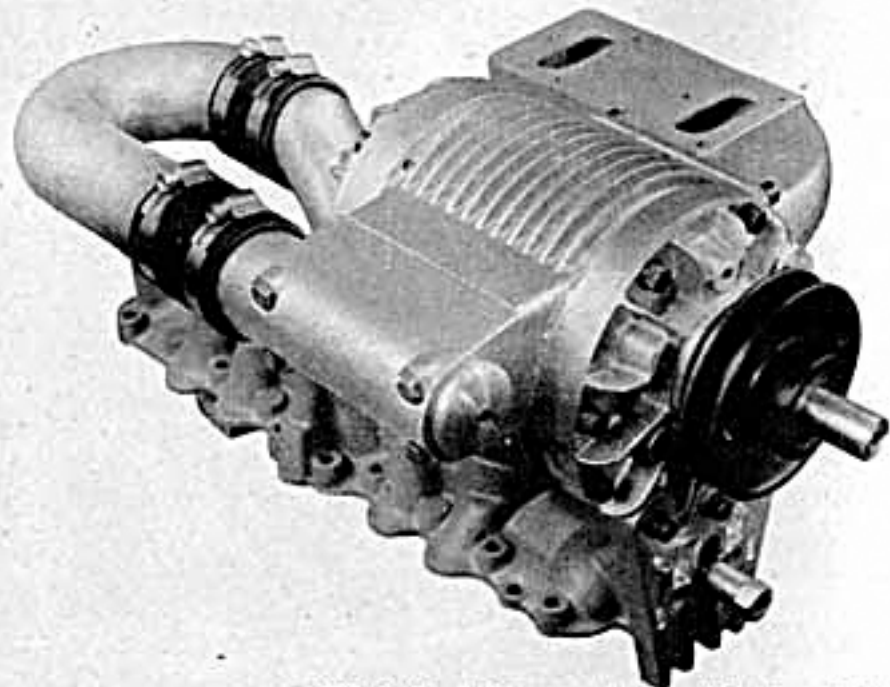


the Supercharger

by Duncan Maxwell

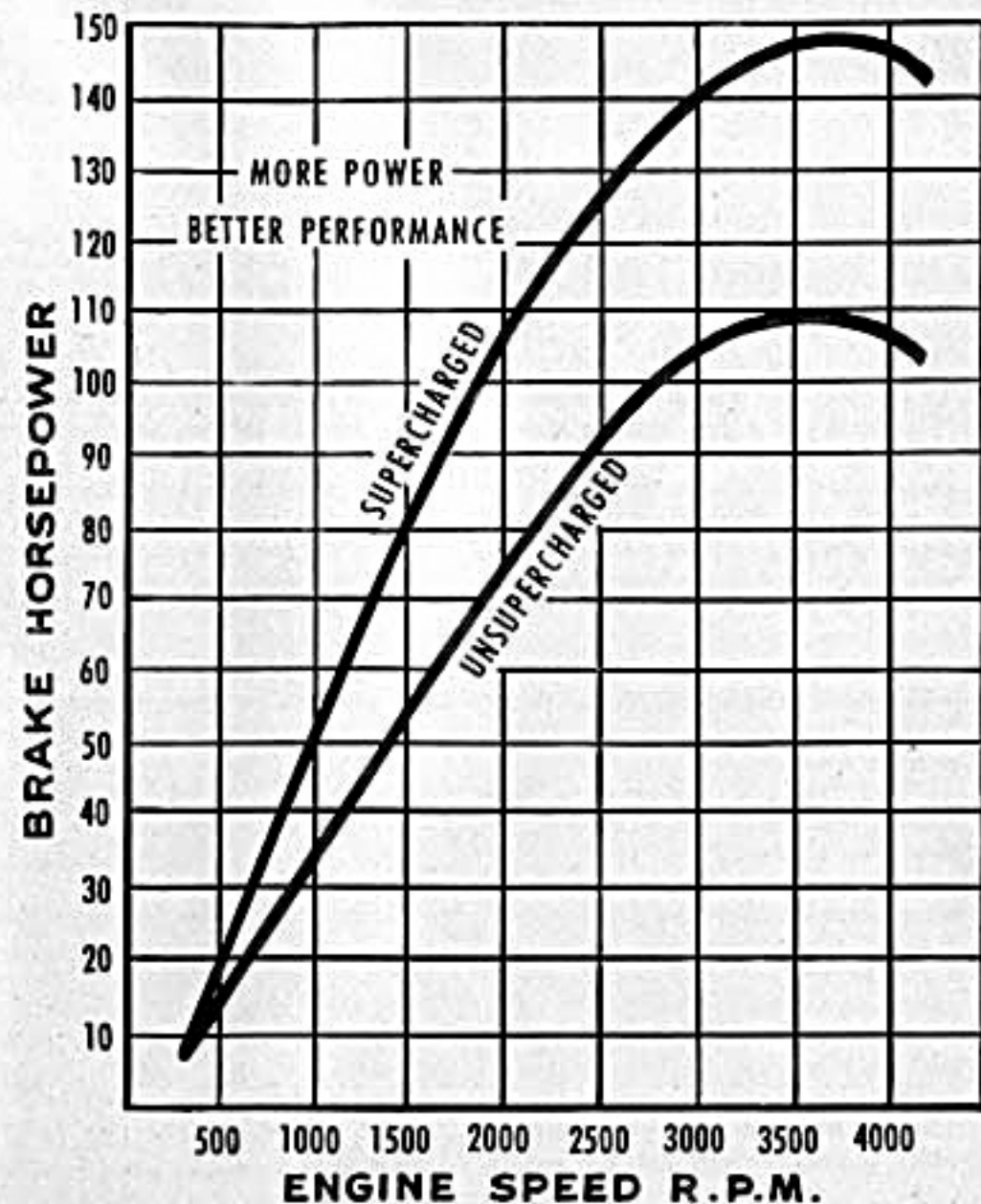


