

HYUNDAI TERRACAN SUSPENSION UPGRADE

- Trek 'n' Tow v Ironman upgrade
- Improves towing ability
- Less bounce per ounce

ROCK & ROLL IS DEAD

REPORT & PHOTOGRAPHY BY ROBERT PEPPER



Terracan's suspension has come under fire for being too bouncy. *Overlander* looks at two upgrades designed to give the thrifty Hyundai a more solid ride.

In today's age of plastic softies, touring 4WDers can find a lot to like about the Terracan. It's got low range, an LSD, suspension capable of decent articulation, recovery hooks, a powerful but frugal turbodiesel and its boxy shape means there's a decent amount of room inside. All this for around \$40,000 with a five-year warranty and decent build quality.

Of course, no car is perfect and while the Terracan is no softroader it lacks clearance, the four-speed auto is adequate but hardly the 2006 standard, its seven-seat layout is dated, Highlander models can't lock their centre diff in high range and the handling isn't a strong point. Much of that is due to the suspension, which we

at *Overlander* have regularly and heavily criticised in the past, so when Ironman told us about their Terracan suspension kit we were immediately interested.

The story started back in late 2005 when Ironman began to receive a number of requests from owners of Terracans for replacement suspension, all of whom used the vehicle for towing. Ironman got hold of a Terracan and tested it to see the problem for themselves, and it was quickly decided the suspension was too soft, in particular the front end.

The solution was a thicker torsion bar at the front, now some 25 percent stiffer than the original and the first after-market front spring for the Terracan. That fixed the bouncy front end, but the various components of vehicle's

suspension are inter-related and changes to one part mean changes to the others. Stiffer springs mean the shock absorbers needed to be changed, and the new fronts have significantly increased resistance to compression, and a slightly increased rebound rate.

The rear suspension was also matched, and the Ironman kit includes a pair of linear coil springs for the live-axle rear that lift the back end by 40mm, with a pair of re-rated shock absorbers. The front of the Terracan is an independent suspension setup, so a lift there is just a matter of cranking the torsion bars up by 20mm or so.

So that's the theory – a slight lift, stiffer suspension and different damping rates. To see how it worked in practice we took two

Terracans out for a test.

The Ironman Terracan has its kit installed, and is a petrol auto Highlander with 255/70/16 tyres Cooper STs that are 25mm taller than the standard. Our stock Terracan was a diesel auto Highlander with Hyundai's Trek'n'Tow suspension upgrade and the standard road tyres in 255/65/16. The T&T kit comprises of stiffer progressive coils for the rear with a 25mm lift, new rear bumpstops and four new shocks. This in itself is a huge improvement over the standard Terracan suspension, and the fact the kit exists at all indicates even Hyundai thinks the stock suspension isn't up to the mark for heavy use. Hyundai says the special bumpstops actually form part of the suspension by in effect adding another progressive layer



1 & 2. Trek'n'Tow on the left, Ironman on the right. The extra wheel travel at the rear is apparent on the Ironman upgrade. No extra at the front.



PICK A FUEL

Driving the two cars back-to-back was just more proof that the modern turbodiesel doesn't give much away to its petrol counterpart. Sure, the petrol is quicker but you really need to wring its neck to pull away from the oil burner, which is certainly no slouch and the preferred towing engine due to its greater torque lower in the rev range. The diesel hangs onto gears longer for the same reason, and the engine note is different, not any noisier. Offroad engine braking is better, and the turbo boost is well masked so the power is controllable. Economy? Well, we used 18L/100 in the diesel, and 26L/100 in the petrol, but those figures reflect hard driving and low range work, so only serve to show the difference between the two. Hyundai's own figures of 10L/100 and 15L/100 are far more realistic, so you go much further between fills on diesel.

So from a driver's point of view the diesel is definitely the go, but what about the hip pocket? The diesel is \$2000 or nearly 5 percent more expensive off the showroom but won't depreciate as quickly; say the petrol loses 58 percent of its value after four years and the diesel 55 percent, so the diesel resale is about \$2100 better. Then you're only \$100 ahead, and behind if you consider \$2000 has been tied up in a car. Economy-wise, assuming 10L/100 and 15L/100, 15,000km a year and \$1.45/\$1.40 for fuel you'll need four years to make the extra purchase price worthwhile. Servicing is the other factor, and the intervals are the same at 15,000km with prices being similar. So all things considered, the diesel isn't the obvious choice for money saving it might first appear to be and it could take years to recoup the extra initial outlay.

3 & 4. The black torsion bar is connected to the chassis at one end and a pivoting A-arm at the other.



1 & 2. Both cars loaded with 200kg in the rear and a 130kg downforce on the towbar.

SUSPENSION TERMS

TORSION BAR – a spring that is a long bar, fixed to the chassis at one end and to a pivoting arm at the other that also mounts the front wheel. The spring effect comes from the twisting effect of the bar.

