

Instruction Book

ESSEX

SUPER-SIX

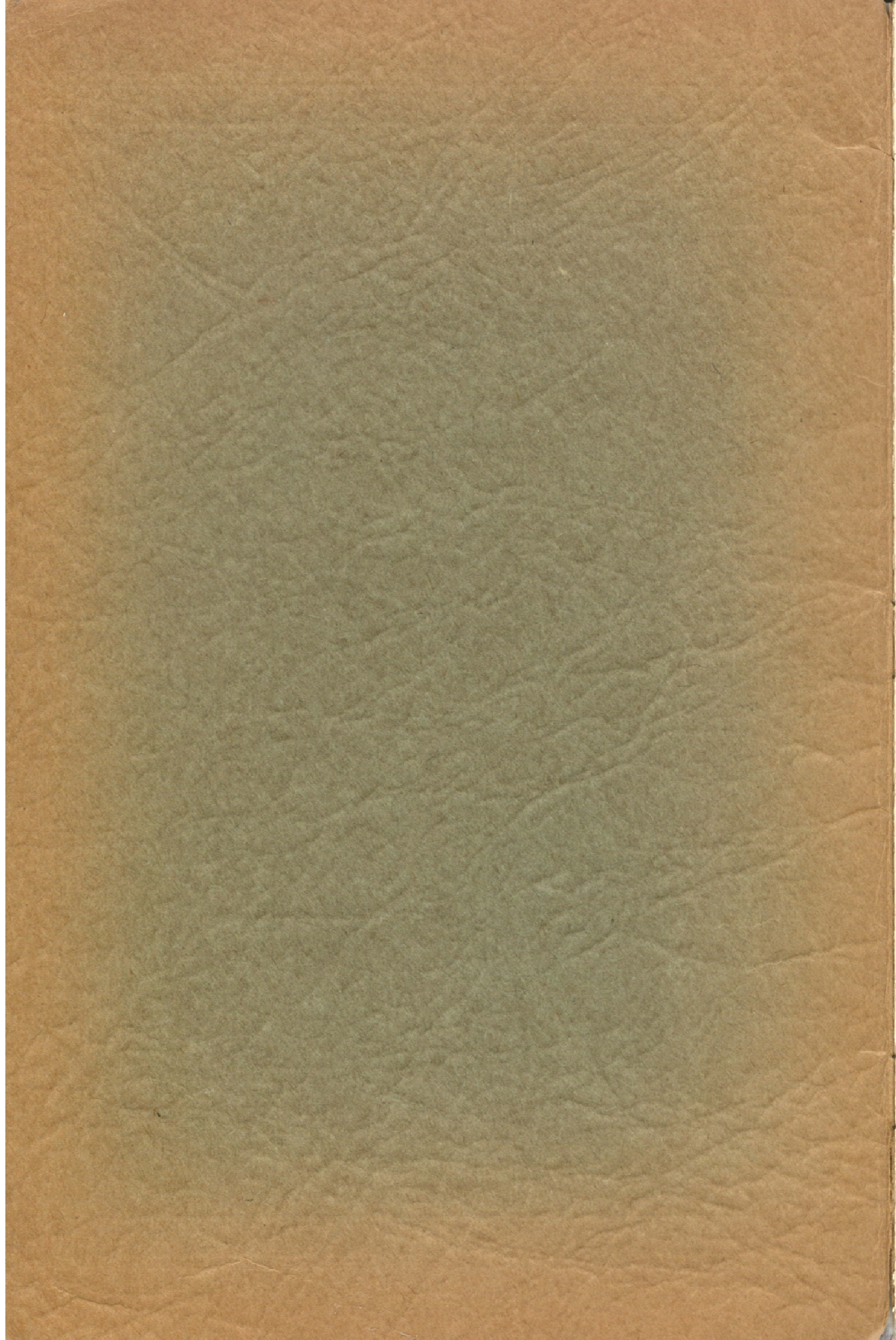


JANUARY

1927

HUDSON MOTOR CAR COMPANY

DETROIT, MICHIGAN, U.S.A.



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HUDSON MOTOR CAR COMPANY

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Warranty

The factory obligation with respect to replacement of alleged defective parts is fully covered by our warranty as follows:

"We warrant the automobiles manufactured by us to be free from defects in material and workmanship under normal use and service, our obligation under this warranty being limited to making good any part or parts thereof which shall, within ninety (90) days after delivery of such automobile 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 is 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 automobiles.

"This warranty shall not apply to any Hudson or Essex automobile 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, or which has been subject to misuse, negligence, or accident.

"We make no warranty whatever in respect to tires, rims, ignition apparatus, tops, upholstery, horns or other signaling devices, batteries, speedometers, or other trade accessories."

HUDSON MOTOR CAR COMPANY

Detroit, Michigan

The factory does not participate in any labor costs incident to the replacement of parts under the warranty. The warranty under which Essex 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 and get in touch with your nearest authorized Essex Distributor or Dealer.

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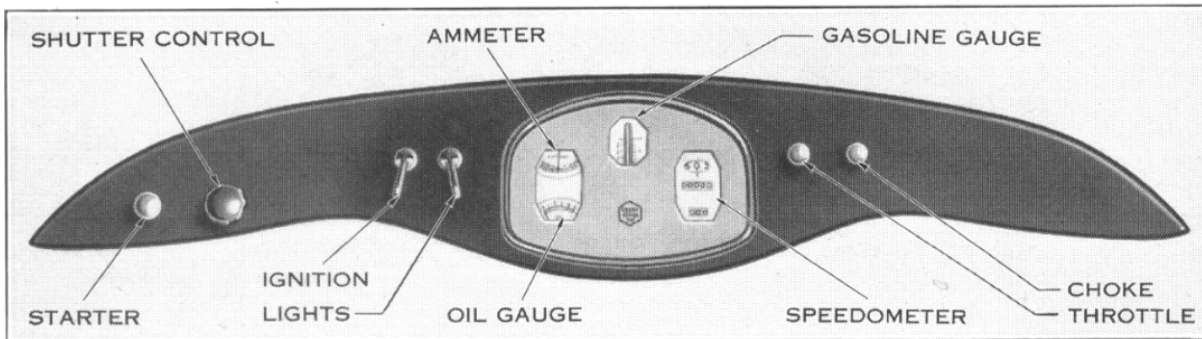
LICENSE DATA

Car serial number (see plate on front of dash under hood).
 Engine serial number (stamped on left side of cylinder, near
 water inlet elbow).
 Number of cylinders—6.
 Diameter of bore— $2\frac{11}{16}$ in.
 Stroke— $4\frac{1}{4}$ in.
 Standard horsepower rating for license purposes—17.32.
 Piston displacement—144.67 cu. in.
 Shipping weight—Coach 2450 lbs., Sedan 2530 lbs., Coupe 2340 lbs.

TIRES

Inflate front tires 28 lbs. Inflate rear tires 32 lbs.
 Check pressures once a week.

Starting the Motor



To start the motor, pull out the choke button on the instrument board part way—in cold weather it may be necessary to pull it all the way out. The instrument board throttle button should then be pulled out until the accelerator pedal moves downward about $\frac{1}{8}$ inch, after which the ignition switch lever should be moved to the left in the “on” position. Pulling out the starter button on the instrument board completes the starting operation.

