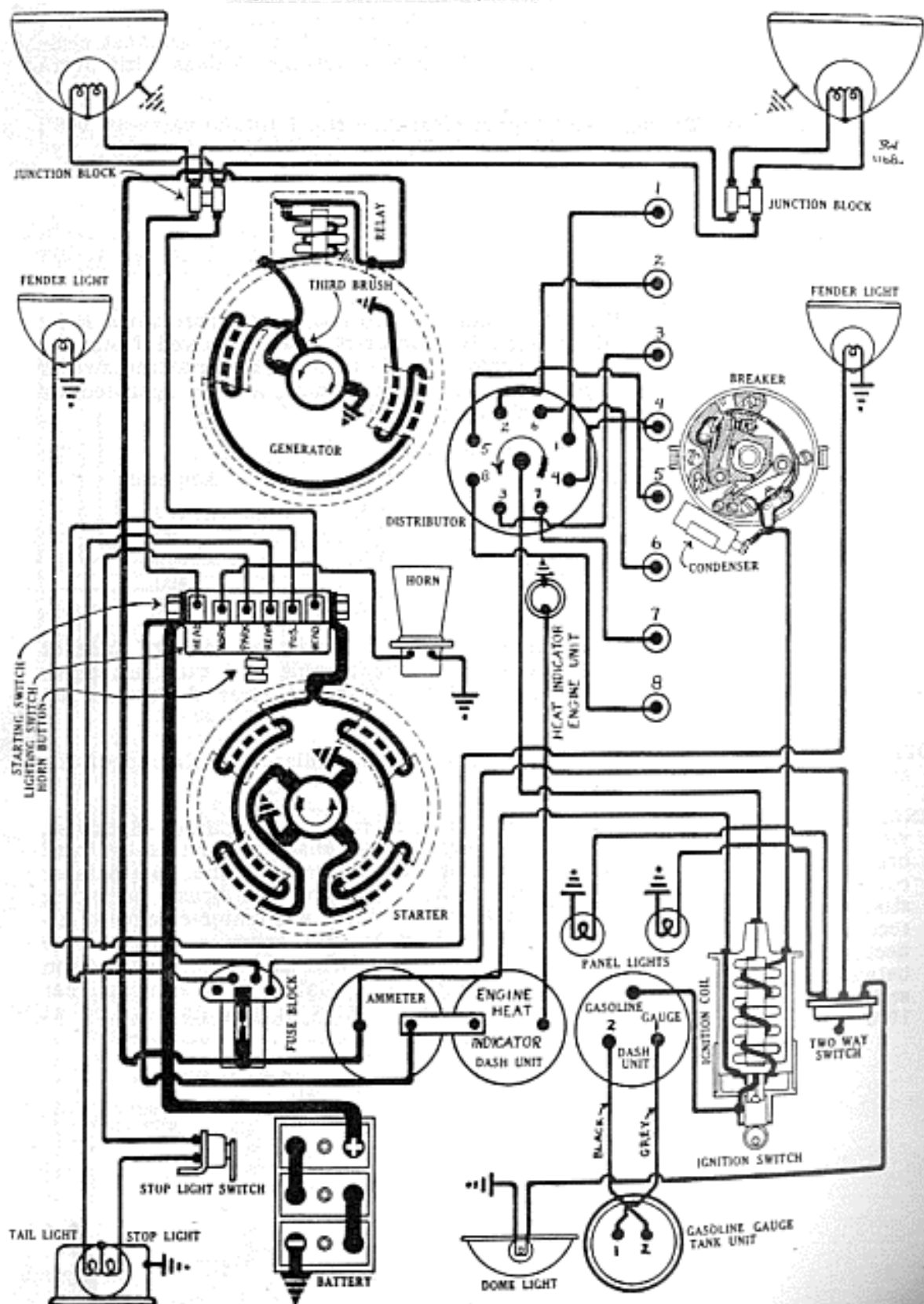


WILLYSEIGHT

MODEL 8-80 (1930) SERIAL NUMBERS 1001 UP
MODEL 8-80D (1931) SERIAL NUMBERS 1001 UP
AUTO-LITE GENERATING, STARTING SYSTEM



BATTERY:—U.S.L., Type 3-HVX-7X-6A, 6 volt. The negative (—) terminal is grounded. Starting capacity (20 minute rate) is 148.4 amperes for 20 minutes. Lighting capacity (5 ampere rate, is 5 amperes for 28 hours. Battery is mounted under the left front floor boards.

