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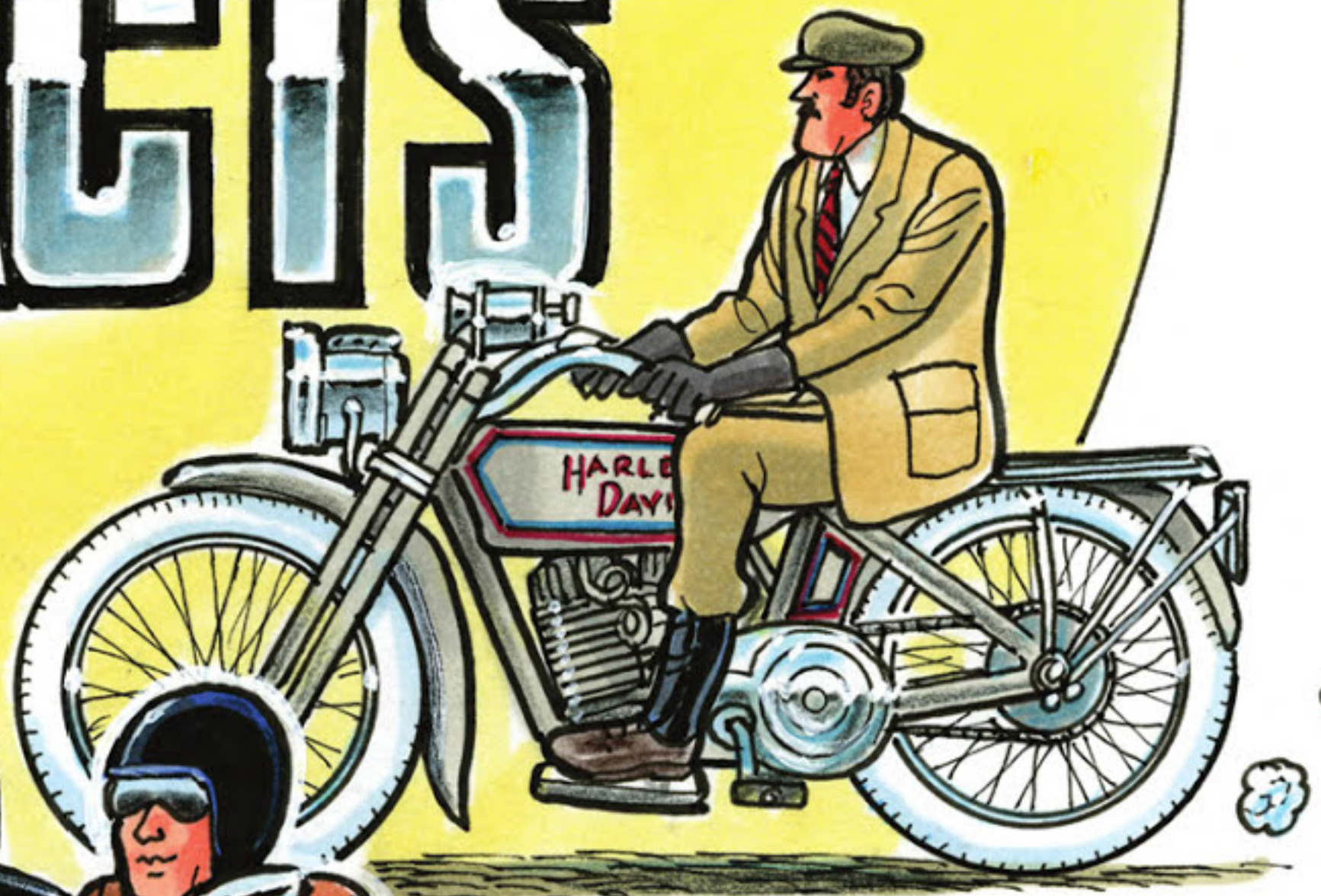
