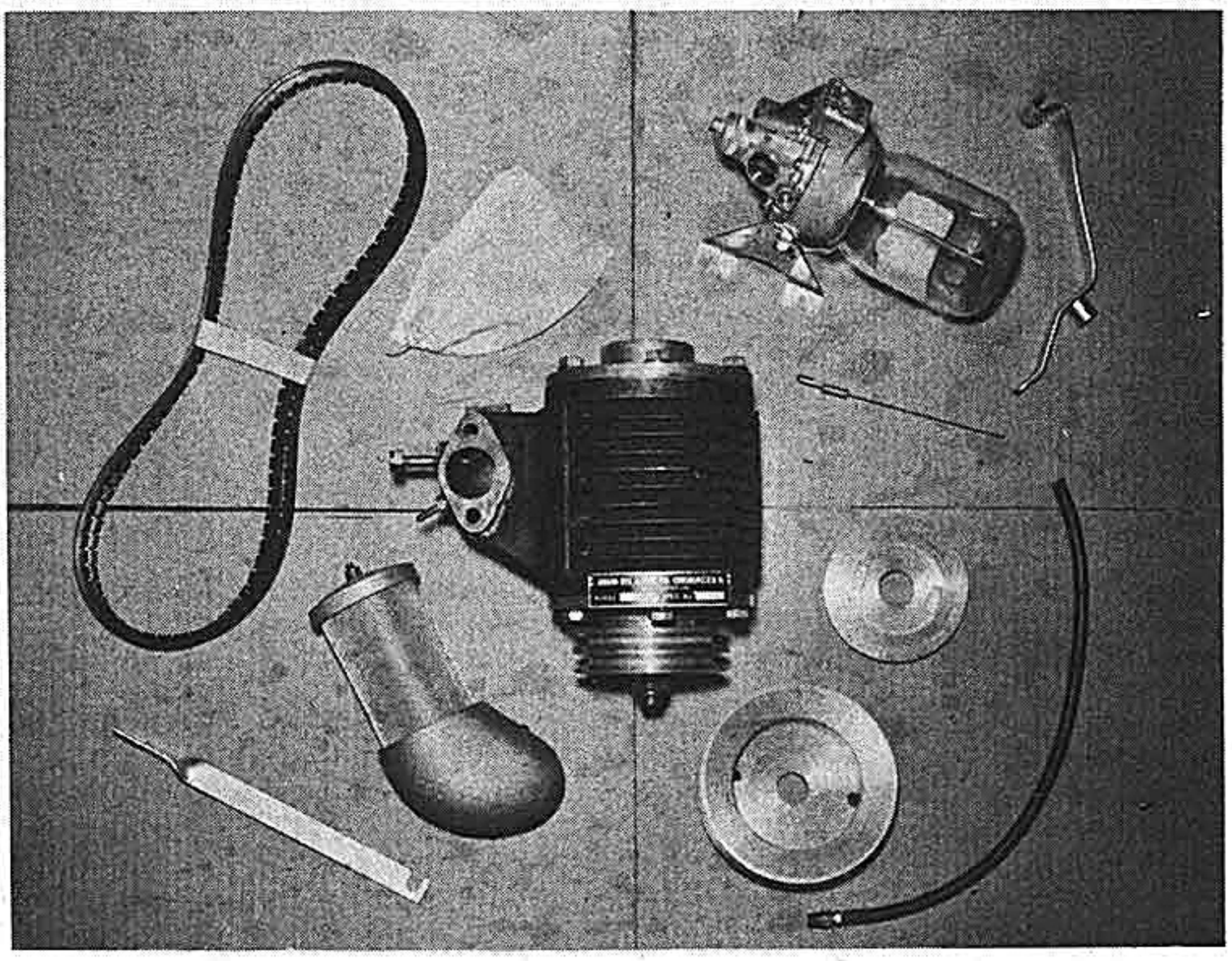
