

1931 Hudson Greater Eight Auto-Lite Electrical System

CAR SERIAL NUMBER: - Stamped on plate on dash under hood. - Series T - 914,293 up; Series U - 57,115 up

BATTERY: - Exide, Type 3-XI-13-IG. 6 volt, 105 ampere hour. The negative (-) terminal is grounded. Starting capacity (20 minute rate) is 98 amperes for 20 minutes. Lighting capacity (5 ampere rate) is 5 amperes for 17 hours. Battery is mounted under the left front seat.

IGNITION: - Coil Model CE-4015, -4017. Coil is mounted on front of the engine block. Ignition current is 2 amperes at 6 volts with engine running and 5 amperes at 6 volts with engine stopped. The ignition switch is a Model 9-B Electrolock.

Distributor Model IGH-4009-A. Breaker contacts separate .020". Set contact gap (first set mounted on stationary base plate) by loosening lock screw on stationary contact mounting plate and turning eccentric adjusting screw until correct gap is secured with breaker arm on lobe of cam. The second set of contacts (mounted on movable sub-plate) are adjusted by loosening lock nut on stationary contact mounting stud and turning up stud to secure correct adjustment. Resurface contacts with a fine flat contact file or on a medium hard oilstone. Breaker arm spring tension is 16-20 ounces. Distributor is full automatic. Automatic advance begins at 800 RPM of engine. Maximum automatic advance is 25 degrees (engine) reached at 4000 RPM. of engine. There are two sets of contacts on a four sided cam. Contacts open alternately at Intervals of 45 degrees corresponding to the 90 degree firing interval of the engine. The contacts must be synchronized for correct ignition performance. See Timing.

Mounting: - Distributor is mounted on the accessory drive bracket at the right of the engine. An Electrolock is used. This must be removed with the distributor as a unit. To remove distributor, first loosen Electrolock from dash mounting. Take off primary lead and remove distributor head with cables intact. Then remove hold-down screw in advance arm and lift distributor from place. See full directions in Equipment Section on removing Electrolock from distributor.

Oiling: - Fill the oiler on the side of the side of the distributor shaft with light engine oil every 2000 miles. At the same time remove the distributor cap and rotor and put a few drops of oil on each of the breaker arm pivot pins and coat the face of the breaker cam with a light film of vaseline or light cup grease.

Timing: - Synchronization of Contacts. can be synchronized without special equipment after the distributor has

Timing (Cont'd)

been timed to the engine by cranking the engine over 90 degrees from firing position of piston No. 1 when piston No. 6 will reach firing position and the flywheel mark 'DC 3&6' will be opposite the indicator in the inspection hole in the flywheel case. If the second set of contacts do not begin to open at this point, loosen the two lock screws on the movable sub-plate. and shift the plate until the contacts begin to open. Tighten the lock screws and check the contact gap. It must be within limits of .018-.020" with breaker arm on lobe of cam.

