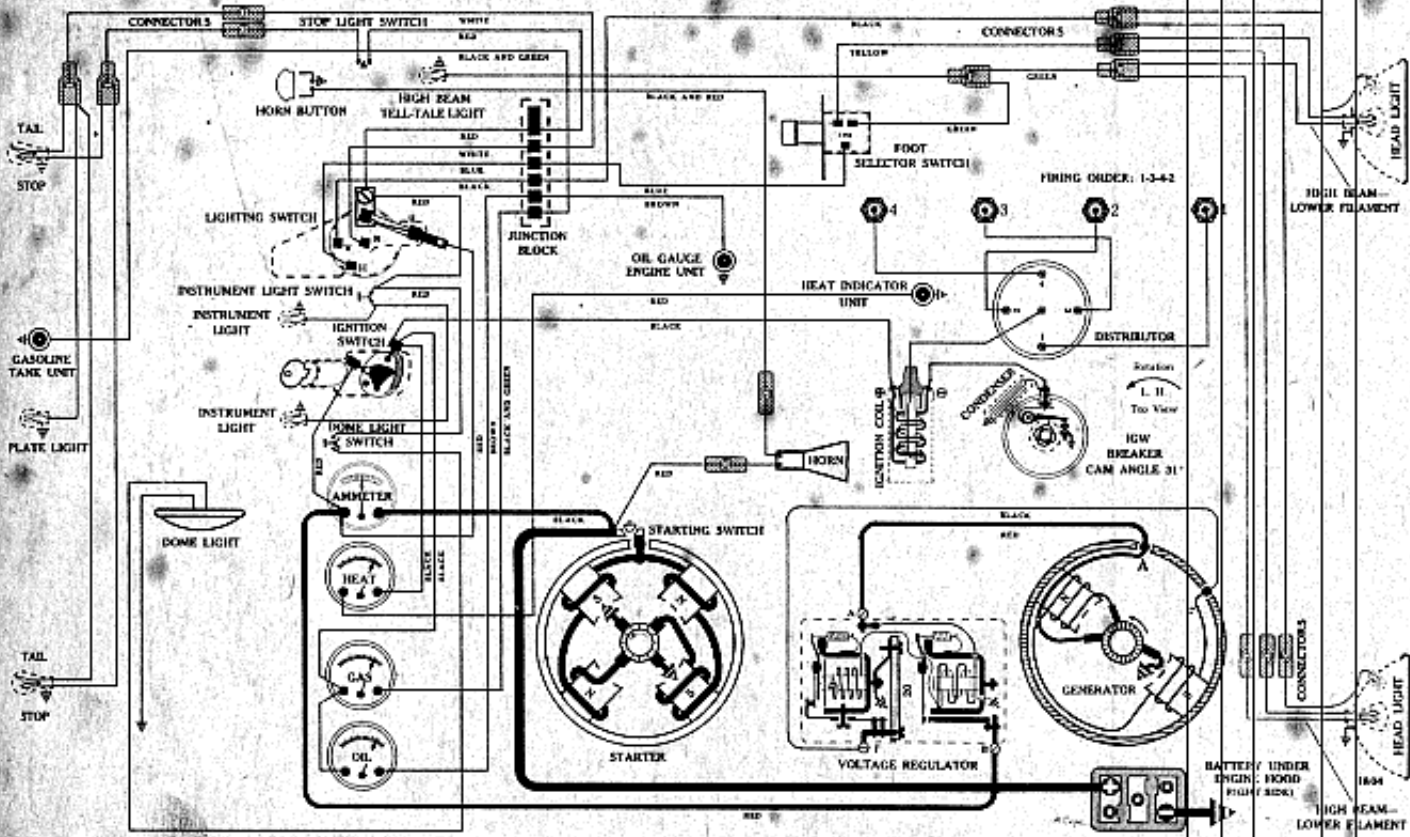


WILLYS

Model 4-40, 4 cyl., (1940)

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



BATTERY

Auto-Lite, AB-13, 6 Volts
Negative Terminal Grounded

Starting Capacity—96 amps. for 20 minutes.
Minutes of Discharge at 300 Amps., Zero Degrees F.—2.
Lighting Capacity—4 amps. for 20 hours (80 amp. hour).
Case—Length, 8-15/16; width, 7; height, 8-15/16 inches.

STARTER

A-L Test 162 Rotation, L. H., Com. End
Auto-Lite, MZ-4064

Connection to Engine—Bendix Drive, type RC10HD.
Running Free—60 amps. at 5-1/2 volts, 5000 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). Brush spring tension should be measured by a scale hooked under the brush spring at the bend just beyond the brush, and the reading taken at moment spring leaves the brush. The pull should be exerted at right angles to force exerted by the brush spring.
Starting Switch—Auto-Lite, SW-3737-D, mounted on starter. Switch should not close with less than 2.3 pounds pull, applied at right angles to hole in end of lever.
Armature—Auto-Lite, MZ-2089.

