

YAMAHA MOTOR NEWS 1987 No. 5

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A 3.7Km international technical course completed at Sugo

TTF1 World Championship Race Scheduled for August

Road racing has become increasingly popular in the last few years, to the point that people are starting to talk about a "racing boom". In addition to the yearly Japanese Championship series, the Suzuka 8-hour Endurance Race and the TBC Big Road Race, this year two more World Championship races, namely the first round of the Road Race GP series, and a TTF1 race are being held in Japan. What's more, the SP (Sports Production) races which have been organized independently on several different circuits over the last few years, will be held as a full season series under unified regulations approved by the MFJ (Motorcycling Federation of Japan) in three classes, SP125, SP250 and SP400.

A good measure of the recent growth in race popularity can be found in the dramatic yearly increase in the number of riders acquiring the license necessary for road race participation, from 15,670 in '82 to 53,070 in '86.

In the midst of this popularity, one of YMC's associated companies, Sportsland Sugo, had been engaged in the enlargement and improvement of its road race circuit since 1985, with the goal of promoting bigger and better motor sports events. Now, the circuit has been completed and given FIM approval as an international racing course. The main improvements include;

1. About 1.077Km increase in overall length to 3.7375Km (The car race circuit is 3.704Km)



2. Addition of a new 3rd corner, spoon curve, S-curve and SP corner to turn it into a technical course with 14 corners
3. Spectator seating increase from 30,000 to 50,000
4. A widened course and greens, larger pit areas and pit lanes and improved maintenance, all contributing to improved safety and more comfortable working conditions for the

riders and pit crews. And, as a grand commemorative event, it will be the site of the seventh round of the World Championship TTF1 series, the "Pocari Sweat '87 Sugo TT Formula World Championship Race", to be held on August 28 to 30. Sugo is now involved in preparations for the first Japanese holding of a TTF1 race, the class made famous by such big

events as the British Isle of Man TT Race, and which is the ultimate challenge in production-model-based racing. Also, on July 25 and 26, Sportsland Sugo will hold its first F3000 car race. The car course, by the way, is now in the process of application for FIA approval as a future international racing course.

A successful end to the Yamaha Osaka Cup



Start of the YOC. 64 participants leaving Melbourne for the open sea and Osaka.



From the left; YMC's Managing Director, Mr. I. Komiya, Director, Mr. T. Hasegawa, Mr. S. Kabaya, Mr. K. Uno and Mr. T. Okamoto of "Heart of Glico", Mr. K. Fujita and Mr. S. Yajima of "Oidon", Mr. M. Koumura and Mr. T. Okada of "Tsubakuro" and Mr. Akio and Mr. Toshio Utsumi of "S & B Fresh O₂" at the post-race meeting.

On May 23, the last finisher of the "Yamaha Osaka Cup", which had started from Melbourne, Australia on March 21, "Boris B" of Holland crossed the finish line in Osaka Bay. The skipper, Mr. Jaap Berkhout, and his crew, Mr. Campbell McKay and the skipper's pet cat were all in fine spirits after their long voyage. By the way, Mr. Berkhout's cat is an experienced sailor with over 24,000 sea-miles to its credit. "Boris B" was the last of 46 finishers out of the 64 yachts (from 7 countries) that started the race, and one of the reasons they finished last was the course they chose. Unlike most of the

yachts, which chose to follow the shortest route from Melbourne to Osaka, "Boris B" chose a course so unique heading north-east from the Tasmanian Sea with the intention of following the International Dateline north - that race officials sent a communique asking if they intended to drop out of the race. Short of the Dateline they turned north and then west to

eventually reach Osaka Bay. Regardless of the course chosen or the place of finish there was adventure and romance for all the participants, and in the end everyone hailed the success of the world's first longitudinal cross-Pacific race, the Yamaha Osaka Cup.

On June 4, at a hotel in Tokyo, as a follow-up to this large-scale event, Yamaha arranged an post-race evaluation meeting for the skippers and crews of the four Yamaha yachts that finished the race, where they were asked to evaluate their Yamaha boats, equipment and wear.

Strengthening the image "Yamaha means service" PAKISTAN



A crowd of Pakistani users gather to listen to the YBS program.

During the one and a half month period from February 28 to April 16, a YBS (Yamaha Before-Service) Campaign was conducted in 16 important cities of the Punjab and Northwest Frontier Province regions of Pakistan. Whereas previous service campaigns had consisted only of a free check service, this year's campaign included YBS programs like "self maintenance", much to the delight of some 60 users that the campaign served every day throughout its run. In Pakistan, years of excellent after-service has given the Yamaha brand an image as "The good-service company" that sets it apart from its competitors. The recent campaign is certain to strengthen that image even more than before.

Tour to meet the peoples of the world JAPAN

A young husband and wife have recently started a journey they have been dreaming about and planning for over five years. The couple are Mr. Akira Saito (29) and his wife Noriko (28) of Chiba City, near Tokyo. The trip they have just begun will be a 3-year around-the-world odyssey on their Yamaha Ténérés. But, why have they chosen motorcycles as means of transportation? Their answer is simply; "Because we love motorcycling!" The husband and wife have 15 and 10 years of experience consecutively traveling with their bikes. Even their honeymoon was a special motorcycle tour for two. The pair's around-the-world trip plan calls for them to start from North America, and travel through South America, Eurasia, Africa, Asia and Australia, covering 57 countries over a span of three years. There is a good chance that some day they might show up at your company or shop. If they do, we hope you will lend an ear to the stories of their adventures and give them any advice and support you can.



Mr. Akira Saito (right) and his wife Noriko

Thanks for all your letters. We're receiving wonderful letters with interesting topics for Yamaha Motor News from all over the world and every letter we get helps us bring you a more informative and more useful Yamaha Motor News. So, please keep the letters coming.



Letters from readers

This time, we have two letters. One is from Danish Yamaha importer, Yamaha Motor Denmark A/S and the other from Pakistani customer, Mr. Obaid Alam.

Copenhagen Car & Motorcycle Show

DENMARK

Over the years, we at YAMAHA MOTOR DENMARK have enjoyed reading Yamaha Motor News with its wide variety of information from around the world. News from other importers is always of big interest as it gives us new impressions from other countries and in this way helps create a closer relationship between members of the Yamaha family. In Denmark one of the main activities at the beginning of the new year was the Copenhagen Car and Motorcycle Show which was held from February 1 to 8. YAMAHA MOTOR DENMARK was represented with its complete range of motorcycles and accessories,

which covered a floor space of 250 square meters. During the exhibition period the total attendance was 161,000 people, a new record for this show. It was a pleasure to see the great interest visitors showed in the entire Yamaha range. The new model TZR250 and FZR1000 in particular drew a lot of attention, as did Eddie Lawson's world championship winning machine."



