Comparative Specs On Leading MXers

CYCLE WORLD

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Honda 750: Automatic vs 5-speed

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Yamaha IT400 Enduro

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Fall Of The British Industry...

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Hondamatic Test

Honda's CB750F Stick

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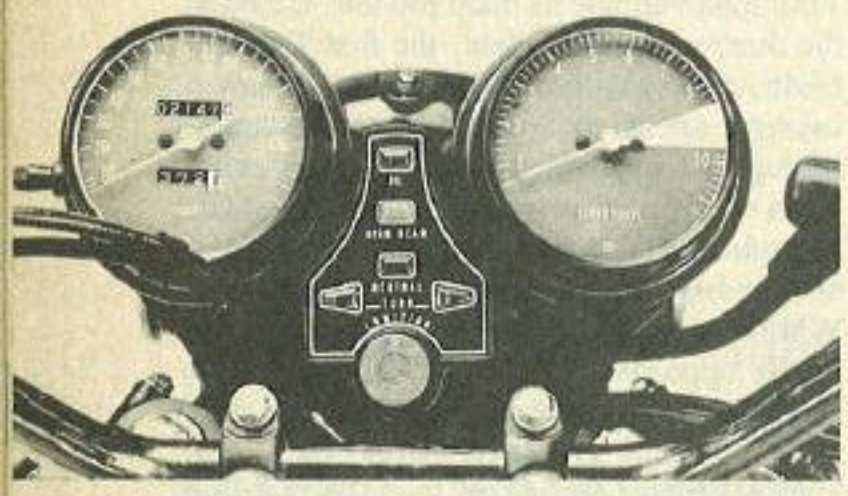

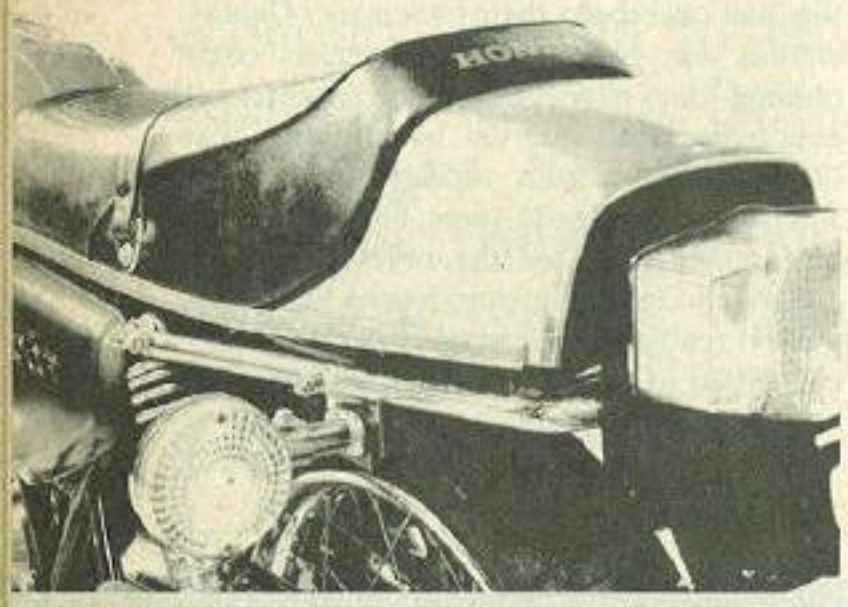

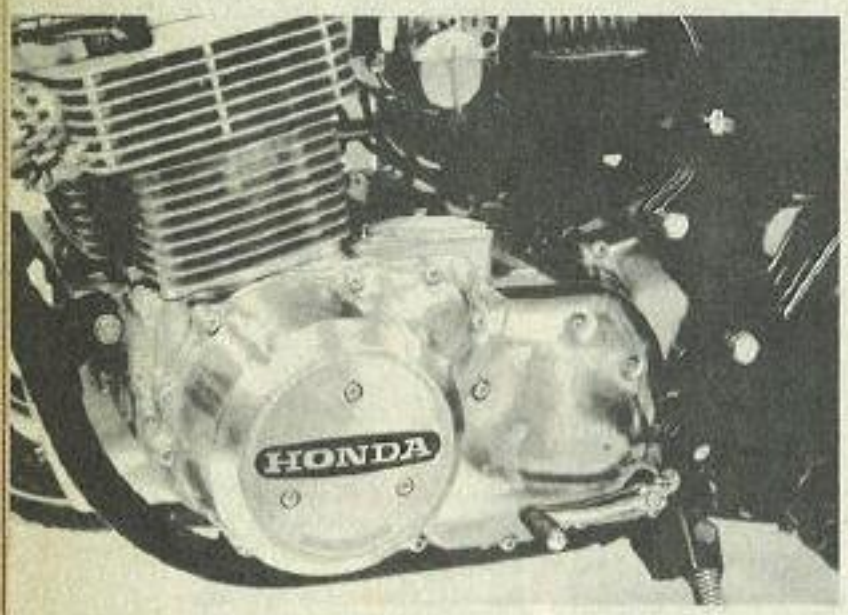

We know what the automatic transmission did to Detroit.... Will it have the same effect on motorcycles?

DIF·FER·ENT/ dif-ərnt, dif-(ə-) rənt/ adj **1:** partly or totally unlike in nature, form, or quality: DISSIMILAR **2:** not the same: as **a:** DISTINCT **b:** VARIOUS **c:** ANOTHER **3:** UNUSUAL, SPECIAL.

Honda's most recent entry into the street bike melange not only fits Webster's definition, but is destined to gain rank among the world's motorcyclists in a rather short period of time. The reasons why are simple.

The CB750A is based on one of the most successful motorcycles of all time, the CB750 Four. Yet it also sets itself apart from that model by virtue of a feature that will guarantee its appeal among a whole new breed of riders. The "A" following the CB750 designation, if you haven't already guessed, stands for "Automatic," and for most people this is going to conjure up thoughts of an automatic transmission. And, they're basically correct (although the Hondamatic, as it is called, *does not* shift itself).

The 750A is a curious new piece of equipment for people to ponder and it puts an entirely different slant on riding. Like most, we found ourselves staring in wonderment at it and thinking especially about how it would compare to its parallel in the Honda model lineup, the CB750F. Unlike the CB750K four-pipe version, the F shares many of its basics with the A. So we obtained both the Automatic and Super Sport 750s from American Honda, the U.S. distributor, and put them to the test.

No one will have any trouble telling the two bikes apart. The A uses different fenders, seat, fuel tank, wheels, sidecovers and assorted components, so there's no reason for any confusion. Unmistakably Hondas both, but with *very* individual personalities.

Both machines start off with basically identical chassis, although the A has a fractionally longer wheelbase. The F and the A are once again set apart from the K in this category because of the trail portion of its steering geometry, which causes some handling irregularities. With a full inch more of trail, both the A and F steer considerably better than the K in slow, tight turns and show a higher degree of stability at freeway and faster speeds.

In terms of ride characteristics and quality, we would've expected nearly identical performances from the Automatic and the Super Sport, since they share the same suspension components. Out on the road, though, the A rode harsher and stiffer than the F, and even the F was nothing to write home about. When we got to the suspension dyno and explored the innards of shocks and forks, we found out the reasons for the poor-to-fair ride quality and why each machine performed differently.

The rear shocks *look* different on each machine, but in reality are quite similar. The exception is a chrome decorative cover that slips over the top half of the spring on the Automatic. As is common practice with OEM dampers these days, the units have limited oil capacity and are built with low cost as the foremost factor.

Shocks on both have 8 to 10 pounds of compression damping and 110 lb. of rebound damping, about right considering the weight factors involved. The slight damping variance we discovered between shocks was primarily a result of manufacturing tolerances, not a difference in the shocks themselves. Although each shock spring has the same 100-lb. rate, the Automatic's spring has about twice the amount of preload, which may be an overreaction on the part of Honda engineers to the additional 40 pounds of weight the 750A carries.

As a result of the extra preload, the 750A rides terribly rough with one person aboard and barely reaches acceptable levels with a passenger added. In the meantime, the "stick" version can share the same lane and deliver a far more enjoyable ride with the identical shocks and springs. The preload we're discussing is measured with the adjusting ring spun to the "soft" setting.

Our suggestion for improvement would be to go to a slightly heavier spring (110 lb.) with a minimal amount of preload. This would allow good carrying capacity (as with a passenger and/or luggage), yet would provide less resistance at the beginning of the stroke movement. For an example, it takes 110 lb. of force to move the shock 1 in. with the 110-lb. spring and no preload. With the A's standard 100-lb. spring and 1½ in. of preload, it takes 250 lb. to move the shock that same inch. Let's take a look at the 750F shock for a moment to see the difference its factory preload setting makes with the same shock and spring.

To move that first inch of travel, 175 lb. of force is necessary as compared to the 250 lb. for the 750A. To move the full travel of the shock, which is 3 in., 375 lb. is needed, as compared to 450 lb. for the A. One staffer said he resorted to wearing his contact lenses when riding the Automatic because the ride was so rough it made his glasses jump up and down! But the rear shocks aren't the only culprits.

The forks aren't performing to their ability, either. Both the A and the F forks have 10 lb. of compression and 20 lb. of rebound damping. But rebound damping is too light for the spring (see accompanying suspension dyno chart). Standard spring rates are 40–42 lb., but, like the shocks, they are preloaded excessively, particularly on the 750A. A 30/40-lb. progressive spring with 1 in. of preload makes the forks perform far better. The ride is still firm for work at higher speeds, but at least won't dislodge eyeballs from their sockets.

