

# YAMAHA

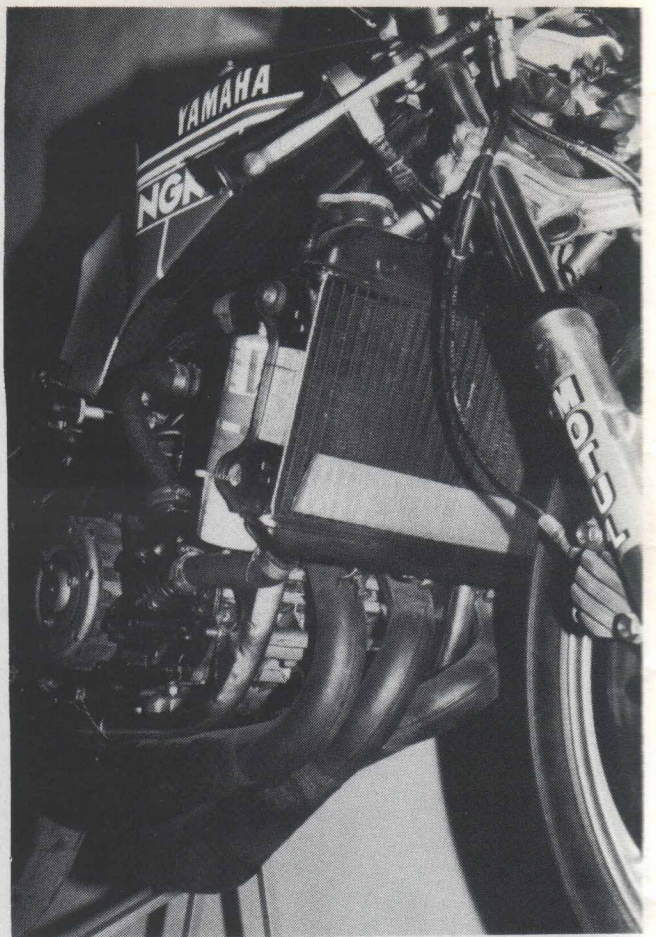
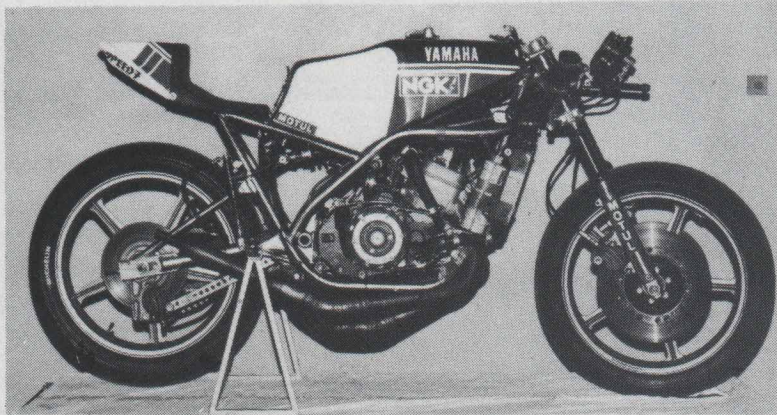
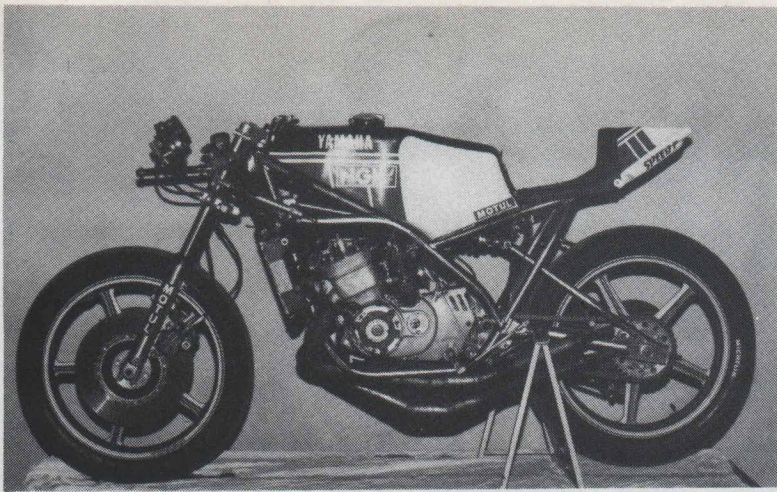


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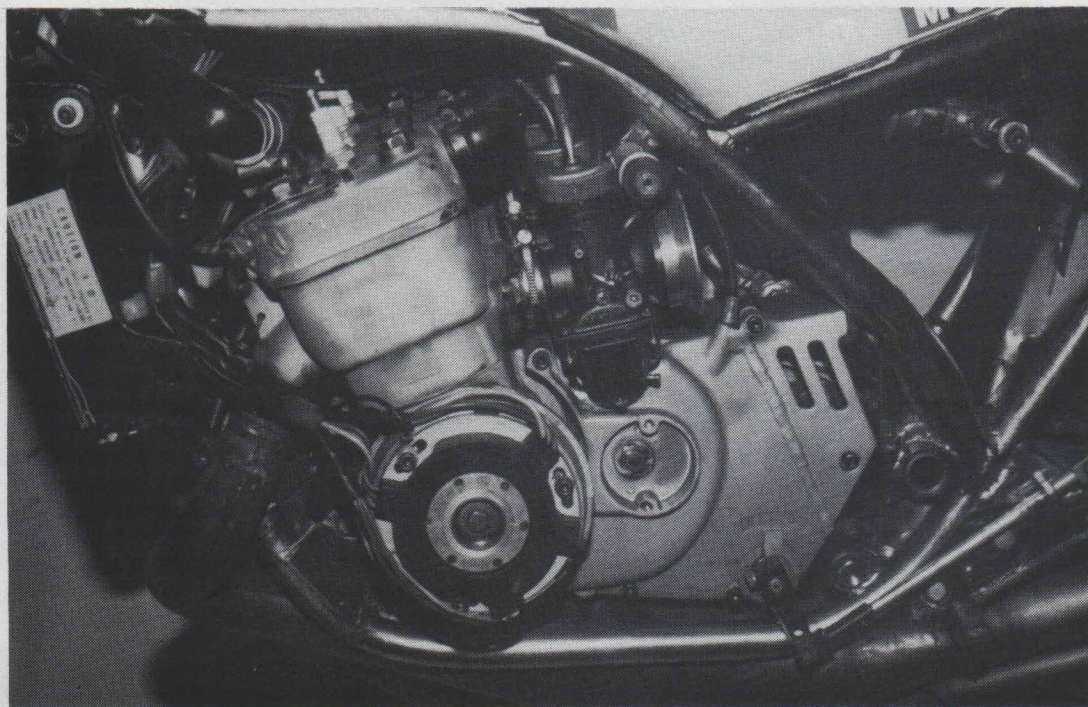
YAMAHA







**A WORLD CHAMPION  
IN ITS DEBUT YEAR!  
YAMAHA 350  
TRIPLE**



When Takazumi Katayama took the chequered flag to win the 350cc Finnish Grand Prix last year it was an historic moment. The popular Japanese clinched the World 350cc Road Racing Championship with that victory and thus became the first Oriental rider ever to win a world title.

Katayama's win was the result of a unique effort launched at the beginning of the 1977 season by Yamaha Motor NV in Amsterdam, Holland...an attack on the 350cc title with a totally new 350cc three-cylinder engine.

With the actual factory effort from Japan concentrating on Johnny Cecotto and Steve Baker in the 500cc and 750cc classes, Yamaha management in Amsterdam decided to try and topple Harley Davidson from the 350cc throne. Private Yamaha riders with their TZ 350cc twin cylinder 'production' racers had beaten the Harley factory effort in several Grands Prix during the previous two seasons but when it came to totalling up the Championship points, obviously a number of independent riders competing against one another as well as against the Harleys was no match for an intensive team effort by the Italian HD factory.



Therefore, Yamaha Motor NV decided to assist development of a novel Yamaha-based power unit that had first been made in 500cc form by Swiss sidecar racer, Rudi Kurth. That assistance finally grew over the winter into a full scale development program ready for a serious attack on the 1977 World 350cc Championship. Riders to pilot the new 350cc 'triples' were to be Katayama and 15-time World Champion, Giacomo Agostini.

At the end of the season, Yamaha Motor NV were able to look back with great satisfaction on a competition effort that began with mixed fortunes on a rainy March weekend at Tilburg in Holland. That was when Katayama wheeled out the triple for the first time and immediately set the fastest practice lap. However, race day dawned the next morning with pouring rain and Takazumi elected to use his TZ350 twin (he used it to win!) as his practice efforts with the triple had revealed some handling problems.

Next outing for the triple was at Mettet in Belgium on April 24th and it was sensational! There was no 350cc class, so Katayama ran the machine in the 500cc category. On the first lap it would not fire cleanly on all three cylinders and he came around in 18th place. Then the motor came on full song and by the end of the race Takazumi was in third place, passing numerous 500cc Suzuki fours and almost catching the leaders! The Belgian organisers were so astounded and thrilled at Katayama's crowd-pleasing effort that they gave him a special trophy for his performance!

The debut of the 350cc three-cylinder in World Championship racing was even more sensational. Both Agostini and Katayama rode the triples in the fast West German Grand Prix at Hockenheim and devastated the opposition. Katayama won the race with Agostini behind him....some Grand Prix debut for a completely new machine!

Katayama's engine was at this stage fitted into a standard TZ350 frame. Despite the win, he felt that the weight of the standard frame, plus the added weight of the bulkier motor (as compared to the TZ350 twin) was detracting from even more potential

performance.

For the French Grand Prix (another fast one over the Paul Ricard circuit near Marseilles) he tried a British Spondon frame but, although he won race, he was not really satisfied with its handling. When that chassis was burned out in a fiery crash at Chimay in Belgium, Yamaha Motor NV commissioned a frame from Dutchman, Nico Bakker. He had earlier constructed the chassis which Agostini was using for his triple.

It was the Bakker monoshock chassis with which Katayama completed his World Championship season by winning the Finnish Grand Prix.

On his way to the title, the Japanese had won five Grands Prix....three of them on the triple and two on his regular TZ350 production twin. The TZ350 had proved better for tighter circuits as it had more power low down and consequently better acceleration out of slow turns.

Technically, the Yamaha three cylinder uses a conglomeration of standard Yamaha parts along with some specially-made components.

The crankcase is basically a TZ twin with an extra engine block welded to the lefthand side. The motor was offset 10mm in the standard TZ350 chassis to line up chain and sprockets.

The crankshaft is specially made by the Hoeckle company in Germany to take standard Yamaha TZ connecting rods and big end bearings.

With the standard TZ250 cylinder barrels and pistons installed, the three cylinder engine utilised a 54mm bore with a 50.8mm stroke, giving an actual capacity of 349.9cc!

The TZ250 barrels and heads were welded together to form an integral block for the three cylinders and this welding operation gave trouble in the early stages. The high temperatures of alloy welding were resulting in distortion of the cylinder bores but Rudi Kurth finally overcame this by using 'trial and error' methods to arrive at satisfactory welding temperatures and correct piston clearances.

The standard TZ350 six speed transmission and clutch are used as well as a TZ350 water pump. To allow more coolant to be carried, however, a TZ750 radiator replaced the TZ350 unit.

Horsepower of the triple

was around 80bhp....some 10% higher than the TZ350 twin.

The added weight of the extra cylinder, however, meant that on slower circuits the triple was not as effective as it could have been. Its total weight this year was 126 kilograms and weight reduction is one of the prime targets of the coming season's development program. Yamaha Motor NV engineers are aiming at a total weight of 115 kilos for the 1978 machine as well as working on the engine to extract some more low-end power.

One way to reduce weight will be to revert to the smaller TZ350 radiator instead of the hefty TZ750 component. This year the engine ran cool enough to have allowed the use of the small radiator in most of the Grands Prix so the development men feel that the combination of the smaller radiator plus an improved water pump for better coolant circulation will be the way to go.

Other modifications for 1978 will be the use of separate cylinders and heads, which will achieve better cylinder base sealing as well as doing away with the problem of distortion caused by the welding process. The cylinders will be made by the Lyss Aluminium Co. in Switzerland and machined by Rudi Kurth. Bores will be Nicasil-plated. This is a special process by the Mahle Company in Germany which gives a longer life than chrome plating.

During 1977 both Mikuni

and Lectron carburettors were tried, as well as Krober and Femsia ignition systems. The combination of Lectron carbs and Femsia ignition seems most likely, though testing in both of these areas is still going on.

Chassis specification for 1978 will almost certainly be just as the bike was in its final Finnish GP form: Nico Bakker monoshock frame, Marzocchi forks, Campagnolo cast wheels and Hunt alloy disc brakes.

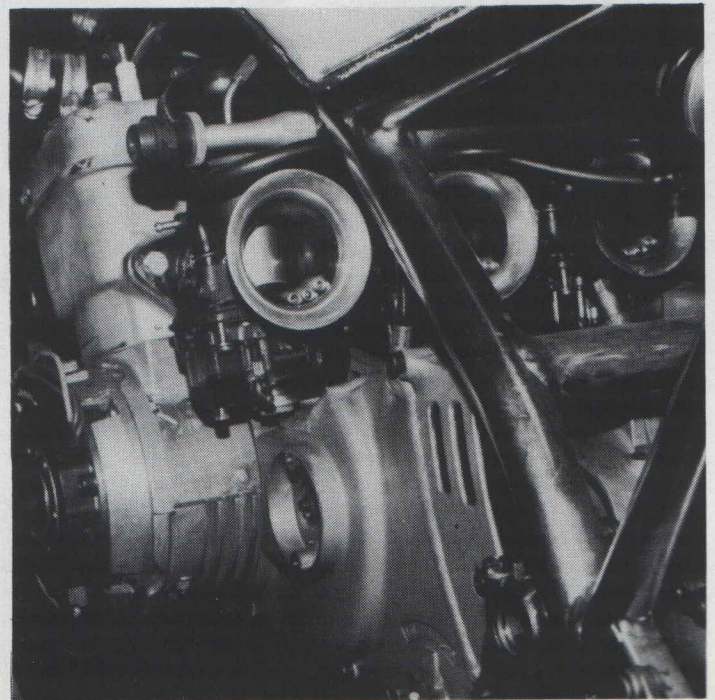
The development team for 1978 will remain basically the same, although Dr Gordon Blair of Queens University, Belfast, now has an engine in Northern Ireland for testing and computerised investigations.

Former 125cc World Champion, Kent Andersson, has been involved with the engine development since Yamaha Motor NV took over the project and currently has a single cylinder test engine at his workshops in Sweden for porting experiments and so on.

The aim is for Dr Blair to take a theoretical approach to development and for Kent to take the practical route. Parallel courses towards the same goal!

The technician working on the machine during the racing season is Belgian, Francis Lothaire, while Mr M.Tanaka co-ordinates the whole effort for Yamaha in Amsterdam.

It is this development team that aims to provide Takazumi Katayama and the Yamaha 350cc triple with their second World Championship in 1978!





