

EQUIPMENT MANUFACTURERS

The following is a list of Manufacturers supplying units for the DURANT who have established many Service Stations throughout the United States and other countries:

AMMETER	W. G. Nagel Electric Co., Toledo, Ohio
BATTERY	U. S. L. Battery Corporation, Niagara Falls, N. Y.
CARBURETOR	Tillotson Mfg. Co., Toledo, Ohio
CIRCUIT BREAKER	Electric Auto-Lite Co., Toledo, Ohio
COIL	Electric Auto-Lite Co., Toledo, Ohio
GENERATOR	Electric Auto-Lite Co., Toledo, Ohio
HORN	E. A. Laboratories, Inc., Brooklyn, N. Y. Northeast Electric Co., Rochester, N. Y.
IGNITER	Electric Auto-Lite Co., Toledo, Ohio
LIGHTING AND IGNITION SWITCH	Clum Mfg. Co., Milwaukee, Wis.
OIL PRESSURE GAUGE	W. G. Nagel Electric Co., Toledo, Ohio
SPEEDOMETER	Stewart-Warner Speedometer Corporation, Chicago, Ill. Northeast Electric Co., Rochester, N. Y.
STARTING MOTOR	Electric Auto-Lite Co., Toledo, Ohio
STARTING SWITCH	Electric Auto-Lite Co., Toledo, Ohio
TIRES	Fisk Rubber Company, Chicopee Falls, Mass. Ajax Rubber Co., Racine, Wisc. United States Tire and Rubber Co., Detroit, Mich.
VACUUM TANK	Stewart Warner Speedometer Corporation, Chicago, Ill.
WHEELS, WIRE	Budd Wheel Co., Detroit, Mich.
WINDSHIELD WIPER	Trico Products Corp., Buffalo, N. Y.

To Prepare New Car for Service

All DURANT motor cars are thoroughly tested and properly adjusted before leaving the factory, and all parts requiring oil and grease are lubricated. The gasoline tank and cooling system are drained before shipping.

To put a car in service for the first time, or after it has been in storage, the owner should follow a few simple instructions, as follows:

1. Fill gas tank with gasoline. (Capacity 11 1/2 gallons.)
2. Fill radiator with clean water or anti-freeze solution if weather is cold. (Capacity 12 quarts.) (See Winter Driving, page 39.)
3. Be sure there is plenty of oil in crankcase. (Capacity 6 quarts.) (See Engine Lubrication, page 33.)
4. See that all parts requiring lubrication are supplied with proper oil or grease. (See Lubrication Chart, page 31.)
5. Examine all tires. Tires should be pumped up to 28 lbs. pressure
6. Raise the hood and examine wiring. Terminals should be tight upon spark plugs.
7. Remove any water, oil or dust from engine.

Precaution A new car should be driven at moderate speed for the first thousand miles. During this important period of a car's life it is not advisable to exceed a speed of 25 miles per hour.

When car is new, all parts are tight and there is danger of burning out bearings or scoring cylinder walls and pistons if driven at high speed before car has been run long enough to allow parts to work in together.

Preliminary to Starting the Engine Before attempting to start the engine, always make sure of the following things:

- (a) Hand brakes are set.
- (b) Transmission is in "neutral," that is, the lever is free to move from right to left.
- (c) Ignition switch is turned "on," by turning key to the right.
- (d) Spark lever is fully retarded. Throttle lever "advanced" or "pulled down" about a third of its travel.

To Start the Engine Located conveniently on the toe board just to the right of the accelerator foot rest is the electric starting button. Press it down with the toe of your right foot. This contact completes the circuit between the battery and the starting motor.

If engine does not start within five seconds, take your foot off the button, and examine all controls to see if they are properly set and try again.

Never press starter lever the second time until fly wheel has come to a standstill. When in a rocking motion, and starter is applied, the teeth of the fly wheel are very liable to be damaged.

As soon as the engine starts under its own power, retard the throttle and advance spark control to about three-quarters of its travel.

Use of Choke In cold weather or when the engine is cold, it is usually necessary to "feed" more gasoline to it until it thoroughly warms up. Located on the instrument board, within convenient reach (see fig. 1) is the "choke."

To start, pull out choke rod. As soon as the engine starts under its own power, release choke. If the engine spits, or immediately slows down as though it were going to stop, pull choke rod out a little and let the engine run for a few minutes until it warms up; then release choke rod, making sure it is fully closed and flush with instrument board.

Don't operate your car for any length of time with the choke rod pulled out, as besides consuming more gasoline than is necessary, a good percentage does not explode but is forced

past the piston rings into the lower crankcase, diluting the oil and cutting down its lubricating qualities.

Starting the Engine in Cold Weather Always release the clutch by pressing down on the clutch pedal **BEFORE PRESSING THE STARTING BUTTON**. In cold weather the oil in the transmission becomes very thick and heavy, placing an extra burden on the starting motor and battery. By releasing the clutch, the transmission

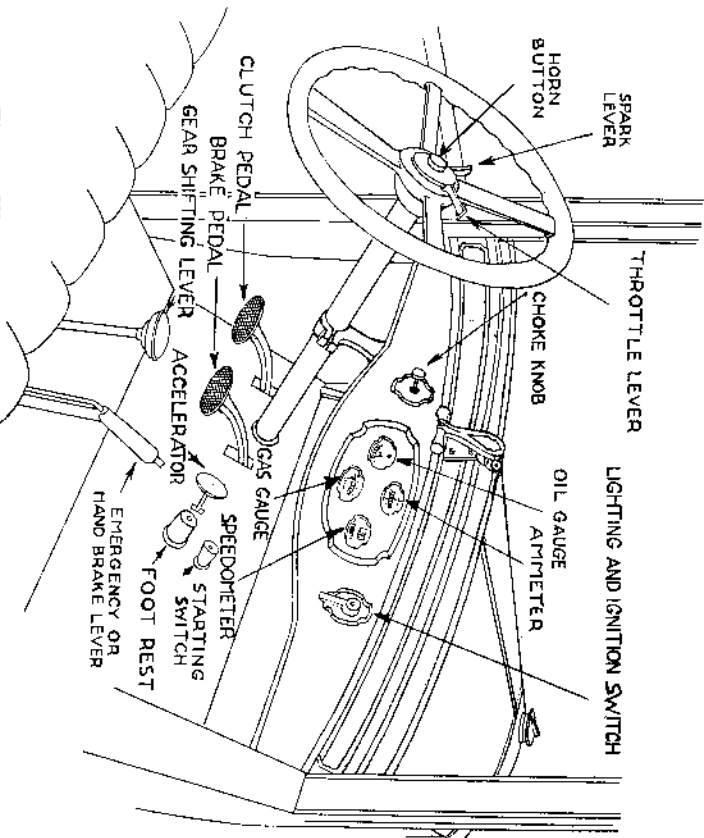


Fig. 1—View of Front Compartments (Showing Controls)

gears are thrown out of engagement and your engine will start easier.

Engine Will Not Start If the engine was operating in a satisfactory manner when last used, any one of the following may cause an engine not to start readily under its own power. We are assuming that the starting motor is operating and is turning the engine over at fair speed:

- (a) The ignition switch is not turned "on."

(b) The choke rod is not pulled out far enough.

(c) Water may have gotten into the gasoline tank and collected in the carburetor.

The first and second reasons are readily understood and corrected. The third, however, needs a little explanation.

Most commercial gasoline contains some water. It will not mix with gasoline, but, being the heavier, finds its way to the lowest point in the system—the carburetor. In warm weather this does little damage except to cause a spitting or sputtering of the engine. Holding the choke rod out for a few minutes usually overcomes this. If it does not, shut off the gasoline supply at the vacuum tank and disconnect the supply pipe at the carburetor. This allows the water to run out, after which it can be connected up again.

In cold weather, however, the water may freeze. By pouring hot water or applying hot cloths to the supply pipe and bowl of the carburetor this can be loosened up. Then disconnect the supply line and allow the water to run out of the carburetor as explained above.

Before doing this, however, it is well to examine each of the wires both on the coil and distributor to make sure that none are loose or disconnected.

To Put Place your left foot on clutch pedal (see fig. 1)

Car in and push forward as far as it will go; and hold. In

Motion this position the clutch is disengaged. Clutch must always be disengaged when shifting gears.

Low With clutch disengaged move gear-shifting lever

Speed from neutral position to left as far as it will go; then pull straight back into first speed or low gear.

(See Position 1, fig. 2.)

Increase slightly the speed of engine by pressing down on foot throttle with your right foot. Let clutch pedal back slowly, allowing clutch to engage gradually. Car will then move forward.

Increase pressure on foot throttle and allow car to gain a little speed.

Second As soon as the car has gained a little speed, again press forward on clutch pedal to disengage

Speed clutch, and at the same time release the pressure on foot throttle enough to prevent engine from racing.

Move gear-shifting lever forward to neutral, through neutral to right as far as it will go, then straight forward into second speed. (See Position 2, fig. 2.) This operation should be done without hesitation and before car loses its momentum.

Just as soon as you have gear in second speed, let clutch pedal back gradually to natural position, at the same time feed

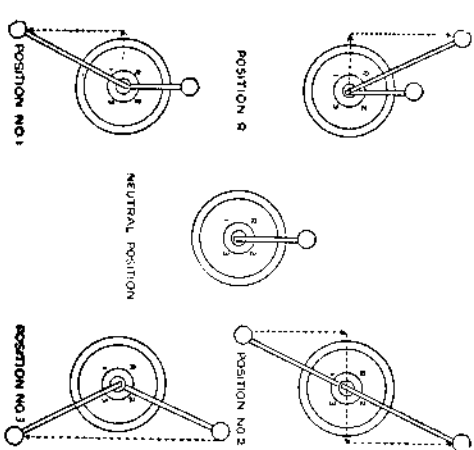


Fig. 2—Gear Shift Positions

engine a little more gas, with foot throttle, as it is now working under load, or pulling.

High After car has gained a fair speed, again disengage

Speed clutch, lessen pressure on foot throttle, and pull shifting lever straight back into third or high gear.

(See Position 3, fig. 2.) Then let clutch pedal back gradually, applying pressure to foot throttle until you have gained the desired speed.

Shifting In shifting from a higher to a lower gear, always

Gears accelerate the engine a little just before making the gear change. This will allow the two gears to be meshed to run at approximately the same speed.

The accelerator and clutch pedal should be handled in such a way as will enable the engine to pick up or pull its load quickly and evenly without racing. This requires practice but is easily mastered in a short time.

Use of Most driving will be done in high, or third speed, but when going up steep grades, pulling through soft mud, deep sand or rutty roads, shift to a lower gear. It not only makes for more comfortable riding but saves the car from all unnecessary strain.

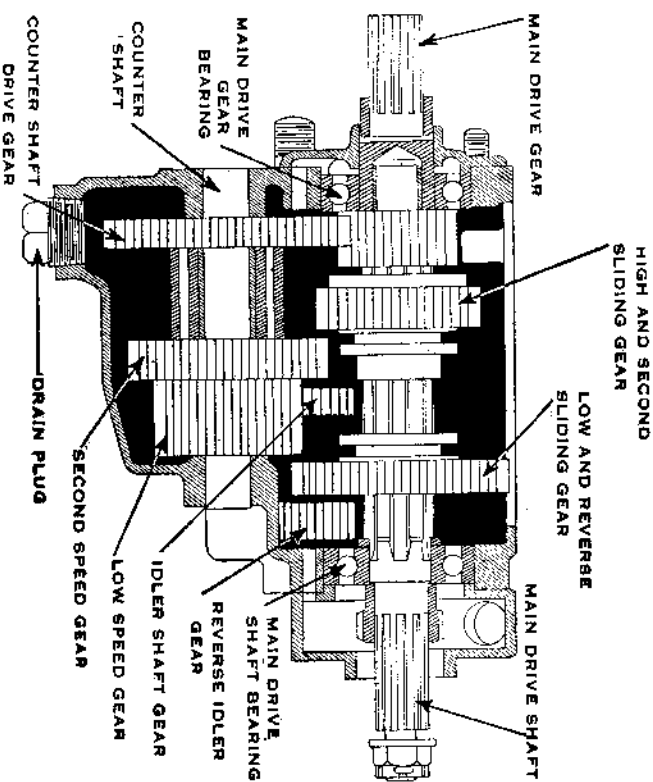


Fig. 3—View of Transmission

To Reverse Car Before attempting to reverse or operate car backwards, it must be stopped.

With car at rest, disengage clutch. Move gear shifting lever from neutral to left as far as it will go, then straight forward into reverse gear. Apply pressure to accelerator pedal and gradually let clutch pedal back. Car will then move backwards. (See Position R, fig. 2.)

Car is stopped when running backward in the same manner as when running forward. When car is stopped move gear shifting lever back into neutral position.

Starting Should it become necessary to start car on up grade start the engine in the usual way. The emergency brakes are already applied. Therefore shift into low gear, increase the speed of your engine with the foot throttle and let clutch pedal back slowly so clutch will take hold at the same time emergency brakes are being released gradually.

Ignition The initial setting of the distributor at the factory is correct and should not be altered unless the parts have been removed or disturbed.

To check the timing when necessary, proceed as follows:

Full Manual Spark Control

(Up to Motor No. 102497)

First remove spark plugs from all cylinders except No. 1 (No. 1 cylinder is the nearest to the radiator) and crank the engine by hand until the piston in No. 1 cylinder starts up on the compression stroke which will be when the resistance is offered; then remove the spark plug in No. 1 cylinder and continue to crank the engine slightly until the marking on the flywheel is at top dead center or in line with the center with crankshaft.

Next, retard the spark lever on the steering wheel to its full limit, then loosen the springs holding the distributor cap in place. Before entirely removing the cap, make sure the position of the distributor arm is pointing directly to the spark plug wire leading to the top of the distributor cap to the spark plug in No. 1 cylinder. If it is in this position loosen vertical clamp bolt on the retainer bracket and lift the entire distributor up just far enough so the gears at the lower end of the distributor shaft are out of mesh and then turn the distributor arm only until it is pointing directly to No. 1 spark plug wire. In this position the distributor cam should be just touching the breaker arm to cause the contact points to start separate or opening. To adjust, if necessary, loosen the clamp screw on the outside of the distributor just beneath the housing and turn the entire distributor slightly in the proper direction. Turning the distributor to the right or clockwise retards the

ignition; turning it to the left or anti-clockwise advances the ignition.

After the proper adjustment is made, tighten the clamp screw, replace the distributor cap, spark plugs, etc., and the ignition should be correct.

Semi-Automatic Spark Control

(Beginning with Motor No. 102498)

The distributor is equipped with a semi-automatic spark control device which mechanically controls the advancing and retarding of the spark. The initial setting at the factory is correct and should not be altered unless the parts have been removed or disturbed.

To check the timing when necessary, proceed as follows: first, remove the spark plugs from all the cylinders except No. 1 cylinder (No. 1 cylinder is the one nearest to the radiator). Crank the engine by hand until the piston in No. 1 cylinder starts up on the compression stroke, which will be when resistance is offered; then remove the spark plug in No. 1 cylinder and continue to crank the engine slowly until two and one-half teeth ahead of the dead center line on the flywheel lines up with the pointer located on the right-hand side of the bell housing, which encloses the flywheel.

