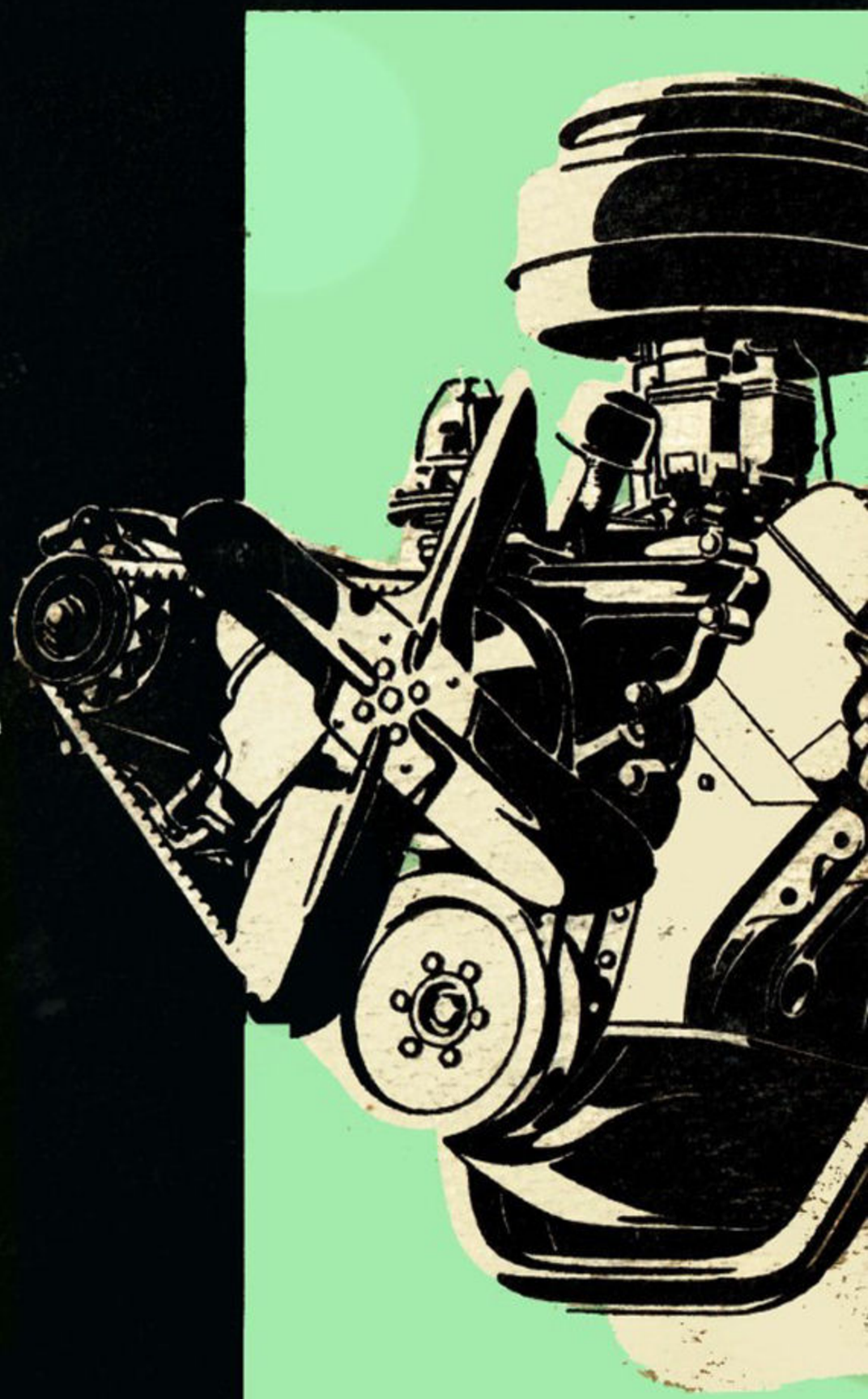
CADILLAC

presents the greatest

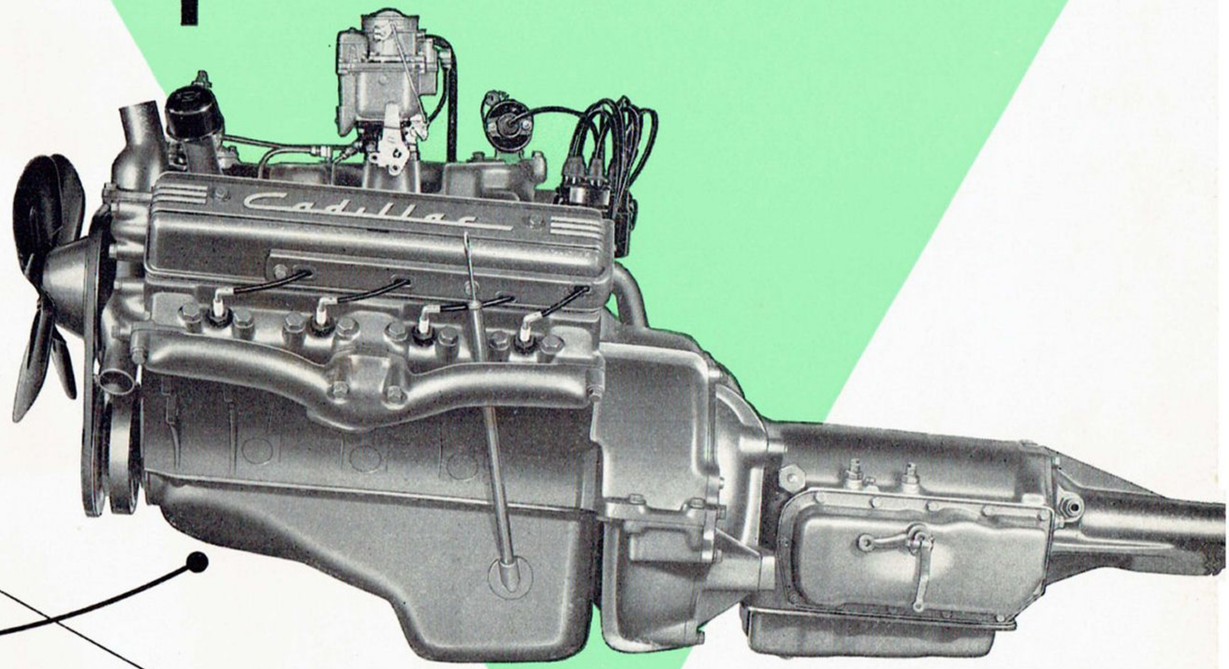
automobile engine

ever built!



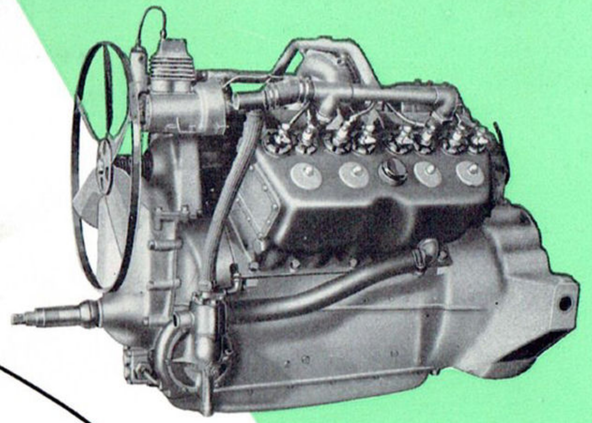
THE NEW CADILLAC V-8 VALVE-IN-HEAD ENGINE

The highest development yet achieved in automotive power!

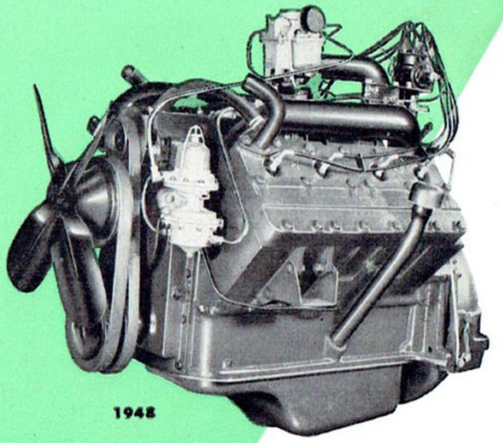


CADILLAC writes the history of V-type engines in America!

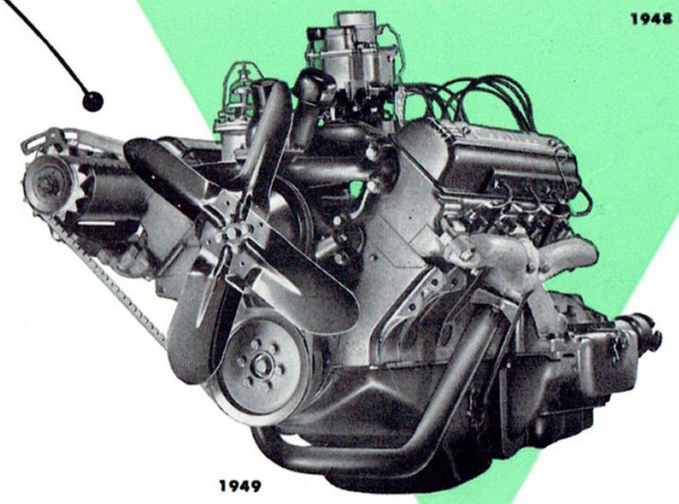
This year Cadillac presents its creative masterpiece—a totally new, far finer version of the traditional Cadillac V-type engine, already acknowledged the finest automotive engine in the world. This new power plant, like all V-type engines ever built in this country, owes much to the famous engines which have borne the Cadillac name during the past 35 years. ★ For it was Cadillac, in 1914, who gave America its first V-type automotive engine—and immediately created a whole new standard of motor car performance. Through all the intervening years, Cadillac alone has concentrated exclusively on building America's finest automobile—*and all have been powered by V-type engines.* ★ Today more and more auto manufacturers are turning to the obvious advantages of V-type power plants. As they do, it becomes apparent that no one in all the automotive world can approach the problem with the knowledge, background and millions of miles of experience which are Cadillac's. As long as 12 years ago Cadillac had started design work on today's new, more powerful, more compact engine. These years of research are reflected not only in the new Cadillac engine—but set standards which are likely to influence all other new V-type, valve-in-head engines which will make their appearance.



