

1989 Yamahas

Achieving high performance through advanced technology is a Yamaha trademark. And most of this technology is proven in the toughest competition before we offer it in our production machines. This gives all those people who ride our machines a very special advantage. We call this the Yamaha advantage.

Take a close look at these three very different machines with a lot in common.

The XTZ is an adventure machine which is as at home rolling down the open highway as it is blasting across the open desert. Its powerful and compact twin-cylinder 750cc engine is mounted in an advanced dual purpose chassis based on the Paris-Dakar racing machines. This is the machine that can make your dreams of adventure come true.

For the most serious supersports riders we offer the OW 01 (FZR750R), a superbike racing machine which is also street legal. With a newly designed engine, new Deltabox frame and extremely compact design, this is the machine which will dominate superbike racing in 1989.

At the opposite end of the spectrum is the YFU-1 Pro Hauler. Equipped with heavy-duty racks for carrying, a hitch for towing and a reliable and torquey 4-stroke engine, it is one of the hardest working machines we build.

All these machines are radically different. But in one way they are also very much the same. They are all Yamahas.



OW 01 FZR750R

As motorcyclists we should consider ourselves fortunate to be alive in what is the most exciting period in motorcycling history. Never has the pace of technological development been so fast, and never have such high levels of performance been available in production machines.

Presenting the OW 01 (FZR750R) – a limited production replica of our 1988 YZF750 factory racing machine. Fully street legal, its production numbers and specifications qualify it for homologation in FIM Formula One and superbike racing. Featuring a completely new engine, a frame never before seen on production machines and styling that'll knock your socks off, it will dominate Formula One and superbike racing in 1989.

Technical Highlights

- Newly designed, 749cc, DOHC, 5-valve, slant block engine with liquid cooling
- Titanium-alloy connecting rods
- New aluminum Deltabox frame
- Aluminum fuel tank
- Close ratio 6-speed transmission
- EXUP exhaust control system
- Fresh Air Intake (FAI) system
- Fully adjustable front forks with stiff 43mm stanchions
- Rising-rate Monocross rear suspension with Öhlins racing shock absorber and aluminum Deltabox swingarm
- Large-diameter, dual, floating-disc front brakes with 4-pot calipers
- Single disc rear brake with floating caliper
- High-performance Michelin radial tires

Technical Features

Engine

The 1989 OW 01 uses a completely new engine based on the highly successful '88 YZF750 works racing engine. Featuring 5-valve heads, a slant block and liquid cooling, it is a powerful statement in high technology engine design. The redesign has been so thorough that it is virtually an entirely new engine when compared with the '88 FZR750R engine.

Generally speaking, the higher an engine can rev, the more fuel/air it can pump and the more power it produces. However, maximum rpm and hence, power, are limited by piston speed. After all, a piston can only accelerate and decelerate so fast before it fails. To allow for a considerably higher redline and reduce piston speed at a given rpm, the bore and stroke on this new engine is very over-square at 72mm x 46mm.

This new engine uses a redesigned combustion chamber featuring larger valves. Since combustion chamber diameter also increases with the increase in bore, bigger valves can be used. The three intake valves are up to 23mm from 21mm, and exhausts have increased in size from 23mm to 24.5mm. Allowing freer breathing under high-rpm racing conditions, this new head significantly increases horsepower.

The pistons and connecting rods are full-on racing items. Very light and very strong titanium-alloy con-rods are used, and the pistons use only two rings: one compression ring and one oil control ring. By thus reducing friction to a minimum, maximum power output can be obtained and high-rpm reliability is improved.

Feeding this new top-end are new BDST38 carburetors with flat slides and large, round venturi sections. Carburetors of this size clearly indicate the engine's potential. The large venturi size ensures maximum fuel/air flow at high rpm and the flat slides give precise, controllable metering.

Power is transmitted to the rear wheel through a wet clutch operated by a factory-type mechanical clutch release. The close-ratio 6-speed transmission is another racing item.

