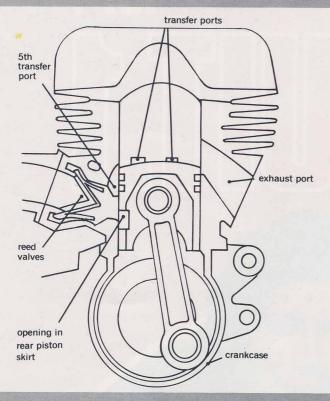


### **Strictly Technical**



### Torque induction

Torque is the force generated by an engine and induction is the engine's combined intake of fuel and air.

Yamaha's two-stroke torque induction system is a combination that utilizes two different channels or ports for controlling the combined fuel and air intake.

- The inlet port which allows the conventional intake of fuel and air to pass into the cylinder, and
- 2. A fifth transfer port which is combined with reed valves and an opening in the lower rear of the piston. These two induction ports, the conventional intake and the fifth transfer port form Yamaha's induction system utilizing reed valves.

Controlling inlet induction with reed-valves is not new. Back in the 1920's and 1930's, DKW had incorporated the reed-valve system into many of their engines. However, it was Yamaha's engineers who revived the reed-valve system and combined it with a fifth transfer port and a new opening in the rear of the piston skirt to give their engines more power in the lower RPMs.

These reed valves are thin stainless-steel spring loaded blades located in the inlet port on a v-shaped housing. They open and close depending on the pressure difference between the carburettor and piston side of the inlet port.

In the normal two-stroke engine pressure may build up in the inlet port at low RPM, causing blowback. The reed valves in Yamaha's two-stroke form a control gate, automatically closing the moment the pressure is higher on the piston side, thus preventing blowback and loss of power at low engine speeds.

The second part of Yamaha's torque-induction system is the fifth transfer port which is cut into the rear wall of the cylinder, starting from the inlet port. It is directed upwards to the upper part of the cylinder, just like the four normal transfer ports in any two-stroke engine.

This fifth transfer port is fed directly from the inlet port through the reed valves as well as from the crankcase by means of the opening in the piston skirt. This results in a more efficient flow of fuel and air mixture to the upper part of the cylinder and it is this extra flow that is the key to Yamaha's torque-induction system.



# A different kind of selling

PARIS, France – ZONE 6 is not the average looking motorcycle shop. Its vivid green painted façade stands out amidst the grey, decaying buildings of the old Les Halles area where it is located.

Lining the pavement in front of ZONE 6 are several different makes of motorcycle which have the same characteristics. They are all "off-road" machines, trial and trail, but naturally they can be used on the highway. In fact, approximately 80% of the customers of ZONE 6 use their trail machines for incity commuting only.

The inside of ZONE 6 could be called even stranger than its outside. It is comparatively small by motorcycle shop standards and everything is painted black except the machines on sale. Pop music comes out of the walls and spotlights illuminate the corners of the showroom.

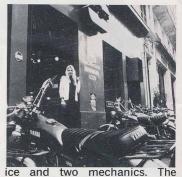
The idea behind this unique motorcycle boutique belongs to its owner. François Soulier, a handsome 29-year-old former motorcycle racer.

Three years ago, ZONE 6 was a shop for oranges. When Soulier acquired the building, he wanted to give it a sporting atmosphere for the sport-type machines he sells.

Soulier painted the outside of his shop green because in France the off-road motorcycles he sells are known as "La Motre Verte" or the motorcycle green. He called it ZONE 6 because his shop is located at number 6, rue Etienne Marcel in Paris.

On sale in Soulier's shop are all kinds of off-road machines but his best seller is the Yamaha DT125. Soulier sold over 300 of these machines in 1973. He feels it outsold its competition because of its in-between size, smooth running, individuality, and reputation as a strong machine..

Soulier also contributes the success of his shop to his small familiar staff and the hours it is open. Only six people, including Soulier, work at ZONE 6. They are his secretary, parts manager, a man for sales and serv-



shop is open every day, except Sunday, at 10 in the morning and closes at 8 in the evening. Soulier said that the best time to sell motorcycles to Parisians is after 6 p.m. Also most shops in Paris are closed in August, but Soulier keeps ZONE 6 open year round.



