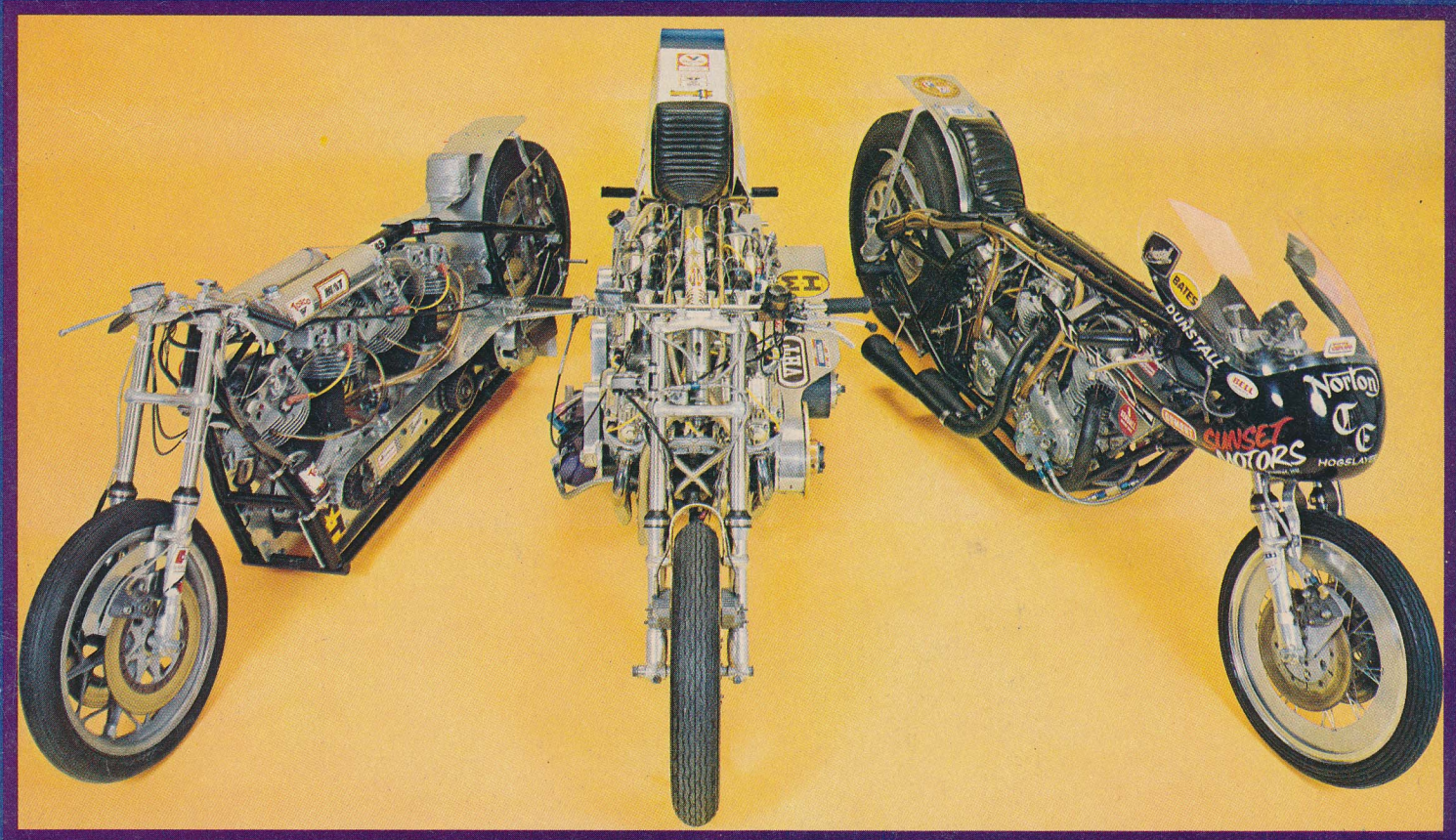


# Cycle

FEBRUARY 1976 75 CENTS

## AMERICA'S TOP FUEL DRAG RACING KINGPINS

**RUSS COLLINS' HONDA (7.86 - 179 mph)**  
**JOE SMITH'S HARLEY-DAVIDSON (8.02 - 183 mph)**  
**T.C. CHRISTENSON'S NORTON (7.93 - 177 mph)**



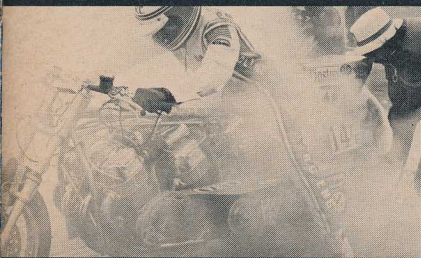
**Rickman's High-Buck Honda 750 and Kawasaki Z-1 Kit Bikes**

950952 MNN B0729199 741C FEB77  
T C MANNING  
PD BOX 723  
KEYSTONE HTS FL 32656  
02

**3 Ways To Make It A Winner**

**180 mph Factory Road Racer**

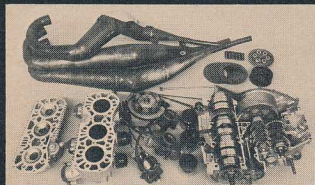
**He Talks About the ISDT**



p.28



p.44



p.50

## Road Tests

- 38 Honda XL-350  
*Engine? Superlative. The rest? Ordinary.*
- 65 Honda CB-125 S3  
*You could call it a second-guess mini-hot-rod.*

