

YAMAHA MOTOR CO., LTD.

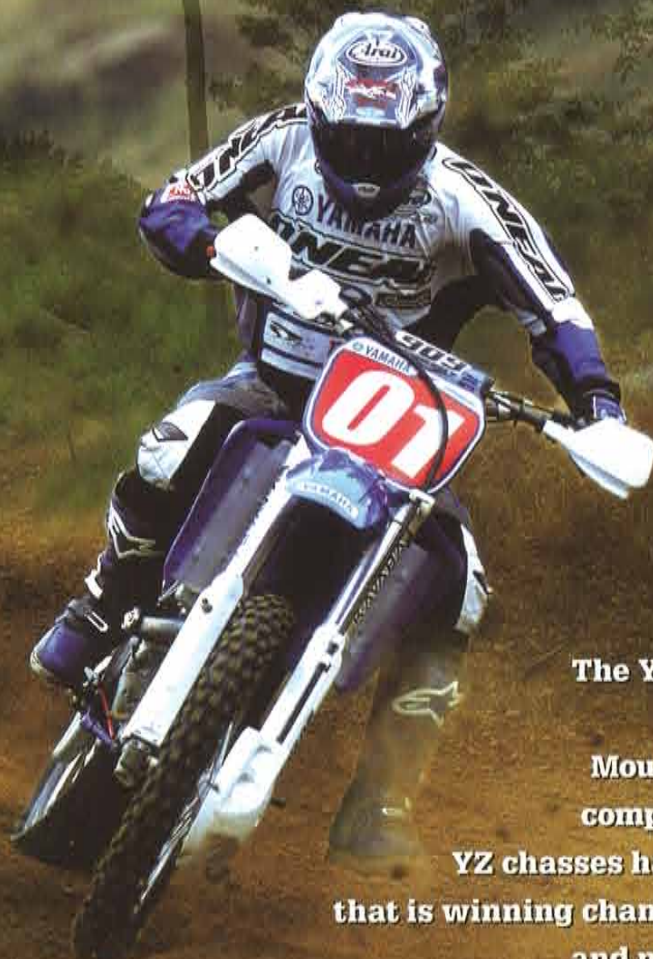
SEPTEMBER 1, 2002 ENGLISH

Yamaha News

No. 4

BIMONTHLY

Off Road, On Course



The Yamaha YZ 4-stroke machines have sparked an off-road revolution. Mounting Yamaha's super-lightweight, compact 4-stroke engines on the famed YZ chasses has proved a dynamite combination that is winning championship titles and bringing more and more people back to off-road riding.



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The YZ 4-stroke Am



Some 2,600 representatives from about 900 dealerships nationwide attended the grand YMUS Dealer Meeting in Las Vegas from June 13. Along with new model intros, the meeting focused on presentations of successful retail finance practices and the lineup of Yamaha-exclusive YPAD accessories and apparel in the media display area. The YZ 4-strokes and accessories for '03 at the US Dealer Meeting

It used to be common sense that a motocrosser was a machine powered by a lightweight 2-stroke engine. Yamaha's YZ 4-stroke series changed that notion forever in markets around the world, and especially in the USA. In the World GP and in America's AMA competition, Yamaha 4-stroke machines have turned in a record that speaks for itself. What is the secret behind this success? Here we take an inside look at the motocrosser market and race scene, as well as the Yamaha test course where these machines are born.

Yamaha's YZ series motocross machines have never been as hot as they are today in the American market. In 1997, the annual demand for motocross bikes in the USA stood at about 40,000 units. With the introduction of the first YZ 4-stroke in 1998 the market began to grow. Over the next four years demand nearly doubled, and the pioneers that led this phenomenal growth were the Yamaha 4-strokes. One manager involved in marketing explains what happened: "With the cooperation of the dealerships and local shops, we were able to get a lot of potential users to actually take a test ride and experience the performance of these machines for themselves. We also got very positive back-up from the media, which further stimulated the market."

He continues: "The main user demographic is younger riders who are interested in off-road competition, but we were also surprised by the number of come-back riders turning to these new 4-strokes. We saw a lot of riders in their 30s and 40s who had competed on 2-stroke machines when they were younger suddenly saying to themselves that the new 4-strokes looked like fun. They'd try them and then end up buying a Yamaha YZ or WR machine. What characterizes the users coming to these models is that you have a wide range, from the kind of competitors who have a shot at the winners podium to the people who just want to enjoy some fun riding." Never before had competition machines won the support of such a wide range of riders.



YZ 4-stroke Report GP and AMA

The race success of the Yamaha 4-stroke YZ machines has proven their competitiveness and that, in turn, has made a big impact on the market. The YZM400F made its debut as a factory machine five years ago, in 1997. In its very second race, the Italian GP of the World Motocross Championships, Andrea Bartolini piloted his YZM to victory. This would be Yamaha's first GP500 class victory ever with a 4-stroke machine. In May of that same year Doug Henry rode his YZM to victory in its U.S. debut race, the Las Vegas round of the AMA Supercross series. This also marked the historic first win ever by a 4-stroke machine in AMA competition. The next season, Henry went on to win an AMA national title.

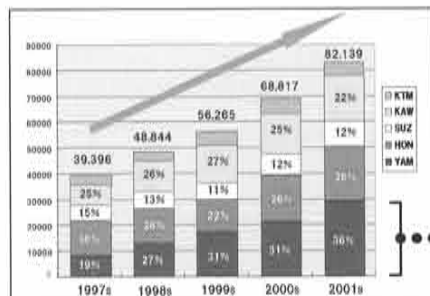


1997 WMX Italian GP
A. Bartolini on the YZM400F

American Revolution!

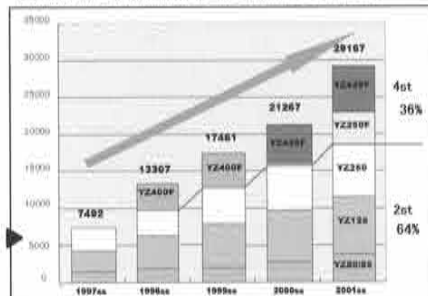
U.S. demand for competition models

Competition model demand rose 205% from 1997 to 2001



U.S. sales of Yamaha competition models

* YZ series sales rose 389% from 1997 to 2001
 * Demand was boosted by the '98 introduction of the 4-strokes
 * Demand for 2-stroke models also continues to increase



The 4-stroke YZ models created demand and grew the market in markets like Japan, Europe and N. America. The U.S. market is most representative of this trend. As seen in the graphs at left, annual demand stood at about 40,000 units in 1997 and then nearly doubled over the next four years. The pioneers that led this growth were the Yamaha 4-strokes. By 2001 the 4-strokes had risen to no less than 40% of the Yamaha brand bikes sold. But the market stimulus caused by the YZ 4-strokes also sparked a rise in demand for our 2-strokes as well.

The Engineering Challenge

The bold design innovations of the Yamaha engineers were one key to the success of the Yamaha 4-strokes. Actually, when the YZM made its debut in 500cc motocross it was at a time when 4-stroke machines by European makers had already won World Motocross Championship 500cc titles. So, Yamaha was in fact a latecomer. What did they do to move ahead of the competition?

The answer is clear and simple. Our engineers set out to build the world's fastest motocrosser using a 4-stroke power unit. The point was building a machine completely different from what had been achieved in the past by trying to convert an enduro machine into a motocrosser. They didn't take an enduro machine as their base but set out from

the start to build a machine that could deliver class-beating performance in sprint motocross racing. The answer was to design a compact engine and mount it on a proven 250cc class 2-stroke frame base. But the torque characteristics resulting from the engine combustion force and the crankshaft revolution would naturally be different on a 2-stroke and a 4-stroke.

