

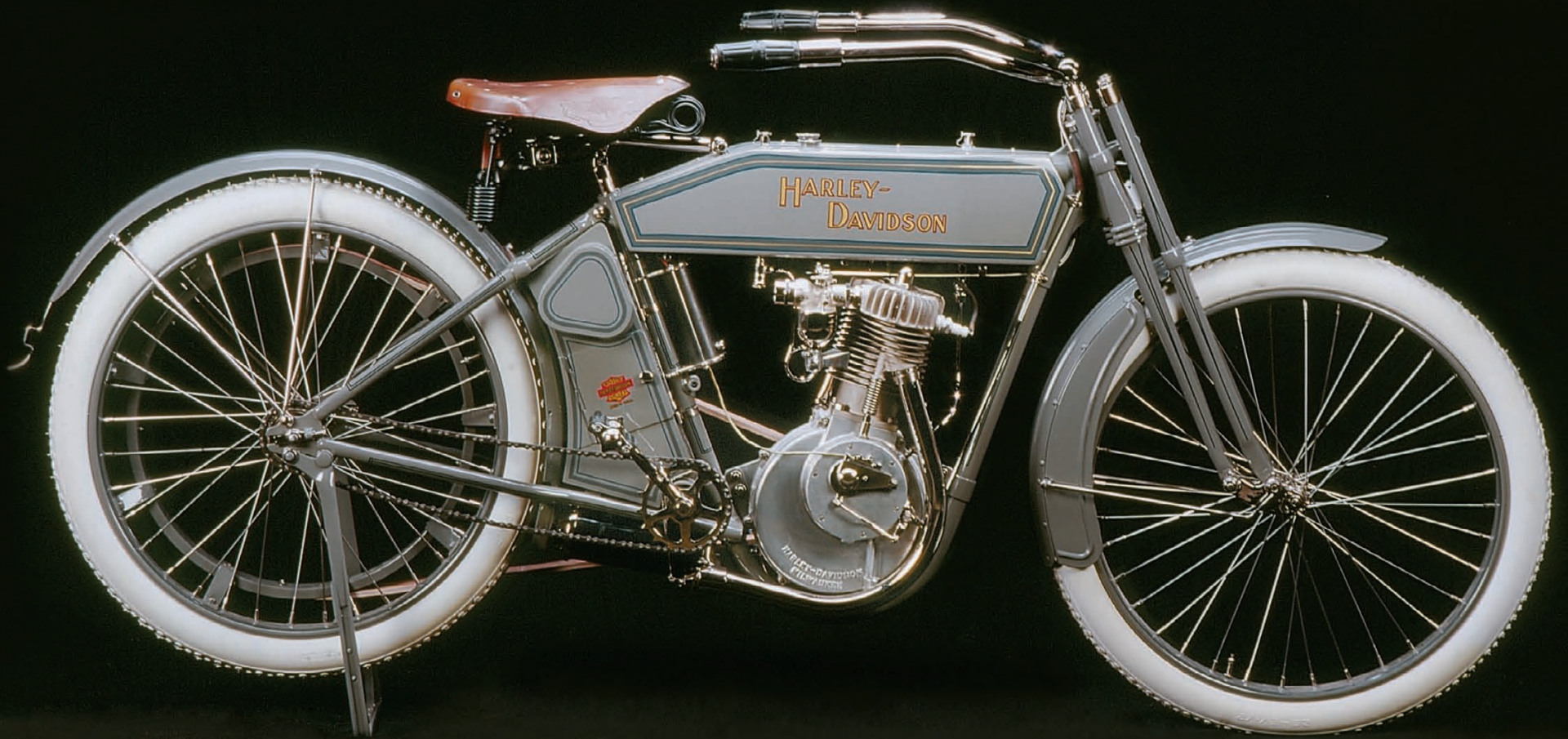
THE HARLEY-DAVIDSON SOURCE BOOK

ALL THE MILESTONE PRODUCTION MODELS SINCE 1903 | MITCH BERGERON

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INTRODUCTION

EVOLUTION: THE GRADUAL DEVELOPMENT OF SOMETHING, ESPECIALLY FROM A SIMPLE TO A MORE COMPLEX FORM

Most organizations strive to evolve, to make their company ever better not only in their products or services but also within their operations. They must. If a company doesn't do well financially, it will eventually fold—its product will disappear. Creating a motorcycle and managing a motorcycle company require two different talents, both equally important. It's a tough balancing act, and one that many companies cannot accomplish. Consider the number of American motorcycle companies that launched at the beginning of the twentieth century. There were hundreds. How many of those early companies are left today? The answer is one. Only one survived . . .

The Harley-Davidson Motor Company is the one American motorcycle company that has managed to stay alive continuously for almost 120 years.

How well has Harley-Davidson done? In addition to staying afloat through some challenging times over its history, Harley-Davidson sold over 218,000 motorcycles in 2019 alone. That's an extremely respectable number. Sales rose steadily from 1986, with almost 50,000 bikes sold that year to nearly 350,000 units in 2006! The motorcycle marketplace has never been an easy one, and it is no different today. Harley-Davidson's key customer base is getting older. Motorcycle styles change, and new riding trends emerge. Riders change. And today's younger riders don't have the nostalgic

feelings that older generations have toward Harley and what it represents or represented. It's a different game now.

Politics and the environment play a huge role in defining vehicle trends. Just look at Harley-Davidson's all-electric Livewire. Who would have thought that *Harley-Davidson* would build an *electric* motorcycle? This is a huge directional change for a company rooted in the internal-combustion tradition. But they have no choice; it's evolve or die. Yes, some smaller motorcycle companies have created a niche offering old-style tradition, but a huge company like Harley Davidson cannot remain stagnant. I can't imagine that it is easy trying to maintain roots and traditions (which, as stated, are fossil-fuel driven) while at the same time working to become more fuel efficient, EPA compliant, dependable, fun to ride, and pleasant to look at.

But as you will learn in *The Harley-Davidson Source Book*, nothing has really changed, challenge wise, since The Motor Company's early days. Even though today's obstacles are more complex, technology has advanced exponentially as well. The metallurgical challenges that Harley-Davidson faced in its early years, which probably seemed nearly unsolvable, are now considered child's play. It's all relative. I am certain that Harley-Davidson will provide its present and future riders with the motorcycles that they need—the right bike at the right time. Have they always





achieved this? Of course not. No company is perfect. But I think that over the years Harley-Davidson has proven itself to be a survivor and more than capable of building whatever it takes to stay in the game.

Thinking again of evolution, let's consider the purpose of this book. Throughout its history, Harley-Davidson has built thousands of different models. Seriously—thousands! Because so many models have been made, I could not include them all. If I did, this would be one of several phone book-sized tomes. And there have been hundreds of books written on The Motor Company's history, specific models, lifestyle, etc. This book is not about why Harley-Davidson is so popular or why it has been around for so long. And it is not simply a bunch of randomly selected bikes for your viewing pleasure. This book is a chronology of specific models

that, one by one, slowly (though sometimes abruptly) moved The Motor Company ahead and secured its future. Each of the featured machines or engine platforms aesthetically or mechanically influenced the following models and even future bikes. These models were either planned in advance by the visionaries at Harley-Davidson or they were developed gradually over time.

There are a few bikes that I would have liked to include, such as the V-Rod, which gave way to the now-defunct Street 750 and 500, and also the Destroyer, which is a 9-second quarter-mile dragstrip-only version of the V-Rod. However, I limited this book to air-cooled engines only and focused on the V-Twins as these are Harley-Davidson's history and heritage. Harley's racing history is also extremely interesting and influenced many of its street-legal bikes. But that, too, is another book unto itself.

The book's subtitle, *All the Milestone Production Models Since 1903* plainly describes the content. From the very first 7.07ci, single-cylinder, bicycle-framed effort to the latest 117ci Milwaukee-Eight powered models, I'll touch on all of the stepping-stone production bikes in between.

There is so much history to this amazing company. No one can deny that Harley-Davidson is king when it comes to cruisers. They have managed to preserve their traditional look while delivering modern performance and dependability from what is basically an archaic V-Twin design base. We all have our favorite bikes. Maybe that model will be explored here, or maybe it was a derivative from one of the other models included. All models across Harley's history trace back to some source machine. And I am sure you will find some information on that source bike in this book.

It has been a great pleasure to gather this information for you. I hope it helps you to better understand and appreciate Harley-Davidson motorcycles and the company's evolution across its countless models and fascinating history.



SHOP
ENTRANCE





CHAPTER I

THE BEGINNING

EARLY SINGLES

If you looked at a timeline of twentieth-century transportation, it would be clear that technology had evolved quickly. Within the space of a few years, the Wright brothers took flight for the first time, the automobile became mainstream, and the motorcycle became a major form of individual transportation.

It's clear that the motorcycle evolved from the bicycle: bicycling and bicycle racing were in full swing in the late 1800s, leading inventors and tinkerers to search for ways to go faster with less effort. Since the advent of the steam engine, people had constructed two-, three-, and four-wheel powered vehicles. The Roper and the steam-powered velocipedes produced by Michaud-Perreaux are considered the first engine-driven cycles and date to 1867; advances in steam-powered cycles continued until the late 1890s. As one might imagine, however, steam-powered two-wheelers proved complicated, difficult to operate, bulky, and fuel hungry.

When the first modern internal combustion engine appeared in the 1880s, it proved more practical than steam power, especially on pace vehicles for bicycle racing. Like many new inventions, these engines weren't terribly reliable, but they sparked interest, and many saw promise in a gas-engine bicycle's ability to move people from point A to point B. Bicycle manufacturers were ideally positioned to create "motor-cycles" by adapting gasoline engines to bicycle frames, which required little modification.

Arthur Davidson Sr., Walter Davidson Sr., William S. Harley, and William A. Davidson (left to right) were the four men responsible for what is still one of the greatest motorcycle manufacturers in the world.



