

YAMAHA RD500LC



THE YAMAHA RD500LC— ONLY THOSE WITH EXPERIENCE NEED APPLY!

In terms of normal motorcycle production runs, we do not plan to make many of our latest supersports two-stroke line leader, the Yamaha RD500LC.

Which is not such a strange statement to make when you consider that the RD500LC is very far from being a 'normal' motorcycle!

Quite the opposite. It is, in fact, the closest thing to a current Grand Prix winner that any manufacturer ever has — or is ever likely to — put on the public roads!

A thoroughbred vee-four, two-stroke that sticks as closely to the specifications of Kenny Roberts World Championship chaser as production-line engineering will allow.

Not a bike for 'Joe Average.' Definitely not! For him, there are far more suitable models in the Yamaha range.

There are, no doubt, people who will question our decision to put a Grand Prix replica on the public highway. Those people should stop and reflect a little.

Racing motorcycles are, by definition, built to a standard that guarantees safety. Handling and braking *must* match the machine's speed capabilities. To obtain racing calibre handling, the RD500LC uses a high-tensile steel chassis constructed in box-section tubing, highly resistant to torsional flexing. The compact V-4 engine allows a short wheelbase (1375 mm) which is very little longer than the RD350LC!

Combined with a 16-inch front wheel, anti-dive forks, rising-rate Monocross suspension and wide-profile tyres, this results in responsive steering and stable handling to racetrack standards. Even the aerodynamics of the

RD500LC are designed to help make it stable at any speed. An amazingly low drag coefficient means that the fairing adds to top speed, acceleration *and* fuel efficiency, while its low aerodynamic centre negates the lift forces that high speeds generate.

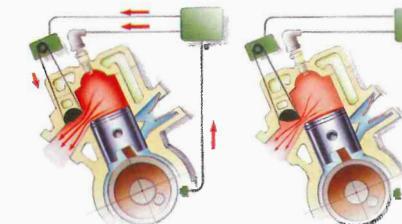
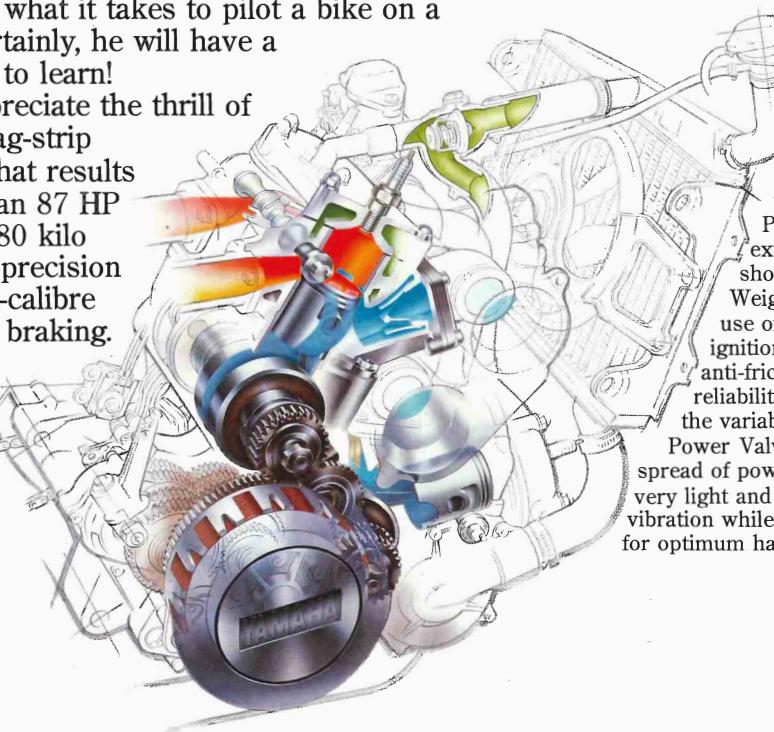
Speed with maximum safety is what makes a successful Grand Prix road racer. And the same philosophy has gone into the design and construction of the Yamaha RD500LC.

