

Judson supercharger puts extra wings on the "beetle" — and it's moderately priced as blowers go, says David McKay

EVER heard of a firm called Judson? If you read American motoring magazines, you'll probably recognise the name.

They're research and manufacturing engineers, established in Pennsylvania, and one of their activities is producing superchargers for many makes of cars — including MG's, Mercedes and VW's.

With the easing of import restrictions, Judson blowers have recently become available in Australia.

I've just tested a "Judsonised" VW with highly satisfying results, and I propose to tell you all about it. But first, a few words about the practice of supercharging.

What It Does

Judson's own literature explains the idea behind supercharging clearly and succinctly, so we might as well borrow their wording:

"Supercharging is a mechanical method of forcing the air/gas mixture into the cylinder instead of using the piston to suck it into the cylinder. A supercharger simply places more of the mixture behind each power stroke of the piston, and this increases the power of the engine.

"The cylinders in a supercharged engine are always completely filled and each cylinder receives a uniform charge. Basically, supercharging increases horsepower by improving the efficiency of the engine."

Neatly put, and in theory most accurate. The advertising blurb goes further and describes the blower as "a positive-displacement rotary-vane type compressor" operating on "the principle used in most aircraft fuel pumps. The mixture enters the supercharger through the carburettor and is compressed — the pressurised mixture is then forced into the manifold."

Then it adds: "The rotary-vane type

is noted for its high efficiency, long life and silence of operation . . ."

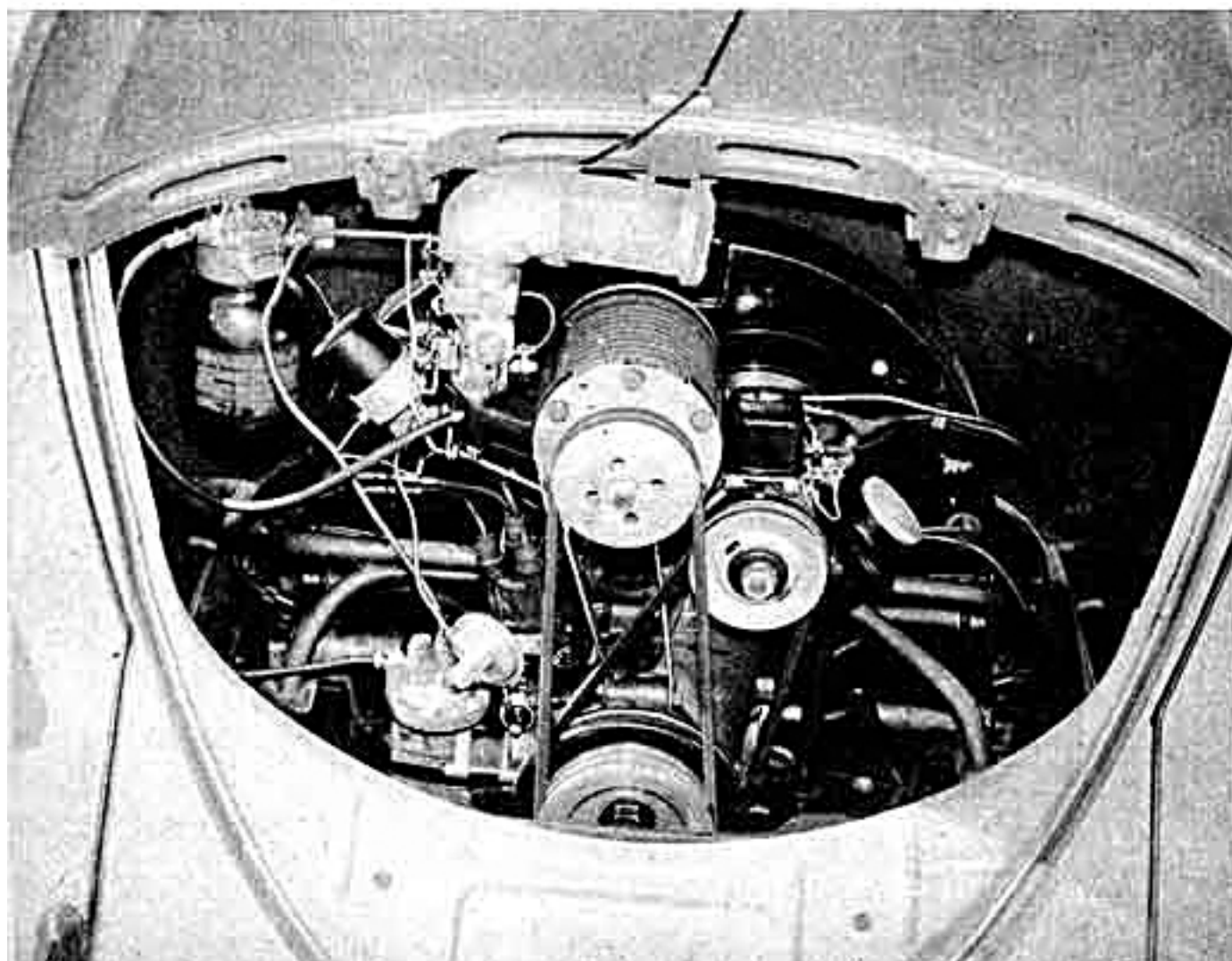
The blower "has a positive lubrication system, and clean oil is supplied to the unit from its own oil reservoir. One quart of oil is used in approximately 1000 miles, and in addition to lubricating the supercharger, this oil acts as an upper-cylinder lubricant . . ."

Thirty years ago a blown car was a diverting piece of machinery — many firms offered a supercharged model on their catalogues and quite a number were sold. But they were as temperamental as they were fun, and were more often than not in pieces — sometimes intentionally, but frequently through temper!