IGNITION:—Coil Model IG-4083, 4201, 4301 ('30), IG-4203, 4303 ('31). Switch is built in the base of the coil. Coil is mounted on the back of the instrument board with the ignition switch extending through to the face of the instrument panel. Ignition current is 1-1½ amperes at 6 volts with engine running and 3.4-5 amperes at 6 volts with engine stopped.

NOTE:—The model IG-4303 coil used on 1931 models has both the ammeter lead terminal and gas gauge terminal at the switch end of the coil. The breaker lead terminal only at the high tension end of the coil is used.

Distributor Model IGH-4013. Breaker contacts separate .018-.020 inch. Set contact gap by loosening two lock screws on stationary contact mounting plate and turning eccentric adjusting screw (first set mounted on breaker plate). The second set mounted on the movable sub-plate are adjusted by loosening the lock nut on the stationary contact mounting stud and turning up the stud. Resurface contacts with a fine flat contact file or on a medium hard oilstone. Breaker arm spring tension is 18-21 ounces. Distributor is semi-automatic. Maximum manual advance is 20 degrees (engine). Automatic advance begins at 400 R.P.M. of engine. Maximum automatic advance is 22 degrees (engine) reached at 3400 R.P.M. of engine. Breaker has two sets of contacts operating on a four sided cam. Contacts open alternately at intervals of 45 degrees corresponding to the 90 degree firing interval of the engine. Contacts must be synchronized for satisfactory performance. See Timing.

Mounting:—Distributor is mounted at left of engine and is driven by an inclined shaft. The oil pump is mounted at the right of the engine on the other end of the shaft. To remove distributor, disconnect primary lead and spark control wire and remove distributor head with cables intact. Then take out the mounting screw in the advance arm and lift the distributor from place.

Oiling:—Fill the oiler on the side of the distributor with light engine oil every 250 miles or each week of operation. Every 500 miles remove the distributor head and rotor and put 3 or 4 drops of oil in the oiler in the center of the shaft. Every 5000 miles put a small bit of vaseline on the face of the breaker cam.

Timing:—Synchronization of Contacts. Synchronize contacts on a rotary spark gap or use special Auto-Lite Test Indicator and follow complete directions in Equipment Section. Synchronization should be checked whenever contacts are resurfaced or when ignition timing is checked. This is important since timing of four cylinders will be thrown off if contacts are allowed to get out of synchronization.

Timing Distributor to Engine:—Breaker contacts begin to separate when the piston entering power stroke reaches a position .0136 inch before dead center (or 6 degrees on the flywheel), with the spark control button in the fully advanced position. To set timing, crank engine over until piston No. 1 enters compression stroke (the up stroke with both valves closed). See that manual spark control button is fully advanced (pushed all the way in toward the dash). Remove cover over timing inspection hole in front face of flywheel housing at left of engine and turn engine over until the flywheel mark 'IGN' is directly opposite the pointer on the housing. This mark is 6 degrees before the top dead center mark for piston No. 1 '1&8/T.C.' Then loosen advance arm clamp screw and rotate distributor until one set of contacts begin to open. Tighten the clamp screw and see that the rotor is directly opposite the segment connected to the spark plug in cylinder No. 1.

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

Spark Plugs:—Spark plugs are 18 MM. Metric Champion No. 8. Gaps are .025 inch.

VALVE TIMING:—INLET VALVES. Head diameter, 1 17/32 inches. Stem diameter, 3/8 inch. Valve lift, 21/64 inch. Spring pressure, 92-100 pounds (compressed to 1 15/16 inches). Tappet clearance, .006 inch (hot). Inlet valves open at top dead center and close 38 degrees after lower dead center. The flywheel is marked '1&8T.C./I.O.' at point of inlet opening for cylinder No. 1.

EXHAUST VALVES. Head diameter, 1 15/32 inches. Stem diameter, 3/8 inch. Valve lift, 21/64 inch. Spring pressure, 92-100 pounds (compressed to 1 15/16 inches). Tappet clearance, .008 inch (hot). Exhaust valves open 34 degrees before lower dead center and close 4 degrees after top dead center.

