

Instruction Book

HUDSON

Super-Six



SEPTEMBER
1925

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

PRINTED IN U.S.A.

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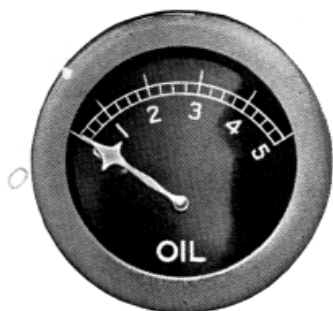
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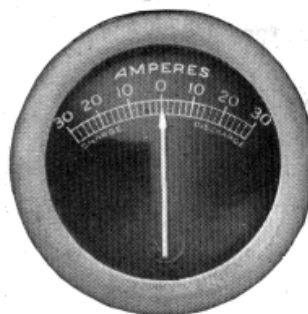
License Data

Car serial number (see plate on front of dash under hood).
 Motor serial number (stamped on left front motor leg).
 Number of cylinders 6.
 Cylinder bore $3\frac{1}{2}$ in.
 Stroke 5 in.
 Standard horsepower rating for license purposes 29.4.
 Piston displacement 288 cu. in.
 Weight—Coach 3385 lbs., Brougham 3425 lbs., 7-Pass. Sedan 3640 lbs.

Important

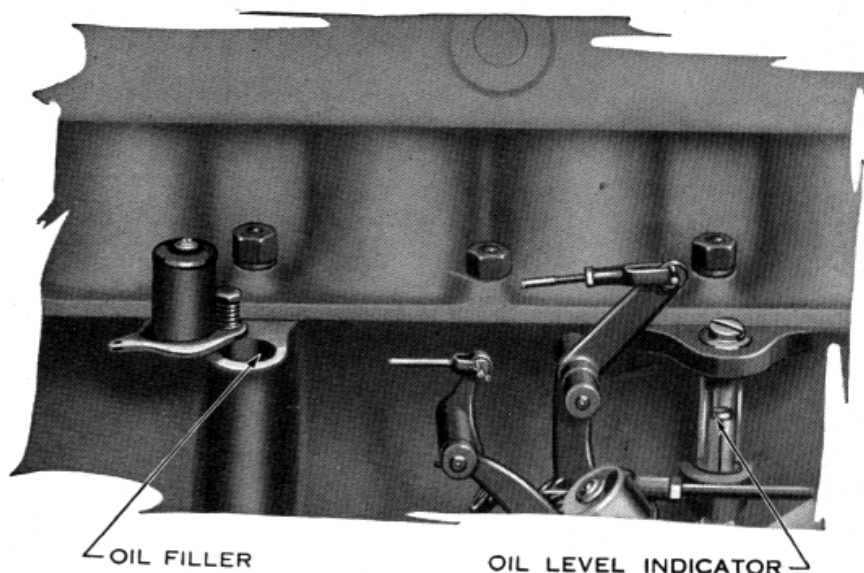


The oil gauge must always register when the motor is running. If it fails to do so, stop and investigate.



The ammeter should show charge when the car is traveling over 10 miles an hour with the lights out.

Motor Lubrication



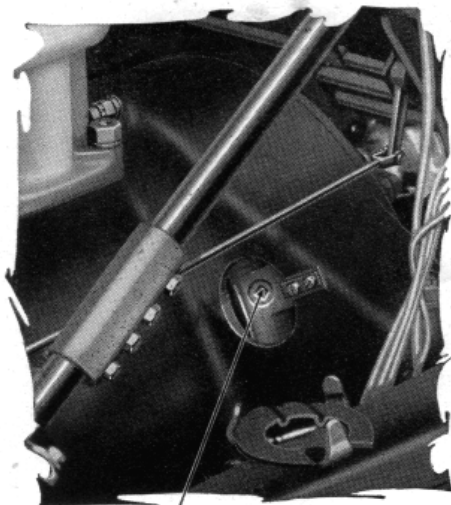
Use only high-grade oil of heavy body (so-called No. 400).

For zero weather use only high-grade winter oil (so-called No. 400).

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

Drain reservoir and refill with new oil at 500-mile intervals. To refill reservoir after draining, add 7 quarts. If the reservoir has been removed from the motor, pour 2 quarts into the splash troughs in addition to the 7 quarts mentioned above.

Clutch



FILL CLUTCH HERE

Have clutch oil drained off every 1,500 miles. Flush clutch thoroughly with kerosene or gasoline. Drain, and then replenish with $\frac{1}{2}$ pint of kerosene and motor oil mixed in equal portions.

Transmission

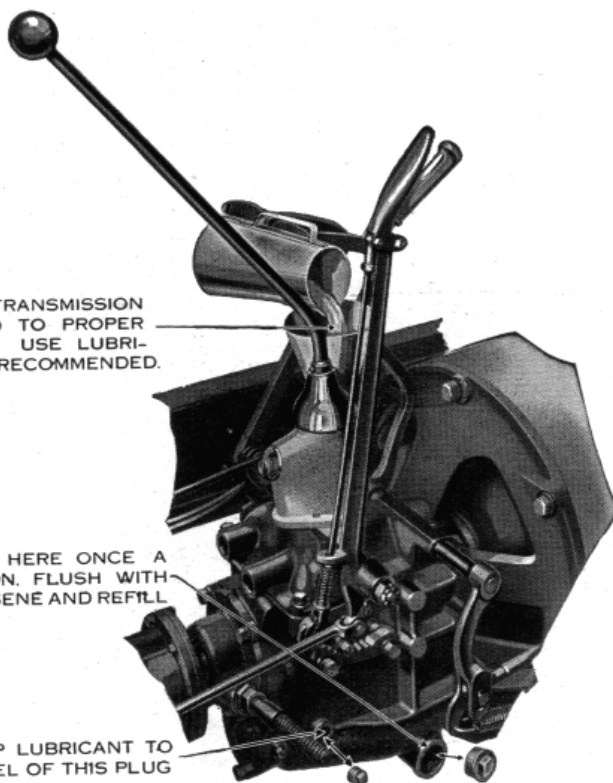
We recommend good transmission oil. Do not use grease.

Once a year drain off case and refill with new lubricant.

