

"Continental" kit nullified performance benefit gained by blower installation.

ROAD TEST

MG-JUDSON

FOR NEARLY 10 years we have been taking the attitude that the performance of a given sports car must be evaluated with due allowance for its engine size. The only trouble is that everyone seems to want more. The MG is a perfect example: no sooner had they come out with the "A," offering truly competitive performance for a 1.5-liter car, when along came our readers asking for more. Personally, we feel that 0 to 60 in 14.2 seconds and a top speed of 97-100 honest mph (which the stock MG-A does) should satisfy anyone.

The truth is that although sports cars are gradually becoming accepted for what they are (maximum performers for a given class), there are still many people new to the sport who do not understand. Inevitably, since the MG is the lowest-priced sports car, it becomes susceptible to the wiles of the sorcerer, in this case Judson of Conshohocken, Pa.

Judson say that their supercharger offers 50% more power. Though the car does indeed take on a new character, the truth is closer to 25%. However, even that much of a boost is well worthwhile, as shown by the tabulation which appears in the next column.

This order of improvement, plus a comparison of other

data, indicates that the Judson supercharger gives the MG a very close equivalent to 25% more torque and boosts the peak horsepower from 72 to 90, and no more. But the point is that performance is improved as if the 1.5-liter MG engine were enlarged to 1.9 liters.

	stock	Judson
0-30 mph	4.5	3.8
0-60 mph	14.2	12.5
0-80 mph	29.0	25.0
Standing start 1/4 mile	19.6	18.1

So, the advantages of a Judson supercharger are stated factually in terms of performance gain—what are the disadvantages? In the first place, supercharging is a matter of degree. It can give fabulous power gains by using plenty of boost, but it is high boost pressures which have given supercharging a bad name. The Judson MG kit is designed to give modest manifold pressures of about 5.5 pounds per square inch maximum.

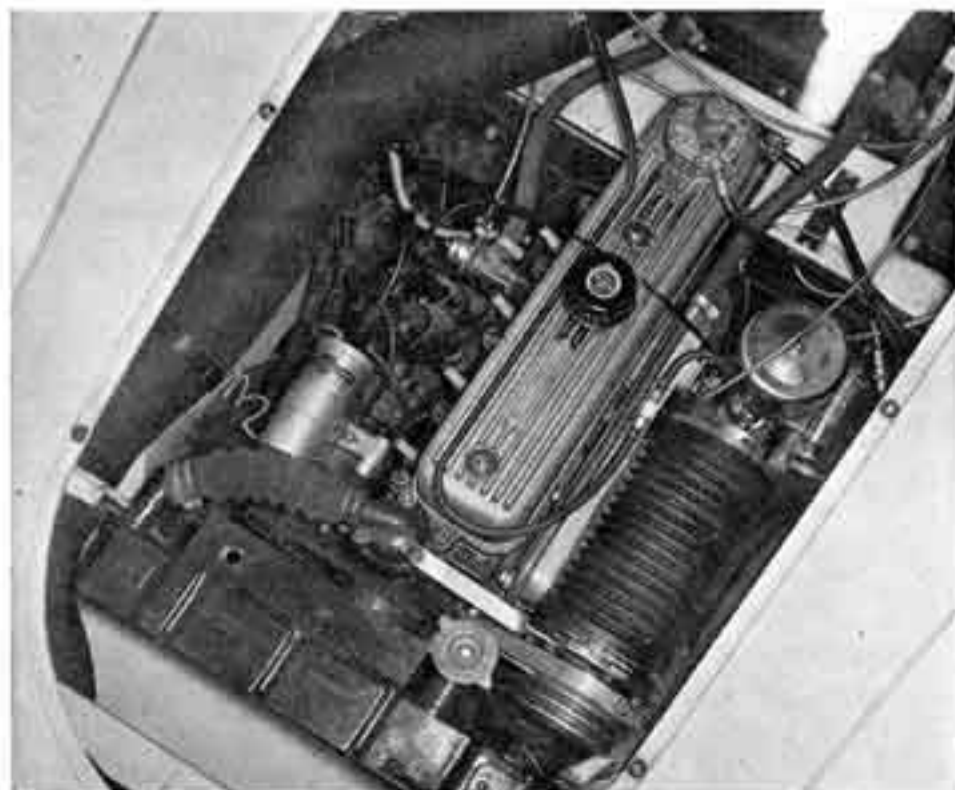
Then we must consider the fundamental principles involved. Judson superchargers are the vane type, which means positive displacement. This type of supercharger gives its performance gain at all speeds, which is impor-

No alteration of panel was necessary to install blower.



