

National 40

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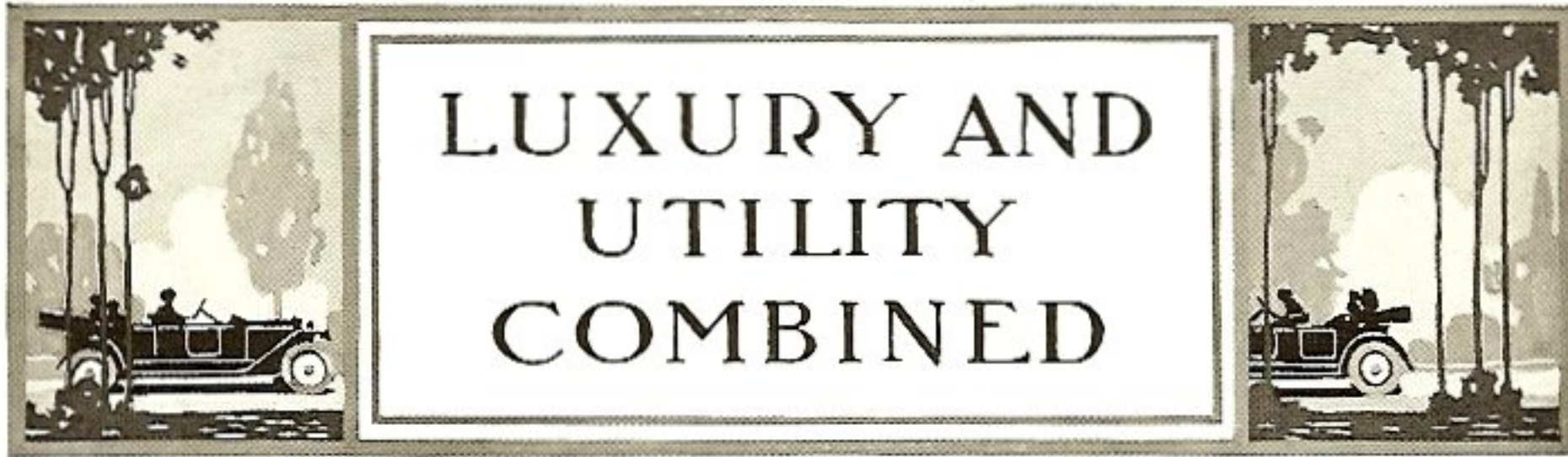
MOTOR CARS



NATIONAL MOTOR VEHICLE COMPANY

INDIANAPOLIS, INDIANA

MEMBER OF THE AUTOMOBILE BOARD OF TRADE



THE National is the epitome of the years of automobile-endeavor to combine luxury and utility. For more than twelve years this company has concentrated its efforts upon motor cars—this accumulated experience guarantees your National car. We urge you to compare the National with any \$5,000 or \$6,000 car on the market.

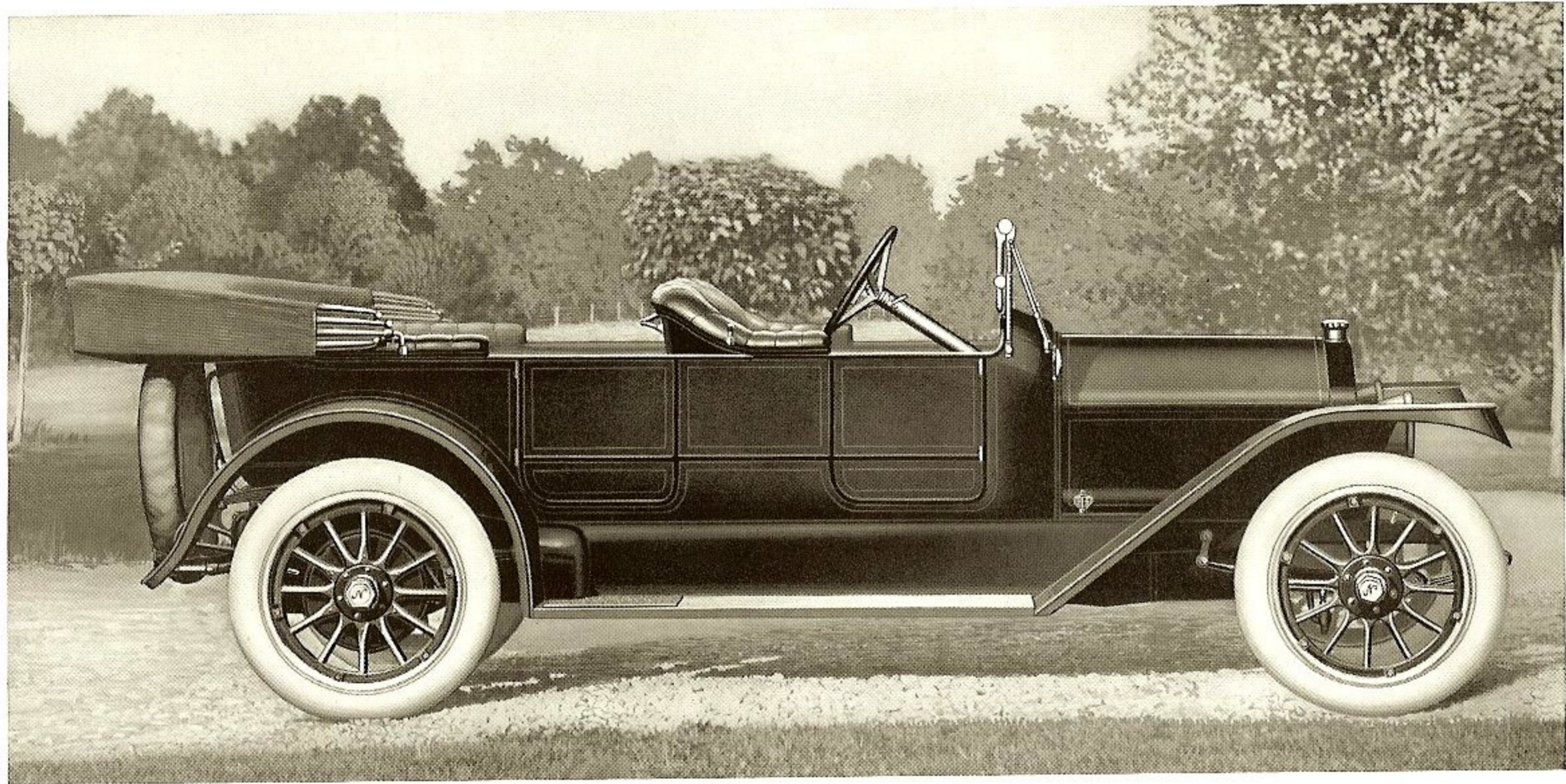
Beneath the surface beauty of correct lines and perfect finish is the car proper, made of materials the best procurable. Money can not buy better materials than used with expert knowledge in National cars. Aside from the comfort of riding that is unexcelled, the ease of control, the deep, luxurious upholstery and fine appointments consistent throughout the car, there is that lineage of reliability, stamina and flexible power that is indefatigable.

