

HUDSON

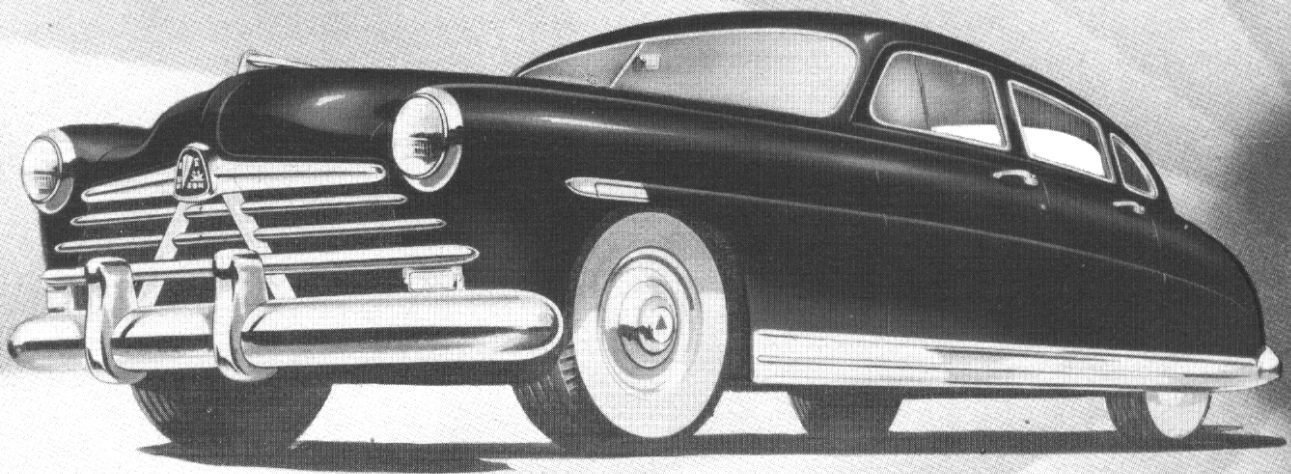
Service Merchandiser

VOL. 1 No. 6

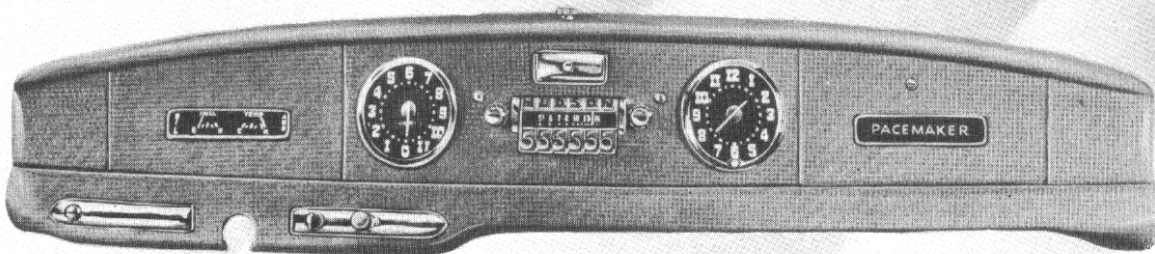


DECEMBER 1949

The Invader Of The Lower Priced Field



HUDSON Pacemaker



HUDSON MOTOR CAR COMPANY.. DETROIT 14, MICHIGAN



GREETINGS

Comes the time each year when we who have worked together survey the past and look forward to the future with that joyous feeling that goes with the Holiday Season.

Having built well in Product, Organization and Planning, we may look forward to the coming year with the confidence that each and every individual is fully prepared to carry out their part of the Hudson Service Program for the coming year 1950.

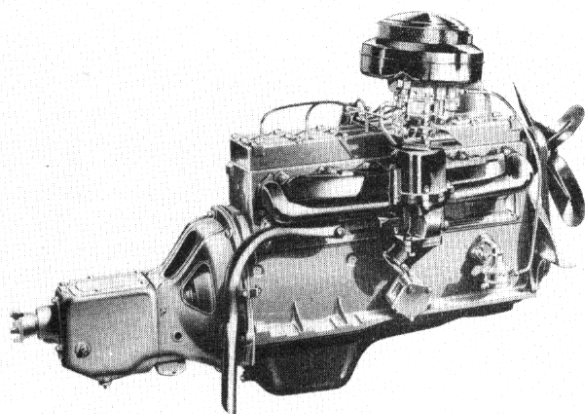
Deeply appreciative of your splendid cooperation, and the excellent work you have done, we of the Factory Service Department extend to all Distributor and Dealer Organization personnel,

Our Sincere Holiday Greetings and
Good Wishes
for the
New Year



DETAILS OF THE NEW PACEMAKER

The New Hudson Pacemaker of a 119-inch wheelbase is powered with a Hudson-built engine differing somewhat in design from any of its predecessors, yet retaining these same sturdy features that have heretofore distinguished Hudson-built engines. The new Pacemaker begins with car number 500101—both car and engine numbers locations remain unchanged.



