Jeep+Hospital

Tony Whitehead (Dr Jeep)

Each month Dr Jeep (Tony Whitehead) takes us through the trials and tribulations at his "Jeep Hospital", USA 4X4 Jeep Specialist in Melbourne, Victoria. Over 20 Jeeps are admitted weekly for servicing and suspension work through to differential, transmission and engine rebuilds. Dr Jeep explains the diagnosis, the corrective surgery and future care of these vehicles.

OVERWEIGHT JK

We recently had a highly modified 2010 JK Rubicon in with a substantial rear lean. A lift kit had been fitted elsewhere and the rear springs have collapsed, mainly at the right rear. The four door JKs are meant to have a curb weight around 1715kg, a payload around 510kg and a GVM of around 2200kg or maybe 2270kg (according to the info I can find as there is no info in my brochures). This JK weighed in on a public weigh bridge at 2620kg, a fair bit over the GVM and it wasn't even loaded, fuelled up, or carrying any passengers. I would imagine loading it up would take it to around the 3000kg mark.

All the accessories we put on our Jeeps add to the weight. Racks, bars, fridge, extra batteries, winches, recovery kits, tools, water, extra fuel, clothes, food and then passengers. The added weight takes the factory ratings for a ride, this was evident in the figures we got from this Jeep and it was obvious that the rear coils did not cope with the weight. I have found that for years with the USA made kits, they always seem too lightweight to me, this is why at USA 4X4 we have made our own TJ and XJ coils since 1997, and only use particular JK coils and utilize various brand air bag kits in the rear ends. My solution for this Jeep was similar to a recent GU Patrol we modified to haul a motor home. We supplied and fitted a pair of Firestone Kevlar socked air bags. While these didn't totally sort the Jeep out they did raise it over an inch in the rear end, lower the front end and levelled out the whole Jeep to a much more satisfactory state. When we fit some new heavier coils these air bags will still be utilsed when loaded up for big trips.

We first measured and weighted the JK in its sagged state as a whole weight, then after we added Firestone air bags we measured it up and used our race car corner scales to measure the individual corner weights and overall weight. With it half loaded it hit 2,680kg; LF=591kg, RF=595kg, LR=731kg, RR=763kg. An extra 32kg had been detected on the right rear but you wouldn't think that would do the damage. With the air bags inflated to 35psi (max) we were able to almost level the Jeep out, so I sent it home to go on a diet. It came back for another weigh in a few days later, less fuel, less drawers, less tools, recovery gear and a few other bits and pieces. Total weight loss was not much, 148kg was all that could be easily removed, so it went back on the scales. LF=502kg, RF=642kg, LR=666kg, RR=722kg wow, what a big difference we thought to the right hand side and no driver, then I opened the swing away wheel carrier with 285/70R17 tyre and it added 120kg to the right rear and lost 10kg on the left front. Added to this there was a second battery mounted in the right rear quarter, this is only a 20kg battery so why was it so heavy to the right side (that had the collapsed coil)?

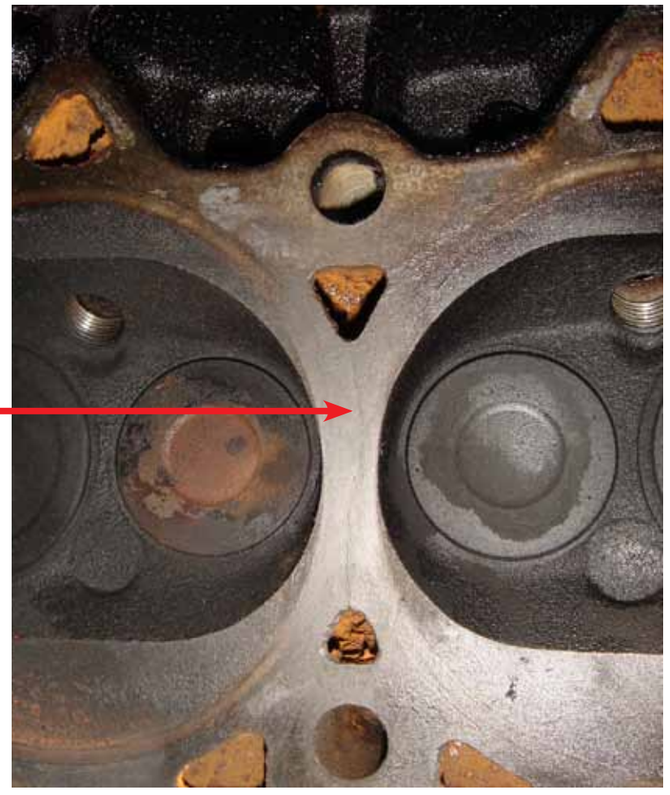
I can only put it down to the tyre rack/bar/fuel tank that all transfers kilograms to the right rear corner. As mentioned some heavier rated rear coils will go in when they're available and in the interim the air bags will help a lot but its still on a strict diet until then. I would also suggest on any JK you run secondary batteries on the passenger side if you're planning on fitting one, and definitely consider some form of air bags to help with heavier loads in the rear. But ultimately it showed up that the GVM of the JK is rather low, you need to build these Jeeps with lightweight in mind, while they have four doors like a big toyota FJ80/100 they are not intended to be accessorized like a Sherman tank, they will body roll badly, brake worse (add bigger tyres to make that worse again) and bend front axle housings off road all too easily.

