
HUDSON-TERRAPLANE SERVICE MAGAZINE

INFORMATION ON PARTS • ACCESSORIES
AND TECHNICAL MATTERS

Issue 11

August 1937

1937 Series



“THE 1938 HUDSON
HEATER PROGRAM IS A WOW”

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

(Issues 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11)

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Modernization Results In 176% Lubrication Rise...



BEFORE MODERNIZATION

An increase of 176 per cent in lubrication sales and an increase of 44 per cent in service sales in one year following the introduction of a modernized lubrication system, is revealed in an analysis of the books of the R. J. Schmunk Co., Cleveland distributor for Hudson-Terraplane.

The effect of lubrication work and the car owner contacts established on the general service department business, as seen from the records, show that in the 1935-36 period before modernization was made, service sales amounted to \$35,902.25. From May, 1936 to the end of April, 1937 the volume was \$51,926.04 or a gain of \$16,023.79, amounting to 44.6 per cent increase. In these figures the gasoline sales were not included. Last year the lubrication work amounted to 7.7 per cent of the total service volume. This year, or the period since modernization, the department has developed 14.7 per cent of the volume and has become the most profitable single department in the company's service work. April, 1937 shows that it is becoming even more important from a profit standpoint.

Comparative gross volume is shown in the following table:

	1935	1936	No. of Cars in Latter 1936 Period
May	\$205.64	\$596.99	250
June	225.08	644.93	305
July	207.10	668.82	318
August	256.59	617.52	301
September	191.12	568.77	262
October	205.04	806.09	827
November	228.55	754.86	284
December	181.47	562.96	249
	1936	1937	
January	220.46	550.33	246
February	224.81	511.27	247
March	251.95	611.08	287
April	366.70	742.78	288
	\$2,764.51	\$7,636.40	3324

As is shown, 3,324 lubricating jobs were handled in the department for the year following the modernization of the department and while an accurate record of the cars taken through the department was not available, an examination of the lubrication customer cards showed that 33.2 per cent of the owners were followed up, were or had become regular service customers, and that 38 per cent of the new car owners because of the lubrication follow-up system, were recorded as regular or monthly service customers and regular shop service patrons. The average lubrication sale per car was \$2.29. This does not include wheel packs or drive shaft lubrication which

(Continued on next page)

AFTER MODERNIZATION



would have added a volume of \$45 per month more. It is excluded because according to labor regulations existing in Cleveland any service job which requires removal of parts or mechanical operations must be done in the regular service shop. Had these been added the percentage of increase and the actual volume would have been stepped up several points.

The month by month figures for service are as follows:

	<i>Service Sales</i>	
	<i>1935-1936</i>	<i>1936-1937</i>
May	\$3,024.22	\$4,295.61
June	2,943.02	3,981.35
July	3,309.17	5,237.56
August	3,717.65	4,043.32
September	2,835.15	3,554.52
October	2,780.65	5,580.85
November	2,568.04	5,029.13
December	2,805.00	4,120.68
January	2,623.54	3,650.06
February	3,274.33	3,820.32
March	2,776.68	4,234.55
April	3,244.80	4,378.09
	<hr/>	<hr/>
	\$35,902.25	\$51,926.04
Increase		\$16,023.79
Increase		44.6%

It will be noted that in October and November when seasonal service operations are at their height, that the Schmunk organization, following factory service programs, practically doubled service volume over the previous year, as well as attaining similar results in the lubrication department.

Above Article Reprint Courtesy of Automotive Daily News

Automatic Clutch Governor

The speed range for opening the circuit in the automatic clutch governor has previously been given as 15 to 20 miles per hour. The present range is, however, from 15 to 22 miles per hour.

This change in specification will not noticeably affect the operation of the clutch; however, it should be kept in mind when servicing the equipment.

What Is Your Answer?

1. Why is good shock absorber action necessary for good brake action?
2. Why is a car more apt to skid off a straight line when all the wheels are locked than when the brakes are applied so that the wheels are permitted to roll without slipping?
3. Is braking action greater when the wheels are held by the brakes so that they are just about to stop or when brakes are applied so that the wheels are locked?
4. What is the correct adjustment for front wheel bearings? Rear wheel bearings?
5. If one brake grabs on a hydraulic brake equipped car and all adjustments are correct and brake lining and drum surfaces look in good condition, what is the probable cause?

6. When brakes are unequal after accurate adjustments of the shoes have been made, what can be done to equalize the brakes (a) mechanical operation? (b) Hydraulic operation?
7. What is the effect of adjusting all cables when the brake cross shaft is not against the stop on the 1934 models?
8. Why should only Genuine Hudson Brake Lining be used on Hudson and Terraplane brakes?
9. What is the effect of insufficient clearance between the adjusting nuts and forward end of the mechanical brake equalizer on 1936 and 1937 models?
10. How can a ring gear be most easily fitted to the differential housing?

1936 Lighting Switch

Some 1936 Lighting Switches will cause a short circuit and blow the fuse if the switch knob is pushed in when the switch is in the OFF position.

To prevent this, remove the knob and mounting nut. Place a 1/32" thick bakelite washer (Part No. 155037) on the mounting nut threaded sleeve and replace the nut and knob.

Service Meeting Program

FOR

JULY, 1937



Subjects for Discussion

Are we getting the most out of Lubrication Contacts?	Page 131
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Brake Equalization	Page 142



Material

August Service Magazine

Installing Ring Gears

Ring Gears and Pinions are coated with Protex to prevent rusting while in stock. This can readily be removed by placing the gear in hot water.

If the gear is left in the water a few minutes, it will expand slightly so that it can easily be put in place on the differential housing and lined up with the bolt holes.

ACCESSORY



HIGHLIGHTS

Large Potential Market Open For 1936 Seat Covers

Here we are right in the midst of the Seat Cover selling season and many Dealers are overlooking their largest potential market which is represented by 1936 Hudson and Terraplane owners.

Their cars have been in use for almost a year, and it is natural that the upholstery has become dirty, soiled, or may show signs of wear.

1936 Seat Covers are available at a reasonable price and with little effort there is no reason why one cannot "Cash In" on this profitable business.

Watch every car coming into your Service Station. Is the interior soiled? Is the upholstery worn? Would a set of seat covers brighten and freshen up the interior appearance? If so tell the owner about the features of Hudson Seat Covers and don't forget the extra comfort and coolness which they will give during the hot summer weather.

