

Superch

Most of the supercharged conversions you come across in the UK use the Shorrock's-type supercharger, a heavy and noisy affair that emits a distinctive whine as the revs rise. It was developed as a carburettor pressurising pump for aircraft and although it undoubtedly helps produce a big increase in power, it has never been ideally suited to road car applications because of its relatively low efficiency and the heat and noise it produces. Also, extra fuel must be used to keep the temperature down, which does nothing for economy.

If you happened to live in the USA, however, the most popular form of blower in the 1950s was the Judson supercharger. This is a more efficient and much quieter system than the Shorrock's because it uses a sliding vane-type compressor with non-metal vanes for reduced wear and low frictional losses. The concept is remarkably similar to the vane-type pump used in the MGA's engine. Driven mechanically from the crankshaft, it means of a belt drive, the Judson pump sucks in the air and fuel mixture from the carburettor and pushes it into the intake manifold at a pressure of roughly about 5 to 6psi.

These relatively low boost pressures were claimed to be not high enough to significantly reduce reliability in a standard engine, but were never sufficient to produce a sizeable power increase. What's more, the improvement in volumetric efficiency of supercharging

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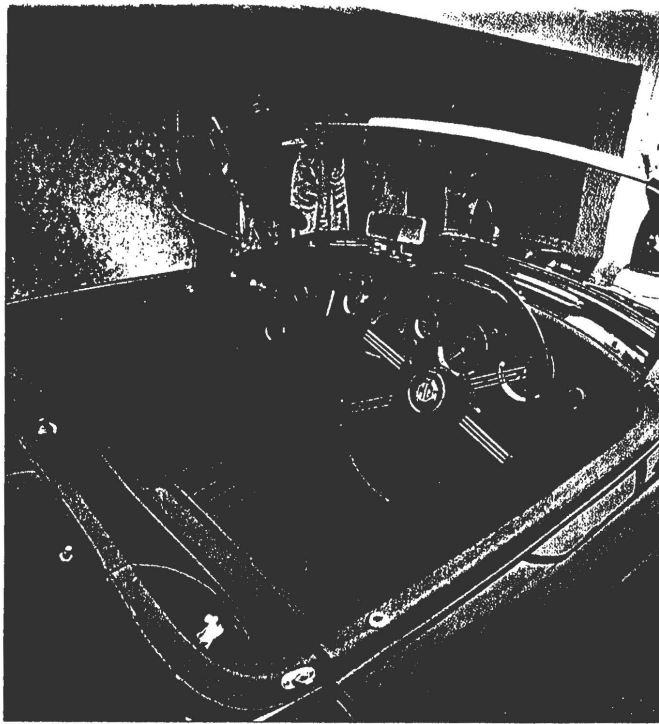
The part that I like best about the tale of this MGA is how its present owner and restorer, Alan Feast, first came to own it. It was way back in 1975, and Alan was about to plunge into wedlock, house-buying, and all the attendant joy, grief and sacrifice that family responsibility entails. One of the things that had to go was his lovely MGB GT, which was sold to raise some much-needed cash for a house deposit. The 'B's replacement was a nasty little white Mini van. This wasn't, Alan felt, quite within the spirit of his long-term game-plan.

He'd always wanted an MGA, and quickly realised that, with impending wedlock just days away, and his freedom slipping away fast, it might never happen. "I looked at seven or eight 'As that were for sale that week, including a lovely 1600 MkII for just £350. But I only had £150 to spare," he recalls. "Then I saw the 1956 MGA 1500 that I own now. It was advertised in *Exchange & Mart* and, when I went to see it, was in a real state. It had glassfibre wings, there were holes in the chassis, the front suspension was shot, and it had been badly resprayed in British Racing Green. But it was running - just - and the price was right. I paid £125 for it, then used it for a few days before hiding it away in a rented lock-up garage. It was only after the wedding that I told my wife about my purchase," he confesses with a sheepish grin growing large on his face.

The sneaky purchase of an MGA can't have created much of a rift because, over 20 years later, the couple are still married and have four children. The Feast family also has a garage these days: a double with a workshop attached. This came in very handy when Alan finally found the time and the nerve to begin the car's rebuild. "When I first put the 'A away in the garage, I took it to pieces straight away. It then took me another 15 long years to put the car back together!"

In those days, the car was mechanically standard and un-supercharged. Of course, its poor condition meant that many spares were needed. Here, Alan struck lucky in swapping a good chrome MGA grille for a complete MGA Coupé which yielded many useful parts, including a set of repairable steel wings. Many more unwanted parts were sold, including a rare Nardi steering wheel. From the two cars, one car was gradually pieced together.

