

# HUDSON Service MAGAZINE

INFORMATION ON PARTS • ACCESSORIES  
AND TECHNICAL MATTERS

HUDSON Terraplane

HUDSON Six

HUDSON Eight

Issue 2

November 1937

1938 Series



**"Go After Winter Conditioning Service  
And Accessory Business Now!"**

HUDSON MOTOR CAR CO.

DETROIT, MICH.,

U. S. A.

***Issues 1 and 2***

## ACCESSORIES AND PARTS MERCHANDISING

1938 Accessory Program.....24-27	Heater Installations.....38	Radios For 1938.....22, 23
1938 Defroster Installation.....38	New Accessory Board.....29, 31	Radiator Winter Fronts.....38
Radio Display Board.....38		

## LUBRICATION DEPARTMENTS

Henley-Kimball Co., Providence, R. I.....30
Sholtz & Jordan, Oakland, Calif.....2

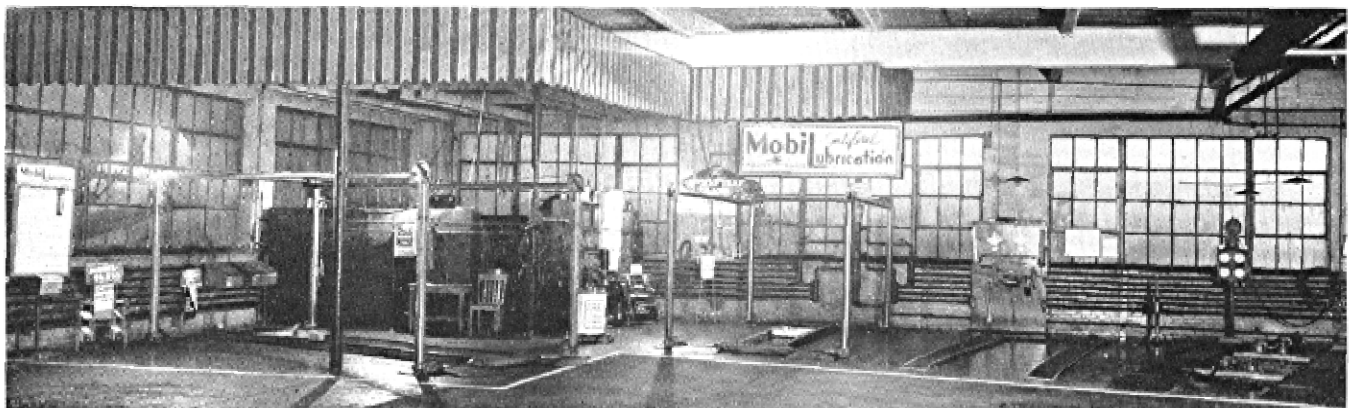
## SERVICE MERCHANDISING AND DEVELOPMENT

Insurance Adjustment Costs.....36	Winter Service Poster.....35
Winter Servicing.....28, 31	Sell Your Owners All Three.....21
Cooling System Service.....21	

## TECHNICAL INFORMATION AND MECHANICAL PROCEDURE

Answers To Questions On Mechanical Procedure...37	
Car Heater Servicing.....32-33	Horn Adjustment.....34
Clamping Of Valve Guides.....34	Mechanical Highlights, For 1938.....3-21

*For 1938 Mechanical Specifications—See Magazine Supplement*



The Henley-Kimball Company, Providence, R. I., Distributor assures its customers of complete satisfaction through this up-to-date Service Department.

*“Good brakes, tires, and steering assure safe winter driving”*

# Increase Your Labor Volume Through Special Winter Services

Earlier this year we tried to impress the Field Organization with the need for handling maintenance on the basis of Permanent Service Merchandising in order that the peaks and valleys of volume could be avoided.

The experience of hundreds of our Dealers in operating in this way influenced us to campaign, beginning with March, in the direction of Permanent Service Merchandising. This, rather than sporadic and periodic attempts to lift maintenance into volume. There is little doubt but what the recommendations of these many hundreds of Dealers were effective. It is evidenced in the Lubrication Installations which have been made since that time. It is evidenced in the Parts volume, which always has been controlled by labor volume since the effort was begun.

Now there are periods of the year when special efforts and special services can tend to increase volume, because of the special services and special things which are required to meet climatic conditions.

