

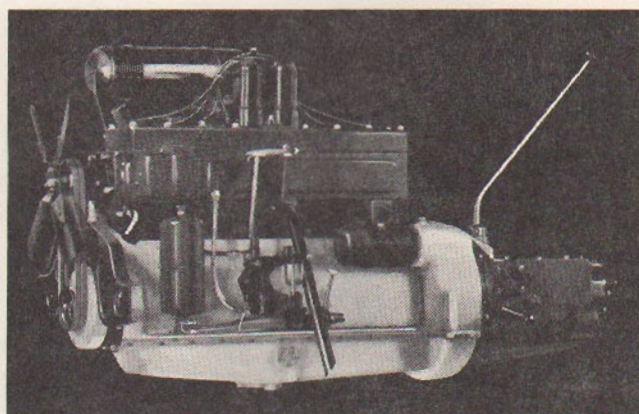
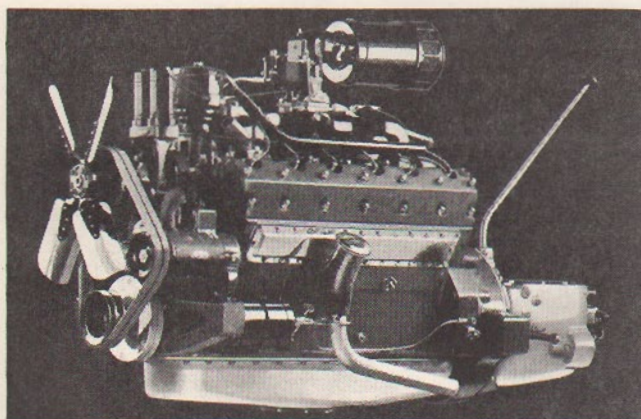
Eleventh Series Motors

THE ELEVENTH SERIES motors have many new features and no attempt has been made to increase performance, as such an increase would be obtained only at the sacrifice of either quiet operation or smoothness. We feel that the current series motors represent the utmost in practical performance without incurring the penalties of increased gasoline consumption or the shorter life of tires. The entire effort this year has been to still further extend the maximum life of motor parts. This has been done principally through improvements in the lubrication system. These changes on the Eight motors affect the oil pump

which is of greater capacity, larger oil lines, a full flow oil filter, and an oil temperature regulator.

The change in the oil pump approximately doubles its capacity which, with the larger oil lines, means that a much greater volume of oil can be kept in circulation at all speeds. You will notice, on the side of the motor, that the adjustment for regulating oil pressure has been moved to an extremely accessible position on the outside of the crankcase.

Clean oil kept free from abrasive material and carbon is an important factor in eliminating motor wear, therefore additional attention has



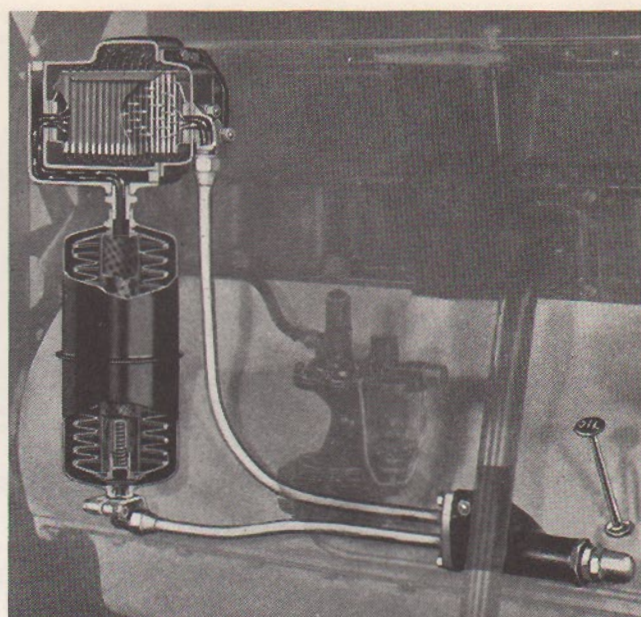
"EVERY OWNER A SALESMAN"

been given to the carburetor air cleaner and silencer. The new air cleaner is of the triple resonator type, the three resonating chambers acting in unison as compared with two previously used. This change also provides a greater reduction in carburetor intake noise.

At the front left side of the motor is the oil temperature regulator. It is very desirable to obtain a quick warming of the crankcase oil in cold weather. Likewise it is important that lower oil temperatures be maintained than has previously been possible during hot weather, as this is detrimental to the lubricating value of the oil. Packard engineers are convinced that a light oil circulated in greater volume provides more effective lubrication than heavier oils in lesser volume. The oil temperature regulator allows us to take full advantage of this fact as it permits the use of lighter oils for year around lubrication.