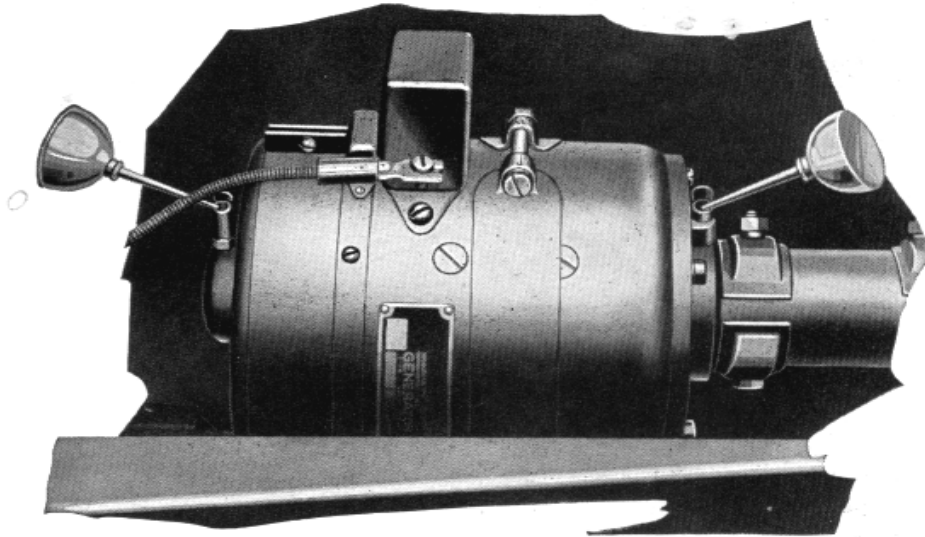
KEEP TRANSMISSION FILLED TO PROPER LEVEL USE LUBRICANT RECOMMENDED.

DRAIN HERE ONCE A SEASON. FLUSH WITH KEROSENE AND REFILL.

KEEP LUBRICANT TO LEVEL OF THIS PLUG



Generator



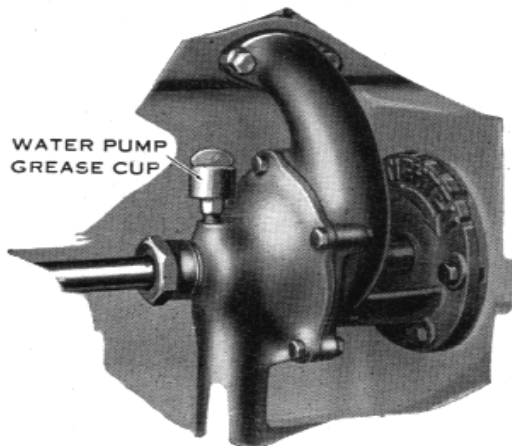
Three or four drops of light motor oil at points designated every 1,000 to 1,500 miles.

Starter

The starting motor is equipped with oil-less bearings, and requires no lubrication.

Distributor

Water Pump

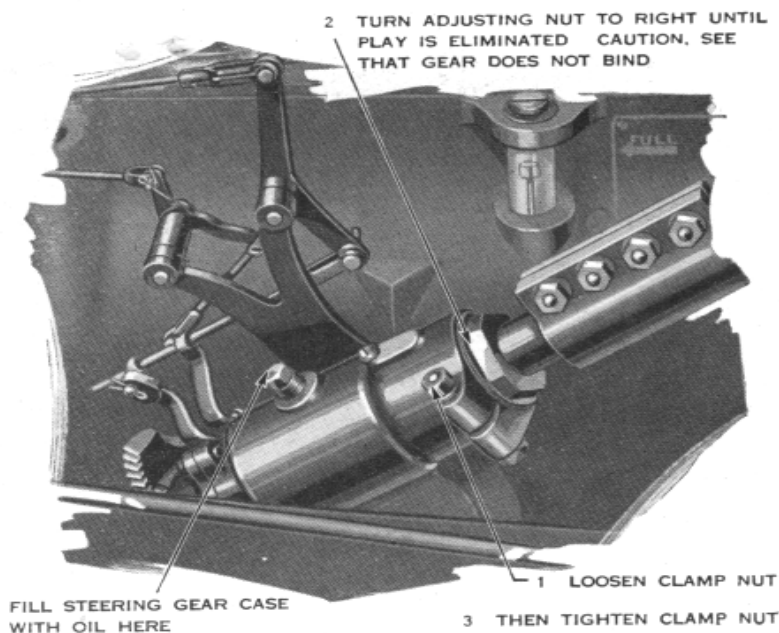


Keep water pump grease cup filled with hard grease. Turn down frequently.



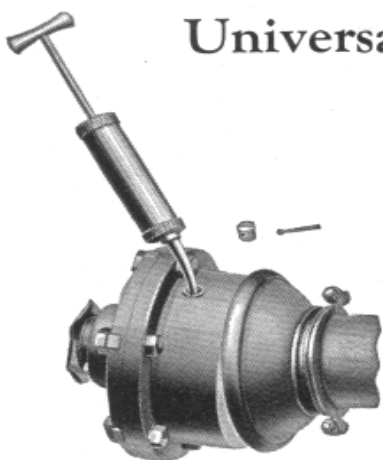
Fill distributor base with motor oil once a month to the level of the oil cup.

Steering Gear Lubrication and Adjustment



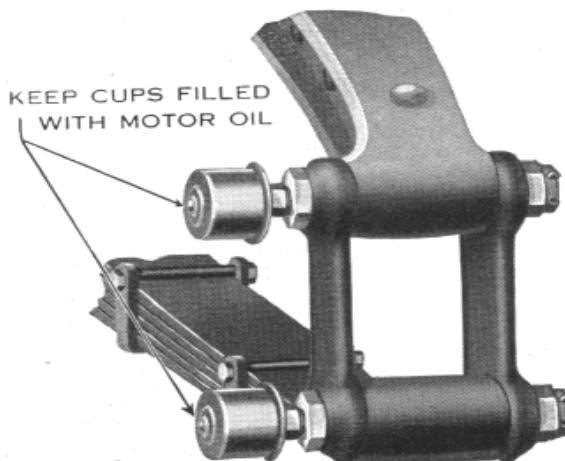
The steering gear requires little attention other than to see that lubrication is taken care of regularly. After continued service, play in the gear can be removed in the manner shown in the illustration.

Universal Joints



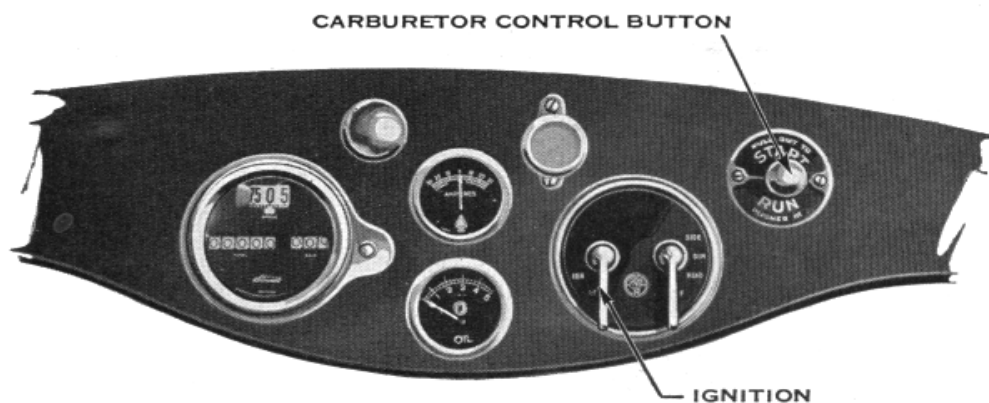
The universal joints, because of the severe service demanded from them, require adequate lubrication. They should be greased thoroughly every 2,000 miles.

