

Reference Book



Emblem of Satisfaction

1923

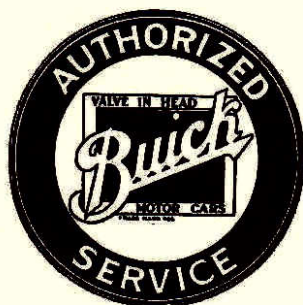
SIX CYLINDER SERIES

23-6-41	5 Pass. Touring Sedan
23-6-44	- - 2 Pass. Roadster
23-6-45	- 5 Pass. Touring Car
23-6-47	- - - 5 Pass. Sedan
23-6-48	- - - 4 Pass. Coupe
23-6-49	- 7 Pass. Touring Car
23-6-50	- - - 7 Pass. Sedan
23-6-54	3 Pass. Sport Roadster
23-6-55	4 Pass. Sport Touring

BUICK MOTOR COMPANY

FLINT, MICHIGAN, U. S. A.

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NOTICE

This book is not published to instruct the car owner how to assemble or disassemble his car but it is placed at the disposal of the owners and operators of Buick six cylinder motor cars for the purpose of conveying such specific and intelligent information as will enable them to derive the maximum of service.

Like any other fine piece of machinery, an automobile requires a certain amount of regular attention in regard to lubrication and adjustment, to keep it operating at its highest efficiency.

It is quite impossible to compile instructions sufficiently clear to warrant a novice attempting all of the adjustments and inspection which the car requires.

The information in this book is intended to familiarize the owner or driver with the mechanical details of his car so that he can give it attention when necessary, but in case of an accident requiring repair or replacements, it is expected that the owner will call on the nearest Buick Dealer or service station for expert attention.

Repair parts or any additional information may be obtained from the nearest Buick Dealer or from any of the Buick Branches and Distributors listed on page three. In all correspondence concerning the car be sure to give Model and Serial number. The Model will be found stamped on a plate on the front of the dash under hood. Serial number (see oval plate on left side of frame, beneath front fender).

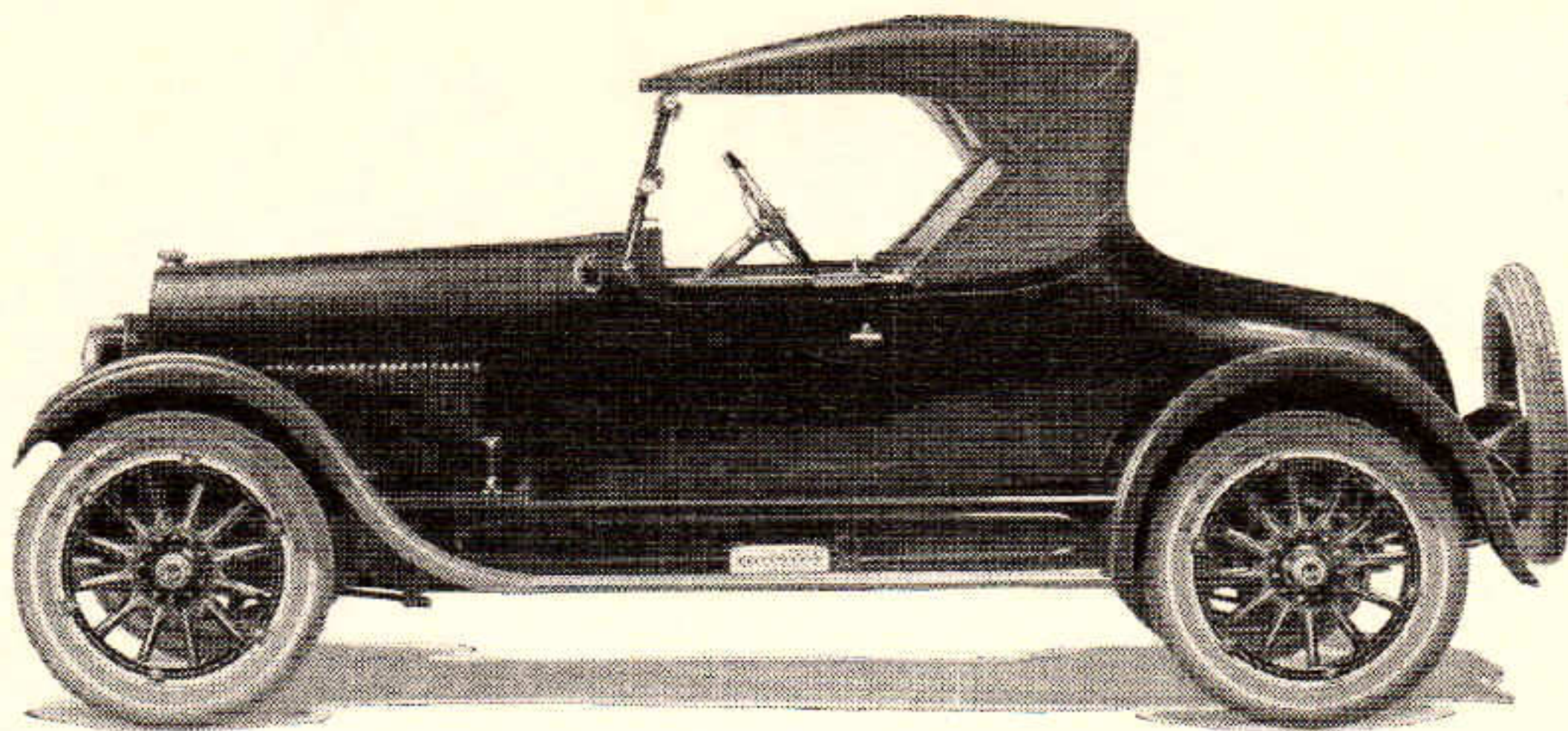
BUICK MOTOR COMPANY

Flint, Mich., U. S. A., December 1st, 1922.

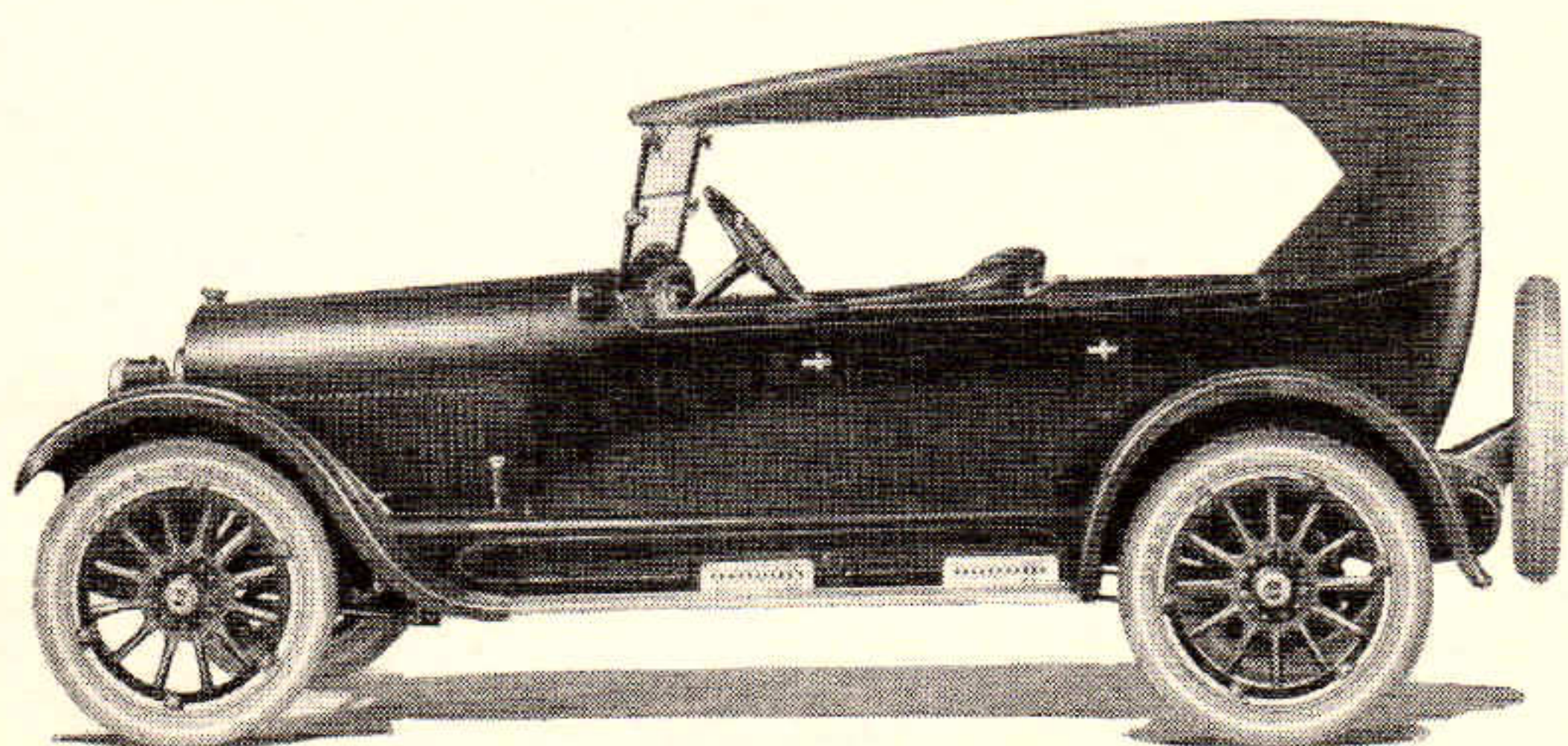
BUICK BRANCHES AND DISTRIBUTORS

Atlanta.....	Buick Motor Company, 241-243 Peachtree Street
Battle Creek.....	Buick Motor Company, 82-84 West Main Street
Boston.....	The Noyes-Buick Company, 857 Commonwealth Ave.
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Cleveland.....	The Ohio-Buick Co., Buick Bldg., E. 19th, near Euclid
Dallas.....	Buick Motor Co., 1420-24 Young Street
Denver.....	McFarland Auto Company, Lincoln St. and 7th Ave.
Detroit.....	Buick Motor Co., General Motors Bldg., West Grand Blvd.
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Flint.....	Buick Motor Company, 602-4 N. Saginaw Street
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Minneapolis.....	Pence Automobile Co., Hennepin Ave. and 8th St.
New York City.....	Buick Motor Co., Broadway at 55th St.
New York City.....	General Motors Export Company, 224 West 57th St.
Oklahoma City.....	Buick Motor Co., 504-506 N. Broadway
Philadelphia.....	Buick Motor Company, 900 N. Broad Street
Pittsburgh.....	Buick Motor Company, Baum Blvd. and Euclid Ave.
Rochester, N. Y.....	C. L. Whiting, 342 East Avenue
Saginaw.....	Garber-Buick Company, 208-218 N. Washington Avenue
St. Louis, Mo.....	Vesper-Buick Auto Co., Grand Ave. at Lindell Blvd.
Salt Lake City.....	Randall-Dodd Auto Co., 47-53 South Second St. East
San Antonio, Texas.....	Buick Motor Company, 300-2 Avenue C
San Francisco.....	Howard Auto Company, 1601 Van Ness Avenue
Seattle, Wash.....	Eldridge-Buick Co., Eleventh Ave. and East Union
Washington, D. C.....	Buick Motor Co., 1021 Fourteenth St. N. W.