One of the best decisions I ever made

PAKISTAN

It was some eleven years ago that I decided to buy a motorcycle. So, I went to the market, but the bike which I had in mind was not available at that time. So, instead, I decided there and then to buy a Yamaha-80 motorcycle. The motorcycle I bought at that time is still with me. I realize now that I made the right decision at that moment. This motorcycle is still giving me very satisfactory performance. I have covered 53,000 miles on it and it is still in very good condition. It still has some of the original parts, and the engine has never once been overhauled. I do all the maintenance myself. Occasionally I have to take it to a mechanic, but not often. I have even travelled some long distances on this motorcycle, but no

trouble has ever occurred. I have been able to accomplish many important tasks because of my Yamaha-80. I intend to keep this motorcycle for at least another decade. It is the best motorcycle I have ever owned. My friends envy my motorcycle and some have even tried to buy it from me, but I have no intentions to part with my faithful bike. You might even say I am in love with my motorcycle.

Buying a Yamaha motorcycle was one of the best decisions I ever made. Credit goes to the company which has produced such an outstanding motorcycle."

Yours truly, Obaid Alam

Mr. Alam, thank you for the love you have shown your bike. We hope you will keep your motorcycle as long as possible.

Yamaha Motor supplies 5-valve engine technology to Cosworth Engineering Ltd.(GB)

YMC has recently signed a contract with Cosworth Engineering Ltd., a British company engaged in the development, supply and servicing of racing car engines (head office in Northampton, Chairman Keith Duckworth) concerning the supply of 5-valve engine technology and joint development of Formula 3000 racing engines. Under this contract Yamaha's unique 5-valve engine technology will be given to Cosworth Engineering Ltd. for the purpose of jointly developing high performance F-3000 racing engines. The said F-3000 racing engines will be supplied to a limited number of racing teams through Yamaha Motor within this year.

The details concerning these teams will be announced as soon as they become available. Starting next year, these engines are expected to be launched on the market through Cosworth Engineering Ltd. for supply to racing teams in a number of different countries.



Mr. Duckworth, Chairman of Cosworth Engineering (left) and Mr. Eguchi, President of YMC.

Marine diesels shine in tough testing



An engine is being disassembled for technical inspection.

Recently, in Cuba, Yamaha ME63-B marine diesels which were disassembled for an overall technical inspection after a 2-year monitor period (March '85 to March '87), were found to be in much better condition than competitive models in almost every test category, including durability and main performance

specifications. This technical inspection was conducted in the presence of officials from the government and the fishing industry. Included in the items for technical comparison after a hard 2-year use period by the roundhaul net and longline fishing fleet were: cylinder liner wear, piston ring wear, crank metal bearing wear, marine clutch friction plate, ease of head gasket replacement, necessity of clutch adjustment, etc., as well as various other performance data. The above mentioned fishery officials were greatly satisfied with the superior results achieved by the Yamaha marine diesels. Thus, not only in Cuba but throughout Central America and the West Indies, Yamaha Marine diesels as well as outboard motors are receiving very favorable responses from fishery industry representatives.

RD350s parade in the Carnival of Rio

There is always plenty of fun and excitement in the Carnival of Rio, which takes place during the first week of March. This year's carnival, however, marked the first time in history that a major company showed its brand name in the "Schools of Samba", the gala parade in which huge troupes of musicians and dancers compete for prizes in categories such as "Best (Samba) Music", "Best Troupe of Musicians" and "Best Parade Theme". This year, the Gremio Recreativo Escola de Samba Mocidade Independente de Padre Miguel, a troupe with 3500 members, chose as its parade theme a story about the future, technology and electronics. As a part of their parade the troupe included six Yamaha RD350s, which began domestic production at the

end of last year, painted in the troupe colors. The motorcycles proved to be a great attraction as well as a fine advertising opportunity for Brazil Yamaha. The inclusion of these motorcycles also set a precedent in that it was the first time ever that a company became involved in this great Brazilian festival.

Glamorous Yamahas, and glamorous girls!



Production begins in Spain

SR125



In October of last year, in commemoration of the 5th anniversary of the founding of Yamaha Motor España S.A., the company released on the market the first Yamaha moped ever to be conceived, designed and manufactured entirely in Europe, the "Yamy". Now, a new touring model has also been added to the line of motorcycles being manufactured at the

company's factory on the outskirts of Barcelona. The recently added model is an SR125 that will be targeted primarily for the domestic market in response to Spanish user needs. Present plans call for the production of between 1500 and 2000 bikes a year. The introduction of the SR125 is a follow-up to the continuing popularity of the SR250 over the past several years because of its simplicity, reliability, attractive styling, as well as the fact that it has the advantage of being suited for both commercial and pleasure use. In Spain, 125cc models have the merits of lower value-added tax (VAT) and exemption from the mandatory use of helmet in urban areas. With the addition of this new model to its line-up, Yamaha España is sure to strengthen its position as the industry leader decisively.



Mr. N.D. Tiwari, Minister for External Affairs, handing the award to Mr. Bubna (right).

Silver trophy for Yamaha dealer

Mr. R. K. Bubna, managing partner of East Zone Supply Corporation, a Yamaha dealership in Calcutta, recently received the coveted IMM Bajaj 1987 Best Dealer Award of the International Conference of Marketing. Mr. Bubna was presented his silver trophy by Mr. N. D. Tiwari, the Minister of External Affairs of India, who inaugurated the Marketing Conference. The main criteria by which candidates were judged for the motorcycle dealer award included;

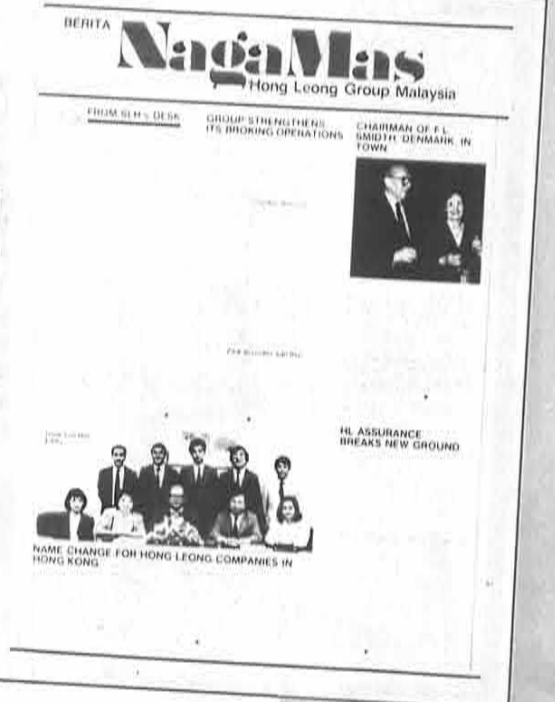
1. Excellence in customer education
2. Excellence in customer protection
3. Fairness in trade practices
4. Excellence in after-sale service

Mr. Bubna, who has a long career in the marketing of automobiles and accessories, sold an amazing 500 Yamaha RX100s in his city between August and December of last year. This sales record is especially remarkable considering the fact that he shares the market with one other company.

