

# INSTRUCTION BOOK

HUDSON "33"



1912

HUDSON MOTOR CAR COMPANY

DETROIT, MICHIGAN

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Illustration

## Preparing Car for Running

When preparing car for running, the most important items to be looked after: Water, gasoline and oil.

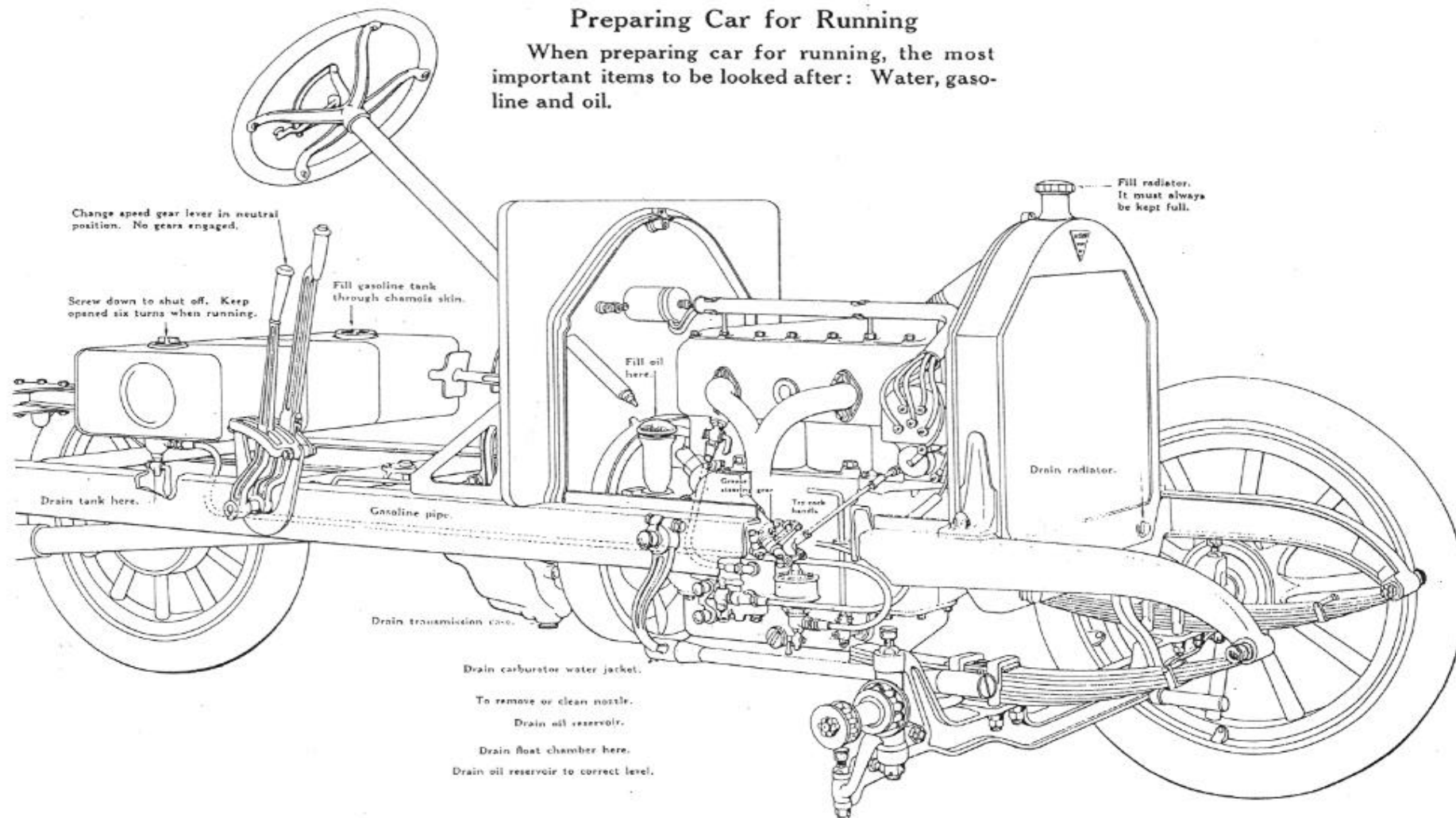


Illustration No. 2

## To Start Motor

Follow instructions as given in paragraphs at left of illustration.

1-  
SPARK CONTROL LEVER.  
THROTTLE LEVER.

TO START MOTOR, SET  
LEVER 2 INCHES FROM  
BOTTOM OF QUADRANT.

2-  
CARBURETOR ADJUSTMENTS.

UPPER LEVER REGULATES  
AIR VALVE. THROW OVER TO  
"L" IN COLD WEATHER UNTIL  
ENGINE WARMES UP. RUN  
WITH LEVER 3/4 FROM "L".  
LOWER LEVER CHOKES  
CARBURETOR FOR COLD  
WEATHER STARTING AND  
MUST BE RETURNED TO  
"OFF" POSITION AS SOON  
AS MOTOR STARTS.

3-  
SELF-STARTER.

HANDLE SHOULD ALWAYS  
BE TURNED QUICKLY AND  
LEFT SHUT OFF. IN  
POSITION SHOWN.  
COLD ENGINES MAY  
REQUIRE MORE THAN ONE  
TURN.

4-  
SWITCH. (BOSCH)

INSERT SWITCH KEY TO  
UNLOCK. TURN SWITCH  
OVER TO BATTERY.  
ARKON ON BUTTON POINT-  
ING TO "START". IF NO  
BUZZ IS EMITTED FROM  
COIL, TURN QUICKLY BACK  
TO "RUN". ALLOWING IT TO  
SPRING OUT. DO NOT RUN  
MOTOR CONTINUOUSLY ON  
BATTERY WITH BUTTON IN  
"START" POSITION. USE  
MAGNETO.

OIL PUMP FEED INDICATOR  
(SHOULD ALWAYS BE WORKING)

EMERGENCY BRAKE LEVER.

