

DOUBLE GUEST TEST STARTS HERE:

YAMAHA'S TR1 VEE-TWIN — THE EUROPEAN GRAND TOURER ON TEST IN AMERICA

The Yamaha TR1 is a vee-twin built specifically for European riders. For the twists and turns, the ups and downs of Europe's highways. It is interesting, therefore, to see how well America's two leading motorcycle magazines — "Cycle" and "Cycle World" — have grasped this concept.

In the USA, TR1 is designated the XV920RH and, for reasons of taxation and insurance, is a little smaller than our version here in Europe . . . only 920cc as against our 980cc. This means that the European bike is just a little quicker on top speed and acceleration. Apart from that slight difference, all of the comments in the following double test are applicable to the TR1.

YAMAHA XV920RH

European manufacturers maintain that "bigger, faster, and more cylinders" is not always better. With the XV920RH; Yamaha says, "We agree."

● IF YAMAHA DARED TO BE DARING WITH THE 750 VIRAGO, WITH THE XV920RH Yamaha dares to be direct. Because it doesn't hide under the trappings of a Special, Yamaha's biggest V-twin strikes right at the heart of European motorcycling, and that's a first for the Japanese.

Many of the attributes we credited to the Virago hold true for the 920, including the main concept behind the bike: It breaks out of the traditional Japanese mold by offering neither trend-setting performance nor wallet-sparing economy. Instead, the 920, like the XV750, is a competent motorcycle that offers mechanical individuality rather than high performance in objective terms. In this way Yamaha has invaded what was previously the exclusive domain of Old World machinery.

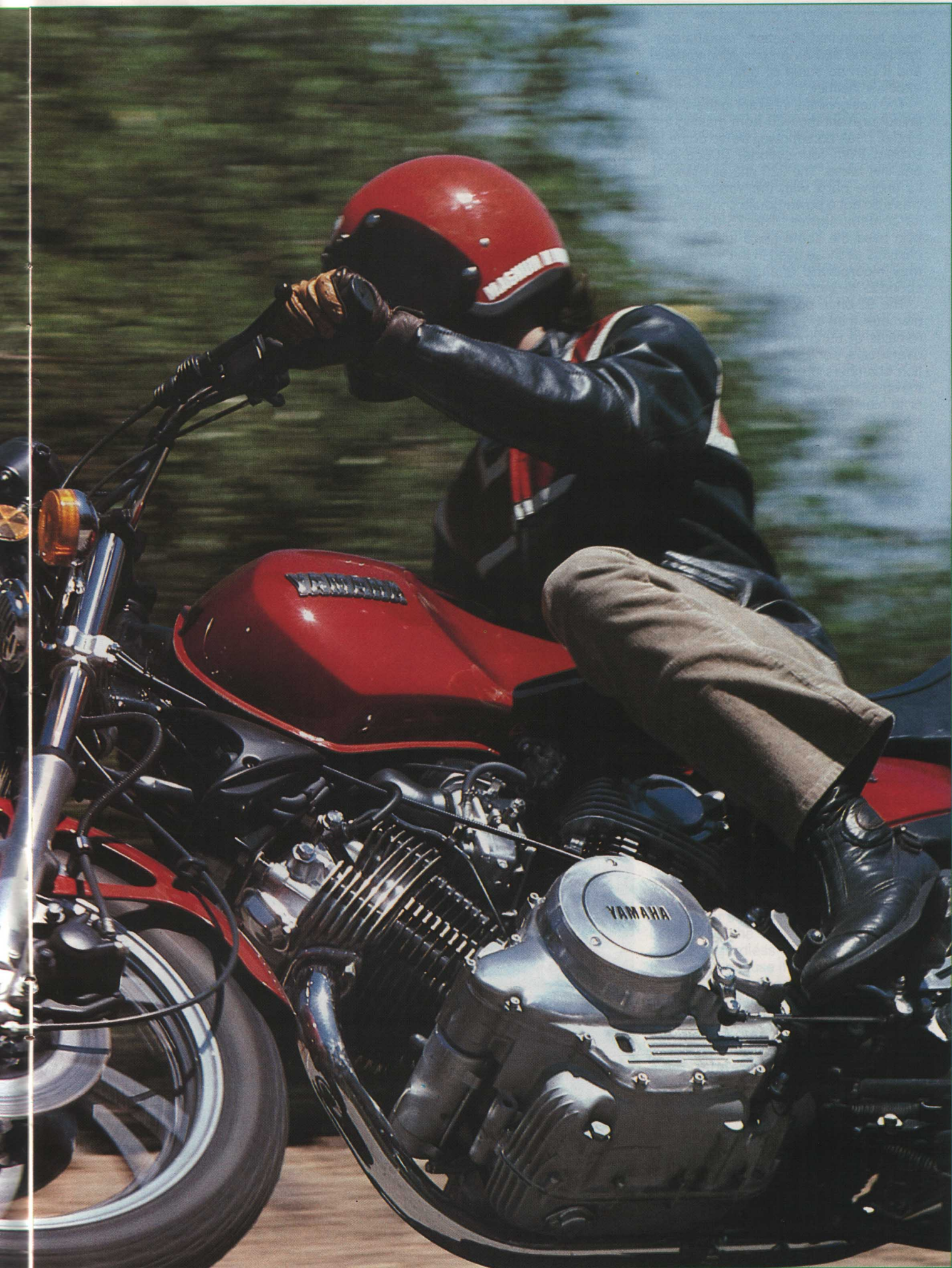
The 920 has a viable position in today's innovation-laden marketplace not because it is awesome, dazzling or brilliant, but because it's distinctly different. And the basis for that difference is the V-twin engine—its sound and feel. Because of its V-twin characteristics the 920 can stand on its own merits as a big bike without having to be trumpeted as an econo-bike or a pavement burner or a pure tourer, and it offers a fresh option in a portion of the market heretofore ignored by the Japanese.

