

HUDSON

Instruction Book



FEBRUARY
1931

SERIAL NUMBER

119" W. B.—914293 } AND
126" W. B.—57115 } UPWARD

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

Foreword

Hudson-Essex 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-Essex 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-ESSEX SERVICE STATION.

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

Warranty

"We warrant each new motor vehicle manufactured by us, whether passenger car or commercial vehicle, to be free from defects in material under normal use and service, our obligation under this warranty being limited to making good at our factory any parts or part thereof which shall within ninety (90) days after delivery of such vehicle to the original purchaser 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 will not apply to any vehicle which shall have been repaired or altered outside of our factory in any way so as, in our judgment, to affect its stability or reliability, nor which has been subject to misuse, negligence or accident, nor to any commercial vehicle made by us which shall have been operated at a speed exceeding the factory rated speed, or loaded beyond the factory rated load capacity.

"We make no warranty whatsoever in regard to tires, rims, ignition apparatus, horns or other signaling devices, starting devices, generators, batteries, speedometers or other trade accessories, inasmuch as they are usually warranted separately by their respective manufacturers."

HUDSON MOTOR CAR COMPANY
Detroit, Michigan

This warranty under which Hudson motor cars are sold will be interpreted by the Distributor or Dealer from whom the car was purchased. If you are touring and require service, be sure to get in touch with your nearest Hudson Distributor, Dealer, or Hudson Service and Sales Station.

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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— $2\frac{7}{8}$ "
 PISTON STROKE— $4\frac{1}{2}$ "
 NUMBER OF CYLINDERS—8
 N. A. C. C. HORSEPOWER RATING—26.4
 PISTON DISPLACEMENT—233.7

Weights

119" Wheelbase		126" Wheelbase	
SPORT ROADSTER	2675	PHAETON (7-Pass.)	
PHAETON (5-Pass.)		BROUGHAM	3190
COUPE (2-Pass.)	2865	TOURING SEDAN	3190
COUPE (Rumble)	2955	FAMILY SEDAN	3230
COACH	2975	CLUB SEDAN	3235
STANDARD SEDAN	3115		
TOWN SEDAN	3055		

Technical Information

Engine

TYPE—8 cylinders in line	PISTON TYPE—T Slot Trunk
ACTUAL DEVELOPED H. P.—87 at 3600 R. P. M.	PISTON WEIGHT—9 ounces
COMPRESSION RATIO—5.8 to 1	SKIRT CLEARANCE—.002"-.0025"
FIRING ORDER—1-6-2-5-8-3-7-4	NUMBER OF PISTON RINGS—Compression, 2; Oil Control, 2
NUMBER MAIN BEARINGS—5	PISTON RING GAP—.007"-.009"
TYPE OF CRANKSHAFT—Fully counter-balanced with Lanchester Torsional Vibration Dampener	CAMSHAFT DRIVE—Adjustable Silent Chain
MAIN BEARING CLEARANCE—.001"-.0015"	VALVE MATERIAL—Silicon Steel
MAIN BEARING END PLAY—.006"-.012"	VALVE HEAD DIAMETER—Intake $1\frac{1}{2}$ "; Exhaust $1\frac{3}{8}$ "
CONNECTING ROD LOWER BEARING CLEARANCE—.001"-.0015"; Side Clearance, .006"-.010"	VALVE TAPPET CLEARANCE—Intake .003"-.005"; Exhaust .005"-.007"
PISTON MATERIAL—Aluminum Alloy	Measure with engine hot
	LUBRICATION—Hudson Double Flow Circulating Splash
	OIL PUMP TYPE—Oscillating Plunger

Cooling System

TYPE—Pump Circulation	FAN BELT—"V" Type
RADIATOR TYPE—Ribbon Cellular	WATER PUMP DRIVE—"V" Belt
COOLING SYSTEM CAPACITY— $4\frac{1}{4}$ gals.	

Fuel System

CARBURETOR—1½" Marvel Air Valve Type
 AIR CLEANER—A. C.
 FUEL FEED—Stewart 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—G10-Metric
 SPARK PLUG GAP—.022"
 GENERATOR REGULATION—Third Brush
 GENERATOR NORMAL CHARGING RATE—Cold, 13.5 amps.; Hot, 10 amps.

Lamp Bulb Specifications

	C.P.	Base	Voltage		C.P.	Base	Voltage
HEAD	21-21	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	3	S.C.	6-8

LIGHTING CIRCUIT FUSE SIZE—20 amps.

Clutch

TYPE—Single plate, cork insert type in oil
 CLUTCH PEDAL CLEARANCE AT FLOOR BOARD—¾"

Transmission

TYPE—Selective
 SPEEDS—3 forward, 1 reverse
 GEAR RATIO—Low, 2.921 to 1; Second, 1.924 to 1; High, 1 to 1; Reverse, 3.469 to 1

Rear Axle

TYPE—Semi-floating
 GEAR RATIO—119" Wheelbase
 Sport Roadster—4-3/11 to 1
 Coupe, Coach, Touring Sedan, Standard Sedan, Phaeton—4-7/11 to 1
 GEAR RATIO—126" Wheelbase
 Brougham, Touring Sedan, Family Sedan, Club Sedan, 7-Pass. Phaeton—4-7/11 to 1

Front Axle

TYPE—I-beam, Reverse Elliott with Inclined Spindle Pins
 SPINDLE PIN THRUST BEARING TYPE—Radial Thrust Ball Bearing
 TOE IN—Zero to ⅛"
 CASTER ANGLE—Zero to 1° backward
 CAMBER—1°

Brakes

TYPE—4 Wheel Mechanical
 SIZE—12" Diameter—Lining Width, 1½"; Thickness, ⅝"
 CLEARANCE BETWEEN LINING AND DRUM—.010"

