HONDA CB-500T

The 500T has Japanese engineering, British baroque styling, and Detroit-City packaging. Did the CB-450 really need all that?

COLOR PHOTOGRAPHY: BILL DELANEY

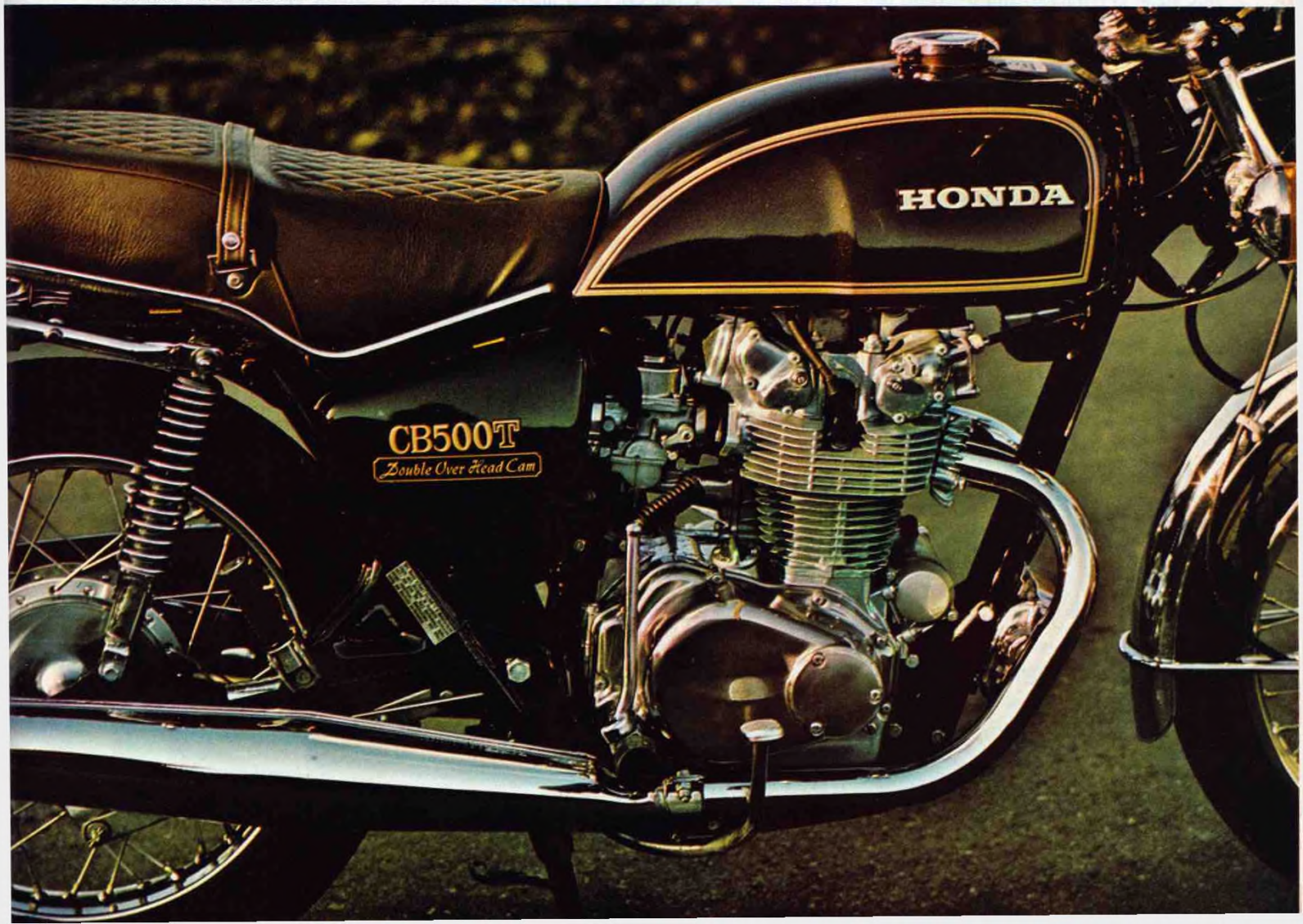
● The CB-450 landed in America in 1965; it has endured, earning its ten-year campaign pin. That's a hard thing to do, because time clocks in Japan run full-speed ahead. Motorcycles like the CB-450 quickly get upstaged by newer products with more brio—like the four-cylinder CB-500/550 series. So the Japanese begin to refine the older models, which inevitably become more civil and more appliance-like. The things get quieter, more dependable, better packaged and less obtrusive. Enter the Honda CB-500T.