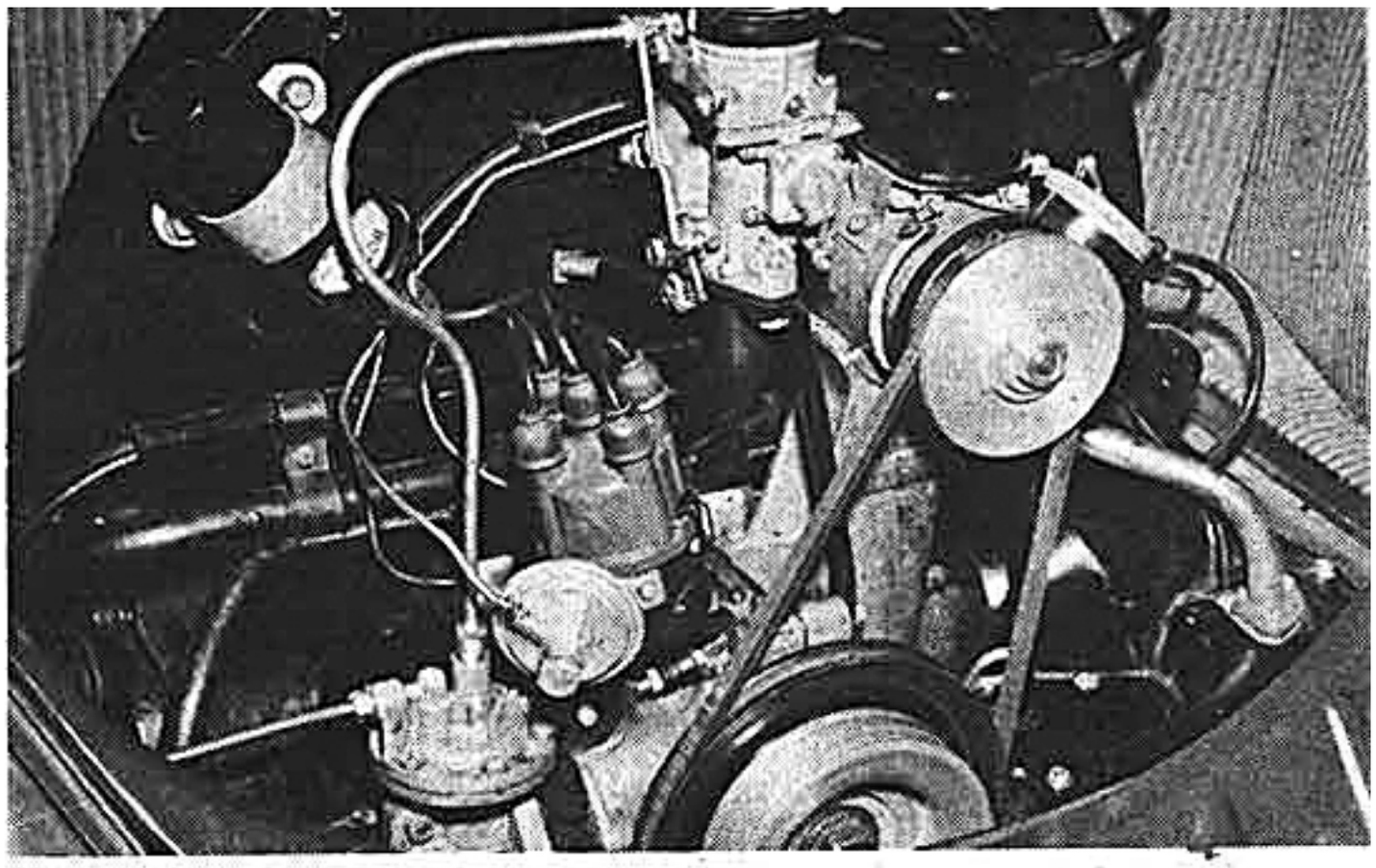
Judson Revisited