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the CB750A Automatic

We were surprised to learn that ground clearance was slightly better on the Automatic. There's obviously been a concerted effort to tuck things up and in to gain that additional lean angle. For one thing the footpegs have been mounted higher up, which accounted for the cramped feeling in the knees our taller staffers experienced after long periods in the saddle. Also, the pegs seem to fall in position right where it is normal to place your legs during a stop to hold the machine upright. We never quite got used to their positioning, but relished the additional ground clearance provided. The 750F grounded the pegs more often in the same turns—particularly on the right side—and banged the exhaust pipe soundly to boot.

The Automatic's seat is far superior to that of the 750F; in fact, we think it's the best seat Honda has come up with on any of its models to date. Prolonged periods of distance riding will not be objectionable to average posteriors. That's a switch from the F, whose seat is not only hard, but has one of those passenger assist straps that serve no purpose other than annoying the rider.

The Automatic has a much better solution for the passenger hold. Attached to the rear portion of the seat is a heavily-padded, wrap-around grab rail. It provides a firm hold for the person along for the ride and is especially useful during braking, when the passenger often has nothing more to lean against than the rider.

Seats on both machines lock in place and flip up to reveal other items. On the Automatic there's a giant 20-amp-hour battery taking up most of the space and a removable kickstart lever that can be used when that huge battery decides to stick its tongue out. Space for the toolkit is found in a metal receptacle on the bottom of the seat base; a thumbscrew undoes the lid.

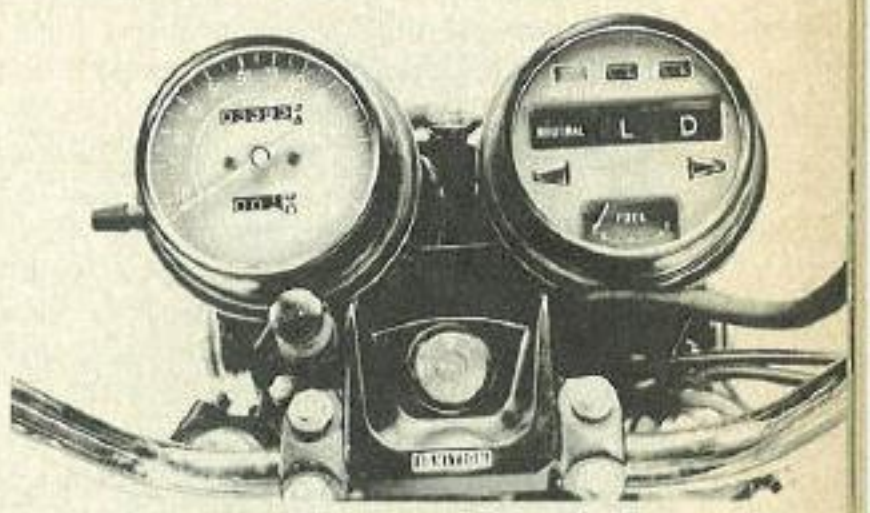
The 750F provides a nicer under-seat arrangement. The battery is smaller (14 amp hours), and so the toolkit can nestle beside it in a plastic bin. Toward the rear, a very handy storage compartment sealed from the elements allows space for small items like additional tools, chain lube or bungie cords. The cafe-type tail section provides extra storage space that Honda has wisely made good use of.

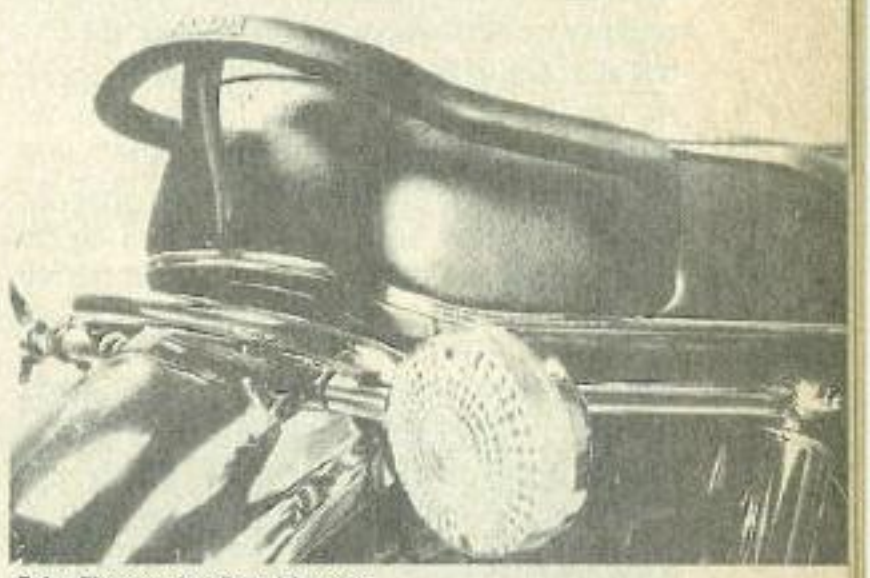
Pop-off plastic sidecovers on the 750F hide an oil tank on the right side and electrical components on the left. With the 750A's wet-sump engine no oil tank is necessary, so the covers hide only battery and electrics and hold the emblems that say "Hondamatic."

Each machine has a recessed fuel tank cap with a hinged, locking lid atop. The caps themselves are attached to the tank with small chains to preclude loss. If you're perplexed by a queer rattling, chances are it's the chain shaking around in the tank. Drain holes are fitted in the recess just in case fuel is spilled; and a rubber tube directs spillage to the ground.

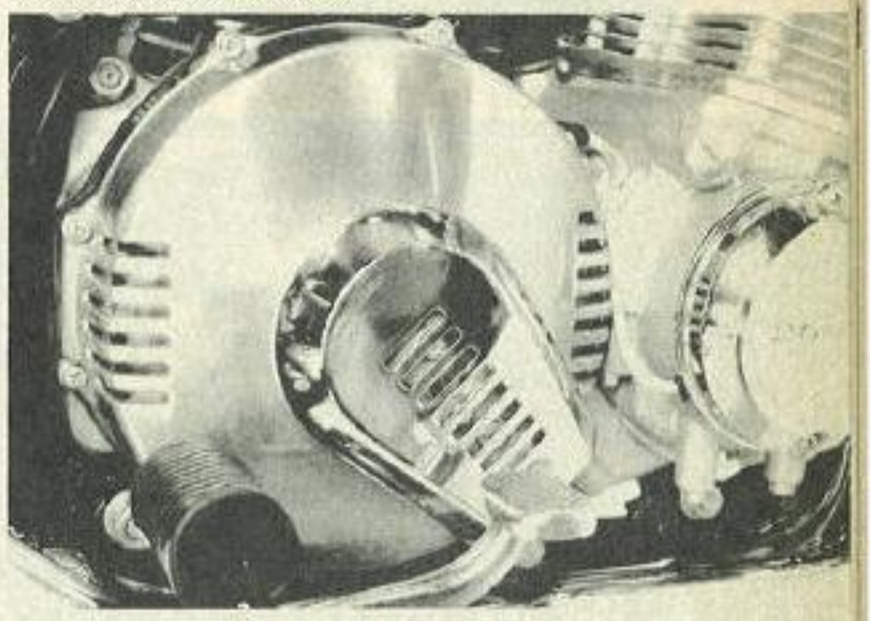
A convenient ignition switch location is a welcome feature of both bikes. The key is double-sided and also operates the lock mechanism on the seat and fuel tank lid. There is also a steering lock integrated into the ignition switch. Once the lock is turned to "off," the key can be depressed and turned to the left, which will lock the steering if the forks are in either the full-right or full-left position. A welcome safety feature that more manufacturers should adopt.