Oil Cups



All chassis oil cups should be filled regularly by means of the pump oil can provided in the regular tool equipment.

Starting



The carburetor is controlled by the button shown in the illustration above. When starting, this button should be pulled all the way out, but should be returned part way immediately when the motor starts to fire.

As soon as the motor warms up a little this button should be pushed all the way in. Never drive with this button pulled out.

Storage Battery

The only attention required by the battery is the regular addition of distilled water. Inspect every two weeks in the summer time and every three weeks in cold weather. Keep terminals tight and coated with vaseline.

Cooling System

The cooling system should be kept filled with pure water at all times. If the water in your locality is known to contain alkali or lime, avoid its use if possible and use rain water.

Always regulate the shutters as advised on page 10.

See that fan belt does not slip. An adjustment is provided for taking up slack.

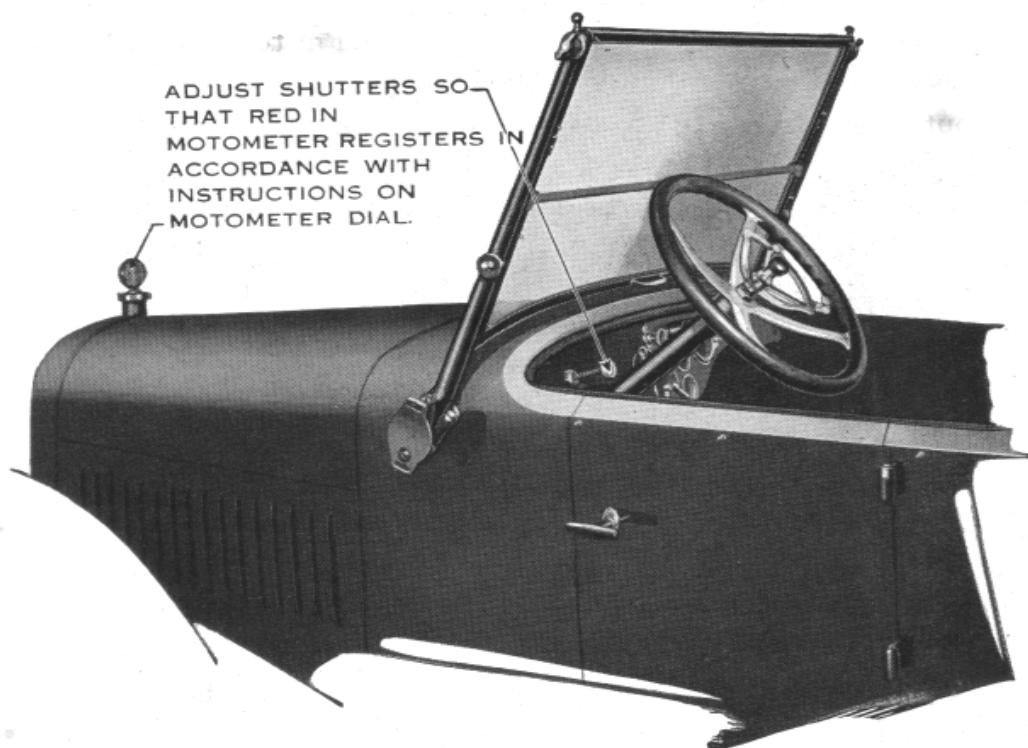
See instructions under "Winter Driving" also.

Horn

The horn should be lubricated occasionally by removing the cover screw and cover and placing a few drops of light oil in the oil holes provided.

If you do not have a Parts Price List, we will cheerfully supply one without cost

Motor Temperature Control



The radiator is provided with shutters which should be opened or closed to regulate the motor temperature.

Electrical System

The electrical system requires little attention other than that of proper lubrication.

Be sure that the dealer from whom you purchase your car registers it promptly with the American Bosch Magneto Corporation branch or dealer in his territory. In due time you will receive an identification card which entitles you to an inspection service on your electrical apparatus free of charge at the nearest American Bosch Service Station during the guaranty period.

It is suggested that the first inspection be made upon receipt of registration card.

The electrical units covered by the American Bosch Magneto Corporation guaranty include: Starter, Generator, Distributor, Coil and Switch.

The wiring employed in the light circuits is protected by a 20-ampere fuse located on the back of the ignition and lighting switch, as shown in the illustration on page 14. If for any reason the lights do not burn, examine this fuse; if necessary, replace with a spare of the proper capacity.

Spares will be found in the fuse carrier at the bottom of the switch back.

Ignition Timing

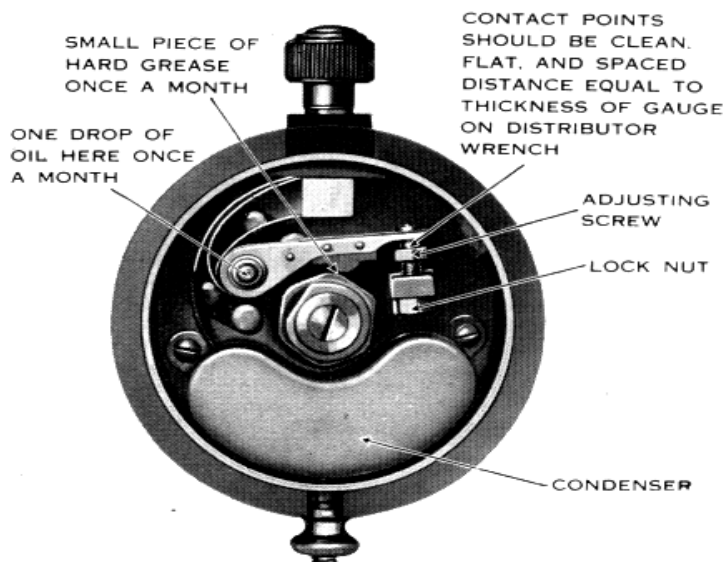
To check the spark timing when necessary, proceed as follows: Fully advance spark by moving spark lever (left lever at top of steering wheel) down to lowest position, or nearest driver.

Take out the spark plug in No. 1 cylinder and crank the motor by hand until the rush of air from the plug opening indicates that the piston is coming up on compression stroke. This can readily be determined by placing a finger over the spark plug opening. The motor should then be cranked very slowly until the pointer on the observation hole (on the left side of the flywheel case) is directly over the center of the mark "A," which is stamped on the flywheel. It is permissible to time slightly ahead of this point if found necessary. Results should be checked on road and spark retarded slightly if there is any tendency to knock.

Remove the distributor cap and rotor, and note position of contact points. If they are set to proper clearance (as shown below), they should be just separating. To adjust, if necessary, loosen the holding screw on the distributor timer arm shown in the illustration on page 7 and turn distributor housing slightly in proper direction.

