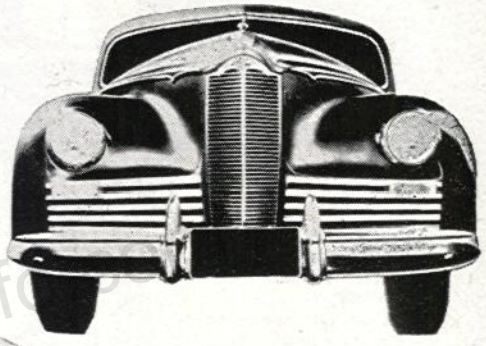
REPAIR and TUNE-UP MANUAL

Illustrated Service Procedure and Specifications for

1941 PACKARD

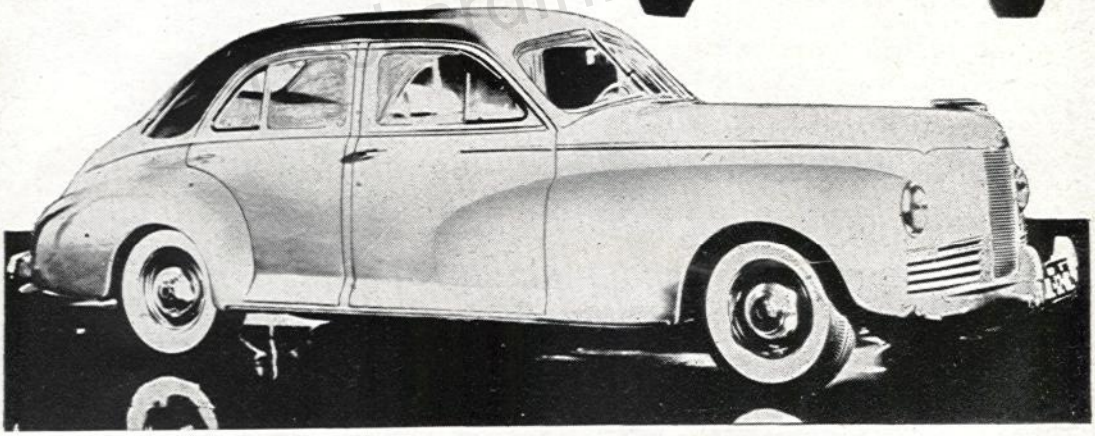


Model 1900—One Ten — Wheelbase 122"

Model 1901—One Twenty — Wheelbase 127"

Model 1901A—One Twenty (Chassis) — Wheelbase 160"

Model 1951—Clipper — Wheelbase 127"



SPECIFICATIONS

MODEL 1900: Six cyl. Bore, 3½"; stroke, 4¼". Piston displacement, 245 cu. in. Compression ratio, standard, 6.39:1; optional, 6.71:1. H.P., A.M.A. rating, 29.4; brake, 100 at 3600 R.P.M.

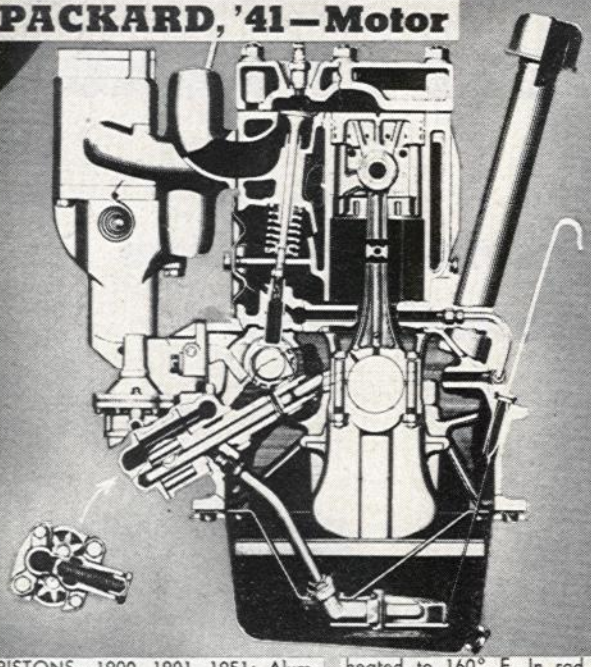
MODELS 1901, 1951: Eight cyl. Bore, 3¼"; stroke, 4¼". Piston displacement, 282 cu. in. Compression ratio — Model 1901, standard, 6.41:1; optional, 6.85:1. Model 1951, 6.85:1. H.P., A.M.A. rating, 33.8. Brake H.H.—Model 1901 (standard ratio), 120 at 3600 R.P.M. Model 1951, 125 at 3600 R.P.M.

