



Tyre Fitting Without Tears

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It is amazing how many motorcyclists are unable to change their own tyres; as our vehicles do not carry a spare wheel, we are left with several options in the event of a puncture...We can use an aerosol to both seal and reinflate the tyre, which is not a permanent repair, and is unsuitable for high speed use...We can plug tubeless tyres, with the same limitations...We can summon assistance, which will be time-consuming (Many tyre repairers will not handle motorcycle tyres) expensive, and will in all probability also cause damage to our beloved machine as it is lifted onto a transporter intended for the recovery of Dead Cars...Or we can repair (or fit) an inner tube ourselves - for free!

BMW, of course, recommend that a punctured tubeless tyre be replaced at the earliest opportunity - a perfect repair, but not really practical...or cheap!

There is no magic to tyre fitting; it does, however, need a certain amount of logic, as is required by a Chinese Puzzle - the bent wire device which will not surrender to any amount of physical effort, but will yield to the correct, if subtle, manoeuvre. The process does not require the use of abnormal physical strength, or long tyre levers; given normal hands, and the excellent tyre levers included in the original tool kit of all pre-monoshock BMWs, your tyres will slip on and off their rims without damage to rubber, aluminium, or flesh.

The only extra items which will be required are a small quantity of lubricant, such as Fairy Liquid (Which can also be used to clean your hands afterwards) a Bead Breaker (This fearsome sounding item can easily be fabricated from a large car-type tyre lever, the end six inches of which is welded to a four inch length - the resultant cross will not only fit inside the tool tray, but can also be used for frightening vampires!) and a 2BA threaded screw, which will be used to great effect within the Valve Body.

The basic principle to remember is that the bead of the tyre cannot be stretched, and is the same circumference as the base of the wheel. By inducing one side of the bead to enter the well in the centre of the wheel (The depth of which is the same as the height of the rim) the bead on the opposite side of the tyre can, just, be persuaded to pass over the rim. Remember also that the only part of the inner tube which we can control is in the area of the valve, where it can be manipulated by the afore-mentioned 2BA screw.

Certain publications claim that it is necessary to begin the removal procedure at the valve, while others state that BMW wheels must be treated in a different fashion than others...The method described below not only works well, but, by depressing the section of inner tube which carries the valve so that it is clear of the well, before the bead is pressed into this area, it ensures that the inner tube will not be damaged by being trapped between the bead and the wheel.

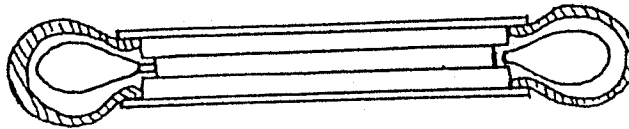
If you are working at home, mount the wheel on an open dustbin - this will protect the brake discs from damage, and also provide a tailor-made workbench, particularly if the edge is covered with rubber (Such as split foam pipe lagging) to protect the paintwork. Should you be operating by the roadside, removal of the brake discs will prevent damage, and also enable the wheel to lie flat while you work.

REMOVAL:

If repairing a puncture, this is the time to find the cause - if necessary, reinflate the tyre and use some of your Fairy Liquid to locate the damage. Remember also that a warm tyre is easier to remove...do not sit by the roadside and sulk!

1. Deflate the tyre completely, by unscrewing the valve core; it is therefore essential to use the correct type of valve cap - the metal pattern with a slotted head. Remove the valve body locknut, and insert the 2BA screw.

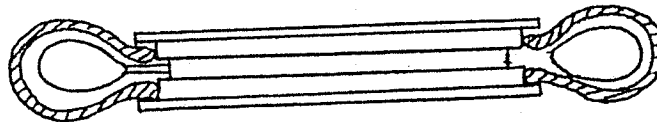
Tyre deflated; Beads are still fully seated on rims.



2. Spread a little Fairy Liquid and water around the rim, and force the bead breaker behind the rim, until contact is made with the base of the wheel. Twist the tool in both directions, so depressing the bead and admitting lubricant to the area behind it. Repeat this procedure around the wheel.

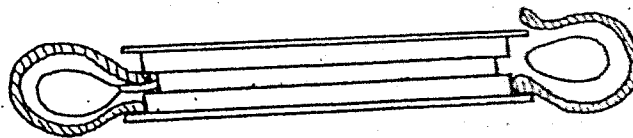
3. When the bead is sufficiently free, press it downwards towards the well, by hand, around its full circumference.

