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**1984 ROAD RACE  
WORLD  
CHAMPIONSHIPS**

**E. Lawson (YZR500) & C. Sarron (TZ250)**



**THE NEW  
WORLD  
CHAMPIONS!**



American star Eddie Lawson captured the coveted 500 cc crown when he won the Swedish Grand Prix held at Anderstorp on August 12.

The Swedish GP saw the birth of another new champion - Frenchman Christian Sarron who came in an impressive second spot in the 250 cc race.

**Lawson leads the 500 title battle throughout the series**

Lawson, new number one rider of the Yamaha Marlboro World Championship Team, got the '84 season off to a great start by chalking up his first classic win in the opening round. Despite a powerful Honda onslaught spearheaded by Freddie Spencer, Lawson and his new Yamaha V-4 racer had built a commanding lead in the title battle by scoring three wins and three second places by the French GP, the 6th of the 12-round series.

During the latter half of the series the Honda ace using a V-4 or V-3 Honda racer supported by another American star Randy Mamola made an even more intense attempt to stop "Lawson" but all in vain, eventually.

The Yamaha ace maintained the solid lead from Spencer and Mamola and snatched his fourth win of the series in Sweden, increasing his championship tally to an unsurpassable 134 points even with one more round remaining.

**Sarron puts an end to the close 250 battle**

French veteran Christian Sarron rode a Sonauto Yamaha-entered TZ250 in the '84 12-round 250 cc series.

In the opening round, South African GP (March 24) Sarron finished second close behind another TZ250 rider Patrick Fernandez. From then on, the championship developed into a close-fought battle among a number of equally competitive Yamaha TZ250 machines.

Sarron romped to the front when he won the Austrian GP, the 3rd round.

And he put an end to the hot title battle by placing second in the Swedish GP after winning the British GP.

**E. Streuer/B. Schneiders clinch the sidecar title**

Dutch aces Egbert Streuer and Bernie Schneiders (Yamaha) clinched their first world championship sidecar title when they placed 4th in the Swedish GP, the last round of the 7-round series.

(See pages 2 and 8 for more race reports and pictures)

**LAWSON'S RACE-TO-RACE RESULTS**

South African GP	(Mar. 24)	— win —	15 pts.
Italian GP	(Apr. 15)	— 2nd —	12 pts.
Spanish GP	(May 6)	— win —	15 pts.
Austrian GP	(May 20)	— win —	15 pts.
West German GP	(May 27)	— 2nd —	12 pts.
French GP	(Jun. 11)	— 2nd —	12 pts.
Yugoslavian GP	(Jun. 17)	— 4th —	8 pts.
Dutch TT	(Jun. 30)	— 3rd —	10 pts.
Belgian GP	(Jul. 8)	— 4th —	8 pts.
British GP	(Aug. 5)	— 2nd —	12 pts.
Swedish GP	(Aug. 12)	— win —	15 pts.
San Marino GP	(Sep. 2)	— 4th —	8 pts.

Total 142 points

**SARRON'S RACE-TO-RACE RESULTS**

South African GP	(Mar. 24)	— 2nd —	12 pts.
Italian GP	(Apr. 15)	— — —	—
Spanish GP	(May 6)	— 2nd —	12 pts.
Austrian GP	(May 20)	— win —	15 pts.
West German GP	(May 27)	— win —	15 pts.
French GP	(Jun. 10)	— 5th —	6 pts.
Yugoslavian GP	(Jun. 17)	— 2nd —	12 pts.
Dutch TT	(Jun. 30)	— — —	—
Belgian GP	(Jul. 8)	— 3rd —	10 pts.
British GP	(Aug. 5)	— win —	15 pts.
Swedish GP	(Aug. 12)	— 2nd —	12 pts.
San Marino GP	(Sep. 2)	— — —	—

Total 109 points

**FINAL CHAMPIONSHIP STATUS**

1. E. Lawson	Yamaha	142 pts.
2. R. Mamola	Honda	111 pts.
3. R. Roche	Honda	99 pts.
4. F. Spencer	Honda	87 pts.
5. R. Haslam	Honda	77 pts.
6. B. Sheene	Suzuki	34 pts.

**FINAL CHAMPIONSHIP STATUS**

1. C. Sarron	Yamaha	109 pts.
2. M. Herweh	Real-Rotax	100 pts.
3. C. Lavado	Yamaha	77 pts.
4. A. Pons	Kobas	66 pts.
5. A. Mang	Yamaha	61 pts.
6. J. Cornu	Yamaha	60 pts.

# SPORTS NEWS

## Lawson deciding to capture the crown with a win

In the Swedish GP 25-year old Eddie Lawson clinched his first ever world championship title in the finest possible fashion. He made sure that the crown was his when the nearest and only rival Randy Mamola (Honda) went out of the race with a mechanical trouble. But Lawson was far from settling for a safe but uninspiring ride to the title. The Yamaha ace decided to clinch the title with a win! An intense battle continued between Lawson and another Honda rider Raymond Roche until the very final stage of the 30-lap race. Lawson outbraked Roche at the end of the long straight. Roche went off the track on to the grass. Lawson went on to take the flag about 3 seconds clear of Roche.



## Sarron achieving his 8-year ambition



French veteran Christian Sarron also captured his first ever world crown when he placed second in the Swedish GP. Sarron stayed out of trouble to finish second close behind German rider Manfred Herweh (Real), his only rival for the title. The race developed into a fierce 10-man battle which saw no fewer than five different leaders over the 25 laps around the tricky Anderstorp circuit.

"I knew I didn't have to win the race", said Sarron after racing, "But I felt more comfortable fighting for the lead in this significant race."

"Sarron is a great champion", said Herweh after winning the race, "He deserves his win. He has been the best rider on the best bike all season".

### WORLD CHAMPIONSHIP RESULTS

#### ROAD RACING

##### Round 10 - British GP - August 5

- 500cc class**
1. R. Mamola ..... Honda
  2. E. Lawson ..... Yamaha
  3. R. Haslam ..... Honda
  4. V. Ferrari ..... Yamaha
  5. B. Sheene ..... Suzuki
  6. W. Gardner ..... Honda

- 250cc class**
1. C. Sarron ..... Yamaha
  2. A. Watts ..... EMC
  3. C. Lavado ..... Yamaha
  4. J-F. Balde ..... Pernod
  5. M. Wimmer ..... Yamaha

6. A. Pons ..... Kobas

##### Round 11 - Swedish GP - August 12

- 500cc class**
1. E. Lawson ..... Yamaha
  2. R. Roche ..... Honda
  3. W. Gardner ..... Honda
  4. T. Katayama ..... Honda
  5. R. McElnea ..... Suzuki
  6. V. Ferrari ..... Yamaha

- 250cc class**
1. M. Herweh ..... Real-Rotax
  2. C. Sarron ..... Yamaha
  3. J. Cornu ..... Yamaha
  4. A. Carter ..... Yamaha
  5. H. Eckl ..... Rotax
  6. J-F. Balde ..... Pernod

##### Round 12 - San Marino GP - September 2 (Final round)

- 500cc class**
1. R. Mamola ..... Honda
  2. R. Roche ..... Honda
  3. R. Haslam ..... Honda
  4. E. Lawson ..... Yamaha
  5. D. De Radigues ..... Chevallier
  6. R. McElnea ..... Suzuki

- 250cc class**
1. M. Herweh ..... Real-Rotax
  2. C. Lavado ..... Yamaha
  3. J. Cornu ..... Yamaha
  4. M. Wimmer ..... Yamaha
  5. A. Pons ..... Kobas
  6. T. Espie ..... Chevallier

### FINAL CHAMPIONSHIP POSITIONS

- 500cc class**
1. E. Lawson (Yamaha) ... 142 pts.
  2. R. Mamola (Honda) ... 111 "
  3. R. Roche (Honda) ... 99 "
  4. F. Spencer (Honda) ... 87 "
  5. R. Haslam (Honda) ... 77 "
  6. B. Sheene (Suzuki) ... 34 "
  7. W. Gardner (Honda) ... 33 "
  8. B. V. Dulmen (Suzuki) ... 25 "
  9. D. de Radigues (Honda) ... 24 "
  10. V. Ferrari (Yamaha) ... 22 "

- 250cc class**
1. C. Sarron (Yamaha) ... 109 pts.
  2. M. Herweh (R-Rotax) ... 100 "
  3. C. Lavado (Yamaha) ... 77 "
  4. A. Pons (Kobas) ... 66 "
  5. A. Mang (Yamaha) ... 61 "
  6. J. Cornu (Yamaha) ... 60 "
  7. M. Wimmer (Yamaha) ... 47 "
  8. W. Rainey (Yamaha) ... 29 "
  9. A. Carter (Yamaha) ... 25 "
  9. J-F. Balde (Pernod) ... 25 "

- Sidecar Class**
1. E. Streuer/B. Schneiders ... 75 pts. (Yamaha)
  2. W. Schwarzl/A. Huber ... 72 " (Yamaha)
  3. A. Michel/J-M Fresc ... 65 " (Yamaha)
  4. R. Biland/K. Waltisperg ... 57 " (Yamaha)
  5. D. Jones/B. Ayres ... 32 " (Yamaha)
  6. M. Kumano/H. Diehl ... 30 " (Yamaha)
  7. S. Aboott/S. Smith ... 25 " (Yamaha)
  8. S. Webster/T. Hewitt ... 15 " (Yamaha)
  9. T. van Kempen/ J. de Haas (Yamaha) ... 12 "
  9. M. Egloff/U. Egloff ... 12 "

#### OVERALL RESULTS

1. K. Roberts ..... Yamaha
2. R. Mamola ..... Honda
3. M. Baldwin ..... Honda
4. R. Schlacter ..... Honda
5. R. Renfrow ..... Honda
6. W. Cooley ..... Honda

More than eighty thousand fans watched "King" Kenny Roberts give full play to his real ability to win both 100-mile races at Laguna Seca, California on July 22.