Steering Gear

TYPE—Variable Pitch Worm and Sector
 STEERING COLUMN HEIGHT—Adjustable
 GEAR REDUCTION—15 to 1

Tires

SIZE—18x5.50
 PRESSURE — Average Driving, 32 pounds, Front and Rear
 High-Speed Driving, 40 pounds, Front and Rear

Chassis and General Dimensions

WHEELBASE—119" and 126"	FLOOR TO HEADLINING—Closed Models, 47"; Open Models, 46"
TURNING RADIUS—119" W. B., 21'; 126" W. B., 22'	
OVERALL LENGTH (including bumpers)—119" W. B., 182½"; 126" W. B., 189"	FRONT SEAT WIDTH—Coupe, 46½"; Sport Roadster, 40"; Coach, Sedans, Brougham, 42½"
OVERALL WIDTH—67"	
OVERALL HEIGHT—Closed Models, 71"; Sport Roadster, 65"; Other Open Models, 69"	REAR SEAT WIDTH—Coupe, 43½"; Sport Roadster, 33"; All Others, 49"

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 title 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.

Accessory Manufacturers

The following is a list of manufacturers of accessories used on Hudson cars, with whom all matters pertaining to repairs or replacements should be taken up:

SPEEDOMETER—Stewart-Warner Corp., Chicago, Illinois	STARTING MOTOR, GENERATOR, DISTRIBUTOR AND IGNITION COIL—The Electric Auto-Lite Co., Toledo, Ohio
BATTERY—The Electric Storage Battery Co., Philadelphia, Pa.	VACUUM TANK—Stewart-Warner Corp., Chicago, Illinois
HORN—E. A. Laboratories, Inc., Brooklyn, N. Y.	WINDSHIELD CLEANER—Trico Products Corp., Buffalo, New York
SHOCK ABSORBERS—The Gabriel Co., Cleveland, Ohio	TIRES—Goodyear Tire & Rubber Co., Akron, Ohio

Operation

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

The clutch is operated in the conventional manner by depressing the left foot pedal to disengage the engine from the transmission to permit shifting of gears. It is not considered good practice to disengage the clutch except to permit shifting of gears or when coming to a complete stop. Disengagement of the clutch at speeds of over ten miles per hour while the brakes are being applied may cause the car to skid on slippery roads. Form the habit of keeping the foot off the clutch except when shifting gears, and when stopping only after the car has been brought to a speed of ten miles an hour by application of the brakes.

The transmission operation conforms to the standard shift, but cannot be shifted into or out of high or intermediate speeds without first completely disengaging the clutch.

The brakes are operated either by the right foot pedal or 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 located to the right of the brake pedal or by the hand throttle lever located on the steering wheel. This is the lower lever at the hub of the steering wheel. Turning clockwise opens the throttle.

The light control is the upper lever at the hub of the steering wheel, while the horn button is in the center. Turning the light control through the extreme limit of its travel in a clockwise direction the contacts are: lights off, side lights on, headlight driving beam, headlight low beam.

The starter control button, located on the extreme left of the dash panel, is operated by a light pull.

The carburetor choke control button is located below the instrument group, and the ignition switch lock to the right of it.

Form the habit of glancing at the instruments occasionally while driving. After you have become accustomed to the normal position of the hands on the various instruments, a glance will be enough to tell if everything is operating properly. All the instruments give information on vital parts, and attention to the readings may prevent damage to the car. The correct readings of the various instruments are given under the proper headings in later parts of this book.

Starting the Engine

The proper procedure in starting a cold engine is as follows: Insert key in ignition electrolock and turn it $\frac{1}{4}$ turn clockwise. Close throttle to idling position. Pull choke control button out as far as it will go. Pull out starter button. Release the starter button immediately when engine starts and push choke button in as far as possible without stalling engine. If engine is cold, the choke can be returned only about $\frac{3}{8}$ inch, but as the engine warms up the choke can be pushed in gradually until it is all the way in.

Confine the use of the choke to starting a cold or partially cold motor, pushing it all the way in as soon as possible and keeping it in this position for all driving.

Breaking-in Instructions

Keep Radiator 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 wear them in to proper clearances. 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