YOUR COMPANY'S YAMAHA MOTOR NEWS

MALAYSIA

"Berita NagaMas" is the company newsletter for the Hong Leong Group, of which Malaysia's Yamaha importer Hong Leong Yamaha is a member. This twelve-page all-color publication, which has just been attractively redesigned by its editorial staff, is an outstanding business newsletter containing interesting and pertinent articles from its different member companies.



Lucky strikers win RD125s

SPAIN

ILLEVATE CON LUCKY STRIKE 42 YAMAHAS Y MILES DE PREMIOS MAS!
Del 1 de Abril al 15 de Mayo



A Lucky Strike's "Win RD125" PR poster.

During the months of April and May Yamaha España and Lucky Strike España got together on a promotional campaign that had a tremendous appeal for the young people of Spain. The campaign started with a good idea from Lucky Strike. Fifty or so Lucky Strike buyers were chosen by lottery every week to receive an invitation to a local disco, where they would compete against each other in the singing of the Lucky Strike PR song. The five best singers would then be given 5 keys, and the one that fit the RD125 on display on the stage won the bike. This campaign was held in the Catalonia region of Spain, and by the end of its run 42 local young people had received a brand new Yamaha RD125. Everyone agreed that the advertising effect of this one-and-a-half month campaign was tremendous.

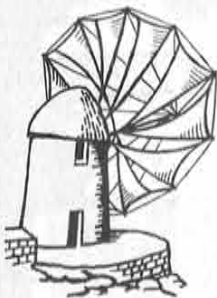
Here are some ways Yamaha Motor is expanding its corporate activities

Searching for a source of clean alternative energy

Wind-turbine generator

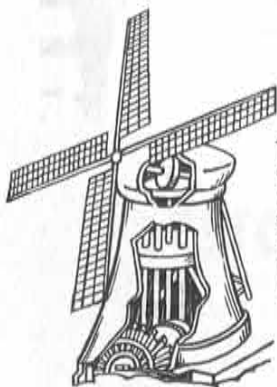
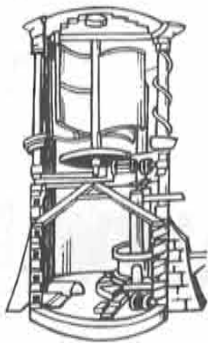
In the world-famous novel, "Don Quixote de la Mancha", written by the Spanish author Cervantes in 1600, the aged hero imagines a windmill he encounters in his travels to be a monster and undertakes to defeat it with his lance. Of course, everyone knows that windmills are not monsters, in fact they have a long history of aiding man with his work. The first historical record we find of a windmill is the one built by Heron of Alexandria in the second century B.C. to feed wind to his organ. By the 13th century we find windmills being used for jobs like pumping water and grinding grain throughout the world, and the 19th century marked the height of the use of windmills as a power source to help man in his labors. However, with the advent of the steam engine as a usable power source, windmills soon became little more than fossils of a bygone age. But, now, as we near the 21st century we find the windmill beginning to make a

Typical historical windmills of the world



This is an old tower-shaped windmill still in use on Crete and other Aegean Sea regions. The triangular sails are opened to the necessary width and the cone-shaped top of the tower is rotated to change in wind direction.

This is the oldest known drawing of a horizontal-type windmill. It is a tower-shaped windmill with sails attached below the dome.



This is a basic drawing of a windmill-driven water pump from early 18th century Holland. The head portion which holds the rotor is mounted on rotary bearings.

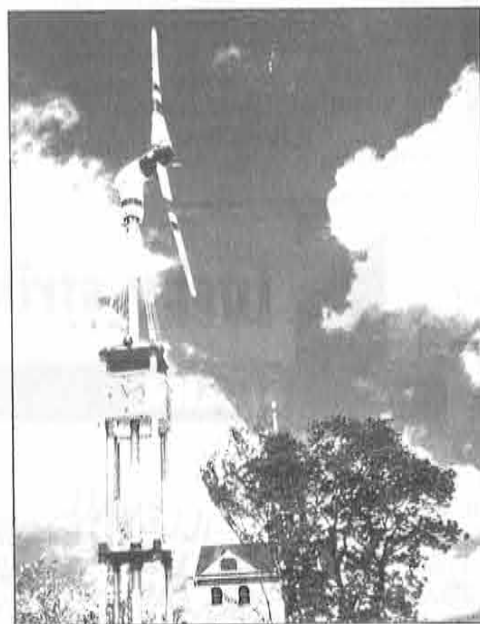
This is a tower-type windmill designed in about 1860 by a miller in Suffolk, England. The 15-meter diameter circular rotor has slats which can be opened and closed. This type of windmill is the forerunner of the American windmill-driven water pump.



energy resources and a worldwide search began for alternative energy sources to reduce the dependence on petroleum. One such project, called the "Sunshine Project", was undertaken by the Japanese government in 1974. The goal of this project was to develop new technology to exploit clean alternative energy sources that reduce energy needs and, at the same time, contribute to a cleaner environment. The main objects of this project were the development of energy sources other than nuclear energy, such as solar energy, geothermal energy, the liquidification and gasification of coal, hydro energy, as well as a continuing search for new technologies for the exploitation of other alternative sources such as wind, and tidal energy.

Project started to aid Japanese government research

In order to utilize its fiber-glass technology (which is famous in the boat industry) for the research and development of high-quality, cost-effective rotor blades for wind-turbine generators, the Ministry of International Trade and Industry asked Yamaha Motor to join its research team in 1981. Since then, Yamaha Motor has cooperated with the MITI's Mechanical Engineering Laboratory (MEL) and the New Energy Development Organization (NEDO) on several projects, including a conceptual design of a mega-watt class wind-turbine generator and the research and development of several types of small scale wind turbines. Yamaha Motor has applied its resources not only to the mechanical aspects, aerodynamic designs, composite structural designs, and structural dynamics and gear arrangements, but also in such new high-tech aspects as mechanical and electrical



A clock tower for the domestic market

control systems, electrical power conversion systems, and interconnecting systems for the grid. In other words, Yamaha Motor has approached the whole project with a concept of "system engineering". As a result of these efforts, Yamaha has produced several small wind-turbine generators for domestic use as educational devices and landmarks in parks, etc. And recently, Yamaha Motor has succeeded in the development of a 15-meter diameter 15 kilowatt generator called the "WINDMEL". This machine is an experimental "testing ground" for members of the MEL research team to test a variety of innovative new



WINDMEL



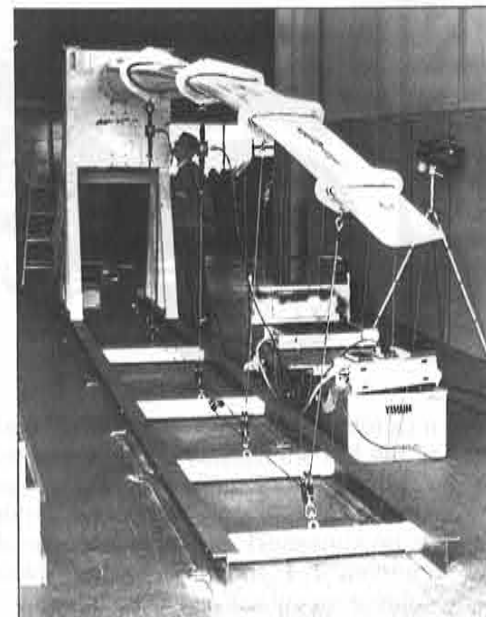
A rotor assembly

concepts and devices related to the fundamental study of mega-watt class wind-turbine generators.

