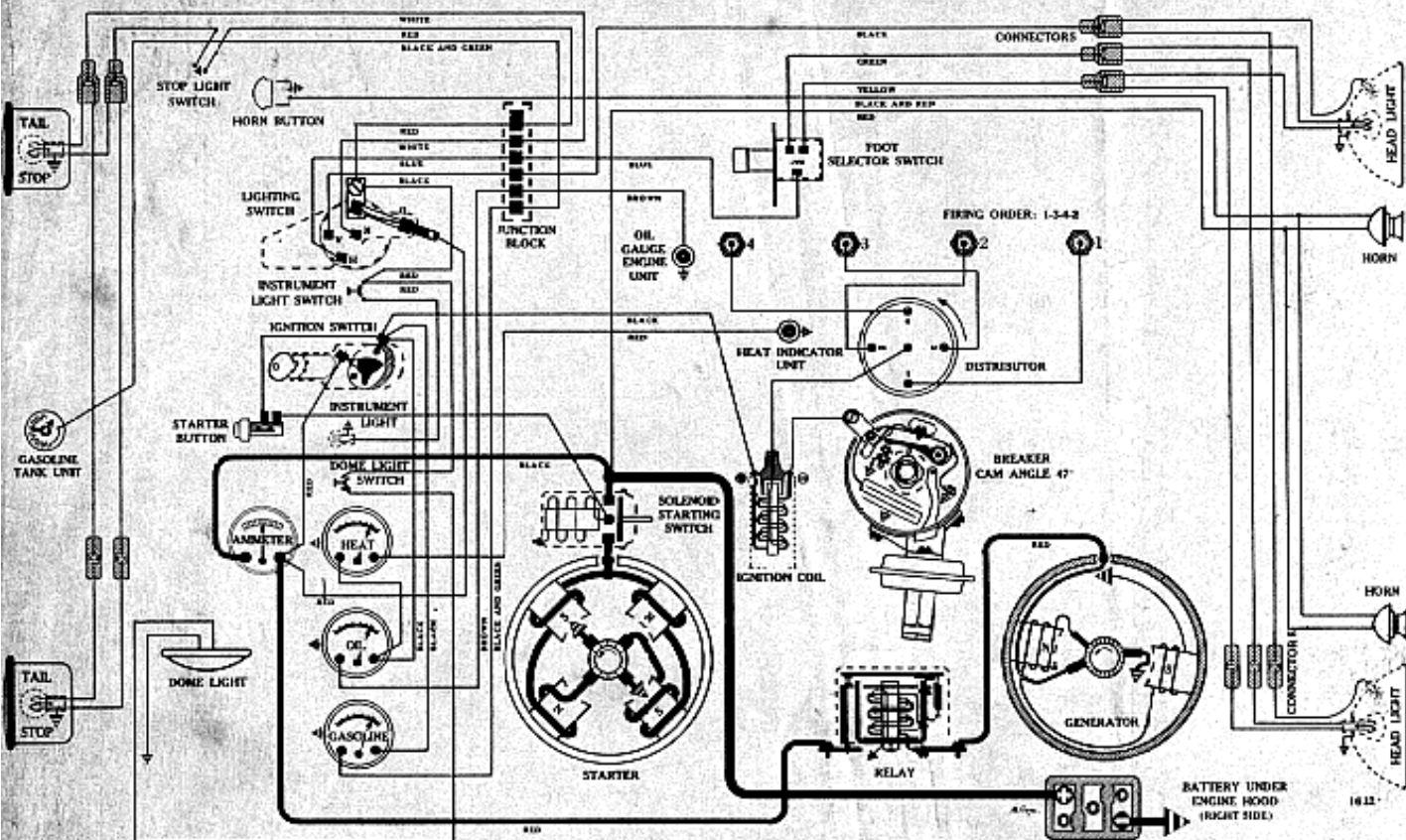


WILLYS

Engine { Bore 3-1/8
Stroke 4-3/8

Model 38, 4 cyl., (1938)



BATTERY

U.S.L., A-13-A, 6 volts.
Negative Terminal Grounded.

Starting Capacity—96 amps. for 20 minutes.
Minutes of Discharge at 300 Amps., Zero Degrees F.—
1.9
Lighting Capacity—3.9 amps. for 20 hours (78 amp.
hour).
Case—Length, 8-7/8; width, 7; height, 8-5/8 inches.