CHANGE SPEED GEAR LEVER.  
PLACE IN CENTRAL POSITION  
WHEN STARTING ENGINE.  
START CAR IN LOW GEAR.  
LEVER INSIDE AND BACK.  
CHANGE TO INTERMEDIATE  
GEAR. OUTSIDE AND FORWARD.  
CHANGE TO HIGH GEAR (DIRECT  
DRIVE) OUTSIDE AND BACK.  
TO REVERSE, INSIDE AND  
FORWARD.

FOOT BRAKE PEDAL.

CLUTCH PEDAL.  
ALWAYS THROW OUT  
CLUTCH WHEN SHIFTING  
GEAR OR APPLYING BRAKES.

Accelerator Pedal

### If Motor Does Not Start

It has stopped on dead center; give the motor one-half turn with the starting crank and repeat the starting operation with the self-starter.

Acetylene tank empty; start the motor with the crank, applying your strength to lift up the crank; never push down. Leave the crank in upright position.

Do not keep motor racing when not pulling, as this shortens its life.

Illustration No. 3

## Lubrication of Parts

Parts marked in red to be lubricated at least every 250 miles.

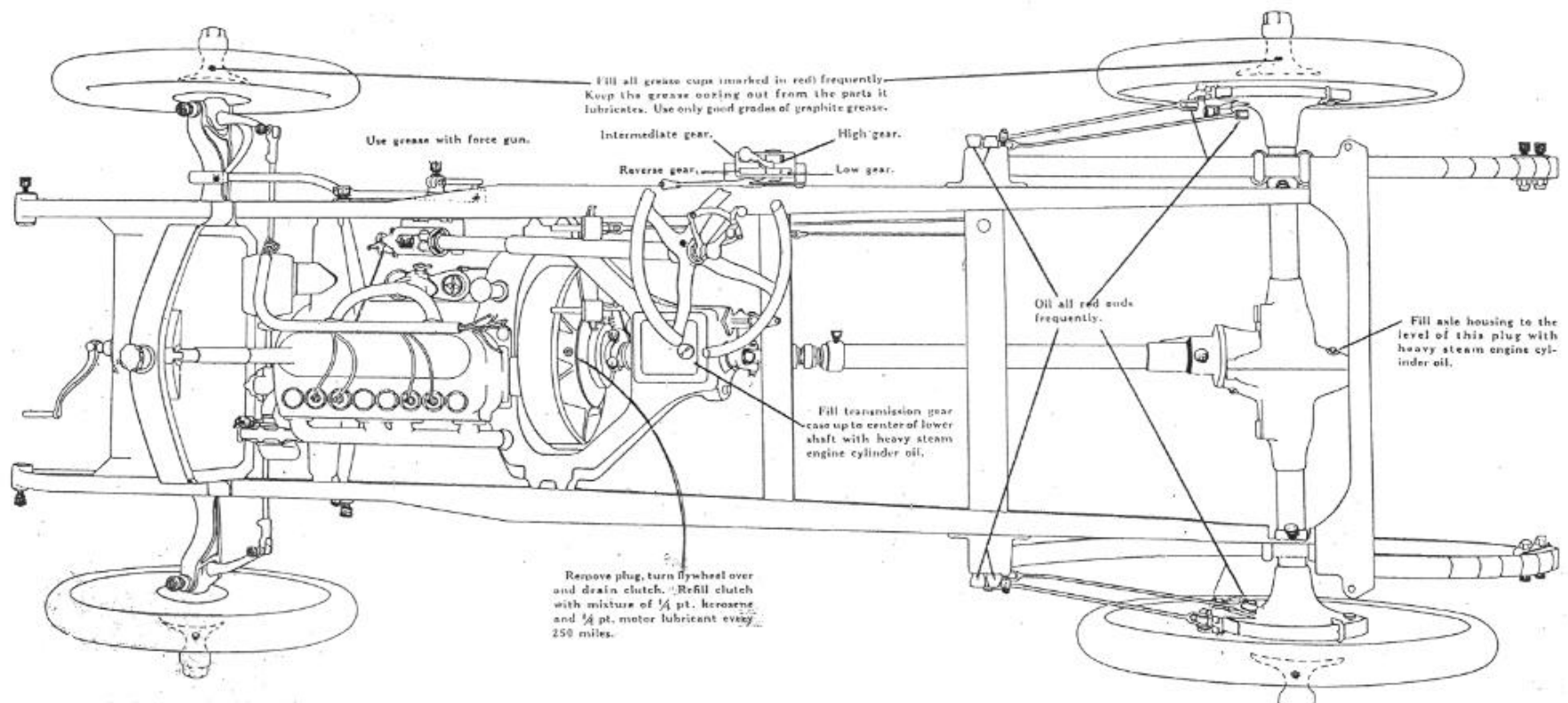
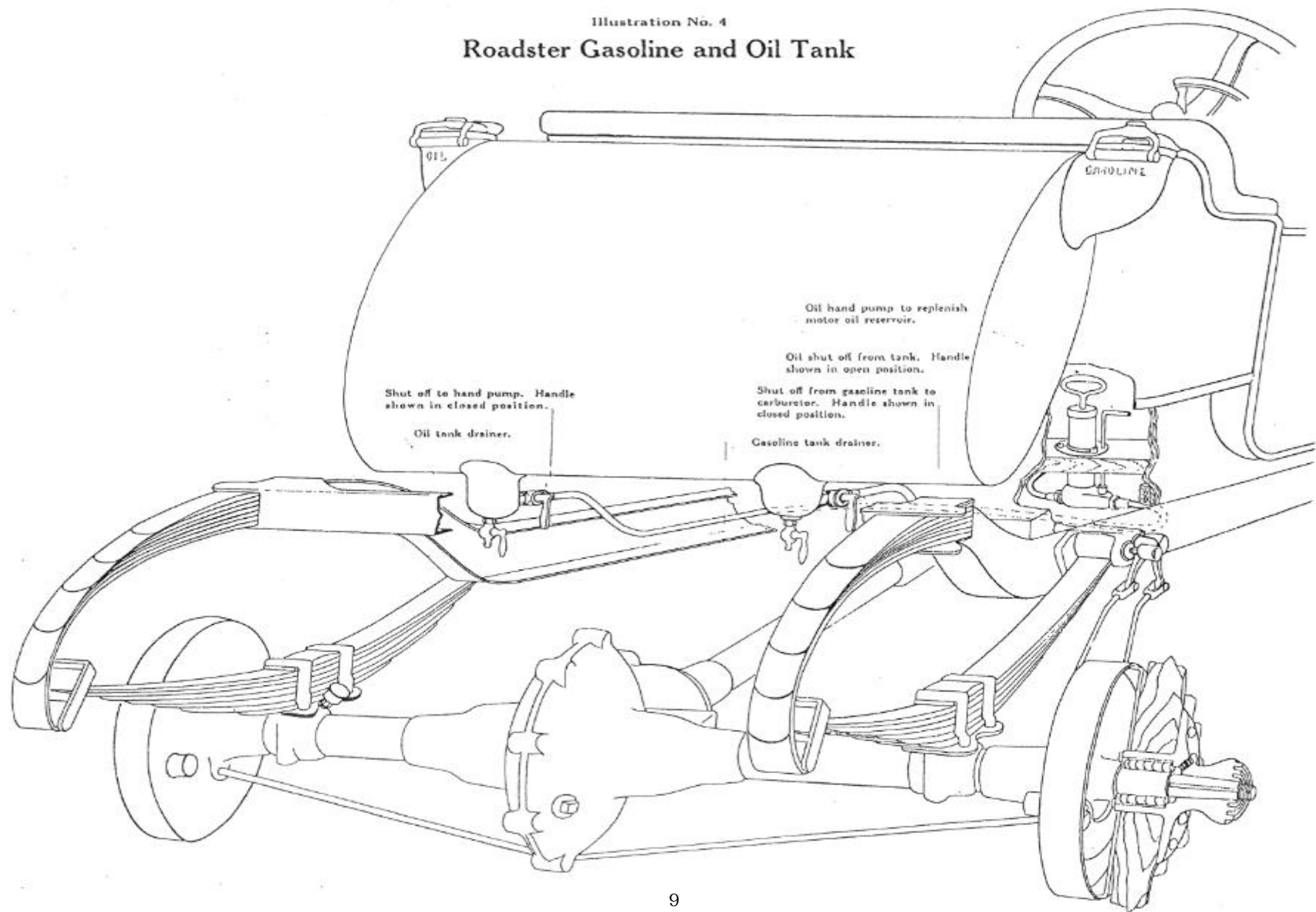


