

Kawasaki Media Tour Of Japan

SIXTEEN JOURNALISTS TOGETHER with five Kawasaki personnel make up the group, representing publications as diverse as *Popular Mechanics* as well as a variety of motorcycle magazines and Internet sites. Its purpose is to help us appreciate the full range of Kawasaki's activities and to gain a better understanding of Japanese culture.

Day One

We fly to Tokyo, take a connecting flight to Osaka and move to Kobe by bus. Thankfully, business class seats are provided for the longest flights, the trans-Pacific crossings in each direction, 14 hours east, 12 hours west. We also cross the international date line, resulting in a huge 16-hour time difference, so that at 11 p.m. Tokyo time, it is 7 a.m. in California the previous day, for instance. But what an experience!

Day Two

We all visit Kawasaki Good Times World at Kobe's harborside Meriken Park, which opened on May 17, 2006, and provided the inspiration for our tour.

Inside, scanning the walls that document milestones in the company's history, we see that there is very little that Kawasaki Heavy Industries doesn't do. Established in 1878, the company, founded originally on shipbuilding, expanded into just about every industry imaginable and is now comprised of some 100 companies in Japan and around the globe. For instance, it began to build trucks in 1918, diesel engines for ships in 1921, propeller-driven biplane reconnaissance aircraft in 1922, steam locomotives in 1923, steel frame buildings and bridges, automobiles ("production resumed in 1932" it was noted), diesel locomotives in 1939, aircraft carriers in 1941 and bombers in 1943.

Their first motorcycle engines were produced for other companies in 1952. It began building Bell-licensed helicopters in 1954, and private planes in 1953. The first motorcycles with the Kawasaki nameplate were the 50cc Pet M5 models built in 1960. The first built without any collaboration whatsoever came in 1962. In 1964, it built the first "bullet trains" for the Tokai line. The first industrial robots came in 1969, industrial gas turbines in 1974 and New York subway cars in 1983. Not enough diversity? How about tunnel boring machines? In fact, the Eurotunnel between the UK and France was actually dug by one of Kawasaki's machines. In 1998 KHI's aerospace division was collaborating on the development of the Rolls Royce 500 turbofan engine for passenger aircraft.

More than engineering, Kawasaki has even built turnkey factories around the world; such as a steel plant in South America, and in 1999, the world's largest crusher for diamond mining in Botswana. In Japan, it built the glass dome for the Osaka Maritime Museum in 1999, and in 2001 it built the world's first moveable soccer stadium for the Sapporo Dome, in which the whole field actually rotates on a pneumatic cushion of air.

Whether it's highways, buildings, municipal projects, or biomass power plants; they do it all. I can think of no other company comparable to the range of Kawasaki's scope. Domestically in Japan, KHI employs 14,000–15,000 people and has roughly 45,000 employees worldwide.



Like the kids in the Good Times Museum, the press corps was in heaven on this trip, visiting various factories and seeing Japan.

Of course Kawasaki gained the undivided attention of motorcyclists worldwide with machines like the two-stroke Mach III 500cc and 750cc triples and the four-stroke 900cc Z1 in 1972; a tradition of high performance that has continued through to the current ZX-14 series. And of course their Jet Skis (introduced in 1973) and ATVs won the hearts of additional enthusiasts. They were also the first Japanese company to open manufacturing facilities in America, with a factory in Lincoln, NE in 1974. Currently, they also have factories in Brazil, Australia, throughout Asia, France, Spain, Italy, the Philippines and Germany. More recently, we've seen Kawasaki return to MotoGP competition in 2003 and build the world's largest V-twin, the 2053cc Vulcan 2000 in 2004.

The point of all this is that KHI clearly has no reservations about its capability. It literally can do and has done *everything*, a corporate mindset that explains a lot about its motorcycle products.

After our tour of the Good Times Museum, we took a bus ride to the Akashi-Kaikyo bridge, currently the world's longest suspension bridge, nearly 4km in overall length and 1991 meters (1.23 miles) between towers. Projects of this

scope are not normally awarded to a single company, but shared, and Kawasaki was one of the main partners, building the supporting tower on the Awaji side, and the supporting trusses (bridge girders). KHI even designed a special variable color lighting system that makes the bridge a very dramatic sight at night.

