

REPAIR and TUNE-UP MANUAL

Illustrated Service Procedure and Specifications for

1939 PACKARD

Six, 1700
Eight, 1700, 1701, 1701A, 1702

SPECIFICATIONS

Series 1700, 1701, 1701A, 1702

SIX, 1700

Wheelbase, 122"

SEDANS: Four Door Touring, Two Door Touring.

COUPES: Business Coupe, Convertible Coupe, Club Coupe.

1939 Models

EIGHT, 1701

Wheelbase, 127"

EIGHT, 1702

Wheelbase, 148"

SEDANS: Four Door Touring, Two Door Touring, 7 Passenger Sedan (148").

COUPES: Business Coupe, Convertible Coupe, Club Coupe.

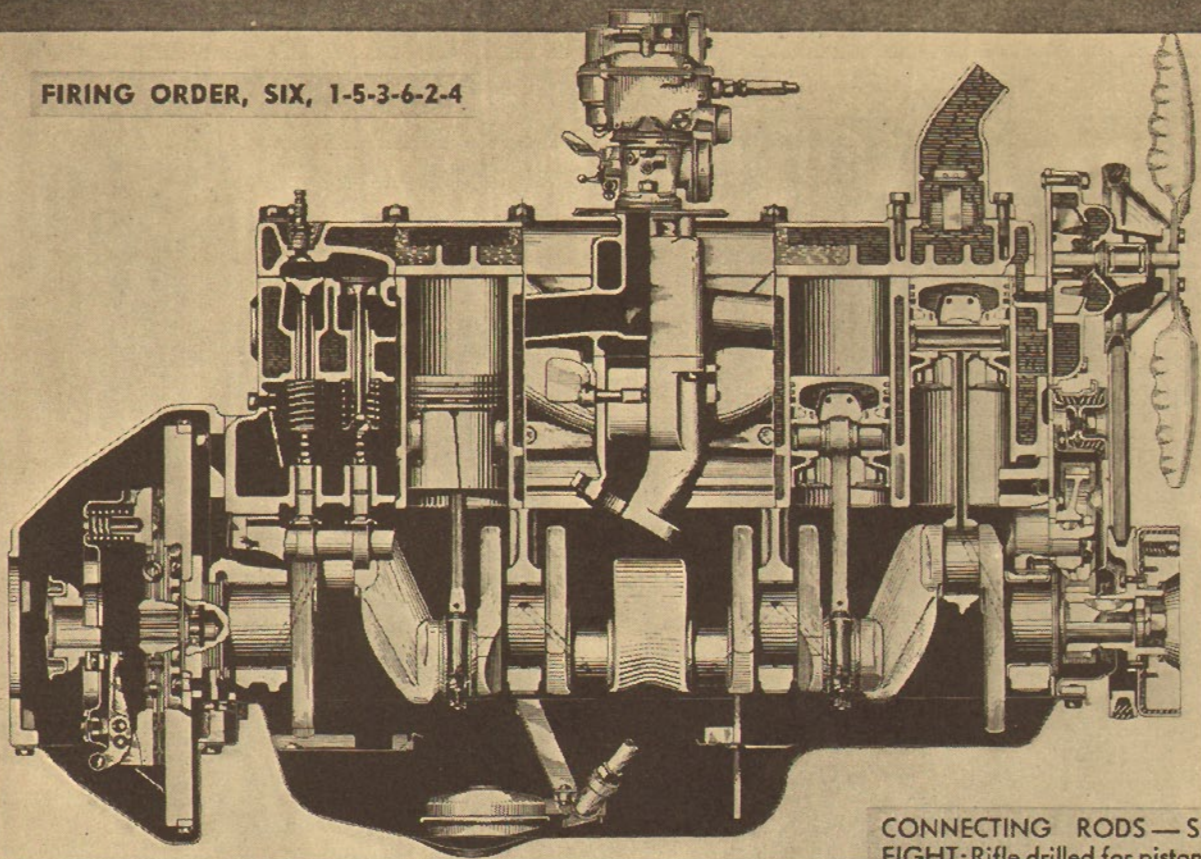
1939 Motors

SERIES 1700: Six cylinders. Bore, 3 $\frac{1}{2}$ "; stroke, 4 $\frac{1}{4}$ ". Piston displacement, 245.34 cu. in. Compression ratio, 6.39:1; optional, 6.85:1. H. P., A.M.A. rating, 29.4; brake, 100 at 3600.

SERIES 1701-2: Eight cylinders. Bore, 3 $\frac{1}{4}$ "; stroke, 4 $\frac{1}{4}$ ". Piston displacement, 286 cu. in. Compression ratios 6.41:1; optional, 6.85:1. H. P., A.M.A. rating, 33.8; brake, 120 at 3800.

PACKARD SIX, EIGHT, '39 — MOTOR

FIRING ORDER, SIX, 1-5-3-6-2-4



PISTONS—SIX AND EIGHT: Auto-thermic aluminum alloy, cam ground, strut type. Remove from top of block. Skirt clearance, .0005" to .001". Check with a .0015" feeler gauge 1/2" wide inserted between thrust side of piston and cylinder wall. Clearance correct when 12 to 18 lbs. pull required to withdraw feeler. Pistons in any one engine must not vary in weight more than 4 grams or 1/7 oz. Install with slot facing camshaft side of engine.

PISTON RINGS—SIX AND EIGHT: Two 1/8" compression and one 3/16" spring expander type oil ring. All located above piston ring. Gap clearance—Compression rings, .007" to .017"; oil ring, .007" to .015". Groove clearance—Compression rings, .0025" to .003"; oil ring, .0015".