It is important that the choke button be pushed in as far as possible consistent with smooth motor operation as soon as the engine starts to fire, and must be completely in when the motor becomes warmed up.

To obtain maximum performance and efficiency, the shutter control button should be regulated so the motor temperature will agree with the directions on the motometer dial.

Operating Instructions

The care given to a motor car during its first 1000 miles governs, to a large extent, the length and satisfaction of its service.

All moving parts are closely fitted and adjusted. Higher speeds must be approached gradually to give these parts an opportunity to properly “run in” and insure perfect bearing surfaces. During the first few hundred miles, sustained high car speeds should not be indulged in; nor should the motor be raced or speeded up while the car is at rest.

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.

Strict adherence to the following suggested car speeds with respect to speedometer mileage will amply repay you in improved performance, and will minimize your future maintenance costs.

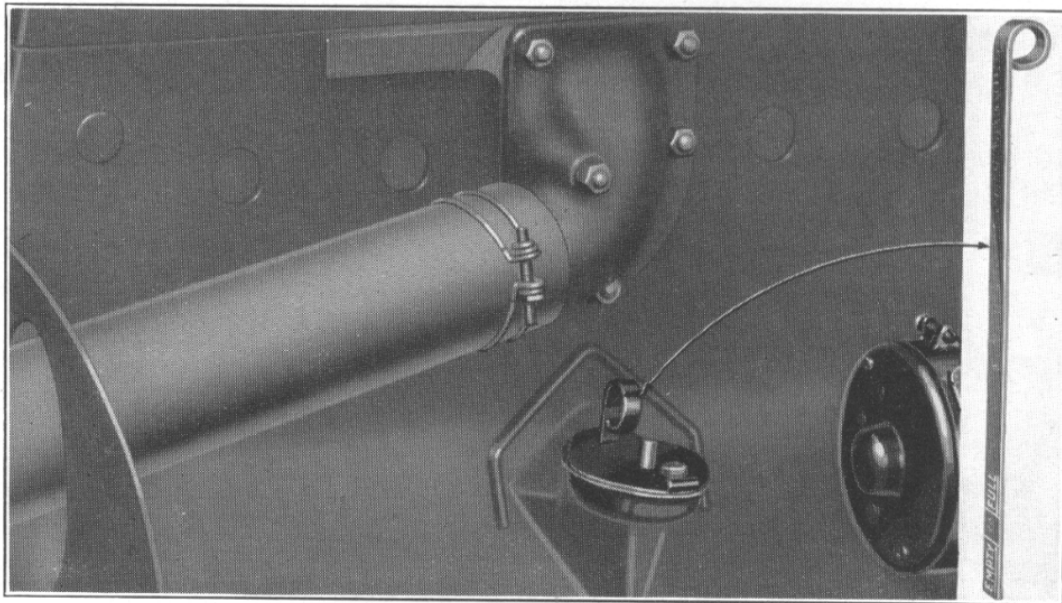
Speedometer Reading

- 0 to 250 miles—Do not exceed 35 m. p. h. high gear; 15 m. p. h. intermediate gear.
- 250 to 500 miles—Do not exceed 45 m. p. h. high gear; 20 m. p. h. intermediate gear.
- 500 to 1000 miles—Do not exceed 50 m. p. h. high gear; 20 m. p. h. intermediate gear.

IMPORTANT—Do not under any consideration attempt to maintain a high rate of speed until the motor is thoroughly warmed up, the oil gauge showing pressure, and you are sure that there is plenty of good oil in the crankcase.

General Lubrication Instructions

Motor Lubrication



Use only high-grade oil of heavy body.

In cold weather, use only high-grade heavy body oil which will flow at low temperatures.

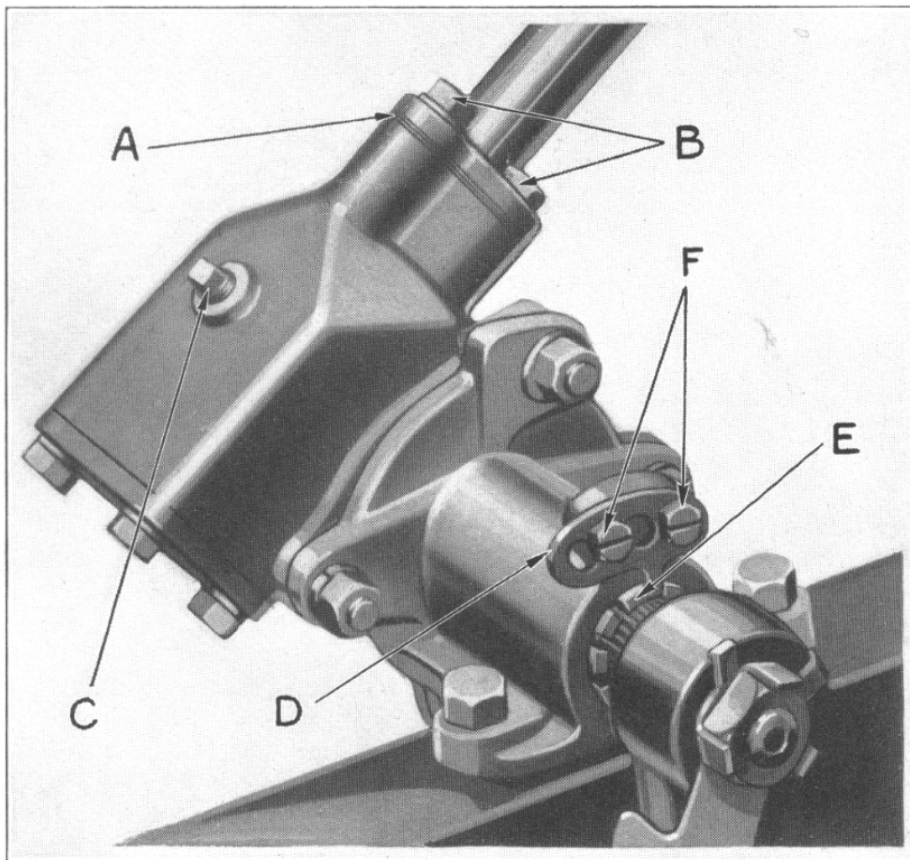
Consult your dealer if you are in doubt as to what oil to use.

The oil gauge must always register when the motor is running. To determine the amount of oil in the reservoir, pull out oil level gauge, shown above, wipe it clean, then turn slide and drop gauge into reservoir. When withdrawn, the exact oil level will be shown.

Every 250 miles, add oil as found necessary to bring contents up to "full" mark. Drain the reservoir and replenish with new oil at 500-mile intervals, adding 5 quarts.

Steering Gear

The steering gear case should be filled with steam cylinder oil to the level of the pipe plug "C," as shown. Any up and down motion or play in the column which might develop after extensive service can be eliminated by the removal of shims shown at "A" in illustration. Remove



screws "B" holding upper cap in place, take out a shim, tighten down cap, and test. If necessary, repeat and remove additional shims.