For dependable power alone, consider that the National car is the only American-made car able to conquer foreign invaders in hard races this year of 250 miles or more. And these foreign-car competitors, as well as American-made competitors, demand thousands of dollars more of you in price.

Such a reputation as enjoyed only by the National as World's Stock Champion and International Champion serves as your unimpeachable guide to the best quality—regardless of cost.

The National is never associated in thought with cars except of much greater price. Surprise invariably follows an analysis of the National's worth when one learns of the medium cost. We build for Quality and not Quantity and take pride in the perfection of every car and its long life of usefulness rather than in quantity of output.

We solicit your consideration of the facts contained in this advance catalog of the Improved Series V National cars. You learn here that the National was the first to use the now generally accepted Turkish spring upholstery. The first imitator of this upholstery was a popular \$6,000 car. Here you see that the National has the left-side drive and center control, later imitated by a well-known \$5,000 car. We have the Gray & Davis electric lights and electric self-starter, and throughout the



FIVE-PASSENGER TOURING CAR—IMPROVED SERIES V—\$3300

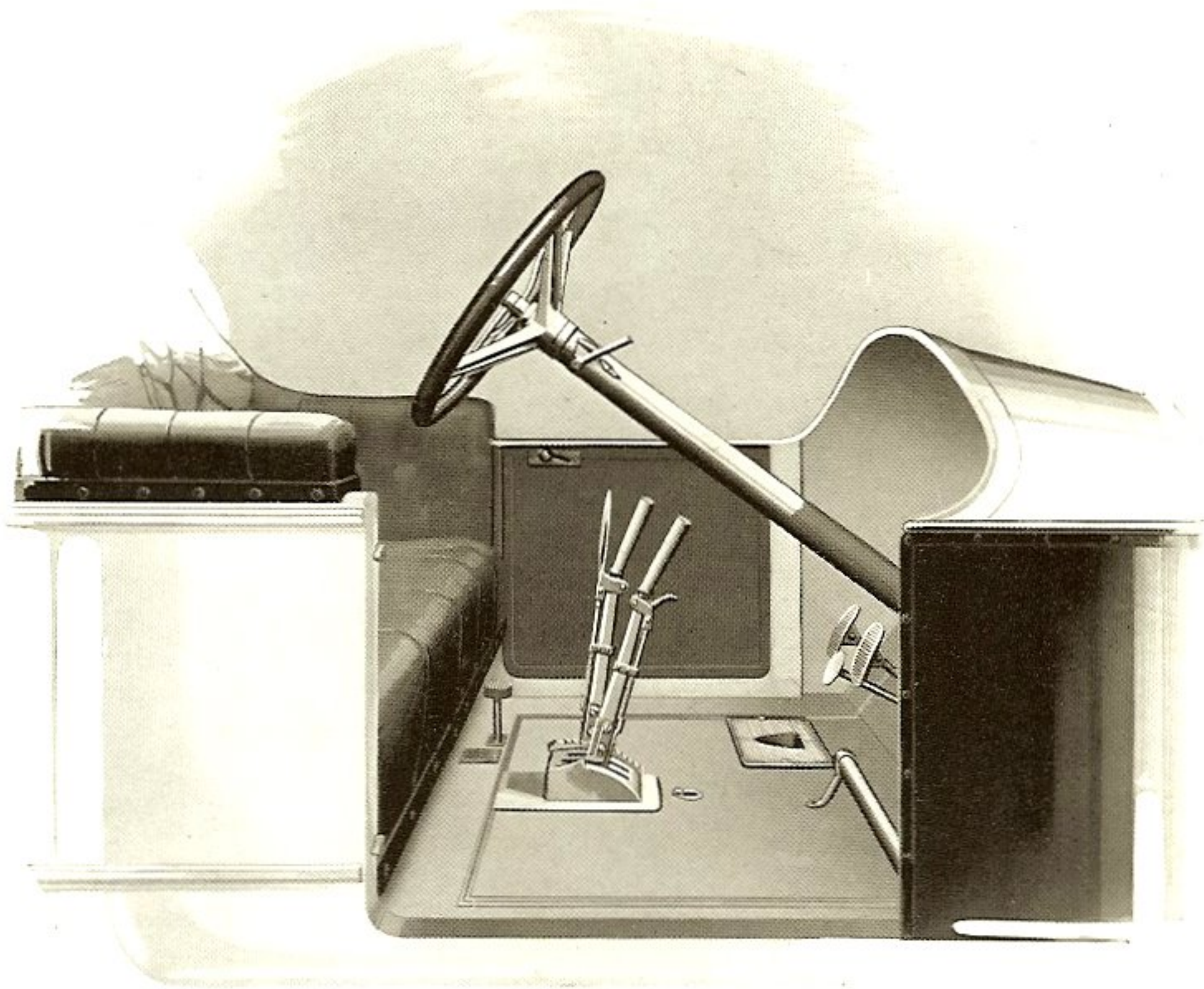
Fully equipped with top, cover and curtains; adjustable ventilating and rain vision glass windshield; tire carrier on rear; one extra Firestone demountable rim; Gray & Davis electric starter; Gray & Davis dynamo electric lighting system; Truffault-Hartford shock absorbers on rear; Hoffecker steady hand speedometer; electric horn; tools and jack; Gray & Davis 12-inch black and nickel electric bullet head lights; Gray & Davis black and nickel electric dash insert lights, and Gray & Davis black and nickel electric bullet tail light.

entire car the consistency of completeness in such things as tire pump elevates the National to the pinnacle of motor car achievements.