Kenny on the works V-4 Yamaha racer won the first race from Randy Mamola (Honda) in a very convincing manner. But he had to battle on harder in the second race because of another Honda rider Mike Baldwin's tough challenge.

Both riders had a coming together on one of the bends, leav-

ing the Yamaha with the exhaust pipe stuck out 90 degrees. This made cornering difficult until Kenny managed to kick it straight. Kenny went on to win the second race, setting a new record average of 99.71mph.

### MOTOCROSS

#### 125cc class

##### Round 9 - Spanish GP - July 15

- 1st race**
1. M. Rinaldi ..... Suzuki
  2. A. Lejeune ..... Suzuki
  3. P. Hunt ..... Cagiva
  4. M. Fanton ..... Aprilia
  5. J. Nilsson ..... Suzuki
  6. C. Maddii ..... Cagiva

- 2nd race**
1. M. Rinaldi ..... Suzuki
  2. C. Maddii ..... Cagiva
  3. A. Lejeune ..... Suzuki
  4. Y. Gervaise ..... KTM
  5. G. Andreani ..... Aprilia
  6. K. Van der Ven ..... KTM

##### Round 10 - Swedish GP - July 29

- 1st race**
1. J. Nilsson ..... Suzuki
  2. M. Rinaldi ..... Suzuki
  3. J. Van der Berk ..... Yamaha
  4. C. Maddii ..... Cagiva
  5. A. Lejeune ..... Suzuki
  6. P. Vehkonen ..... Cagiva

- 2nd race**
1. K. Van der Ven ..... KTM
  2. C. Maddii ..... Cagiva
  3. D. Lacher ..... Suzuki
  4. M. Rinaldi ..... Suzuki
  5. G. Andreani ..... Aprilia
  6. J. Nilsson ..... Suzuki

##### Round 11 - Finnish GP - August 5

- 1st race**
1. M. Rinaldi ..... Suzuki
  2. C. Maddii ..... Cagiva
  3. R. Nannini ..... KTM
  4. P. Hunt ..... Cagiva
  5. J. Postema ..... Yamaha
  6. J. Gustavsson ..... Suzuki

- 2nd race**
1. M. Rinaldi ..... Suzuki
  2. J. Nilsson ..... Suzuki
  3. J. Hensen ..... Honda
  4. G. Andreani ..... Aprilia
  5. C. Maddii ..... Cagiva
  6. A. Lejeune ..... Suzuki

##### Round 12 - Luxemburg GP - August 12 (Final round)

- 1st race**
1. M. Rinaldi ..... Suzuki
  2. M. Fanton ..... Aprilia
  3. K. Van der Ven ..... KTM
  4. J. Van de Berk ..... Yamaha
  5. G. Andreani ..... Aprilia
  6. A. Lejeune ..... Suzuki

- 2nd race**
1. A. Lejeune ..... Suzuki
  2. D. Lacher ..... Suzuki
  3. M. Fanton ..... Aprilia
  4. M. Rinaldi ..... Suzuki
  5. J. Postema ..... Yamaha
  6. G. Van Gysegem ..... Honda

#### 250cc class

##### Round 11 - Swiss GP - August 5

- 1st race**
1. J. Vimond ..... Yamaha
  2. A. Drechsel ..... KTM
  3. J. Nilsson ..... Honda
  4. P. Fura ..... Hasqverna
  5. M. Dolce ..... Honda
  6. H. Kinigadner ..... KTM

- 2nd race**
1. J. Vimond ..... Yamaha
  2. H. Kinigadner ..... KTM
  3. A. Drechsel ..... KTM
  4. Jacky Martens ..... KTM
  5. Jo Martens ..... Hasqverna
  6. K. Mahr ..... Honda

##### Round 12 - Finnish GP - August 19 (Final round)

- 1st race**
1. M. Velkeneers ..... Gilera
  2. S. Taimi ..... Hasqverna
  3. H. Kinigadner ..... KTM
  4. J. Vimond ..... Yamaha
  5. J. Nilsson ..... Honda
  6. A. Dreschel ..... KTM

- 2nd race**
1. Jacky Martens ..... KTM
  2. A. Eriksson ..... Yamaha
  3. M. Velkeneers ..... Gilera
  4. A. Viiri ..... KTM
  5. J. Nilsson ..... Honda
  6. S. Taimi ..... Hasqverna

#### 500cc class

##### Round 11 - Belgian GP - August 5

- 1st race**
1. D. Thorpe ..... Honda
  2. A. Malherbe ..... Honda
  3. A. Vromans ..... Honda
  4. G. Jobe ..... Kawasaki
  5. K. Nicoll ..... KTM
  6. M. Heutz ..... Yamaha

- 2nd race**
1. D. Thorpe ..... Honda

2. G. Jobe ..... Kawasaki
3. A. Malherbe ..... Honda
4. J. Sintonen ..... Honda
5. L. Spence ..... Kawasaki
6. J. Van Velthoven ..... KTM

##### Round 12 - Italian GP - August 26 (Final round)

- 1st race**
1. D. Thorpe ..... Honda
  2. G. Jobe ..... Kawasaki
  3. H. Carlqvist ..... Yamaha
  4. A. Malherbe ..... Honda
  5. K. Nicoll ..... KTM
  6. A. Vromans ..... Honda

- 2nd race**
1. D. Thorpe ..... Honda
  2. G. Jobe ..... Kawasaki
  3. C. De Carli ..... Yamaha
  4. K. Nicoll ..... KTM
  5. A. Malherbe ..... Honda
  6. E. Eaton ..... Honda

### FINAL CHAMPIONSHIP POSITIONS

#### 125cc class

1. M. Rinaldi ..... 302 pts. (Suzuki)
2. C. Maddii ..... 299 " (Cagiva)
3. K. van der Ven ..... 255 " (KTM)
4. A. Lejeune ..... 248 " (Suzuki)
5. G. Andreani ..... 182 " (Aprilia)
6. D. Strijbos ..... 147 " (Honda)
7. J. Nilsson ..... 126 " (Suzuki)
8. M. Contini ..... 119 " (Kawasaki)
9. P. Hunt ..... 118 " (Cagiva)
10. M. Fanton ..... 112 " (Aprilia)

#### 250cc class

1. H. Kinigadner ..... 247 pts. (KTM)
2. J. Vimond ..... 217 " (Yamaha)
3. J. Whatley ..... 195 " (Suzuki)
4. M. Velkeneers ..... 183 " (Gilera)
5. Jacky Martens ..... 171 " (KTM)
6. G. Jan van Doren ..... 165 " (Suzuki)
7. J. Nilsson ..... 160 " (Honda)
8. A. Eriksson ..... 121 " (Yamaha)
9. A. Dreschel ..... 120 " (KTM)
10. M. Dolce ..... 118 " (Honda)

#### 500cc class

1. A. Malherbe ..... 370 pts. (Honda)
2. G. Jobe ..... 359 " (Kawasaki)
3. D. Thorpe ..... 349 " (Honda)
4. A. Vromans ..... 251 " (Honda)
5. E. Geboers ..... 245 " (Kawasaki)
6. L. Spence ..... 172 " (Kawasaki)
6. J. Sintonen ..... 172 " (Honda)
8. K. Nicoll ..... 147 " (KTM)
9. L. Persson ..... 135 " (Hasqverna)
10. H. Carlqvist ..... 97 " (Yamaha)

#### Sidecar Cross

1. H. Bachtold./F. Fuss ..... 290 pts. (EML)
2. T. Van Heughten/ F. Kiggen (Folan Wasp) ..... 232 "
3. R. Bohler/E. Bauer ..... 215 " (Wasp)
4. D. van Bellingen/ K. Torfs (Yamaha-wasp) ..... 192 "
5. H. Huwyler/ R. Huwyler (KTM) ..... 168 "
6. T. Good/A. Busser ..... 161 " (Wasp)
7. M. Bens/ ..... 148 " (P. van Dentekom (Yamaha))
8. B. Janssen/F. Kessel ..... 131 " (Yamaha-Wasp)
9. R. Van Gsatel ..... 129 " (E. Hurkmans)
10. P. Millard ..... 127 " (G. Withero (EML Jumbo))

# The 1985 Yamaha Motorcycle Range for Europe

## THE RENAISSANCE CONTINUES!

The Yamaha renaissance begun so spectacularly last year by the sensational RD500LC and FJ1100 models continues for 1985! It is spearheaded by another "total performance" model the Yamaha FZ750 which will do for the company's four-stroke reputation what the RD500LC emphasised on the two-stroke front.

