

Overland

Model 85-6 (1917)

Auto-Lite Starting and Lighting System. Connecticut Ignition Battery.—Battery is 6 volt, 80 ampere-hour. The negative (—) terminal is grounded at the starting motor.

Ignition.—Breaker contacts should separate .018 inch to .020 inch. They are made of tungsten. They will operate properly even though quite rough. Should they become badly worn, affecting the ignition, the inner breaker mechanism should be renewed as directed on Page 50. In an emergency, contacts may be resurfaced enough to give service for 300 or 400 miles by drawing a piece of fine emery cloth between them.

Timing.—Contacts should begin to separate when the mark "1-6 D-C" on the flywheel is $1\frac{1}{8}$ inches past the indicator, spark control lever and breaker assembly in the fully retarded position.

Firing Order.—The firing order is 1, 5, 3, 6, 2, 4.

Spark Plug Gaps.—Spark plug gaps should be about .023 inch.

Ignition Thermostat.—There is a thermostat in the lighting-ignition switch case to open the ignition circuit, should the switch be left "On" with engine idle, contacts closed. This device is treated on Page 50.

Oiling.—Refill the cup under the breaker head with pure vaseline and turn down every month. If car is driven more than 1000 miles in a month, this must be done every 1000 miles. Do not put grease or oil in the cup.

Starter.—Starter is connected to engine by a Bendix drive. Cold engine, tight bearings, heavy oil or other obstructions will cause slow cranking speed and high current.

Oiling.—Clean and repack starter bearings with soft cup grease every six months. Put in one or two drops of oil every month to keep grease soft.

Generator.—Generator current regulation is by reverse series field in the type GG generator and by third brush system in the GH type generator. Relay should close at 500-575 R. P. M., of generator armature on the GG generator and at 550-600 R. P. M. on GH type generator. Charging current should be .5 to 1.5 ampere at closing and the discharge current 0 to 1 at opening.

GENERATOR DATA.

Model GG (Reverse Series Type).		Model GH (Third Brush Type).	
Amperes	R. P. M.	Amperes.	R. P. M.
5.0	750- 860	5.0	760- 820
10.0	1225-1400	10.0	1020-1100
12.5	1600-1825	12.5	1200-1300
15.0	2175-2450	15.0	1460-1675
17-18	3200-3700	15-17	1950-2250

A variation of 1.5 amperes from these amounts is allowable. Output may be varied somewhat by adjusting brush pressure on commutator on GG type or third brush on GH type. The pressure should be 1 to $1\frac{1}{4}$ pounds. If operated freely as a motor, type GG generator should take 2.8 amperes, armature revolving at 350 R. P. M. Model GH generator should take 2.7 amperes, armature turning at 450 R. P. M. Geater speed indicates damp, grounded or short circuited field coils. Greater current or lower speed indicates tight bearings or damp, grounded or short circuited armature windings or commutator. Periodic swinging of ammeter needle indicates grounded or short circuited armature coils or commutator bars. Shunt field should take approximately 1.1 amperes on model GG and 1.7 amperes on model GH.

Oiling.—Put 5 or 6 drops of light engine oil in each of the generator oilers every two weeks. If car is driven more than 500 miles in two weeks, the oiling must be done every 500 miles.

Lamps.—Head lamps are 6-7 volts, 16 cp. Dash and tail lamps are in series. They are each 3-3.5 volts, 2 cp.

Fuses.—Fuses are 20 ampere.

Model Numbers.—Generator Model GG 1064 is used on cars having Serial Number up to 13,000. On cars above this number, type GH 1006 generator is used. Starter is Model ME 1021 on cars up to Serial Number 1179. After this number type ME 1026 is used. A USL AD 313 battery is used on late cars. On early cars battery is Williard OHSLB or Prestolite 613 W 02.

Overland

Model 90 (1918)

Auto-Lite Starting and Lighting System

Connecticut Ignition

Battery.—Battery is 6 volt, 80 ampere-hour. The negative (—) terminal is grounded at the starting motor.

Ignition.—Breaker contacts should separate .016 inch to .018 inch. They are made of tungsten. They will operate properly even though quite rough. Should they become badly worn, affecting the ignition, the inner breaker mechanism should be renewed as directed on Page 50. In an emergency, contacts may be resurfaced enough to give service for 300 or 400 miles by drawing a piece of fine emery cloth between them.

Timing.—Contacts should begin to separate when the top dead center mark "1-4 U.P." on the flywheel is $1\frac{1}{4}$ inch past the indicator, spark control lever and breaker assembly in the fully retarded position.

Firing Order.—The firing order is 1, 3, 4, 2.

Spark Plug Gaps.—Spark plug gaps should be about .023 inch.

Ignition Thermostat.—There is a thermostat or automatic overload release in the ignition switch. If the ignition switch is left on, with the engine idle, the thermostat will open the circuit after a short time. Cars having serial number below 107,706 are equipped with the device described on Page 41. Cars above this number have the new type switch. In this device, the current flowing through the heavy winding heats the blade sufficiently to cause it to bend, separating the contacts. This causes the current to flow through the other, fine coil, heating it. This causes the blade to bend away, releasing the latch which holds the ignition switch "On". The device should operate within 3 minutes after engine is stopped, contacts closed. With proper adjustment it will act in 10-15 seconds.