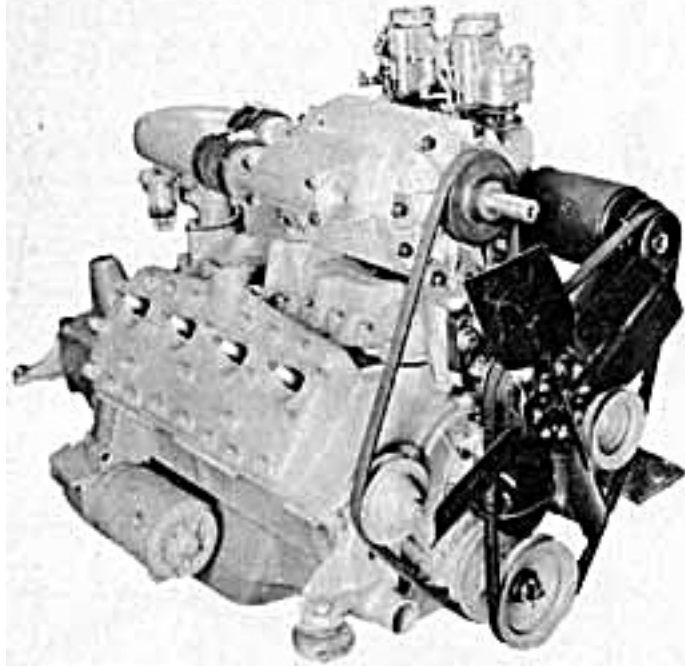
This is the Judson supercharger which is specifically engineered for a Ford V-8. No engine changes are necessary.

