

Camber Correction

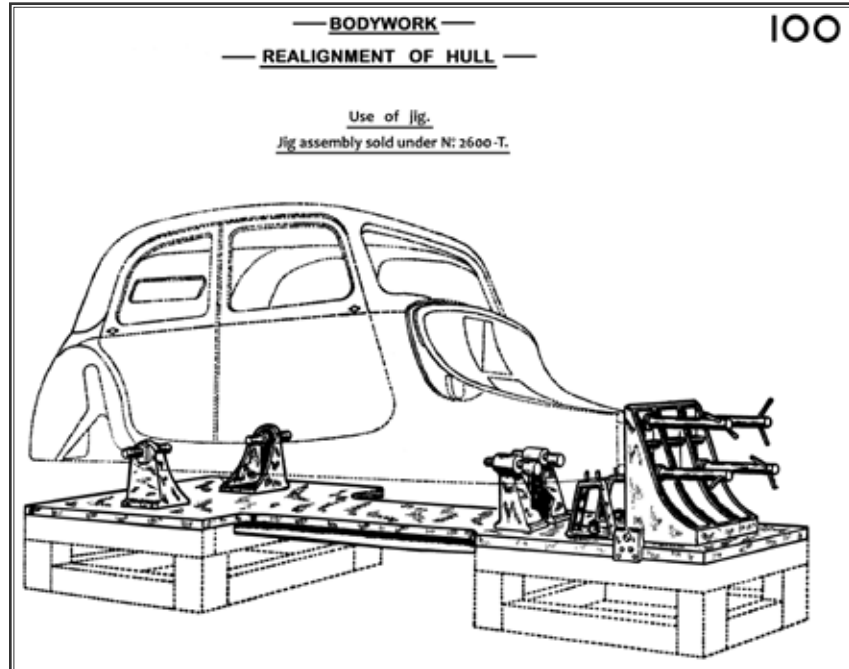
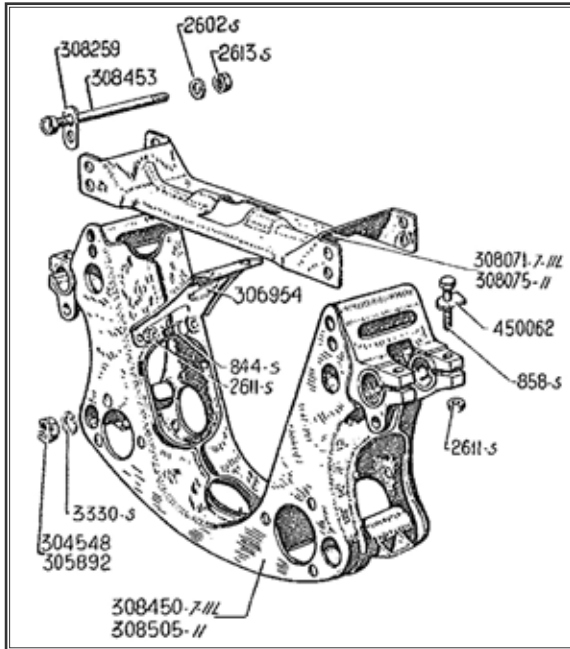
Front wheel camber problems on our Light 15 ~ a DIY solution!

We discovered that our Light 15 had significant camber issues on the front wheels. Camber is not adjustable on the Traction and is determined by the orientation of the front suspension cross-member, which attaches to the jambonneaus [the ham legs at the front of the body shell]. Our suspension crossmember was rotated clockwise, with respect to the road, due to:

- 1 the rear suspension being lower on the left hand side;
- 2 a previous left front accident slightly twisting the body shell.

While at the New Zealand National Rally in Warkworth, I discussed the problem with Craig Stuart and David Jones, who were both very helpful.

The consensus was that there was sufficient documentation/dimensions in the manu-



als to analyse the extent of the issue but that I'd probably have to take the car to a chassis straightener to remove any twist in the body shell.

On returning to Nelson, I set about the analysis but then I couldn't find a chassis straightener in Nelson who could work on this type of car. They

all recommended Spectrum in Motueka who, it transpired, had a five month lead time.

Undeterred, I decided to have a go at straightening it myself. We have a brother-in-law who owns a quarry and cement processing plant near Nelson, and has a great 'spare parts department'. I took a tour through his yard, and identified a couple of lengths of 150mm RHS which I thought would form an ideal basis for a home chassis straightener. I also ordered a 10tonne jack and three 2.5tonne ratchet tiedowns, and picked up some wood from the recycling centre, then set to work.