Designing a new generation of wind-turbine generators

The main concepts of this system include "soft-design", "passive control" and "variable speed operation". "Soft-design" is the name given to a system of design which strives to keep down both machine weight and initial cost of production. Practically speaking, the machine has been trimmed down to a slim design to decrease machine weight and initial production cost. The "WINDMEL" also incorporates the first "teetered hub" design ever used in Japan. This is a system which utilizes a teetering motion by rotating blades to relieve the strength of uneven wind forces applied thereto, in order to decrease the stress to the blades and the main shaft. Explaining simply, by not attaching the rotor rigidly to the main shaft but leaving a certain degree of flexibility to allow the rotor to "teeter" at the axis point the system successfully dissipates stress forces that would otherwise impose too heavy a burden on the machine. The "passive control" concept is a system which prevents the machine from using excess energy and includes a mechanical pitch control governor for speed control, and a down-wind free yaw system with an-

gle drive. The mechanical pitch control governor is a regulating device which automatically changes the pitch angle of the blades when the wind is too strong to allow the excess and potentially damaging wind force to escape. The down-wind free yaw system serves a "weathercock" function by adjusting itself to correspond to changes in wind direction. The "variable-speed operation" system is an AC-DC-AC link system utilizing solid-state inverters and a cage type induction generator. This is a system that attempts to maximize annual energy output by increasing the rotation speed at times of strong wind and decreasing it when winds are weak. This combination of features surely makes this system one of the most innovative and advanced wind-turbine generators in the world. They may also make this potentially the most reliable and cost-effective wind-turbine generator ever. We hope that Yamaha's efforts will eventually lead to the realization of a great goal, that of harnessing the wind reliably and economically as a clean, renewable, natural energy source that will contribute to a better environment for all.



Experimenting with a prototype blade

Generators can serve as cooking and lighting power sources for family picnics, too.

Careful market analysis brings successful marketing

ET500 portable generator



The origin of Yamaha's portable generator

Last year, Yamaha's total production of generators reached 800,000 units. Looking back, the model which launched Yamaha's full-scale entrance into the generator field was its ET500 model released in 1979.

Before that, in 1973 Yamaha had developed its ET1250 (later changed to the ET1500) making use of the MT100 two-stroke multi-purpose engine, but this model was not sufficient to give the Yamaha brand a significant foothold in the world generator market. By contrast, the success of the ET500 was due to a development strategy which hit its mark with amazing accuracy.

- 1) In order to establish the kind of individual position necessary to hold a place in the market as a generator maker, Yamaha decided to put its resources into the development of a generator with a perfectly matched engine and generating unit made of 100% Yamaha parts.
- 2) The primary target decided on for the ET500 was the household and small business category, and an electrical output rating was set at 400W with a maximum capacity of 500W (50HZ). In the case of household use, this capacity would be sufficient to supply electricity for 3 or 4 electric lights and a television at one time.
- 3) Although it fell in the portable category, the primary design aim was to give it sufficient capacity for continuous nighttime utility use, and so, it was designed

to achieve a long-hour running capacity without re-fueling. While conventional competitive models featured a standard 2 liter fuel tank, Yamaha gave its model a 4 liter tank, which made possible 8-hours of continuous operation. Thus, the Yamaha ET500 that was released on the market immediately began to show excellent sales results as the simplest electrical generating outfit



A power source for Sunday carpentry.

available which filled all the minimum requirements of normal utility use, and soon it became the pioneer model which would allow Yamaha to develop a solid network of overseas dealerships, while also providing a solid sales base from which the generator division of Yamaha could begin a steady growth and development. As of today, a total of over 200,000 units of the ET500 have been shipped from YMC.

Getting a hand from the hit model, "Passol"

Yamaha's advantage in the generator industry comes from the fruit of long years of

Yamaha engine technology, dating back to 1955, which it has been able to incorporate to the fullest in its research and development activities. Actually, in the case of the ET500, development began with the adoption of the forced-air-cooled 2-stroke gasoline engine from the successful "Passol". The "Passol" was a small-sized lightweight scooter released in 1977 which became a hit model that stimulated a sudden growth in demand in the domestic market by winning popularity among a new group of women riders.

The development staff assigned to the ET500 project decided to adopt the "Passol" engine for two reasons. Firstly, in the two years since its release, the engine had sufficiently proved its performance and reliability. And, secondly, by adopting the same engine used on a motorcycle, a considerable cost reduction could be achieved by the increased production volume.

By making use of this already completed engine, they were able to fulfil the basic requirements of a generator engine; that it be lightweight, compact, quiet-running, durable and as maintenance-free as possible. And, at the same time, it allowed them to concentrate their design efforts on adding more product features which would benefit the user by making the generator even easier to operate and more convenient to use. Although we tend to think of the small generator primarily as a source of electricity for lights and televisions and charging of batteries etc., actually they are used widely for a large number of purposes in the commercial and leisure fields, as well.



A power source for trimming garden trees

They can be used for an endless number of jobs, ranging from a power source for tools and compressors in factories or construction sites, an emergency power source for hospitals, a lighting source for outdoor marketplaces and stands, to such leisure activities as camping and boating.

Maintaining its position as leading seller, while enabling the development of new models

While the ET500 has continued to open up ever-larger sales routes, it has enabled Yamaha to develop one new model after another, so that it now boasts a full generator lineup that includes not only the ET300, ET900 and ET1500S variations of the "ET" series, a 4-stroke gasoline engine "EF" series, a 4-stroke kerosene "EFK" series, a 4-stroke, water-cooled diesel engine "EDY/EDL" series and a 4-stroke, air-cooled diesel engine "EDA" series.

In the case of generators, the intended use of the generator determines the necessary specifications of such features as generating capacity and type of fuel used to a very high degree. Also, depending on the country, operating conditions such as air temperature, amount of dust in the air, quality of fuel and oil available etc., may vary greatly. In order to satisfy all these potential variants, Yamaha has developed a lineup of gasoline, kerosene and diesel engine generators that now include a total of over 30 models.