The new FZ750 model follows the "street racer" theme established so successfully and dramatically by the RD500LC. Where the RD500LC was a "GP

replica" on the road, the FZ750 is a "Formula One bike with street equipment".

There's new DT80LC and Beluga 125 scooter and both fully-faired and purely-sporting "naked" versions of the RD350LC. There's a new middle-weight enduro four-stroke, the XT350, and even an unfaired version of the XJ900 which is more function oriented for sport riding.

The motocross racers have been made even more competitive.

### FZ750

#### Representing new peak of 4-stroke development

The FZ750 is unquestionably the most powerful, most sporting 750 ever produced for road use. Basically, it is almost a Formula One racer with road equipment. A four-stroke entry into the "total performance" market opened up by the Yamaha RD500LC.

The whole concept of the Yamaha FZ750 centers around the totally integrated design approach to engine and chassis. Rather than designing an engine and then building a chassis to house it, Yamaha's engineers looked at the motorcycle as a whole.

Technically, the new engine is the most exciting four-stroke to come along for generations. For in the cylinder head of this inclined parallel four are no less than 20 valves! That's right ... FIVE valves per cylinder! Three inlet valves and two exhaust, with central spark plug, give the most effective combination of engine breathing and total combustion discovered so far.

#### Engine close-up

The new Yamaha FZ750 power unit represents the fourth generation of Yamaha four-strokes. The first generation appeared in 1969, in the form of the XS1 650cc twin, versions of which remained on the world market for over ten successful years. Next came the generation comprised of the SR single-cylinder models, smaller XS twins, the XS triple and the XS1100 four.

This was followed by the current, highly-successful XJ and FJ range of compact four-cylinder machines from 400 to 1100cc and the touring vee-twin and vee-four models.



Now the FZ750 introduces the fourth generation; high-performance four-strokes that point the way for future outright sports machines.

The FZ engine shares certain design features with the XJ/FJ range, notably the positioning of the generator behind the cylinders which Yamaha pioneered to reduce the width of parallel four-cylinder engines. Basically, however, the similarity ends here and the FZ goes even further to slim down the motor.

Liquid cooling allows a closer cylinder bore spacing and various other changes to the lower-end design result in a power unit that is 9 mm narrower than Yamaha's own XJ400 and as slim as currently-available vee-four rivals. Weight distribution of the FZ750 is nearly neutral, due mainly to the fact that the weight of the engine's top-end is moved lower and further forward than on conventional "upright" engines.

Inclining the cylinders forward also allows for near-vertical mounting of the carburetors, to get as straight an induction flow as possible and a downdraft to accelerate fuel charge velocity.

The large 7.2 litre airbox, therefore, occupies the space where the front of the gas tank normally butts up to the steering head. In a reversal of positions, the rear of the gas tank is dropped down into the space normally occupied by carburetors, with an electric pump maintaining a constant flow of fuel. This puts the weight of fuel and fuel tank much

lower than on a conventional machine and in a position very close to the center of the bike's weight mass. The advantages to handling are obvious.

The siting of the air cleaner box up front behind the steering head ensures that the four 34 mm Mikuni BDS constant velocity carburetors have a continual supply of cool, still air. The carbs are of a type newly developed for downdraft operation and are mounted almost vertically above the engine. Combined with the forward inclination of the cylinder block, this results in a nearly straight path from carburetor to combustion chamber. There is a slight bend in the valve seat area but, even so, it is still possible to actually see the piston via the carburetor throat!

This straight induction path, plus the gravity effect which increases the fuel charge velocity through downdraft carburation, makes for the most efficient cylinder filling possible on an un-supercharged engine.

The compact build of the new carburetors, and the amount of space available above the cylinder head, allow them to be mounted in such a way that the distance between each one is reduced. This closer pitch means that the outer inlet tracts are the same length as the inner pair, which is not the case on normal parallel fours with horizontal carburetor positioning. The result is more even carburation on each cylinder, giving smooth running and quick pick-up. Key to the "best in its class" power output of the FZ750 engine is the unique valve gear and combustion chamber arrangement.

#### Chassis close-up

The main frame is constructed in square-section, high-tensile steel tubing of "wide cradle" layout. It follows racer design and Yamaha's lateral frame concept in having the upper tubes run as straight a course as possible between swinging arm pivot and steering head.

For ease of maintenance, both

left and right side downtubes are detachable and the engine's top end is also easily accessible through the wide-spaced top tubes.

Rear suspension is a version of Yamaha's well-proven, single shock absorber Monocross system, specially designed for the FZ750. The De Carbon-type shock allows 120 mm of rear wheel travel and is programmed so that damping and spring pre-load are adjusted in tandem. Carrying the new-design, cast alloy wheel is a large, box-section alloy swinging arm.

The swinging arm pivots in needle roller bearings, as do all the linkages of the Monocross system. This results in smooth suspension action on all surfaces and good resistance to torsional stresses at the pivot points.

At the front end, heavyweight racing front forks pivot in tapered roller bearings at both top and bottom of the steering head.

Front wheel travel is 140 mm with a unified air-assisted system beefing up the capabilities of the springs and providing infinite adjustment possibilities. New for 1985 is a new variable damping system which does away with the need for any complicated "anti-dive" mechanism.

Damping, however, remains constant whatever the spring rate and therefore has little effect at full fork stroke. As a result, the forks

tend to "overstroke" at full compression causing, in extreme cases, front wheel patter.

By a system of variable damper valving, Yamaha engineers have come up with a way of eliminating this. At the start of the fork's compression stroke, the variable damper's valves open to stiffen the damping in the initial stages and so provide an automatic amount of "anti dive".

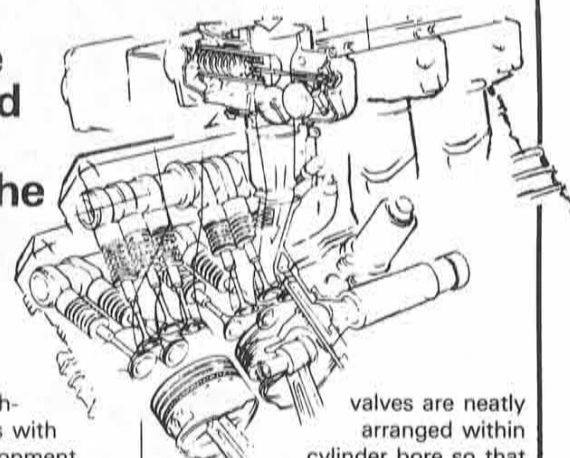
Finally, as the forks near their limit of compression, the damper valves open again to stiffen the fork's resistance and slow down their action at this critical stage. Net result is built-in "anti dive" plus smooth action and good stability at high speeds.

The frame-mounted half-fairing protects the rider well and also dramatically improves air penetration ... as evidenced by a CDA drag coefficient of only 0.34. It contains a striking, full-width 12V headlight with rectangular glass lens and halogen bulb of 60/55W output.

Constructed in ABS plastic with polycarbonate screen, the fairing neatly houses the meters and gauges on an inner panel with the central tachometer, the dominant feature.

Finally, the aerodynamics are set off by the curves of the "power" fender which initially help direct the airstream around the machine.

### The 5-valve engine used in the '85 FZ750 for the European market



State-of-art engine technology now progresses with Yamaha Motor's development of a new 5-valve engine. Incorporating the technical advances already proven in its 4-valve models, Yamaha has altered the number and lay-out of the engine's valves, and improved the configuration of the combustion chamber, to produce a compact, light-weight, high-performance 5-valve engine suited for use in motorcycles, automobiles and in almost every application now employing conventional 4-valve engines.