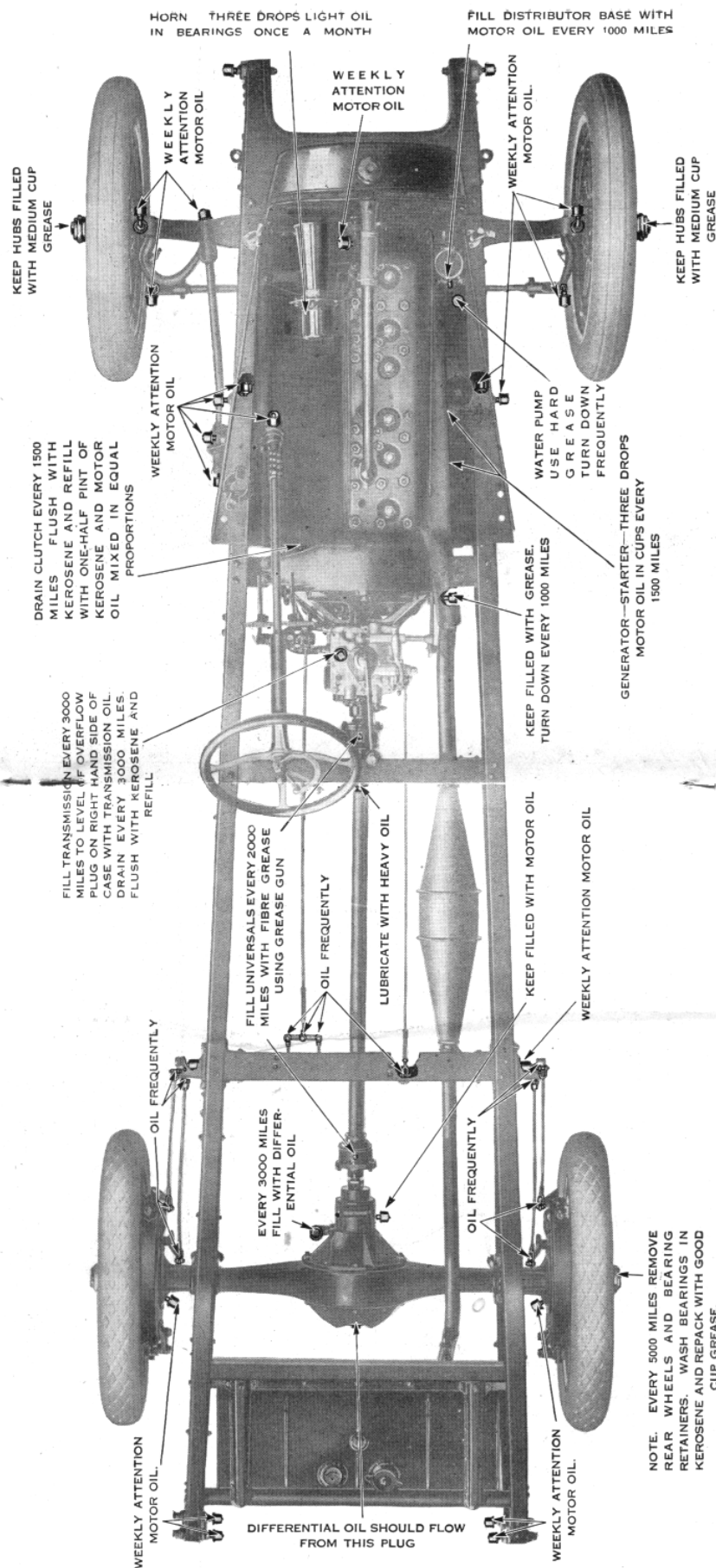
Turn the distributor to the left, or anti-clockwise, to advance the ignition; to the right, or clockwise, to retard. Then re-tighten the holding screw.

The motor fires in the following order: 1-5-3-6-2-4.



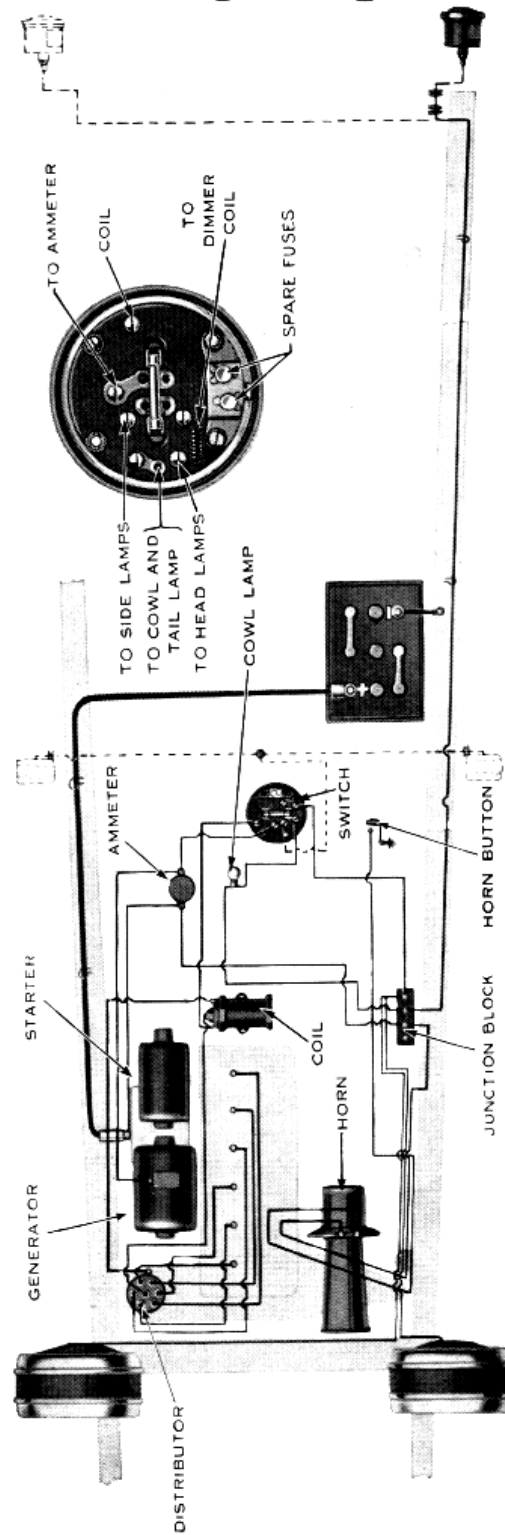
The ignition distributor requires no attention other than that pointed out in the illustration.

