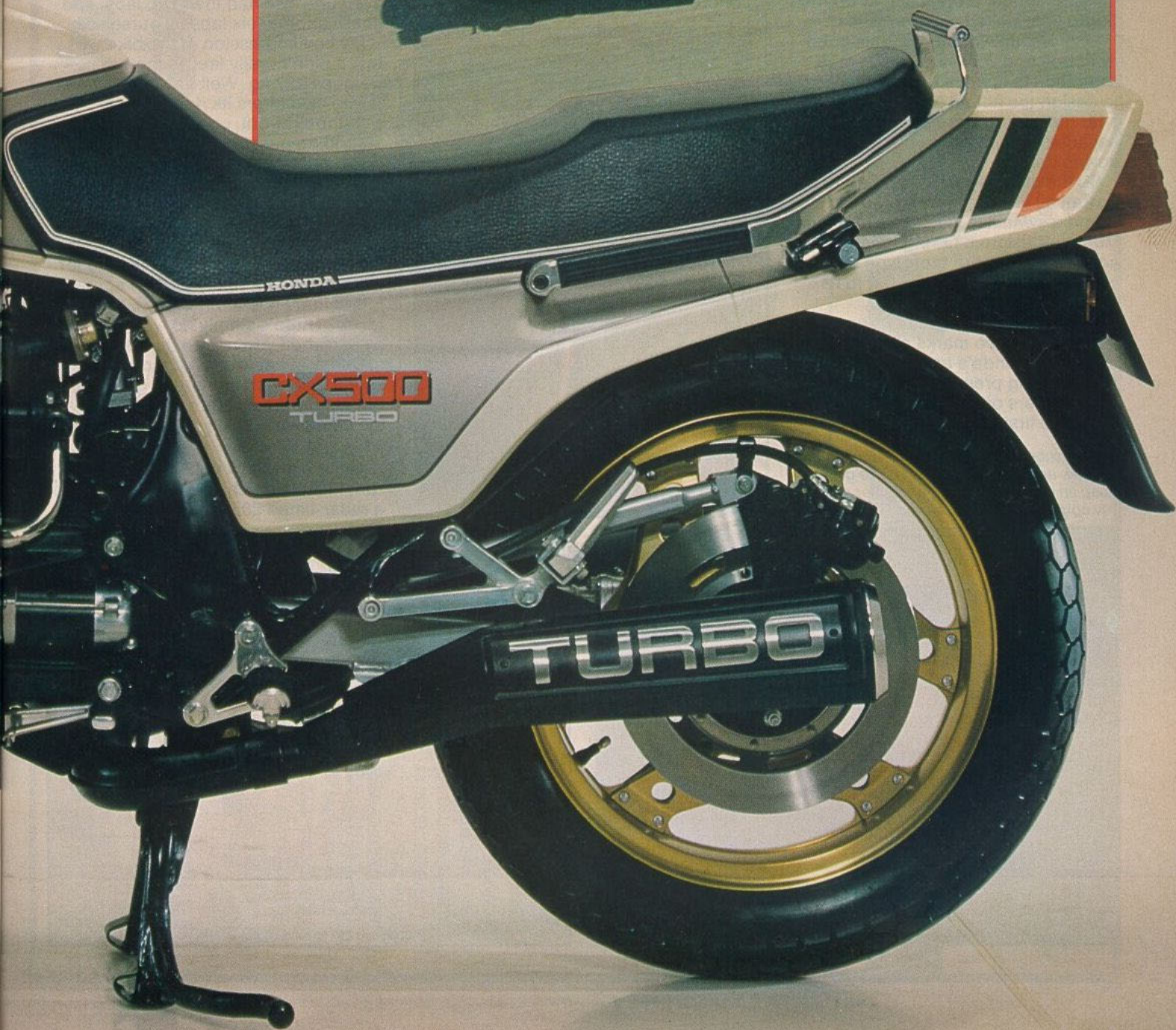


Honda CX500 Turbo

A Smoother Spearhead

Recently, THE BEAR rode Honda's new Turbo 500 at the company's Research & Development track, Tochigi, in Japan. He came back with mixed feelings — but he was sure of one thing. Turbocharging is where the action is in motorcycle development. And the Turbo 500 is right at the front of the action . . .