ABOVE: Wagner was a Minnesota-based motorcycle manufacturer that operated from 1901 until 1914 (1911 model pictured). Clara Wagner, owner George Wagner's daughter, made history in 1910 by winning the Federation of American Motorcyclist (FAM) 360, an endurance race from Chicago to Indianapolis. Sadly, she was denied the trophy because she was a woman.

OPPOSITE: Marquis Jules Félix Philippe Albert de Dion was a French pioneer of steam-powered vehicles. Here he is pictured aboard a steam tricycle.

Excelsior made its first gasoline-powered bicycle available to the public in 1896. Bicycle makers such as Royal Enfield, Triumph, Indian, and many others also built motorized bicycles for this emerging market. The first US-produced motorcycle, Charles Metz's Orient-Aster, from Waltham, Massachusetts, appeared in 1898. The Marsh brothers, also from Massachusetts, made their first motor-driven bicycle in 1899; later, they teamed up with Metz to form the American Motor Company, which produced motorcycles under the names Arrow, Peerless, National, Dixie Flyer, M.M., and Haverford. By 1911, there were over one hundred makes of motorcycles in the US alone.

The majority of these manufacturers failed after a few years of production. One of the few early companies to survive these early years went on to become America's greatest motorcycle manufacturer: the

Harley-Davidson Motor Company. While the V-twin platform is what the company is known for today, it was the single-cylinder engine what originally put Harley-Davidson on the map.

This chapter covers the single-cylinder models built from 1901 to 1918. The story begins not with the company's first bike (released in 1903), but with the beginning of The Motor Company and the trial and development period that went into its first motorcycle.

Details of those early years are hard to find and often a little confusing. Of the many books, articles, and other resources I have consulted, I often found contradictory facts and figures. At the turn of the twentieth century, most new companies did not keep detailed logs or figures related to the organization's development. And hold on to those records for the next century? Not a common occurrence. This is especially true of a company that's lasted nearly 120 years, and one that continues to grow and expand. I will take Harley-Davidson at their word when it comes to their history. Why not? It is their product after all.

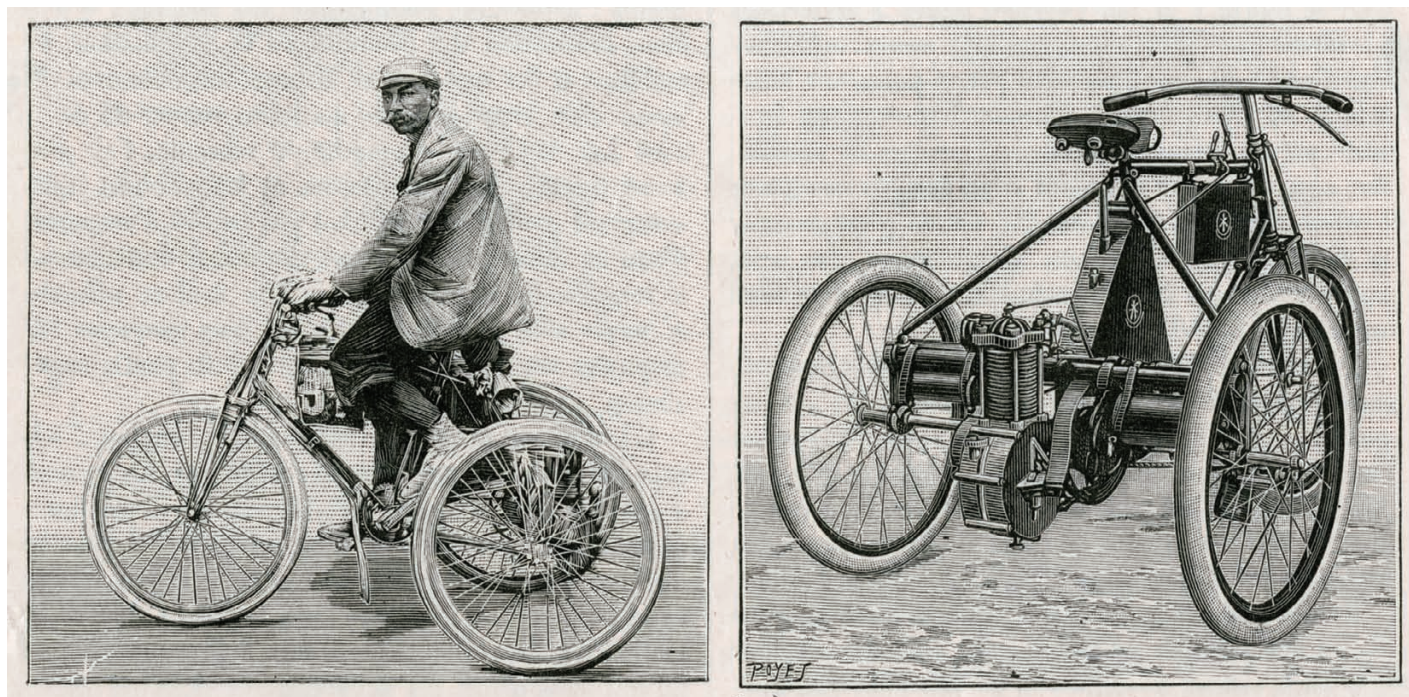
1903: FIRST EFFORTS

William S. Harley and Arthur Davidson had been friends since childhood. Born and raised in Milwaukee, Wisconsin, the young men shared a strong mechanical aptitude. They were in their early twenties in 1901, both working at the Barth Manufacturing Company: Harley as an apprentice draftsman and Davidson as a pattern maker.

According to legend, their initial plan was to make an outboard motor so they could get to their fishing hole on Lake Michigan quickly. Another story



The De Dion-Bouton Tricycle was made from 1897 to 1904, selling close to 15,000 units over that time. The team of De Dion and Bouton were pioneers in the development of internal combustion engines, and they influenced many bright minds, including William Harley and Arthur Davidson.

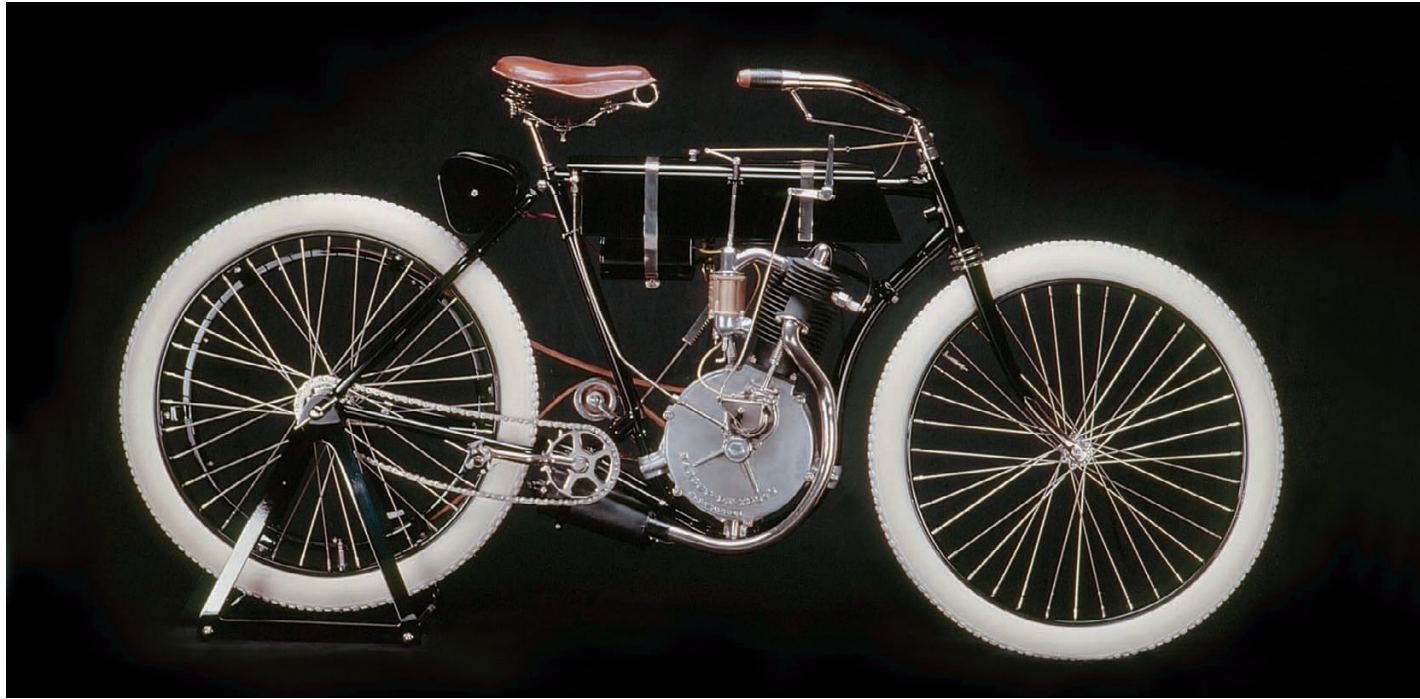


is that the boys saw curvaceous French performer Anna Held riding a motorcycle in her vaudeville act. This French-built motorcycle caught their eye and attention. Either way, in 1901 Harley had drawn up a blueprint for a small, gas-powered engine based on the French De Dion-Bouton design.

This French engine was the work of French engineers Charles Trépardoux and Georges Bouton, who in 1881 were crafting miniature steam locomotives. Their work caught the eye of Marquis Jules-Albert de Dion, a wealthy aristocrat with a passion for steam power, and the three men formed a partnership under the name “De Dion, Bouton et Trépardoux” in 1883. They began producing an assortment of small transport vehicles and developed

a four-stroke internal-combustion Otto-cycle engine, which the Marquis believed was the future. He and Bouton parted ways with Trépardoux in 1894 and continued as De Dion Bouton & Co. The partnership continued successfully for years, and the company was one of the largest automotive manufacturers in the world until the 1920s. Thanks to the De Dion-Bouton engine design and configuration, Harley and Davidson (and many others) could apply their own innovations to create a better engine. This early engine is the Inlet/Intake Over Exhaust (IOE), known as an F-head in the US.

