road test

With the humble stepthrough came a whole generation's introduction to Japanese motorcycling. And from there bikes appeared to grow bigger and more brutal while the basic, gentle, Japanese commuter stayed exactly as it first appeared.

So what of the humble stepthrough today? It's around, it's practical, it's possibly common sense. But what's it like to ride?

A reminder of how much times have changed was never more obvious than in our . . .

STEPTHROUGH SHOOT-OUT

Suzuki FR80 · Honda C90 · Yamaha Chappy

Appearances more than a decade old have done nothing for the looks of the stepthrough brigade although the splashguards are extremely effective. Yamaha's alternative is natty-looking but behind the eight-ball with small wheels and two-speed gearbox.

A self-propelled machine in any guise offers basic transport. And, struggling for adequacy in modern conditions, the venerable stepthrough does only that.

MOTORCYCLE SALESMEN will always tell you that small commuter bikes are slow movers in both senses of the word. That's hardly surprising considering consumers' general reluctance to buy from the bottom of the market, and then there's the general non-performance of the machines themselves. The pride element comes into it too; the imagery that you're fair game to be shut down at every traffic light by the local brat on his dragster push-bike might be untrue, but it's *ever-present!*

The bikes really aren't that slow. Many people who choose machines of, say, 125 cm³ capacity or smaller could do well looking at the 80-90 cm³ stepthroughs. Their side benefits *can* outweigh by a long margin the performance misgivings with which these small machines are bred. Just bear in mind they're born as a commuter and won't grow up into any form of tourer. They are strictly limited to sub-80 km/h travel.

If one can survive the initial running-in without being run over, step-throughs can offer adequate hop-on-and-putter-around-town-type transportation. That's if you don't follow the owner's handbook running-in instructions to the letter. Most makes are limited to a maximum speed of 25 km/h for the first 200 km — a rather dangerous proposition for sure! One might as well tie a collar around the handlebars and take the bike for a walk at night to log up the distance.

Checking out the step-through scene we discovered the big three (Honda, Yamaha and Suzuki) all make a stepthrough in the 70-90 cm³ class at around about the same price.

The tests performed on the bikes were the same as on our normal road test machines with the one exception of the dynamometer. It's not because we feared the bikes wouldn't turn the rollers, but the accuracy of the power scale is a problem with such a delicate power reading.

So with all that in mind we took a deep breath and stepped aboard the Suzuki FR80, Honda C90 and the Yamaha Chappy . . .

Engine and performance

Within the three test machines we had two bikes powered by two-stroke engines and one of the four-stroke variety (the Honda). And how well that powerplant serves the four-stroke commitment of the world's major motorcycle manufacturer! The same basic engine powers the S90, CL90, CL90L, CD90 and CT90; the major difference between these "world market" models is that the C90 and CT90 have an automatic clutch.

The engine is an air-cooled four-stroke single-cylinder type tilted forward 75 degrees. The overhead valves are operated by a chain-driven overhead camshaft. Bore and stroke are 50 × 45.6 mm, giving a displacement of 89.6 cm³. The compression ratio is 8.2:1 and the engine puts out a claimed power of 5.59 kW at 9500 rpm and torque of 6.57 Nm at 6000 rpm.

It's a small bike for sure, but just *how small* is really hammered home in the size of the engine components. Take for example the Keihin carburettor; it has a 15 mm throat and fuel tank capacity is just 5.5 litres. And even with that capacity the Honda can still manage more than 400 km (yes, 400!) to the tankful in economy riding.

That type of consumption represents almost 80 km/litre, but at an unrealistic constant 30 km/h rate of travel. Under more standard riding conditions the Honda returned 39.4 km/litre (111 mpg) but never went below 37.5 km/litre even in hard riding.

We had no trouble starting the C90 in either hot or cold conditions even though it still has the regular points and coil type of ignition. Usually two or three kicks were necessary to have the 90 firing under cold starts and warm-up was almost instantaneous.