I have weighed another four door JK before to find it sitting over 3.2t, with no real load or passengers, they can get very over weight very easily, just like us they need a strict diet or other Jeep health problems can occur.

Make an appointment at USA 4X4 for a four corner weigh-in if you want to see what your Jeep is weighing, you might just surprise yourself.

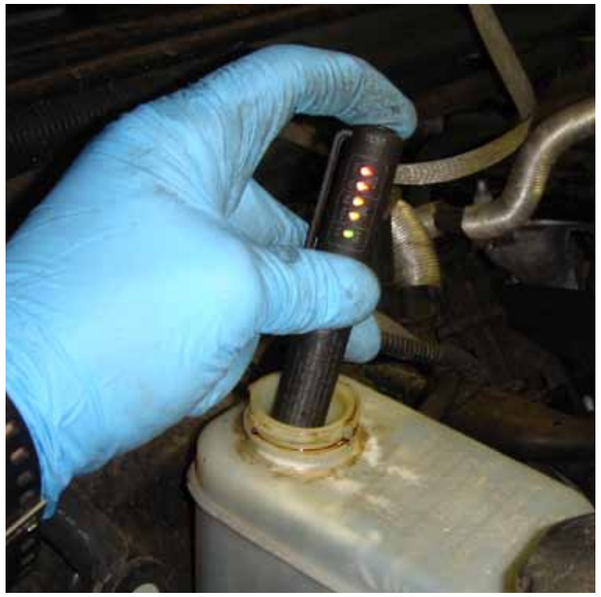
4.0 XJ HEAD CRACK

A couple of issues ago we did a compression test on an XJ 4.0L which ranged from 25psi to 145psi. We purchased this Jeep with a view to wrecking it but decided it was good training fodder for the new apprentice so we finally got to do some surgery on it, and this is what we found. A monster crack in the head across the water jacket between #3 and #4 which explains the black lung it had in the air box and over heating issues. It also nipped up two pistons, leaving a small deposit of piston ring in two bores. A cylinder hone, new rings, two machined pistons plus the usual big end bearings, timing chain, gears and gasket kit, plus a replacement head and its all going back together nicely to live another day.



BRAKE FLUID TESTING

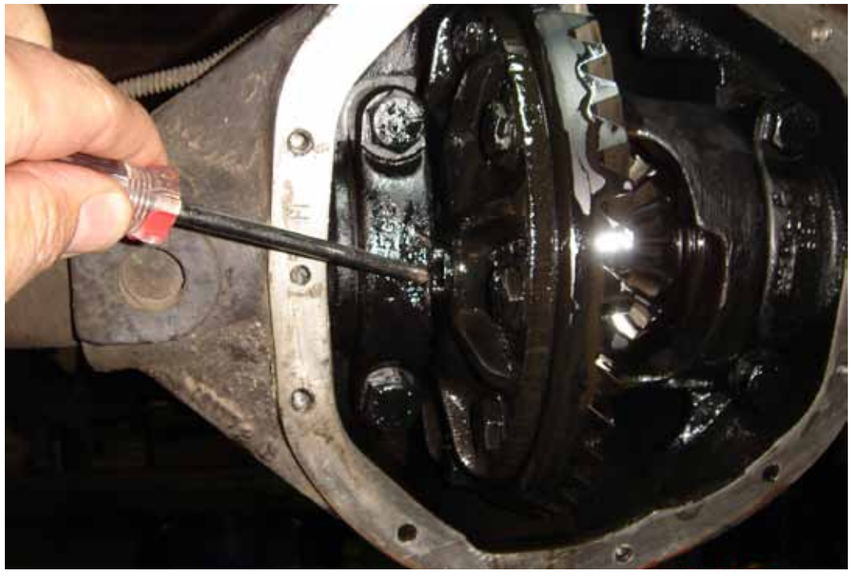
On every Jeep service we visually check brake fluid and if it is clean we then check the H_2O content with a tester probe. Brake fluid is hygroscopic, it absorbs water and after a while can exceed the 2% maximum. When braking, drums and rotors heat up feeding heat back to the brake fluid. This can take the fluid temp well over 100 degrees celsius and when that happens the water will boil in the brake fluid creating bubbles giving you a mushy pedal and poor brakes. Leave the fluid long enough and you can even rust the wheel cylinders or caliper pistons solid. This Jeep was a 2008 JK and it failed miserably, so new fluid was pumped through to flush the complete system.



Four reds or even three is a fail, green is OK

D44 LSD CLUTCH PROBLEMS

Whenever we do a service on a Jeep here at the hospital it gets the full medical. With age comes wear and tear on components, including differentials. We are finding more broken belleville washers, wayward clutch pack clips and metal through the bearings, gears and housing. When servicing Jeeps that are getting older these differential problems start when the belleville washer, a slightly conical washer that spring loads tension into the clutch packs cracks, then disintegrates slowly. Metal goes through all the bearings including the wheel bearings and gear faces which may need replacing if left too long. Then the little clips that hold the clutch pack together can slip through the new crack and migrate outboard then it starts to eat into the carrier



main cap. Let that go on long enough and the differential can be a throw away, main caps are unique to each housing and if ones half shredded you can't just get another one. Do yourself and your Jeep a favour, once a year pull the cover off and have a good look at your differential. If all is good replace the cover and add some fresh oil .