To Check Valve Timing:—Set tappet clearance No. 1 intake valve at .010". This valve should open with piston on top dead center when flywheel mark '1&8T.C./I.O.' lines up with indicator on housing. Reset tappet clearance at .006" (hot).

To Set Valve Timing:—Sprockets are marked. Mesh chain with sprockets turned so that marks are adjacent and in line with a straightedge across the shaft centers.

STARTER:—Model MAB-4031 (1930), MAB-4035 (1931). Starter is connected to the engine through a Bendix drive. The direction of rotation is counter-clockwise, viewed from the commutator end. Brush spring tension is 44-56 ounces. The starter switch is mounted at the lower end of the steering column and is controlled by a button on the steering wheel.

Starter Data

Torque	R.P.M.	Volts	Amperes
.6 lb. ft.	1910	5.5	100
3.5 "	1100	5.0	200
6.5 "	625	4.5	300
10.2 "	420	4.0	400
24.0 "	Lock	4.0	725

Mounting:—Starter is flange mounted at left of engine on forward side of fly-wheel housing. To remove starter, disconnect cable and take out three flange mounting bolts. Then pull starter forward and lift from place.

Oiling:—Put 4 to 6 drops of light engine oil in the oiler at each end of the starter every two weeks or each 500 miles of operation.

GENERATOR:—Model GAL-4131, 4331. Direction of rotation is counter-clockwise, viewed from the commutator end. Generator current regulation is by third brush shunt field. To adjust generator output, remove the commutator cover band and shift the third brush by prying on the 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 position by friction between the mounting stud and the end plate. With standard car setting, the maximum charging rate is 18 amperes at 8 volts reached at 1900 R.P.M.

Generator Data

Amperes	Volts	R.P.M.
2	6.4	875
6	6.9	835
10	7.3	1025
14	7.65	1275
18	8.0	1900
14	7.65	2025

Brush Spring Tension—22-25 ozs. (main), 31-34 ozs. (third brush) on GAL-4131, 8-13 ozs. (all brushes) on GAL-4331.

Field Current—4.08-4.52 amperes at 6.0 volts.

Motoring Current—4.27-4.73 amperes at 6.0 volts.

Mounting:—Generator is mounted on special swinging bracket at left of the engine and is driven by the fan belt. To remove generator, disconnect lead and loosen adjustment clamp bolt. Swing generator toward engine and slip off drive belt. Then take out bolts in mounting lugs under generator and lift generator from place.

Belt Adjustment. To adjust belt tension, loosen adjustment clamp bolt and mounting bolts. Swing generator away from engine until correct belt tension is secured and tighten bolts. The belt should be just tight enough to drive the generator and fan shaft without slipping. Excessive belt tension will cause generator bearing wear.

Oiling:—Put 4 to 6 drops of light engine oil in the oiler at each end of the generator every 250 miles of operation. Every 1000 miles remove the grease cup directly under the bearing retainer on the commutator end of the generator and refill with pure vaseline. This is important.

RELAY:—Model CB-4014. Relay is mounted on the generator. Relay contacts close at 675 R.P.M. of the generator armature when the generator voltage reaches 7-7.5 volts and open with a discharge current of 2.5 amperes. Charging current at closing of contacts is 2 amperes. Relay contact gap is .035 inch. Air gap is .010-.030 inch with contacts closed.

LIGHTING:—Pines 'Finger Tip Control' Switch. Switch is mounted at lower end of steering column. The starting switch, lighting switch and horn button are combined in one unit controlled by a button on the steering wheel. Headlights are 6-8 volt, 21-21 cp. D.C. Mazda 1110. This is a double filament bulb with two 21 cp. filaments. Side and dash lights are each 6-8 volt, 3 cp. S.C. Mazda 63. Dome light is 6-8 volt, 3 cp. S.C. Mazda 63. Tail and stop light is 6-8 volt, 3-21 cp. D.C. Mazda 1158. This is a double filament bulb and the tail light lead must be connected to the 3 cp. filament.

Switch:—Lighting switch is No. 803.

FUSES:—Lighting fuse mounted on fuse block on left front side of dash is 20 ampere capacity.