

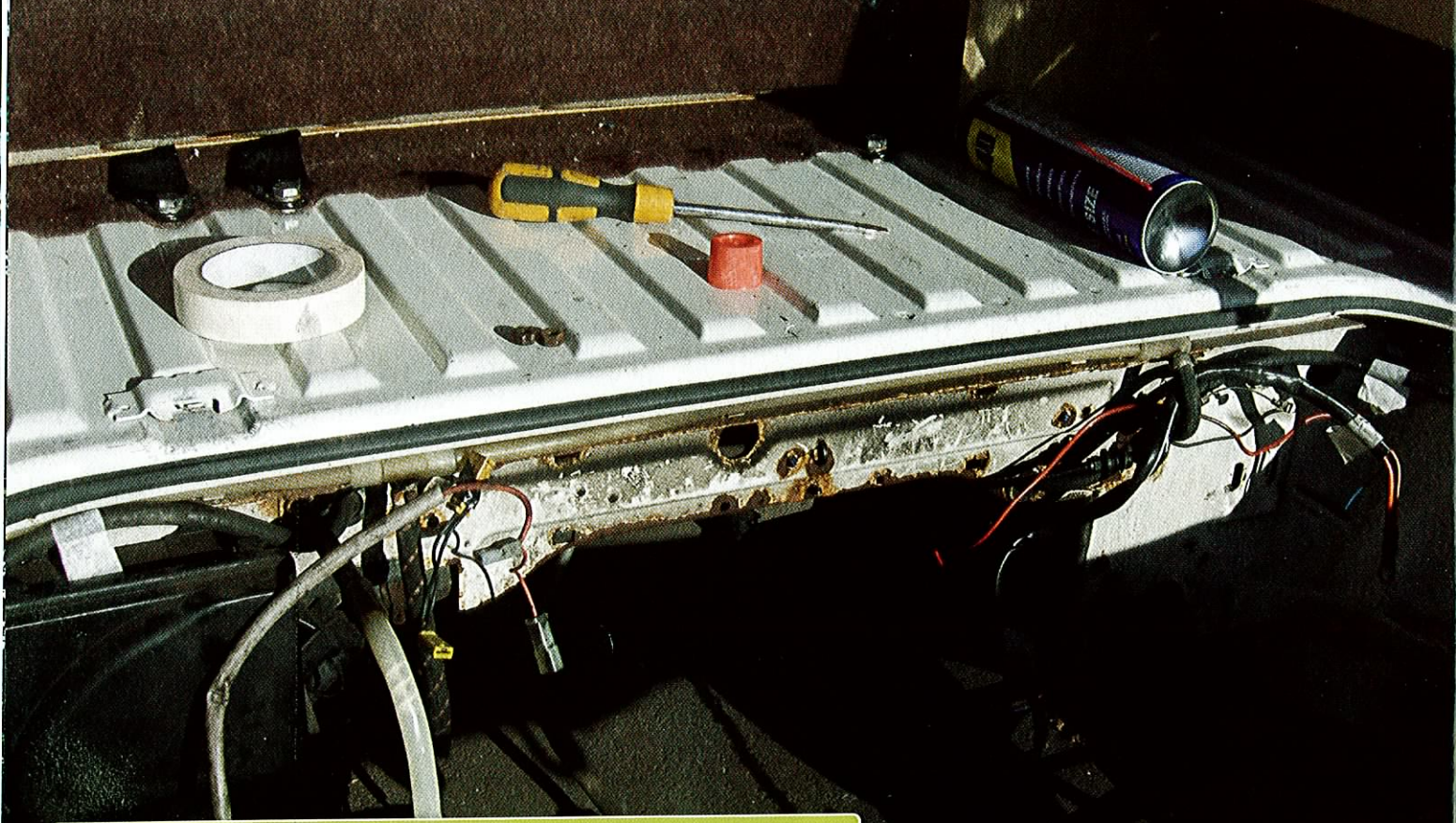


Fig 1: The VW engine bay looked like this with the engine out.

SCOOBY DO!

Fitting a Subaru engine to a T3

Text & Photography: David Mathers

I first got the idea to do the Subaru conversion after reading a magazine article. When my brother-in-law coughed up nearly £1,500 having a recon 1.9 wasserbox engine replaced in his Caravelle, I decided the Subaru route was the way to go to get better performance and economy at a reasonable price for my 1990 Holdsworth camper

You don't have to spend a fortune to do an engine performance upgrade. All you need is a bit of patience in locating your bits and pieces, some mechanical know-how, and then some more patience in putting it all back together.

