Instruction Book

ESSEX

Six Cylinder

MARCH 1926

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

PRINTED IN U. S. A.

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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 at a speed of more 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.

After the first 1,000 miles it will prove profit-able for the owner to have his car checked over by his dealer's service station.

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 consid-eration,

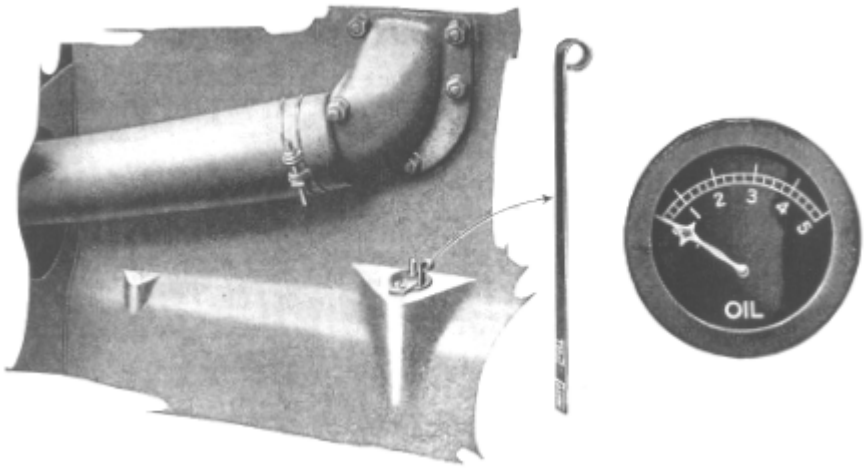
By proper lubrication, which is too often neglected and by following the other instructions in this book, the owner can do much to prolong the life of his car and thus realize the full value from his investment.

INDEX

LICENSE DATA

Car serial number (see plate on front of dash under hood).
Engine serial number (stamped in It ft side of cylinder, near water inlet elbow).
Number of cylinders - 6.
Diameter of bore - 2-11/32 in.
Stroke - 4-1/4 in.
Standard horsepower rating for license purposes - 17.32.
Piston displacement - 144.67 cu. m.
Shipping weight - Coach 2395 lbs., Touring car 2183 lbs.

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.

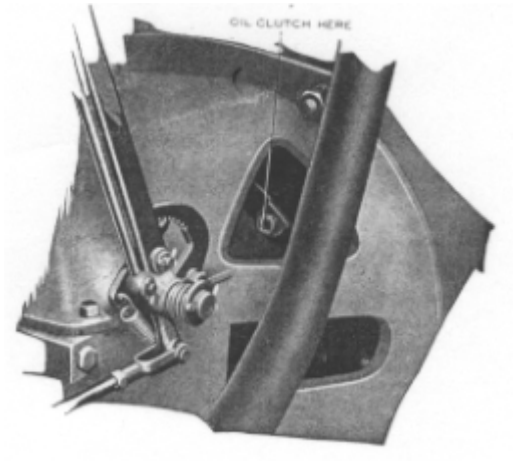
Consult your dealer if you are in doubt as to what oil to use.

The oil gauge must always register when the motor is running. To determine the amount of oil iii 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 he 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.

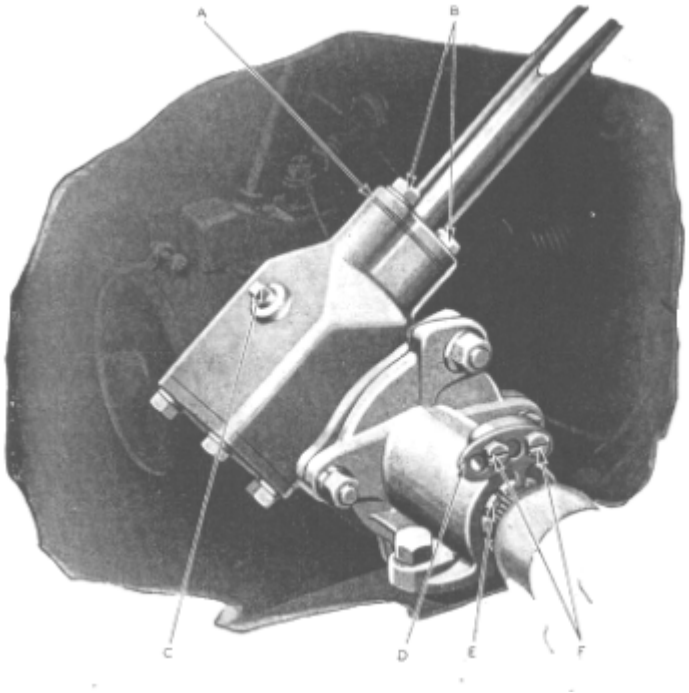
Clutch

Have clutch oil drained if every 750 miles. Flush clutch thoroughly with kerosene or gasoline. Drain, and then replenish with½ pint of kerosene and motor oil mixed in equal portions



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.

