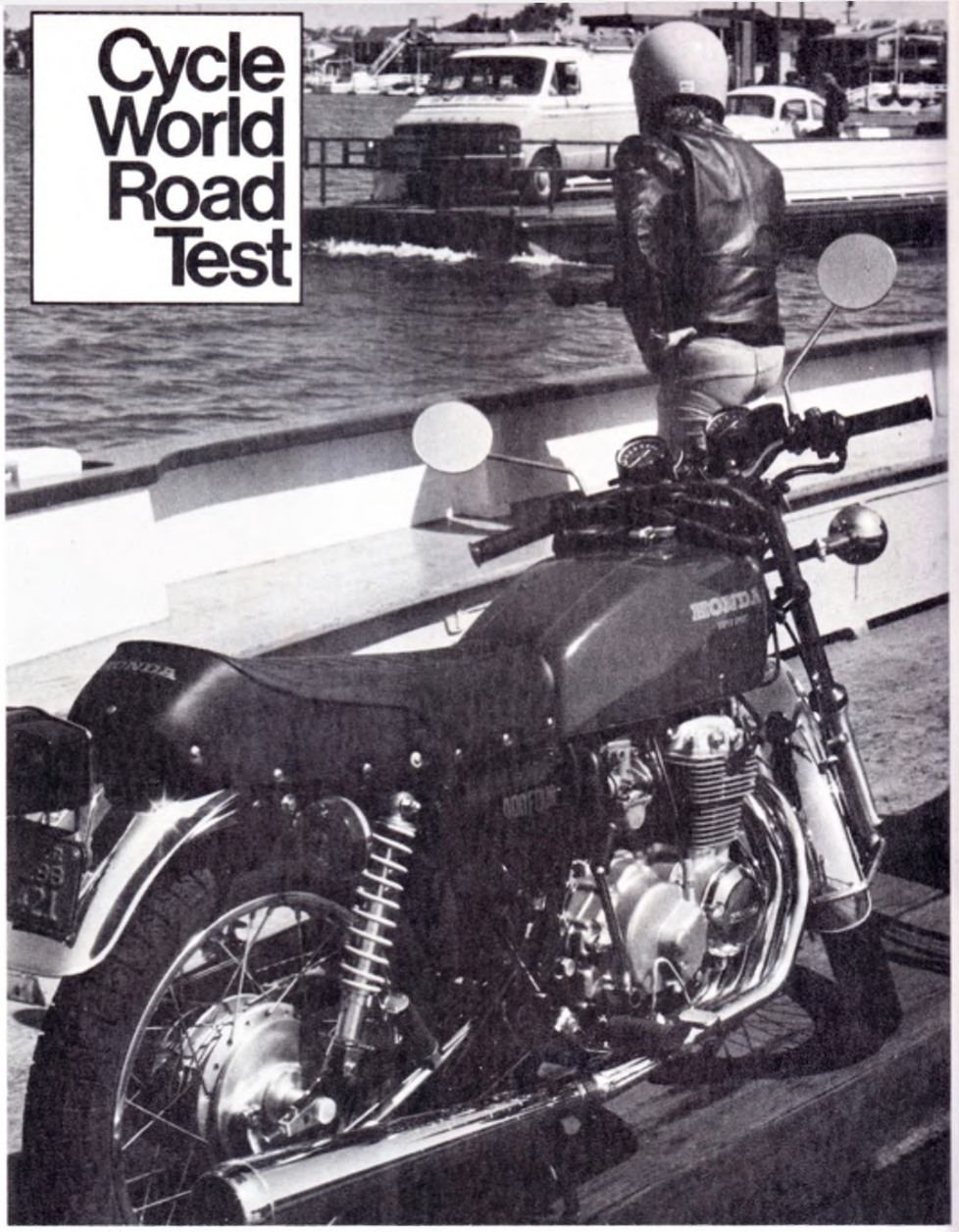
HONDA CB400F

A Charmer With Few Thorns, Honda's Smallest Four Is Big On Personality

Cycle World Road Test



AFTER PUTTING 2000 varied miles on the test CB400F Honda, our lasting and final impression of the machine at the conclusion of the evaluation was just the same as it had been at the beginning. And that isn't the way it always works. Sometimes a bike will please our riders initially, then expose its annoying peculiarities as the miles add up. The mid-sized Honda Four displayed a strong personality the first time we pressed the starter button, and maintained its charisma from that point on.

