



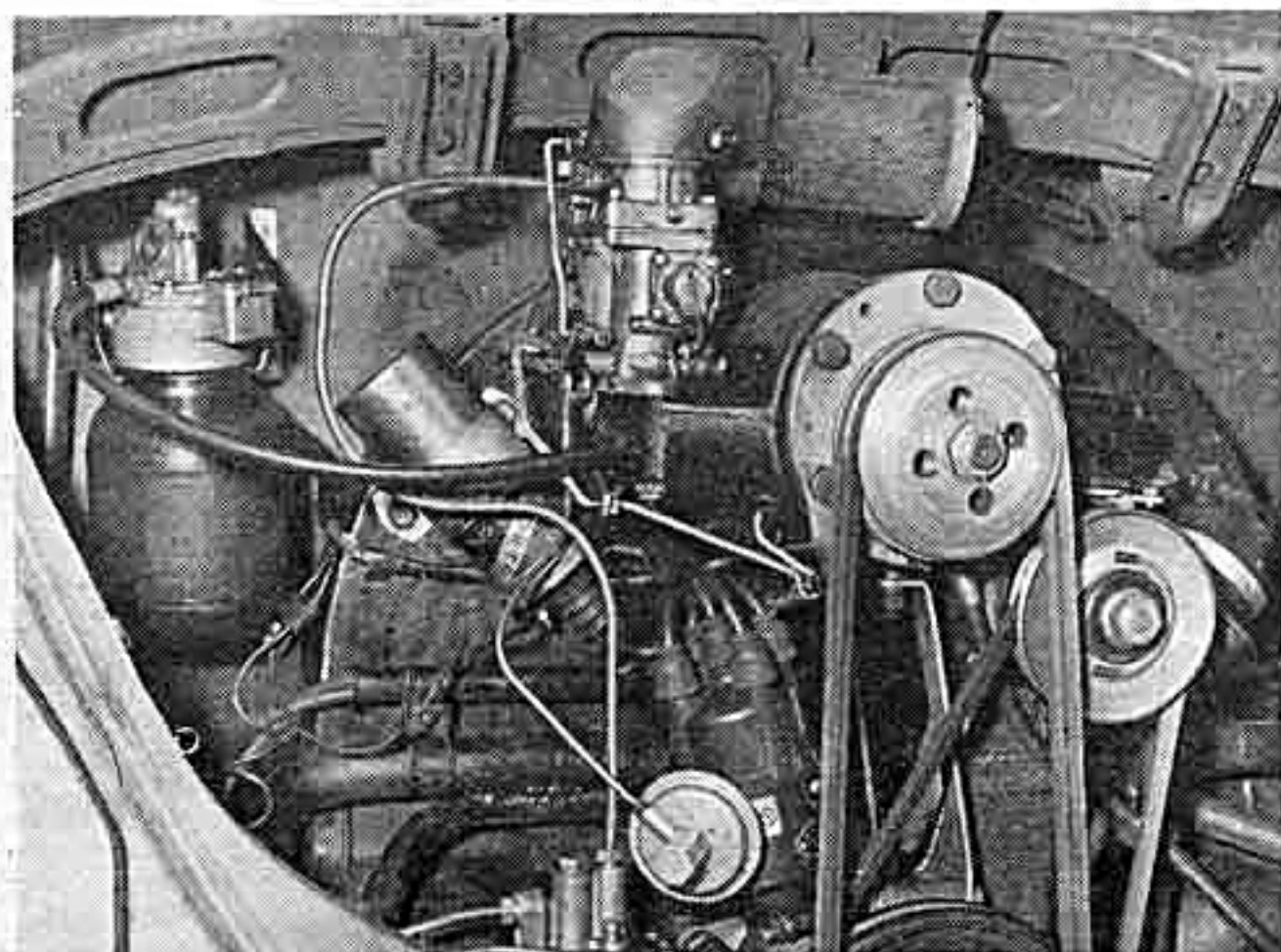
Although it looks innocent, this VW has a blower packed in the back. Judson transfer on window is only clue.