Various other benefits unrelated to engine output also accrue from this larger bore and

shorter stroke. A 15mm shorter cylinder can be used, which significantly reduces overall engine height and increases engine rigidity. Combined with the new head and 8mm shorter camshaft case, engine height is reduced by 23mm. The engine is thus more compact, stronger, and permits higher ground clearances to be used without resulting in an overly high center of gravity. In addition, the degree of forward slant of the cylinder has been reduced from 45 degrees to 40 degrees. (More on that later.)

A large radiator and standard liquid-cooled oil cooler keep temperatures under control, even at racing speeds. The only cooling system modification recommended for racing is removal of the thin radiator fan. A paper element, spin-on oil filter is also fitted on the engine.

EXUP

The OW 01 also features the EXUP exhaust control system and stainless steel four-into-one exhaust pipe. By variably 'tuning' the exhaust in response to changes in engine rpm, torque output is much smoother and rideability is greatly enhanced. Unlike the EXUP valve used in the FZR1000, the OW 01 uses a butterfly type valve. (For a detailed technical explanation of EXUP, refer to the FZR1000 information.)

Racing Kit

A racing kit is available as an option. The kit contains a different ignition box which raises the redline, higher compression pistons and a lightweight silencer (the standard headers and EXUP unit are used). Installation of these parts significantly increases power and noise levels and kit-equipped machines should never be ridden on the street.

Frame

As every racer knows, a stiff frame is a good frame. The more flex resistant the chassis is, the quicker the lap times. The new aluminum Deltabox frame used on the OW 01 is not only very light, but very strong. A direct descendant of the frames used on the 1988 YZF works racing machines, it sets new standards for rigidity in superbike frames.

In this frame the rigid-mounted engine is a stressed member. That is, it is a part of the

frame, and no downtubes are used. This reduces weight while increasing overall machine rigidity.

The first time riders throw a leg over the OW 01, they will be surprised at how small and compact it feels. By using this new, more compact engine as a stressed member, the entire engine/frame package can be significantly condensed. Only its power will convince you it's really a 750.

The wheelbase is also shorter by 20mm. This is made possible in part by the above, and in part by the less radical degree of cylinder block slant. By shortening the wheelbase the entire machine becomes stiffer (less leverage) and maneuverability is improved.

The Deltabox swingarm is also aluminum, and is of triangular design. While the main beams look hollow, there is actually a strip of reinforcing aluminum welded lengthwise inside them. This greatly increases the strength and reduces flexing under heavy cornering loads.

This new frame features an all-new aluminum fuel tank. With a capacity of 20 liter and room to mount quick-fill fittings, it is virtually race ready.

Note: As a racing machine the OW 01 uses an aluminum seat rail with a single seat designed to support only a single rider. No accommodations are made for pillion riding.

Suspension

The suspension is race-ready in every respect. The telescopic front forks are everything one would expect on a racing machine. The inner stanchion diameter has increased from 40mm to 43mm for considerably more flex resistance and less friction. And it is fully adjustable both for spring preload and compression and rebound damping. For further weight reduction, an aluminum steering shaft and forged-alloy handlebar clamps are used.

The fork angle is also steeper – now 24.5 degrees, compared with 25.33 degrees. Trail is 100mm. This steeper fork angle makes the machine much more responsive to steering inputs.

Controlling the back wheel is an '88 YZF works version of our now famous rising-rate Monocross suspension system. An Öhlins shock absorber controls the aluminum Deltabox

swingarm through rising-rate linkage. This shock is basically the same unit as used on the YZ250. It features the high-performance layered disc damping valve and comes with a dial-type hydraulic spring preload adjuster. Also there are separate adjusters for compression and rebound damping. Ride height is also adjustable by replacing the upper bracket of the shock.

Wheels and Brakes

The OW 01 rolls on 17-inch wheels (MT3.50 × 17 front and MT5.50 × 17 rear) shod with sticky Michelin radial tires. The front is a 120/70 ZR17 and the rear is a 170/60 ZR17. These wide 17-inch tires give the kind of cornering performance that has to be experienced to be believed. The rear rim is wide enough to mount full-width racing slicks (the swingarm is also wide enough).