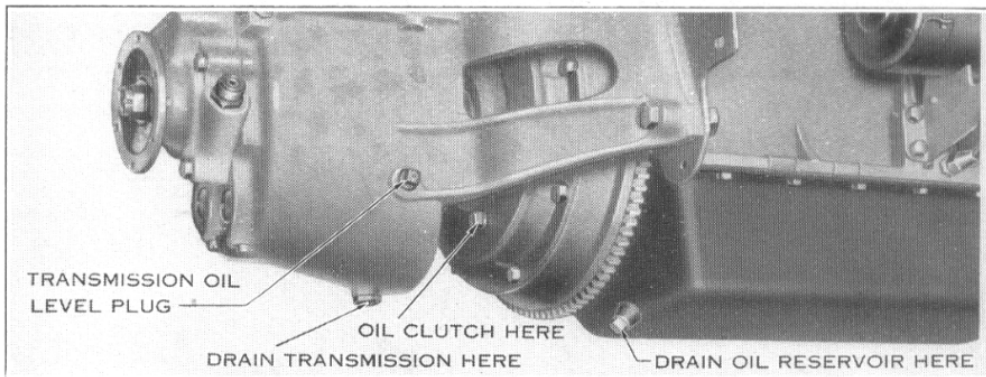
Excessive play or lost motion between the worm and worm wheel can be taken up by adjusting the worm wheel eccentric bushing shown at "E." Remove the cap screws "F" and lock plate "D," then turn bushing in housing until only a slight amount of play is felt. The lock plate should then be replaced and the steering wheel turned from extreme right to left positions to make sure there is no tendency to bind.

Should binding take place after either of the above adjustments have been made, it will be necessary to replace a shim or back off the bushing a notch to insure proper lubrication.

Clutch

The clutch lubricant should be inspected and replenished if necessary every 2500 miles, or oftener if the action becomes harsh or jerky, as follows:

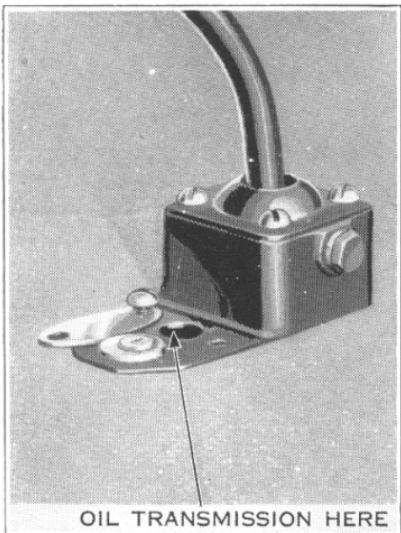
Remove one bolt at side of flywheel pan, also cap screw holding rear end of pan to transmission case, and swing pan to one side.



Turn flywheel until square head filler plug in clutch cover is at its lowest position. It is important that the flywheel be in exactly this position; otherwise too much oil will be introduced, resulting in clutch slippage.

Remove plug and fill to the level of the bottom of the plug opening with a mixture of equal parts of light motor oil and kerosene, using an oil gun. Replace filler plug tightly and fasten flywheel pan in position.

Transmission



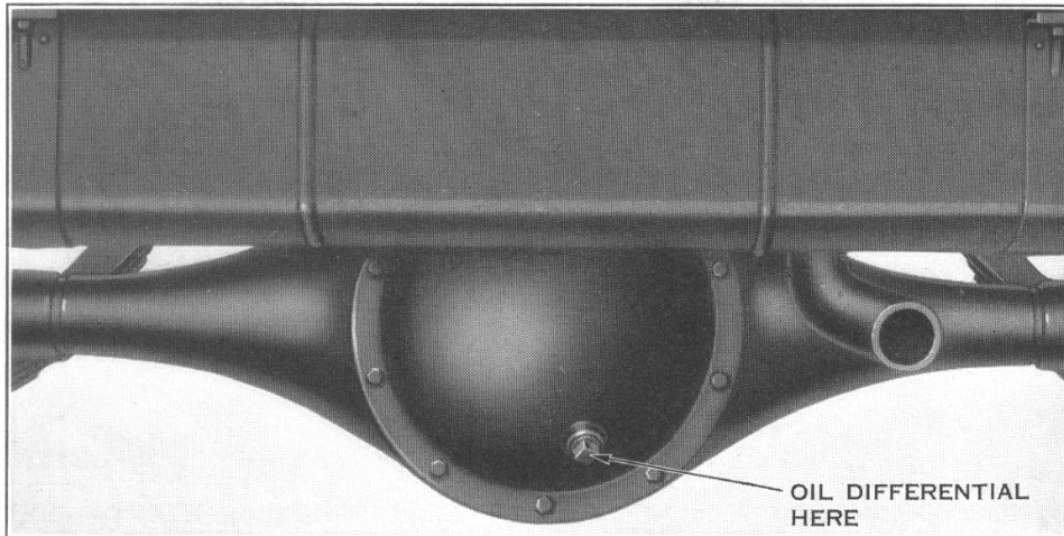
The transmission oil filler is located immediately forward of the transmission lock. We suggest that one screw be removed, and the other one loosened. The transmission lock should then be pushed down and the plate will slide over, giving free access to the opening.

For transmission lubrication, we recommend the use of high-grade heavy body motor oil which will meet the specifications listed on page 5 under Motor Lubrication. Do not use grease. Oil should not be carried above the level of the test plug, which is located on the right-hand side of the transmission case. Remove this plug and fill

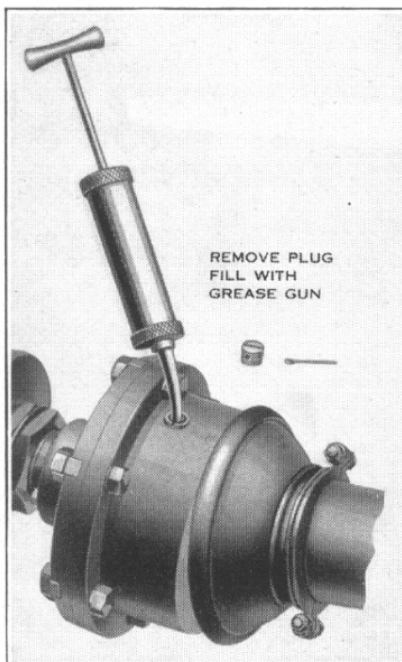
only until oil drips from the opening. Every 5000 miles the transmission should be drained, flushed out with kerosene and refilled with new oil to the proper level.

Rear Axle

The rear axle drive gears and differential are lubricated by removing the large pipe plug in the housing cover. The oil supply in the housing should be kept up to the level of the filler plug opening.