This early four-stroke engine design had the intake valve above the piston. Sometimes known as an automatic valve, the intake valve was held



Known as Serial Number 1, this is the oldest Harley-Davidson in existence. This motorcycle is displayed at the Harley-Davidson Museum in Milwaukee, Wisconsin.

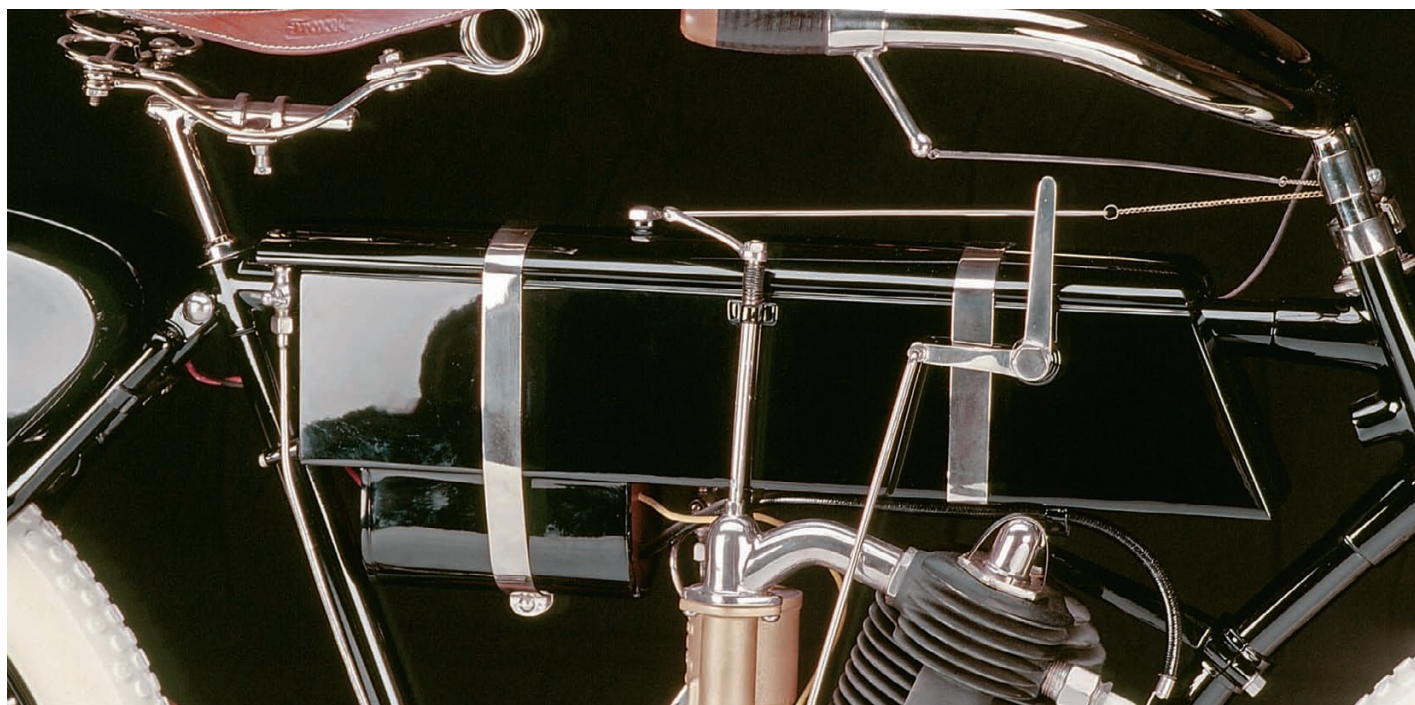
by a weak spring; it was opened by vacuum and closed by pressure when the piston made its up-down movements. The exhaust valve sat alongside the cylinder with its stem facing downward and was mechanically activated.

William Harley's first engine design is dated July 20, 1901, on the blueprint, a document that was discovered in 1997. The engine had 4-inch flywheels, a bore and stroke of $2 \times 2 \frac{1}{4}$ inches, and a final displacement of 7.07 cubic inches (116cc). Harley and Davidson revised their original design with the help of Emil Kroger, a German draftsman familiar with the De Dion-Bouton gasoline engine (Kroger had worked on the original plans in Europe and brought the drawings with him when he came to the US).

Henry Melk, a friend of the group, offered the use of his home machine shop. A second prototype engine was finished in 1902, with a flywheel diameter of 5 inches and a bore and stroke of 2.125×2.875 inches, giving a total of 10.2 cubic inches.

When tested on the road, in a typical diamond shape bicycle frame, the small engine proved inadequate. The rider had to pedal to help make it up hills. Clearly a redesign was in order. At this point, William and Arthur asked for help from Arthur's brother, Walter Davidson, a skilled machinist, mechanic, and self-taught electrician. They quickly built a second rolling version, this time with a bigger engine and a newer loop frame. A third Davidson brother, William, was also helping out. William

Speed was controlled by a mechanical-linkage system. The 1903-1904 motorcycles were identical in appearance. What makes Serial Number 1 somewhat controversial is its 1905 frame, distinguished by the sidecar-mounting lug cast behind the neck.



Davidson was a foreman railway toolmaker, and many of the parts needed for the effort machined during his shifts. At this point, the Davidsons convinced their father to let them use a 10x15 foot shed in the family's backyard as a shop. The new frame and engine were assembled in that shed.

The new engine displaced 24.74 cubic inches (405cc) from a bore and stroke of 3x3.5 inches. The flywheel more than doubled in diameter to 9.75 inches, and it weighed a hefty 28 pounds making for a total engine weight of 49 pounds. It was still based on the De Dion-Bouton engine with an IOE valvetrain. One story has it that the carburetor was ingeniously made from a tomato can! However accomplished, Ole Evinrude, a childhood friend of Arthur's, is credited with the carburetor design (Evinrude later became

famous for his outboard boat motors). Oiling on these early machines was total loss, which meant oil was dripped into the engine (crankpin) through a needle valve by gravity. A good portion of this oil would be burned up in the combustion, but oil would mist out of any and all seams. According to Harley, "The first spark plugs were as big as door knobs." The only available color for the first bikes was piano-finish black with gold pinstriping. The lettering and pinstriping on the first Harley-Davidsons was done by Janet Davidson, the Davidson boys' aunt.

This new 25-cubic-inch engine and loop-frame combination became the first real Harley-Davidson. Two more production models were started in the same year, but were finished in 1904.



SPECIFICATIONS: 1903

ENGINE: F-HEAD, SINGLE CYLINDER

DISPLACEMENT: 24.74ci (405.41cc)

BORE AND STROKE: 3.0x3.5in

TRANSMISSION: Direct drive

FINAL DRIVE: 1.25in-wide, two-ply leather drive belt

FUEL TANK CAPACITY: 1.375gal (5.5qts)

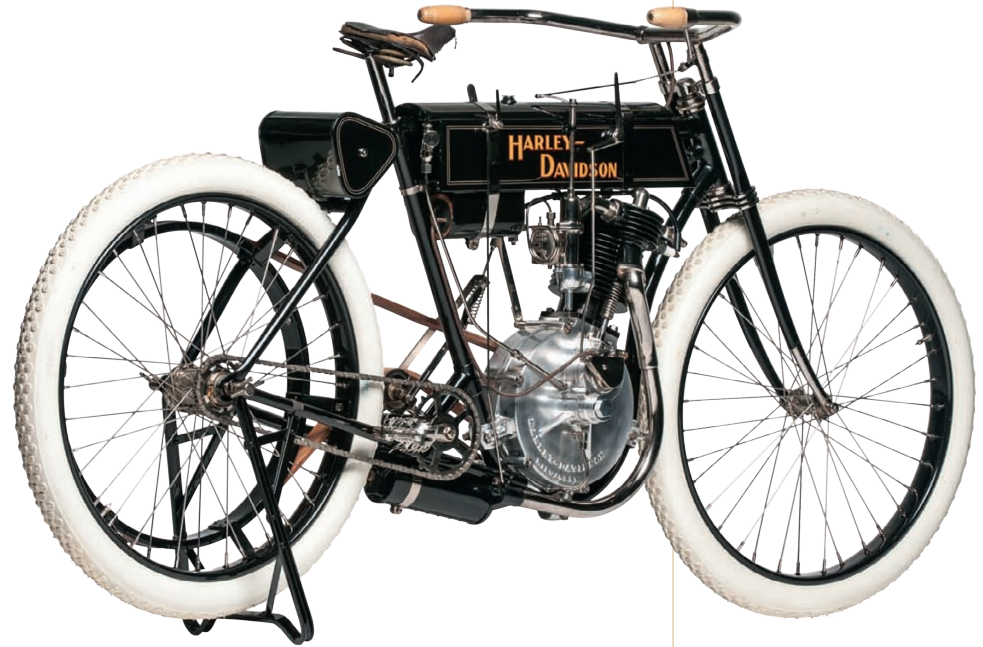
OIL TANK CAPACITY: 1qt

WHEELBASE: 51.5in

FRONT TIRE: 28x2in

REAR TIRE: 28x2in

WEIGHT: 178lbs



1904

The 1904 Harley Davidson continued with the loop frame developed in 1903, a feature that was needed to accommodate the larger crankcase and crank. The engine remained the same size for this year, but it saw the addition of crankcase baffle plates. These were cast in the crankcase halves and designed so that the piston could create a vacuum on its upward stroke to pull oil up and under the piston, thus oiling the cylinder walls. The throttle is now a right-hand twist grip compared to the previous open linkage.

No options were available on the bike for this year, and specifications were the same as those of the 1903 model.