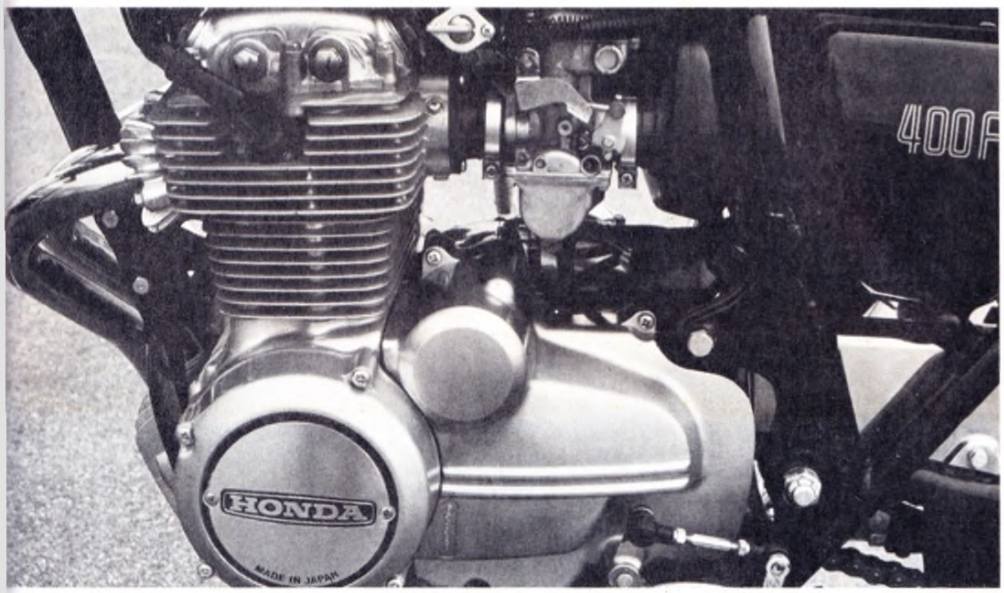
The 400F was born of the one-time-around CB350F, a bike that was to be admired for its four tiny cylinders, but not much else. A Honda technical exercise. . .yes. An exciting, pleasurable motorcycle. . .not really. Yet it offered enough to make us look ahead and imagine what it *could* be like, and Honda, reading the motorcycling public's mind as usual, gave us what we were after.

Tacking new sheet metal on the 350 Four wouldn't be all it would take to up the 350's performance image. Far more was required, and far more was delivered. Honda began with the engine. The 47mm x 50mm undersquare engine got a bore enlargement to 51mm, for a total displacement of 480cc. The old cylinder head was dispensed with and a new design with far larger intake and exhaust valves—housed in more combustion chamber area—took its place. Crankshaft and connecting rods remain 350 style, as do the camshaft and four 20mm Keihin carburetors.

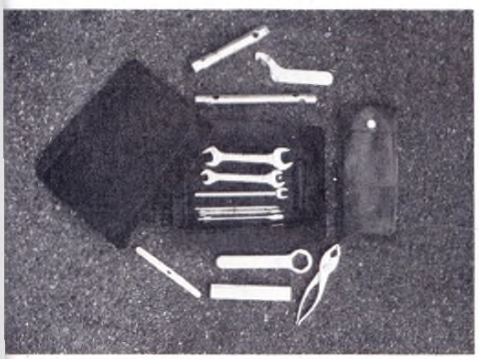
If you're after a sporty image, you might as well go all the way, and Honda did. The 408 engine cases are new, necessitated by a larger gearbox with six speeds instead of five. Some ratio changing was accomplished with the second, third and fourth gears, but first and fifth remain the same as on the old 350. The more powerful 408cc unit handles the taller sixth gear ratio with no trouble.

More shifting and extra power are probably the reasons behind the new clutch, which has different friction material and stronger springs to hedge problems. The clutch on our test machine required only one adjustment at the lever during many abusive runs at the drag strip, where our 400F reeled off consistent and strong 14.1-sec. quarter-mile times.