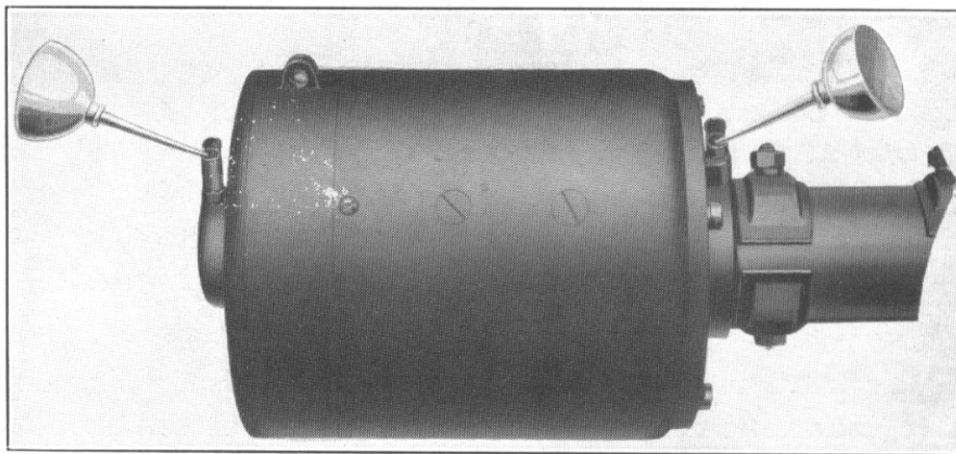
Use only good rear axle or differential oil that will flow at low temperatures. Do not use grease. Once a year drain axle by removing lower cap screw from housing cover and refill with new oil.



Universal Joints

The universal joints, because of the severe service to which they are put, require adequate lubrication attention. Every 2000 miles remove plugs and fill with fiber grease.

Electrical Units



Generator

Three or four drops of light motor oil at points designated every 1000 miles.



Distributor

Fill distributor base with motor oil once a month or every 500 miles to the level of the oil cup.

Starting Motor

The starting motor is fitted with oilless bearings and requires no lubrication.

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.

Electrical System

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

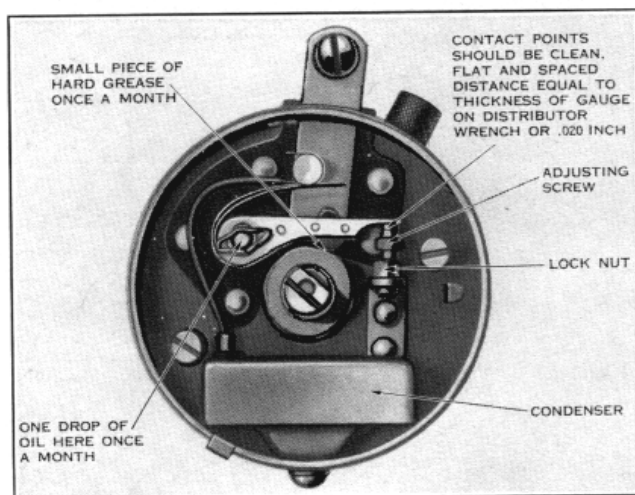
Within five days after delivery of a new car the purchaser should take it to the nearest Electric Auto-Lite Service Station in his territory for registration and inspection of the electrical units. An identification card will be received by him which will entitle him to free inspection service on the electrical apparatus at any Electric Auto-Lite Service Station during the guarantee period.

The electrical units covered by the Electric Auto-Lite Company Guarantee include: Starting Motor, 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 switch, as shown in the illustration on page 22. 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.

Persistent blowing of the fuses indicates a short in the wiring, and the circuits should be inspected by your dealer at the earliest opportunity.



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

Ignition Timing

The ignition distributor is equipped with an automatic spark control device, which automatically times the ignition according to the motor speed. This renders a hand spark advance unnecessary. The initial setting at the factory is correct and should not be altered unless these parts have been removed or disturbed.

To check the spark timing when necessary, proceed as follows: Remove No. 1 spark plug 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 be readily determined by placing a finger over the spark plug opening. The motor should then be turned very slowly until the dead center mark on the flywheel coincides exactly with the lower edge of the square sight hole on the right side of the motor rear plate. When this is done, the motor is on dead center.

Remove the distributor cap and rotor, and see that the contact points are just separating.

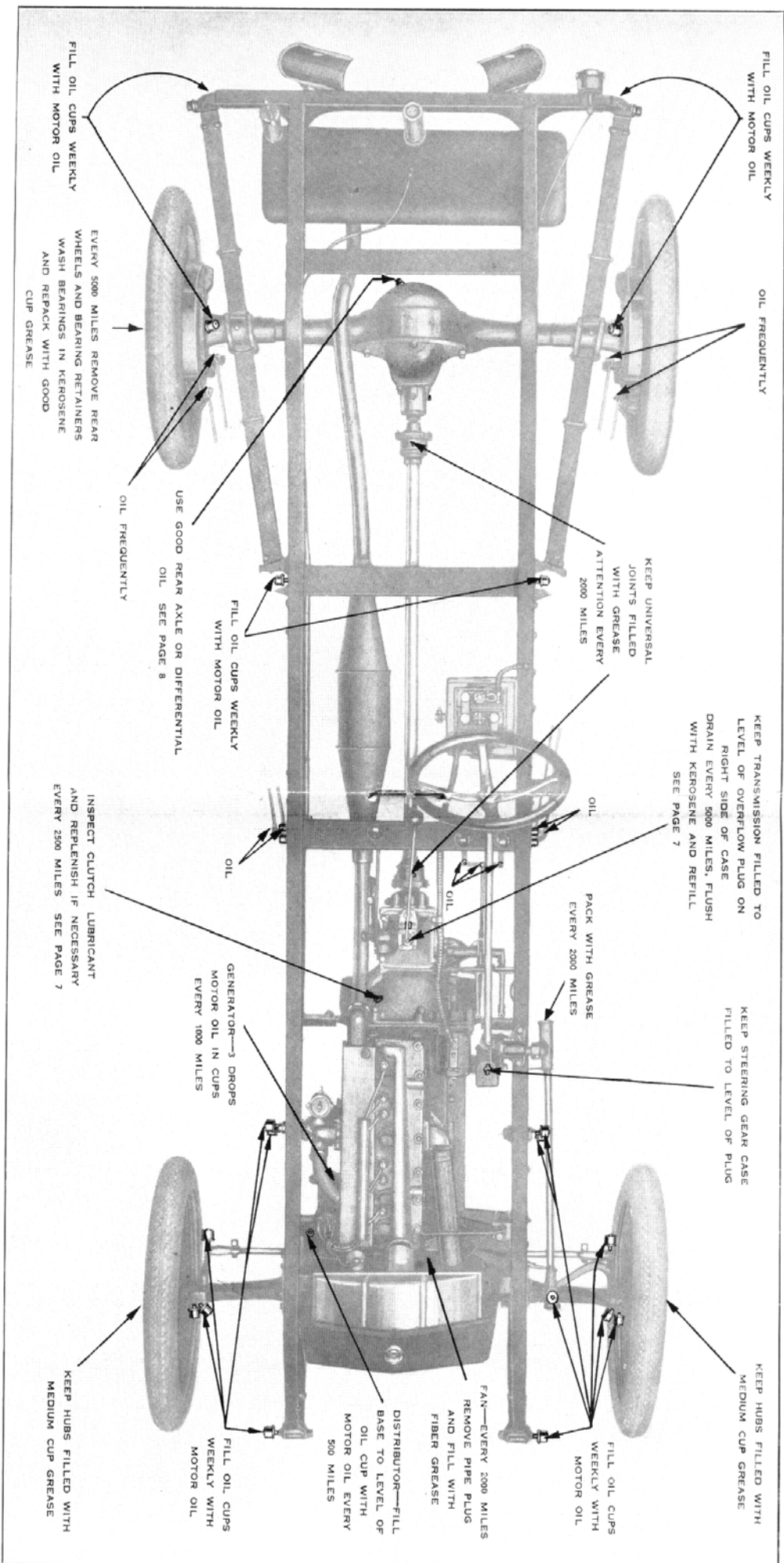
To adjust, if necessary, loosen the nut on the distributor lock pin, shown in the illustration on page 9, and turn the distributor slightly in the proper direction. Turn the distributor to the right, or clockwise, to retard the ignition; to the left, or anti-clockwise, to advance. Then re-tighten the lock pin nut.