First step, locate a donor vehicle; a 1995 Legacy two-litre estate with a knackered clutch was found on the AutoTrader site for £195! Two owners, 80k, ran like a watch with no smoke or rattles.

I then removed engine and wiring harness from the bulkhead along with any other bits I thought would be useful; I put the remains of the Legacy on eBay and got £125 for it! A new cam belt and tensioner bearing were fitted and the engine serviced, a couple of minor oil leaks

were sorted; cleaned up and painted the donor engine was ready for the transplant (the VW motor also sold on eBay to help fund the next stage).

The next stage involved spending the money on the major conversion components. Richard of RJES is the man. Without his help it would have taken me many, many more hours to complete. He was the main supplier of what was needed, which consisted of reverse water manifold, water hoses, gearbox bellhousing kit, clutch, engine crossmember, and throttle cable. The biggest obstacle had to be the wiring harness... NOT for the faint hearted which involved many hours of soldering and cussing, but Richard does make up harnesses if you are not keen on the job yourself.

Now that the transplant was ready, tidying up the engine bay was the

first job. Where the VW hoses come through the firewall it has to be cut away to allow the Subaru water pipes to clear (see Fig 1 and Fig 2). Cleaning up the rusty bits and some respraying soon had it looking presentable. Now was time to start putting things back in the bus. The ECU and fuse box has to be fitted inside away from the elements as it is not waterproof; I fitted mine under the rock and roll bed on the angled part of floor so it's well out of the way, but still accessible. I then cut a hole through floor to run the wire harness to the engine bay, and used a Subaru wiring grommet and VW driveshaft boot to insulate and protect it (Fig 3).

The VW wiring junction box in the engine bay was retained; it was a bit fiddly getting everything to fit in tidily, but I also managed

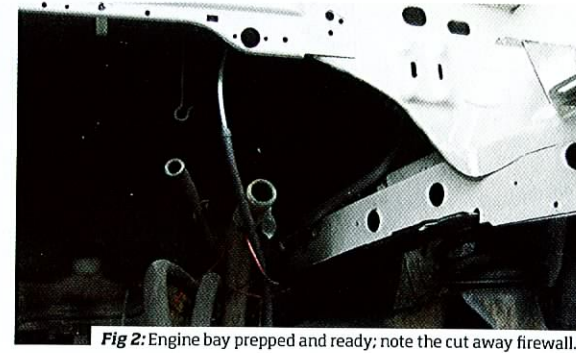


Fig 2: Engine bay prepped and ready; note the cut away firewall.

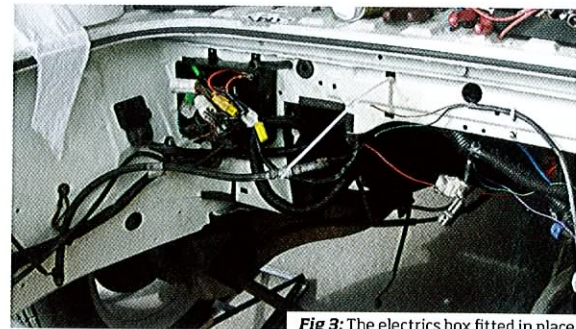


Fig 3: The electrics box fitted in place.



Having the engine on a trolley made life much easier.



Fig 5: Fuel filter from a T3 2.1 fuel injection model mounted on chassis, using a Subaru charcoal filter bracket to mount it.



Exhaust pipework (oil filter can be seen at the bottom centre).

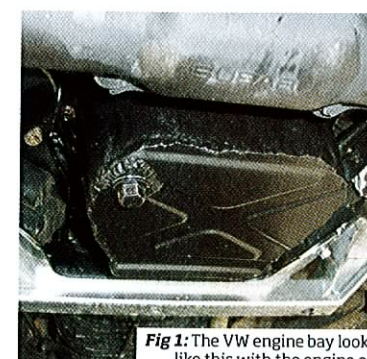
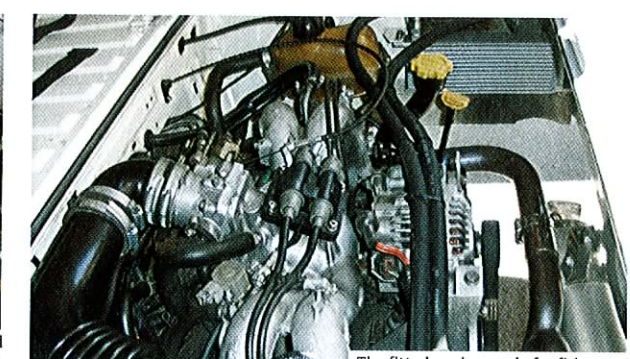


Fig 7: The VW engine bay looked like this with the engine out.