A Selling Aid

To create buying interest and help Dealers in the merchandising of Tail Pipe Extensions, these units are being packed in lots of ten in a special display box. Part No. HA. Dealers will welcome this attractive counter display package as a means of attracting customer's attention to this item and as an aid in increasing Tail Pipe Extension sales.

Install Insect Screens

Bugs, bees and insects are still a hazard to the cooling system of automobiles during August and September. Suggest the installation of a Radiator Grille Screen to every customer and avoid the possibility of cooling difficulty. Screens are available for all 1935 and 1936 cars as well as for 1937.

These Screens are strictly summer accessories and we must all take advantage of the seasonal opportunity to secure a substantial volume.

Sell Heaters At Every Opportunity

Heaters can and should be sold at the time of new car delivery as every customer who buys a car at any season of the year certainly expects to drive that car through at least one winter. The fact that many Dealers have maintained a large volume of heater sales right through the summer months, proves that heaters are not just a seasonable item, but a real year-around volume and profit making accessory. Let's go after this business on a year-around basis now!

View of the Lubrication Department of Will Goodale Garage, Laramie, Wyoming Dealer.



Engine Testing

In an article appearing in this issue under the heading "Distributor Point Setting," you find information to the effect that the time characteristic of the Hudson ignition coil is less than that of the Terraplane. Development of technical details like this are largely responsible for the improved performance of engines today as against those of some years ago. In other words, the increase in output from approximately the rated output, which was all that could be obtained twenty-five years ago, to nearly five times the rated output, which is now available in Hudson and Terraplane engines, is not due to radi-

cal changes in design but to refinement of details.

cal changes in design but to refinement of details.

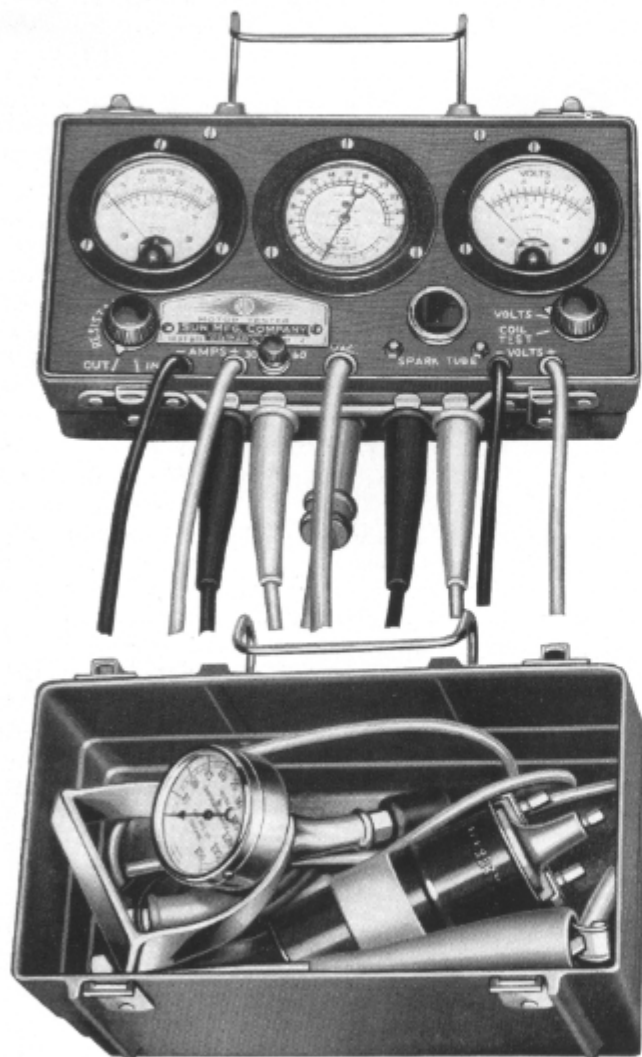
Since the small details are of such great importance in obtaining what we have come to consider normal performance, we must be in a position to give these details accurate consideration in servicing the engine. This means we must have accurate service equipment designed for the purpose.

Complete service equipment must be able to test the six volt electrical system at low current draw and at high starting draw, and the distributor condenser for capacity and leakage. The high tension system

must also be tested for available voltage at the ignition coil and possible losses through the wiring to the spark plug gap.

Accurate compression and vacuum tests are also essential for checking the piston seal, valve action and carburetion.

We have pointed out in various issues the necessity of accurate electrical testing equipment (Ammeter—April, 1936, issue. How much is one-Tenth Volt Worth?—January, 1937, issue—Battery Servicing—February, 1937), and want to add that reliability



and adaptability are also necessary to maximum usefulness.

The only way that we know of getting all these characteristics in Engine Testing Equipment is in a single unit designed to handle the complete testing. Naturally the individual instruments must be accurate, reliable, and so arranged and connected to give maximum speed and ease in testing. We honestly believe that these conditions are best met by the

Sun Motor Testers, available through the Hinckley Myers Co., of Jackson, Michigan. This equipment is well known to many; however improvements in recent models make this equipment even more valuable in accuracy and time saving.

The line consists of three models:—The General tests all equipment either on or off the car and designed to give maximum merchandising value; The Lieutenant covers the complete range of tests but is confined to testing some units on the car and therefore not quite as fast in operation; the Motor Test Kit is similar to the Lieutenant in operation but designed for maximum portability.

Among the new features are a new high tension tester in which the spark gap is formed by two balls and enclosed in a sealed glass tube. This eliminates all variables which are present in the open type tester and will show the same output reading on a given ignition coil over a period of a day or a week or longer. The open type may show a coil O. K. under certain weather conditions when it is too weak for correct functioning.

The ammeters are protected against being burnt out by short circuiting and have scales of 15, 30 and 600 amperes.

The voltmeters have a range of readings not to our knowledge available in any other equipment. The usual 10 volt and 20 volt scales have been supplemented with a 1 volt scale calibrated in 1/50 volt. This makes it possible to detect voltage losses which with ordinary equipment would be overlooked.

The voltmeter is also connected to read resistance in a circuit, condenser leakage and capacity, and also supplements the high tension tester by giving the actual milliamper output of the ignition coil. This makes it possible to determine any changes which take place during the heating of the coil and how far it is on the good or bad side.