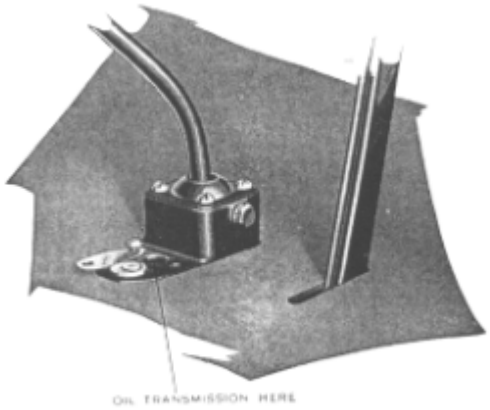
Excessive play or lost motion between the worm and worm wheel can be taken up by adjusting the worm wheel eccentric bushing shown at "E." Remove the cap screws "F" and lock plate "D," then turn bushing in housing until only a slight amount of play is felt. The lock plate should then be replaced and the 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.

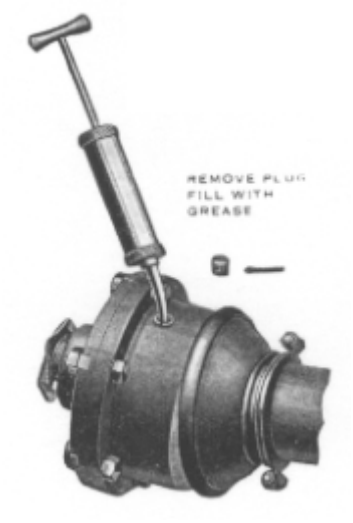
If you do not have a Parts Price List for your car, we will cheerfully supply one without cost

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.

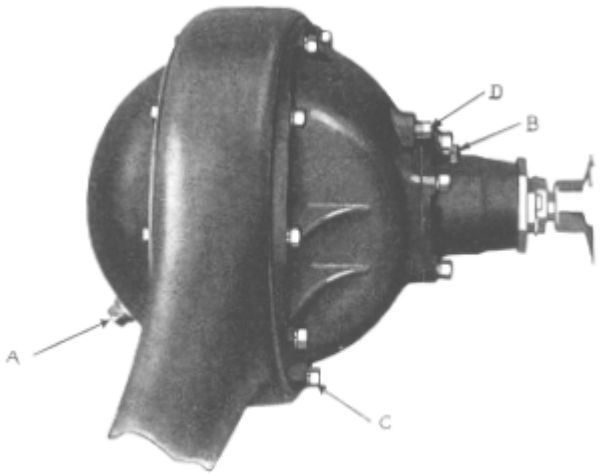


Universal Joints

The universal joints, because of the severe service to which they are put, require adequate lubrication attention. Every 2,000 miles remove plugs and fill with fiber grease.

Rear Axle

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



The pinion shaft housing should be lubricated by removing the small plug "B" and forcing differential oil into the housing by means of a grease gun. Use good rear axle or differential oil. Do not use grease. Once a year drain axle by removing lower cap screw from housing cover and refill with new oil.

Note: On cars which have no filler plug in the housing cover. screw "C" should be taken out and oil added or drained, as the case may be, until it just drips from the screw hole. Then replace screw and add 1½ pints which will bring the level up to the proper height. Oil can be added by removing the pipe plug "D."

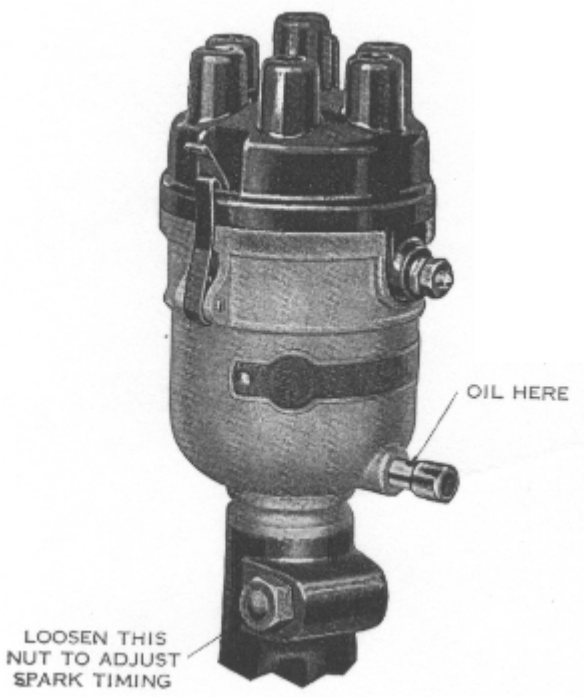
Horn

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 Units

Generator

Three or four drops of light motor oil at points designated every 750 to 1,000 miles.