Anyone who buys one will step straight into a motorcycling elite. So what kind of guy is he?

For sure, he will already have a lot of experience in fast-paced road riding. He may already know what it takes to pilot a bike on a racetrack. Certainly, he will have a genuine urge to learn!

He will appreciate the thrill of speed, the drag-strip acceleration that results from putting an 87 HP engine in a 180 kilo machine, the precision of Grand Prix-calibre handling and braking.

He will get all this from the Yamaha RD500LC. And more!



YPVS is Yamaha's exclusive variable exhaust port timing system. A cylindrical valve across the exhaust port has a graduated cutaway that drastically reduces the port height at low rpm, thus delaying the exhaust timing for maximum torque. As engine speed rises, a microcomputer-controlled servo-motor rotates the valve so that the cutaway opens up. At maximum rpm, the port is wide open, with advanced exhaust timing for full power. The result is the widest spread of power available on any high-performance two-stroke. The valve has a self-cleaning function, rotating as soon as the ignition is switched on to scour off carbon deposits from previous running.



The liquid-cooled, vee-four, two-stroke is light and compact, with its four carburetors housed neatly in the 50-degree angle between the cylinder banks. Using the engine and transmission shaft layout proved on the Grand Prix 500, Yamaha have made the V-4 RD engine extremely short and compact, thus achieving the short wheelbase necessary for sporty handling.

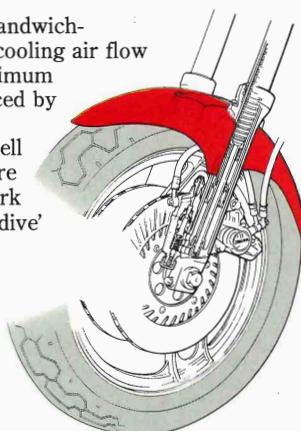
Weight has been kept to a minimum by the extensive use of alloy castings and a magnesium cover over the ignition flywheel. The separate cylinder blocks have anti-friction coating on the bores for added high-speed reliability. The combination of reed valve induction and the variable exhaust timing of the exclusive Yamaha

Power Valve System (YPVS) gives a wide, manageable spread of power. The 180-degree crankshaft balancer uses two very light and compact balance weights. It virtually eliminates vibration while permitting the rigid engine mounting preferred for optimum handling at speed.

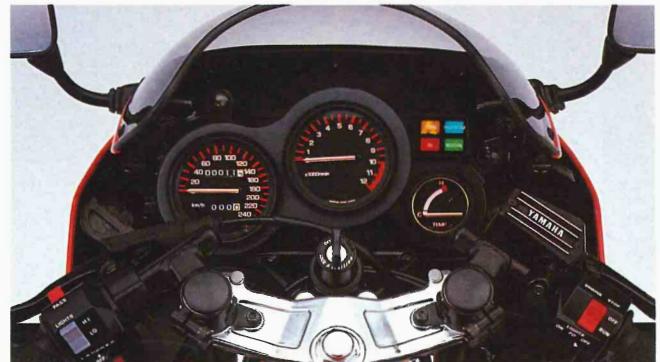


accessibility to the engine. This also allows a low tank position that reduces frontal area and lowers the centre of gravity.

Triple, large-diameter brakes use sandwich-construction, ventilated discs with cooling air flow through their core maintaining optimum efficiency. Braking power is enhanced by light alloy, opposed-piston calipers. Semi-metallic friction pads work well in any weather. Brake hydraulics are linked to fork damping to stiffen fork action and prevent the usual 'nose dive' of heavy braking. Stability and retardation rate are both, therefore, much improved. The amount of anti-dive effect is variable over wider ranges.