Throughout the years of the rebuild there



was never any real pressure of time to get the car finished. The restoration was almost a therapy, of sorts. "It was my escape from the kids," he laughs. "I would go to the garage at the end of the garden and always took my time over any work that was done. I wanted to put the car back to as-new condition, so I didn't want to rush anything. I didn't do the paint, the trimming or the chassis and panel welding, but I did just about everything else myself. I found that if I took my time, it all seemed to work out, and if it didn't, I could always start again. If I ran into trouble I would just stop and ask someone for advice. I really enjoyed rebuilding the engine, even though I'd never built one before. I simply followed the manuals."

Some of the original parts were known to be in good condition, such as the gearbox and the back axle, and so were simply cleaned, de-rusted, and painted, while other parts were bought new or from autojumbles. Alan was lucky in obtaining the very last original new

master cylinder that MGA specialists Moss Darlington had remaining, and was luckier still with the brake pipes. Automec gave him a set of their copper pipes for free in exchange for his old rusty brake pipes: they needed

his originals to copy as a pattern to create new pipes to sell to other 'A owners.

But Alan was less fortunate in selling off his old bumpers and grille, even though they were in poor condition. "The repro parts are absolute rubbish," he complains, shaking his head and pointing out the rust coming through the chrome, the sharp edges of the pressings, and the skimpy metal thickness.

At one point in the rebuild Alan almost gave up. It was about ten years ago (page 46)

"The restoration was my escape from the kids. I went to the garage and took my time over it"



Owner Alan Feast looking understandably pleased with himself as he admires his rather special MGA roadster.

Supercharging and the Judson Blower

small increase in fuel economy for a 'guaranteed bhp increase of 45 to 50 per cent', according to the manufacturer's original blurb.

Promotional material of 1960 reveals that the Judson Research and Manufacturing Co of Conshohocken, Pennsylvania had by this time already produced more than 60,000 of these superchargers, not just for the MGA, but also for the Triumph TR3, the Mercedes SL190, and even for the Renault Dauphine and Volkswagen's humble Beetle. The Judson Supercharger came as a complete kit tailored to suit each specific type of engine. For the MGA, the kit not only included the supercharger pump unit, the inlet manifold, and drive pulleys, but it also contained a Holley single-barrel carburettor, reputedly from a 1950s Ford six-cylinder truck engine. With forced induction, there's really no need for any more sophistication than that in the carb department.

The kit also included an aluminium rocker cover casting with an extension at the back to house the oil tank for the total loss oil lubrication system for the blower pump. This oil reservoir - which had to be topped up every 1000 miles or so - drained oil into the pump and then down into the manifold, which created a bit of a smoke screen for the mile or two after starting up. The oil did act as an upper cylinder lubricant, but it could also produce fouled spark plugs. Umm, not sure what the environmentalists would make of all this today!

Overheating could be a problem in



The Judson supercharger and its Holley carburettor sits neatly next to the engine and doesn't look out of place in a 1950s car. The replacement rocker cover is part of the kit.

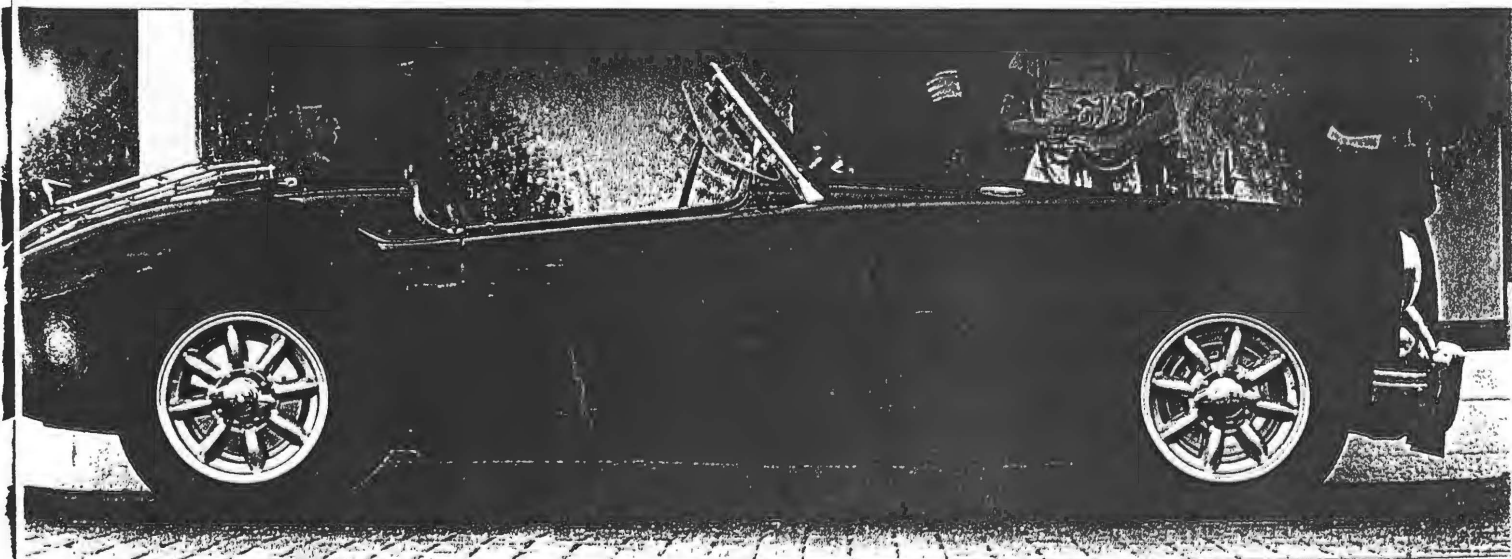
traffic unless the cooling system was either uprated or in top condition, but that's hardly surprising bearing in mind the power and torque increases on offer. For a cost of \$248 in 1960, this bolt-on kit was able to boost the 1500 MGA's paltry 68bhp to a far more

