

PHOTOS: TOM CRITCHELL



THE SOUND OF SILENCE

John Pearson visits soundproofing specialist Noisekiller to have his Defender 110 quietened significantly

It's noisy,' declared three-year-old Joseph from the back seat of my Defender. We were on a family trip to the coast and I couldn't disagree with him. I suppose that I'd become accustomed to the 110's interior sound levels and it took the youngster on his first major Land Rover journey to point out just how much of a racket was going on inside the vehicle.

When I bought the Tangiers Orange ex-G4 Challenge Defender it came with rubber mats on its floors – easy to clean, but not so good at muffling unwanted sounds. To be honest, even if a Defender is fitted with carpets, my experience is that it's still a fairly noisy place to be. Land Rover's soundproofing package on this model is far from comprehensive.

So, if you own a Defender you will almost certainly make your vehicle a lot less tiring

to drive over long distances by fitting an aftermarket soundproofing kit.

I'd heard good reports about the soundproofing offered by Noisekiller, the Oldham-based company run by father and son Steve and Grant Bithell. I read their advert in LRO, explaining the different types of soundproofing techniques used in their kits for the Defender, and I checked with our technical guru Ed Evans, who had his Discovery 2 soundproofed by the company a few years ago. Ed was impressed, so I decided to head to Lancashire to have a kit fitted at Noisekiller's factory unit.

Steve Bithell explained that the company uses a lot of open-cell acoustic foam in the Defender kit, which is effective in absorbing the various airborne sounds this vehicle produces. Our photo sequence shows how

Steve and Grant – aided by fitter Warren Trennery – installed the kit. A standard Defender normally takes about three hours to fit, but my ex-G4 vehicle took a bit longer due to the Mantec storage kit, luggage guards and fridge mounting behind the front seats.

Steve offered some practical advice before starting work: 'Take some photos of how your vehicle's mats are laid – which will aid refitting.' He also advised care if removing carpets that are stuck by double-sided tape: 'If you just pull it up, it'll tear the threads. It's better to ease it away with a scraper.'

All off-floor acoustic panels in the Noisekiller kit are self-adhesive, but on-floor ones aren't – to allow straightforward removal if you get water in when wading, or else for cleaning.

The Noisekiller team initially trial-fitted the self-adhesive panels before peeling off the



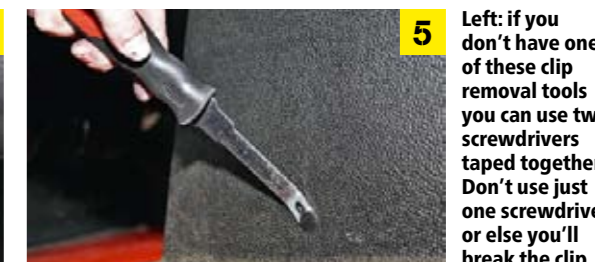
Above left: it might look like a giant jigsaw but, fortunately, all the pre-cut soundproofing sections have their positions marked for easy fitting.

Above right: underbonnet sections are made from three layers of material: a damping layer next to the metal, then open-cell acoustic foam to absorb airborne sounds, then a foil layer, which reflects heat and protects the foam. A run-over with a small decorating roller ensures that all the adhesive is stuck to the metal.

Right: the engine blanket is a thin layer of lead, sandwiched between two layers of acoustic foam in an envelope of high temperature-resistant material capable of withstanding up to 350°C. It sits over the top of the engine's plastic cover and held by four releasable cable ties.



You have to wrestle out the front mat or carpet before fitting the two footwell sections. The aircon on my vehicle prevents another section being fitted to the bulkhead, and this side panel has to be cut around the aircon pipe. The driver's side is worse because you have to fit it around the pedals and handbrake.



5 Left: if you don't have one of these clip removal tools you can use two screwdrivers taped together. Don't use just one screwdriver or else you'll break the clip.



You'll then need to cut out small holes for the clips to push through the acoustic panel.

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backing paper and sticking them in place – not all Land Rovers are exactly to specification, so it might be necessary to trim to fit with a craft knife. They also use a small, decorating-type roller to ensure the adhesive sticks effectively. 'It gives a good even pressure over the whole surface,' says Grant Bithell. 'If you used your fingers, only the bits you touched would stick.'

What if you get a panel in the wrong place? 'You can peel it off and reposition it,' says Grant. 'But only during the first few minutes. After that, it doesn't want to be removed.'

Where the panels are being applied to places such as under the bonnet, the Noisekiller guys clean the surface with white spirit to remove all contamination that could prevent the material sticking. And all other areas have to be cleaned of muck and dust.

Steve reckons the Td5 engine's plastic cover funnels noise into the passenger compartment. 'It's noisier than the Tdi because of that,' he says. When fitting the lead-sandwich engine blanket he ensures it's tucked well behind the engine to push noise downwards rather than into the vehicle.

'If you have the engine out, you could fit lead sandwich material across the bulkhead, too. But you can't do it in situ,' says Steve.

The ease of fitting the rear panels varies from vehicle to vehicle, depending on whether you have seats in the back or, like me, Mantec racking. The latter does make the job a bit harder, as you have to wiggle the insulation under the rubber mats rather than simply lifting them out. And my rear luggage guard means that the usual one-piece section can't be fitted through to the rear seats.