I was on my way to Europe when I saw my first CX500. Before loading my little XL250 onto the ship that was to take it to Singapore, I had dropped in on Honda WA in Perth to pick up a few spares.

"We've got a brand-new bike, just in from Japan. Do you want to take a look at it?"

Why not? A few minutes later, I was looking at one of the ugliest bikes I'd ever seen. Just out of its crate, the bike had about as much sex appeal as a front-end loader.

Little did I know that that ugly duckling would not only turn into a bestseller for Honda, but also into a very beautiful, glossy swan — the Turbo 500.

The turbo is not an add-on afterthought. Long before the release of that first CX500, prototypes were running with both turbocharging and supercharging.

Kazuo Inoue, project leader on the Turbo 500, smiled at my surprise.

"Oh yes, the CX500 was designed right from the very start with forced aspiration in mind. It took us two years to design the actual turbocharger, after discarding supercharging because of excessive mechanical power loss."

So the duckling was intended to be a swan all along.

And a swan it is, all the way from its Morioka-designed fairing, changed noticeably from the prototype we introduced in our June issue, to its awesome powerplant.

Interestingly enough, the swan's introduction also marks a definite change in Honda's approach to the motorcycling press — and through us, to the buyers of its bikes.

For the first time ever, Honda invited

The 'dashboard' of the Turbo is laid out cleanly, and is easy to read. You've got to keep an eye on both the turbometer and the rev counter! The bike overrevs easily.

bike scribes from Europe and Australasia to the top-secret test track at Tochigi (see box) to ride — and comment on — prototypes rather than finished production bikes.

A sign of uncertainty, from a company that has always had implicit faith in its products? Or an exercise in public relations? Probably a little of both, as well as a deep concern at the way Honda's market share is being eroded by Yamaha.

Until recently, Honda was comfortably number one. Now that's not quite so certain, with Yamaha selling more bikes in a few recent months in several important markets, including Australia and, more significantly, West Germany.

Whatever the reason for our invitation, we were all buzzing with barely suppressed excitement over lunch at Tochigi. Five prototypes of the 500 Turbo sat outside on the concrete in front of the control tower,



waiting for us — and we wanted to get at them.

Outwardly, the bikes looked similar to the prototype shown at Cologne and Melbourne, but there were quite a number of minor changes.

The odd-looking rubber gaiters around the handlebars were gone, as were the twin headlights. The blinkers at the front were now integrated into the fairing, instead of being tucked awkwardly into it.

The lower part of the fairing looked neater and didn't come down quite as low, and the mirrors were more aerodynamic.

All in all, the bike looked sexy. No other word for it.

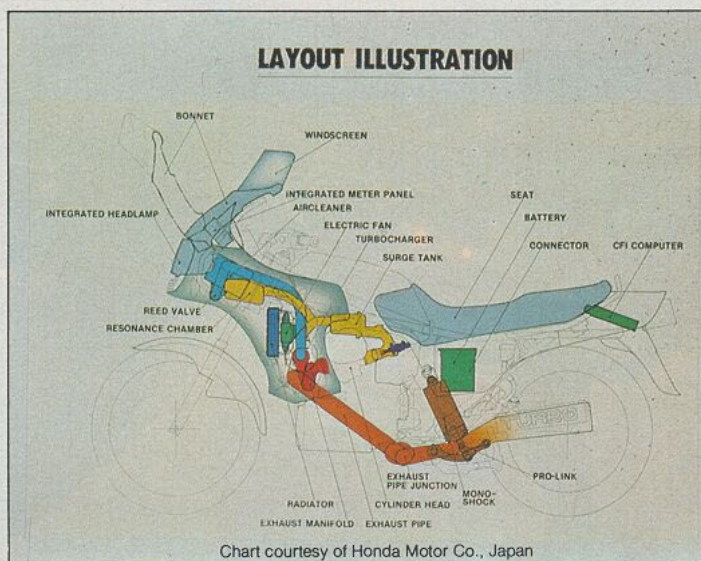
Finally, with lunch over and after a safety lecture, we were divided into groups of five and taken out onto the track — first one lap behind a Honda test rider on a CB900, then a lap by ourselves. Then a long wait while everyone else had their two laps, and finally another six laps by ourselves.