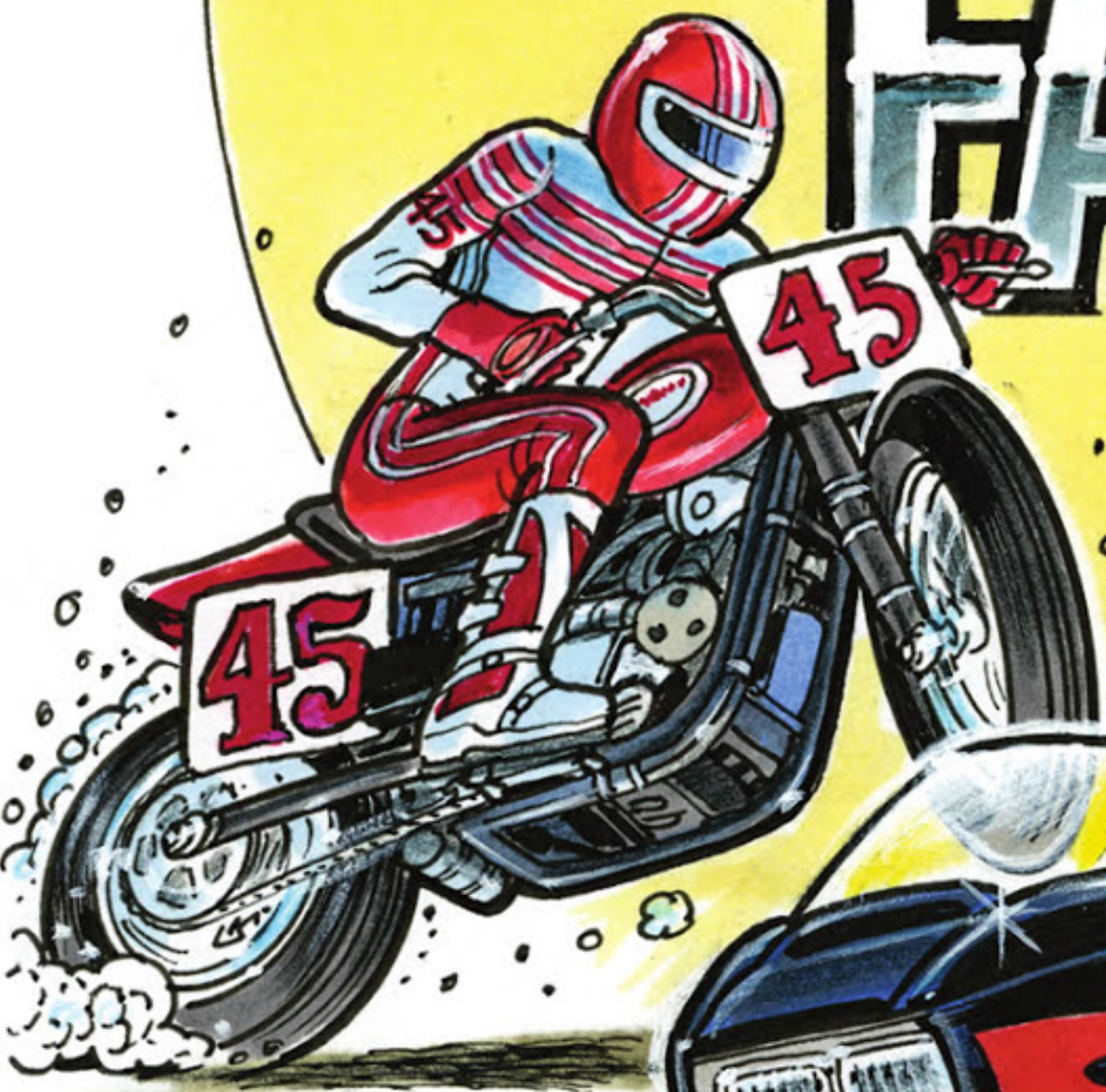
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