# introducing .

### Circuit

Gentlemen: is to introduce t, a new maga-This Circuit, from Yamaha. zine Circuit is compiled and edited at our European offices in Amsterdam, Holland. Our aim with Circuit is to keep you abreast of current events in the motorcycle world of Europe and bring you the latest develop-ments from Yamaha. It is our hope that Circuit will help to bring dealers and motorcycle clubs closer together. You, as our readers, can help make Circuit a success. Motorcycling in your country is important and of interest to mo-torcyclists in other torcyclists in other

countries.

Your suggestions and contributions for Circuit will be most wel-

come.
Wishing you a great year of motorcycling,

Rodney Gould.



## Yamaha Circuit

published by Yamaha Motor NV, Amstelveen, Netherlands.

Designed and produced by Dillon, Agnew & Marton BV, Keizersgracht 223, Amsterdam, Netherlands.



# The return of the Elephants

American motorcyclists came from their NATO bases throughout Europe, the Belgians and Dutch left the lowlands, the English boated across the Channel and the French, Italians and Scandinavians converged with thousands of Germans on Germany's Nürburgring circuit in the Eifel mountains to attend the annual Elephant Rally held January 2-5. To escape the bitter cold, 10,000 motorcycle enthusiasts from all over Europe huddled together around bonfires using their motorcycles as wind breakers. They came to drink beer, roast bratwurst and talk about motorcycles.

It all began in 1956 when mo-



torcycling was fading away. To revive it, Ernst Leverkus, the former editor of Das Motorrad, a German motorcycle magazine organized a rally and invited motorcycle enthusiasts from all over Europe to ride their machines to the Nürburgring on a specified date in January.

dred showed up and many of the motorcyles were relics of World War II. But it was those antique BMW and Zündapp machines with side cars that were mainly responsible for bringing the first enthusiasts together.

After World War II the war-surplus, green-painted Zündapp motorcycle with side car, which had proven to be as strong as an elephant, became popularly known as the "green elephant" of motorcycles and so this rally got its name.

This year, Mitsui, Yamaha's German importers from Böderich, set up a trial course on the edge of the Nürburgring and invited enthusiasts to try out Yamaha's trial machines. Mitsui was also responsible for the films and their tent was crowded with motorcycle enthusiasts around the clock viewing racing and trial movies.

In between movies and bonfire conversation, the motorcyclists strode up and down the startfinish line and stared at some of the strangest combinations in the world. Lined up side-by-side along the circuit walls were side-car machines, motorcycles with Volkswagen engines, a water-cooled Panhard in a BMW frame and some of the original elephants from which this great event got its name.





### Mick Andrews tours Australia

Yamaha's number one trial rider, Mick Andrews, recently completed a 1,800 mile, threeweek tour of Australia and New Zealand, demonstrating Yamaha Trial machines.

The 29-year-old ex-European Champion from Derbyshire, England arrived in Sydney November 30, accompanied by his pretty wife, Jill.

Following the 26-hour flight from London, Andrews gave his first demonstration on Australian soil by doing wheelies with a Yamaha TY250 at Sydney airport.

During the next three weeks, Andrews demonstrated in New Zealand and Australia the new Yamaha TY250 Trial, a machine which he helped to develop in Japan. Andrews, who worked with the Yamaha engineers, was responsible for much of the initial design and product testing.

In Amaroo Park, near Sydney, over 250 enthusiasts turned out to watch Andrews take the TY250 over rocky hills and muddy trails.

Later in his tour, Andrews rode over a Volkswagen after landing at Adelaide airport. At Rocky Glen, near Adelaide, Andrews demonstrated the TY250's prowess by riding through a treacherous creek bed before a crowd of 500.

