

TERRAPLANE HUDSON

Service

TECHNICAL INFORMATION
PARTS—ACCESSORIES
MERCHANDISING

Issue 2

JANUARY, 1935

1935 Series

SERVICE IS SELLING

There is no more important branch of a retail automobile business than a properly set up and efficient service department. It should be well equipped—but its real success depends on more than equipment alone. There must be an interested and enthusiastic service organization . . . interested in each owner, determined that he will get absolutely satisfactory service, advising him on how to get the most return from his motor car investment.

Such service goes beyond an ordinary efficient performance of an owner's service requirements. It calls for alertness and a thoughtful study of each owner's problem. When we do that—when we actually make a "hobby" of giving extraordinary service to every owner—we are building a business asset that money simply cannot buy.

Ours is the fourth largest owner group in the country. Every one of these owners can be made to go out of his way to promote our cars with his acquaintances . . . an unofficial but effective salesman for Hudsons and Terraplanes. Too, by far the largest prospect group that we have for new cars are these present owners of Hudson-built products. Out-of-the-ordinary service will cement this owner loyalty and build sales.

One added service activity that will bring added revenue and win owner enthusiasm is the building up of maintenance business—a division of service which represents the bulk of service work. Such work is invaluable in bringing about the fullest satisfaction on the part of an owner . . . and in assuring the highest possible volume for the service department.

If we make it our objective to cause all our owners to say: "I'd buy Hudsons and Terraplanes . . . even if they weren't such outstanding values . . . simply because of the service that's behind them"—then we'll be accomplishing the job that it is possible for a service department to do.

W. R. TRACY
General Sales Manager

INDEX

(Issues No. 1 and No. 2—1935 Series)

	Page
A	
Accelerator Pedal—Use of.....	38
Accessories as Christmas Presents.....	3
Accessory Display Boards.....	22
B	
Battery Chargers.....	19
Bodies—1935.....	6
Brakes—1935.....	15
Bulletin Binders.....	4
C	
Clock—8-Day—Oval Mirror.....	38
Cold Weather Starting.....	21
D	
Distributors' National Service and Parts Managers' Convention.....	28
E	
Electric Hand—Operation.....	7
Mechanical Adjustment.....	30
Testing Equipment.....	34
Engines—1935.....	5
Engine—Cold Weather Starting.....	21
Engine—Tune-up.....	21
Engine—Warm-up—Climatic Control.....	21
F	
Field Clinics for Dealers.....	29
G	
Gauge—Electric, Gasoline and Water Level.....	39
General Service Policy for 1935.....	29
H	
Heaters—Interchangeable—1934-1935.....	3
L	
License Plate Frames.....	38
N	
New Car Program is Underway.....	1
P	
Parts Ordering.....	4
R	
Radio—1935.....	20
Radio Display Stand.....	38
Radio—Merchandise—1934.....	3
S	
Seat Covers.....	38
Shock Absorbers—1935.....	14
Shock Absorber Fluid.....	40
Stabilizer.....	14
Startix.....	40
T	
Technical Notes from National Service and Parts Managers' Convention.....	36
Tell-turn Signal.....	37
Terraplane Hudson Service.....	3
Tire Pressure.....	37
Transmission Lubricant—Thin.....	37
Trunks—1934 and 1935.....	3
W	
Wheel Mouldings.....	37



SERVICE AND PARTS MANAGERS' NATIONAL CONVENTION Dec. 17, 18, 19, 20, 1934 Detroit.

Distributors' National Service and Parts Managers' Convention

Real Benefits Derived

The National Service and Parts Managers' Convention convened at nine o'clock Monday morning, December 17th, at the factory, with almost one hundred per cent attendance present from all distributors located throughout the United States.

Most of the men have been long with Hudson and attended previous conventions held in past years. Many of them wondered how four days could be spent in a clinic of this kind and have the time entirely and profitably taken up.

Realizing the importance of such a meeting and the expense involved by distributors sending their men in to Detroit, as well as the great expense placed on the factory by such a convention, the group responsible for the program very definitely saw in their planning that there would be no time wasted.

The men were in their chairs at nine o'clock promptly every morning of the four days and stayed continuously through the meetings until a few minutes of six in the evening, at which time the buses took them back to their hotel. These boys were "hounds for punishment." Not satisfied with the time already spent in a long strenuous day, meetings took place in the evening with various groups to further discuss the matters which had been presented to them during the day.

Those sources furnishing specialized equipment, such as the electrical system, carburetors, electric hand, batteries, vacuum clutch, et cetera, all had high-grade engineers present during the convention and who made a special presentation of their particular product in regard to its operation and servicing. Policies pertaining to the servicing of these units also were gone into. An open forum was held for questions on all phases of these particular units.

It was a very practical convention. No time was wasted in conversation, nor in visiting. When one subject was finished, another was ready for presentation. During the four days spent it was conceded that a very thorough coverage had been made of the products and of the policies.

As important as anything which transpired during the convention, these men had an opportunity to contact and become acquainted with everybody connected with the service and parts department with whom they correspond during the entire year. It always serves the purpose of business better when men are acquainted and know to whom they are writing.

Comparisons made by men who have been in conventions other than Hudson, stated that they never have attended one where so much information was passed out or where a program had been so well prepared. The Service and Parts Departments at the factory have been split up into various divisions, and capable men are in charge of each part of the work. The various duties of the men attached to the Central Office were explained in detail, so there is going to be considerable time saved in the future by directing given correspondence to the men who are responsible for the particular work mentioned in the correspondence.

The executives of the company, including Mr. Chapin, Mr. Barit, Mr. Tracy, Mr. Baits, Mr. Northrup, addressed the men from the field on subjects of their own selection, and their presence in the convention was very much appreciated.

The Field Service Supervisors of the various districts were likewise present for the entire convention and were given the program just the same as these Service and Parts Managers of the distributors.

The factory feels that through the efforts of this meeting there is going to be a much closer coordination between the field and the factory in all matters pertaining to the parts and service operations for 1935.



Tom Stambaugh of the Factory and Frank Randall of Earl C. Anthony, Inc., Los Angeles Michigan and California talk it over

Field Clinics for Dealers

Between the 26th of December and January 15th every dealer in the United States will have had an opportunity to attend a clinic at the distributor's headquarters, during which a complete presentation of the product is part of the program, together with certain operating policies which the field is interested in hearing about.

The Electric Hand will be given special attention, by reason of it having been a new addition to the operating factors of Hudsons and Terraplanes, and which is causing such a sensation throughout the country.

With the presentation of the product and its servicing, films of the still type are being used and, when the projection is made on the screen, everybody in the room can clearly understand and see the details as explained by the District Service Supervisors and the Distributors' Service and Parts Managers. By January 15th there is little reason why the entire Hudson-Terraplane field group will not have been very well versed in the operation and servicing of the cars of both 1934 and 1935.