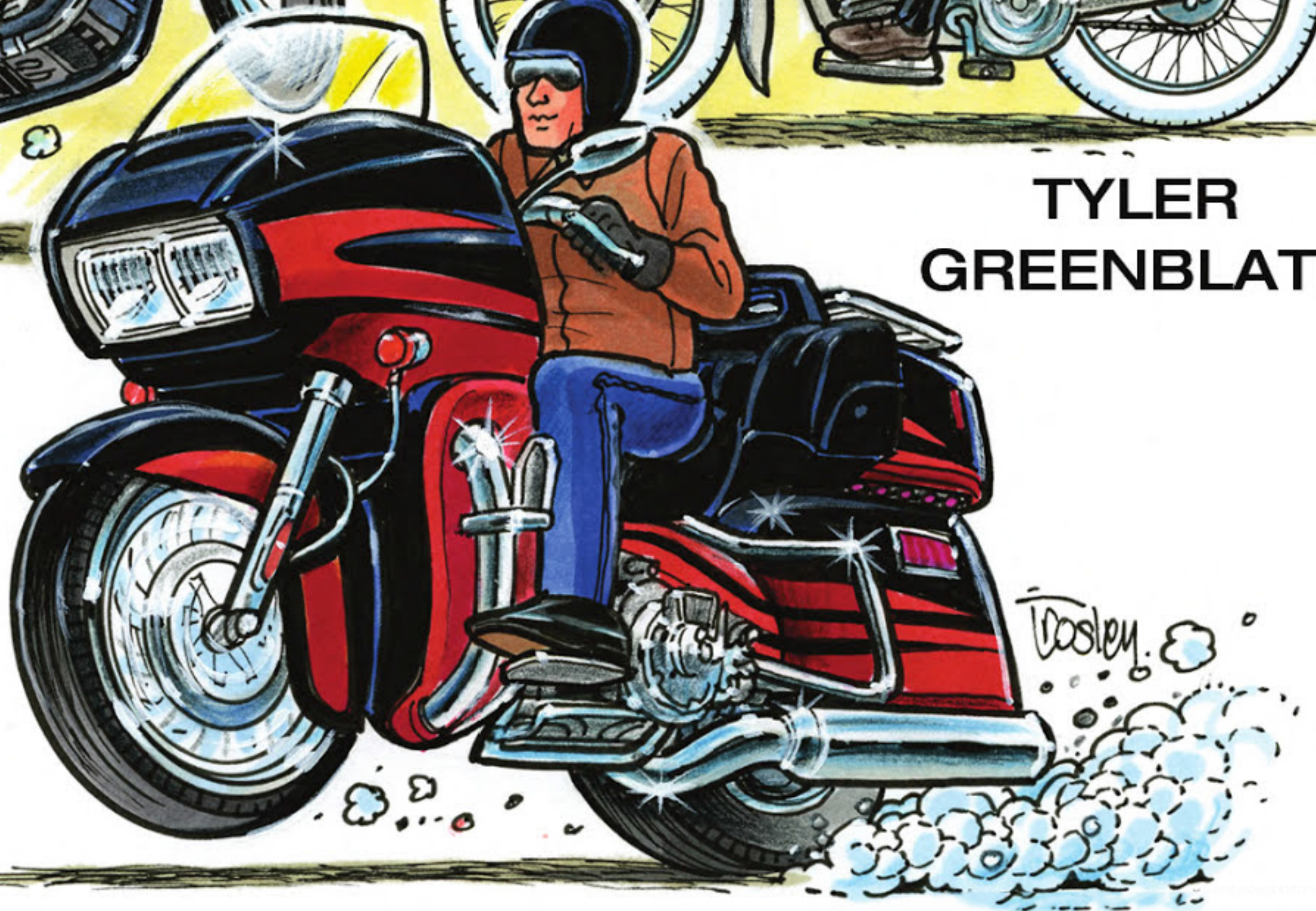
HARLEY-DAVIDSON