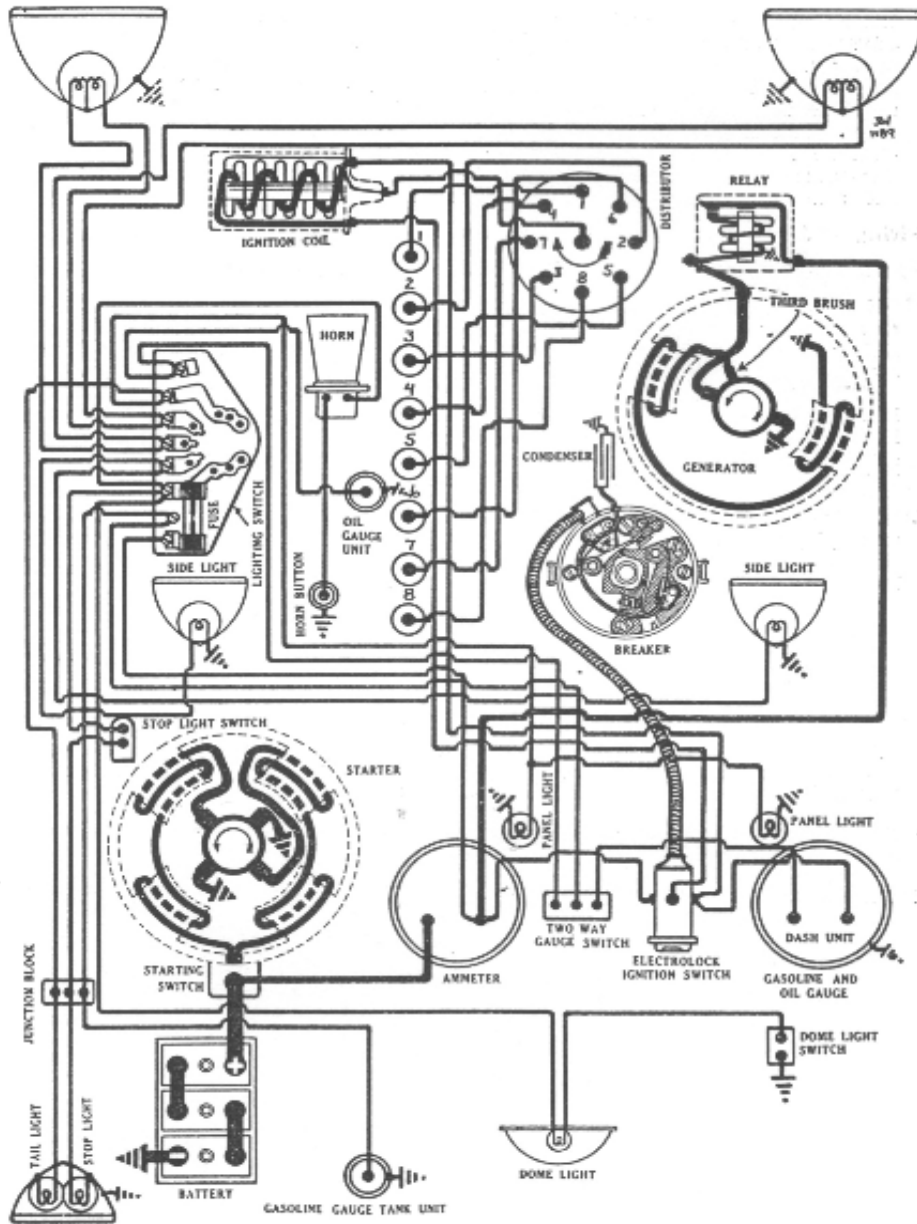
Timing Distributor to Engine. Breaker contacts begin to separate when the piston entering power stroke reaches top dead center with the breaker assembly fully retarded. To set timing, crank engine over until piston No. 1 enters compression stroke. This can be checked by noting valve tappet positions (both valves should be closed) or by removing the spark plug in cylinder No. 1 and cranking engine over until compression is felt when a finger is placed over the spark plug port. Loosen hold-down screw in advance arm and rotate distributor clockwise as far as possible. Then continue to crank engine over until flywheel mark 'DC 1&8' is in line with the indicator in the inspection hole in the front face of the flywheel housing on the right side of the engine. Then loosen advance arm clamp bolt and rotate distributor housing until the set of contacts mounted on the base plate begin to open. Tighten the clamp bolt and check to see that the segment directly opposite the rotor in the distributor head is connected to the spark plug is cylinder No. 1. Connect the remaining spark plugs in order 6-2-5-8-3-7-4 clockwise around the distributor head.

After setting ignition the car should be given a road test and the setting changed slightly to give the best performance. A slight spark knock should be audible when the car is accelerated from fifteen to twenty-five miles per hour with wide open throttle for the best performance. If the knock is too noticeable, loosen the advance arm hold-down screw and retard the spark one division on the scale by rotating the distributor in a clockwise direction. If no knock is heard the spark should be advanced by turning the distributor one division counter-clockwise. Give the car a final road test.

If the car is run with ethylized gasoline exclusively, the spark should be set 7/8" before top dead center (on the flywheel). Set breaker so that contacts open when the top dead center marks "D.C. 1-8" and "D.C.3-6" are 7/8" before the pointer in the inspection hole in the flywheel housing.

Firing Order: - The firing order is 1-6-2-5-8-3-7-4.

Spark Plugs: - Spark plugs are 18 MM. Metric. A.C. Type G-10. Gaps are .022".



1931 Hudson 8
Electrical Schematic

VALVE TIMING

	INLET VALVES	EXHAUST VALVES
Head Diameter	1-1/2"	1-3/8"
Stem Diameter	.3085"	.3085"
Stem Length	5-1/32"	5-1/32"
Valve Lift	.312"	.327"
Spring Pressure (Valve Closed)	50 Pounds	50 Pounds
Tappet Clearance (Hot)	.003-.005"	.005-.007"

Valve Timing (Cont'd)

To Check Valve Timing: - Set tappet clearance No. 1 intake valve at .010". This valve should open approximately 100 40' before top dead center with piston .0494" from top of stroke. No flywheel mark is provided but timing can be checked with a timing gauge. Reset tappet clearance at .004" (hot).

