HUDSON-TERRAPLANE

SERVICE

MAGAZINE

INFORMATION ON PARTS • ACCESSORIES AND TECHNICAL MATTERS

Issues 7-8 **April - May 1937** **1937 Series**

FULL SPEED AHEAD!

WITH

Permanent Service Merchandising

HUDSON MOTOR CAR CO. • DETROIT, MICH., U. S. A.

Printed in U. S. A.

INDEX 1937 Series

● (Issues 1, 2, 3, 4, 5, 6, 7 and 8) ●

In the interest of making Hudson and Terraplane Service outstanding in their towns, these Hudson and Terraplane Service Men gathered at a recent Service meeting sponsored by the H. M. Farnham & Sons, Inc., Montpelier, Vermont Distributor.

The meeting was under the supervision of Mr. Albert Bacon, General Service Manager for H. M. Farnham & Sons, Inc., assisted by Mr. S. E. Flickinger, Regional Service Supervisor.

"Going Ahead" With HUDSON TERRAPLANE AUTHORIZED SERVICE

PERMANENT SERVICE MERCHANDISING

What Are the Main Points of a Permanent Program of This Kind?

Information passed us by the many successful Dealers in our organization would lead us to conclude that the factors essential to Profit, Volume and this Permanency center around the following:

1. A Lubrication Department
2. A Method of Regular Customer Contact
3. A Constant Display of Interest in All of Your Owners
4. Use of Factory Flat Rate Operations
5. The Application of the Proper Hourly Rate Against the Flat Rate Operations Selling Prices
6. Business Methods in the Service Station (Service Manager's Guide)
7. The Service Station Well Identified
8. Reasonably Current Operating Parts On Hand At All Times
9. Reputation for Good Workmanship and Car Delivery to Customer in Accordance with Promise
10. A Reasonably Neat and Orderly Appearing Shop
11. A Reasonable Stock of Accessories—with Certain Units Well Displayed for Customer Attraction

Hudson and Terraplane Service Men in the vicinity of Los Angeles, California meet monthly to discuss interesting Service problems and better methods of Service Merchandising.

Standing at the back of the room, left to right, W. H. Welch, Service Supervisor at Los Angeles, Otto Butts, Service Representative in the Los Angeles area, A. F. McCooey, Chief Parts Clerk and Roy Wells, Regional Service Supervisor.

Spring Service Specials

In the March Issue of the Hudson-Terraplane Service Magazine, Page 75, eleven different suggested Service Specials were listed. Because of the importance of these services at this time of year we are relisting them below. Also note that a correction has been made in the mileage specifications of Specials Nos. 2, 3, 4, and 5 in accordance with the specifications of the Factory Engineering and Technical Divisions.

No opportunity should be overlooked to impress customers with the necessity of having such seasonal operations performed. A little neglect on the part of your owners at this time of year may mean loss of economy, comfort and performance throughout the summer months. Winter lubricants break down quickly under summer temperatures, correct lubricants should be installed now. Radiator flushing, Air Cleaner Service, Clean spark plugs, and carburetor adjustment are most important at this time of year to provide maximum all around car performance during the summer months.

FRONT WHEELS — Service No. 1

Each 5,000 miles the front wheels of your Hudson or Terraplane should be removed, the bearings cleaned, inspected, regreased with a special wheel bearing grease and carefully readjusted.
Price complete for two front wheels .....

REAR WHEELS — Service No. 2

Each 5,000 miles the rear wheels of your Hudson or Terraplane should be removed, the axle shafts pulled out for cleaning, inspection, regreasing with special wheel bearing grease and careful readjusting of wheel bearings.
Price complete for two rear wheels .....

SHOCK ABSORBERS — Service No. 3

Each 5,000 miles the hydraulic shock absorbers on your Hudson or Terraplane should be removed from the car, the old oil drained from each and refilled with a special Hudson shock absorber fluid, at which time each should be cleaned and carefully inspected.
Price complete for 4 shock absorbers .....
Note—A slight additional charge will be made for renewing worn rubber bushings if necessary.

UNIVERSAL JOINTS — Service No. 4

The universal joints on your Hudson or Terraplane car are packed with a special universal joint grease and sealed and need no greasing or attention for 10,000 miles. However at this mileage the drive shaft must be removed from the car, the universal joints taken apart so that all parts may be cleaned, inspected, regreased with a special universal joint grease and again resealed,

after which they will need no further attention for another 10,000 miles.
Price complete for both universal joints .....

Note—An additional charge will be made for parts if worn where replacement is necessary.

CLUTCH — Service No. 5

Each 5,000 miles it is advisable to drain the old oil from the clutch and replenish with a special oil supplied by the Hudson factory and known as HUDSONITE

Note—Positively do not permit a substitute to be used.

Price complete .....

AIR CLEANER — Service No. 6

The AIR CLEANER on your Hudson or Terraplane should be cleaned and reoiled each 2,000 miles. It will filter all air before entering the engine if kept serviced regularly, saving wear on pistons, rings, bearings, etc.

Note—This service is very important.

Price complete .....

TRANSMISSION — Service No. 7

DIFFERENTIAL — Service No. 8

It is advisable to make seasonable change of gear lubricant in the transmission and differential, and the best time to do this is in the spring and fall. Our method is to drain the old oil, wash each out with coal oil and refill with a special seasonable grade of gear lubricant.

Price complete, transmission .....

Price complete, differential .....

COOLING SYSTEM CLEANING — Service No. 9

Recommended each Spring and Fall. Clean cylinder block and radiator with special cleaning compound and flush out with reverse pressure system.

Add HUDSON inhibitor after cleaning which prevents rust and scale reforming.

Price complete .....

Prevents Overheating Troubles

MOTOR TUNING — Service No. 10

To retain that speed, power, economy and unusual performance which the factory has built into your HUDSON or TERRAPLANE, we recommend that the engine be carefully TUNED each 5,000 miles. This consists of the following service operations:

- Test compression on each cylinder.
- Clean and space spark plugs.
- Clean and space distributor points.
- Adjust valve tappets.
- Test spark coil and condenser.
- Set spark timing with synchroscope.
- Inspect and tighten ignition wiring.
- Clean gasoline screens.
- Test vacuum with vacuum gauge.
- Inspect and adjust carburetor parts.
- Adjust carburetor with vacuum gauge.
- Make road test of car for final adjustment.

Price complete, labor .....

ENGINE OILING SYSTEM CLEANING — Service No. 11

Recommended each 12,000 miles.

Remove ENGINE OIL PAN and clean oil reservoir, oil screens and oil filtering system.

Price complete with necessary gaskets:

HUDSON OR TERRAPLANE .....

(Add for new engine oil)

How Many of These Questions Can You Answer?

See article on Cooling System, Page 94 and your Mechanical Procedure Manual

1. At what temperature should a cooling system thermostat begin to open when water or a solution of volatile antifreeze is used? At what temperature should it be wide open?
2. What is the effect of oil in the cooling system?
3. How may oil get into the cooling system?
4. Upon what does the packingless type water pump depend to prevent water leakage along the pump shaft?
5. Why is a special lubrication fitting used on the 1936 and 1937 water pumps?
6. Why is reverse flushing necessary after a cooling system cleaner has been used?
7. How does Hudson Rust and Corrosion Inhibitor prevent cooling system from becoming clogged?
8. Into what three general groups can the Electric Hand servicing be divided? Give in order in which they should be performed.
9. Into what three general groups can the Automatic Clutch (1937) servicing be divided? Give in order in which they should be performed.
10. What is the correct procedure for installing and the position of the spacers, baffles and gaskets between the standard and combination fuel pumps and crankcase.

The Logan Square Hudson Co., 2501 Milwaukee Ave., Chicago, Ill., are going after Permanent Service Maintenance business through this attractive and most complete Lubrication setup. We might mention also that they are featuring an equally as well equipped Motor Tune-up Department.

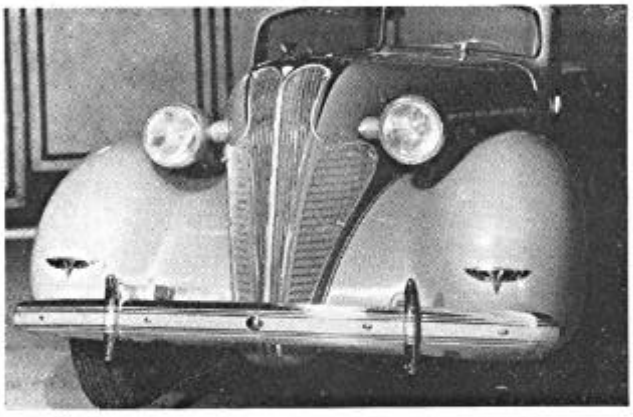
ACCESSORY HIGHLIGHTS

HUDSON Approved ACCESSORIES

RADIATOR INSECT SCREENS

Now that spring is fast approaching, you will want to get set for the Radiator Insect Screen business. Designs have been approved by our Engineering Department and our source of supply is ready to make shipments.