The vacuum gauge including its fuel pump testing range and the cylinder compression gauge are of equal quality with the other parts of the equipment.

Sales appeal, speed of operation, durability and accuracy, together with the complete training given in the use of this equipment makes it an outstanding value as well as a necessity in every service station.

Lighting System Service

Recently much stress has been placed on safety service by automobile manufacturers, law enforcement agencies and clubs. This has, without a doubt, made it easier to sell proper lubrication, engine tune-up, brake, wheel aligning and steering services. The success of this program has been due to its making the public conscious of the need of these safety services.

In addition to helping to reduce accidents on the highway, these safety programs have been profitable to the automobile dealers who have made an honest effort to get this type of Service Work.

One important safety service has, however, been

*Summer Time is
Seat Cover time!
Sell Seat Covers Now*

overlooked altogether or at least passed over without sufficient consideration. It is the servicing of the lighting system.

The importance of this service is evident from recent statistics which show that night accidents are increasing while day-light accidents are decreasing. This, undoubtedly, is due to a number of factors but one certain factor is the condition of the lighting system.

Usually lighting system service consists only of replacing burnt out bulbs and occasionally aiming of headlamps. An investigation of the condition of lighting systems shows that this is not enough to maintain the illumination which was originally built into the lamps. Headlamps on many cars only a year old have lost as much as fifty percent of their original illumination value. This may be due to deteriorated bulbs and reflectors, dirt on the lens or reflector, or loose or corroded connections.

It is usually recognized that correct aiming of the headlamp is necessary for correct illumination and to prevent glare in the eyes of the oncoming driver. This, however, is a simple adjustment requiring only a few minutes and has little profit possibility. Complete lighting system service, properly sold and properly performed, including reconditioning of lamps, cleaning of connections and generator and battery checks takes it out of the class of courtesy service and makes it a profitable necessary service.

In order to include complete lighting system service in the profitable safety services, consideration must be given to the proper method of doing this work and preparing the shop and personnel to handle it. The public must then be made conscious of the necessity of having this work done.

Remember that anything we can do to improve lighting maintenance will pay double dividends by increasing service profits and reducing night driving accidents. Let's give this some honest thought.

Front Bumper Bolts

When installing front bumper bracket bolts, the rear bolt should be inserted with the head outside the bracket and the nut inside the frame side member. If the bolt is inserted in the opposite direction the stabilizer bar link may strike the end of the bolt and cause damage to the link.

"Sell Radiator Grille Screens Now"

HUDSON SCORES

HERE IT IS! "THE 1938 HEATER"

The satisfaction and results obtained from our 1936 and 1937 heater line which showed over 200% sales increase above the previous season, prove the reliability and quality of their construction and design. You will be pleased to know that our heaters for the coming season will be manufactured by the same source and we are confident that the same high standard of workmanship and quality will be maintained.

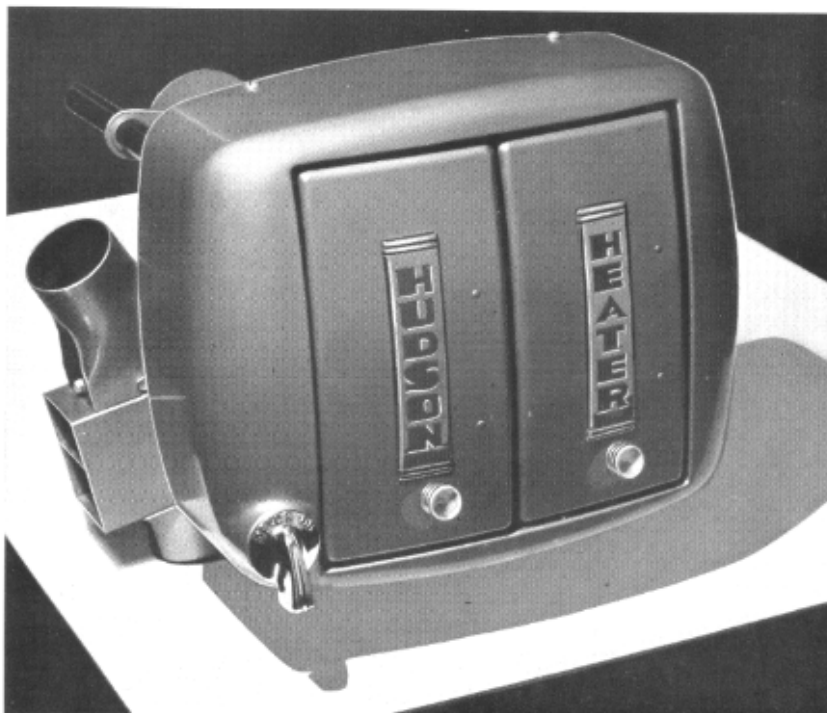
Again for next season the mechanical features of the new Hudson heaters will be "out in front" of competition. The Custom and DeLuxe heaters for 1938 have the defroster and driver's foot warming outlet similar to our present heaters. In both we have an additional feature for floor warming. An opening is provided at the bottom of the side outlet for this purpose, controlled by a valve in the side outlet which directs the heat to either the defroster, driver's feet or floor warming outlet as desired.

The most important feature and improvement we have in the DeLuxe and Custom model heaters this season is greater velocity of air through the defroster delivered to the windshield at higher temperatures. This is accomplished by a new two-way fan, designed to take warm air from the center of the core, which

is normally a dead spot on propeller type fan heaters. This blower type fan is capable of producing a pressure through the defrosting system resulting in better defrosting of the windshield under severe conditions. The hub of the six blade scientifically designed propeller fan is actually a tubular inlet through which the air is drawn from the core into the blower compartment, thereby converting the otherwise inactive portion of the core into an effective heating area. This type of construction also gives better out-draft temperatures creating higher car temperatures.

