

## **TRACKING OR WHEEL ALIGNMENT MADE EASY**

By Peter Laidler, ably assisted by Nick Rogers, 1071 Bob and Mike Somerville.

In truth, this article should be titled something like 'Wheel/tracking alignment for simpletons.....'. That's because I've cut the crap, got it down to basics using tools and other items that the average bit-part home-owner/mechanic/engineer like me will have in his garage.

The photos will show and explain everything you'll need. One important thing is a reasonably flat garage floor! What IS critical is the acceptance that your sills run parallel to the centre line of the car.

There will be some instances, for various reasons such as restoration etc etc that the upright sill section might be slightly bowed OUTWARDS to some small degree. You can check this yourself with a suitable length of string held tight between the front and rear ends of the sill. This is not an insurmountable problem.

In this case the same alignment outcome can be achieved by using the laser light against the ruler at the FRONT AND REAR ends of the sill. The last photo shows an example of this slight bowing

Let's start..... You have just rebuilt your steering rack or put a pair or new track rod ends on or just a pair of new track rod boots..... You know the sort of thing. The problem now is just how do you set the tracking and toe-in? What a bugger! Because you know that 10" or 12" wheel size tracking gauges are not exactly thick on the ground. I don't want to upset those who own or have access this very expensive kit so I'll whisper it. Come a bit closer..... You don't need it. Just follow these simple instructions.

If you are sitting comfortably, then I'll begin.... ( start of a BBC '50's children's radio programme)

**If you have a Mk2 steering rack** – the type with a rack centralisation hole, identifiable by the rubber bung in the passenger foot-well, then use this facility together with the shank of a 1/4" drill bit to centralise the rack. It's all in the workshop manual so I'll say no more

**If you've got a Mk1 type rack** you'll need to do the same as on a Mk2, but MANUALLY. By rotating the steering wheel fully to one end stop, then to the other end stop AND COUNT THE EXACT AMOUNT OF TURNS AND PART TURNS. Halve it and turn

the steering back so that it is half way. The rack is now centralised.

Notice that I say THE RACK and NOT the steering wheel. You can attend to that later.

I'm not going to elaborate. It's all easily explained in the Workshop manual. We're going to slacken off the track rod end lock-nuts and the actual track rod ends (the TRE's hereafter) to move a/the front wheel(s) slightly in order to align it/them.

(Personally, I sit each front tyre on a rolled out coke can smeared in rubber grease. This makes twisting the wheel left or right slightly very easy)

Now that I've mentioned the little tin/alloy plates I ought to mention a few of the other bits and pieces you're going to need.

A piece of hardwood  $\frac{3}{4}$ " thick, shaped/curved sit ONTO the inner part of the wheel.

Nail to it another piece of wood 18" long that will clear the tyre. That way we'll be taking our linear laser measurements from the WHEEL and not the TYRE

A couple of stretchy bungee rubbers plus a couple of other odds and sods

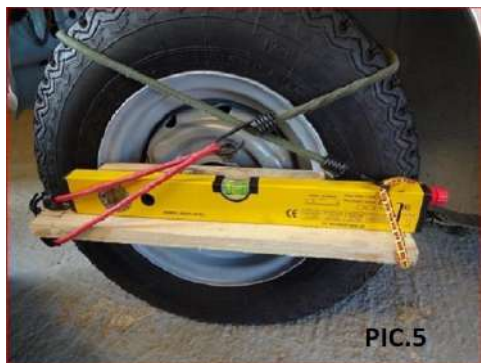
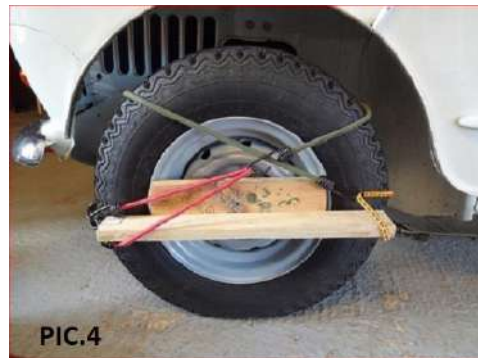


## THE WHEEL FITTINGS

A laser level. Borrowed from your pal or bought cheap from B&Q. You'll thank me for this because hereafter you'll find it a really useful addition to your home tool kit.

