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- AC Schnitzer BMW 330i
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by Les Bidrawn PHOTOS BY THE AUTHOR

Fast Company

HPA builds a pair of the world's quickest VWs

So you and Dr. Piech, VW's alpha-wolf and one of the most powerful men in the automotive community, go out, have a few beers and talk cars late into the night. The doctor admires your taste in vehicles and visions for future VW projects—you guys become friends. As you're leaving, a pair of soccer hooligans blocks your way—they want your wallets, watches and car keys. Before their steel-toed Doc Martens take another step, you cold-cock one with a bottle of *weissbier* and take out the other with an iron schnitzel plate. You've saved the good doctor, and as a token of gratitude he gives you the keys to the Wolfsburg factory and says, "Go Wild."

No, Marcel Horn of HPA never saved anyone in the brass ranks of VW...but you'd think he did. With seemingly unlimited access to Volkswagen's parts bin (and a brilliant dose of Canadian ingenuity), Marcel has fabricated what are arguably the most powerful and streetable VWs this magazine has ever seen—cars that rely largely on factory parts, sound like factory cars and behave like factory-built monsters.

I arrived at HPA's modest Vancouver facility

after having spent the better part of the day circling various fog-covered airports until finally landing at 8 p.m. What should have been a 2.5-hour trip became a 9-hour nightmare.

"So then," asked the Canadian customs man, "what are ya here for then, eh?"

"I'm going to drive some fast VWs, take a few pictures..."

"And then what?"

"And then I go home," I said.

"That's all yer gonna do then, eh? Drive some ZWs and then go home."

"VWs," I said, "...and take some pictures."

Mr. Customs just stared at me for, like, a minute.

"What's in the bag then, eh?" he asked.

"Cameras, underwear and a toothbrush."

His eye began twitching.

There's nothing quite like feeling guilty when you haven't done anything. The inspector was positive my gear was some sort of hookah pipe and my Altoids box an amphetamine bin.

"Here, try one," I said.

"I don't do that, eh," he shot back.

At that point I figured I was guilty of...whatever, turned around and decided to return to the U.S. Still, the thought of a twin-turbo, 24-valve VR6 was a powerful draw—I'd wait in line with dozens of Chinese immigrants and plead my case. An hour or so later, an official took pity on me, stamped my card and I was free.

By now a delightful beer buzz had long since faded, replaced with a vicious urge to desecrate the nearest maple tree. Luckily the temperature dropped down to the high 30s and it began to rain, effectively cooling me off.

First impressions of these cars failed to rekindle my spirit. They looked typical of 90 percent of the modified VW's seen in this magazine. The New Beetle was clad in an RSi-style widebody suit from Dietrich with a huge Kersher carbon-fiber wing, and the Golf was largely stock save its JE Design rear wing. The rain began coming down harder, so I jumped in the Beetle, turned on the seat heater and began weeping. Like most Canadians I've known, Marcel and his crew are terminally affable and tragically upbeat, as if to spite their horrific weather.

"Start her up, man," said a way-too-happy Marcel. A quick turn of the key and the motor sprang to life, sounding like the same HPA New Beetle VR6 I drove several years ago—maybe a tad randier. Marcel told me

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to find an open stretch, point the wheels straight and let her rip. Yeah, sure, no problem. The next few seconds went something like this: Your car is attached to a semi-truck with 500 ft of steel cable—while you're sitting there tuning the radio, he's behind you, coming up fast, rowing through his ninth set of gears, doing 80 maybe 90 mph. He passes, the rig disappears into the distance, and you hear the faint rustling of the cable playing out. The cable tightens, and the violence begins.

Calling this NB fast is like calling Michael Schumacher a decent driver. It's beyond merely fast—it's 911 biturbo quick, with enough grip to climb K2. And while it is easy enough to make a powerful car, the real trick is making it streetable, a car you can take to the market and back without it blowing up. And the sound...how the hell do you make this much power without so much as a monkey fart? HPA's Beetle RSi doesn't sound like a normal car; it's more reminiscent of a generator that's fallen off a space station.