1914



1948



1949

1914

America's first V-type automotive engine introduced by Cadillac. This—the first in a distinguished series of Cadillac V-type engines—immediately created a whole new idea of automotive performance.

1948

In the following 34 years a whole series of Cadillac superlative motor car power plants was built—every one of which maintained the basic virtues of the V-type design.

1949

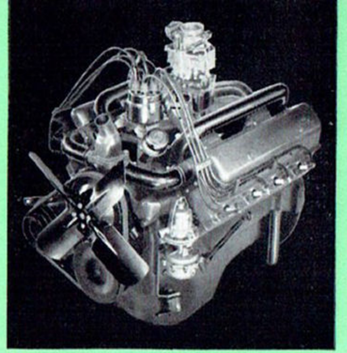
This year, Cadillac introduces a totally new engine improved in every way. This new, 160-horsepower, high compression valve-in-head engine is destined to set new standards for the automotive world.

THE YEARS OF RESEARCH

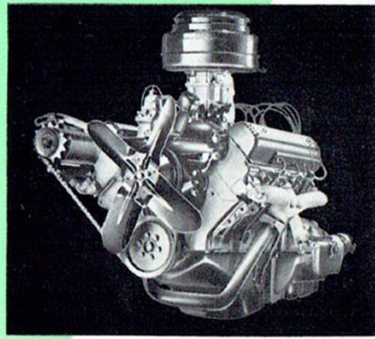
As far back as 1936 Cadillac engineers foresaw the direction which automotive power should take—toward lighter, more powerful, high compression engines. Their own experience indicated that these engines should be of V-type. Starting literally with an idea, plus the finest engine experience in the world, the Cadillac engineering design staff set about creating the ideal future engine. From 1936 to late 1941, experiments were made with virtually all types of design. By Pearl Harbor, certain basic facts had been learned, several experimental models had been made. During the war the project had to be shelved but was revived immediately after V-J Day. In late 1945, first test engines were undergoing block tests—meanwhile basic research, in the typical Cadillac tradition, was going forward. Out of 12 years of effort, America's finest automotive engine was developed—and is now presented in the 1949 Cadillac.



A great many engine theories stand or fall on the drafting boards in Cadillac's engineering department. Hundreds of hours were spent here before the first of the new Cadillac engines was "mocked up" in wood.

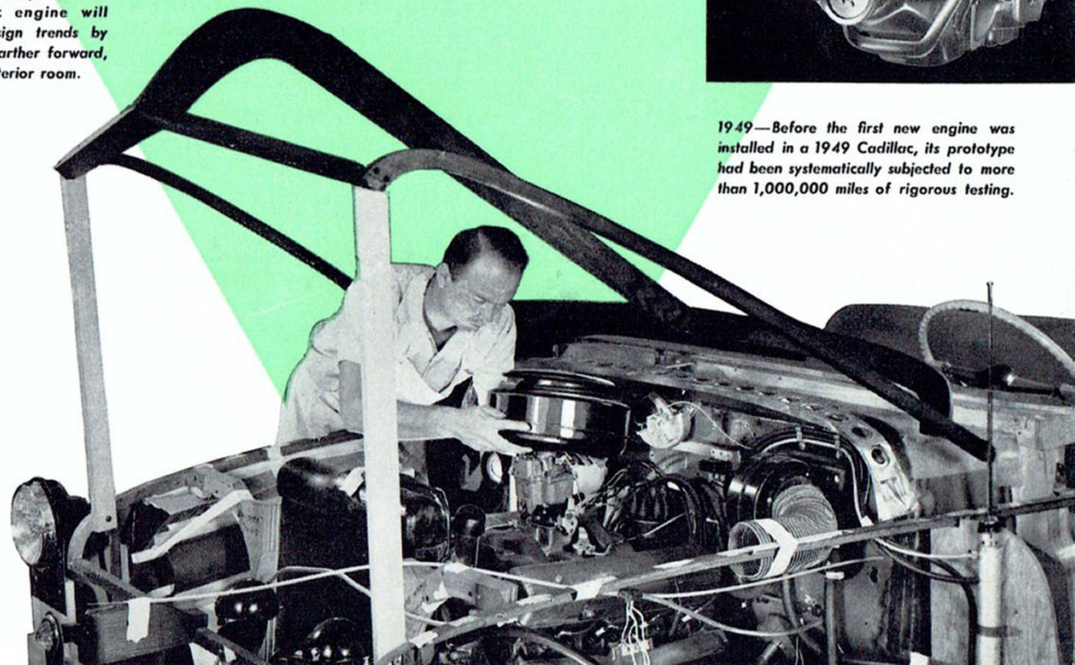


1936—Design work on the new Cadillac engine was already started. On Pearl Harbor day, experimental parts were flowing through Cadillac's machine shop—in late 1945 work was resumed on today's greatest power plant.