SHOCK ABSORBER – really misnamed, as springs absorb the bump and shock absorbers dampen the resulting rebound, stopping the car kangarooing down the road.

LINEAR AND PROGRESSIVE COILS – linear coils compress at a constant rate. Progressives compress easily to begin with and then increase resistance.

to the coils. That's an interesting philosophy, given most people try and avoid bottoming out suspension as it's not exactly comfortable for the occupants, good for the vehicle or does much for the handling.

Aftermarket suspension normally runs at around \$900-\$1300, so the Ironman suspension is good value at \$845 but the T&T kit is extremely expensive at \$2765. You must remember that the T&T kit is factory engineered and backed and thus covered by the factory Hyundai five-year warranty. Fitting is extra on both kits.

To make the test realistic we loaded around 200kg of water jerries and recovery kit into the

back of each vehicle and measured the height from the bottom of the rim to the bottom of the flare. The standard vehicle was 701mm front and 704mm rear, and the Ironman 705 and 731. Then we hooked up a Tvan we'd been lent which was set for a 130kg towball downforce, and the measurements changed to 709/680, and 712/713. Already the stock car was nose-up, and although the Terracan is rated for up to 250kg towball downforce we wouldn't want to tow a trailer that heavy. Ground clearance for offroading is also compromised with the hitch near to the ground, and the risk of the suspension bottoming out is increased.

On to the road and both cars dragged the

You notice less body roll onroad.



TERRACAN ACCESSORIES

A bit of research showed there are a surprisingly large number of accessories available for the Terracan. The list isn't definitive, but gives an idea:

- Snorkel from Airtech (diesel and petrol)
- Bullbars from TJM, ECB and Parkside
- Cargo barrier from Milford
- Dual battery via TJM, Ironman or Opposite Lock
- Rear drawers from Offroad Systems (others could fabricate too)
- Long range tank (120L) from Opposite Lock (petrol and diesel)
- Suspension components from Ironman, TJM, Koni, King, Pedders and ARB
- Front locker from ARB
- Sidesteps from ARB
- Spare wheel carrier from K&N 4WD (requires towbar)

The stock tyres are passenger-construction 255/65/16 which isn't a common size, but there are light-truck options, and 245/70/16 is only 11mm taller

Roof racks from Opposite Lock and Thule (the roof load limit is 100kg, although the factory crossbars are only 34kg).

That's enough for a decent touring setup and with some of that kit the Terracan would be a fine touring vehicle we'd be happy taking anywhere in Australia. Obviously non-vehicle specific accessories like driving lights and a UHF radio can easily be fitted.

As the Terracan shares some mechanical components with the second-generation Pajero some components are interchangeable, an example being the ARB locker. Search around and don't be afraid to ask, as manufacturers respond to demand; that's how the Ironman kit was developed in the first place.

trailer quickly off the line, but once the corners and undulations start coming up the Ironman car had an advantage. The Terracan's steering is generally a little too sensitive for road undulations, and this combined with the soft ride doesn't inspire driver confidence when going around uneven corners. The weight on the back also accentuates the pitching effect when braking. With stiffer suspension and a more level vehicle, the Ironman car felt more stable and far less upset by the trailer and the state of the road.

With the trailer disconnected we departed on a run through the suburbs to a freeway, through some windy bitumen hills, down a fast dirt road and then into some low range tracks.

Just easing along in the suburbs, we preferred the Trek'n'Tow setup which is softer over things like train tracks at low speeds. But once up to speed in the twisties the Ironman car became the better drive. As it's stiffer there is less body roll, despite the slight lift, and the front end is less disturbed by bumps, although there's still room for improvement. The handling is improved too – while the Terracan drives reasonably well it's not the sharpest of handlers, especially in the steering department. The Ironman car had less understeer, and keen drivers will appreciate this trait.

On high-speed dirt roads it was much the

same story. When the suspension wasn't working hard the stocker was adequate, but the bigger the pothole, the heavier the load and the quicker the pace the better the Ironman felt, as it was able to cancel out bumps with more authority.

Into low range and it was all advantage Ironman, even after we allowed for the Cooper tyres. Firstly the extra clearance helped with approach, ramp and departure angles, especially when the weight of the car was mostly on one wheel. Secondly, there's a small, but significant amount of extra travel from the back end with the Ironman kit (see photos 1,2 pg 68).

The conclusion at the end of the day's test was clear. Firstly, it reinforced our view that the Terracan is a damn good 4WD for the money (see *Overlander's* Best of the Best Awards, last issue). Should you change the suspension? Like most 4WDs set up for offroading or towing, the answer is yes and very definitely so in this case. We'd take the Ironman kit over the T&T not only because of the price, but because it improves rough-terrain capability and is a heavier-duty setup more suited to the rigours of towing or 4WD touring. 

For more info visit *Ironman Suspension* (www.ironmansuspension.com) and thanks to *Track Trailer* (www.tracktrailer.com.au) for loan of the Tvan.

Increasing approach, ramp and departure angles is a good thing offroad.