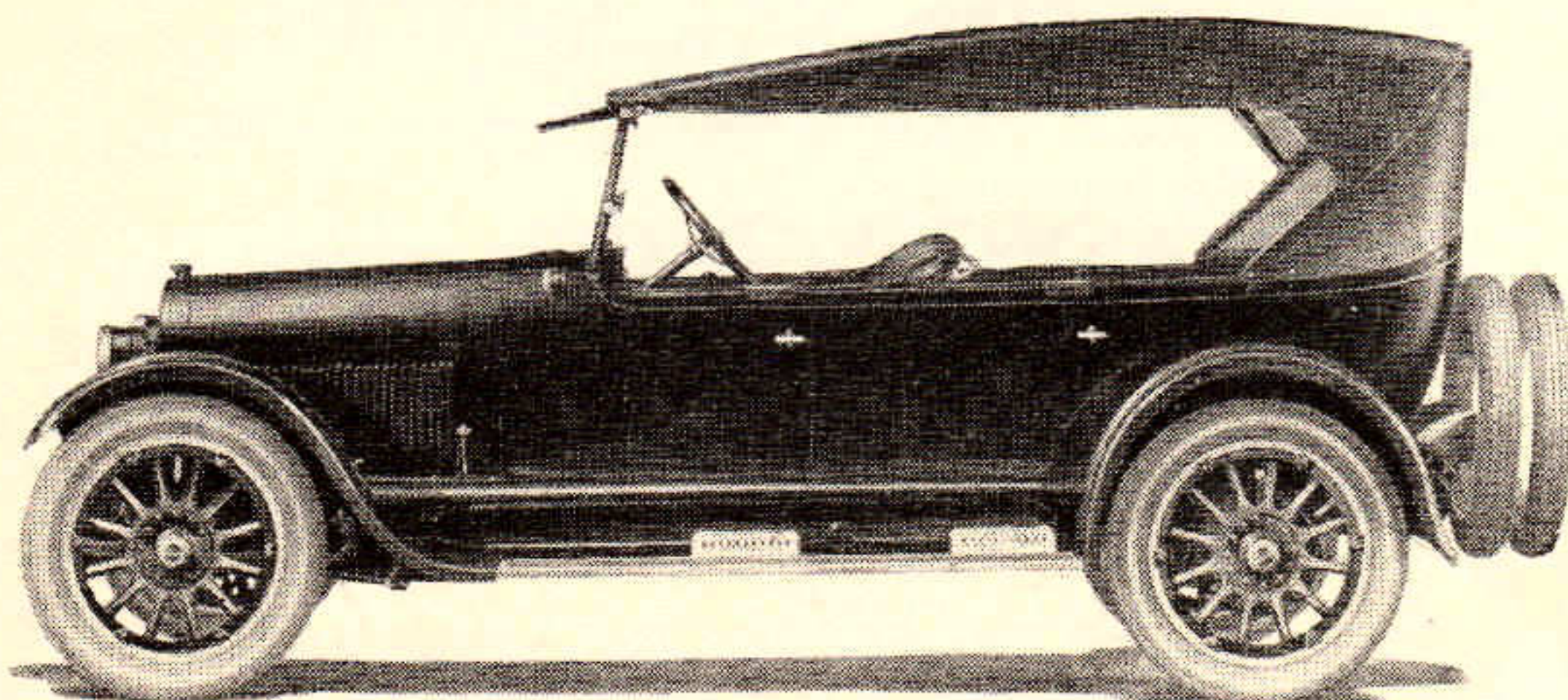
DEALERS EVERYWHERE



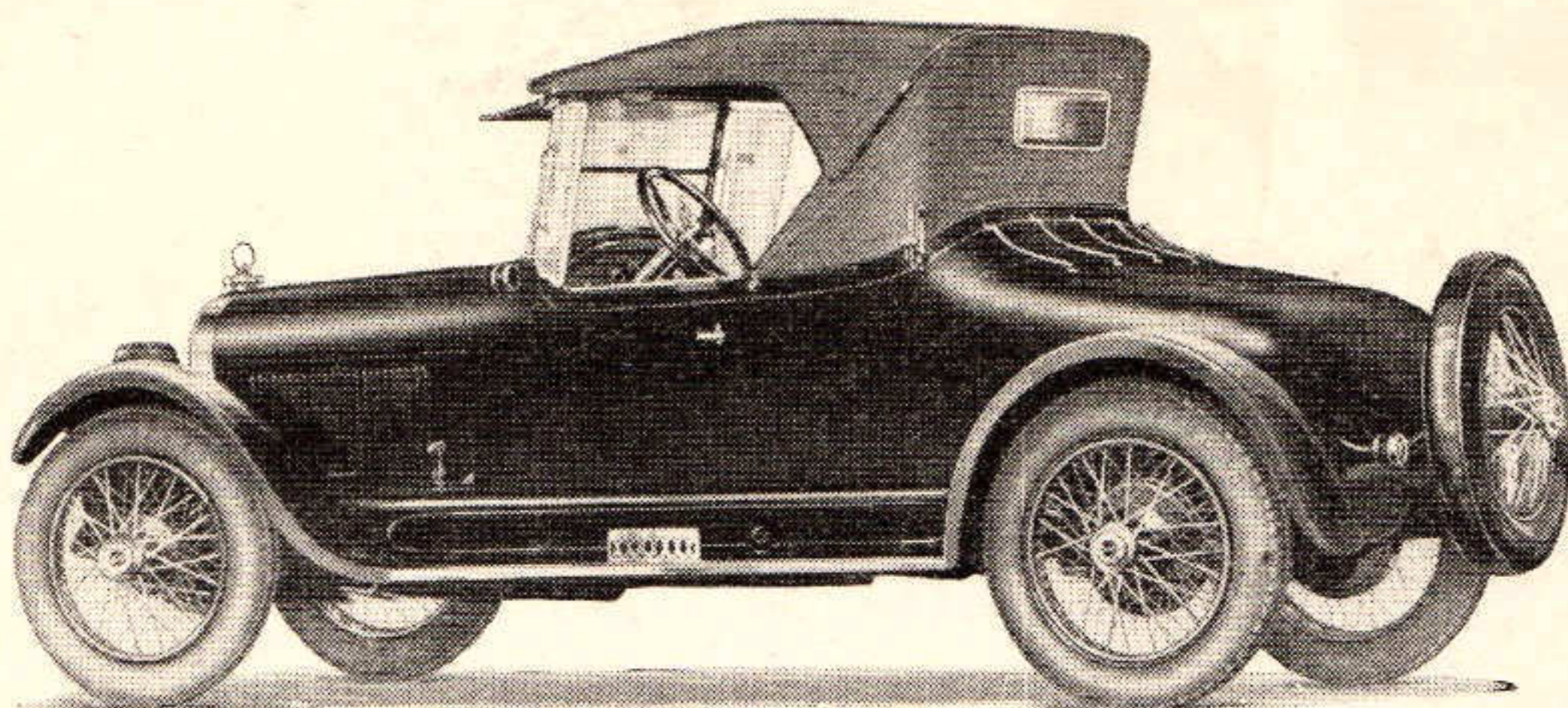
Series 23-Six-44—Two Passenger Roadster



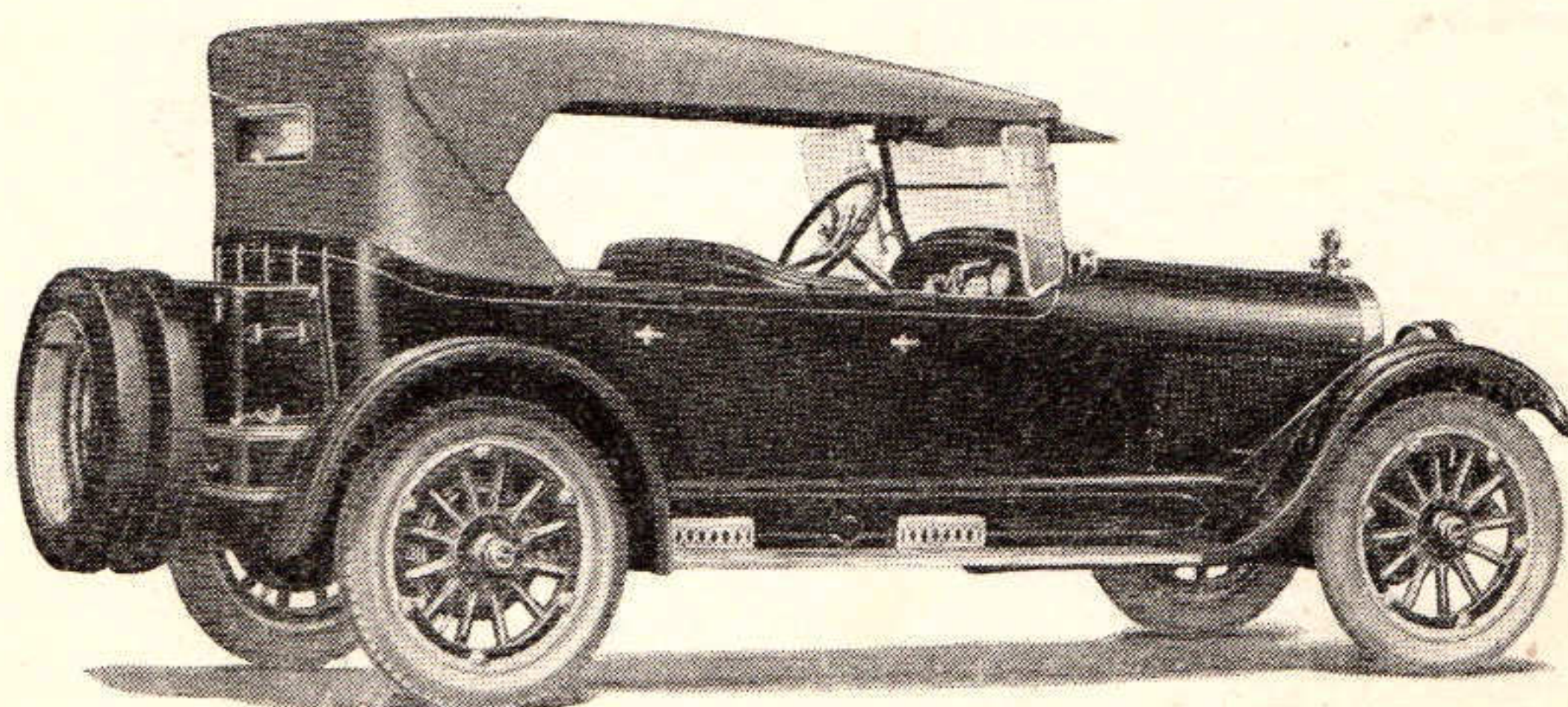
Series 23-Six-45—Five Passenger Touring Car



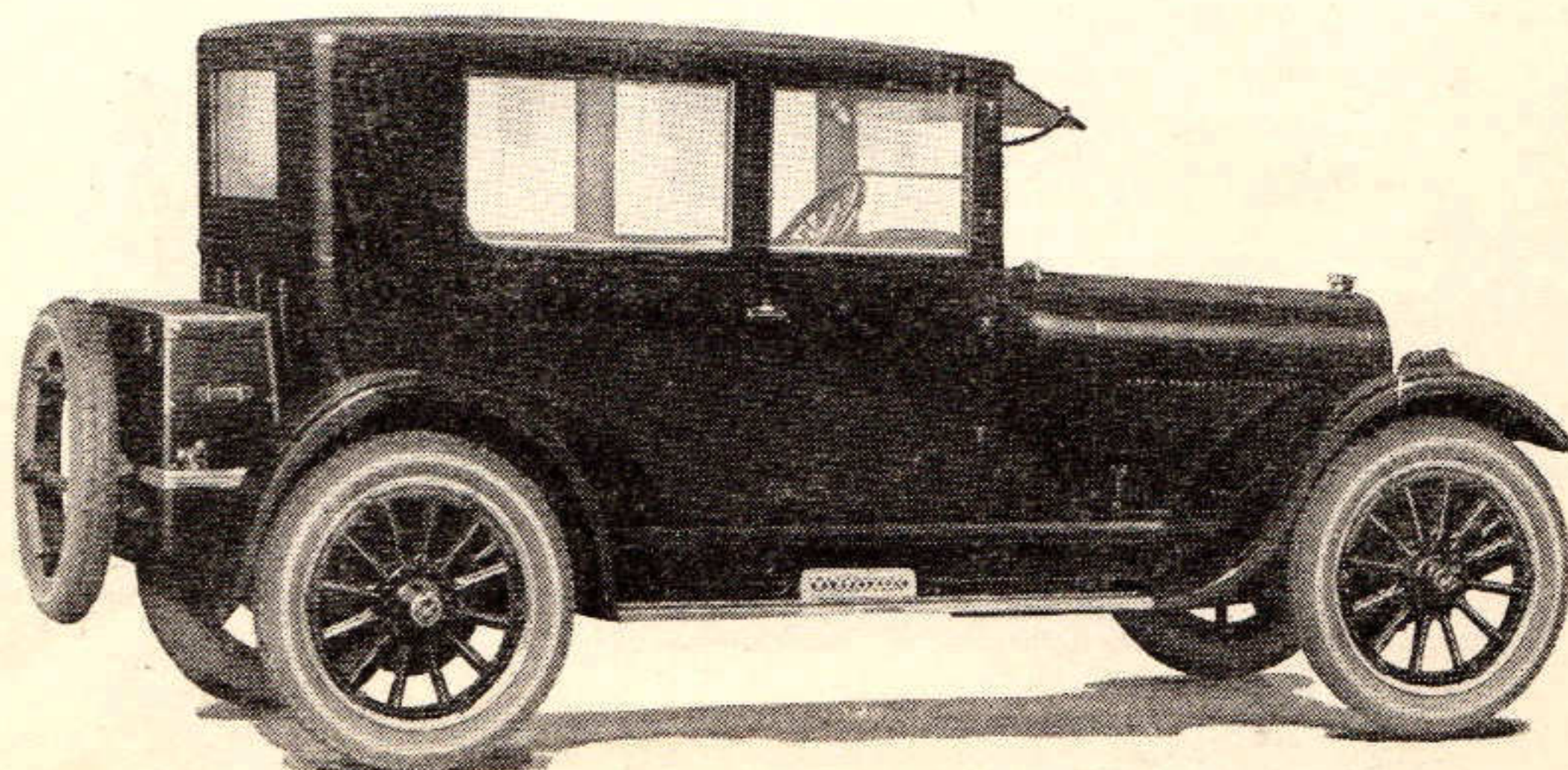
Series 23-Six-49—Seven Passenger Touring Car



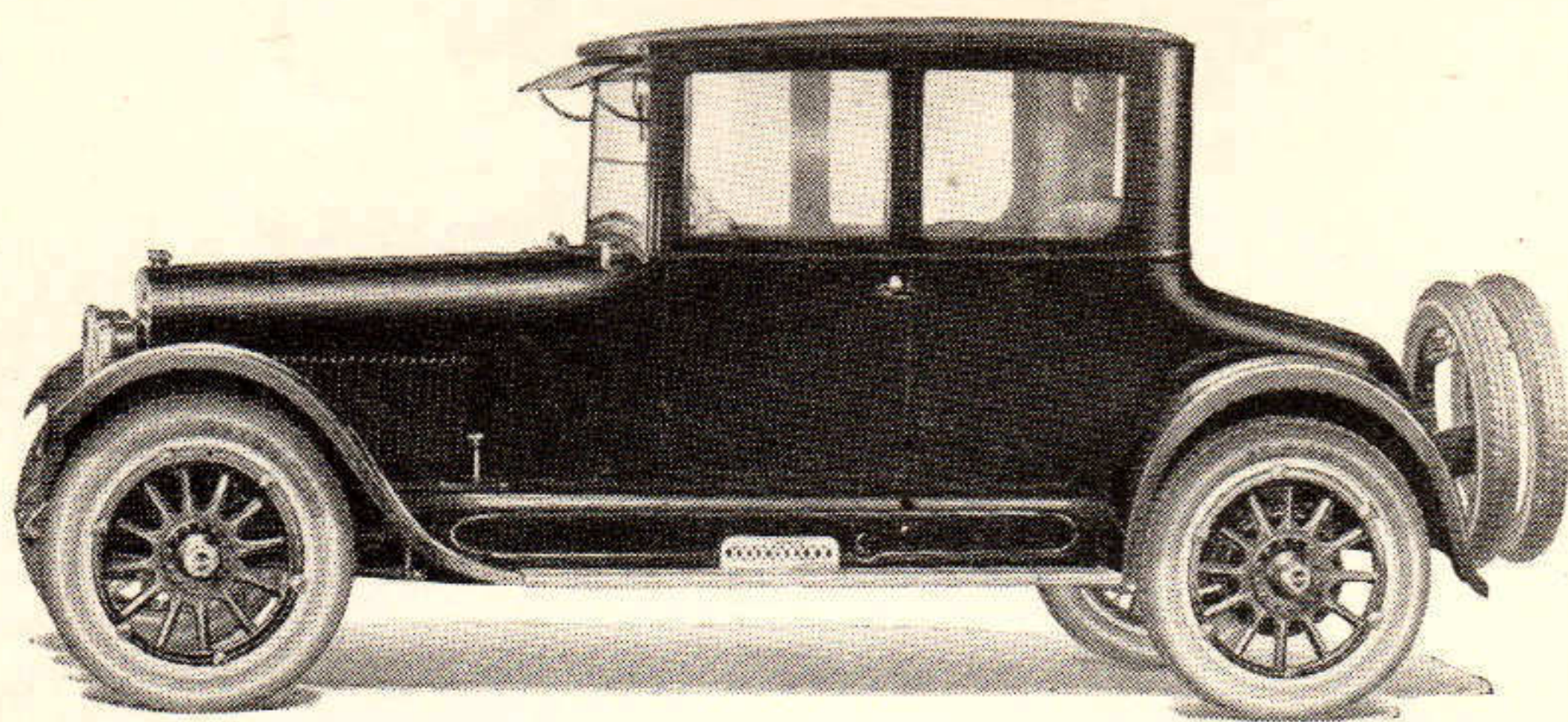
Series 23-Six-54—Three Passenger Sport Roadster



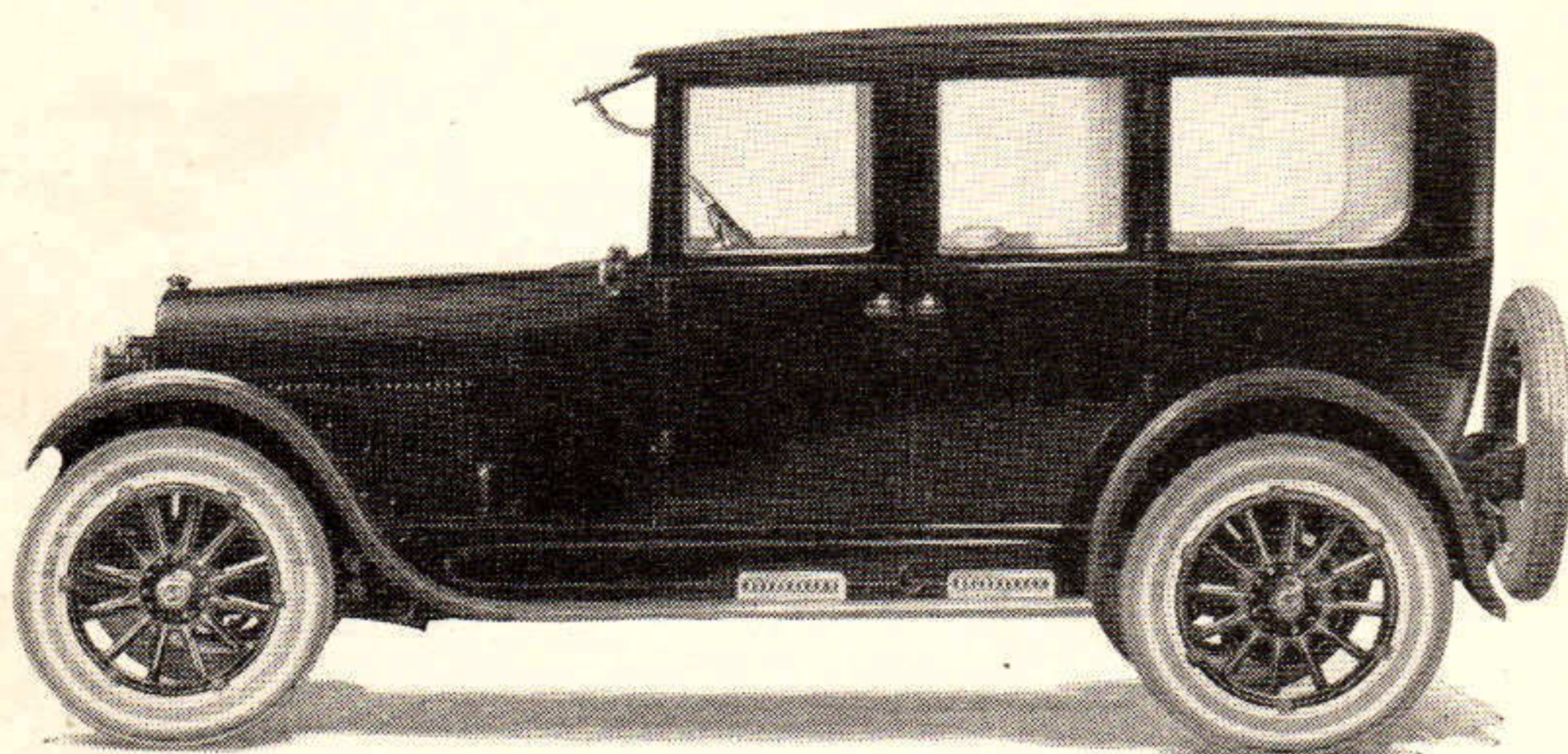
Series 23-Six-55—Four Passenger Sport Touring



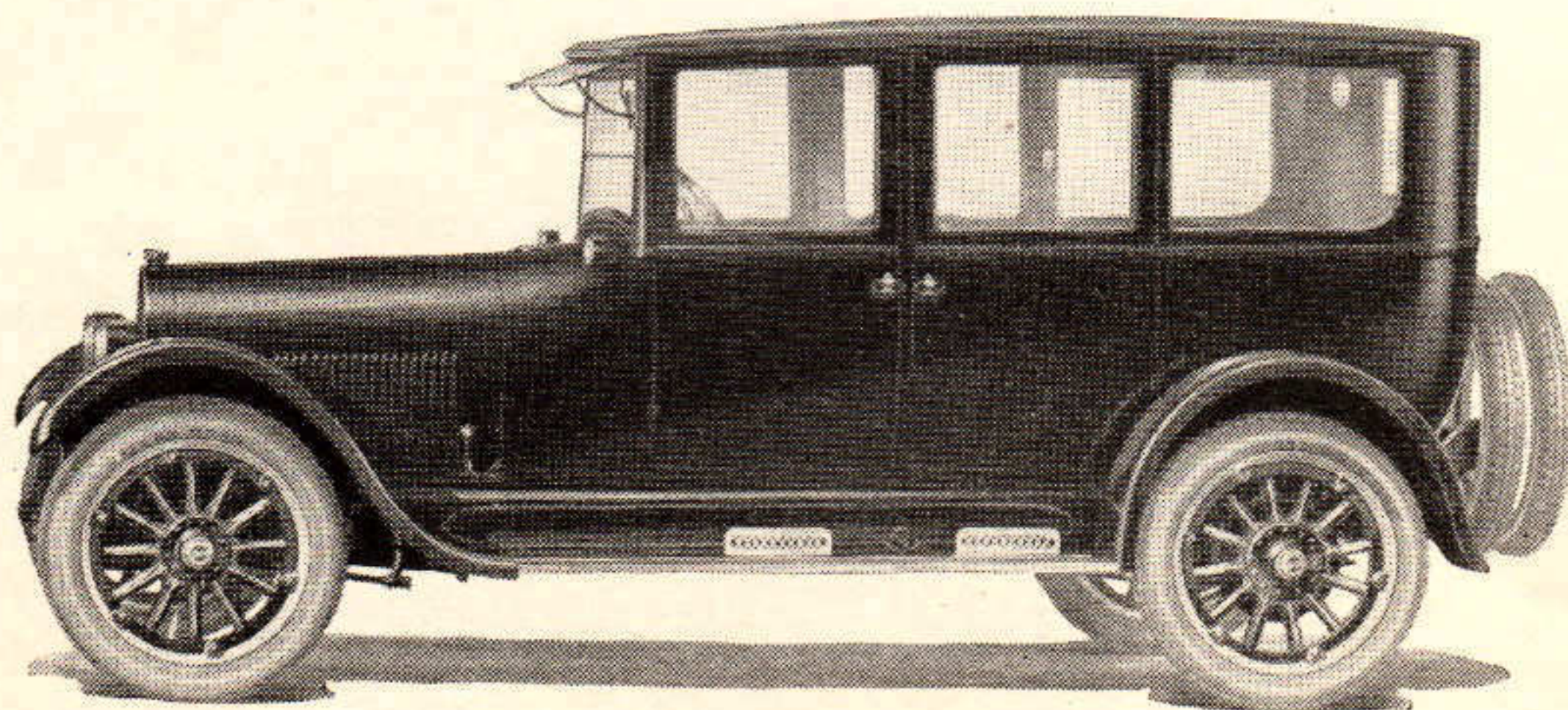
Series 23-Six-41—Five Passenger Touring Sedan



Series 23-Six-48—Four Passenger Coupe



Series 23-Six-47—Five Passenger Sedan



Series 23-Six-50—Seven Passenger Sedan

LICENSE APPLICATIONS

In those states or territories requiring license under a power rating, the following information will be necessary:

Model—(See plate on the front of the dash, under the hood.)