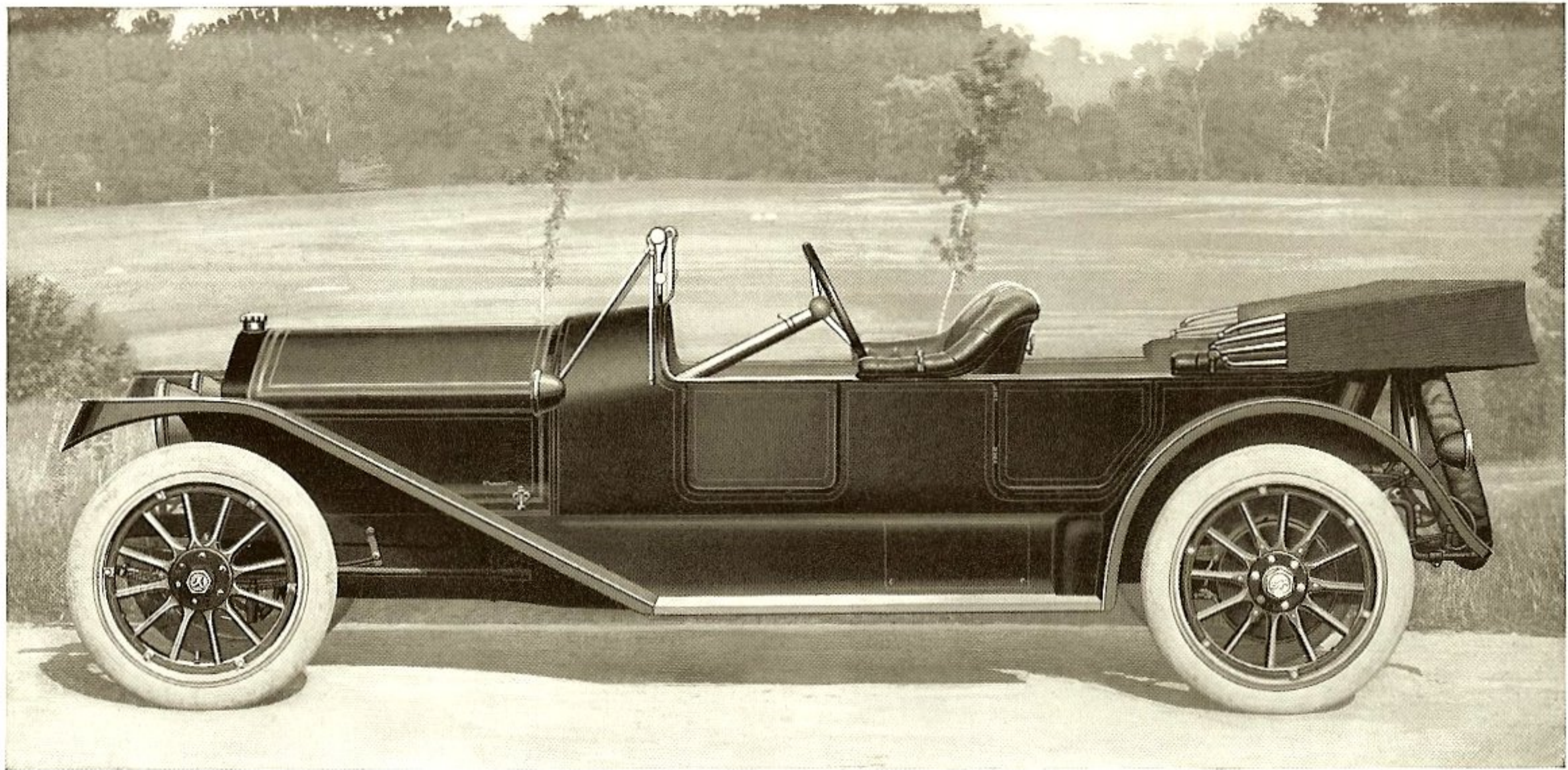
Year after year the output of this company has steadily increased, a tribute from the motor-intelligent people who appreciate the fact that quality is the one standard by which the National car is built. The fame of this car has circled the globe because of its multiplied demonstrations of absolute reliability and perfect satisfaction. The result of these years of adherence to such high standards of manufacturing justifies the statement that the National is the best car to-day, regardless of cost. This statement is echoed by the many owners of National cars, who are people amply able to buy any machine they may desire, but choose the National 40.

Here is a résumé of some of the fundamentals, as well as little niceties, that make the National 40 stand out with silhouette distinctiveness against the background of all competition.

Absolutely noiseless; low, long, spacious bodies; strong, latest lines; deep, luxurious upholstery; electric self-starter; resilient and long, wide



CENTER CONTROL THIS PERMITS ACCESS TO BOTH FRONT DOORS; STEERING WHEEL ON LEFT SIDE ADDS CONVENIENCE AND COMFORT



FOUR-PASSENGER TOY TONNEAU—IMPROVED SERIES V—\$3300

Fully equipped with top, cover and curtains; adjustable, ventilating and rain vision glass windshield; tire carrier on rear; one extra Firestone demountable rim; Gray & Davis electric starter; Gray & Davis dynamo electric lighting system; Truffault-Hartford shock absorbers in rear; Hoffecker steady hand speedometer; electric horn, tools and jack; Gray & Davis 12-inch black and nickel electric bullet head lights; Gray & Davis 6-inch black and nickel electric bullet side lights; Gray & Davis black and nickel electric bullet tail light.

springs; long wheelbase; concealed baggage-carrying compartment; tire carrier in rear; wide doors; smart slope to hood; large tires; center control with left-side drive; foot mats in running board; electric lights; access to both front doors; tire pump an integral part of motor; buoyancy and ease of riding unexcelled; powerful motor with long stroke and the National's exclusive heritage of power, reliability, speed and general atmosphere of elegance.

ELECTRIC LIGHTS AND SELF STARTER

These new National cars have an electric starter system of the Gray & Davis make, which consists of a dynamo which charges the battery and furnishes electric lights. This dynamo is placed near the front of the engine and is run with silent chain off of sprocket on cam shaft. It is of the constant speed type, so that voltage is held extremely constant and eliminates any possible danger of overcharging the battery. At the same time it produces a current at such low speed of the car that the battery is continually being charged.

The electric motor used for the starting in connection with this dynamo is geared to the engine in such a manner that the simple pushing of a plunger with the right foot throws this motor in gear with engine, and automatically throws in the starting switch, turning the engine over at a speed of about one hundred revolutions a minute. When the foot is taken off this plunger after the engine is started it automatically throws out switch and disconnects the starting motor from the engine itself, so that the motor is entirely out of commission until it is required again to start the engine, thus eliminating all wear on commutator and danger of its being injured in any way.

A sufficiently large storage battery is used, which is placed on the front of the left running board, to run the lights for a number of hours even when the engine is not running and to start the engine a great number of times, and, while it is not recommended, the starting motor can be used to propel the car should emergency arise in the case of the driver accidentally allowing his engine to stop.

LEFT-SIDE DRIVE AND CENTER CONTROL

The advantages are many and pronounced in favor of the National drive and control. These have met with instant favor among discriminating motor-intelligent people.

The natural instinct to reach for the control levers with the right hand is not lost, as the control levers, being in the center, are at the driver's right as in the past.