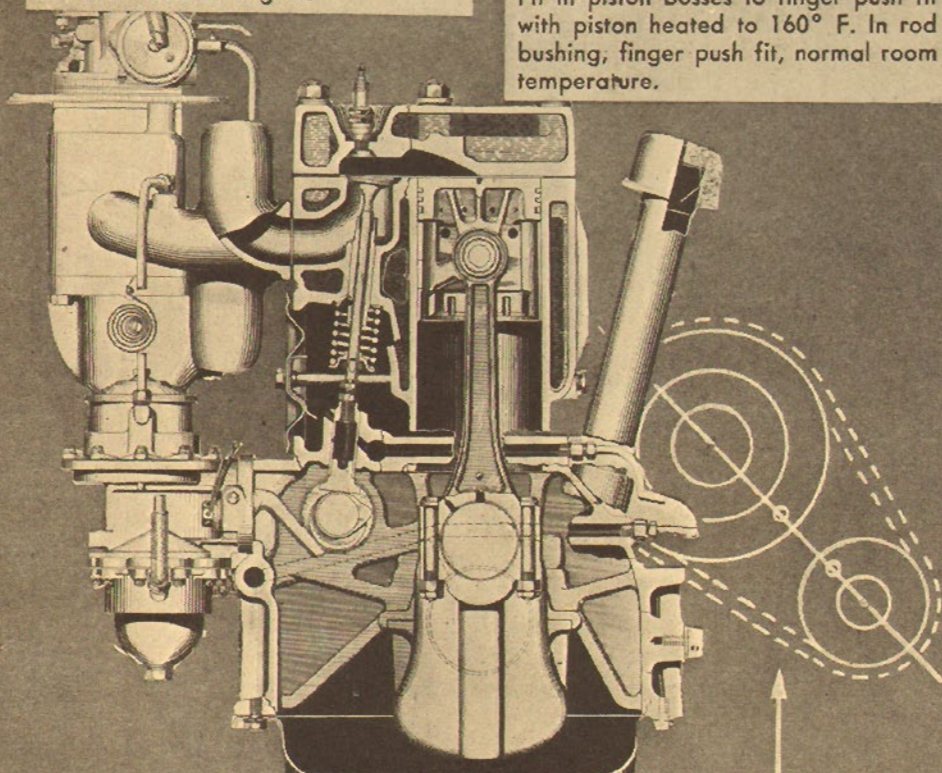
PISTON PINS—SIX AND EIGHT: Full floating type secured by snap rings. Fit in piston bosses to finger push fit with piston heated to 160° F. In rod bushing, finger push fit, normal room temperature.

CONNECTING RODS—SIX AND EIGHT: Rifle drilled for piston pin lubrication. Length, 7 11/16", center to center. Weight, 1 lb. 15.6 oz. Install with oil hole at crank pin end, facing camshaft side of engine. Rod bearing cap bolt nuts should be tightened 715 to 725 in. lbs. (72 lbs. scale pull measured at a point on wrench handle 10 in. from center of socket.) Nut secured by "Palnut." To install, spin "Palnut" on cap bolt until it touches regular nut. (Finger tight.) Then tighten "Palnut" 1/4 to 1/3 turn more.

CONNECTING ROD BEARINGS—SIX AND EIGHT: Steel back, babbitt lined, replaceable, precision shell type. Not adjustable. Radial clearance, .0005" to .0015". Side play, .004" to .010". Crank pin diameter, 2 3/32".

MAIN BEARINGS—SIX: Crankshaft supported on 4 steel back, babbitt lined, replaceable, precision shell type bearings. Not adjustable. Bearing radial clearance, .001" to .003". Thrust taken on front main bearing. End play, .003" to .008". Bearing cap nuts should be tightened 980 to 1020 in. lbs. (98 to 102 lbs. scale pull measured at a point on wrench handle 10" from center of socket.) Journal diameter, 2 3/4".

MAIN BEARINGS—EIGHT: Crankshaft supported on 5 steel back, babbitt lined, replaceable, precision shell type bearings. Not adjustable. Bearing radial clearance, .001" to .003". Thrust taken on center bearing. End play, .003" to .008". Bearing cap nuts should be tightened 980 to 1020 in. lbs. (82.3 to 85 lbs. scale pull, measured, at a point on wrench handle 12" from center of socket.) Journal diameter, 2 3/4".



SIX

TIMING CHAIN SETTING

MOTOR — PACKARD SIX, EIGHT, '39

VALVE SEATS—SIX AND EIGHT:
Seat angle, inlet, 30°; exhaust, 45°.

VALVE GUIDES — SIX AND EIGHT:
Counter bored at upper end to 3/8" inside and to a depth of 3/8". When installing, distance measured from top of guide to top edge of valve seat line should be 31/32". Valve stem to guide clearance—Inlet, .001" to .002"; exhaust, .003" to .004".

VALVE SPRINGS, SIX AND EIGHT:
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).

NOTE: Serrated washer at top end of valve spring is to prevent valve rotation. When installing, make sure top of spring and serrated washer are fully seated in counter-bored recess in cylinder block.

TAPPET RUNNING CLEARANCE — SIX AND EIGHT: With engine at normal operating temperature — Inlet, .007"; exhaust, .010". Tappet lock nuts should be tightened to 280-300 in. lbs. (35 to 37.5 lbs. pull on 8" wrench).

VALVE TIMING — SIX AND EIGHT: Adjust No. 1 inlet valve tappet to .0125" and exhaust, .015". Turning engine in normal direction, inlet should open 1° B.T.D.C. and exhaust close 5° A.T.D.C. Each graduation on flywheel represents 2° flywheel travel.

TIMING CHAIN — SIX AND EIGHT: Two sprocket non-adjustable type. When removing chain, both sprockets must be pulled together, requiring special pullers. For correct timing, install so that "O" marks are aligned together and fall under a line drawn between sprocket centers.

NOTE: On timing chain operations, remove both front fenders and radiator as one assembly.

