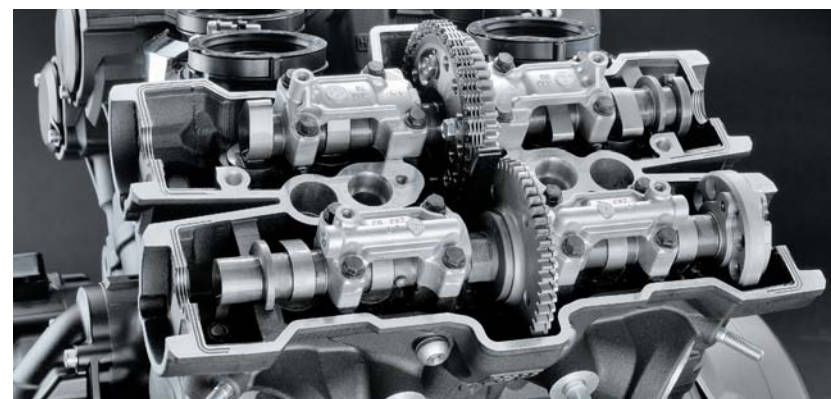




These are the exclusive first photos of how Yamaha's new V-Max will look

## Valve timing goes high-tech



The V-Max's V4 engine has variable valve timing on both the inlet and exhaust camshafts

ALTHOUGH many details of the new engine are still secret, these photographs reveal its most intriguing technology which comes in the form of variable valve

**'It is certain to use the firm's fly-by-wire throttle'**

timing on both the inlet and exhaust camshafts.

The bike's 70° V4 – the new engine has the same V-angle as the old versions – revs to just 9500rpm due to its massive capacity, with each cylinder displacing around 450cc. But that's still enough to give it a huge amount of power and torque, and peak power is expected to come significantly before the redline, at around 7000-8000rpm thanks to the detuning of the motor from the near-300bhp of the earliest prototypes to around 210bhp.

The engine's design uses a central chain to drive the two inlet camshafts, which are then geared to the exhaust cams, which rotate in the opposite direction.

But cleverly, Yamaha has incorporated variable valve timing, so the camshafts can rotate by a few degrees in relation to the sprocket that the main drive chain runs on. The system uses oil pressure to rotate the inlet camshafts in relation to the sprocket, advancing its timing by a few degrees. As the exhaust camshaft is geared directly to the inlet camshaft, its timing also gets advanced by the same amount.

Variable valve timing aside, the motor's design appears to be relatively conventional, although there's a chance it will also feature Yamaha's variable-length inlet trumpets, as on the R1 superbike, and it is certain to use the firm's fly-by-wire throttle system.



The engine retains the 70° V angle of previous versions

included one about how much power riders would like – the majority answered for the maximum option of 210bhp+.

More recently the firm has launched [www.need-6.com](http://www.need-6.com) – a site containing videos from the likes of Valentino Rossi about the pleasure of acceleration, again sending a clear message about the V-Max's performance.

### WHO EXACTLY IS IT AIMED AT?

YAMAHA'S V-Max falls into a strange position – it's far too fast to be a cruiser, too impractical to tour on and doesn't have the handling of a sports bike. But that could be what gives it success.

During Yamaha's research into the bike, it asked

thousands of riders for their input, and the results show that it might be a hit with both hardcore sports bike owners and traditional cruiser riders.

Of the riders who said the new V-Max is a bike they'd like to buy, the largest group

were cruiser owners, who accounted for around 5500 of the 15,000 people who expressed an interest in buying. But incredibly, the second largest group was riders of sports bikes, around 5400 of whom said they'd like to own a V-Max.



**TURN THE PAGE FOR FULL TECHNICAL HIGHLIGHTS**

#### 1993

Chassis changes, including larger fork tubes, up from 40mm to 43mm, bigger 298mm discs.

#### 1996-1998

Now with V-Boost enabled. Black wheels and air scoops, black exhaust system and fork outer tubes. 1998 sees a return to chrome exhaust.

#### 1999

Back to polished wheels and fork outer tubes, carbon-look mudguards.

#### 2001

Front fork seal guards added, plus carbon-effect tank cover. Otodama engine for 2009 V-Max first shown in Tokyo.

#### 2004-2005

Discontinued in UK market. "Next V-Max" sculpture shown in Tokyo

#### 2008

Discontinued in America, although 2007-spec machines still available. All-new 2009 V-Max revealed boasting over 200bhp.

