RDC Tyre pressure sensor battery replacement project

Jun 2017

From owner's manual

Tyre pressure monitoring RDC - with tyre pressure monitoring (RDC) Function

A sensor integrated into each tyre measures the air temperature and the air pressure inside the tyre and transmits this information to the control unit.

Each sensor has a centrifugal force trip-switch that does not enable transmission of the measured values until the motorcycle

has accelerated to above approximately 30 km/h for the first time.

The display shows - - for each tyre until the tyre-pressure signal is received for the first time. The sensors continue to transmit the measured-value signals for approximately 15 minutes after the motorcycle comes to a stop.

The control unit can administrate four sensors, so two different sets of wheels with RDC sensors can be alternated on

the motorcycle. An error message is issued if wheels without sensors are fitted to a motorcycle equipped with an RDC control

There is a lot of literature on this process online.

I did many of these before I actually asked a researcher to trawl for the intel and found this process below, has bene the right one.

I have borrowed some good moves from a few which resulted in this document.

You do need the right tools, a lot of patience, this is not a rushed job and best done alone, undisturbed.

You do need very good light and a good workbench to work on and preferably a light swivel vice- the type modellers use.

A 'carpet knife' with a retractable segmented blade is a better tool for this job than the knife with the fixed, less flexible single blade type.

Tools required once RDC unit is removed from the rim:

1. Stanley knife with retractable segmented blade
2. Small electrician's flat screwdriver
3. Jeweller's flat blade screwdriver
4. Stiff paint brush to evacuate rubber dust
5. Snub nosed plier
6. Light soldier
7. Soldiering iron
8. Crafters swivel vice

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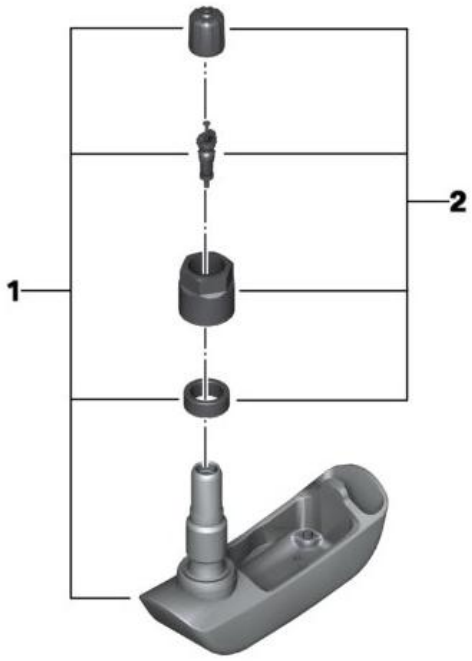
9. Small piece of 1000 grit emery paper
10. Non-water-based sealant (from a tube)
11. Good lighting.

Purchase your replacement CR2032 batteries carefully, choose a good brand and pay for it, sort through the inventory on the shop shelf for the batteries with longest life span- see expiry dates- aim for the 6-year to expiry.
It is senseless doing this task with a cheap battery or one due to expire soon.

This work is best done alone and undisturbed.
Reckon on an hour per RDC for your first time and not much less on successive jobs.

Starting out:

- Remove the wheels from the motorbike.
- Remove the road tyres form the rims.
- Use an engraver or an etch tool to mark the front RDC unit with an F and the rear RDC unit with an R.
- 12mm ring spanner used to back off then remove the locking cap nut on the valve stub.
  Caveat- this is aluminium, so be gentle, not aggressive, the assembly line used a locking glue to make sure it does not work loose.
  so take your time.
- Now tease the RDC unit from the rim, with gentle wiggles- you do not want to damage the air seal rubber gasket between rim and valve RDC unit.
- Once removed, wipe clean and commence with the process of changing the battery.



You can learn more about prenumbers here:
https://www.realoem.com/bmw/enUS/showparts?id=0480-USA-03-2010-K255-BMW-R_1200_GS_Adve_10_0470,0480_&diagId=36_1736

The black rubberised potting compound makes the unit water and dust tight.
Using the carpet knife progressively cut through to the solid surface beneath, just inside the two long sides and the ends, then
Make an incision through the compound down the centre line.
(don't worry, if you do this progressively and patiently, you will not damage anything beneath)/

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Now work the carpet knife blade into the centre line over the battery beneath and from the centre outwards, prize up the potting compound in small sections.
Patiently, bit by bit.
Once most is away in chunks, use a jeweller's flat screw driver to patiently work over the entire recess wiggling the rest of the potting compound away.
Work out the compound immediately against the battery cell edges to create a narrow gap.

Using the knife blade, tease the edges of the +ve terminal plate up off the surface of the battery on each side of the two spot welds.
This gives you room to use a small flat electricions screwdriver (the one you use on choc-block terminal connectors)
The next step is to work the edges in a see-saw way to weaken the spot weld until it pops off the battery intact.

The battery can now be gently prised up off the adhesive tape beneath to expose the -ve terminal plate.
Repeat the process for working the plate off the battery by working the spot welds loose.
Remove the battery.
Check for signs of swollen casing or corrosion.
The lithium battery is dangerous when exposed to water inside it and when it has swollen. Dispose of it responsibly.

Now use a small snub-nosed plier to re-condition the two plates to their former straight form.
Press the -ve (lower) terminal plate home onto the adhesive tape.
Now work out the potting compound in the environs of the battery to make the new one seat properly.
Work all potting out of the two wings on the edge. The nacelle is not quite big enough for the battery, so the OEM has made recesses in the side wall for the battery to nest in.

