GRANT

MODELS M, T, U (1915-16-17)
ALLIS-CHALMERS STARTING AND LIGHTING SYSTEM
ATWATER-KENT IGNITION

Battery.—Battery is 6 volt, 80 ampere-hour. The two wire system is used.

Ignition.—Breaker contacts should open .010 inch to .012 inch. To lessen the gap, remove the screw and take off one or more of the thin washers under the head, as required. If tungsten contacts become badly corroded they may be resurfaced by drawing across a piece of fine emery cloth laid on a flat surface as on the bed of a drill press. The polarity switch reverses the current across the breaker contacts every time it is turned on. This tends to keep the contacts true.

Timing.—Spark should occur when the piston entering power stroke is on top dead center, spark control lever and breaker assembly in the fully retarded position on the four cylinder car and when the mark "1 and 6 DC" on the flywheel is at the indicator, spark control lever and breaker assembly in the fully retarded position on the six cylinder cars.

Firing Order.—The firing order of the "Four" is 1, 3, 4, 2. The firing order of the "Six" is 1, 5, 3, 6, 2, 4.

Spark Plug Gaps.—Spark plug gaps should be .025 inch to .030 inch.

Oiling.—Put one drop of light machine oil on the latch and latch lifter bearings and put three or four drops in the main bearings every month. At the same time put a small amount of vaseline on the latch, latch lifter and other moving parts. Care must be taken that no vaseline or oil reaches the tungsten contacts as it will cause them to burn and corrode. If the car is driven more than 1000 miles in a month, the oiling must be done every 1000 miles.

Motor-Generator.—The motor and generator are combined in one frame, forming what is known as the single unit system. Generator current regulation is by reverse series field and vibrating regulator. The relay should close at about 600 R. P. M., of the engine or 10 to 12 miles per hour.

Trouble Shooting.—Should the motor operate properly yet the generator fail to keep the battery charged, the lights may be too large or used excessively, starter used excessively, there is an unintentional ground or a short circuit in the wiring, shunt field is open, relay is not closing, relay contacts are dirty or corroded or the main fuse is burned out or is not making good contact with the clip. Examine particularly the small wire connected to the positive terminal of the battery. the two small wires connected to the motor-generator and the small wire connected to the starting switch. To test the shunt field stop engine, remove large fuse and connect the terminal marked "Field" to either end of the small fuse. The ammeter will show a discharge of 3 or 4 amperes if the shunt field is O. K. If the shunt field tests O. K., replace the large fuse, start engine and speed it up to 600-650 R. P. M., then connect the two terminals on the instrument panel marked "Field and Dyn. +"; if this produces no charge, leave them connected together, and also connect the lower clip of the small fuse to the large fuse. These two connections cut the regulator out of the circuit entirely, so this test must not be made with engine running over 650 R. P. M., or under 600 R. P. M. If it is running faster there will be a very large charging current and if running slower there will be a very large discharge current which may damage the ammeter, wiring or other apparatus. If the meter did not indicate charge on any of the other tests but now indicates charge, the regulator is at fault.

Lamps.—Head lamps are 6-8 volts, 14 cp. on the 1915 cars. They take about 2 amperes each. On the 1916 cars the head lamps are 6-8 volts. 17 cp. Dash and tail lamps are both 6-8 volts, 2 cp., and take about .42 ampere each.

Fuses.—The large fuse is 45 ampere. The small fuse is 20 ampere.