

TERRAPLANE HUDSON

Service

TECHNICAL INFORMATION
PARTS—ACCESSORIES
MERCHANDISING

Issue 8

JULY, 1935

1935 Series

Buying for Service

Possibly you have never found it necessary to think much about buying problems. Nevertheless, in the present Terraplane and Hudson cars, which give you the most outstanding performance on the road today, there are many thousands of parts involving a greater variety of materials than any other product purchased by the public today.

The Purchasing Department is constantly combing the market not only for better materials but also better sources of supply that will help us and in turn help you to improve our service to the individual car owner. We select these materials and sources with a view to getting the best value for our money but never to the point of cheapening our product. By so doing we make it possible for you to keep our customers satisfied by servicing their cars with the best materials available at the least possible expense to them.

Your department, as you know, is one of the most important in our organization because of the influence it has in keeping customers satisfied, and therefore, in selecting material suppliers, their willingness and ability to help you do the kind of a service job that is so important to the future welfare of our business is given most careful consideration.

CHAS. A. OOSTDYK
Director of Purchases

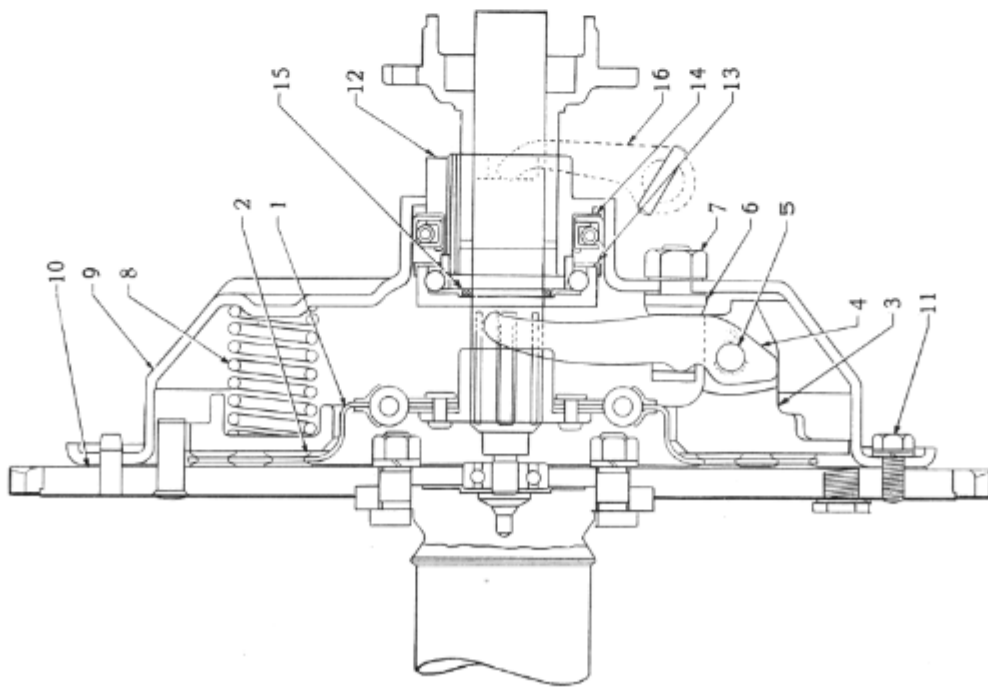
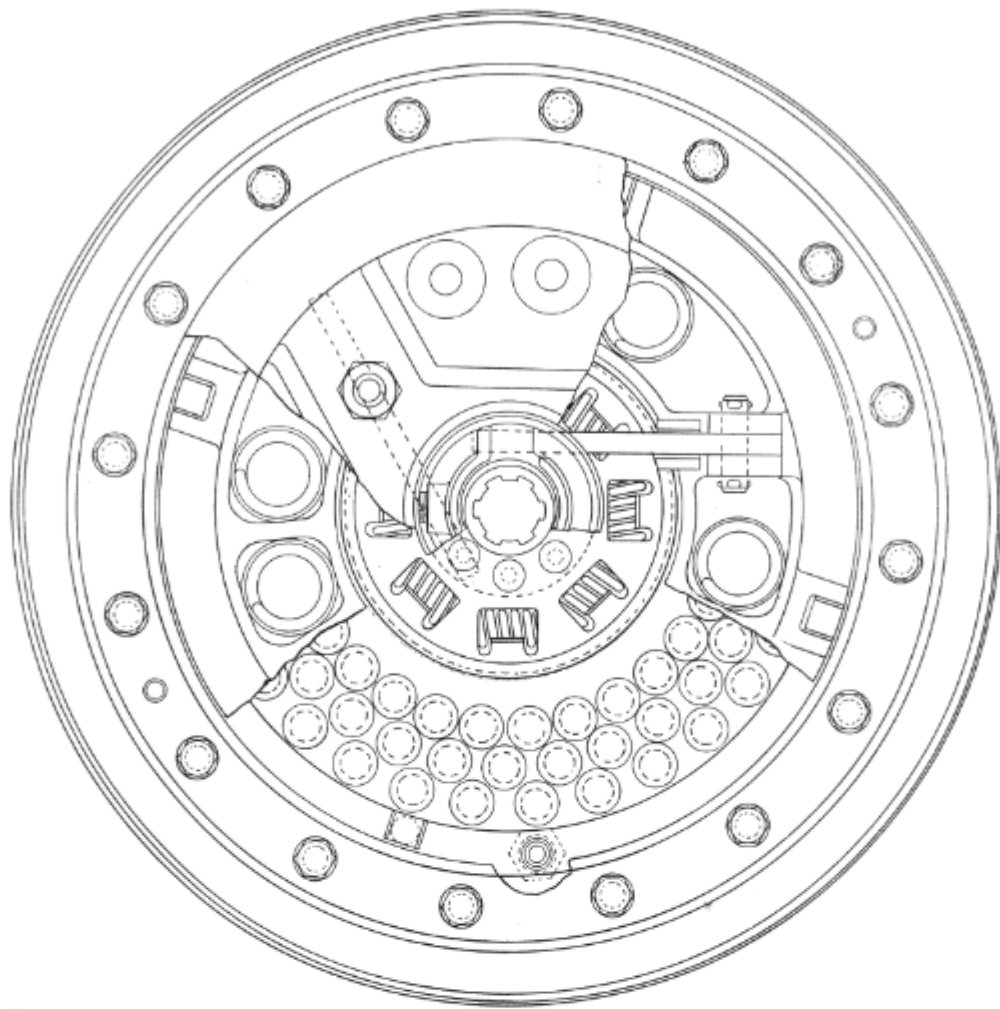