Using 1000 grit water paper scuff the battery back and the +ve terminal plate to create a surface for solider.
Using fine soldier wire tin the battery back and the plate, NOTE: Less is more.
Bend the plate into its original position so that its natural 'lie' is going to hold the battery down (applying some pressure by virtue of its bent-down position)
Seat the battery into the nacelle and snug it down nicely.

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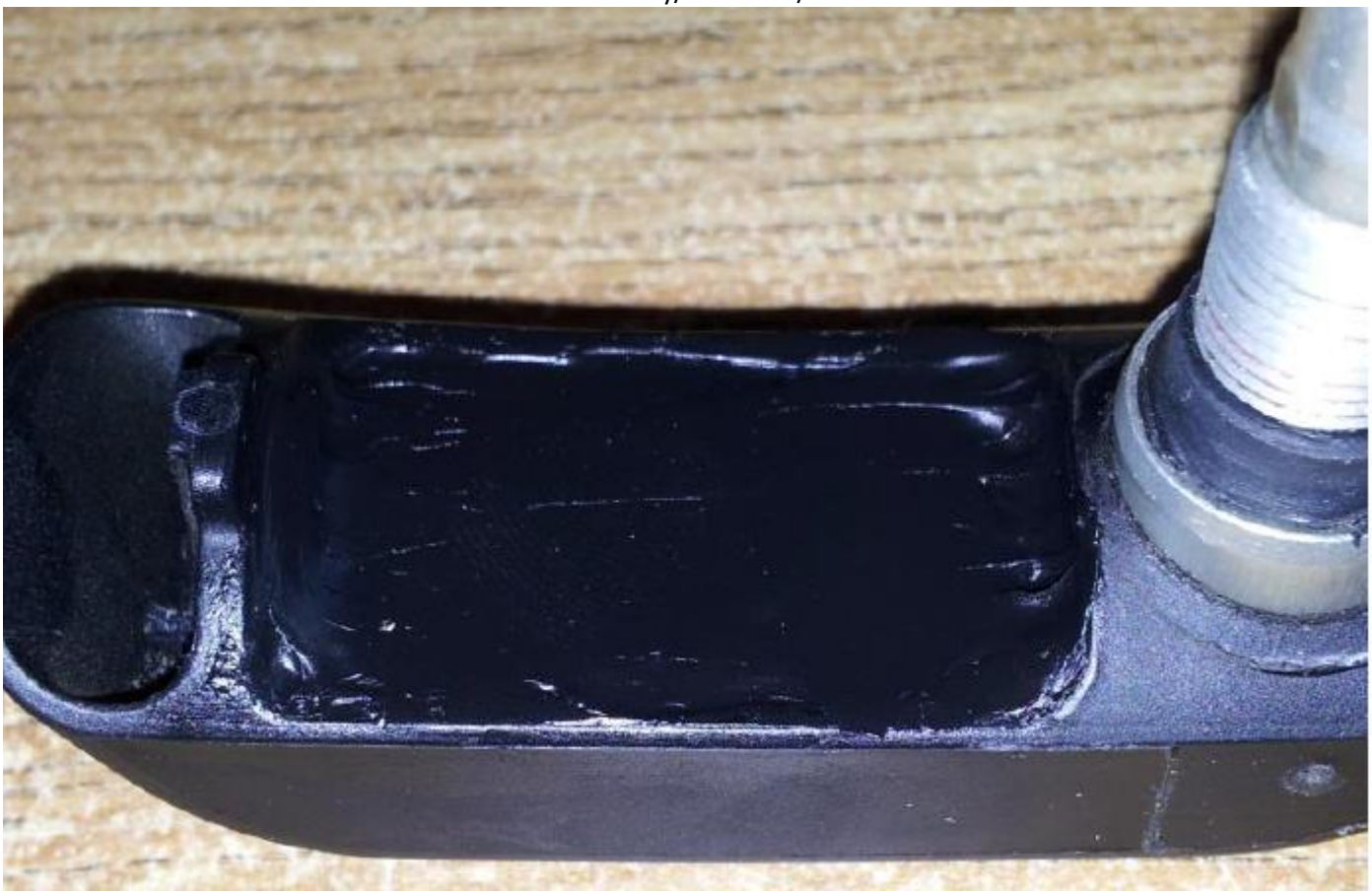
Using the jewellers screwdriver, press the plate home onto the battery, touch with soldiering iron only long enough to sweat the tinned surfaces together.
Be careful not to apply heat too long. The lithium battery does not like direct heat.
Blow on it to cool it off and you should have a contact below by direct pressure and a good soldiered contact on top.

Potting the nacelle.
Using the jewellers screwdriver, apply pressure to push the new battery into its seat firmly while you squeeze some sealant into the void space until level.
DO NOT USE A WATER-BASED SEALANT – Lithium battery/corrosion/water = EXPLOSION!



I rig a jig to maintain pressure on the battery via the screw driver while the sealant sets.

Re-seating the RDC unit in to the wheel rim is a precise process.
One wrong move and you hurt the slim rubber seal.
Moisten or lightly lube the seal and work the RDC unit home properly before you start putting the cap nut on and torqueing it up.
Done properly this should last many years.
Do not expect the RDC reading immediately.
ride a bit, switch on and off a few times, it will soon acquire, and you are back in business.

Good luck
The Andyman