Some years ago Judson Research & Mfg. Co. of Conshohocken, Pa. was a specialty machine shop whose owners happened to be auto enthusiasts. Charles and Haddon Judson, the owners, then developed a rotary vane type supercharger for the popular TD, MG. This created quite a name for them, and, as the VW became popular, they saw the future in superchargers booming. This was my first acquaintance with the Judsons. They were impressive as sincere enthusiasts with a great deal of integrity and a surplus of genuine Yankee ingenuity.

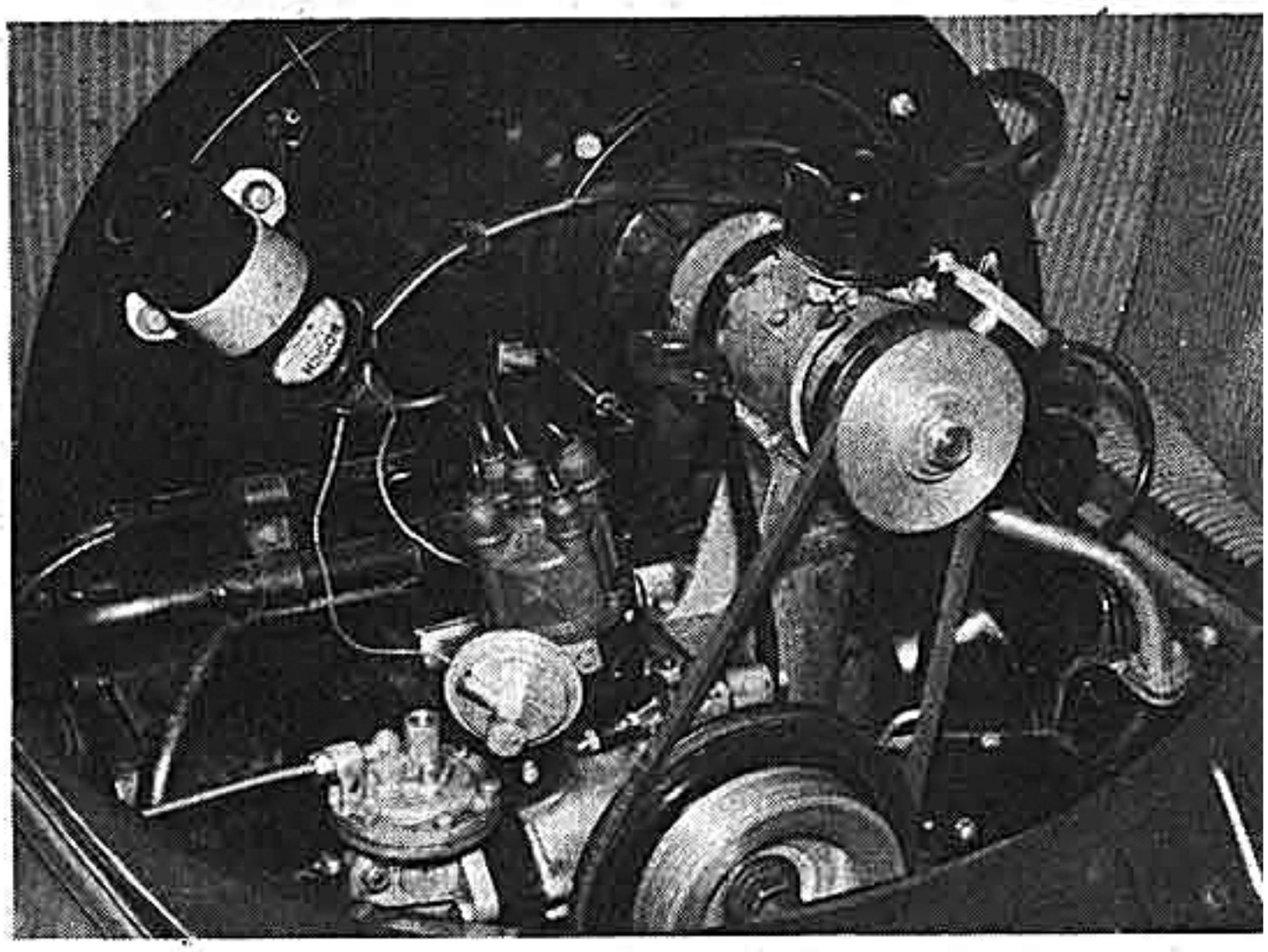
Today they have progressed greatly in business, yet the same qualities remain. Despite the VW factory frowning on superchargers, the public is buying them "like they were going out of



First step in installation of Judson supercharger on a VW is to mount pulley on end of the crankshaft and replace front pulley flange on the generator.