The two-stroke machines are in the Suzuki FR80 and the Yamaha Chappy. Both are powered by single-cylinder two-stroke, air-cooled engines. Bore and stroke dimension of the Suzuki is 49 × 42 mm, giving a displacement of 79 cm³. The Yamaha is a little smaller at 47 × 42 mm for 72 cm³. Reed valve induction is used on both engines; unexpected on the Suzuki since its range of two-stroke machinery has used piston-controlled porting in the past. At 16 mm the Suzuki's carburettor size is largest, and both two-stroke machines use the familiar (if miniature) Mikuni. The use of a larger carburettor radically affects fuel consumption on the 'strokers — they both returned around 30 km/litre under normal riding conditions.

Power output for the FR80 is a claimed 5.07 kW at 6500 rpm with a torque of 8.04 Nm at 4500 rpm. Compared to the C90 it has less power but produces more torque down low — an unusual twist in the two-stroke versus four-stroke comparison.

On the Yamaha Chappy only a maximum torque figure is noted: 6.37 Nm at 4000 rpm. From the performance of the bike and the torque rating we estimate power output to be around 4 kW at about 6000 rpm and well behind the other two commuters in the test.

Both two-stroke engines are lubricated by an essentially similar automatic oil injection system, Suzuki uses its "CCI" and Yamaha its "Autolube". Ignition is by flywheel magneto for the two machines.

For three machines of similar capacity we did not expect the performance to be so different. The Suzuki is by far the best performer followed by the Honda and then the Chappy, restricted by its gearing system.

Although the slowest of the trio, the most vibration-free was also the Chappy. It dampens most engine vibration through the engine mounts and frame. The worst bike to ride was the FR80. It produced a high-frequency vibration which undid anything on the bike which wasn't welded on. We lost a rear number plate somewhere between Parramatta and Sydney, the exhaust pipe fell off, as did the sidecovers no matter how tight we screwed them up. Numerous other bits and pieces came loose; a comedy scene where our test rider turned up in Melbourne after an interstate hop armed with only a set of handlebars seemed all too real. In a fit of frustration we consigned the FR80 to the garage one long night and coated everything that moved with Loctite.

At the dragstrip

Yep, we did actually give all the machines a run at the dragstrip but it wasn't all fast movement.

Suzuki's FR80 is the best performer of the bunch but we couldn't better 24 seconds ET for the standing start 400 metres. Some of the times ran as high as 24.6 seconds. Maximum speed over the SS400 was 80 km/h and the FR80 reached that long before the line.

The absence of a tacho and the instinct for self-preservation prompted the decision *not* to click the centrifugal clutch type gearbox into first gear from neutral at 6000 rpm.

"Conscious of our own vulnerability to accusation of big-bike bias, the best we can recommend for Japan's stepthroughs is that they be ridden slowly, unladen and in light traffic conditions — but on no account treated as tourers".

Rather, we chose to take off normally with the bike in gear and engine idling. Scooter-type pedalling or running in front of the bike coaxing it along with expensive two-stroke oil was absolutely disallowed. Rear wheel burnouts to heat up the tyre were severely discouraged but some fishtailing was noted at the start line as one test rider nearly fell off by jumping up and down trying to reduce the sprung weight of the machine.

Second fastest was the C90 Honda, and in far more controllable fashion than the Suzuki. The SS400 metre times were nearly as quick with a best time of 24.3 seconds and most within the high 24 second region. Maximum speed over the SS400 metres was 82 km/h, again reached long before the finish line. The starting method differed from the runs with the Suzuki. Honda has fitted the C90 with an automatic clutch system which operates off the footlever to disengage just before each change. We used this to advantage by revving the engine while pressing the gearlever to disengage the drive. Let it go on record that wheelstands can be a problem . . .