Like many other things, they disappeared in the depression of the early 1930's and didn't make a comeback till after the war, when I was lucky enough to collar one of the first blown MG's to reach this country.

SO simple to fit, they only charge you a fiver for the job. Judson blower is driven off extra pulley fitted alongside the one driving the fan; it has its own lubricant tank (left), needs special quick-flow cleaner (above).

VW + S/C =



It was a TC with a quite modest amount of boost; the blower gave no trouble apart from an occasional oiled plug in traffic driving, yet it added greatly to the performance of the otherwise fairly ordinary XPAG engine. An entirely different kettle of fish from the screaming K3 Magnettes of the pre-war era!

The renewed and growing popularity of superchargers over the past ten years is a great credit to the designers of our standard engines. Research into bearings, exhaust valves and head gaskets has given us a robust unit, which can take moderate supercharging without needing any modifications — and the blower itself has been tamed, so that it's now perfectly suitable for everyday use.

One good example of the modern "civilised" blower is the English-made Shorrock, which extracts such remark-



gauge on the dash to give the game away. But the set-up gives the VW just that extra bit of sting so many of its more enthusiastic owners wish it had.

If you're the honorable type, you don't stalk other VW drivers with your blown car and then send them home broken-hearted, thinking their "beetles" must be in the last stages of decay. No — you sidle up to big, opulent cars driven by flashy types or homburg-hatted cigar-smokers and proceed to slit away from them at traffic lights or up hills.

"Australia's own" makes another good target — but they must be approached more carefully. You might find Geoghegan or French, wearing a false nose and beard, piloting a scrubby-looking ex-cab with double the regulation number of horses under its bonnet!

I found the Judson-blown car great fun to drive. So did my wife — so much so that our baby daughter is on bread and water until we have saved up £98 for our "housekeeping special."

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able performance from the Austin-Healey Sprite (to name only one of several cars it can be used on) another is the American Judson.

Judsonised VW

Which brings us back to the test car — a 1960 VW fitted with a Judson supercharger.

It belongs to Sydney insurance man John Webber (veteran of several Bathurst and Drutt meetings), who was kind enough to lend it to us for testing. The blower was fitted by local Judson agent Ron Ward, who used to drive MG's with the best of 'em in the early 'fifties and now runs his own motor engineering business at Strathfield (Sydney).

The unit costs £98, plus a fiver for fitting. There are no external signs of the blower — not even a boost

COMPARING THE PERFORMANCE

CONDITIONS: Cold, cloudy, no wind; two occupants, premium fuel.

BEST SPEED: 80 m.p.h. (normal 70).

FLYING quarter-mile: 78 m.p.h.

STANDING quarter-mile: 21s.

MAXIMUM in indirect gears: 1st, 18; 2nd, 35; 3rd, 55.

ACCELERATION from rest through gears (normal figures in brackets): 0-30, 5.2s. (6); 0-40, 8.8s. (10); 0-50, 13s. (15); 0-60, 18.2s. (23).

ACCELERATION in top, blown VW only (with third in brackets): 30-50, 14.2s. (8.0); 40-60, 16.2s. (10.2).

CONSUMPTION: 25 m.p.g. (normal 33).

TEST HILL: Blown VW, tested in rain — 2m. 42s.; normal VW, tested on dry roads — 2.49. Mountain circuit average: blown (wet roads) 49 m.p.h.; normal (dry) 48.

U.S. TEST FIGURES

BEST SPEED: 85 m.p.h. (normal 70).

ACCELERATION from rest through gears (normal figures in brackets): 0-30, 4.2s. (7.5); 0-40, 7s. (13.5); 0-50, 10.2s. (20); 0-60, 15.5s. (30.5).

FUEL CONSUMPTION: 29 miles per U.S. gallon (normal 31 m.p.g.).

VW PLUS S/C

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It was quite trouble-free — started first go every time, and we couldn't notice any increase in noise at all. The most noticeable effect of the blower was in second and third gears, particularly after changing into third. The torque increase was really good and the VW fairly steamed along.

It seemed to me that the VW induction system effectively stifled the blower's urge at high revs, so that there was little to be gained from hanging on much past the recommended change-points.

If anything, the blower made the VW even easier to drive fast: this was because of the extra power available for cornering.

Roughly speaking, it makes about a gear's difference to a standard car. A blown car's third is like a normal second and top is like third. This cuts out a lot of gear-changing: instead of going down to second for ordinary suburban-street cornering you can pull away quickly in third with the blower.

Webber's car had only 2500 miles up and felt that it would go better

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(OR ILLUSTRATED LEAFLETS IF REQUIRED).

later on, but even so the results were satisfying.

I couldn't match the advertised American figures — but perhaps they use a different induction pipe over there, and they would certainly use better petrol. (Maybe they've also "gilded the lily" a little — their figures for the unblown car, quoted to show the improvement made by the blower, are well below a normal VW's capabilities!)

There was some detonation and the car ran on once or twice. Even the standard VW needs super fuel, so the blown car doubtless needs something better still, considering the 6lb. boost.

Another matter which would concern the heavy-footed is the clutch.

There was a little slip when I was trying to cut acceleration times and this is to be expected. However, fitting Super Porsche springs should enable a blown "Beetle" to cope easily with the increased power.

The Judson is a thoroughly practical example of the use of supercharging — and, provided you drive your blown VW with the same amount of horse-sense you brought to the task before the conversion, I see no reason why it shouldn't give the same trouble-free service and long life.

FOOTNOTE: Owners of Karmann-Ghia coupes should duck out Strathfield way and see Ron Ward. He can now supply the only thing their cars lack — that bit of extra steam. ● ●