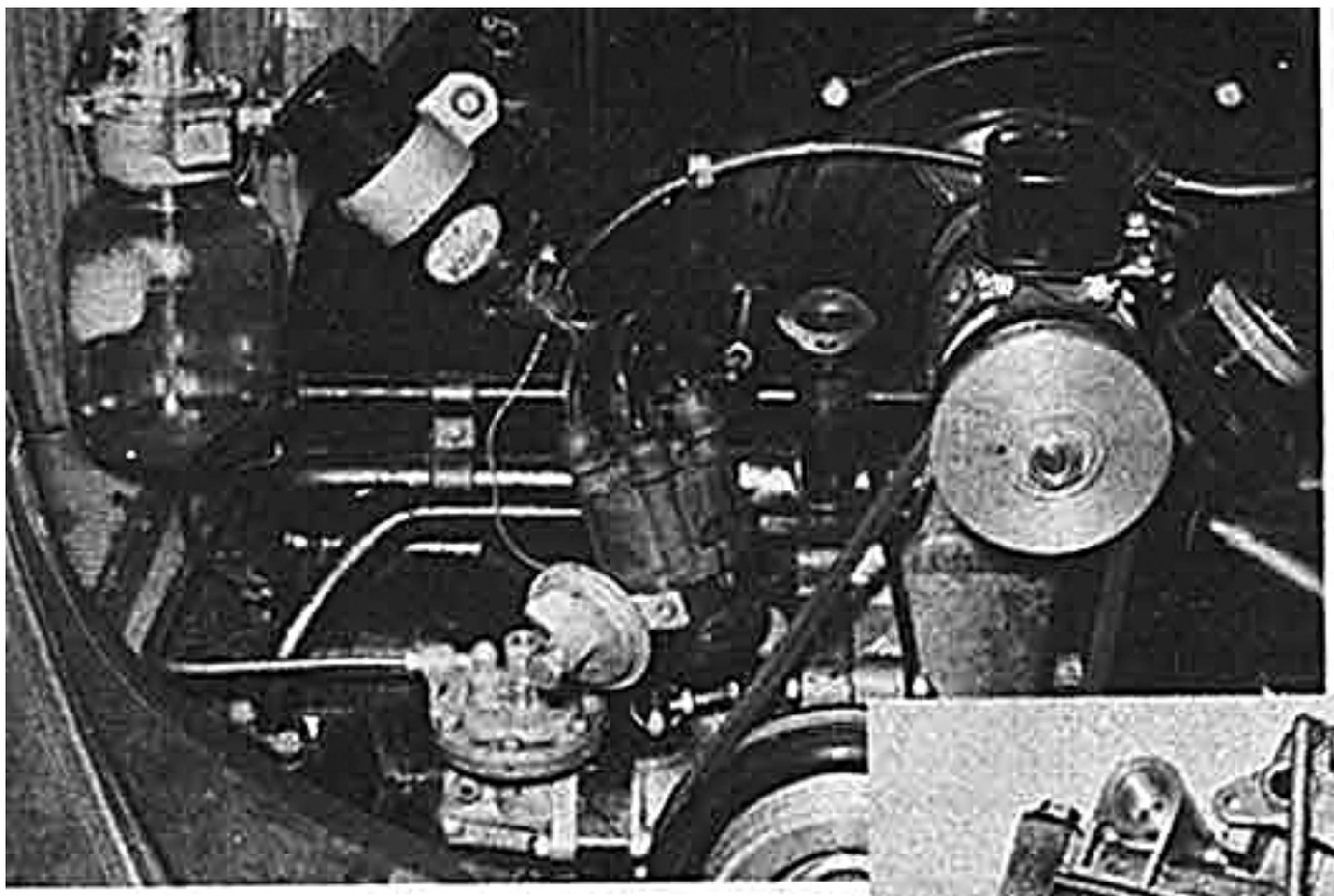


Next remove air cleaner, fuel and vacuum lines and the carb from engine. Complete Judson kit is shown on facing page.