To those raised on Japanese multis, riding the XV will be something of a revelation. The busy feel that accompanies all four-cylinder bikes to some extent is conspicuously absent. Instead, the big Vee engine gives the Yamaha a relaxing feeling that soothes the rider. The wide, flexible powerband lets you wind through miles of country backroads with a natural, easygoing rhythm. So you are left free to concentrate on the road or the scenery, depending on your preference.

The seating position is one of the more obvious changes that differentiate the 920 from the cruiser-styled Virago. The foot-pegs and controls are rear-set and the handlebar is lower and has less pull-back than those on most standard-styled motorcycles. The sculpted seat holds the rider securely in place during stints of hard riding, and while it's not a full-on café-style bike, it

PHOTOGRAPHY: DAVE HAWKINS





does lean in that direction. Yamaha designates the 920 as a sport-touring bike, and it can do some of both although it excels at neither.

The design limits inherent in the V-twin layout prevent the 920 from making the kind of peak horsepower we've come to expect from four-cylinder 900cc and one-liter bikes. The 920 shares many of its engine parts with the Virago, which was also not a powerhouse compared to its contemporaries. The 75-degree V-twin uses the same head and cylinder castings as those used in the Virago, but they incorporate changes that correspond to the increase in displacement.

The 92.0mm bore is 9.0mm larger in diameter than the 750's, and the stroke remains at 69.2mm, resulting in a very oversquare configuration. The combustion chambers are shaped like those in the smaller engine, but they are cut deeper to maintain about the same compression ratio; 8.3:1 in the 920, 8.7:1 in the 750. The 920 valves are substantially larger in diameter; a 47mm intake valve and a 39mm exhaust valve replace the smaller version's 43mm intake and 37mm exhaust poppets. The 22mm