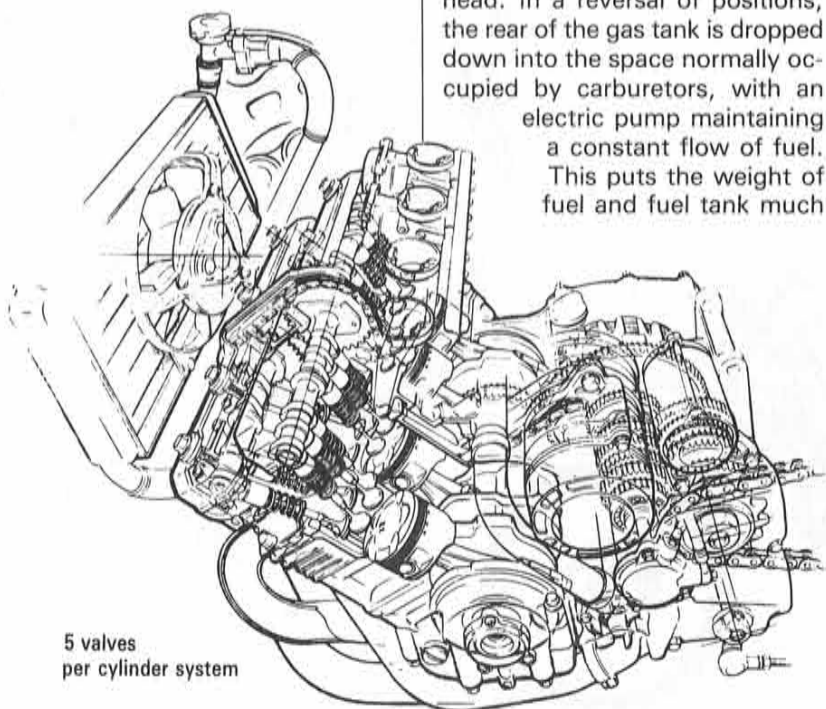
The '85 FZ750 for the European market will come up as the first production model to employ this new engine.

#### Outstanding technical features

1. The 5-valve system has 3 intake and 2 exhaust valves. With the adoption of 3 intake valves, effective intake valve area (valve circumference x lift) has been increased, resulting in more air intake.
2. Valve angle is minimized and 5

valves are neatly arranged within cylinder bore so that the compact combustion chamber configuration has been achieved with almost flat piston head and a high compression ratio. The result is good combustion efficiency. Valve angle is a crucial factor in the design of a combustion chamber. Intake 17.25° (11.5° central valve) and exhaust 13.75° have been obtained after extra-minute adjustments.

3. In this 5-valve engine, unlike a conventional 4-valve engine, the intake valve is smaller and lighter than the exhaust valve. This helps to increase the high speed performance, while widening the power band. Intake valve weight — about 21g Exhaust valve weight — about 25g  
4. 20 valves on cylinder heads are directly driven by the camshafts via the direct lifter. Their function is positive and reliable in the entire speed range, helping to ensure stable engine performance.



5 valves per cylinder system

# THE RENAISSANCE



## FZ750

•Engine type: 4-stroke, liquid-cooled, DOHC, 20-valve, four-cylinders  
 •Displacement: 749cc •Bore x stroke: 68.0 x 51.6 mm •Ignition: T.C.I.  
 •Transmission: 6-speed •Suspension (front/rear): Telescopic forks/Monocross suspension  
 •Brakes (front/rear): Hydraulic Double Disc/Hydraulic Disc •Tires (front/rear): 120/80 V-16 / 130/80 V-18

•Engine type: 4-stroke, DOHC, four-cylinders  
 •Displacement: 891cc •Bore x stroke: 68.5 x 60.5mm  
 •Ignition: T.C.I. •Transmission: 5-speed •Dry weight: 218 kg  
 •Suspension (front/rear): Telescopic forks/Swing arm  
 •Brakes (front/rear): Hydraulic Double Disc/Hydraulic Disc  
 •Tires (front/rear): 100/90 V-18 / 120/90 V-18

## XJ900



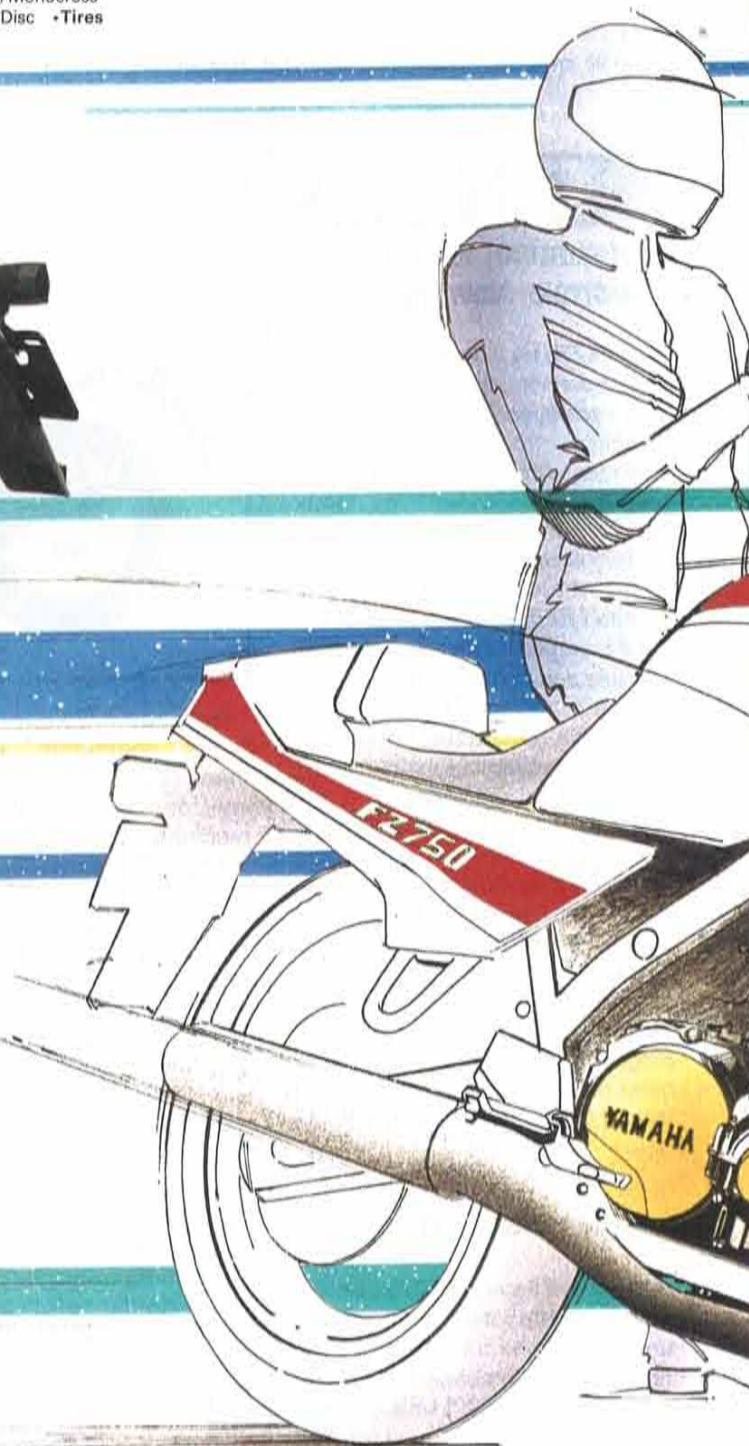
## XT350

•Engine type: 4-stroke, DOHC, 4-valve, single-cylinder •Displacement: 347cc  
 •Bore x stroke: 86 x 59.6mm •Max. power (DIN): 31ps (22.8kW)/7500rpm •Max. torque (DIN): 3.0kg-m(29.5Nm)/7000rpm •Ignition: C.D.I. •Transmission: 6-speed •Dry weight: 131kg  
 •Suspension (front/rear): Telescopic forks/Monocross suspension •Brakes (front/rear): Hydraulic Disc/Drum •Tires (front/rear): 3.00-21 4PR / 110/80-18 58H