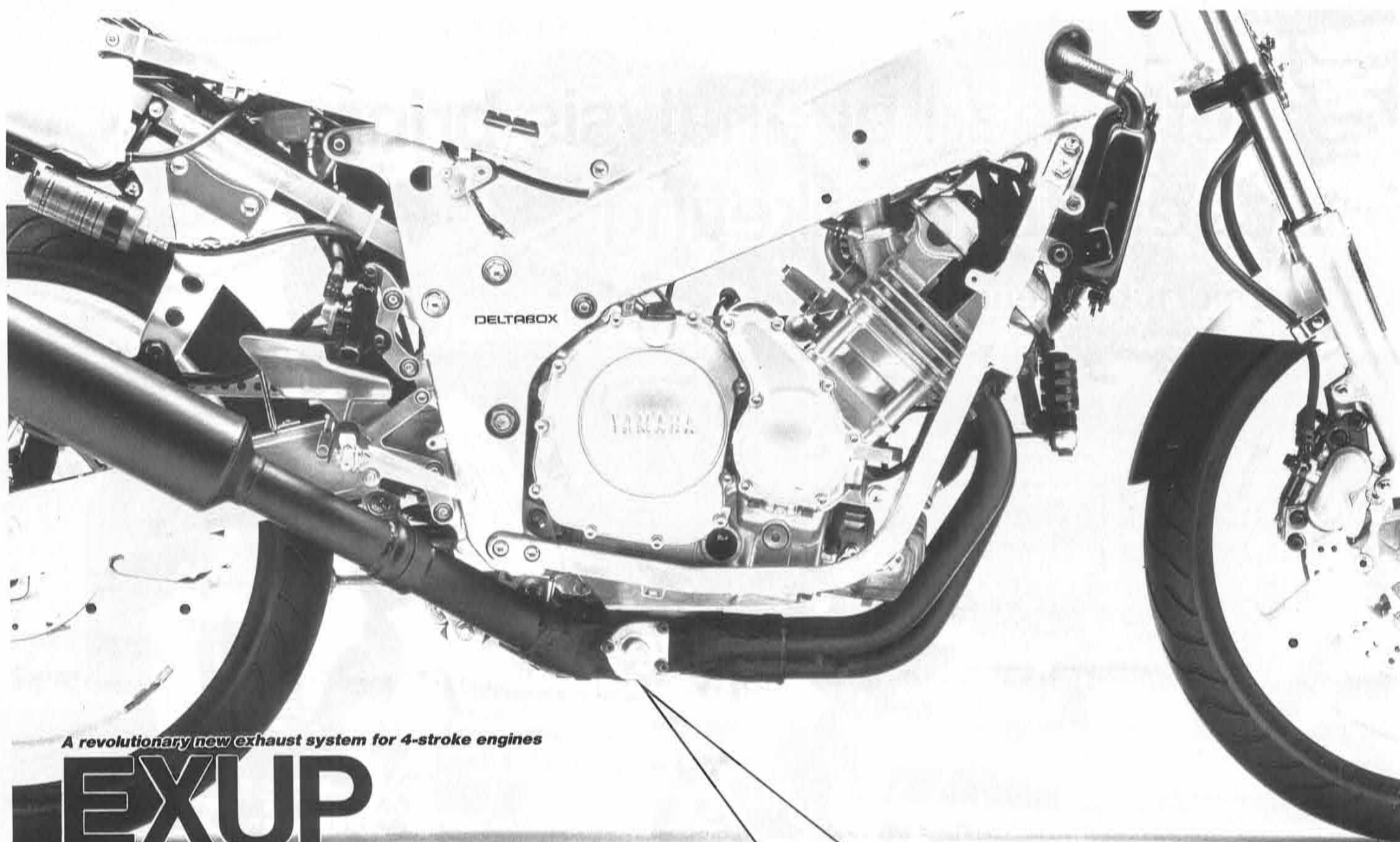


Even as a power source for a mobile hotdog stand.



Yamaha generator ET500

YAMAHA TECHNOLOGICAL HIGHLIGHT



A revolutionary new exhaust system for 4-stroke engines

EXUP

(Exhaust Ultimate Power Valve)

This new system achieves a dramatic boost in engine performance by adjusting the exhaust system function, a vital element in the 4-stroke engine's performance, in line with changes in engine rpm, thus providing the ideal exhaust function at all times.

The 4-stroke engine's exhaust system

In a 4-stroke engine the function of the exhaust system is critical. For this reason, the diameter and length of the exhaust pipes are usually determined by the power output range desired most for a particular type of model. In other words, the diameter and length of exhaust pipes necessary to give good torque characteristics in the middle and low speed ranges will be different from the exhaust pipes best suited for good power development in the high speed range, and therefore, it is extremely difficult to find one type of pipe that will perform optimally across the full range of speeds. The new EXUP system is one that solves



Valve opening for high rpm.



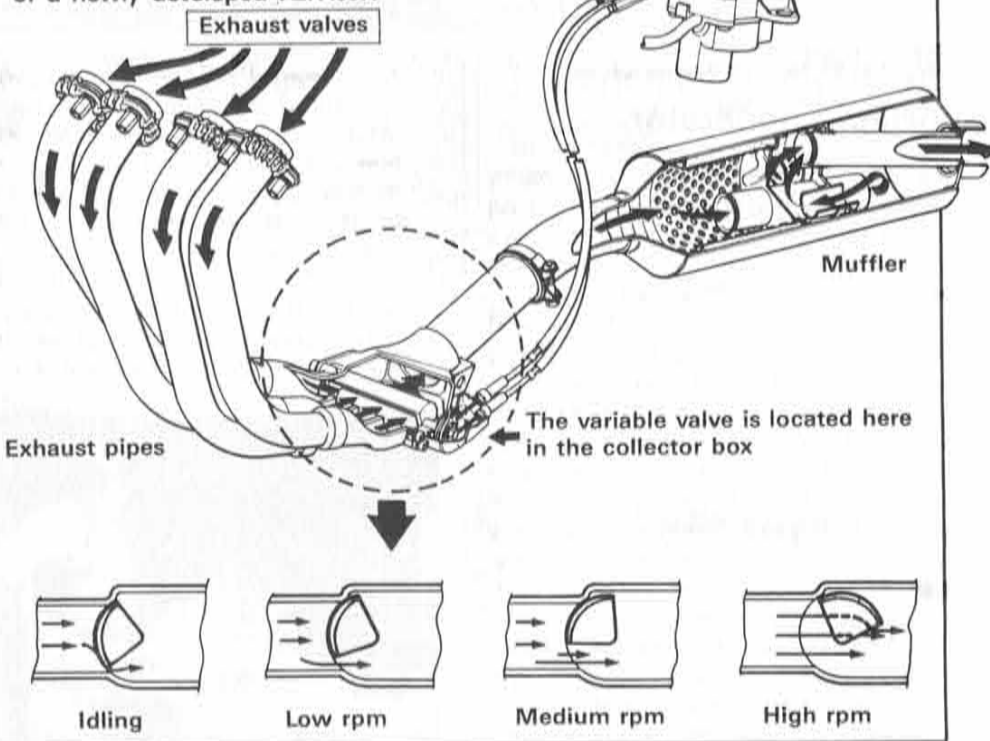
Valve opening for idling.

this problem and enables the engine to develop its full power potential under all running conditions by changing the diameter of the exhaust pipe in accordance with the engine rpm.