On all 1938 models of Hudson and Terraplanes, knock-out plugs are provided in the dash. Both

CUSTOM MODEL



PASSENGER HEAT
INTAKE

DEFROSTER
DISCHARGE

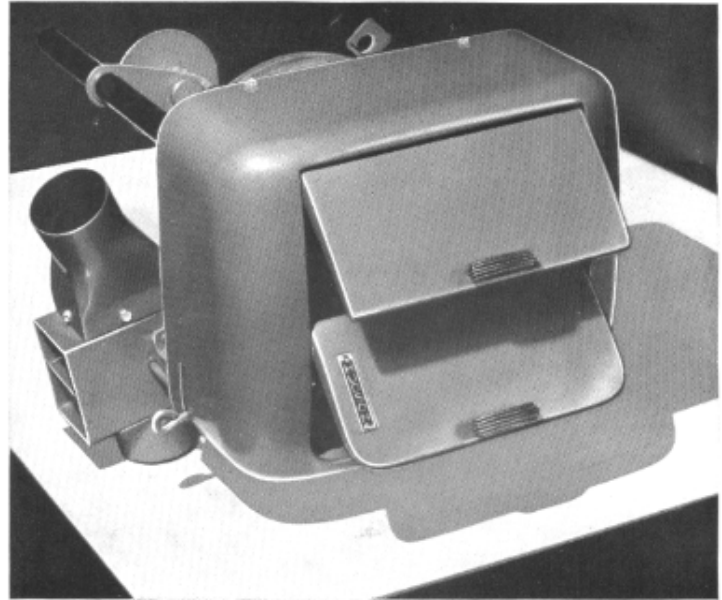
FOOT WARMING
DISCHARGE

GREATER HEAT DELIV
PERFORMANCE • EYE
STYLES • NEW

AGAIN! PROGRAM"

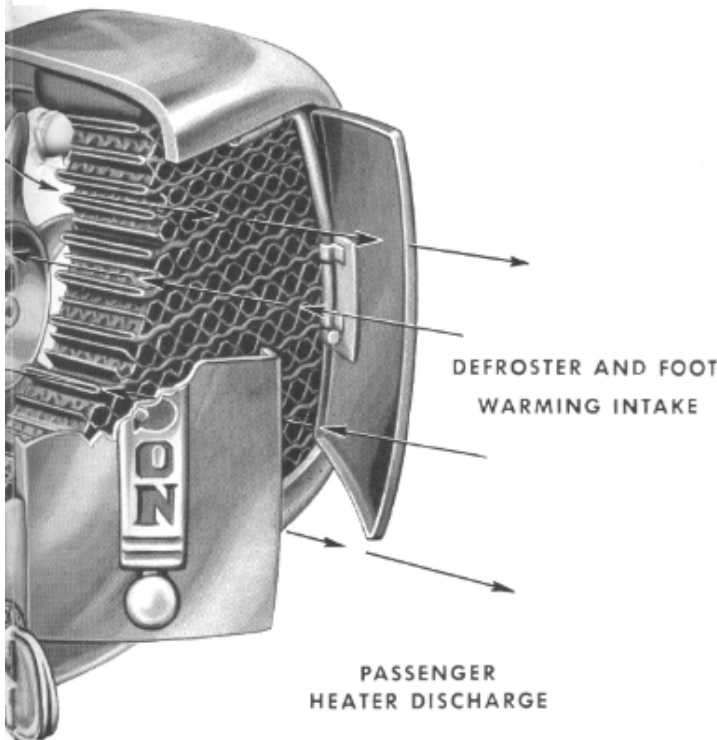
supporting bolts and core tubes are spaced differently than any other heater on the market including other car manufacturers. From an installation cost standpoint, this provides you with an excellent sales feature on the Hudson line of heaters.

Past experience has proven that an efficient car heater is the most desirable and practical automobile accessory on the market. Every Hudson-Terraplane dealer in entering the Fall heater season will want to be equipped with a program involving that line of heaters which will be most profitable to him. We are sure that these new Hudson heaters will meet the approval of both Dealers and their owners in every requirement.



DELUXE MODEL

ATER



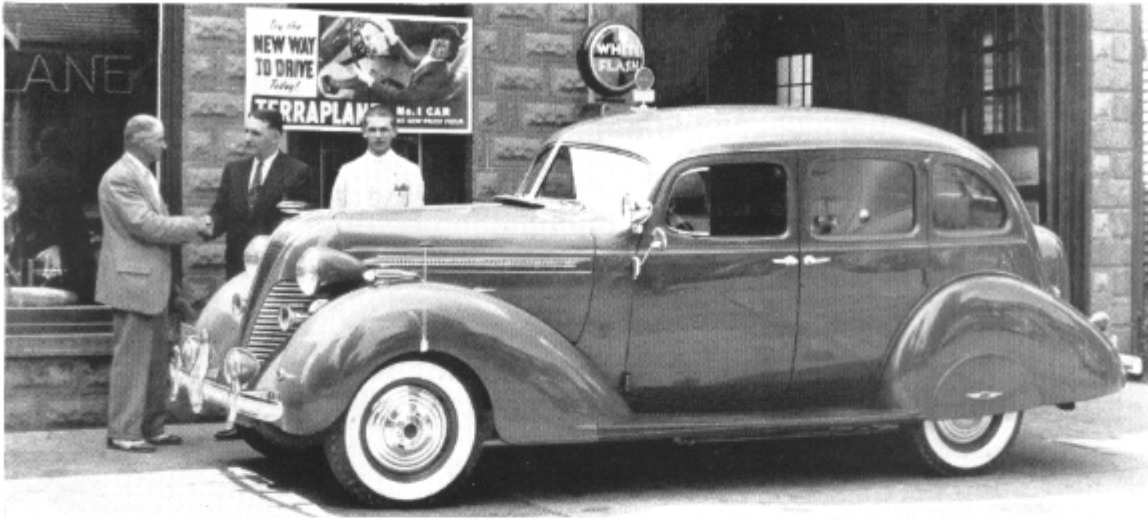
STANDARD MODEL

Get Ready Now! Make plans for an effective heater merchandising program during the fall heater season. We will cooperate with you by supplying a colorful heater display stand and an attractive heater mailing piece.