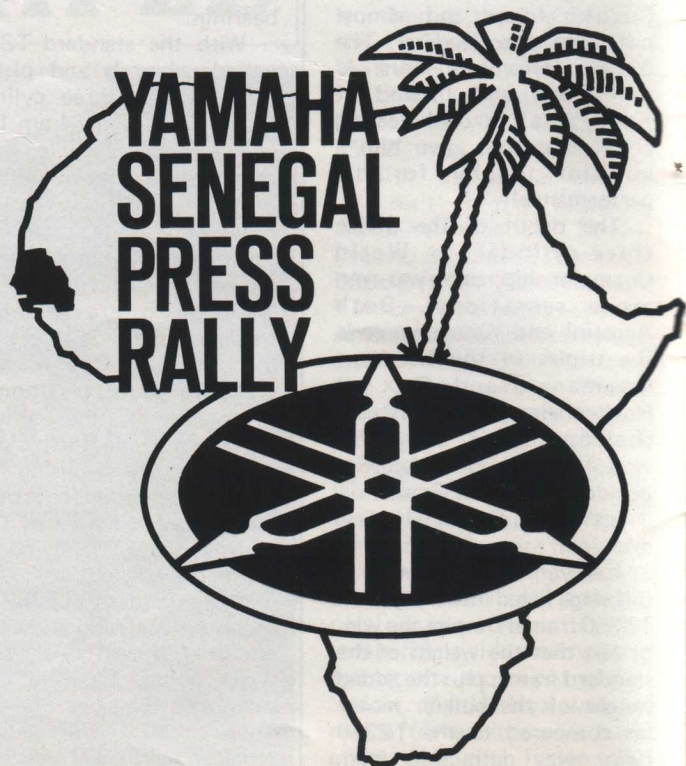
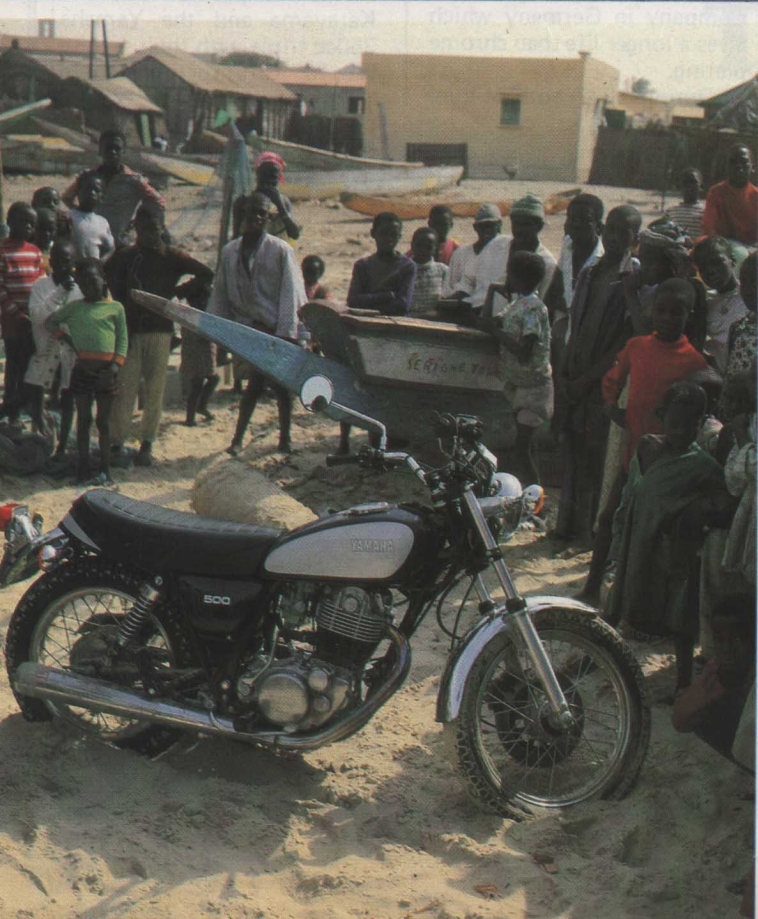


A trip around the world in five days! That's the equivalent of the staggering distance achieved by the combination of 12 new Yamaha XS1100 models, 15 of the new SR500 street singles and 64 of Europe's top motorcycle journalists in the second Yamaha Press Rally!

This year's rally took place in late January and followed the exotic lead set by last year's inaugural event in Marrakesh, Morocco. For 1978 the press crew were airlifted via a specially chartered Douglas DC9 jetliner from Holland's Martinair company and installed in the Club Mediterranee's Cap des Almadies hotel right on the Atlantic surfline at Dakar, Senegal ... the westernmost tip of the vast African continent.

Top writers from Germany, France, Great Britain, Italy, Denmark, Belgium, Holland, Sweden, Switzerland and Austria managed to clock up a collective 19,200 kms on the dozen Yamaha XS1100 four-cylinder, shaft-drive machines - the new high-performance flagship of the Yamaha fleet.

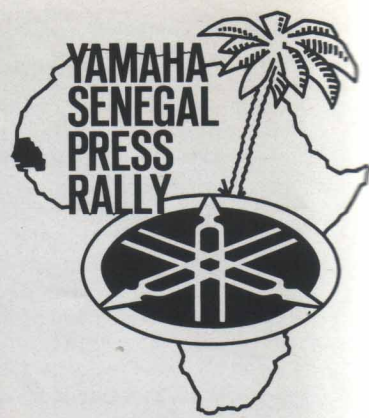
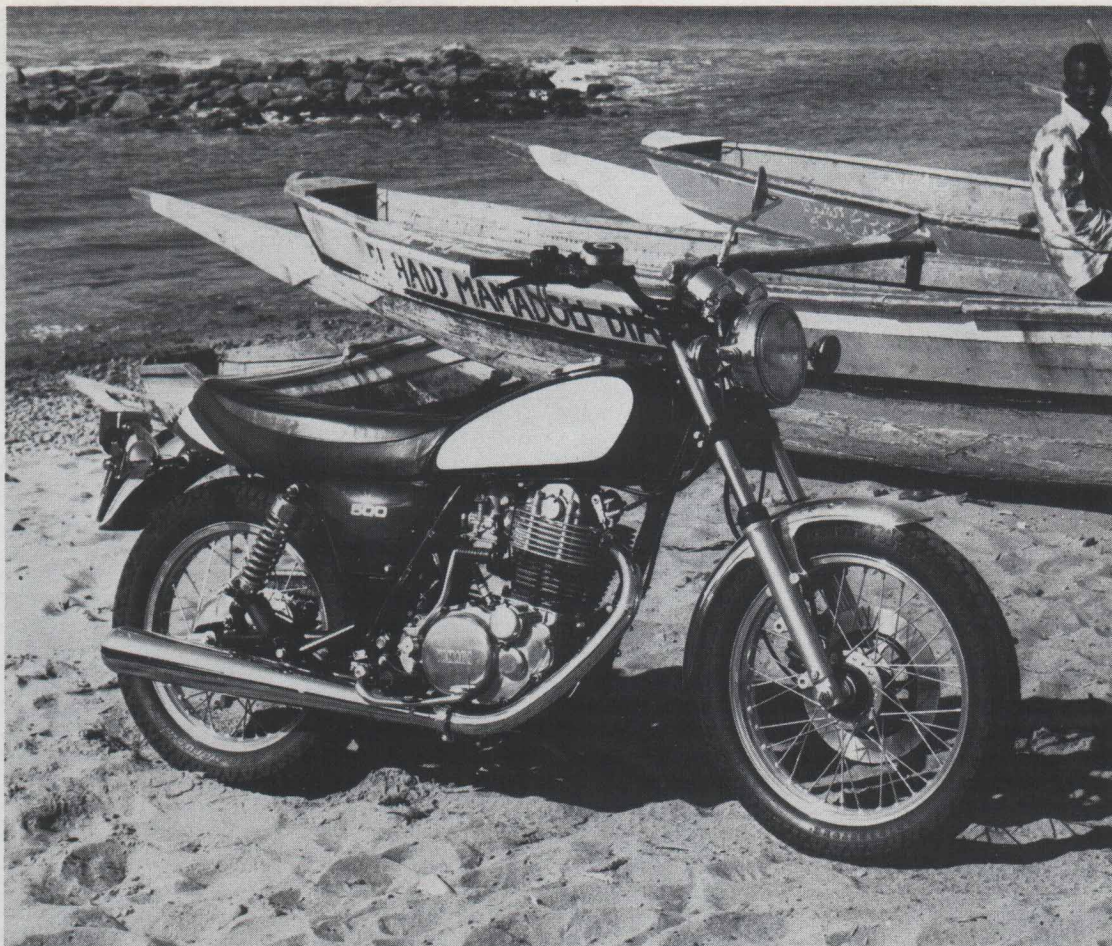
Average fuel consumption of the near-100bhp, 1100cc powerhouse was a highly creditable 8.8 litres per 100kms with the most economical of the 12 machines returning a figure of 6.25 litres for the 100 kilometres!











Also on hand was Yamaha's new SR500 street machine with its single cylinder four-stroke power unit. It's a lightweight, compact touring machine at the opposite end of the scale to the big XS1100 but the little "single" was received with equal enthusiasm by the pressmen.

The 32bhp machine (27bhp for the German market in order to take advantage of special insurance categories) proved incredibly economical. Best-recorded fuel consumption was 4.68 litres per 100 km with the average being an equally-impressive 5.68 litres for the same distance.

Temperatures during the five day period of the rally ranged from 25 to 29 degrees Centigrade at the coast, riding to as much as 35 degrees as the riders went inland on the 200 kilometre rally course. The route included everything from arrow-straight asphalt roads to a section of dirt trail for the SR500 riders.

For the whole of the five days the 27 machines were in constant use from 8am to





6pm and clocked up no less than 40,650 kilometres ... more than the circumference of the globe!

In all of this distance, there was not a single mechanical failure! Undeniable proof of the quality of Yamaha's two newest road machines.

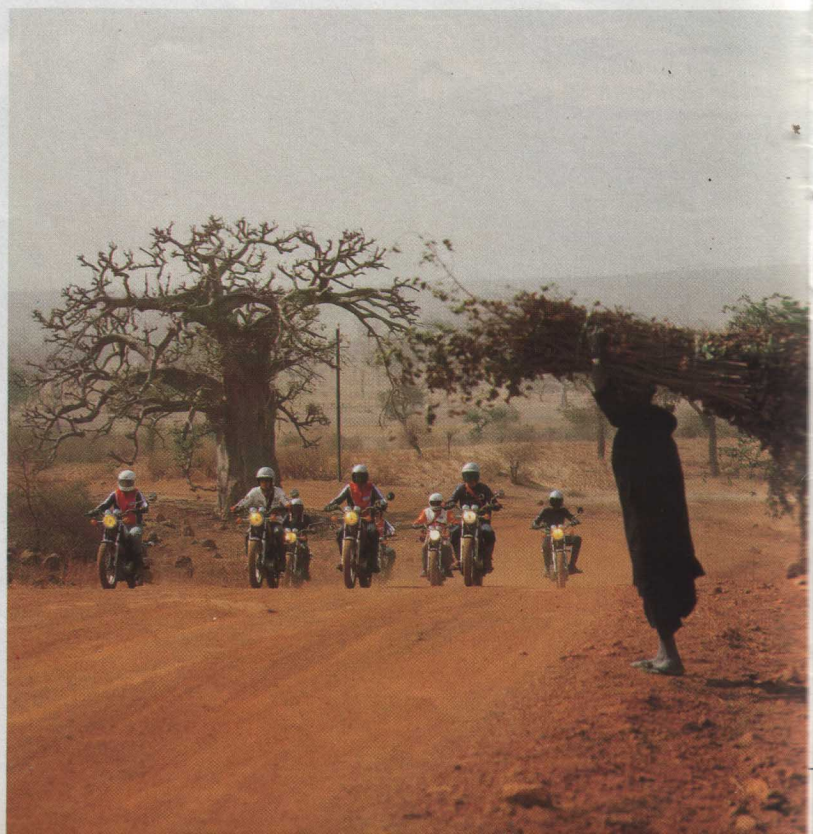
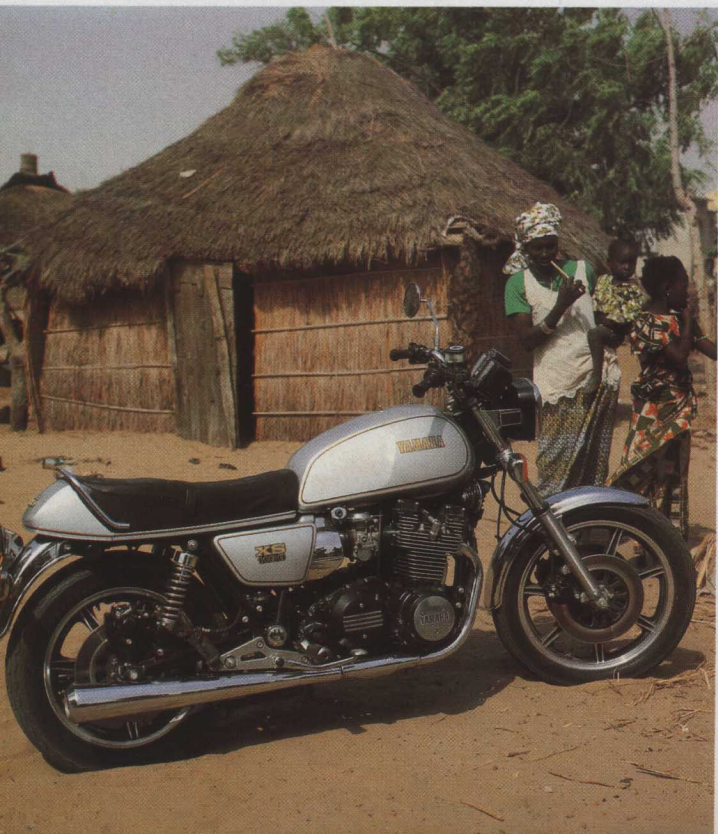
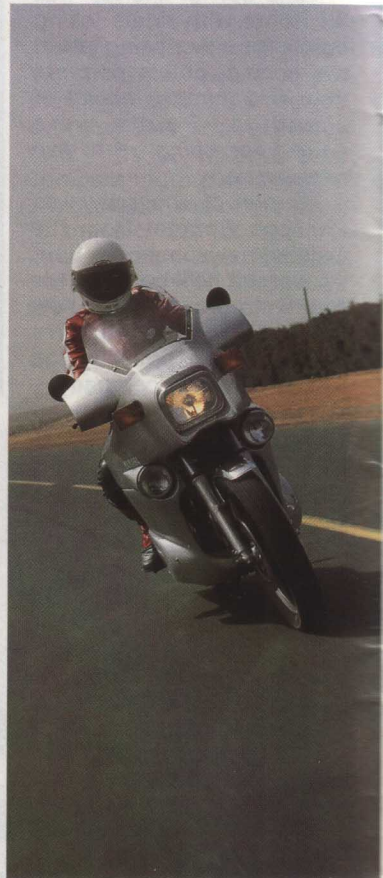
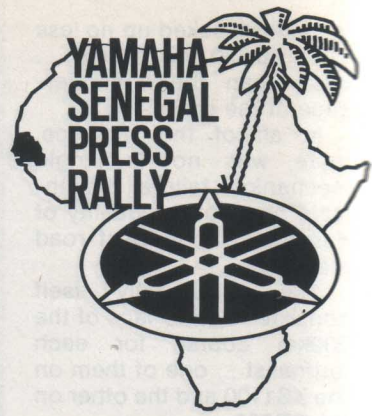
The press rally itself consisted of two laps of the 200km course for each journalist ... one of them on the XS1100 and the other on the SR500.

