

# Scope

*Kawasaki Heavy Industries* *Quarterly Newsletter*

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# Take a Ride on the Taiwan High Speed Rail

The Taiwan High Speed Rail (THSR) is now running full-swing after beginning services between Taipei and Banciao on March 2.

The THSR is the first overseas train system to adopt Japan's high-speed Shinkansen train technology. It travels a distance of approximately 345 kilometers, between Taiwan's largest city of Taipei in the north and the southern metropolis of Kaohsiung, in a minimum time of 100 minutes.

The Taiwan High Speed Rail Corporation (THSRC) awarded the contract to build the rolling stock, signaling systems and tracks to Taiwan Shinkansen Corporation, a consortium of seven Japanese companies that includes Kawasaki Heavy Industries. Kawasaki, as the prime contractor, received an order for 360 cars (30 trains) and manufactured and supplied them jointly with Hitachi, Ltd. and Nippon Sharyo, Ltd. The 700T train incorporates THSRC's requirements into a design that is based on the Series 700 Shinkansen, developed jointly by the Central Japan Railway Company and West Japan Railway Company that is currently used for the Nozomi service.

We decided to see the Shinkansen's overseas cousin for ourselves and take a ride on the THSR from Taipei to Zuoying in Kaohsiung City. Here's our report.



## in this issue...

### Frontline — 2

Take a Ride on the Taiwan High Speed Rail

### Technology at Work — 6

Look Inside Our Latest Personal Watercraft JET SKI®

### Around the World — 8

- Two New Cruisers Hit the Road
- BK117C-2 Helicopter Takes News to New Heights
- Cementing Business Ties in Morocco
- Kawasaki 15.9 MW Cogeneration System to Power MCC Plant
- K Plant Merges with KEE
- Cutting-Edge Vessels Delivered
- State-of-the-Art Waste Treatment and Recycling
- Kawasaki Beefs Up Overseas Operations
- New Directors Appointed

### About the Cover

The front car of the Taiwan High Speed Rail's 700T. The image was taken at Zuoying Station in Kaohsiung City.

KAWASAKI HEAVY INDUSTRIES, LTD.

## Scope

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## ● PEOPLE OF ALL AGES CROWD THE WAITING AREA

We arrive at Taipei Station at 8:45 a.m. just days after the THSR has started full operations. THSR's Taipei Station which shares the premises with the Taiwan Railway Administration is located underground in a specially designated section reserved for the THSR. Passengers occupy every chair in the waiting area that lies just beyond the auto-



The stately Taipei Station building, Taipei's transportation gateway. The station boasts an extensive underground shopping mall.

matic ticket gate. People of all ages including families, groups of women, business people and foreign travelers are all waiting for their train as a steady stream of passengers continues to flow through the automatic ticket gate.

At 9:00 a.m. sharp a station employee guides us along with our fellow passengers to the platform on the second basement level via an escalator. There we find a twelve-car 700T train waiting for us. We're all aboard, it's now 9:15 am, and the THSR No. 405 breezes out of Taipei Station right on schedule. Car No. 10 where we soon locate our reserved seats is nearly filled to capacity. Luckily all THSR seats are reserved seats.

## ● REDEVELOPMENT TRANSFORMING STATION AREA

After departing Taipei Station, we spend some time passing through a tunnel which we are told is about 10 kilometers long. Somehow we have picked an overcast day to travel and after

emerging from the tunnel a somewhat hazy cityscape of Taipei stretches out across the train window.

The next stop is Taoyuan Station. The station is located in Taoyuan County, home to the country's busiest airport, Taiwan Taoyuan International Airport. Future development plans for the area around Taoyuan Station include construction of an event dome, an amusement park, business and shopping centers as well as tourist hotels.

