

 **YAMAHA** 

YZ MOTOCROSS 1983



ONCE AGAIN YAMAHA IS WORLD CHAMPION (1982), BUT WE HAVE NOT BEEN RESTING ON OUR LAURELS!

Danny La Porte (USA) is the new 1982 world champion in the 250cc motocross category. And Yamaha are the manufacturers world champion in the same category. Thanks to Danny, but also to other riders who have been performing well on standard YZ 250 LC!

More. In the three world championship series, 125cc, 250cc and 490cc, the best production bikes in 1982 have been the Yamahas. Undoubtedly. Our prestigious YZ 250 LC has even won a grand prix. All over the world, the 1982 YZ 125LC, YZ 250 LC and YZ 490 have won a lot of races and national championships.

1982 has been a successful year for Yamaha and all its riders. But while our customers are winning races, Yamaha is always thinking for the future. That's why we can present to you here the four new YZ models for 1983.

They have undergone a lot of changes, to keep you winning races, even grand prix!

Even when Yamaha is world champion, we never rest on our laurels!

YAMAHA YZ 50.



Model unchanged

YAMAHA YZ 100.



Model unchanged

WHAT'S NEW ON THE 4 MAJOR 1983 YZ MODELS? CHECK HERE, POINT BY POINT.

	80 LC	125 LC	250 LC	490
Improved engine performance (more power and torque)	●	●	●	●
Larger cooling system (new radiator position)	●	●	●	●
Newly designed frame	●	●	●	●
New mono cross 1983 system	●	●	●	●
Improved front fork efficiency	●	●	●	●
Front wheel travel increase	●			
Rear wheel travel increase	●			
Weight reduction (minimum FIM from 125cc on)	●	●	●	●
Lower centre of gravity	●	●	●	●
Newly designed aluminium swinging arm		●	●	●
New swinging arm, elliptical tubing	●			
New design fuel tank (+ new graphics)	●	●	●	
New tank graphics				●
Red front fork boots		●	●	●
Red mono cross spring	●	●	●	●
Yamaha Power Valve System (YPVS)*		●	●	
Yamaha Energy Induction System (YEIS)*	●			●
Kit parts**		●	●	●

* already in 1982

** ask your Yamaha motocross dealer about conditions of supply and details of the kit parts.

Title:

Danny La Porte (USA) - 250cc world champion 1982.

Yamaha - 1982 motocross manufacturers world champion (250cc).

YAMAHA YZ 80 LC- KING OF MINI-MOTOCROSS.

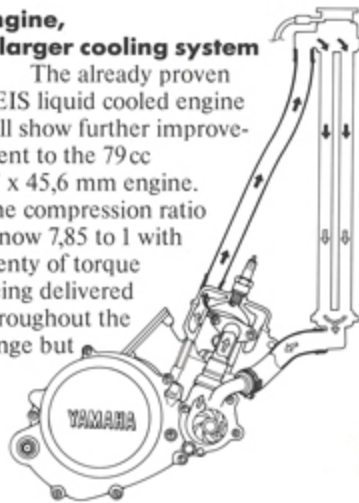
8.250,



The 1982 YZ 80 LC which has so successfully dominated its class through-out the 1982 season with its impressive race performance has been improved for the new year, 1983. Taking its successful predecessor as a basis for further technical development and refinement, the 1983 YZ 80 LC's improvements are mainly centred on stability, steering and a more flexible engine characteristic.

Engine, a larger cooling system

The already proven YEIS liquid cooled engine will show further improvement to the 79 cc 47 x 45,6 mm engine. The compression ratio is now 7,85 to 1 with plenty of torque being delivered throughout the range but



especially in the low to mid range. Maximum torque reaches 1,30 kgm at 12,000 rpm, a very high value for its category. Maximum power from the strong liquid cooled Yamaha engine has always been more than adequate, and for 1983 has been increased to 21,9 hp at 12,250 rpm.

The main difference between the 1982 and 1983 engines can be found in the water cooling system. On the new model the radiator surface has been increased by 35 per cent; this modification helps greatly with engine performances' stability under any type of riding conditions. The radiator itself is now mounted directly to the frame, under the fuel tank, to lower the centre of gravity of the machine. The remaining engine modifications are centred on the cylinder and cylinder head which are lighter and more compact than their predecessor. The cylinder head sealing has also been changed from a O-ring to a gasket.