Huff and Puff— THE VW BOOSTER

wheels

FULL ROAD TEST

A £97/10/- American-made supercharger kit turns the VW into the ball of fire most beetle-owners dream about, reports tester PETER HALL.



Judson blower packs in tight under the bonnet. Air cleaner is a special one which just fits. Bottle is for lubrication.

VOLKSWAGEN owners definitely fall into the enthusiast class. They brag more than any other owners about the quality of their machines, the performance, the reliability.

They drive motor writers and other peace-loving citizens crazy with their claims of fantastic top speeds, unbelievable economy, Methuselah-like longevity. Also, very few of them have ever had their speedometer checked. With experience of more than a dozen different Volkswagens during the past couple of years I have never found one that did not have a strongly optimistic speedo.

But that is by way of preamble. I haven't really got anything against Volkswagens or their drivers. The car is undoubtedly one of the great automobiles and it doesn't matter who likes or dislikes them (except to VW's general sales manager) and the drivers are normally pleasant types that just happen to get a fanatical gleam in their eyes whenever someone mentions the subject of beetles.

One thing that the enthusiasts have not been very successful at has been producing genuine extra performance from their little rugged machines.

All things have been tried. Twin carburettors have proved troublesome in the linkage department and don't improve the performance greatly, raising compression ratio to cloud-high levels tends to demolish crankshafts and affect normally not-so-tender spots, different diff ratios are okay, but only for specialised purposes and Okrasa kits, though highly effective, are very, very expensive — at least a third of the cost of a new beetle complete.

Perhaps the most successful method so far of hotting Volkswagens is dumping the engine and replacing it with a Porsche donk. But that is kind of expensive, too.

Seriously, though, one practical method of extracting more horses from Germany's ugliest duckling has been devised and it comes from the home of Volkswagen fanatics, the United States of America.

A few years ago a small engineering business called the Judson Research and Manufacturing Company, of Conshohocken, Pennsylvania, developed a rotary vane type of supercharger for the popular TD model MG. The proprietors, Charles and Haddon Judson, were enthusiasts and their sales boomed among the enthusiastic MG owners.

The advent of armies of Black Forest beetles on to American roads gave the Judson's business a tremendous boost and allowed them to build fine new premises and move from small production into big volume.

Why? They found their MG blower was very suited to the Volkswagen and needed little modification. They also found, as all non-VW Australians have found in the last six years, Volkswagens drivers are very keen to warm their cars up, I think, because a spirit of conscience nags them and tells them they should do something to justify those little white lies about the performance they have been claiming.

Despite the VW factory officially frowning on superchargers (and every other form of non-production modification) great numbers of Judson superchargers have been sold not only to American lead foots, but to their European counterparts, too. Indeed, about half Judson's production goes to Europe, despite the competition there from several other long-established blower makers.

Now the Judson unit has become available in Australia. It is being imported by Whirlwind Sales Pty Ltd, of Moorabbin, Victoria, and distributed by agents in each state.

As is the case overseas, various forms of the Judson unit are available also for the MGA, Austin-Healey Sprite, Mercedes-Benz 190SL and Triumph TR3.

The unit itself, which retails in Australia for £97/10/-, including sales tax (an extra £5 if you get the agent or a mechanic to fit it) is a simple, ruggedly built blower.

One of its greatest features from the design (and engine wear) point of view is that it is not constantly in action.

A rotary vane type, the vanes are closed and the unit boosting only when the throttle is open. If the boosted beetle is cruising along the highway at normal speed, the mani-

fold pressure is almost normal, despite the fact that the vanes are still rotating.

Judson claims that if you do not exceed normal factory recommended maximum revs, no reliability should be lost compared with a stock engine.

The car I tested had done about 9000 miles, more than 5000 of which had been supercharged, and apart from a lack of tune due more to its being used as a demonstration hack and getting no maintenance whatever, there was no sign of wear at all.