By the time we arrive at Hsinchu Station it is pouring rain. Hsinchu County is a windswept region. The station's architectural design is based on the image of wind. Its amazing curved roof, resembling two large flags flapping in the wind, at times makes it appear as if the building has sprouted wings and is flying across the sky. The curved design actually incorporates elements of Taiwan's traditional native Hakka



Each brightly colored standard car has 2 + 3 seats per row.

architecture. It makes the station interior, boasting a magnificent Hakka-inspired wall relief, look extremely spacious and bright. Hsinchu Station is a shining example of one of the THSR stations that incorporate sophistication in both function and design.

In addition to the nearby Hsinchu Science Park, hotels, business and shopping centers are slated to be constructed around the Hsinchu Station area to create thriving areas of commercial opportunity through joint projects among

**NOTE** Car No. 7 is equipped with four wheelchair accessible seats that can accommodate up to two electric wheelchairs and two folding wheelchairs. Physically challenged passengers can either remain seated in their wheelchair by fastening it with wheelchair locks or sit on a seat equipped with a safety belt to reduce up and down motion and discomfort.



Passengers buying THSR tickets from automatic ticketing machines.



Passengers boarding the THSR No. 405 train.



The world's tallest building, Taipei 101 (508 m).



Wheelchair accessible seats in car No. 7.

**NOTE** The bright white 700T train is highlighted with streaks of color representing the Taiwan High Speed Rail Corporation's corporate colors of orange and black. The nose on the car is shorter than Japan's Series 700. The design was streamlined to meet THSRC's aerodynamic requirements. This design is based on a study to minimize the noise caused by small pressure waves that occur when the train enters a tunnel.



Overview of the 700T train in action captured from the perfect viewing spot.

**NOTE** The THSR train includes 12 cars consisting of a business-class car with 66 seats and 11 standard cars with 923 seats for a total of 989 seats. The business-class car has two pairs of seats in each row (4 seats to a row) and standard cars have rows consisting of two seats and three seats (5 seats in a row). This seating design is the same as the Japanese Series 700.

The THSR employs the international standard 1,435-mm track gauge, like Japan's Shinkansen, which allows for a roomy and comfortable car design. Direct lighting and bright, pleasant color combinations create a relaxing environment for maximum passenger comfort. (Indirect lighting and warm color combinations are used in business-class cars.)

academic research institutions such as National Tsing Hua University, National Chiao Tung University and the Industrial Technology Research Institute. The goal of the development plan is to create a living community equipped with state of the art transportation and residential facilities in a high-tech industrial environment.



THSR tickets.



Thriving downtown Taichung. The number of cars on the road is amazing.

● **TAICHUNG STATION, A JUNCTION BETWEEN NORTH AND SOUTH**

The 405 pulls into Taichung Station. We are first hit by the sheer immensity of the station. The 420-meter long station has a very spacious interior. Its design concept is based on a loom shuttle or sewing machine needle according to the station master. It symbolizes speed and the coming and going of passengers. During the last Chinese New Year holidays which started on February 18, a maximum of 15,000 people a day passed through this station. The station master also told us that many people come on the weekend just to tour the station.

The bustling city of Taichung, the country's third largest city after Taipei and Kaohsiung, is central Taiwan's thriving commercial and industrial hub. The THSR's Taichung Station is



People waiting to catch a glimpse of the passing 700T.

planned to serve as central Taiwan's main transit junction in the future. The area around the station is also part of an intensive urban development plan which involves building shopping centers and intelligent office buildings to make the area "a city within a city."

● **EVERYONE LOVES THSR**

Approximately 73% of THSR tracks are built over a viaduct or a bridge, about 18% through a tunnel and about 9% on a railroad bed or cut. This layout makes it nearly impossible to get a sweeping majestic shot of the THSR as it whisks along the tracks. We heard of a great spot for taking pictures and decided to go there even though it was a little out of the way from Taichung Station.

The place is the Railway to Galaxy cafe-restaurant located in Changhua County. Built on a hillside, its alfresco dining area commands a full view of the THSR train running below. When the time comes for the train to make its approach, everyone scrambles toward the railing, cameras in a hand, where they begin clicking away like mad. Everyone loves the THSR!