ENGINE

The bore and stroke is $3\frac{9}{16}$ " x $3\frac{7}{8}$ ". The displacement is 232 cu. in., H.P. rating is 30.4 and develops 112 H.P. at 4,000 R.P.M., with a standard cast iron head of 6.7:1 compression ratio. An aluminum head of 7.2:1 compression is optional with new car order at a slight additional charge. All rotating and reciprocating parts are given a careful unit balance as heretofore. When the engine is completely assembled it is given an accurate balance test on a special balancing machine. Maximum torque is 175 ft. lbs. at 1600 R.P.M.

CRANKCASE, CRANKSHAFT AND CYLINDER HEAD

The bare cylinder and crankcase assembly is identical to that of the 491 engine. As the crankshaft throws determine the stroke, an entirely new four-bearing, fully compensated crankshaft is used. Due to the change in stroke the combustion chambers have been modified in shape and size to effect the desired compression ratio and performance. This cylinder head cannot be used on any previous six cylinder engines.

CONNECTING RODS AND PISTONS

Pistons are of aluminum alloy T-slot design with 2 compression and 2 oil rings, pinned as in keeping with Hudson practice. The pistons have been redesigned to conform with the short stroke engine. The connecting rods, bearing size and piston pin diameter are identical to that of the 491 engine. Connecting rods and pistons assembly must be removed or installed through top of cylinders.

CLUTCH AND FLYWHEEL

Engine timing is by hardened steel, silent chain operating over cam and crankshaft sprockets. Valve mechanism and camshaft remain unchanged. The flywheel, designed for use with the 9-inch clutch, carries the driving lugs that engage the pressure plate. The clutch cover plate has been strengthened by an increase in metal gauge. There are 6 inner and 9 outer engaging springs.

Cars that are equipped with Drive-master will have a 10-inch clutch which has 3 inner and 12 outer springs, the driving lugs are fitted in the clutch cover instead of the flywheel. The clutch cross shaft and release linkage has been modified to improve operation. The intake manifold has been redesigned to accommodate the single throat downdraft carburetor. Water pump, oil pump, engine mounts, vibration dampener and transmission remain unchanged from that of 491 and 492.

FRONT FRAME

Shortening the wheelbase was accomplished by reducing the length of the front frame, re-positioning number three crossmember and moving the engine to the rear. This also involves a shorter front section of the propeller shaft, the rear section remaining unchanged.

REAR AXLE, BRAKES AND SPRINGS

An additional rear axle ratio of 3.82 has been added, optional with HDM—and without Overdrive;—the rear axle design has not been changed. Two changes have been made in brakes; width of front lining is $1\frac{3}{4}$ "—same as the rear, and front cylinder is $1\frac{1}{16}$ " diameter with $1\frac{5}{16}$ " diameter cylinder at rear. The hand brake has been re-designed to improve operation and mounted slightly farther to the rear for driver convenience. All body types except convertible will be fitted with a standard (light scale) rear spring—with or without covers, of 950 lb. load and 120 lb. rate. The convertible rear spring is of 1,000 lb. load and 120 lb. rate. Heavy scale springs of 975 lb. load and 140 lb. rate are optional.

DISTRIBUTOR AND SPARK PLUGS

The ignition distributor is Auto-Lite model I.A.T. 4002 clockwise rotation, driven from the oil pump. The mechanical advance is 10 degrees maximum at the distributor and the vacuum range is 5 degrees maximum. Cam dwell is 38 degrees and point gap is .020. Ignition timing is at top dead center. A 14 mm. Champion J-7 spark plug, having a $\frac{3}{8}$ " thread length, is standard with the cast iron cylinder head and the H-10 of $\frac{7}{16}$ " thread length with the aluminum head. The recommended spark gap is .032.

IGNITION COIL

The ignition coil is an Auto-Lite CR 6012-A. This coil differs from that heretofore used in that it develops a higher secondary voltage and the high tension tower is designed to receive a "snap-in" type instead of the "screw type" high tension terminal; this also affects a corresponding change in the wire terminal.

GENERATOR

The generator is an Auto-Lite G.D.Z. 6001-B. This is a special shunt wound type generator capable of

delivering 35 amperes hot cutting in at approximately 11 to 12 miles per hour and reaching maximum output at 17 to 18 M.P.H. The maximum output is controlled by a current regulator which takes the place of a third brush. The generator is driven by adjustable "V" belt at 1.75 engine speed. The generator characteristic of delivering current as required and cutting in at low car speed with a sharp rise to maximum, makes for an ideal provision to take care of all auxiliary electric equipment yet maintain a fully charged battery.

HORN

A single trumpet type horn is standard. Operation is by a magnetic motor, consisting of a field coil, armature and a set of breaker points which interrupt the flow of current in the coil, causing the diaphragm to vibrate, producing the sound.

BATTERY

The battery is a 6 volt National model OE-2L-100; 51 plate 100 ampere hour. Positive is grounded. Auto-Lite Starter Motor Model MZ-4159 with solenoid mounted on frame with Bendix screw shift pinion is standard.

