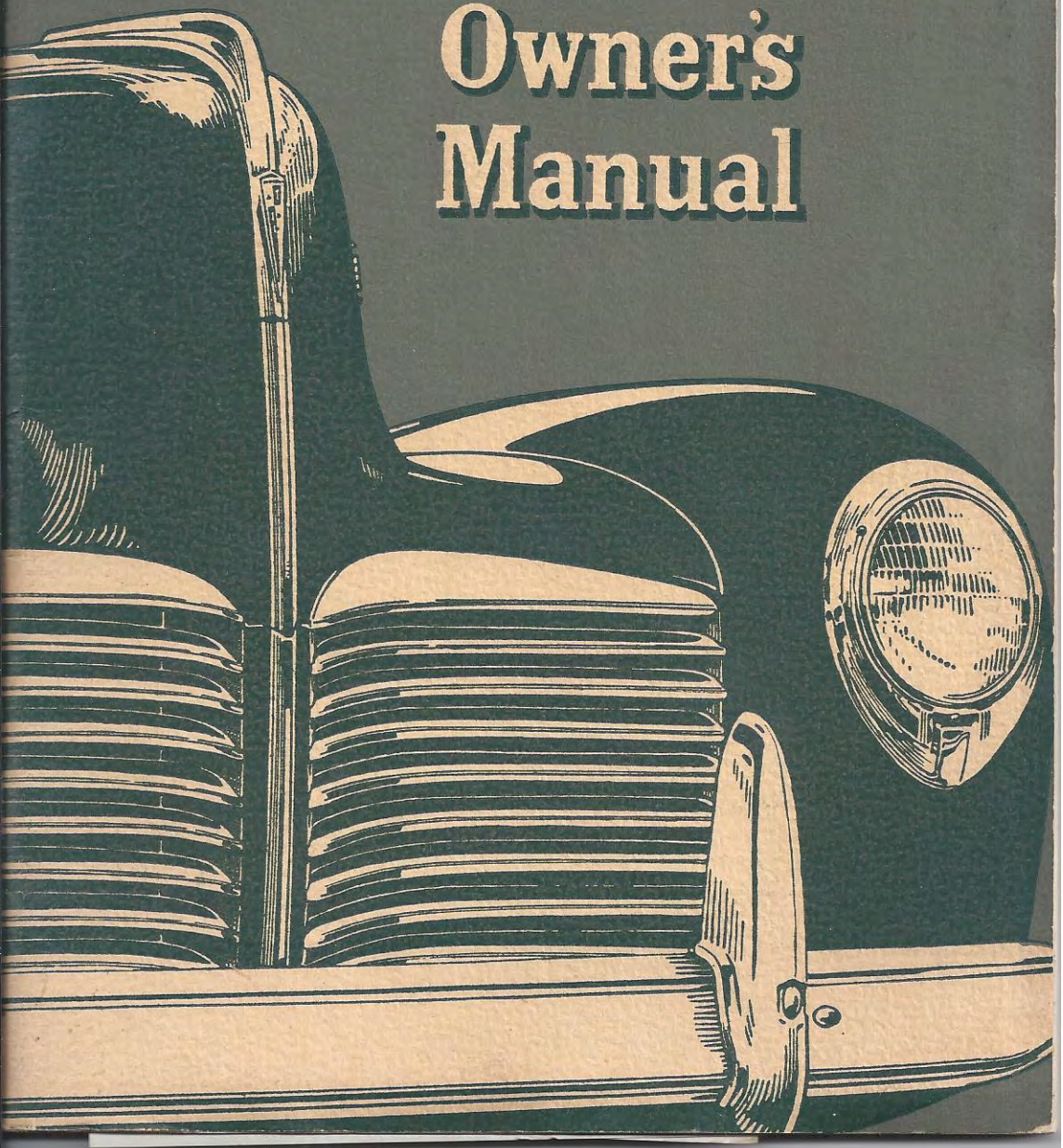
1941 HUDSON Owner's Manual



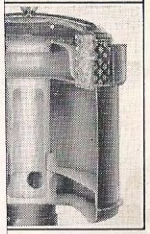
000 MILES

ANER—STANDARD

OLINE AND LUBRICATE WITH
—SAME GRADE AS USED
IN ENGINE

ANER—OIL BATH

AW FILTER AND WASH
TS IN GASOLINE
OIL SAME GRADE AS IN
ANER BODY AND REASSEMBLE



RICANT

HECKED EVERY 1,000 MILES.
BEEN PERMITTED TO STAND
DE. THIS INSURES CHECKING

ALL SEASONS. LUBRICANT
RE NATURE AND MUST BE

ERS

VED AND REPACKED WITH
MILES.

WHEN YOUR

NEW HUDSON

IS DELIVERED TO YOU

These things should be done

OWNER'S POLICY AND OWNERSHIP CARD should be properly filled in and explained to you.

BATTERY should be registered with National Battery Dealer.

CAR KEY NUMBERS should be recorded.

CAR OPERATING INSTRUCTION CARD should be read.

WELCOME

As the purchaser of a new Hudson car we welcome you into the fast growing family of Hudson owners. This may be your first Hudson—or possibly you have had previous experience with this fine product. In either event you will have many pleasant reactions in its ownership.

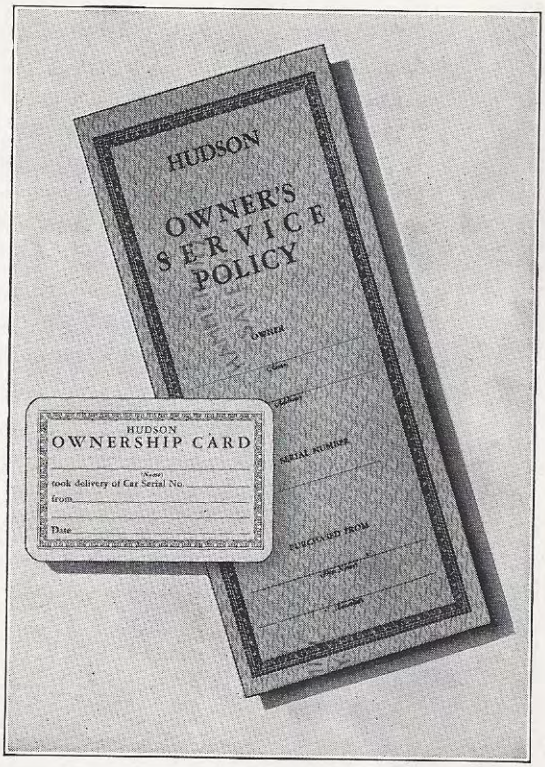
Naturally, you will want to keep it trouble free and derive from it the many pleasures for which it was purchased. With this thought in mind we have prepared this Owner's Manual. In its pages you will find many suggestions to fully acquaint you with its construction, operating features and maintenance requirements.

Before you drive your car take a few minutes to study this manual. It contains a wealth of information—just the things you will want to know. Then place it in the locker box for convenient future reference.

HUDSON MOTOR CAR COMPANY
Service Department

Owner's Service Policy—When your car was delivered to you you were provided with copies of the Owner's Service Policy and Ownership Card illustrated on this page. These forms are valuable to you as they outline clearly the provisions of the Standard New Car Warranty. Refer to your copies and see that they are properly filled in and that you fully understand their use. The Policy should be placed in the locker box and the Ownership Card should be placed in your billfold for future reference if required.

The Battery is warranted by the National Battery Company. Be sure your Hudson Dealer registers this equipment for you to give you the full protection of its Warranty provisions.



Keys—Two sets of keys are supplied with your car. The round handle keys fit the ignition lock and door safety lock. The keys with octagonal shaped handle fit the locker box door and rear compartment deck lock. **Be sure keys are removed from ignition lock when you leave the car.**

Insurance regulations prohibit stamping key numbers on the lock and the numbers should, therefore, be recorded on the Ownership Card and some other convenient place as lost keys can be ordered by number only.

WARRANTY

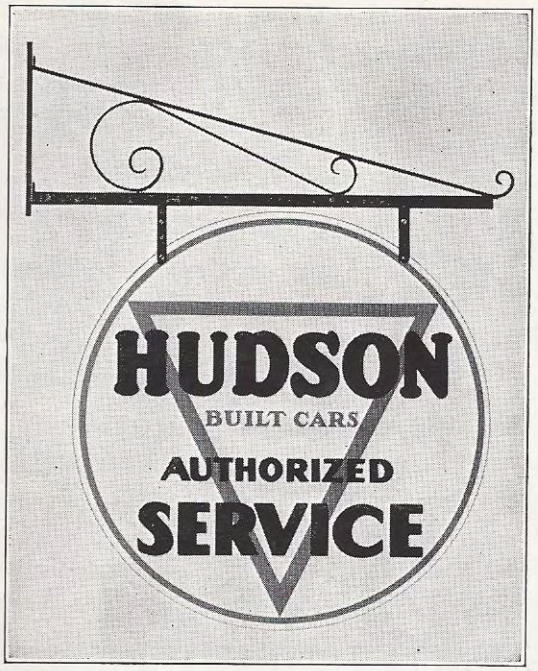
"We warrant each new car manufactured by us to be free from defects in material and workmanship under normal use and service, our obligation under this warranty being limited to making good at our factory any part or parts thereof, including all equipment or trade accessories (except tires) supplied 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.

1941 MODELS

MODEL DESIGNATIONS

To simplify identification of the various models referred to in this Owner's Manual model reference will be made to series numbers listed below:

Models	Series
Hudson Six Traveler	10
Hudson Six DeLuxe	10
Hudson Six Business Cars	10
Hudson Super Six	11
Hudson Commodore Six	12
Hudson Commodore Eight	14
Hudson Commodore Eight Custom Coupe	15
Hudson Commodore Eight Custom Sedan	17
Hudson Big Boy Business Cars	18

LICENSE INFORMATION

BODY TYPES AND WEIGHTS

Hudson Six Travelers

116″ Wheelbase—Serial Numbers 10,101 and upward

3-Passenger Coupe	2-Door Sedan	2850 lbs.
6-Passenger Club Coupe	4-Door Touring Sedan	2900 lbs.

Hudson Six DeLuxe

116″ Wheelbase—Serial Numbers 10,101 and upward

3-Passenger Coupe	2-Door Sedan	2900 lbs.
6-Passenger Club Coupe	4-Door Touring Sedan	2950 lbs.
Convertible		

Hudson Six Business Cars

116″ Wheelbase—Serial Numbers 10,101 and upward

Utility Coupe	Cab Pickup
Utility Coach	Panel Delivery

Hudson Super Six

121″ Wheelbase—Serial Numbers 11,101 and upward

3-Passenger Coupe	2-Door Sedan	3000 lbs.
6-Passenger Club Coupe	4-Door Touring Sedan	3050 lbs.
Convertible		

Hudson Commodore Six

121″ Wheelbase—Serial Numbers 12,101 and upward

3-Passenger Coupe	2-Door Sedan	3050 lbs.
6-Passenger Club Coupe	4-Door Touring Sedan	3100 lbs.
Convertible		

Hudson Commodore Eight

121″ Wheelbase—Serial Numbers 14,101 and upward

3-Passenger Coupe	2-Door Sedan	3210 lbs.
6-Passenger Club Coupe	4-Door Touring Sedan	3260 lbs.
Convertible		

Hudson Commodore Eight Custom Coupe

121″ Wheelbase—Serial Numbers 15,101 and upward

3-Passenger Coupe..... 6-Passenger Club Coupe.....

Hudson Commodore Eight Custom Sedan

128″ Wheelbase—Serial Numbers 17,101 and upward

4-Door Touring Sedan.....3400 lbs. 7-Passenger Touring Sedan.....

Hudson Six Big Boy Series

128″ Wheelbase—Serial Numbers 18,101 and upward

Carry-all..... 7-Passenger Sedan.....

CAR AND ENGINE SERIAL NUMBERS

The car serial number is also the engine number. This number is stamped on a small plate attached to the right front door hinge pillar post and is also stamped on top of the cylinder block between Nos. 1 and 2 exhaust manifold flanges.

When ordering service parts or corresponding with your dealer always refer to this number. Some models have, in addition to the car number, a series number designated by T, P or C and when used this appears at the lower left corner of the car number plate. Be sure this letter is furnished with the serial number.

Also be sure the car serial number corresponds to that shown on your car title, license registration card and other documents where the car serial number is registered.

INSPECTION AND ADJUSTMENT SERVICE

The Owner's Service Policy provides for one 500-Mile Inspection and Adjustment Service on all models and an additional 1,500-Mile Inspection and Adjustment Service on Models 11, 12, 14, 15 and 17—**no charge when performed by the Hudson Dealer who sold the car.**

When this service is performed by a Hudson Dealer **other than the one who sold the car** a charge of not more than $5.00 is made for the 500-Mile Inspection Service and not more than $3.50 for the 1,500-Mile Inspection Service.

500-MILE INSPECTION AND ADJUSTMENT SERVICE

1. Check Operation of All Locks
2. Check Operation of Signals and Instruments
3. Check Operation of All Lights and Aiming of Headlamps
4. Check Battery and Connections
5. Remove Carburetor Governor
6. Check Generator Charging Rate
7. Adjust Tappets—Engine Hot
8. Tune-up Engine
9. Tighten Cylinder Head Stud Nuts
10. Tighten Manifolds
11. Inspect Cooling System and Connections (Anti-Freeze in Winter)
12. Check Clutch Pedal Clearance
13. Check Rear Wheel Hubs for Tightness
14. Check Wheel Hub Bolts
15. Check Spring Clips
16. Check Body Bolts for Tightness
17. Road Test

1,500-MILE INSPECTION AND ADJUSTMENT SERVICE

1. Check Operation of Signals and Instruments
2. Check Operation of All Lights
3. Check Operation of Windshield Wiper
4. Inspect Cooling System and Connections (Anti-Freeze in Winter)
5. Check Battery and Connections
6. Tune-up Engine
7. Check Wheel Hub Bolts
8. Check Tire Pressures
9. Road Test

TECHNICAL INFORMATION

ENGINE

Models	No. Cyls.	Bore	Stroke	A.M.A. H.P.	Piston Displacement
10T, 10P, 10C	6	3″	4⅛″	21.6	175 cu. in.
18P, 18C	6	3″	5″	21.6	212 cu. in.
11, 12	6	3″	5″	21.6	212 cu. in.
14, 15, 17	8	3″	4½″	28.8	254 cu. in.

Compression Ratio

10T, 10P, 10C.....7.25 to 1
11, 12, 18P, 18C.....6.50 to 1
14, 15, 17.....6.50 to 1

Horsepower (Actual)

10T, 10P, 10C.... 92 @ 4000 R.P.M.
18P, 18C..... 98 @ 4000 R.P.M.
11, 12.....102 @ 4000 R.P.M.
14, 15, 17.....128 @ 4200 R.P.M.

Main Bearings (Number)

6 cylinder.....3
8 cylinder.....5

End Play
All models..... .006″ to .012″

Radial Clearance
All models..... .001″

Connecting Rod Bearings—All models

Radial Clearance—Upper End. .0003″
Radial Clearance—Lower End.. .001″
End Play—Lower..... .007″ to .013″

Pistons

Material.....Silicon Aluminum Alloy
Skirt Clearance—
Bottom..... .0005″ to .001″
Oil Rings—Number.....2
Oil Ring—Upper—Width.....3/16″
Oil Ring—Lower—Width.....5/32″
Compression Rings—Number.....2
Compression Rings—Width.....3/32″

Valves—All models

Stem Clearance—Intake..... .0025″
Stem Clearance—Exhaust..... .004″
Tappet Clearance—Intake
(Hot)..... .006″
Tappet Clearance—Exhaust
(Hot)..... .008″

Timing—with .010″ tappet clearance
Intake Opens.....10°40′ B.U.D.C.
Intake Closes.....60° A.L.D.C.
Exhaust Opens....50° B.L.D.C.
Exhaust Closes....18°44′ A.U.D.C.

Camshaft Drive

Type.....Silent Helical Gears

FUEL SYSTEM

Carburetor

Make.....Carter

Model	Size	Type
10T, 10P, 10C, 18P, 18C	1¼″	Single Down-draft
11, 12	1″	Duplex Down-draft
14, 15, 17	1¼″	Duplex Down-draft

Choke Control

All models.....Automatic

Heat Control

10T, 10P, 10C, 18P, 18C.....Manual
11, 12, 14, 15, 17.....Automatic

Air Cleaner

Standard.....Oil wetted
Optional.....Oil bath

STARTING, LIGHTING AND IGNITION

Make ..... Auto-Lite

Generator

Type	3rd brush voltage regulated	
Charging Rate	Model	
	10T, 10P, 10C	11, 12, 14, 15, 17
Cold	Max. 34 Amperes	Max. 44 Amperes
Hot	Max. 29 Amperes	Max. 38 Amperes

Distributor

Spark Control..Automatic (additional vacuum control on 6 cylinder models)

Contact Gap Point
- 6 cylinder models ..... .020″
- 8 cylinder models ..... .017″

Ignition Timing

Position....6 cylinder—½″ B.T.D.C.
8 cylinder— T.D.C.

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

Spark Plugs

Make and type. Champion J-9 Hudson
Size ..... 14 M.M.
Point gap ..... .032″

Battery

Make ..... National

Dimensions
- 6 cylinder ..... L—10½″, W—7⅛″, H—7 13/16″
- 8 cylinder ..... L—11¾″, W—7¼″, H—7 13/16″

Number of plates
- 6 cylinder 17
- 8 cylinder 19

Terminal grounded ..... Positive

TRANSMISSION

Type ..... Synchronized Silent Mesh—all helical gear

Speeds ..... 3 forward—1 reverse

Gear Ratio

Low gear
- 10T, 10P, 10C ..... 2.88 to 1
- 11, 12, 14, 15, 17, 18P, 18C . 2.61 to 1

Intermediate gear
- 10T, 10P, 10C ..... 1.82 to 1
- 11, 12, 14, 15, 17, 18P, 18C . 1.65 to 1

High gear
- All models ..... 1 to 1

Reverse gear
- 10T, 10P, 10C ..... 3.50 to 1
- 11, 12, 14, 15, 17, 18P, 18C . 3.17 to 1

TRANSMISSION OVERDRIVE

Cut-in Speed (with standard overdrive axle ratio)
All models ..... 20 to 22 miles per hour

Final axle ratio in overdrive with standard axle (all models)

Actual Axle Ratio	Over-all Ratio in Overdrive
4-7/8 to 1	3.52 to 1
4-5/9 to 1	3.28 to 1
4-1/9 to 1	2.96 to 1

FRONT SUSPENSION

Type ..... Independent Coil Spring

Camber ..... ¼° to ¾°

Caster ..... −¼° to +¼°

Toe-in ..... 0 to 1/16″

REAR AXLE

Type ..... Semi-floating

Gear Type ..... Helical bevel

Gear Ratio

Models	Standard Ratio	Optional Ratio	Standard Ratio With Overdrive	Optional Ratio With Overdrive
10T, 10P, 10C	4-5/9	4-1/9, 4-7/8	4-7/8	4-1/9, 4-5/9
11, 12, 14, 15, 17, 18P	4-1/9	4-5/9	4-5/9	4-1/9
18C	4-5/9	—	4-7/8	4-5/9

BRAKES

Type ..... Bendix Hydraulic

Size:

10T, 10P, 10C, 11, 12, 18P, 18C ... 10″ x 1¾″
14, 15, 17 ..... 11″ x 1¾″

Lining Clearance .... .0075″

Mechanical Follow-up Clearance ..... 1¼″

Pedal to Floor Board Clearance ..... ¼″

STEERING GEAR

Type ..... Worm and roller tooth

Cross Shaft Bearing Type:

Models	Material
10T, 10P, 10C, 11, 12, 18P, 18 C	Bronze
14, 15, 17	Bronze or needle bearings

Gear Ratio:

6 cylinder .. 18.2 to 1
8 cylinder .. 18.4 to 1

TIRES

Models	Standard		Optional			
10T, 10C Utility Coupe, 10C Utility Coach	16 x 5.50	4-ply	16 x 5.50	6-ply		
			16 x 6.00	4-ply	16 x 6.00	6-ply
10P, 11, 18P	16 x 6.00	4-ply	16 x 6.00	6-ply	15 x 7.00	4-ply
			16 x 6.25	4-ply	15 x 7.00	6-ply
12, 14	16 x 6.25	4-ply	16 x 6.25	6-ply	15 x 7.00	4-ply
					15 x 7.00	6-ply
15, 17	16 x 6.50	4-ply	16 x 6.50	6-ply	15 x 7.00	4-ply
					15 x 7.00	6-ply
18C	16 x 6.00	4-ply	16 x 6.00	Truck Air Wheel		
			16 x 6.50	Truck Air Wheel		
			15 x 7.00	Truck Air Wheel		
			16 x 6.00	6-ply		
			15 x 7.00	4-ply		
			15 x 7.00	6-ply		

Tire Pressures

	Front Cold*	Front Hot*	Rear Cold*	Rear Hot*
16 x 5.50	32 lbs.	35 lbs.	32 lbs.	35 lbs.
16 x 6.00, 15 x 7.00	26 lbs.	29 lbs.	30 lbs.	33 lbs.
All Business Models	26 lbs.	29 lbs.	30 lbs.–4-ply 40 lbs.–6-ply	33 lbs.–4-ply 44 lbs.–6-ply

*See explanation of cold and hot pressures on page 24.

CHASSIS DIMENSIONS

Wheelbase

10T, 10P, 10C	116″
11, 12, 14, 15	121″
17, 18P, 18C	128″

Over-all Length—Including Bumpers

10T, 10P, 10C	195¼″
11	200¼″
12, 14, 15	203¼″
17, 18P	210¼″
10C	
18C	

Over-all Height—Free Height

10T, 10P	68″
11, 12, 14, 15, 17, 18P	68¾″
10C, 18C Cab Pickup	
10C, 18C Panel Delivery	81″

Over-all Width—Including Fenders

Front—All Models	71″
Rear—All Models	72¾″

Road Clearance

	Front	Rear
10T (16 x 5.50 tires)	9¼″	8″
10T (16 x 6.00 tires), 10P, 11	9⅝″	8⅜″
12, 14	9¾″	8½″
15, 17	10″	8⅝″

Turning Radius

10T, 10P, 10C	20′ 8″
11, 12, 14, 15	21′ 1″
17, 18P, 18C	21′ 10″

Tread

Front	56¼″
Rear	59½″

CAPACITIES

	U. S. Measure	Imperial Measure	Metric Measure
Gasoline Tank			
10T, 10P, 10C Utility Models	12½ gal.	10½ gal.	47½ liters
10C (exc. Utility), 11, 12, 14, 15, 17, 18	16½ gal.	13¾ gal.	62½ liters
Cooling System			
6 cylinder	13 qts.	10¾ qts.	12½ liters
8 cylinder	18 qts.	15 qts.	17 liters
Engine Crankcase			
6 cylinder—dry	5½ qts.	4½ qts.	5¼ liters
—refill	4½ qts.	3¾ qts.	4¼ liters
8 cylinder—dry	9 qts.	7 qts.	8½ liters
—refill	7 qts.	6 qts.	6½ liters
Clutch			
All models	⅓ pt.	¼ pt.	160 c.c.
Transmission			
Without Overdrive	2 lbs.	2 lbs.	.91 kgs.
With Overdrive	3¼ lbs.	3¼ lbs.	1.47 kgs.
Rear Axle			
All models	2¾ lbs.	2¾ lbs.	1.24 kgs.

Shock Absorbers	Front	Rear
All models	3¾ oz. (112 c.c.)	6¼ oz. (187 c.c.)

CARBURETOR GOVERNOR

To prevent high speed driving during the breaking-in period a speed governor is installed between the carburetor body flange and intake manifold by the factory at time of assembly. This governor is sealed for your protection. As long as the governor is in place it will restrict acceleration as well as high speed operation and will also slightly increase carburetor intake noise.

At the time your car is given the 500-mile new car inspection, the governor will be removed and the engine tuned up.

BREAKING-IN PERIOD

Although the carburetor governor is removed after the first 500 miles of driving the car should not yet be driven at sustained high speeds. The manner in which the car is driven for its first 1,000 to 1,500 miles determines largely the satisfaction you will derive from its operation.

Although the most advanced engineering principles, manufacturing methods and precision gauges and tools are used in designing and manufacturing Hudson cars, the close fitting parts of the power plant, axles and chassis should be given every opportunity of taking on finely finished surfaces. This is possible only by careful, diligent driving during the breaking-in period. The following table of speeds will be helpful in determining at what speeds the car should be operated during this period.

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

Never operate the car at sustained speeds during this period. Increase speed gradually, then release the accelerator momentarily to lower speeds.

LUBRICATION

Present day high speed driving over long periods of time, sudden acceleration and closer fitting precision machined parts make the matter of lubrication one of greater importance than heretofore. A very definite plan of lubrication is necessary to provide each working part with the correct lubricant at the correct time and in the correct quantity.

Hudson Dealers follow a definite plan of lubrication which is your assurance that the lubrication requirements of your car will be properly performed. Be sure to consult him on this matter.

For your guidance a copy of the 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. Careful study of these charts and the following paragraphs on this important subject is recommended.

The lubricants placed in your car at the time of assembly are of the finest quality procurable and NEED NOT be changed until the recommended change period has been reached.

The following schedule will also be helpful in determining when the various lubrication periods are due.