Hard-core, fast-riding enthusiasts will snicker at the CB-500T, which has been so patently styled and so thoroughly processed into the cult of appliqué. However, riders who are not consumed by the sport of motorcycling will find the CB-500T a pleasant, reliable, and generally fulfilling motorcycle.

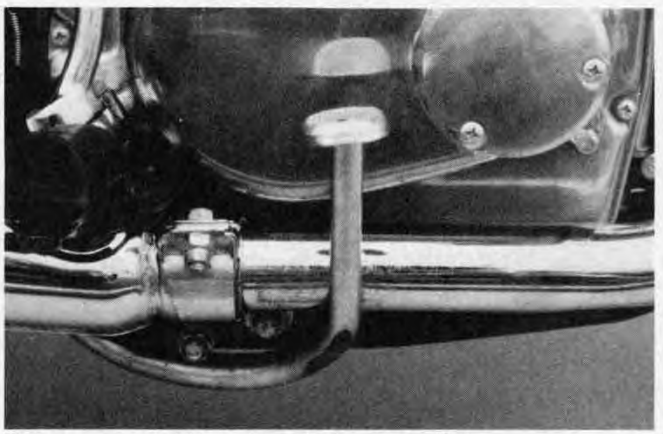
For the demanding enthusiast, the Japanese can—and do—produce motorcycles which are civil and refined like the CB500-T, *and* which stop quickly and motor like gangbusters. The supreme example is the Kawasaki Z-1. The 903 could come equipped with a velour-covered saddle and carry flower-vases on its directional-signal stalks, but that wouldn't alter one fundamental thing: a motorcycle with good handling, fine brakes, and an honest-to-dynamometer 83-horsepower engine can never be dull.

Or consider the GT-550 Suzuki. Like the Honda CB-500T, the Suzuki is refined and stylized. Yet the Suzuki feels alive. Blessed with substantial ground clearance, good roadholding and strong brakes, the Suzuki is fun to ride briskly.

The CB-500T is just as refined and civil as the GT-550, but the Honda can't be ridden with real gusto. Vibration comes dancing out of the engine, and very little



The sidestand grounds out on the left side. Loop makes it convenient to toe up and down.



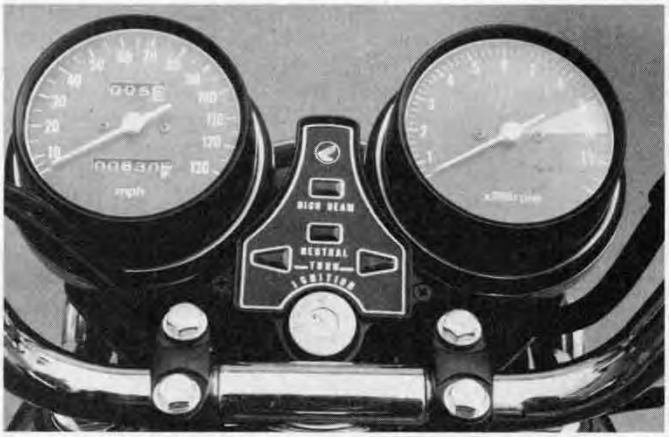
When cornering briskly to the right, the rear brake lever scrapes severely. If it bangs into the tarmac really hard, then the rear wheel picks up.

cornering clearance exists. So, unlike the Suzuki, the Honda 500T seems subdued. The demanding enthusiast would find the twin-cam twin has two basic speeds—murmer and low murmer.