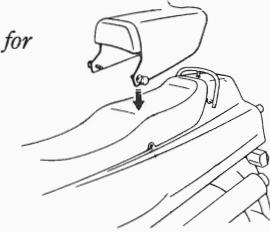


The Monocross suspension uses a single, damping-adjustable De Carbon-type shock absorber mounted horizontally beneath the engine. This controls the movement of the box-section, extruded alloy swinging arm via a system of forged linkage arms. The arm and linkages are designed for maximum strength to resist the high torque stresses of the powerful engine and the in-built flexing of the wide profile rear tyre. The linkages exert increasing damping pressure on the shock absorber as the spring is compressed. Low-friction, needle-roller bearings at the swinging arm pivot mean smooth operation and the shock absorber has adjustable damping and spring preload. Centralized weight mass and extremely low centre of gravity give superb handling.



The comprehensive instrument panel includes electric tachometer, speedometer, coolant temperature gauge and the usual range of warning lights. The panel is built into the frame-mounted fairing rather than being fitted to the fork crown. Thus the inertia effect of its weight does not affect steering or handling.

The stylish seat cowl is detachable for occasional two-up riding.



A large-capacity, two-stage air filter reduces intake noise and is contained in a box located behind the steering head. The ducts direct air flow into this box so that the carburetors breathe in cool, stable air.

Four 26-mm alloy carburetors are neatly housed in the 50-degree vee between the cylinder banks. The two carburetors on each side are connected to one another by a linkage and each pairing has its own cable to the twistgrip. This makes for light operation and quick response.

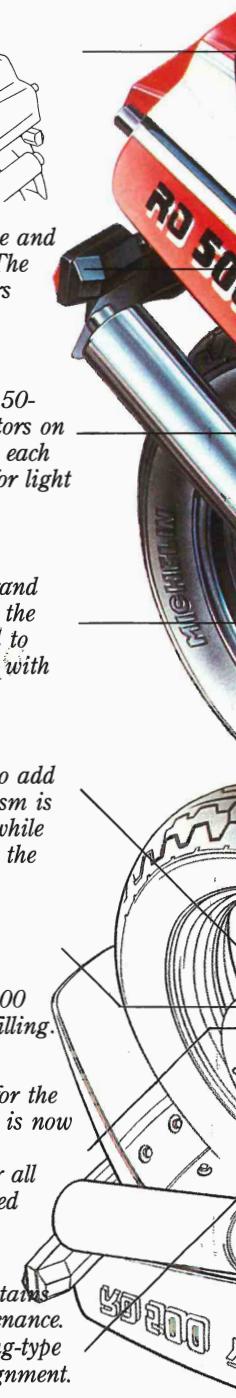
Expansion chamber exhausts follow the pattern of the Grand Prix 500. Upper pipes use a 'cross-over' routing through the frame tubes and seat fairing. Lower pipes sweep upward to permit a 52-degree cornering lean angle! They are fitted with light alloy racing silencers.

The six-speed transmission has pressure-fed lubrication to add reliability and reduce frictional losses. Gearshift mechanism is developed from the TZ road racers for positive changes while the massive power of the RD500LC motor is handled by the large-diameter, multiplate 'wet' clutch.

A strong, accurately timed spark is provided by the maintenance-free electronic ignition. Spark timing is automatically retarded slightly beyond the maximum 9,500 rpm. This improves combustion efficiency and cylinder filling.

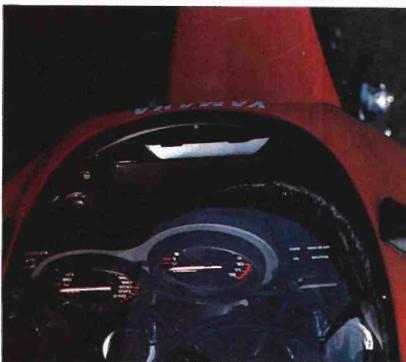
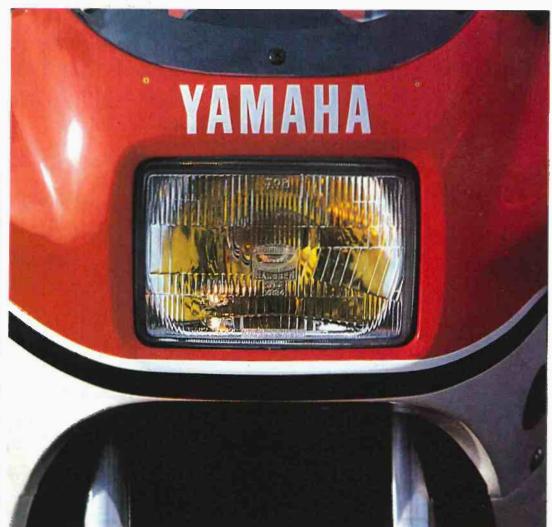
Yamaha's famous 'Autolube' system has been improved for the ultra-high performance RD500LC. The four-outlet pump is now controlled by throttle opening, engine rpm and YPVS servo-motor action so that oil metering is accurate under all conditions . . . even when braking hard with throttle closed but engine speed still high.

