Heightened Awareness as an Environmentally Friendly Brand

Kawasaki believes that one of its important responsibilities is to make its environmental policies and initiatives easy to understand and to disclose those policies with transparency. We conduct Kawasaki Green Product Promotion Activity that includes the registration of products based on an assessment of product performance and the manufacturing process in consideration of the environment, with the aim of broadly communicating and instilling our support for the environment through our products. In addition, we work to appropriately disclose information regarding our environmental activities to stakeholders by disclosing information in the Environmental Report and on our website, and by proactively responding to questionnaires, etc., from external evaluation organizations.

Key Strategies and Targets under Ninth Environmental Management Activities Plan (FY2017–FY2019)

<table>
<thead>
<tr>
<th>Targets</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heightsened awareness as an environmentally friendly brand</strong></td>
<td></td>
</tr>
<tr>
<td>① Leverage Kawasaki Green Product Promotion Activity</td>
<td>Register Kawasaki-brand Green Products every year and release data to public</td>
</tr>
<tr>
<td>② Enhance image through external evaluations and rankings</td>
<td>Announce results of third-party verification, improve evaluations from external organizations such as CDP, and sustain placement in Dow Jones Sustainability Index</td>
</tr>
</tbody>
</table>
Kawasaki Green Product Promotion Activity

To realize our Group Mission: “Kawasaki, working as one for the good of the planet,” we will draw on high-level, comprehensive technological capabilities over the Kawasaki Group’s extensive range of business pursuits to create new value for coexisting with nature and building a brighter, more comfortable future for generations to come. We have launched Kawasaki-brand Green Products, a program in support of the Group Mission objective and through which we will boost the environmental performance of products and accelerate the reduction of environmental impact caused by associated manufacturing processes. The products selected for this program must meet self-established criteria and are categorized as either Kawasaki Green Products or Kawasaki Super Green Products. The products are then labeled compliant with ISO 14021, and the list is made public.

The program logo embodies the Group’s commitment to environmental sustainability through products and manufacturing. The three pillars in the logo represent our primary business areas—land, sea and air transport systems, energy and environmental engineering, and industrial equipment—and the innovative and advanced technological capabilities in these respective areas form a firm foundation for these pillars, which together support the global environment.

Kawasaki Green Product Promotion Activity
External Information Disclosure

Kawasaki discloses information to our stakeholders through means such as the Kawasaki Report, the Environmental Report, and our website. In addition, we receive questionnaires from many external evaluation organizations, including: the CDP Climate Change Information Request, published by the CDP; the Environmental Management Survey, conducted by Nikkei Research Inc.; the Toyo Keizai CSR Survey, and the Dow Jones Sustainability Index, which we view as the voice of stakeholders representing investors, and we vigorously pursue the disclosure of environmental information by responding to such questionnaires.

As a result, we have continuously been selected as a stock for investment for the DJSI Asia Pacific Index, and the SNAM Sustainable Investment Fund, which is managed by Sompo Japan Nipponkoa Asset Management Co., Ltd. (SNAM).
**Product Assessment**

For newly developed and designed products, as well as for particularly important products, Kawasaki assesses products according to such criteria as resource and energy savings and recycling potential, with the goal of reducing the environmental impact of our products during their life cycles. Because specific evaluation techniques vary depending on the type of product, each business segment draws up product assessment rules appropriate to the characteristics of the respective product. The main evaluation items of product assessment are shown below.

| ❶ | Product weight reduction |
| ❷ | Product energy saving |
| ❸ | Longer product life |
| ❹ | Product safety and environmental conservation effectiveness |
| ❺ | Measures for product disposal and recycling |
| ❻ | Environmental impacts when problems or other extraordinary circumstances occur |
| ❼ | Provision of information for use and maintenance |
| ❽ | Compliance with regulations |
Large LNG Carrier with Newly Developed Tank

**Boil-off Rate (*)**

<table>
<thead>
<tr>
<th>Competitor’s product</th>
<th>Our product</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.06%/day</td>
<td>0.05%/day</td>
</tr>
<tr>
<td>(Thermal insulation panel only)</td>
<td>(Thermal insulation panel with partial re-liquefaction)</td>
</tr>
</tbody>
</table>

*(*) An indicator of the cargo tanks’ thermal insulation performance to show the rate of LNG volume that vaporizes spontaneously from the cargo tanks per day. Smaller values indicate better thermal insulation performance.

