The heart of the unit is the 15 Amp Current limiting diode. When starting, the Over-ride switch must be in the OFF condition. Due to the delay in the Alternator starting to charge, the relay will only kick in a few seconds after the motor has fired. Thus the entire circuit is off-line for the cranking cycle.

Once the relay has closed, a maximum of 15 amps is fed to the secondary battery, thus the main charge is fed to the main battery, which is more important. Once the secondary battery reaches about 12 volts, you will notice that the current drops of appreciably. This is due to the fact that the diode has an inherent Volt Drop of around 0.8 Volts. To get the secondary battery fully charged to 13.8 volts, the over-ride is set to the ON position, thus overriding the diode. Do not forget to heat-sink the diode as it gets very hot!

The voltmeter is wired with a toggle switch with an ON-OFF-ON action, so that it can be fully withdrawn from the circuit as it does draw some current when in circuit that can affect the state of charge of the battery.

This circuit has been working in my Defender for more than a year now driving two 105 A/H batteries, without any ill effects. Both batteries are installed under the passenger's seat and do fit, with some muttering and
swearing, but I had to make a new holder.

The diodes are available from Comunica in Pretorius Street for about R30. Please play with the direction
of the diode to get the current to flow in the right direction as it will not allow it to flow backwards.

Mike Ilsley
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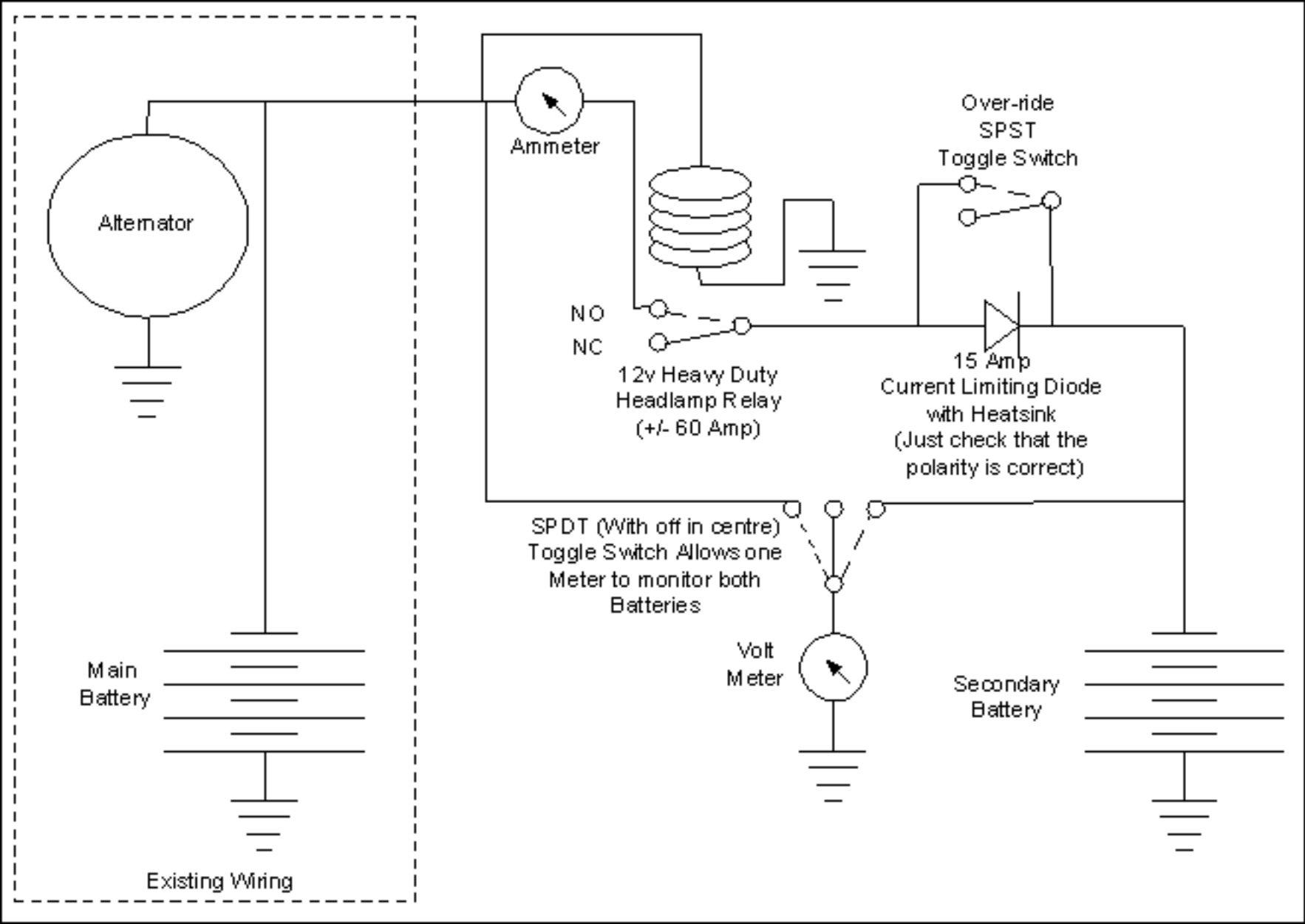
Diagram for Mike's Split Charging System


Alternator
Ammeter
Over-ride
SPST
Toggle Switch
NO
NC
12v Heavy Duty
Headlamp Relay
(+/- 60 Amp)
15 Amp
Current Limiting Diode
with Heatsink
(Just check that the
polarity is correct)
SPDT (With off in centre)
Toggle Switch Allows one
Meter to monitor both
Batteries
Volt
Meter
Main
Battery
Secondary
Battery
Existing Wiring