After getting a taste of high horsepower awd with HPA's Supercharged Cabriolet Syncro and falling in lust with the RSi Beetle, the birth of HPA's latest project was inevitable. Using his formal training as an automotive engineer, Marcel set to work. "I wanted to build a 'real' RSi Beetle with the driveability of a Honda and the power of a Porsche," said Marcel.

"The concept was based on a 2000 Beetle and would include VW's new 24V VR6 augmented with twin turbochargers—Audi's Haldex-based all-wheel-drive would supply the grip, while enlarged body panels would allow bigger rolling stock and huge brakes."

Following countless hours of scouring microfiche, ETKA CDs (both European and U.S. versions) and consulting with contacts within VW Germany, the appropriate combination of Golf, Jetta, TT and A3 parts and pieces for the revised floorpan were acquired straight off the assembly line. Since the 4-Motion platform was so new, the VAG assembly lines were consuming all available parts and pieces faster than they could be produced. This created a huge supply problem, backordering most pieces for months. During this frustrating downtime, HPA began driveline development. "I knew the 12V VR6 would fit in the NB engine bay—the Beetle Cup racers are essentially stock, so fitment was not considered an issue," said Marcel. A brand-new 24V 4-Motion drivetrain was acquired straight off the VW assembly line, leaving only the search for a twin-turbo setup capable of big power with U.S.-spec gasoline.

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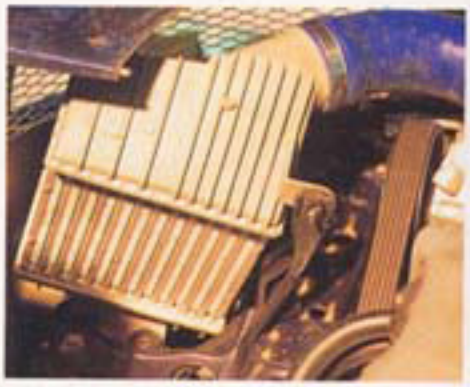
Above: A Dietrich wide-body kit provides huge inlets for twin intercoolers. **Below left:** 911 turbo brakes and KW Competition coilovers lie beneath 911 alloys. **Below right:** Audi TT intercooler.



Above left: Lower view of 24-valve VR6 (oilpan features sensors that detect impurities). **Above right:** Rearward view of driveshaft and stainless-steel exhaust. **Below:** Who would ever guess this understated Golf IV packs over 400 bhp with four-wheel drive?

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"We heard of a small turbo tuner not far away from KW Suspension called HGP Turbo GmbH. Apparently they had developed a very successful twin-turbo system for the old 12V VR6," recalled Marcel. "They had been hard at work perfecting the same concept with the 24-valve motor."

"According to HGP's philosophy, factory accuracy is the key. By using as many factory VAG parts as possible, you can ensure reliability and longevity. HGP built several prototype vehicles for VW and VW Motorsport Germany, so I was confident its system would work. Although the design and mechanics of the system are important (intake and exhaust manifolds, intake tubes and intercoolers), the real key to success is the electronics. HGP is so well-versed in the VAG computer system, it was no longer necessary to use additional injectors, control boxes or any other aftermarket units—the factory box does it while making three times the horsepower."

The only internal engine mods are special, hardened "black" race connecting rod bearings and HGP's head spacer, which lowers compression to 7.0:1. In VW Motorsport testing, the production drivetrain can accommodate up to 750 bhp, so it remained unmolested.

Runs with a similar HGP vehicle on the Bosch awd dyno revealed stunning results—with 100-octane fuel, the car made 491 bhp with 537 lb-ft of twist. Tuned for 93 octane, the HGP system made 442 bhp and 484 lb-ft of torque, still enough to best Porsche's bad-boy biturbo.

