PURKEYS

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Welcome!

Charging Liftgate Batteries – Part 3

"Dual Pole Powered with Extender (TC-5)"

June 18, 2014 | 12:00 P.M. CDT

Proprietary Information

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Bruce Purkey

Founder & Chief Creative Engineer

Bruce has over 40 years of experience servicing fleets' electrical needs. Widely recognized as the authority on electrical issues in the heavy-duty trucking industry, Bruce has worked closely with some of the largest fleets in North America.

Several of his inventions have been awarded US patents and earned the Technology & Maintenance Council's Silver Spark Plug award, one of the highest honors awarded to members.

TC-5 (or P5000-K)

DC/DC charger that is powered from a dual pole cable from the tractor, controlled by an electronic "extender" module

Why this system?

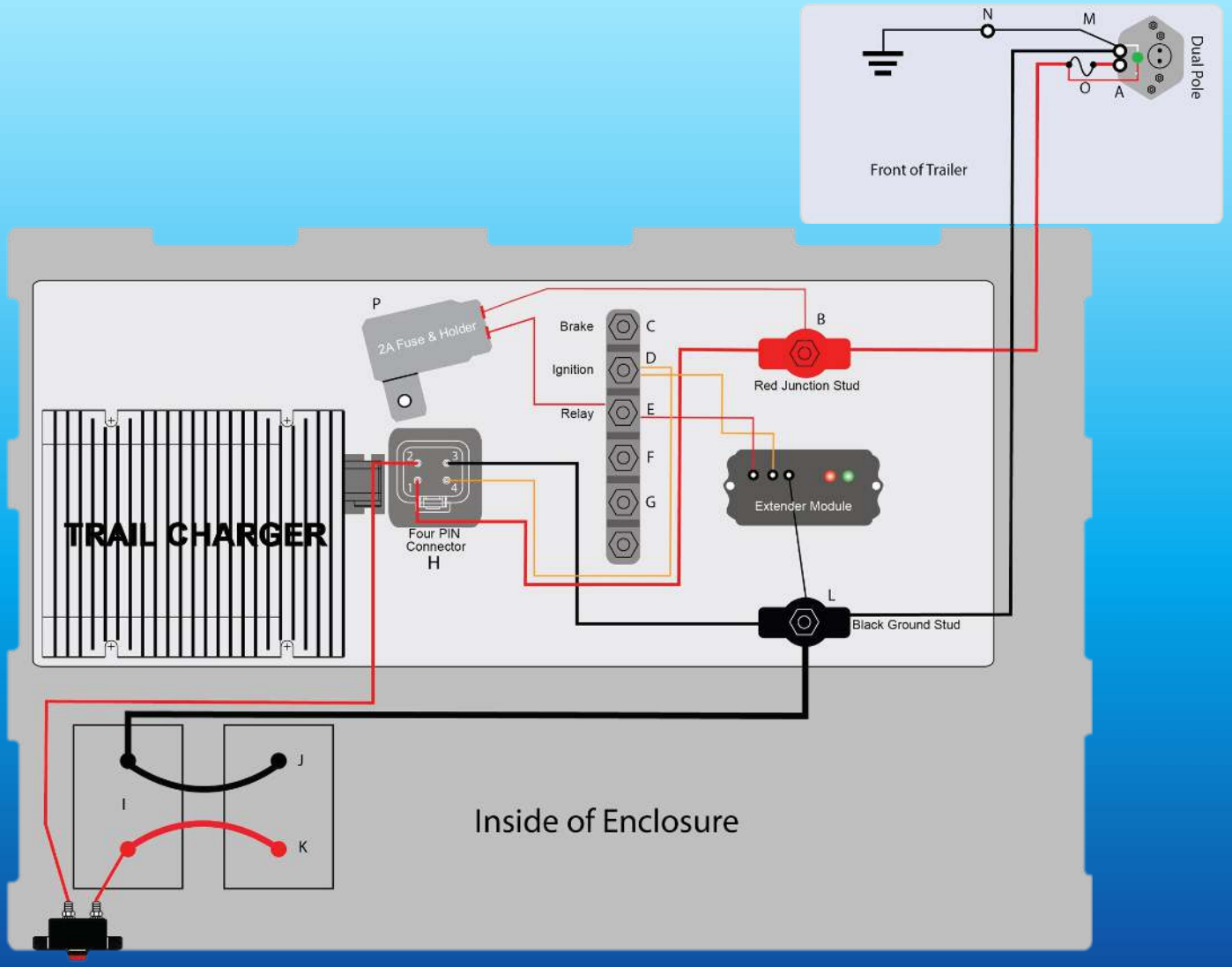
- Short driving times, no idling and severe duty cycles on the liftgate cause discharged and short battery life