Take a look at the horsepower curves on the opposite page. They show what a supercharger can do for a 1952 Ford V-8 engine. Actual horsepower at the rear wheels, with the engine turning at 2,000 rpm, will rise from 48 to 70 with such an installation. Maximum speed will go up from 85 to about 96 miles per hour. Average fuel consumption in miles per gallon may drop from about 17 to 15.5 miles per gallon, but not more than that. The noise level of the engine with a supercharger is no greater than without it. All these figures are taken from actual test runs using premium fuel. Want to know more? Just turn the page...

Story

Compare the performance of a 1952 Ford V-8 with and without blower. Hp gets big boost.





Factory test stand installation shows the supercharger mounted on a Ford V-8 engine. This one has an extra carburetor, besides.

SOUPING an engine by means of headers and a dual exhaust system, high compression heads, a hot camshaft, magneto ignition system, etc., is one way to add torque and horsepower. But it means spending a good deal of work and/or cash, and if you happen to be in a hurry to get more "go" with a minimum of time spent, you can do so with the addition of a supercharger. Then, while you're enjoying the benefits of the "blower," you can add other speed equipment at your leisure.

"Well," you say, "if blowers are such hotshot items, why don't the manufacturers install them?"

A good question, but the fact is that manufacturers have the facilities for rodding their production engines *en masse* by applying the same manifold-carburetor-valving-camshaft-exhaust technique used by backyard builders. On the other hand, Kaiser found that a supercharger boosted their old six-holer from 118 horsepower to 140 without any other additions. Their car now makes

it from zero to 60 miles per hour in a very neat 14 seconds and is no slouch on the straightaway either.

The supercharger is a godsend to the fellow who wants real dig without the necessity of reworking his engine. Usually the only needed change is the replacing of the stock carburetor jets with special ones to take care of the additional air. An MG owner can get one of the new Judson superchargers complete and ready to install for a shade under \$200. Those with Ford or Mercury V-8 engines can get them for just under \$250, and it's understood that new Judson models for other cars will be available before long.

Actually a supercharger is an air pump that is mounted between the manifold and the carburetor. By forcing more air down the throat of the carburetor, the supercharger supplies a larger amount of mixture to each cylinder. Naturally, more mixture produces more explosive power, and more work is, therefore, done by each piston.

Without supercharging, the average engine's intake manifold has a suction pressure of about 14.5 pounds per square inch at sea level. As altitude increases, this manifold pressure decreases and power falls off rapidly. If you've ever driven for any length of time in mountain regions, you'll remember how your engine's power increased when you returned to lower levels. Think, then, what it would mean to boost manifold pressure an additional six to eight pounds. By ramming this extra amount of air down the air horn, you up your engine's power from 30 to 50 percent.

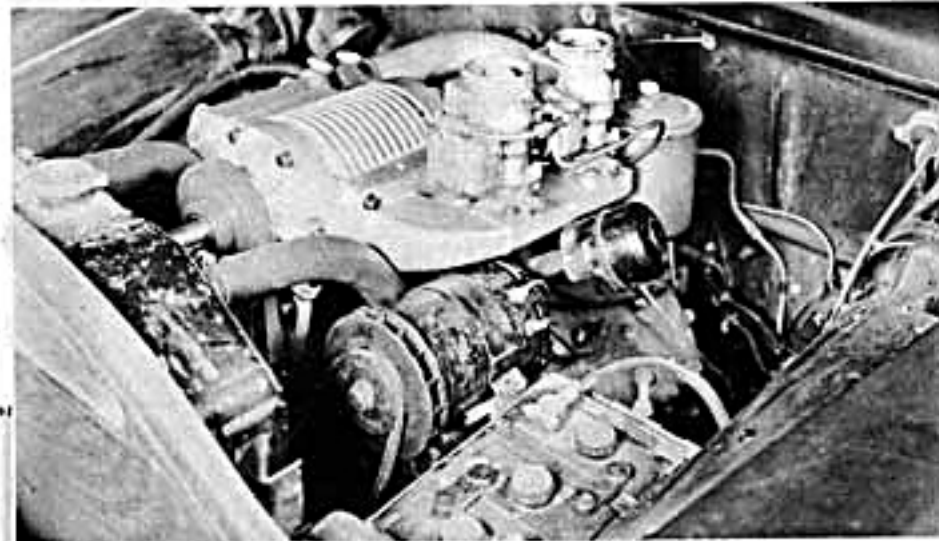
In order to get the latest authoritative information, **RODDING AND RE-STYLING** called upon Charles Judson of Conshohocken, Pennsylvania. Judson has made a study of supercharging for many years, and manufactures the blowers