Next, advance the spark lever on the steering wheel to its full limit, then loosen the springs holding the distributor cap in place but before entirely removing the cap, make sure the position of the distributor arm is pointing directly to the spark plug wire leading from the top of the distributor cap to the spark plug in No. 1 cylinder. If it is not in this position, loosen vertical clamp bolt on the retainer bracket and lift the entire distributor up just far enough so the gears at the lower end of distributor shaft are out of mesh and then turn the distributor arm only, until it is pointing directly to the No. 1 spark plug wire. In this position the distributor cam should be just touching the breaker arm to cause the contact points to start separate or opening. To adjust, if necessary, loosen the clamp screw on the outside of the distributor just beneath the housing

and turn the entire distributor slightly in the proper direction. Turning the distributor to the right or clockwise retards the ignition; turning to the left or anti-clockwise advances the ignition.

After the proper adjustment is made, tighten the clamp screw, replace the distributor cap, spark plugs, etc. and the ignition timing should be correct.

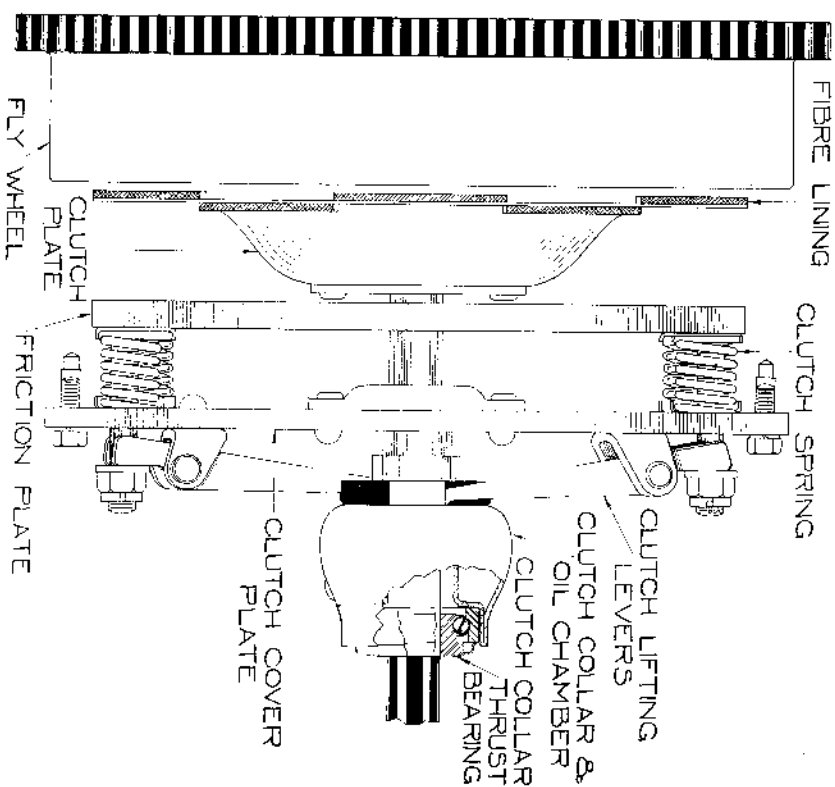


Fig. 4—View of Clutch

Making an Emergency Stop There are times when the ability to bring the car quickly to a stop is of the greatest importance. When this occurs, release the clutch by pressing the pedal under your left foot and at the same time **PRESS DOWN HARD** on the service brake pedal, the one under your right foot. If this braking action is not

sufficient to bring the car to a stop in the required time, "set" the emergency brake by pulling the emergency brake lever toward you as far as it will go.

If a full stop is not desired, merely a temporary slackening of the speed, **RELEASE THE BRAKES FIRST; THEN LET THE CLUTCH PEDAL COME UP.**

If the speed of the car has been decreased to any great extent, always shift into a lower gear. Never allow the engine to pick up a slowly moving car on high gear. The strain placed upon it is very great, and the likelihood of "stalling" the engine easily offsets the small effort necessary to change speeds.

When approaching a railroad crossing, slow down, and shift into second speed before proceeding. Many fatal accidents are caused by cars stalling on railway tracks. Don't take chances—the slight inconvenience of shifting gears may save your life.

Be considerate. The manufacturers have placed three forward speeds at your disposal, each ratio of which is designed for certain loads and conditions. Don't overload the engine; the next lower gear, while a little slower, is in the end an insurance for longer life and more efficiency.

If in applying the brakes one brake acts before the other, they should be adjusted so that both take hold at the same time. Brakes which are not properly equalized are dangerous, particularly on wet or slippery pavements, as they will cause the car to "skid."

If the brake lining becomes worn so that pressure on the brake pedal does not have an immediate effect, don't wait until you have an accident, but have them adjusted or relined at once.

To Leave When leaving car alone, form a habit of setting hand, or emergency brakes. Then place gas and spark throttles in position for starting, and **ALONE WAYS TAKE SWITCH KEY WITH YOU.**

Never leave car standing with engine running. It is a useless waste of gasoline and dangerous. Some child might throw transmission gear into mesh. It is also very handy for a thief to steal.

Turn the front wheels slightly if you stop on a grade of any kind. If the car should start it will roll into the curb and save a runaway.

Steering Car Steering is mostly a matter of confidence, good judgment and practice.

Take your time and learn to do the right thing from the beginning, and in a short time you will get the "feel" or "hang" of your car, and then steering, shifting gears and making turns become almost second nature. You will do it seemingly without thought.

At first, drive slowly. Form a habit never to turn corners too quickly or sharply. Slow down when approaching traffic or crossing railroad and street car tracks.

Learn to watch the road from one hundred to three hundred feet ahead of car, depending upon the speed car is traveling, and you will always have plenty of time to make the proper turn or stop car without the least danger of accidents.

Watch the Instruments All necessary instruments are located conveniently on the dash in such a position that driver can easily see and read them without distracting his attention from the road.

When driving, form a habit of glancing at these instruments occasionally, as it is through them that you are informed as to the operation of your car.

Speed-ometer The speedometer gives you the speed car is traveling, and the number of miles traveled, both total and trip.

The trip register can be set back to zero or any given figure by pulling out and turning the knurled screw at the right. (See fig. 1.)

Oil Pressure Gauge The oil pressure gauge registers by the position of indicator the pressure of oil being circulated through the lubricating system of engine.

As soon as the engine starts under its own power, **LOOK AT THE OIL GAUGE.** If it does not register, stop the engine **IMMEDIATELY.**

About the only thing that would cause the oil pump to stop working is that when a car has stood for several hours in very cold weather, there is a possibility that water may have collected around the suction pipe in the engine base and frozen. This is not likely to happen if the engine oil is changed every three hundred and fifty miles in the winter time.

The best way to thaw out a frozen oil line is to heat about a quart of fresh cylinder oil and pour it into the engine. Allow it to stand for two or three minutes; then start the engine. Repeat this operation as often as is necessary to get the line free and the pump working.

Be sure to drain off the extra oil before starting out; otherwise you will have a smoking engine, besides readily fouling the plugs, causing other difficulties.

As you drive along, get into the habit of noting the action of the registering dial regularly—not in the expectation of trouble, but to avoid its possibility and resulting large repair bill. Every few minutes, as you drive along, look at the dial—it only takes a second and requires no special effort. Failure to make proper observations may cost you in time and money several times this amount.

Oil Filtrator should be cleaned every 1000 miles and **Filtrator** if performed regularly, it will only be necessary to change the oil in crankcase every 3000 miles.

To clean Filtrator the engine must be shut off, then remove the drain plug at the bottom of the filtrator and allow plenty of time to drain, then remove the knurled cap at the top and attach an ordinary air hose to the air clean-out valve at the top allowing air to pass through the entire filtering element which is a reverse to the flow of oil.

This process will remove all deposits of carbon and other abrasives from the surface of the filtering element leaving filtrator perfectly clean.

Replace drain plug at bottom and knurled cap at top and filtrator is again ready for operation.

BRAKES

The DURANT car is equipped with the Bendix Mechanical Four-Wheel Brakes which are accepted as the safest and simplest braking system of present day engineering. All working parts at the four wheels are mounted on a heavy steel plate that fits over the 11" brake drum, thus protecting these parts from water, dirt and slush which insures peak efficiency of operation when the brakes are most needed.

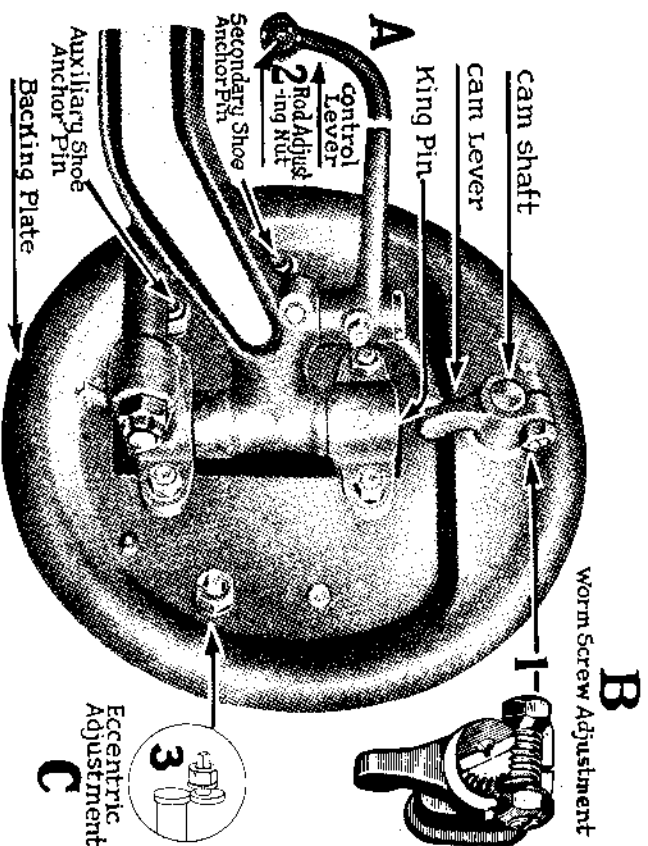


Fig. 5.—Lever Control Assembly

Pressing down on the foot brake pedal or pulling back on the hand brake lever (See Fig. 7), operates in unison all four brakes.

Both the foot brake pedal and hand lever brake are connected, by separate pull rods, to the cross-shaft located just back of the center cross-member of the frame. Mounted on both outer ends of cross-shaft are double levers, known as over-running links to which are attached two pull rods that operate the shoe controls of the front and rear brakes. (See Fig. 7.)

All four brakes must be adjusted exactly alike to insure efficient operation and should be adjusted as follows:

Brake Adjustments—3-Shoe Type

Brake Ad- A. Turn rod adjusting nuts until center of ball just on control lever is directly over center line of front wheels for steering king pin with brakes applied. Center line of other end of lever should be directly over center line of front axle when brakes are released.

Wear, B. Loosen lock nut on worm screw adjustment (1) (Fig. 5 and 7) and turn slot to right until brake shoes are free.

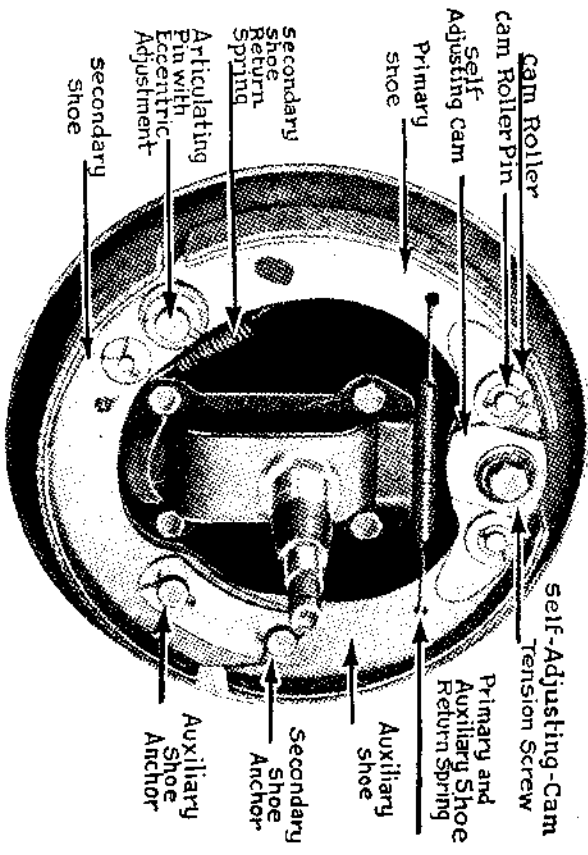


Fig. 6—Brake Shoe Assembly

C. Loosen eccentric lock nut (3) (Fig. 5 and 7) at front wheels and turn eccentric in same direction in which wheel revolves when car moves forward, until brake is tight against drum, then back off gradually until wheel is just free. Hold eccentric and tighten lock nut.

D. Turn worm screw (1) (Fig. 5 and 7) to left until brake binds, then back off until wheel is just free. Tighten lock nut.

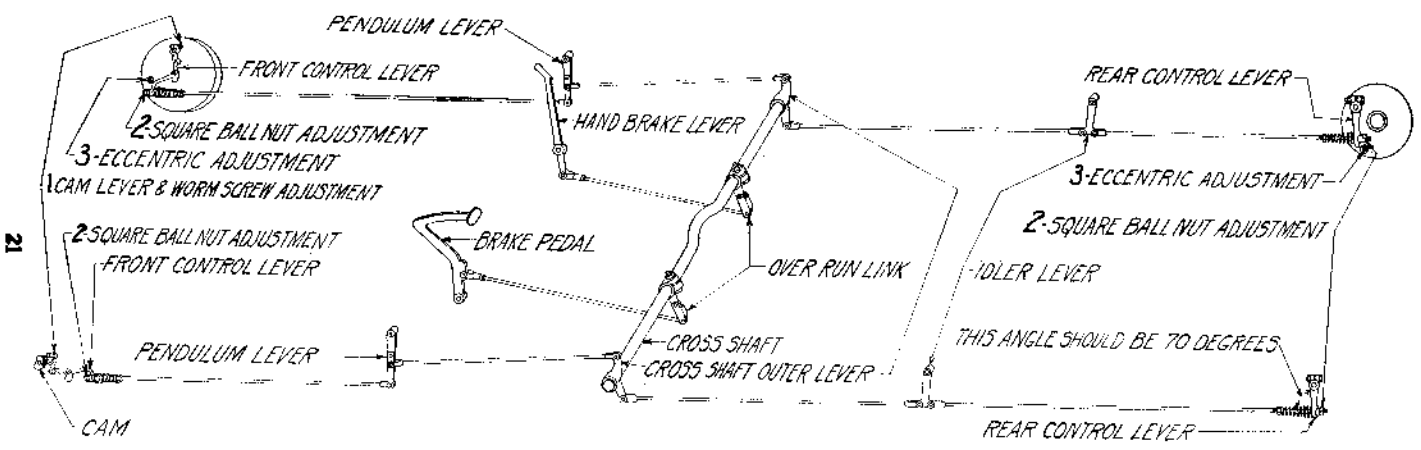


Fig. 7—Brake Control

Brake Ad- A. Loosen eccentric lock nut (3) (Fig. 5 and 7) adjustment at rear wheels, and turn eccentric in same direction for Wear, in which wheel revolves when car moves forward, Rear until brake is tight against drum, then back off Wheels gradually until wheel is just free. Hold eccentric and tighten lock nut.