Although the external appearance of the frame on a 2-stroke and a 4-stroke may look the same, the design is different in terms of rigidity balance and other factors. It was a bold challenge to find the means to modify a 2-stroke frame for a

4-stroke machine, and in the end that spirit of challenge shown by the Yamaha engineers made all the difference.



YZ450F development team (clockwise from upper left): Mr. Tamura, Mr. Sugiura, Mr. Takezaki, Mr. Yasunaga, Mr. Katsura, Mr. Oomori, Project Leader Hayashi and Mr. Sakurai



1997 AMA Supercross
D. Henry on the YZM400F



1998 AMA National Motocross title
D. Henry on the YZ400F



1999 WMX GP title
A. Bartolini on the YZ426F

Two years after the YZM debut, in 1999, the machine's displacement was boosted and the YZ426F was born. Bartolini rode this machine to the 500cc title in the World Motocross Championships. This gave the Yamaha 4-stroke motocrossers their first world championship title.

Test Course Report

To find out more about the kind of development and testing that gave birth to the Yamaha YZ models, we visited the course where they are tested, Trail Land Hamakita, located about 20 km from Hamamatsu Station in central Japan. Opened in 1974, this off-road biking facility combines a motocross course, a Supercross course, an



The Trail Land Hamakita staff (from left): Ms. Suzuki, Mr. Kadoguchi, Mr. Murakami, Mr. Muraki and Mr. Omura

off-road trail, an enduro course and a trial area. The soil here has a clay content so high you can use it for modeling and mixed in to the soil are chunks of sedimentary rock and granite. It's also the kind of place where snakes and frogs come crawling out on the track and it isn't unusual to scare up a pheasant or a rabbit.

The roughly one kilometer motocross course, which has been used for competition in the past, is an up-and-down course with a considerable overall elevation difference.

Some interesting methods are used in the course's maintenance. For example, once a year, sediment is scooped out of the nearby

pond, dried and then used to rebuild the course, according to a recycle type plan. Dirt and gravel from the course settles in the pond that sits at the lowest point of the course. A year's worth of sediment is enough to fill one hundred truckloads. Efforts are made to keep to an absolute minimum the amount of dirt and sand brought in from outside the facility for the course. When new dirt must be brought in, care is taken not to do so in the period from March to November when its off-flow might have an effect on the fish and other wildlife in the area's ponds and rivers.

What's more, to prevent small rocks from surfacing on the course, 30 minutes is spent each morning by the staff raking the track with a specially designed rake to get out the pebbles.

How has this course contributed to the



The history of Trail Land Hamakita goes back to December 1974. Since then, several changes to the courses have brought it to its present state

birth of the YZ models? We asked the YZ development staff. "Because it is so close to the engineering departments at our corporate headquarters, we can come out here to run tests anytime. And, because the course is so well maintained, we can get nearly identical test conditions almost everyday, which is important for comparative tests. But, since it is a course with its

Due to regulation changes, the YZ426F began to compete in the top class of the All Japan Motocross Championships from 2000. In September of that year Koji Okawara rode the Yamaha 4-stroke to its first All Japan victory. Meanwhile, the YZ250F made its debut in the summer of 2000. Its world debut race came in October, when Ernesto Fonseca made a spot appearance in a race in Japan and won both heats, for a double debut win. In the U.S. in 2001, Fonseca won the title in the AMA Supercross 125cc Western Regional series on his YZ250F. That same year, the displacement of the YZ426F was further raised to 500cc and Stefan Everts rode the new YZ500FM to the season title in the 500cc class of the World Motocross Championships, coming out on top in a hot contest with KTM's Joel Smets. This gave the Yamaha 4-strokes their second WMX title. For Yamaha it was the fifth world title in this class. In the All Japan Championships, as well, the YZ250F won the title piloted by Hisashi Tajima. Early in 2002, Chad Reed won the title in the AMA Supercross 125cc Eastern Regional series on his YZ250F. This was followed by WMX, where Everts and Marnicq Bervoets sit at the top of the season rankings racing the YZ500FM, as they bring excitement to every race.



2000 Japanese Championship
K. Okawara on the YZ426F



2000 MFJ Grand Prix in Japan
E. Fonseca on the YZ250F



Smiles of men who love their work. Tadashi Kugimura (left front), a Yamaha factory rider in the All Japan Motocross Championships and Tomoyoshi Masuda (right front), a test rider

has high clay content and, being on a rock table, you get a dry sandy layer on the surface that also makes it easy to slip. There are also a lot of potholes and ruts form easily.

But, it may be that the difficulty of this course has helped make the YZ machines faster. When you are testing on a difficult course it is easier to spot slight differences in performance. You notice things that might have escaped you if you were only running on a course with nice, even dirt quality."

The course maintenance work, with its concern for the effect on the surrounding environment, is surely another thing that has contributed to the strength of the YZ machines. Taking an analogy from the natural world, you might say the YZ machines have the hardiness of alpine flowers, not flowers raised in a controlled greenhouse environment.

Tests are run repeatedly in tough conditions, such as this rocky stretch of track

own distinct character, we cannot conduct tests intended to simulate the environment or needs in all the different markets. So, what we do here is testing aimed at verifying the machine's design and performance direction. Tests for final detail adjustments have to be done on location in the various markets."

When asked about the specific characteristics of the course itself, a development team member said, "This is not an easy course that just anyone can ride. The soil



A course full of challenging ups and downs



The machine gets a careful check-over before a test



2001 AMA SX 125cc Western Regional title
E. Fonseca on the YZ250F



2001 WMX GP title
S. Everts on the YZ500FM



2001 Japanese Championship title
H. Tajima on the YZ250F



2002 AMA SX 125cc Eastern Regional title
C. Reed on the YZ250F

'03 4-stroke YZ mo technical outline

Development of the YZ450F and its features

The development aims for the 2003 model YZ450F were (1) a lightweight, compact chassis to make it competitive against the 2-stroke machines, (2) utilizing the characteristics of a 4-stroke to make this the best handling motocrosser of all, (3) achieve the highest power and easy-to-handle power development characteristics and (4) improving operability at starts. As guiding concepts for achieving these goals, the development team chose "design that utilizes the merits of a 4-stroke" and "introduction of new technologies."

What are the merits of a 4-stroke? For one, the FIM regulations say that the displacement can be up to 450cc. Also, a 4-stroke machine has excellent traction and a wide powerband. Another merit is the good fuel economy. The following are the actual design measures that resulted from pursuit of these merits.



