

Chantey

NEWSLETTER FOR YAMAHA MARINE DEALERS



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YAMAHA MOTOR CO., LTD., Marine Business Operations, 2500 Shingai, Iwata, Shizuoka 438-8501, Japan

Chantey
Special

Everything is new with this 115 hp 4-stroke outboard motor

The "F115B" is powered by a newly developed 1,832cc in-line, 4-cylinder engine. As a complete redesign of the long-selling "F115A" released in 1999 with every effort made to reduce weight and make it more compact, the F115B is a 2nd-generation 4-stroke outboard motor. Despite a 91cc increase in its displacement, the F115B achieves an approximately 14 kg reduction in weight compared to the F115A.

Technological advances have also resulted in reductions in engine vibration and noise during low-speed operation for increased user comfort. The attractive new exterior design, with its distinctive use of edges, is also worthy of a next-generation outboard model.

The big weight reduction achieved on this model also expands the range of boats it can be mounted on. This will make the F115B an easy and attractive choice for users who will be replacing their F115A or "F100A" models, as well as owners wishing to replace their 2-stroke models.



The development aims were:

- 1 **Increasing power**
- 2 **Reducing weight**
- 3 **Reducing vibration**

See the next page for details.

F115B Main Specifications

Model name	F115BET / FL115BET
Shaft length	L, X
Dry weight	L: 175 kg, X: 179 kg (with stainless prop.) L: 173 kg, X: 177 kg (with aluminum prop.)
Max. propeller shaft output	84.6 kW (115 ps) @5800 r/min
Variable trolling switch adjustment	600-1000 r/min (50 r/min step)
Remote control	Mechanical
Engine type	4-stroke, 16-valve, DOHC, in-line 4-cylinder
Displacement	1,832 cm ³
Bore x stroke	81.0 mm x 88.9 mm
Fuel induction system	Electronic fuel injection

Aiming For Even Better Content

In our last issue, *Chantey* reached a milestone with its 150th issue.

The first issue of *Chantey* was published in 1977 with the aim of spreading knowledge about service and marketing among Yamaha outboard motor distributors and dealers around the world in order to promote sales and the growth of their business. Thanks to everyone's efforts, Yamaha outboard motors grew to have a global presence, but our local market-based product development and business policies have never changed and never will. We at *Chantey* will continue our efforts to provide content that reflect these Yamaha policies.

In addition to providing knowledge and know-how in the fields of service and marketing, we'd like to make *Chantey* a platform for mutual communication with and between you, our readers. So, all of us at the *Chantey* editorial desk look forward to receiving news and information from you. We gladly await any information that you can give us about your market, sales promotions and reports about events you have held, etc., so that we can share them with other members of the global Yamaha family. Please do not hesitate to contact us!



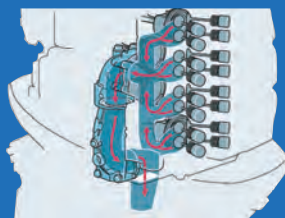
The Most Popular 4-stroke Outboards Packed full of Yamaha know-how and pride

In itself, the new “F115B” model may not contain the kind of epoch-making technology that would amaze everyone. Nonetheless, its development team has achieved a major reduction of about 14 kg in its total weight compared to the current F115A model without compromising reliability. Within the Yamaha outboard motor lineup, the F115A boasts one of the highest numbers of units shipped to date alongside the “F150,” and can be said to be one of the “faces” of the Yamaha outboard lineup. That is exactly why we knew that all of our technological expertise had to be put to the task of making the F115B a shining example of all four of the guiding concepts that distinguish Yamaha outboards: reliability, durability, light weight and compactness. We believe it can be called a proud product of the finest technological know-how accumulated by Yamaha engineers over the years. We hope that everyone will recommend the exceptional F115B model with confidence to as many customers as possible.

In order to bring you an informed summary of the technology and qualities of the F115B, we spoke with Project Leaders Masafumi Soogawa and Kouei Kokubo.



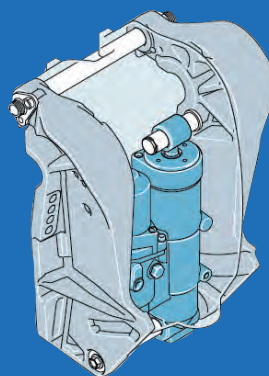
Senior Supervisor Kouei Kokubo (left) and Manager Masafumi Soogawa (right) of the Engineering Section, Marine Engine Business Unit, Marine Business Operations, YMC



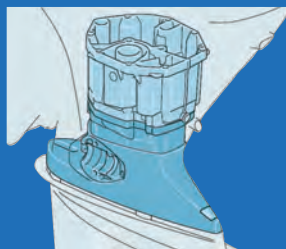
Exhaust manifold



Intake manifold



PTT unit and bracket



Upper casing

Development Background

The F115A is a 4-stroke outboard motor first released in 1999. It has won high praise for its reliability in particular, and over the long years since its launch, its use has spread around the world as a mainstay of the Yamaha 4-stroke outboard lineup, not only in marine leisure use but also for commercial use in fishery, transport and the like. Recent years have seen progress in the development of 2nd-generation 4-stroke models that are lighter in weight, and the time came for the F115A to undergo the same type of development. The development aim was to make further advances in the reliability that the F115A is famous for while making big strides in increasing power, reducing weight and lowering vibration.