New rear suspension

To transfer the increased power from the engine to the track, the 1983 model has undergone important modifications to the frame and suspension, the most visible being the rear suspension. The YZ 80 LC 1983 now features a new link-type rear mono cross system and a newly designed swinging arm made from elliptical tubing. This combines increased strength and reduced weight.

The new rear mono cross system allows a wheel travel of 250 mm (+20 mm over the 1982 model). The shock absorber has been redesigned into a lighter and more efficient unit with the stroke reduced from 112 mm to 90 mm. Front suspension has also been improved, wheel travel is increased by 15 mm (now 240), rigidity is increased too, the inner tubes size is now 33 mm against 30 mm (diameter) in 1982.

To match the suspension improvements the frame has also been redesigned and made from high tensile steel tubing. The new frame and the new rear mono cross suspension, together with the lower centre of gravity (obtained by the relocation of the radiator and the new link-type rear suspension) offer overall improvement in steering and handling characteristics.

New aggressive design

The 1983 YZ 80 LC model is born to be a winner in the highly competitive mini-motocross world. With engine performances and handling even better than its famous predecessor, the 1983 model weighs 1 kilo lighter than the 1982 bike. Complementing the technical development of the '83 model is the drastic change in design from the softer lines of the '82 model to a more aggressive image for the '83 model to match the performances. The main contributions to the aggressive new styling are the repositioned radiator and the new rear mono cross suspension system including a red coloured spring. The non-symmetrical 5 liter petrol tank and the famous YZ red seat riding up onto the tank provide ample comfort and safety qualities, as well as they also contribute to the new aggressivity of the YZ 80 LC 1983.

YAMAHA YZ 125 LC - NEW SUSPENSION, WEIGHT REDUCED, READY FOR THE GP'S.



14,490,-

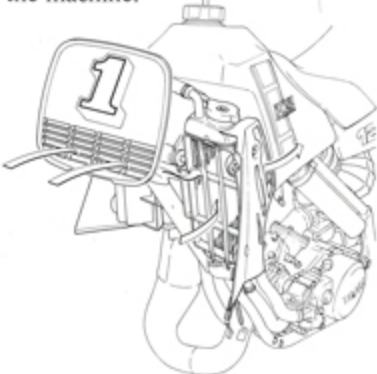
Whats red and white and leads to the best GP results for privateers? A Yamaha YZ 125 LC!

In 1982, young riders Pekka Vehkonen from Finland and John Hensen from Holland were frequently to be seen racing wheel to wheel with the factory machines in the 125cc Grand Prix and scoring world championship points with their standard YZ 125 machines. For the 1983 season Yamaha have produced an even more competitive 125 machine, not only to score points in the Grand Prix races but also to ensure every YZ 125 owner has the best possible machine for whatever race he enters.

What are the advantages of the improved YZ 125 LC for 1983? As in 1982 the machine is powered by a 123cc single cylinder water cooled engine equipped with the YPVS (Yamaha power valve system). This engine has been brought to an even higher performance standard for 1983 with a larger exhaust pipe and altered port timing, giving an increased overall scavenging effect and wider power band, making the engine more responsive throughout the entire rev range. The engine is also more compact than its predecessor with more compact YPVS cylinder and cylinder head.

Larger cooling system

One of the most visible changes on the YZ 125 LC for 1983 is the repositioning of the radiator for the water cooling system, the radiator is now attached to the frame under the petrol tank. This allows for an increase in surface area giving a more stable engine performance under any type of race conditions. The new position of the radiator also gives the machine a much lower centre of gravity, thus improving the steering and handling of the machine.



Another improvement, which also helps lower the centre of gravity is the adoption of a new rear mono cross suspension system, this combined with an improved front fork which features a valve at the foot of the fork leg to regulate the damping characteristics on the compression side.

Minimum FIM weight

Last but not least Yamaha have worked very hard to reduce the overall weight of the machine, and it now weighs in at 88 kilograms, the FIM minimum weight for the 125cc class.

With improved engine performance, better steering and handling plus the lighter overall weight, the new YZ 125 LC is as near to a factory race machine as possible, increasing your chances of success at any level of racing.