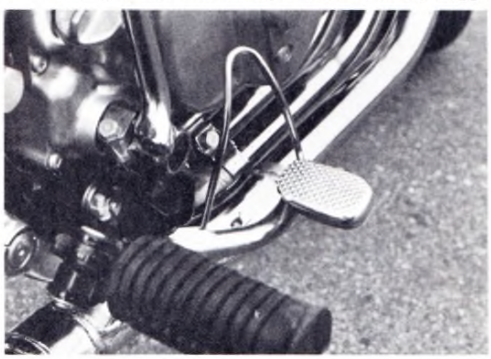
On the line, the 400's engine would



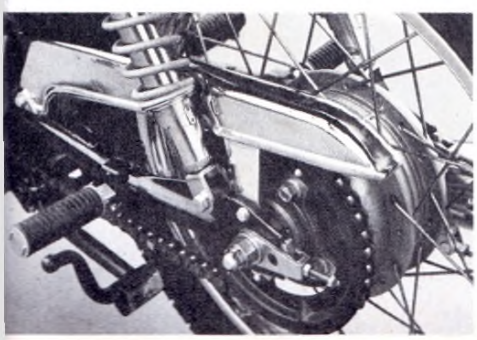
Photography: Dain Gingerelli, D. Randy Riggs



Toolkit is unusually complete, features handy, removable tray to keep screws and parts off the ground.



Clever wire guard prevents rider from snagging foot under clutch cover.



Passenger pegs mount on swinging arm and move with the bumps. Stamped metal guard on sprocket acts as a safety guard to prevent a broken or slipped chain from jamming on the axle side and locking the wheel.

Shifter mechanism uses first-rate Heim joints in linkage. Tabs on bottom of footpegs are warning scrapers.

be revved to its 10,000-rpm redline with the bike in first gear, the rider's weight would be rearward on the seat, and the clutch lever would be dumped against its stop with a bang. The mid-sized Four would then howl the rear tire with a wisp of smoke and the front wheel would skim through first gear about four inches off the deck until second gear was hooked up. To say that the 408 was fun to run at the strip would be a gross understatement.

Of course, this is the second year of production for the stylish little bike, and we say *little* because that's the way it looks. Actually, it tips the scales at just over 400 pounds, ready to ride. Essentially, the 400F is the first off-the-showroom-floor production bike in recent times to pick up on the cafe racer styling motif, but the cafe *look* is more than skin deep.

Honda has carefully tailored the 408 into a true mid-displacement sporting motorcycle. The end result is a bike that delivers reasonable economy, comfort and exceptional performance in terms of speed and handling. There are flaws here and there, but the way the motorcycle handles most situations manages to reduce the quirks to minor annoyances.

Honda has dispensed with most of the foo-faw and kept the CB400's styling clean and crisp. There are a few distractions, such as unusually large turn signal lenses and brackets, awkward looking front fender braces and a taillight big enough to serve duty on the roof of a police car. But the 3.7-gal. fuel tank is nicely squared off and is the only spot on the motorcycle where the main color of the bike is applied. Last year's dark blue hue has been replaced with parakeet yellow, but the attractive red model remains on the list, as well. All other painted surfaces, such as plastic snap-on side covers, frame, and headlight nacelle, are finished in black.

Chrome plating finds a home on front and rear fenders, exhaust system and assorted do-dads. Engine cases are finished in a classy silver, and overall quality approaches the upper end of the spectrum.

The short, narrow and low bars, high footpeg location and four-into-one ex->

haust collector tie into the bike's character perfectly. A shortish 54-in. wheelbase keeps the 400 in the compact category, the appropriate place for a sporting machine. This, however, puts the 400 pretty much out of bounds for behemoths, and relegates passenger carrying capabilities to the "occasional duty" column. Riders who look *down* at the 6-ft. level and spin a bathroom scale past the 190-lb. mark will begin to dwarf the bike; their comfort level will register accordingly.

Honda street bike seats have been hard and uncomfortable for some time; the CB400F's offers no respite. The wretched seat strap nestles dead center under most riders' rear ends and is all but useless to passengers, unless they want to get on more friendly terms with whoever's at the controls. The seat is not the only fly in the comfort ointment.