What the EXUP system is

In simple terms, one might say that the EXUP system is a 4-stroke version of the YPVS (Yamaha Power Valve System) for 2-strokes. This system is designed to prevent exhaust gas from being sucked back into the 4-stroke engine after ignition and combustion have occurred, while also improving the smoothness of the intake of fresh air/fuel mixture into the cylinder and thereby increasing combustion efficiency. In a 4-stroke engine, the intake valves and exhaust valves open and close alternately to achieve the intake and exhaust functions. There are, however, brief intervals, (called overlap) at which both will be open at the same time. During such overlap intervals, if the pressure at the exhaust valve is negative, the combusted gas in the

EXUP fitted in the exhaust system of a newly developed FZR400R



cylinder will be drawn out easily and, at the same time, the intake of fresh fuel/air mixture will occur smoothly, resulting in improved power output. However, if the pressure at the exhaust valve is positive at the moment of overlap, it will cause a rise in pressure in the cylinder which will inhibit the intake of fresh fuel and can cause a reverse flow of exhaust gas into the cylinder, resulting in a decrease in combustion efficiency and engine performance. Yamaha's EXUP system is designed to prevent this reverse flow of exhaust gas by employing a micro-computer to read engine rpm and adjust the angle of a variable valve located in the collector box of the exhaust pipes, thereby creating a smoother outflow of exhaust gas.

The inclusion of this new system results in;

1. An increase of 10 - 20% in power output over conventional engines
2. A reduction in exhaust noise when idling to 1/10th that of a conventional engine

3. A roughly 5% improvement in fuel economy in the high speed range

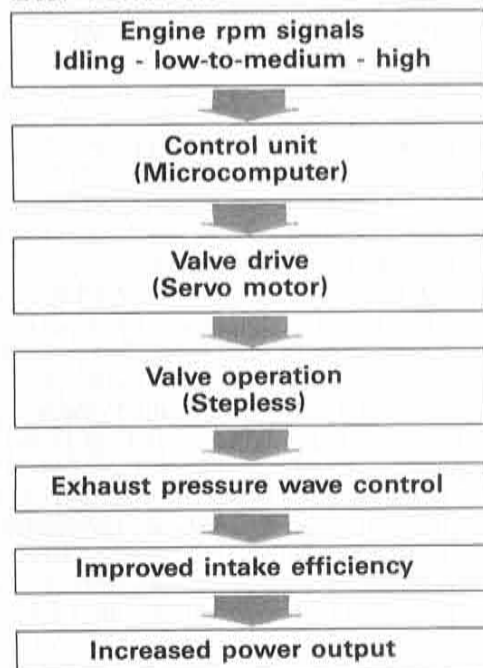
4. Prevention of a drop in torque at certain rpm ranges, thus producing smooth acceleration up to the high speed range.

Although numerous devices have been developed for the aim of improving power output in both 2-stroke and 4-stroke engines, the Yamaha EXUP system is the first of its kind in the world to use engine rpm as the determinant for adjusting the opening of the special exhaust valve fitted in the collector box.

The announcement of the development of the revolutionary new EXUP system has been greeted with calls for its application in a wide range of fields. The first practical application of the system, however, will be on the new Yamaha FZR400R (see page 8), released in April on the Japanese domestic market.

Yamaha plans to continue to include this exciting new technology in most of its future models of 250cc and over.

EXUP FUNCTION



SPORTS NEWS RUNDOWN

World Championship Motocross 125cc class

John van den Berk leads Championship by 6 points

Hot competition is being staged on the world's top circuits every week as the World Championship GP approaches mid-season. One such race was the fifth round of the Motocross 125cc class held on May 24 before 40,000 fans at Samakov in Bulgaria.

In the 4th round of this closely contested class, Yamaha's John van den Berk (YMNBV Team) had taken a six-point lead over rival Dave Strijbos (Cagiva) in the standings. In the first race at

Samakov, Van den Berk jumped out to an early lead. Strijbos tried twice to pass him but crashed both times, leaving Van den Berk an easy victory.

In the second race again, it was Van den Berk who grabbed the early lead only to be passed by a hard-pushing Strijbos on the 3rd lap and having to settle for second place. The split gave each man 37 points, leaving Van den Berk with his 6-point lead in the series.

J. van den Berk



RESULTS

'87 WORLD CHAMPIONSHIP ROAD RACING

3rd round - W. Germany - May 17

- 500cc CLASS**
1. E. Lawson Yamaha
 2. R. Mamola Yamaha
 3. R. Haslam Honda
 4. T. Taira Yamaha
 5. R. McElnea Yamaha

250cc CLASS

1. T. Mang Honda
2. J. Cornu Honda
3. R. Roth Honda
4. C. Cardus Honda
5. L. Cadalora Yamaha

4th round - Italy - May 24

- 500cc CLASS**
1. W. Gardner Honda
 2. E. Lawson Yamaha

3. C. Sarron Yamaha
 4. R. McElnea Yamaha
 5. R. Haslam Honda
 6. T. Taira Yamaha
- 250cc CLASS**

1. T. Mang Honda
2. R. Roth Honda
3. D. Sarron Honda
4. J. Cornu Honda
5. S. Pons Honda
6. C. Lavado Yamaha

5th round - Austria - June 7

- 500cc CLASS**
1. W. Gardner Honda
 2. R. Mamola Yamaha
 3. N. Mackenzie Honda
 4. R. Haslam Honda
 5. R. McElnea Yamaha
 6. C. Sarron Yamaha
- 250cc CLASS**

1. T. Mang Honda
2. L. Reggiani Aprilia
3. R. Roth Honda
4. S. Pons Honda
5. C. Cardus Honda
6. J. Cornu Honda

World Championship positions after 5 rounds

- 500cc CLASS**
1. W. Gardner Honda .. 58 pts.
 2. R. Mamola Yamaha .. 44 pts.
 3. R. Haslam Honda .. 40 pts.
 4. E. Lawson Yamaha .. 39 pts.
 5. T. Taira Yamaha .. 24 pts.
 6. N. Mackenzie Honda .. 23 pts.
- 250cc CLASS**
1. T. Mang Honda .. 48 pts.
 2. R. Roth Honda .. 45 pts.
 3. S. Pons Honda .. 32 pts.
 4. J. Cornu Honda .. 30 pts.
 5. M. Wimmer Yamaha .. 22 pts.
 6. D. Sarron Honda .. 22 pts.

