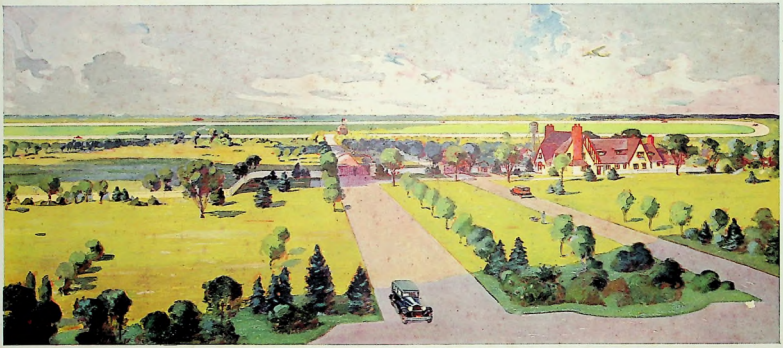


Mechanical Features
of the
PACKARD INDIVIDUAL
CUSTOM EIGHT

The Packard Proving Grounds includes a two and one-half mile concrete track, the fastest in the world, and provides every facility including a resident staff of engineers and technical experts for the most exacting study and testing of motor cars

A MECHANICAL DESCRIPTION
of the
PACKARD INDIVIDUAL CUSTOM EIGHT

FIVE years ago, after more than eight years of experience in building a famous V-type motor car, Packard announced that its larger cars would be powered with an eight-in-line or straight-eight motor. This was something of a pioneering decision for Packard was the first prominent American maker to break away from the complications of multi-cylinder motors.

Today we find twenty leading motor car manufacturers in this country using the straight-eight motor while the number offering the V-type has dropped from thirty to four. And in Europe, the original home of the V-type motor, the V-type motor has been completely displaced by the straight eight. Europe now offers twenty-two straight-eight motor cars and not a single stock car of the V-type.

We recount the foregoing both because it is interesting and because it indicates that a car with a straight-eight motor is the safest car to buy from a depreciation standpoint. It is far less liable to sudden and costly depreciation because of such a major mechanical change as one in motor design.

We call your attention to the illustration on the opposite page —and ask that you compare it, point by point, with the complicated type of motor which is so rapidly being superseded by the straight eight. Please note how very accessible every unit is and that each may be removed for adjustment and repair without interfering with any other. This simplicity of design accounts for the surprisingly low service charges for Packard motor work.

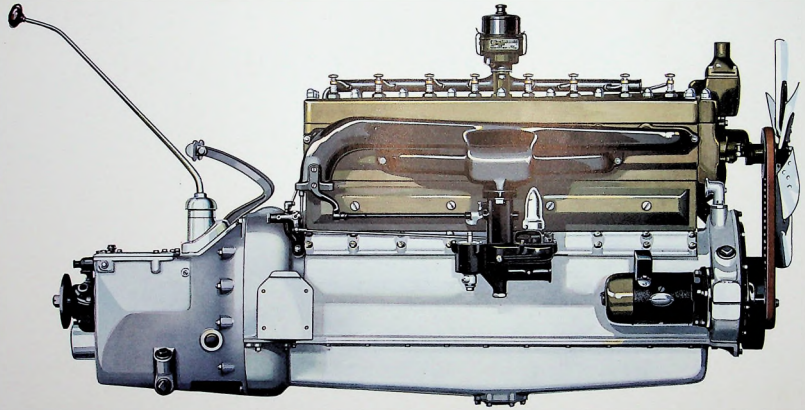
While on the subject of motors, we suggest you turn to Page Seven, which presents a most interesting and rather non-technical discussion of motor design principles together with some of the reasons why Packard knows there is *not even one* advantage in building anything but a straight-eight motor.

We next request your attention to Page Six, where you will find illustrated the Packard Shock-Absorbing System. This includes a combination of new features now found in no other car—Packard's own double-acting hydraulic shock absorber and a unique shock-absorbing device mounted at the rear of the left front spring. The former provides an entirely new riding comfort and the latter a safety in steering operation never before known.