CARBURETOR AND FUEL PUMP

The Carter W.A.1 749-S single type downdraft carburetor is standard. The idle adjustment setting is $\frac{1}{2}$ to $1\frac{1}{2}$ turns out from a seated position. Turning adjustment out or to the left enriches the mixture. The float level is $\frac{1}{2}$ inch from the lower edge of float seam (at free end) to tip on lower edge of float chamber when needle is seated. The fuel pump is a Carter Model M-729-SZ with AC combination fuel-vacuum as optional. Nominal gas pressure at carburetor is 4 lbs.

ENGINE LUBRICATION

Engine lubrication is full pressure on all bearings through the medium of a Rotor type oil pump with check valve control. A float type oil screen in the oil pan permits of only strained oil to be drawn by the oil pump. An oil pressure switch connected with the main oil gallery is wired to the dash signal light. Should the oil pressure drop below approximately 13 lbs. the dash oil signal light indicates red. Threaded openings have been provided at the oil gallery and crankcase for an oil filter installation. The oil capacity is 7 U.S. quarts for refill.

FRONT SUSPENSION AND COIL SPRINGS

Excepting for a change in the angle of the center steering arm the front suspension design and construction remain unchanged. Provision for lubrication and adjusting camber, caster and toe remain the same as heretofore. All parts of the front stabilizer are exactly as used on previous model. The front springs (coil) are standard as used on previous models, load is 2,080 lbs. and 386 lb. rate. Heavy type 2,080 lbs. load and 450 rate are optional.

STEERING GEAR

The steering gear has been entirely redesigned. The gear housing is mounted well forward on the front frame side rail and at an angle that tips the splined end of roller shaft downward slightly. Instead of bronze bushings that were heretofore used—two needle roller bearings mounted in the housing sup-

port the roller shaft. The three tooth roller is also carried on a needle roller bearing over a hardened pin locked in the forging. End thrust is taken by a hardened adjustable thrust plate.

The steering worm is keyed to the end of shaft and mounted in a tapered roller bearing at each end. There is provision for adjusting out all mechanical play within the gear. When at exactly downward position, a notch in the upper end of the steering tube is for the purpose of indicating the high point of steering worm and roller. The steering ratio is 18.2:1. An 18 inch hard rubber steering wheel with horn button is standard. Optional is an 18 inch plastic steering wheel with a horn ring.

COOLING SYSTEM

The radiator filler neck is designed to receive a pressure type filler cap which effects a sealed cooling system. This protects against loss of coolant and anti-freeze solution. Water circulating pump remains unchanged and as in previous models, a non-corrosive water distribution tube is fitted in the cylinder block that directs streams of water against the valve seats. The pressure cap is furnished as an accessory. To drain the radiator only, turn handle of the drain cock located at the lower right corner of the radiator, counter-clockwise. To drain the complete cooling system, also remove the pipe plug located at the left rear corner of the cylinder block. The capacity of the cooling system is 18 quarts (U.S.) without weathermaster, and 19 quarts (U.S.) with weathermaster.

DRIVE-MASTER

While the design of the Drive-Master linkage and arrangement have been slightly modified, the basic units, functioning and provision for adjustment remain unchanged.

Eliminating the hand shift bell crank at the lower end of Steering Column, an arrangement provides for a direct shift from the power lever to transmission. The control lever ball joint rod is direct connected to the Shift shaft (hand shift) lever assembly.

The throttle control mechanism has been redesigned, with a cross shaft mounted in brackets, bolted to the dash. A throttle rod bell crank is mounted on top of cylinder block and the throttle lock diaphragm is located farther forward. Vacuumotive drive is no longer supplied separately and is so designed to operate only in conjunction with Drive-Master. A push button type switch mounted on the dash controls the use of Drive-Master.

OVERDRIVE

The Overdrive design and function remain unchanged. The governor switch is fitted with a waterproof boot. Both Overdrive and Drive-Master wiring harness connector plugs and sockets have been changed from prong to blade type to improve electrical contact. A control just beneath the dash at left of steering column controls the use of Overdrive.

HUDSON SUPER-MATIC DRIVE

The combination of Drive-Master and Overdrive provides automatic shifting through three forward speeds yet gives the driver complete control of shifting at every speed.

PACEMAKER SPECIFICATIONS

ENGINE:

Valve Arrangement..... L-Head
 Bore and Stroke..... $3\frac{9}{16}$ " x $3\frac{7}{8}$ "
 Piston Displacement.... 232 cu. in.
 Maximum Torque..... 175 ft. lbs. at 1600 RPM
 Horsepower—Actual.... 112 at 4000 RPM
 Taxable.. 30.4

Compression Ratio:

Cast Iron Head (Std.) 6.7:1

Aluminum Head (Opt.) 7.2:1

Firing Order..... 1-5-3-6-2-4

Mounting..... 3 Points—Rubber

Number Location..... Right Hand Front Side

Vibration Dampener.... Yes (in rubber)

CAMSHAFT:

Material..... Cast Iron Alloy

Drive..... Chain

Bearings:

Type..... Steel-back Babbit

Number..... 4

Diameter and Length:

No. 1..... 2.375 " x $1\frac{3}{16}$ "

No. 2..... 1.997 " x $1\frac{5}{16}$ "

No. 3..... 1.965 " x $1\frac{5}{16}$ "

