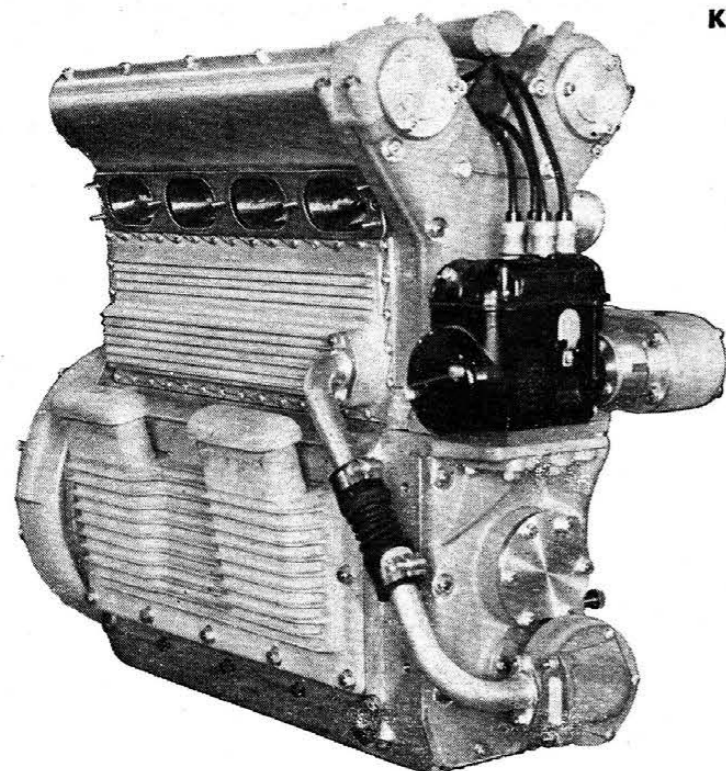


NEW OFFIE CHALLENGER

High hopes and fears are riding on Meyer and Drake's experimental power unit. If successful on Memorial Day, it will touch off a new era of supercharged engines

By GRIFF BORGESON



THE SHRILL whistle of high-speed centrifugal superchargers will announce to Speedway spectators this year that new contenders from the shops of Meyer and Drake are on the track. The new blown Offies may fly ahead of the field or their performance may be disappointing. Either way, as a new, potentially superior form of the engine that always wins they will get the fascinated attention of the racing world.

Three of these engines have been built to date. One is for Howard Keck's new car, which is not expected to be completed in time for the Speedway but will probably campaign the championship trail this year. Another is in the Anstead-Wilcott machine which Johnny Tolan plans to drive at Indy. The third is being dickered for at this writing by a Very Big Name.

The new engine is a typical Offie dohc four-banger, except that its displacement is a mere 180 cubic inches, its bore to stroke ratio is over-square, and it is supercharged—but good. Here's how it compares with the bigger Offies:

	270	220	180 (Approx. figs.)
Bore	4.3125*	4.040*	3.96875
Stroke	4.375*	4.250*	3.625
Displacement	270.6*	217.9*	179.8
Compression Ratio	13.2 plus	13.2 plus	7.0
Supercharger Pressure	—	—	30 psi†
BHP @ RPM	330† @ 5200	250† @ 5500	450† @ 6500
Torque, lb.-ft. @ rpm	370 @ 4200	312 @ 4500	312 @ 4000 to 6500
Weight, lbs., incl. trans.	522	470	520
BHP per cu. in.	1.22	1.15	2.50
Lbs. per BHP	1.58	1.88	1.16
Overall Length, ins.	38.50	37.50	37.50
Overall Height, ins.	26.00	25.75	25.75
Overall Width, ins.	12.75	17.25	17.25

*Other dimensions available.
†Minimum figure.

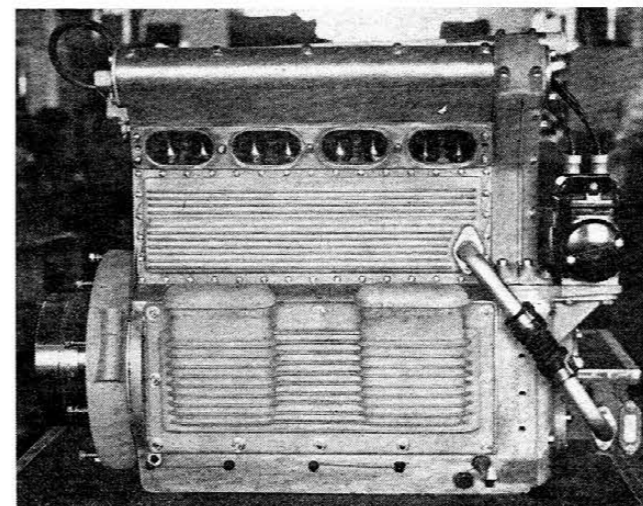
As you can see, the blown 180's piston speed is low, its revs high, its efficiency terrific, and its power output awesome.

