Re: Need resistor help please (35w x 12v)

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Locu wrote:

> This is 2 completely separate circuits I'm speaking about, one for the left headlight, and one for the right headlight. So, effectively if I get one working the same setup on the other will work as well (cross fingers). So, each side will only have 1 resistor. The resistor is a 15ohm 25watt resistor.
>
> When I did my tests last night, the first test which still made my car beep and cry about the light out was just a single resistor, and that is it. Here is my best text drawing.
>
> + −−−−−−−−−−−−−−−
> |
> 15ohm
> |
> − −−−−−−−−−−−−−−−
>
> My 2nd test, in parallel behind the resistor I put the 2 watt lightbulb, and still got the error from the car. Drawing:
>
> + −−−−−−−−−−−−−−−−−−−−−−
> | |
> 15ohm 2watt bulb
> | |
> − −−−−−−−−−−−−−−−−−−−−−−
>
> My 3rd test, same as the 2nd test except with a 5 watt bulb. This made the error go away.
>
> + −−−−−−−−−−−−−−−−−−−−−−
> | |
> 15ohm 5watt bulb
> | |
> − −−−−−−−−−−−−−−−−−−−−−−
>
> Thing is, in my earlier tests before I had resistors to play with, this setup also made the error go away:

> + −−−−−−−−−−−−−−−−−−−−−−
> |
> 5watt bulb
> |
> − −−−−−−−−−−−−−−−−−−−−−−
>
> The resistor in parallel doesn't seem to do anything. =o Although, it
> gets very hot so it's definitly sucking power.

OK! My guess is that the sensing circuit is looking for
a very low resistance. Once it finds it, it stops looking.
The bulb, when cold, presents a very low resistance, far
lower than 15 ohms. It appears that satisfies the circuit.

It very well may be that the circuit needs to stay "satisfied"
by a higher resistance. You could test with a switch between
the 5 watt bulb and the 15 ohm resistor. One the circuit is
"happy" switch the bulb out of the circuit to see if the
circuit stays "happy". Of course, the 15 ohm resistor is
not the equivalent resistance of the bulb (once the bulb is hot)
When hot and dissipating 5 watts at ~13.8 volts, the bulb is
drawing ~362 mA. That makes the resistance equal to about
38 ohms.

If you want to go with a resistor load instead of the 5 watt
bulb, you may be able to use something conceptually like this:

```
+−−−−> To headlamp
|
| RY1
Switch | N/C
+ −−−−−o o−−−−+−−−−−−−−−+−−−o−o−−−+
| | |
R1 [30R] [RY1] [1R] R2
| | |
Gnd −−−−−−−−−−−−−−+−−−−−−−−+−−−−−−−−−+
```

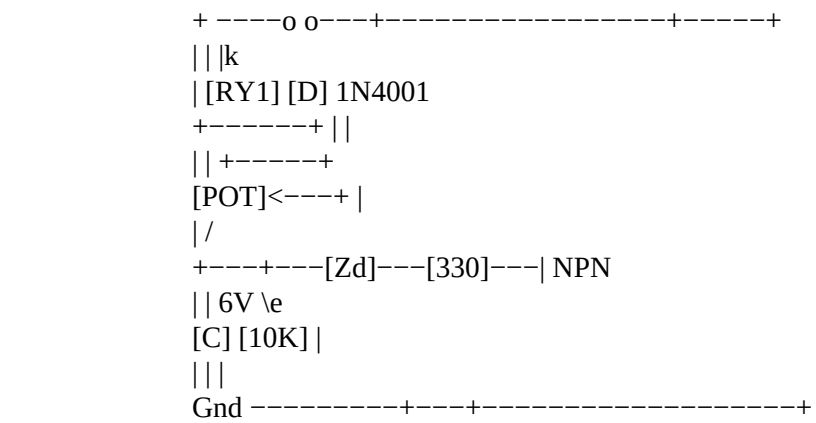
The 30 ohm resistor can be the two 15 ohm 25 watt resistors
you already have, but it will dissipate only about 7 watts.
That keeps the heat down a bit. The 1 ohm resistor is 20 watts
or more. There needs to be some time delay before the relay
energizes, so RY1 should be energized by an adjustable time
delay circuit. Also, 1 ohm is a guess.

The nice thing about the circuit is that the heavy
power dissipation in the 1 ohm resistor occurs only
for a brief time, until the relay is energized.

And it could be that you don't need the 30 ohm resistor
(2 15 ohm resistors in series) at all − the new style
headlamp may draw enough to keep the sensing circuit
"happy", once the initial test is satisfied. You could
test by placing the 5 watt lamp in the circuit, turning
things on, and then switching the 5 watt lamp out.
If the sensing circuit does not object, than all you need
is the time delay relay (delay on) and a suitable load
resistor (the one ohm resistor I guessed at)

With some experimention with the length of the time delay,
and the value of the 1 ohm resistor, and possible elimination
of the 30 ohms resistance, you may find an ideal method
to make the car's computer happy with your new headlights.
Ideal would be R1 completely out of the circuit. If it
has to be there, the higher the resistance the better,
as long as it yields 100% correct operation. (The higher
the resistance, the lower the heat produced.)

You can make your own time delay circuit:



You can start with a 10 k pot and a 1000 uF cap and
adjust for a good time delay. Reducing the value
of the cap or lowering the setting of the pot will
shorten the time delay. Once you have adjusted the
pot and have the thing working 100%, you can replace
the pot with a standard value fixed resistor closest
to the pot setting.

Ed
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