Figure 1

Clutch Overhaul

(Note: Figures in parentheses correspond to illustration numbers in Figure 1.)

The construction of the clutches in 1934 and 1935 Hudson and Terraplane models has sufficient similarity to the clutches of earlier model Terraplanes that the operations for the present clutches can, in the main, be applied to these earlier models.

After the transmission is removed from the car the 16 capscrews (11) around the clutch cover (9) are removed and the clutch assembly removed from the car and taken to the bench. The entire assembly should be washed thoroughly.

Inspection (Before Disassembly)

- (1) Inspect the driving plate (1) to see that the corks are in good condition. A black glaze indicates the use of an improper lubricant. Hudsonite keeps the pores of the corks open and, if the corks are not burned, soaking in Hudsonite and the use of Hudsonite in the clutch after reassembly will clean up the cork surfaces. Clean cork surfaces are necessary for smooth engagement and "clean" disengagement.

The driving plate should run true and the springs and spring cages should retain the hub in the disc without appreciable rotary or sidewise lost motion.

The hub splines should be free of burrs to permit free movement on the spline shaft.

- (2) The pressure plate (3) should be free of scores or blued spots. Blued spots indicate that the clutch has been operated at an excessive temperature, and the engaging springs should be replaced as they have undoubtedly lost their tension.

If blued spots are found, there is also a possibility of the pressure plate being warped. It is necessary to remove the pressure plate from the clutch assembly in order to test for warpage.

Do not confuse gummed oil spots with blued spots. The gummed oil may have a similar appearance but is readily scraped off.

Disassembling the Clutch Assembly

Before disassembling look for the punch marks near the outer edge of the pressure plate and a corresponding mark near it on the turn of the cover flange. These marks indicate the position of the parts when the assembly was balanced at the factory and the unit should be reassembled with the marks together to maintain the original balance.

If the marks are not readily visible, make them so with a prick punch.

Place the clutch assembly in the clutch-fixture (J-298-H) and clamp tight with the hand wheel. (Figure 2.) Remove the three nuts (7) from the back of the cover and release the hand wheel. The cover can then be removed, exposing the springs (8), clutch fingers (4) and finger retainers (6).

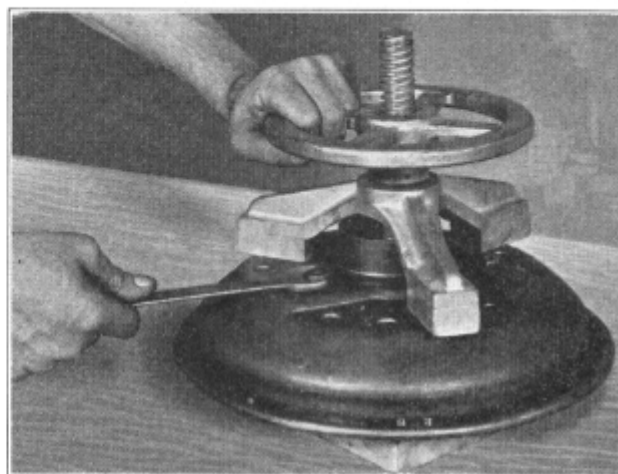


Figure 2

Testing Pressure Plate for Warpage

If a surface plate is not available for testing the pressure plate, lay it face to face with a new plate and test by inserting a feeler gauge between the plates.

If a .010" feeler gauge can be inserted at any point between the plates there is sufficient warpage to warrant replacement of the plate.

Engaging Springs

The engaging springs used in 1934 and 1935 Hudson and Terraplane clutches are pre-set so that they will lose very little of their original strength in use, unless they become excessively hot. However, it is good practice to replace the engaging springs after long usage unless some means is available for testing their strength.

The engaging springs (Part No. 45149) in Hudsons have a minimum weight of 120 pounds when compressed to a length of $1\frac{5}{8}$ " when new. If these springs, after being in service, show less than 110 pounds when compressed to $1\frac{5}{8}$ " they should be replaced.

Terraplane main engaging springs (Part No. 45148) have a minimum weight of 135 pounds (compressed to $1\frac{3}{4}$ ") when new and should be replaced if found to weigh less than 125 pounds compressed to $1\frac{3}{4}$ ".

Terraplane inner engaging springs (Part No. 45154) have a minimum weight of 75 pounds compressed to $1\frac{5}{8}$ " when new and should be replaced if found to weigh less than 60 pounds compressed to $1\frac{5}{8}$ ".

All 1934 and early 1935 Terraplane clutches were built with three inner springs, while the later 1935 production uses six inner springs. It is recommended that six of these springs (Part No. 45154) be used in rebuilding clutches, particularly in sections of the country where unimproved roads or heavy snows are encountered, or on cars known to be used for abnormally hard service.

Always use genuine Hudson Terraplane springs. They are pre-set, tested for strength, squareness of ends and deflect true to the center line. All these qualities are essential for satisfactory clutch operation.