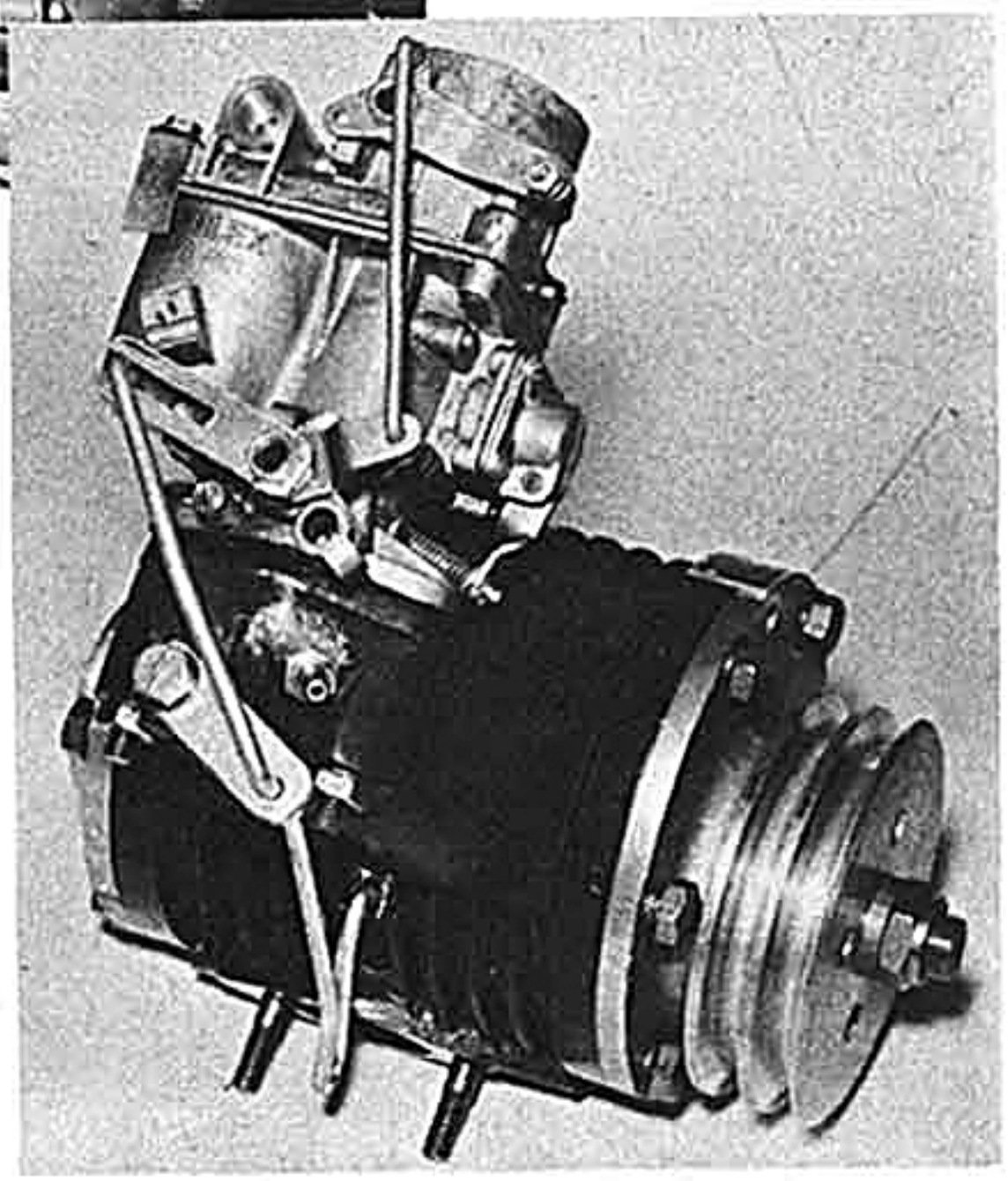


style". At this time, Europe is taking half their production, even though there are several good European superchargers available. Today VW superchargers have far surpassed the sales of the old TD blowers. VW units are the biggest seller, but they also manufacture superchargers for Renault, Mercedes 190 SL and the MGA. The manufacturing facilities have increased, a new beautiful building has been built and all solely dedicated to production of superchargers and research. While visiting their new plant, we saw research being conducted on Porsche engines. Experimental blowers were being run on the Porsche engine in their engine dynomometer lab. One of the test engineers remarked that the Porsche engine can really take constant pressures without undue strains.

Another experimental blower was being tested for Lycoming aircraft engines. This was a very large unit but



Lubricator is then mounted on firo wall with screws, and a hole is drilled in the shroud for choke control. Below: The studs and the correction jet in the carb are replaced and it is bolted to supercharger; throttle linkage is connected.



Judson continued

still using the same principle of positive displacement rotary vane supercharging.

One of the greatest advantages of this type supercharger is that it is not always in action. In other words, although the unit is always turning, if you are cruising your VW along the highway at a constant speed, the manifold pressure is almost normal. If a hill should loom up, you open the throttle and only then does the manifold pressure increase and a boost take place. They state that if you do not exceed the factory recommended rpms, no reliability should be lost compared with a stock engine. Judson also reports from a good source, that VW has changed their methods of relieving stresses in the crankshaft in recent production for increased reliability. This goes back to the old theory about VW engine design. The theory ex-

