# 1940

# HUDSON

# ENGINEERS

# OWNER'S MANUAL





**000 MILES**

**ANER—STANDARD**

N GASOLINE, LUBRICATE
NGINE OIL—S.A.E. 50

**EANER—OIL BATH**

AW FILTER AND WASH
RTS IN GASOLINE
IL SAME GRADE AS IN ENGINE
R BODY AND REASSEMBLE

**ON**

WING POINTS:
DOOR LOCK
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# FOREWORD

As is natural in any investment, the buyer is anxious to get all the benefits and dividends obtainable. When you purchase an automobile you have made an investment in a motor car that is expected to render you many happy miles of safe, economical and efficient transportation.

In order to fulfill these requirements, certain knowledge of the operation features, construction and service operations of your car is necessary.

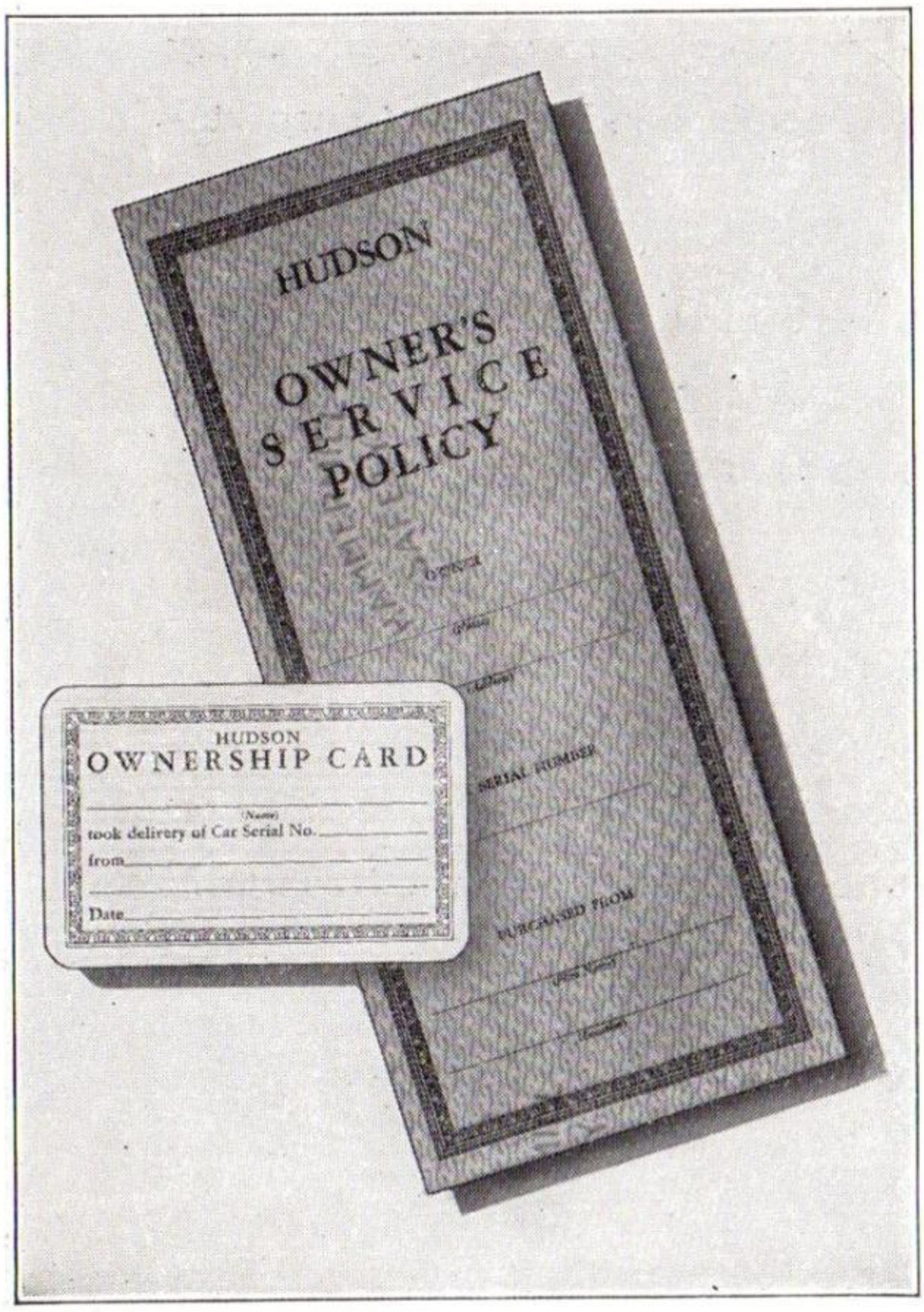
Therefore, this Owner's Manual has been prepared at great expense more fully to acquaint you with your Hudson car. Before you drive your car, take just a few minutes to study its contents. It will serve to guide you as a friend. Be sure to place it back in the locker box for future reference.

HUDSON MOTOR CAR COMPANY

Service Department
Detroit, Michigan

# DID YOU KNOW—

1. At the time of delivery of your Hudson car you were provided with an Owner's Service Policy and Ownership Card which entitle you to certain provisions as outlined in the Standard New Car Warranty? Be sure that the two forms, illustrated here, have been properly filled in and signed. Read the Policy carefully so that you fully understand all its provisions. The Policy form should be placed in the locker box and the Ownership Card in your billfold for future reference if required.




2. Your tires and battery are covered by similar warranties by their individual manufacturer. Be sure your dealer has filled in the necessary forms to give you the necessary protection.

3. Insurance regulations prohibit stamping key numbers on the locks. Space is provided on the Ownership Card for key numbers. BE SURE TO RECORD THE NUMBERS ON THE CARD AS LOST KEYS CAN BE REPLACED ONLY BY ORDERING ACCORDING TO KEY NUMBER.

The ignition and door safety lock key has the round handle. The key with the octagonal shaped handle is matched to the locker box lock and rear compartment or trunk lid locks.

# WARRANTY

"We warrant each new car manufactured by us to be free from defects in material and workmanship under normal use and service, our obligation under this warranty being limited to making good at our factory any part or parts thereof, including all equipment or trade accessories (except tires) supplied by the Car Manufacturer, which shall, within ninety (90) days after making delivery of such vehicle to the original purchaser, or before such vehicle has been driven 4,000 miles, whichever event shall first occur, be returned to us with transportation charges prepaid, and which our examination shall disclose to our satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties expressed or implied, and of all other obligations or liabilities on our part, and we neither assume nor authorize any other person to assume for us any other liability in connection with the sale of our vehicles.

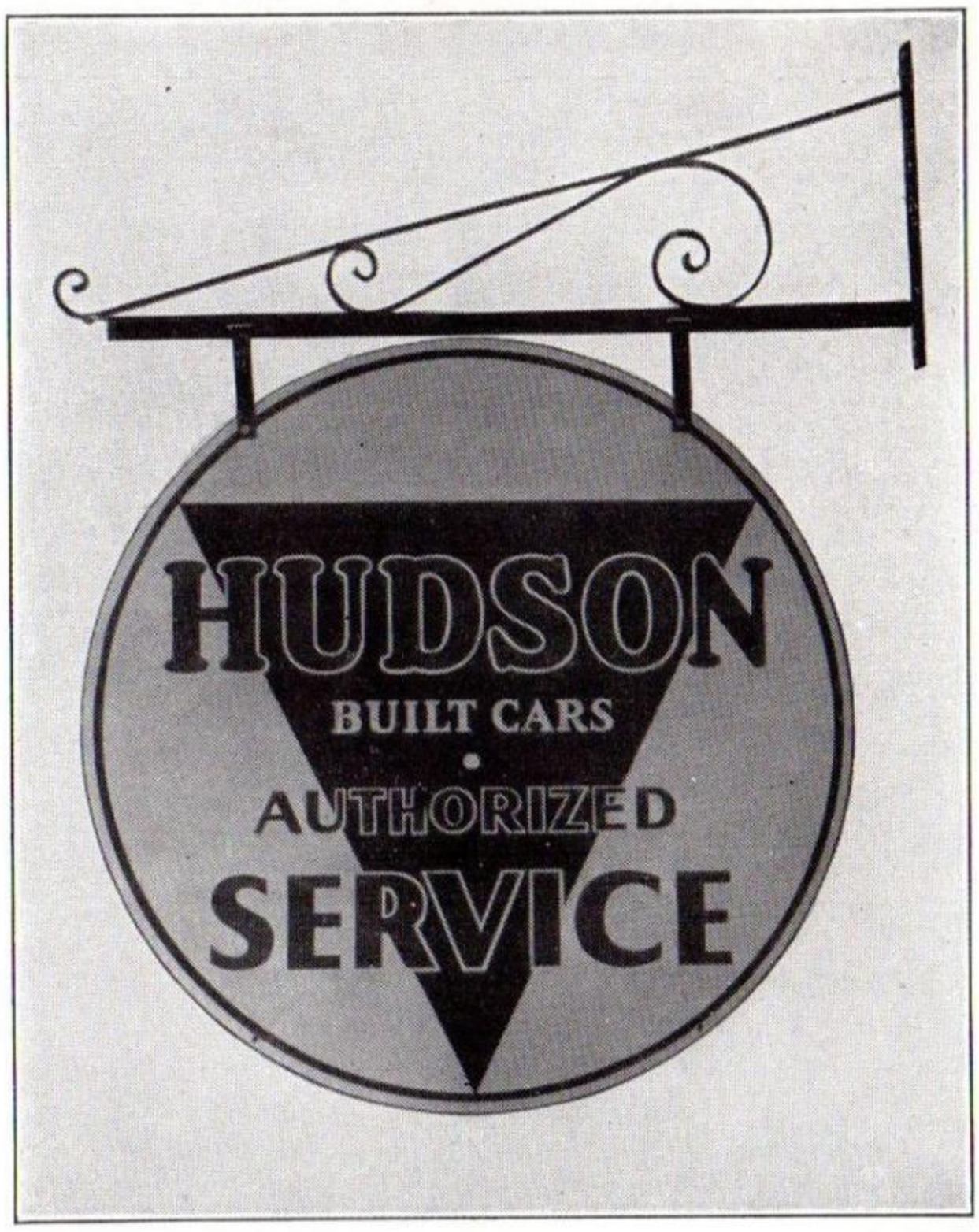
"This warranty shall not apply to any vehicle which shall have been repaired or altered by other than an Authorized Hudson Dealer in any way so as, in the judgment of the Manufacturer, to affect its stability or reliability, nor which has been subject to misuse, negligence or accident."

**HUDSON MOTOR CAR COMPANY**
**Detroit, Michigan, U.S.A.**

*The Hudson Motor Car Company reserves the right to make any changes in or improvements on its products without incurring any liability or obligation whatever, and without being required to make any corresponding changes or improvements on products theretofore manufactured or sold.*

# AUTHORIZED HUDSON SERVICE STATIONS

The majority of automobile owners are conscientious in the service requirements of their cars and unhesitantly call on their car dealer for service as and when it is required. These car owners realize that their Hudson Dealer is in a position to render the satisfactory and efficient service to which they are entitled.




When touring or away from familiar surroundings the occasion may arise for service needs. Look for the Hudson Authorized Service sign, illustrated above. The Hudson Dealer displaying this sign is your assurance of the same efficient, friendly service you receive at home. It is your further assurance that his Service Department stocks only genuine Hudson parts; uses factory approved service tools and methods and employs careful and courteous mechanics.

# 1940 MODELS

## MODEL DESIGNATIONS

For simplicity in identifying the various models referred to in this Owner's Manual model reference will be made to series numbers listed below:

| Models | Series | Models | Series |
|---|---|---|---|
| Hudson Six (Business Cars) | 40 C | Hudson Eight | 44 |
| Hudson Six (Traveler Series) | 40 T | Hudson Eight De Luxe | 45 |
| Hudson Six De Luxe | 40 P | Hudson Country Club Eight | 47 |
| Hudson Super Six | 41 | Hudson Six (Big Boy Series) | 48 C |
| Hudson Country Club Six | 43 | | |

## LICENSE INFORMATION

### BODY TYPES AND WEIGHTS

#### Hudson Six Traveler Series

113″ Wheelbase—Serial Numbers 40101 and upward

| | | | |
|---|---|---|---|
| 3-Passenger Coupe | 2800 lbs. | Two-Door Touring Sedan | 2895 lbs. |
| Victoria Coupe | 2830 lbs. | Touring Sedan | 2940 lbs. |

#### Hudson Six De Luxe Models

113″ Wheelbase—Serial Numbers 40101 and upward

| | | | |
|---|---|---|---|
| 3-Passenger Coupe | 2840 lbs. | Touring Sedan | 2965 lbs. |
| Victoria Coupe | 2865 lbs. | Convertible Coupe | 2860 lbs. |
| Two-Door Touring Sedan | 2930 lbs. | Convertible Two-Door Sedan | 2920 lbs. |

#### Hudson Super Six Models

118″ Wheelbase—Serial Numbers 41101 and upward

| | | | |
|---|---|---|---|
| 3-Passenger Coupe | 2950 lbs. | Touring Sedan | 3050 lbs. |
| Victoria Coupe | 2980 lbs. | Convertible Coupe | 2980 lbs. |
| Two-Door Touring Sedan | 3020 lbs. | Convertible Two-Door Sedan | 3020 lbs. |

#### Hudson Country Club Six Models

125″ Wheelbase—Serial Numbers 43101 and upward

| | | | |
|---|---|---|---|
| 5-Passenger Touring Sedan | 3240 lbs. | 7-Passenger Touring Sedan | 3355 lbs. |

5-Pass. Touring Sedan—Special 3240 lbs.

#### Hudson Eight Models

118″ Wheelbase—Serial Numbers 44101 and upward

| | | | |
|---|---|---|---|
| 3-Passenger Coupe | 3040 lbs. | Touring Sedan | 3185 lbs. |
| Victoria Coupe | 3075 lbs. | Convertible Coupe | 3065 lbs. |
| Two-Door Touring Sedan | 3140 lbs. | Convertible Two-Door Sedan | 3130 lbs. |

#### Hudson Eight De Luxe Models

118″ Wheelbase—Serial Numbers 4551752 and upward

| | | | |
|---|---|---|---|
| Two-Door Touring Sedan | lbs. | Four-Door Touring Sedan | 3215 lbs. |

#### Hudson Country Club Eight Models

125″ Wheelbase—Serial Numbers 47101 and upward

| | | | |
|---|---|---|---|
| 5-Passenger Touring Sedan | 3285 lbs. | 7-Passenger Touring Sedan | 3400 lbs. |

5-Pass. Touring Sedan—Special 3285 lbs.

#### Hudson Six Business Cars

113″ Wheelbase—Serial Numbers 40101 and upward

| | | | |
|---|---|---|---|
| Cab Pickup | 2945 lbs. | Panel Delivery | 3225 lbs. |

#### Hudson Six Big Boy Series

125″ Wheelbase—Serial Numbers 48101 and upward

| | | | |
|---|---|---|---|
| Cab Pickup | 3045 lbs. | Carry-All | 3245 lbs. |
| Panel Delivery | 3310 lbs. | | |

## STARTING, LIGHTING AND IGNITION

**Make** ..... Auto-Lite
**Generator Type** ..... 3rd brush

| **Charging Rate** | 40 C, 40 T, 40 P and 48 C | All Other Models |
|---|---|---|
| Cold | 32 to 34 Amperes | 39 to 44 Amperes |
| Hot | 26 to 29 Amperes | 32 to 38 Amperes |

**Distributor Spark Control** ..Automatic

**Contact Point Gap**
6-cylinder models ..... .020"
8-cylinder models ..... .017"

**Ignition Timing**
Position ..... Dead center

**Firing Order**
6-cylinder models ..... 1-5-3-6-2-4
8-cylinder models ... 1-6-2-5-8-3-7-4

**Spark Plugs**
Make and type ..... Champion, J-8
Size ..... 14 m.m.
Gap ..... .032"

**Voltage Regulator** ..... All models

**Battery**
Make ..... National
Dimensions
6-cylinder models ..... L—10 1/2"
W—7 1/8"
H—7 13/16"
8-cylinder models ..... L—11 3/4"
W—7 1/4"
H—7 13/16"
Number of plates
6-cylinder models ..... 17
8-cylinder models ..... 19
Terminal grounded ..... Positive

## TRANSMISSION

**Gear Ratio**
Low gear
40 C, 40 T, 40 P ..... 2.94 to 1
All other models ..... 2.42 to 1
Intermediate
40 C, 40 T, 40 P ..... 1.78 to 1
All other models ..... 1.61 to 1
High
All models ..... 1 to 1
Reverse
40 C, 40 T, 40 P ..... 3.64 to 1
All other models ..... 2.99 to 1

## FRONT SUSPENSION

**Type** ..... Independent Coil Spring
**Camber** ..... 1/4° to 3/4°
**Caster** ..... −1/4° to +1/4°
**Toe-in** ..... 0 to 1/16"

## REAR AXLE

**Type** ..... Semi-floating
**Gear type** ..... Helical bevel

| **Gear Ratios** | 4 1/9 to 1 | | 4 5/9 to 1 | | 4 7/8 to 1 | |
|---|---|---|---|---|---|---|
| | Without Overdrive | With Overdrive | Without Overdrive | With Overdrive | Without Overdrive | With Overdrive |
| 40 C, 40 T, 40 P | Opt. | Opt. | *Std.* | Opt. | Opt. | *Std.* |
| 41, 43, 44, 45, 47 | *Std.* | Opt. | Opt. | *Std.* | ..... | ..... |
| 48 C | .... | .... | *Std.* | Opt. | .... | *Std.* |

## BRAKES

**Type** ..... Bendix Hydraulic
**Size:**
40 T, 40 P ..... 9 1/16" x 1 3/4"
40 C, 41, 48 C ..... 10 1/16" x 1 3/4"
43, 44, 45, 47 ..... 11 1/16" x 1 3/4"

**Lining Clearance** ..... .010"
**Mechanical Follow-up Clearance** 1 1/4"
**Pedal to Floor Board Clearance** 1/4"

## STEERING GEAR

**Type** ..... Worm and roller

**Ratio:**
40C, 40T, 40P, 41,44,45,48C 18.2 to 1
43, 47 ..... 18.4 to 1

# CAPACITIES

| | U. S. Measure | Imperial Measure | Metric Measure |
|---|---|---|---|
| **Gasoline Tank** | | | |
| 40 T, 40 P, 40 Utility models | 12 ½ gallons | 10 ½ gallons | 47 ½ liters |
| 40 C, 41, 43, 44, 45, 47, 48 C | 16 ½ gallons | 13 ¾ gallons | 62 ½ liters |
| **Cooling System** | | | |
| 6-cylinder models | 13 quarts | 10 ¾ quarts | 12 ¼ liters |
| 8-cylinder models | 18 quarts | 15 quarts | 17 liters |
| **Engine Crankcase** | | | |
| 6-cylinder models—dry | 5 ½ quarts | 4 ½ quarts | 5 ¼ liters |
| —refill | 4 ½ quarts | 3 ¾ quarts | 4 ¼ liters |
| 8-cylinder models—dry | 9 quarts | 7 quarts | 8 ½ liters |
| —refill | 7 quarts | 6 quarts | 6 ½ liters |
| **Clutch** | | | |
| All models | ⅓ pt. | ¼ pt. | 160 c.c. |
| **Transmission** | | | |
| All models | | | |
| Without overdrive | 2 ¼ lbs. | 2 ¼ lbs. | 1.02 kgs. |
| With overdrive | 3 lbs. | 3 lbs. | 1.36 kgs. |
| **Rear Axle** | | | |
| All models | 2 ¾ lbs. | 2 ¾ lbs. | 1.24 kgs. |

| **Shock Absorbers** | Front | Rear |
|---|---|---|
| All models | 3 ¾ oz. (112 c.c.) | 6 ¼ oz. (187 c.c.) |

# INSPECTION AND ADJUSTMENT SERVICE

The provisions of this service are outlined in the Owner's Service Policy. The inspections and adjustments include the following operations:

## 500-MILE INSPECTION AND ADJUSTMENT SERVICE

### All Models

1. Check Operation of Windows
2. Check Operation of All Locks
3. Check Front Seat Adjustment
4. Check Operation of Signals and Instruments
5. Check Operation of Cowl Ventilator
6. Check Operation of All Lights and Aiming of Headlamps
7. Check Operation of Windshield Wiper
8. Check Battery and Connections
9. Remove Carburetor Governor
10. Check Fan Belt Adjustment
11. Check Generator Charging Rate
12. Adjust Tappets—Engine Hot
13. Tune-up Engine
14. Tighten Cylinder Head Stud Nuts
15. Tighten Manifolds
16. Inspect Cooling System and Connections (Anti-Freeze in Winter)
17. Check Front Wheel Bearing Adjustment
18. Check Pitman Arm for Tightness
19. Check Clutch Pedal Clearance
20. Check Rear Wheel Hubs for Tightness
21. Check Wheel Hub Bolts
22. Check Spring Clips
23. Check Tire Pressures
24. Check Front Wheel Alignment
25. Check Body Bolts for Tightness
26. Clean Interior and Glass
27. Tighten Differential Carrier Stud Nuts
28. Road Test

## 1,500-MILE INSPECTION AND ADJUSTMENT

### All Models Except Hudson Six and Business Cars

1. Check Operation of All Locks
2. Check Operation of Signals and Instruments
3. Check Operation of All Lights
4. Check Operation of Windshield Wiper
5. Check Cooling System and Connections (Anti-Freeze in Winter)
6. Check Battery and Connections
7. Check Fan Belt Adjustment
8. Check Generator Charging Rate
9. Tune-up Engine
10. Check Spring Clips
11. Check Wheel Hub Bolts
12. Check Front Wheel Bearing Adjustment
13. Check Tire Pressures
14. Check Wheel Alignment
15. Clean Interior and Glass
16. Road Test

## CARBURETOR GOVERNOR

All cars are equipped with a speed governor installed between the carburetor body flange and intake manifold to prevent high-speed driving during the break-in period. This governor is sealed by the factory at time of installation for your protection. While the governor is in place it will restrict acceleration as well as high-speed operation and will slightly increase the carburetor air intake noise.

When the car is returned to your dealer for the 500-mile new car inspection, the governor will be removed and the engine tuned up. Although the speed restriction has been removed, you should be diligent in the operation of the car and not exceed speeds designated under "Break-in Period," below.

## BREAK-IN PERIOD

The manner in which your new car is operated during the first 1,000 to 1,500 miles determines to a large extent the degree of trouble-free, satisfactory service you will receive from it. Although the most advanced engineering principles, manufacturing methods and precision gauges and tools are used in its design and manufacture, the closely fitting parts of the engine and chassis should be given every opportunity of taking on finely polished wearing surfaces. This is possible only by careful, diligent driving during the break-in period. The following table will be helpful in obtaining these results:

0- 250 miles—Do not exceed 40 miles per hour in high gear.
250- 500 miles—Do not exceed 50 miles per hour in high gear.
500-1000 miles—Do not exceed 60 miles per hour in high gear.

Under no circumstances should these speeds be maintained constantly. During this period it is well to release the accelerator momentarily and advance the car speed gradually.

## LUBRICATION

By following a definite plan of lubrication, the splendid qualities built into your Hudson car can be safely protected. Hudson dealers have been provided with factory-approved lubrication methods and specifications and are naturally in a most favorable position to supply your requirements.

Factory-approved lubrication methods are your assurance that the

proper grades of lubricants will be installed in your car. We, therefore, urge you to consult your Authorized Hudson Dealer on all lubrication requirements.

For your guidance, a chassis lubrication chart is attached to the back of the front cover of this manual and another quick reference chart will be found on the left side of the dash in the engine compartment. Study these charts carefully and be diligent in following the instructions contained therein.

The lubricants placed in your car at the time of manufacture are of the highest qualities available and NEED NOT be removed until the recommended change period has been reached.

Following is a lubrication schedule which will be of further assistance.

## LUBRICATION SCHEDULE

### After First 500 Miles

| | | |
|---|---|---|
| Engine Oil | See "When to Change Engine Oil," page 15. | |

### 1,000 Miles

| | | |
|---|---|---|
| Upper Support Arm Eccentric Bushing | Viscous Chassis Lubricant | 2 fittings |
| Upper Support Arm Pivot Bushing | Viscous Chassis Lubricant | 4 fittings |
| Lower Support Arm to Support Pivot Bushing | Viscous Chassis Lubricant | 2 fittings |
| Lower Support Arm Pivot Bushing | Viscous Chassis Lubricant | 4 fittings |
| Spindle Pivot Pin | Viscous Chassis Lubricant | 2 fittings |
| Tie Rod End | Viscous Chassis Lubricant | 4 fittings |
| Drag Link | Viscous Chassis Lubricant | 2 fittings |
| Clutch and Brake Pedal Shaft | Viscous Chassis Lubricant | 1 fitting |
| Clutch Throwout Bearing | Viscous Chassis Lubricant | 1 fitting |
| Automatic Clutch Vacuum Control Switch Adapter (Optional) | Viscous Chassis Lubricant | 1 fitting |
| Universal Joint Spline | Viscous Chassis Lubricant | 1 plug |
| Rear Spring Rear Shackle Bushing | Viscous Chassis Lubricant | 4 fittings |
| Water Pump | Aluminum Soap Base Lubricant | 1 fitting |
| Rear Axle | | Check level |
| Transmission | | Check level |
| Brake Master Cylinder | | Check level |
| Steering Gear | | Check level |

### 2,000 Miles

*Perform operations listed under 1,000-mile lubrication in addition to the following:*

| | | |
|---|---|---|
| Generator | Light Engine Oil | 2 cups |
| Starting Motor | Light Engine Oil | 2 cups |
| Distributor—6-cylinder | Aluminum Soap Base Lubricant—turn grease cup 1 turn | |
| Distributor—6-cylinder | Light Engine Oil | 2 places |
| Distributor—6- and 8-cylinder | High Temperature Grease | Cam lobe |
| Distributor—8-cylinder | Light Engine Oil | 3 places |
| Throttle Linkage | Light Engine Oil | 14 places |
| Door Hinges | Light Engine Oil | 4 places—Two-Door Sedans and Coupes<br>8 places—Sedans |
| Door Dovetails and Locks | Light Engine Oil | 6 places—Two-Door Sedans and Coupes<br>8 places—Sedans |
| Bonnet Support and Lock Support | Light Engine Oil | 8 places |
| Brake Operating Linkage | Light Engine Oil | 9 places |
| Carburetor Air Cleaner | Same Grade Oil as Used in Engine | Clean and re-oil |

## THE PROPER ENGINE OIL

As the purchaser of this fine motor car you are naturally desirous of maintaining it in the best running condition—freedom from annoying delays and frequent repairs.

A large part of the ability to obtain this satisfaction is in the selection and changing of engine oil. There are many brands of good, well-bodied, long-life oils on the market. YOUR SELECTION OF THE PROPER BRAND OF OIL SHOULD BE BASED ON THE REPUTATION OF THE REFINER OR MARKETER. HE IS RESPONSIBLE FOR THE QUALITY OF HIS PRODUCT AND HIS REPUTATION IS THE CAR OWNER'S BEST INDICATION OF QUALITY.

