



Operation Invincible

In Part two of the Devon 4x4 Toyota Hilux Invincible daily driver/expedition truck build, we turn our attention to the more straightforward sleeping arrangements, cargo-carrying capacity and electrical systems

Words: Hils Everitt Photography: Devon 4x4

Normally associated with Land Rover expedition builds and Jeep Wrangler trials modifications, Devon 4x4 has, in fact, a long history of Japanese pick-up modifications. Toyota Hiluxes were the original vehicles modified by the company when it started back in the 1990s. So when the company required a new works vehicle that would double up as a highly capable expedition truck, the Hilux was the vehicle of choice for owner Simon Buck and his team.

Last month, we featured part one of the Double Cab, Invincible-spec Hilux build which dealt with such topics as the fitting of the winch bumper, rear step, off-road rubber wear, underbody protection, uprated suspension from Old Man Emu, front and rear air locking diffs. Some of which required a few

innovative ideas and design modifications as the European-spec Hilux supplied was not always compatible with the Australian company ARB products that the team chose to form the basis of the modification. This month we look at the accommodation, electrical and storage systems, plus various other parts to finish off the impressive build.

Looking at the interior, the seating wasn't altered as the team wanted to keep the Double Cab's five-seat capacity. The next thing to address was the accommodation up top. As well as a daily driver and company flagship demonstration vehicle, the pick-up was intended to be used as a serious expedition vehicle and therefore the perfect rooftop arrangement was required. This would require a solid base on which bars and a roof tent

could be fixed. "An ARB canopy is the only canopy designed to take a roof tent," explains Simon. "We originally ordered one in colour-coded white with side windows. But having thought about it some more, we actually decided that it would better serve our purposes if we had side-opening doors." That would mean better access to equipment and the storage systems housed inside the loadbed. "Fortunately, the canopy is designed to accept either, so we will be changing the windows to doors in due course," adds Simon. The canopy was fitted with roof bars, which support a James Baroud pop-up roof tent from France (a fairly new product on the Devon 4x4 mailing list as featured in our November 2013 issue). Devon 4x4 is the exclusive UK distributor for the Baroud tent and awning range and Simon likes the

Above: Baroud tent offers fast, efficient erection and excellent accommodation space



Baroud, as it's a prestigious range, built to ISO world standards, rigorously tested in severe conditions and comes with a five-year warranty. The hard shell takes a mere 10 seconds to put up and about 30 seconds to put away; so it's tough, simple to use and comes in a variety of options.

This Hilux is fitted with the Discovery Space Evolution model that forms part of the range that includes four Discovery models, Explorer, two Grand Raid options, an Evasion, the Horizon and two Nomads. "We went for the Discovery Space Evolution model because it's my favourite version," explains Simon. "The reason for this is you get a raised front and taller rear which makes for a very comfortable camping experience. Having a tall tent allows you to get dressed/undressed in comfort without hitting your head or restricting your movement". The French company has spent 20 years developing the perfect roof top tent and the team at Devon reckons it's succeeded. "Everybody likes a bargain, but buying a cheap roof tent is not the

From top: Loadbed had a factory load liner fitted, which was removed prior to the canopy fitting

ARB cab rack before modification; will take Jerry cans and other essentials

Safari raised air intake fits like a glove and gives a considerable wading depth

Left: Air filter all sealed up and sitting pretty in engine bay

Top right: Long-range fuel tank is considerably larger than the stock Toyota version

Right: Original fuel sender unit is switched to the new Long Ranger tank





Left: Odyssey PC1400 batteries give plenty of power on start up while a Merlin split charge system looks after fridge contents

Bottom right: Monster Odyssey PC1800 battery takes its place against the bulkhead

Bottom left: Custom fabricated fixing brackets hold the ARB compressor and air tank in place

way to go,” advises Simon; especially one that can’t sustain its composure in a high wind when you’re trying to sleep at 02.00hrs in the middle of nowhere and no alternative shelter in sight. The Baroud is rated up to 120km/hr (75mph) and has been tested and used by Dakar Rally pilots and crew, which is a pretty good endorsement.

The canopy was also fitted with an ARB roof rack over the cab. “This was modified to allow for the length of the clam shell tent. It’s not a large roof rack, but it will allow us to carry items such as Jerry cans which I’d prefer kept outside of the truck.” Inside, the canopy was fitted with a heavy-duty frame to cope with the extra load of roof rack and tent.

Aside from the option of additional fuel in Jerry cans, the team has also fitted a 120-litre Long Ranger fuel tank. This sits in the space left by the original fuel tank and uses the same sender unit with a longer float arm to allow for the extra capacity. “Extended breathers have been fitted to the tank, axles and transmission. These all route alongside the Safari snorkel that we’ve fitted providing a substantial wading depth. When the truck is used in dry desert conditions we will fit it with a pre filter,” Simon explains, to guard against dust and sand getting in.

At the rear, the pick-up’s tub is now home to the compressor and auxiliary air tank as well as the auxiliary Odyssey PC1800 battery. This battery alone weighs 60kgs and has been mounted on the opposite side to the long-range fuel tank. “The PC1800 is to run all our day-to-day requirements. It has a massive 214Ah and 1800 cranking amps. Apart from its massive capacity, one of the benefits of the PC1800 is the shape and size; being tall and slim, it is easy to mount without taking up lots of storage space,” Simon says. The truck in manufactured form has two batteries. These have been replaced by two Odyssey PC1400s which have proved a



perfect fit and the terminals are in the correct position; always a bonus when a modification fits perfectly.

Devon 4x4 is very fortunate to have its own in-house design facility and this was very much brought to the fore on this Hilux project. One of the benefits of this is that there is now a universal purpose-built mount available to suit the Odyssey PC1800, the skills of the D44

staff were to be used later in the build. The battery cradle simply bolts into place and allows the PC1800 to be mounted either upright or laid flat.