Throwout Fingers

The throwout fingers should be straight and not show appreciable wear at the points where they rest against the retainer or throwout bearing.

The retainer washers should be replaced with new ones if not in good condition.

Since early 1935 production, both sides of the pressure plate lugs through which the throwout finger pins pass have been machined. These require the use of 47633 throwout finger pin which is $1\frac{1}{8}$ " long over all. The use of 40039 throwout finger pin, which is $1\frac{3}{8}$ " long over all, in these later clutches may cause a rattle at idling speed. This longer pin must, however, be used in all clutches prior to 1935 production and a few early 1935 clutches.

Reassembling

Place the pressure plate on the fixture (Figure 2) with the friction face down. Put springs, throwout fingers, finger retainers and retainer washers in place.

Put cover in place, being sure punch mark lines up with mark on pressure plate for correct balance.

Put hand wheel in place and guide throwout finger retainers into holes in cover as wheel is being run down on screw. Put nuts (7) on three throwout finger retainers, drawing down securely. Remove hand wheel and remove clutch assembly from fixture.

Flywheel and Pilot Bearing

The flywheel face should be smooth and the hold-on nuts should be drawn tight.

If the pilot bearing in the flywheel does not run smoothly, or is not free, it should be replaced. The bearing can be removed by using J-164 Clutch Pilot Bearing Remover.

This is an inertia type puller with a split shaft construction. The end of the puller is passed through the inner race of the bearing, and then expanded by a thumbscrew so that it hooks behind the race.

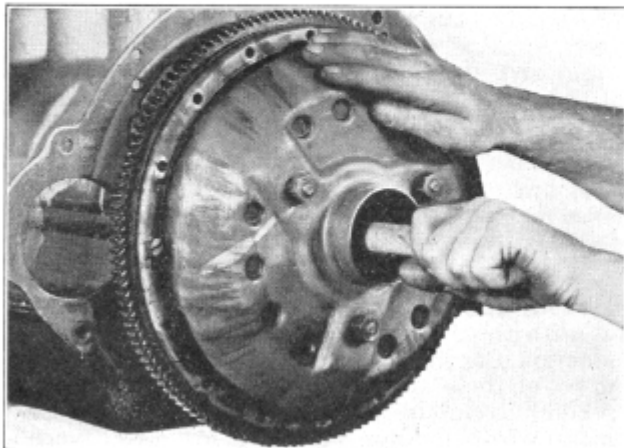


Figure 3

Reinstalling Clutch Assembly

Shellac a new gasket (10) to the front face of the clutch cover bolting flange. Pass the J-384 Clutch Aligning Arbor through the hubs of the clutch assembly and drive plate and entering it into the pilot bearing. (Figure 3.) Push the clutch assembly into place against the flywheel and then secure with capscrews with the aligning arbor still in place to keep the drive plate centered to permit easy installation of the transmission.

The capscrews should be tightened gradually, drawing down diametrically opposite screws in order to insure a good gasket seal.

Aligning Clutch Fingers

The three clutch fingers (4) must be in alignment to insure all contacting the throwout bearing. Improper alignment causes clutch finger rattle at idle

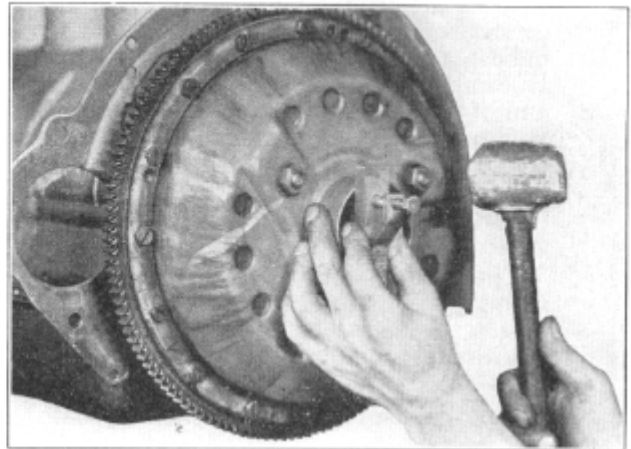


Figure 4

speeds and uneven movement of the pressure plate which causes grabbing and chattering of the clutch.