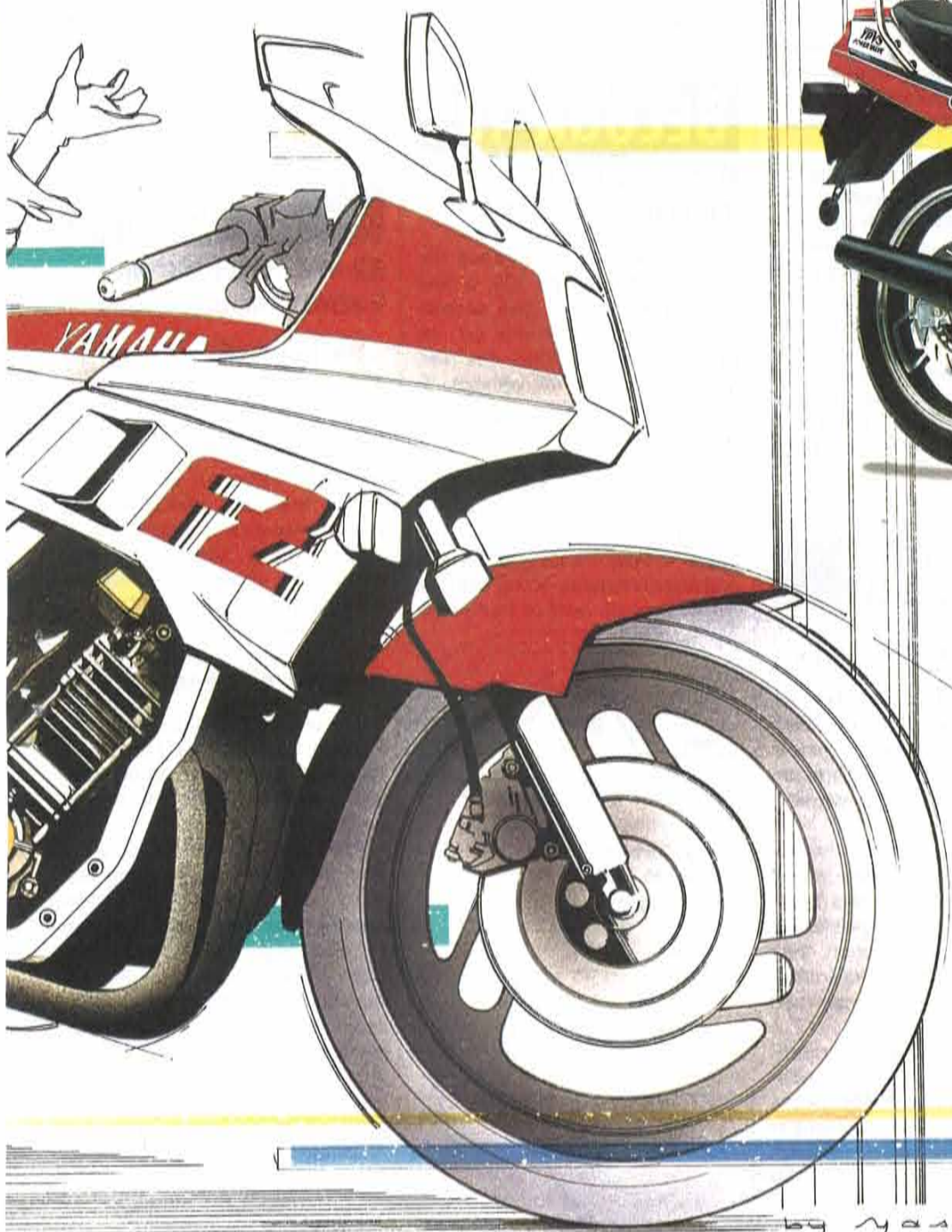


## DT80LC

•Engine type: Liquid-cooled, 2-stroke, single-cylinder  
 •Bore x stroke: 49 x 42mm •Max. power (DIN): 10.5ps (7.6kW)/7500rpm  
 •Max. torque (DIN): 1.0kg-m (9.9Nm)/7500rpm •Transmission: 6-speed •Dry weight: 99kg  
 •Tires (front/rear): 2.75-21 HPR/4.10-18 4PR



# ICE CONTINUES!



## RD350F

•Engine type: 2-stroke, liquid-cooled, Twin-cylinders, Torque Induction •Displacement: 347cc  
 •Bore x stroke: 64 x 54mm •Max. power (DIN): 59.1ps (43.5kW)/9000rpm •Max. torque (DIN): 4.8 kg-m (46.5Nm)/8500rpm  
 •Ignition: C.D.I. •Transmission: 6-speed  
 •Dry weight: 148kg •Suspension (front/rear): Telescopic forks/Monocross suspension •Brakes (front/rear): Hydraulic Double Disc/Hydraulic Disc  
 •Tires (front/rear): 90/90-18 51H / 110/80-18 58H



## Beluga 125

•Engine type: 2-stroke, Torque Induction, single-cylinder •Displacement: 123cc •Bore x stroke: 56.0 x 50.0mm  
 •Max. power (DIN): 12.2ps (9.0kW)/7000rpm •Max. torque (DIN): 1.28kg (12.6 Nm)/6500rpm •Ignition: C.D.I.  
 •Transmission: V-belt Automatic •Dry weight: 92kg  
 •Brakes (front/rear): Drum/Drum •Tires (front/rear): 3.50-10 4PR / 3.50-10 REINF



Specifications are subject to change without notice.

## YZ490

•Engine type: 2-stroke, air-cooled piston/reed valve, single-cylinder •Displacement: 487cc  
 •Bore x stroke: 87.0 x 82.0mm  
 •Max. power: 56ps/7000rpm  
 •Max. torque: 6.04 kg-m /6000rpm •Ignition: C.D.I.  
 •Transmission: 4-speed •Dry weight: 101.5 kg •Suspension (front/rear): Telescopic forks /Monocross suspension •Brakes (front/rear): Hydraulic single disc/Mechanical drum  
 •Tires (front/rear): 100/90-21-4PR / 140/80-18-4PR



## YZ80

•Engine type: 2-stroke, liquid-cooled, Torque Induction, single-cylinder •Displacement: 79cc  
 •Bore x stroke: 47.0 x 45.6mm •Max. power: 21.5ps/11750 rpm •Max. torque: 1.34 Kg-m/11000 rpm  
 •Ignition: C.D.I.  
 •Transmission: 6-speed  
 •Dry weight: 60 kg  
 •Suspension (front/rear): Telescopic forks /Monocross suspension •Brakes (front/rear): Drum/Drum  
 •Tires (front/rear): 80/80-17 4PR / 110/80-14 4PR



## YZ125

•Engine type: 2-stroke, liquid-cooled, Torque Induction, single-cylinder with YPVS •Displacement: 123cc •Bore x stroke: 56.0 x 50.0mm •Max. power: 33.0ps/11250rpm  
 •Max. torque: 2.18 kg-m/10500rpm •Ignition: C.D.I. •Transmission: 6-speed •Dry weight: 86.5 kg •Suspension (front/rear): Telescopic forks/Monocross suspension •Brakes (front/rear): Hydraulic Disc/Drum •Tires (front/rear): 90/90-21 4PR / 120/80-18 4PR



•Displacement: 79cc  
 •Max. power: 11.0ps (8.1 kW)/8000rpm  
 •Ignition: C.D.I.  
 •Brakes (front/rear): Disc/Drum



**CHRISTIAN SARRAT**

1984 Road Racing World C

**YAMAHA**



**ON, THE WINNER**

Championship in 250cc Class

# EDDIE LAWSON

1984 Road Racing World Ch





# N, THE WINNER

Championship in 500cc Class



**YAMAHA**

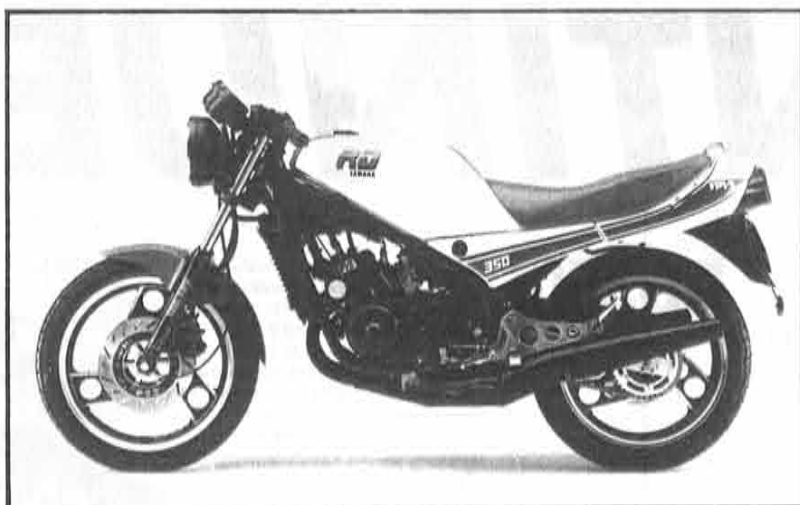
# The 1985 Yamaha Motorcycle Range for Europe

## XJ900 (Unfaired)

### Modern construction & traditional style

For 1985, Yamaha will offer the XJ900 sports/tourer in two guises; the familiar version with aerodynamic head fairing and undercowl, which will be designated the XJ900F, and a new unfaired version in which classic simplicity will be the styling keynote. This model becomes the standard Yamaha XJ900.