FIRING ORDER,

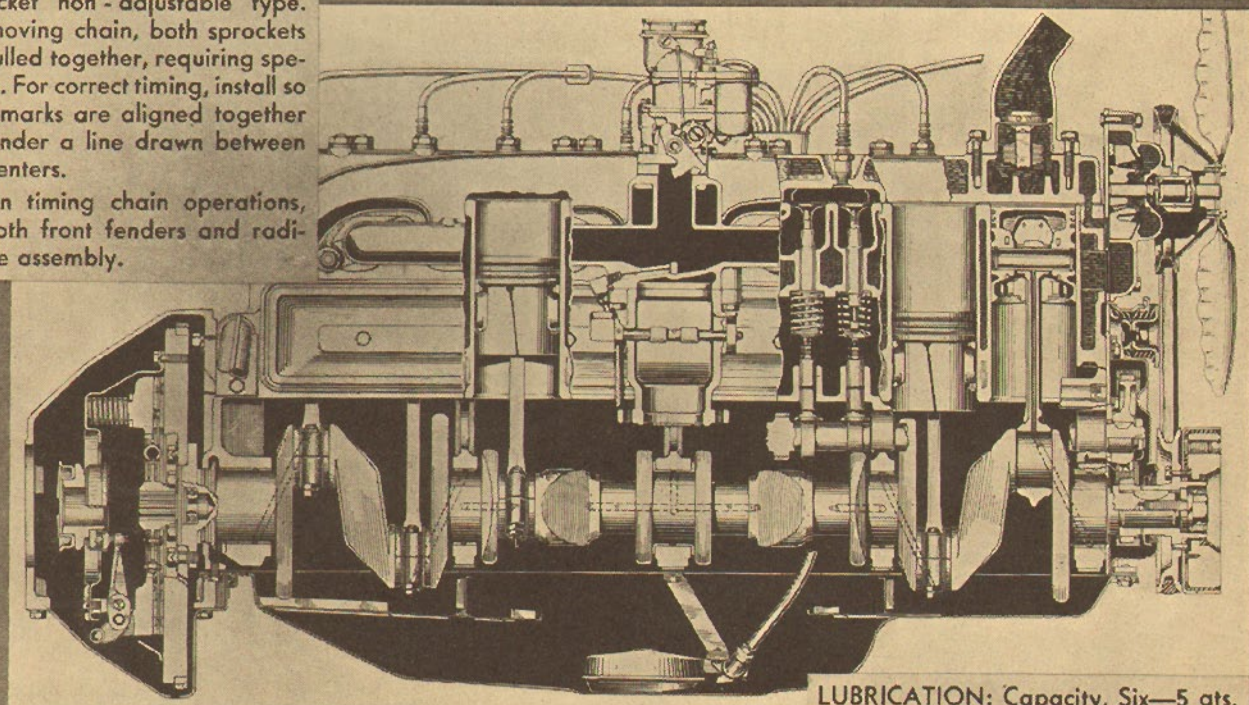
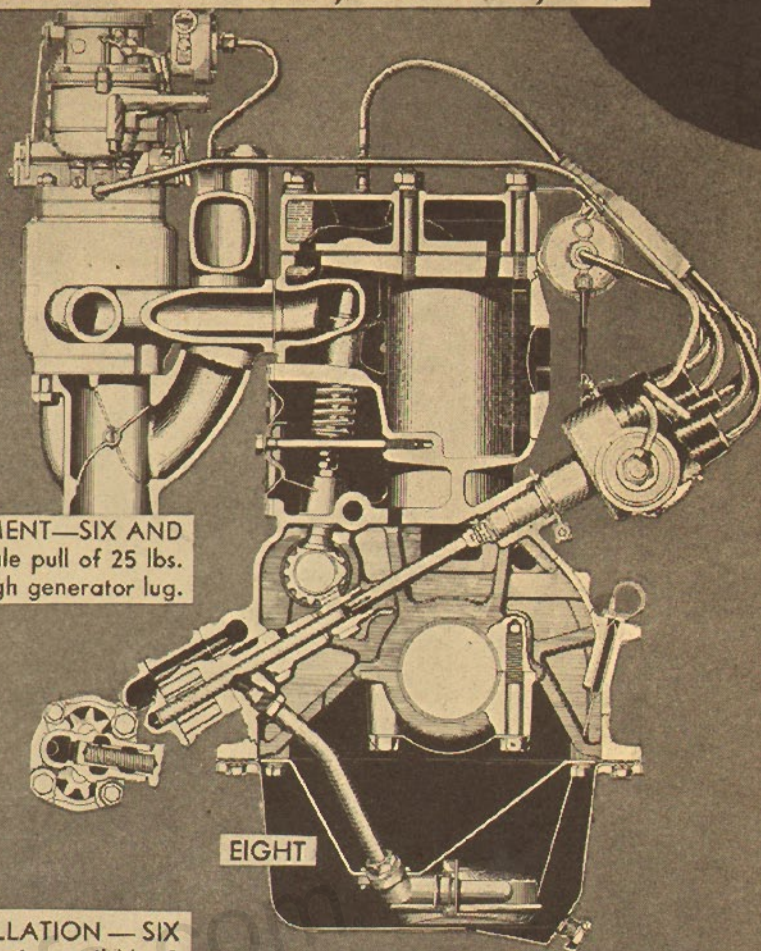
EIGHT,

1-6-2-5-8-3-7-4

FAN BELT ADJUSTMENT—SIX AND EIGHT: Adjust to scale pull of 25 lbs. at bolt passing through generator lug.

OIL PUMP INSTALLATION — SIX AND EIGHT: Turn engine until No. 1 piston reaches T. D. C. of compression stroke. Install oil pump with distributor driving slot parallel to center line of camshaft. Locate distributor in place with rotor in position for ignition at No. 1 plug. See "Ignition Timing."

CYLINDER HEAD—SIX AND EIGHT: Head nut tightening torque should not be less than 740 in. lbs. and not more than 760 in. lbs. (61.9 to 63.3 lbs. scale pull on wrench handle 12" from socket center.)



CAMSHAFT BEARINGS — SIX AND EIGHT: Steel back, babbitt lined precision type. Bearing clearance, .001" to .003". Camshaft end play, .002" to .004".

OIL PUMP, SIX AND EIGHT: Gear type. With oil and engine at normal operating temperature, pressure should be 35 lbs. at 30 M. P. H. Pressure relief valve located in pump. Not adjustable.

LUBRICATION: Capacity, Six—5 qts. Eight — 6 qts. Summer — Anticipated average temperature of 90° F. or above, S.A.E. 40. Normal temperature below, 90° F., S.A.E. 30. Winter—Temperature as low as 32° F. S.A.E. 30. As low as plus 10° F., No. 20W. As low as minus 10° F., No. 10W.

PACKARD SIX, EIGHT, '39 — TUNE-UP

IGNITION

IGNITION SETTING—SIX: Standard compression ratio (6.39:1), 6° to 7 1/2° B.T.D.C. Optional ratio (6.85:1), 5° to 6 1/2° B.T.D.C.