Next we were conveyed to the enormous Akashi Works, home not only to motorcycle production, but also where gas turbine engines for both marine and aircraft use and industrial robots are produced. This is a vast complex of buildings, dating from the 1940s, all densely packed with assembly lines. We first toured the Number 24 plant, where eight parallel motorcycle assembly lines approximately 1/8-mile long were producing 1000 bikes a day, ranging in size from 65cc to 2000cc. In the JIT or "just in time" style, parts for only one day's production are stocked, with many arriving at the line just 30 minutes prior to assembly.

Among the many models being produced, we were excited to see the new Concours 1400 shaft-drive models. We also see examples of the very appealing 650 Versys, a kind of long-travel adventure-tourer based on the Ninja 650 parallel twin.

The motorcycle chassis are conveyed on overhead lines, which drop down to attach to the motors. A mix of different models comprises each assembly line in batches as few as four. Their various component parts are brought to the line in "automatic drawers," carts that automatically identify the particular bike in the mix to provide the correct parts. At the end of the line, dyno testing is performed on each bike and a check of all the systems is done.

Walking through the controlled chaos of the factory, it is fascinating to see so many various component parts in their most basic form.

A short distance away from the assembly plant, we visit an engine assembly plant, this one producing the larger displacement motorcycle engines on three different assembly lines. Crankshafts, camshafts, cylinders, cylinder heads, crankcases and connecting rods all proceed from raw forging or castings into

completed engines. This facility is quite noisy and perhaps 10°–15° warmer than the bike assembly factory, due to the mechanical exertions of the 600 machine tools and 430 workers inside. Five different engines are built on a single line, for a 60,000-motor/month production capacity in a facility of 22,000 sq. ft.

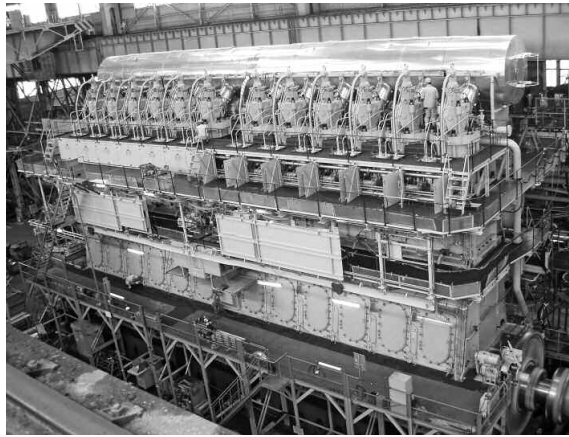
A special treat is a visit to a small museum on the factory grounds, which is not normally open to visitors. It houses an extensive collection of significant models in the company's history and a number of famous factory race bikes. The collection totals 175 restored bikes, and the hall has room to display 50 at any given time. The 350cc two-stroke Avenger from 1968 was one, the Mach III 500cc triple was another, and among the race bikes is Eddie Lawson's original KZ1000S superbike, the machine that won the 1981 and 1982 US Superbike championships. Up close, the machine's special racing parts are fascinating: Huge opposed two-piston Lockheed front calipers and enormous slotted discs fitted to plate-style carriers, for instance.

Day Three

Tour the Kobe works. With 120 years of company history, the Kobe shipyards build and repair ships and manufacture diesel engines and steam turbines. First we climbed aboard a bulk carrier (grains are the typical cargo). It is interesting to see a brand-new ship still glistening in epoxy paint with paper covering its tiled floors, without a barnacle in sight. At 55,500 tons, the Orient Phoenix is a big ship, 36 meters wide and 190 meters long, and we tour the crew's quarters (25 in total) and see the engine room. It is powered by a six-cylinder two-stroke diesel, wearing a muffler perhaps 25' long and 4' or 5' in diameter, producing 8600 kW, or approximately 10,000 hp at a maximum speed of 150 rpm. A spare piston and cylinder in the engine room gives us more detail: The piston has a diameter of perhaps 20" and the matching spare cylinder is perhaps 10' long. The ship's fuel tank, we are told, holds 2000 cubic meters of diesel fuel for a 19,000-mile range. Thirty tons of fuel are consumed each day.

Next we see these enormous diesel engines being built. In fact, the engines are being preassembled, and will be disassembled and fitted into the ships in parts, as they are too large to be installed intact. Their mechanical layout doesn't resemble any motorcycle or car powerplant I've ever seen. With a relatively tiny bore and huge stroke, the connecting rods are in two pieces. The first is tubular in cross section and runs straight down the long bore where a cylindrical bearing at the bottom supports it. At the bottom of this first rod is attached another that reciprocates with the crankshaft like a conventional connecting rod. A single exhaust valve at the top of the motor is opened by air pressure and the ring of ports at the bottom provides the intake flow.