There are other improvements such as the new camshaft bearings which are now babbitt lined and steel backed. This will materially increase the life of these parts. There is also a change in the type of timing chain used. This new one cannot sag between the sprockets and will, for this reason, have increased wearing qualities.

The generators are now air cooled which assists in controlling the operating temperatures within



service limits. This change has been made to permit the use of higher charging rates, because of the additional demands placed on the battery by electrically operated equipment now demanded. On the Twelve the generator has been provided with an additional support which increases its rigidity.

The Twelve motor has the coils mounted in a new position at the front and very close to the distributor. This gives the advantage of the shorter high tension wires and also reduces the possibility of radio interference and otherwise improves motor idling.

STANDARD SIZES AND ADJUSTMENTS

| Model | 1100-1-2 | 1103-4-5 | 1107 | 1108 |
|----------------------------------|---|---|--|--|
| BRAKE | | | | |
| Clearance around Drum | Free | Free | Free | Free |
| Lining Size—Front Left | 15 $\frac{1}{8}$ " x 1 $\frac{3}{4}$ " x $\frac{1}{4}$ " | 15 $\frac{1}{8}$ " x 1 $\frac{3}{4}$ " x $\frac{1}{4}$ " | 16 $\frac{1}{8}$ " x 1 $\frac{7}{8}$ " x $\frac{1}{4}$ " | 16 $\frac{1}{8}$ " x 1 $\frac{7}{8}$ " x $\frac{1}{4}$ " |
| Lining Size—All Others | 15 $\frac{1}{8}$ " x 2 $\frac{1}{4}$ " x $\frac{1}{4}$ " | 15 $\frac{1}{8}$ " x 2 $\frac{1}{4}$ " x $\frac{1}{4}$ " | 16 $\frac{1}{8}$ " x 2 $\frac{1}{2}$ " x $\frac{1}{4}$ " | 16 $\frac{1}{8}$ " x 2 $\frac{1}{2}$ " x $\frac{1}{4}$ " |
| No. of Linings per Car | 8 | 8 | 8 | 8 |
| Hand Brake Setting—Wheels Locked | Three to Four Notches—All Models | | | |
| CLUTCH | | | | |
| No. of Driven Plates | 1 | 1 | 1 | 1 |
| Lining—Hyc—Size | 7" x 12" | 7" x 12" | 7" x 12" | 7" x 12" |
| Clearance Hub to Clutch Shaft | No Perceptible Back Lash—All Models | | | |
| Clutch Spring Load | Inner—50 Lbs. at 1 $\frac{7}{8}$ " Outer—100 Lbs. at 1 $\frac{3}{4}$ " | Inner—50 Lbs. at 1 $\frac{7}{8}$ " Outer—100 Lbs. at 1 $\frac{3}{4}$ " | Same | Same |
| Clearance Pedal to Toeboard | 1" | 1" | 1" | 1" |

