

CHANTEY

September 2018

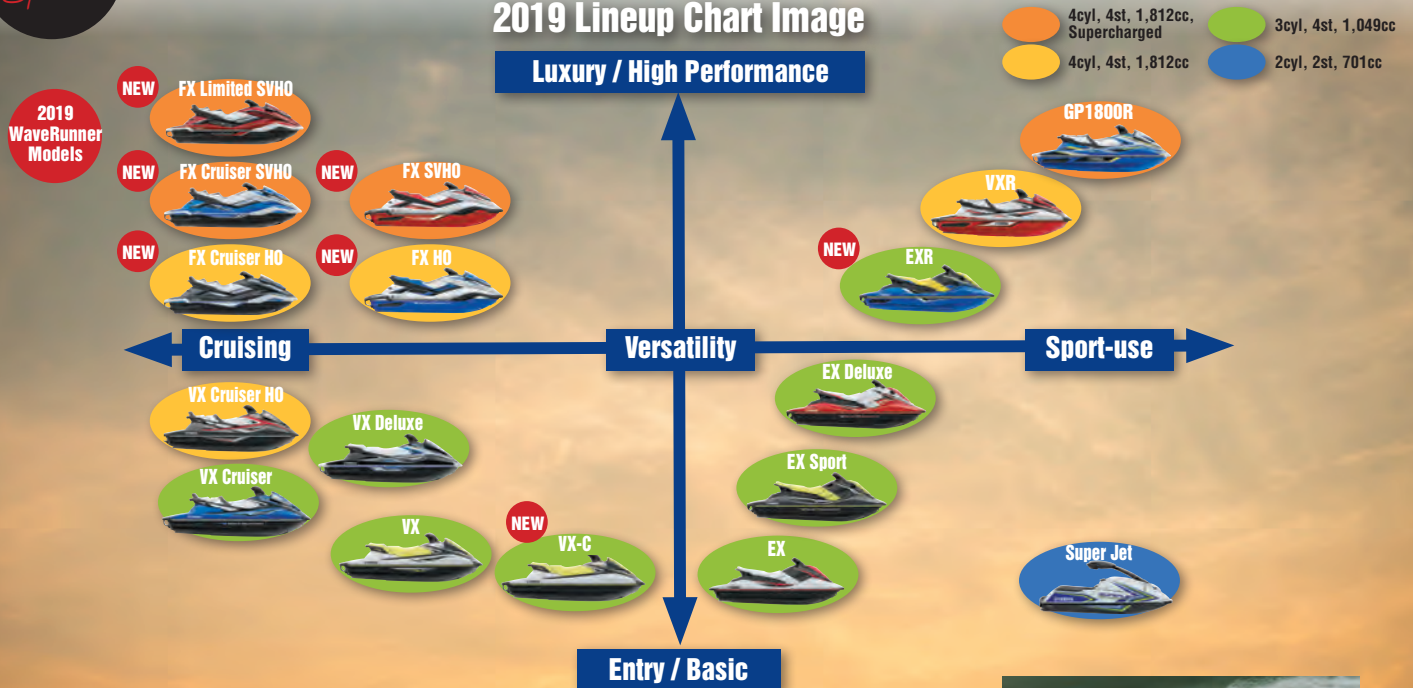
No. 169

NEWSLETTER FOR YAMAHA MARINE DEALERS (English Version)

Yamaha Motor Co., Ltd., Marine Business Operations, 2500 Shingai, Iwata, Shizuoka 438-8501, Japan

