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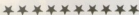
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**YAMAHA**

**RD350 LC**

# The All New Yamaha RD350 LC



## The Little Giant Killer Gets Better

As you can see on our front cover, the RD350 has been improved and restyled considerably into one of the best-looking little powerhouses around. The words "total" and "complete" are used extensively in Yamaha's enthusiastic description of the bike.

"There is only one place where a factory learns to produce a machine like this," says Yamaha. "On the race track where total performance theories are put to the ultimate practical test. Yamaha have had more years in Grand Prix racing than any other modern manufacturer — and it shows in this 350."

The new RD350 LC is the road-going result of twenty years developing machines for the racetrack and it employs much racing technology.

The most significant engine modification is the adoption, again from the racing department, of the Yamaha Power Valve System for the first time on any street machine. Operated electronically via a microcomputer, the Power Valve changes the timing of the exhaust port according to the engine's speed. Thus the engine delivers power like a trials bike at low revs and like a racer at high revs.

The chassis and styling of the 1983 RD350 LC is completely new, with nothing retained from the 1982 version. The chassis is a direct development from the factory Grand Prix racers with wide-spaced frame tubes and is rigidly-triangulated. Rear suspension is also taken from the GP machines: a rising rate progressive monoshock with the single suspension unit mounted behind the engine unit to keep centre of gravity low for better handling and stability.

Short front forks have increased stanchion diameters and the cast alloy italic wheels are of a new, triple-spoke design.

"The result of all the modifications to engine and chassis," says Yamaha, "is that the 1983 Yamaha RD350LC is faster, has more acceleration, better handling, better braking and even more striking styling than its predecessors."



### ENGINE

This 1983 version has a 6-speed transmission, liquid-cooling and a number of power boosting items. The Yamaha Power Valve System (YPVS) works like this:—

Basically, advancing the exhaust port timing gives more power to a 2-stroke at high rpm and retarding it will spread the power across the low speed and mid-ranges to obtain good torque. Exhaust port timing is controlled by the height of the port and YPVS varies this height to suit the power demands. Normal 2-strokes are bound by the actual port height as cast into the cylinder barrel.

Yamaha's Power Valve is a cylindrical block placed horizontally across

the exhaust port, with a cutaway to match port dimensions. At high rpm, the cutaway and port blend together to form the largest possible exhaust opening. At lower rpm, the Power Valve revolves so that it blocks off part of the exhaust port. Effectively the top edge of the exhaust opening is lowered so that the timing of the exhaust operation is delayed.

A microcomputer is linked to electronic sensors which monitor engine speed. The computer then electronically operates the valve, rotating it to achieve the best possible exhaust port size and timing for any given rpm.

A novel feature of the RD350 LC YPVS operation is that as soon as the ignition is switched on — and before the engine is started — the valve



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rotates to clean itself of any carbon deposits that might have built up during previous running. Thus, no regular maintenance of the valve is necessary.

Electronic controls also play a part in the ignition timing. The capacitor discharge system (CDI) fitted to the RD350 LC also includes an electronic governor. Sensors monitor engine loads and adjust ignition timing to suit.

Coupled with the YPVS, this adds to the mid-range pulling power and assists in improving fuel economy.

Another measure which gives the RD350 LC fuel efficiency in addition to added power is the balance pipe which links the two intake ducts. This also



allows the machine to idle evenly on closed throttles, with smoother power pick-up at low rpm.

The liquid-cooling system has been further advanced for 1983, because of

the increased power output of the new machine.

A new alloy radiator is utilized and the better heat-dissipation of aluminium means that the unit could be reduced to a lightweight, single row design. A plastic louvred guard protects the radiator and a newly-incorporated thermostal controls the water flow.



The cooling system is 'sealed' in automotive style with a recovery tank to handle the expanded, heated water when the engine is running, instead of it disappearing down an overflow pipe. Other modifications include the left

side crankcase cover constructed in fibreglass reinforced plastic resulting in a reduced engine width by 10mm.