This Fall, except in a suggestive way, we have not attempted or outlined a big campaign as regards Winter Servicing. We know our Dealer Organization is cognizant of the fact that when Fall sets in it is time

to make a special effort to get their Owners in for lubrication, engine oil changes, transmission and rear axle re-fills.

Dealers know that the cooling systems should be thoroughly cleaned with Hudson Radiator Cleaning Compound. In order to help starting, they realize further that it is necessary that Owners have a complete engine tune-up.

Cooling system cleaning is important before anti-freeze is applied. It is important further that every effort be made to sell the Accessory items which have to do with Winter Servicing—Heaters, Defrosters and Winter Fronts. There are many other items which can be called to the Owner's attention at the time of his visit.

It goes without saying that brakes should be checked for adjustments, perhaps for re-lining and, in the case of hydraulics, for a fluid re-fill.

The principal thing to remember, however, is with this initial effort in preparation for winter that it does not stop there. The contacts should be continued throughout the entire winter period on a Permanent Service Merchandising basis.

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## Junior Accessory Display Boards

You recently received a copy of the Broadside announcing the availability of the new Junior Accessory Display Board. For some time past we have been told that our large accessory board was too large and too expensive for smaller Dealers. This new Junior Board makes an accessory display available for the Dealer who feels that his volume of business will not warrant the purchase of the \$20.00 Master Display Board.

We are all agreed that an accessory display is absolutely necessary to the successful merchandising of accessories and this new board will enable every Dealer to really get started in the accessory business.

You will note that the board is given gratis with a certain group of accessories totalling \$49.20 at Dealer net prices. The list of accessories together with the

display will be shipped as a unit from the factory and no substitution in the group can be made. We have picked only those accessories which are readily saleable and which in the past have shown a good volume.

It would be well for you to immediately place your order for one or more of these displays, depending upon the space you have available. One in the showroom and one in the Service waiting room should attract prospects and make sales for you.

Your Distributor's wholesale men will be glad to cooperate by checking your accessory stock on each visit and replenishing your supply whenever necessary.

The Junior Accessory Display Board is the first step towards building up an accessory volume which will increase your profit from that activity.

*"An attractive display of winter items will bring you more business"*

# Let The Car Heater Perform Efficiently

The functioning of a hot water heater is not unlike that of a car radiator and cooling system. Hot water is passed through both and the heat in the water is dissipated into the surrounding air by passing the air over the radiating surfaces. In the case of the radiator, we have undesirable heat and in the car heater we have desirable heat.

## *Cleaning of Heater Core*

Corrosion and scale in the heater core will prevent the transfer of heat to the cooling area and complete stoppage of a number of passages may even take place.

If the radiator and cooling system are being prepared for anti-freeze it will also be found desirable to give the heater attention at same time.

If the heater is connected when the cooling system is being cleaned the Hudson radiator cleaner solution, (Part No. 111684) will also be circulated through the heater and rust and mineral scale will be loosened. After the cooling system has been properly flushed, disconnect the outer ends of the heater hose (ends farthest away from heater) and flush the heater core separately. Connect the flushing nozzle to the hose which was connected to the intake side of the water pump for reverse flushing.

If the heater is not installed at the time of radiator cleaning, connect the two heater hoses to the heater with the outer ends held above the level of the heater. Collect a quantity of the hot Hudson radiator cleaner solution as it is drained from the car and pour it into the heater by using a funnel in one of the hose ends. Let this solution remain for 20 to 30 minutes, then drain and flush. (NEVER USE A CLEANER CONTAINING CAUSTIC SODA OR A STRONG ALKALINE SOLUTION.)

## *External Cleaning*

In order to insure a good transfer of heat from the radiating surfaces to the air passing through the fins of the core, these should be thoroughly cleaned. The accumulated lint and dust on the back of the heater can be loosened by brushing with a stiff bristled brush and then blown out by compressed air played over the face or front of the heater. Dust and lint are excellent heat insulators.

## *Heater Motor Servicing*

Excessive gum or congealed grease on the motor bearings will "hang" the motor, resulting in slow starting, reduced speed, and excessive current draw on the battery. Bearing packings and bearings should be flushed with a light oil such as the common household variety. Wipe off all excess oil to prevent the accumulation of dust and the seepage of oil onto the commutator.