CHANTEY
Special

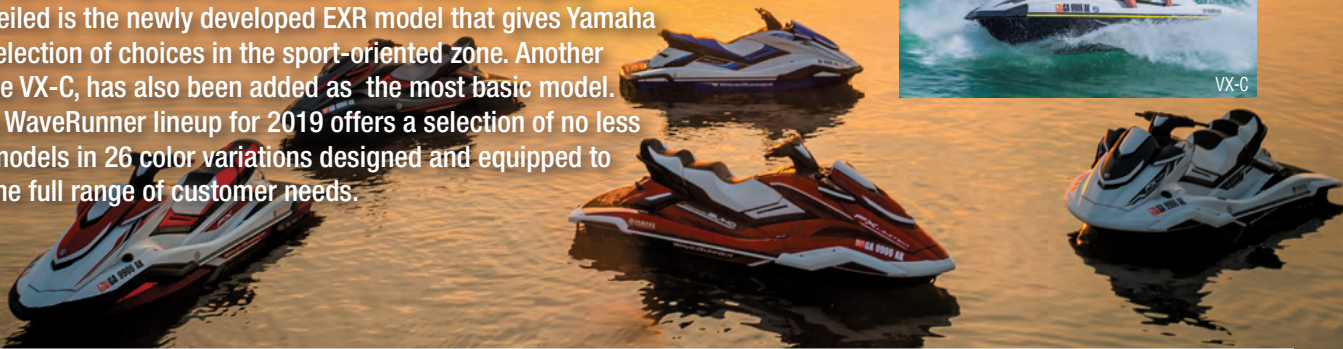
2019 Lineup Chart Image



Exciting New 2019 Lineup

FX Series Unveiled with All-new Designs and Features, Plus a New Sports Model

The 2019 Yamaha WaveRunner lineup is here with exciting new designs and features. First to note is that all five models of the FX Series luxury cruisers have been fully re-designed and outfitted with exclusive new features that put them another step ahead to make Yamaha the unquestioned leader in the luxury category. Also, unveiled is the newly developed EXR model that gives Yamaha a fuller selection of choices in the sport-oriented zone. Another model, the VX-C, has also been added as the most basic model. In all, the WaveRunner lineup for 2019 offers a selection of no less than 17 models in 26 color variations designed and equipped to answer the full range of customer needs.



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New Advances in Design and Features for All Five FX Series

With these models for 2019, Yamaha raises the bar again to re-define the essence of “Luxury” in personal watercraft. The new FX Series is packed full of exclusive features and designs that only Yamaha can offer. In addition to newly designed hulls, all models in this series come equipped with the industry-first multi-function Connex[®] color touchscreen with Drive Control, security mode and other revolutionary features that take comfort and ease of use to new levels and heighten overall product value.



Multi-mount system for accessories (photo shows US model accessories)

Upgraded re-boarding step



Industry-first Connex[®] color touchscreen features Drive Control that allows you to customize your ride, and provides all vital display functions as well as a security mode to prevent unauthorized use.

FX Series Feature Map *FX SVHO shown

New extra-large watertight storage glove box

Adjustable tilt steering system

Improved electric control functions, such as low speed Thrust Direction Enhancer (TDE), speed/acceleration drive control, etc.



RIDE

NANO XCEL

NanoXcel hull (FX HO, FX Cruiser HO)

NANO XCEL 2

NanoXcel2 hull (FX Limited SVHO, FX Cruiser SVHO, FX SVHO)

Self-draining footwells

New deck design with styled gunwale for fresh appearance

Next generation hull for performance and comfort
- Better towing capability
- Neutral steering
- More comfort, better dynamic stability

The New EXR, for the Joy of Riding that Defines the PWC Experience

The responsive performance and handling of the new EXR is exactly what users want from a PWC, that unbeatable joy of a craft that responds quickly and faithfully to the will of the rider. The hull and deck are made of Yamaha’s ultra-lightweight NanoXcel2 material. The engine takes the proven TR-1 HO as its base and tunes it for even higher output. The combination of the lightweight, compact hull and this powerful engine ensures an exciting ride.

All New EXR Feature Map

Pump extension for quicker response and an even sportier ride

TR-1 High Output 3-cylinder engine ensures a fun ride with maximum fuel economy



RIDE

NANO XCEL 2

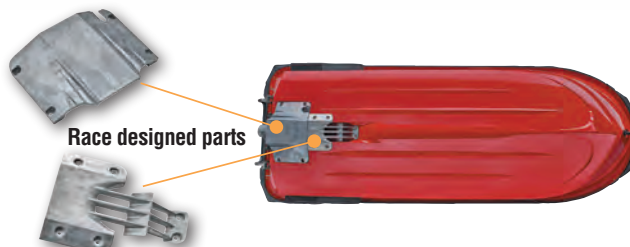
Ultra-lightweight NanoXcel2 for hull and deck

New Features for Performance Race Series GP1800R, VXR

The new high-performance top-loader intake grate and race-designed ride plate for sharper handling and better hook-up.