Explanatory literature is being sent from the factory to all dealers, covering the various subjects taken up in the convention.

The December issue of the monthly Service Magazine carried a number of articles on the 1935 product and these will be continued in all issues during the coming year.

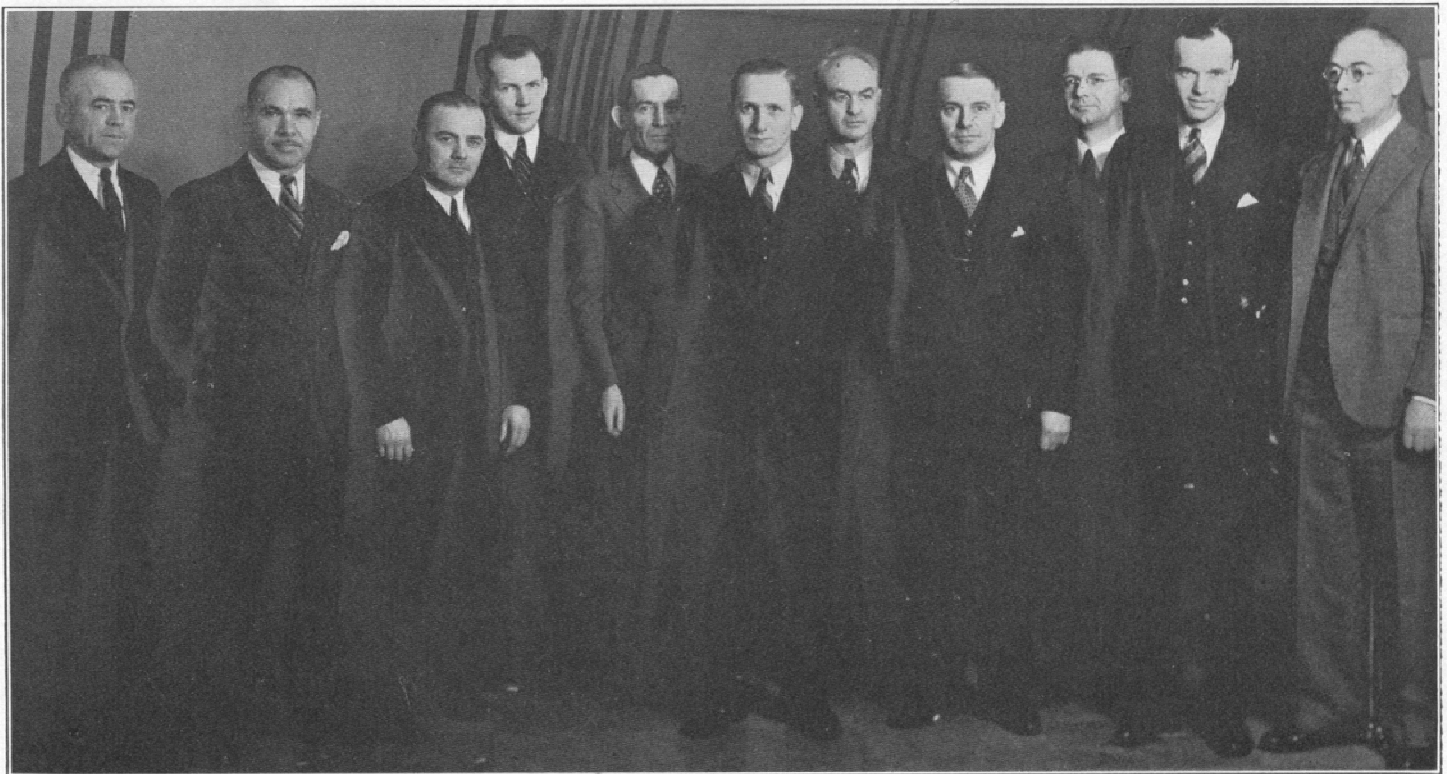
General Service Policy for 1935

We particularly request that all dealers very carefully read the 1935 Service Policy, which is contained in the series of bulletins under the name of "Parts and Service Policies" and is on gray paper. This is dealer Bulletin No. 3.

There are a great many provisions in this policy which will be very helpful to the conduct of the 1935 relationships between the dealers and their owners and on which there should be a most thorough understanding.

We particularly refer you to that part of the bulletin which has to do with serving "transient" or "tourist" owners. It is our belief that this provision of the Owner's Service Policy has not been clear in the past, and it is for this reason that we have particularly covered it in the bulletin.

We are quite sure that all dealers would like to have their owners treated in other territories as well as they treat them in their own shops.



The "Head Men" in the Main Office, Service and Parts Group

T. F. Stone, Parts Specifications; L. Sharon, Claims; J. P. Downey, Claims; E. F. Shell, Claims; T. H. Stambaugh, General Service Manager; E. T. Nowak, Claims; P. E. Jones, Parts Specifications; E. J. Blum, Technical Service; M. S. Bald, Technical Service; M. R. Graham, Service Garage; H. J. Hudson, Assistant General Service Manager

The Electric Hand

Mechanical Adjustment

(See December Issue for Figures 1, 2, 3, 4, 5)

(A)—Adjustment of Cross Shift Stop Screws (Figure 1)

- 1—Shift transmission into high gear.
- 2—Back off stop screw K until it does not touch the stop.
- 3—Turn stop screw K in until it just touches stop, then turn in an additional $\frac{1}{4}$ turn and tighten lock nut. After this adjustment is made a .004" feeler should just pass between the outside face of the lug on lever G and the outside finger of bell crank F.
- 4—Shift transmission into low gear, using power unit.
- 5—Back off stop screw M until it does not touch the stop.
- 6—Turn stop screw M in until it just touches the stop, then turn an additional $\frac{1}{4}$ turn and tighten lock nut. After this adjustment is made a .004" feeler should just pass between the inner face of the lug on lever G and the inner finger of bell crank F.

(B) Adjustment of Length of Diaphragm Cylinder Shaft (Figure 1)

- 1—Remove clevis pin from diaphragm cylinder rod clevis.
- 2—Loosen lock nut X.
- 3—With bell crank lever F pushed forward so that stop screw K is against its stop, turn the clevis until the clevis pin hole is $\frac{1}{4}$ " ahead of the hole in the lever when the diaphragm cylinder rod is in its extreme forward position. Tighten lock nut X.
- 4—Push diaphragm cylinder rod back to align holes and replace clevis pins.

(C) Adjustment of Interlock Switch

- 1—Shift transmission into low gear and then into high gear. The pointer on the interlock switch lever should register with the line on the interlock switch cover. If not, adjust as follows:—
- 2—Loosen front stop; then turn rear stop until alignment is obtained while interlock switch lever is held back against rear stop. Then tighten front stop.
- 3—Shift transmission into low gear, then to high and recheck to see that pointer registers with line on interlock switch cover.