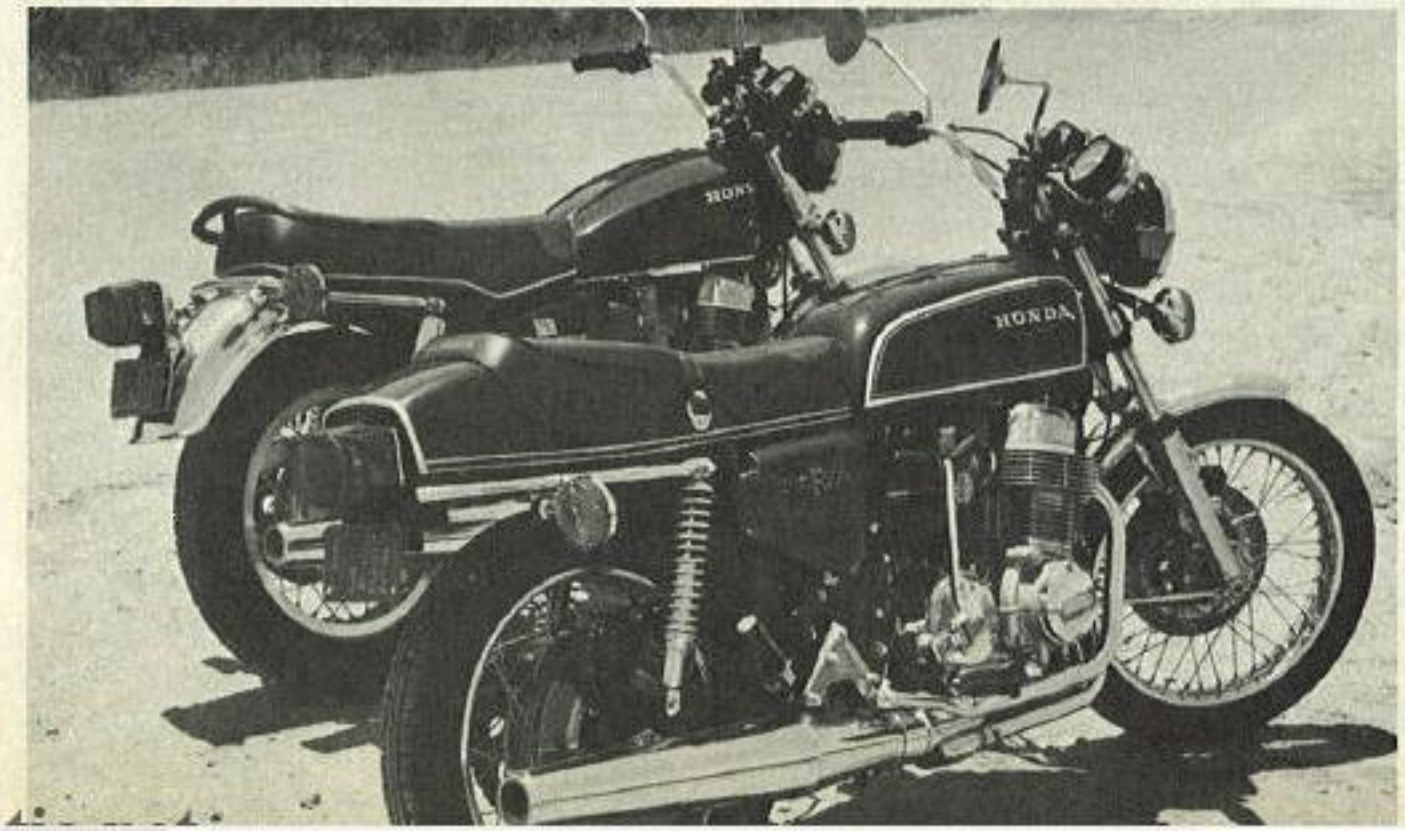
It is at this point that the two Hondas begin to go their separate ways. While the 750F features conventional Honda instruments, easily readable day and night, the Hondamatic's different requirements make different instruments necessary. A 140-mph speedometer face is found on the 750F, along with a resettable trip meter. On the other hand, the Automatic has a more realistic 120-mph face, with marks for the semi-Automatic's shift points: 60 mph for "low" range and 108 mph for "high." >





Color Photography: Scott Malcolm





CYCLE WORLD COMPARISON TEST

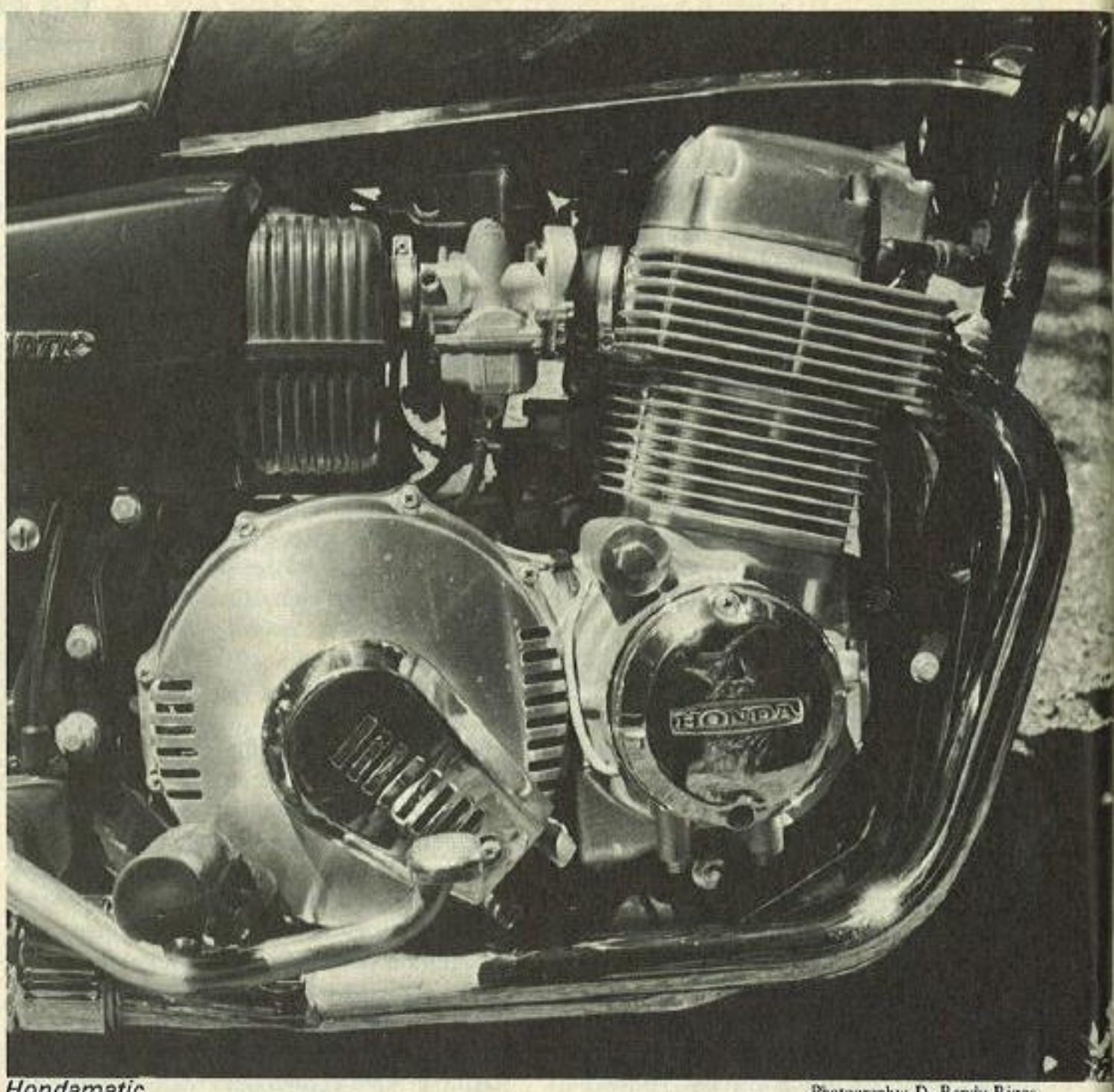
Honda Stick versus Automatic

Warning lights have a separate panel on the 750F and include oil pressure, turn indicators, high beam and neutral. The Automatic houses its lights in the face of what would normally be (and is on the 750F) the tachometer. At the top are included high beam and oil pressure, as well as a parking brake lamp. Yes, Virginia, this one's got a parking brake! Below those is a broader band of lights indicating gear selection: neutral in green and low and drive in blue. Amber turn indicators are below that, with a fuel gauge topping off the group.

Handlebar switches, the same on both machines, are up for heavy criticism. There is no on/off switch, which no doubt sells Honda a lot of batteries in the course of a year, and the high/low-beam switch placement is extremely awkward. The turn signal rocker switch features a lane-change detent, but the Yamaha self-canceling signals have us spoiled. We didn't care for the bars on either bike, particularly the Automatic's, nor did we like the waffle-pattern grips that are out of the dark ages. And that turn signal warning beeper should be unplugged before the machine ever leaves the showroom floor.