Underpinnings (by order of importance) include Porsche 993 biturbo cast, drilled 12.88-in. rotors and calipers up front and Boxster S calipers and rotors in the rear. KW's new Competition suspension features dampers adjustable in both bump and rebound that work in conjunction with the 8.5x18-in. and 10x18-in. Porsche biturbo "Twist" wheels with Bridgestone Pole Position S02s.

"Tire sizing was especially challenging," recalled Marcel. "Bridgestone's John Robinson (USA) and Adrian Courtenay (Canada) helped us fit 225/40-ZR18s up front and 255/35ZR-18s in the rear. Without the massive S-02s, we'd just be spinning our wheels.

"Eventually all of the body components had arrived, including the special showpiece for our 4-Motion efforts, a complete spot-welded 4-Motion floorpan assembly," said Marcel. "This had been ordered to show where the hidden spot welds and seams were created by VW, in order to be factory accurate and to serve as a paint by numbers guide for our body engineer, Joe Andrew at R&N Boyd...besides, it looks cool.

"This was nothing like the syncro conversion," said Marcel. "The complete floor and frame rails from the front seat to the very tailend had to be rebuilt piece by piece with the new OEM sheetmetal in order to house the new twin-pump gas tank, Haldex unit and suspension arms. More than 81 hours of intense labor were spent installing the sheetmetal alone! Once this was completed, the whole undercarriage was undercoated and then re-sprayed along with the rest of the Beetle in the new Porsche 911 biturbo blue metallic."

At the same time, the Dietrich wide-body Cup kit, center console (including the GT6 twin gauge pod), modified Autopower rollcage, door panels and rear Kersher wing had been painted to match.

Now that all the parts and pieces had been assembled, the HPA team went to work assembling the Beetle. The toughest, and most crucial, part of the whole operation was the integration of the 24-valve 4-Motion electronics with the 2.0L's wiring. Unlike other models of V6s available until now, only the throttle-by-wire system will work with the 4-Motion system because of the CANBUS network utilized. "Without exact wiring, the Haldex unit, along with

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2000 Golf RSI 12V Twin Turbo V6 4 Motion

Engine: 12V, 15 degree V6 with HGP Twin Turbo System • Compression: 7.0:1 via HGP head spacer • Bore x stroke: 80.1 x 90.3mm with black race bearings • Displacement: 2792cc • Valve gear: Chain driven dual overhead cams with variable timing 2 valves per cylinder, hydraulic lifters • Exhaust: HPA/HGP 3-in. T-304 stainless steel, Twin 3-in. race catalytic converters, expansion muffler, dual 3-in. tips • Engine-control: HPA/HGP Programmed Bosch Motronic with port fuel injection • Horsepower (wheel): 403 bhp (93 oct.) • Torque (wheel): 381 lb-ft (93 oct.) • Redline: 7200 rpm • **Performance:** 0-100 km/h: 4.2 sec.; 0-200 km/h: 15.9 sec.; 80-120 km/h: 2.4 sec.; Top speed: 320 km/h • Transmission: VW 4-Motion six speed with VW Motorsports/Sachs race clutch, modified final drive • Driveline: VW 4-Motion with Haldex Coupler • **Suspension upgrades:** KW Variant 2 4-Motion Coilover suspension system, adjustable rebound and height; **front:** independent, strut located by a control arm, coil springs, anti-roll bar; **rear:** independent 4-motion configuration w/ anti-roll bar • Brakes: front, Porsche 993 TT 322x32mm (12.88 in.); rear, 4-Motion VR6 • Wheels, KW Cup: 8.5x17 fr, 10x17 r • Tires, Yokohama A520: 215/45-17, fr; 235/40-17, r