(D) Adjustment of Power Cylinder Piston Rod (Figure 1)

- 1—Shift transmission into high gear. Remove clevis pin N from lever G.
- 2—Push rubber piston rod guard back and loosen lock nut on piston rod.
- 3—Turn rod end until clevis pin N can be reinserted with the piston rod pulled to its extreme forward position.
- 4—Push piston rod back and lengthen four threads by turning clevis. Tighten lock nut.
- 5—Reinsert clevis pin N.

(E) Adjustment of Clutch Circuit Breaker

With clutch fully engaged, the pointer on the lever should be in line with the arrow on the top of the circuit breaker housing. To adjust:—

- 1—When equipped with automatic clutch control—Loosen clamp bolt nut on bracket mounted on vacuum clutch rod and slide clip until pointer is in line with arrow. Tighten lock nut.
- 2—When not equipped with automatic clutch control—remove cotter key from circuit breaker lever pin. Loosen lock nut on operating rod and remove rod end from lever pin. Turn rod end until it will slip on pin with pointer in line with arrow on housing. Insert cotter pin and tighten lock nut.

The position of the circuit breaker lever is important. If the contact is made with too little clutch pedal movement, the clutch will still be engaged when the shift is made and if a gear has been pre-selected the shift will be made while the engine is driving the car. If the contact requires too much pedal movement, the shift will not be completed should the gears butt teeth. *It is necessary to have a slight clutch drag before the circuit is broken to turn the gears and insure engagement.* It may be necessary, therefore, to set circuit breaker slightly ahead of indicating arrow.

Service Parts Assemblies

- 47739—Selector Switch wires and Jacket Tube Assembly. Used on all Terraplane and Hudson models, except Hudson Custom.
- 48137—Selector Switch Wires and Jacket Tube Assembly—Hudson Custom models.

- 47327—Switches and Wires Assembly. All models.
- 47322—Transmission Control Power Unit Assembly. All models.
- 47250—Clutch Circuit Breaker. All models.
- 47944—Interlock Switch. All models.

Testing Equipment Kit No. 47898

- 1—Master Selector Switch.
- 2—Lower Harness Test Set.
- 3—Power Unit Test Cable.

Service Operations

Preliminary Service Check

The following are to be checked before attempting to make any repairs to the gear shift control mechanism, regardless of the nature of the failure:—

- 1—Be sure Cutout Switch on selector housing is "on."
- 2—Be sure that transmission is free and can be moved into all its positions manually with clutch pedal depressed just enough to close circuit through clutch circuit breaker. (Check by pressing starter button.) Adjust interlock straps on transmission if necessary.
- 3—If temperatures are encountered low enough to cause the recommended transmission lubricant to retard gear shifting excessively, replace 3 ounces of the lubricant with kerosene.
- 4—Inspect vacuum line and fittings.
- 5—Check wire connections on Interlock Switch.
- 6—Make certain that all clevis pins and cotter pins are in place.
- 7—Inspect junction block on power unit to see that all six wires are in place.
- 8—Make certain that all soldered connections are intact in both portions of steering column jack. (To remove covers, twist, with jack assembled.)
- 9—Check wiring harness for breaks or damaged insulation.

Quick Test for Short Circuit

With instrument panel lamp lighted, shift into all positions with Electric Hand. Any appreciable dimming of instrument lamp indicates short circuit in that position.

Gears are Shifted with Clutch Engaged

Probably short circuit in clutch circuit breaker or improper position of circuit breaker arm.

- 1—Check and if necessary adjust clutch circuit breaker.
- 2—Turn on ignition switch and press starter button—if starter operates with clutch fully engaged, replace circuit breaker.

Complete Failure of Electric Hand to Function

After setting pointer and arrow on circuit breaker in line, turn on ignition switch, depress clutch pedal and press starter button. If starter functions, circuit is closed through circuit breaker. If starter does not function, attach grounded test lamp to yellow wire terminal of circuit breaker. No light indicates open circuit from ignition switch to circuit breaker. Light indicates circuit breaker circuit open. Replace circuit breaker.

Failure of Electric Hand to Function in Any or All Positions

If a proper circuit is proven through the circuit breaker and operation is still faulty, disconnect the separable jack on the bottom of the steering column and insert the jack from a Master Selector Switch and wire assembly. (This unit does not require any ground.) If the system functions properly when using this selector switch instead of the one mounted on the car, replace the complete selector switch and wire assembly. This includes all parts on the steering column, including the upper part of the separable jack. See note on page 12 if Master Selector Lamp lights. Do not replace selector until short circuit is removed.

Testing the Shifting Mechanism

- 1—Connect Power Unit Test Cable to the terminal on the clutch circuit breaker to which the red wire is attached. This wire should be "hot" only when the clutch is disengaged.
- 2—With the engine running and the clutch disengaged (Rear wheels of car jacked up)—touch the front post (YB) of the junction block on the shifting unit with test prod. The transmission should shift into high gear. Touch rear post (Y) and the transmission should shift to second gear.
- 3—Shift the transmission to neutral manually—First touch center post (W) with the test prod and the cross shift should be made. Still contacting "W," touch front post "YB" with second test prod. The transmission should shift into low. Touch rear post (Y)—still contacting (W), and the shift should be made to reverse.

If a shift is not made when one of the posts is contacted, connect an accurate ammeter to

the hot wire and to the terminal. A current draw of approximately 2.5 amperes indicates that the solenoid is O. K. A higher amperage indicates a short and a low amperage an open circuit.

Caution: A dead short circuit in a solenoid will burn out ammeter if permanent connection is made.

If the current draw is correct, the trouble may be due to the valve plunger sticking in its upward position, a vacuum leakage in the lines or units or a mechanical drag in the mechanism.

Disconnect the shifting cylinder piston rod from the shifting lever or the diaphragm cylinder from the cross shift bell crank. If these do not function after disconnecting the linkage, the entire power unit should be replaced.

Testing Circuits in Lower Harness and Switches

If only partial functioning or complete failure is experienced after the Master Selector has been plugged in, test the complete circuits at the solenoid junction block with lower harness test lamp set. (This test must be performed with a Selector Switch known to be O. K.)

- (a)—Remove the three wires on end of wiring harness from junction block on selector valve.
- (b)—Insert these three wires into jack fitting on Lower Harness Test Set, in correct position according to color.
- (c)—Attach ground clip to a clean metal ground on car.
- (d)—Turn ignition switch "on," turn cutout switch "on," and hold clutch fully disengaged.
- (e)—Place Selector Level in neutral. Place transmission in neutral manually.

When shift lever is moved a short distance toward "second," test lamp "YB" should light. When shift lever is moved a short distance toward "high," test lamp "Y" should light.

- (f)—With transmission in neutral, move Selector Lever to "low." Test lamp "W" only must light.
- (g)—Transmission remains in neutral. When Selector Lever is moved into "second" position, test lamp "Y" should light. When Selector Lever is moved into "high" position, test lamp "YB" should light. Selector in low or in reverse lamp "W" only should light.