Time set for the lap was 3½ hours with riders losing marks for either being late at the control points or more than five minutes ahead of schedule. Points were gained for being up to five minutes early.

Winner of the rally was Phillippe Bourget from the Belgian newspaper, Le Soir. As a result he'll be doing his future motorcycling in a new set of riding leathers donated as a prize by the French Furygan company.











Kenny Roberts full-time on the Grand Prix trail! That announcement right at the end of 1977 was probably the most exciting news of the coming season for European race fans.

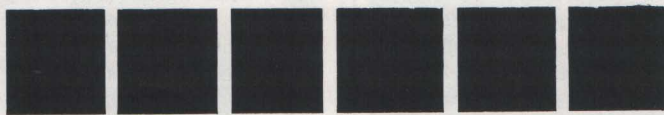
The 26 year old Californian is such a superstar both in his native United States and in Europe that it is hard to believe that 1977 marked only his sixth season of expert-class racing! In those six seasons he has racked up an awesome amount of statistical ammunition to back most people's contention that he is the greatest all-round motorcycle racer that the world has ever known.

The Grand National Championship series of the American Motorcyclist Association (now the Camel Pro Series) takes in no less than five different types of racing. It's mainly a dirt track series though Formula 750 road racing does form an integral and important part of the Camel Pro trail.

On the dirt there are four

# KENNY ROBERTS

## THE GREATEST ALL-ROUND MOTORCYCLE RACER EVER



distinct types of racing. The pinnacle is "the mile" where riders average 100mph for a lap of the mile - long dirt oval jockey down the straights in 130mph slipstreaming bunches! Half-mile ovals are not so fast (still good for near 100mph straightaway speeds) but the racing is a bit more rugged on the tighter tracks. Then there is short track racing, on tracks under a quarter-mile in length. It's all arms and elbows here, with

riders bouncing each other off-line by sheer physical contact if they can't find any other way!

Finally, there is TT racing. It's kind of a cross between dirt-track racing and motocross. The surface is graded dirt, just like the ovals, but the turns go right as well as left and the track incorporates everything from sweeping radius "speedway" turns to tight hairpins and usually a big Evel Knievel-length jump!

American Championship chasers use regular 180mph Formula 750 racers for the road races while the dirt events (apart from short track) are limited to twin-cylinder 750cc machines. The slam-bang short-trackers are kept down to 250cc lightweights.

Roberts has won many times in each of these types of US racing and 1975 he became the only racer ever to win at least one race of each type during a single season!

He first came to the attention of American racefans in the early 'seventies when he came as a teenage novice racer to the indoor short track races that are a popular event during the USA winters. These are open to any professional racers...from novices right up to the expert licence holders. Kenny won many of these tough-fought races and immediately established himself as a man to watch in the future.

The 1970 season saw Kenny's entry into American professional racing...as a



# KENNY ROBERTS

novice rider limited to 250cc machines both for dirt and road racing.

Sponsored and managed by airline pilot and motorcycle racing super-enthusiast, Jim Doyle, Kenny immediately forged strong links with Yamaha and, in fact, has never ridden any other brand in his professional career apart from a few events on Montesa and Suzuki machines just as he was making the transition from sportsman racer to full-time professional. Once Kenny had decided on racing as a career, he signed with Yamaha and has been with them ever since.

Kenny spent most of his "novice" year dicing with another future National Champion, Gary Scott and the same situation continued in 1971 when the pair moved up to the Junior bracket and the bigger 750cc machines.

Throughout their two formative professional seasons, Roberts and Scott were streets ahead of any competition and the two of them have been always in the top four places of American Championship competition since they entered the Expert ranks in 1972.

During the 1971 season (as a Junior) Kenny took his first steps into road racing and was taken under the wing of former World 250cc Champion (1969), Kel Carruthers. By this time the Australian had forsaken the European Grands Prix and was leading the American Yamaha road race team as well as preparing his own race engines.

A great deal of the credit for Roberts' incredible road racing successes must go to Kel, who spotted the teenager's talent early on and nurtured it to greatness.

Quitting racing in 1973, Kel moved into the race preparation business full-time, building the American Yamaha team's road race engines and occasionally assisting with the dirt track program.

Kel will head up the mechanical and management side of Kenny's 1978 Grand Prix program.

In his first year as an expert on the AMA Championship

trail, Kenny opened up with a win in the second race of the season...the short-track at the Houston Astrodome in Texas. That, however, was to be his only win of the year. Despite this he scored enough points to place fourth in the Championship standings but was somewhat ruffled to see his arch-rival, Gary Scott, take the "rookie of the year" honours by placing a close second to eventual Champion, Mark Brelsford.

In 1973, however, it was Roberts all the way with Scott in second place but not even close on points. On his way to the Grand National Championship, Kenny won the short track at Houston, the "mile" at Colorado Springs and the Ascot half-mile. He was always in contention for a road race win but never actually managed to take the winner's laurels. At this time Yamaha were still having to use their 350cc machine against the 750cc opposition of Kawasaki and Suzuki.

The 1974 road racing year was different, however. Yamaha brought out the TZ700 four-cylinder racers and won five of the six Championship road races. Kenny won three of these, at Atlanta, Laguna Seca and Talladega.

In addition he won the mile-track race at San Jose, the Santa Fe short-track and the Peoria TT.

These victories, plus a solid string of points-scoring places, gave him another comfortable National Championship victory over (who else?) Gary Scott.

Unfortunately, that was the last time (to date) that Kenny was to hold the National title. The 750cc Yamaha twin-cylinder dirt-tracker was based on the 650cc XS street engine and was already getting close to the limits of its development.

On the other hand, Harley Davidson had developed a totally new racing engine for their dirt-trackers and definitely had the advantage in terms of horsepower and traction.

Since then the American Yamaha squad has extracted some amazing horsepower from the twin cylinder engine, getting some 85bhp at the rear wheel! However, the venerable XS650 has been stretched to the limits of its reliability and Roberts has suffered numerous mechanical breakdowns over the past three years. Harley, with their

"designed for racing" engine have a better reliability record and just as much horsepower.

In addition, their vee-twin engine configuration results in better traction from the turns whereas the Yamaha tends towards wheelspin rather than grip.

Despite these drawbacks and the fact that Kenny has not won a National Championship since 1974, most people agree that the past three years of adversity have seen Roberts at his gritty best. In 1975, 1976 and 1977 the Championship has been fought out to the bitter end (the last two years have seen it decided in the actual final race of the season!). In each of those years Roberts has always been one of the three or four riders scrapping it out right down to the last lap of the last Championship race!

For many people, 1975 was perhaps Kenny's finest season to date. He placed second to Gary Scott in Championship points but then set a record by becoming the only American racer ever to win one of each kind of Championship event during a single season.

He began with a TT win in the Houston Astrodome and followed that with a short-track victory at Dallas. A short 'dry spell' in mid-season, ended with a road race victory at Laguna Seca and then came the win that people are still talking about with awe almost three years later.

In a desperate attempt to wrest dirt-track supremacy from Harley Davidson, the Yamaha team had chassis specialist, Doug Schwerma, construct a dirt-track racer using nothing less than a TZ700 road racing four as the motive power!

First time out for the beast was at Indianapolis and, in a heart-stopping race, Kenny wrestled the monster from 15th place in the opening stages, to third place on the last lap and to the win, by an incredible bikes-length margin, at the finish line.

He tried the machine again in a couple more mile races but even he felt that it was just too hot to handle. The AMA agreed and banned the multi-cylinder engines from dirt-track racing at the end of the year.

That left just a half-mile victory needed for the "grand slam" and that came, against all odds, at Ascot Park, California in the final dirt track race of the season!

Then, just for good

measure, Kenny rounded off 1975 with a win in the Ontario road race.

Kenny was still winning on the dirt-tracks in 1976, taking half-mile wins at San Jose and Terre Haute plus the short-track at Dallas.

That was the year that Steve Baker was the American road race sensation, Kenny's confidence in this area perhaps being dented a little by heavy crashes at Oulton Park in the John Player Transatlantic Trophy Series and in the Imola 200. He got back in the groove late in the season, however, with a win at Riverside in California.

Despite these wins, Kenny slipped to third in National standings behind a new teenage sensation, Jay Springsteen, and Gary Scott.

The Yamaha dirt-tracker was already stretched to the limits of reliability in the face of the Harley onslaught. One rider, even of Roberts calibre, on a machine developed from a street engine was no match for the might of the Harley team, who had even pulled completely out of road racing to concentrate full-time on their dirt track programme.

Last season it became even more obvious that road racing was going to be where Kenny Roberts should direct much of his future effort. For the first time since he started his National Championship career, Roberts could not take even a single dirt-track victory.

In road racing it was a different story and Kenny won Championship races at Charlotte, Loudon, Pocono, Sears Point and Riverside as well as taking second place to Steve Baker in the rain-shortened Daytona event.

Kenny was unquestionably American Road Racing Champion but it was little consolation for his fourth place in National standings behind Jay Springsteen, Gary Scott and Ted Boody.

"I'm back where I started in 1972" said a disappointed Roberts at the end of the year.

Kenny's disappointments in America mean celebration for European fans, however. The American Yamaha team have scrapped their National Championship program, realising that it is weighted too much in favour of the dirt-tracks to give them a real chance without designing a whole new engine.

Therefore, they have added their weight to the Roberts' Grand Prix effort in Europe as well as planning to bring him



back to the States for National Championship road races that do not clash with his European commitments.

Kenny has now scored 25 National Championship wins in his career and is just three races short of Bart Markel's all-time record.

In addition he is just one race short of Dick Mann's all-time record of 12 road race Championship wins.

There is every possibility that Kenny could break both of these records during the 1977 season as well as competing in the European Grands Prix!

During his career so far, Kenny has made only occasional visits to Europe but has still impressed his incredible road racing abilities on the fans with superlative efforts in such events as the John Player TransAtlantic Trophy Series, Britain's Race of the Year at Mallory Park, the Dutch 250cc TT at Assen, the Imola 200 and the Moto Journal 200 at Paul Ricard.

His only Grand Prix appearance was in the 1975 Dutch TT at Assen when he dived for the lead with World Champion, Walter Villa, overbraked and crashed at the hairpin in the late stages of the

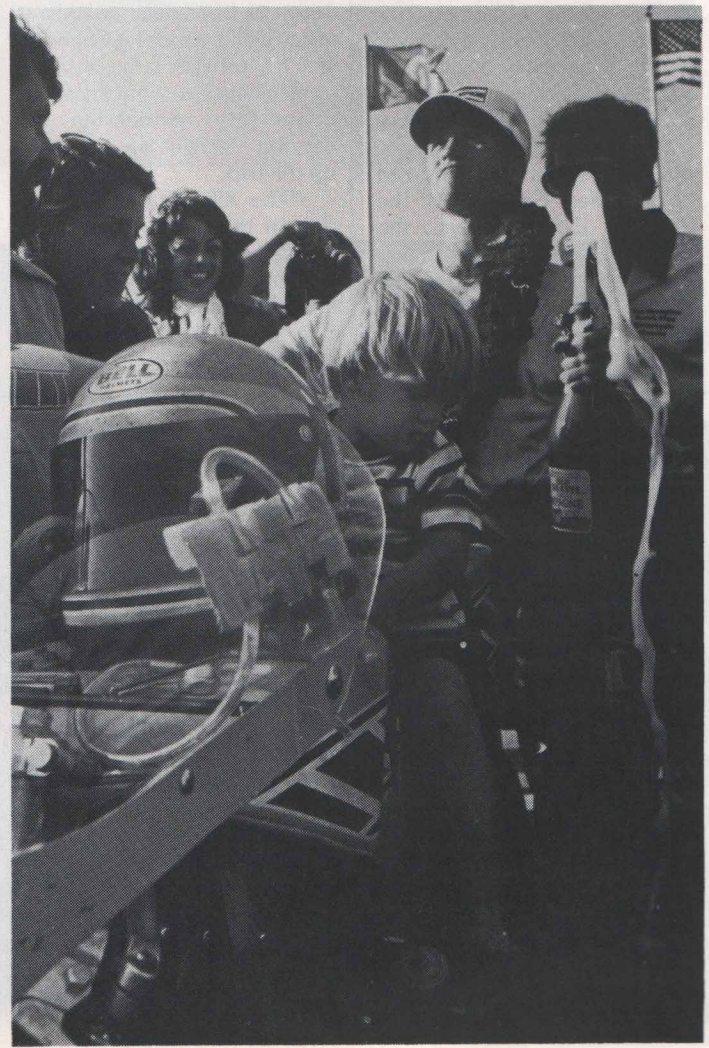
race and then remounted to finish third.

For his 1978 Grand Prix attempt, the 5ft 6ins, 135lb Roberts will ride in both the 250 and 500cc classes for Yamaha as well as attacking the World F 750 Championships.

The whole Roberts family, including wife Patty, five year old son Kenny Lee and two year old daughter, Kristy Lee will uproot themselves from their \$200,000 home in Kenny's hometown of Modesto, California to follow the Grand Prix trail. Not that they'll be actually "roughing it" however, as they'll be travelling and living in a \$50,000 motorhome as well as the occasional hotel during longer stops.

Only problem is that, with three World Championship classes to contest as well as a number of other major International races and the occasional flight home for an American Championship race, Kenny won't have much time to indulge in his hobbies of trail riding, fishing and horse-riding!

"Plenty of time for that after I've got a World Championship or two" he grins!





# Asian Route

Bored with the normal holiday routines, two young Frenchmen, Jean-Claude Vaxelaire and Yves Bellevielle decided on a "different" type of vacation last year. Armed with a Yamaha XT500 and an XS750, they set off on a 17,000 kilometre ride to Afghanistan, following the old "camel trail" trade routes across the Middle East to the Orient.

Their trek took them from France through Germany, Austria, then Yugoslavia and across the north of Greece to the shores of the Black Sea and Istanbul in Turkey. There they crossed the Bosphorus into Asia and headed off over the Turkish desert, passing beneath the lofty peak of Mount Ararat, legendary site of Noah's Ark. Then came Iran, with its oil-rich modern capital of Teheran, and on to Kabul in Afghanistan. The trip climaxed in the Himalayas at the Khyber Pass on the old "North West Frontier" of the British Empire days....the Gateway to India!

The route encompassed every conceivable type of terrain, from burning deserts to high mountain forests.

And the roads of today's "Asian Route" vary from wide, modern motorways to dirt trails that have changed little since they were trodden by the "camel trains" of the Middle Ages.

Riding the XT500 was Yves who, most appropriately, described his machine as being "loaded down like a camel".

In fact, he carried the comparison with the camel even further, saying that the XT was just like one of those beasts when it came to fuel consumption, seemingly able to cover large stretches of desert without needing to stop for a drink!

His only criticism of the performance of the XT500 on the whole trip was that it began to lose power quickly at very high altitudes. Otherwise the XT proved to be an ideal long distance touring machine, especially considering the varying terrain encountered on the trip.

"The XT was a pleasure to ride in the difficult sections" says Yves. "It is made for difficult situations".

The 17000 kilometres gave Yves plenty of time to ponder on how he would personally

improve the XT500 and the only refinements that he could come up with were a front disc brake, and cast wheels (like the American-specification SR500) and a large gas tank. The XT provided such a comfortable ride, said Yves that a larger gas tank would allow even more ground to be covered in a day's ride.