Sand the commutator lightly with a fine sandpaper. Never use any kind of emery cloth or paper on a

commutator as the abrasive will embed itself in the copper and cause arcing or excessive brush wear. If the commutator is worn or grooved, remove the armature, turn down the commutator and reseat the brushes to fit the new diameter. This can be done by drawing a narrow strip of sandpaper around the commutator with the grit side outward against the brush ends. Do not undercut the insulation between the segments of the commutator.

Before replacing the heater motor be sure that the brushes are free in their holders and that no wires or leads are rubbing against the armature or pinched under the cover.

## *Electrical Connections*

Small sizes of wire and loose connections are forever the enemy of low voltage accessories. Resistance introduced in this manner can only result in a drop in operating voltage, a let down in performance and unsatisfactory operation. For heater motors, never use smaller than a No. 16 wire and then keep its length to a minimum. A good ground connection to the car, (never to the heater), soldered terminals, and tight screws are also necessary conditions to be met.

Heater connections through the ignition switch are desirable because in this manner the heater will not be forgotten when the car is parked, thus protecting the battery against unintentional discharge.

## *Hose Connections*

Good heater hose is desirable in connecting up "last year's" heater. A leaky hose will cost many times the price of a new one in anti-freeze losses. Be sure that the hose is open and round for its entire length since a kink or restricted opening reduces water circulation.

The lowest hose connection on the heater should be connected to the pressure or cylinder head side of the water pump, while the upper connection should be connected to the suction or radiator side of the water pump. A cylinder head fitting or thermostat fitting is provided for the "hot" connection, while a lower hose or water pump fitting is provided for the return connection.

## *Water Pumps and Hose Leaks*

In order to prevent the loss of costly anti-freeze solutions, it is advisable to check such items as water pumps, radiator hose, clamps, gaskets, at this time.

In the replacement of a cylinder water jacket cover gasket, gasket paste, Part No. HA-47568 will be found beneficial in forming a perfect seal. Care should be exercised in tightening these bolts in order to prevent squashing and forcing out of the new gasket. NEVER REPLACE A GASKET WITHOUT FLATTENING OUT COVER WHERE BULGING OCCURS AROUND BOLT HOLES.

*"Hudson offers the finest in car heaters, Sell one with every new car"*

## Sludge

Sludge or foam in the cooling system will also hinder circulation and reduce heater efficiency.

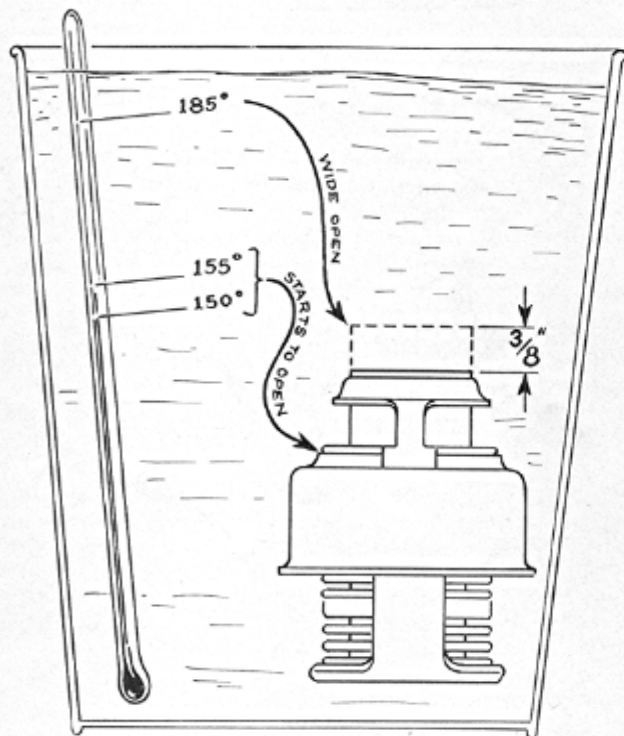
Emulsified oils, greases, glucose, or honey solutions, are the principal offenders of this condition. Good gaskets, proper water pump lubrication, and recommended anti-freeze solutions will eliminate any chance of sludge forming in the cooling system.

Never over-lubricate or use water soluble greases in the water pump bearing.

## Thermostats

A thermostat control in the cooling system circulation outlet is desirable, both from a standpoint of obtaining hotter water for the heater and also as a means of correcting for over-cooling of the engine during cold weather.