- (h)—As the transmission is shifted manually to correspond to any position chosen at the selector switch, the proper lamps, as indicated in "g," should remain lighted during the shift. However, lamp "Y" or "YB," whichever is lighted, should go out when the shift is completed. Lamp "W" alone will remain lighted in "low" or "reverse" position.

If, in any of the above test, the correct lamps do not light or additional lamps are lighted, replace 47327 Switches and Wires Assembly.

Test to detect improper contact plate adjustment. If, after a new lower harness assembly has been installed, either lamp "Y" or "YB" remains on when transmission is in neutral, in test (e) above, the contact plate is incorrectly adjusted. To adjust contact plate, loosen the four screws holding contact plate assembly, then see if plate is free to move back and forth through movement permitted by elongated holes. If not, remove plate from transmission cover and carefully cut off or remove locating dowel pins. Replace contact plate as nearly as possible in its original position and partially tighten the four screws so that plate may be moved to its proper position.

If test lamp "YB" remains lighted when transmission is in neutral, move plate very slightly to the rear until lamp "YB" goes out. (If lamp "Y" remains lighted, move block forward.)

The proper setting is obtained when the movement of shift lever forward from neutral necessary to bring lamp "YB" on, is equal to the backward movement required to bring lamp "Y" on.

To Check Position of Interlock Switch

- 1—Place the transmission in low gear and the selector switch in high gear and depress the clutch. Lamp "Y" should light and remain lighted until the transmission is shifted (manually) to neutral. Lamp "YB" should be lighted when cross shift to second and high side is completed. If lamp "YB" is lighted before the cross shift is practically completed, the interlock switch is not in proper position and should be adjusted so that the pointer on its lever is in line with the mark on the housing when the transmission is in high gear. If adjustment does not give proper operation, replace the interlock switch.

If the above tests show that some circuits are not correct, replace the wires and switches assembly (lower harness with interlock switch and contact plate).

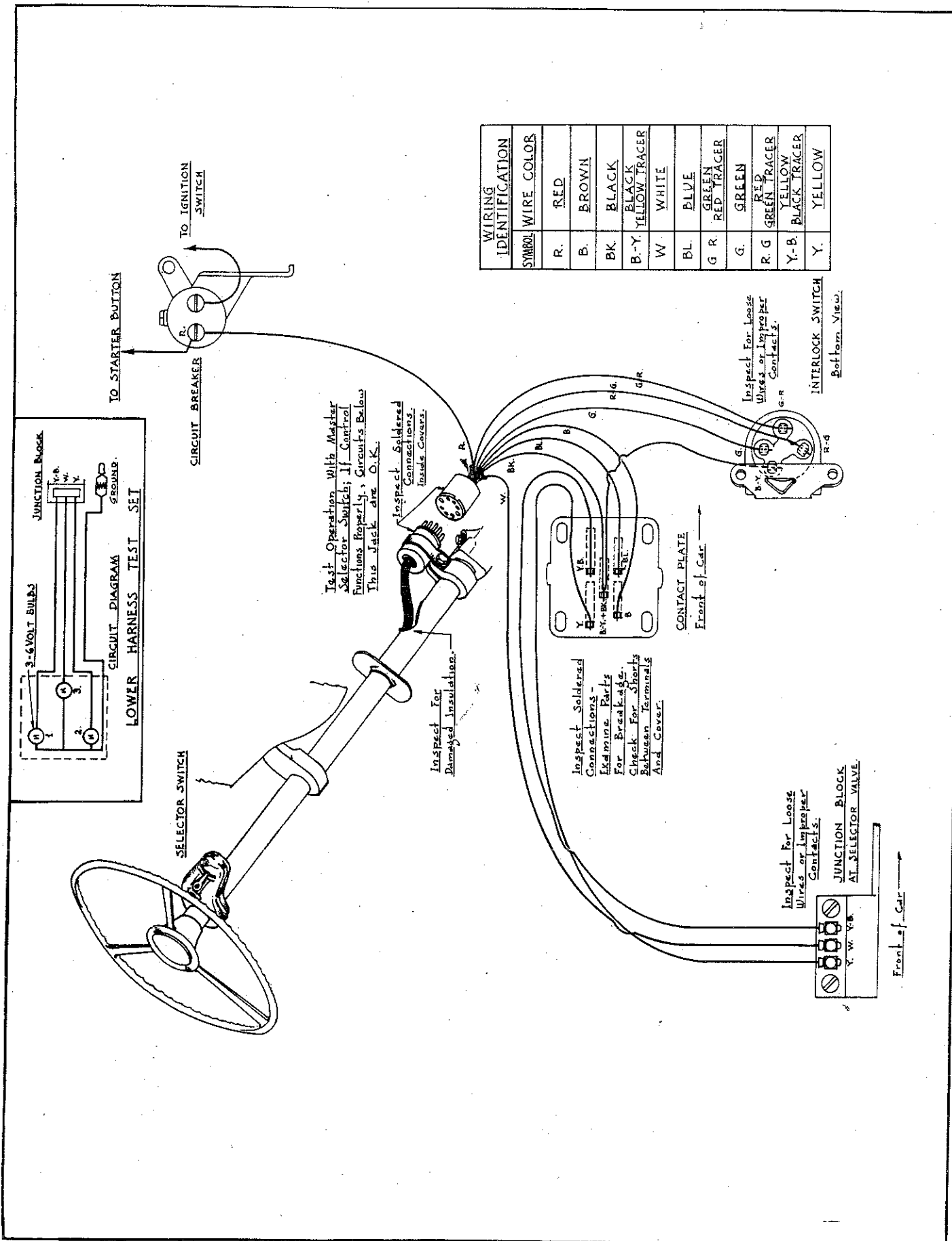


Figure 6

Electric Hand Test Equipment

Kit No. 47898



Figure 7
Using Master Selector Switch to make comparative check of Selector Switch and testing for "shorts"