## Features

- 28 These Three  
*... have made Top Fuel their own. By Cook Neilson.*
- 44 Custom XL: the C&J Monothumper  
*Some people trick-frame it . . .*
- 46 Custom XL: A Four-Stroke Maico  
*... and others swap-frame it . . .*
- 47 Custom XL: Bell's Baja Bullet  
*... and still others win Baja with it. All by Dale Boller.*
- 60 The Rickman Hyphenates  
*That is to say, hyphen-CB-750 and hyphen Z-1.*
- 78 Double-Time Express  
*When you say ring-ding, you'd better smile. By Cook Neilson.*

## Competition

- 56 Carl Cranke Talks About the ISDT  
*And brother, he ought to know. By Dale Boller.*

## Technical

- 48 How Things Work: Hydraulic Disc Brakes  
*Put the squeeze in here, and it comes out there. By Gordon Jennings.*
- 50 Suzuki TR-750 Road Racer: A Look Inside  
*Grubby fingers on top-secret parts. By Gordon Jennings.*
- 74 Product Evaluation: Widder Electric Vest  
*Brisk-weather warmth at a decent price. By Cook Neilson.*
- 87 The Shop: Honda CB-500 Linkage Fix  
*A two-anna-three-anna-three-anna-three . . . By Jess Thomas.*

## Departments

- 4 Editorial / *Racing* / Cook Neilson
- 7 Letters / *Calculating Readers*
- 8 Newsline / *On the Christmas Rebound*
- 10 Pipeline / *Drags, the English Heartland* / Jim Greening
- 14 Tips / *More Honda Hints*
- 71 Road Test Index
- 98 Classified Ads
- 101 Readers Service

P. Thomas Sargent, *Publisher*  
Cook Neilson, *Editor*  
Phil Schilling, *Executive Editor*  
Dale Boller, *Managing Editor*  
Gordon Jennings, *To Be Continued*  
Jess Thomas, *Technical Editor*  
Dave Holeman, *Associate Editor*  
Margaret Beschen, *Production Director*

Paul R. Halesworth, *Art Director*  
Teri Lamoureux, *Art Assistant*

Michael Shuter, *Contributing Editor*  
Jim Greening, *Contributing Editor*  
Kevin Cameron, *Contributing Editor*  
Beverly Collins, *Editorial Assistant*  
Bettina J. Costello, *Assistant to the Publisher*

Joe Mesics, *Associate Publisher*  
Edward J. Judge, *Eastern Regional Ad Manager*  
Randy Pelton, *Midwestern/Southeastern  
Sales Representative*

John C. Kohr, *Western Ad Representative*  
Linda J. Sutton, *Western Sales Representative*

Edward D. Muhlfeld, *Publishing Director*

This Month's Cover: Three bikes, seven engines, and 900 horsepower—that's the substance of the machinery Larry Willett was asked to photograph for *Cycle's* February cover. To assemble that much power any other way would have taken ten Honda GL-1000s, 12 Kawasaki Z-1s, 45 Suzuki 125 MXers or 90 Honda CB-125s.

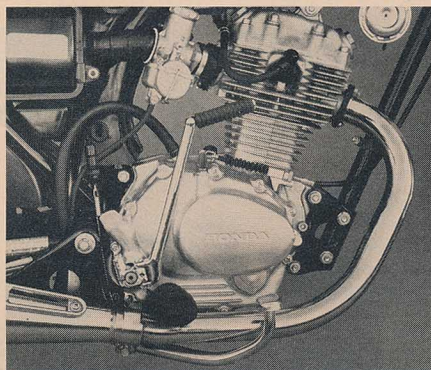


**A seven-point-five cubic-inch muscle bike?  
Can there be such a thing?**

• The Great Gas Hope of Motorcycling has long since fallen in America. During those hornswoggling days of the Energy Crisis, some motorcycle marketeers peered into their crystal balls and saw millions of Americans humming off to work on their 75-mile-per-gallon tiddlers. As events would demonstrate, those soothsayers had seen nothing more significant than reflected hopes; later the cups and warehouses of all the prophets ran over with little commuter bikes. Though the price of gasoline rose to sixty-cents-and-beyond, in the long run Yankees remained faithful to four-wheelers. When 75-mpg economy threatened bodily comfort, Americans didn't give a hoot about economy. And they weren't getting 75 mpg anyway.

The mileage economy of most small motorcycles is illusionary. True, the Honda 125 four-stroke will record 68 miles per gallon. But tea-cup two-stroke en-

## HONDA CB-125 S3



gines have voracious appetites; indeed, the Yamaha 60 and Kawasaki 90 produce mileage figures in the mid-forties. Such numbers result from running these engines wide-freaking-open in order to produce reasonable speeds in city and suburban traffic. That sort of mileage is hardly sensational—your average shepherd can put a Kawasaki Z-1 or Suzuki GT-550 or Honda Civic car into the forties. So much for the snappy patter about gas mileage.