The Yamaha Chappy proved to be the easiest and slowest to run through the SS400 metres. The machine is handicapped by a two-speed transmission which severely taxes the engine's capabilities. The best time we could manage was 28.6 seconds for the SS400 metres at a terminal speed of 71 km/h.

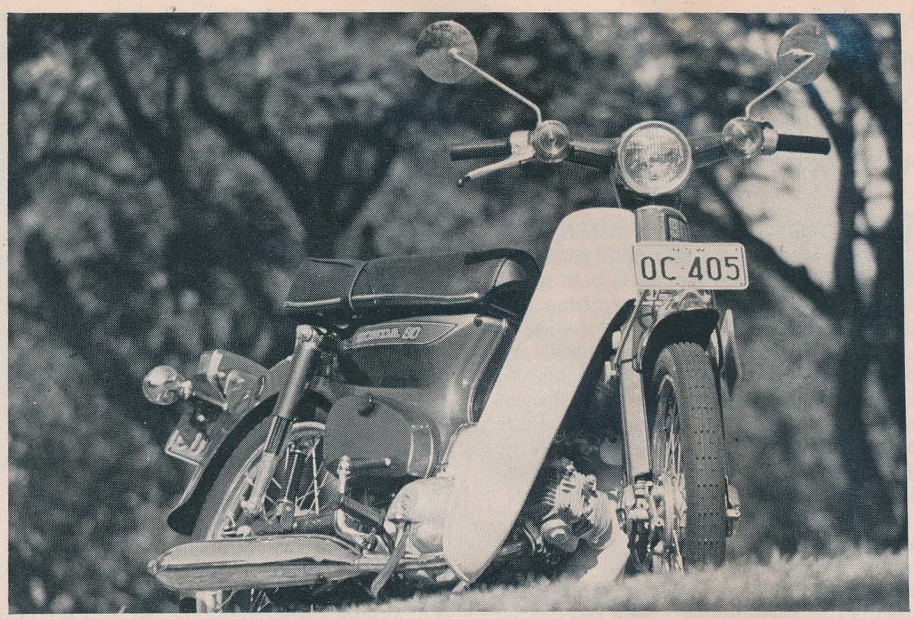
Transmissions

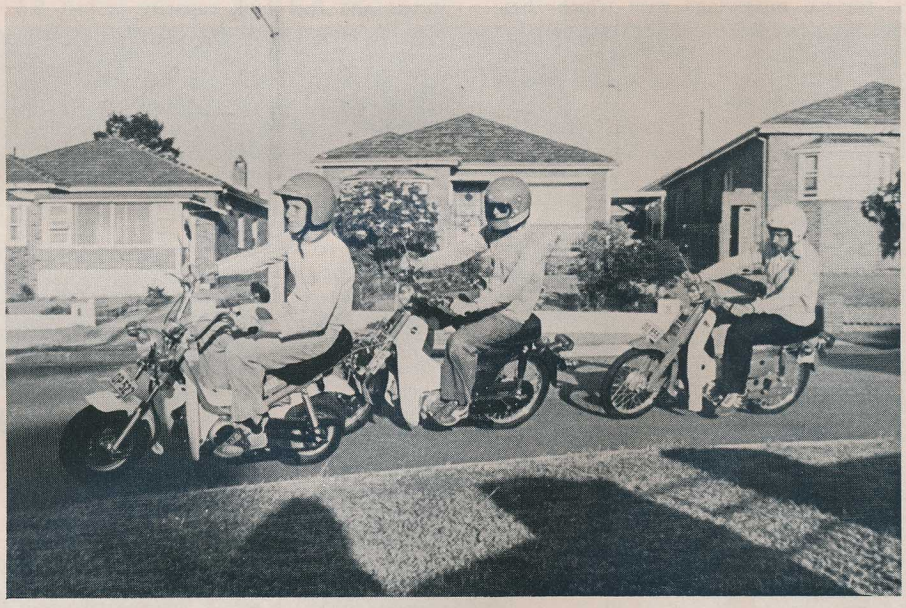
All three machines are equipped with a centrifugal clutch. Two bikes out of the three, the Suzuki FR80 and the Honda C90, have three-speed gearboxes and the Yamaha Chappy two.