SALIENT FEATURES OF NATIONAL MOTOR CARS

Long-stroke ($4\frac{7}{8} \times 6$), flexible and noiseless motor with enclosed valves—Left-side drive—Center control—Gray & Davis electric starter, easily operated by simply touching a button with foot—Gray & Davis dynamo electric lighting system—Bosch dual double magneto—12-inch Turkish upholstery—Full heavy nickel trimmings—Electric horn—Truffault-Hartford shock absorbers on rear—Adequate baggage-carrying compartment concealed in body but easily accessible—Powerful and reliable brakes—Spacious interior—Tire pump, integral part of the motor, inflates a tire in three minutes—128-inch wheelbase—Adjustable, ventilat-

ing and rain vision windshield—Multiple jet carburetor—Hoffecker steady-hand speedometer—Tire carrier in rear—Silk mohair top, top cover and curtains—Full-floating rear axle—Resilient springs, $\frac{3}{4}$ -elliptic in rear; semi-elliptic in front—Large gasoline pressure-feed tank with gauge in rear—Robe rail and foot rest—Foot mat in running board—Plain, continuous enclosed metal guards—Easy-riding qualities, unexcelled—Oiling system, demonstrated to be only perfect oiling system—Tool chest concealed by splash of running board—One extra Firestone demountable rim.

Improved Series V Models—\$2750 to \$3400

SPECIFICATIONS OF THE IMPROVED SERIES V NATIONAL MOTOR CARS

MOTOR—Four cylinders, $4\frac{7}{8} \times 6$ inches vertical, cast in pairs and thoroughly annealed. Motor is mounted on frame. Extra large mechanically operated valves, with nickel steel heads, exhaust and admission on opposite sides and interchangeable. Spiral cut timing gears operating cam shafts. Two separate sets of spark plugs. Tapered nipples used on intake, exhaust and water pipes in place of packing. Crank shaft of vanadium steel, ground to one-thousandth of an inch, with extra long bearings. Horizontally divided aluminum crank case. Interchangeable parts. Valve stems and springs are completely enclosed, eliminating noise and affording protection.

ELECTRIC SELF-STARTER—Gray & Davis dynamo lighting and motor starting. Operated from seat by small foot plunger.

CLUTCH—Self-contained aluminum cone, leather face, spring cushioned, giving gradual engagement. Clutch removable without disturbing transmission.

TRANSMISSION—Sliding gear selective type. Three speeds forward and one reverse. Gears made of chrome nickel steel, oil tempered. Annular ball bearings on main and counter shafts. Gears run in oil.

WHEEL BASE—Roadster and coupe 120 inches. Touring car, limousine and toy tonneau 128 inches.

GUARDS—Wide continuous enclosed metal guards front and rear. Metal dust shield between frame and running board, concealing tool box. Shield over rear spring shackles.

GAUGE—56 inches; optional, 60 inches for Southern roads.

OILING—Crank case, constant level force feed oiler, with gear-driven pump, feeding oil to cylinders and bearings of motor. Capacity, four gallons. The roadster has an auxiliary oil tank on rear deck containing ten gallons, with pressure feed to crank case.

IGNITION—On all types gear-driven, high-tension, dual double distributor Bosch magneto with storage battery. Two sets of spark plugs are located in valve caps in cylinder heads.

TIRES—Speedway roadster, $34 \times 4\frac{1}{2}$; four-passenger toy tonneau and five-passenger touring and coupe, $36 \times 4\frac{1}{2}$; seven-passenger touring and limousine, 36×5 . Diamond or Firestone.

RIMS—Firestone demountable rims regular on all models.

WATER AND DUST PROTECTION—Detachable metal dust pans of an improved type protect all working parts.

GASOLINE FEED—Air pressure on all tanks generated by small pump in crank case.

GASOLINE CAPACITY—Touring, toy tonneau and limousine, twenty-one gallons; roadster, thirty gallons.

CARBURETOR—Rayfield $1\frac{3}{4}$ -inch on all types but roadster; Schebler optional. Two-inch on roadster.

BRAKES—Two systems. Two internal expanding hub brakes lined with improved fabric operated by foot pedal. Two brakes

on outside of rear wheel drums operated by hand lever. Rear wheel drums 16 inches in diameter.

FRAME—Pressed steel, wide flanged, 5-inch channel section on toy tonneau and $4\frac{1}{2}$ -inch on roadster, firmly riveted and braced and curved up over rear axle. No sub-frame.

FRONT AXLE—I-beam steel one-piece forging. Large adjustable roller bearings in hubs and also at top of yokes.

DRIVE—Bevel gear through straight line shaft, with double universal joints and torsion member.

REAR AXLE—Full floating type, inner axle used only as driver, wheels turn upon double row of Timken bearings on hollow axle, which carries all weight. Whole system readily accessible.

BODY—Low; wide doors, side entrance at both sides, front and rear; straight lines; sheet metal. Carrying capacity: Touring cars, five and seven passengers; limousine, seven passengers; toy tonneau, four passengers, and speedway roadster, two passengers.

FINISH—National blue; options, National green, National maroon and National gray body and gears. All metal trimmings heavy nickel-plated, except radiator, which is black.

UPHOLSTERY—Unusually deep and comfortable. In either dull or bright black leather. Special deep Turkish spring cushions. Refinement and luxurious ease accompanying these exclusive upholstery perfections.

STEERING SYSTEM ON LEFT SIDE—Eighteen-inch wheel, inclined post. Worm and gear, operated chuck. Ball joint connections to steering knuckle.

COOLING SYSTEM—Special straight-line radiator of most improved construction; adjustable ball-bearing fan attached to engine base. Water circulated by centrifugal pump. Radiator mounted on trunnions.