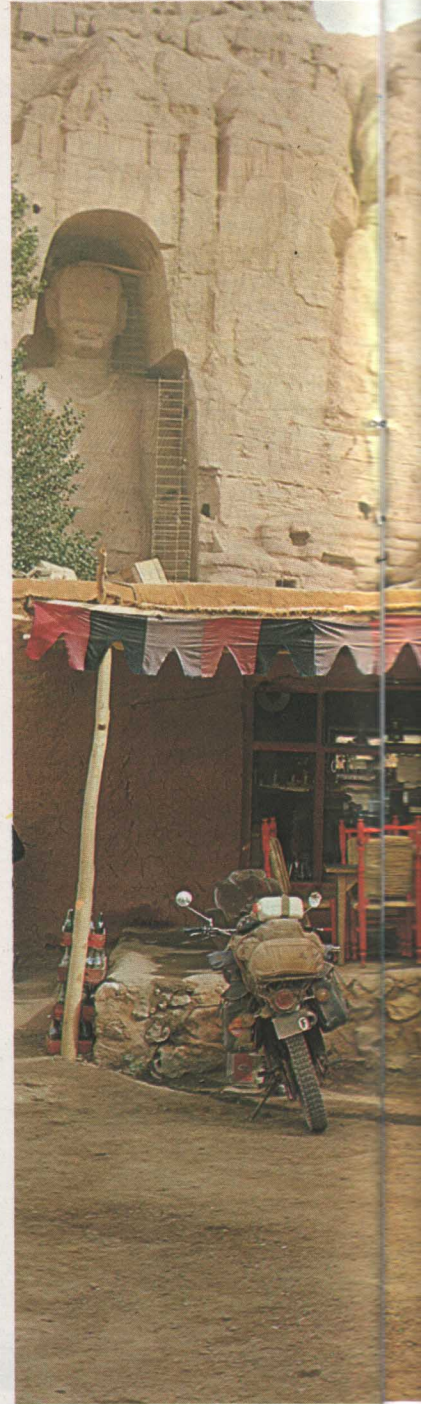
His only reservation was that, with the XT500 being designed in "enduro" style, he could not envisage a long trip with two people aboard.

"As a solo touring machine, however, I think the XT500 is unbeatable" was his summing-up.

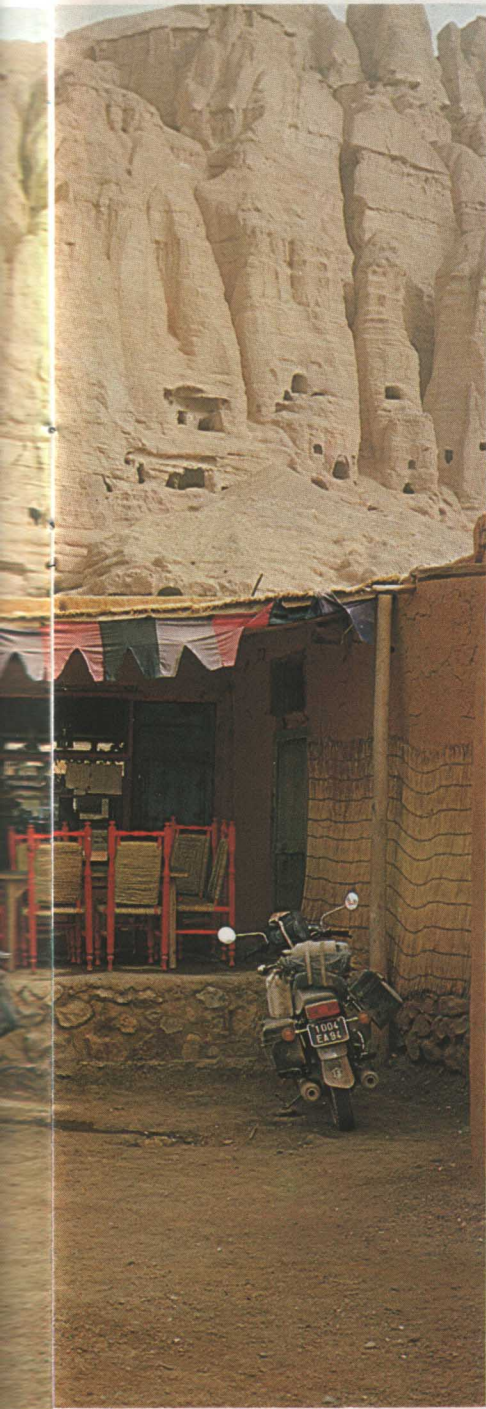
Even though the three-cylinder XS750 is no trail-bike, Jean-Claude found no problems whatsoever with any of the terrain encountered on the 17,000 mile trip.

Performance was excellent in all circumstances, he says, and particularly impressive was the engine's ability to function well on fuel as low-grade as 68 octane! Jean-Claude described the XS750 disc brakes as "beyond criticism" and found that the suspension of the big sports tourer gave a superbly comfortable ride for the whole of the trip. Only maintenance was a single puncture and one change of spark plugs!

So, next time you're bored with the prospect of yet another holiday at one of the same old places, take a tip from Jean-Claude Vaxelaire and Yves Bellevielle and fly Yamaha to "somewhere different".

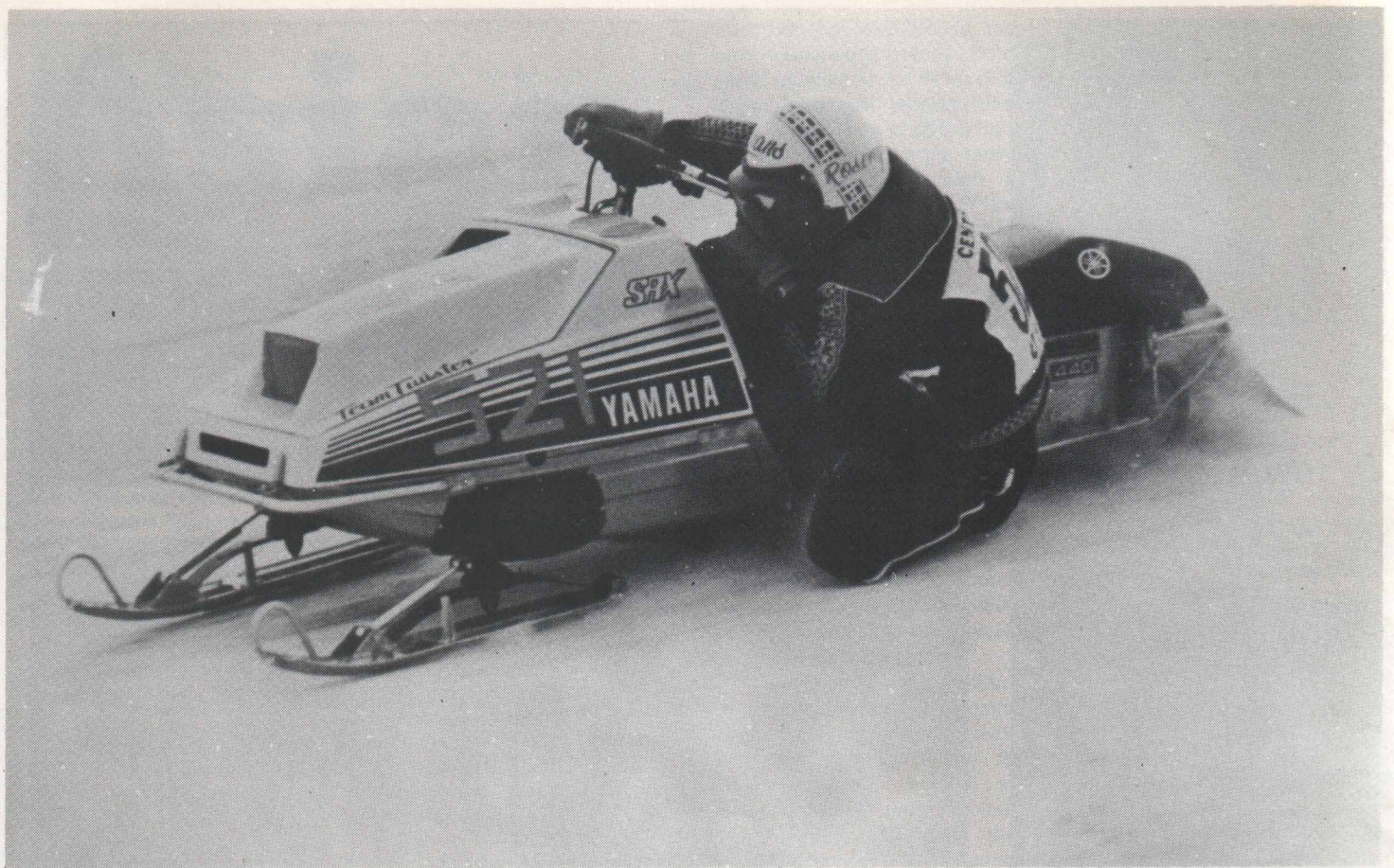






COLOUR: MOTO JOURNAL FRANCE





# YAMAHA Snowmobiles

**No Wheels,  
But Still A  
Better Machine!**

When winter comes and snow begins to fall on Northern Europe, Canada, the Northern and mountain areas of the USA and other winter sports areas throughout the world, another kind of Yamaha takes to the trails.

If you can't ride your motorcycle through six feet of snow then the only solution is to skim over it like a hydroplane over water ... and that's where the Yamaha Snowmobile comes in.

Snowmobiles are curious-looking little vehicles with two steering skis at the front and a wide "tank track" running beneath the machine to provide motivation and traction.

They may look curious, but for many people who live in areas where the winters are hard, they are literally the only means of transportation. For more fortunate folk, the snowmobile is an incredibly exciting and highly pleasurable part of the winter sports scene. You can ride them through the snow almost like a motocross bike, or you can pop someone behind you on the long seat and simply cruise slowly through the sparkling winter scenery.

Yamaha make a full range of snowmobiles from the single cylinder 250 model right up to their "super sports" SRX 440B that uses a





439cc twin. All are two-strokes and the SRX is liquid-cooled while the rest of the range, comprising the 250 single plus 340cc and 440cc twins are air-cooled by means of a mechanically-driven fan.

Power from these units is well up to par with comparably-sized motorcycle engines. the 250 puts out 23bhp at 6,500 rpm, the quickest of the two 340cc models produces 38bhp at 7000 rpm and the 440cc "touring model" produces 48bhp at its 7000rpm maximum.

No horsepower figures are quoted for the SRX model but close to 60bhp is probably a fair estimate!

All of them use V-belt automatic transmission with infinitely variable ratios.

Besides the "workhorse" and winter sports aspects of

snowmobiling there's another very flourishing activity ... Championship racing!

Now, lest anyone thinks that snowmobile racing is simply another winter sports game, let's start right out by saying that it involves all of the risk factors of any motorised sport. It's high-speed and hairy and totally removed from the normal world of snowmobiling.

The snowmobiles race on half-mile frozen ovals, hitting well over 100 mph, and their drivers often combine this winter activity with other forms of motor sport. A famous example is Yvon Du Hamel, who at one time earned as much money from his snowmobile efforts as he did from his always-lucrative motorcycle racing activities.

Yamaha entered snowmobile racing in 1970 and

inside two years had captured a 1-2 victory in the World Championships at Eagle River, Wisconsin, USA.

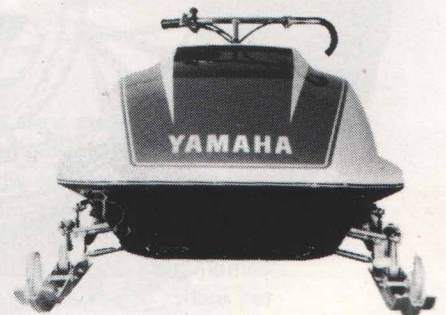
At the end of 1976, after another World title win, Yamaha pulled out of the Championship "Sno Pro" class and concentrated on stock class racing with the SRX model. This was actually the Yamaha team's most successful year ever for they won all but one of the "Super Stock" events on the professional circuit.

For 1978 Yamaha is back in the World Championship category, hoping to add another title to the three that they have won since 1971.

The machine is the sleek new SSR racer ... that even features independent front suspension identical in concept to today's Formula One cars!

The major world organising body for snowmobile racing is the United States Snowmobile Association but they have not restricted racing activities to their own country. The schedule for 1977/78 includes races in America and Canada and even two in Sweden so that European fans can see this exciting new form of racing.

But, as we said, snowmobile racing at the professional level is a tough sport for tough racers. For the normal enthusiast, the snowmobile is more akin to a trailbike, a means of getting out and enjoying the outdoors, and snowmobiling, just trail riding, is yet another area where Yamaha offers a range that leads the world.





# HEIKKI'S HURRICANE

The 1977 World 500cc  
Motocross Champion



Reproduced courtesy of  
"Motor Cycle News", Great  
Britain.

Yamaha engineers are a little reticent to reveal horsepower figures for the World Championship-winning motocrosser. All that they will say is that the power is "adequate"..... a fact which both fans and rival competitors will testify to! The 397cc two-stroke motor has a bore and stroke of 85 x 70mm with reed valve induction from a Mikuni carburettor. The bike weighs 203lbs and the combination of the monoshock chassis and air/oil damped front forks give ten inches of wheel movement front and rear.



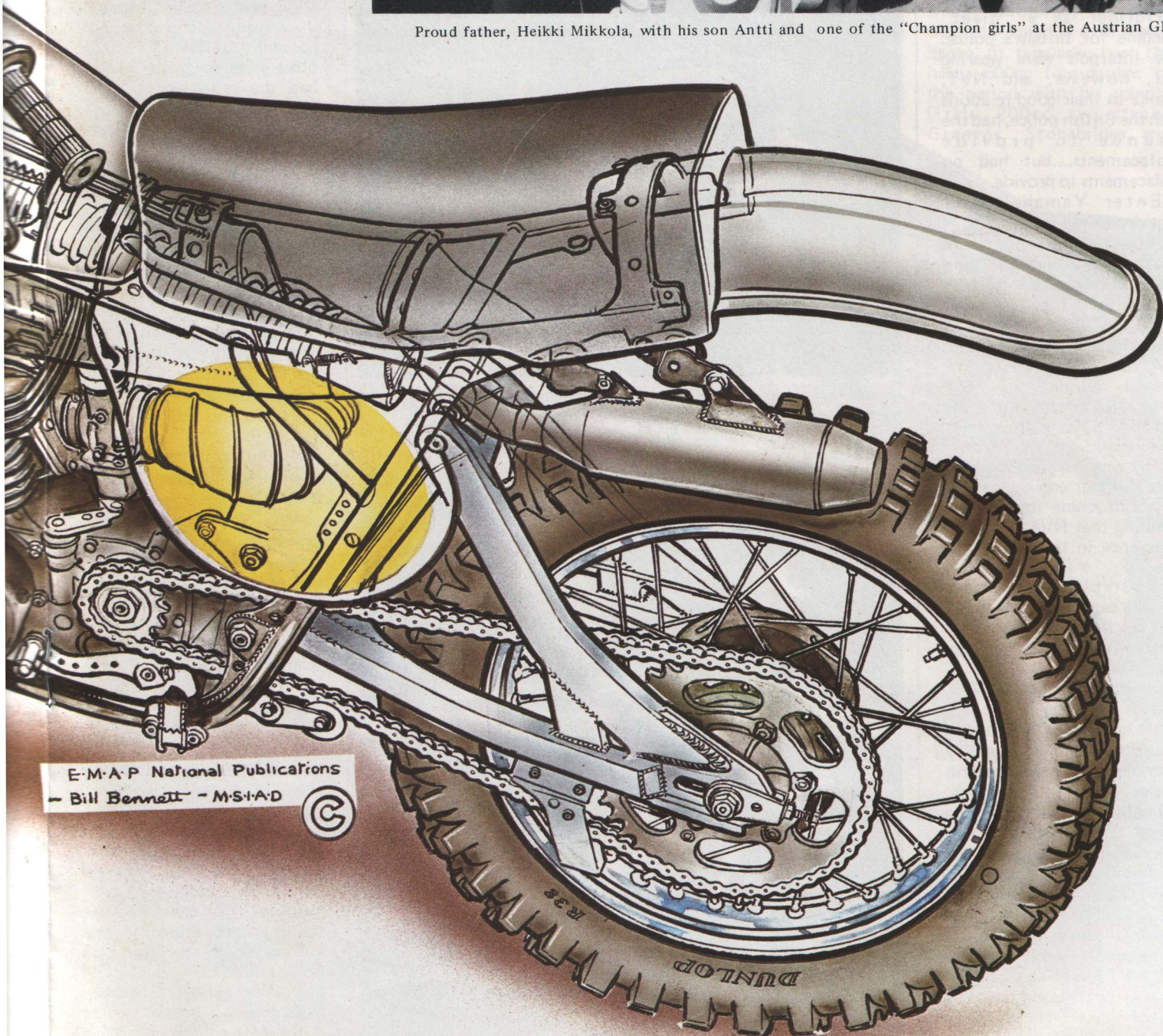
After 13 years with Husqvarna, Heikki Mikkola surprised the motorcycle world at the start of the 1977 season when he switched his allegiance to the Yamaha factory.