Serial Number—(See oval plate on left side of frame, beneath front fender.)

Engine Number—(See number stamped on left side of crank case near front oil filler tube.)

Number of cylinders—Six.

Diameter of bore—3.375 inches.

Stroke—4.50.

S. A. E. or N. A. C. C. horsepower rating—27.3 horsepower.

Shipping Weight—

23-6-41—3380 Pounds

23-6-49—3290 Pounds

23-6-44—2940 Pounds

23-6-50—3670 Pounds

23-6-45—3085 Pounds

23-6-54 (Wood Wheels)—3140 Pounds

23-6-47—3475 Pounds

23-6-54 (Wire Wheels)—3200 Pounds

23-6-48—3440 Pounds

23-6-55 (Wood Wheels)—3285 Pounds

23-6-55 (Disc Wheels)—3330 Pounds

THE BUICK NINETY-DAY GUARANTEE

The automobiles furnished by the Buick Motor Company are warranted to be free from defects in material and workmanship under normal use and service, our obligation under this guarantee being limited to making good at our factory any part or parts thereof, which shall within ninety (90) days after delivery 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 guarantee being expressly in lieu of all other guarantees expressed or implied, and of all other obligations or liabilities on the part of the Buick Motor Company, and we neither assume, nor authorize any person to assume for us any liability in connection with the sale of Buick automobiles.

This guarantee shall not apply to any Buick automobiles, which shall have been repaired or altered outside of our factory in any way so as, in our judgment, to affect their stability or reliability, nor which have been subject to misuse, negligence or accident.

The Buick Motor Company makes no guarantee whatever in respect to tires, rims, ignition apparatus, horns or other signalling devices, starting devices, batteries, speedometers or other trade accessories, inasmuch as they are usually guaranteed separately by their respective manufacturers.

The Buick Motor Company reserves the right to make changes in design or add any improvements on Buick cars at any time without incurring any obligations to install same on cars previously purchased.

BUICK MOTOR COMPANY,
Flint, Michigan.

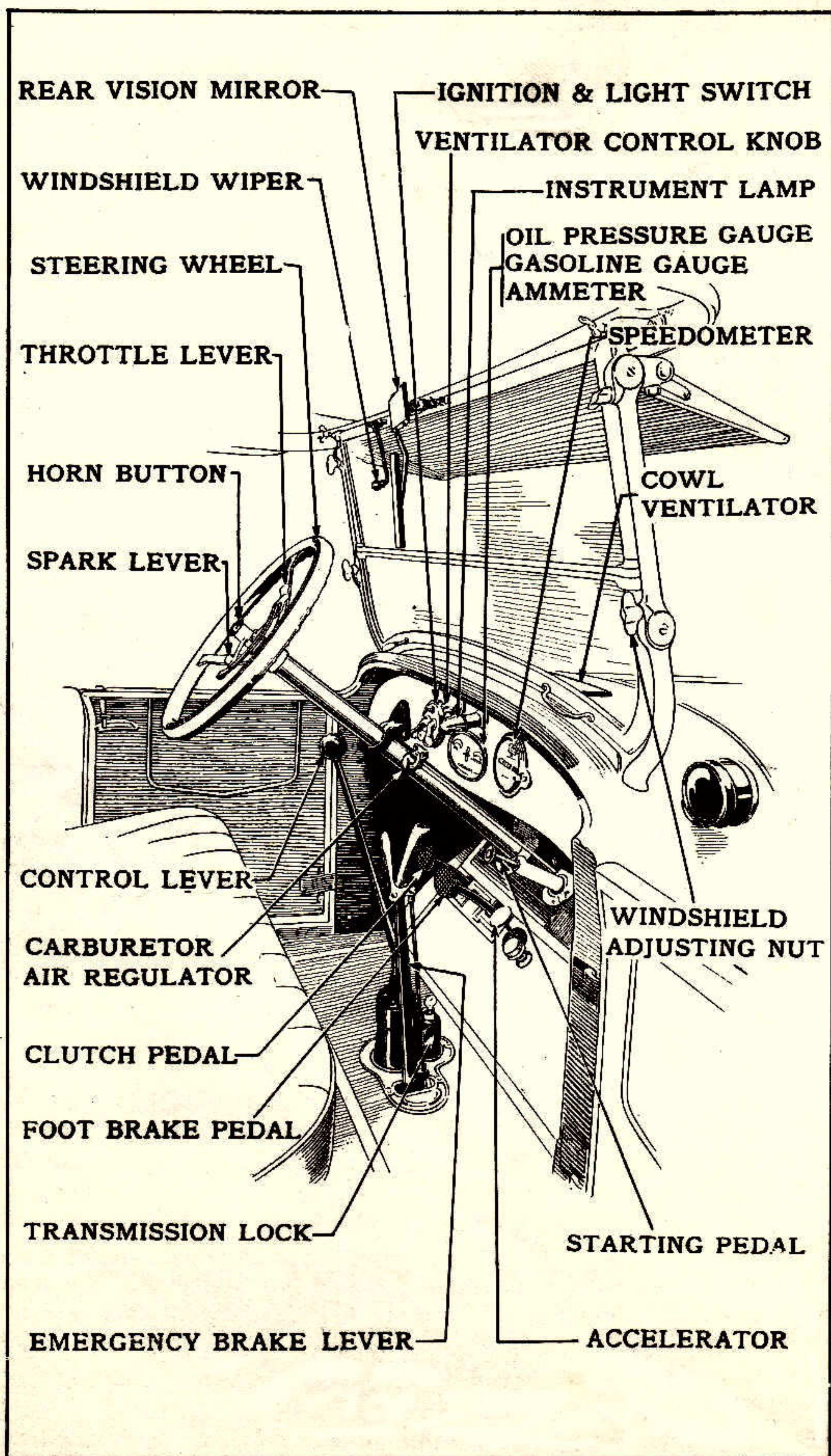


Plate No. 1
View of Model 23-6-49
Driving Compartment

OPERATION

Before attempting to drive the car, make sure it is ready for the road. See that there is gasoline in the tank at the rear; that the radiator is filled to the level of the overflow with clean water, or with an anti-freezing mixture in winter; that the engine crank case is filled with oil to the place indicated by "FULL" on the measuring stick; that the storage battery is properly connected; that the gasoline shutoff cock between the vacuum tank and the carburetor is fully open; and that the car is provided with a driving license, that the fan is working and that the tires are properly inflated. If the car has been standing idle for several days, it may also be necessary to prime the vacuum tank by removing the pipe plug in the cover and introducing a pint or so of gasoline. Be sure to screw the plug in tight when replacing it.

TO START THE ENGINE

See that the ball-topped control lever stands in neutral position, where it is free to move sideways. Set spark and throttle levers on the steering wheel about one-third of the way down the sector. Unlock the switch and turn the ignition lever on switch to point marked "On." Turn air regulator to "choke" position, hold the clutch pedal out with left foot and press the starting pedal.

Pressing the starting pedal sets the electric starter in motion and meshes the gears on its shaft with the teeth in the fly wheel to crank the engine.

If the engine does not start within thirty seconds, release the starting pedal, examine all controls to see that they are properly set and try again. In winter, when the engine is very cold, it will require more cranking, but in ordinary weather the engine should start on the first few turns.

Never hold the starting pedal down for any length of time without stopping to examine the position of the switch, levers, etc., as failure to start is generally an indication that something is wrong and a prompt investigation should be made.

RUNNING POSITION

As soon as the engine starts, turn air regulator to "Hot" position; close throttle and advance spark about half way down the sector until motor runs slowly and evenly. The automatic spark advance will now take care of the spark position for all ordinary driving. The foot accelerator can be used to control the speed of the engine. As the engine warms up, the air regulator can be adjusted between "hot" and "cold" positions to obtain even running at all speeds.

When taking long drives adjust air regulator to "cold" except in extremely cold weather.

Never allow the engine to run any length of time with the air regulator turned to "choke," as this gives an excessively rich mixture and uses an abnormal amount of gasoline and causes crank case dilution.

HAND CRANKING

If the storage battery should be run down or the starter out of order the engine may be started by hand cranking. To crank by hand set switch and air regulator as before. Bring throttle lever one-third of the way down on the sector and move spark lever slightly away from topmost position. Remove cap from starting crank below radiator and attach hand crank. Push in on crank until starting clutch is engaged, and turn engine over by pulling up sharply on the crank.

Never try to start an engine by pushing down on the starting crank as a back-fire is likely to result in a broken arm.

TO START THE CAR

To start the car first see that the transmission is not locked and the engine running slowly and evenly, grasping the steering wheel firmly with the left hand. With the right hand, release the emergency brake lever, and push it as far forward as it will go. Place the left foot on the clutch pedal, and press down firmly, holding it in this position, with the right hand, shift the ball-topped lever first to the right, then back.

LOW SPEED

The gearset is now in the first or "low speed" position. Gently release the pressure of the left foot on clutch pedal and at the same time press down slightly on the accelerator pedal with the right foot to increase the speed of the engine. As the clutch takes hold, the car will commence to move forward. Continue to press down on the accelerator pedal until the car gains some headway before attempting to change to a second speed.

SECOND SPEED

When the car is well under way, disengage the clutch, at the same time releasing the pressure on the accelerator pedal to prevent the engine racing, and with the right hand shift the ball-topped control lever forward and to the left, then forward again. Engage the clutch immediately and accelerate the engine as before. The car is now in second or intermediate speed.

HIGH SPEED

Again accelerate the engine until the car is moving forward rapidly; disengage the clutch and release the pressure from the accelerator pedal as before, quickly shifting the control lever straight back as far as it will go, and again engage the clutch. The car is now in high speed which is the normal driving position.

Do not try to start the car with gears in "high or second position" as it places a severe strain on the driving parts and also makes it necessary to slip the clutch, which shortens its life.

SHIFTING GEARS

In shifting from a lower to a higher gear, as in getting under way, it is important that the speed of the car be accelerated just before making the change, so that the two gears that are to be meshed together will be running at approximately the same speed. The proper handling of the clutch pedal and accelerator so as to make the engine "pick up" its load quickly, and at the same time prevent it from "racing" when the clutch is released, requires considerable practice.

In changing gears, and especially when starting the car from a standstill, always let the clutch pedal come back gently. If the foot is suddenly removed from the pedal it will let the clutch take hold with a violent jerk.

In shifting gears, from one speed to another, the motion should be made firmly and without hesitation. If the gears fail to mesh correctly the first time, release the pressure on the control lever and clutch pedal for a moment and try again. With a little practice the various changes can be made easily and without noise.

SHIFTING DOWN

Shifting from a higher to lower gear, or "shifting down," is accomplished in the same way as shifting up; that is, by releasing the clutch, moving the control lever quickly to the proper position, and engaging the clutch. It will be found much easier to shift gears from higher to lower speeds if clutch pedal is pressed down only enough to release clutch.

DRIVING

Ordinarily the car is driven in high or third speed and first and second speeds are used only for starting. Occasionally, however, a steep hill, muddy or sandy road will be encountered which requires more power, and since it is for this purpose that the lower speeds are provided, the driver should not hesitate to use them.

The Buick will climb practically any hill "on high," but after the driver has demonstrated this to his satisfaction, it is suggested that he make use of a lower gear which will not cause so great a strain on his engine.

STEERING

Steering is largely a matter of practice. Drive slowly at first. Do not attempt to turn corners too sharply or too quickly. Always slow down or stop before crossing railroad and car tracks. In a short time a driver gets the "feel" of his car, and then steering becomes almost an involuntary action; so that all the attention can be concentrated on the road. Learn

to watch the road from 100 to 300 feet ahead of the car, depending on the speed. In this way there is always time to prepare for obstacles before the car reaches them.

HANDLING THE SPARK

Advance spark lever downward until it comes to the lower arrow point on sector marked "Driving Range." This gives the correct position for all ordinary driving, the automatic spark advance, which is incorporated in the ignition system, will control the spark position without further attention on the part of the driver. It is arranged to automatically advance or retard the spark to the proper position, depending on the speed of the engine, but as the car slows down, as in ascending a steep hill or negotiating a heavy road, it is necessary to retard the spark by hand until the engine runs smoothly and without knocking.

Never allow the engine to run for any length of time with the spark retarded, as such practice only consumes an abnormal amount of gasoline, and has a tendency to overheat the engine.

TO STOP THE CAR

To stop the car slow down the engine by removing the pressure from the accelerator pedal, at the same time making sure that the steering gear throttle lever is in its topmost position. If the car still retains too much speed apply the service brake by pressing the brake pedal with the right foot gradually until it slows down to the desired speed; then release the clutch, shift the control lever to neutral, remove the foot from the clutch pedal and apply the service brake until the car is brought to a stop. You can save your brakes by allowing the motor to act as a brake. This is accomplished by leaving the clutch in and with the gas shut off the car will have to drive the motor, which takes considerable energy and slows the car down noticeably.

TO REVERSE

To reverse the motion of the car, or drive backwards, first come to a full stop. Release clutch and shift control lever to the right and forward. Engage clutch and accelerate engine as before.

Never attempt to reverse the motion of the car before it has come to a complete stop. The car cannot move in two directions at the same time and the result is certain to be serious if this is attempted.

EMERGENCY STOPS

If for any reason it should become necessary to stop the car suddenly, press both pedals and at the same time pull back on the emergency brake lever with the right hand. The car should not be stopped suddenly except in an emergency as such stopping is extremely hard on the tires and strains the entire mechanism. A good rule is to use brakes and clutch as little as possible and endeavor to control the car with the accelerator.

TO STOP THE ENGINE

To stop the engine turn ignition lever on switch to position marked "OFF" and at the same time open the hand throttle to the starting position. This will allow the engine to take in a full charge of gas before coming to rest and leave it ready for a quick start next time; also move the spark lever to the starting position and set the emergency brake before leaving the car.

Form the habit of locking the ignition switch and transmission when leaving car standing alone. Never leave car with engine running, as this is a useless waste of gasoline and there is always a chance that children or others may throw the transmission gears into mesh.

STARTING ON A GRADE

It sometimes becomes necessary to start the car on an up-grade. To accomplish this, start engine as before, then release emergency brake and hold car with service brake while shifting gears. Now accelerate engine with the hand throttle while gradually releasing pressure on both pedals together. It takes considerable practice in operating the clutch and brake pedals to make the one take hold while releasing the other without "stalling" the engine, but it can be done with a little practice.

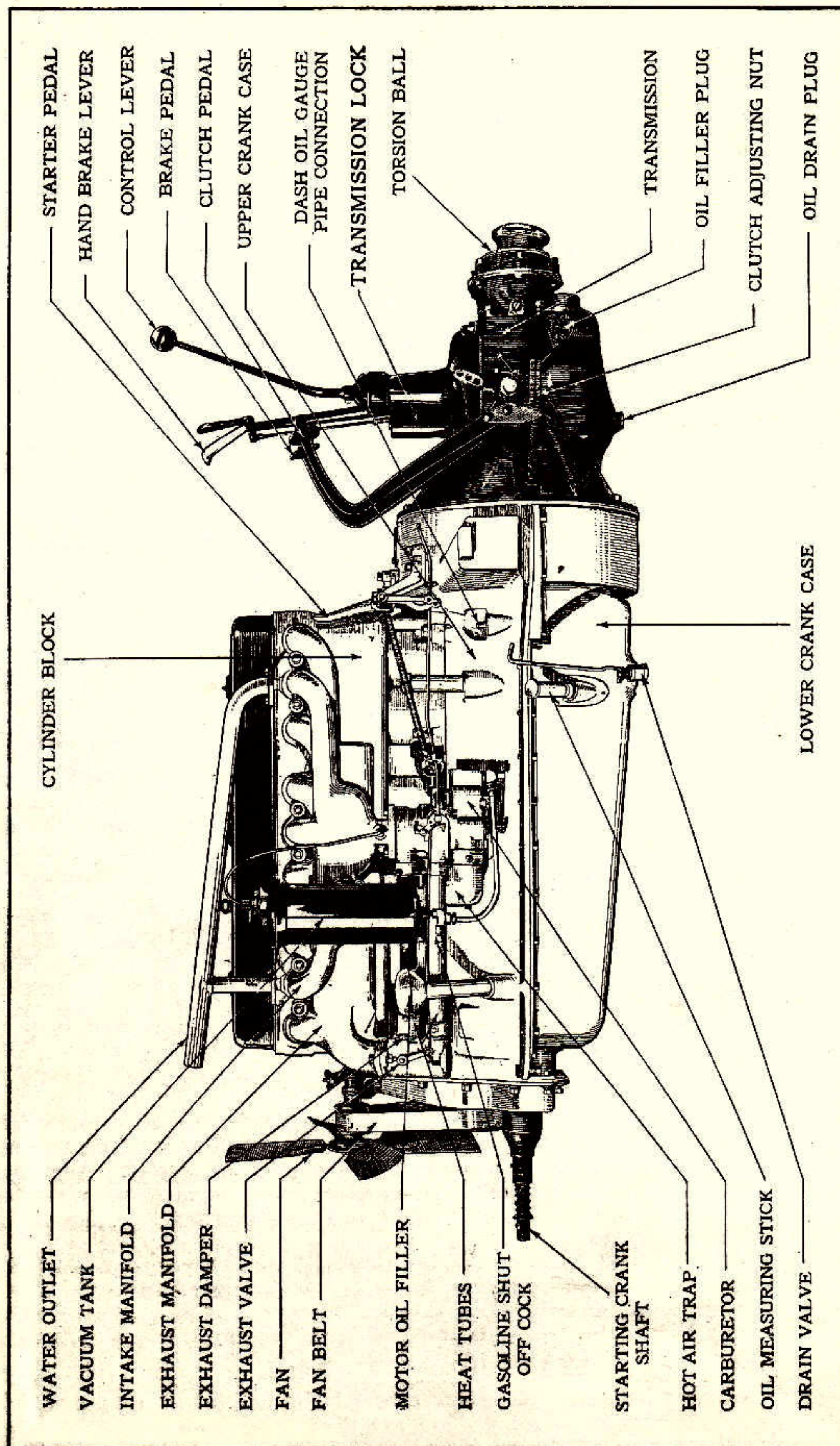


Plate No. 2
 Carburetor Side of Power Plant

SKIDDING

Sudden application of the brakes, especially when turning a corner or on slippery pavement, is liable to make the car "skid." Skidding is caused by the rear wheels suddenly losing their traction while the car is subject to centrifugal force from turning. The result is that the rear end swings suddenly toward the outside of the curve.