Oiling Chart

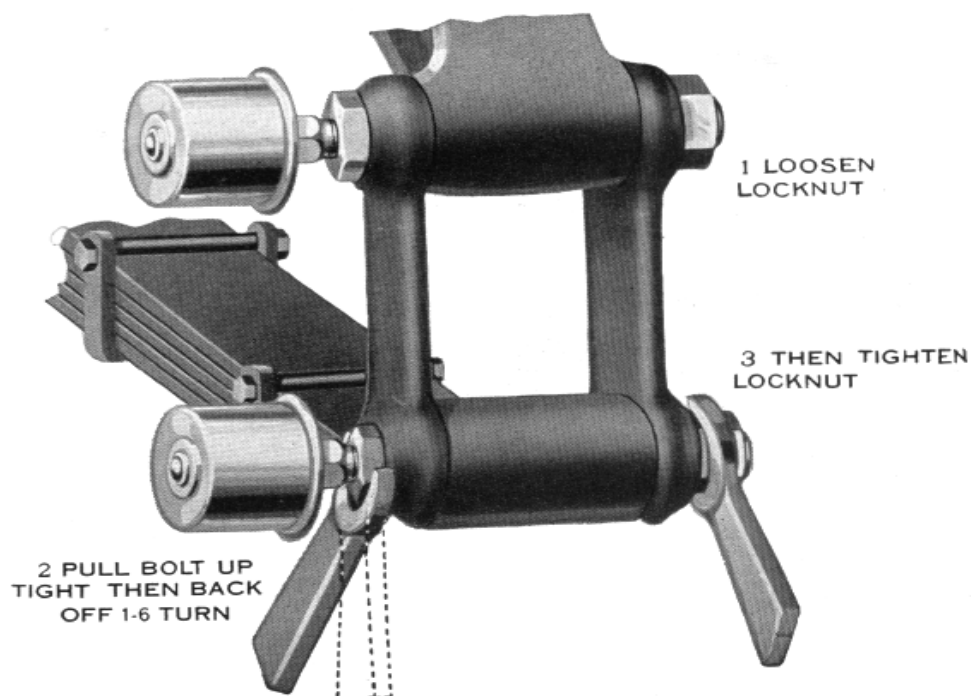


NOTE: ONCE A YEAR DRAIN AXLE BY REMOVING LOWER CAP SCREW FROM HOUSING COVER AND REFILL WITH NEW OIL

Wiring Diagram



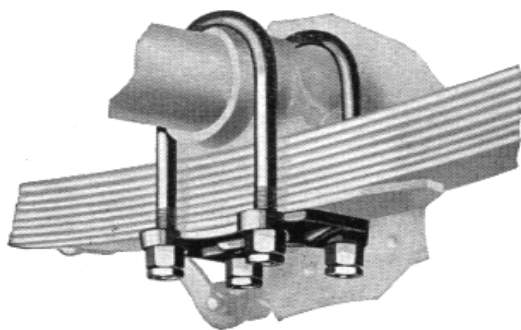
Spring Shackles



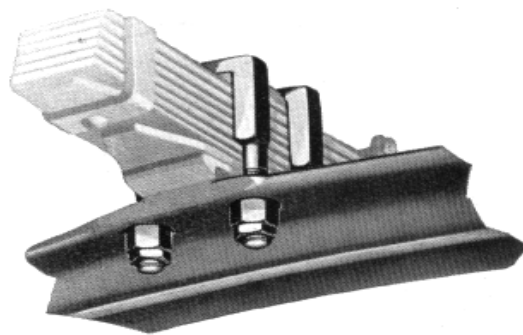
The spring shackles are provided with an adjustment by means of which all looseness can be taken up in a few minutes and rattles at these points eliminated.

Do not tighten too much or you will interfere with the action of the springs. Follow the instructions given closely.

Spring Clips

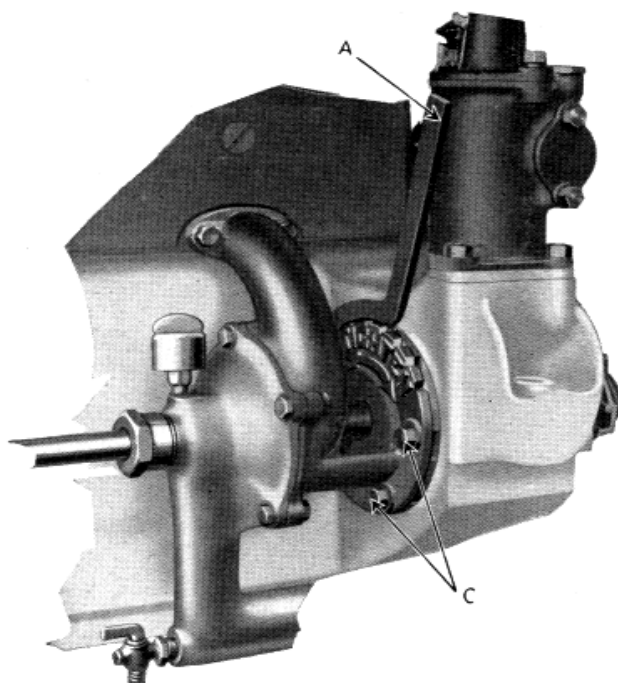


Spring breakage can usually be attributed to looseness in the spring clips which secure the springs to the axles.



It is recommended that these clips be inspected occasionally to insure keeping them tight always.

The Chain

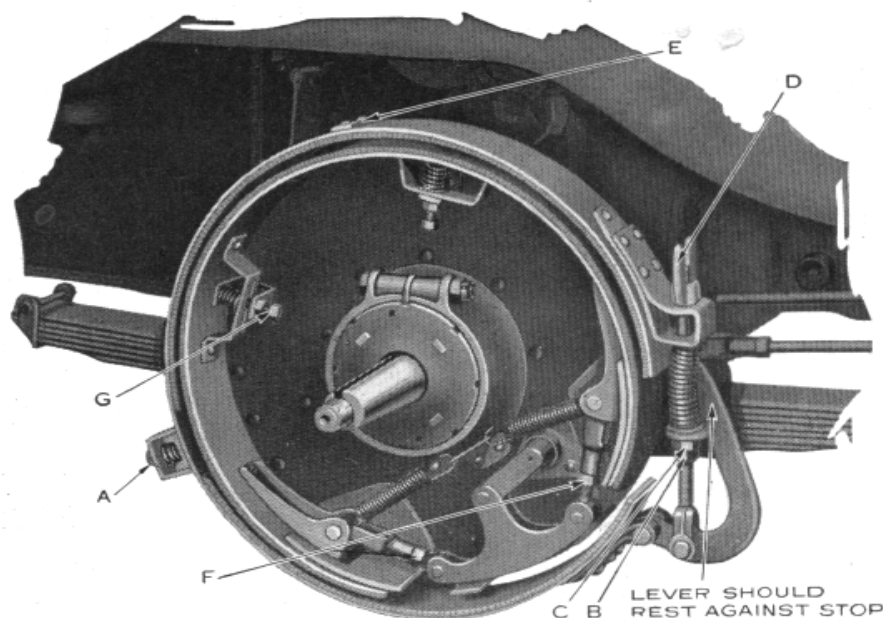


The camshaft and accessory shaft is driven by a chain which is provided with means of adjustment. At the expiration of from 500 to 1,000 miles of driving it is advisable to determine if the chain requires taking up. Subsequent inspections at intervals of 4,000 miles are recommended. To inspect chain proceed as follows:

Grasp the coupling between the generator and water pump and turn to and fro as far as possible. There should be approximately one-eighth of an inch movement in the circumference. If more is visible then adjust chain as follows: Remove the three bolts marked "C" (inside one is hidden in illustration). Then, by means of the special wrench "A," pull flange in the direction of the arrow until only the necessary play is present as explained above. If it is necessary to shift the flange slightly to get the bolts to line up, back off the adjustment instead of turning up tighter or you will overload the bearings.