LUBRICATION SCHEDULE

After First 500 Miles

Engine Oil	See "The Proper Engine Oil to Use" page 17	

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 Bushings	Viscous Chassis Lubricant	1 fitting
Clutch Throwout Bearing	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
Engine	Check Oil Level	
Battery	Check Water Level	
Radiator	Check Water Level or Anti-freeze	
*Transmission	Check level and add lubricant if necessary	
*Rear Axle	Check level and add lubricant if necessary	
Steering Gear	Check level and add lubricant if necessary	
Brake Master Cylinder	Check level and add fluid if necessary	

2,000 Miles

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

Engine	Drain and Refill	See "The Proper Engine Oil to Use," see page 17.
Generator	Light Engine Oil	2 cups
Starting Motor	Light Engine Oil	2 cups
Distributor—6 cylinder	High Temperature Grease	Turn grease cup 1 turn
Distributor—6 and 8 cylinder	High Temperature Grease	Cam lobe
Distributor—6 cylinder	Light Engine Oil	Contact arm pivot and top of rotor shaft
Distributor—8 cylinder	Light Engine Oil	Oil cup, contact arm pivot and top of rotor shaft
Throttle Linkage	Light Engine Oil	All joints
Door Hinges	Light Engine Oil	One hole in each lower front door hinge
Door Dovetail and Striker	Light Engine Oil	Two places each door
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

5,000 Miles

Perform the operations listed under 1,000 and 2,000-mile lubrication (except change engine oil) in addition to the following:

Transmission	S.A.E. 90 E.P. Summer S.A.E. 80 E.P. Winter	2 lbs.—with overdrive 3¼ lbs.
Rear Axle	S.A.E. 90 E.P. Summer and Winter	2¾ lbs.
Clutch	Hudsonite	⅓ pint
Rear Brake Cables	Viscous Chassis Lubricant	Coat Cables
Distributor—6 cylinder	High Temperature Grease	Fill Cup
Oil Filter		Replace Cartridge

10,000 Miles

Perform the operations listed under 1,000, 2,000 and 5,000-mile lubrication in addition to the following:

Front Wheel Bearings	Milled Sodium Soap Base Lubricant	4 ounces per wheel
Rear Wheel Bearings	Milled Sodium Soap Base Lubricant	1½ ounces per wheel
Spring Covers	Viscous Chassis Lubricant	Rear only
Automatic Clutch Control Cylinder (Opt. Equip.)	Hudson Shock Absorber Fluid	1 ounce

20,000 Miles

Perform the operations listed under 1,000, 2,000, 5,000 and 10,000-mile lubrication in addition to the following:

Universal Joint Bearings	Viscous Chassis Lubricant	2—repack

**Important: When checking transmission and rear axle oil level care should be taken that foaming of the oil has subsided. If the car has been run for any length of time it should be permitted to stand long enough to allow the oil to reach its actual level before checking.*

The S.A.E. 90 E.P. and S.A.E. 80 E.P. gear oils specified should be of a *mild extreme pressure, non-corrosive type.* When adding fluid to or refilling the transmission or rear axle be sure the lubricants used meet these requirements for satisfactory operation.

SPECIAL LUBRICANTS

Special, so called breaking-in oils or lubricants containing graphite or oil concentrates for use in either the crankcase or gasoline during the breaking-in period are not necessary.

Some owners, however, use these products. Whenever they are used, the owner should be guided entirely by the recommendations of the manufacturers of the product, whose reputation has previously been taken into consideration. In all instances their use should be restricted to light, finely refined oil and then added to the gasoline in quantities not to exceed one quart to a full tank of gasoline.

ENGINE OIL CAPACITY

The capacity of the oil reservoir in SIX cylinder cars is five and one-half quarts and in EIGHT cylinder models nine quarts. When oil is drained in the conventional way by removing the oil reservoir drain plug refill SIX cylinder engines with four and one-half quarts and EIGHT cylinder models with seven quarts.

In the event that the oil reservoir has been removed for cleaning the screens one and one-half quarts of oil should be poured in the upper tray of SIX cylinder models before the oil reservoir is reassembled to the crankcase. Then pour the additional four quarts through the oil filler hole, Fig. 1. On EIGHT cylinder models two quarts of oil should be poured into the upper tray before reassembling it to the crankcase and the additional seven quarts poured in through the oil filler hole.

CHECKING OIL LEVEL

It is good practice to have the engine oil level checked each time fuel is added. The oil level gauge, illustrated in Fig. 1, is located on the left side of the engine. It is divided off at the lower end to read LOW and OIL LEVEL RANGE.

Figure 1

For normal operation it is satisfactory to run with the oil level within the OIL LEVEL RANGE. However, when it is anticipated that considerable high speed driving will be done it is good practice to see that the level is up to the top or full mark.

On both six and eight cylinder engines two and one-half quarts of oil are required to bring the level up from the *Low* to *Full* marks. If the speedometer reading indicates that the engine oil change period is near at hand it is more economical to drain out the old oil and refill with new oil of the proper grade.

WHEN TO CHANGE ENGINE OIL

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

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

In our reference to changing oil more frequently than the 2,000-mile intervals, we refer to certain localities where dust storms are experienced. Despite the precautions taken to preclude the entrance of foreign matter, this fine dust may find its way into the engine and when mixed with oil becomes a highly abrasive agent which promotes excessive wear.

In the winter months many cars are driven very short distances and in some instances the engines are not warmed up sufficiently to evaporate and expel the harmful diluents, such as condensation and

unburned gasoline, which accumulates in the crankcase during the cold weather. When a car is operated under these conditions it becomes necessary to drain out the old oil at more frequent intervals than normally, as these diluents contaminate the oil and result in premature wear and deterioration of the engine parts.

Cars that are driven at sustained high speeds may also require engine oil changes at more frequent intervals. The high temperatures developed under these driving conditions result in the lighter ends of the oil being burned up, causing the oil to thicken and reduce its lubricating qualities.

The engine oil should be drained by removing the square head plug at the rear end of the oil reservoir. Always drain the oil when it is warm as it will flow more readily.

ENGINE OIL RECOMMENDATIONS

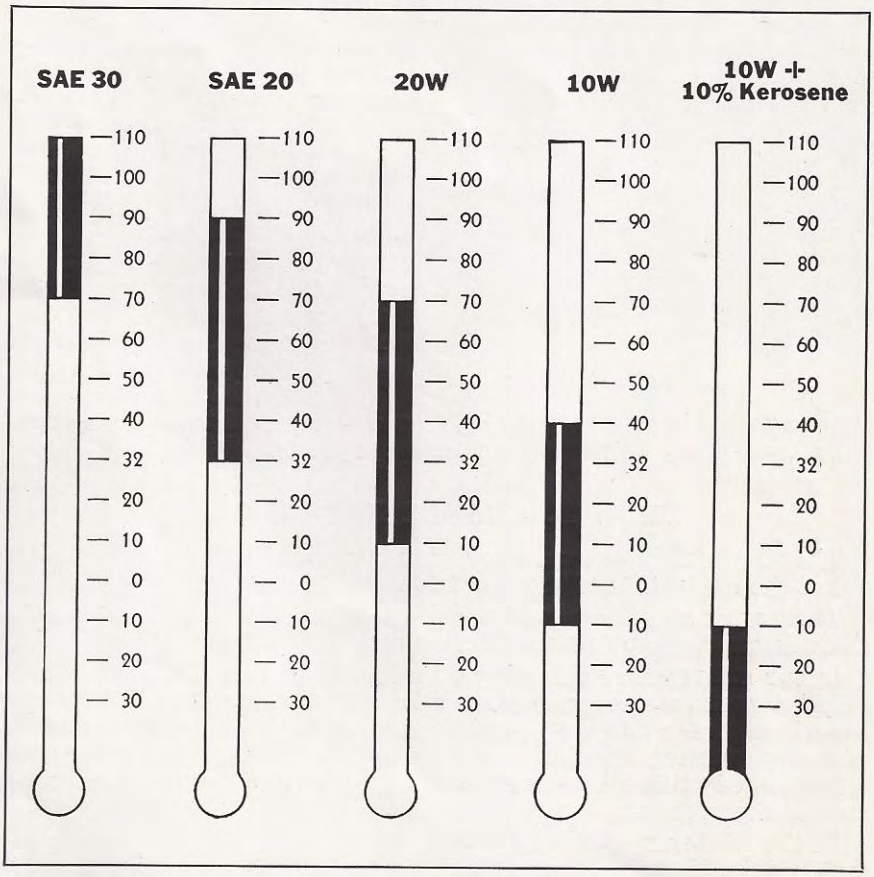


Figure 2

THE PROPER ENGINE OIL TO USE

The selection of the proper engine oil is one of great importance in obtaining maximum performance and satisfaction from your car. The oil you select should have fine lubrication qualities, must withstand the tremendous pressures exerted under high speed operation and be free of harmful substances which may cause premature wear of the operating parts.

In a large measure the ability to obtain this satisfaction depends on the manufacturer of the brand of oil you use. As there are many brands of good, well-bodied, long lived 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.

For easy starting and maximum oil economy it is essential that oil of the proper viscosity or body be used. Low temperatures require the use of lighter oils to permit easy starting by reducing the load on the battery and at the same time provide for quick distribution of oil to all frictional points. Heavier oils are required in warmer temperatures to provide maximum protection.

The Oil Recommendations Chart, Fig. 2, will be helpful in selecting the oil best suited for the lowest atmospheric temperature likely to be encountered before the next oil change.

Your Authorized Hudson Dealer has had long experience with the brands of oil available in your locality and he will be glad to advise you which is most suitable for your car.

Figure 3

OIL FILTERS

An oil filter, Fig. 3, which aids in removing foreign matter and diluents under low pressure, and at the same time maintaining a normal flow of oil through the engine is available as a service accessory for installation on Hudson engines. This unit may be purchased through your Authorized Hudson Dealer.

A portion of the oil pumped to the check valve at the rear end of the engine is diverted to a flexible line leading to the lower connection of the filter. The filtered oil then flows to the outlet connection on the side of

the filter from where it is conveyed to the engine through another flexible line.

Replacing the cartridge is recommended every 5,000 to 6,000 miles or whenever the oil shows definite signs of becoming cloudy. Replacement cartridges are also available through your Authorized Hudson Dealer.

To replace cartridge proceed as follows:

1. Remove top cover by turning handle in counter-clockwise direction.
2. Lift out old cartridge and replace with a new one.
3. Install new cover gasket furnished with cartridge and also install cover. Set cover squarely on filter body to prevent damage to gasket and avoid possibility of oil leaks.

   NOTE: Should it become necessary to tighten flexible line connections, be sure to use two wrenches to avoid twisting lines.

OPERATING YOUR CAR

Each year new engineering advancements are incorporated in Hudson cars to facilitate operation and improve the comforts of motoring. In order to take full advantage of these new principles we urge you to carefully read the following paragraphs which will enable you to more fully understand their functions.

Figure 4

Seat Adjusting Lever—Naturally your first desire is to become comfortably seated. The front seat is adjustable for fore and aft movement by merely raising the small knob located on the left side of the seat as illustrated in Fig. 4, and then slide the seat back and forth to the most suitable position and release lever.

Accelerator Pedal controls the throttle opening and engine speed. **Never pump the accelerator pedal when starting the car as it will cause the engine to flood.** To start a **cold** engine depress pedal one-half way and release slowly. With a **warm** engine depress pedal one-quarter to one-half way and hold in this position when cranking.

On cars equipped with Overdrive the accelerator pedal is used to engage and disengage overdrive operation. See Overdrive Operation page 21.

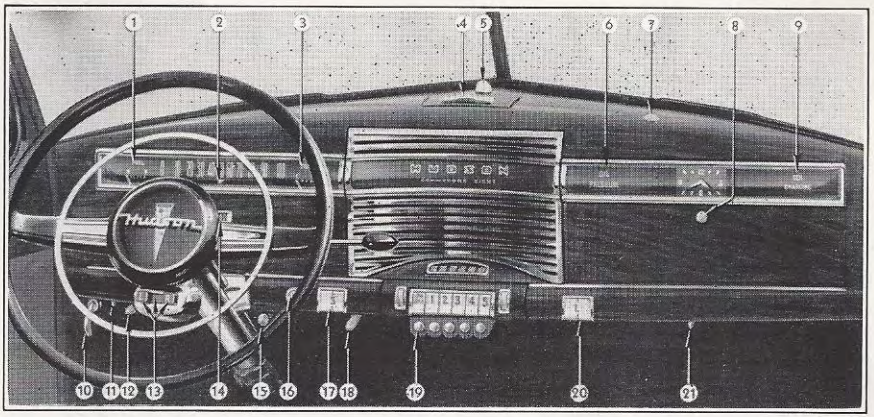


Figure 5

Ash Receiver (4), Fig. 5, is located in center of instrument panel on top face. To open tilt lid forward.

Automatic Clutch Control Knob (19) (Optional Equipment) is pushed "in " for automatic and pulled "out" for manual clutch operation.

Bonnet Locking Handle (12) should be pushed all the way forward to release bonnet. Pull handle back to lock.

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

Clock (8)—Mechanical clock requires winding every day. Electric clocks need no attention. Fuse is located in back of electric clock.

Clutch Pedal should be depressed fully to floor board when starting the engine and when shifting gears. When car is equipped with Automatic Clutch Control clutch pedal need be depressed only when starting the engine.

Cowl Ventilator Handle (18) should be pushed forward to open ventilator and pulled back to close it.

Direction Indicator (13) (standard on Model 17) buttons are marked R and L for right and left turns respectively. Pressing center button turns off signal.

Door locks can be locked from inside by pulling up on knob projecting from door window finish moulding. Right hand front door can be locked when leaving car by pulling up knob or turning safety lock key one-quarter turn in clockwise direction and back to starting position.

To unlock safety lock turn key one-quarter turn in counter-clockwise direction and back to starting position.

Caution: Always be sure keys are removed from ignition switch to prevent accidentally locking yourself out of the car when locking the door by pulling up the knob.

Dome Lamp Switch (21) models 12-14-17 and 18P Sedan is of the sliding type.

Fuel Gauge (1) indicates fuel level in tank only when ignition is turned on. When pointer reaches empty mark approximately 2 gallons if fuel remains in reserve.

Generator Charging Indicator (9) shows red when ignition is turned on or when engine is idling at low speed. Light should go out as speed is increased. If difficulty is encountered in the electrical system or generator is not charging the light will either flash or stay on as a warning. Have electrical system checked by your nearest Hudson Dealer.

Hand Brake Lever (10) should be applied by pulling straight back **and at the same time depressing brake pedal.** Release lever by turning handle ¼ turn to right and pushing it downward as far as it will go.

Headlamp Beam Indicator (2) shows red when headlamp beam is in upper or country driving position.

Headlamp Foot Switch controls country (upper) and traffic (lower) beams. When meeting oncoming traffic and Headlamp Beam Indicator shows red depress foot switch once and release for lower beam. Pressing switch second time restores beam to highway position.

Ignition Switch (16)—Insert key and turn to right to turn "on" ignition.

Lighting Switch (20) controls instrument lights, headlamps, parking lamps and tail lamps. Pressing button once and releasing it turns on instrument lights, parking lamps and tail lamps. Pressing button the second time turns on headlamps in addition to other lamps previously lighted and pressing the button the third time turns out all lights.

Locker Box Lock (7)—Press downward on knob to open door. Insert key and turn ¼ turn counter-clockwise to lock.

Oil Pressure Indicator (6) shows red when ignition is turned on and engine is not running. Light should go out when engine is started. Should the light flash or stay on when engine is running it indicates lack of oil in the reservoir or some derangement of the oiling system. Engine should be stopped and source of difficulty investigated.

Rheostat (11) all models except 10, 11, 18 controls brilliancy of instrument lights. Turning knob to right decreases light and turning

knob to left increases brilliancy. Extreme left position turns out instrument lights.

Speedometer Mileage Indicator (14) shows accumulated mileage.

Starter Button (17) should be pressed in to close switch and complete circuit to operate starter. **Do not press button while engine is running or in gear.** Button will not operate starter until ignition is turned on.

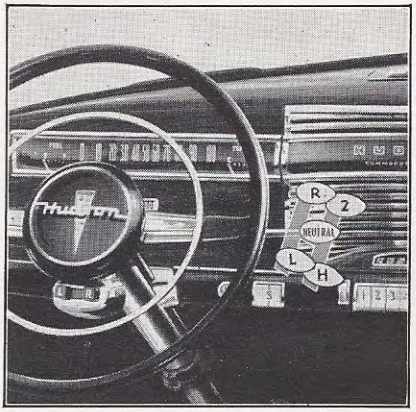


Figure 6

Transmission Control Lever (Handy Shift), Fig. 6, should always be placed in neutral position before starting engine. Raise knob and move forward for reverse gear and move rearward for low gear. Move to neutral, depress and slide forward for second gear and move rearward for high gear.

Water Temperature Gauge (3, Fig. 5), indicates temperature of cooling fluid only when ignition is turned on. Pointer returns to "H" position at right side of dial when ignition is turned off.

Windshield Wiper Control Knob (5) should be turned to the left to operate wipers.

To Operate Overdrive—Press "in" overdrive control button (15), Fig. 5, on lower ledge of instrument panel. This may be done when car is stationary or at any speed. When car has reached a speed of approximately 22 miles per hour in high gear, momentarily release accelerator pedal, then depress accelerator pedal for normal operation in overdrive. The car will now remain in "overdrive" until the speed has been reduced to approximately 19 miles per hour at which time the overdrive will automatically unlock and the car will drive through the free wheeling unit.

If, when driving in overdrive it is desired to pass another car, and fast acceleration is required, it is necessary to shift back into conventional drive. This is done by merely depressing the accelerator pedal **beyond** the wide-open throttle position. This operation momentarily interrupts the ignition, permitting the engine to pick up the load in direct drive through the free wheeling unit.

To re-engage overdrive, momentarily release the accelerator pedal as before (above 22 miles per hour) and then resume normal operation in overdrive.

To Lock Out Overdrive for conventional operation for city driving, steep grades or slippery pavement when free wheeling is not desired the control button **must** be pulled out. This should be done **only when the car is running** and may be done at speeds up to 60 miles per hour. Depress clutch pedal and at same time pull "out" button (a slight clash may be noted at this time).

BONNET

The bonnet is of the reverse alligator type being hinged at the front end so that if it is accidentally left unlocked the wind pressure against it will prevent it from being blown open when the car is moving.

To prevent the engine or accessories in the engine compartment being tampered with, when the car is unattended and doors locked, the bonnet is locked from the driver's compartment. The lock handle is located below the instrument panel just to the left of the steering gear column. See Fig. 5.

To unlock the bonnet, push the handle forward to the full extent of its travel. Then by grasping the moulding on the side of the bonnet raise the rear end upward. Strong self-locking supports hold the bonnet in its open position.

To lower and lock the bonnet merely pull it downward and draw the handle rearward and snap into place.

TOOLS

The tool kit is stored in the rear compartment. It contains a wheel hub bolt wrench, which can also be used as a jack wrench, pliers, screw driver, bumper type jack and base. Cab Pickup models are provided with an axle lift type jack with handle extension.

CAR JACK

To permit raising the car a bumper type jack (except on Cab Pickup) is provided. This type of jack incorporates a lifting lug which is threaded onto the jack screw and moves up or down depending on the rotation of the screw.

When raising the car select, if possible, a level surface. Apply the parking brake and as an added precaution place blocks before and after the wheel opposite the one being changed to prevent car rolling off the jack. To raise the front end place the jack and base with the lifting lug directly under the bumper frame bar as shown in Fig. 7. To raise the rear end place the lifting lug under the impact bar just inside the bumper fender guard to prevent jack slipping out of place when car is raised. **Be sure the jack is in a true vertical position when load is applied.**

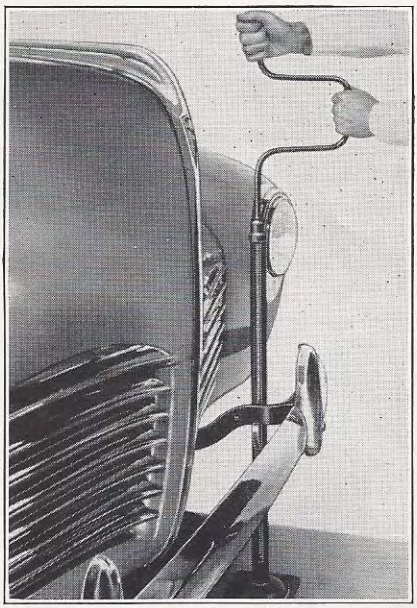


Figure 7

Raise the car by turning the wrench in a **clockwise** rotation. **Lower** the car by turning the wrench in a **counter-clockwise** rotation.

To prevent the lifting lug from rattling against the tube, when not in use, run the lifting lug up to the extreme top of the screw.

Cab Pickup models may be raised at the front end by placing the jack under the front suspension control arm as near the wheel as possible. To raise the rear end place jack under the rear spring pad. Raise the car by installing the crank extension in the jack socket and the wrench on the end of the extension. Turn the wrench in a **clockwise** rotation to **raise** and turn in a **counter-clockwise** rotation to **lower** the car.

SPARE TIRE AND WHEEL

The spare tire and wheel on all models, except some Utility Coupe and Model 10 Travelers 3-Passenger Coupe models, is carried in a well on the right side of the rear compartment. To remove the tire, take out the clamp bolt and clamp using the wheel hub bolt wrench. Tilt the top of the tire slightly toward the center of the car to remove it from the well.

On some Utility Coupe and Model 10-Travelers 3-Passenger Coupe models the spare tire and wheel is mounted on the partition board behind the driver's seat. It can be removed by taking out the clamp bolt and plate, using the wheel hub bolt wrench.

CHANGING TIRES

To change tires and wheels, first raise car as outlined under "Car Jack," page 22. Remove outer hub cap using a screw driver or suitable pointed instrument. With the wheel hub wrench (jack wrench) loosen all five wheel hub bolts. *When removing front wheels loosening the hub bolts can be facilitated by just partially raising the jack so that the car weight on the tire will prevent the wheel from turning when breaking the bolts loose.* Turn bolts in *counter-clockwise* rotation to *remove* them and *tighten* by turning in *opposite* direction.

Slide wheel off hub and replace with spare. When installing spare be sure piloting stud in hub is on top and enters one of the smaller

holes in the wheel. After wheel has been tightened lower car and check hub bolt tightness with weight of car on tires, then replace hub cap.

TIRE AND WHEEL BALANCE

To provide proper handling and prevent wheel tramp and certain driving discomforts at high speed operation, tires and wheels are balanced as assemblies at the time of assembly at the factory.

As natural tread wear occurs, due to accumulated mileage, or if for any reason a tire has been removed from the wheel, original factory balance may be disturbed. It is, therefore, recommended that tire and wheel balance be checked at least every 5,000 miles and also each time a tire is changed to maintain proper balance for high speed operation. Your Authorized Hudson Dealer has the necessary equipment to handle this service for you.

CHANGING TIRE POSITIONS

Due to road friction, both when driving and braking, certain irregular wear takes place on the tire tread which results in noisy operation as well as reducing tire life. The degree with which this wear occurs, of course, depends largely on the length of time tires are permitted to run in one particular direction.

This abnormal wear can be minimized by changing the positions of the tires and wheels to change the direction of rotation. By this we mean changing the left front wheel and tire to the right front position and right front wheel and tire to the left front position. The change should also be made in the rear tires. However, front tires should not be replaced with rear tires due to differences in tread design.

The frequency with which these changes are made naturally reduces the possibility of noise re-appearing and also increases the potential tire life. The changes are recommended at periods of from 3,000 to 5,000 miles.

TIRE PRESSURES

In addition to periodically checking tire and wheel balance and changing the direction of rotation of the tires to insure maximum handling comfort and long tire life, careful attention must be given to the matter of inflating tires to the correct specified pressures.

It is essential that tire inflation be balanced, that is pressures in both front and both rear tires be exactly the same. Always make sure that valve caps are in place and tighten securely to prevent entrance of dirt.

Tires get hot from frictional contact with the road and internal friction within the tire and pressures are known to increase as much as three to four pounds. If the car has been driven only a few blocks to the service station, then inflate to the *cold* pressures. On

the other hand, if the car has been driven for some time and tires are warm inflate to the *hot* pressures. Tire pressures should be checked at least once a week under ordinary circumstances. When touring check tires daily, preferably in the morning.

The following pressures are recommended:

Size	Front Cold	Front Hot	Rear Cold	Rear Hot
16″ x 5.50″	32 lbs.	35 lbs.	32 lbs.	35 lbs.
16″ x 6.00″, 16″ x 6.25″, 16″ x 6.50″, 15″ x 7.00″—Passenger Models	26 lbs.	29 lbs.	30 lbs.	33 lbs.
16″ x 6.00″, 16″ x 6.50″, 15″ x 7.00″ —Commercial Models	26 lbs.	29 lbs.	30 lbs. 4-ply 40 lbs. 6-ply	33 lbs. 4-ply 44 lbs. 6-ply

DISMOUNTING AND MOUNTING TIRES

To dismount the tire, first deflate the tube completely. Stand on the tire with both feet to force bead away from rim of wheel. Push valve stem back into rim. With two tire irons inserted about 8 inches apart between the bead and rim lift the bead off the rim. With one tool in position, move the other tool around the rim and remove the remainder of the bead. Remove inner tube. **Be careful not to pinch tube with irons.**

Stand wheel in upright position with inner bead in rim well. Apply liquid soap around both sides of rim. Insert tire irons between bead and rim and pry tire out of rim.