Those Little Monsters of the Energy Crisis (Suzuki 50, Yamaha 60, Kawasaki 90 and the Honda 125) which *Cycle* tested in May, 1974, have either grown up or dropped out. The Suzuki 50 has gone, and the Kawasaki 90 has grown some more engine. Yamaha replaced their 60cc single with the much improved RS-100, and Honda re-engineered their 125, trying to scare up enough horsepower to give the bike some sporting pretensions. Performance is now spoken in Tiddler Corner,

**Cycle-Test**

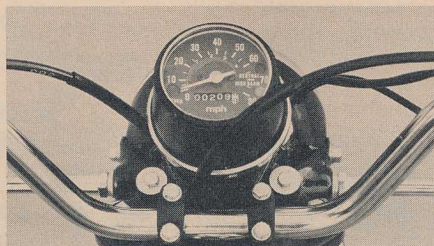
and thus the Miser-Mice of 1974 have become the Sporting Jerboas of 1976.

Honda's newest street 125 has more horsepower, and less, than its forerunners. Only at 9000 rpm-and-beyond does the S3 show more power on a dynamometer than the S1 tested in *Cycle*, May 1974. At 9000 rpm the difference is one-third horsepower, and that margin nearly doubles at 9500 rpm and 10,000 rpm. The S3 is more than a half-horsepower stronger at 10,500 rpm than the S1. Though it's fading at the 11,000 mark, the S3 still produces 9.71 horsepower there, and then sags to 8.09 at 11,500. But the old S1 was stronger below 9000 rpm; for example, the 1974 version had a .8-horsepower advantage at 6500 rpm. Honda has just concentrated the S3's power at the top of the rev-range—where a small bike engine operates most of the time anyway. Other factors may also help to account for the diminished return in the mid-rpm band: the super-quiet muffler and the new atomizer baffle in the intake tract of the cylinder head.

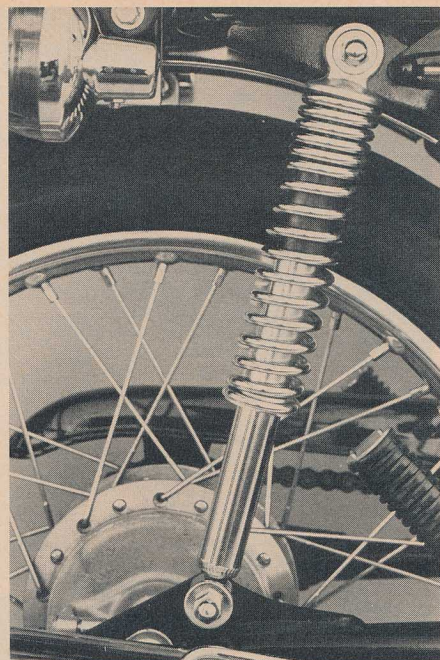
To shift the power curve Honda re-worked the 125 engine considerably. It's

cross-sectional area than the upper passage. With the throttle slide opened to 60 or 70 per cent of its travel, the fuel/air mix flows only through the lower passage, and at greater velocity (thanks to the restricted area) than through a wide-open 24mm throat.

Consequently, at part throttle the S3 carburetion system atomizes the fuel better, and holds the gasoline droplets in the air stream. When the throttle is opened full whack, the fuel/air mix rushes through both passages. Although it's in the way, the atomizer plate does not seriously disrupt the air flow at full throttle.