We have found that the screen can be made interchangeable on all 1937 Hudsons and Terraplanes.



Radiator Insect Screens are also available for all 1935 and 1936 Hudson and Terraplane cars. When ordering screens for 1937 models specify Part No. HA-123008.—Radiator Insect Screen 1936 Hudson, Part No. HA-119909—Radiator Insect Screen 1936 Terraplane, Part No. HA-119908—Radiator Insect Screens 1935 Models, Part No. HA-115890.

NOW IS THE TIME OF THE YEAR FOR CAR DEALERS TO GO AFTER SEAT COVER BUSINESS.

Hudson Seat Covers offer the greatest dollar for dollar value—Compare them with other seat covers.

1. FORM FITTING — because they are Custom Built exclusively for Hudson and Terraplane cars.
2. MORE DURABLE AND LONGER WEARING QUALITIES from high grade materials and quality workmanship—Note how the edges are bound and strongly stitched to resist hard wear.
3. MOST COMFORTABLE — because they fit the seats snugly and do not wrinkle up under the passengers, also their smooth non-clinging surfaces make it easier to enter and leave the car and prevent wrinkling of wearing apparel, the basket weave construction of the fabric permits circulation of air through the material giving greater coolness during hot weather driving.
4. EASILY CLEANED — by sponging with soap and water.
5. PLEASING COLOR COMBINATIONS — materials were carefully selected to blend harmoniously with the interior trim of Hudson and Terraplane Cars.
6. OFFER COMPLETE PROTECTION to front and back of front seat.

"THAT'S WHY HUDSON SEAT COVERS ARE THE BEST"

DON'T MISS ANY OPPORTUNITY TO TELL YOUR CUSTOMERS ABOUT THE OUTSTANDING VALUE OF HUDSON SEAT COVERS

LARGE POTENTIAL ACCESSORY MARKET PROVIDED BY 1936 OWNERS

One must not overlook the fertile market which 1936 Hudson and Terraplane Owners present for Accessory sales.

In making an analysis of last year's accessory sales we find that there was a small coverage on certain items thus leaving a large group of potential buyers of certain Accessories.

Outstanding among these items is the 1936 Cowl Ventilator Bug Screen which offers nice possibilities for a fast mover during the coming summer months. This article is inexpensive, takes only a moment to install, and offers protection to motorist from bugs, bees and poisonous insects entering into the car through the cowl ventilator.

Our records show an approximate Cowl Ventilator Bug Screen coverage of only 10% on all 1936 models.

So with this picture you can see that there is a real opportunity here to cash in on extra profits.

• •

MOTORISTS CAN NOW ELIMINATE THE DANGER and discomfort of driving "blind" against the glare of the sun or "bright" lights of an oncoming car with a Hudson Glare Shield.

Your market for Glare Shields is almost unlimited! Every owner of a car (regardless of make) that is equipped with an interior sun visor is a prospect.

Let's cash in on this ready market with this fast moving item.

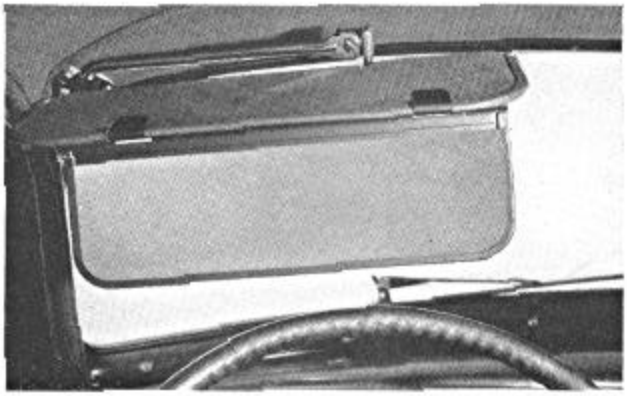
Here's why Hudson Glare Shields are outstanding.

Look at the construction — A sturdy frame made of best tempered spring steel, and a window of high-quality, non-breakable, non-inflammable PYROLIN.

Many color tests were made to make certain that the coloring of the window material was the most effective that could be used to obtain glare protection without sacrifice of vision.

This shield effectively eliminates glare and at the same time gives the driver a clear view of the road ahead.

It is handy — with one movement the driver can place it in position to serve its purpose.



It can be adjusted high or low to suit every condition as well as the individual driver.

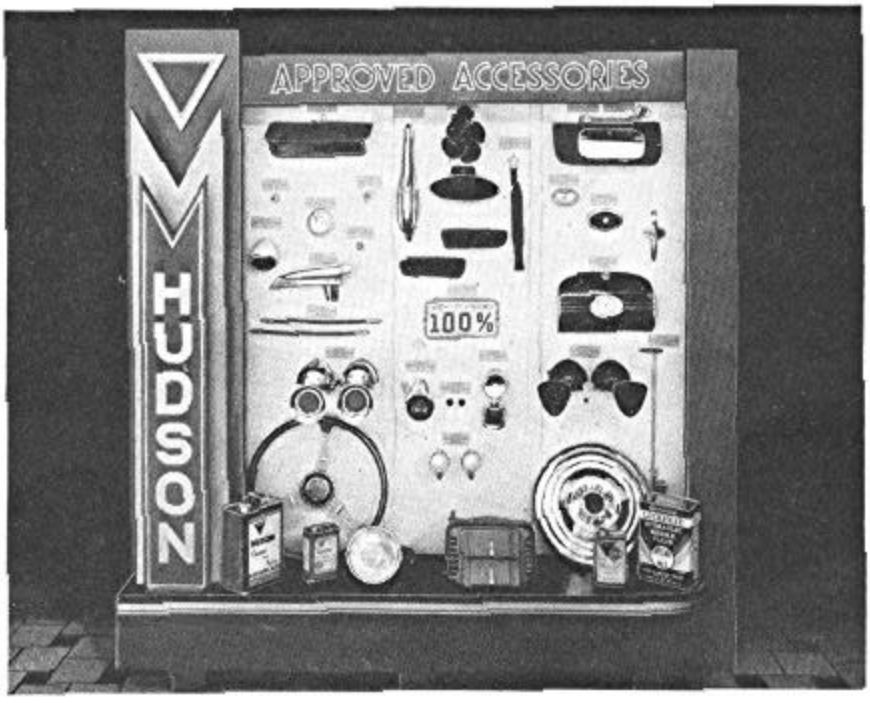
It is low priced and the biggest dollar's worth of convenience, comfort and safety offered today in an automobile accessory.

It is quickly installed — less than a minute is required to slip a Glare Shield over the edge of the sun visor.

Increase your Glare Shield sales NOW. Display them in your Service Department. Show them to your Service Customers. Show them to Customers in your showroom. Display them at your used car lot or showroom.

Equip your showroom cars with Glare Shields.

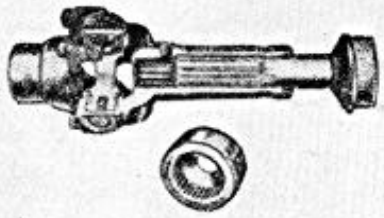
Sell them to all new car buyers.



The Mosbacher Motor Company, Wichita, Kansas, Distributor emphasizes the fact that an attractive Accessory Display is an important factor in maintaining a large retail Accessory volume. Their Accessory Display Board is kept up to date at all times as you will note from this picture. A feature they have installed on their board, which is very helpful to salesmen, is the labeling of each item with price and part number.

HUDSON-TERRAPLANE OWNERS

SERVICE BULLETIN
No. 2



A SERVICE HINT FROM HUDSON FACTORY-

DO NOT NEGLECT THIS IMPORTANT SERVICE OPERATION- Universal Joints must be disassembled and repacked with the proper grease, every 10,000 miles. They CANNOT be lubricated in any other manner. Ask your dealer about this vital service.

A REMINDER-

Have you had your battery registered by an Authorized National Battery Dealer? If not, do so and let him keep an eye on your battery. It will last longer. The gravity reading should be 1250 or over.

A RECOMMENDATION-

Have the man who lubricates your car give it a thorough mechanical inspection. It might be the means of preventing a serious accident. This man can easily check important mechanism while your car is on the hoist. Ask your dealer about this FREE SERVICE.

GOOD LOGIC-

New, highly polished furniture would hardly be expected to retain its finish without constant care, especially in hot climates. Therefore it is reasonable to believe that a car which is subjected to different kinds of weather should have periodic attention by cleaning and polishing, with the polish your dealer recommends. The use of the wrong polish may seriously injure the finish.

We hope you like these Bulletins which will be mailed to you monthly. It is our means of giving you technical advice which will help you to get all the service out of your car which the factory built into it.