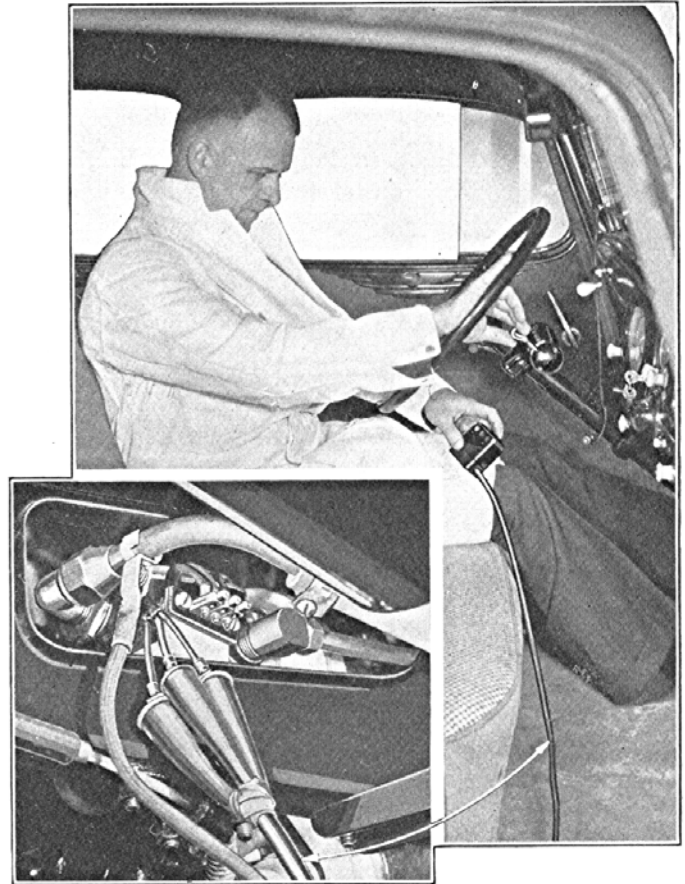


Figure 10
Testing circuits in lower harness and switches
Insert shows connection of test lamps to lower harness

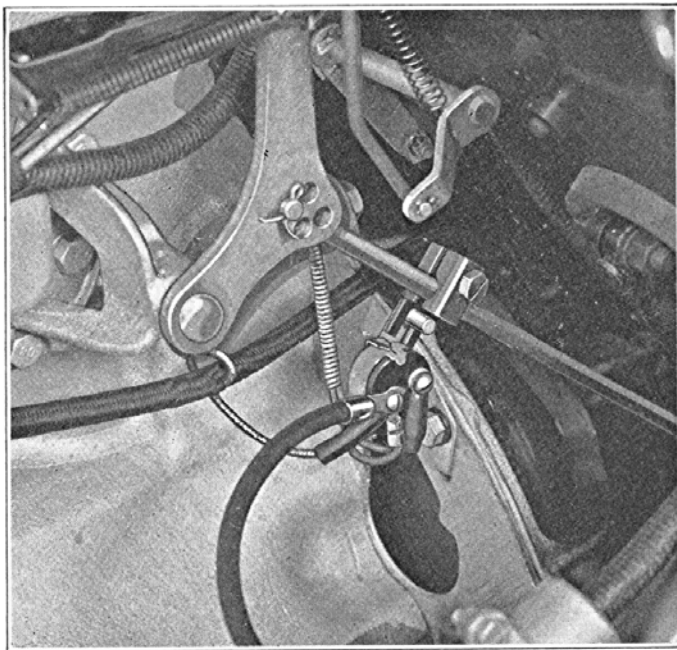


Figure 8
Connection of test cable to clutch circuit breaker
Testing the power unit operation and mechanical adjustments

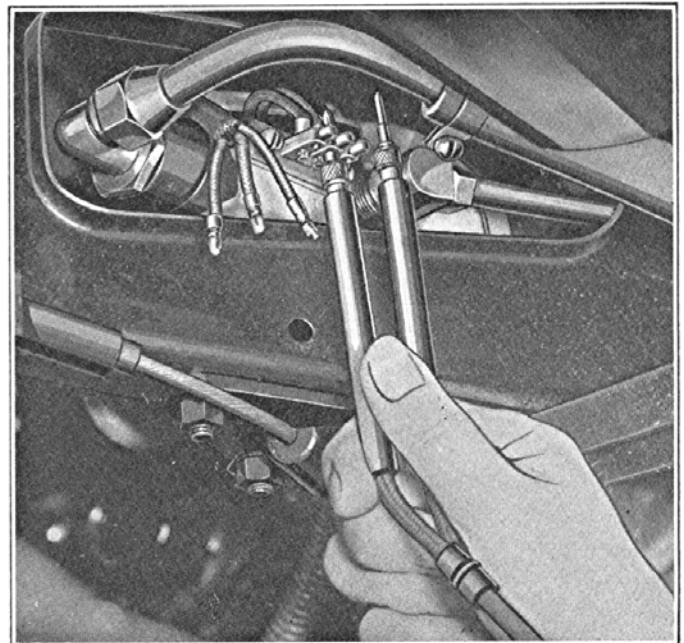


Figure 9
Using prods at solenoid terminals

These three tests made in the above order quickly and positively locate electrical or mechanical troubles in the Electric Hand system

Failures Resulting from Faulty Circuits

See Wiring diagram, Fig. 6. A faulty selector switch may cause any of the failures listed below. A master selector switch should be used when checking the control. If control operates perfectly with master selector switch, an investigation of the other units is unnecessary.

Transmission fails to move into:	Faulty circuit through: (See Note)	Transmission fails to move out of:
Any position	Red Wire	Any position
Any position	Green Wire with Red Tracer	Any position—except that transmission may be brought to neutral by moving Selector Switch to opposite side of gate*
Low* Reverse	White Wire or Green Wire**	
Low High	Blue Wire	
Neutral—except when Selector Switch is moved to opposite side of gate***	Black Wire	
Second Reverse	Brown Wire	
Second Reverse	Yellow Wire	Low High
Low High	Yellow Wire with Black Tracer	Second Reverse
Second High	Red Wire Green Tracer	
Certain positions unless started manually	Transmission contact plate assy. Surface of contact bars <i>must be</i> carefully cleaned	Certain position unless started manually
Transmission fails to follow a fast or "pre-selective" shift from a position on one side of gate to a position on the other side (from low to second, or from high to low, for example)	Black Wire with Yellow Tracer	Transmission will follow when selector switch is moved very slowly

NOTE:—Faulty circuit may be caused by either a short or an open circuit. In most cases, failure will be due to an open circuit, but when a short is encountered, Master Selector Switch fuse will blow. When this occurs, lamp adjacent to fuse should burn at full brilliance. (A 6-8 volt, 32 CP, single contact bulb *must* be used. Allow Master Switch to remain in position which caused fuse to blow (i.e., in a position in which bulb burns at full brilliance). Then check faulty circuit for a short. When short is located and eliminated, bulb will burn at approximately half brilliance, which is normal. After short has been eliminated, insert new 7½ ampere fuse and check operation of control in all positions.

(*) If green wire with red tracer is damaged, transmission will not move out of neutral position into any other position, but if it is placed in high posi-

tion manually, it may be brought to neutral by moving Selector Lever into "Low." If placed in low position manually, it may be brought to neutral by placing Selector Lever in "high."

(**) If green wire is damaged, shift lever will still move back and forth with Selector Lever as the latter is moved from left to right.

If white wire is damaged, shift lever will remain on the second and high side, even though Selector Lever is moved back and forth from right to left.

(***) If black wire is damaged, it is impossible to place transmission in neutral by merely moving Selector Lever to "Neutral." However, if transmission is in either second or high position, it may be placed in neutral by moving Selector Lever to "Neutral" and then as far to the left as possible. Transmission may be moved into and out of every position, except neutral, in the normal manner.