FACTS



TYLER
GREENBLATT

COVERS
1903 TO
PRESENT



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31 The 1909 Harley-Davidson took a major leap forward from its strap-tank predecessors with a more durable frame, front end, and chassis layout. The new frame used a twin backbone design to mount the new, longer, one-piece gas/oil tank, which is tapered at the front and rear for a streamlined look. The new frame's wheelbase was 56-1/2 inches, which made room for the molded and painted compartment that sat behind the rear downtube, in front of the rear wheel. It could house tools, gear, and the battery if so equipped. A stronger and more effective front fork was used, as was better seat suspension.

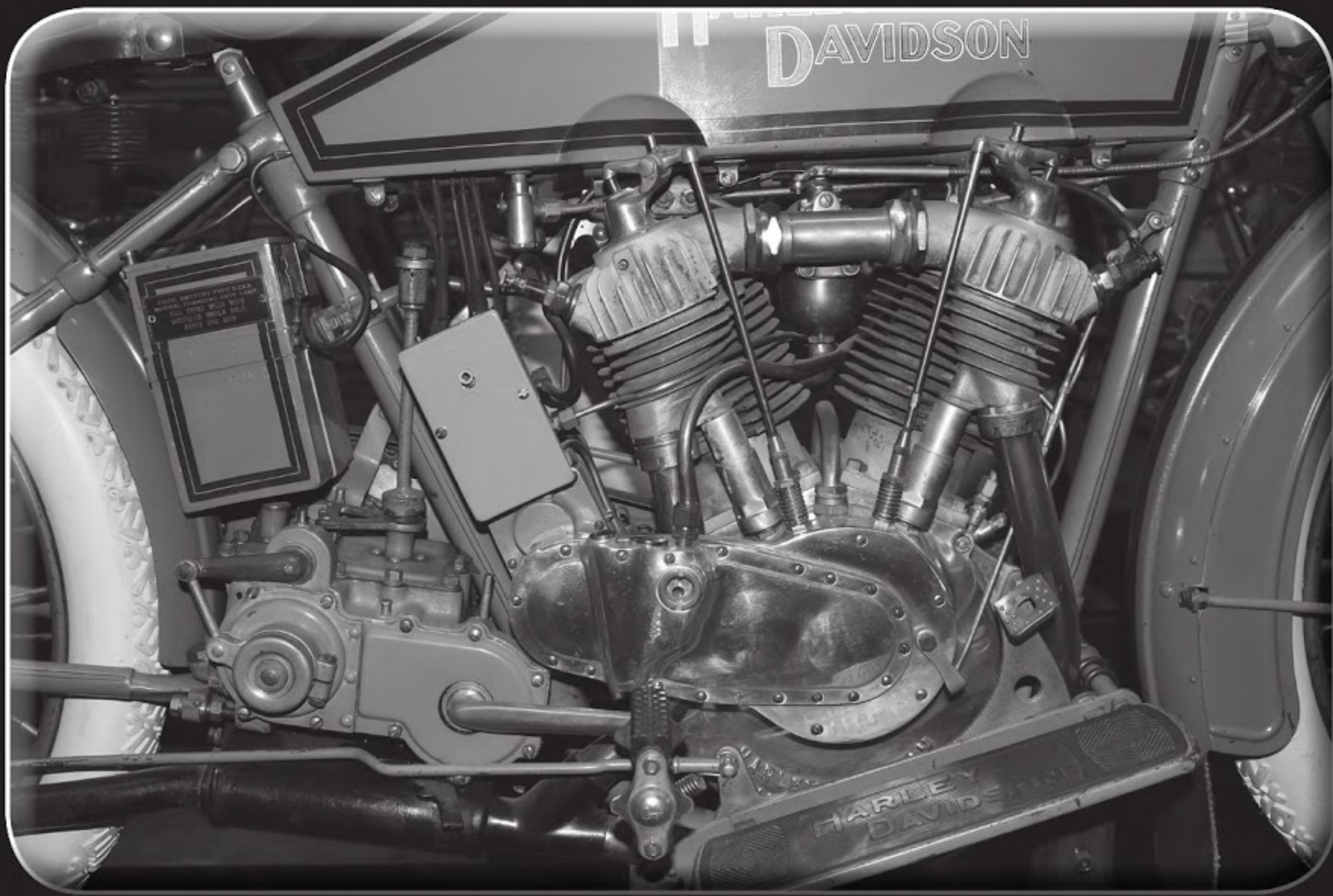
32 In 1909, Harley-Davidson began offering diversified models to its customers with different equipment at different price points. The previous year, the company began naming its machines based on their production pedigree. The 1908s are Model 4s, while 1909s are Model 5s. The most popular model in 1909, with 1,030 sold, was the Model 5, which had the standard 28-inch wheels and a battery, and was priced at \$210. The 5A, of which only 54 were built, featured a Bosch magneto and a \$250 price tag. B and C models were also available, which matched the 5 and 5A, respectively, but used 26-inch wheels for shorter riders. 27 individuals opted to purchase the \$325, twin-cylinder machine in 1909, designated the 5D. Single-cylinder Model 5s weighed in at 235 pounds, a significant jump from previous years; it was a number that only kept increasing.