Having told you of the new comfort and safety features, we shall now mention one of added operating convenience—in the steering mechanism. Ball bearings are now provided on the cross-shaft in the steering gear case resulting in the elimination of the last real frictional resistance to almost effortless steering. You will sense this and be delighted with it the moment you guide the new car around a corner or in and out of traffic.

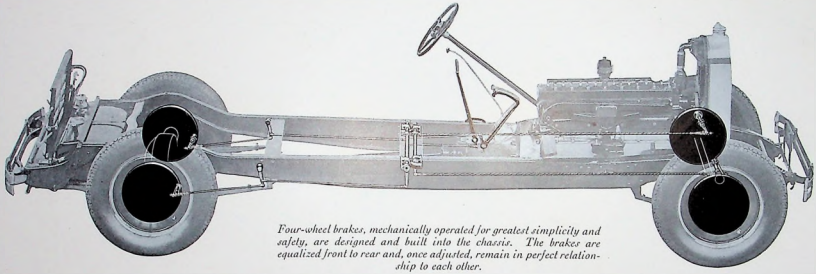
It would not be right to close this brief discussion without some reference to the lubrication features of the Packard motor and chassis. These are shown and explained on Page Five. We believe that no other car is so adequately protected against the costly wear and tear of friction and with so little effort on the part of the owner or driver.

Any Packard dealer will consider it a pleasure to tell you in detail about the features we have had to cover so lightly and then put any car of your own selection to any test your ownership would ever call for. Words alone cannot tell you the best things about the new Packard cars and we really believe you owe it to yourself to investigate personally everything we have promised that you will find in them.



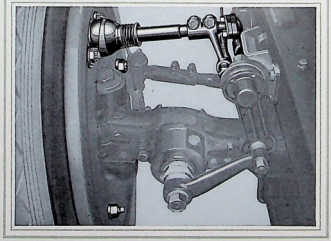
SIMPLICITY · ACCESSIBILITY · ECONOMY

Simplicity in design assures economy in maintenance costs because of labor saved due to the accessibility of parts for either adjustment or repair.

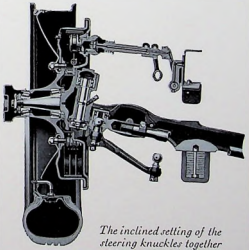


Four-wheel brakes, mechanically operated for greatest simplicity and safety, are designed and built into the chassis. The brakes are equalized front to rear and, once adjusted, remain in perfect relationship to each other.

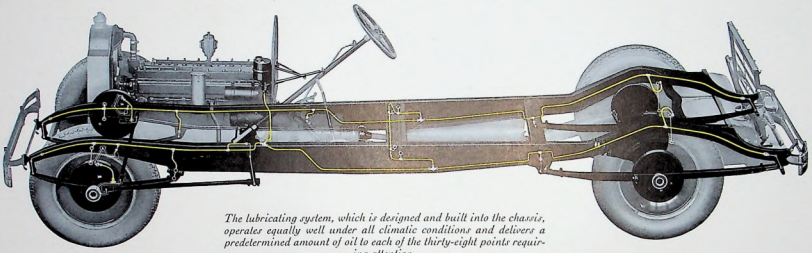
Brakes are self-energizing and but slight pedal pressure is required to produce utmost efficiency in even the coldest weather.



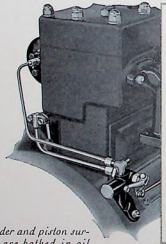
The brakes are of the internal-expanding type, with brake drums flanged for protection against oil or dirt reaching braking surfaces, minimizing wear and noise. Emergency-brake action is independent of service brakes.