The low handlebars have an awkward shape, bending the rider's wrists at uncomfortable and unnatural angles. Couple this to Honda's hard, biting grips and you've got an area ripe for change. We had an opportunity to ride a 400F belonging to a friend who had changed both grips and bars. The difference was remarkable. Footpegs are rubber covered and foldable; the right one moves completely out of the way to allow the kickstart lever to be swung through its arc. A slightly stronger ball-detent would help prevent the footpeg from being kicked up out of position accidentally, which happened with us on more than one occasion. It comes as a surprise to set your foot down and find no footpeg!

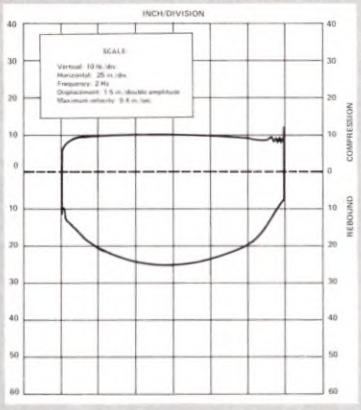
Handlebar switches need a serious rethink by Honda engineers. Good ideas stop with the turn-indicator switch, which features a lane-change detent and good positioning in relation to the rider's thumb. The same can be said for the horn button, though the horn puts out little in the way of sound. Over toward the right, yet still located on the left handlebar stalk, is the high/low beam indicator. Getting to it with anything less than a 6-in. thumb is a chore. On the right there's the usual kill-switch and electric starter button.

Unfortunately, Honda no longer installs headlight on/off switches on its street-legal bikes, so one must contend with a glaring headlight, instrument lights, taillight and even running lights day or night, even if the bike is idling in a garage during a tuneup! Needless to say, battery problems crop up more often due to the constant load, particularly if the machine is run only on short trips.

A further look around the motorcycle reveals subtle but nice touches. The ignition switch also doubles as a fork lock when the double-sided key is depressed and twisted counterclockwise

SUSPENSION DYNO TEST

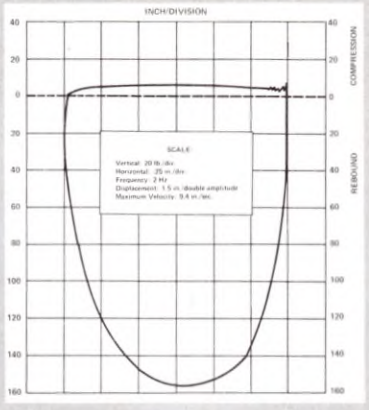
FRONT FORKS



Description: Honda CB400 fork, HD-315 oil
Fork travel, in.: 4.25
Spring rate, lb./in.: 40
Compression damping force, lb.: 10
Rebound damping force, lb.: 25
Static seal friction, lb.: 10

Remarks: The ride on Honda's CB400F is a lot rougher than necessary. The reason is an inordinately high spring rate. Travel is not sufficient for comfort on rough roads. Rebound damping is much too light for the spring fitted. Welding up the upper of the two rebound holes and then redrilling to .060 with a 1/16 in. drill will cure the rebound. To correct the spring rate, we used a 24-lb. spring preloaded 2 in.