With over-cooling, condensation will take place in the crankcase and the moisture will emulsify with the oil and a breakdown of the oil into carbon and thick



greasy materials known as asphaltenes will be the result. This is commonly called crankcase sludge.

Thermostats should be checked to see that they are not sticking in any position. A pressure balanced thermostat which is stuck in a closed position will build up high pressures against the water jacket cover plate and gasket leakage will result. Thermostats should start to open between 150° and 155° and be fully open

at 185°. This can be checked by placing a thermostat and thermometer in a pail of water as shown in the above illustration and heating the water to the required operating temperatures.

## Anti-Freeze

Care should be exercised in selecting an anti-freeze solution. Any calcium salt solution will cause damage to a radiator by electrolytic action and will also damage a heater core and tubes. Any glucose, honey, kerosene or fuel oil solutions will attack radiator hose and heater hose alike. Nothing will clog a cooling system quicker than particles of rotted rubber from the inside of deteriorated hose connections.

Because of the increased operating temperatures, which are necessary for good heater performance, an anti-freeze of fairly high boiling point temperature should be selected. These range upward from 190° F. in an average solution in some of the recent so called (—one) types which are blends of Methyl alcohol. Denatured alcohol has a low boiling point starting at about 156°. In solution this seldom reaches more than 176° to 178°. This is below the normal thermostat operating range and boiling will likely result before satisfactory heater operation. The Ethylene Glycol and Glycerine types of anti-freeze are the most desirable because of their permanency regardless of operating temperatures. They are also less dangerous in handling because they are less poisonous and do not give off objectionable fumes and odors.

Many anti-freeze solutions now have a rust and corrosion inhibitor incorporated in the solution. However the use of the inhibitor in the radiator servicing kit, part No. HA-111684 is recommended for positive protection.

The following table of mixture quantities will cover the majority of the commercial anti-freezes. The figures given are *quarts* of anti-freeze necessary to make 1 gallon of radiator solution for safe protection at the temperatures stated.

Minimum Temperature	Pure Methyl Alcohol	Denatured Alcohol	Ethylene Glycol	Radiator Glycerine
+20°F.	0.5	0.72	0.64	1.4
+10°F.	0.82	1.12	1.0	2.1
0°F.	1.06	1.4	1.3	2.68
-10°F.	1.28	1.7	1.55	3.19
-20°F.	1.48	1.96	1.75	3.58
-30°F.	1.66	2.24	1.92	4.0

Caution: Do not spill any kind of anti-freeze on the car finish. If a few drops are accidentally spilled, rinse immediately with clear water.

If these few suggestions are followed in servicing the car heater and cooling system, a trouble-free and satisfactory performance will be assured for the entire season.

*"Sell safety at a profit, many of your owners need brake service"*

## Horn Adjustment

On the single unit vibrator type horn used on the 1938 Hudson Terraplane DeLuxe and Business models, a slotted screw and lock nut will be found in the exact center of the cover, where the tone adjusting screw is ordinarily placed.

This screw is used to control the air gap in manufacture and should never be disturbed when making horn adjustments. For the purpose of adjusting the tone, a separate, self-locking, fillister head screw is provided, located at some distance from the center, near the outer row of 6 cover screws.

Before attempting an adjustment to improve an unsatisfactory tone, however, the following possible causes should be checked:

- 1—Poor Electrical Connections
  - (a) Examine the connections at horn and wires to make sure they are clean and tight.
  - (b) Check contacts in horn button. They should be bright and clean.
- 2—Loose Particles, Dust or Water in Projector
  - (a) Clean drain hole in bottom of front cover.
- 3—Loose Bracket Screws
  - (a) Tighten bracket screws solidly both at dash and horn mechanism.
- 4—If none of these conditions are responsible and correction must be made by adjustment, proceed as follows:
  - (a) With engine running at a speed just sufficient to keep relay points closed, turn the fillister head adjusting screw clockwise or counter-clockwise,  $\frac{1}{8}$  turn at a time until best tone is obtained.
  - (b) Check adjustment with engine running at a speed corresponding to a car speed of 30 miles per hour with all lights off and again with the engine shut off and all lights on.

**DO NOT DISTURB ANY OTHER SCREWS OR POINTS OR ADJUSTMENT.**

## Clamping of Valve Guides

In doing the commonplace, everyday service operations, a mechanic will sometimes begin to neglect the small details of his task because of the very simpleness of the operation.