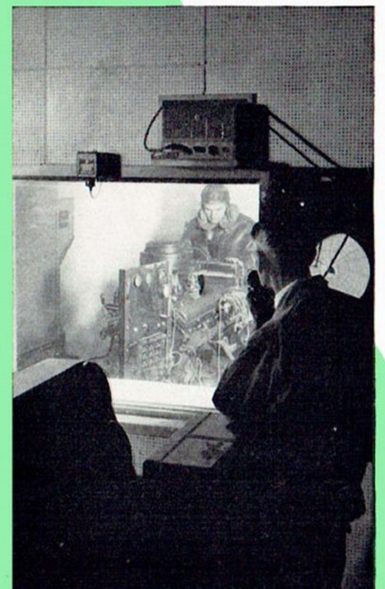
1949—Before the first new engine was installed in a 1949 Cadillac, its prototype had been systematically subjected to more than 1,000,000 miles of rigorous testing.

Designers have already determined that the new, more compact, more powerful Cadillac engine will influence future design trends by moving the engine farther forward, to allow for more interior room.

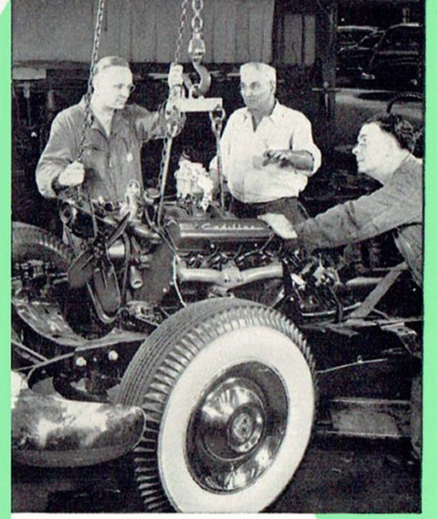


The Miles and Years of Testing

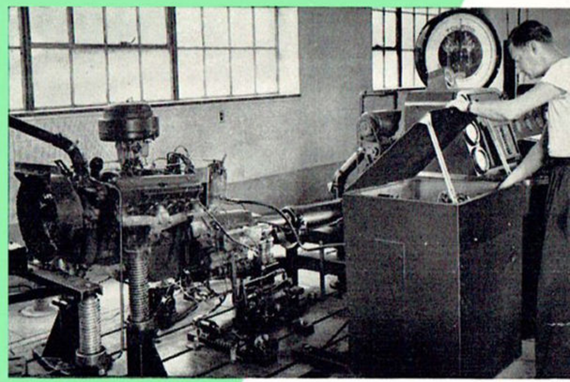
For more than three years, models of the 1949 Cadillac engine have been undergoing "cold room tests," operating in temperatures from 10 degrees above zero to 50 degrees below zero.



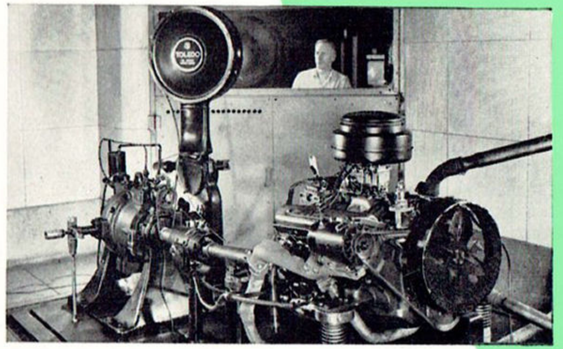
It is doubtful if any engine has ever had a more thorough testing—in the laboratories and on the roads—than the new Cadillac power plant. The engine in its final form was run well over 1,000,000 miles before the first 1949 Cadillac was made public. ★ Between 1946 and 1948 more than 25 engines were built and subjected to the most strenuous tests. Typical is the Laboratory Endurance Test run on the final engine model. One experimental and one production 1949 engine were run for more than 100 hours at 4250 r.p.m. with wide-open throttle—the equivalent of over 108 miles per hour. At the conclusion of the test there was no appreciable wear on engine parts—there had been no mechanical breakdown. The engine ran continuously except for stops to add fuel and oil. During the entire run only 26 pints of oil were added. ★ Four times 1949 production engines have gone through the gruelling cycle of a 25,000 mile test run at the General Motors Proving Ground. In the course of this test cycle, an engine is exposed to every conceivable strain and hazard—sustained high speeds on the road; pulling tests up grades as steep as 27%; mud roads designed to draw everything out of an engine; water baths that search out any weak spots. ★ Those who know best—test drivers and experimental engine specialists—say without reservation that the new Cadillac engine is more powerful, more durable, more economical than any stock engine ever built—including the great previous Cadillac engines.



A



B



C

A

A new Cadillac engine is lowered into a chassis preparatory to road testing—this was done scores of times, building up thousands of hours on the road under all kinds of conditions.