Starter.—Starter is connected to the engine through a Bendix drive. Cold engine, heavy oil, tight bearings or other obstructions or damp, grounded or short circuited motor windings or commutator bars will cause low speed and excessive current during the cranking operation.

Oiling.—Clean and repack starter bearings with soft cup grease every six months. Put in one or two drops of oil every month to keep grease soft.

Generator.—Generator current regulation is by third brush system. Relay contacts should close at 550-600 R. P. M., of generator armature. Charging current should be .5 to 1.5 amperes at closing and 0 to 1 ampere at opening of relay contacts.

GENERATOR DATA, MODEL GH

Amperes	R. P. M.
5	760-820
10	1020-1100
12.5	1200-1300
15	1460-1675
15-17	1950-2250

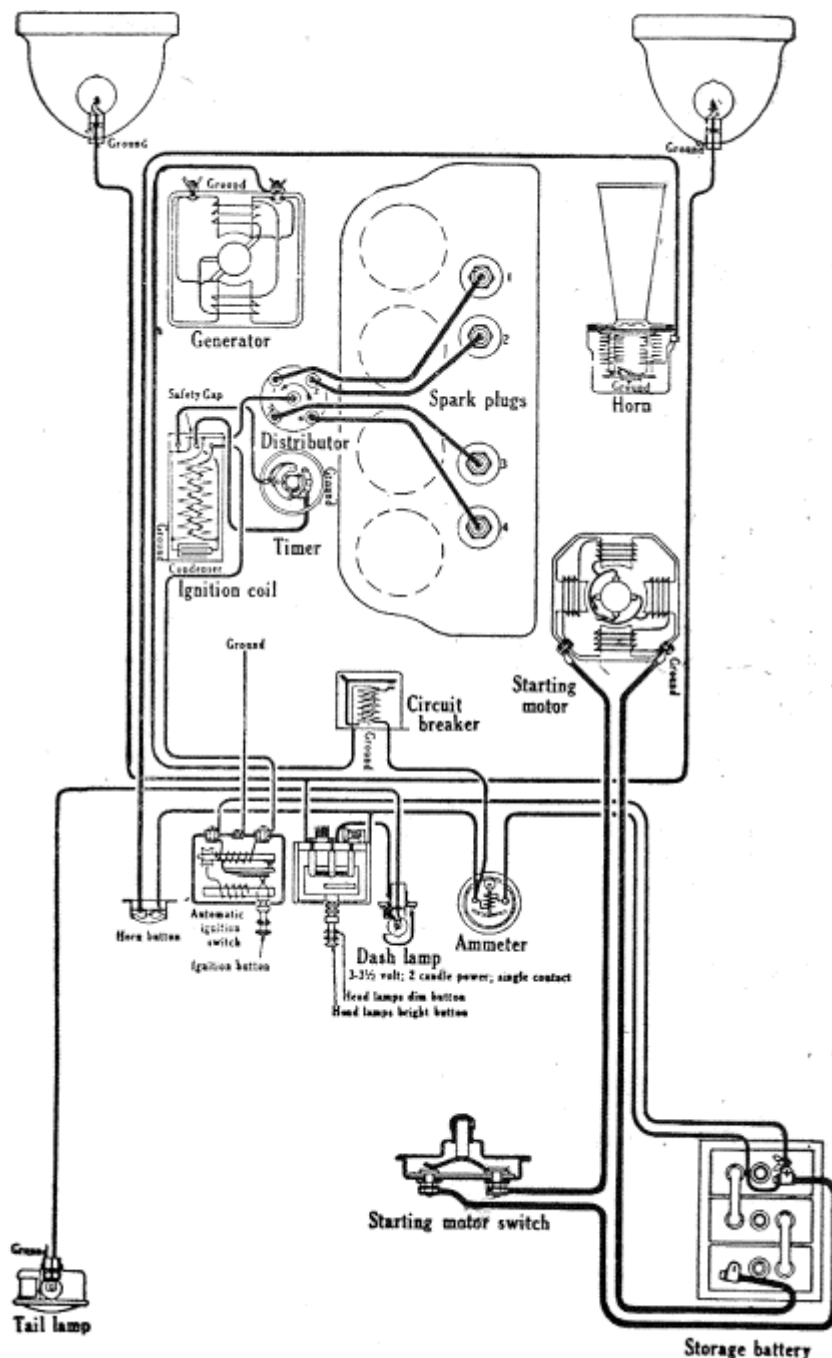
If operated freely as a motor, generator should take 2.7 amperes, armature revolving at 450 R. P. M. Much higher speed indicates damp, grounded or short circuited field coils. Greater current or lower speed indicates tight bearings or damp, grounded or short circuited armature windings or commutator. Periodic swinging of the ammeter needle indicates grounded or short circuited armature coils or commutator bars. Shunt field should take about 1.7 amperes.

Oiling.—Put 5 or 6 drops of light engine oil in each of the generator oilers every two weeks. If car is driven more than 500 miles in two weeks, the oiling must be done every 500 miles.

Lamps.—Head lamps are 6-7 volts, 16 cp. Dash and tail lamps are in series. They are each 3-3.5 volts, 2 cp.

Fuses.—Fuse is 20 ampere.

Model Numbers.—Generator is Model GH 1006. Starter is Model MF 1086. Battery is USL CD 311. On some of the early cars, Gould B 7675 or Willard OLBA battery was used.



