Upgraded Heavy Duty Headlight Harness and Bulbs

Test:

1. STOCK BULBS truck running inside shop:

Battery voltage 14.39
Voltage at lamp socket 12.68
Current 1 low beam 4.5A
Light brightness at 10ft 2830 LUX

2. Rewired lamp thru 30A relay, fused, and 12G wire directly to battery:

Battery voltage 14.39
Voltage at lamp socket 14.28
Current 4.5A
Light brightness at 10ft 3770 LUX

3. Upgraded Sylvania 9007ST Silver Star lamps (Stock wiring setup):

Battery voltage 14.38
Voltage at lamp socket 12.69
Current 5.0A
Light brightness at 10ft 3100 LUX

4. Rewired lamp thru 30A relay, fused, and 12G wire directly to battery:

Battery voltage 14.39
Voltage at lamp socket 14.30
Current 5.0A
Light brightness at 10ft 4580 LUX

Information:

LUX is a measure of light output. (The International System unit of illumination, equal to one lumen per square meter).

Almost 4700 LUX would be pretty close to the average eye as 5000 LUX of the HID's.

Don't get confused by the 5000K in the HID add, that is not the light output measurement, but rather the "color temperature" of the light output measured in Kelvin (K).

Color temperature is a simplified way to characterize the spectral properties of a light source. Low color temperature implies warmer (more yellow/red) light while high color temperature implies a colder (more blue) light. Daylight has a rather low color temperature near dawn, and a higher one during the day. Technically, color temperature refers to the temperature to which one would have to heat a theoretical "black body" source to produce light of the same visual color.

(The Kelvin unit is the basis of all temperature measurement, starting with 0 K (= -273.16° C) at the absolute zero temperature. The "size" of one Kelvin is the same as that of one degree Celsius, and is defined as the fraction 1/273.16 of the thermodynamic temperature of the triple point of water, which positions 0° Celsius at 273.16 K.)

Some typical color temperatures are:

1500 K Candlelight
2680 K 40 W incandescent lamp
3000 K 200 W incandescent lamp
3200 K Sunrise/sunset
3400 K Tungsten lamp
3400 K 1 hour from dusk/dawn
5000-4500 K Xenon lamp/light arc
5500 K Sunny daylight around noon
5500-5600 K Electronic photo flash
6500-7500 K Overcast sky
9000-12000 K Blue sky

Conclusion:

- So stay away from any HIDs above 6000K, they start to get that "rice burner" blue look.
- The higher output of the SilverStar replacement lamps (or any other lamp upgrade for that matter) will really not be noticed until you improve the wiring. There is a voltage drop on the stock wiring of almost 2-4 (varies by vehicle) volts at the lamp socket. Any of the aftermarket relay/harness kits would work.

Data Source:

CPSS Electric
Clifton Park, NY