Increasing Displacement to 1,832cc

The 1,741cc displacement of the F115A was increased to 1,832cc for the new F115B. Although the maximum power output is kept the same at 115 hp, the increased displacement provides more torque and a big boost in acceleration performance. In the process of increasing the displacement and reducing the model's weight at the same time, it was a prerequisite that no compromise whatsoever could be made on the product reliability that was achieved in the F115A. The increased displacement was achieved basically by boring out the cylinder diameter from 79 mm to 81 mm. At the same time, the structures of the intake and exhaust systems were re-evaluated and redesigned. For the intake manifold, the lengths of the four intake passages were made equal to increase intake efficiency, while the exhaust manifold adopts a new 4-into-1 design to increase exhaust efficiency. In tuning the new intake/exhaust systems as well, repeated combustion analysis simulations were run in search of optimum specifications that eventually produced settings for improved combustion efficiency. What's more, to further increase combustion efficiency, an anti-knocking control system complete with a knocking sensor was added.

Weight Reduced by Approximately 14 kg

The big reduction in the weight of the new F115B by approximately 14 kg was achieved largely in the three areas of the bracket, upper casing and cowling. The bracket and the upper casing have been newly designed specifically for the F115B and together they account for roughly 80% of the weight reduction. To reduce the weight of the bracket, a single power trim and tilt (PTT) unit is adopted. As for the upper casing, a service-friendly two-piece split style casing has been adopted. It features a rigid two-piece construction that is both durable and lightweight. Employing a die-cast production method that reduces unnecessary thickness in the metal has also contributed to weight reduction. For the cowling, the use of nylon plastic resin instead of the former SMC construction method has enabled another reduction in weight. The unique shape and construction of the cowling presented new difficulties in its manufacture, but all the challenges were eventually overcome. Some people might fear that these efforts to reduce weight may have resulted in compromises in the area of strength, but you can rest assured that all parts have passed the same stringent tests applied to the F115A.

For Greater Comfort – Efforts to Reduce Vibration

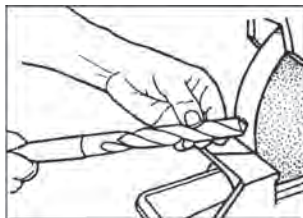
At the time of the F115A's initial release, it was already a product that offered outstanding advances in vibration and noise reduction compared to 2-stroke models. But, with the subsequent spread of large 4-stroke outboards with V6 engines and the like, the demand for even higher levels of comfort (low vibration, reduced noise, etc.) in the 4-stroke outboard market grew. In response to this need, reducing vibration on the F115B, particularly in the low-speed range, was a point of special focus. In specific terms, a big reduction in vibration was achieved by adopting larger rubber engine mounts. At the same time, the weight of the flywheel was increased in order to reduce vibration caused by fluctuations in engine rpm and to inhibit clutch judder noise.

Re-sharpening a drill

In this edition of our “Advice from a veteran mechanic” series, I will talk about technique for re-sharpening a drill bit. Last time, we talked about making holes with a drill. That was intended to lead into this edition, so you may want to re-read the last edition to refresh your memory.

Why and how

The cutting edges of a drill bit naturally get duller and perhaps chip with use until it reaches the point where it will not drill holes effectively. When that happens, it is not common practice to simply replace it with a new one. As long as the tip of the drill retains a good blade (cutting edge) shape, it can be made to cut (drill) effectively again, so most mechanics re-sharpen their drill bits when they get dull. The illustration above shows a drill bit being re-sharpened using a bench grinder.



Sharpening a drill this way requires an experienced touch because factors like the angle of the drill against the grind stone and the way the drill is rotated as it is ground will affect the shape of the drill's cutting edge. So, most often, people acquire their own technique through experience.

Since the holes we drill by hand are not high-precision cylindrical holes to begin with and it isn't a job we do frequently, I will talk here on a level aimed at simply re-sharpening the drill bit sufficiently so it can be used to drill holes again.

What are the important points of re-sharpening?

