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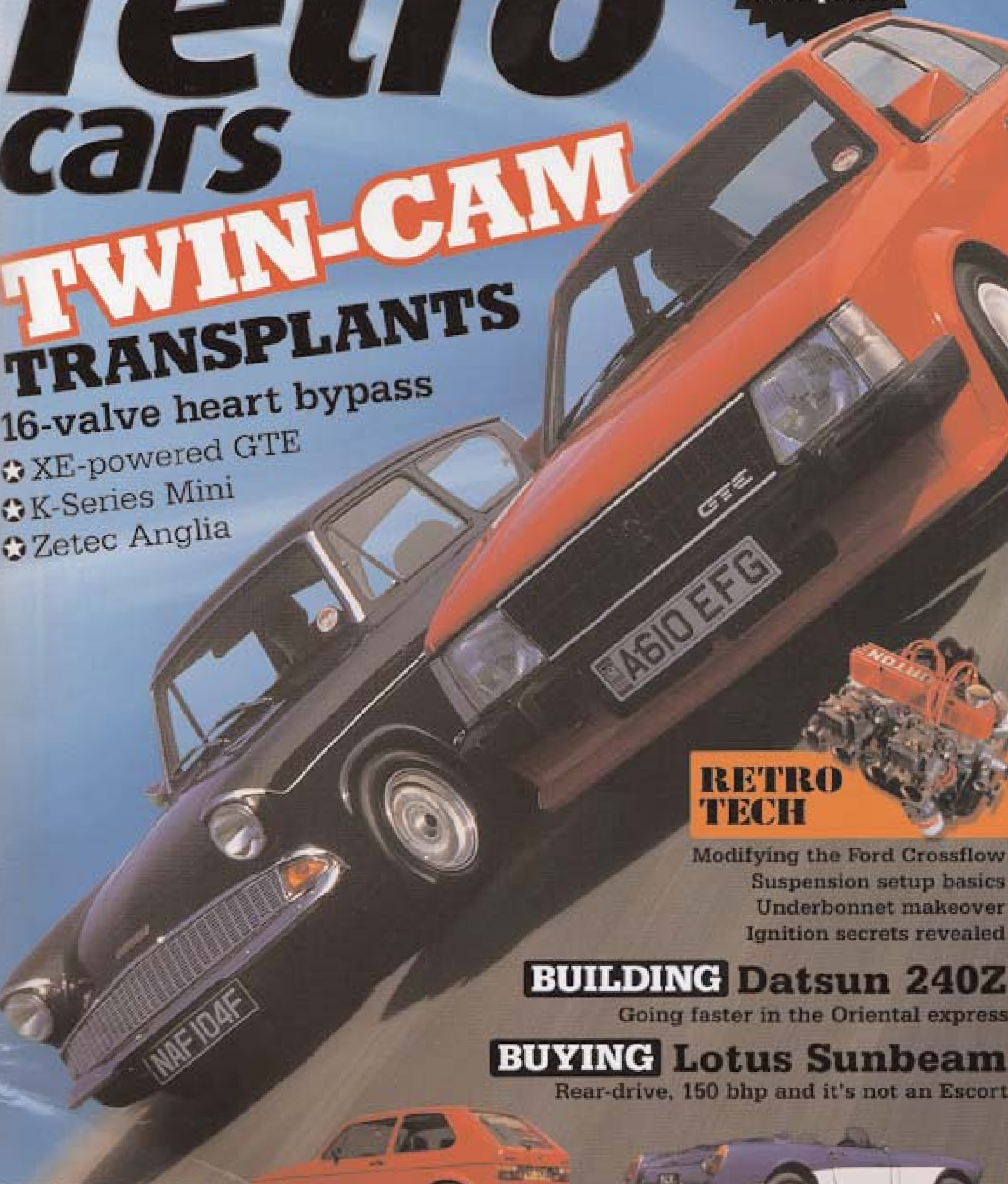
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Life is pretty peachy for Ben Leach. OK, so he's built one of the quickest and, rather paradoxically, most originally-styled Mk1 Golfs in the country, capable of the 60 mph sprint in a blink over four seconds and the standing quarter in 12. But amazingly, that isn't the only reason for the smile on his face. Well, in September he left to work at Volkswagen in Wolfsburg.



