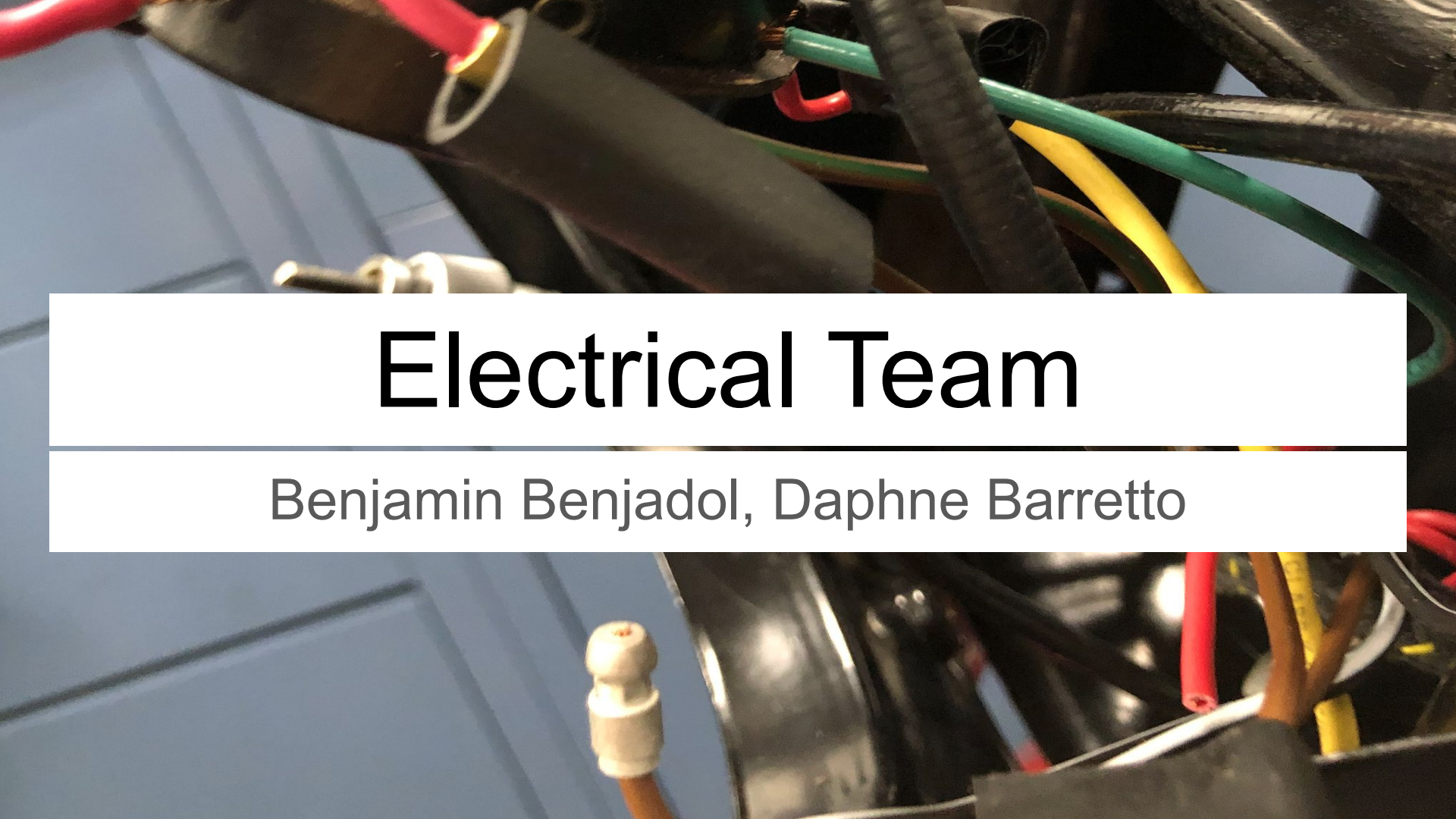
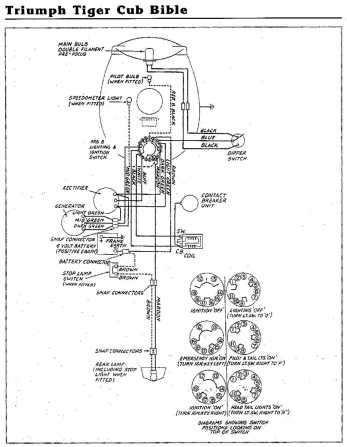