The first motor we see under construction is a seven-cylinder model that makes 40,000 hp, roughly 20' tall and 30' long. The biggest engine in the catalog (see the photo) is a 12-cylinder making 100,000 hp. This one has a 98cm bore and weighs 2400 tons! Naturally, at this scale, the mechanics don't try to lift anything by hand, as gantry cranes are necessary to move almost any part. What appears to be a billet six-cylinder crankshaft is about 15' long, with a stroke of maybe 7'. An array of pistons, which all appear to be stainless steel and very heavy, will each wear four



Note the worker standing at the top right on this two-stroke, 100,000-hp diesel engine with 12 cylinders.

rings and range in diameter from perhaps 28" to 38". Among the operations in progress, we see main bearing shells the size of washtubs being chamfered with a hand grinder and the long primary connecting rods being magnafluxed to check them for cracks. A detail that catches my eye is the careful work of one man who is deburring the edge of a 3' inspection plate that will no doubt receive a gasket. His work is meticulous, efficient but not hurried. Because Shinto and Zen Buddhism are the predominant religious forms in Japan, I am reminded of the Buddhist ideal of complete absorption in one's work, so that any humble activity provides the same satisfaction as art. Finally,

the often-heard phrase "Japanese quality" makes sense to me.

Also built in this facility are huge brass propellers, which have variable pitch, and which are very finely finished. In another part of the plant, we see pistons as well as turbine blades being created. The twisted shape of the individual blades is created from square bar stock by three axis-milling machines—each are beautiful artifacts in their own right. Another piece under construction is a huge wind tunnel impeller, 5.5' across. In another part of the factory, we see a gigantic German milling machine that surfaces the huge diesel engine cylinder blocks and heads, 85' long 22' tall, with a moving head 20' across.

Next we journey to the Hyogo Works, to see the electric "bullet trains" under construction at the KHI rolling stock factory. The exterior surfaces of these high speed trains, which can hit 285kmph (176.7 mph) under ideal conditions, are flawlessly smooth and the windows are almost perfectly flush with the skin, smoother than your average aircraft.

We also see train cars in other configurations, some aluminum, some painted steel and some in stainless steel. Their exterior surfaces may show rivets, spot welding marks or no marks at all (when laser welding is used in the construction), depending on the buyer's budget. Kawasaki-built rail cars are in use in New York, Philadelphia and Boston, also built by its factories both in Lincoln, NE and Yonkers, NY.

That evening we dine with Kawasaki executives atop the 32-story glass Kobe headquarters of KHI, which has a spectacular view of the city.

Day Four

We travel by "shinkansen" or bullet train to Hakata and then on to Kumamoto city at the southern end of Japan by bus. Shinkansen literally means "new trunk line" and refers to the wider track that was laid to accommodate the high-speed trains, 4' 8" apart, vs. the old 3' 6" width. Aside from the speed of the scenery rushing by, the trains don't feel any faster than most US trains travelling at 40 mph. We can only imagine the rails must be very accurately leveled and spaced to create such smoothness.

Day Five

We travel by bus another 2.5 hours to the Autopolis racetrack, to see a round of the Japanese Superbike championship. The Autopolis track is a story in itself. Built 10 years ago at a cost of \$400 million as an F1 venue, the track fell victim to the slump in the Japanese economy and never actually opened. When Kawasaki bought the facility two years ago, for the bargain price of \$10 million, weeds were growing through the lobby of the

grand hotel that had been built at the end of the main straight. Deciding it didn't want to be in the hotel business, the hotel was razed and the track is now used as a testing facility by both Kawasaki and Toyota as well as booked by various sanctioning and track day organizers. It is a great track, 4674 meters long with 20 flowing turns and some great elevation changes. Kawasaki's factory rider, Akira Yanagawa, has qualified second and the Superbike event is very exciting, although it is narrowly won by Norick Abe on a Yamaha. I watch the race carefully on TV in the Kawasaki box, hoping to learn the lines.

Something American organizers should copy is that prior to the big race, the public is invited onto the pit road, where the various riders are all mounted on their machines and flanked by umbrella girls smiling in exotic outfits—a big improvement over the prima donna snobbishness that seems acceptable in the US.

