

Technical Information Bulletin

All Essex Owners 1919 Essex Model "A"
Delco Electrical System

Separate starting motors and generators are used on the Essex and Cole, but cut-outs are not used. The motor brushes serve as a starting switch.

Electric system: This is the Delco three-unit single wire system. The starting motor drives through the flywheel and a mechanically shifted pinion is used. In place of a starting switch, the motor brushes are used instead (explained below).

The generator: Driven from the right side of the engine, and has the third-brush regulation. To change the output of the generator, shift the third brush; 16 amperes is maximum.

Ignition: Delco closed-circuit timer and distributor driven at one-half crank-shaft speed with automatic advance. The condenser and ignition resistance unit is mounted on the side of the timer.

Adjustment of the timer gap: .018"

Spark-plug gap: .030"

Firing order: 1, 3, 4, 2.

Ignition timing: Place the spark lever full advanced. Turn the engine until No. 1 piston starts to come up on compression stroke and stop when the D.C. 1-4 mark on the flywheel is in line with the pointer on the flywheel of the engine. Then loosen

the timer adjustment screw in the center of the distributor shaft and turn the breaker cam so that the rotor button will be in position under No. 1 high-tension terminal, or that which leads to No. 1 cylinder, when the distributor head is down in place. Locate the breaker cam carefully in this position, so that when the slack in the distributor driving gears is rocked forward, the contacts will be opened by the breaker cam, and when the slack in the gears is rocked backwards, the contact will just close. See also page 303.

Owing to the wearing to a seat of the fiber rubbing block of the contact-breaker arm against the cam, the contacts will require one or two adjustments during the first season's driving after which no attention is necessary. The timing contacts are of tungsten metal, and are very hard. They should require no attention other than to maintain the proper adjustment.

Essex Delco Circuits

Starting motor: From the (+) terminal of the battery (Fig. 1), to the series parallel field windings of the starting motor, to the (+) brushes, through the armature, to the (-) brushes, to (-) ground of the battery.

Instead of a starting switch, the motor brushes are lowered to the commutator when starting, and are raised after starting by the action of the starting pedal.

NOTE: For more info see 1919-1920 Delco Circuit
Diagrams of the 1919-1920 Automobile Systems

When the starting pedal is depressed it performs two distinct operations. The first of these takes place when the button is part way down, at which time the starter gear mounted to the rear of the starting motor is caused to mesh with the flywheel. The second action occurs when the pedal is all the way down, bringing the motor brushes in contact with the motor commutator, thereby closing the circuit and energizing the motor, which results in the revolving of the armature and the consequent cranking of the motor through the over-running clutch and thence through the flywheel. Release the starting button as soon as the engine starts.

The brushes on this motor are of a special composition, and must not be replaced with brushes of any other material, as this is almost sure to lower its efficiency very materially. Neither the brushes nor commutator should be lubricated, as lubrication of the commutator with a compound of any kind is almost sure to cause the brushes to fail to make contact at all, or at least to make insufficient contact to permit the cranking operation.

Generator shunt-field circuit: From the (+) main brush to (A), to (2), to (3), to (F), through the shunt field windings, to the (-) third brush.

A cut-out is not used on the Essex.

Generator charging circuit: From the (+) brush, to (A), to (2), to (1), to the ammeter, to the (+) battery, to the (-) battery ground (GB), to the (-) main brush of the generator (G).

Ignition primary circuit (from the battery when starting): From (+) of the battery, to the ammeter, to (1), to (3), to the ignition coil primary winding,

Ignition primary circuit (from the generator after the engine is running at sufficient

speed for the generator to charge the battery): From (+) of the generator, to (2), to (3), and over the same path as in the preceding paragraph.

Note. The ammeter shows the ignition current on the "discharge" side (also lights, etc.) used from the battery. It shows on the "charge" side only, the current going from the generator to the battery when the generator is charging the battery.

Secondary ignition circuit: From the secondary coil winding, to the distributor, to the spark plugs, to ground, to ground of the generator or battery, to (3), to the other end of the secondary circuit.

The condenser is placed across the ignition contact-breaker points.

The lighting circuit, when from the generator, is from (2) to (1), and when from the battery, from (1). The circuit-breaker of the vibrating type is placed in series with the lighting circuits. The purpose is explained on page 391.

The combination switch is located in the cowl. It is for the purpose of controlling the lighting and ignition circuits, and the circuit between the generator and storage battery. The lever (I) on the left controls the ignition and generator circuit. The lever on the right (L) controls the lights and has three positions, "off," "dim lights," and "bright lights." The cowl and tail lights are lit when the headlights are either dim or bright.

By controlling the circuit between the generator and storage battery with the ignition switch lever, an automatic cut-out, which is commonly used for this purpose, is not required. The ignition button should never be left in the "on" position when the engine is not operating, as the storage battery would run down.

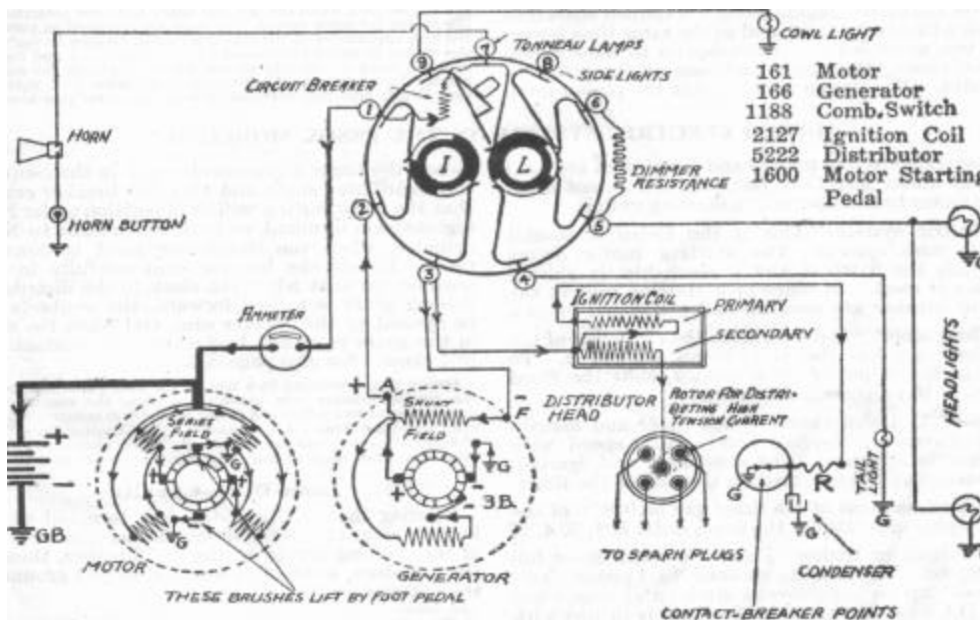


Figure 1