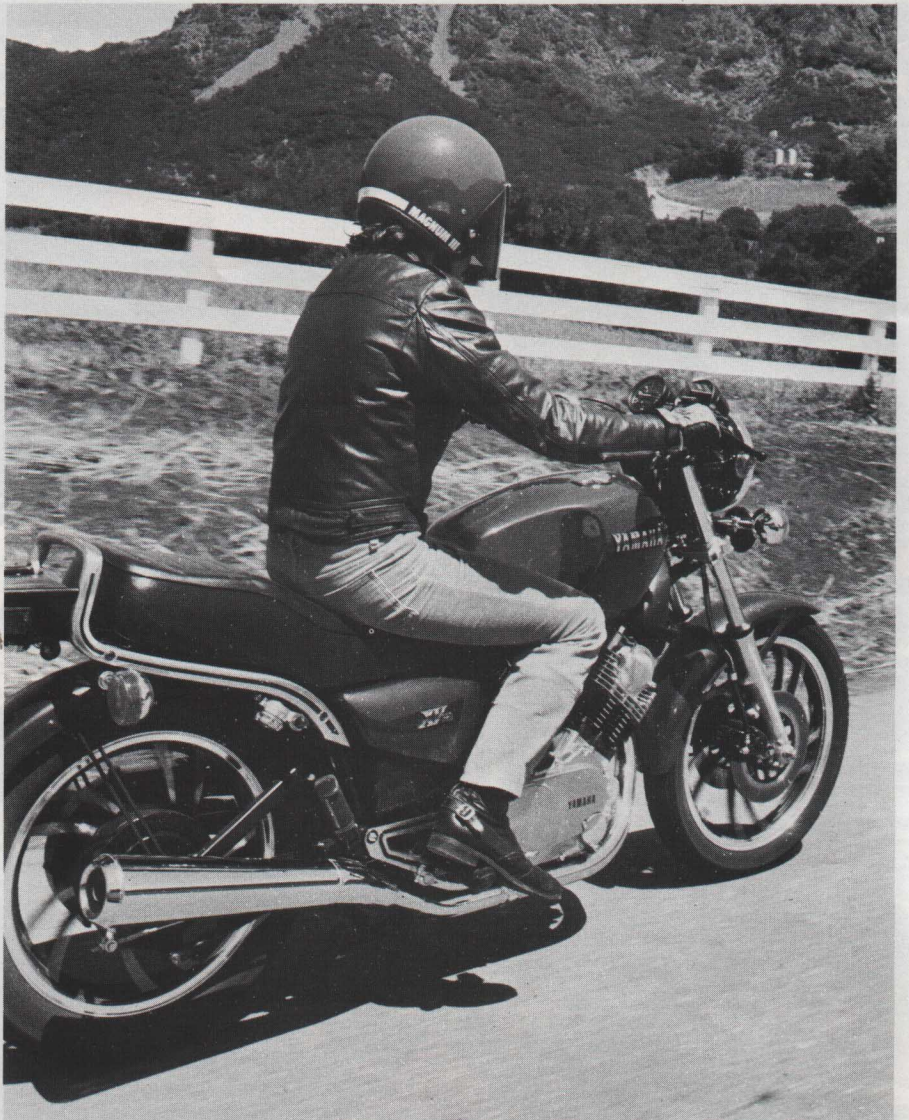
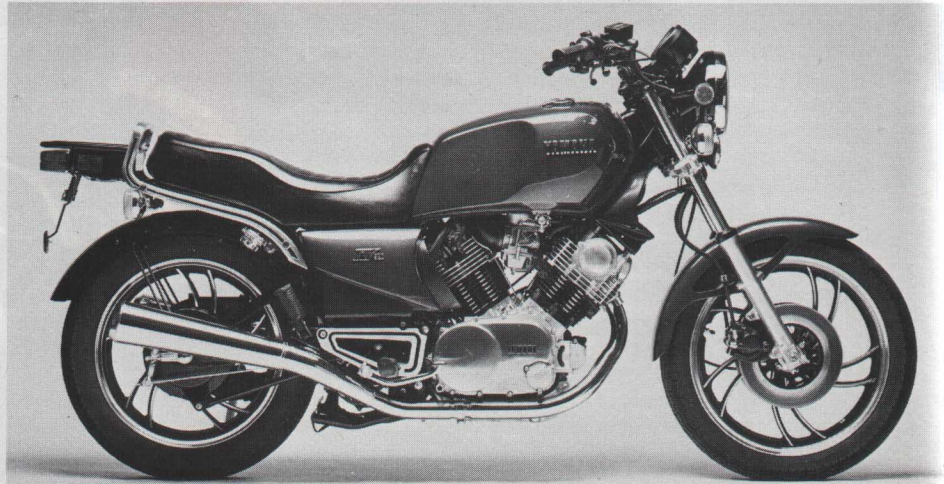
piston pins are two millimeters larger in diameter to accommodate the heavier pistons, and the 920 crankshaft uses different balance weights. Otherwise, the engines are virtually identical.

Thanks to the "reversed" cylinder layout, each cylinder requires its own timing drive to spin the single overhead camshafts. Like the 750, the 920's forward cylinder's cam is driven from the

right side of the crankcase and the aft cylinder's cam is driven from the left. A two-stage timing drive spins the camshafts via Hy-Vo-type chains in what is probably an effort to keep cylinder head bulk at a minimum. The 920's camshafts are identical to the 750's, and both bikes use threaded valve adjusters, which serve more than adequately considering the V-twins' modest redlines.

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The 920 breaks out of the traditional Japanese mold by offering neither trend-setting performance nor wallet-sparing economy. Instead, the 920 offers mechanical individuality rather than Superbike handling and horsepower.



This system also allows home-type mechanics to set their own valves easily and save a few bucks in maintenance costs.