B

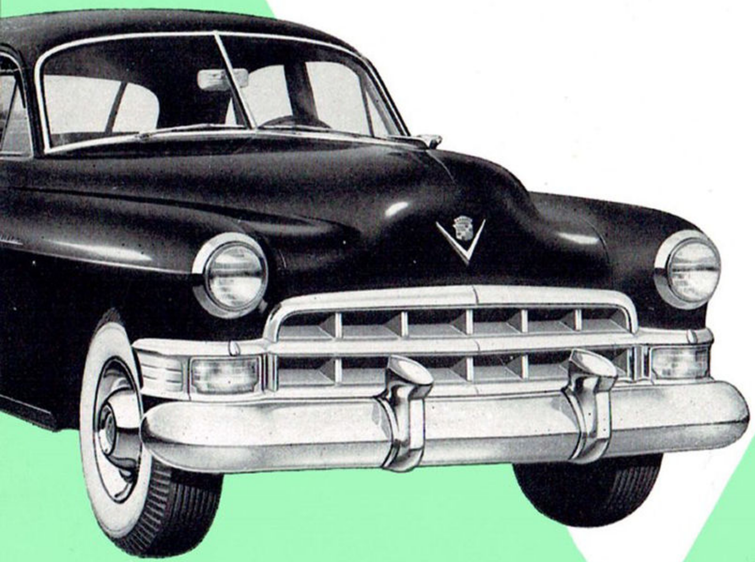
The "Automatic Driver," an ingenious testing device which puts an engine through the same paces it would get in driving—shifts gears, starts and stops, applies brake-load, simulates hill climbing. Throughout the "test run" the machine automatically records all engine operating data.

C

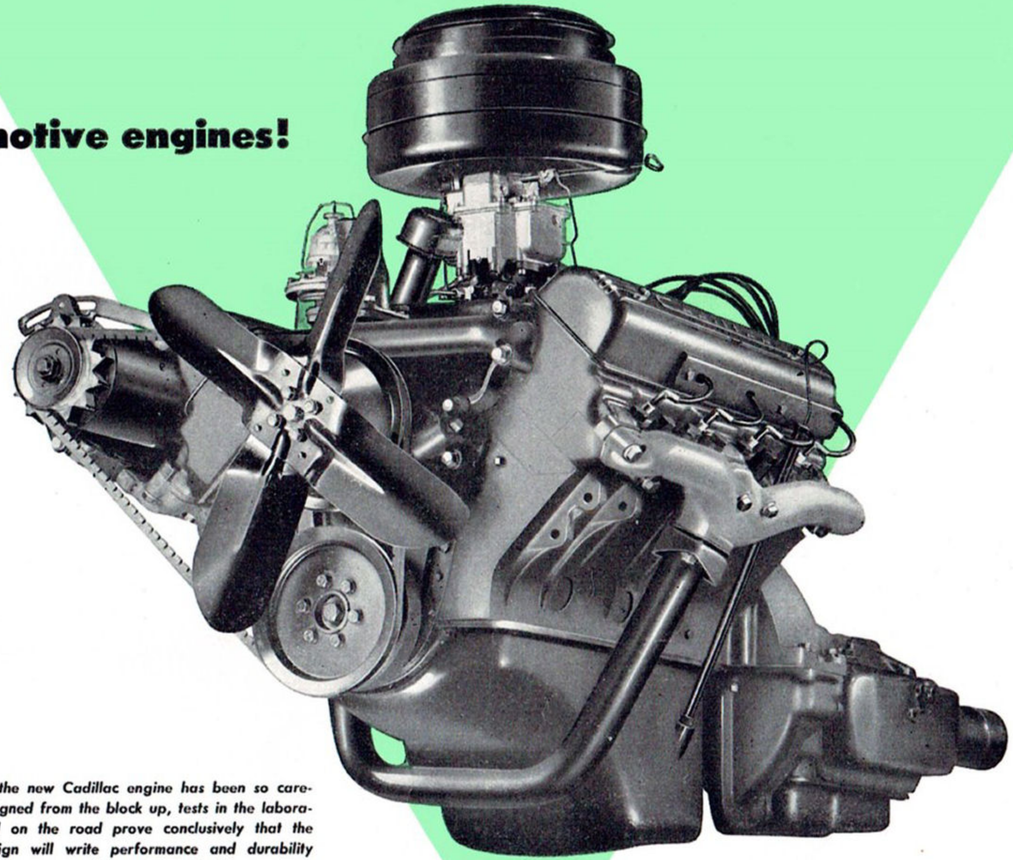
The acid test of an engine, the gruelling "destruction run" in which an engine is run at top speed for hundreds of hours. Engineers keep accurate hourly readings of temperature, and check consumption of oil and water hourly.

After 12 years of Planning and Testing

CADILLAC presents the world's new standard of automotive engines!



