Instruction Book

HUDSON

Super-Six

JULY
1925

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

PRINTED IN U. S. A.

Instruction Book

HUDSON

Super-Six

JULY
1925

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

Prolonging the Life of Your Car

The care given to a motor car during its first 1,000 miles governs to a large extent the length and the satisfaction of its service.

During this critical period of its life the car should not be driven faster than 25 miles an hour, and it should be generously lubricated. It is recommended, even thereafter, to approach higher speeds gradually.

We recommend that the oil in the crankcase be completely changed after the first 250 miles and every 500 miles thereafter. Other parts of the chassis should be lubricated according to the instructions given in the following pages of this book.

It will be advantageous to the owner, too—even though he is an experienced motorist—to read this book through, and to develop the habit of treating his car with proper care and consideration.

By proper lubrication, which is too often neglected, and by following the other instructions in this book, the owner can do much to prolong the life of his car and thus realize the full value from his investment.

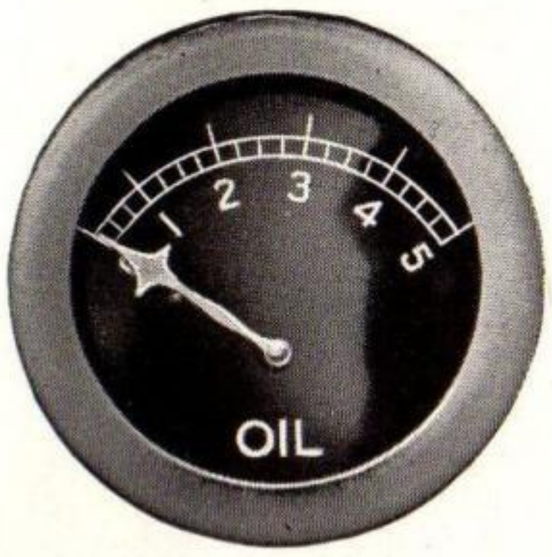
Index

	Page
Adjustments	22
Ammeter	5
Brake Adjustments	18
Carburetor	21
Chain	16
Chain Timing	17
Clutch	6
Cooling System	9
Electrical System	10
General Inspection	21
Generator	7
Ignition Distributor	7
Ignition Timing	11
Instruments and Controls	10
Lubrication Chart	12-13
Lubrication Instructions	12-13
Motor	5
Motor Temperature Control	10
Oil Cups	8
Oil Gauge	5
Spark Plugs	21
Spring Clips	15
Spring Shackles	15
Starting and Carburetor Controls	9
Steering Gear	8
Steering Gear Adjustment	8
Storage Battery	9
Transmission	6
Universal Joints	8
Vacuum Tank	21
Valve Tappets	21
Washing the Car	23
Water Pump	7
Wheel Alignment	19
Winter Driving	20
Wiring Diagram	14

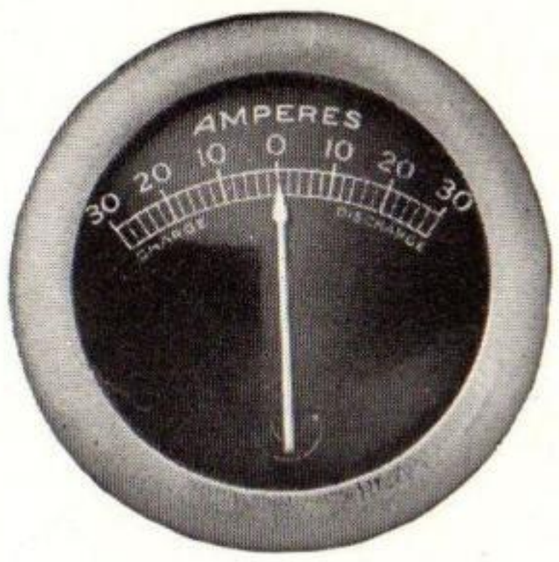
License Data

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 3½ 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

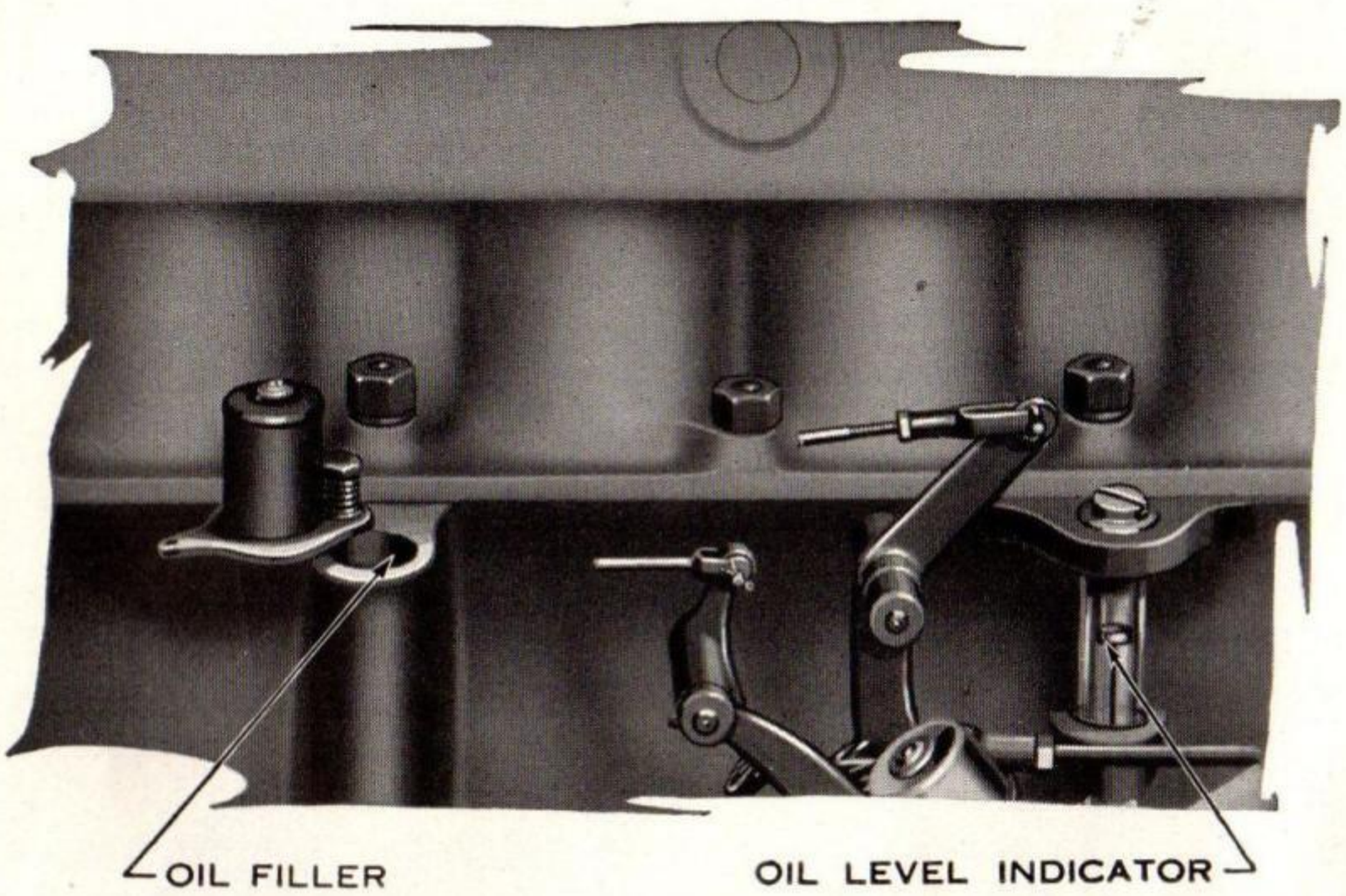


The oil gauge must always register when the motor is running. If it fails to do so, stop and investigate.



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

Motor Lubrication



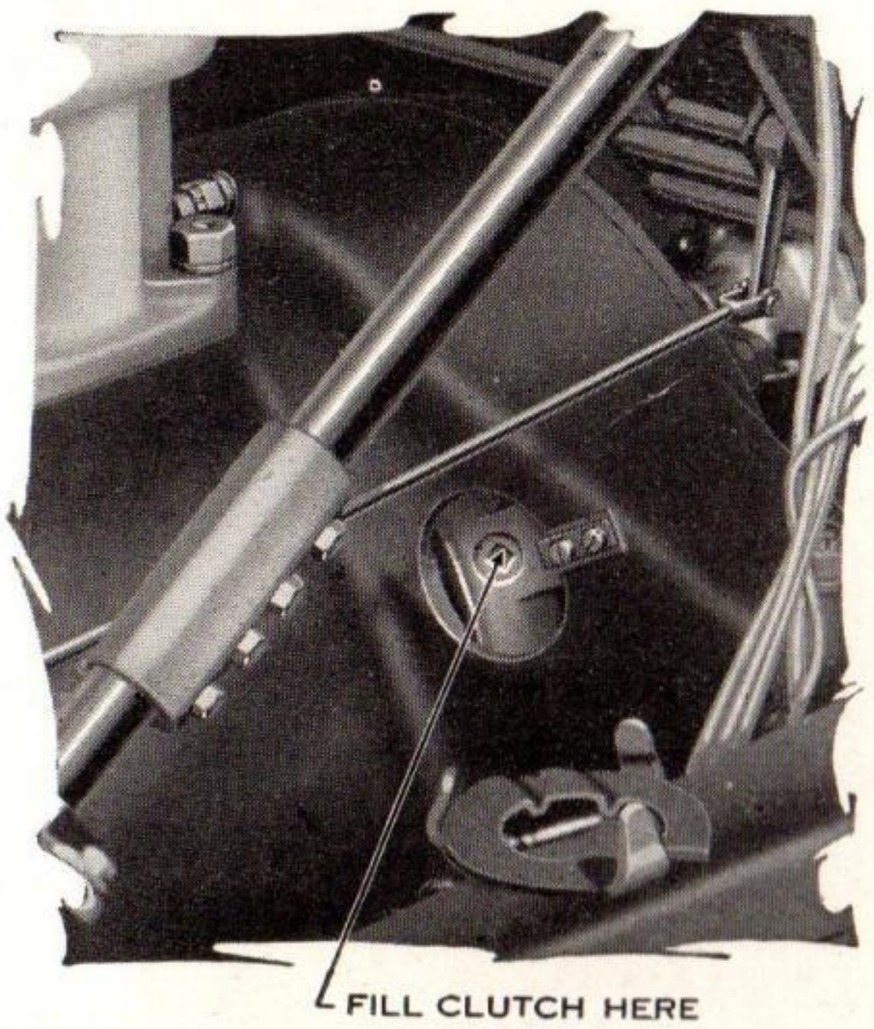
Use only high-grade oil of heavy body (so-called No. 400).