To Set Valve Timing: - Two pins on the timing chain exactly 20 links apart are marked. Two adjacent teeth on both camshaft and crankshaft sprocket are also marked. Mesh chain so that marked pins on chain are meshed between the marked teeth on each sprocket with arrow on chain pointing in direction of rotation. In this position piston No. 1 will be on top dead center with flywheel mark 'D.C.1&8' at indicator and No. 1 exhaust valve just closing and No. 1 intake valve opening. Chain adjustment must be in position of minimum adjustment.

Timing Chain Adjustment. Timing chain is adjusted by rotating the eccentric accessory shaft bushing at the right of the engine. To take up timing chain, loosen the three flange mounting bolts in the accessory bracket under the distributor (the two bolts nearest the engine must be taken out). Then use a special wrench to rotate the notched flange in front of the accessory bracket in a clockwise direction (facing forward) until the play in the shaft is approximately 1/8 inch (measured on the circumference of the generator drive coupling). Replace the mounting bolts. If it is necessary to shift the flange to line up the bolt holes, back off the adjustment slightly. If the bracket is ever taken off the car, the pipe plug in the side of the housing should be taken out and one half pint of engine oil poured into the housing before the engine is operated.

STARTER: - Model MAB-4034. Starter is connected to the engine through an inboard Bendix drive. The direction of rotation is counter-clockwise, viewed from the commutator end. Starter cranks the engine at 125 RPM drawing 125 amperes at 5.5 volts. Brush spring tension is 44-56 ounces. The starter switch is mounted on the starter field frame and is operated through a flexible control by a button on the dash.

Torque	RPM	Starter Data	
		Volts	Amperes
.6 lb. ft.	1910	5.5	100
3.4 " "	1100	5.0	200
6.6 " "	695	4.5	300
10.2 " "	420	4.0	400
17.0 " "	Lock	3.0	525
24.0 " "	Lock	4.0	720

Mounting: - Starter is flange mounted at the left of the engine on the forward face of the flywheel housing. To remove starter, disconnect cable and ammeter lead. Remove starter switch control wire. Then take out three flange mounting cap screws. Pull starter forward to clear Bendix and lift from place.

GENERATOR: - Model GAM-4302 (first cars), later cars). Rotation is counter-clockwise at commutator end. Generator current regulation is by third brush shunt field. To adjust

Generator (Cont'd)

generator output, loosen the commutator cover band and shift the third brush by prying on the brush mounting plate 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 brush is held in position by friction between the mounting plate and the end plate. With a standard car setting, the maximum charging rate is 14-16 amperes (cold) at 8 volts reached at 1900 RPM or 27 M.P.H.

Generator Data

Amperes	Volts	RPM
0	6.5	620
2	6.9	710
5	7.1	830
10	7.8	1090
14	7.9	1490
15	8.0	1900

Shunt Field Current - 4.08-4.52 amperes at 6.0 volts.

Motoring Current - 4.46-4.94 amperes (GAM-4302), 4.94-5.46 (GAM-4303) at 6 volts.

Brush Spring Tension - 8-13 ounces (GAM-4302), 22-27 ounces (GAM-4303).

Mounting: - Generator is cradle mounted at right of engine and is driven through a flexible hose coupling from the accessory drive shaft. To remove generator, disconnect lead and drive coupling and loosen mounting clamp band. Then slide generator from place.

Oiling: - Put 4 or 5 drops of light engine oil in the oiler at each end of the generator every 1000 miles.

RELAY: - Model CB-4016 (GAM-4302), **CB-4008** (GAM-4303). On generator. Relay closes at 900 RPM when the generator voltage reaches 7 volts and opens with a discharge current of 0-2.5 amperes. Charging current at closing of contacts is approximately 2 amperes. Relay contact gap is .025-.035". Air gap is .010-.030" with contacts closed.

LIGHTING: - Soreng-Manegold Switch, Model 8050-A. Lighting switch is mounted at base of the steering column. The lighting fuse is mounted on the switch and two extra terminals are provided which act as junctions for the oil and gasoline gauge lines. Headlights are equipped with double filament bulbs and use the second 21 cp. filament instead of dimmers.

Position	Volts	CP	Base	Mazda No.
Headlights	6-8	21-21	D.C.	1110
Parking and side lights	6-8	3	S.C.	63
Dash and tail lights	6-8	3	S.C.	63
Stop light	6-8	15	S.C.	87

FUSES: - Lighting fuse mounted on lighting switch is 20 ampere capacity.