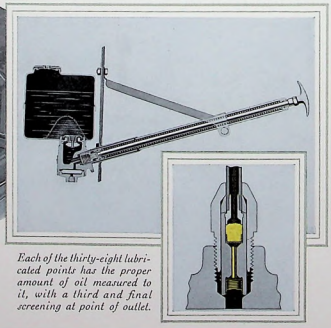
The inclined setting of the steering knuckles together with the use of ball bearings provides delightfully easy steering.



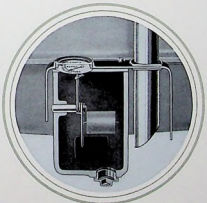
The lubricating system, which is designed and built into the chassis, operates equally well under all climatic conditions and delivers a predetermined amount of oil to each of the thirty-eight points requiring attention.



Cylinder and piston surfaces are bathed in oil when the motor is cold by a valve connected with the choke rod.

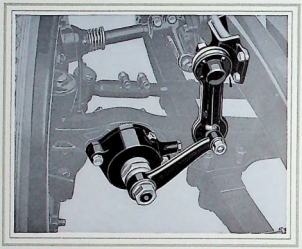


Each of the thirty-eight lubricated points has the proper amount of oil measured to it, with a third and final screening at point of outlet.



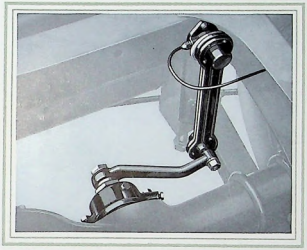
An oil gauge mounted on the left side of the motor registers the amount of oil in the crankcase and the necessity for attention.

THE PACKARD SHOCK-ABSORBING SYSTEM



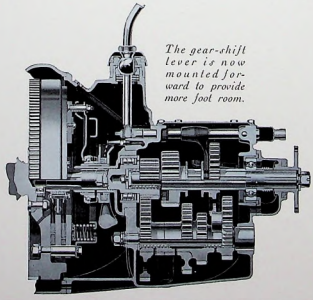
The shock absorbers on the Packard Eight are Packard in design and manufacture and are found on no other car. They are not an addition to the chassis but rather an integral part of it.

Cross-section showing construction and calibrated metering valve.



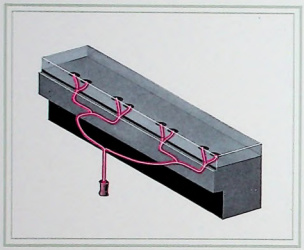
Both front and rear shock absorbers are two-way in their action and make possible the use of much more resilient springs, the riding adjustment being made in the shock absorbers.

The rear of the left front spring is provided with a patented shock-absorbing device.



The gear-shift lever is now mounted forward to provide more foot room.

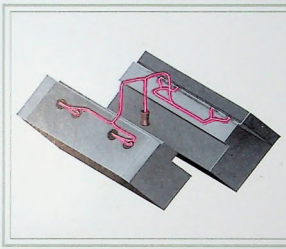
The steering gear, worm-and-sector type, is fitted throughout with ball bearings.



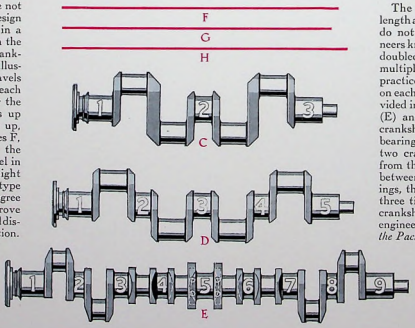
STRAIGHT-EIGHT SIMPLICITY AND STRENGTH

Left—Fuel passages from the carburetor to inlet valves in the Packard Eight motor.

Right—Fuel passages in the typical 90-degree V-type Eight motor.



We present these pictures because those not familiar with the principles of motor design often wonder whether the end cylinders in a straight-eight motor get gas equally with the others and also, whether a straight-eight crankshaft can be as strong as a shorter one. Illustrations A and B show that the gas travels the same distance from the carburetor to each inlet valve in either the straight-eight or the V-type eight motor. In A, the gas goes up and right and left. In B, the gas goes up, *then down* and right and left. The red lines F, G and H are drawn to scale and show the comparative distances the gas has to travel in three types of motors—the Packard Straight Eight (F), the three-bearing 90-degree V-type eight (G), and the five-bearing 90-degree V-type eight (H). These simple pictures prove that neither type of motor is at any practical disadvantage over the others in fuel distribution.