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

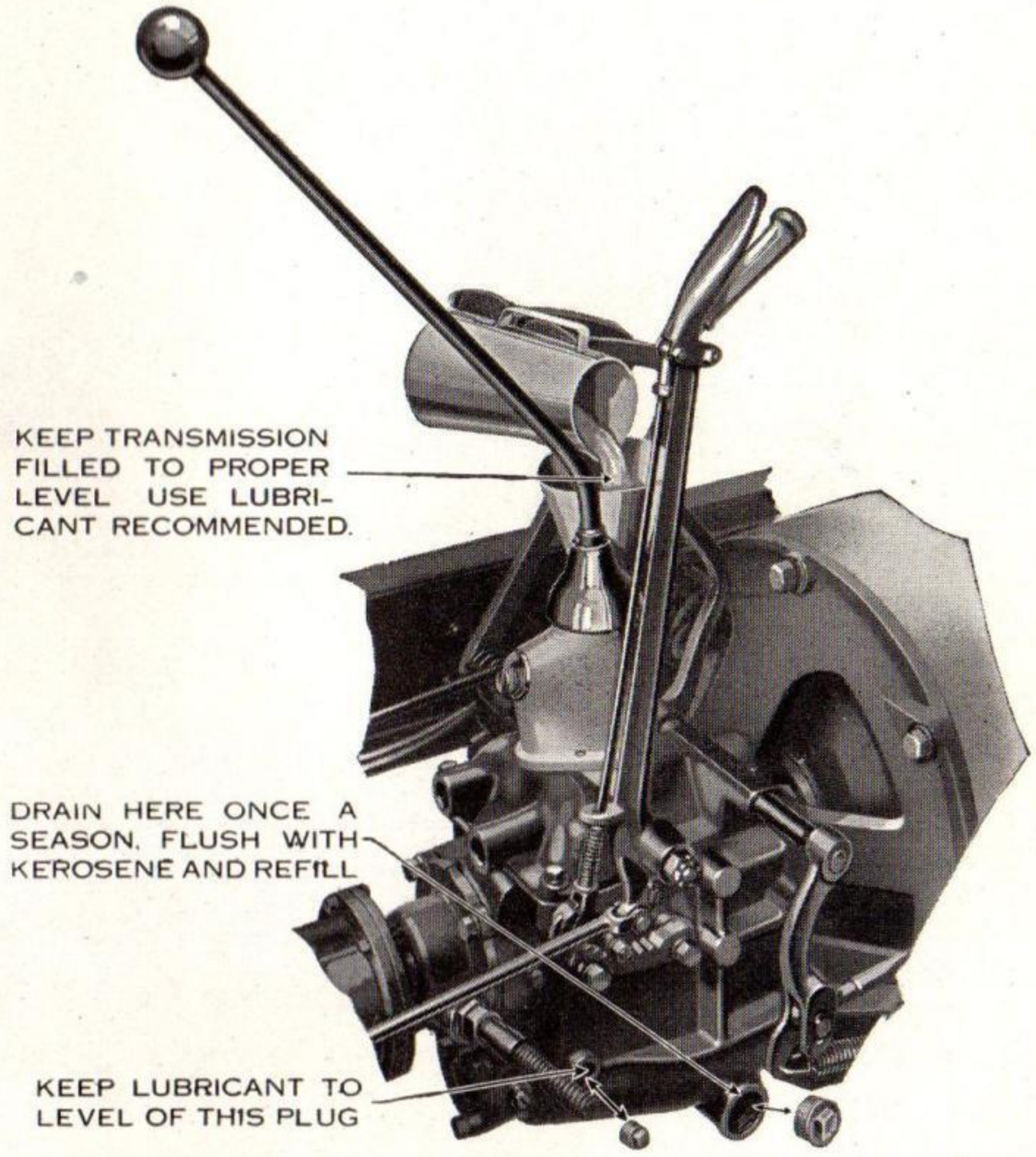


Have clutch oil drained off every 1,500 miles. Flush clutch thoroughly with kerosene or gasoline. Drain, and then replenish with ½ pint of kerosene and motor oil mixed in equal portions.

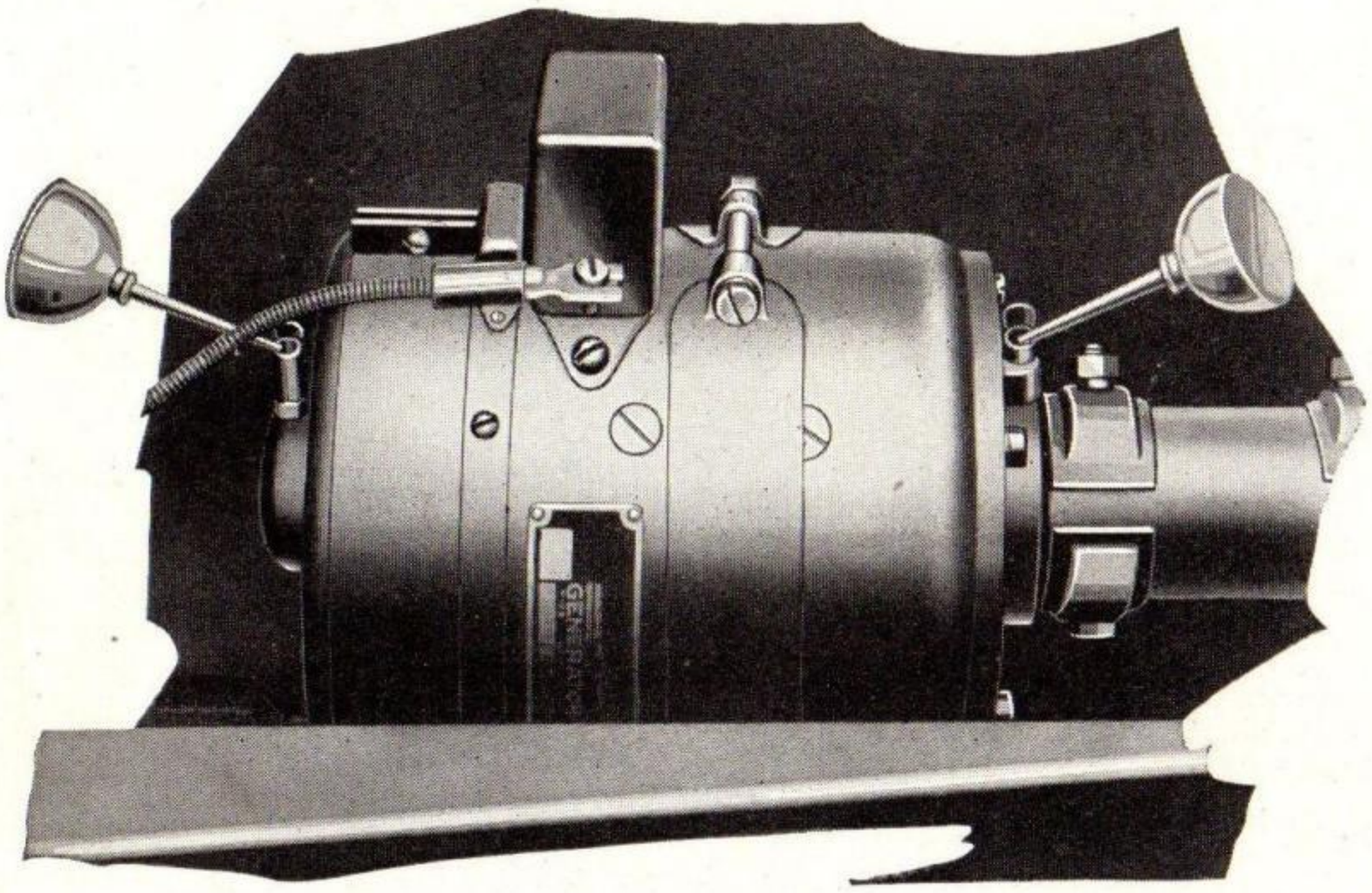
Transmission

We recommend good transmission oil. Do not use grease.

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



Generator

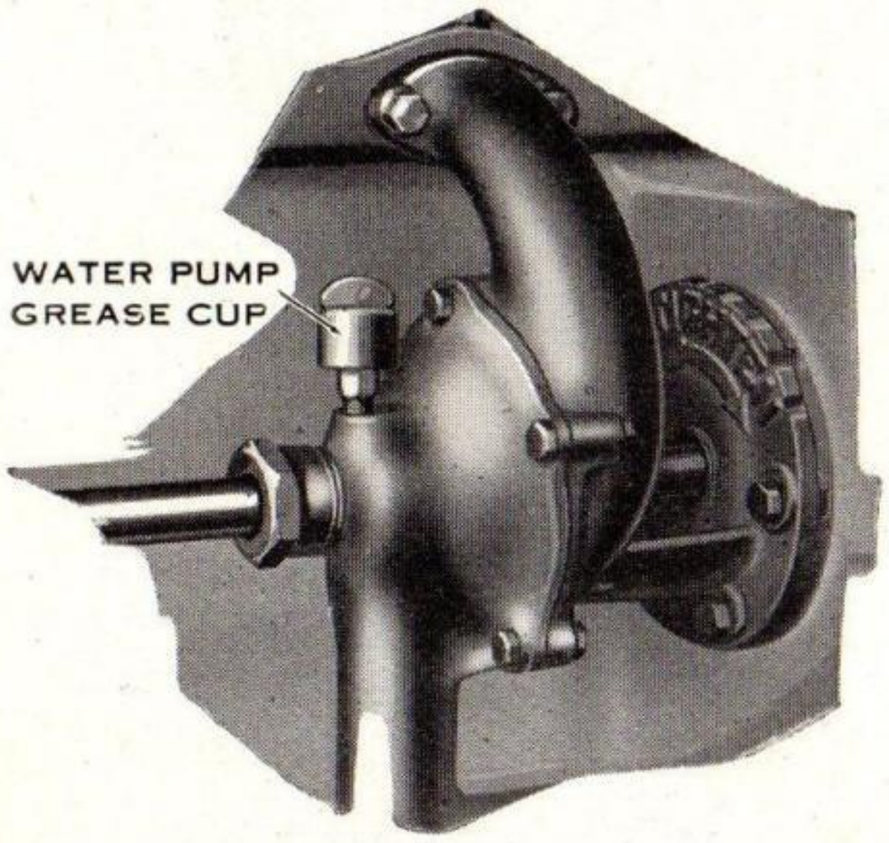


Three or four drops of light motor oil at points designated every 1,000 to 1,500 miles.