**Product Description**

In addition to improving fuel efficiency and reducing environmental impact, this large LNG carrier features a hull size capable of entering LNG terminals worldwide and passing through the newly expanded Panama Canal. Furthermore, the adoption of non-spherical cargo tanks greatly increases its LNG transport capacity.

**Special Features**

- Adoption of Kawasaki Panel System with industry-leading thermal insulation performance
- Achievement of the world’s lowest real BOR (boil-off rate) of 0.05%/d by combining a Kawasaki Panel System with excellent thermal insulation performance, fitted on newly developed non-spherical cargo tanks, with a partial re-liquefaction system. Improvement of fuel efficiency by about 15% compared with our previous ships, due to the combination of a unique hull form with dual fuel engines.

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**efACE Standard Railcar**

**Product Description**

This standard commuter railcar is a clean form of mass transport from the perspectives of energy saving and reduced environmental impact. Its core concepts are “flexibility”, supporting both stainless steel and aluminum cars; “rationality” of quality and price; and “added value” of comfort and environmental performance.

**Special Features**

- Adoption of recyclable stainless steel structure and interior panels
- Adoption of "harmonica" construction in the aluminum structure and twist bolts in the SUS structure makes the body easy to update, including changing the seating and equipment layout
- Weight reduction achieved through adoption of aluminum composite plates and chamberless ducts
- Application of friction stir welding (FSW) on structure
- Reduced weight decreases electricity consumption. Friction stir welding (FSW), which requires less heat than MIG welding, is applied during manufacture.

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2017 Kawasaki-brand Green Products

[New]
BK117 D-2 Helicopter (Airbus Helicopters Model: H145)

Achieves the quietest helicopter in its class, providing outstanding hovering performance and longer service life

The introduction of a new tail rotor system and other features contributes to the reduction of external noise, and environmental performance throughout the life cycle is also greatly enhanced, including longer service life through a significantly extended overhaul interval. Also, the increased main gearbox rating contributes to improve energy efficiency by 18%.

Special Features
• Achievement of world’s quietest helicopter in its class
• Notable increase of rated power through introduction of high-power engine and improvement of main gearbox
• Notable extension of tail rotor gearbox overhaul interval to 5,000 hours instead of 1,500 hours for the C-2

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Oil-Free Kawasaki Centrifugal Compressor

Completely oil-free compressor achieved through adoption of a high-speed motor and magnetic bearings

The adoption of a high-speed motor and magnetic bearings improves efficiency and reduces weight and footprint, achieving 3% lower power consumption, 35% lighter weight, and 75% smaller installation area compared to conventional models. Elimination of the need for lubricant oil also reduces environmental impact.

Special Features
• Mechanical loss greatly reduced through direct motor drive and contactless support
• Elimination of the need for lubricant oil greatly reduces equipment weight and installation area
• In addition to not using lubricant oil, it reduces noise and vibration
LNG Tank (New safety factor applied)

One of the world’s largest aboveground LNG tanks, with a dual-tank consisting of an inner tank directly storing LNG at -162℃ and a PC (prestressed concrete) outer wall. In addition to its superior cold-storage functionality, the improved thermal insulation reduces BOG (boil-off gas) rate by 21%.

Special Features
- Application of new safety factor and streamlined inner tank structure reduces product weight and improves cold-storage functionality
- Optimized structure of inner tank material
- Stairs
- Outer tank bottom liner
- Inner tank bottom plate
- Knuckle plate
- Base slab
- PC outer wall

Product Description
- Improved thermal insulation functionality

Z900 (2017MY)

This new-generation naked model motorcycle delivers a high level of quality in the three areas of styling, powerful engine performance, and comfort with a new frame design allowing control and ease of handling through uncompromising lightness. Enhanced engine output is achieved by the world’s highest level of environmental performance.