But once the racing season got into gear, there was no more surprise about either Heikki's reasons for the move, or the outcome of the 1977 World Championship.

Mikkola and Yamaha totally dominated the series, taking top points scores in seven consecutive Grands Prix as well as high placings in the remaining events. Heikki is back with Yamaha for 1978 and nobody is surprised!



Proud father, Heikki Mikkola, with his son Antti and one of the "Champion girls" at the Austrian GP.



E-M-A-P National Publications  
- Bill Bennett - M-S-I-A-D





Late in 1977 came a link between two of motorcycling's most famous names....a link that surprised both press and enthusiasts but one that is entirely logical and desirable from several viewpoints.

The long-established British firm of Norton is still in existence but England's poor economical situation and unpredictable trade union climate had forced a halt to the actual manufacture of motorcycles. The parent company, NVT Motorcycles Ltd., however, faced the unique dilemma of having the chance to continue servicing a section of the motorcycle market with a very lucrative potential without actually being able to provide a motorcycle! For years the Norton Interpol had been a very successful seller and performer as a "fleet" machine for Britain's police. The Interpols were wearing out, however, and NVT, thanks to their good relations with the British police, had the chance to provide replacements....but had no replacements to provide.

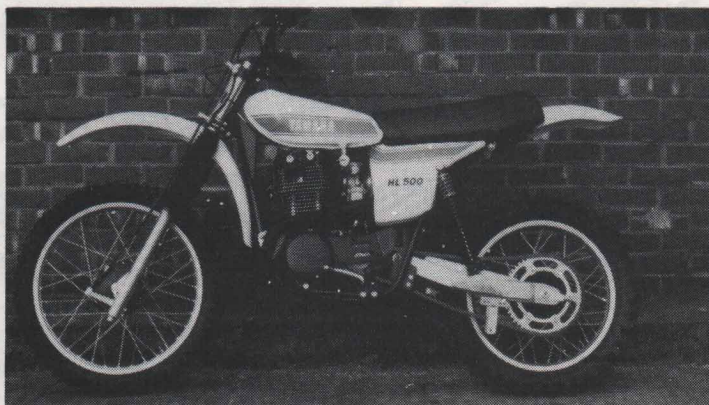
Enter Yamaha! NVT considered the possibility of purchasing machines from another manufacturer and then making all of the modifications that had made their old Interpol such a successful police machine.

After considering the various options, the NVT management decided that the Yamaha XS750, with its shaft drive, cast wheels, electric starter and powerful three-cylinder engine, was the perfect machine for the job. Realising that NVT had great experience in the police bike field, as well as long-established contacts, Yamaha came to an agreement with NVT and the Norton-Yamaha police bike was the result.

On to the basic XS750, Norton fit a weather-protective fairing complete with high-intensity quartz-halogen headlamp and spare wiring harness, alternating-tone wind horns, a special single seat and rear radio carrier plus a pannier set and flashing red warning light.

Within days of the announcement of the new machine, many of Britain's police forces were in touch with NVT regarding supply of the Norton-Yamaha and the bikes should soon be a familiar sight on Britain's roads.

# Norton YAMAHA



Yamaha HL500

There is no actual commercial link between NVT and Yamaha except for the fact that NVT purchase the machines for this police-bike conversion.

However, during the course of negotiations for this contract, Yamaha executives saw the small, but functional NVT operation at Shenstone in England and realised that possibilities existed for links in other areas. Particularly, NVT had the capacity for "small run" assembly work of machines that are too specialised to mass produce.

A case in point soon arose...the Yamaha HL500 motocrosser, which is a replica of the XT-based four-stroke motocross Grand Prix racer campaigned by Bengt Aberg this year.

The HL500 will be produced in limited quantity, with just 200 of them being sold through European Yamaha dealers in 1978.

NVT were ideally equipped to handle this type of assembly contract and were appointed to the task by Yamaha.

The bike has a 1396mm wheelbase and is 2115mm in total length. Seat height is 940mm with 295mm of ground clearance and 260mm of rear wheel travel. The complete front end is from the Yamaha YZ400 two-stroke moto-crosser, giving 250mm of fork travel.

It weighs in at 252lbs dry and Aberg's efforts indicate that it is totally competitive even in today's two-stroke world.

Next time, therefore, that you see a British policeman flash by on his Yamaha triple or watch some motocross racer take the checkered flag on his HL500, remember that you are seeing the result of a unique link between the old and the new....between Norton and Yamaha, two of the most respected names in motorcycling.





# LUCIEN TILKENS

## The Man Who Revolutionised Motocross Suspension

In the 30 year history of International motocross there are really only two or three significant "milestones" that actually changed the face of the sport as we know it today.

One of those must be that period in the mid-fifties when a lanky Englishman named Brian Stonebridge (later tragically killed in a car crash) began to regularly beat the hefty 500cc four-strokes of the period with his spindly little 200cc two-stroke Greeves. Stonebridge and



## LUCIEN TILKENS

Greeves did more than any of the early two-stroke pioneers to hasten the death of the competitive four-stroke. (Though Bengt Aberg and Yamaha have proved last year that a four-stroke revival might be on the cards, the two-stroke is still the ultimate moto-cross machine today).

Another milestone was undoubtedly the 1973 Belgian

250cc Grand Prix at Wuustwezel, just north of Antwerp. Hakan Andersson won the race for Yamaha (and went on to clinch the World title that year). He won the race using a chassis that, before the event, was almost written off by the so-called 'experts' as just another gimmick.

The 'gimmick' was Yamaha's Grand Prix debut of the monoshock suspension system invented by Belgian

engineer, Lucien Tilkens. Compared to the normal suspension systems of the day it certainly looked strange. The rear end of the machine appeared to have a rigid frame. Until you looked closer and saw that this whole sub-frame pivoted and was controlled by an immensely long single shock absorber that ran from beneath the seat right up to the steering head.

The Wuustwezel course was a good test of suspension. Most of it consisted of small, but closely-spaced ups and downs that never gave the suspension a chance to stop working overtime.

At the end of the race, the Yamaha of Andersson was

such a convincing winner that by the time of the next Grand Prix, all of the other competing manufacturers had hurriedly made attempts at increasing the travel of their rear suspension!

Tilkens theory in beginning the monoshock design was that too many manufacturers were spending all of their time in searching for horsepower and that this was simply making the big two-strokes of the day unrideable.

He theorised that it was not the actual horsepower that was making the bikes such beasts but the fact that poor suspension was preventing this horsepower from being transmitted to the ground in a

# THE MONOSHOCK





controllable manner.

And that is why Tilkens invention of the monoshock suspension system is such a milestone in motocross history. The appearance of the monoshock forced all manufacturers to revise their suspension systems. This in turn allowed them to use the horsepower at their disposal and has since allowed them to go on and extract even more power from the engines. Every motocross rider today owes Lucien Tilkens a vote of thanks. It was his introduction of the monoshock chassis that forced all manufacturers to think of handling rather than horsepower and this has upgraded the overall

performance of motocross machinery in general.

With the monoshock being patented by Yamaha, other manufacturers had to search for different ways to upgrade their suspension but the result was the same...better handling motocross machines able to use more horsepower than ever before. Since then, Yamaha have applied their monoshock principle to road racers, trials machines and even dual purpose street/dirt bikes such as the popular DT range. The monoshock is here to stay!

Lucien Tilkens and his cheerful wife Maria live in a large, immaculate house close by the Grand Prix road race

course at Zolder in North East Belgium.

On just about any working day of the year, Lucien disappears right after breakfast down a tiled staircase to his workshop beneath the house and usually stays there at his drawing board or amongst his modern engineering machinery for anything up to 16 hours!

Lucien designed the house (and actually built a good part of it) and an integral part of his design was the cellar workshop. A driveway around the side of the house sweeps down below ground level to the large double doors of the workshop which is crammed with the kind of equipment that would make any machinists mouth water.

Lucien has always been an engineer and an inventor. For 17 years (from 1951 to 1968) he was a teacher at a technical college near Liege and in 1951 proved his inventive capabilities by coming up with one of the first machines capable of harvesting sugar beet from the ground.

In addition (and like many Belgians) he has always been a big fan of motocross racing.

"In thirty years of marriage Maria and I have probably not missed more than about a dozen big motocross races in Belgium" says Lucien.

"In fact, I've missed more since working for Yamaha than in all the years previously. I'm too busy in the workshop now!"

His enthusiasm for motocross and his penchant for engineering and development also meant that he was for many years on the technical committee of the Federation Motocycliste Belgique, resigning that position in 1971 when he felt that it was not possible to be involved with Yamaha on a commercial basis and still remain an impartial committee member.

Early in his days as a motocross spectator, Lucien and Maria became friendly with the Geboers family, whose son Sylvain was to become one of the best racers in the world, riding for CZ and Suzuki factory teams.

Knowing that Tilkens was an engineer, the Geboers family persuaded him (without much trouble!) to help in the preparation of Sylvain's racing machinery...at that time being big four-strokes like BSA, Lito and Matchless thumpers.

At the same time he began

to help another up and coming young motocrosser, a personable young Belgian by the name of Roger De Coster!

As well as high school duties, Lucien also had a small factory making steam cleaning equipment and agricultural machinery such as the sugar beet harvester. After the factory had closed down in the evenings, Lucien and the young riders used to wheel in the motocross machines and work would begin all over again!

By the end of the nineteen-sixties, both Geboers and De Coster were riding for CZ. The Czechoslovakian factory had developed a 400cc machine that was proving really difficult to ride due to its brutal engine power and most riders preferred the less-powerful but more manageable 360cc version.

Tilkens, however, was already thinking that the answer to this "unrideability" problem might lie in the suspension rather than the engine power.

His idea was that a stiff rear section, controlled by a single shock absorber, would eliminate the twisting and flexing that the normal twin shock absorber and swinging arm system went through when too much horsepower was applied.

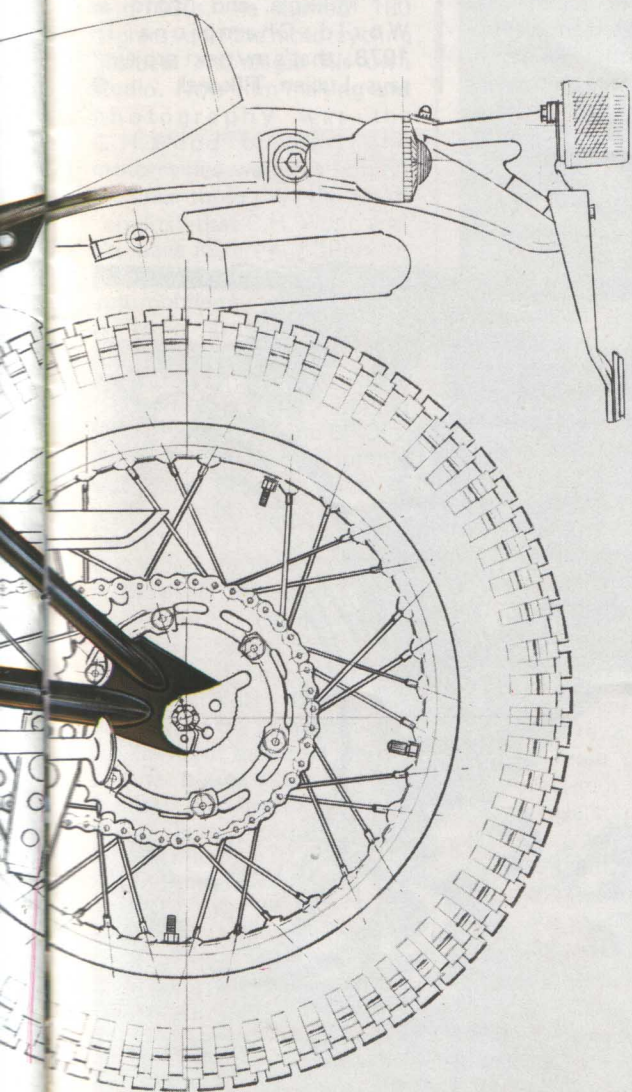
Both Sylvain and Roger were professional motocross riders with a living to earn. They couldn't afford to experiment if failures meant that their income suffered.

Lucien, however, had a perfect test rider in the form of his son Guy, who was studying for a degree in mechanical engineering and racing motocross just for fun. He was a capable rider and was also interested in the mechanics of the competing machinery. And, without the pressure of needing to earn a living from the sport, he could afford to experiment with his father's new chassis.

So, in 1968, the first monoshock chassis was constructed, using Guy's CZ 360 as a basis. For the first three or four years Guy simply rode the bike in private training and development sessions but in 1972 Tilkens felt confident enough about his design to enter Guy on a monoshock CZ in a Belgian National race at Paal.

"The reaction of most of the spectators was to think that Guy had lost his shock absorbers" said Lucien. "But the mechanics and other riders

# MONOSHOCK SYSTEM EXPLAINED





## LUCIEN TILKENS

noticed that the bike appeared to be handling really well and were quite curious about the design".

They were even more curious later in the year. Towards the end of the season, Tilkens replaced the modified CZ with a complete chassis of his own, using a Suzuki motor. In its very first race the machine won with ease!

Naturally, because of the close family connections, both Roger De Coster and Sylvain Geboers had seen the monoshock in the making. By this time they were both riding for Suzuki and word about the new-style chassis had been passed back to Japan.

Interest from big manufacturers was not long in coming and Tilkens found himself testing for Suzuki with De Coster and Geboers.

On the very same day as that test, however, Lucien got home and found a message asking him to call Yamaha in

Amsterdam. He called them and, obviously, it was the monoshock in which they were interested.

After a series of negotiations Tilkens decided to go with Yamaha and, he says, "I have never regretted that decision".