The screw-type clutch operation has now been replaced by the TZ racing-type in which a straight axle is controlled by a cam rotated against its end by a cable-operated lever. This gives a straight push to part the clutch plates, rather than the rotary motion of the screw drive. The result is more positive clutch engagement.

#### CHASSIS

The link between the RD350LC and the Yamaha factory racing machines is confirmed with the triangulated chassis, rising rate suspension and 20 litre fuel tank supported by the widely-played top frame tubes.



The engine uses the "orthogonal" mounting to reduce vibration. The engine pivots in the chassis on the rear mounting and is anchored by a rubber-bushed mounting at the front. The tension of this bush can be adjusted to harmonize with the vibration of the engine and damp it out before it gets

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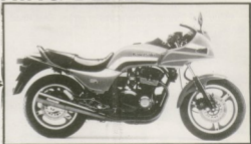
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through to the rider.

Suspension is by rising rate monocoils, with the De Carbon type gas/oil shock absorber mounted low down through the swinging arm and linked to it via relay arm. This centralizes the weight mass and also carries it low in the machine to get the lowest possible centre of gravity. This rising rate suspension offers progressively more resistance and stronger damping, the more it is compressed. At the other end of the scale, spring reaction and damping are at their lightest when there is the least loading on the suspension. The shock absorber unit is adjustable for preload by means of a remote adjuster point behind the right side cover. The square section high tensile steel swinging arm pivots on needle roller bearings.

Short air-assisted telescopic forks look after the front suspension and fork leg diameter has been increased to better cope with flex and the stresses of high speed cornering.

The twin disc brakes at the front and single rear unit are slotted to allow for the heat expansion of prolonged hard use and semi-metallic pads eliminate brake judder and noise and they are also more effective in wet weather than the normal components.

The cast alloy wheels are of new configuration with a small, 6-spoke central hub carrying the three, staggered main spokes of wide diameter with circular

holes at their centre.

Wide rims allow a flatter profile for the H-rated, high speed tyres, and also permit the fitting of larger tyres.

Detail fittings on the RD350 LC include an aircraft styled instrument panel with a central rev counter flanked by speedometer and coolant temperature gauge. Fuel is switched on by a rotary tap blended into the side panels, as is the helmet holder and chrome grab bar. Footrests are mounted on polished drilled-alloy plates, swept up at the rear to protect the passenger's foot from the rear wheel. Ahead of the passenger footrest is an angled plate protecting the sole of the passenger's foot from the exhaust.

The sporty head fairing and engine cowling are an integral part of the RD350LC's styling theme. Removing two screws allows the head fairing to hinge forward for easy access to the wiring and powerful 60/55w quartz-halogen headlamp.



"The final touch," says Yamaha, "is the racy steering head fairing and engine cowling. These accentuate the forward thrust of the bike's aggressive



styling and have the practical advantages of improving air penetration and adding aerodynamic downforce for high speed stability."

#### SPECIFICATIONS

<b>Engine:</b>	
Type.....	liquid-cooled, 2-stroke, torque induction
Displacement.....	347 cm <sup>3</sup>
Bore & Stroke.....	64.0 x 54.0mm
Compression ratio.....	6.0:1
Max. Horsepower.....	59 PS/9 000 rpm
Max. Torque.....	4.8 kg-m/5 500 rpm
Carburettor.....	2 x VM 26
Ignition.....	CDI with electronic advance
Starter.....	Kick
Lubrication.....	Autolube
Transmission.....	6-speed close ratio
<b>Chassis</b>	
Overall length.....	2 120 mm
Overall width.....	715 mm
Overall height.....	1 175mm
Seat height.....	800 mm
Wheelbase.....	1 365mm
Ground clearance.....	175mm
Dry weight.....	185 kg
Fuel tank.....	20 litres
Suspension: Front.....	Air assist telescopic
Rear.....	Monocoils, rising rate, adjustable
Wheel travel: Front.....	140mm
Rear.....	100 mm
Brakes: Front.....	Double disc (Semi-metallic pads)
Rear.....	Single disc
Tyres: Front.....	90/90-18 51H
Rear.....	110/80-18 58H
Price.....	R2 996

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