

# Black burner

Alan Minshaw's ultra-rapid Group A VW Golf GTi is a fine example of how a super road car becomes a real racer. Andy Dawson investigates

A cold April morning at Oulton Park, and numerous Formula Ford drivers and young hopefuls with their F3s, are droning round, trying to extract the optimum from their steeds.

Sitting in the middle of the paddock was Alan Minshaw's, CCC VW Golf GTi 1600cc race car, at my disposal.

This Group A GTi began life as a Triencent Group One car, built in 1981 by John Maguire. Last year it was destroyed by John Morris, and the current car built up from the remains, with a new bodyshell.

The car is completely standard, although Alan Minshaw plans extra seam welding to aid longevity and stiffness.

Rebuilt over the winter to the new regulations, it is again competing in the Trimoco British Saloon Car Championship with its new owner at the wheel.

Alan opened the test by taking his pride and joy out for a few laps to check that everything was as it should be, but he was apprehensive as he handed the car over. "All yours, but remember that it's a racer - not one of your rally cars."

Alan continued by explaining the function of the gauges. A mechanical tachometer has replaced the original speedometer. "Don't use more than 7500. I've used 8000rpm when I've been doing, but as a rule 7500rpm is plenty." Water temperature, oil pressure and oil temperature gauges replace the radio on the top left of the dash.

Most of the controls are standard, and even the standard ignition key remains, but only so the car can be locked.

Ignition and high pressure electric fuel pumps are controlled by conventional

switches to the left of the steering wheel. Further to the left are a pair of starter buttons. The right hand one energises the starter and the left hand operates an enrichment device for engine starts.

There is a definite knack to starting this machine. Too much use of the enrichment button (it controls a fifth injector on the end of the inlet manifold) and it floods. Not enough and the standard Bosch K-Jetronic fuel injection system can't cope.

After a few churns I managed to get it fired up and was immediately surprised by the lumpy 2500rpm tickover - not what I had imagined from a Gp A engine. I engaged first gear, slowly raised the clutch... and very nearly stalled it!

The lumpy tickover and the very fierce clutch make a smooth start difficult.

On about the third or fourth time of asking I managed to cajole the GTi away from the pits and out onto the circuit. At 5200 the engine suddenly smoothed out and began pulling hard.

The gearchange is a delight, although I found it all too easy to engage fifth instead of third when changing gear in a hurry.

Even though I wasn't going quickly at this juncture I got a surprise at the first corner. The steering has an incredibly dead feel to it, quite unlike a road Golf. The first fistful of lock

appears to do very little and only the second pull starts to bring the car round. As the new tyres warmed up the steering became a little better, but it always seemed dead compared with a road car.

The tyres fitted for the test were the harder of two types of Dunlop slick available (928 compound) in 175/55 by 15in. size, fitted to ATS six inch wide wheels.

After half-a-dozen laps, I was just beginning to enjoy myself when Mr Minshaw called me into the pits. Was I doing something wrong? Were his worries overcoming him? No, it was just that John Minshaw, Alan's son and mechanic on the Golf, wanted to check the wheel nuts.

They have had a problem with the front wheel studs stretching, and have found it necessary to check the nuts after a couple of laps.

The stop at the pits gave me a chance to discuss some of my findings with Alan. What about the brakes? Even a firm push only slows the car down gradually. As tested, the VW only had standard brakes with DS11 front pads, VG95 rear linings, an adjustable pressure limiting valve on the rear circuit and 10mm diameter cooling ducts to the front brakes.

Alan is soon hoping to fit the homologated larger front discs and to have cured the car's distinct lack of stopping power. The normal RHD Golf GTi brakes aren't exactly fantastic, but those on Minshaw's machine were definitely not up to racing standard.

From coming on the cam at 5200 until 7000rpm the engine is sewing-machine-smooth, reminding me of my old Imp. The unit was built by Brian Ricketts of GTI Engineering at Silverstone. It has Cosworth pistons, a compression ratio of 12 to 1 and a Schrick camshaft to give an official power output of 150bhp at 7200rpm.

