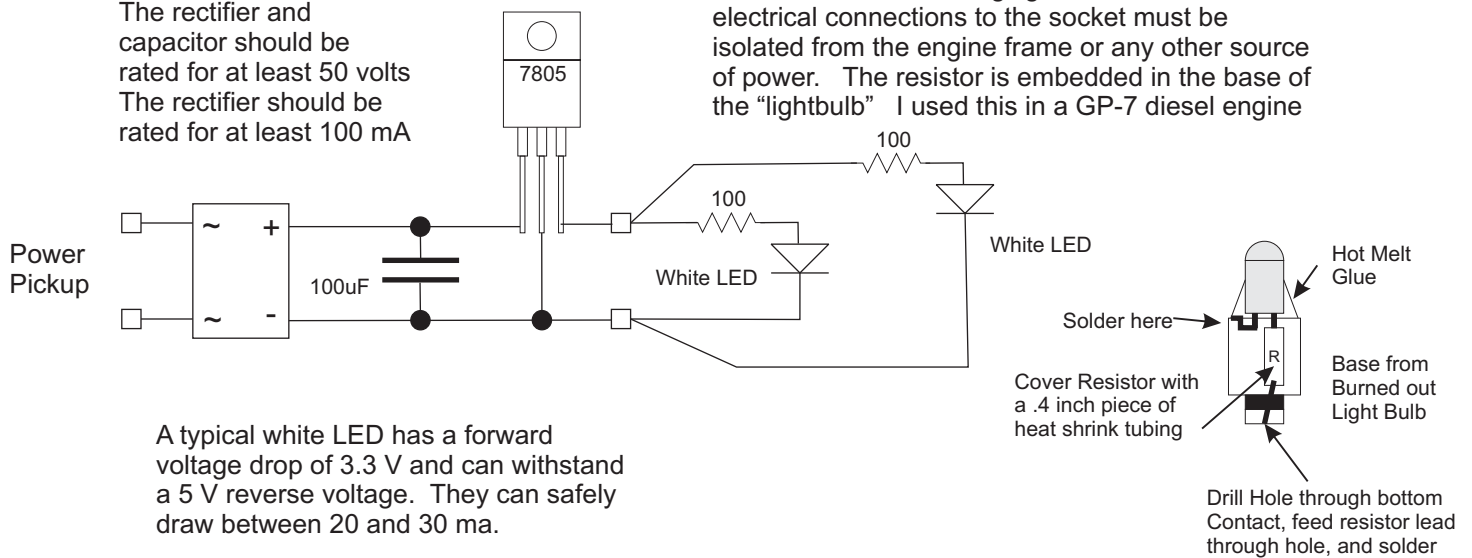


The rectifier and capacitor should be rated for at least 50 volts  
The rectifier should be rated for at least 100 mA

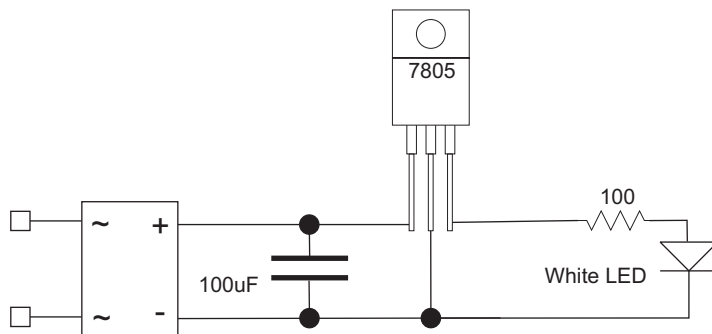
This version is most useful where it makes sense to use the existing light socket. Both electrical connections to the socket must be isolated from the engine frame or any other source of power. The resistor is embedded in the base of the "lightbulb" I used this in a GP-7 diesel engine



A typical white LED has a forward voltage drop of 3.3 V and can withstand a 5 V reverse voltage. They can safely draw between 20 and 30 ma.

This design provides about 17 ma of current which provides plenty of light. If you want a brighter light, you can decrease the value of the resistor (but keep it above 60 ohms).

A larger capacitor will enable the light to remain on for longer breaks in power, but can be difficult to physically fit in the available space



For most steam engines, I have found that it is best to mount all the components on a single piece of Perf Board and replace the existing light socket with this board. The LED can extend over the top of this roughly .8 by 1 inch board. Components are mounted so they will fit in the available space.

LED Light  
Norbert Doerry  
January 2010