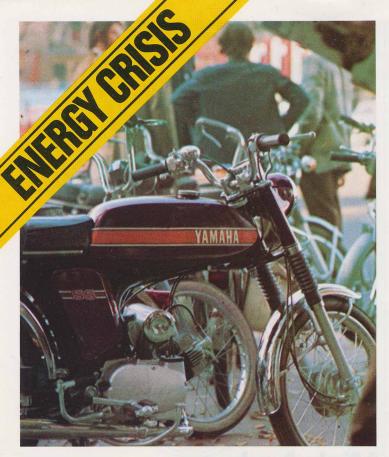
In addition to demonstrating

trials in Australia, Andrews lectured in Brisbane and conducted a Trial School in Melbourne.
Andrews also visited the towns

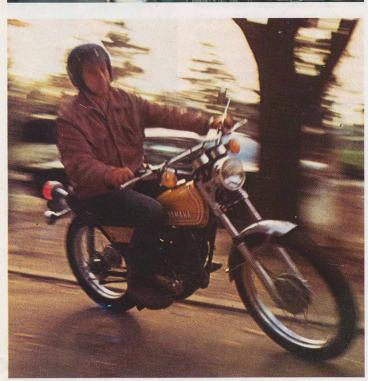


of Auckland and Wellington in New Zealand where hundreds waited to see him and the Yamaha Trial machines.

Mick Andrews has been riding motorcycles around the world since he was 15 and is only the second man ever to win the celebrated Scottish Six-Days Trials three years in a row.







# Is the small machine the answer?

"Sweeping changes will be made in the way people work, travel and spend their leisure time." TIME MAGAZINE, November 19, 1973.

To many, it seemed as if the energy crisis had crept up on the world. The sudden, awesome shortage of energy jolted millions of people into the reality of cold offices, cooler homes and car-less Sundays.

The scarcity of energy, especially oil, became not just a threat, but a reality.

The transportation industry, the hardest hit by the energy crisis, has already cut production of their large automobiles and retooled their assembly lines to produce small, compact cars that burn less of the world's precious fuels.

The large engine petrol eaters have become a luxury of the past. Today, the vehicles needed to commute to work, haul home the groceries and occupy leisure time must be smaller and more economical.

Twenty years ago, before the energy crisis became a recognized threat, people were shopping, commuting and taking Sunday rides in small cars and motorcycles.

As early as 1950, some people in western Europe began showing an interest in finding something faster and more powerful than a bicycle, yet more economical and easier to handle than a large motorcycle or automobile. Inventors began experimenting with auxillary engines mounted on bicycles and the result was a machine today known as the moped.

It originated in Germany as a 50cc machine with easy controls and low running costs. It was of such simple design that a housewife could ride it to market.

The moped caught on fast in western Europe and parts of America. Soon kids were riding their mopeds back and forth to school while their fathers rode mopeds to work.

Its advantages were quickly recognized. The moped was inexpensive to buy, easy to park, quicker in heavy city traffic than a car and faster than a bicycle. It was also fun and effortless to ride and, above all, its small, but powerful engine burned only one liter of a petrol-oil mixture about every 45 kilometers. Unlike automobiles, mopeds were not assessed for road taxes and their insurance costs were only a fraction of the bigger machines.

The moped's popularity in the prosperous '60s increased with the younger generation but unfortunately declined with their elders who were out purchasing petrol-eating automobiles.

Today many of those large automobiles are sitting idle in garages because of sky-rocketing petrol prices brought about by the rising cost of crude oil.

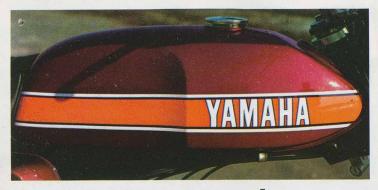


Also the days of large automobiles racing on the highways may be gone forever. Speed limits have been imposed in every country in western Europe because slow driving means greater fuel economy.

Once again, people are taking another look at the smaller, slower but economical two-wheel moped.

Could the small machine be the answer?





# Yamaha's moped the FS series

The slender, motorcycle lines and powerful 50cc two-stroke engine of the Yamaha FS series shatters the old, dull motor mounted-on-a-bicycle image of the past.

Because it was originally designed as a motorcycle and not a moped, the Yamaha FS is the most powerful and attractive machine in its class.

Like motorcycles, the FS has a constant-mesh, four-speed gear box, strong water-dust proof brakes for better safety and a large motorcycle-type air-filter which helps to suppress engine noise.

The Yamaha FS is the only moped which has a single-reed valve system. This unique system gives ideal induction at any engine speed.