So with accommodation and electrical systems all in order with little fuss and need for any serious redesign, it was time to address the cargo side of things. “An expedition vehicle needs a good and efficient storage system,”



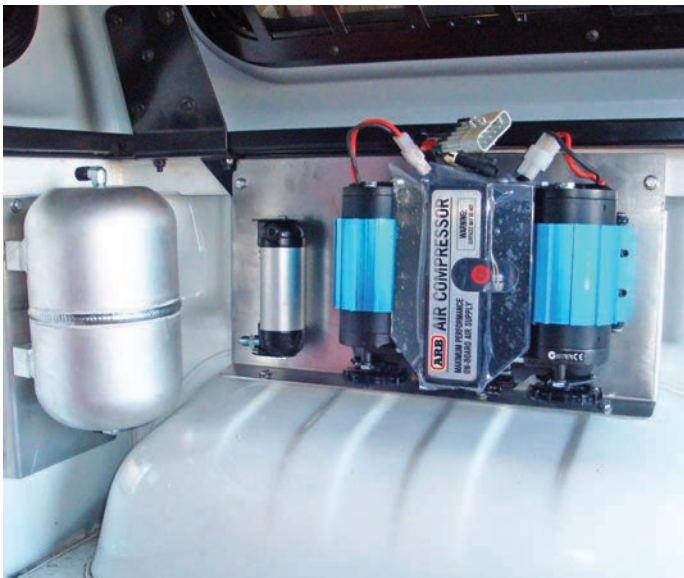
Top left: Outback drawer system starts to take shape with careful measurements

Top right: Neat ARB Outback smooth-sliding drawer system; ARB 45-litre fridge adds to the cool factor

Above right: D44-fabricated switch panel features the locker switches and USB charging

Left: Finished dash with D44 switch panel looks sharp and user friendly

comments Simon. “There was considerable debate as to what storage solutions should be used. In the end, everyone agreed that the ARB Outback roller drawers would be best.” The Outback system is modular and the range can be individually chosen and customised to suit owners’ and vehicle requirements. There are three types of modules: a roller drawer, a roller drawer with roller floor and a roller floor which come in a range of sizes and can be mixed and matched. This Invincible’s set-up includes two roller drawers on the left side of the bed (1255x435mm) with a slim line drawer on the right, which has the ARB fridge slide floor mounted on the top of it. “The ARB 47-litre fridge is strapped down to the sliding floor and by simply sliding it outwards allows easy access to the contents of the fridge without having to ➤



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◀ climb in the back of the vehicle”.

A mount was fabricated to house the power source for the fridge and provide some additional power sockets for any other electrical requirements. A very useful item is the standard internal light in the canopy; but extra lighting on any expedition is always welcome. “We’ve added an LED strip to the tailgate to provide useful additional light when using the tailgate area. We will also be fitting an inverter into the tub to power up the various 240v bits of kit that we can’t do without.”

With all the experience the team has in working on various 4x4 vehicles over the years, Simon says the inside of a modern vehicle is one of the hardest areas in which to work, and the Toyota was no exception. “Trying to locate auxiliary switches is nearly impossible, and free areas of dashboard seem to be used for fairly useless, odd-shaped compartments! To overcome some of these deficiencies we fitted an Outback roof console. This provides extra storage, improved internal lighting and a space for a two-way radio, although it should be noted that most CB radios are too large to fit into the available space. We also used the console to house the Merlin split-charge, smart gauge monitor.”

To create more switch space Simon called upon his brilliant D44 design services once again. They were unable to add switches to the standard switch panel so covered it with a new stainless cover and then removed all the webbing from the plastic cover. “Now we are able to house six Carling switches and retain the factory switches. This new

mount is now available through Devon 4x4.” Here we have yet another innovative piece of kit to add to the ever growing list of D44-designed products.

And there we have it; the completed build of a daily driver, impressive show stand marketing tool and a superb expedition overlander into the bargain. The whole build took about 150 hours (about five weeks) in total and would have been quicker if it were not for a few design problems that were thrown up by the sometimes incompatible Aussie ARB parts and a European-spec truck. The good news is that the project has highlighted these problems and ARB has addressed them by coming up with modifications for the UK expedition guru who wants to modify his pick-up truck, and Devon 4x4’s in-house design team has provided solutions itself.

Now after the build has been complete, what is the reaction to the build? “We are delighted; it’s been a rocky road at times with various design and fitting issues, but we got there in the end between us and ARB,” smiles Simon, proudly. Devon 4x4 has made many modifications but has left the running gear and engine totally alone. It is a standard automatic with no chipping to the 3.0-litre engine. “I think the 3.0-litre is actually quite a slow unit generally off the mark in the Hilux, but it comes into its own for towing and romps along when up and running for highway cruising. The ride is superb with the modified suspension, despite a heavy load that is now in the back,” grins Simon with an appreciative nod. The



team just can’t wait to give it a proper test in a heavy-duty off-roading test.

We have to confess, that it looks a very cool and impressive vehicle in that brilliant white paintwork with the neat and slick Baroud tent sitting on the sleek ARB canopy. And, of course, Simon and the Devon 4x4 team would be only too pleased to take similar orders from customers wanting to up-rate their own Hiluxes now that the blueprint is there. It’s been an interesting learning curve, and a very satisfying one. We look forward to hearing about its adventures when the team make it into the wilderness. Simon is also planning to hire it out to customers for their own expeditions, weekly hire price on application. Now that is a very tempting prospect... **4x4**

Top right: Fitting the Outback roof console for extra storage and features LED interior lighting

Above right: Merlin Smart Gauge split charge system fits nicely into the side of the roof console

Left: And the adventure begins...

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