LEFT: The 1904 model weighed 178lbs and cost \$175. We can see that the overall design is basically a bicycle with an engine.

RIGHT: This well-known and accurate reproduction of Harley-Davidson's 1904 single was built by the late Lonnie Isam Jr., founder of the Motorcycle Cannonball Run for antique bikes.



Although 1903 is known as the first year for Harley-Davidson, 1905 was the first year The Motor Company identified motorcycles as Model 1.

1905 MODEL 1 (05-1)

The biggest change for 1905 was an increase in engine size. This was accomplished by increasing the bore by 0.125 inch, bringing it to 3.125 inches. With the same stroke of 3.5 inches, displacement increased to 26.84 cubic inches (440cc). The Harley-Davidson engineers also beefed up the internals. Flywheel diameter increased to 10 inches, giving it more momentum. Both the wrist pin and crankpin were larger. The engine case also grew to accommodate these larger internal parts. Horsepower this year was advertised

at 3 1/4. The few options available in 1905 included a hand-crank starter and 28x2 1/4-inch tires. The frame remained the same, except for a sidecar lug cast in the neck area. The company also sold bare engines, known as buckboard motors. They stopped producing these motors in June 1905 to better focus on complete motorcycles.

Side note: 1905 was the first year of model identification, beginning with this year's Model 1, or 05-1.



SPECIFICATIONS: 1905 MODEL 1 (05-1)

ENGINE: F-HEAD, SINGLE CYLINDER

ENGINE DISPLACEMENT: 26.84ci (439.829cc)

BORE AND STROKE: 3.125x3.5in

TRANSMISSION: Direct drive

CHASSIS: Loop frame, 21.5in seat height

FINAL DRIVE: 1.25in wide, two-ply leather drive belt

FUEL TANK CAPACITY: 1.375gal (5.5qts)

OIL TANK CAPACITY: 1qt

ELECTRICAL: 6v battery with coil

FRONT AND REAR TIRE: 28x2in (optional 28x2.25in)

WEIGHT: 185lbs

ADVERTISED COST: \$175

1906 MODEL 2 (06-2)

The 1906 models were offered in two colors: piano-black with gold double pinstriping, or Renault gray with carmine double pinstriping. The company also switched to a Schebler carburetor.

This was also the year that the nickname Silent Gray Fellow emerged. There are two origin stories for this nickname. The first relates to the use and promotion of the big mufflers and low-noise campaign undertaken by The Motor Company. Gray was the new standard color for the bikes and “fellow” was a good way to describe the bike as a companion of the road. The second story explains it as William Harley’s nickname, given to him by the Davidson brothers and reflecting his quiet disposition and prematurely gray hair. In either case, the name was not intended for one bike only, but applied to all models matching that description.

Specifications for 1906 were the same as the 1905 models.

The 1905 Model 1 displaced 27ci and featured polished engine cases. The only color available was black with gold double pinstriping

THE NEW
Harley-Davidson
“THE SILENT GREY FELLOW”



**The Motorcycle That
Is Not Uncomfortable**

The Free-Wheel Control permits the HARLEY-DAVIDSON to be started like an auto.

UNtil the New HARLEY-DAVIDSON was produced motorcycles were more or less uncomfortable. With only the saddle springs and the resiliency of the tires to absorb the jolts, how could they be otherwise? When a motorcycle struck a 3 inch bump the tires and the saddle springs absorbed 1 inch of the shock—the rider got the rest. Motorcycle manufacturers have long tried in vain to overcome this. They put longer saddle springs on and found that while this eliminated the hard jolts, when the machine struck bumps or crossings it added a “spring board like” action which threw the rider off the seat. This was even more objectionable than the jolts and jers and was actually dangerous. Other experiments were tried, but the problem remained unsolved, until William S. Harley, America’s foremost motorcycle designer and engineer suspended or floated the seat between two springs held under heavy compression. Hence the name *Full-Floating SEAT*.

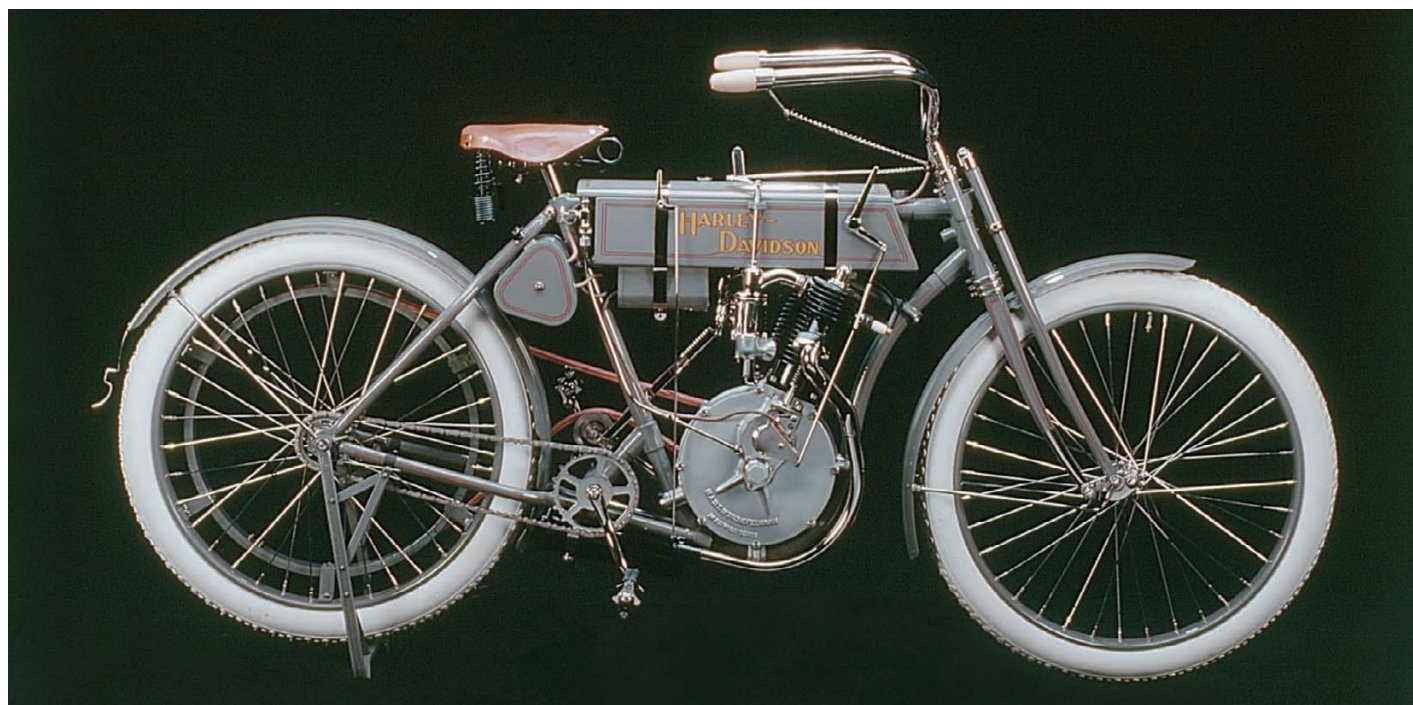
Jolts and jers were eliminated—it was like riding on air. The “spring board like” action was gone. The rider really floated over bumps and rough roads. The *Full-Floating SEAT* had solved the problem.

In addition to its comfort, the new Harley-Davidson is clean—all moving parts where oil is used are encased in oil tight cases, and the machine is so silent that it cannot be heard across the street.

HARLEY-DAVIDSON MOTOR CO.
223 B Street
MILWAUKEE

Sectional View of Full-Floating Seat

Renault Gray was the standard color for the 1907 Model 3 bikes. This was also the year that the Harley-Davidson name as cast-in on the engine crankcase was changed slightly.



1907 MODEL 3 SINGLE (07-3)

The big change in 1907 was the addition of front suspension using Sager-Cushion spring forks.

The frame dimensions changed as well, with a wheelbase now 51 inches (reduced from 51.5 inches) and a frame height decreased by 1.5 inches to 20 inches. Replacing the bicycle seats used on previous models, the 1907 model had a new Persons brand seat that was designed specifically for motorcycles.

This was also the year when Harley-Davidson started casting its name on its engine cases.

The standard color switched to Renault Gray in 1907, with piano-finish black as the option.