IGNITION

A-L Test 618 Rotation, L. H., Top View
Auto-Lite, IGW-4129

(Full Automatic Spark Advance in conjunction with Vacuum Chamber which moves the entire Distributor.)
Breaker—Contact separation .020 inch.
Cam Angle—41 degrees.
Percentage of Dwell—46%.
Contact Spring Tension—18 to 20 ounces.
Timing—Exact top dead center. Flywheel mark "TC-IGN" located at top center should register with the pointed end of the inspection plate screw.
Spark Plugs—14-MM (Champion type B-100; Gap .025 inch.
Firing Order—1-3-4-2.
Vacuum Distributor Control (Auto-Lite, VC-4010; Test No. 467)—10 degrees advance (Dist.). Starts with vacuum of 3.50 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 4-40, 4 cyl., (1940)

Automatic Advance—9½ degrees (Distributor).

Eng. R.P.M.	Dist. R.P.M.	Degrees Advance (Dist.)
600.....	300.....	Start
852.....	426.....	1
1104.....	552.....	2
1356.....	678.....	3
1608.....	804.....	4
1862.....	931.....	5
2114.....	1057.....	6
2366.....	1183.....	7
2618.....	1309.....	8
2870.....	1435.....	9
3000 (Max.).....	1500.....	9½

Condenser—Auto-Lite, IGB-1025. Capacity .20 to .25 microfarads.

Contact Point—Auto-Lite, IGP-33.

Breaker Lever and Point—Auto-Lite, IGW-3028.

Rotor—Auto-Lite, IGB-1239.

Distributor Cap—Auto-Lite, IGB-1241.

Ignition Coil—Auto-Lite, IG-4090-A.

Ignition Switch—H. A. Douglas Mfg. Co., No. 2980.

GENERATOR

Rotation, L. H., Com. End
Auto-Lite, GCJ-4811-A

Performance Data—Gen. cold.

Amps.	R.P.M.	Volts
0.....	825.....	6.20
2.....	870.....	6.38
4.....	915.....	6.55
6.....	960.....	6.70
8.....	1020.....	6.89
10.....	1075.....	7.05
12.....	1135.....	7.22
14.....	1200.....	7.38
16.....	1270.....	7.53
18.....	1340.....	7.70
20.....	1430.....	7.89
22.....	1545.....	8.05
24.....	1720.....	8.20
25.....	1850.....	8.30

Motoring Freely—4.0 to 4.4 amps. at 6 volts.

Max. Stall Current—28 to 30 amps. at 5.2 volts.

Field Test—1.9 to 2.1 amps. at 6 volts.

Brush Spring Tension—53 ounces max. on each (new brushes).

Armature—Auto-Lite, GCJ-2006-F.

Third Brush Adjustment—Loosen cover band. Shift third brush by hand. Mounting plate held in any position by friction clamp washers. The third brush should be set 2 bars less 2 micas (min.) to 2 bars less 1 mica (max.) from the insulated main brush.

RELAY-REGULATOR

Auto-Lite, VRR-4004-A Neg. Ground

A combination of Cut-Out Relay and Vibrating Point Voltage Regulator.

Cut-Out Relay

Resistance of Voltage Winding—29.8 to 33.0 ohms.

Points Close—6.4 to 7.0 volts.

Points Open—6.0 amperes maximum discharge.

Contact Point Gap—.015 inch minimum.

Armature Air Gap—.034 to .038 inch.

Armature Spring—12-3/4 turns.

Voltage Regulator

Resistance of Voltage Winding—10.8 to 12.0 ohms.

Resistance Unit—Auto-Lite, TC-51-T, marked "20"; Ohms 19 to 21.

Armature Air Gap—.048 to .052 inch (the distance between core and underside of armature when contacts just open).

Contact Point Gap—.012 inch minimum (armature pressed down against stop pin).

Operating Voltage—7.3 to 7.6 (70° F.).

Armature Spring—14-1/2 turns.

LIGHTING

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

Location—Behind instrument board.

Fuses—Single 20 amp. fuse (type SFE-20) on switch back, protects all lighting circuits.

Instrument Light Switch—H. A. Douglas Mfg. Co., No. 5624.

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

Lamps—HEAD--2330; PARK--55; BEAM INDICATOR--51; INSTRUMENT--51 and 63; DOME--63; LICENSE PLATE--63; STOP AND TAIL--1158.