

 **YAMAHA XS650**



# Yamaha XS650 - Foundation stone in the big-bike range

One of the foundation stones of the Yamaha big-bike range is the XS650 twin - the first four-stroke ever marketed by Yamaha. This 650cc single-overhead camshaft, twin-cylinder machine has been around for over ten years but is just as popular as ever thanks to its ideal blend of simple efficiency and crisp performance.

The XS650 has been continually updated over the years so that its specification is always right up to the minute in terms of customer requirements. Its competition history includes American Grand National Championship wins and a World Sidecar Moto Cross Championship so obviously the twin cylinder power unit is no mean performer.

Combining this type of performance with a weight that is over 100 lbs less than many of the current "superbikes" results in a nimble-handing, swift-accelerating machine that appeals equally to sporting, touring or commuting motorcyclists.

Heart of the XS650 is its parallel twin cylinder, single overhead camshaft engine, which puts out 50.1 HP (36.9 kW) at its maximum rev/min. of 7,200. Maximum torque of 5.3 kg-m (52.0 Nm) is developed not far down the rev-range at 6,000 rev/min. and it is this relative proximity of the maximum torque and maximum horsepower points which results in an engine that pulls-like a steam train from low revs almost all the way up through the power band.

The "oversquare" short-stroke engine has a bore and stroke of 75 x 74 mm, giving an actual displacement of 653 cm<sup>3</sup>. Compression ratio is 8.4 : 1, carburetion is by two Mikuni 38 mm carburetors and ignition is via battery, contact-breakers and coils. An AC generator handles the battery charging duties and an electric starter is another feature of the power unit.

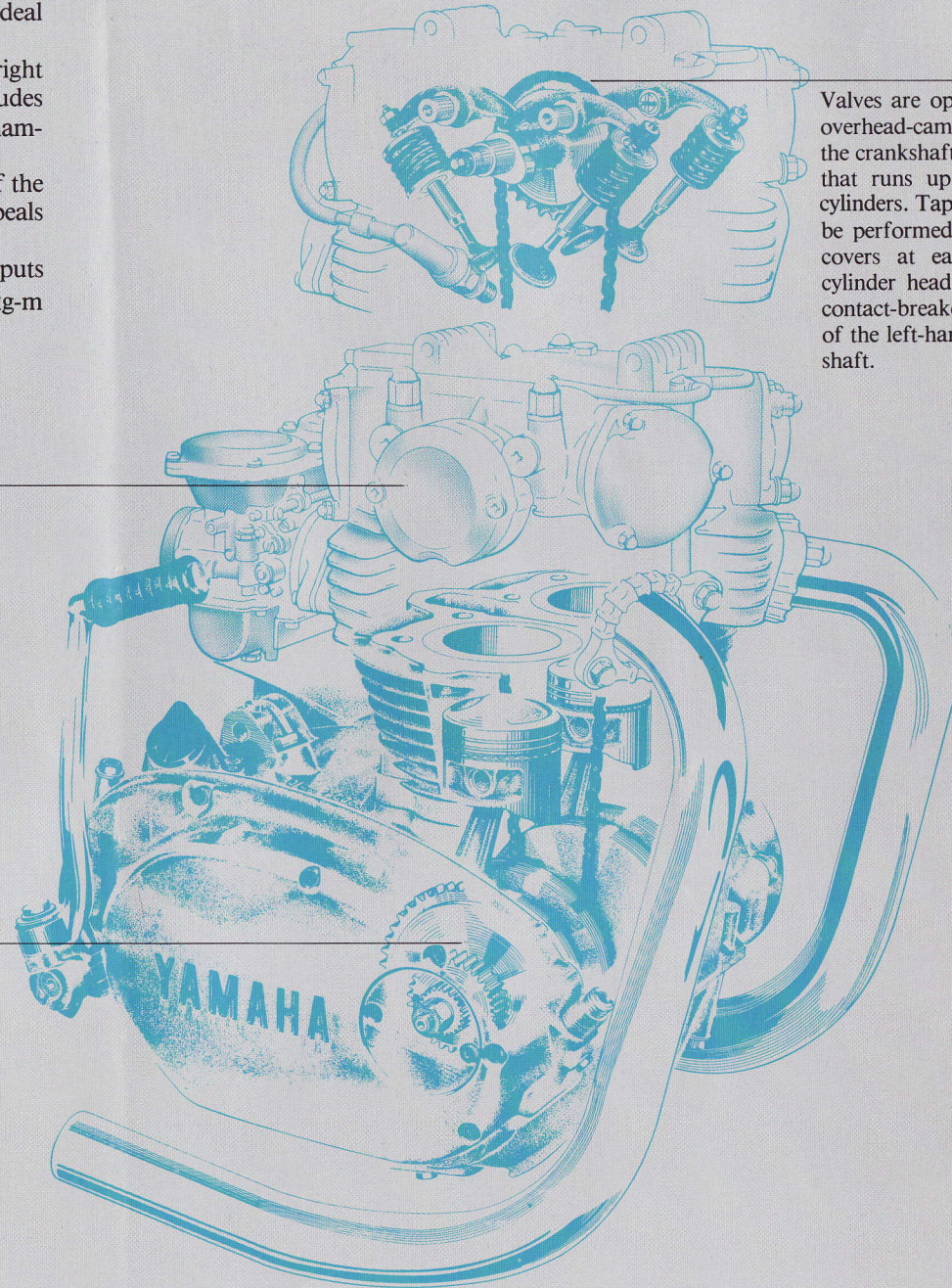
Lubrication is pressure-fed from an integral wet sump and geared primary drive transmits the power to the five-speed gearbox.