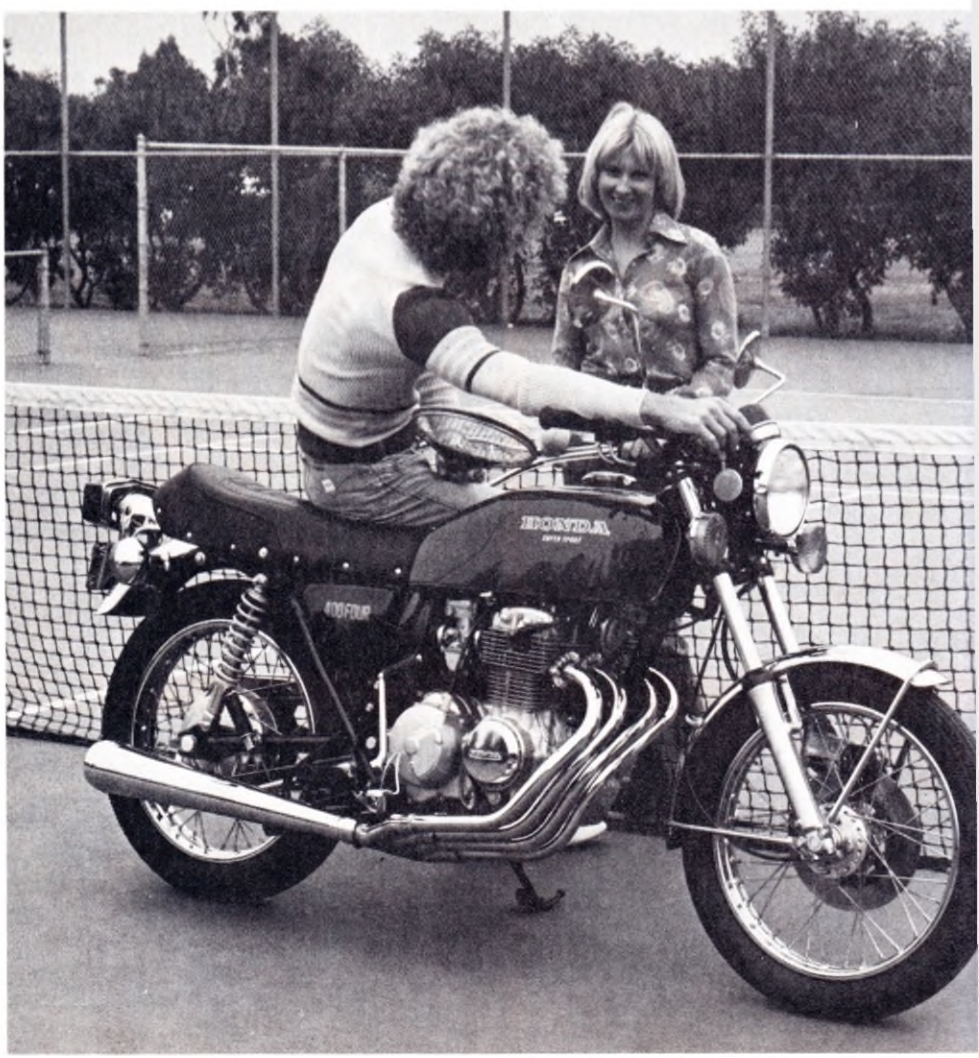
REAR SHOCKS



Description: Showa shock
Shock travel, in.: 3.0
Wheel travel, in.: 3.5
Spring rate, lb./in.: 107
Compression damping force, lb.: 6
Rebound damping force, lb.: 156

Remarks: Spring rate is too high for the weight of the bike, especially for solo riding. Substituting an 80-lb. spring the same length as the stock one (8.25 in.) helps a great deal. Rebound damping is too heavy for the standard spring when the shock is cold. When warm, it is a good match. For optimum control and comfort, we suggest substituting the standard rear shocks with either Koni or Boge Mulholland replacements with 80-lb. springs.

Tests performed at Number One Products.