Large straight-cut primary gears transfer power from the crank to the transmission input shaft, producing an audible howl in the process. It's not exactly annoying, but it does catch your attention the first few times you ride the bike. The transmission shafts are staggered ver-

tically to reduce engine length, with the output shaft positioned below the input shaft and the transfer shaft. Incorporated into the transfer shaft is a spring-ramp system that cushions the drivetrain.

The difference in means of final drive separates Yamaha's two V-twins. The 920 is chain-driven, whereas the 750 is shaft-driven. The 630 chain is totally enclosed and constantly bathed in a lithium

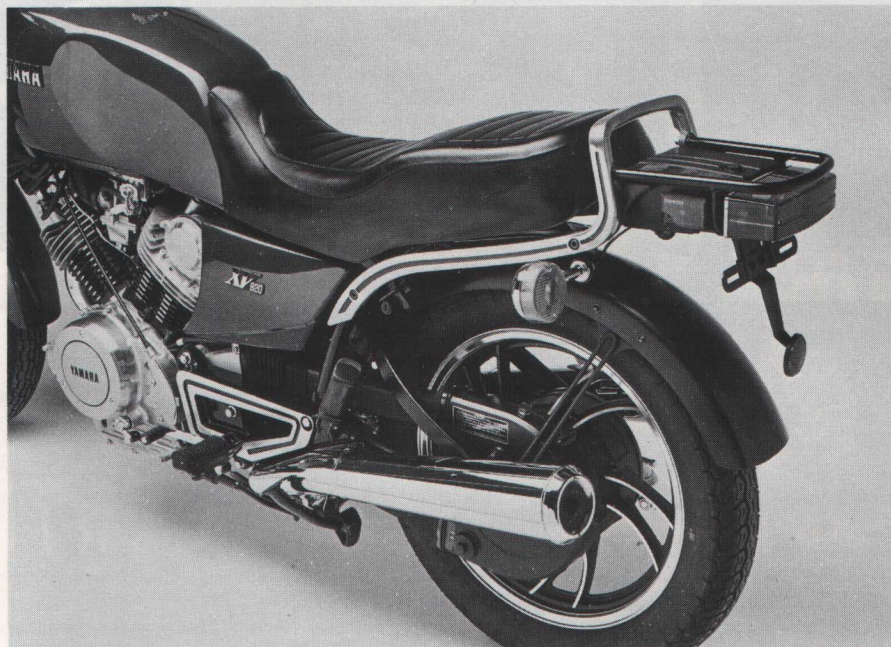
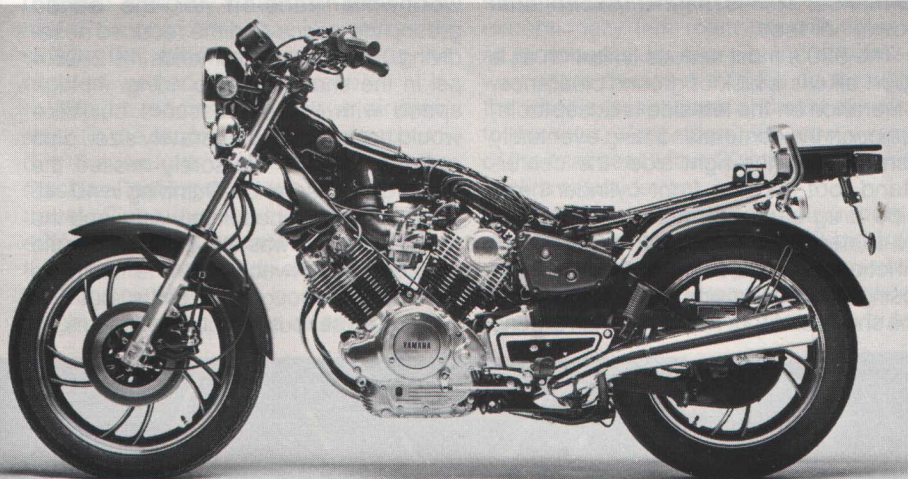
grease. The front and rear sprockets are enclosed in aluminum cases, and the front chain case features a steel case-guard insert to prevent wear on the soft aluminum from a too-loose chain. A pair of rubber tubes connects the front and rear cases, and they have bellows-like ends near the countershaft sprocket so they can flex with swing-arm movement.