The Solution

- The dual pole provides constant power to the DC/DC converter. The extender turns the DC/DC converter on and off. After the engine is turned off, the extender can run for up to an hour if the tractor can support the additional load

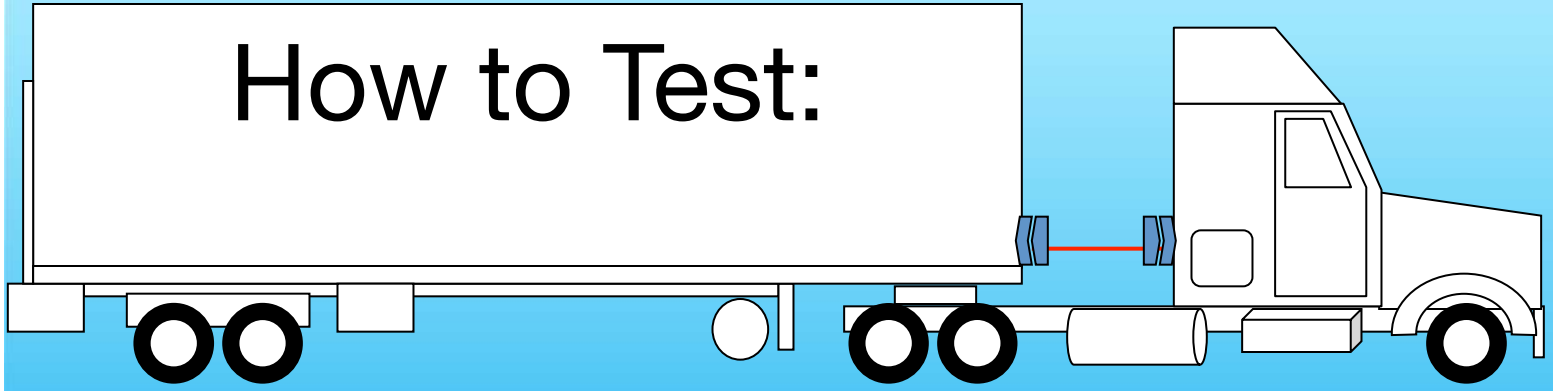
With the TC-5 (or P5000-K):
Increase charging time, while keeping the tractor and trailer in balance

