

## Tyre changing.

### **A bit about the history.**

Early cars were fitted with beaded edge tyres, without going into too much detail they were fitted into a bead round the edge of the wheel rim, by the 1930s the wired edge type tyre had become more practical, they were fitted in much the same way as modern tyres but still relied on an inner tube to keep them air tight.

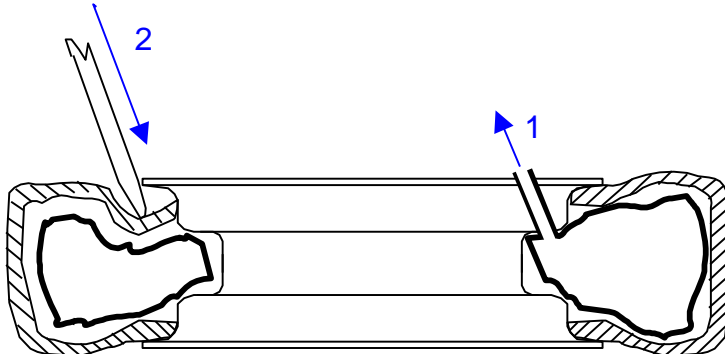
As the inner edges or bead of the tyre had no give in it, the method of fitting relied on the rim having a central groove into which one side of the tyre could sit while the other side was forced over the outer edge of the rim with tyre levers.

One of the first jobs I was shown as a teenager was how to fit a tyre, I guess it was one of the jobs in the garage that my dad thought I could handle and as he suffered from back problems so it was a good job to leave to his young son.

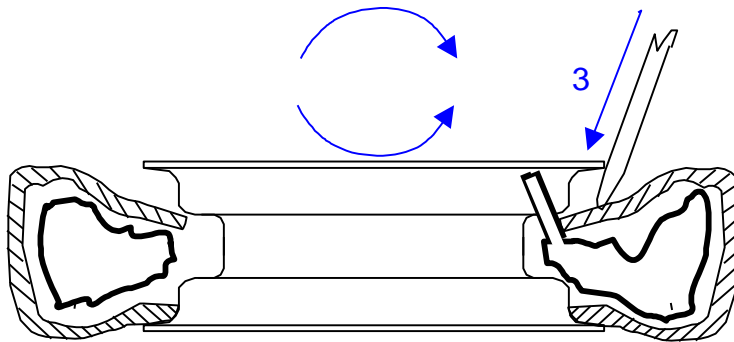
Other people may have their own methods, **I am not saying this is the correct method, I cannot accept any responsibility for anyone going out and trying it for themselves, tyre levers can slip out when under pressure and hit you. It is also easy to damage rims and tyres. All I can say is this is the method I was shown back in 1975, it is intended to describe the removal and refitting of a car tyre with tube.**

### **Removing a tyre.**

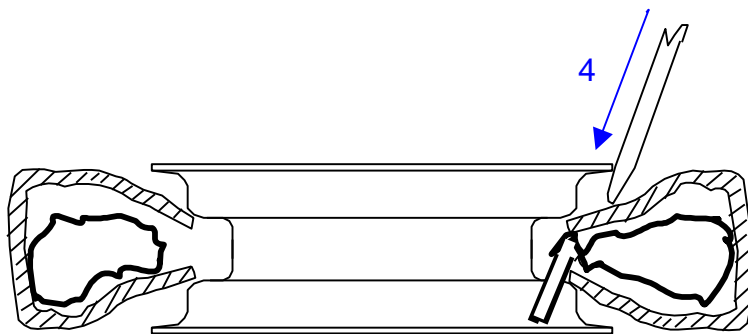
Unless you are equipped with the correct tools I find the most difficult bit is to break the seal between the tyre and the rim, usually the more modern the wheel the more difficult it is, tubed tyres tend to release easier as the fit does not need to be air tight, and rims tend to be more tapered.



