

HUPMOBILE

SERIES A-1 (1927)

AUTO-LITE GENERATING, STARTING AND LIGHTING SYSTEM AUTO-LITE IGNITION

BATTERY:—Willard, Type CRR-15, 6 volt. Starting capacity is 114 amperes for 20 minutes. Lighting capacity is 5 amperes for 20 hours. The positive (+) terminal is grounded. Battery is mounted under the front seat.

IGNITION:—Coil Model IG-4065. Distributor Model IG-4117-A. Breaker contacts separate .020-.024 inch. They are made of tungsten. Resurface contacts with a fine flat contact file or on a medium hard oilstone. Distributor is semi-automatic. Manual advance is 30° (crankshaft). Automatic advance begins at 1500 R.P.M. and reaches a maximum of 19-21° at 3600 R.P.M. Breaker arm spring tension is 18-20 ounces.

Mounting:—Ignition coil is mounted on the engine side of the dash. Distributor is mounted on the left side of the engine. To remove distributor, disconnect primary lead and manual advance control rod. Then remove distributor head with high tension cables intact and remove set screw on side of distributor mounting. Then lift distributor from place.

Oiling:—Put 4 or 5 drops of light engine oil in the oiler on the side of the distributor housing every week or each 250 miles. Put a small amount of vaseline on the face of the breaker cam every month.

Timing:—Breaker contacts begin to separate when the piston entering power stroke reaches top dead center with the spark control lever one half advanced. To check timing, crank engine until piston No. 1 begins compression stroke (the upstroke with both valves closed). Then advance spark control lever one half placing it midway between the fully advanced and fully retarded positions. Continue to crank engine until piston No. 1 reaches top dead center when the dead center mark for cylinders 1 and 6 will be opposite the indicator on the flywheel case. If breaker contacts do not separate at this point, loosen distributor clamp screw and rotate distributor housing until breaker contacts begin to separate. Tighten the clamp and make certain that the rotor is under the segment connected to spark plug in cylinder No. 1.

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

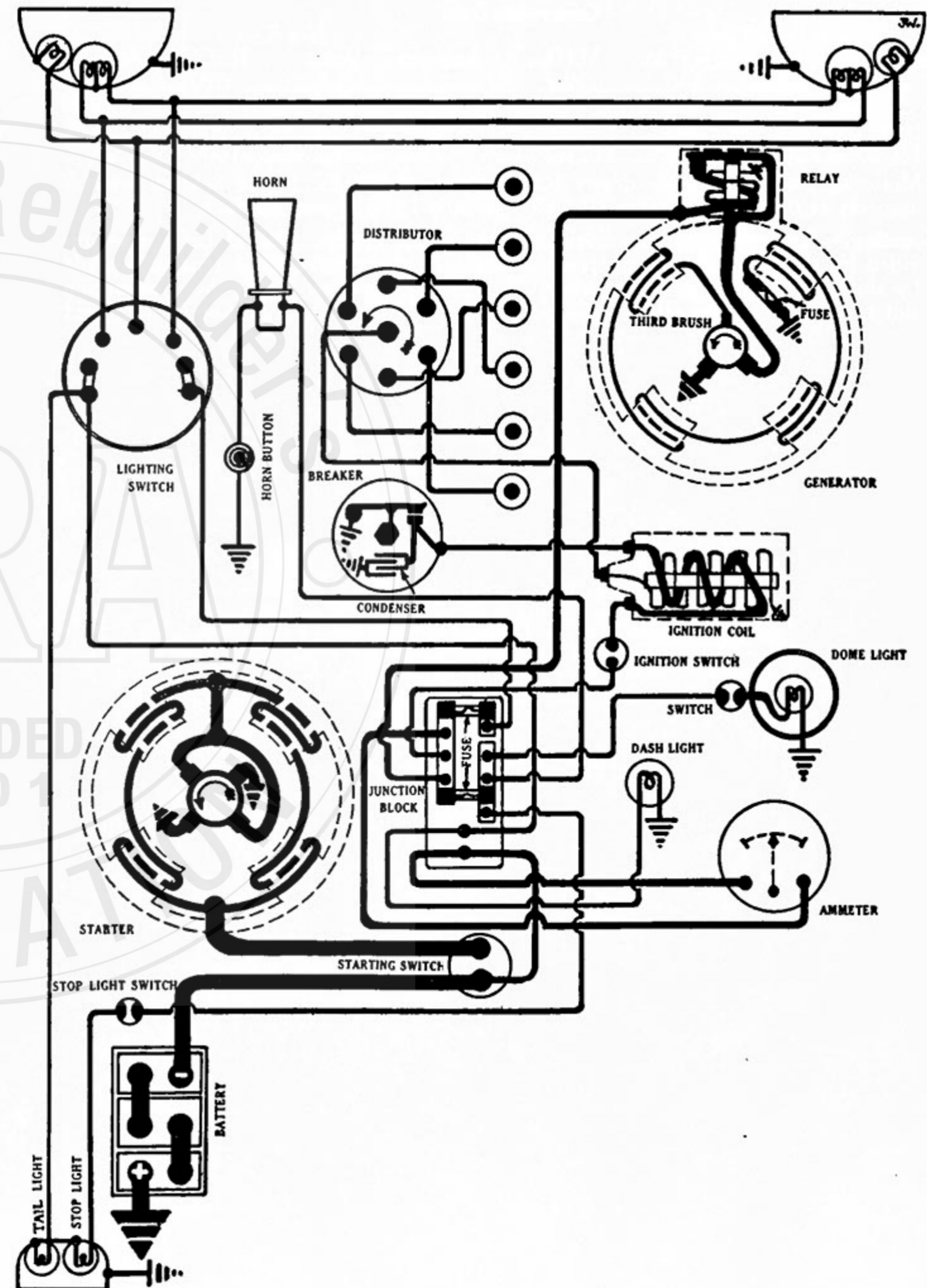
Spark Plugs:—Spark plugs are 7/8-18 S.A.E. Gaps are .025 inch.