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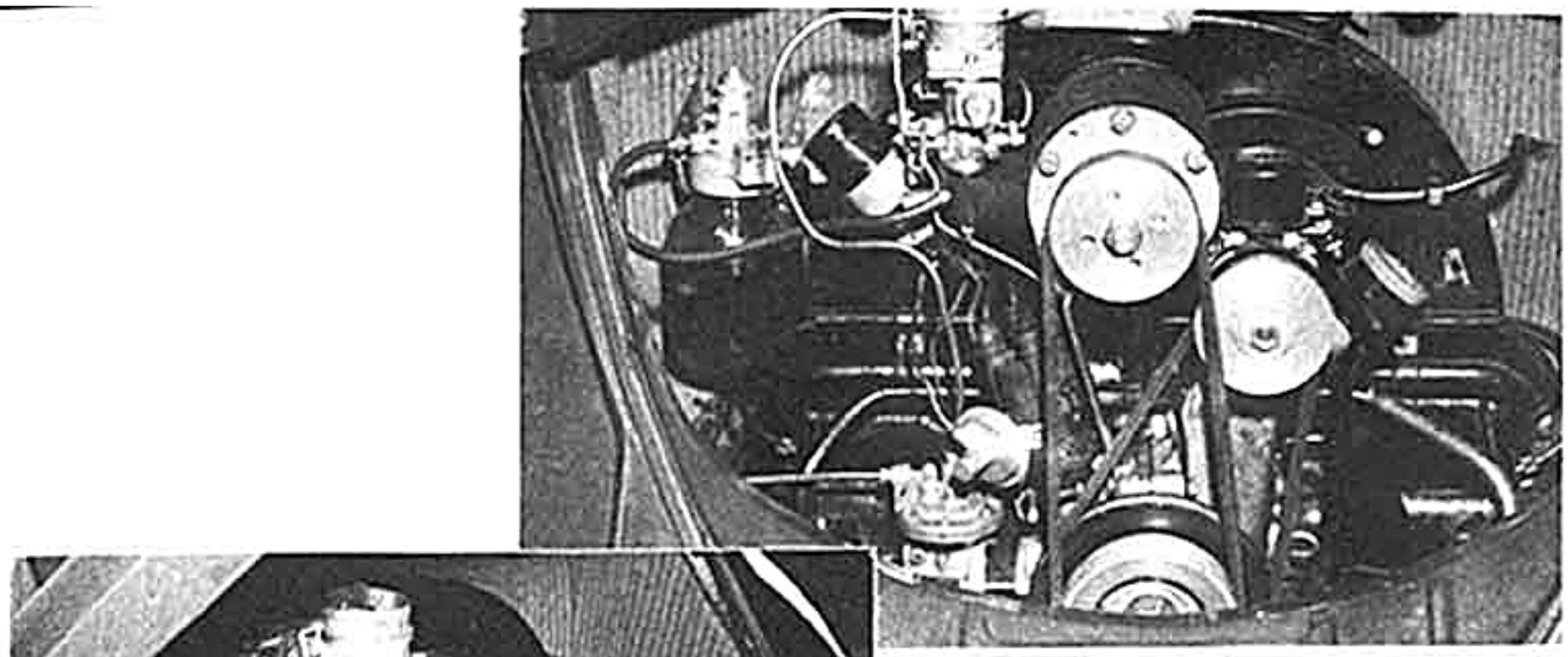
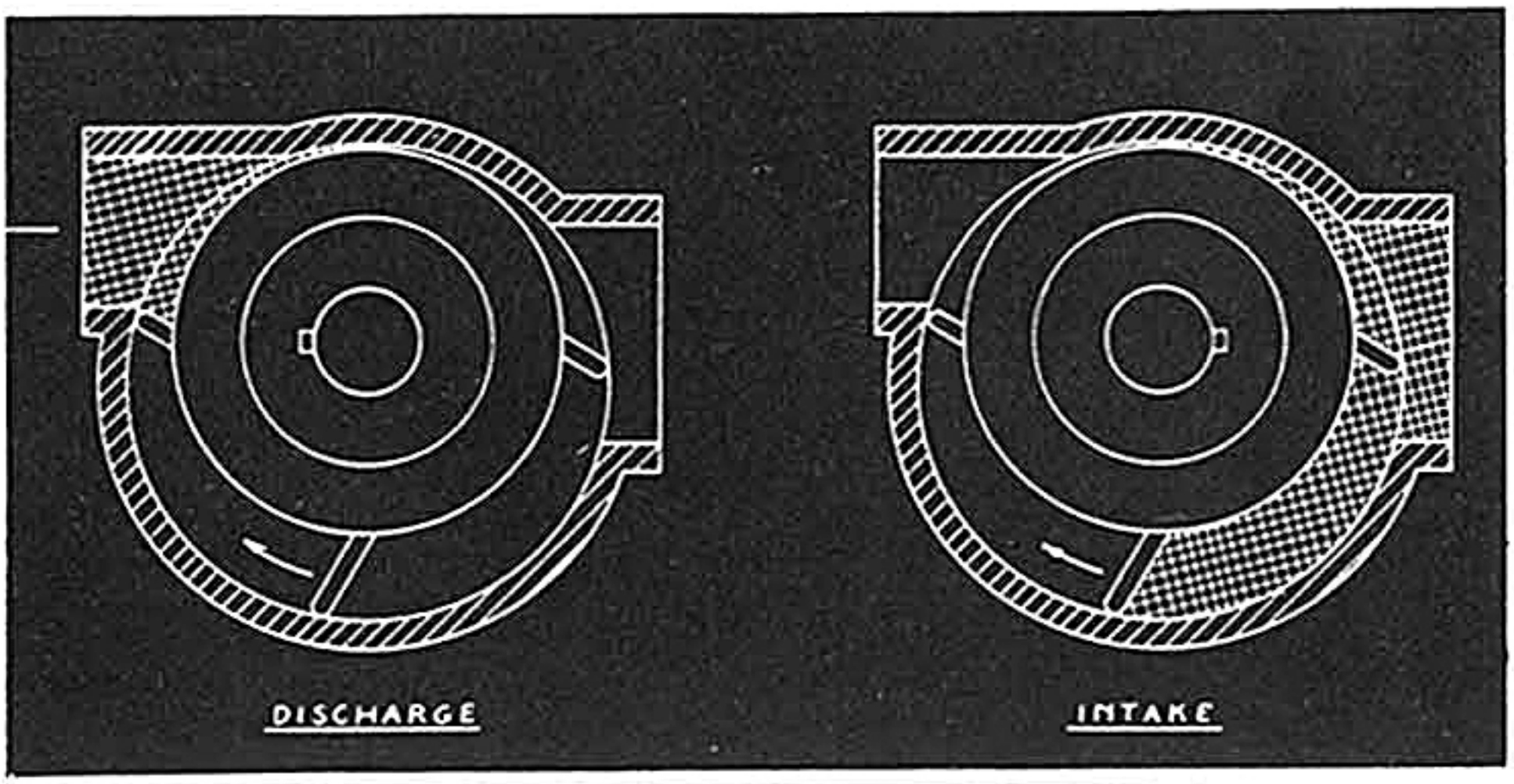