GP1800R



Race designed parts



VXR hull made of the ultra-lightweight NanoXcel2 material



About the Oxygen Concentration in Air Necessary for Combustion

In our last issue, we explained how combustion works in outboard motors using people's digestion of food as a comparison. This time, let's talk about the oxygen concentration in the air that is essential for combustion in the engine.

Did you know that the oxygen concentration in the air around us is not always the same?

It is always changing based on the following factors.

- 1. When the air temperature goes down, its oxygen concentration goes up (richer), and when the air temperature goes up, its oxygen concentration goes down (leaner).**
- 2. When air pressure goes down, oxygen concentration also goes down (leaner), and when air pressure goes up, oxygen concentration also goes up (richer).**
- 3. When humidity goes down, oxygen concentration goes up (richer), and when humidity goes up, oxygen concentration goes down (leaner).**

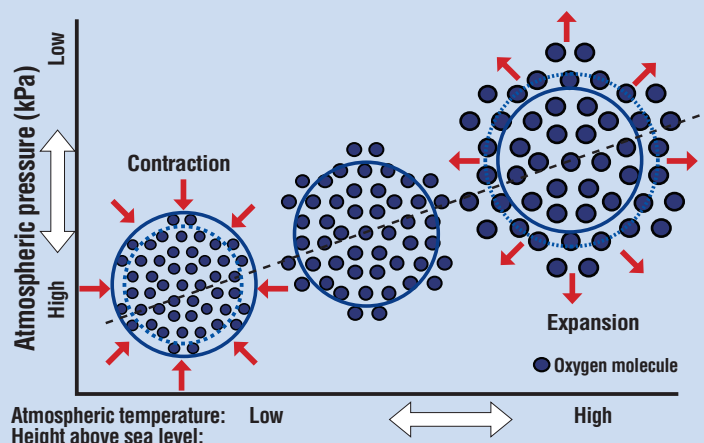
So, even if the engine is getting the same amount of air, if that air has more oxygen (richer), it will burn (combust) more of the fuel in one firing of the air-fuel mixture in the combustion chamber, which means that combustion will be more powerful and thus, more of the fuel's energy can be converted into drive power.

1-1. About Changes in Air Temperature

Although such a difference may be hard to feel with an automobile, for those of you who live in regions where there is a considerable difference between summer and winter air temperature, you have probably experienced the feeling that the same boat with the same horsepower outboard motor will run faster in winter than summer. The reason for this is that air expands when it gets warmer, which lowers its density, meaning that the same volume of air will have less oxygen in it (lower = leaner oxygen concentration). In contrast, when the air temperature gets lower, the air contracts and the oxygen concentration thus gets higher (richer) for the same volume of air.

2-1. About Changes in Air Pressure

With automobiles it is relatively easy to experience the difference in performance at higher altitudes, and with a boat as well, if you have the opportunity to ride the same boat with the same horsepower outboard motor, both at sea level and on a lake at higher altitude (elevation), you will surely notice that the latter feels slower. The reason is that at higher altitude the air pressure is lower so the air expands and that lowers its density, which means that the same volume of air will have less oxygen in it (lower = leaner oxygen concentration). In contrast, when the air pressure gets higher at low altitudes, the air contracts and the oxygen concentration thus gets higher (richer) for the same volume of air.



3-1. About Changes in Air Humidity

It may be hard to imagine, but if the same boat with the same horsepower engine is running with the same air temperature and the same atmospheric (air) pressure, its top speed will be slightly slower if the humidity is high compared to low. The reason is that the less moisture there is in the air per unit of volume at low humidity means there will be a higher concentration of oxygen, and the reverse is true in high humidity. However, since the amount of change is very small, the only difference you may see is that the increased amount of moisture in the air may cause the spark plugs to misfire, which can cause rough idling or poor response during acceleration.



1-2. The Relationship Between Air Temperature and Air Density (Oxygen Concentration)

We explained that changes in air temperature causes change in the air density (oxygen concentration), now let us see how the amount of change can be easily calculated using Boyle's and Charles' law.