To mount tire—First coat both beads of tire with soap to help slide them over the rim. Inflate tube until it is just rounded out and insert in tire, placing the valve stem directly in line with the red dot (balancing mark) on tire. Place tire on rim, carefully guiding valve stem in hole in rim. Push inner bead over rim and into well at valve stem and force balance of bead over rim. It may be necessary to force a small remaining portion of the bead over the rim with the tire iron.

Insert tire iron between outer bead and rim at a point opposite valve stem and work bead over rim. Leave iron in place and work other iron around bead and pry remainder of bead over rim. **Again be sure tube is not damaged by iron.**

Inflate tire slowly, carefully checking beads to see that they both are seating on the rim properly. The tire may be properly centered by bouncing it a few times. Inflate tire to recommended pressure.

CARE OF CAR INTERIOR

Periodic attention to the car interior assists in preserving its new-car appearance. Dust and grit in the air accumulates on the upholstery cloth and if not removed results in early deterioration and worn appearance due to abrasive action of the foreign matter.

Once a month, or oftener if local conditions warrant, the interior trim, seats, headlining and side panels should be thoroughly vacuumed or cleaned with a whisk broom. The small extra attachments usually supplied with household vacuum cleaners can be used to good advantage.

Spots on the upholstery can be quickly and easily cleaned by following a few simple instructions given herewith.

First thoroughly vacuum or clean with a whisk broom the area to be cleaned. *Avoid* the use of hot water and soap unless specifically called for. Avoid the use of gasoline as most brands contain tetraethyl of lead or coloring and it is highly inflammable. *Avoid* the use of ammonia unless specifically recommended. *Always rub with the nap—never against it.* After cleaning, appearance can be improved by brushing briskly with a whisk broom.

Grease Spots and Oil—Excessive grease should always be scraped off with dull knife. Moisten a cloth with Hudson Upholstery Cleaner and rub lightly in the direction of the nap.

Chewing Gum should first be moistened with Hudson Upholstery Cleaner, then scraped off with a dull knife.

Candy, except chocolate, should be removed by rubbing with a cloth and very hot water. If an oily spot remains after drying, sponge lightly in the direction of the nap with Hudson Upholstery Cleaner.

Chocolate stains should be sponged with LUKEWARM WATER. After drying, sponge lightly with Hudson Upholstery Cleaner.

Ice Cream stains should be removed with lukewarm soapsuds (neutral soap). Rinse with cold water and allow to dry. If an oily spot remains, sponge it with Hudson Upholstery Cleaner.

Blood should be sponged with COLD WATER. Apply a few drops of ammonia to the stained area and sponged again with COLD WATER. *Caution: Warm water will set stain.*

Fruit and Wine spots can be removed by applying a little hot water directly to the stain. Rub lightly with a cloth moistened in hot water. Allow it to dry, then sponge lightly with Hudson Upholstery Cleaner. *Caution: Soap or heat applied to fruit stains will cause the stain to spread and set.*

Cosmetics such as lipstick and creams may be removed by applying a little Hudson Upholstery Cleaner and absorbing it with a blotter. Repeat as necessary to obtain satisfactory results.

Rust spots may be cleaned by sponging with a cloth and warm soapsuds (neutral soap).

Mohair Upholstery which is matted down due to extended use can be renovated by applying a damp cloth and steaming with a hot iron.

Leather and Imitation Leather can be cleaned by using lukewarm water and any mild soap such as Castile. Work up a thin suds on a piece of cheese-cloth and go over the surface. Wipe over the surface the second time, using a damp piece of cheese-cloth. Finish by wiping again with a dry cloth.

CARE OF THE CAR EXTERIOR

Maintaining a clean, neat appearance assists in preserving the car finish and greatly enhances its trade-in value. As exposure to bright

sunlight, accumulation of dirt, dust, road splash, particularly in the winter when salt and calcium chloride are used to melt ice and snow, and road film cause deterioration of the fine hand-rubbed lacquer finish on your Hudson car, periodic washing, cleaning and polishing is necessary.

Washing the car should never be done in the bright sunlight or if the surface is hot due to exposure to the sun. It is recommended that the car be allowed to cool off gradually and then washed in the shade. Always use cold water and if the dirt is heavily caked on the finish soak it off first, using an ordinary garden hose. Be careful not to scratch the finish.

When drying the body a slight trace of color may be noticed on the drying cloth. This is a natural condition due to exposure to the elements.

Oil and tar spots on the finish should be removed by using a reliable tar remover available through your Authorized Hudson Dealer.

Cleaning is necessary to remove the road film which usually cannot be dissolved by merely washing. Hudson Cleaner and Wax Base Polish, carefully compounded and entirely free of harmful ingredients, should be used. Never use so-called "speed cleaners and polishes" as they often contain ingredients which are detrimental to the finish.

The car should be polished after thoroughly washing and always in a shady spot after the car has cooled.

If a more lasting, durable, high lustre finish is desired an application of Hudson Wax Polish after cleaning the finish with Hudson Cleaner and Wax Base Polish will prove highly satisfactory. The application of Hudson Wax Polish will provide a more protective surface to the lacquer and enable it to better withstand exposure to the elements.

The above mentioned polishes may be purchased from your Authorized Hudson Dealer.

CHROMIUM PLATED PARTS

If not properly cleaned immediately after exposure to salt or calcium chloride used during the winter in some localities to melt ice and snow, chromium plated parts will become deteriorated, resulting in unsightly appearance. These melting agents have highly corrosive qualities making it necessary to exercise more care in cleaning the plated parts than in the dryer months. If the parts are adequately protected during this period with a coating of clear lacquer or an application of Hudson Chrome Polish and are frequently wiped off or washed, the original high lustre and unblemished appearance can be maintained.

If the parts are not protected by this method it is essential that all trace of the salt and calcium chloride be washed off each day. Although some localities, such as small towns or suburbs in the vicinity of larger municipalities do not use these melting agents,

nevertheless they are carried from one place to another by adhering to under-chassis parts and tires and every owner should assume his own responsibility for providing the proper protection.

Bumper impact bars frequently become marred or scratched by contact with other cars when parked. If these spots are not properly protected rust or corrosion may accumulate. A coating of clear lacquer or application of Hudson Chromium Polish will give the needed protection.

Hudson Chromium Polish may be secured from your Authorized Hudson Dealer.

CARE OF FOLDING TOPS

Soiled spots on folding tops are often neglected for fear of discoloring the material when cleaning.

Hudson Dry Cleaner, available through your Authorized Hudson Dealer, will remove these spots quite satisfactorily. The proper method is to select an area slightly greater than the area to be cleaned and rub a soft cloth or sponge moistened in Hudson Dry Cleaner in a light circular manner. Always start from the outside of the circle and gradually work toward the center.

FUEL RECOMMENDATIONS

The engine in your Hudson car was designed to give maximum performance and economy with regular brands of gasoline. One of the most important factors in getting the most out of the fuels available is correct ignition timing.

Regular brands of gasoline have octane ratings of 72 or higher while Ethyl fuel has an octane rating of 80 and higher. In the regular lines of fuel several grades may be purchased. The lower grades of fuel should be avoided in the present day high compression engines as they tend to cause "pinging" under normal load conditions, which requires that the spark be retarded for quieter operation. Retarding the spark naturally affects the performance of the car as well as economy of operation and, therefore, no saving in operation is obtained. Also avoid the use of fuels which tend to gum up quickly as they materially affect the operation of the engine.

Premium grades of fuel, such as Ethyl, which have an octane rating of 80 or higher permit the use of a more advanced spark timing without knock or "pinging." This will result in improved performance and economy. It should be remembered, however, that these extra advantages cannot be obtained from this type of fuel unless the spark timing is advanced.

For information on "Ignition Timing" see page 37.

FUEL ECONOMY

This subject is probably foremost in the minds of all motorists. We hear considerable about the results obtained by certain owners which cause many other owners to wonder how these claims are

substantiated. Unless we understand the conditions under which these figures were obtained they mean very little to us.

Traffic conditions, the terrain, wind conditions, the driver's characteristics as to speed, idling at traffic lights and many other factors influence the final results. It should be understood that the conditions, under which maximum results are obtained by the manufacturer, are most ideal. By this we mean that the cars are driven under fixed throttle conditions, they are not interrupted by cross traffic, they are driven against the wind as well as with the wind and no idling and erratic operation is permitted.

High speed operation requires the use of more fuel as evidenced by the following data compiled on a representative group of cars.

At 20 miles per hour good gasoline mileage can be expected. At 40 miles per hour approximately 24% more fuel is required than at 20 miles per hour. At 50 miles per hour 43% more fuel is required than at 20 miles per hour. At 60 miles per hour 68% more fuel is required than at 20 miles per hour. At 70 miles per hour the percentage of increase in fuel rises to the point where 98% more is used than at 20 miles per hour. From these figures it may be clearly seen that as speed increases, wind resistance becomes greater and fuel economy decreases proportionately.

In the final analysis it is evident that excessive idling, frequent stopping, quick acceleration and high speed operation have a marked effect on the gasoline mileage actually obtained.

CARBON MONOXIDE GAS

CARBON MONOXIDE, A DEADLY, COLORLESS, ODORLESS GAS IS ALWAYS PRESENT IN THE EXHAUST OF THE INTERNAL COMBUSTION ENGINE. GARAGE DOORS SHOULD ALWAYS BE FULLY OPENED WHEN STARTING OR RUNNING THE ENGINE.

STARTING THE ENGINE

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

Before starting the engine be sure the Handy Shift transmission control lever is placed in neutral position. Depress clutch pedal to release load of transmission. Turn on ignition switch. If engine is completely **cold** from standing for several hours or overnight, depress the accelerator pedal at least half way and release **slowly.** Then press starter button. Depressing the accelerator pedal in this manner places the throttle in proper position for **cold** starting. This will result in a higher than normal engine idle speed. Depressing the accelerator pedal again slightly and releasing it will permit the engine to run at the normal high idle speed to prevent stalling during the warm-up period. **Do not allow the engine to run continuously at the starting speed as it will load up and stall if left for a minute or two.**

If the 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. Then press starter button.

Should the engine fail to start when following these instructions, it may be due to—

1. Improper engine tune-up.
2. In cold weather improper lubricants.
3. A combination of 1 and 2.

In such an event it is recommended that you consult your Authorized Hudson Dealer.

CARBURETOR AND FUEL SYSTEM

CARBURETOR—SINGLE TYPE

The down-draft, single barrel, automatic choke type carburetor, Fig. 8, is used on models 10T, 10P, 10C, 18P and 18C. This carburetor incorporates vacuum controlled metering rod, anti-percolator valve, accelerating pump and fast idle features for warm-up period. A filter screen is also incorporated at the inlet to preclude the entrance of foreign particles into the float chamber.

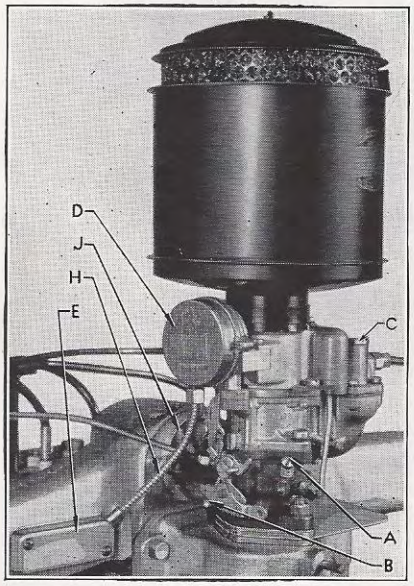


Figure 8

Special tools and gauges are required to accurately adjust the float level, metering rod, anti-percolator valve and fast idle linkage, and as these adjustments must be made with the utmost accuracy, it is recommended that these operations be performed by your Authorized Hudson Dealer.

Certain simple adjustments, such as fuel mixture for idling, throttle stop screw and choke adjustment, can be satisfactorily made as follows:

Fuel Mixture is controlled by the idling adjusting screw (A), Fig. 8. *Before making any adjustment the engine should be run until it reaches normal operating temperature.* To adjust, turn the screw into its seat (clockwise), then out (counter-clockwise) exactly one turn. Readjust for smooth idling. Final adjustment should be from ½ to 1½ turns out from its full in position.

Throttle Adjusting Screw (B), Fig. 8, should be set for a speed of 7½ to 8 miles per hour in high gear.

Automatic Choke Control is a means of automatically proportioning the fuel and air requirements for proper starting and engine warm-up. This is accomplished by warmed air being drawn off the exhaust manifold, by engine vacuum, through air stove (E), heat tube (H), and into the thermostatic housing (D) which contains a thermostatic coil spring. As the warmed air circulates through the housing the coil spring slowly loses its tension, allowing the choke valve to open gradually so that at normal operating temperature the choke is fully opened.

The coil spring is calibrated to hold the choke just closed at a temperature of 75° F. With this setting the groove in the top of the housing should be in line with the center graduation mark on the carburetor body. Turning the housing clockwise, after loosening the two clamp screws, produces a leaner mixture for quicker choke opening, and turning the housing counter-clockwise provides a richer mixture for colder weather starting. *Move the housing only one mark at a time and allow engine to cool before attempting to readjust.*

Manifold Heat Control Valve (J), Fig. 8, should be set with the pointer on the valve pointing toward the letter "W" on the rear slope of the manifold for all seasons of the year.

Filter Screen Cap (C), Fig. 8, should be removed every 2,000 miles to permit cleaning the screen.

CARBURETOR—DUPLEX TYPE

The Duplex (double barrel) type carburetor illustrated in Fig. 9, is used on models 11, 12, 14, 15, 17 and incorporates automatic choke, fast idle linkage, anti-percolator valve, vacuum controlled metering rods and accelerating pump.

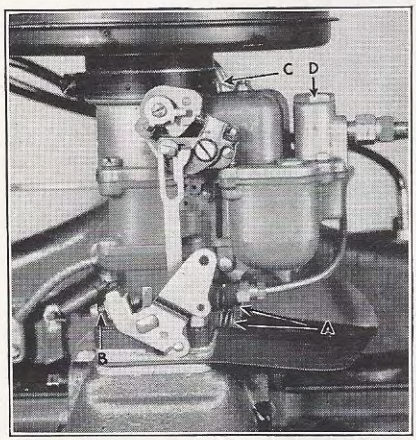


Figure 9

As special tools and gauges are required to accurately adjust the float level, metering rods, anti-percolator valve and fast idle linkage, it is recommended that these operations be made by your Authorized Hudson Dealer.

Certain other adjustments, such as fuel mixture, throttle stop screw and automatic choke adjustments, can be made as follows:

Fuel Mixture for idling speeds is adjusted by means of screws (A), Fig. 9. *Engine should be warmed up to normal operating temperature before attempting adjustments.* Turn both screws (clockwise) to their seats. Then back out (counter-clockwise) exactly ¾ of a turn. Readjust for

smooth idling. Screw positions for final setting should be from ¼ to 1 turn off their seats.

Throttle Adjusting Screw (B), Fig. 9, should be set for a speed of 7½ to 8 miles per hour in high gear.

Automatic Choke Control is a means of automatically proportioning the fuel and air requirements for proper starting and engine warm-up. On models 11 and 12 warm air is drawn through a stove attached to the exhaust manifold and passes into housing (C) which contains a thermostatic coil spring. On models 14, 15 and 17 this warm air is drawn through a tube pressed into the exhaust manifold. The warm air causes the spring to lose tension, allowing the choke valve to open gradually.

The coil spring is calibrated to hold the choke just closed at a temperature of 75° F. With this setting the groove in the top of the housing should be in line with the center graduation mark on the carburetor body. Turning the housing clockwise, after loosening the two clamp screws, produces a leaner mixture for quicker choke opening, and turning the housing counter-clockwise provides a richer mixture for colder weather starting. *Move the housing only a mark at a time and allow engine to cool before attempting to readjust.*

Manifold Heat Control is automatic and requires no adjustment.

Filter Screen Cap (D), Fig. 9, should be removed every 2,000 miles to permit cleaning the screen.

CARBURETOR AIR CLEANERS

The **Oil-wetted** type air cleaner, illustrated in Fig. 10, is standard equipment on all models. The filter unit (C) should be removed and cleaned at least every 2,000 miles for normal operation and more frequently if local conditions warrant.

To Clean Filter Unit remove wing nut (A), lift off cap (B) and take out filter unit (C). Wash filter unit in kerosene and blow dry. Re-oil by dipping in engine oil of the same grade as used in engine and allow excess to drip off. Reassemble parts in reverse order of removal. The filter unit may be replaced at nominal cost after rendering extensive service or if damaged.

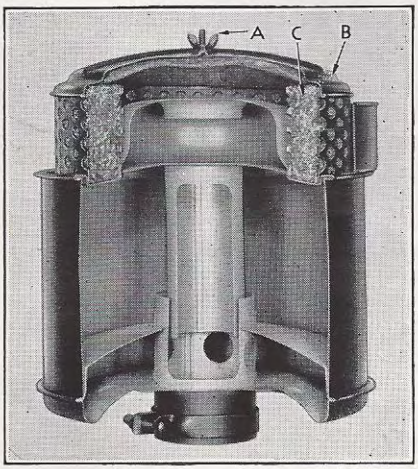


Figure 10

The **Oil Bath** type air cleaner, illustrated in Fig. 11, is optional equipment and is recommended for use in localities where heavy dust conditions are experienced or if the car is operated constantly over gravel or unimproved roads. This unit likewise should be serviced every 2,000 miles.

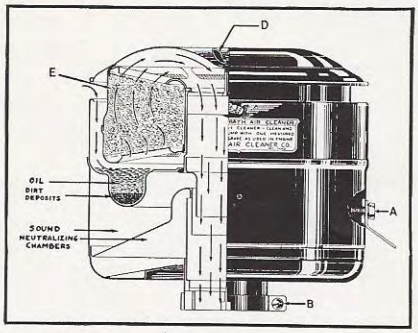


Figure 11

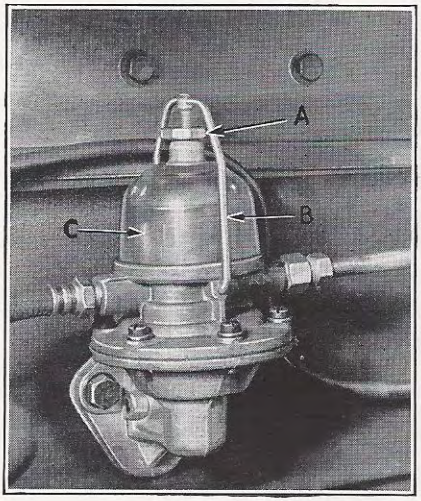


Figure 12

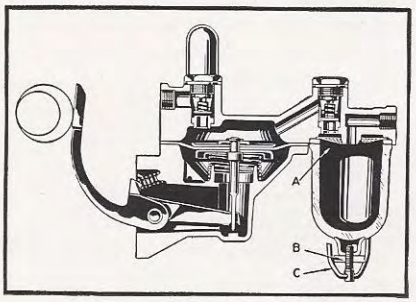


Figure 13

To clean, remove the complete unit from the car by loosening clamp screw (B) only, on models with Single Barrel carburetors. On cars with Duplex carburetors also loosen brace bolt (A). Remove wing nut (D), lift out filter unit (E), and, if necessary, wash in kerosene and blow dry. Remove old oil and clean sump with kerosene. Refill sump with one measured pint of new engine oil of same grade as used in engine. Check filter unit gasket, reinstall filter unit and cover and install wing nut. Reinstall cleaner on carburetor and fasten securely in place. *Be careful not to distort air horn when tightening clamp screw (B).*

FUEL PUMP

The inverted bowl type fuel pump, illustrated in Fig. 12, is used on models 10T, 10P, 10C, 18P.

At intervals of 2,000 miles, or oftener if local conditions warrant, bowl (C) should be removed and the screen cleaned. To remove bowl, loosen nut (A) by turning it counter-clockwise and swing strap (B) to one side. Before replacing bowl be sure screen and gasket are in good condition. Replace if necessary.

The fuel pump, illustrated in Fig. 13, is used on models 11, 12, 14, 15, 17, 18C.

At intervals of 2,000 miles, or oftener if local conditions warrant, bowl (A) should be removed and the screen cleaned. To remove bowl, turn nut (B) counter - clockwise and swing strap (C) to one side.

When replacing parts carefully check gasket and screen and replace if necessary.

COMBINATION FUEL AND VACUUM PUMP

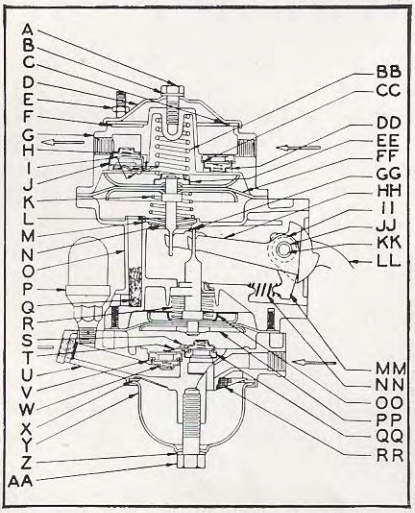


Figure 14

This type of pump, illustrated in Fig. 14, is available as optional equipment on all models and assures steady windshield wiper action under heavy load conditions when engine vacuum is at its lowest potential.

To clean the gasoline filter screen, which is recommended every 2,000 miles, remove the lower cap screw (AA) and bowl (Y). Before replacing screen (RR) and bowl gasket (X), carefully examine them and renew if necessary.

The air filter screen should also be cleaned at 2,000-mile intervals. This is accomplished by removing top cover screw (A) and cover (D). Before replacing the screen and cover, carefully examine screen (F) and gasket (C) and renew if necessary.

STARTING, LIGHTING AND IGNITION

The Battery on all models is located in the engine compartment at the left front corner (see Fig. 15), and is accessible for servicing by lifting the bonnet.

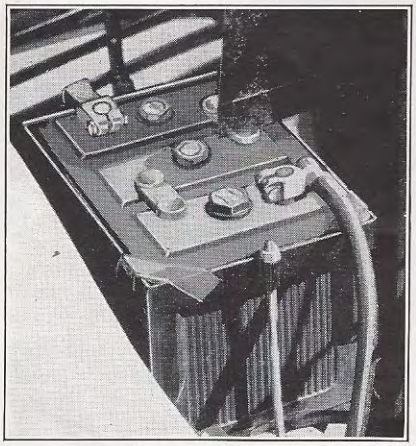


Figure 15

National batteries are used on all models. Six-cylinder models use a 17-plate type and eight-cylinder models use a 19-plate type. The positive post is grounded.

Registration — The battery is warranted by the battery manufacturer. In order to receive the full benefits of the Guarantee and Adjustment Policy be sure your dealer has registered the battery with the National Battery dealer within thirty (30) days after you have taken delivery of your car.

Care—The only service required by the battery is to be sure that all connections are tight and checking the battery

solution level. The proper battery electrolyte level is ⅜″ above the top of the plates. **Filling the battery above the proper level will cause excess solution to boil out and be carried by fan onto the wiring on the dash.** The battery should be checked at least twice a month in warm weather and once a month in winter and distilled water added as required. When adding water in cold weather do so immediately before driving the car or else run the engine for a short time to insure the distilled water mixing properly with the battery solution. Unless this precaution is taken, freezing may be experienced.

Starting Motor—The starting motor, Fig. 16, is located at the rear left corner of the engine and is fitted with a separate solenoid switch. Control of the starting motor is by means of a push button located on the instrument panel to the right of the ignition lock.

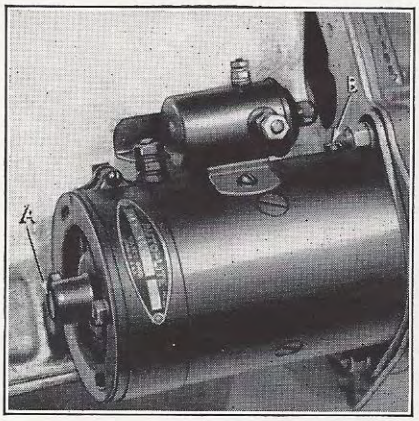


Figure 16

A small button located at the rear end of the solenoid switch may be used to permit cranking the engine when checking ignition timing or changing clutch oil.

Lubrication—Two small oilers are provided for lubrication of the bearings. Every 2,000 miles the two oilers, (A) and (B) see Fig. 16, should be lubricated with a few drops of light engine oil. *Do this sparingly to prevent over-oiling.*

The Bendix drive pinion threads should be cleaned occasionally with a brush dipped in kerosene to remove gum and dirt. *Do not oil the threads as the kerosene will provide all the lubrication required.*

Distributor on six cylinder models is mounted at the top of engine at the rear end (see Fig. 17).

To provide maximum fuel economy the distributor is equipped with an additional vacuum control. This control (A), which contains a spring loaded diaphragm, is connected to the graduated quadrant (H) through link (C). The diaphragm is actuated by vacuum from the intake manifold through a copper tube leading from the carburetor body. When the throttle is partly open and the vacuum is high, as when running under light load, this control (A) through

link (C) rotates the distributor to provide additional spark advance for maximum fuel economy.