The Judson kit can be installed by a layman with virtually no changes in stock settings. The compressor bolts on to the intake manifold and is belt driven from the crankshaft via a special pulley which is supplied in the kit.

The stock carburettor from the car is bolted to the top of the blower and a new, smaller air-cleaner designed to fit under the lid — it is a tight squeeze — is clamped on.

Only one jet needs to be changed in the carburettor — the air correction jet in the centre of the throat. In the kit is a 140 jet to replace the stock 195 jet. The only other change is bending the fuel and vacuum lines to the new higher position of the carburettor.

A quart jar is supplied with the

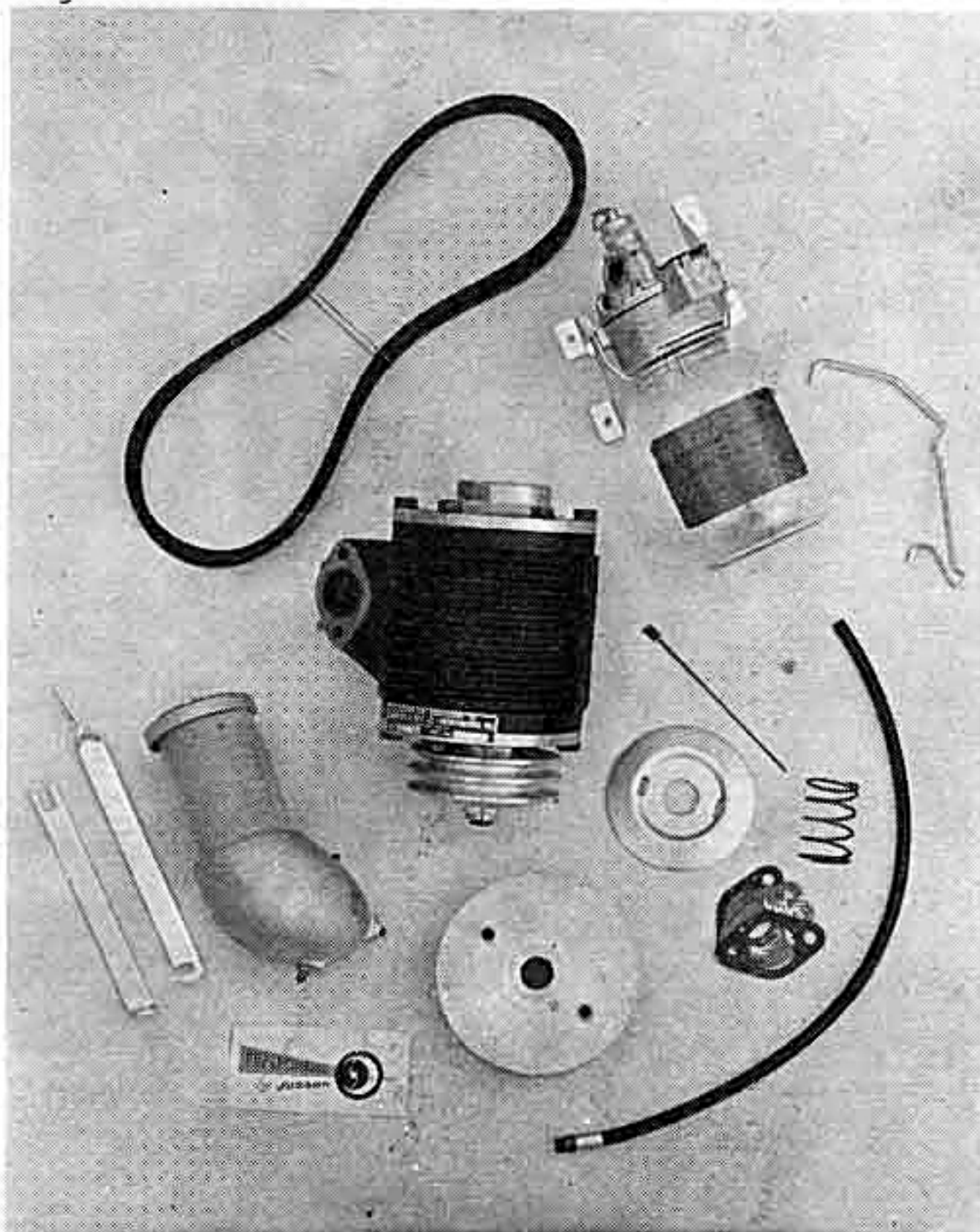
kit for a light, upper-cylinder lubricant type of oil. Its main purpose is to provide lubrication for the sliding vanes inside the compressor casing. Properly adjusted, the quart should last a couple of thousand miles.