YZ 125 LC main features

- Reduced overall weight, down to the FIM minimum requirement of 88 kilograms.
- Higher performance from the more compact YPVS engine.
- Large size exhaust pipe for better scavenging effect.
- Altered port timing with increased exhaust effect.
- New rear mono cross suspension.
- Aluminium "fork type" swinging arm.
- New front fork assembly with base valve.
- New radiator with larger surface area.
- Lowered centre of gravity with altered radiator position and new mono cross system.
- New styling, black "split type" radiator, red fork boots and rear suspension spring.

YAMAHA YZ 250 LC - THE BEST EVER PRODUCTION MACHINE?

16.650,-



The 1982 YZ 250 liquid cooled motocross has won a tremendous reputation world-wide. A star in the US national championship and numerous national championship in Europe the YZ 250 LC is a real winner. During the 1982 Grand Prix series riders such as Tarkkonen, Kinigardner and Martens have on numerous occasions finished in the top five.

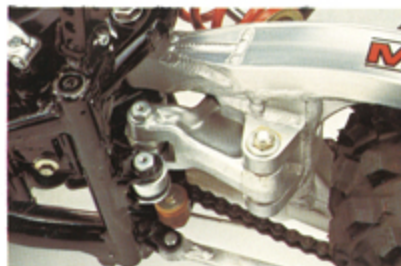
For 1983 Yamaha have made the 250 LC even more competitive. Like the 125 LC, the new 250 LC features important improvements such as repositioned radiator, a new mono cross suspension system, both features helping to lower the centre of gravity, and a drastic weight reduction. As for the renowned 246 cc liquid cooled single cylinder engine it has undergone many changes, giving higher performance to make the machine even more competitive, ensuring the YZ 250 LC retains its position as the best

production machine on the market in its class. The bore and stroke have been changed from 70 x 64 mm to 68 x 68 mm, increasing piston stroke to give more torque throughout the rev range. The number of vanes in the reedvalve has been increased from 6 to 8, further improving induction efficiency. The 250 LC engine still profits from the YPVS (Yamaha power valve system) and as with the 125 LC the surface area of the "split type" radiator



has been increased by mounting it directly to the frame beneath the petrol tank. This incredible engine delivers full power under any type of racing conditions, with even more efficiency than in 1982.

An increase in engine performance should be combined with frame and suspension improvements and the new YZ 250 LC has undergone many changes in these depart-



ments. The front fork has been improved with the use of a valve on the foot of the fork legs which regulates the damping characteristics on the compression side. A new rear mono cross suspension, a lower centre of gravity, and an overall weight reduction make the steering and handling of the YZ 250 LC even better than before! We will not be surprised to see the new YZ 250 LC leading the field during the 1983 Grand Prix series!

Main technical features

- Reduced overall weight, down to the FIM minimum requirement of 98 kilos.
- Higher engine performance, new bore and stroke for stronger torque, liquid cooling, YPVS.
- Sharper engine response with use of larger reed-valve mechanism.
- Altered gear ratios for wider transmission ratio.
- New radiator with increased surface area.
- New rear mono cross system.
- Lower centre of gravity due to repositioned radiator and new mono cross system.
- Aluminium "fork type" swinging arm.
- New front fork assembly with finer adjustment possibilities.
- Front and rear aluminium die cast hubs.
- New styling, black "split type" radiator, red fork boots and rear suspension spring.

YAMAHA YZ 490 - GP POWER.

17.400,-



The current YZ 490 has received world-wide praise for its incredible power complemented by great frame and suspension systems. GP riders Franco Picco of Italy and Jukka Sintonen from Finland have, during the 1982 world championship, proven the capabilities of this "GP power bike".

For 1983, the YZ 490, which is probably the most powerful production machine available on the market, has undergone further improvement. As with the YZ 125 cc and YZ 250 cc the new link type mono cross suspension system has been adopted and a reduction in the total weight of the

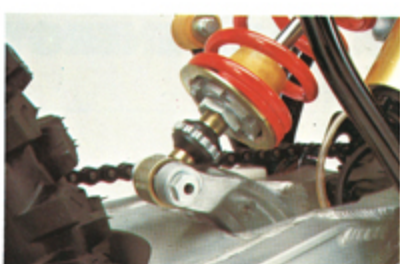
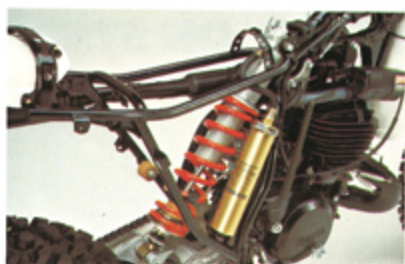
machine has been achieved which adds yet another dimension to this incredible machine's race performance.

