



# CIRCUIT



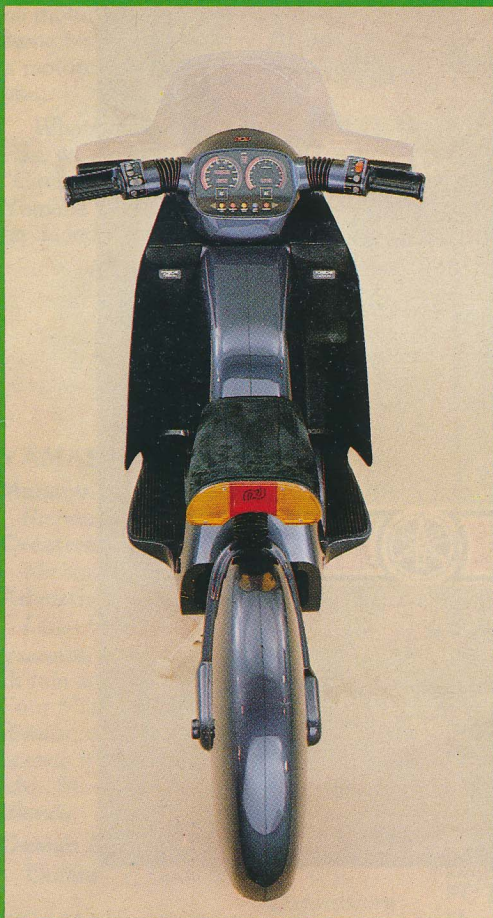
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AUGUST/SEPTEMBER 1980



**The 1990  
Motor-  
cycle!  
Is this  
what  
we'll be  
riding in  
ten years  
time?**



**CIRCUIT  
MAGAZINE**  
by YAMAHA

for all motorcyclists



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MAGAZINE  
by YAMAHA

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This issue of Yamaha Circuit marks a milestone in the history of the magazine. After five years of controlled circulation to Yamaha dealers and motorcycle clubs, the publication is now available every two months via newsagents throughout the British Isles and Ireland.

Yamaha machines and riders have always made an important contribution to all branches of motorcycle sport and added greatly to the pleasures of the everyday motorcyclist. That is why we have made the decision that Circuit magazine is to be produced "by Yamaha for all motorcyclists".

As far as Yamaha is concerned, all motorcyclists are part of the same big, friendly family. If you are a motorcyclist, then Circuit is for you.

Whatever brand of bike you ride, we'd like to have you as a "Circuit" reader. If you are a Yamaha owner as well, then that's an added bonus for both of us!

*Richard Cox*

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# Two TT wins in one day for 'Consistent Charlie'



Consistency and stamina are said by many to be the two attributes most needed for success over the Isle of Man TT circuit, and in this year's races Mitsui teamster Charlie Williams proved he possessed plenty of both! His consistency over what has to be the most difficult road circuit in the world was there for everyone to see with eight wins in as many years. In 1980 he proved he has more than enough stamina by completing over three hours strength-sapping racing at an overall average approaching 100mph, to notch two memorable victories in just one day.

The first event of the day was the Formula Two which marked the first competitive outing of Yamaha's latest roadster, the RD350LC, and what a dream debut it turned out to be. Charlie had already said before leaving for the Isle of Man, that he thought the virtually street-standard machine would be at a disadvantage against the special racing bikes developed for this class over the years, but he added, "I'm sure the fans will be impressed by the RD350's performance". As it turned out the race-bred roadster did more than merely impress. Charlie scorched away from the start and after just seven miles he had already pulled out a lead of 13 seconds over Malcolm Lucas aboard a 600 Honda. His main

rival, also Honda mounted, was Bill Smith, whose machine had already carried Alan Jackson to three Formula Two world championships, but by the end of lap one even he was a full minute behind a determined Charlie. Yamaha's policy of developing new street bikes from well-proven racing machinery means that mechanical failures are a rare occurrence indeed. So, with virtually no fears regarding the reliability of his mount, Charlie was able to treat the fans to a superb display of style and composure which, despite a somewhat leisurely re-fuelling stop brought him his eighth TT victory and gave the RD350LC a winning debut. The exciting potential of the RD350LC was underlined by the performance of Mitsui's number two rider David Dean. Dave, who won the Yamaha/Marlboro Clubman's Championship last year and was immediately snapped up by the Mitsui/Yamaha road race team, showed that his ability is not confined to the short circuits. In his first outing in the Isle of Man he averaged 88.72mph to finish an extremely creditable tenth.

