

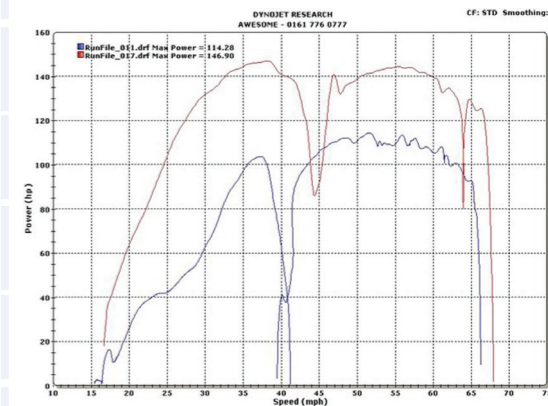


expert Jim Cotton at Awesome was able to repeat several runs with the engine in standard tune and produce consistent figures for power at the wheels over a decent engine speed band, recording 114.3bhp at around 56mph in 3rd gear. Later calculations established this as being just under 3,400rpm – a surprisingly low speed compared with the specified figures of 148bhp at 4,000rpm, although power losses from engine to wheels of around 35bhp were no real surprise to Jim. But 35bhp lost is a bit of an eye-opener – and explains the heavy thirst for fuel that some big automatic 4x4s exhibit! The Tunit technician then installed the conversion and, after a couple of tweaks, figures of 146.9bhp were recorded on the rolling road – a gain of some 32.6bhp, or just over 28 per cent. That's pretty satisfactory for

**IT'S HARD TO GET A SMOOTH CURVE WITH AUTO 4X4S AND THE ECU DETERMINES WHICH WHEELS SHOULD BE DRIVEN AND WHAT GEAR SHOULD BE USED!**

manual 'boxes of getting the wheels rolling in a low gear and then slipping into 4th gear for a full run through the engine speed range doesn't work and there's little chance of getting a smooth power curve from maybe 1,000rpm through to 4,500rpm, within which most diesels deliver their significant power. With the considerable power

losses in the transmission you can also only reliably measure power at the wheels, rather than at the engine's flywheel – but this is, after all, where it really counts! However, after a little experimentation dynamometer



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# HYUNDAI SANTA FE 2.2 VGT CDX

by Tunit

Hyundai's new Santa Fe just missed making the podium in Diesel Car's recent Car of the Year awards, but it was rated highly in a first drive – with particular reference to its good value and high standards of refinement. It's admittedly no ball of fire, although it offers pretty fair performance from just 2.2 litres (0-62mph in 12.9 seconds with auto transmission) and is a refreshing alternative to all those thuggish 4x4s that set out to impress with irrelevant tarmac scorching abilities, whilst promising 30mpg plus

economy that many other 4x4s claim but struggle to get anywhere near. We went to Awesome GTI, one of Tunit's newest distributors, whose variable wheelbase 4WD rolling road dynamometer is one of relatively few in the country that can handle such machinery. We wanted to see what a Tunit conversion could do to add a little sparkle to a Bristol owner's five-speed automatic Santa Fe CDX + and gauge his reaction to the added performance achieved. He was already pretty contented with his car but, as is often the case,

he felt that he would be even happier with a little more torque and power – particularly if pulling a heavy caravan, as he regularly does. If there's ever a challenge to a dynamometer operator it is the combination of four-wheel-drive and automatic transmission. With the cunning technology applied in modern 4x4s, the ECU determines which wheels are driven, and when, according to road grip and other factors, and the same arrogant autonomy applies to the transmission in terms of gear selection! So the usual trick with 2WD and



It's all in the bag, as the re-tuned Santa Fe is brought to task on the rolling road!



**"He, [the owner], reported that the performance boost was really noticeable in acceleration, but also that he was having to flex his right foot a good deal less on the motorway for the same journey times and getting noticeably better fuel consumption. That has really both astonished and pleased him!"**

what appears to be nothing but a few minutes' work, although hours of painstaking analytical work and careful development go into producing and proving every Tunit conversion. We then took a run, with the Santa Fe's owner at the wheel, asking him to bear in mind the added load of maybe 250kg with three

passengers, compared with himself alone aboard! He noticed an immediate stronger urge in low speed acceleration but was maybe somewhat less convinced at higher speeds, with the auto transmission tending to drop a gear into 4th in response to the right foot when the extra torque in the highest ratio would

probably give quite adequate response. Although there were no direct torque figures available from the rolling road we were able to calculate from power figures a probable boost of around 50 lb ft – or 20 per cent over the specified figures of 247 lb ft.

A week later, when I heard from the owner after he had made several long journeys, he was vastly more positive. He reported that the performance boost was really noticeable in acceleration, but also that he was having to flex his right foot a good deal less on the motorway for the same journey times and getting noticeably better fuel consumption. That has really both astonished and pleased him – I don't think he was really expecting that – and according to the car's computer he's now enjoying 3-4mpg better economy, with best figures of 42mpg and well above 30mpg – even on short local runs!

Many thanks go from Tunit to Awesome of Irlam, Manchester, their newly appointed distributor for Manchester, for the loan of their NEW 4WD Rolling Road Dynamometer. For more details on Tunit conversions from AWESOME, and installation and servicing, visit [www.awesomegti.co.uk](http://www.awesomegti.co.uk) or call them on 0161 776 0777. Full details of Tunit conversions, most of which like this one cost £470 inclusive, are found at [www.tunit.com](http://www.tunit.com) or by calling one of their technical advisors on 01257 274100.