And neither has Yamaha, for within a few months of joining the company, Tilkens had produced the monoshock chassis that took Hakan Andersson to that 1973 Belgian GP win and their first World Motocross Championship! Since then the monoshock has helped Heikki Mikkola to the 500cc Championship, Mick Andrews to big International trials wins (though he has reverted back to a system closer to the normal Yamaha production trials suspension), to World Championship road race titles and ISDT Gold Medals for the Yamaha factory.

What does Tilkens see as the advantages of the Yamaha monoshock system?

"The length of damper allows softer suspension and more rear wheel movement" he says. "Plus the rigidity of the rear sub-frame means better handling under power and the better weight transfer

of the long damper, with the energy being transferred from back to front instead of up and down, means better control under braking. Now the rider has more control over the behaviour of the rear wheel, rather than it hopping up and down and forcing deflections of the front wheel from a chosen line".

"These weight transfer advantages apply as much in road racing as they do motocross and you have the advantage that it is easier to tune the characteristics of the monoshock to suit a particular circuit."

The actual design of the chassis isn't the only important difference of the monoshock system. Just as important is the design of the shock absorber.

Now the shocks are made by Yamaha (via an agreement with the De Carbon company) but in the early days Lucien made his own and his combination of gas, oil and spring as the suspension medium is still an integral part of the shock absorber's design.

Hydraulics is a Tilkens specialty and he got the idea from his shocks from a single cylinder pump that was part of the steam cleaning equipment

that he was manufacturing in the sixties.

"I wanted a continuous flow of steam rather than the pulsing one that the piston of the pump was creating" he remembers "so I utilised an intermediate gas chamber to maintain a regular smooth flow. The pressure of the gas kept the steam flowing even when the piston was working against it and I simply utilised that technique to keep a smooth, regular flow of oil within the shock absorber".

With the monoshock to his credit, what is Lucien Tilkens aiming at next? There are several irons in the fire as he is retained by Yamaha as a technical advisor and experimenter on all facets of motorcycling...from motocross to mopeds.

Additionally he is lending technical support, in close collaboration with Yamaha Motor NV staff, to the Yamaha World Championship efforts in the 125 and 500cc motocross classes, where Dutchman Gerard Rond and current Champion, Heikki Mikkola will be the riders.

"Mikkola and Rond as World Champions in 1978...that's my next project" says Lucien Tilkens! ●





Motorcycle enthusiasts enjoying the on-screen action of one of the films that Yamaha make available to clubs and the like, probably give little thought to the many hours of preparation and planning and to the technical and artistic skills that go into producing one of these documentaries.

The unsung heroes of all this "behind the scenes" work are the staff of the C.H.Wood company of Bradford in Yorkshire...one of the largest film production units in the North of England, an area where many industrial film companies have become established to service the numerous major manufacturing concerns in the locality.

The C.H. Wood background in motorcycling goes back a long way. C.H. Wood himself was a factory trials rider for the famous old Scott company before the war and was also an engineer in that firm's Yorkshire factory. Film-making and photography were his hobbies but, in the mid-1930s, he turned 180 degrees, quit the motorcycling business and began his own studio. Now film-making and photography was the C.H.Wood business and motorcycles were his hobby!

Since those days the list of "credits" that C.H. Wood and Co. have in terms of films for motorcycle and automobile-related companies is long and impressive. Yamaha, Castrol Oils, Hepworth & Grandage (Hepolite Pistons), Champion Spark Plugs, Shell and BP Oils, Honda, BSA and Triumph, Vandervell Bearings, Minarelli and Lambretta, Dunlop Tyres...all have used C.H.Wood for films and other audiovisual material.

Two of the key men in the company today are David Wood, son of the founder, and Mike Wilson. Both are directors of the firm and David specialises in the visual aspects of the business while Mike handles the audio side of things...better known as the "sound man".

Under the direction of this pair is one of the most complete and self-contained units in the specialist film business. They utilise three or four permanent staff cameramen plus a couple of sound assistants and bring in more help on a freelance basis if needed.

## The Men Who Make The Yamaha Films



David Wood



Mike Wilson

All editing, music dubbing and sound mixing is all done at the superbly-equipped C.H.Wood Studios and it is this "total production" which David Wood sees as the key to the success that they have achieved in their field.

"We take a project right through from start to finish and oversee it personally at every single step of the way" he says.

"Both Mike and myself, plus our cameramen and other staff, are all motorcycle and motoring enthusiasts so we have a good basic knowledge of our subject.

"Added to that, we have established a good rapport with the riders so that we can pick their brains on technical matters regarding the bikes as

well as always finding them co-operative in terms of interviews and so on.

"Whenever we get to a new filming location we always arrive well before the event and thoroughly scour the area for potentially good action locations. We even go as far as asking homeowners to allow us to film from their roofs and gardens if we think it will result in a good shot. It is this pre-planning which so often results in our getting the kind of shot where people say 'boy, they were lucky to be right there when Mikkola passed De Coster' or something similar.

"Nine times out of ten it isn't luck but planning that gets these results. You check out the track for good spots and then you carefully watch

the practice sessions to see where the rider that you are particularly interested in is at his best. And you ask the rider himself. Then you can position your men in a spot where the action is likely to happen.

"All of our team are in contact with one another by radio telephones so that I can direct men all over the course as needed."

Additionally, David and Mike also make sure that the company is always equipped with, or has access to, the latest gadgetry like helmet cameras, slow motion and telephoto equipment and high speed cameras (all work is done in 16mm) that can shoot film at 1000 feet per second!

You can never stand still in the film business, so all of this latest equipment isn't just gimmickry...it's a necessity.

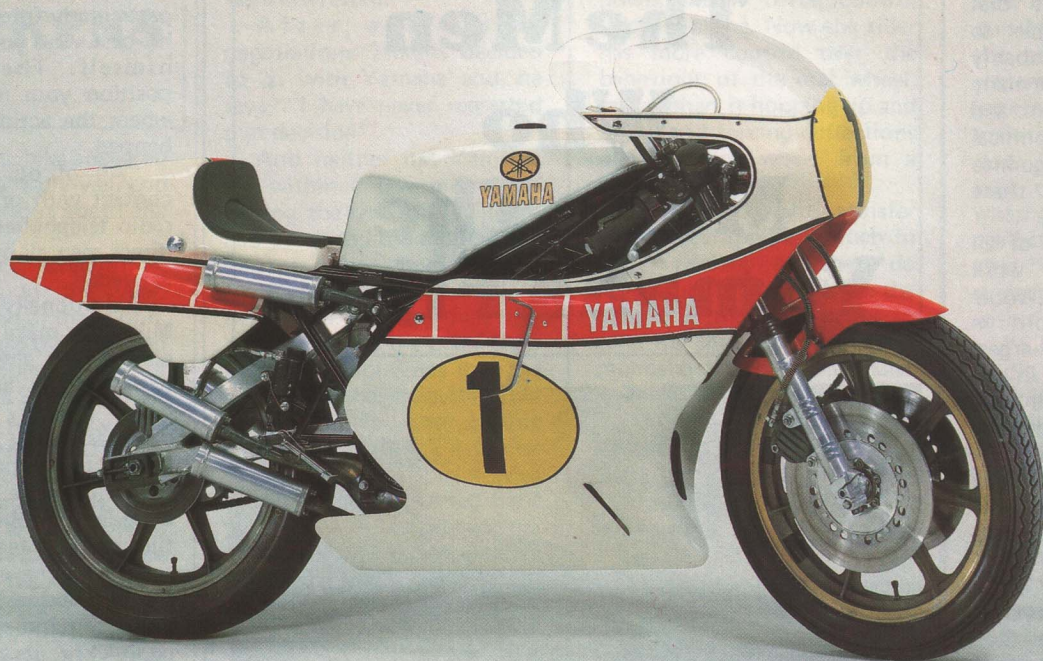
Once the film has been shot, then comes the tough part! The editing and sound mixing are the key to any successful film and David and Mike handle these two jobs personally. The amount of film that ends up on the cutting room floor after David has been at work with his scissors is staggering. For a half-hour film such as Yamaha's new Grand Prix motocross epic there are literally more than ten hours of film unused. Calculate it...to get the half hour motocross film, C.H.Wood cameras were on hand at the Dutch, Italian, British, Belgian, and Swiss Grands Prix...shooting film all through practice and racing as well as crowd shots and so on!

But the film on the cutting room floor isn't wasted footage...or, at the very least, it's necessary wastage. There's no way of getting a good film without first shooting plenty of raw material.

Testimony to the abilities of David Wood and Mike Wilson when it comes to "getting a good film" can be gained from the fact that they have won major awards at such classic film festivals as Cannes, Zagreb and Bologna as well as winning the Mumms Cordon Rouge Motorsports Film Festival at Reims, possibly the top film award in the motoring field.

That's the kind of ability that translates into sheer enjoyment when you, the motorcycle enthusiast, watch a Yamaha film unfold on to the screen!





# GRAND PRIX

**YZR500**

**(Kenny Roberts, Johnny Cecotto, Takazumi Katayama)**

497cc 2-Stroke. Transverse four-cylinder, water-cooled. 56 x 50.5mm. 105bhp at 10,500rpm, CDI Ignition, 6 Speed Transmission. 34mm carburetors. 30 litre fuel tank. Telescopic Forks, Monoshock frame. Tires: 3.25 x 18 Front, 3.50/6.00 x 18 Rear. Disc Brakes.

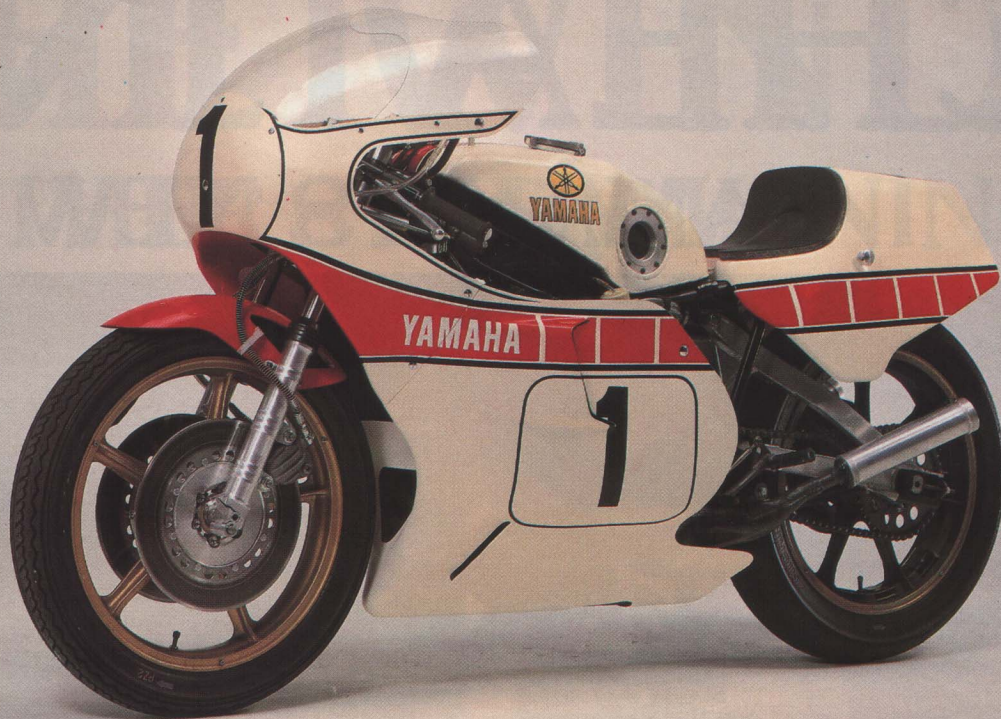
**YZM125**

**(Gerard Rond)**

123cc 2-Stroke. Single Cylinder. 56 x 55mm. 25bhp at 11,000rpm. 34mm carburetor. 6.5 litre fuel tank. 6-Speed Transmission. Telescopic Forks, Monoshock frame. Tires: 3.00 x 21 Front. 4.00 x 18 Rear. Drum Brakes.







# YAMAHAS - 1978

## YZR750

(Kenny Roberts, Johnny Cecotto, Takazumi Katayama)

748cc, 2-Stroke. 7-port Torque Induction. Transverse four-cylinder, water-cooled. 66.4 x 45mm. 115bhp at 10,000rpm. 34mm carburetors. CDI Ignition, 6-Speed Transmission. 24 litre fuel tank, Telescopic Forks, Monoshock frame. Tires: 3.25 x 18 Front, 3.50/6.10 Rear. Disc Brakes.

## YZM400

(Heikki Mikkola)

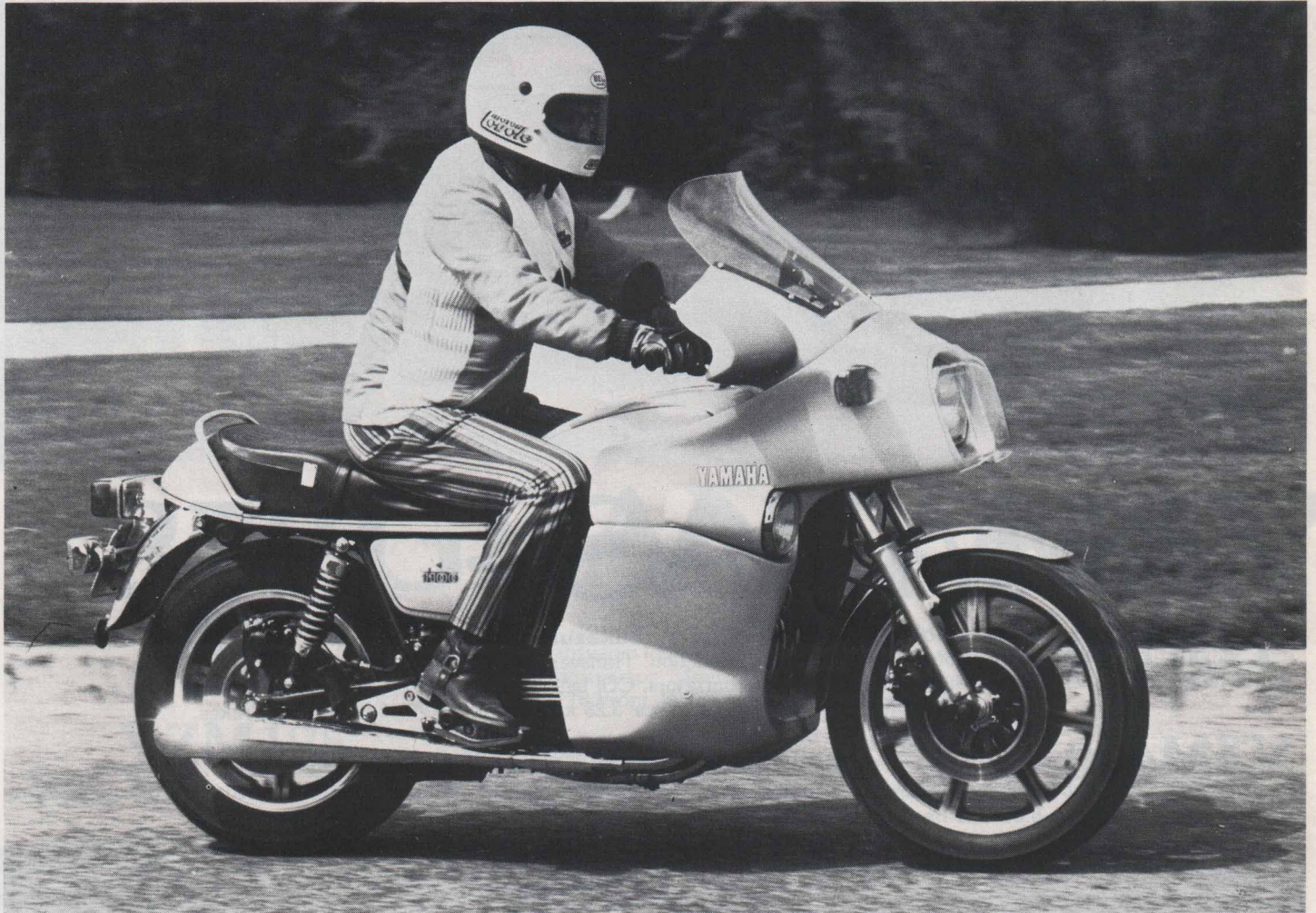
396cc, 2-Stroke. Single Cylinder. 82 x 75mm. 41bhp at 7500rpm. 38mm carburetor. CDI Ignition. 5-Speed Transmission, 10 litre fuel tank. Telescopic Forks, Monoshock frame. Tires: 3.00 x 21 Front, 5.00 x 21 Rear. Drum Brakes.