The whole installation is very neat and gives the appearance of being part of the car's standard equipment. The only wearing parts are the vanes and the driving belts. The vanes themselves, made of nylon, are easily replaceable and cost only a few shillings. So there should not be any service worries with the unit, especially as the importers are bringing comprehensive stocks of spares.

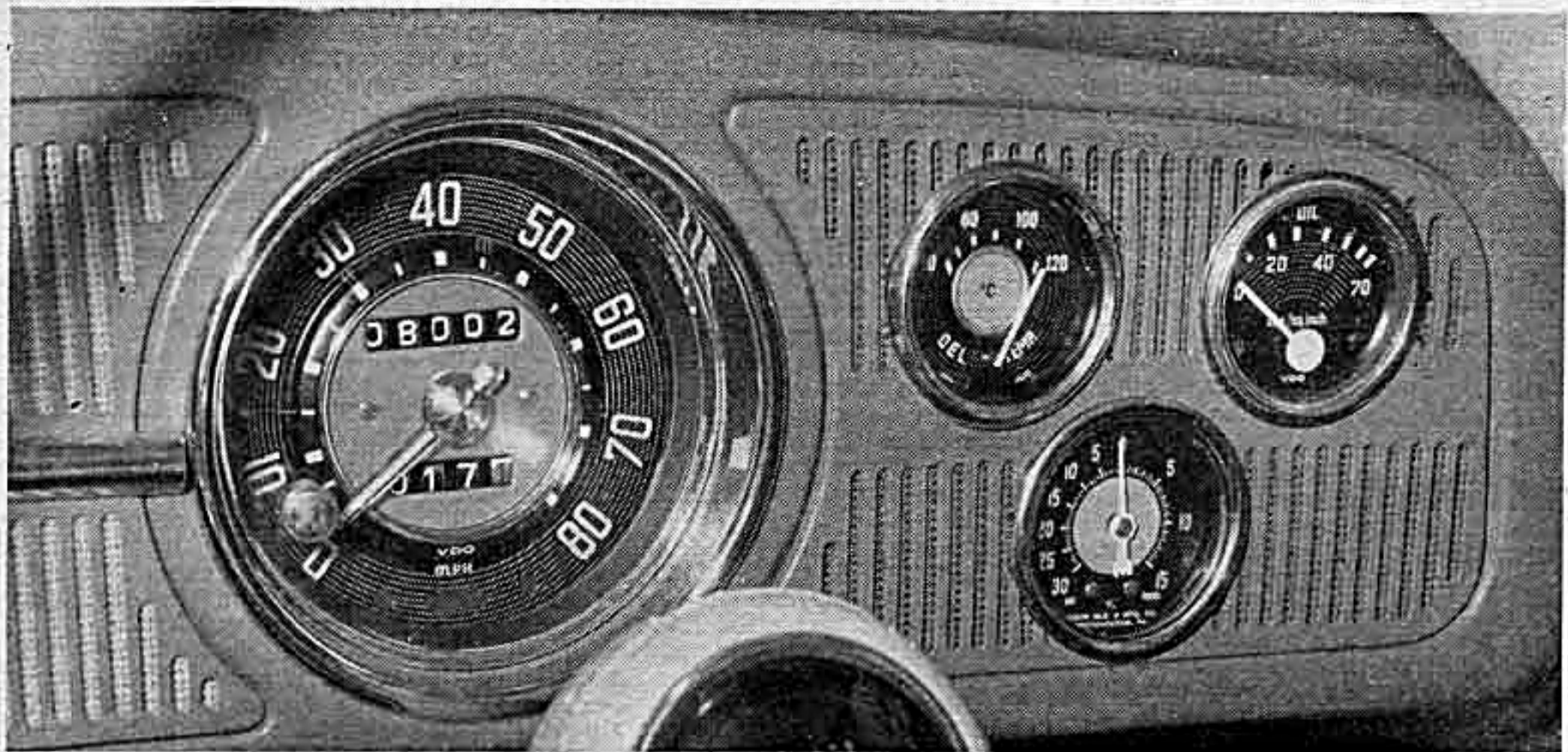
Incidentally, if the blower does break down for any reason, the car will go normally, with normal carburettion. The driving belts can be taken off (if the breakdown was not their breakage) and the car driven home like any normal beetle.

