

## Truck-Lite LED vs. Incandescent Lamps

### Overview

A request was made to evaluate what would the difference in effective battery life be for a vehicle equipped with LED versus incandescent cargo lights if left on for a period of time. For example, if the vehicle has one group 31 700 CCA / 180 reserve minute battery, how many hours could we leave two incandescent cargo lights on before the battery is too low to start the vehicle? How many hours could we leave two LED cargo lights on with the same scenario?



Lamp type	Part number	Rated Voltage	Rated Current	Current at 14 v	Comments
LED	44339C	13.5 v	.50 a	.52 a	Two lamps would be 1.04 amps
Incandescent	40023	12.8 v	1.44 a	1.6 a	Two lamps would be 3.20 amps

### Details

The Group 31 700 CCA/180 reserve minute battery would have a 25 amp/hour capacity based in input from battery & electrical system manufacturers. So you would simply divide the current draw at 14 volts for each lamp system by the 25 amp hour discharge rate.

### Conclusions

- 1) LED Lamps would be able to run 24.03 hours before the battery is too low to start the vehicle.
- 2) Incandescent lamps would be able to operate 7.81 hours before the battery is too low to start the vehicle

#### Various assumptions were made for this:

- Batteries start with 100 % state of charge
- Calculations were based on ambient temperature of 70 degrees F
- No other battery loads were considered, times would be lower if other loads were considered
- Engine was not operated during period of the analysis