**VERY TO THE WINDSHIELD • MORE LEG ROOM • SMOOTH
HEAT DISTRIBUTION • COMPACT CONSTRUCTION • NEW
BEAUTY • HIGH HEATING EFFICIENCY**

A REAL SELLING JOB

\$359.91 in Accessories and Extras



The Triangle Motor Co., Sunbury, Pa., dealer, under Gomery-Schwartz Motor Car Co., Philadelphia, Pa., distributor, just delivered the above car to Mr. John Kreisher of Elysburg, Pa. This 72 sedan was equipped with the following extras, Trunk, Automatic Selective Shift, Lacquered Fenders, Custom Radio, Super Power Dome, Chrome Wheel Discs, White Side Wall Tires, Seat Covers, Electric Clock, Spot Light, Chrome Fender Lamps, Cigar Lighter, 2 Fog Lamps, R. H. Sun Visor, 2 Vanity Mirrors, Tell Turn Signal—Rear, 4 Door Pull-to Straps, De-Luxe Heater, Defroster, Hill Hold, Outside Mirror, Outside Air Horns, Tail Pipe Extension, Radiator Grille Guard, Gas Tank Locking Cap, Rear Wheel Shields, Fender Guides, Folding Table. Also 2 Safety Swinging Stop Lights and Wheel Rings which were installed after the above picture was taken.

This is just one of the many proofs that the most opportune time to sell accessories is at the time of the car sale. Every Dealer should be alert to cash in on Extra Sales and Plus Profits in Accessory Merchandising.

Answers to Questions

These Questions On Mechanical Procedure

Appeared In The June-July, 1937 Issues

1. Q. What is the effect of too much clearance between the clutch pedal and toe board?

A. Too much clearance between the clutch pedal and the toe board reduces the travel of the clutch pressure plate and may prevent complete disengagement. It also reduces the tension of the pedal spring against the toe board which may permit the linkage to rattle.

2. Q. What condition may develop on the surface of the clutch disc corks if ordinary oil mixtures are used instead of Hudsonite as specified?

A. The use of ordinary oil mixtures in the clutch may permit a glazed or gummed condition to develop on the surface of the clutch driving plate cork. This prevents oil being fed from the pores of the corks onto the face of the pressure plate during engagement and causes the clutch action to be harsh.

3. Q. What is the effect of adjusting the automatic clutch piston rod too short?

A. If the automatic clutch piston rod is adjusted too short, the clutch engagement will be slow causing excessive clutch slippage with each engagement.

4. Q. What is the effect of insufficient lash in the throttle rod on automatic clutch operation?

A. If the throttle rod is adjusted with insufficient lash at the throttle lever, the throttle will be opened too soon and cause the engine to race before the clutch is engaged.

Note: Racing of the engine is often taken as an indication of clutch slippage, care should be taken in diagnosing to determine which adjustment should be made.

5. Q. What is the effect of improper initial position of the cushion valve?

A. Improper initial position of the automatic clutch control cushion valve will restrict the bleed line and cause slow clutch engagement.

6. Q. What will be the effect on disengagement of the clutch if the accelerator plunger rod is adjusted

too long or the throttle linkage binds so that it does not snap back fully when the foot is removed from the accelerator pedal?

A. If the accelerator plunger rod is adjusted too long or the throttle linkage sticks, the disengagement of the clutch will be slow or entirely prevented.

7. Q. If the automatic clutch on a 1937 Hudson or Terraplane disengages when the foot is removed from the accelerator pedal at speeds over 20 miles an hour in high gear with standard shift, what wires and switches should be checked?

A. If the clutch disengages at speeds over 20 miles per hour in high gear when the foot is removed from the accelerator, check the yellow wire from the automatic clutch solenoid to the governor switch and high gear shifting rail switch for grounds. Also check the shifting rail switch for ground when the transmission is in high gear and the governor switch for speed of opening.

8. Q. If the condition stated in question 7 exists on a car also equipped with Electric Hand, what additional switch and wiring should be checked?

A. On an Electric Hand equipped car, the ground switch in the selector and wire leading to it must be checked for ground in addition to the checks covered in question 7.

9. Q. If the automatic clutch engages correctly at low throttle, but is slow in engagement at half throttle, what changes should be made in the control valve? (See new Automatic Clutch Information in Procedure Manual.)

A. If the automatic clutch engages correctly at low throttle but is slow at half throttle the cross slot in the accelerator plunger should be widened by grinding 1/16" off each side and the square port in the valve body to which the bleed line from the cushion valve attaches should be filed 1/16" longer toward the front of the unit. (See page 9, Section 9, Paragraph 9—Mechanical Procedure Manual)

10. Q. What conditions in the automatic clutch cylinder and piston will cause slow disengagement? Rapid engagement?

A. Conditions in automatic clutch cylinder which will cause slow disengagement:

- (a) Leak past piston
 - (1) Worn, dry or distorted packing
 - (2) Scored, warped or damaged cylinder wall
- (b) Heavy oil in cylinder

Conditions in automatic clutch cylinder which will cause rapid engagement:

- (a) Leak past piston
- (b) Leak at power cylinder head gasket
- (c) Leak around piston rod at cylinder head seal

1. Q. Give two causes of brake "fading."

A. Causes for brake "fading":

- (a) Brake drum expansion due to heat
- (b) Brake lining losing friction due to heat

2. Q. Why should the brake shoes be expanded against the drums by the star wheel before adjusting cable lengths on mechanically operated brakes?

A. If the brake shoes are not expanded against the brake drums before the control cables are adjusted and attached, the brake shoes may be spread away from the anchor pin by the cable pull. This will put the operating levers in the wrong initial

position causing unequal brake application and also allow the shoes to rotate until they strike the anchor pin causing noise and erratic action.

3. Q. What is the result of the brake pedal striking the toe board before the master cylinder operating link strikes its stop?

A. If the brake pedal shank strikes the toe board before the master cylinder operating lever strikes the stop, the compensating bleed hole between the master cylinder and reservoir will not be uncovered by the piston. This will lock excess fluid in the lines and cause the brakes to drag.

4. Q. Should the heavier return spring be attached from the anchor pin to the primary or secondary shoe?

A. The heavier shoe return spring should be connected from the anchor pin to the secondary shoe. This insures the secondary shoe remaining against the anchor pin when the brakes are applied and prevents any noise from the shoe striking the anchor pin.

5. Q. What is the effect of excessive dust on brake shoes?

A. Excessive dust (road dust or lining wear) has little effect on brake action except when damp. When the dust is damp it forms a paste on the drum and lining and causes harsh erratic action.

6. Q. How much lubricant should be used on wheel bearings?

A. When lubricating wheel bearings use just enough good wheel bearing lubricant to fill the bearing cone. Never put any extra lubricant in the hub or hub cap.