My first impression of the bike was that it didn't really feel as though it weighed 227 kg. Well balanced, the Turbo also offers its rider a well-thought-out, comfortable seat and riding position. So far so good.

It's a bike you get used to quickly. I didn't feel uncomfortable or ill-at-ease for a moment — until I realised that I was over-revving the bike already, a hundred metres down the track. The power comes on so smoothly that, for the first time for many years, I actually found that I had to change by the tacho. There's simply no way of telling by ear when you're into the red zone.

On my initial two laps I didn't have time to do much more than get used to this smoothness, and to briefly take the bike over 200 km/h. Then it was back into the pits.

Once I got back out for my longer run, I let the machine have its head, to a radar-timed 205 km/h along the



back straight. The speedo indicated 220 at this point, with the revs at 9500 — just inside the red.

A little experimentation showed that the turbo comes in at 3000 rpm, and becomes progressively stronger and more responsive until the tachometer shows 5000. After that, there is no detectable turbo lag (there's precious little below it!) and the bike accelerates almost supernaturally fast.

Roll-on trials showed that, while the CB900 will leave the Turbo behind at low speeds, the 500 catches up every time — and in fact has a marginally higher top speed. Not bad for a 500 twin, shaft drive and all.

Performance proved to be surprisingly similar to the 900 in most ways, actually — and even the weight isn't all that different. The CX weighs all of 10 kg less than the Bol d'Or.

I had been very impressed after my first run, and was no less impressed after the second. But there was a very slight sense of disappointment, as well. Talking to some of the European writers, I found that they mostly shared the feeling.

Now this is going to sound like quibbling — but it needs to be said. The bike is a little too good.

One of the reasons people ride bikes — especially bikes with the sort of performance the Turbo offers — is for excitement. And this machine, while it is very fast, and accelerates very quickly, is not all that exciting.

The engine is simply too smooth, so that there is no sense of effort, of work being done. And the fairing insulates the rider so well from wind pressure and noise that it reduces the sense of motion.

Part of the reason we felt like this was no doubt the nature of the track. Tochigi, with its curves banked at 42 degrees and its carefully smoothed surface, is simply not an interesting place to ride a bike.

So the smoothness of the engine and the efficiency of the fairing may, in the real world, be blessings. Pity we couldn't find out.

Another potential problem lies in the complexity of the bike, both mechanically and electronically (see diagram). That computer under the rear of the seat really *is* a computer, and we wonder about its reliability under our harsh conditions.

Honda has anticipated this to a certain extent, and Inoue told us of a very liberal guarantee that will cover the electronics — details are yet to be finalised.

When the bike needs to be repaired, who will be able to repair it and how much will it cost?

The electronics include a fault-finding circuit, so any workshop that's equipped to tap it will be able to

work on the Turbo quite easily. Small shops will not find it at all easy.

And repairs could come very expensive indeed — even the plugs are platinum-tipped . . .

Quibbling aside, everything on the bike works, and works well. It should, of course — a lot of the equipment has been lifted from other, proven models in the Honda range.

The clutch, final drive and shaft all come from the Goldwing. Forks are from the Bol d'Or, and the frame is the strengthened CX500 unit used in the Silverwing tourer.

Aerodynamics have been worked over carefully, using the Pininfarina wind-tunnel in Italy — stylist Morioka suggested, rather ruefully, that the mirrors cost the bike 10 hp — but you couldn't very well do without them . . .

Turbocharging the CX500 is seen by Honda as giving the best of two worlds. The fuel economy of the CX,

further enhanced by the turbo, on the one hand; the performance of the turbo on the other.

That's pretty well correct, too. Honda claims a 15 percent improvement in fuel economy over the already frugal CX, and performance matches that of the CB900.

The Turbo is quick — both in acceleration and top speed. It has a good power band, and absolutely no turbo lag above 5000 rpm. The fairing works almost too well. This bike is the first step into the technology of the eighties. Honda calls it the spearhead of a totally new category of bikes, and it should sell for about \$4500 — perhaps as early as the end of this year.