shown in the accompanying photos. These units are easily installed and will make otherwise impotent engines put out real power.

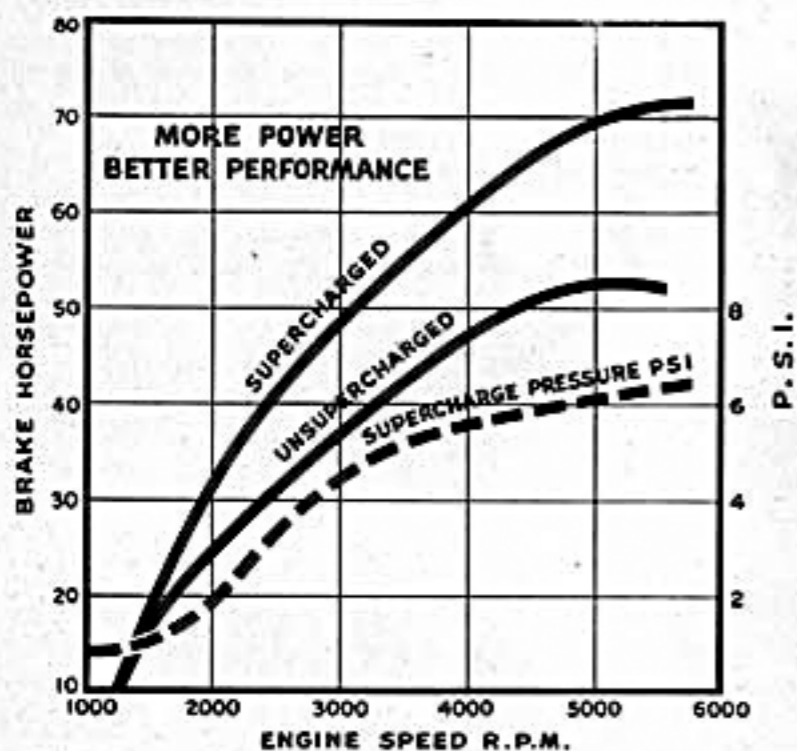
Here are some of the questions that may be in your mind. The answers supplied by Judson are based on scientific research and predicated, of course, on the correct installation of the supercharger on the engine for which it is expressly engineered.

"Aren't superchargers so fussy that they require constant servicing and adjustment?"

No, our superchargers require no other attention than visually checking the oil supply every 300 to 500 miles. Furthermore, because they are belt driven and because the vanes that actually ram the air are non-metallic, there is less wear than on other engine acces-



And here's the unit actually mounted in a Ford. Again, the set-up is otherwise stock except for dual carburetors. The installation is quick and easy.



Here are comparative horsepower curves of a stock and blown MG TD. Acceleration through the gears from 0-60 mph should drop from 22.5 to 12.5 seconds with the supercharger added.

sories. Test installations with upwards of 25,000 miles of hard usage are still giving service with no need of replacement or repair. Many Judson Model B-210 units on Ford and Mercury engines have been giving excellent service throughout the world for many years.