# CHEATING

## YAMAHA'S NEW ALL-



The high speed and long-range cruising abilities of today's motorcycles have made an aerodynamically-efficient fairing a very desirable piece of motor-cycling equipment. Yamaha's new XS1100 four is typical of the heavyweight, powerful "superbikes" that can cover long-distances at express train speed and marketing staff at Yamaha Motor NV in Amsterdam decided that a specially-designed fairing would add even more to the already-comprehensive specification of the machine.

Therefore they commissioned British designer, John Mockett, to produce a fairing built with the capabilities of the XS1100 foremost in mind.

This is designer Mockett's own story of the evolution of

a fairing acclaimed by the press on Yamaha's recent Senegal Press Rally as setting new standards in styling and aerodynamics.

Mockett writes: "The XS1100's ability to cruise for long distances at high speeds led Yamaha to consider very carefully the problems of rider fatigue. To brace oneself against the airstream is exhilarating for short periods but will tire the strongest of riders eventually.

This tiredness can lead to errors of judgement when decisions need to be made rapidly.

It was felt that, if the machine is capable of going for long distances at high speed, then the rider should be able to do so as well. A fairing was the obvious

answer, also providing the accepted advantages of better speed and fuel economy thanks to improved air penetration.

It became obvious that we had two basic choices to work from: the American "snowplough" style of handlebar fairing or the racing style dolphin ... neither of which were the ideal answer for a machine as big as the XS1100. The American windshields are far too big and cumbersome for the more sporting European rider while the racing dolphin, because of its one-piece construction, would require too many changes to be made to the actual machine.

Therefore, my co-designer, Dave Weightman, and myself arrived at our

rather unique two-piece fairing where the top section moves with the bars while the low part remains static.

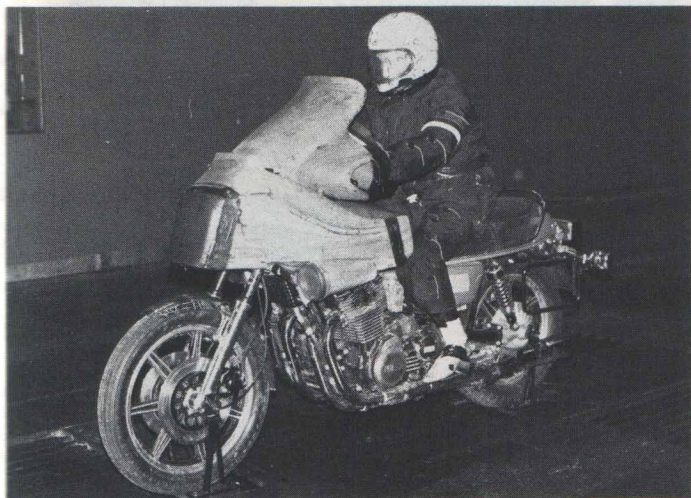
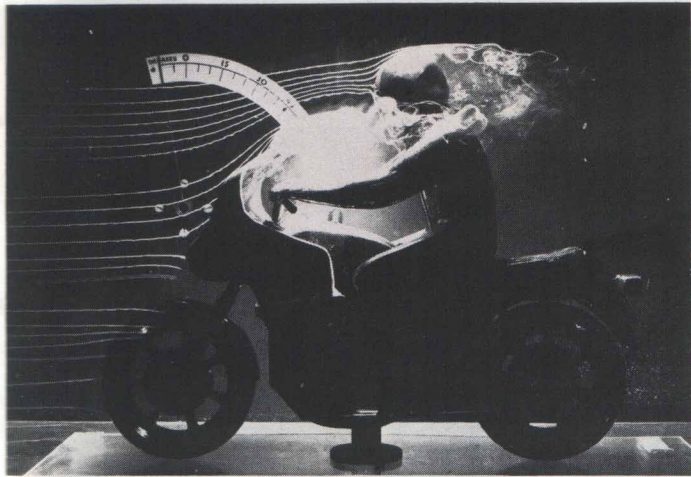
Having a moving top section overcame the problem we faced with using a conventional dolphin fairing on the standard machine. The standard handlebars and large steering lock would have meant that the front of any one-piece dolphin fairing would have been pushed so far forward that sheer bulk would have been the only means of providing good weather protection. In turn, this would have decreased the aerodynamic efficiency with consequent reductions in speed and fuel economy.

We began work using one-fifth models constructed at the Lanchester Poly-



# THE WIND

## WEATHER STREAMLINING



technic college in Coventry, England. Our prime aims were to reduce overall drag and not have too great an air pressure over the front wheel.

Sculptor, Steve Furlonger, began to construct the full-size model from the lessons learned with the smaller ones and we had the basic shape pretty much decided by the time we went into the full-size wind tunnel.

Our aim had been to achieve downthrust from the air pressure to improve the handling of the bike at speed. Normally a motorcycle generates "lift" as its speed increases. Then the front wheel becomes light and both steering and roadholding suffer.

A properly-designed fairing can convert this

speed into a downward force rather than lift by using the airflow over the streamlining to its advantage.

The Yamaha fairing does have this effect, in fact, and I am glad to say that we managed to achieve this without the use of added-on: spoilers and the like.

The Yamaha fairing achieves its advantages in terms of roadholding at speed by virtue of a sound aerodynamic shape. One of the keys to this is the unique concave plane of the nose section."

The two-piece fairing combines all the advantages of either the dolphin-style streamlining or the handlebar-mounted windshield but it has none of the disadvantages.

The XS1100 is a powerful machine with a hefty bulk. Contrary to most fairing designs, the new Yamaha streamlining seems to visually reduce that impression of bulk rather than add to it. Using a fairing usually makes a bike look monstrous and this is far from the case with the Mockett design.

Constructed in hand-laid glassfibre, the fairing is 76cms wide (max.) and has a maximum height of 140cms. Length of the side panels is 80cms. Total weight, including mounts, is 14 kilograms and mounting time is a little under two hours.

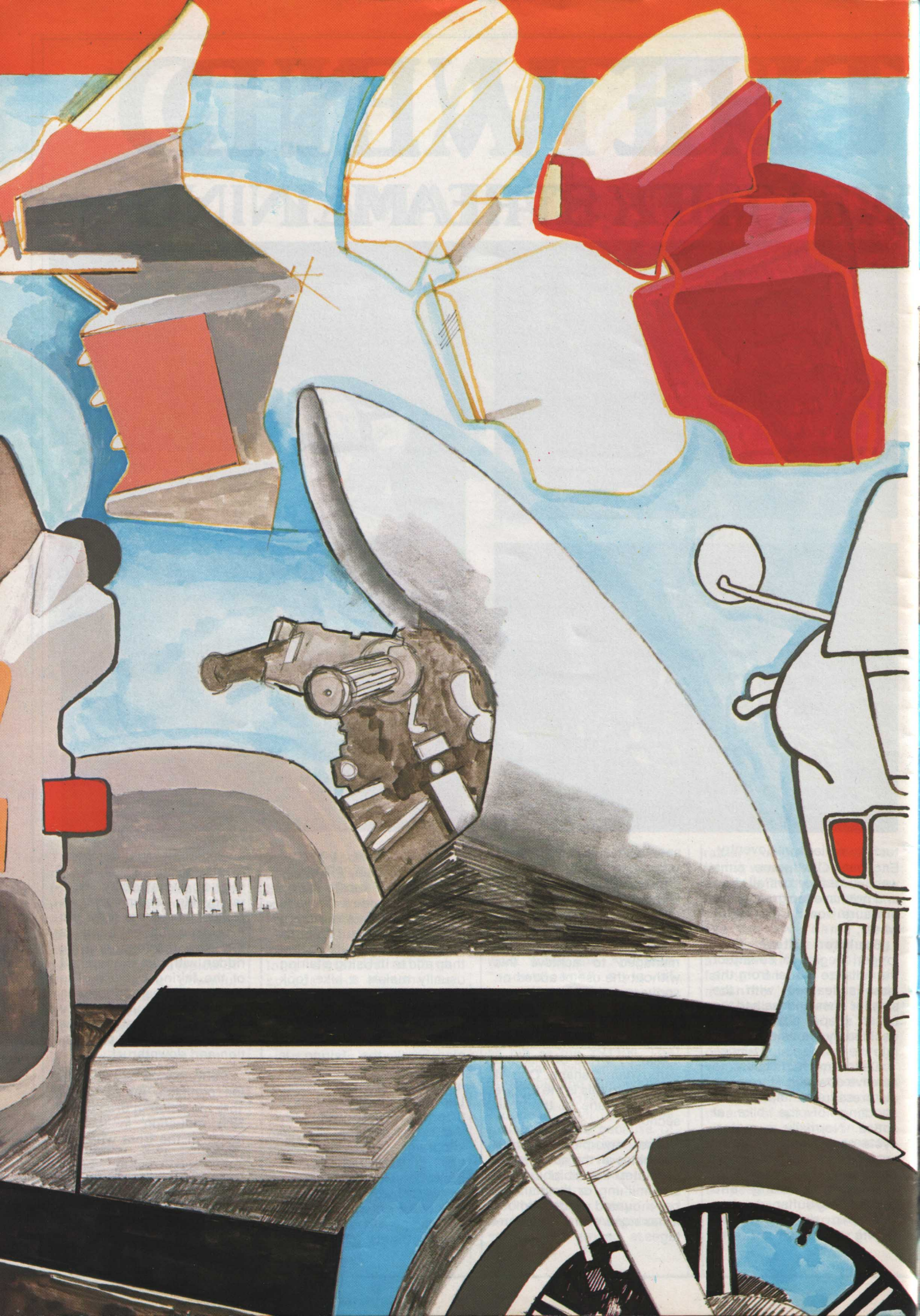
Integral with the fairing is the powerful halogen headlamp and twin Cibie driving lights. There are

lockable storage compartments giving 20 litres of luggage capacity and removable engine panels protect the riders legs and feet. An additional bonus is that the machine can be ridden with just the top half of the fairing in place. The handlebar-mounted section alone is visually very exciting and still gives advantages in wind penetration and downthrust.

Performance gains with the complete fairing are a 15% reduction in drag and a 32% reduction in the lift factor of the front wheel at speed!

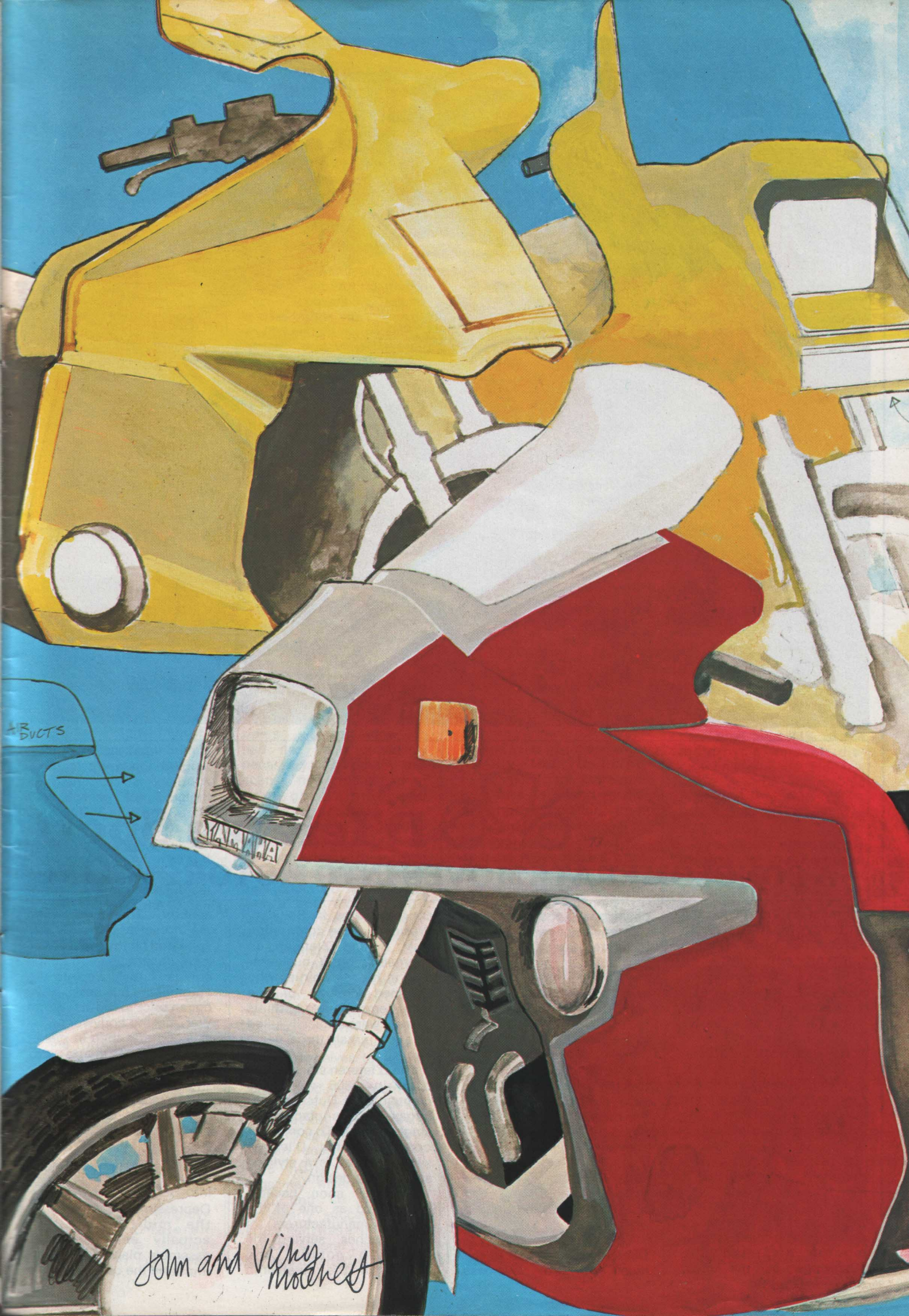
The new XS1100 fairing will be available through Yamaha dealers as an optional accessory part in 1978.