CATEGORY ONE
MANUFACTURER'S
SUGGESTED RETAIL PRICE

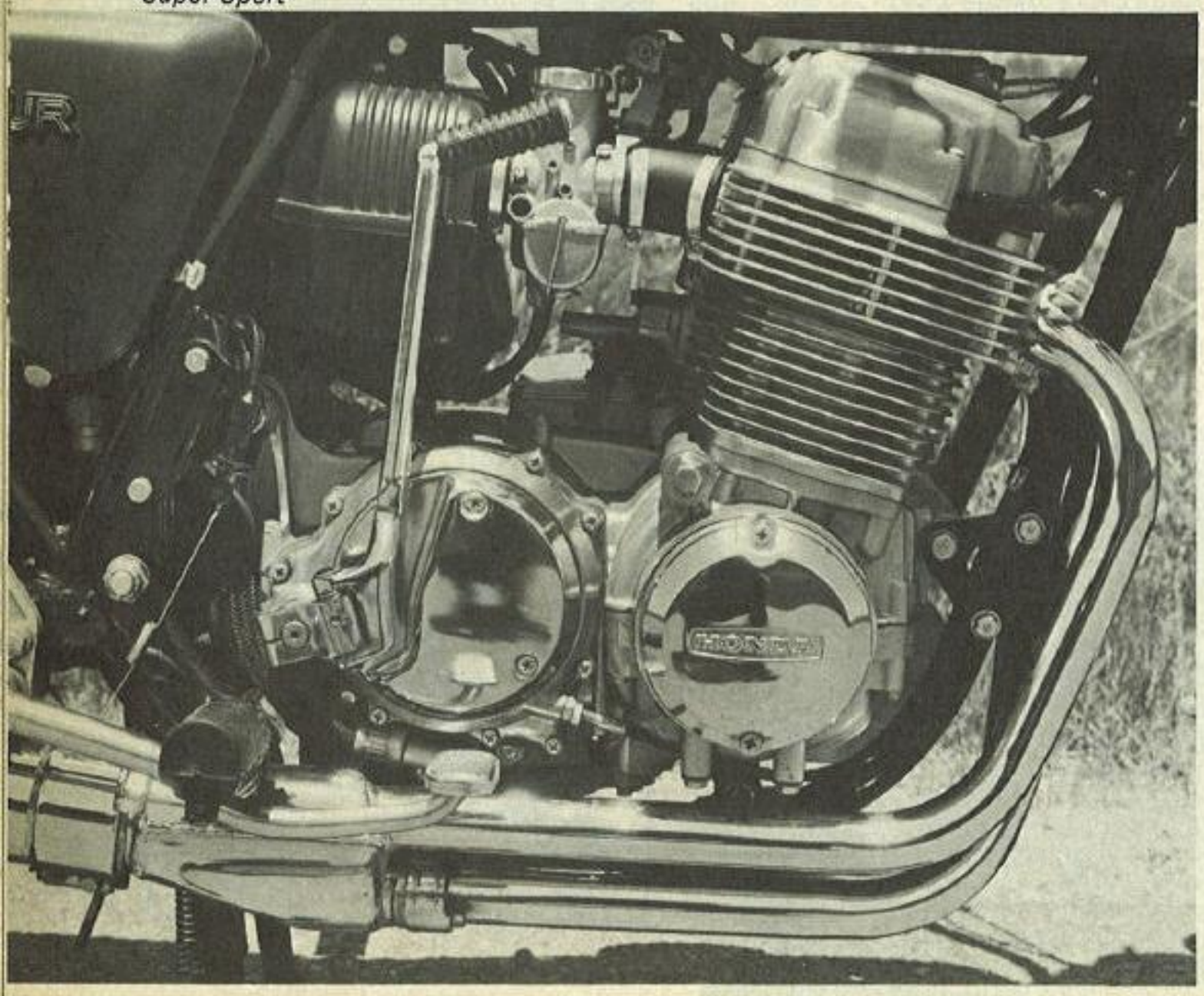
Hondamatic	$2194
Super Sport	$2186



Hondamatic

Photography: D. Randy Riggs

Super Sport



CATEGORY TWO
FACTORY WARRANTY

Hondamatic	6 mo./6000 mi.
Super Sport	6 mo./6000 mi.

Expecting similarity in the wheel and tire departments, we soon learned otherwise. The 750 Auto has some gorgeous aluminum rims that are GL1000 style right down to the 17-in. rear wheel diameter. In fact, the Automatic pirated a rear hub drive sprocket and chain directly from the K model CB, while the 750F uses a disc brake arrangement. Wheel rims on the shift-it-yourself model are steel.

Honda uses a large-profile 4.50-17 Dunlop K-87 tire on the rear of the A. The smaller rim diameter doesn't lower the seat height any; in fact, the large rear tire has a greater rolling circumference than a normal 4.00-18 size. Up front, the Automatic rolls a 3.50 Dunlop K6 on a 19-in. wheel; the "stick-shift" does the same, but in a smaller 3.25 size. On the backside the 750F has a Bridgestone Super Speed, 4.00-18. All in all, the tires on both motorcycles work well under most riding conditions. Even faster riders won't feel an immediate need to swap rubber for safety reasons, since the stock tires on

CATEGORY THREE CARRYING CAPACITY (GROSS VEHICLE WEIGHT, MINUS MACHINE WEIGHT)

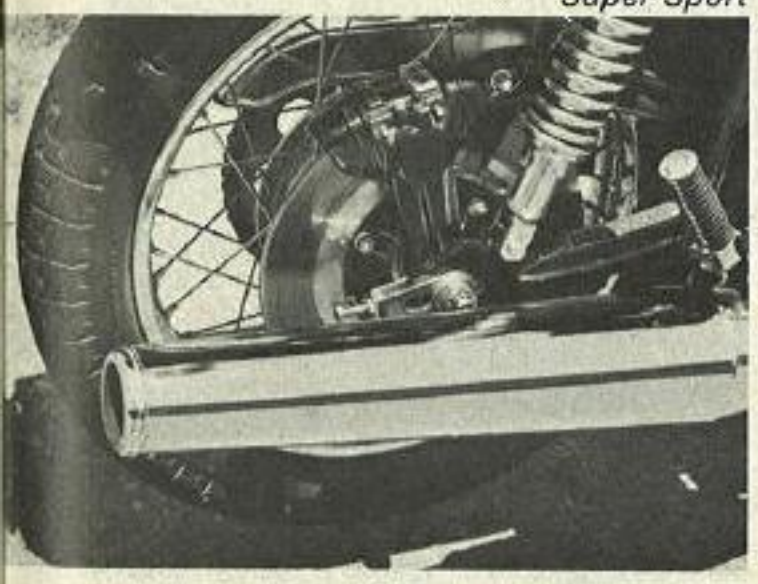
Hondamatic .....363 lb.
Super Sport .....360 lb.

both bikes stick pretty well.

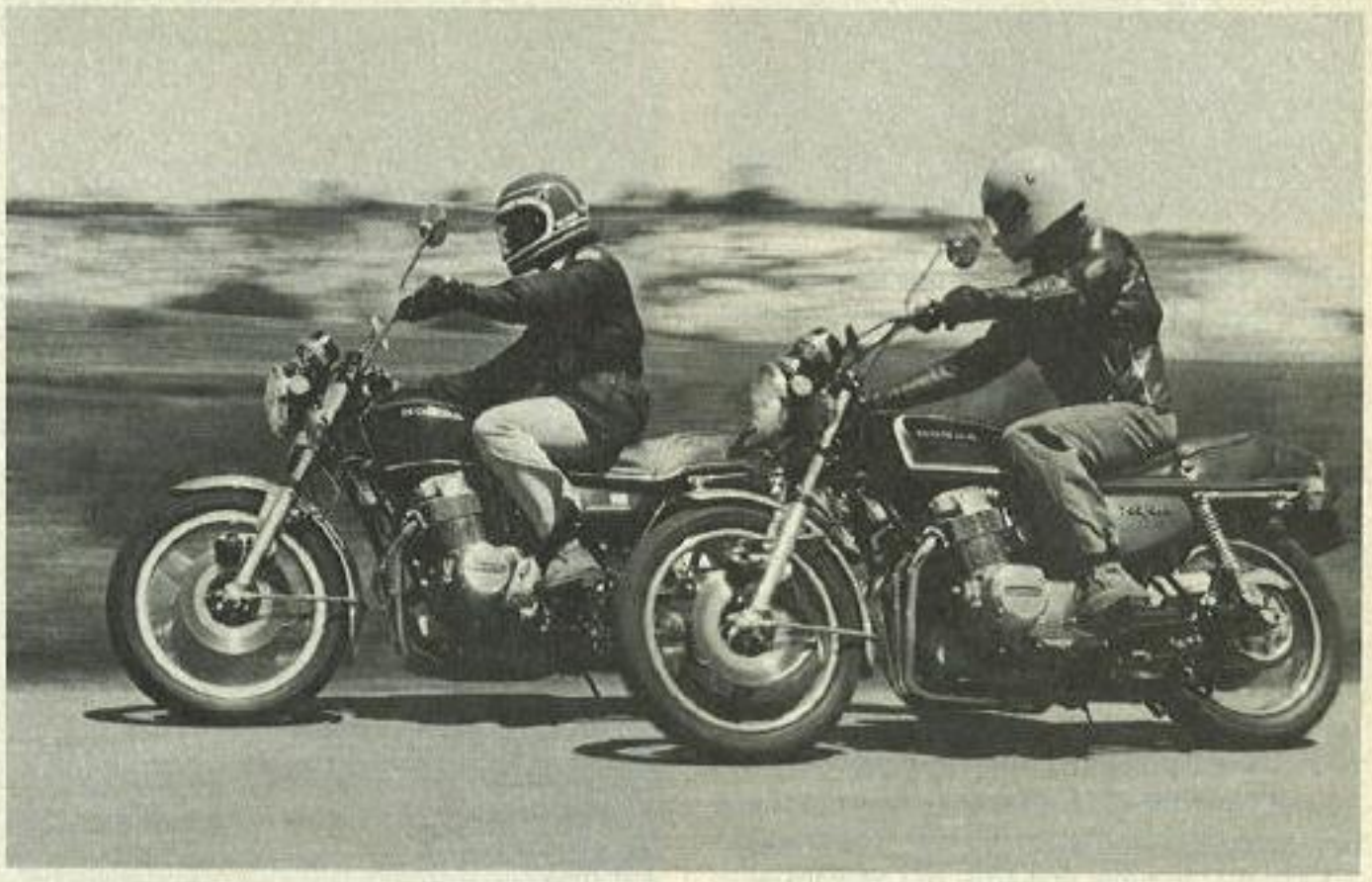
The staff of CYCLE WORLD is comprised primarily of sporting riders and we'll be the first to admit that we had mixed emotions and a lot of reservations about the Honda Automatic. Even when it comes to our automobiles, the largest percentage of us opts for shifting gears. Prejudice against automatics runs fairly rampant here. So what kinds of feelings and thoughts did the Automatic evoke from us, particularly since we had the "stick" version as a partner throughout the test?

Surprisingly, we didn't go away laughing or snickering about the "slushbucket out back" or "that thing they call a motorcycle." Without a doubt, Honda's CB750A is every bit a real motorcycle, delivering all of the same pleasures, though in a slightly different manner. As a result, it demanded and got all of our respect. Disregarding all of the likes and dislikes other than those transmission-related, we like Hondamatic.

