

# OGURA

“What you need in a clutch”®

ON THE MOVE

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## ORC CLUTCHES NOW AVAILABLE IN THE US

Ogura Racing Clutch (ORC) has a worldclass reputation. They were first introduced 38 years ago (1986) onto the Japanese racing scene and have a proven track record as the premium clutch in the tuning market.

Among the product assortment, the RC Series clutch is a race-specific clutch used for vehicles that participate in numerous races such as the All-Japan GT Championship, which winners have used ORC clutches to win the series championship six times from 1998-2006 as well as in the Super Taikyu endurance race.

ORC offers several series of racing clutches for a wide range of vehicle lineups. These include the single disc type that is ideal for light-tuning, to the four disc series that can withstand high-power, high torque vehicles with 1,500 HP and 1,447 lbft torque. The clutches are used by competitive circuit racers, drift racers, drag racers, as well as street drivers wanting to perform burnouts or have other high performance capabilities.



ORC Racing Clutch



2 disc carbon fiber clutch

spring providing a transmission force of more than 723 lbft torque (RC303) despite having an ultra-small diameter (137mm  $\text{\AA}$ ) disc. The know-how and data cultivated in this race-specific RC Series clutch were fed into the overall product design, and the ORC range of clutches were established to deliver high reliability for drag, street, and circuit.

The three main series include the Metal, Light, and Carbon series. Each has their own performance advantages. They are available in single, double, and triple disc configurations. Depending on the intended clutch use and preference for feel, aggressiveness, and durability, ORC has the solution.

So, whether you want to compete, go fast, smoke tires, or just show off the finest performance components to your friends, club members and other racing enthusiasts, you need to look no further than Ogura Racing Clutch – more than just the brand, it is the passion behind the brand and the racing culture.

In addition to racing clutches for cars, ORC also manufactures slipper clutches for motorcycle racing and superchargers for all types of vehicles. ●

The Ogura Racing Clutch (ORC) brand is built on technology established from our other successful markets, including automotive air compressor clutches, which Ogura has manufactured a cumulative total of more than 300 million clutches worldwide. Ogura clutches have also been adopted in other industries from office automation to general industrial use to outdoor power equipment such as turf care equipment. The high quality, reliability, and technology have been put into the development of the racing clutch family of products.

The racing series clutches have been developed by using FEM analysis. A chromoly steel flywheel is used to provide ultra-lightweight and low inertia. The clutches provide the optimal combination of a newly developed high- $\mu$  and low-wear metal material with a specially designed diaphragm



Team Ogura Clutch Motorsports - Ogura Clutch GR Yaris ORC  
Mr. Yasuhiro Ogura (Driver), Mr. Takada Takeshi (Co-driver)

## Ogura Employee Profile

### Craig Harvey Regional Sales Manager

**H**ello, my name is Craig Harvey and I recently started with Ogura Clutch as a Regional Sales Manager in December 2023. I will be working with our reps in the Northeast USA and Eastern Canada as well as supporting our reps in the UK and Mexico.

I have worked in industrial sales for most of my career with a focus on OEM business development and territory management. My background includes extensive experience in the design, manufacturing, and quality systems surrounding electromagnetic clutches and brakes which will bode well in working for Ogura!

My wife and I have two grade school aged children who keep us very active with their sports and after-school activities as well as a Boston Terrier pup. We reside in Upstate New York where we enjoy spending time outdoors and heading to Keuka Lake during the summer months.

I have a bachelor's degree from the University at Buffalo and enjoy reading, writing, and watching or attending sports with friends. I am looking forward to working with the Ogura team and growing our business together!●



*Craig Harvey*

## THIS TOP NOT FOR KIDS

**L**ast quarter, Ogura sent two teams to the All Japan Manufacturing Coma Tisen Competition. In this competition, teams need to machine a spinning top of 20mm or less and have a total length of 60mm. The team that can make the top spin for the longest time wins. In the past, winning Tops have spun for almost 20 minutes. The competition is designed to show off design and machining skill to achieve the best possible balance and the lowest amount of friction. There are no restrictions on weight or materials. In this year's competition, 34 teams participated from inside and outside the Gunma prefecture, the county where Ogura's headquarters is located.