IGNITION SETTING—EIGHT: Standard and optional compression ratios (6.41:1, and 6.85:1) 8° to 9 1/2° B.T.D.C.

SPARK PLUG GAP—SIX AND EIGHT, .026" TO .030".

CONTACT POINT GAP—SIX, .018" TO .022" (.020" PREFERRED).

CONTACT POINT GAP—EIGHT, .012" TO .018" (.015" PREFERRED).

Breaker Arm Spring Tension, Six, 19 to 23 oz.

Breaker Arm Spring Tension, Eight, 18 to 20 oz.

IGNITION TIMING, SIX AND EIGHT: Turn engine until No. 1 piston is approaching T.D.C. of compression stroke. Stop when specified flywheel mark as given in "Ignition Setting" is in register with pointer at inspection hole in flywheel housing. With fuel compensator set at zero, locate distributor so points just break, rotor in position for ignition at No. 1 plug.

CARBURETOR — SIX: Chandler-Groves-AOC-25 (Code 119-5)

IDLE SPEED ADJUSTMENT — SIX: Made with engine at normal operating temperature. Initial setting for idle mixture adjusting screw, 1/2 to 1 1/2 turns off seat. To adjust, turn idle mixture adjusting screw right or left, within limits given until engine runs smoothly. Turning screw clockwise leans mixture.

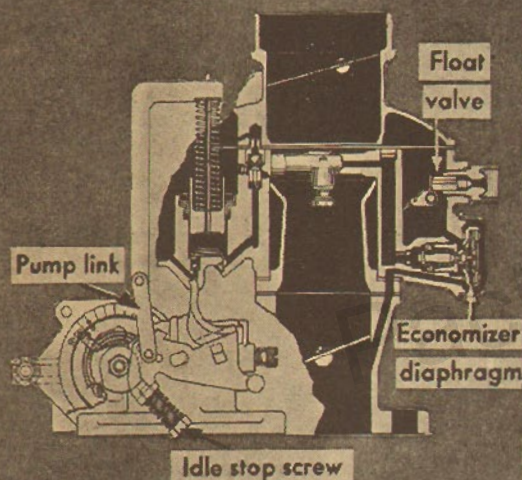
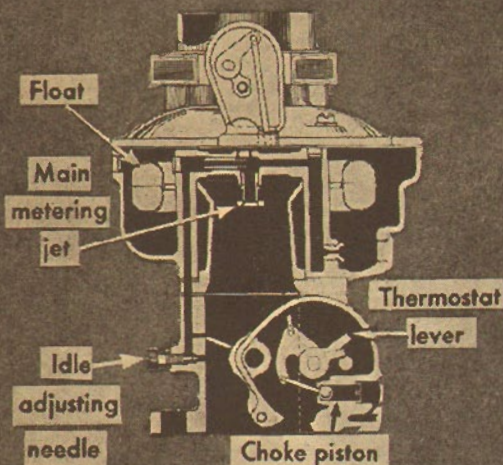
FUEL LEVEL — SIX: Recommended fuel level is 17/32" plus or minus 1/32" below machined top surface of float bowl with 3 lbs. pressure on fuel.

CHOKE ADJUSTMENT—SIX: If warm-up period indicates too rich or too lean a mixture, remove thermostat assembly and test operation of choke valve. When closed by hand, valve should

CARBURETOR — EIGHT: Stromberg —EE-16 (Code "10-33")

CHOKE ADJUSTMENT — EIGHT: If warm-up period indicates too rich or lean a mixture, remove thermostat assembly and test operation of choke valve. When closed by hand, valve should open freely without slightest lag. If action is not free, correct any bearing friction in movement of vacuum piston choke valve shaft by cleaning with alcohol or acetone. Do not oil any part of choke linkage. With further indication of too rich or lean mixture, during warm-up period, decrease or increase thermostat spring tension 1/2 graduations at a time after loosening cover screws. Satisfactory results should be obtained by changing adjustment not more than 2 graduations from original setting. If results are not obtained within these limits renew thermostat. Note — To determine if thermostat spring is defective, heat thermostat assembly to 90° F. in water and quickly place against housing. Turn thermostat cover until choke valve is just closed. In this position, marks on housing should be in alignment. Each graduation mark on cover is equal to 13° F. of temperature.

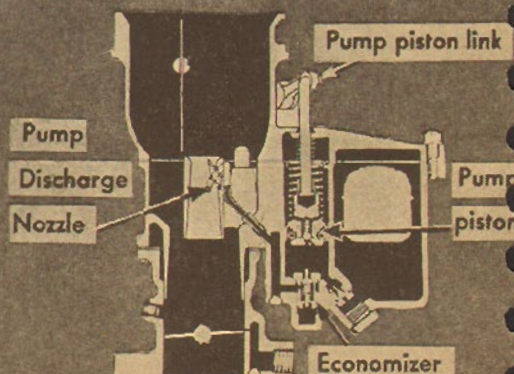
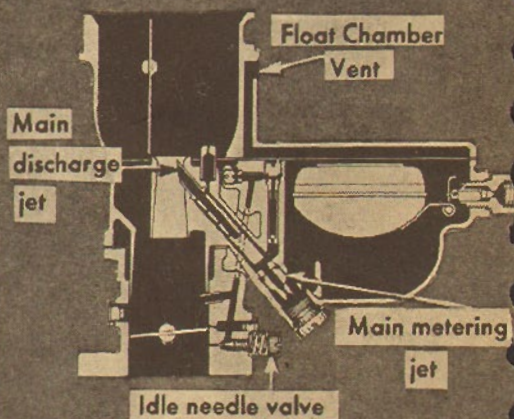
open freely without slightest lag. If action is sticky, remove choke valve shaft and clean with alcohol or crocus cloth. Make sure choke valve does not bind in air horn. Correct any bearing friction in movement of thermostat lever and vacuum piston. Do not oil any part of choke linkage. Adjustment of thermostat spring correct, when factory punch mark on plate aligns with similar mark on housing. Adjust by turning screw until marks are aligned. With further indications of too rich or lean mixture, remove thermostat and increase tension of spring 1/2 graduation at a time. If satisfactory adjustment cannot be obtained after changing adjustment limit of 3 graduations from original setting, replace thermostat unit.