Day Six

Those of us in the media group who are fit to ride return to Autopolis to sample the track for ourselves. Groups of four will share two ZX-6R models, one ZX-14 and one ZX-10R. I manage to get my first two sessions on the 600s, which are fitted with excellent BT002 Bridgestones, and which make a perfect match for my abilities. In the second session I shave some material from my knee pucks for a personal souvenir. The third session is aboard the ZX-14, which feels like a bullet train in comparison: very fast with great brakes, but wearing stock tires that have been tortured by the endless hot laps into silly putty. All my racey tendencies evaporate into self preservation. The final session is shortened so we will all have time for a final go, and I pass it up to pack my gear so that I can be ready for the bus, which departs immediately afterward for the ride to the Kumamoto airport, for our return to Tokyo.

Day Seven

We depart from the Narita airport, about 40 miles outside Tokyo for our return to the US.

Observations

You really don't see that many motorcycles on Japanese streets, no more than you'd see in the L.A. area, it seems. There are just a few larger displacement bikes, and perhaps the most popular single model of those are the "Lawson Replica" Kawasakis (Eddie would be proud). There are also quite a few cruisers, mostly smaller displacement models (to save gas probably) and a significant percentage of the semi-recumbent style scooters. Helmets are rarely the high-end Shoeis or Arais you might expect, but lots of cheaper models, sometimes worn in funny ways, like over baseball caps at the back of the head. Perhaps in the dense traffic of downtown Tokyo, the scene might be very different, but we didn't see that part of the country.

Also, the street traffic, like the rest of Japanese society, is very orderly and cooperative. There is very little speed differential between vehicles and overall the driving seemed very low key and polite—quite unusual from a Californian's perspective. In a week, I only counted two vehicles with louder than stock exhausts, one scooter and one motorcycle. And I only heard horns honking twice (were they Americans?). Imagine—a city without honking? We also witnessed only one instance of graffiti tagging, inside a



Akira Yanagawa, Kawasaki factory rider, awaits the start. The Autopolis track is an awesome facility.

tunnel—and it was spelled in English, which also made us wonder about the nationality of the rogue.

Pretty much everything is backwards and inverted from "normal." People drive on the wrong side of the road. Written material begins on the "back" page and runs from the top right to the bottom left. And Japanese characters actually come in three forms: One is conceptual and very complex in the number of pen strokes needed to create it (in fact, Chinese is close enough that Japanese can get the drift of the characters); the other is based on sounds (sort of like English); and the third is a sleek stylized form that's used for logos. Luckily for Americans, at least in the most popu-

lous areas and the Tokyo region, stores will have their activity noted in an English subtitle under their business's name in Japanese. (It's amusing to see "Japanese restaurant" as the subtitle on a restaurant in Japan, for instance.)

Quick facts: With land area about the size of California, Japan has approximately 127 million citizens and 25% are said to live within 50km (31 miles) of Tokyo—amazing. It also has one of the highest average life expectancies (82 years) and people are very conscious of their diet and general health. If you're overweight in Japan, odds are that you're a sumo wrestler. Also, the Japanese don't wear surgical masks to ward off pollution, as we've been told, but to keep from spreading germs when they have a cold, as sneezing is seriously impolite.

For seasoned travelers like the motojournalism corps, one of the biggest surprises is that credit cards are not widely accepted (the Tokyo airport was an exception) and ATMs are few and far between; and even when you found one, it might refuse to work with American debit cards. Most of us had changed money in the hotel lobby by the second day.

On the roads, unusual vehicles we might have hoped to see, like the tiny 600cc GT-style cars I'd read about in *Road & Track* were non-existent. Except for some compact van-style machines, most of the traffic looked just like you'd expect to see in Los Angeles, minus the 50% that would be German luxury cars over here. However, we did see a lot of particularly sleek station wagons (for lack of a better term) versions of which were produced by all the major manufacturers. These were larger than average for Japanese traffic and looked like they'd be welcome imports in the US.

You don't see much of what you might expect to be traditional Japanese architecture, the elevated building with pagoda-shaped roofs. In fact, these are very uncommon, and seemed to be an expensive extra effort for nostalgic effect. Although blue-glazed tiled roofs do cap a small percentage of homes, these few seem to be more common in the southern, more rural parts of the island. The city areas are made up predominantly of the sort of sterile, functional building blocks that wouldn't look out of place in most European or US cities, and are very often painted a modest white, tan or beige color. The exuberant shapes of Kawasaki's motorcycles must be inspired by Manga comics, rather than architecture.

But the most striking change was the overwhelming sense of courtesy and politeness that was extended in every personal interaction, and not just by the hotel staff. Neither obsequious nor false, I found it very genuine and charming. Even my poor communication skills seemed to be cheerfully accepted.

I'll miss that most of all.

—Dave Searle