To align the fingers place bar of the Clutch Finger Adjusting Gauge (J-774) against the rear of the clutch cover hub so that the pin is resting on one of the fingers. (Figure 4.) Turn down the thumbscrew until it contacts the pin. Move to the other two fingers, turning the thumbscrew down if necessary, to take up clearance with the gauge pin. The final adjustment of the gauge will give the level of the lowest finger.

Swing the gauge around to one of the high fingers and strike the end of the finger retainer with a soft hammer until the gauge bar rests squarely on the cover hub.

Swing the gauge to the other high finger and repeat the operation. Swing back to the low finger to check. The gauge should now rest squarely on the hub over all fingers, but with less than .005" clearance between the thumbscrew and pin of the gauge. Check this clearance at each finger with a feeler gauge.

Lubrication

Insert the correct amount of Hudsonite in the clutch housing through the hub of the cover.

Throwout Bearing

The throwout bearing should be clean and run smoothly. The oil seal should be in good condition without any tears or folds in the leather. The bearing should be lubricated with pressure grease.

When installing the bearing and seal be sure the edge of the leather is not damaged or folded.

Place the throwout bearing grease retainer (15) on the transmission drive shaft, sliding it just to the back of the spline. Reinstall the transmission.

Lubrication Service

The Hudsonite in the clutch should be drained and replaced every 5000 to 15000 miles. To drain, turn the engine until one of the plugs in the front of the flywheel is in the timing inspection opening at the left side of the rear engine support plate. Remove the plug with special wrench (J-472).

Turn the engine slowly, approximately $\frac{1}{3}$ revolution, until the star on the flywheel is in line with the pointer on the timing inspection hole. This brings the drain hole to the bottom and permits all the Hudsonite to drain out.

Turn the engine until the drain hole is in the timing opening and insert $\frac{1}{2}$ pint of Hudsonite Clutch Compound, using J-485 gun.

Since clutches on older models require different quantities of Hudsonite, it is necessary to measure the quantity put into the gun. Measuring cup J-486 is calibrated in the various quantities required and should be used for measuring the Clutch Compound.

The special equipment mentioned is part of the complete Refill Set J-441 (Figure 5), which includes wrenches and filler equipment to handle Clutch Service on all Hudson, Terraplane and Essex Clutches. This equipment can be purchased in the complete set, or as individual items.

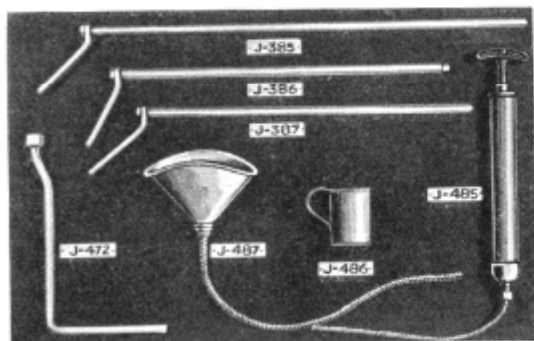


Figure 5—Clutch Drain and Refill Kit, J-441

Clutch Servicing Tools

All special tools illustrated and described for use with clutch servicing are available through the Hinckley-Myers Company, Jackson, Michigan.