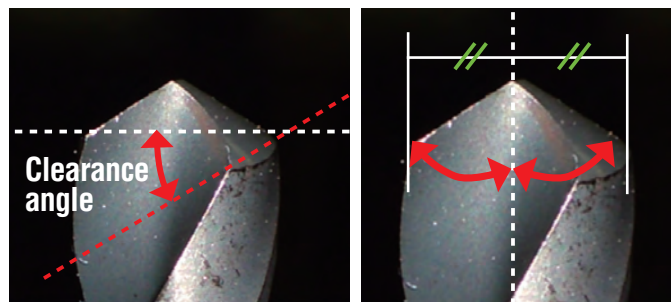
In cases like when it is hard to a drill a hole even though the cutting edges are sharp, or when the drill bit can drill a

hole easily enough but the resulting hole is misshapen (not cylindrical), the problems are usually caused by one of two conditions.

First of all, can the bit drill holes or not? If it doesn't make holes even though the cutting edges are sharp, the reason is because there is not enough of a clearance angle. A drill bit with a functional clearance angle is one in which the heel of the line is lower than the line of the cutting edges, as shown in the photo below (left). Although there are a variety of preferred clearance angles for different types of drill bits, materials to be drilled, etc., it is OK as long as a clearance angle exists, because the bit will function.

The second situation is when a drill bit will successfully drill a hole but the hole is misshapen (not cylindrical). In this case, the first thing to check is whether the two cutting edges are symmetrical or not. The bit is OK if the lengths and angles of the two edges are effectively the same, as shown in the photo below (right).

Although the angles will have an effect on the functional life of the cutting edges, drilling speed, etc., in our level of work it is OK as long as the two angles are essentially the same.



Careful thought will tell us what is important

Our job as mechanics is one that requires a lot of technical knowledge and skills, and it also requires that those skills be used with a high level of precision. Still, ours is not a job that requires you to have the training and knowledge of a “specialist” in a particular field. In this sense, we work at a unique and complex level.

In this case of sharpening drill bits, the level is one that requires a basic understanding of metal machining work to the point where you can carry out the work yourself. This is something we should be able to understand with a little thought, and the same thing applies to various aspects of our work.

In most cases, if you can do the work tasks assigned to you or copy what others do to learn the skills and processes, you're already a capable mechanic. However, in order to find ways to change or improve our work processes to get jobs done more quickly, with simpler methods and with greater ease, we have to understand why we are doing things the way we do.

The key to that understanding is to take a questioning approach and ask why things are being done as they are. And when that questioning leads to new understanding, I'm sure you will find yourself enjoying your work much more.

Dr. Sugimoto Chantey Editorial Room

YAMAHA MOTOR CO., LTD., Marine Business Operations,
2500 Shingai, Iwata, Shizuoka 438-8501, Japan





A *gyotaku* is an ink print of a fish created by making an imprint directly from the fish itself. There is a long history of these fish prints, with the oldest extant example said to be a print of a crucian carp caught in February 1839. That was in Japan's Edo Period, which was still the era of the samurai. We're told that in one area of northern Japan, the samurai were encouraged to fish at sea as part of their mental and physical training in peacetime, and it's said that the fish prints that emerged from this served as a record of the training itself and as a trophy of sorts for catching an especially large fish.

In the traditional printing method, *sumi* (Chinese ink) is brushed onto the fish and an impression is rubbed onto handmade Japanese paper from it, resulting in a record of the type and size of the fish caught. Besides the traditional black & white prints made in this way with ink, there are a number of new *gyotaku* methods being used in recent years, such as more decorative color prints using paints instead of ink and "digital *gyotaku*" created from a photograph. I had a color *gyotaku* print made from the giant trevally (GT) I caught in Okinawa that I wrote about in my last column.

Sport Angler Kurt on Traditional Japanese commemorative fish prints

What do you do when you want something to commemorate a trophy fish that you've caught? There are a number of ways, from just taking a picture to preserving it as a trophy by getting it stuffed. In Japan, there is a unique and traditional way of commemorating a trophy fish called *gyotaku* that I would like to introduce here.



The process for making a *gyotaku* fish print is:

- (1) Wash the fish well to remove the surface slime. This is an important step that is done to show the contours of the fish's scales more clearly and to prevent an unpleasant smell from remaining.
- (2) Next, the paint is applied to the surface area of the fish that will show in the print. In this step, you will get a nicer print with more tonal variation if you apply the paint more heavily in areas like the head, the backbone

area and the fins and more lightly in the stomach area.

(3) After applying the paint, lay the print paper or cloth on top of the fish and press it thoroughly to make a clear imprint. Since the fish was a large one this time, we used cloth instead of paper for the sake of durability.

(4) After the impression is made, the print is lifted off the fish and it is touched up as needed by painting in the eye and other details that didn't show up clearly in the print. Finally the date and place of the catch, etc., are written on the print and it is left to dry.

My completed *gyotaku* print has a unique appeal and strength as an image that is different from simply taking a photograph or having the fish stuffed. When you catch a big fish you want to commemorate, why not try making your own *gyotaku* fish print as a distinctive way to preserve the memory?