healthy 105bhp. Test results from America's *Road & Track* magazine show that the Judson Supercharger boosted the MGA's top speed from 95 to 110mph. The 0-60mph time dropped from 14.5 seconds to a very respectable 10.8 seconds. Impressive stuff, and enough to make the Healey 100-6 and TR3's performance appear totally inadequate by comparison.

When *Motorsport* magazine tried Judson MGA, it was suitably impressed: 'After putting the car through its paces and comparing notes on its present versus past performance, there can be no doubt about the value of supercharging.' With such a positive endorsement of its performance potential, it's perhaps surprising that so few Judson superchargers reached these shores. Does anyone know of any?

Judson performance figures (from 1958 Sports Cars Directory and Road & Track)

	Judson MGA	MGA 1500	Healey 100/6	TR3	Mercedes 190SL
ACCELERATION					
0-30 (secs)	3.5	4.6	3.8	3.4	3.7
0-60 (secs)	10.8	14.5	11.6	11.5	11.0
0-80 (secs)	19.6	30.4	21.3	20.0	23.3
MAX SPEED	110	95	104	102	103
MAX BHP	105	68	102	100	120
FUEL CONSUMPTION	25-30	26-32	19-27	16-25	17-28

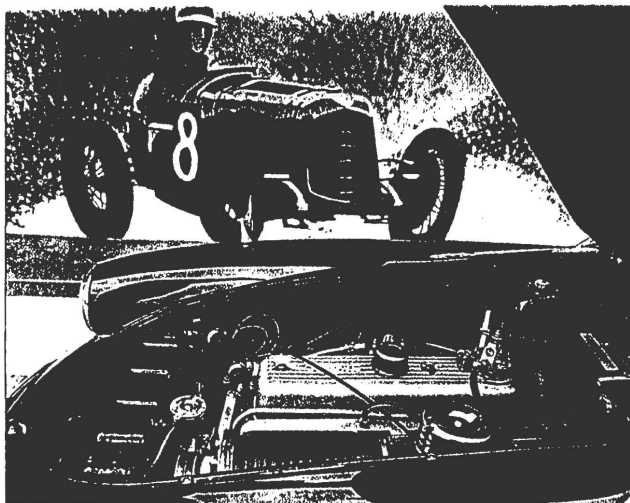


to approach the panelwork. He knew that getting it all straight was a skilled job, and that if it wasn't right, the car would look a mess. By chance, though, he came across the bodyshop manager for a local firm. It turned out he was looking for some extra work in his Easter holidays and was only too pleased to put on the panels and to do all the lead-loading and paintwork in the car's original colour of black. It's a superb job, too: utterly flawless and with a deep and lustrous gloss.

Seeing the MG looking beautiful once more encouraged Alan to get the car finished. It was finally put back on the road about five years ago.

Not long afterwards, Alan was contacted by the 'A's very first owner, Les Hayward. He'd managed to track down the vehicle through one of the owner's clubs. When he clapped eyes on the newly restored car, he was amazed at seeing his 'old' car just as he remembered it.

It turned out that he'd raced the MG in its early years and Les presented Alan with some wonderfully evocative black-and-white photographs of the car being raced in its heyday. He also helped Alan with a few facts about the car's originality, such as confirming that it had a red-painted dash from new, even



it, Alan got to thinking about making some changes. "I wanted period improvements to make it look a bit special, and I also wanted to give it a bit more oomph" he says. It didn't take long before his mind began to embrace the concept of supercharging. After all, this was the time-honoured method of gaining extra power from an MG. And it'd be a great talking point, too.