The well proven single cylinder 2-stroke engine retains the YEIS system (Yamaha energy induction system) but is more compact in construction; the cylinder head volume has been decreased from 50.2 cm³ to 46.9 cm³, and the fins on the cylinder and cylinder head have been reshaped. These improvements help maintain a more stable engine temperature to ensure maximum power delivery, however hard the machine is ridden.

To match the increased engine performance, the new rear mono cross suspension helps to lower the centre of gravity of the YZ 490 for 1983 and improves the steering and handling. This improvement in steering and handling has allowed the handlebars to be shortened by 20 mm and repositioned directly above the fork tubes, thus enabling the rider to find a better riding position and exert more control over this incredibly powerful machine.

As with the 125 LC and the 250 LC, the 490 features the new front fork assembly with compression damping regulated by a valve at the foot of the fork leg to give optimum performance at all times.

Biggest brother in the Yamaha range the 490 weighs in exactly on the FIM limit of 102 kilograms. Owning the YZ 490 gives you all the advantages necessary to gain the best results possible even in a Grand Prix.



Just count our successes...

1982 - Fim and national federations affiliated to the Fim only

D. la Porte	- World Champion 250 cc
N. Hudson	- British Champion 500 cc (inters)
J. Sintonen	- Finnish champion 500 cc (inters)
P. Vehkonen	- Finnish Champion 125 cc (inters)
H. Carlqvist	- Swedish Champion 500 cc (inters)
T. Hansen	- Swedish Champion 250 cc (inters)
J. Hansson	- Swedish Champion 250 cc (juniors)
M. Osterstrom	- Swedish Champion 125 cc (juniors)
P. Heylen	- Belgian Champion 500 cc (nat.)
J. Vimond	- French Champion 250 cc (inters)
J.-M. Micard	- French Champion 250 cc (seniors)
D. Vuliez	- French Champion 125 cc (juniors)
F. Graf	- Swiss Champion 500 cc (inters)
S. David	- Swiss Champion 500 cc (nat.)
J. Jespersen	- Danish Champion 125 cc (seniors)
M. Sautter	- German Champion 250 cc (juniors)

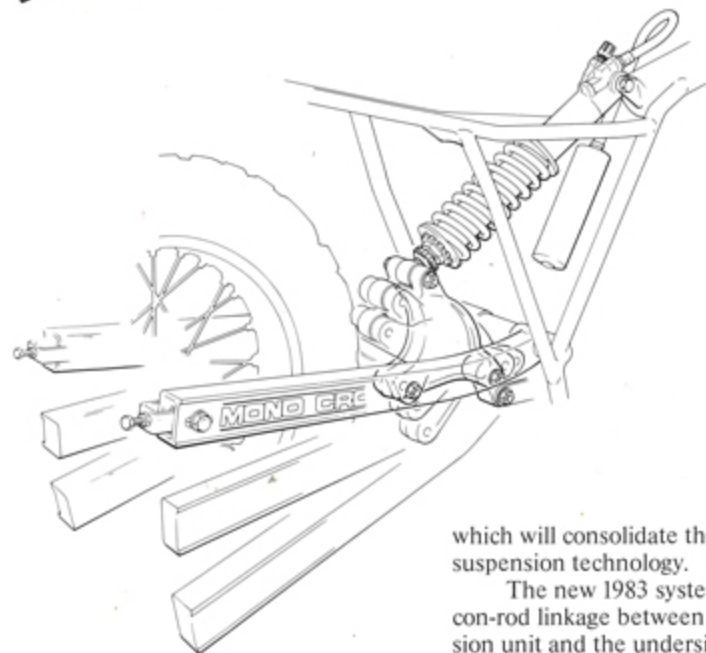
List printed on October 10, 1982.

