

C. ASHTON COX
217 Arlington Street
WOLLASTON 70, MASS.

OWNER'S MANUAL

THE GREATER
HUDSON 8

FOR 1932



SERIAL NUMBERS

119" W. B.—930770
126" W. B.—62884
132" W. B.—250061

AND
UP

HUDSON MOTOR CAR COMPANY
DETROIT, MICHIGAN, U. S. A.

Printed in U. S. A.

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Foreword

Hudson automobiles are equipped with locks which have been approved by the Underwriters Bureau as satisfactory means of preventing theft. The presence of these locking devices reduces the insurance rate to the owner, but does not reduce the possibility of loss by theft unless you LOCK YOUR CAR.

Protection against loss by damage to the mechanism has been provided in Hudson automobiles by providing adequate means of lubrication for all working parts. Although the system of lubrication used is as positive and complete as any in use today, its protection depends to a large extent on how regularly you LUBRICATE YOUR CAR.

This instruction book is intended only as a guide to the owner in the operation and care of his car and not as a service manual. Do not attempt adjustments or repairs with which you are not thoroughly familiar or for which you do not have equipment to handle properly. Both for periodic inspection and for adjustments TAKE YOUR CAR TO AN AUTHORIZED HUDSON SERVICE STATION.

Protect your car when making replacements and preserve the original performance—USE ONLY GENUINE HUDSON PARTS.

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Warranty

"We warrant each new passenger automobile 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 4000 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 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 and Essex Distributor or 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.

License Data

CAR SERIAL NUMBER—On plate on dash under hood
 ENGINE SERIAL NUMBER—Stamped on left side of cylinder block opposite cylinder No. 1
 CYLINDER BORE—3"
 PISTON STROKE—4½"
 NUMBER OF CYLINDERS—8
 N. A. C. C. HORSEPOWER RATING—28.8
 PISTON DISPLACEMENT—254

Body Types

119" Wheelbase

STANDARD SEDAN
 COACH
 RUMBLE COUPE
 2-PASSENGER COUPE
 TOWN SEDAN
 SPECIAL COUPE
 CONVERTIBLE COUPE

126" Wheelbase

SUBURBAN
 SPECIAL SEDAN

132" Wheelbase

BROUGHAM
 TOURING SEDAN
 CLUB SEDAN
 7-PASSENGER SEDAN
 7-PASSENGER PHAETON

Technical Information

Engine

TYPE—8 cylinders in line	PISTON WEIGHT—9¾ ounces
ACTUAL DEVELOPED H. P.—101 at 3600 R. P. M.	SKIRT CLEARANCE—Top, .0015"-.002"; Bottom, .0005"-.001"
COMPRESSION RATIO—5.8 to 1	NUMBER OF PISTON RINGS—Compression, 2; Oil Control, 2
FIRING ORDER—1-6-2-5-8-3-7-4	PISTON RING GAP—.009"-.011"
NUMBER MAIN BEARINGS—5	CAMSHAFT DRIVE—Adjustable Silent Chain
TYPE OF CRANKSHAFT—Fully Compensated—Statically and Dynamically Balanced	VALVE MATERIAL—Silicon Chrome Alloy Steel
MAIN BEARING CLEARANCE—.001"-.0015"	VALVE HEAD DIAMETER—Intake, 1½"; Exhaust, 1⅜"
MAIN BEARING END PLAY—.006"-.012"	VALVE TAPPET CLEARANCE—Intake, .003"-.005"; Exhaust, .005"-.007" Measure with engine hot
CONNECTING ROD LOWER BEARING CLEARANCE—.001"-.0015"; Side Clearance, .006"-.010"	LUBRICATION—Hudson Duoflo Automatic System
PISTON MATERIAL—Silicon Aluminum Alloy	OIL PUMP TYPE—Oscillating Plunger
PISTON TYPE—T Slot Cam Ground	

HUDSON EIGHT TECHNICAL INFORMATION

Cooling System

TYPE—Pump Circulation
 RADIATOR TYPE—Copper Ribbon Cellular
 COOLING SYSTEM CAPACITY—4¼ gals.
 FAN BELT—"V" Type
 WATER PUMP DRIVE—"V" Belt

Fuel System

CARBURETOR — 1½" Marvel Air Valve Type
 AIR CLEANER—Flame Arrester, Silencer Type
 FUEL FEED—Vacuum System with Vacuum Booster
 GASOLINE TANK CAPACITY—16 gals.

Starting and Ignition

MAKE—Auto-Lite
 SPARK CONTROL—Full Automatic
 TIMING—Dead Center
 FIRING ORDER—1-6-2-5-8-3-7-4
 DISTRIBUTOR POINT GAP—.020"
 SPARK PLUG MAKE—A. C.
 SPARK PLUG TYPE—G-8-Metric
 SPARK PLUG GAP—.022"
 GENERATOR REGULATION — Third Brush
 GENERATOR NORMAL CHARGING RATE
 —Cold, 17 amps.; Hot, 13 amps.

Lamp Bulb Specifications

	C.P.	Base	Voltage		C.P.	Base	Voltage
HEAD	32-32	D.C.	6-8	DASH	3	S.C.	6-8
SIDE	3	S.C.	6-8	STOP	15	S.C.	6-8
TAIL	3	S.C.	6-8	DOME	15	S.C.	6-8
TELLTALE	3	D.C.	6-8				

LIGHTING CIRCUIT FUSE SIZE—30 amps.

Clutch

TYPE—Oil Cushioned, Single Plate with Modulator Hub
 CLUTCH PEDAL CLEARANCE AT FLOOR BOARD—¾"

Transmission

TYPE—Features—Full Range Selective, Silent Second Synchro-Mesh, Free Wheeling with automatic retraction reverse
 SPEEDS—3 forward, 1 reverse

Rear Axle

Semi-floating Type with Hotchkiss Drive
 One-piece Banjo Housing
 One-piece Differential Carrier with offset pinion for equalized bearing loads
 Four Pinion Differential
 Heavy Duty Tapered Roller Bearings throughout
 Positive Oil Seal at wheel and pinion shafts
 Positive Oil Circulation to pinion bearings

Front Axle

TYPE—I-Beam, Reverse Elliott with Inclined Spindle Pins	TOE-IN—Zero to $\frac{1}{8}$ "
SPINDLE PIN THRUST BEARING TYPE— Radial Thrust Ball Bearing	CASTER ANGLE—Zero to 1° backward
	CAMBER—1°
	TIE ROD—Rubber Silenced Joints

Brakes

TYPE—4 Wheel Cable Control	CLEARANCE BETWEEN LINING AND DRUM—.014" at adjusting screw;
SIZE—13" Diameter—Lining Width, $1\frac{3}{4}$ "; Thickness, $\frac{7}{32}$ "	.008" at anchor pin

Steering Gear

TYPE—Variable Pitch Worm and Sector	STEERING COLUMN HEIGHT—Adjust- able to Five Positions
GEAR REDUCTION—17 to 1	