PHOTOGRAPHY: POOLE

Kit contains everything needed for owner installation.



tant. The disadvantage of vane-type superchargers has always been the rubbing friction of the vanes. Here, Judson have shown excellent engineering know-how by mixing good common sense with the very latest techniques. The Judson's vanes are at an angle (not radial), so that the centrifugal forces are virtually, but not quite, cancelled. Additionally, the vanes (or blades) are made from a laminated plastic material which weighs half as much as aluminum and which is dimensionally stable at all temperatures from 50° below zero to 300° F. Similar vanes are used commercially by Ingersoll-Rand (portable air compressor) and Thor Power Tool (air-powered grinder). A small amount of lubricant is used (about one quart per 1000 miles) but the exact amount is not at all critical. For this purpose, Judson supplies with the kit an aluminum rocker arm cover which incorporates a metering valve,

the best boost in go for the least in dough

readily adjustable to give one drop of oil every 4 to 6 seconds at idle. Incidentally, the lubricant is SAE 10, or Marvel Mystery oil. Judson warns, "Do not use any other type or brand of upper cylinder lubricant, as most top oils are primarily a cleaner and not a lubricant." To which we can only add "Amen."

Insofar as the driver's job is concerned, there is absolutely no difference in any way. We did encounter some clutch slip after five consecutive "all-out" standing starts. For the flat-out, always-on-the-floor type of driver, the special competition clutch is necessary. But we honestly feel that most MG owners will not need, or want, the heavy-duty clutch.

The engine itself sounds no different when supercharged. Peak bearing loads are actually decreased, because the higher combustion pressure opposes the inertia forces which tend literally to throw the piston up into the cylinder head. Occasionally there is a faint noise (a sort of clatter) from the vanes. This is normal and no cause for concern.

The car tested is the property of Bill Corey, who writes our monthly "Tune-Up Clinic." It received no special tuning at his shop and is, according to its owner, not so good a performer as some other examples which have received the same treatment. Judson recommends that a Bendix fuel pump be used for speeds over 90 mph, and we discovered this to be good advice. The test car starts to run out of fuel at about 95 mph, and we were not able to get a true timed speed better than 97.8 mph (one way). However, this run was with top down and with the continental kit shown. The latter item may not seem important, but we ran parallel tests for drag losses on the Tech Ed's MG-A and got the following data with the Tapley meter at 60 mph:

	stock	test car
Test weight, ton	1.080	1.195
Calculated rolling resistance	20	22
Tapley drag, top and curtains up, lb/ton	90	—
Same, lb force	97	—
Tapley drag, top down, lb/ton	100	107
Same, lb force	108	127
Net air drag, top down, lb force	88	105

From this it is obvious that the continental kit makes for considerable extra air drag and has a marked effect on the

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SPECIFICATIONS

Price (kit only)	\$260
Wheelbase, in.	94.0
Tread, f/r	47.4/48.8
Tire size, mm.	165-380
Curb weight, lb.	2110
distribution, %	52/48
Test weight	2390
Engine	4 cyl, ohv
Bore & stroke	2.875 x 3.5
Displacement, cu in.	90.8
cu cm.	1489
Compression ratio	8.30
Horsepower (est.)	90
peaking speed	5500
equivalent mph	97.1
Torque, lb-ft (est.)	95
peaking speed	3500
equivalent mph	61.8
Gear ratios, overall	
4th	4.30
3rd	5.91
2nd	9.52
1st	15.6

PERFORMANCE, Mph

Top speed (est.)	105
best run (top down)	97.8
3rd (6000)	77
2nd (6000)	48
1st (6000)	29
Mileage range	20/28 mpg

ACCELERATION, Sec.

0-30 mph	3.8
0-40 mph	5.5
0-50 mph	8.6
0-60 mph	12.5
0-70 mph	17.5
0-80 mph	25.0
0-90 mph	36.0
Standing start 1/4 mile	18.1