STARTER

Rotation, L. H., Com. End
Auto-Lite, MZ-4049

Connection to Engine—Bendix Drive, Type RC10HD.
Running Free—70 amps. at 5-1/2 volts, 4300 R.P.M.
Stall Data—7.8 pound-feet, 420 amps. at 3 volts.
Brush Spring Tension—42 to 53 ounces on each (new
brushes).
Push Button Starting Switch—H. A. Douglas Mfg. Co.,
No. 5617.
Solenoid Starting Switch—Auto-Lite, SS-4001.
Armature—Auto-Lite, MZ-2099.

IGNITION

A-L Test 486 Rotation, L. H., Top View
Auto-Lite, IG8-4007

(Full Automatic Spark Advance in conjunction with
Integral Vacuum Chamber).
Breaker—Contact separation .020 inch.

Cam Angle—47 degrees.

Contact Spring Tension—16 to 20 ounces.

Timing—5 degrees or .0103 inch piston travel past
top dead center. Loosen screw holding flywheel
inspection hole cover, located in left top side of
flywheel housing, and swing cover to one side.
Flywheel mark "IGN" (located 5 degrees after T.D.C.)
should register with the pointed end of inspection
plate screw.

Spark Plugs—18-MM (Champion type C-7); Gap .025
inch.

Firing Order—1-3-4-2.

Vacuum Chamber (Auto-Lite, IG7-1028-AS; Test No. 467)
—10 degrees advance (Dist.). Starts with vacuum
of 3-1/2 inches of mercury. Requires a vacuum of
15 inches for full travel.

Vacuum Chamber Advance Table—

Inches of Mercury	Degrees Dist. Advance
3.50.....	Start
4.65.....	1
5.80.....	2
6.95.....	3
8.10.....	4
9.25.....	5
10.40.....	6
11.55.....	7
12.70.....	8
13.85.....	9
15.00.....	10

WILLYS

Model 38, 4 cyl., (1938)

Automatic Advance—degrees (Distributor).

Eng. R.P.M.	1st. R.P.M.	Degree Advance (Dist.)
500	250	Start
550	275	1
600	300	2
650	325	3
700 (Intermed)	350	4
970	485	5
1240	620	6
1510	755	7
1780	890	8
2050	1025	9
2320	1160	10
2590	1295	11
2860	1430	12
3130	1565	13
3400 (Max.)	1700	14

Breaker Plate—Auto-Lite, IGS-2044 (stamped with the figure 10)

Condenser—Auto-Lite, -2671-K.

Contact Point—Auto-Lite, IGP-33.

Breaker Lever and Point—Auto-Lite, IGP-3028-L.

Rotor—Auto-Lite, IG-17.

Distributor Cap—Auto-Lite, IG-1324.

Flexible Lead (Insulate)—Auto-Lite, IGS-49.

Ignition Coil—Auto-Lite, IG-4090.

Ignition Switch—H. A. Douglas Mfg. Co., No. 2975.

GENERATOR

Rotation, H., Com. End

Auto-Lite, GAM-501-A or GAM-4504-B

Performance Data—Gen. Qd.

Amps.	R.P.M.	Volts
0	700	6.40
2	785	6.50
6	960	6.90
10	1100	7.20
12	1320	7.40
16	2400 (Max.)	8.00

Motoring Freely—4.08 to 4.52 amps. at 6 volts.

Max. Stall Current—18 to 20 amps. at 6 volts.

Field Test—3.89 to 4.31 amps. at 6 volts across field coils in series.

Brush Spring Tension—18 to 22 ounces (max.) on each (new brushes).

Armature—Auto-Lite, GAM-2055.

Third Brush Adjustment—Loosen cover band. Shift third brush by hand. Mounting plate held in any position by friction clamp washers.

RELAY

Auto-Lite, CB-4025 (Mounted on Sub Frame)

Points Close—6.5 to 7.25 volts.

Points Open—.5 to 3.0 amps. discharge.

Contact Gap—.015 inch minimum (points open).

Armature Air Gap—.034 to .038 inch (points open).

LIGHTING

Switch—H. A. Douglas Mfg. Co., No. 5400-C.

Location—Behind instrument board.

Fuse—Single 20 amp. fuse (type 3A-20) on switch back. Protects all lighting circuits.

Foot Selector Switch—H. A. Douglas Mfg. Co., No. 5530.

Lamps—HEAD—2320; PARK—55; INSTRUMENT—63; DOME—63; STOP AND TAIL—1158.