Tires

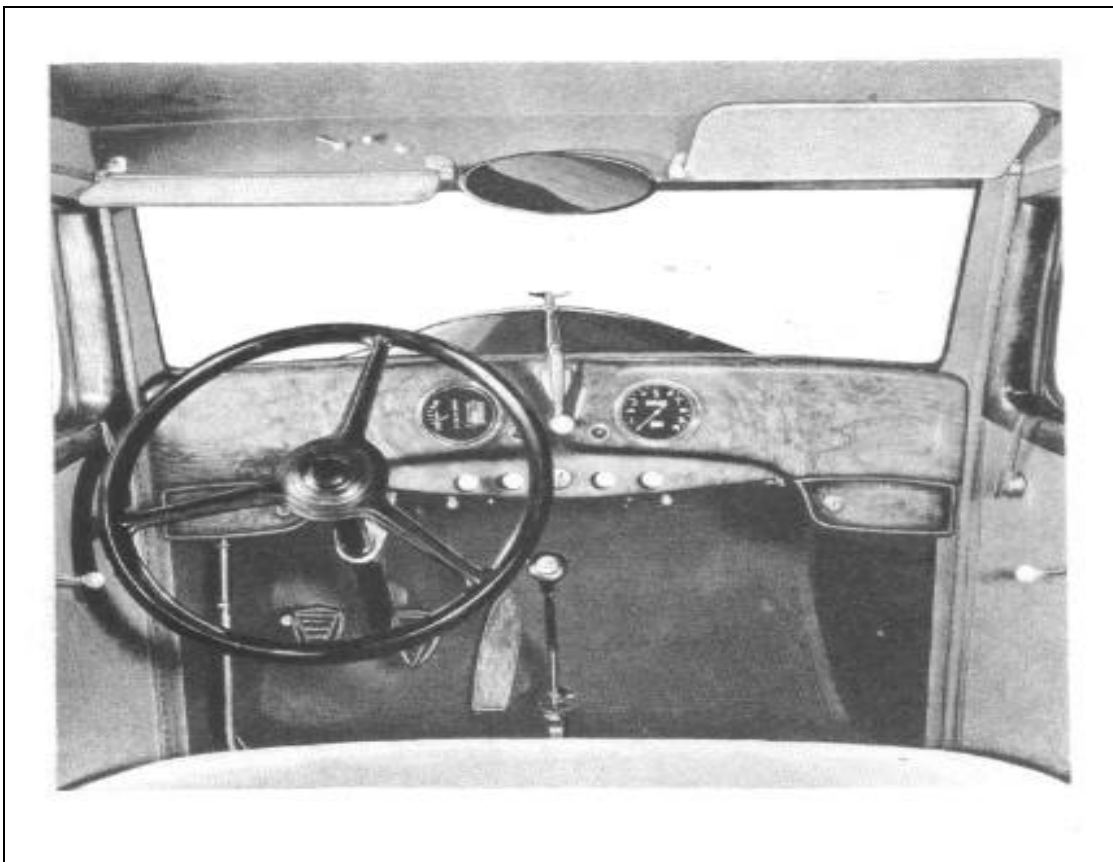
SIZE—119" W. B.—17 x 6.00; 126" W. B.—17 x 6.00; 132" W. B.— 17 x 6.50	PRESSURE — Average Driving, 32 pounds, Front and Rear High-Speed Driving, 40 pounds, Front and Rear
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Chassis Dimensions

WHEELBASE—119", 126" and 132"	OVERALL LENGTH (including bumpers) —119" W. B., $185\frac{3}{4}$ "; 126" W. B., $192\frac{1}{4}$ "; 132" W. B., $198\frac{3}{4}$ "
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Keys

Keys are numbered to correspond to the lock. Since it is necessary to conceal the number on the lock for theft protection, the key number should be noted on your identification card or in some other accessible place. Keys can be supplied only by number. For your own protection in case of loss of keys, record the numbers.



Operation

The operation of the Hudson Eight follows standard practice in many respects; however, even those accustomed to Hudson products may refresh their memories on some of the details by reading the following paragraphs:

The clutch is disengaged in the conventional manner by depressing the left foot pedal to release the engine drive from the transmission. Form the habit of keeping the foot off the clutch pedal except when shifting gears or coming to a stop.

The transmission operation conforms to the standard shift. The clutch must be disengaged to shift gears except when the car is in motion and "free wheeling."

Free wheeling is obtained by pressing the button on top of the shifting lever knob and pulling the knob up until the button comes out flush with the top of the knob. To revert from free wheeling" press the button and push down on the knob until the button comes out flush.

It is possible to change to "free wheeling" at any time. To change from "free wheeling" to conventional drive when the engine is driving the car simply depress the button and knob. If the knob does not come out flush, release the accelerator pedal slightly while still pushing down on the knob.

If the car is in motion and the engine is running at idling speed, increase the speed of the engine so that it drives the car, or depress the clutch before changing from "free wheeling" to conventional drive.

The brakes are operated either by depressing the right foot pedal or pulling backward on the hand lever located on the driver's left just ahead of the front door.

The engine speed can be controlled either by the foot accelerator or the throttle knob which is located on the instrument panel directly to the right of the ignition lock.

The light control knob is located directly to the left of the ignition lock. Pulling the knob out to the first position gives side lights and head lights in the second position. The head light control is located on the toe board to the left of the clutch pedal. If the head lights are on "bright" they are "dimmed" by pressing this foot control. A second depression of this control returns the lights to "bright."

The dash lights are controlled by the switch extending below the instrument panel, slightly to the right of the throttle control knob.

The starter is controlled by the ignition lock. When the ignition key is turned to the right, the ignition is turned "on" and the starter is brought into operation. Should the engine stop while the key is turned to the right, the automatic starter will immediately engage and re-start the engine. If the car is in gear when the engine stalls, the clutch pedal should be depressed until the engine starts.

If it is not desired to use the automatic starter after the engine has been started, the ignition key can be turned to the left. Turning the key to the left will also permit reading the gasoline or oil gauge and timing of the ignition without starting the engine. If it is desired to turn the engine by the starter without starting the engine push the plunger which extends out of the rear face of the automatic starter relay box (under hood at left of engine). Hold the plunger down firmly and

release quickly by sliding the finger off sideways to prevent the plunger sticking. Should the plunger stick so that the engine continues to turn, push it in again and release quickly.

The carburetor choke control knob is located to the left of the light control knob. (See "Starting the Engine" for use of choke.)

The oil pressure signal is the red jewel located to the left of the center of the instrument panel. When the ignition switch is turned "on" this signal will be lighted and should stop glowing when the engine is running. If it remains lighted or flashes while the engine is running above idling speed, the engine should be stopped and the oil level in the reservoir checked. If necessary, check the oil lines. Do not run the engine until the trouble is corrected.

The generator signal is the red jewel located to the right of the center of the instrument panel. When the ignition switch is turned "on" this signal will be lighted and should stop glowing when the engine reaches a speed slightly above normal idling. If the signal flashes when the car is being driven above twenty miles per hour, it indicates that the battery is not being charged. Your electrical system should be checked by your Hudson dealer.

The "gasoline or oil" gauge indicates the quantity of gasoline in the tank when the ignition switch is turned either to the right or left position. By pushing upward on the button located below the instrument panel and slightly to the left of the light control knob, the hand of this gauge indicates the quantity of oil in the reservoir of the engine.

The engine temperature indicator should show a reading within the driving range at all times when the car is being driven.

The ride control knob on the instrument panel to the right of the throttle knob gives maximum shock absorber control when pushed in and a "boulevard control" when pulled out. Any desired control can be obtained by moving the control knob.

Starting the Engine

The proper procedure in starting the engine is as follows: See that the throttle control knob is in. Do not open throttle with the accelerator until the engine starts. Pull the choke knob out as far as possible. Insert the ignition key in the lock and turn clockwise. When the engine "fires" push the choke in until it runs evenly. If the engine is cold, the choke can only be pushed in about three-eighths of an inch. Never leave the choke out farther than necessary to keep the engine running smoothly. It should be pushed in to the limit of its travel as soon as possible after starting the engine.

Breaking-in Instructions

Keep Radiator Full

Keep Oil Reservoir Full

Heat is a major consideration in a new engine. Do not allow the engine to overheat. Although the heat indicator on the instrument panel shows the general temperature of the engine, it will not show a sudden rise in temperature of an individual part.

The pressure imposed on parts such as bearings and pistons due to rapid acceleration or hard pulling will cause them to overheat if the car has not been driven sufficiently to break them in. Avoid fast acceleration and hard pulling while breaking in.

High speed also develops higher operating temperatures and to avoid damage the car speed should be kept within the following recommendations:

0-250 MILES

Do not exceed 40 miles per hour in high gear or 20 miles per hour in second. Do not accelerate rapidly. Use second gear on steep grades. Keep motor temperature within "driving range" on dash heat indicator.