The FS has a back-bone style frame which is lighter and stronger than other moped frames. Another strength feature of the machine is the motorcycle-type, telescopic front fork which only the Yamaha moped carries.

A large motorcycle headlight, a motorcycle dual seat and a motorcycle fuel tank that holds seven liters, round out the motorcycle look of the FS.

Due to the motorcycle design, the FS has become a young person's machine. Cees Wijngaard in Amsterdam, one of Holland's top 14 Yamaha dealers, said that 95% of his customers are between the ages of 16 and 19. According to Wijn-

gaard, it's the motorcycle look that attracts teenagers to the Yamaha moped.

Half of all the machines sold in Wijngaard's shop, which also carries the competitor's machines, are the FS. His young customers are so enthusiastic, they often steal his Yamaha demonstrator.

And a used FS usually lasts only an hour in the shop before it is sold

Wijngaard's best advertising is his 17-year-old son, a competitive trial rider, who rides a Yamaha sport moped to work and school.

The Yamaha FS is more economical than other mopeds. Recently tested in Amsterdam, it ran 52.8 kilometers at 40 KPH on only one liter of the petrol-oil mixture it burns.

The compact size of the FS is popular with vacationers who carry it with them in their caravan or tie it to the back of the family car.

It's easy to start in any kind of weather and can go most anywhere. It's small enough for bicycle paths, large enough for country roads and quicker than any other moped in heavy city traffic.

Economy, performance and a motorcycle look have made the Yamaha FS the most popular ride-to-work and ride-to-school machine in Western Europe.



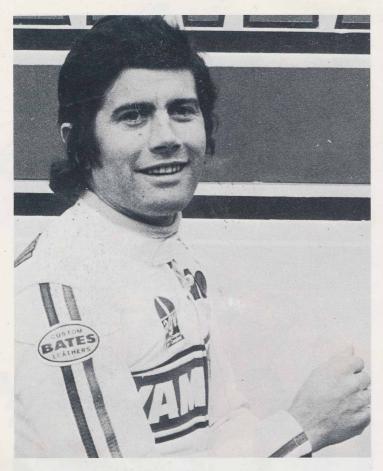












# Agostini switches to Yamaha

Giacomo Agostini may be the best known man in motorcycle racing today.

Since 1966, the daring 31-yearold racer from Bergamo, Italy has been a world champion 13 times, six in the 350cc class and seven times in the 500cc class. The handsome, softspoken Italian was born in Bressica and even as a child, his parents couldn't keep him away from motorcycles. At the age of 10, Agostini entered his first race, a regulation trial and at 15 he rode his first national motocross.

Agostini's first road race at age 18 was a hill climb. His second place finish earned him a ride with Morini's factory team.

Two years later, at the age of 20, Agostini won the Italian Championship in the 250cc class. In 1965, MV Agusta signed him and the following year, 1966, he won his first world championship in the 500cc class.

In January of this year, before leaving for Japan to begin testing for the Daytona 200 mile race in America, Agostini told "Circuit's" staff why he switched. Circuit: After nine years with M.V. Augusta and 13 world championships, why the sudden switch?

Agostini: I wanted a chance to race in the 750cc class and to ride in America. I wanted to do this with a competitive 750 machine which Yamaha has and MV Agusta doesn't.

Circuit: Do you think the differences between Yamaha's twostroke engine and the fourstroke engines you have been racing will give you trouble?

Agostini: Not really. Although the horsepower spread is narrower on a two-stroke, the available power is greater than a four-stroke. This power difference will only take a short time to learn.

Circuit: What classes will you be riding in?

Agostini: The 350cc, 500cc and the Formula 750 championship. Circuit: Who is your biggest competition from this season? Agostini: Phil Read on the MV Agusta and Paul Smart who rides for Suzuki.

Circuit: Do you have any regrets about leaving MV Agusta and your former teammate Phil Read.

Agostini: Naturally I had regrets about leaving MV Agusta and all the close friends I made there in the last nine years. And in losing Phil Read as a teammate, I'm gaining Teuvo Länsivouri.







### A team of champions for

For 1974, Yamaha probably has the best motorcycle racers in all three areas of competition ever to be gathered under one banner. Thirteen times world champion Giacomo Agostini and his teammate, Teuvo Länsivuori will be the combination to beat in the road racing classes.