Yamaha, World Champion Manufacturers 250 cc

Main technical features

- Total weight reduction to required FIM minimum of 102 kilograms.
- Higher cooling effect with larger cylinder and cylinder head finning.
- YEIS
- New rear mono cross suspension.
- New front fork assembly with optimum setting possibilities.
- Front and rear aluminium die cast hubs.
- New design, red front fork boots and rear suspension spring.

THE NEW MONO CROSS SUSPENSION (YZ 80 LC - YZ 125 LC - YZ 250 LC - YZ 490)



which will consolidate their lead in suspension technology.

The new 1983 system employs a con-rod linkage between the suspension unit and the underside of the swinging arm, utilizing a leverage action to obtain the same progressive effect as a rising rate type system. Suspension efficiency is greatly improved particularly in the mid range of the shock action, thus making off road riding as smooth and comfortable as possible. The spring rate on the unit can also be changed over an almost unlimited range to prevent "bottoming out" under any track conditions, however severe.

Yamaha have for many years been the market leader in competition suspension design and development.

The original Yamaha mono cross suspension system has been a revelation with its consistent high performance and dependability.

For the 1983 season Yamaha have introduced a new technical innovation to the 1982 link type system

The simplified moving parts controlling the suspension movement are located under the swinging arm assembly, and the compact suspension unit is installed in an almost vertical position to the swinging arm. These developments have helped to lower the centre of gravity of the YZ 80 LC, 125 LC, 250 LC and 490 giving improved off road steering characteristics.

With a simplified frame construction and repositioned suspension unit, the rebound pressure and damping force can be adjusted by merely detaching the seat on the YZ 125 LC, 250 LC and 490.

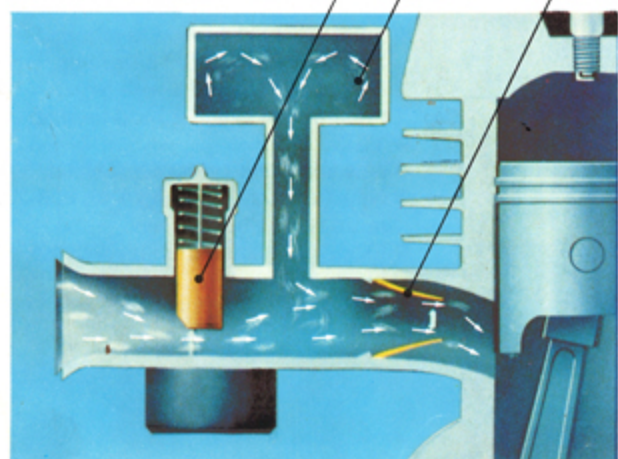
On the compression stroke the successful system of adjustment employed on the 1982 models is retained for 1983.

YAMAHA ENERGY INDUCTION SYSTEM.

Reed valve

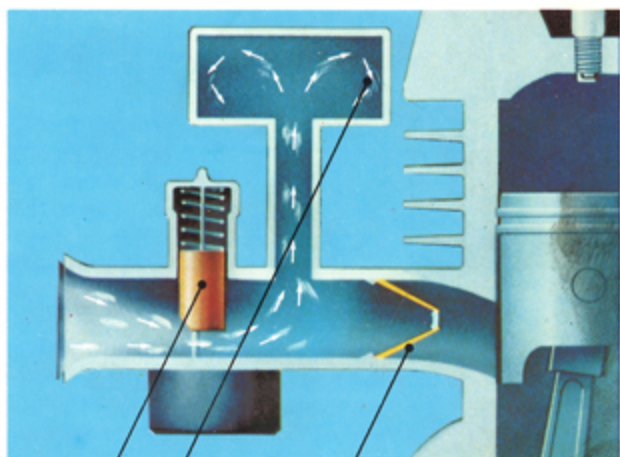
Chamber

Throttle valve



Motorcyclists have always regarded high performance two-stroke engines as high-revving power units with a lack of pulling power in the low and mid-range.

Now, with a simple modification to their two-stroke induction systems, Yamaha have proved that it is possible to have smooth torque in the lower



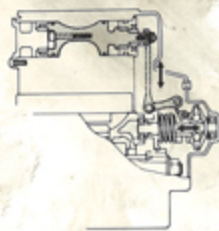
Reed valve

Chamber

Throttle valve

rpm range without sacrificing anything at all in terms of top-end power.

YAMAHA POWER VALVE SYSTEM. AN OBVIOUS ADVANTAGE.