● **ZERO TO 300 IN 15 MINUTES**

At 10:23 a.m. the 405 leaves Taichung Station, picking up momentum as it hurls through the rural landscape. The train's speed, which is displayed on an interior LED sign, rapidly



Wow! The train hits a speed of 300 kph.



Inside Tainan Station. The circular object under the ceiling symbolizes a full moon.

increases. Passengers begin to glance at the sign with thrilled looks on their faces. About 15 minutes after the train departs Taichung Station, the speed displayed on the LED sign hits 300 kph. It's just hit its maximum operating speed. A buzz of excitement sweeps through the car. Even at 300 kph the ride is as smooth as could be and soon the 405 reaches Tainan Station.

● **25,000 PASSENGERS A DAY AT CHINESE NEW YEAR**

The area surrounding Tainan Station is flatlands. According to the senior station master at Tainan Station, the station is designed to blend in with the landscape. The station and the platform roof appear to be on an even horizontal plane, giving the entire structure a low look that blends in seamlessly with the surrounding landscape to create a totally "organic work of art."

Since Tainan is the fourth largest city in Taiwan after Taichung, the station averages a large number of passengers, about 4,000 on any given weekday. The number of passengers hit 25,000 during this year's Chinese New Year.

The area around Tainan Station is planned to be developed in phases with a focus on science and technology as well as manufacturing and will serve as a foundation for local industry. The development plan involves construction of a shopping center, hotels and a business exhibition center as well as the establishment of educational institutions including Tainan Science University.

● **ARRIVING AT ZUOYING STATION RIGHT ON TIME**

It takes 15 minutes to get from Tainan to Zuoying, the THSR's last stop in Kaohsiung. The 405 arrives at Zuoying Station at 11:25 a.m. on the dot. Our wonderful two hour and ten minute Shinkansen adventure has come to an end.



The electronic display board shows that the THSR trains are operating on time.



Zuoying Station.



THSR ticket counter at Zuoying station crowded with people.

The station is named for Kaohsiung City's Zuoying District. There are plans on the drawing board to build a subway line connecting Zuoying and Kaohsiung.

Kaohsiung is the second largest tourist as well as commercial/industrial city in Taiwan. It's growing at an even faster pace than Taipei. Zuoying Station which serves as Kaohsiung residents' portal to the THSR has a wave-shaped roof covering the entire structure. Since Kaohsiung City is also known as Harbor City, a wave design is the main theme running through the station's architecture. The glass curtain wall brightens the station and makes it look even more spacious. A shopping, tourist and leisure center has been built in northern Kaohsiung to promote commercial development in the area by attracting people and business opportunities that will eventually add a new commercial zone to the city.

**NOTE** The 700T is equipped with a number of emergency facilities as required by THSRC. These include firewalls as well as fireproof and smokeproof materials used in the interior design. It also incorporates approximately 20 special safety features to meet Taiwanese laws and regulations including use of shock absorbing material to minimize damage from low-speed collisions, a bogie instability detection system, a drowsy driver detection system and an automatic pantograph system. Major components of the train have been redesigned for enhanced strength and anti-wear performance to conform to Taiwan's specific environmental conditions. The train employs an advanced digital communications system as well as a climate control system that has been enhanced to adapt to the climate of Taiwan.

● **THSR BRINGS "EVERYTHING WITHIN ONE DAY"**

The THSR travels approximately 345 kilometers between Taipei and Zuoying in a minimum time of 100 minutes. Compare that with the 4 hours and 30 minutes it takes to travel the length of Taiwan on the Taiwan Railway Administration's Western Line. The opening of the THSR has brought "everything within one day" to Taiwan's western corridor, making it possible for people to enjoy fast, convenient, safe and comfortable transit services for both business and sightseeing. The THSR provides the optimum in service to people across Taiwan's western corridor at a maximum speed of 300 kph.



Dragon and Tiger Pagodas in Kaohsiung City.



