

Willys-Knight

Model 88-8 (1916-17-18)

Auto-Lite Starting and Lighting System. Remy Ignition

Battery.—Battery is 6 volt, 120 ampere-hour. The negative (—) terminal is grounded at the starting motor.

Ignition.—Breaker contacts separate .020 inch to .025 inch.

Should they become badly burned or pitted, resurface with a fine, flat jeweler's file or a piece of worn No. 00 sand paper.

Timing.—Contacts should begin to separate when the mark "1-4 T-C R" on the flywheel is $1\frac{1}{2}$ inches past the indicator, spark control lever and breaker assembly in the fully retarded position.

Firing Order.—The firing order is 1R, 1L, 3R, 3L, 4R, 4L, 2R, 2L.

Spark Plug Gaps.—Spark plug gaps should be .027 inch to .030 inch.

Oiling.—Refill the cup under the distributor head with soft cup grease and turn down two turns every two weeks. At the same time put a small amount of vaseline on the fiber bumper of the contact arm, using a toothpick. If the car is driven more than 500 miles in two weeks, these attentions should be given every 500 miles.

Starter.—Starter is connected to the engine through a Bendix drive. When running free, armature should revolve at about 4200 R. P. M., taking 50-55 amperes. Greater speed indicates grounded, short circuited or damp field windings. Greater current or vibrating of the ammeter needle indicates grounded or short circuited armature coils or commutator. Damp armature windings will cause high current or slow speed.

STARTER DATA, MODEL MC

Torque	R. P. M.	Amperes
1 lb. ft.	2650	100
2 lb. ft.	1900	145-150
3 lb. ft.	1600	185-190
4 lb. ft.	1400	225-230
5 lb. ft.	1250	250-255
6 lb. ft.	1000	290-300

Starter should develop 16 pound-feet lock torque, taking 450-460 amperes at 3.8-4.2 volts.

Oiling.—Clean and repack starter bearings with soft cup grease every six months. Put in one or two drops of oil every month to keep grease soft.

Generator.—Generator current regulation is by reverse series field (GG) on early cars and by third brush system on later models (GH). Relay should close at 8-10 miles per hour or 500-575 R. P. M. of armature on Model GG generator and at 550-600 R. P. M., on Model GH. Charging current should be .6 to 1.5 amperes at closing and discharge current 0 to 1 at opening.

GENERATOR DATA

Model GG		Model GH (Three Brush Type)	
Amperes	R. P. M.	Amperes	R. P. M.
5.0	750-860	5.0	760-820
10	1225-1400	10	1020-1100
12.5	1600-1825	12.5	1200-1300
15	2175-2450	15	1460-1675
17-19	3200-3700	15-17	1950-2250

A variation of 1.5 amperes from these amounts is allowable. Generator output may be varied slightly by adjusting third brush on Model GH or brush pressure on Model GG. The pressure should be 1 to $1\frac{1}{4}$ pounds. When operating freely as a motor, GG generator should take 2.8 amperes, armature turning at 350 R. P. M. Model GH should take 2.7 amperes, armature turning at 450 R. P. M. Much higher speed indicates damp, grounded or short circuited field coils. Greater current or lower speed indicates tight bearings or damp, grounded or short circuited armature windings or commutator. Periodic swinging of ammeter needle indicates grounded or short circuited armature coils or commutator bars. Shunt field should take 1.1 amperes on Model GG and 1.7 amperes on Model GH.

Oiling.—Put 5 or 6 drops of light engine oil in each of generator oilers every two weeks. If car is driven more than 500 miles in two weeks, oiling must be done every 500 miles.

Lamps.—Head lamps are 6-7 volts, 16 cp. Dimmer lamps are 6-7 volts, 4 cp. Dash and tail lamps are in series. They are each 3- $3\frac{1}{2}$ volts, 2 cp.

Fuses.—Fuses are 20 ampere.

Model Numbers.—Starter is Model MC 1126. Generator is Model GG 1046 on cars before Serial No. 3000. After this number, generator is Model GH. Battery is USL CD 315 D. Some of the early cars were equipped with a Willard OLBA type battery.