'87 WORLD CHAMPIONSHIP MOTOCROSS

500cc CLASS 4th round - Finland - May 10

- 1st race
1. K. Ljungqvist Yamaha
 2. K. van der Ven KTM
 3. G. Jobe Honda
 4. K. Nicoll Kawasaki
 5. Jo Martens Kawasaki
 6. L. Persson Yamaha

- 2nd race
1. G. Jobe Honda
 2. K. van der Ven KTM
 3. Jo Martens Kawasaki
 4. K. Nicoll Kawasaki
 5. H. Kinigadner KTM
 6. H. Carlqvist Kawasaki

5th round - Sweden - May 17

- 1st race
1. Jacky Martens KTM
 2. K. van der Ven KTM
 3. J. van Poppel KTM
 4. L. Persson Yamaha
 5. K. Nicoll Kawasaki
 6. D. Geukins Honda

- 2nd race
1. L. Persson Yamaha
 2. Jacky Martens KTM
 3. K. Ljungqvist Yamaha
 4. K. van der Ven KTM
 5. G. Jobe Honda
 6. K. Nicoll Kawasaki

6th round - W. Germany - May 31

- 1st race
1. G. Jobe Honda
 2. R. Andrews Honda
 3. K. Ljungqvist Yamaha
 4. D. Thorpe Honda
 5. M. Anstie KTM
 6. K. van der Ven KTM

- 2nd race
1. G. Jobe Honda
 2. D. Thorpe Honda
 3. H. Kinigadner KTM
 4. K. van der Ven KTM
 5. L. Persson Yamaha
 6. D. Watson KTM

World Championship positions after 6 rounds

1. G. Jobe Honda .. 155 pts.
2. D. Thorpe Honda .. 145 pts.
3. K. van der Ven KTM .. 130 pts.
4. K. Ljungqvist Yamaha .. 119 pts.
5. K. Nicoll Kawasaki .. 95 pts.
6. H. Carlqvist Kawasaki .. 93 pts.

250cc CLASS 3rd round - Great Britain - May 10

- 1st race
1. P. Vehkanen Cagiva
 2. P. Hansson KTM
 3. M. Rinaldi Suzuki
 4. L. Combee Kawasaki
 5. M. Smits Honda
 6. M. Velkeneers Honda

- 2nd race
1. E. Geboers Honda
 2. P. Vehkanen Cagiva
 3. J. Nilsson Honda
 4. P. Hansson KTM
 5. L. Combee Kawasaki
 6. M. Smits Honda

4th round - Holland - May 17

- 1st race
1. P. Vehkanen Cagiva
 2. E. Geboers Honda
 3. L. Combee Kawasaki
 4. M. Smits Honda
 5. M. Rinaldi Suzuki
 6. A. Eriksson Yamaha

- 2nd race
1. E. Geboers Honda
 2. P. Vehkanen Cagiva
 3. L. Combee Kawasaki
 4. M. Smits Honda
 5. J. Nilsson Honda
 6. M. Velkeneers Honda

5th round - Czechoslovakia - May 31

- 1st race
1. P. Vehkanen Cagiva
 2. E. Geboers Honda
 3. S. Mortensen Yamaha
 4. J. Whatley Suzuki
 5. P. Hanson KTM
 6. L. Combee Kawasaki

- 2nd race
1. E. Geboers Honda

2. P. Vehkanen Cagiva
3. J. Nilsson Honda
4. L. Combee Kawasaki
5. Mario Martens Kawasaki
6. S. Mortensen Yamaha

World Championship positions after 5 rounds

1. P. Vehkanen Cagiva .. 178 pts.
2. E. Geboers Honda .. 164 pts.
3. J. Nilsson Honda .. 121 pts.
4. L. Combee Kawasaki .. 110 pts.
5. P. Hanson KTM .. 84 pts.
6. M. Rinaldi Suzuki .. 76 pts.

125cc CLASS 3rd round - Italy - May 10

- 1st race
1. M. Contini Cagiva
 2. J. van den Berk Yamaha
 3. B. Moore Honda
 4. J-M Bayle Honda
 5. C. Maddii Honda
 6. M. Manss Yamaha

- 2nd race
1. D. Strijbos Cagiva
 2. M. Contini Cagiva
 3. J. van den Berk Yamaha
 4. C. Maddii Honda
 5. A. Puber KTM
 6. B. Moore Honda

4th round - Czechoslovakia - May 17

- 1st race
1. D. Strijbos Cagiva
 2. J. van den Berk Yamaha
 3. D. Lacher Honda
 4. J-M Bayle Honda
 5. B. Moore Honda
 6. P. Kover Kawasaki

- 2nd race
1. J. van den Berk Yamaha
 2. P. Kover Kawasaki
 3. J-M Bayle Honda
 4. C. Maddii Honda
 5. P. Tragter Honda
 6. D. Lacher Honda

5th round - Bulgaria - May 24

- 1st race
1. J. van den Berk Yamaha
 2. D. Strijbos Cagiva
 3. C. Maddii Cagiva
 4. P. Tragter Honda
 5. B. Moore Honda
 6. P. Dirx Honda

- 2nd race
1. D. Strijbos Cagiva
 2. J. van den Berk Yamaha
 3. D. Lacher Honda
 4. C. Maddii Cagiva
 5. B. Moore Honda
 6. J-M Bayle Honda

World Championship positions after 5 rounds

1. J. van den Berk Yamaha .. 170 pts.
2. D. Strijbos Cagiva .. 164 pts.
3. C. Maddii Cagiva .. 113 pts.
4. J-M Bayle Honda .. 99 pts.
5. M. Contini Cagiva .. 86 pts.
6. P. Tragter Honda .. 84 pts.

New kart models for sports and leisure facilities

LK285 & SK125

Yamaha Motor has recently developed two exciting new kart models designed to be used as a new type of recreational vehicle for sports and leisure facilities as well as resort communities.

The new models, which were released on the Japanese market on April 25 include, a two-passenger kart to satisfy the recreational needs of fun-loving

vacationer, the "LK285", and a sports kart for those who want to experience the thrills of kart racing, the "SK125".

The "LK285" is based on an air-cooled, 4-stroke OHV golfcar engine that delivers a maximum power output of 8 hp. On the other hand, the "SK125" is powered by an air-cooled, 4-stroke OHC engine that puts out a full 11.5 hp.

These karts are new products that draw heavily from Yamaha Motor's long years of experience in the development of small engine technology for motorcycles, racing karts and golfcars, as well as its experience in FRP technology as one of the world's top boat and yacht manufacturers, and their development represents an aspect of Yamaha Motor's entrance into an

entirely new field. In an attempt to cater for the recent diversification of customer preferences, a lot of companies involved in the leisure industry are directing their definite efforts toward changing and improving the quality of recreational facilities. And Yamaha Motor has developed these new models to provide the primarily young clientele of such

facilities with an enjoyable driving experience that will add an attractive plus to the facility from a business standpoint, as well. Already these new karts are being provided on a rental basis to customers at Yamaha group's recreational facilities such as "Nemu-no-sato", "Tsumagoi" and "Sportsland Sugo".



Making inroads into a man's world!

Two charming, young lady riders from Canada will be one of the Yamaha FZR750 teams to compete in the forthcoming World Championship Suzuka 8-hour Endurance Race which will be held on July 26.

Miss Kathleen Coburn and Miss Toni Sharpless, started their professional racing career in 1986, riding a Suzuki GSXR750 and a Yamaha FZR750 respectively. And now the two of them are regarded as North America's premiere female motorcycle roadracers.



Miss Toni Sharpless Miss Kathleen Coburn

The Yamaha FZR750 that they will ride in the Suzuka event is a race-kitted machine with technical assistance given by Yamaha Motor.