Hsinchu Station.



Taichung Station.

# Look Inside Our Latest Personal Watercraft JET SKI®



JET SKI ULTRA 250X

The personal watercraft (PWC), pioneered by Kawasaki, made its debut launch in the U.S. back in 1973. Today jet skiing is a popular marine sport enjoyed the world over.

The Jet Ski Ultra 250X, the latest PWC model launched in 2007, is Kawasaki's first model equipped with a Roots-type supercharger. The supercharged three-passenger PWC delivers an unprecedented 250 horsepower (US spec). Its superior acceleration performance enables it to reach top-end speeds in no time flat, no matter what the waves are like. All this is topped off with Kawasaki's neutral handling and superb high speed stability to make the Jet Ski Ultra 250X the ultimate PWC.

Here's a look inside this awesome machine, hailed as the best PWC around today.

The Jet Ski Ultra 250X complies not only with the Japan Boating Industry Association's voluntary emissions control standards but also with the emissions standards of the US EPA (Environmental Protection Agency) and CARB (California Air Resources Board), which has the strictest emissions standards in the world.

## KSS

Kawasaki Smart Steering (KSS) assists riders in learning to maneuver the watercraft. Even with the throttle fully closed, it is able to maintain the right engine speed and provide enough thrust to initiate a desired turn.

## Quattro KSD

This is Kawasaki's first PWC to employ Quattro Kawasaki Splash Deflectors (KSD). The four deflectors mounted across the bottom of the bow minimize spray during high-speed turns to enhance visibility and riding comfort.



## Handlebars

Five-way adjustable handlebars allow operation while standing or sitting and are designed to suit a wide range of riders.

## SLO Mode

The Ultra 250X comes with two separate keys, one for Smart Learning Operation (SLO) Mode and one for full-power operation. The SLO Mode reduces the engine power to 70% to allow newer riders to become familiar with the handling of the watercraft before unleashing its full power.

## Ignition Keys

Ignition keys are equipped with an anti-theft immobilizer system. Each time a rider inserts the key in the ignition it sends a preprogrammed identification code. This makes it impossible to start the engine without the right ignition key.



## Hull

The Ultra 250X's high-performance hull with a dead rise angle of 22.5° is newly designed to complement the engine's massive horsepower. This deep V-angle at the bottom of the hull enables the Ultra 250X to plow through waves with less shock and slice through rough water with ease.

All riders from beginners to experts can enjoy a combination of optimal handling and extreme stability at any speed in both calm and rough water.

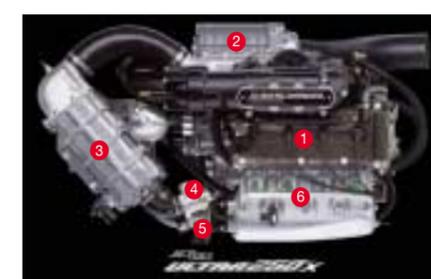


## Storage

The large-capacity 200 liter storage area has several compartments for easy sorting.

- The front storage area is fitted with a detachable multiple purpose storage tray.
- A detachable drink holder is mounted to the glove compartment.
- A compact storage area is integrated with the under-seat rear grip and is ideal for storing tools and small items.

## Power Unit



- 1 STX-15F engine
- 2 Roots-type supercharger
- 3 Intercooler
- 4 Air bypass valve
- 5 Throttle body
- 6 Fuel injection

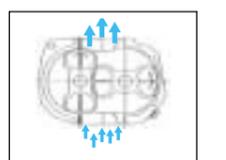
## 1 Engine

The base engine is a liquid-cooled 1,498 cm<sup>3</sup> DOHC, in-line four-cylinder engine, the same engine used in the Jet Ski STX-15F.

## 2 Roots-type Supercharger

The Jet Ski Ultra 250X is Kawasaki's first PWC to employ a Roots-type supercharger. This direct-drive supercharger boosts engine power by force-feeding the engine a large amount of air via an air compressor. It employs two counter-rotating lobes to pull and discharge air. Since it is connected directly to the engine, the Roots-type supercharger pumps a fixed amount of air from idle to high rpm and delivers an immediate powerful boost of acceleration the instant the throttle is opened.