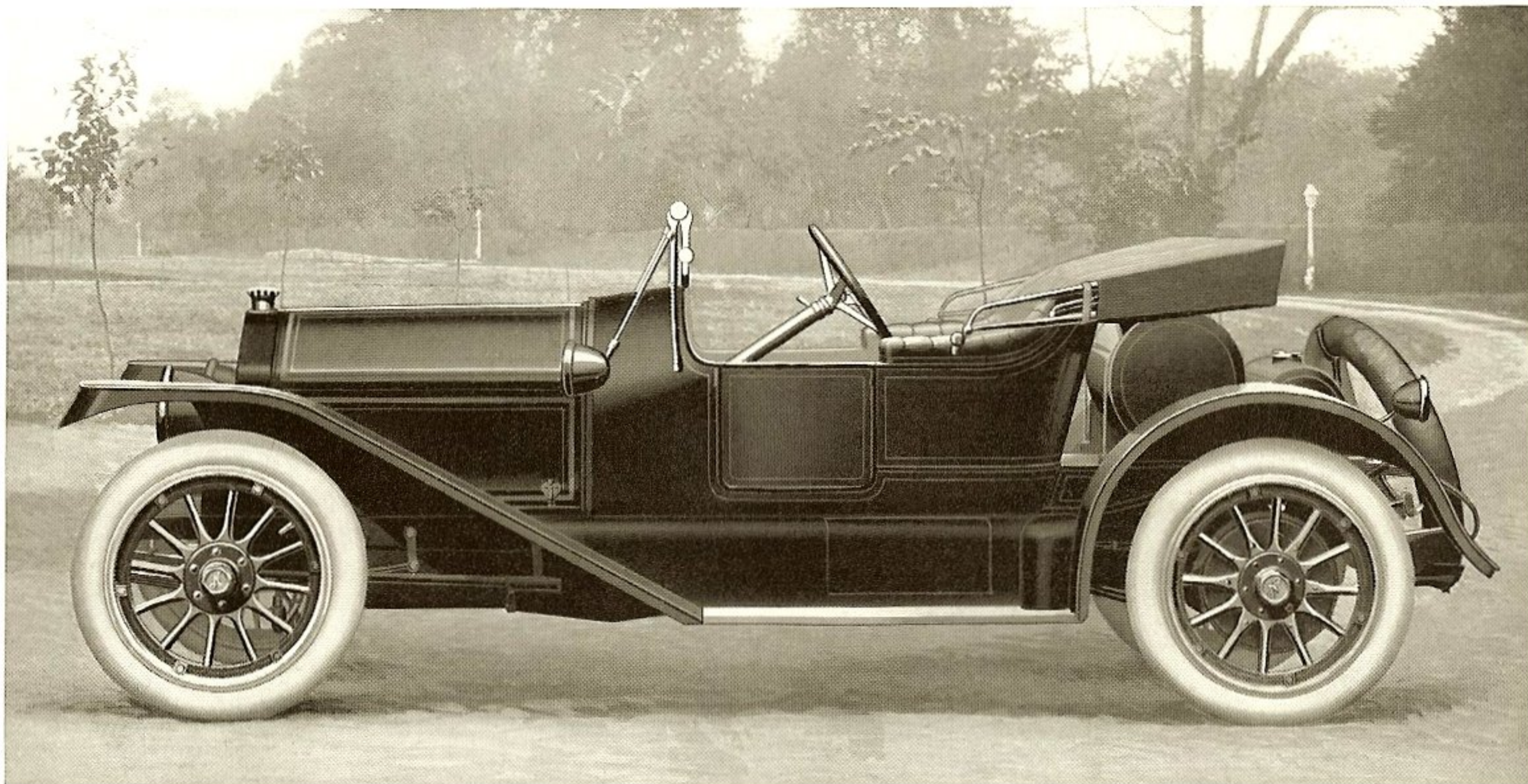
CONTROL IN CENTER—Single lever at driver's right controls all speeds. Three forward and one reverse.

SPRINGS—Half elliptic, forty-inch front, fifty-inch rear; three-quarter scroll elliptic, two and one-fourth inches wide.

BAGGAGE COMPARTMENT—Large baggage-carrying compartment concealed under touring car front seat and easily accessible.

TOOLS—In box concealed by splash back of running board.

FULL EQUIPMENT consists of top, cover and curtains; ventilating and rain vision glass windshield; one extra Firestone demountable rim; Gray & Davis electric starter; Gray & Davis dynamo electric lighting system; Truffault-Hartford shock absorbers on rear; Hoffecker steady hand speedometer; electric horn; tools and jack; Gray & Davis 12-inch black and nickel electric bullet head lights; Gray & Davis 6-inch black and nickel electric bullet side lights on speedway roadster and toy tonneau, and dash insert electric lights on touring cars; Gray & Davis black and nickel electric bullet tail lights, and tire carriers on rear.



SPEEDWAY ROADSTER—IMPROVED SERIES V—\$3150

Fully equipped with top, cover and curtains; adjustable ventilating and rain vision glass windshield; tire carrier on rear; one extra Firestone demountable rim; Gray & Davis electric lighting dynamo system; Gray & Davis electric starter; Trufault-Hartford shock absorbers on rear; Hofferker steady hand speedometer; electric horn, tools and jack; Gray & Davis 12-inch black and nickel electric bullet head lights; Gray & Davis 6-inch black and nickel electric bullet side lights; Gray & Davis black and nickel electric bullet tail light.

THE MOTOR—NOISELESS, FLEXIBLE, LONG STROKE

The National 40 motor ranks as one of the highest achievements of automobile engineers the world over. It is conservatively rated at forty-horsepower. In severe hill-climbing contests—one form of contests where National cars have shown undisputed leadership—the motors have often developed 100 horsepower.

Notwithstanding the great power produced by this motor, which eliminates the necessity of changing gears except in extreme cases, its flexibility is such as to allow extremely slow speed in congested traffic with perfect control at all times.

Its superior speed, power and uniform reliability has been demonstrated in all manner of severe contests and has gained a world-wide reputation for National cars. It is the criterion of long-stroke motors, $4\frac{7}{8} \times 6$.