Yours very truly,

HUDSON-TERRAPLANE DEALERS
of the Los Angeles Metropolitan Area

"For your protection—patronize dealers displaying this sign"

Downtown • FISHMAN MOTORS, INC.
1616 South Figueroa Street . . . . . PRospect 8301

Eastside • F R A N K R H O D E
634 Wall Street . . . . . VAndike 6886

Belvedere • MUELLER AUTO SALES
4917 Whittier Boulevard . . . . . ANgelus 8910

South Broadway • WEIMER MOTORS, INC.
4780 South Broadway . . . . . ADams 4279

Huntington Park • DICK KLEIN, INC.
2519 East Slauson Avenue . . . . . Kimball 3201

San Gabriel • BARLOW'S AUTOMOTIVE SERVICE
811 East Broadway . . . . . Alhambra 963

Washington Blvd. • WESTERN MOTORS & EQUIPMENT CO.
3225 West Washington Boulevard . . . REpublic 3181

Jefferson Boulevard • I. FRANK DOWNS
119 West Jefferson Boulevard . . . . . PRospect 2511

Hollywood • W. A. T A N N E R
6465 Sunset Boulevard . . . . . HEmpstead 4151

Santa Monica • JOHN C. HOFFMAN
1221 Santa Monica Boulevard . . Santa Monica 29949

Inglewood • GERALD F. SPARLING
217 N. Commercial St. . . PLeasant 8777, Inglewood 1702

Glendale • BOSWELL & GRATIOT COMPANY
1230 S. Brand Blvd. . . . OMaha 34214, Kenwood 3402

Above is a reproduction of one of the Series of Service Bulletins which the Los Angeles, California, Metropolitan Dealers are sending to Hudson and Terraplane Owners to better acquaint them technically with certain features of Hudson and Terraplane cars and stress the importance of having service work done by Authorized Dealers.

Fuel Pumps

Due to the differences in spacers, gaskets, baffles and insulators used between the crankcase and the standard and combination fuel pump, there is a possibility that improper operation or oil leaks will develop if these parts are not properly selected and installed.

It is important that the correct spacer be used to obtain the correct pump stroke. The spacer for the standard pump is composed of five layers and is .275" thick, compressing to .250" when installed.

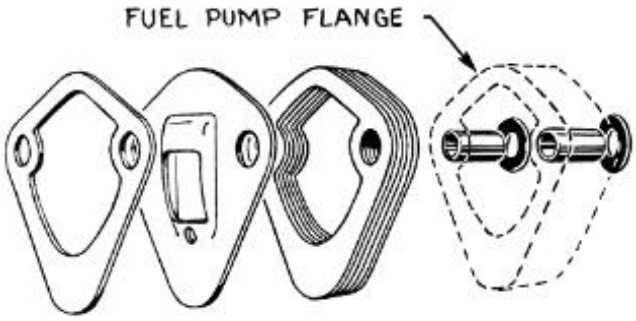


Fig. 1

The spacer for the combination fuel and vacuum pump is composed of six layers and is .312" thick, compressing to .281" when installed. These spacers are identical in outside shape and location and size of bolt holes.

The interior openings in the spacer differ as shown in Figures 1 and 2.

Note in Figure 1, that the spacer is placed next to the standard fuel pump, then the baffle is placed with the flat side against the spacer, then the gasket between the baffle and the crankcase. In this installation two insulating sleeves and insulating washers are used over the attaching cap screws.

The baffle for the combination fuel and vacuum pump as shown in Figure 2 is shaped to fit into the opening of the pump mounting flange. This is inserted with the flat side toward the pump and the small tongue over the return drain hole at the bottom. If this baffle is reversed, the flange at the top of the center opening will strike the pump arm. Also the flapper over the drain hole will prevent oil from returning to the crankcase. Improper installation will permit oil loss from the breather hole in the pump body.

The spacer is placed between the pump and the crankcase, also acting as a gasket.

When installing either of these pumps, be sure the operating lever is placed between the camshaft and the right side of the crankcase before attempting to insert the mounting screws.

There have been a few cases in early production 1937 models where a noise developed similar to one noisy tappet. This has been traced to upper end of the pump operating lever striking the right side of the crankcase on the suction stroke. This can be corrected by filing the back of the lever near the end. Usually a bright spot on the lever will indicate the point at which this contact is made.

If the windshield wiper does not operate at proper speed or not at all on a car equipped with the combination fuel and vacuum pump, the vacuum of the pump should be checked with a vacuum gauge. The line leading from the pump to the intake manifold should be disconnected. The vacuum gauge should then be connected to the line leading to the windshield wiper.

At cranking speed, the vacuum gauge should read 8½" of mercury and 11" of mercury at 1800 R.P.M. which is equal to 35 M.P.H. car speed.

This same check, as well as a check of proper baffle and spacer installation as previously covered, should be made in any cases of excessive oil consumption. If the vacuum pump diaphragm becomes

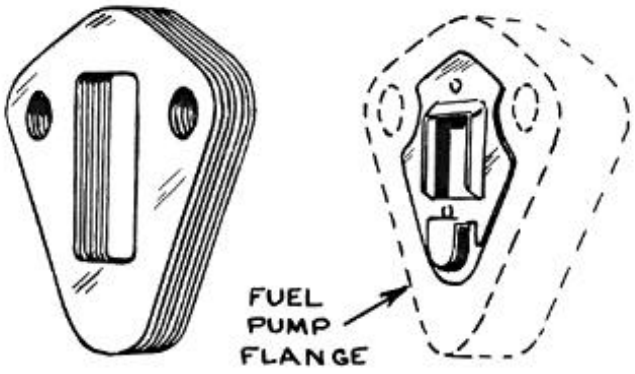


Fig. 2

punctured, the manifold vacuum will draw oil through from the crankcase, pass it into the intake manifold, through the engine and out the exhaust, thus depleting the engine oil supply leaving no signs of leakage.

Experience shows that vacuum pump diaphragms rupture very infrequently, in fact even less than the diaphragms of the fuel pump, as the vacuum pump operates only when the manifold vacuum is too low to operate the windshield wiper. Since, however, this is a possibility, the check should be made as suggested.

Air Cleaner Service is a profitable operation which can be sold while cars are being lubricated. Are you getting this business?

National Parts Activities As They Relate To Dealers . . .

T. H. STAMBAUGH, Director, National Service Operations.

NOTE—This is the first of a series of five articles by Mr. Stambaugh on the above subject which will appear in the Monthly Service Magazine.

OUR MUTUAL INTERESTS

● WHAT IS THE PARTS BUSINESS: This question is asked so many times and answered in terms usually general or to fit one or another of its many phases. You, and we are interested in the answer as it relates to the interests of the Hudson Motor Car Company, its Distributors, its Dealers and its Owners.

GENUINE PARTS FOR DEALERS

● CANNOT AFFORD TO RISK GOOD SERVICE WITH INFERIOR ITEMS: Therefore, we cannot other than approach the subject from the angle of Genuine Approved Merchandise. If one knows the story behind the scenes of motor car research work, a laboratory activity which carries through the entire year, one's ideas change about substitution material. If you could see the analysis of many of the sub-standard parts collected by the various research departments, you would be amazed at the results. Important life-depending Parts like king pins, shackle bolts, pitman arms, drag links, bearings, and many others sold on the market and distributed through many outlets, show weaknesses of an alarming nature. When we get into the motor parts, so-called special pistons and special rings, pins, and rods, on which motor life depends we find combinations of materials entirely unfitted for any motor car use. Sub-standard competition has gone to great lengths in its attempted imitation of many other Genuine Parts, with endless and unfounded claims for their worth.

MANUAL OF OPERATIONS

● EVERY DEALER SHOULD READ: Complete information on Parts policies and operations is set forth in the Parts Section of the 1937 General Policies Manual, which is in every Dealer's hands. We will not repeat its contents here because, as you know, it is a complete treatise in itself and should be thoroughly studied by members of the Distributor organization, as well as the Dealers. We will treat only those important phases which have to do with Dealer contact by Distributors' Wholesale Representatives and Special Service Travelers.

STOCK ROOM LAYOUT

● EVERY DEALER'S PLACE DIFFERENT: Many times Factory Development material for Dealers usually includes a mass of layouts, floor plans and recommendations as to how the stock rooms should be laid out. These all make pretty pictures and help fill up a book, but they are not a bit helpful to the Distributor or Dealer because every place is different and the amount of space to be utilized is only what actually can be had and there is no more.

PLAIN COMMON SENSE

● AVAILABLE SPACE AND CONSTRUCTION DICTATE COURSE: So we do not attempt to apply strictly the theoretical for the sake of gesture. We merely advise our people to use judgment with the available space and meet the situation as best the inside construction of the building will permit. We do suggest that you follow certain basic principles as a guide and line up the stock in accordance with these ideas, if construction permits.

