheel in an up and down position and shake it. Any slackness in the bearings will be felt and that is also a reason for failing the car.

The mandatory test also refers to the 'free play' in the steering wheel. In the P6 there should be no such free-play whatsoever but if bearing slackness reaches a certain level, the zero free play in the steering wheel will be impossible to adjust (from the steering box adjusting screw).

So far, these are alarming considerations, but there are consoling possibilities, easily within the capabilities of the average P6 owner, which should completely offset all the doom and gloom.



Front hub fixing
A–Split pin B–'Bottle top' cap C–Nut for front hub



Measuring front hub end-float
A–Dial gauge and bracket

The diagram on the right shows the workshop manual - recommended (and therefore, ideal) way of checking for bearing end-float. It shows a Dial gauge known as a DTI (Dead True Indicator)

in the RAF. I very much doubt how many P6 owners will have this kind of instrument in their tool kit. But the job can be done, with a sufficient degree of accuracy, without a dial gauge, but simply by sense of touch.

Here is the procedure:

1. Jack-up car until wheel to be checked is well off the ground.
2. Prize off wheel trim.
3. Hold tyre up and down and vigorously give it a few shakes.
4. If no slackness is felt, it is advisable to re-check after having removed the brake pads.
5. If still no slackness is felt, then all is well and you may re-assemble.
6. If slackness is detected, remove grease cap, split pin and 'bottle top cap' (diagram on the left).
7. Shake wheel again to assess amount of slack.
8. Gradually tighten nut about one eighth of a turn at a time each time re-checking for slackness.
9. Keep on tightening until slackness is eliminated completely.
10. Check wheel for free rotation. It should be free rotating but not too free. You would know this by the way the wheel stops.
11. A slightly perceptible amount of initial tightness is advisable as a form of pre-load. Remember, you are doing this with the wheel off the ground. When the car is lowered, a considerable load is carried by the bearings and this might make a difference to the running clearance of the bearings.
12. Once the bearings are adjusted, place the 'bottle top' cap in such position that while it is holding the six corners of the nut hexagon, two diametrically opposite slots are perfectly in alignment with one of the holes in the stub axle shaft.
13. The standard practice in engineering is that a split pin is used once only.
14. Add wheel bearing grease (lithium base multi-purpose) only if necessary. Over packing a bearing is asking for trouble.
15. Lightly tap back the grease cup until it is fully in, using a small soft face mallet. Be careful not to dent it. It will look ugly if you do.
16. A small (about 1/16 inch diameter) hole in the centre of the grease cup permits excess grease to escape and allows for changes in volume due thermal expansion.

Note: The nut locking system allows for a very fine adjustment of the bearing clearance but I think it is not positive enough. The 'bottle top' cap is far too flimsy and is liable to deflect under load. Probably the deflection occurs on the left as well as on the right 'bottle top' caps. Only the one on the left is felt because the frictional force of wheel rotation tends to undo the nut and slackness is produced. The frictional force of rotation on the right tends to tighten the nut and no slackness is produced.

Fortunately, the amount of deflection produced is very small and never enough to become of concern.

To rectify it is simple and straightforward and is all part of the fun of maintaining the P6.

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