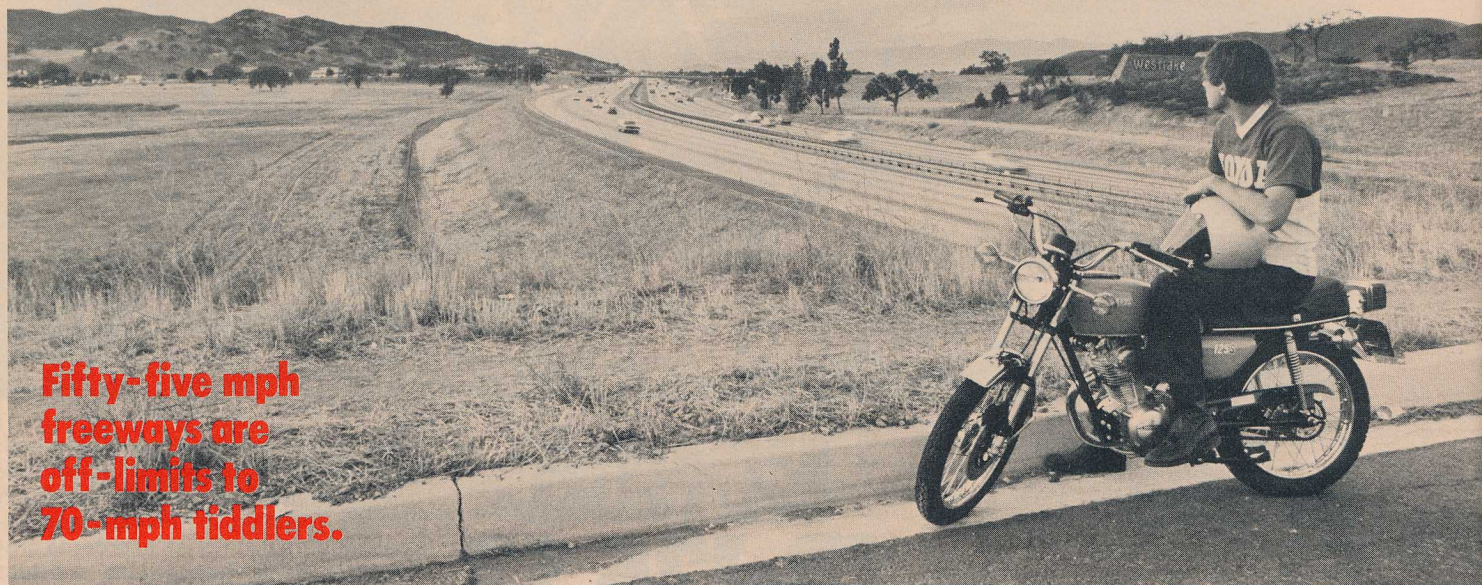


The tachometer is gone; in its stead there are gearband arcs painted on the speedometer face.



The shock absorbers have no discernible damping and no adjustment for preloading the springs.

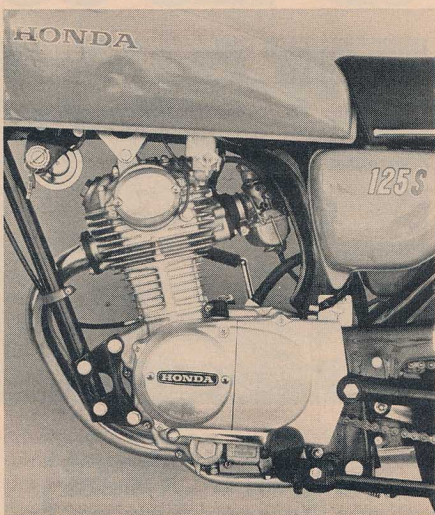
PHOTOGRAPHY: MICHAEL ZAVELL



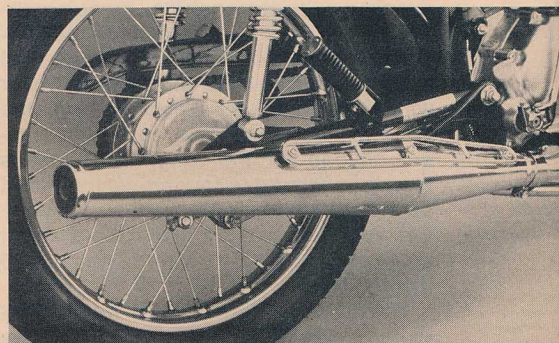
**Fifty-five mph  
freeways are  
off-limits to  
70-mph tiddlers.**

a typical Honda re-do: all the engine changes have been carefully orchestrated; there's nothing expedient about it. Carburetor size has been increased to 24mm (up from 22mm), allowing the engine to breathe better at the top of its rpm range. However, generous intake ports have always carried a penalty: at moderate engine speeds the air velocity in the intake tract usually is so low that the atomized fuel, picked up in the air stream through the carburetor, falls out before reaching the combustion chamber.

Honda, never at a loss for clever solutions, has maintained the air velocity in their big-port 125 by the use of an atomizer baffle. This plate fits into the rubber insulator which connects the carburetor to the cylinder head. The horizontal baffle plate splits the passageway inside the insulator into two parts; the lower section of the passage has a slightly larger

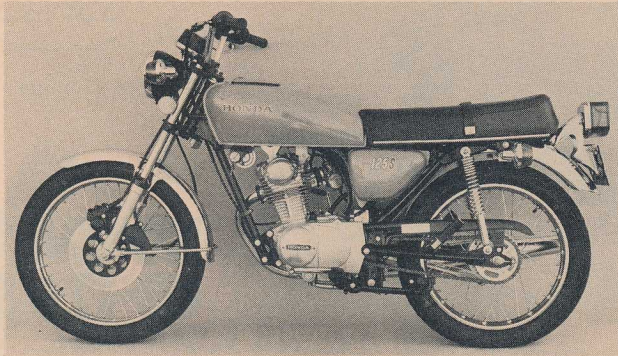


The S3's engine has been updated with a two-piece head, but the key location is old-style Honda.



It looks like a short megaphone with a long, long reverse cone—but it's the S3's whisper muffler.

**HONDA CB-125 S3**



### HONDA CB-125 S3

Price, suggested retail West Coast ..... \$649

Tire, front ..... 2.75 x 18 Bridgestone Super 10 Rib  
 rear ..... 3.00 x 17 Bridgestone Super 10 Universal

Brake, front ..... 1.43 x 9.38 in. x 2 (36mm x 240mm x 2)  
 rear ..... 4.33 x 0.97 in. (110mm x 25mm)

Brake swept area ..... 84.3 sq. in. (543 sq. cm)

Specific brake loading ..... 4.70 lbs./sq. in.