P5000-K Diagram



Verifying the Operation

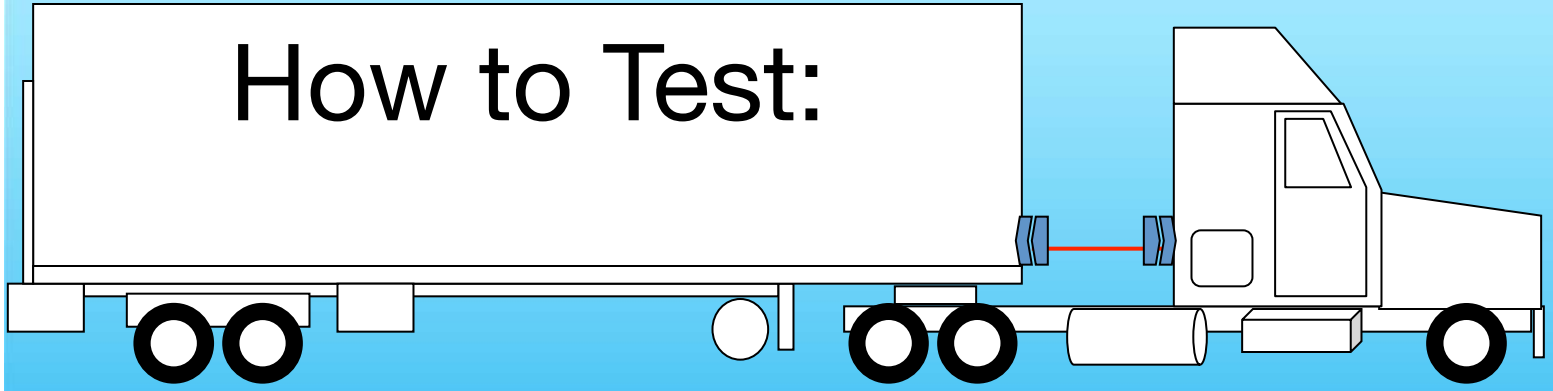
How to Test:



Step 1: (tractor off)

With a voltmeter, test the liftgate battery voltage

How to Test:



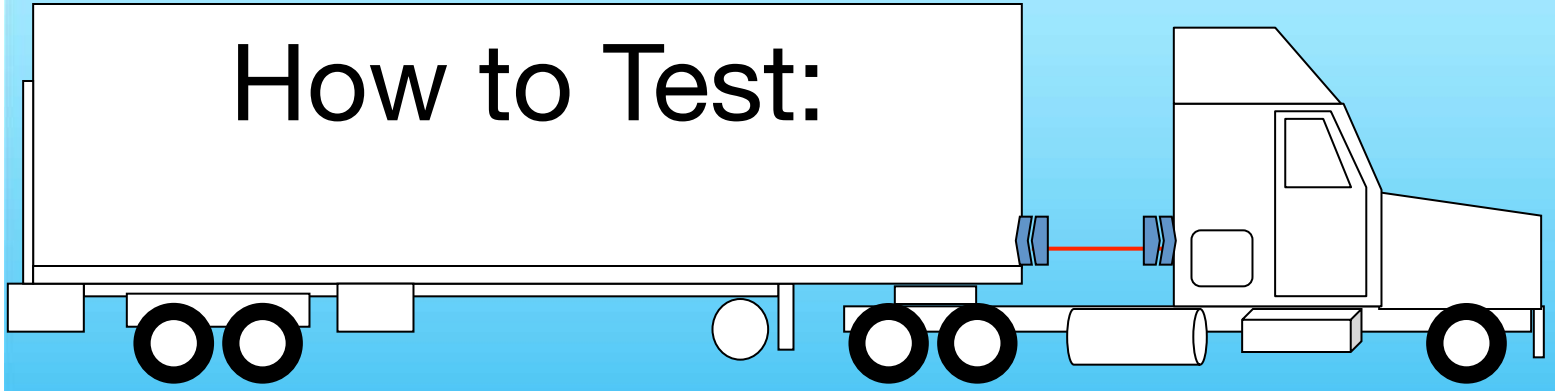
Step 2:

Make sure the dual pole is plugged into the trailer

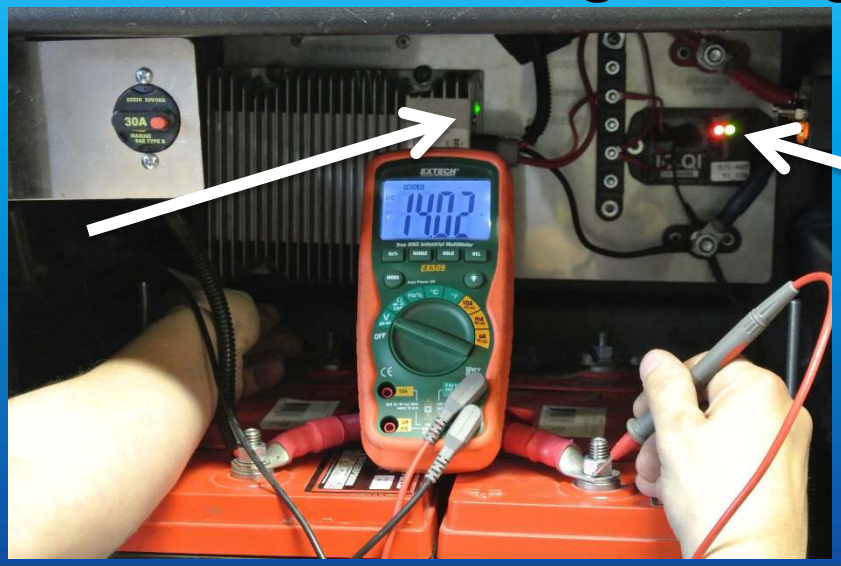
Start the tractor

Check that the voltage is more than 13.3 volts

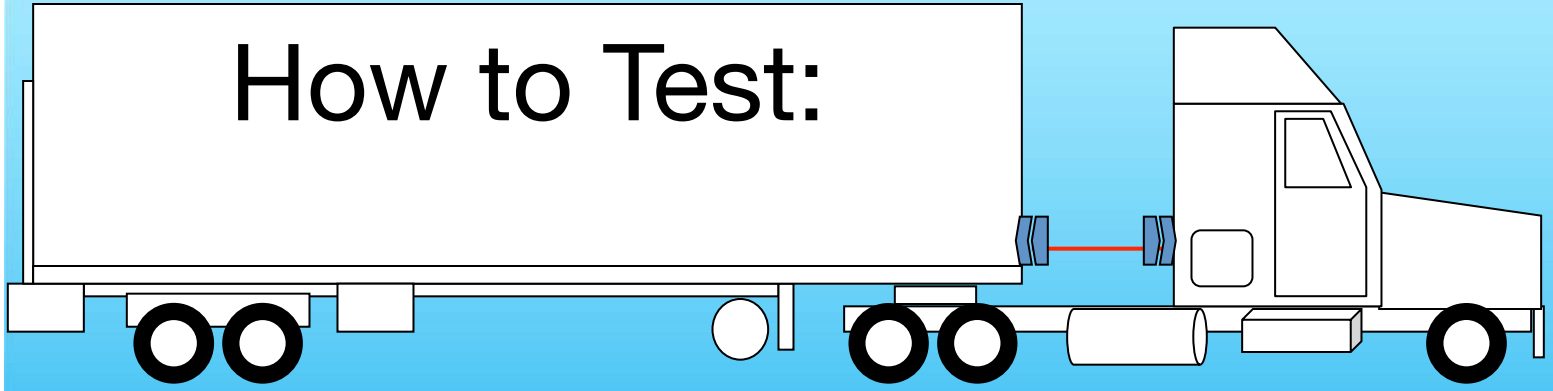
How to Test:



Step 3: Trail Charger's green light turns on
Extender Module's red and green lights turn on