Whether or not it will stay together is the question that's giving more than a few members of the racing fraternity sleepless nights.

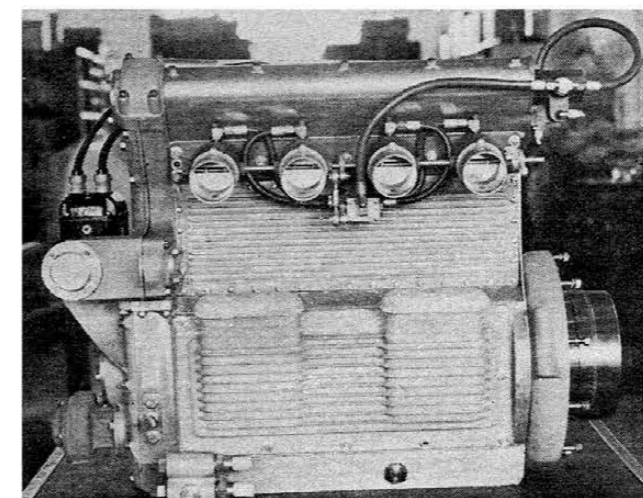
The men whose hopes are really riding on this engine are, of course, Louie Meyer and Dale Drake. Their knowledge of the ups and downs of racing is very extensive, and to them "nothing ventured, nothing lost" has always seemed to be a more prudent version of the old saying. They have made a reputation for sound conservatism, and the fact that they are building the new engine at great cost immediately implies that they are pretty sure of their ground and have confidence in its ability to make the investment pay off.

The supercharger idea is not entirely new for Meyer and Drake. Back in 1949 they first decided to take full advantage of the competition formula that permitted blown engines of 183 cubic inches to compete on an equal basis with 274 cubic inch unblown engines. They reduced the bores and strokes of four 220 engines to 3.875 x 3.750, for a swept volume of 176.8 cubic inches, and equipped them with centrifugal superchargers capable of producing 25 psi above atmospheric pressure. The blower drew mixture through a carburetor and blew it through a cooler into cylinders with an eight to one compression ratio. The yield was better than 425 bhp at 6,000 rpm but the reliability and torque of these engines were less than that of the highly refined, unblown larger power plants and the 180's gradually dropped out of contention, not, however, before they had given some dazzling performances. The first of these was at the Speedway in 1951, when Andy Linden drove a supercharged 180 to a new qualifying record of over 137 mph. Later the same year Tony Bettenhausen got in two more solid licks for the small blown engine when he hurled a 107 cubic inch supercharged Offie around the Detroit and Du Quoin tracks at a pace that was good enough not only to win both races against the Big Iron but to set new track records as well. These performances confirmed at home what has been demonstrated in European competition for many, many years—that the reliable small displacement supercharged racing car is the one to beat.

The 1954 blown Offie is a very different power unit than the pioneer version produced in 1949. In the 1954 Indy version the compression ratio is seven to one; the old was eight
(Continued on page 62)

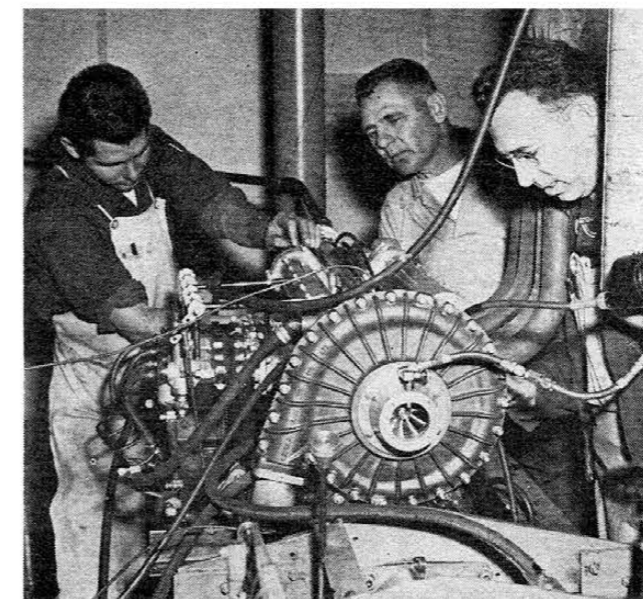


Exhaust side of the blown Offie engine before supercharger installation. Basic engine is ultra-reliable 220 cubic inch; major dimensional changes are reduced bore and stroke