B. Angle of control levers with brake rods should be from 60 to 70 degrees with the brakes released, otherwise reset as follows: Loosen pinch bolt and slide lever off serrations. Slack off square ball nut (2) (Fig. 5 and 7) to end of thread on rod. Apply brake with Stillson wrench on camshaft and slip control lever on serrations. If brake is too tight move lever back one serration. Tighten pinch bolt. Control levers should have approximately the same angle with the rod on both brakes. (Fig. 7.)

C. Take up square ball nuts (2) (Fig. 5 and 7) until wheels just drag. Back off until wheels are just free. (Fig. 7.)

Equal- D. Equalize all four wheels as follows: Push pedal down with block or jack to within 3" of floor board or until the tightest wheel can be just turned by hand. Slack off tight wheels one-half turn at a time at the rod adjusting nut (2) (Fig. 5 and 7) on all four wheels, until all four are the same, remembering that a change in the rear brake may affect the front brake on the same side and vice versa. (See Fig. 7.)

E. Remove block from pedal and try all four wheels for drag. There should be no drag if previous operations were properly done. If necessary, slack off rod adjusting nut the same number of turns on all four wheels.

Major Anchor pins should be adjusted only, (a) When fitting newly lined shoes, (b) When anchor pin nuts are found loose, (c) When other adjustments fail to give satisfactory results. (See Fig. 7.)

To adjust anchors: Jack up all four wheels. Turn eccentric adjustment (3) (Fig. 5 and 7) away from articulating pin and

leave loose. Slacken tight anchor pin nuts free of lock washers. Tap both anchors out against drum. Hold brake on tight by 100 pound load on the end of an 8-in. Stillson wrench on control shaft, or equivalent length monkey-wrench on control lever. Tap anchor pins on end and try to turn wheel forward with brake applied. Still holding brake on, tighten both nuts as tight as possible with a 16-in. wrench. Release brake, then adjust eccentric and make other adjustments as in "Adjustment for Wear."

Where the brake drums are slotted so that feeler gauges may be inserted between the shoe linings and the brake drums the adjustments may be checked as follows:

Remove covers on slots. Check toe and heel of auxiliary shoe and toe and heel of secondary shoe with feelers. Both ends of

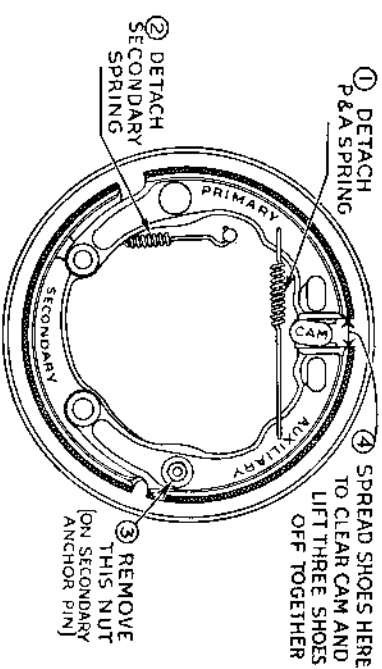


Fig. 8—View of Brake Shoes

the shoe should be alike within 0.002-in. If not to these limits repeat anchor adjustment or loosen improperly set anchor one turn and tap until correct clearance is obtained. Then tighten firmly. Replace covers on slots.

Removing To remove Bendix Brake shoes, detach the re- the Shoes turn springs, indicated in Fig. 8. Take off the nut or cotter pin from the secondary shoe anchor pin. Spread the primary and auxiliary shoes to clear the cam, drop shoes sufficiently to allow disengagement of articulating pin and eccentric and slip all three shoes off together.

It will be noted that the auxiliary shoe anchor pin has no nut

and is the same diameter as the hole in the shoe. This enables the shoe to be slid off the end of the pin.

In removing the shoes it is not necessary to detach the anchor pin assembly.

Brake Adjustments—2-Shoe Type

Brake Ad- A. Loosen locknut on "eccentric adjustment." just- (This adjustment centralizes the shoes.) Turn ec-

centric for centric in direction wheel revolves when car is moving forward, until a very slight brake drag can

Wear be felt when turning wheel over by hand. Still hold-

ing eccentric with wrench, tighten locknut slightly to hold eccentric in this temporary position. Make this adjustment at each of the four wheels. (Fig. 9 and 11.)

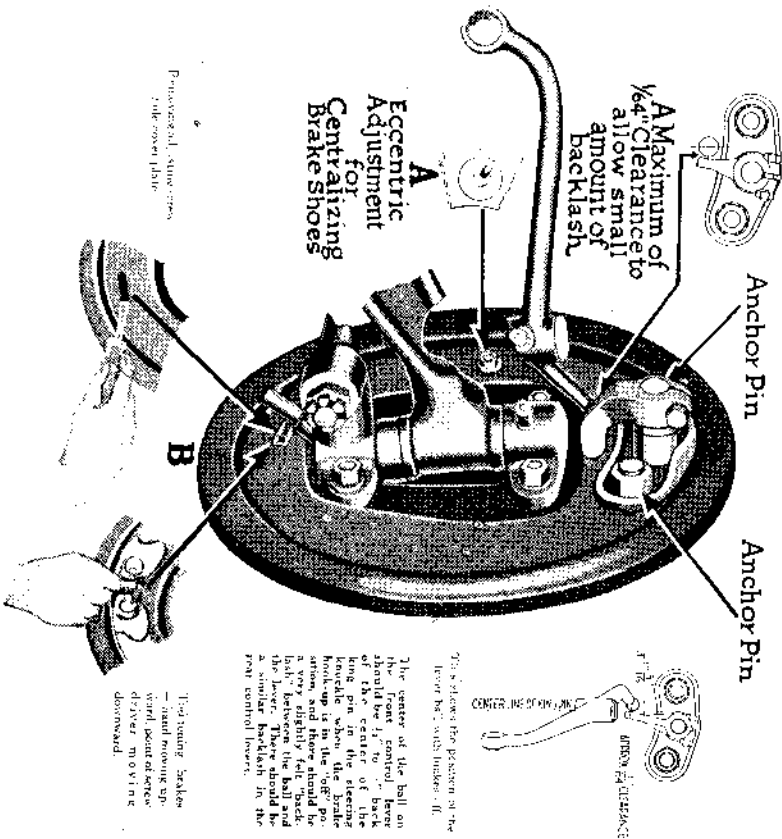


Fig. 9—Lever Control Assembly (Two Shoe Type)

B. Remove cover plate, and with a screw driver or other suitable tool, turn the notched wheel of the adjusting screw

toward the rim of the backing plate, until the two shoes are expanded against the brake drum sufficiently to cause enough brake drag so that the wheel can just be pulled over with one hand. Make this adjustment on each of the four wheels, and make sure that the adjustment is alike on all four wheels. (Fig. 9 and 11.)

C. Adjust the clearance of the shoes by turning back the adjusting screw wheel (in the reverse direction from which you turned it in "B") until only a slight brake drag remains in the turning of the wheel by one hand. Make this adjustment at each of the four wheels. (Fig. 9 and 11.)

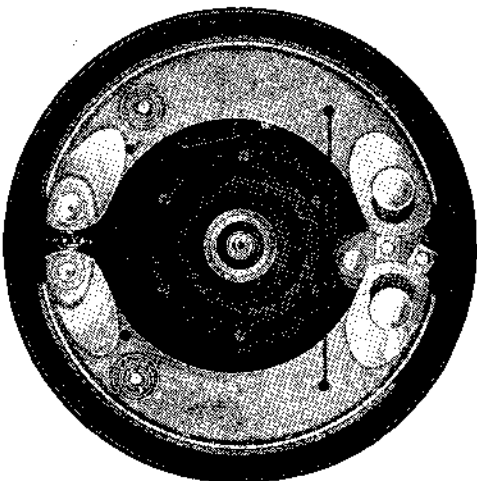


Fig. 10—Brake Shoe Assembly (Two Shoe Type)

(Necessary only when fitting new lined shoes, when anchor pin nuts are found loose, or when other adjustments fail to give satisfactory results.)

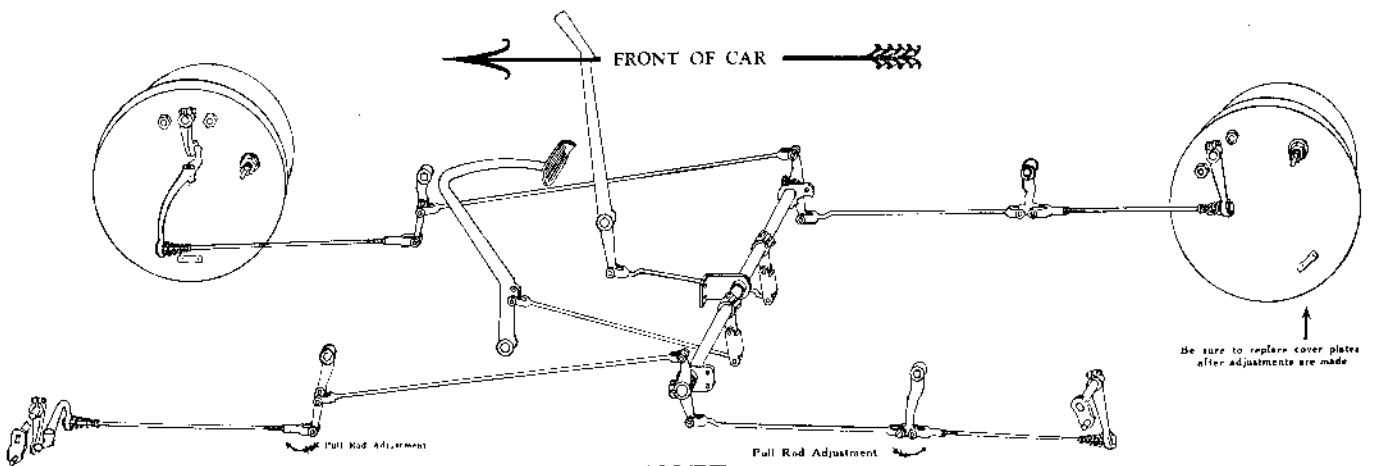
D. Centralize the brake shoes in the drum by loosening the locknut on the eccentric adjustment, and turn eccentric slowly back in opposite direction to which the wheel revolves when the car is moving forward, until the wheel is in the freest position as regards brake drag. Holding eccentric firmly in this position, tighten locknut. Make this adjustment at each of the four wheels. (Fig. 9 and 11.)

E. With car still jacked up, apply brakes by depressing foot pedal approximately two inches, using a pedal jack or other

suitable means to hold the pedal in this fixed depressed position. Try the brake holding effect by pulling wheels over by hand. The two front wheels should be alike. If not, then turn (loosen—not tighten) the notched adjusting screw wheel on the tighter wheel until the brake drag is the same on both wheels. Balance the two rear wheels with each other in the same manner. Then replace the adjusting screw hole cover plate, remove pedal jack, and let car down off car jacks. (Fig. 9 and 11.)

- (1) With car jacked up at all four wheels check to insure free operation of hook-up and free return of cross shaft and pedal to their respective stops, and to be sure that there is a slight backlash in both front and rear control levers. (Fig. 9 and 11.)
- (2) Follow instructions as given in "A" on page 24.
- (3) Loosen the two anchor nuts on each wheel completely free of the lockwashers.
- (4) Follow instructions as given in "B" on page 24.
- (5) Tighten anchor nuts as tight as possible with a 16" wrench.
- (6) Follow instruction as given in "C, D, and E" on page 25.

Remove cover plate from inspection hole in drum. Shoe clearance can then be checked with feeler gauges. With correct anchor pin and other adjustments properly made the feeler gauge will show approximately twice as much clearance between the drum and the brake lining at the screw adjusting end of the shoes as at anchor end of the shoes. A check showing about .008" clearance at anchor end and about .014" clearance at screw adjusting end of each shoe will indicate that adjustments have been properly made. If not correctly positioned as above, a readjustment of the brake should be made to insure good brake performance. Replace inspection hole cover plate after check and adjustments are made.



NOTE

- (1) Check to insure that the foot pedal, cross shaft, and all other parts of the brake hook-up return freely to and are tight against their stops when in their "off" or released position. It may be necessary to lubricate the hook-up parts to insure their free operation.
- (2) Never change pull rod adjustment or change hook-up in any way to compensate for lining wear.

If necessary to change the position of the front control lever ball to provide the slight back lash required between the ball and the lever, or to provide for the same required back lash in the rear brake controls, then the correction can be made at the pull rod adjustments, first making sure that the pedal and the hand brake lever are in full released position. The pull rod adjustments should be made before the brakes are balanced as instructed in "E."

Fig. 11—Brake Control (Two Shoe Type)

Brake Control Shoe Type) (1) Check to insure that the foot pedal, cross shaft, and all other parts of the brake hook-up, return freely to and are tight against their stops when in their "off" or released position. It may be necessary to lubricate the hook-up parts to insure their free operation.

(2) **Never change pull-rod adjustment or change hook-up in any way to compensate for lining wear.**

If necessary to change the position of the front control lever ball to provide the slight backlash required between the ball

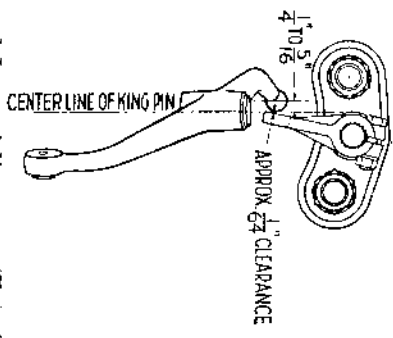


Fig. 12—Control Lever Adjustment (Two Shoe Type)

and the lever, or to provide for the same required backlash in the rear brake controls, then the correction can be made at the pull rod adjustments, first making sure that the pedal and the hand break lever are in full released position. The pull rod adjustments should be made before the brakes are balanced as instructed in "E." See page 25

Skidding When driving on slightly wet streets or roads, never apply brakes suddenly, especially when turning corners sharply, as car is very liable to skid.

To prevent car from skidding, drive slowly; but should car start to skid, turn the front wheels in same direction the car is skidding, and if brakes have been applied, release them immediately.

If the skidding has been produced by applying the brakes and it is at the same time necessary to stop the car, let the clutch in slowly and at the same time let up gradually on the foot brake.

This has the effect of unlocking the wheels and at the same time slows them down.

It must be remembered that on a wet pavement the brake pressure necessary to lock the wheels is very much less than it is on a dry one.

