

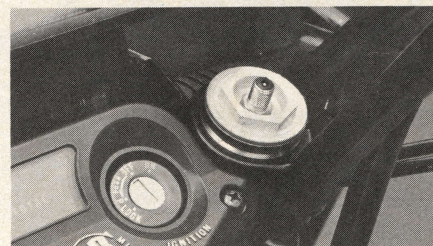
doubt, the Sabre will be remembered for its engine. We believe this V-four to be so significant that the engine itself was the subject of a thorough technical analysis last month ("Honda V-Four," *Cycle*, April 1982). While we'll not recap that technical elaboration here, some salient points should be understood. The 90-degree V-four may well be the smoothest-running, most vibration-free motorcycle engine ever built. Only one other engine is as free of vibration as the V45: Honda's GL 1100 flat four.

Other things make the V45 unit compelling. The V-four, with its common crankpin for each pair of front/rear cylinders, is extremely narrow; its width is about the same as a mid-sized twin's. The narrow engine is located lower in the frame and lower to the ground than an inline four can be. Moreover, the engine's center of gravity is lower than the crankshaft location might suggest, thanks mainly to the low positioning of the

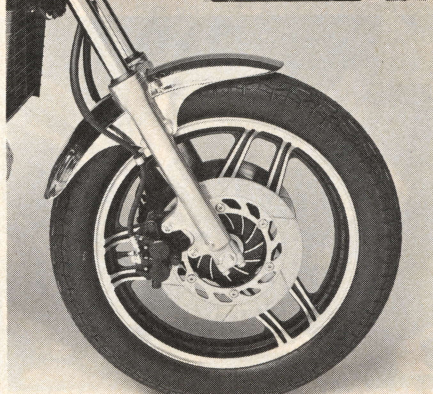
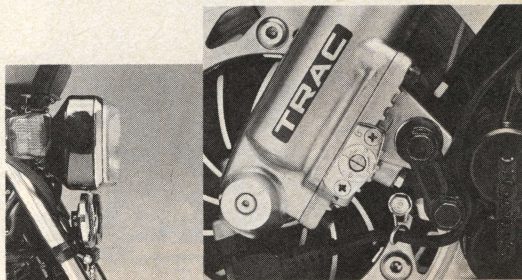
V-four's forward bank of cylinders.

Other important details: Honda continues with four valves per cylinder, but the V45 uses an open-chamber combustion chamber with a shallow Cosworth-type included valve angle of 38 degrees. Additionally, the V-four layout has allowed Honda to get very steep induction tracts; that is, to get the intake port angle as close to the valve stem angle as possible. It's a superior way to direct the incoming charge past the valves. With an inline, transverse-mounted engine, necessary parts such as fuel tanks and rider's knees restrict designers from tilting the carburetors to an angle suitable to take advantage of steep-angle induction. With the Vee layout, however, Honda can tip the intake tracts without invading the rider's space.

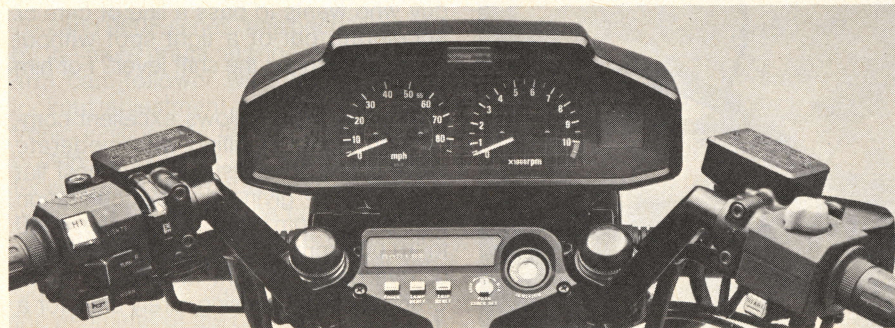
Traditionally, high-performance 750cc transverse engines have lacked mid-range punch. These bikes have power surges around 6000 rpm. That's fine if



Air-adjustable fork has valve under fork cap. Cover screws on the threaded valve which serves one tube.



Sabre has center-axle 37mm fork, substantial fork brace, TRAC, twin-piston calipers and dual discs.



Spaceship Control: LCD elements for fuel level and coolant temperature, time, trip-distance, stopwatch function; left-side master cylinder is for hydraulic clutch actuation; choke lever is bar-mounted. Bars are a bit adjustable.