Engine type ..... Four-stroke SOHC single

Bore and stroke ..... 2.224 x 1.949 in.  
 (56.5mm x 49.5mm)

Piston displacement ..... 7.56 cu. in. (124cc)

Compression ratio ..... 9.4:1

Carburetion ..... 1; 24mm Keihin

Air filtration ..... Oiled urethane foam

Ignition ..... Battery and coil

Rake/Trail ..... 27.2 degrees/3.8 in. (9.6cm)

Mph/1000 rpm, top gear ..... 7.1

Fuel capacity ..... 2.5 gal. (9.5 liters)  
 (including .6 gal. reserve)

Oil capacity ..... 1.1 qt. (1.0 liter)

Battery ..... 6v, 6AH

Primary transmission ..... Straight-cut gears, 4.055

Secondary transmission ..... 1/2 x 5/16 chain,  
 2.666 (15/35)

Gear ratios, overall ..... (1) 26.19 (2) 17.80 (3) 13.72  
 (4) 11.10 (5) 9.46

Wheelbase ..... 47.4 in. (120.4cm)

Seat height ..... 27.5 in. (70cm)

Ground clearance ..... 5.75 in. (14.6cm)

Curb weight ..... 226 lbs. (102.5kg)

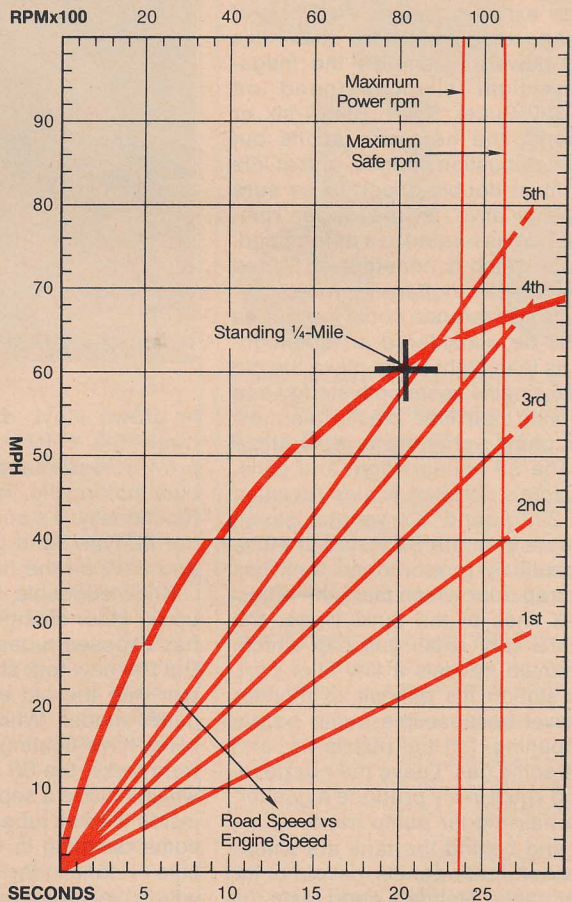
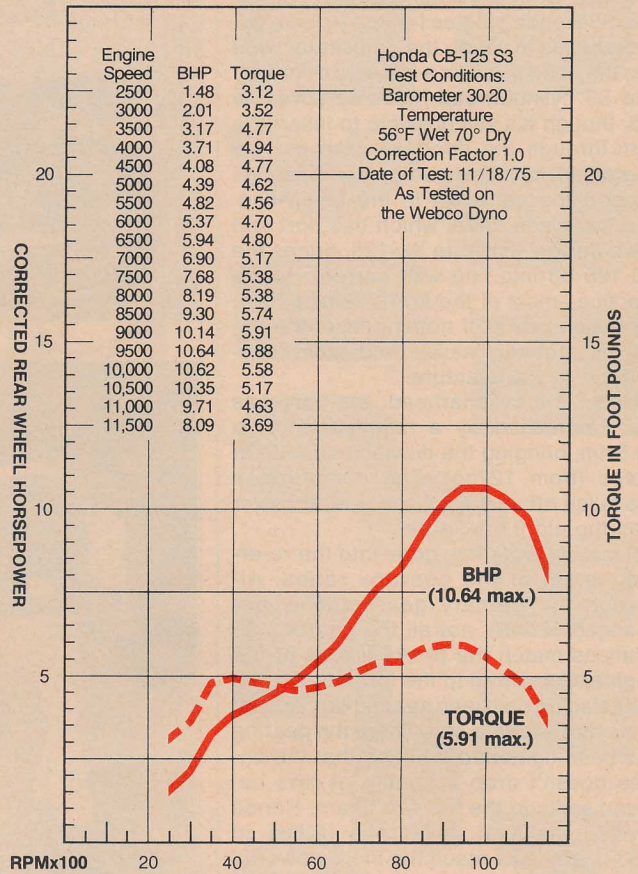
Test weight ..... 396 lbs. (179.6kg)

Instruments ..... Speedometer, odometer

Standing start 1/4-mile ..... 20.52 sec @ 60.32 mph

Average fuel consumption ..... 68 mpg

Speedometer error ..... 30 mph actual 28.53



The cylinderhead has likewise been changed from previous models. The S1 and S2 Honda singles had one-piece cylinderheads in which the camshafts went into the head through a left-side doorway. The S3 cylinderhead has a removable top, though it's still possible to insert the cam through the doorway. Like the old one-piece cylinderhead, plain bearings support the camshaft in the new head. The two-piece head, which has port and valve design similar to XL-125, brings the CB-125 S3 into line with current Honda practice—most of the firm's singles have two-piece heads. If nothing else, the design is probably easier and more economical to manufacture.