STANDARD SIZES AND ADJUSTMENTS—Continued

| Model | 1100-1-2 | 1103-4-5 | 1107 | 1108 |
|---|--|--|--|--|
| COOLING SYSTEM | | | | |
| Capacity in Gallons | 5 | 5 | 10 | 10 |
| Gravity Flow per Minute—Min. | 30 Gal. | 30 Gal. | 50 Gal. | 50 Gal. |
| Clearance Fan to Radiator Core | $\frac{11}{8}$ " | $\frac{7}{8}$ " | $\frac{11}{8}$ " | $\frac{11}{8}$ " |
| Thermostat Valve Starts to Open at | 155 Deg. | 155 Deg. | 155 Deg. | 155 Deg. |
| Fan Belt—Two Used per Motor—45 Deg. Vee | $39\frac{3}{8}$ " | $39\frac{3}{8}$ " | $49\frac{1}{2}$ " | $49\frac{1}{2}$ " |
| Range of Adjustment | $\frac{3}{4}$ " | $\frac{3}{4}$ " | $\frac{3}{4}$ " | $\frac{3}{4}$ " |
| GASOLINE SYSTEM | | | | |
| Capacity of Tank in Gallons | 25 | 25 | 32 | 32 |
| Carburetor Make and Type | Packard-Stromberg Duplex Down-Draft—All Models | | | |
| Gasoline Feed | Mechanical Fuel Pump | Mechanical Fuel Pump | Mechanical Fuel Pump | Mechanical Fuel Pump |
| ELECTRICAL | | | | |
| Generator Charging Rate—Hot | Eighteen to Twenty Amperes—All Models | | | |
| Battery Capacity in Ampere Hours | One Hundred and Forty-four—All Models | | | |
| LAMP BULBS | Special 3-Filament 32-32-32 Candlepower—All Models | | | |
| Headlight | Standard Single Contact 15 Candlepower—All Models | | | |
| Stoplight | Standard Single Contact 6 Candlepower—All Models | | | |
| Domelight | Standard Single Contact 3 Candlepower—All Models | | | |
| All Others | Standard Single Contact 3 Candlepower—All Models | | | |
| Spark Timing—Full Advance Occurs | 6° B. T. D. C. | 6° B. T. D. C. | 8° B. T. D. C. | 8° B. T. D. C. |
| Breaker Point Gap | .018 to .022 of an Inch—All Models | | | |
| Spark Plug Gap | .025 of an Inch—All Models | | | |
| Generator Fuse | 3 Amperes— $\frac{1}{4}$ " x $\frac{5}{8}$ " in Size—All Models | | | |
| Light Fuses—Two Used | 20 Amperes— $\frac{11}{16}$ " x $1\frac{1}{2}$ "—All Models | | | |
| MOTOR | | | | |
| Compression | 95-100 | 95-100 | 95-100 | 95-100 |
| Firing Order | 1-6-2-5-8-3-7-4 | 1-6-2-5-8-3-7-4 | 1R-6L-5R-2L-3R-4L-6R-1L-2R-5L-4R-3L | |
| Clearance Bearing to Crankpin | Minimum .0005"—All Models | | | |
| End Play Connecting Rod on Crankshaft | Minimum .003" | Minimum .003" | Minimum .008" | Minimum .008" |
| End Play Connecting Rod on Piston Pin—Nominal | $\frac{1}{8}$ " | $\frac{1}{8}$ " | $\frac{1}{8}$ " | $\frac{1}{8}$ " |
| Diameter of Crankpins | 2.1875" | 2.1875" | $2\frac{1}{2}$ " | $2\frac{1}{2}$ " |
| Clearance on All Main Bearings | Minimum—.001 of an Inch—All Models | | | |
| End Play Crankshaft on Main Thrust Bearing | Minimum—.003 of an Inch—All Models | | | |
| Diameter of Main Journals | 2.625" | 2.625" | $2\frac{3}{4}$ " | $2\frac{3}{4}$ " |
| Diameter Cylinder Bore—Standard | $3\frac{1}{8}$ " | $3\frac{1}{2}$ " | $3\frac{1}{8}$ " | $3\frac{1}{8}$ " |
| Reground Oversizes | .005 to .045 oversize at our option—All Models | | | |
| Diameter of Piston Pin | $\frac{7}{8}$ " | $\frac{7}{8}$ " | $\frac{7}{8}$ " | $\frac{7}{8}$ " |
| Oversizes | .003"-.006" over Standard—All Models | | | |
| Piston Pin Offset in Piston | 0 | 0 | 0 | 0 |
| Install in Motor | Slots on Valve Side | Slots on Valve Side | Slots on Valve Side | Slots on Valve Side |
| Width of Ring Groove | Comp. $\frac{1}{8}$ " Oil $\frac{1}{16}$ " | Comp. $\frac{1}{8}$ " Oil $\frac{1}{16}$ " | Comp. $\frac{1}{8}$ " Oil $\frac{1}{16}$ " | Comp. $\frac{1}{8}$ " Oil $\frac{1}{16}$ " |
| Depth of Groove | .145" | .145" | .157" | .157" |
| Clearance Piston Skirt to Cylinder Wall | Minimum .0015" | Minimum .0015" | Minimum .0015" | Minimum .0015" |
| Piston Ring Gap Compressed to Cylinder Diameter | .007" Minimum—All Models | | | |
| Pressure Required to Close Ring to Correct Gap | Comp. $6\frac{1}{4}$ Lbs. Oil $4\frac{1}{2}$ - $7\frac{1}{2}$ Lbs. | Comp. $6\frac{1}{4}$ Lbs. Oil $4\frac{1}{2}$ - $7\frac{1}{2}$ Lbs. | Comp. $6\frac{1}{2}$ Lbs. Oil $4\frac{1}{2}$ - $7\frac{1}{2}$ Lbs. | Comp. $6\frac{1}{2}$ Lbs. Oil $4\frac{1}{2}$ - $7\frac{1}{2}$ Lbs. |
| Piston Sizes | Standard .003" .005" .010" .015" .020" .025" .030" .035" .045" over | Standard .003" .005" .010" .015" .020" .025" .030" .035" .045" over | Standard .003" .005" .010" .015" .020" .030" .045" over | Standard .003" .005" .010" .015" .020" .030" .045" over |

