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THE KARMANN GHIA WITH JUDSON SUPERCHARGER

Every Karmann Ghia owner wishes to make the car livelier and faster, understandably as, quite honestly, the coupe looks faster than it really is. Osnabruck is relying on the original chassis with its 30 BHP motor. They have created sleek and sporty coachwork which contrasts strongly with the cars dynamic abilities. It does, through the good streamlined shape, allow a top speed of 120 km/h. But the greater body weight compared with the VW saloon, reduces the acceleration at slow speeds.

I achieved in the original Karmann Ghia coupe a top speed of 121 km/h. and the following acceleration times from a standstill to:- 60 km/h in 11.5 secs (first and second gears), 80 km/h in 20.5 secs (1st to 3rd), 100 km/h in 36 secs (1st through to 4th). One shouldn't overlook the latest competitor to the Karmann Ghia coupe, the Goliath Coupe, which reaches 140 km/h, with acceleration times of 8, 13 and 20 secs., and even 120 km/h is reached 4 secs faster than the Karmann reaches 100 km/h. It's not difficult, looking at these figures, to appreciate the secret wishes of some Karmann owners for a larger engine capacity. There are a few possibilities to satisfy this wish.

You are already familiar with the principles of the Judson supercharger from articles in this magazine (no. 15, 1957). It talks about, to repeat the essentials, a supercharger made in Austria (as with the Zoller, with plastic axia; vanes, rather than the Roots type with its screw compressor action) which is placed, instead of the carburettor, on top of the inlet manifold, with two driving belts from the engine pulley. The flange for the carburettor, and air filter, is at the side due to lack of room. The fuel mixture is sucked through the carb by the compressor, through a sealing gasket, and into the engine. Throttle lag is eliminated by the long inlet manifold and complete fuel mixture

charging is guaranteed. At higher revs you can count on slight, overcharging, which explains the willingness of the supercharger engine to rev, and the higher top speed.

They, found it important not to change the original specification of the engine to minimise the cost of the installation, both the kit and the fitting charge. Nothing is altered in the motor apart for the fitting of the additional belt-drive pulley on the crankshaft. The carburettor remains as it stands, except the air correction jet is changed from 180 to 140, which means a richer mixture. Normally with, the Karmann the upright inlet manifold is slightly shortened so that the supercharger and air filter can be positioned under the bonnet. This was not altered on the original Swiss-owned prototype of the Judson-modified car: in this case a hole was cut out of the bonnet, which at least allowed. better cooling of the engine compartment !

For some time now the supercharger and accessories have been available somewhat cheaper -DM625 for the VW Saloon, and DM675 for the Karmann. Included in the kit is an additional drip-feed oiler (responding to pressure reductions), which lubricates the supercharger and acts as an upper-cylinder lubricant for the engine .

My description in issue no 15, 1957, turned out to be accurate, in view of the improvements in driving capability, even though there are still a few things to complain about: the sensitivity to some of the differing fuel qualities, especially some containing benzole, which caused marked pinking, and the need for a rather rich carburetor setting. The reason for the latter was undoubtedly due to the heating of the mixture by the Judson supercharger. That's why I recommended the further development of a warmth extraction system. This has already been fitted to the car under test, and is now included in the fitting kit by Judson, and the warm air bleed is disconnected. Some fuel sensitivity (super grade is the instruction anyway) is still present, and a retarded ignition setting is recommended , (7mm to the right of the crankcase centre line). Following these experiences I looked into the high fuel consumption and can now comment on a remarkable improvement.

Unfortunately the vehicle was only available for a short period, just sufficient for the test drive and the necessary measurements. Again, this time the weather wasn't 100% good, and one had to accept these circumstances in a short test. The car arrived, completely unprepared, in Stuttgart, which I welcomed, since that way one can judge more realistically how the vehicle (this one with its in-built 108/15 Supercharger) reacts in the hands of potential customers. The back axle was fitted with M&S (mud & snow) tyres, thus reducing the speed capability on the test circuit in the bad weather. It is possible, therefore, that the results achieved could be improved by a few percent, though I must stress that these are real figures in real conditions, not the usual dry-road readings produced by our circle of road-test colleagues.