Left: Unit is then bolted to engine and drive bolts are installed; the throttle and choke controls are connected. Above: Original fuel lines are installed, oil line to supercharger is connected, and the air cleaner remounted. Below: Diagram of how a rotary vane blower takes in air-fuel mixture, compresses it and discharges into the manifold.



INSPECT-O-LINE

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other VW dealerships in Hamburg, Munich and Koblenz.

The equipment necessary for the production line represents $5000, but better, faster and more consistent quality of service is the result. Each trained technician becomes a specialist for the particular operations he performs in his station. Previously seven men could only service fourteen cars a day, and appointments had to be made with customers for inspections. Now cars are inspected the same day they arrive and seven men inspect six cars an hour. It takes fifteen minutes for each car to go through the line, and it is hoped this will be chopped down to ten.

Although the Inspect-O-Line will handle all Volkswagen models, cars busses and commerical vehicles, any shop wishing to employ the system must have a normal compliment of at least ten service personnel to realize a profit from the investment. As with mass production anywhere, quantity is the key word and speed is the result. In this case, better and more consistent service, because of the specialization of each mechanic, results in better customer relations, and there is no price tag for this. ●

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pounded by astute observers is that VW over-designs many components so that they may cut down on quality control costs. An example of this is the tire size used on VW; 560 x 15 tires can carry 800 lbs. per wheel and support a 3200 lb. car. This increases the safety factor tremendously and explains the wonderful tire mileage and safety and almost impossibility of a blowout. The VW crankshaft and crankcase was used successfully in the early Porsche 1100 cars at speeds up to 5500 RPM. Of course each component was subject to 100% quality control which is possible in limited production and impossible in high production low cost automobiles like VW. When midget racing with Ford V'8-60's was popular, it was common for a mechanic to magnaflux 100 connecting rods before he found 8 suitable for a high speed racing engine, even though the other 92 would give excellent service in a passenger car.

Modern supercharging has come a long way. Judson has a kit that can be installed by a layman with virtually no changes in stock settings and still gives the best performance for the dollar compared with other modifications.

The Judson compressor bolts onto the intake manifold of a VW and is belt driven from the crankshaft via a special pulley supplied. The stock carburetor is bolted to the top of the charger and a new air cleaner designed to fit under the hood is clamped on. Only one jet need be changed in the carburetor—the air correction jet in the center of the throat. Judson supplies a Solex 140 jet in the kit to replace the stock 195 jet. A stiffer fuel pump spring is also supplied in order to maintain a more constant fuel pressure to the carburetor. The only other change is bending the fuel and vacuum lines to the new higher position of the carburetor.

Judson states that a layman can install the unit under three hours. I have seen a good mechanic change back to stock in a half hour so the car could compete in the stock class after running modified.

A top cylinder lubricator is provided in the kit, mainly for internal lubrication of the sliding vanes inside the casing. H.D. oil SAE 10 is recommended for use in the oiler and consumption with proper adjustment is approximately one quart per thousand miles.

From experience, I have found a gas mileage drop of only two to three miles per gallon and an almost 50% reduction in 0 to 60 acceleration time. ●