Understand that the easy-going rider or the economy-minded commuter may find murmer-riding quite satisfactory. He might not mind the trade-offs which Honda has made with its 500. The sidestand makes a good case in point. The prop is a sturdy thing, which has a loop arching out for easy toe-downs. The foot carries one rubber cushion to quash rattles when the stand is retracted, and a second that retracts the stand should you ride off forgetfully. Most important, the sidestand has a big footprint. Anyone who has had a thin tubular sidestand knife through soft asphalt can appreciate the wisdom of a wide sidestand footpad. This feature is especially helpful to those riders who don't want to lug the bike up on its centerstand every time they park.

The centerstand, however, has a problem which becomes apparent if a rider tries any half-spirited cornering. An experienced rider (or an easy-rider who suddenly needs to cut a tighter line through a corner) would discover that the CB-500T has an alarming lack of cornering clearance. On left handers, the bike grounds in three different places. First contact usually occurs under the left footpeg where a little hollow metal ball functions as an arrested curb feeler. Since the pegs fold up and back, one can grind the little balls right off the bottoms of the pegs. Next, the sidestand and centerstand ground out, and those touch-downs result in some genuinely lurid slides as the rear wheel loses contact with the pavement. Staff members tolerated the 500's skittery behavior during a mountain riding session. Anyone aboard the 500T produced a light-show of sparks and a fancy routine of side-sliding for those following the Honda twin. No one tailgated the Honda. Every staffer felt that he would eventually toss the CB-500T down the road unless he backed off to a low-heat pace.

The sidestand is an example of "convenience engineering" that gets directly in the way of an important function—roadholding. The novice-commuter rider might never be aware of the sidestand problem. Perhaps. But neither the beginner nor the hard-riding enthusiast should have to choose between a soundly-designed sidestand and adequate roadholding. These are not incompatible elements. Japanese companies have the money and resources and talent to construct sidestands which will not imperil roadholding. European bikes, so often victims of *ad hoc* engineering, have plau-



At speed, the small panel between the beautiful instruments almost hums with vibration. Ignition key switch also incorporates the fork lock.

The awkward location of the dimmer switch allows rider's thumb to foul horn button.

sible—but still inexcusable—reasons for such failings. The Japanese companies have not a shadow of an excuse.

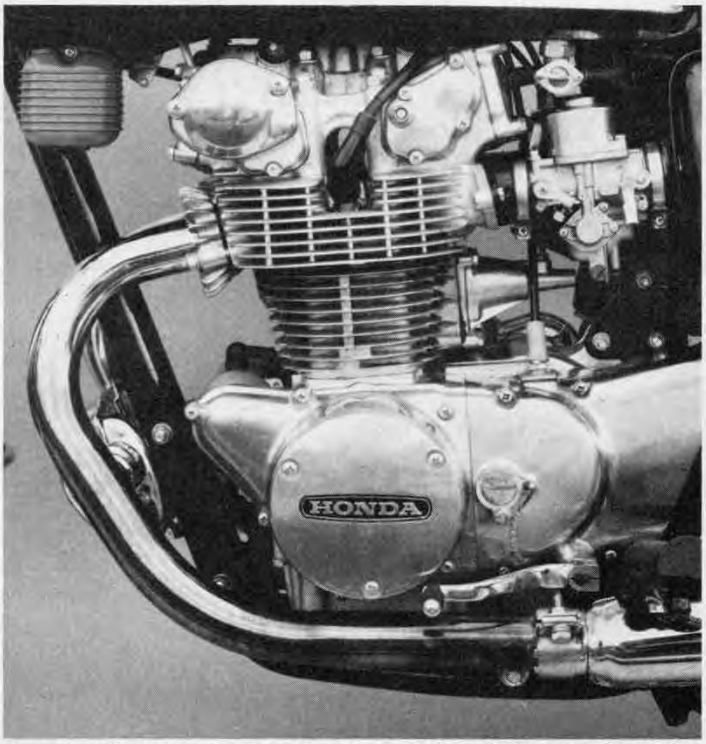
One probably can't ride the CB-500T hard enough to fully test its handling capabilities, but this much can be said. The front wags and shudders a bit on heavy downhill braking, and the rubber-socketed handlebars, which squirm noticeably under heavy acceleration and deceleration, won't add much to your confidence. Neither will the driveline slop—which delays the response between the engine and rear wheel. You'll also find that the rear end is stiff and hammery. The pounding lessens if you dial the shock absorber springs to their lowest pre-load. But in the interest of preserving as much ground clearance as possible for as long as possible, we jacked the rear springs up to their highest (and next-to-highest) preload position.