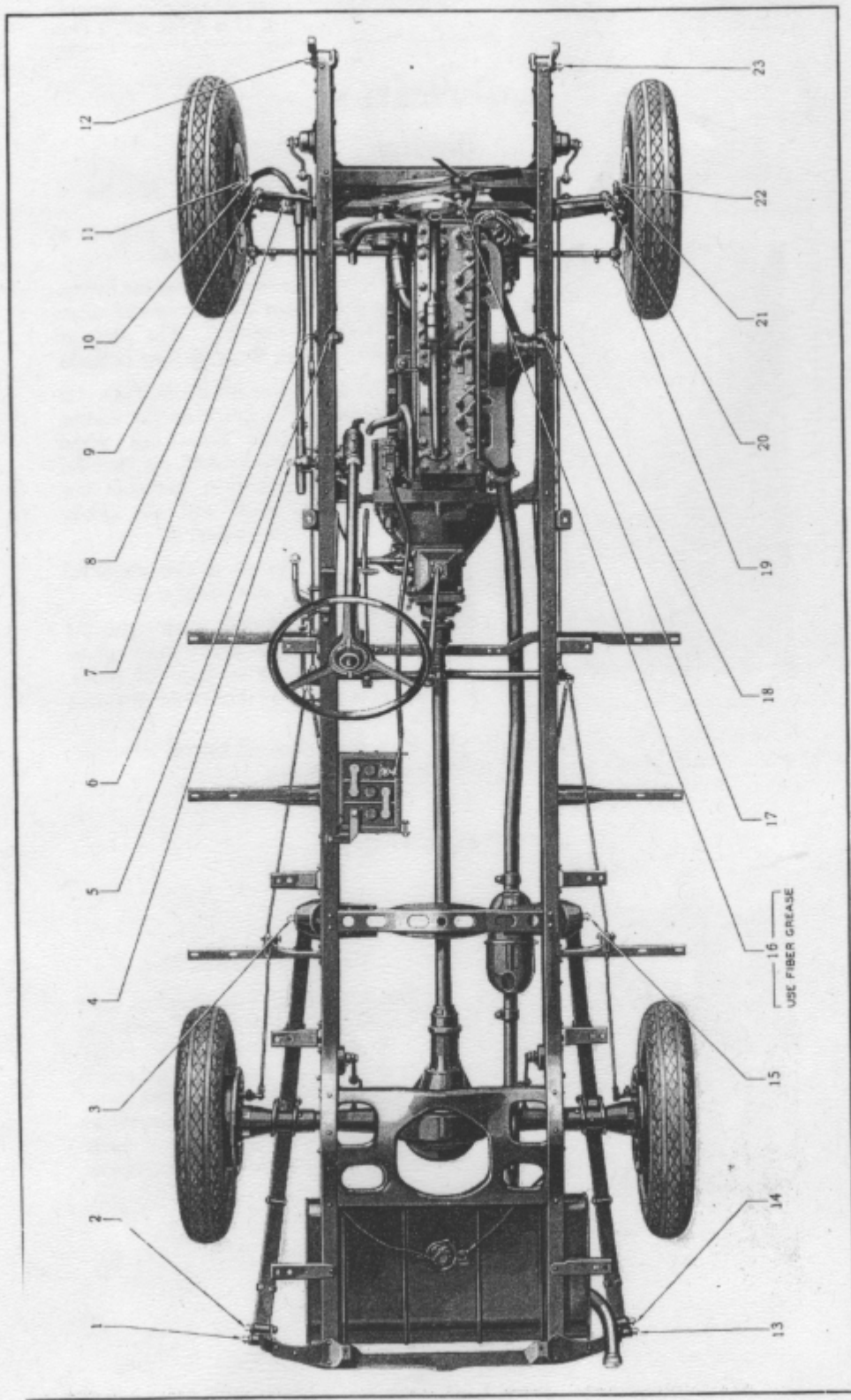
Do not exceed 50 miles per hour in high gear or 25 miles per hour in second.

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 until the engine is thoroughly warmed up and you are sure the crankcase is full of good oil, with oil gauge on instrument panel showing proper pressure. 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.



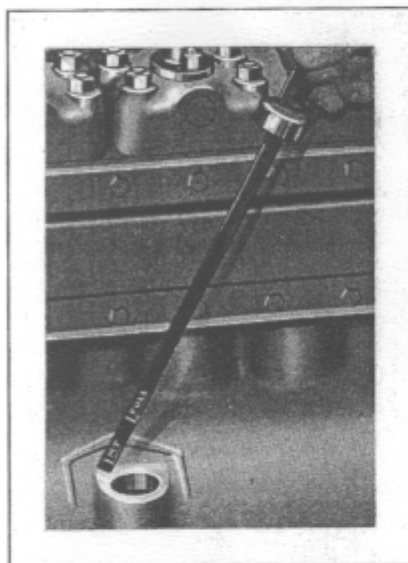
CHASSIS LUBRICATION CHART

Once a week lubricate at all 23 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. No. 30



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

The oil-pressure gauge on the instrument panel must always register when the engine is running. The pressure should be from three to four pounds.

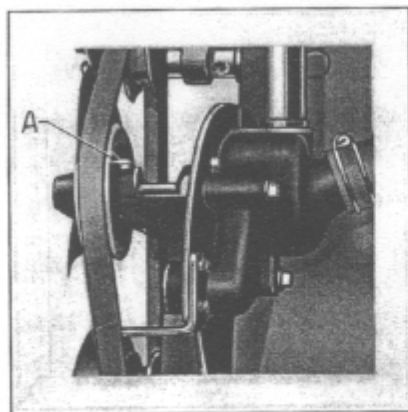
The amount of oil in the reservoir is shown on the gauge on the instrument panel marked "Gas or Oil" when the ignition electrolock is turned "on" and the button between the ignition electrolock and the choke control button is pushed in.

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

Drain oil and refill with eight (8) quarts of medium heavy body oil or S.A.E. No. 30 after first 500 miles. Drain and refill at 2500-mile intervals thereafter.

To drain the reservoir remove the plug from the bottom of the oil reservoir. Be sure the drain plug is tightened securely when replaced.

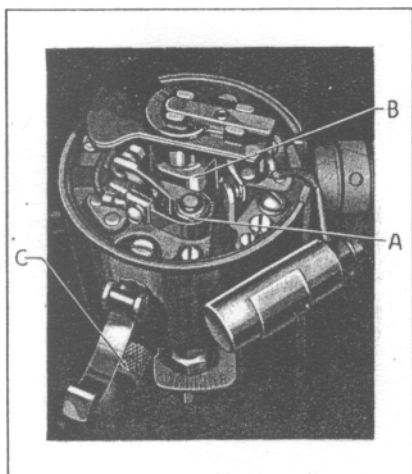
Water Pump



Use Light 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

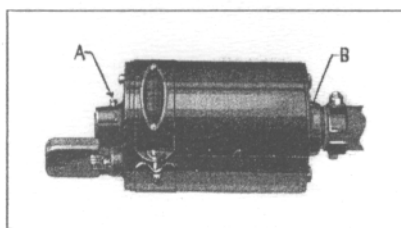
Fill distributor base to the level of the oil cup "C" with motor oil every 2000 miles.