Distributor

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

Starting Motor

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

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

Electrical System

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

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 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.
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 ammeter should show charge when_the car is traveling over ten miles an hour with the lights 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.

Motor Temperature Control

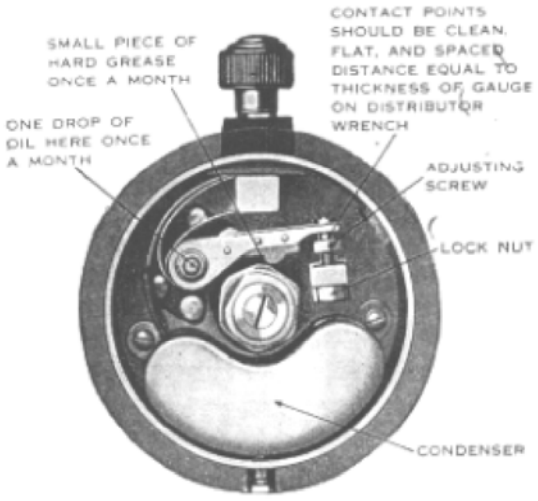
A motometer is mounted on the radiator cap, which accurately indicates the temperature prevailing. Keep the shutters adjusted so as to maintain an efficient operating temperature as indicated by the directions on the motometer dial.

Ignition Timing

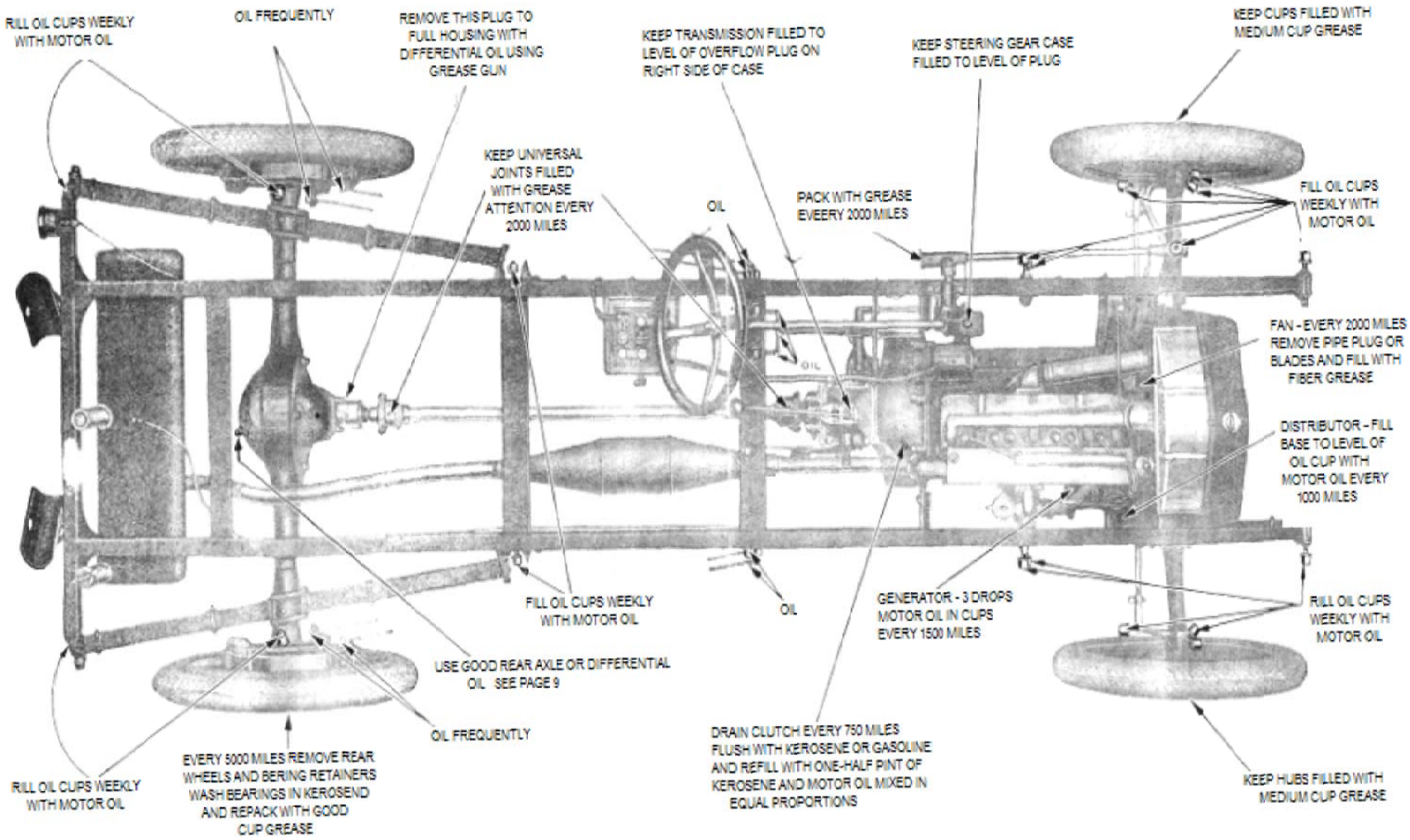
The ignition distributor is equipped with an automatic spark control device, which automatically times the ignition according to the motor speed. This renders a hand spark advance unnecessary. The initial setting at the factory is correct and should not be altered unless these parts have been removed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