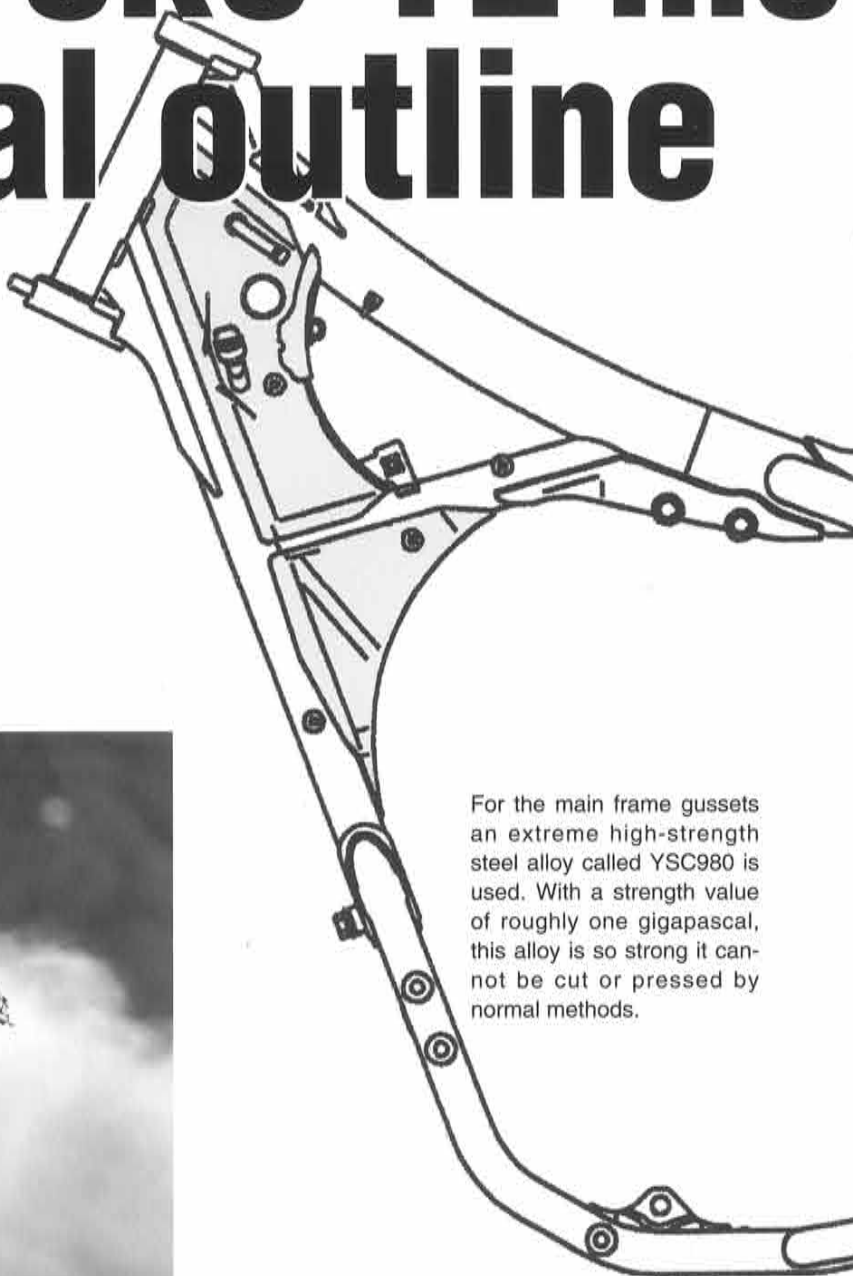
New 4-stroke-specific features and improvements

To make full use of the FIM regulation, the displacement was increased.

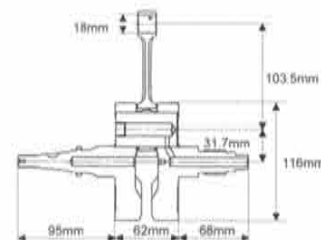
To turn good 4-stroke traction into competitive potential, the machine inertial mass was optimized.

In order to get more competitive potential from the wide 4-stroke powerband, a wide-ratio 4-speed transmission was adopted.

And to turn good fuel economy into competitive potential, a smaller fuel tank design was adopted.



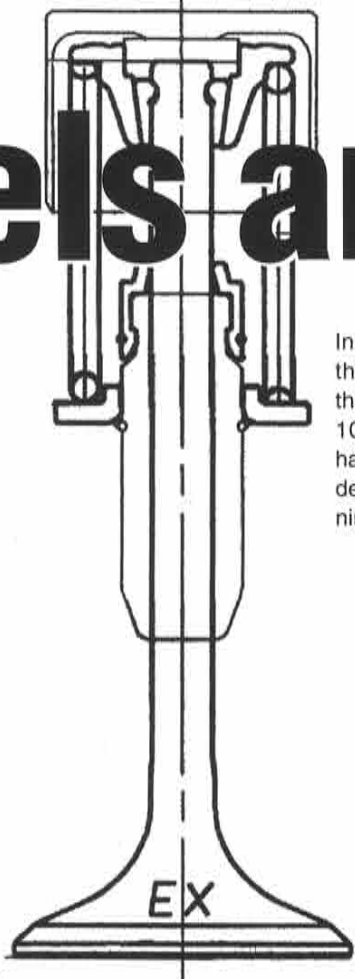
For the main frame gussets an extreme high-strength steel alloy called YSC980 is used. With a strength value of roughly one gigapascal, this alloy is so strong it cannot be cut or pressed by normal methods.



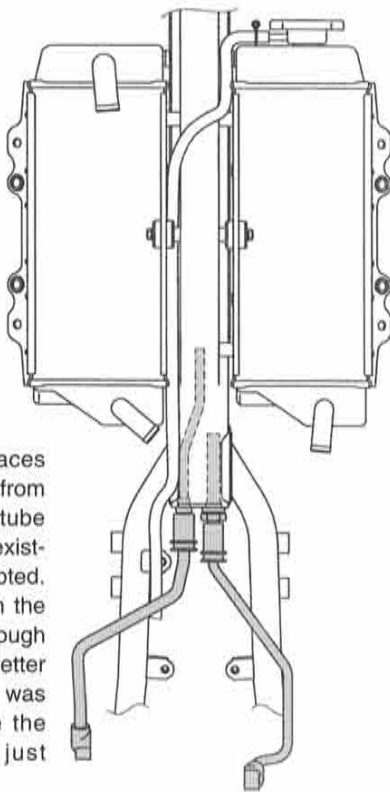
The new-design crankshaft assembly has a 20% lower inertial moment. This lightness gives a feeling close to a 2-stroke.

Models and WR

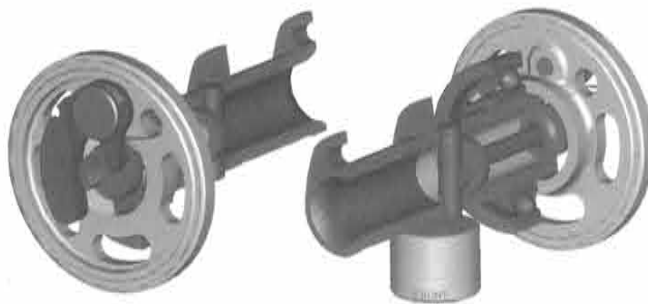
In spite to the increased piston stroke, the head assembly is more compact than before. A size reduction of about 10% compared to the existing model has been achieved by a special compact design made possible by the use of titanium valves.



A unique design that places the duct for returning oil from the engine to the down-tube 20 cm lower than on the existing model has been adopted. The resulting reduction in the amount of oil passing through the frame contributes to better concentration of mass. It was also possible to reduce the total oil capacity to just 1200cc.



This new automatic decompression unit features a compact design for the cam that activates the decompression function. This makes for excellent operability in starting while also enabling a further weight reduction in the kick assembly.



YZ250F

YZ250F, the '03 model development

The '03 model YZ250F adopts the same technologies as the YZ450F as well as some YZ250F-specific design features. One example is the new design for the skirt portion of the cylinder body with a larger passage to the crankcase that improves oil circulation and reduces pumping loss. Another is a significant weight reduction resulting from the adoption of a direct ignition system. On the frame, the use of new materials for the down-tube and the tension pipe results in a 25% increase in rigidity.