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

Apply a few drops 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

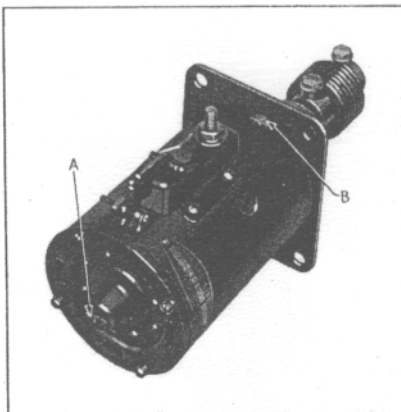


Use Motor Oil

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

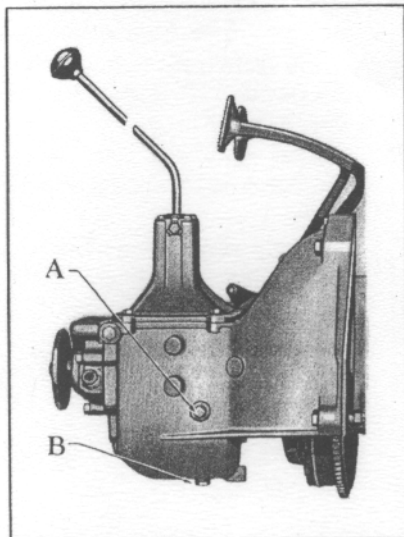


Use Motor Oil

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.

Transmission



Use Transmission Oil

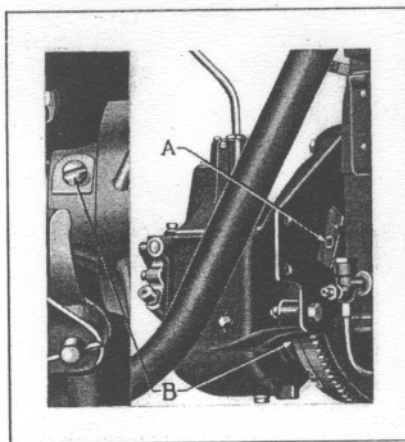
Do Not Use Grease

The transmission oil should be kept to the level of the filler plug "A." The transmission should be drained every 5000 miles by removing the drain plug "B." Replace the plug and fill with one pint of kerosene. Run engine with transmission in neutral and clutch engaged for one minute. Drain kerosene, replace drain plug, and fill with transmission oil to level of plug "A."

If the oil used in the transmission is too light in summer, it will permit the gears to spin when the clutch is disengaged, and require a slight hesitation in shifting. This condition can be overcome by draining and replacing with a heavier lubricant.

If the oil used is too heavy it will cause hard shifting. This can be overcome by adding medium body motor oil until shifting can be handled readily when lubricant is cold.

Clutch



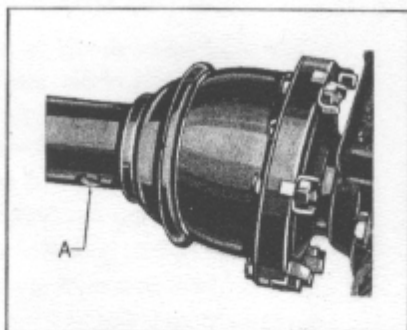
Use $\frac{1}{8}$ Pint Light Motor Oil and $\frac{1}{8}$ Pint Kerosene

Clutch lubricant should be changed every 1500 miles.

To drain: Crank engine by hand until oil filler plug "A" on front side of flywheel is visible through inspection hole. Remove plug. Crank engine slowly, allowing clutch to drain while flywheel makes one revolution. When filler plug opening is again in view, refill as stated above and replace plug.

The clutch throwout bearing plug shown at "B" in illustration should be removed and bearing packed with one ounce of No. 3 yellow cup grease every 1500 miles. A grease gun is necessary for this operation.

Universal Joints



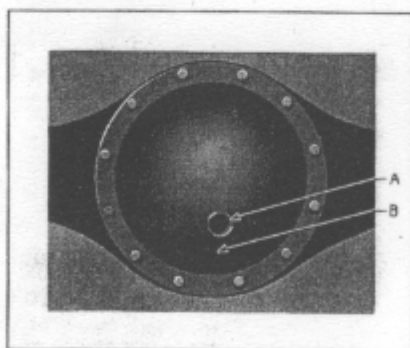
Use Fibre Grease

Remove the plug "A," shown in the illustration, of the rear universal joint and fill with good fibre grease. 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 1000 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 Differential Oil —Heavy Body

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

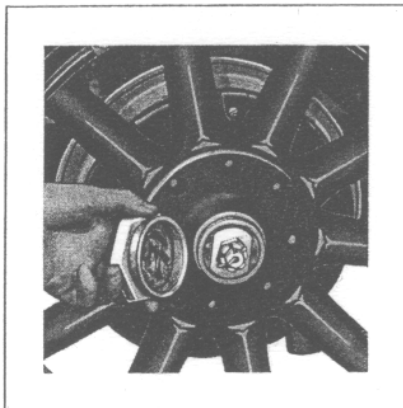
There are special oil passages and baffles in the differential carrier housing which catch oil thrown from the ring gear and carry it to the pinion bearings and return the overflow to the axle housing. This keeps the pinion bearings under a constant bath of oil

and eliminates the necessity of oiling them separately. Select a good oil that will flow at low temperatures.

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

Housing may be drained by removing cover "B."