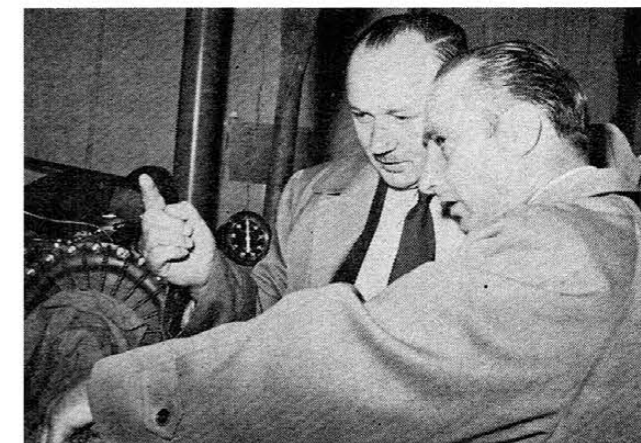


This photograph shows left or intake side of Offie engine

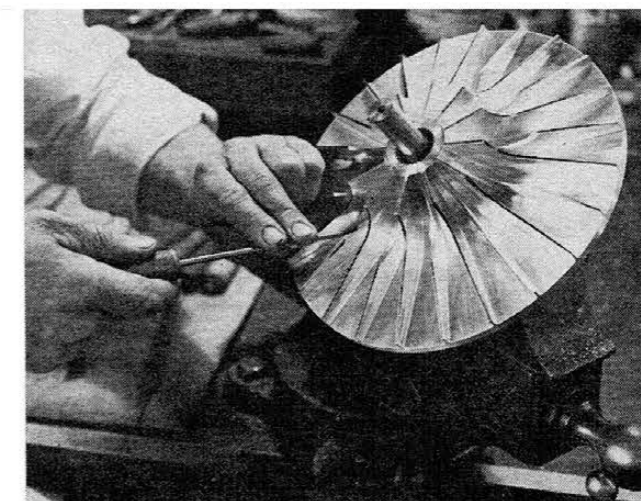
Left to right: Louie Meyer Jr., Louie Meyer Sr., and George Salih, test engineer. 180 cubic inch engine is on dyno bench. Note that four side-draft carbs are fitted to intake side. This rig is only for test purposes. The engine will have separate fuel injector at each intake port



MOTOR LIFE, June, 1954

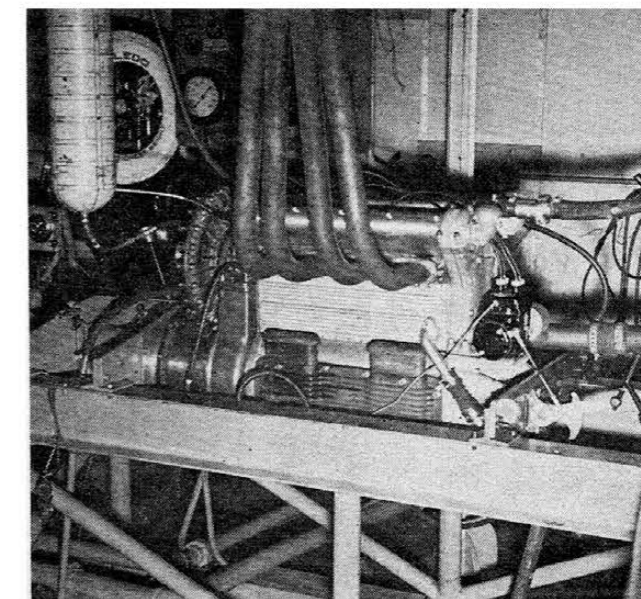


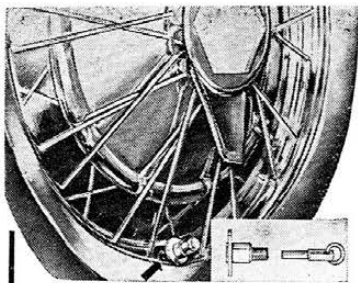
Bojanich and Fangio speculate on blown engine's output. Fangio found new 180 inch Offie more appealing than trusty 270. said if he were to drive at Speedway he would like to do so in new Kurtis powered by small, supercharged Offie