Under the cylinderhead, the bore has been increased by a half-millimeter to 56.5mm, bringing the displacement up to 124cc (from 122cc). The compression has fallen off; at 9.4:1 it's one-tenth lower than the old 9.5:1 figure.

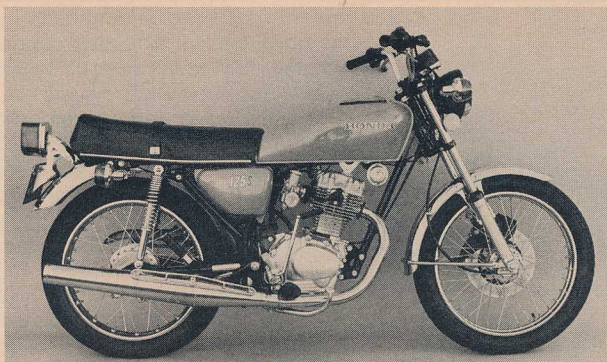
Far more work has gone into the re-arrangement of the gearbox ratios. Although the primary gear ratio is unchanged (4.055), not all the gearbox alterations match the peaky nature of the engine. Compared to the torquier S1, the gear staging has been spaced out, except in the three-to-four slot. There the gearing has been tightened a bit, so that the engine doesn't drop a bundle of revs between shifts in the top two gears. Honda revised the final drive ratio (2.666 to 2.333), and as a result the more powerful S3 pulls a higher overall gearing than its predecessors.

The new exhaust system, also part of the package responsible for the 125's reshaped power, resembles the megaphone-and-cigar silencer found on Honda's 750 Super Sport. Below six or seven grand, the hardware snuffs out almost all combustion sounds, and at idle the rider must double-check to be sure the engine is alive. In the upper rpm-range, the rider is treated to a determined, throaty roar which is nonetheless ironed out into a mellow, inoffensive tone.

Only in its appearance could the Honda CB-125 S3 be considered an attention-grabber. Its lean, tight looks make the old Honda 125 singles seem both stodgy and baroque with their little plastic plaques, two-tone paint schemes and multiple striping. The S3 appears light and agile, though *Cycle's* certified scales revealed that the 227-pound S3 weighs seven pounds more than the S1 tested in 1974.

The beautifully proportioned tank has a locking trap door which mars the otherwise sleek lines of the tank. Under the door lives a very small gas cap which, when removed, reveals a tiny filler port. At a gas station it's difficult to monitor the gas level because the pump nozzle fills the opening. Lift the nozzle up, and you'll spill some gas. Leave the nozzle inserted and you'll likely produce a gusher, despite a hair-trigger pump hand.

Below and behind the tank are simple and purposeful side-panels, devoid of the usual gimcracks. Honda's good taste unhappily deserted them when they were planning the seat. The saddle, covered



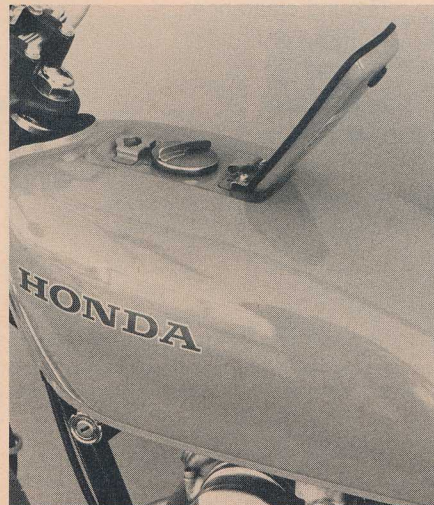
## HONDA CB-125 S3



in brown vinyl, disrupts—and antagonizes—the color-sensitive eye because brown doesn't harmonize with a black and blue motorcycle. The seat does succeed functionally: it's comfortable. So, too, are the XL-type hand grips, soft and gummy and easy on the hands.

Knowledgeable Hondaphiles will pick up on other changes. The front fork now has exposed tubes and internal springs. But the new fork shares its damping system with the old external-spring/rubber gaiter model. While most Honda street bikes have floating ring dampers in their front forks, the S3 retains the old system which utilizes a separate damper cylinder inside the fork tubes. Although the S3 has some damping in the fork, there is very little or none in the rear shock absorbers, which in practice are comprised of chrome springs over telescoping tubes.

(Continued on page 94)



Under the key-operated trap door resides a small gas cap which makes fill-ups a chore.

# It's smart to know how



Know how to tune it . . . to fix it . . . to rebuild it yourself. The TOTAL SERVICE MANUAL for your bike will show you how to do everything from a minor adjustment to a major overhaul.

TOTAL SERVICE MANUALS are digests of official factory workshop manuals. Each one is carefully rewritten for use by the do-it-yourself bike owner. Clear and easy to follow, yet complete and detailed enough even for professional use. You get all the important information plus hundreds of the best pictures, diagrams, and specification tables.