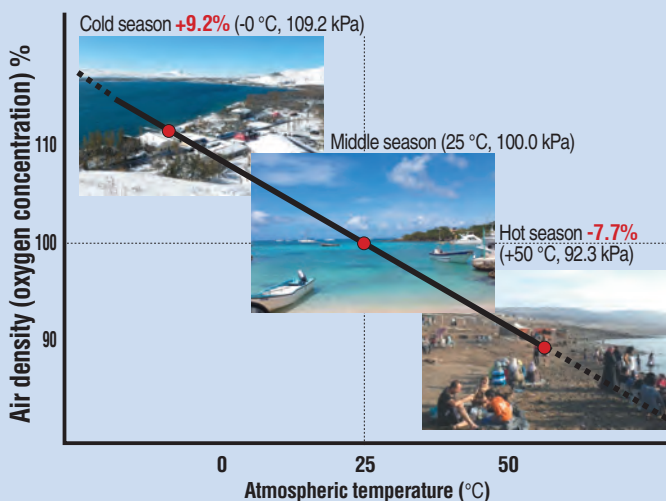
$$\text{Air density} = \frac{TB + 273.15}{TA + 273.15} = \frac{1}{VA} \times \frac{\text{Boyle's and Charles' law}}{PA \times VA} = \frac{PB \times VB}{TA + 273.15} = \frac{PB \times VB}{TB + 273.15}$$

<Note>

P: Pressure, V: Volume, T: Temperature (°C), A: After, B: Before
PA=PB (The pressure is a constant condition), VB=1.00

If the air temperature rises from 25 °C to 50 °C, the air density drops to 92.3% of what it was at 25 °C, so the oxygen concentration has dropped by 7.7% (leaner). This percentage of change in oxygen concentration results in a roughly equal drop in engine power, so the top speed of the boat will be that much slower in the hot season compared to other times of the year.

On the contrary, if the temperature drops from 25 °C to 0 °C, the air density will climb to 109.2% of what it was at 25 °C so the oxygen concentration will increase by 9.2% (richer). This percentage change in oxygen concentration results in a roughly equal increase in engine power, so the top speed of the boat will be that much faster in the cold season.

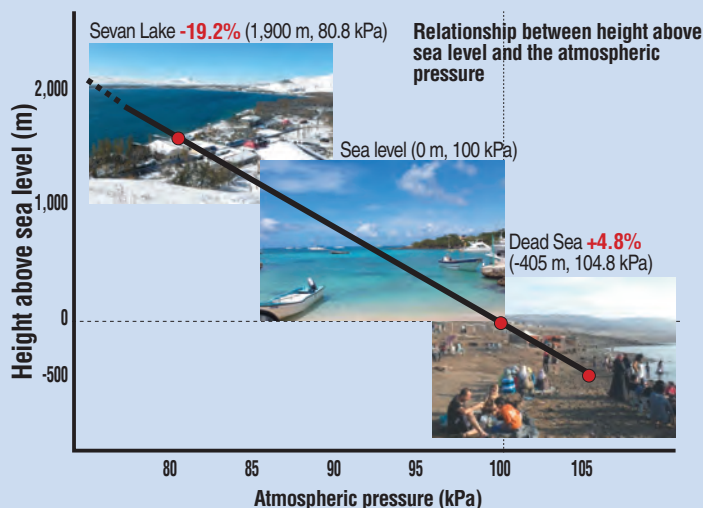


2-2. The Relationship Between Altitude and Atmospheric Pressure (Air Density)

As we explained earlier, atmospheric pressure (air density) changes when altitude (elevation) changes. The amount of that change can be calculated with the following formula.

$$\text{Present location, Atmospheric pressure (kPa)} = \frac{\text{Sea level Atmospheric pressure (kPa)}}{\left(1 - \frac{0.0065 \times \text{Height above sea level (m)}}{\text{Atmospheric temperature (°C)} + 0.0065 \times \text{Height above sea level (m)} + 273.15}\right)^{5.257}}$$

As an example, if you compare the difference in atmospheric pressure when at sea level versus that on Lake Titicaca in South America (3,812 meters above sea level), there is a 65.8% change in atmospheric pressure, which means the oxygen concentration at Lake Titicaca is 34.2% less than at sea level. Since this percentage change in oxygen concentration results in a roughly equal decrease in engine power, the top speed of a boat at such a high elevation will be reduced considerably compared to the same boat's top speed at sea level. This kind of thin air has the same effect on human beings, as you will find if you try running at full speed on the banks of Lake Titicaca. You will soon be completely out of breath. On the contrary, a place like the Dead Sea that is below sea level has air density 104.8% that of sea level, so the oxygen concentration is 4.8% higher (richer) and the same boat would have a faster top speed.