YAMAHA

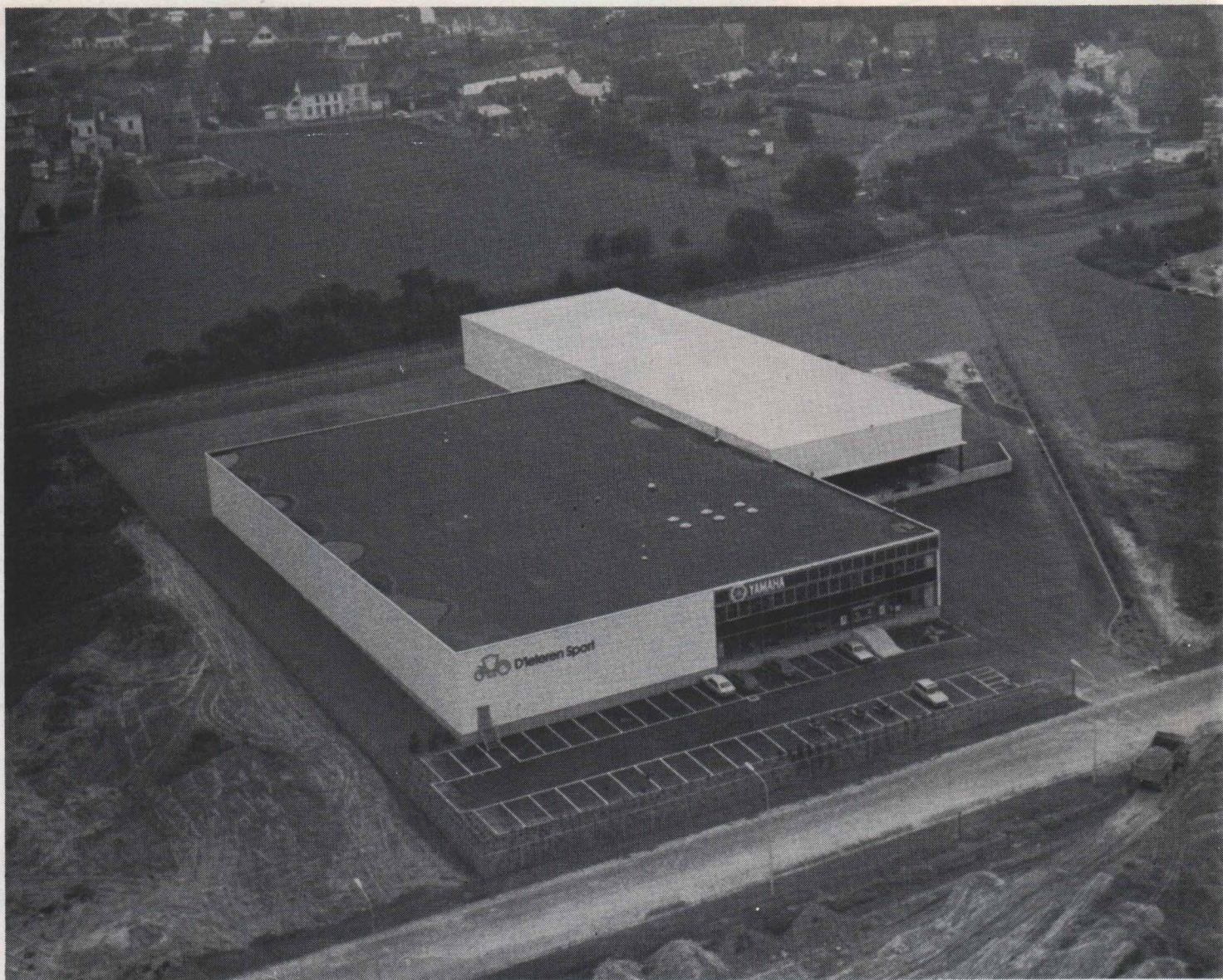




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# D'leteren Sport

## A CONGLOMERATE MOVES INTO MOTORCYCLING

For most of its existence, the motorcycle industry in Europe has been rather a tightknit community. In general it has been run by enthusiasts, for enthusiasts. Therefore, whenever big "outside" business interests have turned their attention to motorcycling there has been some misgiving on the part of the "establishment".

In January of 1976, big business appeared on the Belgian motorcycle scene in the shape of D'leteren SA, one of that country's most powerful conglomerates. They had acquired the Yamaha concession for Belgium and Luxembourg and within the space of a few months dispelled any misgivings in the most

positive way possible.

Forming a new subsidiary (D'leteren Sport SA-NV) to handle their motorcycling and allied interests, they applied a knowledge and techniques of big business to the area of motorcycle sales and the results were there for all to see. In a single year, D'leteren Sport, under the direction of M. Marcel Seys, did more than double the previous year's Yamaha sales. And they have maintained that high level throughout 1977! No better way to emphasise the effectiveness of "big business" in the motorcycle context!

The parent company, D'leteren SA, is one of the most powerful business

conglomerates in Belgium. President of the corporation is M. Roland D'leteren, an energetic young businessman in his mid-thirties who assumed control of the family empire after both his parents were tragically killed in a car crash three years ago.

The D'leteren story begins back in 1805 when the company (of Dutch origin) began the manufacture of stagecoaches. To commemorate this, the D'leteren symbol today is a stylised stagecoach design.

D'leteren soon became established as one of the leading manufacturers of stagecoaches, serving the European nobility and royalty of the nineteenth

century. Therefore, when the 'horseless carriage' first appeared on the scene it was a natural progression for the company to move into the automobile business. They began prior to the first World War, making bodywork (first in wood and then in metal) for such famous car manufacturers as Rolls Royce, De Dion, Minerva and Delage.

From there came a logical progression. Between the two World Wars D'leteren began to import the American Studebaker car into Belgium and when the Depression hit America in the mid-thirties, they actually established an assembly plant in Belgium, imported the cars in compo-



ment form and assembled them for the European market.

The growth of this side of the D'leteren business was interrupted by World War II but when hostilities ceased, the company became one of the first in Europe to begin importing the Volkswagen and Porsche range from Germany.

Early in the nineteen-fifties, Studebaker went out of business in the USA and D'leteren were therefore left with a complete assembly plant standing virtually idle. Once again, the logical move was made. D'leteren began to import Volkswagen in component form and assemble them in the old Studebaker plant!

This arrangement continued until just three or four years ago when, by agreement with Volkswagen, D'leteren ceased the actual assembly work and began to import the cars complete from Germany. The company is still Belgian importer for VW, Porsche and Audi.

Some 15 years ago, Pierre D'leteren (father of the present company president, Roland) began to diversify his business interests.

First of all he went into the insurance and credit business with AFIDIF, a company that now has an annual turnover of 1 billion, 500 million Belgian francs!

Next came car retail outlets in all of the major Belgian cities, the Avis car and truck hire license for Belgium (LOCADIF), Petroleum Products Services, a cleaning systems company for cleaning large trucks and so on, the Explorado travel agency, a firm of architects and an interest in the Attack corporation, a French company making camera equipment!

Finally came D'leteren Sport for the import of Yamaha motorcycles and mopeds, in addition to Garelli mopeds, Yamaha marine products, Yamaha tennis rackets and skis and a number of accessories linked to the motorcycle and boat business. For example, D'leteren have their own brand of crash helmet.

Managing Director for the whole D'leteren SA/NV conglomerate is M. Gilbert van Marcke de Lumen.

Total number of employees in the D'leteren conglomerate is around 2200, with 47 of these

manning the new D'leteren Sport headquarters at Braine le Chateau just south of Brussels.

Situated 700 metres from the Brussels-Paris auto-route, construction on the new building was begun on November 15th, 1976. Exactly 5 months later, D'leteren Sport moved into their new headquarters ... more solid proof of their corporate efficiency!

The building has been designed specifically for the task of distributing motorcycles. It covers 6000 square metres and sits upon a 15,000 square metres parcel of land. Which gives plenty of room for car and truck parking as well as the capability for expansion. Other ideas that Marcel Seys has for the use of the extra land is perhaps to utilise it for Yamaha riding schools (for both street and off-road riding).

Rider training and the safety aspect of motorcycling is high on D'leteren's list of priorities both from a personal and public relations point of view.

A good example of this is D'leteren's handling of the situation surrounding Belgium's new moped laws that were introduced from April 1st, 1977.

The government changed the moped laws and decided to insist upon a license for riders ... something which had not been previously necessary. To obtain this license new riders had to undergo training and examination routines.

Unfortunately, the government insisted upon all of this but omitted to inform prospective riders where they could go for training, where the examination centres were or where they could obtain their licenses.

Preliminary checks with police, schools and other agencies revealed to D'leteren Sport staff that hardly anyone knew where to obtain this basic information, so they took it upon themselves to inform the public!

They produced brochures and posters giving all of the information along with billboard advertising on the Belgian coast during the 1976 holiday season, magazine inserts, advertising and so on. One particularly successful advertisement was a full-colour cartoon, several pages long that was inserted in popular

comics. This reached the right age group and also had the effect of playing down the drama of the situation. This strip was so popular that the Belgian motorcycle magazine Flash Moto picked it up and ran it in their magazine as a welcome and free service to their young readers.

The cartoon and other advertising material was also run in D'leteren's own magazine which has a circulation of over 330,000 for each of its quarterly issues. It goes to all customers of any of the diversified D'leteren business over the course of a year.

Finally a public relations campaign was launched in all Belgian newspapers plus youth and women's magazines.

All of the advertising material, brochures, posters, etc. gave detailed information on how and where to obtain a licence.

The response to the campaign was fantastic. D'leteren received over 4000 letters on the subject including many from police and government agencies, insurance companies, etc.

They did it without any co-operation at all from any other moped manufacturers or distributors but, deservedly, they reaped the benefit in moped sales.

During the 1977 year moped sales in general were hit by the licensing necessities plus increased insurance fees and more government taxation. In a year where moped sales in general went down ... Yamaha moped sales went UP!

So from the efficiency of the D'leteren manner of doing business, comes benefits for both retailers and their customers.

Dealers, in particular, are well served by D'leteren Sport. The company does a huge amount of promotional work, provides dealers with advertising material, full-line brochures, posters and so on. Spares supply, invoicing and so on are all handled by computer, microfiche indexing is used instead of bulky parts books for spares identification and numbering ... all indicative of the business efficiency of the whole operation.

D'leteren even go so far as to offer a complete range of architect-prepared designs for dealers wishing to open new premises. These designs are tailored to meet the financial capabilities of the individual dealer (a similar thing is done for their automobile retailers) and will result in a Yamaha store being instantly recognisable and easy to spot.

When D'leteren took over the Yamaha distributorship, they lay third in Belgian sales behind Honda and Suzuki. They sold 5200 units per year, which represented 17% of the total motorcycle and moped market. In 1976 Yamaha sales more than doubled to 11,500! In 1977 they passed Suzuki to take second place and reduced Honda's advantage into the bargain. Yamaha in the Belgian "number one" spot is a distinct possibility as they now hold 24% of the motorcycle market discounting mopeds. Honda's share of the motorcycle market is currently 27.5% with Suzuki falling behind at 19.8%

So ... if any other people involved in the European motorcycle industry have any misgivings about the entry of "big business" into motorcycling, let them take note of the D'leteren Sport success story!



M. Marcel Seys



## Hailwood Makes Isle Of Man Comeback On Yamaha Racers

The legendary Mike Hailwood is to make a comeback for the 1978 Isle of Man TT races, riding Yamaha in three classes over the 38 mile per lap Mountain circuit. That's the exciting news revealed at a January press conference in England when Hailwood outlined his plans for his first return to International racing since he retired from full-time cycle sport ten years ago.

The 38 year old Hailwood last rode the Isle of Man in 1967 when he posted an incredible 108mph-plus lap on the 500cc Honda four that was notorious for its near-unmanageable handling. That stood as the outright Isle of Man lap record for over five years and, even now, today's aces only lap at 112mph despite the advent of much faster 750cc machinery, far better tyres and lots of speed-increasing improvements to the Isle of Man track!

Hailwood went to car racing in 1969 (having driven a few Formula One and long-distance sports car races in the mid-sixties, while still at the pinnacle of his motorcycle career. After turning full-time to cars, he did ride an occasional bike race such as the Daytona 200 for BSA in 1970 and 1971 and a 350cc Yamaha at a 1971 Silverstone International.

After winning the European Formula Two Championship for Surtees, Mike moved into the Formula One GP world, first for Surtees and then McLaren. He was always a leading points scorer until a high speed crash at the Nurburgring badly broke his leg and ended his Grand Prix career.

He retired to a boat-building business in New Zealand but admits that life can get a little boring sometimes and also admits that, having watched a succession of present-day aces struggling to better his 1967 Isle of Man record, he's often wondered just how quickly he could go under current conditions and on modern machinery and tyres!

In June this year, he's ready to find out! Sponsored by the Martini-Rossi wine company, Mike will ride 750cc and 250cc Yamahas supplied by British Yamaha importer, Mitsui UK. In addition he'll have a Grand Prix 500cc four supplied from Yamaha Motor NV in Amsterdam.

Handling the preparation of the Yamahas in the Island will be Nobby Clarke, now a Yamaha team mechanic. Nobby established his reputation as Mike's personal mechanic in the Honda team days.

As well as a string of World Championships, Hailwood's Isle of Man victories run into double figures. And there's probably not a bike enthusiast in the world today, even those too young ever to have seen him race, who wouldn't give "Mike the Bike" at least an even chance of adding another TT win to his score in June, 1978!

## HONOURS FOR YAMAHA

Testimony to the Yamaha XS750 as one of the very best sports-touring machines came late in 1977 when the readers of one of Britain's leading motorcycle newspapers, "Motor Cycle" voted it their "Machine of the Year".

The XS750 was the outright winner of the award while the Yamaha RD400 also topped the 400cc Sports machine category.

"Two Wheels", a leading motorcycle magazine in Australia, has voted the Yamaha DT400 "Dirt Bike of the Year, 1977".

McCulloch of Australia Pty Ltd., distributors for Yamaha in the Sydney area, loaned Two Wheels magazine a DT400 for their stand at the Sydney Motor Show in August and reported a "terrific spectator response".



## World's Biggest Bike Paper Votes Yamaha XS750 "Machine Of The Year"

Readers of Britain's Motorcycle News have voted the Yamaha XS750 'triple their "Machine of the Year" for 1977. With a circulation in the region of 200,000 copies per week, MCN is the biggest-selling motor-cycle newspaper in the world.

Published by the same group as MCN is "Bike" magazine, one of Britain's leading motorcycle monthlies ... and the readers of "Bike" also rated the Yamaha XS750 as their Machine of the Year!

## New Films From Yamaha

Motorcycle club members and other groups interested in motorcycle sport will be able to view two new Yamaha films this year - "Moto cross Grand Prix" and "Formula 750 Champion".

First of these has been produced in conjunction with the Camel Cigarette and Champion Spark Plug companies and deals with the 1978 Grand Prix motocross year, in particular Heikki Mikkola's super-successful onslaught on the World Championship.

The second, produced in collaboration with Champion, follows Yamaha's road racing fortunes through 1978 and is highlighted by American, Steve Baker's winning of the World F750 Championship.

These films are available through your national Yamaha importer. Any clubs interested in obtaining them for showing are asked NOT to contact Yamaha Motor NV in Amsterdam.

Remember, contact your national Yamaha importer who will be pleased to arrange for your club to view these latest two all-action films from the Grand Prix world of both motocross and road racing.