Final 530 drive chain is of sealed 'O-ring' type which retains its lubricant for enhanced durability and reduced maintenance. Quick, accurate chain adjustments can be made by racing-type rear axle pullers, calibrated to guarantee exact wheel alignment.





RD500LC



RD500LC SPECIFICATIONS ENGINE

Type 2-stroke, liquid-cooled, reed valve, V-four with YPVS
Displacement 499 cc
Bore and stroke 56.4 × 50.0 mm
Compression ratio 6.6:1
Max. power (DIN) 87.0 PS
(63.9 kW) @ 9,500 rpm
Max. torque (DIN) 6.9 kg-m
(67.5 Nm) @ 8,500 rpm

Lubrication Autolube
Carburation VM26SS(4)

Ignition CDI

Starter system Kick

Fuel tank capacity 22.0 l

Oil capacity 2.0 l

Transmission 6-speed

Final transmission Chain drive
CHASSIS

Overall length 2,085 mm

Overall width 705 mm

Overall height 1,145 mm

Seat height 780 mm

Wheelbase 1,375 mm

Ground clearance 145 mm

Dry weight 180 kg

Suspension

Front Telescopic forks

Rear Monocross suspension

Brakes

Front Hydraulic double disc

Rear Hydraulic disc

Tyres

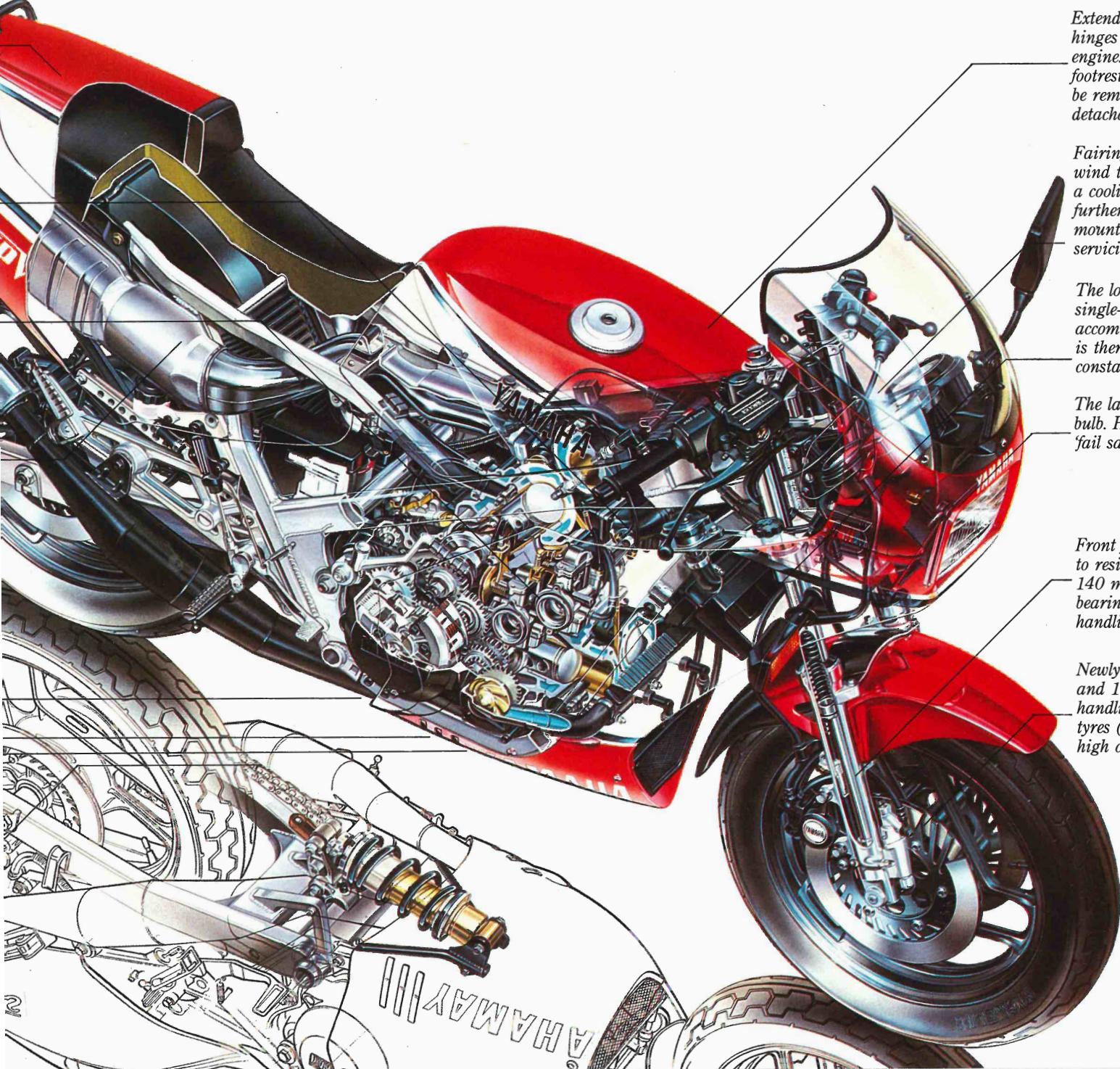
Front 120/80 V16

Rear 130/80 V18

Specifications and appearance of Yamaha motorcycles shown here may vary according to requirements and conditions and are subject to change without notice. For further details, please consult your Yamaha dealer. Always wear a helmet and eye protection.

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 **YAMAHA**
LIT-3MC-0107804-84E(AG4)



Extended cruising range is provided by the 22-litre fuel tank. It hinges upwards from the rear end to give easy access to the engine. The low seat, clip-on handlebars and narrow, rear-set footrests give a full race-riding position but the tail cowling can be removed for occasional pillion passengers. Grab rail is detachable for riders preferring a more sporting appearance.