It is typical of Cadillac that its new valve-in-head engine was not offered to Cadillac owners until more than 12 years after it was first conceived. ★ In the intervening years every idea that seemed to promise greater performance, longer life, greater power, smoother, quieter operation was tried—many theories were discarded altogether, many others were modified. The result was a great engineering triumph—the creation of a 160 horsepower, valve-in-head, eight-cylinder engine which is so far superior to anything ever built before that it can truly be said to set a whole new standard for automotive engines ★ Only a truly great engine could possibly be advanced as the successor to previous Cadillac engines, for they were universally regarded as the finest in the automotive industry. ★ The new Cadillac engine—in addition to being more powerful—is also the smoothest, quietest running Cadillac engine ever built. Important among the reasons for these improvements is the fact that the main crankshaft bearings have been increased from 3 to 5 and placed in heavy bulkheads which help form a rigid, box-like crankcase structure.



Because the new Cadillac engine has been so carefully designed from the block up, tests in the laboratory and on the road prove conclusively that the new design will write performance and durability records even greater than previous Cadillac engines.



A 27% grade from a standing start is a tough assignment for any engine. Time after time the new Cadillac engine was subjected to this G. M. Proving Ground test—and reached the top of the grade "going away"!

A "Full" Road Test at the General Motors Proving Ground consists of 25,000 miles of all kinds of running. Below you see a 1949 Cadillac roaring along a stretch in one of the many, many times the new engine has been subjected to this tough test cycle.

CADILLAC sets new standards of

PERFORMANCE!

ECONOMY!

DURABILITY!

POWER!

We know that when all is said and done, the greatest proof of Cadillac's great new engine will be on the road—with the owner himself at the wheel. ★ It is then—in day-by-day driving—that the full story of Cadillac's magnificent performance will be revealed. The new Cadillac engine is so vastly different from anything you have driven before that you will sense it in the first mile you drive. You will find its response to acceleration amazingly fast and sparkling—you will be astonished at the almost complete lack of engine noise or vibration—you will have to adjust yourself to the fact that this engine is completely effortless. ★ It is unlikely that you will ever extend the Cadillac engine to its limits of power or speed—but it is certain that you will experience an entirely new motoring sensation because Cadillac has built into its new engine performance standards which were never before known.

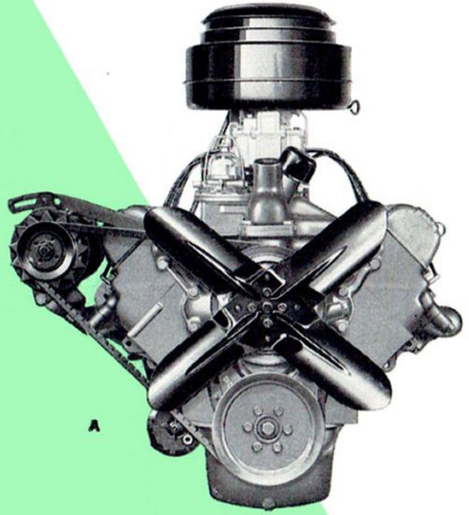


At the right is a 1949 Cadillac powered with the new engine, running at over one hundred miles per hour, in the middle of a high-speed, steeply banked test curve.



The INSIDE STORY

of a great new engine!



A

The new Cadillac engine is a revelation in automotive design and efficiency. In basic design, this V-type, eight-cylinder engine has a relatively large bore and short stroke. This combination contributes to greater efficiency by exposing about 12% less cylinder wall area to flame with a consequent reduction in heat loss and greater cooling efficiency. The shorter piston stroke reduces

(Continued on next page)

A

A head-on view of the powerful new Cadillac engine reveals its new, low silhouette. The cylinder block, completely new and of original Cadillac design, is smaller, lighter, more compact.

B

A smaller, lighter radiator is possible with the new engine because friction and heat losses have been reduced. It requires only 18 quarts of coolant as compared to 25 quarts on previous models.

C

A well-designed, piston-crankshaft assembly is vital to any engine. The 1949 Cadillac engine uses smaller, lighter parts. The new five bearing crankshaft has greater rigidity, greater torsional resistance for extra smoothness, quietness and power.

D

The 1949 cylinder block is of rigid, box-like construction, containing five main bearing bulkheads which distribute power stresses evenly throughout the casting, thus reducing vibration.

E

A new design slipper-type piston allows the use of a shorter connecting rod. Pistons nest into the crankshaft counterweights. Reduction of weight and inertia means faster acceleration.

F

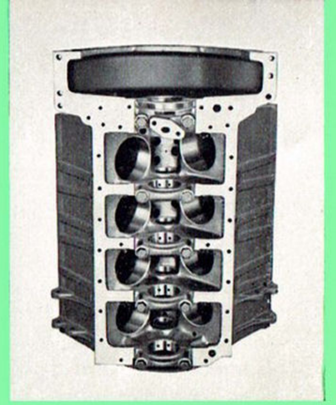
The new camshaft is shorter and lighter in weight, and is mounted in five bearings instead of three. These extra supports give added rigidity in operation, for smooth, quiet performance.

G

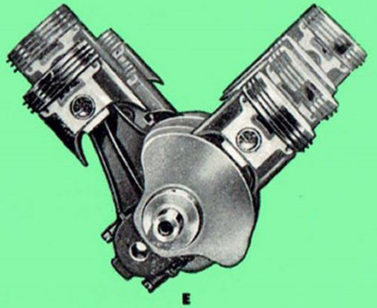
Lightweight, rigid overhead valve mechanism actuated by hydraulic valve lifters insures accurate timing and exceptionally quiet operation.