Storage Battery

Immediately upon delivery of a new car, the purchaser should take it to the nearest authorized Prest-O-Lite Battery Service Station for an initial inspection and filling in of the registration card which will entitle him to service during the warranty period.

This card is enclosed in the tool equipment and the instructions appearing thereon should be closely followed.

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



The Carburetor

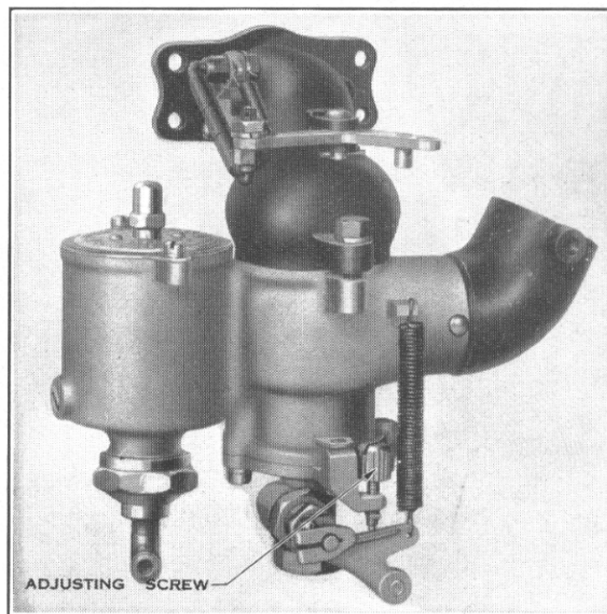
After a new car has been run approximately two hundred miles, it is advisable to alter the carburetor adjustment so the car will operate on a leaner mixture. To adjust the carburetor for best fuel economy, proceed as follows:

Run the motor a sufficient length of time for it to attain a normal running temperature; then close the throttle.

Decrease the amount of fuel by turning the knurled adjusting screw at bottom of carburetor to the left, until the motor begins to miss or stalls. This may require several complete turns.

The adjustment should then be reversed; that is, turned to the right, a notch at a time, until the motor fires evenly. This will require about one-half a turn. This one adjustment automatically insures correct carburetion throughout the entire operating range.

In hot weather better performance will be obtained by opening the sliding covers on the hot air stove.



Cooling System

The cooling system should be kept full of 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.

It is important that the cooling system be drained and thoroughly flushed out with clear water at frequent intervals to prevent the formation of deposits which would tend to obstruct the water passages in the radiator.

Keep the radiator shutters adjusted so as to maintain an efficient operating temperature as indicated by the directions on the motometer dial.

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

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 1000 miles driving it is advisable to determine if the chain requires taking up. Subsequent inspections at intervals of 4000 miles are recommended. To inspect chain proceed as follows:

Grasp the rubber coupling on the generator drive shaft "C" and turn to and fro as far as possible. There should be approximately $\frac{1}{8}$ " movement on the circumference.

To adjust chain:

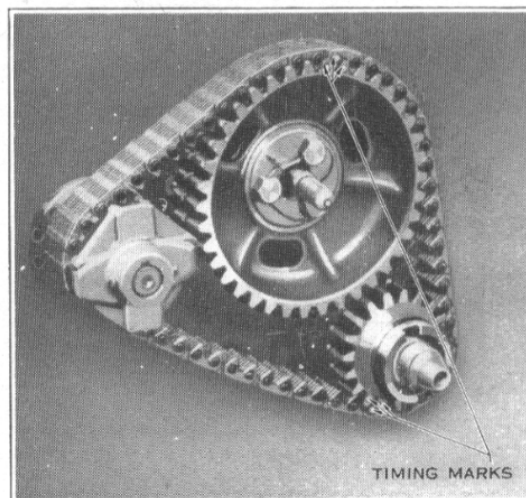
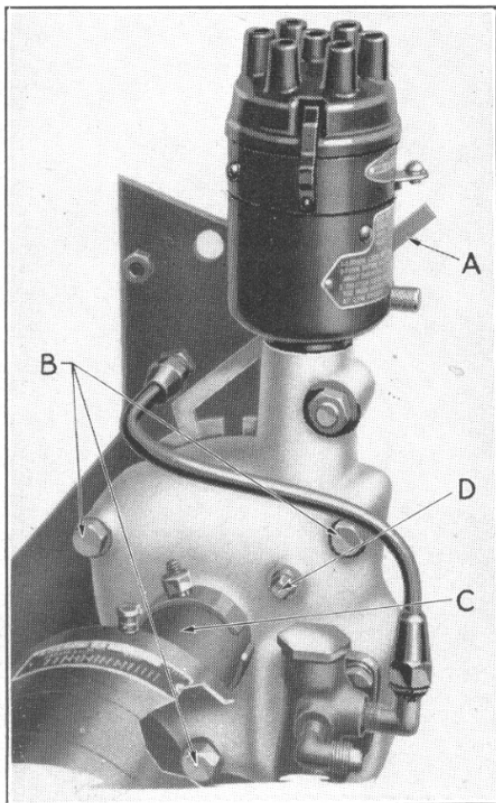
Loosen retaining bolts "B."

Note: At certain stages of adjustment, the inside top bolt and the bottom bolt, or both, may pass through notches in plate. It will then be necessary to remove these bolts entirely. Insert special tool in notch and turn flange toward you until only necessary play is present. If the two bolts referred to have been removed and cannot be returned, then back off adjustment slightly until they will enter through notch.