WR450F

The WR450F, WR250F '03 models

The WR series enduro models that take as their base the YZ models, have also undergone a major evolution for 2003. In the case of the WR450F, the power units takes the YZ450F engine as its base and adds features like a flywheel magneto for high power output, an electric starter and a 5-speed transmission. The chassis features a newly designed 10-liter fuel tank, a new seat designed for reduced fatigue on longer rides, new shapes for the rear fender and side covers and a special WR-design lightweight aluminum rear frame. Other features include a side stand, a chain shield and accessories and optional parts like an 18-inch rear wheel, headlight & cowl, tail lamp and a tripmeter, etc. As for the '03 WR250F, it appears with basically the same features as the WR450F.

Everts on his way to victory



Stefan Everts celebrates his second straight WMX 500cc title with his second at the Czech GP on Sept. 1

Everts and the Yamaha YZ500FM lead a new 4-stroke era

After an exciting season, Stefan Everts grabbed the World Motocross Championship title in the 500cc class for the second year in a row riding his YZ500FM. With the entry of Honda's first 4-stroke motocross machine this season the six leading makers, including Yamaha Husqvarna, Husaberg, KTM and VOR all competed the 2002 WMX with 4-stroke machines. This ended 35 years of competition by 2-stroke machines and marked the opening of a new chapter in the history of the 500cc class.

As this historic season took shape, it was the Yamaha 4-strokes that proved to be the machines to beat. At the Czech GP run on Sept. 1, reigning 500cc champion Stefan Everts clinched the title with one round remaining.

From early in the season Everts and his YZ500FM were a winning combination. Though he allowed Joel Smets of Team KTM to take the first two rounds of the season, Everts came back in round three in Germany to win impressively despite bad course conditions. This, his 51st GP victory, also gave him the record for career wins held until now by his countryman and motocross legend, Joel Robert. With the pressure of this record now off his shoulders, Everts ran a

perfect race in round four, the French GP, commenting that he felt good the whole way. At the Italian GP that followed, Everts recovered from a bad start and a fall to finish a respectable 3rd and extend his lead in the season point standings. Eventually, he was able to keep his lead throughout the first half of the season with his consistent performances.

Never one to let himself get overconfident, Everts' mid-season comments showed the same type of determination and desire that led his father Harry to four world championship titles in the 125cc and 250cc classes. He went on to win two more rounds in the second half and clinch the title.

Meanwhile, Everts' Yamaha teammate Marnicq Bervoets looked at one point as if he were out of



the title race after a bad result at round four. But he came back to finish 2nd in the Italian GP, which was enough to pull him up among the leaders in the season ranking again. As the season entered its second half Bervoets remained close behind Everts in the title race.

After the French GP, he started a rigorous training regimen once again. It seems clear that his big goal of beating Everts and the effort he was willing to make to achieve it made him a top contender this season.

As the WMX500 enters a new era there have been some other changes. As of last season, each round is competed with just one final heat and all three classes are competed at the same event. Furthermore, the new point scoring system adopted from 2002 had many people speculating that the title race would go right down to the final round, scheduled to be held in Russia. But no one could top Everts and the YZ500FM, as he mounted the winners podium in 11 straight rounds to clinch the title.



Bervoets raced strong through the second half of the season

The revolutionary boat that started it all, CAT-21 A Reflection of the Founder's Vision



The reproduction of the CAT-21 was on view at the Genichi Kawakami Memorial Exhibition, held at YMC's Communication Plaza from July 19 to Sept. 20.

There is a boat that was on display this summer at the Communication Plaza at YMC's headquarters in Japan. Looking at this impressive 6.9m catamaran-hull powerboat, it's hard to believe that it is a reproduction of Yamaha Motor's very first production boat, designed and released more than four decades ago in 1960. Named the CAT-21, its red deck and white hull give it a warm appearance, and although its simple lines may not look state-of-the-art today, it



The CAT-21 won all three legs of the first Tokyo-Osaka 1,000km marathon race.

was a revolutionary design that opened the eyes of the Japanese public at the time.

There is a special reason why the original design plans for the CAT-21 were taken out recently and Yamaha's contemporary FRP boat-building technology used to create a faithful reproduction of the boat and displayed it in the memorial exhibition for the founder of Yamaha Motor, Genichi Kawakami, who passed away in May of this year. It was then-President

Kawakami who decided YMC should enter the marine industry and who set the company's engineers to work on this first Yamaha boat. In the resulting CAT-21 we can see much of his philosophy of product creation that has guided the company until now.

If you're going to do something, be the best

President Kawakami always had a guiding motto: "If you are going to build something, aim for first class from the beginning." Under this policy work began on the company's first prototype FRP boat in 1959. It was a time when Fiberglass Reinforced Plastics (FRP) were still a new technology, and the development team had trouble even getting the raw materials they needed, not to mention learning how to use them. Everything was a new challenge, especially designing a boat specifically for FRP construction.

Nonetheless, the prototype CAT-21 was completed by April of 1960 and it turned out to be a high-performance boat with a very soft ride and excellent lateral stability when mounted with two 80hp outboards. And, true to President Kawakami's expectations, it drew big attention as a high-grade cruising boat at a time when the Japanese public was just beginning to discover leisure recreation.

In July of 1961, the year after its release, this model took part in the 1st Tokyo-Osaka 1,000 km marathon race. Skipped by former YMC Director Kōtaro Horiuchi, this CAT-21 immediately proved the high quality of Yamaha's design technology by winning all three legs of the race for a total victory time of 20 hours and 3 minutes. That was over six hours faster than the second-place finisher in a tough race that saw only 1/3 of the field finish. After this, the CAT-21 was displayed at the Chicago Boat Show and thus became a symbol of an emerging Japanese marine leisure scene.

Genichi Kawakami, a leader with vision

In 1953, when he was president of Nippon Gakki (present Yamaha Corp.), Genichi Kawakami made a 90-day overseas study tour. Impressed by scenes of people in North America and Europe enjoying outdoor leisure, he vowed that someday he would help the Japanese enjoy the great outdoors. That chance came in 1955 when he founded YMC. A yachtsman himself with a 30-ft. cruiser by this time, he envisioned marketing Yamaha-built plywood boats and powering them with Yamaha outboards. That idea changed when he saw the new FRP boats rapidly becoming popular in the U.S. Deciding to go state-of-the-art, president Kawakami personally supervised the development of the FRP catamaran hull CAT-21 in 1959. Since then, Yamaha Motor has continued to expand its marine operations to the point where it is now one of the world's largest comprehensive marine brands, offering quality marine engines, powerboats, sailboats, fishing boats, utility boats, personal watercraft and jet boats. Today, the CAT-21 is remembered as the revolutionary model that started it all.

CAT-21 Specifications (Standard model)

Overall length: 6.90 m
Overall width: 3.33 m
Hull depth: 1.13 m
Weight: 850 kg
Engine: Mounted with twin 80hp outboards (For the Tokyo-Osaka 1,000 km marathon it mounted four Scott (USA) brand 75hp outboards)
Passengers: 8 - 16 persons

WORLD TOPICS

We always welcome your contributions.
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Thailand

The ASEAN bike "NOUVO" is really *nouveau!*

In late June, Yamaha's long-awaited first unified ASEAN market model made its debut in Thailand amid big media coverage and high expectations from the users and dealers alike. Called the "NOUVO" in all four ASEAN countries where it is being launched, this model is truly something new for the Southeast Asian region and embodies Yamaha's commitment to grow its business and its brand image in these high-potential markets.