The wheels are hollow-spoke aluminum castings. However, riders wanting to switch to magnesium racing wheels will be happy to find that the disc-to-centerline distance is the same on both. That is, they bolt right on.

In the front, dual 320mm floating-disc brakes are operated by 4-pot calipers using opposed, different-sized pistons. A 210mm disc and 2-pot opposed-piston caliper, which is floating-mounted for better 'feel,' are used at the rear. Braking power is phenomenal and very controllable.

The lightweight and strong wheel axles and swingarm pivot are the same large-diameter, hollow items as used on the '88 YZF factory machine.

Fairing and FAI

The full fairing is styled directly after those on the YZF factory machines. Extremely slippery, it is one of the most aerodynamically efficient fairings on the market.

The FAI (Fresh Air Intake) system picks up fresh, cool air from each side of the headlights and routes it via flexible tubing to the airbox. And as every tuner knows, cool, dense air makes more power than warm, thin air (especially if it has to flow across a hot engine before it gets to the air cleaner).

Instrumentation and Electricals

Even the instrument panel is styled after the factory racer's. Included are an electric tachometer and a water temperature gauge — both usable for racing without modifications — a speedometer, and a range of indicator lamps.

Sparks for this powerful machine come from a transistor-controlled digital ignition. It automatically changes ignition timing in response to changes in engine rpm, for idealized timing and performance under all engine loads. As mentioned before, a racing unit is available in the race kit which allows for a higher rpm ceiling.

Dual 130mm headlights produce a bright beam, and an acrylic light cover is also available

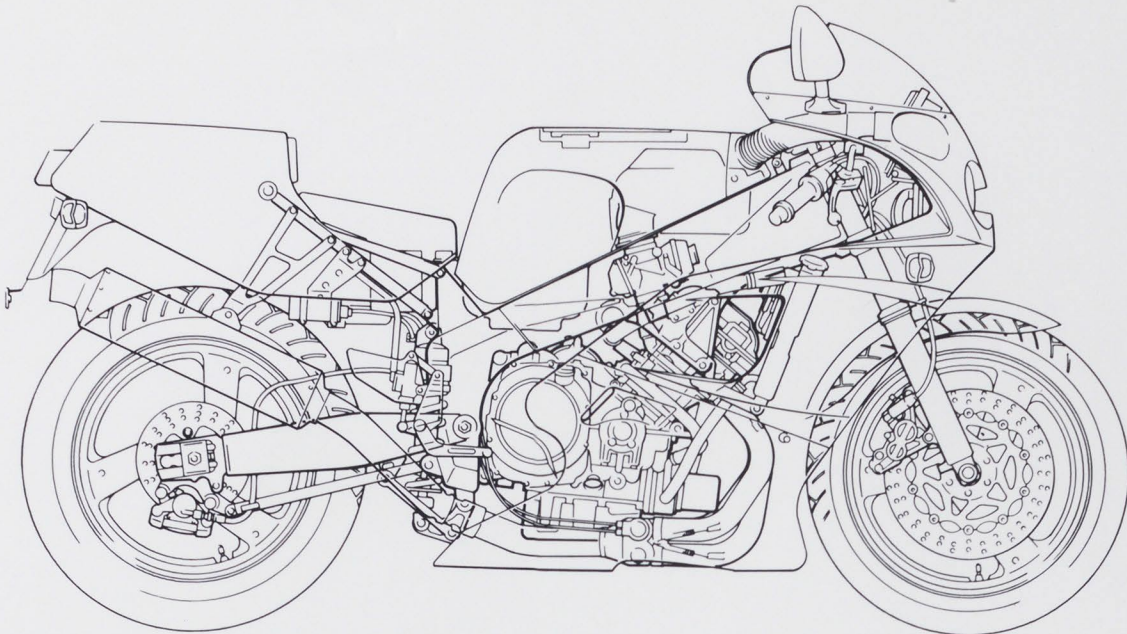
in the race kit.