The moment the wheels lock a skid will follow, so your job is to keep the wheels rolling and at the same time apply enough brake pressure to stop the car.

The necessity for keeping one's head is never greater than it is in the case of a bad skid in congested traffic or on a narrow road.

The wisest course is to keep your car under such control that a quick stop in a few feet is never necessary.

Never Race Engine Never accelerate engine and keep it running at high speed when car is standing, especially when engine is cold. There is nothing so injurious.

Speeding Drive slowly when learning. Never drive over 15 or 20 miles per hour on rough or strange roads. Extreme high speed is very dangerous at all times and should never be attempted by inexperienced drivers.

Good Habits Disengage clutch before attempting to shift gears. Stop car before shifting from reverse gear to forward gear, or from forward gear to reverse gear.

Slow the car down when shifting from high gear to a lower gear. Let clutch engage gradually. Keep foot off starter switch while engine is running. Keep foot off the clutch pedal when not using it.

Remove switch key from ignition switch when leaving car. Set emergency brakes before you get out of car.

Remember, The horn is for the purpose of warning and signalling others of your approach.

When Driving Before attempting a turn, signal cars back of you. Turn to the right when meeting a vehicle coming from the opposite direction.

Turn to the left when passing a vehicle going in the same direction that you are traveling.

Keep to the right of the road when turning corner to the right.

Keep to the center of the road when turning corner to the left.

Turn corners slowly.

On wet pavements go slow and never apply brakes suddenly.

If car skids, turn the front wheels in the same direction.

Always signal vehicles before making a stop or turn.

Don't To inspect the car each time you use it.

Forget To put water in radiator.

To keep all parts well lubricated.

To keep all tires pumped up to specified pressure.

To inspect battery and keep filled to the proper level with distilled water.

Importance of Lubrication There is no one thing more important to the satisfactory operation and long life of an automobile than the matter of proper lubrication.

The use of the proper grades of lubricant and the regular renewal is absolutely necessary to the successful operation of your car.

Lubricating oils and greases are the life blood. It is to the automobile what your own blood is to your system. If it is of poor quality, has been used until its strength is gone or is used up and not replenished regularly, your car will get sick just as you would if your blood were not kept in proper condition.

All moving parts of DURANT cars are manufactured to the utmost degree of accuracy; therefore, to maintain a continued smooth running car, a good quality of suitable lubricant must be systematically introduced between surfaces which move in contact with one another.

Proper lubrication prevents unnecessary wear, but its neglect will not only cause premature wear and expense, but discomfort.

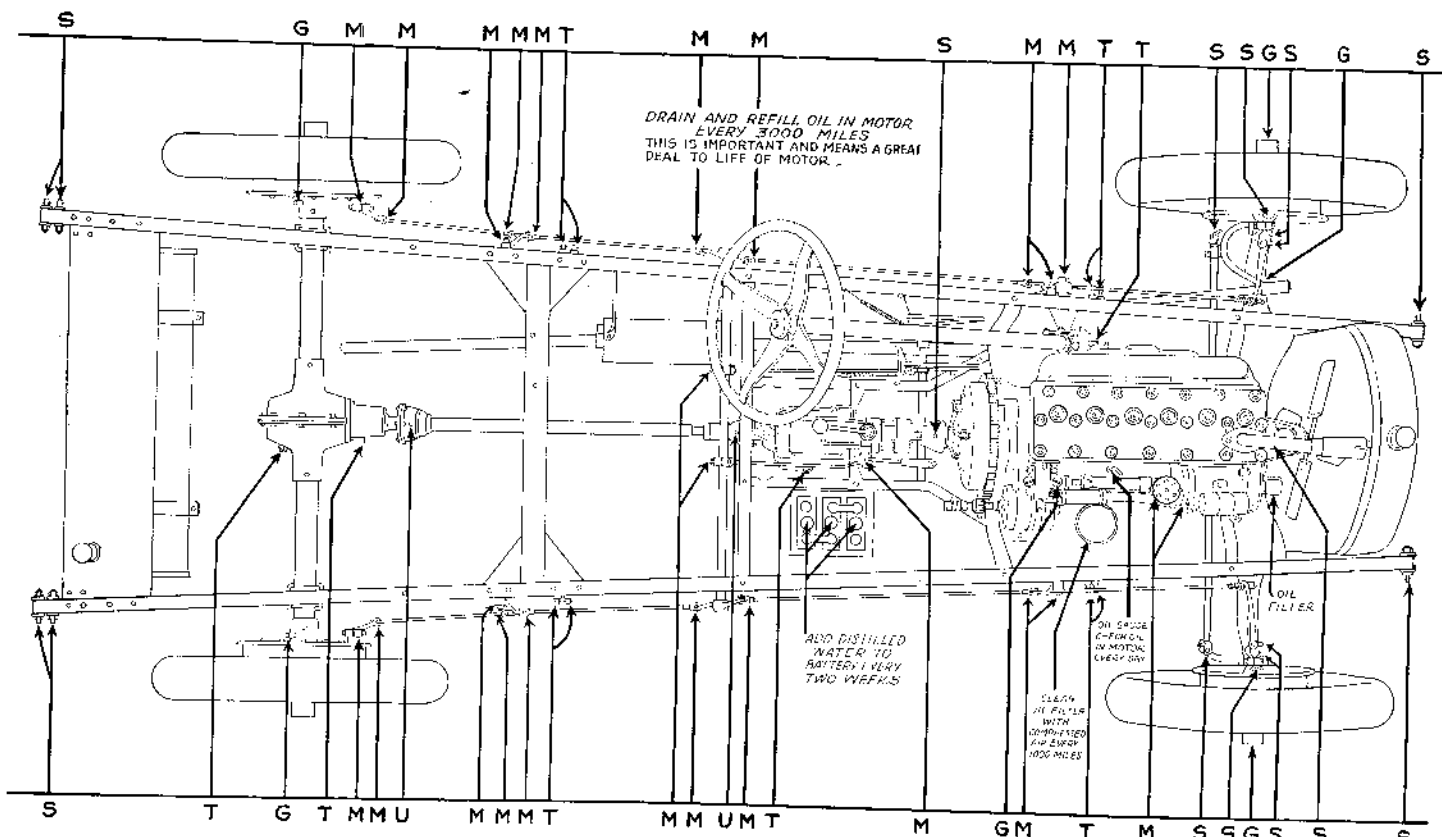


Fig. 13—Lubrication Chart

- M—Lubricate every 500 miles with motor oil.
- S—Lubricate every 500 miles with 600-W steam cylinder oil.
- G—Lubricate every 1,000 miles with grease.
- T—Lubricate every 2,500 miles with 600-W steam cylinder oil.
- U—Lubricate every 2,500 miles with Spicer Universal Joint Grease or Dixon's No. 672 Graphite Grease.

Lubricants

Lubricating oils and greases, like anything else, run the entire range of prices and quality. There are several standard makes and they are all good. So we recommend that you use them, as their cost is but little more than the "just as good"

When you have selected a good brand, stick to it—always insist upon getting it. Not that other standard makes would not answer the purpose just as well, but rather that by using a fixed brand you quickly learn how it acts, how much to use, and other characteristics of the lubricant.

Don't spare the lubricant. It is cheaper to wipe off surplus oil than it is to buy new parts.

All parts of the DURANT[™] car can be properly cared for with the following lubricants:

Motor Oil Use a high grade mineral oil; medium heavy for summer and light for winter. (Capacity 6 qts.)

Steam Cylinder Oil Use a high grade heavy mineral oil where this lubricant is specified in the chart. Never use so-called gear ease or grease.

Cup Grease Use a good soft grease consisting of high grade mineral oil and pure lime soap, free from acids and other adulterations. It should have a sufficiently high melting point to prevent excessive flow in warm weather.

Alemite Lubricating System DURANT cars are equipped with the Alemite system of lubrication at points where ordinary oil cups are generally used. A high-pressure Alemite oil gun is furnished as part of the DURANT equipment with a coupling which fits over the numerous

nickel-plated nipples throughout car. When handle of gun is turned, the oil in barrel is compressed through gun, forcing open a spring ball cap in nipple, making it possible to send a flow of oil through nipple and lubricate the working surfaces.

This lubricating system is very efficient and has many advantages over all other lubrication, as the gun has a maximum

pressure of 500 lbs. per square inch, and when applied to a nipple will force the old oil and dirt out and deliver new, clean lubricant to all bearing surfaces.

Gun is replenished with oil by removing cap and handle and filling barrel.

Lubricating Car All working parts should be systematically lubricated to keep car in good running condition but it is almost impossible to give exact directions in every instance, just when and where car should be given attention.

The following covers the most important points, but it is well to give your car a regular once-a-month inspection and lubricate all parts requiring oil and grease.

Engine The oil level gauge is an "L" handled rod located on the right-hand side of engine in a recessed place midway of cylinder block. On lower end of rod are two grooves to indicate the high and low level of oil in crank case.

When inspecting oil level, always shut off engine, pull out rod and wipe dry, then replace and again pull out rod. If oil is below high mark, add until mark is reached.

Do not fill engine with oil above high mark; it will cause engine to smoke.

At the end of every 3000 miles remove plug from bottom of crank case and drain out old oil. Plug should be replaced and two quarts of light motor oil put in, and engine turned over several times by hand, using hand starting crank, so as to wash out all old motor oil. The oil should then be drained and new motor oil of the proper grade poured in until high level is reached. (See Oil Filtrator, Page 18).

Fan Fan hub should be filled with 600-W. steam cylinder oil at the end of every 500 miles. Remove plug and fill hub, using an oil gun.

Generator A few drops of motor oil in oil cup located at rear end every 500 miles.

Igniter Igniters having an oiler, apply a few drops of motor oil every 500 miles.

Igniters equipped with grease cup, the cup should be kept filled with soft cup grease and cup given one half turn every 500 miles.

Steering Gear At the end of every 2500 miles steering gear housing should be filled with 600-W. steam cylinder oil using Alemite oil gun.

Drag Link and Tie Rod Remove end plugs and fill with cup grease every 1000 miles.

Steering Knuckles Keep Alemite oil cups well filled with 600-W. steam cylinder oil at all times, applying at least every 500 miles.

Clutch Collar Every 500 miles remove oil filler plug in clutch collar and fill to the level of clutch shaft with 600-W. steam cylinder oil for temperatures above freezing.

For temperatures below freezing add just enough cold-test oil so it will flow readily.

Brake Pedal A few drops of motor oil every 500 miles.

Transmission Remove oil filler plug on right side of transmission case and fill half way, or just above spline shaft. Use 600-W. steam cylinder oil for all temperatures above freezing. For temperatures below freezing, thin down with a low cold-test motor oil, just enough to thin the oil at freezing temperatures.

At the end of every 2500 miles transmission gear case cover should be removed, also oil filler plug; transmission drained and then thoroughly cleaned with kerosene, and the case then filled with new 600-W. steam cylinder oil.

Universal Joints Pack with Spicer Universal Joint Grease or Dixon's No. 672 Graphite Grease at the end of every 2500 miles.

Rear Axle Remove oil filler plug in differential housing every 2500 miles and fill to the level of opening.

Use 600-W. steam cylinder oil for all temperatures above freezing. For temperatures below freezing, thin with a low cold-test motor oil, just enough to thin the oil at freezing temperatures.

Rear Axle Outer End Bearings The grease cups located on the outer ends of rear axle should be filled with soft cup grease and cup screwed up to its full limit to force grease into outer bearings every 1000 miles. Caution: do not remove cup and apply grease with pressure gun.

Front Wheels Once every 1000 miles remove hub cap and fill with soft cup grease. Replace cap and tighten. By this operation grease is forced into hub around bearings. Operation should be repeated until hub is full.

Springs, Front and Rear All spring bolts are equipped with Alemite oil nipples which should be kept well filled with 600-W. steam cylinder oil at all times, applying at least every 500 miles. It is well to keep spring leaves lubricated.

Adjustments

Timing Gear Chain The cam shaft and generator are operated by a silent, flexible chain inclosed in an oil-tight compartment at the forward end of the engine.

At the end of 800 or 1000 miles the chain should be adjusted to remove all looseness due to stretching. Have this work done by a DURANT service station. It will require only a few minutes and will keep the engine timing correct. No oiling is required, as it gets its lubrication from the engine.

Checking Valve Timing When checking valve timing all motors beginning with Motor No. 14L-94952 the valve clearance must be set to .012" in order to tell when the valve is fully opened or closed. After valves are properly timed the clearance should be reset to .006" clearance.

pump located on the right side of the engine and is driven from the generator. The capacity of the cooling system is 8 quarts.

The water pump is provided with a packing nut on front end of pump shaft for stopping any water leaks that might occur. This is accomplished by simply turning up on the nut which compresses the packing around the shaft.

It is important that the radiator be filled with clean water. When the water supply gets low, it causes the engine to heat up, burning an excess amount of oil and quite often doing considerable damage to bearings and cylinder walls.

Low water will boil and steam very easily. This tends to dry out and weaken the radiator, causing the cells to more quickly fill with a scale or lime deposit.

It is good practice to always fill the radiator when you are having a fresh supply of gasoline put in the tank; not that the radiator may always need water, but it is a good habit to form, so you will not forget to look.

Soft or rain water is much better to use than hard water. It does not have the lime deposits that hard water has, which as stated, causes clogging of cells.

The radiator and the whole circulating system should be cleaned occasionally. This can be done best with a lye mixture of 1/2 pound of lye to five gallons of water. Strain this solution through a cloth and pour in radiator after the other water in the system has been drained off. After filling the system with the lye water, run the engine five or ten minutes, then drain the solution. Now fill with warm, fresh water and allow engine to run for a few minutes; then drain and refill with warm, fresh water again and allow engine to run a few minutes. Then drain and refill with warm, fresh water again. This should be done twice during a season.

Never pour cold water into the radiator when the engine is hot unless very slowly and just a little at a time. It is best to wait for the engine to cool.

When an engine is hot, it is subject to considerable expansion of metal, and by a sudden cooling such as would be caused by putting cold water into the radiator when the

engine is hot would cause the cylinder head or walls to contract suddenly and crack.

Radiators very often spring a leak, due to road shocks or car vibration. Only use one method of stopping leaks and that is: solder. By this method you have made a permanent repair instead of a temporary one, as would be the case if you used meal, flux or other compounds.

Winter As soon as the temperature begins to approach

Driving the freezing point, an anti-freezing solution should be placed in the radiator. Commercial alcohol is best for that purpose.

The following table may be used in estimating the quantity of alcohol required for different temperatures:

30° F. Above.....	1 1/2 qt.	Zero.....	4 3/4 qts.
20° F. Above.....	2 1/2 qts.	10° F. Below.....	5 1/4 qts.
10° F. Above.....	3 3/4 qts.	20° F. Below.....	6 qts.
	30° F. Below.....		7 1/4 qts.

Capacity cooling system—12 quarts.

Since alcohol evaporates more quickly than water, it is well when filling the radiator to make up the loss by adding a solution of equal parts of alcohol and water.