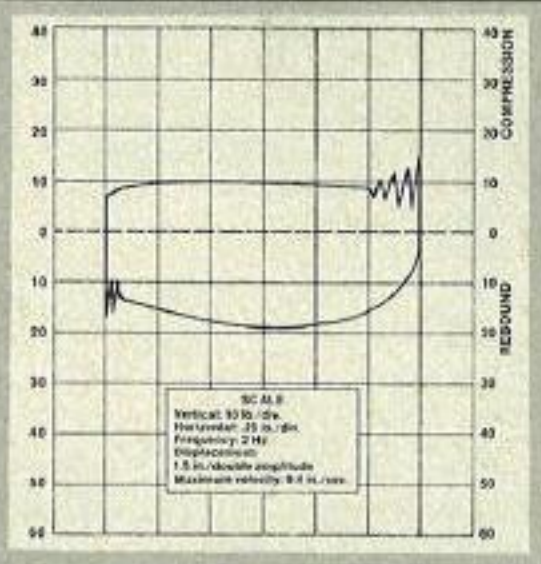
Super Sport



Hondamatic



FRONT FORKS

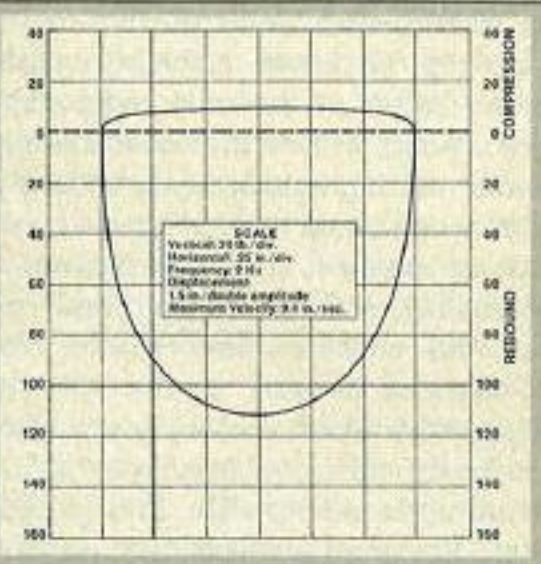


Description: Showa fork, HD-315 oil
Fork travel, in.: 5.25
Spring rate, lb./in.: 40
Compression damping force, lb.: 10
Rebound damping force, lb.: 20
Static seal friction, lb.: 16

Remarks (CB750F): Unlike earlier 750s, the F uses a conventional damper rod assembly to control compression and rebound damping. Compression damping is excellent. Rebound is too light for the 40-lb. spring. The ride is very harsh for two reasons: 1. The stiff spring, which is preloaded .75 in. 2. Excessive static seal friction. Spring replacement and some Yamaha fork seals would work wonders. Both S&W and Number One Products make appropriate springs. Yamaha 500 or 750 seals should work.

Remarks (CB750A): Specifications on the Automatic are identical to the F version's, so rebound damping is again light. In order to compensate for additional machine weight, however, a longer 40-lb. spring was installed to increase preload. The net result is that it takes a 100-lb. force to make this fork react vs. a 70-lb. force for the F. Needless to say, this bike needs a spring change even worse than the F. A seal change will also help considerably. The same units suggested for the F will work here.

REAR SHOCKS



Description: Honda 750 shock, non-rebuidable
Shock travel, in.: 3.25
Wheel travel, in.: 4.0
Spring rate, lb./in.: 100
Compression damping force, lb.: 8
Rebound damping force, lb.: 112

Remarks (CB750F): Compression and rebound damping are excellent, but these are not good shocks for fast riding because of their limited oil capacity and high rate of fade. Ride is harsh for solo riding because the spring is preloaded .75 in. For riding two-up or with luggage, this combination of spring and preload is perfect. Better would be a 110-lb. spring with just enough preload to put pressure on the spring clip. This would allow a softer initial ride, as it would require only 110 lb. to move the unit the first inch, as opposed to 175 lb. for the preloaded stock spring. With this setup solo riders will not have to suffer.

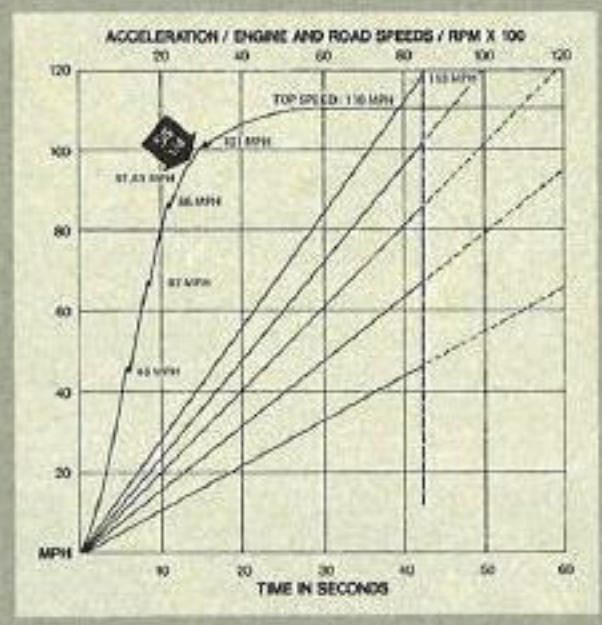
Remarks (CB750A): Shocks on the Automatic differ cosmetically from those on the F (they have a chrome spring cover), but are the same internally. Spring rate is also identical, but the Automatic's springs are preloaded twice as much. The result is an exceptionally rough ride, especially on concrete surface streets or freeways. Spring replacement like that suggested for the F is the single best thing you can do.

Tests performed at Number One Products

Honda Stick versus Automatic

CB750F

List price	$2186
Suspension, front	telescopic fork
Suspension, rear	swinging arm
Tire, front	3.25-19
Tire, rear	4.00-18
Brake, front, eff. dia. x width, in.	10.71 x 1.625
Brake, rear, eff. dia. x width, in.	10.71 x 1.625
Total brake swept area, sq. in.	109.13
Brake loading, lb./sq. in. (160-lb. rider)	6.23
Engine, type	sohc four-stroke Four
Bore x stroke, in., mm	2.40 x 2.48; 61.0 x 63.0
Piston displacement, cu. in., cc	44.9; 736
Compression ratio	9.2:1
Claimed bhp @ rpm	N.A.
Claimed torque @ rpm, 1 lb.-ft.	N.A.
Carburetion	(4) 28mm Keihin
Ignition	battery and coil
Oil system	dry sump
Oil capacity, pt.	7.4
Fuel capacity, U.S. gal.	4.8
Recommended fuel	premium
Starting system	electric; kick, folding crank
Lighting system	alternator
Air filtration	treated paper
Clutch	wet, multi-disc
Primary drive	single-row chain
Final drive	#530 single-row chain
Gear ratios, overall:1	
5th	5.43
4th	6.35
3rd	7.47
2nd	9.57
1st	14.01
Wheelbase, in.	59.6
Seat height, in.	33.0
Seat width, in.	9.75
Handlebar width, in.	31.5
Footpeg height, in.	12.5
Ground clearance, in.	5.0
Front fork rake angle, degrees	28
Trail, in.	4.5
Curb weight (w/half-tank fuel), lb.	525.5
Weight bias, front/rear, percent	46/54
Test weight (fuel and rider), lb.	685
Mileage at completion of test	3138
Engine rpm @ 60 mph	4305
Piston speed (@ 8500 rpm), ft./min.	3513
Lb./hp (160-lb. rider)	N.A.
Fuel consumption, mpg	39
Speedometer error:	
50 mph indicated, actually	48
60 mph indicated, actually	57
70 mph indicated, actually	67
Braking distance:	
from 30 mph, ft.	32
from 60 mph, ft.	129
Acceleration, zero to:	
60 mph, sec.	7.6
Standing one-quarter mile, sec.	13.52
terminal speed, mph	97.61
Top speed (actual @ 7923 rpm) mph	110