We tip our helmet to Kazuo Inoue, the creator of the bike — and we're glad to have been involved in the launch of a new generation of motorcycles.

Plus —

- excellent acceleration
- good fuel economy
- effective fairing
- comfortable ride
- stylish, exclusive appearance

Minus —

- mechanical & electronic complexity
- fairing insulates rider too much
- too heavy
- difficult to work on, for owner

Unknowns —

- handling
- suspension (though it seems good)
- reliability
- expense of repairs and maintenance
- initial cost

So in the balance, we simply don't know enough about the bike to judge it yet. But some things are certain. Turbos are here, and they're here to stay. And Honda was first.

HONDA TURBO 500 PERFORMANCE CHARACTERISTICS

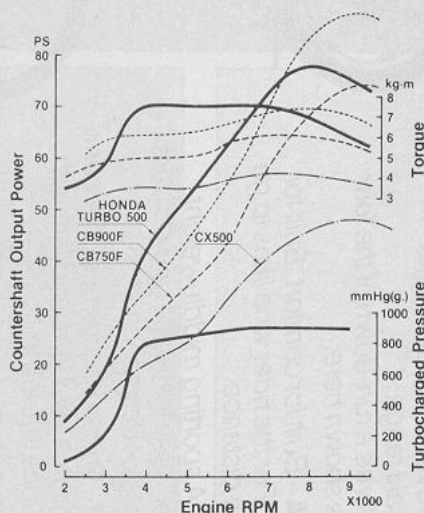


Chart courtesy of Honda Motor Co., Japan

AS THE diagram shows, the Turbo 500 presents rather more than just a turbocharger bolted onto an existing engine.

The aircleaner and resonance chamber are located in the fairing, and are equipped with the first pair of a whole battery of sensors reporting back to the CFI computer in the tail of the bike.

Air is fed down to the compressor, which is driven by the turbine located just behind the exhaust ports. The air goes to the engine via a surge tank.

Other sensors monitor airflow at all stages. The computer makes fuel injection decisions based on two sets of data and programming — engine speed and boost pressure on the one hand, engine speed and throttle opening on the other.

This dual programming is the reason for the bike's rapid throttle response. Correction factors for a wide range of conditions are preprogrammed into the computer. Choke is automatic.

Lastly, a waste gate valve is controlled by pressure at the compressor outlet, dumping excess pressure.

And Now A Word From The Rumour Mill

While the CX Turbo is probably the most exciting thing going on at the moment, it's not the only thing. Here's a rundown on what else is happening, or might be happening, both at Honda and around the world. Including a couple of surprises...

While we only talked to Honda on our trip to Japan, we certainly talked about other manufacturers as well. It isn't often that you get the chance to swap gossip, rumours and — just possibly — scoops with bike journalists from ten other countries.

But probably the most interesting bit of inside 'dope' came from Hiroshi

Kameyama, Honda's Director of Research and Development.

Just before I left Australia, a little birdie had whispered in my ear that there was a V4 bike sitting in the design studio at Porsche, in Germany.

Now whose bike could that be? Knowing that Kameyama had expressed a personal interest in a V4, I cornered him one evening and asked about that bike at Porsche. Got a marvellous reaction. There was an instant flurry. Kameyama, who speaks excellent English, called an interpreter over to make quite sure there could be no mistakes — and to gain time to think.

Punting around Tochigi. It might be fun to ride at high speed for a while, but the smooth speed bowl soon gets boring.