The fitted engine ready for firing up.

to squeeze in the Subaru test and fault-finding connections (Fig 4).

An electric fuel pump was fitted to the chassis using an old VW HT coil mounting bracket fixed to Mini exhaust cotton reel rubbers; the pump needs to be rubber mounted to keep the noise down (Fig 5). A fuel filter from a T3 2.1 fuel injection

model was also mounted on the chassis, using a Subaru charcoal filter bracket to mount it.

Now for the beefy stuff - fixing the engine and gearbox together as one lump. I made a trolley to put everything on to make fitting the lump a lot easier. But the next problem was just how to get the lump in place? An RJES tip - use a workmate bench inside the van to bridge over the engine bay. Using a chain fixed to the engine and a heavy-duty ratchet strap fixed to workmate, extra pairs of hands were useful (thanks Andy and Stu) to get it into place.

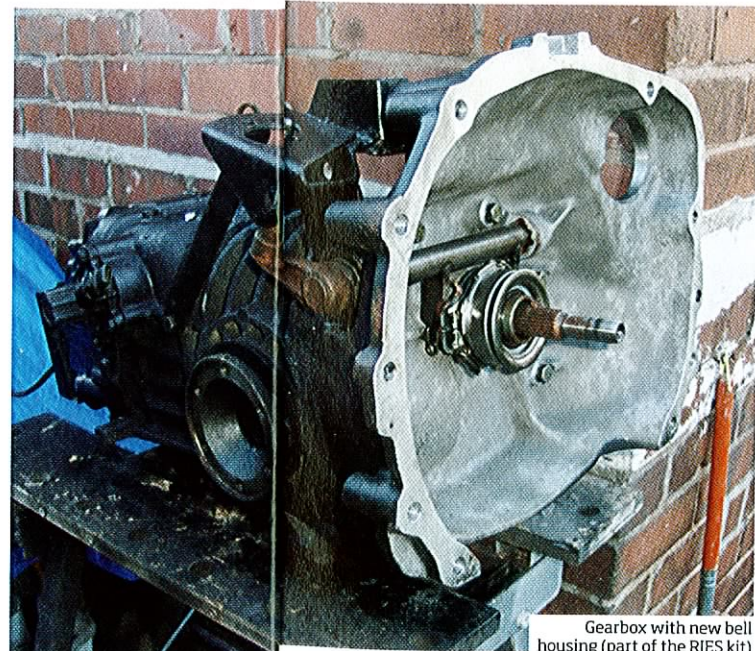
Now the boring bit - fitting all the bits and pieces to the engine and gearbox. Most of this job is quite time consuming; fitting bits then taking them off, re-routing and re-fitting. But if you want a tidy job, a bit of forethought can save you a lot of grief and hassle later. Water in and bleed the system, once again, RJES instructions with his hose kit made this easy - no air locks and all the RJES parts fitted spot on. Check for leaks, add oil, and connect battery. You can't imagine the feeling when it fires up (kids with new toys!). Since the fitting I have reduced the

sump by about two inches for better ground clearance, and to bring the oil capacity back to the original amount I have fitted an oil cooler (see Fig 6). I did have problem with fuel starvation at first, which was traced to muck in fuel tank. I ended up changing the fuel tank as it was corroded inside, so I bought a fuel-injected tank, as the outlet has a larger bore.

The exhaust was the final job. I originally used the Subaru manifold and the T3 silencer - a bit of a Heath Robinson affair but it worked very well. However it needed something a tad better; Pete at AWE of Droitwich made a complete stainless steel system using a Honda CBR600 BOS exhaust can, which finished the job off nicely and it sounds superb.

The Subaru lump has now done over 17,000 trouble-free miles so far and is getting 27-ish mpg. Oh and it now drives rather well too, and will cruise all day at 70-80 with a bit extra for overtaking. I reckon the total cost of job was well under £2,000. All the work was carried out outside on my drive, which again proves you don't have to have a big garage or workshop to do this kind job. Can you Scooby do? Yes you can! ☺

RJ Engineered Solutions' website has loads of info and resources and is well worth checking out. Their kit components to do the job are first class. www.rjes.com.



Gearbox with new bell housing (part of the RJES kit)