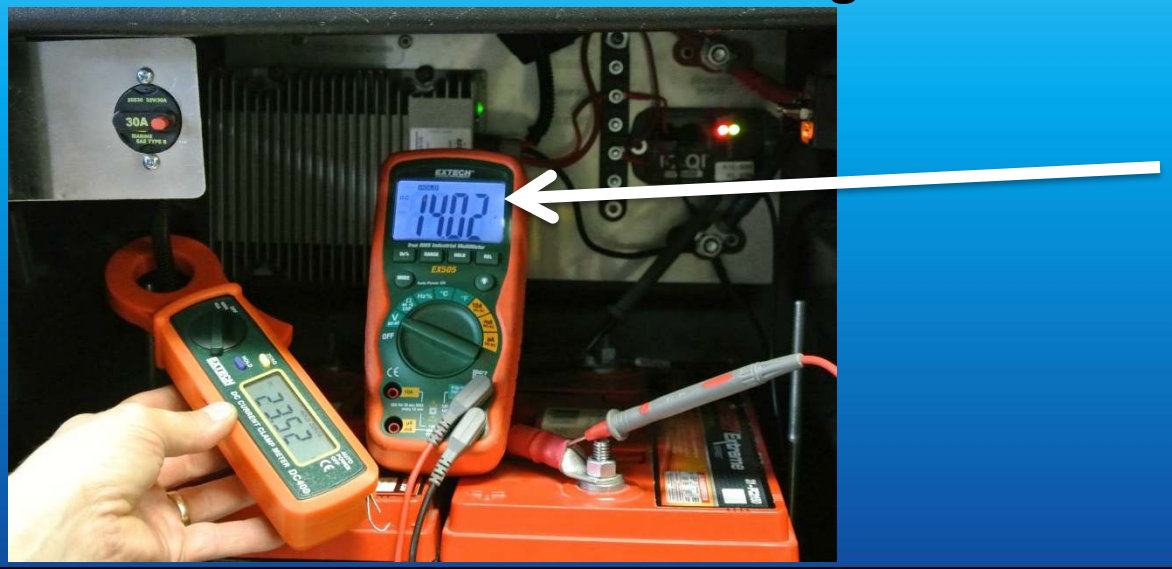


How to Test:

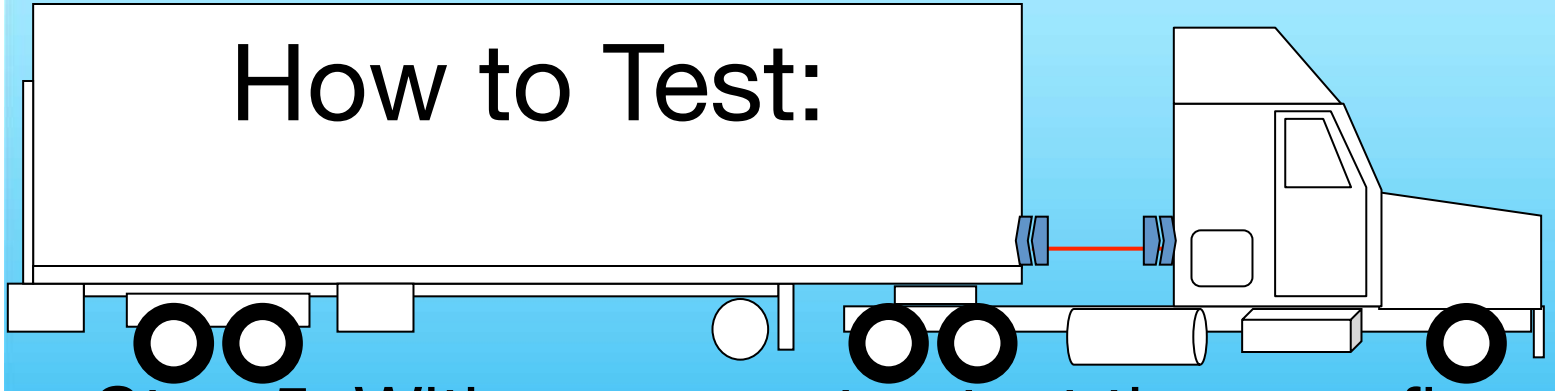


Step 4: With a voltmeter, test the liftgate battery voltage

You should see an increase in voltage

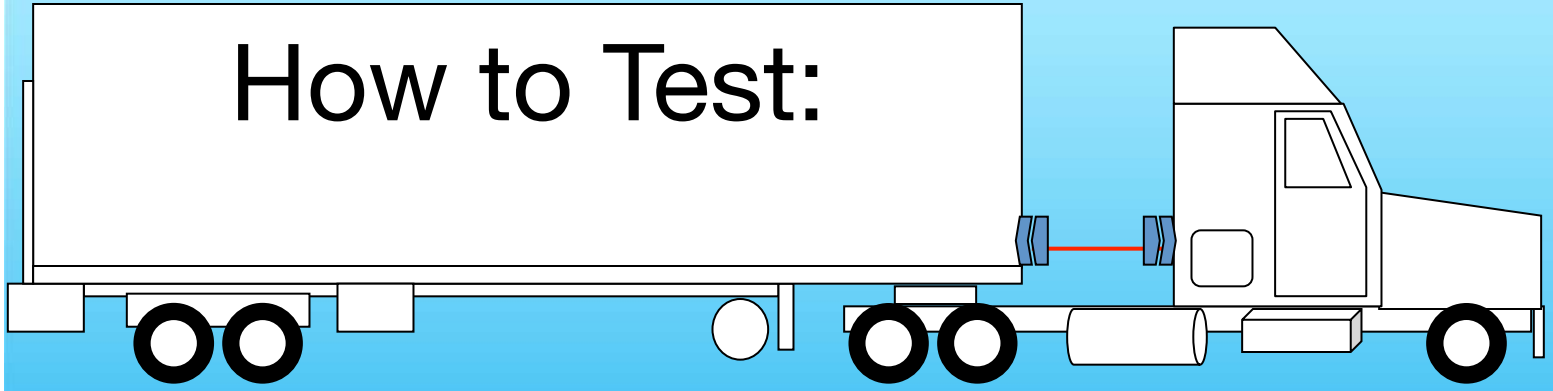


How to Test:



Step 5: With an ammeter, test the amp flow from the #2 pin of the DC/DC converter that connects to the circuit protection lead to the liftgate batteries

How to Test:



Step 6: If you see an increase in voltage and amp flow, the system is working

In this example,
voltage increased from 12.5 to 14.02
amp flow increased from 0 to 23.61

Troubleshooting

Possible Issues with Tractor

DC/DC Indicator Light:
No Light

Condition:
No Voltage from Tractor

Test and Repair/Fix:
With Voltmeter, test the dual pole receptacle (at trailer end)

Replace tractor circuit breaker, repair or replace dual pole cord, or repair wiring on tractor