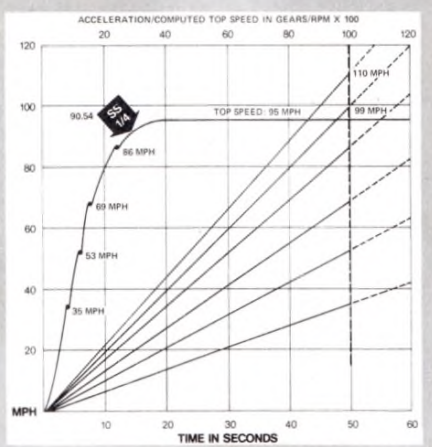
HONDA CB400F

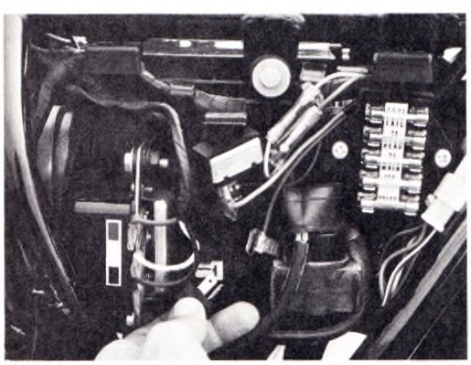
SPECIFICATIONS

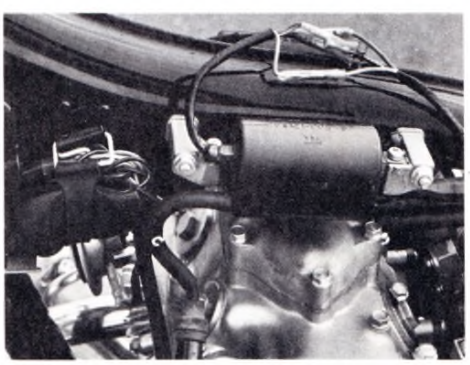
List price	$1470
Suspension, front	telescopic fork
Suspension, rear	swinging arm
Tire, front	3.00-18
Tire, rear	3.50-18
Brake, front, eff. dia. x width, in.	8.75 x 1.5
Brake, rear, eff. dia. x width, in.	6.29 x 1.2
Total brake swept area, sq. in.	104.662
Brake loading, lb./sq. in (160-lb. rider)	5.28
Engine, type	four-stroke, sohc Four
Bore x stroke, in., mm	2.008 x 1.969; 51 x 50
Piston displacement, cu. in., cc	24.9; 408
Compression ratio	9.4:1
Actual bhp @ rpm	N.A.
Actual torque @ rpm, lb.-ft.	N.A.
Carburetion	(4) 20mm Keihin
Ignition	battery and coil
Oil system	wet sump
Oil capacity, pt.	7.4
Fuel capacity, U.S. gal.	3.7
Recommended fuel	premium
Starting system	kick, electric
Lighting system	alternator
Air filtration	dry, paper
Clutch	wet, multi-disc
Primary drive	Morse Hy-Vol chain
Final drive	single-row chain
Gear ratios, overall: 1	
6th	6.62
5th	7.38
4th	8.49
3rd	10.51
2nd	13.77
1st	20.90
Wheelbase, in.	53.3
Seat height, in.	30.5
Seat width, in.	9.5
Handlebar width, in.	27.8
Footpeg height, in.	10.5
Ground clearance, in.	6.0
Front fork rake angle, degrees	26.5
Trail, in.	3.3
Curb weight (w/half-tank fuel), lb.	393
Weight bias, front/rear, percent	47.4/52.6
Test weight (fuel and rider), lb.	553
Mileage at completion of test	2178

PERFORMANCE

Engine rpm @ 60 mph	5465
Piston speed (@ 10,000 rpm), ft./min.	3281
Fuel consumption, mpg	45
Speedometer error:	
50 mph indicated, actually	47.3
60 mph indicated, actually	57.4
70 mph indicated, actually	67.9
Braking distance:	
from 30 mph, ft.	33
from 60 mph, ft.	134
Acceleration, zero to:	
60 mph, sec.	6.7
Standing one-quarter mile, sec.	14.16
terminal speed, mph	90.54
Top speed (actual @ 8636 rpm), mph	95







PARTS PRICING

Warranty	6 mo./6000 mi.
Major Tuneup	$35.00
Air Filter Element	8.30
Rear Tire (standard)	33.30
Drive Chain (standard)	33.40
Headlight Bulb or Sealed Beam	10.20
Taillight Bulb	.75
Turn Indicator Bulbs	.50
Battery	24.95
Clutch Cables	3.50
Throttle Cables, ea.	6.10
Ignition Parts	
Points	2.93
Condenser	3.80
High Tension Coil, ea.	15.90

with the handlebars turned to either steering stop. A warning light panel includes neutral, high beam, oil pressure and turn indicators. Both tachometer and speedometer glow a soft green at night and the odometer features a trip reset. Two helmet holder tabs are accessible when the locking seat is flipped up. Located underneath is a plastic tool compartment that can be removed, allowing access to the air filter element. Previously, there was a red warning line on the face of the speedometer at the 70-mph mark. That's been deleted, perhaps because of the imposed 55-mph federal limit, or because the bike will no longer self-destruct above 70 mph.

Owners running the first year model 408 discovered they could run out of gas in the reserve position when there was still fuel left in the tank. And that's frustrating. But Honda has moved the petcock a few millimeters lower in the tank so that it can now run completely dry and add a few more miles to the reserve capacity. Our bike averaged 45 mpg for the test, and the reserve position was usually called upon at around the 140-mile mark. That gave us about 30 miles to hunt for a station.

Foot controls will fall into place for most sizes of feet, though riders with creaky knees will have to bend their joints more than usual because of the high peg location. The brake pedal features a loop guard that prevents the rider from hanging his foot up between the clutch cover and the lever. This year Honda diddled with it some because riders were getting their pant legs caught in the guards! It shouldn't happen now that they've moved the pedal out 4mm and increased the size of the wire loop.