STOCK ROOM LOCATION

● IMPORTANT AND HELPFUL: If the internal arrangement of the Dealer's place permits, the stock room should be located conveniently to serve shop purposes, as well as the needs of outside purchasers. An ideal layout can easily be planned when a building is being revamped or when new quarters are being constructed. The Distributor is always glad to lend his services to such projects, if desired.

FIXED LOCATIONS

7

● COUNTER THROUGH SHOW ROOM WALL: When fixed locations of offices, toilets, etc., have to be contended with, the problem presents a difficult picture. If it is possible, an opening for a counter in the show room, for counter customers, is desirable. The shop, however, is always the largest customer, and its needs for economy's sake, must be considered first.

BIN AND RACK LOCATION

8

● NOT TO BE OVERLOOKED: The setting up of stock room equipment, such as bins, racks, etc. should give consideration to appearance always. Customers entering the shop are always impressed with the neatness, orderliness and apparently well stocked condition of the Parts Department. Keep material off the floor. Bins and racks can be secured at reasonable prices, and from every viewpoint are good investments.

To Be Continued In June Magazine

The O'Donnell Motor Company, Minneapolis, Minnesota, Distributor, recently installed this effective Accessory display background in back of their Parts counter. In addition to this display, they have three other Accessory Displays in their plant. Mr. C. J. Brisco, Service Manager for the O'Donnell Motor Company says that increased Accessory sales have proven to them the merchandising value of these displays.

The two Terraplane Commercial cars shown here are used by Von Schlegell, Inc., Baltimore, Maryland, Distributor. The Cab Pick-up is used for making local pick-ups and deliveries, while the Panel Delivery is used by the Service Traveler that he may carry a complete line of fast moving parts and accessories for immediate delivery.

Note also the motorcycle for calling for and delivering customers' cars.

Answers to Questions on Mechanical Procedure Manual

There have been requests for us to publish the answers to the questions which have appeared in the recent issues of Hudson-Terraplane Service. The answers are, of course, to be found in the Mechanical Procedure Manual and articles in this publication, and we hope you have the right answers on all these questions.

For those who are in doubt about their answers, we are giving them below for the questions which appeared in December and January issues.

December, 1936, Issue—Page 43

(1) Q. What are the six types of lubricants recommended (brake fluid and shock absorber fluid not included)?

A. (1) Engine Oil.
(2) Hudsonite Clutch Fluid.
(3) E. P. Gear Oil.
(4) Viscous Grease.
(5) Wheel Bearing Grease.
(6) Aluminum Soap Grease.

(2) Q. Why is aluminum soap grease recommended for water pump and drag link lubrication?

A. The lubricant must be insoluble in water and should not wash off.

(3) Q. What may result if regular chassis lubricant is used in the water pump?

A. Chassis lubricant (viscous grease) is soluble in hot water, and grease dissolved into the water of the cooling system will cause sludge and clog the radiator.

(4) Q. Why is a special lubrication fitting used in the water pump?

A. To prevent the grease being forced into the cooling system by the pressure of the grease gun. When the reservoir is full, the fitting plunger rises closing the entrance passage so that pressure can not be built up in the reservoir to force the grease past the seal.

(5) Q. What are the two general types of E. P. Lubricants?

A. (1) Mild E. P.
(2) Active E. P.

(6) Q. What S.A.E. number engine oil should be used when a minimum temperature of zero and a maximum of 40° above zero is expected?

A. By referring to the chart on page 4, section 2, we see that either 10W or 10W+ 10% kerosene is satisfactory at zero. However, we find that 10W or 20W is satisfactory at 40° above zero. We, therefore, select 10W since it is the only oil satisfactory throughout the expected temperature range.

(7) Q. If a battery shows a gravity of 1.250 or better, open circuit voltage of 6+ and a voltmeter attached across the battery drops to 4½ to 5 volts when the starter button is pressed and returns slowly to 5½ volts, what further tests of the battery and starting circuit should be made?

A. Look for corroded terminals, corroded or broken battery cable or ground strap, dirty starter switch, commutator or brushes.

(8) Q. If the manifold drip valve sticks open, what effect will it have on the 1937 Hudson 8 engine at idling speed. What effect on Terraplane and Hudson 6?

A. Due to the drip valve being located in the front of the manifold in the Hudson 8, it will have little or no effect on the rear four cylinders while the mixture on the front four will be lean causing them to fire weakly or miss fire if the carburetor idle adjusting screws are set within the allowable limit of ¼ to ¾ turns off the seat. A vacuum gauge will show a low uneven reading.

The drip valve in the Hudson 6 and Terraplane is located on the central passage of the manifold and will affect all cylinders alike giving a low vacuum reading: however, even idling speed can be obtained by a rich idling screw adjustment. If, however, the idle screw must be backed out beyond the recommended limit (¼ to 1 turn on single carburetors, ¼ to ¾ turns on Duplex carburetors), place the finger over the lower end of the drip valve tube to prevent leakage and recheck vacuum and idle adjusting screw. If normal operation is obtained, replace the drip valve.

(9) Q. What will be the effect on performance if the anti-percolating valve or valves do not close as soon as the throttle begins to open?

A. The engine will receive a lean mixture and miss or stumble.

If the anti-percolating valve is open when gas begins flowing through the main nozzle, air will be drawn in and mixed with the gasoline. This mixture will be delivered through the main nozzle instead of liquid gasoline. This reduces the amount of gasoline entering the manifold and gives a lean mixture giving the effect of a partial vapor lock.

(10) Q. How much fluid is required in 1937 shock absorbers?

A. Hudson 6 and 8—Front 6¼ oz. Rear 6¼ oz.
Terraplane —Front 5 oz. Rear 5 oz.

January, 1937, Issue—Page 53

(1) Q. Why is the cylinder compression test made first in an engine tune-up?

A. You can not obtain normal performance or correctly test carburetion or ignition systems unless compression is proper.

Low compression in one or more cylinders will reduce the efficiency and power in that or those cylinders.

Low compression reduces the load on the ignition system so that it may not show weaknesses which actually exist.

Uneven compression causes uneven flow in the intake manifold and makes correct carburetor diagnosis and adjustment impossible.

(2) Q. What color is the porcelain in a "healthy" spark plug?

A. Light brown.

(3) Q. Give 4 reasons for valves not seating properly.

A. (1) Insufficient tappet clearance.
(2) Valve stems sticking in guides.
(3) Weak or cocked valve springs.
(4) Valve guides worn.
(5) Valve head warped or stem bent.
(6) Seats not properly refaced and ground.

(4) Q. When should valve springs be replaced?

A. Valve springs should be replaced when it requires 34 pounds or less to compress them to 2" length.

(5) Q. How can you check the battery condition with a voltmeter only?

A. (1) Select open circuit voltage; if less than 6 volts, battery is discharged or worn out. Battery must be charged before further tests can be made.
(2) With voltmeter connected across positive and negative terminals of battery, press starter button. Voltmeter should drop back to 3 to 4 volts immediately and quickly return to 5 to 5½ volts and maintain this for 15 seconds of cranking. Slow return of hand indicates worn out or discharged battery.
(3) If battery is charged above 1.250 gravity, repeat test 2 with voltmeter connected across one cell at a time. If voltmeter reading of lowest cell is more than 0.1 volt below highest cell, battery is worn out.

(6) Q. What bad condition will develop in a battery if it is left in use for some time with the gravity continuously under 1.250?

A. The battery will become "sulphated" reducing its ability to take a charge and its capacity for giving out current.

(7) Q. Why is an ammeter always connected in series in the circuit in which the current flow is to be measured?

A. In order to measure the quantity of current flowing, the meter must be connected so that the current flows through it.

(8) Q. How is a voltmeter connected in a circuit? Why?

A. A voltmeter is always connected in parallel; that is, to the two points between which the difference in pressure is to be measured.

The voltmeter measures the electrical pressure available to cause current to flow. By connecting the voltmeter at a point of high electrical pressure and one of lower electrical pressure, we measure the difference in pressure between the two points.

(9) Q. How can you check for a poor ground between the distributor housing and the cylinder block? Why is this test important?

A. (1) Turn on the ignition switch and turn the engine until the distributor points are closed. Connect one terminal of a voltmeter to the distributor housing and the other to the cylinder block. If the ground is poor, the voltmeter hand will move when the connection is made to the cylinder block.
(2) If this ground is not good, the current flowing through the primary ignition system will be reduced and weaken the ignition which will be particularly noticeable under high speed operating conditions.

(10) Q. What is the effect of having distributor points out of line or the surfaces not parallel?

A. When full point contact is not obtained, the current flow in the primary ignition system is reduced, weakening the ignition. Reduced contact also causes rapid burning of the points.

'Interesting News'

Hudson Motor Car Co.
Detroit, Mich.

Yesterday we received the advance copy of Service Magazine No. 6, in which you so kindly placed the reproduction of our new lubricating department. We are pleased to know that the set-up met with your approval and appreciate the space given to us outside of the photo.