Illustration No. 4  
Roadster Gasoline and Oil Tank



## ADJUSTMENT OF STROMBERG CARBURETOR

Adjust carburetor in the following way

1. See that gasoline level is 1" high in glass chamber. Set Dash Adjustment lever at 15 notches from "L"

2. Start motor.

3. Press down gently with the finger on top of the high speed auxiliary air valve spring. The motor will now either die or speed up. If the motor speeds up, it shows that the adjusting nut is screwed up too far, and if it dies the motor is getting too much air and therefore will stand a little screwing up of low speed adjusting nut. You can experiment in this way and obtain the highest speed your motor will run with closed throttle. During this adjustment the spark should be at moderate retard position. (About 3" from bottom of quadrant.)

4. Now advance the spark and suddenly open throttle wide. If the motor spits back through the auxiliary air intake, screw up high speed spring nut two notches and then test again. Repeat this performance until the motor picks up promptly when throttle is opened wide and does not spit back. Do not be deceived by the motor being cold. If in cold weather, the motor should run long enough to warm the water in the jacket before attempting an adjustment. Considerable care should be exercised so that too much gasoline will not be given

to overcome tendency of back-firing, due to low temperature of motor and intake pipe.

5. Now get in the car and drive slowly on direct drive. Open throttle, and if motor lets go or spits back through carburetor, screw up high speed spring nut one or two notches at a time until the motor takes hold with open throttle at low crank shaft speed.