Another nice feature is the low-maintenance MF 9Ah battery, which seldom needs care.

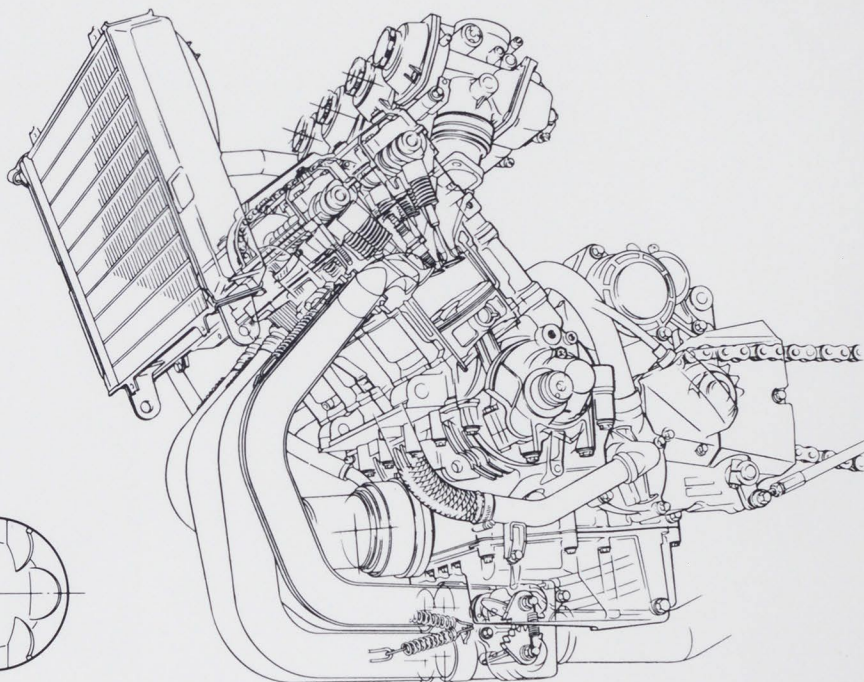
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Designed from the ground up to be the most competitive racing machine, but nevertheless street legal, buyers should clearly understand that the OW 01 is not merely a racer replica. Its technology, design, and styling are all '88 YZF works racer. And its performance is out of this world.

1989 is going to be a very good year for Formula One and superbike racers. But only if they are riding an OW 01.