250-500 MILES

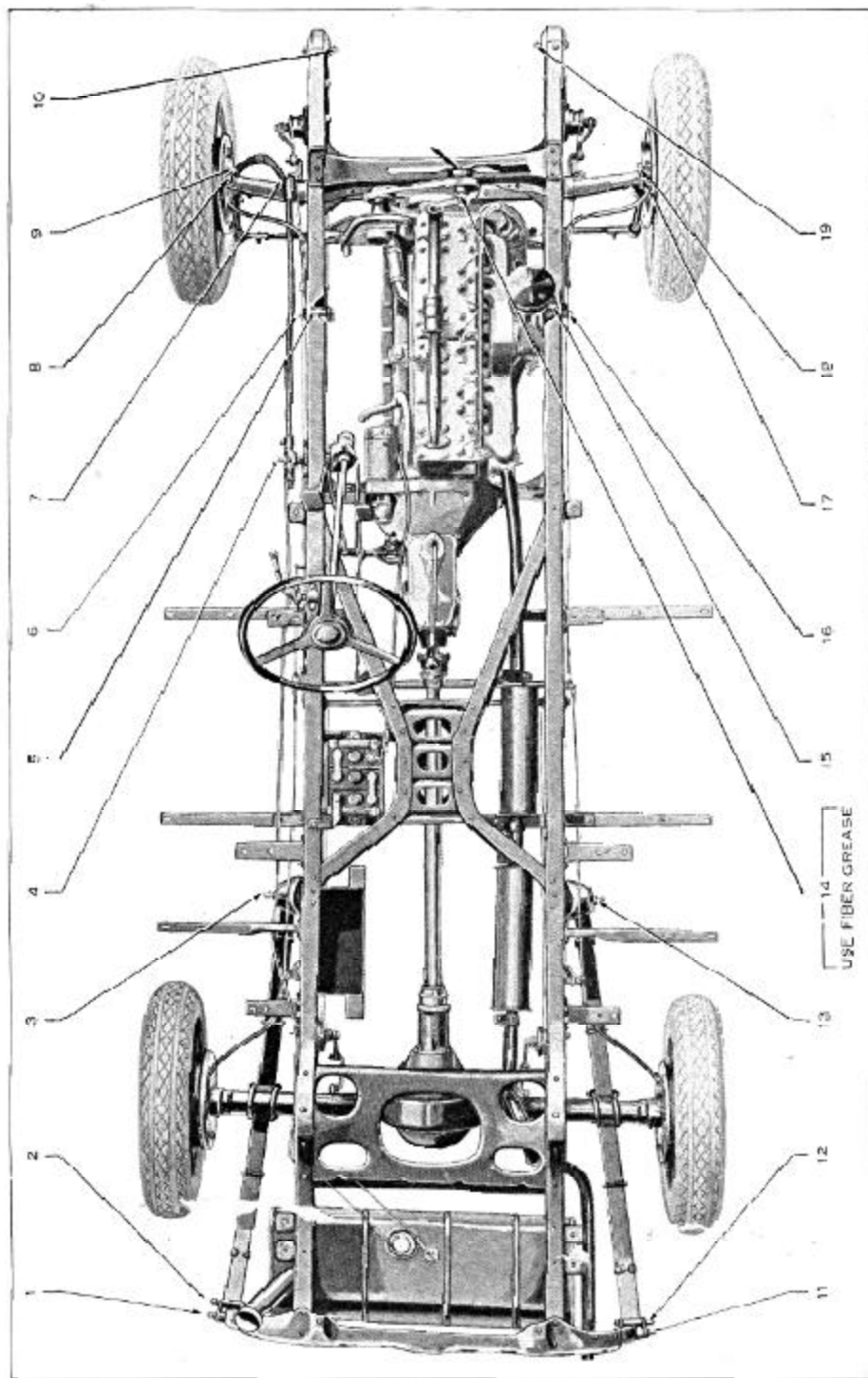
Do not exceed 50 miles per hour in high gear or 25 miles per hour in second.

500-1000 MILES

During this period the speed should not exceed 60 miles per hour.

IMPORTANT

Do not UNDER ANY CONSIDERATION attempt to maintain a high rate of speed unless the crankcase is full of good oil, and until the engine is thoroughly warmed up. Cold oil is not able to flow freely into the small clearances between working parts so that damage may occur if sufficient time is not allowed for warming up before attempting high speeds.



CHASSIS LUBRICATION CHART

Once a week lubricate at all 19 points shown in the illustration.
Count them as you go to eliminate chances of missing any.

Lubrication

Engine

Use High-Grade Oil—Medium Heavy Body or S. A. E. 30



Consult your dealer if you are in doubt as to what oil to use.

When the ignition switch is turned "on" the red jewel to the left of the center of the instrument board should flash red. If it does not, the bulb is either burned out, the circuit to the oil relief valve broken or the oil relief plunger sticking.

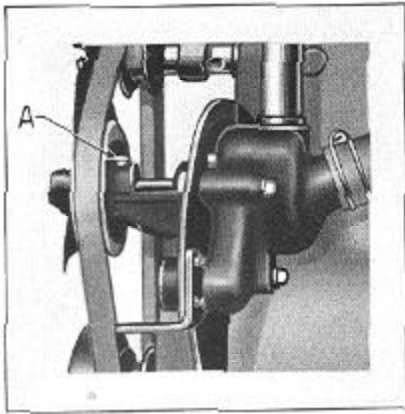
As soon as the engine is running, the light should go out. A flash of the red jewel while the engine is running above idling speed indicates interruption of the oil supply. The engine should be stopped immediately and the lubrication system inspected.

The amount of oil in the reservoir is shown on the gauge on the instrument panel marked "Gas or Oil" when the ignition electrolock is turned "on" (turn to left to read gauges without starting engine) and the button under the instrument panel below the gauge is pressed up.

A bayonet gauge is also provided at the oil filler. See illustration.

The Hudson Duoflo oiling system provides not only purification from dilution but also double screening and cooling of the oil. The oil is therefore maintained in good condition for a longer time than in other lubricating systems. Oil should be added as necessary to maintain the quantity in the reservoir. The reservoir should be drained and refilled with eight (8) quarts of oil at least every 2500 miles.

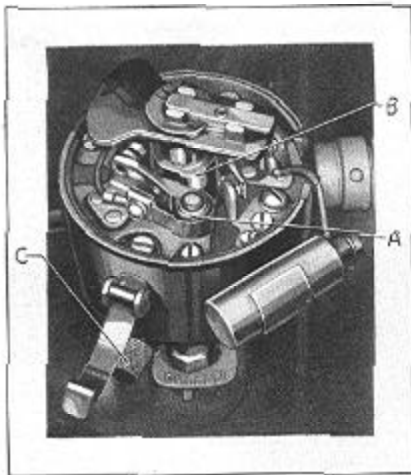
It is, however, recommended to drain the initial supply of oil after the first 500 miles of driving. To drain the reservoir remove the plug from the rear of the oil reservoir. Be sure the drain plug is tightened securely when replaced.



Water Pump

Use Motor Oil

Supply three or four drops of light motor oil in the oil cup "A," shown in the illustration, every 1000 miles. This is the only point on the pump requiring lubrication. Do not over-lubricate, and wipe off excess oil as this may get on the belt and cause slippage on the pump and fan pulleys.



Distributor

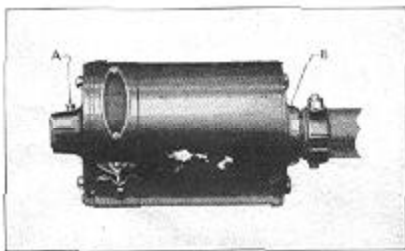
Use Motor Oil

Fill distributor base to the level of the oil cup "C" with motor oil every 2000 miles.

Coat rotor cam "B" lightly with vaseline or light cup grease every 2000 miles.

Apply a drop of oil at breaker arm pivots "A" every 2000 miles. Note: One breaker arm pivot not shown in illustration.

Care should be taken not to get oil on any parts of the distributor other than those specifically referred to as requiring lubrication. Do not over-lubricate.



Generator

Use Motor Oil

Three or four drops of light motor oil at points "A" and "B" in the illustration every 1000 miles.

Do not attempt to supply more oil than is required to fill the cups once as excess oil may prevent proper operation of the unit.