The best way to avoid skidding is to drive slowly. When a skid occurs, release the brake for an instant and turn steering wheel in the direction the car is skidding, but do not release clutch.

Tire chains will be found a convenience when driving on wet pavements or muddy roads, but should not be used unnecessarily.

RACING THE ENGINE

Never open the throttle suddenly when not necessary, or leave it open very far when the car is standing and the engine running idle. This is known as racing the engine, and there is nothing more injurious especially when the engine is cold. More engines have been ruined by racing while idle than have ever been worn out in actual driving under load.

SPEEDING

Drive slowly at first. Extremely high speeds are dangerous under all conditions and fifteen or twenty miles an hour on good roads is fast enough for the inexperienced driver. Learn to handle the car properly under all conditions of roads and traffic before attempting higher speeds.

RULES OF THE ROAD

The following "rules of the road" apply to the entire United States and the greater part of Canada. Every driver of a motor car should understand and obey them:

1. When coming to dead stop hold arm out horizontally.
2. When desiring to turn Right hold arm out horizontally, then drop 45°.
3. When desiring to turn Left hold arm out horizontally, then raise 45°.
4. When meeting a vehicle going in the opposite direction, turn out to the right.
5. When passing a vehicle going in the same direction, pass it on the left, after warning with horn.
6. In turning a corner to the right, keep as close as possible to the right hand ditch or curb.
7. In turning a corner to the left, continue in center of street past the center of intersection of the two roads or streets before making the turn.
8. In stopping the car always stop with the right hand side of the car at the right hand curb.

USE OF LIGHTS

Buick cars are provided with electric lights operated from the instrument board. For night driving on country roads both head and tail lights should be turned on by turning the lever or lighting switch to proper position. For city driving and meeting vehicles turn lighting switch to dim. When leaving the car standing at the curb turn lighting switch to side. By turning lighting switch to rear the tail lamp only is lighted.

An instrument lamp is provided on the instrument board which is controlled by a separate button on switch and will illuminate the instruments at night. This can be lighted momentarily by pressing on the knurled button of switch and will remain lighted when the button is turned to the right.

ADJUSTING HEADLIGHTS

The beams from the headlights can be properly directed on the road by loosening the bolts which fasten the lamps to the fenders, and swinging the bottoms of the brackets. The brightest part of the light should strike the road about 300 feet ahead of the car. The lamps may be focused by adjusting with a screw driver the focus screw found on the back side of lamp. Turn screw to the left to shorten focus and reverse operation to lengthen.

WATCH THE INSTRUMENTS

Instruments placed conveniently on the instrument board keep the driver constantly informed as to the operation of his car, and he should form a habit of glancing at these instruments occasionally while driving.

The oil pressure gauge tells, by the position of the indicator hand, when sufficient oil is being circulated through the engine lubricating system.

To wind the clock on models 41, 47, 48 and 50, turn the rim to the right as far as it will go. To set the clock, pull out on the rim and set the hands by turning to the right or left, as the case may be.

The ammeter shows the amount of current, in excess of that being used for lights and ignition, going to the storage battery. It also shows the amount taken from battery when rotating the armature or for idling the engine.

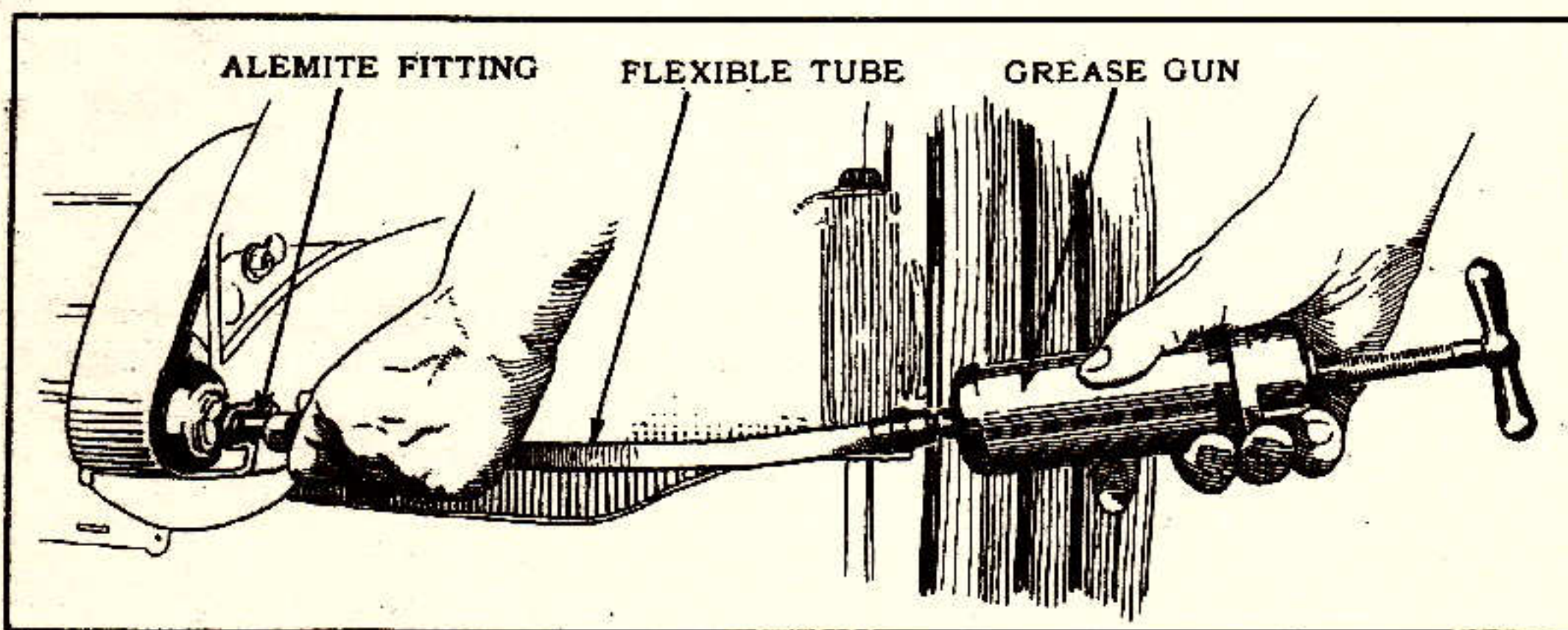
The speedometer gives the speed of the car and the number of miles traveled, both total and trip. The trip register may be set back to zero or to any given figure by turning the knurled finger screw protruding through the face.

The ventilator is controlled from the driving compartment by the ventilator control knob located in the instrument board.

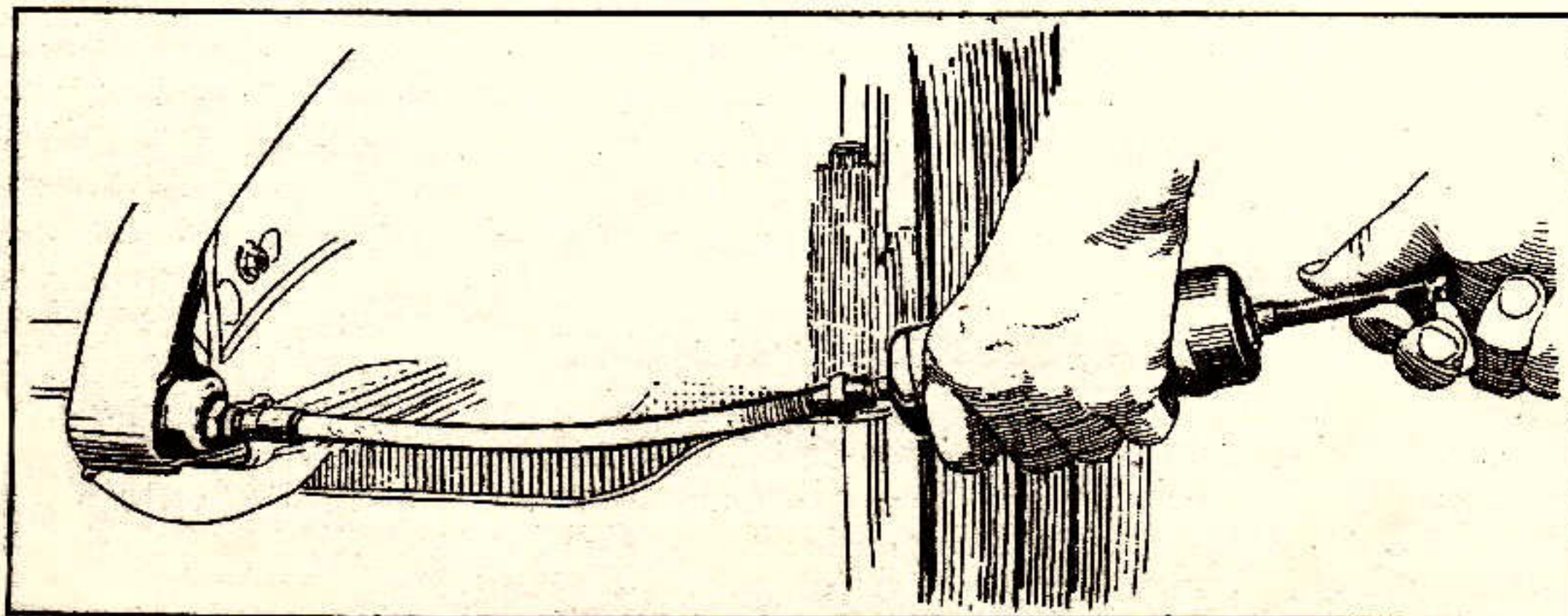
The heater on the closed models is located on the left side of the car. Pull up on handle to turn on heat, and release to shut off.

THE ALEMITE HIGH PRESSURE LUBRICATING SYSTEM

Thorough and frequent lubrication of all bearings is necessary to riding comfort and life of the car. To make this essential work simple and convenient, the Buick cars are equipped with the ALEMITE HIGH PRESSURE LUBRICATING SYSTEM.



Adjusting Alemite Gun



Operating Alemite Gun

The Alemite System consists of ball-check valve fittings on all chassis lubricating points, a compressor, and a flexible steel hose. (See Lubrication Chart.)

OPERATING THE SYSTEM

Filling the Compressor. Disconnect the hose first. Unscrew removable head of compressor, and turn out piston rod until leather plunger is drawn up inside the head.

Fill cylinder with soft cup grease. A small paddle may be used for packing grease into the cylinder.

When cylinder is filled, replace the head and screw down—**tightening by hand only**. Replace hose by screwing large swivel on lower end of compressor. This may be tightened with a wrench.

Lubricating the bearings. Be sure that the Alemite fittings are wiped free from dust or dirt, in order that fittings will not be clogged or dirt forced into the bearing.

Place the bayonet coupling of hose over the fitting. With a slight pressure forward and a turn to the right, the coupling is locked over the steel pin, and a tight joint is made. Give the compressor handle a few turns until old grease is forced out on opposite side of the bearing, which assures you that fresh grease has been forced through the contact points. **Use hands only in operating compressor. A pressure of 500 pounds to the square inch is secured in this manner.**

The flexible steel hose will be found a great convenience in reaching ordinarily inaccessible lubricating points. When in use, however, this hose is under tremendous pressure. Care should accordingly be taken not to bend the hose to an acute angle.

Before disconnecting hose coupling from fitting, relieve pressure by reversing handle of compressor two or three turns. The coupling can then be disconnected easily by a slight twist to the left.

OVERHAULING

About once a year all the oil should be drained out of engine, transmission and rear axle, and these parts washed out thoroughly with gasoline. If gears in the transmission or rear axle become chipped or broken, the lubricant should be changed. It pays to change the oil in the engine frequently (see lubrication instructions). Do not use too much oil. Enough is just right and any more will simply run out of the bearings and collect dust and dirt on other parts of the car.

Should there be occasion to overhaul the car at any time, care should be taken to see that it is thoroughly lubricated before reassembling. If lower half crank case is removed for any reason, be sure and fill all troughs with oil before replacing. When timing gear housing is removed be sure to fill case through plug on top of housing before starting. This work should be done by an experienced mechanic. Springs should be cleaned, car jacked up to take weight off springs and thin oil applied every 2000 miles.

GENERAL LUBRICATION

See Chart
LUBRICANTS

Engine oil should be a high grade, medium heavy mineral oil, with a flash point of not less than 375 degrees Fahrenheit and a viscosity of 45 to 55 seconds Saybolt at 210 degrees Fahrenheit. This oil should be used exclusively in the engine lubricating system, for valve rocker arms, distributor and generator bearings, and for all small joints not otherwise provided with lubrication, such as spark and throttle rods, brake rods, etc.

Steam cylinder oil should be a high grade heavy mineral oil with a viscosity of 120 to 150 seconds at 210 degrees Fahrenheit, and should be mixed half and half with engine oil of a cold test not exceeding 5 degrees Fahrenheit for use at temperatures below freezing point, for the transmission gears, differential gears and steering gear. It is better for this purpose than most of the so-called "gear greases"

Soft cup grease should be a homogenous mixture consisting of high grade mineral oil and pure lime soap. It should be free from acids and other adulterants and should be of a soft nature and have a sufficiently

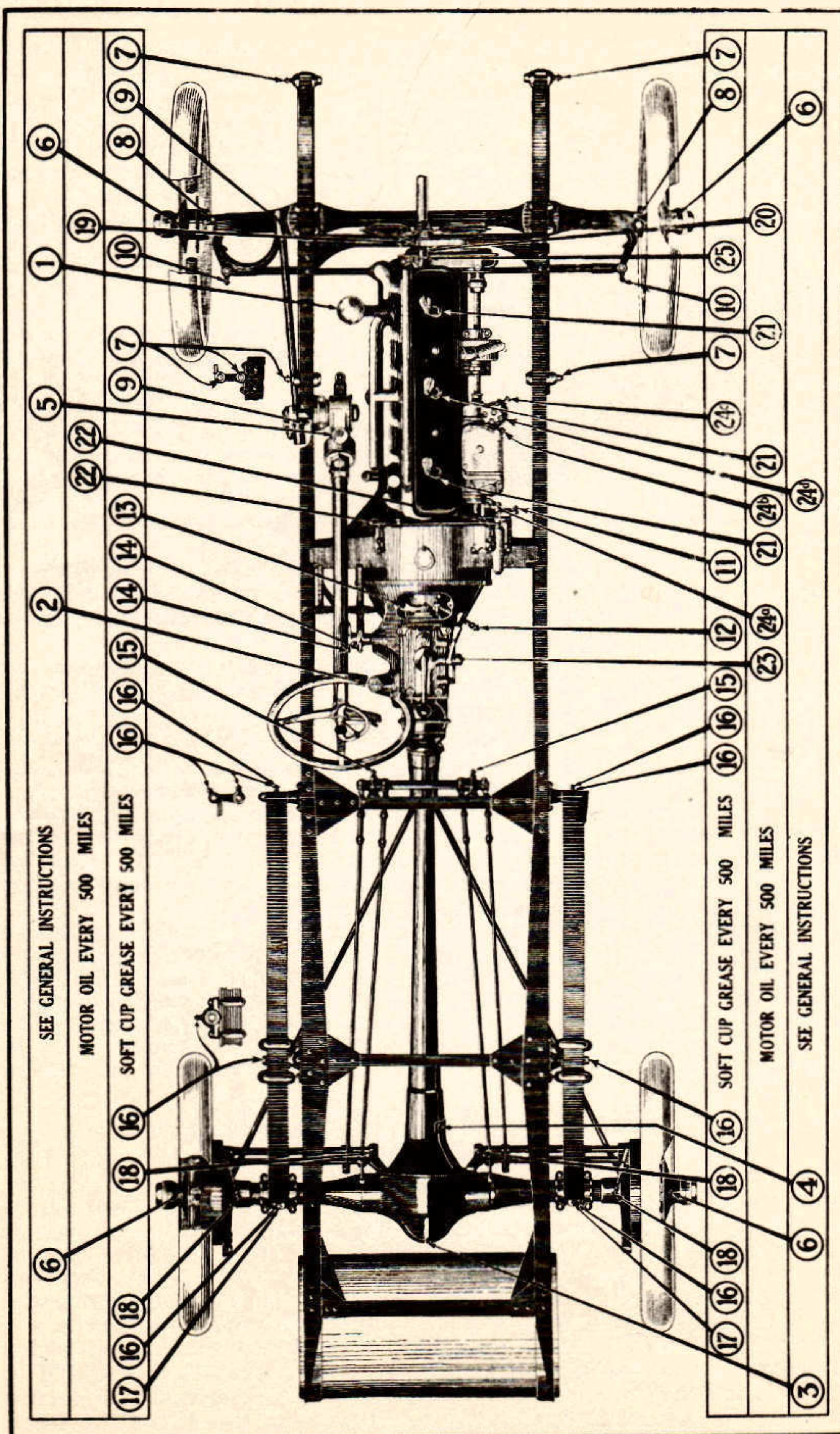


Plate No. 3
Lubrication Chart

high melting point to prevent free flowing in warm weather and should be used in Alemite gun to lubricate parts so equipped.

1. ENGINE MOTOR OIL.

Fill through oil filler tube to "Full" mark on measuring stick.

Inspect frequently and maintain this level.

Crank reservoir holds six quarts.

Drain oil from engine and replace with fresh oil after first 500 miles and every 500 miles in winter and 800 in summer thereafter.

2. TRANSMISSION—STEAM CYLINDER OIL.

Use Steam Cylinder Oil for all temperatures above freezing. Thin with low cold test engine oil sufficiently to make liquid below freezing temperature.