Only a few hours after his Formula Two victory Charlie Williams was once again at the starting line facing another four laps around the twists, turns and bumps of the Isle of Man - this time in the 250cc



**Dave Dean on his way to 10th place in the Formula II TT on the new Yamaha RD350L/C**

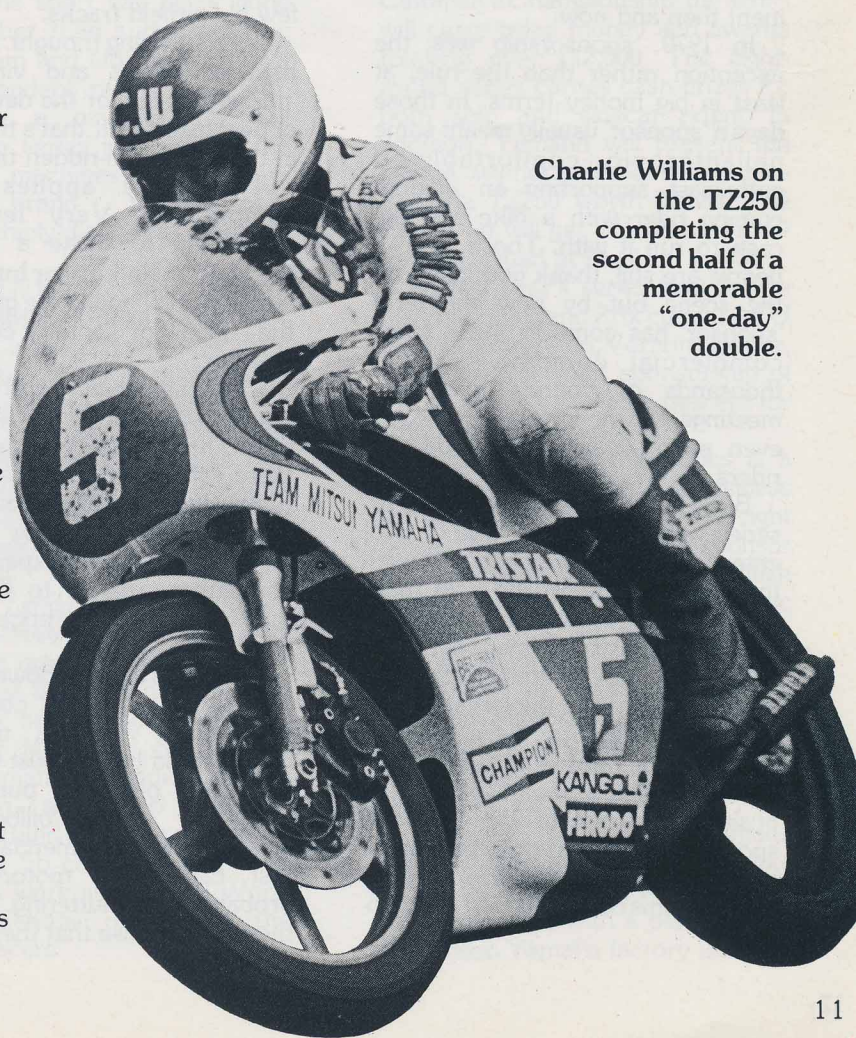
the Classic event and then promptly went one better by hoisting the outright TT lap record to an unbelievable 115.22mph. The sidecar race saw yet another record fall to Yamaha when Jock Taylor and Benga Johansson aboard their 700cc outfit lapped the island circuit at 106.08mph to chop an amazing 28 seconds off the old record.