SPRINGS

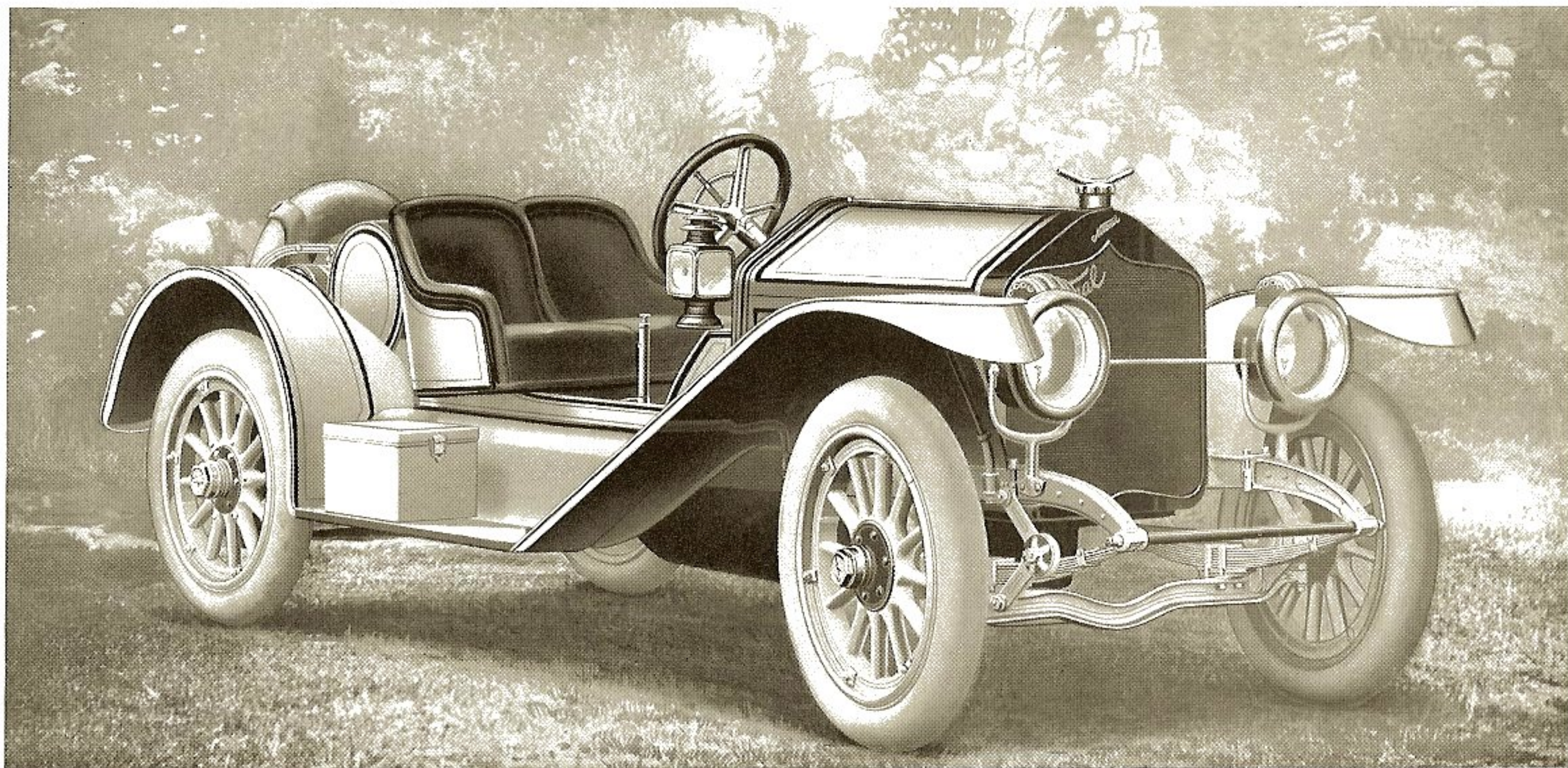
The springs on the National represent the highest achievement of manufacturers in their efforts to procure the proper balance of cars. They add to the easy-riding qualities of the car, and, in company with the general balance of the bodies, and the luxurious deep upholstery, produce unequaled comfort in riding.

The springs are unusually long, broad and resilient. They are made of silico manganese steel, being not only strong, but also flexible, and are without question the very best ever designed. Half elliptic, forty inches long in front and fifty long in rear; three-quarter scroll elliptic, two and one-fourth inches wide. They add much to the buoyancy and comfort of the cars, at the same time providing the best materials.

OILING SYSTEM

While retaining the successful principles of lubrication that carried the National to success in severe contests, the oiling system is improved by slight changes that allow improved lubrication of cylinders by pressure. This allows perfect regulation of amount of oil in cylinders and prevents carbonization.

The only test to determine the success and efficiency of the oiling system of any automobile is its ability to provide lubrication when the car is going at terrific speed for mile after mile. In all of the thousands of miles of fast, victorious racing of National cars no trouble has ever developed in the oiling system. The oiling system, which is distinctive with



SEMI-RACING ROADSTER—IMPROVED SERIES V—\$2750

Equipped as follows: Gray & Davis black and nickel gas head lights and combination electric and gas side and tail lights; four Truffault-Hartford shock absorbers; one extra Firestone demountable rim; electric horn; two electric storage batteries; tire irons on rear; tools and jack.

these cars, has always proven reliable and extremely satisfactory. This system insures the maximum mileage with the minimum amount of oil.

The wearing surfaces on the dog clutches at the end of the inner axles, engaging the hubs, absolutely eliminates wear at these points.

ACCESSIBILITY

It is not only in the fundamental principles of construction and operation that National 40 cars excel, but also in the fine details such as the accessibility of mechanical parts. For example, the enclosed valves are built in such a manner that it is possible to remove the covers with ease in a fraction of a minute. In cars lacking the National's superior design, enclosed valves are hard to get at and require a great deal of time to uncover.

NOISELESSNESS

The absence of noise adds to the prestige of National cars. In the motor the cams are so shaped that they give maximum power without accompanying noise. This is the fruit of many years' expert study and experimenting in the National factories. The valve stems and tappet rods and springs are housed in pressed steel jackets. The shape of tooth employed in the transmission gears and rear axle gears makes them practically noiseless.

MONEY CAN NOT BUY BETTER MATERIALS THAN USED IN NATIONAL CARS

No better material is used in any car at any price than is found in every National 40 machine. The most expensive and toughest steel, scientifically heat-treated, is used throughout the entire machine, which not only reduces the weight of the car, but defies shock and vibration and does not crystallize. These materials are also the very best procurable to insure the durability and low maintenance cost of cars.