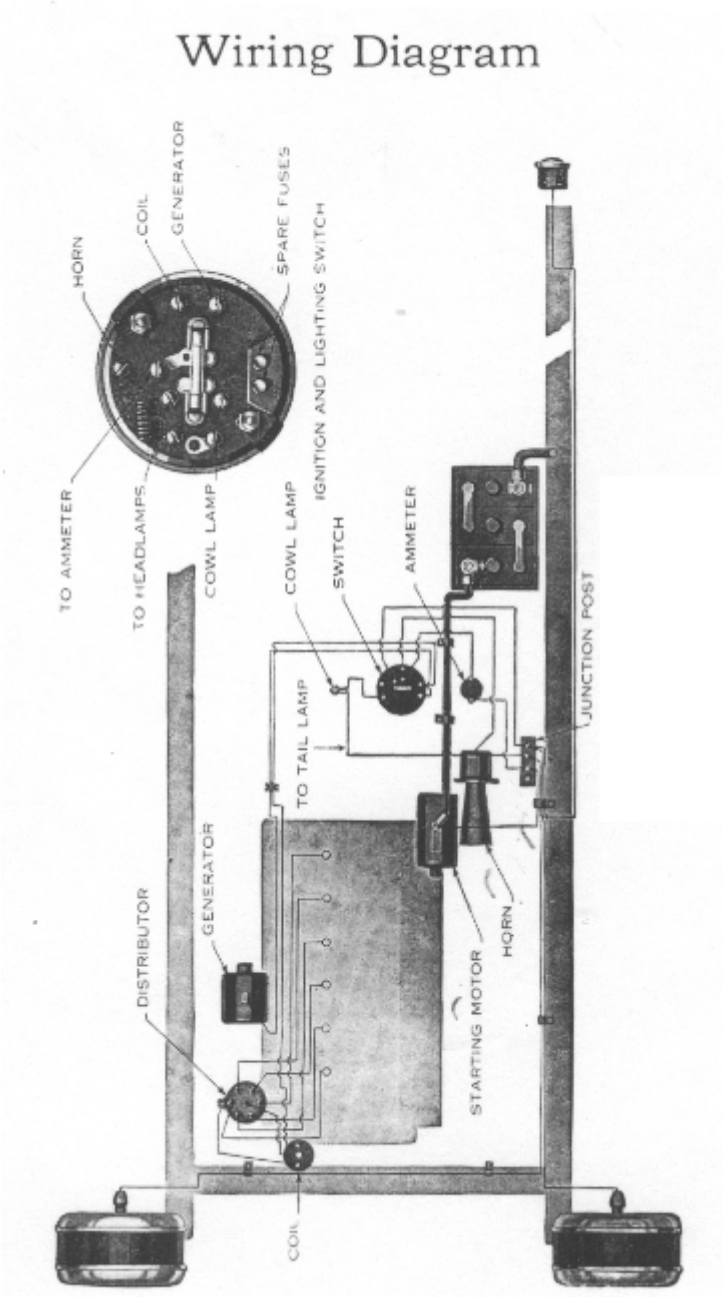
Remove the distributor cap and rotor, and see that the contact points are just separating.
To adjust, if necessary, loosen the nut on the distributor lock pin shown in the illustration on page 9, and turn the distributor slightly in the proper direction. Turn the distributor to the right, or clockwise, to retard the ignition; to the left, or anti-clockwise, to advance. Then re-tighten the lock pin nut.