As you might already know, we received a supply of these magazines each month, and each mechanic in our service station has one handed to him. Most of them have their own binders and in these you will find practically all of the Service Magazines from Vol. 1, December, 1933, to date.

However, when the writer showed this month's number to the Salesmen, one Salesman spoke up and said, "Why can't I have one of these for my Sales Kit? I have lots of inquiries about our Service, especially from those prospects who have never traded with us, and this bulletin would prove to them that we had been recognized by the Hudson Factory as having an up-to-date Service Department in charge of a man who had worked on Hudson-built products for years."

This was a good thought, and one that can well be carried out throughout the Hudson Dealer Organization. Perhaps it would serve as a stimulant to some of the other dealers to "paint up" and get in the picture.

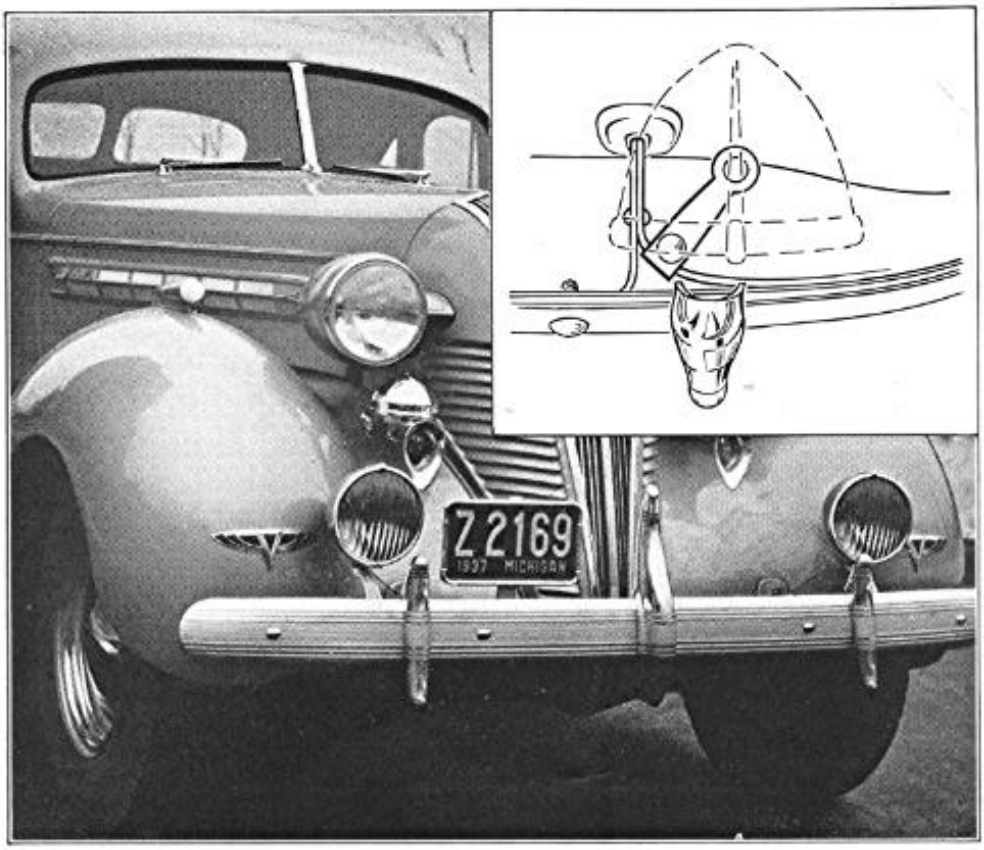
So we are asking that, if possible, you send us at least six copies of this #6 issue for our Sales Department.

Thanking you in advance for this favor, we beg to remain

Yours very truly,

H. C. T. MOTOR & EQUIPMENT CO.

Signed—E. E. Tunison



This picture shows the correct mounting position for Hudson Fog Lights—note the position of the Fog Light mounting bracket on the bumper-to-frame support bar as shown in the sketch in the upper right-hand corner.

Fog light sales are growing in leaps and bounds. Are you getting your share of this business?

Cooling System Service

The automobile engine cooling system is mechanically very simple but the importance of its functioning correctly can be seen when it is understood that the cooling system must absorb heat energy in excess of the mechanical energy developed to drive the car. This actually means that an engine developing 100 Horsepower must have a cooling system capable of absorbing more than 100 Horsepower in heat units.

The heat which must be absorbed from an engine developing 100 Horsepower is sufficient to raise the temperature of 225 gallons of water from room temperature (70°) to boiling temperature (212°) in one hour.

TRANSFERRING HEAT FROM COMBUSTION CHAMBER

This heat is, of course, generated in the combustion chambers of the engine cylinders and transferred to the pistons, cylinder head and walls. It is conducted through these parts to their outside surfaces which are in contact with the cooling water.

Any accumulation of rust, scale or sludge on the surfaces of the cooling system will prevent the water from making direct contact with the parts and the heat will have to be transferred through the accumulated sediment to reach the water. This slows up the process of transfer of the heat and increases the temperature of the engine parts.

EFFECT OF HIGH TEMPERATURES

It is not necessary that the cooling surfaces become completely covered with sediment to have bad effects. A covering on a small part of a cylinder wall will cause that portion to overheat and localized expansion of the metal will cause distortion. For example, formation of sludge in the bottom of the water jacket will insulate the bottom of the cylinder so that it will retain the heat and cause that portion to expand execessively. This will also reduce the transfer of the heat from the piston while it is traveling in the lower portion of the cylinder so that the piston will expand abnormally. Now with normal cooling and normal expansion of the upper cylinder wall, the piston may seize due to insufficient clearance as it reaches the top of its stroke.

Uniform cooling is an important part of correct cooling.

REDUCED COOLING CAPACITY OF RADIATOR

If the radiator becomes clogged or partially restricted, both the flow of water through the radiator and the transfer of heat to the outside will be restricted. If the radiator becomes coated on the outside with mud and bugs, the transfer of heat to the outside and the flow of air will be restricted reducing the cooling capacity of the radiator.

If the fan belt slips, the fan blades are bent or the water pump is worn, the cooling capacity of the radiator will be reduced. Clogged or collapsed hose connections will also reduce the cooling capacity of the system.

THERMOSTATIC CONTROL

Since most cars do not operate under extreme high temperatures at all or only occasionally, they are actually over-cooled unless some means of restricting the cooling is provided. The thermostatically controlled by-passing of the water from the cooling jackets, direct to the pump as shown from D to C in Figure 1, preventing it from being cooled before recirculation, until a normal operating temperature is reached, and then controlling the circulation through A to the radiator so that this temperature is maintained, is important in obtaining not only fuel economy but also in preventing excessive wear on engine parts by high crankcase dilution and scuffing because of "cold" lubricant.

The functioning of the thermostat, whether the

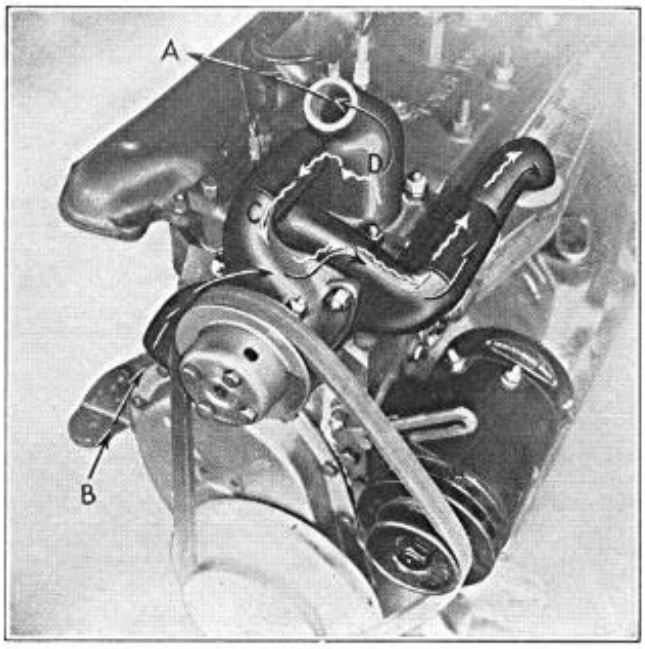


FIGURE 1

standard equipment with the bypass or the accessory hose line type where a hot water heater becomes the bypass, is very important. Its point of opening should be checked as a part of a complete cooling system service.

TESTING THERMOSTATS

The thermostat can easily be tested by placing it in a pail of water with a thermometer (Figure 2). The water should be heated until the thermostat valve begins to open at which time the thermometer should show from 150° to 155°F. Continue heating the water until the thermostat valve is wide open when the thermometer should show 185°F.

The above figures are based on standard production thermostats and Hudson Accessory thermostats. These are suitable for use with water or solution of water and the various types of antifreeze. In some cases it is desirable during extreme cold weather to increase the temperature of opening of the thermostat to increase the heat given off by the hot water heater. When thermostats of higher than standard opening temperatures are installed, it is essential that only a permanent type anti-freeze be used.