The Schrick cam is the reason for the car being so surprisingly intractable below 5000rpm. The 328 degree period is the same as used on a Cosworth DFV Formula One engine and has timing of 62, 88, 86, 62 which means that the engine has to have an intake

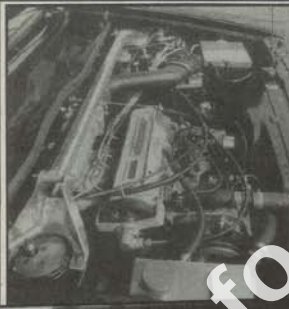
ram and a tuned exhaust to give any power. The suspension is almost standard VW in terms of mountings and geometry. The only real change is an increase in negative camber at the front, courtesy of enlarged holes in the strut-to-hub carrier mounting bolts, and homologated offset top mounts.

Dampers on the car tested were Bilstein, although a change to Koni was being planned. Springs and roll bar choices depend upon the circuit, with Alan taking the advice of the car's previous owner as he hasn't had time to test for himself.

As tested we had the Brands Hatch settings: 350 lb/in front springs, 275 rears and a soft front roll bar. For Silverstone the spring rates are raised to 400 front, 300 rear and a stiffer front anti-roll bar is fitted.

At the rear the torsion beam suspension is supplemented by an anti-roll bar, but this isn't varied from circuit to circuit.

There is still some sound deadening material that could be removed from the car,



Left: note the homologated offset front suspension top mounts which promote negative camber, and the neat, simple engine installation with its mechanical rev counter drive coming off the end of the cam cover. The unit was built by GTI Engineering's Brian Ricketts. Below left: the car's owner, Alan Minshaw.

and there is a large lump of lead mounted in the passenger seat space. How much does it weigh? At Brands Hatch the previous weekend it had been 12 kilos over the minimum at post race scrutineering - 812 kilos.

Now it was time for me to have another go and find out just what the little black bomb could do.

Across the start/finish line at 6300 in fourth, you come across to the left hand side of the

road from the centre. Brake just after the top of the second crest before the corner, change down to third and turn-in as the corner begins to come round.

The car is nicely balanced with just a touch of throttle, clipping the inside kerbing and being careful not to ride up it and lose speed. Now floor the throttle and increase the amount of steering lock a touch to combat the

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understeer and let it drift out to the kerbings that are out of sight until you are almost on top of them.

Too fast, and a partial lift-off tucks the nose in and keeps the tyres away from the slippery kerbing point. But if I'm too slow there I can wind off a bit of lock to allow speed to build up faster.

Back into fourth at 7000rpm just before swinging right over the crest of the hill and down into Cascades. In the GTI I took it flat-out a couple of times, but the ensuing moments trying to slow down for the following tight 90 degrees right meant that lap times suffered.

The technique is to give a confidence-boosting lift and then feed her in on light throttle through a late apex to keep on the left side of the road, ready to brake for the 90 degree right.

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Under racing conditions this would leave you open to be outracked down the inside, but as the GTI was set-up it was bouncing off the suspension stops over the bumps and was a distinct handful.

It was fine for quick practice laps but I would have liked to see it sitting higher at the rear, or at least stiffer, so as to enable me to make a faster approach to Fosters' Folly.

This 90 degree right was named after the circuit manager who designed it, and it must be one of the tightest bends in British racing.

The only way to get the Golf through quickly was to throw it at the apex and floor the throttle in second. Then you need to apply a touch of left foot braking to stop the front from drifting out too far due to the understeer generated by full power being put through the steering wheels.

Very quickly, 7000rpm comes up in second and you stay out on the left of the circuit. Take as smooth a line as possible through the fast right at Knicker Brook, taking fourth gear just as the circuit begins to climb, swing left and disappear over the hill.

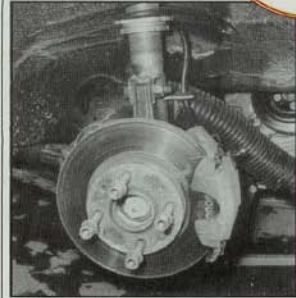
In the GTI the acceleration isn't sufficient to make the lefthander difficult, so it is just a case of letting the car drift out so as to enter the second part of the left on the inside line ready to brake for a long double apex right – Druids.

The braking point for me was just after the change in surface, and was really only a confidence dab.