STANDARD SIZES AND ADJUSTMENTS—Continued

| Model | 1100-1-2 | | | | 1103-4-5 | | | | 1107 | | 1108 | | | | | |
|--|---|-----------|----------|-----------|---|-----------|----------|-----------|---|-----------|---|-----------|------------|-----------|--------------|-----------|
| MOTOR—Cont. | | | | | | | | | | | | | | | | |
| Clearance to Push Rods—Motor Warm Ex. | .006" | | | | .006" | | | | AutomaticTakeup | | AutomaticTakeup | | | | | |
| Clearance to Push Rods—Motor Warm In. | .004" | | | | .004" | | | | AutomaticTakeup | | AutomaticTakeup | | | | | |
| Width of Contact of Valve Seat | Eight Hundred Eighty-three Ten-thousandths | | | | | | | | .062" | | .062" | | | | | |
| Clearance between Valve Stem and Guide | Inlet—Minimum—.025" Outlet—Minimum—.045" | | | | Same Same | | | | .0025" .005" | | .0025" .005" | | | | | |
| Tension of Valve Springs | 43 Lbs. at 3 ¹ / ₁₆ " | | | | 43 Lbs. at 3 ¹ / ₁₆ " | | | | 70 Lbs. at 2 ³ / ₁₆ " | | 70 Lbs. at 2 ³ / ₁₆ " | | | | | |
| Oil Pump Pressure at 1000 R. P. M. | Minimum—35 Lbs.—All Models | | | | | | | | | | | | | | | |
| Crankcase Oil Capacity | 8 Qts. | | | | 10 Qts. | | | | 10 Qts. | | 10 Qts. | | | | | |
| Rod Clearance to Surface Oil in Crankcase | 1 ¹ / ₁₆ " | | | | 1 ¹ / ₁₆ " | | | | Front 2 ¹ / ₈ " Rear 1 ¹ / ₁₆ " | | Front 2 ¹ / ₈ " Rear 1 ¹ / ₁₆ " | | | | | |
| Valve Timing | 00's on Crankshaft and Camshaft Sprockets Should be Nearest together and Line up on Each Side of Center | | | | 00's on Crankshaft and Camshaft Sprockets Should be Nearest together and Line up on Each Side of Center | | | | 00's on Crankshaft and Camshaft Sprockets Should be Nearest together on Center Line | | 00's on Crankshaft and Camshaft Sprockets Should be Nearest together on Center Line | | | | | |
| Model | 1100 | | 1101 | | 1102 | | 1103 | | 1104 | | 1105 | | 1107 | | 1108 | |
| SPRINGS | | | | | | | | | | | | | | | | |
| Front | 900 Lbs. | Body Type | 900 Lbs. | Body Type | 900 Lbs. | Body Type | 950 Lbs. | Body Type | 950 Lbs. | Body Type | 950 Lbs. | Body Type | 1075 Lbs. | Body Type | 1075 Lbs. | Body Type |
| Rear | 1200 | 703 | 1000 | 711 | 1350 | 714 | 1300 | 753 | 1300 | 750 | 1500 | 754 | 1300 | 730 | 1500 | 734 |
| | | | 1200 | 712 | 1350 | 715 | | | 1200 | 751 | 1500 | 755 | 1200 | 731 | 1500 | 735 |
| | | | 1200 | 713 | | | | | 1400 | 752 | | | 1400 | 732 | 1300 | 4068 |
| | | | 1200 | 716 | | | | | 1400 | 756 | | | 1400 | 736 | 1400 | 4070 |
| | | | 1100 | 717 | | | | | 1300 | 757 | | | 1300 | 737 | 1300 | 4071 |
| | | | 1100 | 718 | | | | | 1300 | 758 | | | 1300 | 738 | 1400 | 4072 |
| | | | 1100 | 719 | | | | | 1300 | 759 | | | 1300 | 739 | 1400 | 4182 |
| | | | 1000 | 721 | | | | | 1200 | 761 | | | 1200 | 741 | 1500 | D-788 |
| | | | 1200 | 723 | | | | | 1400 | 763 | | | 1400 | 743 | 1500 | D-789 |
| | | | 1100 | 727 | | | | | 1300 | 767 | | | 1300 | 747 | | |