The 1985 engine has been increased in size from 853cc to 891cc thanks to a 1.5mm expansion of cylinder bore diameter. Carburetor sizes have been increased by 1 mm (now BS36 x 4) and a new exhaust system runs the four header pipes into a revised collector pipe before branching into twin mufflers. As well as aiding mid-range power output the new system is lighter than the previous model. The engine is fitted with the Yamaha Induction Control System (YICS) ... a secondary inlet port that links the four main tracts so that all incom-



## RD350

### Naked and unashamed

Though the "naked" RD350 shares all of the major engine and chassis items with its fully-faired brother, Yamaha emphasise that it is not, in any way, merely a less expensive option. The standard RD350 has been designed to fill a gap in the sporting market and has been deliberately styled to achieve a lean, low and aggressive look.

Heart of the machine is the superb 347cc twin-cylinder, two-

tubes run a straight path from swinging arm pivot to steering head and the whole double-loop cradle is fully-triangulated with wide-spaced tubes for maximum rigidity.

Rising rate Monocross suspension does its usual superb job at the rear end while new front forks offer Yamaha's unique variable damping capability. This special valving stiffens up the suspension at the start of the stroke, to provide a built-in "anti-dive" effect; relaxes for smooth action in the middle travel range and then stiffens things up again on full fork compression to eliminate front wheel patter.

## RD350F

### New aerodynamics

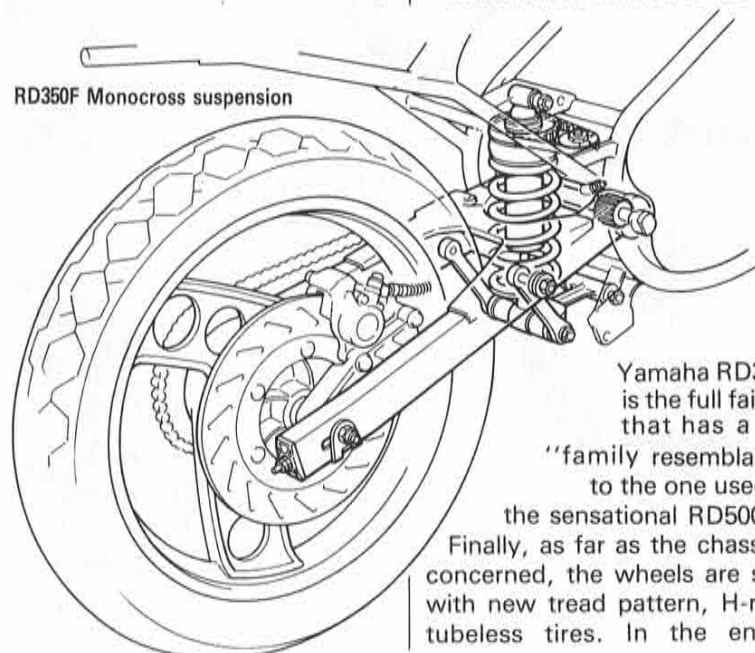
The 1985 Yamaha RD350F retains the same "wide cradle" chassis as the previous year's model, which is based directly on the World Championship-winning TZ250 road racers.

The new swinging arm, which is fabricated in high-tensile steel, pivots on new needle roller bearings. These are more durable and the smoother pivot action they allow means the rear wheel stays more in contact with bumpy road surfaces.

Otherwise, the RD350F suspension remains the same: the familiar Yamaha Monocross, with single De Carbon-type shock absorber having adjustable spring pre-load.

A new design of front fork for 1985 does the same job at the front end, by offering automatic variable damping. Brakes on the new RD350F are the same triple discs that have served previous models so well. This year, however, there are opposed piston calipers on each of the twin front discs as well as on the single rear unit.

Most visible addition to the 1985

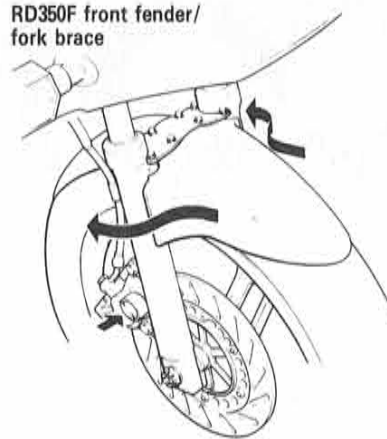


RD350F Monocross suspension

Yamaha RD350F is the full fairing, that has a real "family resemblance" to the one used on the sensational RD500LC.

Finally, as far as the chassis is concerned, the wheels are shod with new tread pattern, H-rated tubeless tires. In the engine

RD350F front fender/fork brace



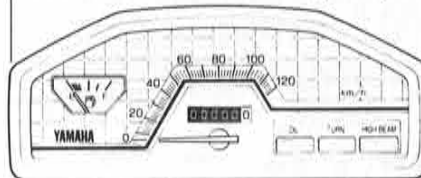
department, the RD350F remains the same. Why change a winning formula?

## BELUGA 125

### More at home on the highway in 1985

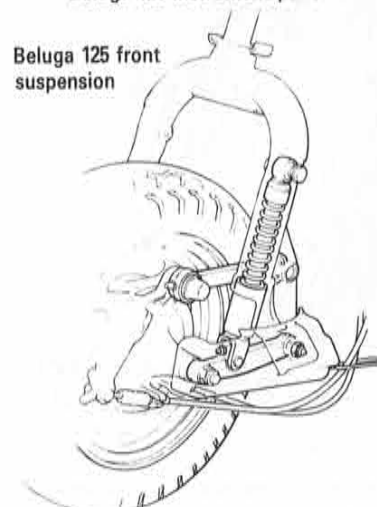
For 1985, Yamaha have introduced the Beluga 125, a new line leader that will give scooter riders added confidence out on the highway. At 123cc, the new Beluga is still small enough to satisfy legal restrictions for novice and younger riders in the majority of European countries.

Its engine, however, is based on Yamaha's sporting motorcycle two-strokes, thus having the power to keep the Beluga 125 rider cruising confidently along with the traffic flow on normal highways.



Beluga 125 instrument panel

Beluga 125 front suspension



Fully-automatic transmission, proved on the rest of the Yamaha scooter range, is by vee-belts and a variable diameter rear pulley, plus an automatic centrifugal clutch. Smooth, reliable stopping power is provided by two 130mm drum brakes, both of Yamaha's own weatherproof "labyrinth seal" design.

On the suspension side, Yamaha's engineers have manag-

ed to combine both comfort and safety features. A special parallelogram linkage controls the lifting tendency so that the Beluga maintains basically a level attitude at all times. The linkage does not affect handling in any other way and operates without the need for any adjustments.

The actual chassis of the Beluga 125 was designed with the aid of Computer Assisted Drawings to arrive at the best combination of light weight and maximum strength. It is a steel tube backbone frame, to which the engine is connected by Yamaha's special orthogonal mount system.

Styling of the Beluga 125 is "high tech" modern efficiency. Smooth body panels with fairly flat contours; nothing vulgar or ostentatious.

## XT350

### All-new middleweight 4-stroke enduro

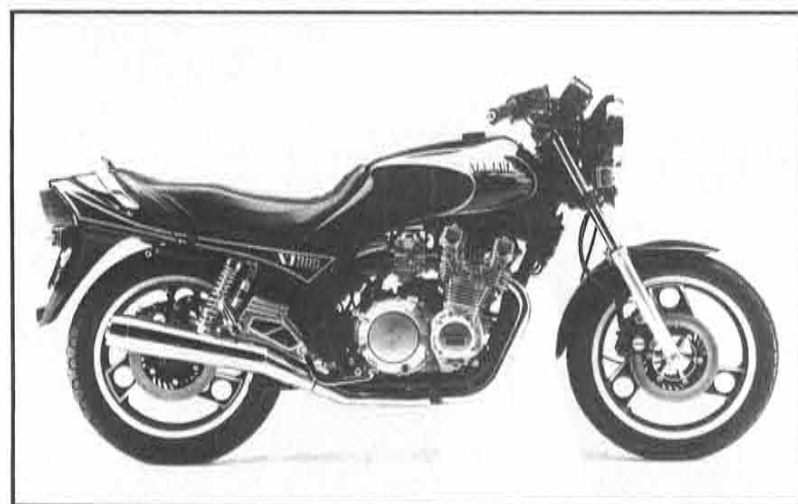
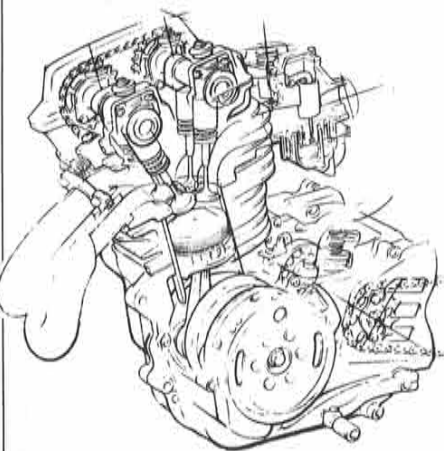
The new XT350 is a quantum leap ahead of any previous Yamaha offerings in the under-400cc enduro four-stroke bracket. The high-torque, twin-overhead camshaft engine is a totally-new unit, taking nothing from previous models. It is mounted in a "state of the art" Monocross chassis and has the slim, lightweight build of a motocross racer.