The 250 motocross world championship is difficult to win and last year's winner, Håkan Andersson doesn't intend to give it up.



### road racing Teuvo Länsivuori

After winning the 1973 West German Grand Prix, bad luck stopped the 28-year-old rider from lisalmi, Finland from winning the 350cc road race championship. With five wins behind him in the 350cc and 250cc class in 1973, Lansivuori, intends to prove that he can win a world championship in 1974.



#### motocross 250 Håkan Andersson

The 1973 250cc motocross champion finished the season with 177 points, 20 points ahead of his nearest challenger. This year, Håkan Andersson, the 28-year-old rider from Uddevalla, Sweden is back again with Yamaha to retain his world championship.



#### motocross 500 Åke Jonsson

1974 could prove to be the year for Åke Jonsson, a 30-year-old rider from Västeras, Sweden. Jonsson spent most of last year adapting himself to his new Yamaha 360cc motocross machine. Towards the end of the season, man and machine settled down to capture three wins

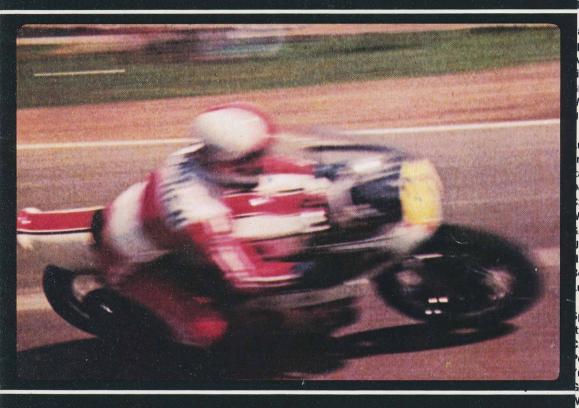
in the last three Grand Prixs.

# THE SOUND OF CHAMPIONS

Clubs and dealers, this is your big chance to organize an exciting and interesting evening of recorded racing history for your next meeting. Four new 16mm sound and color racing films, "A Tribute to Jarno Saarinen", "Cross Torque", "Mick Andrews Trial Champion", and "This is Trial" are now available from Yamaha. These new films and last year's favourite, "Grand Prix 72" have recently been translated into four languages, French, German, English and Spanish and are now being loaned free from our film library. Act now and fill in the attached reply card. Do it today! Your request will be passed on to the Yamaha importer in your country.



# YAMAHA RACING FILMS



See other side for details

Rod Gould Yamaha Motor NV Postbox 7829 AMSTERDAM, Holland

# FROM OUR FILM LIBRARY



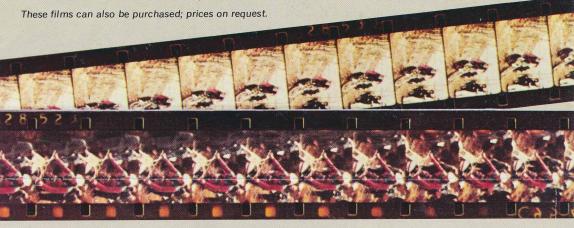
"A Tribute to Jarno Saarinen", 30 minutes. This film features Yamaha's attack on the 500cc world championship and is dedicated to the man whom many consider to be the greatest rider ever, Jarno Saarinen, who died tragically at Monza, Italy, May 20, 1973.

"Cross Torque", 30 minutes. This action packed film features highlights from the 1973 125cc World MotoCross Championship. Yamaha's cameras pick up the riders in Europe and follow them across to America capturing the events as they happen.

"Mick Andrews Trial Champion", 45 minutes. This film takes you through the painstaking development of the new TY250 trial that Mick helped develop in Japan. It also includes Mick's toughest trial, the 1973 Scottish Six Days and his muddy victory at Bergamo, Italy.

"This is Trial", 25 minutes. Yamaha's newest trial film presents Mick Andrews and a step-by-step lesson in trials riding. Mick covers the three most important points, balance, throttle control and section reading while leading you through 13 basic trial techniques.