| | | | | | | | | 1400 | 773 | | | 1400 | 733 | | | |
| REAR AXLE | | | | | | | | | | | | | | | | |
| Oil Capacity | Six Pints—All Models | | | | | | | | | | | | | | | |
| Back Lash Between Driving Gear and Pinion—Minimum | Four Thousandths of an Inch—All Models | | | | | | | | | | | | | | | |
| Model | 1100-1-2 | | | | 1103-4-5 | | | | 1107 | | 1108 | | | | | |
| STEERING | | | | | | | | | | | | | | | | |
| Front Wheel Camber | 1 ¹ / ₂ Deg. | | | | 1 ¹ / ₂ Deg. | | | | 1 ¹ / ₂ Deg. | | 1 ¹ / ₂ Deg. | | | | | |
| Front Wheel Caster | 1 ¹ / ₂ Deg. | | | | 1 ¹ / ₂ Deg. | | | | 1 ¹ / ₂ Deg. | | 1 ¹ / ₂ Deg. | | | | | |
| Front Wheel Toe-in | ¹ / ₁₆ " | | | | ¹ / ₁₆ " | | | | ¹ / ₁₆ " | | ¹ / ₁₆ " | | | | | |
| Front Wheel Bearing Adjustment | Tighten Nut as Tight as Possible and Back off ¹ / ₂ Turn or More and Lock | | | | | | | | | | | | | | | |
| Recommended Tire Pressure | 35-40 Lbs. | | | | 35-40 Lbs. | | | | 35-40 Lbs. | | 35-40 Lbs. | | 35-40 Lbs. | | | |
| Shock Absorber Valving—Standard | Front Rebound—1-CH Front Compression—G-4 Front Static—2-A plus | | | | Rear Rebound—5-GR Rear Compression—G-2 Rear Static—2-A plus | | | | All Models | | | | | | | |
| TRANSMISSION | | | | | | | | | | | | | | | | |
| Oil Capacity | Four and One-half Pints—All Models | | | | | | | | | | | | | | | |
| Ratio to Rear Wheels in Direct Drive | 4.07 | 4.36 | 4.06 | 4.41 | 4.06 | 4.41 | 4.06 | 4.41 | 4.06 | 4.41 | 4.06 | 4.41 | 4.06 | 4.41 | 4.06 | 4.41 |
| | 4.69 | | 4.69 | 5.07 | 4.69 | 5.07 | 4.69 | 5.07 | 4.69 | 5.07 | 4.69 | 5.07 | 4.69 | 5.07 | 4.69 | 5.07 |
| In Second | 6.21 | 6.65 | 6.21 | 6.74 | 6.21 | 6.74 | 6.21 | 6.74 | 6.21 | 6.74 | 6.21 | 6.74 | 6.21 | 6.74 | 6.21 | 6.74 |
| | 7.15 | | 7.15 | 7.63 | 7.15 | 7.63 | 7.15 | 7.63 | 7.15 | 7.63 | 7.15 | 7.63 | 7.15 | 7.63 | 7.15 | 7.63 |
| In First | 10.01 | 10.71 | 10.01 | 10.86 | 10.01 | 10.86 | 10.01 | 10.86 | 10.01 | 10.86 | 10.01 | 10.86 | 10.01 | 10.86 | 10.01 | 10.86 |
| | 11.53 | | 11.53 | 12.49 | 11.53 | 12.49 | 11.53 | 12.49 | 11.53 | 12.49 | 11.53 | 12.49 | 11.53 | 12.49 | 11.53 | 12.49 |
| In Reverse | 11.72 | 12.56 | 11.72 | 12.71 | 11.72 | 12.71 | 11.72 | 12.71 | 11.72 | 12.71 | 11.72 | 12.71 | 11.72 | 12.71 | 11.72 | 12.71 |
| | 13.5 | | 13.5 | 14.61 | 13.5 | 14.61 | 13.5 | 14.61 | 13.5 | 14.61 | 13.5 | 14.61 | 13.5 | 14.61 | 13.5 | 14.61 |
| Back Lash Between Gears Not Always in Mesh—Minimum | Four Thousandths of an Inch.—All Models | | | | | | | | | | | | | | | |
| Model | 1100 | | 1101 | | 1102 | | 1103 | | 1104 | | 1105 | | 1107 | | 1108 | |
| TURNING RADIUS | | | | | | | | | | | | | | | | |
| | 20 Ft. 9 In. | | 23 Ft. | | 24 Ft. | | 23 Ft. | | 24 Ft. | | 24 Ft. 7 In. | | 24 Ft. | | 24 Ft. 7 In. | |
| UNIVERSAL JOINT | | | | | | | | | | | | | | | | |
| Assembling Universal Joints | Arrows on Shaft and Universal Joint Sleeve Must be in Line.—All Models | | | | | | | | | | | | | | | |