The gearbox ratios are identical to those used in the Virago, but a different final-drive ratio produces slightly taller overall gearing in the 920; while the 750 spins a little over 4000 rpm in top gear at 60 mph, the bigger bike turns about 3800 rpm. The engine's broad powerband causes the spacing between gears to feel too close; short-shifting the engine feels natural, and you can easily turn the XV into a three-speed by shifting twice from first gear to third, then twice again from third to fifth. The big Yamaha has a long shift throw and the lever engagement has a little too much of a "notchy" feel to it. Thanks to this less-than-perfect shift action and the pronounced engine flywheel effect, it's best to shift the 920 leisurely. We missed shifts occasionally when hurrying, particularly the third-to-fourth upshift.

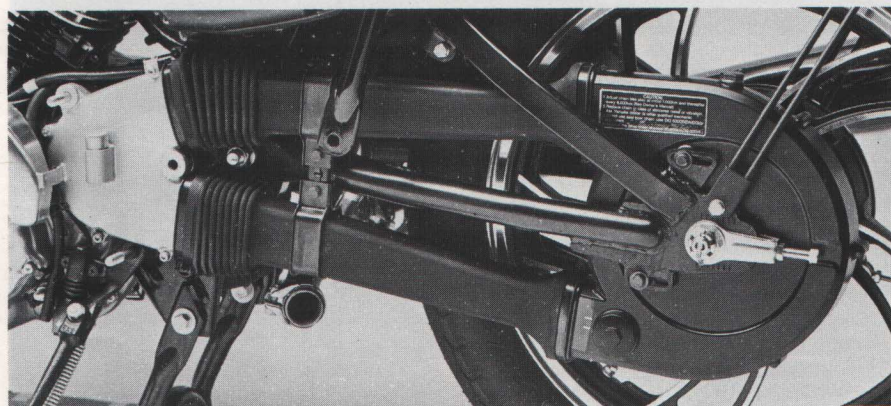
The 920 engine pulls from as low as 1500 rpm, albeit roughly and reluctantly. It smooths out at about 2000 rpm and really makes power from 2500 rpm up. The XV pulls past the modest 7000-rpm redline, but the engine feels strained at over 6000 rpm. When you buzz the engine up tight during spirited backroad scratching, the vibration is noticeable but not problematical; and since 6000 rpm in top gear works out to 95 mph, few people will be cruising at this speed. Although the engine feels strong down low because the engine doesn't have to turn at ultra-high speeds to make power, don't imagine for a moment that the 920 pumps out Superbike-class power in stock trim; our Yamaha turned a 13.26-second quarter mile, putting it squarely in the company of the latest crop of 550 and 650 four-cylinder middleweights. Many prospective buyers may bypass the 920 for this reason alone. Others will be drawn to the Yamaha by its big V-twin engine regardless of straight-line performance because it is so different.

The XV920's handling is good but not superb. The Yamaha's steering is slower than average, but not overly so. The 920 has one degree less rake and 0.28 inches less trail than the Virago, but it has a swing arm about one inch longer, which produces a net 0.6-inch increase in wheelbase. The XV is not especially light; at 539 pounds fully gassed it's only about 28 pounds lighter than a Suzuki GS1100 or a Kawasaki GPz1100. You can pick the bike up and change lines halfway through a corner if necessary, but the bike prefers to carve through turns by following one steady arc.

Both Yamaha V-twins depart radically



The unusual tail section includes a small "trunk" that houses a light chain for added anti-theft protection.



The 920 uses a chain final drive. The chain is fully enclosed and is constantly bathed in a lithium grease.

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from the norm in the chassis department. They feature a pressed-steel mono-coque frame that uses the engine/gear-box as a stressed member. The box-section backbone serves triple duty as a still-air box for clean air traveling from the air filter to the 40mm Hitachi carburetors and as a tie-in point for the mono-shock rear suspension unit.

The monoshock rear suspension system is adjustable for air springing and features 20 damping settings, but the standard six damping settings provide a useful range. If necessary, you can change the cable settings at the shock's ring adjuster; the process, though, is neither quick nor easy. The "hardest" of the six factory-determined settings gives enough rebound damping for fast riding through bumpy sweepers, even with a passenger aboard. However, when you

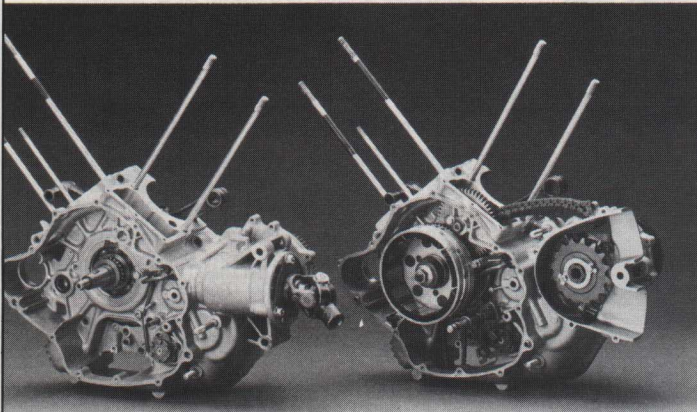
charge hard through the canyons a number of other handling-related deficiencies turn up.