## TOTAL SERVICE MANUALS

9840	AJS & MATCHLESS singles 57-66 all 250, 350, 500 mdls.	\$4.95
9841	AJS & MATCHLESS twins 55-65 all 500, 600, 650 mdls.	\$4.95
0534	BMW twins 55-74 all 500, 650, 750, 900 models	\$6.50
3727	BRIDGESTONE singles, twins all 50, 60, 90, 175 models	\$3.50
0757	BSA singles 58-72 covers 250, 350, 440, 500 models	\$6.95
0756	BSA twins 47-62 covers A7, A10 all 500, 650 models	\$6.95
0768	BSA twins 62-73 covers A65 all 500, 650 models	\$6.95
9650	BULTACO covers all 125, 175, 200, 250 models	\$7.50
0759	CZ 69-75 covers 125, 175 models	\$6.95
0535	CZ 69-74 covers 250, 400 single exhaust models	\$6.50
0610	DNW, PENTON 68-74 with 100, 125 Sachs engines	\$7.50
3728	DUCATI singles thru 74 all 160, 250, 350, 450 models	\$7.50
9614	HARLEY-DAVIDSON singles 47-72 2-stroke, Sprint	\$6.95
0612	HARLEY-DAVIDSON twins 59-75 all Glide models	\$6.50
0607	HARLEY-DAVIDSON twins 59-75 Sportster models	\$6.50
0892	HODAKA 64-73 covers all 90, 100 models	\$7.95
0608	HONDA CR, MT 73-74 covers 125, 250, Elsinore models	\$6.50
3788	HONDA singles 63-74 all 50, 65, 70, 90 models	\$6.50
9785	HONDA singles 70-74 all 50, 65, 70, 90 models	\$6.50
0888	HONDA XL singles 72-75 all 70, 100, 125, 175, 250, 350	\$6.95
3751	HONDA twins 64-74 all 125, 160, 175, 200, 250, 350	\$6.95
3752	HONDA twins 62-68 250, 305, C, CB, CL, CS models	\$6.50
0986	HONDA twins 68-75 350, 360, CB, CL, SL, K models	\$6.95
3749	HONDA twins 65-74 450 models	\$6.50
9622	HONDA fours 72-74 350, 500, 650 models	\$6.50
3755	HONDA fours 69-74 covers 750 models	\$6.50
9779	HUSQVARNA 66-72 125, 250, 360, 400, 450 models	\$7.50
3754	KAWASAKI singles 66-74 all 90 to 350 models	\$6.50
9616	KAWASAKI twins 66-72 all 90 to 750 models	\$6.95
9601	KAWASAKI triples 69-74 all 250 to 750 models	\$6.50
0726	KAWASAKI fours 73-74 covers 900, 71	\$7.95
9533	LAMBRETTA motor scooter 52-70 all models	\$4.95
0613	MAICO 68-75 250, 360, 400, 450, 501 models	\$7.50
0505	MOTO GUZZI 66-73 all V700, V750, V850 models	\$7.95
0497	MORTON 66-73 covers 750, 850 models	\$7.95
9794	OSSA 71-72 covers 125, 175, 250 models	\$7.50
3790	SUZUKI singles 64-74 all 50 to 400 models	\$6.50
3792	SUZUKI twins 64-74 125, 150, 200, 250, 305, 315, 500	\$6.50
0901	SUZUKI triples 72-74 GT380, GT550, GT750	\$7.95
0948	TRIUMPH twins 58-62 covers 350, 500 models	\$6.95
3753	TRIUMPH twins 63-74 covers 500, 650, 750 models	\$6.50
0893	TRIUMPH triples 69-74 covers 750 Trident	\$6.95
9536	VELOCETTE singles, twins 36-65	\$4.95
0895	YAMAHA ENDURO 68-74 all 60 to 500 models	\$6.95
3747	YAMAHA singles 63-67 2-stroke 50 to 100 models	\$6.50
0897	YAMAHA 2-stroke 67-75 all 50 to 350 models	\$6.95
0905	YAMAHA 4-stroke 70-74 all 500, 650, 750 models	\$7.95

## MISCELLANEOUS BOOKS & MANUALS

3741	MOTORCYCLE ELECTRICAL SYSTEMS	\$4.95
3742	MOTORCYCLE CARBURETORS theory & service	\$6.95
1039	MOTORCYCLE TROUBLESHOOTING guide take one along	\$5.95
0745	MOTORCYCLE REPAIR ENCYCLOPEDIA for all bikes	\$8.95
0554	MOTORCYCLE FLAT RATE MANUAL for all bikes	\$4.95
9668	TUNING FOR PERFORMANCE how to get more & better	\$5.95
0543	TWO STROKE TUNER'S HANDBOOK good for all bikes	\$5.00
0649	BOONIE BOOK fine points of off road riding	\$5.95
0629	HOW TO WIN MOTOCROSS methods of top professional	\$5.95

Add \$1 postage & handling.

