

## YZ250 SELECTED ENERGY INDUCTION

Motorcyclists have always regarded high performance two-stroke engines as high-revving power units with a lack of pulling power in the low and mid-range.

Now, with a simple modification to their two-stroke induction systems, Yamaha have proved that it is possible to have a smooth torque in the lower rpm range without sacrificing anything at all in terms of top-end power.

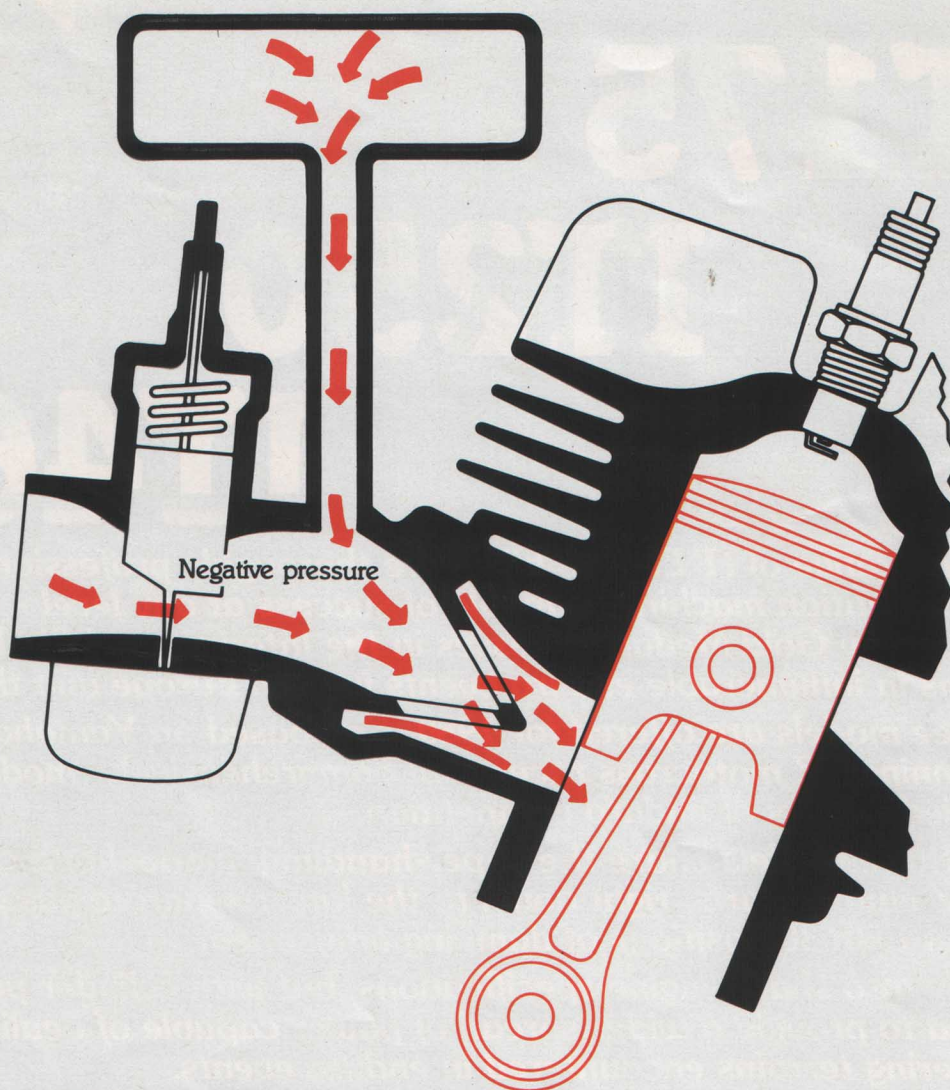
In studying the intake characteristics of the typical two-stroke engine, Yamaha research staff noted that airspeed through the inlet tract fluctuated wildly at small and medium throttle openings, causing hesitancy in the intake and combustion of the fuel/air charge.

For example, when the reed valve on Yamaha's Torque Induction system is open, air flows quickly through and into the engine. When the valve is closed, that flow of air and fuel comes to a virtual halt ... a process which is repeated on every single stroke of the engine.

The aim of Yamaha's Energy Induction system is to maintain a constant airflow at low throttle openings, the same constant airflow that the engine gets when the throttle is wide open.

Yamaha engineers have achieved this in a devastatingly simple fashion. An external reservoir is connected to the inlet tract by a hose which enters the tract between the carburetor and reed valve block.





# FOR YAMAHA SYSTEM DEBUT

The system utilizes the vacuum effect of crankcase pressure to control delivery of fuel from the reservoir into the engine. When the motor is on its intake stroke, the reed valves open and crankcase vacuum draws the incoming fuel/air charge straight past the mouth of the YEIS hose and into the engine.

When the reed valves close, that vacuum is replaced by a vacuum actually in the intake manifold. This sucks a fuel/air charge from the carburetor and it has nowhere to go except up into the YEIS chamber.

As the intake stroke begins again, the fuel/air charge is drawn down from the chamber and supplements the main charge on its way from the carburetor to the engine. In effect, the additional

head of fuel in the YEIS chamber comes down the hose and virtually "pushes" the regular fuel/air charge into the engine, thus maintaining a steady velocity of fuel, whatever the throttle opening.

What this allows is more precise carburetor jetting to give smooth power throughout the rpm range.

It also proves better acceleration in the mid-range and, as an added bonus, better fuel consumption due to more precise carburation.

The lack of moving parts mean that there are no maintenance worries for the owner.

Another case of Yamaha's continuing research providing a simple solution to a hitherto difficult problem.