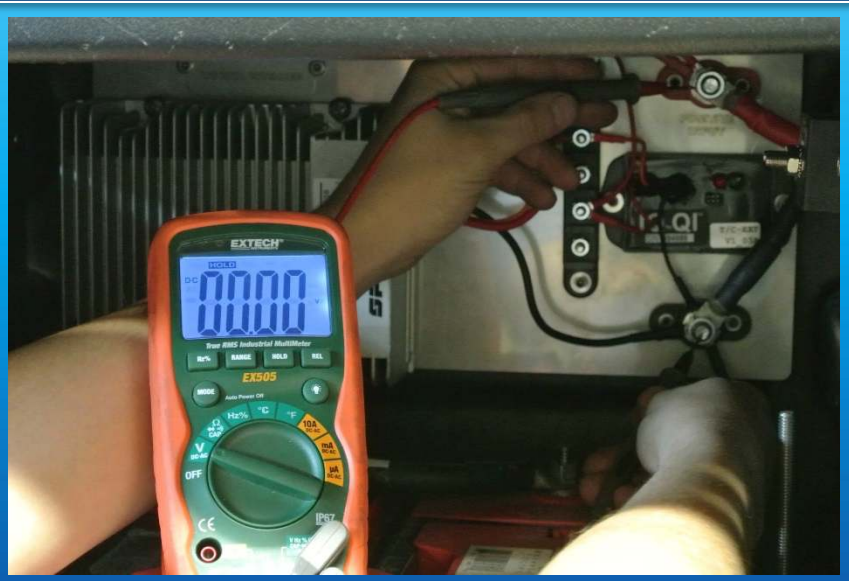
Possible Issues with Trailer

DC/DC Indicator Light:
No Light

Condition:
No Voltage from Tractor

Test and Repair/Fix:
Check input in liftgate battery box

Repair the trailer wiring as needed



Possible Issues with Load

DC/DC Indicator Light:
Green light then two red lights,
(then it repeats)

Condition:
Excessive voltage drop within the system

Test and Repair/Fix:
Check voltage while under load
at dual pole nose box

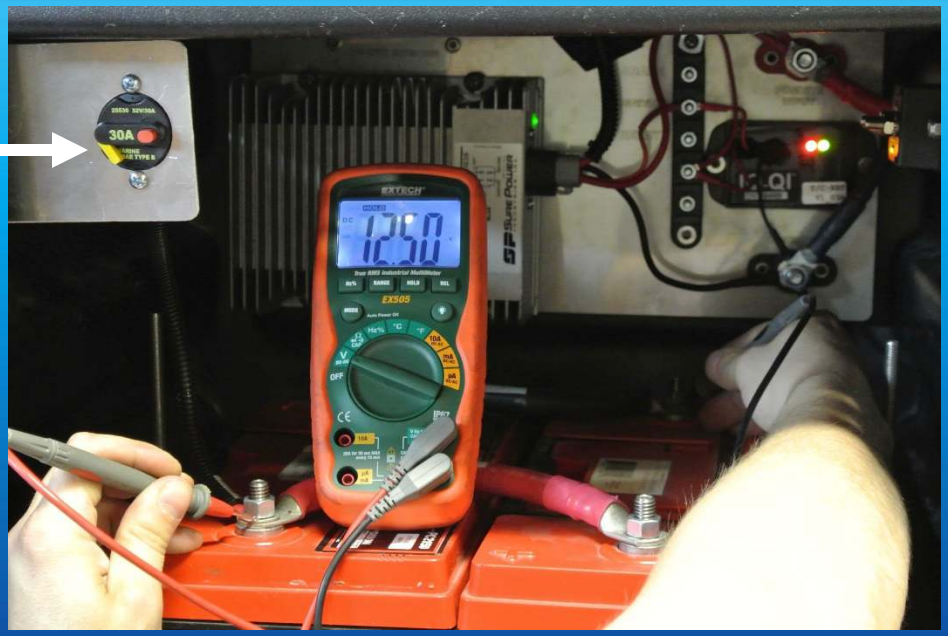
Repair or replace as needed
Test trailer wiring and repair as necessary

Possible Issues with DC/DC Converter

DC/DC Indicator Light:
Green light on, but no voltage increase at liftgate batteries or any current flow

Condition:
Blown fuse or tripped circuit breaker on output lead from DC/DC converter

Test and Repair/Fix:
Make sure the output lead is not grounded, then replace fuse or reset the circuit breaker



Possible Issues with Liftgate Batteries

DC/DC Indicator Light:
Green light on with
low voltage and high current

Condition:
Deeply discharged or
defective liftgate batteries

Test and Repair/Fix:
Charge, then test each of the liftgate batteries and replace as needed

Possible Issues

DC/DC Indicator Light:
Green light on
Controller's red light on

Condition:
Controller in timing mode

Test and Repair/Fix:
Could run up to one hour if vehicle batteries will handle load

Don't Miss Our Next Webinar

Charging Liftgate Batteries– Part 4

"Automatic Single Pole, Dual Pole
or 7-Way Aux Pin Powered Circuit (TC-8)"

July 16, 2014 | 12:00 P.M. CDT

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Thank You!

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