

# Performance VW

## Hillclimb Mk3 Polo G40

Lightweight supercharged Polo takes to the hills

## Berg Cup-inspired Mk1

Home-grown UK Mk1 16v built on a budget

## HR Engineering Profile

You want proper performance VWs? You got it!

+  
DUTCH  
GROUP  
SHOOT

HPA  
MOTOR-  
SPORT  
JEEP

WHEELS  
DAY  
2011



The car they're all talking about.  
The pinnacle. The benchmark.  
The Holy Grail.  
You won't find any better  
than this... we've looked!

# Winning!

July 2011  
£4.50



## Super Styling

Travis 'Travy' Vanausdal's 20th  
Anniversary – the car that united a nation...





# Where We're G

Think Jeep and you think big ol' V8, right? Not if HPA Motorsports has anything to do with it. Getting down and dirty has never looked like so much fun...

Words: David Kennedy Photos: Joost Demuynck





# ing...



## Q&A with HPA's Marcel Horn

**N**ow, if you're a regular reader of the mag you'll be more than aware that we're big fans of throwing the odd curve-ball or two into the more regular feature car mix from time to time. But after the handful of big-money supercars we've featured recently, have we really lost it this time with a full-blown Jeep? On first glance, you might certainly think we have. But upon closer inspection you'll see that this Jeep is a little closer to home than you might have first thought. It's the work of Canadian legend HPA Motorsports, one of the biggest names in the VW tuning game, period. So, have we totally lost the plot this time? We'll let you make your own mind up, with a little help from HPA Motorsports' president, Marcel Horn... ●

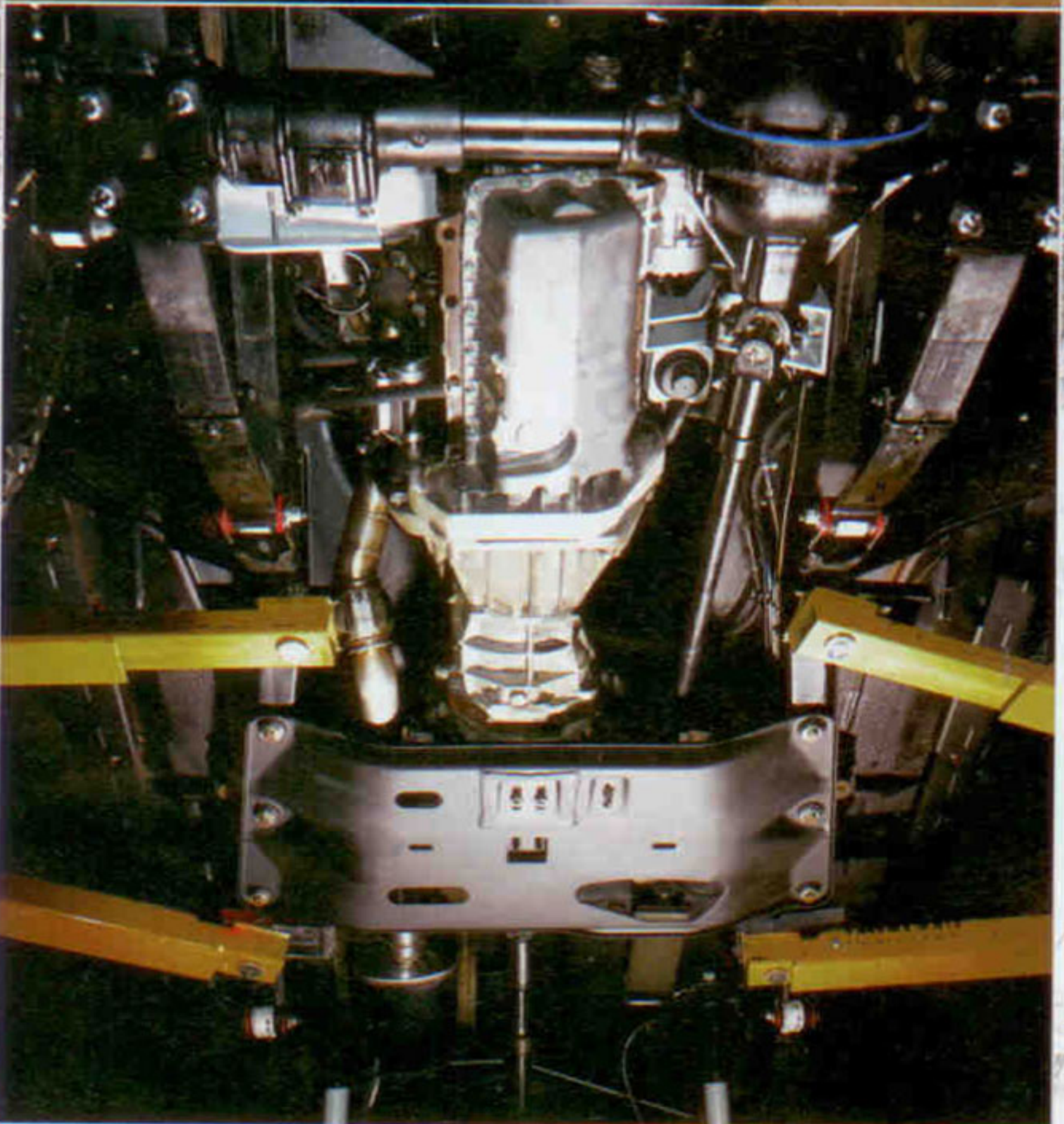
**PVW:** Hi Marcel. For those that don't know, how long have you been involved with HPA Motorsports, and what is your role within the company?