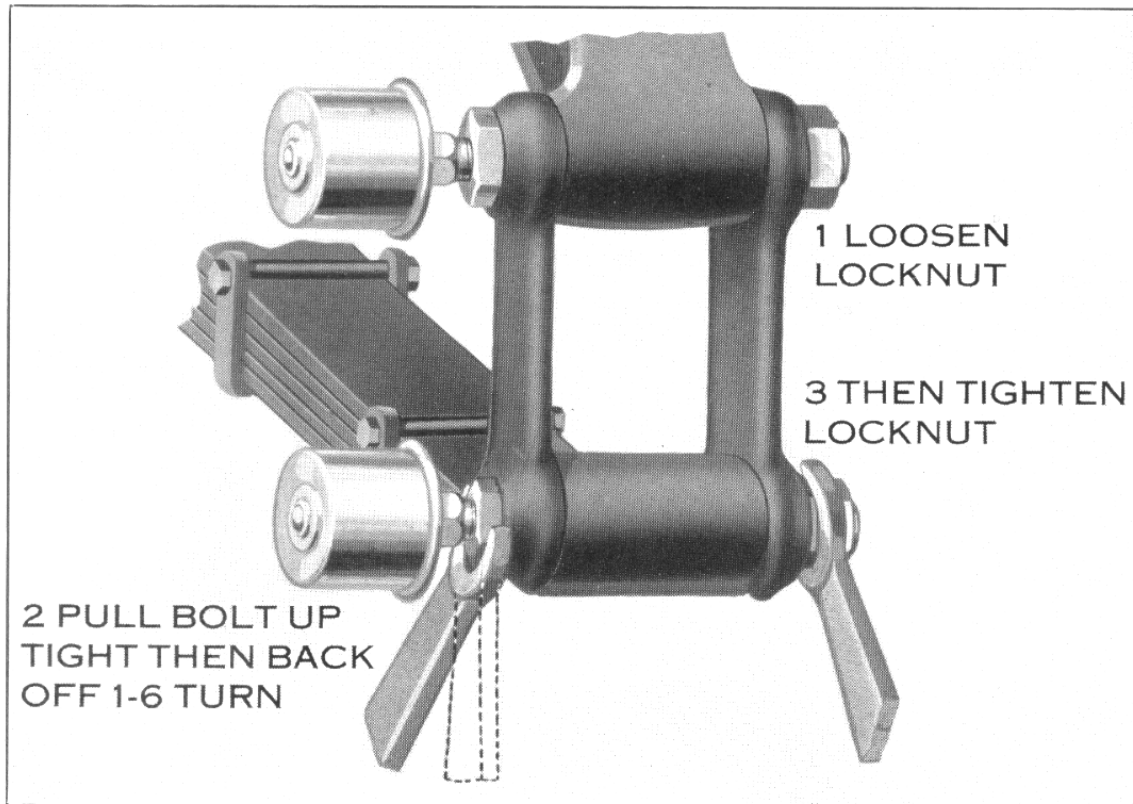
It is necessary when the distributor support housing has been removed, but not otherwise, to introduce $\frac{1}{2}$ pint of motor oil through pipe plug opening "D" before running motor.

To remove or replace chain, turn the adjusting eccentric to the point of minimum adjustment and then remove the camshaft sprocket.

The punch marks on the chain should coincide with those on the sprockets, as shown in the view, when properly assembled.

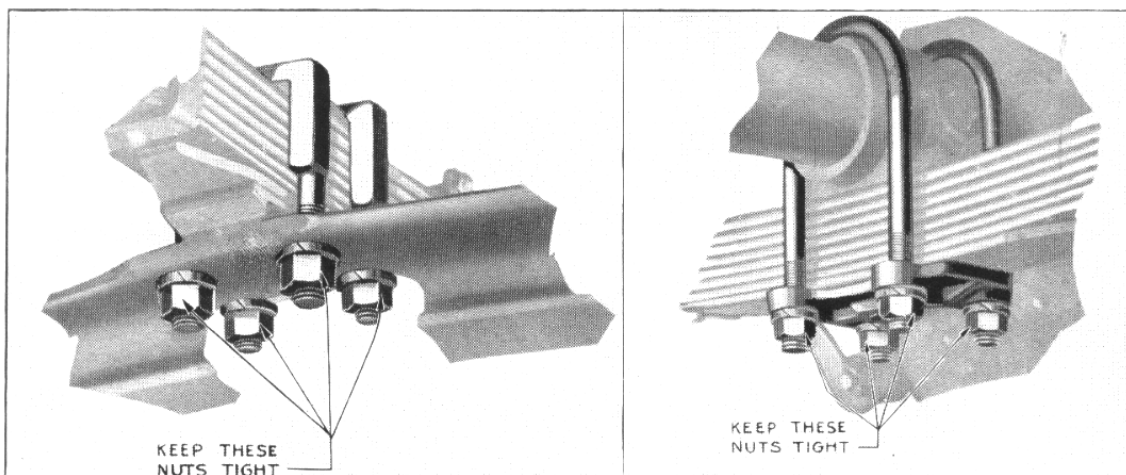


Spring Shackles



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

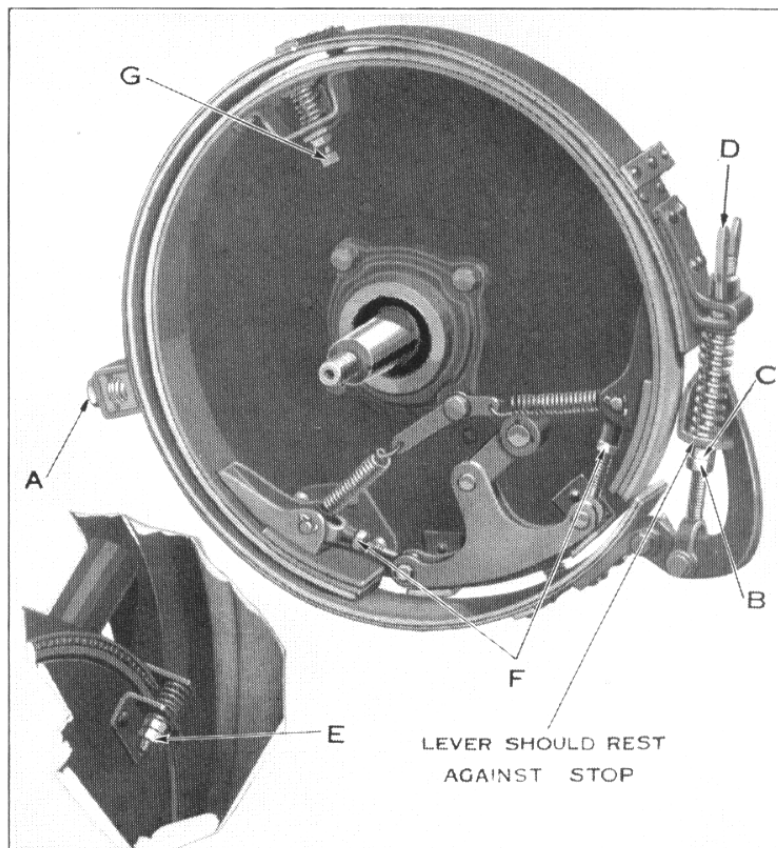
Do not tighten too much or you will interfere with the action of the springs. Follow the instructions given closely.



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 for tightness.