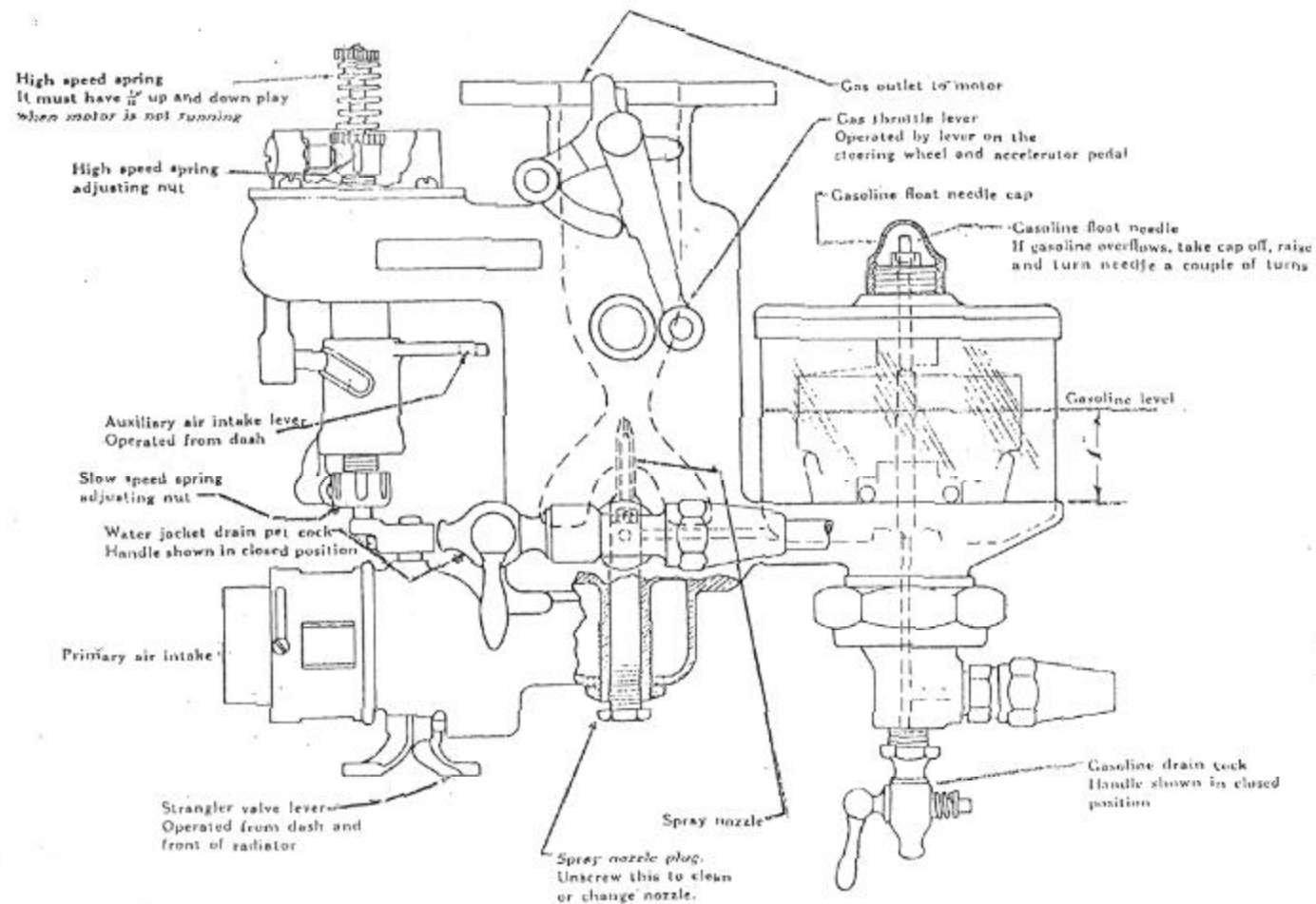
6. If the motor gallops, you have overdone this a trifle.

7. The carburetor is now adjusted properly, and should not need any further attention.

8. If these adjustments are made during the cold weather or winter, it may be necessary when using the car in warm weather to turn down the high speed spring nut two or three notches, but this is the only change that will be required.

NOTE--The gasoline level in the float chamber is almost always found to be correct when the carburetors leave the factory. In warm weather the water to water jacket of carburetor should be shut off as it may cause the motor to starve through having too weak mixture, and spit back thru the carburetor, caused by overheated mixture.

Illustration No. 5  
**Carburetor and Spark Plug Adjustment**



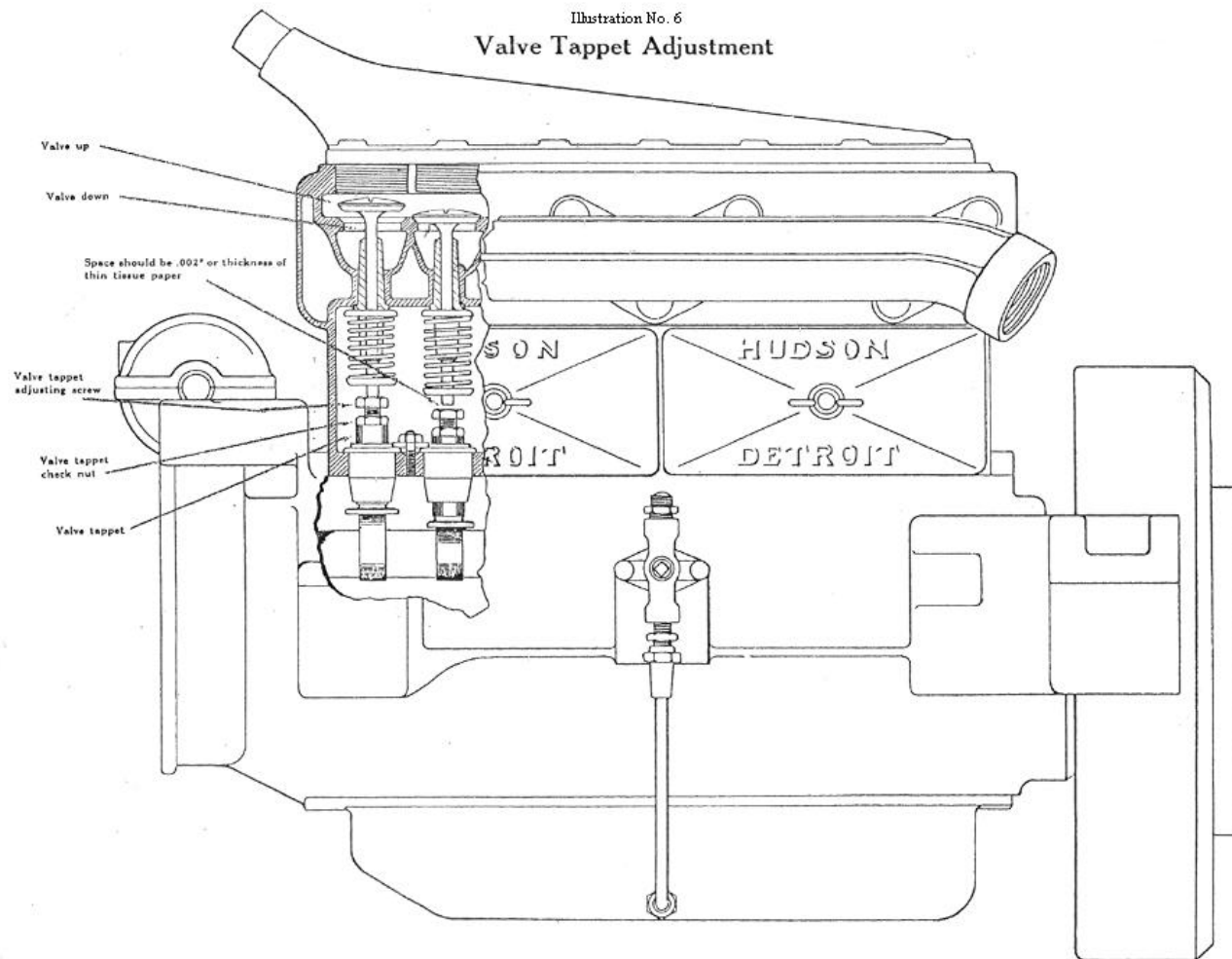
Gap between points to be  $\frac{1}{32}$  of inch.  
 Spark plug to be kept always free from soot.