The world famous road races were not the only events in which Mitsui team members were involved at the Isle of Man. During practice week there were several off-road events taking place and in the biggest of these, the Isle of Man Grand National moto-cross, Andy Robertson was unlucky not to emerge as victor. He led the first race from start to finish, but in the second leg he was unable to get among the leaders. In the third, and final, race he led right from the start, and by the last lap he was so far in front that he had time to remount after falling and still run out a comfortable winner. Unfortunately his two wins from three events was not enough to give him the overall win he was looking for, and he had to be content with second place, just five points behind the eventual winner.

Even though the TT races lost their world championship status some years ago, racing fans still arrive in their thousands from all over the world to sample the unique magic of the Island. The members of the Mitsui/Yamaha road-race team, and Charlie Williams in particular, added to this magic with a superb display of riding ability that could rarely, if ever, be seen on the short circuits of the world.

event. Given Charlie's experience of the Island course and the current overwhelming superiority of the Yamaha in the lightweight division it was hardly surprising that he was a firm pre-race favourite. Due to the notoriously unpredictable Manx weather, the lightweight event had been shortened from six to four laps, but even so few of the sixty starters could have relished the conditions ahead. Swirling mist cut visibility on the higher parts of the course drastically, and much of the circuit was still wet from the morning rain and mist. Charlie, however, soon showed that he was more than a match for any freak conditions that the island climate could produce. By the end of the first lap he was twenty seconds ahead of second place man Donny Robinson and on the subsequent lap he had stretched his lead to a full half-minute. Although the circuit conditions were steadily improving Charlie decided that he could ease off the power and still maintain his lead, but this decision almost cost him the race. As he came into Windy Corner for the last time he glanced at the signboard to find that his lead had been cut to a mere six seconds. The panic, however, was short-lived as Charlie gave the TZ250 its head and he eventually completed the second half of his incredible double with eleven seconds to spare.

Charlie Williams' two wins in one day, amazing though they were, were not the only successes for Yamaha during TT week. Their stranglehold on the lightweight division was demonstrated by the fact that of the thirty-six finishers, no less than thirty-four were Yamaha mounted, and there was also success at the other end of the scale. Irishman Joey Dunlop took his 750 to a new lap record of 114.41 on the fifth lap of



**Charlie Williams on the TZ250 completing the second half of a memorable "one-day" double.**

# 300 miles in 3rd gear....



*About to begin a test session with the RD350*

The popular conception of how today's high-technology motorcycles are developed is that a lot of "faceless" boffins feed data in and out of a computer and finally put a machine on the market because the computer says it is "right".

Nothing could, in fact, be further

from the truth. Today's bikes may be complicated pieces of design, but their final production form is still confirmed by extensive, incredibly-tough "seat of the pants" road-testing. Actually, Yamaha's chief tester in Europe, Dave Bean, says that today's bikes get tougher road-

testing than machines did in the old days of the British industry when allegedly motorcycles were built "by enthusiasts for enthusiasts".

"The testing I do for Yamaha" says Dave "is tougher than anything I ever did for any British company."

Dave should know. At 36 years



*At speed on the XJ650*

old he has completed over 20 years as a test rider and development engineer in the motorcycle industry.

Leaving school at 15 years old, he joined the original Norton company at Bracebridge Street - when Nortons were kings of the road and racetrack. He began testing bikes like Norton's "Dominator" twins and, when Norton was merged into The Associated Motorcycles Group, expanded his riding activities to AJS and Matchless machines.

From there he went to BSA as chief tester, finally ending up at that company's Umberslade Hall development centre in the dual-capacity of chief tester and research engineer.

Following the BSA demise, Dave continued in a freelance capacity as an engineer and tester. He had a long association with famous British road racer and Triumph's chief tester, Percy Tait, and one of his post-BSA jobs was to maintain Percy's factory Suzuki road racers.