Tool Number	Name	Car Models	Price
J-164	Clutch Pilot Bearing Remover	All Models	\$1.65
J-384	Clutch Aligning Arbor	H & E to '33 inc.	1.40
J-449	Clutch Aligning Arbor	{ H-'34-'35 T—All Models }	1.40
J-298-H	Clutch Press and Locating Rings	All Models	7.50
J-774	Clutch Finger Adjusting Gauge	{ H-'34-'35 T—All Models }	1.70
J-441	Clutch Drain and Refill Set	All Models	6.75
J-441 Includes:			
J-385	Clutch Drain Plug Wrench	E-'32	.80
J-386	Clutch Drain Plug Wrench	H & E-'31	.80
J-387	Clutch Drain Plug Wrench	H-'32	.80
J-472	Clutch Drain Plug Wrench	{ H-'33 to '35 T—All Models }	1.30
J-485	Clutch Fluid Gun	All Models	2.20
J-486	Clutch Fluid Measuring Cup	All Models	.70
J-487	Clutch Fluid Funnel	All Models	1.65

A Tip for Retail Salesmen

Do you recall that a year ago when you were completing a sale for a Hudson or Terraplane car many times you were asked the question, "Can I get a trunk for this car?" At that time your answer had to be "No."

You have a record of all such purchasers. Why not take a few minutes on the telephone and contact these owners, telling them of the trunk now available at the reduced installed price for the summer season? A phone call will take but a few moments of your time, and the extra commission checks will count up.

At this season of the year when week-end or camping trips are more general, you will find car owners very receptive to this accessory.

Service Clinics

The service clinics now in progress at the various distributing points are meeting with the approval of mechanics and dealers attending. A varied program is being presented, including product changes, service merchandising and engine tune-up, making it well worth your time in attendance.

Clinics still to be held are scheduled as follows:

Cleveland	July 11
Detroit	July 23
East Orange (at New York)	July 14
Fort Wayne	July 9
Knoxville	July 16
Louisville	July 19
Montpelier	July 17
New York	July 14
Philadelphia	July 17
Richmond	July 9

HUDSON MOTOR CAR CO.
DETROIT, MICH.

Gentlemen:

We have just returned from a very pleasant vacation trip, thanks to the splendid performance of our Terraplane.

However, the bugs and insects were very bad and it was necessary to have the windshield cleaned nearly every time we stopped for gas. And what a job. The station attendants labored with their "bug removers" with varied success. But when I drove into a Hudson service station for a lubrication and oil change, the service salesman sprayed his solution on the windshield, wiped it off, and the glass was clear as crystal. Needless to say, I now carry a bottle of Hudson Instant Glass Cleaner in my glove compartment.

Thinking others might be interested in my experience, you may use this letter in any way you wish.

Yours very truly,

A Terraplane Owner

**ARE YOU USING
HUDSON INSTANT GLASS CLEANER
AS A COURTESY SERVICE?**

Engine Tune-Up

Some of the high points of the engine tune-up are summarized here for ready reference.

Compression

No engine can give its full output or smooth operation without proper compression. The compression test is therefore the first test to be made in an engine tune-up.

Battery

- (1) The battery without load should show 6+ volts.
- (2) The battery under starting motor load after 15 seconds cranking should show not less than $4\frac{1}{2}$ volts.
- (3) The voltage of the individual battery cells under starting motor draw should all be within $\frac{1}{4}$ volt of each other. Greater variation in voltage of the individual cells indicates that the low cells are worn out.

Starting Motor Circuit

- (4) The voltage loss between the battery, negative terminal and the starting motor terminal under starting motor draw should be less than $\frac{1}{4}$ volt. A greater drop indicates poor connections or a poor battery cable.
- (5) The voltage loss between the starting motor housing and the battery positive (grounded) terminal should be less than $\frac{1}{4}$ volt. A greater drop indicates poor starting motor mounting, loose or broken engine ground strap or poor battery ground.
- (6) If all the above tests fail to show deficiencies in the battery or poor connections and the starting motor does not turn the engine at a good speed, the starting motor should be removed and tested by an electrical service station.