## ADJUSTING TAPPET CLEARANCE

To Correct clearances be sure:

1. That the valve is all the way down.
2. Loosen check nut.
3. Adjust screw.
4. Tighten check nut.

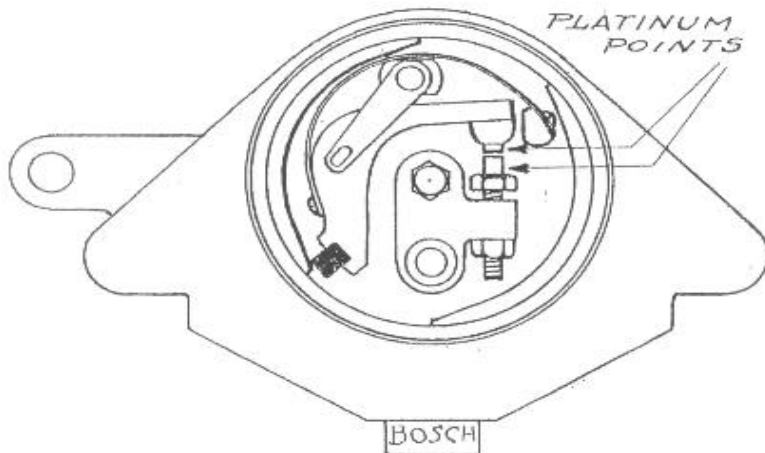
Illustration No. 6  
Valve Tappet Adjustment



## TIMING OF MAGNETO

The timing of the magneto can be checked in the following way:

1. Give full advance to the spark lever on top of steering wheel.
2. Turn flywheel until line on rim marked MAG corresponds with pointer on rear of motor.
3. Take off cover of breaker box on magneto to which control rod is attached.



4. Platinum points in breaker box, when flywheel is as in paragraph No. Q, should begin to separate, and when fully open the space between the points should be the same as the thickness gauge on the magneto key furnished with the car. (Sec Wiring Diagram.)

G. If points break too late or too soon, loosen set. screw on magneto coupling and turn magneto shaft by hand until you have conditions as explained in paragraph No. 4.

- 13 No re-setting magneto shaft !my attention that the order of firing spark plugs is correct in relation to timing of motor valves. The firing order in our cylinders is 1, 3, 4, counting from front of motor.

## TESTING OF BATTERIES

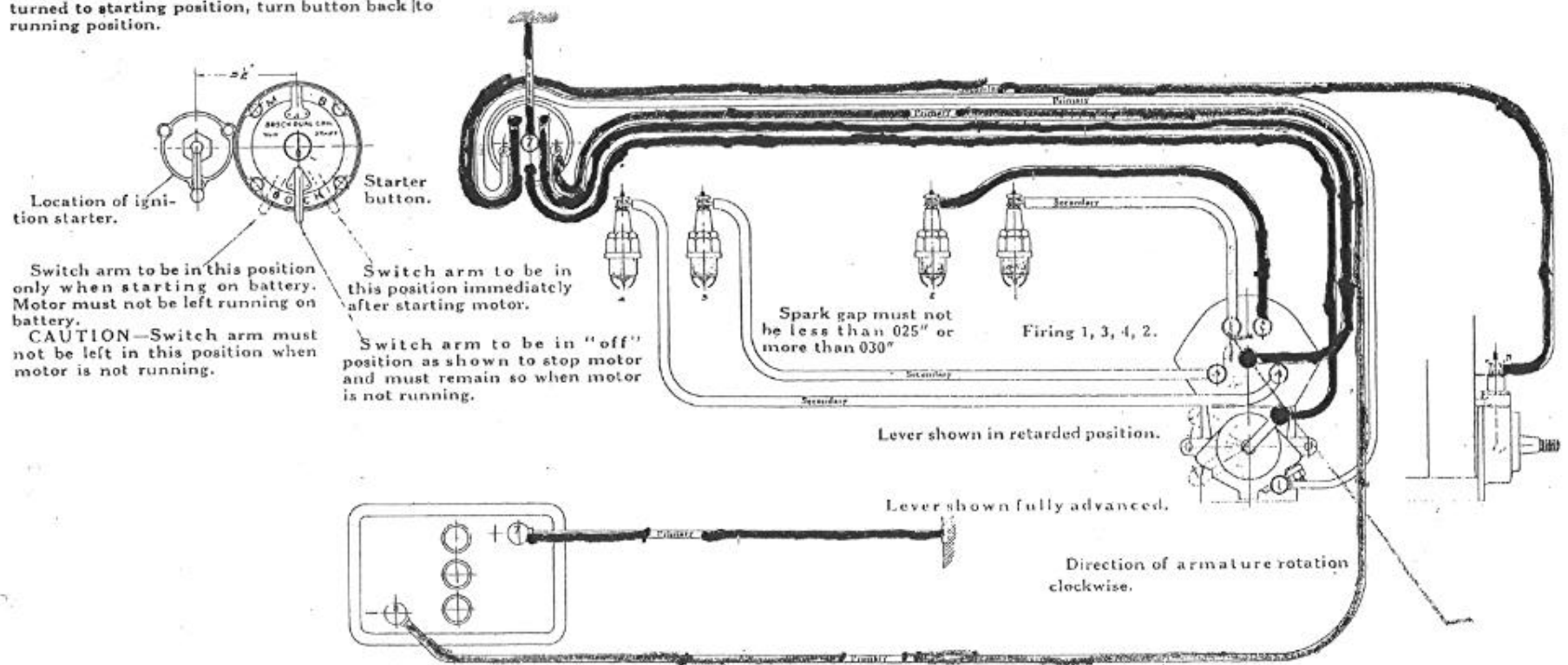
1. Unscrew the spark plug from motor and let it rest on the top of cylinder with wire attached to it. Sec that the upper part of plug does not touch any metal.
- t. Turn dash switch on "B" and push button. If you get a hot spark at the points of the spark plug, the batteries are O. K.; if not, it means that the batteries have run down. With a volt meter the batteries, when fully charged, should show 6 volts, and 4 volts is the downward limit for working purposes.