### Roots-type Supercharger



## 3 Intercooler

A huge amount of heat builds up as the supercharger compresses air. Normally this high temperature intake air will reduce an engine's volumetric efficiency. The Ultra 250X breaks through this heat barrier with a large-capacity liquid-cooled intercooler that reduces the air temperature back down to ambient levels. The cooling of intake air results

in maximum combustion efficiency and output. The supercharger and intercooler combination make this the most powerful PWC engine in history. Its 250 horsepower gives it 1.6 times more kick than a naturally-aspirated engine.



## Jet Pump

An all-new, large-diameter 155 mm jet pump, boasting higher durability, efficiently converts the Ultra 250X's massive horsepower into pure thrust.



## What is the Jet Propulsion System?

Water is forced through an impeller to a tapered nozzle where it is then pushed out, creating a water jet flow that propels the craft forward. It's virtually the same system used in jet airplane engines. Instead of air, the PWC uses water.

## Fuel Tank

The Ultra 250X is fitted with a 78 liter fuel tank for the highest fuel capacity in its class.



## Two New Cruisers Hit the Road

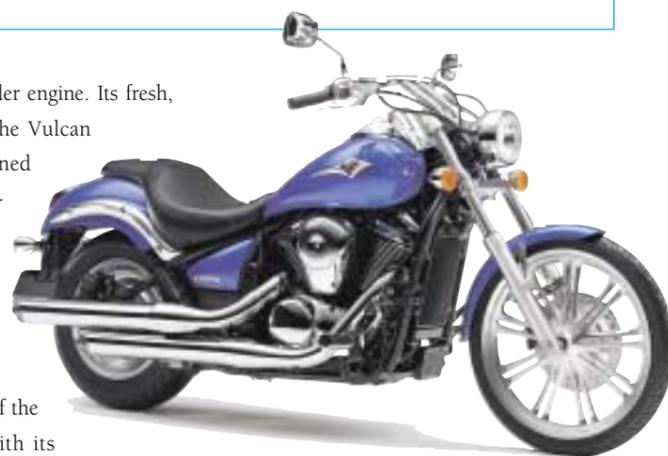
Kawasaki launched two large-displacement cruiser models, the Vulcan 900 Custom and Vulcan 900 Classic, in Japan on February 14. "Cruiser" refers to the classic American-style motorcycle renowned for its laid-back riding style.

The new Vulcan 900 series is equipped with a newly-designed 902-cc liquid-cooled

four-stroke V-twin cylinder engine. Its fresh, low, long look makes the Vulcan 900 perfectly proportioned with just the right balance. It passes Japanese emissions standards by a wide margin, making it very environmentally friendly.

The low, long look of the Vulcan 900 Classic with its big fat tires on chrome spoked wheels fits in perfectly with its curved contours and sturdy classic styling.

The Vulcan 900 Custom is equipped with a 21-inch cast front wheel, a straight-style handlebar, coverless



Vulcan 900 Custom

front forks and a compact headlight. The front wheel's unique styling calls to mind the wagon wheels that once crossed the open frontier of America, where the concept of the cruiser was born. ::



Vulcan 900 Classic

## BK117C-2 Helicopter Takes News to New Heights

Chunichi Shimbun Co., Ltd. has recently ordered Kawasaki's BK117C-2 helicopter. It's the first C-2 model to be used by a media agency and is scheduled to be delivered in April 2008.

The C-2 is the latest model in the BK117 series. It features pilot-friendly flight instruments, including an automatic pilot system and satellite phone, as well as a collision avoidance warning system for increased safety. This model will replace the Kawasaki BK117C-1 currently used by Chunichi Shimbun.