The average speed from Stuttgart to Lindau, in rain, cold weather, and heavy traffic, was 61.3 km/h, at 8.4 l/100km. The slow stretch resulted in 52.9 km/h average, and 6.95 l/100 km. Even though it is nearly the same sort of average speed as before, there was a reduced consumption of 1.35 l/100km. The improved streamlined shape of the Karmann, compared with the VW Saloon, has been negated by the higher weight. The motorway stretch resulted in 114.1 km/h (105.6km/h previously) at a consumption of 10.95 l/100km, despite the higher speed, so a clear 0.91 l/100km less. The overall consumption on the test stretch was 8.55 l/100km with an average speed of 65.3km/h (9.7 l/100km and 65.6km/h previously). The remarkable savings in time and consumption of this supercharger kit were a pleasant surprise. The consumption of the additional oil-feed runs at 0.5 l/1000kms; therefore it's not important. This oiler, by the way, is adjusted so that in neutral it releases a drop every 3-4 seconds: you must use HD SAE 10 oil (in winter SAE 5). The spark plugs are L-11-S (summer) and L-10-S (winter). One final point to mention: a throttle ring for the cooling air is fitted. The clearance in the vent, with a cold engine, is 0.15mm, and the fuel pump is fitted with a stronger spring.

The tests undertaken the following day were in better weather, though slightly windy, and represent more average results with a wider spread of values. The top speed was 130.4 km/h, the standing kilometre 42 secs.(equivalent to an average of 1.135m/sec2 acceleration).

The top speed shows an increase of 13-14 km/h, which is a 12.5% improvement. The overall performance increase of about 40% illustrates very clearly the benefits of supercharging.

Secretly I had hoped to achieve the speed and acceleration figures claimed by the American Judson Company (0-60 miles/hr in 15.5 secs) but this didn't work out. Even though the results achieved show clear gains compared with the figures for the original Karmann: with the supercharged car you could reach 0-60km/h in exactly 10 secs (original 11.5), 0-80km/h in 15secs (instead of 20.5 secs), to 100km/h in 23.5 (36 secs). The 120km/h was reached in 38 secs, and the top speed in almost 60 secs. It is not recommended to over-use the lower gears and it is easy to stray into the "forbidden revs sector". During the acceleration tests the limits of 30, 60 and 90km/h were strictly observed. If you rev harder in the gears you will probably improve acceleration a little. As a trial you could push 3rd to over 110km/h (the speedo showed 8.5% exaggeration), and at these speeds the engine was not over-loud, and no whine or whistle was evident from the supercharger. Compared with the original Karmann the acceleration from 0-100km/h was reduced by 35%, which demonstrates far better than words, the power of the Judson installation.

Although the normal VW 30 BHP motor is noted for its longevity, an increase to 40 BHP or more may bring a risk of reduced engine life. You would be wise, therefore, to follow the Judson representative's advice and stick to the rev. limits. And, also, not to drive to make the loudest noise, but to use the increased horsepower carefully (and economically), or otherwise be satisfied with the shorter lifespan of the engine, and other consequences. The maximum of 134 km/h is still quite presentable for the Karmann, especially the newer model with its better brakes, the lower centre of gravity, and the front stabiliser bar.

My impression of less engine flexibility at low revs turned out to be true. The earlier Karmann tested accelerated from 30-60 km/h in 4th gear in 12 secs; the modified Karmann took 17 secs. The 30-100 range was exactly the same at 36 secs, though above this speed the supercharger

Karmann was noticeably better, and with a higher top speed. Judson recommends earlier gear changing, but I do my acceleration tests at 30 km/h intervals, which may sometimes be a bit rough on the car. With the Judson compressor, at least in comparison with other performance kits, they have put less value on raising the top speed than on improving the in-gear acceleration times. In normal use this is obvious with greater engine flexibility. Despite the gearing of the supercharger, and the standard carburettor settings, differences in the supercharger performance became apparent, which could be due to variations in the fuel atomisation within the engine. The Judson people themselves make the point that the supercharger produces more efficient combustion.

Altogether the Judson installation gave a much better showing in the Karmann than previously in the VW saloon, especially since it is now much more economical. Particularly for the Karmann, one wanted a higher top speed, and could do without some of the undoubted improvements to the acceleration (rather like the VW saloon), especially as the supercharged Karmann is so much superior to the unmodified car.

Since the price reduction, the installation costs DM750, which opens it up to a much wider range of potential customers. As mentioned before, the original motor installed is generally not changed, apart from the Karmann's inlet manifold being shorter. Therefore, when selling the car later, you can easily remove the supercharger kit to use again on the next VW, as quite a few customers will appreciate. You will have to calculate for a slight increase in fuel consumption, but it must be worth it to achieve a livelier and faster car, and have more fun driving it. The main dealer for the Judson Compressor in the Federal Republic of Germany is Max Munz KG in Goppingen/Wurtenburg.

This article was provided by Helen Reitterer, and translated by Helen, Astrid and Mike Kelly.