One illustration of this is the replacement and clamping of valve tappet guides.

A slight turning of the guide under the clamp before the clamp screw is tightened will allow the tappet to turn a corresponding amount and the face of the tappet will not be in line with its cam. This allows the cam to come in contact with the tappet face near one edge of the tappet and the contact area will be reduced from

a line across the face of the tappet to practically a point near one edge. As the cam rotates the contact area develops into a wide rectangular area with the properly set tappet; whereas, if the tappet is cocked, a narrow line of contact will be developed diagonally across the face of the cam.

When one stops to consider that an initial spring resistance of 40 to 45 lbs. has to be overcome with the initial contact of the cam and tappet, and then consider the immense inertia loads in addition to the increasing spring load; it is easy to understand what can happen and usually does after this maladjustment has taken place.

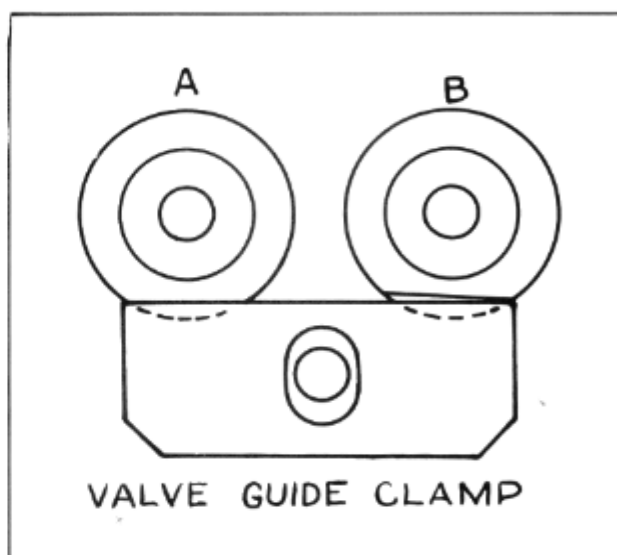


Figure 1

The high unit pressure thus developed will break through any ordinary lubricating film of oil and gaulding will start. Rapid cam and tappet wear will then be inevitable.

After placing the clamp against the guides, it is always advisable to tighten the clamp screw only partially and then tap the clamp on its outer edge to seat it firmly against the guide. This causes the guide to seek its proper position against the clamp before the clamp bolt is finally tightened. Illustrations A and B, Figure 1, show the right and wrong way to set valve guides under the clamp.

## Hang Up The Radio Poster

We recently sent to every Dealer a most informative broadside-poster on your 1938 Radio. Do not miss the bet of hanging these in a conspicuous place in the Service Station, or in the Show Room where they may be seen by your prospective customers, as well as your present Owners.

*"The new Hudson Radios for 1938 offer the most in car radio value"*

# What Is Your Answer?

- (1) Q. *What is the maximum safe setting for the 1938 generators?*
  - (a) *Hot?*
  - (b) *Cold?*
- (2) Q. *What circuit (only) should be connected to the SW terminal of the fuse block? Why not other circuits as well?*
- (3) Q. *What is the proper gap setting for 1938 model spark plugs? For previous models?*
- (4) Q. *What simple adjustments are necessary to the automatic clutch if the following operating conditions exist?*
  - (a) *If engagement is too fast and engine stalls?*
  - (b) *If engagement is too slow and the engine has a tendency to race?*
- (5) Q. *What adjustment is provided on the 1938 models to provide a harder brake pedal should such be desired?*
- (6) Q. *What general type of grease is required for wheel bearings and what are its characteristics?*
- (7) Q. *What grade of oil and how much should be used in servicing an oil bath air cleaner?*
- (8) Q. *A suspected fuel pump is being tested for capacity. If the pump is in good condition what will be the fuel delivered per hour, and at what pressure will it be delivered?*
- (9) Q. *How should a 1934 and 1935 water pump packing gland nut be adjusted and what will result if it is too tight?*
- (10) Q. (a) *When should valve springs be replaced?*  
(b) *How are they checked?*

## Let Them Be Seen

Recently a large 25" x 38" Winter Service poster was sent to every Dealer and Distributor. These posters suggest important Winter Services and Accessories and should be placed in a conspicuous and prominent location where every service customer can not help but notice them.