"When I was 17 I got into Fords, Mk1 Fiestas, MkII Escorts, that kind of thing. I didn't buy my first Mk1 GTI until I was 19, but it cemented the relationship," Ben tells us. The lure of classic VWs led to numerous Golfs gracing Ben's garage. "This car was borne out of my old Mk1 G60. When I started building it in 1996 nobody was tackling G-lader superchargers and they were

unreliable — very tricky to work on," Ben recalls. A period tweaking a Renault 5 GT Turbo pointed him towards turbocharging.

"I bought a Scirocco with a Turbo Technics kit, which I then fitted to the G60. It worked well, but the car had two problems," Ben explains. The first being the 1.8's relatively short rev range, the second traction. "I wanted a better power band and grip, so sold the car to finance this," he says, grinning.

But it might have been a different story three years ago when Ben was getting stuck into the build. Fitting the four-wheel-drive from a MkII Golf Rallye into a Mk1 Golf 1.1N isn't an easy task, especially in a barn.

"I bought the Rallye in 2000, a stolen and recovered car from Germany. The induction system and interior were gone, but all I needed was its Syncro drivetrain and gearbox," Ben reveals.



SYNCRO-nicity

Ben Leach has improved on the classic Mk1 Golf by adding 300 bhp and a Syncro four-wheel drive. It's so good, VW want him to work for them.

Words Matt Turner
Photos Jon Hill



"I had looked at various GTIs, which were either too expensive or rough. It was tricky, I didn't want a mint car, just a sound starting point, then a neighbour who builds Autocross cars offered me this one in Mars Red."

With all the required hardware out of the Rallye and the Mk1 on axle stands, Ben began the process of offering the rear transmission and propshaft to the Mk1's floorpan, but tack-welding things into place to see where they'd locate isn't easy.

"I had a reasonable idea of what was involved, but wasn't sure whether I'd have to narrow the rear subframe. With the Syncro system temporarily in place I had to face facts that it would have to be done though." This being the case as the MkII Golf, along with every concurrent evolution of the breed, is both longer and wider than the Mk1.

"I wanted the exterior of the car to look stock," Ben explains. "But if I hadn't narrowed the subframe the rear wheels would have stuck out too far, the subframe mounting points would have meant removing the side-sills at the rear and the lower rear damper mounts wouldn't tie in with the turrets."

If you're unfamiliar with Volkswagen's Syncro system, here's a quick introduction. The configuration at the rear is based around a fixed arc-shaped tube, which both the rear wishbones and the differential hang off. So the easiest way of narrowing it is to take a section from the centre of the tube, but then that means moving the mountings for both the diff and the rear wishbones, which isn't easy — especially when the diff has to connect to the prop and the rear hubs.