"Grand Prix 72", 30 minutes. This exciting road racing film takes you back to the rain-swept 1972 Isle of Man TT where Yamaha finished one, two and three. It moves on to Yamaha's victory in the 250cc class of the Dutch Grand Prix at Assen; moving on to the Belgian Grand Prix at Spa, Francorchamps, where Jaarno Saarinen won his first 250cc victory in the year that brought him the 250cc World Championship.



Please indicate the film (or films) you would like by placing an X in the box. Also circle the language version you would like to receive.

"A Tribute to Jarno Saarinen"	☐ French/German/Englis

- "'Cross Torque" 

  French/German/English
- "Mick Andrews Trial Championship" 

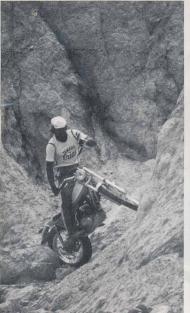
  French/German/English/Spanish
- "This is Trial" French/German/English/Spanish

Your Name:

Dealership or Club Name:
Address:

Tel. No.:

These films will be sent to you on loan, free of charge, by the Yamaha Importer in your country.





# 1974

### racing

In the 500 motocross class, Yamaha has double strength in Åke Jonsson and Jaak van Velthoven. Both of these riders scored high in 1973 and hope to make it to number one this year.

The world's undisputed trial expert, Mick Andrews, will attempt to regain the European Championship he held in 1971 and 1972 on the trial tested Yamaha TY250. Rodney Gould, Yamaha's race coordinator feels that 1974 will be the winning year for Yamaha.

### trial Mick Andrews

In his first year with Yamaha, Mick Andrews had the difficult job of working out the bugs in the new TY250 trials machine that he helped design. The 29-year-old Englishman from Derbyshire almost did the impossible by riding the new Yamaha TY250 to second place in the 1973 European Championship.



Many top motocross riders have emerged from Belgium and Jaak van Velthoven is one of the best. The tall, 23-year-old rider from Lommel is renowned for his forceful riding through the pack after his usual bad start. In 1973 van Velthoven rode to a 3rd place in the World Championships.

#### consultant engineer Lucien Tilkens

Mr. Lucien Tilkens has joined Yamaha as Consultant Engineer. Mr. Tilkens was formerly a lecturer at the Technical University of Waremme (Belgium). He designed the revolutionary MotoCross suspension which enabled Yamaha to win the 250 cc MotoCross World Championship in 1973.







## 1974 World Championship Calendar of events

Road Racing Date Location April 21 French G.P. - Clermont Ferrand W. German G.P. - Nürburgring April 27-28 Austrian G.P. - Salzburg May 5 Italian G.P. - Imola **May 19** June 1-7 Isle of Man T.T. June 26 Dutch T.T. - Assen July 7 Belgian G.P. - Francorchamps July 20-21 Swedish G.P. - Anderstorp Finnish G.P. - Imatra July 27-28 Czechoslovakian G.P. - Brno August 25 Yugoslavian G.P. - Opatija September 8 September 21-22 Spanish G.P. - Barcelona

Italy - Imola

Road Racing April 7
Formula 750 May 26
R.R. July 20–21
July 31
August 10–11
September 20
October 6

Spain – Barcelona Sweden – Anderstorp Finland – Anvenisto Great Britain – Silverstone W. Germany – Hockenheim U.S.A. – Ontario, Calif.

Motocross April 21 Austria - Sittendorf **MX 500** May 5 France - Gaillefontaine Italy - Pinerolo May 26 Denmark - Nissebjerget June 3 June 9 Czechoslovakia June 16 West Germany - Beuern G.B. - Bristol July 7 July 14 U.S.A. - Carlsbad, Calif. July 28 Holland - Markelo August 4 Belgium - Namur August 11 Luxemburg - Ettelbruck

> April 7 Spain - Barcelona April 21 Italy May 5 Czechoslovakia - Holice May 12 Poland - Szczecein May 19 Yugoslavia - Karlovac June 2 G.B. - Charlton/Portsmouth June 9 W. Germany - Billstein June 16 Holland - Valkenswaard Finland - Hyvinkaa August 4 August 11 Sweden - Upplands Väsby August 25 Switzerland - Bern/Payerne

March 16
April 28
May 5
May 19
June 2
August 18
August 25
September 22
September 29

England – Rhayader
France – Sancerre
Italy – Bergamo
Poland – Wroclaw
West Germany – Gefrees
Finland – Helsinki
Sweden – Gothenburg
Czechoslovakia – Ricany
Switzerland – Adliswil

#### race coordinator Rodney Gould

Motocross

**MX 250** 

Trial

Yamaha's 1974 official race coordinator is the former 1970 250cc world champion. Rodney Gould joined Yamaha's European offices after five successful years on Yamaha. Never far from the track, Rodney directs the drivers and machines that make up the 1974 racing team.