No. 4..... 1.497 " x $1\frac{5}{16}$ "

Radial Clearance..... .0015" to .002"

End Play..... .003" to .005"

Timing Marks..... On sprockets and chain

Timing Chain..... 60 links $\frac{3}{8}$ " pitch

Timing Chain Width... $1\frac{1}{4}$ "

CRANKSHAFT:

Type..... Compensated

Journal Size:

No. 1..... 2.4995 x 1.4375

No. 2..... 2.4995 x 1.375

No. 3..... 2.4995 x 1.625

No. 4..... 2.4995 x 1.75

Crankpins..... 2.1244 to 2.1254

Main Bearing Size:

No. 1..... 2.4993 to 2.5013

No. 2..... 2.4993 to 2.5013

No. 3..... 2.4993 to 2.5013

No. 4..... 2.4993 to 2.5013

Radial Clearance..... .0005" to .0015"

Adjusting Shims..... None

End Play..... .003" to .009"

Thrust..... On No. 3 Bearing

CONNECTING RODS:

Material..... Drop-forged Steel

Weight..... 34.24 oz. No Bearing

Length—Center to Center $8\frac{1}{8}$ "

Bearing—Lower End... Replaceable shells

Type..... Babbit steel back

Diameter and Length. $2\frac{1}{8}$ " x $1\frac{5}{8}$ "

End Play..... .007" to .013"

Diametral Clearance.. .005" to .0015"

Shims..... None

Bushing—Upper End:

Material..... Steel back babbit

Diameter and Length. .96875 x $1\frac{1}{8}$ "

Diametral Clearance.. 0 to .0003" at 70° F.

PISTON:

Type..... Cam Ground, T-slot

Material..... Aluminum Alloy

Weight..... $18\frac{3}{8}$ oz. $\pm \frac{1}{8}$ oz.

Pin Center to Top..... 2.310 to 2.314

Clearance (Piston to Bore)..... .0015 to .002

Ring Groove Depth.... 0.195"

PISTON PIN:

Type..... Floating

Length..... 2.9375"

Diameter..... 0.968"

Fit in Piston..... 0" to .0003" tight at 70° F.

Fit in Rod..... Hand push fit at 70° F.

PISTON RINGS:

Material..... Cast Iron

Compression Rings.... Two (Pinned)

Width..... $\frac{5}{64}$ "

Oil Rings..... Two (Pinned)
 (1-Below piston pin)

Width—Upper..... $\frac{3}{16}$ "

Width—Lower..... $\frac{5}{32}$ "

Gap Clearance..... .006" to .014"

Ring Expanders..... None

VALVES:

Intake:

Angle of Seat..... 45°

Seat Outside Diameter 1.831"

Port Diameter..... $1\frac{11}{16}$ "

Lift..... $\frac{11}{32}$ "

Length..... 5.730"

Stem Diameter..... .3402" to .3412"

Stem to Guide Clearance..... .0015" to .003"

Operating Clearance:

Hot..... .008"

Inserts..... None

Exhaust:

Angle of Seat.....	45°
Head Outside Diameter.....	1.556"
Port Diameter.....	1.375"
Lift.....	.346"
Length.....	5.730"
Stem Diameter.....	.3402" to .3412"
Stem to Guide Clearance.....	.002" to .004"
Operating Clearance:	
Hot.....	.010"
Valve Angle.....	7 degrees
Inserts.....	None

VALVE GUIDES:

Type.....	Removable
Length:	
Intake.....	2 ²⁹ / ₃₂ "
Exhaust.....	3 ⁵ / ₃₂ "
Inside Diameter.....	3.437"

VALVE SPRINGS:

Free Length.....	2.500"
With Valve Closed.....	2.188
With Valve Open.....	1.842
Total Coils.....	9 ¹ / ₂
Spring Pressure.....	77 lbs. at 2 ³ / ₁₆ "

VALVE TAPPETS:

Type.....	Mushroom
Guides.....	Integral with block
Guide Size.....	.6245 to .6250
Tappet Size.....	.62325 to .62375
Fitting Clearance.....	.00075" to .0015"
Length.....	2.310

VALVE TIMING:

Inlet Opens.....	7° 18' BUDC
Inlet Closes.....	53°-42' ALDC
Exhaust Opens.....	53°-18' BLDC
Exhaust Closes.....	7°-42' AUDC
Timing Marks.....	On Flywheel

LUBRICATION:

Engine Lubrication.....	Pressure
Normal Pressure.....	40 lbs. at 30 MPH
Oil Pump Type.....	Rotor
Oil Pump Drive.....	Worm on Camshaft
Oil Capacity.....	Dry, 7 ¹ / ₂ qts. U.S. Refill, 7 qts. U.S.

CARBURETOR:

Make.....	Carter
Model.....	WA1-749S
Type.....	Single Throat Down Draft
Float Level.....	1 ¹ / ₂ "
Pump Travel.....	1 ¹⁶ / ₆₄ "

Idle Adjustment.....	1 ¹ / ₂ to 1 ¹ / ₂ Turns open
Metering Rod.....	Vacumeter
Metering Rod Gauge...	J-1265 (2.468")
Choke.....	Climatic control
Anti-percolator Valve...	Saxophone key

FUEL PUMP:

Standard.....	Carter -M-729-SZ
Optional.....	AC
Pressure.....	4 lbs. ± 1 lb.