CARBOOKS DIV. 181 Glen Ave. Y-51  
E.S. Schechter & Co. Sea Cliff, N.Y. 11579  
Phone orders (516) 676-8043

ORDER BY BOOK NUMBER ONLY

<input type="checkbox"/>	I enclose full payment	\$ _____
<input type="checkbox"/>	Charge my BankAmericard	
Acc. #	_____	
Name	_____	
Address	_____	
City	_____	
State	Zip	_____
<input type="checkbox"/>	Send FREE catalog	
SATISFACTION GUARANTEED OR YOUR MONEY BACK		

## HONDA 125 . . . Continued from page 68

More than rear damping is missing on the S3. The tachometer is gone, probably a casualty of the cost-accounting department. As a sop, the rider gets gear bands painted on the speedometer face. Another victim of the product-cheapening department was the centerstand, which is sorely missed. When our test S3 had a flat rear tire, we were lucky it deflated close to home so we could change it in the Cycle shop. There we could jerry-rig center support and elevate the rear wheel. Out in the field, with only the side-stand for help, taking the real wheel out and putting it back in would have been an aggravating chore.

There are old and new parts to starting the 125 Honda. The key switch still resides under the left side of the tank. But the key is new—a reversible item which eliminates a lot of fumbling around under the tank: just find the slot and slip the key in. Upside-down is just as good as right-side-up. Turning the key to the on-position also lights up the headlamp. Thirteen states now require daytime headlamp operation, so Honda has extended the automatic-on feature to nearly all their street legal models. (The only exceptions are the MT-250, MT-125 and XL-100). Unlike electric starter models, the 125 single has no provision for killing the headlight when the starter (the kick-starter on the 125) operates. If the six-volt battery is weak or any ignition component is failing, the headlight will be sapping the ignition circuit, thus compounding the starting difficulties.

The engine has periods of vibration, buzzing noticeably at times but never annoyingly so. Despite its rev-range, which extends to 10,000 rpm, the engine doesn't produce that electric sizzle common to two-stroke singles, an insidious vibration which numbs the rider and gnaws off filaments in headlight bulbs.

The Honda single has an acceptable spread of power; in fact, without the speedometer bands, a rider might shift too soon, thinking that he had pushed the engine to its limit. Running the engine completely through the guidebands produces a revelation: the engine seems sufficiently willing up to 8000 rpm, but really gains strength when you let it soar to 10,000-plus. This upper-range power puts a sporting edge on a little motorcycle which, below 8000 rpm, might be written off as a docile putt-around suburbanite.

When the engine wings full-tilt through the gears, shifting points fall at convenient road-speed intervals. The third-to-fourth shift comes at 45 mph while the four-five break occurs at 55 mph. Out in traffic, this staging permits you to take a good run at 50-55 mph cars in fourth. You won't blast around with an explosive charge, Superbike-style, but then again the CB-125 S3 won't make you languish in the passing lane, leaving you eyeing the mirrors and praying.

Really steep grades can force the Honda back into third, but we resorted to cog-three only once for climbing leverage: a tough little road launched off a

canyon floor and rose like a mortar shell through a high pass. The Honda can mow down fair-sized hills in fourth, and the nastiest big road grades likewise yield to fourth. Fifth is the open highway norm.

States with 15-horsepower freeway regulations will frown on the Honda 125 for use on the Great Concrete Ways. American Honda Motor Company makes no official horsepower claim for the motorcycle although the bike makes sufficient power to keep out of trouble on 55-mph motorways. If you were ever stopped on a California freeway, you would have no way to prove that the motorcycle had 15 horsepower. But it's more likely you'll get a speeding ticket on the Honda single because the bike is capable of moving far faster than 55 mph and doesn't mind doing so.

On level stretches with the rider clinched in a wind-cheating crouch, and with the engine fairly singing in fifth, 75-mph will come up on the speedometer face. The S3 has enough top-end performance so that Honda felt obliged to engineer more rake and trail into the S3 for greater stability at speed. The S2 had rake of 26.7 degrees and 3.3 inches of trail. The S3 steers slower with 27.2-degree rake and 3.8 inches of trail.

Stopping gear is unchanged from earlier models. The S3's mechanical disc brake anchors the front while a small drum slows the back wheel. Although the disc brake requires more hand pressure than some riders like, there's no shortage of power for those with a firm grip.

The least attractive part of the Honda is its suspension. The bike, thanks to the spatial relationships between seat, bars and pegs, positions the rider well. The saddle offers a comfortable perch, and the softly-sprung suspension even reacts to small ripples in the pavement. That's all very well until you discover that the shock absorbers have no damping (and no way to pre-load the springs). Running across a series of bumps at 45 mph in a straight line could—and did—cause the bike to rock fore to aft and back again on its suspension. Without damping, the pogo-rock would continue until the energy stored in the springs finally dissipated. In corners, the suspension proved so flaccid that bump-induced surging can cause the front end to get very light.

On smooth pavement, the Honda behaved well and tracked accurately through corners. So long as you exercise common sense, ride the bike precisely, cut your lines deftly, and avoid bumps religiously—the Honda won't bite you. But those who fancy themselves as real corner-jockies should immediately invest in good shocks.

Despite the fact that Honda's accounting-gnomes snatched off the centerstand and tachometer, and despite the fact that the product-cheapening forces prevailed in matters of suspension, the Honda CB-125 S3 is a better piece than its predecessors. Honda has done the hardest part in creating a small sports bike—they've pulled more reliable horsepower out of the 125 engine. ©