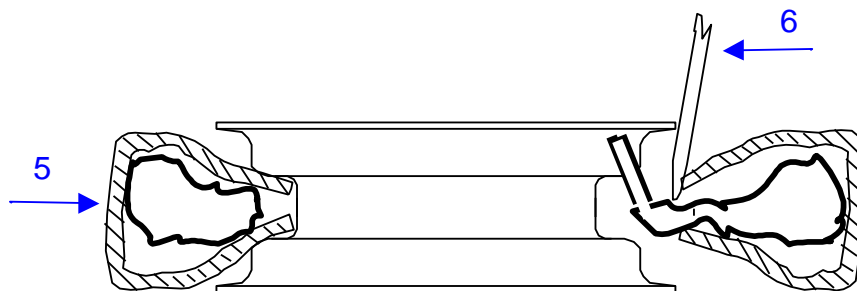
Deflate the tyre and remove the valve with a valve key (arrow 1) To separate the tyre from the edge of the rim (often referred to as breaking the bead) force needs to be applied in the direction shown (arrow 2) commercial tyre changing machines do this with a set of tongs mounted on the side of the machine and operated by compressed air, there are a few different forms of hand tools available, on old spoked wheels a tyre lever drifted in by a hammer, or even the heel of your boot can do the trick but on wider wheels you need the tools.



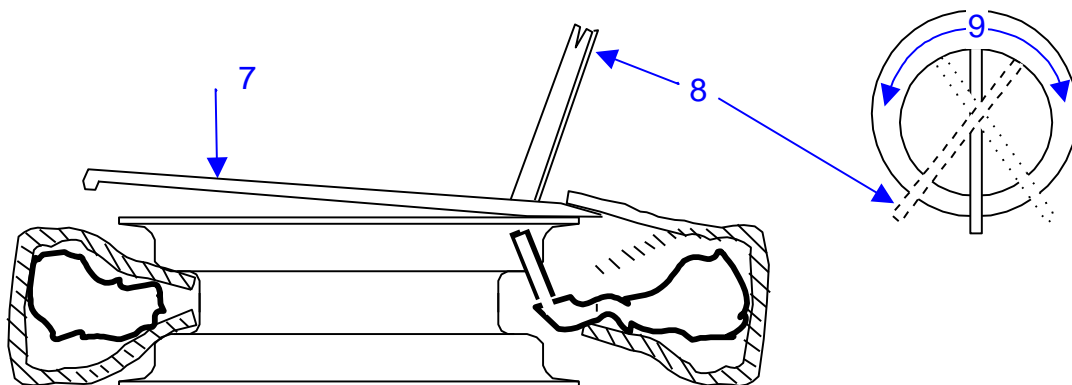
Once the 'bead is broken' at one side, work your way round the tyre (arrow 3)



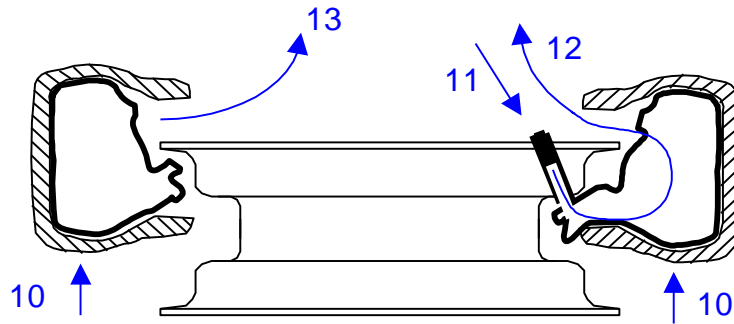
Turn the wheel over and repeat on the other side (arrow 4)