# Wiring Diagram for Bosch Dual Magneto

## Instructions for Starting Motor with Ignition System

Turn switch to "B" position, then turn starter button on coil to starting position, after motor has started turn button back to running position.

NOTE—If motor fails to start when button is turned to starting position, turn button back to running position.



## HOW TO LEARN TO DRIVE THE HUDSON "33"

Start motor as instructed in Illustration No. 2.

Before shifting gear lever, advance spark lever to about 2" from top of the quadrant, and throttle control lever to about from bottom of the quadrant. Press out clutch pedal with left foot and hold it pressed out while you move the gear shifting lever into first speed (inside back position). Gently let in the clutch; giving the motor a sufficient advance of the throttle lever to prevent stopping of motor as the clutch takes hold. Keep the car in this speed until you have learned the art of steering. It is more difficult to steer at this speed than at a faster speed, but you should be very cautious about faster speed until you are familiar with the steps you have just gone through.

After you have repeated this process a few times and feel confidence in yourself, you may shift to second or intermediate speed (outside forward) after you have the car under way on the first. The same will be repeated for the 3rd speed (outside back).

To reverse car, bring the gear shifting lever to the inside forward position. Never try to reverse the car when it is in motion.

NEVER. CHANGE SPEEDS WITHOUT HOLDING OUT THE CLUTCH. The reason for this is that the gears in the transmission would probably be damaged if shifted from one to the other without first

releasing the clutch. ALWAYS LET THE CLUTCH IN GENTLY after shifting the gears, as there is nothing so hard on the car as violent action in this regard.

Do not slip the clutch continuously. Use gear shift lever and change speed instead.

When preparing to stop, release the clutch, shut down power and coast gently to the point where you want to stop, bringing transmission lever to the neutral position.

Use the brake and clutch pedals as little as possible, controlling the car in nearly all instances by means of the throttle. With the car in motion, if the throttle is closed, the motor itself acts as a brake, without the natural wear and tear on the clutch and brakes. In emergency, close throttle and release the clutch at the same time the brake is applied. You will in this way avoid the necessity of overcoming the momentum of the motor as well as the car.

DO NOT DRIVE FAST UNTIL THOROUGHLY FAMILIAR WITH THE CAR.

When not using the car, the dash switch should be left in "OFF" position. If left in "B" position the batteries will be used up in a short time.

## DIAGNOSIS OF COMMON TROUBLES

### Stopping of Motor.

1. Out of gasoline.
2. Disconnected switch or wires.
3. Out of oil (indicated by knocking in motor, followed by stop).
- 4.

When cannot crank motor. Frozen water pump.

Seized bearings through lack of oil. Transmission engaged.

### Missing of Motor.

1. Bad spark plug.
2. Broken or disconnected wire.
3. Dirt in carburetor. Motor will probably spit back through carburetor.
4. Loss of compression in any cylinder. Valve may be stuck or there may be dirt under it. Valves may need regrinding to re-seat them.
5. Water in the gasoline. Motor runs and then quits, and then runs again, in fits and starts. (This is the most difficult, to classify, and should probably be the last thing looked for.)
6. If motor misses on battery also, you may locate the cylinder by opening priming cocks on top of cylinders, one at a time, thus locating the missing cylinder. After changing the spark plug, try again, and if the trouble still is encountered you may look for a valve which is not seating. This will be detected by turning the motor slowly by hand and comparing the compression of different cylinders.
7. Missing cylinder may be found by opening one priming cock at a time and seeing if explosion takes place in cylinder.
8. If the missing is not confined to one cylinder, the trouble is probably in the carburetor, or intake pipe joints leaking.  
(See also Ignition Troubles.)

### Loss of Power.

The motor will run, but will not pull on grades or under heavy load.

1. Loss of compression due to valves not seating properly.
2. Too rich a mixture through carburetor flooding.
3. Late ignition. Retarded spark.
4. Out of water or oil and motor running hot.
5. Lack of gasoline. If lack of gasoline through stoppage of pipe, etc., the motor will spit back through the carburetor when throttle is opened.

6. Dragging brakes. See that the car can be rolled by hand easily, or that it will coast down hill with clutch released, and not slow down. Feel the brakes with your hand, for heat.

7. Flat tire.

8. Mixture too weak through improper adjustment of carburetor. See Carburetor Adjustment.

### Motor Will Not Start.

1. Switch not turned on.
2. No gasoline.
3. Mixture too weak.

DON'T TOUCH ANY ADJUSTMENTS OR PARTS UNTIL YOU ARE SURE YOU KNOW WHAT CAUSES THE TROUBLE. YOU MAY GET EVERYTHING OUT OF ADJUSTMENT.

Much loss of time and a great deal of trouble is caused by changing adjustments without knowing what the trouble may be, and thereby getting into worse trouble.

WHEN IN DOUBT, DON'T DO ANYTHING. Sit down and think it over and analyze the problem.

### Motor Knocks.

1. Abnormally advanced spark.
2. Too rich mixture.
3. Motor speed too slow when pulling on hill in direct drive.
4. Loose crank rod bearing. (Light knock at high speed.)
5. Crank shaft bearing loose. (heavy pounding at slow motor speed under heavy load.)
6. Too much play in valve push rod. (Light Lapping sound.)
7. Carbon in cylinders.