### ENGINE OIL RECOMMENDATIONS

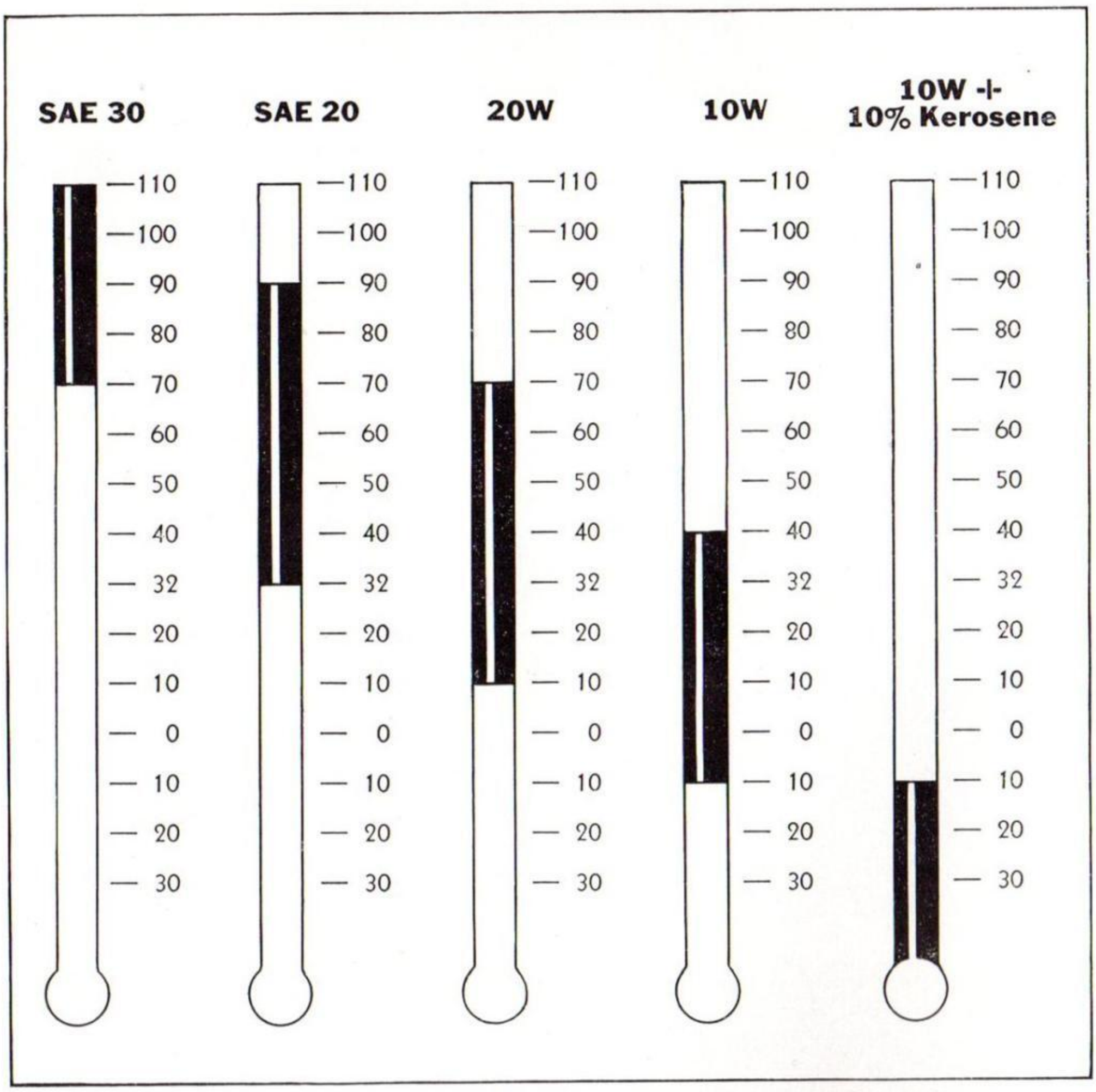



**Figure 2**

When selecting the grade of engine oil we suggest reference to the "Engine Oil Recommendations" chart, Figure 2, shown above. This chart is intended to tell you which grade of oil is best suited for the

lowest atmospheric temperature likely to be encountered before the next oil change. Avoid using lighter or heavier bodied oils than recommended.

Your Authorized Hudson Dealer will be glad to recommend the best oils available in your locality for use in your car.

## WHEN TO CHANGE ENGINE OIL

The engine oil placed in your new car when it was built should be drained at the end of the first 500 miles of driving.

Thereafter at intervals of 2,000 miles, or oftener if local conditions warrant, the oil should be drained and replaced.

Always drain oil when it is hot as it flows more readily than when cold.

We previously mentioned changing oil according to local conditions. By this reference we recommend more frequent changing when the car is operated in heavy dust areas. Despite the precautions taken to exclude the entrance of foreign matter, fine dust may find its way into the engine and its abrasive action when mixed with oil is harmful to the moving parts.

In the winter season many drivers operate their cars only short distances, thereby not permitting the engine to reach normal operating temperature. By this practice considerable condensation accumulates in the engine oil. This causes contamination of the oil and if the condition is permitted to exist will result in premature wear and deterioration of the working parts. Under these conditions the oil change period should be more frequent.

Many drivers operate their cars at continuously high speeds. Under these conditions the excessive heat created in the engine has a tendency to burn up the lighter ends of the oil, causing it to thicken and reduce its lubricating qualities. In this instance also the change period should be more frequent than under normal conditions.

## FUEL RECOMMENDATIONS

In order to obtain maximum performance, easy starting in cold weather, freedom from vapor lock in hot weather and to avoid detonation or pinging, careful consideration should be given to the selection of engine fuel.

Although the engines in the 1940 Hudson cars have higher standard compression ratios with cast iron cylinder heads, the use of standard non-premium gasoline will give satisfactory results. Most standard brands of present day motor fuels have octane ratings of 72 or better which permit the use of higher compression ratios.

It is therefore suggested that the choice of gasoline be conditional on the refiner or marketer who can give you in his product the qualities outlined in the first paragraph.

Naturally, it is essential that ignition timing and spark advance be according to recommendations set forth in another section of this manual, under "Ignition Timing," in order to get the benefits of the fuel used.

Many owners prefer to use premium fuels, such as Ethyl, which have an anti-knock value of at least 78 Octane. This type of fuel, however, is not essential to the satisfactory operation of your car. On the other hand, if it is used, the ignition timing should be readjusted as outlined under "Ignition Timing," page 37, to obtain the full benefits.

## RAISING THE BONNET

The bonnet is hinged at the front end and is locked into position by a handle attached to the lower ledge of the instrument panel. See Figure 5.

To unlock the bonnet, push handle forward to the full extent of its travel, which permits the bonnet to be raised from the outside. A folding support located on each side serves to hold the bonnet in position when opened.

## TOOLS

The tool kit, located in the well in the rear compartment, contains a wheel hub bolt wrench which is also used as the jack wrench, a pair of pliers, screwdriver, jack assembly (bumper lift type) and base. The jack furnished with Cab Pickup models is the axle lift type with handle extension.

## TIRE PRESSURES AND CARE

To obtain the maximum in tire life and riding comfort it is of utmost importance that the tires receive certain periodic attention.

The item of most importance is inflation pressures. To prevent running on under-inflated tires, pressures should be checked at least once a week under normal conditions. When traveling long distances or touring it is advisable to check pressures at least once a day. This is necessary due to the expansion and contraction of the tires due to road heat and cooling overnight.

The following inflation pressures are recommended:

| | Front | | Rear | |
|---|---|---|---|---|
| | Cold | Hot | Cold | Hot |
| All sizes except 16 x 5.50 | 26 lbs. | 29 lbs. | 30 lbs. | 33 lbs. |
| 16 x 5.50 | 32 lbs. | 35 lbs. | 32 lbs. | 35 lbs. |
| All Business Series | 26 lbs. | 29 lbs. | 30 lbs.–4-ply | 33 lbs.–4-ply |
| | | | 40 lbs.–6-ply | 44 lbs.–6-ply |

The difference between cold and hot pressures is one which should be fully understood. When the car has been standing for several hours, or has been driven only a few blocks before checking, the tires should be inflated to the "Cold" pressures. If the car has been driven for several miles at fairly high speeds the pressures will increase about 3 or 4 pounds and the "Hot" pressures should be used.

The natural wear on tires due to braking, acceleration and driving on curves at high speed can be minimized by periodically changing the position of the tires. This is best accomplished by changing the front and rear wheel and tire assemblies, right to left and left to right. This results in the tires rolling in the opposite direction and is recommended at periods of 3,000 to 5,000 miles.

## RAISING THE CAR

Before raising the car it should be driven on a level, hard surface if at all possible. If the ground is soft a piece of plank or suitable board should be used for support under the jack base.

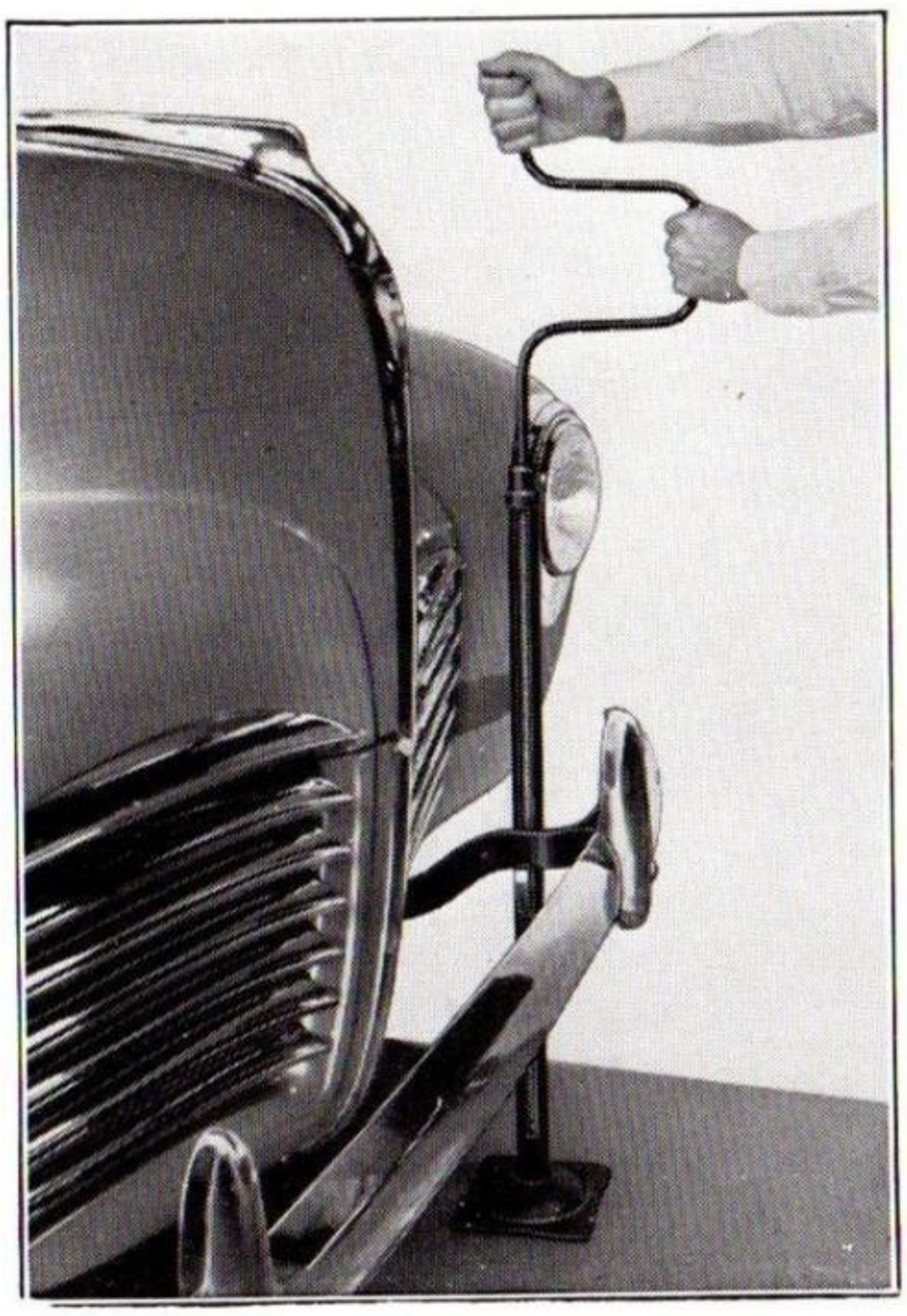


Figure 3

Before raising the car apply the hand brake and as an added precaution place blocks before and after the wheel opposite to the one being changed to prevent the car from rolling off the jack. Place the jack base with the depression in the center directly underneath the bumper frame bars. Run the lifting lug on the jack screw down to its lowest position. Place the jack screw in the depression in the plate with the lifting lug directly under the bumper frame bars and raise the car by turning the jack handle in a clockwise direction as illustrated in Figure 3. Turning the handle in a counterclockwise direction lowers the car. *Never raise the car by the chromium impact bar.*

To prevent the lifting lug from rattling in the screw tube, run the lug up to the extreme top of the screw.

To use the axle lift jack supplied with Cab Pickup models, place it under the front suspension control arm as near the wheel as possible. To raise the rear axle, place the jack under the rear spring pad. The handle extension should be used to facilitate operation of the jack.

## WHEEL AND TIRE BALANCE

At the time of assembly in the factory, tires and wheels are balanced as assemblies to prevent wheel tramp and afford proper handling of the car. As natural tread wear occurs, due to accumulated mileage, or, if for any reason a tire has been removed from the wheel, the original factory balance may be disturbed.

To maintain the original stability, particularly for high-speed driving, tire and wheel balance should be checked each time a tire is changed; or, if changes are not made, at least every 5,000 miles. Your Authorized Hudson Dealer is prepared to handle this service for you.

## MOUNTING AND DISMOUNTING TIRES

To remove a tire, deflate the tube. Starting directly opposite the valve stem and working in both directions toward the valve, press both beads of the tire off the rim ledge down into the rim well. Start removal of one bead at the valve stem, working around the wheel in both directions

becomes greater, fuel consumption increases proportionately. Gasoline mileage tests made on a number of different makes of cars indicate that at 40 miles per hour approximately 29% more gasoline is required than at 20 miles per hour. At 50 miles per hour 39% more fuel is required than when operating at 20 miles per hour, while 54% more is required at 60 miles per hour than at 20 miles per hour. This ratio increases at a greater ratio above this speed and indicates that at 70 miles per hour 84% more fuel is required than at 20 miles per hour.

When these figures are carefully considered it is obvious that the maximum fuel economy cannot be reasonably expected at high-speed operation.

Another important factor is excessive idling at the curb or accelerating the engine while standing at traffic lights. Continuous wide-open throttle through the gears when accelerating has its effects on gasoline usage. This is particularly true due to the accelerating pumps used on modern carburetors which increase acceleration by pumping an extra charge of raw gasoline into the intake manifold.

In city driving, particularly due to traffic congestion, numerous stops and starts at traffic lights and stop streets, it should be remembered that every time you stop and start the car enough fuel is used to propel it a considerable distance on a level road.

It is obvious that these factors are not conducive to gasoline economy and only through careful handling of the accelerator can maximum gasoline mileage be obtained.

## CARBON MONOXIDE GAS

CARBON MONOXIDE, A POISONOUS GAS, IS EVER PRESENT IN THE EXHAUST OF AN INTERNAL COMBUSTION ENGINE. ALWAYS OPEN THE GARAGE DOORS BEFORE STARTING OR RUNNING THE ENGINE.

## CARE OF THE CAR INTERIOR

The care of the interior of your car determines to a large measure the resale value when you contemplate trading in or selling. It is not a difficult job to perform and the small amount of time thus expended will be well repaid by the pride you will derive from its neat appearance.

Dust and particles of dirt if permitted to remain on the upholstery cloth will in time settle between the fibres, and its abrasive action will result in early deterioration of the upholstery. By vacuum cleaning, or using a whisk broom to clean the upholstery, once or twice a month, the life can be increased and pleasing appearance retained.

Occasionally it becomes necessary to remove soiled spots or stains from the upholstery. This can be accomplished by following a few simple instructions. Before proceeding, however, we would like to mention a few words of caution which will help to improve the appearance of the finished work.

Remove traces of dust with a whisk broom to avoid possibility of rubbing into the cloth during the cleaning process. Avoid the use of hot water and soap unless specifically recommended. Avoid use of gasoline as it is highly inflammable and most brands contain tetraethyl lead or

## CHROMIUM-PLATED FINISH

Chromium-plated parts require little attention other than an occasional wiping off with a damp cloth. In winter in certain localities when salt and calcium chloride is used to melt ice and snow, these parts should be cleaned more frequently to prevent corrosion and rust.

Bumper bars frequently become scratched and scuffed due to contact with other cars and if the damaged areas are not protected rust may accumulate and produce an unsightly appearance. A coating of clear lacquer or application of Hudson Chrome Polish will give the needed protection. If rust has already appeared, cleaning the area with Hudson Chrome Polish, which contains no grit or harmful chemicals, will remove the rust and prevent its reappearance.

Hudson Chrome Polish may be purchased from any Authorized Hudson Dealer.

## CARE OF FOLDING TOPS

Soiled spots on Convertible model folding tops are often permitted to remain for fear of discoloring the top material.

The application of Hudson Dry Cleaner on soiled spots will remove them satisfactorily. The proper method is to select an area slightly larger than the area to be cleaned and rub lightly in a circular manner, gradually working toward the center.

## OPERATION

Before attempting to drive your new car take a few minutes' time to read the following paragraphs and become familiar with the various instruments and controls.

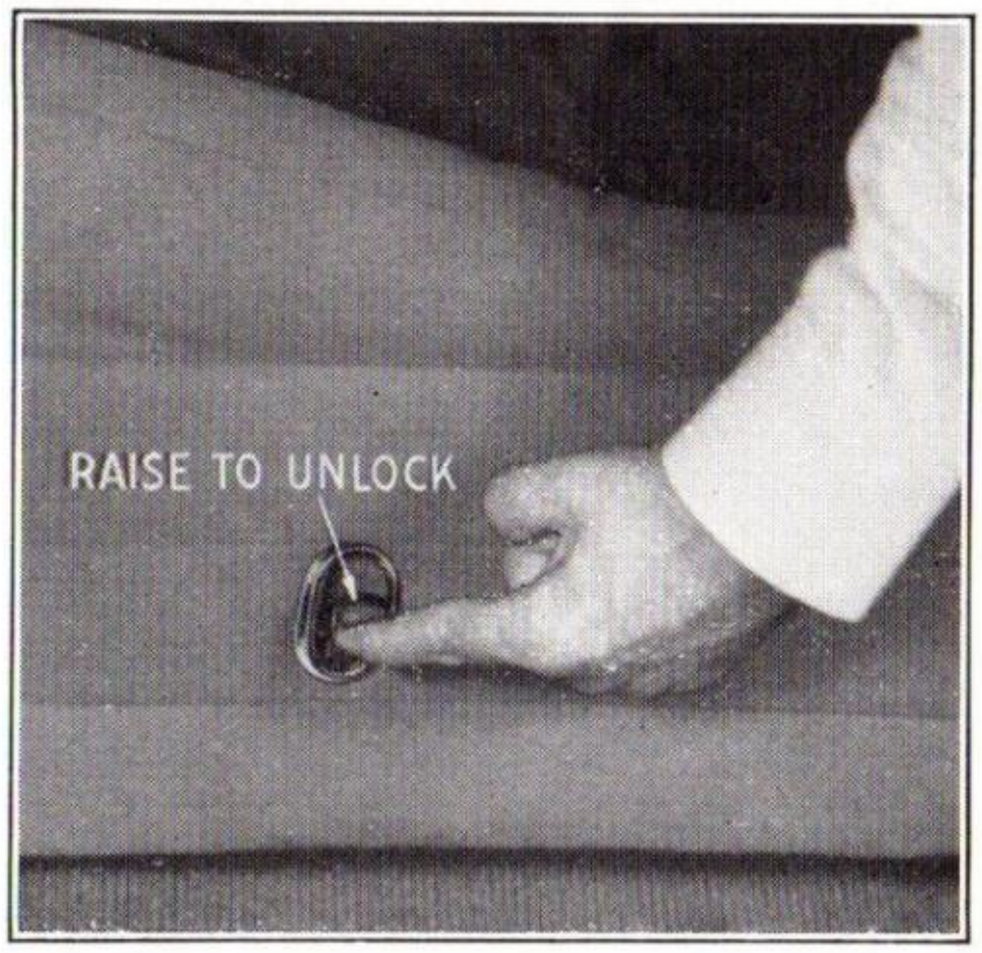



Figure 4

### Seat Adjusting Lever

Adjust to position best suited for reaching pedals and for maximum comfort. This is done by raising lever on left side of seat, Figure 4, moving seat to desired location and releasing lever.

For persons of shorter than normal stature it is possible to move the seat forward an additional 1½ inches. This may be done by installing special seat track adjusting plates and reassembling the seat track in the alternate holes.

### Accelerator Pedal

Controls throttle opening and engine speed. When starting car with *cold* engine depress pedal half way and release slowly. With *warm* engine depress one-quarter to one-half way and hold in this position while cranking.

On cars equipped with overdrive and with the button pushed "in," releasing accelerator pedal at a speed of approximately 32 miles per hour engages overdrive. Disengagement of the overdrive for accelerating or hill climbing is effected by depressing the accelerator pedal momentarily to the full limit of its travel.

To re-engage overdrive release accelerator pedal momentarily as before.

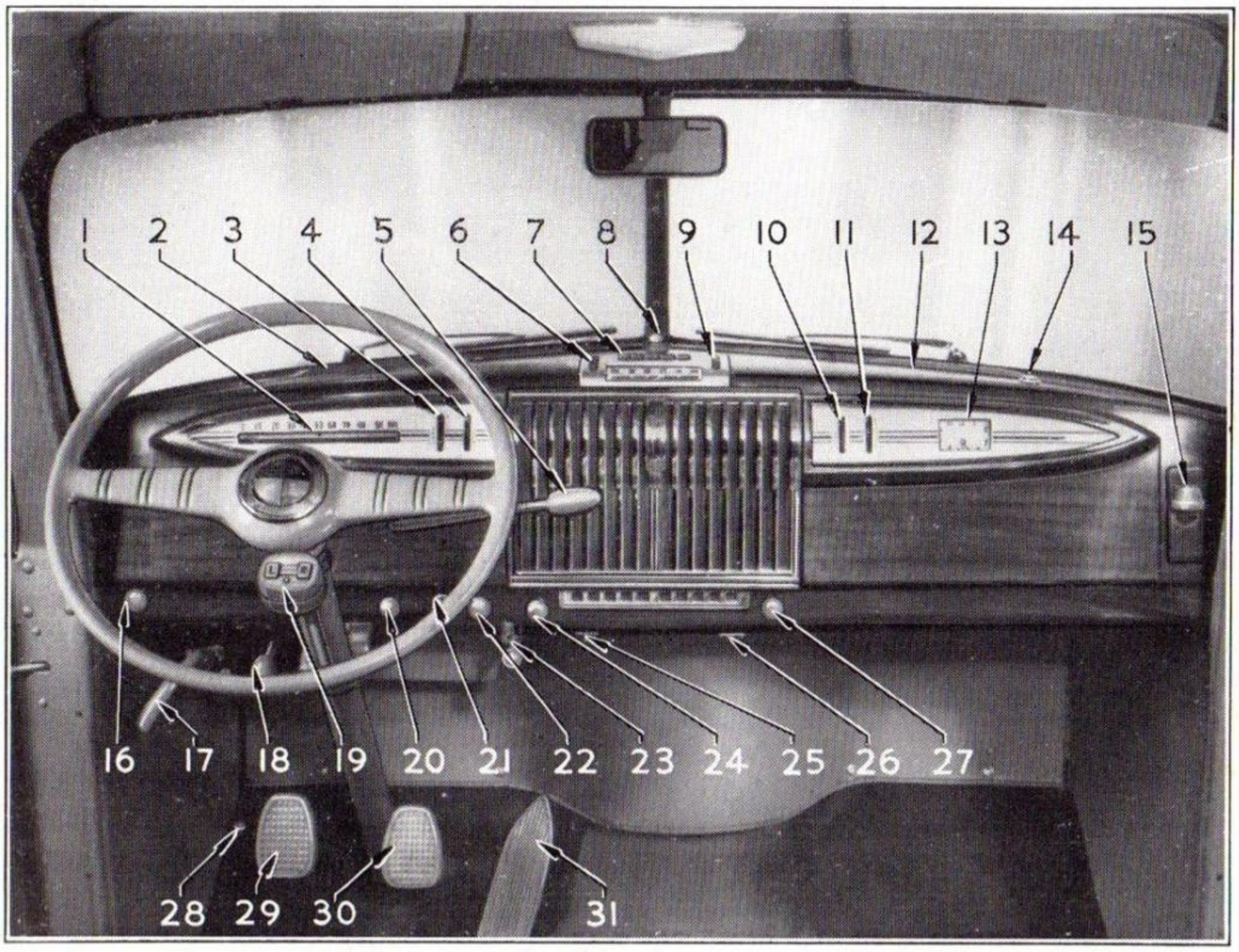



Figure 5

1. Headlamp Beam Indicator
2. Windshield Defroster
3. Fuel Gauge
4. Water Temperature Gauge
5. Transmission Control Lever
6. Radio Volume Control
7. Radio Automatic Tuning Control
8. Windshield Wiper Control Knob
9. Radio Manual Tuning Control
10. Oil Pressure Indicator
11. Generator Charge Indicator
12. Windshield Defroster
13. Clock
14. Locker Box Door Lock
15. Ash Receiver
16. Automatic Clutch Control Knob
17. Hand Brake Lever
18. Bonnet Locking Handle
19. Direction Indicator
20. Cigar Lighter
21. Ignition Switch
22. Overdrive Control Knob
23. Cowl Ventilator Knob
24. Starting Button
25. Rheostat Knob (43 and 47)
26. Front Dome Light Switch (43 and 47)
27. Lighting Switch
28. Headlamp Foot Switch
29. Clutch Pedal
30. Brake Pedal
31. Accelerator Pedal

## Ash Receiver

Pull out to open. Push in to close.

## Automatic Clutch Control Knob (Optional Equipment)

Push button in for automatic and pull out for manual clutch operation.

### Bonnet Locking Handle

Pushing handle all the way forward releases lock and permits rear end of bonnet to be raised. Pull handle back to lock.

### Brake Pedal

Hydraulically operates brakes on all wheels. In event of disablement of the hydraulic system, continued pressure on pedal automatically applies the mechanical brake system on rear wheels.

### Clock

Mechanical type clock requires winding every day. Electric clocks need no attention. Fuse is in back of clock.

### Clutch Pedal

Depress fully to floor board when starting engine and when shifting gears. When car is equipped with Hydraulic Hill-Hold, pedal must be depressed to enable Hill-Hold to function when car is stopped on upgrade.

### Cowl Ventilator Knob

Push forward to open and pull back to close ventilator.

### Direction Indicator

Depressing buttons marked R. and L. causes signal lights to flash on right and left respectively. Pressing center button turns off signals.

### Door Locks

To lock door from inside raise knob projecting from window finish moulding.

To lock right front door safety lock turn key one-quarter turn in clockwise direction and back to starting position.

To unlock safety lock turn key one-quarter turn counterclockwise and back to starting position.

### Front Dome Light Switch (Models 43 and 47)

Sliding type, controls front dome light.

### Fuel Gauge

Indicates quantity of fuel in tank when ignition is turned on. When pointer reaches "E" mark a reserve of approximately 2 gallons remains in tank.

### Generator Charge Indicator

Shows red when ignition is turned on and when engine idles at low speed. Light goes out at higher speeds.

### Hand Brake Lever

Pull handle straight back to apply brakes, *pressing down on brake pedal at same time*. Release brakes by turning handle ¼ turn to right and pushing it downward as far as it will go.