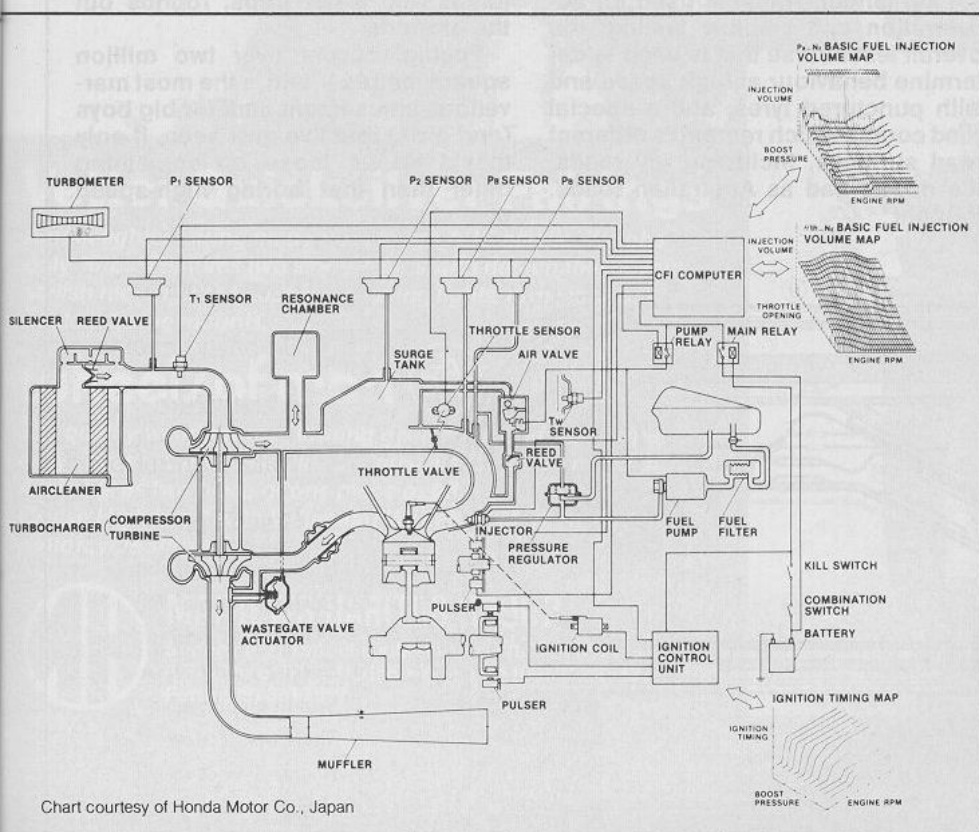
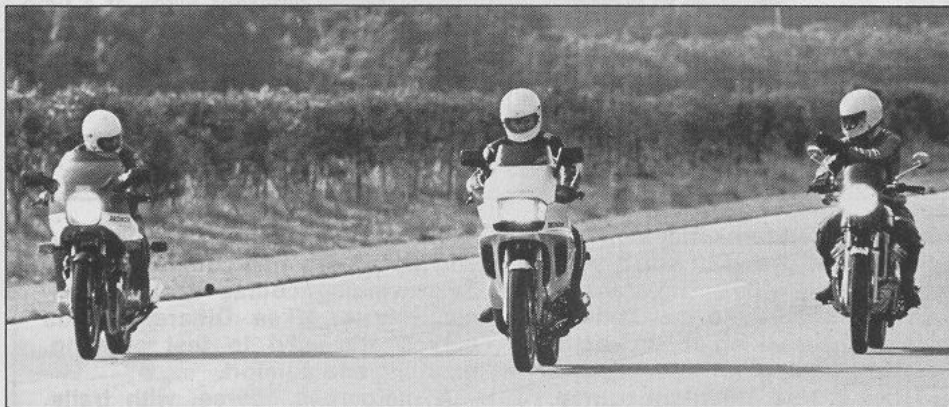


Chart courtesy of Honda Motor Co., Japan

He then admitted that Honda has a design project at the Porsche studios at the moment — a redesign of the Goldwing fairing and luggage. That should be quite something when it hits the streets.

But the V4 is not a Honda. It is almost certainly, he said, a Yamaha...

You heard it here first!

Apart from this mystery bike, Yamaha was also rumoured to be working on a turbo version of the XJ550, certainly a more practical proposition than the turbo XS11, which is also still on the cards.

But if we can believe the Dutch, Kawasaki is about to out-monster them all. The editor of one of the Low Country bike mags informed us, quite matter-of-factly, that his magazine had just picked up a Kwaka 1300SS, or Super Sports. He claimed the bike ran 140 hp. But better yet, he also claimed that an SST, or Super Sports Turbo, with 150 hp, was not far away.

Roger Young, at Kawasaki Australia, blanched when we checked this with him — and denied it. We hope he's right. A Z1300 turbo is a slightly scary proposition. But who knows...? The bike supposedly runs a Mitsubishi built and designed turbocharger, and top speed would be a matter of calculation, not trial.