Overland Light Four and Country Club

AUTO-LITE STARTING AND LIGHTING SYSTEM. CONNECTICUT IGNITION

Battery is 6-volt, 75 ampere-hour. It will supply current to lights for 18 hours when they are bright, and from 30 to 35 hours when head lights are dim.

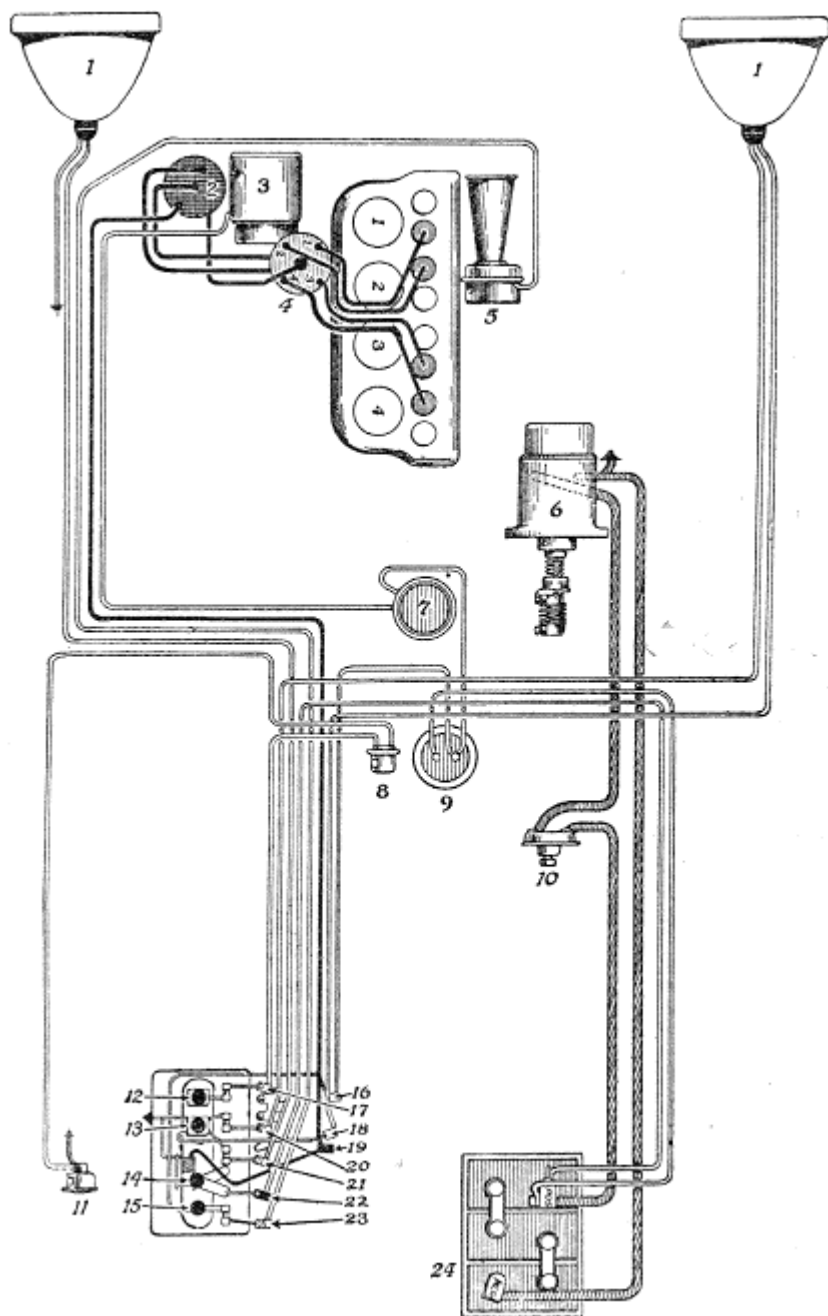
If breaker contacts become so worn as to impair the proper operation of the engine the breaker must be renewed. To do this remove the wire which leads to breaker from coil terminal marked C. Unclasp and remove distributor head, leaving wires on. Lift off distributor rotor. Unscrew the two ring retaining screws which hold the breaker in the case. Then remove the breaker by pulling upward. Then remove the primary wire and keep it to be placed on the new breaker. To install the new breaker reverse the operations given above. Do not file contacts. Break should occur when mark 1-4 U-P is at indicator, spark at full retard. Firing order is 1, 3, 4, 2. Lubricate driving gears well.

Combination ignition and lighting switch is on steering column. There is an automatic release in the box, to open ignition circuit if it has been left on with engine idle.

Starter is connected to flywheel by Bendix gear.