The first Ténéré-owners meeting in W. Germany



On May 9 and 10 in the town of Worms in West Germany, 130 Ténéré riders gathered from all corners of the country. The event was the first meeting of a newly formed Ténéré owners club, the first of its kind in West Germany. Two days of fine weather helped make this an especially memorable event. The Ténéré is a model which enjoys a unique popularity in Europe, and owners first began to gather to form a club in Switzerland several years ago. As proof of this

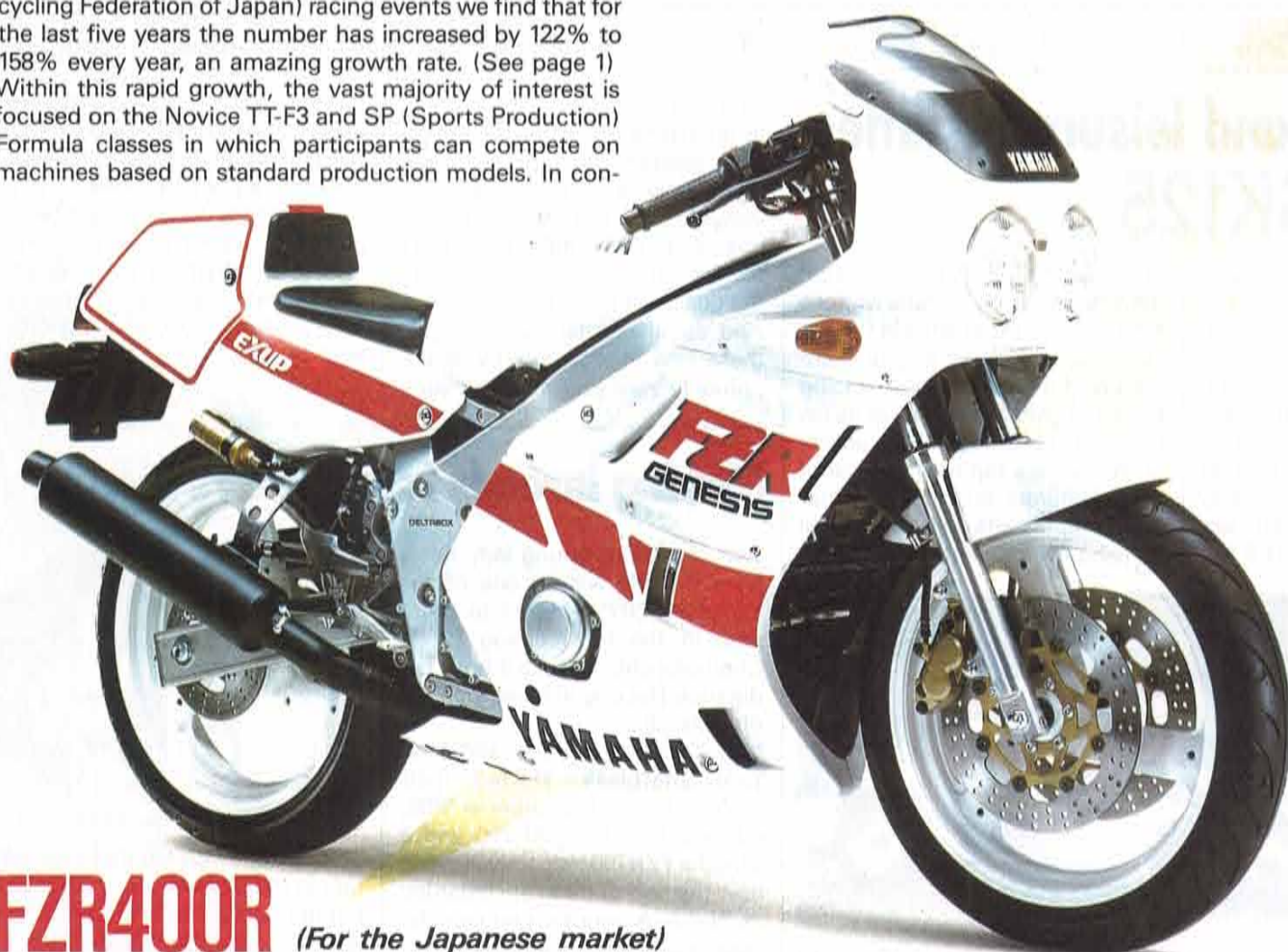
popularity, owners attended the recent West German event from as far away as Holland and Switzerland. Also in attendance were some attractive and exciting modified versions of the Ténéré. West Germany's Yamaha importer, Mitsui Maschinen GMBH lent its support to the organizers of this first meeting by sending news releases to important motorcycle publications and by preparing stickers, etc., to be given out to the participants.



YAMAHA NEW PRODUCTS

On April 5, Yamaha introduced the new FZR400R for sale on the Japanese market. The FZR400R features a liquid-cooled, DOHC 4-valve, 45° forward-inclined in-line 4-cylinder engine which features a revolutionary new exhaust variable valve system, called "EXUP" (see page 6). This new model is based on the FZR400 released on the Japanese market in May last year and includes a number of new features and improvements which make it a potential contender on the race track with a bare minimum of modifications. In recent years Japan has experienced a tremendous growth of interest in motorcycle racing. Looking at the number of riders obtaining licenses to compete in MFJ (Motorcycling Federation of Japan) racing events we find that for the last five years the number has increased by 122% to 158% every year, an amazing growth rate. (See page 1) Within this rapid growth, the vast majority of interest is focused on the Novice TT-F3 and SP (Sports Production) Formula classes in which participants can compete on machines based on standard production models. In con-

sideration of this rapidly growing market, Yamaha designed the FZR400R primarily to be a model that includes as many race modification parts as possible as standard features, thus reducing the expenditure necessary for a rider to race-prepare his machine for such production races. Because this model was designed with the potential to be a fully competitive race machine after simply adjusting specifications to class regulations, its basic performance and power set it apart from other models that are "racer replicas" in appearance only. So, for the user who knows and demands the real thing, the FZR400R is sure to be the "bike of your dreams".



FZR400R (For the Japanese market)



"FZ750P" Police Bike

(For the Japanese market)

A new Yamaha Police Bike, the FZ750P, based on the FZ750 has recently been completed, and the first order for 4 bikes by the Gifu Prefectural Police was delivered in late April. The FZ750P was developed to make the best advantage of the balanced design of its base model, the FZ750, which includes such features as a DOHC 5-valve system on a 45° forward-inclined, water-cooled, in-line 4 cylinder engine with its superior front/rear weight distribution and lower center of gravity, a high-rigidity Deltabox frame, a variable damper equipped front suspension and a rising-rate Monocross rear suspension. With its downdraft carburetor and its low-curve exhaust system that produce excellent intake efficiency, this engine develops outstanding power and torque figures of 77ps/9500rpm and 7.0Kgm/6500rpm, for excellent acceleration characteristics from low speeds all the way through the middle and high speed ranges. Also, with its positive torque development even at the lowest speeds, this bike will give the kind of stable performance demanded for slow cruising police guards in events and parades.