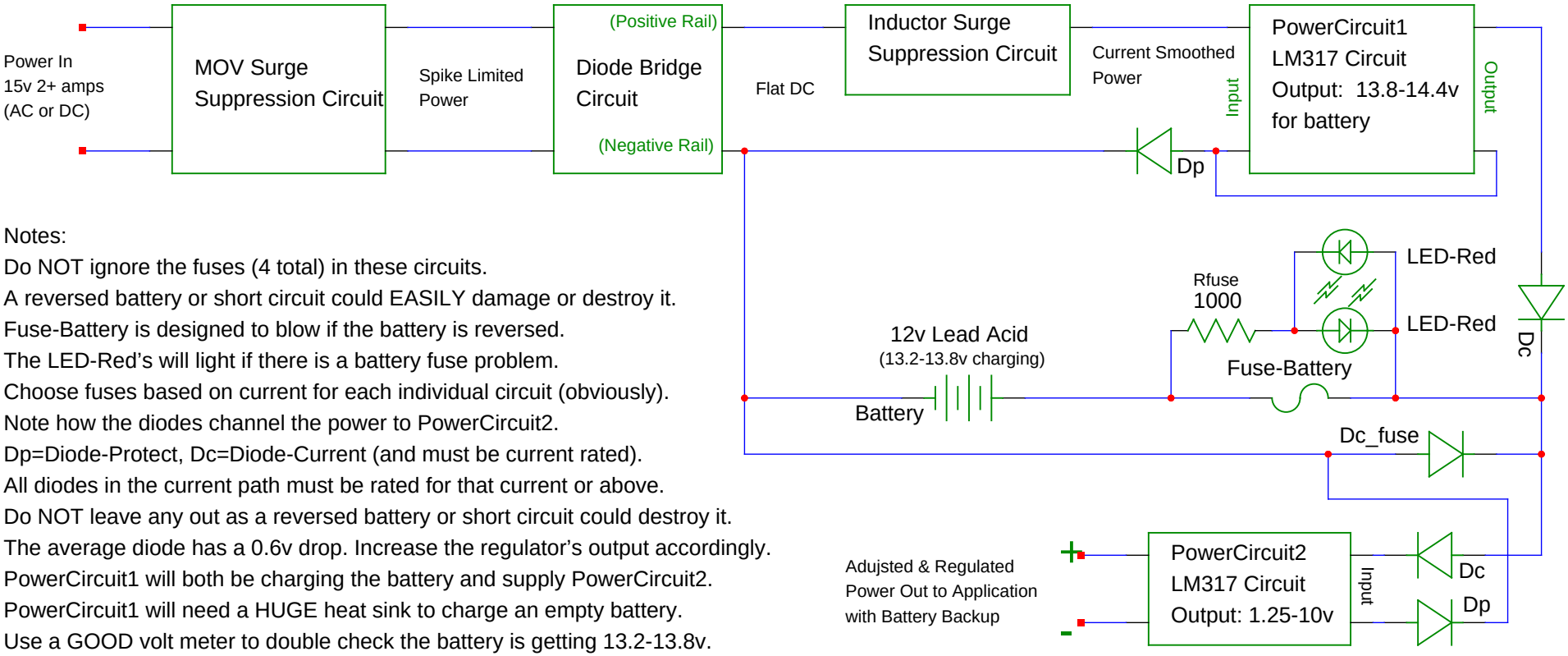
Regulated Power Supply with Battery Backup

2007-12-13



Notes:
Do NOT ignore the fuses (4 total) in these circuits.
A reversed battery or short circuit could EASILY damage or destroy it.
Fuse-Battery is designed to blow if the battery is reversed.
The LED-Red's will light if there is a battery fuse problem.
Choose fuses based on current for each individual circuit (obviously).
Note how the diodes channel the power to PowerCircuit2.
Dp=Diode-Protect, Dc=Diode-Current (and must be current rated).
All diodes in the current path must be rated for that current or above.
Do NOT leave any out as a reversed battery or short circuit could destroy it.
The average diode has a 0.6v drop. Increase the regulator's output accordingly.
PowerCircuit1 will both be charging the battery and supply PowerCircuit2.
PowerCircuit1 will need a HUGE heat sink to charge an empty battery.
Use a GOOD volt meter to double check the battery is getting 13.2-13.8v.
Re-verify battery voltages after the first night.
Improper charging voltages will quickly destroy a good battery.
Choose a battery amp-hour rating long enough to hold up the application.
Example: A good 6Ah battery will provide ~2 amps for 3 hours (2x3=6).
It wouldn't be hard to modify this to a 6v or 24v version instead of 12v.
If more power is needed, use the current boosted versions of the
LM317 circuit and possibly add IDENTICAL batteries in parallel. A large
current discrete transistor regulator may also replace PowerCircuit1.

.