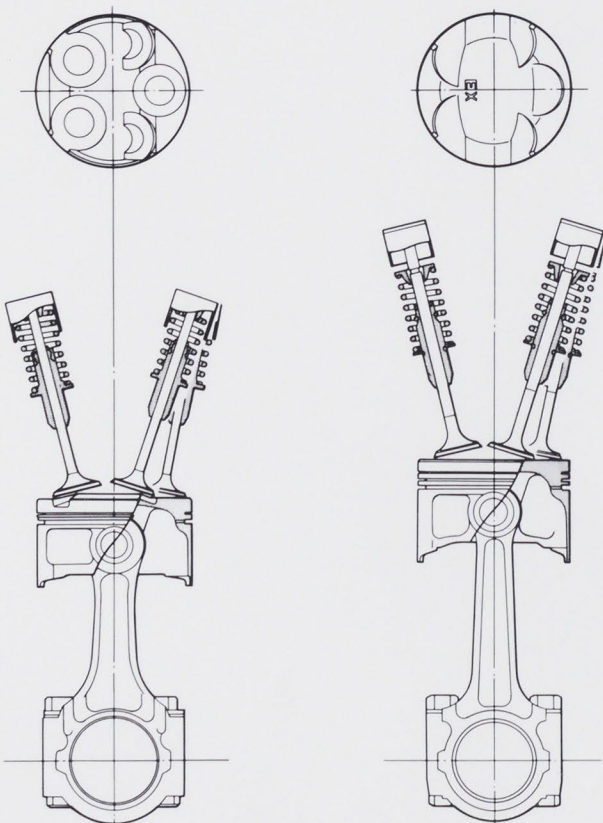


FZR750R X-RAY SIDE PROFILE



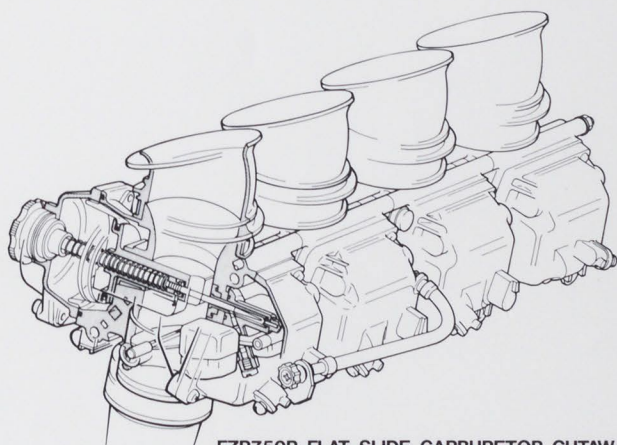
FZR750R ENGINE CUTAWAY

FZR750R VALVE, PISTON AND CONNECTING ROD
(Comparisons between '89 and '88 models)