The picture at the right shows a poster hung in a desirable place. You will find that either the waiting area or service receiving area are most suitable locations.

Besides the winter poster an attractive mailing piece of similar design is available for making owner mailings. Order your winter mailing pieces from your Distributor now.

Hang up your poster today. Make your this years Winter Service and Accessory Merchandising Program a real success.



*"Radiators should be cleaned and flushed before adding anti-freeze"*



Mead and Crockett, Santa Monica, California, Dealer features this attractive Service Department. Each Department is effectively displayed and equipped with most modern equipment for giving customers the last word in super service.

## “Plugging Up Loop Holes”

Whenever anything becomes as general in its application as collision insurance today, there are usually sound reasons back of it. Yet, frequently we come to regard the thing itself as so commonplace that we forget the reasons that led to its development or the factors which make the thing itself economically constructive. As in a game of chess, an occasional review of the general position frequently prevents costly mistakes. Such a review of the general relationship of collision insurance to the automobile business is always timely and is of particular significance to the automobile dealer.

Undoubtedly there is a greater risk of collision today than 15 years ago, when there were fewer cars on the road, and those capable of less speed. Streamline cars in great numbers going at a high speed along our highways and cross roads greatly increase collision risks. The dealer who sells a car covered by collision insurance practically has sold his customer two cars, should there be a complete collision loss. In that case, the purchaser will obtain from the insurance company the full value of his old car, surely enough to make a substantial payment on a new car, and will buy it from the dealer who sold him the first. It is easily seen that this chain of events keeps the customer a car owner and increases the dealer's sales opportunities.

Collision insurance premiums are based on insurance companies' experience. If they insure a large number of cars in a great many different territories they will broaden the base of their risks. If on this broad base the experience developed is favorable with a low ratio of loss and of adjustment costs, insurance premiums will be increasingly low to reflect that favorable experience. If, however, careless driving or a lack of highway warnings leads to an increase in collisions; and if factors which tend to lower adjustment costs are ignored, collision insurance rates inevitably will reflect unfavorable experience and well may increase.

Most automobile dealers whose eyes are focused ahead on the long pull are aware of the fact that they have a definite place in controlling collision adjustment costs and that perhaps with them rests finally the direction which collision insurance premiums will take.

A number of their reasons for this knowledge will be dealt with in a later article more in detail.

For the moment suffice it to say that these dealers appreciate the force of an old proverb, “one hand washes the other”. Have you ever taken a cake of soap in your left hand and attempted to wash under a faucet without the full cooperation of the right hand? If you have you already realize the full force of this proverb and that it illustrates the absolute necessity for full cooperation to obtain best results.

These far sighted dealers know that the best service they can render their customers and their market—and incidentally themselves—is to cooperate fully with insurance underwriters in keeping down costs of collision losses, as will be seen in brief discussions of this topic which will follow. If one of your customers limps into your garage with his car bearing the abrasions and contusions of collision, you are faced with the choice, whether recognized or not, of pushing collision insurance premiums either up or down. If accepted as a Santa Claus—given chance for extra profit, because an insurance carrier may be given the bag to hold—new parts to replace everything even scratched, instead of repairs to damaged parts not actually requiring replacement; loaded time charges, a general attitude of taking a free ride—then the repair shop is furthering the process of slowly killing the goose that lays the golden eggs. Thus thoughtlessly meeting this responsibility a service station operator throws his weight into the balance on the side of increasing adjustment costs and may well force underwriters to require higher collision insurance premiums. Higher collision insurance rates would undoubtedly tempt many customers to risk getting along without collision insurance, and in the event of a complete collision loss, such a customer is definitely removed from the market and the dealer has lost another sale. The budget buyer, whose finance plan always includes collision insurance, will resist the higher delivered price of the car occasioned by increased insurance costs. Hence dealers will only be putting obstacles in their own path, building sales resistance difficult to explain away or to overcome, unless they cooperate in the direction of keeping collision adjustment costs to a minimum.

*“Systematic lubrication is the best means of maintaining owner contact”*





**Defrosters on 1938 Cars  
Equipped with Radio**

One of our Distributor's Service Managers has called our attention to the fact that it is practically impossible to install part number 155703 Defroster Kit in a 1938 car in which a Radio has already been installed without first removing the radio. On such cars we recommend the installation of part number 155999 Defroster Kit. This Kit can be quickly installed without disturbing the Radio in any way.