Admittedly, the CB-500T produced its most thrilling moments when skating about on its undercarriage. But the 500's biggest surprise was found right in its technical papers: Honda increased the displacement from 444cc to 498cc by *stroking* the engine. The CB-450 had bore-and-stroke dimensions which measured 70mm *x* 57.8 mm. The 500T moves 70mm pistons up and down 64.8mm. The CB-450 had sufficiently thick liners to offer Honda the simple expedient of opening the bores to 74mm. This would have created a 496cc twin. American and European speed merchants used to perform such open-cylinder surgery regularly on old CB-450s.

According to sources at Honda, Japanese engineers rejected boring for displacement. Since bigger pistons would increase crankshaft loads, Honda technicians concluded that the CB-450 crankshaft would have to be modified in order to absolutely guarantee Honda-type reliability. Clearly, if larger pistons would mean crankshaft modifications, then a simpler route opened up. Handle the whole displacement-increase in the crankshaft with one operation.

To increase the stroke by seven millimeters, Honda repositioned the crankpins, moving them farther away from the crankshaft's centerline. That kind of modification usually means a lengthening of the cylinders, but there's no need to change the cylinderhead. And indeed, the 500T cylinderhead is exactly the item fitted to CB-450 K7.

CB-450 owners have no way of using the new 500 crankshaft. The CB-450 series employs roller bearings to support the crankshaft, but the 500T has large ball bearings. Ball bearings are much more tolerant of crankshaft flexing than roller



A seven-millimeter increase in the stroke boosted the displacement from 444cc to 498cc. But the 500T's performance is less than the old CB-450.

The resonator/connector pipe looks a bit lumpy, but it helps the 500T to whisper along at 75.5 db(A).

bearings, and it's a good bet that the 500T crankshaft will flex a bit more than the old short-stroke 450 crank.

Compression ratio has taken a dip, compared to the 9.0:1 pistons found inside the last CB-450s. The 500's three-ring pistons still have a fair-looking dome, and they're quite similar to CB-450 pistons. Many reasons account for dropping the compression ratio to 8.5:1. First, the 500T was designed to run on low-octane low-lead fuel—not a bad idea in the era of watered-down premium. Moreover, high-compression pistons might encourage the 500T to transmit more vibration to all parts of the motorcycle, but there's no immutable law which says higher compression makes the handlebars, seat and footpegs shake more. Those who closely follow road tests will recall that the high-compression BMW R90S proved smoother than the R90, which had a less sporting ratio.

Honda's concern for cleaner air has led to a "Blow-By Gas Circulator" system in the 500T. The cylinderhead contains breathers which connect to a breather box *via* tubes. The breather box is located between the air filter units; inside the box, the stuff which has been huffed out of a cylinderhead gets separated. The gas is channelled back into the air filters, where it joins incoming fresh air on the way to the carburetors, and the oil winds up in the basement of the breather element, where it trickles down a small tube and thence back to the crankcase. The breather system contains the blow-by gasses from the combustion process; without the system those gasses would vent directly into the atmosphere.