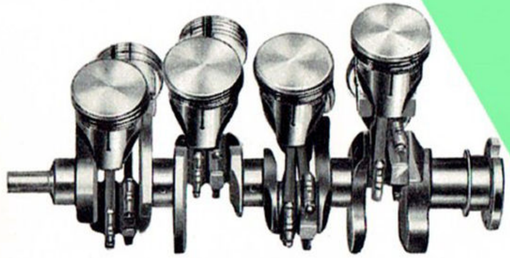
B



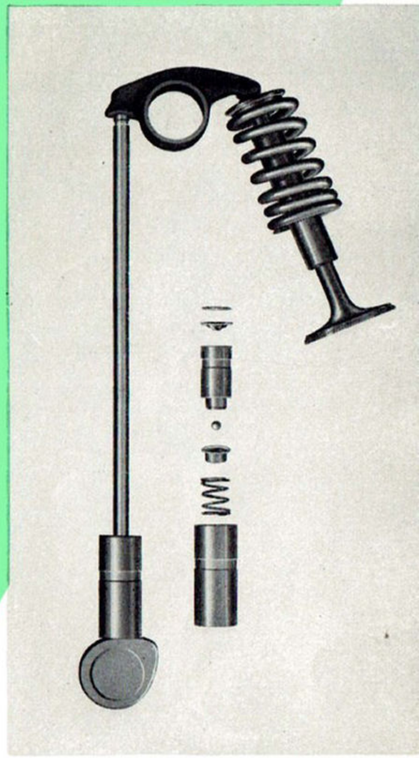
D



E



C



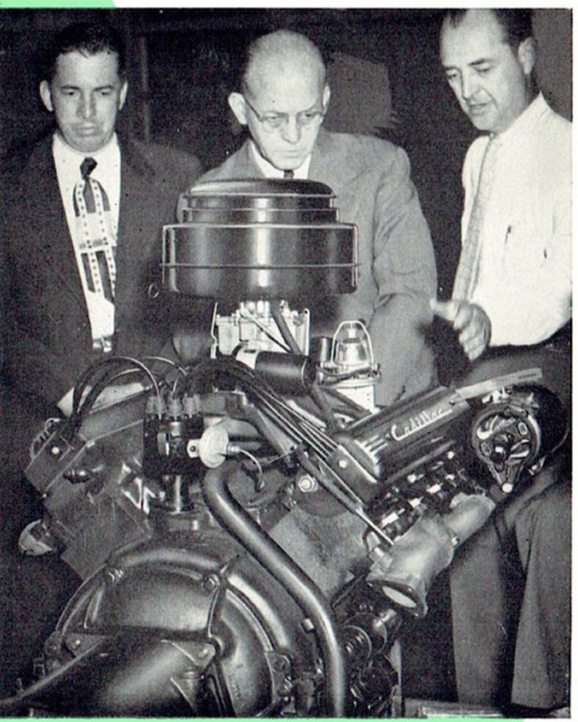
G



F

The INSIDE STORY—*Continued*

frictional power loss by cutting piston travel approximately 20%. At 4000 R.P.M. the piston travels only 2400 feet per minute as compared to 3000 feet per minute in previous models. This combination of high thermal and mechanical efficiency makes for greatly increased power output. Among the other innovations of the new Cadillac engine is a new valve-in-head combustion chamber design which permits the use of higher compression and expansion ratios producing great gains in power and economy.



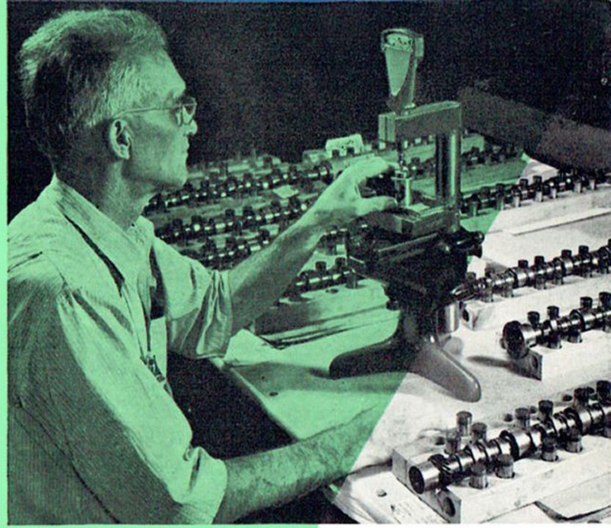
A

The three men chiefly responsible for the new Cadillac engine, look over a production model. They are, left to right: E. N. Cole, Chief Engineer of Cadillac; J. F. Gordon, General Manager of Cadillac, who was Chief Engineer when first development work was done on the new engine; Harry Barr, Engineer in Charge of Engines