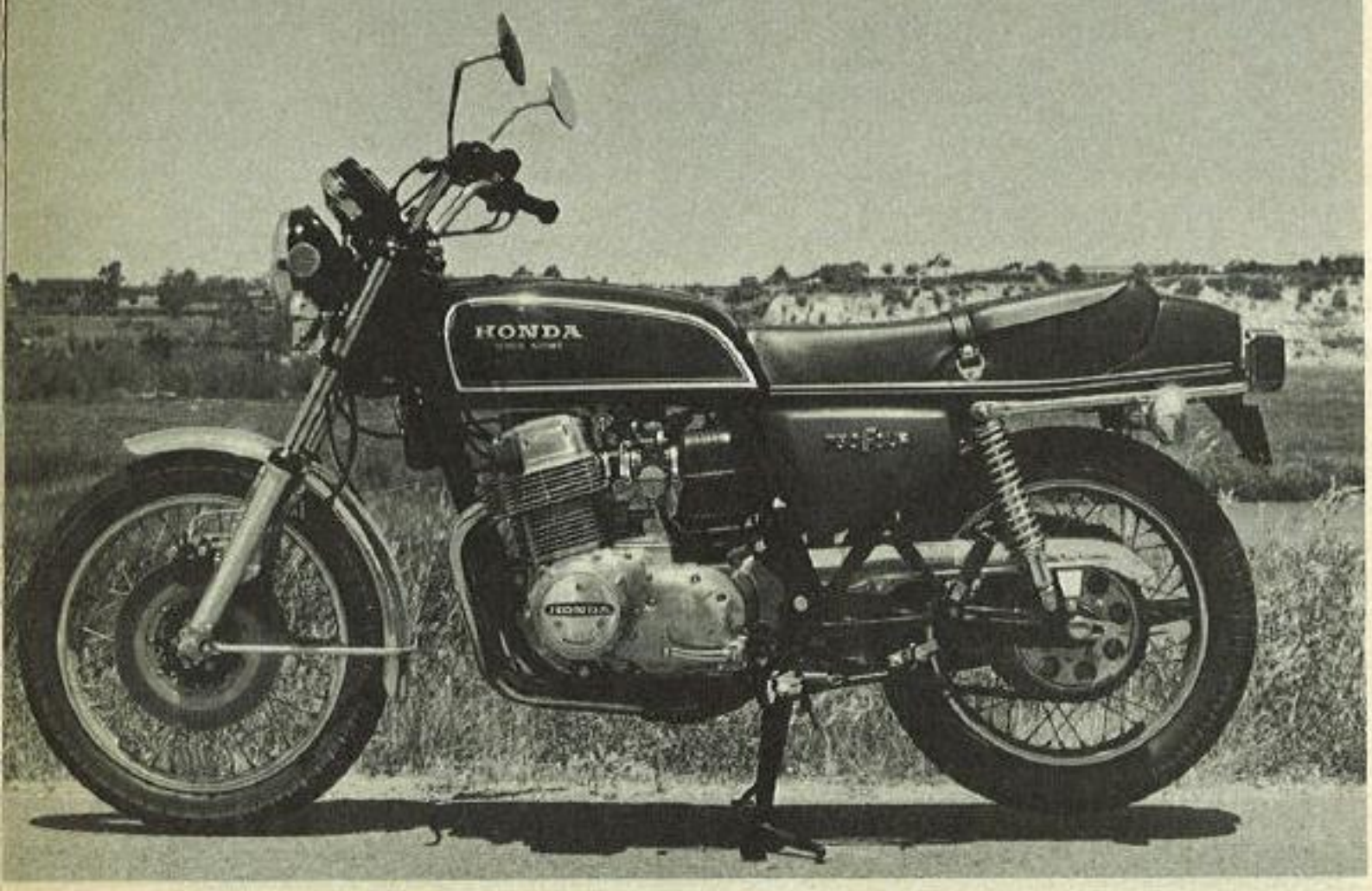


CATEGORY FOUR
GAS MILEAGE

Hondamatic	43 mpg
Super Sport	39 mpg

The starting procedure is the same as for any other Honda, with some slight differences. For one, there is that parking brake we mentioned earlier. To operate it, one must pull out a two-piece knob mounted under the left rear portion of the fuel tank behind the on/off/reserve fuel petcock. It snaps in place and if your foot is depressing the brake pedal, a ratcheting device will hold the rear brake shoes in a locked position. This enables the machine to be parked on an incline without rolling away, because, as you remember, this one can't be clicked into a gear that will keep it from moving. One reason is that there is a safety device built into the sidestand in the form of linkage that slips the transmission into neutral any time the stand is lowered. And the other reason is that the fluid coupling of the transmission won't prevent the bike from moving. To release the brake, a push on the center button of the knob and a step on the brake pedal will do the deed. The parking brake warning light lets you know when the unit is operating.

Once the engine is started (and it will take some fiddling with the throttle and choke because this is the coldest-blooded Honda ever), there is no way anyone can come along and move the lever into gear while the bike is on the sidestand and have it take off and wind up in a heap. The linkage device built into the stand prevents such accidents. It also keeps the rider from taking off with *Super Sport*



CATEGORY FIVE
CRUISING RANGE

Hondamatic	219 mi.
Super Sport	187 mi.

the sidestand in the down position. Moreover, there is an interlock switch that prevents the starter from turning over unless the machine is in neutral.

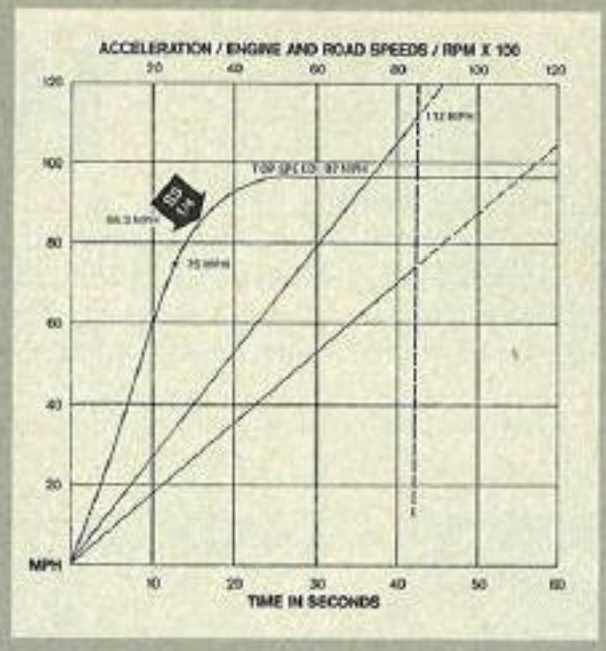
First-timers on the Automatic will instinctively step down on the gear change lever to engage the transmission, since that's where first gear is on the majority of conventional motorcycles. But on this one that's where neutral is. Low is one notch up, drive one notch farther. We stated earlier that the transmission is not a true automatic . . . and it isn't. Start out in low and the bike will remain in low until the engine runs out of revs, or until the rider shifts to drive. Start out in drive and it will remain in drive, while an internal change in ratio is taking place with the torque converter. (See the accompanying technical sidebar for an explanation of how the Hondamatic works).

CB750A

List Price	$2194
Suspension, front	telescopic fork
Suspension, rear	swinging arm
Tire, front	3.50-19
Tire, rear	4.50-17
Brake, front, eff. dia. x width, in.	10.71 x 1.625
Brake, rear, eff. dia. x width, in.	7.1 x 1.6
Total brake swept area, sq. in.	90.24
Brake loading, lb./sq. in. (160-lb. rider)	7.94
Engine, type	sohc four-stroke Four
Bore x stroke, in., mm	2.40 x 2.48; 61.0 x 63.0
Piston displacement, cu. in., cc	44.9; 736
Compression ratio	8.6:1
Claimed bhp @ rpm	N.A.
Claimed torque @ rpm, lb.-ft.	N.A.
Carburetion	(4) 24mm Keihin
Ignition	battery and coil
Oil system	wet sump
Oil Capacity, pt.	11.6
Fuel capacity, U.S. gal.	5.1
Recommended fuel	premium
Starting system	electric; emergency kick
Lighting system	alternator
Air filtration	treated paper
Clutch	none, hydraulic torque convertor
Primary drive	Morse Hy-Vol chain
Final drive	#530 Single-row chain
Gear ratios, overall:1	
High	5.80
Low	8.63
Wheelbase, in.	58.0
Seat height, in.	33.0
Seat width, in.	10.5
Handlebar width, in.	31.5
Footpeg height, in.	13.0
Ground clearance, in.	6.0
Front fork rake angle, degrees	28
Trail, in.	4.5
Curb weight (w/half-tank fuel), lb	557
Weight bias, front/rear, percent	45.4/54.6
Test weight (fuel and rider), lb.	717
Mileage at completion of test	4237

PERFORMANCE

Engine rpm @ 60 mph	4560
Piston speed (@ 8500 rpm), ft./min.	3513
Fuel consumption, mpg	43
Speedometer error:	
50 mph indicated, actually	47
60 mph indicated, actually	58
70 mph indicated, actually	67
Braking distance:	
from 30 mph, ft.	31
from 60 mph, ft.	129
Acceleration, zero to:	
60 mph, sec.	10.0
Standing one-quarter mile, sec.	15.90
terminal speed, mph	86.34
Top speed (actual @ 7361 rpm) mph	97



Hondamatic

CATEGORY SIX
QUARTER-MILE

Hondamatic . . . . 15.90 sec./86.34 mph
Super Sport . . . . 13.52 sec./97.61 mph

In essence, what this automation does is free the rider from thinking about and worrying about the gears. He can now concentrate on the traffic and surroundings. This can benefit an experienced rider as well as a green one who has his hands full enough without worrying about the gears.

We mentioned the cold-blooded nature of the beast, which requires longer than normal warmup and lots of choke before the engine will stay alive. Part of the reason is the change to a wet-sump engine, which means there's quite a lot of oil in the lower end to be churned and warmed. One can almost sense when the engine is finally at normal operating temperature, because it suddenly seems to *want* to run.

Carburetion is radically different from that of the 750F. Instead of the 28mm Keihin slide/needle carbs found on the F, Honda has equipped the A with 24mm units. With the 28s there is a rather pronounced flat spot just off of idle when the throttle is opened a significant degree. On a clutch bike it makes no difference because the clutch is slipped when starting off and the peculiarity doesn't make itself known. On the Automatic, however, it would be a definite aggravation, so an accelerator pump system has been designed in to fill up the flat spot.

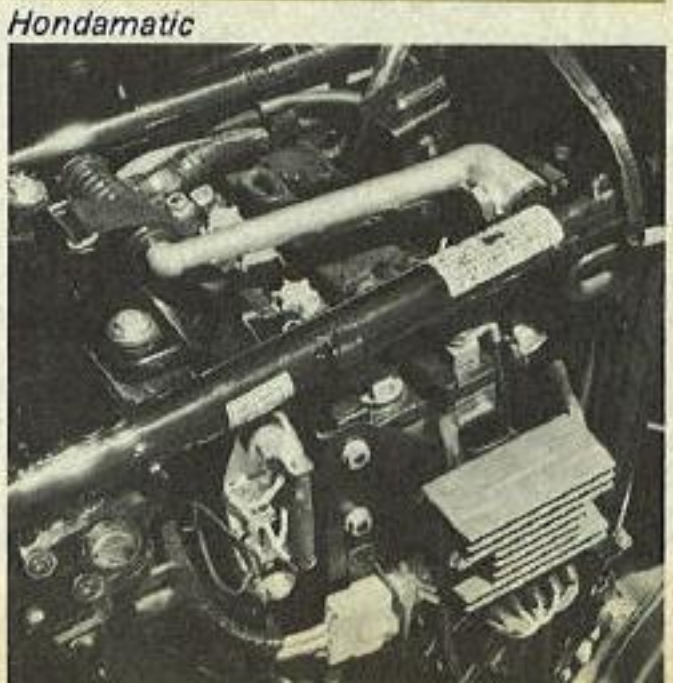
There's only one pump—on the number two carb—which connects up to the others with hoses and passages. When the throttle is opened up at any point, each carburetor gets an extra dose of fuel to wipe out the flat spot. It works, but that doesn't mean that the carbs are completely dialed in.