Front Wheel Bearings

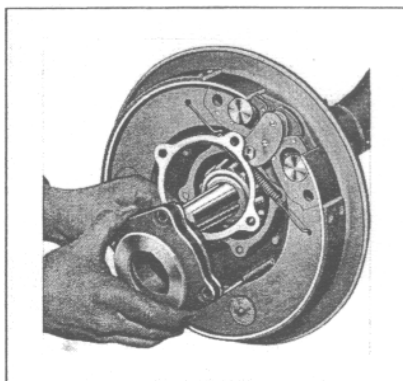


Use Cup Grease

The front wheel should be removed by jacking up front of car, unscrewing the hub cap, withdrawing the cotter key in the end of the spindle, removing nut and washer. The wheel can then be pulled off. Wash out bearings and hubs with gasoline; pack bearings and hub with three ounces of grease. Do not overlubricate. See that felt washer at inner end of hub is in good condition and that there is no grease in the brake drum, brake shoe, or any other

brake part. If necessary, wash these parts with gasoline. The brake shoe mechanism should be kept entirely free from oil and dirt. These parts are all rustproof and operate freely without oil. Replace wheel. See page 26 for bearing adjustment. Fill hub cap with one ounce of grease and replace.

Rear Wheel Bearings



Use Cup Grease

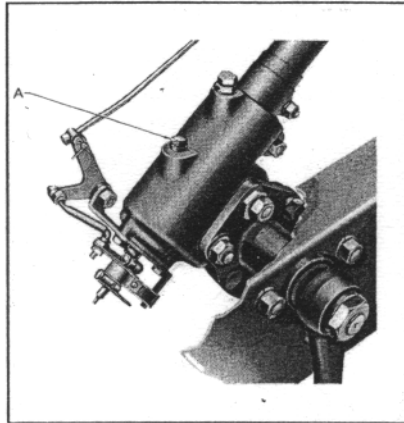
Jack up rear wheel, remove hub cap, remove cotter key in end of axle shaft, remove nut and washer, and withdraw wheel.

Remove four cap screws holding bearing cap. Remove bearing cap and bearing. Wash cap and bearing with gasoline and see that felt washer in cap is in good condition. Insert ten ounces of grease in housing back of bearing. Pack bearing and cap

with grease and replace. See page 26 for bearing adjustment.

Wash all brake parts including shoe and drum if any grease is found on them. Overlubrication of the wheel bearing may cause leakage which will affect the brake mechanism. Do not overlubricate. Replace wheel.

Steering Gear



Use High-Grade Gear Oil

—Heavy Body

The steering gear case should be kept filled to the level of the filler plug "A." The use of a good-grade heavy gear oil is necessary to provide free operation under all climatic conditions.

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 25 for adjustment and alignment of steering gear.

Noise in the unit may be due to the use of oil of insufficient body. If change of lubricant does not quiet operation, follow instructions for adjustment, page 25.

Miscellaneous

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

BRAKE CROSS SHAFT—Coat brake cross shaft rollers with light cup grease every 1000 miles. Do not oil or grease inside of brake drum.

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

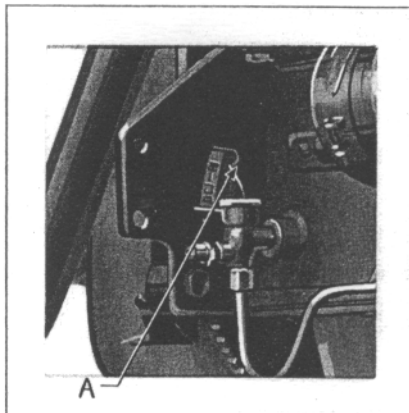
HOOD LOCKS—Use motor oil. Lubricate occasionally by injecting a few drops of oil through hole in the barrel just below the handle.

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 lightly with grease or soap.

Adjustment

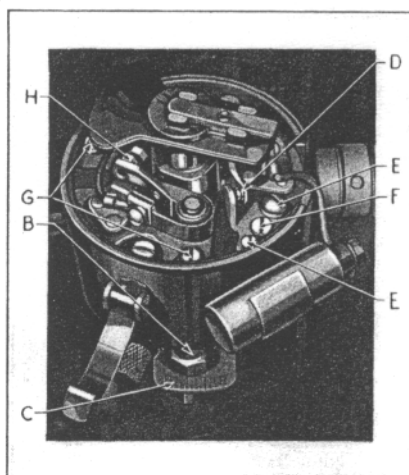
Ignition Timing



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-Essex 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 should be used. Place file between points and move straight up and down, dressing both points at the same time.

Crank engine by hand until the breaker arm fibre 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 fibre 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 on ignition. Turn distributor clockwise to the full limit permitted by the slot in the clamping plate "C." The ammeter on the instrument panel should show a discharge. Turn the distributor slowly counterclockwise until the hand of the ammeter falls to zero. This indicates that the points "D" have just begun to open and 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 on ignition. Ammeter should show a discharge. Turn breaker point support plate counterclockwise until the ammeter hand falls to zero. *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

Remove spark plugs, clean and reset spark gaps to .022" every 3000 miles.

Do not alter central electrode—bend outer one to change gap.

Fan and Water Pump

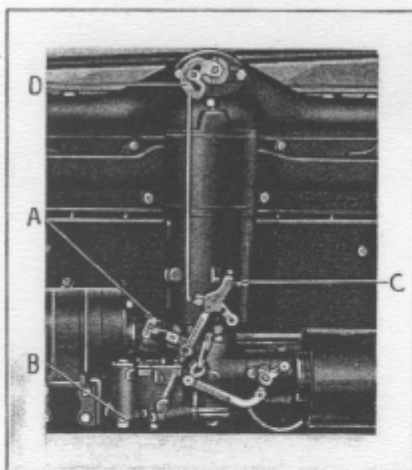


To adjust the belt, loosen the nut "A" and raise the fan until the belt can be deflected $\frac{5}{8}$ " below a straight-edge laid on the fan and pump pulleys. This measurement of deflection is indicated in the illustration at "B."