Special Features
- Liquid cooled parallel four-cylinder engine delivers a power feel that smoothly increases at mid to high rpm, with strong torque feel and sharp throttle response at low rpm
- New steel-frame design achieves comfort and ease of handling through uncompromising lightness
- World’s highest level of environmental performance
- Worldwide-harmonized Motorcycle Test Cycle (WMTC) mode fuel efficiency is top in its class, with 9% better output than a competitor’s model. It is compliant with EURO IV and R41-04, Europe’s new noise emission regulations.

Product Description
- Excellent fuel performance and low exhaust emissions with world’s highest level of environmental performance
2017 Kawasaki Green Product

Z650/Ninja650 (2017MY)

Product Description
These mid-range, new-century naked/full cowling model motorcycles have styling with a sense of presence comparable to large models. They are easy for beginners to handle and a joy to ride for intermediate to advanced riders.

Special Features
- Liquid-cooled parallel two-cylinder engine provides a seamless throttle response focused on low torque feel at low to mid rpm, and a power feel that increases smoothly
- New steel-frame design achieves comfort and ease of handling through uncompromising commitment to reducing weight
- Excellent fuel performance conforms to EURO IV, European emission regulations

Compared to the previous models (ER-6n/6f), Worldwide-harmonized Motorcycle Test Cycle (WMTC) mode fuel efficiency is 7% better and power/weight ratio is 4%/3% lower. CO, THC and NOx in exhaust emissions are also reduced by 63%, 56%, and 50%, respectively.

Improved fuel efficiency, reduced power/weight ratio, and greatly reduced exhaust emissions

WMTC Mode Fuel Efficiency

<table>
<thead>
<tr>
<th>Z650</th>
<th>Ninja650</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous model</td>
<td></td>
</tr>
<tr>
<td>2018 model</td>
<td></td>
</tr>
</tbody>
</table>

Emission amount g/km

<table>
<thead>
<tr>
<th>CO</th>
<th>THC</th>
<th>NOx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous model</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018 model</td>
<td></td>
<td></td>
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</tbody>
</table>

HST Pump K8V Series

Product Description
This dual-tilting hydraulic pump is suitable for closed circuit systems such as HST drive systems for various industrial vehicles. The world's top-class pump efficiency and low noise level, both of which surpass competitors' products, HST (continuously variable transmission with hydraulic pump and hydraulic motor) achieve world's top-class pump efficiency and a low noise level, both of which surpass competitors' products. (HST: continuously variable transmission with hydraulic pump and hydraulic motor)

Product Description
- Optimized design developed with the K7V, hydraulic pump for excavators, achieving the world's top-class pump efficiency and low noise level, both of which surpass competitors' products. (HST: continuously variable transmission with hydraulic pump and hydraulic motor)

Special Features
- New design较差 with the K7V, hydraulic pump for excavators, achieving the world's top-class pump efficiency and low noise level, both of which surpass competitors' products. (HST: continuously variable transmission with hydraulic pump and hydraulic motor)

Kawasaki Heavy Industries, Ltd.

Kawasaki Heavy Industries, Ltd.
HST Motor
M7V Series

Product Description
This compact hydraulic motor featuring one of the world’s most outstanding high-speed performances as a swash plate motor can be used for HST drive systems for various industrial vehicles, winches, and other applications. It starts up efficiently to ensure smooth operation, while its low-speed performance delivers precise handling even when fine control is required.