The vacuum-controlled carburetors have not increased in diameter on the 500T, but the instruments have been further refined by the addition of an "Air-Cut Valve," first seen in 1973 on the XL-350. In the old-style carburetor without the valve, it was possible to get a misfiring in the combustion chambers and after-explosions in the mufflers when the twist-grip was snapped shut quickly. The Air-Cut Valve prevents this.

When the throttle is shut rapidly from wide-open, the carburetor butterfly stops the passage of air through the main channel of the carburetor. The engine may still be spinning at 7000 rpm, so the cylinders are trying desperately to suck air. Since the butterfly has sealed off the main inbound passage for air, there's a tremendously high vacuum in the intake tube of the carburetor. The only place the engine can get any air or gas is through the slow-speed metering system; the abnormally high vacuum pulls an extra measure of air out the low-speed air circuit. Since the gas jet in the slow-speed circuit will only pass a given amount of fuel, the air-fuel mixture suddenly goes lean. This leads to incomplete burning in the combustion chamber, and then popping in the mufflers, where unburned gas collects and then explodes.

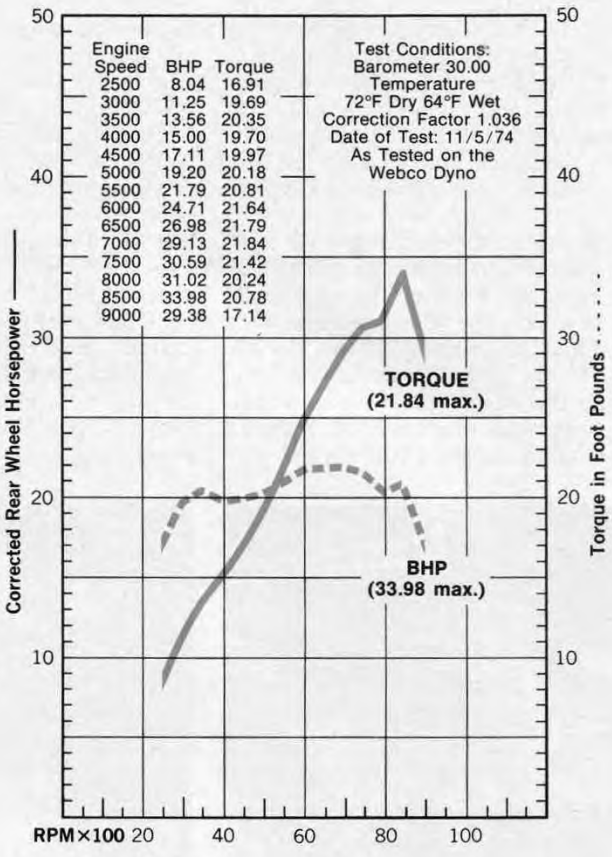
The Air-Cut Valve is composed of an air-pressure diaphragm, coil spring, plate, and plate spring. When the vacuum gets abnormally high in the intake tube, the diaphragm deflects, pushing against its spring. This allows a small plate to move (pushed by its spring). The plate blocks off the normal slow-speed air passage, and allows only a small amount of air to leak into the slow-speed circuit. Hence the air is cut, the mixture is enriched, and there's no popping inside the mufflers. Under normal conditions (such as rolling the throttle off at 4000 rpm) the diaphragm will do nothing, because there's no excessive vacuum in the intake passage, and consequently the normal air/fuel passages maintain proper metering.

