

Radio Shack #276-1185 Full Wave Bridge Rectifier.

Metal case for maximum heat dissipation. Center mounting hole. Used for power supplies. It has 25 amps, 50PIV.



Need Qty 1

Radio Shack #276-1363 TO-220 Heat Sink

Designed for PC board mounted power semiconductors in TO-220 cases. Anodized aluminum. -



Need Qty 1

Radio Shack #270-1217 Heavy-Duty In-line Fuse Holder

In-line fuseholders with 20 amp fuses. Specs for this part include 20 Amp @ 250 VAC and a 1-1/4x1/4" fuse. -



Need Qty 3

Radio Shack #271-132 10 ohm 10W 5% Wirewound Resistor with following specs

- Temp Range: -55°C to 70°C,
- Max Working Voltage: 350V,
- Lead Length: 30 ±3mm



Need Qty 1

K5AUW's In-line Power Charging / Backup Battery System Detailed Instructions & Diagram

K5AUW's in-line power charger / rectifier for using a lead-acid or gel-cell battery as backup power for a radio or other device such as APRS tracker unit. Products listed here were also shown on page 1. This page should help in better identifying the parts when ordering or looking thru your junk box.

Tools needed: Crimper pliers or other pliers to apply crimp connectors. Soldering pencil / iron and solder (not much) recommended. Spade crimp-on connectors needed to attach to rectifier unless you solder them. Other connectors needed to connect to internal backup battery or external power source (car battery, power supply, etc.) so plan ahead.

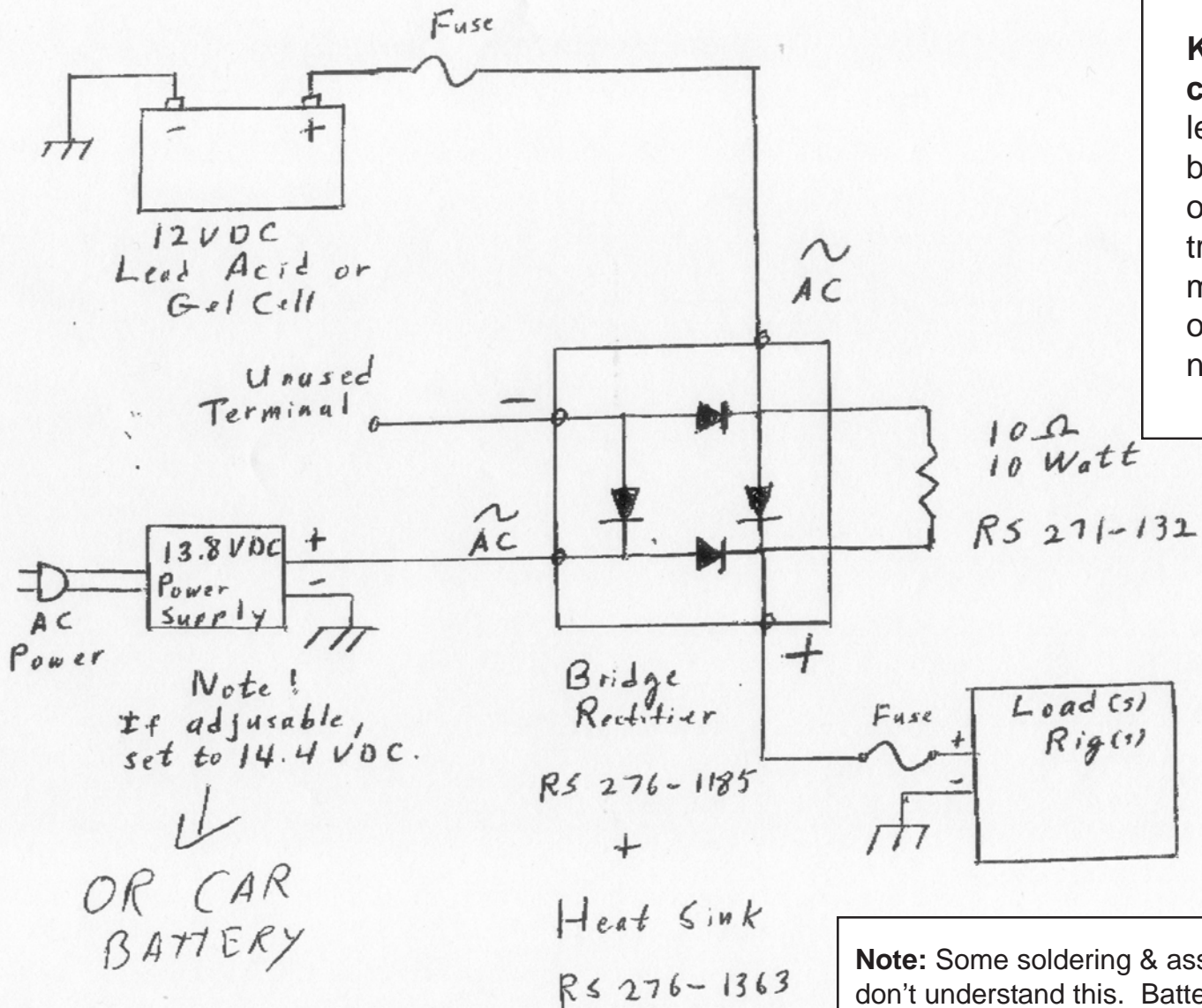
The guts of the diagram is the Radio Shack 276-1185 Full Wave Bridge Rectifier that has 4 connection points. You attach the heat sink (276-1363) to the rectifier and you can mount in a plastic project box or other insulated manner. Gel-Cell or sealed Lead-acid battery recommended as the back-up battery to be kept charged. **Of the four connection points on the rectifier:**