As we all know, Yamaha outboard motors are used all over the world in environments that range dramatically from extreme cold in places like Russia to the burning heat of the Middle East and from places like the Dead Sea at 405 meters below sea level to elevations virtually above the clouds at 4,000 meters above sea level in the Andes and Tibet. And of course, that means an equally wide range of ambient air oxygen concentrations, which require localized adjustment of the air-fuel mixture that is the "food" of the outboards we handle.

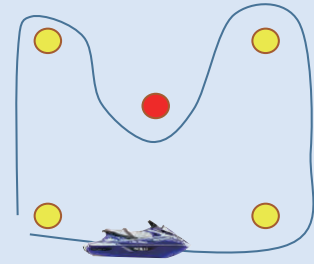
In the next issue, we will talk about how to correctly adjust the richness/leanness of the air-fuel mixture for outboard motors. I hope you will look forward to it!

A Closed Course for Test Ride Events

In this issue, we introduce the key points of holding test ride events on a closed course.

Set up the buoys over a relatively large area of water to create a course that can be circulated with a decent amount of speed.

*Do not allow participants to run the course chasing, running alongside or trying to pass other WaveRunners. Make sure only one craft is allowed to be running on each of the straights at any one time. The object is not to race, but to enjoy test-riding on a closed course designed with rider safety in mind.



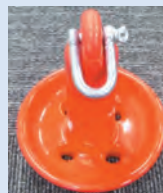
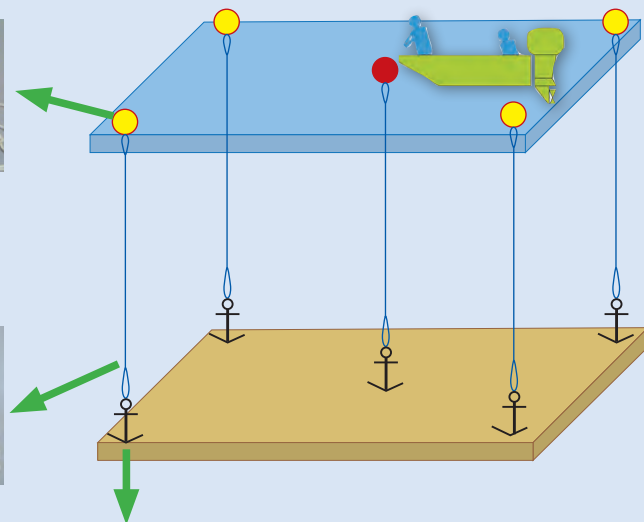
Structure

Use one rope and anchor combination for each buoy.

Buoys: Use buoys colored for good visibility, and it helps to have two colors to indicate the direction for rounding the course (right or left).



Ropes: Use ropes that sink and adjust their length according to water depth.



Anchors: Anchors come in several shapes and sizes. Choose ones of a size and design to match the buoy size and strength of winds/currents.

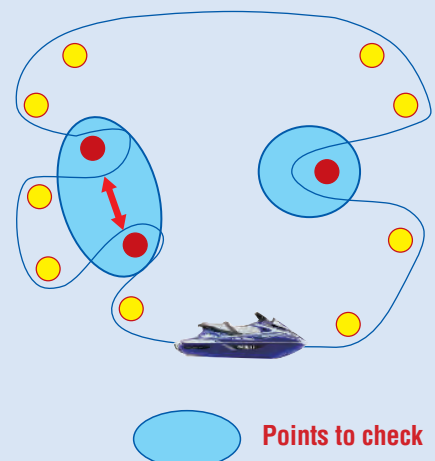
Set-up

1) Prepare the materials

- Obtain the anchors, buoys and ropes
- Load them on the boat in the order they will be deployed

2) Set out the course

- Drop the anchors at the positions designated by the selected course layout, make sure each anchor is firmly set on the bottom before attaching the buoys.
- After setting out all the buoys, check the buoy positions (good overall balance of positioning), make sure the buoys are not drifting, run the course to make sure it fits the skill level of the intended users and to make sure there are no danger spots (turns that are too sharp, insufficient distance between running lanes, possibility of collisions with other craft, etc.).