### Engine close-up

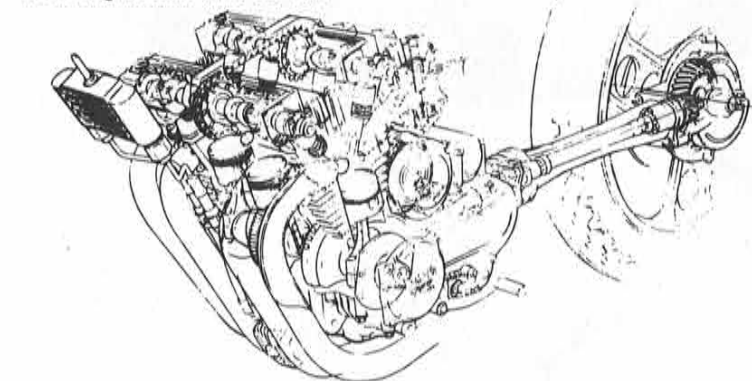
The unique Yamaha Duo Intake System, combined with the 350cc capacity, guarantees good low-end power whatever the engine configuration.

With YDIS, the XT350 gets the best of both worlds; economy and quick engine response at low speeds and the most efficient possible high rpm-running. Perhaps most important of all, the system, when combined with the four-valve cylinder head layout, gives 25% more intake area than a conventional two-valve motor, with the obvious increase in power and torque.

XT350 engine/YDIS cut-view



XJ900 engine/shaft drive cut-view



ing fuel is diverted to the cylinder that is on the induction stroke, rather than backing up behind the valves. This improves cylinder filling while the fact that the secondary port enters the main tract at an angle promotes a swirling motion in the combustion chamber.

Touring riders will also appreciate the shaft drive system for its reliability, cleanliness and freedom from adjustment and maintenance chores.

The conventional, twin-shock absorber chassis utilises De Carbon-type shocks with remote fluid reservoirs that stay cooler on long runs and adjustable spring pre-load to cope with extra luggage loads or passenger.

New front forks use an aluminum brace to counteract flex but do not employ the complicated anti-dive valving ... simplicity being the theme of the basic XJ900. Triple ventilated disc brakes use opposed-piston calipers for maximum stopping power.

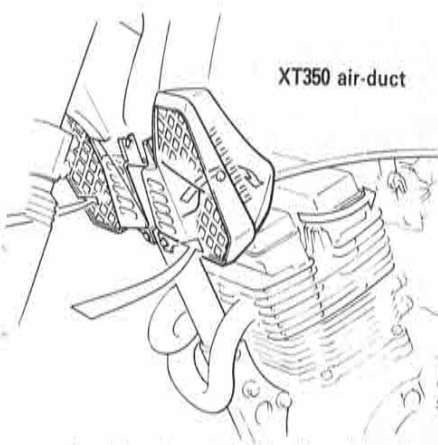
stroke engine, the power output

of which has made the RD350 the most popular motorcycle in production racing history.

Also obvious for all to see is the racing-inspired chassis of the RD350LC, based directly on the TZ-model Grand Prix winners. Top



# THE RENAISSANCE CONTINUES!



XT350 air-duct

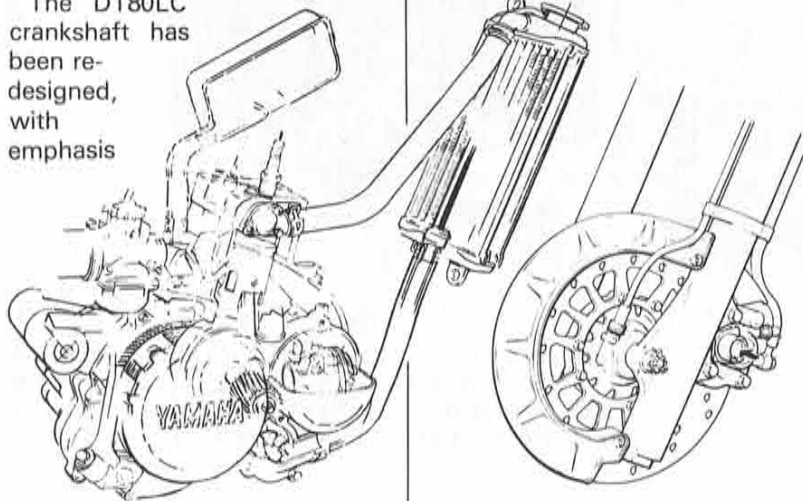
plus a passenger.

In addition, the 80cc single-cylinder, two-stroke engine is well up to the task of hauling two people around at genuine highway speeds, thanks to its motocross-racing pedigree.

## Engine close-up

The 79cc, liquid-cooled two-stroke engine used in the DT80LC is directly derived from the YZ motocross unit and is therefore unquestionably one of the best performing machines in its capacity class.

The DT80LC crankshaft has been re-designed, with emphasis



DT80LC engine cut-view

on changing its dynamic balance factor to reduce vibration. This has proved so successful that Yamaha have been able to dispense with the rubber-bushed "orthogonal" engine mount and bolt the power unit rigidly into the frame. As well as reducing weight, this contributes to more precise, sporting handling in off-road terrain. Vibration has, in fact, been reduced by 30%!

To gain more power and torque, the carburetor size has been increased by 2mm. The DT80LC now comes with a Mikuni VM20SS. Unrestricted breathing is provided by a new, larger air-box. Its size has been increased by 500cc to 2.7 liters. One of the contributory factors to the much higher torque output than is common with most "eighties" is the use of the Yamaha Energy Induction System (YEIS) on the DT80LC.

## Chassis close-up

The main frame is a single downtube design in high-tensile steel tubing with tapered-roller bearings at the steering head for smoother action and more durability.

Ignition is precisely-timed by the electronic capacitor discharge system, needing no adjustment or maintenance. To counteract the inherent vibration factor in any single-cylinder power unit, Yamaha employ their contra-rotating balance shaft system which damps out vibration before it affects the rider. Transmission of the XT350 is a six-speed gear cluster, with ratios especially chosen to match both the power output of the machine and the likely terrain in which it is to be used.

## Chassis close-up

The compact XT350 power unit is housed in a competition-standard chassis which has had its basic design proved in the toughest of all off-road events, the 20,000Km Paris-Dakar Marathon. The main frame is a triangulated "diamond" pattern structure in lightweight, high-tensile steel tubing.

Rear suspension is by the tried and tested Yamaha Monocross system with single De Carbon-type shock absorber close behind the engine. The 110/80-18 rear wheel has hollow-section alloy wheel rims, to reduce unsprung weight and add strength. Front suspension is as equal to its task as the rear.

Both the rear wheel and the 3.00 x 21 front wheel feature hollow wheel axles and conical hubs plus hollow-section alloy rims. All this is technology derived from lessons learned on Yamaha's World Championship-winning motocross machines.

## DT80LC

A "big" bike in every respect



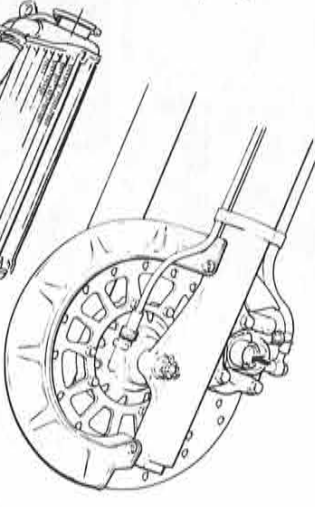
The Yamaha DT80LC has a small engine but is in no way a small motorcycle! It has a full-sized big chassis bike 125cc class, featuring the most advanced Monocross rising rate suspension, and is quite capable of accommodating even the tallest rider

Rear suspension is now Yamaha's famous Monocross system again straight from the motocross range. Front forks are also right up to competition standard. They provide an amazing 240mm of front wheel movement and have 36mm-diameter stan-

chions to resist flex when encountering off-road obstacles at speed.

Guaranteeing powerful and fade-free braking is the new 220mm (effective dia.) front disc unit. It has alloy calipers, to reduce unsprung weight, and semi-metallic pads that function in all weathers or when submerged in off-road situations.

Wider tires (2.75 x 21 front and 4.10 x 18 rear) have new dual-purpose tread patterns that are longer wearing while giving good traction in all conditions. Focal point of the DT80LC styling is the



DT80LC front disc brake

YZ Motocross racer-image fuel tank and seat unit.