Rather than just introduce a new scooter or a moped of the kind that presently dominates in this largely utility-use motorcycle market, Yamaha has created an entirely new category, an automatic-transmission moped with revolutionary styling, all aimed specifically at the ASEAN market needs. This is truly a

model that Yamaha can build a fresh brand image around, and the work has already begun with a 4-nation unified ad and promotions campaign.

Following recent debuts in Malaysia and Indonesia, the NOUVO was unveiled in Thailand on June 28 at a gala press meeting attended by YMC's Managing Director Kajikawa. At the meeting, an address by Thai Yamaha Motor President Ishikawa was followed by explanations

of Yamaha's business approach by marketing division representatives.

A revised new version of the popular Yamaha "FRESH" was also introduced. Thailand's hot young female pop group "3G" is being used for a nationwide TV ad campaign for the new "FRESH," and they were on hand to add even more life and excitement to the press launch.

The next day a dealer meeting was held. Here, the dealers got their first good look at the NOUVO along with thorough product explanation and a chance to test ride it. At the marketing briefing there was an excited exchange of questions, and it was clear that the dealers left with big expectations for this hot new model.

At the press introduction in Thailand



At the test-ride event for dealers after the dealers meeting

India

Dealer Meeting in India

A series of dealer meetings were held over the week beginning July 8 in four major cities in India. These meetings, which gathered participants from around

350 dealerships, focused on announcements concerning the new "Enticer" model. At every gathering, the "Enticer" was the object of intense attention from many dealers, as it represents a new category of bike in India, and at the test ride locations, reservations by



Dealers waiting to try out the new model

dealers wishing to try out this model far surpassed expectations. Open sessions were held at these meetings, providing an opportunity for a constructive exchange of ideas between the dealers and Yamaha Motor India Private Ltd. (YMI) management. In addition, agenda items for the future such as the creation of an online network and a National Dealers Council were announced. These meetings and constructive activities seemed to foster an increase in the overall motivation of the participating dealers.

From Noriaki Miyaji, YMI, India

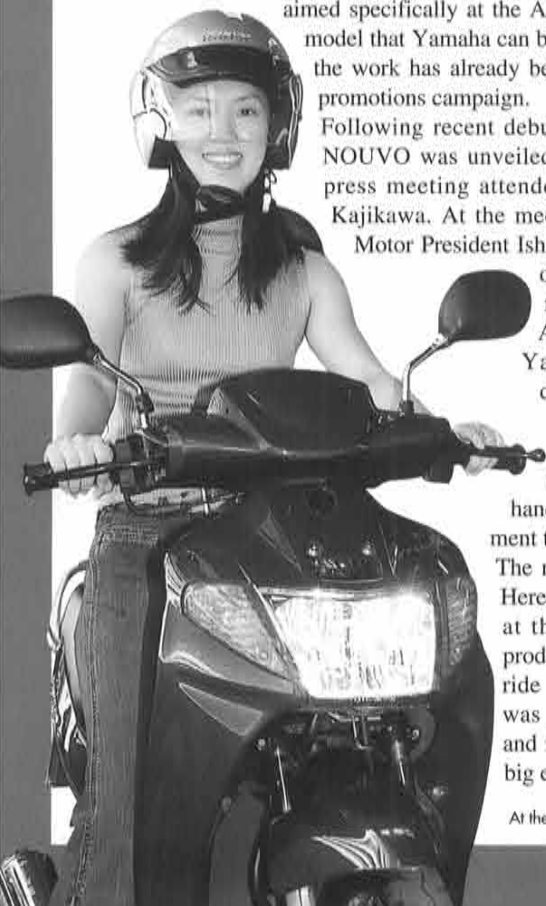
USA

Entering the Snowmobile Racing Hall of Fame

Gordy Muetz, a long-time employee of Yamaha Motor Corp., USA (YMUS), has joined the elite of snowmobile legends around the world in receiving a unique distinction. Mr. Muetz was inducted into the International Snowmobile Racing Hall of Fame, which was established in 1985 to honor individuals making great contributions to the development of snowmobile racing and recognize their achievements in the sport. Mr. Muetz has been an employee of YMUS for 35 years, since 1968 when he began as a mechanic for an independent Yamaha team. He became manager of that team only 5 years later. In spite of all his responsibilities, he has somehow still found time to be active in racing. Since he began participating in race activities with the first Yamaha snowmobile (SL351), Mr. Muetz has continued to be active in the sport and has greatly contributed to its development. His contributions to the sport and his achievements in keeping snowmobile racing a vibrant and growing activity are recognized with this award. Mr. Muetz has truly become one of the sport's legends with this honor.

From Mike Doughty, Snowmobile Product Manager, YMUS

Gordy Muetz (center) poses for a photo with previous inductees into the Hall of Fame



Exhibition celebrates the heritage of YMC founder Genichi Kawakami

The Yamaha Motor of today owes so much to the company's founder and first President, Genichi Kawakami, a man whose undying spirit of challenge and uncanny ability to read the future led the company to expand successfully into one new area of business after another. Soon after Mr. Kawakami passed away on May 25 of this year at the age of 90, work began on an exhibition to explore and celebrate the great heritage he left behind.

The Genichi Kawakami Memorial Exhibition

opened in late July at the Communication Plaza of YMC's headquarters in Iwata as the 3rd Yamaha Challenge Exhibition. With the title "Learning from Genichi Kawakami," the exhibition explores the life, achievements and philosophy of Mr. Kawakami in exhibits that include new products he led the development of, personal items he used and loved and reminiscences from people who knew and worked with him. There are also two documentary films that have been prepared for the exhibition showing in the Plaza's theater and infor-



In the company's early days President Kawakami often took part in machine testing

mative panels throughout the exhibition telling the stories like how the musical instrument maker moved boldly into the motorcycle industry.

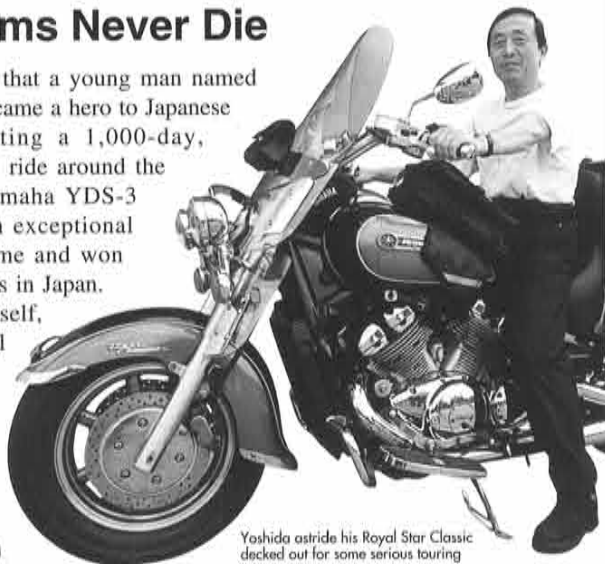
The exhibition will run through September 20, giving many Yamaha people and the general public a chance to rediscover the great contribution of this unique entrepreneur and visionary.

