

# Overland

Model 79B (1914) (Serial Nos. 1-45006)  
Gray and Davis Starting and Lighting System

**Battery.**—Battery is 6 volt, 85 ampere-hour. The positive (+) terminal is grounded at the starting motor.

**Ignition.**—Breaker contacts should separate .025 inch. Should they become badly burned or pitted, resurface with a very fine flat jeweler's file or a strip of worn No. 00 sand paper.

**Timing.**—Timer contacts should begin to separate when the mark "U-P 1 and 4" on the flywheel is 1-3/16 inches past the indicator, spark control lever and breaker assembly in the fully retarded position.

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

**Spark Plug Gaps.**—Spark plug gaps should be .020 inch to .025 inch.

**Oiling.**—Put 2 or 3 drops of light machine oil in each of the magneto oilers every two weeks. At the same time put a very small amount of vaseline on the cam, applying with a toothpick. If car is driven more than 500 miles in two weeks, these attentions must be given every 500 miles.

**Starter.**—Starter is chain connected to the engine crankshaft. There is an overrunning clutch to prevent engine driving starter. Starter should take 100 amperes at 6 volts when armature is revolving at 3600 R. P. M. Greater current indicates damp, grounded or short circuited windings or commutator bars, or tight bearings. Discharged, dry, or sulphated battery, defective battery connections, defective switch contacts, defective starter connections, dirty commutator, high mica, dirty or sticking brushes, defective connections between armature coils and commutator bars or open circuits are the chief causes of low speed and low current. The clutch is shown in cross section in Fig. 2, Page 188. To disassemble clutch, first remove screws "Z", then remove screws "D", take off retainer "C", remove nut and cotter pin "G", take off retaining washer "X", remove screws "F" remove entire clutch mechanism in direction indicated by arrow "J", remove clutch center "A", remove ball bearing "S", remove ball bearing seat "W" and remove retaining Plate "E".

**Oiling.**—Bearings are packed with grease. They should be cleaned out and repacked with grease every six months. Put several drops of light engine oil in each of the clutch oilers every week.

**Generator.**—Generator regulation is by speed regulating governor. As the armature shaft rotates, the weights are thrown out from the center, partially overcoming the spring pressure, thus lessening the friction between the driving and driven discs. As this action is directly proportional to the speed, the armature speed and voltage are held practically constant after a certain predetermined rate is reached. The clutch should be so adjusted that the armature will be driven at 1250 R. P. M., engine running at the equivalent to 10 miles per hour car speed. Generator should deliver 8 amperes at 6.5 volts when running at this speed (1250 R. P. M.). To adjust regulator, first remove cover (No. 1, Fig. 1), then loosen screw (No. 4, Fig. 3) one full turn. Then insert two screwdrivers on opposite sides of shaft, just back of block (See Fig. 4), compress spring and tighten set screw. Bringing governor springs up 1/16 of an inch will increase output 2 amperes. Engine and generator should be normally warm from operation when governor is adjusted. Generator and governor are shown in cross section in Fig. 1. As these machines have all been in use for a number of years, the governor parts on some machines have worn out, or are otherwise in an unsatisfactory condition. If it is not desired to keep up the governor, the machine can easily be changed into a reverse series field regulated type. As machine is built, it charges the battery as a straight shunt generator, compounding only when lights are turned on, the current through the series field tending to increase the output.