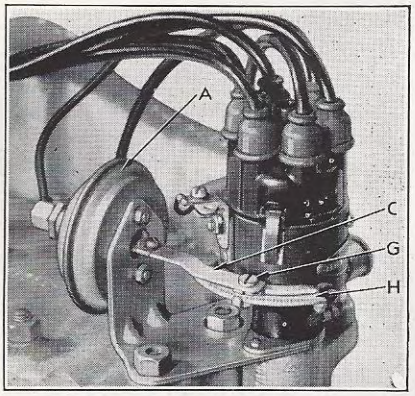


Figure 17

When vacuum is low, as when the throttle is opened for acceleration or hill climbing, the distributor is returned to a retarded position through spring pressure on the diaphragm in the control (A). This insures the proper timing for full load operation and prevents fuel detonation or pinging.

The vacuum control retards the ignition timing when the throttle is closed in order to provide smooth idling.

In addition to the vacuum spark advance feature, an automatic governor advance is incorporated in the distributor which advances the spark mechanically in direct proportion to the engine speed.

Lubrication—The grease cup (D), Fig. 18, should be turned one complete turn every 2,000 miles. Every 5,000 miles the grease cup should be removed and repacked with high temperature grease. Every 2,000 miles a few drops of light engine oil should be aplied to wick (E) at the top of the drive shaft. Also place one drop of light engine oil on breaker point arm stud (F) and apply a light coating of high temperature grease to the cam lobe (A). *Avoid over-oiling.*

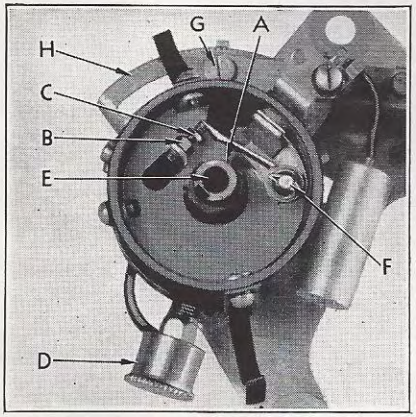


Figure 18

Distributor on eight cylinder models is mounted on the right side of the engine near the center. This distributor, Fig. 19, incorporates the automatic governor advance feature.

Lubrication — Every 2,000 miles apply a few drops of light engine oil to oil cup (D), drive shaft wick (E), a drop of oil on breaker point arm stud (F), and a light coating of high temperature grease on cam lobe (A). *Avoid over-oiling.*

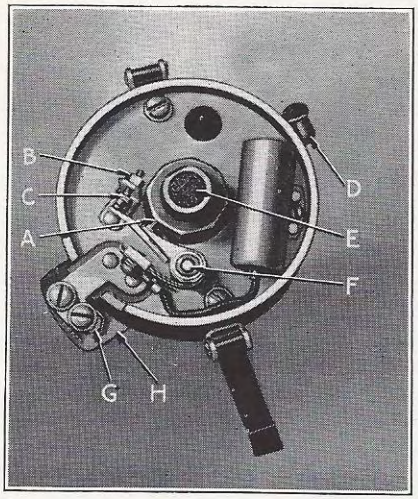


Figure 19

Breaker Point Adjustment—On SIX cylinder models breaker points should be adjusted to .020″ maximum opening. On EIGHT cylinder models the maximum gap should be .017″.

To adjust gap, remove distributor cap, crank engine until fibre block of the breaker point arm, Fig. 18, for SIX cylinder engines and Fig. 19, on EIGHT cylinder models, is on the highest point of the cam (A). Then loosen lock nut (B) and turn adjusting screw (C) until the proper gap is obtained. Tighten lock nut (B) and re check gap. Breaker points should be clean and smooth and make full contact.

Ignition Timing (6 cylinder models) may be checked by removing the spark plug from No. 1 (front) cylinder, placing a finger over the spark plug hole and cranking the engine by pressing the small button on the rear end of the starting motor solenoid in quick successive movements. When air pressure against the finger indicates that the piston is coming up on the compression stroke, continue cranking the engine slowly until the breaker points just begin to open as the pointer on the face of the rear engine support lines up with a position ½ inch ahead of the U.D.C. 1-6 / mark on the flywheel, as illustrated in Fig. 20.

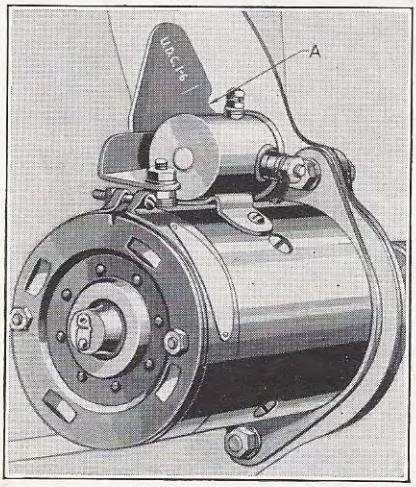


Figure 20

On EIGHT cylinder models crank the engine until the breaker points just begin to open as the pointer on the rear engine support plate lines up with the U.D.C. 1-8 / mark on the flywheel.

Setting Ignition Timing (6 cylinder models)—The distributor rotation is counter-clockwise. Loosen distributor advance arm screw (G), Fig. 18, and rotate distributor housing counter-clockwise to the limit of the slot in quadrant (H). Remove the central cable from the distributor cap and place the bare end ⅛ inch from the cylinder head. With the ignition turned on and the pointer on the face of the

rear engine support plate ½ inch ahead of the U.D.C. 1-6 / mark on the flywheel, Fig. 20, 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 head and clamp cap on distributor.

With the distributor cap in place, the metal strip on the rotor should be directly in line with No. 1 terminal. The cables should be in the cap terminals in the following order, 1-5-3-6-2-4, following in a counter-clockwise rotation.

Setting Ignition Timing (8 cylinder models)—Distributor rotation is clockwise. Loosen clamp screw (G), Fig. 19, and rotate 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 ⅛ inch from the intake manifold. With the ignition on and the pointer on the face of the rear engine support plate in line with the U.D.C. 1-8 / mark on the flywheel, rotate the distributor housing counter-clockwise slowly just until a spark jumps from the high tension wire to the manifold. Tighten clamp screw (G), replace central cable in cap and replace cap on distributor.

With the distributor cap in place, the metal strip on the rotor should be directly in line with No. 1 terminal. The cables should be in the cap terminals in the following order, 1-6-2-5-8-3-7-4, following in a clockwise rotation.

FUEL AND ALTITUDE COMPENSATION

The procedure outlined in the foregoing paragraphs gives approximately normal timing for regular or non-premium fuels at or near sea level.

When Ethyl or premium fuels which have octane rating of 80 or higher as contrasted to regular brands of approximately 72 octane rating are used, a more advanced spark timing should be used and final tests should be made on the road. When operating at high altitudes it will be found that a more advanced spark timing can be used than at or near sea level.

To determine proper spark timing for these conditions, with engine at normal operating temperature, accelerate with full throttle from 8 miles per hour in high gear. A "ping" should be noted at 10 to 15 miles per hour. If no "ping" is heard, loosen the advance diaphragm screw (G), Fig. 18, on 6 cylinder models and rotate distributor body in a clockwise rotation one graduation mark at a time until the "ping" is heard. On 8 cylinder models, loosen clamp screw (G), Fig. 19, and rotate distributor body counter-clockwise one graduation mark at a time until "ping" is heard. **Under no circumstances, however, should the pointer on the rear engine support be more than 1 inch before the U.D.C. 1-6 / mark on 6 cylinder flywheels and ¾ inch before the U.D.C. 1-8 / mark on 8 cylinder flywheels.**

If the "pinging" is heard at speeds above those previously mentioned, retard the spark timing by loosening the clamp screw and rotate distributor body in opposite direction, one graduation mark at a time until the proper setting is obtained.

The Voltage Regulator, which is standard equipment on all models, is mounted under a plate on the left side of the dash in the engine compartment.

This highly sensitive device automatically increases the amount of current flowing into the battery when the battery is low due to heavy electrical loads and reduces the output when the battery voltage reaches a predetermined value.

As special equipment is necessary to test this unit, and as the cover is sealed in place, the unit should never be tampered with. See your Authorized Hudson Dealer if it requires checking.

Generators are of the high output fully ventilated type with third brush adjustment and voltage regulation. See Fig. 21.

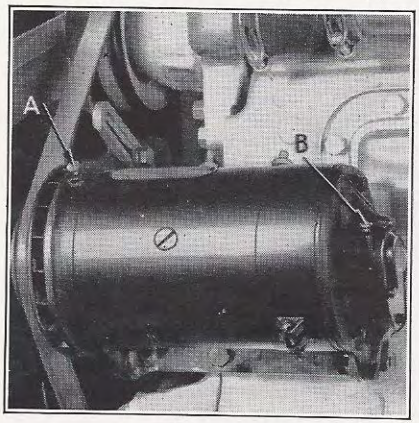


Figure 21

Models 10T, 10C, 10P, 18P and 18C generators have a maximum output of 34 amperes cold and 29 amperes hot.

Models 11, 12, 14, 15 and 17 generators have a maximum output of 44 amperes cold and 38 amperes hot.

Maximum output is reached at a car speed of approximately 35 miles per hour.

Adjustment of the output is made by moving the third brush. However, inasmuch as the output is controlled by the voltage regulator, which automatically reduces the generator charging rate when the battery is fully charged, this adjustment should be made only by your Authorized Hudson Dealer who has the proper checking equipment.

Lubrication is provided through two oilers, one located at the front of the generator (A), Fig. 21, and (B) at the rear. A few drops of light engine oil should be placed in the oilers every 2,000 miles. *Avoid over-oiling.*

Fan Belt is of the "V" type and is used to drive the water pump and generator from the crankshaft through the vibration dampener pulley.

The belt may be adjusted to its proper operating tension by loosening mounting bolt nuts (D, E and F), Fig. 22, and swinging the generator outward to increase tension and inward to decrease tension. It should be possible to depress the belt approximately ¾", as shown at (C). Be sure mounting bolt nuts are properly tightened after adjustment.

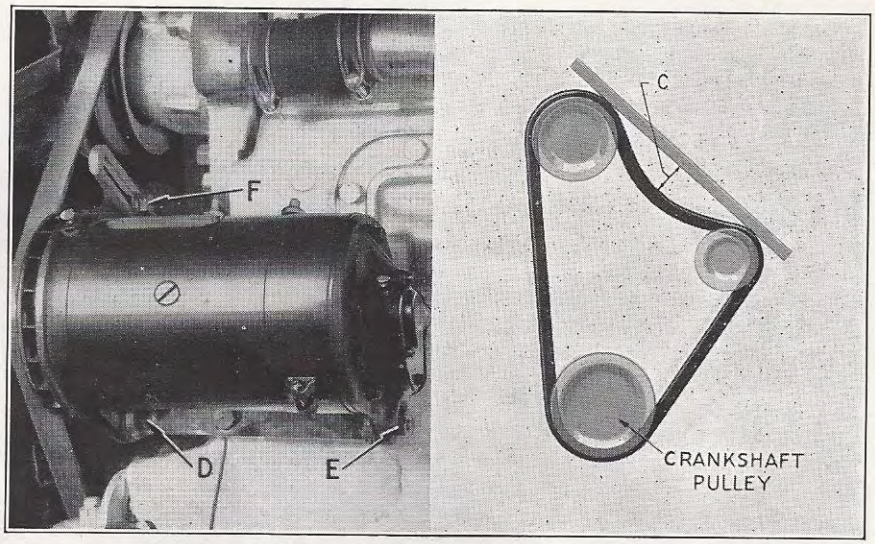


Figure 22

Water Pump is of the six vane impeller, packless type requiring no attention, except periodical lubrication. The water pump shaft (1), Fig. 23, is supported by two large phosphorous bronze bushings (2), lubricated from the large reservoir (3).

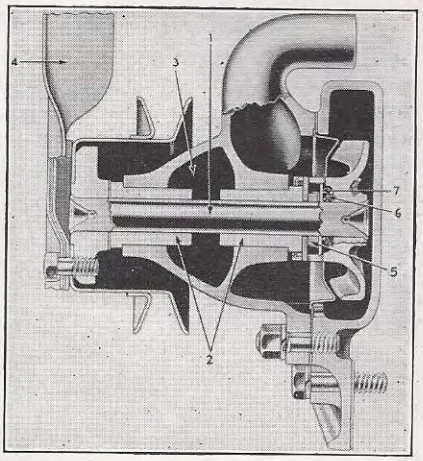


Figure 23

1. Shaft
2. Shaft bushings
3. Oil reservoir
4. Blades
5. Shaft seal
6. Shaft seal compression spring
7. Compression spring washer

The water pump shaft to which the fan blades (4) are attached is driven from the crankshaft by a belt.

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

Engine Tune-up — Periodical engine tune-up is essential to insure efficient operation. Certain changes and slight wear take place during the normal operation of the engine and the purpose of the tune-up is to make such adjustments as are required to compensate for these conditions.

We recommend that a Complete Engine Tune-up be performed by your Authorized Hudson Dealer at least every 5,000

miles. If circumstances prevent this, the following procedure will enable you to make such adjustments as are required until you have the opportunity of having your Hudson Dealer perform the work.

1. Clean and adjust spark plugs. Gap should be .032". Replace plugs, which have been in service over 10,000 miles, with new ones of the same type.
2. Clean and adjust distributor points. Gap should be .020" on all six-cylinder models and .017" on all eight-cylinder models. Replace points with badly pitted or burned contacts. See "Breaker Points," page 37.
3. Check all electrical connections for corrosion and tightness. *Be sure all high tension wires are pressed down securely in their sockets in the distributor cap.*
4. Check ignition timing as suggested on page 37.
5. Start engine and run until normal operating temperature is reached.
6. Turn carburetor idle screw (A), Fig. 8, on single type carburetor into its seat and out exactly one turn. Readjust for smooth idling. Final adjustment should be from ½ to 1½ turns out from its seat.

   On engines with Duplex carburetor turn both carburetor idle screws (A), Fig. 9, into their seats and out exactly ¾ of a turn. Readjust for smooth idling. The final adjustment of the two screws should be from ¼ to 1 turn out of their seats.
7. Adjust throttle valve stop screw (B), Fig. 8, on single type carburetor and (B), Fig. 9, on Duplex carburetors, so that engine idles at a car speed of seven and one-half to eight miles per hour in high gear.

FUSES

The fuse block containing fuses which protect the *lighting and accessory circuits* is located on the lower ledge of the instrument panel, between the ignition lock and steering column bracket.

The two fuses are of 20-ampere capacity and have silver plated caps to prevent corrosion. Be sure fuses of the same type are used for replacement. They can be obtained from all Authorized Hudson Dealers.

The lower fuse protects the lighting circuit and the upper fuse protects the accessory circuit. Two extra terminals are provided in the accessory circuit for additional electrical accessories.

The *electric clock* is protected by a 2-ampere fuse located in the back of the clock.

The *direction indicator circuit* is protected by a 10-ampere fuse which is located in a fuse case behind the instrument panel near the speedometer head.

The *weather master heater* electrical circuit is protected by a 14-ampere fuse placed in a case which is located on the left side of the heater.

ENGINE

The six-cylinder and eight-cylinder engines used in Hudson cars are of the "L" head type, designed for maximum efficiency and smoothness of operation. The engine is mounted in the chassis on live rubber cushions at three points—two in front and one at rear center—thus preventing sound or vibration being transmitted to chassis and body.

The Crankcase and Cylinder Block of high chrome iron alloy is cast integrally for maximum rigidity. By employment of this hard material it is not necessary to use valve seat inserts in the cylinder block which makes for quicker heat transfer from this area, thereby prolonging valve life and precluding the necessity for frequent valve grinding.

Pistons of Silicon Aluminum alloy, cam ground and T-slotted design are closely fitted in the smoothly finished cylinder bores.

All piston rings are of the "pinned" type to prevent rotation in the pistons, resulting in their maintaining greater efficiency over longer period of operation. Compression rings are Granosealed to promote quick seating and freedom from scuffing.

Two compression rings and one oil control ring are assembled above the piston pin and one wider oil control ring is used below the piston pin.

Piston pins are of the full floating type, pressed into the diamond bored piston pin bosses. Round spring steel lock rings are used to lock the piston pins in place.

Connecting Rods are of drop-forged steel, I-beam construction with lower bearings of spun bearing alloy. Integral dippers on the lower ends of the rods passing through the oil troughs circulate the oil by splash throughout the engine.

Connecting rod and piston assemblies may be removed from the top or bottom on eight-cylinder models and from the top only on six-cylinder models.

The Crankshaft of heavy drop-forged steel has integral counterweights and is both statically and dynamically balanced to maintain maximum bearing life and smooth operation. A vibration dampener pressed on and keyed to the front end of the crankshaft dampens out torsional vibration of the shaft.

The crankshaft bearings are of special bearing alloy, bronze backed and non-adjustable.

The Camshaft is of electric furnace alloy, Granoseal processed for maximum life and quiet valve operation. In six-cylinder engines it operates in three large steel backed babbitt lined replaceable bearings. In eight-cylinder models it is supported in five bearings of the same type.

The camshaft is driven by a helical tooth composition gear attached to its front end, meshing with a cast iron gear pressed on and keyed to the front end of the crankshaft.

Tappets are of the roller cam type which closely follow the camshaft lobes and operate in replaceable guides clamped in the cylinder block. The tappets are adjustable to maintain proper operating clearance.

Valves—Exhaust valves are of silchrome alloy steel selected to withstand the extreme high temperatures encountered in these parts.

Intake valves are of a special nickel chromium steel.

Both exhaust and intake valves operate in replaceable guides.

Valve Tappet Adjustment — Proper valve tappet adjustment should be maintained for maximum valve life and smooth engine performance. Exhaust valves should be adjusted to .008″ clearance and intake valves to .006″. Clearance should be measured with flat feeler stock of the proper thickness. Adjustments should always be made with the engine idling and warmed up to normal operating temperature.

Valve locations are as follows:

Model	Exhaust	Intake
6 cylinder	1-3-6-7-10-12	2-4-5-8-9-11
8 cylinder	1-4-5-8-9-12-13-16	2-3-6-7-10-11-14-15

A separate removable plate is provided in the right front fender dust shield to facilitate valve tappet adjustment.

ENGINE LUBRICATION

The Duo-Flo or double circulating lubrication system is employed in all Hudson engines. This provides adequate, positive lubrication under all operating conditions.

The system consists of a large capacity, gear driven oscillating plunger oil pump, a check valve located at the rear right corner of the engine, accessible external oil lines and an oil reservoir having an upper tray in addition to the storage pan.

When the engine is started the oil pump immediately draws oil from the lower reservoir and delivers it under pressure to the front and rear ends of the engine from whence it is poured into the front and rear oil troughs of the oil reservoir upper tray. The action of the connecting rod dippers passing through the oil in the troughs causes it to be violently sprayed against the inside of the crankcase. The mist thus created heavily coats all working parts, providing them with a protective film of oil. See Fig. 24. A portion of this oil is caught in channels cast in the side of the crankcase and is fed by gravity into large reservoirs located directly over the crankshaft and camshaft bearings. The rotating action of the crankshaft and camshaft draws the oil into the bearings, affording a constant, positive supply of lubricant.

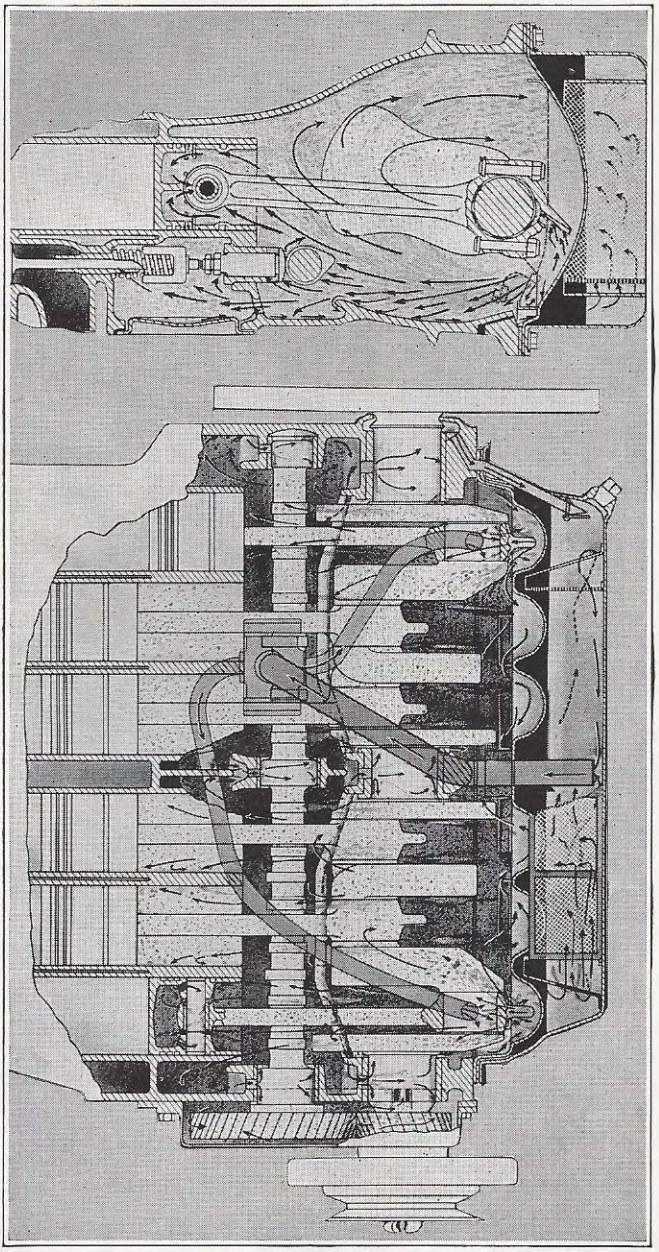


Figure 24

The overflow of oil from the front and rear troughs toward the center of the engine provides oil to the adjoining troughs. As this oil reaches the center of the tray it is returned to the lower reservoir where it is cooled and strained by circulating through a series of labyrinthian passages and fine mesh screens.

CRANKCASE VENTILATION

Diluents, consisting mainly of water resulting from condensation and unburned gasoline, contaminate the engine oil. If these diluents were permitted to remain in the engine oil for any length of time, early deterioration of parts would result.

In the Hudson engine a ventilating system is provided whereby the diluents are drawn out of the crankcase by vacuum through ventilator tubes on the right side of the engine. The violent agitation of the oil by the connecting rod dippers tends to vaporize most of the water, unburned fuel and other harmful diluents, allowing them to be withdrawn from the engine by the vacuum created when the car is in motion.

COOLING SYSTEM

A pressure pump circulating type cooling system, incorporating thermostatic control, is used on all Hudson models.

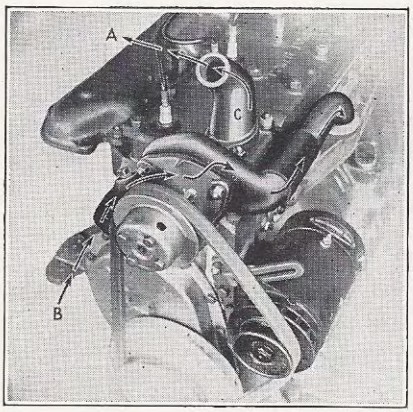


Figure 25

Models 10T, 10P, 10C, 11, 12, 14, 18P and 18C use the choke type thermostat which is located in outlet (C), Fig. 25, and prevents circulation of the coolant through the radiator core until such time as the water reaches a temperature of 150° to 155°, when the thermostat begins to open. At 185° the thermostat should be fully opened. The path of water circulation is illustrated in Fig. 25.

Models 15 and 17, which use a by-pass type water pump, are equipped with a by-pass type thermostat, located in outlet (D), Fig. 26. This type thermostat, although restricting water circulation through the radiator core, does permit circulation through the by-pass (C) in the pump and back into the cylinder block. This thermostat also begins to open at 150° to 155° and is fully opened at 185° F.

When Prestone or other ethylene glycol type anti-freeze solutions are used, the installation of a special high temperature

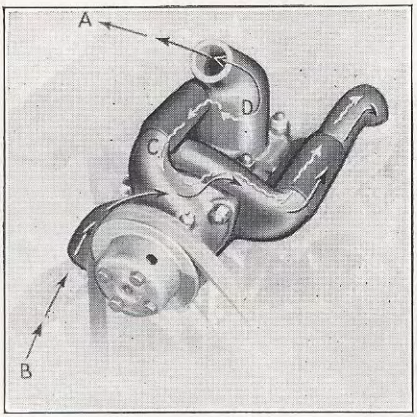


Figure 26

thermostat is recommended. The thermostat for use in models 10T, 10P, 10C, 11, 12, 14, 18P and 18C is calibrated to open at 160° to 165° F. and must be fully opened at 190° F. The thermostat for models 15 and 17 is calibrated to open at 165° to 170° F. and must be fully opened at 195° F. These thermostats are available through Authorized Hudson Dealers.

To Drain the radiator only, turn handle of the drain cock located at the lower left corner of the radiator counter-clockwise. To drain the complete cooling system also remove the pipe plug located at the left rear corner of the cylinder block. Note: If it becomes necessary to drain the radiator when it contains anti-freeze and it is desired to save it, a 7/16″ inside diameter hose may be fitted over the end of the drain cock and the loose end placed in a container.

Proper Care of the cooling system is highly essential to maintain efficient engine operation. Rust and scale in the cylinder block is a natural product of water and iron. Therefore, unless the necessary precautions are taken to prevent this accumulation, which acts as an insulator, so-called "hot spots" may result through the inability of the water to cool the cylinders and the area adjacent to the valve seats.