Remove filler cap on left side of transmission case and fill to level of opening. Inspect frequently.

3. REAR AXLE—STEAM CYLINDER OIL.

Use steam cylinder oil for all temperatures above freezing. Thin with low cold test engine oil sufficiently to make liquid below freezing temperature.

Remove plug in differential housing cover and fill to level of opening. Inspect frequently.

4. PINION SHAFT BEARINGS—SOFT CUP GREASE.

Remove adjusting cover plate and fill every 1,000 miles.

5. STEERING GEAR—STEAM CYLINDER OIL.

Insert oil until positive housing is full, every 1,000 miles.

6. WHEEL BEARINGS—SOFT CUP GREASE.

Remove plugs and fill every 1,000 miles.

7. FRONT SPRING SHACKLE BOLTS—SOFT CUP GREASE.

Use Alemite gun.

8. KING BOLTS—SOFT CUP GREASE.

Use Alemite gun—work grease in well by moving knuckles.

9. STEERING CONNECTING ROD—SOFT CUP GREASE.

Use Alemite gun.

10. TIE ROD BOLTS—SOFT CUP GREASE.

Use Alemite gun—work grease in well by moving knuckles.

11. STARTER MOTOR SLIDING GEAR SHAFT—SOFT CUP GREASE.

Use Alemite gun.

12. CLUTCH THRUST BEARING—SOFT CUP GREASE.

Use Alemite gun.

13. CLUTCH RELEASE FORK PIN—SOFT CUP GREASE.

Remove transmission cover plate and use Alemite gun.

14. CLUTCH AND BRAKE PEDALS—SOFT CUP GREASE.

Use Alemite gun.

15. BRAKE CROSS SHAFT—SOFT CUP GREASE.

Use Alemite gun every 500 miles.

16. REAR SPRING SHACKLE BOLTS—SOFT CUP GREASE.

Use Alemite gun.

17. REAR SPRING SEAT—SOFT CUP GREASE. Use Alemite gun.

18. BRAKE CAM SHAFT—SOFT CUP GREASE. Use Alemite gun.

19. FRONT ENGINE SUPPORT—ENGINE OIL. Add a few drops of oil.

20. FAN HUB—ENGINE OIL. Remove plug and add oil.

21. VALVE ROCKER ARMS—ENGINE OIL.

Turn oil caps on top of engine and fill oil wells.

22. SPARK CONTROL CROSS SHAFT—ENGINE OIL.

Add a few drops every 500 miles.

23. HAND BRAKE LEVER—ENGINE OIL.

Add a few drops of engine oil.

24. DELCO UNIT—ENGINE OIL.

(a) Add engine oil; (b) Add engine oil; (c) Use Alemite gun; (d) Apply thin coating of vaseline to distributor cam and rotor track until surface becomes glazed.

25. FAN BRACKET SUPPORT—SOFT CUP GREASE.

Use Alemite gun.

BRAKE PINS AND CONNECTIONS:

Add a few drops of engine oil occasionally.

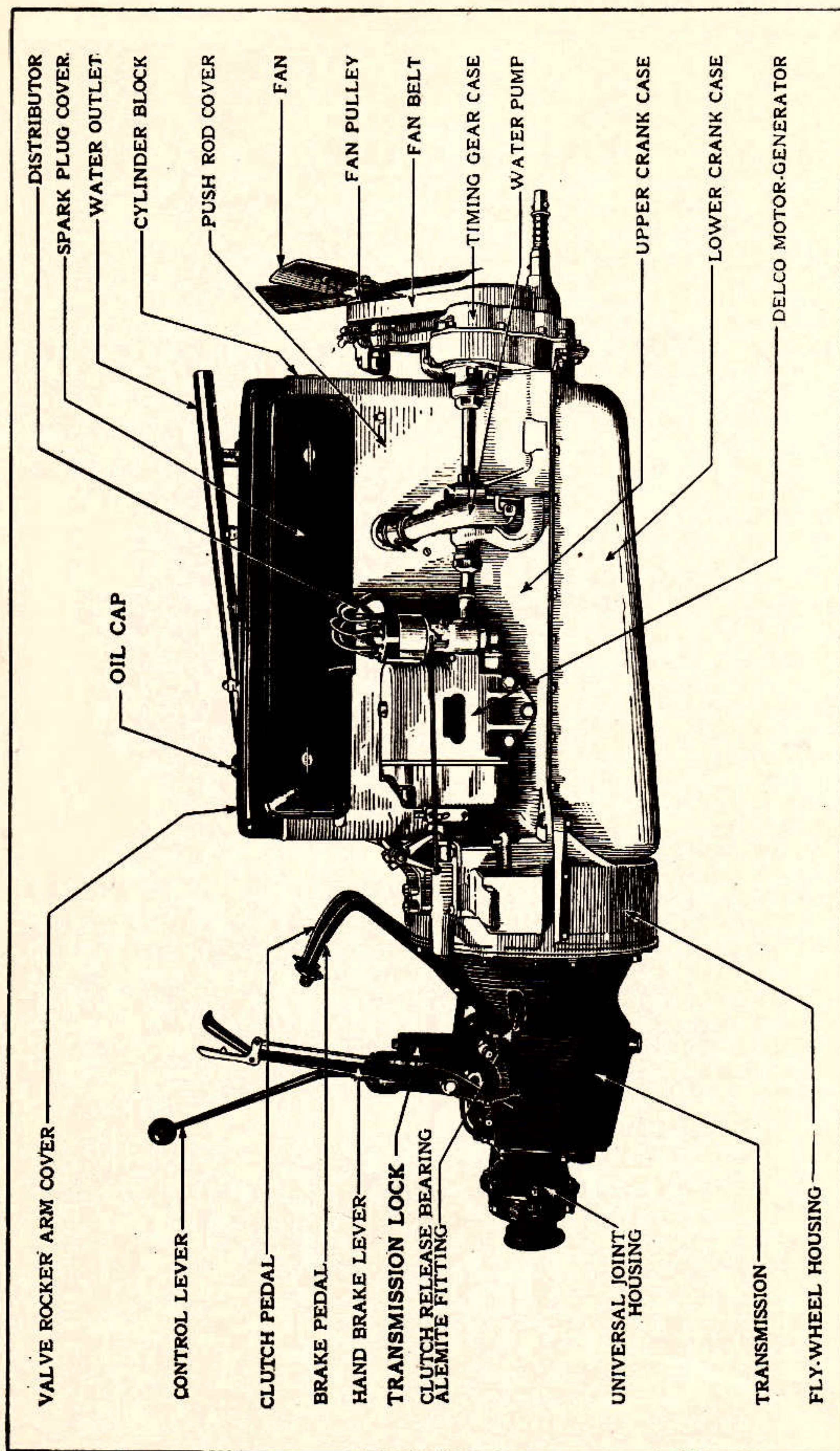


Plate No. 4
 Generator Side of Power Plant

POWER PLANT

The unit power plant is the most important part of the car. It develops the necessary power for driving the car and delivers it to the axle and road wheels where it is finally converted into motion of the vehicle.

The power plant consists of:

- The engine.
- The lubricating system.
- The fuel system.
- The Delco system.
- The cooling system.
- The exhaust system.
- The clutch.
- The transmission gearset.
- The universal joint.

The engine is the machine which turns the pressure of the exploding gas into rotary motion of the crankshaft.

The lubricating system supplies oil for the different parts of the engine automatically varying the amount to agree with the speed of the engine.

The fuel system draws the raw gasoline from the fuel tank at the rear of the car, vaporizes it, mixes it with the proper proportion of air and delivers it to the cylinders in quantities proportional to the load.

The Delco system generates the electric current, increases its voltage sufficiently to enable it to jump the spark gaps, and distributes it to the cylinders in proper rotation. It also supplies the electrical energy which is accumulated in the storage battery to crank or "spin" the engine for starting and to operate the electric lights.

The cooling system protects the working parts of the engine by absorbing the excess heat of the explosions and diffusing it to the surrounding atmosphere.

The exhaust system carries the waste products of combustion away from the engine and muffles the noise of the explosions.

The clutch is the connecting link between the engine and the transmission, and connects or disconnects the two units at the will of the operator.

The transmission gearset allows the speed of the engine to be varied in relation to the speed of the rear wheels, so that the energy can be applied at a faster rate under certain conditions.

The universal joint is the flexible coupling at the rear of the transmission which connects the power plant to the rear axle and allows the axle to move up and down over the road surface without interrupting the driving effort.

ENGINE

The engine consists essentially of a row of six cylinders in which the gas is exploded, the force of the explosion acting on pistons which move up and down in the cylinders. The pistons are connected by means of the connecting rods with the crankshaft, and as they move up and down turn the crankshaft around in a clockwise direction. At its rear end the crankshaft carries a heavy fly wheel which engages with the clutch and transmits the power on to the rear wheels. Teeth are cut around the rim of the fly wheel and a small gear, driven by the electric starter, engages with these teeth when spinning the crank shaft to start the engine. The crank case, which is fastened to the frame of the car, supports the cylinders and encloses the crank shaft and its bearings.

At their upper ends the cylinders have two openings, closed by poppet valves. One of these communicates with the exhaust system and the other with the intake manifold and carburetor. The valves are opened and closed at the proper intervals in the cycle by rocker arms and push rods, actuated by the cam shaft, which is geared to the crank shaft and runs at one-half the crank shaft speed, so that the valves are each opened and

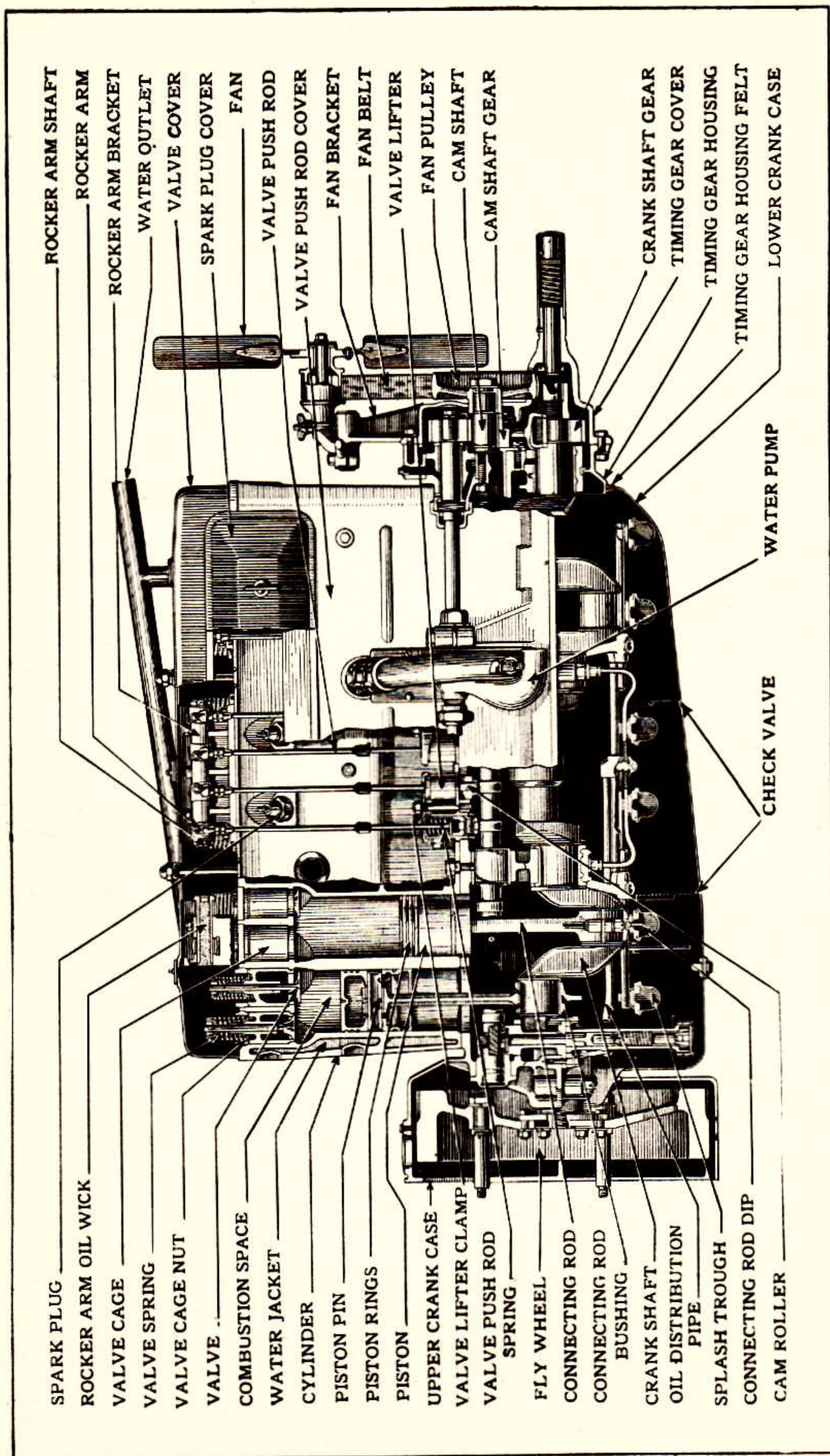


Plate No. 5
Interior Construction of Engine

closed once for every two revolutions of the crank shaft. The oil pump located in the lower half of the crank case is driven from the rear of the cam shaft.

Spark plugs project into the combustion space at the upper ends of the cylinders and serve to ignite the gas when a cylinder is ready for the explosion.

A double wall or water jacket entirely surrounds the upper part of the cylinders and water is kept constantly circulating through the space between the two walls by means of the water pump, which is attached to the right side of the crank case and is driven by another shaft geared to the cam shaft. The pump shaft runs $1\frac{1}{2}$ times as fast as the crank shaft and also drives the Delco generator through a coupling at its rear end.

HOW THE ENGINE WORKS

The power of the engine is produced by burning or exploding charges of gas in the cylinders, above the pistons, the resulting pressure forcing the pistons down causing the crank shaft to rotate. In the four cycle engine, of which the Buick engine is an example, it takes four strokes of the piston or two complete revolutions of the crank shaft, for each explosion or working stroke in any one cylinder. This will be more readily understood by reference to the cycle diagram.

As the piston starts down on the first stroke of the cycle, as in "A," the inlet valve is opened. The motion of the piston tends to create a vacuum in the cylinder, and this sucks in a charge of fresh gas from the carburetor, through the valve opening.

When the piston has reached the bottom of its stroke, and starts back, as in "B," the intake valve closes and the piston compresses the gas it has sucked in, into the space at the top of the cylinder.

As the piston reaches the end of its upward stroke, as in "C," the compressed gas is ignited by an electric spark which occurs at the points of the spark plug, and the resultant explosion creates a large amount of heat and pressure, which pushes the piston down during the next, or working stroke, and turns the crank shaft.

On the return upward stroke of the piston, "D," the exhaust valve is opened, and the piston pushes the remaining burnt gas out through the exhaust pipe, leaving the cylinder empty and ready for the beginning of a new cycle.

It will be noticed from the above that only one stroke out of the four is a working stroke in any one cylinder, but as the engine has six cylinders, the crank shaft actually receives three impulses every revolution.

TIMING THE VALVES

The exact point in the cycle at which the valves are opened and closed is determined by the shape of the cams which operate them and by the angular relation between the camshaft and crankshaft. If it should ever become necessary to remove one of these shafts or the gears which drive them, they must be replaced in proper relation to one another or the valves will be "out of time." To obtain this relation, the punch-marked tooth on the crank shaft gear should be set to match with the punch-marked space on the cam shaft gear.

ADJUSTING PUSH RODS

With the timing gears properly matched, the setting of the valves is made by adjusting the push rods to proper length by means of the adjusting ball ends and lock nuts. This adjustment must be made when engine is hot.

To make this adjustment, the valve must be closed. To insure this position, turn the engine with the crank until the rocker arm depresses valve and allows it to return, then turn crank one-eighth revolution further. By means of ball ends and lock nut on the push rod, set the clearance between the valve stem and rocker arm to from .006 to .008 inch.

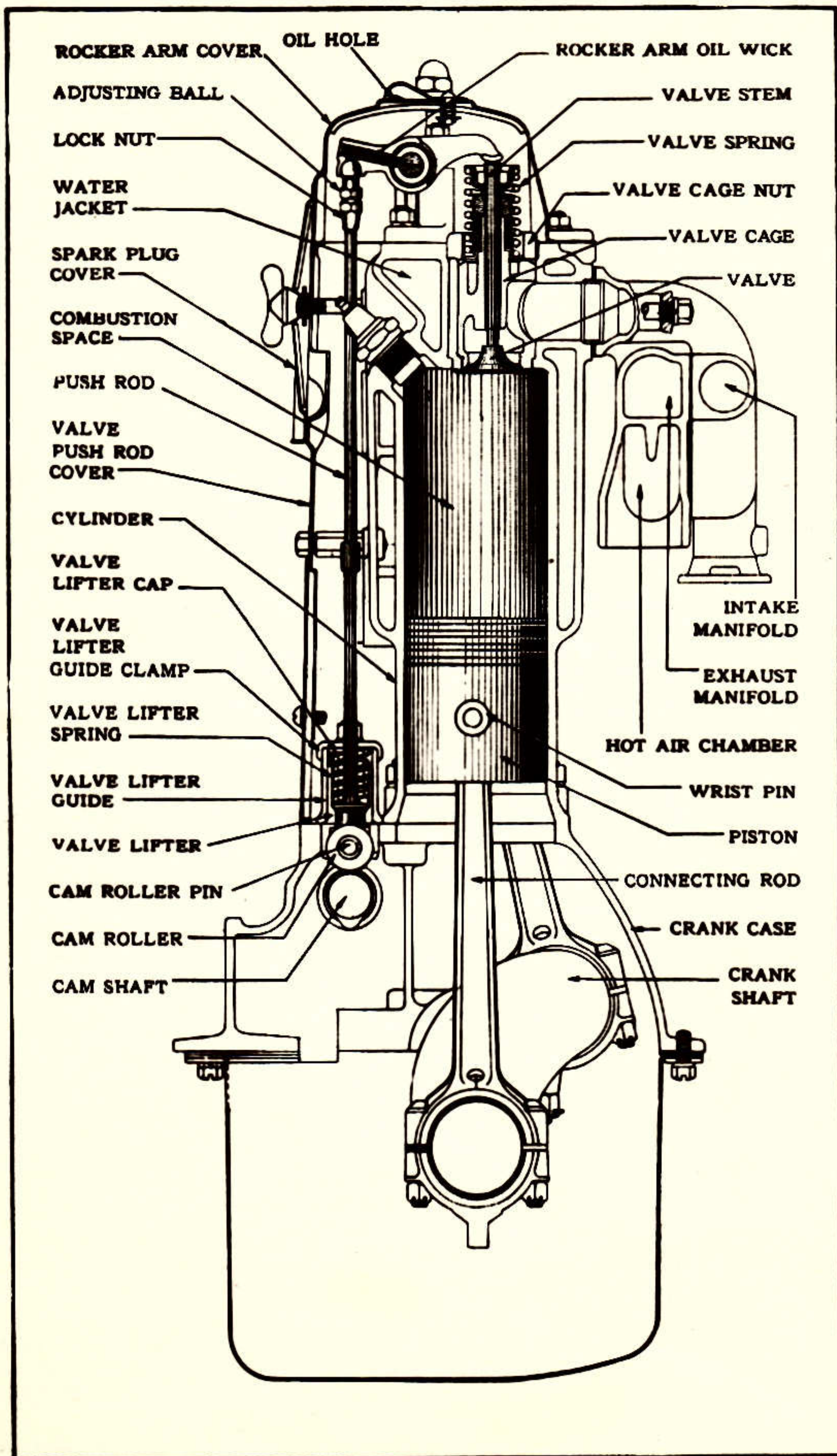


Plate No. 6
Buick Valve Mechanism

One-half teaspoonful of kerosene inserted around the valve stem at least once a week while engine is running will keep valve free from carbon and prevent it from sticking in the valve cage guide.