Team one from Ogura was able to produce a top with machining accuracy of 1/10000th of a millimeter and advanced to the top 8, but was knocked out in the quarter finals. The second team from Ogura concentrated on overall balance and the top could stand almost motionless, however, the top slipped in two consecutive rounds and was knocked out of the competition.●



*"Top" Competition Teams*



*Team Ogura in Top match challenge*

## 95TH PRODUCTION AND SALES MEETING

*Kiryu, Japan*

**L**ast quarter, the 95th Production and Sales meeting was held at Akabori factory. Again, the meeting was held remotely with Toyo Clutch Co., Ltd.,

At the beginning of the meeting, Managing Director Matsumoto reported on the status at the Akabori and Korin factories. In particular, he talked about the importance of continuous quality improvement to avoid sudden changes in orders and disruption to sales activities.

At the meeting, opinions and information were exchanged about the status of orders received from each customer, the outlook for next term's orders, recently acquired business, and new applications for powertrains, blowers, and clutches.●



## Application Story

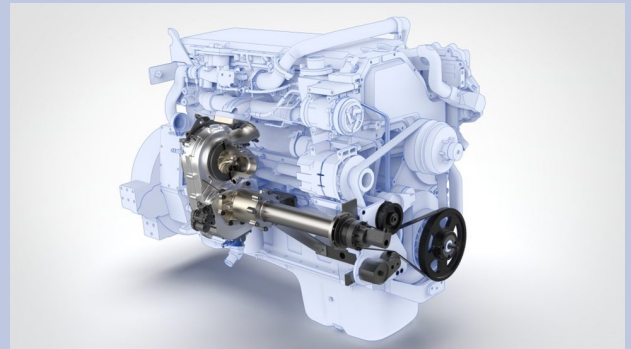
# Driving into a Greener Future

**T**ransportation is the lifeblood of the world economy, delivering everything from steel to diapers to us in a timely and (somewhat) economical manner. Commercial sea, rail and air transport serve as an integral part of this system, but over-the-road trucking is essential to our way of life in the United States. Times are changing, though. Gone are the days of less-than-a-dollar gallon of diesel fuel and gasoline. Other alternative forms of power generation for transportation are emerging, with some already being accepted in the marketplace. But internal combustion engines still rule the day and will continue for long into the future.

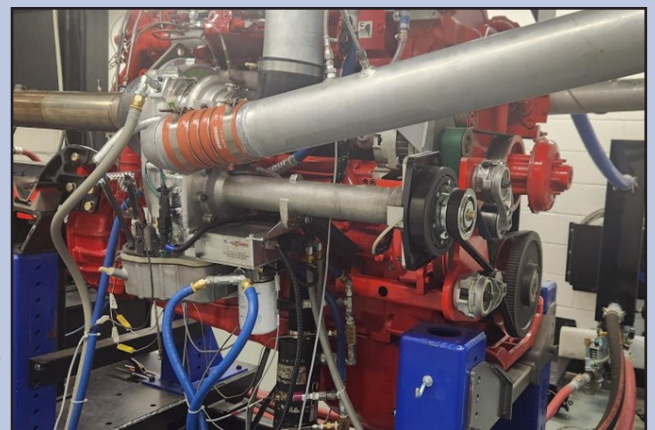
Enter SuperTurbo™ Technologies, a Colorado company that has designed and manufactures a new driven-turbo technology that can be adapted specifically for efficiency improvement and emission reduction strategies for commercial internal combustion engines and vehicles. Unlike a conventional turbocharger, which activates when exhaust pressure reaches a particular level, the SuperTurbo™ operates independently of exhaust flow and varies the relative ratio between engine speed and turbo speed. This unique feature utilizes mechanical components to either add or subtract power from the turbocharger shaft. Specifically, a speed reduction fixed ratio planetary drive coupled with a continuously variable transmission realizes this effect.