SERIAL NUMBER—1900, 1901, 1951: Stamped on plate located on left side of cowl.

MOTOR NUMBER—1900, 1901, 1951: Stamped on upper left side of block between No. 2 and No. 3 cylinders.

Photographs: Courtesy Packard Motor Car Company

PACKARD, '41—Motor



CONNECTING RODS — 1900, 1901, 1951: Rifle drilled for piston pin lubrication. Length, 7-11/16" center to center. Weight 1 lb. 15.6 oz. Install with oil hole at crankpin end, facing camshaft side of engine. Rod bearing cap bolt nuts tightening torque should be 715 to 725 in. lbs. Nut secured by "palnut." To install, spin "palnut" on cap bolt until it contacts regular nut, tighten finger tight; then tighten 1/4 to 1/3 turn more.

MAIN BEARINGS—1900, 1901, 1951: Steel back, babbitt lined, replaceable precision shell type. Not adjustable. Bearing radial clearance .0005" to .0015". On 1900, thrust taken at front main bearing. On 1901, 1951, thrust taken at center main bearing. End play —1900, 1901, 1951, .003" to .008". Bearing cap nut tightening torque, 980 to 1020 in. lbs. Journal diameter 2 3/4".

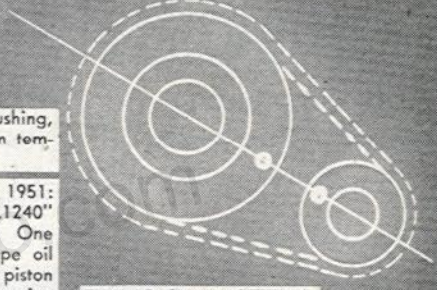
PISTONS—1900, 1901, 1951: Aluminum alloy, autothermic strut type, cam ground and tin plated. Remove from top of block.

PISTON CLEARANCE — 1900, 1901, 1951: Skirt clearance .0005" to .001". Check with a .0015" feeler gauge 1/2" wide inserted between thrust side of piston and cylinder bore. Clearance correct when 12 to 18 lbs. pull required to withdraw feeler blade. Pistons in any one engine must not vary more than 4 grams in weight. Install with slot facing camshaft side of engine.

PISTON PINS — 1900, 1901, 1951: Full floating type secured in piston bosses by snap rings. Fit pin in piston bosses to finger push fit with piston heated to 160° F. In rod bushing, thumb push fit at normal room temperature.

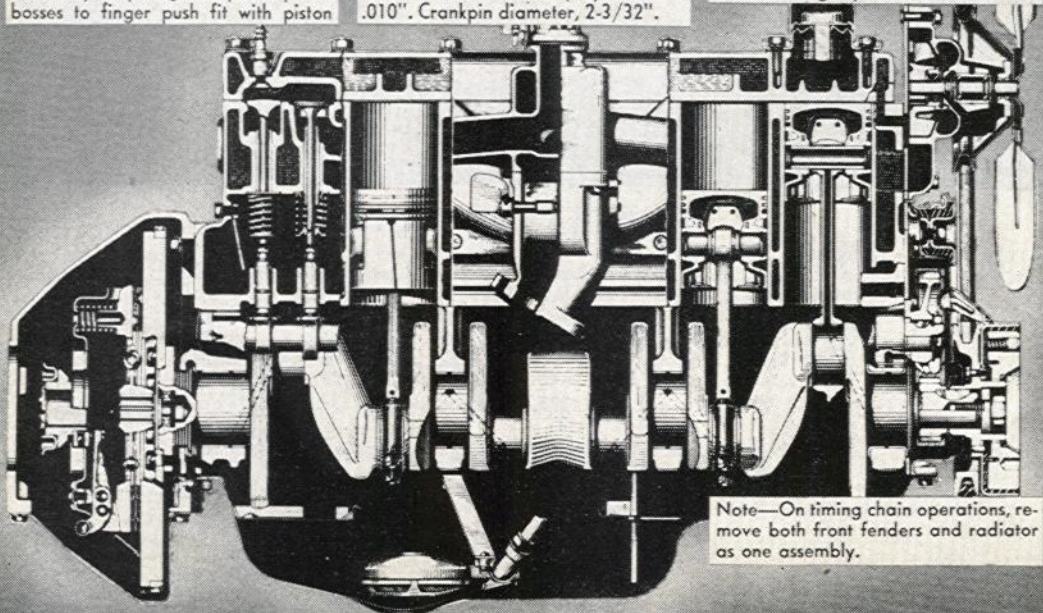
PISTON RINGS—1900, 1901, 1951: One .0925" to .0935" and one .1240" to .1235" compression rings. One .1865" to .1860" expander type oil control ring. All located above piston pin. Gap clearance — Compression rings, .007" to .017"; oil ring .007" to .015". Groove clearance—Compression rings, .0025" to .003"; oil ring .0015" to .002".