Generator Charge Rate

The generator charge rate should be set in accordance with the voltage as follows:

Voltage	Amperage
6	17
7	20
8	22

Although an amperage is given corresponding to 6 volts, this can be used only on bench testing of the generator or by holding the relay closed on the car, as the relay does not close normally until a voltage of 7 is reached.

To test the generator charge rate:

- (1) Connect the ammeter into the line leading from the relay to the starting motor terminal.
- (2) Connect the voltmeter from the generator output terminal (marked B) to the car frame.
- (3) Ground the generator field terminal.
- (4) Run engine at speed to give maximum generator output and check charge against voltage. Adjust third brush if necessary.

Generator Regulator Test

- (1) Voltmeter connected as in Generator Charge Test.
- (2) Connect variable resistance in series with am-

meter in line from relay to starter motor terminal.

- (3) Increase resistance with generator output 15 amperes until charge rate is decreased. Voltage at point of drop in output should be 8.5 to 9.
- (4) Charge Regulators which do not cause charge rate to be reduced between 8.5 and 9 volts should be returned to Electric Autolite, Toledo, Ohio, for adjustment.

Primary Ignition

- (1) The voltage at the distributor with the ignition "on" and distributor points open should be within $\frac{1}{4}$ volt of the voltage at starter motor terminal.
- (2) The amperage draw of the low tension ignition circuit, with engine not running, should be $4\frac{1}{2}$ amperes with the distributor resistor and $5\frac{1}{2}$ amperes without the distributor resistor.
- (3) With the ignition points open and ignition turned on, the ammeter should read zero.
- (4) There should be not more than $\frac{1}{4}$ volt drop in the primary circuit with engine dead, distributor points closed and ignition "on," except $1\frac{1}{2}$ to 2 volts between the two terminals of the distributor resistor and a loss across the ignition coil primary winding. This loss should be 4 to $4\frac{1}{2}$ volts when the distributor resistor is in the circuit and should be within $\frac{1}{4}$ volt of the battery voltage when the resistor is not in the circuit.
- (5) Distributor points must be clean, have as nearly 100% contact as possible and be adjusted to exactly .020" maximum opening.
- (6) Distributors with an "A" after the Autolite number on the name plate should be timed $\frac{1}{2}$ " (measured on the flywheel) before dead center.
- (7) Distributors with a "B" after the Autolite number on the name plate should be timed at dead center.

Secondary Ignition Circuit

The testing of the Secondary Ignition Circuit consists of:

- (1) Testing the coil output to see that it is sufficient for igniting the fuel.
- (2) Testing for leakage through insulation from the coil to the spark plug gap.

These tests can be made either with a variable spark gap and neon tube or with a milliammeter.

Carburetion

- (1) Disassemble and clean the climatic control as part of every engine tune-up.
 - (a) Be sure the choke valve just closes at 75° Fahrenheit.
 - (b) Adjust the choke unloading finger to open the choke valve so that the bottom edge is $\frac{3}{4}$ " from the side of the choke housing when the throttle is wide open.
- (2) Check the float level with every engine tune-up. Improper float level will reduce performance and gasoline mileage.

- (3) Adjust the metering pin position by using Carter Carburetor Gauge T-109-20. Improper metering pin position reduces performance, causes "flat spots" on acceleration and wastes gasoline.
- (4) The idle adjusting screw should never be screwed in or out more than indicated on the charts on pages 83 and 84 of the May, 1935, issue of Terraplane Hudson Service. If it has to be adjusted beyond these limits for smooth idling, some other adjustment is wrong.

Gasoline mileage cannot be increased by a lean idle screw adjustment. This adjustment does not affect carburetion at car speeds over twenty miles per hour.

- (5) Make the final tuning adjustment with a vacuum gauge. This is the final check on your entire job. Compression, ignition and carburetion must all be correct to get a proper vacuum reading.

Gasoline mileage, performance and continued satisfactory operation can be obtained only by intelligent and accurate testing and adjustment.