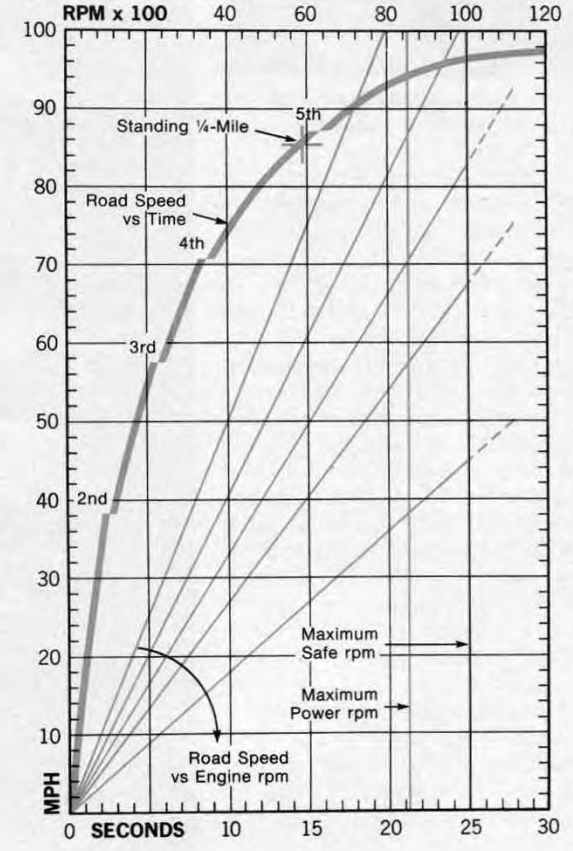
If the ingoing circuitry has become more complex, the 500T's outgoing plumbing likewise has a few new twists. Up front, Honda has bridged the exhaust headers with an interconnector which incorporates a resonator. The muffling system is effective. At 75 dB(A) the motorcycle goes unnoticed. Yet the supression of

Motoring to the left, the sidestand and footpeg touch down in shower of asphalt chips. Lack of cornering clearance is a very serious shortcoming.

HONDA CB-500T

Price, suggested retail..... $1545, POE West Coast
Tire, front .... 3.25 x 19 Bridgestone Rib Super Speed
rear .....3.75 x 19 Bridgestone Super Speed
Brake, front..... 10.75 in. x 1.6 in. x 2 (273mm x 40.6mm x 2)
rear ..... 6.5 x 1.20 in. (165mm x 30.5mm)
Brake swept area..... 116.1 sq. in. (748.8 sq. cm)
Specific brake loading.....5.39 lbs/sq. in.
Engine type .....Four-stroke DOHC twin
Bore and stroke .... 70mm x 64.8mm 2.76 in. x 2.55 in.
Piston displacement.....498cc
Compression ratio 8.5:1
Carburetion.....2; 32mm; Keihin CV
Air filtration.....Pleated paper
Ignition ..... Battery and coil
Bhp @ rpm.....33.98 @ 8500
Torque @ rpm .....21.84 @ 7000
Rake/trail ..... 27.5°/4.3 in. (10.9 cm)
Mph/1000 rpm, top gear..... 12.1
Fuel capacity
(includes 1 gallon reserve) .....4.2 gal. (15.9 l)
Oil capacity.....3.0 qts. (2.83 l)
Electrical power ..... 120 watts @ 5000 rpm
Battery.....12V, 12AH
Gear ratios, overall ..... (1) 16.53 (2) 11.04 (3) 8.93 (4) 7.26 (5) 6.13
Primary transmission .....Helical gear 3.304:1
Secondary transmission ..... 5/8 x 3/8 D.I.D. chain 15/35 2.20:1
Wheelbase ..... 56.7 in. (144 cm)
Seat height..... 30.5 in. with rider (77.5 cm)
Ground clearance ..... 5.4 in. with rider (13.7 cm)
Curb weight.... 455 lbs. (206.3 kg) with full tank of gas
Test weight.....625 lbs (283.5 kg) with rider
Instruments.....Speedometer, tachometer, odometer reset trip-meter
Sound level (California Standard) .....75.5 dB(A)
Standing start 1/4-mile ..... 14.83 sec.; 85.55 mph
Average fuel consumption .....41.5 mpg
Speedometer error..... 30 mph actual 28.79
60 mph actual 58.06





exhaust noise has depressed the straight-line performance of the Honda twin. The CB-450 K7 (as tested in the April 1974 issue of *Cycle*) clicked through the quarter mile in 14.35 seconds @ 89.28 mph. The CB-500T was not impressive, returning 14.83 seconds @ 85.55 mph. Clearly, a half-second and almost four miles per hour have gone out of the twin-cam twin.