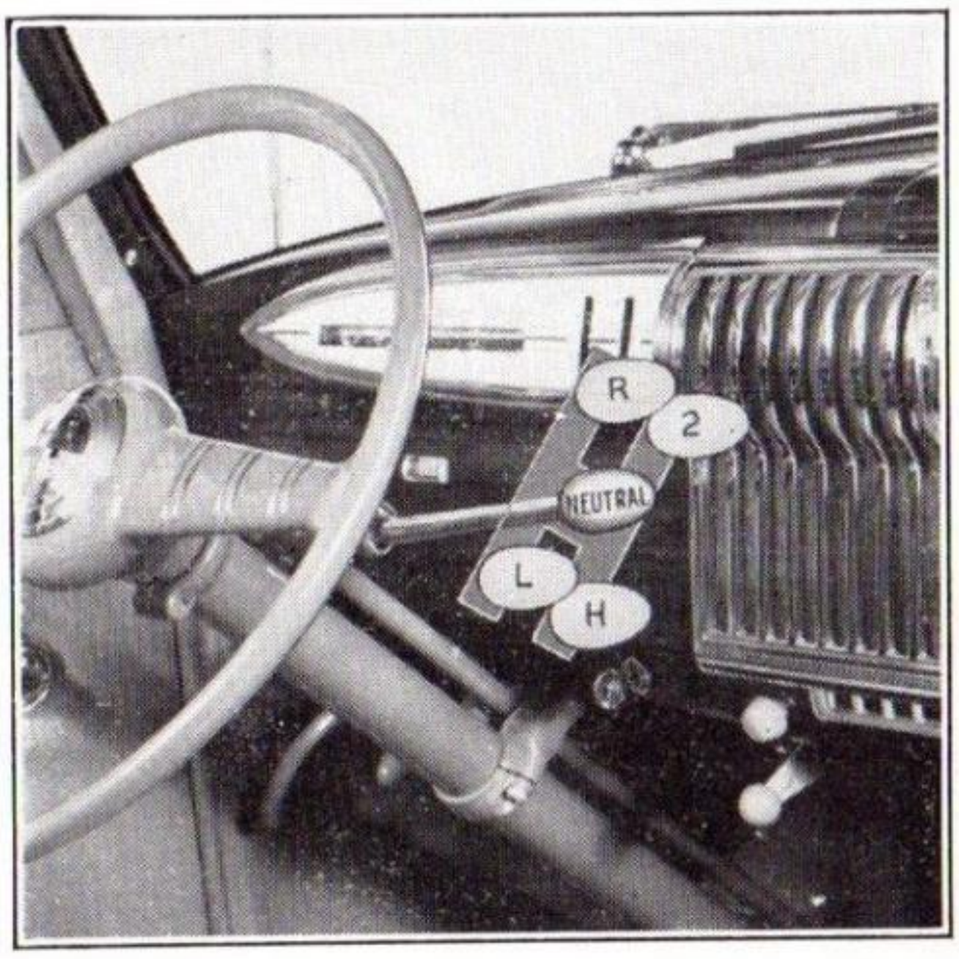



Figure 6

### Transmission Control Lever

(Handy Shift)

Always place lever in neutral position, Figure 6, before starting engine. Raise lever and move rearward for low gear position and push forward for reverse. Depress lever and move forward for intermediate and rearward for high gear.

### Water Temperature Gauge

Indicates temperature of cooling liquid when ignition is turned on. Pointer returns to "H" position at top of dial when ignition is turned off.

### Windshield Wiper Control Knob

Turn knob to left to operate.

## STARTING THE ENGINE

All models are fitted with automatic choke type carburetors, making hand choking unnecessary. The automatic choke proportions the correct mixture of air and gasoline for starting and warm-up period.

To start the engine proceed as follows: Be sure Handy Shift transmission control lever is in neutral position. Depress clutch pedal and turn on ignition switch. If engine is completely cold from standing for several hours or overnight, depress the accelerator at least half way and release *slowly*. This places the high idle step in position for cold starting and will result in a higher than normal engine idle speed. If engine is warm from previous running and has not been standing long enough to become completely cold, depress the accelerator pedal one-quarter to one-half way and hold in this position while cranking. Press starting button.

After a cold engine has been started, depress the accelerator pedal slightly to allow the engine to drop back to normal high idle for warm-up.

Failure of the engine to start after following the foregoing instructions may be due to improper engine tune-up or in cold weather improper lubricants or a combination of both. It is recommended you consult your nearest Authorized Hudson Dealer for a thorough check-up.

## ENGINE

Hudson cars are equipped with high-efficiency, high-speed "L" head type engines embodying the time-proved features associated with Hudson engineering.

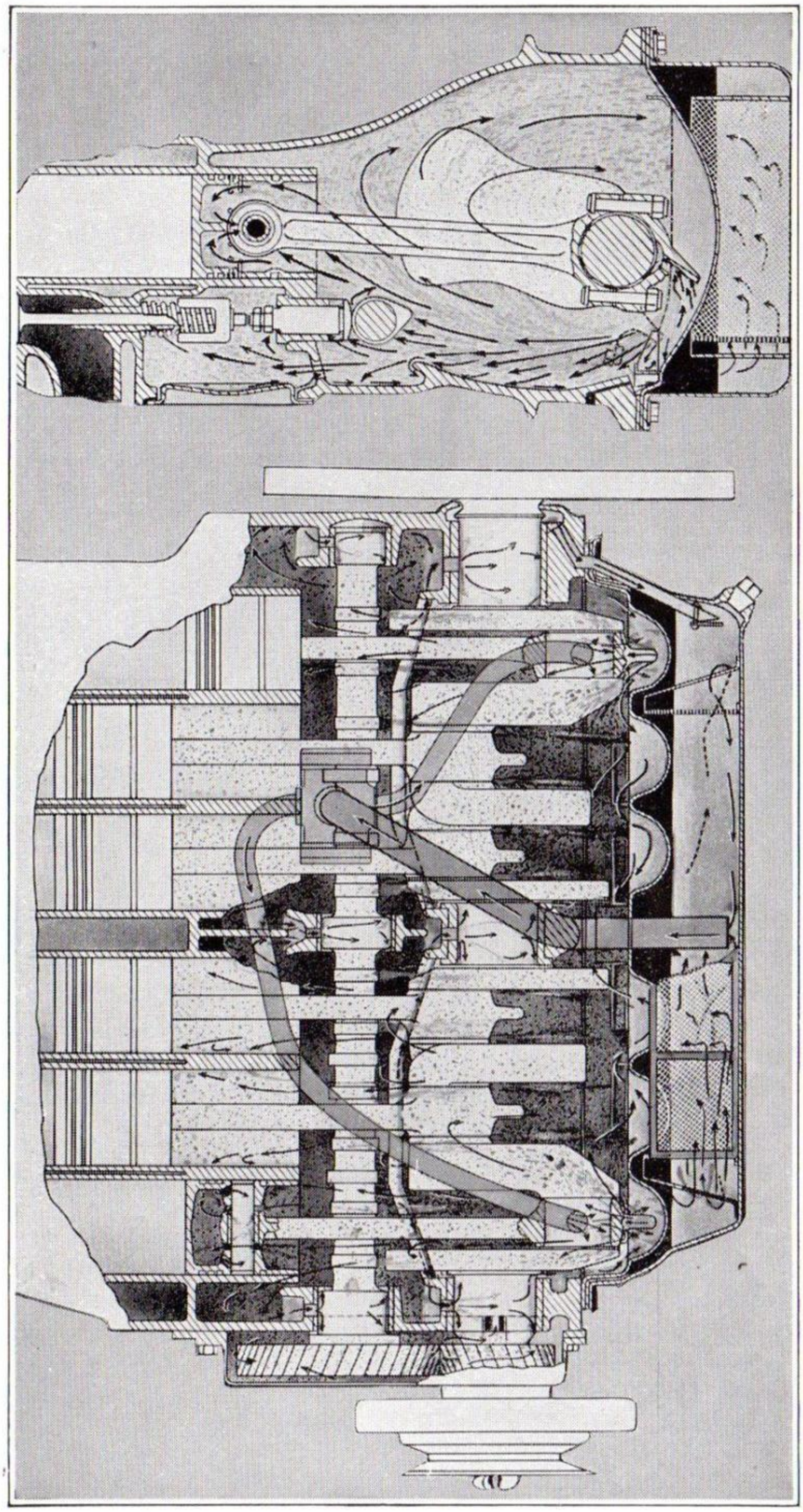


Figure 7

## OIL FILTER

Engine oil filters are available as a service accessory and may be purchased from Hudson Dealers. This unit efficiently removes foreign matters and diluents under low pressures, at the same time maintaining a normal flow of oil through the engine.

This unit may be installed on the right side of the dash brace in the engine compartment as shown in Figure 8.

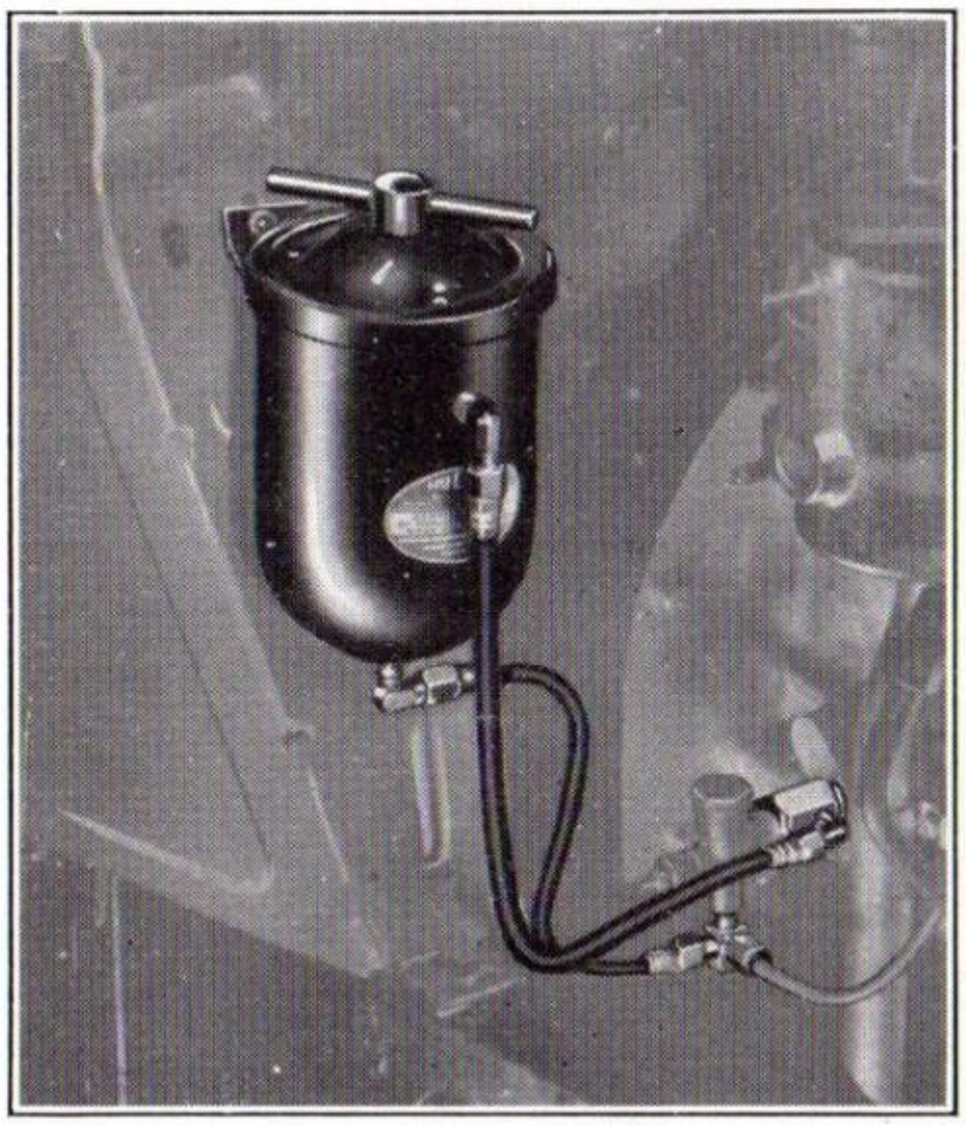


Figure 8

As the oil is pumped through the rear oil line a portion of it passes through the flexible tube to the lower connection of the filter. The filtered oil is then conveyed to the engine through the flexible line connected to the upper connection of the filter.

Engine oil should be changed every 2,000 miles. The filter cartridge, which is available through your Authorized Hudson Dealer, should be replaced when the oil becomes cloudy or after it has been in use between 5,000 and 6,000 miles.

To replace cartridge proceed as follows:

1. Turn handle at top of filter and remove cover.
2. Lift out cartridge and replace with new one.
3. When installing the cover be sure to use the new cover gasket furnished with the cartridge, being careful not to damage same. Set cover squarely on filter before tightening handle to avoid leaks.

When it becomes necessary to tighten flexible lines, be sure to use two wrenches to avoid twisting the line.

## CARBURETOR AND FUEL SYSTEM

### Carburetor—40 C, 40 P, 40 T, 48 C

The carburetor used on these models, illustrated in Figure 9, is a single, Down-draft, automatic choke type, incorporating vacuum controlled metering rod, accelerating pump, anti-percolator valve and fast idle control features. A filter screen is also provided at the inlet connection to preclude the entrance of foreign particles into the float chamber.

Due to the accuracy required no adjustments should be made to the metering rod, float level, anti-percolator or accelerating pump unless the special gauges and tools required are available. Have your

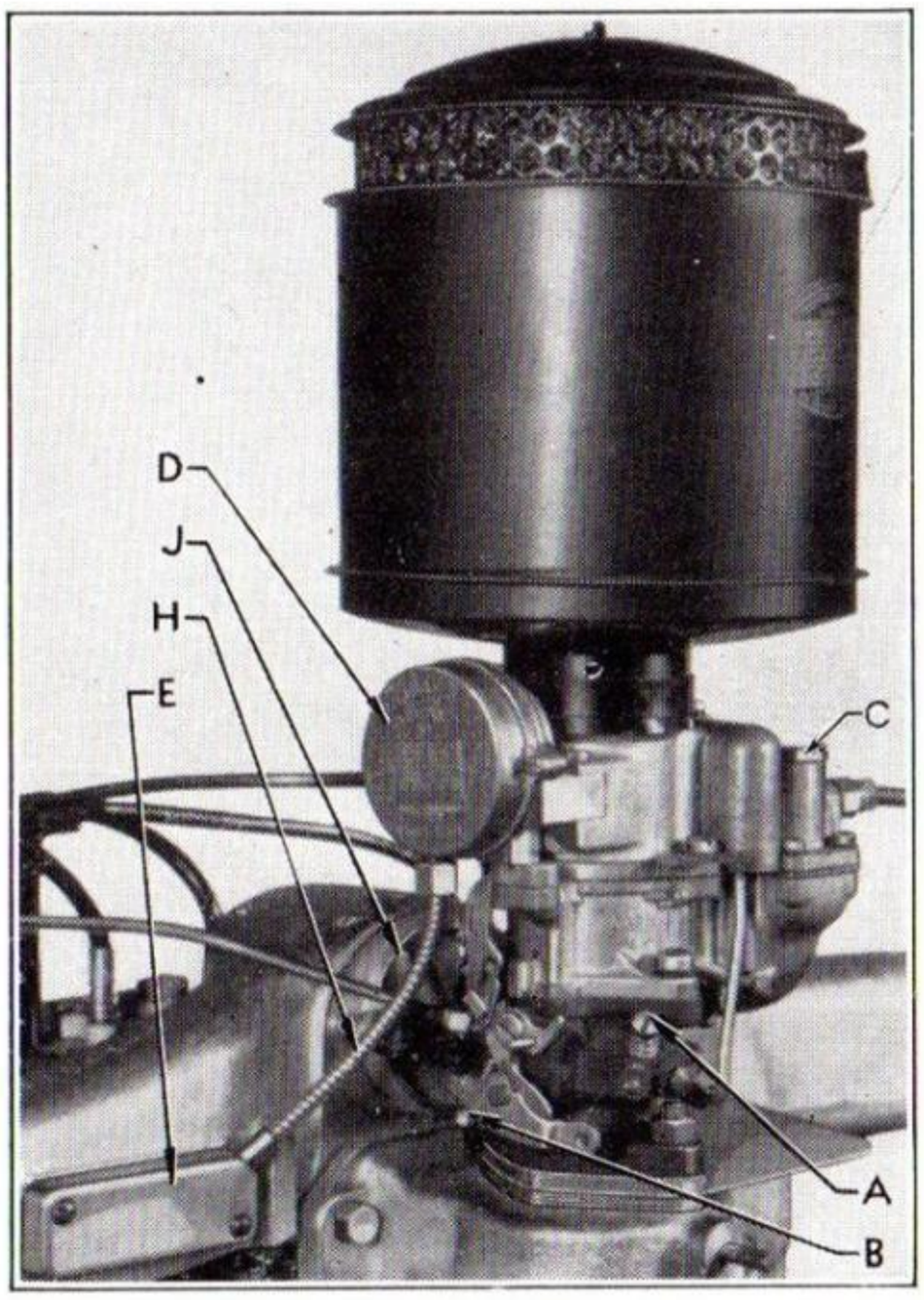



Figure 9

Authorized Hudson Dealer make these alterations.

The fuel mixture for idling speed is adjusted by turning screw (A) clockwise to obtain lean adjustment and counterclockwise for richer mixture. Before making this adjustment the engine should be warmed up to normal operating temperature.

Throttle adjusting screw (B) should be turned in or out as required to obtain a speed of approximately 7 miles per hour in high gear.

Inlet connection strainer body (C) should be removed and cleaned every 2,000 miles.

### Carburetor Choke

The automatic choke proportions the correct amounts of fuel and air for starting and warm-up requirements. The choke is controlled by a thermostatic spring contained in the insulated housing (D). The spring is set to hold the choke valve in a closed position at 75° F.

The gradual opening of the choke valve is controlled by warm air which passes through the heat box (E) and tube (H) into the insulated housing. As the temperature within the housing increases the tension on the spring is released, permitting the choke valve to open automatically.

### Manifold Heat Control

The manifold heat control valve (J) is set to the "W" position, that is with the pointer sloping to the rear, and should remain in this position for all seasons' operation.

### Carburetor—41, 43, 44, 45 and 47

The carburetor used on these models, illustrated in Figure 10, is a Duplex, Down-draft, automatic choke type incorporating vacuum controlled metering rods, accelerating pump, anti-percolator valve, fast idle and slow throttle return features. A filter screen is also provided at the inlet connection to preclude the entrance of foreign particles into the float chamber.

Due to the accuracy required, no adjustments should be made to the metering rods, float level, anti-percolator or accelerating pump unless the special gauges and tools required are available. Have your Authorized Hudson Dealer make these alterations.

The fuel mixture for idling speed is adjusted by turning screws (A) alternately in clockwise rotation to obtain lean adjustment and

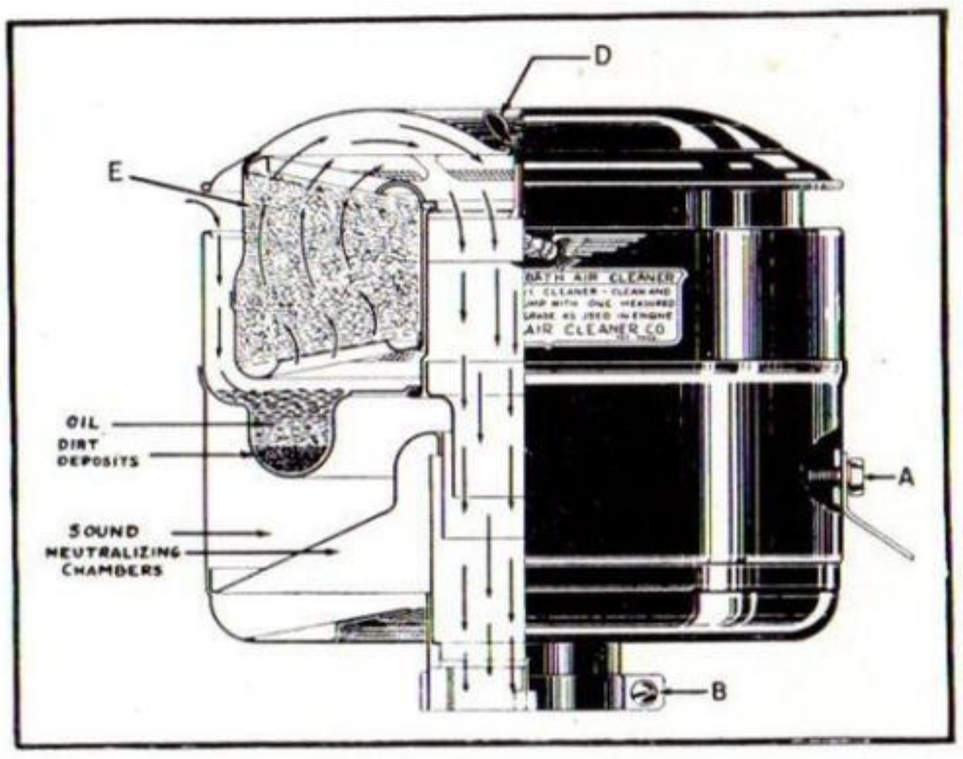



Figure 12

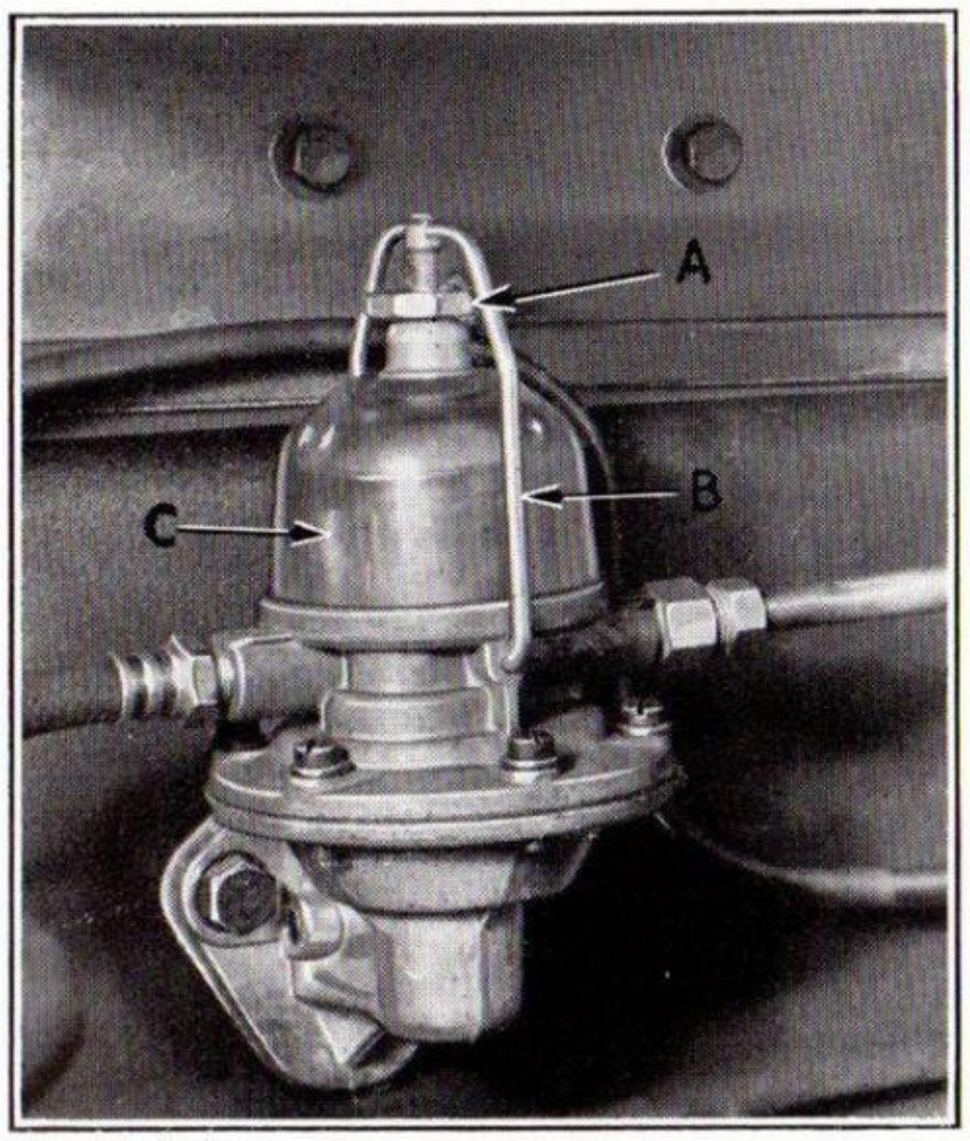



Figure 13

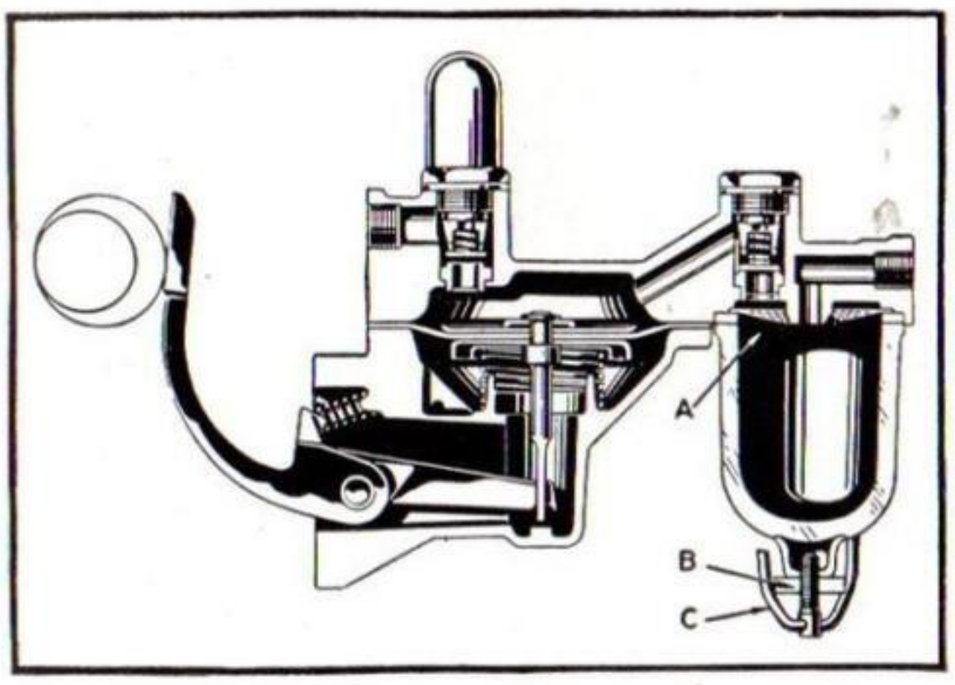



Figure 14

## Oil Bath Type

Service this type cleaner, Figure 12, by removing the complete unit from the engine by first removing brace nut (A) and loosening clamp screw (B). Remove wing nut (D), lift off cover and filter unit (E), and if necessary wash filter unit in kerosene and blow dry. Remove old oil from sump and clean with kerosene. Refill sump with one pint of new engine oil same grade as used in engine. Check filter unit gasket, reinstall filter unit and cover and install wing nut. Reinstall air cleaner on carburetor and tighten clamp screw and install brace.

## FUEL PUMP

**Fuel Pump—**Models 40C, 40T, 40P

The fuel pump used on these models and illustrated in Figure 13 is located on the right side of the engine.

The only service attention required by this unit is cleaning the filter screen and bowl at intervals of 2,000 miles or oftener if required. To remove the screen loosen nut (A) by turning counterclockwise, swing strap (B) to one side and remove bowl (C). Before replacing parts, carefully examine screen and gasket to see that they are in good condition.

**Fuel Pump—**All Other Models

The fuel pump used on these models and illustrated in Figure 14 is located on the right side of the engine.

Every 2,000 miles the filter screen, located at the top of the bowl, and the bowl should be removed and cleaned. To reach the screen remove bowl (A) by turning nut (B) counterclockwise and swing strap (C) to one side. Before replacing parts, carefully examine screen and gasket and see that they are in good condition.