Starter

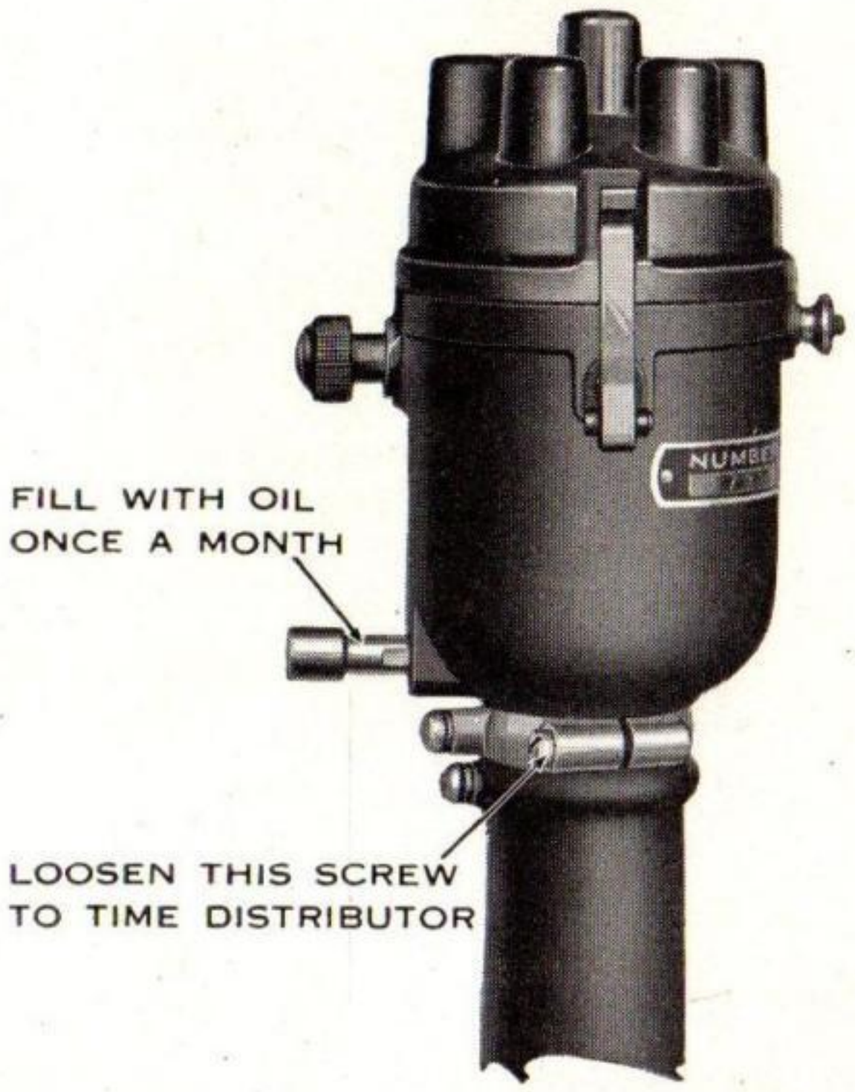
The starting motor is equipped with oil-less bearings, and requires no lubrication.

Water Pump



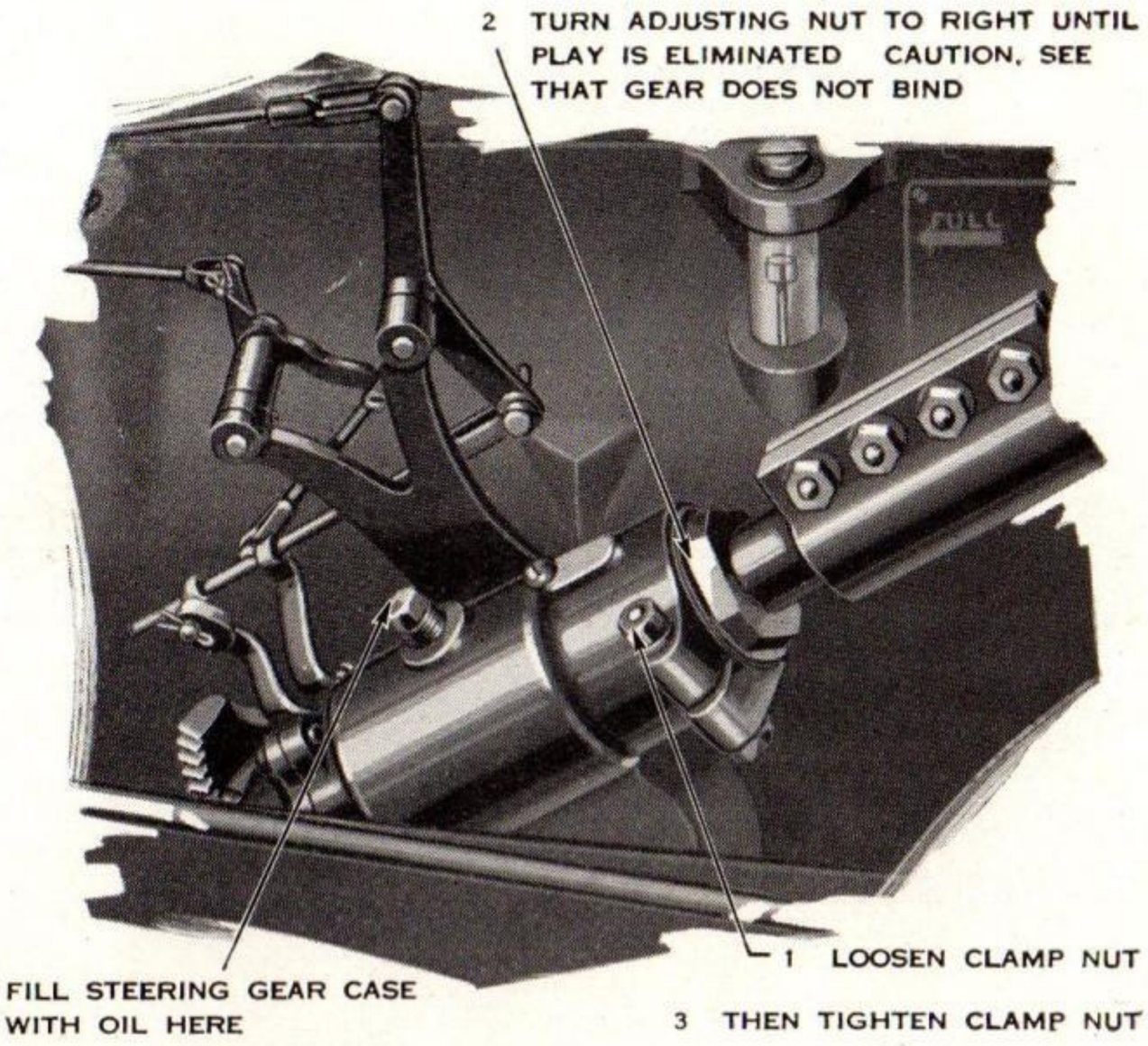
Keep water pump grease cup filled with hard grease. Turn down frequently.

Distributor



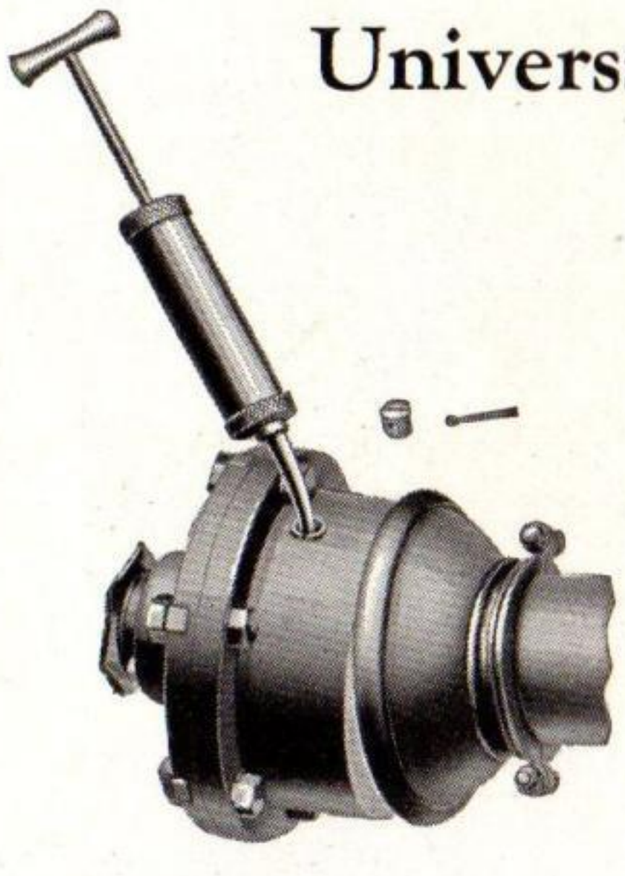
Fill distributor base with motor oil once a month to the level of the oil cup.

Steering Gear Lubrication and Adjustment



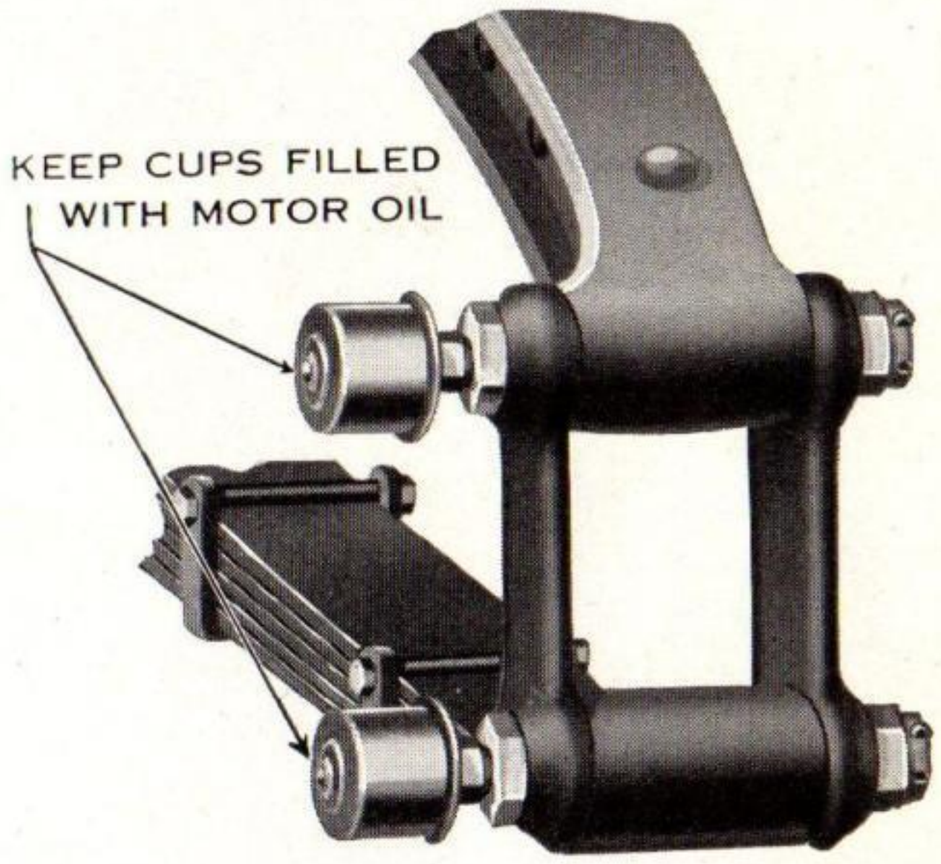
The steering gear requires little attention other than to see that lubrication is taken care of regularly. After continued service, play in the gear can be removed in the manner shown in the illustration.