33 Electric headlights weren't available on Harleys until 1915. Before that, owners or dealers had to mount their own acetylene headlamps to the handlebars. Illumination came from mixing carbide pellets in a water reservoir underneath the lamp, which created the acetylene gas that could be lit; it burned with a relative amount of efficiency and control. They were used for lighting the road, but functioned better at making the motorcycle visible at night. Most acetylene headlamp models had red and green colored glass gems on either side, which also alerted vehicles approaching from the side. A chimney sat on top and released the burnt gas. Many also used an adjustable knob that could control the brightness of the flame. I have an acetylene headlamp produced by Twentieth

63 The 1913 Harley-Davidson Model 9A was the only motorcycle in the United States still available with a belt drive and was the last Harley available with a leather belt drive. This is actually pretty surprising, even for Harley-Davidson; not only had the new V-twins outsold singles in 1912, but the single-cylinder engine was now larger and produced even more power. This time, the size grew by increasing the stroke from 3-1/2 to 4 inches. Displacing 34.47 ci and pushing 4-1/2 hp, the Model 9 earned the nickname “5-35” for its approximate power and displacement figures. The single-cylinder 5-35, which was produced until 1918, could hit 50 mph. The 9A and 9B (both chain-drive) were available standard with the rear hub clutch and both retailed for \$290. Also for 1913, The Motor Company began the practice of balancing the flywheel, rod, and piston as a single assembly, which made the engine longer lasting and smoother to operate.

64 The 1914 Model 10-F is the only model to feature H-D’s first transmission. Patented by William S. Harley, it features two speeds located in the rear hub. It added yet another dose of rider friendliness to the early machines. At least, that was the idea. The bicycle-style epicyclical rear hub was so revolutionary, and had such tight tolerances, that many riders found it difficult to operate. A company service bulletin was published that reminded 10F owners not to force the shifter into gear when the machine wasn’t running, which could cause the shift lever to bend. The 10-F also saw the first use of floorboards and a pedal-operated drum brake in the rear.

65 The Harley-Davidson motorcycle took a major stride forward with the 1915 11-F and the introduction of the 3-speed, sliding-gear transmission that sits behind the engine. The new 3-speed featured large ball bearings to secure the main shaft; two special, heavy-duty roller bearings allow the jackshaft to spin smoothly. The jackshaft transmits power in low and intermediate gear while the transmission is essentially free running in high gear. For extra durability, the engineers made sure not to include any small parts that could potentially break or wear out, and the 3-speed proved to be extremely reliable. The transmission is controlled with a



The Motor Company's 1915 model 11-F set the stage for every Big Twin to follow with its durable 3-speed transmission, a powerful V-twin, and an automatic oil pump, which is visible on the gearcase. By using a separate engine and transmission, linked only by the primary chain, this setup would last for another 80 years on some Big Twin models.

foot-operated rocker clutch and a gated shift arm on the tank. With 9,855 produced, 3-speed H-Ds made up 75 percent of that year's total motorcycle production. The 1915 11-F is, like the 10-F before it, a one-year-only design thanks to its using bicycle-style pedals to start the engine.

66 In addition to the new 3-speed transmission, Harley-Davidson completely redesigned its 61-ci IOE engine for 1915. It now used larger intake valves that now entered the heads at a 45-degree angle instead of a 60-degree angle. The engine used new cylinders and a larger intake manifold to increase airflow. To handle the power increase, engineers used heavier flywheels with a 1-inch crankpin (previously 7/8 inch). The new Harley-Davidson-made bearings are 3/8 inch wider than on the previous engine. A newly designed, more efficient muffler was used and, while it produced significantly less backpressure, it also made less noise.

oversaw the factory representatives who provided more in-depth contact with the dealers in their region. This is the same way that The Motor Company's dealer network is set up today, albeit with many more regions.

139 During World War II, Harley-Davidson, like every other automotive company, halted all civilian production to focus on the war effort. During World War I, however, The Motor Company continued to build and sell civilian models. Indian took a different approach and relied solely on the military for its income during the war years. Although Indian didn't go out of business until much later, many people believe that those years of not building any machines for the public sent a significant amount of business to Harley-Davidson, a decision from which Indian never fully recovered.