To remove the chain it is necessary to take off the camshaft gear. When replacing the chain, it is very important that the punch marks on the teeth of the crank and camshaft sprockets coincide with the punch marks on the chain pins, and that the arrows stamped on the side of the chain links point in the direction in which the chain runs. If these points are not observed, the valves will not be timed properly, and the chain will not operate. In addition, the ignition timing should also be checked as outlined on page 11.

Brake Adjustments



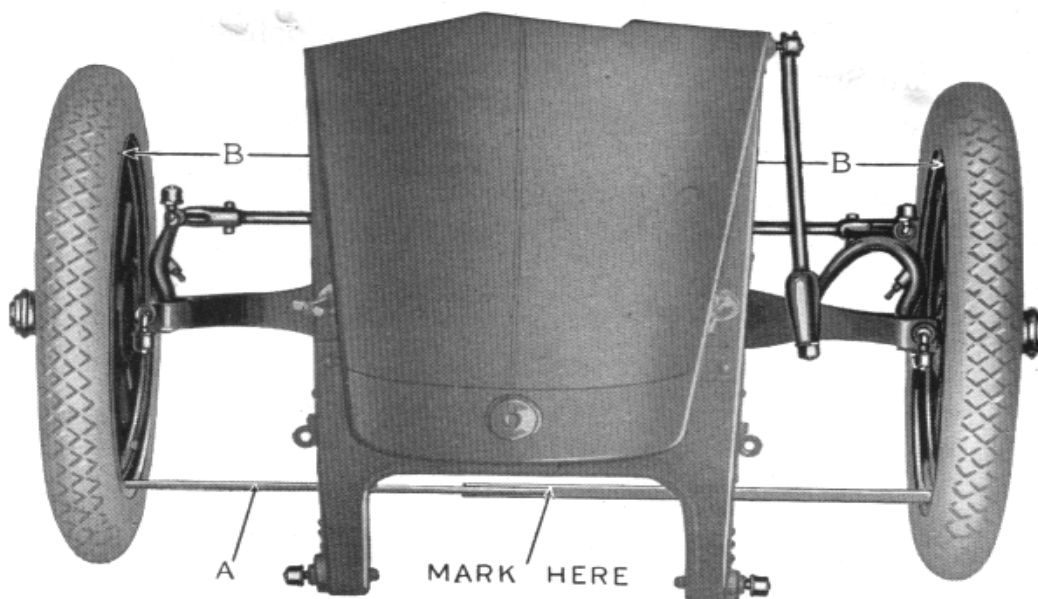
We suggest that you have your Service Station make all brake inspections for you.

In an emergency, to adjust the foot or external contracting brake proceed as follows: First, see that the brake pull rods are adjusted so that the lever rests against the stop. Second, adjust "A" until the band just clears the drum at this point. Third, loosen lock nut "B" and turn the adjusting nut "C" down, thereby raising the lower half of the band until it just clears the drum. Fourth, by turning the wing nut "D" the upper half of the band can then be brought down so that it also just clears the drum.

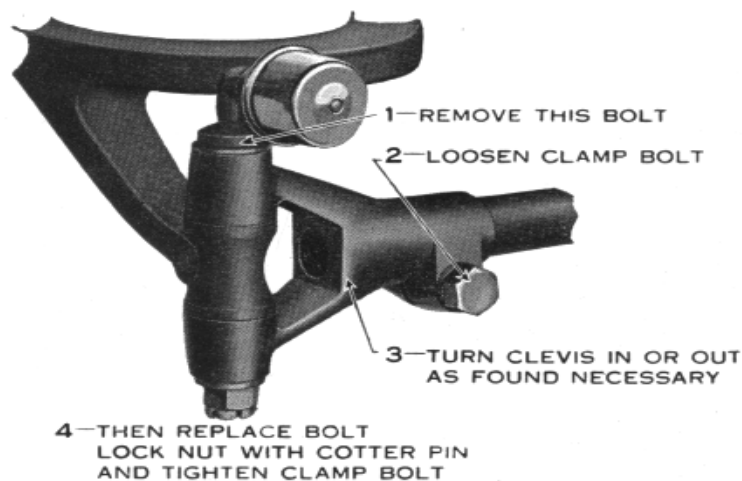
In conjunction with the above adjustment, each external band is fitted with an adjustment shown at "E," for the purpose of making the band conform to the circle of the brake drum. This adjustment is fitted with a spring, stud, lock nut and adjusting nut. The adjustment is effected by increasing the tension on the spring by means of the adjusting nut.

The hand brake will require no attention for an indefinite period. Reference to the illustration above will show that the position of the expanding band is controlled by double adjustments indicated at "F." When it becomes necessary to adjust the hand brake, first adjust at "G" in order to have band just clear drum. Then expand the band by means of adjustment "F" so that it just clears the drum when the wheel is returned to position.

Wheel Alignment



The alignment of the front wheels has a very important bearing on the life of the front tires and on the ease of steering. The alignment can be easily checked by measuring the distance between the rims—front and rear—as shown in the illustration. The distance at “A” should be the same as the distance at “B,” or range between that and $\frac{1}{8}$ ” less than the distance at “B.”



The steering cross rod has an adjustable clevis. To adjust front wheels to proper “toe in” proceed as shown in the illustration.

Winter Driving

There are four things to take into consideration when operating your car in freezing weather. They are: Lubrication, Cooling System, Storage Battery, Hard Starting.

Lubrication

Oils are affected by low temperature. Many oils thicken and the pump will not handle them. Use only oils that will stand a low cold test in freezing weather.

Cooling System

When the car is operated in freezing weather, use the anti-freeze mixture we recommend.

For zero temperature	Below zero
Alcohol.....30%	Alcohol.....35 to 50%
Water.....70%	Water.....50 to 65%

Do not use kerosene or any patent compound as an anti-freeze.

Capacity of cooling system is four gallons.

If anti-freeze mixture is not used, the water in the system must be completely drained off to avoid damage due to freezing whenever the car is not being operated. The drain is located in the water pump connection.

Storage Battery

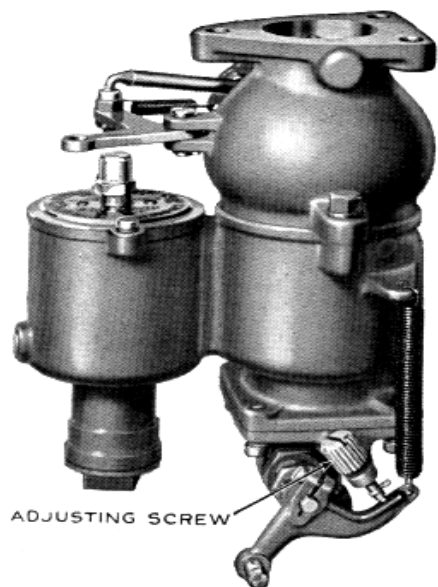
During the winter months the greater use of the lights and the starting motor naturally drains the battery more quickly than in the summer. Let your nearest battery station inspect the battery frequently and advise you as to its condition.