"At first, I was thinking in terms of a Shorrocks or Peco supercharger, as advertised in magazines of the 1950s. I couldn't find anyone who had ever seen a Peco blower, let alone owned one, so I began to look for a Shorrocks. I think it was through the internet that I found out about the Judson supercharger." It turned out that there's a man in the USA who rebuilds these Judson blowers and sells them fully reconditioned and complete with instructions. And so it happened that, on his return from a visit to the States, Alan could be seen strolling nonchalantly through customs with a Judson supercharger deftly carried under one arm.

Fitting it proved to be relatively straightforward. The kit comes with an alloy rocker cover that is extended to house an oil reservoir. This bolts straight on. However, the steering rack had to be moved forwards (as per the Twin Cam) to accommodate the extra crankshaft pulley needed to drive the supercharger pump. The choke cable needed to be modified to suit the Holley

carburettor that came with the kit, but basically it's a bolt-on conversion.

The Judson supercharger uses a relatively low boost pressure to enable it to be fitted without any change to the standard 'A's compression ratio, but with the spectre of lower-octane unleaded fuel lurking on the horizon, Alan decided to change the head for a stage-three MGB type with unleaded valve seats. The idea was that the greater volume of the 'B's combustion chambers should bring

Supercharged MGA 1500 facts

ENGINE

'B'-series four-cylinder engine with MGB stage-three cylinder head. Judson supercharger belt-driven from crank and fuelled by a single Holley single-choke carburettor. Alden Ignitor distributor. Freeflow tubular exhaust manifolds.

Electronic fuel pump

Capacity

1489cc

Compression ratio

8.3:1 (estimated)

Maximum power

100bhp at 4500rpm

TRANSMISSION

Standard MGA four-speed manual gearbox

SUSPENSION

Independent front suspension by wishbones and coil springs. Rear live axle with semi-elliptic leaf springs. Lever arm dampers

BRAKES

Drum brakes front and rear with aluminium drums

WHEELS

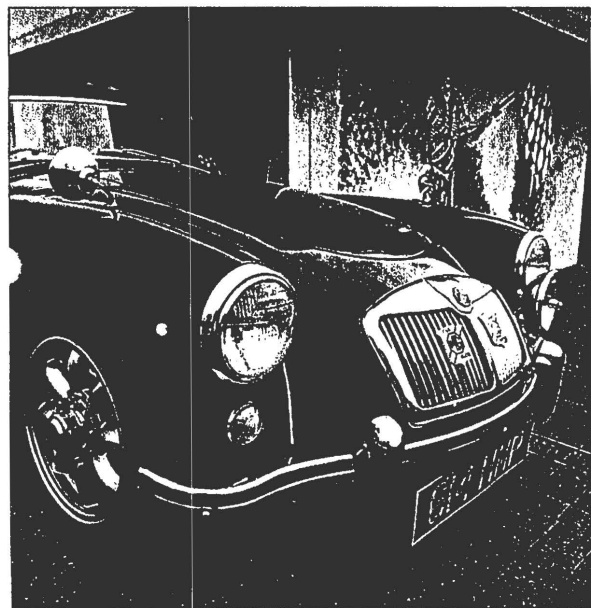
Centre-lock Minilite-style alloys

the compression ratio down to about 8.3:1. Alan also had the bottom end balanced in deference to the weak crank used with this type of engine, and added a modern freeflow exhaust system to allow the gases to escape more efficiently. Other changes centre on the fuel pump, now a modern transistorised pump, and the distributor, which has Alden Ignitor electronic internals.

So how does it go? "At first," says Alan, "there were a few teething problems, mainly with oiled plugs. But now you can certainly feel the difference. I'm enjoying the car now and from 50-70mph it really flies. I'm very pleased with the results. The dyno tests show that it develops about 100bhp at 4500rpm: a Twin Cam 'A has only 94bhp at the same revs. And, best of all, I don't know of another Judson-supercharged MGA in the country!"

To complement the sporting character of the supercharger, Alan has changed the wheels from the hard-to-clean wires to a set of chunky-looking centre-lock alloys modelled on Minilite mag-alloys. Scrutinise the car closely, and you might spot another modification: a set of Alfin-style alloy brake drums brought over from Canada.

It all adds up to a unique MGA with a sporting character and with more than a hint of originality. Alan says that it will never be sold. It's definitely become part of the family now: even though the out-of-wedlock acquisition of this lovely and wholly characterful MGA could perhaps be described as a touch illegitimate. **MGW**



though the car was always black.

At this time it was utterly standard and with a stock engine. Alan went to a few MG events to show off the car, but soon realised that, despite all the effort and hard work, it was still just another MGA. "At a show, you'll get perhaps 20 or so MGAs, all the same. I wanted mine to be different. And anyway, I like 'fiddling' with the car," he explains.

So after a year or three of running the car in standard nick and generally enjoying