**Combination Fuel and Vacuum Pump**—Optional Equipment—All Models

In addition to cleaning the gasoline filter screen in this type fuel pump it is also necessary to clean periodically the air filter screen.

To clean the gasoline filter screen, located in the lower bowl, remove the cap screw at the bottom of the pump. Clean all sediment from screen and bowl. Before replacing, carefully examine screen and gasket and install new parts if damaged.

To clean the air filter screen remove the top cover cap screw and lift off cover and screen.

## BATTERY

The battery on all models is located on the left side of the engine compartment and is accessible for servicing by raising the hood. See Figure 15.

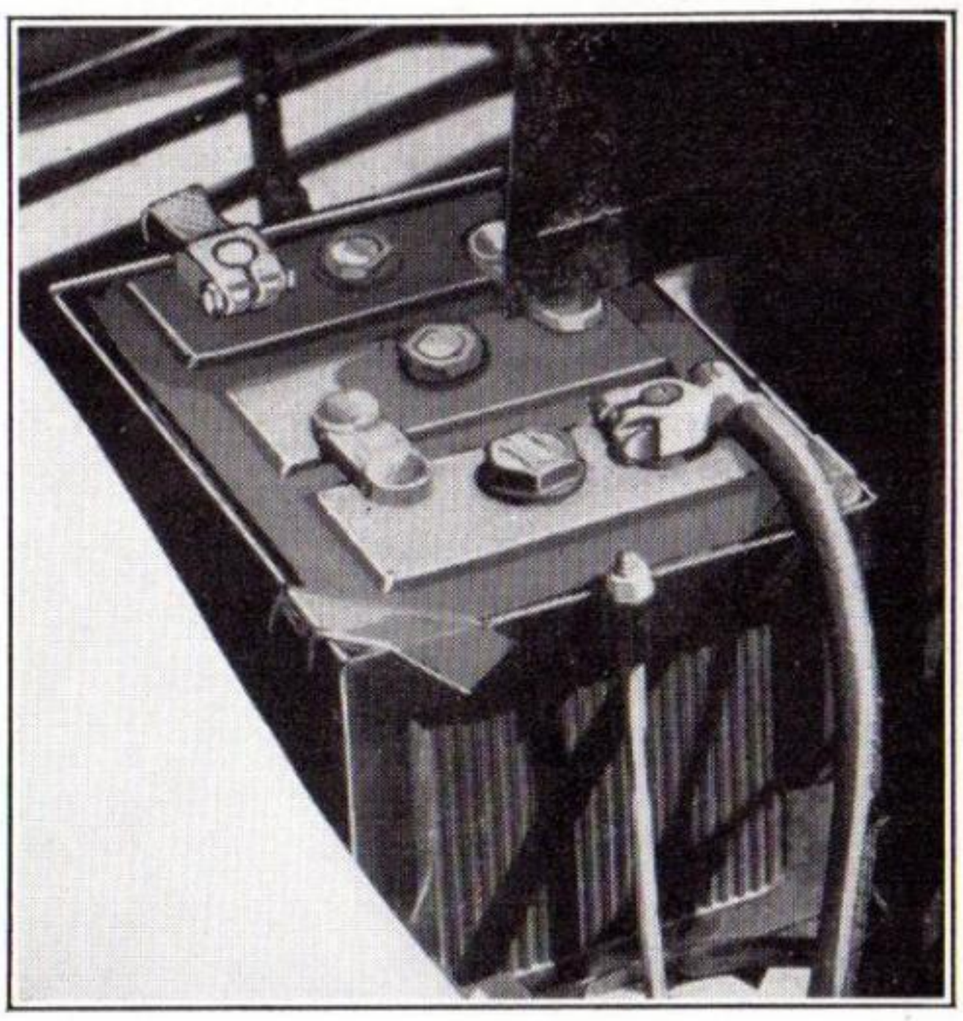


Figure 15

A 17-plate National battery is used in all 6-cylinder models and a 19-plate type is used in 8-cylinder models. The positive post is grounded on all models.

### Registration

The battery should be registered with a National battery dealer within (30) days after delivery of the car to obtain the full benefit of the Guarantee and Adjustment Policy under which the battery is warranted by the manufacturer. DO NOT NEGLECT TO MAKE THIS REGISTRATION.

### Care

The only service required by the battery is the addition of distilled water and to keep battery connections tight.

Distilled water should be added to the battery at least twice a month in warm weather and once a month in cold weather. The water level should not be more than $\frac{3}{8}''$ above the top of the plates to avoid spillage. During cold weather the water should be added just before the car is to be operated to prevent it from freezing before mixing with the battery solution.

Check battery connections at time water is added and tighten, if necessary, to prevent the possibility of starting, ignition and lighting difficulties.

## FUSES

The fuses protecting the lighting and accessory circuits are located in a fuse block, Figure 16, attached to the lower ledge of the instrument panel, between the ignition lock and steering column bracket.

## DISTRIBUTOR

The distributor, Figure 18, on all 6-cylinder models is mounted at the top of the cylinder block at the rear end where it is readily accessible for servicing and protected from road splash.

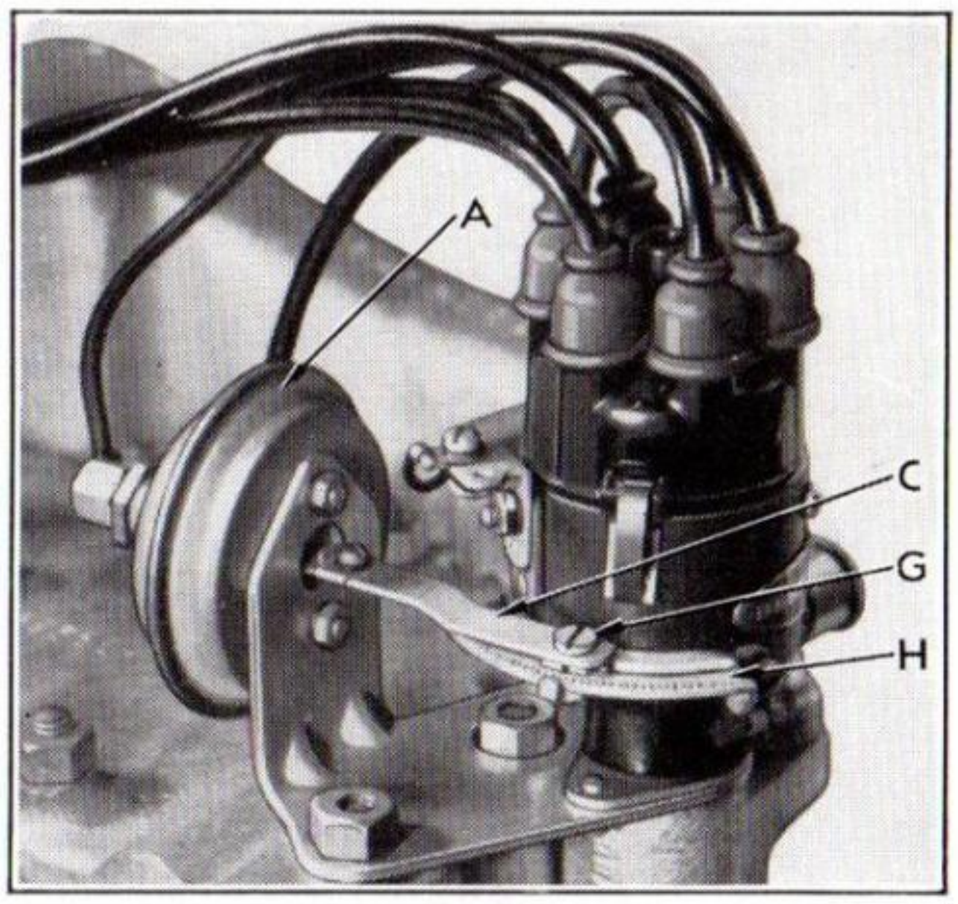



Figure 18

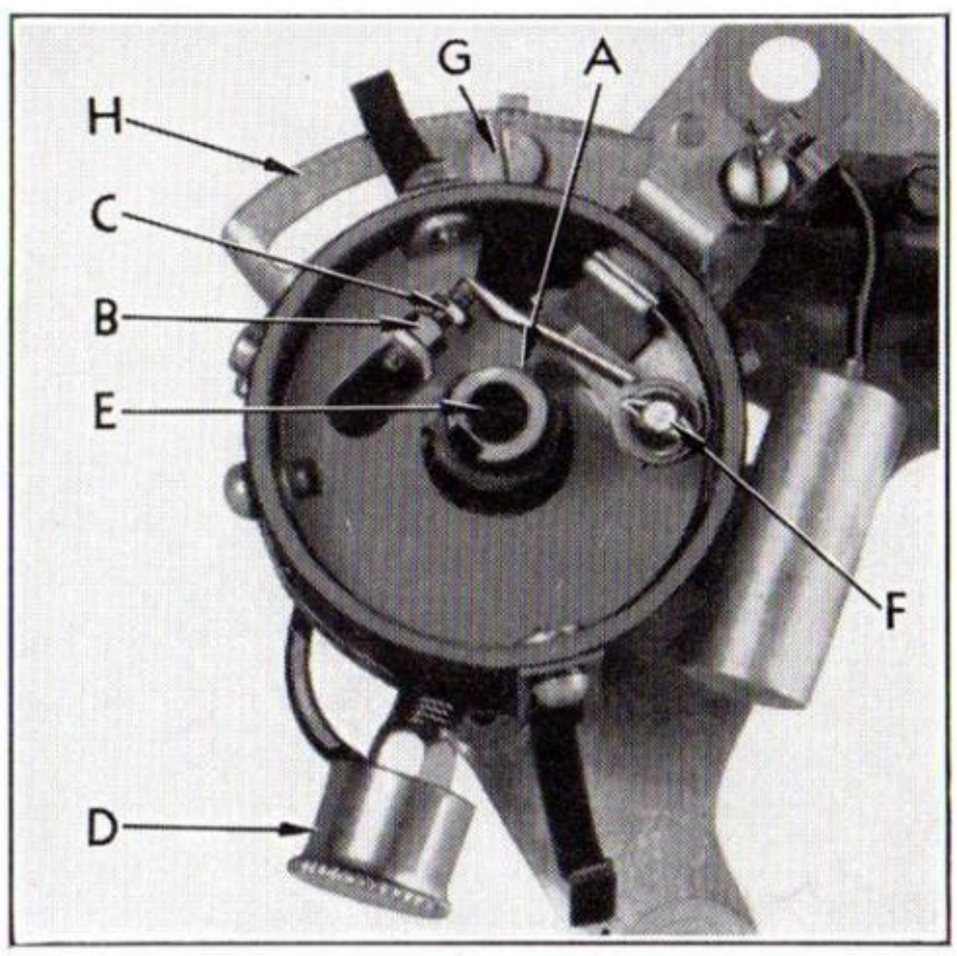



Figure 19

An additional automatic spark control (A) is provided whereby the spark is advanced and retarded by vacuum. The spark control contains a diaphragm, which is connected to a graduated quadrant (H), attached to the distributor body through arm (C). The diaphragm is actuated by vacuum from the intake manifold through a copper line leading from the carburetor body to the diaphragm. As the throttle is opened the spark is automatically retarded by the drop in engine vacuum which prevents fuel detonation. As the throttle is closed the spark gradually advances due to an increase in engine vacuum.

To set the distributor for the type of fuel used, see "Fuel Compensation," page 38.

In addition to the vacuum spark advance feature an automatic governor advance is incorporated in the distributor.

The 8-cylinder model distributor is illustrated in Figure 20. This unit likewise incorporates the automatic governor advance feature. A graduated advance plate is used to permit manual adjustment to compensate for variation in octane rating of fuels to prevent detonation. See "Fuel Compensation," page 38.

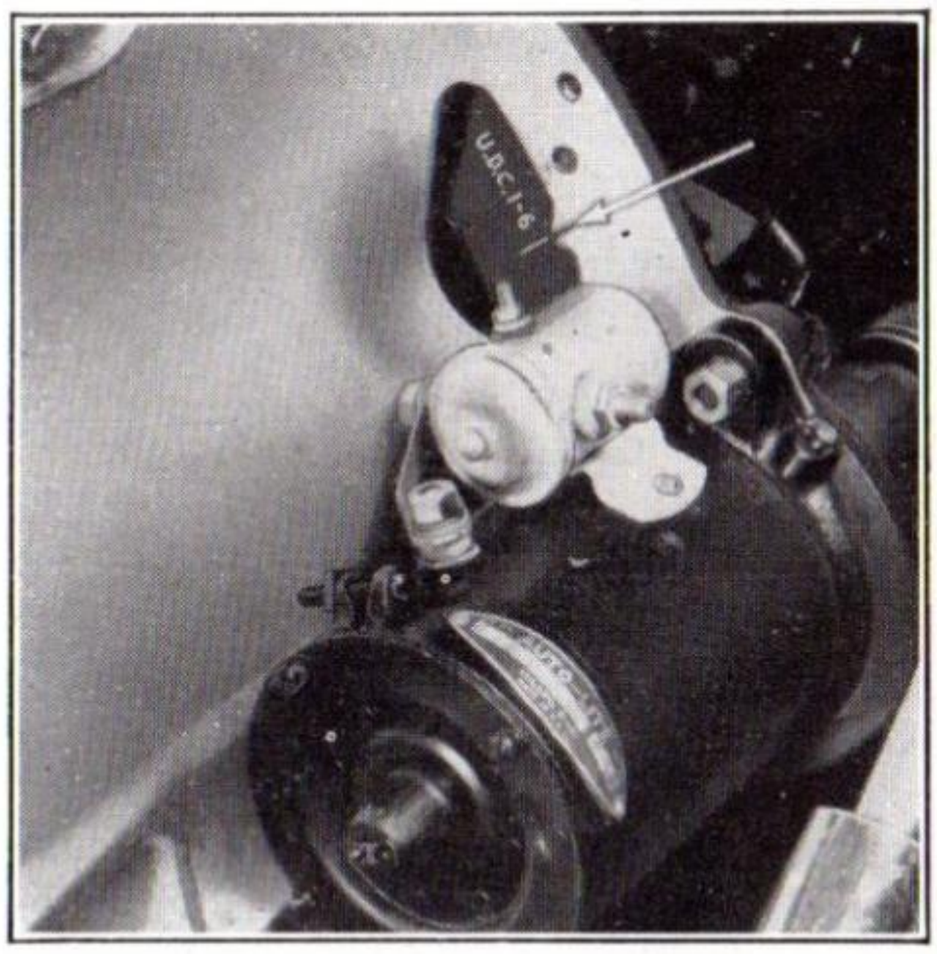



Figure 21

and rotate distributor housing counterclockwise to the limit of the slot in the quadrant (H). Remove the central cable from the distributor cap and place the bare end 1/8" from the cylinder head. With the ignition turned on and the U.D.C. 1-6/ mark on the flywheel in line with the pointer on the inspection hole, Figure 21, rotate the distributor body clockwise slowly just until a spark jumps from the high tension wire to the cylinder head. Tighten screw (G), replace central cable in distributor cap and clamp cap on distributor.

When the distributor cap is in place, the metal strip on the rotor arm should be directly under the terminal to which number one spark plug is attached. The other cables should be in the cap terminals in the order 5-3-6-2-4, following in a counterclockwise direction. The cable in the central terminal of the distributor cap should go to the central (high tension) terminal of the ignition coil.

**Setting Ignition Timing**—8-Cylinder Models

The distributor is driven clockwise.

Loosen distributor clamp screw (G), Figure 20, and rotate the distributor housing clockwise to the limit of the slot in the clamping plate (H). Remove the central cable from the distributor cap and place the bare end 1/8" from the intake manifold. With the ignition on and the U.D.C. 1-8/ mark in line with the pointer on the inspection hole, Figure 21, rotate the distributor body counterclockwise slowly just until a spark jumps from the high tension wire to the manifold. Tighten clamp screw (G), replace central cable in distributor cap and clamp cap on distributor.

When the distributor cap is in place, the metal strip on the rotor arm should be directly under the terminal to which number one spark plug is attached. The other cables should be in the cap terminals in the order named 6-2-5-8-3-7-4, following in a clockwise direction. The cable in the center terminal of the distributor cap should go to the central (high tension) terminal of the ignition coil.

## FUEL COMPENSATION

The procedure outlined in the foregoing paragraphs gives approximately normal timing. In view of the variation in fuel characteristics (octane rating), further tests should be made on the road. Select a level, hard-surfaced road and with the car at normal operating temperature in high gear at a speed of 7 miles per hour depress the accelerator. Between 10 and 15 miles per hour a slight ping should be noted.

If no ping is heard, loosen the advance diaphragm arm screw (G), Figure 18, on 6-cylinder cars and rotate the distributor body in a clockwise direction a graduation mark at a time until the ping is heard. On 8-cylinder models loosen clamp screw (G), Figure 20, and rotate distributor body in a counterclockwise direction until the ping is heard.

If the pinging is heard at a higher speed than previously indicated, the timing should be retarded by loosening the clamp screw and rotating the distributor counterclockwise on 6-cylinder engines and clockwise on 8-cylinder models until the proper setting is obtained. Fuels of higher octane rating require a more advanced timing position than low octane rating fuels. Under no circumstances, however, should the setting be more than ¾" ahead of the U.D.C. mark on the flywheel.

## GENERATOR

All models are fitted with fully ventilated, high rate generators, Figure 22. Ventilation is provided by means of a large suction fan attached to the front end of the generator which draws the cool air in through the openings in the rear plate.

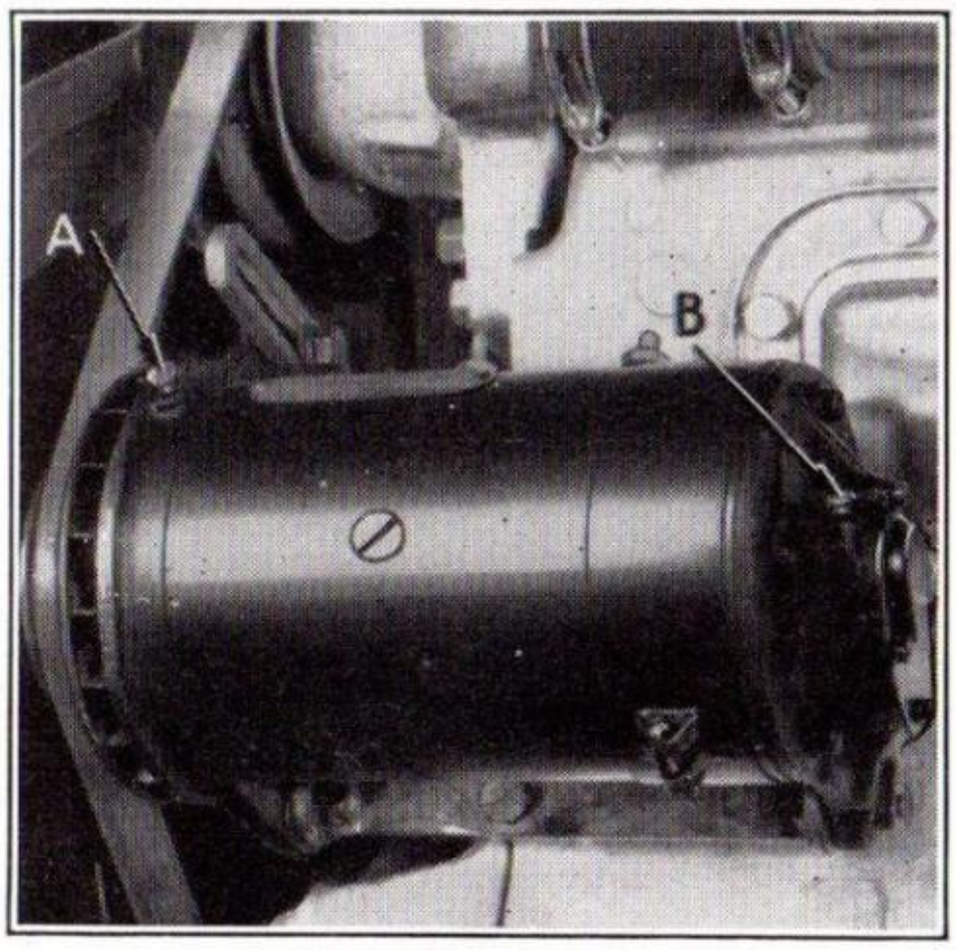



Figure 22

Generators on models 40 C, 40 T and 40 P have a maximum output of 34 amperes cold and 29 amperes hot, and all other models use units with a 44-ampere output capacity cold and 38 amperes hot. The maximum output is at approximately 35 miles per hour.

The output is adjusted by a 3rd brush and is controlled by a voltage regulator fitted on the left side of the dash in the engine compartment. Adjustment of the output can only be accurately accomplished through the use of an accurate volt and ampere tester and should be done by your Authorized Hudson Dealer.

### Lubrication

Lubrication is provided through two oil cups (A and B) fitted over the front and rear bearings. Every 2,000 miles place a few drops of light engine oil in the cups. Avoid over-oiling as this may result in damage to the brushes.

## FAN BELT

The generator and water pump are driven from the vibration dampener pulley attached to the crankshaft through a "V" type belt. The belt tension may be adjusted by loosening generator mounting nuts (D, E and F), Figure 23, and swinging the generator outward to increase tension and inward to decrease tension. When properly adjusted there

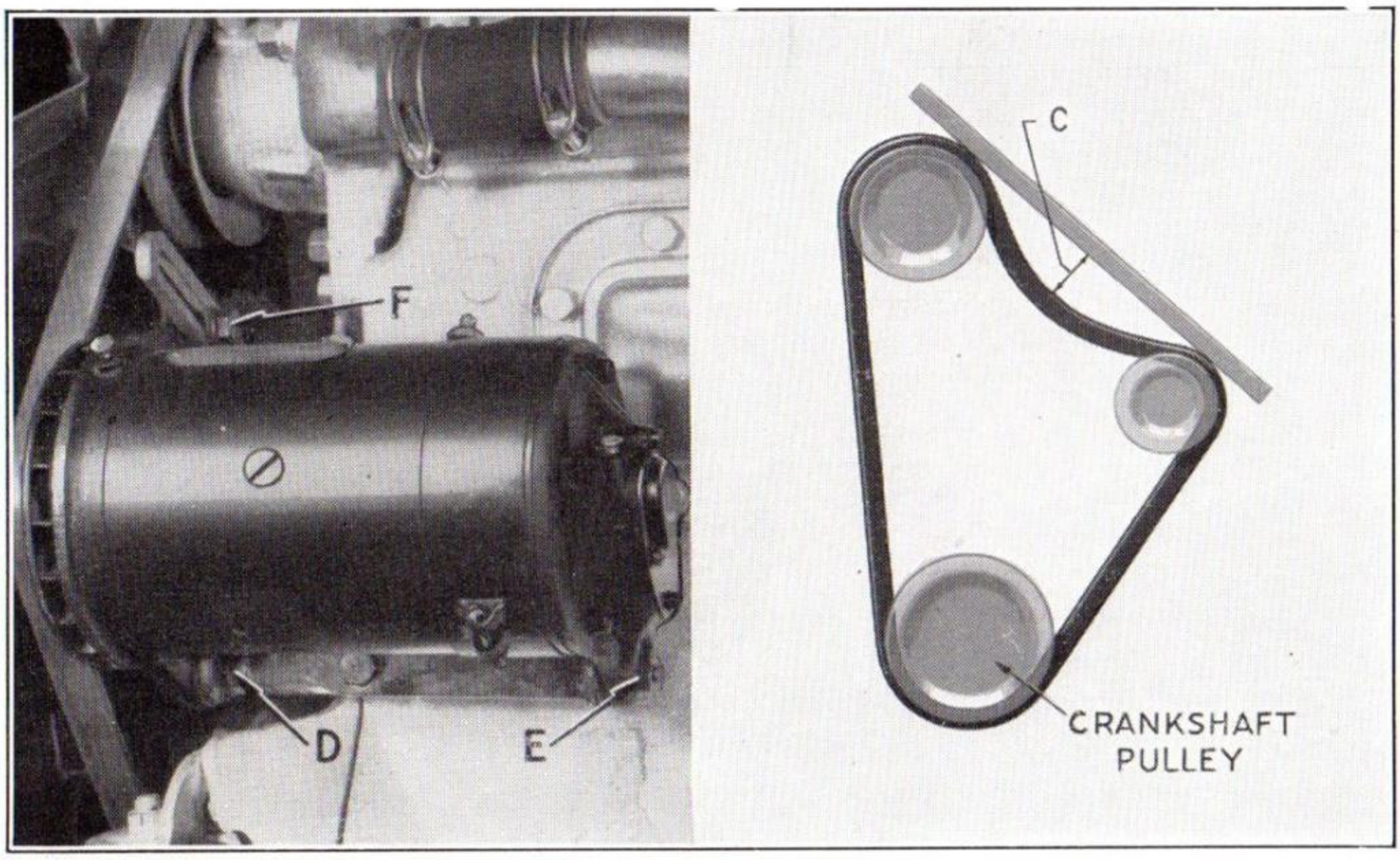



Figure 23

should be ¾" slack in the belt as indicated at (C). Be sure to tighten nuts securely after adjusting belt.

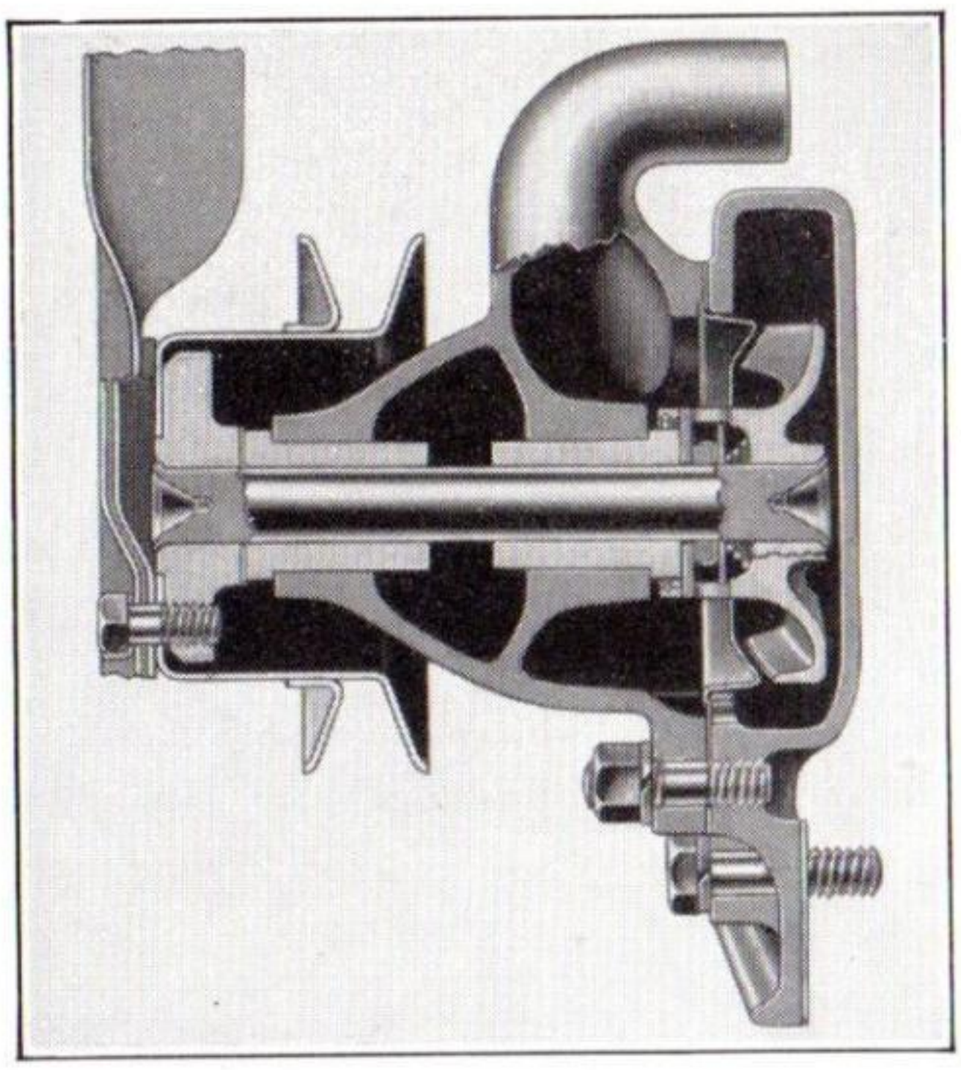


Figure 24

## WATER PUMP

A packless type water pump, Figure 24, which requires no adjustment is used on all models. The fan blades, which are attached to the front end of the water pump, are driven by a "V" belt which is driven by the crankshaft.