**MA:** I started HPA 20 years ago and am listed as the president of the company. I handle the direction of product and software development and man the wheel of our monsters on track.

**PVW:** Going back to the beginning, how long have you personally been involved with Volkswagens? What is it about them that does it for you?

**MH:** In 1976 my father bought a brand-new VW Rabbit and I was hooked. I love how interchangeable the hardware is between the years and platforms, which makes customising these cars akin to playing with a box of Lego. Just like a massive Boeing 747 soaring overhead seems to defy physics, I never tire of seeing one of our aerodynamically-challenged German bricks flying by at over 300km/h!





**PVW:** So, how did the idea to put a VAG TDI lump in a Jeep YJ come about?

**MH:** I'm still the kid from the farm that loves kicking it in the back woods at heart. Here in British Columbia, when you enter the back country you might not come out after 1000km of wheeling in any one direction. I have three beautiful boys and love introducing them to this side of our country. I needed a reliable and durable solution that could get me deep into the woods and back again, and have always loved the TDI for its low-end torque and small packaging. One day, I saw a Jeep poking out from the side of a barn where it had sat for over half a decade, that night I couldn't stop thinking about such a marriage of hardware and what adventures it would afford my boys. The next day I swung by with cash and a trailer...

**PVW:** Why did you choose a Jeep YJ?

**MH:** I wanted to stick to the 'KISS' (Keep It Simple, Stupid) principle. The Jeep is the closest thing to a tractor... no frills, just enough hardware to get anywhere. All it needed, and has always needed, was a proper powertrain.

**PVW:** And what were your goals for the project?

Was it just a case of finding out if it could be done, or did you have an intended purpose for the Jeep once it was finished?

**MH:** I wanted a one-of-a-kind toy that would climb like a goat yet be accepted in the parking lot at HPA. After 19





years of building crazy conversions from scratch on cars with such small amounts of real estate to work in, the amount of free space under the hood of the Jeep was just too tempting to ignore.

**PVW:** So once you knew what you wanted to do, how long did you and your team spend on planning the conversion and the design process?

**MH:** It took about three months of planning and a further three months to build. The process was somewhat drawn out as fitting my personal projects through our busy shop is like winning the lottery these days!

**PVW:** What made you choose the 1.9-litre PD engine over, say, one of VAG's larger TDI engines like the 2.7-litre or the newer 3.0-litre?

**MH:** The 1.9-litre is so small and efficient that it was a great way to add power without a lot of weight. Plus, I love taking the understated into the spotlight. Maybe I will tackle a larger powerplant next, but then I would need a larger Jeep.

**PVW:** Why did you decide not to base the kit around the newer 2.0-litre TDI?

**MH:** The answer is threefold: I had a brand-new 1.9-litre PD motor hanging around the shop waiting for a home; if the conversion worked out, the 1.9s are easy to find for the do-it-yourself tech; and lastly, the new emissions kit on the '10 2.0-litre lump is a nightmare for

aftermarket swapping. Not to say we won't look at this when our supply of the 1.9s dries up...

**PVW:** Talk us through how you got the TDI engine in. We're sure it wasn't simply a case of a set of custom engine mounts and a little brute force...