**A Sales Builder**



In setting up the Radio demonstrating and display stand you will find that the telescopic antenna provides more than sufficient drawing power for normal reception. This antenna may be installed in the location shown in the above illustration by boring two three-eighths inch holes for the antenna mounting studs.

You will find this display stand an effective "Sales Getter"—This year's Hudson Radio Program places you in a strong position to beat competition.

You've got the Radios and you've got some real merchandising material "So let's go to town", Make 1938 your greatest Radio Year!

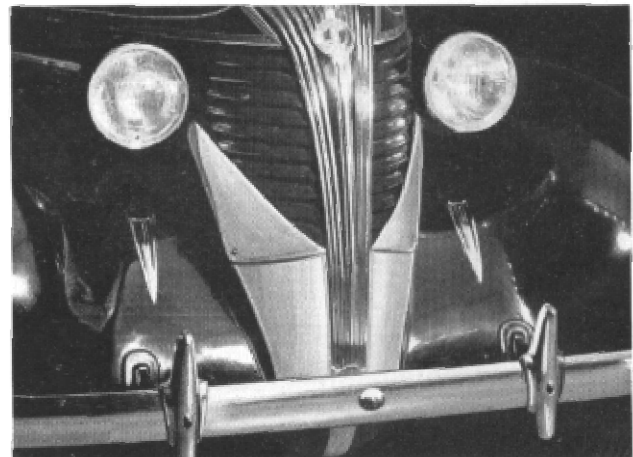
**1938 Winter Fronts Now  
Available**

The variation in design between the Hudson and Hudson-Terraplane models this year makes it necessary to provide two individual outside winter fronts. These are similar covers except for size and shape to allow them to perfectly fit their respective cars. You will note from the illustration showing the Terraplane installation that these covers are made in two pieces, permitting the broad chrome grille plate to be seen and thus giving a finished appearance to the front end of the car at all times.

For your information Part Number HA-126714 Radiator Winter Front—outside—fits 80, 81, 82, and 88 models. Part Number HA-126715 Radiator Winter Front—outside—fits 83, 84, 85, and 87 models.

Besides the two outside Winter Fronts an invisible Winter Front is also available which is installed on the front side of the Radiator core inside of the grille. This is identified as Part Number HA-128385.

Your owner will want Hudson custom-built Winter Fronts. Install one on a display car in your showroom.



**Heater Installations**

May we call your attention to one operation in heater installations which is evidently being overlooked by some mechanics.

When a heater is installed in a 1938 car it is necessary to use spacers to set the heater away from the dash so that the side outlet clears the dash indentation. Two large flat washers are furnished with the kit to be installed directly against the dash padding. Stud nuts should be drawn down as tightly as possible and then retightened a day or two after installation to take up any additional give in the padding.

These operations in heater installation should be watched carefully in the interest of owner satisfaction.

*"Sell your Customers what they need as well as what they ask for"*

## Good Vision Means Safety

A car could be 100% safe mechanically, but regardless of this fact, a driver's safety can quickly be impaired by a sleet-covered, clouded or foggy windshield. As a means to provide better vision under such adverse conditions, sell your owners heater-defrosters or defrosting fans. These items are a vital factor in winter safety and a profitable item in your Accessory Merchandising Program.

