



## OVERLAND CARTS BATTERY TESTING

Published October 13<sup>th</sup>, 2016

As of September 1<sup>st</sup>, 2016 all Overland Carts have been shipped with a brand new 21 Amp-Hr 24V battery pack. The 24V battery pack is created by connecting two 21 Amp-hr 12V batteries in series. Below are some FAQ's to help explain the battery packs and the testing done on them.

### **What was the capacity of the old standard battery pack? And why has it been replaced?**

The previous standard battery pack was rated at 12Amp-Hr 24V. This battery pack did a great job in a wide variety of applications, but due to the constant demand to improve battery life and cart performance we began looking for a higher capacity battery.

### **What's better about the new battery pack?**

On paper, the new battery pack provides almost double the available Amp-Hrs (12A vs 21A) and also is a higher quality battery. The results in testing have been impressive. In continuous throttle tests, the new battery pack has lasted up to **twice as long when compared to the 12Amp-hr battery pack.**

### **Is this battery pack the same as the previous Extended Range Battery Pack?**

No. The batteries in the new 21Amp-Hr battery pack are superior to the old 22Amp-Hr batteries. In testing, the 21Amp-Hr battery pack lasted longer than the old 22Amp-Hr batteries.

### **How did you test the batteries?**

We ran the batteries through multiple tests to get a true range. We did a continuous pavement test, a continuous grass test, and a real world test. In a continuous test, we keep the cart at full throttle the entire time the cart is being tested. In a real world test, we use the cart intermittently, or with planned breaks between trips.

### **What made up the continuous pavement test? And what were the results?**

We loaded the cart up with 500 pounds of salt and drove the cart on all hard surfaces, mostly sidewalks. This test was done on an in-town circuit with slight inclines and declines. We kept the carts at full throttle the entire time without breaks. The C27-10A (best-selling 2WD cart) was able to average 8 miles of continuous driving. That equated to about 2 hours 45 minutes and an average speed of 3 MPH. The CX34-10A-PD (4WD and power dump cart) averaged 4 miles of continuous drive time. That equated to about 1 hour 30 minutes with an average speed of 3 MPH.

### **Did you try different weights in the hopper?**

Yes, we put 150 pounds (4 – 2 cu. ft bags of mulch) in the C27-10A and drove it continuously on pavement. The result was **17 miles of continuous driving.** That equated to about 5 hours and 27 minutes with an average speed of 3.15 MPH.

### What made up the continuous grass test? And what were the results?

We loaded up the cart with 500 pounds of salt and drove it on an all grass circuit. The grass height was average and dry. The average distance for the grass test was 2 miles and with an average time of: 50 minutes. In comparison, for the 12A battery pack, the average distance was 1.1 miles with an average time of 28 minutes.

### What made up the real world test?

We did our best to simulate a typical work day for the C27-10A with standard dual ag tires. The distance of 0.12 miles (200 yards) is the distance 80% of Overland users travel per round trip.

We did the following circuit.

- loaded the cart with varying weights (300 pounds, 600 pounds)
- drove the cart for 0.12 miles (half on grass, half on pavement)
- stopped the cart for 2.5 minutes
- drove the cart for 0.12 miles (with the same weight)
- removed the weight
- drove the empty cart for 0.12 miles (half on grass, half on pavement)
- stopped the cart for 2.5 minutes
- drove the empty cart for 0.12 miles
- loaded weight (300 or 600 pounds)



#### 2 Wheel Drive Test Results:

**Average Total Time:** 7 hours (rounded)

**Average Distance Per Set:** 2 miles (rounded)

**Average Total Distance:** 7.25 miles (rounded)

**Total Sets of 16 laps:** 3.75 sets

**Laps with hopper empty:** 30 laps

**Laps with 300 pounds:** 16 laps

**Laps with 600 pounds:** 14 laps

In summary we are rating all non-4WD carts as the following:

**Continuous pavement (500 pounds):** 8 miles – 2.75 hours

**Continuous pavement (150 pounds):** 17 miles – 5.5 hours

**Continuous grass (500 pounds):** 2 miles – 50 minutes

**Real world test:** 7 to 8 miles – 6 to 8 hours

In summary we are rating all 4WD carts as the following:

**Continuous pavement (500 pounds):** 4 miles – 1.5 hours

**Continuous grass (500 pounds):** 2 miles – 50 minutes