GENERATOR:

Make.....	Auto-Lite
Model.....	GDZ-6001B
Type.....	Shunt
Volts.....	6
Control.....	Vibrating Type 3-unit regulator
Controlled Output.....	35 amperes
Poles.....	2
Brushes.....	2
Brush Spring Tension..	35-53 ounces (with new brushes)
Bearings:	
Commutator End.....	Bronze
Drive End.....	Ball

LUBRICATION:

At Lube Periods.....	3 to 5 drops engine oil at each oiler
At Overhaul.....	Pack ball bearing 1 ¹ / ₂ full of high temperature, non-fiber grease. Soak bronze bearing in en- gine oil and pack grease pocket with high temperature grease
Armature Shaft End Play	.003" to .010"
Ground Polarity.....	Positive
Field Coil Draw.....	1.6 to 1.8 amperes to 6.0 volts
Motorizing Draw.....	4.2 to 4.6 amperes at 6.0 volts
Output Test:	
Cold.....	6.4 volts, 0 amps. at 970 Max. RPM 8.0 volts, 35 amps. at 2,000 Max. RPM
Hot.....	6.4 volts, 0 amps. at 1,050 Max. RPM 8.0 volts, 35 amps. at 2,350 Max. RPM

STARTER MOTOR:

Make.....	Auto-Lite
Model.....	MZ-4159
Volts.....	6
Poles.....	4
Brushes.....	4
Brush-Spring Tension...	42-53 oz.
Armature Shaft End Play	.005" to 1 ¹ / ₁₆ "

Cranking Voltage..... 5 volts
Cranking Amperage (Approx.)..... 160 amps. at 150 RPM

Free Running Test:

Volts..... 5.5
Amperes..... 70
RPM..... 4300

Stall Test:

Volts..... 4.0
Amperes..... 540
Min. Ft. Lbs..... 12.3

Lubrication None required

VOLTAGE REGULATOR:

Make..... Auto-Lite
Type..... VRP-6002-A
Volts..... 6
Ground Polarity..... Positive

Resistors:

R1..... 34.5 to 42 ohms
(Marked 38)
R2..... 6.5 to 8.0 ohms
(Marked 7)

Cutout Relay:

Armature Air Gap.... .031" to .034"
Contact Point Gap.... .015" Minimum
Contacts Close..... 6.4 to 7.0 volts

Contacts Open:

Volts..... 4.1 to 4.8 volts after 15
ampere charge
Amperes Reverse Current..... 4 to 6 amps.

Current Regulator:

Armature Air Gap.... .048" to .052"
Operating Amperage.. 34.0 to 36.0 amperes

Voltage Regulator:

Armature Air Gap.... .048" to .052"
Operating Voltage.... (at 10 ampere charging rate):
Temp. F..... 50° 60° 70° 80°
Volts..... 7.41 7.38 7.35 7.32
Temp. F..... 90° 100° 110° 120°
Volts..... 7.29 7.26 7.23 7.20
(Allowable variation:
plus or minus 0.15 volts)

Winding Resistance:

Two Shunt Coils in Parallel..... 7.9 to 8.8 ohms
Cutout Relay Voltage Winding..... 29.8 to 33.0 ohms
Voltage Regulator.... 10.4 to 12.0 ohms

DISTRIBUTOR:

Make..... Auto-Lite
Model..... IAT-4002

Rotation..... Clockwise
Drive..... Oil pump
Point Gap..... .020"
Points Open..... TDC
Cam Dwell..... 38°
Breaker Arm Spring Tension..... 17-20 oz.
Condenser Capacity.... .20-.25 MFD.

Bearings:

Breaker Plate..... None
Shaft..... Bronze
Shaft Side Play, Max.... .005"

Shaft End play:

Minimum..... .003"
Maximum..... .010"
Timing Mark..... Flywheel

Centrifugal Governor:

Advance:..... 300 RPM 0°
330 RPM 1°
400 RPM 2½°
750 RPM 6°
1200 RPM 10°

Advance must follow on a smooth curve within 1° of above at all points

VACUUM ADVANCE:

9.2" Hg. 0°
10" Hg. 1°
10.5" Hg. 2°
11" Hg. 3°
12" Hg. 5°

Allowable variation from curve, plus or minus 1°

COIL:

Make..... Auto-Lite
Model..... Cr-6012-A

Amperage Draw:

Engine Stopped..... 5.0 amps.
Engine Idling..... 1.5-2.0 amps.

FRAME AND SHEET METAL:

Wheel Base..... 119"
Length—
Bumper to Bumper... 201½"
Height—
Road to Roof..... 60¾"
Width—
Fender to Fender (outside)..... 77¼"
Road Clearance—
Front and Rear..... 8"
Front Tread..... 58½"
Rear Tread..... 55"

CLEANLINESS IS NEXT TO GODLINESS

This age old slogan is doubly true as applied to the gasoline engine.

It has long been known that dirt and grit in the interior of an engine or bearings are accountable for far greater degree of wear than the actual stress that may be imposed through service usage.