The three crankshafts are shown for length and bearings distribution only and all do not include counterweights. All engineers know that as an unsupported section is doubled the tendency to spring or give is multiplied by eight. The best engineering practice calls for a crankshaft main bearing on each side of each crank pin. This is provided in both the Packard Eight crankshaft (E) and in the five-bearing V-type eight crankshaft (D). However, in C, a three-bearing V-type eight crankshaft, there are two crank pins taking four piston blows from the four pistons and connecting rods, between each pair of crankshaft main bearings, the unsupported section being nearly three times as great as in E, the Packard crankshaft, and according to the accepted engineering formula—*not nearly so stiff as the Packard crankshaft.*

6-45 SPECIFICATIONS

POWER PLANT

MOTOR—Eight cylinders cast in one block. Four-point suspension. Bore, 3½ inches; stroke, 5 inches. Horsepower, S.A.E. rating, 39.2. Motor actually develops more than 105 horsepower.

CYLINDERS—L-head. Made from special iron and steel alloy.

PISTONS—Cast from special aluminum alloy. Piston design developed by Packard. Fitted with four rings.

CONNECTING RODS—Drop-forged from special steel. I-beam in type and rifle-bored lengthwise to provide oil passage from crankshaft to piston-pin bearing.

VALVES—Intake, chrome-nickel steel. Exhaust, silicon-chrome steel.

CRANKCASE—Aluminum alloy casting. Mounted at four points. Ventilated. Nine main bearings afford rigid support for the crankshaft. Lower half provides motor-oil reservoir. Oil gauge with dial indicator on left-hand side.

CRANKSHAFT—Nine main bearings. Drop-forged, heat-treated, machined all over, and balanced both at rest and at speed. Drilled passages provide for oil distribution and newly designed counterbalances result in operating smoothness and relief from excessive bearing pressures.

CLUTCH—Dry plate with four driving surfaces. Positive and dependable. Spring-cushioned drive. Operates equally well under all climatic conditions.

TRANSMISSION—Selective sliding-gear type, three speeds forward and one reverse. All gears alloy steel, hardened and ground, insuring long life and quiet operation. Shafts mounted in best quality ball and roller bearings.

FUEL SYSTEM

SUPPLY—Twenty-five-gallon tank mounted at rear between frame members. Fuel drawn from tank by vacuum system located on dash and then to carburetor by gravity feed. Filtered through fine mesh screen before entering carburetor.

CARBURETOR—Designed for maximum efficiency under varied conditions. No adjustments for operator to make.

COOLING SYSTEM

RADIATOR—Highly polished chromium-plated casing of new design with cellular core. Thermostatically controlled shutters are standard equipment.

WATER COOLING—Capacity, 6¼ gallons. Forced circulation by centrifugal pump located in forward end of cylinder block. Only two hose connections required.

TEMPERATURE CONTROL—Thermostat controls passage of water, which is circulated back through cylinder block and cylinder head until normal motor temperature is reached, when it is passed through radiator.

FAN—Aluminum with six blades 20½ inches in diameter, mounted on roller bearing.

LUBRICATING SYSTEM

MOTOR LUBRICATION—Pressure feed by gear-type oil pump, submerged in oil supply in lower half of crankcase. Oil is automatically filtered and its circulation controlled as required by different motor speeds.

CHASSIS LUBRICATION—The thirty-eight chassis points requiring regular lubrication are oiled by means of a pressure-pump located at the left of the steering column and operated from the driver's seat. Operates perfectly at any temperature.