News Round-up

Activities from distributors around the world, and more



India

“Go Beyond Caravan” Campaign Held in South India



From 15 to 16 July, 2018, George Maijo Industries Pvt. Ltd. (GMIPL), distributor of outboard motors in India, conducted a “Go Beyond Caravan” (GBC) campaign in the Tiruchendur district of Tamil Nadu state in southern part of India.

GBC is one of the “Go Beyond” branding activities that Overseas Market Development Operation Business Unit (OMDO) has been developing in various countries since 2015. Their purpose is to create long-time loyal customers by building relationships of trust between them and Yamaha through 3S (Sales, Service, Spare parts) activities. The GBC program in India is for customers who purchased Yamaha outboard motors, and offers free oil changes and free inspections of their outboards. At the event site, GMIPL also exhibited outboard engines, Genuine Yamaha parts and Yamalube oil together in order to bolster outboard sales, enlighten customers about the benefits of Genuine Yamaha parts and increase sales of Yamalube.

On campaign day, in order to highlight the presence of Yamaha in this area, leaders of fishing-cooperative societies and local government authorities of fishing villages were invited.

As a result, 240 customers participated, mainly users of EK9.9D and E9.9D outboards. One customer brought an almost

broken-down outboard, but thanks to repairs at GBC, the customer was extremely pleased that he could go fishing safely again in the best part of the season.



Mexico

Collaborative Yamaha Team Campaign Brings Results



From June 4 to 18, 2018, a free preventive maintenance campaign organized by Yamaha distributor Industria Mexicana de Equipo Marino, S.A. de C.V. (IMEMSA) was carried out on the coast of the state of Yucatán, Mexico.

The campaign was conducted in collaboration with people from YMC and was focused on getting to know the Mexican market, learning directly about the clients’ product usage and improving the positive impression of the Yamaha brand. The campaign was planned to take place prior to the lifting of the lobster and octopus fishing ban and the start of the summer holiday period, meaning that most of the users gathered included fishermen and operators of tourist services.

At the end of the campaign, everyone involved in it had very positive and fruitful results with the collaboration between IMEMSA, local dealers



El Delfin, Pro Shop Marine and YMC, which reaffirmed the Yamaha’s strong support for the Mexican market, having performed 395 preventive service inspections for both 2- and 4-stroke Yamaha outboard motors during the campaign.



China

WaveRunner Display Tie-up and Test-rides Draw Interest in China



On July 8, 2018, a WaveRunner display and test-ride event was held in a tie-up with the Bentley Motors dealership and the local Yamaha dealer at a marina in Yantai, Shandong, China. Also joining in this collaborative event were representatives of Yamaha Motor China Co., Ltd. (YMCN) and YMC, and in total the display featured 14 Bentleys and six Yamaha WaveRunners and Sport Boats, which included the FX Cruiser SVHO, GP1800, VX Cruiser, EX, Super Jet and Sport Boat 242 Limited S. The WaveRunner test-ride event was run with five machines from the FX Series, the GP1800 and the Super Jet. The test rides aroused a lot of interest and some on-the-spot sales contracts were concluded as well, making for a very successful event.





Enshunada Game Fishing Tournament

For the second installment of this Hooked! Fishing series, we introduce billfish tournaments in Japan.

Every year on weekends at the end of July and early August, two billfish tournaments are held in the waters off Hamamatsu City in Shizuoka Prefecture known as the Enshunada Coast. Several teams from within Yamaha Motor enter these tournaments.

Each year new members join the Yamaha teams and through this experience of fishing for swordfish they not only gain appreciation for the excitement of big game fishing but also gain valuable firsthand experience in how the Yamaha products are used and their true product value. Unfortunately, the tournament at the end of July had to be cancelled due to a typhoon, but the Enshunada Game Fishing Tournament was held on the Enshunada Coast in calm conditions as scheduled on August 4 and 5.

We at YMC's Overseas Market Development Operation Business Unit formed a "Team OMDO" and participated in this tournament using the new 38.5 ft. offshore boat Pursuit 385, with three F300B outboards mounted. Over the two days of the tournament, 12 Yamaha people crewed on this boat and experienced the awesome power of the F300B outboard motors, especially in the start-out dash, through which they understood how important such high power was in reaching the fishing point as quickly as possible. Of the 18 participating teams, Team OMDO succeeded in landing the First Marlin of the tournament, despite the fact most of its members were beginners. This blue marlin was also the Largest Marlin, at 136 kg and 316 cm in length. Thanks to

this catch, the members of Team OMDO got an unforgettable taste of the great fun and excitement of sport fishing in accordance with International Game Fish Association (IGFA) rules. They won 3rd prize overall.