### Lubrication

Every 1,000 miles the water pump should be lubricated through the metered fitting with a high-grade aluminum soap base lubricant.

## ENGINE TUNE-UP

The following simple engine tune-up instructions are given for the owner who desires to do this work or to handle an emergency until

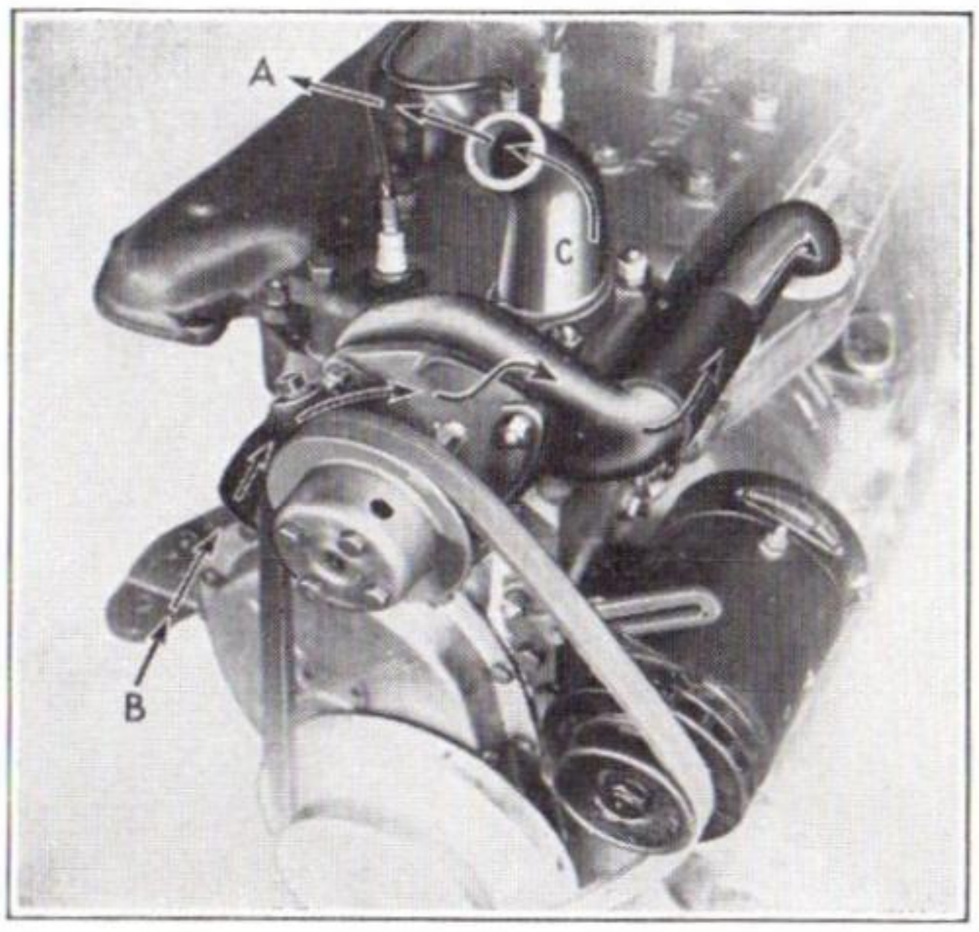



Figure 25

models 40 C, 40 T, 40 P, 41, 44, 45 and 48 C and restricts circulation of the coolant through the radiator until it has reached a temperature of 150° to 155°.

Models 43 and 47 use a by-pass type thermostat also located in the outlet which permits circulation of the coolant through the water pump by-pass and the cylinder block until it reaches a temperature of 150° to 155°.

At a temperature of 185° both types of thermostats are fully opened, permitting complete circulation through the cooling system.

## DRAINING

The cooling system may be completely drained by opening the drain cock at the rear lower left corner of the radiator core and removing the pipe plug at the lower left rear corner of the engine.

## CARE

In order to obtain the maximum cooling efficiency it is essential that the entire cooling system, including the cylinder block, radiator core and hose, be kept free of scale and corrosion, due to electrolytic action of water containing minerals and also deposits of minerals when the water is heated. The use of Hudson Rust and Corrosion Inhibitor, available through all Authorized Hudson Dealers, is helpful in this connection. If placed in the cooling system when the car is new it will form a protective coat and prevent the formation of rust and scale.

Twice a year, before and after draining the anti-freeze solution, the entire cooling system should be cleaned. This can best be accomplished by first using Hudson Radiator Cleaner to loosen all sediment and then reverse flushing. As reverse flushing requires the use of compressed air and special equipment it is best to have this work done by your Authorized Hudson Dealer.

Should the owner desire to do this work himself, proceed as follows: Run the engine to circulate the water and stir up loose sediment. Stop the engine and drain all water. Dissolve the contents of a package of Hudson Radiator Cleaner in a bucket of hot water (be sure the material is completely dissolved). Pour the solution into the radiator, then fill the radiator almost full of water. Install the filler cap tightly, cover the radiator and run engine for about twenty minutes, but avoid boiling. Stop the engine and drain the system.

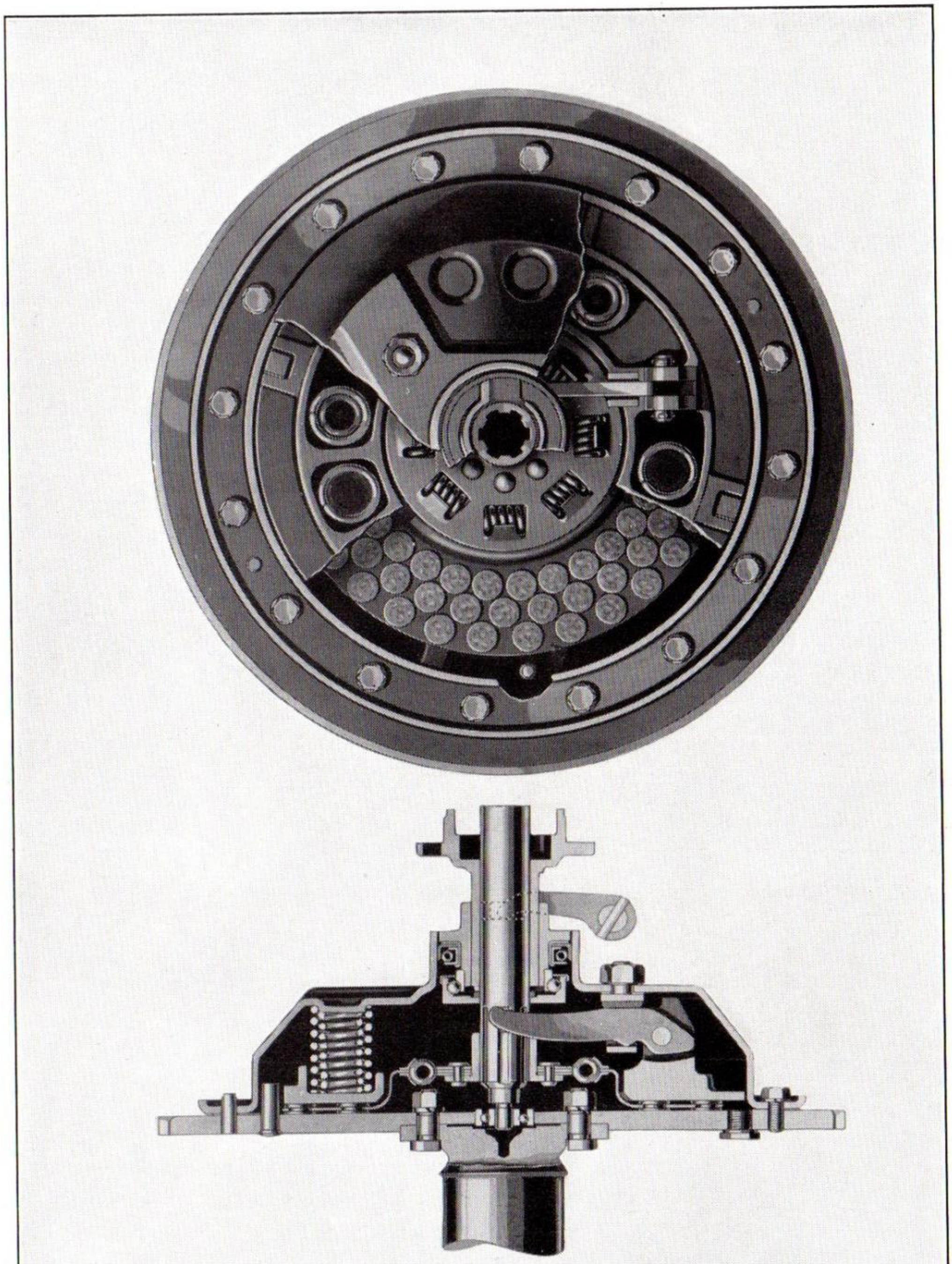


Figure 26

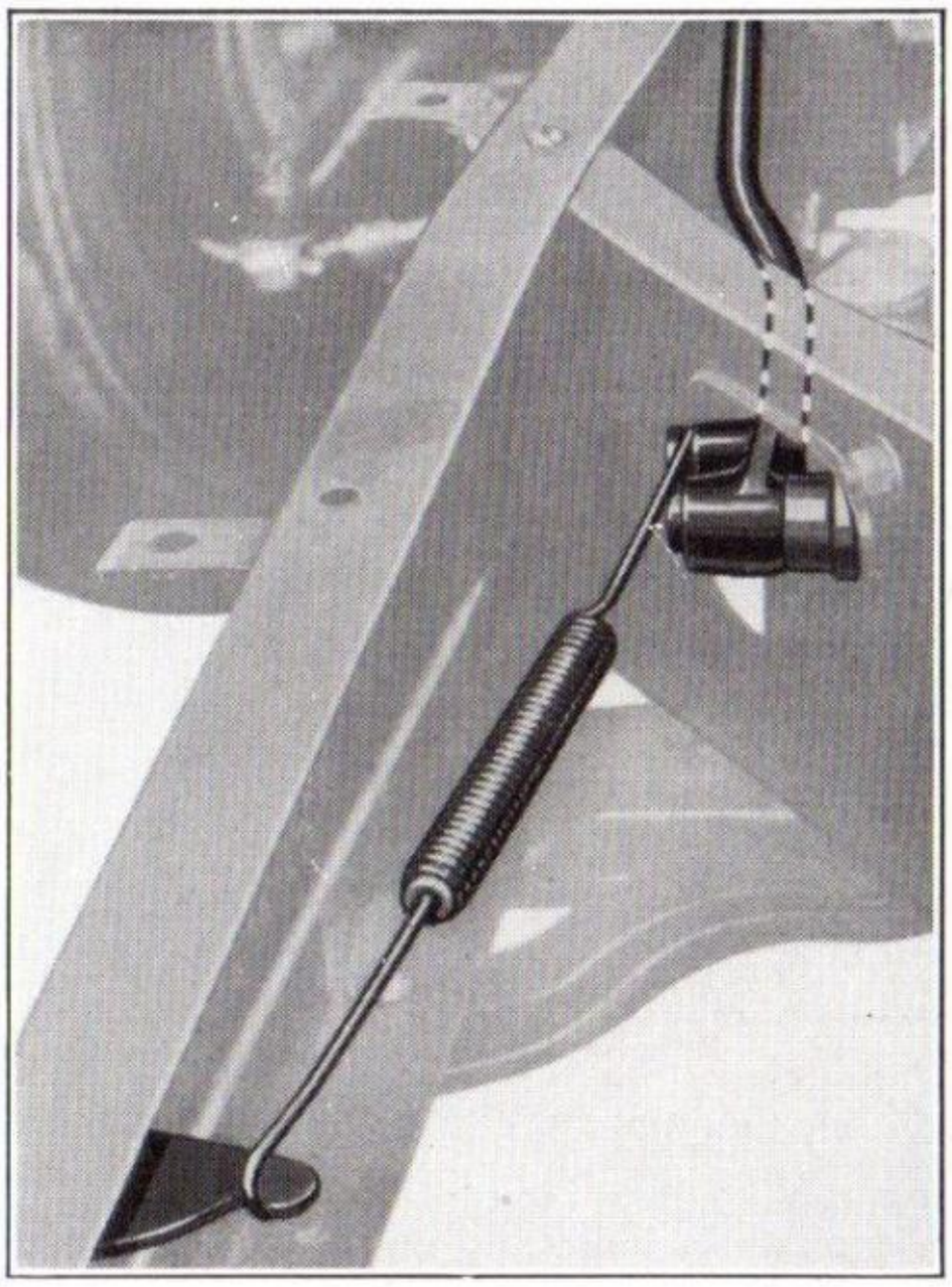


Figure 27

A heavy over-center coil spring, Figure 27, is attached to the clutch pedal at one end and a bracket attached to the left frame side member at the other end to assist in disengaging the clutch with a minimum of foot pressure.

The clutch requires no attention other than an occasional check of the pedal-to-floorboard clearance to insure full travel of the clutch pedal and prevent riding the floorboard which may cause clutch slippage.

### Lubrication

The clutch release bearing lubrication fitting is located on the right side of the clutch housing and is reached from underneath the car. The bearing should be lubricated through this fitting every 1,000 miles with viscous chassis lubricant.

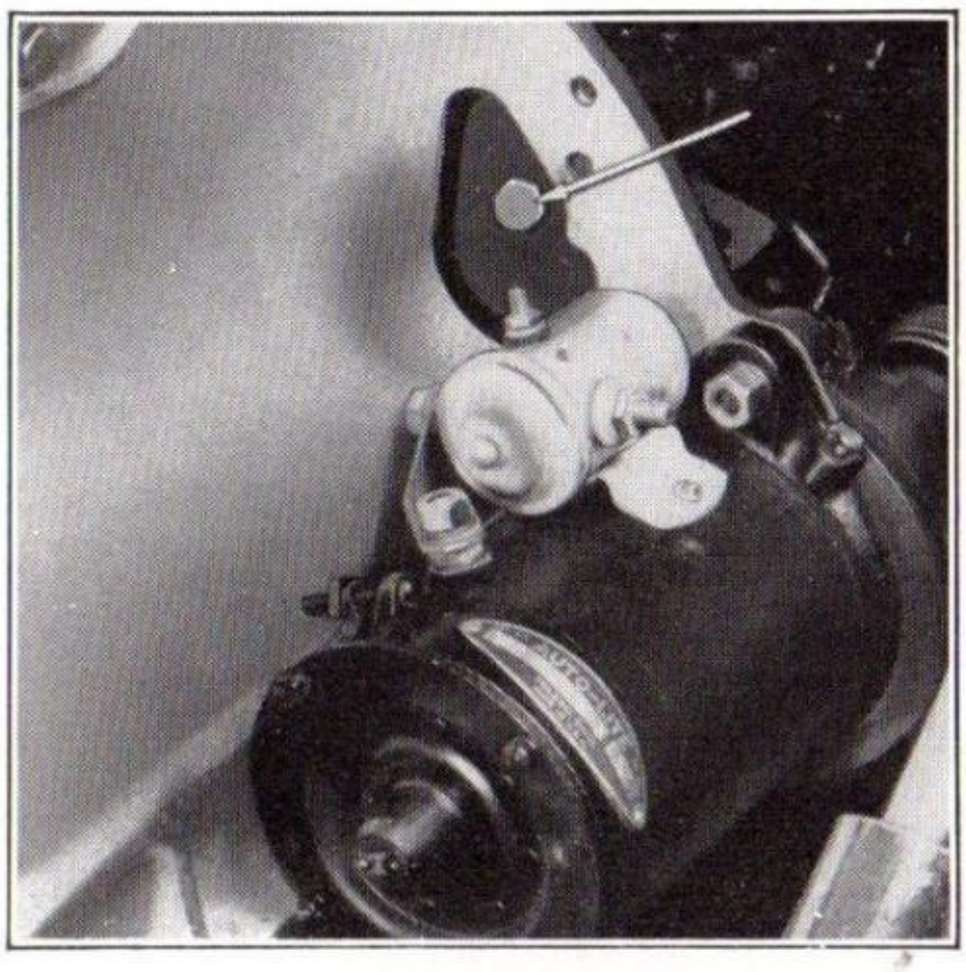


Figure 28

To maintain the driving disc corks in a soft, pliable condition, the hex head plug shown in Figure 28, visible through the inspection hole in the left side of the engine rear support plate, should be removed, the old fluid drained and the clutch refilled with ⅓ pint of HUDSONITE, a special fluid compounded in our laboratories and available through all Authorized Hudson Dealers, every 5,000 miles. *Never use substitutes. Insist on Hudsonite.* Replace plug and tighten, making sure gasket is in good condition.

## CLUTCH PEDAL

### Lubrication

Every 1,000 miles the clutch and brake pedal shaft bushings grease

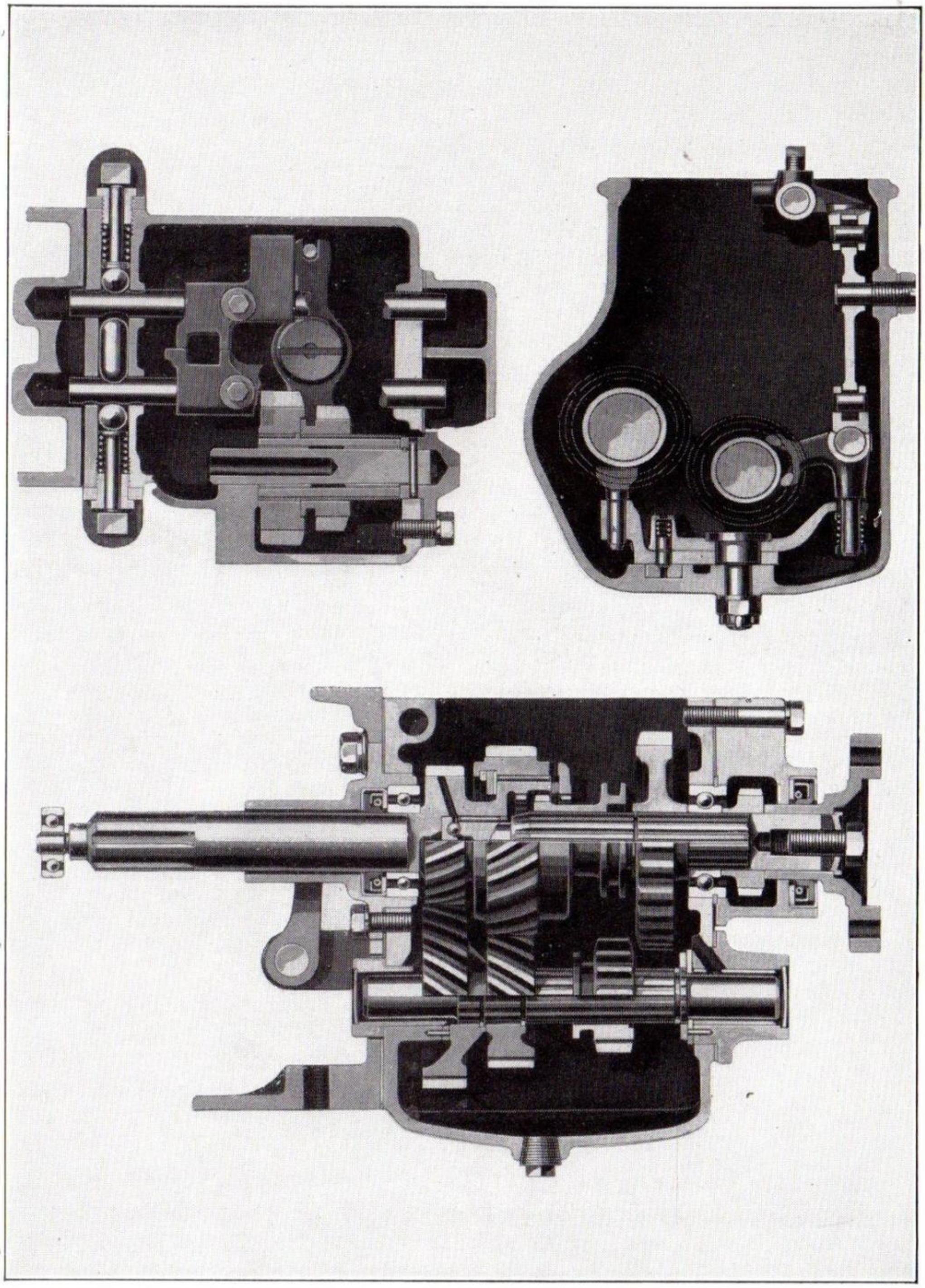


Figure 30

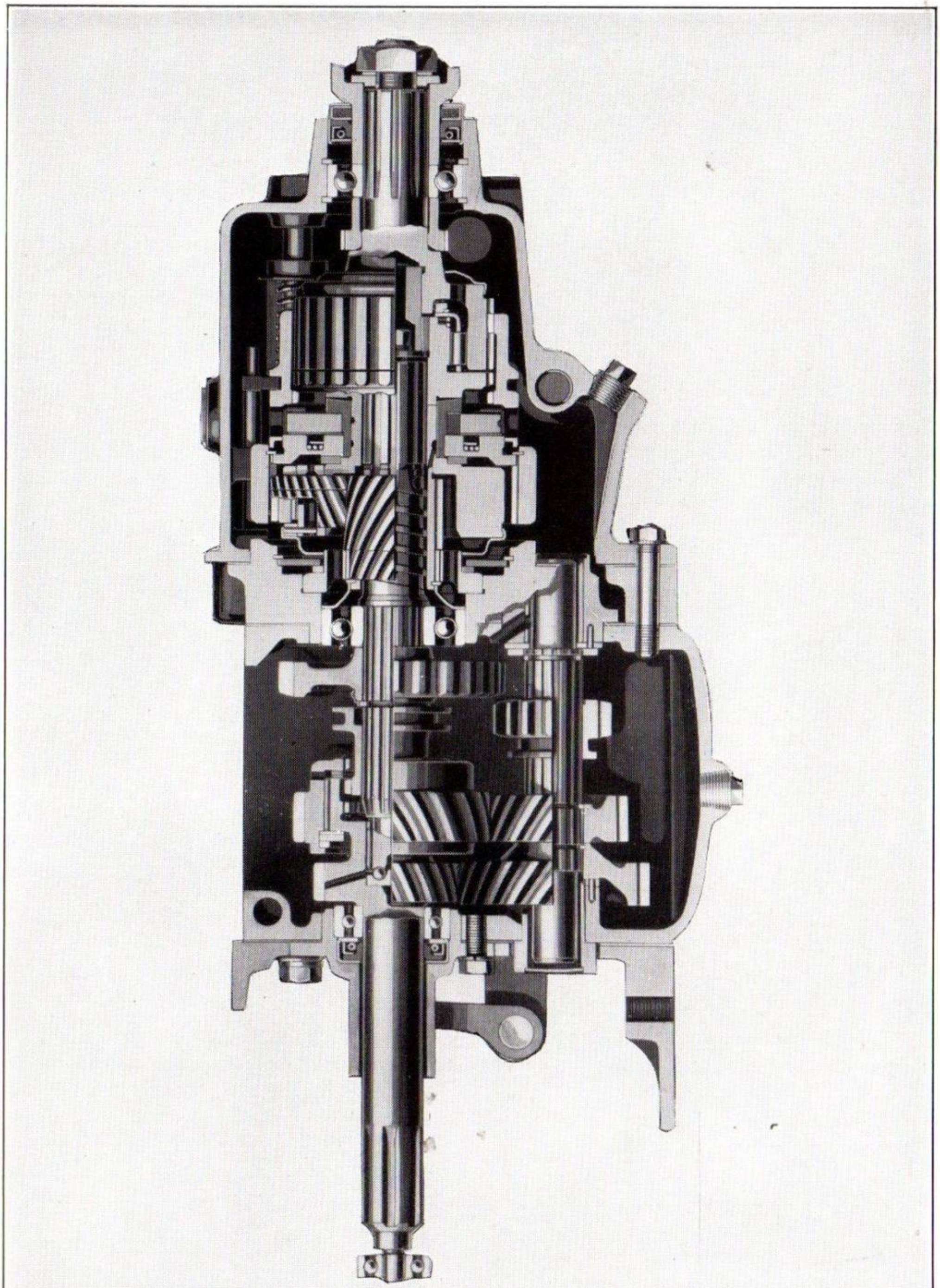


Figure 31

### Lubrication

For lubrication instructions see "Transmission," page 46.

## UNIVERSAL JOINTS

The propeller shaft universal joints, Figure 32, are of the needle roller bearing type. The bearings are packed with lubricant at the time of manufacture and, with the exception of the front joint spline, the universal joints require servicing only at infrequent intervals.

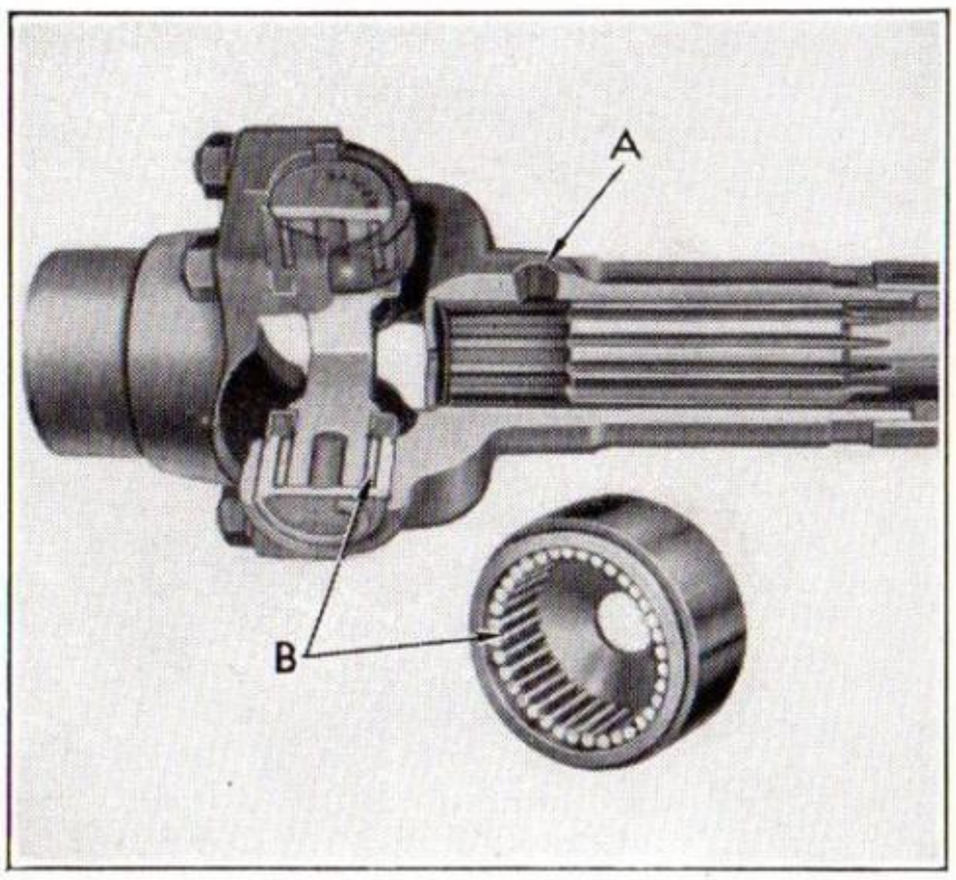



Figure 32

### Lubrication

To lubricate the spline, remove headless plug (A) in the front joint, install a grease fitting and lubricate with viscous chassis lubricant. Use a low pressure gun to prevent damage to the oil seal. Grease fitting should be removed and headless plug reinstalled to prevent disturbing the balance of the propeller shaft.