ELECTRICAL SYSTEM

IGNITION—Packard-North East distributor mounted in accessible position on cylinder head. Coil is mounted on back of instrument board, protected from excess heat and water.

GENERATOR—Packard-Dyneto. Mounted at right front of motor and driven by silent chain, easily accessible for proper attention. Furnished with cut-out relay and entirely automatic in operation.

STARTING MOTOR—Packard-Dyneto. Mounted at left rear of motor, and automatically engaging with hardened-steel gear ring shrunk on fly-wheel. All parts enclosed and automatic in operation.

BATTERY—Six-volt, 160-ampere-hour, located on right running board at juncture with fender. Accessible for routine attention and long life through better cooling due to radiation.

WARNING SIGNAL—Mounted at left of motor, under hood. Electrically operated by push button at center of steering wheel.

LIGHTING EQUIPMENT—Single-wire type, fully protected by a 20-ampere fuse. Includes two nonglare main headlights of 21 candlepower with tilting beam feature; cowl lamps; combination tail, stop signal, and backing light, the stop signal light automatically operated by brake-pedal action, and the backing light by gear-shift lever; instrument-board lights; spotlight and tonneau light in open bodies; dome light in enclosed bodies.

OPERATING CONTROLS

GEAR-SHIFT LEVER—At right of driver. Housing well forward giving increased foot room.

BRAKE LEVER—At left of driver, well forward, permitting free use of left front door.

SERVICE BRAKES—Mechanically operated, internal expanding on front and rear wheels. Automatically equalized, front to rear.

HAND BRAKE—Internal expanding on rear wheels. All brakes have 16-inch drums.

STEERING GEAR—Worm-and-sector type. Ball thrust bearings for both worm and sector. Steering wheel, 18 inches in diameter. Black rubber over a steel frame.

MOTOR—Accelerator at right of brake pedal. Hand-throttle and lighting-switch levers built into the central portion of steering wheel.

INSTRUMENT BOARD—Oil-pressure gauge, motor thermometer, ammeter, fuel-supply gauge, speedometer and clock are grouped in the center of the instrument board and are indirectly illuminated for night driving. Ignition switch, integral with the coil, mounted at the left of center panel and fitted with lock and key. Cigar lighter at the right of panel.

TOILET AND SMOKING CONVENIENCES — Hand-made smoking and vanity cases fashioned in exquisite designs are found in all Individual Custom cars except the Convertible Coupe which has a cigar lighter only.

MISCELLANEOUS

FRAMES—Depth, 8 inches. Tapered in design to eliminate offsets. Very rigid in construction, due to liberal use of cross-members and heavy cross-tubes, all riveted securely.

SPRINGS—Semielliptical. Front, 38 inches by 2 inches; rear, 62 inches by 2¼ inches. Front springs underslung and shackled at front end. A spring trunnion assembly mounted at the rear end of the left front spring tends to eliminate shimmy and wheel wobble which are inherent with low-pressure tires. Spring covers standard equipment.

WHEELS—Disc steel type. Demountable at hub and interchangeable, front and rear. Wood or wire wheels optional, special equipment on same hubs at slight additional cost.

WHEEL CARRIER—Side wheel carriers are standard with two extra wheels and locks. Rear wheel carriers optional. Self-contained flush-type lock.

SHOCK ABSORBERS—Packard hydraulic.

TIRES—Low-pressure nonskid cord tires, front and rear: size, 32 inches by 7.00 inches.

SPEEDOMETER—Driven through a flexible shaft connected with spiral driving gears in the transmission assembly. Mounted on the left-hand side of instrument board.

FENDERS—Deep crown, of extra heavy gauge steel.

WHEELBASE—145½ inches.

TURNING RADIUS—26 feet 4 inches.

TOOLS—Tool roll with complete equipment of tools, one-ton jack, and wheel-changing equipment.

PAINTING AND UPHOLSTERY

Albums of fabric samples and portfolios of color harmonies provide the purchaser a wide choice in finishing his Individual Custom car distinctly to his own taste.

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