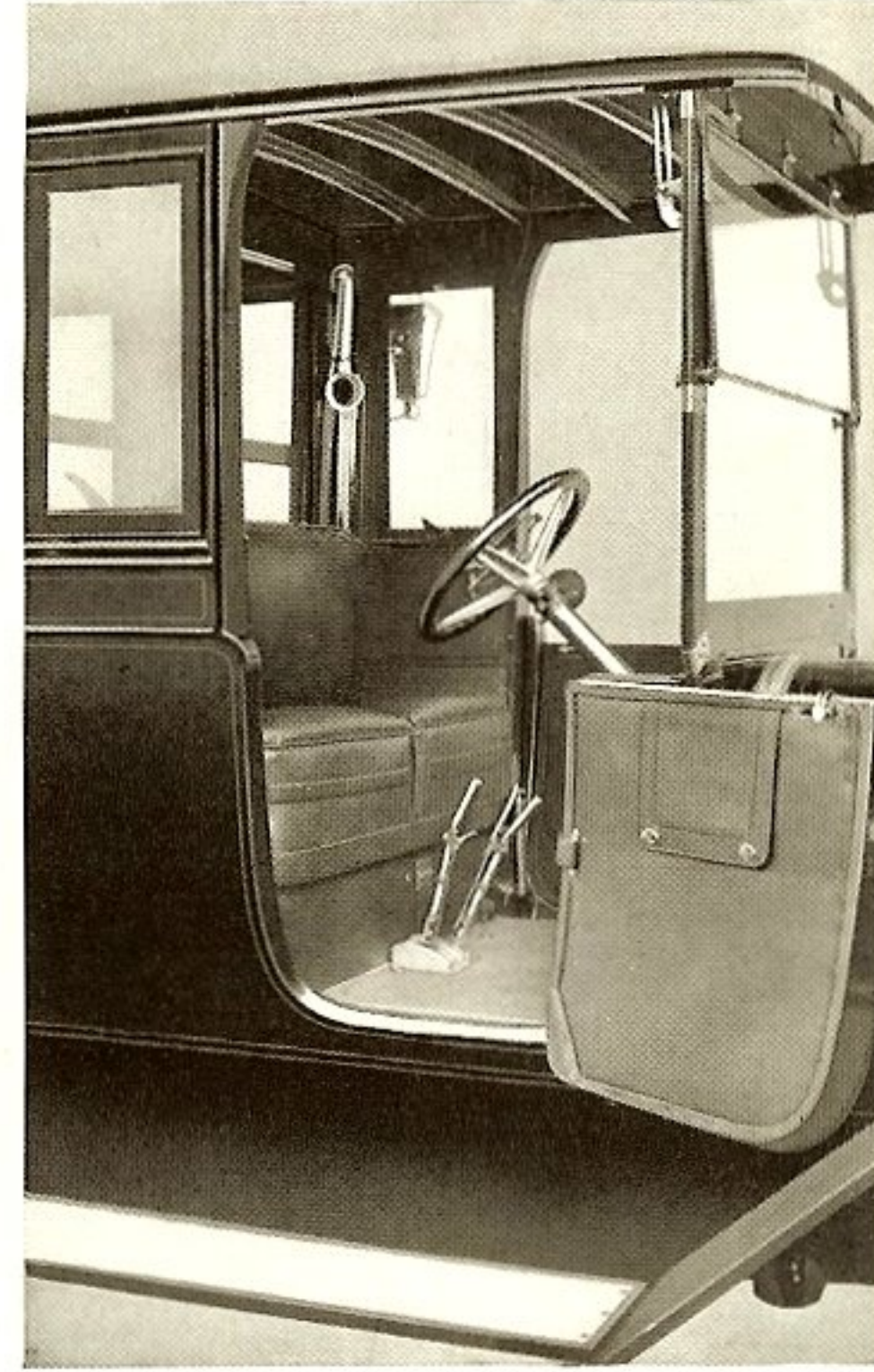
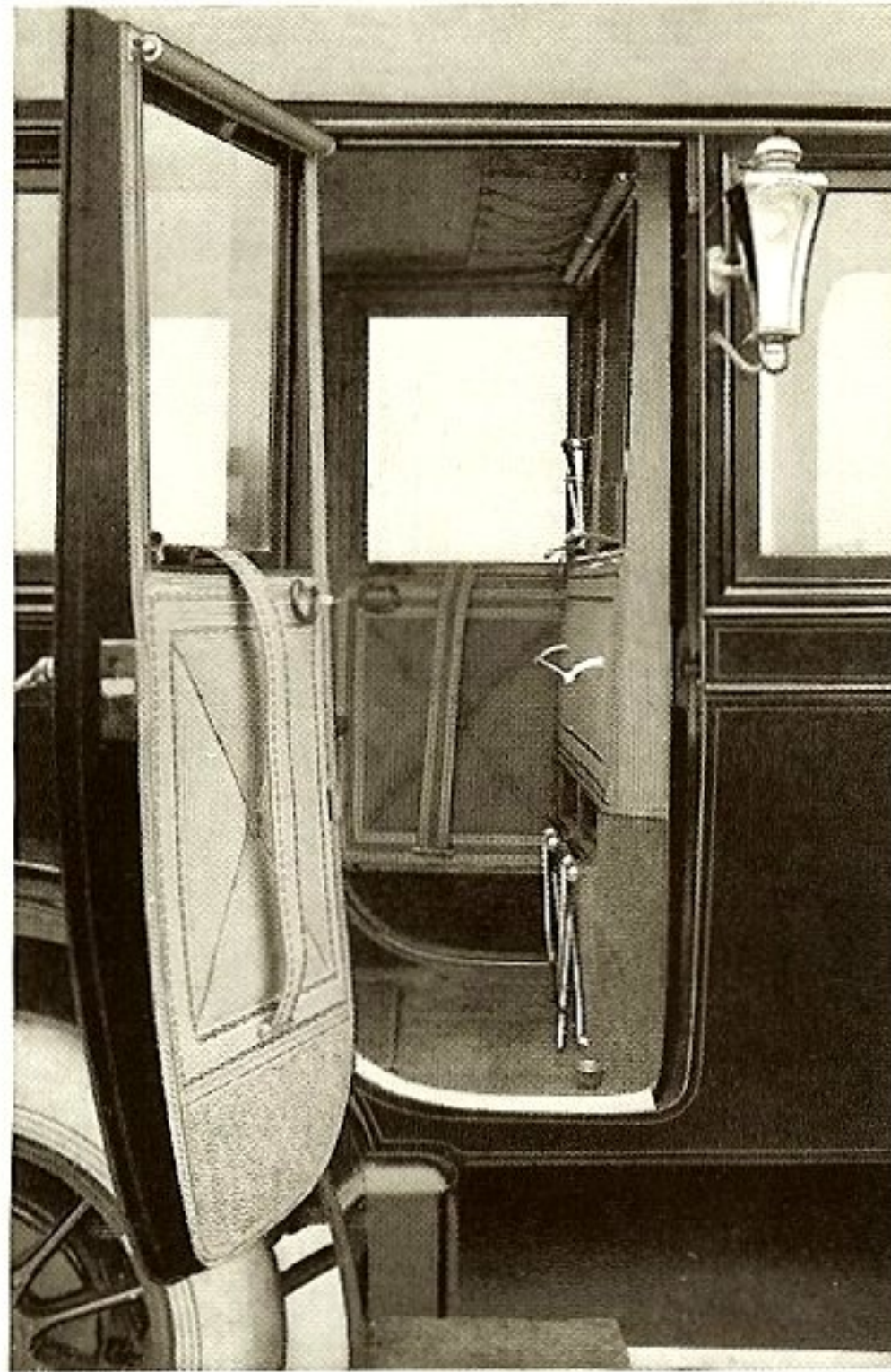
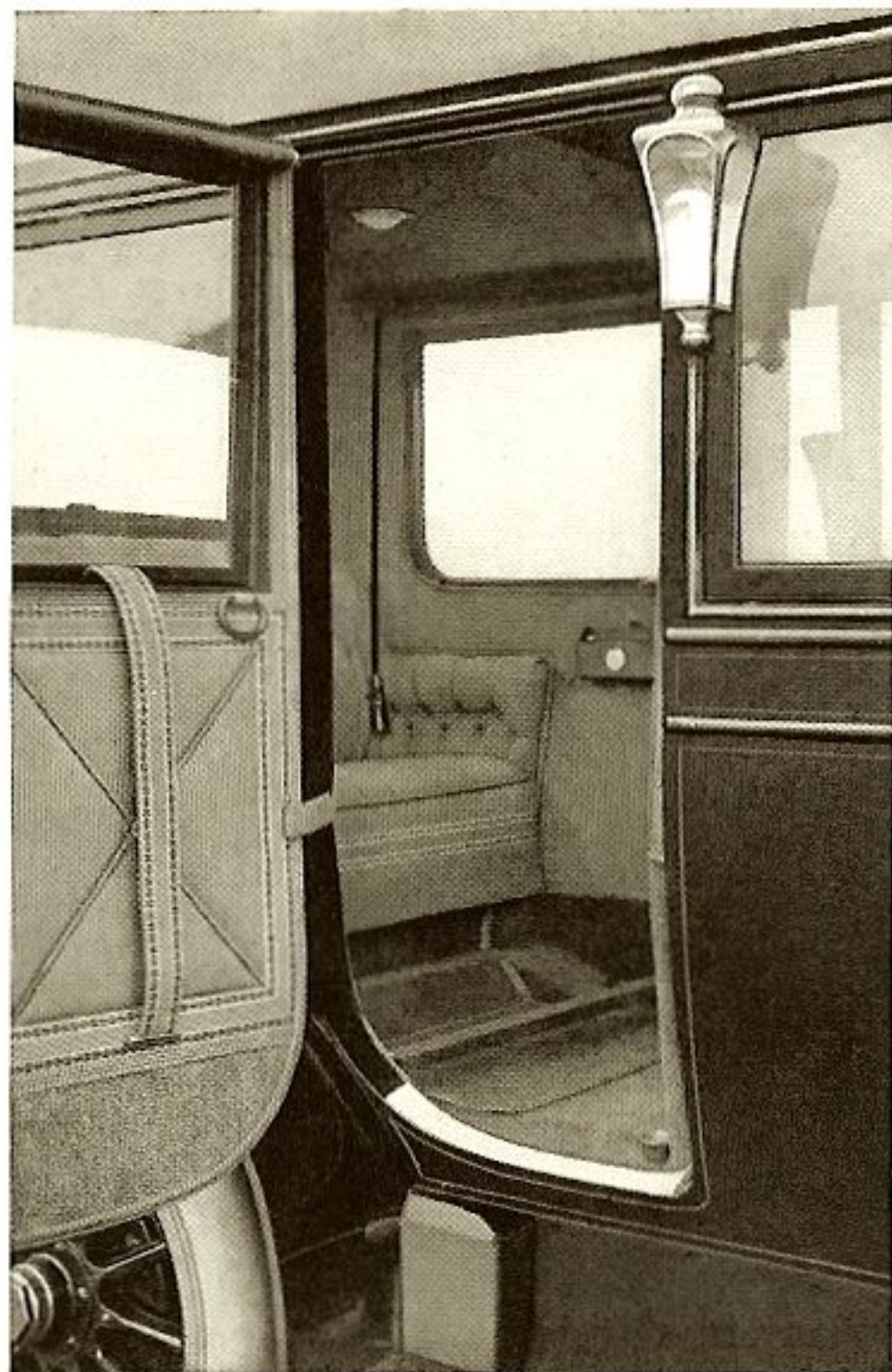
No greater ability in designing, nor greater skill and care in building, is to be found anywhere than in the National factories. Materials are uniform, as is the workmanship.

