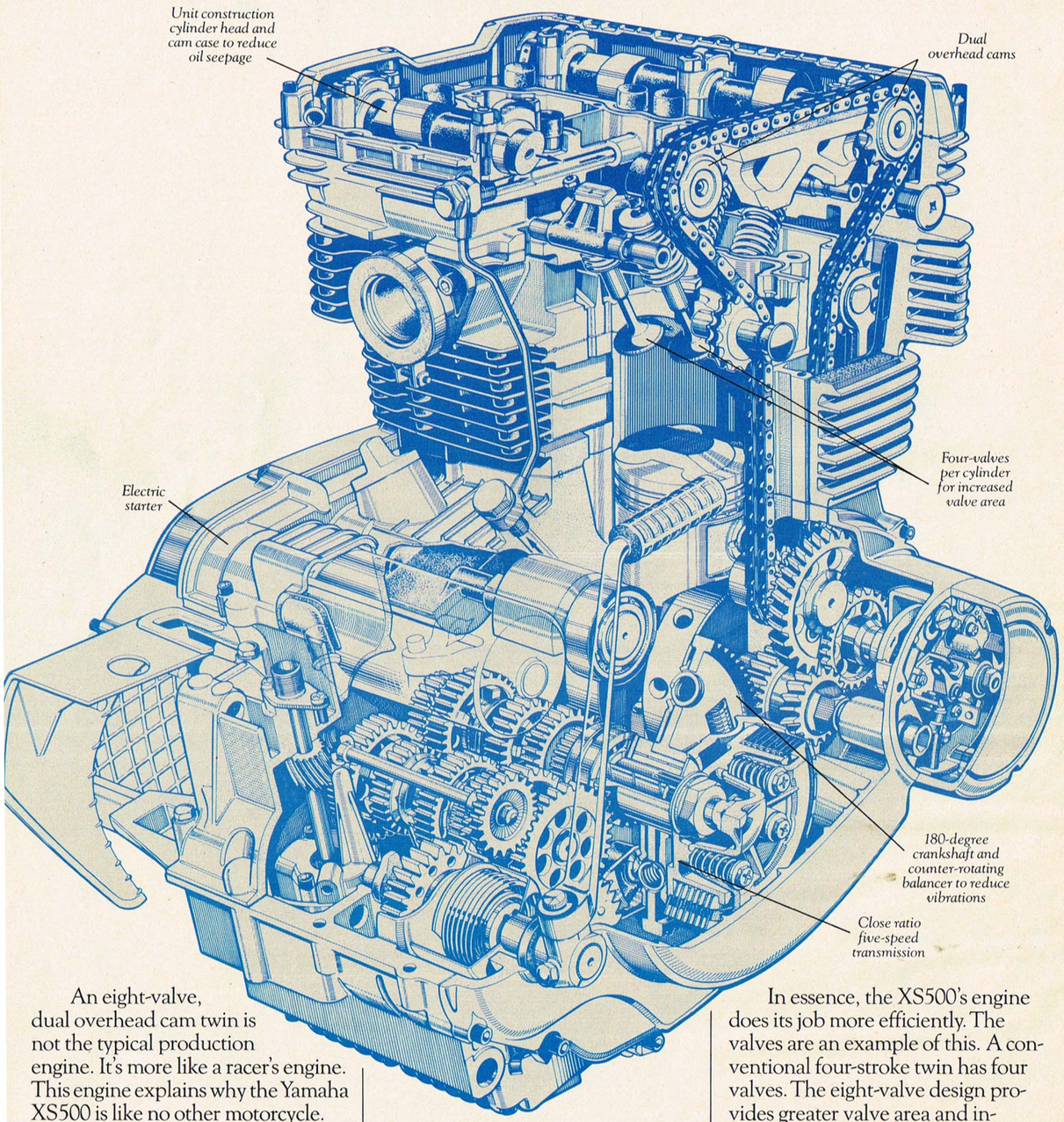
The sophisticated four-stroke Yamaha XS500: A touring machine with roadracer handling.



An eight-valve, dual overhead cam twin is not the typical production engine. It's more like a racer's engine. This engine explains why the Yamaha XS500 is like no other motorcycle. It explains why the XS500 is indeed a touring machine with roadracer handling.

