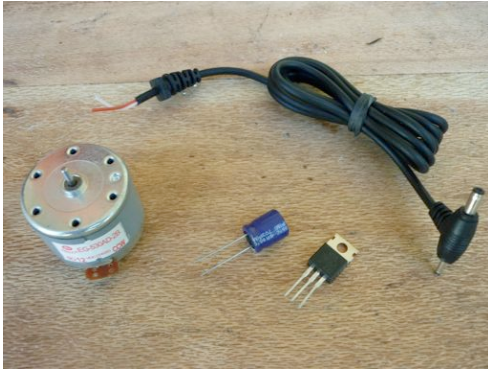


Global Cycle Solutions: Charger Assembly Manual

Components (include photos with labels for 4 categories)

Electronics



- E1: Capacitor (470 microfarad)
- E2: Voltage regulator (transistor 7806)
- E3: Cell phone cord
- E4: Motor (12V DC)

Fabricated Parts



- F1: U-bracket
- F2: Rubber roller
- F3: Rubber coupler

Bicycle Parts



- B1: Brake pipe
- B2: Spoke
- B3: Spoke nipple
- B4: Brake adjuster screw
- B5: Brake guide clamp

Other Parts



- P1: Spring wire
- P2: Nylon rod (8mm)
- P3: Nylon rod (6mm)
- P4: 1 small bolt and nut
- P5: small screws (2)

Tools (include one big photo of all the tools)

- Flat head screwdriver
- Soldering iron + Solder wire
- Longnose Pliers
- Wire cutter
- Drill + 3/32" drill bit, 3/16" drill bit (or 11/64")

- Tap
- Glue
- Vice
- Hammer
- Knife

NOTE: All numbered steps can be done at volume scale.

Simple Preparation Parts

Crosspiece



Cut to 2cm length using hacksaw.

Spoke



Cut spoke to 13 cm length using pliers. Crimp nipple around spoke 7mm from end using pliers or vice.

Spring

Cut spring wire to 14cm Bend spring wire around jig as shown Then bend perpendicularly to loop at 11mm from the long end.

Brake Guide Clamp



Hammer the angled part of the clamp flat.

Housing Cap



Drill 5.5mm hole through the cap with center approximately 1 cm from the edge of the cap to create cap as shown.

Housing Cap Assembly



Widen and smooth out the hole edges using the teeth of the longnose pliers, and then insert charger cord through cap of the casing such that the wires are on the interior.

Housing



Drill 5mm hole through the center of the base of the casing. Center using the motor mold as shown.

Housing Assembly



Place brake screw component through the base of the casing, and tighten nut on the opposite side.

Circuit Preparation

STEP 1: Motor Disassembly



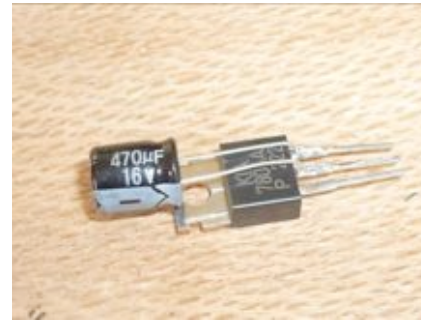
Remove the covers from the motor using a screwdriver to pry it open.

STEP 2: Motor Preparation



Remove the pre-existing circuit from the motor by melting the solder away at the junctions shown.

STEP 3 :Transistor-Capacitor Connection



Solder the capacitor onto the transistor as shown; + on the right pin, - on the center pin (look on the side of the capacitor to find the – lead) of the transistor.

STEP 4a: Motor-Circuit Preparation

Bend the unsoldered pin of the transistor upwards 60 degrees; the center pin 30 degrees and cut half the end off of the third leg. Bend the pins from the capacitor so the circuit fits in the bottom of the motor.

STEP 4b: Motor-Circuit Connection



Solder the – lead from the capacitor to the + terminal of the motor and the bottom pin of the transistor to the – terminal of the motor.

STEP 4c: Cord Connection



Solder the white wire of the charger cord to the center pin of the transistor and the red wire of the charger cord to the + pin of the capacitor.

Shaft Preparation

STEP 1: Brake Tube Prep



Unscrew the slotted end of the brake tube so you end up with the piece as shown.

STEP 2: Crosspiece Installation

Widen and smooth out the hole edges using the teeth of the longnose pliers, and then insert crosspiece through hole in ball-end side of the brake tube. [EXPLAIN HOW].

STEP 3: Shaft Thruhole



Drill a 5mm hole through the ball-end and crosspiece.

STEP 4: Thruhole Tap



Tap 5mm hole in plastic rod with 6.0 tap.

STEP 5: Crosspiece Pre-Drill



Drill a 2.5mm through the center of the crosspiece.

STEP 6a: Bushing Preparation



Wittle down the diameter of the 6mm rod until it can be inserted into the brake tube

STEP 6b: Bushing Insertion



Force wittled end of the 6mm rod into the top of the brake shaft.

STEP 6c: Bushing Trimming



Clip the nylon rod using the longnose pliers.

Shaft Preparation (Continued)

STEP 6d: Bushing Installation



Hammer the nylon rod into the brake tube.

STEP 7: Bushing Center Drill



Drill 2.5mm hole into the top of the bushing.

STEP 8a: Spring Placement

Place the spring on the plastic rod through the brake pipe. It may be necessary to re-bend slightly with pliers to ensure alignment

STEP 8b: U-bracket Installation

Put the U-bracket around the plastic rod and screw it in using the two small screws. Make sure that they are tightly secured.

STEP 8c: Spring Wire Trimming

Cut the extra metal off at the base of the spring

STEP 9: Clamp Installation

Screw the brake guide clamp onto the U-bracket.

Assembly

STEP 1:



Insert rubber coupling on the motor shaft, and insert spoke on opposite side of the coupling.

STEP 5:

Test the charger by rolling the roller across the table.

STEP 2:

Place the motor-spoke assembly in the casing such that the spoke comes through the hole at the base of the casing.

STEP 6:

Snap the lid onto the casing with glue.

STEP 3:

Screw the shaft onto the casing, allowing the spoke to pass all the way through.

STEP 4:

Screw roller onto the top of the spoke with glue for extra security.