The use of Hudson Rust and Corrosion Inhibitor in the cooling system prior to adding anti-freeze in the fall and after draining in the spring will assist to a large measure in keeping the system clean and permit efficient circulation. This product is available through all Authorized Hudson Dealers.

Reverse flushing is an approved method of removing foreign accumulation from the radiator core and water jacket in the cylinder block. As this method requires the use of special equipment, it is recommended that the work be performed by your Authorized Hudson Dealer.

ANTI-FREEZE

Before installing any anti-freeze when preparing for winter operation it is good practice to always drain and flush the cooling system to insure unrestricted circulation. Also carefully check all hose and gaskets for leaks or signs of deterioration.

The use of Hudson Anti-Freeze, available through all Authorized Hudson Dealers, is recommended, as it adequately meets all the requirements of a good, reliable anti-freeze.

Avoid the use of anti-freeze solutions containing calcium salts, or other ingredients which promote electrolytic action. Glucose and honey clog the radiator, kerosene and fuel oil when hot expel inflammable vapors and, therefore, solutions containing these ingredients should never be used.

The following anti-freeze table will be helpful in determining the quantity of anti-freeze required for proper protection:

6-Cylinder Models

Temperature	Hudson Anti-Freeze Quarts U. S.	Hudson Anti-Freeze Quarts Imp.	Hudson Anti-Freeze Liters Metric	Ethylene Glycol (Prestone or Equivalent) Quarts U. S.	Ethylene Glycol (Prestone or Equivalent) Quarts Imp.	Ethylene Glycol (Prestone or Equivalent) Liters Metric	Methanol or Denatured Alcohol Quarts U. S.	Methanol or Denatured Alcohol Quarts Imp.	Methanol or Denatured Alcohol Liters Metric
+20°	2½	2	2⅓	2	1½	1¾	2	1½	1¾
+10°	3¾	3¼	3½	3	2½	2¾	3½	3	3⅓
0°	4½	3¾	4¼	4	3½	3¾	4¼	3½	4
−10°	5	4	4¾	5	4½	4¾	5¼	4½	5
−20°	5½	4¾	5	5½	4¾	5	6	5	5½
−30°	6½	5½	6	6	5	5½	6¾	5½	6⅓

8-Cylinder Models

+20°	3½	3	3⅓	3	2½	2¾	3	2½	2¾
+10°	5¼	4½	5	4½	3¾	4¼	4¾	4	4½
0°	6¼	5¼	6	6	5	5½	6	5	5½
−10°	7	6	6½	7	6	6½	7⅓	6	7
−20°	8	6½	7½	7¾	6⅓	7¼	8½	7	8
−30°	9½	8	9	8	6½	7½	9½	8	9

CLUTCH

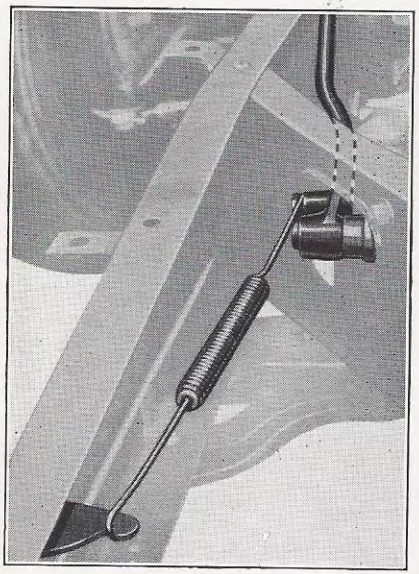


Figure 27

The exclusive Hudson Fluid-Cushioned Clutch, Fig. 28, incorporating a single cork-inserted plate, triple sealed against fluid loss, assures smooth engagement and long life. The clutch is well ventilated without exposure to dust. The heat developed in the work done by the clutch is absorbed by the fluid which is cooled by coming in contact with the clutch cover.

To provide a minimum of foot pressure to disengage the clutch, a large coil type assisting spring is attached at one end of the clutch pedal and at the other end to the chassis frame. See Fig. 27.

An occasional check of the clutch pedal to floor board clearance to insure full travel of the clutch pedal is necessary to pre-

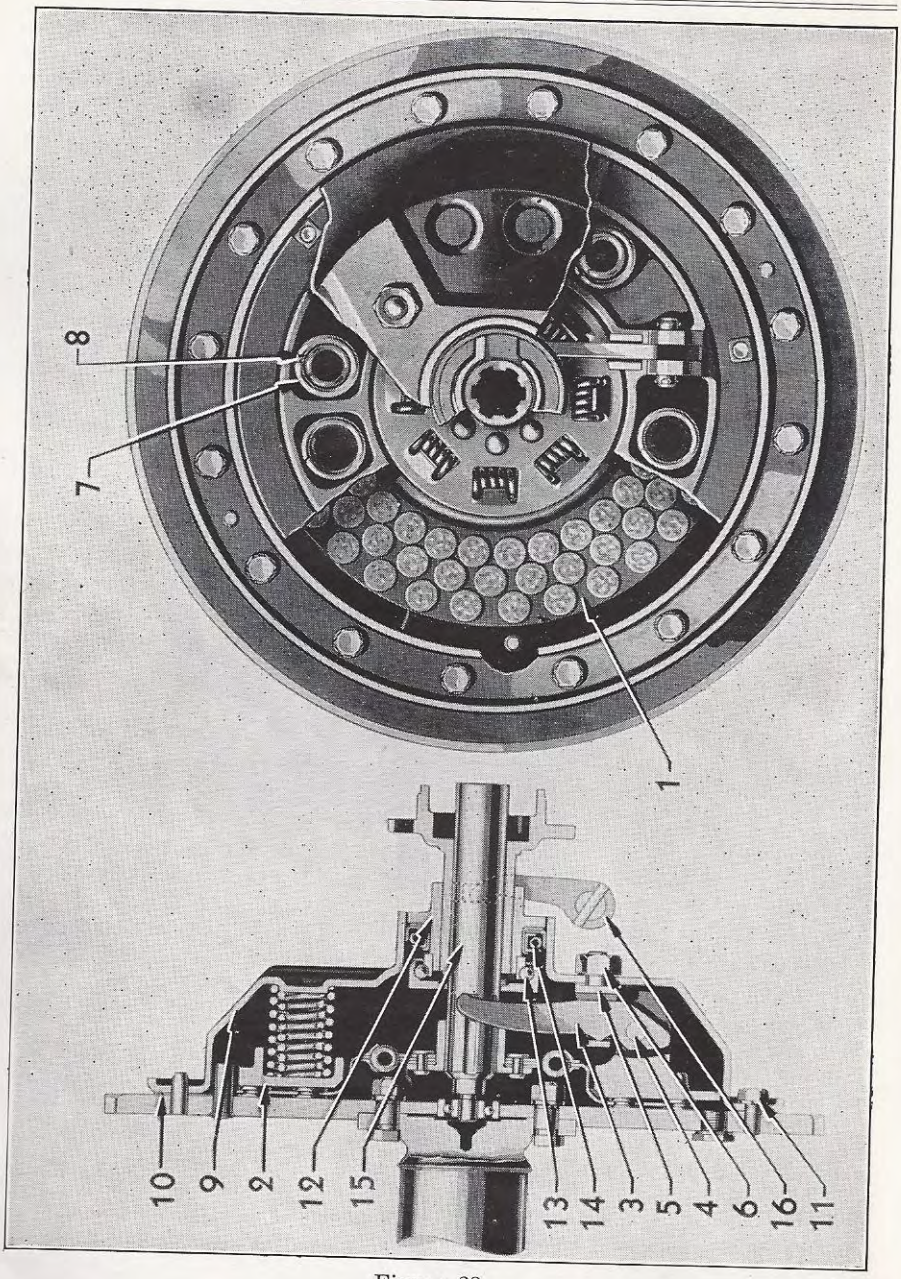


Figure 28

1. Driving Plate
2. Pressure Plate
3. Throwout Finger
4. Throwout Finger Pin
5. Throwout Finger Retainer
6. Throwout Finger Retainer Nut
7. Engaging Spring—Outer
8. Engaging Spring—Inner
9. Cover
10. Cover Gasket
11. Cover Bolt
12. Collar
13. Throwout Bearing
14. Throwout Bearing Oil Seal
15. Transmission Main Drive Gear

vent the pedal from riding against the floor board and result in only partial clutch engagement. See "Clutch Pedal Adjustment," below.

Lubrication—Every 1,000 miles the clutch throwout bearing should be lubricated with viscous chassis lubricant through the grease fitting located on the right side of the clutch housing.

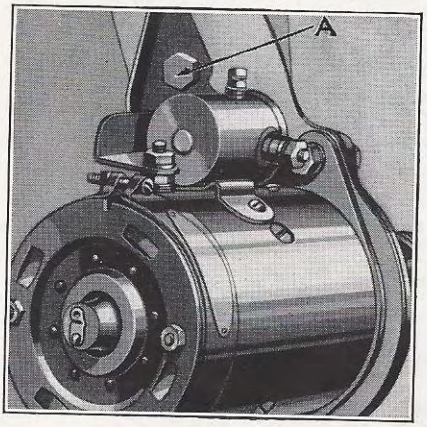


Figure 29

The clutch pedal and brake pedal shaft bushings should be lubricated every 1,000 miles with viscous chassis lubricant through the grease fitting (D), Fig. 30, reached from underneath the car on the left hand side.

To maintain the clutch driving disc corks in a soft, pliable condition to assure smooth, easy action, the clutch should be drained and refilled with HUDSONITE CLUTCH COMPOUND every 5,000 miles. HUDSONITE is compounded in our own Engineering Laboratories and is available through all Authorized Hudson Dealers and the service stations of most reliable oil companies. Always insist on HUDSONITE — never accept substitutes of which there are many.

To lubricate the clutch, remove the hex plug in the front face of the flywheel, Fig. 29. Then rotate engine until star stamped in front face of flywheel is in line with pointer on rear engine support plate which will permit old fluid to drain out. Again crank engine until filler hole is visible through hole in plate and refill with ⅓ pint of HUDSONITE. Replace plug and gasket and tighten securely. Be sure gasket is in good condition.

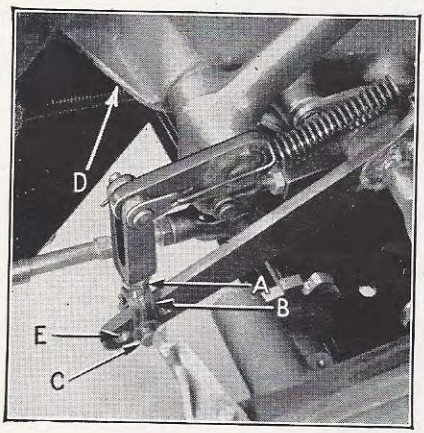


Figure 30

Clutch Pedal Adjustment to assure 1½″ clearance between clutch pedal and floor board is made by loosening lock nut (A), Fig. 30, removing cotter pin and clevis pin (C), and turning yoke (B) to increase or decrease the clearance as required. Replace clevis pin, cotter pin and tighten lock nut securely.

For owners desiring a *lighter* pedal pressure yoke (B) may be

lengthened and reassembled in the extreme lower hole (E) in the lever. With this setting the pedal-to-floor board clearance should be *two inches* instead of the standard one and one-half inch clearance as previously mentioned.

TRANSMISSION

The transmission is of the Synchronized Silent Mesh type, having three speeds forward and one reverse. See Fig. 31. All gears are of the helical cut tooth design, assuring quiet operation in all speeds. Gear shifting is made easier and quieter, providing quicker get-away in traffic.

The main drive gear is piloted at the front end in a ball bearing pressed into the center of the flywheel. The rear end of the gear is supported in a large ball bearing.

The front end of the main shaft is carried on roller bearings in the pocket of the main drive gear. The rear end of the main shaft is supported in a large ball bearing pressed into the transmission case.

The countershaft cluster gear is carried on two large steel backed babbitt lined bushings which rotate on the countershaft which is a press fit in the transmission case.

The reverse idler gear likewise is carried on a steel backed babbitt lined bushing which rotates on the reverse idler gear shaft which is pressed into the transmission case.

The shift rails on which the shifting forks are mounted are located on the left side of the transmission.

Lubrication—The oil level should be checked every 1,000 miles. To be sure that the actual level is being checked the car should be permitted to stand long enough for the oil foam to subside.

Every 5,000 miles the drain plug, Fig. 31, should be removed and the old oil drained out. Refill with 2 lbs. (with overdrive 3¼ lbs.) of gear oil S.A.E. 80 E. P. in winter and S.A.E. 90 E. P. in summer. In event unit is flushed out use 2¼ lbs. (with overdrive 3½ lbs.).

If hard shifting is encountered in extremely cold weather, it is permissible to drain out three ounces of transmission lubricant and add three ounces of kerosene.

TRANSMISSION OVERDRIVE

The transmission overdrive is a separate unit assembled to the rear face of the transmission. This device is available only as a factory installed option and cannot be installed in the field.

The overdrive provides free wheeling below approximately 19 miles per hour and overdrive (fourth speed) operation at above approximately 22 miles per hour. Its use results in smoothness of operation and greater economy at high speed operation due to reducing the engine speed 28% in proportion to car speed. This lower engine speed affords a reduction in gasoline and oil consumption and prolongs the life of engine parts.

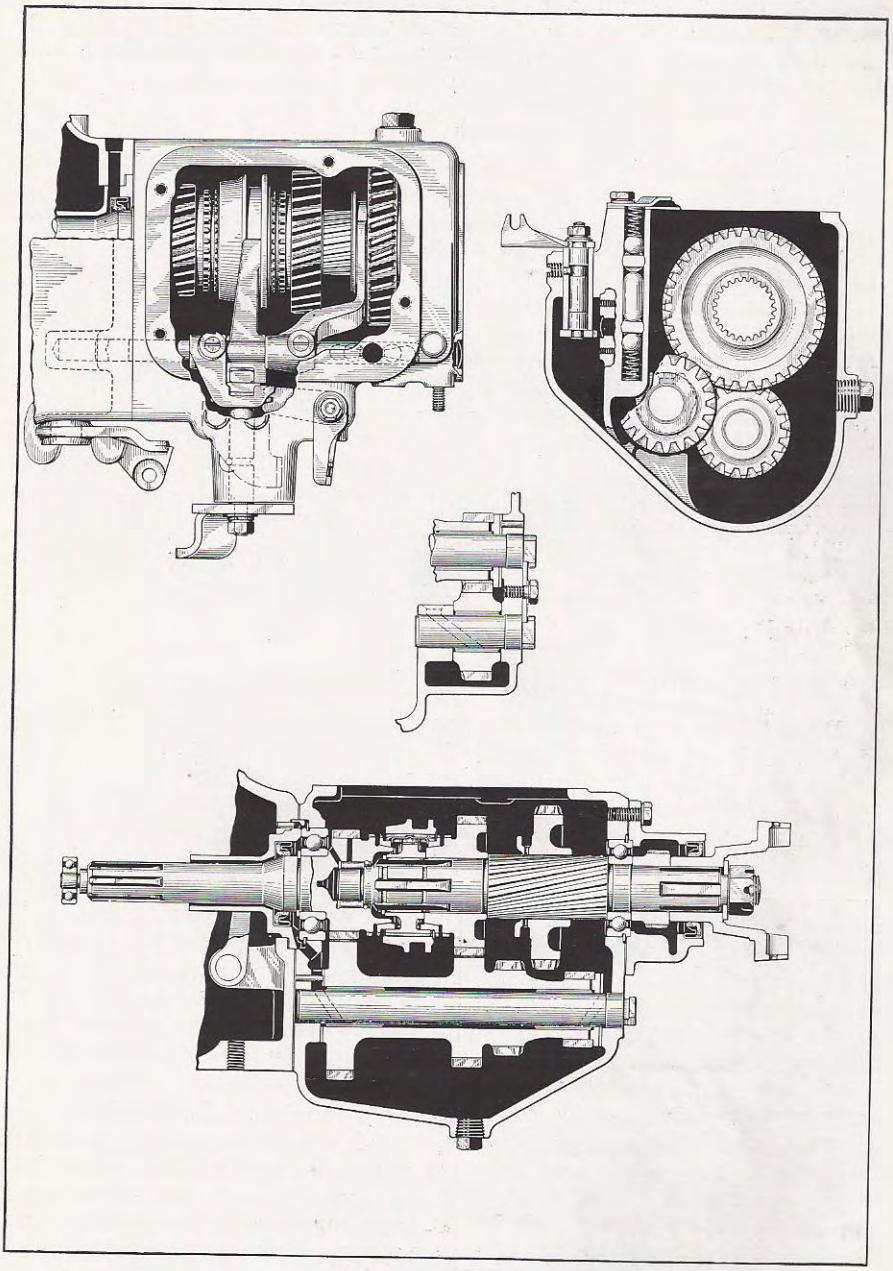


Figure 31

Overdrive operation is controlled by a button located on the instrument panel. When the button is pulled "out" car operation is through conventional drive. If overdrive operation is desired, the button must be pushed in to its full extent. This may be done at any speed. To actually shift into overdrive it is merely necessary to release the accelerator momentarily at any speed above the cut-in point which is approximately 22 miles per hour. Then by depressing the accelerator normal operation in overdrive can be resumed.

As the final gear ratio in overdrive does not afford quick acceleration it is necessary to temporarily disengage overdrive and revert to conventional drive, when desiring to pass other cars on the highway. This is accomplished by depressing the accelerator pedal fully beyond the wide-open throttle position, which is a natural movement when desiring to pass. Overdrive can again be engaged by raising the foot from the accelerator as before (above approximately 22 miles per hour) and depressing it again to resume normal overdrive operation.

When operating the car in heavy traffic or in hilly terrain it is recommended that overdrive operation be made ineffective so as to use the engine as a brake and to eliminate free wheeling which is not desirable under these conditions. This may be done at any speed up to 60 miles per hour by depressing the clutch pedal and pulling "out" the control button at the same time (a slight gear clash may be noted).

PROPELLER SHAFT AND UNIVERSAL JOINTS

Propeller shafts employ the needle roller bearing type universal joints as illustrated in Fig. 33. The bearings (B) are packed with lubricant at the time of assembly and require lubrication only at periods of 20,000 miles.

Lubrication—The spline shaft should be lubricated every 1,000 miles with viscous chassis lubricant by removing pipe plug at (A) and installing a suitable grease fitting. **As all propeller shafts are balanced with the pipe plug in place it is essential that the grease fitting be removed and pipe plug reinstalled to maintain proper balance.**

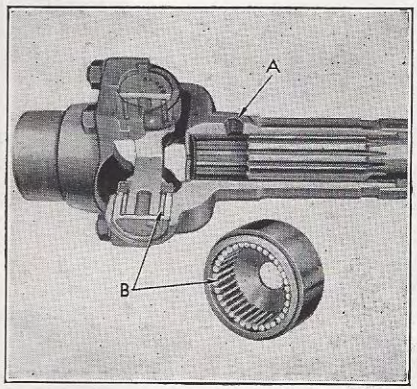


Figure 33

To lubricate the needle roller bearings, which is essential every 20,000 miles, it is necessary to remove the propeller shaft from the car and disassemble the joints. This service should be performed by your Authorized Hudson Dealer.

FRONT SUSPENSION

The Hudson "independent" type front end suspension, Fig. 34, incorporates center point steering combined with Auto-Poise Control (Auto-Poise Control excepted on Panel Delivery and Cab Pickup models).

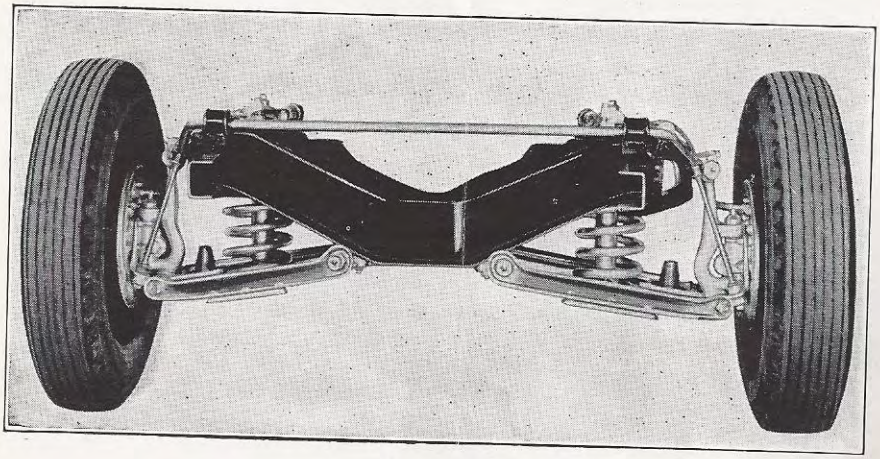


Figure 34

The support arms, to which the front wheels are assembled, are set at an angle on the frame front cross member, permitting each wheel to react independently to changes in road surfaces without appreciably affecting the other wheel.

The forged steel upper support arms and the heavy pressed steel lower support arms are pivoted at their inner ends to permit vertical movement only. The front wheels are mounted on forged steel spindle supports assembled between the outer ends of the support arms. Threaded renewable bushings with lubrication fittings and tight fitting oil-proof rubber sleeves are provided at pivotal points to permit freedom of movement.

The upper support arm bushings are eccentric to permit adjustment of caster and camber.

Vertical movement of the front wheels is controlled by soft acting coil springs made of silico manganese steel, a material which is especially adapted to the purpose and assures maximum dependability. The lower ends of the springs are recessed in depressions in the lower support arms, while the upper ends are held in place in seats stamped in the frame front cross member, which acts as a support for the entire front end suspension. Possibility of noise at the upper ends of the springs is eliminated by the use of rubber composition silencers assembled on top of the springs. A limited means of controlling the height of the front end is provided by the availability of .120"

steel shims which may be installed between the silencers and the upper seats.

Proper Front End Alignment is essential to maintain satisfactory car handling and maximum tire life. Ample provision is made for adjustment of the factors entering into maintenance of proper front end alignment and your Authorized Hudson Dealer should be consulted whenever service is required on the front suspension system.

Caster, the backward or forward tilt of the spindle pivot pins at the top, should be from negative (forward) ¼° to positive (rearward) ¼°.

Camber, the outward tilt of the front wheels at the top should be positive ¼° to ¾°.

Caster and Camber Adjustments are made by means of the eccentric bushing (B), Fig. 35. As both camber and caster are affected by the movement of this bushing, it will be necessary to check and reset the camber after correct caster has been obtained.

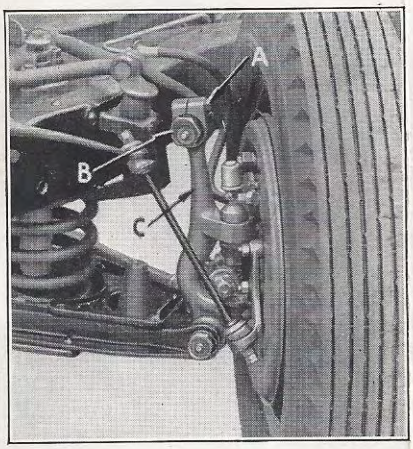


Figure 35

Before making caster and camber adjustment be sure car is at curb height, that is with car at proper level and with water, gasoline and oil at maximum capacity. The car should be vigorously rocked from side to side a few times and allowed to come to rest before attempting any measurements.

Loosen spindle support lock nut (A), and turn eccentric bushing (B) clockwise to increase caster and counter-clockwise to decrease caster. One complete turn is the equivalent of ½°. After obtaining proper caster, recheck camber. Be sure lock nut (A) is securely tightened after making adjustment.

Wheel Toe-in is controlled by individual adjustment of two short tie rods (A) and (B), Fig. 36. The proper toe-in is zero to $\frac{1}{16}''$. Before making adjustments be sure front wheels are in true straight ahead position and center steering arm is parallel to center line of car. Take measurements on wheel rim.

Loosen tie rod end clamp bolts (C) and rotate one tie rod at a time half the required amount. Rotating the tie rods in direction of forward wheel rotation increases toe-in and turning in opposite direction decreases toe-in. Be sure to securely tighten clamp bolts (C) after completing adjustment.

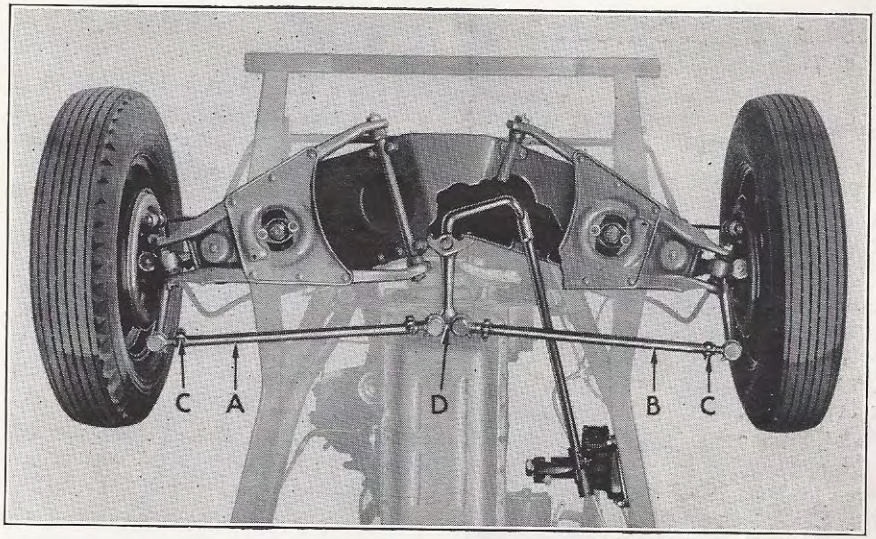


Figure 36

Lubrication of all front end suspension fittings should be done every 1,000 miles, using viscous chassis grease. See "Lubrication Chart" pasted to back of front cover of this manual.

