



INNOVATION BEGINS HERE

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## Electric Go-Kart Breakthrough:

# The End of Electric Car Double Pits

The biggest issue with purchasing an electric go-kart fleet is that it is necessary to buy twice as many karts as a gas fleet to allow for the recharging of the karts after every race. Amusement Products has continued to work on this problem and has now solved it! **Now one fleet of go-karts can be sent out every race, eliminating the need for an additional fleet of go-karts!**

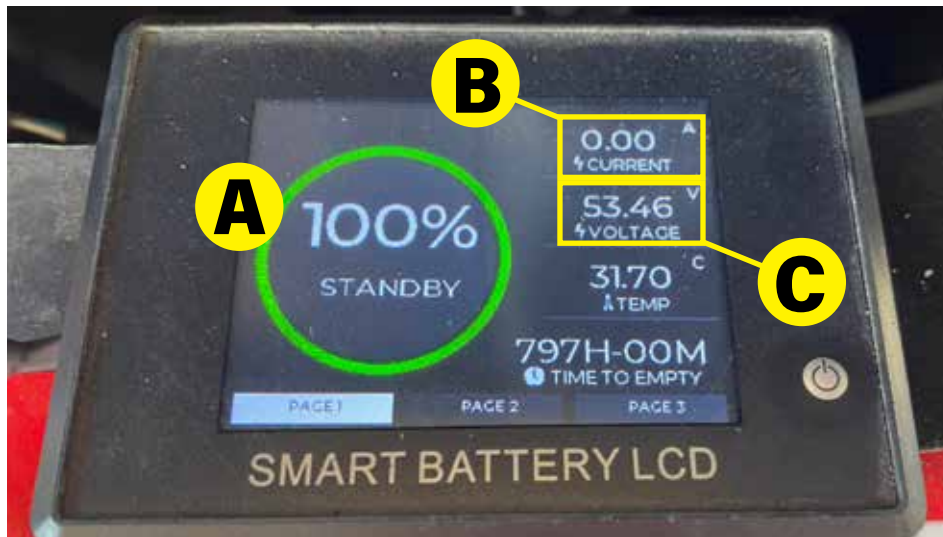
Using a combination of a better charger, a better charging profile, more efficient lithium batteries, and progressive

regenerative braking, **our system recharges the batteries to 100% in less than 3.5 minutes.** Considering the first karts start charging 3 seconds after they stop in the pit, the first kart typically has around 1 minute of charge before all the karts are in the pit and stopped. By the time you get the current racers out of the karts and exited from the pit and the next racers seated, seat belted, and ready to race (usually about 3.5 minutes), you have about 4.5 minutes to fit in the 3.5-minute recharge cycle.

To help prove this ability, here are pictures of the battery, before a race at 18 mph, charge level just after the race, and a picture of the stopwatch timing the charge back to 100%.

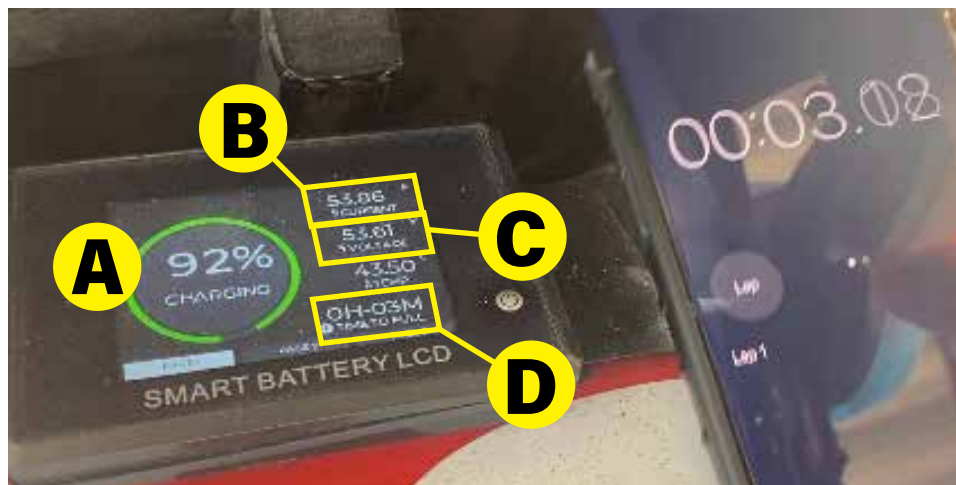
## Race Parameters

Race Duration: 5 minutes | Max. Speed: 18mph



### Before the Race:

A. Pre-Race Charge Level: 100% | B. No current going in | C. Battery Voltage: 53.46 V



### After the Race:

The charge cycle started 3.08 seconds after the kart stopped.

A. 92% charged when kart entered the pit | B. Charge amps going in the battery  
C. Current Voltage Level | D. Time until fully charged

## After the Race:



### Battery is full in less than 3.5 minutes!

**A. No more amps being added** | **B. Voltage Level is 55.24 V**  
(more than when it left the pit!)

Part of the secret of how we accomplished this amazing recharge is the development of a more efficient lithium battery. After many years of trying to get an effective lithium battery option, we were finally able to work directly with a battery manufacturer to get the lithium batteries specifically designed for go-karts.

With the initial tests needing two batteries for the run/recharge cycle to work effectively, we continued to improve on the battery quality. While testing the new designs, we split the pair up to use one per kart while testing the impact resistance of these lithium batteries. We were amazed that the kart worked with one battery, but it recharged in less than 3.5 minutes! The karts can run another 5-minute race over and over without any heat issues shutting the BMS system down on the battery!

Our new lithium battery is only \$1600 and requires only one per kart. At this price, it is much more competitive with the four AGM battery set we have been using at \$1200 to \$1400 per kart. In addition, the lithium battery will have a much longer life and better performance throughout!

We have posted a full start to finish video for you to watch of the full race to recharge cycle

for when our competition says this is impossible! Because of the efficiency of our kart operating system and the Park and Charge automatic charging system, we have already had many locations run a single fleet of karts each race using AGM batteries. Our system will do the run/recharge cycle using Optima AGM batteries in 3.5 to 4 minutes, but the lithium batteries will last longer and perform much better every race! Now is the time to switch to a single electric fleet!