Starting Motor

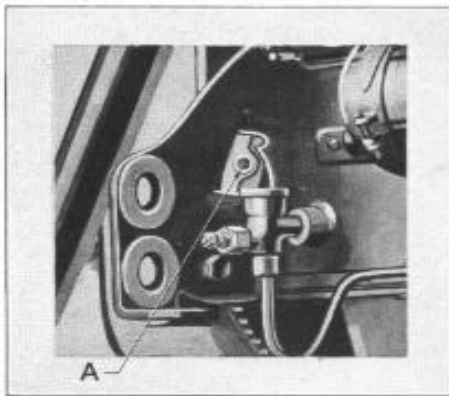


Use Motor Oil

Three or four drops of light motor oil at points "A" and "B" in the illustration every 1000 miles.

The oil cups on the starting motor have been made small to prevent overlubrication, which might find its way to the windings or commutator and eventually cause failure of the unit. Do not attempt to supply more oil than is required to fill the cups once.

Clutch



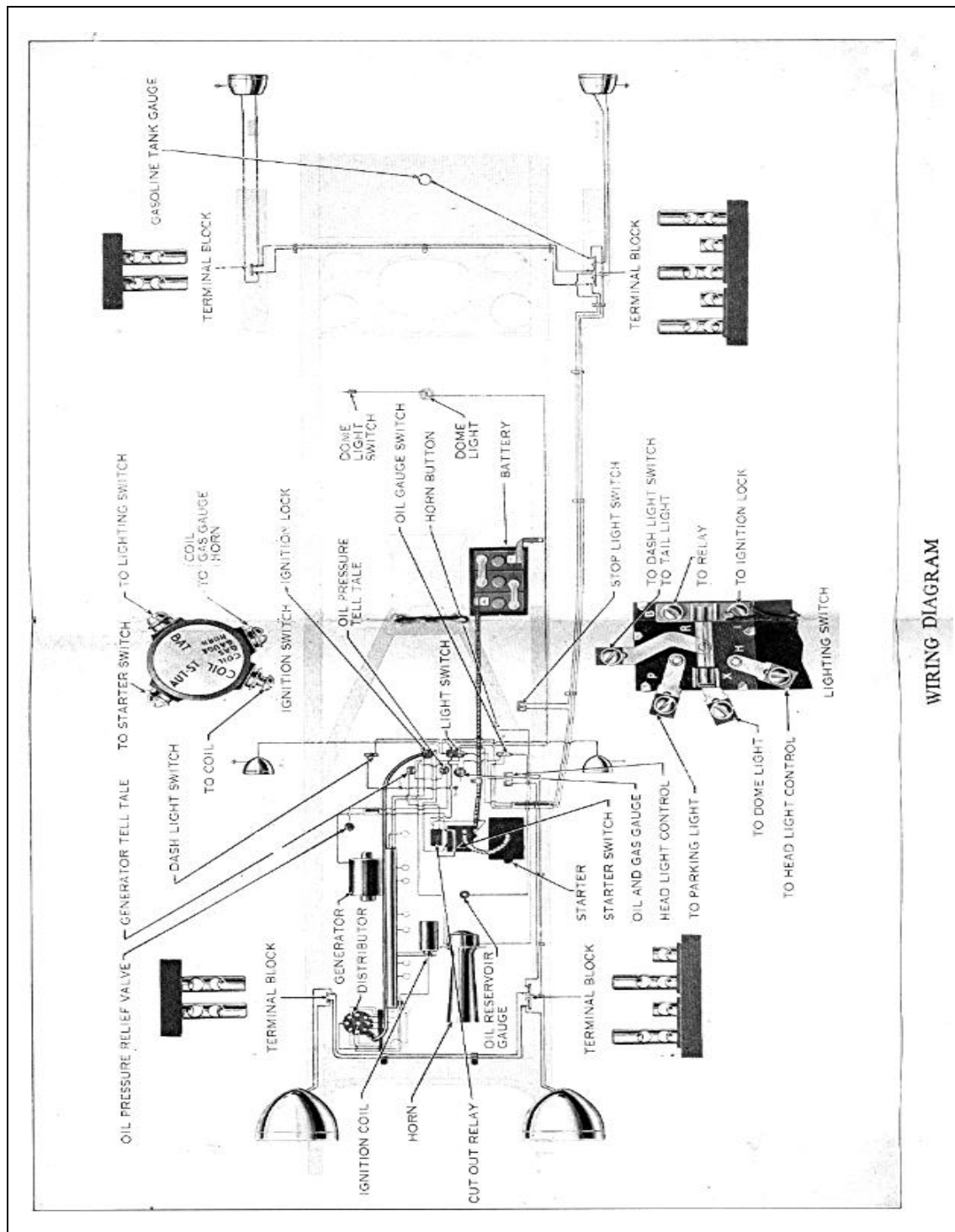
Use 1/6 Pint of Light Motor Oil and 1/6 Pint of Kerosene

The clutch lubricant is sealed into the clutch and supplies the driving surfaces as well as the throwout bearing with oil.

The life of the lubricant is largely dependent on the usage of the clutch. Harsh clutch action indicates the need of fresh oil and the clutch should be promptly inspected by your Hudson dealer if this condition develops. In any event the oil should be

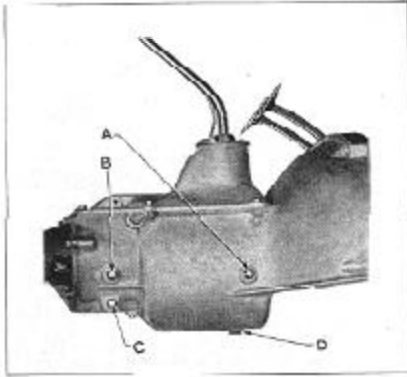
changed at least every 15,000 miles.

To drain the clutch, crank the engine by hand until the oil filler plug "A" on the front side of the flywheel is visible through the timing inspection hole. Remove the plug and turn engine slowly to allow lubricant to drain. Bring plug hole back to opening and insert new lubricant. Replace the drain plug securely.



WIRING DIAGRAM

Transmission



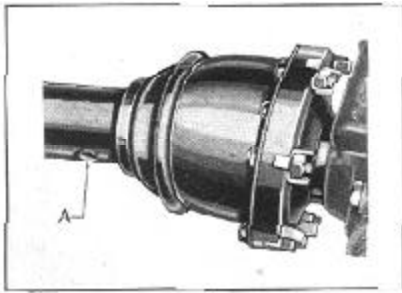
The lubricant in the transmission and free wheeling units should be maintained to the level of the filler plugs "A" and "B."

The plugs "C" and "D" should be removed every 5000 miles and the lubricant drained out. Replace the plugs and fill through plug "B" with one quart of kerosene. Run engine with transmission in neutral and clutch engaged for one minute. Drain kerosene, replace drain plugs and fill through "B" with three pints of S. A. E. No. 90 gear oil (in winter use S. A. E. No. 80), allowing the oil to drain into the main transmission housing. If the full three pints cannot be put in at "B," add the balance at "A."

It is essential that good oil of the proper body be used to insure proper protection against wear and permit proper gear changing. Buying according to the S. A. E. specifications (this is shown on most oil containers) will insure you of obtaining a satisfactory lubricant.

Universal Joints

Use Fiber Grease



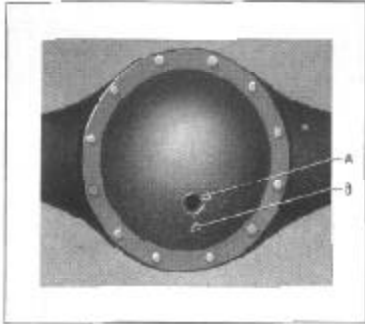
Remove the plug "A," shown in the illustration, of the rear universal joint and inject good fiber grease until grease appears at vent hole in shaft opposite filler hole. There is a plug similarly located just back of the front universal joint for filling.

The use of a proper grease at these points is very important in order to insure lubrication.

These units should be filled every 2000 miles.

The universal joints are often neglected until wear has occurred to such an extent that replacement is necessary. Wear at these points throws the propeller shaft out of balance, causing vibration, and thus offsets the care taken in manufacture to obtain accurate balance which is necessary for smooth operation at high speeds.