But you can see that the Noisekiller team are used to the vagaries of personalised Defenders and are well adept at trimming the panels to fit around obstacles. They do a very tidy job, even if most of their handiwork is hidden out of sight afterwards. But the results are very obvious to your ears as soon as you start up the vehicle.

I immediately noticed the difference as I headed away from the Noisekiller factory unit and back along the M62. Overall sound levels were pleasantly reduced and engine noise was significantly down at higher cruising speeds. Everyday Defender sounds transmitted from the suspension, transmission, body panels and exposed wheelarches are now all damped down. And exterior traffic noise on the M62 seemed louder now that the Defender's interior was so much quieter.

There's a separate box-out panel on the next page showing the actual before-and-after sound levels, which we measured with a decibel meter. But, to summarise, the Defender's decibels have dropped from being potentially harmful to significantly safer: it's going to be a much more pleasant place to be in a couple of weeks' time, when I drive down through France and Spain for an adventure in the mountains of Portugal.

And three-year-old Joseph's opinion? He fell asleep almost immediately during his next trip in the Defender, which says a lot.



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Left: this panel for the front of the passenger seat box had to be trimmed to fit around my winch isolator, as well as the compressor switch and outlet.

Below: the front seats need to come out and under-seat trim panels lifted away to fit these soundproofing pads. A lot of noise does get into the cabin this way, apparently.



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Fitting this section of soundproofing over the transmission tunnel is probably the most fiddly job of them all. The fusebox cover has to be removed to get it in position. First, Steve Bithell trial fits the panel to make sure it's right, after which he slides off the backing paper and sticks it in place.

Right: fitting the rear wheelarch side sections wasn't easy, due to the one-piece rubber mat being held down by the side bins. One person held up the mat while another fitted the section, once again using the roller to ensure perfect adhesion.



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Above left: the front of the soundproofing's side sections were slid past the luggage guard with the backing paper still on, then it was removed afterwards.

Above right: this side section is neatly cut around the fuel filler housing. It was previously just an exposed panel, so you can imagine the din from here.



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Left: no exposed section of metal is left uncovered. This small piece sticks in to the rear of the wheelarch.



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Next, the section over the top of the wheelarch is fitted. You just know this is going to eliminate a lot of clattering when you drive gravel tracks.

THE LRO SOUND CHECK: BEFORE AND AFTER

There's no doubt that I could hear a significant reduction in the Defender's sound levels after installing the Noisekiller kit, but I thought it would be a good idea to get some accurate before-and-after readings with an actual decibel meter.

We recorded the sound levels inside the Defender's cabin at 10mph increments between 30mph and 70mph, with a quick burst up to 75mph. It was worrying to note that, at 70mph, the 'before' reading was 81.4 decibels, and 82.9 decibels at 75mph. The UK Health and Safety Executive's noise at work regulations say that anything above 80 decibels is a cause for concern and employers must provide hearing protection at 85 decibels. In other words, driving my Defender at higher cruising speeds for long periods has possibly been causing damage to my hearing. Bad news.

The good news is that the 'after' readings show a significant reduction, with the ones at higher speeds dropping below potentially harmful levels. The 70mph reading came down 4.4 decibels to 77, and the 75mph reading dropped 4.8 decibels to 78.1. And if that doesn't seem like a massive result, do bear in mind that a three-decibel increase or decrease is literally doubling or halving the sound level.

For comparison purposes, a rock concert can be 100 decibels (or over 130 for the likes of AC/DC), LRO's Mark Saville at full volume on the phone (he doesn't do it any other way) is 80.9 decibels, and my Discovery 3 at 70mph is a much more relaxing 69.9 decibels. Mark checked his Series I at various speeds and that clocked up 85 decibels at 50mph and a brain-numbing 87.9 decibels at 60mph! Yes, he does indeed complain of deafness in one ear...

Should you want to measure your own Land Rover's sound levels, decibel meters can be obtained from Amazon from about £15, and there are various decibel meter apps available for mobile phones – some are free and the pay-for ones start at 59p in the UK.

SPEED (mph)	dB BEFORE	dB AFTER
30	76.0	64.1
40	70.1	68.0
50	72.2	69.9
60	77.8	71.4
70	81.4	77.0
75	82.9	78.1



Again, the ex-G4 Defender caused a problem with fitting the rear floor section; the heavy rubber mat had to be lifted as much as possible to let the acoustic panel be slid in.



Back inside the cabin, this small panel at the front of the wheelarch had to be trimmed around the seatbelt and other brackets.



Because of the luggage guard, this section under the rear seat had to be cut specially to fit.



COSTS AND INFO

Noisekiller's ready-to-fit soundproofing kits for the Defender 90 cost £275, with the 110 adding an extra £20 to the price. An engine blanket costs £95, or £85 if bought with a kit. Carriage is £20 if you're fitting it yourself. Noisekiller will fit a kit at your home for £180, or for £110 at its factory. noisekiller.co.uk, 0161 652 7080



Grant (left) and Steve Bithell, Oldham-based Noisekiller's soundproofing specialists

This rear floor section is much easier to fit. Note that it doesn't go the full width of the vehicle due to the door check fixing...



Left: ...instead, effective anti-vibration pads are stuck down on either side.

Right: if the cubby box comes out, an acoustic sheet can go underneath. If not, a piece in the bottom will still be effective.