The center steering arm bearing is lubricated at assembly and no further lubrication is required.

FRONT WHEEL BEARINGS

Front wheel bearings are of the tapered roller type, adjustable to compensate for wear and adequately sealed against lubrication loss.

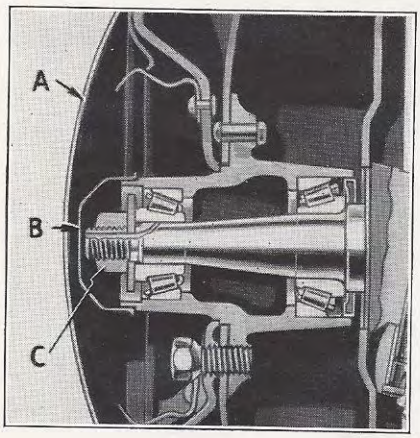


Figure 37

Adjustment—Any looseness in front wheel bearings is noted by raising the front end of the car and grasping the outer edge of the tire at top and bottom. Excessive sidewise movement indicates looseness and adjustment is made as follows:

Remove outer and inner hub caps (A) and (B), Fig. 37. Remove cotter pin holding nut (C). Turn nut to the right until just a slight drag is felt when turning the wheel by hand. Loosen nut just sufficiently to permit wheel

to turn freely. Insert cotter pin, replace hub caps and lower car to floor.

Lubrication—Front wheel bearings should be removed, cleaned and repacked with four ounces of milled sodium soap base lubricant every 10,000 miles. Reinstall parts and adjust as outlined under "Front Wheel Bearings—Adjustment."

STEERING GEAR AND DRAG LINK

The worm and double roller tooth type steering gear is used on all models. See Fig. 38. The steering gear is mounted on the inside of the left hand frame side member, placing the pitman arm close to the center line of the car. An adjustable drag link connects the pitman arm to the center steering arm mounted on the rear face of the frame front cross member.

The worm (G), Fig. 38, which is pressed on the column tube (J) operates in two adjustable roller bearings (H). The cross shaft roller tooth (K) is mounted on needle roller bearings. On models

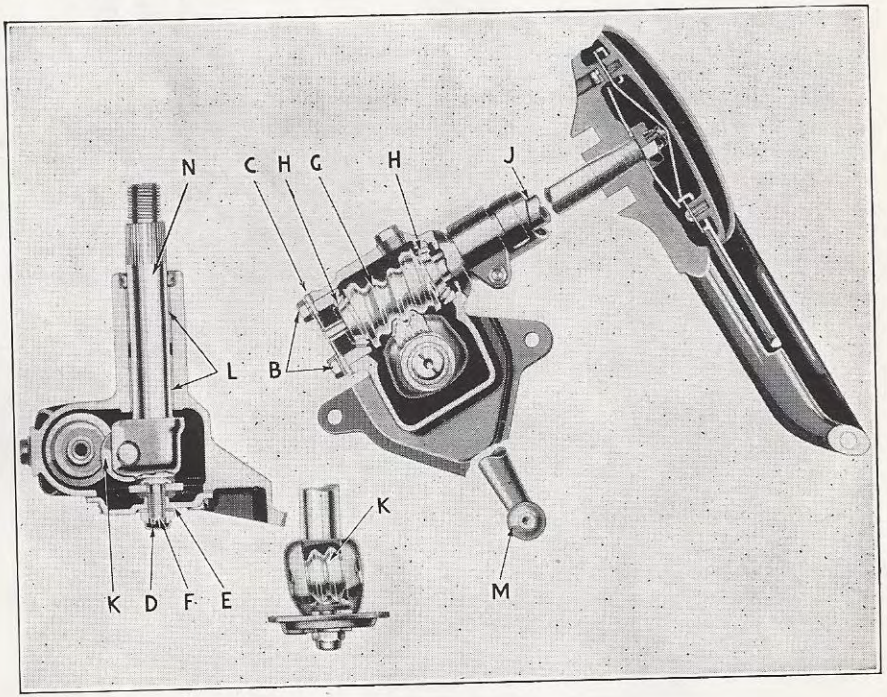


Figure 38

B—Worm Cover Cap Screws
C—Worm Cover Shims
D—Cap
E—Lock Plate
F—Adjusting Screw
G—Worm
H—Worm Bearings
J—Column Tube
K—Cross Shaft Roller Tooth
L—Cross Shaft Bushings
M—Pitman Arm
N—Cross Shaft and Roller Tooth

10T, 10P, 10C, 11, 12, 18P and 18C the cross shaft (N) rotates in thin bronze bushings (L). On models 14, 15 and 17 bronze bushings or needle roller bearings are used at this point.

This design allows easy steering with freedom from frequent service adjustments. Ample provision, however, has been provided should adjustments be required after a long period of operation.

Note: Before making any steering gear adjustments first disconnect the drag link at the pitman arm.

Gear Alignment is essential to prevent the column tube from binding. Should it be necessary to re-align the steering gear, proceed as follows: Loosen three mounting bolt nuts (A), Fig. 39, reached from inside of frame (Mounting bolts are serrated and pressed into frame and no wrench is required 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 bolts and allow bracket to shift to match gear column position and retighten.

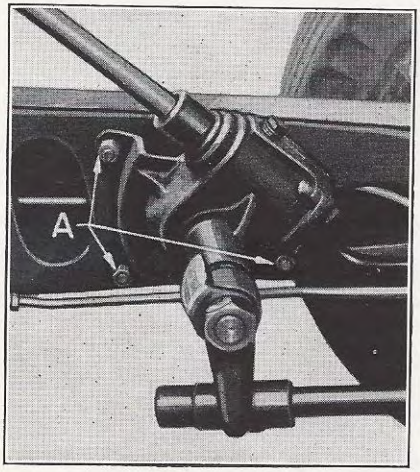


Figure 39

Worm Shaft and Bearing Adjustment is necessary to remove excessive column end play, due to too great clearance between worm roller bearings and cups. Proceed by removing four cap screws (B), Fig. 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 clearance. Check for stiffness by revolving steering wheel. Stiffness is usually attributable to too many shims having been removed or gear is not properly aligned in car.

Cross Shaft and Roller Tooth Adjustment — Proper clearance between the cross shaft roller tooth and worm is essential for proper car handling. Adjustment, if necessary, is made by means of an adjusting screw accessible through an opening in the frame side rail. First remove cap (D), Fig. 38, slide off plate (E) to clear lock boss on gear housing cover. Be sure steering gear is turned to straight ahead driving position (high point on worm) and turn adjusting screw (F) into the housing for closer adjustment. Back off screw just enough to prevent binding. Check for clearance (end play in cross shaft) by grasping pitman arm (M). It is preferable to have a slight amount of play rather than binding. Replace lock plate (E) and cap (D).

Reinstall drag link and adjust drag link bearings. See "Drag Link" at bottom of this page.

Steering Gear High Point—The steering gear should always be adjusted on the high point setting for straight ahead driving to prevent over-steering. This setting may be determined by removing the horn button and contact plate and noting the position of the small notch in the upper end of the main tube. With the wheels straight ahead the notch should be at the lowest position. If setting is not correct adjust drag link. See page ... The steering wheel should always be installed with the spokes in a true horizontal position.

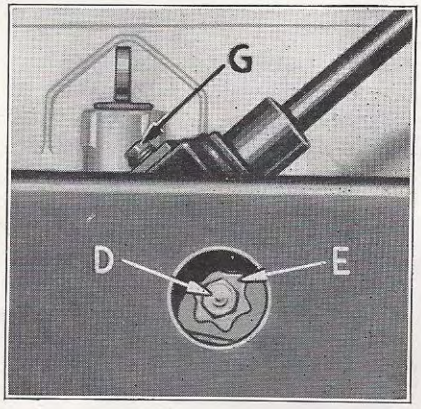


Figure 40

Lubrication — S.A.E. 90 E.P. gear oil should be added to bring level up to bottom of filler plug hole opening (G), Fig. 40. It is not necessary to replace this lubricant, but rather replenish it as required. Be sure filler plug is tightened securely.

The Drag Link is of the adjustable bearing type. Shim packs are provided at the front and rear ends of the rear socket, see Fig. 41.

To adjust drag link to correct relationship between wheels and steering gear, turn wheels to straight ahead position. Determine position of high point notch in top of steering column tube by removing horn button. With wheels straight ahead notch should be at bottom of tube and it should be possible to remove and replace drag link on pitman arm without turning car wheels or steering wheel.

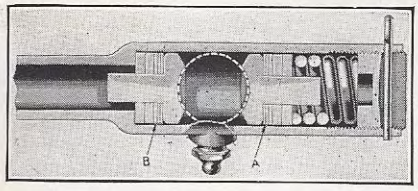


Figure 41

If wheels move to left with steering gear on high point, lengthen drag link by removing thin shims from rear pack (A), Fig. 41, at the rear of the drag link and add them to front pack (B).

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

Reassemble drag link to pitman arm, turn end plug (C) in solid against the spring and back off ¼ to ¾ turn and insert cotter pin. Lubricate fittings.

Lubrication—Drag link front and rear grease fittings should be lubricated every 1,000 miles with viscous chassis lubricant.

AUTO-POISE CONTROL

Auto-Poise Control which is standard equipment on all passenger car models is a mechanical means of holding the front wheels in a true straight ahead driving position to maintain road stability, particularly when passing other cars at high speeds and in driving around curves.

The control bar (A), Fig. 42, is assembled in tight fitting rubber bushings (B) mounted on the top of the front end of the car frame. The ends of the torsion bar are attached to the front wheels through steel connectors (C) cushioned in rubber.

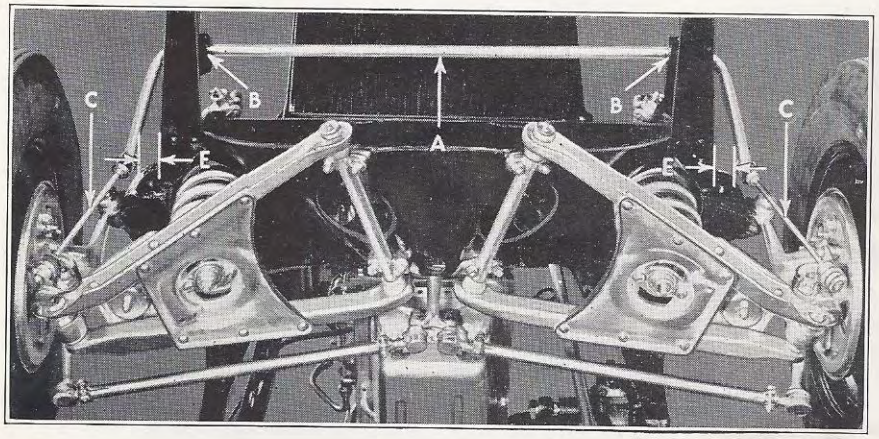


Figure 42

To maintain the purpose for which it is used, it is essential that the control bar be centralized in its bushings at all times to have equal tension on both wheels. This can be checked and adjusted as outlined.

Adjustment—Jack up front wheels clear of floor. Disconnect drag link at rear end. Loosen two bushing bracket bolt nuts on each side just enough to relieve pressure of bushings on the bar. Turn wheels to extreme right and then to extreme left to equalize the distance between the center of the torsion bar at (E) and the outside surface of the frame side member on each side. The wheels will automatically return to the straight ahead position when turned in either direction and released. **When doing this work be sure spindle pivot pins are adequately lubricated to prevent excessive friction.**

After proper position has been obtained, tighten bracket bolt nuts, and again turn the wheels to right and left positions as a final check.

Tighten connector retainer nuts flush with the end of the connector. **Bushings do not require lubrication.**

Attach drag link at rear end and lower car to floor.

REAR LATERAL STABILIZER

To control the horizontal movement of the body and car and prevent rolling on curves a Rear Lateral Stabilizer is fitted between the right hand end of the rear axle housing and the left frame side member on all passenger car models except 10T and Utility models, as illustrated in Fig. 43.

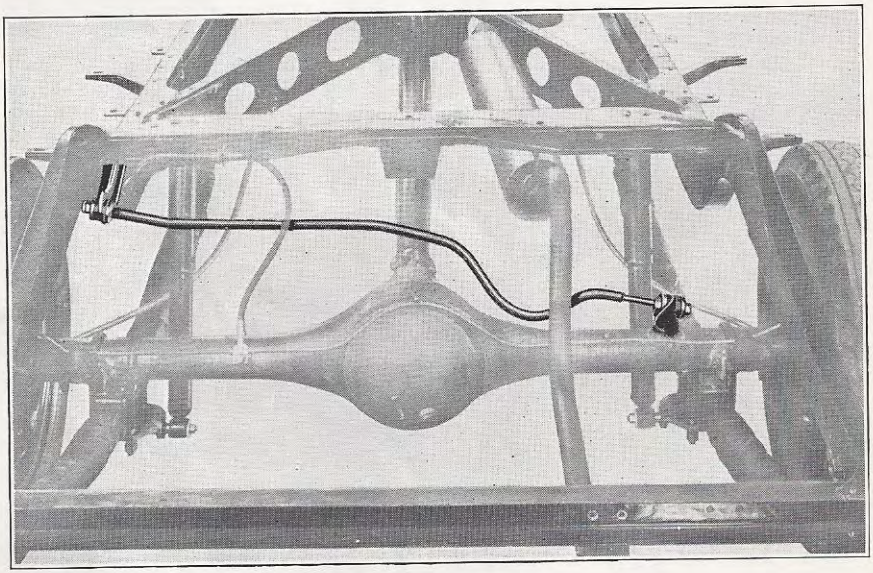


Figure 43

The points of attachment to the brackets are cushioned in rubber. **No lubrication is required.**

REAR SUSPENSION

The Rear Springs are of long, semi-elliptic type. The front ends are attached to the frame through steel pivot bolts fitted with rubber grommets. The rear ends are attached to the frame through threaded self-adjusting "U" type shackles operating in hardened steel bushings. Rubber seals are fitted between the shoulders on the shackle and frame side member to prevent road dirt from entering the threads.

Fabric spring covers are used on all models except Cab Pick-up and Panel Delivery.

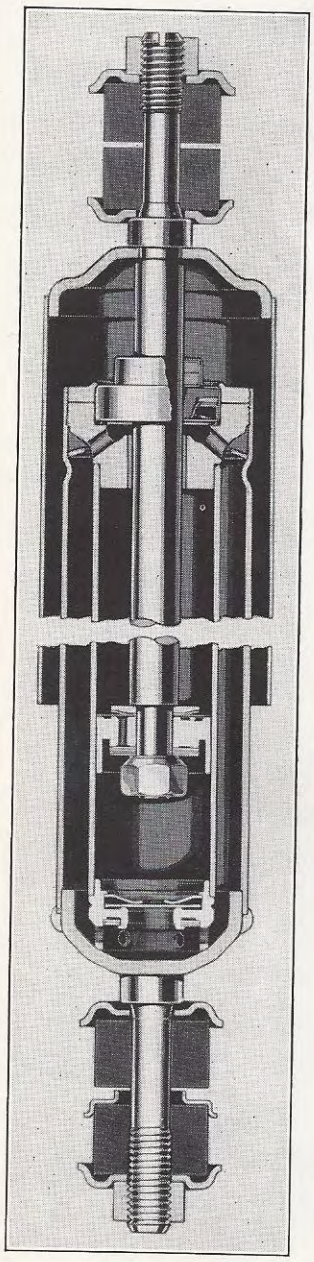


Figure 44

Lubrication—Rear shackle bushings are fitted with grease fittings through which viscous chassis lubricant should be applied every 1,000 miles.

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

Front pivot bolts require no lubrication.

Shock Absorbers—Four direct acting hydraulic type shock absorbers are used on all models except Cab Pick-up and Panel Delivery, which are equipped with only two front shock absorbers.

The front units, Fig. 44, are mounted axially within the front coil springs. The upper and lower studs are fitted with rubber grommets to provide cushioning and a limited amount of flexibility. Removal of the shock absorber may be effected by removing the stud nut at the top and two lower attaching plate bolts at the bottom.

The rear units are similar to those shown in Fig. 44, except that eyes fitted with rubber grommets are provided at both ends in place of studs for mounting. These units likewise are easily removed for servicing.

The fluid is sealed in the units and they need not be refilled unless a leak should develop which would necessitate disassembling the shock absorber for repairs. As special tools are required to service these units, and only Hudson Shock Absorber Fluid should be used when refilling them, all work on shock absorbers should be done by your Authorized Hudson Dealer.

REAR AXLE

The rear axle used on all models is of the semi-floating type, incorporating helical cut bevel gears.

The pinion (1), Fig. 45, is supported on two tapered roller bearings, (2) front and (3) rear. These bearings are accurately adjusted under load and their ad-

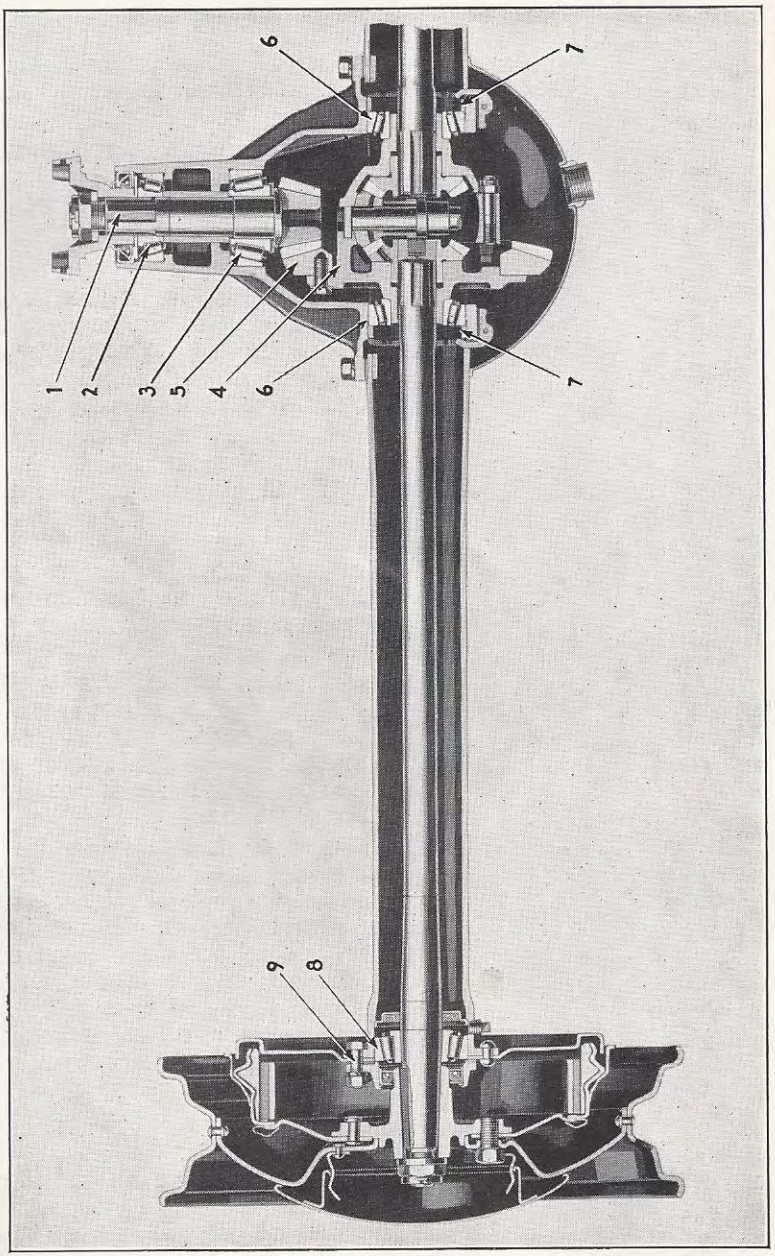


Figure 45

1. Drive Pinion
2. Pinion Bearing—Front
3. Pinion Bearing—Rear
4. Differential
5. Drive Gear
6. Differential Bearing
7. Differential Bearing Adjusting Nut
8. Rear Wheel Bearing
9. Rear Wheel Bearing Adjusting Cap Shims

justment should not be disturbed. The bearings are lubricated through a special cast-in channel leading from the main oil supply.

The differential (4), which is of the two pinion type, and to which the drive gear (5) is assembled, operates in two tapered roller bearings (6). These bearings are adjusted by slotted nuts (7).

The rear wheel bearings (8) are of the tapered roller type and are adjusted by means of shims (9). These shims control the axle shaft end play.

As special equipment is required to properly service the real axle, all adjustments or servicing of this unit should be referred to your Authorized Hudson Dealer.

Lubrication—Every 1,000 miles the oil level should be checked by removing filler plug in back cover. All gear oils of recommended type have a tendency to foam due to agitation and the car should be permitted to stand idle at least fifteen minutes to permit the foam to subside to be sure the actual oil level is being checked.

Every 5,000 miles the old lubricant should be drained and replaced with 2¾ lbs. (1.24 kgs.) of S.A.E. 90 E. P. gear oil in winter or summer.

Rear wheel bearings should be removed, cleaned and repacked every 10,000 miles, using 1½ ounces of milled sodium soap base lubricant. This operation should be performed by your Authorized Hudson Dealer.

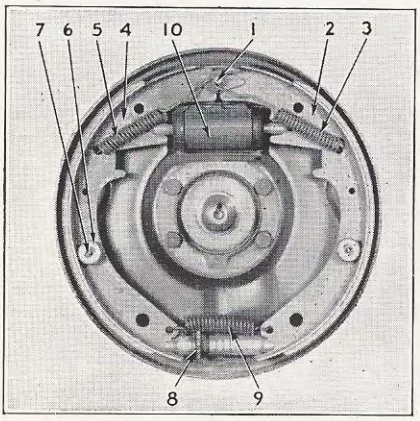


Figure 46

Front Brake

1. Brake Anchor Pin
2. Primary Brake Shoe
3. Primary Brake Shoe to Anchor Spring
4. Secondary Brake Shoe
5. Secondary Brake Shoe to Anchor Spring
6. Brake Shoe Hold-down Spring Cup
7. Brake Shoe Hold-down Spring Pin
8. Brake Adjusting Screw
9. Brake Adjusting Screw Spring
10. Wheel Cylinder

BRAKES

Patented Double-Safe Hydraulic Brakes, incorporating a reserve mechanical system operating from the same brake pedal, are used on all models, see Fig. 47.

The brakes are of the Bendix Duo-servo single anchor type, see Figs. 46 and 48. When having brakes relined insist on the use of Genuine Hudson Linings which will insure smooth, safe brake action over a long period of time.

Brake drums are of the combination steel and cast iron type. This type of drum is less subject to distortion due to the ability to quickly dissipate heat.

HYDRAULIC SYSTEM

The hydraulic system requires no attention other than checking the master cylinder fluid level every 1,000 miles and adding new

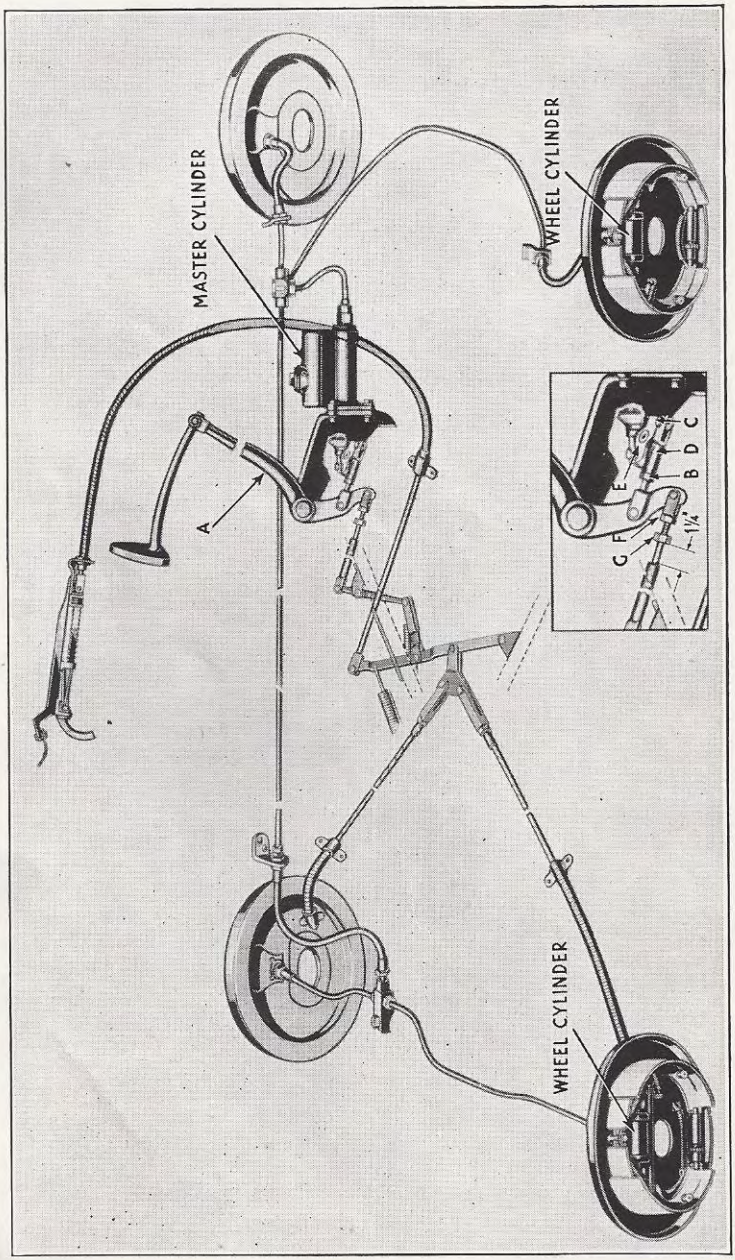


Figure 47

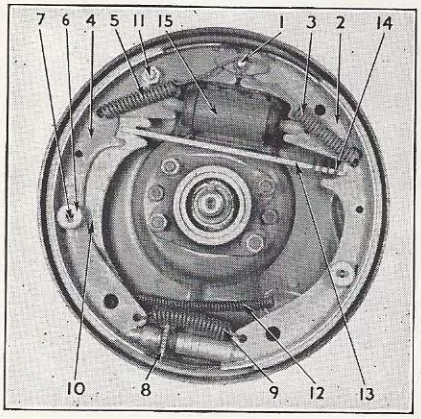


Figure 48

Rear Brake

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

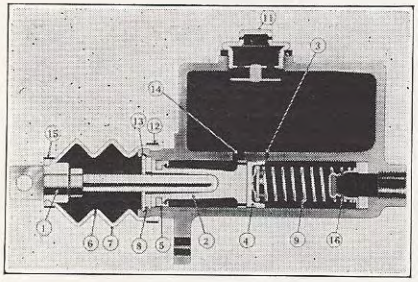


Figure 49

1. Push Rod
2. Piston
3. Outlet Port
4. Piston Cup—Primary
5. Piston Cup—Secondary
6. Push Rod Guard Breather Hole
7. Push Rod Guard
8. Piston Stop Plate
9. Piston Spring
11. Filler Cap
12. Push Rod Guard Strap—Large
13. Piston Stop Plate Lock Ring
14. Inlet Port
15. Piston Rod Guard Strap—Small

Hudson Hydraulic Brake Fluid No. 21 if required.