TAPLEY DATA, Lb/ton

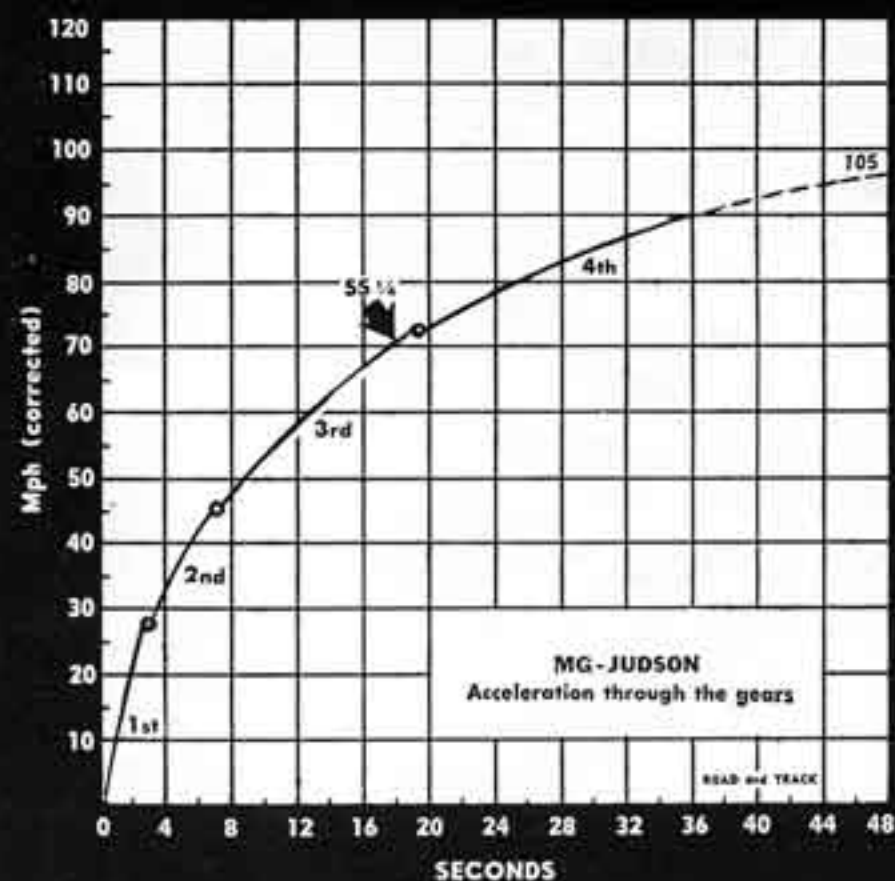
4th	185 @ 55 mph
3rd	290 @ 45 mph
Total drag at 60 mph	127 lb
(with top down, as shown)	

SPEEDOMETER ERROR

Indicated	Actual
30 mph	30.4
40 mph	40.0
50 mph	50.0
60 mph	60.0
70 mph	70.0
80 mph	80.2
90 mph	90.4

CALCULATED DATA

Lb/hp (test wt)	25.6
Cu ft/ton mile	74.8
Engine revs/mile	3400
Piston travel, ft/mile	1985
Mph @ 2500 ft/min.	75.5



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timed top speed. However, stock MG trunk space is almost a joke and the continental kit is certainly a useful accessory, even if it does take a supercharger to bring back the original top-speed capability. Actually the supercharger makes an MG with continental kit and top down about as fast as a stock machine with the top up and side curtains in place. Accordingly we rate the true top speed of the supercharged roadster as 105 mph; the coupe, with its radiused windshield, might be able to touch 110 mph when well tuned and equipped with a Bendix fuel pump. According to a power-required curve supplied us by the MG company, a speed of 98 mph requires exactly 68 bhp. A few calculations with the aid of a slide rule show that a speed of 110 mph would require 90 bhp.

The biggest change noted on first driving this car is the improved high-gear flexibility. This was borne out by the Tapley meter, which shows nearly 25% better pulling power (torque) in the gears. Grades which formerly required 3rd gear can now be climbed rapidly in high, although this is not saying that high gear supercharged is as good as 3rd gear unsupercharged. Inci-

dentally the speedometer error was virtually nil because Corey has substituted 165 x 380 mm Michelin tires which turn 792 revs per mile, as compared to the standard equipment 5.60 x 15's which give 810 revs per mile. This change actually reduces the high-gear ability: the net result is just as if a 4.21 axle ratio were being used.

Fuel consumption suffers surprisingly little in normal driving. Under quite variable conditions we got 26 mpg consistently. However, during the test the extra horsepower used more fuel—we got 19 mpg. We might also mention that this car was 90 pounds heavier than a purely stock MG-A because of various accessories and undercoating.

The price of the Judson kit as given in the data panel includes a properly calibrated carburetor (Holley) and a special exhaust manifold, as well as all necessary small parts. Installation would take an owner about five hours with the manufacturer's very explicit instructions. The flat rate for installation at Bill Corey's shop is \$35.00, but this includes a dynamometer tune-up.

If you like your MG-A but want more go, this is the answer. There is probably no alternative method of getting as much power per dollar as can be obtained with a blower, and you don't have to put up with a wild cam or oversized carburetors. 