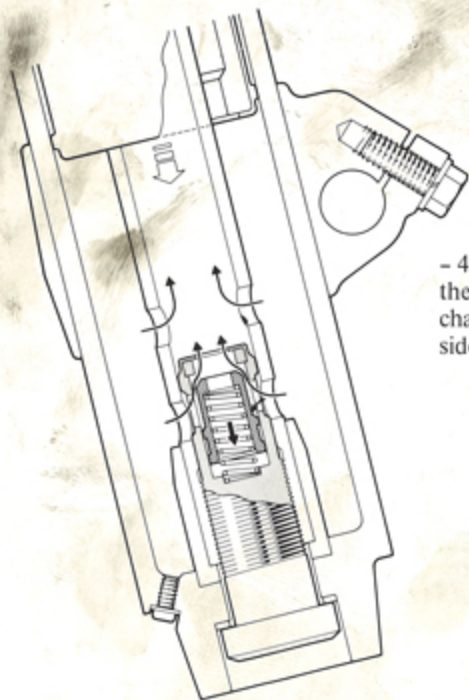
The new YZ 125 and 250 Yamahas still proudly bear a magic name on their cylinders: YPVS. For some time, many private motocross riders have dreamed about those 4 magic metallic letters: YPVS, Yamaha Power Valve System. Now, for 1983, the dream is still a reality, as this unique GP bike feature still appears on two production bikes, the 125 LC and the 250 LC.

What is the YPVS? The name is derived from a special semi-spherical valve system which controls the exhaust timing, a very important factor for the 2-stroke engine, so that high power is produced over the high speed range and ample torque is developed especially over the low to medium speed range.

In general, the high speed, high power type 2-stroke engine has quick exhaust timing, whereas slow exhaust timing is more suitable for the low speed, high torque type 2-stroke engine. The YPVS satisfies these conflicting factors by controlling the exhaust timing. In the YPVS, a cylindrical valve is provided for the exhaust port of the cylinder. The valve is cut to match the shape of the port and rotates to adjust the working exhaust port area in such a way that exhaust timing is effectively controlled for many different riding conditions. The valve functions automatically in conjunction with engine load, with no burden on the rider. The valve, which is linked to the primary gear driven governor, automatically quickens or slows down the exhaust timing as the engine's speed changes.

In other words, the YPVS helps to improve power output development over the wider speed range and holds blow-by or blow-back to a minimum so that combustion efficiency is greatly increased, resulting in better fuel economy.

The YPVS was first used on the factory YZM 250 in 1977, as an experiment, and since then continuous efforts have been made to improve its performance. Yamaha production road racers, such as TZ 250 and 500, already feature the YPVS, and moreover, all Yamaha factory motocross machines, whether 125, 250 or 500, have put the famous YPVS through its paces since 1981, a real advantage for our factory riders, Velkeners, Hudson, Watson, La Porte, Carlqvist. An advantage which is also available for your YZ 125 and 250 models, since 1982 and once again in 1983.



The front fork (125 LC - 250 LC - 490) features a valve at the foot of the fork leg to regulate the damping characteristics on the compression side. Easy-setting (screw).

INDISPENSABLE, YOUR YAMAHA FACTORY TYPE CLOTHING...



Yamaha goes on with its famous "factory type" clothing line. Again in 1983, you will be able to find and buy high quality motocross items at your Yamaha motocross dealer.

For 1983, the clothing line is made of:
Grand Prix motocross shirt
Grand Prix motocross pants
Motocross team jacket
(summer and winter type)
Motocross team bag.

SPECIAL PW FAMILY ISSUE.



You won't find any information concerning the famous "mini" YZ of Yamaha, the PWs. They are so numerous now that they really make a unique family (PW 50, PW 50 side-car, PW 80, PW 80 side-car). Ask your Yamaha dealer for a "PW family" catalog.