The brakes are acceptably strong, but their feel could be better. The dual front discs do not respond in a linear manner; they are a little grabby initially, then only a considerable increase in pressure at the lever will increase braking power. The rear drum brake has average performance; it has neither exceptional power nor feel.

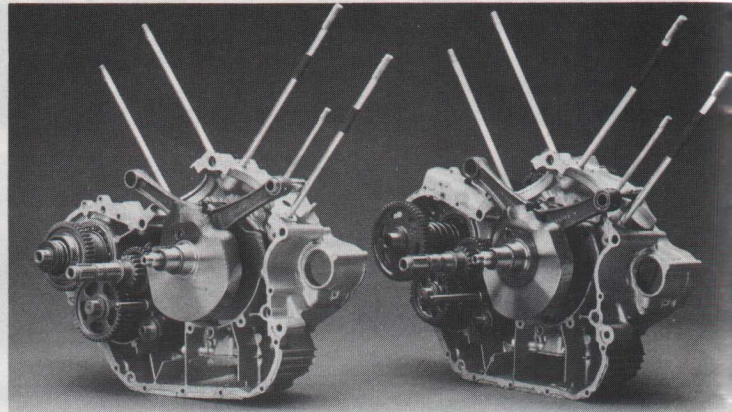
The 920's most serious limitation as a sport bike is a lack of ground clearance. Clearance on the left side is acceptable, although the centerstand tang eventually scrapes. On the right side, the centerstand foot and the front cylinder head pipe drag early and heavily; thoughtful go-fasters will work within these restrictions to avoid unloading the bike and losing traction. Raising the air pressure in the shock and fork helps maintain ground

clearance, but high pressures bring on other problems.

The fork is a center-axle air-assisted unit with fork tubes one millimeter larger in diameter than the 36mm tubes on the 750's leading-axle fork. Six to twelve pounds of air provide supple fork action, but we turned to 20-plus pounds for hard riding. At this setting the fork feels harsh and underdamped; that, however, is a worthwhile trade-off for the added ground clearance and the reduced nose-diving. Yamaha recommends 14.2-28.4 psi in the shock for solo riding. At high speed with these pressures our bike would bottom over moderately sized dips and bumps, and we sorely missed the lost ground clearance. Pumping in 40-45 pounds of air helped immensely, and the shock damping was still good. We could evoke a small twitch from the frame as we banged through fast shifts, but that caused no serious handling problems.



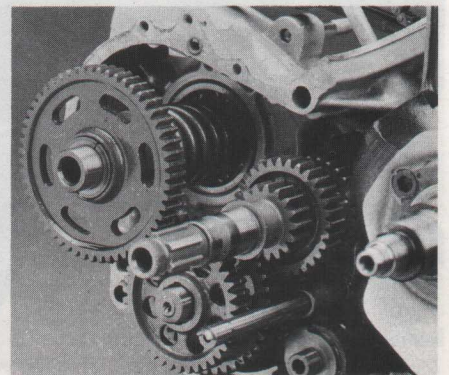
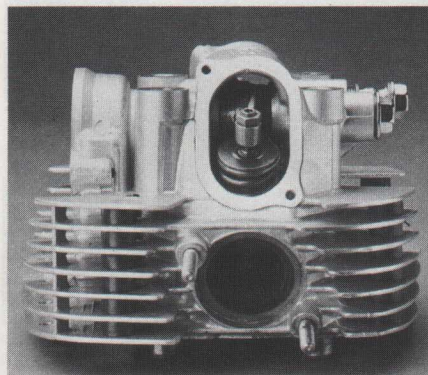
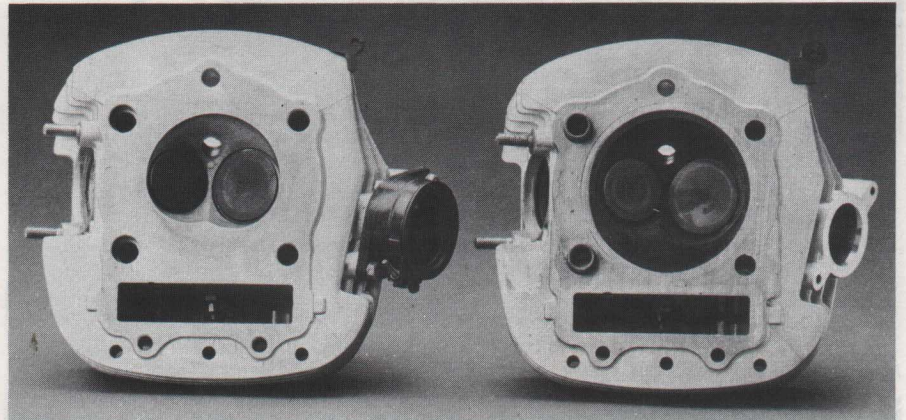
The 750 and 920 cases differ only because of the two types of final drive.



