

## MIDDLEBRIDGE REAR AXLE OVERVIEW

Reliant GTE's rear axle ratios variously 3.07:1 or 3.31:1.  
MB ratio is usually 3.54:1 but not all so check to be certain.

Regularly check axle breather hole is clear and also inside trailing arm brackets for crud and rust.

### Setting crown wheel and pinion:-

Axle tubes on each side of the diff are unlikely to be the same length thus unlikely to have same number of shims each side. Half shafts have spacer between them that sits in the middle of the diff. Spacer can move a certain amount from side to side.

SPACER MUST BE IN THE MIDDLE OF THE DIFF otherwise forces can be set up that will ruin the diff. The spacer has a differential pin through its middle at 90 deg which carries 2 of the differential pinions to mesh with the differential gears and hence why spacer must be central.

Remove both shafts and put one back in without any shims so that the spacer is pushed as far as it will go and measure with feeler gauges the gap where the shims would go. Now put the other shaft in and use it to push the spacer over in the other direction as far as it will go and re-measure the first gap; take first measurement from second measurement and that will give you the total movement of the spacer. Also, measure the gap on the second side where the shims will go.

Halve the total movement of the spacer and add to it half the allowable end float (0.005 to 0.009 in) and subtract this from the first gap (where first shaft was pushing spacer right in) and this will give size of shims for that side (this is thus the spacer in the middle plus the end float).

For second side; half total spacer movement plus half end float subtracted from second gap with shaft pushing spacer in will give shim size for the second side. Shims made in sizes 0.003, 0.005, 0.010 and 0.030.

Hub puller can be made from a commercial pipe flange and blanking plug (6" dia with 4 bolt holes equally space at 4.5" PCD and thread in the middle for standard blanking plug. Use 4 ordinary steel wheel nuts to fit the hubs.

**WARNING: Never use a puller with a pointed central spindle. The point will locate in the hollow in the end of the shaft and when hammered is likely to spread the shaft!**

### Rear Axle/ tyre ratio options

If thinking to change an MB rear axle ratio to overcome the ridiculously low 1<sup>st</sup> gear first note the huge gap between and first and second gears will still remain. A better outcome overall will be achieved by changing the 1<sup>st</sup> gear ratio in the gearbox to give more reasonable even step changes in the 'box.

MB axle ratio:Nominal 3.54. Thus:-

6" Wheel/ tyre 195 x 65 x 15 speedo reads 2% fast.

7" Wheel/ tyre 205 x 65 x 15 speedo reads 0% slow. **(MB50)**

7" Wheel/ tyre 215 x 65 x 15 speedo reads 2% slow.

Further

3.31 axle ratio reduces engine rpm by 7%  
3.07 axle ratio reduces engine rpm by 15%

Once again many thanks to the owner of MB 50 for another very informative article.

Many thanks from Mick and the MESS.