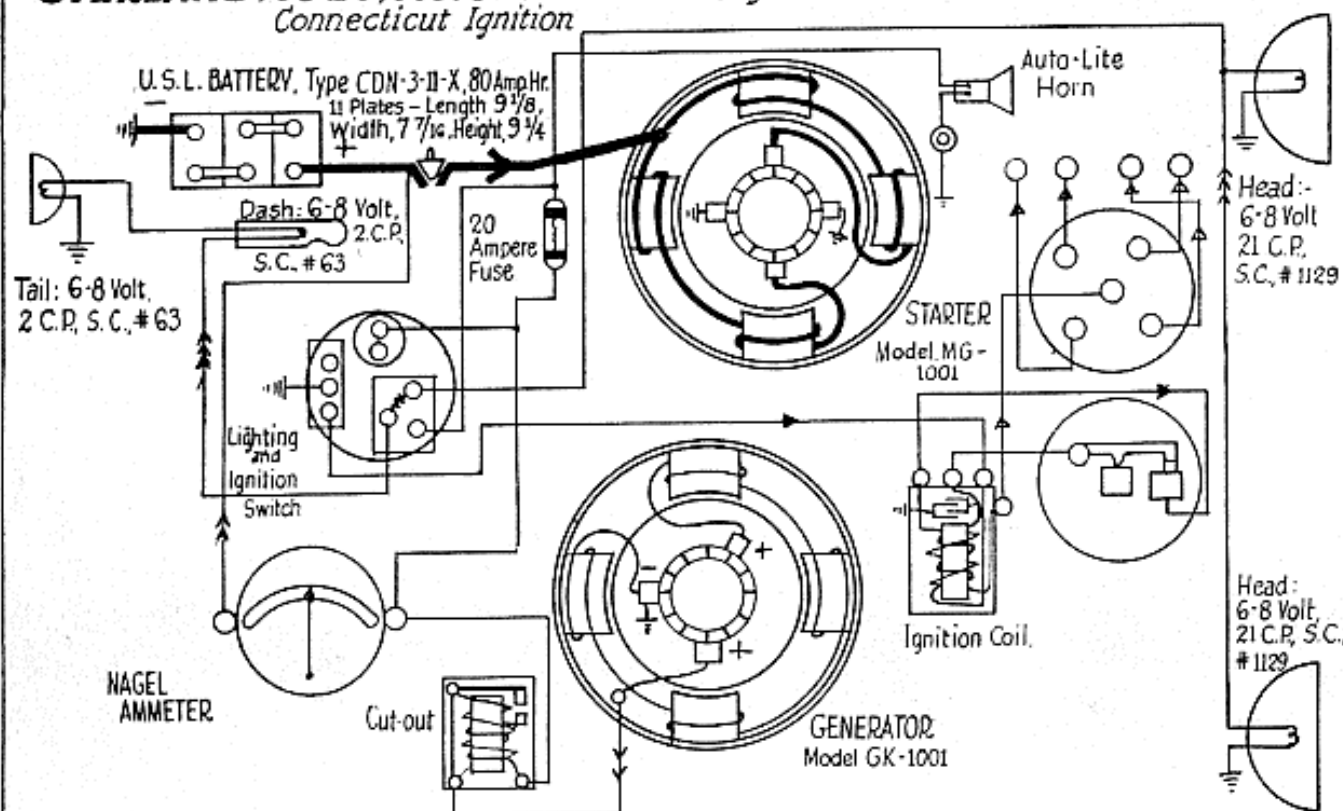
Generator is driven from crank shaft. Oil generator with few drops of oil every 500 miles. Voltage regulation is by third brush. Generator must be be shorted if it is to be run with battery disconnected. Relay closes at $7\frac{1}{2}$ miles per hour. Maximum charging rate of 14 amperes is reached at about 20 miles per hour.

Ammeter shows rate of charge or discharge. All fuses are 20 amperes.



Wiring System

OVERLAND, 1920, Model 4 Auto-Lite System. Connecticut Ignition



SPECIFICATIONS

BRUSHES:

STARTER: Metal $\frac{3}{4} \times \frac{7}{8} \times \frac{9}{32}$

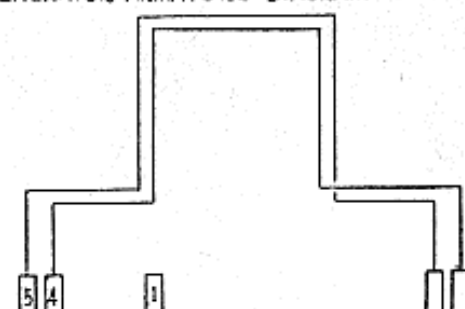
GENERATOR: Graphite $\frac{3}{4} \times \frac{7}{8} \times \frac{9}{32}$

THIRD BRUSH: $\frac{3}{4} \times \frac{7}{8} \times \frac{3}{16}$

GENERATOR OUTPUT:

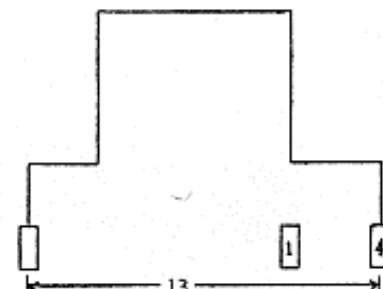
Ampere	Cold Test	R.P.M.	Hot Test	R.P.M.
0	350	0	420	
4	420	4	540	
8	540	8	700	
12	710	12	1000	
16	1200-1400	13	1200-1400	
11	2800	9.4	2800	