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.

Remove filter glass on vacuum tank to stop flow of gasoline to carburetor while cleaning. See illustration, page 24.

Clean carburetor filter screen "B."

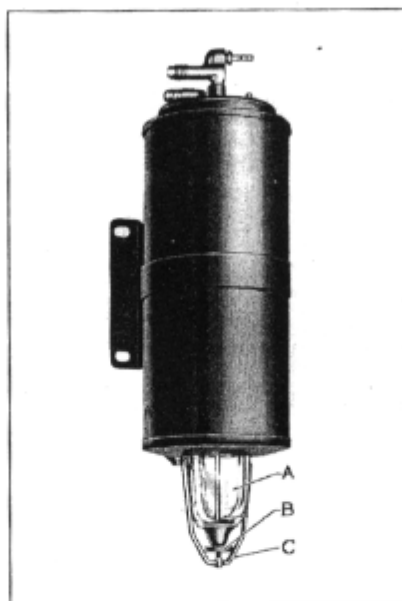
Adjust set screw "C" for faster or slower idling speed. The correct idling speed is seven miles per hour.

Adjust air screw "A" to change mixture for smoother idling. Turn air screw until the end is flush with the end of the ratchet spring bearing

against it. This is the normal adjustment and the final setting should be within $\frac{1}{2}$ turn of this point. Warm engine to proper operating temperature. Turn air screw counterclockwise until the engine hesitates, then clockwise two or three notches at a time until the engine runs smoothly.

The heat control adjustment "D" should be set in the WARM position for all driving conditions when the atmospheric temperature is less than 90° F. From 90° to 100° F. the MED. position may be used while temperatures above 100° F. will require the use of the cool position.

Vacuum Tank

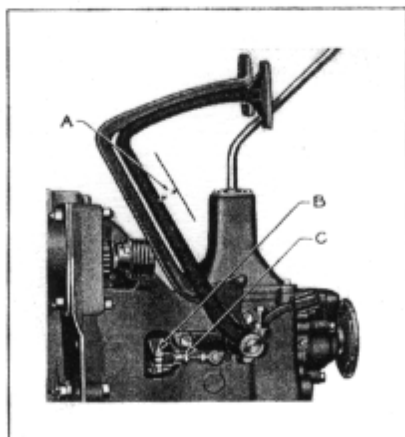


The glass sediment chamber at the bottom of the vacuum tank should be removed and cleaned whenever its contents show an accumulation of water or dirt. The water, due to the fact that it is heavier than gasoline, settles to the bottom of the glass and is easily distinguished.

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 "B," 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

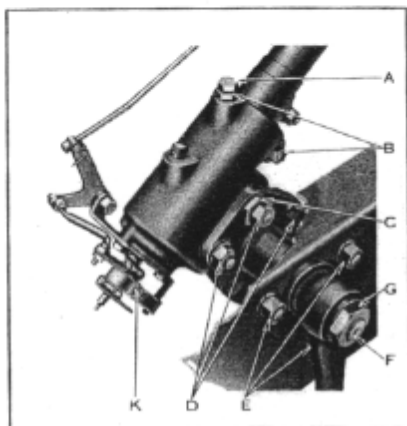


A clearance of $\frac{3}{4}$ " must be maintained between the clutch pedal shank and the toe board, as shown in the illustration at "A."

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



To remove end play from main column: Loosen nuts "B" one-half turn and turn adjusting screw "A" down as far as possible without stiffening the action of the steering wheel when turned through its entire movement. Use care when doing this to turn screw "A" downward only, as it must be in positive contact with the bushing sleeve when the adjustment is completed. The nuts "B" should then be tightened securely.

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 screwdriver turn the adjusting screw down as tightly as possible, then back up slightly. Tighten lock nut.

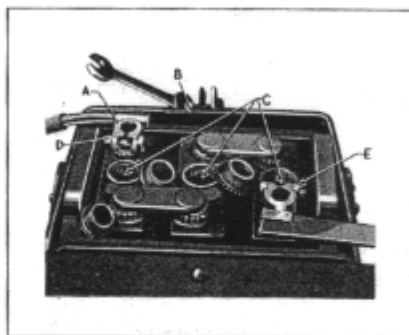
To remove play in mesh of worm and cross shaft sector: Locate wheels in straight-ahead position, disconnect drag link from steering arm and shake arm to determine the amount of play. Loosen four stud nuts "D" ($\frac{1}{4}$ turn only). Turn eccentric sleeve "C" to right or clockwise direction only in 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.

Tighten screw "K" to increase friction on hand throttle control disc and loosen to let disc turn freely.

Battery



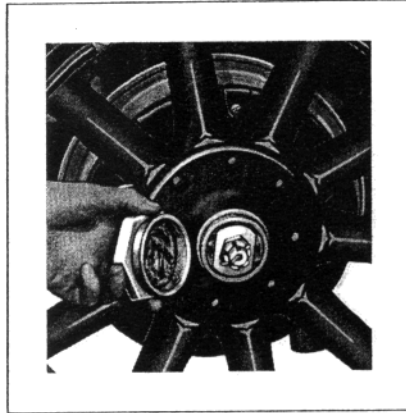
Disconnect terminal "A" from the battery. Clean thoroughly, coat with vaseline, replace and tighten securely.

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

Keep plates covered. Add distilled water at regular intervals. Fill at "C."

Keep clamp bolts "D" and "E" tight at all times.