Hydraulic Operation—As the brake pedal is applied pressure is exerted on the brake fluid in the hydraulic system by the forward movement of master cylinder piston (2), Fig. 49. The pressure thus created in the hydraulic system forces the pistons of the wheel cylinders, Fig. 47, outward, spreading the brake shoes. To assure proper return of shoes to normal position when brakes are released, there must be at least ¼ inch clearance between brake pedal shank (A), Fig. 47, and floor board. See "Brake Pedal Adjustment," page 66.

Brake Fluid—As a number of genuine rubber parts are used in the hydraulic system it is highly essential that the use of brake fluid containing mineral oil or other ingredients, injurious or having a deteriorating affect on these rubber parts, must be avoided.

The exclusive use of Hudson Hydraulic Brake Fluid No. 21, which is entirely harmless to these rubber parts, will assure satisfactory operation at all times.

As the presence of air in the Hydraulic System causes spongy pedal and poor braking operation, the self-compensating type master cylinder, Fig. 49, must be kept at least half full of fluid at all times. The filler cap (11) and the area around it should be carefully wiped off before removing it to preclude the possibility of dirt getting into the hydraulic system. Be sure to consult your Authorized Hudson Dealer when brake service of any kind is desired.

Bleeding Hydraulic System—If air should enter the hydraulic system through a main tube being disconnected or the master cylinder running dry, the entire system must be bled at all four wheel cylinders. In the event that a tube is removed at only one wheel, then only that wheel cylinder need be bled. This service should be performed by your Authorized Hudson Dealer.

Mechanical System

Mechanical Follow-up on Rear Wheels—If for any reason the hydraulic system should become inoperative when the brakes are applied, **continued pressure on the same pedal** will automatically apply the rear wheel brakes for an emergency stop. This is accomplished through a mechanical reserve system operated by rotary-equalized steel cables attached to the same push rod arrangement used when applying the Hand Parking Brake, (see Fig. 47). To adjust, see "Pedal Push Rod Adjustment," on this page.

Brake Pedal Adjustment—To assure full return of the brake pedal to relieve the pressure in the hydraulic system and preclude the possibility of brake drag, at least ¼ inch clearance must be maintained between pedal shank (A), Fig. 47, and floor board.

To adjust, loosen lock nut (B), remove clevis pin (C) and turn connecting link (D) to increase length until clevis pin just enters the rod with the pedal shank ¼ inch from the floor board and the master cylinder operating lever (E) against its stop. Insert clevis pin from bottom of bell crank, insert cotter pin and tighten lock nut.

In the event less sensitive brake operation is desired, particularly at low speed, the brake pedal link (D), Fig. 47, may be changed to the alternate or left hand hole in the master cylinder operating lever (E). This results in a harder pedal due to shorter travel on application. In production the link is assembled in the right hand hole for soft pedal action.

Pedal Push Rod Adjustment—This adjustment must be made accurately to insure proper automatic engagement of the mechanical reserve brake system on the rear wheels.

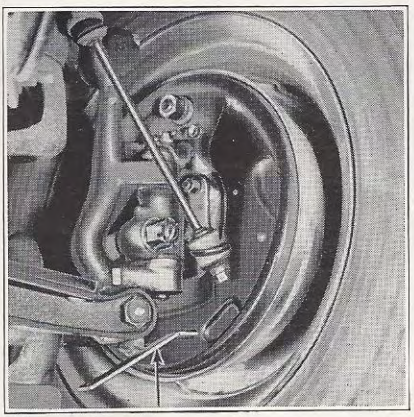


Figure 50

With master cylinder operating lever (E), Fig. 47, against its stop, loosen brake pedal push rod adjusting end lock nut (F) and turn push rod (G) until rear face of the hex is 1¼ inches from front end of pedal push rod. Tighten lock nut (F) securely.

Brake Shoe Adjustment

To compensate for lining wear, adjust shoes as follows:

1. Jack up all wheels clear of floor.
2. Be sure hand brake is in fully released position.

3. Remove brake backing plate adjusting screw hole covers at each wheel.
4. On each wheel, with a screw driver inserted through slot in brake backing plate, expand shoes against drum with adjusting screw, Fig. 50, by moving outer end of screw driver toward center of backing plate until a drag is noted when wheel is turned by hand.
5. Back off adjusting screw **exactly 14 notches at each wheel** by moving end of screw driver toward outside of brake backing plate.
6. Replace adjusting screw hole covers and lower car to floor.

In the event that the foregoing adjustment does not give satisfactory braking operation it will be necessary to have a major brake adjustment performed by your Authorized Hudson Dealer. This involves a complete inspection of the braking system, both hydraulic and mechanical, and possibly adjustment of the brake shoe anchor.

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 Fig. 51. 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.

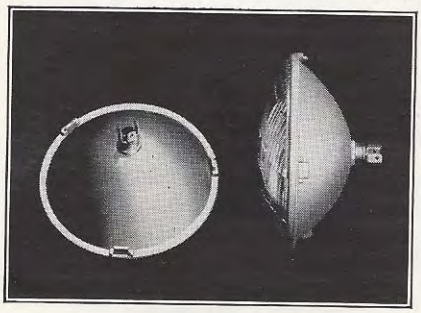


Figure 51

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 Manufacturers' 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 travelled 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. By pressing the lighting switch button once if driving with parking lights, or twice if lights were out to turn on bright lights, either the country (upper) or traffic (lower) headlamp beams are obtained alternately by pressing 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 pressing the lighting switch button once if lights are out, the parking lamps on the bonnet side panels, license plate lamp and both tail lights are lighted.

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.

No dust or moisture can get inside the "Sealed Beam" headlamp unit because the reflector and lens are sealed together permanently. This feature eliminates cleaning, except for wiping off the outside of the lens, and provides proper focusing and maximum light efficiency during the life of the car. The reflector units in both the right and left headlamps are identical and are so designed that they cannot be installed improperly, nor can the electrical connections be attached in any but the right way. This feature makes replacement of the unit extremely simple, as follows:

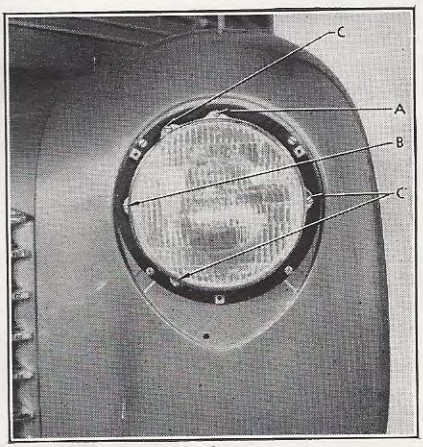


Figure 52

1. Remove headlamp lens rim by taking out the three screws.
2. Loosen, but do not remove, the three screws (C), Fig. 52, holding the retaining ring. (Do not disturb the aiming screws (A and B) at the top and left side of the unit.)

3. Remove retaining ring by rotating counter-clockwise allowing the reflector unit to be removed.
4. Remove the reflector plug from the reflector unit as in Fig. 53.
5. Install new units by reversing above operations.

"Sealed Beam" Headlamp Aiming Adjustment. To obtain the maximum results in road illumination and the safety that has been built into the headlighting equipment, **the headlamps must be properly aimed.**

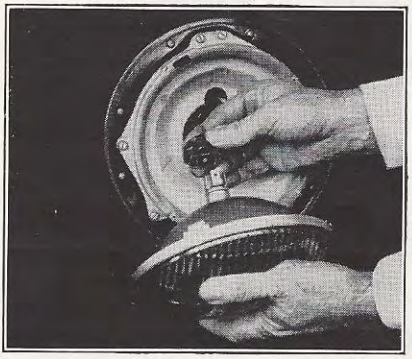


Figure 53

Place the car on a level stretch with a light-colored vertical screen 25 feet ahead. For best road lighting results, draw a horizontal line (A-A), Fig. 54, on this surface at a level of a point three inches below the headlamp center. This distance is 26¾ inches above the floor line.

If, however, your state requires a loading allowance, draw this horizontal line below the above mentioned line by the amount required by your particular state. Sight through the center of the rear window to 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), Fig. 52. 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) three 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.

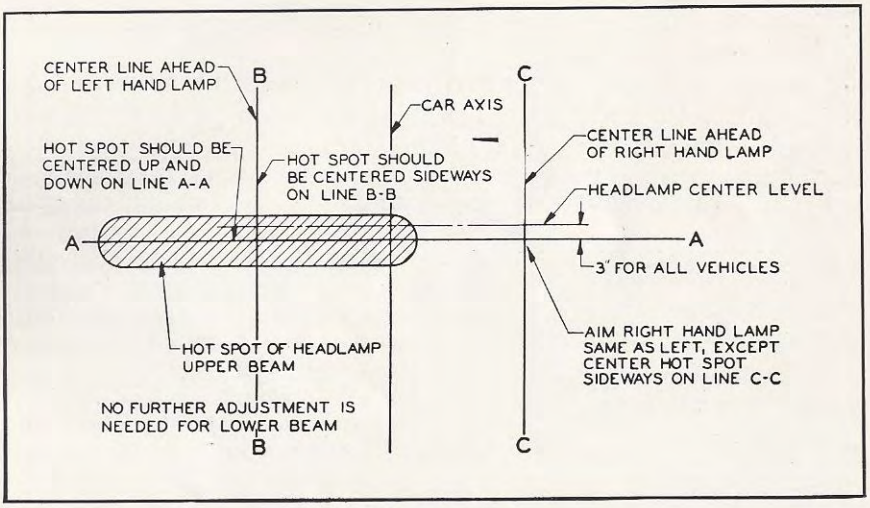


Figure 54

LAMP BULB SPECIFICATIONS

Position	C.P.	Base	Voltage	Mazda No.
Headlamp	Sealed Beam Type			
Bonnet Side Panel	1½	S. C.	6–8	55
Fender Lamp with Direction Indicator	21	S. C.	6–8	1129
Fender Lamp without Direction Indicator	3	S. C.	6–8	63
Tail and Stop Lamp	21–3	D. C.	6–8	1154
License Lamp	3	S. C.	6–8	63
Dome Lamp	15	S. C.	6–8	87
Generator and Oil Indicator	1½	S. C.	6–8	55
Electric Clock	1½	S. C.	6–8	55
Mechanical Clock	1	S. C.	6–8	51
Speedometer	1½	S. C.	6–8	55
Radio	1	S. C.	6–8	44
Direction Indicator	1	S. C.	6–8	51
Headlamp Beam	1	S. C.	6–8	51
Ignition Lock	1	S. C.	6–8	51

LAMP LENS AND BULB REPLACEMENT

Tail Lamp—To replace bulb, raise rear compartment door and take bulb out of socket. To replace lens, remove four nuts from studs which project through body in rear compartment panel and lift door assembly out of body. Take out four small screws attaching base to door assembly and take out lens. Install new lens and balance of parts by reversing procedure of removal.

License Lamp—To replace bulb, raise rear compartment door and pull bulb socket out of lamp and remove bulb. To replace lens remove one small screw attaching lens retainer plate and take out

plate, gasket and lens. Install new lens and balance of parts by reversing procedure of removal.

Fender Lamp—To remove bulb or lens remove one Phillips head screw attaching lamp body to base and lift off body. Remove lens and replace bulb. Install bulb and balance of parts by reversing procedure of removal.

Bonnet Lamp—To replace bulb, raise bonnet and pull bulb socket out of lamp housing and replace bulb. To replace lens, remove nuts attaching housing to bonnet. Lift out housing and lens. To install parts, reverse procedure of removal.

Dome Lamp—Grasp lens and retainer assembly and unsnap from base. Replace bulb and snap lens and retainer assembly into place.

Oil Pressure Indicator, Generator Indicator and Instrument Lamp Bulbs—Pull out bulb sockets snapped in place in back of indicators. Replace bulb and press socket into place.

BODY

Door locks are designed to permit locking from the inside or outside without using the key. However, certain precautions must be taken to preclude locking yourself out of the car accidently.

Be sure, when leaving the car on all occasions, that the ignition lock key, which also operates the right hand door safety lock, is removed.

To lock the car from the inside or outside without the safety lock key, "raise" the small knob projecting from the door window lower ledge. In order to operate the inside door handle to leave the car the knob must be "pushed down." **It is at this point, when leaving the car through the right hand front door that you must be sure the ignition lock key has been removed before raising the knob again to lock the door.**

Or, if you prefer, the knob may be left in the down position and the door can be "locked" by inserting the key in the safety lock and turning it one-quarter turn "clockwise" and back to starting position. To "unlock" the door turn the key one-quarter turn "counter-clockwise" and back to starting position.

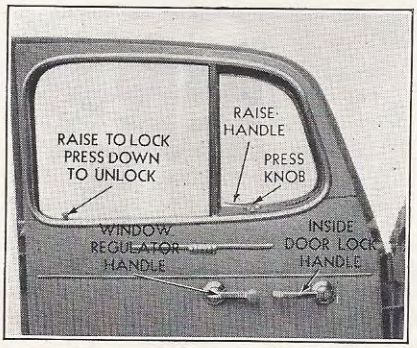


Figure 55

BE SURE BOTH IGNITION AND REAR COMPARTMENT KEY NUMBERS ARE RECORDED ON OWNERSHIP CARD.

Door Inside Handles—To open

door from inside, push down on handle as shown in Fig. 55. Lock plunger knob must be pressed down.

Door Windows—Turn handle, shown in Fig. 55, to lower and raise glass.

Ventilator Wings—Friction Type—Press in on knob and at same time raise handle to unlock wing. See Fig. 55.

Ventilator Wings—Crank Type—Turn handle to open and close.

Quarter Windows—Turn handle to raise and lower glass.

DOOR ADJUSTMENTS

The door striker assembly (A), Fig. 56, is attached to the pillar post by means of four screws, permitting of a considerable range of adjustment both up and down and sideways to provide easy, quiet closing of the door. The dovetail (C) attached to the door is non-adjustable and rides over the top of the striker assembly to prevent up and down movement of the door.

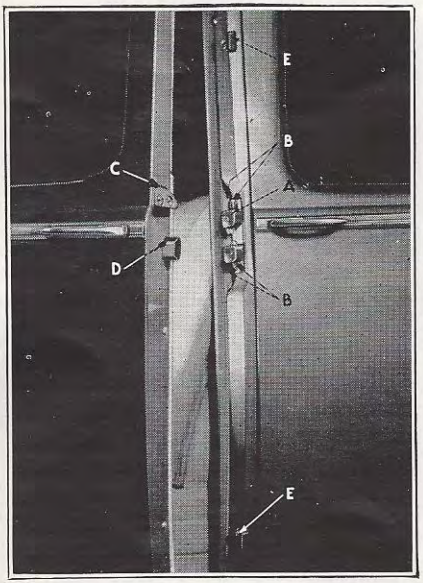


Figure 56

To adjust doors proceed as follows:

1. Set door rubber bumpers (E) all the way in.
2. Loosen striker screws (B) slightly and adjust the striker assembly on the pillar in as far as it will go and still permit the door to close and latch very easily. When closing the door hold the handle in the normal horizontal position.
3. When making above adjustment, be sure that the striker assembly is set at such a height that the dovetail (C) on the door will interfere by about $\frac{1}{32}''$. This will result in the door being lifted this amount as it is closed. Tighten four screws securely.

   Also make sure that the striker is not cocked but is square with the inside edge of the pillar.
4. After making the above adjustment see if the rubber door bumpers touch the edge of the door flange. If not, set them out until they both touch the flange and exert a slight pressure on the door when closed. The door should still close and latch very easily.

All doors are fitted with strong steel checks, embedded in rubber at the ends, to control the opening 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 engine 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 and the plates deteriorating, making replacement of the battery necessary.

Go over the chrome or nickel-plated parts with a light coating of vaseline jelly or grease to prevent tarnishing. This should be removed with gasoline before putting the car back into service.

Jack up the car and remove the tires.

If the tires are to be out of service for any length of time, they should be removed from the wheels. The inner tubes should be put in the casing with a small amount of air pressure and the tires stored in some cool, dark place, preferably where there is a slight amount of moisture, since if they become too dry the rubber will harden and lose its elasticity. It is a good idea to wrap tires with cloth to protect them from heat.

Remove all dust from upholstery, wash body clean, put the windows or the top up and cover the car with heavy sheeting or a paper cover especially made for the purpose.

When putting the engine back into service again, remove the spark plugs, inject a small quantity of oil into each cylinder, crank the engine for a few seconds, replace the plugs, turn the ignition "on" and, after the engine has been started on its own power, run slowly for a few minutes.

HUDSON APPROVED ACCESSORIES

Your Authorized Hudson Dealer has available for installation on your car a complete line of Factory Approved Accessories. The addition of these items will greatly enhance the appearance of the car, improve comfort and provide greater safety.

These accessories harmonize beautifully with both the interior and exterior appointments of your Hudson car.

Among the accessories available are:

Automatic Clutch
Automatic Battery Filler
Bumper Wings—Front and Rear
Cigar Lighters
Cowl Ventilator Dust Filter
Custom Hub Caps
DeLuxe Steering Wheel (with Horn Ring)
Direction Indicator
Electric Clock (Models 10, 11, 12)
Exhaust Deflectors
Fender Lamps
Fog Lights
Gas Tank Locking Cap
Grille and Fender Guards (Models 10, 11)
Grille Guard (Models 12 to 15)
License Plate Frames
Oil Filter
Radiator Grille Cover
Radiator Insect Screen
Rear View Mirror—Outside
Rear View Mirror—Oval
Running Board Mouldings
Seat Covers—Custom (Skinners Satin)
Seat Covers—DeLuxe (Fibre)
Sleeper Kit
Spot Light (Right or Left Hand Installation)
Vanity Mirror
Wheel Trim Rings

Additional accessories worthy of particular mention are as follows:

Radio

Three car radios of exceptional tone, selectivity, sensitivity and power are available. All types are of the single unit construction, receiver, speaker and control head integral.

The Custom unit is of eight tube, eight inch speaker type with separate tone compensation and five push button control.

The De Luxe unit is of six tube, six inch speaker type with five push button control.

The Junior model is of five tube, five inch speaker with manual control.

Three radio antennae are also available. Two of them are of the telescopic cowl type, one of 60 inch length for normal reception. In some localities where reception signals are weak a longer 90 inch antenna is available for better reception.

The third type antenna is vacuum operated and raises or lowers merely by operating a control button on the instrument panel. When in the lowered position it is concealed in the cowl.

Heaters

A recirculating type hot water heater with reversible motor and provision for defroster outlets is available. This heater provides exceptional heating qualities and direct or indirect heat at the option of the driver.

A separate manually operated heater shut-off valve, which is installed in the cylinder head, and precludes the necessity for disconnecting the hose in warm weather is also obtainable.

Weathermaster Heater

This unit permits operation of the car in winter weather without the necessity of opening the windows to eliminate windows steaming. When the car is in motion fresh air entering through the par-

tially opened cowl ventilator is filtered of dust by passing through a filtering pack in the cowl ventilator. The fresh, filtered air is then heated as it passes through the heater core.

Outlets are also provided for defrosting.

Windshield Defrosters

Windshield defroster outlets are provided in the lower windshield finish moulding. Warm air is forced through these outlets from large flexible tubes connected to the heater. By simply turning the heater switch to "Indirect" hot air is spread fan-wise over the windshield glass and quickly removes frost, sleet and condensation.

GENUINE HUDSON SUPPLIES

A complete line of high quality supplies, bearing approval of the Hudson Laboratories is available. These supplies enable the owner to preserve the finish and clean interiors and chromium plated parts. Anti-freeze and other essential items for the proper maintenance of your car is included in this group.