As mentioned earlier, the SuperTurbo is used not only for performance, but also efficiency and improved emissions and can be considered an on-demand device. The engine can now prescribe precise and variable air flow across different operating conditions, thus providing more options for engine control and tuning. During transient operation, the SuperTurbo will behave like a supercharger and draw mechanical energy to accelerate the turbomachinery for improved engine response. Unlike a traditional supercharger, a driven-turbo also receives transient power from its turbine. The net effect is both a fast transient response and a more efficient power draw for supercharging.

Since this “on-demand” device is engine driven, engineers at STT needed to find a way to engage the assembly quickly, smoothly and efficiently. Working in collaboration with Ogura engineering and sales staff, a hybrid-style Mobile/General Purpose clutch design was developed. The Ogura MAE-145 electromagnetic clutch is used to connect the SuperTurbo to the internal combustion engine utilizing a timing belt pulley as the input. Fitted directly to the flange of the SuperTurbo input shaft, the MAE-145 features a flanged design that allows stable and rigid mounting not normally integrated to General Purpose clutches. SuperTurbo has been impressed with the functionality and durability of the Ogura clutch and are looking forward to long future with Ogura and contributing to a greener planet.



*Rendering of adaptive turbo charger*



*Clutch and variable supercharger on test stand*

To see the full line of General Purpose, Mobile and other Ogura products, please visit [www.ogura-clutch.com](http://www.ogura-clutch.com). •



*Happy Spring from the Staff of Ogura*

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## Ogura in the News

# TOKYO AUTO SALON 2024

*Tokyo, Japan*

**F**rom January 12-14th, Ogura exhibited some new products at the Tokyo Auto Salon. For the clutch series, some light clutches were shown for the Toyota Yaris, Daihatsu Copen and a clutch for the Honda Civic. For motorcycles, a new slipper clutch was also shown.



*Tokyo Auto Salon 2024*

In the booth was the GR Yaris from ORC Rookie Racing Team that had just completed the Super Taikyu Race. The other car shown was the GR Yaris that had participated in the All Japan Road Race Championship and the Suzuki 8-hour Race. The slipper clutch was mounted on a Yamaha YZF-R1 motorcycle.

As in past years a panel discussion took place. This year it featured many of the drivers from the Inter-Proto Series and the Toyota Gazoo Racing Rally Challenge. On the second day the entire ORC Rookie Racing Team made an appearance in the booth. This was the team that had completed the super endurance race. So, besides Mr. Ogura and the other team members, Mr. Akiyo Toyoda, Chairman of Toyota Motor Corporation and ORC Rookie Racing driver was also in attendance. ●

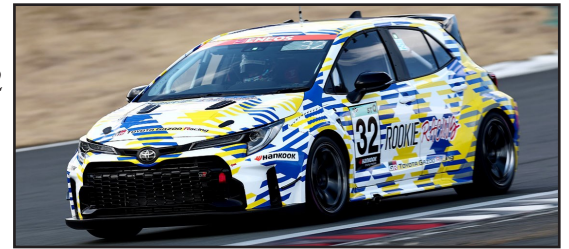


# OGURA PARTICIPATES IN SUPER TAIKYU RACE

*Japan*

**L**ast quarter, the final round of the Super Taikyu Race was held at Fuji Speedway. Three cars from the Rookie Racing team participated: the ORC Rookie GR CorollaH2 concept, the ORC Rookie GR86 CNF concept, and the Nakasho Rookie AMG GT3".

The ORC Rookie GR CorollaH2 concept with improved pressure boosting performance and durability of the liquid hydrogen pump achieved an output similar to gaseous hydrogen. Its weight was reduced by 50kg compared to the previous competition which led to better performance overall. Further improvements have been made, including the addition of a unique mechanism that uses the characteristics of the internal combustion engine to capture CO2 while driving. The three cars took on the final battle in 2023 and successfully completed the race. ●



*ORC Rookie CorollaH2 concept*



*ORC Rookie GR86 CNF Concept*