

ENGINE NUMBER:—First number ('34) 30,000, ('35) 55,000. Stamped on left side of cylinder block opposite #1 cylinder ('34), #8 cylinder ('35).

ENGINE:—Own. Eight cylinder, In line, 'L' head type. Bore—3". Stroke—4½".

Piston Displacement—254.47 cubic inches.

Rated Horsepower—28.8.

Developed Horsepower, Compression Ratio & Pressures—To check pressures, remove spark plugs, crank engine with wide open throttle:

Model	Ratio	Horsepower	Press. @ 150 R.P.M.
LL	5.75-1	108 @ 3200	80 lbs.
LT	6.25-1	113 @ 3800	116 lbs.
LL, LT	7.0-1	121 @ 4000	128 lbs.
HT, HU, HHU	6.0-1	113 @ 3800	110 lbs.
HT, HU, HHU	7.0-1	124 @ 4000	128 lbs.

NOTE—6.25-1 and 7.0-1 heads are aluminum composite. High octane fuel must be used with these heads.

Vacuum Reading—Gauge should show steady reading of 18-20" with engine idling.

Pistons:—Own Lo-Ex, silicon-aluminum alloy, 'T' slot, cam ground type. Use finished replacement pistons when reconditioning engine. See Reconditioning paragraph.

Weight—9.6 ozs. ('34), 10.88 ozs. ('35) stripped; 14.5 ozs. ('34), 12.99 ozs. ('35) with rings and pin.

Length—3 3/16".

Removal—Pistons and rods removed from above. **Clearance**—Top .016". Bottom .0005" ('34), .002" ('35).

NOTE—1935 pistons may be installed in 1934 engines as complete sets only.

Reconditioning Cylinders—Size of original bore indicated by letter stamped on lower edge of valve chamber opposite cylinder as follows: A-3.000", B-3.0005", C-3.001", D-3.0015", E-3.002", AO-3.010", BO-3.0105", CO-3.001", DO-3.0115", EO-3.012". Recondition cylinder to standard oversize for which replacement piston and rings are available (see piston and ring data below).

Replacement Pistons—Standard and oversize pistons marked by letter on head available for cylinder bores of size indicated: 'B'-3.000 & 3.0005", 'D'-3.001 & 3.0015", 'F'-3.002 & 3.0025", 'J'-3.004", 'L'-3.005", 'BO'-3.010 & 3.0105", 'DO'-3.011 & 3.0115", 'FO'-3.012 & 3.0125", 'LO'-3.015", 'BB'-3.020", 'DD'-3.021, 'FF'-3.022". All pistons installed in engine must be of same weight as indicated by mark on head.

Fitting New Pistons—Use feeler stock .0015-.002" thick to check clearance. It should be possible to withdraw feeler from between piston and cylinder bore on side opposite slot when grasped between thumb and forefinger with 3-4 lbs. pull. **Installing Pistons**—Slot should be to left or away from valves.

Piston Rings:—Four rings per pistons, two compression, two oil control rings ('34—all rings above pin, '35—lower oil control ring below pin). Lower ring groove drilled radially with oil drain holes. Rings are positioned by pin in piston ring groove.

1934 Piston Rings

Ring	Width	End Gap	Wall Thickness
Comp. (all)	3/32"	.006-.016"	.123"
Oil Cont. (upper)	1/8"	.006-.016"	.128"
Oil Cont. (lower)	3/16"	.006-.016"	.128"

1935 Piston Rings

Ring	Width	End Gap	Wall Thickness
Comp.	.093"	.006-.016"	.123"
Oil Cont.	.187"	.006-.016"	.128"

NOTE—Use standard or oversize rings of size indicated for replacement pistons (see Replacement

Piston section above); 3.000"—B, D, F, J; 3.003"—J; 3.005"—L; 3.010"—BO, DO, FO; 3.015"—LO; 3.020"—BB, DD, FF. If rings are filed, clearance at pin must be kept uniform with end gap.

Piston Pin:—Diameter 3/4". Length 2 7/16". Pin floats in piston and rod. Held by retaining rings. Pins furnished standard, .002", .005", .010" oversize. **Pin Fit in Piston**—Snug fit with piston at 200°F. **Clearance in Rod Bushing**—.0003".

Connecting Rod:—Weight 28.96 ozs. Length 8 3/16". **Lower Bearing**—Spun-babbitt lined type. **Crankpin Journal Diameter**—1 15/16".

Clearance—.001". Sideplay, .006-.010".

Adjustment—Laminated shims. Do not file caps. **Installing Rods**—Connecting rod lower bearings offset. Install rods with right hand offset (widest half of bearing toward rear) in cylinders #1, 3, 5, 7 and rods with left hand offset (widest half toward front) in cylinders #2, 4, 6, 8.

Crankshaft:—Five bearings. Eight counterweights. **Journal Diameters**—#1, 2 9/32"; #2, 2 5/16"; #3, 2 11/32"; #4, 2 5/8"; #5, 2 13/32". **Bearing Type**—Removable bronze-backed, babbitt-lined. **Clearance**—.001".