Rather more likely was the story that Morini has finally got the bugs out of its own turbo programme, and will be presenting the world with a 500 Sports Turbo before the end of the year. We have a short test of the standard 500 Sports in this issue, and a turbo version should be a rather marvellous thing.

There was also a word around that Ducati had not, in fact, abandoned the Pantera Turbo and would not be far behind Morini in getting it on the road. Once again, that should be quite a bike — if it happens.

BMW, while not abandoning the horizontally-opposed twins, is going ahead with the in-line liquid-cooled four and three cylinder engines. The frequent reshuffles in the Research and Development Department have, however, meant that nothing much will happen in the near future.

In the meantime, a few running prototypes of the Futuro (TW Nov. 1980) are being built. They will not go into production, though, and nobody on the bike side of BMW is very interested in them.

And what about Suzuki? It appears that all the eggs are in the Katana basket (TW Jan.) and we can't expect anything else from Suzuki for quite some time, unless the 650 Turbo is a reality after all. That means that Suzuki, alone of all the major bike manufacturers, is banking on styling rather than mechanical changes to see it into the mid-Eighties.

As far as Honda is concerned,

Hiroshi Kameyama was quite adamant that technology was the way to go.

"I am not interested in multiplying cylinders," he said. "Honda is looking to increased technological sophistication for the Eighties. Even if the CX Turbo for some reason does not succeed, the fuel injection will remain."

He had also, in the past, been quoted as being interested in a CX650, or even 750. Then, he had given the lack of a strong enough transmission as the main reason why these bikes weren't being built. I pointed out that he now had the transmission — in the CX Turbo. Would we see a larger CX?

"I think so. With the transmission problem solved, the only real holdup now is radiator size. A larger capacity CX will need a larger radiator, and we are working on producing one which will still have acceptable styling."

The famous Honda V5, on the other hand, has been sidelined for the time being. But there is very strong interest in carbon fibre/plastic for engine parts. Will we see them soon?

"No. This type of material is far too expensive."

We asked stylist Morioka, who designed the spunky fairing on the CX Turbo, whether we could expect to see

other Hondas — or even the standard CX500s — in similar clothes.

"The fairing was designed as part of the total look of the Turbo, and will not be appearing on any other bikes. But we are very interested in fairings in general, and are doing a lot of work on them."

Then came the crunch question. We put it to Kazuo Inoue, the Project Leader for the CX Turbo, that there must be other turbos in the pipeline. Which one would we see next?

Inoue, a friendly, sympathetic and frighteningly intelligent imp of a man, smiled.

"Did you know that we tested some

Stop Press:

SINCE WE wrote the above story, we have been assured that the Suzuki GS650 Turbo is not only still being developed, but that it's actually ready for production.

The bike apparently has a trick high-pressure lubricating system, and Suzuki has developed a special metallic coating for the combustion chambers.

Is Suzuki going to beat Honda onto the pavement with a production Turbo? Whooee!

supercharged 250 and 400 cm³ Hawks in Australia, four years ago?"

We confessed we didn't. Did that mean they were next?

"It would make sense, would it not?"

At the speeds, and temperatures, that a turbo runs, liquid cooling would seem to be necessary. Would the Super Hawks be liquid cooled?

Inoue smiled again. A little reluctantly, he replied, "Well, they would have to be, really."

But the Super Turbo Hawks are not the only new machines on the way from Honda.

The Company Principle of Honda R & D, written up on the wall at the Tochigi Proving Ground, is —

"Maintaining an international viewpoint, we are dedicated to supply products of the highest efficiency yet reasonable price for worldwide customer satisfaction."

To carry out that principle, R & D works on 60 different bikes at a time. Results go into a data bank, and as Honda needs a new model, or a totally new bike, that bank is tapped. The bike is already there.

What we wouldn't give to be able to tap into that data bank . . . *

Tochigi Proving Ground—Bike Rider's Disneyland

WE HAD THE opportunity to look over Honda's Tochigi proving ground, about a hundred kilometres from Tokyo, before we took the Turbo 500s out on its high-speed oval course.

The oval course is the most impressive of the seven different courses that make up Tochigi.