The clutch is a multi-plate unit running in an oilbath and final drive is by chain to the rear wheel.

Over ten years of constant development have made the XS650 power unit a solid, reliable performer that is not beyond the capabilities of the average owner when it comes to maintenance or repair work.

An automatic ignition advance/retard unit is driven off of the right-hand end of the single overhead-camshaft. This ensures a retarded ignition spark for easy starting which is then automatically advanced as the engine revs rise. Coupled with the quick-starting abilities this also results in better fuel economy.

Oil for engine and transmission lubrication is contained in an integral wet sump and then pressure fed via a gear-driven pump to the various parts of the power unit. Access to the pump for maintenance or adjustment purposes is through an inspection plate in the right-side engine cover.



Valves are operated via a single overhead-camshaft driven from the crankshaft via a timing chain that runs up between the two cylinders. Tappet adjustment can be performed via the inspection covers at each corner of the cylinder head while the ignition contact-breaker unit is driven off of the left-hand end of the camshaft.

Left-handlebar grip features the controls for the headlamp flasher and dipswitch, the horn and for Yamaha's unique self-cancelling turn indicators. These automatically switch themselves off after the rider has completed his turn!

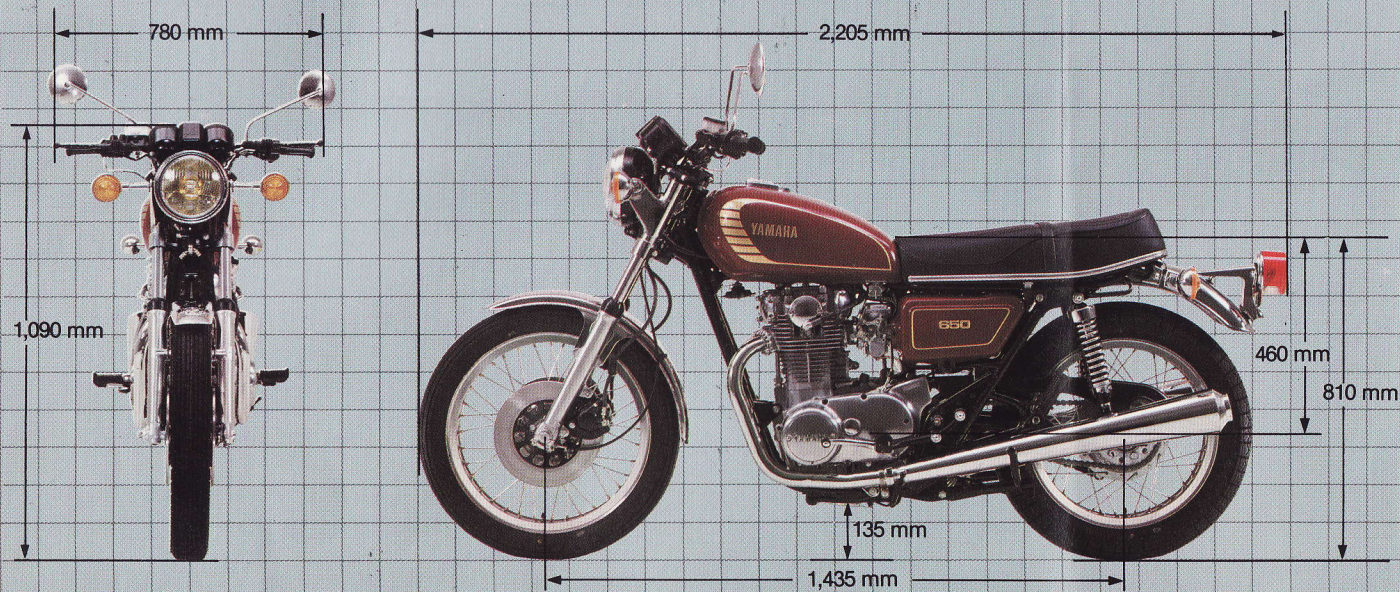


Fluid reservoir for twin front disc brakes is on the right handlebar grip. Bell-crank levers give extra leverage. On the twistgrip bars are engine cut-out switch, lights switch and electric starter button.