Universal Joints



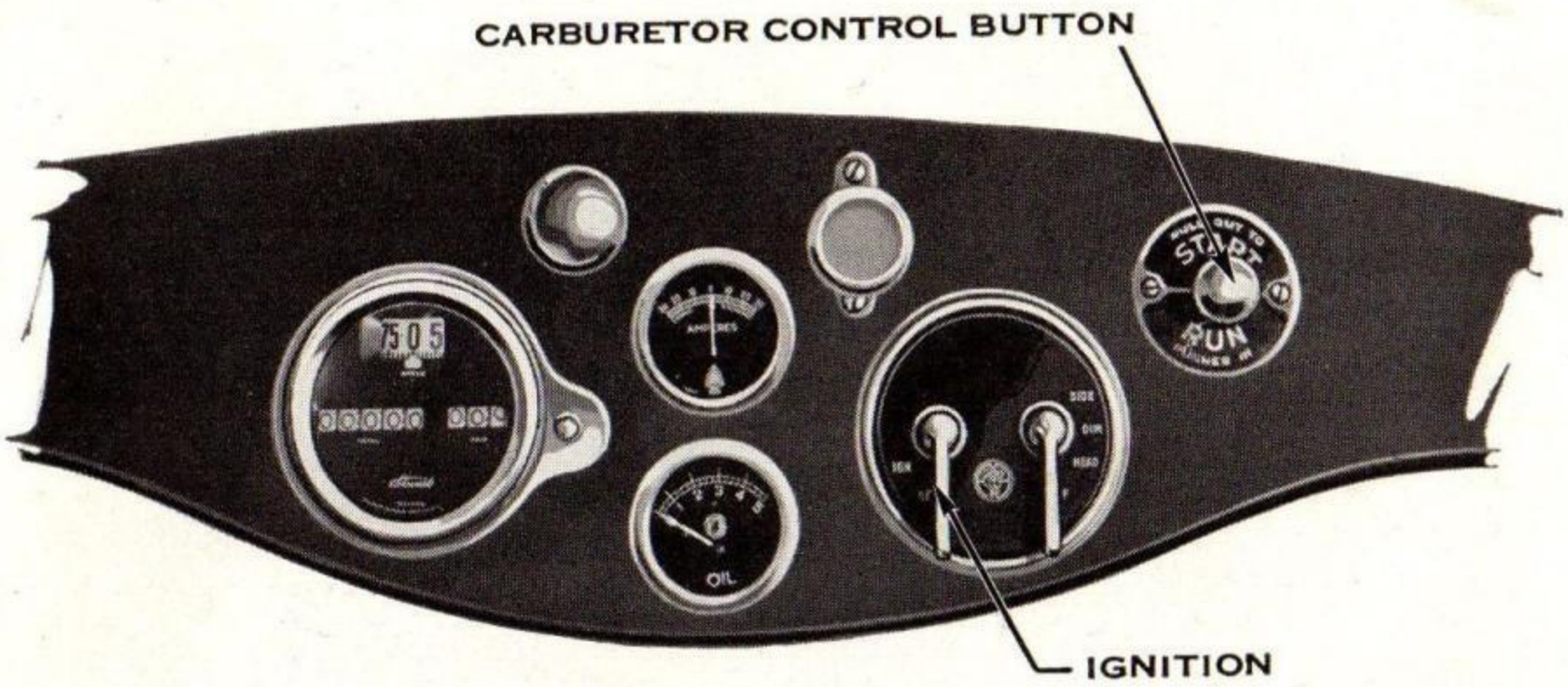
The universal joints, because of the severe service demanded from them, require adequate lubrication. They should be greased thoroughly every 2,000 miles.

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. If distilled water cannot be obtained, use rain water which has been caught and retained in a non-metallic container. Inspect every two weeks in the summer time and every three weeks in cold weather. Remove vent caps by turning to left. Tighten them securely when replacing. Keep terminals tight.

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.

Motor Temperature Control



The radiator is provided with shutters which should be opened or closed to regulate the motor's operating 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

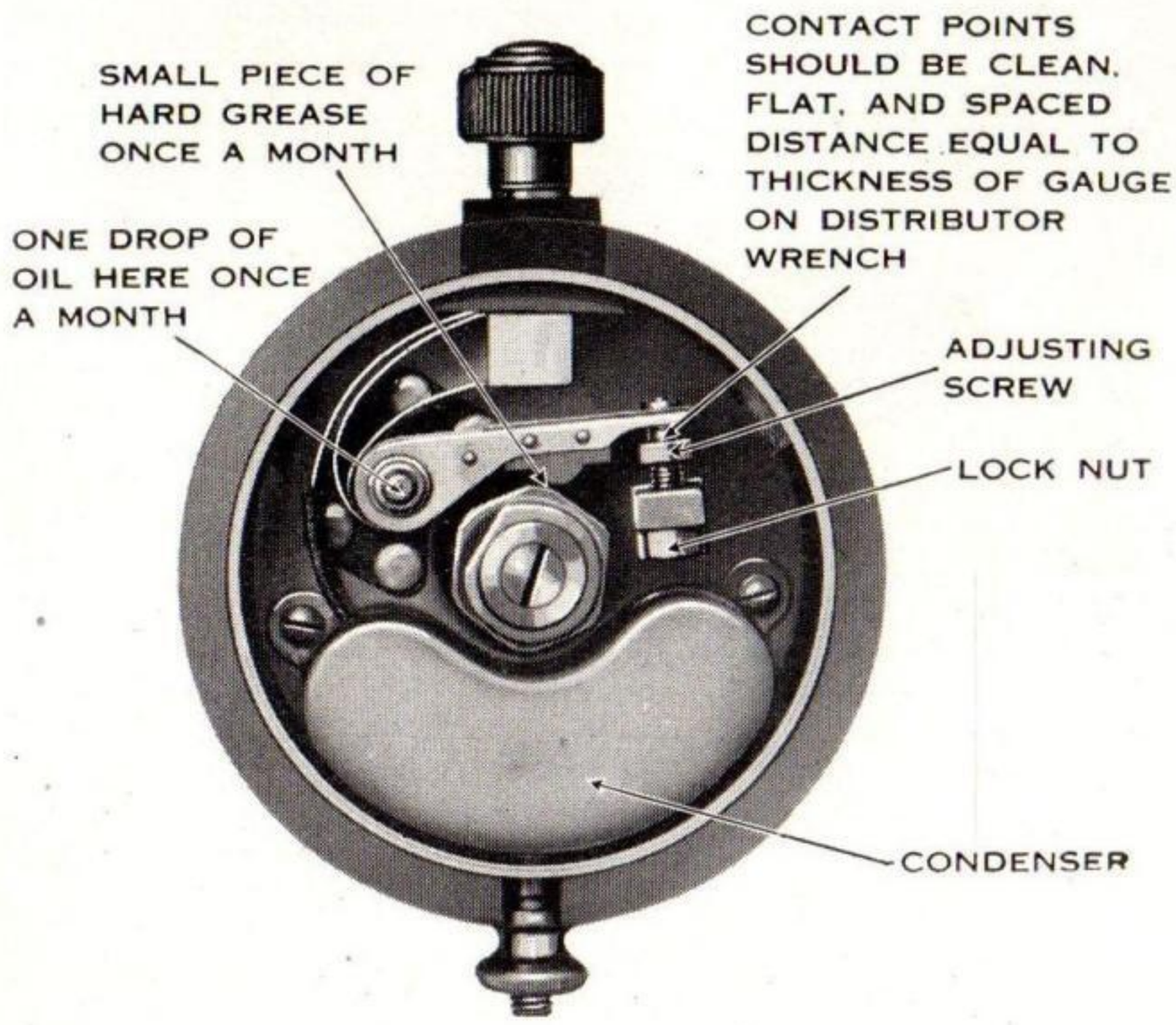
To check the spark timing when necessary, proceed as follows: Fully advance spark by moving spark lever (left lever at top of steering wheel) down to lowest position, or nearest driver.

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.