CONNECTING ROD BEARINGS — 1900, 1901, 1951: Steel back, babbitt lined, replaceable precision shell type. Not adjustable. Radial clearance, .0005" to .0015". Side play, .004" to .010". Crankpin diameter, 2-3/32".



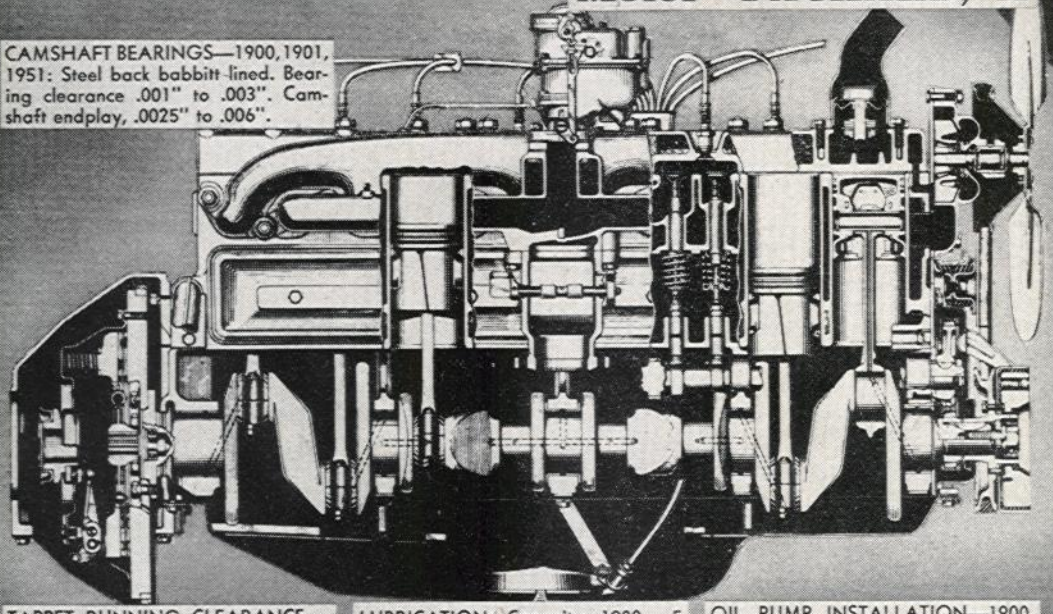
TIMING CHAIN SETTING

TIMING CHAIN—1900, 1901, 1951: Two sprocket non-adjustable type. When removing chains, both sprockets must be pulled together, requiring special pullers. For correct timing, install so that "O" marks on sprockets are aligned together and fall under a line drawn through sprocket centers.



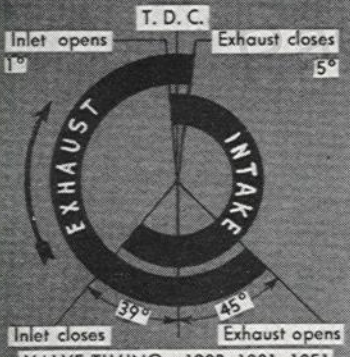
Note—On timing chain operations, remove both front fenders and radiator as one assembly.

CAMSHAFT BEARINGS—1900, 1901, 1951: Steel back babbitt lined. Bearing clearance .001" to .003". Camshaft endplay, .0025" to .006".