GENERATOR ARMATURE DIAGRAM



Coil pitch 1-5 - Turns 6
Wire # 17 S.C.E.
Leads: Top 4-5 left - Bottom 17 right

STARTER ARMATURE DIAGRAM



Coil pitch 1-7 Turn 1
Wire 110 x 225
Leads: Top 4 right - Bottom 13 left

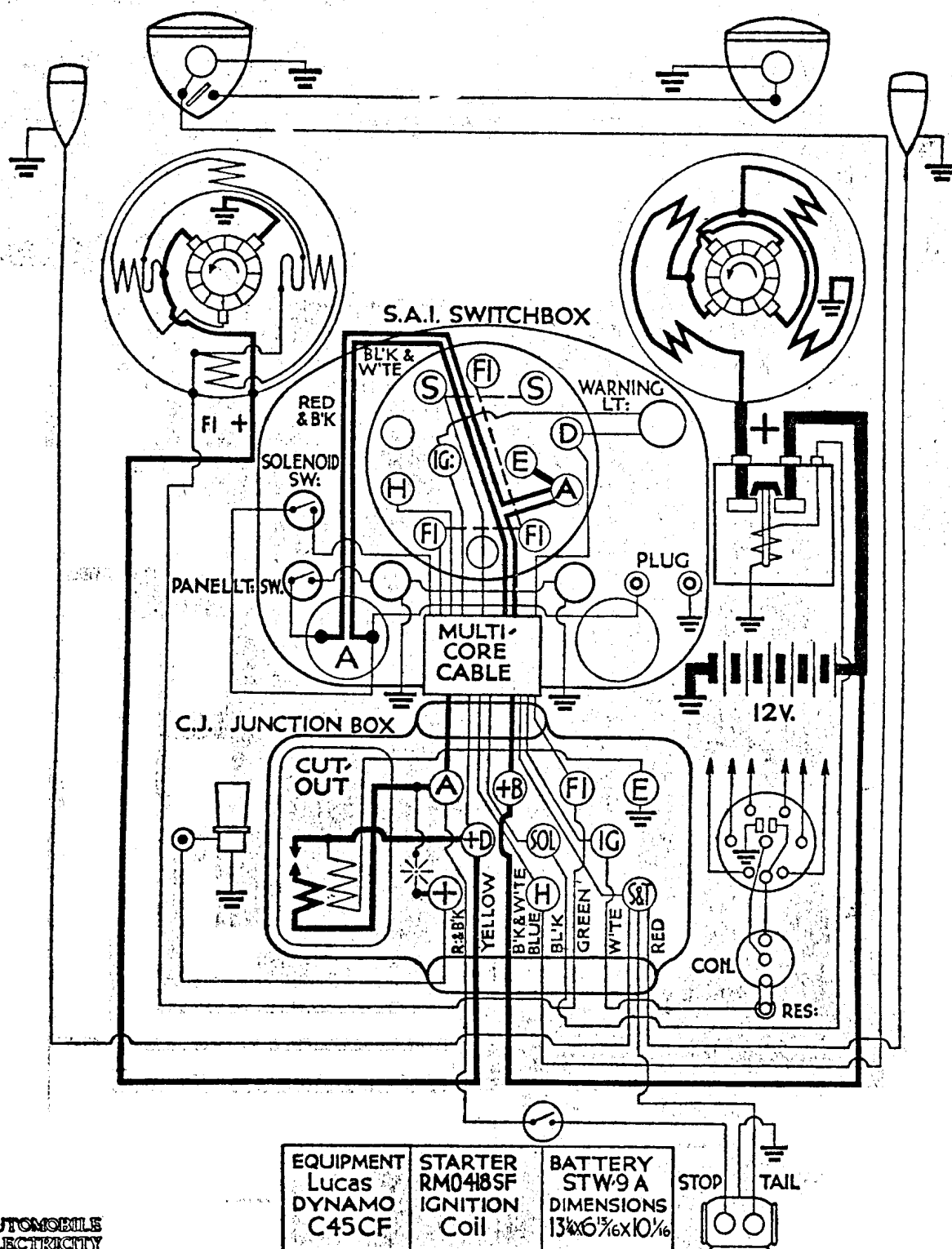
- ▲ Starting
- ▲ Ignition Primary
- ▲ Charging
- ▲ Ignition Secondary
- ▲ Shunt
- ▲ Wires Insulated.
- ▲ Lights
- ▲ Wires Connected

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Automotive Electrical Engineer
1 9 2 3

Timing - Set contacts so that they open .016 inch. They should separate when piston is at top dead center, spark lever fully retarded.

Firing order 1-3-4-2

Automobile Electricity Wiring Diagram—D.213



AUTOMOBILE
ELECTRICITY

1929 Whippet Light Six

CABLES REQUIRED.

HEAD, SIDE & TAIL LAMPS.

GENERATOR.

Here again we are giving the Cable numbers of both Ripogloss and Aluminium armoured cables. Care should always be taken to definitely specify the correct cable numbers when supplies are needed.

Ripogloss.	Ripaults Cable No. R276/1	DYNAMO.	Ripogloss.	Ripaults Cable No. R376/1
Aluminium.	Ripaults Cable No. 276/11		Aluminium.	Ripaults Cable No. 376/11
Ripogloss.	Ripaults Cable No. R376/1	STARTER.	Braided.	Ripaults Cable No. 536/3
Aluminium.	Ripaults Cable No. 376/11		Aluminium.	Ripaults Cable No. 536/1

[Adot.]

Dixie Magneto

This is a form of the inductor type magneto. The coil is wound around a stationary core. The field has two movable pole pieces which rotate past the ends of this core, thus reversing the direction of magnetism and producing a high tension current by the same elementary process as in the ordinary shuttle wound armatures.