Rear Axle



Use High-Grade Gear Oil—
Heavy Body or
S. A. E. 90 in Summer—
S. A. E. 80 in Winter

The oil supply in the axle housing should be kept level with the lower edge of the filler plug opening "A."

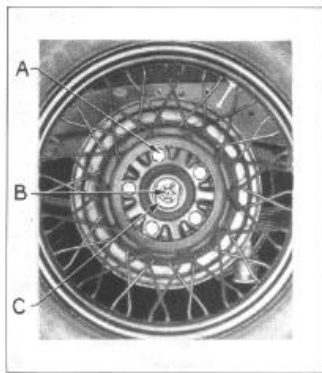
There are special oil passages and baffles in the differential carrier housing which catch oil thrown from the ring gear and carry it to the pinion bearings and return the overflow to the axle housing. This keeps the pinion bearings under a constant bath of oil and eliminates the necessity of oiling them separately.

Every 5000 miles drain, flush out with kerosene and refill.

Housing may be drained by removing cover "B."

Front Wheel Bearings

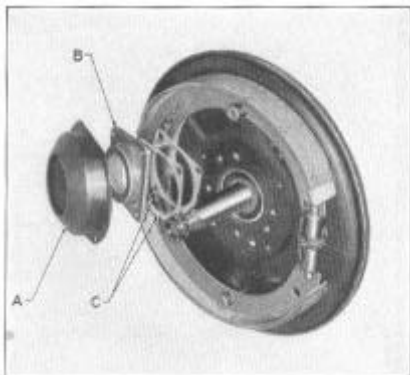
Use Cup Grease



The front wheel bearings should be lubricated every 5000 miles. Jack up the front of the car and remove the wheel from the hub. (See page 31 for method of removing and installing wheels.)

Unscrew the inside hub cap and withdraw the cotter key holding the nut "B." Unscrew the nut "B" and remove the washer "C." The hub and brake drum can then be removed and the bearing and inside of the hub and drum washed out with kerosene. Pack the bearings and hub with three ounces of cup grease. Replace the felt washer at the inner end of the hub, if necessary. Replace wheel. (See page 30 for bearing adjustment.)

Rear Wheel Bearings



Use Cup Grease

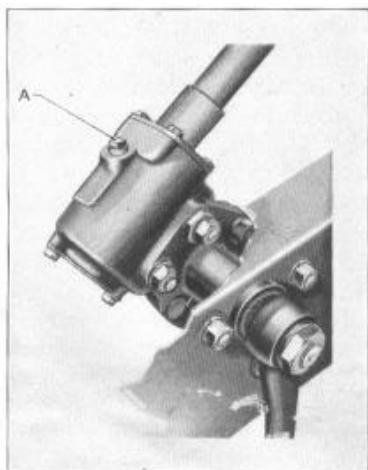
The rear wheel bearings should be lubricated every 5000 miles. Jack up rear of car and remove the wheel from the hub. (See page 31 for method of removing and installing wheels.) Withdraw cotter key and remove nut from end of axle shaft. Pull hub and brake drum off the shaft.

Unscrew four screws holding grease deflector "A" and remove deflector. Remove four screws from bearing cap "B" and remove cap and shims "C." Remove bearing and insert ten (10) ounces of grease in the housing.

Wash the cap and bearing in kerosene and replace bearing after filling with grease. Renew the felt washer in the bearing cap, if necessary. Replace shims and bearing cap. Replace the grease deflector. See that all brake parts and the brake drum are free from grease before replacing the hub and wheel.

Steering Gear

Use High-Grade Gear Oil—Heavy Body



Remove plug "A" and fill the steering gear housing every 2000 miles. The use of a good grade heavy bodied gear oil is necessary to provide free operation under all climatic conditions. (Do not use grease.)

If the steering becomes stiff and complete lubrication of the unit and the attached parts connecting with the front wheels does not correct the condition, follow the instructions on page 29 for adjustment and alignment of the steering gear. Noise in the unit may be due to use of oil of insufficient body. Stiff operation may be experienced in cold weather if poor oil or grease is used.

Miscellaneous

THROTTLE CONTROL RODS AND LEVERS—Oil or grease all accelerator connections. Throttle linkage should work with a snap. Grease choke and throttle wires occasionally to eliminate sticking.

BRAKE CROSS SHAFT—Coat brake cross shaft pivot pins with light cup grease every 1000 miles. Do not allow oil or grease to collect inside of brake drum.

HOOD LEDGE LACINGS—Use motor oil. Saturate with motor oil frequently to remove squeaks and preserve lacing.

HOOD LOCKS—Use motor oil. Lubricate occasionally by injecting a few drops of oil through hole in the barrel just below the handle.

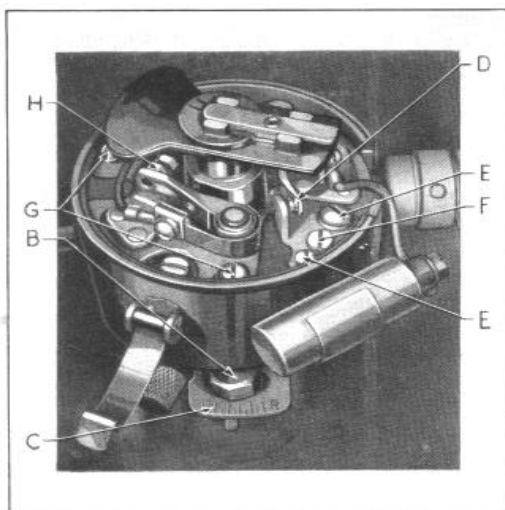
DOOR LOCKS—Use motor oil. Lubricate occasionally with a few drops of oil on the latch bar. Work lock several times to spread oil, then wipe off excess.

DOOR DOVETAILS—Lubricate with grease or soap. Wipe off excess.

DOOR HINGES—Lubricate with light oil. Wipe off excess.

Adjustment

Ignition Timing



Should it be necessary to reset the ignition timing, loosen the distributor adjusting plate lock screw "B." If the adjustment is being made because of sluggish performance, turn the distributor counterclockwise one division of the scale on the locking plate. Tighten screw "B" and try the performance of the car on the road. A slight spark knock should be heard when the car is being accelerated on a level road in high gear at ten to twenty-five miles an hour with the throttle wide open. This gives the best performance and fuel economy.

If a spark knock is not heard, turn the distributor one division counterclockwise as before and test again. If the knock is too loud, turn the distributor clockwise one-half division at a time to reduce the knock until it can just be heard by the driver.

Should the distributor require any other adjustments, the car should be taken to an authorized Hudson or Electric Auto-Lite Service Station. The following instructions are given for use in case of an emergency, but should not be attempted by the owner unless absolutely necessary. The results obtained from these adjustments depend entirely on the accuracy with which they are performed.

Adjust Distributor Points

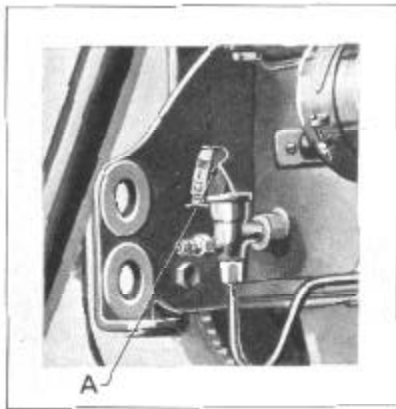
Breaker points should be clean, flat and spaced .020" when at their maximum opening.

Remove distributor cap and inspect points and clean if necessary. A special breaker point file or stone should be used. Place file or stone between points and move straight up and down, dressing both points at the same time.

Crank engine by hand until the breaker arm fiber block of points "H" is on the highest point of the cam, giving the points their maximum opening. Adjust the opening to exactly .020" by loosening the lock nut and turning the adjusting screw on which the stationary point is mounted. Tighten lock nut.

Crank the engine by hand until the breaker arm fiber block of points "D" is on the highest point of the cam. Loosen screws "E" one-half turn and adjust points "D" to exactly .020" by turning the eccentric screw "F." Tighten screws "E" and recheck opening to be sure it is exactly .020".