STARTER:—Model MN-4109. Starter is connected to the engine through a Bendix inboard drive. The direction of rotation is counter-clockwise, looking at the commutator end. Starter switch is Model SW-4002. Brush spring tension is 1 1/4-1 1/2 pounds. Starter cranks the engine at 160 R.P.M. drawing 130 amperes at 4.8 volts.

Starter Data			
Torque	R.P.M.	Volts	Amperes
0 lb. ft.	Free	5.0	45 (Without Bendix)
0 "	Free	5.0	50 (With Bendix)
.5 "	2800	5.5	100
2.4 "	1450	5.0	200
4.8 "	950	4.5	300
7.2 "	650	4.0	400
13.6 "	Lock	3.0	620

Mounting:—Starter is flange mounted at right of engine on forward side of flywheel housing. To remove starter, disconnect starter cable and remove three flange mounting cap screws. Then slide starter forward and lift from place.

Oiling:—Put 5 to 10 drops of light engine oil in the oiler on the commutator end of the starter every month or each 1000 miles.



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GENERATOR:—Model GJ-4201. The direction of rotation is counter-clockwise, looking at the commutator end. Generator current regulation is by third brush shunt field. To adjust generator output, remove commutator cover band and shift third brush by tapping on third brush mounting stud with a screwdriver. Shift the third brush in a counter-clockwise direction to increase the charging rate and in the opposite direction to decrease the charging rate. The third brush is held in any position by friction between the third brush mounting stud and the generator endplate. The maximum charging rate is 16 amperes reached at 1600 R.P.M.

Generator Data

Cold Test			Hot Test		
Amperes	Volts	R.P.M.	Amperes	Volts	R.P.M.
0	6.5	600	0	6.5	600
2	6.6	675	2	7.2	750
5	7.0	780	5	7.4	900
10	7.3	940	10	7.7	1200
14	7.7	1300	12.5	8.0	1600
16	8.0	1600	11.5		2400
15		2400			

Generator motoring draws 5 amperes at 6 volts. Shunt field test current is 2 amperes at 6 volts directly across field terminals. Each coil tested separately draws 8.8 amperes at 6 volts. Brush spring tension is $1\frac{1}{4}$ - $1\frac{1}{2}$ pounds each.

Mounting:—Generator is flange mounted at right of engine on rear side of timing chain case. To remove generator, disconnect generator lead and loosen timing

chain adjustment set screw. Then remove three flange mounting cap screws and slide generator to the rear, being careful not to disturb timing chain adjustment. Generator is driven by timing chain. The chain may be adjusted by loosening three flange cap screws on generator and shifting generator around lower mounting screw as a pivot. A set screw is provided in the upper mounting slot to secure adjustment. Tighten the mounting cap screws after making the adjustment. Be careful not to get the chain too tight. A chain that operates noiselessly has the proper tension.

Oiling:—Put 4 or 5 drops of light engine oil in the oiler on the commutator end of the generator every month or each 1000 miles. The drive end bearing is oiled by splash from the chain case.

RELAY:—Model CB-4009. Relay is mounted on the generator. Relay contacts close at 675 R.P.M. of the generator when the voltage reaches 6.5-7 volts and open with a discharge current of .5-2.5 amperes. Charging current at closing of contacts is 2 amperes. Relay contacts separate .025-.035 inch. Air gap between relay armature and coil core is .010-.030 inch, contacts closed.

LIGHTING:—Clum Switch Model 10626. Lighting switch is mounted on base of steering column. Head lamps are 6-8 volt, 21 cp. double filament using second 21 cp. filament instead of dimming. Stop lamp is 6-8 volt, 15 cp. S.C. Dash, tail and dome lamps are each 6-8 volt, 3 cp. S.C. Parking lamps in head lamps are 6-8 volt, 3 cp. S.C.

FUSES:—Lighting fuses in junction block are 15 amperes.

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