Japan

Some Dreams Never Die

It was 35 years ago that a young man named Shigeru Yoshida became a hero to Japanese youth by completing a 1,000-day, 136,000 km adventure ride around the world on a 246cc Yamaha YDS-3 motorcycle. It was an exceptional achievement at the time and won Yoshida celebrity status in Japan. Still, for Yoshida himself, one part of his original dream had gone unsatisfied. Part of his original itinerary had been to ride across the Soviet Union, but in 1967 the world was still in the grips of the cold war and Yoshida was turned away at the Soviet border when he tried to enter from Finland.

After returning to Japan Mr. Yoshida became a Yamaha Motor employee and it wasn't until after he retired that he began to think about realizing the dream he had been denied more than three decades ago. The world has changed a lot since 1967 and so have Yamaha motorcycles. The bike Yoshida chose to finally make his ride across Russia is one of Yamaha's largest, the 1300cc Royal Star Classic (1997 model). On June 8, many former Yamaha colleagues gathered at the YMC's Communication Plaza to wish Mr. Yoshida luck and hear him speak about his plans to tour across Russia (starting from eastern Siberia), the Baltic countries and northern Europe, before going on across the Atlantic to tour through North America. Starting from Vladivostok on June 23, Yoshida planned to cross the Finland border on August 10. He plans to be in the UK for the Manks GP at the Isle of Man at the end of August, where he hopes to be reunited with British and German friends he toured with in the past. He will then ship his Royal Star across the Atlantic in



Yoshida astride his Royal Star Classic decked out for some serious touring

early September and resume touring across North America from New York, reaching his final destination, Los Angeles, in mid-October. We wish Mr. Yoshida luck on his journey.

A big crowd of well-wishers saw Mr. Yoshida off at the Communication Plaza reception



The Netherlands

Erasmus University Students Visit YMD



The active attitude of the students lead to a positive atmosphere in which the visit took place

Yamaha Motor Distribution B.V. (YMD), a leader in distribution and logistics, stores more than 150,000 types of parts and accessories for all Yamaha products in this European warehouse. With its state-of-the-art distribution system, only 5% of tasks involve human intervention, with 95% fully automated. For several years, YMD has allowed visits from companies and schools to this warehouse for the purpose of contact and knowledge exchange with other companies and building good relations with schools and universities for future employee prospects.

In the Spring of 2002, the Erasmus University Rotterdam Maritime Economics and Logistics course requested permission to visit the YMD warehouse to give MEL students an opportunity to see the relation between theory and practice.

On June 13th, a group of approx. 20 students representing various nationalities (Korean, Chinese, English, etc) and their course coordinator for this post-academic course toured the YMD warehouse. During the 4-hour visit, YMD gave a presentation about the company's activities and role in the European distribution network. This presentation was followed by a tour of the warehouse giving the students a firsthand look at the distribution system in action and an opportunity to ask more detailed questions. The active interest of the students created a positive atmosphere throughout the tour.

From Hedy Bais, YMENV, the Netherlands

WORLD TOPICS

The Netherlands

Yamaha's unmanned car working hard at the Netherlands horticulture expo

The Floriade 2002 is a world-famous horticultural festival held in the Netherlands once every 10 years. The expo takes place in the 65-hectare Floriade park. The latest edition of this event opened in a suburb of Amsterdam on April 6 and will run until October 20. As an extra attraction for the visitors to the expo to enjoy this time, twenty-six specially-equipped unmanned Yamaha electromagnetically guided golf cars (G17-E) were taken to the expo. These cars serve as transportation from the base to the top of Big Spotters' Hill, a specially constructed hill which is

the second highest in all of the Netherlands, inside the expo area. The unmanned cars which climb 40 meters to the top of the hill and back were extremely popular with visitors and there were always long lines waiting at the stops to ride. These Yamaha unmanned golf cars were clearly one of the most popular attractions at the expo and are sure to be remembered by the visitors for a long time to come.

From Hiroyuki Inagawa, Business Planning Div., Outdoor Power Equipment Operations, YMC



Specially-equipped unmanned car



Lines of waiting passengers

Japan

OMDO provides intensive service training on various products



Participants eagerly taking part in the training

The Overseas Market Development Operations (OMDO) Service Group held a training session and seminar from May 13 to 23. The emphasis of this

special training session was to focus on providing training in service of products newly introduced to dealers abroad in many nations. A total of 14 people from 10 nations in various parts of the world such as Central America, the South Pacific and the Canary Islands participated in the seminar. A wide range of products was dealt with in the seminar, including the large 4-cycle outboard motors, fuel-injection motorcycles, 660cc ATVs, the new 4-stroke personal watercraft and inverter generators. Although OMDO deals with the entire line of Yamaha products, this is the first time this type of intensive service training session has been held for the purpose of helping service people all over the world become more familiar with various newly-introduced models.

From Minoru Fukuda, OMDO, YMC

Mexico

Largest-ever Latin American Parts Managers Meeting



40 participants from 23 shops, the highest number ever attended

On May 16 and 17, the "12th Latin American Parts Managers Meeting" was held in Mexico City. There were several important presentations and agenda items provided by various participating companies including Yamaha Motor De Mexico, S. A. De C. V. and Industria Mexicana De Equipo Marino, S. A. De C. V. from the host country as well as various participating companies from

other countries in the region. The topics for discussion and presentation included such issues as ensuring a stable parts supply for the future expansion of "crosstrade" models, necessary measures to deal with the globalization of parts information and YMC corporate policies. Through best-practice examples, participants gained a better understanding of the parts business and how to optimize it. At the conclusion of the meeting, discussions were held on the topic of how to practically implement the results gained from this meeting in order to foster continued future development of the parts business in the Central and South America area.

From Ryouosuke Nagasawa, Overseas Sales Div., Parts Operations, YMC

Yemen

Celebrating 25 years of Yamaha in Yemen

Mr. Abudulla Taher Dawood, President of Dawood Trading Co., Yamaha's marine distributor in Yemen, recently paid a visit to YMC's home office for business meetings. During his stay in Hamamatsu from



Mr. Dawood receiving the commemorative plaque from Mr. Kajikawa

June 19 until June 22, Mr. Dawood had meetings with the Marine Engines Division and Overseas Market Development Division concerning the direction of operations for the future. He also paid a visit to Managing Director Kajikawa in

the afternoon of June 21. In November of this year, Dawood Trading Co. will celebrate an anniversary of 25 years of operations as an officially contracted distributor of Yamaha Motor Co., Ltd. In recognition of this, Mr. Dawood was presented with gifts to mark this event. In addition, Managing Director Kajikawa presented him with a commemorative plaque to honor and express appreciation for the company's many years of achievements in the marine products business.

From Shinpei Mizuno, Marine Engine Operations, YMC

Japan

Norick teaches families about good riding technique



Children diligently carrying out riding drills with instruction from Abe.

The "Norick Parent-Child Bike Clinic," featuring instruction by Japanese MotoGP rider "Norick," also known as Norifumi Abe, was held on August 4, the day of the Suzuka 8-hour Endurance Road Race. A total of 49 pairs, consisting of children from 5 to 12 years old with a parent, participated in the clinic. This clinic was founded as a result of Abe's strong wish that "more and more kids would develop an interest in motor sports and learn proper riding methods," and this year marks the 12th time over 5 years he has taught in the clinic. The morning session started with the fundamentals, and participants moved on to actual riding practice in the afternoon. Then it was time for the main event, course riding, in which participants lined up behind Abe and gracefully performed S-turns. Even in the short time available for this practice session, the improvement of the participants was noticeable. At the end of the clinic, Abe presented each participant with a graduation certificate, which brought a happy and satisfied expression to the face of each child.