IDLE SPEED ADJUSTMENT—EIGHT: With engine warm, adjust throttle lever stop screw to give a car speed of not less than 6 M.P.H. Adjust one idle mixture adjusting needle at a time until engine runs smoothly with both needles adjusted. Turning needle screw clockwise leans mixture.

FUEL LEVEL—EIGHT: Recommended fuel level is 15/32" plus or minus 1/32" below machined top surface of float bowl with 3 lbs. pressure on fuel.

FAST IDLE ADJUSTMENT — EIGHT: With engine warm and choke valve open, adjust fast idle adjusting screw until it just contacts last stop on fast idle cam, then back out screw 1/2 turn. Check adjustment with fast idle screw resting on last step of cam and enough finger pressure on choke valve to remove slack from linkage. In this position, distance measured from upper edge of choke valve to side wall of air horn should be from 17/32" to 9/16". Use a 35/64" drill as checking gauge. If distance not within specified limits, bend fast idle rod at upper angle.



PACKARD SIX, EIGHT, '39 — Clutch, Transmission

CLUTCH PEDAL ADJUSTMENT — SIX AND EIGHT: Pedal should have from 1 1/2" to 2" free travel measured between pedal and floor board. Adjust pedal rod to obtain this distance.

CLUTCH THROWOUT LEVERS — SIX AND EIGHT: Distance from face of clutch plate hub to rear face of throw-out lever, where it contacts throw-out bearing, should be 1 1/8".

Insert 3/16" pin here

Adjust linkage rods to length

GEAR SHIFT LINKAGE ADJUSTMENT — SIX AND EIGHT: Insert 3/16" rod or drill through aligning holes in both steering column lower levers. With transmission levers in neutral position, adjust linkage rods to proper length.

In high gear position, lug should clear cover not more than .010" and not less than .005". To adjust, bend lug.

OVERDRIVE DASH CONTROL ADJUSTMENT — SIX AND EIGHT: Improper adjustment of overdrive control cable may cause free-wheeling at all speeds and also prevent engagement of overdrive gear set. With 1/8" clearance between control knob and stop, adjust cable so that control lever on right side of overdrive housing is all the way to rear.

LUBRICATION — SIX AND EIGHT: Capacity—(Without Overdrive), 2 pts., Gear Oil. Summer—S. A. E. 140. Winter—S. A. E. 90. Extreme Cold—S. A. E. 80.

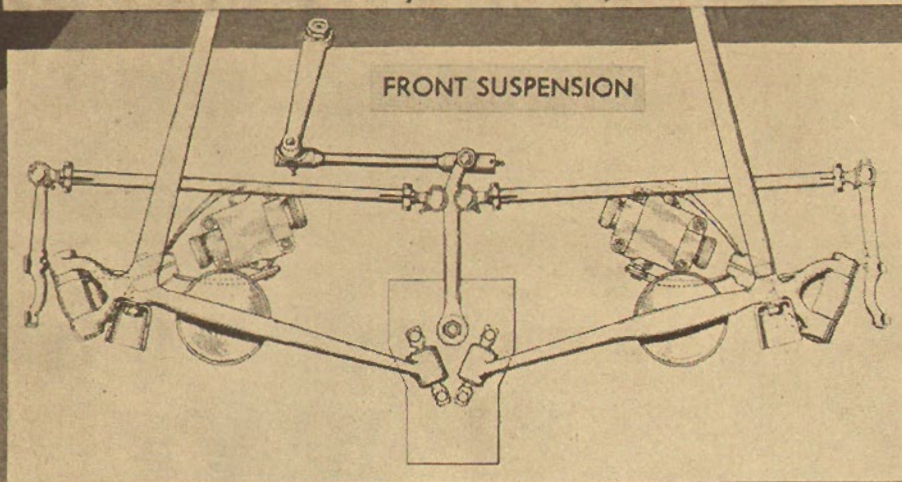
Capacity—(With Overdrive), 3 1/4 pts., Hypoid Lubricant. Summer and winter—S. A. E. 90. Change seasonally.

TRANSMISSION REMOVAL — SIX AND EIGHT: Disconnect ground wire and speedometer cable. Disconnect front universal joint and block-up propeller shaft against floor pan. Disconnect two shifter control rods, hand brake lever cable at equalizer; overdrive control cable, if so equipped, and rubber mount at rear of overdrive unit. Support rear end of engine with jack. Unbolt cross member from frame and flywheel housing lower cover. Disconnect clutch retractor spring. Disconnect fore and aft restraint rod and remove cap screws holding transmission unit to bellhousing. Removing transmission from engine.

OVERDRIVE UNIT

Bellville spring washer, controls bearing preload.

PACKARD SIX, EIGHT, '39 — Steering, Axles



SPECIFICATIONS
Caster Angle, Series 1700, 1701, 1701A—Min. 1° to max. 2° (1½° preferred).
Caster Angle, Series 1702—Min. -½° to +½° (0° preferred).
Camber, All Series—Min. ½° to 1¼°. (½° preferred).
Toe-In, All Series—1/32" to 1/16"
King Pin Angle, All Series—1° 54'