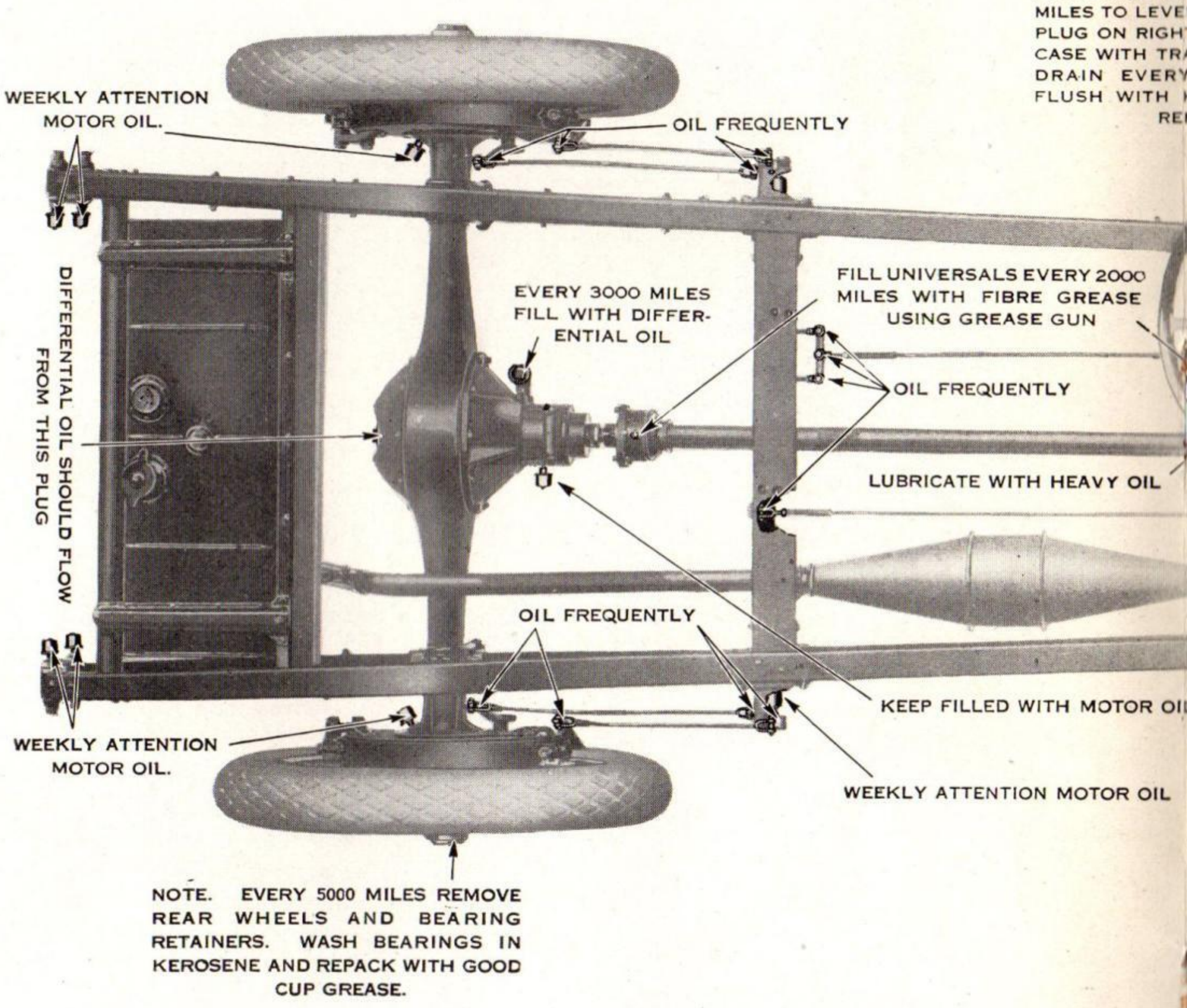
Turn the distributor to the left, or anti-clockwise, to advance the ignition; to the right, or clockwise, to retard. Then re-tighten the holding screw.

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

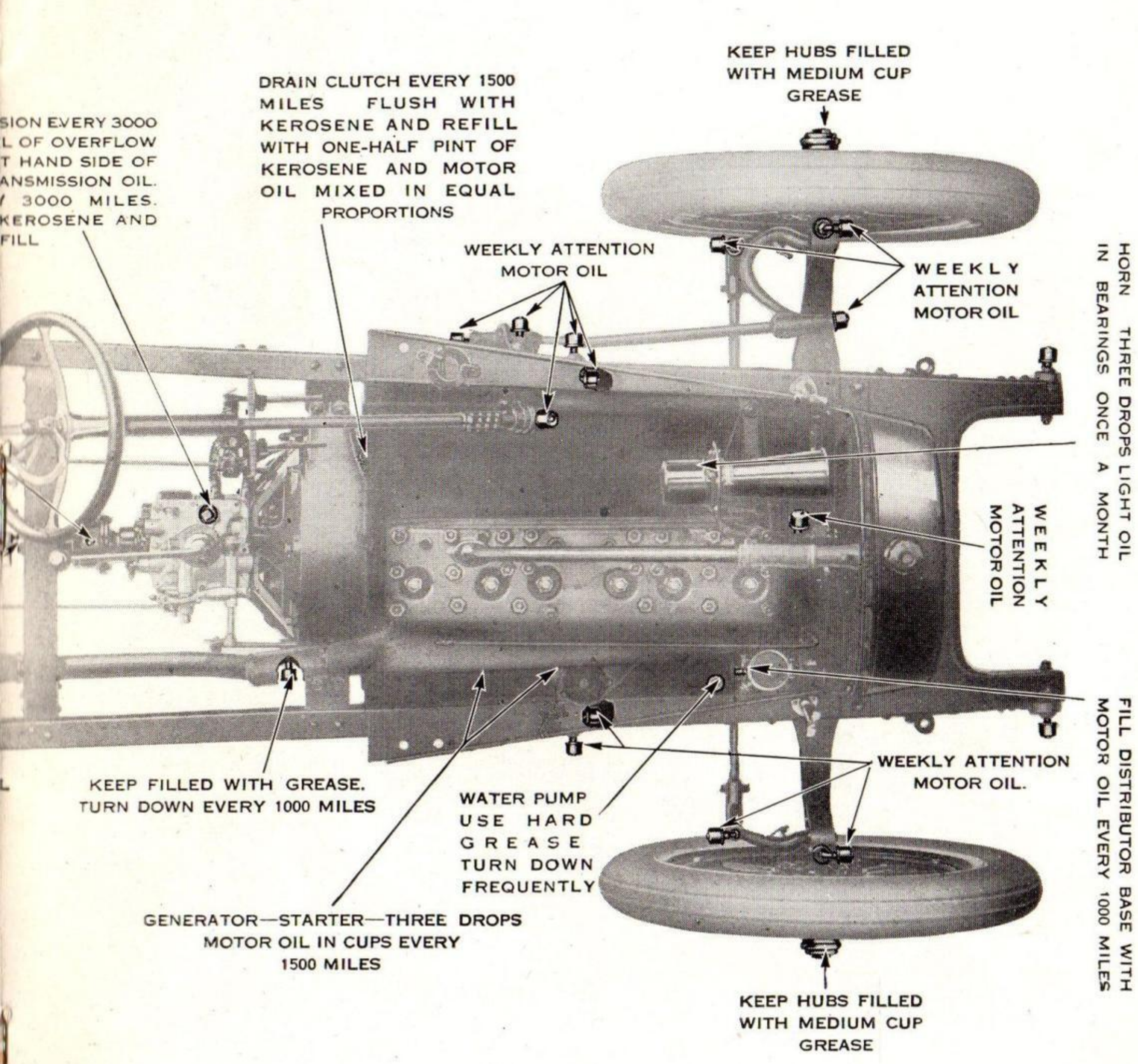


The ignition distributor requires no attention other than that pointed out in the illustration.

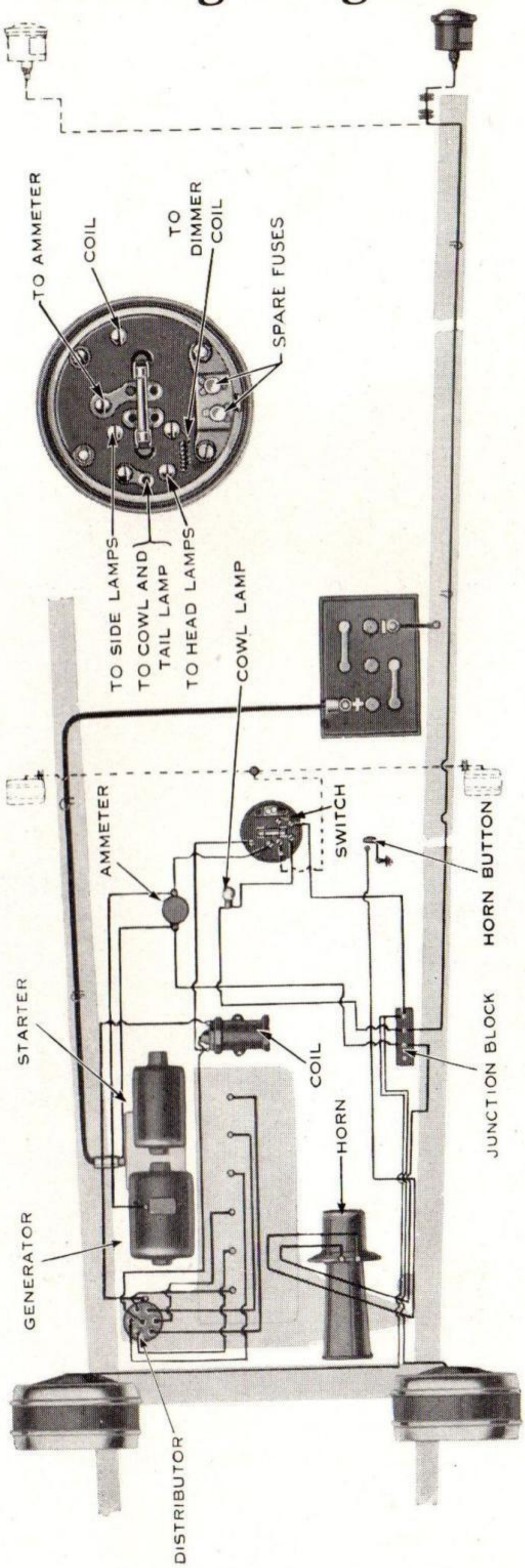
Oiling


WEEKLY ATTENTION MOTOR OIL.
OIL FREQUENTLY
FILL TRANSMIS
MILES TO LEVE
PLUG ON RIGH
CASE WITH TR
DRAIN EVERY
FLUSH WITH
RE
DIFFERENTIAL OIL SHOULD FLOW FROM THIS PLUG
EVERY 3000 MILES FILL WITH DIFFERENTIAL OIL
FILL UNIVERSALS EVERY 2000 MILES WITH FIBRE GREASE USING GREASE GUN
OIL FREQUENTLY
LUBRICATE WITH HEAVY OIL
OIL FREQUENTLY
KEEP FILLED WITH MOTOR OI
WEEKLY ATTENTION MOTOR OIL
WEEKLY ATTENTION MOTOR OIL.
NOTE. EVERY 5000 MILES REMOVE REAR WHEELS AND BEARING RETAINERS. WASH BEARINGS IN KEROSENE AND REPACK WITH GOOD CUP GREASE.