TAPPET RUNNING CLEARANCE—1900, 1901, 1951: Tappet screws are self-locking type. Adjust with engine at normal operating temperature—Inlet, .007"; exhaust, .010".

VALVE SEATS—1900, 1901, 1951: Seat angle—Inlet 30°; exhaust 45°.



VALVE TIMING—1900, 1901, 1951

TAPPET CLEARANCE FOR CHECKING TIMING—1900, 1901, 1951: Adjust inlet to .0125"; exhaust at .015" (cold setting).

VALVE GUIDES—1900, 1901, 1951: Straight reamed. Recommended valve stem to guide clearance—Inlet, .002" to .003"; exhaust, .004" to .005".

VALVE SPRINGS—1900, 1901, 1951: Spring pressure, when compressed to 1 5/8" length, 47 to 52 lbs. (closed valve). Compressed to 1-5/16" length, 114 to 124 lbs. (open valve).

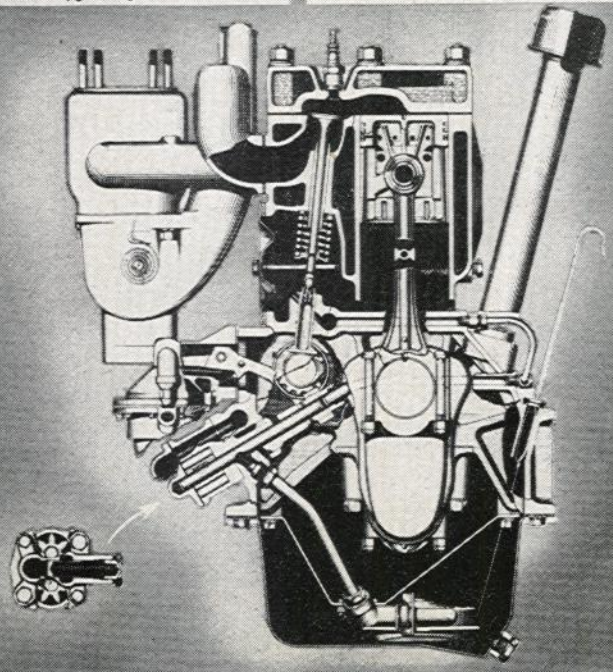
CYLINDER HEAD—1900, 1901, 1951: Cylinder head stud nuts tightening torque should not be less than 740 in. lbs. and should not exceed 760 in. lbs.

LUBRICATION: Capacity, 1900—5 qts.; 1901, 1941—6 qts. Summer—Anticipated average temperature of 90° F., or above, SAE 40. Temperature below 90° F., SAE 30. Winter—Temperature as low as 32° F., SAE 30. As low as plus 10° F., No. 20W. As low as minus 10° F., No. 10W.

OIL PUMP—1900, 1901, 1951: Gear type. With oil of proper viscosity and engine at normal operating temperature pressure should be 40 lbs. at normal driving speed. Pressure relief valve located in pump body. Not adjustable. Relief valve spring pressure should be 14 lbs. plus or minus 2 oz. when compressed to 1 7/8" length.

OIL PUMP INSTALLATION—1900, 1901, 1951: Turn engine until No. 1 piston is 6° to 8° before top center of compression stroke. Engine in this position, install oil pump so that distributor driving slot is parallel to center line of camshaft. Punch mark on pump gear should be at bottom on 1900 and top on 1901 and 1951. Locate distributor in place with rotor in position for ignition at No. 1 plug. See "Ignition Timing."

COOLING SYSTEM: Thermostat located in cylinder head outlet elbow, starts to open at 147 1/2° F. Capacity of system—Model 1900, 3 3/4 gal. Models 1901, 1951, 4 1/4 gal.



PACKARD, '41—Tune-Up

DISTRIBUTOR

Auto-Lite IGP-4205.

Breaker arm point gap, .018" - .022", or 38° cam dwell. Breaker arm spring tension, 19-23 oz.

Automatic advance starts at 300 rpm.(dist.).Maximum advance,9.5° at 1600 rpm. (dist.).