In setting the marks on the fly wheel be careful to turn the engine only in clockwise direction, otherwise the backlash in the timing gears will affect the result.

GRINDING VALVES

To keep the engine up to its maximum efficiency, the valves must be gas tight when closed. When leakage occurs the valves should be ground as follows: Compress valve spring and lift push rod out of socket in valve lifter. Loosen valve cage nuts with the special drift furnished in tool kit and remove by unscrewing. A light tap with a hammer on the end of the valve stem will loosen cage so it may be withdrawn. Be careful not to injure the small bronze packing ring on top. Remove valve spring and after cleaning with gasoline or kerosene, smear the valve and its seat with fine emery dust and oil, or with one of the grinding pastes now on the market. Grind, by turning valve back and forth on its seat until both valve and seat show a bright ring $\frac{1}{32}$ inch wide all the way around. In grinding the valve it should be lifted from its seat occasionally.

Be careful to clean out all traces of abrasive material before replacing valve.

Be sure to clean valve stems of all carbon deposits.

After grinding valves, it will usually be found necessary to readjust the push rods to compensate for the wear.

REMOVING CARBON

Too much lubricating oil or too rich a mixture will form carbon in the cylinder. An excessive deposit of carbon sometimes becomes incandescent and ignites the charges before the piston has finished its compression stroke, resulting in a knock in the engine.

The carbon deposit in the compression chamber may be burned out with an oxygen torch through the spark plug holes.

ADJUSTING BEARINGS

A sharp, metallic knock in the engine, audible every revolution of the crank shaft, may mean that one of the bearings is loose. If retarding spark or removing carbon does not stop the noise, remove lower half of crank case and examine bearings.

When the loose one is located, it can be taken up by removing the cap and taking out one or more of the thin metal shims. The same holds true of the connecting rod bearings. Note that bearing is bright and shows no indication of a lack of lubrication.

INSERTING PISTON RINGS

Piston rings seldom break, but if one does it can be most easily replaced by removing the connecting rod cap and pulling piston and rod out from below. The rings may be slipped on or off the piston by inserting thin strips of sheet metal under them to prevent their dropping into the grooves, until in their proper places.

ASSEMBLING CONNECTING RODS

In assembling connecting rods to the crankshaft, it should be noted that the connecting rods are offset from the center line with relation to the bearings and great care should be exercised when assembling rods to see that the identification marks, which are a raised pad and the forging number (158731 or 158732) in the channel of the rod, are assembled next to the adjacent main crank shaft bearings. This also brings the smooth channel of the rods facing each other in pairs between the main crank shaft bearings.

KEEPING THE ENGINE CLEAN

Nothing will add more to the appearance of the car when the hood is raised, than a clean engine. Use soft cloth moistened with gasoline or kerosene and a stiff brush to get dirt out of sharp corners.

ENGINE LUBRICATING SYSTEM

The engine is provided with an automatic lubricating system which operates as follows:

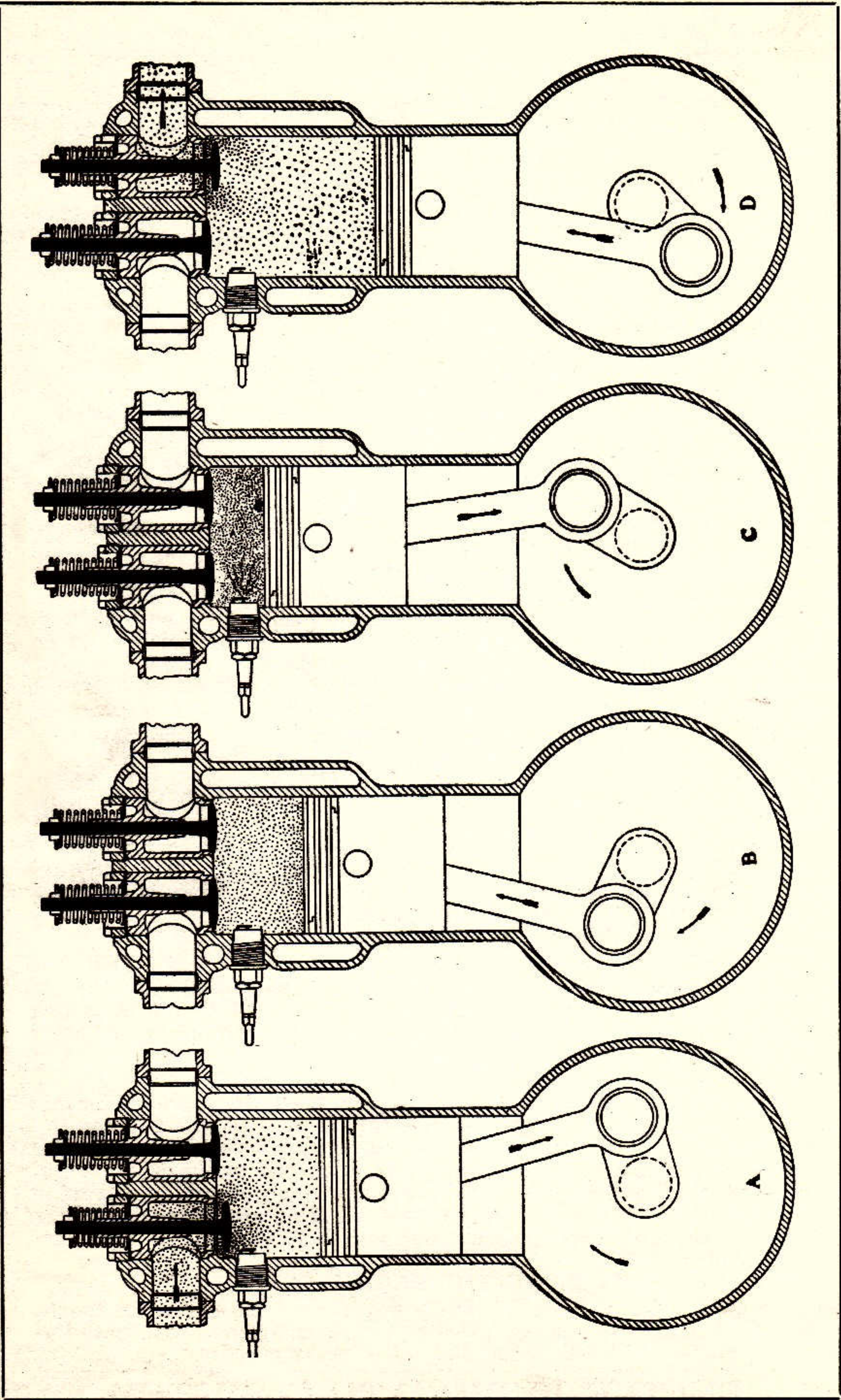


Plate No. 7
Cycle Diagram

Oil from the reservoir, in the lower half of the crank case, is drawn through a strainer into the gear pump enclosed in the rear end of the lower crank case.

The oil pump forces the oil through a pipe past a by-pass valve and the spring tension exerted on the by-pass valve causes the pressure gauge to register on the cowl instrument plate.

After passing the by-pass valve the oil flows through the distributor pipe to splash troughs fastened in the lower half of the crank case into which the connecting rods dip, forcing some of the oil through oil grooves up into the connecting rod bearings and splashing remainder over the interior of the crank case and up into pistons and cylinders. The crank-case main bearings are lubricated by splash and in addition oil is forced directly from the pump to the two center bearings.

As the oil drains back, it is caught in ducts and led to all the bearings of the engine, a quantity passing from the front main bearing pocket through a hole in the back wall of timing gear case, thereby lubricating the gear, the excess falling back into the reservoir to be used over again. The normal oil pressure as indicated by the hand on the pressure gauge is four pounds. If indicator hand on pressure should fall to zero while engine is running, the engine should be immediately stopped and an investigation made to ascertain if oil in crank case is up to the required level; should it prove to be so, an examination of the oil inlet hole, located in oil pump, should be made, as the small hole will probably be found to contain some foreign substance which is preventing the flow of oil.

OIL CIRCULATING PUMP

The oil pump consists of two small gears enclosed in a close fitting housing and driven by a vertical shaft and spiral gears from the cam shaft. As the gears turn, they take the oil into the spaces between their teeth and carry it around to the outlet, where the action of the teeth meshing together squeezes the oil out of the spaces and forces it to flow through the distributor pipe. The pump is automatic in action and requires no attention or adjustment, except the addition of fresh oil to the crank case reservoir as often as necessary to keep the oil level up to the "FULL" mark on measuring stick.

OIL PRESSURE GAUGE

The oil pressure gauge merely indicates circulation of the oil, and does not show when the supply in the crank case reservoir is running low. Watch and test the oil level in the crank case by reading measuring stick.

Caution! Do not attempt to determine oil level while engine is running and wipe measuring stick clean before taking correct reading.

FUEL SYSTEM

The fuel system consists of the gasoline tank, piping, vacuum tank, carburetor and intake manifold. There is nothing connected with the gasoline tank or piping to get out of order, the chief consideration being to carefully strain all gasoline and to avoid leaks which are sometimes caused by road vibration.

VACUUM TANK

The vacuum tank draws the fuel from the gasoline tank at the rear and delivers it to the carburetor at a constant head, as needed. It consists of two steel shells, the inner one of which encloses the float and the valve mechanism attached to the cover, while the outer one acts as the fuel reservoir and is connected to the carburetor. The float operates two small valves which control openings connected to the inlet manifold and to the atmosphere. A flapper check valve closes the bottom of the inner shell. As the inner shell empties, the float falls and closes the atmospheric valve and opens the suction valve.

The suction of the pistons tends to create a vacuum in the inner shell, drawing gasoline into the inner tank from the main fuel tank at the rear of the car. When the inner tank has filled, the float rises, closing the suction valve and opening the atmospheric valve, allowing air to enter the inner tank through the vent tube, while the gasoline passes through the flapper check valve into the outer tank and from there to the carburetor.

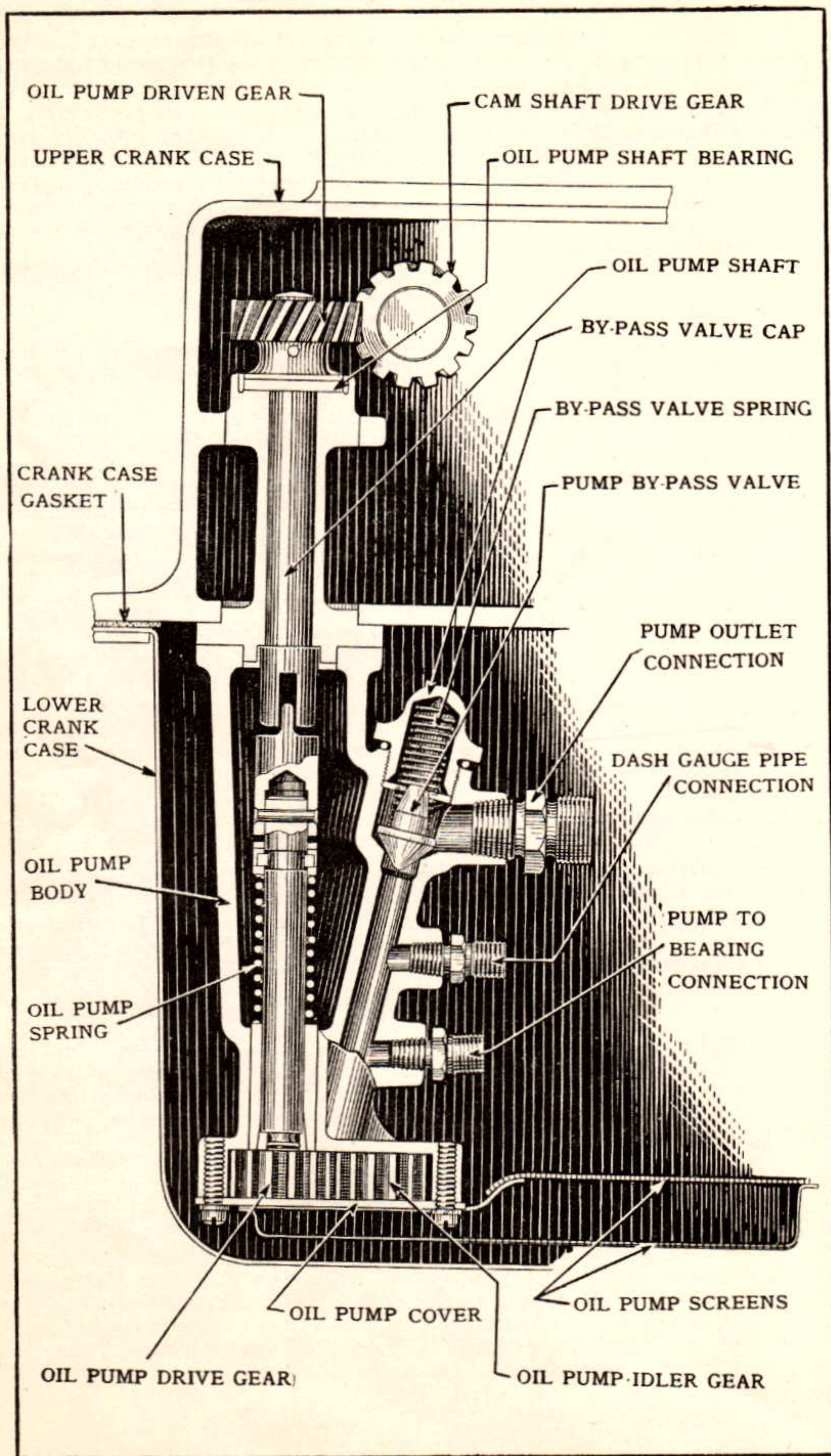


Plate No. 8
 Oil Pump and Shaft

The action of the vacuum tank is entirely automatic. There are no adjustments, and it will require no attention aside from an occasional examination of the connections to see that they are tight and free from dirt. It is advisable to drain the tank every 500 miles to remove any sediment that may have collected.

If vacuum tank runs dry, with no air leak in gas line, close throttle and crank engine 15 or 20 turns with starter. Then release starter, wait two or three minutes, then start engine in usual manner.

The gasoline tank in the rear should be drained every 2,000 miles to remove any sediment and prevent same from reaching the carburetor and causing trouble.

Do not allow the vent tube in vacuum tank or the small hole in the gasoline tank filler cap to get stopped up with dirt.

CARBURETOR AND HEAT CONTROL

The carburetor is the instrument which measures the fuel charges for the engine and automatically mixes them with the proper amount of air to form a combustible gas.

The float chamber contains a float attached to a valve in such a manner that fuel is admitted only as it is needed to maintain a constant level in the spray nozzle. The spray nozzle opening is regulated by a gasoline needle valve which constitutes the gasoline adjustment and it is surrounded by a venturi tube through which a portion of the incoming air passes at high velocity, picking up gasoline from the end of the nozzle in passing.

The mixing chamber also contains the air valve and the high speed jet.

The air valve is pressed against its seat by an adjustable spring which is housed inside of the air screw and which presses against a plunger also housed inside the air-screw, the plunger being connected to the air-valve by means of a connecting rod; the adjustment of the air-screw constituting the air adjustment. As the speed of the engine increases, the velocity of the entering air increases until the valve is lifted from its seat and at the same time an additional amount of gasoline is taken from the high speed jet located immediately under the tip of the air valve.

The plunger housed within the air-screw against which one end of the air valve spring presses, together with the shell of the air-screw, constitutes a dash pot, the effect of the action of which is to slightly retard the opening action of the air-valve, thus assisting in quick pick-up and also overcoming any undue vibration of the air valve.

To remove air-valve spring, turn air screw all the way out to the left, taking care that spring does not fall out and get lost by dropping into the pan as it is not fastened at either end.

In re-assembling the air-valve-spring in the air-screw-shell, merely place the spring inside the latter and insert same, picking up at the same time end of plunger which works inside the air-screw-shell also; and screw the air-screw-shell into its place; the air-valve-spring will find its proper seat at both ends automatically owing to the cone-shaped form of seats in which it fits, one end being in end of plunger and the other end in end of air-screw-shell.

Changes of air-valve-springs must never be made unless done so advisedly as each size motor requires its particular size of spring. Neither should any other make of air-valve-spring other than those made by the manufacturers of the carburetor and sold by them through authorized dealers or authorized Buick dealers, ever, under any circumstances, be used as these springs must be carefully made and tested for size and tension to meet the requirements of the particular size motor for which they are intended.