Based upon these facts we have seen the development and successful use of the pre-lubricated sealed bearings. Rubber bushings are another example of precluding rapid wear caused by the entry of grit and moisture. The adaption of the air cleaner has prolonged the life of cylinders, pistons and rings many times that of their life without an air cleaner, and when dust or grit could enter cylinders.

During the course of building our engine and assembling the various component parts, cleanliness is stressed almost as important as accuracy. Cleaning solutions—steam cleaning and compressed air are used freely and frequently to assure cleanliness. Accuracy and silent performance do not stay put where grit and dirt are present to cause rapid wear.

Every repair shop can exercise those precautions in cleanliness that may be practiced by the manufacturer. Here are suggestions for safeguarding against dirt that are all too frequently disregarded. Get the habit of keeping your working tools clean. Socket wrenches that are used on external bolts are usually full of grit and sand—and when applied to main or connecting rod bearings, leaves a deposit of grit and sand on them.

Before removing any part of an engine that exposes the interior, as valve covers, spark plugs, cylinder head, starter motor, etc., be sure to clean well and blow loose grit away to prevent it from reaching the inside of engine. Avoid handling interior engine parts with grit and grime on the hands. It is equally bad practice to wipe inside parts with cloths that may be loaded with lint or dirt. Before installing such parts as valves, tappets, pistons, bearings, etc., dip them in a washing solution and blow them off with compressed air.

Any opened engine, assembled unit or partial assemblies should always be protected from dust or grit by proper covering, especially so when left overnight. Convenient racks for valves, tappets, connecting rods, etc., that may be used when removing or after re-conditioned serve to prevent nicking and becoming dirty once cleaned. Scratched bearings, scuffed pistons and even scored cylinders are all too often avoidable and may frequently be attributed to dirt, grime and grit that has remained in the finished repair job.

Clean uniforms—clean fender and seat covers—clean benches and shop in general are evidence of careful

and accurate workmanship. Car owners favor a clean repair shop. They delight in a clean car upon delivery. Cleanliness like courtesy costs little (it's a habit) but is one of the biggest assets of any repair shop or stock room. If you have not already done so, get the habit today and note results.

NEW CAR PRE-DELIVERY PREPARATION

At no other time in the ownership of a car can a new car buyer be more impressed and pleased with his car and the dealer who sold it to him, than that period immediately following taking delivery. Here the dealer has every opportunity of starting off with a satisfied owner with a car of his own selection.

All the advantage of owner good will, repeat sales and future business may be secured or lost, depending on just what care is given to the thoroughness of new car pre-delivery inspection. Today it is definitely known to all of long automotive experience that the crucial point in owner relations lie in the condition of the new delivered car.

Regardless of the money spent, there is nothing a dealer may do that will be more effective to promoting and retaining owner good will, than having his car up to standard and in A-1 condition when delivered. The fact that a certain amount of the new car delivered price is set aside for inspection and adjustment is proof of the manufacturers' desire that this work be done without fail.

When you are preparing a new car for delivery, only the utmost care and conscientious work must be done. Keep in mind the fact that the Dealer's reputation, in the opinion of that car purchaser hinges on the thoroughness of your work. Always finish with an operation test of the car.

With the car up to standard—clean and in A-1 condition the finishing touch is completed by the personal presentation and explanation of all owner literature.

New inspection cards, applicable to the Pacemaker, have been prepared covering New Car Pre-Delivery—the 1,000 mile inspection and 2,000 mile inspection. Be sure that you have an adequate supply of these and that each item is properly followed at every inspection.

NEW VALVE TAPPET CLEARANCE ALL 8 CYLINDER ENGINES

An Engineering release superseding previous recommendation of valve tappet clearance and makes .008 on intake and .010 on exhaust as standard for all 8 cylinder engines.

SUN ELECTRIC CORPORATION ANNOUNCE TRAINING SCHOOLS

Automobile Manufacturers and Dealers agree that scientific automotive testing equipment, operated by trained specialists, will go a long way in diagnosing electrical and engine disorders.

Recognizing the necessity for properly trained personnel to operate such testing equipment, the Sun Electric Company offers its extensive training facilities to the automotive factory and field service to train mechanics in the proper use of their test equipment. Sun's Technical Training Centers and Branches located in strategic sections of the United States are now in operation, offering the following courses.



1. **Training Program for Testing Specialists.** A four-week, full time, cooperative training course designed to teach qualified trainees the fundamental operating principles of the component units of an automotive engine.
2. **Training Program for Test Equipment Operators.** A five-day, full time, intensive, practical training program, designed to teach qualified trainees the proper use of scientific automotive testing equipment.
3. **Training Program for Fleet Maintenance Personnel.** A five-day, full time training program designed specifically for fleet personnel.

For further information regarding these training programs, relative to location, starting dates for class groups and course content, communicate direct with the Sun Electric Corporation, Technical Training Division, 6337 Avondale Avenue, Chicago 31, Illinois, Attention Registrar.