Breaker contacts should open .018 in. to .020 in. Clean contacts with gasoline whenever necessary. If contacts are badly burned or pitted, resurface them with a fine, flat, jeweler's file or a piece of worn No. 00 sandpaper. To remove breaker, first take off breaker cover, remove screw fastening primary cable to magneto, take out the four screws holding breaker to magneto, then remove breaker. Spark gap should be .020 in. to .025 in. Breaker contacts should open when the rotating pole piece is .015 in. to .035 in. past the tip of the stationary pole piece, measured in the direction of rotation of the armature. This setting may be determined with a buzzer connected as shown in Figure 2. The entire coil structure is moved with the breaker mechanism each time the spark is retarded, thus the above position is maintained at all degrees of advance or retard, producing a spark of equal intensity at all positions.

The bearings of magneto are provided with oil cups. These cups should each be filled twice before the magneto is run the first time, and similarly oiled thereafter as follows: On pleasure cars, every 1,000 miles; on trucks, every 500 miles; on aeroplanes, every 25 hours of operation; on tractors, motors boats, and stationary engines, every 20 hours of actual operation. The oil cup on top of the distributor should be filled twice and two drops of oil put in the oil cup at the driving end. Use good light machine oil.

For use on large aeroplane engines, where starting with ordinary ignition system would be difficult, a special starting magneto, known as the Dixie 11-S, is provided. The external wiring diagram of this system is shown in Figure 3 and the internal diagram in Figure 4. The starting magneto is arranged to be turned by hand, or by a gear engagement, to run several times as fast as the service magnetos. It has no high tension winding, but has a primary winding and breaker similar to the ordinary Dixie magneto. When the contacts of the service magneto are closed, the starting magneto has no effect, but when the service magneto contacts open, the starting magneto winding is in series with the primary of the service magneto, thus a vibrating spark is produced in the spark gap.

A simple dual starting system is described on Plate No. 51.

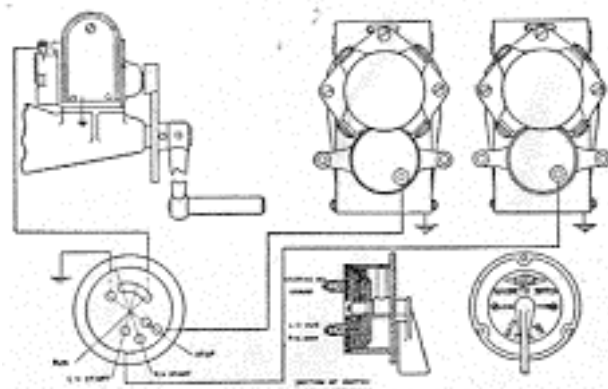


Fig. 3—Wiring diagram of Dixie 11-S starting magneto, with control switch and two service magnetos.