Water Temperature Gauge

We now have available a Water Temperature Gauge the dial of which corresponds with the other instruments on the dash. The face of the gauge has been changed to an ivory dial with black lettering.

This revision has also permitted a saving in cost and we are now prepared to offer these at a list price of \$3.95, the usual discount to apply.

We feel sure that your Terraplane Special owners want these temperature gauges installed on their cars and aggressive merchandising on this item will result in a nice volume of business. With the coming of hot weather they are more desirable than ever, as the temperature of the motor is easily ascertained by a glance at the gauge.

You owe it to your owners to tell them of the availability of this accessory.

Heater Display Stand

Within the next few days we will be shipping to each dealer in heater territory an attractive display stand suitable for display of the Standard and De Luxe Heaters.

If you have not already done so, place your order at once for samples so that you will be ready to put your stand in operation upon arrival.

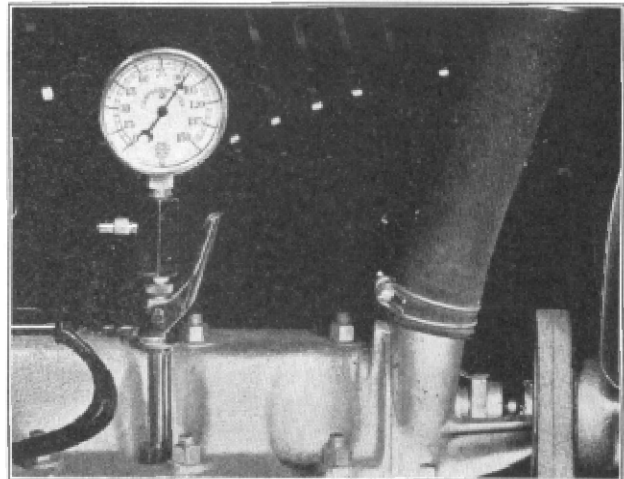
A large number of distributors and dealers have already found that heaters can be installed in new cars at this season of the year. There is no reason why YOU should not get your share of the heater business during the summer months.

When a prospect buys a new automobile, he expects to drive it for a year at least and knows that during the winter months he will need a heater. By talking heaters to him now, the price can be included in the finance papers on the car with only a slight increase in monthly payments.

Don't pass up this summer heater business. It means real profit to you.

Compression Gauge

The Hinckley-Myers Company of Jackson, Michigan, announce that by making a large quantity contract with the manufacturer of this gauge they are now able to supply it at a greatly reduced price. Recent lists show the price of this gauge as \$6.75. The new price is \$4.75.



This gauge is sturdy, accurate, and fast in operation. To insert it in the spark plug hole, grip the handle. By letting go of the handle the gauge is securely held in place.

To remove the gauge, simply grip the handle. The compression reading will be held until the valve on the side of the gauge is pressed to relieve the compression, when the hand will fall back to zero.

Perfect Seal Gasket Paste

Because of the enthusiastic endorsement of Perfect Seal Gasket Paste by those distributors and dealers who are now using it in their service work, it seems advisable to again call it to your attention.

When Perfect Seal is used on a head gasket, it not only seals the combustion chamber but also lubricates the surfaces of the gasket, the head and the block, so that the expansion and contraction caused by high and low motor temperatures cannot wear or damage the gasket.

Perfect Seal really does a job. It seals and lubricates and never dries out. It insures your repair work being satisfactory. It is as much a part of the job as the gasket itself, so use and charge a tube of Perfect Seal to the job.

Use Perfect Seal wherever a gasket is used—on hose connections and threaded joints. It is especially good for use on a spark plug thread in aluminum heads.

Perfect Seal is made from pure castor oil, treated and bodied to a point where it will seal equal to good shellac but will not dry out. It withstands heat, will not dissolve in gasoline, oil, anti-freeze solution or water. Make certain that that repair job will be lasting by using Perfect Seal Gasket Paste.

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