7. Q. What is the correct distributor point gap for a Terraplane and Hudson 6?

A. The distributor gap on the Terraplane and Hudson 6 should be set at .020".

The Hudson 8 distributor points should be set at .017".

8. Q. What is the correct spark plug gap?

A. The spark plug gap should be set at .025".

9. Q. What effect does bending the carburetor throttle shaft to metering rod lever link have on the accelerator pump stroke on the single carburetor?

A. When the carburetor throttle shaft to metering rod lever link is bent it increases or decreases the accelerator pump stroke. When this link is bent to give proper metering rod position it also gives correct accelerator pump stroke.

10. Q. How is the accelerator pump stroke adjusted on the Duplex Carburetor?

A. The accelerator pump stroke on the Duplex Carburetor is adjusted by bending the throttle shaft lever to countershaft lever link. This does not interfere with the metering rod adjustment which is made later. (See Mechanical Procedure Manual—Section 4—Paragraph 140—141—142)

Note: To check the accelerator pump stroke, hold the throttle wide open and make a mark on the accelerator pump plunger shaft at the top of the carburetor float bowl cover. Close the throttle completely (stop screw backed out) and place the Duplex Carburetor Float Level Gauge on top of the bowl cover against the pump plunger rod. The mark just made on the plunger rod should come exactly in line with the upper edge of the gauge which is 15/64" wide.

Parts Activities As They Relate To Dealers . . .



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

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

STOCK RECORD SYSTEMS

25

● **JUST LIKE RECORDS ON DOLLARS:** Parts are Dollars, and if not recorded, four things can happen:

1. Run out of stock before knowledge of the condition is evident, with the consequent loss of sales and possible delayed service.
2. Obsolescence—that leech on all parts operations—can creep in and easily make its inroads on Parts profits.
3. Positively prevents re-ordering when Parts may be stocked, but kept in two locations—one bin empty and another having an adequate stock in it to take care of normal demands.
4. Prevents over-stocking through keeping interchangeability of Parts as between models on a record, and not trusting to memory or chance that the same Part is not being ordered twice.

KNOW WHAT WE HAVE

NECESSITY OBVIOUS

26

● **DISTRIBUTORS AND DEALERS KNOW VALUE:** It is not necessary for us to go into a long discourse on the value of stock records in the average Dealer's business. Most dealers have them as a part of their operations, and understand how they are introduced, and know what must be done to keep them up-to-date in serving their purpose. We all know that the very small Dealers cannot be expected to have elaborate systems pertaining to every part of their business. We will not attempt to qualify who should not use them because conditions can vary even with the smaller accounts. With this group it then becomes a matter of judgment on the part of Distributors and Dealers as to individual cases. Some of the smaller accounts have worked up quite a Parts business and, consequently, the quantity and variety of items might dictate the inclusion of perhaps a simple dump-box system.

AVAILABLE SYSTEMS

27

● **SIMPLE AND ACCURATE:** The size of the operation and the preference of the Dealer may determine the kind of system to be used. Most prefer the dump-box method, where the loose cards are kept in drawers or boxes, while some like the Visual Card System set up in books. We recommend the Dump-Box type for all-around purposes, no matter the size of the operation.

NEW MODEL PARTS

28

● **WE SHIP TO DISTRIBUTORS:** At the time of new model introduction the Factory ships a limited amount of non-interchangeable Parts and Accessories which relate only to these new cars. The quantities are of a nature which more or less are to serve emergency purposes only. There is not enough of each item to set up the Dealers with small stocks. Distribution Service Representatives should immediately follow through in securing orders. This is highly important because the Distributor's initial stock should not be depleted by his Dealers. Therefore, just as soon as material is received on these initial shipments, Distributors' Parts Managers should immediately re-order enough for Dealers.

OPEN POINTS

29

● **NEW DEALERS WILL OPERATE IN THESE TERRITORIES:** Every open point in a Distributor's territory is a potential Dealership. As such there is some preparatory work to be done by the Service and Parts Managers in connection with the requirements of those territories. This work should be systematically covered to be of most assistance to the incoming Dealers and its results ready to hand the Wholesale and Service Representative at a moment's notice.

**NEW DEALERS'
PARTS STOCK**

● **GOVERNING PRINCIPLES ON SUCH STOCKS:** There are several theories on what Parts stocks for new Dealers should be based, and the soundness of some are questionable. Our belief is that these stocks must relate themselves to the need of Parts as they apply to the number of the various year cars operating in a given territory—this plus requirements for the current model in the ratio of their near future car sales.

**SO-CALLED
INITIAL
PARTS LISTS**

● **VALUE QUESTIONABLE:** We have had many requests for standard lists of various values from \$50.00 up to \$500.00. Occasionally against our judgment we have furnished them for individual purposes. If the lists relate to interchangeable important operating parts of several years' cars, they can have some value, but as a basis for setting up a new Dealer they are not sound

**INFORMATION
VALUABLE**

● **PARTS MANAGERS SHOULD KNOW:** Every Distributor's Parts Manager should inform himself on the number and years of our cars operating in each piece of open territory. He should have an idea of about what the approximate new car absorption of these territories will be for the next several months.

To be concluded in the September Service Magazine.

SPRINGFIELD, MASS.

First Meeting—Hudson-Terraplane Service Club



In the interest of better service and to aid Dealers in their Service problems, Mechanical Procedure and Service Merchandising the Harrington Hudson Company, Springfield, Mass. Distributor has formed a Service Club amongst their Dealers which will meet from time to time to discuss matters of Service Interest.

Came word from Jerry Palmer on June 23, 1937

"Last night we held our first meeting of the "Hudson-Terraplane Service Club." We had a fine turn out with fifty-one people attending. Much enthusiasm over the formation of the club prompts us to feel that we are going to accomplish a great deal through its medium.

Brake Equalization

In considering the causes for unequal brakes it is customary to start at the brake pedal or some other convenient point in the brake system. For the moment let's be unconventional and start with the road surface.

We so often have reports that a car will perform normally on the garage floor on any kind of a stop but is erratic on the road. Is this the fault of the brakes? Most probably not.

EFFECT OF ROAD SURFACES

The first prerequisite of uniform braking is uniform surface under each tire. Slight differences in road surfaces will not be noticed when the car is traveling at moderate speeds and the brakes are applied moderately but these slight differences in road surface become a big factor when the car speed is high or the brake application is severe.