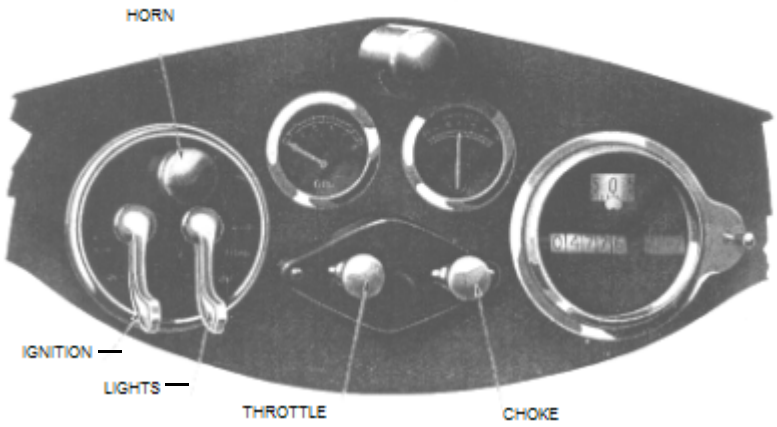
The ignition distributor requires no attention other than that pointed out in the illustration.


RILL OIL CUPS WEEKLY WITH MOTOR OIL
OIL FREQUENTLY
REMOVE THIS PLUG TO FULL HOUSING WITH DIFFERENTIAL OIL USING GREASE GUN
KEEP TRANSMISSION FILLED TO LEVEL OF OVERFLOW PLUG ON RIGHT SIDE OF CASE
KEEP STEERING GEAR CASE FILLED TO LEVEL OF PLUG
KEEP CUPS FILLED WITH MEDIUM CUP GREASE
KEEP UNIVERSAL JOINTS FILLED WITH GREASE ATTENTION EVERY 2000 MILES
OIL
PACK WITH GREASE EVEERY 2000 MILES
FILL OIL CUPS WEEKLY WITH MOTOR OIL
FAN - EVERY 2000 MILES REMOVE PIPE PLUG OR BLADES AND FILL WITH FIBER GREASE
DISTRIBUTOR - FILL BASE TO LEVEL OF OIL CUP WITH MOTOR OIL EVERY 1000 MILES
FILL OIL CUPS WEEKLY WITH MOTOR OIL
OIL
GENERATOR - 3 DROPS MOTOR OIL IN CUPS EVERY 1500 MILES
RILL OIL CUPS WEEKLY WITH MOTOR OIL
USE GOOD REAR AXLE OR DIFFERENTIAL OIL SEE PAGE 9
OIL FREQUENTLY
DRAIN CLUTCH EVERY 750 MILES FLUSH WITH KEROSENE OR GASOLINE AND REFILL WITH ONE-HALF PINT OF KEROSENE AND MOTOR OIL MIXED IN EQUAL PROPORTIONS
RILL OIL CUPS WEEKLY WITH MOTOR OIL
EVERY 5000 MILES REMOVE REAR WHEELS AND BERING RETAINERS WASH BEARINGS IN KEROSEND AND REPACK WITH GOOD CUP GREASE
KEEP HUBS FILLED WITH MEDIUM CUP GREASE

Wiring Diagram



Starting

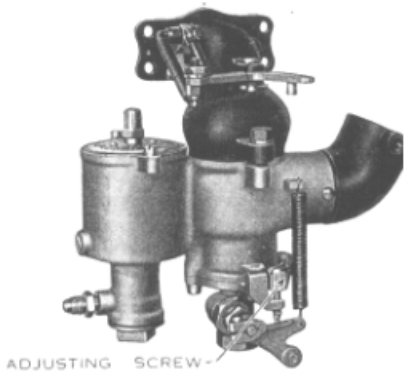


When starting, the right or choke button should be pulled all the way out, but should be returned part way immediately when the motor starts to fire.

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.

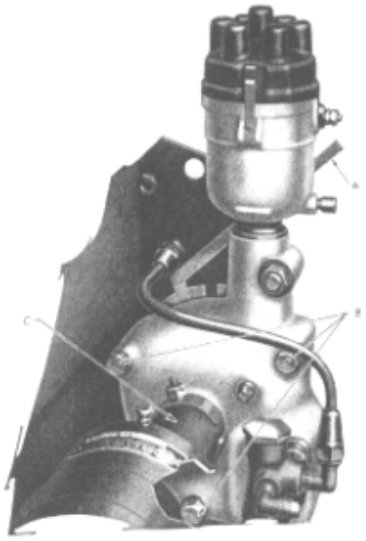
The Carburetor

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 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.

General Inspection



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 driving it is advisable to determine if the chain requires taking up. Subsequent inspections at e intervals of 4,000 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 1 " 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.