BODY DRAIN OPENINGS MUST BE KEPT CLEAN

DOORS

All body doors have two oblong drain holes—one at each bottom end to permit any water that reaches the interior of the door to drain off readily. Should these become obstructed, water will remain inside the door panel and result in rust and corrosion. Using a hacksaw blade, insert end in opening and pull downward as it is moved across the slotted opening to remove any lint or other obstructions.

COWL VENTILATOR

The cowl ventilator is so designed that it may be kept open during rain or snow, and yet no water will reach the interior, provided the drain is kept open. To clean the drain, simply remove hose from front dash connection, blow it out and insert a short wire with a hook on end to remove any obstruction at the entrance. Be sure hose does not kink when installed.

WINDSHIELD

A drain at each side of the body cowl beneath the hood is designed to carry off any water seepage at the windshield. A hose is fitted over these drain pipes that extend through the sides of the cowl. Remove the hose, blow out, and insert a wire through the drain tube.

GAS FILLER OPENING DRAIN

This drain is for the purpose of carrying off any fuel or water that otherwise accumulates in this opening. It is possible that the bottom of hose connection might become obstructed under certain operating conditions. Insert a wire through the drain opening in the filler compartment. Also, check to see that hose is properly installed and free from any kinks.

FLOOR DRAINS

These may become obstructed from the lint of the carpet and should be examined occasionally by simply lifting the carpet at that point and the opening cover brushed off.

The increased autumn and winter rains mean that these drains will have more water to deal with and must be cleaned so as to prevent rust and corrosion that may result if the water cannot be carried off immediately.

PLEASE CORRECT

November issue, page 38, Subject Ignition Coil—This change began at car number 500101. Page 36 answer to Number 4 question should read—8 cylinder $1\frac{3}{64}$ ".

QUESTIONS AND ANSWERS

Following are the answers to questions that appeared in November issue of Service Merchandiser. Reference is also made to location where they may be found.

- 1-Backlash between ring gear and pinion should be .004 to .006. Check with dial indicator Page 13-14, paragraph 12—480-490 Procedure Manual.
- 2-Differential bearing preload should be one full notch of the bearing adjusting nut.—Page 13-14, paragraph 13—480-490 Procedure Manual.
- 3-To prevent "drift" of the ring gear and end play of the pinion and shaft—Service Merchandiser for November, page 38, col. 2.
- 4-The matched ring gear and pinion sets have been selected and lapped together for proper tooth bearing and quiet operation. November Service Merchandiser, Page 38.
- 5-When arrows coincide the propeller shaft trunion pins are parallel, thus permitting full universal action—Page 12-4—480-490 Procedure Manual.
- 6-Brush spring load of the starter motor is 42 to 53 ozs.—the Generator 35 to 53 ozs. See specifications, Page 62—480-490 Procedure Manual.
- 7-Drive-Master fuse is of a 10 ampere capacity and is located on back side of Drive-Master dash switch. Refer to page 10-2—480-490 Procedure Manual.
- 8-Countershaft gear should have a .006 to .016 endplay, and is controlled by the use of shims. See Specifications—Page 9-4 and text 9-11—480-490 Procedure Manual.
- 9-When equipped with Drive-Master, the engine should idle at 580 to 600 R.P.M. Page 8-10—480-490 Procedure Manual.
- 10-Recommended clearance between brake drum and lining is .010 at each end. See specifications Page 17-2—480-490 Procedure Manual.

Answers to the following questions will appear in the January issue of Service Merchandiser.

1. What is the proper clearance between clutch pedal and floor board?
2. How often should Hudsonite in clutch be replaced?
3. What is correct amount of Hudsonite to place in the clutch after each draining?
4. What is the recommended solution for washing out clutch?
5. Should clutch be washed out each time the Hudsonite is changed?
6. What indicates the necessity for washing the clutch?
7. What is the limit of clutch pressure plate run-out at friction surface?

8. What is the limit of run-out of the clutch driven disc?
9. Why must care be exercised as to pressure and quantity when lubricating clutch release bearing?
10. What Inspection should you give the driven disc when removed?

OIL FILTER CARTRIDGE

It is vitally important that the correct cartridge be installed in the oil filter for which it was designed. Should the wrong cartridge be used it is likely that the oil will not be filtered, or none whatever will flow through the filter.

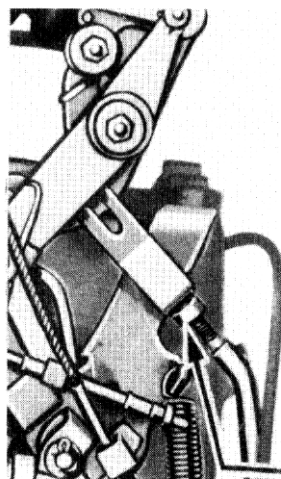
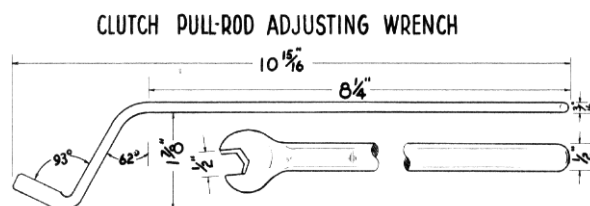
Listed below are the proper combinations to use. The answer is to carry both of these cartridges in stock.