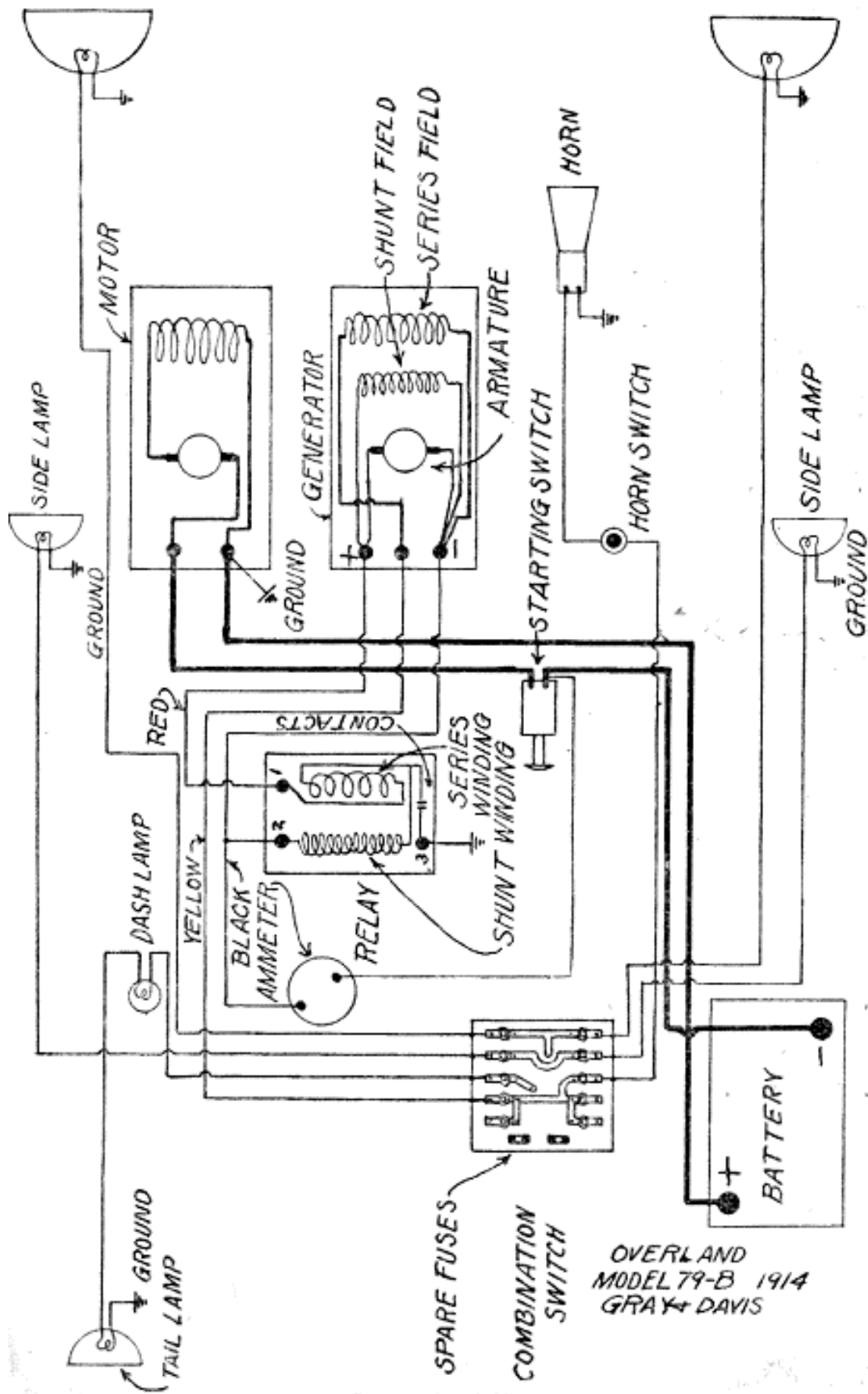


PLATE No. 187

Connections of machine as originally wound are shown in Fig. 5. To make the change it will be necessary to provide a means of connecting the armature permanently to the driving shaft. Then remove the series field lead from the negative terminal and connect it to terminal A (Fig. 6). The central post now becomes the positive terminal of the generator, and the lead to the series winding of the relay is changed accordingly. The lead to the lighting switch should then be moved to the negative terminal. It will be noted that there are no external connections to the terminal A. A resistance unit must then be inserted in the shunt field circuit. Use iron resistance wire for this resistance. The exact amount is best determined by experiment as it will vary with the size and kind of wire used. Increasing the length or decreasing the size will decrease the output. Decreasing the length or increasing the size will increase the output. The turns of the coil must be separated so that no two turns touch and well insulated so that it cannot "ground" on any of the metal parts of the machine. It must be secured firmly in place so that it cannot move about due to road shocks. Charging rate should be 3 to 7 amperes at, or more than, 12 miles per hour, lamps off, depending on the state of charge of battery being high when battery is badly discharged and low when battery is nearly or fully charged. Relay should close at 10-12 miles per hour. Clean relay contacts by drawing a piece of unglazed paper between them. If badly burned or pitted, resurface with a piece of well worn No. 00 sand paper, drawing a piece of unglazed paper between them and adjusting before again putting into service.