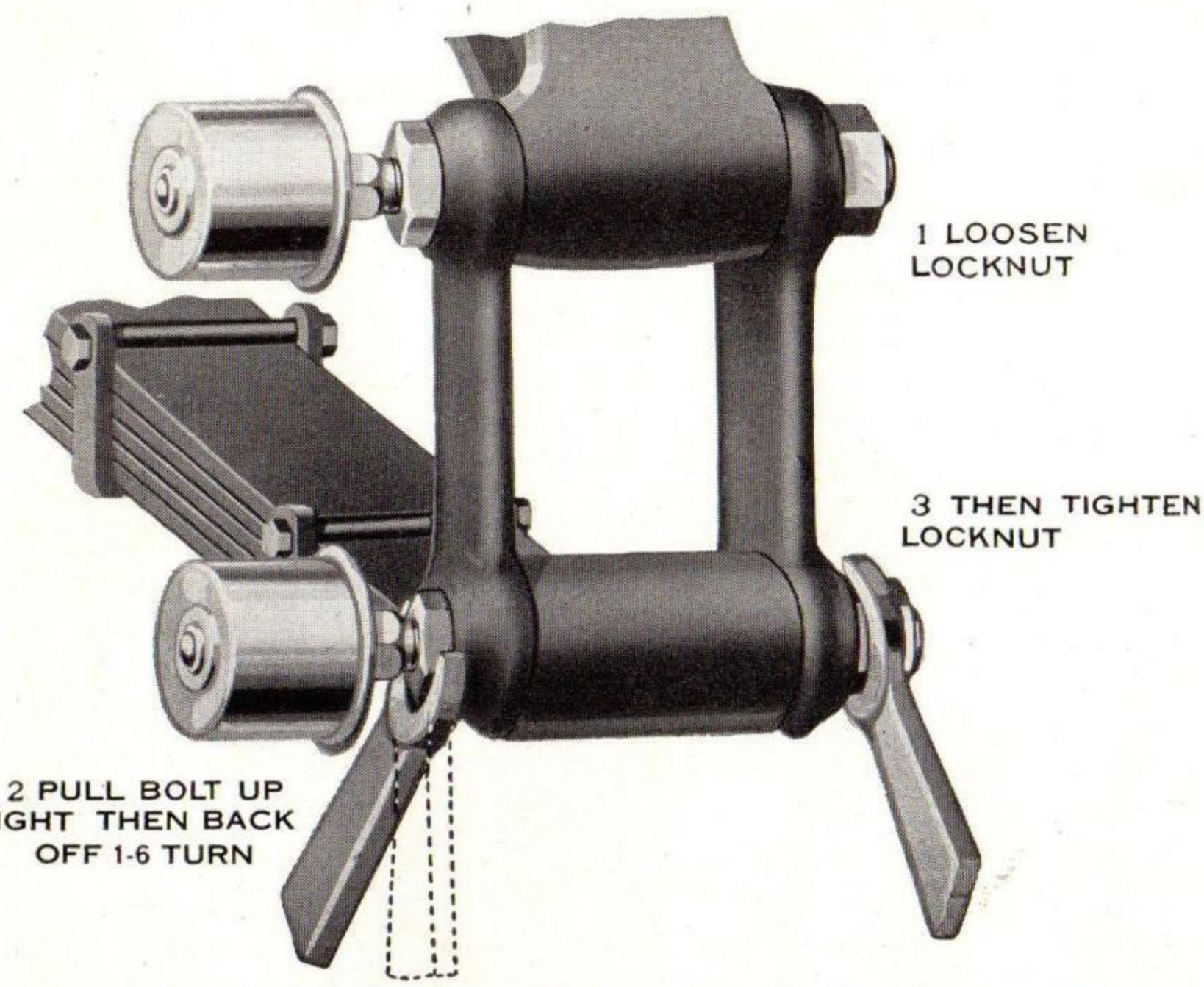
Chart


SION EVERY 3000
L OF OVERFLOW
T HAND SIDE OF
ANSMISSION OIL.
3000 MILES.
KEROSENE AND
FILL
DRAIN CLUTCH EVERY 1500 MILES FLUSH WITH KEROSENE AND REFILL WITH ONE-HALF PINT OF KEROSENE AND MOTOR OIL MIXED IN EQUAL PROPORTIONS
KEEP HUBS FILLED WITH MEDIUM CUP GREASE
WEEKLY ATTENTION MOTOR OIL
WEEKLY ATTENTION MOTOR OIL
HORN THREE DROPS LIGHT OIL IN BEARINGS ONCE A MONTH
WEEKLY ATTENTION MOTOR OIL
FILL DISTRIBUTOR BASE WITH MOTOR OIL EVERY 1000 MILES
L
KEEP FILLED WITH GREASE. TURN DOWN EVERY 1000 MILES
WATER PUMP USE HARD GREASE TURN DOWN FREQUENTLY
WEEKLY ATTENTION MOTOR OIL.
GENERATOR—STARTER—THREE DROPS MOTOR OIL IN CUPS EVERY 1500 MILES
KEEP HUBS FILLED WITH MEDIUM CUP GREASE

Wiring Diagram



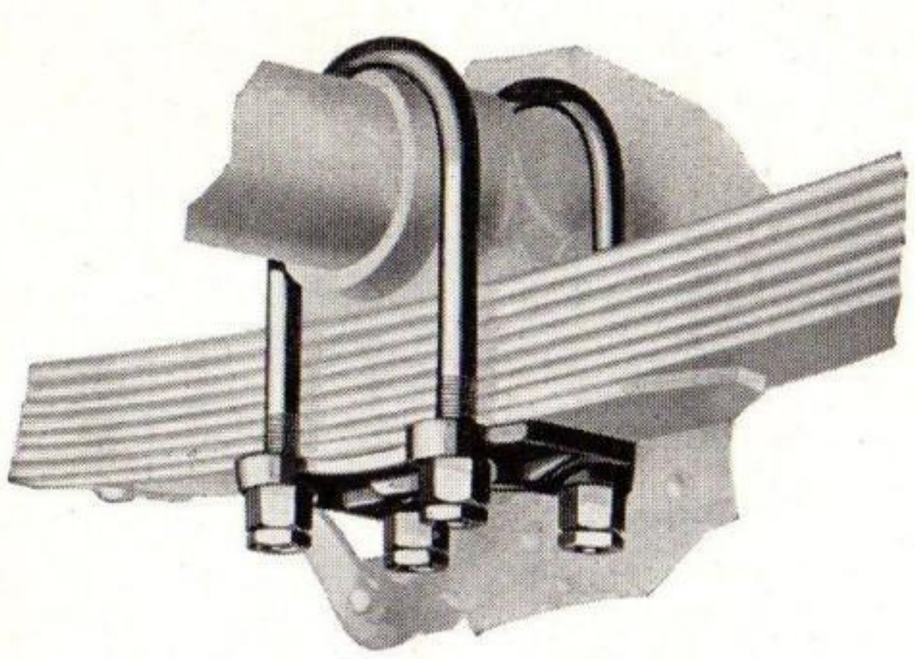
Spring Shackles



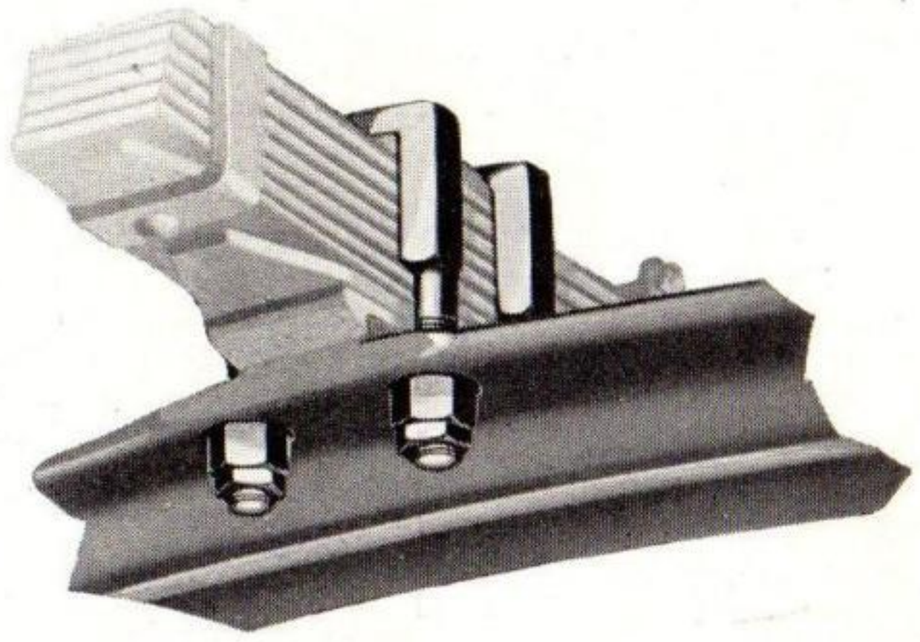
The spring shackles are provided with an adjustment by means of which all looseness can be taken up in a few minutes and rattles at these points eliminated.

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

Spring Clips

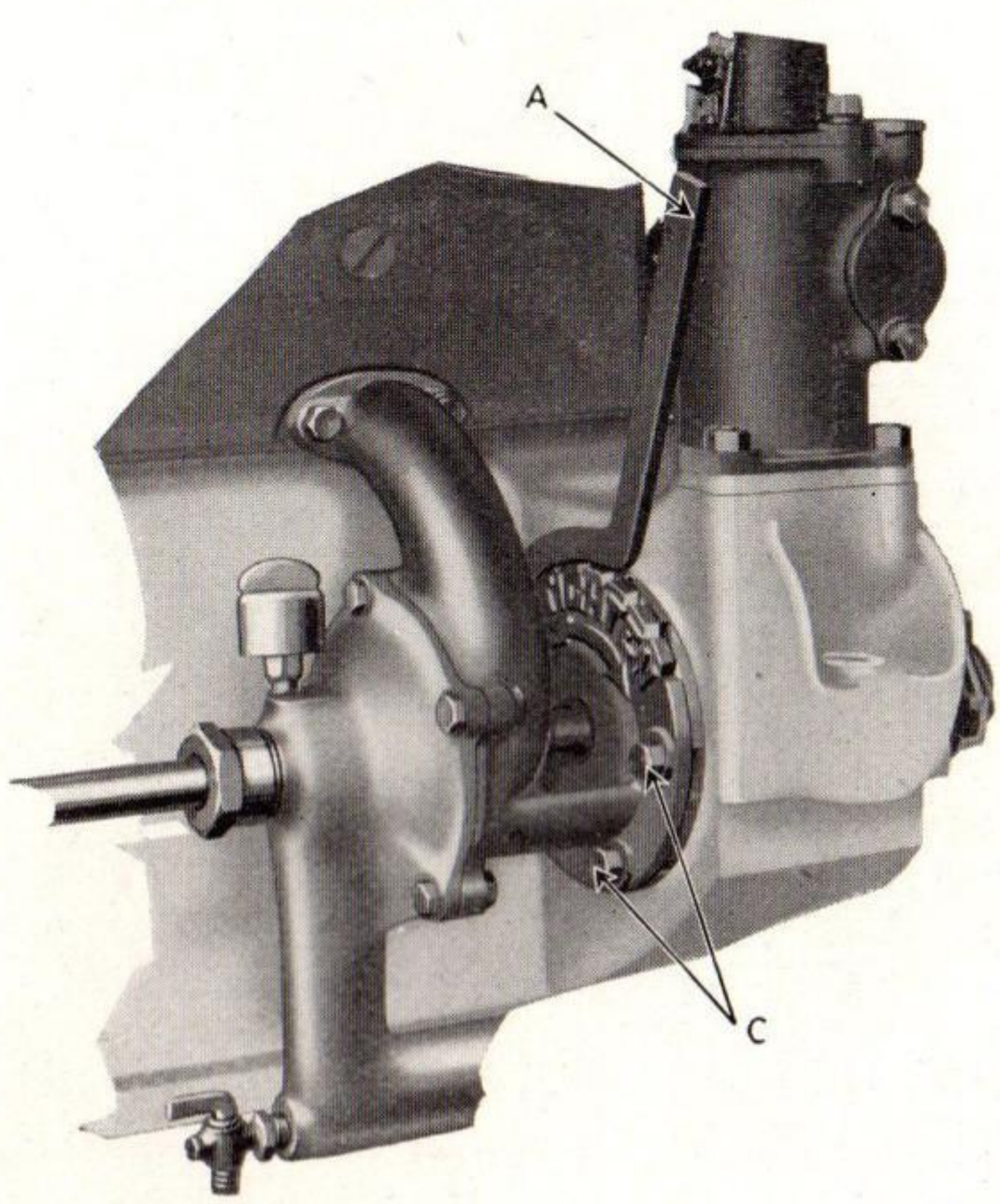


Spring breakage can usually be attributed to looseness in the spring clips which secure the springs to the axles.