## YZ RANGE

### Brake actuated suspension system (BASS)

There are four Yamaha YZ racers on offer — 80, 125, 250, and 490 models.

The most significant new development for 1985 is the introduction, on the three larger models, of Yamaha's new Brake Actuated Suspension System (BASS). This links suspension damping to brake operation and so fine-tunes the already-successful Monocross system to a new pitch of efficiency.

By slightly decreasing the compression damping as the rear brake is applied, BASS reduces rear wheel patter over bumps. Cornering efficiency is increased by around 10%; especially on bumpy tracks when the rider can brake harder while cornering, without losing traction.

Also new on the three bigger YZ machines is the front disc brake, plus strengthened hubs and spokes in both wheels.

### YAMAHA YZ80

Changes to the 1985 version of Yamaha's smallest YZ are confined mainly to engine modifications that increase both the outright horsepower and mid-range torque.

A re-designed cylinder head with a more compact combustion chamber and wider squish band combines with a steeper-dome piston to give more effective cylinder filling and more complete burning of the fuel charge.

Cylinder porting has been revised, with carburetor settings and exhaust pipe capacity altered to suit the new layout. The new plastic reed valves are used to smooth intake flow and the ignition advance curve has been changed to prevent any high-



speed misfire.

### YAMAHA YZ125

Most obvious improvements to the Yamaha YZ125 for 1985 are the BASS link between rear brake and suspension damping, plus the front disc brake.

This is a 240mm diameter disc, 3mm thick, drilled for lightness. The caliper has twin pistons for increased braking power; a compact master cylinder that will not admit air, even when inverted, and tough hoses covered with stainless steel mesh protective casing. Thanks to its weight-saving features, however, the powerful new brake has the same unsprung weight as last year's drum.

The single downtube chassis is now made in thinner tubing, to reduce weight, and vibration is lessened by a new upper engine mounting bracket. A boss cast into the cylinder head allows the use of a "head steady" as on the YZ250.

### YAMAHA YZ250

It's the same "attention to detail" changes which mark the YZ250 for 1985. Once again, it utilises the BASS system, has the new front disc brake and strengthened wheel rims and spokes.

Otherwise, the main upgrades have been made to the engine. These follow the same pattern as those made to the smaller models

in the range; more compact combustion chamber; revised porting; plastic reed valves for better-controlled intake flow; 22mm cast grooves in the YPVS valve replacing drilled holes and thus speeding up exhaust flow; a new, lightweight ignition rotor with built-in electronic advance curve; plus larger exhaust system in stronger materials.

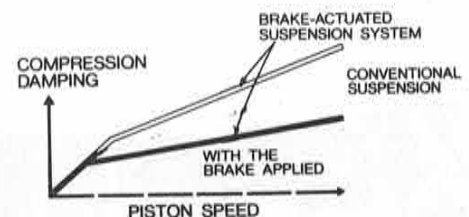
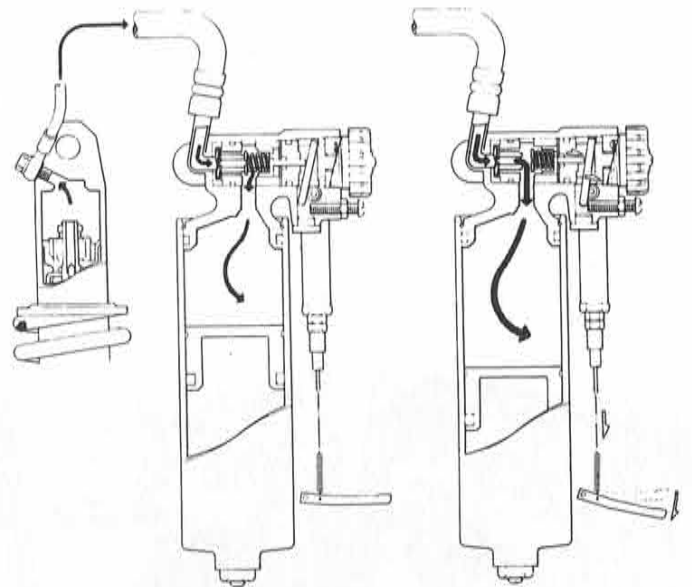
All of this adds up to increased horsepower, so other modifications have been made to ensure reliability.

### YAMAHA YZ490

The biggest bike in the Yamaha motocross range is the YZ490. Its engine is already one of the most powerful available and it was not felt necessary to increase this power output for 1985. Instead, the main design focus was upon making that power more controllable for the riders, so that they could translate it into faster lap times.

Additionally, other components were modified to increase the durability factor.

Featured on the YZ490, therefore, are the BASS system; stronger wheel rims and spokes; the hydraulic front disc brake; new plastic intake reeds, etc. Plus a new muffler with steel inner tube and extra rivetting to prevent breakage, a stronger kickstart axle forged in one piece and a more efficient, easy-access air filter.



YZ brake-actuated suspension system (BASS)

# The Cream of Yamaha Riders

Yamaha riders and machines that lend themselves to thrill and excitement . . . Apart from Eddie Lawson (YZR500) and Christian Sarron (TZ250) who won the most glamorous categories of world championships, a number of Yamaha riders and machines also took a vital part in adding lively interest to almost all championship events.

While sidecar and sidecar cross titles were won by Yamaha riders, Jacky Vimond took a brilliant second spot in the 250cc Motocross Championship.



## 1984 World Championships



### E. Streuer/B. Schneiders

The sidecar championship was also a season-long battle among Yamaha-powered machines. In Sweden E. Streuer/B. Schneiders clinched the crown by three points from W. Szwarc/A. Huber.

### Eddie Lawson

Before the season opened every forecast was not in favor of Eddie. But, what made it possible for him to beat the Honda ace? His amazing consistency and super-reliable Yamaha machine plus the best ideal teamwork...



### Hakan Carlqvist

Injuries made the '84 season unhappy for Hakan Carlqvist, '83 500cc Motocross World Champion but he is still powerful enough to recapture the title next year.



### Christian Sarron

The 250cc series was a tremendous battle royal. In Sweden, French veteran Christian Sarron captured his first title in the 8-year race career. Fellow riders congratulated Sarron by chucking him into the paddock swimming pool!



## 1985 Yamaha Racing Calendar

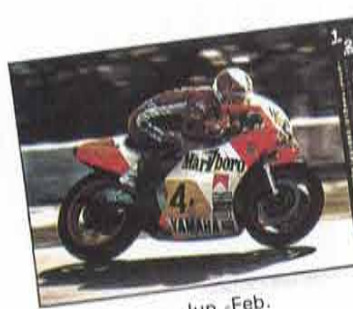
1985 Yamaha Racing Calendar has been completed for distribution to and wide use by Yamaha importers and dealers. It reproduces the highlights of '84 GP and other international events in which Yamaha riders and machines are taking the leading part. The Calendar is designed to fit various uses including:

1. Tool for interior & exterior shop decoration.
2. Giveaway item to customer at an open show, roadshow or other sales or service promotion event.
3. Sale to the public at reasonable price.

We hope you can conceive many other ways these calendars can be utilized as effectively as possible in direct connection with your business.



Cover



Jun.-Feb.



Mar.-Apr.



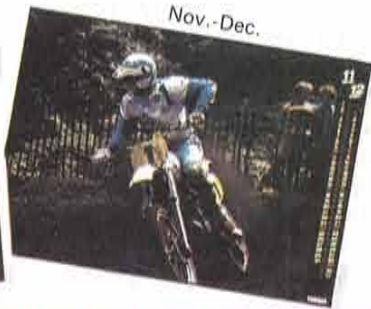
May-Jun.



Jul.-Aug.



Sept.-Oct.



Nov.-Dec.

"The Making of A Champion" follows the development of Eddie Lawson's brilliant race career from 1983 GP debut to first 500cc success in 1984, bringing alive the thrill and excitement of the '83 and '84 seasons.

"250 GP Season 1984" follows a

tremendous title battle among a number of equally competitive Yamaha TZ250 riders until French star Christian Sarron wins the British GP, making almost sure that the crown is his (Please contact your nearest Yamaha importer for more particulars.)

"The Making of A Champion" (Eddie Lawson story)

"250 GP Season 1984"

## New Race Films



Title: The Making of A Champion Film No.: 951 Film size: 16mm, multi-color Narration language: English, German or French Running time: 22 minutes Price: @¥60,000 FOB Japan (Beta Max/VHS: @¥9,000 3/4 U-matic: @¥18,000 FOB Japan, respectively)

Title: 250 GP Season 1984 Film No.: 952 Film size: 16mm, multi-color Narration language: French Running time: 14 minutes Price: @¥40,000 FOB Japan (Beta Max/VHS: @¥9,000 3/4 U-matic: @¥18,000 FOB Japan, respectively)