My test car came from Melbourne distributor, Ern Abbott. Ern achieved much fame during the past decade with performance on race tracks and hill climbs around the country in side valve Morris Minors.

He has given the Minors away now (not literally, of course) and is concentrating on his used car business and selling Judson superchargers. As



This is the £97/10/- worth of kit that makes so much difference to VW performance. It is complete in every detail.



Test car had additional instruments, but these are not included in blower price. Bottom dial is manifold pressure gauge.

HUFF AND PUFF — THE VW BOOSTER

I said before, the car had been used as a hack by Ern Abbott and lacked an edge of tune. After a test, I had a run for a day or two in a Judson-blown VW in which Harry Firth won this year's Experts Trial. It definitely had more bite than the test car and would have returned better figures.

As things stood, the test vehicle did show an appreciable improvement in performance, as the figures show.

Just a word on the figures quoted for the standard VW. They are the figures I obtained on the test in WHEELS (March, 1960) and I believe were definitely better than average Volkswagen.

The Spencer Motors men who drove the car quite a bit agreed it was one of the freest moving beetles they had ever encountered. Maximum speed in third gear was particularly high and well above that possible in 90 pc of standard production Volkswagens.

So, allowing for that fact and the test car's lack of tune, the performance figures are more impressive.

Still, the Judson supercharger does not give a tremendous boost in power, a factor which is probably all to the good, especially for the salesman who are aiming more at the average VW driver: who wants a moderate boost in power rather than the potential racing driver.

Fuel consumption dropped considerably, but the loss would not be so great with more gentle driving and with the car in better tune. But the blown Volks would average at least five to six mpg less with normal driving than the standard VW.

For my liking, the greatest virtue of the supercharger was an indirect one.

It clearly improved the safety and handling qualities of the car.

The reason why some people get into trouble driving Volkswagens and why they have gained an undeserved reputation for being dangerous is that, unlike the vast majority of popular passenger cars, the beetle oversteers and quite strongly.

The practical effect of that characteristic is that when the car passes the point of tyre adhesion on a corner, the tail breaks away sharply and the nose dives into the corner.

The trouble with the Volkswagen is that this often happens when the car is being cruised at top speed and that the steering is very direct. The inexperienced or ignorant driver, who has not got the safety valve of extra power under his foot can only do one of two things — slow down, which is invariably the worst thing to do in the middle of a corner, or correct the slide. He corrects too much, because of the steering sensitivity and goes into a worse slide the other way by which time he hits a ditch or a tree.

I found the supercharger gave the Volkswagen the extra power which makes oversteer a wonderful handling asset.

It was exhilarating to throw the blown beetle into corners to the limit of adhesion, feel the tail slide, floor the accelerator and find the little car drive itself out of the corner and down the narrow road.

Harry Firth found this on the Experts' Trial. He was able to outdrive every other Volkswagen — and there were some pretty skilful drivers using all their considerable skill to stop him completing the Experts' hat-trick. Firth not only wiped the other, unblown Volkswagens, but thrashed some other good handling cars, too.