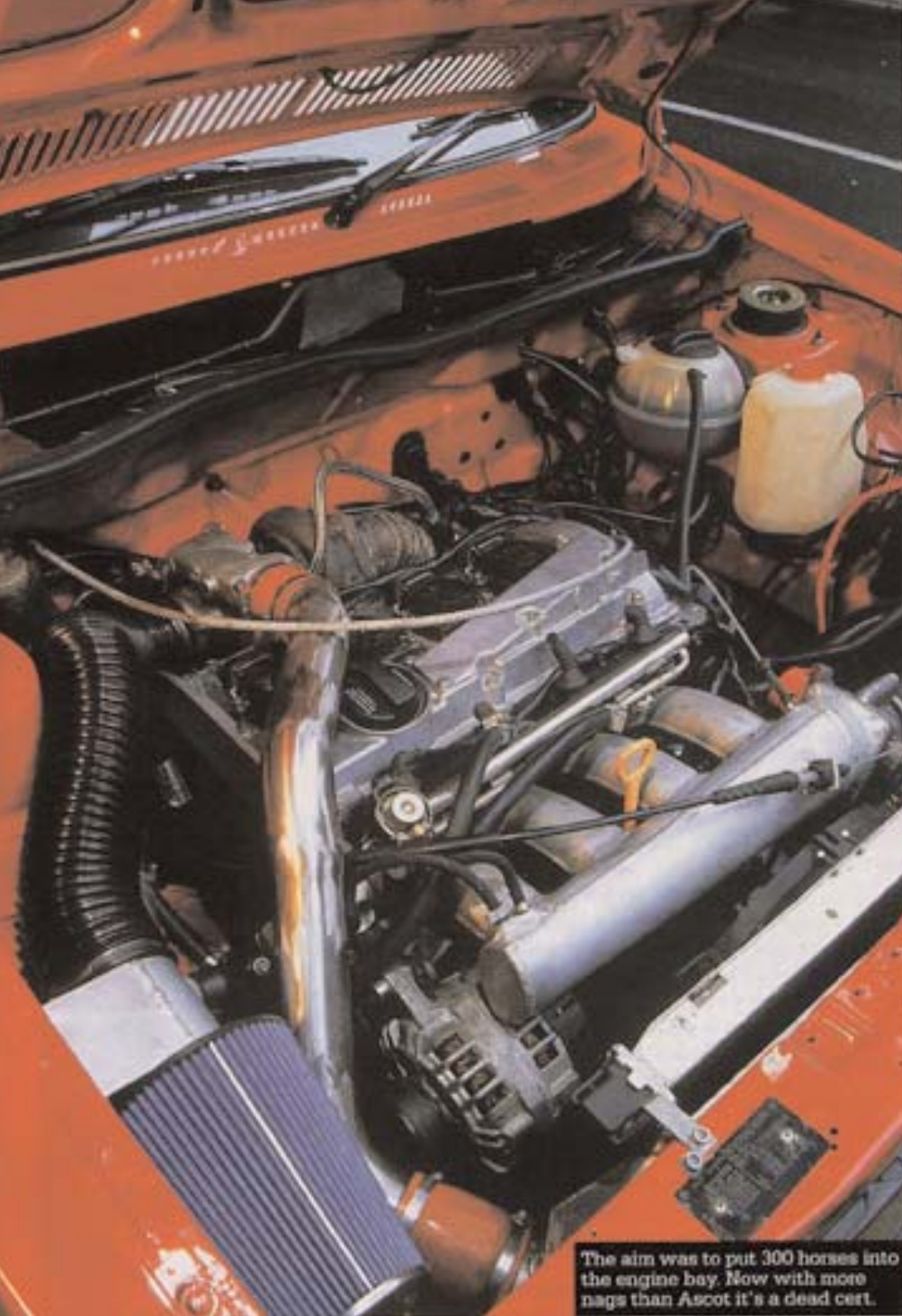
"I took nearly 32 mm out of the tube's centre. To re-fix it I used a steel piece inside for strength and ease of location. I even had to make my own jig to ensure it all fitted back together in the right place, including the diff positioning," says Ben.

And then the next headache arrived. "The Rallye's rear driveshafts were too long and being solid were tricky to cut and shorten. Fortunately I managed to

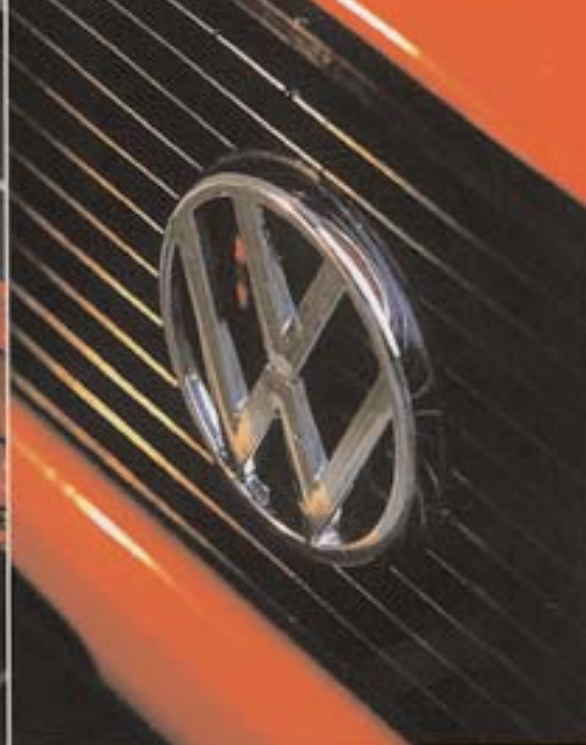


Spit 'n' sawdust the bare bones basic Golf N interior is long gone. What you're looking is essentially Mk1 GTI kit.