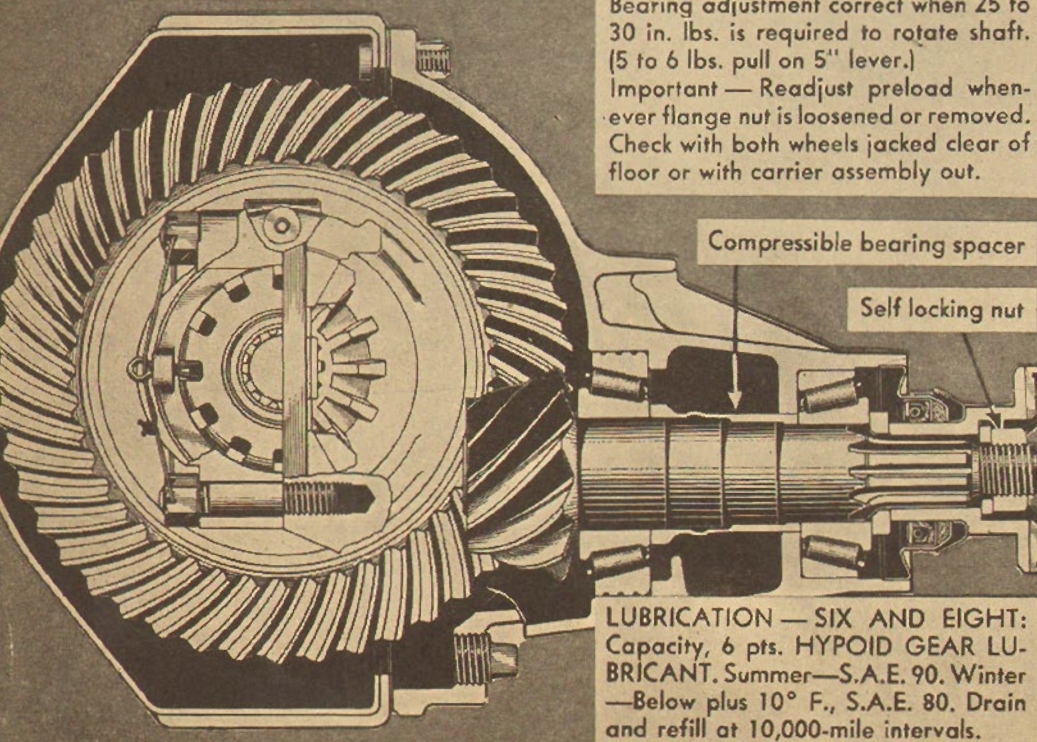
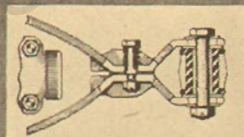
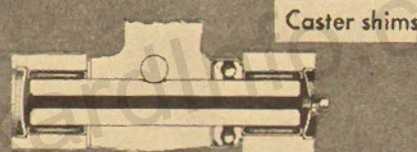
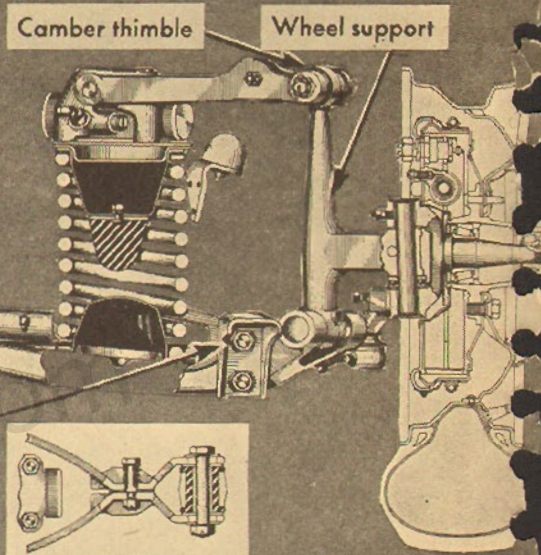
CASTER ANGLE ADJUSTMENT—SIX AND EIGHT: Obtained by installing or removing tapered shims between forward end of torque arm and support arm. Shims of 1/2° and 1° available. Torque arm front face must seat squarely against support arm without undue strain.

CAMBER ADJUSTMENT — SIX AND EIGHT: Obtained by installing offset pilot thimbles at outer end of shock absorber arm and wheel support bolt. Pilots of zero, 1/16", 1/8" and 3/16" offset are available. A change of 1/16" in amount of offset changes camber approximately 1/3°.

TOE-IN ADJUSTMENT — SIX AND EIGHT: Inflate tires to recommended pressure. Spot steering gear in mid-position, with front wheels straight ahead. Adjust by turning each tie rod tube equal amount until specified toe-in is secured. If one tie rod tube is longer than the other by more than 1/8", when wheels are in "straight-ahead" position, check for bent knuckle arm.

AXLE SHAFT END PLAY—SIX AND EIGHT: Recommended end play, .004" to .007" (total both sides). Adjusted by shim pack at axle bearing cap. If end play is in excess of .050" both bearings must be adjusted.

PINION SHAFT BEARING ADJUSTMENT—SIX AND EIGHT: Self-locking universal flange retaining nut should be tightened until pinion shaft bearing compressible spacer starts to buckle, providing required bearing preload. Bearing adjustment correct when 25 to 30 in. lbs. is required to rotate shaft. (5 to 6 lbs. pull on 5" lever.) Important — Readjust preload whenever flange nut is loosened or removed. Check with both wheels jacked clear of floor or with carrier assembly out.



DIFFERENTIAL BEARING ADJUSTMENT—SIX AND EIGHT: A preload of from .010" to .012" spread of bearing pedestals is recommended. To adjust, loosen each side bearing slightly, then back off right hand bearing adjusting nut until ring gear mount is loose in bearings. Make sure left hand bearing adjustment nut is backed out far enough to provide some lash between ring gear and pinion. Using a large outside caliper measure distance from machined surface of one bearing cap to the other, with a .010" feeler blade interposed between one bearing cap boss and caliper. Lock caliper at this setting. Tighten right hand bearing adjusting nut until "set" caliper, minus .010" feeler blade, will just slide over both bearing cap bosses, which will provide required .010" preload spread.

GEAR LASH—SIX AND EIGHT: Recommended pinion to ring gear lash should be from .003" to .005". If lash is more than .005", back off right hand bearing adjusting nut and tighten left hand nut exactly same amount, until lash is within specified limit. By turning each nut exactly same amount, previously adjusted spread will not be disturbed.