Technical Notes from the National Service and Parts Managers' Conventions

Fuel Pump Testing

Fuel pump vacuum is not important, but delivery pressure is. Insufficient pressure will not deliver sufficient fuel while high pressure will push the float needle valve off its seat and flood the carburetor. A Fuel Pump Analyzer developed by the A C Spark Plug Company will show the pressure as well as the quantity of fuel the pump is capable of delivering.

Air Cleaner Service

Air cleaner service is profitable and can be sold with lubrications or engine tune-up every 2500 miles.

Shock Absorber Bushings

Too much endwise compression of shock absorber eye bushings will prevent sufficient floating for proper alignment under extreme conditions and cause "grunting" or even permanent misalignment and binding of the unit. A $\frac{1}{16}$ " washer on each side of the bushing should give proper compression. However, in some cases it is necessary to remove the inside washer.

Loss of Fuel from Carburetor Float Chamber

If the carburetor bowl is wet on the outside or becomes empty after standing several hours, paint the outside of the bowl with a special paint available through the Carter Carburetor Company.

Choke Valve Opening

The thermostatic spring in the Climatic Control holds the choke valve closed, but intake manifold vacuum acting on the unbalanced choke valve and the bakelite piston in the climatic control housing is depended upon to open it.

If the choke will not open when the engine is running, see that the choke operates freely, the air passages to the climatic control housing and particularly the screen is clean and that the piston moves freely in its cylinder.

Cleaning of the climatic control should be a part of every engine tune-up.

Slow Engine Warm-up

A piece of asbestos looming slipped over the flexible tube leading from the manifold stove to the climatic control will prevent excessive cooling by the fan air stream and shorten the warm-up period on cold days.

Gum in Gasoline

The acid from solder flux increases the speed of gum formation in gasoline. Terraplane-Hudson again leads in eliminating all soldering operations on the gasoline tank.

"Unloading" Flooded Engine

When the throttle is held wide open the choke valve should be open so that the lower edge is $\frac{3}{4}$ " from the side of the air horn. This position is important to permit "unloading" if the engine becomes flooded. The position of the choke can be adjusted by bending the kicker shoe on the throttle linkages which contacts the choke shaft cam.

Water Leaks at Windshield

Water leaks between the windshield frame and glass can be eliminated by forcing the seal strip down into the frame channel and then filling the space thus made with Dolphonite.

Engine Stalling During Warm-up

If the engine stalls on idle during the warm-up period, it may be due to the shoe on the idle bar linkage being too high so that the choke is held practically closed unless the high idle bar is lifted from behind the throttle stop screw. The proper position of the shoe with the high idle bar down should permit the choke valve to open approximately 45 degrees. This is more than sufficient to insure idling without an over rich mixture.



Bill Morgan

The "big shot" in the Parts Department, Superintendent of Factory Parts Division.

Important

Tire Pressure Caution

With the adoption of a six-inch minimum cross-section for the tires used on the 1935 models, the matter of correct inflation pressure is of greater importance than heretofore. In the interest of comfort, correct handling, and in order to favorably impress prospects and owners with the riding qualities of our cars, we strongly urge you to give this detail the attention it deserves and see that the tires of all cars, demonstrators especially, are always inflated to the recommended pressures.

These are as follows:

Terraplane Special and De Luxe, also Hudson Six models,

Tire size, 16" x 6.00",

Front tires, 22 lbs; Rear tires, 28 lbs.

Hudson Eight Special and De Luxe models,

Tire size, 16" x 6.25",

Front tires, 22 lbs; Rear tires, 28 lbs.

Hudson Eight Custom models,

Tire size, 16" x 6.50",

Front tires, 22 lbs.; Rear tires, 26 lbs.

In order to meet the requirements of the carriers, all cars leaving the factory by rail or haulaway have the tires inflated to 45 pounds air pressure. It is obvious, therefore, that this item should be carefully checked during new car inspection, and we recommend that you instruct your shop personnel to see that the tires of your owners' cars are properly inflated whenever the cars are brought in for inspection or other service work. Also, see that the gauges used by your men for this work are periodically checked for accuracy, since an error of two or three pounds will materially affect the results obtained.

The foregoing applies equally to the 1934 cars, the corresponding models of which carry the same air pressures.

Thin Transmission Lubricant

Under extremely low operating temperatures, the lubricant recommended for use in transmissions (S. A. E. 80—Gear Oil) will become heavy enough to make manual shifting of the gears difficult and cause sluggishness or, in extreme cases, actual failure to mesh when using the Electric Hand. This can be overcome by draining three ounces of the regular lubricant from the transmission and replacing it with an equal quantity of kerosene.

Under no condition should the level of the lubricant be above the filler plug. This increases the effort necessary to shift gears in winter and may cause leakage.

Wheel Mouldings

We should go places in merchandising stainless steel wheel mouldings during 1935. On December 1, we announced the wheel display ring and shipped a pair to each distributor. During December, shipments of wheel mouldings increased over 200%, which indicates that the display ring can be made a popular item. Another automobile concern whose production is about equal to ours sold over 25,000 sets in 1934.

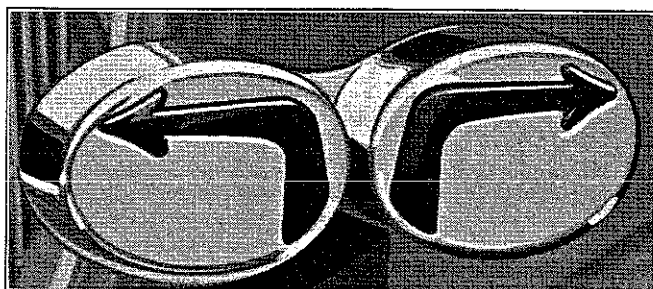
The display ring is easily installed and quickly removed from a wheel without damage to the wheel finish and should be on a car in your show room at all times. Order a pair at once and get your share of the profit available through sales of wheel mouldings.

Part No. 47836 2 Display Wheel Rings \$1.40 net

During 1935 only the 16" wheel will be used in production, so the present 16" mouldings apply to the complete 1935 line as well as the 16" wheels of the 1934 cars. We will continue to stock 17" mouldings for installation on 1934 cars.

See accessory price list dated 11-30-34 for wheel moulding prices and resale schedules.

Tell-turn Signal Light



Tell-turn Signal Light—Part No. 114540—\$9.50 List

There is a growing sentiment among the motorists of America, favoring the installation of electrical signals on automobiles for the operator to indicate his intention to turn left or right. With today's high speed and rapid deceleration there is no denying the advisability and the desirability of a driver indicating to those who are following, his intention to turn. The Tell-turn signal light very effectively serves this purpose, in addition to making an attractive accessory on the car. The signal is operated from a switch located in the gear shift lever ball. This switch is illuminated during the time the signal light is in operation and has a directional pointer corresponding to the flashing arrow in the light itself.