Thermostats which do not open completely should be discarded.

CAUSE AND PREVENTION OF SCALE

Scale and foreign matter deposits depend to a large extent upon the mineral content and cleanliness of the water put into the cooling system but probably to a larger extent on the quantity of water added. The dirt and mineral contained in one filling of water is seldom sufficient to cause any trouble, but if it is necessary to be continually adding water to offset either boiling or leakage, scale will become a factor. It is, therefore, important to keep the cooling system free of leaks and boiling as well as being careful of the water used to keep down scale deposits.

Iron rust will not adhere to the surface on which it is formed but will fall off and accumulate in the bottom of the passages. Some of it will be carried by the water throughout the cooling system. If the water is allowed to boil in the engine jackets, increasing the agitation, large flakes of the rust will

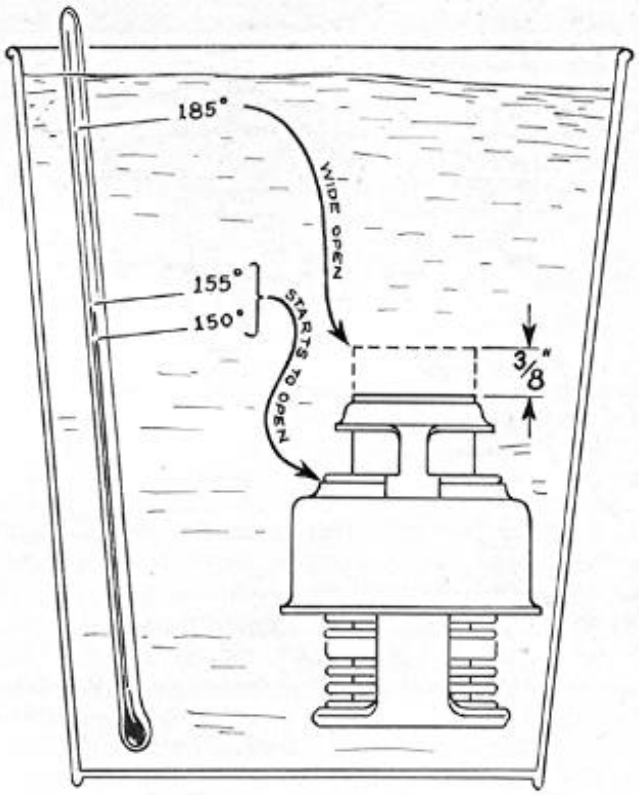


FIGURE 2

pass to the top of the radiator and be deposited on top of the core passages plugging them and restricting the water flow.

Corrosion or rusting is oxidization, that is, combination of the iron or other metals with oxygen. In order for this corrosion to take place, it is necessary that oxygen come in contact with the metal. Most of this oxygen comes from air dissolved in the water.

The main sources of air in the cooling water which we must consider in servicing a cooling system is through leaks between the bottom of the radiator and the pump intake. Due to the action of the pump, the pressure in this part of the cooling system

is below atmospheric pressure so that air will be sucked in through any poor connection which may exist.

In the 1936 and 1937 Hudsons and Terraplanes, the connections which must be considered from this angle are, lower hose connections only. On 1934 and 1935 models, the cylinder side plate and cylinder

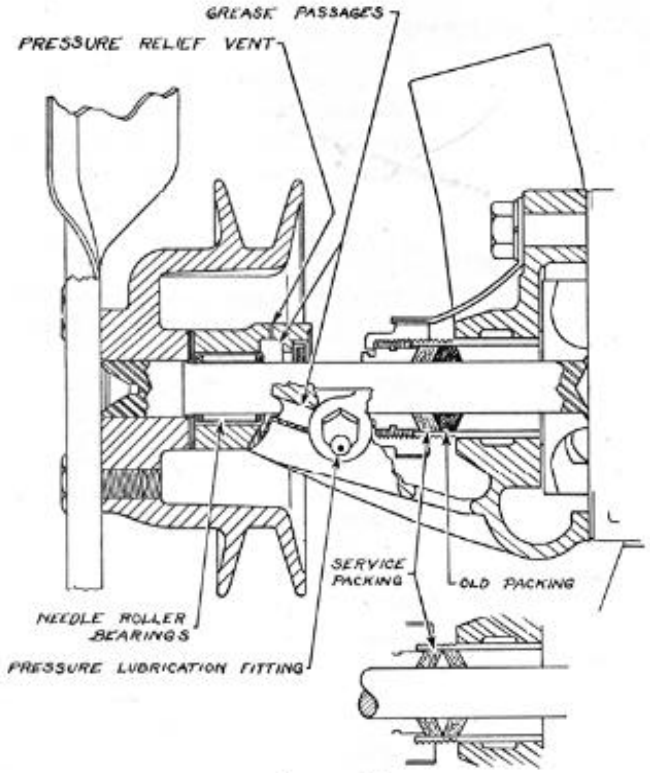


FIGURE 3

head gasket must also be considered as these are on the suction side of the pump.

Remember that any leakage of water at these points when the engine is not running is an indication that air will enter when the engine is running. It is, of course, important to repair these leaks to prevent water loss but equally important to prevent air leaks and increased corrosion.

RUST AND CORROSION INHIBITOR

As mentioned before, oxygen must come in contact with the metal before corrosion can take place. Inhibitors have been developed which when added to the water in the cooling system, prevent this contact by coating the metal with a thin protective film. Hudson Rust and Corrosion Inhibitor is one of the most efficient of these. The effectiveness of any inhibitor is limited to about 6 months after which the cooling system should be drained, flushed and refilled and new inhibitor added.

CAUSE AND PREVENTION OF SLUDGE

Sludge is practically non-existent when the cooling system is free of oil. Oil or grease in the presence of rubber, heat, rust and water is converted to a spongy sediment. The oil, rubber, heat and water are the main requirements for this formation, the rust acting only to accelerate the action slightly.

There are two ways in which the grease supplied to the water pump bushings may enter the cooling water. The first is by over-lubrication whereby the grease is actually forced through the bearing into the pump body to be circulated with the water. The second is by the water coming in contact with the grease on the bearing and dissolving it.

WATER PUMP SERVICE

The water pumps on the 1934 and 1935 model Hudsons and Terraplane (Figure 3) use an oilless bearing at the rear of the pump shaft so that no grease can enter the system from this point. The 1936 and 1937 pumps (Figure 4) as well as the replacement pump (part #151932) for the 1934 and 1935 models (Figure 5), are of the packingless type having both the front and rear bearings lubricated from a central reservoir. This reservoir is filled through a pressure fitting so that precautions must be taken to prevent the pressure available in the grease gun from forcing grease through the rear bearing into the pump.

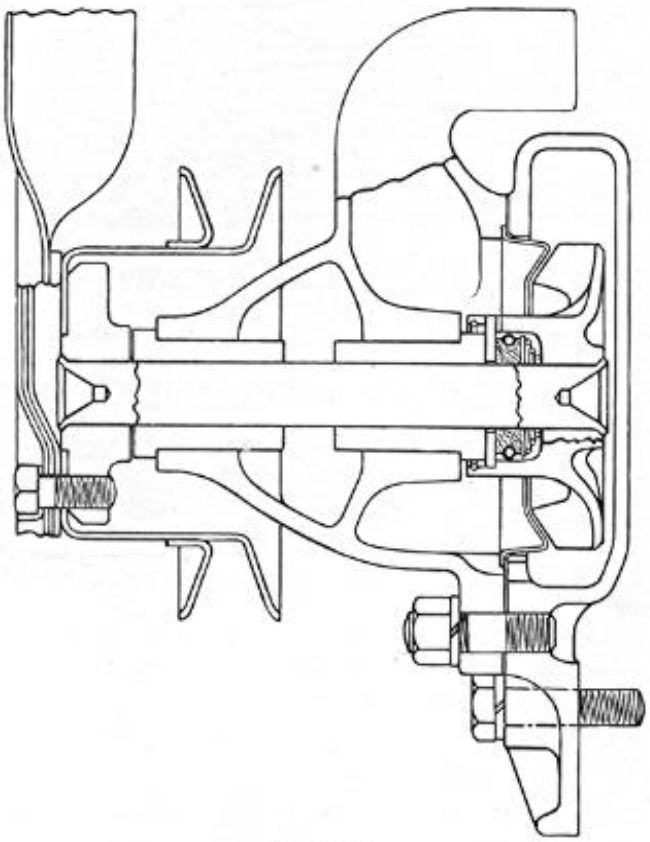


FIGURE 4

A special pressure fitting of the cut off type as shown in Figure 6 is used. When the reservoir is filled, the plunger rises cutting off the flow of grease from the gun thus preventing pressure in the reservoir.

The early 1936 models were not equipped with this fitting and it is strongly recommended that this new fitting be installed whenever a pump is found with a standard pressure fitting.