### Water Boiling and Steaming.

1. Low supply of water.
2. Too rich gasoline mixture.
3. Carbonized cylinders.
4. Lack of oil.
5. Late ignition.
6. Broken or inoperative pump.

#### ANTI-FREEZING MIXTURE

For 5 below zero:

Alcohol 15%  
Glycerine 15%  
Water 70%

For 10 below zero:

Alcohol 18%  
Glycerine 18%  
Water 64%

Or

Denatured Alcohol 35%  
Water 65%

#### CARE OF THE DISC CLUTCH

The principle of our clutch incorporates cork inserts bearing against steel separating plates.

Care should be taken not to deliberately slip the clutch, as too much of this will damage the clutch the same as any other type. If the clutch tends to slip in the least when first being let in under hard service, a momentary closing of the throttle will allow the clutch to instantly engage. If the clutch drags, wash out the case with kerosene and drain through the filling hole, which may be turned to the bottom by revolving the flywheel. Then put in a fresh supply of lubricant.

Owing to the small clearance between the case and the clutch discs, a small quantity of lubricant only is required (1/4 pint kerosene and 1/4 pint of motor oil), as the centrifugal force throws the same out among the discs when the motor is running.

The clutch will not slip, due to any lack of spring tension or adjustment within the clutch itself. The only cause for clutch slipping will be the gumming up of the lubricant within the clutch case, necessitating a washing out with kerosene.

#### WASHING OF CAR

When car is new, wash it with cold water, as it will help to set the varnish.

Ordinary washing of the car is done with cold or luke-warm water. Never use water too hot, as it spoils painting.

Some brand of automobile soap dissolved in water may be used on fenders and wheels to remove grease. Do not use soap on body IF NOT ABSOLUTELY NECESSARY, as it affects the gloss of the varnish.

Do not wash hood when it is warm, as this will cause it to lose its lustre.

Do not rub body with sponge if not necessary, as it always holds grit. Wash by rinsing as much as possible.

# THE ETIQUETTE OF THE ROAD

As the number of automobiles increases, the roads become crowded, and therefore in order to enjoy one's automobile it is necessary that every driver should practice some consideration for other motorists.

Of course, every automobilist knows that he should turn to the right in approaching a vehicle. He knows also that in overtaking a slow moving vehicle on the road, he should pass to the left.

But many drivers, usually due to thoughtlessness, do not practice the consideration for others that they should. Often lives are endangered and accidents result from the driver taking too big a chance.

Many drivers like to display their "nerve," and do not turn out from the center of the road until they are almost up to the approaching vehicle. Some others will bear to the left until almost upon the approaching vehicle in order to force it far over to the right side, and thus give him a wide road without having to go far from the center.

But often the other fellow has just as much courage, or at the last moment one or the other loses control of himself. Perhaps they are driving too fast, and the result is often a collision.

All these things can be avoided and the safety of automobile driving and its pleasure can be greatly increased if each driver will just put himself in the other fellow's place, and remember that the other cars have just as much right to the road, and that if we are just as courteous in our behavior on the highway as we are in ordinary social intercourse, life is much more pleasant.

Cities Control Traffic. This has become such a serious situation in the cities that traffic regulations have been adopted that can very well be followed in other sections.

The states also, in most cases, require that lights be burned on cars, both front and rear, from sun-down to sun-up. This matter is taken care of, and no man who drives a car would think, because of the risk to himself, of driving his automobile without its being lighted.

Intersecting Roads. But, not much thought is given to the caution with which the car should be driven across an intersecting road. Many automobilists will drive over a thoroughfare, heedless of what may be coming on the road that crosses it at right angles, the approach of which is entirely obstructed by buildings, fences, etc.

The result is inevitable. If two cars meet at speed, something happens. The blame for this is on the cautionless driver.

(See note in ordinance, page 3).

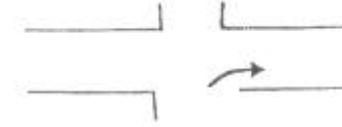


Fig. 1

Turning into Another Road. In turning a vehicle into another road to the right, the driver should keep his car as near to the right-hand curb as practicable, as shown in Fig. 1.

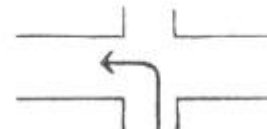


Fig. 2



Fig. 3

In turning into another road to the left he should turn around the center of the intersection of the two roads, as in Fig. 2.

No vehicle should be slowed up or stopped without the driver I hereof giving those behind warning of his intention so to do, by proper signal.

Approaching Railroads. It is always safer in crossing a railroad track to note particularly if any trains are approaching. If there is an incline or a slight grade and the car is brought up to the track slowly, then drop back into second speed and thus avoid the possibility of stalling your motor on the track. Many accidents have happened because inexperienced and easily confused drivers have become frightened when on the track. On noting the approach of a train they have suddenly thrown on their power or let in their clutch, with the result, that the motor is stalled and it is then too late to get out of the Way of the approaching train.

Frightening Horses. If horses frighten, the driver should stop his car, because he has no certainty as to how skilled is the driver who has control of the horse. Perhaps the driver of the horse-drawn vehicle becomes confused; his horse is drawn sharply to one side; is allowed to rear or jump, and often the vehicle is overturned. gaily accidents have resulted from this, dire solely to the unwillingness of the driver of the motor car to pay any heed to the other man.

**Changing Gears.** More accidents result from unwillingness to change gears than from almost any other cause. Most American drivers use their first and second gears only to start their cars. As a result accidents often happen because of their unwillingness to drop from third speed into second. They allow the car to drift along, and thus get into a tight place in the traffic or too close to a street car, and because of misjudging the speed of an approaching vehicle or an unwillingness to stop their own car, collisions and other accidents result.