The 920 crank (right) has a larger piston pin and different balancing weights.



Clockwise from above: The 920 piston is a hefty 9mm larger in diameter. The two heads use the same castings, but the 920 has larger valves and a deeper combustion chamber. The transmission shafts are staggered vertically to reduce engine length. Screw-type valve adjusters make for easy maintenance by economy-minded home mechanics.



Despite the impressive amount of adjustability, we never arrived at a setting that gave a truly plush ride. It seems that low air pressures in the suspension components should give Cadillac comfort just as higher pressures improve high-speed performance; it is not that simple. Like the 750, the 920 uses air pressure to assist a two-rate coil-shock spring. The larger XV, however, has an initial spring rate that is slightly softer than the 750's, and a second stage that is significantly stiffer. This difference compounds the problem we had with the Virago.

With the recommended lower air pressures in the shock, the rear end sags under the weight of the rider and the machine, leaving only two inches or so of travel. Since this travel is mostly governed by the stiff secondary spring rate, the result is a harsh ride and early shock bottoming. More air boosts the ride height, but the increased air springing re-

duces the shock's responsiveness to small pavement irregularities. We could not arrive at an air setting that would give a soft ride without bottoming, so we had to choose one or the other; we stayed with the high air pressures and the buck-board ride. Although switching damper settings affects handling, a full-range change does not improve ride quality.

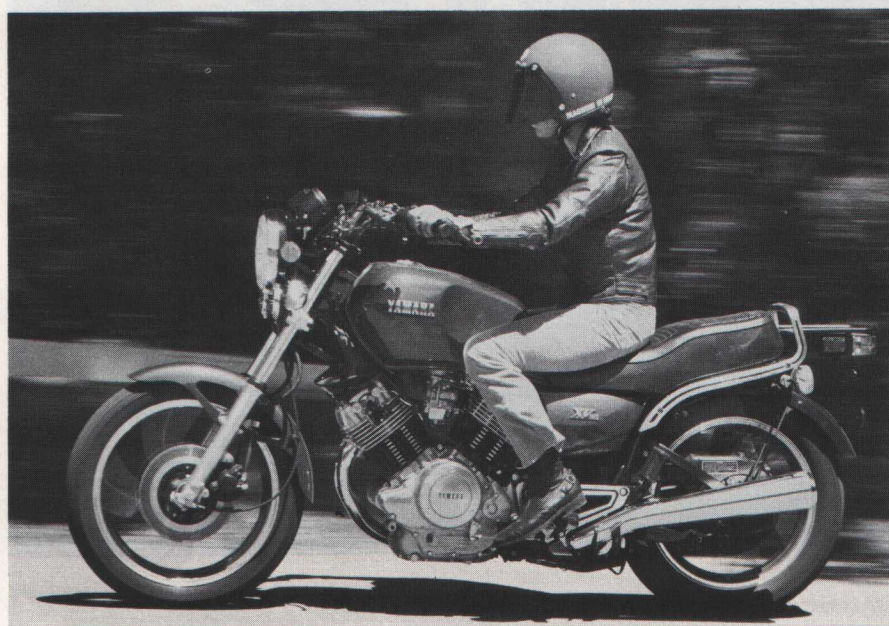
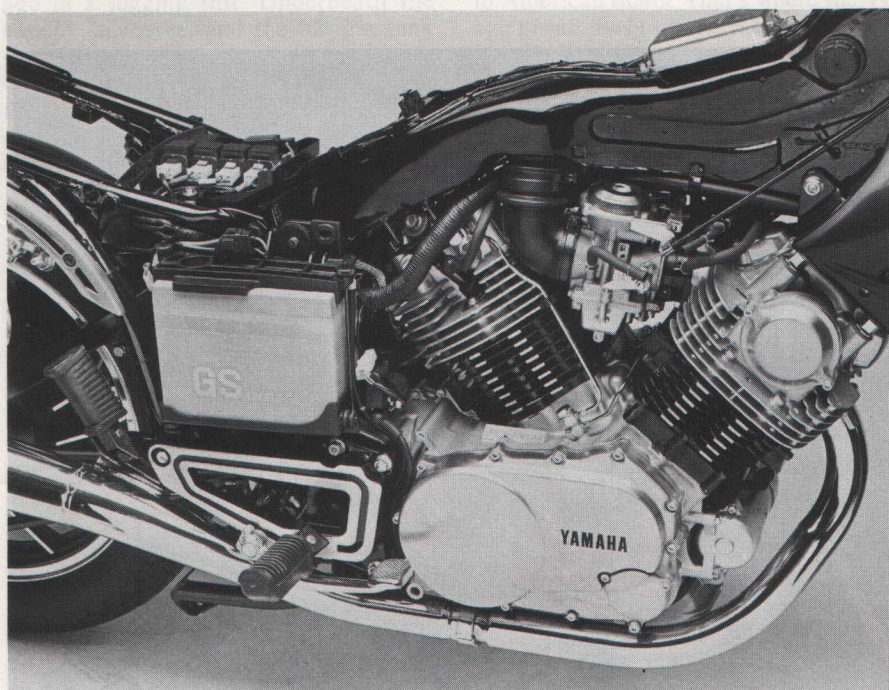
This harsh ride was exacerbated by the stylish but thinly padded seat. The exceptionally firm foam doesn't "give" as most seats do; every bump and freeway seam passes a mild jolt up through the wheels, suspension and seat directly to the rider. Most riders will grow weary of the hard seat within 90 minutes and will seek a roadside rest.