TECHNICAL SPECIFICATIONS

	YZ 50	YZ 80 LC	YZ 100
Model year	1983	1983	1983
Engine type	2-stroke, single, reed-valve, air-cooled	2-stroke, single, liquid-cooled, YEIS, reed-valve	2-stroke, single, reed-valve, air-cooled, YEIS
Displacement	49 cc	79 cc	98 cc
Bore/stroke	40 x 39,7 mm	47 x 45,6 mm	50 x 50 mm
Compression ratio	7,8 : 1	7,85 : 1	8,0 : 1
Maximum horsepower	9 hp (6,6 KW) at 10,500 rpm	* 21,9 hp (16,1 KW) at 12,250 rpm	22 hp (16,2 KW) at 11,500 rpm
Maximum torque	0,62 kgm at 10,000 rpm	1,30 kgm at 12,000 rpm	1,4 kgm at 9,500 rpm
Lubrication system	Premix	Premix	Premix
Carburettor	Mikuni VM 20	Mikuni VM 26	Mikuni VM 30
Starting system	Primary kick	Primary kick	Primary kick
Ignition system	Capacitor Discharge (CDI)	Capacitor Discharge (CDI)	Capacitor Discharge (CDI)
Transmission	5 gears	6 gears	6 gears
Fuel tank capacity	3,3 l	5 l	8,2 l
Dimensions			
Overall length	1,510 mm	1,790 mm	2,105 mm
Overall width	715 mm	765 mm	840 mm
Overall height	845 mm	1,050 mm	1,195 mm
Seat height	630 mm	790 mm	
Wheelbase	1,025 mm	1,230 mm	1,420 mm
Ground clearance	195 mm	280 mm	315 mm
Suspensions	Front, telescopic fork - wheel travel 110 mm Rear, mono cross - wheel travel 115 mm	Front, telescopic fork - wheel travel 240 mm Rear, new mono cross type - wheel travel 250 mm	Front, telescopic fork - wheel travel 250 mm Rear, mono cross type 1982 - wheel travel 250 mm
Dry weight	50 kg	62 kg	88 kg
Tyre front	2,50-14	2,75-17	3,00-21
Tyre rear	3,00-12	4,10-14	4,10-18
Brake front	drum	drum	drum
Brake rear	drum	drum	drum

	YZ 125 LC	YZ 250 LC	YZ 490
Model year	1983	1983	1983
Engine type	liquid-cooled, 2-stroke, single, YPVS, reed-valve	liquid-cooled, 2-stroke, single, YPVS, reed-valve	2-stroke, single, reed-valve, YEIS, air-cooled
Displacement	123 cc	246 cc	487 cc
Bore/stroke	56 x 50 mm	68 x 68 mm	87 x 82 mm
Compression ratio	7,8 : 1	7,4 : 1	7,4 : 1
Maximum horsepower	34 hp at 11,250 rpm	47 hp at 8,250 rpm	60 hp (44,3 KW) at 7,000 rpm
Maximum torque	2,25 kgm at 10,500 rpm	4,23 kgm at 7,500 rpm	6,35 kgm at 6,500 rpm
Lubrication system	Premix	Premix	Premix
Carburettor	VM 34	VM 38	VM 38
Starting system	Primary kick	Primary kick	Primary kick
Ignition system	Capacitor Discharge (CDI)	Capacitor Discharge (CDI)	Capacitor Discharge (CDI)
Transmission	6 gears	5 gears	4 gears
Fuel tank capacity	7 l	8,6 l	10,5 l
Dimensions			
Overall length	2,135 mm	2,170 mm	2,200 mm
Overall width	850 mm	850 mm	850 mm
Overall height	1,240 mm	1,230 mm	1,220 mm
Seat height	940 mm	960 mm	955 mm
Wheelbase	1,450 mm	1,470 mm	1,500 mm
Ground clearance	350 mm	335 mm	330 mm
Suspensions	Front, telescopic fork - wheel travel 300 mm Rear, new mono cross type - wheel travel 310 mm	Front, telescopic fork - wheel travel 300 mm Rear, new mono cross type - wheel travel 320 mm	Front, telescopic fork - wheel travel 300 mm Rear, new mono cross type - wheel travel 320 mm
Dry weight	88 kg	98 kg	102 kg
Tyre front	3,00-21	3,00-21	3,00-21
Tyre rear	4,00-18	5,10-18	5,10-18
Brake front	drum	drum	drum
Brake rear	drum	drum	drum

Specifications are subject to change without notice.

*80 cc racing regulations for Sweden limited to max. 17 hp.

Your Yamaha dealer



Yamaha Motor NV - Competition models information
Prof. E. M. Meijerslaan 3, 1183 AV AMSTELVEEN, Holland