WATER LEAKS AT PUMP

The packingless type pump depends on the finish and trueness of the rear face of the rear bearing (1) and the front face of the stainless steel washer (4) which is held against it by a spring (3) to prevent

water from leaking into the bearing or grease leaking into the pump (Figure 7). The stainless steel washer rotates with the shaft and leakage along the shaft is

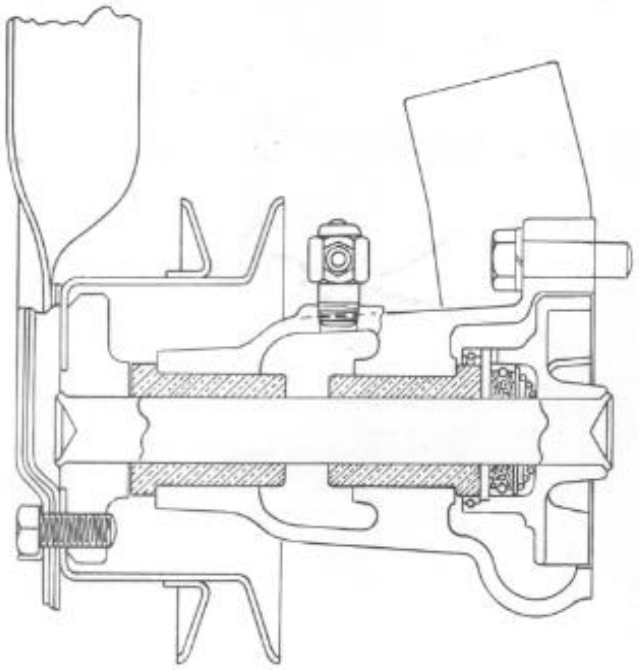


FIGURE 5

prevented by a graphite impregnated cork ring (2) held in place by a spring.

The finish of the thrust face of the bearing and the thrust washer must be smooth, and these surfaces must be flat within .00025″. In order to maintain this accurate surface and also to obtain correct clearance of the shaft in the bearings, it is absolutely necessary to use a special puller (Water pump repair set J-788) to install the bearings. The use of a hammer or even an unguided driver will damage the thrust surface and also allow the bearing to collapse and bind the shaft. This binding can not be overcome by reaming due to the type of material of which the bearings are made.

FIGURE 6

REPLACING WATER PUMP BEARINGS

The bearings as supplied for Service are .6205″ to .6206″ inside diameter. When they are pressed into the pump housing, the inside diameter is reduced to .6185″ to .6190″. In order to obtain this dimension, which gives a clearance on the shaft of .0015″ to .0025″, a pilot must be used which is accurately ground to .6188″. This pilot is provided as a part of the Water Pump Repair Kit — Part No. J-788.

If the clearance of the shaft in the bearing is excessive, it will allow the shaft to wobble, throwing the stainless steel washer out of line with the thrust face of the bearing, causing leakage.

CORRECT LUBRICANT

Even if the seal is perfect there is still a possibility of the bearing lubricant coming in contact with the water in the normal functioning of the pump. It is, therefore, essential that a lubricant be used which will not dissolve in hot water. Ordinary viscous greases used for chassis lubrication do not have this quality and should never be used in the water pump. The only lubricant recommended is Aluminum Soap Grease.

REMOVING DEPOSITS

Either corrosion scale or scale formed by the impurities in the water may adhere to the surfaces on which they are deposited or may be held in position by oil or grease or may be free to circulate in the system.

The first step in removing these deposits is to drain the cooling system. Before doing this, however, the engine should be run to stir up the loose deposits so that they will be drained off.

The next step is to dissolve the scale from the surfaces or cut the oil or grease binder to free the scale. This is done by dissolving the contents of a container of Hudson Radiator Cleaner in a bucket of hot water and pouring the solution into the radiator. The cooling system should then be filled almost full of water. With the radiator covered, and filler cap tight, run the engine for about twenty minutes but avoid boiling. Stop the engine and completely drain the system by opening the petcock on the bottom of the radiator and removing the pipe plug from the bottom of the cylinder jacket (left side near rear of block).

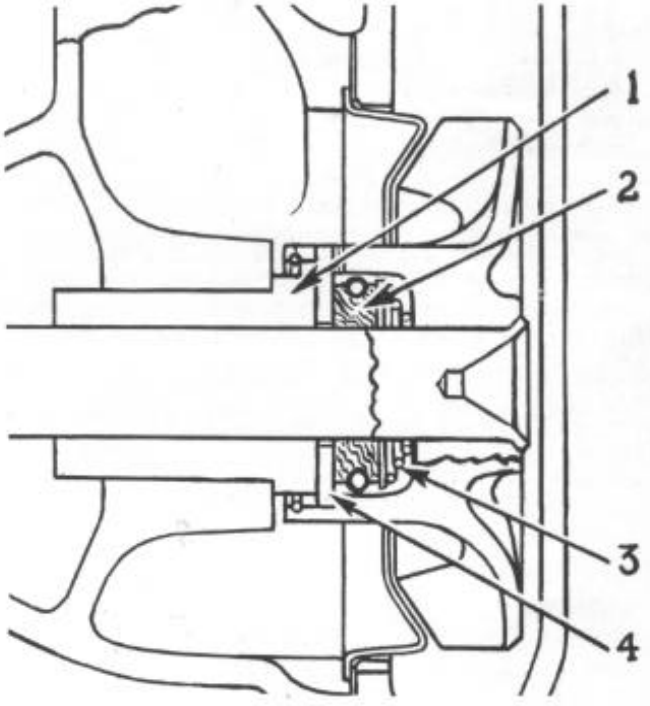


FIGURE 7

The above procedure will loosen the deposits but draining will not completely remove them. Reverse flushing is necessary to remove the loosened deposits and also neutralize the action of the cleaner.

REVERSE FLUSHING

With the above considerations in mind, the reverse flushing gun (J-708) should be connected at the bottom of the radiator as shown in Figure 8 and at the cylinder head as shown in Figure 9.

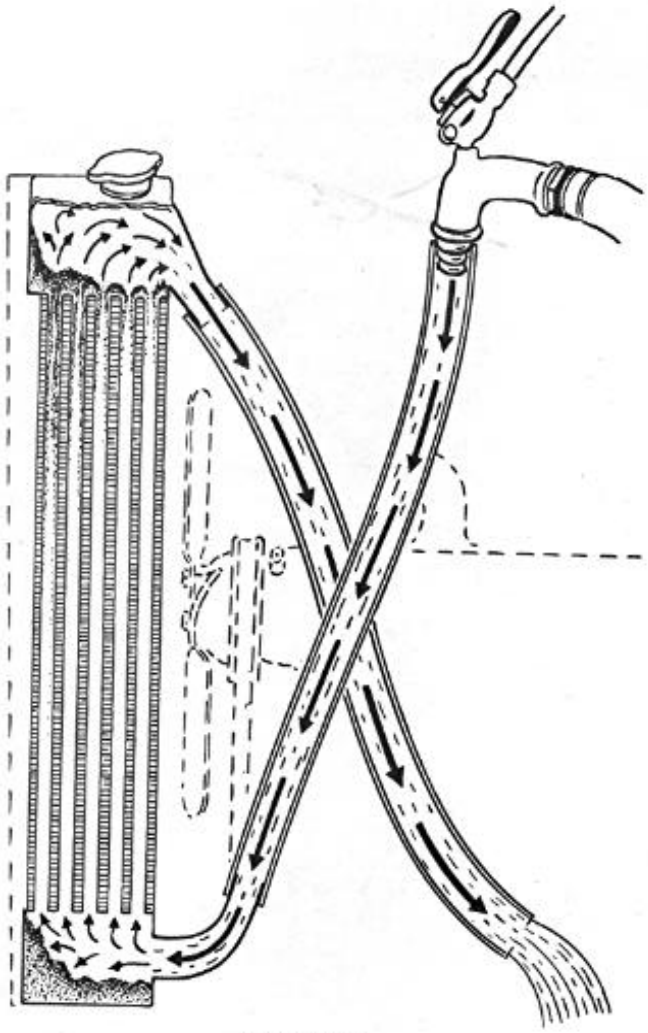


FIGURE 8

Before flushing a 1934 or 1935 radiator the thermostat must be removed from the radiator inlet. Likewise the thermostat must be removed from the cylinder head outlet of the 1936 and 1937 models.

After attaching the gun, turn the water on and allow the radiator or cylinder jackets to fill, then open the air valve three or four times in rapid succession to agitate the water and deposits and blow it out. Repeat this operation until the water comes out clear.

WATER LEAKS

Before replacing the hoses, they should be inspected to see that the inside layer of rubber is not broken or loose and that the hose generally is in good condition. New hose should be used unless the old hose is in excellent condition.

Test the thermostat before replacing.