2000 New Beetle RSI 24v Twin Turbo V6 4 Motion

Engine: Euro 24V, 15-degree V6 with HGP Twin Turbo System • Compression: 7.0:1 via HGP head spacer • Bore x stroke: 80.1 x 90.2mm with black race bearings • Displacement: 2792cc • Valve gear: Chain-driven dual overhead cams with variable timing four valves per cylinder, hydraulic lifters • Exhaust: HPA/HGP 3-in. T-304 stainless steel, twin 3-in. race catalytic convertors, expansion muffler, dual 3-in. tips • Engine-control: HPA/HGP programmed Bosch Motronic with port fuel injection • Horsepower (wheel) : 491 bhp (100 oct.), 442 bhp (93 oct.) • Torque (wheel): 537 lb-ft (100 oct.), 484 lb-ft (93 oct.) • Redline: 7200 rpm • Transmission: VW 4-Motion six speed with VW Motorsports/Sachs race clutch, modified final drive • Driveline: VW 4-Motion with Haldex • **Suspension upgrades:** KW Competition 4-Motion coilover suspension system, adjustable low-speed bump, rebound and height; **front:** independent, strut located by a control arm, coil springs, anti-roll bar; **rear:** independent 4-Motion configuration w/anti-roll bar • Brakes, front: Porsche 993 TT 322x32mm (12.88 in.); rear: Porsche Boxster S • Wheels, Porsche Turbo: 8.5x18, fr; 10x18, r • Tires, Bridgestone Pole Position S02: 225/40-18, fr; 255/35-18, r

various other systems, will fall into limp-home mode and become useless," said Marcel. "Darren Scharfenberg and I performed the integration of the two systems—everything runs with full VAG support."

Once the wiring and mechanical installations were complete, the remaining body panels and final details were assembled. The front wide-body Cup kit bumper eliminates the factory turn signals and replaces them with round Lupo models as well as allowing for generous airflow to pass to the twin intercoolers via the use of custom-fit Audi TT ducting. Additionally, the main center opening is home to a custom oil cooler and the factory 24V air conditioning condensor and radiator.

HPA designed the interior with race-inspired simplicity and functionality. The freshly painted center console and GT6 gauge pod were installed with the essential boost gauge and water temperature dial to keep the driver appraised of the underhood situation. The factory Beetle seats, while being fairly comfortable, lack the support needed to keep the driver safely behind the wheel. Matching factory three-way power Recaros were mated to Beetle bases, nestled between the tubes of the modified Autopower rollbar. Since the rear of the Beetle was to remain unoccupied, but needed to look factory, HPA called upon local interior guru and longtime friend Derek Freisen of Custom Creations to complete the package. The rear seat was eliminated and filled with a color-matched storage compartment and filler panel, while the rear side panels were cut and molded to flawlessly accept the rear support bars for the roll cage. Finally, the checker plate flooring, Raid polished pedal set and carbon shift knob were installed, completing the race-ready package.

The Golf was built alongside the Beetle, with the same trials and tribulations but with a more North American approach, the only exterior mods being painted front and rear factory valences, projector headlights and KW Cup wheels.

Sadly, it rained continuously until my departure—not that HPA's Beetle RSi gave a damn. It remained stuck to the road despite my best attempts to unhinge it from the earth. At one point, the car's throttle stopped working and we began to slow. Marcel quickly hooked up the 1552 VAG machine, punched in a few codes, and we were again underway—up to 150 mph in blinding rain until I stabbed those huge brakes and nearly sailed through the front window. Marcel never took his eyes from the VAG machine, continuing to tap incomprehensible codes into the Beetle's brain.

"Okay then...all better...try it now, eh," said Marcel.

We got back just in time for the car to be loaded onto a transporter and shipped off to an anxious owner. On the HPA lift was another new Mark IV Golf, dusty and gutted.

"Okay then," quipped Marcel, "time to finish....er, start on one for me."

I bet that car stays in that unfinished condition forever—judging by the performance I saw, Marcel and crew will be busy building Porsche killers for a long time.

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