We discovered that while cruising at a steady speed at which there is little or no throttle load, the engine surges and stumbles >

CATEGORY SEVEN
TOP SPEED

Hondamatic . . . . . 97 mph
Super Sport . . . . . 110 mph

Hondamatic



Honda Stick versus Automatic

enough to be disconcerting. It almost feels as though the bike is running out of fuel and the time has come to switch to reserve. Upon returning our machine to Honda for a remedy, it was discovered that the problem is caused by an overly lean condition in jetting that can't really be corrected completely. Some machines have the problem and some don't, but Honda has yet to eliminate the trouble spot entirely. At another point our machine quit completely. This time the problem was traced to a faulty fuel petcock that would only flow fuel when the bike was leaned to one side or the other.

The only other annoyance that occurred was squealing front brakes on both bikes, the 750F in particular. Since we've never before experienced Honda discs that squealed so badly, we suspect that brake pad composition may have been altered this year. Whatever the cause, it was most irritating.

The choice between the 750F and the 750A is going to be a difficult one for most people. Though they have many traits in common, they are really very different motorcycles. The Automatic allows a rider new freedom and has distinct advantages for the motorcyclist who spends a lot of time in heavy traffic or wet weather. Performance suffers, but the Honda 750A won't have to take a back seat to many four-wheelers. And once both machines are underway at highway speeds, differences in acceleration are not nearly so pronounced.

A rider who enjoys snaking through the mountains or back roads will find the Hondamatic somewhat limiting, but the situation reverses itself when towns approach and traffic becomes a big part of the scene. We absolutely loved the 750A in Los Angeles' rush-hour freeway traffic; its low-speed handling ease and lack of clutch really shone through in this application.

There are theories popping about that the Hondamatic will bring into motorcycling a lot of people who never would have trespassed otherwise. We think that will be true only to a very limited degree. It is more likely that newcomers will be put off by a 750cc motorcycle that weighs nearly 550 pounds, and continue to learn to ride on something smaller, lighter and less intimidating. On the other hand, those who have spent considerable time on two wheels will look forward to the automation part of it and not be bothered by the bulk.

We know the 750A will be a tremendous success and feel that the foundation of that success will be based on sales to older, more

CATEGORY EIGHT BRAKING

60-0 mph

Hondamatic	129 ft.
Super Sport	129 ft.

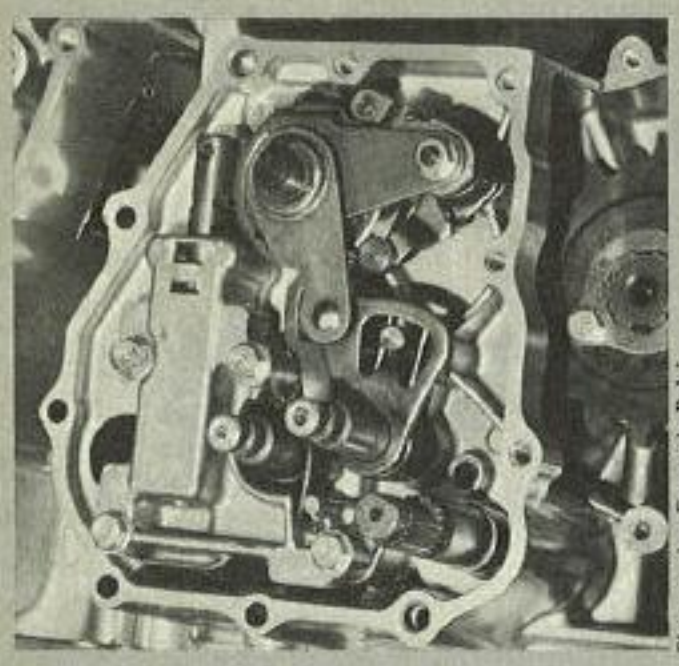
30-0 mph

Hondamatic	31 ft.
Super Sport	32 ft.

Hondamatic:

By Fernando Belair

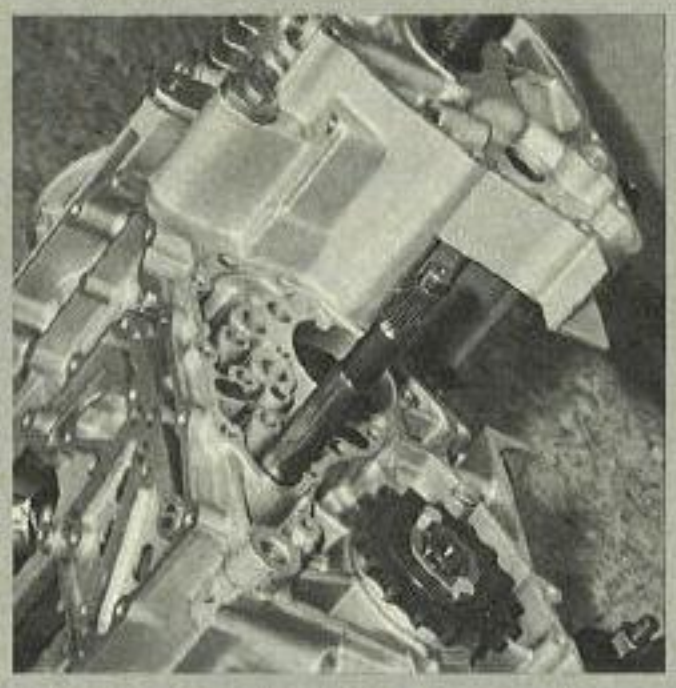
HONDA'S AUTOMATIC is not, in the true sense of the word, an automatic. Rather, it is a semi-automatic, very similar in performance to that of the first Volkswagen Automatic. The rider selects either a low or a high ratio and the torque converter takes care of the power delivery in the manner that provides the best possible acceleration. Still, the Hondamatic is a very intriguing animal. We thus decided to take a look inside one to see exactly how it works.



Photography: Fernando Belair

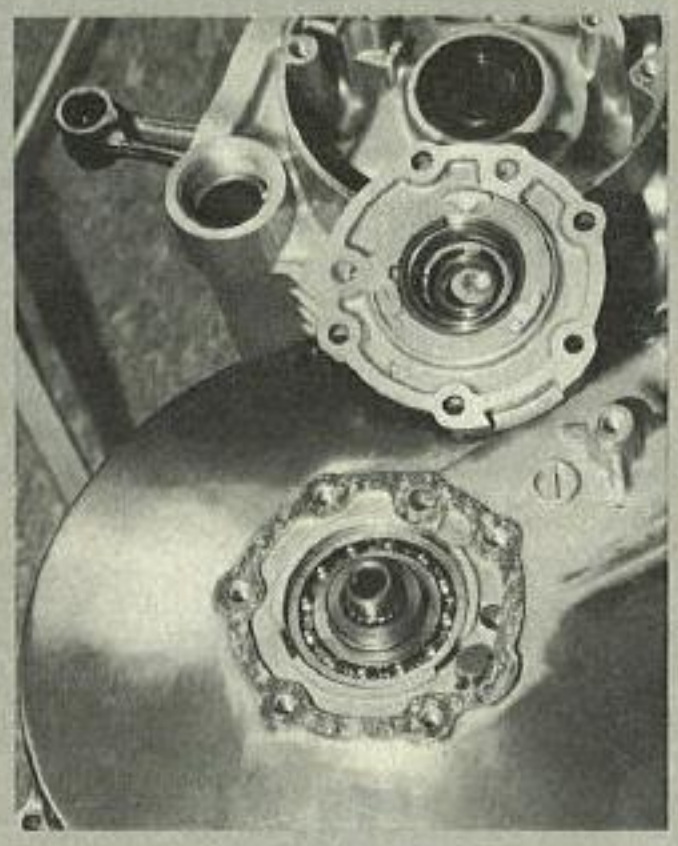
The Automatic's shift-mechanism is merely a three-position hydraulic valve. The left splined shaft is for the automatic neutral locater that is operated by an arm attached to the descending sidestand. The central splined shaft is the actual shift shaft. The splined shaft at the lower right is for the emergency kickstart pedal that is stored beneath the seat.

Beneath the shift mechanism are two trochoidal pumps. Both of them draw through the filtered scavenger from the wet sump. One pump is used to feed the engine and lubricate the mainshaft and output shaft bearings. The other pump is slightly wider and is purely a pressure pump whose job it is to fill the torque converter and the particular pressure-activated clutch selected through the shift mechanism. Engine pressure is normally about 70 psi, while the pressure in the torque converter and clutches can be as high as 180 psi.



(Note: In this photo the bottom and left sides of the engine are in view).

With the shifter mechanism and oil pumps out of the way, the oil passages can be seen near the protruding kickstart shaft. Oil is drawn through one of these tube-like passages and then pressure-fed back through the others to the maze-like galleys at the bottom of the engine. The galley-filled plate opposing the galleys cast into the crankcase directs the oil to either the engine or the torque converter and clutches, depending upon the galley. Before reaching the torque converter, the high-pressure oil passes a relief valve. The valve also contains a relief override, the spring for which is partially visible in the photo.