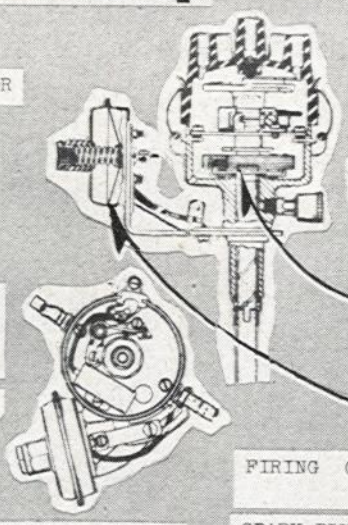
Vacuum advance starts at 6" Hg. Maximum advance, 7.5° at 17" Hg.

Auto-Lite IGC-4505.

Breaker arm point gap, .0125" - .0175". Breaker arm spring tension, 19-23 oz.

Automatic advance starts at 300 rpm. (dist.). Maximum advance, 11.5° at 1550 rpm. (dist.).

Vacuum advance starts at 6" Hg. Maximum advance, 6° at 17" Hg.



DISTRIBUTOR

Delco - 1100921.

Breaker arm point gap, .018" - .022" or 38° cam dwell. Breaker arm spring tension, 19-23 oz.

Automatic advance starts at 300 rpm. (dist.). Maximum advance, 9.5° at 1600 rpm. (dist.).

Vacuum advance starts at 6" Hg. Maximum advance, 7.5° at 17" Hg.

FIRING ORDER: Six Cyl. - 1-5-3-6-2-4. Eight Cyl. - 1-6-2-5-8-3-7-4.

SPARK PLUG GAP: Use round gage & set at .0255" - .0305".

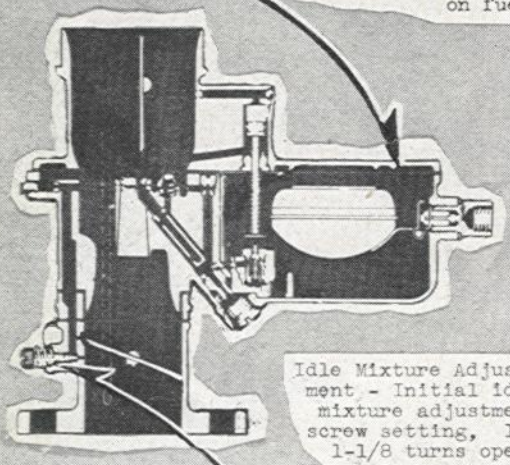
INITIAL IGNITION TIMING: Model 1901, with standard compression ratio of 6.4:1,7° BTC. Optional ratio of 6.85:1, 5° BTC.

Model 1951, standard ratio, 6.85:1, 5° BTC.

CARBURETOR

STROMBERG BXOV-26.

Fuel Level - Recommended fuel level, 5/8" plus or minus 1/32" below machined surface of float bowl with 3 lbs. pressure on fuel.

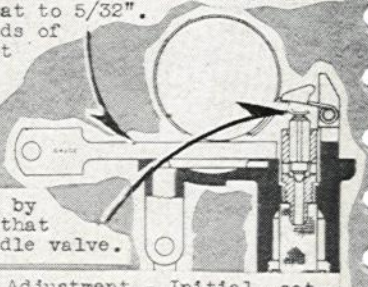


Idle Mixture Adjustment - Initial idle mixture adjustment screw setting, 1 - 1-1/8 turns open.

With warm engine & choke valve wide open, adjust idle mixture screw within limits until engine idles smooth at car speed of not less than 6 mph. Turning screw clockwise leans mixture.

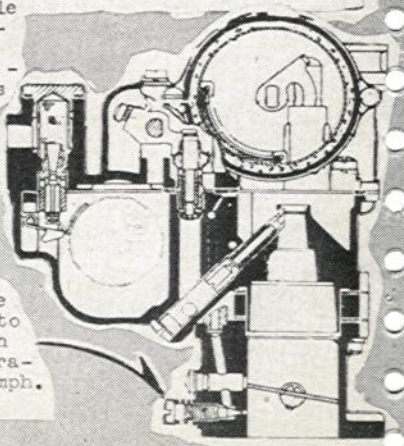
CARTER NO. 478S, 512S.

Float Level - Use Carter Tool No.T-109-154. Set float to 5/32". Gage both ends of float. If not parallel, twist float assembly slightly.



Adjust level by bending lip that contacts needle valve.

Idle Mixture Adjustment - Initial setting of idle mixture adjusting screw, 1/2 - 1-1/2 turns open.



Adjust screws, one at a time to give smooth engine operation at 6 mph. car speed.