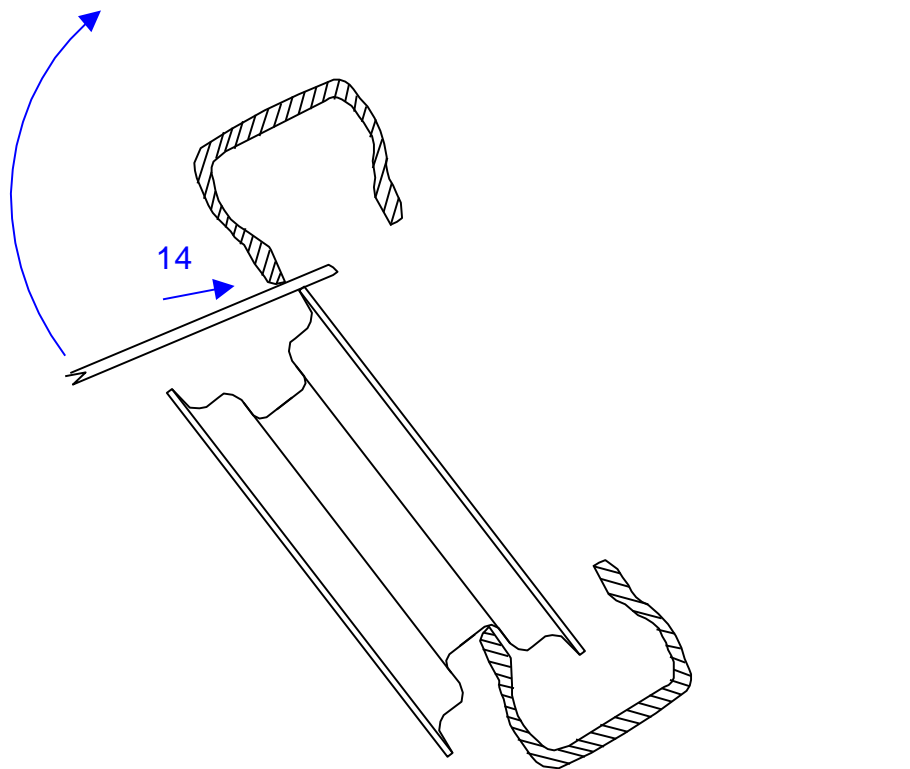
Once the tyre is loose on the rim turn it over so the valve can be seen, push the tyre towards the valve (arrow 5) Insert a tyre lever between the rim and the tyre taking care not to trap the inner tube, and pull back towards the centre of the wheel while holding the wheel with your foot.



As the tyre lever is pushed down flat with the wheel bringing the edge of the tyre over the rim, hold it there with the foot that is holding down the wheel (arrow 7) (if this tyre edge is needing a lot of force to pull it over, the opposite side of the tyre is not deep in the inner groove) liquid soap can help. Use a second tyre lever to work your way round the rim, either side of the first one until the front face of the tyre is over the rim (arrows 8 and 9)



Support the tyre to give a gap between the top edge of the tyre and the rim to remove the tube (arrow 10) Push the valve down, (arrow 11) Carefully put your hand in between the tyre and the rim and withdraw the tube, starting at the valve and working to the opposite side (arrows 12 and 13)

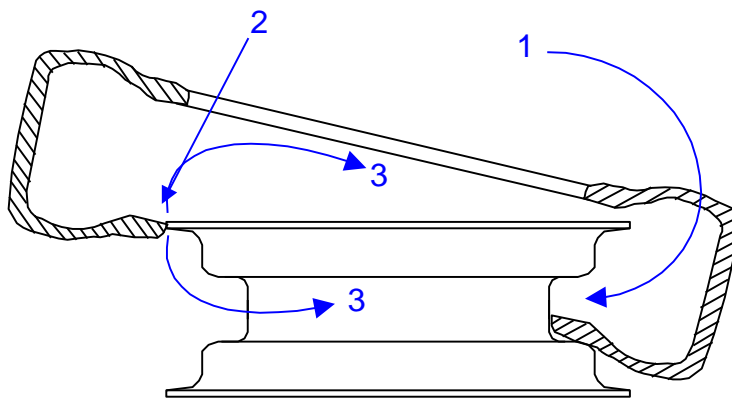


To get the inner edge of the tyre over the rim, if it is a big tyre you can use the two levers in much the same way as the outer edge, on smaller tyres it is often easier to pick the wheel up to almost vertical and insert one lever from behind, then with the bottom edge of the tyre squashed to the floor by your foot, pull the lever towards you taking care it does not slip out and hit you in the face, (arrow 14) while pressing down

on the first lever with one hand, you can use a second lever to ease the rest of the tyre off the rim (some people choose to use a hammer)