The air-valve is hinged on the insert which is housed by the mixing chamber and carries the spray nozzle already referred to and also the high speed jet.

The air enters the carburetor through a three-way valve connected to the air-regulator marked "Cold," "Hot" and "Choke" on the instrument board. The air-regulator is fastened to the instrument board by means of two screws, the head of one of the screws being to the right of "Hot" and

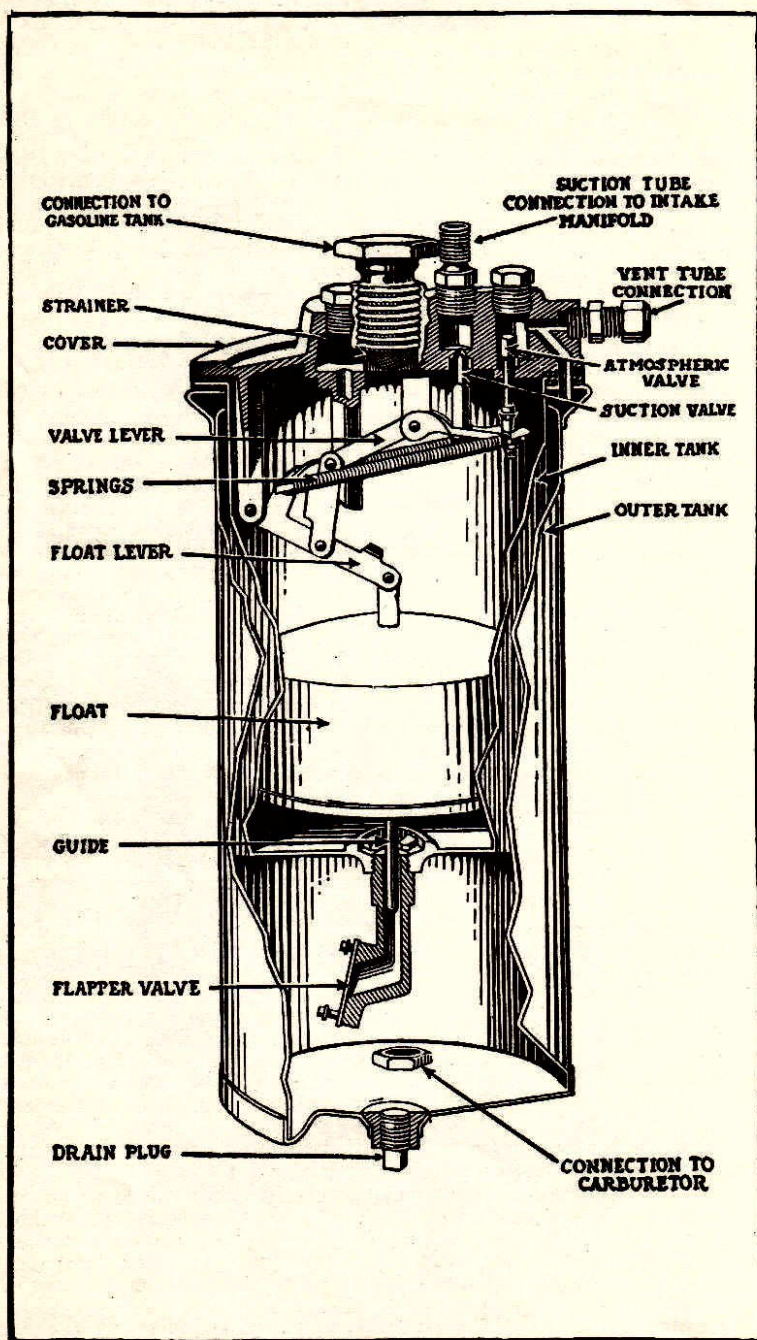


Plate No. 9
Vacuum Tank

the other to the left. When the point of the indicator for the regulator is turned to the right as far as it will go, pointing to "Choke," the air supply to intake of carburetor is closed off as far as possible and causes the carburetor to give off excessively rich charges for starting and in cold weather upon starting engine, should be released to "Part Choke" only, meaning two-thirds of the way back toward "Hot" until point of indicator is just under head of screw to the right of "Hot," just as soon as engine fires in starting, as otherwise too much fuel will be drawn from the carburetor, causing flooding of the motor and failure of the latter to continue to promptly fire. After starting and promptly releasing indicator to "Part Choke" as described, and upon engine warming up which should be accomplished within one to three minutes, depending upon the atmospheric temperature, the indicator should be further released to the left toward "Hot" or entirely to "Hot" or on toward "Cold," depending upon weather temperature and motor needs.

In hot or summer weather it is not usually necessary to turn indicator all the way toward "Choke" in starting as the fuel to the motor feeds more readily in warm than in cold weather.

When the indicator is set, pointing to "Hot," the air for carburetor is being taken from heater under the exhaust manifold and is therefore warm air. When the indicator is turned to the left as far as possible where it will point to "Cold," the air for carburetor is then being taken directly from the atmosphere and is not pre-heated, hence is called cold air. By means of the air regulating valve as described above, it will be noted that different proportions of air and fuel as well as different temperatures of the former may be maintained in driving. When the indicator, as stated, is turned to the right as far as possible toward "Choke," the richest mixture possible is obtained and is used in starting only and then just long enough to cause motor to fire, whereupon it is at once turned two-thirds of way back toward "Hot," in which position a mixture is obtained which is richer than if indicator is standing at "Hot" and is used in this position for a very short time to allow motor to warm up after accomplishing which, it is further released to "Hot" or still further toward "Cold" depending upon the weather temperature. In summer season, after starting motor and running for a few minutes on "Hot" to allow motor to get up to normal running temperature, the indicator should be turned to "Cold." This is also true in driving in winter when practicable, as upon cross-country driving or long runs, as "Cold" position on indicator causes the least suction on the fuel jets within the carburetor and therefore tends to increase mileage.

The adjustment of the carburetor should not be confused with the above description of the air-regulator as the latter is used as described, namely, for starting and for richer and warmer mixtures in warming up and meeting weather conditions, and has nothing to do with the adjustment of the carburetor except as described under the heading "Adjustment of Carburetor." The passage-way from the mixing chamber to the intake manifold is controlled by a butterfly valve which is called the throttle-valve and is connected to the throttle-lever on the steering wheel as well as to the foot accelerator, its position determining the amount of gas and air or mixture being fed the engine.

The upper portion of the mixing chamber is surrounded by a large heat jacket provided with an inlet and an outlet opening and connected by means of tubes to an exhaust manifold valve body in the exhaust pipe of the engine; this valve body housing a large valve called the main-exhaust-heat-valve within the body itself and also a smaller valve located in the outlet opening in the upper portion above the main-exhaust-heat-valve which opening carries the inlet tube to the carburetor heat jacket, the return or outlet tube from the carburetor heat jacket entering the valve-body in the lower portion below the main-exhaust-heat-valve.

The smaller valve referred to is manually operated and is held in position by means of a set-screw on the shaft carrying it and the position of the damper is indicated by position of damper shaft lever operating same. If lever is in horizontal position the damper is open. If the lever is in vertical position the damper is closed. The main-exhaust-heat-valve

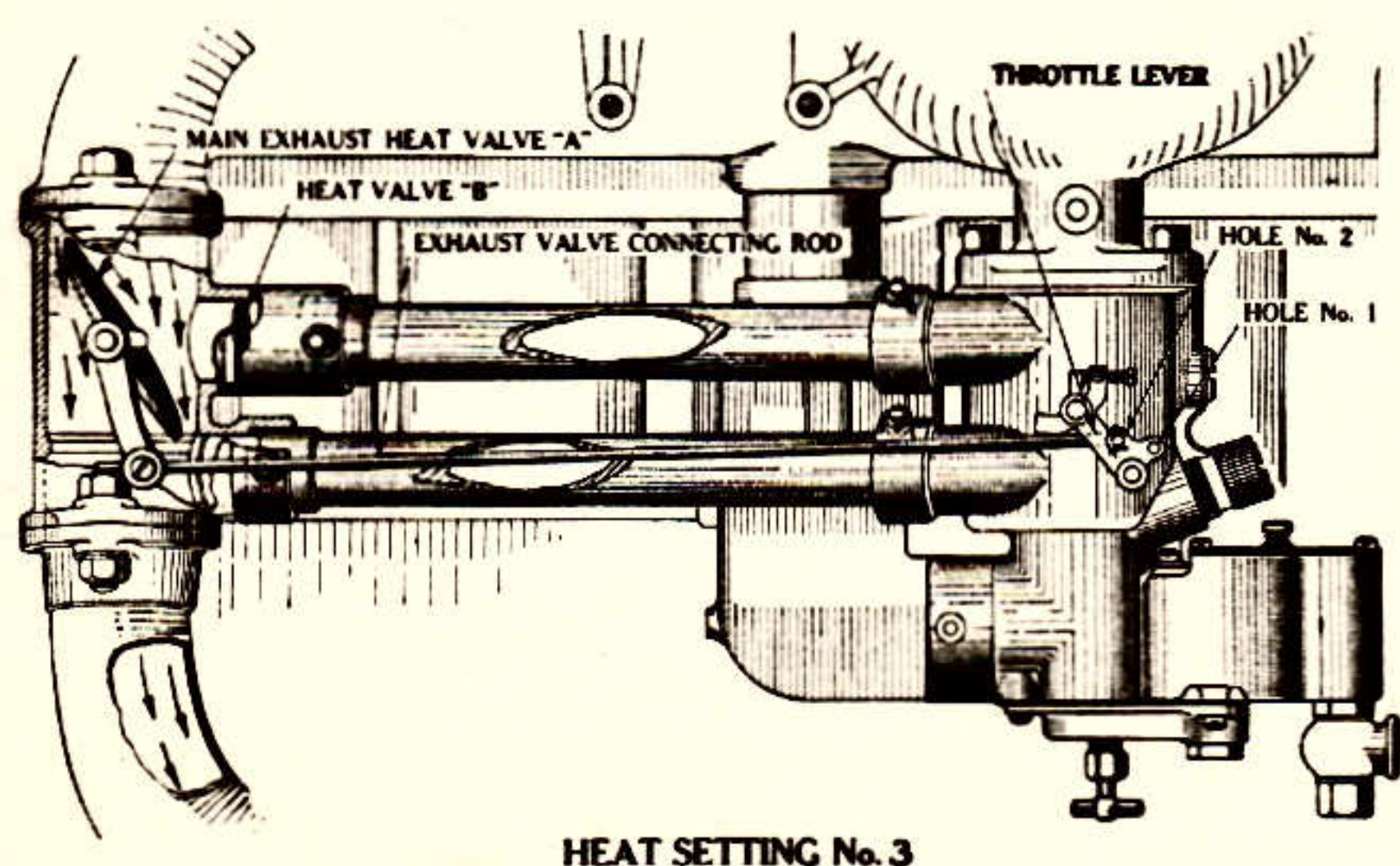
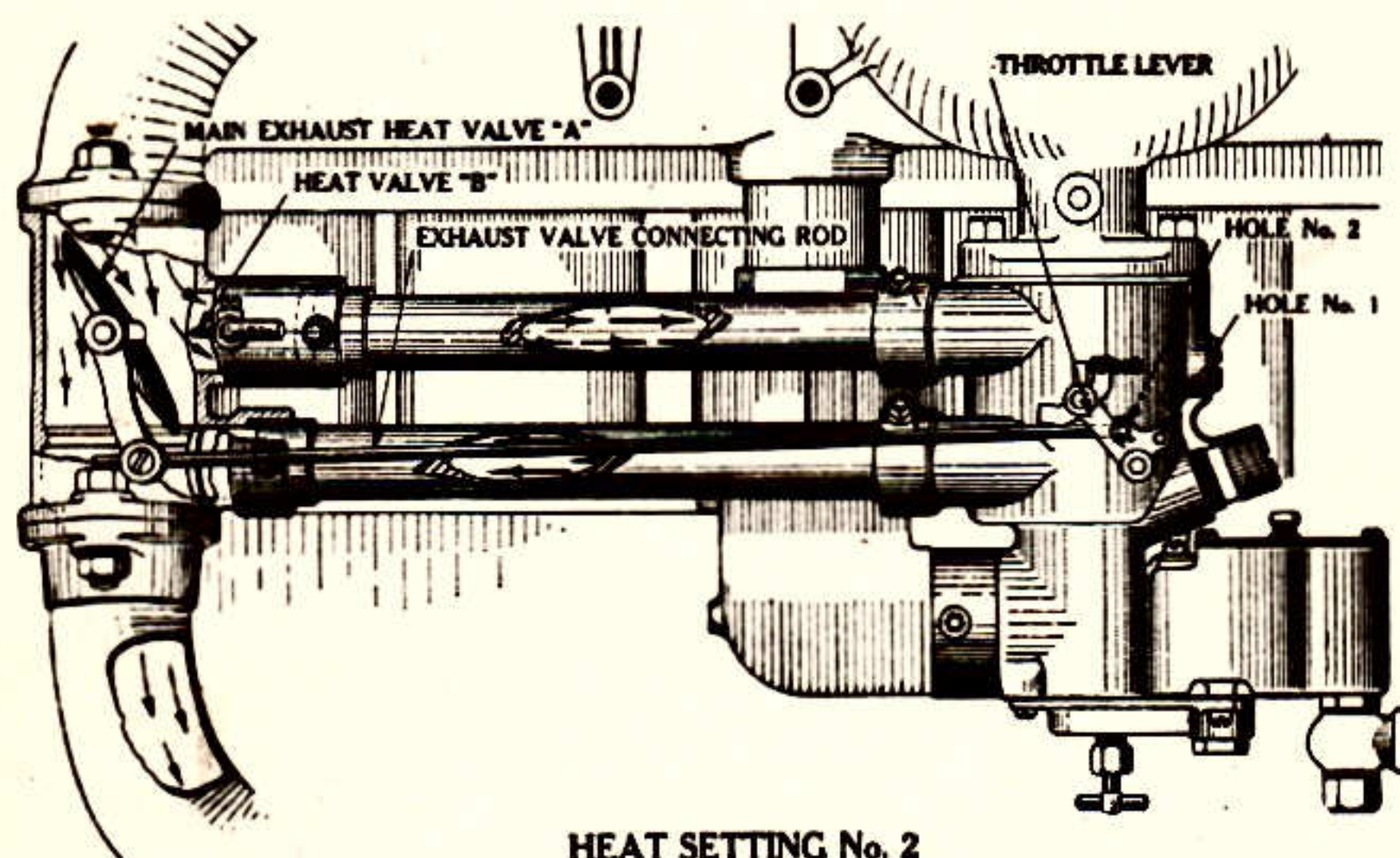
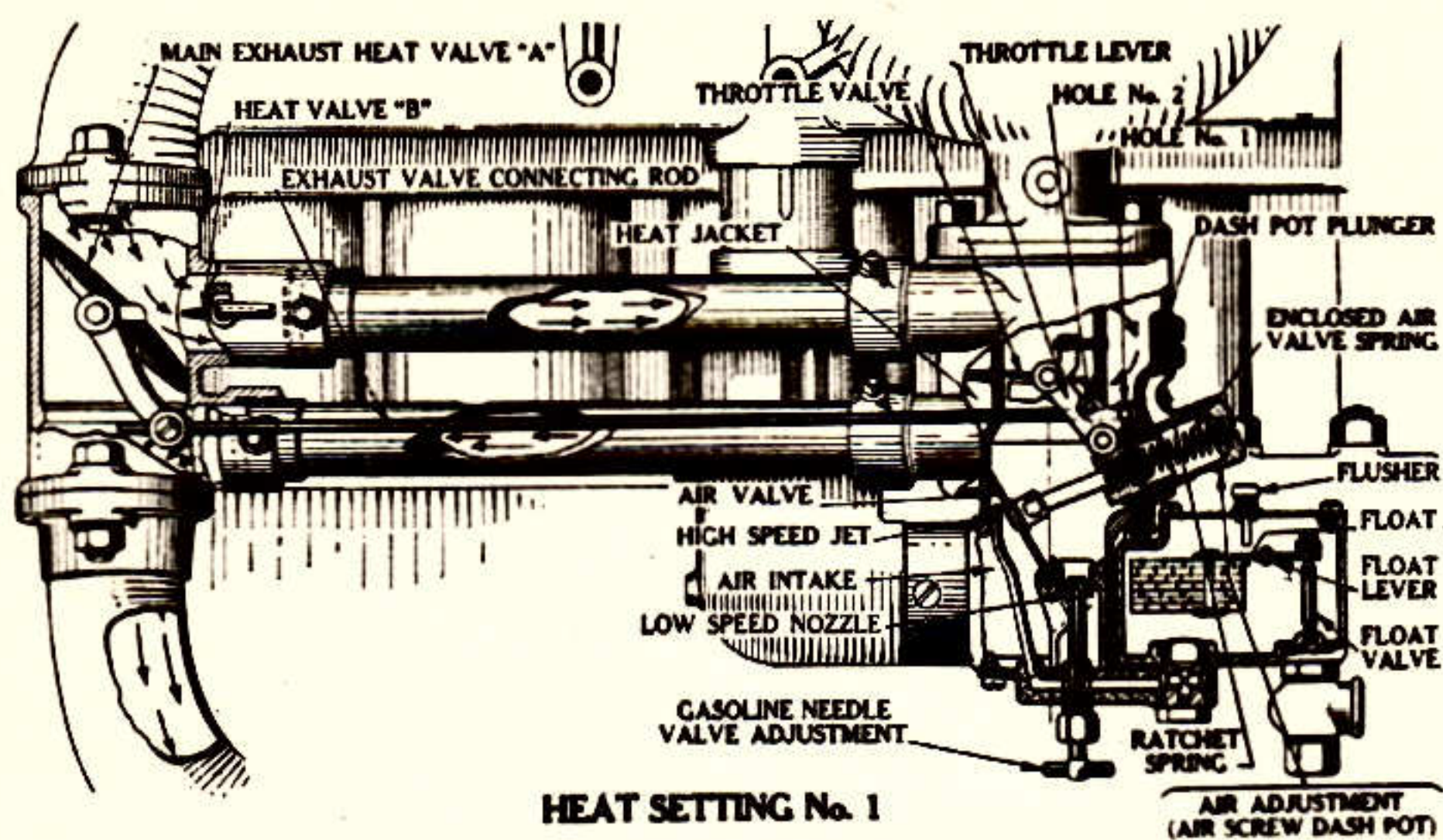


Plate No. 10
Carburetor Settings

is connected by means of a longer lever and long connecting rod to the throttle lever of the carburetor so that when the throttle valve is operated the main-exhaust-heat-valve is operated simultaneously with it.