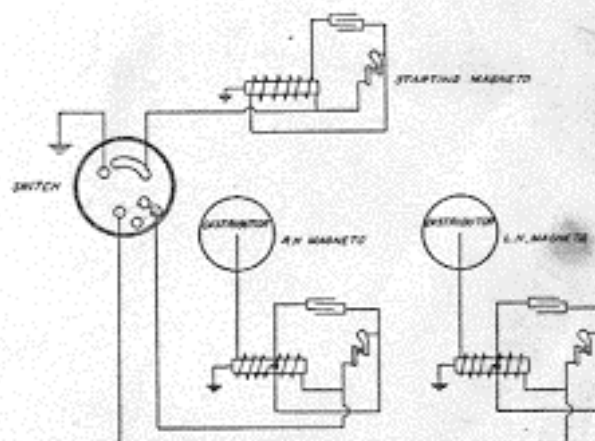
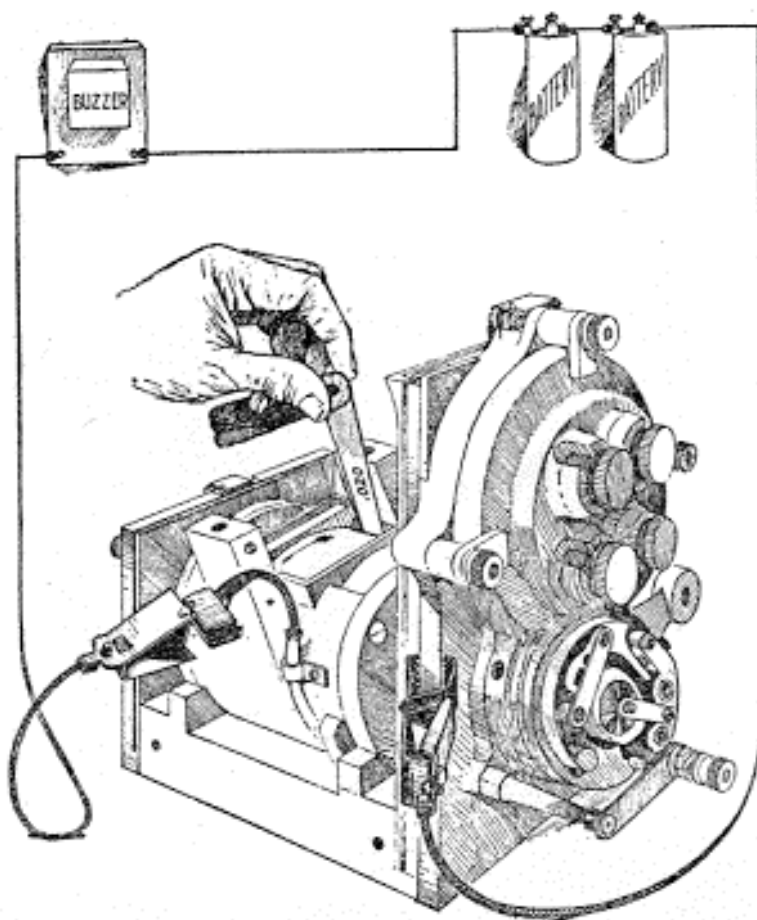
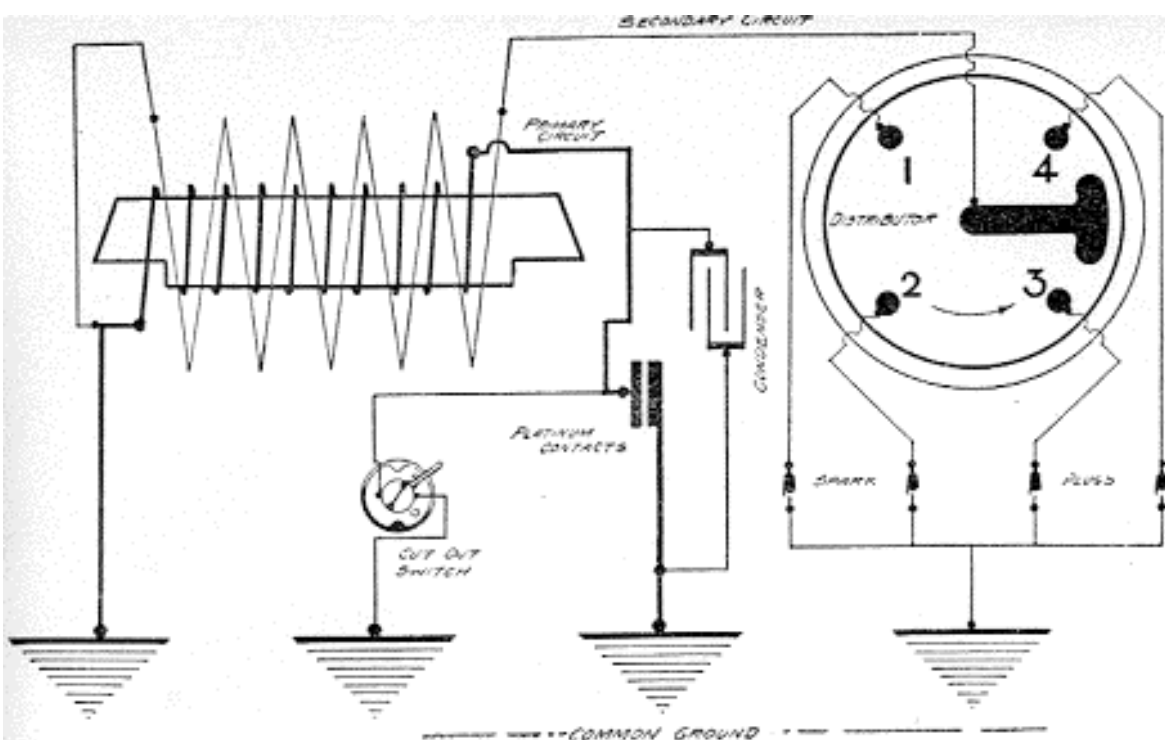
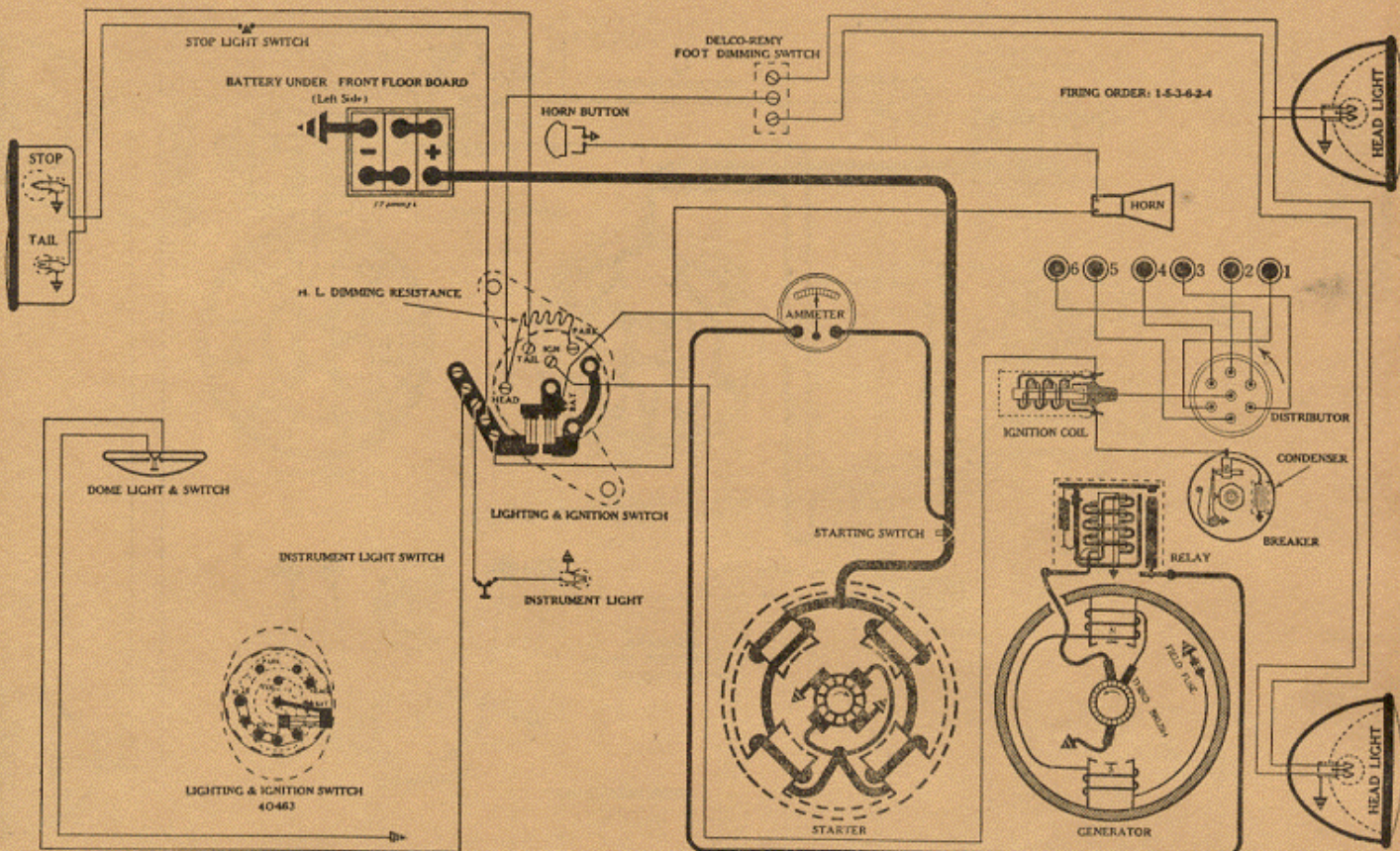