I attached the body as depict-

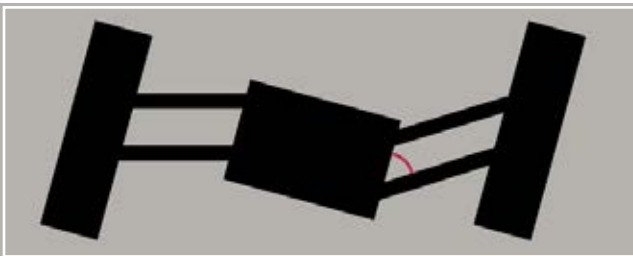
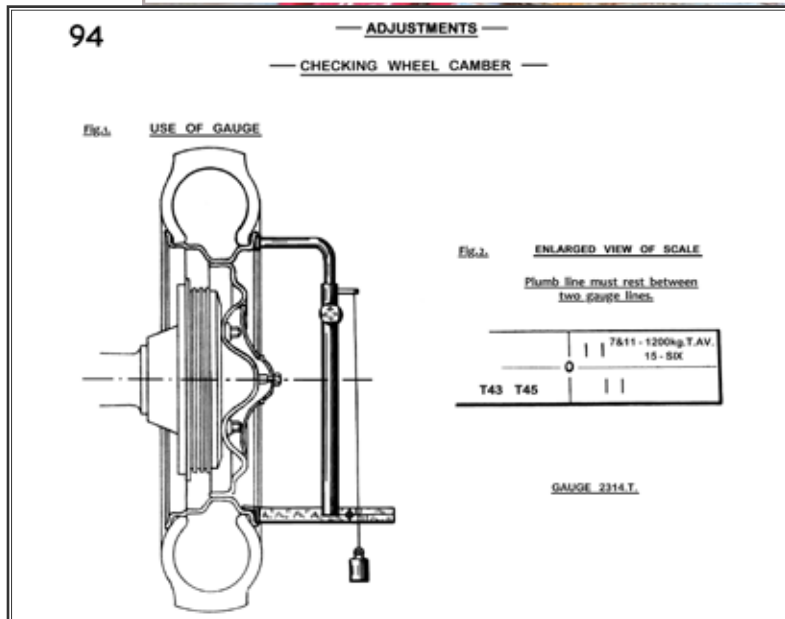
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ed in 'Diagram 100 ~ Realignment of Hull' in the manual. The alignment of the main section of the body shell didn't appear to have been affected by the minor accident.

The mis-alignment was restricted to the jambonneaus, where I had to lift the left hand side [LHS] 6mm with respect to the right hand side [RHS], so I ratcheted the RHS jambonneau down as hard as I could and iteratively jacked and measured the LHS jambonneau. After several iterations, the two jambonneaus were aligned to the rest of the body shell!

Great I thought, the next task, levelling up rear suspension heights will be easy! The LHS rear was 7mm lower than the RHS. I doubt whether the heights have been adjusted in the life of the car. Butchered adjusters indicated somebody had attempted to adjust them, but obviously not successfully.

Seventy years of water and rusting had to be overcome. I drowned all supposedly moving parts in CRC but to no avail. I was able to get the pin out of the adjuster, with a ball joint puller, so



I freed up the adjuster nut in the vice. To make my life easier, I drilled out the thread of a 16mm nut and then welded the nut to the existing adjuster nut because there was plenty of space for the longer combination nut. This had the benefit of leaving me easier access to the nut, and also I could now use a standard 24mm spanner which I have, rather than a 23mm proprietary tool.

Well, still no movement, so I realised I'd need to undo both the torsion bar castle nuts to free up the joints. What a challenge that proved to be. I jacked the Stilsons against both lengths of RHS to which I had the suspension are tied down. After a lot of heaving and groaning, the grip of the rust was finally broken. After a lot more CRC and oil in the appropriate places, I can now easily adjust the rear height [on the LHS anyway].

After tightening everything up, getting the car back on the ground, adjusting tyre pressure, rear heights and front heights it was time to check the camber.

The Traction wheels should have positive camber of 1 de-

The effect of rotation of the suspension cross-member on camber and weight distribution. The more acute angle [shown in red] results in higher weight on the right hand wheel as a consequence of the crossmember rotation, which exacerbated the tyre wear.



gree +/- 0.5 degrees. Given the rim has 430mm diameter, the allowable camber is between +3.75mm and 11.2mm when measured at the rim using a square from the flat floor. The two front wheels now have positive camber of 6mm and 8mm respectively, so I'm expecting a far greater mileage from the replacement Michelin tyre.

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