The needle roller bearings (B) should be lubricated with viscous chassis lubricant at 20,000-mile intervals. In order to do this the propeller shaft must be removed from the car. We suggest your Authorized Hudson Dealer perform this work.

## FRONT SUSPENSION

Auto-Poise Control Front Wheel Suspension, combined with the center point steering principle, is employed on all models (Auto-Poise Control is not used on Panel Delivery and Cab Pickup models.) This construction, Figures 33 and 35, is of the wishbone type, with the support arms set at an angle on the frame, in which each front wheel is mounted independently, permitting either wheel to react to changes in road surface level without appreciably affecting the other wheel.

Both wheels are fastened directly to the frame through heavy pressed steel lower arms and forged steel upper arms pivoted at their inner ends to permit vertical movement only. Threaded renewable bushings, fitted with lubrication fittings, are provided at pivotal points to permit freedom of movement.

At the outer ends the upper and lower support arms are attached to the heavy drop forged spindle supports through renewable threaded bushings, with lubrication fittings. The upper bushings are eccentric to afford caster and camber adjustment. Tight-fitting oilproof rubber sleeves at the inner ends of all bushings preclude the entrance of dirt and water and tend better to retain the lubricant.

The up and down movements of the wheels are controlled by the soft-acting helical or coil springs made of silico manganese steel. The use of

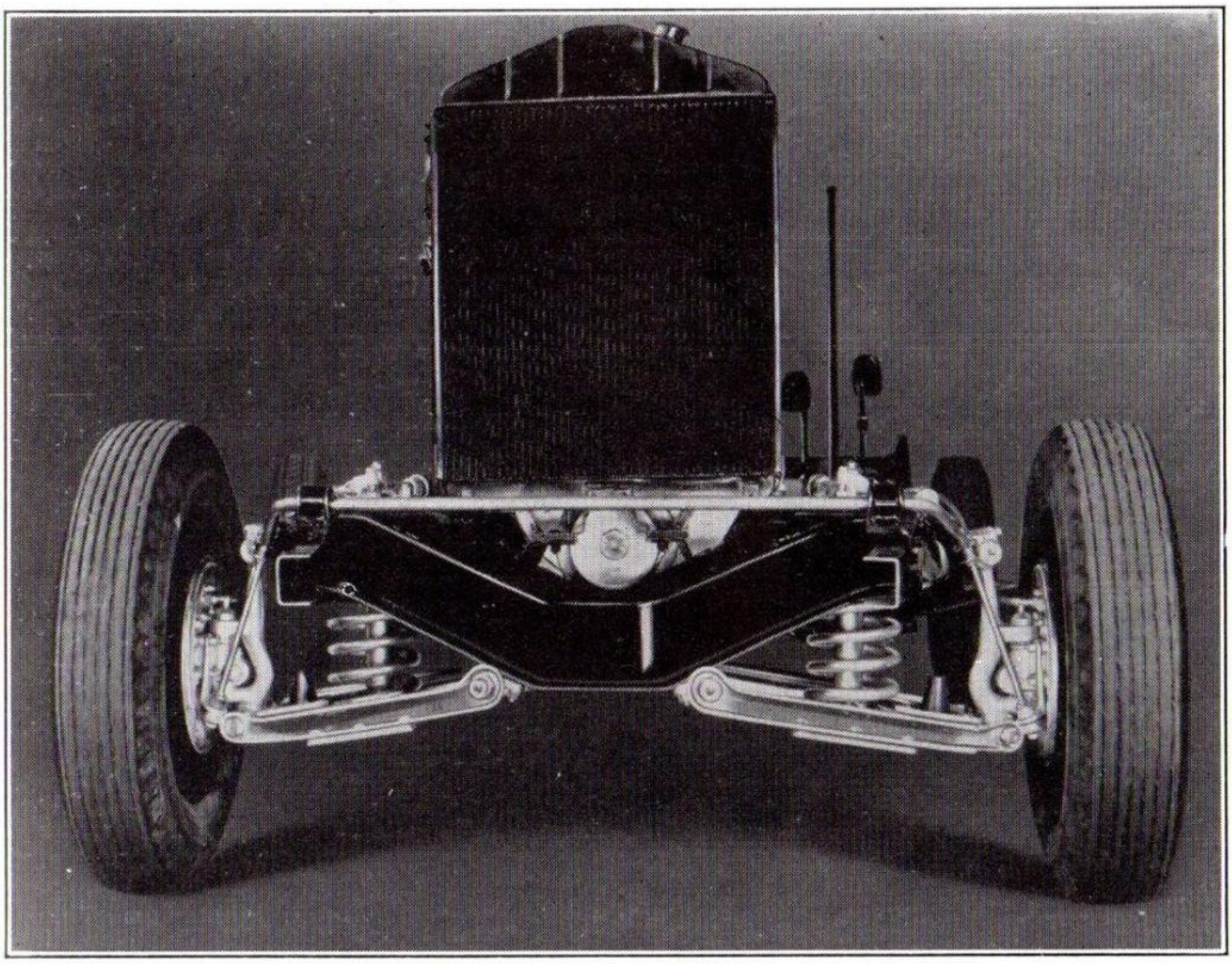


Figure 33

this material in manufacturing the springs assures consistent performance and dependability. The lower ends of the springs are recessed in depressions formed in the lower support arms, while the upper ends of the springs set in seats stamped in the frame front cross member, which acts as a support for the front suspension system.

Silencers made of rubber composition are placed between the upper ends of the springs and the seats in the frame to insulate against noise. Steel spacer washers, inserted between the silencers and the frame, afford a limited means of controlling the front end height.

## Wheel Alignment

To assure maximum tire life and proper handling of the car, provisions are made for adjusting the controlling factors, caster, camber and wheel toe-in. These operations should be done by your Authorized Hudson Dealer, who has the proper specifications and equipment.

## Caster

The caster, backward tilt of the spindle pivot pins at the top, should be negative ¼° to positive ¼°.

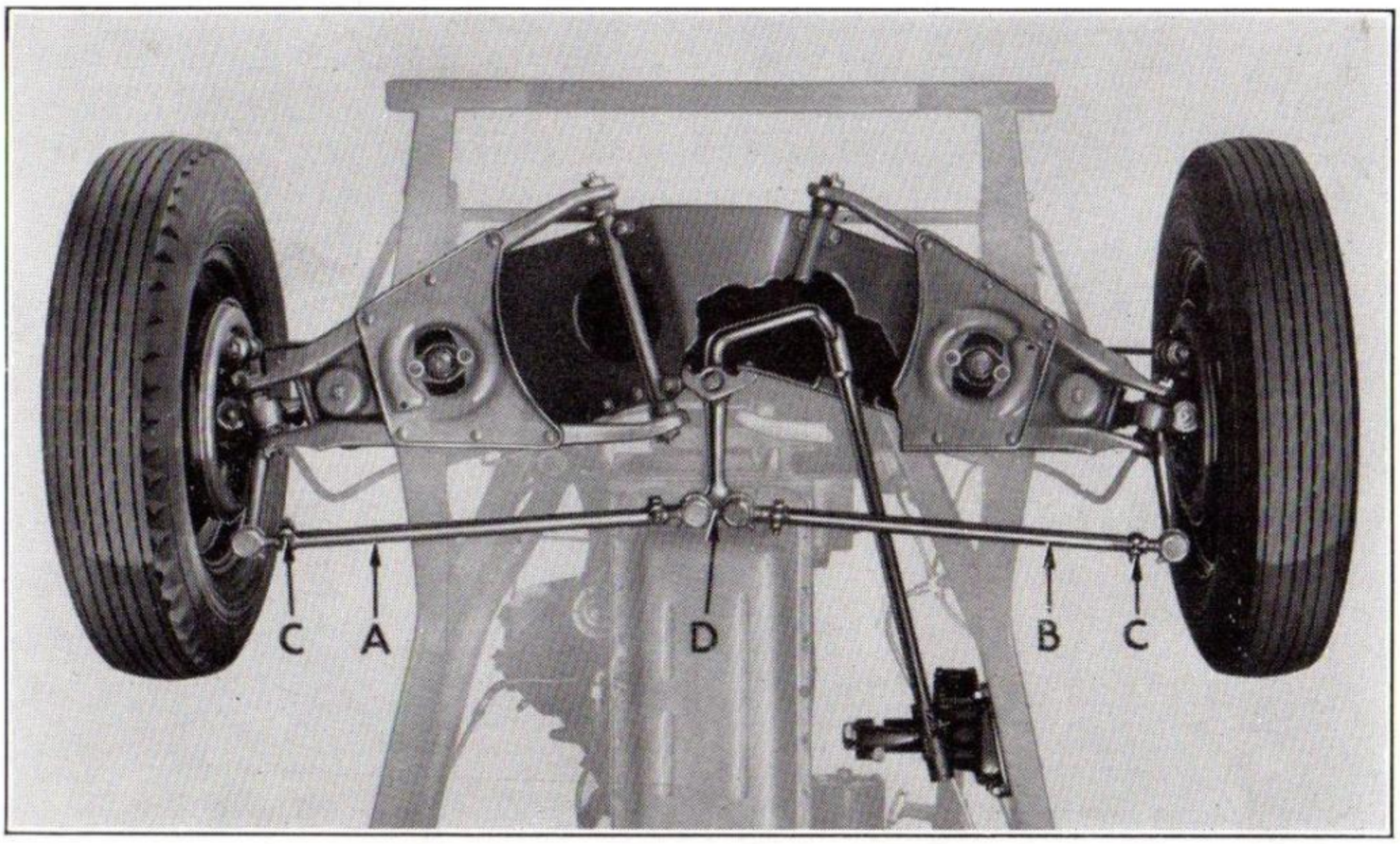



Figure 35

## FRONT WHEEL BEARINGS—ADJUSTMENT

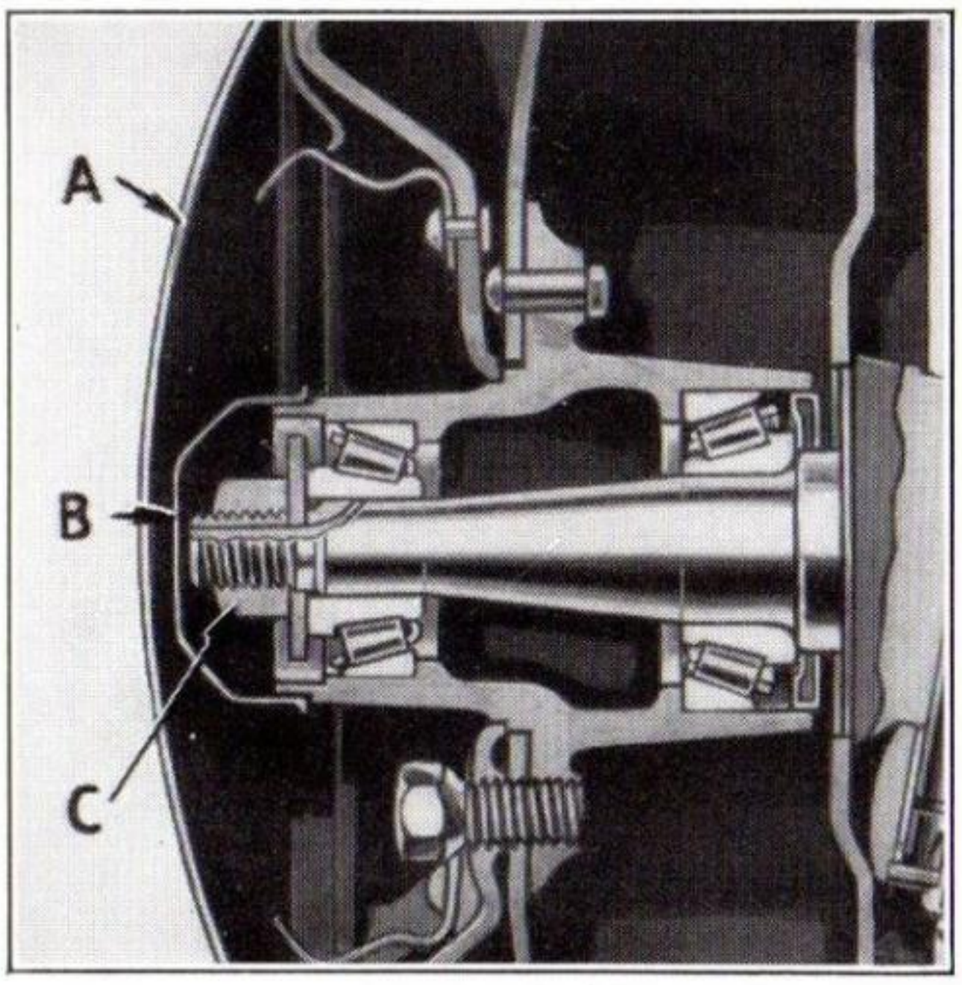



Figure 36

To check need for front wheel bearing adjustment, raise front end of car and grasp outer edge of tire at top and bottom. Any perceptible sidewise movement indicates looseness, which can be eliminated as follows:

1. Remove outer and inner hub caps (A and B), Figure 36.
2. Remove cotter pin holding nut (C).
3. Turn nut to the right until just a slight drag is felt when turning the wheel by hand.
4. Loosen nut just sufficiently to permit wheel to turn freely.
5. Insert cotter pin, replace hub caps and lower car to floor.

### Lubrication

Every 10,000 miles remove the front wheel bearings, clean and repack them with three ounces of milled sodium soap base lubricant. For procedure of removal and adjustment see "Front Wheel Bearings—Adjustment," above.

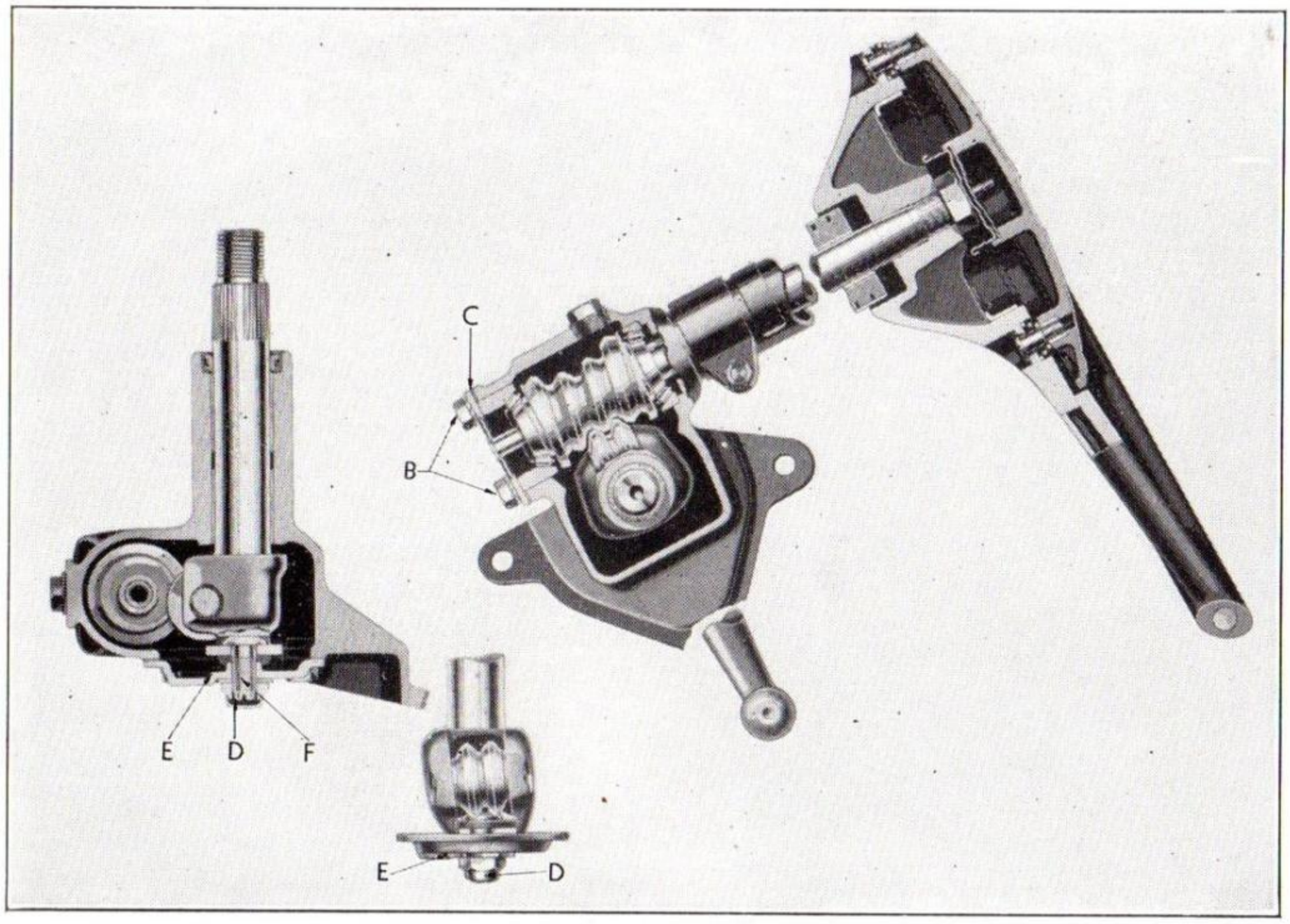



Figure 38

## Adjustments

This design lends itself to freedom from service adjustments over long periods of time. However, ample provision is made to compensate for any wear should it take place. Always disconnect drag link at steering gear before attempting any steering gear adjustments.

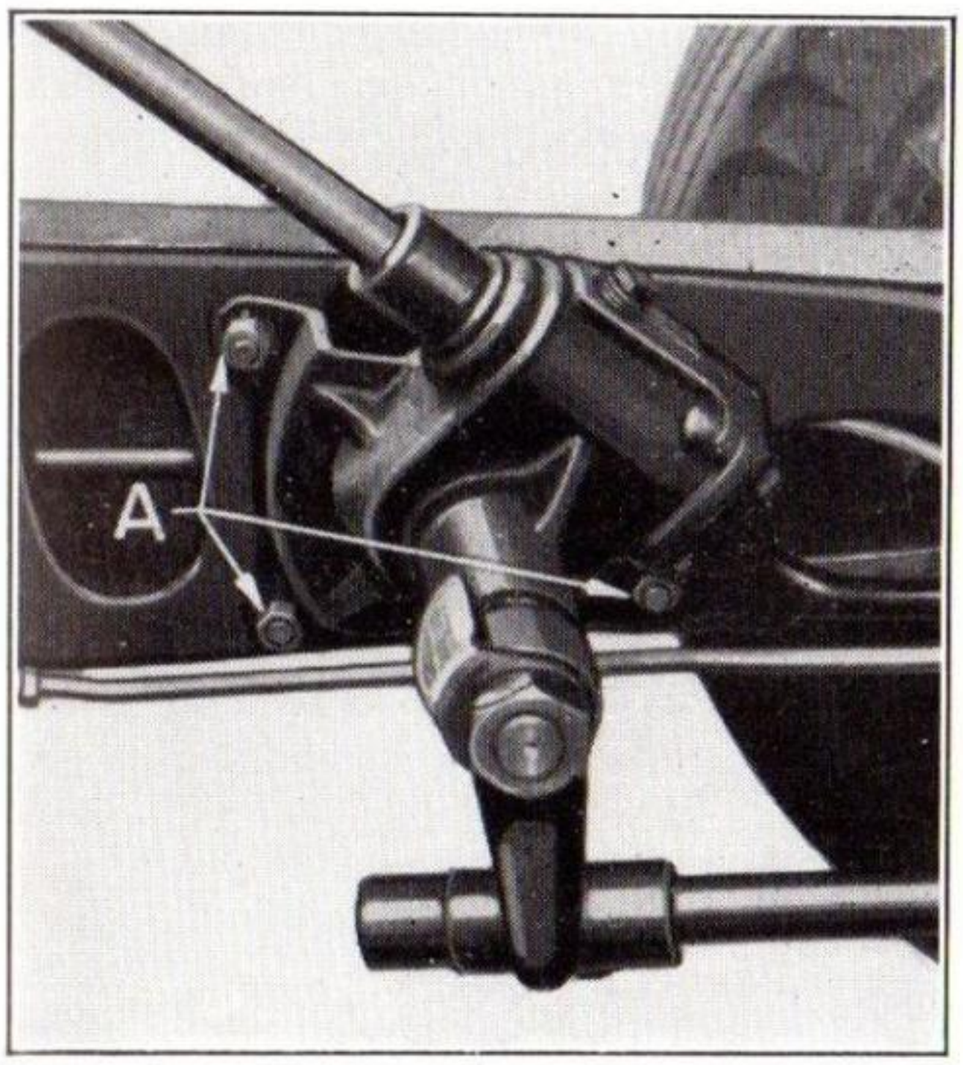



Figure 39

## Gear Alignment

To prevent binding, the steering gear column should be properly aligned. Should it become necessary to realign the column, proceed as follows:

Loosen three mounting bolt nuts (A), Figure 39, reached from inside of frame (mounting bolts are serrated and pressed into frame and no wrench is necessary to hold head) just enough to permit shifting gear housing in frame to line up at angle determined by height setting of instrument panel gear bracket, and retighten nuts. Also loosen instrument panel gear bracket and allow it to shift to match the gear column position, and retighten.

## Worm Shaft and Bearing Adjustment

Excessive end play in the main column tube, due to excessive clearance between the worm roller bearings and cups, can be compensated for by removal of shims at the bottom of the steering gear housing.

Loosen four cap screws (B), Figure 38 (two not shown). Separate shims (C) with sharp knife blade, being careful not to mutilate them. Remove one shim at a time to obtain proper end play. Tighten cap screws, being careful not to bind bearings. Revolve steering wheel to determine if any stiffness exists. If so, too many shims have been removed or gear is misaligned in car.

Reinstall drag link and adjust bearings.

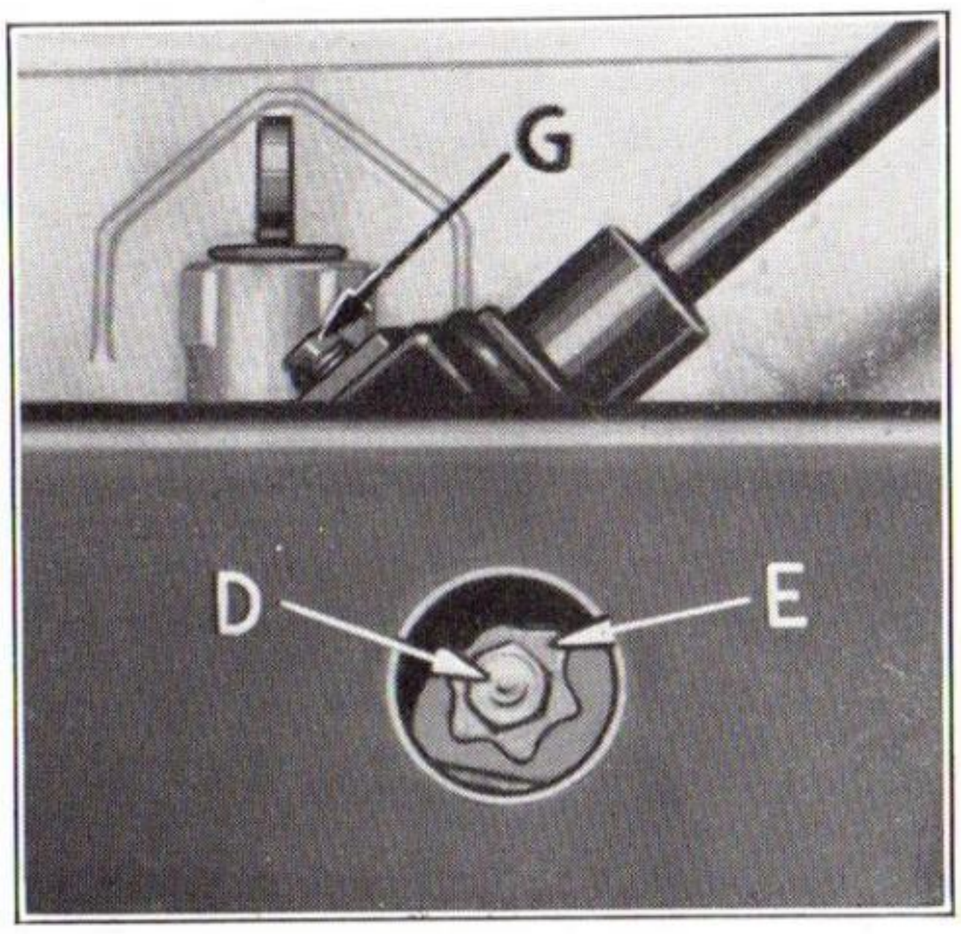



Figure 40

## Cross Shaft and Roller Tooth Adjustment

The mesh between the worm and roller tooth is adjusted by means of a slotted screw accessible through an opening in the frame side rail, Figure 40.

To adjust mesh, remove cap (D) and slide off lock plate (E) to clear lock boss on gear housing cover. Place steering wheel in straight ahead driving position. Turn adjusting screw (F), Figure 38, into the housing for closer mesh. Back off screw just enough to prevent binding. Check end play by grasping steering gear arm. It is preferable to have a slight amount of play at this point rather than a binding. Set lock plate (E) in position and install cap (D).

Reinstall drag link and adjust bearings.

## Steering Gear High Point

The steering gear high point setting may be determined by removing the horn button and contact plate and observing the position of the notch in the upper end of the main tube. For correct position the groove should point straight downward. The steering wheel should be installed with the spokes in a true horizontal position. To adjust high point setting see "Drag Link," page 57.

## Lubrication

For proper lubrication use S.A.E. 90 E.P. gear oil for summer and winter. It is not necessary to change the oil in this unit, but rather add new lubricant when necessary to restore the level to the filler plug (G), Figure 40, hole opening. Tighten plug securely.

### Drag Link

The drag link, Figure 35, is of the adjustable bearing type, with shim packs located to the front and rear of the pitman arm ball. This design makes it possible to obtain proper relationship of the front wheel position to the steering gear high point.

To adjust drag link to obtain correct relationship between wheels and steering gear, turn wheels to straight ahead driving position and disconnect drag link from pitman arm at rear end. Determine position of notch in top of steering gear main column tube by removing horn button. With notch pointing straight down on lower edge and front wheels in straight ahead driving position, drag link should assemble over pitman arm ball without moving wheels or steering gear.

If wheels move to left with steering gear on high point, it is necessary to lengthen drag link by removing shims from the rear shim pack (A), Figure 41, at the rear of the drag link and adding them to front pack (B).