On the Suzuki maximum speeds in gears turned out to be 30 km/h, 50 km/h and 80 km/h in top. The gears are well spaced and first is sufficiently low to enable good starts on hills. The change is achieved by simply backing off the revs and clicking into the next gear. Changes were rather savage if the revs weren't matched properly to road speed and the whole situation feels like changing gears on a normal bike without the clutch.

The Honda provides noticeable relief from the centrifugal clutch's characteristic snatch. It is fitted with a centrifugal clutch also, but backed by what is essentially an integral manual clutch. It works like this: on the gearchange the drive disengages as the gearlever is depressed, the gears then change and on the way back up the gearlever re-engages the drive. The operation is that of a manual foot-operated clutch, allowing engine revs to be matched to road speed more easily. Maximum speeds in gears came out as 25 km/h, 50 km/h and 90 km/h. First gear is a little lower than on the Suzuki but top gear stretches out to 90 km/h — that's fast for a little 90 cm^3 stepthrough machine. And it feels it, too!

The Yamaha Chappy has a two-speed gearbox designated only as High and Low. It is the ultimate simplicity. The bike can be driven in either high or low range and the acceleration times in both ranges are similar. For example, 0-35 km/h took 6.5 seconds in high while 40 km/h was achieved in the same time in low.





From the top in our order of preference. But let's be clear. None of the bikes escapes scrutiny unscathed. The Suzuki is quickest but vibrates and has poor brakes; the Yamaha is the slowest, best-stopping and best suspended; the Honda is most economical and falls midway in most areas.

Low range is fitted really to assist riding up hills and steep inclines. Maximum speeds in gears turned out to be 50 km/h in low range and 71 km/h in high. The 80 cm³ engine appeared to be quite flexible: it could make the Chappy travel from zero to 71 km/h in just one gear without too much fuss.

Suspension and handling

The Chappy is the most modern of the stepthroughs in the suspension department. At the rear it's fitted with a full swingarm using coil spring oil-damped shocks, although there's no spring preload adjustment.

The Honda and Suzuki are both fitted with a less capable rear suspension with the integral spring/shock absorbers set more upright.

We preferred the Chappy's suspension because of its firm ride and conventional feel. The handling was okay but the small 8 in. wheels result in a dig-the-front-end-in-under-hard-cornering-type feeling.

Both the other machines could be classed as soggy, even if satisfactory within the confines of careful use and slow speeds. The larger wheels gave a more secure feeling than the Chappy but the overall light weight and low centre of gravity means overbalancing is not hard. Speed and rough roads should not be mixed!

We wouldn't rate the front or rear suspensions of any of the commuters as good; at best they're only sufficient, and poor by big-bike standards. The Chappy actually absorbs shocks best, followed by the Suzuki and the Honda. In overall handling all machines are rather unsteady through the corners because of their low weight and high centre of gravity (with rider attached). If we had to choose, the Suzuki would be first pick then the Honda and thirdly the Chappy.

Frankly, much of this is fairly fine points. The suspension on these machines is basically poor, which, along with inherent design factors like the small wheels and upright riding stance, imparts handling which is not good.

Braking

All three machines use a similar setup — a cable-operated (right hand) single leading shoe drum brake on the front backed up by a rod-operated (right foot) single leading shoe drum brake on the rear.

We weren't at all impressed with the stopping distances of two of the machines. And that was even after we'd reduced the crash-stop speed to 50 km/h. This was because of the general lack of performance of the commuters and also because most owners will ride their bikes around at about 50 km/h instead of 60 km/h.

From 50 km/h we couldn't call 12.1 metres satisfactory for a machine that weighs only 73 kg dry.