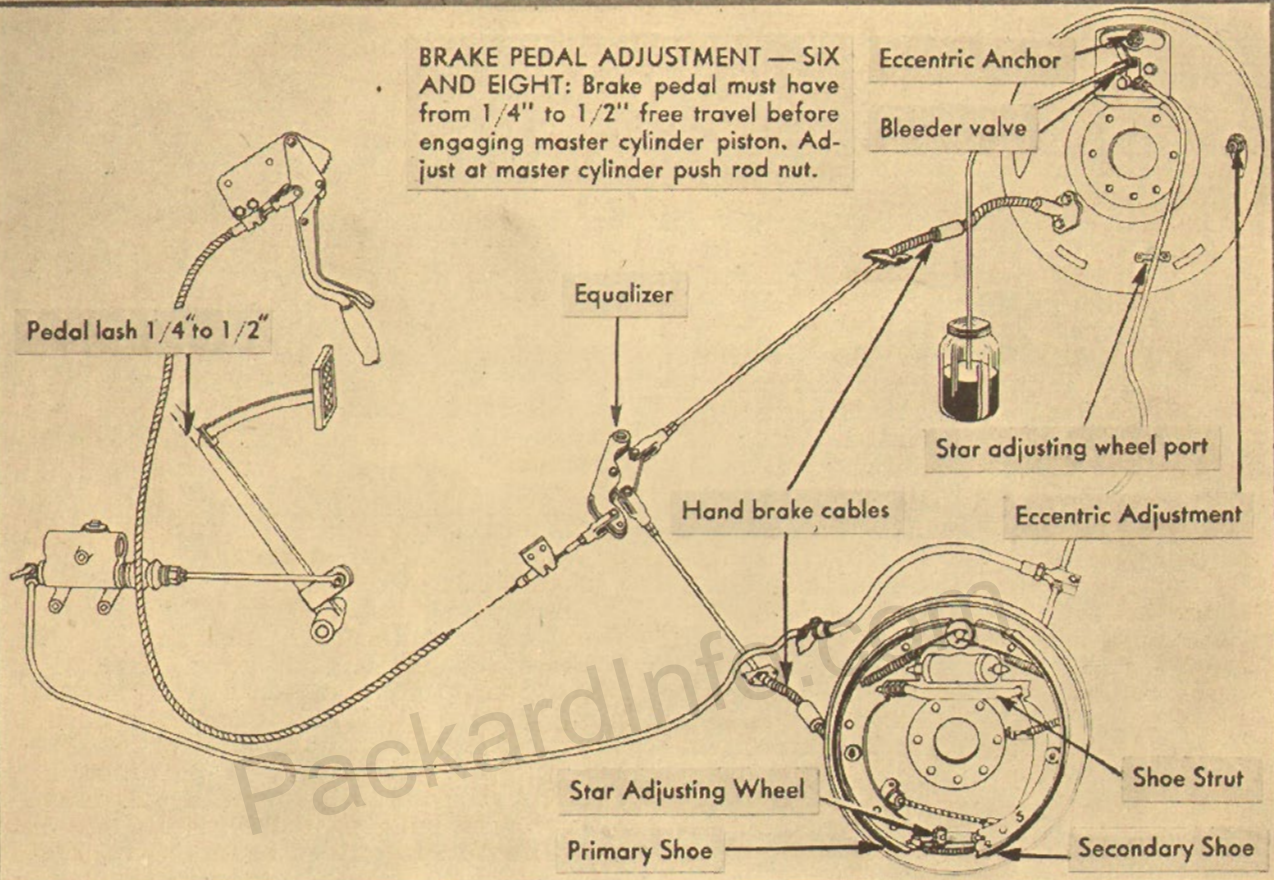
LUBRICATION — SIX AND EIGHT: Capacity, 6 pts. **HYPOID GEAR LUBRICANT.** Summer—S.A.E. 90. Winter—Below plus 10° F., S.A.E. 80. Drain and refill at 10,000-mile intervals.

BRAKES — PACKARD SIX, EIGHT, '39

ADJUSTMENT FOR LINING WEAR —SIX AND EIGHT: Raise all four wheels clear of floor. Disconnect hand brake cables at equalizer and place hand brake lever in first notch. Loosen eccentric adjustment lock nut and turn eccentric in direction of forward wheel rotation until secondary shoe contacts

drum and wheel can just be turned. Back off slowly on eccentric until wheel turns freely and tighten lock nut. Remove shoe adjusting port cover on brake backing plate. Turn star adjusting wheel (moving outer end of adjusting tool toward axle center) until wheel can just be turned with both hands. Re-

peat this operation at other three wheels. Adjust length of both hand brake pull cables to remove all slack, then re-connect cables, and release hand brake lever. Back off star adjusting wheel at all 4 wheels until wheels just turn freely. Replace adjusting port covers and test car.

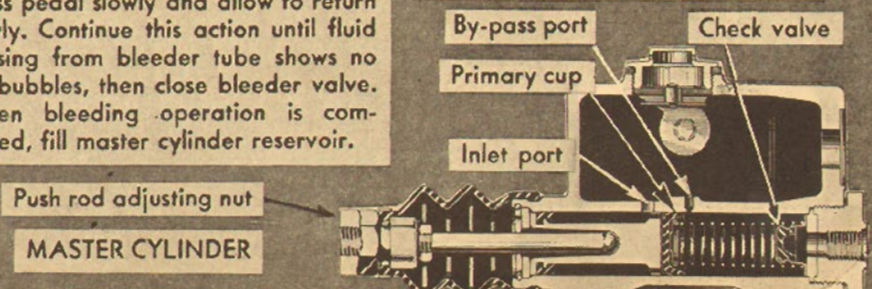
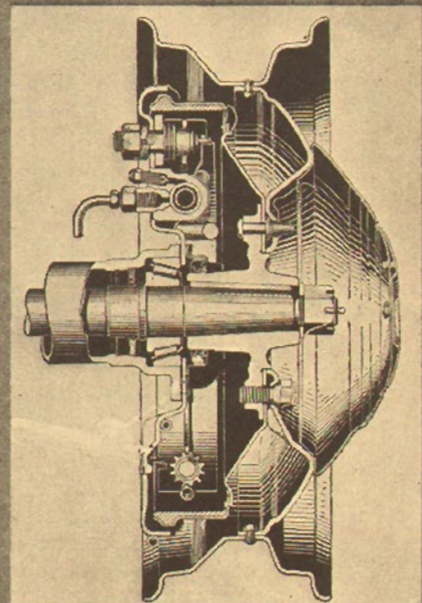


BRAKE PEDAL ADJUSTMENT — SIX AND EIGHT: Brake pedal must have from 1/4" to 1/2" free travel before engaging master cylinder piston. Adjust at master cylinder push rod nut.