Valve Tappets

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

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

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

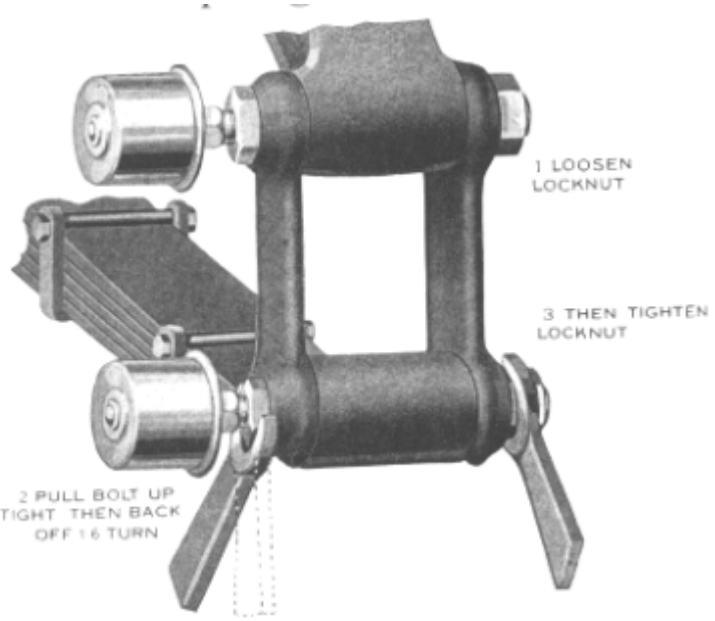
Spark Plugs

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.

Tires

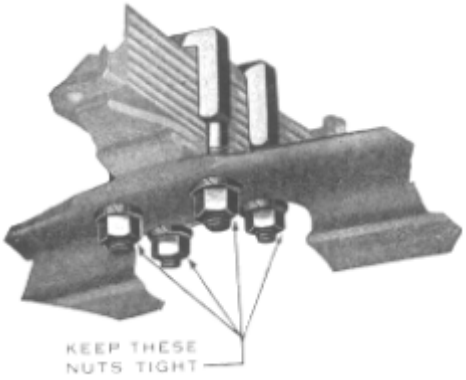
Inspect tire pressures once a week and keep them inflated to pressures recommended by tire manufacturer.

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.

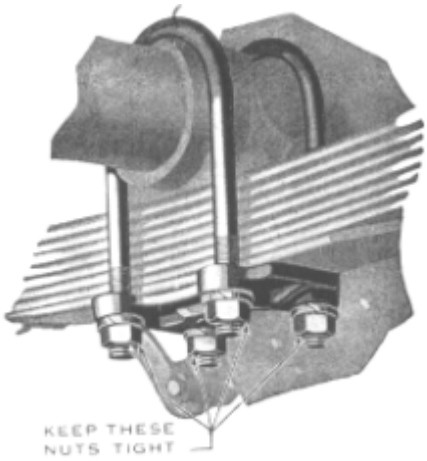
Do not tighten too much or you will interfere with the action of the springs. Follow the instructions given closely

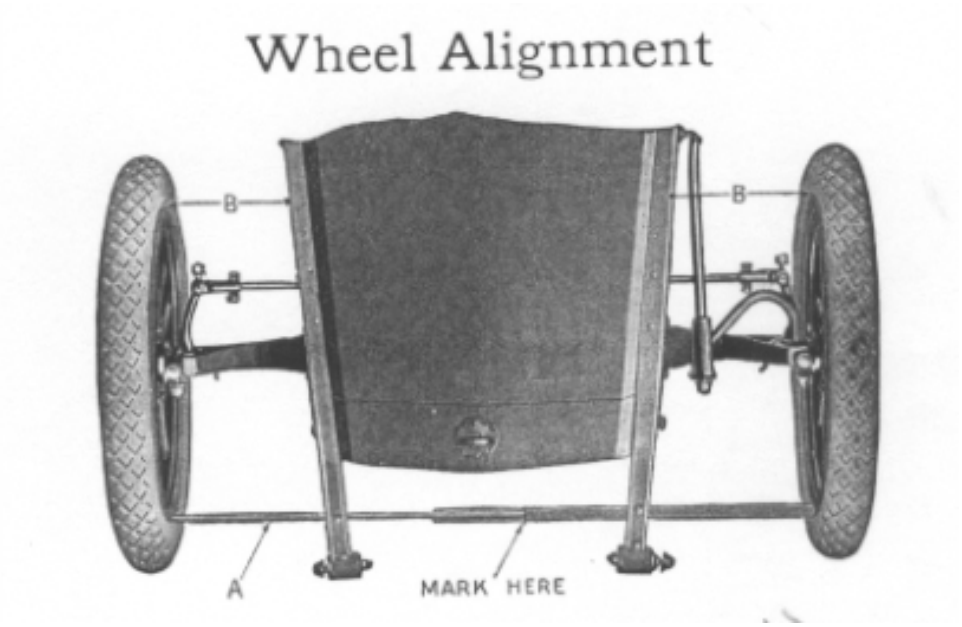


It is recommended that these clips be inspected occasionally for tightness.