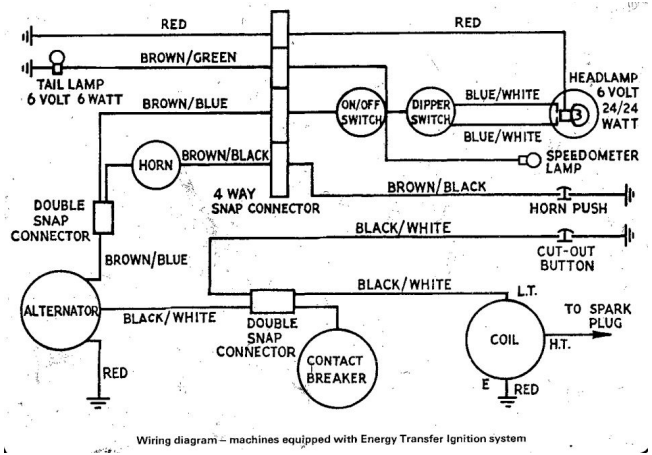
Electrical Team

Benjamin Benjadol, Daphne Barretto

Our (Half) Semester in Lab

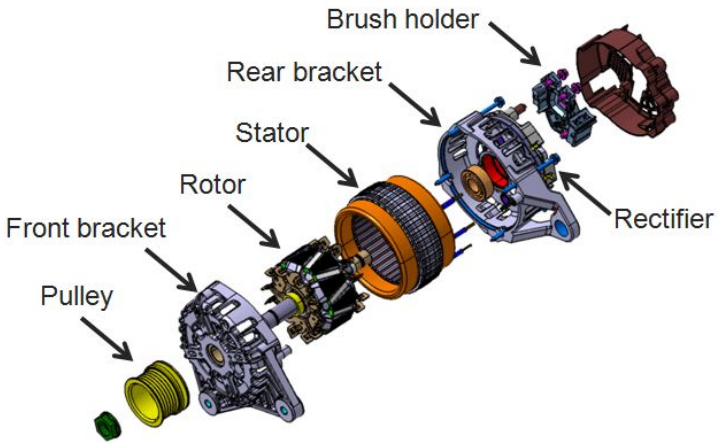
- Researched electrical systems
- Learned to solder, cut and strip wires, make bullet connectors
- Fixed two motorcycle horns
- Sawed the screws on the broken cleaner plug
- Tested and wired lighting system
- Tuned the ignition points
- Learned how to use Falstad to simulate circuits





Alternator

- Converts rotational motion of the crankshaft into electrical energy for the battery and the rest of the motorcycle systems
- Crankshaft turns rotor, which has north and south poles on opposing sides.
- Generates energy in the coils of wire through Faraday's law