OIL FILTER	CARTRIDGE
HA-300560.....	} SP 161007
HA-161040.....	
HA-302494.....	} SP 302496
HA-302495.....	

Always place an extra quart of oil in engine following installation of oil filter and check idling oil pressure. If red signal shows, it indicates oil is flowing through filter too freely thus lowering the idling pressure. To correct, install the recommended restrictor in the filter supply line.

CLUTCH PULL-ROD ADJUSTING WRENCH

The use of a special wrench as shown in the sketch below will facilitate adjustment of the clutch pull-rod nut.



This may be made up from a 1 1/2" open end wrench with the added length welded to the handle and shaped as shown.

Clutch Rod Adjusting nut

IT'S A TECHNIQUE REQUIRING SKILL

To match the finish color when doing a spot or panel spray job. In view of the fact that all paint products fade in varying degrees when exposed to sunlight and weather, this fading that does take place on the original finish must be compensated for, by toning the lacquer to be applied as required.

No attempt should ever be made to spot in the center of a door panel on a repair job. It is always advisable to build up the spot and then spray the entire door or body section with the last one or two coats.

A test spray out of the color should always be made on a metal panel and checked (after it is dry) against the car color. Here again the painter must be sure that before making comparison with the body color the surface has been thoroughly cleaned to remove any chalking or oxidized pigment that would otherwise dull the color.

In selecting finish lacquer, as indicated by the color code marking on right front door upper hinge, reference must be made to serial numbers as outlined in Group Parts Book Revision Sheets issued, also as shown in Group U.U.1 of Group Parts Book.

THE GOOD WORK CONTINUES

Mac's Auto Sales & Service, Hudson Dealer at Larned, Kansas, whose Service Manager recently completed the Training School course, makes the following comment:

"From a Dealer position we think this is one of the best things we have invested in since our opening last year. The training and the HUDSON SERVICE SPIRIT he received was worth many times more than our cost of this trip."

Jack Dunn, of Allen Hudson Company, Inc., of Savannah, Georgia, in a letter to Mr. Potter, makes the following comment regarding the Hudson Factory Training School:

"Again I wish to thank you for the excellent instruction and knowledge gained during my recent attendance at your Service Managers' Training School course. Many questions have been answered, some large and some small, but all of very much concern to the Hudson owner. The information received has helped us all in this Dealership and I am passing it on to all Service Personnel in regularly scheduled Service meetings."

And among the many others, President W. S. McCall of Charlotte Hudson Co., Inc., in a letter to our Mr. Potter says: "We are very much impressed by the effect that the two weeks training and companionship with your school staff have had upon Mr. Marshall, and we are convinced that he has received benefits far beyond our expectation."

HUDSON SERVICE AND PARTS MANAGERS' COUNCIL SIOUX FALLS AREA

The first meeting of the Hudson Parts and Service Managers' Council of Sioux Falls, South Dakota area, was held at 7 P.M., Thursday, September 29, 1949, in the Carpenter Hotel, Sioux Falls, South Dakota.

The meeting was opened by Mr. Jack P. Strong, Service Manager of Hudson Sales Corporation, Minneapolis, Minnesota. A motion was made and carried to appoint the following temporary officers until some future date when regular officers would be elected.

Mr. William F. Whitsell	President
Mr. Ashton H. Coppeck	Vice-President
Mr. Luke Luymes	Secretary-Treasurer

Regular meetings will be held on the 4th Tuesday of each month.

Judging from the four page minutes of the meeting, it was packed full of interest until adjournment at 11:30 P.M.

TWIN PORTS AREA (DULUTH)

In the Spalding Hotel, Duluth, Minnesota, on Wednesday, September 14, 1949, the eleventh meeting of the Twin Ports Area Service and Parts Council was called to order.

Following reading the minutes of the previous meeting, the following officers were elected.

Mr. C. M. Welliver, re-elected	President
Mr. Al Rogowski, elected	Vice President
Russ Berg, re-elected	Secretary and Treasurer

After briefly reviewing the past meetings, President Welliver stressed the importance of the Council meetings and the benefits that are to be had by attending meetings, particularly emphasizing the opportunity these meetings present to every Hudson Dealers' Parts and Service Manager. Certainly, any Dealers' Parts or Service problem would find solution or assistance at such a gathering of experienced parts and service men.

FARGO AREA

The first meeting of the Fargo area Hudson Parts and Service Managers' Club was held at 7:30 P.M., October 27, 1949, in the Carpenter Hotel, Fargo, N.D.

Here again Jack P. Strong, Zone Service Manager, opened the meeting, followed by election of officers as follows:

Mr. Al Nelson	President
Mr. Carl Dielke	Joint Secretary
Mr. Roy Kyla	and Treasurer

A very interesting meeting, with many good subjects brought up and discussed among them, the importance of making thorough New Car Pre-Delivery inspection was stressed.

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To remove paper and glue from bumpers of new cars, the Engineering Department recommends the use of mineral spirits or cleaner's naphtha. Apply freely with a sponge or brush, allow to soak a few minutes before removal. Follow with polishing to restore luster.