Japan

Tokinaga/Sato Pair Wins X-F Class at Suzuka 8-hour

The Suzuka 8-hour Endurance Race took place on August 4. This year, the Suzuka 8-hour drew 79,000 spectators and much attention was focused on the wide variety of machines running as the race was contested in six classes racing together. But Yamaha power in the X-F Class blew the event wide open. The Yamaha pair of Tokinaga/Sato (Club YAMAHA MOTOR CYCLE RACING) carrying the #14 plate and riding a YZF-R7 chassis mounted with a YZF-R1 engine won the X-F Class while finishing 9th overall. The race started out with Honda riders in the lead, but after the halfway



The Tokinaga/Sato pair winning the X-F Class after 8 hours and 210 laps

point riders began to drop out of the front-running group. At the 6-hour point, after the 3 Hondas in the lead, the YZF-R7 Yoshikawa/Tsujimura pair on machine #1 were in 4th with the #39 Fujiwara/Kayou pair riding the same bike in 5th position. Running 6th was the Tokinaga/Sato pair who had worked their way up from a starting position of 20th place. The pair soon fell back to 12th place after their 7th refueling stop, but rallied in the final laps to finish 9th and claim the class title. In addition, the Yoshikawa and Fujiwara pairs, riding the Yamaha YZF-R7 machines, finished 4th and 5th respectively.



The Tokinaga/Sato pair rode a YZF-R7 chassis mounted with a YZF-R1 engine

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Japan

2002 Environmental Report features more product data



Yamaha Motor Co., Ltd. (YMC) recently published its "Environmental Activities Report 2002" introducing the company's approach to environmental activities and the results of its activities for the 2001 fiscal year (April 2001 ~ March 2002). This is the third annual report to be published since the company began publishing environmental reports in 1999 and, as with last year's report, the 2002 edition comes in a two-volume format that includes an "Environmental Activities Report 2002" designed to be easily read by the general public and an "Environmental Data Book 2002" containing more detailed information and data that will be of

interest to people with a more professional interest in environmental issues.

This year's report presents a fuller array of data concerning specific Yamaha products and it also introduces the results of the reader questionnaire conducted last year. Among other things, the report reveals that YMC's environmental costs for fiscal year 2001 decreased by 600 million yen compared to 2000 but, at the same time, the economic effect of those costs increased by 200 million yen. The report also clearly defines YMC's commitments regarding three primary environmental issues: (1) greenhouse gases and climate change, (2) toxic materials and our health and (3) industrial waste and recycling.

An English version will also be published in the near future and both the Japanese and English versions posted on the Yamaha Motor website.

New Zealand

Yamaha's Revolutionary 4-stroke Watercraft Debuts

Marine sports fans in New Zealand got their first look at Yamaha's exciting new FX140 WaveRunner at the country's largest boat show, the 2002 Hutchwilco Boat Show held in Auckland from May 30 to June 3. As the world's first personal watercraft powered by a marine-specific 4-stroke engine, the FX140 has already won numerous prestigious awards. Since debuting in the U.S. it has won the 2002 Design and Engineering Award of *Popular Mechanics* magazine and *Popular Science*'s "Best of What's New" award in the recreational products.

Yamaha Motor New Zealand's Greg Fenwick calls the new FX140 the most revolutionary development since Yamaha introduced its first PWC back in 1987. Fenwick says, "This machine is the ultimate combination of horsepower and low emissions. It delivers more power for its displacement, uses less fuel and produces fewer emissions than any other watercraft."

Indeed, users can expect about

40% better fuel economy than a 2-stroke model. What's more, with its broad powerband, the FX140 should be the best PWC out there for towing skiers and wakeboarders.

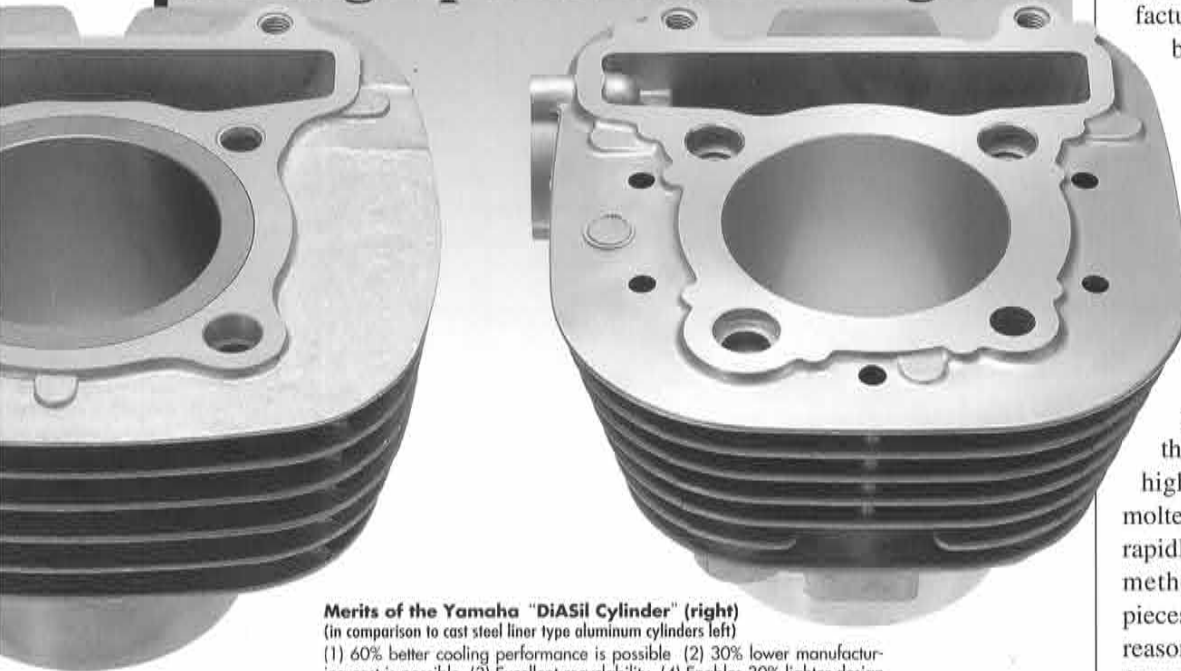
Congratulations for Yamaha's groundbreaking new model are coming from all quarters. Executive Director Monita Fontaine of the U.S. Personal Watercraft Industry Association praises Yamaha by saying, "We are all proud of Yamaha for creating 4-stroke technology for the watercraft industry."

From Greg Fenwick, Marine Sales Manger, YMNZ, New Zealand

The FX140 was the star of the show at the 2002 Hutchwilco Boat Show among visitors of all ages



The technology behind Yamaha's all-aluminum "DiASil Cylinder" for high-performance engines



Merits of the Yamaha "DiASil Cylinder" (right)
(in comparison to cast steel liner type aluminum cylinders left)
(1) 60% better cooling performance is possible (2) 30% lower manufacturing cost is possible (3) Excellent recyclability (4) Enables 30% lighter design
(5) Easily transferred to overseas manufacturing bases

In late July, Yamaha Motor Co., Ltd. (YMC) announced the development of its "DiASil Cylinder," an all-aluminum die-cast cylinder with 60% better cooling performance and 30% cheaper production cost than a conventional motorcycle cylinder. Before we talk about the advantages of this exceptional new cylinder, let's take a look at the manufacturing technology that made it possible,

the Yamaha CF Aluminum Die-cast Technology first introduced in February of this year.