- the positive connector goes to the load / rig
- the negative connector isn't used (suggest break off or insulate tab)
- one of the ~AC points comes in from the power source (in this case the car battery)
- the other ~AC point goes to the positive terminal of the lead acid 12v battery.

The resistor goes across the bridge's + (load) terminal and the ~AC (backup battery) terminal. This will provide a float charge from the car battery (or AC power supply) to the backup battery. If leads on resistor are too short, use short pieces of (red) wire attached to each end and use those wires to connect with the crimp-on spade connectors to the (+) and (~AC) poles as shown on the diagram. **Hint:** Bob says "I jumper the resistor with a short 14 AWG jumper during extended back-up battery use. This provides an additional 0.6 volts to the load by eliminating the diode voltage drop. As soon as the primary voltage source (AC power supply/car battery) is back on-line, I remove the jumper."

All three grounds; primary source, backup battery and load are tied together to a common ground, i.e. the vehicle's car battery or the power supply being used. **Be sure to fuse all of the positive leads.** At the car battery, fuse both the positive and negative leads as close to the battery as is practical. Any bridge rectifier with at least a 100 PIV, 20 Amp rating can be used. A higher PIV and/or higher Amp rating will work just as well. Also be sure to insulate any and all exposed positive connections and terminals.

Recommend using Red/Black color coded wiring of at least 14-16 gauge stranded / insulated wire. Solder all connections where possible, even the crimp-on connectors if you can. Remember that this circuit is designed for supporting no more than 20-25 amps, so don't try to run your 2k radio amplifier off this system.



K5AUW's in-line power charger / rectifier for using a lead-acid or gel-cell battery as backup power for a radio or other device such as APRS tracker unit. See page 1 for more instructions plus photos of parts and Radio Shack part number / descriptions.

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Diagram design courtesy Bob K5AUW, typesetting and photos of parts courtesy of Lee N5NTG. Reprinted with permission of authors. Parts shown courtesy of Radio Shack from their web site and are recommended #'s.

Note: Some soldering & assembly required. Get help if you don't understand this. Battery and Load/Rig not included in list of parts. Use 14-16 gauge stranded wire with Red / Black colors for positive or negative connections. Electrical tape needed. Electrical crimp-on connectors needed depending on what type of connection you will make to battery, rectifier and load/rig. Try to solder all connectors for better, more permanent electrical connections.