We at OMDO believe that this kind of experience is also valuable for us in our marine business, because now our team members can talk with real experience about the great performance of the Yamaha products as well as the challenge and joys of game fishing at its best.



Meet the Yamaha Family



Building a Solid Base to Benefit the Customers and the Amazon Region

Brazil is a country with great potential in the marine market, especially in its northern region which has the vast Amazon watershed that is dependent on outboards for transport. TV LAR Nautica is the Yamaha marine dealer here with 41 stores serving as points-of-sale in the states of Amazonas and Roraima. It was founded by the late José dos Santos da Silva Azevedo, who was fundamental in bringing Yamaha outboards to Manaus in Amazonas, and who helped to build a 40-year partnership that



TV LAR's founder, the late José dos Santos da Silva Azevedo



TV LAR Nautica's president Antonio Maria dos Santos Azevedo

pioneered the marketing of outboards in Brazil. As a company, TV LAR Nautica has the necessary sensitivity that the market demands in a country that asks much of its entrepreneurs. Azevedo believed that wealth is not made overnight, and he encouraged his employees to prepare themselves, plan, and above all research, before acting.

As a retailer, one of TV LAR's focuses is a concept called "capillarity," that is, to always work with the goal of expanding the base of partners, in order to offer a variety of benefits to customers, including financing. About the company's future plans, the president, Antonio Maria dos Santos Azevedo says, "Our plan is to continue all the work that has been done, maintain the credibility of the Yamaha brand and protect the commercial interests of the state and the constant efforts for development of the Amazon region."

Revs Report



Yamaha Team Results

Kaminoki/Hikida (Mens)	22 nd (4 th Japanese team)
Takayama/Imamura (Mens)	28 th (6 th Japanese team)
Udagawa/Kudo (Womens)	19 th (2 nd Japanese team)



At the 470 Class Japan Championships 2018, which was held from August 20 to 26, the YAMAHA Sailing Team 'Revs' women's pair of Udagawa and Kudo won 1st place through a show of strong sailing throughout the regatta.

Tough Competition in World Championships Brings New Experience and Motivation

The Sailing World Championships, which took place from July 30 to August 12 in Aarhus, Denmark this year, is an event that brings together in one regatta male and female competitors from all ten classes competed in the Olympics sailing competition. This time, 64 men's teams/boats (9 teams from Japan) and 47 women's teams/boats (4 from Japan) were entered to compete in the 470 class of the Aarhus championships.



The Japanese teams this time made a strong showing. The Japanese women's pair of Ai Yoshida and Miho Yoshioka were the first ever from Japan to win a Gold Medal. Three Japanese men's pairs were among the leading finishers that advanced to the finals (Medal Race), where the pair of Tetsuya Isozaki and Akira Takayanagi took the Silver Medal. YAMAHA Sailing Team 'Revs' entered the championships this time with two men's pairs crewed respectively by Daichi Takayama and Kimihiko Imamura and by Sho Kaminoki and Taisei Hikida, and one women's team of Mano Udagawa and Ayano Kudo. For these three Yamaha teams it was their second time competing in the Sailing World Championships following last year's entry, and there were hopes that this would be a chance to show the progress made over the course of a year with strong results. In fact, however, they were unable to keep pace with their rivals and the results were not what they had hoped for.

Still, the members of the Yamaha teams made steady progress in their performances with each successive race, while showing the determination to continue narrowing the gap to the competition step by step. This positive attitude saw them through the event and showed their motivation to keep moving forward in this great international challenge.

YAMAHA OUTBOARDS WEBSITE

<https://global.yamaha-motor.com/business/outboards/index.html>

WAVERUNNER WEBSITE

<https://global.yamaha-motor.com/business/waverunner/>

Yamaha Outboards Channel

<https://www.youtube.com/user/Yamahaoutboardmotors>

Yamaha Outboards Channel on YouTube

View waterside scenes and scenes of Yamaha outboards in use around the world