Brake Adjustments



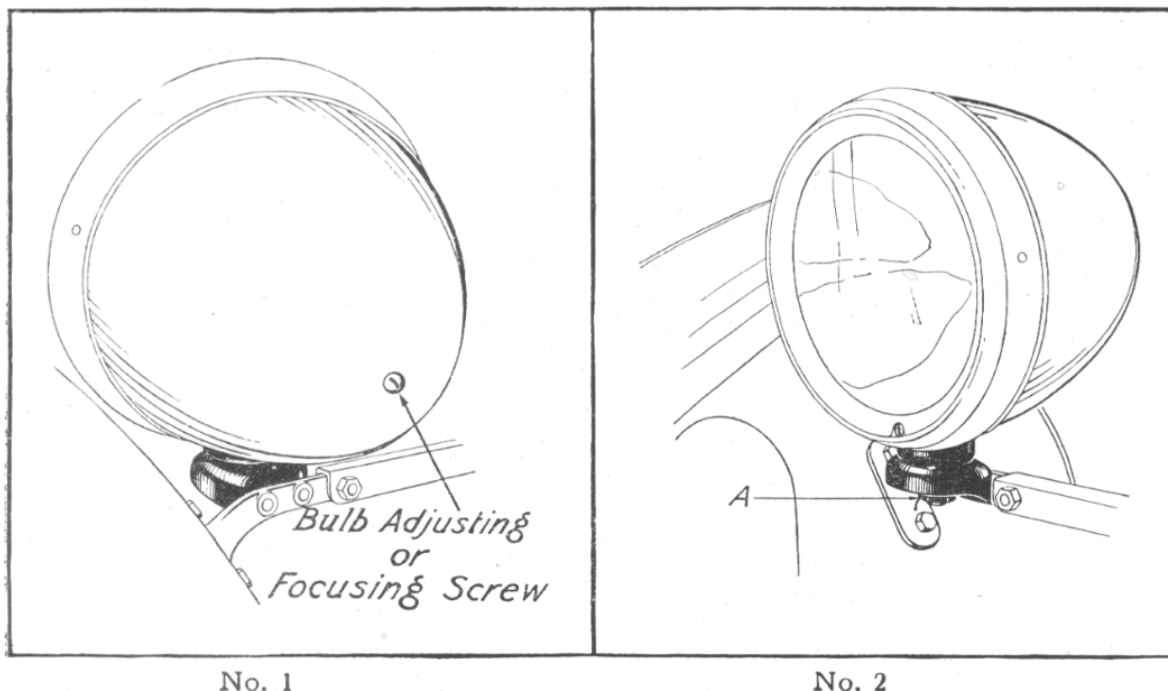
We suggest that you have your service station make all brake inspections for you.

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 just clears the drum.

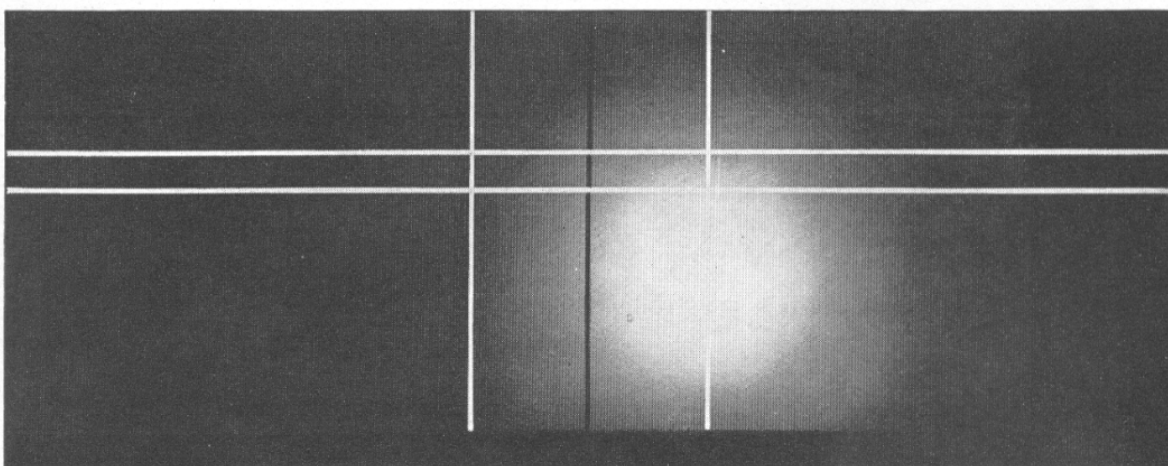
In conjunction with the above adjustments, each band is equipped with an adjustment at three points to assist in making the band conform to the circle of the brake drum itself. These adjustments are shown in detail at "E" and each is provided with a lock nut and adjusting nut to vary the position of the band.

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 adjustments "F" so that it just clears the drum when the wheel is returned to position.

Headlamp Adjustments



1. Place car on level floor 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. Draw a second horizontal line parallel with and 8 inches lower than the first.
3. Cover up the front 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.
4. Loosen headlamp stud nuts shown at "A," Figure 2, just sufficiently to allow the lamps to be tilted up or down as required, so the top edges of the beams of light will be even with the upper horizontal line shown in Figure 3, if the car has full passenger load. If the car is empty, the headlamps should be tilted so the top of the light beams will meet the lower horizontal line.

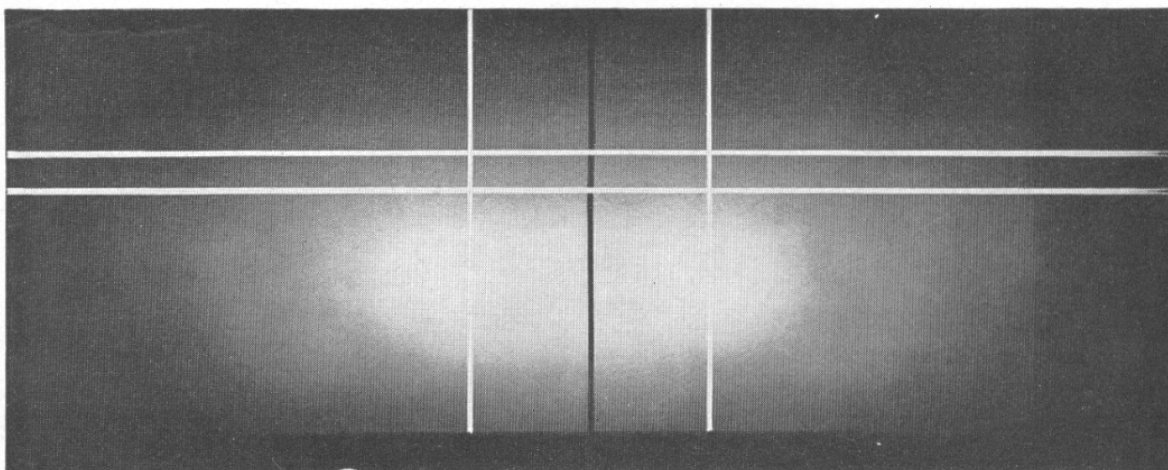


No. 3

Headlamp Adjustments—*Continued*

5. Line up the 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. Inspect adjustment to make sure that the tilt has not been disturbed, then tighten stud nuts "A" securely.

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, 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

Winter Driving

There are two things to take into consideration when operating your car in freezing weather. They are the Lubrication and Cooling Systems.

Lubrication

Oils are affected by temperature. Many oils thicken and the pump will not handle them. Use only an oil that will stand a low cold test in freezing weather. It is recommended that the oil be changed every 500 miles.

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 $4\frac{3}{4}$ 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 lower radiator tank.

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.

Corrective Data

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.