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

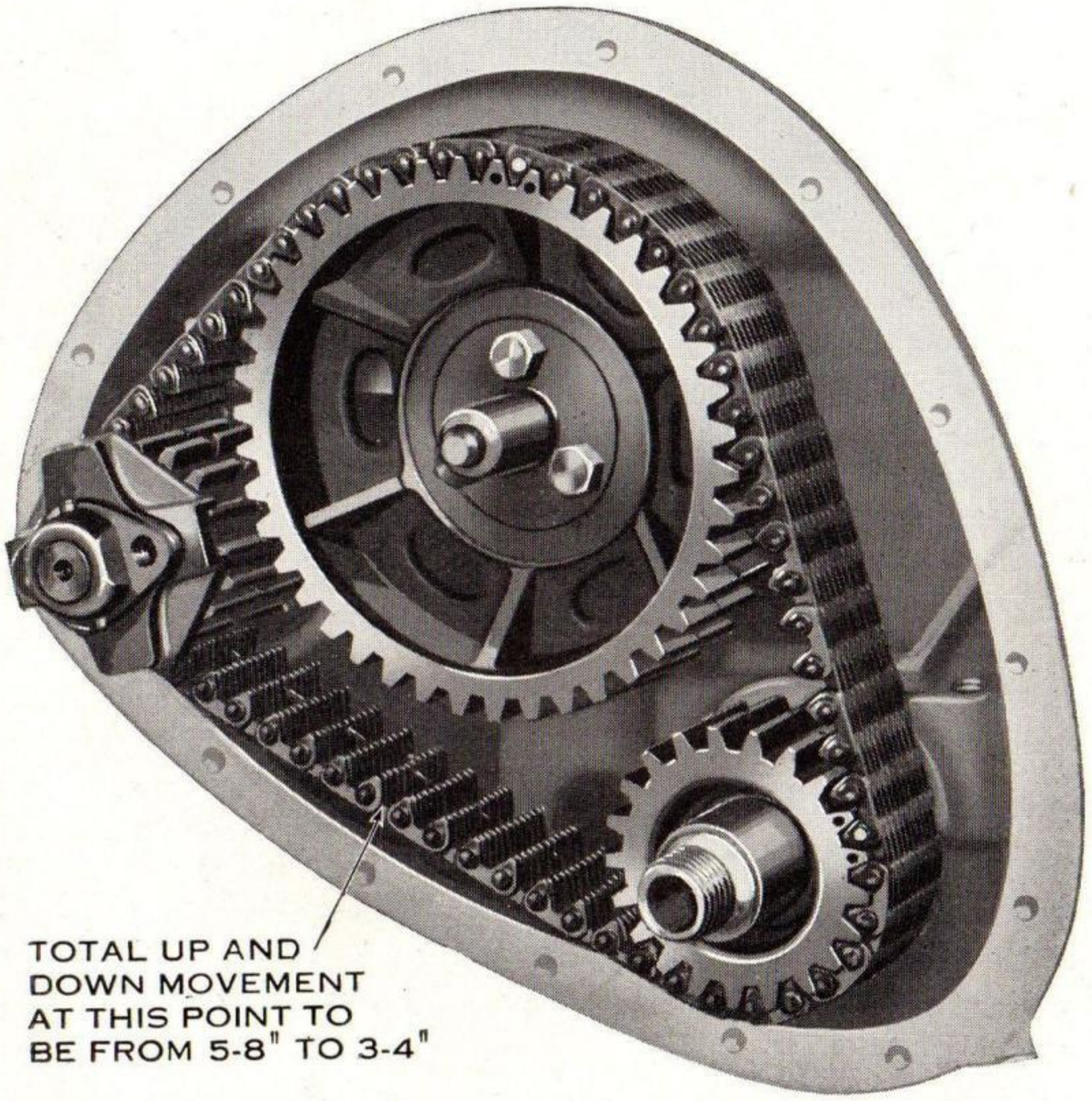
The Chain



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.

The Chain Timing

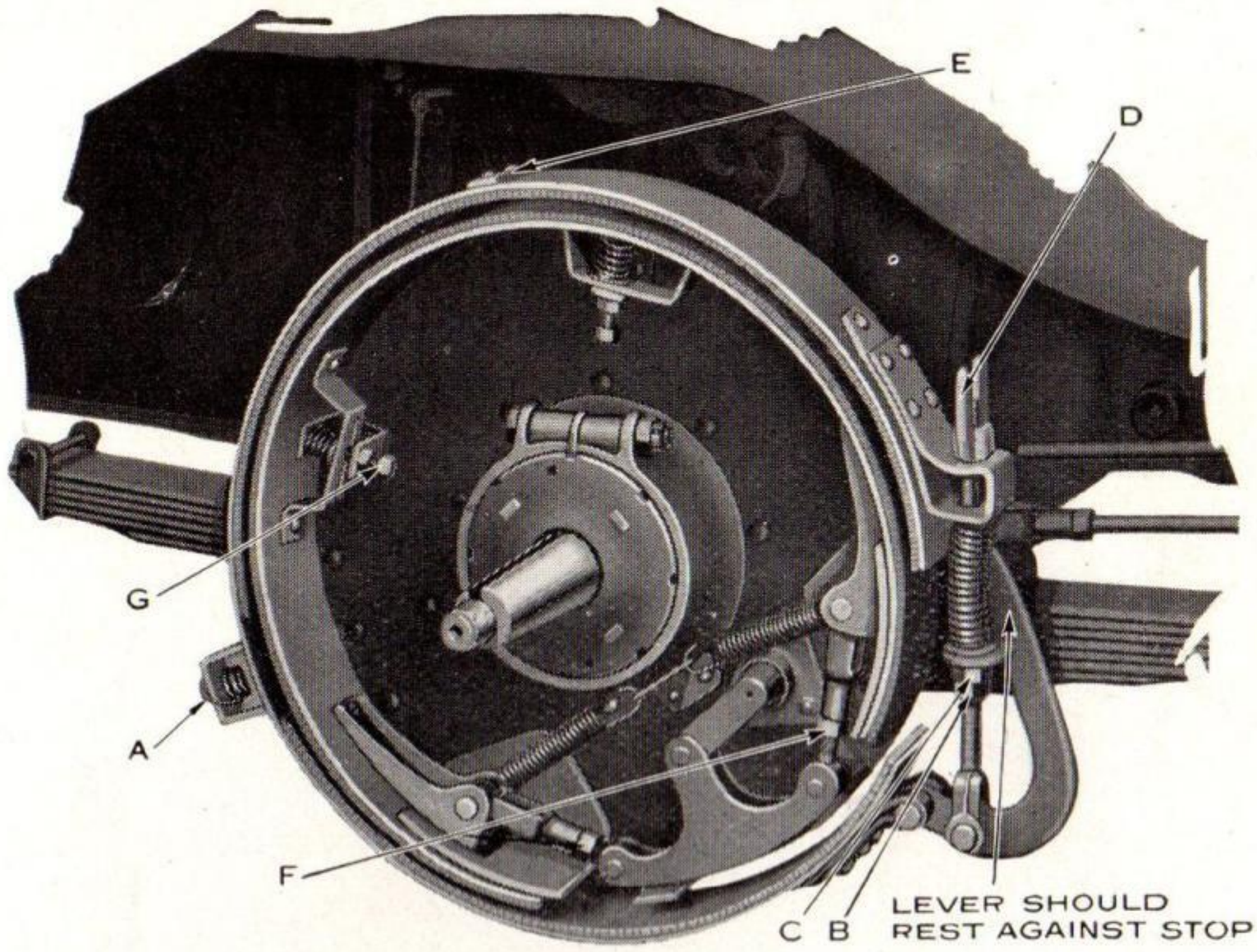


The crankshaft and camshaft gears are punch-marked as shown in illustration and these marks should coincide with the punch-marks on the chain pins.

The chain is endless and to remove it for the purpose of inspection or to install new chain it is necessary to remove the camshaft gear. When installing the chain, make sure that the arrows stamped on the side of the links point in the direction that the chain runs. It will not function otherwise.

Make sure that the small gear which drives the generator and the ignition apparatus is not disturbed. Instructions for timing the ignition will be found on page 11.