Your second gear is there for a purpose. It is but a simple operation to change from third to second. It gives you power, and if it is necessary do not hesitate in bringing your car to a full stop. It is rare that any of us are in such a hurry that we cannot spare a second or two for safety.

**Accidents Not Due to Losing Control of Car.** Accidents are not due to one's losing control of the car so much as they are to one's losing control of himself. All of the controlling apparatus of the car is just as it was. In most accidents due to skidding, etc., it has been found that they are due to the driver's losing control of himself. He becomes confused. One is not an expert driver until he intuitively performs the operations which control the car, just as one walks or reaches out for an object. It must be instinctive to steer the car around obstacles. It must become natural to operate the clutch and brakes readily. One hasn't, the time, if the car begins to skid, to think what should be done. It must be done instantly.

**When the Car Skids.** This is a helpless situation. Passengers have the sense of feeling that they are absolutely unable to protect themselves. It is all in the handling of the steering wheel.

If the rear wheels begin to skid, do not put on the brakes. Do not throw off the clutch. Shut down the motor. Check the momentum of the car by reducing the speed of the motor and turn the front wheels in the same direction that the rear wheels are skidding.

**When the Front Wheels Skid.** This happens on slippery roads, and does not occur so frequently as does skidding of the rear wheels. Turn the front wheels just as you would in the direction of backing your car. That is, if your front wheels skid to the right, turn them to the left.

**In Crossing Street Car Tracks and Climbing Out of Ruts.** Skidding can be prevented, accidents can be avoided, and the life of your tires lengthened if you will learn how to turn your car out of street car tracks or ruts. Make a sharp turn of your front wheels. Do not allow the wheels to climb along the edge of the rut and finally jump off suddenly. And do not attempt to climb out of these conditions at speed. Haste surely makes waste in driving an automobile.

**Rounding Corners at Speed.** Driving a car around a sharp corner at twenty-five miles an hour does more damage to the tires than does fifteen to twenty miles of straight road work. That is an economical reason why one should drive around corners cautiously and slowly.

**Watch Your Car Closely.** You will soon become accustomed to all the sounds your car makes. Any other sound, be it ever so slight, will be immediately perceptible. A good driver will immediately locate the cause for that new and strange noise. It is the warning signal that something is not normal. It may be a loose nut. It may be a cry for grease. Do not disregard these signals. Locate the cause and give them immediate attention. Thus you will lengthen the service of your car.

**Driving Over Rough Roads.** The natural inclination of the driver is to throw out the clutch in coasting down hill or driving over rough roads. This should not be done. Keep the motor pulling your car over rough roads. Thus it, keeps everything taut and lessens the shock and jar that the car gets through bumping over ruts.

**Coasting Down Hill.** In coasting down hill use the motor as the brake. That is, close your throttle and let the car drive the motor. This, of course will not be sufficient to hold the car on very long and steep grades. It will serve, however, to relieve the strain on the brakes, and it will enable you to keep the car under absolute control.

If the grade is long and steep, use the foot and emergency brakes alternately. This will prevent them from burning out.

**A Car's Service Depends Upon the Driver.** Much of the satisfaction that an automobile gives depends upon the driver. If he neglects his automobile, if he does not lubricate it, or if he tinkers with it too much, he is bound to receive unsatisfactory service.

No machine can be absolutely automatic. All things must wear in time. The best preventive of wear, and the most certain thing for increasing the life of an automobile, is proper lubrication.

**Familiarize yourself thoroughly with all the lubricating points of your car.** The chart in this book will show you where each one is located. Make the lubrication of your car as regular as is the eating of your meals. If you do this, you won't have any complaint to make of your car becoming noisy or of bearings wearing out. If you don't do it, you will not get the satisfaction from your car that you had expected.

**Operate Your Spark Lever.** The spark lever--the short lever on your steering wheel--is to be retarded, that is, brought down, whenever the motor labors or pounds. In driving over rough roads, thru sand and mud, or up hill, or whenever there is a heavy load and the motor does not seem to run smoothly, retard your spark.

Many drivers entirely ignore the spark. As a result their motors do not give perfect service, and some cause considerable trouble.

Coasting Mountain Roads. Whenever you approach a long and steep grade, it is best to put your gear speed lever into first speed and allow the car to drift down on the motor. This is better than using the brakes. It gives you absolute control of the car at all times.

Coasting With Clutch Out. There is a satisfying sensation in allowing the car to coast along with the clutch disengaged. But do not under this condition, if the car is speeding, let the clutch in when the motor is running slowly. It produces too severe a shock on the entire driving mechanism. Speed your motor up to as great or a greater speed than the car is traveling, so that the shock will not be so severe.

In all cars such a plan of driving results in strains, often so serious that the transmission is wrenched from its anchorage. The clutch is damaged, and accidents have resulted.

Know Your Car. Your satisfaction will be greatly increased if you will learn the details of your automobile. Learn to make the simple adjustments. They are all described here. Do not depend upon some one else to do that which is so simply done, and which you can get such satisfaction in doing. There is nothing complicated nor complex about the HUDSON "33."

There are no inaccessible parts that should interfere with ready adjustments. Familiarise yourself with every detail of the car as is explained in this book and you will have greater confidence in venturing over any road at any distance from a repair station.

The Cost of Speed. The law is just as immutable in that it collects a greater cost for speed in a motor car as it does of any machine or of man. If you run fast, if you work hard, you require more food to sustain you. If you drive your car at a fast speed all the time, it requires more fuel—more gasoline and more oil.

If you work fast and hard, you wear out more quickly, and so does an automobile.

Tires, for instance, last twice as long on a car that is driven at fifteen miles an hour as they do upon cars that are driven at thirty miles an hour.

Remember that the service your car gives you is as much dependent upon the manner in which you operate it as is your own health dependent upon the manner in which you care for it.

Keep Your Tires Inflated. Do not use them when they are soft. There should be a pressure of 75 pounds per square inch in the rear tires, and 70 pounds per square inch in the front tires. A tire pressure gauge is a good investment. It adds mileage to your tire service.