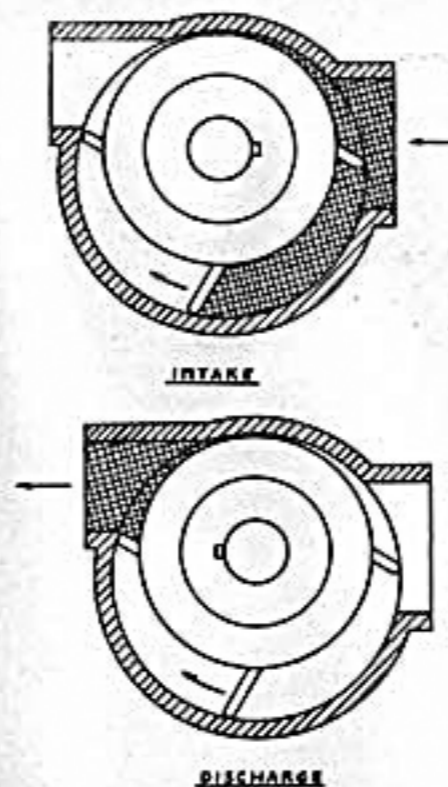
"Won't I have to employ a mechanic who is also a machinist to install a blower on my car?"

No again. The supercharger comes complete, ready to operate, and fully tested and guaranteed for a particular installation. The few small parts necessary, like special carburetor jets, are supplied with the kit, and anyone with a rudimentary knowledge of the use of common tools can quite successfully install the blower. Naturally you have to remove certain of your engine's attach-

ments and later replace them. On the other hand it is not necessary even to remove the radiator from, for example, a Ford V-8 engine.

"But won't the supercharger make my engine wear out quicker and be less reliable?"

Certainly not. Judson blowers are engineered to increase manifold pressure by only six to eight pounds. This is low pressure supercharging; it does not affect engine life in any way. The bad impression some people have of supercharging is caused by units that do not provide full control and boost engine pressures, under full engine rpm's, as high as 12 pounds per square inch, resulting sometimes in blown head gaskets, burned pistons, excessive oil consumption, detonation, etc. Adding a blower will not



Cross-section view shows how the rotating drum is mounted inside the case so as to be eccentric with the axis. Non-metallic vanes are kept firmly against casing walls by centrifugal force as drum rotates. The air taken in is compressed and forced down the carburetor throat in greater quantity, at higher speed than usual.

adversely affect the characteristics of your engine if the proper model is installed and the instructions followed to the letter. Actually your engine will idle smoother, start easier, and operate more evenly after a correct installation.

"Is the power increase worth the expense?"

The horsepower increase at the rear wheels, where it counts, and at a given number of crankshaft revolutions per minute, is in proportion to the increase of manifold pressure. A boost in pressure of six pounds per square inch in a stock engine will up horsepower just about 32 percent, and the car so equipped will

show a good 40 percent reduction in acceleration time. Speed of pistons and other moving parts stays constant, but the work turned out increases. So it's obvious that supercharging is worth the expense which, after all, is less than that of most engine modifications which will give a similar power boost.

"Won't I have to make changes in the body to mount a supercharger?"

In most cases, no. Most of our models are currently being made for Ford, Mercury and MG cars. A slight hood change is necessary in the MG TF, but nothing great. Ignition, spark plugs, etc., remain the same. Whether you retain the stock exhaust is up to you, through naturally dual exhausts and headers will further increase engine efficiency.

"Will fuel consumption increase?"

You can expect to use approximately 10 percent more fuel under full power or when accelerating, but remember that every fuel charge is doing from 30 to 50 percent more work because of greater atomization of the fuel. Another thing: because of this better atomization of the fuel charge, wet cylinder walls will be a thing of the past, and longer cylinder and piston ring life will result. This plus the greatly increased power can mean less shifting in city driving, and better performance on long trips and in mountains. The net result can be an overall saving.

"Can I service my supercharger, or must I return it to the factory?"

As far as the Judson supercharger is concerned, it is quite easily serviced anywhere by following the instructions that are furnished with the unit. The bearings, seals, belts, fastenings, etc., are all standard items which can be purchased in any well-stocked local parts shop. Your supercharger, when correctly installed, will suffer no more wear than, for example, the stock water pump on your car. ●