It was about this time that Yamaha - unique among Japanese factories - decided that machines destined for the European market should be tested and finally-developed on European roads, by European riders.

Up until that time (in the early seventies) bikes sold here were designed either for the Japanese domestic scene or for America. European riders got what they were given - and are still treated that way by some Japanese companies.

Not by Yamaha, however. "European riders deserve European-style bikes" was the factory dictum and therefore the Yamaha Motor N.V. European headquarters in Amsterdam began to take an active role in product development.

First bike to be "Europeanised" was the XS650 twin. It handled well enough on the slow, crowded roads of Japan or on the arrow-straight American Freeways but was definitely not up to the demands of European riders.

Percy Tait was called in to sort out the suspension and, when other business commitments began to take up too much of Percy's time, Dave Bean was called in. Dave's first task was to assist in development of the XS1100.

"The prototype was incredibly fast" remembers Dave. "It was doing over 160mph on the German autobahns and would smoke the rear tyre on dry road in the first three gears!

"It had to be de-tuned but a standard one straight 'out of the box' still lapped the Nardo test-track in Italy at 142mph!"

Nardo, in Southern Italy, is where a great deal of Yamaha testing is done. A joint project of the Fiat empire and the Italian government, it is an incredible complete circle, Nine miles in circumference!

One benefit of a circular track is that any lap time always represents a "mean speed" as the wind comes from every possible direction during the course of a single lap. For every point at which the wind is giving assistance, there is a point opposite where it is slowing the machine down.

When Dave Bena takes a bike out on to the Nardo track, the machine is equipped with a little radio-telemetry unit beamed into the trackside computer.

At the end of a day's testing, the engineers receive a computer print-out giving wind and weather conditions, barometric pressures and the performance of the bike around every inch of every lap!

Yamahas that Dave has thrashed around Nardo include the XS1100, the XS850 and, just lately, a lot of time with the exciting XJ650 four and



***Dave Bean confers with engineers after a gruelling test workout on the Yamaha XJ650***

RD250 and 350 liquid-cooled twins.

A typical day's testing on the Nardo bowl puts each machine through over 1000 miles of flat-out running. Each session of "endurance" testing covers some 10,000 miles at sustained high speeds to plumb the depths of the bike's capabilities.

Prior to Nardo, prototypes are put through miles and miles of actual highway testing on roads as varied as British motorways and German autobahns to back-roads in Britain, Holland and Italy.

The bikes are wired for all manner

of instrumentation for pressure and temperature checks and so on. Still a great factor, however, is the "feel" of the machine to the rider.

"We look out for any undue vibrations or quirks in handling, braking and the like", says Dave "and the engineers take just as much notice of our opinions as they do the instrument readings". Towards the end of the testing of any Yamaha prototype it is deliberately abused - and abused far worse than any normal rider is likely to do.

No engine or transmission adjustments are made, no oil

changes or fresh plugs. Even worse, bikes in this sorry state are regularly run 1500rpm "in the red"!

"I remember an incredibly tough session with the XS850" says Dave "where we ran it absolutely flat-out in the third of its five gears for three hundred miles! Finally it blew a head gasket but that was all. When the engine was stripped, everything else was fine!"

So rest assured that when you buy a Yamaha, just about any abuse that you are capable of has already been heaped upon the unprotesting machine!

1980 marks something more than just the start of another decade for Yamaha motorcycles. It signifies the celebration of 25 years of motorcycle manufacturing.

It is fitting therefore, that this year's Yamaha range is unequalled by any of their competitors as far as types of machines offered to the general public.

From the lowest end of the scale - with a comprehensive range of mopeds - right through to the awesome XS1100, Yamaha offers more choice of machinery than any other manufacturer.

For example, one of the biggest sensations of the 1980 Yamaha range is the rejuvenation of the sporting two-stroke street machine. Yamaha has always remained faithful to the sporting two-strokes that made the company famous, even with most of their competitors turning away from this type of engine because of stringent emission and noise regulations for road-going motorcycles all over the world.