All the driving parts, such as inner axles, pinion shafts, etc., subject to torsional strain, are made of the world's best chrome nickel steel.

Materially enlarged wearing surfaces on the dog clutches at the end of the inner axles, engaging the hubs, absolutely eliminates wear at these points.

All parts subject to vibration, such as the crank shaft, are made of chrome vanadium steel.

The gears, which are noiseless and run in oil, are made of chrome nickel steel. This material is the best known to the engineering frater-



THREE INTERIOR VIEWS OF LIMOUSINE—IMPROVED SERIES V

Showing 12-inch upholstery; speaking tube; vanity box; interior electric light; Colonial electric side lights; folding extra seats which disappear under front seats; flower vase; coat rail; foot rest; umbrella rack; baggage carrier; left side drive; center control; foot mat in running board and adjustable ventilating and rain vision windshield.

nity, noted for its toughness and its special properties which enable it to withstand sudden shock. The teeth of gears are cut so perfectly as to roll on one another, thus eliminating friction.

More than 500 parts are made of pressed steel. This insures the maximum of strength in porportion to weight. It also adds to the neat appearance of the car.

All studs and bolts are made of especially heat-treated chrome nickel steel.

Special close-grained gray iron is used in the cylinders, which provides exceptionally high tensile strength. This also has excellent frictional qualities, reducing to the minimum the possibility of scoring.

The main bearings in the engine are die-cast Parson's white bronze.

The connecting rod bearings are of special designed Phosphor bronze, babbitt lined.

The tire pump has a positive drive.

The tank pressure pump operates by an eccentric and keeps a steady pressure.

The proper material is used in the correct place.

CHROME NICKEL STEEL

Transmission main shaft.	Bevel drive gear bolts.
Transmission reverse shaft.	Truss rods.
Propeller shaft.	Inner axles.
Pinion drive shaft.	Transmission gears.

CHROME VANADIUM STEEL

Crank shaft.	Connecting rod studs.
Differential bearing studs.	Cylinder studs in crank case.
Main bearing studs and crank case.	

NICKEL STEEL

Differential gears.	Drive pinions.
Differential case cap screws.	Valve heads.

NATIONAL IMPROVED SERIES V CARS INCLUDE

Semi-Racing Roadster	\$2750
Speedway Roadster	3150
Four-Passenger Toy Tonneau	3300
Five-Passenger Touring Car	3300
Seven-Passenger Touring Car	3400
Three-Passenger Coupe	3500
Four-Passenger Sedan	4600
Seven-Passenger Limousine	4800

WARRANTY

We warrant all motor vehicles manufactured by us (except tires, ignition apparatus and trade accessories, such as lamps, tops, windshields, gas generators, speedometers, tools, etc.) against defects in materials and workmanship for six months from date of shipment from our factory. Should any part so warranted be found defective in materials or workmanship within said period, our entire liability of any kind is limited to making good said part at our factory, without additional compensation, provided that the purchaser shall send us the part alleged to be defective, carrier's charges prepaid.

We reserve the right to disclaim responsibility in connection with any motor vehicle manufactured by us if it has been altered or repaired outside of our factory, and we assume no responsibility whatever for repairs, replacements or other damages occasioned by misuse, negligence or accidents.

WE DO NOT MAKE OR AUTHORIZE ANY WARRANTY BEYOND
THAT EXPRESSED ABOVE

NATIONAL MOTOR VEHICLE COMPANY
INDIANAPOLIS, INDIANA