On the shifter side Honda uses Heim-joint connectors to hook up the remote shift linkage, eliminating slop normally associated with a clevis-and-pin arrangement. This is another first-class touch.

Starting requires a practiced routine. With the petcock and ignition turned on, the choke lever must be placed in the full-on position. The starter motor begins cranking the engine over and things begin sputtering. The choke must then be nursed open and closed until the engine comes to life. But the 408 won't idle until it warms up some. And that takes a few moments, because the Four seems cold-blooded by nature. It eventually settles into a smooth idle and is perfectly happy about heading out into traffic.

Silence is the little Honda's forte. But there is enough personality left in the exhaust note and intake growl to let the rider know there's some spunk

Electrics locate behind left side cover and... under fuel tank along with high tension coils.

Throw-away air filter snaps in and out of place.

beneath him. So uncanny is the sound of the exhaust, that it almost seems as though the gases aren't emanating from the muffler's tip.

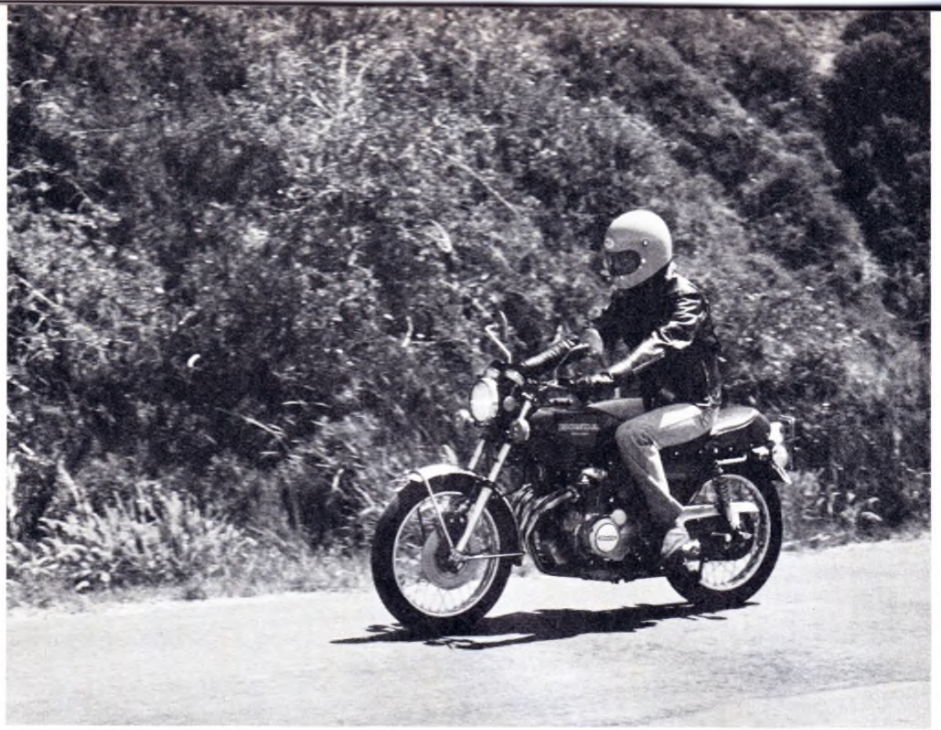
Revolutions build in an instant when the throttle is opened and unwind almost as quickly. With such effective muffling, one can hear the mechanical murmurings beneath the various engine covers, and it's these noises from within that tell lovers of high spirited motorcycles that this is the genuine article. The "whoop" sound produced when the 408 is doing its siren song at 10,000 rpm is enough to convince anybody that Honda's smallest "F" is more than an ordinary two-wheeler.