**Oiling.**—Oil the driving chain well and put several drops of light engine oil in each of the bearing and clutch oilers every two weeks. If car is driven more than 500 miles in two weeks the oiling must be done every 500 miles.

**Lamps.**—Head lamps are 6-8 volts, 15 cp. Side lamps are 6-8 volts, 4 cp. Dash and tail lamps are in series. They are each 3-4 volts, 2 cp. All other lamps are 6-8 volts, 4 cp. Single contact base is used on all lamps.

**Fuses**—Lighting fuses are 10 ampere.

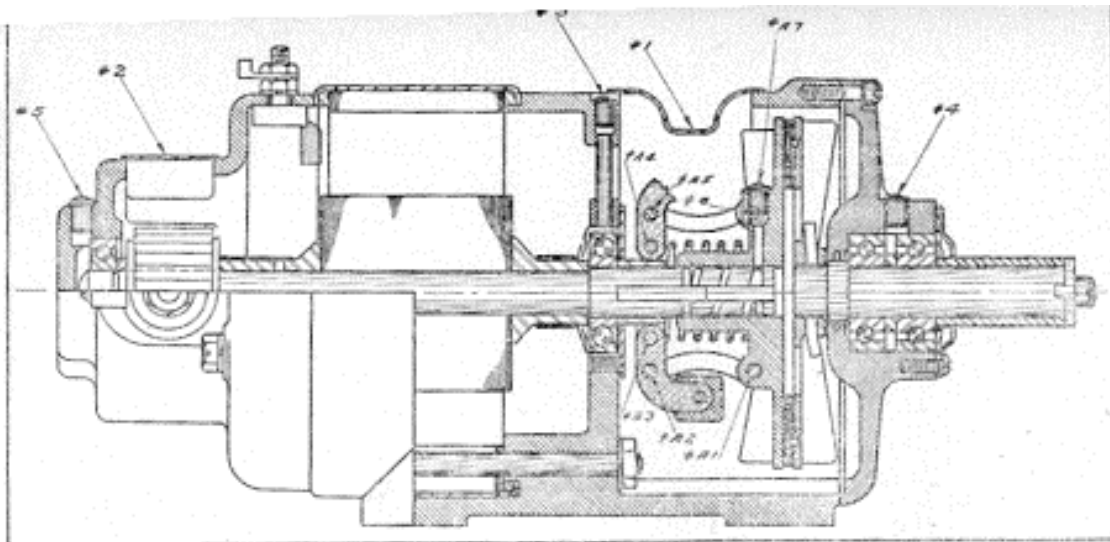


Fig. 1

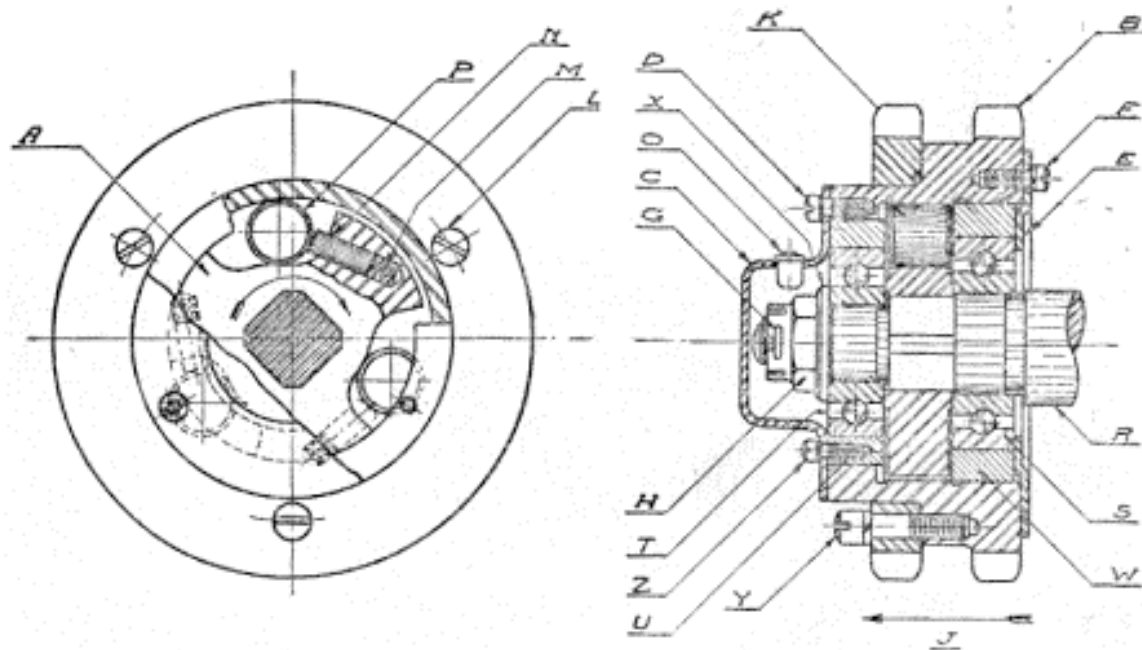


Fig. 2

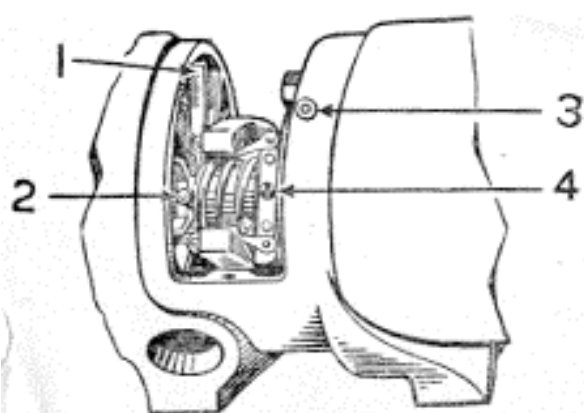


Fig. 3

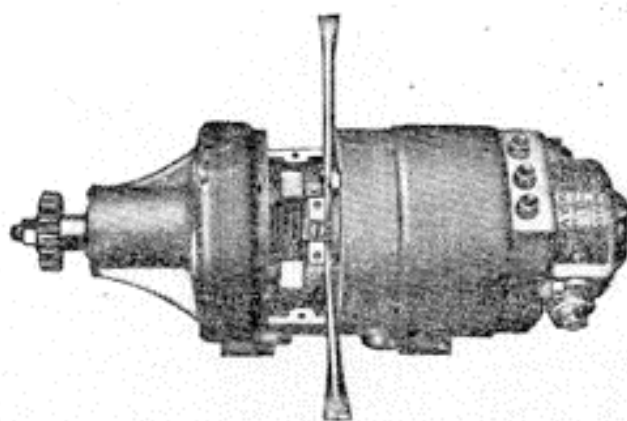


Fig. 4

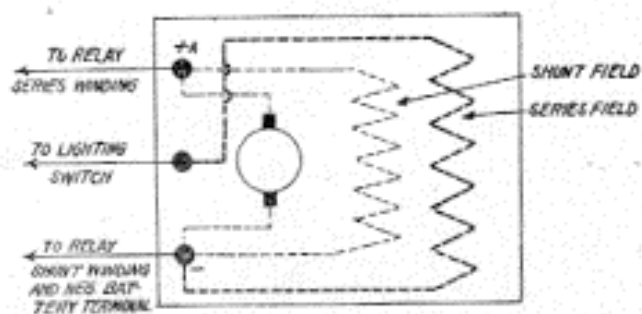


Fig. 5

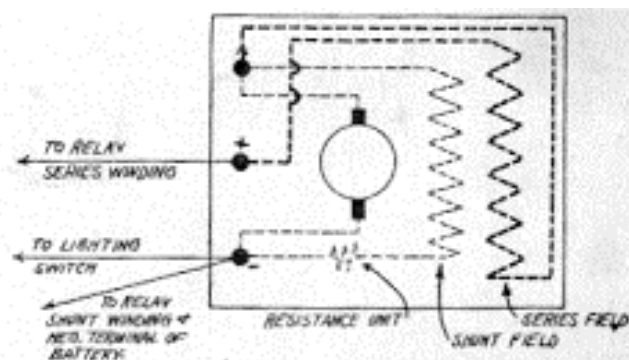


Fig. 6