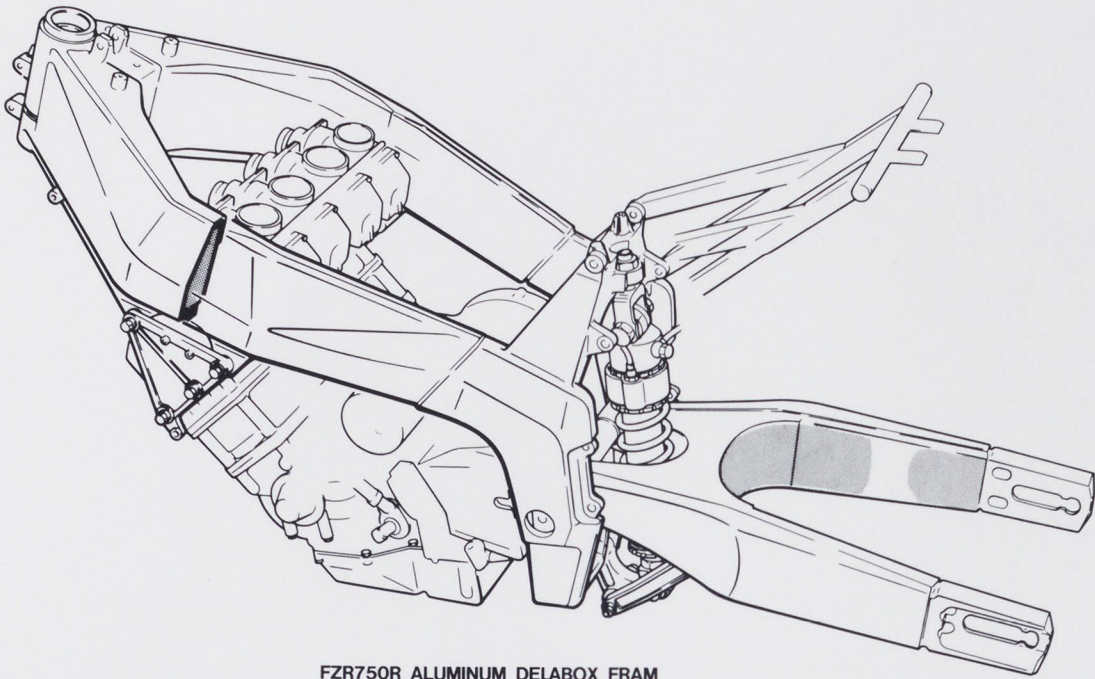


'89 model

'88 model

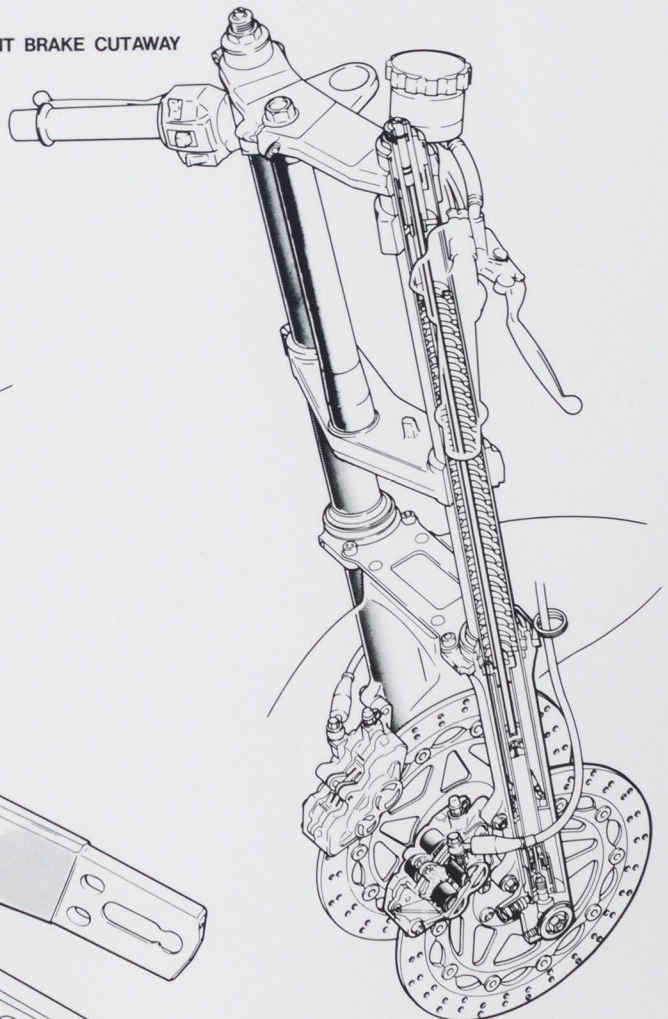


FZR750R FLAT-SLIDE CARBURETOR CUTAWAY

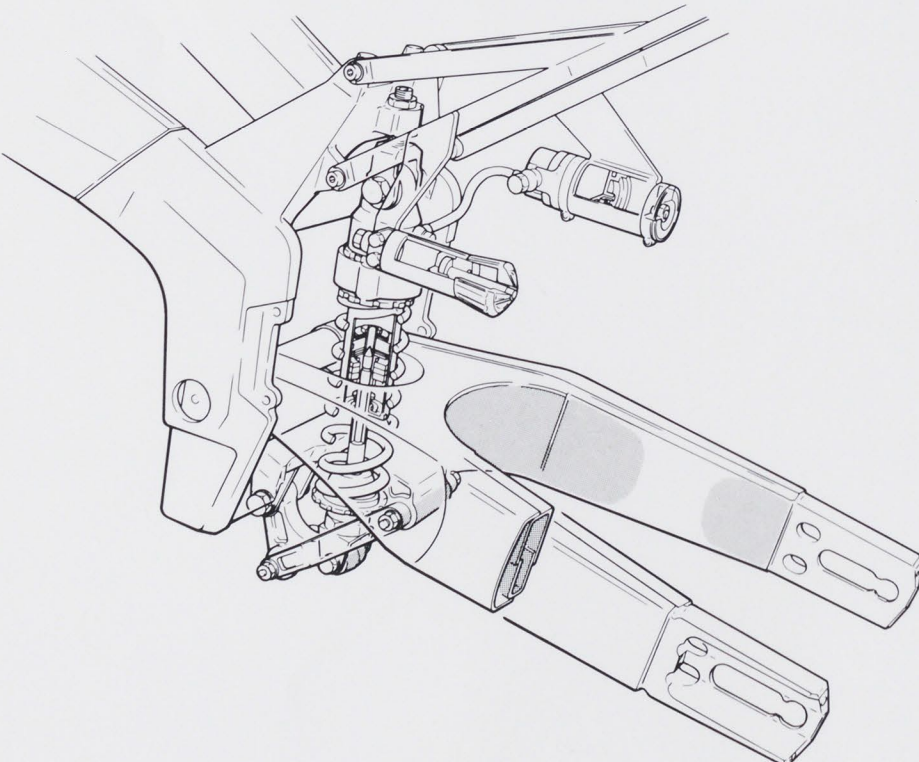