The Kawasaki BK117 helicopter was developed jointly between Kawasaki and European helicopter maker, Messerschmitt-Bolkow-Blohm (MBB) which is now Eurocopter Deutschland (ECD). The BK117 is a medium-sized twin-engine multi-purpose helicopter used for transporting cargo and passengers, firefighting, as well as police and emergency medical services. The helicopter boasts superior safety and operability, a com-

pact body and large double doors in its rear for transporting long objects such as stretchers.

Since its market debut in 1983, the BK117 has been the best selling model in the world. More than 500 units have been delivered worldwide thanks to its superior

flight performance coupled with quick and reliable customer services. Due to the superior performance of this latest model, Kawasaki has received orders for a total of 11 C-2 helicopters on top of orders to ECD for another 70. ::



## Cementing Business Ties in Morocco

Kawasaki Plant Systems, Ltd. has recently been awarded an approximately 8 billion yen contract for a cement plant to be used in the second production line at Lafarge Cement's Tetouan II facility in northern Morocco's Tetouan City. The plant is scheduled to begin production in 2009.

The plant with a daily production capacity of 2,300 tons adopts the same design as the plant used in the first line at the Tetouan II facility which was delivered by Kawasaki in 2004. Kawasaki is responsible for supplying and installing primary equipment such as

raw material grinding and calcining equipment. The second line will be constructed adjacent to the first line to meet the increasing domestic demand for cement and facilitate Lafarge Cement's expansion in the Moroccan market.

Headquartered in Casablanca, Morocco, Lafarge Cement is a subsidiary of Lafarge Morocco, established through a joint investment by Paris-based Lafarge SA, the world's number one cement producer with more than 100 cement kilns, and Societe Nationale d'Investissement, a major Moroccan invest-

ment company. Operating four cement plants in Morocco, Lafarge Morocco produces and sells 5 million tons of cement annually.

The first production line of the Tetouan II facility supplied by Kawasaki boasts one of the highest operating rates among all Lafarge plants worldwide and has greatly contributed to the bottom line of not only Lafarge Morocco but also the entire Lafarge Group. Lafarge specifically chose to award Kawasaki this contract after demonstrating its superb cement plant technological capabilities in work on the first production line. ::

## Kawasaki 15.9 MW Cogeneration System to Power MCC Plant

MC Shiohama Energy Service Corporation, a wholly owned subsidiary of Mitsubishi Corporation, has recently awarded Kawasaki a contract to build a 15.9 MW gas turbine cogeneration system. The system will be employed in the Shiohama area facility's onsite cogeneration project at the Mitsubishi Chemical Corporation (MCC) Yokkaichi Plant. The cogeneration system features Kawasaki's L20A high efficiency gas turbine.

Electricity and steam supplied by the cogeneration system will be used as a source of power and heat to operate the MCC Yokkaichi Plant's Shiohama area facility. The cogeneration system will benefit the environment by cutting CO<sub>2</sub> emissions while boost-

ing overall energy efficiency at the facility as it shifts from using crude oil to natural gas.

The cogeneration system is scheduled to start operating in November 2007.

MCC has given Kawasaki's L20A gas turbines and L20A-based cogeneration system high marks for efficiency and reliability. This latest order is Kawasaki's second consecutive order from MCC coming on the heels of a delivery of two L20As to MCC's Kawajiri project.

An onsite cogeneration project by MC Kawajiri Energy Service Corporation is currently underway at the MCC Yokkaichi Plant's Kawajiri area facility. The project

employs Kawasaki's 35 MW cogeneration system consisting of two L20A gas turbines.