How, you might inquire, could this have happened? In the first place, the CB-500T weighs 455 pounds wet, and that's 17 pounds more than the CB-450 K7. Furthermore, the CB-500T pulls a taller final gear than the CB-450, and that really doesn't work to the 500's advantage at the dragstrip. Close scrutiny reveals that the CB-450, run to 9500 rpm at the strip, actually gets more average horsepower on the ground than the CB-500T when it's shifted at an optimum 9000 rpm.

It might be possible that the CB-500T actually makes a little less peak horsepower than the dyno figures show. On the Webco dyno, it was physically impossible to fit the motorcycle on the test stand and still leave the interconnector bridging the two header pipes. The bike was run with header pipes plugged. Normally, taking an interconnector out of a muffler system will reduce the peak power, since the exhaust gasses have but one muffler from which to exit. A single muffler, particularly one which strangles sound, can't pass the gasses as quickly as two. So one might expect that the CB-500T would make less peak power without its interconnector.

Don't bet on it. According to the Honda engineering staff, the Honda interconnector isn't a British-style "balance pipe." Honda's "pipe" has a mini-muffler, and Honda says that this system fattens up the low-speed torque curve, but really doesn't add anything on top. At least there's a possibility that 500T actually makes more low-rpm power and less high-rpm power than the dyno chart figures show. Such a hypothesis would align nicely with the 500T's dragstrip showing.

In any event, no one will buy a Honda CB-500T for horsepower. Real comfort could hardly be an argument either. The saddle contours carry large and small riders forward to the natural pocket in the saddle. The rider finds himself butted into the trailing edge of the tank. The position of the footpegs also encourages the slow crawl forward. Once in the pocket of the saddle, the pegs are positioned a bit too far to the rear. This leaves the rider sloping forward.

Depending on your anatomical construction, you may use the rubber-

Major electrical lines (joined by snap connectors) are ganged inside the finned plastic box.

mounted handlebars to push yourself back out of the pocket; those with large and generous physical dimensions will push themselves out of the pocket only to find that the passenger-assist strap creases their hide. Removal is the only answer.

In the fork department, Honda has fit stylish new units to the 500T. The last CB-450s had legs which wore unfashionable rubber gaiters. Dowdy as it may have appeared, the CB-450 unit was internally superior to the new CB-500T fork. The 450 fork essentially had a separate shock absorber inside. The shock body was fastened to the bottom of the leg, and an internal piston controlled damping by running up and down inside the shock body. The piston rod, of course, extended to the top of the fork tube. Norton pioneered this type of fork, and the company built the "Roadholder" reputation on it.

But this type of fork is expensive to build; and manufacturers, including Honda, have been moving toward more simple damping systems.

The 500T employs a floating ring to control damping. The ring regulates the flow of oil between two areas; the first area is the central fork cavity; the second is the space formed between the upper fork bushing, the interior wall of the slider, the exterior wall of the fork tube, and the lower fork bushing. The floating ring, located above the lower bushing, lifts up when the fork leg rises, allowing the fork oil to pass quickly from the main cavity to the outside chamber. When the fork slider goes down, the floating ring drops, and the oil must pass through small holes in the ring, thus slowing the return stroke of the fork leg.

Cycle's Fork Comparison Test (July 1974) indicated that the old shock-in-the-leg system actually works better than the floating ring business. But this news should not distress owners of the CB-500T. The fork action is perfectly acceptable for highway putting, and the 500T front end delivers a reasonably soft and comfortable ride. On winding roads the 500T runs out of cornering clearance long before any front fork, no matter what type, would be seriously taxed.