News Round-up

Activities from distributors around the world, and more

Miami International Boat Show

From February 13-17, 2014, the Miami International Boat Show, one of the world's largest boat and marine product industry expositions, was held in Florida, U.S.A. Perhaps due to the large snowfalls along the eastern seaboard of the U.S. just prior to and during the show's run, attendance was down compared to last year but still totaled about 95,000. However, there were increases in both the number of boats and outboard motors displayed. The number of exhibitors also increased, and the attitudes of the market were positive. The increased size of outboard-powered boats and the larger-horsepower outboard motor models on display were particularly noticeable.

As a comprehensive marine product manufacturer and supplier, Yamaha Motor displayed numerous products including boats, WaveRunners and outboard motors as well as propellers and rigging components.



2nd International Boat Show of Peru



For the three days of November 29 to December 1, 2013, the Expo Nautica Peru (2nd International Boat Show of Peru) was held in Lima, Peru.

Peru has seen strong economic growth and much foreign investment in recent years, and there are a number of resort and marina development projects currently underway. As a result, attention is focusing on Peru as a marine leisure market with big potential. The Yamaha Motor booth had Sport Boats like the "242 Limited S," personal watercraft (PWCs) and outboard motors on display, and many inquiries and contracts were received over the three days.

During the show's run, a round of Peru's national PWC racing series was also held, and of the 15 craft competing, 11 were Yamahas, indicating the very high share Yamaha commands in Peru.

Yamaha Service Seminar 2014

The Yamaha Service Seminar 2014 was held at the new Yamaha Technical Academy Center in Japan from February 24-28, 2014. A total of 53 representatives from 30 countries attended the seminar and received hands-on training in troubleshooting on the new "F115B" and "F175A" outboard models and in using the Yamaha Diagnostic System (YDIS). The agenda provided training in a variety of other areas as well, including instruction on the update of the Helm Master system introduced last year, and a lecture on anti-corrosion methods and practice in measuring the protective potential of outboard motor anti-corrosion anodes on a boat on Lake Hamana by a trainer specially invited this time from Yamaha Motor Corporation, U.S.A. (YMUS).

All in all, it was a very fruitful seminar that elicited great expectations from the attendees for the results the new models and service methods will bring to their markets.

*From Toshihiko Ono, Marine Engine Business Unit,
Marine Business Operations, YMC*



News Round-up

Activities from distributors around the world, and more

Japan International Boat Show 2014

From March 6-9, 2014, Yamaha Motor Co., Ltd. opened a booth at the Japan International Boat Show 2014 held at the Pacifico Yokohama convention center and the Yokohama Bayside Marina in the port city of Yokohama in Kanagawa Prefecture. In addition to its main booth, Yamaha also exhibited its products at the newly organized "PWC World" area where personal watercraft (PWC) from each company were on display. At the Yokohama Bayside Marina outdoor venue, Yamaha had three luxury boats on display. In addition to promoting the products, counters were set up at the main Yamaha booth to offer a variety of information aimed at promoting the spread of marine leisure in general. Over 35,000 visitors attended the show over its four days and many of them came to the Yamaha booth. The



weekend brought many families out to the show and many children enjoyed the boat rides offered.

Yamaha products support the running of the Winter Olympic Games in Sochi

When the city of Sochi in Russia hosted the 2014 Winter Olympic Games (February 7-23), Yamaha Motor group company OOO Yamaha Motor CIS (YMCIS) signed an agreement with the Olympic Organizing Committee to serve as an official supplier.

Under this agreement, the company supported the running of the games by supplying Yamaha snowmobiles, Recreational Off-highway Vehicles (ROVs) and golf cars for use around the various venues.

YMCIS also implemented an aggressive program of related promotional activities such as putting up a special website for the Olympics (<http://sochi2014.yamaha-motor.ru/>) and successfully boosted the value of the Yamaha brand.



Yamaha golf cars at work around the Olympic opening ceremony venues. Both the athletes and staff appreciated the comfortable ride



Yamaha snowmobiles carried snowboard competitors to and from their events

Editor's Note



This is the first issue of *Chantey* to be published in 2014. This year we want to publicize the quality and appeal of the Yamaha brand through introductions of new products and existing products as well. Compared to outboards in the same class, the greater compactness and lower weight of the newly released F115B 4-stroke outboard motor allows it to be mounted on a greater range of boats. We are confident that the F115B will play a big part in creating more fans of the Yamaha brand.

YAMAHA OUTBOARDS WEB SITE → <http://global.yamaha-motor.com/business/outboards/index.html>

WAVERUNNER FAN SITE → <http://global.yamaha-motor.com/business/waverunner/>

Yamaha Outboards Channel on YouTube

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

Yamaha Outboards Channel → <http://www.youtube.com/user/Yamahaoutboardmotors>