**MH:** The toughest part was to take my team back ten notches. I had to explain that we were not trying to deliver an RGT Jetta level of build, this needed to be raw and durable. The 1.9 TDI was confirmed to support a 1G environment, perfect for hill crawling off road. We set out to retain all Jeep geometry from the flywheel back to allow the Jeep enthusiast a clear upgrade path for the chassis. Countless hours went into designing a bell housing adapter to make the motor sit just right. From there, it was packaging everything to avoid any cutting on the tub or frame. We wanted a solution that looked like it was engineered by VW, and we ended up with just that!

**PVW:** And then you had to get the modern VAG wiring to hook up with the ancient Jeep loom?

**MH:** Integrating an ME9 CAN ECU and a '90 Jeep was a challenge. We had to code out all the sensors like the VSS and the ABS so that the ECU wouldn't be calling for input on calibrating the turbine/injectors etc...

**PVW:** Was there any particular area of getting the engine in and working that caused you problems?

**MH:** We added an additional challenge for our team by


electing to develop an ultra-efficient air-to-water cooler system. It would better suit the slower speed requirements of the Jeep than the original air-to-air intercooler. This was an issue on the dyno though as we had to recreate the entire fuel and boost maps against the new load generated by the Jeep's driveline ratios. I am very proud of the under-hood packaging, our team's decades of experience shows here.

**PVW:** We can't imagine you'd have gone through all this effort and then leave the engine as stock as the day it left the factory. What have you done to it?

**MH:** Ha ha... no way, go big or go home! We designed an incredibly efficient air-to-water intercooler upgrade that put the factory air-to-air plumbing to shame. We have a new cam designed to clean up the 1.9's original one and have mated a 2.5" stainless exhaust to a custom downpipe. Add in the oversize inlet track and a crazy ECU calibration and we are making a true 165bhp up from the OEM 104bhp, and 275lb ft of torque.

**PVW:** Although we fully admit we're not the biggest Jeep experts out there, even we can tell that this is no stock YJ anymore. What else have you done to it other than the engine swap?

**MH:** Where do I start? We added 944lb of body armour — bumpers, racks, winches, etc — to get it ready for rough terrain. The best are these fenders from Metal Cloak, they offer great tyre clearance, durability, and



The Jeep is the closest thing to  
a tractor...  
no frills, just enough hardware  
to get anywhere





## The Jeep stole the hearts of everyone who saw it at SEMA

update the look of this 20-year-old Jeep. Garvin's racks let me take everything along for a trip into the bush. It has locker differentials front and back, a 4.5" suspension lift from Rugged Ridge and all the HID lighting that Hella could dream up. The 35" tyres from Goodyear will get me over any obstacle. I could go on, but there are so many details here, we will run out of paper!

**PVW:** Other than its debut at SEMA in Las Vegas last year, has the Jeep been to any other shows? And what kind of reaction did it get at SEMA? You couldn't ask for a more diverse crowd to debut it to...

**MH:** It stole the hearts of everyone who saw it at SEMA and as a result, we are booked solid with these conversions and are shipping DIY hardware kits as we speak. It missed Moab as I was in Hong Kong building some turbo R32s, but we will have it at a few major Jeep shows later in the autumn.

**PVW:** When we visited the States a while back we had a Mk5 Jetta TDI and found that people didn't quite 'get' the diesel thing unless it was something like a Power Stroke or a Cummins in a big ol' truck. How popular do you expect this conversion to be?

**MH:** With no options for performance on the 2.5 from Jeep and the fuel consumption of the I6 and V6, this is a long-term option that can only grow in popularity. On the street, it's always getting attention and I'm never able to step out without having to give a brief description of it!

**PVW:** We understand that you're offering a number of different kits for people wanting to convert their own YJs. Talk us through what's on offer.

**MH:** We offered a bare bones engine mount and bell housing adaptor kit to supply the true DIY builder with what would be needed to stay out of a machine shop. Stage 2 brought in our air-to-water plumbing to offer a

simplified hook-up of the plumbing. Lastly, we offer a turn key conversion here in-house.

**PVW:** So, do you have any more plans for the YJ project, or have you taken it as far as you want to?

**MH:** The YJ's plans only call for play time! We have an '11 Rubicon in-house for the conversion and I just bought a TJ to make the same swap into it. The TJ has coil spring suspension at the front and should allow me a second rock crawler toy for the garage.

**PVW:** So, finally, what's it like to drive?

**MH:** It's the most fun I've had in years! The torque comes on with such a thrust, and the gears are short enough, that this 3900lb rig really zips around. We had a hard winter, so I have had many unplanned snow adventures, but this summer will be the time to test out every accessory I have bolted on... I can't wait!