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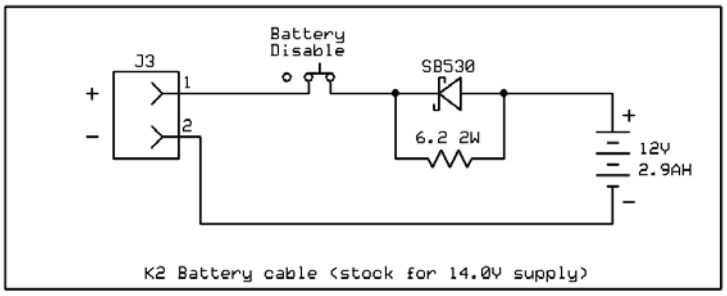
Elecraft K2 Battery Charging

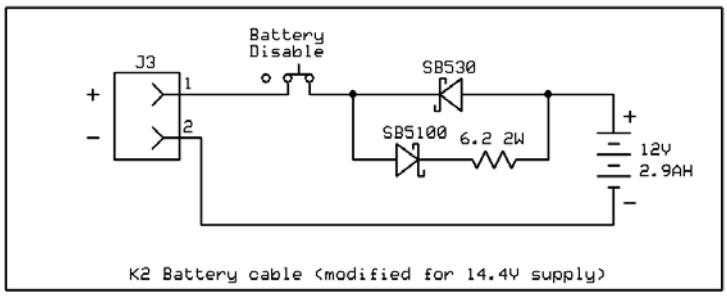
As supplied by Elecraft, the K2 Battery Option circuit consists of a 2.9AH 12V battery and a simple taper-charge current limiting circuit shown below:



The circuit is designed to operate from 14.0V +/- 0.2V. The SB530 Schottky diode allows for full battery discharge current and voltage minus the 0.2V drop across the diode, while the 6.2Ω 2W resistor limits charge current. When the battery is fully charged it draws ~15-30mA, so in float charge there will be a ~0.1-0.2V drop over the 6.2Ω resistor.

The K2 Battery Charger option specifies a power supply of 14.0V +/-0.2V. There is a Schottky diode in series with the DC power jack for polarity protection which drops the voltage available to the battery charger at P3 by 0.2V to 13.8V nominal.

If the K2 is operated from a 14.4V supply, such as a car's electrical system in cool weather or a 14.4VDC supply like the PAE-Kx33, the battery life can be shortened due to excessive float charge current. In order to address this issue, a K2 owner can do one of two things: Insert the #33-220 K2 Voltage Reducer in-line with the K2's power jack or perform a simple modification to the K2's charge circuit shown below:



The necessary components to perform the modification are available from PAE in the #33-225 K2 Charger Mod Kit. The additional SB5100 Schottky diode drops the charge voltage by 0.4-0.5V depending on the state of charge of the battery. This will result in charge characteristics similar or better than stock.

Both approaches work well, so why choose to modify the K2 using the #33-225 kit when you can merely plug in the #33-220? Here is the breakdown of pros and cons:

	Pros	Cons
#33-220 K2 Voltage Reducing Adapter	Quick Instantly removable No soldering Can be used with other unmodified K2s	Lower voltage available in the K2 (0.7V less in transmit) when on AC power Higher cost Have to remember to keep it on hand
#33-225 K2 Charger Modification Kit	Lower cost Only drops charger voltage K2 voltage stays higher Nothing to lose or forget	Soldering required Charging will be slowed if a lower voltage power supply is used