The use of powerful chemicals, while sometimes cheaper in first costs, is very likely to cause damage later, costing more in repair bills than the amount saved, as they attack the metal system and rubber hose connections.

If the radiator should freeze, do not try to thaw it out by starting the engine, but thaw it by placing in a warm place.

It is a good plan, when making a stop in cold weather, to cover the radiator and hood with a blanket or other covering. This helps hold the heat, and in that way gives considerable protection from the liability of freezing, besides making the engine start easier.

Winter When it is found necessary to store the car dur-

Storage ing the winter months, the water should be thoroughly drained from the radiator and engine, after which the engine should be run under its own power until it becomes thoroughly heated. Do not run the

engine too fast, but keep it going long enough to evaporate every particle of water that may be "pocketed" to prevent the water freezing and possibly bursting the water jackets.

It is desirable to remove the tires and place them in a room where they are not subjected to extreme temperature changes. The casings should be thoroughly cleaned to remove all oil which may have adhered to them. After removing the tires, thoroughly clean the inside of the wheel rims and apply a coat of enamel to prevent rust, which is very injurious to the fabric of the tire.

If the tires are not removed, jack up the car so that the wheels clear the floor at least two inches, and let the air out of the tubes.

UNDER NO CIRCUMSTANCES should the car be stored in a barn or other building in which horses or cattle are kept at the same time. The ammonia fumes given off will quickly discolor the paint and enamel. Select a building having a good roof, and preferably a wooden floor raised several inches from the ground.

All bright metal parts should be thoroughly coated with slab oil, vaseline, cosmic or gun grease to prevent rusting.

Care of Tops The top of the car should be thoroughly cleaned and all dust brushed out. Never attempt to clean the top or curtains with gasoline or kerosene—use a good brush or broom.

Care of Cloth Upholstery To clean the cloth upholstery in sedan bodies, use warm water and Ivory soap only. Gasoline has a tendency to spread the grease and leave a discolored spot. After cleaning, wipe dry with a clean cloth.

Rules of the Road Road and traffic laws vary in different localities. It is, therefore, impossible to set down a complete list of rules which may be followed in all parts of the country. The following are some of the rules which are practically universal in all parts of the United States.

In meeting a vehicle going in an opposite direction, pass to the right.

In passing a vehicle going in the same direction, pass to the left.

Always stop with the right side of the car next to the curb. If it is necessary to turn around to do this, it should be done.

Never turn around or turn off onto another road without making absolutely sure that there are no other vehicles immediately behind you.

Never enter upon street car tracks without making sure that no car is directly behind you—no matter how sure you feel; look and see.

Do not cross street car or steam railroad tracks without making sure that it is absolutely safe to do so.

In crowded traffic do not apply the brakes suddenly unless it is absolutely necessary. It may be that the vehicle following cannot stop as quickly as you can. If this is the case, a collision is sure to result.

On wet asphalt streets or slippery roads do not apply the brakes suddenly. If the brakes are applied suddenly under these conditions a bad skid is sure to result.

Before you have reached a point where you intend turning or stopping, always make your intention known to the driver following.

If you are driving north and wish to turn west, or if going east and intend turning north: First, pull over so that you are traveling in the center of the road some distance from the crossing, and, second, before you begin to turn hold your arm out in a horizontal position so that the driver in your rear may be aware of your intention to turn. He can then pass to your right with plenty of room, and without danger of collision.

If you are driving north and wish to turn east, or if going south and intend turning west: First, pull over near the curb or side of the road some distance from the crossing, and second indicate your intention to the driver in your rear before you begin to make the turn.

When you intend stopping, or, in crowded traffic, slow up, always make your intention known to the driver in your rear by holding your arm out from the side of the car in a horizontal position.

More rear-end collisions occur by neglecting to notify the driver following, that you intend stopping, or turning, than there are through carelessness on the part of the rear driver. Remember, the driver following cannot read your mind—all he can see is the rear of your car and the roadway between—he cannot see the road ahead of you, and is therefore dependent on you to prevent a collision and damage to both cars.

Roadside Repairs There are only a very few things that would cause a car to stop suddenly, with no previous warning of impending trouble.

By far the greater percentage of roadside breakdowns come from failure to take proper precautions and to be warned by "tell-tale" noises. There are two very distinct differences between the usual sounds given off by an automobile in good or fair condition and the sound produced by a part that is going to fail.

In the former case there is a steadiness and certain rhythm to the sound or sounds that indicate that it is produced by the ordinary wear that one must expect in any piece of power machinery.

The noise produced by a part that is about to fail is distinct—either a sharp rap, a dull thud, or violent squeaking, which can easily be distinguished above all other car sounds. Immediate examination at the nearest DURANT service station should be made and corrective measures taken.

Do not become alarmed—the foregoing is not intended to scare you into the belief that you should rush to a repair station the moment you hear a noise because that is not necessary. Every moving part of an automobile is subjected to friction and friction produces wear and wear produces looseness; so you must expect certain noises.

If you will make it your business to study the sounds produced by your car, not so much with a view of definitely locating their sources, but to fit yourself to instantly distinguish an unusual noise—one that is out of tune—that is, not in step, you will save many a repair bill, besides having the use of your car a greater number of hours and that, after all, is what you hoped to get when you purchased your DURANT car.

A prominent physician once remarked that a goodly percentage of his patients were not sick—they imagined they were; and so it is with some motorists. Every sound is to them an indication that something is wrong and that their car is going to pieces. They spend hours in a repair station and never get from their cars the useful service which has been built into them by the manufacturers.

We have built into the DURANT car the experience of many years—have selected materials and units which we know will give good, continuous service with ordinary care and intelligent handling.

Things That Might Happen Suddenly Without Previous Warning and Which Might Be Repaired by the Owner

Engine There are two distinct causes for this:

Stops Suddenly (a) Lack of gasoline, either in the main tank or vacuum tank.

(b) Loose or broken electrical connections or complete breakdown of the ignition system.

The first thing to examine is the main gasoline tank on the rear of the car to make sure that you have not run out of gasoline.

Next, shut off the gasoline at the vacuum tank, which is mounted on the engine, by turning the valve handle in a horizontal position; that is, at right angles to the supply pipe. Then remove the cover on the carburetor. If the bowl is dry and you have a good supply of gasoline in the main tank, the

fault is in the vacuum tank or there is a leak in the pipe running from the vacuum tank to the main tank.

There are a few simple little things that could cause this trouble, the most likely being dirt or sediment lodging in the filter screen, under the flapper valve, or a leak in the suction line which runs from the top of the vacuum tank to the intake manifold on the engine.

Examine the filter screen first. Locate the pipe running from the main tank to the vacuum tank and remove the elbow and nut at the point where it enters the vacuum tank. The filter screen will be found in this opening in the top of the tank. Remove carefully and clean.

If this is found to be clean, drain about a quart of gasoline from the main tank and pour into the vacuum tank through this opening. If a particle of dirt or lint is holding the flapper valve open, the gasoline will wash it off.

Examine the suction pipe, tightening connections, to make sure no leak occurs.

Replace the supply pipe and filter screen. Open the valve under the vacuum tank (handle should point downward) and start engine.

If the engine stops in a few minutes—that is, as soon as the supply of gasoline is exhausted—the trouble can be definitely located either in the interior of the vacuum system or in the line running from main tank to vacuum tank.

As roadside repairs are not easy to make, unless one is thoroughly conversant with the principles of a vacuum tank, the best suggestion we can offer is to remove the small pipe plug in the top of the vacuum tank and fill the tank with gasoline. This should be enough to run the car from three to four miles

or until you reach a service station where repairs can be made. Ordinarily the repair of a vacuum tank is not a difficult or time-consuming operation, as it is usually only necessary to remove the inner tank and clean the valves.

If the difficulty is not in the gasoline system, then some part of the ignition system has either become loosened or has failed entirely.

Engine (a) The porcelain portion of one of the spark
Suddenly plugs may have broken, allowing the spark to
Begins to jump from the electrode in the center of the porce-
Mis-fire lain to the metal shell at the plug. The only effi-
in One cient remedy is to secure a new plug as soon as
or More possible. (See page 58.)
Cylinders (b) A valve may have stuck in the valve guide.

This can be easily detected by removing the cover plates on the valve side of the engine. If any are stuck they can be loosened up by a little effort with a screw driver. However, as soon as possible have the valves removed and the stems polished and the valve guides thoroughly cleaned.

(c) One or more of the spark plug wires may have dropped off.

(d) The screws holding the small resistance unit on the end of the coil may have worked loose.

(e) One of the wires from the battery to the switch, switch to coil, or coil to distributor may be loose. Tighten lightly with pliers.

(f) The spark plugs may have become fouled from an excess of oil. Remove and thoroughly clean the sparking points and porcelain with a cloth dipped in gasoline. (See page 58.)

Oil The car should be stopped immediately and
Gauge under no circumstances operated again until you
Stops are absolutely sure that the oil pump is operating.
Register- as serious damage to the engine will result. It is
ing by far the wiser plan to phone for a service man,
as this cost is low in comparison to the expensive
damage that might be done by an attempt to operate the car.

Lights If all lights go out at the same time, it indicates
Go Out a short circuit in the lighting system has "blown"
Suddenly the fuse located on the back of the lighting switch
on the instrument board.

This is a small cartridge fuse and can be removed or replaced with the fingers. (See page 59.)

The Electrical System

The electrical system of the DURANT car consists of several units especially designed for the DURANT and made to function together in harmony, in the performance of certain operations that make motoring safer, more convenient and more enjoyable.

It is a system the workings of which are readily understandable when each of the FIVE PRINCIPLES enumerated in the following paragraphs is considered separately. Each function is really independent of the others, although in some cases—for simplicity—one wire is made to serve two purposes.

These principal uses, or functions, are here clearly described, and are designated by the name of the CIRCUIT or ASSEMBLY OF UNITS—such as STARTER CIRCUIT, HORN CIRCUIT, etc.

1—Cranking the Engine

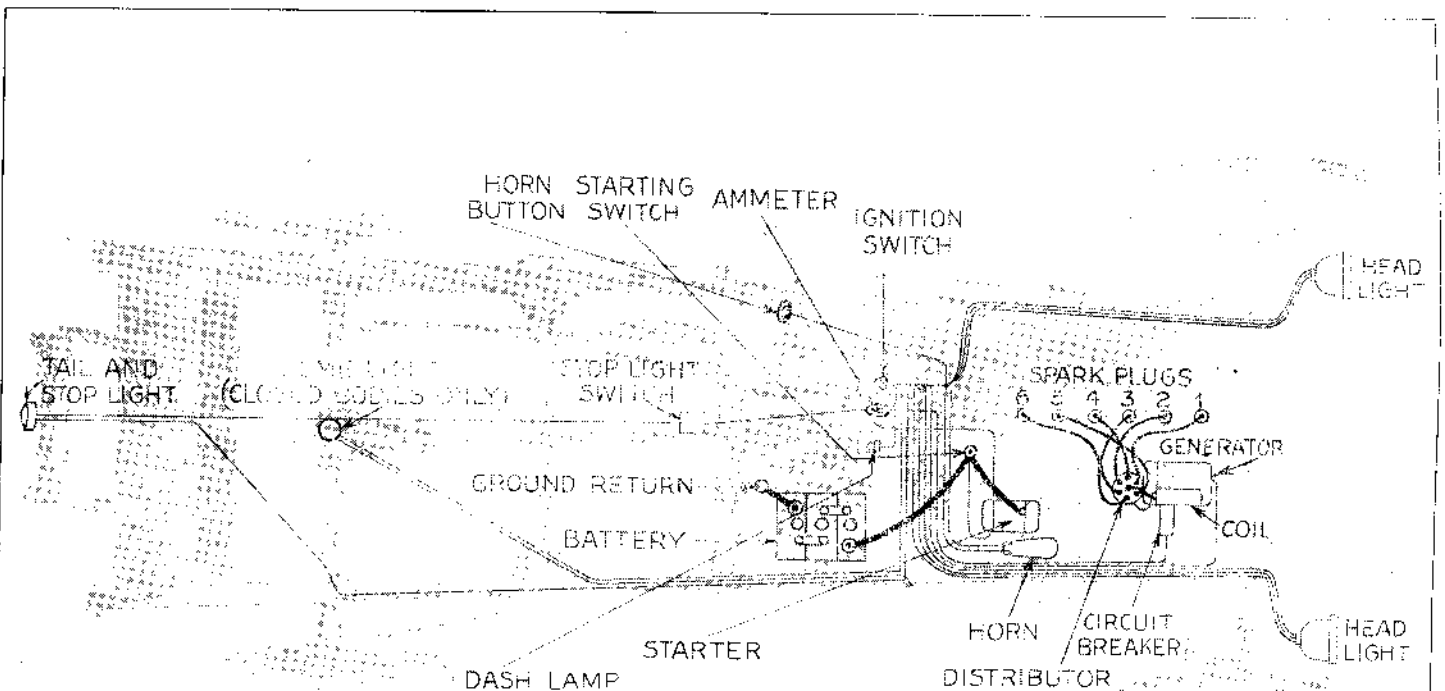
This is probably the most useful function, as prior to the development of the starting motor, many drivers suffered from painful injuries—due to cranking the engine by hand. The units utilized are the battery, cable, starting switch, starting motor, Bendix gear and the frame, which is a common return conductor for all circuits. The arrangement of the conductors connecting these units is called the STARTER CIRCUIT.

2—Providing the Spark

For igniting the gas in the engine—causing it to run and produce power to drive the car, this is a fundamental function. The units included are the battery, cables—both primary and secondary—ignition switch, ammeter, distributor, coil, and spark plugs. This arrangement of wiring and units together with the frame is designated as the IGNITION CIRCUIT.

3—Providing the Lights

For night driving, for convenience and to comply with the Highway Laws, this circuit, known as the LIGHTING CIRCUIT, has an equally vital usefulness. It includes the battery, wiring, ammeter, lighting switch, fuse, lamps and frame.



4—Sounding the Horn

This part of the electrical system utilizes the battery, wiring, fuse, horn button, horn and frame. The arrangement of its wiring and units is referred to as the **HORN CIRCUIT**.