Four kilometres long, it is a maximum-speed track with two equal-length straights and constant-

radius banked turns that allow bikes to corner at over 180 km/h without any steering input. The track dips into the corners, so that taking the bike up the banking doesn't actually involve climbing.

There is also a straight course, of 1.6 km length, which is used for acceleration and stability testing; the overall test course that is used to determine behaviour at high speed and with punctured tyres; and a special road course which recreates different road surfaces, including icy roads. It's not as bad as Australian roads, though!

Tochigi also has separate bike and car, gravel and mud courses, as well as a winding course designed exclusively for bikes. Different radius curves are used to test steering, handling and comfort.

A motocross course, with trails, jumps and water traps, rounds out the grounds.

Tochigi covers over two million square metres — and is the most marvellous amusement park for big boys (and girls) that I've ever seen. If only they'd let us loose on something other than that boring high-speed oval . . .

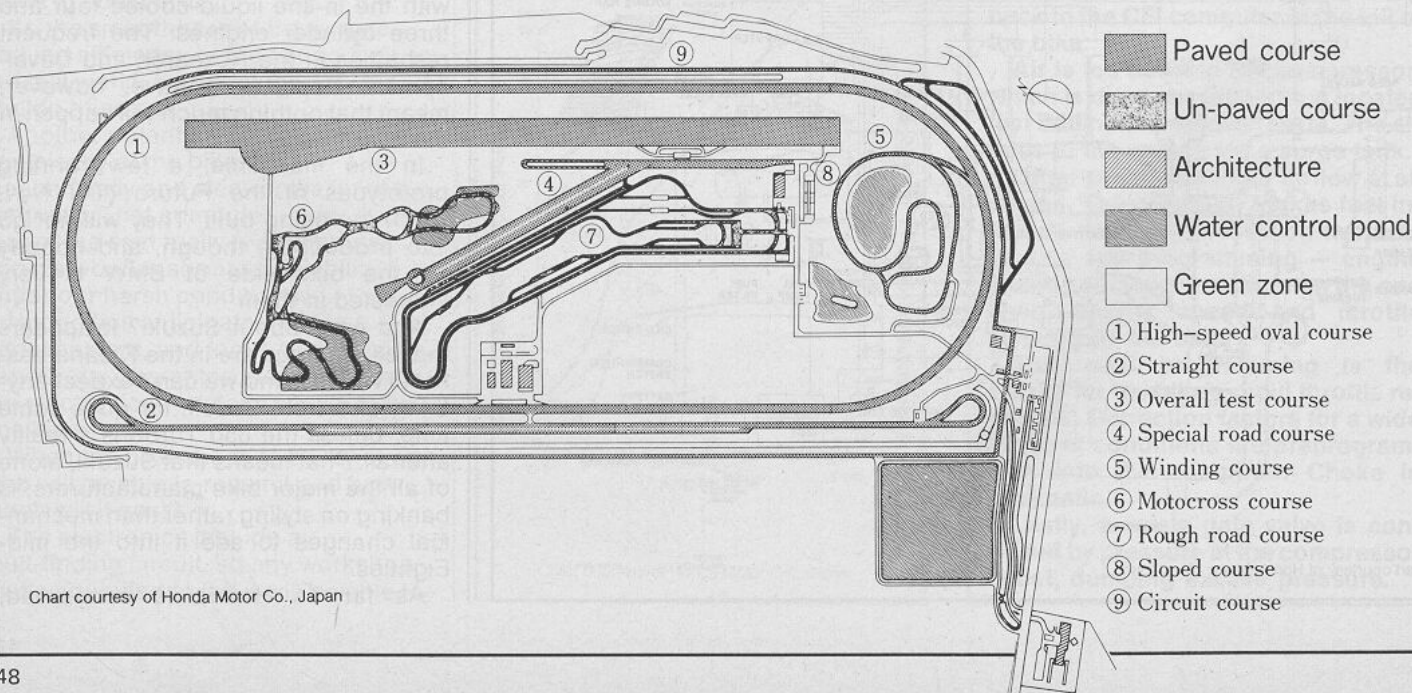


Chart courtesy of Honda Motor Co., Japan