Special Features
- World’s highest-class power density achieved
- Lighter pistons increase speed by reducing inertia by 22%
- Smooth start-up and stable speed during slow travel
- Compact shape through swash plate

Weight reduced to be lighter than industry standards for 1-ton-plus payload class

<table>
<thead>
<tr>
<th></th>
<th>MG15H4</th>
<th>Competitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum payload (lb)</td>
<td>1,500</td>
<td>1,200</td>
</tr>
<tr>
<td>Maximum reach (mm)</td>
<td>4,005</td>
<td>3,734</td>
</tr>
<tr>
<td>Main unit mass (kg)</td>
<td>6.550</td>
<td>8.600</td>
</tr>
</tbody>
</table>

Extra-Large Payload Robot
MG Series

Product Description
This extra-large payload robot with a capacity of 1 to 1.5 tons realizes both high rigidity and accuracy through its unique construction. It features a hybrid link mechanism on the first axis, a ball-screw mechanism on the second and third axes.

Special Features
- Achieves 1-ton-plus payloads through adoption of hybrid link mechanism and dual servos
- Reduces arm deflection and achieves high positioning accuracy for enhancing ball screws and high rigidity, and minimal backlash
- Weight reduced to be lighter than industry standards for 1-ton-plus payload class
- Unique arm construction, which features hybrid link and partial use of ball-screw drive, realizes payloads of 1 to 1.5 tons and lighter chassis without use of counterweight

Unique arm construction, which features hybrid link and partial use of ball-screw drive, realizes payloads of 1 to 1.5 tons and lighter chassis without use of counterweight
[Renewal]
After registration, products are reassessed every three years, and registration is renewed for products that meet the criteria.
**Hydraulic Pump for Excavators (K7V)**

Initial registration: 2014

**Product Description**

**Special Features**

- Used widely in construction machinery, particularly hydraulic excavators, the K7V series of hydraulic pumps meets recent market requirements for high efficiency, low noise, compact size and high reliability.

- Improved efficiency, because leakage from sliding parts and torque loss are reduced.

- Lower noise and vibration, thanks to suppression of surge pressure and higher casing rigidity.

- Complete review of dimensional data resulted in shorter total length.

- Longer service life achieved through use of thicker shaft and large-capacity bearings.

A world leader in environmental performance, offering higher efficiency and lower noise.

The K7V's pump efficiency is improved by 1.5 points and its noise level reduced by 3 dB (A) compared with the K3V series, its widely popular predecessor, to make it one of the world's top environmental performers on both counts.

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**Ninja ZX-6R**

Initial registration: 2014

**Product Description**

**Special Features**

- This motorcycle features an engine that combines both improved performance in the low- to mid-speed range and better fuel efficiency, thanks to extra engine displacement over the previous model, which scored successes on the racetrack as well as the road. The Ninja ZX-6R also boasts advanced suspension, electronic traction control and a low environmental impact exterior, while allowing riders to enjoy high performance with greater confidence.

- New model revamped for lower CO₂ emissions and enhanced recyclability.

- Starting with the 2009 model, the Ninja ZX-6R's displacement was increased by 37cm³ for greater output while fuel consumption was trimmed by 3%. The model was also designed for better environmental performance, particularly enhanced recyclability.

- Lower fuel consumption.

- Less environmental impact.

- Improved safety.

- Good balance of improved performance and better fuel efficiency.

- Lower CO₂ emissions.

- Better recyclability.

- Less paint used following review of surface treatment.

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**Spot Welding Robot (BX200L)**

Initial registration: 2014

**Product Description**

**Special Features**

- Industry's lightest, slimmest and most compact spot welding robot minimizes footprint.

- This energy- and resource-saving spot welding robot facilitates higher density installation and boosts production efficiency, which leads to lower production equipment costs. It is high-speed, compact and lightweight, and its cables are internally routed between the robot's wrist and base.

- The BX200L has a smaller footprint and is more lightweight than any comparable model in the industry. Since cables and hoses can be stored in the robot's arm and wrist, interference with adjacent robots or peripheral devices is minimized. This allows for installation in higher-density applications compared with earlier models.

- Optimized design and reduced number of components make this the industry's most lightweight spot welding robot in its class.

- Lightweight: Installation area is less than 60% of same-class products in the industry.

- Compact: Internally routed cables.

- Hollow arm and wrist of robot reduces area of interference where exposed cables and hoses would get in the way.