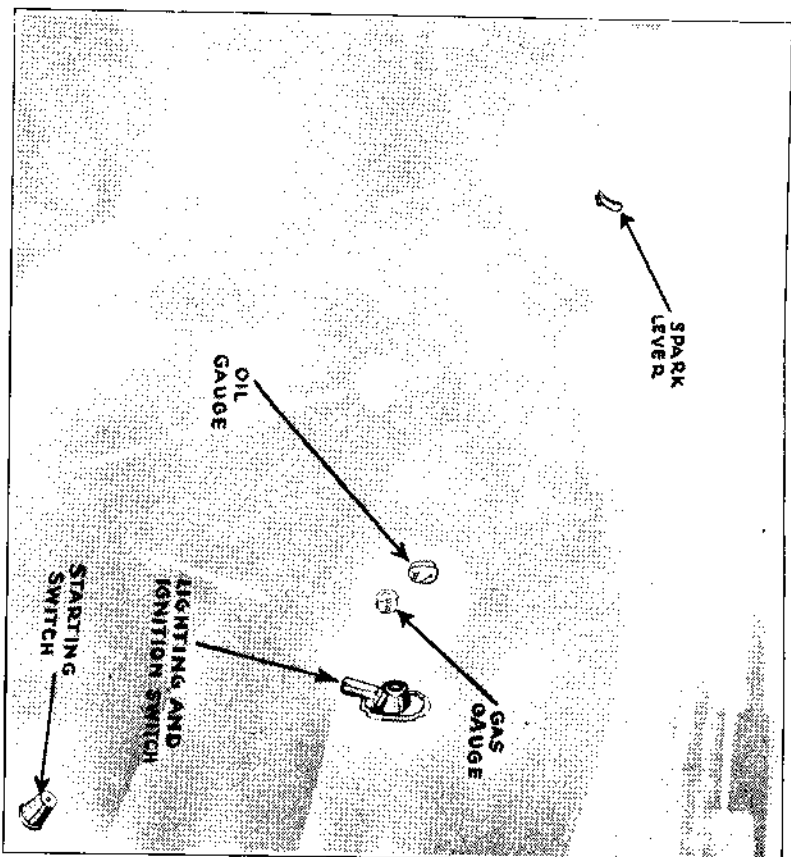


Fig. 16—Driving Compartment, Showing Electrical Instruments

5—Charging the Battery

In all the preceding functions, the battery was called upon to furnish the power of operation, and were it not for the fact that the generator recharges the battery, a fresh battery would have to be installed in your car every few days. The units included in this function are the generator, automatic cutout—or circuit breaker—ammeter or indicator, wiring, battery and frame. The arrangement of these units is termed the **CHARGING CIRCUIT**.

Fig. 15 shows the complete electrical system as assembled on the car, and following is a detailed description of each circuit—each separate wiring diagram being really a part of the complete electrical system. These detailed diagrams will help you to locate electrical troubles in emergencies, as will the simple test and repair instructions.

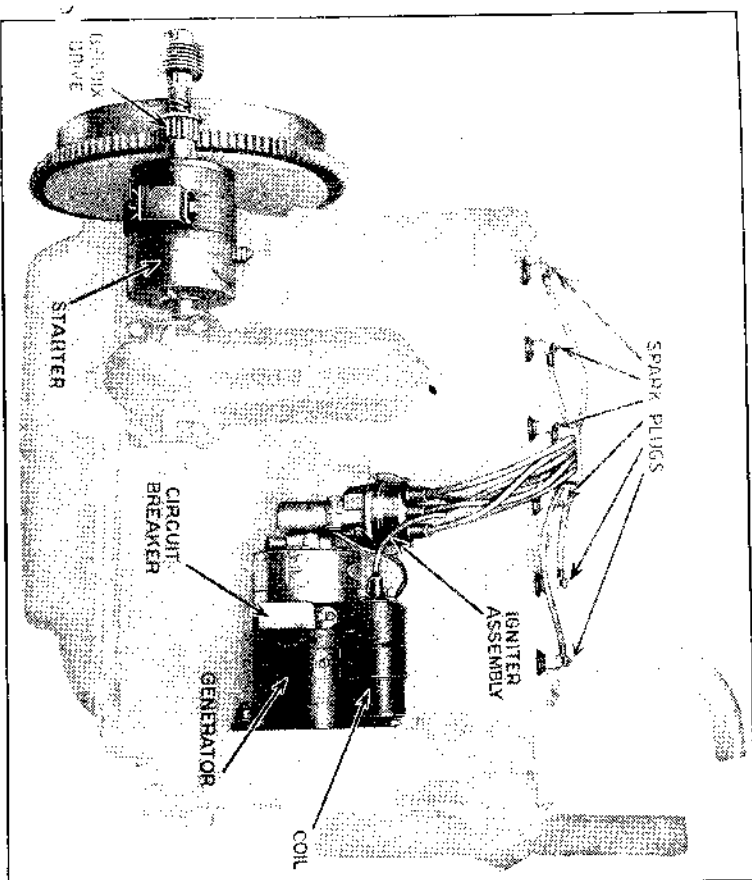


Fig. 17—Right Side of Engine, Showing Electrical Equipment

Primarily they are meant to aid you in getting the car to run, and may save further damage being done. No attempt is made here to give complete repair or overhauling instructions as to the different units. It would necessitate too great length and too technical discussion. The manufacturer of the units—The Electric Auto-Lite Company—has made expert repair service available at its authorized repair stations . . . established in all localities, and these instructions have been prepared as an additional feature of service.

THE STARTER CIRCUIT

The starter is located at the rear end of the engine—close to the flywheel (Fig. 17). It is controlled by the operator through the starter switch (Fig. 16).

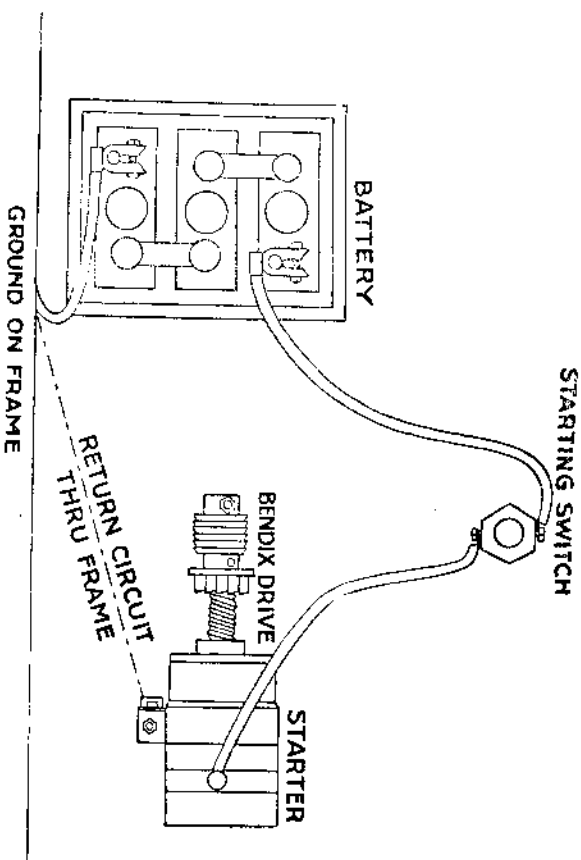


Fig. 18—Starter Circuit

The Starter The starter is designed so as to deliver a maximum of service with a minimum of attention. It is built into a dust-proof shell, and beyond the fact that the holding bolts and cable connections must be kept tight, it needs no attention. The bearings are of the bronze graphite filled type which are self lubricating, therefore will need no attention.

When you press the button on the starter switch with your foot, the circuit shown in Fig. 18 is completed.

Be sure the spark control is retarded. The instant that the engine fires and begins to run under its own power, take your foot off the button. Then advance the spark control. If the engine stops running, wait until both engine and starter have ceased to rotate before pushing the button on the starter switch again. **ALWAYS** remember to retard the spark when starting the engine.

The Starter Switch The starter switch requires no attention except that you must see that the connections at the back are kept clean and tight.

The Bendix Drive When you press the starter switch button the starter rotates, its power being transmitted to the flywheel thru a self-operated gear device, known as the Bendix Drive. (Fig. 17.) This is located on the rear end of the starter shaft. It releases from the flywheel when your engine begins to run under its own power and you have taken your foot off the starter switch button.

The Bendix requires only to be occasionally washed clean of accumulated grease and dirt with a brush and a little kerosene.

Roadside Emergency "A" If the starter refuses to rotate, look for loose or dirty connection somewhere in the starter circuit, as shown in Fig. 18.

See if the Bendix gear runs free on its shaft, . . . turns easily when you rotate it with your fingers.

If you don't find the trouble, crank the engine with the hand crank and drive to the service station.

THE IGNITION CIRCUIT

The ignition switch is combined with the lighting switch and mounted conveniently on the instrument board. (See Fig. 16.)

When you turn "on" the ignition switch, you complete the circuit shown in Fig. 19. This permits the current to flow from the battery to the coil.

The connections at the back of the switch must be kept clean and tight. Always make sure that the switch is turned "off" when the engine is stopped, otherwise the coil may be damaged and the battery discharged.

Note: In dealing with possible troubles in the ignition system we have started with the first instrument which you will handle in operating the circuit, namely, the switch, and so we have continued with this article until all points of it have been covered. So with the Coil and Distributor.

However, while the sequence of units is thus maintained it is quicker in some cases to change the order of inspection. We therefore recommend that in dealing with ignition troubles as described in the following articles that you start with Emergency "C," follow with "D," and if necessary with "B."

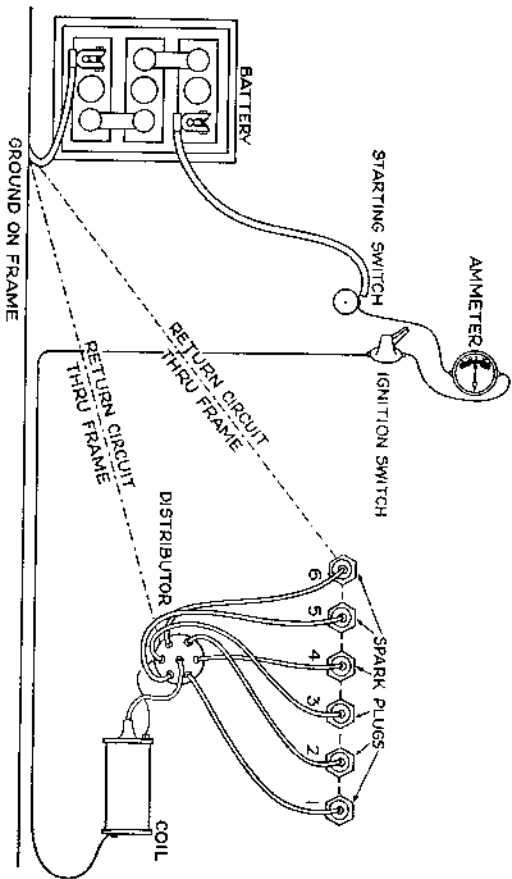


Fig. 19—Ignition Circuit

Roadside If the engine should stop suddenly while you are driving . . . or refuse to start, the trouble may be in the switch or in the wires connected to it.

Emergency "B" First look for a loose or dirty wiring connection at all points shown in Fig. 19. If you find no such condition, the ignition switch and wires may be eliminated from the circuit in the following manner:

Disconnect the wire on the coil terminal (Fig. 19), which comes from the switch. Take a piece of insulated lighting or ignition wire and connect one end to the coil terminal from which you just removed the switch wire. Now attach the other end of your piece of wire to the generator circuit breaker

at the terminal marked "Battery," together with the wire already there.

This should give you battery current direct to the coil—and may permit the engine to be started and the car driven to the Service Station.

The wire must be removed when it is desired to stop the engine, or the coil may be damaged and the battery discharged. Emergency measures in connection with other units of the Ignition System are dealt with in order.

The Ignition Coil The ignition coil is mounted on the generator frame, close to the distributor—(Fig. 17)—and is contained in an insulated shell especially designed to protect the windings from water or from contact with metal parts of the car.

It should, however, be kept clean and dry on the outside to assist the function of this protective housing. It needs no other attention, except that all the connections must be kept clean and tight.

Roadside Emergency "C" Should your engine stop suddenly while you are driving; or should it, without other warning, refuse to start:

See that the ignition switch is turned on. Then remove the high tension wire from the center of the distributor cap (Fig. 17), and hold it about three-sixteenths of an inch from the cylinder block or an unpainted part of the engine frame.

Keep your fingers back fully an inch from the end of the wire to avoid a shock. Now crank the engine by hand and, as you turn it slowly, watch for a spark.

It is better to make this test when cranking by hand than when using the starter, because if the battery should be weak, the starter may consume so much current that the coil may not be supplied with the necessary current.

Keep this in mind—when the battery is too low to operate

the starter, there still is usually sufficient current to supply the ignition, if the hand-crank is used.

To complete the test, if a spark occurs, it would indicate that everything is O.K.—up to the distributor, and the trouble may be in this unit.

If no spark is obtained from this test, follow the instructions given for Emergency "B" under the heading "Ignition Switch."

If there still is no spark, the trouble may be in the coil itself. But do not condemn this unit before trying the tests to the distributor, which follow.

If the trouble isn't located in the distributor, communicate with the nearest Service Station, and suggest that they bring along a coil and a condenser.

THE DISTRIBUTOR

The distributor is mounted in the housing attached to the generator and driven by the armature shaft. It is especially constructed to provide a hot spark at all speeds, so that the quick acceleration of the engine or slow running do not affect its efficiency.

There are three main parts to the distributor: the interrupting or breaker mechanism (Fig. 21), which makes and breaks the primary circuit in the coil by means of the breaker points; the distributor rotor and cap (Fig. 20) which takes the high tension spark from the ignition coil and distributes it to the various spark plugs through the spark plug wires in the proper firing order.

These parts all work at the same time, and the assembly is known as the distributor.

Distributor equipped with oiler, put a few drops of oil—light motor oil—in this hole every 500 miles.

Distributor equipped with grease cup, turn cup one half turn every 500 miles. When screwed down to full limit, remove cup and re-fill with soft cup grease. See also that the unit is kept clean on the outside and that all connections are tight.

The interrupter points must be kept free from oil and grease and adjusted to a minimum gap of .020". It is good practice to have them inspected at a Service Station every few thousand miles.

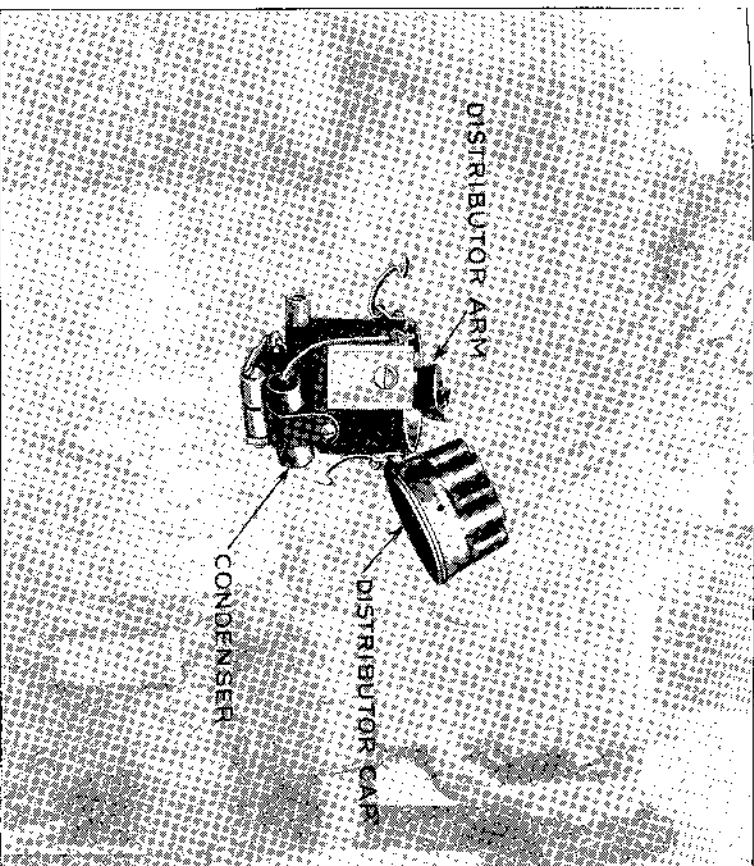


Fig. 20—Distributor (with Cap Removed)

Roadside Emergency "D" If the engine should stop suddenly while you are driving, or if it should refuse to start—
First follow the instructions outlined in Emergency "C" under the heading of "Ignition Coil."
Next, follow instructions given below.