FZR750R ALUMINUM DELABOX FRAM

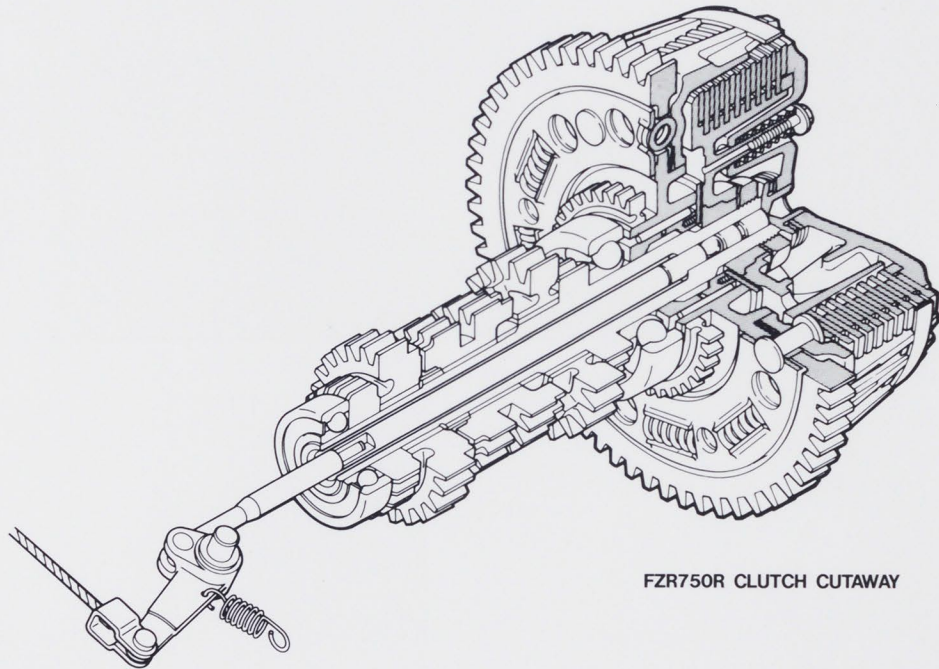
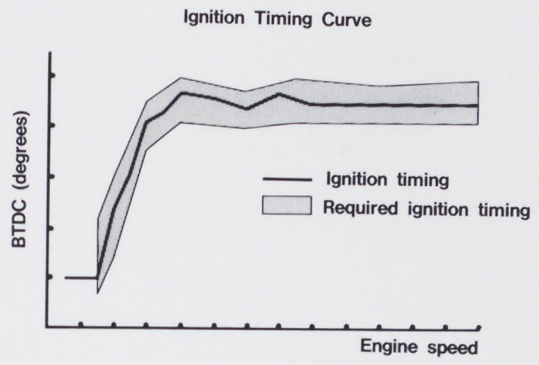
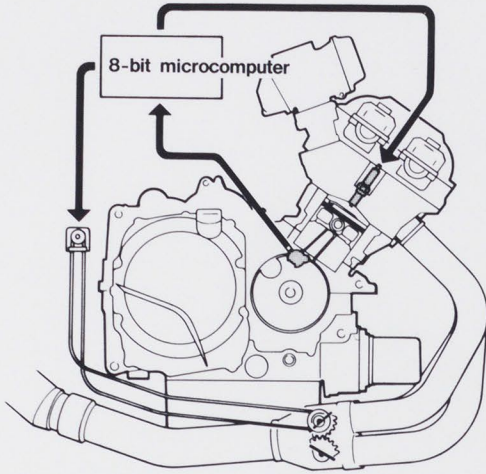
FZR750R FRONT FORK / FRONT BRAKE CUTAWAY