Vibration is the enemy of motorcycle comfort, and the CB-500T does seem smoother than the last couple of CB-450s we've tried. Experience suggests that substantial differences in vibration levels existed between one CB-450 and the next. None was ever really smooth; it's just that some shook more than others. Our test bike trembled a lot less than the Suzuki 500 Titan, but it's still a vibrator compared to a Yamaha TX-500 or Kawasaki's KZ-400. Of course, the harder you spin the CB-500T the more it vibrates—through the pegs, handgrips, saddle and tank. Upward from 6000 rpm, shaking becomes *really* noticeable. Though the rider can learn to live with the massage, the twin-cam Honda reminds you that it shakes. The mirrors almost always have fuzzy images. The rider can see other parts buzzing in place, such as the idiot-light/ignition-key panel between the instruments. The vibration also fractured two screws holding the horn body to its mounting plate. At this point, the bike had fewer than 800 miles showing on the odometer. Fortunately, the horn hung on to the bike, dangling by its lead wires. Had the wires broken, we could have lost the entire horn—and spraying parts on a California freeway isn't exactly safety-minded.

People are presumed to buy the old double-knocker twin because it's such a "solid" machine. That may no longer be the case with the CB-500T, for Honda is trying hard to fasten a charismatic face on the 500T. If this strategy succeeds, the CB-500T will attract customers in exactly the same way that ersatz-luxury Fords and Chevrolets are supposed to draw buyers. Beneath the cut-pile carpeting, fake wood, pressed plastic crests and flossy bucket seats, there live solid but bland automobiles. Though some will see Honda's "classic look" as British Baroque Fifties, the 500T has that same warm glow of Detroit ersatz-luxury. The detailing is marvelous. The instrument package is quite attractive. The paint, despite some orange ripple on our test bike, is good.

The motorcycle abounds with "touches." The ignition key, now moved up between the instruments at long last, incorporates a fork lock. One more click counter-clockwise from *off* locks up the fork. It's a Moto Guzzi idea done far better than the Italians will ever manage.

Gadget-lovers will also like the eternal headlight, which comes on with the ignition. The headlight only goes out when the starter button is depressed, thus reducing the load on the battery. (If the battery is down and one must resort to kicking, then the headlight can be switched off by pressing the starter button.) A manual override switch should have been included in the new hand-control layouts.

Honda made one very surprising error in their reconstruction of the handlebar controls to federal specifications. The headlight dimmer switch is now much too far away from the left hand. The rider must ease his grip, and consciously slip his hand to the right in order to thumb the switch. Even then he may inadvertently blow the horn when clicking the headlamp back to high beam.

The hard-to-reach dimmer switch (to say nothing of the ground-clearance problem) seems an anomaly considering that Honda has left safety messages all over the motorcycles. The rider is told in three different languages (English, German and French) to "Think Safety" etc. But the safety messages, gadgeteering, embossing and monogramming produce a lot of interesting details. And this sort of willful styling and detailing generates a certain attraction. Maybe Honda figures beautiful instruments can sell just as many motorcycles as double overhead cams.

If this is true, then it means that the CB-500T's magnetism lies in its appliqué. It means how the machine is wrapped and presented may be just as important—even more important—than the fundamental machine itself. That's a pretty staggering thought, especially for people who like motorcycles because they're such spare, functional objects—and hate to admit that motorcyclists respond to certain kinds of slick packaging.

The CB-500T broadcasts its fresh classic looks, its "newness," everywhere: fender, fork, directional signals, headlamp holders, instrument package, hand controls, tank, side panels, saddle and so on. It's "all new," neatish, and attractive. And like a 1975 Chevy Nova—or Ford Granada—the 500T is a lot more entertaining to look at than it is to ride. ◉