I turned-in just before touching the grass, and was missing the first apex by three or four feet before drifting on full throttle across the second apex, over the crest of the slight rise



*Below: front suspension features cooling ducting for the hard pressed brakes. A rose joint at the end of the steering rack replaces the standard steering knuckle.*



and out to the kerb.

While racing it is probably necessary to enter the corner flat-out to stop another driver driving down the inside. With the GTI you have to let it scrub off speed all the way to the second apex, and then it is about 150rpm slow all the way down the following straight.

Something that surprised me was the complete lack of steering pull from the limited slip differential. Even the continual changes of road surface through Druids produced no tugging, just the constant pull of sticky slicks.

This is the fastest part of the circuit, but I was still only pulling 7200 to 7300 in fourth (116mph) at the braking area to Lodge. Fifth gear is useless on a circuit as tight as Oulton Park, and is only used by Alan on the fastest circuits.

At Lodge I was braking just prior to the last crest before the corner, and this was the only bend where I felt that better brakes wouldn't have helped very much.

On a perfect line I was going through Lodge in third, but with any traffic around or if I had overcooked the entry I would have needed second.

You turn-in for what looks like a late apex, aim to just touch the kerb with your inside front wheel and then floor the throttle to kill the slide before crossing a ridge in the road that hides the kerbing at the exit.

Allowing the car to continue sliding over the crest makes something horrible happen to the suspension and the tail tries to clip you round the ear. The result is either a very slow entry into the straight or a long, dramatic moment down the grass.

Using second gear, I found that I was exceeding my self-imposed 7000rpm limit before the car was straight. Using third I was just able to get to 5200rpm as I needed the power over the ridge. This car is desperately in need of a closer ratio gearbox or a milder camshaft, the rev drop between gears being just too great, even on the straights.

Through the dip of Deers Leap and over the crest onto the start finish straight, I was going back into fourth just as the road swung left.

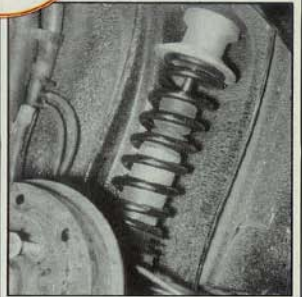
We have taken about one min 15 seconds compared to the old Group One 1600cc lap record of just under one min 13. I found that consistent smooth laps were easy and fun, but to go a little quicker took a lot of courage as the car began to become difficult.

After a few really hard laps the left hand front tyre was becoming too hot and going off. I dread to think what the soft compound tyres must be like.

## RACETRAC SPECIAL



*Rear suspension detail. Dawson felt that the car would handle better with the assister spring removed and the rear of the car raised by the appropriate amount.*



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For my style of driving I would have preferred more oversteer, and this could be obtained by raising the rear suspension on adjustable platforms. The effect would be to keep the back end off the bumpstops at Cascades and to allow me to put the power on earlier in all the corners and so go quicker down the straights without overheating the critical left front tyre.

It would also be possible to fit an inch wider wheel and tyre, the regulation stating that the fitted unit must not be more than eight inches wide for the 1600cc class. Both the size of the wheelarch and the availability of wider rubber deter Alan from doing this.

I would also have preferred a milder camshaft in this delightful little engine, as I think that the torque increase and ability to hold onto gears in traffic would more than compensate for the small loss in power.

After a total of about 25 laps I reluctantly handed the GTI back to its owner. I had a lot of fun and would have liked to stay out longer to get even more used to the peculiarities of the suspension on the limit.

The front tyres were wearing at a rate of 1mm every eight laps and at nearly £10 each I felt that my fun was a bit extravagant.

The CCC GTI is a very different animal to the normal road car. It's fun to drive but in a different way. Gone are the nice manners and superb steering – here we have a car that goes quickly and smoothly close to its limits but is hard to control and very exciting when the limit is reached.

As an example of what the new Appendix J Group A is all about it is superb – an inexpensive, simple to maintain and reliable international race car.

The engine isn't overstressed as its power is limited by the valve size and lift. The standard gearbox shouldn't be overstressed for a season's racing and the two items that have to be changed for circuit work – brakes and suspension – are effectively free under the regulations.

There is also tremendous scope for the amateur or professional tuner to improve a Group A car within these regulations, and it doesn't cost an arm and a leg for special components to do it.