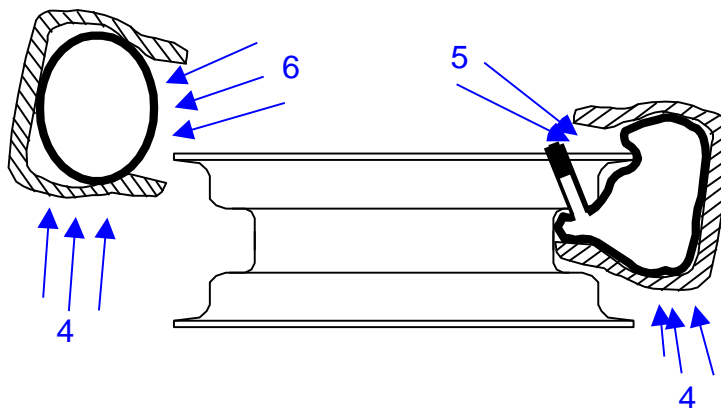
### To fit the tyre.

With the wheel rim on the floor, take the tyre in both hands and firmly put the inner edge of the tyre over the side of the rim opposite you, deep into the inner groove (arrow 1) then using a tyre lever or even the heel of your boot start at the opposite side forcing the inner edge of the tyre over the edge of the rim, (arrow 2) It is handy to hold this over with one tyre lever then use a second one to work your way round the wheel a little bit at a time either side (arrow 3) until the tyre is over the first edge, liquid soap on the inner of the tyre can help it slip over the rim, some people use a hammer or mallet to help the tyre over but I find this can damage the inner edge of the tyre or a freshly painted rim.

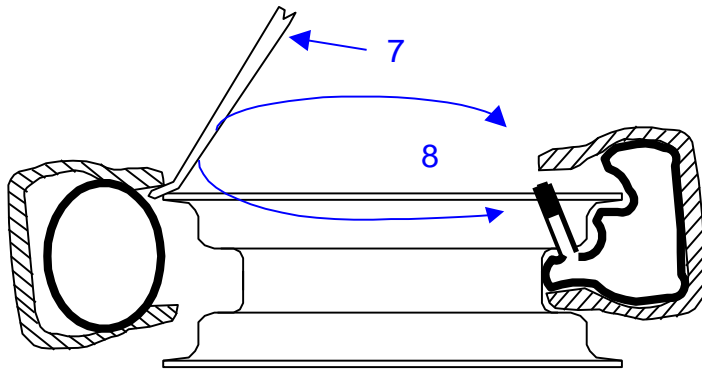


Once one edge of the tyre was over the wheel rim the slightly inflated inner tube can be fitted, by lifting the tyre from the underside, (on a heavy tyre a block of wood is handy) (arrow 4) The valve needs to be located in its hole in the rim first, but not pulled up tight (arrow 5) then the rest of the tube can be carefully pushed into place. (Arrow 6)

(The internal thread of the valve key can be screwed onto the valve to prevent it slipping inside)



The side wall of the tyre at the opposite side to the valve would be pushed into the rim groove by your feet, and then ease the inner edge of the tyre over the rim working away from your feet a bit at a time with tyre levers (sometimes aided by a hammer) Arrows 7 and 8) taking care not to nip the inner tube, the last bit of the bead to go over the rim would be that next to the valve.



Once the tyre is in place, make sure the valve is not trapped and inflate the tyre, making sure it sits centrally on the rim, there are usually guide rings on the side wall of the tyre.

### **Heavy Duty Tyres.**

Truck and lorry tyres were too stiff and heavy to be man handled over rim, so there were a few types of wheel rims that were designed to split, so the tyre could be dropped over one section of the rim, (normally with its slightly inflated tube already inside it, protected by an inner rubber ring) then the rest of the rim assembled on top trapping the tyre.

**Always beware when working with split rim wheels, if they are not correctly assembled or you try and dismantle them under pressure they can kill.**

### **Tubeless Tyres on Classic Vehicles.**

Most modern tyres are tubeless, even the larger ones, but go back a few years and almost all tyres were tube type, please be aware that some older cars can have tubeless tyres fitted (without tubes) on pressed steel wheels that were designed for tube tyres. They will fit and inflate, if the rim is in good condition they will stay inflated, and you can drive around quite happily until you are in a situation that generates enough sideways force to push the tyre inwards on the rim and allow it to deflate instantly, often when cornering at speed.