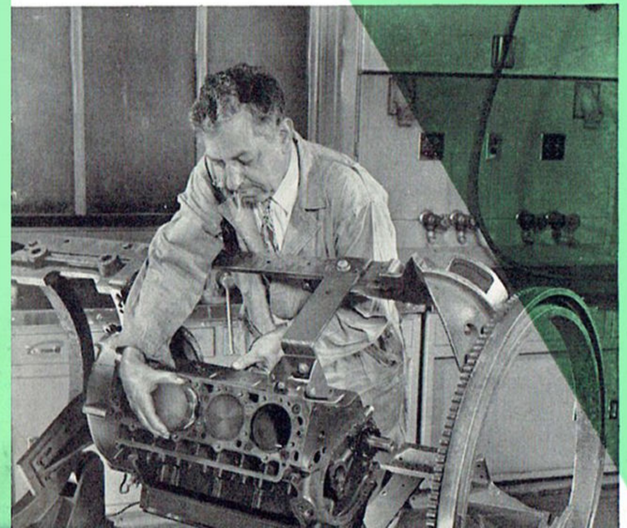
B

Here a camshaft is being "miked" to reveal any sign of wear or scuff after a high-speed test run. In many cases special Cadillac test equipment is used.



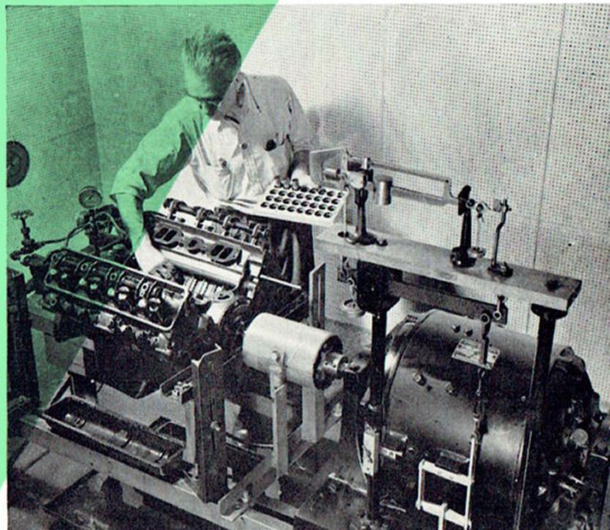
C

After long hours of test running in the laboratory, a Cadillac engine is completely torn down—every individual part is checked and measured for wear.



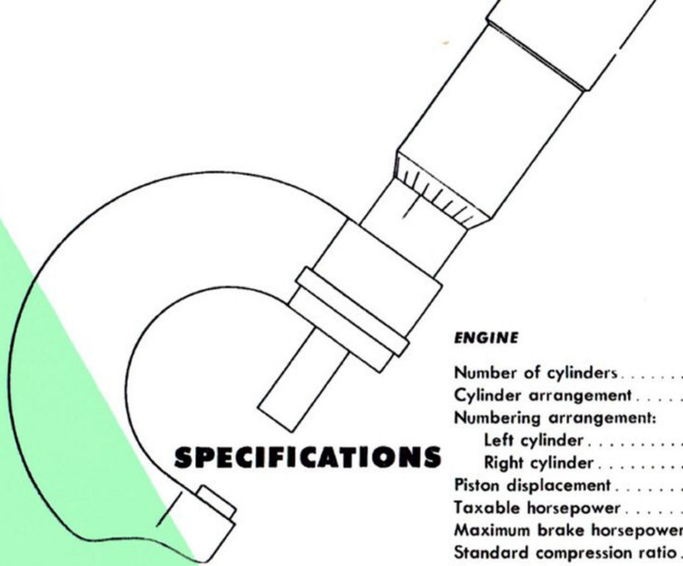
D

After every part has been thoroughly examined, the engine is re-assembled for further test of parts materials under additional stress of speed and endurance.



E

At various stages in re-assembly, the engines are "run" by electrical power to check the operation of individual parts—in this case, cam and valve parts.



SPECIFICATIONS

ENGINE

Number of cylinders	8
Cylinder arrangement	90° V-type
Numbering arrangement:	
Left cylinder	1-3-5-7
Right cylinder	2-4-6-8
Piston displacement	331 cu. in.
Taxable horsepower	46.5
Maximum brake horsepower	160 at 3800 R.P.M.
Standard compression ratio	7.5 to 1
Bore and stroke	$3^{13}/_{16}$" x $3^{5}/_{8}$"
Main bearings	5
Piston material	Aluminum alloy
Piston features	T-T-slot Sannate-treated finish
Number of rings per piston:	
Compression	2
Oil	1
Oil reservoir capacity	5 qts.
Oil pump, type	Helical gear
Normal oil pressure	35 lbs. at 30 M.P.H.
Engine lubrication	Full pressure
Crankcase ventilation	Road draft type
Cooling system capacity	18 qts.
Accessory drive belt	Wedge type Vee
Carburetor	Dual down draft
Automatic choke	Thermostatic type
Valve arrangement	Over-head
Cylinder head material	Cast iron

1949

CADILLAC . . . ALWAYS THE STANDARD OF THE WORLD



CADILLAC MOTOR DIVISION - GENERAL MOTORS CORPORATION

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