I don't recommend beetle drivers to scurry off to the nearest Judson dealer, ram a blower into their engine compartment and start screaming for the nearest corner. Heaven forbid! Our roads are crowded and dangerous enough as they are without having the Volkswagens shoving their ugly tails in the path of oncoming traffic at every corner.

But the sensible driver who knows how to handle a car on the corner and up till now has been nervous about his Volkswagen, could do well to invest in the blower. That margin of safety is well worthwhile.

He would be getting an effective boost to performance for a price that is not exorbitant and one that is not likely to blow his rugged little motor up (the Judson maximum boost is only five psi, although the mad enthusiast could see obvious ways of boosting that).

I would offer only one word of warning. The air cleaner is a pretty small affair and no doubt thoroughly suitable for the man who never leaves the bitumen.

But for anyone contemplating driving a Judson VW on dirty roads, a heavier duty air cleaner is a must. Even five psi can suck in an awful lot of dirt and small stones.

One of the big drawbacks of hotting Volkswagens has been eliminated with the new model (see page 34, this issue) — namely the crankshaft.

As any enthusiastic VW owner will tell you, the little flat four engine is inclined to break crankshafts if hotted excessively (the power boost given by the blower can hardly be described as excessive) but the new modifications will mean that those people who want to really make the beetle march can now do so with little risk. #

Technical Details

Specifications:

MAKE:

Volkswagen sedan, supercharged.

PRICE:

£971, plus £97/10/- for blower.

ENGINE:

Cylinders, four; pattern, two pairs horizontally opposed, air-cooled; valves, pushrod overhead; bore and stroke, 77 mm by 64 mm; compression ratio, 8.6 to 1; bhp, NA; Judson supercharged to five psi; carburettor, Solex downdraught with accelerator pump; fuel pump, diaphragm, mechanically operated; capacity, fuel tank, 8.8 gallons including 1.1 gallon reserve tank.

TRANSMISSION:

Type, four-speed with synchromesh on second, third and top, floor change lever; final drive power transmitted through spiral bevel gear, two-pinion bevel differential gear and swing axle shafts to rear wheels; ratios, top gear, 0.82 to 1; third gear, 1.22 to 1; second gear, 1.94 to 1; first gear, 3.60 to 1; reverse gear, 4.63 to 1; final drive 4.4 to 1.

CHASSIS AND BODY:

Tubular steel centre section frame forked at rear and welded on platform. All steel body.

SUSPENSION:

Independent all round by transverse torsion bars. Stabiliser bar at front.

BRAKES:

Type, Lockheed hydraulic; handbrake, mechanical on rear wheels. Lining area, 80.6 sq in.

STEERING:

Type, worm gear and divided track rod. Turning circle, 36 ft. Turns 2.4 from lock to lock.

ELECTRICAL EQUIPMENT:

Voltage, 6; standard features, horn, trafficators, interior courtesy light, parking, head, tail and stop lights.

WHEELS AND TYRES:

Type, pressed steel discs; tyre size, 5.60-15.

DIMENSIONS:

Wheelbase 7 ft 10½ in; track, front, 51.4 in; rear, 50.7 in.

Performance:

TOP SPEED:

MAXIMUM SPEED IN GEARS:

	Standard	Supercharged
	VW	VW
	mph	mph
Top speed	72	75.4
First	25	28
Second	46	48.3
Third	65.2	65.4

ACCELERATION:

	seconds	seconds
Standing ¼-mile ..	23	21.2
0-30	6.5	5.7
0-40	11.2	8.5

0-50	17.3	12.9
0-60	27.4	19.9
Top gear:		
20-40	12.0	5.9
40-60	13.5	9.2

FUEL CONSUMPTION:

	mpg	mpg
	29.6	20.2
	(both hard driven)	

TEST CAR FROM:

Ern Abbott Car Sales, Malvern Road, Malvern, Victoria.