Kawasaki began leveraging its proprietary technologies to develop the L20A in 1998 and completed the first unit in September 2000. It was installed in a cogeneration system at Kawasaki's Akashi Works in November 2001. The L20A's first commercial installation came in 2004, when Kawasaki delivered two of the units to the Chiba Minato Power Plant, which supplies onsite heat and power for the Chiba Food Complex. This order brings Kawasaki's total number of L20A orders for the domestic market up to six. ::

## K Plant Merges with KEE

On April 1, Kawasaki Plant Systems, Ltd. (K Plant) and Kawasaki Environmental Engineering, Ltd. (KEE) merged to form the newly bolstered K Plant. The company employs about 910 employees and is headed up by Toshikazu Hayashi. This wholly owned subsidiary of Kawasaki Heavy Industries is capitalized at 8.5 billion yen. The new company projects sales for fiscal year ending March 31, 2008 to reach

approximately 85 billion yen. The new company will strengthen product and technological competitiveness while maximizing operational efficiency through the integration of key technologies that both K Plant and KEE have in the energy and environment related fields.

Kawasaki believes the merger will turn its energy and environmental engineering business into a new profit engine that will drive earnings

up under its new Medium-Term Business Plan, "Global K," issued in September, 2006. Kawasaki is aiming to become a global leader in clean energy and environmental engineering through its superb, proprietary technologies. It is reorganizing and implementing an M&A strategy that will develop and expand this area of operations. The merger of these two companies is a vital part of that strategy. ::

## Cutting-Edge Vessels Delivered



*Energy Progress*

Kawasaki Shipbuilding Corporation delivered two vessels at the end of last year. The first vessel, the *Energy Progress* (hull No. 1540), was delivered to Jovial Shipping Navigation S.A. on Nov. 30. It is the seventh in a line of internationally acclaimed 145,000 m<sup>3</sup> LNG carriers boasting state-of-the-art facilities developed by Kawasaki Shipbuilding. The vessel features four Moss spherical tanks that hold a total of 145,344 m<sup>3</sup> of LNG as well as ultra-efficient thermal insulation made possible by Kawasaki's panel system, which achieves a boil-off rate of 0.10 percent per day. The cargo tanks are protected against direct damage by a double shell and double bottom.

Other features of the 289.5 m long ship include a computer-controlled navigation system integrated into the wheelhouse to improve operability and a 360° view win-

dow that enables single-operator oceangoing navigation. Kawasaki Shipbuilding also jointly developed an integrated monitoring and control system (IMCS) with Kawasaki



*Yamatogawa*

Heavy Industries to control cargo handling operations and monitor engine conditions.

The second vessel, the *Yamatogawa*, a very large crude oil carrier (VLCC), was delivered to KAW1572 Shipping S.A. at its Sakaide Shipyard on Dec. 28. This 315,000 DWT, double-hull tanker puts the total number of vessels built by the company at 1,572.

Powered by a Kawasaki-MAN B&W 7S80MC-C diesel engine, the vessel features the latest tanker developments, including one of the largest cargo capacities that can pass through the Malacca Straits and enter primary oil tanker berths in Japan. The 333 m long carrier is equipped with Kawasaki's rudder bulb system with fins (RBS-F) and high-performance propellers for energy-efficient operations. ::

## State-of-the-Art Waste Treatment and Recycling

Kawasaki Plant Systems, Ltd. (formerly Kawasaki Environmental Engineering, Ltd.) has recently delivered a state-of-the-art waste treatment and recycling plant to the Kishiwada Kaizuka Clean Center in Osaka Prefecture.

The plant consists of three cutting edge stoker-type incinerators that essentially incorporate the core technologies of the

Kawasaki Advanced Stoker, as well as two plasma-type ash melting furnaces and a waste recycling system. In addition to supplying the power to operate plant facilities, waste heat from the plant's steam turbine power generator is sold to the local electric power corporation.

The plant features technological innovations that include the Kawasaki Parallel Flow

Type Incinerator, the Kawasaki Water Cooled Grate and a flue gas recirculation system. The shape of the incinerator furnace allows the flame to flow parallel to the direction in which refuse is incinerated. This enables complete combustion with less air (or at a lower air ratio) and reduces more combustibles in the bottom ash compared with conventional incinerators. The water cooling

system for grates, which feed refuse at high temperature conditions, improves the durability of the incinerator. After high-tempera-



ture exhaust gas is burned at a low oxygen concentration it is recirculated into the incinerator. This system further enhances low air-ratio combustion and enables stable combustion at high temperatures while reducing thermal NOx emissions (nitrogen oxide formation caused by burning at localized high temperatures).