Synchronize Breaker Points



Remove the spark plug from number one cylinder and hold a finger over the plug hole. Crank the engine by hand until a rush of air is felt. Continue to turn engine slowly until the D. C. 1 and 8 mark is exactly in line with the pointer on the inspection hole as shown at "A."

Loosen clamp screw "B" and turn distributor clockwise to the full limit permitted by the slot in the clamping plate "C." Turn the distributor slowly counterclockwise until the points "D" have just begun to open. Care must be taken to determine this position accurately. Tighten lock screw "B."

Turn the engine slowly with the hand crank until the D. C. 3 and 6 mark is exactly in line with the pointer on the inspection hole. This should require only one-quarter (90°) turn of the crank.

Loosen screws "G" one-half turn and turn breaker point support plate clockwise to the extreme limits of the screw holes. Turn breaker point support plate counterclockwise until the points "H" just begin to open. This point must be determined accurately. Tighten screws "G."

The illustration shows the rotor arm in the proper position for firing on number one cylinder. The cable to number one spark plug should be in the cap socket directly above the rotor point. The spark plug cables should be in the cap in the order 1-6-2-5-8-3-7-4, following in a clockwise direction.

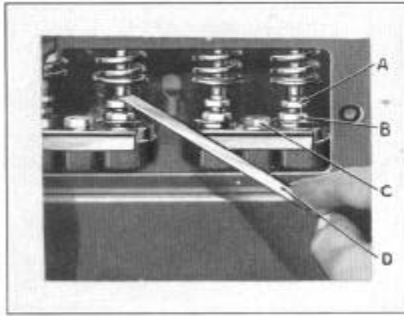
Spark Plugs

When setting the gap of the spark plugs, make all adjustments by moving the side wire. Do not bend center wire as this may break the porcelain.

To clean the carbon from the porcelain, fill the lower part of the plug with alcohol, liquid metal polish or equal parts of ammonia and water, and allow it to stand for a few seconds. Take a piece of wire covered with one thickness of cloth and rub the carbon from the insulator, wiping thoroughly dry before replacing the plug in the engine.

Spark plugs should be changed every 10,000 miles for better engine performance. New spark plugs give quicker starting, increased power, smooth running and a saving in gasoline.

Tappets

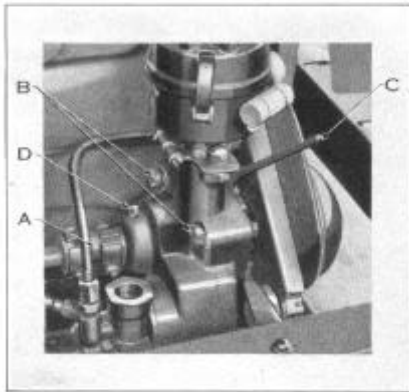


Before adjusting tappets see that the tappet clamp cap screw "C" is tight. Adjust tappet by loosening lock nut "B" and turning adjusting screw "A." Lock adjustment by tightening lock nut "B" while holding screw "A."

Measure clearance between adjusting screw and end of valve stem with a feeler gauge as shown at "D" in the illustration. This measurement should be made while the engine is at its normal operating temperature.

Adjust exhaust valve tappets to .006" and intake tappets to .004" clearance. Counting from the front the exhaust tappets are 1-4-5-8-9-12-13-16 and the intake tappets are 2-3-6-7-10-11-14-15. Always adjust tappets after grinding valves.

Timing Chain



The timing chain should be inspected at the expiration of the first 1500 miles and at intervals of 5000 miles there-after.

A to and fro movement of approximately 1/8" on the circumference of the coupling "A" (after the slack around the coupling bolt is taken up) should be maintained.

To adjust, loosen retaining bolts "B." The inside top bolt and the bottom bolt (not shown) pass through the notches in the eccentric, necessitating their removal. Insert special tool "C" in notch and pull toward you until only the required movement of the coupling is present. If trouble is experienced in replacing the bolts, back off the adjustment

slightly, allowing them to slide into place:

One-half pint of motor oil should be introduced through the pipe plug opening "D" whenever the distributor support housing has been removed.

Fan and Water Pump

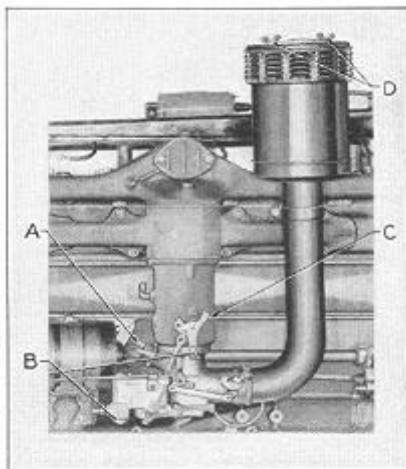


To adjust the belt, loosen the nut "A" and raise the fan until the belt can be deflected 5/8" below a straight edge laid on the fan and pump pulleys. This measurement of deflection is indicated in the illustration at "B."

Do not adjust the belt too tight as it will throw an excessive load on the fan and pump bearings.

Adjust the water pump packing gland "C" finger tight. Do not tighten with a wrench as the packing may bind the shaft and throw a heavy load on the belt.

Carburetor



Spark plugs and breaker points should be cleaned, spark gaps properly spaced and all residue in gasoline passages removed before adjusting the carburetor.

See page 28 for removal of vacuum tank filter to stop flow of gasoline while cleaning carburetor.

Clean carburetor filter screen "B."

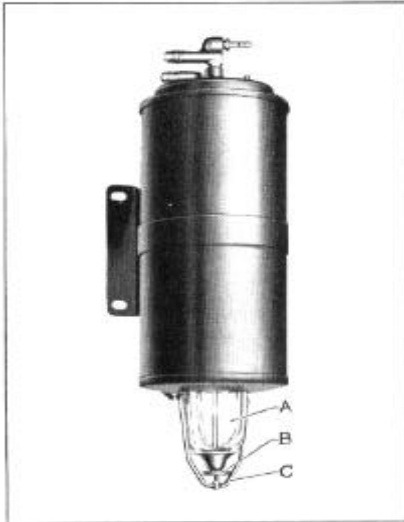
Adjust set screw "C" for correct idling speed of seven miles per hour.

Turn air screw "A" until the end is flush with the end of the ratchet spring bearing against it. This is the normal mixture adjustment and the final setting should be within turn of this point. Warm engine to proper operating temperature. Turn air screw counterclockwise until the engine hesitates, then clockwise one notch at a time until the engine runs smoothly.

The heat supplied to the carburetor from the exhaust is automatically controlled by a thermostat and requires no adjustment.

The air cleaner unit should be cleaned every 2500 miles, except under extremely dusty operating conditions when the cleaning should be more frequent. The unit can be lifted off the carburetor silencer after removing the thumbscrews "D." Wash in gasoline and then soak with motor oil. Drain off excess oil and replace.

Vacuum Tank

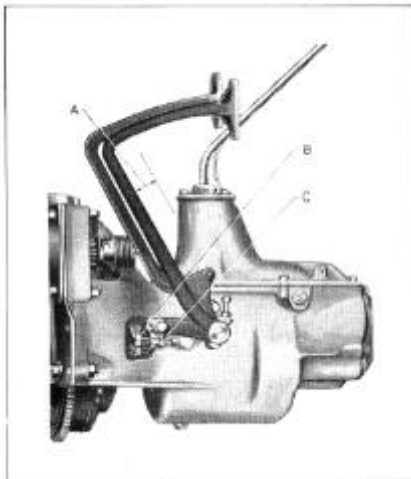


The glass sediment chamber at the bottom of the vacuum tank should be removed and cleaned whenever its contents show an accumulation of water or dirt. The water, due to the fact that it is heavier than gasoline, settles to the bottom of the glass and is easily distinguished.

The flow of gasoline is automatically shut off as soon as the glass is removed, so that it is only necessary to hold the glass "A" in one hand, loosen the thumbscrew and swing the bracket "C" to one side to empty the glass.

The removal of the sediment chamber also acts as a cut-off so that the carburetor feed line can be removed without loss of gasoline from the vacuum tank.