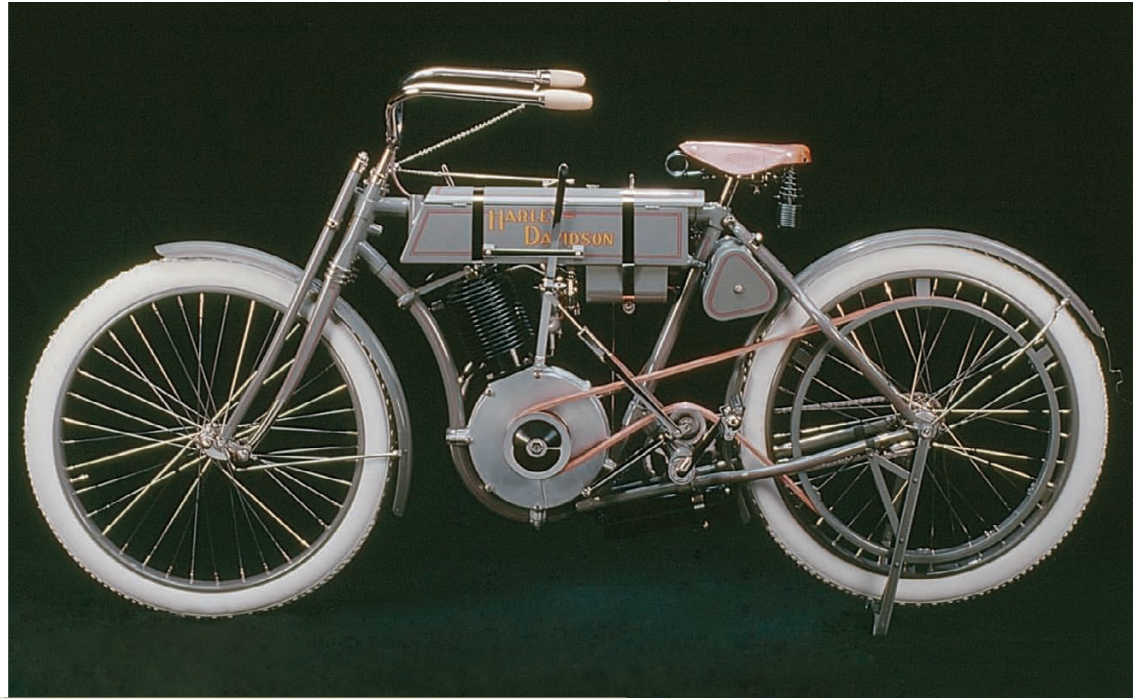
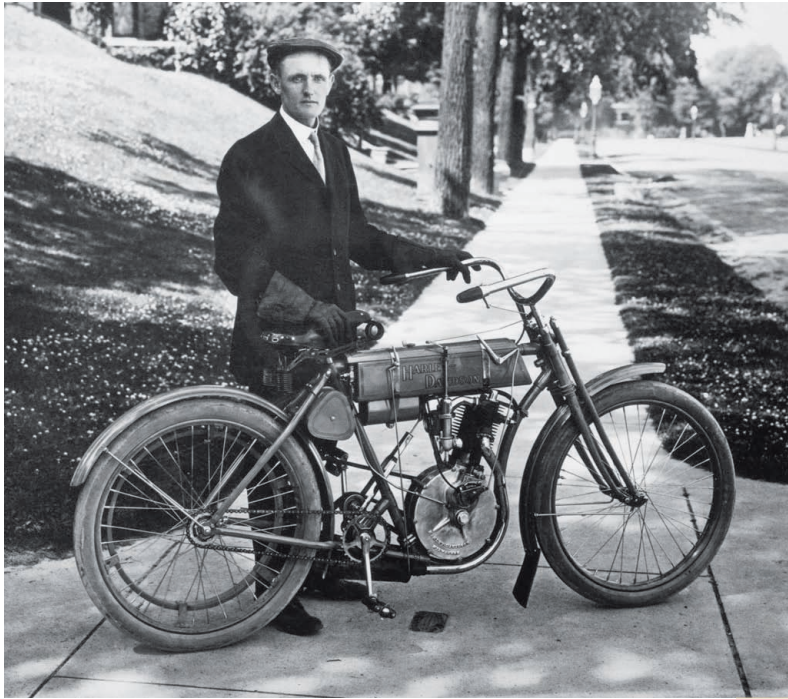
Specifications for this year were the same as in previous years. Production was 150 units.

While the bike's specs hadn't changed, 1907 was a year of developing new manufacturing processes. Walter Davidson learned about heat-treating techniques, and he and William went to Chicago for training in oxygen-acetylene welding, a process they shared with workers so that they could apply it in manufacturing.

The company now had seventeen employees. This was also the year that Harley-Davidson Motor Company incorporated.

1908 MODEL 4 SINGLE (08-4)

There were many small changes in 1908 and the addition of one special model, the 08-4 Pet Ambulance. This was a sidecar frame attached to the Model 4,



with an animal transport box specially made for transporting stray dogs. The design was based on drawings supplied by and made for the Chicago Anti-Cruelty Society.

Also significant in 1908, Walter Davidson won the diamond medal at the seventh annual Federation of American Motorcyclist (FAM) endurance and reliability contest on June 29, 1908. He scored a perfect one thousand points with no mechanical breakdowns (only one flat tire) during the 365-mile, two-day event in the Catskill Mountains, New York.

SPECIFICATIONS: 1908 MODEL 4 SINGLE (08-4)

FIRST YEAR FOR GASOLINE GAUGE

WHEELBASE: 54in (previously 51in)

FUEL TANK: 1.5gal (6qts); new shape with rounded edges and larger filler hole; first year for fuel gauge

FENDERS: Wider front and rear fenders, 3.75in (previously 3in); stepped design (previously rounded)

FRONT AND REAR TIRES: 28x2.5in

FINAL DRIVE: 1.5in, 2-ply leather drive belt

FRONT SUSPENSION: Sager-Cushion forks with stronger springs, heavier brackets, and 0.5in wider to accommodate the larger tires/fenders

ENGINE: Adjustment cap added to exhaust valve to allow for proper clearance

OTHER: Muffler cutout lever mounted near rear of tank; multiposition belt-idler pulley; improved nickel plating

PRODUCTION NUMBER: 450

LEFT: Walter Davidson stands proudly with his 1908 Model 4 after winning the annual FAM endurance and reliability contest. Davidson scored a perfect 1,000 points.

RIGHT: 1907 was the first year that The Motor Company formally exhibited its models. The Chicago Automobile Show hosted three single-cylinder bikes, and the Harley-Davidson's prototype V-twin. Production for that year totaled 150 Model 3s.



ABOVE: This is a 1909 Model 5-C distinguished by the new larger saddle-style gas tanks and the large tool/riding-gear box between the seat post and rear fender. Displacement rose to 30ci for this model.

CENTER: More than a century later, Harley-Davidsons still use a belt drive! The belts used in the early 1900s were made of leather, however. This Model 5 uses a 1.5-in belt.

1909 MODEL 5 SERIES

Four single-cylinder models were available in 1909, all with a new 30-cubic-inch, 4-horsepower engine (494.28cc) and single-speed transmission with belt final drive. A critical change in the engine was the balancing of the flywheels and rotating parts with a claimed elimination of vibration.

SPECIFICATIONS: 1909 MODEL 5 (09-5)

ENGINE: 30.16ci (494.28cc)

BORE AND STROKE: 3 5/16x3 1/2in

HORSEPOWER: 4hp

WHEELBASE: 54in

FUEL TANK: 2.5gal · OIL TANK: 2.5qts

TIRES FRONT AND REAR: 28x2.5in, G&J tires

WEIGHT: 150lbs

Apart from a bigger bore, the major changes for 1909 were aesthetic. These included a wider fuel tank, now holding 2.5 gallons, and an oil tank with a 2.5-quart capacity. There was also a storage compartment located between the seat post and the rear fender. The frame height dropped from 20 inches to 19 inches, the steering head was now cast, and most of the attachment points were dropforged. This was also the only year for the 1.5-inch leather V-belt. Harley went back to the flat belt the following year and stated that the V-belt robs too much power.

1910 MODEL 6 SERIES

Models produced in 1910 closely resembled those of the previous year, with four models as before:



the 6, 6-A, 6-B, and 6-C. However, there was one critical addition to the 1910 single-cylinder series: the Model 6-E, a factory racer. In fact, it was Harley's *first* official factory racer. Though not called a racer outright, word got around quickly why the company was charging an extra \$25 dollars for this model. With its 30-cubic-inch motor, single-speed belt drive transmission, magneto ignition, and 26-inch wheels and tires, it had the same profile as a street model, but it was actually a stripped-down competition model. Changes included the elimination of the front fender, rear wheel stand, toolbox, and mounted exhaust, with a shortened rear fender, a racing saddle, and turned-down racing handlebars. This model proved itself on many racetracks and road races, and the

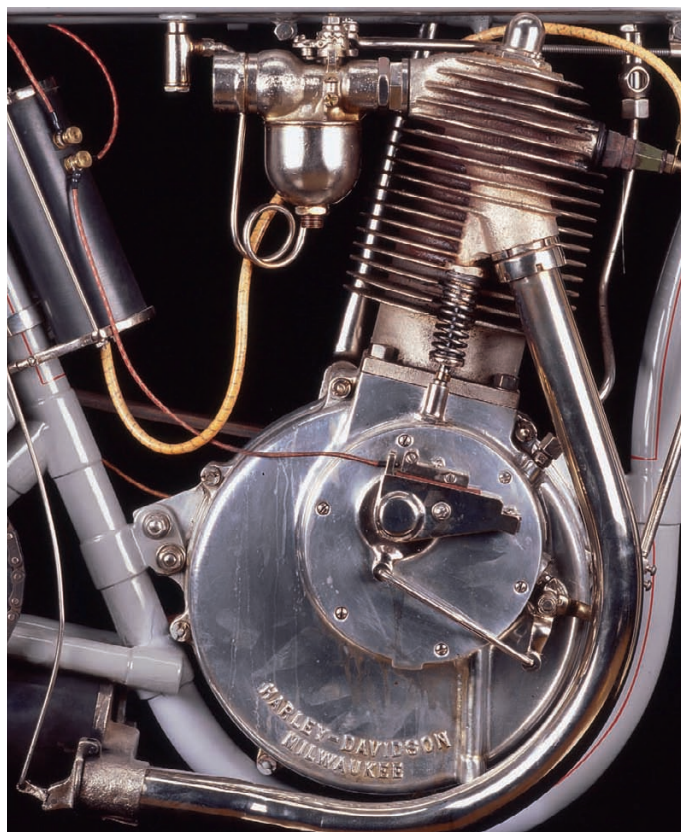
MODELS

MODEL 5: F-HEAD SINGLE	Battery ignition	28 in wheels	864 produced
5-A: F-HEAD SINGLE	Magneto ignition	28 in wheels	54 produced
5-B: F-HEAD SINGLE	Battery ignition	26 in wheels	168 produced
5-C: F-HEAD SINGLE	Magneto ignition	26 in wheels	36 produced

This beautiful 1910 Model 6-B is distinguished by its smaller 26-in wheels and battery ignition. New for this year was a much improved belt idler system.

RIGHT: This engine detail of a 1910 Model 6-B shows the radial “beehive” cooling fins on the cylinder head; 1910 would be the last year for these. Notice the manually activated exhaust cut-out. The 6-B employed a battery and coil ignition system.