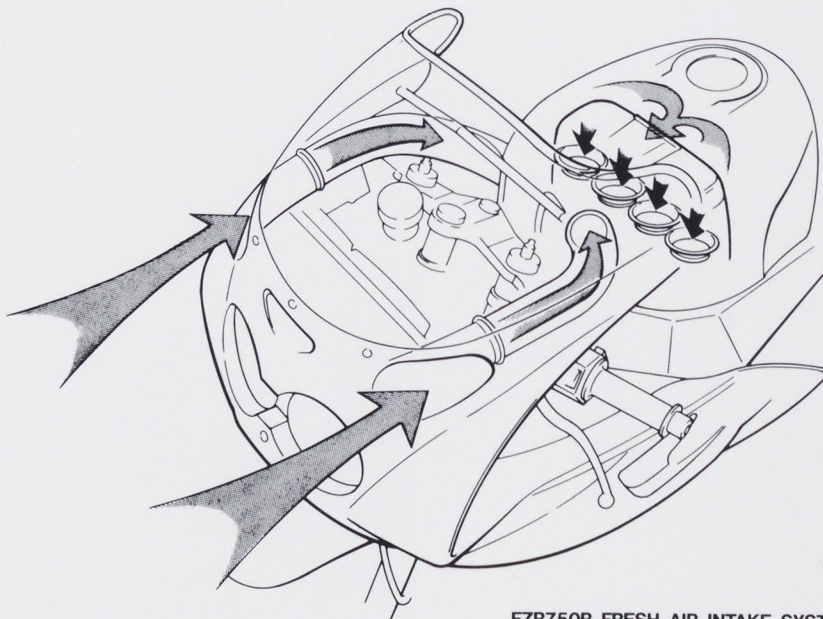
FZR750R REAR SUSPENSION CUTAWAY



FZR750R IGNITION SYSTEM AND IGNITION TIMING CURVE



FZR750R CLUTCH CUTAWAY



FZR750R FRESH AIR INTAKE SYSTEM

FZR750R SPECIFICATIONS

ENGINE

Type	4-stroke, liquid-cooled, DOHC 5-valve, parallel four cylinder
Displacement	749cc
Bore and stroke	72.0 × 46.0mm
Compression ratio	11.4:1
Carburation	Mikuni BDST 38 × 4
Ignition	Transistor controlled (digital)
Starting	Electric
Lubrication	Wet sump
Oil capacity	3.5ℓ

Transmission

Type	6-speed, constant-mesh
Primary reduction ratio	68/41 (1.658)
Secondary reduction ratio	45/17 (2.647)
1st gear ratio	32/13 (2.462)
2nd gear ratio	33/17 (1.941)
3rd gear ratio	31/19 (1.632)
4th gear ratio	33/23 (1.435)
5th gear ratio	26/20 (1.300)
6th gear ratio	25/21 (1.190)
Clutch type	Wet, multi-plate
Final drive	Chain

CHASSIS

Overall length	2,100mm
Overall width	670mm
Overall height	1,135mm
Wheelbase	1,445mm
Min. ground clearance	120mm
Seat height	785mm
Dry weight	176.0 kg
Fuel tank capacity	20.0ℓ

Suspension

Front	Telescopic forks (130mm wheel travel)
Rear	Rising-rate Monocross (swinging arm; 150mm wheel travel)

Brakes

Front	Dual hydraulic discs (320mm disc diameter)
Rear	Single hydraulic disc (210mm disc diameter)

Tyres

Front	120/70ZR17
Rear	170/60ZR17

Specifications subject to change without notice.