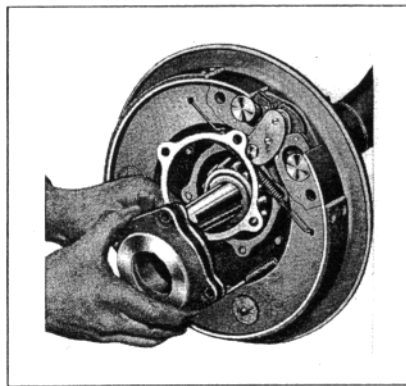
Front Wheel Bearings



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 hub cap, remove cotter key from end of spindle. Tighten spindle nut until a slight drag is felt when turning the wheel slowly by hand. Loosen spindle nut until wheel turns freely, insert cotter key and replace hub cap.

Rear Wheel Bearings



To adjust rear wheel bearings, jack up both rear wheels. Remove hub cap, cotter key, shaft nut and withdraw wheel.

Remove four cap screws and withdraw bearing cap. Remove shims from under bearing cap to decrease end play or install extra shims to increase play.

End play should be from .005" to .010", which amount is perceptible when pulling the axle shaft in and out.

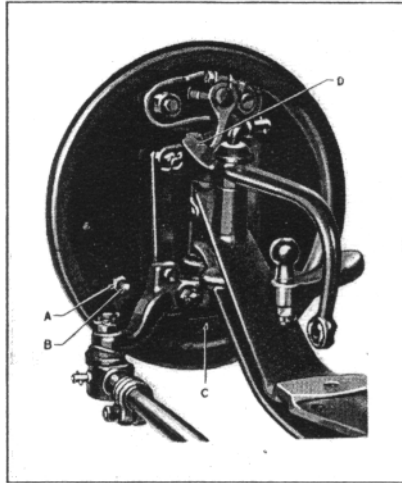
Be sure that approximately the same thickness of shims is used at each

rear wheel bearing so that brake drums will be evenly spaced from brake dust shields.

Tires

Check tires once a week and keep inflated to 32 pounds pressure. For fast driving inflate tires to 40 pounds.

Brakes



All linkage must work freely and brakes be fully released before an accurate adjustment can be made.

Jack up all four wheels and make the following adjustment at each:

Loosen lock nut "A" and turn eccentric "B" in the direction the wheel revolves when the car moves forward until a slight drag can be felt when turning the wheel by hand. Tighten lock nut sufficiently to hold the eccentric in that position temporarily.

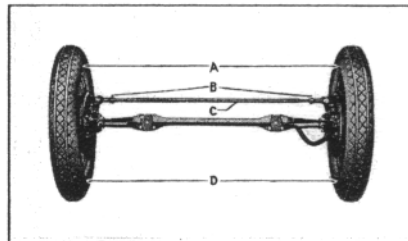
Remove cover plate "C" and with a screwdriver turn the adjusting screw wheel toward the rim of the backing

plate until the pressure exerted against the drum is such that the wheel can just be turned by hand. Back off the adjustment screw wheel until only a slight drag is noticeable. Centralize the brake shoes in the drum by loosening the lock nut "A" and turning the eccentric "B" until the wheel is just free of brake drag. Hold the eccentric in that position and tighten the lock nut.

With the vehicle still jacked up, depress the brake pedal about two inches and test for equalization by turning the wheels by hand. The pressure on each front wheel should be equal and in a similar manner the pressure on each rear wheel should balance.

A maximum of $\frac{1}{4}$ " clearance should be allowed at "D" to permit a slight amount of backlash.

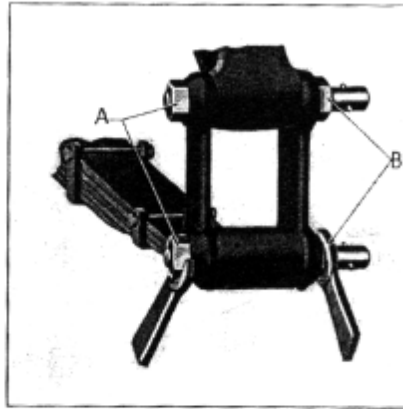
Front Wheel Alignment



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

A special tool should be used for this purpose and the measurement taken between the rims at a height about

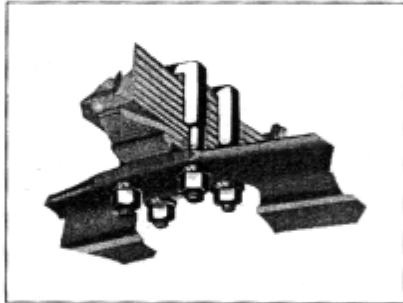
even with the hubs. Loosen clamp bolts "B" and turn tie rod "C" clockwise as viewed from the right to increase "A" and counterclockwise to decrease "A."



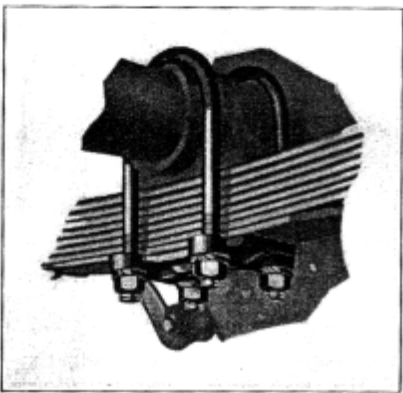
Spring Mounting

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 1000 miles and every 5000 miles thereafter.

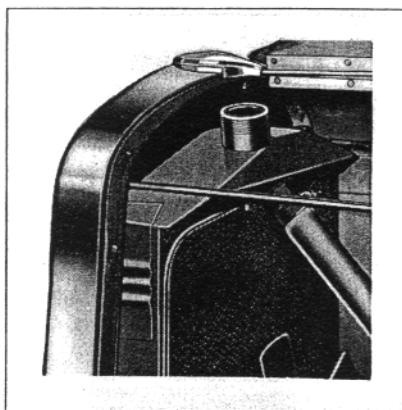
Shock Absorbers

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-Essex 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 on bonnet.