The cooling system should now be filled and the engine run to displace any air pockets. Check all hose connections and gaskets as well as side plates and radiator core for leakage. It is possible that leaks will be disclosed which were not evident before cleaning. These should be corrected.

When replacing water jacket cover plates, use new gaskets coated lightly on both sides with Perfect Seal Gasket Paste. Be sure the cover plate flange is straight and not cupped around the cap screw holes. Use new brass washers (70177) under the heads of cap screws also coating these with gasket paste. Draw up all cap screws evenly and firmly but not with sufficient force to distort the side plate as this will cause leakage rather than prevent it.

The cylinder head studs should be tightened whether leakage is noticed from the outside or not. The water pump should be checked again for leakage and rebuilt if necessary as covered previously.

The final check is for the condition and adjustment of the fan belt. The "V" type belt does not have to be tight as it gets its grip on the pulleys by being forced down into the groove by the driving pull. Adjust so that 1" sag is allowed between the fan and generator pulleys (E-Figure 10).

If the belt is worn or crooked, it should be replaced by a Genuine Hudson Replacement Belt.

INHIBITOR

Now that the system is clean and in good condi-

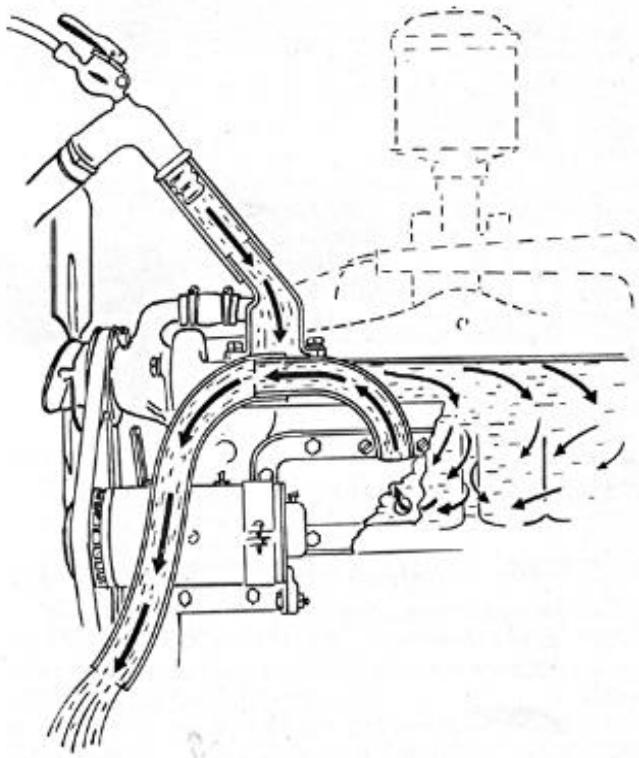


FIGURE 9

tion, it can be kept that way by adding Hudson Rust and Corrosion Inhibitor. This will prevent any accumulation or corrosion or scale for a period of six months or more.

A NECESSARY SERVICE

Cooling system service is necessary to maintain efficient engine performance. It is recommended that it be performed when antifreeze is removed in the spring and again in the fall before adding antifreeze.

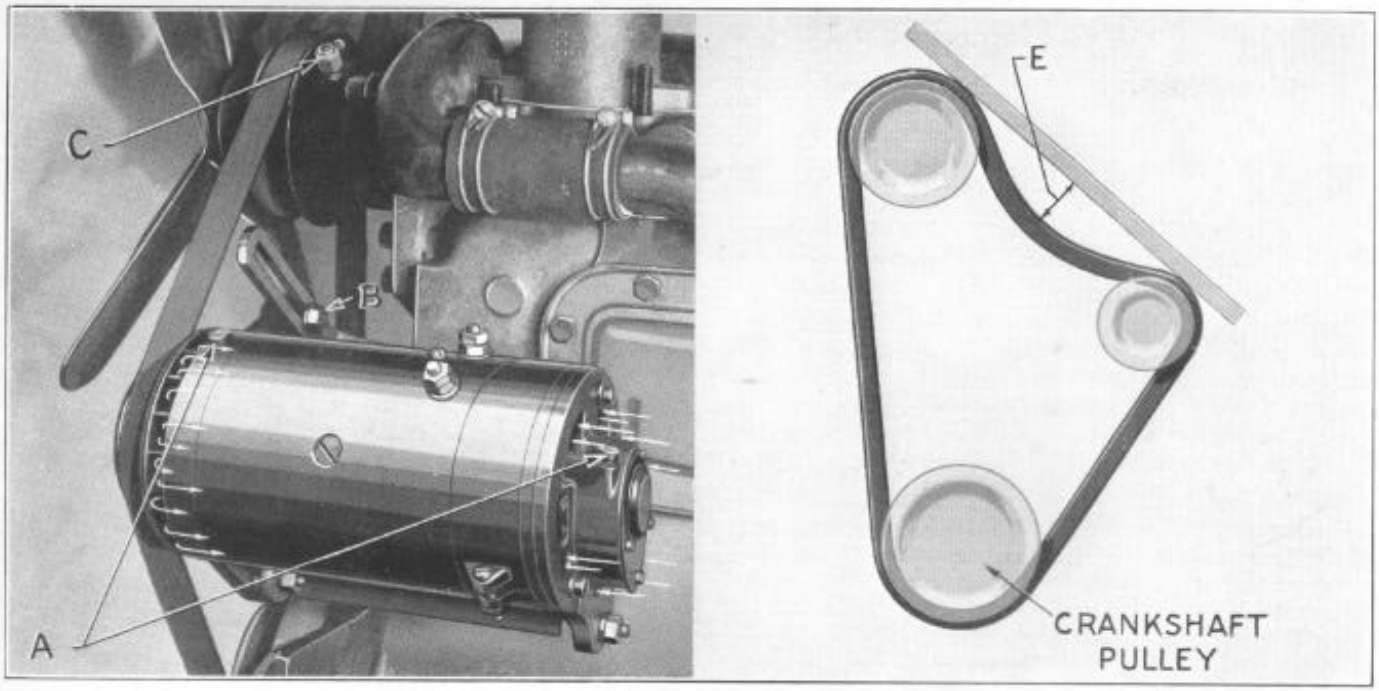


FIGURE 10

Get set now for this extra service which is easily sold during the Spring and Summer months.

COOLING SYSTEM SERVICE EQUIPMENT

J-694 Water Pump Reconditioning Set—1934-1935.
J-733 Water Pump Reconditioning Set—1936-1937.
J-708 Radiator Flusher—All models.
K-341 Radiator Core Cleaner — (outside) — All models.

All above items are listed in the Service Tool Catalogue and are available through Hinckley-Myers—Jackson, Michigan.

NEW WALL CHARTS

Due to the reports of the valuable help which the Lubrication and Engine Tune-up charts have been, both in selling and actually performing the service operations, new charts of similar type have been prepared covering the servicing of the Electric Hand and Automatic Clutch Control.

The procedures set up in these charts are complete and in the most logical order for locating and repairing or adjusting any conditions which may be encountered. Even though you feel that you are entirely familiar and completely competent to service these units, we still recommend that each Hudson-Terraplane Service man refresh his memory on the details of this work and particularly stress the value of adopting the routine as presented. Adherence to this procedure will save time and assure correct operation with the least possible work.

The charts have been mailed to each Dealer **and should be displayed in every Authorized Hudson-Terraplane Service Station now.** If yours has not been posted in your service station, look it up and then hang it up immediately.

Initial Sets Now Available

Prompted by many recent requests for Car Initials the Accessory Division has now made available an attractive set of Stainless Steel Initials for quick installation on 1936 and 1937 Hudson and Terraplane cars.

These Initials are located on the car at the rear of the hood louvres between the two upper chromium mouldings.

The past year has shown a popular wide spread use of initials on many articles of merchandise. The use of initials appeal to many people as a distinguishing mark for their personal properties. Initials also are advantageous as a mark of positive identification which one may recognize at first glance.

Similar car Initials have been on the market for a short time, and motorists are now becoming aware of the fact and are showing buying interest. Of course every motorist desires those most suitable for his car, something which will blend and conform with the characteristics of his particular car. That is why Hudson and Terraplane Owners will want Hudson PERSONALIZED INITIALS designed especially for Hudson and Terraplane cars.

National Sales of Radiator Grille Guards are showing a steady increase—Are you getting your share of this business?

Service Meeting Program

FOR

MAY, 1937

●

Subjects for Discussion

●

Material

April-May Magazine

This Is Radio Season, Go After Those Owners of Both 1936 and 1937 Cars Who Did Not Purchase Radios At The Time of Car Delivery.

"LET THEM BE SEEN"

The Hudson & Terraplane Sales Corporation, St. Louis, Mo., believes in cashing in on extra profits. No opportunity is overlooked to sell Accessories. Here is a special display stand which they have constructed to create buying interest and whereby they can demonstrate Radios to prospective customers.