Otherwise, we had only minor complaints about comfort with the big Yamaha. The 920's seating position is vastly superior to the Virago's cruiser-style positioning. A couple of testers would

prefer a handlebar with even less rise and pullback, and one rider disliked the battery cover, which crowds the right leg out into a semi-bowlegged attitude. No one considered the ever-present vibration offensive; in fact, most testers liked the gentle pulsations the engine passed on to the rider.

The XV has an excessive amount of driveline snatch, which can sometimes irritate the rider. Around town and on winding two-laners the bike alternately dives and lurches as you roll the gas on and off. We shifted to a higher gear to minimize this phenomenon. The clutch is a bit grabby, which can add to this problem; however, the clutch served admirably throughout our drag-strip abuse.

Although the CV carbs do not add to the driveline problem, they create a few quirks of their own. The 920 is cold-blooded in the morning and shows a distinct aversion to running sans choke



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before reaching full operating temperature; our XV would stutter and afterfire unless we left the choke on partway. Thankfully, Yamaha has located the choke lever on the left side of the handlebar where it's easy to adjust with the left thumb while riding. We had a slight problem with the choke cable slipping through the carb-mounted lower stop; the ferrule on the end of the cable housing tended to distort and slide through. Our 920 would afterfire on occasion even when warm, and it would detonate under load despite the low 8.3:1 compression ratio. Our gas mileage with the XV ranged from 37 to 47 mpg. The average worked out to 39.6 mpg, which is slightly below average for bikes displacing 850cc to 950cc. With the five-gallon tank

brimming full, you should be able to cover 170 miles before hitting reserve.

Noteworthy features include an oversized quartz headlight and an unusual miniature tail "trunk." The light is a tad over eight inches in diameter and throws a bright, broad splash of light. The tail trunk holds a small chain that can be used to secure the bike to a solid object like a light post. The ignition key doubles as the key for the integrated chain lock. On one occasion we used the chain to secure a second full-face helmet since the 920 comes equipped with only one helmet lock. To protect you from occasional lapses in memory, Yamaha has incorporated a kill switch into the sidestand. The bike runs with the sidestand down if the bike is in neutral; if the sidestand is down and the bike is in gear, the clutch lever must be pulled in.

The XV920 serves notice that Yamaha thinks the practical limits of performance have already been reached by Superbikes, and American riders can be engaged, even captivated, by a different sort of motorcycle. Now that the upper level consists of tire-burning, wheel-standing 1100s that can strike awe into the stoutest of hearts, there is an extremely small percentage of riders who can truly use all the potential performance such machines offer. The 920 says that Yamaha believes there are guys out there who would like to be different on a V-twin and are willing to sacrifice some speed and power to gain distinction. It also says that there are times when slower is smarter. The European manufacturers have been saying that for years, and now Yamaha may have found a way to say it better. ●