# Yamaha conquers Kilimanjaro

Two daring editors of popular European motorcycle magazines recently conquered Africa's highest mountain, 5,895 meter high Kilimanjaro, on Yamaha Trial machines.

Christian Lacombe of "Champion Magazine" and Pierre Barret of "Moto Journal" pushed their Yamahas over bare rocks and icy slopes and in an exhausting climb, reached the top of Mt. Kilimanjaro December 13, 1973. The picturesque Kilimanjaro, a volcanic mountain,

Roots and rocks...



sits near the equator in the heart of Tanzania.

The two adventurous journalists were supplied with machines by Yamaha's French importer, Sanauto, Paris. Lacombe, the more experienced of the two riders was presented with a one-off 24VC, 360 cc Yamaha trial machine, prepared and normally used by French Trials rider Christian Rahier. The machine weighed exactly the same as the smaller capacity Yamaha TY250 that Barret would ride.

With a bagfull of carburettor jets, the two left Marangu, a 1,500 meter high village at the base of Mt. Kilimanjaro, December 10. Accompanying the two riders were Tanzanian guides and porters carrying fuel, supplies and oxygen for the higher altitudes.

The first day proved a long, muddy ride over giant-sized roots which grow in the equatorial rain forest surrounding the base of Mt. Kilimanjaro. Together, the two men managed to push, pull and claw their way forward to the first refuge at 3,000 meters.

During the second day the rain forest gave way to rocky terrain and Barret, the less experienced of the two riders had a tough time negotiating a tricky ravine. He fell back several times before finally passing out in the thin mountain air. Lacombe, unwilling to let his friend and partner fail, guided both machines over the rough spots until both men reached the next refuge.

The terrain for the third day looked easier to the intrepid riders who had previously reconnoitred the mountain on foot. But the weather turned against them and Lacombe and Barret

were beseiged with hailstones and snow, making it impossible to start the final climb until the next day.

After passing the night with an oxygen bottle in a refuge, both men were up at dawn with their eyes turned towards Kilimanjaro's summit. Equipped with oxygen strapped to their backs, they began the final and toughest part of the climb, the ascent of the Kibo crater.

The last 700 meters of the expedition turned into a tricky and difficult configuration of uncertain trail that stretched more than double the actual climb to 1500 meters.

Lacombe was the first of the pair to reach the "Home of the Gods", a cavern sunk into the side of Mt. Kilimanjaro about midway between the last refuge and the top. At this ill-fated cavern, their troubles began.

The warmth of the sun had turned the ashy volcanic soil into mud and Lacombe's Yamaha was sunk up to its hubs. On checking his oxygen, he discovered his tank was practically empty because it had been only partially filled in Nairobi. Things were worse with Barret who was stuck 300 meters short of the cavern with a completely empty oxygen tank.

At this point Barret decided to abandon his machine and hurried on foot to help Lacombe with the better positioned and more powerful 360 Yamaha. Together the two men pushed, pulled and coaxed the machine through deep, muddy ruts assisted by two Tanzanian guides. One hundred meters from the summit, the group was on the verge of giving up. The thin air and rough terrain was proving too much for them. Then, at the

last moment, unexpected help arrived. The exhausted group was reinforced by two fresh Tanzanian guides and with a final push and last gunning of the powerful Yamaha, Christian Lacombe became the first man on a Yamaha motorcycle to conquer Mt. Kilimanjaro.

The Yamaha Trial bikes fared far better than their riders. Lacombe and Barret returned to France physical wrecks, but the machines were reported in good condition.



...to the roof of Africa