140 In late 1918, construction began on a massive 600,000-square-foot factory at Juneau Avenue to keep up with the incredible demand for motorcycles. The L-shaped structure was divided into 96 unique departments; it had enough room for 2,400 full-time employees. Upon completion of the new factory, Harley-Davidson's company was now physically larger than Indian's and had a greater production capacity.

141 In 1923, a secret meeting took place between the three major motorcycle brands: Harley-Davidson, Indian, and Excelsior. By today's standards, its legality was questionable. This meeting led to the agreement that dealerships should be required to represent only one brand. The different manufacturers could no longer influence dealers to sell motorcycles from different companies. Consumers didn't like the new organizational strategy because they couldn't study different makes side by side or test several makes at a time to find the one best suited to their needs. This strategy, whether intentional or not, essentially wiped out all of the small-time motorcycle manufacturers that could no longer effectively maintain a dealership network.

164 Harley-Davidson began its special color program in February 1927, even though colors other than the usual Olive Drab were rarely ordered. For a surcharge of between \$6 and \$13, depending on the model, a new owner could have his (or her) motorcycle painted Azure Blue, Maroon, Police Blue, or Coach Green. In addition, pin-striping and a two-tone option of Fawn Grey or Cream could be added. Actually, special paint finishes were technically available in 1926, but dealers were instructed not to publicize it. In 1928, colors other than Olive Drab were available as standard fare, and special combinations and colors were still available for a surcharge.

165 Throughout the years, Harley-Davidson kept improving the cushioning effect provided by the springer front fork. From 1916 until the redesigned, I-beam springer on the Flatheads, H-D springers used 41 feet of tempered steel spring wound up inside the fork legs.

166 The first Harley-Davidson to use external fork springs was the Model W Sport in 1919. The overall girder-style design was actually closer to the style that Indian was using, except that The Motor Company tightened up its version by using a very short leaf spring for compression and a large single coil spring for rebound. In 1922, H-D added a pair of external springs to the center of the forks.

167 What would you do if it was 1916, and your motorcycle broke down at night, with no streetlights or cell phone lights? The answer is easy if your bike had electric lights. On H-Ds with an electric system, the rear taillight was easily detachable from its housing and could be used as a roadside emergency light. The long wire allowed the light to reach anywhere on the bike.

168 In 1926, Harley-Davidson made roadside wrenching a little easier by using a hinged rear fender. The rear section of the fender could be unbolted from its stay and swung up and over the main section so that the wheel could simply slide out the back while the bike was on the rearstand. Previously, the rear of the bike had

over on it instead of having to pull the bike up onto the rearstand every time. Little details such as this greatly furthered the ease and accessibility of motorcycles as daily transportation that required little effort to operate. Wonder why it was called the Jiffy Stand instead of a kickstand or sidestand? The H-D execs wanted to stress how fast and easy it was to operate the stand, and they thought that “jiffy” was the best word for it. To this day, all references to the kickstand/sidestand in H-D’s service or parts and accessories materials refer to it as a Jiffy Stand.