A couple of bits of wood, one shaped to sit into the tyre well of the wheel so that out alignment is taken from the WHEEL as opposed to the TYRE

Total cost so far: the cost of the cheapo laser level from B&Q, a few bungee straps from Lidl and a couple of bits of wood



### **THE WHEEL FITTINGS AND LASER LEVEL IN PLACE.**

For all those purists, this might look a bit rough and ready. The FACT is that it IS rough and ready AND IT WORKS, simply because, as you remember from your 5<sup>th</sup> form Physics lessons, that light only travels in straight lines. Just don't get me going about prisms, please!

The piece of wood sat onto the rim will clear the large CV nut. If not, say, with 3.5" S wheels, then you'll have to make do with something else. But the principle is the same whatever wheels you've got.

Just mount the whole thing into your wheel, holding it in place with the strategically placed bungee rubbers. Ensure that the level is held tight, horizontally and vertically against both pieces of wood

Now switch on the the laser level aiming light and set the laser light dot to fall on a board placed at the rear of the car. The stretchy bungee rubbers holding the wood frame and laser level close into the wheel will allow you a small amount of movement to adjust the beam to fall

- a) along the line of the height and level of the sill and
- b) fall onto the board at the rear



### **THE WAYWARD LASER SET UP AND AIMED**

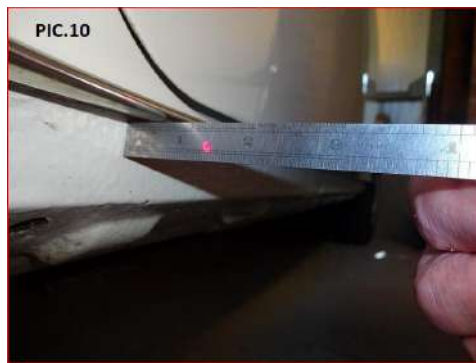
There it is, easy to see, following the length of the sill, showing up against a reflective insulation board

It's a simple one-man job and means that you wiggle it about until this happens. Time taken so far....., It took me 8 minutes to get this far.

If you have roughly set the new (?) TRE's on the track rods (the TR's hereafter) the laser light should/might be somewhere on the shadow board. If not, find out where it's pointing and adjust the front wheel, IN or OUT.







### **At last....., Parallel alignment.....**

Now adjust the laser light beam so that it runs parallel along the full length of the of the sill.

As you'll see, I measured at various points along the length just to illustrate the point. In the case of a slightly bowed sill, then only the front and rear markings will be relevant

All that you have to do now is, with the TREnd locknut(s) loosened, with a pair of grips slowly adjust the wheel angle so that the laser light alignment runs EXACTLY parallel with the sill of the car\*. I measured mine with an engineers steel rule and by coincidence, the laser beam fell at exactly 1.5" away from and down the length of the sill

\* You don't even need to see what you're doing because you'll see the laser dot moving across the board with every slight twist of the track-rod.

Screw the T-R INTO the T-R-End to bring the laser beam INWARDS  
UN-screw the T-R from the T-R-End to bring the laser beam OUTWARDS.

When the laser mark on the steel rule is parallel at, say 4 points along the sill. THE WHEEL IS PARALLEL. Take the laser and bracketry off the wheel. Their job is done

**Nearly there, but.....** You've got to have a bit of toe-OUT. And once again, we adjust for this by using the T-Rod.

To get 1/16" TOE-OUT, you have got to screw the T-R INTO the T-R-End. Don't worry, we've done the maths for you. To get 1/32" (x2 = 1/16" required don't forget.....), screw the T/R INTO the T-R-End JUST UNDER ¼ of a turn.

Now lock-up the TREnd locking nut

Without upsetting the geometry that you've already set, do exactly the same to the other side front wheel. It's so simple, it's like falling off a log.

Do you want the even better news? Get that expensive tracking kit that you've got and sell it on for a hefty profit. Or give it to someone you don't like as a fishing weight