Starting

First pull the choke button all the way out and open throttle slightly. The motor should then be cranked with the ignition switch on and when it begins to fire the choke button should be pushed in a little and left for a few seconds. This will allow the cylinder walls to become warmed up. Then the choke button can be pushed farther in and the motor accelerated as may be required to keep it running. As the motor warms up it is important that you push the control button until it is all the way in.

If you do not have a Parts Price List, we will cheerfully supply one without cost

The Carburetor



After a new car has been driven approximately 200 miles, it is advisable to alter the carburetor adjustment, so the car will operate on a leaner mixture. To adjust carburetor, proceed as follows: Run the motor a sufficient length of time for it to attain a normal running temperature; then fully retard the spark and close the throttle.

At the bottom of the carburetor is a knurled adjusting screw which is slotted for a screwdriver. (See illustration). Gradually turn this adjusting screw to the left, thereby making the mixture leaner, until the point is reached where the motor runs unsteadily or stalls. Then the adjustment should be reversed, that is, turned to the right, a notch at a time, making the mixture richer, until the motor fires evenly. This one adjustment automatically insures correct carburetion throughout the entire operating range.

Valve Tappets

The valve tappets should be carefully adjusted when the motor is warm. If they are set too closely, the valves may burn.

Adjust inlet valves, Nos. 2, 4, 5, 8, 9 and 11, to .002" clearance minimum.

Adjust exhaust valves, Nos. 1, 3, 6, 7, 10 and 12, to .004" clearance minimum.

Spark Plugs

When spark plug replacements become necessary, we suggest that you purchase the same type that we supply with the car. For best results the points should be spaced .025 of an inch.

Vacuum Tank

The vacuum tank is equipped with a drain plug, and it is advisable occasionally to drain out any sediment or water that may have collected. This is of special importance in the winter time when such water accumulations may freeze and stop the flow of gasoline.

Adjustments

Starter Does Not Work

1. Loose battery connections. The terminal clamps on the battery should be kept tight and coated with vaseline to prevent corrosion.
2. Storage battery run down. Let your battery station advise.
3. Trouble in starter motor. Have American Bosch Service Station or your dealer examine it.

Failure of Motor to Start

1. Ignition contact points dirty. See page 11. Clean by pulling a piece of fine (00) sandpaper between them.
2. Motor flooded with gasoline caused by excessive choking. Crank motor with choke button all the way in until motor fires.

Reasons for Motor Missing

1. Driving with cold motor. Close radiator shutter until it warms up.
2. Too rich a mixture. See that choke button is not pulled out.
3. Fouled spark plugs. Clean them and set points at .025 clearance.
4. Tappets set too close together so that valves will not close. See page 21.

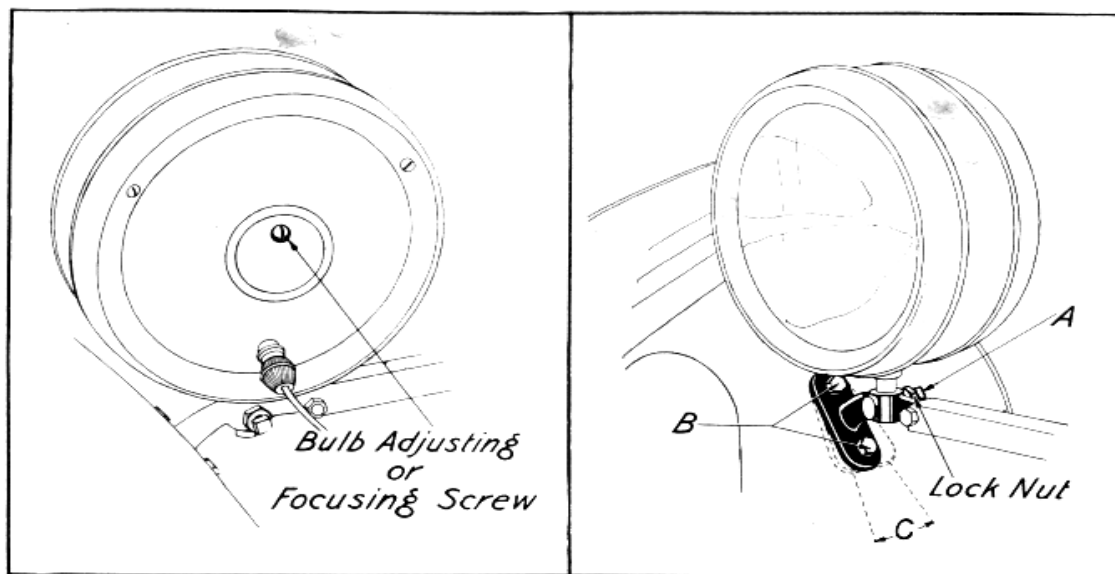
Reasons for Overheating

1. Water supply low.
2. Cooling system dirty. Dissolve about two pounds of sal soda (washing soda) in hot water and pour in radiator. Run car for about $\frac{1}{2}$ hour, then drain and flush twice with pure water.
3. Hose connections in bad shape. Remedy is to replace.
4. Lack of motor oil. See that oil gauge on dash is working and that oil reservoir contains sufficient oil.
5. Loose or broken fan belt.
6. Late ignition timing. See page 11.

Miscellaneous

1. Clutch slipping. Wash out clutch with gasoline and re-oil according to instructions on page 6. See that pedal does not rest against floorboard.
2. Rear axle noise. See that differential has sufficient lubricant and be sure pinion shaft immediately forward of axle is lubricated. The oil cup can be removed and oil forced in by means of an oil gun.