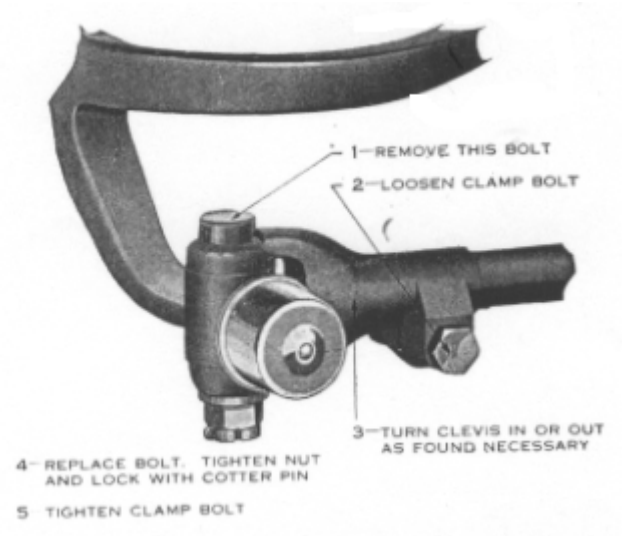
Spring Clips

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



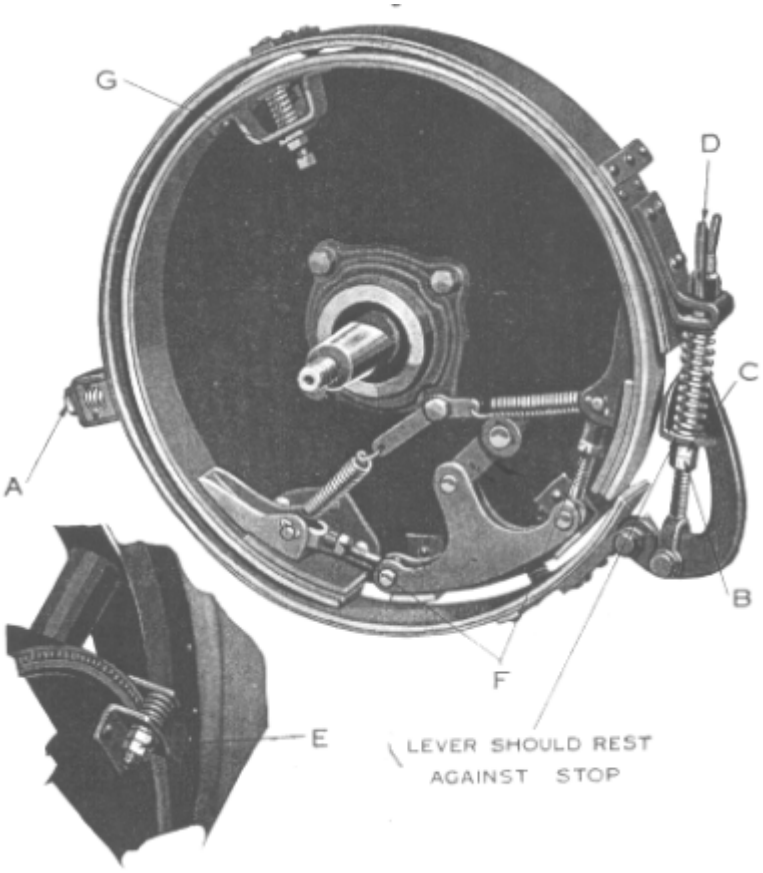


The alignment of the front wheels has a very important bearing on the life of the front tires, and on the ease of steering. The alignment can be easily checked by measuring the distance between the rims - front and rear - as shown in the illustration. The distance at "A" should be the same as the distance at "B," or range from that to one-eighth inch less.



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

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

Winter Driving

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

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----------30 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 4¾ 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.

Storage Battery

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.

Starting

First, pull fuel control button all the way out, and pull throttle control button out *no more than one-eighth inch.* The motor should then be cranked with the ignition switch on, and when it begins to fire the fuel control button should be pushed in a little and left for a few seconds. This will allow the cylinder walls to become somewhat heated. Then the fuel 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 car should not be driven except with the control button completely in.

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.