Each season after removing the anti-freeze, and about every four months thereafter, 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.

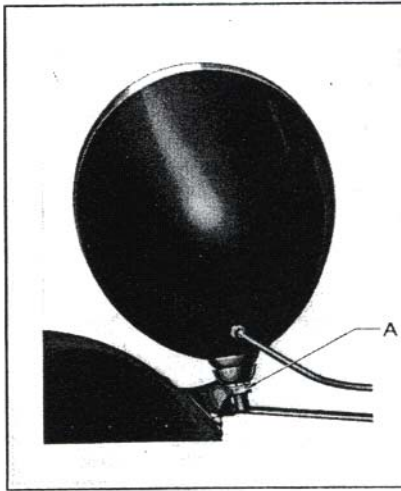
Add an anti-freeze solution to the radiator in cold weather.

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>For</i>	<i>Prestone</i>	<i>Alcohol</i>	<i>Radiator Glycerine</i>
32° to 10° above 0°	5½ qts.	6⅔ qts.	9¼ qts.
10° to 0°	7 qts.	8⅔ qts.	11½ qts.
0° to 10° below 0°	8⅓ qts.	10 qts.	13⅔ qts.
10° to 20° below 0°	9½ qts.	11¼ qts.	15⅓ 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.

Place the light lever in the position throwing the light beam farthest from the vehicle. Cover left lamp to obscure the light beam.

Loosen the adjusting nut "A" and aim the 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.

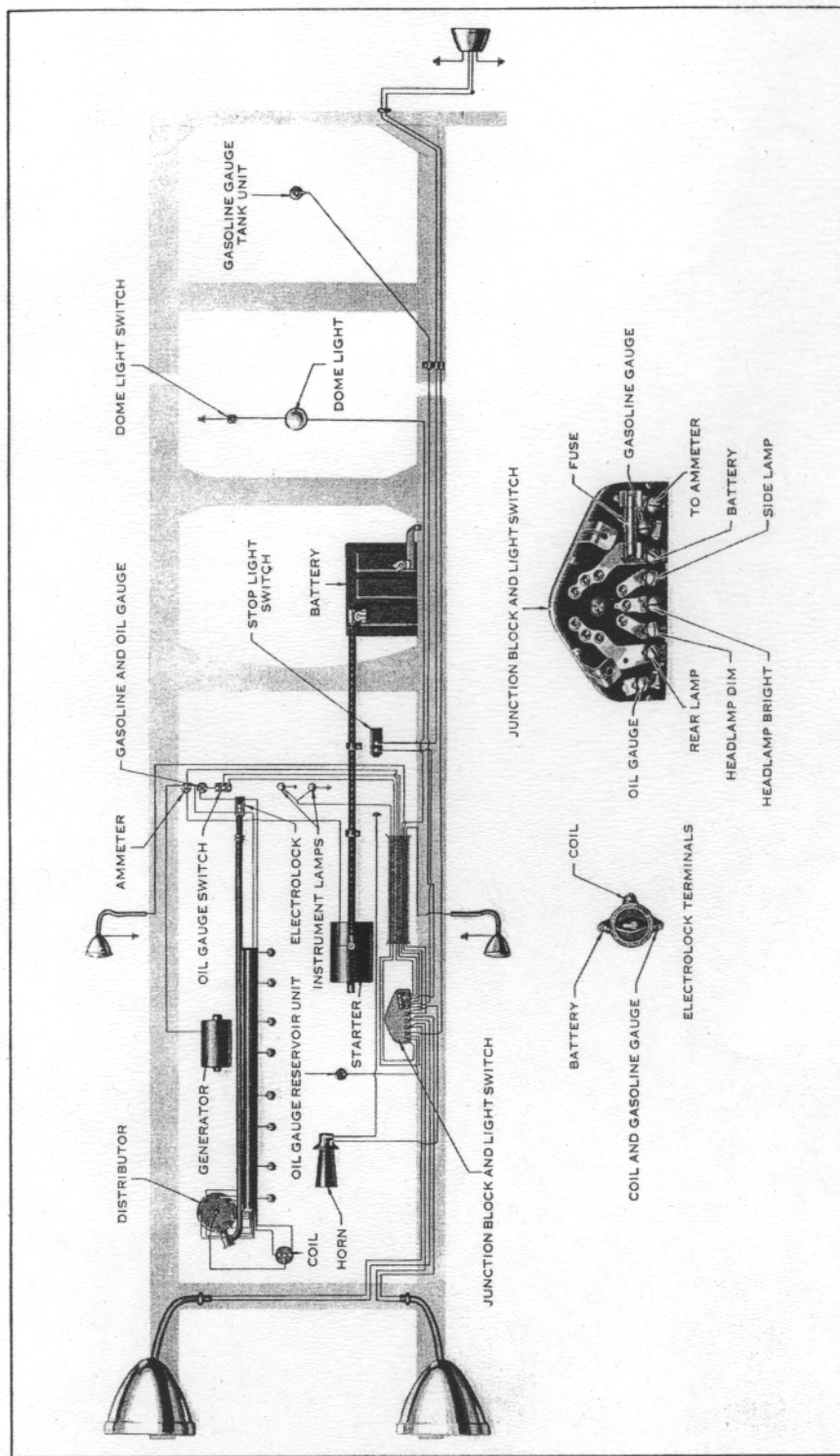
Repeat operations with the left lamp and the headlamps will be properly aligned.

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 employed. 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.



WIRING DIAGRAM