The speedometer with resettable odometer occupies the left-hand position in the instrument console with ignition switch adjacent plus warning lights to indicate low oil pressure or low generator charging rate.

Tachometer gives the rider an indication of engine speed. It also contains warning lights indicating when brake adjustments are needed and high-beam indicator for the headlamp. Turn signal flasher lights are at the top of the adjacent instrument panel.





## SPECIFICATIONS

### ENGINE

Type . . . . . 4-stroke, S.O.H.C, twin  
 Displacement . . . . . 653 cm<sup>3</sup>  
 Bore & Stroke . . . . . 75 x 74 mm  
 Compression ratio . . . . . 8.4:1  
 Max. horsepower . . . . . 36.9 kW (50.1 Hp) @7,200 rev/min.  
 Max. torque . . . . . 52 Nm (5.3 kg-m) @6,000 rev/min.  
 Lubrication . . . . . Wet Sump  
 Primary transmission . . . . . Gear  
 Final transmission . . . . . Chain  
 Starting system . . . . . Electric & kick  
 Gearbox . . . . . 5-speed  
 Carburettor . . . . . Mikuni, BS38 (x 2)  
 Clutch . . . . . Multi-plate, Wet  
 Battery . . . . . 12 V, 14AH  
 Charging system . . . . . A.C. generator

Ignition type . . . . . Battery, CD/Coil

### DIMENSIONS

Overall length . . . . . 2,190 mm  
 Overall width . . . . . 780 mm  
 Overall height . . . . . 1,090 mm  
 Wheelbase . . . . . 1,435 mm  
 Seat height . . . . . 810 mm  
 Ground clearance . . . . . 135 mm  
 Weight (net) . . . . . 217 kg  
 Fuel tank capacity . . . . . 15.0 lit.  
 Oil capacity . . . . . 2.5 lit.  
 Tires Front . . . . . 3.25H-19-4PR  
 Rear . . . . . 4.00H-18-4PR  
 Brakes Front . . . . . Hydraulic discs  $\phi$ 298 x 2  
 Rear . . . . . Drum

*Specifications subject to change without notice.*



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