The Use of the Accelerator Pedal

Because of numerous questions asked about the starting of the engine on cars equipped with Climatic Control, and a general desire to operate something manually while starting the engine, we wish to call attention to the paragraphs under the heading "Starting the Engine," in the Owner's Manual which read as follows:

"Before attempting to start a cold engine, depress the accelerator pedal slowly approximately quarter to half way and then release. This will allow the high idle speed stop to come into position to prevent stalling during the warming-up period. Insert the key in the ignition lock and turn to the right. Press the starter control button to bring the starter into action and start the engine.

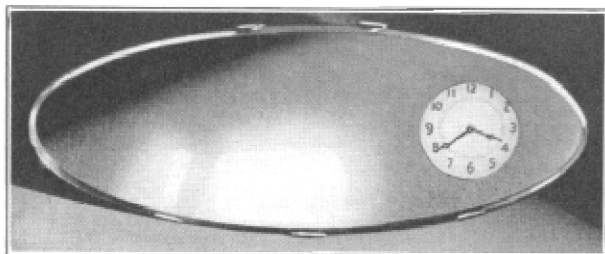
"If the engine is warm from previous running, the accelerator pedal should be depressed approximately quarter to half way and held in that position during the starting operation.

"If the engine does not start after 15 to 20 seconds of cranking, release the starter button and, after a few seconds, repeat the starting operation.

"Do not work the accelerator pedal up and down, except as previously mentioned, either before or during the starting operation, as this will cause the accelerator pump to supply an excessive amount of gasoline and prevent correct starting.

"Should a flooded condition of the carburetor develop, either through operation of the accelerator pedal or continuous cranking without the ignition turned on, depress the accelerator pedal fully for further cranking of the engine. With the accelerator pedal in this position, the choke is held open so that the excessive amount of gasoline can be drawn through the engine readily.

"Failure of the engine to start when the above procedure is followed can usually be traced to improper engine adjustments or, in cold weather, a combination of this and improper engine lubricant."



8-Day Oval Mirror Clock

The clock pictured above replaces the present 8-day clock mirror. The new oval mirror design should have a popular appeal and result in increased volume on this accessory.

License Plate Frames

Have you noticed the new net prices on license plate frames? You can now merchandise license plate frames at a nice profit. And remember, the frames are brass-chromium plated to conform to automotive engineering standards.



This is the 1935 Radio Display Stand

In designing the 1935 radio display stand, full consideration was given to creating an attractive display, sturdily constructed and easily assembled. Using last year's experience as a guide, we decided on a counter display, with oil colors instead of lithographed prints.

We believe you will agree that this stand should well serve the purpose intended, both from the standpoint of construction and sales appeal. Stands will be furnished without charge, transportation prepaid to any dealer, through his distributor, with the purchase of a 1935 radio, which radio is to be installed in the stand for the purpose of demonstration.

Dealers order from distributors; distributors from the factory. The stands will be ready for shipments from Detroit, January 21st.

Seat Covers

Those who have seen the new 1935 seat covers tell us that the material and pattern selected are the best ever used. There are, however, some who may believe that this type of seat cover is only for summer use, but the manner in which these seat covers completely shield all cushions and seat backs make them a year-around accessory. Talk seat covers in connection with new car sales.

Electric, Gasoline, and Water Level Gauge

Electric gauges—making use of a resistance which can be varied to control the current flowing in a circuit in proportion to the levels of the fuel in the supply tank, and a meter (of the ammeter or voltmeter type) to measure the current flow and convert this into a measure of the quantity of fuel in the tank by use of a properly graduated dial—have been used for a number of years.

These gauges are inaccurate, since their readings depended on the voltage supplied to the circuit. The voltage in an automobile electrical system will vary as much as 50% under operating conditions.

These gauges are also hard to read while the car is moving, as they record every movement of the float as the fuel splashes, and also the dash instrument hand is moved by jolting of the car.

Both the meters and the tank units are susceptible to mechanical failures, due to delicate moving parts and sliding electrical contacts.

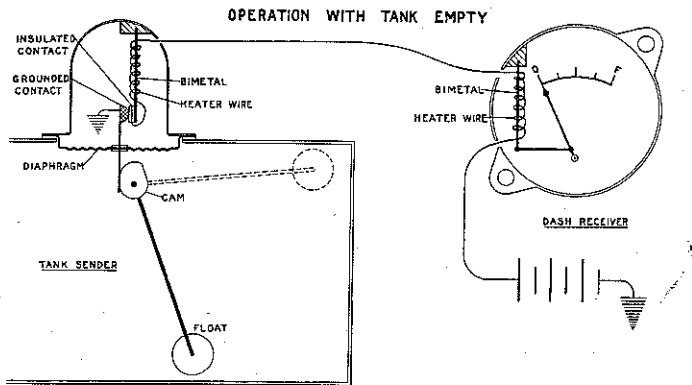


Figure 1

The gasoline and water level gauges used on 1935 Hudsons and Terraplanes are electrical, but operated by an entirely different principle. The system consists of three parts—the tank unit, which is called the sender; the instrument unit, called the receiver; and the single wire connecting them.

The controlling element of both the sender and the receiver is a bi-metal strip. When a bi-metal strip is heated, it bends, and this movement is utilized in the operation of this gauge.

The bi-metal strips in both the sender and receiver are similar, that is, each will bend the same amount when heated to the same temperature. In order to heat both to the same temperature, each has an electrical heating unit wound around it. As will be seen in the diagram, these heating units are connected in series and the current flows from the battery, through the receiver, then through the sender to the grounded contact, and the circuit is completed through the car frame back to the battery. The same current which passes through the receiver must also pass through the sender so that both bi-metals will be heated the same.

The bi-metal in the receiver is anchored at the top, and the bottom is connected by a link to a pointer. Heating the bi-metal will cause it to bend to the right, and this movement, amplified by the linkage, will be transmitted to the pointer, moving it to the right.

The bi-metal in the sender is also anchored at the top, and carries a contact point at the bottom. When this bi-metal is heated, it moves to the right, away from the grounded point and breaks the circuit.

Figure 1 shows the position of all parts of a gasoline gauge system when the tank is empty. When the current is turned on, it will heat both bi-metals just sufficiently for the contact point of the sender to move away from the grounded contact. The actual movement necessary to break the circuit in the sender is so small that the movement of the pointer is not noticeable. As soon as the circuit is broken, the bi-metals begin to cool and straighten so that contact is again made. This process of making and breaking contact continues from 60 to 100 times a minute, the bi-metal being alternately heated and cooled, but to the eye, the pointer on the dial is steady.

Figure 2 shows the position of the parts when the gasoline tank is full. The float has moved upward and, through the action of a cam, has pushed the bottom of the rod, on which the point is mounted, to the left, and the point has moved to the right, this movement being made possible by mounting the rod on a flexible diaphragm.