Inner tube partially retracted by valve body; upper bead released



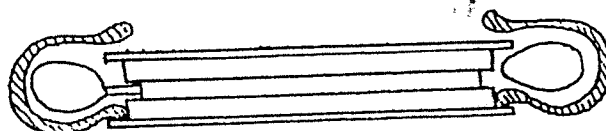
4. By use of the 2BA screw, press the valve body fully inwards, and force the bead downwards onto it. Liberally lubricate the bead, and insert the curved ends of two tyre levers about three inches apart, behind the bead at a point opposite the valve. Lever the bead over the rim, taking care to keep the far side pressed down on the valve body, and therefore in the well. If working with one of the modern braced tyres, such as the Michelin M48E/A49/A50 series, the extra carcass stiffness will require that both beads are released as per para 2 & 3 before the first bead may be lifted over the rim

Inner tube partially retracted by valve body; upper bead released



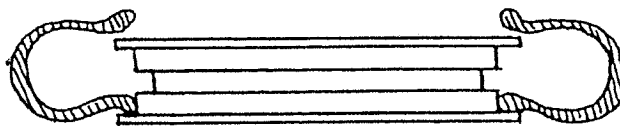
5. Carefully remove one lever, and use it to lift the bead over the rim on each side of the section first lifted. Continue to work on each side, pressing the bead on the opposite side into the well, and lubricating the section about to be lifted across the rim.

Upper bead fully released; Inner tube about to be removed from tyre



6. When all of the bead has been lifted across the rim, carefully remove the inner tube, starting at a point opposite the valve. Be careful to lift it across the rim, without stretching it, as any small burrs formed during the removal process could puncture the tube if it is pulled across them during removal from the casing. Remove the 2BA screw, and carefully extract the valve portion of the inner tube.

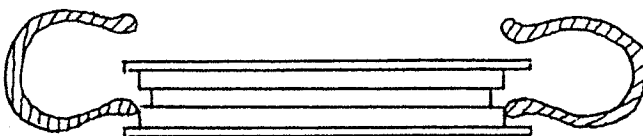
Inner tube removed from tyre



(FOR TUBE REPLACEMENT - IE PUNCTURES - PROCEED TO PARA 2 BELOW)

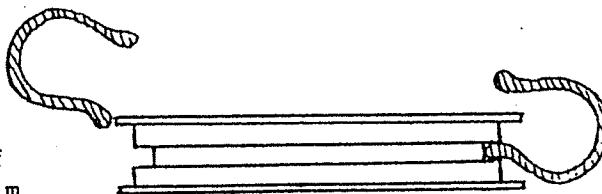
7. Using the bead breaker and lubricant, release the bead on the other side of the tyre, as described in para 2 above.

Lower bead released



8. Press one side of the second bead into the well, and press the other side against the inside of the opposite rim; Working from the outside of the tyre, use the curved ends of two tyre levers to lift a section of the bead across the rim. While holding both tyre levers in position with one hand, force the tyre off the wheel. Given a modicum of strength and plenty of lubricant, this process can usually be accomplished without the use of tyre levers.

Lower bead pressed into well on one side; opposite side of bead displaced over upper rim



While the tyre is removed from the wheel we have the opportunity to clean the internal area of the wheel; this is not just a cosmetic exercise - the shreds of rubber which cling to the insides of the rims etc will prevent the beads of the new tyre from sliding easily into position, while the corrosion which will be present, on tubed wheels, in the area between the rims is not only a hazard to the inner tube, but will also grip the beads, and impede their progress as they move towards the rims when the tyre is initially inflated.

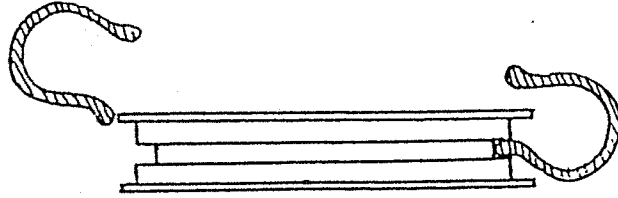
We must therefore remove this debris, by rubbing with coarse steel wool, until the entire area is clean and smooth. Carefully file away any burrs which have been formed during the tyre removal process.

If the object of the exercise is the repair of a puncture, as distinct from routine tyre replacement, remember to remove the cause of the problem - make a complete search of the tread, in case of multiple punctures.

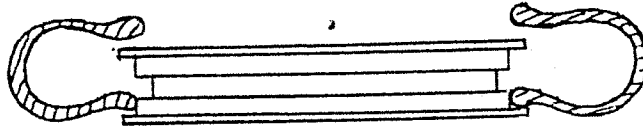
REPLACEMENT:

1. Ensure that the inside of the tyre is clean and free of foreign bodies, lubricate the beads, and check that you are about to fit it in the correct direction of rotation. Seat one side of the bead into the well, and from that point force it across the rim; this process can usually be accomplished by hand.