Adjustment—Laminated shims. Do not file caps. **End Thrust**—Taken by #3 center bearing. Endplay, .006-.012".

Camshaft:—Five bearing. Gear driven. **Timing Gears**—Crankshaft gear Steel, Camshaft gear GE Bakelite.

End Thrust—Taken by spring-loaded plunger in camshaft gear and thrust plate on gear cover. **Camshaft Setting**—Gears are marked. Mesh marked tooth on crankshaft gear between two marked teeth on camshaft gear.

Valves:—Head Diameter Stem Diameter Length Intake 1 1/2" 5/16" 5 3/32" Exhaust 1 3/8" 5/16" 5 3/32"

Seat Angle Lift Stem Clearance Intake 45° 11/32"0015-.003" Exhaust 45° 11/32"003-.005"

Tappet Clearance—.006" Int., .008" Exh. engine hot. **Valve Springs**—Cages installed on all springs at bottom. Install with open side toward cylinder.

Spring Pressure Length Valve Closed 44 lbs. 2" Valve Open 102 lbs. 1 21/32"

Valve Timing—See Camshaft Setting (above). **Intake Valves**—Open 10°40' BTDC. Close 60° ALDC. **Exhaust Valves**—Open 50° BLDC. Close 18°44' ATDC. **To Check Valve Timing**—Set tappet clearance #1 intake valve at .010". This valve should open with piston 10°40' or .0494" before top dead center when a point in the flywheel approximately 3.97 teeth before the dead center mark 'UDC.1-8' lines up with the indicator on the housing.

Motor Gauge—Weidenhoff Adapter #114, Rod #44.

Lubrication:—Duo-flow (splash) system with positive pump feed to oil troughs and timing gears. Oscillating plunger type oil pump mounted on right side of crankcase. **Normal Oil Pressure**—3 lbs.

Oil Pressure Relief Valve—Operates at 3 lbs. Located on right hand side of crankcase at rear (combined with oil pressure signal light switch). See Signal Lights in Equipment Section. No adjustment required.

Capacity and Oil—7 qts. (refill), 9 qts. (dry). Use

SAE. #30 (above 40°F.), #20-W (40° to 0°F.), #10-W (0° to -15°F.).

CLUTCH:—Own make. Single plate type operating in oil. No adjustment for wear required.

See article in Clutch Section for data.

Clutch Pedal Adjustment—Free movement of clutch pedal must be 1½". To adjust, loosen lock nut on clutch pedal connecting link, remove clevis pin at lower end of link, turn clevis until free movement of pedal is 1½", replace pin and tighten lock nut. See adjustment for automatic clutch linkage below.

Automatic Clutch Control—On cars with automatic clutch, check control linkage whenever clutch pedal is adjusted. Depress accelerator pedal, pull back on clutch control unit cable (left side of engine), check clearance between back of slot in cable yoke and clevis pin which attaches it to operating lever. This clearance should be 7/8".

Clutch Lubrication—Oil in clutch should be drained and replaced at 5000-15000 mile intervals. To drain oil, turn flywheel until filler plug is visible in inspection hole (left hand front face of flywheel above starter), remove plug, turn flywheel until star stamped on flywheel face is visible in inspection hole, allow at least 1 minute in this position for draining, turn flywheel until filler plug is visible, insert 1/3 pint Hudsonite Clutch Compound, replace filler plug.

Clutch Facings—Driven plate is 6 3/8" I.D., 9 3/4" O.D., .203" thick. Facing consists of 108 cork inserts mounted on driven plate.

STEERING:—**Front Suspension**—Conventional 'I' beam section front axle with Elliott type ends and semi-elliptic springs, or Axleflex articulated axle. Data and adjustment for both types are the same.

Kingpin Inclination—7° crosswise. **Caster**—2½-3½° ('34), 4-4½° ('35). Adjusted by inserting wedge shims between springs and spring pad on axle.

Camber—1-1½°. No adjustment. Axle may be bent cold to correct camber.

Toe In—1/8" measured 10" from ground. Adjust by loosening tie rod end clamp bolts and rotating tie rod.

NOTE—End thrust on kingpin is taken by five ball bearings in plug above kingpin. Bearing lower race is machined directly in kingpin end.

Steering Gear:—Gemmer Worm-and-Sector type. See article in Steering Section for adjustments.

BRAKES:—**Service**—Bendix mechanical, Duo-Servo, Single anchor type. Hand lever applies all service brakes. See article in Brake Section for complete adjustment procedure.

NOTE—See Hudson GH (previous article) for Service Brake specifications on Hudson 8 Models LT, LTS, HT and HU. Specifications below apply to Models LL and HHU only.

Drum Diameter—11". **Lining**—Moulded type. Width 1 3/4". Thickness 3/16". Length per wheel 23 13/16".

Clearance—.014" heel, .008" toe, for each shoe.

Hand Brake Adjustment:—See Service Brakes.

AUTOMATIC SHIFT: (ELECTRIC HAND):—Bendix electro-pneumatic type optional on Models HT, HU, standard on Model HHU. See article in Electrical Equipment Section for complete description, wiring diagram and trouble shooting on 1935 Type Electric Hand.