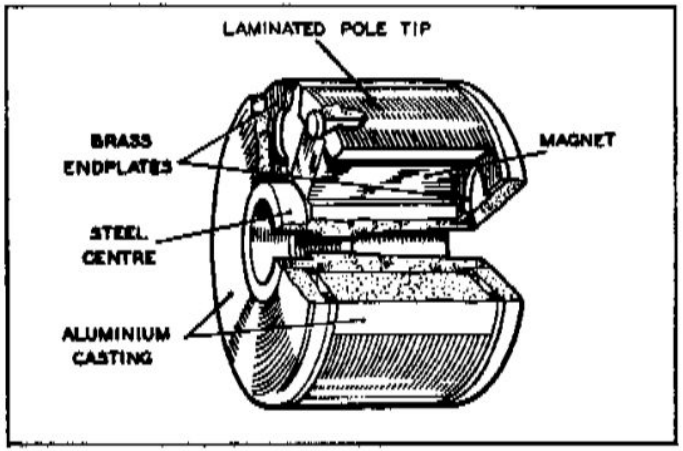


Fig. 1 View of rotor, sectioned

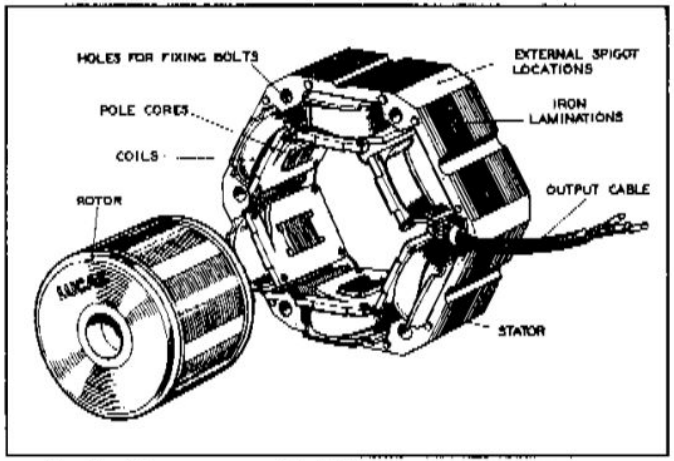


Fig. 2 Alternator model RM14, with rotor withdrawn

Rectifier

- Turns alternating current from the alternator into direct current to charge the battery of the motorcycle
- Utilizes diodes, which are one-way conductors
- Load in this video is an LED (itself a diode) for illustration

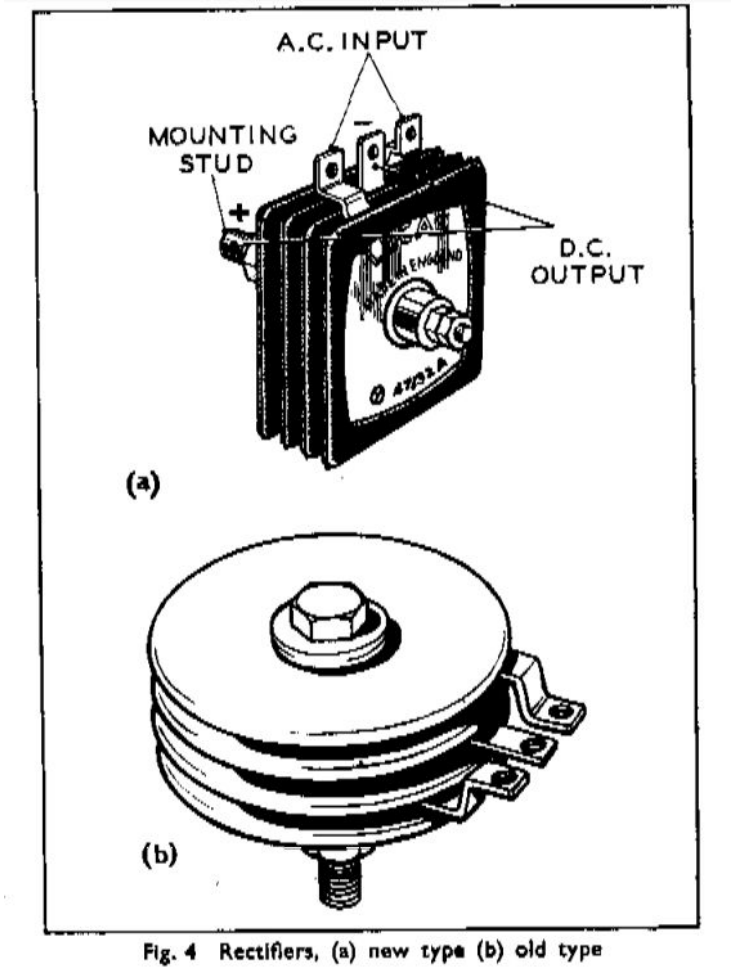


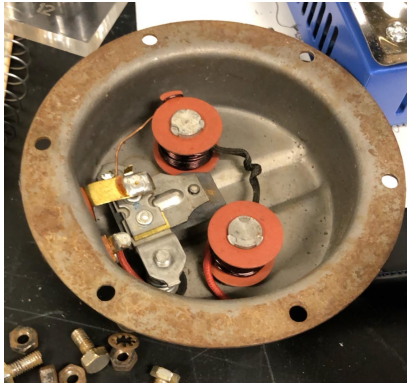
Fig. 4 Rectifiers, (a) new type (b) old type

Horn

When current runs through, an electromagnet is activated moving a piston.