Brake Adjustments



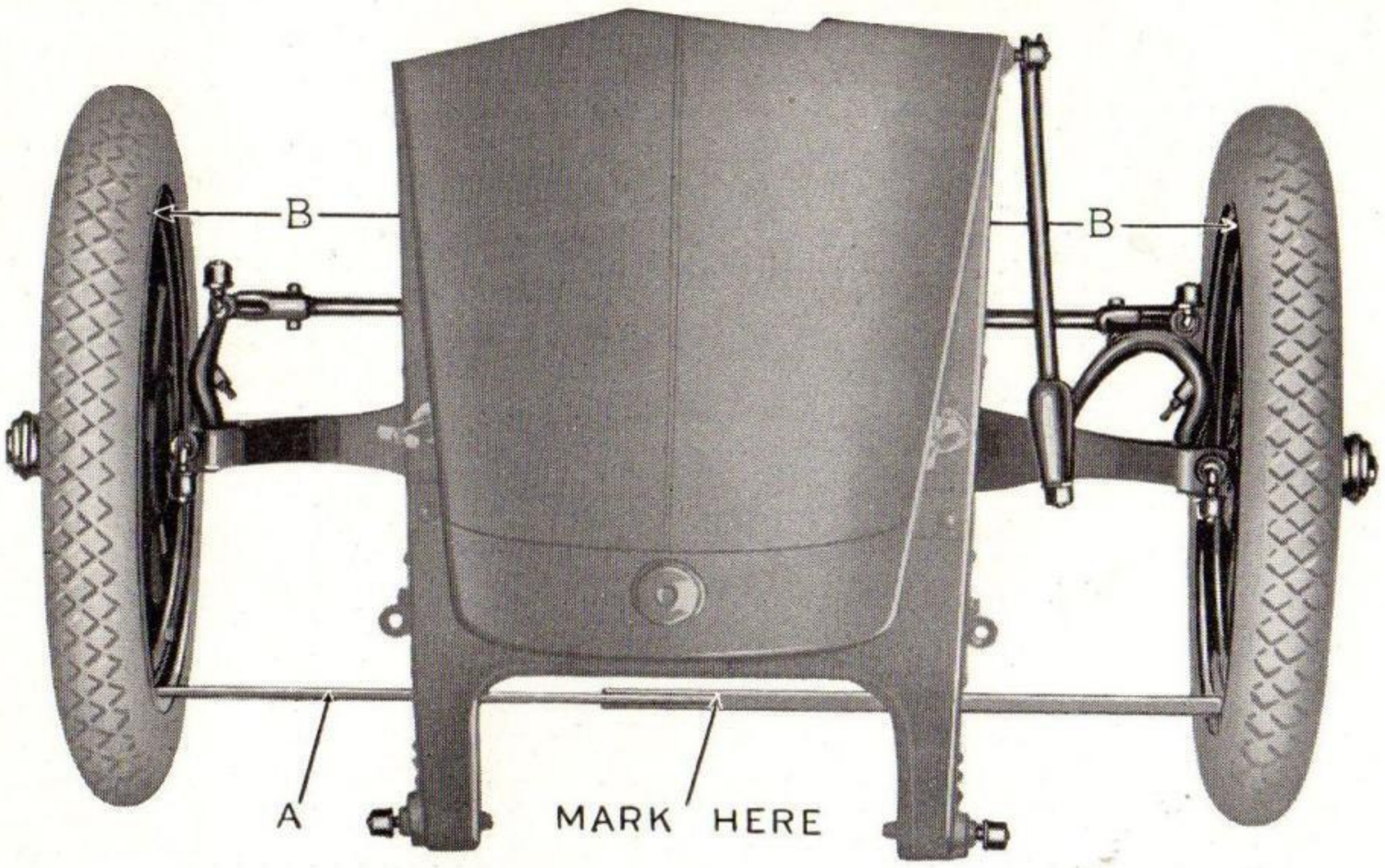
We suggest that you have your Service Station make all brake inspections for you.

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.

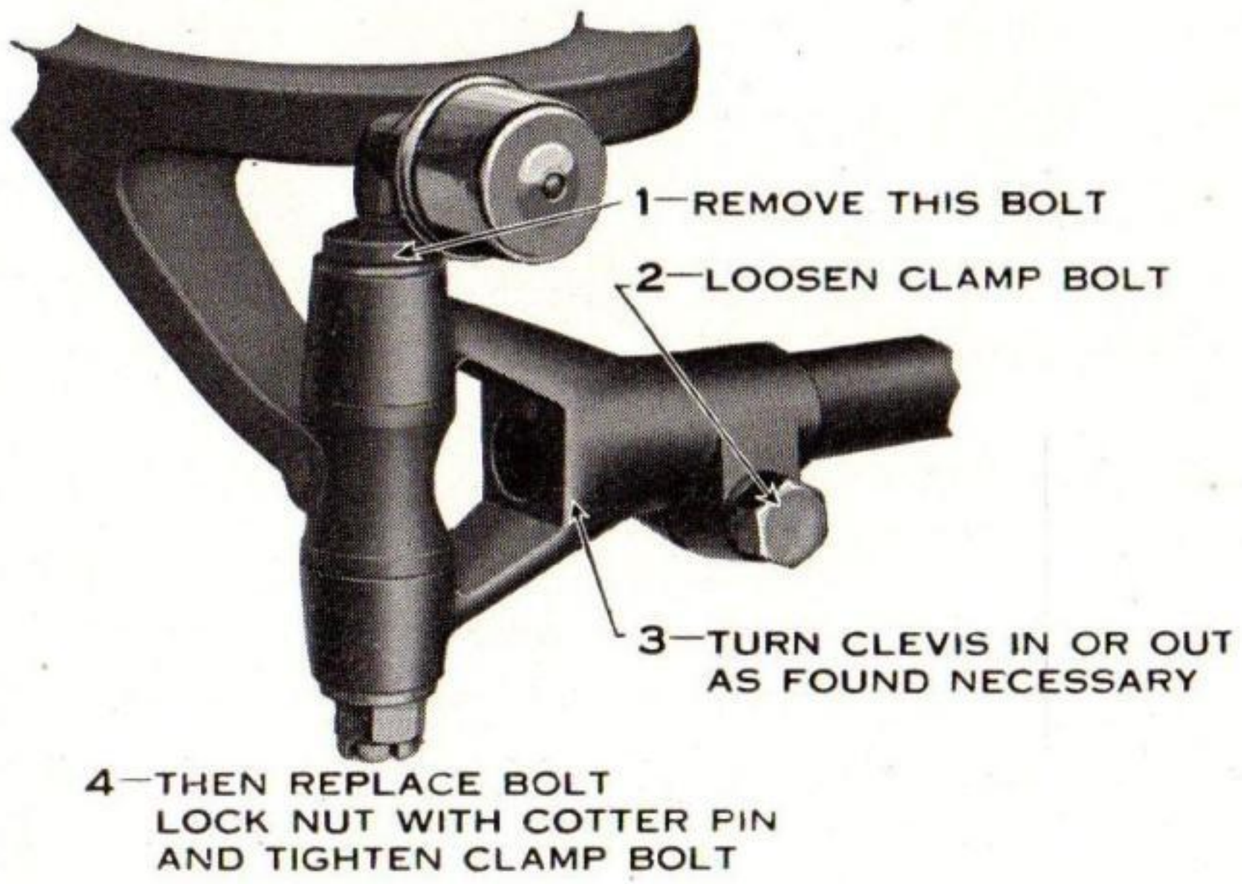
In conjunction with the above adjustment, each external band is fitted with an adjustment shown at "E," for the purpose of making the band conform to the circle of the brake drum. This adjustment is fitted with a spring, stud, lock nut and adjusting nut. The adjustment is effected by increasing the tension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

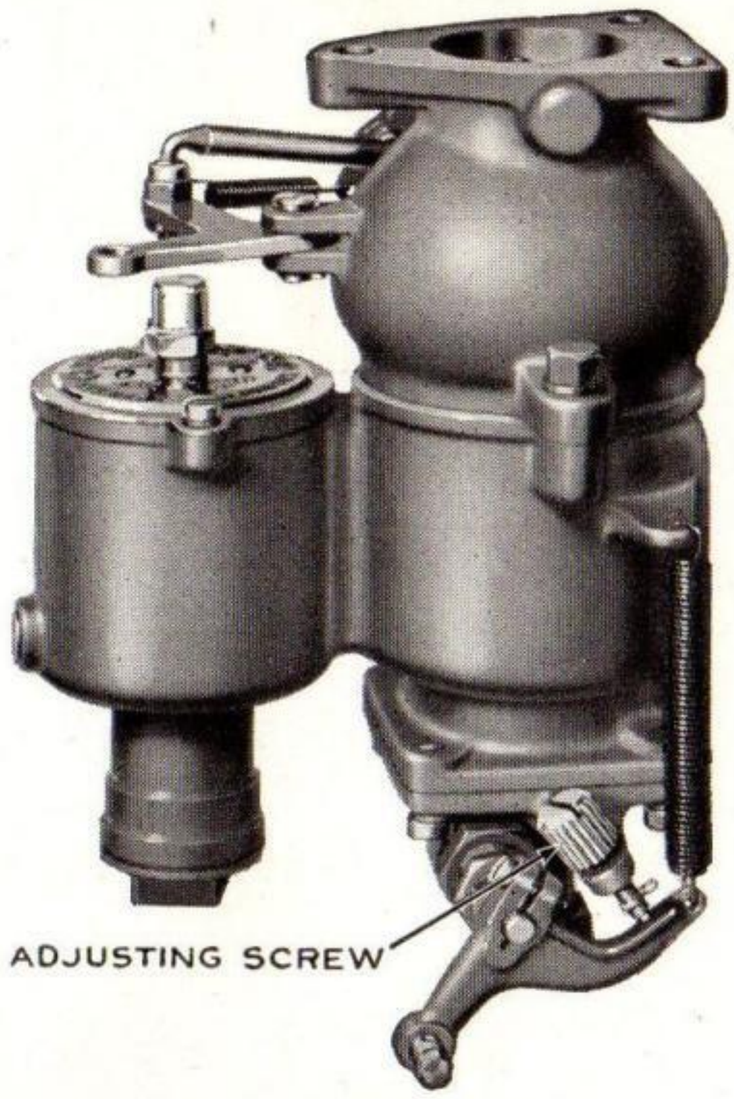
Storage Battery

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.

The Carburetor



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 the adjustment 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, making the mixture richer, a notch at a time, until a point is reached when the motor will fire 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.

If Motor Stops

1. Out of gasoline.
2. Vent in gasoline tank stopped up. Vent is located in filler cap.
3. Loose wires or connections.
4. Out of motor oil, usually indicated by knocking, followed by an abrupt stop. Do not attempt to use motor until the oil supply has been replenished and motor examined by a competent mechanic.

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.

If Motor Lacks Power

1. Late ignition. Instructions for timing ignition will be found on page 11.
2. Dragging brakes. The car should roll freely on a level surface.
3. Low tire pressure. Keep tires inflated to pressure recommended by tire manufacturer.

If Motor Knocks

1. Spark advanced too far. See page 11.
2. Motor speed too low for high gear. It is better to shift to second speed than to make the motor labor against adverse conditions.

Adjustments (Continued)

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 ½ 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.
7. Using too heavy an oil. Use only high-grade medium oil and change it at least every 500 miles.

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.
3. Play or take up in rear springs when clutch is engaged. Loose spring clips or loose spring shackles. See page 15.

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 3/8 inches.

Turning Radius
24 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 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 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 1/4 inches wide; rear, 57 11/16 inches long, 2 1/4 inches wide.

Spring Bolts
Rear spring front end bolt 3/4 inch diameter, shackle bolts 11/16 inch diameter.

Brakes
Drums 15 1/2 inches inside diameter, internal brakes 2 1/2 inches wide, external brakes 2 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.