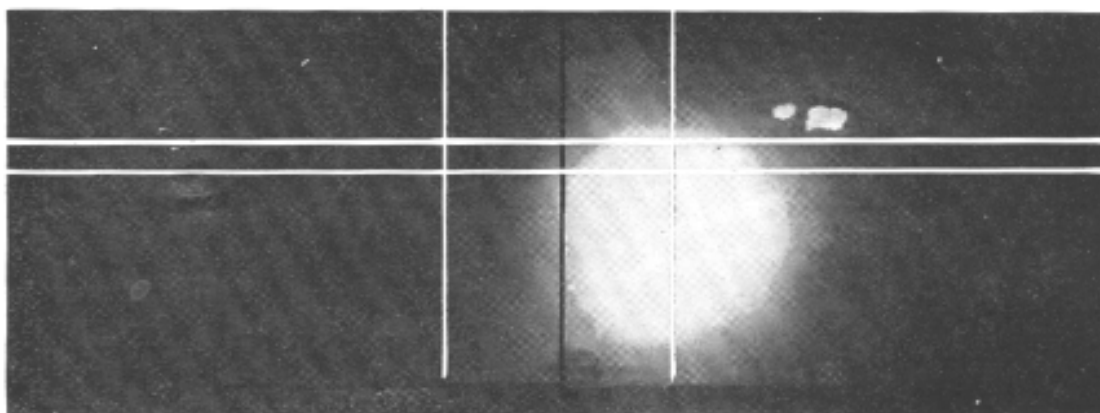
Headlamp Adjustments



No. 1

No. 2

1. Place car with full passenger load on level pavement, with the front of the headlamps twenty-five feet from a light-colored vertical surface.
2. Draw a horizontal line across this surface the same height from the floor as the center of the lamps. If adjustment is to be made without passenger load draw a second line parallel to the first, 7" lower if adjustment is being made on Hudson, or 8" lower if for Essex.
3. Remove lamp doors by pressing in on sides and turning to the left.
4. Cover up the lens of one lamp and focus the other one so the smallest spot of light obtainable will be shown on the vertical surface. This is done by turning the bulb adjusting screw on the back of the lamp, shown in Figure 1, to the right or left as necessary until the proper result is obtained. As it is essential that the head of the screw be in close contact with the back of the lamp at all times, the screwdriver should be firmly pressed against the screw when turning it. If the screw has a tendency to come out of the lamp when turning to the left, strike the head a sharp blow which will move it forward. Follow the same procedure when adjusting the other lamp.
5. Loosen headlamp bracket screws shown at "B," Figure 2, and tilt lamps up or down as required, so that the top edge of the beam of light will be even with the horizontal line shown in Figure 3. Securely tighten headlamp bracket screws.



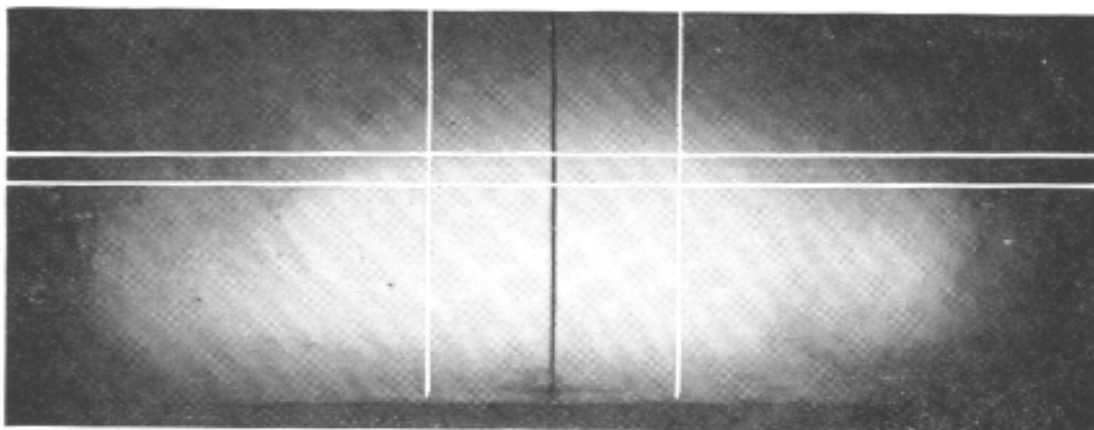
No. 3

Headlamp Adjustments—*Continued*

Note paragraph 2. If adjustment is made without passenger load the top edge of the beam of light should be even with the second line.

6. Replace lamp doors and loosen lock nuts and set screws "A," illustrated in Figure 2. Line up lamps by placing the straight edge of a board across the center of the lamp doors, and turning the lamps until both faces of each door touch the edge of the board, then tighten set screws and lock nuts.

When the lamps are properly adjusted and focused as outlined above, the light beams will appear as shown in Figure 4, and will meet the legal requirements of most states. However, the range of tilting movement shown at "C," Figure 2, together with the other adjustments provided, is sufficiently great to permit any necessary deviation from this setting to conform with your local legislation.



No. 4

Washing the Car

Never allow mud to remain on the finish for any length of time. If the mud has dried, it must first be softened and loosened by flowing water on it before attempting to rub it off. All mud and dirt accumulations contain sand and grit and the finish will be marred unless due precaution is exercised in its removal.

Never use soap on the body, unless to remove grease or dirt that pure water will not dislodge, and then sparingly. Use only soap especially made for body washing.

Dust accumulations should never be wiped off with a rag. Secure a wool or feather duster and use that to avoid scratching the finish.

An occasional polishing with good polish is recommended. Do not use any so-called patent preparation without first consulting your dealer or service station as to its merits.

The outside varnish finish is the protective coat and must be preserved. An entire re-finish can usually be avoided by an occasional varnish re-finish when the car has seen extensive service. Your dealer or painter will be glad to advise.

Hudson Information

Wheelbase

127 $\frac{3}{8}$ inches.

Turning Radius

24 $\frac{1}{2}$ feet.

Road Clearance

9 inches.

Rear Axle

Gear ratio 4 5/11 to 1.

Tires

33 x 6.00 inches, Balloon.

Firing Order of Cylinders

1, 5, 3, 6, 2, 4.

Spark Plugs

Metric, gap .025 inch.

Ignition Contact Points

Opening .020 inch.

Exhaust Pipe

2 $\frac{1}{4}$ inches diameter.

Valve Tappet Clearance

Intake .002 to .003 inch, exhaust .004 to .005 inch, with hot motor.

Valve Timing

Intake opens 7° after upper dead center, closes 42° after lower dead center; exhaust opens 55° before lower dead center, closes 8° after upper dead center.

Oil Reservoir and Troughs

Capacity 9 quarts; reservoir only, 7 quarts.

Clutch

One-half pint, equal portions motor oil and kerosene. Clearance between pedal and toe board $\frac{3}{8}$ inch.

Transmission

Fill to level of test plug on right side of case.

Rear Axle

Fill to level of filler plug in housing cover.

Cooling System

Capacity 4 gallons.

Gasoline Tank

Capacity 19 gallons.

Springs

Front, 39 inches long, 2 $\frac{1}{4}$ inches wide; rear, 57 $\frac{1}{8}$ inches long, 2 $\frac{1}{4}$ inches wide.

Spring Bolts

Rear spring front end bolt $\frac{3}{4}$ inch diameter, shackle bolts $\frac{1}{2}$ inch diameter.

Brakes

Drums 15 $\frac{1}{2}$ inches inside diameter, internal brakes 2 $\frac{1}{2}$ inches wide, external brakes 2 $\frac{1}{2}$ inches wide.

Storage Battery

6-volt, 15-plate, 120-ampere hour rating.

Lamp Bulbs

Headlight, 6-volt, 21-candlepower nitrogen, single contact; tail and instrument lights, 3-4 volt, 2-candlepower, single contact.