The piston hits a switch that disconnects the electromagnet so that the piston moves back.

The repetition of the piston movement causes the very intimidating horn noise.

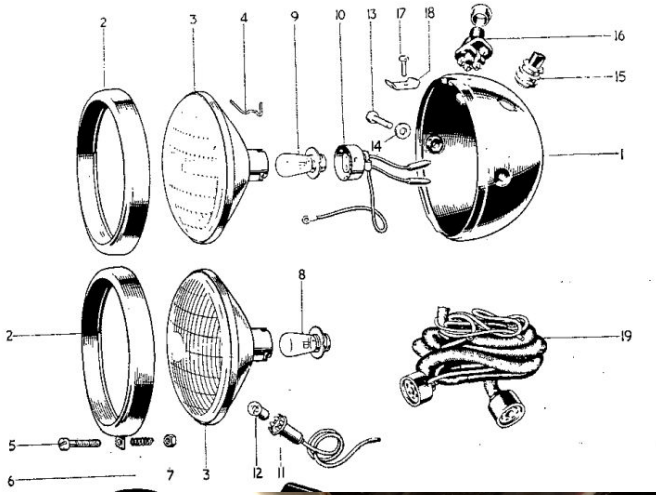


Used the sandblaster to clean the contact points to ensure electrical connections

Adjusted the tuning screws to reinstate functionality

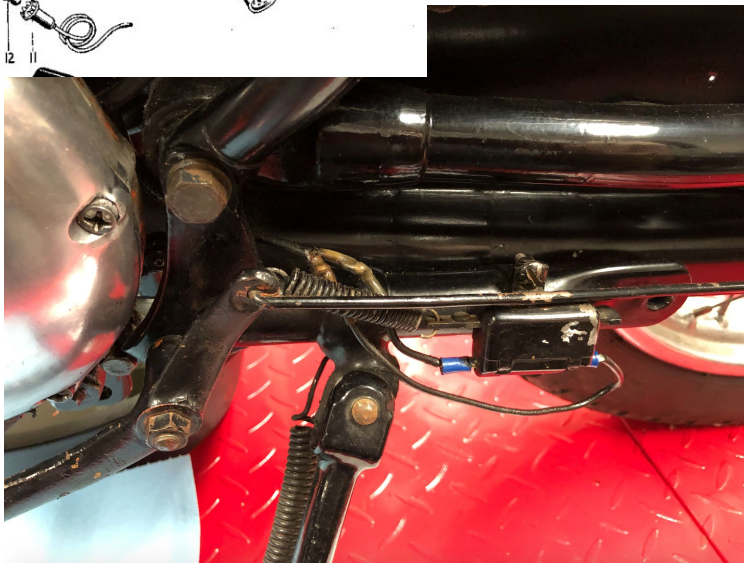
Lighting System

- Made new wires and bullet connectors
- Began wiring some of the back lights
- Made springs for the brake light



Brake Lights

- Step on brakes
- Pulls spring attached to switch
- Turns on brake lights in back (back lights have two sets of lights: normal and brake lights)

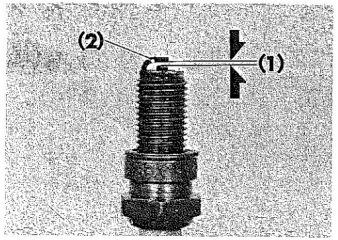


Spark Plug, Distributor

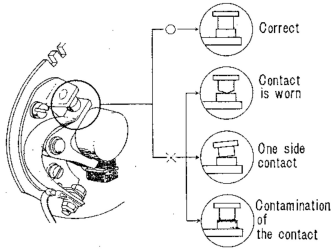
Spark plug and ignition coils ignite vaporized fuel when points of the distributor are in contact.

Points Timing

- Advanced (spark before piston at top dead center) - if fuel not used up instantly when sparking; higher engine speed
- Retarded (spark after piston at top dead center)



Spark plug gap (1) is adjusted by bending the side electrode (2)



Point condition

Thank you!