Clutch Pedal Adjustment

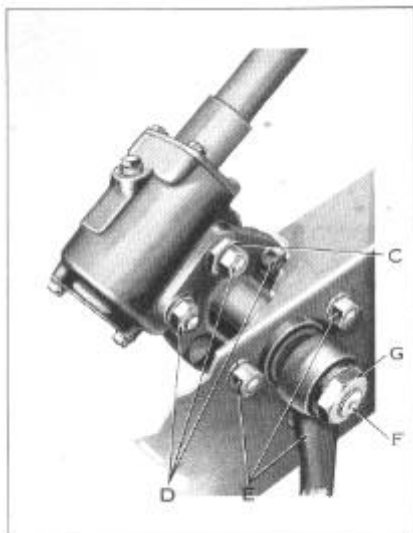


A clearance of $\frac{3}{4}$ " must be maintained between the clutch pedal shank and the toe board, as shown in the illustration at "A."

This adjustment should be made accurately as too much clearance will reduce the pedal movement and may prevent complete clutch disengagement, causing hard shifting. Too little clearance may, after slight wear of the clutch disc facing, permit the clutch pedal to rest against the toe board and hold the clutch in partial disengagement. This will cause slippage and rapid wear.

To adjust, remove the clevis pin "B." and loosen the lock nut "C." Turn the yoke on the link to obtain proper length. Lengthening the link increases the clearance between the clutch pedal shank and the toe board, while shortening the link reduces it.

Steering Gear



The bearings on the steering gear worm shaft are preloaded by the pressure of a spring located between the outer race of the upper bearing and cover plate. This spring pressure prevents development of end play in the worm, so that no adjustment is necessary to take care of normal wear.

To remove side play in cross shaft: The adjustment for cross shaft "F" is on the opposite end to that shown in the illustration. Loosen the lock nut and with a screw-driver turn the adjusting screw down as tightly as possible, then back up slightly. Tighten lock nut.

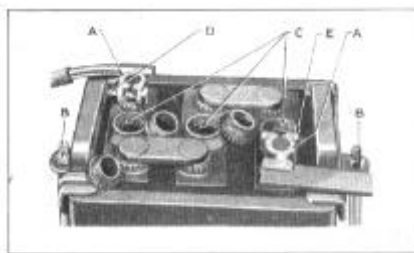
To remove play in mesh of worm and cross shaft sector: Locate wheels in straight-ahead position, disconnect drag link from steering arm and shake arm to determine the amount of play. Loosen four stud nuts "D" (VI turn only). Turn eccentric sleeve "C" to right or

clockwise direction only in gradual stages, noting result by shaking steering arm at each step and using care at last stage to turn sleeve just sufficiently to remove play and no further. Securely tighten cover stud nuts "D."

To change position of steering wheel to suit requirements of driver: It is necessary to loosen frame bracket stud nuts "E," as well as cowl bracket nut under cowl, then set steering wheel at desired position.

Keep the steering column to dash clamp bolt, the cross shaft nut "G" and the frame stud nuts "E" tight.

Battery

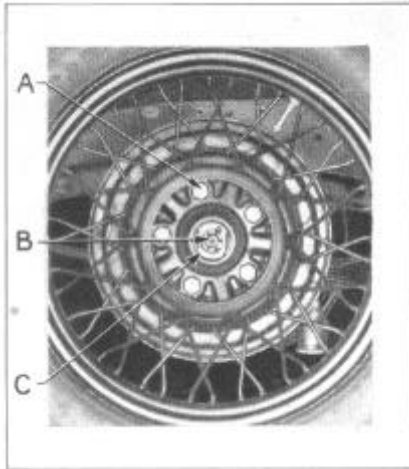


Periodically disconnect terminals "A" from the battery. Clean thoroughly, coat with vaseline, replace and tighten securely.

Battery must be kept securely fastened in tray. Tighten at "B."

Inspect battery liquid at least every two weeks in warm weather (required less frequently in cooler weather) and add distilled water at openings "C" to

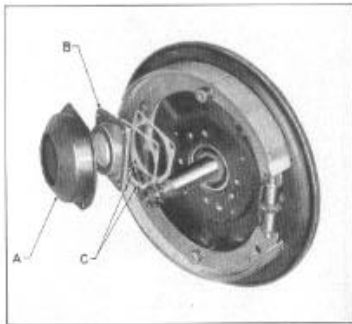
Front Wheel Bearings



The adjustment of the front wheel bearings is important, as it affects braking and steering, as well as the free running of the car.

To adjust the front wheel bearings, jack up the front wheel, remove the inner and outer hub caps and withdraw cotter key holding nut "B." Tighten nut "B" until a slight drag is felt when turning the wheel slowly by hand. Loosen the nut just sufficiently to permit the wheel to turn freely, insert cotter key and replace hub caps.

Rear Wheel Bearings



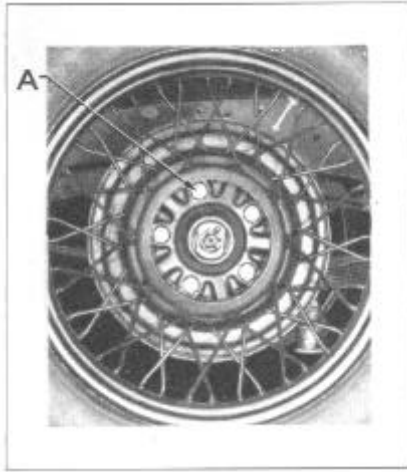
To adjust rear wheel bearings, jack up rear of car and remove both rear wheels. (See page 31 for method of removing wheels.) Remove wheel hubs as described under "Rear Wheel Bearings." (See page 22.)

Unscrew four screws holding grease deflector "A" and remove deflector. Remove four screws from bearing cap "B" and remove cap. By reducing the number of shims under the cap, the end play of the axle shaft is decreased, and the installation of additional shims increases the end play.

Total end play between the axle shafts should be from .004" to .010", which amount is perceptible when pulling the axle shaft in and out.

Approximately the same thickness of shims should be used under each bearing cap so that the brake drums will be evenly spaced from the brake dust shields.

Removal and Installation of Wheels



To remove either the demountable wood or wire wheels, place a screwdriver behind the hub cap and pry off. Loosen the five cap screws "A" with the socket wrench provided in the tool kit. Remove the cap screw "A" which is at the lowest position on the wheel and insert the handle of the wrench through the screw hole in the wheel into the hub. While holding the wheel in position with the wrench, remove the other cap screws "A" and lift off the wheel.

When reinstalling the wheel, jack up the car so that there is just sufficient clearance for the wheel to slide onto the hub. Place the handle of the wrench through the lower cap screw hole in the wheel and the drum. Lift up on the wrench so that the wheel will clear the ground and push the wheel in place. Align the screw holes by moving the wrench back and forth. While holding the wheel in

place with the wrench, start at least two of the cap screws. Remove the wrench and start the remainder of the screws.

Tighten every other cap screw until all are down just enough to hold the wheel in place to be sure it is square on the hub. Tighten every other cap screw, continuing around until all screws are securely tightened.

Tires

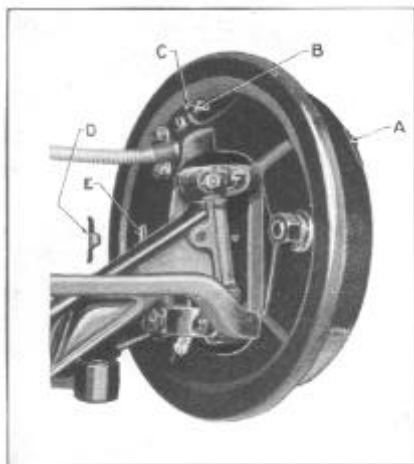
Check tires once a week and keep inflated to 32 pounds pressure. For fast driving inflate tires to 40 pounds. Be sure front tire pressures are equalized.

To remove the tires from the wheels, let all air out of the tube. Push valve stem up into tire. Starting at the valve stem press the beads of the tire together and into the base of the rim for about one foot in each direction. Insert an iron under both beads directly opposite the valve and force the tire over the rim. The tire can then be lifted off.