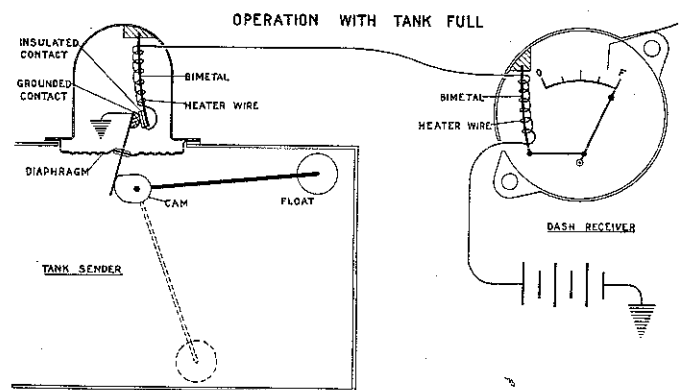


Figure 2

With the grounded point moved to the right, it will require more heat to bend the bi-metal in the sender enough to move the contact point away from the grounded point and break the circuit. The same current, however, that heats the sender bi-metal is also heating the receiver bi-metal and it likewise bends more, moving the pointer to the right. As soon as a sufficiently high temperature is reached, the points open and close alternately, maintaining this temperature and keeping the pointer steady at "full" on the dial.

(Continued on page 40)

Electric, Gasoline and Water Level Gauge

(Continued from page 39)

With the float in any intermediate position, the grounded point would assume a similar intermediate position, and the temperature of the bi-metals at which the contact was broken would determine the position of the pointer on the dial.

Since this gauge depends entirely on temperature for its operation, a change in voltage in the system will not affect the gauge reading. A higher voltage will show a change in fuel level faster, but the final reading will be the same.

The pointer will not be affected by jolting of the car, since it is constantly held in position by the bi-metal.

Since it takes approximately 15 seconds for the gauge pointer to change from "Empty" to "Full," bobbing of the float is not registered. The actual reading in case of a bobbing float is the average level of the float, which is the actual level of the fuel in the tank when at rest.

The only parts susceptible to deterioration in the entire system are the contact points. Since the aver-

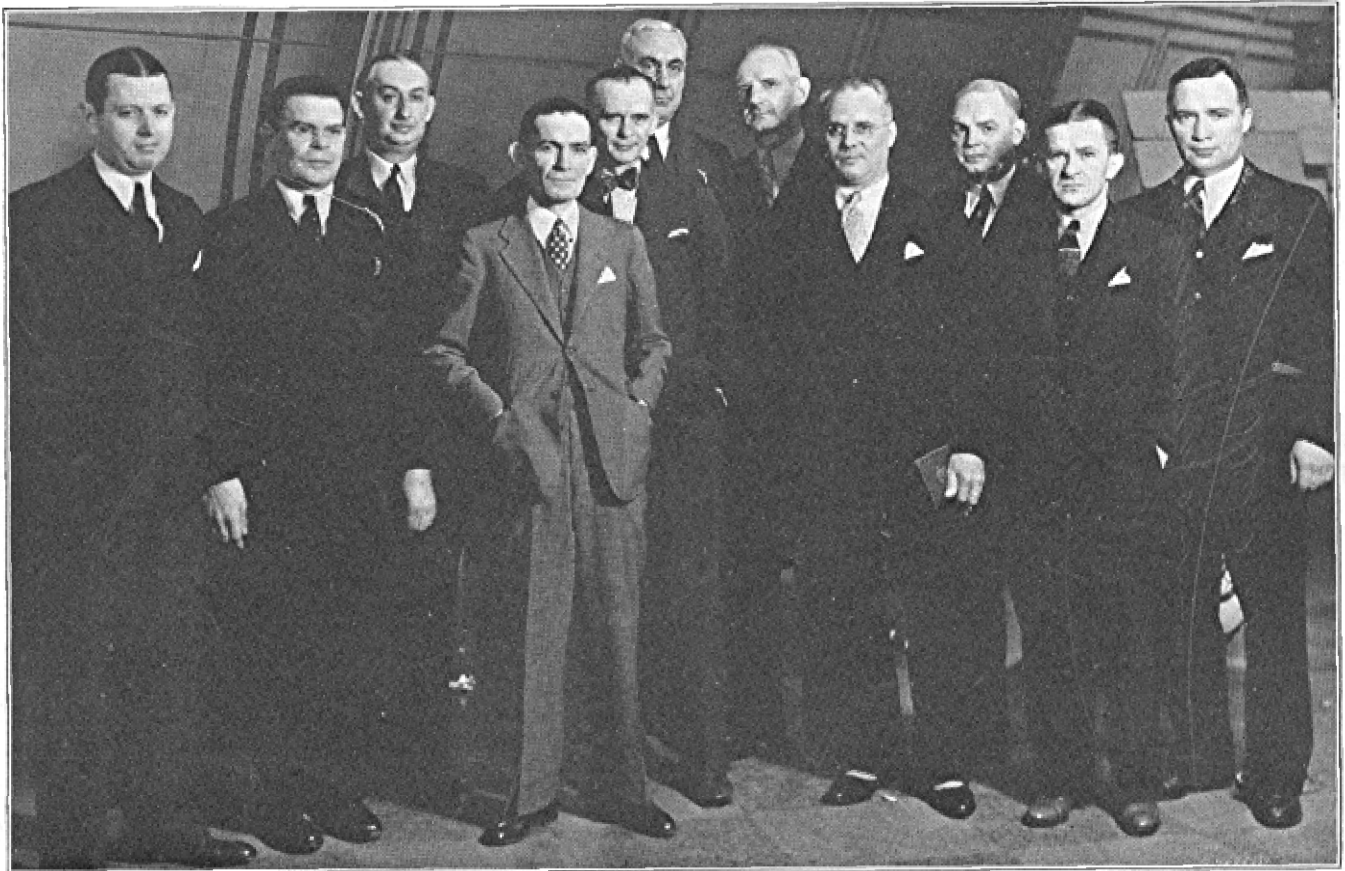
age current flowing is only one twenty-fifth of an ampere when the tank is empty, and one-fifth of an ampere when full, the life of the points is of little concern.

Startix

Let's not overlook the possibilities of Startix this year. Kits include a switch operated by the clutch pedal, so we have all the advantages of automatic starting without the possibility of the engine being started with the transmission in gear. A perfect set-up for use with Electric Hand.

Shock Absorber Fluid

Our engineering laboratory has developed a shock absorber fluid for direct action shock absorbers, as used on all 1934 and 1935 cars. This fluid has been rigidly tested under all operating conditions and we are now prepared to merchandise it with absolute confidence in the results you will obtain. Packaged in one and five gallon containers.



Stambaugh and the Field Service Group

C. C. McKellar, C. McDougal, S. E. Flickinger, T. H. Stambaugh, J. H. Bond, R. D. Wells, W. A. Schweikle, A. E. Levallier, J. L. Newall, R. N. Hopkins, G. A. Brown