The high-pressure oil travels through cast-in passageways until it arrives at the exposed outer plate. As can be seen, five of the seven holes are cut all the way through and are used for bolts that secure the plate. The other holes are oil passageways. The top one receives the oil and directs it to the center of the hollow shaft from which the torque converter gets filled. The left hole is a return hole that is blocked by a lightly sprung dowel in order to prevent the torque converter from draining when the engine is in neutral and no transmission pressure is being created. When low gear is selected, the oil pressure forces circulation in the torque converter for the purpose of cooling. As fresher oil is fed in, the existing oil drains past minute semi-circular cutouts on the inner surface of the bushing that rides over the visible splined shaft. This pressurized oil causes the dowel to recede and allow the oil to pass back into the sump.

CB750A PARTS PRICING

Warranty	N.A.
Major Tuneup	N.A.
Air Filter Element	$9.90
Rear Tire (standard)	24.40
Drive Chain (standard)	45.20
Headlight Bulb or Sealed Beam	9.50
Taillight Bulb	.74
Turn Indicator Bulbs	.74
Battery	55.30
Throttle Cables, ea.	6.60
Ignition Parts	
Points	3.10
Condenser	4.30
High Tension Coil	32.60

CB750F PARTS PRICING

Warranty	N.A.
Major Tuneup	N.A.
Air Filter Element	$9.90
Rear Tire (standard)	24.40
Drive Chain (standard)	43.20
Headlight Bulb or Sealed Beam	9.50
Taillight Bulb	.74
Turn Indicator Bulbs	.74
Battery	39.30
Clutch Cables	3.70
Throttle Cables, ea.	7.10
Ignition Parts	
Points	3.10
Condenser	4.30
High Tension Coil	32.60

experienced riders. The Super Sport, meanwhile, will continue to appeal to riders who like snappy performance and the image the 750F carries. It is a distinct possibility that in the future Honda will broaden its Hondamatic's horizons by coupling up the torque converter to mid-sized machines, thereby grabbing the people who don't feel like contending with a large motorcycle. There is quite a difference between the 750A and the 750F, and anyone at all interested in motorcycles owes it to himself to approach the 750 Automatic with an open mind. It deserves all the attention it will get.

CATEGORY NINE
PASSING

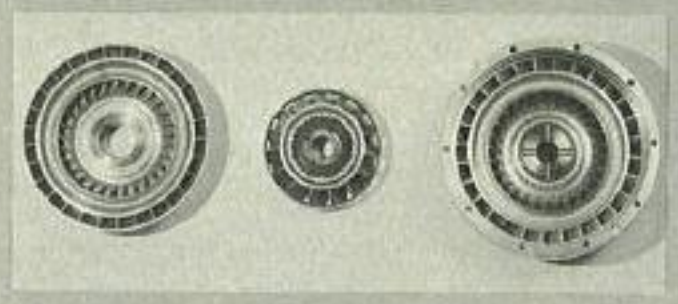
40-60 mph

Hondamatic	3.8 sec.
Super Sport	3.0 sec.

60-80 mph

Hondamatic	5.4 sec.
Super Sport	3.7 sec.

How it works



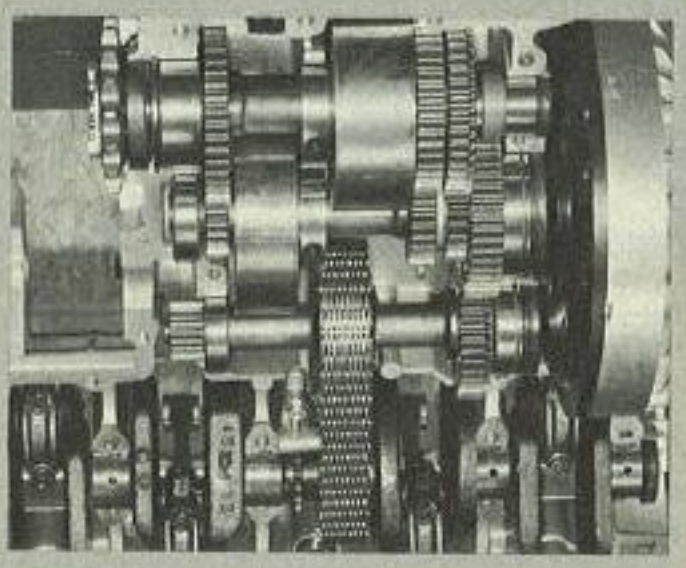
Honda's torque converter consists of three basic parts and is very much like torque converters on automatic automobile transmissions. The three parts are the pump (left) the stator (center) and the turbine (right). As you can see by the varying sizes of the individual center holes, each rides on a different concentric shaft. The pump is the only part of the engine that is directly driven by the engine. As the engine is revved, the pump's vanes throw oil at the turbine's vanes, rotating the turbine and the center shaft of the concentric shafts. It is on this shaft that the low-gear clutch rides. The turbine's vanes receive the high-speed oil and send it, through its central vanes, back at the pump. Unfortunately, at this point the returning oil is exerting force in the opposite direction of the pump's revolutions. This is where the stator comes in.

The stator is the smaller vaned device that rides on the mid-sized concentric shaft. It is equipped with a one-way clutch that allows it to spin only in the same direction as the pump and turbine. As long as the differences in speed between the engine-driven pump and the gear-driving turbine are great enough to keep the stator pressed back against the clutch's lock, the turbine just sits there, its vanes altering the direction of the turbine's returning oil so that it can be picked up once again by the pump and reused.

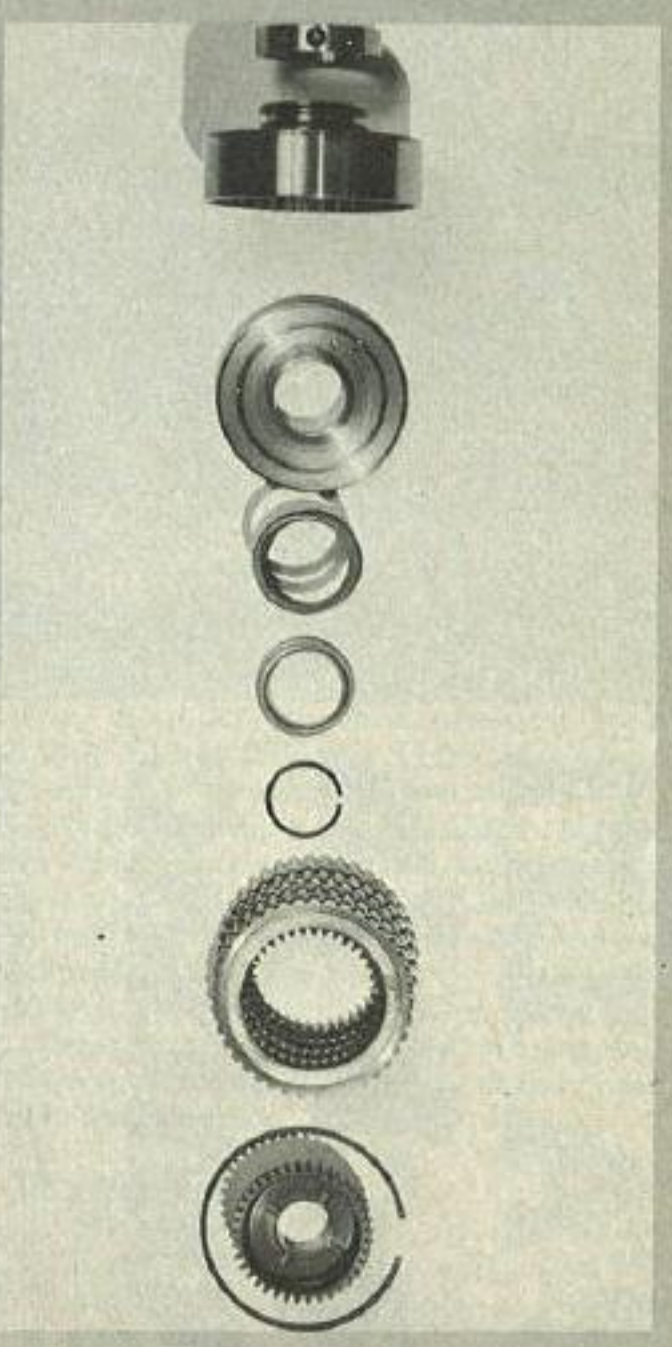
Since oil that has passed through the stator is now traveling in a direction favoring the pump, the oil's forces act to increase the torque force exerted by the pump on the turbine. Therefore the stator acts as a torque multiplier.

In addition, the stator's shaft is fitted with an arm that rides directly above the transmission relief override. When the oil pressure against the stator is great enough, such as under hard acceleration, the arm activates the relief valve override and pressure in the torque converter increases, improving oil flow for better cooling.

As the speed of the gear-driving turbine begins to match that of the engine-driven pump, a simple fluid coupling takes place with the stator now spinning merrily along.



Now that we have power to the mainshaft, we have to get it to the gears. This is controlled by the shift mechanism. It opens valves that direct the high-pressure oil to the clutches. This oil presses against steel pistons that in turn press against the clutch plates, thus transmitting the power to the gears, then to the output shaft and summarily to the rear wheel. Select the high ratio and the oil is then fed to the second or rearmost clutch, engaging the taller drive ratio. As can be seen in the photo, there are no sliding gears in this transmission, no shift plate, shift forks or dogged gears. Everything operates hydraulically. The O-ringed hole on each clutch collar is where the clutch actuating oil enters.



A disassembled clutch reveals all of the internal working parts. From top to bottom they are the hub's bearing/collar, the clutch hub, piston, piston return spring, retaining collar, snap ring, clutch plates, the gear and drive hub and the plate-retaining snap ring.