Fig. 4—Internal wiring diagram of Dixie 11-S starting magneto, control switch and two service magnetos.



FALCON-KNIGHT

1927-28



BATTERY

U. S. L., 3-HVX-7X, 6 volts. Negative Terminal Grounded
Starting Capacity—148 amps. for 20 minutes.
Lighting Capacity—5 amps. for 28 hours.
Box—Length, 11 3/4; width, 7 7/16; height, 9 3/4 inches.

STARTER

Rotation, R. H., Com. End
Auto-Lite, MAB-4002

Connection to Engine—Bendix drive.
Running Free—60 amps. at 6 volts.
Cranking Engine—160-170 amps. at 5 volts.
Lock Torque—17 pound-feet, 520 amps. at 3 volts.
Brush Spring Tension—24-28 oz. on each.
Starting Switch—Auto-Lite, SW-4001.

IGNITION

Rotation, L. H., Top View
Auto-Lite, Dist. No. IG-4107B

(Semi-Automatic Spark Advance)

Breaker—Contact separation .020 to .024 inch.
Contact Spring Tension—18-20 oz.
Timing—See detailed instructions P. 1, Sec. AA.
1—Locate T. D. C. 2—Locate rotor. 3—Set spark.
Spark Plugs—7/8 inch regular; Gap .025 inch.
Firing Order—1-5-3-6-2-4.
Manual Advance—20 degrees (on Flywheel).
Automatic Advance—20 degrees (on Flywheel).

Eng. R.P.M.	Degrees Advance (on flywheel)	Dist. R.P.M.	Degrees Advance (on cam)
600	0-1	300	0-5
1300	8	650	4
2000	16	1000	8
2400	20	1200	10

Coil—Auto-Lite, IG-4065.

GENERATOR

Rotation, L. H., Com. End
Auto-Lite, Type GYA-4202

Performance Data—Gen. cold.

Amps.	R.P.M.	Volts
2	620	6.6
5	700	7.
10	860	7.3
14	1050	7.7
16	1200	7.9

Maximum Charging Rate (cold)—19 amps. at 8 volts or 17.75 amps. at 7.5 volts.

Motoring Freely—5 amps. at 6 volts.

Max. Stall Current—18 amps. at 6 volts.

Field Test—3.8 amps. at 6.2 volts directly across field coils in series.

Field Fuse—5 amps.

Brush Spring Tension—1 1/4-1 1/2 lbs. on each.

Third Brush Adjustment—Loosen cover band. See Fig. 13, P. 7, Sec. AA.

RELAY

Auto-Lite, CB-4007

Closes—7-7.5 volts.

Opens—1/2-2 1/2 amps. discharge.

Contact Gap—.025-.035 inch.

Core Gap—.010-.030 inch, contacts closed.

LIGHTING

Switch—Briggs & Stratton No. 40463 (used with 1129 bulbs, 1927).

Fuses—Single 20 amp. fuse mounted on switch back.

Switch—Briggs & Stratton No. , (used with 1110 Bifocal bulbs, 1928).

Fuses—Two, 20 amp. fuses mounted on switch back.

Foot Dimming Switch—Delco-Remy, 465-B.

Lamps—See P. 3, Sec. AA. HEAD—1110 (Bifocal) or 1129; TAIL—63; INSTRUMENT—63; DOME—81; STOP—87.