The aim was to put 300 horses into the engine bay. Now with more nags than Ascot it's a dead cert.



Ben's clearly a capable engineer. His ability to hook up mis-matched components is magic.



slide the joints 6 mm further up the shafts and then re-ground the circlip grooves to locate them." Indeed, the engineering guru had taken some 12 mm out of each side, the further 4 mm required (to match the beam shortening) taken up by the CV joints.

The car's new propeller shaft was another technical triumph. Made up of

to make space for the prop."

Ben then had to fit the new cable-shift G60 five-speed box and transfer case.

Unsurprisingly, Ben had also given due consideration to the fitment of the project's new engine. His plan was to fit a 1.8-litre, 20-valve turbo power plant from a 1999 Passat. "In the Passat it's mounted longitudinally and the block has the same

also had to fabricate higher mounting points on the front uprights to get the steering arms sat at the right angle and reduce bump steer. I also fitted rose joints to add some adjustability, not to mention shortening the steering column link."

Finally, Ben tackled the front drive-shafts, opting for a stock Rallye shaft on the transfer case side of the gearbox and a late Golf Convertible unit on the other, featuring bigger CVs to mate up to the Rallye box.

The custom fabrication didn't stop at the transmission. To achieve his 300 bhp target a new turbo would be needed with a bigger compressor.

A Garrett T28 set-up from a Nissan Sunny GTi-R was sourced, with the turbo featuring a hybrid combination of a T25 turbine and T3 compressor. All Ben needed to do then was make a new exhaust manifold. "I used cast steel

"The Rallye hardware delivers the estimated 320 bhp with aplomb"

three separate sections. Ben chose to shorten the rearward shaft, which was then re-welded, again with a locator piece inside. "I pressed it, pinned it and welded the bezels at each end," Ben reveals. The project used the Mk1's exhaust tunnel to provide power to the rear. "I didn't really touch the tunnel apart from opening it a little at the front

architecture as the older four-cylinder VW engines, which in turn helps with the transplant." Ben informs us. The positioning of the new mounts was also dictated by where the prop would sit.

Another important consideration was the steering rack, which Ben calculated would have to sit 35 mm higher, again because of the propshaft. "That meant I

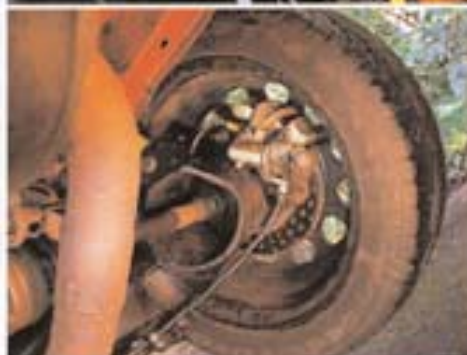
weld els (curved piping) which are used in the oil and gas industry as they're good for high temperature and pressure applications," Ben explains.

With the engine out and stripped down, 0.5 mm was then taken from each piston top to drop the compression ratio and save on head gaskets. "The car runs 1.25 bar boost, so the compression is 9.0:1 instead of 9.5 and I also had the connecting rods balanced before rebuilding it," says Ben. The initial mock up also revealed that a slimmer sump would be required, a 4-litre MkII Golf GTi pan adapted with a turbo oil drain and oil filter bracket.

The engine's induction and cooling systems are just as bespoke. After exit-



Making space for the Syncro was tough. Never mind... it handles like it's on rails.



brakes, once again innovatively cherry picking components. The front was relatively straightforward. Ben simply welding 2.25 inch adjustable spring platforms to the legs (with 250 lb springs utilised) and using top adjustable Konil inserts. For retardation 280 mm Corrado G60 front discs are gripped by Ferodo-equipped Golf callipers, a servo-less master cylinder omitting the need for the MkI's infamous feel-sapping linkage.

Understandably the rear was trickier, given the new underbody hardware. The aim was always to use the Rallye's factory rear disc brake set-up with the handbrake cables adapted from a Scirocco 16-valve (the missing link between the MkI and MkII Golfs), but the rear dampers weren't as straightforward.