For example we are traveling on a good concrete highway when we apply the brakes rapidly. One wheel may strike a smooth spot while the others are getting a good grip on surface which is "potted" due to the suction of tires having picked small pebbles and stones from the road surface (this is a normal condition on all concrete highways). The wheel on the smooth spot will lock while the others are still rolling or at least its rolling speed will be reduced so that there is some slippage on this wheel.

It is a well known fact that a wheel which is slipping does not have as much traction as one that is rolling so we have the effect of one poor brake.

In the case of tar on the road such as it used to fill cracks, the drag of the tire over a patch of tar causes sufficient heat to melt the tar on the surface and the liquid tar acts as a lubricant allowing the wheel to stop rolling. After the wheel leaves the tar, it probably will remain "locked" so that the unequal braking may continue for some distance although the tar spot was only a few inches.

Another consideration in road surface is its levelness. If the road is wavy it may throw one wheel off the surface or simply cause it to raise enough to reduce its traction. This will permit the wheel to lock and once locked it will probably remain locked even after it is back on the road with full load.

SHOCK ABSORBERS ARE NECESSARY

Shock absorber action is very important in brake action under these conditions. You can all recall the action of the rear wheels when trying to accelerate or brake rapidly across street car tracks or similar irregularities with older model cars which were not equipped with shock absorbers or on which the shock absorbers were ineffective.

It is a fact that today's high acceleration and rapid braking would be impossible except on almost perfect road surfaces without the perfected shock absorber action which has been developed in recent years.

HIGH CROWNED ROADS

Roads with high crowns present a problem which shock absorbers help to reduce but cannot entirely eliminate. If a car is traveling with the right wheels

lower than the left, which is the case on a crowned road, the center of gravity of the car is nearer the right wheels. When the brakes are applied the greatest traction will be on the right. Due to the off-center position of the center of gravity, the weight transfer will not be directly forward as the brakes are applied. This will throw the car off balance so that the distribution of weight and with it the distribution of braking will be further changed.

The actual change, whether to right or left, will depend on the actual location of the center of gravity of the car, the ability of the shock absorbers to hold the rear of the car down, the ability of the torsion bar to hold the car level and the actual angle of the road.

EXTREME BRAKING

All of the foregoing paragraphs are based on reasonable braking, that is bring the car to a stop with a pedal pressure which will not cause all wheels to slide. If, however, we go to extreme braking, causing all wheels to slide we get an even worse condition. You all recall experiences where brakes have been applied severely on slippery roads and that after the wheels were locked, the steering wheel could be turned in either direction without affecting the direction of the car; in other words you lost all steering control of the car.

This happens every time all wheels are locked. A rolling wheel has a tendency to move only in the direction in which it is rolling but when it starts sliding it is in effect no longer a wheel and it will slide in one direction as easily as another.

Considering all the conditions involved we must conclude that the brakes should never be applied hard enough to slide any of the wheels. The actual amount of braking to be used will be dependent on the kind of the road surface and its contour and will vary with the speed of the car.

TIRES

Now we must consider the tire tread before getting to the braking system itself. If the tread on one tire is not of the same design and worn about the same as the tire on the opposite side of the axle or if the inflation is not the same, the effects will be exactly the same as described for one wheel striking a smooth spot on the pavement and unequal braking will result.

WHEEL BEARINGS

Now before going into the brakes themselves we have the wheel bearings to consider. If the bearings are too tight, improperly lubricated or rough, the drag in the bearing will add to the action of the brake, giving the effect of overbraking on that wheel.

Any of these conditions will cause the drag to increase as the bearing gets hot, so the harder the brake application the greater the heat transferred to the bearing and the worse the effect. Be sure bearings are in good condition, properly lubricated and correctly adjusted. Remember that when adjusting wheel bearings all parts are cool, so allow some clearance to provide for expansion when the parts

warm up under normal operating conditions. This clearance is obtained in the front wheel bearings by tightening the spindle nut until a slight drag is felt on the wheel and then backing the nut off $1/6$ to $1/4$ turn.

The rear wheel bearing adjustment requires the selection of the shim pack to give a total end play of .004" to .006". (See Section 13, page 10—Mechanical Procedure Manual.)

WHEEL BRAKE ASSEMBLY

Now we come to the actual brake mechanism and will start at the shoe and drum assembly. Before even considering adjustment we must consider the drum and brake lining surfaces. Unless identical conditions exist in both drums and linings on an axle, unequal brakes will result unless some compensation is made elsewhere in the mechanism. When we say identical conditions we mean the drum surfaces should be of equal smoothness and no excessive out-of-roundness exist in either. If a condition exists which requires reconditioning one drum, the opposite drum should also be reconditioned to get the same surface and exactly the same diameter.

The linings must be of the same make and in equally good condition. Roughness, looseness on the shoe, excessive wear, or oil which necessitates the reconditioning or replacement of one lining requires that the lining for the opposite wheel be treated exactly the same as though it showed the same condition. The one exception to this is the case where oil or brake fluid gets on one lining within a few hundred miles of driving when it alone can be replaced and normal action obtained at least after a hundred miles or so of usage.

There is no need here of going into the details of brake shoe adjustment as this is thoroughly covered in Section 13 of the Mechanical Procedure Manual. We do want to point out, however, that the shoes must move freely on their mounting and all springs must be of proper tension as covered on Pages 122 and 123 of the July issue of this publication.

COMPENSATION BY ADJUSTMENT

In the second paragraph under Wheel Brake As-

semblies we mentioned compensation for unequal conditions. This is possible by adjustment of shoes or linkage in mechanically operated brakes but due to the equal force applied at all shoes by hydraulic operation no compensation is possible. It is, therefore, necessary to actually remove the existing condition whether it is worn tires, rough drums or unequal linings before equal action can be obtained with hydraulic brakes.

A good example of compensation in a mechanical arrangement is found in the 1934 mechanical brake design. It will be remembered that the left front wheel lining was grooved to reduce the brake area and thus reduce the action of this brake. This was necessary because the operating cable for this brake was connected directly to the lever to which the pedal push rod was connected so that no lost motion could occur. The other three cable connections could be affected by looseness of the cross shaft pivots or springing of the cross shaft under extreme pedal pressure. This was overcome in the 1935 design which used a rotary equalizer instead of a cross shaft, and applied all cables equally.