BELOW LEFT: A 1911 Model 7-C. The big, visible changes this year were the frame’s straight front downtube and the vertical fins on the cylinder head to improve cooling. Previous engines had horizontal fins, which gave them their “Beehive” nickname.



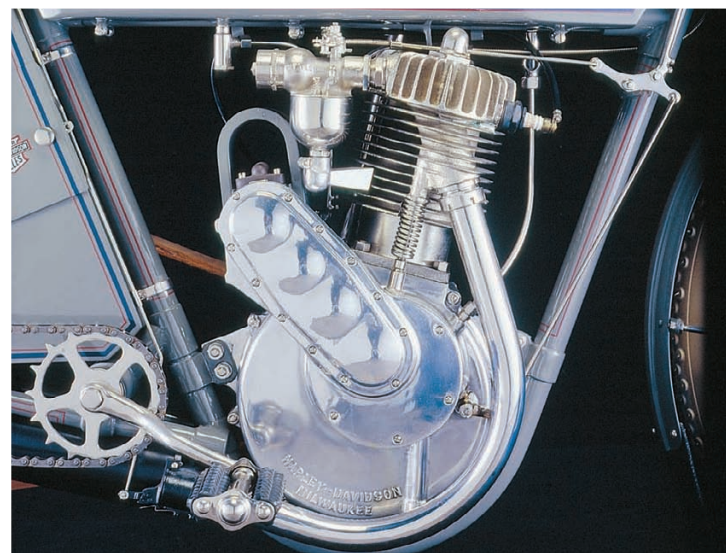
company’s advertising rightfully took advantage of these wins to bolster sales.

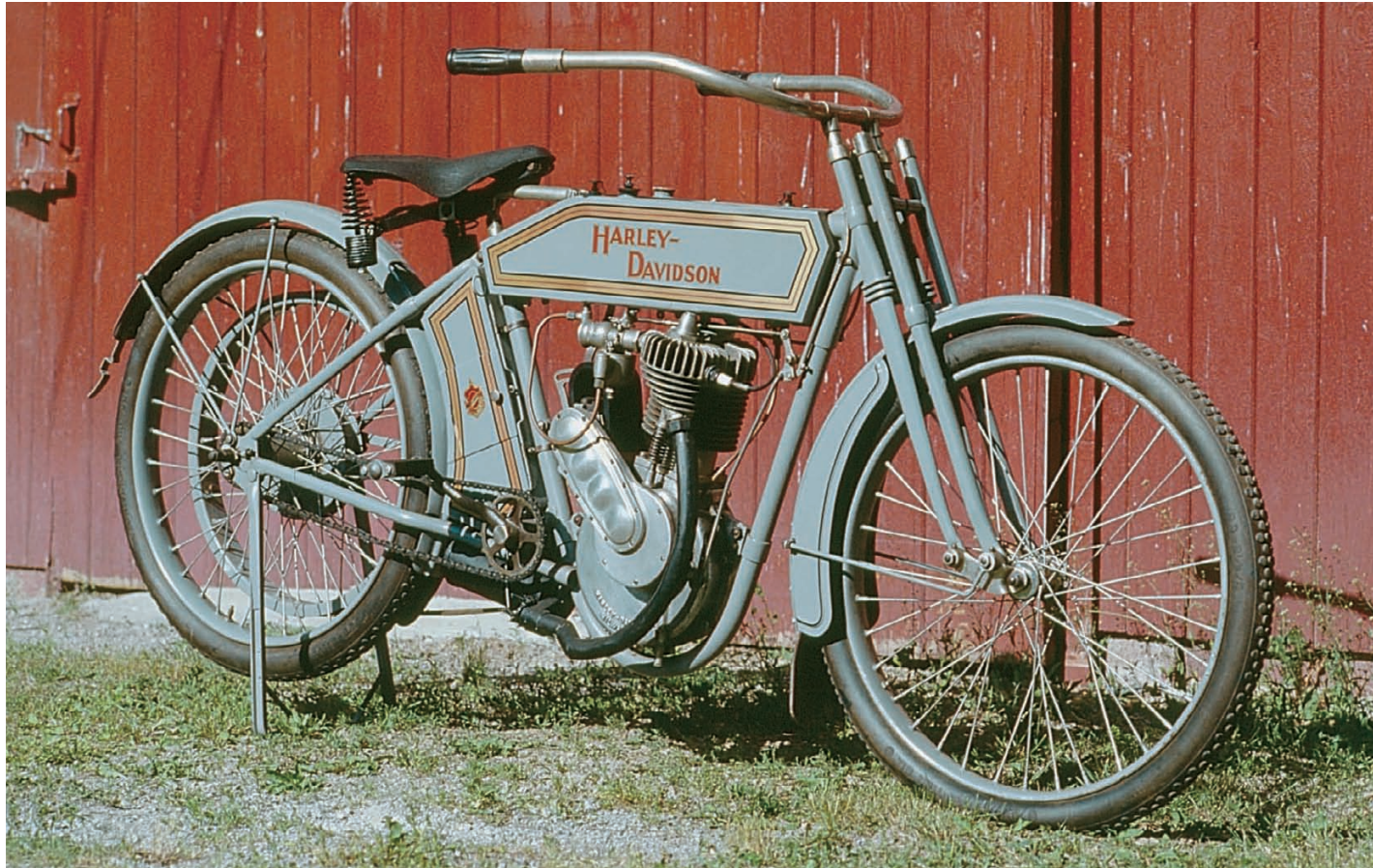
The Model 6 single had a fuel tank of 1.5 gallons, and the models 6-A, 6-B, 6-C, and 6-E (factory stock racer) had 1.25-gallon fuel tanks, compared to the previous years’ 2.5- and 2-gallon tanks. The two-battery ignition models (6, 6-B) each had a price tag of \$210, while the magneto models (6-A, 6-C) cost \$250, and the 6-E went for \$275.

Note: Harley-Davidson’s 1910 models were the last to feature horizontal-fin cylinder heads. From 1911 on, the singles had vertical fins that helped cool things down.

1913–1918 MODEL 5-35

In 1913 Harley introduced a bigger, better single cylinder. This model became known as the 5-35. The 5 stands for 5 horsepower, and the 35 is reference to its displacement: 35 cubic inches. This engine



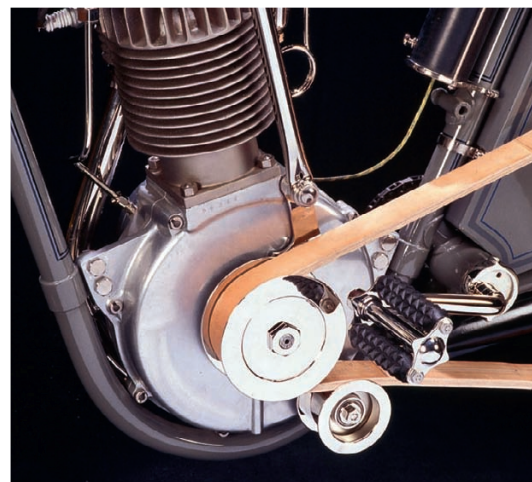
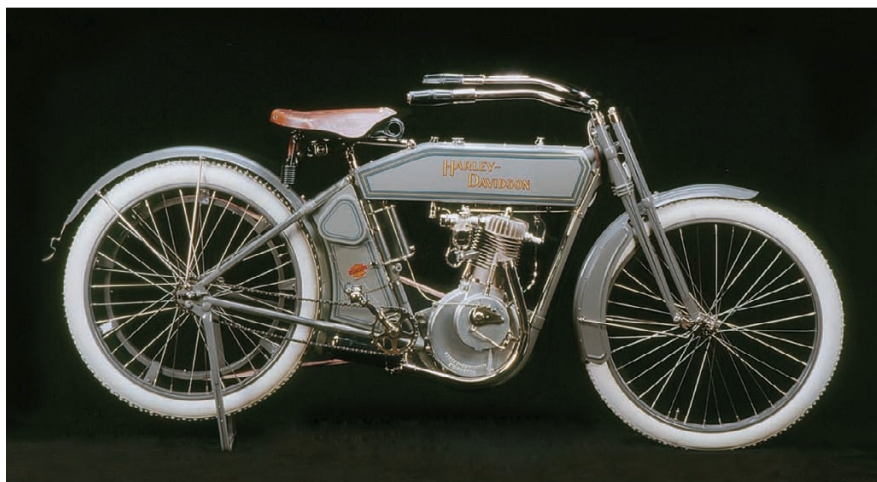


OPPOSITE, BELOW RIGHT:
The X-8-A's engine displaced 30ci. Its 2.5-gallon gas tank fed a Schebler carburetor, and a Bosch magneto ignition fired the fuel mixture. From 1911 to 1917, The Motor Company's only color of choice was Harley-Davidson Gray varied with different pinstriping.

TOP: Frame changes were made to the 1912 model resulting in a ride height lowered by 2 inches. The top frame tube was dropped at the seat junction, which in turn lowered the seat post. This model is the X-8-A.

LEFT: The side shields on the front fender of the 1912 X-8 were new that year and helped keep water and road debris off of the rider and the bike.

RIGHT: Final drive for the 1912 X-8 was a leather belt 1.75in in width.



“5-35”

**The Greatest Single
Five Actual Horse Power At
2460 Revolutions Per Minute**

Crank shaft and crank pins of special steel made to our own specifications—absolutely unbreakable. Balanced by wheels.

Three recently turned, step cut piston rings, ground on floor plate.

Balanced connecting rods of special steel. Overcome high duty bearings throughout.

Absolutely oil tight crank case.

Auxiliary overflow valve in crank case prevents leakage of special steel.

Semi-automatic vacuum feed oiling system.

Non-breakable compression release (flat overhead).

Magneto drive gears of special steel, hardened and ground.

Magneto gear bearings of steel, hardened and ground.