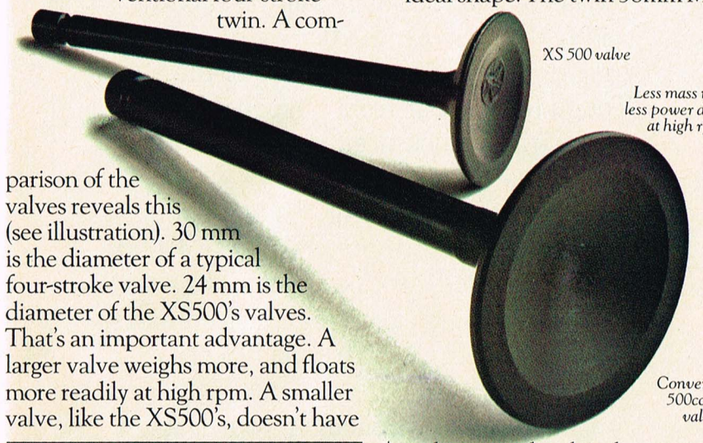
First, the engine's design. It's an example of an engineering concept well known in racing: maximum horsepower developed without increasing displacement.

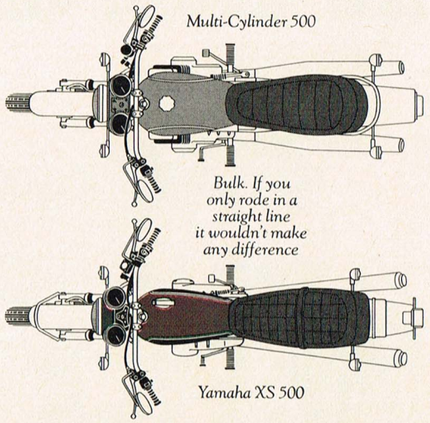
In essence, the XS500's engine does its job more efficiently. The valves are an example of this. A conventional four-stroke twin has four valves. The eight-valve design provides greater valve area and increased breathing capability. Each phase of the four-stroke cycle is accomplished more efficiently: The combustion chamber is more completely filled with fresh fuel during the intake stroke and burned gases are scavenged more efficiently during the exhaust stroke. That's why the XS500 is more powerful than any conventional four-stroke twin, without being larger.

The XS500's engine also has a higher rpm capability than a conventional four-stroke twin. A comparison of the valves reveals this (see illustration). 30 mm is the diameter of a typical four-stroke valve. 24 mm is the diameter of the XS500's valves. That's an important advantage. A larger valve weighs more, and floats more readily at high rpm. A smaller valve, like the XS500's, doesn't have this problem. That's why the XS500 can redline at 9,000. There's more useable power.

The combustion chambers (as the engine cut-away shows) are more hemispherical in shape than those of a conventional four-stroke. And, as engineers will tell you, the hemispherical combustion chamber is the ideal shape. The twin 38mm Mikuni carburetors develop the power for this engine with good fuel economy.

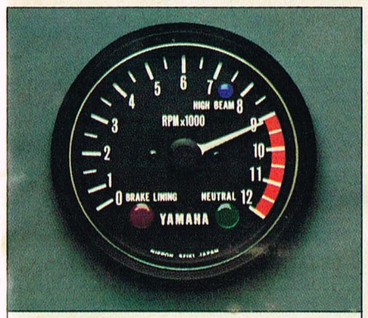
And because the XS500's engine is small yet powerful, it can be fitted on a frame that's a direct descendant of the world-famous Yamaha 350 roadracer. And that's why the XS500 handles so well.



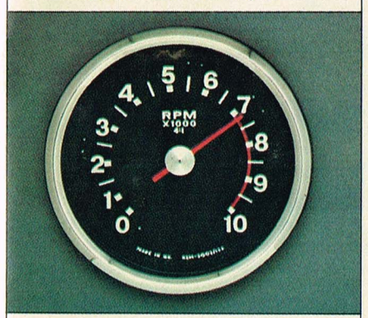


It's a motorcycle whose performance is perfectly suited to back roads or freeways. It's nimble yet powerful. And the details of its construction insure reliable operation. The cylinder head and cam case are cast as a unit to reduce oil seepage. A new positive crankcase ventilation system stops oil mist vapor from leaving the engine.

The 1976 Yamaha XS500. It's the most sophisticated motorcycle in production, and an example of what a four-stroke twin should be.



The XS 500 redlines at 9,000



Unlike most conventional 4-stroke twins

When you know how they're built, you'll buy a Yamaha.

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