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

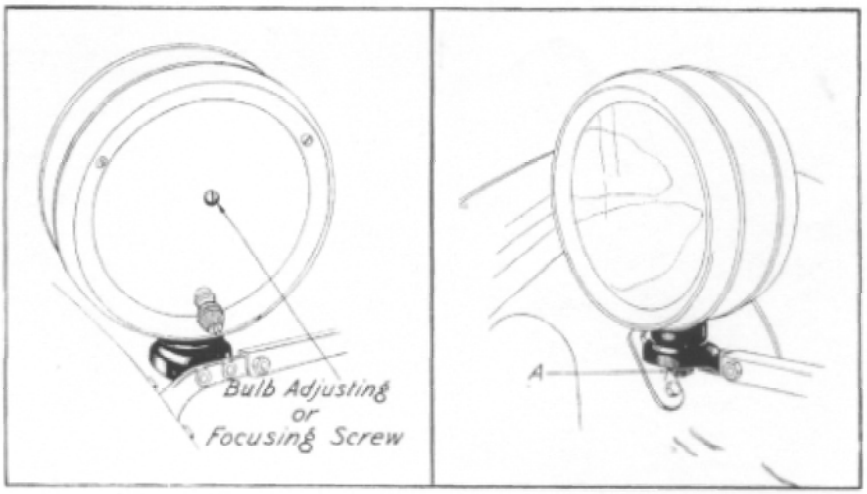
1. Driving with cold motor. Close radiator shutter until it warms up.
2. Too rich a mixture. See that choke button is not pulled out.
3. Fouled spark plugs. Clean them and set points at .025 of an inch clearance.
4. Tappets set too close together so that valves will not close. See page 16.

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 bout 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. Wash out clutch with gasoline and re-oil according to instructions on page 5. See that pedal is clear of floorboard.
2. Rear axle noise. See that differential has sufficient lubricant and be sure pinion shaft immediately forward of axle is lubricated. The oil plug can be removed and oil forced in by means of an oil gun.



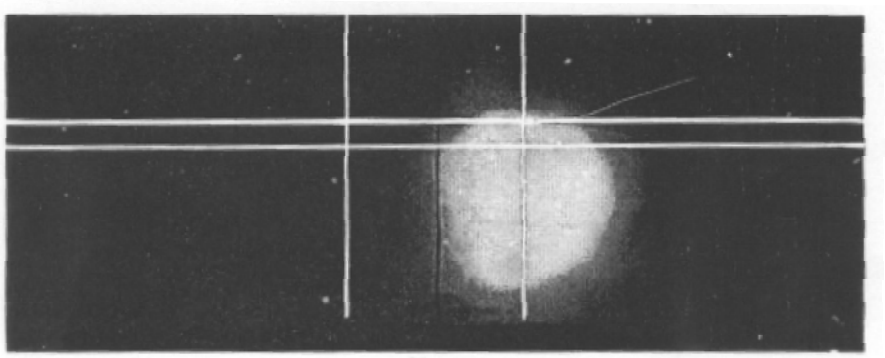
No. 1 No. 2

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 lamp 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.

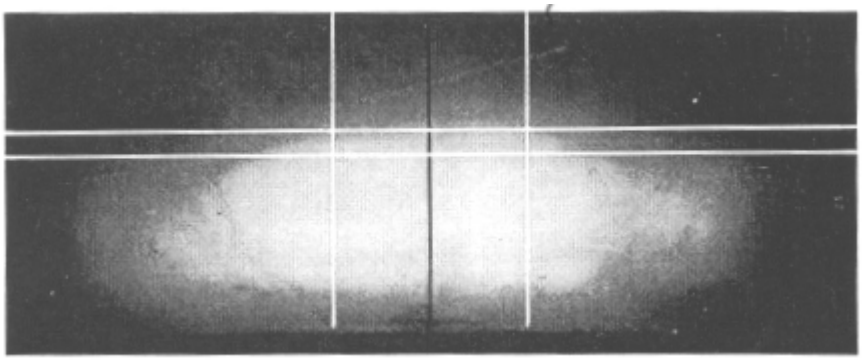


No. 3

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



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

ESSEX INFORMATION

Wheelbase
110½ inches.

Turning Radius
23 feet.

Road Clearance
8¾ inches.

Rear Axle
Gear ratio 5.6 to 1.

Tires
30 x 4.95 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
1¾ 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 50° after lower dead center; exhaust opens 55' before lower dead center, closes 8° after upper dead center.

Oil Reservoir and Troughs
Capacity 5 quarts 1 pint; reservoir only 5 quarts.

Clutch
One-half pint, equal portions motor oil and kerosene. Clearance between pedal and toe board 3 8 of an inch.

Transmission
F ill 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, 54-7/8 inches long, 2 inches wide.

Spring Bolts
58 inch diameter.

Brakes
Drums 14 inches inside diameter, internal brakes l½" inches wide, external brakes 1¾ inches wide.

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

Lamp Bulbs
Headlight, 6-volt, 21-candlepower nitrogen, single contact: tail and instrument lights, 3-4 volt, 2-candlepower, single contact; stoplight, 6-volt, 15-candlepower, single contact.