"The lower mounting points for the Rallye's rear dampers are higher due to the driveshafts, so I needed a shorter damper with the right travel," says Ben. "Fortunately I found some height and rebound adjustable Spax Competition coil-overs with 1.9 inch, 200 lb springs, which do the job really well."

Ben reports that since finishing the car in spring last year it's been a model of reliability, explaining that the Rallye hardware handles and delivers the estimated 320 bhp with aplomb. "It doesn't wheel spin, put it that way, and the power delivery is quite linear so there are no frenetic hits of boost when you're least expecting it."

Sat inside the Golf the only clues there's anything strange is the addition of GTi seats, a trio of auxiliary gauges and Golf 16-valve clocks. Treat it with a light right foot it'll return the best part of 40 mpg. "You can't really drive it in anger, you tend to run out of tarmac," Ben says, laughing. Meaning those autobahns are in for some punishment this autumn — unless Ben sells the Golf. "I don't know what to do, but it'll go for the right money. I could always build another, but I seriously doubt I ever would," he says. Though once he gets his mitts on all those tasty VW development parts, Ben's future could be even peachier. Life, it seems, begins at 30.



MkII Golf 4x4 Tech Spec

BODY

1980 VW Golf 1.1N with replacement front panel, wings, bonnet, doors and rear arches, new bumpers, front grille, badges and door mirror, repainted in VW Mars Red

ENGINE

1.8-litre, 20-valve turbo from 1999 Passat JR, cone air filter, Garrett T28 turbocharger on custom steel manifold, polished pipework, custom front mounted intercooler, custom inlet manifold, Sierra Cosworth throttle body and Green injectors, 0.5 mm skimmed pistons, balanced connecting rods, Weber Alpha management, custom single box mild steel exhaust system using Jetex universal parts. Power: 320 bhp approx.

TRANSMISSION

MkII Golf G60 Rallye five-speed cable change gearbox with Sachs Sporting clutch, Golf Rallye four-wheel drive Syncro drivetrain with Golf Cabriolet front driveshaft, shortened rear propshaft, narrowed rear beam with re-fabricated wishbone and differential mounts and modified rear driveshafts.

SUSPENSION

Koni top adjustable front dampers inside MkII Golf legs with adjustable 2.25 inch spring platforms and 250 lb springs, adjustable Spax Competition 1.9 inch rear coil-overs with 200 lb springs, polyurethane bushes throughout.

BRAKES

280 mm Corrado G60 front discs with Golf callipers and Ferodo test road pads, Golf Rallye rear disc brakes with Scirocco 16-valve handbrake cables, servo-less Golf master cylinder.

WHEELS AND TYRES

4x15 inch VW steel wheels with 195/50x15 Pirelli T1-S tyres.

INTERIOR

MkII Golf GTi seats and carpets, Golf 16-valve clocks, MkII GTi steering wheel, MkII GTi centre console with auxiliary gauges for boost, air to fuel ratio and oil temperature, Golf GL door pockets.

ing the turbo the charge travels down polished pipework to a 600 mm long intercooler, for which Ben bought the core then made the corresponding fittings. I used a Passat G60 Syncro radiator and fan — it's big and the fan is thin, plus the pipework is on the right side.

"I knew I'd use a Weber Alpha ECU, which ties in perfectly with a Cosworth throttle body. So I made a new intake plenum and tube and used the original runners," says Ben.

As for fuelling, one of the benefits of the Passat lump is the inclusion of a 4 bar pressure regulator. This is plenty for most road applications, but the Passat's stock injectors have been binned in favour of higher-flowing Cosworth items.

A MkII Golf Bosch K-Jetronic fuel pump is tasked with lifting the juice from the two new ally tanks Ben had TIG welded before fitment, both now flanking the prop in the original tank's location.

If all this sounds like the project from hell, then to most it probably would have been, but bear something else in mind. Once all the fitting, fabricating and fire-works had gone off in Ben's barn with the car perched on its side, it all had to then come out ready for the shell's new Mars Red paint. And we're talking the lot — engine, gearbox, prop and diff. "It needed new front wings, bonnet, front panel, some rear archwork and doors, of which I had two mint ones in stock," says Ben. "Everything else was fine, apart from some new exterior trim, things like bumpers and door mirrors."

With the car back from A&S Chandler in Ipswich, Ben could also tackle important areas such as the suspension and