If there is no spark between the wire that you removed from the center of the distributor cap and the engine casting or frame, the trouble may be in the distributor.

See if the small wire which runs from the coil to the distributor is in place and the connections tight.

By springing the clamp springs from the top of the distributor cap (Fig. 21), the cap may be readily removed.

If any of the spark plug wires become disconnected during this operation, be sure they are put back in their original places, or the firing order of the engine will be changed.

As soon as the cap is off, the distributor rotor is disclosed. This may be removed by lifting it straight up with the fingers.

Now look at the contact points (Fig. 21). Push the breaker arm back from the screw point and look at the face of each

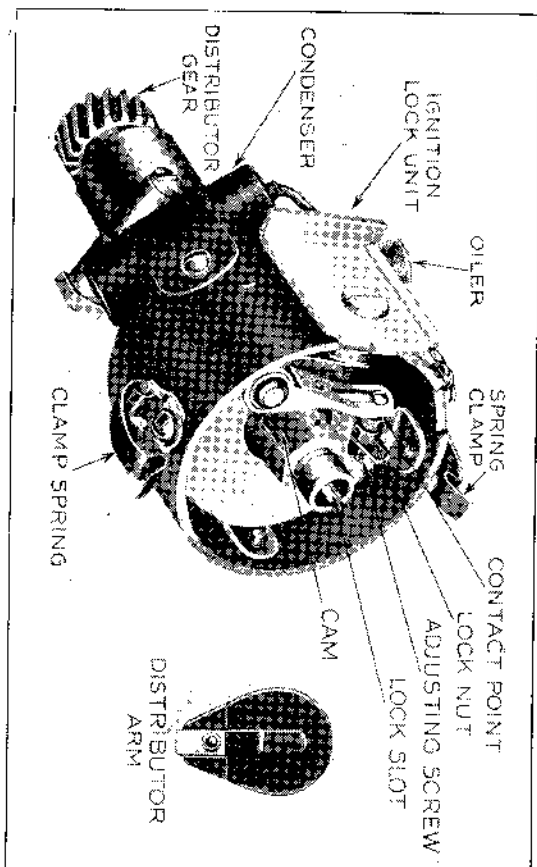


Fig. 21—Internal Parts in Igniter

point. Remove any oil or grease from them. They should be of a grayish color—and smooth. Be sure there is not a "projection" burned on one and a "hole" in the other.

If such is the case they must be filed to present a good, clean surface to each other.

This will take a little time with the ordinary flat file, as the points are very hard, and should be "stoned" by a competent mechanic.

Next—crank the engine very slowly by hand and see that the center cam is turning and the points are opening and closing. With the ignition switch turned on, a faint spark should be

observed as the points open. If a heavy spark is seen it usually indicates trouble in the condenser which is mounted on the side of the distributor.

After cleaning the points, the engine may run in this condition for a little while. But it may be necessary to clean the points again several times before you reach the Service Station, where you may have the units properly repaired.

If, after trying all of the tests, a spark is obtained between the center wire which was removed from the distributor and the engine casting or frame, it is still possible that the spark is not reaching the spark plug.

Replace the distributor rotor, being sure that the projection to be seen by looking into the hole from the bottom of the rotor fits into the notch cut into the shaft. Press it down firmly with the fingers. When in place it should fit tight against the breaker cam.

Then replace the distributor cap and see that the slot in the cap fits over the place provided in the distributor housing. This is so constructed that it is not possible to put it on wrong.

Don't force it, however, as it will slip into place easily—with a little care. The two clamp springs fit over the edge and hold it.

Next remove one spark plug wire from the plug. Take out the plug with the wrench provided, connect the wire again and lay the plug on its side on top of the engine.

Repeat this with the other plugs.

Be sure that the terminal on top of the plug and wire which is attached to it are clear from any metal part of the engine. Now, being sure that the switch is turned "on," crank the engine by hand and watch for a spark at the plug points.

If there is no spark it may mean that the insulation on the spark plug wires is "leaking" and the spark escaping to some metal part of the engine before reaching the plugs.

This may be the case particularly if the wires or distributor are wet or oil soaked.

Be sure not to mix the wires or the firing order will be changed. Next watch where the "spark" is leaking through

as the engine is cranked, and dry them off or wrap them with friction tape if a break in the insulation is found.

If, after making one or all of these tests, a spark is found at the plugs, the ignition system is in condition to run the engine. You can then drive to the nearest Service Station and have your troubles permanently corrected.

If there is no spark at the plugs, the last tests will indicate that the trouble is in the distributor rotor or distributor cap, and no roadside repairs can be made to these parts. Communicate with the nearest Service Station and suggest that they bring a cap and rotor.

The Spark Plug

The spark plugs are mounted in the head of each cylinder and require to be kept clean and dry on the outside. The points should be set about .025 of an inch apart. It is generally accepted that a worn dime may be used as a gauge in the absence of an accurate instrument.

When cleaning or adjusting the plugs be careful not to injure the porcelain on top or inside. And always carry at least one extra spark plug. Keep it in the bottom of the side pocket of the door, rather than in the tool compartment, where the porcelain is exceedingly likely to be broken.

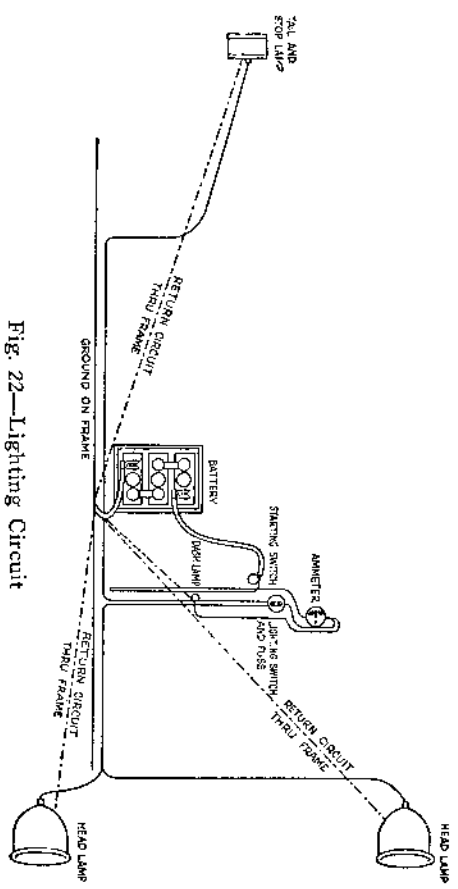
Roadside Emergency "E"

If the engine develops a jerking motion while driving, be sure that the choke is pushed in.

Next turn off the ignition switch and loosen the spark plug wires, so that they can be readily removed while the engine is running. Start the engine and remove one spark plug wire. Hold it about three sixteenths of an inch from the engine and see if the spark jumps. If the engine slows down, hold the wire back on the plug. If the engine speeds up again, it indicates that the "miss" is elsewhere.

Repeat this with each plug and if one is found which does not affect the engine speed—whether the wire is on the plug or off—remove the plug and install the extra one carried for such an emergency.

The defective plug—if repairable—may be repaired later. If changing the plugs does not cure the missing, the troubles must be looked for in the valves, or elsewhere . . . which subject is treated in another part of this book.



THE LIGHTING CIRCUIT

The lamps with which the car is equipped use the following bulbs:

- Head Lamp 6-8 volt, 21 candlepower, single contact
- Tail Lamp 6-8 volt, 2 candlepower, single contact
- Cowl Lamp 6-8 volt, 2 candlepower, single contact.
- Lamp Dash 6-8 volt, 2 candlepower, double contact. (It is well always to carry spare bulbs.)

The light switch is combined with the ignition switch, mounted on the instrument board. (Fig. 16.)

The correct positions for the lever to control the lights "On," "Dim," "Off," and "Park" are clearly indicated.

No attention is necessary to the switch except to see that all connections to the back are clean and tight.

The fuse block is located behind the lighting and ignition switch and it holds a 20-ampere cartridge fuse. Be sure that the clips are clean, and that they hold the fuse tightly, by means of the metal caps at each end. The body of the fuse is glass

through which can clearly be seen the fuse wire which carries the battery current for the lights and horn.

Should some conditions such as a "short" or "ground" occur in the wiring, the current flowing through the fuse may be greatly in excess of 20 amperes. The result would be that the fuse wire would melt and open the circuit, thereby protecting the other units in the circuit and preventing the heating of the wires, and possibly a fire.

This condition is known as a "blown fuse."
(Always carry some extra fuses.)

Roadside All lights go out suddenly while the switch is turned "on."

Emergency "F" Look first for a "blown" fuse. If the fuse is blown, the cause must be found and corrected before putting in another fuse, otherwise this also will blow.

There is a quick method of finding out if the fuse was blown due to trouble in the horn circuit, at the possible cost of another fuse. First turn the light switch "off" and put in a new fuse. Then push the horn button. If the fuse blows instead of the horn, the trouble is in the horn circuit, which is described later. Examine carefully all the wires and connections shown in Fig. 19, and look for the following conditions:

A wire broken or disconnected, with its loose end touching some metal part of the car.

A wire with the insulation rubbed off, and the bare part touching some metal part of the car.

If the trouble is not found in the wiring disconnect the black plug connectors from the head and tail lamps by turning them to the left and pulling them out. Lay them down in such a position that the center contacts are not touching any metal part.

Now put in a new fuse. Turn the light switch "on."

If the fuse blows, the trouble is probably in the light switch itself and is a matter for an electrician and the removal of the switch.

If the fuse does not blow—

Leave the light switch turned on and, being careful not to touch any metal part of the car with the center of the lamp connectors, replace them.

If the source of trouble is in a lamp, when the plug is replaced there will be a heavy spark as contact is made. (If the plug is quickly removed, the fuse may be saved.)

Having located the trouble, wrap the connector plug with friction tape and leaving it disconnected you have other lights with which to drive to a Service Station.

Roadside If the tail light goes out:

Emergency "C" First see that the connector plug is firmly in place in the back of the lamp, and that the wire is connected.

If these are in order, remove the glass of the tail light by first removing the lockwire with a screw driver. Test the bulb by exchanging it with one that you know to be all right.

The lamp may not burn due to the lack of a return circuit through the frame, caused by a loose bracket, or rust between the surfaces of the metal parts involved.

It can be corrected by cleaning surfaces, tightening parts, or by connecting a wire with one end to the body of the lamp and the other firmly to the frame.

Roadside Light flickers on and off:

Emergency "H" Look for a loose or dirty connection in the diagram shown in Fig. 22. If the trouble is not found in this examination, it may be found in the lighting switch.

THE HORN CIRCUIT

The horn is actually a small electric motor, driving a noise-producing device, with the moving parts protected by the dustproof cover on the rear end.

By pressing the horn button on top of the steering tube,

the circuit shown in Fig. 23 is completed, and the battery current flows to the horn.

Beyond keeping the connections tight, the horn needs little attention except occasionally oiling the shaft bearings.

Roadside Emergency The horn fails to blow when the button is pressed:

Turn on the lights. If they light, this means that the fuse also is all right. If such is the case, see that all connections shown in Fig. 23 are clean and tight. If the fuse is blown, examine the wiring in the same

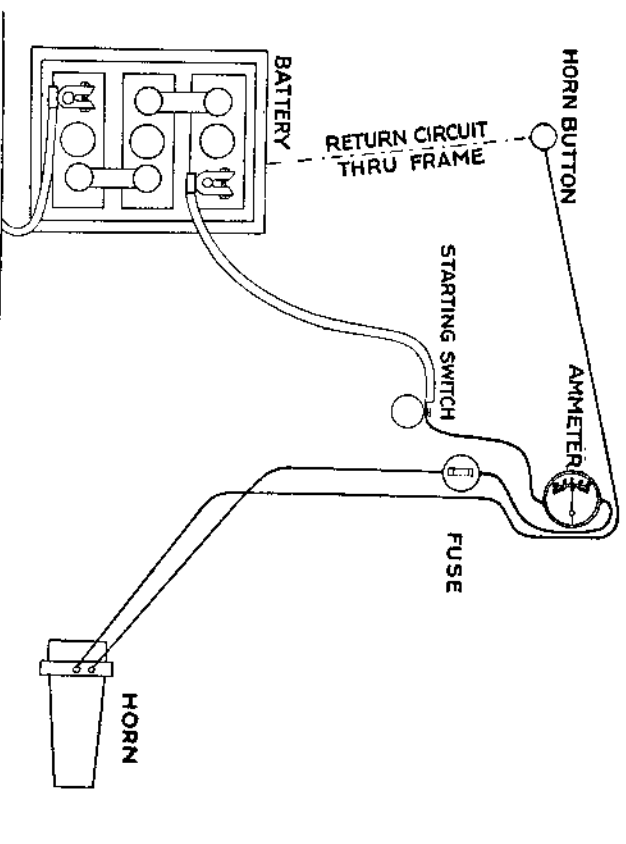


Fig. 23—Horn Circuit

manner as instructed under the heading of "Light Circuit Emergency 'F'" paragraphs 1 to 6.

If the trouble is not found by these examinations, it is in the horn button or the horn itself, which repairs will probably have to be made at a Service Station.

Roadside Emergency Horn blows without the button being pressed: Disconnect the wires from the horn. See that no bare part of the wire running from the horn to the horn button is touching any metal part of the car. If this condition is discovered, wrap the bare spot with friction tape. If the trouble is not found, wrap the ends of the wires leaving the horn disconnected, as the trouble is either in the horn itself or in the horn button.

THE CHARGING CIRCUIT

The generator (Fig. 17) is mounted on the front part of the engine, bolted to the timing gear case, and the working parts are encased in a metal shell to protect them from dust and moisture.

The characteristics of the generator are such that it produces its highest charge to the battery at average car speeds, and gradually lowers this charging rate when the car speed is increased. This principle protects both battery and generator.

The output can be regulated within reason to meet the individual driving conditions of each owner, but special instruments and technical knowledge are essential to do this without damage to the system. The adjustment is best made by a Service Station.

It may be well to say at this point that such adjustments, incorrectly made by unauthorized persons, may lead to the voiding of the manufacturers' warranty on new car equipments.

The generator is driven by the timing chain, and the front end bearing is lubricated by oil from the engine passing through the timing chain case. A few drops of oil each week should be inserted through the oiler provided on the rear end of the generator—to take care of the other bearing.

