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OLD MAN EMU 4X4 SUSPENSION BULLETIN # 75

A Division of ARB Corporation Ltd.

To: All OME State Offices & Licensed Fitters

## 200 SERIES KDSS RIDE HEIGHT INCONSISTENCIES

While the majority of Fitters are not reporting any difficulties with the 200 Series model equipped with KDSS, a few have reported a problem with a ride height lean and when attempts are made to trim the vehicle with coil packers this lean can move from front to rear and vary from 15 mm to 40 mm on the same vehicle at different times.

One of our OME engineers, Shane Fewster has investigated these reports and would like to pass on the following information to Fitters to give you a clearer understanding how the KDSS works.
We suggest it would be worthwhile discussing with customers, the nature of the KDSS and how it works.

**HOW THE KDSS WORKS**
The KDSS system has an inbuilt self leveling bleed system.
The system is under high pressure and has a very small bleed hole to do the pressure balancing and because of this it can take a high force and or some time for it to bleed across.
When parked on un-even surfaces KDSS will try to re-balance itself believing that this is its new ride position. We have tested and found that parking the vehicle on an un-even surface thus causing the axles to cross up slightly will cause the vehicle to lean when re-parked on level ground
**E.G.** if parking overnight on a small un-even surface (50-100mm of cross up) can effect vehicle by 10-15mm and will take several hours to re-level once starting to drive, but if parking overnight on a large un-even surface (200mm of cross up, or one wheel on a gutter) **will** greatly affect vehicle by 20-30mm and will take **several days** to re-level once starting to drive.
This second scenario unfortunately also requires some high force in the opposite direction to assist in forcing the balance of fluid in the system.
Just driving the vehicle normally for a day will not re-level it and it may take some considerable time before the system equalises.
Unfortunately it takes more time and force for the KDSS system to correct itself compared to the time and force taken to induce the lean.

We have found that parking the vehicle on level ground, opening the bleed screws 3 turns to rebalance the system is the only way to correct this issue.

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**As the KDSS is constantly active and responding to the suspension position it follows that while the above resetting of the system will fix the immediate problem a new problem can occur if the vehicle is parked that night with one wheel up on a gutter.**

**Fitting Hints:**

**1.** Carefully measure vehicle heights before fitting (most OE vehicles have a front driver side lean of 15mm), if a lean exists, record and make this known to the customer. If lean is excessive you should try to bleed and level car before any other work is carried out.
If lean cannot be re-trimmed with standard bleeding, discuss with customer whether they would like to take it back to Toyota for correction of the system first before you fit the OME suspension.

**2.** As stated in bulletin #70, both KDSS bleed screws must be open a 3 full turns, no more, prior to fitting the suspension.
After fitment the vehicle should be placed on flat ground, we have found at this point rocking the vehicle from side to side does help push fluid past the screws, when the vehicle is sitting level re-tighten the 2 bleed screws.

**3.** Unlike the previous 80 and 100 Series, the rear A coil is the taller springs and must be installed to the driver's side, the lower free height B spring is installed to the Passenger side.

**4.** Excessive stacking of packers will exacerbate a lean problem do not use more than 10mm of packing.

**5.** Check for unbalanced loads as this can induce a lean.

**6.** Fuel load will have an effect on the vehicle. Low fuel will have the vehicle lean slightly down on the left, half tanks should be level and a full tank will lean the vehicle down on the right hand side by up to 10mm.

Once the vehicle leaves the workshop in level trim, it is possible it may return after some time and has developed a lean, try to re-bleed system and discuss level parking techniques with the customer.

Kind Regards

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