To install a tire, inflate the tube until it is barely round and place it in the casing with the valve stem in line with the red dot on the side wall of the casing to preserve the tire balance. Press the beads of the tire together at the valve stem and place tire on wheel so that the beads go to the bottom of the rim well and the valve stem enters the hole in the rim. Working both ways from the valve stem, press the beads together and down into the rim well until the portion of the tire opposite the valve can be forced over the rim. Raise tire up and allow beads to spread until the tire is centered on the rim. Inflate tube to five pounds pressure and work tire back and forth to insure proper seating of tire on rim. Inflate to proper operating pressure.

Brakes

When the brake pedal travels to within 1-1/2" of the toe board, the brakes should be adjusted as follows:



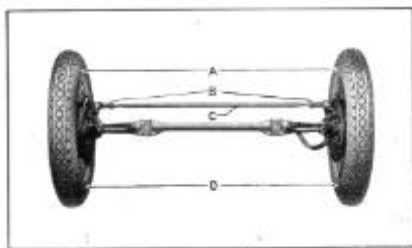
Jack up all four wheels and remove the inspection cover "A" from the brake drum. Turn the brake drum as necessary and insert a .014" feeler between the drum and the lining 1

from the adjusting screw end (rear of front brakes—front of rear brakes) of the lining of the upper shoe.

Loosen the eccentric lock nut "B" and turn the eccentric "C" in the direction the wheel rotates when the car is moving forward until the feeler is held snugly.

Adjust all four wheels as outlined above. Depress the brake pedal to within 3 of the toe board. Try the braking effect by pulling each wheel over by hand. If the braking effect is unequal, or insufficient, adjust by removing the adjusting hole cover "D" and inserting adjusting tool or screwdriver in hole "E" and engaging adjusting screw ratchet. Move hand end of tool toward the axle to increase, and away from axle to decrease, braking effect.

Front Wheel Alignment

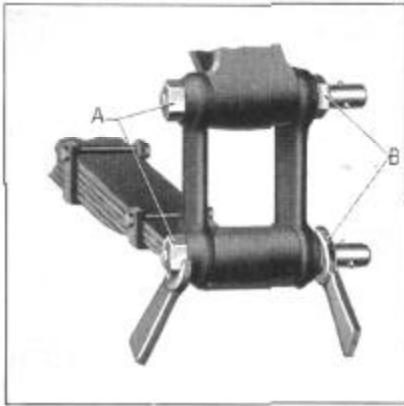


Measure the distances "A" and "D" as shown in the illustration. The distance "A" should be the same as "D" or not over 1/8" longer—never shorter.

A special tool should be used for this purpose and the measurement taken between the rims at a height about even with the hubs. Loosen clamp bolts "B" and turn tie rod "C" clockwise as viewed from the right to increase

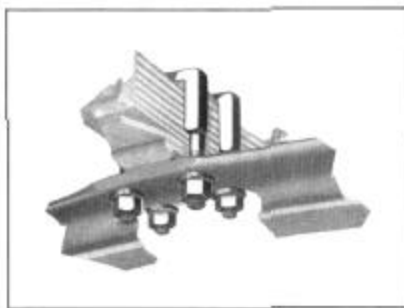
"A" and counterclockwise to decrease "A."

Spring Mountings

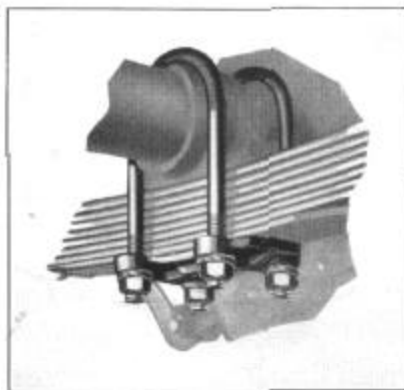


Chassis noise, erratic spring action and wandering of the car on the road can often be attributed to spring mountings.

Adjust the spring shackles to remove end play of spring on shackle bolt by loosening the locking nut, "A" and turning the bolt "B" until tight, then turn back one-sixth turn and tighten nut "A."



This operation should be performed every 5000 miles on both upper and lower shackle bolts at the rear of both the front and rear springs and on the anchor bolts (not illustrated), holding the front ends of front and rear springs to the frame brackets.



The spring clip nuts (front and rear) shown in the illustration should be tightened every 5000 miles.

When making the above adjustments the body hold-down bolts should also be tightened. There are eight of these, four on each side, located just outside the frame side members and under the body sills. Draw the nuts tight after the first 1500 miles and every 5000 miles thereafter.

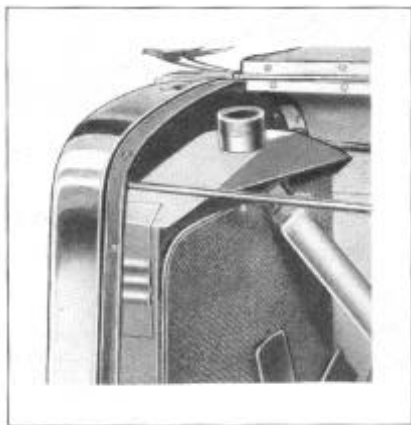
Shock Absorbers

The shock absorbers should be refilled every 2000 miles. The special fluid required for this purpose can be obtained from your dealer. Do not use any other liquid as there is a possibility of destroying the unit, especially in cold weather, should the liquid become thick or frozen.

Keep the shock absorbers tight on the frame at all times and do not permit any play to develop in the linkage.

All repairs and adjustments, including refilling of the shock absorbers, should be made by an authorized Hudson or Gabriel Service Station.

Radiator



Drain, flush out and refill frequently.

Filler is located under the hood to eliminate possibility of anti-freeze ruining the finish.

About every four months a solution consisting of one pound of washing soda to four gallons of water should be poured into the radiator and allowed to slowly circulate through the system by running the engine at idling speed. Leave drain cock open and thoroughly flush out after cleaning.

See that hose is in good condition and all hose clamps are tight.

Do not allow mud, etc., to clog air passages through radiator.

Repair dents and leaks when they occur.

Add an anti-freeze solution to the radiator in cold weather.

Drain enough water from the radiator so that after the anti-freeze has been added there will still be room for a slight expansion of the liquid without its running over the overflow pipe.

Add Anti-Freeze as Follows :

	<i>Ethylene Glycol or</i>	<i>Alcohol or</i>	<i>Radiator Glycerine</i>
<i>For</i>			
32° to 10° above 0°	5-1/2 qts.	6-2/3 qts.	9-1/4 qts.
10° to 0°	7 qts.	8-2/3 qts.	11-1/2 qts.
0° to 10° below 0°	8-1/3 qts.	10 qts.	13-2/3 qts.
10° to 20° below 0°	9-1/2 qts.	11-1/4 qts.	15-1/3 qts.

Headlamps

Place the vehicle under normal load on a level floor squarely facing a smooth wall 25 feet from the headlamps.

Measure the height of the lamp bulbs from the ground and draw a horizontal line on the wall at the same height as the bulbs.

Sight through windshield along hood rod and radiator cap to determine the center line of the vehicle. Locate center lines of lamps on the wall from this line.

With the light control in the position throwing the light beam farthest from the vehicle, cover left lamp to obscure its light beam.

Loosen the right mounting nut (under fender apron) and aim the right lamp so that the top of the beam is just even with the horizontal line and equal portions on each side of line on the wall indicating the center line of the right lamp.

Repeat operations with the left lamp and the headlamps will be properly aligned.

Care of the Finish

The same care should be exercised in washing and cleaning cars finished in lacquer or enamel as is employed in the handling of varnished surfaces. Dry dirt accumulations should not be wiped off but should be softened and removed by thoroughly soaking the body with flowing water, applied under light pressure.

Careful washing of the car, followed by the use of a polish especially prepared for lacquer or enamel finishes, will maintain a high luster and preserve the finish. The use of polishes containing strong abrasives should be avoided, as they are particularly destructive to the striping. Anti-freeze solutions containing alcohol when accidentally spilled on the finish should be immediately washed off with clear water to prevent spotting, as alcohol is a solvent of lacquer.

It is recommended that every new car purchaser apply a coat of wax while lacquer is still clean and unmarked. If this is done and the application periodically renewed, it will be an important factor in the life of the finish.