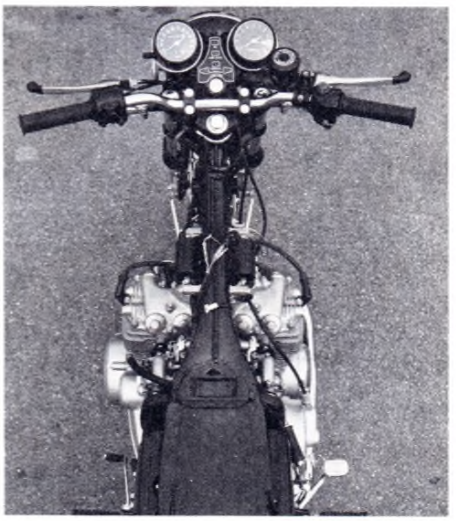
Clutch pull is light, but actuation is deceptive, since the hand lever has to be near the end of its release arc before driveline components start coupling up. Once underway, another annoying trait of Honda drive systems surfaces: excessive gear lash contributes a fair share of slack when the throttle is rolled off and on. At low traffic speeds in a line of cars, this problem rears its head and makes the rider wish for the open road once again. But even at highway speeds the driveline slop is noticeable, because throttle inputs transmit to driveline jerkiness unless a trained and careful hand is used on the twistgrip.

There is no room on a sport bike for mushy and ineffective suspension components. The Honda's aren't really mushy, they just lean more toward the harsh end of things. The Showa forks have 4.25 in. of usable travel, which is close to enough, but use a 40-lb. spring that is far too stiff. With 10 lb. of compression damping and 25 lb. of rebound damping, the end result is a fork that ignores many road irregularities to the point that control can be affected at high speeds on bumpy surfaces. We improved the fork action considerably by changing to a 25-lb. spring with a preload spacer, and worked out the fine points on the dyno for an easy fork-fix how-to that will appear next month.

This year's 400Fs have new rear shocks with increased rebound damping. But the oil capacity remains very limited, and riders who make a habit of going quickly through the twisty-turnies should consider replacement with S&W, Red Wing, or Koni shocks. All work well in that particular application. Spring selection will vary according to rider weight and loading conditions.

Aside from the unnecessary harshness, the suspension will not make too many owners unhappy. In fact, considering the standard suspension many street models come with these days, the 408 Honda doesn't fare badly at all. One can pitch the bike into corners with the footpegs on the asphalt and not get into too much trouble as long as the road is nearer to smooth than rough. There is no annoying tendency to nosedive upon braking, and the Honda hauls itself down from speed quite smartly.





Current motorcycle fashion dictates a rear disc brake, but the "F" gets along fine without it, though the drum does, upon occasion, get spongy when hot. The front disc squeaked every once in a while, but didn't make a habit of it. Feel and lever pressure were right in the ballpark. The only change we made with the brakes was to remove the front "fender" on the disc. It's really superfluous and only serves to prolong wetness on the disc in rainy weather by preventing water from slinging off. And really, who is foolish enough to believe that a mini-fender on a disc brake is going to keep a rider dry when it's wet out? Shades of Detroit from Japan.

The 408 is happy following the straight white line, but will prove itself agile and nimble in tighter situations. Engine vibration remains minimal except in the immediate vicinity of 5000 rpm and up in red-line territory. Cornering clearance will only be exceeded by the best of road jockeys. It's a good idea to roll off when it's used up anyway, since the standard tires will be at the end of their rope in tractive ability. This year the tires feature wear-limit indicators in the tread pattern, but we doubt that some will heed the warning until the carcass starts peeking through.

In its corner of the marketplace the Honda fares nicely. People will be quick to draw comparisons between it and Yamaha's new RD400, and a few will even throw in Kawasaki's KH400 Triple. The three machines are very close in ability and they all project a "performance" image. But the Honda 408 does its thing with eight valves, four carburetors, four cylinders and a single overhead camshaft; the strokes add up to four, as well. For many, those kinds of numbers are convincing enough. But if a little prodding becomes necessary, one ride down the road with the 408 reaching for redline in any of the six gears should do the trick.

Easy Fork Fixes For Road Bikes

CYCLE WORLD

JULY 1976
ONE DOLLAR | UK 35P
ICD/08250

America's Leading Motorcycle Enthusiasts' Publication

250cc Off-Road Comparison

MR Honda vs Hodaka Thunderdog

Bike Prices New And Used

Tests: Honda CB400F and Montesa 348 Cota

CYCLE WORLD

JULY 1976 VOLUME 15 NUMBER 7

SPECIAL TECHNICAL FEATURE

COMPARISON TEST

CYCLE WORLD TESTS

PRODUCT EVALUATIONS

FEATURES

DEPARTMENTS

COVER

Honda MR250 and Hodaka 250ED through the lens of Paul Webb.

Illustration by Bill Neale