Failure of Motor to Start

1. Ignition contact points dirty. See page 10. 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 .028 of an inch clearance.
4. Tappets set too close together so that valves will not close. See page 23.

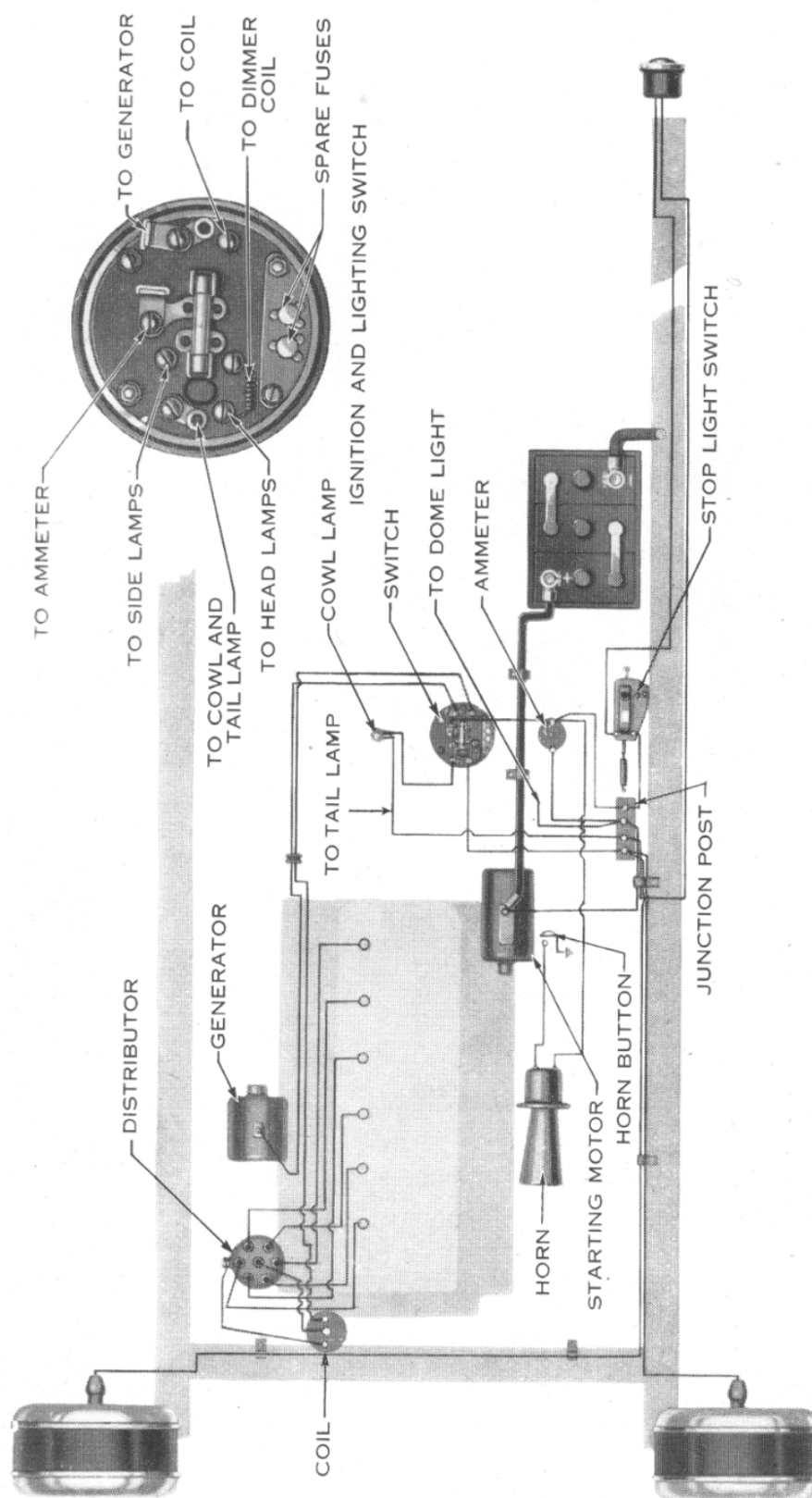
Reasons for Overheating

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 one-half 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.

In General

1. Clutch slipping. Too much oil in clutch—drain to proper level. See page 7. Clutch grabbing. Insufficient oil—re-oil according to instructions on page 7.
2. Rear axle noise. See that differential has sufficient lubricant. Remove housing cover plug and add oil if necessary.

Wiring Diagram



ESSEX INFORMATION

Wheelbase

110½ inches.

Turning Radius

20 feet.

Road Clearance

9 inches.

Rear Axle

Gear ratio 5.6 to 1.

Firing Order of Cylinders

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

Spark Plugs

Metric, gap .028 inch.

Ignition Contact Points

Opening .020 inch.

Exhaust Pipe

1¾ inches diameter.

Valve Tappet Clearance

Intake .003 to .005 inch, exhaust .005 to .007 inch, with hot motor.

Valve Timing

Intake opens 7° after upper dead center, closes 50° after lower dead center; exhaust opens 55° before lower dead center, closes 8° after upper dead center.

Oil Reservoir and Troughs

Capacity 6 quarts; reservoir only, 5 quarts.

Clutch

Oil capacity—One-quarter pint, equal portions light motor oil and kerosene. Clearance between pedal and toe board ⅜ of an 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 4¾ gallons.

Gasoline Tank

Capacity 11½ gallons.

Springs

Front, 36 inches long, 2 inches wide; rear, 54⅞ inches long, 2 inches wide.

Spring Bolts

⅝ inch diameter.

Brakes

Drums 14 inches inside diameter, internal brakes 1½ inches wide, external brakes 1¾ inches wide.

Storage Battery

6-volt, 13-plate, 105-ampere hour rating.

Lamp Bulbs

Headlamp, 6-volt, 21-candlepower nitrogen, single contact; dome, tail and instrument lights, 6-volt, 2-candlepower, single contact; stoplight, 6-volt, 15-candlepower, single contact.

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 inside of the rims at the front and rear. The distance at the front should be the same as the distance at the rear, or range from that to one-eighth inch less.

The steering cross rod has an adjustable clevis. To adjust front wheels to proper "toe-in," the cross rod clevis pin should be removed, the clamp bolt loosened and the clevis turned in or out as necessary until the proper result is obtained.

Accessories

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

SPEEDOMETER

Stewart-Warner Speedometer Corp., Chicago, Ill.

BATTERY

The Prest-O-Lite Co., Indianapolis, Ind.

GASOLINE GAUGE

King-Seeley Corp., Ann Arbor, Michigan.

HORN

E. A. Laboratories, Inc., Brooklyn, N. Y.

STARTING MOTOR, GENERATOR, DISTRIBUTOR, IGNITION COIL AND SWITCH

The Electric Auto-Lite Company, Toledo, Ohio.

VACUUM TANK

Stewart-Warner Speedometer Corp., Chicago, Ill.

MOTOMETER

Motometer Company, Long Island, N. Y.

WINDSHIELD CLEANER

Trico Products Corp., Buffalo, N. Y.

TIRES

Goodyear Tire and Rubber Co., Akron, Ohio.
United States Rubber Co., New York, N. Y.