Yamaha has always maintained that a two-stroke can meet these regulations just as well as a four-stroke and the new range of super-sporting two-stroke middleweights is proof enough that they have the technology to achieve this.

Not that Yamaha ignores the four-stroke. Far from it! Yamaha have the most varied four-stroke range on today's market. For 1980 they offer four-strokes from 250 to 1100cc .... with one, two, three and four cylinders! There's a new 250cc four-stroke single, derived from the hugely popular XT500 and SR500 "thumpers". There are twins in 250, 400 and 650cc sizes. An all-new four-cylinder 650 joins the big XS1100 four and the three-cylinder 750cc power unit that won "Machine of the Year" awards from several European magazines when it was introduced three years ago has now grown into an unburstable 850cc powerhouse.

## RD250LC ENGINE

Type	2 stroke, water cooled, twin
Displacement	247 cc
Bore/stroke	54,0 x 54,0 mm
Max. horsepower	26,1 Kw (35,5 HP) / 8.500
Max. torque	30,2 Nm (3,1 Kg-m) / 8.000
Lubrication system	Autolube
Starting system	Kick
Gearbox	6 speed
<b>DIMENSIONS</b>	
Overall length	2055 mm
Overall width	750 mm
Overall height	1090 mm
Seat height	785 mm
Wheelbase	1360 mm
Min. ground clearance	170mm
Weight	140 kg
Fuel tank capacity	17 lit
Tyres: Front	3.00-18-4PR
Rear	3.50-18-4PR
Brakes: Front	Disc
Rear	Drum

## RD350LC ENGINE

Type	2 stroke, twin-cylinder, LC
Displacement	347 cc
Bore/stroke	64,0 x 54,0 mm
Compression ratio	6,9 : 1
Max. horsepower	34,6 Kw (47 HP) / 8.500
Max. torque	40,2 Nm (4,1 Kg-m) / 8.000
Lubrication system	Autolube
Starting system	Kick
Gearbox	6 speed
<b>DIMENSIONS</b>	
Overall length	2055 mm
Overall width	750 mm
Overall height	1090 mm
Wheelbase	1365 mm
Min. ground clearance	170 mm
Seat height	785 mm
Weight (Net)	140 kg
Fuel tank capacity	17,0 lit
Tyres: Front	3.00-18-4PR
Rear	3.50-18-4PR
Brakes: Front	Double discs
Rear	Drum

Since this colour section went to press, Yamaha have decided to match the impressive performance of the RD350LC with equally impressive stopping power by the use of double disc brakes at the front.





# Have we got a shock for the competition.

As mad as motorcycle racers seem, they won't compromise. They always demand the best. And that also means the safest. The race-track leaves little room for mistakes. The street even less.

Everything a racer demands from our race-proven TZ and YZR250s like taut, predictable handling, safe, progressive braking, and, of course, instant but reliable power, is built into the RD250. Hence RD... Race Developed.

A rigid twin loop frame, teflon-bushed front forks, six-speed gearbox, CDI ignition, and powerful 35.5 bhp, Torque Induction, two-stroke twin-cylinder engine, now liquid cooled for increased reliability, all echo the racetrack.

And, of course, our unique Monoshock rear suspension.

Apart from eliminating rear-wheel wobble caused by swing-arm flex or ill-matched dampers as on a conventional system,

our Monoshock also increases wheel travel.

And powerful, dependable braking, wet or dry, is provided by a disc brake up front and a drum brake at the rear.

A halogen headlamp, rear-set footrests, self-cancelling indicators, cranked clutch and brake levers, and our famous Autolube all go to make the new RD250 easy to ride.

And safe.



**You know you're gonna beat 'em on a Yamaha**



RRP £1,030 INCL. VAT. ALL RD MODELS NOW CARRY A 12 MONTH UNLIMITED MILEAGE WARRANTY.