Magneto contact integral with magneto shaft.

All steel exhaust valve actuating mechanism.

Overcome inlet and exhaust valve chambers and passages.

Independently operated all-steel inlet valve mechanism.

Light valve push and advance.

Flat, ground inlet valve of special nickel steel.

Exhaust valve head of flame ground alloy steel.

Exhaust valve stem of special nickel steel.

Drop forged steel inlet valve rocker arm.

Drop forged steel inlet valve rocker arm.

Cylinder and head cast integral. (No gaskets.)

622 square inches of cylinder rubbing surface.

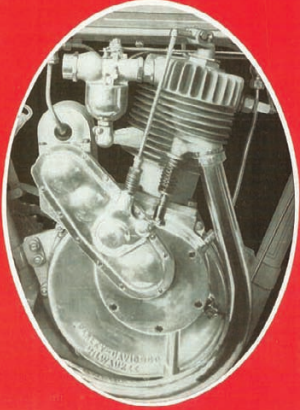
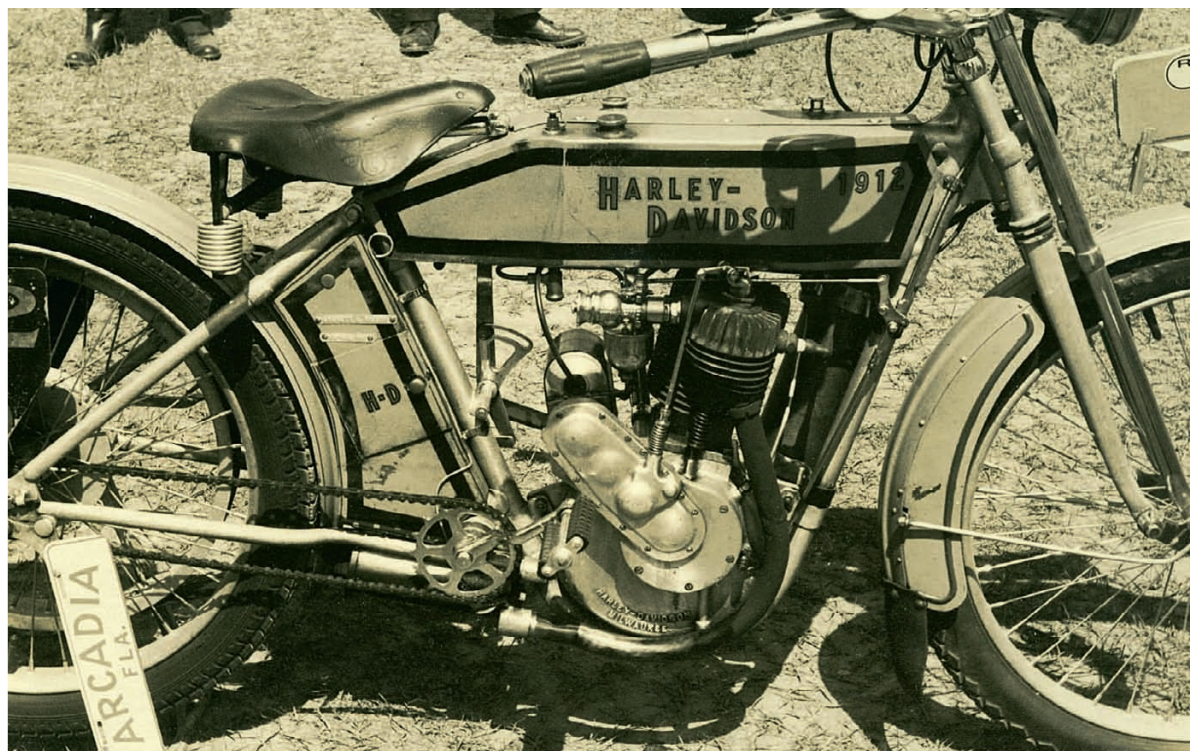
Three point motor suspension.

The five horse Harley-Davidson has a power output 22% greater than the standard five horsepower model and has almost twice the torque. It is the only motor cycle in the world that will stand up under such high performance.

**HARLEY-DAVIDSON
MOTOR COMPANY**
Producers of High Grade Motorcycles in Great Numbers

Largest Manufacturer of
Single Cylinder Motorcycles in the World

MILWAUKEE, WISCONSIN

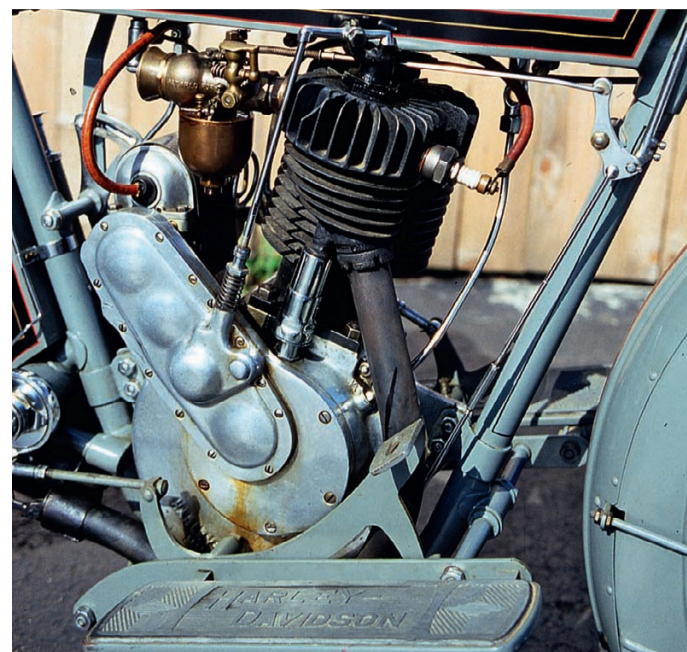



TOP RIGHT: Historic photo credited as “Everett Moody race bike.” This is a 1912 model, but Harley-Davidson first came out with a mechanical inlet valve on the 1913 models, which were 35ci. Perhaps this was a prototype?

BOTTOM RIGHT: In 1913, the single had grown to 35ci and employed a mechanical inlet valve. This 1914 model 10-C includes those improvements plus new rectangular floorboards with foot pedals—right side for brake and left side for clutch.

configuration was used until 1918, when the single cylinder went out of production due to dwindling sales and an ever-increasing demand for the V-twin. (The single cylinder was absent from 1919 until 1926, when a flathead single was introduced.)

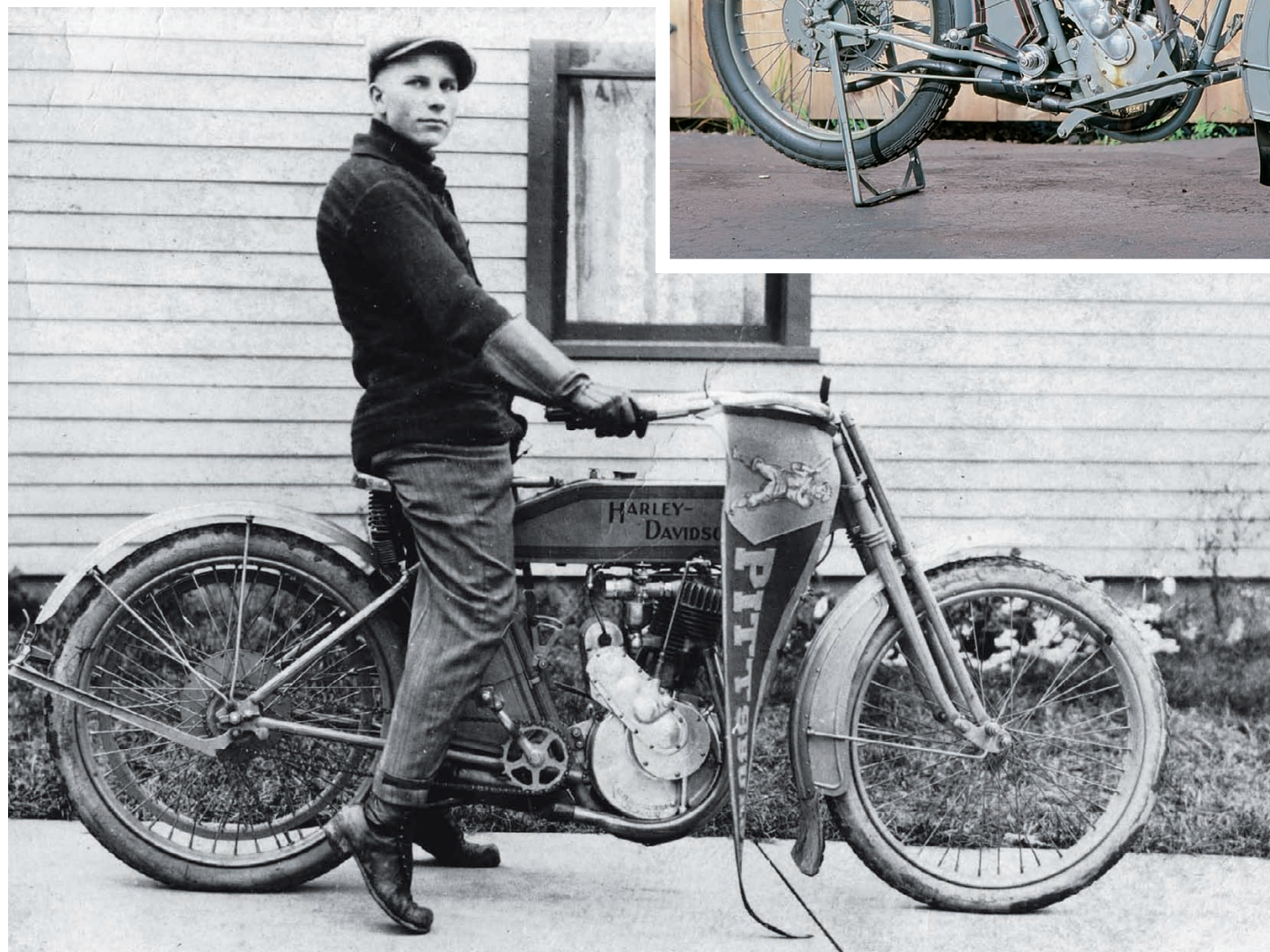
This new 5-35 engine offered many improvements over its predecessors, namely an increase in stroke size from 3.5 to 4.0 inches (the bore stayed the same), giving it a total of 565cc or 34.47 cubic inches. The intake and exhaust valves were bigger from this year on, but the real change was the elimination of the automatic intake valve: it was now mechanically operated. The piston was made of iron alloy, making it a little lighter. The flywheels, rod, and piston were now balanced, making things a little smoother.



