

## APPLICATION STORY

# Electric Go Carts

## 120+ mph electric go cart is too fast for track officials

Ogura's ST1W clutch allows the new 144 volt electric go cart to engage amazingly high torques (up to 250 Ft Lbs) directly to its 2-inch diameter drive axle.

It's a lot like time travel. One moment it's here, and then it's waaayyy over there. Its loudest sound is the screeching of tires. It's almost silent, it's green (non-polluting) and it's really fast . . . the 1/4 mile is reached in 12.1 seconds at over 110 mph!

Track officials who had seen the vehicle simply did not think it could go that fast. Vehicles over 100 mph require a roll cage at the NEDRA Drags in Woodburn Oregon. This vehicle would not be

allowed to race again without modification, simply because it was too fast!!

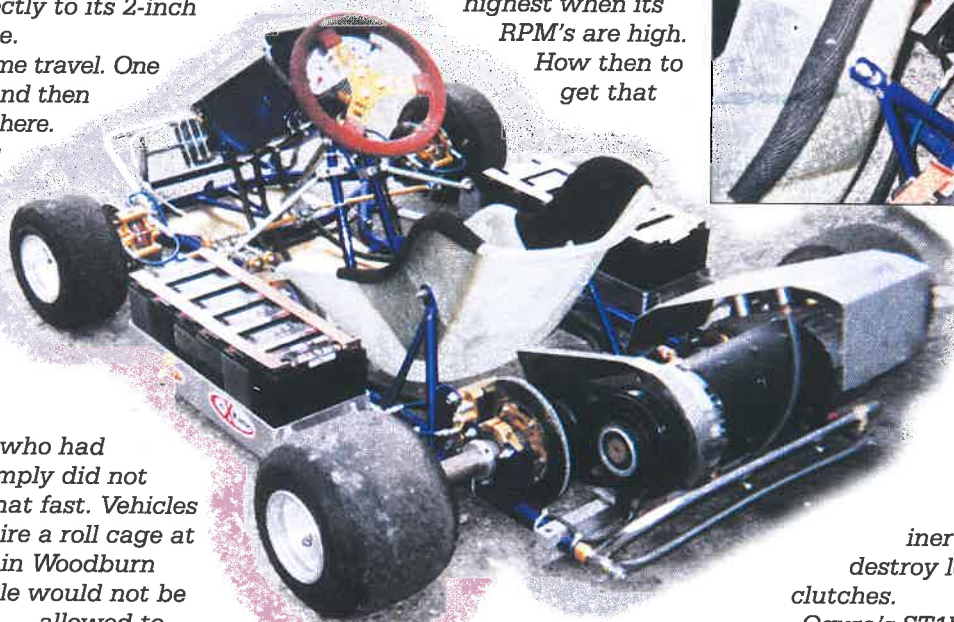
Several months earlier, RSG, a small forward thinking electric vehicle manufacturer located in Long Beach California,

was facing a new technical challenge. They had developed a very fast combination of heavy-duty go cart frames, 6 inch OD high efficiency DC motor, special rechargeable Boulder batteries, and a unique DCP-1200 motor controller (with a potential of 800 Amps for 3 seconds).

**The Challenge:** How to apply the dramatic torques gener-

ated by their electric motor system directly to the drive wheels'?

The motor's peak torque is highest when its RPM's are high. How then to get that

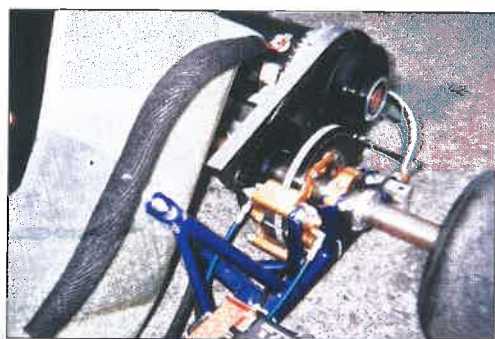


4 wheel hydraulic brakes are required to stop this electric rocket

power to the wheels? Direct coupling the motor to the drive wheels would not allow for the best acceleration of the cart. Typical mechanical clutches were too heavy and slow for this state of the art machine. Ideally the new clutch would need to be: electric, light weight, fast acting, rugged and allow some small slip during launch. Additionally, the clutch needed to be mounted right on the motor output shaft and have a hub for mounting a heavy sprocket for the main drive chain (same chain as used on racing motorcycles).

The Ogura stock mobile clutch ST1W offered all of these features.

The ST1W clutch was originally designed to handle various mobile



The ST1W clutch is mounted on the motor shaft

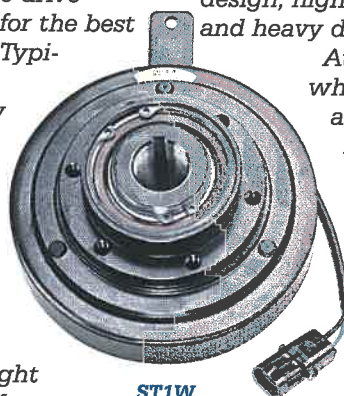
applications such as stump grinders and diamond cement cutters where heavy-duty torques and high inertias would easily destroy less rugged clutches.

Ogura's ST1W was specified due to its small size, light weight and high torque output. 250 Ft Lbs. The ST1W uses our double flux armature design, high-powered copper coil and heavy duty return springs.

At first glance (especially when the battery covers are installed), it looks much like the noisy, relatively sluggish gas powered carts you can find (and hear) at the local "go cart tracks".

So far, RSG is still testing and perfecting the platform. The clutches are working very well and speeds of 140 mph+ have been

achieved. The company's plans for the future include electric go carts for family fun (limited to 30-40 mph or so). With zero pollution and quiet operation, electric vehicles and clutches are the wave of the future.



ST1W electromagnetic clutch