The plant meets strict standards for dioxins, exhaust gas, effluent emissions, fly ash leachate and slag. The abovementioned technologies

reduce environmental load through a 25% reduction in total flue gas and a 20% reduction in NOx emissions during combustion, in comparison with Kawasaki's conventional systems, as well as through generally more compact flue gas treatment facilities. The lower load delivers the added benefit of a lower running cost.

This plant makes the 159th waste treatment system Kawasaki has delivered. It is a model plant that essentially combines the latest in feasible technologies that Kawasaki has developed over the years. ::

## Kawasaki Beefs Up Overseas Operations

Kawasaki has strengthened its overseas operations by establishing two new offices and consolidating operations at four overseas locations.

The first new office was opened in Delhi, India on January 1 and the second in Moscow, Russia on March 1. Kawasaki's Southeast Asia offices in Bangkok, Kuala Lumpur and Jakarta were consolidated into its subsidiary, Kawasaki Heavy Industries (Singapore) Pte. Ltd. on Jan. 1. The Shanghai Office in China has been reorganized as a locally incorporated company providing

business assistance and services mainly for Kawasaki group companies operating in the area.

Kawasaki's new overseas offices and subsidiary include:

### ■ Delhi Office

5th Floor, Meridien Commercial Tower,  
8 Windsor Place, Janpath, New Delhi,  
110001 India  
Tel: +91-11-4358-3531  
Fax: +91-11-4358-3532

### ■ Moscow Office

6th Floor (605), Bolshoy.  
Ovchinnikovskiy per., 16 Moscow,  
115184, Russian Federation  
Tel: +7-495-933-1953~54  
Fax: +7-495-933-1955

### ■ Kawasaki Heavy Industries Consulting & Service (Shanghai) Company, Ltd.

13th Floor, HSBC Tower,  
1000 Lujiazui Ring Road, Pudong New Area,  
Shanghai 200120, Peoples Republic of China  
Tel: +86-21-6841-3377  
Fax: +86-21-6841-2266

## New Directors Appointed

On April 1, senior vice president, Akira Matsuzaki, was appointed senior executive vice president, and executive officer, Masatoshi Ohyama, succeeded Matsuzaki as general manager of the Corporate Technology Division. Executive officer, Satoshi Hasegawa, succeeded Takashi Yoshino as president of the Gas Turbine & Machinery Company on the same date.

On June 27, executive officers, Shuji Mihara and Satoshi Hasegawa, were elected as new directors at the General Meeting of Shareholders and appointed senior vice presidents after the meeting. Director, Takashi Yoshino, became an advisor after resigning his position on the same date. ::



**Akira Matsuzaki**  
Senior Executive Vice President

**Shuji Mihara**  
Senior Vice President  
Senior Manager  
Personnel & Labor  
Administration Department

**Satoshi Hasegawa**  
Senior Vice President  
President  
Gas Turbine & Machinery  
Company

# Achieving new heights in technology

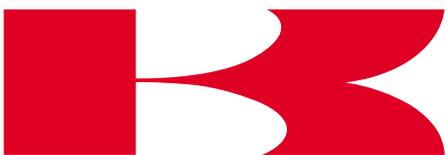


<http://www.khi.co.jp>

**Kawasaki Heavy Industries, Ltd. is constantly developing the latest technology. It continues to support people and society in the realms of land, sea, and air.**

Motorcycles, high-speed trains, next-generation aircraft, and LNG carriers — Kawasaki is transforming its state-of-the-art technologies into reality in the field of transportation.

Its remarkable achievements are also found in a wide array of projects around the globe in the form of shield machines, high-efficiency gas turbine generators, environmental plants, industrial robots, and more.

 **Kawasaki**