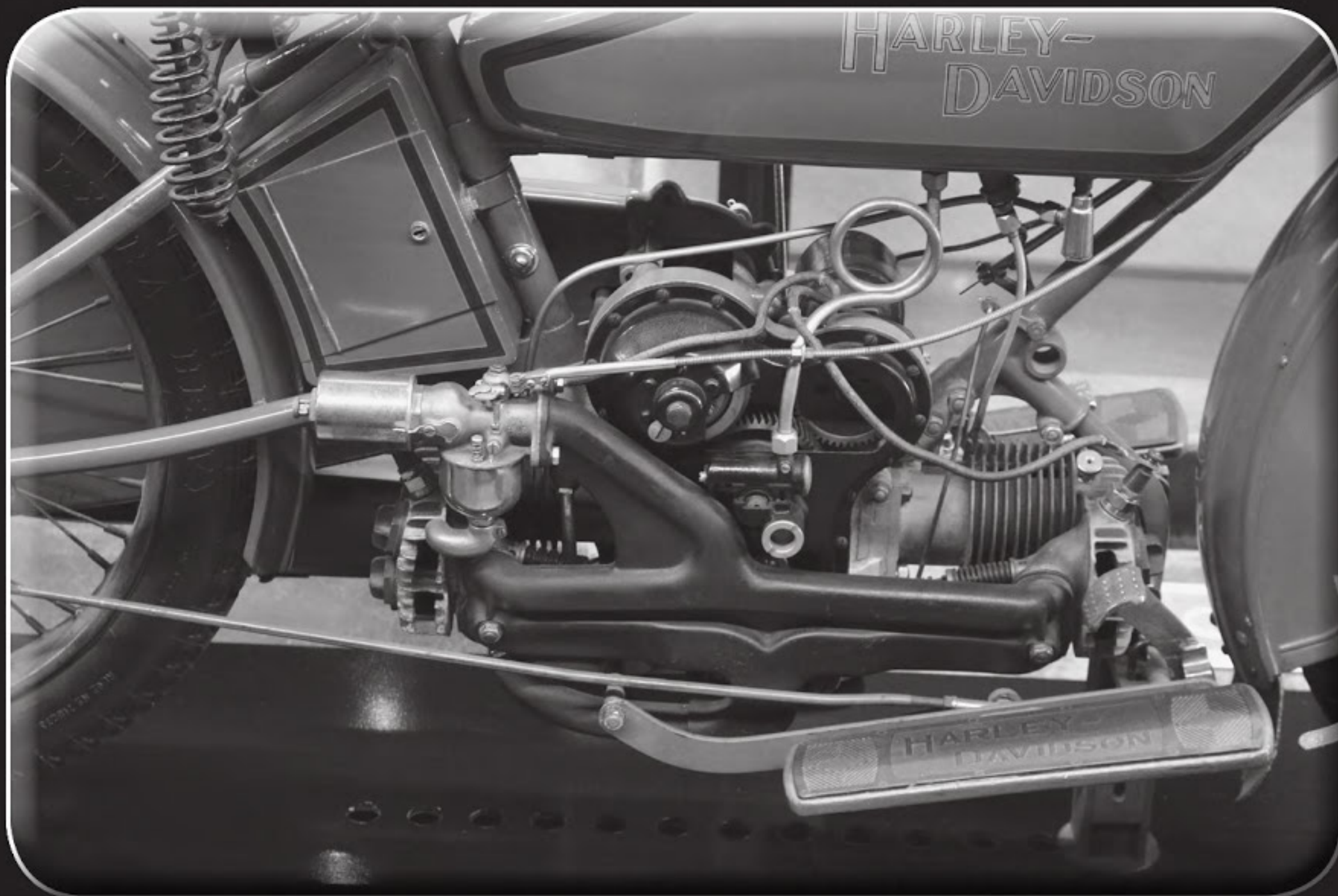
THE POWERTRAIN

176 Harley-Davidson said good-bye to the last remnant of the motor bicycle era when it launched the 1916 3-speed models (twin and single) with a kickstarter on the right side in place of the pedals. It was no longer a significant workout to start the motorcycle; just step down on the kicker pedal and watch the motorcycle fire to life. Single-speed singles and twins did retain the bicycle pedals. The 1916 and later models lack the hole on the primary cover for the pedals. Simply for the practicality, some 1915 owners who



The differences between the one-year-only 1915 3-speed pedal-start transmission (left) and the 3-speed 1916 kickstart transmission (right) that Harley-Davidson used going forward are very clear.

181 The W Sport Twin, produced from 1919 to 1923, was Harley-Davidson's first attempt at selling a horizontally opposed twin. It pioneered engineering technology that wasn't seen for another decade at The Motor Company; it didn't release another Flathead twin until the 1929 D. The 36-ci 6-hp W uses a sidevalve, or Flathead, engine design that eliminates all moving parts from the cylinder head and rocker arms. Fewer parts make it more durable and run cooler. The construction of the engine differs from what we usually picture, which is the BMW design. The cylinders go front to back; that is, the front cylinder points toward the front wheel and the rear cylinder points toward the rear wheel. This kept the package narrow and well-balanced, but it did remove the cooling advantage associated with perpendicular opposed twins.



The intake and exhaust manifold on the model W Sport Twin looks more like something that you'd find on a GM small-block than on a Harley-Davidson! In addition to the completely awkward design, the hot exhaust pipes run alongside what should be a cool air intake tract.

182 Another first for Harley-Davidson is the Sport Twin's unit construction. This means that the transmission is actually inside the engine case, as it is on a modern Sportster. This efficient design