Surprisingly, the Chappy was significantly the best stopping of the three with a 50 km/h to zero distance of 8.8 metres. That could be (unfairly) compared to say a Z1000 Kawasaki with triple disc brakes, which did the same stop in 8.1 metres. So on that score the Chappy is not bad and benefits in outright terms from its good suspension. Next best-stopping bike was the Honda. It turned in 11.1 metres. Not good. Then came the Suzuki which couldn't better 12.1 metres over the same stop.

We expected better from such lightweight machines. While they are fairly slow-accelerating commuters, the stepthroughs are capable of relatively high maximums. Yet even at 50 km/h two are into speeds beyond their safe breaking capability.

Probably the biggest downfall of the stepthroughs is their suspension's inability to handle anything beyond modest speeds and very smooth surfaces. Normal, poor city conditions can easily have them overtaxed.

General

Each machine has its own quite individual features behind the facade of shiny plastic.

On the Yamaha Chappy we liked the quality and strength of the frame better than the other two machines. The test machine was finished in red enamel paintwork with contrasting white panels and guards. It looked sturdier than necessary and had a generous-sized seat suitable for even the largest of riders. It's only a one-person machine though while the others are two-seater machines (although that's obviously stretching things).

A standard feature of the Yamaha is the luggage rack behind the seat which doubles as a sturdy grip to lifting the bike. We were actually a bit careful where we parked the Chappy. It's easy to pick up and comes in a convenient car boot size ... the ideal souvenir!

The Honda, in contrast, is fairly mundane in appearance. It has a luggage rack at the front which can be fitted with an optional wire basket. The plastic kneeguards integral with the body are basic original stepthrough design and have been deservedly retained. They work exceptionally well in wet weather and on cold nights — well enough to allow comfortable riding without plastic overpants in drizzle. The kneeguards double as a shopping basket carrier and have little hooks protruding from the guard up around the steering head for the purpose. In the interests of machine stability we suggest that front carrier be used only with light loads.

One unfortunate design aspect is that the seat has to be lifted to fill the Honda's fuel tank. That's not very often mind you, but still a hassle if gear is tied on the back. We learned not to trust the reserve tank capacity — the Honda ran out of fuel after less than 3 km on reserve!

It's the Suzuki FR80 which is the most modern-looking of the two kneeguard-type stepthroughs. It's quickly obvious that's entirely a matter of style; most features of the Honda are shared with the Suzuki except for the luggage rack — the FR80 doesn't have one. But it does, like the Honda, have a fully enclosed chain and an underseat fuel tank. A few exclusive convenience features are the oil tank level gauge and the fuel tank gauge, both similar to the type used in outboard motor fuel tanks. Our Suzuki test bike was finished in a color titled Permanent Red with contrasting white kneeguard. The overall quality of finish was good, approaching that of the Yamaha.

Lighting for all machine is exactly what one would expect from a six-volt system — enough to show others where you are but insufficient to see where you're going.

Conclusions

For all their slowness, weird handling and instability by bigger-bike standards and attraction for being run off the road, the step-through bunch are a very practical range of machines. Without exception they always started easily, proved capable of carrying a lot more articles than we thought possible and were all easily transportable.

Choosing the best one is difficult; in point-by-point comparison the Suzuki FR80 is best overall even though it vibrates the most. It went and handled better and looked nicer than the other two. Then there's the secondary consideration that Suzuki 100 cm³ race-kitted motors fit really snugly into FR80s. Of course we'd then have to fit triple drilled discs to stop the thing and just to make it really work there'd be an unswept muffled expansion camber and naturally ...

We're kidding! The stepthroughs aren't going anywhere quickly. Some are hard-pressed to establish adequacy in city traffic. Even with their very basic function in mind all exhibit characteristics which could be eliminated with better engineering.

No, the modern small motorcycle has caught and passed the humble stepthrough. It's a sign of the times that the factories are prepared to abandon them to a lingering death.