Deft hands of Chickie Hirashima, Meyer & Drake final assembly craftsman, sculpt blades of forged magnesium impeller. Impeller will turn over 39,000 rpm at 6500 crankshaft revs

Here is the Offie engine on the dyno, exhaust side showing. Pressurized air is delivered to the engine while the blower is tested by being driven without a load. The magneto at the front of engine is used in the testing, will be replaced in actual use at the Indianapolis oval by a rotorless distributor





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OFFIE CHALLENGER

(Continued from page 20)

to one. The new forged magnesium supercharger impeller is geared 6.06 instead of 5.35 to one and will rotate over 39,000 times a minute at a crankshaft speed of 6,500 rpm. While the old blown engine used carburetors on the suction side of the blower, the new one has a fuel injector at each intake port. The blower impeller housing is larger and a boost of 30 pounds above atmospheric is hoped for instead of the old engine's 25 psi. And while the earlier engine's magneto would ignite a charge reliably only up to 150 psi, the new 180 has a rotorless distributor feeding current to a separate ignition coil mounted above each of the four spark plugs, producing a spark that remains strong up to 600 psi!

This year, as in many years past, one does not need to be a prophet to specify another Offie victory at Indianapolis, in spite of promised European entries. The absorbing question is "blown or unblown?" If the new 180 ticks over as its backers hope it will, the car it propels will have a great advantage. Its torque curve is tailored to the Speedway. It should be able to literally jump across the short straights at each end of the oval. It can come charging out of the turns and with its great advantage in power accelerate down the long chutes faster than any unblown car. This will permit the driver to back off at a comfortable distance before the turns; it should be a car that demands less sheer bravery and is easier to drive.

This is if all goes well. It might, and we wish the new experiment the luck it deserves and needs. One thing is certain: if Louie and Dale and their engineer Leo Goossen have hit a new winning combination, the era of supercharging that was the climax of racing in the Twenties is bound to be reborn.

CORVETTE TEST

(Continued from page 25)

PERFORMANCE

TOP SPEED—

Average of two-way runs: 106.4 mph
Fastest one-way run: 107.1 mph

ACCELERATION—

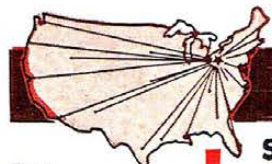
0-30 mph: 3.7 sec.
0-50 mph: 7.7 sec.
0-60 mph: 11.0 sec.
0-80 mph: 19.5 sec.
Standing quarter mile: 18.0 sec.

FUEL CONSUMPTION—

18 mpg at continuous high speed;
16 mpg under test conditions and
20 mpg under normal driving conditions
Fuel used for test was Shell Premium

GENERAL SPECIFICATIONS—

Engine—6 cyl., 150 hp at 4200 rpm.
Power-to-weight ratio—19 lbs. per 1 hp.
Center of gravity—18" from ground
Overall Hgt.—47"
Weight Distribution—53% front, 47% rear
(with 2 passengers and no load in trunk)
Weight—3210 lbs, test condition; 2890 lbs.
normal, with full gas tank
Ignition—6 V.
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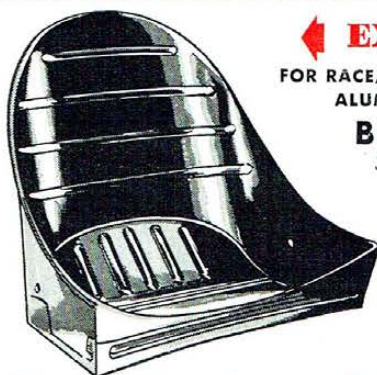
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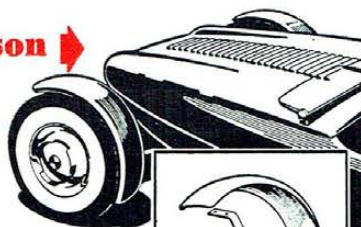
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