MAJOR ADJUSTMENT — SIX AND EIGHT: Necessary when shoes are re-lined or satisfactory wear adjustment cannot be obtained. Raise all four wheels clear of floor and remove wheels. Disconnect hand brake cables at equalizer and place hand brake lever in first notch. Remove inspection hole cover on drum and insert a .010" feeler blade between lining and drum at lower end of secondary shoe. Loosen eccentric adjustment lock nut and turn eccentric in direction of forward wheel rotation until feeler blade is firmly gripped. Hold eccentric position and tighten lock nut. Loosen anchor lock nut one turn. Insert feeler blade between lining and drum at upper end of secondary shoe. If blade is loose, turn anchor in direction of forward wheel rotation until feeler is firmly gripped and tighten lock nut. Recheck clearance at both ends of shoe. Remove shoe adjusting port cover on brake backing plate. Turn star adjusting wheel (moving outer end of adjusting tool toward axle center) until drum can just be turned with both hands. Repeat this operation at other three drums. Adjust length of both hand brake pull cables to remove all slack, then re-connect cables and release hand brake

lever. Back off star adjusting wheel at all 4 drums until drums just turn freely. Replace inspection hole and adjusting port hole covers. Install wheels and test car.

BLEEDING SYSTEM — SIX AND EIGHT: Brake system requires bleeding when lines are disconnected or whenever air enters system. If main line is disconnected, system must be bled at all four wheels. When disconnected at one wheel, that wheel only must be bled. Be sure to fill master cylinder reservoir and keep it at least half full during bleeding operations. To bleed, remove screw from bleeder connection and attach bleeder tube, allowing free end to hang in clean glass jar and be submerged in brake fluid. Open bleeder 3/4 turn and depress pedal slowly and allow to return slowly. Continue this action until fluid passing from bleeder tube shows no air bubbles, then close bleeder valve. When bleeding operation is completed, fill master cylinder reservoir.



PACKARD, '39

Cylinder Head Identification: When setting ignition timing it is important that the compression ratio be known. Standard and optional ratio cast iron heads may be identified by numbers cast or stamped on top of head approximately 3/4" from front. Six--Standard heads bear No. 324285; optional head, No. 335664 H.C. Eight--Standard head, No. 330812; optional head, 341344.

Camshaft, Tappets and Oil Pump Gears: Engine serial numbers having suffix "A" are fitted with cast alloy camshafts. Engines with "B" suffix have forged steel camshafts. Steel valve tappets should never be used on a forged steel camshaft; although either steel or chilled iron tappets will operate satisfactorily on a cast alloy shaft. Oil pump drive gears should always be of same material as that of camshaft. It is recommended that engine number be given when securing any of the above mentioned parts.

Connecting Rods and Bearing Shells, Six and Eight: Beginning with 17th Series engines, above serial No. B-4607, the outside diameter of bearing shells and bore of lower end of connecting rods is .020" larger than preceding models. New thick walled bearing shells must be used in new type rods only. New type rods may be identified by No. 330613 located near lower end of rod forging. Thick walled bearing shells identified by inked star on each shell.

Shutter Control Rod Adjustment: With engine cooling system at normal room temperature, and thermostat fully closed, pull back on shutter control rod until shutter blades are closed. In this position adjust control rod nuts to remove all slack, then tighten adjusting nut one turn farther to preload linkage.

Water Pumps--Six and Eight: Packless type, fitted with spring loaded synthetic rubber seal and composition thrust washer which bears against ground face of pump body. Impeller shaft mounted on double row ball bearings. Early production pump--Shaft bearings lubricated by wick oiler. (S.A.E. 30 engine oil every 2000 miles.) Late production pump--Shaft bearings permanently lubricated at time of assembly.

Throttle Guard Adjustment: Cars equipped with overdrive provided with throttle guard to prevent engine stalling when in free wheeling range below 20 M.P.H. When adjusting, make sure engine is running smoothly and that throttle stop screw is adjusted to give 5 M.P.H. car speed on level road. With free wheeling control knob pushed all way "IN", pull car down to 4 M.P.H. slowly with the brakes. When 4 M.P.H. speed is reached throttle guard should "cut in" and bring car speed up to 9 M.P.H., then immediately "kickout". If

"kickout" occurs above 9 M.P.H., increase gap between throttle guard diaphragm rod and throttle lever. If "kickout" occurs below 9 M.P.H., decrease gap. If "cut-in" occurs above 4 M.P.H., decrease diaphragm spring tension by turning adjusting screw on outer end of diaphragm in counter-clockwise direction. If "cut-in" occurs below 4 M.P.H., increase spring tension slightly by turning screw clockwise.

Overdrive Kick-Down Switch Adjustment: The over-travel of accelerator pedal operates overdrive kick-down switch which energizes overdrive solenoid. When carburetor throttle valve is just at wide open position there should be .046" gap between adjustable tappet screw and end of switch plunger. Accelerator linkage should have enough over-travel to close switch before foot pedal bottoms floor board. Be sure switch plunger operates freely.

Gear Shift Linkage Friction Drag: Gear shift bell cranks are provided with oil impregnated bushings riding on a zinc plated shaft and should not be lubricated. If bell crank bearings are lubricated their natural dampening characteristics will be reduced and may cause excessive vibration at gear shift lever. With all rods disconnected, friction drag should be 2 to 4 lbs. on spring scale hooked in top hole of long lever. If friction drag is less than 2 lbs., wash all oil and grease from bearings with gasoline, then add a washer at end of shaft.

Overdrive Cut-In Adjustment--Six and Eight: Initial speed cut-in of centrifugal clutch assembly, 25 to 30 M.P.H., road speed. If cut-in speed occurs above or below this range, check to be sure lubricant is of proper viscosity and type before attempting any adjustment. To adjust, jack up rear wheels clear of floor. Remove plug on top of overdrive unit and rotate propeller shaft until clutch sleeve window aligns with head of pawl adjusting screw. To prevent confusion, one pawl screw is machined with single screwdriver slot, and other machined with two. Turning adjusting screw clockwise raises cut-in speed; counter-clockwise reduces cut-in speed. After adjusting first screw, rotate propeller shaft until clutch sleeve window aligns with head of second screw and turn exactly same amount as first screw. One turn of adjusting screw has a varying value in terms of M.P.H. change in cut-in speed. If unit cuts-in at 40 M.P.H., one turn counter-clockwise will lower cut-in speed 3 M.P.H.; at 32 M.P.H., one turn will lower speed approximately 1 mile.

CAUTION--Pawl adjusting screw must not be backed out to point where screw head extends beyond rim of clutch core.