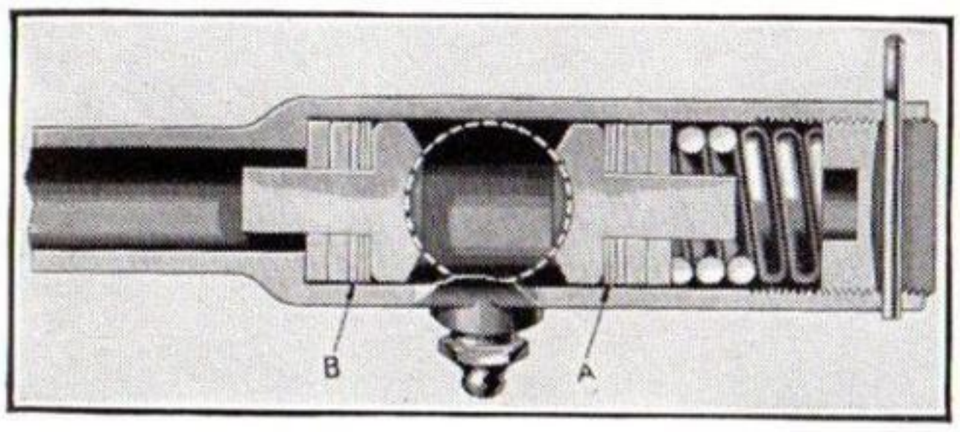



Figure 41

If wheels move to right with steering gear on high point, it is necessary to shorten the drag link by removing shims from the front shim pack (B) and adding them to rear pack (A).

Reconnect the drag link to the pitman arm, turn the end plug in solid against the spring and back off ¼ to ¾ turn. Lubricate fittings.

### Lubrication

Lubrication fittings are provided at front and rear ends. Every 1,000 miles lubricate them with viscous chassis lubricant.

## REAR AXLE

The rear axle, illustrated in Figure 42, is of the semi-floating type, incorporating helical cut bevel gears. Axle shafts, pinion shaft and differential are supported by large tapered roller bearings. Axle shaft and pinion shaft bearings are adjustable by shims and the differential bearings are adjusted by two large internal adjusting nuts held in position with a lock. Leather oil seals are used on the axle shafts and pinion shaft to guard against oil leaks.

### Pinion Bearing Adjustment

As the pinion bearings are adjusted under load when assembled, no attempt should be made to adjust these parts.

### Rear Wheel Bearing Adjustment

Jack up rear axle and remove both wheels and hubs. NOTE: A SPECIAL WHEEL HUB PULLER IS NECESSARY TO PULL THE HUBS OFF THE AXLE SHAFT TAPER. UNDER NO CONDITIONS SHOULD A KNOCK-OUT TYPE PULLER BE USED, OR

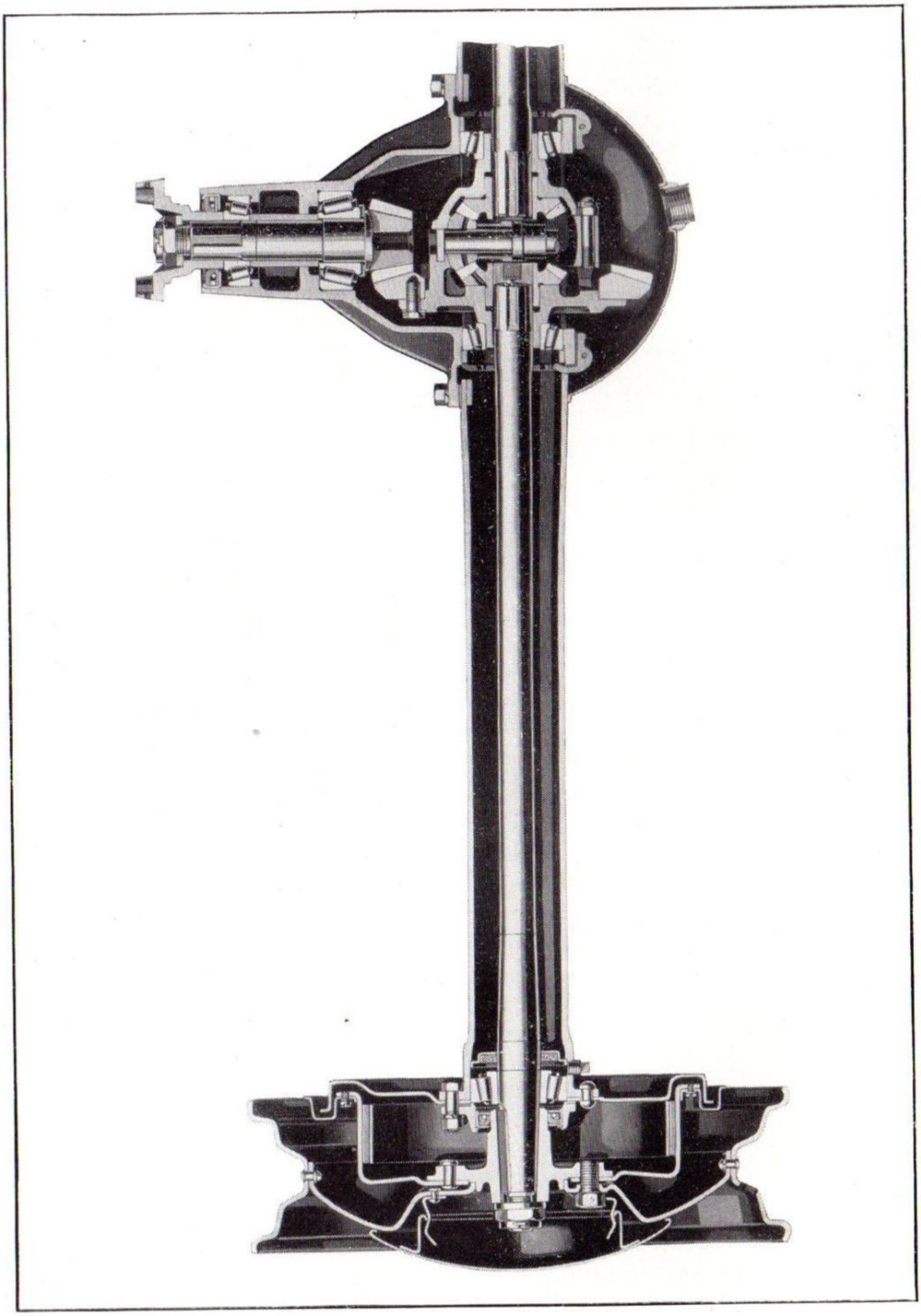


Figure 42

THE AXLE SHAFT END STRUCK A HEAVY BLOW, AS THIS WILL DAMAGE THE DIFFERENTIAL. Next remove four bearing cap nuts (A), Figure 43, and push the bolts out of the backing plate to permit removal of the bearing cap without disturbing the brake operating link.

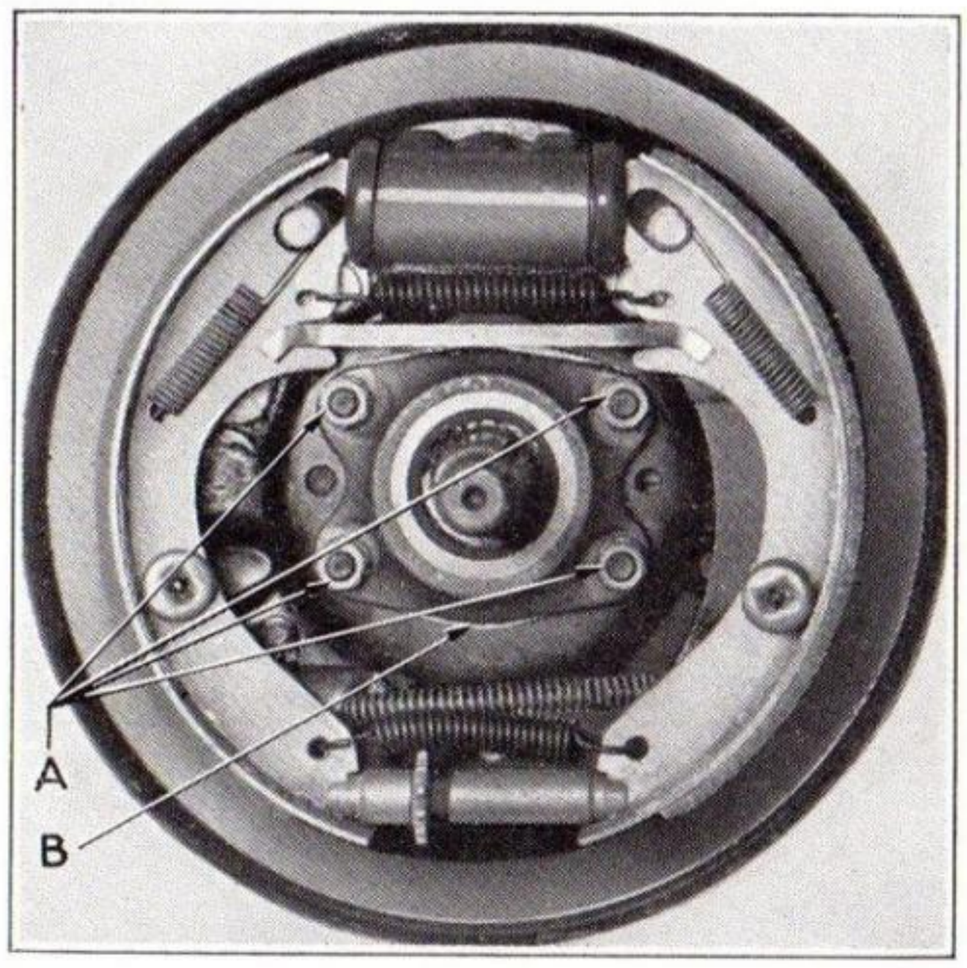



Figure 43

Remove shims (B) to decrease axle shaft end play. Total end play should be from .002″ to .004″, which is perceptible by pulling shafts in and out with the hand. As the shim packs on both sides should be equal, remove a thin shim at a time from each side until only a slight amount of play is evident. Be sure the axle shafts turn freely before reinstalling hubs and wheels.

## Lubrication

Every 5,000 miles, or with the change of seasons, the rear axle lubricant should be replaced. Remove the old lubricant with a suction gun inserted through the filler plug hole in the rear cover. This should be done when the axle is warm to be sure of removing all the lubricant. Refill with 2¾ pounds (1.24 kgs.) of S.A.E. 90 E.P. gear oil in summer and winter.

Rear wheel bearings should be removed, cleaned and repacked with 1½ ounces of milled sodium soap base lubricant every 10,000 miles. To remove bearings see "Rear Wheel Bearing Adjustment," page 57.

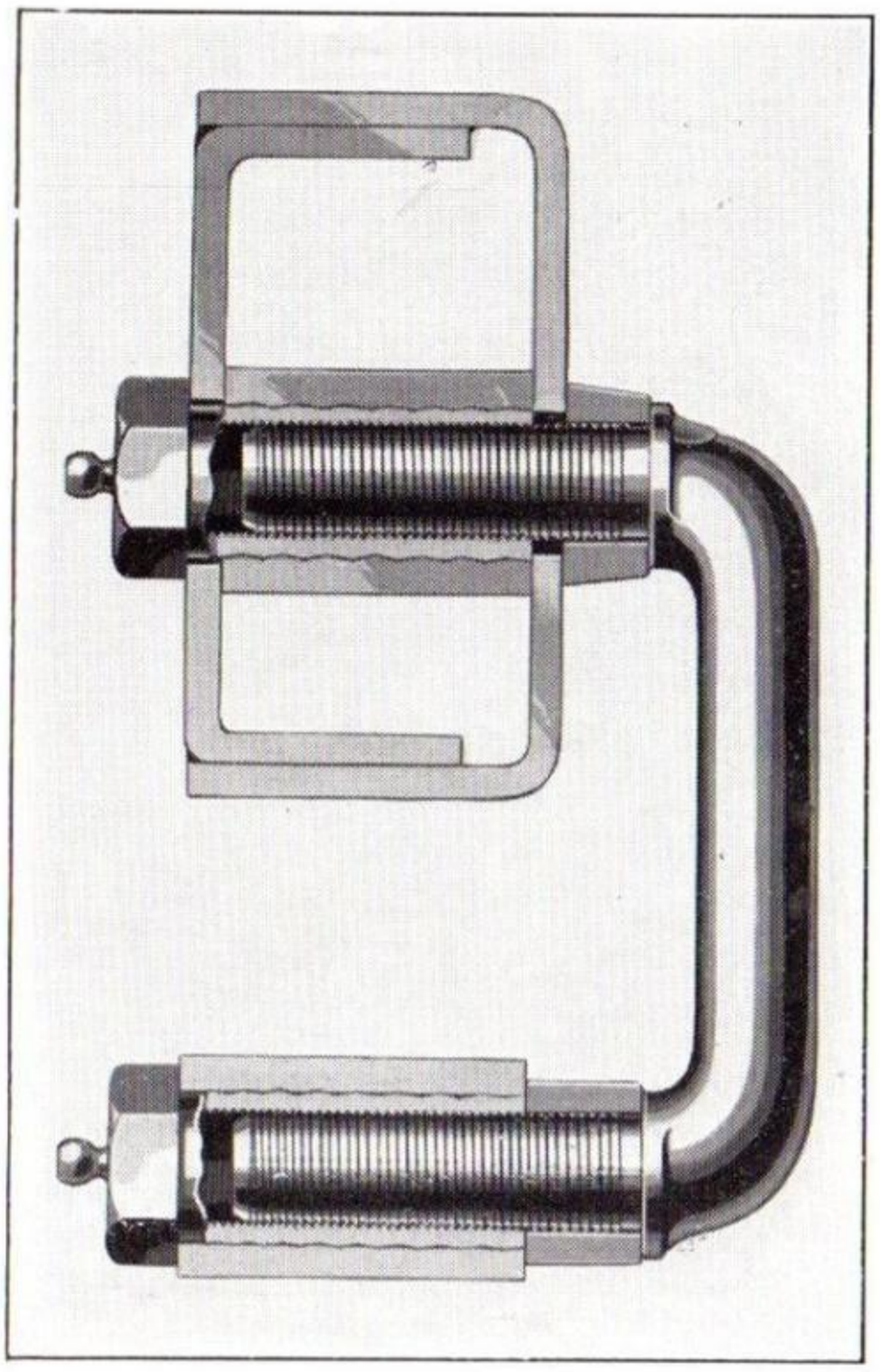


Figure 44

## REAR SPRINGS

Rear springs on all models are of the long, semi-elliptic, low rate type. Springs on passenger cars are fitted with fabric covers. The front ends are attached to the frame bracket through a pivot bolt fitted with rubber grommets. No lubrication is required at these points.

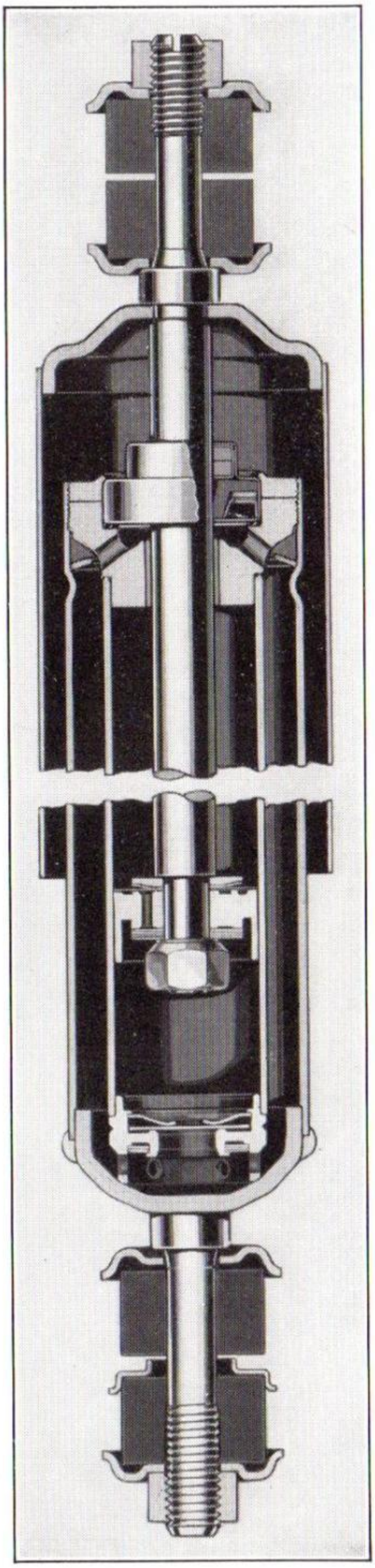


Figure 45

The rear ends of the springs are mounted on self-adjusting "U" shackles, which are threaded and operate in hardened steel bushings in the frame side members and spring eyes. See Figure 44. Rubber dirt seals are fitted on each shackle at the end of the bushing to exclude foreign matter.

### Lubrication

Each bushing is provided with a grease fitting, which should be lubricated every 1,000 miles with a good grade of viscous chassis lubricant.

Spring covers should be removed and repacked with viscous chassis lubricant every 10,000 miles.

## SHOCK ABSORBERS

All passenger cars use four direct-acting hydraulic shock absorbers. Panel Delivery and Cab Pickup models are equipped with two front shock absorbers.

The front shock absorbers, Figure 45, are axially mounted within the coil springs. Both upper and lower ends are rubber mounted. These parts are readily removable for servicing by removing the two cap screws in the lower mounting plate and the nut on the upper stud.

Rear shock absorbers are mounted at the upper and lower ends on rubber grommets. These units likewise are readily removable for servicing.

Unless a fluid leak should develop in the shock absorber, when it would be necessary to remove the unit for disassembling, no other service requirements are necessary. Lubrication is sealed in and need not be changed unless the shock absorber is disassembled.

As special tools are required and only Hudson Shock Absorber Fluid should be used for refilling, all work on these units should be performed by your Authorized Hudson Dealer.

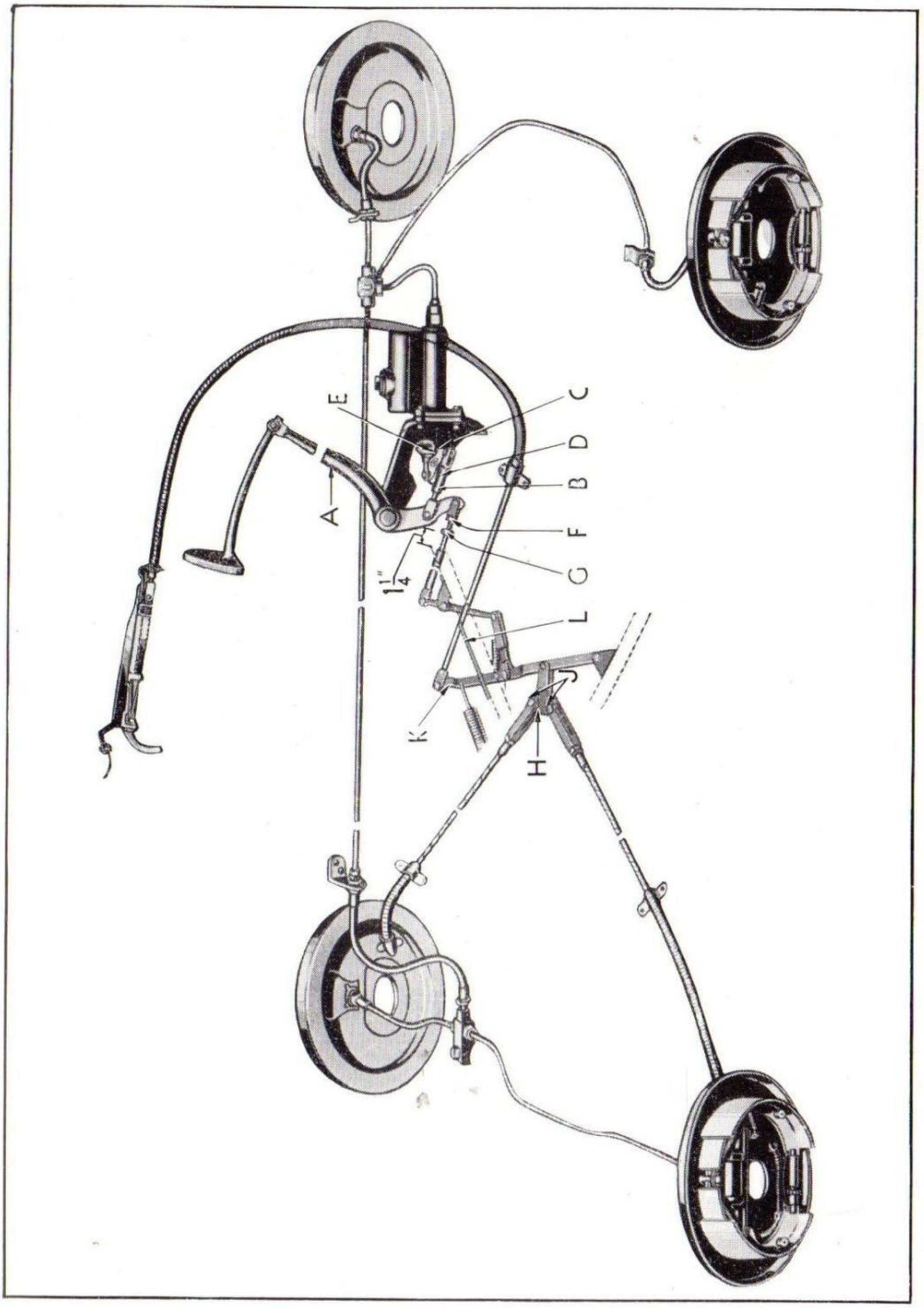



Figure 46

## BRAKES

The brakes used on all models are hydraulically controlled, with supplementary actuation of the rear brake shoes from both the foot pedal and hand brake. See "Brake Layout," Figure 46.

A master cylinder, Figure 47, incorporating compensating features, is mounted on the pedal mounting bracket and is accessible for checking level by raising the bonnet. The master cylinder has an integral reservoir from which additional fluid is supplied to the system as required.

To prevent the possibility of air entering the system, making necessary bleeding the brakes, it is essential that the master cylinder be kept at least half full at all times. Only *Genuine Hudson Hydraulic Brake Fluid* should be used to insure against fluids containing mineral oil or other material detrimental to the rubber parts, which might swell and become inoperative.

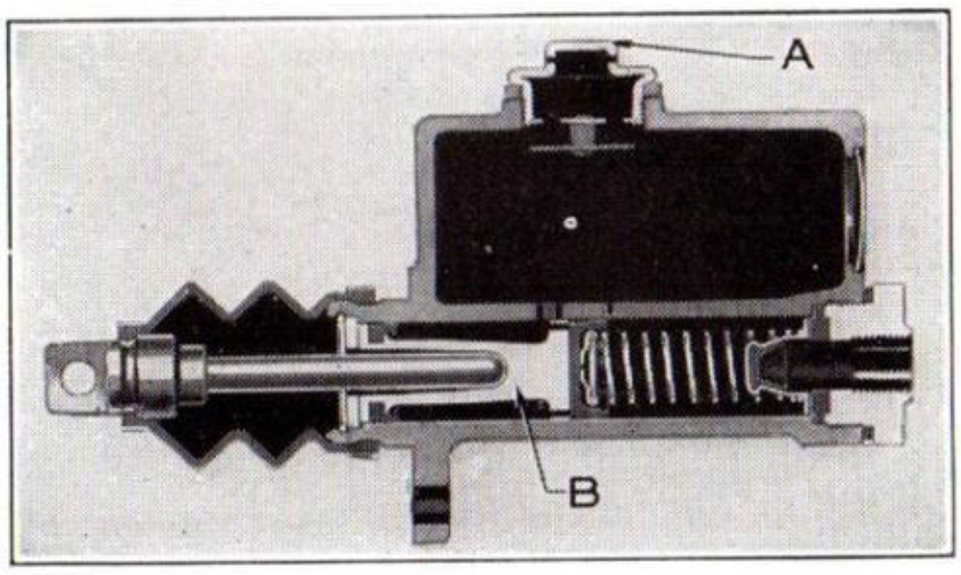



Figure 47

Dirt is injurious to the system and extreme care should be taken to wipe off cap (A), Figure 47, before removing cap for inspection and filling.

## BRAKE PEDAL ADJUSTMENT

As pressure is exerted on the master cylinder piston (B), Figure 47, through the brake pedal, the force built up in the hydraulic brake tubes tends to force outward wheel piston cups and pistons, expanding the brake shoes at the top.

To insure full return of the master cylinder piston, when the brake is released, there must be ¼" clearance between pedal shank (A), Figure 46, and the floor board.

To obtain this clearance, loosen lock nut (B), remove clevis pin (C) and turn connecting link (D) to increase length until clevis pin (C) just enters the rod with the pedal shank ¼" from the toe board and the bell crank (E) against its stop. Insert clevis pin in bottom of bell crank, insert cotter key and tighten lock nut. This adjustment is important, as failure of the piston to return to the end of the cylinder will cause the brakes to drag.

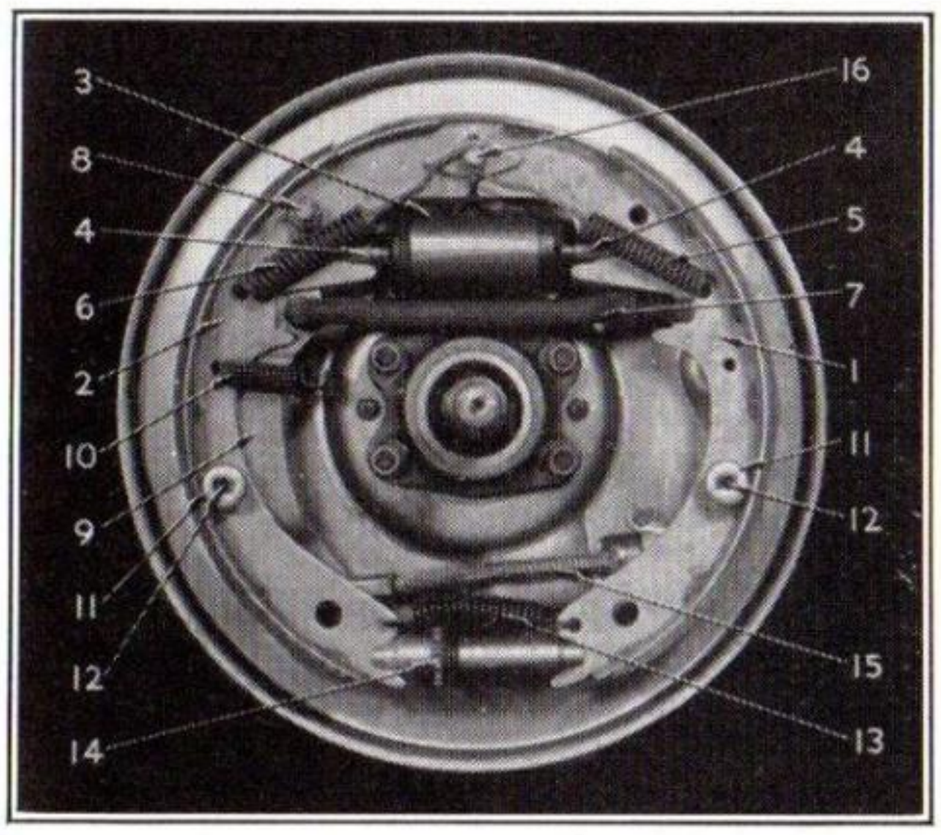



Figure 51

SINGLE ANCHOR BRAKE
Models 40 C, 41, 43, 44, 45, 47 and 48 C

1. Primary Shoe
2. Secondary Shoe
3. Wheel Cylinder
4. Shoe to Cylinder Link
5. Shoe to Anchor Pin Spring—Primary
6. Shoe to Anchor Pin Spring—Secondary
7. Shoe Cable Lever Strut
8. Shoe Cable Lever to Shoe Pin
9. Shoe Cable Lever—Rear Brake
10. Shoe to Anchor Bracket Spring
11. Shoe Hold-down Spring Cup
12. Shoe Hold-down Spring Pin
13. Adjusting Screw Spring
14. Adjusting Screw
15. Rear Brake Cable
16. Anchor Pin

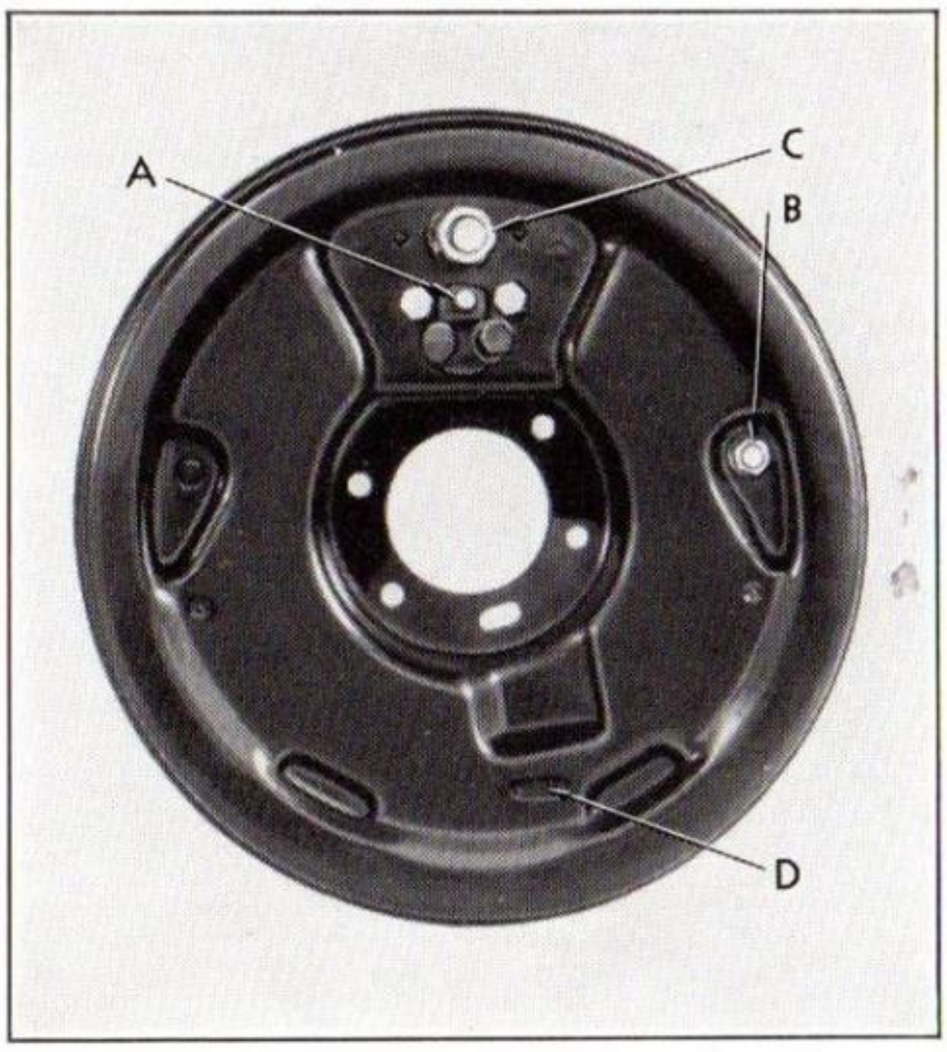



Figure 52

10. Release hand brake.

11. Back off adjusting screw through slot (D), Figure 50, by moving outer end of tool away from center of backing plate until drum is just free of lining drag. Be sure to back off each screw the same number of turns. Replace adjusting screw hole covers and brake drum hole covers.