The biggest change (and also an option) was the all-new chain drive—no more slipping belt in the wet. The company sold 4,601 of the chain-drive model (9-B) and only 1,510 of the belt-drive model (9-A).



TOP: 1914 Model 10-C. This 35ci single has a chain-driven two-speed with a clutch hub. This was also the first year for the step starter. Now an owner could stand next to their bike and “kick” start it.



LEFT: This 35ci 1913 Model 9-A can be identified in part by its mechanical-inlet engine, belt drive, and magneto. Lacking floorboards or lighting, this one may have been stripped down for racing.

RIGHT: A 1916 Model C featuring the 35ci engine, three-speed transmission, and folding pedal step starter.

OPPOSITE: Sidecar-equipped motorcycles were both popular and practical. The 1917 Model 17-C was a 35ci, single-cylinder, three-speed bike, and one of the many sidecar variations that Harley-Davidson offered that year.



Now
Is the Time
to Buy
a 1914
Harley-Davidson
"The Silent Gray Fellow."

SPECIFICATIONS: MODEL 5-35

ENGINE: 34.47ci (564.862cc)

BORE AND STROKE: 3 5/16x4in

HORSEPOWER: 5hp

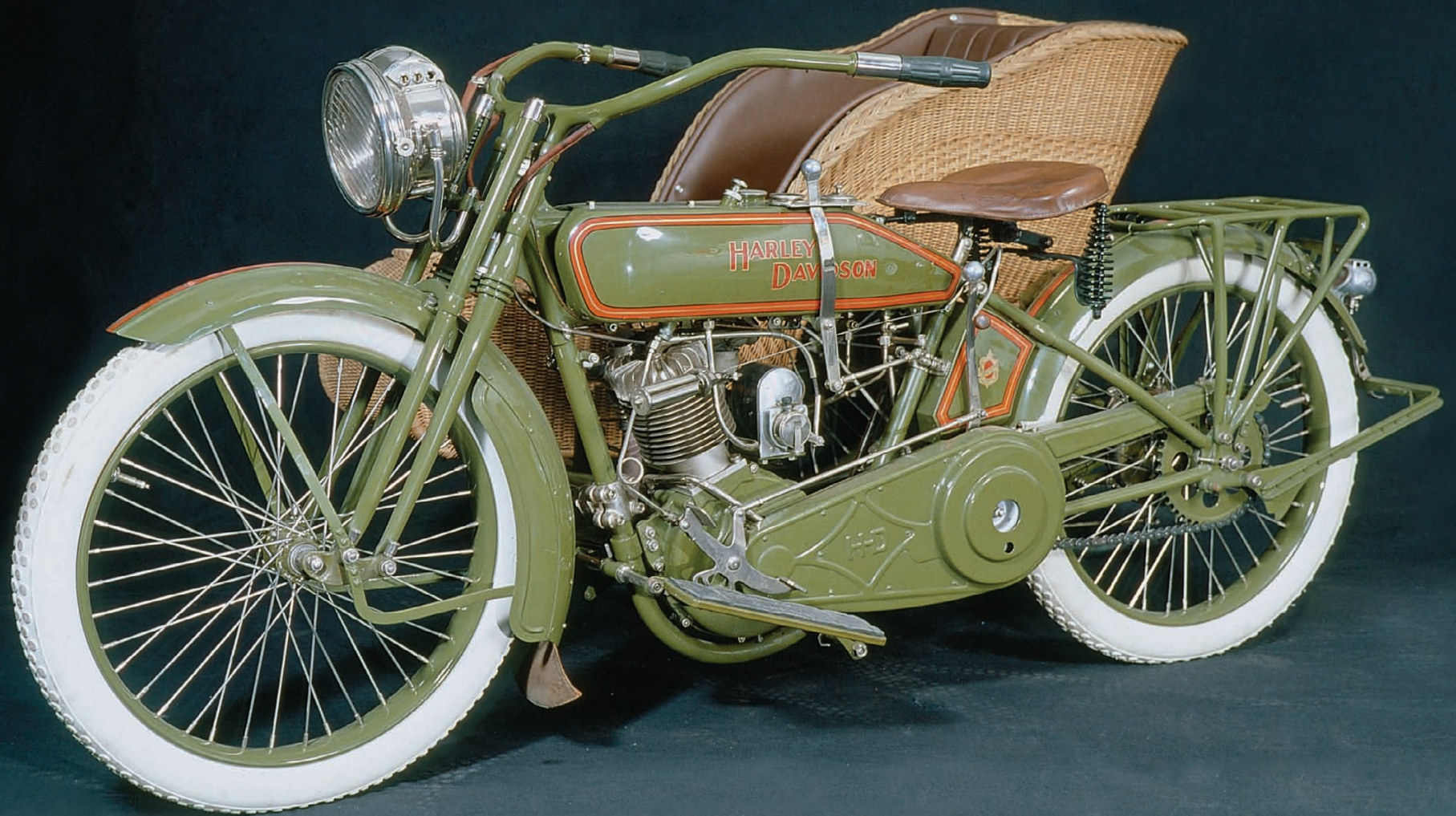
WHEELBASE: 56.5in

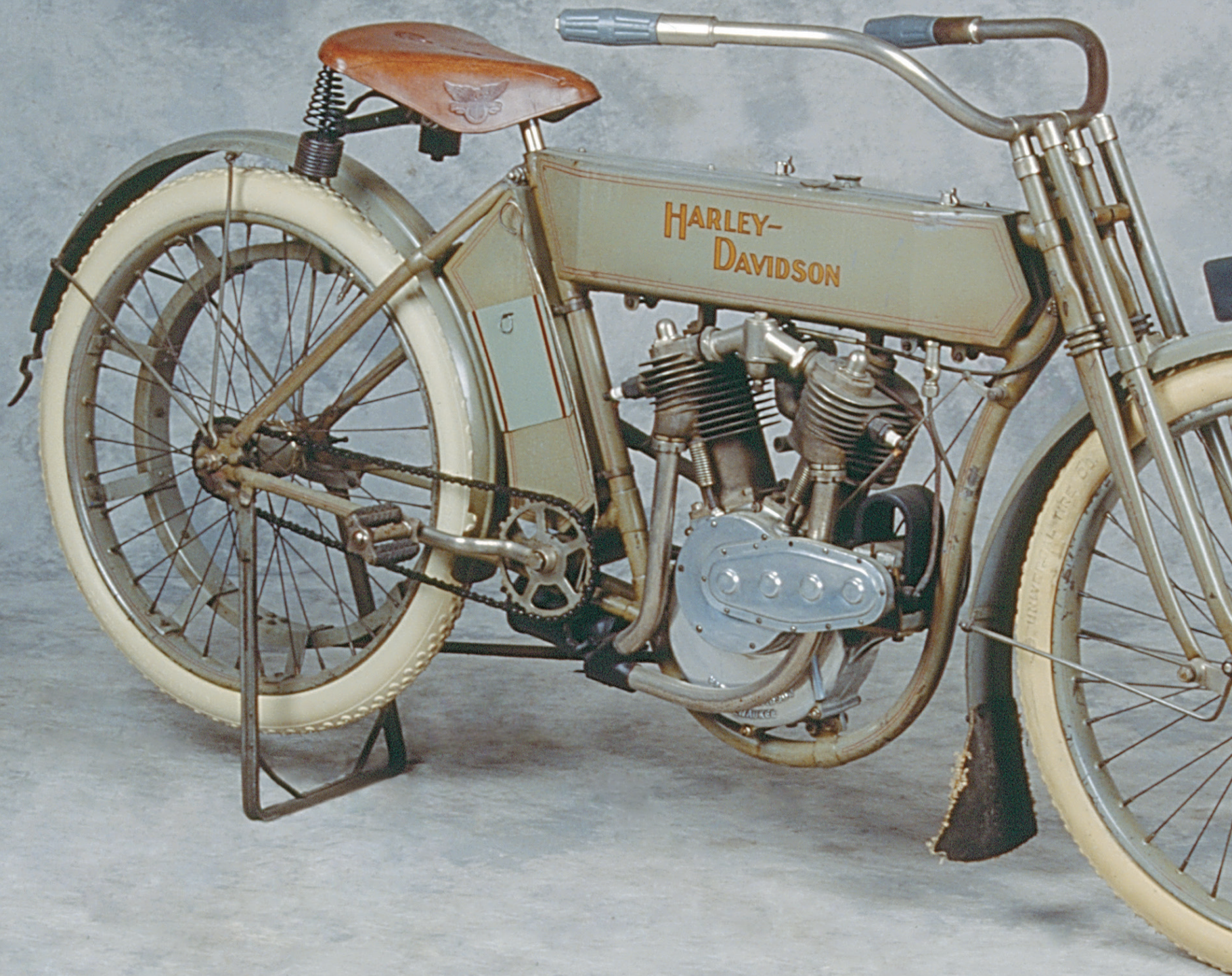
FUEL TANK: 1.5gal

OIL TANK: 3.5qts

TIRES FRONT AND REAR: 28x2.75in

WEIGHT: 150lbs





HARLEY-
DAVIDSON