Of course, changes in design cannot be made in service but compensation can be made by slightly increasing the clearance of the shoe of a brake which is holding more than the other.

When working with mechanical brakes be sure the cross shaft and other linkage is free but without lost motion on its mountings. See that the cross shaft or rotary equalizer is against its stop in the unapplied position and all cables are equal and without slack.

Inspection of hydraulic lines is usually considered unnecessary in connection with unequal brake action, however, if equal brakes are experienced on light applications and they are unequal on hard applications it is possible that heavy fluid, air in the lines or restricted lines due to damage or dirt is the cause. Always inspect the hydraulic lines for damage, bleed to remove air, or if there is any question about the fluid, flush and refill the system with Genuine Hudson Hydraulic Fluid.

The Coughlin Sales Company, Distributor at Davenport, Iowa, realizes that in order to give the best service one must have the best equipment. With the Service Truck pictured above on a Terraplane "Big Boy" chassis the Coughlin Sales Company makes quick work of answering emergency calls.



“One In A Hundred”

Less than one out of every 100 car lubrication stations can give the kind of lubrication service car manufacturers specify.

This astounding fact was brought out in a recent survey made by one of the major oil companies. This survey showed that only .9% of all outlets have the lubricant necessary to properly service the majority of cars that are operating at the present time. This figure is so startling that it is almost beyond comprehension. Suppose a car owner went to a different station every time he had his car lubricated. If he traveled 10,000 miles in a year's time and had his car lubricated every 1000 miles, by the law of averages, once in ten years his car would be thoroughly and properly lubricated.

Car owners have a right to expect the kind of lubrication recommended by the car manufacturers, which calls for the use of various specialized lubricants, each for a particular purpose.

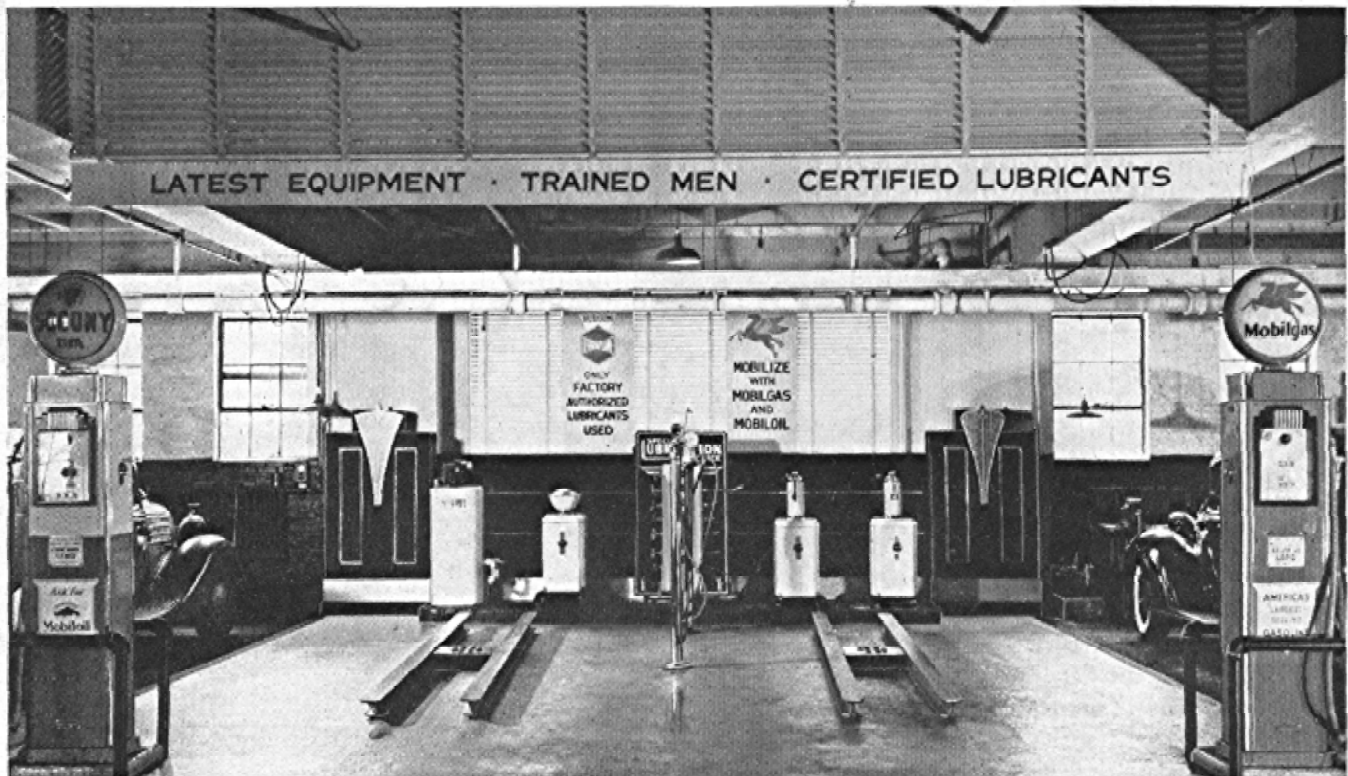
You, as an authorized Hudson Terraplane Dealer, should be quick to grasp the opportunities presented through the publicity given this remarkable survey.

Let's capitalize on it. Call in your entire Sales Organization. Tell them the story and use the facts in closing new car sales and in developing service customers through lubrication, BUT FIRST, make sure that your own lubrication department is not in the class represented by 99.1 per cent of lubrication outlets. Make a survey of your Department, see that you have the proper equipment and lubricants to give a specialized factory approved lubrication.

The major Oil Companies will be more than glad to assist you in this work.

The complete survey mentioned above is printed in the June 1937 issue of Lubrication and Maintenance Magazine. We suggest that you get a copy, study it thoroughly and use the facts presented to build up your lubrication business.

Remember that when you build up Lubrication Department volume, you are building an increased volume in the entire operation.



Here's a modern equipped Lubrication Department which is unusual in appearance, using a display background of their own design and construction along with venetian blinds. The Henley-Kimball Company, Portland, Maine Distributor recently remodeled their Lubrication Department, resulting in this attractive and pleasing set up.