Fairing and bodywork of the RD500LC have been proved in the wind tunnel. NASA ducts direct cold air to the carburetors plus a cooling flow around the engine unit. Aerodynamic efficiency is further improved by streamlined front fender and wing mirror mounts. The fairing is made in four pieces to facilitate engine servicing.

The low-maintenance cooling system features a lightweight, single-core alloy radiator and separate expansion tank to accommodate heated coolant. A thin and ultra-light electric fan is thermostatically controlled to keep engine temperature constant regardless of machine speed or weather effect.

The large, rectangular headlamp has a powerful quartz-halogen bulb. High-visibility tail and brake light unit has double-bulb 'fail safe' system.

Front forks have sturdy 37-mm stanchions and an alloy brace to resist deflection when cornering at speed. They provide 140 mm of smooth wheel movement and pivot in taper-roller bearings that increase steering head rigidity for more precise handling.

Newly designed, triple spoke wheels are 16-inch front diameter and 18-inch rear for quick steering with safe and stable handling. They are shod with low-profile, extra-wide, V-rated tyres (120/80 front, 130/80 rear) for maximum traction and high cornering power.

The RD500LC has unequalled cornering lean capability (52 degrees from the vertical!). For this reason a centre stand is not fitted, just a high-level side stand, up out of harm's way!