The generator is provided with a field fuse to protect it from serious damage should a loose connection or broken wire occur in the charging circuit. This is located in the right hand upper quarter of the commutator end plate looking at the unit from the commutator end and is easily accessible by removing the head band assembly. The fuse is of a 5 ampere capacity and should never be replaced by a fuse substitute or one of higher rating.

Beyond seeing that connections are clean and tight, the generator needs no other attention.

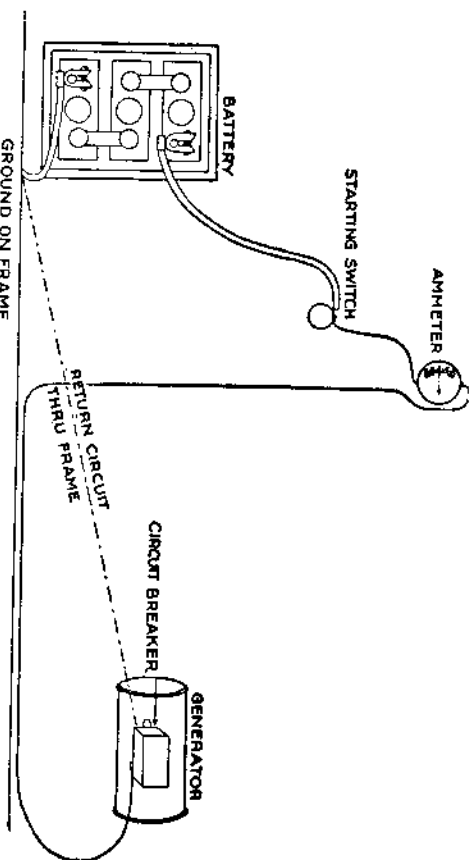


Fig. 24—Charging Circuit

The Circuit Breaker The circuit breaker, or cutout, is mounted on the generator frame and is an automatic unit, carefully adjusted before being installed. It automatically closes the circuit shown in Fig. 24, when the engine is running fast enough for the generator to charge the battery, and opens the circuit when the speed decreases—to prevent the battery from discharging back through the generator.

See that its cover is kept in place and that the connections are clean and tight.

The Ammeter So that you may watch the action of the generator, this instrument is mounted on the instrument board.

This device not only shows the current flowing to the battery, but will indicate in opposite direction, at what rate the battery is being discharged . . . by lights and ignition when these units are in use. It requires no attention except to see that the connections on the back are kept clean and tight.

Roadside Emergency "K" Without lights turned on the ammeter shows that the generator is not charging at an engine speed of 10 miles an hour or more.

First turn on the lights and see if the ammeter reads "discharge." If it does not, the trouble may be in the ammeter itself, or in the wiring.

Then see if all connections shown in Fig. 24 are clean and tight.

After checking all the connections in Fig. 24 examine the field fuse for being "Blown" or "Open." A blown fuse will show no wire in the glass which will also have a smoky appearance, while an open fuse will generally have loose metal end ferrules.

If the fuse is found at fault replace with a new one of 5 ampere capacity. Should this again blow when the engine is started drive to the nearest Service Station for a complete check of the charging circuit.

AUTO-LITE SERVICE POLICY

Under the terms of the warranty of the electrical equipment manufacturers—The Electric Auto-Lite Company—a new car should be registered at an Official Auto-Lite Service Station within five days from date of delivery.

Registration To register the car it should be taken to the Service Station where the electrical system will be given complete check and any adjustments needed made without charge to the car owner. In return

the Service Station will give the owner a registration card which will entitle the owner to gratis repairs under the

terms of the warranty for a ninety-day period at any Official Auto-Lite Service Station.

If any owner fails to have his equipment registered and is desirous of warranty service it will be necessary for him to present his bill of sale or other form of identification.

It is the manufacturer's constant desire that each and every owner of Auto-Lite apparatus receive that long continuous service which they know it is capable of giving; therefore, should any difficulty be experienced a visit to their nearest Service Station or correspondence with their factory is cordially invited.

STORAGE BATTERY

The storage battery is the heart of the electric system. It is a reservoir into which the electrical energy made by the generator is stored for ignition, lighting and cranking the motor.

A storage battery is an electro-chemical device entirely different from the mechanical parts of the car. Its life depends on the care which it receives and the kind of service demanded from it.

A battery possesses three compartments or cells. Within each cell are two elements, one positive (+), and the other negative (-). Each element consists of a number of plates called "grids," the openings of which are filled with a lead paste. Each group of plates is connected together and separated from the opposite group by wooden separators between each plate.

The liquid in which these plates are immersed is called electrolyte, and is composed of diluted sulphuric acid.

The passage of current from the generator through the positive and negative elements of the battery arouses a definite chemical action, separating the lead paste into its several component parts. When the battery is fully charged, this composition is soft and spongy.

The chemical action of a battery while undergoing a charge emits a fine spray, called "gassing," composed principally of water. Therefore it is absolutely essential that distilled water be added every two weeks.

At the top of each cell is a vent hole or opening, accessible by unscrewing the vent cover. These vents are for the purpose of inspection, adding water, and reading the specific gravity of the electrolyte.

Immediately upon receipt of a battery or a new automobile the battery should be inspected. This requires but a few minutes, and may prevent trouble. All vent covers should be

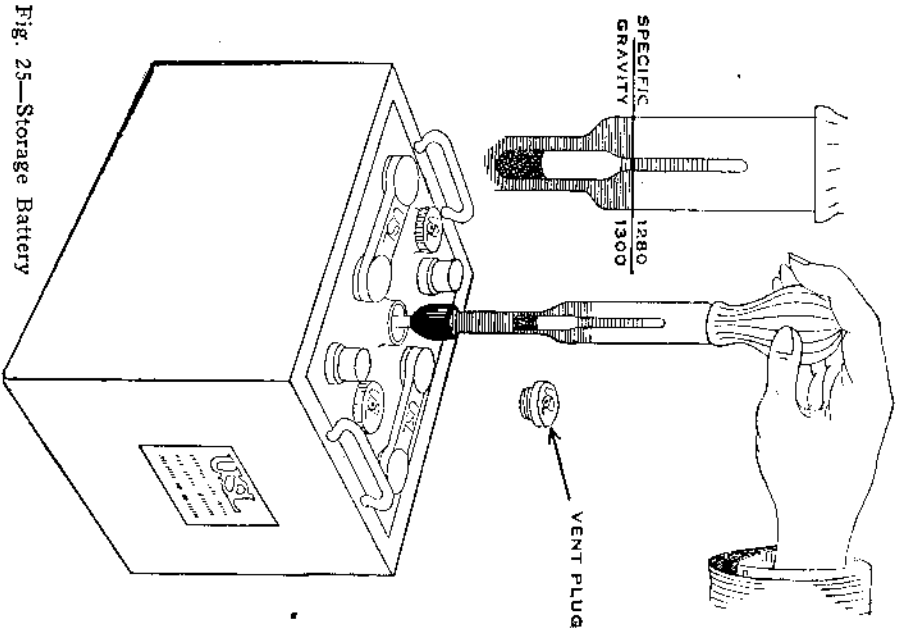


Fig. 25—Storage Battery

removed, and the level of the solution in each cell ascertained. The battery plates should be well covered with solution; if not, add distilled water.

Filling one cell does not fill all, so examine each one and fill as required. If inconvenient to obtain distilled water, use melted artificial ice or rain water that has been caught in a

wooden tub (not metal). Under no circumstances use ordinary water. Do not store water for batteries in metallic vessels—use glass. Remember that if the battery plates are exposed (not covered by the liquid), they become hardened and the battery capacity is greatly reduced.

Never add acid, except to replace spilled solution. In that case, one part of chemically pure sulphuric acid and three parts of pure distilled water by volume.

Proper Battery Keep all cells filled with distilled water to a level of $\frac{1}{2}$ " above the top of the plates. Never fill

Care above this level. Keep the battery and the battery compartment clean and dry.

Keep the terminals clean and tight and well covered with vaseline to prevent corrosion.

Never allow the battery to become heated in service above 100° F. Watch the battery for heating one or more times every day in warm weather. If the top connectors feel more than blood-warm to the touch, burn all the lamps while driving, until you can consult a U. S. L. Service Station, which will prescribe what is necessary. If the temperature reaches 120° F., the battery may be ruined.

In order to prevent freezing in cold weather, test the battery frequently and see that the gravity is kept up to at least 1.275. A discharged battery will freeze at a little below the freezing point.

When filling, if one cell takes considerably more water than the others, this indicates a leaky jar and the battery should be taken or sent to a U. S. L. Service Station. Unless repaired immediately, the battery may be ruined.

If you lay up your car, the battery should be removed and placed in storage with a U. S. L. Service Station, who will issue a receipt for it.

A battery will slowly discharge when standing idle. Serious injury will result if it is not kept charged, and it is not practical to do this by running the engine when the car is not in use.

IMPORTANT

You are now a DURANT owner
be a club member

Join the DURANT Maintenance Club

On pages 70-71 of this manual are described the benefits of membership in the only real money-saving club in the world—exclusively for DURANT owners.

IF YOU ARE INTERESTED IN

More miles per gallon of gasoline

More miles per quart of oil

More years of life for your car

Greater driving comfort

be sure to read these pages. Then go to the Dealer from whom you bought your car, enroll in the DURANT Maintenance Club, and begin to collect your dividends in miles and miles of care free motoring.

Turn to page 70

SPEEDOMETER MILEAGE	LETTER	DATE LUBRICATED	SPEEDOMETER READING
20,000	M S G T U		
20,500	M S		
21,000	M S G		
21,500	M S		
22,000	M S G		
22,500	M S T U		
23,000	M S G		
23,500	M S		
24,000	M S G		
24,500	M S		
25,000	M S G T U		
25,500	M S		
26,000	M S G		
26,500	M S		
27,000	M S G		
27,500	M S T U		
28,000	M S G		
28,500	M S		
29,000	M S G		
29,500	M S		
30,000	M S G T U		
30,500	M S		
31,000	M S G		
31,500	M S		
32,000	M S G		
32,500	M S T U		
33,000	M S G		
33,500	M S		
34,000	M S G		
34,500	M S		
35,000	M S G T U		
35,500	M S		
36,000	M S G		
36,500	M S		
37,000	M S G		
37,500	M S T U		
38,000	M S G		
38,500	M S		
39,000	M S G		
39,500	M S		
40,000	M S G T U		

SPEEDOMETER MILEAGE	LETTER	DATE LUBRICATED	SPEEDOMETER READING
500	M S		
1,000	M S G		
1,500	M S		
2,000	M S G		
2,500	M S T U		
3,000	M S G		
3,500	M S		
4,000	M S G		
4,500	M S		
5,000	M S G T U		
5,500	M S		
6,000	M S G		
6,500	M S		
7,000	M S G		
7,500	M S T U		
8,000	M S G		
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9,000	M S G		
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10,000	M S G T U		
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18,000	M S G		
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19,000	M S G		
19,500	M S		

Durant Maintenance Club

Do that failure to lubricate regularly sends
You more motor cars to the junk yard than any
Know other single cause?
that many an accident could have been
prevented by regular inspections to detect
loose nuts and worn parts?
that expert attention at regular intervals
adds years to the life of any motor car?
that owners of fleets of commercial cars
reduce the annual cost of their automotive
equipment by systematic maintenance?

If you know these facts, you know that you cannot afford to neglect your car. It costs very little to keep a piece of machinery in good condition—it costs a lot to put it there after it has been allowed to deteriorate.

To make it easy and economical for DURANT owners to keep their cars in first-class mechanical condition and lengthen their useful life, your local DURANT Dealer will be glad to offer you the privilege of enrollment in the "DURANT Maintenance Club"—a body of DURANT owners who not only enjoy the privilege of a minimum of cost but whose cars will be kept in excellent condition long after the cars of non-members will be in the junk yard.

There is no initiation fee for membership in the DURANT Maintenance Club—there are no dues. There is no red tape about joining. Give your name to the local DURANT Dealer and he will do the rest.

Every five hundred miles an ingenious little reminder, attached to your speedometer by the Dealer free of charge, will tell you that it is time to bring your car to the Service Station for a maintenance operation. The charges for each maintenance operation have been figured on a special low rate for club members. You know in advance what it will cost.

Through systematic preventive maintenance you will have the satisfaction of knowing that your car is always in a condi-

FOREWORD

THE DURANT Car is the result of many years experience in building automobiles, during which time their operation has been carefully watched in the hands of owners.

No car ever built is easier to take care of and to keep in perfect running condition. The purpose of this design is to avoid the neglect that often occurs when lubrication points or adjustments are hard to reach.

We have done everything possible for the convenience of the DURANT user, to ensure him long and dependable service. It is necessary, however, to give this car the care and consideration to which any fine piece of machinery is entitled.

The user should carefully read and follow the simple instructions in this Manual, in order to get out of his DURANT Car all the dependable and economical service that we have built into it.

DURANT MOTORS, INC.
3057 WOODWARD AVENUE
DETROIT, MICHIGAN

LICENSE DATA

Number of Cylinders: 6

Cylinder Bore: 2 7/8"

Stroke: 4 3/4"

Piston Displacement: 185 cubic inches

Horsepower (N.A.C.C. rating): 19.8

Brake Horse Power: 47

Headlight Lenses: Authorized Type

Wheel Base: 109 inches

LOADING WEIGHTS

Sport Roadster	—2560 lbs.
Coupe	—2330 lbs.
Cabriolet	—2385 lbs.
Sedan 2-Door	—2460 lbs.
Sedan 4-Door	—2570 lbs.
De Luxe Sedan	—2730 lbs.
De Luxe Coupe	—2490 lbs.
De Luxe Cabriolet	—2545 lbs.
De Luxe Roadster	—2460 lbs.

Car Serial No.—Located on right side of dash, under hood

Motor No.—Located on left side of crank case.

U. S. L. SERVICE POLICY

U. S. Light & Heat Corporation guarantees batteries of its manufacture to be free from defects in material or workmanship and insures the service of such batteries under the following service and adjustment policies:

Initial Test The purchaser of a new car should immediately drive his car to the nearest U. S. L. Service Station for initial test. This test, which covers complete inspection of the battery and its relation to the electrical system, will be made without cost to the owner.

90-Day Free Service Period During the first ninety days of service, if repairs to the battery are necessary, such repairs will be made by any U. S. L. Service Station without cost to the owner, unless it is apparent that such repairs are made necessary by neglect or abuse. It is, of course, understood that the owner will be expected to pay for any necessary recharging.

The battery should be inspected and distilled water added, if required, at least twice monthly in summer and monthly in winter. The owner may inspect and fill his battery, if desired, in accordance with the instructions in his car instruction book or the U. S. L. battery instruction book, or the latter may be performed by the U. S. L. Service Station.

Fifteen Months' Free Service After the expiration of the ninety-day free service period, but within fifteen months of the date indicated in code on the number plate of the battery, the owner will, in case of battery failure, have the option of paying for necessary repairs or of obtaining a new U. S. L. battery in exchange at a price, f.o.b. factory, equal to one-fifteenth of the list price for every month of the fifteen months' guaranteed adjustment period which has elapsed.

U. S. Light & Heat Corporation.
Niagara Falls, N. Y.