Among the items stocked by Hudson Dealers are:

All Purpose Cleaner
Anti-Freeze
Chromium Polish
HandRubbingCompound
High Gloss Wax
Hudson Hydraulic Brake Fluid
Hudson Shock Absorber Fluid
Hudsonite Clutch Compound
Perfect Seal Gasket Paste
Polish and Cleaner
Pre-Wax Cleaner
Radiator Cleaner and Corrosion Inhibitor
Spot Remover
Wax Base Polish

INDEX

INDEX (Continued)

13M—8-40
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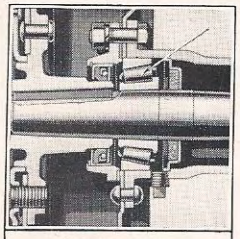
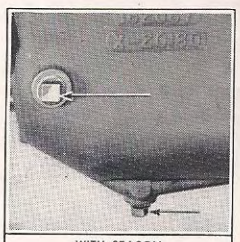
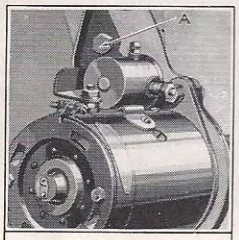
LUBRICATION HUD



10,000 MILES
REAR WHEEL BEARING
USE MILLED SODIUM SOAP BASE LUBRICANT
CAPACITY—1½ OUNCES



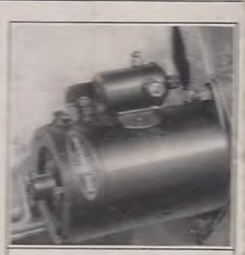
WITH SEASON TRANSMISSION
USE GEAR OIL
SUMMER S.A.E. 90 E.P.
WINTER S.A.E. 80 E.P.
CAPACITY—2 POUNDS
WITH OVERDRIVE—3¼ POUNDS
CHECK LEVEL FREQUENTLY



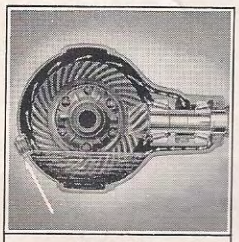
5000 MILES
CLUTCH
USE HUDSONITE CLUTCH LUBRICANT
CAPACITY—½ PINT

1000 MILES
BRAKE AND CLUTCH PEDAL BEARINGS FITTING
USE VISCOUS GREASE
2000 MILES
BRAKE, CLUTCH AND THROTTLE CONTROL LINKAGE
USE ENGINE OIL

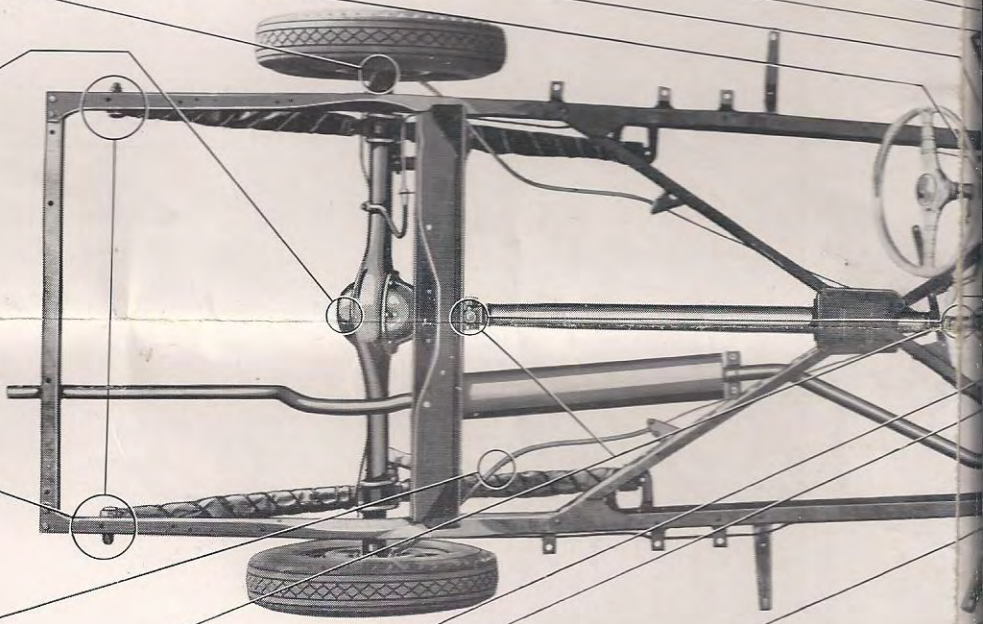
1000 MILES
CHECK LEVEL
BRAKE MASTER CYLINDER
USE ONLY GENUINE HUDSON HYDRAULIC BRAKE FLUID NO. 21 FOR ALL TEMPERATURES



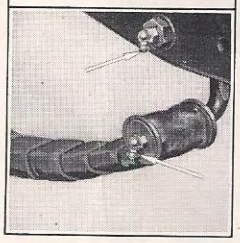
2000 MILES
STARTING MOTOR FRONT AND REAR BEARINGS
USE ENGINE OIL



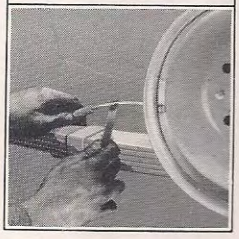
WITH SEASON DIFFERENTIAL
USE GEAR OIL
SUMMER AND WINTER
S.A.E. 90 E.P.
CHECK LEVEL FREQUENTLY
CAPACITY—2¾ POUNDS



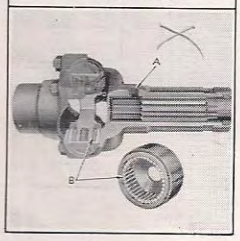
1000 MILES
SPRING SHACKLE
USE VISCOUS GREASE



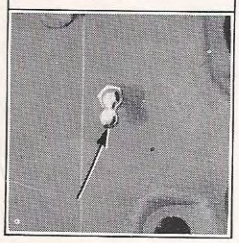
5000 MILES
BRAKE CONDUITS AND CABLES
VISCOUS GREASE



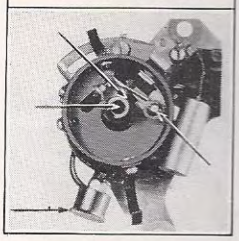
1000 MILES
UNIVERSAL JOINT SPLINE
USE VISCOUS GREASE
20,000 MILES
DISASSEMBLE, CLEAN AND REPACK NEEDLE ROLLER BEARINGS
USE VISCOUS GREASE



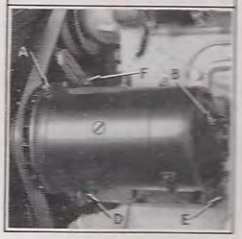
1000 MILES
CLUTCH RELEASE BEARING
USE VISCOUS GREASE



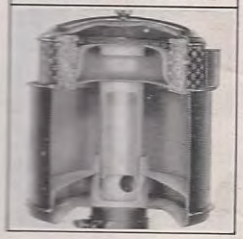
2000 MILES
DISTRIBUTOR
ADVANCE CAM—HIGH TEMPERATURE GREASE
CONTACT ARM PIVOT—ENGINE OIL
TOP OF SHAFT—ENGINE OIL
6-CYL.—SHAFT GREASE CUP
HIGH TEMPERATURE GREASE
8-CYL.—SHAFT OIL CUP—ENGINE OIL



2000 MILES
GENERATOR BEARINGS
USE ENGINE OIL



2000 MILES
AIR CLEANER—STANDARD
WASH IN GASOLINE AND LUBRICATE WITH ENGINE OIL—SAME GRADE AS USED IN ENGINE
AIR CLEANER—OIL BATH
WITHDRAW FILTER AND WASH PARTS IN GASOLINE
FOUR 1 PINT OIL SAME GRADE AS IN ENGINE IN CLEANER BODY AND REASSEMBLE



GENERAL LUBRICATION INFORMATION

ENGINE LUBRICATION

LEVEL SHOULD BE CHECKED FREQUENTLY

CAPACITY

6 CYLINDER.....5½ QTS. (4½ I.Q.—5½ L.)
8 CYLINDER.....9 QTS. (7 I.Q.—8½ L.)

REFILL CAPACITY

6 CYLINDER.....4½ QTS. (3¾ I.Q.—4¼ L.)
8 CYLINDER.....7 QTS. (6 I.Q.—6½ L.)

ENGINE OIL SHOULD BE DRAINED AFTER EXPIRATION OF FIRST 500 MILES OF DRIVING AND THEREAFTER AT INTERVALS OF 2,000 MILES, UNLESS DUSTY CONDITIONS OR INDIVIDUAL DRIVING CHARACTERISTICS WARRANT MORE FREQUENT CHANGING. REFILL ACCORDING TO THE FOLLOWING RECOMMENDATIONS:

110° to 70°.....Use S.A.E. 30
90° to 32°.....Use S.A.E. 20
70° to 10°.....Use 20 W.
40° to −10°.....Use 10 W.
−10° to −30°.....Use 10 W. plus 10% kerosene

TRANSMISSION (AND OVERDRIVE)

TRANSMISSION LUBRICANT SHOULD BE CHECKED EVERY 1,000 MILES. WHEN CHECKING LEVEL BE SURE CAR HAS BEEN PERMITTED TO STAND LONG ENOUGH FOR OIL FOAM TO SUBSIDE. THIS INSURES CHECKING ACTUAL LEVEL.

S.A.E. 90 E.P. IS RECOMMENDED FOR SUMMER AND S.A.E. 80 E.P. FOR WINTER. LUBRICANT USED SHOULD BE OF A MILD EXTREME PRESSURE NATURE AND MUST BE NON-CORROSIVE.

REAR AXLE LUBRICANT

REAR AXLE LUBRICANT LEVEL SHOULD BE CHECKED EVERY 1,000 MILES. WHEN CHECKING LEVEL BE SURE CAR HAS BEEN PERMITTED TO STAND LONG ENOUGH FOR OIL FOAM TO SUBSIDE. THIS INSURES CHECKING ACTUAL LEVEL.

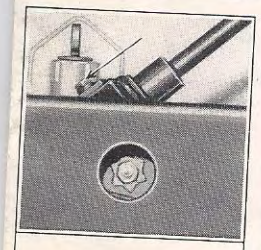
S.A.E. 90 E.P. IS RECOMMENDED FOR ALL SEASONS. LUBRICANT SHOULD BE OF A MILD EXTREME PRESSURE NATURE AND MUST BE NON-CORROSIVE.

SPRING COVERS

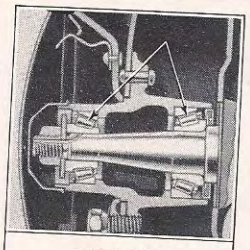
REAR SPRING COVERS SHOULD BE REMOVED AND REPACKED WITH VISCOUS CHASSIS GREASE EVERY 10,000 MILES.

LITHO IN U. S. A.

SON 1941 MODELS

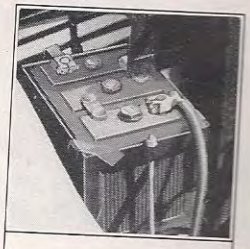


WITH SEASON
STEERING GEAR
USE GEAR OIL
SUMMER AND WINTER
S.A.E. 90 E.P.

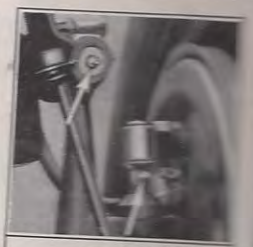


10,000 MILES
FRONT WHEEL
BEARINGS
USE MILLED SODIUM SOAP
BASE LUBRICANT
CAPACITY—4 OUNCES

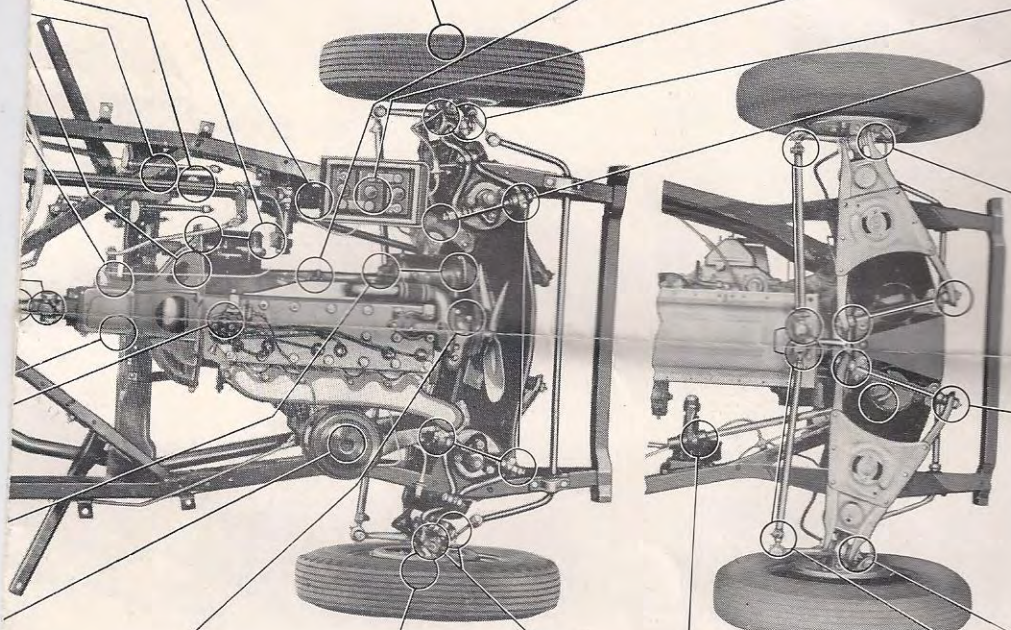
2000 MILES
CRANKCASE
DRAIN AND REFILL
ENGINE OIL
(SEE OIL SPECIFICATIONS)
CHECK LEVEL FREQUENTLY



1000 MILES
BATTERY
ADD DISTILLED WATER
TO KEEP PLATES COVERED

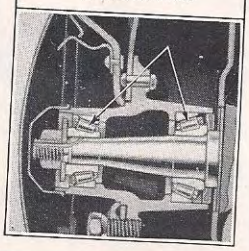


1000 MILES
UPPER SUPPORT ARM
ECCENTRIC BUSHING
1-FITTING
STEERING SPINDLE PIVOT PIN
1-FITTING
USE VISCOUS GREASE

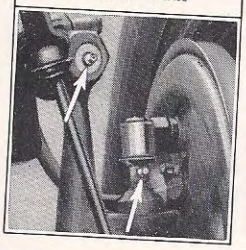


1000 MILES
WATER PUMP SHAFT
USE ALUMINUM SOAP GREASE

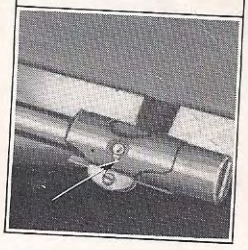
10,000 MILES
FRONT WHEEL
BEARINGS
USE MILLED SODIUM SOAP
BASE LUBRICANT
CAPACITY—4 OUNCE



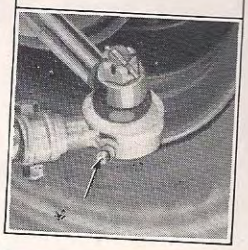
1000 MILES
UPPER SUPPORT ARM
ECCENTRIC BUSHING
1-FITTING
STEERING SPINDLE PIVOT PIN
1-FITTING
USE VISCOUS GREASE



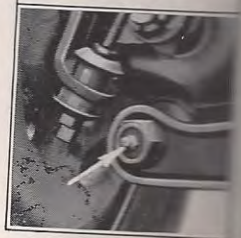
1000 MILES
DRAG LINK—REAR END
1-FITTING
USE VISCOUS GREASE



1000 MILES
TIE ROD ENDS
4-FITTINGS
USE VISCOUS GREASE



1000 MILES
LOWER SUPPORT ARM TO
SUPPORT PIVOT BUSHING
1-FITTING
USE VISCOUS GREASE



PROPELLER SHAFT AND UNIVERSAL JOINTS

UNIVERSAL JOINTS ARE LUBRICATED AT TIME OF ASSEMBLY. AT INTERVALS OF 20,000 MILES THE PROPELLER SHAFT SHOULD BE REMOVED AND UNIVERSAL JOINTS DISASSEMBLED AND REPACKED WITH VISCOUS CHASSIS GREASE.

THE SPLINE SHAFT SHOULD BE LUBRICATED AT INTERVALS OF 1,000 MILES WITH VISCOUS CHASSIS GREASE. THE PIPE PLUG IN THE FRONT JOINT SHOULD BE REMOVED AND A SUITABLE GREASE FITTING INSTALLED. BE SURE FITTING IS REMOVED AFTER GREASING IS COMPLETED TO PREVENT DISTURBING THE BALANCE OF THE PROPELLER SHAFT.

BODY LUBRICATION

DOOR DOVETAIL WICKS AND DOOR STRIKER WICKS SHOULD BE LUBRICATED WITH A FEW DROPS OF LIGHT ENGINE OIL EVERY 1,000 MILES.

LOWER FRONT DOOR HINGE SHOULD BE LUBRICATED WITH A FEW DROPS OF ENGINE OIL, THROUGH OIL HOLE ACCESSIBLE WHEN DOOR IS OPENED, EVERY 1,000 MILES.

RUBBER BUMPERS AND DOOR STRIKER CONTACT SURFACES SHOULD BE LUBRICATED WITH A PENCIL LUBRICANT EVERY 1,000 MILES.

BE SURE TO WIPE OFF ALL EXCESS LUBRICANT.

TIRE PRESSURES

MAINTAINING CORRECT TIRE PRESSURE IS ESSENTIAL TO OBTAIN MAXIMUM TIRE LIFE.

CHECK PRESSURES AND INFLATE TO FOLLOWING PRESSURES AT LEAST ONCE A WEEK.

SIZES	FRONT COLD	FRONT HOT	REAR COLD	REAR 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.

IF CAR HAS BEEN STANDING FOR SOME TIME AND TIRES ARE COOL, INFLATE TO COLD PRESSURES. IF TIRES ARE WARM FROM RUNNING, INFLATE TO HOT PRESSURES.

COOLING SYSTEM

CHECK WATER LEVEL FREQUENTLY
(IN WINTER CHECK ANTI-FREEZE STRENGTH)

CAPACITY OF COOLING SYSTEMS IS AS FOLLOWS:

6 CYLINDER.....13 QTS. (10¾ LQ.—17¾ [illegible])
8 CYLINDER.....18 QTS. (15 LQ.—17 [illegible])

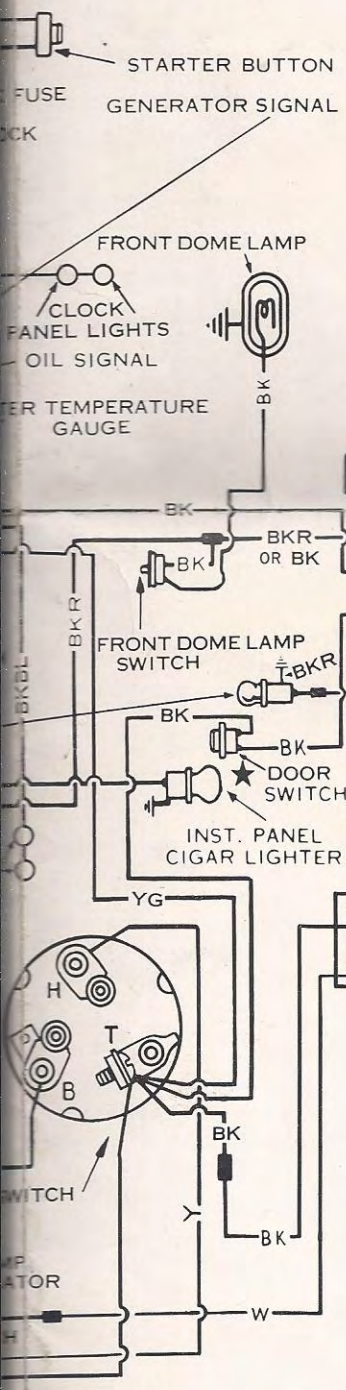
TE TRACER
ACK TRACER
EEN TRACER
ED TRACER
TRACER

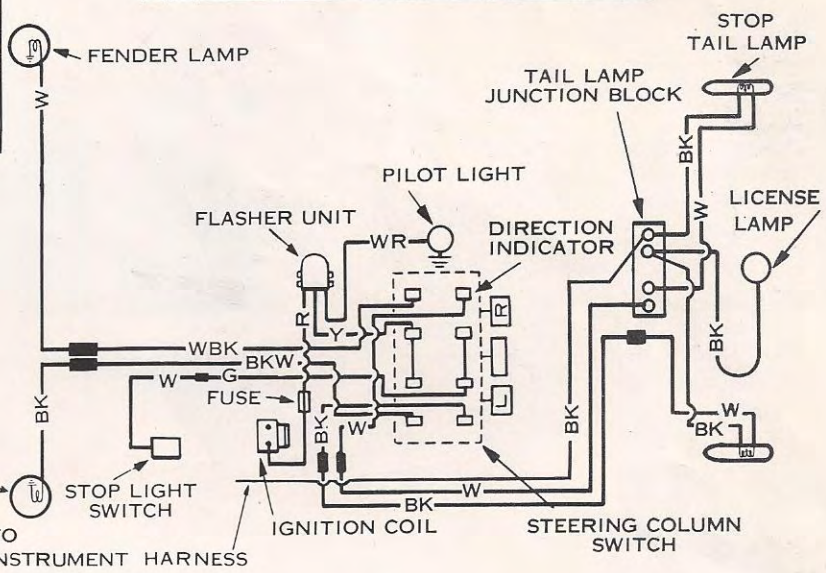
FUSE DATA

Circuit	No. Used	Capacity
LIGHTING	1	20 AMP.
ACCESSORY	1	20 AMP.
CLOCK	1	2 AMP.
DIRECTION INDICATOR	1	10 AMP.

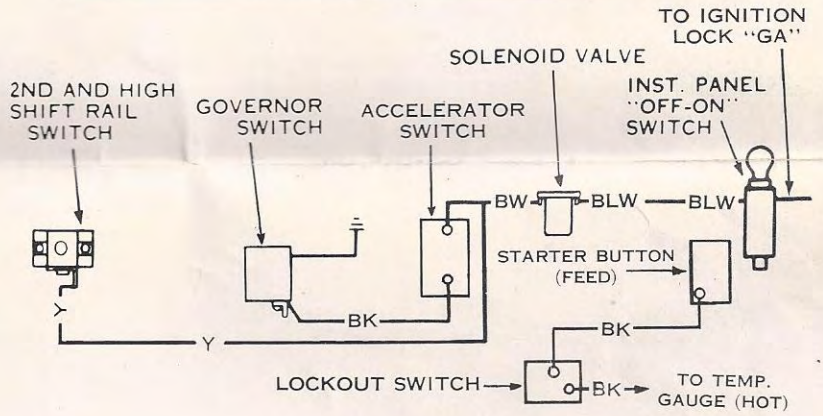
INDICATING FUSE
INDICATING WIRE CONNECTOR

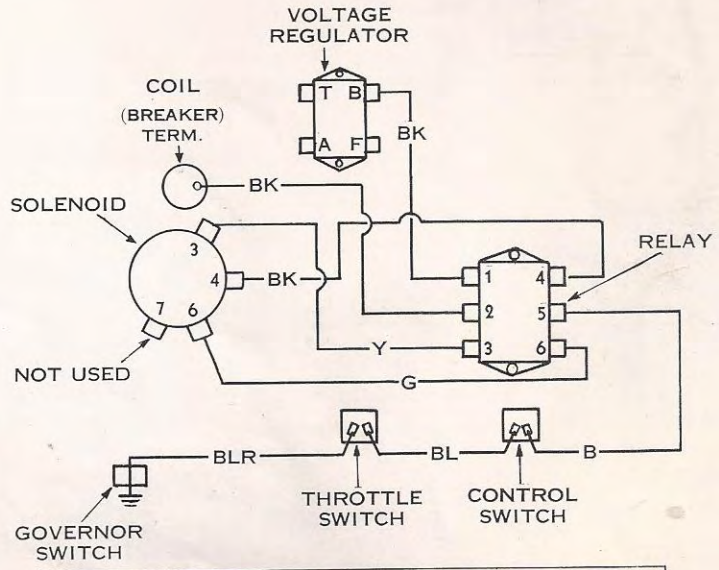
★ WIRING FOR DIRECTION INDICATOR





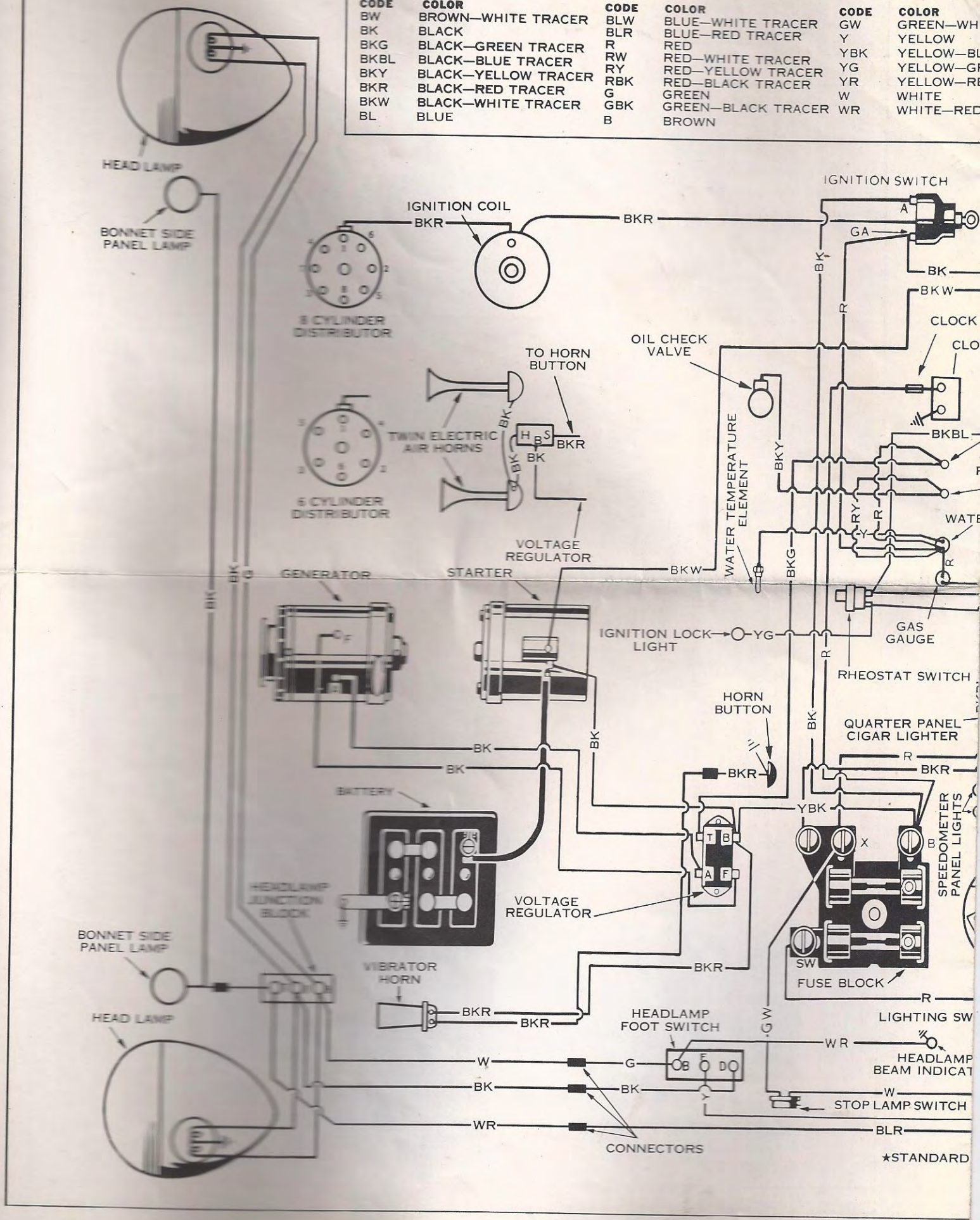
WIRING FOR AUTOMATIC VACUUM CLUTCH CONTROL (OPTIONAL EQUIPMENT)





WIRING FOR OVERDRIVE (OPTIONAL EQUIPMENT)

CODE	COLOR	CODE	COLOR	CODE	COLOR
BW	BROWN—WHITE TRACER	BLW	BLUE—WHITE TRACER	GW	GREEN—WH
BK	BLACK	BLR	BLUE—RED TRACER	Y	YELLOW
BKG	BLACK—GREEN TRACER	R	RED	YBK	YELLOW—BL
BKBL	BLACK—BLUE TRACER	RW	RED—WHITE TRACER	YG	YELLOW—GR
BKY	BLACK—YELLOW TRACER	RY	RED—YELLOW TRACER	YR	YELLOW—RE
BKR	BLACK—RED TRACER	RBK	RED—BLACK TRACER	W	WHITE
BKW	BLACK—WHITE TRACER	G	GREEN	WR	WHITE—RED
BL	BLUE	GBK	GREEN—BLACK TRACER		
		B	BROWN		



WIRING DIAGR