### SERVICE MEETING PROGRAM

FOR  
NOVEMBER 1937

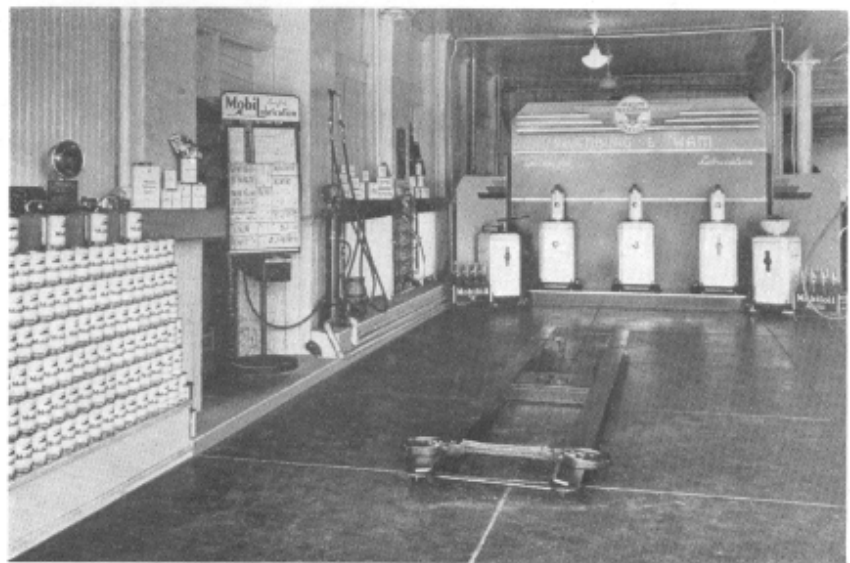
•  
Winter Servicing, Page 31-35  
Radio Merchandising, see Radio Broadside  
and Sales Manual

•  
MATERIAL  
November Magazine  
Radio Broadside and Sales Manual



It's no secret that the Revoir Motors, Syracuse, N. Y., Distributor sells accessories. Here's their Parts and Accessory Department featuring a complete accessory display which tempts customers.

Another score for N. Y. State! Here's a Lubrication Department to be proud of, recently installed by Rivenburgh & Ham, Hudson, New York, Dealer.



*"Check exhaust systems when you are under customers cars"*

## Let's Go!

November is here with its promise of winter. Are you prepared for that first cold weather which will send owners to you for a heater installation? During the next three months we can expect our greatest volume of heater sales, so now is the time to do some figuring on just how many heaters you will sell.

First, each Dealer should analyze his own market. How many cars are in your territory of the 1936 and 1937 models? How many had heaters installed last season? The difference between these figures, plus your expected sales of 1938 models, represents your potential heater market for this season.

Second, to get this potential business we must have a program. Have you told your 1936 and 1937 owners that you have heaters to sell? Use the mailing piece furnished without charge by the factory. Call owners by telephone as a reminder.

Practically every purchaser of a 1938 model will buy a heater. He realizes the need for one and will be receptive to having one installed before the car is delivered. Not a single new car should go out without a new heater installed in it.

Do you have heaters on display in the showroom, in the service department and on the parts counter?

The first cold weather will bring a rush of heater orders. Any owner knows that he will want a heater this winter, but the majority of them will wait until winter is actually here before ordering the heater installed. But when the time comes, he wants it immediately. Anticipate this demand and have sufficient heaters in stock to meet it.

HEATER BUSINESS IS PROFITABLE. Let's not overlook any bets in getting Hudson Heaters on Hudson-built cars.

A HUDSON RADIO AND HUDSON HEATER MAKE A CAR LIVABLE IN ANY WEATHER.

## Wall Posters

The Distributor and Dealer Organization is being furnished this year with the following Wall Charts:

Combination Lubrication Chart  
Electric Hand Chart  
Automatic Clutch Chart  
Tune-up Chart  
Brake Service Chart

We are sure we do not have to amplify the value which these charts have proven in past years to our field Servicing Organization. They have spoken for themselves and have, and are, serving a real helpful purpose.

The preservation of these charts is important, naturally, in order that they may be continually used. There is another factor, however, from the Owner viewpoint which is very valuable. If these charts are neatly framed under glass and placed on the walls of the Service Station in this manner, they will be very impressive to your Owner clientele. We recommend that you do this with our 1938 charts.

Cars Built To Excel  
In *Style*  
*Performance*  
and *Long Life*  
Sold By  
A Dealer Organization Which Aims To  
Excel In SERVICE  
And OWNER  
SATISFACTION

### Lifting Switch Ball from Clutch Housing

In servicing the 1938 type shift rail switches it may be found necessary to remove the switch operating ball from its hole in the clutch housing. Because of the closeness of the fit, it will be found impossible to grasp the ball with any ordinary tools available. The ball can be easily removed as follows:

Place a length of windshield cleaner hose on manifold fitting in place of regular hose. Extend length of hose downward along side of motor to transmission. Place finger over end of hose and start engine. Run engine fast enough to prevent stalling and place end of hose against ball.

If the ball cannot be lifted out, check top edge of hole for nicks or burrs that might restrict the ball or interfere in its operation.

*Step Up Your Winter Profits, Sell Accessories Now!*