Among the casting methods that involve filling a mold (die) with molten aluminum and having it harden in the desired shape are "gravitational casting" and "high-pressure die casting." Whereas the gravitational casting method relies simply on the force of gravity to fill the die with molten aluminum, in the high-pressure die casting method the molten aluminum is forced into the die rapidly under high pressure. This latter method is excellent for creating cast pieces with thinner sections, and for this reason Yamaha Motor has been using it for more than 20 years for the manufac-

The Significance of the Yamaha DiASil Cylinder

From Vice President Yamashita's press conference address

Here is an excerpt from the address given by Vice President Yamashita explaining the significance of Yamaha's new DiASil Cylinder technology at a press conference in Tokyo in July.

"Our company has recently adopted a new mid-term business plan called NEXT50. One of the four management issues that make up the main contents of this plan is "Growth Strategy," which we divide into the two categories of existing business areas and new business areas. Over the next three years we will be nurturing a number of new projects from which we expect to make significant gains beginning around 2005. In particular, within the existing areas category, which fundamentally means our core technologies, we are pursuing R&D efforts in the three areas of small engines, new power sources and components.

The Yamaha CF Aluminum Die-cast Technology we introduced in February of this year falls in the category of component strategies as a technology that can contribute greatly to next-generation product creation. The Yamaha DiASil Cylinder technology we are now introducing is an example of a new kind of engine part that makes use of the CF Aluminum Die-cast Technology. We are confident that this is a technology that can deliver big results in automobile as well as motorcycle engine design and manufacturing."



Chief Engineer Hiroshi Yamagata(left) and Vice President Ryuichi Yamashita

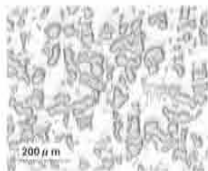


At the press conference in Tokyo in July

System Outline of the Yamaha "DiASil Cylinder Technology"

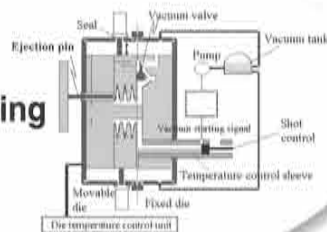
Material

20% silicon content
aluminum alloy



Manufacturing technology

CF Die-cast
Technology



**High functionality,
low cost,
environment-friendly**
All-aluminum



Structure for CF Die-cast Technology used for the Yamaha "DiASil Cylinder"

Due to the facts that (1) the die is enclosed in a box that enables a high degree of vacuum in even complex die shapes with many slides (six time greater vacuum than conventional die casting), (2) more stable molten aluminum temperature because the temperature of the die is controlled and (3) improved injection speed for the molten aluminum (five times faster than conventional die casting), it is possible to mass-produce aluminum cylinders with more complex shapes and good contact-surface quality.

ture of motorcycle and other product parts.

One disadvantage of this high-pressure die casting method, is that small gas pockets tend to form in the aluminum due to the forced injection of the molten aluminum. The presence of these casting (gas) cavities causes problems such as limiting the strength and malleability of the resulting cast aluminum and also making it unsuitable for welding. The new die-cast technology developed exclusively by Yamaha to solve these problems is the Yamaha CF Aluminum Die-cast Technology. With this technology it is possible to mass-produce cast aluminum alloy parts that are stronger, thinner and have more complex and precise curved surfaces. This is achieved by (1) increasing the degree of vacuum in the die, (2) controlling the temperature of the die and (3) increasing the speed with which the molten aluminum is injected into the die. This greatly reduces the amount of casting cavities forming in the aluminum, thus enabling

the production of thinner, larger parts.

What is the new Yamaha "DiASil Cylinder" technology?

Now, how does this all relate to the new Yamaha DiASil Cylinder? We introduced the CF Die-cast Technology last time as a method for making larger, thinner chassis parts, while this time it is being used for a critical engine part. But that is not the only difference. The new DiASil Cylinder technology uses 20% silicon content aluminum alloy and the CF die-cast technology to create an all-aluminum die-cast cylinder. And, in doing so it brings together an ideal combination of the three elements of material, manufacturing technology and environmental friendliness. With conventional die casting methods, a high abrasion resistant 20% silicon content aluminum alloy could not be used, but with the CF die-cast technology it became possible to use such an alloy for the first time. This is because the CF method enables exacting control of the pressure and the temperature during casting.

So, what exactly has this technology enabled Yamaha to create? At present, a nickel-plated aluminum cylinder is considered the highest performance type of production cylinder available for motorcycle engines. What Yamaha has done is to create an all-aluminum (no liner or coating) die-cast cylinder that has cooling performance equal to that of a nickel-plated cylinder at a 30% lower production cost. What's more, the fact that it is all easily recycled aluminum, it is more environment-friendly than conventional cylinders.

This DiASil cylinder is an example of the type of a new core technology that can be "strategically important in promoting growth for the future," as described in YMC's mid-tem policy report released in April. It is also a technology that lends itself well to easy transfer in today's borderless manufacturing base network, and plans call for its use to be expanded to include cylinders for automobiles and outboard motors.

EF1000iS, a new type of generator inside and out

Beginning in the summer of 2002, a completely new type of portable generator joins the lineup of Yamaha generators that are used and trusted today in over 80 countries around the world. Named the EF1000iS (EF900iS in Japan), it is Yamaha's second inverter type generator, after the EF2800i launched two years ago. What immediately draws one's attention to the new EF1000iS is its revolutionary exterior design that brings a whole new look to Yamaha generators. Here we take a look at the features and the design that make this new model so special.

Small 1kVA class generators are an important category that comprises about 35% of the world market for portable generators. They are used for a wide variety of purposes, ranging from outdoor carpentry, camping and fishing to outdoor commercial stands and around the factory. What customers primarily want in generators of this class are lighter weight, quieter running and the capability to run for long hours at a time.

Another product quality that has come to the

forefront in recent years is the ability to supply high quality electricity of the kind that is necessary to power sensitive devices like personal computers, CD players and the growing number of electrical appliances with microcomputer control functions.

In specific terms, this means the next generation of generators will be inverter types capable of supplying electricity with a consistent pulse width (waveform distortion ratio of 2.5% or less).

In answer to these market needs, Yamaha's engineers set out to completely redesign their 1kVA class model in every aspect, from the engine to the alternator and the exterior parts. The result is a new standard in the portable generator class, a new evolution that could not have been reached by simply refining the conventional generator. This is a model that achieves a lightest-in-class weight of just 12.7 kg, a weight so light you can carry it with one hand. A model with an incredibly quiet running noise level of just 47dBA (at 1/4 capacity load), a double coil system that enables low rpm running for a continuous-running time of 12 hours, the capability to produce high-quality electricity to serve as a power source for appliances with built-in computer functions while

also boasting low oil consumption. What's more, convenience is boosted by concentrating all the controls on a single panel as part of a refreshing new exterior design. Environmental friendliness was another important development goal, and the proof is clean exhaust that meets the world's strictest emissions standards, the U.S.'s EPA Phase II and CARB Tier II. With these and many more features and functions, the EF1000iS is a model that is sure to become the new standard in next-generation generators.

The exterior design of the EF1000iS with its smooth curves that accentuate this model's compactness and lightness, gives you a feeling of familiarity and a sense that here is a model that will provide the kind of high-quality electricity the times require. Here is a machine that embodies the desire of Yamaha's engineers to go beyond features and performance specs to build a generator that is customer-friendly in every aspect.