12. Reinstall wheels and lower car. Test for balance on a level road—avoid testing on side of crowned road.

Models 40C, 41, 43, 44, 45, 47 and 48C:

1. Jack up all wheels clear of floor.

2. Remove wheels.

3. Disconnect rear brake cables at cable lever toggle (H), Figure 46, by removing clevis pins (J).

4. Remove inspection hole covers from brake drums and brake backing plates.

5. Insert a .010″ feeler gauge between brake drum and lining of secondary or rear shoe.

6. Loosen eccentric nut and turn eccentric (B), Figure 52, in direction of forward wheel rotation until feeler gauge is just snug at anchor (top) and adjusting (lower) ends of shoe. Hold eccentric in position and tighten lock nut.

Should the clearance at both ends of secondary shoe vary more than .003″ it indicates that the anchor pin must be adjusted. This operation should be done by your Authorized Hudson Dealer.

7. Expand both shoes tightly against drum by turning adjusting screw with a tool inserted through slotted hole (D), Figure 52, moving end of tool toward center of backing plate until drum can just be turned by hand.
8. Pull hand brake lever two notches from full release, or until 1/8" clearance is obtained between hand brake cable lever (K), Figure 46, and end of slot in lever guide plate (L).
9. Pull cables tight and adjust ends so clevis pins just enter holes in toggle (H).
10. Release hand brake.
11. Back off adjusting screws through slot in backing plate, Figure 52, by moving outer end of tool away from center of backing plate until drum is just free of lining drag. Be sure to back off each screw the same number of turns. Replace adjusting screw hole covers and brake drum hole covers.
12. Reinstall wheels and lower car to floor. Test for balance on a level road—avoid testing on side of crowned road.

## HYDRAULIC HILL-HOLD—OPTIONAL—ALL MODELS

This is a device fitted on the front end of the brake master cylinder which permits holding the car at rest on a grade without holding the foot on the brake pedal. This is accomplished by trapping the brake fluid in the lines with the clutch pedal, which is connected to the Hill-Hold, after the brake pedal has been depressed. This leaves the right foot free to operate the accelerator without fear of the car rolling back.

To operate the Hill-Hold on an upgrade, stop the car in the usual manner with the brake pedal. Then depress the clutch pedal to the floor board, after which the brake pedal may be released.

When ready to start the car depress the accelerator pedal and gradually release the clutch pedal.

## HEADLAMPS

All Hudson models employ the new headlighting system known as "Sealed Beam," in which the light source, the reflector, the lens and the gasket are all assembled in one securely sealed unit. See Figure 53. When the filament burns out or the lens break, the entire unit is discarded and a new one installed, thereby assuring maximum lighting efficiency throughout the life of the car.

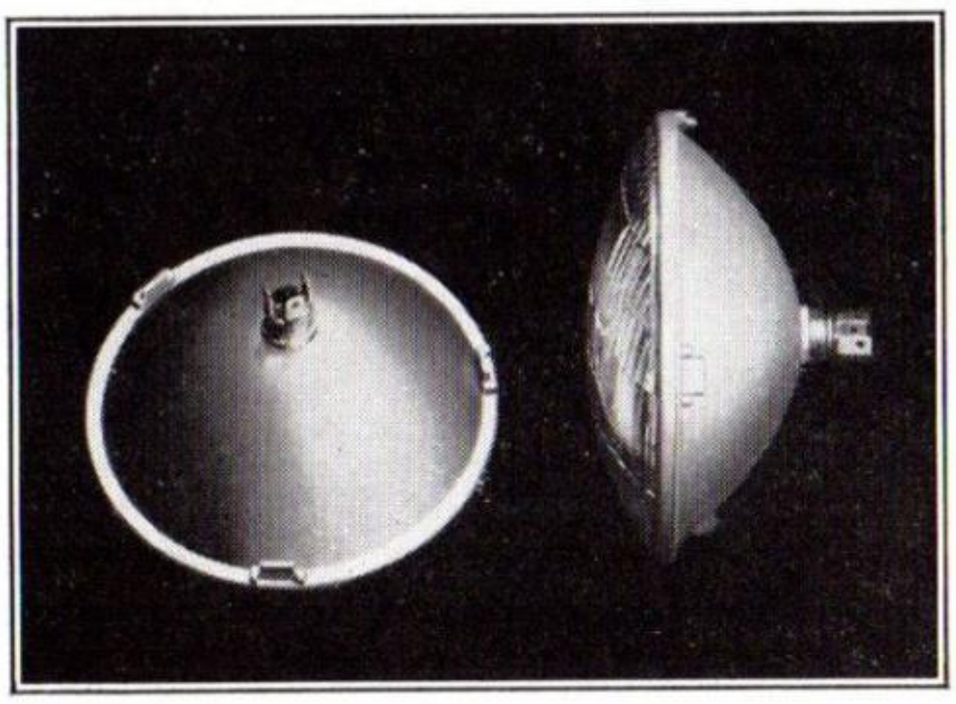


Figure 53

This lighting system represents the co-ordinated effort of the automobile and headlamp manufacturers and has the endorsement and approval of the American Association of Motor Vehicle Administrators, Automobile Manufactur-

ers' Association and organizations interested in National Safety. The beam pattern conforms to the specifications of the Society of Automotive Engineers.

"Sealed Beam" headlamps provide two separate and distinct beams, giving considerably more light than has been produced in the past.

1. A country (upper) beam designed to illuminate evenly for considerable distance ahead of the car. This beam is for use on the open highway when no other vehicles are approaching.
2. A traffic (lower) beam is also provided and is low enough on the left side to avoid glare in the eyes of the oncoming drivers. It is intended for use on heavily traveled highways and should always be used when meeting other vehicles. This beam is designed so that it does not throw any dazzling light into the eyes of the approaching driver under any condition of car loading. At the same time distribution of light is such that the right side of the road is illuminated as far ahead as is practical without causing glare on curves.

Hudson's "Sealed Beam" headlamps have been designed to insure the motorist of maximum safety and comfort for night driving, but to obtain this safety for himself and for others the motorist must be willing and anxious to use his headlighting equipment in the manner intended. Good drivers are always courteous.

The operation of the headlights is a simple one, allowing the motorist to use either the country (upper) or the traffic (lower) beam as traffic and road conditions demand by the use of the foot switch located on the toe board left of the clutch pedal. See Figure 5. By turning the light switch knob on the instrument panel to the second or last position, either the country (upper) or traffic (lower) headlamp beams are obtained alternately by operating the foot switch.

When the country (upper) beams are lighted, a red pilot bulb in the speedometer dial will be illuminated, making it convenient for the driver to determine when this beam is in use. Always use the traffic (lower) beam when meeting.

By turning the light switch knob to the first position the parking lamps on the bonnet side panels, license plate light and both tail lights are lighted. The parking lamps consume a very small amount of current, thus minimizing the current consumed while the car is parked.

## Servicing Headlamps

Two types of "Sealed Beam" headlamp units are available. One of these types is made entirely of hard glass and the other is a composite unit consisting of a metal reflector and a glass lens. Both are completely interchangeable from the standpoint of electrical connections, beam patterns and physical dimensions.

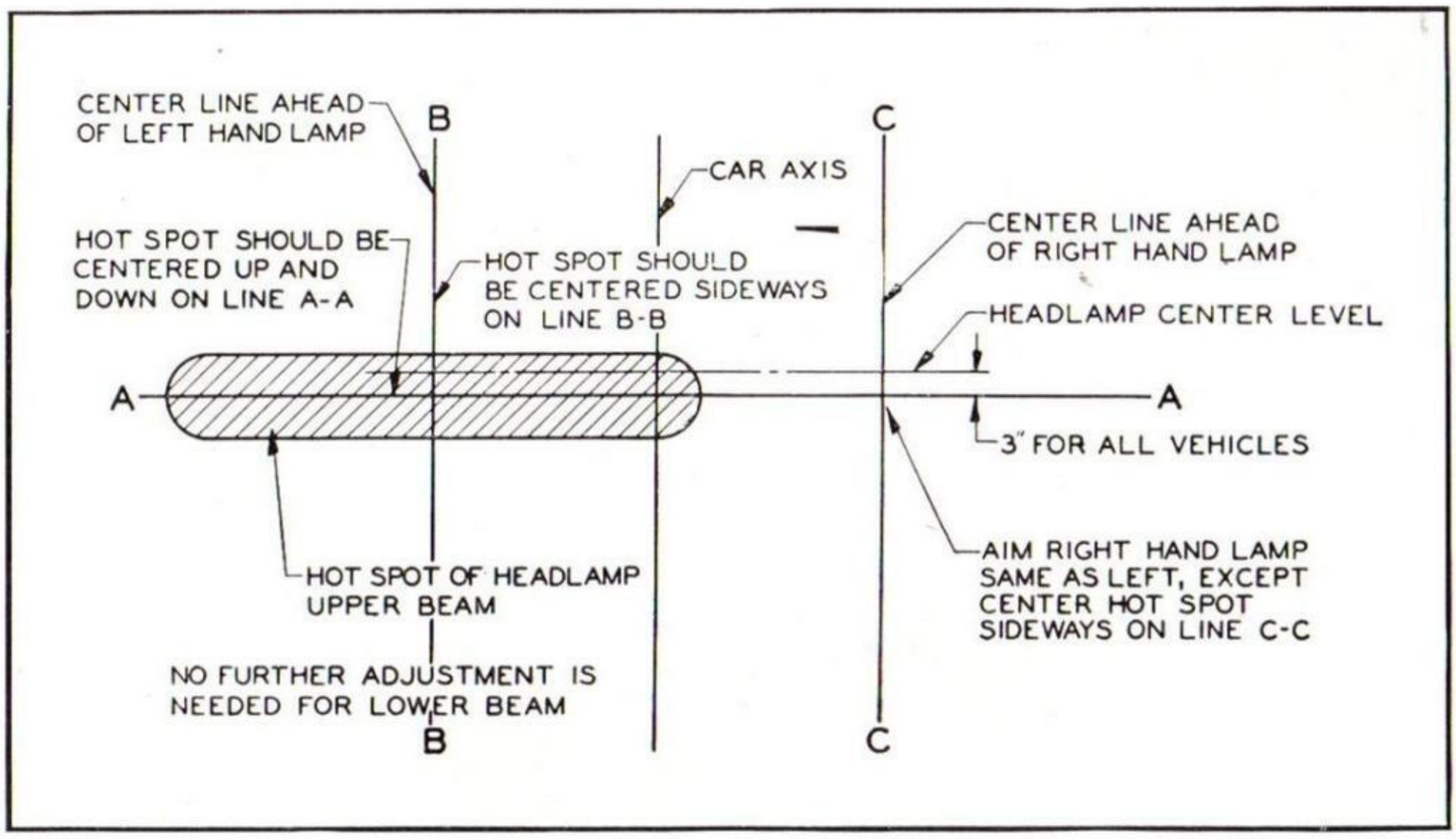



Figure 56

the right and left of the windshield center bar and mark two points on the horizontal line. A point midway between these points represents the center line (car axis) on the screen. Next draw vertical lines (B-B) and (C-C) on the screen to the right and left of the center line at a distance equal to one-half of the center to center distance (28 inches) between the two headlamps.

Place lighting switch in the position which produces the country (upper) beam (bright light). When the country (upper) beam is lighted the lower filaments on both lamps are illuminated.

Independent adjustment of both horizontal and vertical aim is provided in "Sealed Beam" headlamps, with the adjustment screws accessible from the front of the lamp after first removing lens rim. The vertical adjustment screw is shown at (A) and the horizontal adjusting screw at (B), Figure 54. The light beam is moved to the right or left by tightening or loosening this horizontal adjusting screw (B). The beam may be raised or lowered by turning the vertical adjusting screw (A).

Cover one lamp to obscure the beam of light and then adjust the beam from the other lamp so that the center of the zone of highest intensity falls on the intersection of the horizontal line (A-A), Figure 56, 3 inches below the lamp center and the vertical line directly ahead of the lamp. Repeat the operation for the other lamp. No further adjustment is needed for the traffic (lower) beam.

## DOOR ADJUSTMENTS

The door lock striker assembly (A), Figure 58, is adjustable to center the door properly at the top and bottom and permit easy closing.

To adjust, loosen four striker screws (B) and move striker up or down as necessary so that dovetail—male (C) lifts door $\frac{1}{16}$" as it slides over the top of striker (A) as the door is closed. Tighten screws securely.

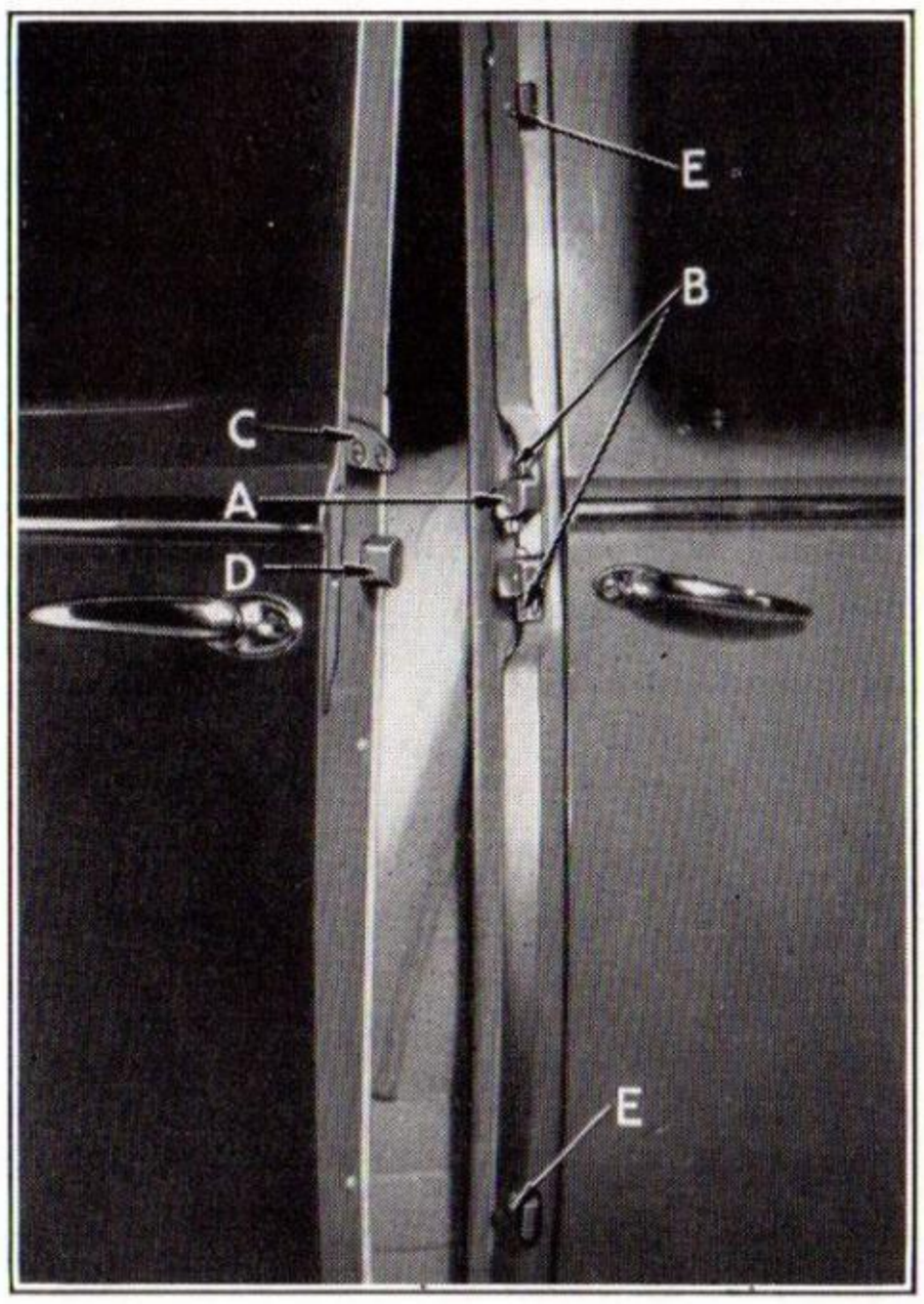



Figure 58

To adjust the door for proper in and out regulation, loosen striker screws and move striker outward or inward as necessary so that striker lugs engage over door lock bolt (D) when closing door with steady easy pressure. Adjust rubber bumpers by loosening screws (E) so that bumpers are under a slight pressure when door is closed.

The front edge of the rear door should be set slightly inside of the rear edge of the front door to prevent wind noise at high speed.

If adjustment is required, loosen bumper fastening screw (E) and move the bumper in or out as necessary to permit the door to close to the proper position. Tighten screws securely.

All doors are provided with strong steel check rods, embedded in rubber at the ends, to control the swing of the doors.

## PREPARING CAR FOR STORAGE

If the car is to be laid up for any length of time, and especially in the winter, the following suggestions should be observed: Drain the water from the cooling system, then run the motor not over one minute to dry out the cylinder water jackets.

Drain the crankcase. Flush out the old oil, then refill with fresh oil. It is also well to pour a little oil into each cylinder through the spark plug holes to prevent the interior from rusting. Clean the spark plugs and dip the ends into oil to prevent rusting, and replace them.

Crank the engine for about twenty seconds with the ignition switch off and the throttle closed. This insures a distribution of the oil over cylinder walls and valve mechanism.

Disconnect the wires from the storage battery and remove battery to some dry place. It is best to take the battery to a battery service station, where it should receive a freshening charge at least once a month. Unless this precaution is taken there is danger of the battery losing its charge

# INDEX


A

Accelerator Pedal . . . . 22
Accessories . . . . . 73
Anti-Freeze . . . . . 43
Ash Receiver . . . . . 23
Authorized Hudson Service Stations . . . . . 4
Automatic Clutch Control . . 23
Auto-Poise Control . . . . 54
Axle—Rear . . . . . 7–57

B

Battery . . . . . 34
Battery Warranty . . . . 2
Body . . . . . 70
Bonnet Raising . . . . . 16
Bonnet Locking Handle . . 24
Brakes . . . . . 7–62
Brake Pedal . . . . . 24
Breaker Point Adjustment . 37
Break-in Period . . . . . 10

C

Camber . . . . . 52
Capacities . . . . . 9
Carbon Monoxide Gas . . . 19
Carburetor Air Cleaner . . 32
Carburetor and Fuel System 30–31
Carburetor Choke . . . 31–32
Carburetor Governor . . . 10
Care of Car Interior . . . 19
Care of Finish . . . . . 21
Care of Folding Tops . . . 22
Caster . . . . . 51
Chassis Dimensions . . . . 8
Checking Level and Adding Oil 13
Chromium Finish . . . . . 22
Clock . . . . . 24
Clutch . . . . . 43
Clutch Pedal . . . . . 24–45
Cooling System . . . . . 41
Cowl Ventilator . . . . . 24

D

Direction Indicator . . . . 24
Distributor . . . . . 36
Door Locks . . . . . 24–70–72
Drag Link . . . . . 57
Draining Cooling System . . 42
Dust Area Operation . . . . 12

E

Engine . . . . . 6–26
Engine Oil Capacity . . . . 13
Engine Oil Selection . . . . 14
Engine Oil—When to Change 15
Engine Tune-up . . . . . 40

F

Fan Belt . . . . . 39
Foreword . . . . . 1
Front Seat Adjustment . . . 22
Front Suspension . . . . 7–50
Front Wheel Bearing Adjustment . . . . . 53
Front Wheel Toe-in . . . . 52
Fuel Compensation . . . . 38
Fuel Economy . . . . . 18
Fuel Gauge . . . . . 24
Fuel Pump . . . . . 33
Fuel Recommendations . . 15
Fuel System . . . . . 6
Fuses . . . . . 34

G

Generator . . . . . 39
Generator Charging Indicator 24

H

Hand Brake Lever . . . . 24
Headlamps . . . . . 25–66
Heaters . . . . . 74
Hydraulic Hill-Hold . . . 66

I

Ignition Switch . . . . . 25
Ignition Timing . . . . . 37
Inspection and Adjustment Service . . . . . 9

J

Jack . . . . . 16–17

Two types of telescopic cowl antennae are also available. One is the Vacuum operated unit which lowers out of sight at the pressing of a button on the instrument panel. It is raised in the same manner. There are three positions. First, the "out of use" position, concealed within the body; second, when raised by vacuum for ordinary reception; and third, when extended beyond the second position manually to the extreme length for remote sections and long-distance reception.

The second is the Manual operated type mounted on the side of the cowl. This type is in four sections and can be raised to a height of 55 inches and fully lowered telescopes to a 17 inch unit.

## Heaters

Hudson Heaters are available in two styles, the Custom and De Luxe types.

The Custom type provides exceptional heating and defrosting qualities. Has a reversible motor with two fans and provides direct or indirect heat at the option of the owner. Provision for attachment of the defroster which provides maximum defrosting efficiency with indirect heating is incorporated.

The De Luxe type provides all the advantages of the Custom unit on a slightly smaller, less elaborate scale. Provision for defroster attachment is also made in this unit.

## Windshield Defroster

The defroster unit may be installed for use with either Custom or De Luxe heaters. By simply turning the control switch to "Indirect," hot air is directed to the windshield, spreading fan-wise over the glass through outlets in the windshield garnish mouldings and quickly removes all frost, sleet and condensation.

## Weathermaster Heater

The Weathermaster floods your car with fresh air; filtered of dust, snow and rain, heated to summer temperature. It circulates fresh air to every part of the car without drafts. Permits driving the car all winter long with your car windows closed tightly; in summer—fresh air, but without foggy air. An added feature permits closing the fresh air inlet and recirculating inside air.

## Genuine Hudson Supplies

A complete line of high quality supplies, approved by the Hudson Laboratories, to preserve the finish, clean interiors and chrome parts; anti-freeze and other maintenance items are also available through your Authorized Hudson Dealer.

This group includes the following items:

Wax Base Polish
Polish and Cleaner
Pre-Wax Cleaner
Hudsonite Clutch Compound
Hudson Hydraulic Brake Fluid
Hudson Shock Absorber Fluid
Radiator Cleaner and Corrosion Inhibitor
All Purpose Cleaner
Spot Remover
Chromium Polish
Anti-Freeze

# INDEX


A

Accelerator Pedal . . . . 22
Accessories . . . . . 73
Anti-Freeze . . . . . 43
Ash Receiver . . . . . 23
Authorized Hudson Service Stations . . . . . 4
Automatic Clutch Control . . 23
Auto-Poise Control . . . . 54
Axle—Rear . . . . . 7–57

B

Battery . . . . . 34
Battery Warranty . . . . 2
Body . . . . . 70
Bonnet Raising . . . . . 16
Bonnet Locking Handle . . 24
Brakes . . . . . 7–62
Brake Pedal . . . . . 24
Breaker Point Adjustment . 37
Break-in Period . . . . . 10

C

Camber . . . . . 52
Capacities . . . . . 9
Carbon Monoxide Gas . . . 19
Carburetor Air Cleaner . . 32
Carburetor and Fuel System 30–31
Carburetor Choke . . . 31–32
Carburetor Governor . . . 10
Care of Car Interior . . . 19
Care of Finish . . . . . 21
Care of Folding Tops . . . 22
Caster . . . . . 51
Chassis Dimensions . . . . 8
Checking Level and Adding Oil 13
Chromium Finish . . . . . 22
Clock . . . . . 24
Clutch . . . . . 43
Clutch Pedal . . . . . 24–45
Cooling System . . . . . 41
Cowl Ventilator . . . . . 24

D

Direction Indicator . . . . 24
Distributor . . . . . 36
Door Locks . . . . . 24–70–72
Drag Link . . . . . 57
Draining Cooling System . . 42
Dust Area Operation . . . . 12

E

Engine . . . . . 6–26
Engine Oil Capacity . . . . 13
Engine Oil Selection . . . . 14
Engine Oil—When to Change 15
Engine Tune-up . . . . . 40

F

Fan Belt . . . . . 39
Foreword . . . . . 1
Front Seat Adjustment . . . 22
Front Suspension . . . . 7–50
Front Wheel Bearing Adjustment . . . . . 53
Front Wheel Toe-in . . . . 52
Fuel Compensation . . . . 38
Fuel Economy . . . . . 18
Fuel Gauge . . . . . 24
Fuel Pump . . . . . 33
Fuel Recommendations . . 15
Fuel System . . . . . 6
Fuses . . . . . 34

G

Generator . . . . . 39
Generator Charging Indicator 24

H

Hand Brake Lever . . . . 24
Headlamps . . . . . 25–66
Heaters . . . . . 74
Hydraulic Hill-Hold . . . 66

I

Ignition Switch . . . . . 25
Ignition Timing . . . . . 37
Inspection and Adjustment Service . . . . . 9

J

Jack . . . . . 16–17