The purpose of the carburetor heat jacket and valves in exhaust line with connections described, is to provide means for utilizing the heat of the exhaust gases of the motor for vaporization of the fuel supplied the engine by the carburetor and to do so automatically. The automatic feature of same is accomplished by setting the smaller valve "B" in wide open position indicated by horizontal position of lever of same and setting the Main-Exhaust-Heat-Valve "A," by means of the long connecting rod, in closed position with the closed or idling position of the throttle valve, thus providing for and causing all of the exhaust gases of the engine to pass through the heat jacket of the carburetor when engine is idling and to regulate the volume of this heat as throttle is opened by automatically opening the main-exhaust-heat-valve, thus allowing the increasing volume of the exhaust gases to pass on out through the main exhaust pipe without being deflected and by-passed to the carburetor heat-jacket as the motor speed increases.

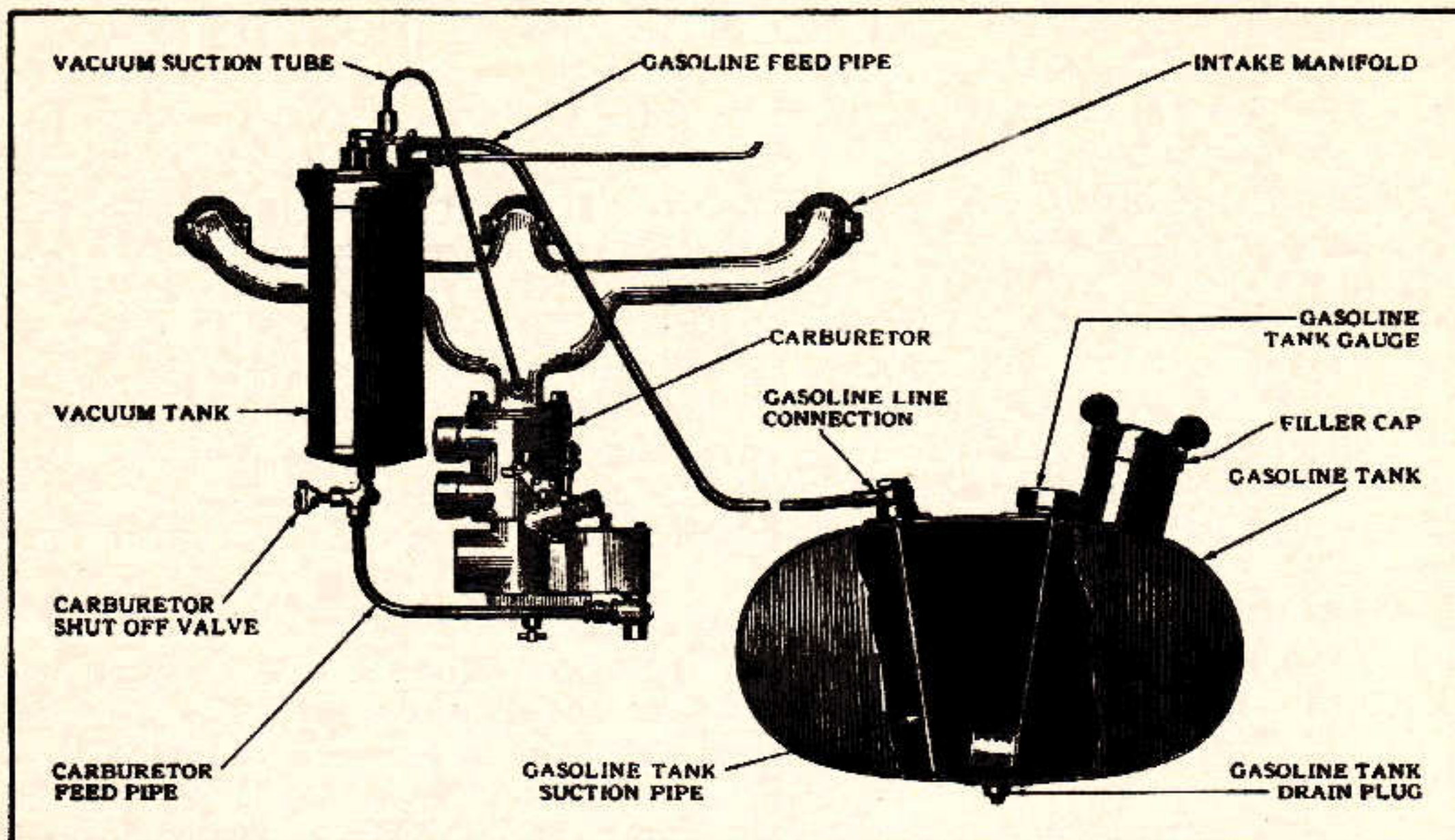
By referring to the cut shown on page 30 and noting "Heat Setting No. 1," it will be noted that Valve "A" in main exhaust line is fully closed with the closed or idling position of the throttle valve, and that Valve "B" is in wide open position. This adjustment is accomplished by having long connecting rod from valve "A" Lever set in "Hole No. 1," in Throttle Lever, being sure that when throttle valve is standing in fully closed or idling position that valve "A" is also in closed position, proving out the latter feature by loosening connection of valve "A" lever holding the long connecting rod; holding Throttle Lever in closed or idling position and bringing up valve "A" Lever on the long connecting rod as far as it will go to the right toward the carburetor and tightening its connection on the long connecting rod in that position. After having made the adjustment as just described, it is assured that "Heat Setting No. 1" has been properly made and that all of the heat possible from the exhaust has been secured. However, should there develop any noise from valve "A" vibrating against its seat when motor is idling, valve "A" Lever may be re-adjusted by again loosening its connection on the long connecting rod and moving to the left away from the carburetor a very little so as to keep it slightly off its seat when motor is idling. This will not affect the volume of heat obtained to any appreciable extent and will overcome the valve noise should any occur.

This "Heat Setting No. 1," also called "Winter Setting," provides as stated, for the most exhaust heat obtainable and should be used during the entire year except in extremely hot seasons or hot climates or when high-test gasoline is being used in engine and even then unless engine is losing power due to excessive heat.

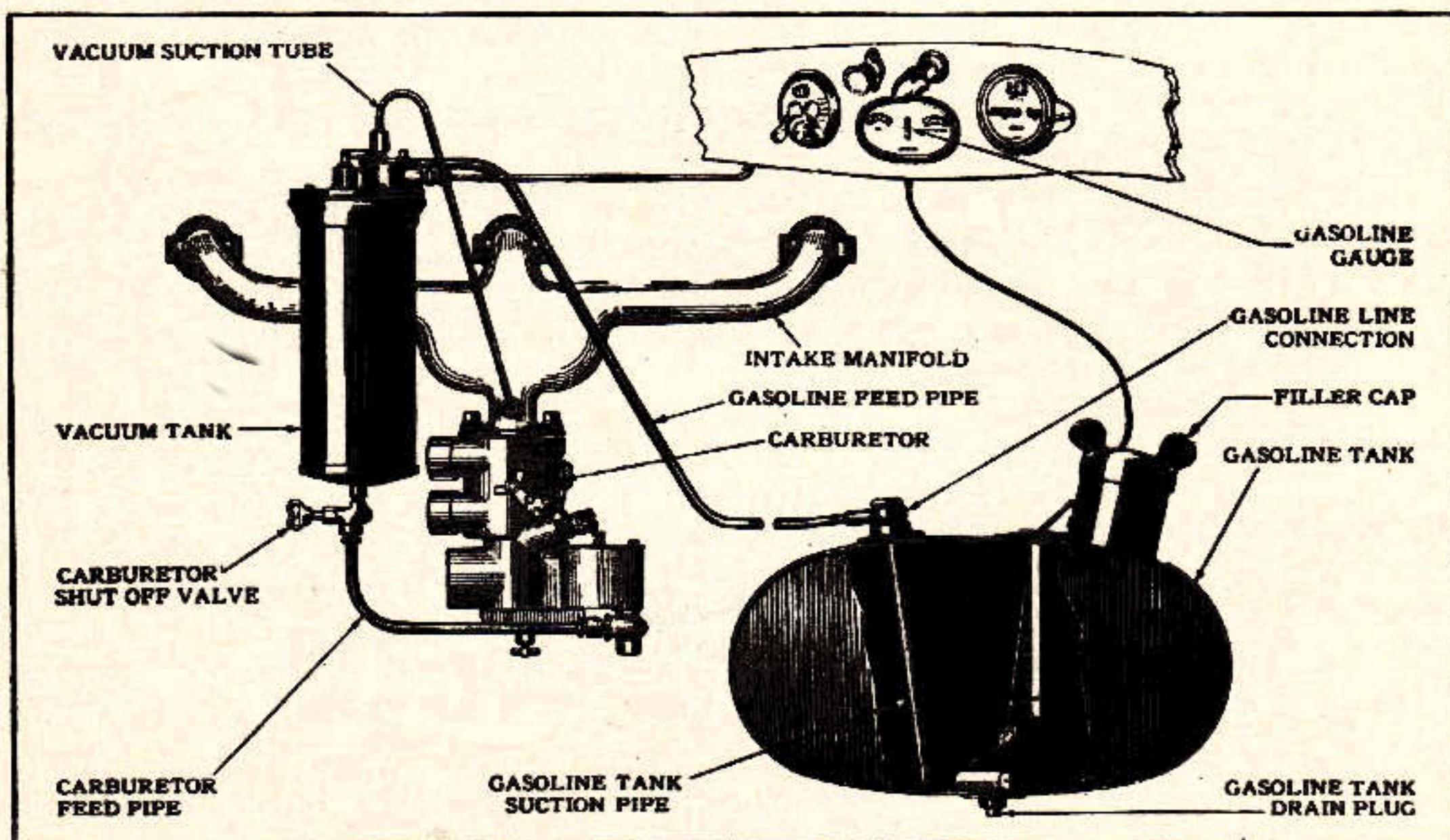
If loss of power due to too much heat in extremely hot weather is experienced, first be sure that it is not due, after motor has warmed up, to driving on hot-air instead of cold-air. After making this observation, if there is still too much heat, refer to Cut on page 30 describing "Heat Setting No. 2," also called "Summer Setting." It will be noted that long connecting rod from valve "A" is removed from "Hole No. 1," in Throttle Lever and placed in "Hole No. 2," in Throttle Lever. This change is all that is necessary in order to change from "Winter Setting" to "Summer Setting."

In "Heat Setting No. 2," or "Summer Setting," when the throttle is in closed or idling position, Valve "A" is quite a way off its seat, Valve "B" remaining in horizontal or wide open position. This adjustment provides for a great deal less heat than is provided by "Heat Setting No. 1" or "Winter Setting" and is all that is required in the reduction of the volume of heat together with driving on "Cold" air for the main-air-supply, in the warmest weather or hottest climates.

"Heat Setting No. 3" on page 30 shows just the same as "Heat Setting No. 2," except that Valve "B" is closed, indicated by lever of same being set in vertical position. This adjustment should never be used unless in extremely hot climates or when using high test gasoline and not



Gasoline System for Models 44 and 45



Gasoline System for Models 41-47-48-49-50-54 and 55

then unless motor is losing power after "Heat Setting No. 2" has been tried by driving with air supply on "Cold" air. Under no circumstances should "Heat Setting No. 1" be used with Valve "B" closed, as to do so would not allow any escape for exhaust gases in idling position of throttle.

NOTE—After original position of Valve "A" is made as described in "Heat Setting No. 1" do not again readjust Valve "A" on connecting rod but when changing from "Heat Setting No. 1" to "Heat Setting No. 2," merely change position of long connecting rod from Hole No. 1 to Hole No. 2 in throttle lever.

GASOLINE GAUGE FOR MODELS 44 AND 45

In order that the operator may be fully acquainted with the supply of gasoline in the tank, a dial indicating gasoline gauge has been adopted and is conveniently located at the top of gasoline tank at the rear of the car.

The gauge seldom, if ever, requires any attention, but can be removed by unscrewing the cap from the tank and the complete assembly can be lifted from position. It is possible when filling the tank that gauge will continue to register "empty," and can be attributed to two reasons: The cork float may have become logged and needs to be dried and again shellaced in order to make it float. Then again, the nut could possibly become loosened and allow the gear to drop out of mesh with the other gear which is carried fixed in the vertical shaft.

The gauge hand is attached to the vertical shaft and as the float rises and lowers the hand revolves and indicates the gasoline in the tank by pointing to the figures on the dial.

GASOLINE GAUGE FOR MODELS 41, 47, 48, 49, 50, 54 and 55

In order that the operator may be fully acquainted with the supply of gasoline in the tank at all times a visual gasoline gauge has been adopted and very conveniently located on the dash of the closed models only and is a mechanically operating device which registers at all times the quantity of gasoline remaining in the gasoline tank attached to the rear of the car.

It consists of a cork float, a piano wire and a graduated registering dial. The cork float is fastened to the tank base extension by means of an arm bent at the proper angle which raises and lowers as the gasoline level changes.

The piano wire is attached to the float arm by means of a clip and as the float raises and lowers it forces the wire to oscillate in and out of the tank through an aperture in the tank base which is fastened to the tank, from which a flexible tube or casing extends to the gauge on the dash inside of which the piano wire oscillates.

The graduated dial or drum is enclosed in a housing which fastens to the instrument plate and the gasoline level is registered by the longitudinal motion of the wire. The drum is supported by pivot pins and a constant tension is maintained with a hair spring adjustment set in such a manner as to permit the drum to rotate. The registering figures are placed on the outside of the drum and show through a small aperture in the face of the instrument conveniently located on the dash.

DELCO SYSTEM

The single unit Delco starting, lighting and ignition system as furnished for the 1923 Buick six cylinder models is built expressly to meet the requirements of this particular engine and car. It consists of the following Delco units as assemblies:

Motor-Generator No. 249.

Motor Clutch No. 15796.

Ignition Coil No. 2176.

Lighting and Ignition Switch No. 1232-1233, and the necessary terminals and clips.

The entire system is of the six-volt, single wire or grounded type, the engine and frame of the car forming the negative side of the electrical circuit. The Delco apparatus does not include the storage battery, lamps, horn or wiring.

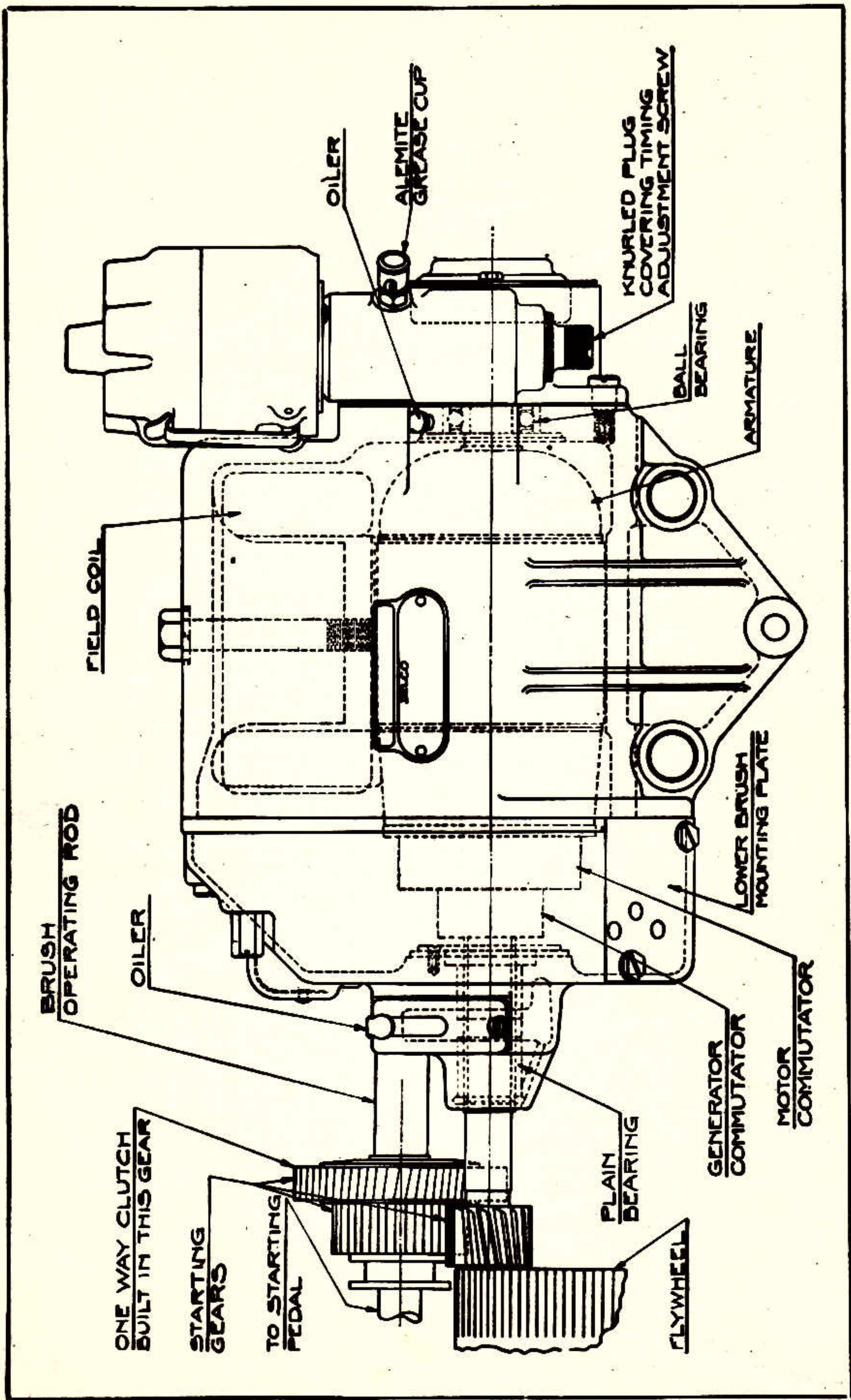


Plate No. 12
 Side View of Motor Generator