Lower bead pressed into well on one side; opposite side of bead is pressed over upper rim

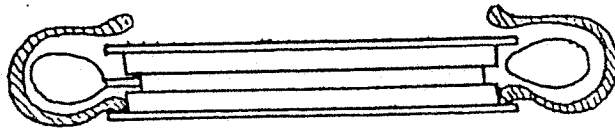


Tyre fitted over upper rim; inner tube to be inserted



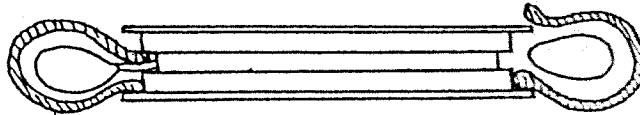
2. Rotate the tyre to line up the lightest point - usually denoted by a red spot on the bead - with the valve hole, and carefully insert the valve portion of the inner tube into the tyre, feeding the valve body through the hole. Fit the 2BA screw, and, working from either side of the valve, insert the tube into the tyre, taking care not to twist it.

Inner tube inserted into tyre.



3. Liberally lubricate the bead, and press the valve body inwards. Force the bead onto the valve body, and, working from either side of the valve, press it into the well, by hand, as far around the rim as possible.

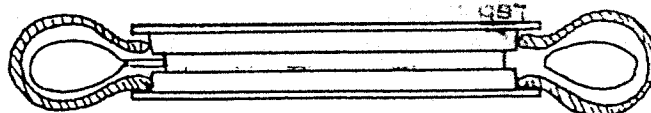
Upper bead being fitted over upper rim



4. Using the curved end of one tyre lever, press the bead across the rim, working from each side in turn, using plenty of lubricant. When the effort required increases, check that the valve body is still pressed fully down, use both levers to pull the bead, at a point opposite the valve, outwards towards the rim, and press the tyre sidewalls downwards - this will pull as much of the bead as possible into the well.

5. As the process continues, it will become necessary to work on smaller bites of tyre, using one lever to hold the section previously fitted, while the other is used to move the next section over the rim, until the final section can be forced over by hand.

Both beads fitted over rims; inner tube ready to be inflated.



The only disadvantage of these products is that many tyre repairers will refuse to fit a permanent plug when sealant has been used...it is difficult to be sure, but this could well be a case of ignorance producing excessive caution, which is understandable if there were any litigation regarding the quality of the repair. Users of tubed tyres can, however, at least afford to replace the tube after a puncture.

Aerosol Repairs: It is always worth carrying an aerosol, if only as a magic charm to ward off punctures! The above comments regarding sealant, however, also apply in this case, but an aerosol can be very useful if a puncture occurs in a situation where removal of a wheel etc could be dangerous, such as in narrow country lanes where the traffic is frequent and fast, or where normal repair is inconvenient, such as when close to home in pouring rain.

Before use, remember to locate and remove the offending nail etc, and warm the container under your arm for a while, shaking it frequently. In order that the sealant blocks the hole before the gas leaks out, it is necessary to rotate the tyre so that the puncture is at the lowest point. The sealant will then do its job, and the propellant gas will inflate the tyre.

Always check the pressure after a little use, as the gas (Freon, as used in refrigeration systems) will expand several times as much as air for a quite moderate increase in temperature. For this reason it is recommended that the tyre be vented by removal of the valve, and the gas replaced by air as soon as possible.

Tools: Remember to always carry the necessary tools, even only as insurance against having to use them! Always use the appropriate spanners to secure the wheels etc, and do not over tighten by the use of long spanners. Make sure that all threads on spindles and pinch bolts are lubricated with anti-sieze grease (EG: Copaslip) and do not worry about overtightening...if you use the BMW toolkit spanners and hexagon keys your fingers will limit the torque which it is possible to apply to safe levels. The rear wheel bolts of the K series, incidentally, require more torque than most people are able to apply, even via the spanner and its extension!

Technique: Do not use excessive force on the tyre levers, and do not yield to the temptation of using long car-type levers - if you cannot do the job with the normal BMW levers, you are not doing it in the correct manner! The answer, of course, is to relax, think, and apply some more lubricant; if in doubt have a cup of tea!

Materials: Remember that the contents of your puncture repair kit - patches and solution - will change with age, and that it may not be possible to effect a repair with an aged tube of solution...you may not even be able to squeeze it out! Replace any such perishables every two years or so. The sealed cylinders of compressed air supplied in tubeless tyre repair kits can also leak with age, and it is therefore wise to weigh each cylinder when new, and mark them for future checking. It is also wise to check that your pump is able to produce at least 30 psi (2.2 Bar) into a tyre, and that the interior is lightly oiled. It is wise to wrap the handle to the body with a piece of bicycle inner tube, to seal the piston rod against ingress of water in its normally exposed position against the rear wheel. The pump will stoe inside the top frame tube of a monolever model, if attached to a string for easy removal.

Practice: Remember that it is little use to know what to do, if you have not practiced for years...tyre changing is not like riding bicycles and sex - it is easy to forget the finer points!