

SANYO Announces the “eneloop bike” Electric Hybrid Bicycle

*Charge while riding: Industry's first^{*1} new standard compatible^{*2}, with an assist ratio of 1:2^{*2}*

Tokyo, December 1, 2008 – SANYO Electric Co., Ltd. (SANYO) is proud to announce another new eneloop universe product, an electric hybrid bicycle—the eneloop bike. The eneloop bike has been designed to be the industry's first^{*1} to conform to the newest standards^{*2}, offering a “Power-up Mode” assist ratio of up to 1:2^{*2} making riding the bicycle more comfortable, a new “loop charge function”^{*3} that generates electricity and charges the battery while in use, and a “two-wheel drive system” provide a safer, more stable ride. The new eneloop bike will be on sale in Japan in early February 2009.

SANYO, based on its ‘Think GAIA’ brand vision and the eneloop concept stressing ‘looping energy’ or stressing a lifestyle of reusing and recycling, created the ‘eneloop universe’ in 2006. The eneloop bike announced today will become a part of this product series, as it accurately represents both looping energy and consideration for the environment in a reusable system. With this new product, clean and reusable energy is “Generated, Recharged, and Conserved” simultaneously. Energy is generated by the rider, recharging the auxiliary battery, and conserving the energy both from the main battery and the rider.

Product name	eneloop bike Electric Hybrid Bicycle
Product No.	CY – SPA226 (W)/(L)/(G)/(K)
Color	(W)White (L)Dark blue (G)Dark green (K)Black
MSRP (including tax)	136,290 yen (129,800 yen, excluding tax)
Release date	Early February 2009
Monthly production	1,000 units

Main Features

1. Industry's First^{*1} to conform to the newest standards^{*2} with “Power-up Mode” assist ratio of up to 1:2^{*2} for more comfort

- Conforms to newly revised road traffic law enforcement regulations effective as of December 1, 2008 allowing motor to human power, assist ratio, to 1:2
- Power-up Mode offers riders more comfort by assisting more with its smooth assistance control
- New ratio allows riders to pedal up steep hills effortlessly
- SANYO's proprietary ‘smooth assistance control’^{*4} aids with balancing the bicycle when pedaling starts, and allows a smooth ride

*1: For power-assisted bicycles in Japan that are scheduled to be released at the beginning of February 2009.

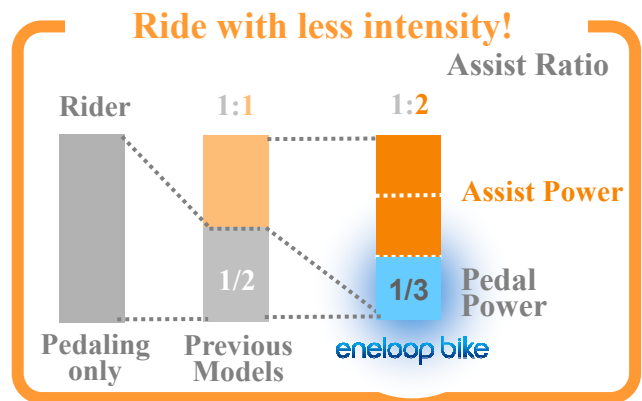
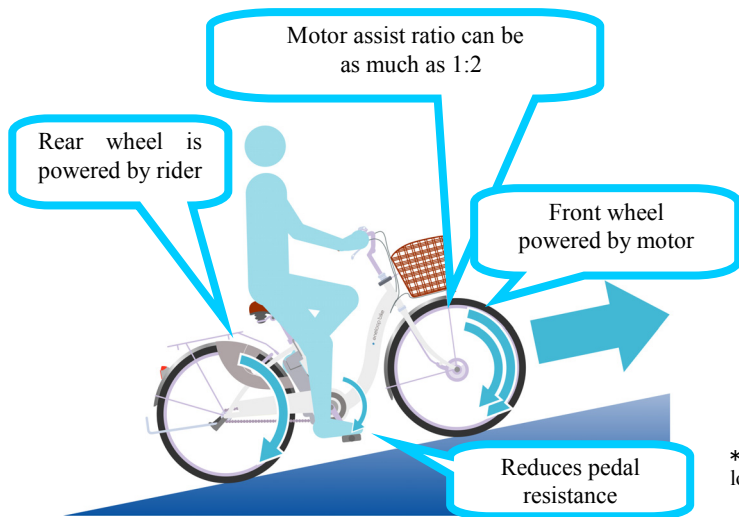
*2: A Cabinet Office regulation to be enforced on December 1, 2008 that revises the drive assist ratio for the motor drive-assisted bicycles that is provided in the road traffic law enforcement regulations.

The ratio of motor power to human power (assist ratio) will become 1:2 in a low-speed area of less than 10 km/h.

*3: The “Loop Charge Function” is a generic name of the “Brake Charge” where the motor changes to the dynamo and the battery is auxiliarily charged by a left brake lever operation when the bike slows down on a downhill for example, and the function where the motor brake automatically works while the bike coasts downhill in “Auto Mode” and the battery is auxiliarily charged.

Even with the use of “Loop Charge”, the battery needs to be charged daily with a dedicated charger.

*4: As of December 2008 for assist bicycles in Japan for the running mode automatically controlling the optimal recharging rate downhill and the assist “power-up” for uphill.



*The ratio of motor power to human power (assist ratio) will become 1:2 in a low-speed area of less than 10 km/h.

The eneloop bike runs via the rear wheel using pedal power and the front wheel from the motor using "Power-up Mode". The ratio of motor power to human power (assist ratio) will become 1:2 in new "Power-up Mode".

2. "Loop Charge Function"*³ provides efficiency and comfort while generating electricity and charging the battery while riding

- Original "Loop Charge Function"*³ conserves riders' energy as it charges the battery on energy produced during downhill runs or slowing down
- "Loop Charge Function"*³ is based on "Brake Charge System" and "Auto Mode"
- "Brake Charge System" generates electricity by switching the motor from dynamic (on downhill runs) to auxiliary (when rear brake is in operation) charge or back while on the go
- "Auto Mode" detects various road conditions, such as gradients determining uphill or downhill, automatically adjusting to create optimum comfort while saving the rider's energy
- Auxiliary charging while riding decreases the number of times the battery needs to be charged with a dedicated charger (normal charge still requires a dedicated charger)
- SANYO proprietary*⁴ technology designed so that typical bicycle riding based on company riding standard patterns will result in an increase of up to 1.8 times the distance of riding compared to the non-recharge mode
- "Loop Charge Function" aims to be compatible with the new standards*² while maintaining as light a body as possible for assist power

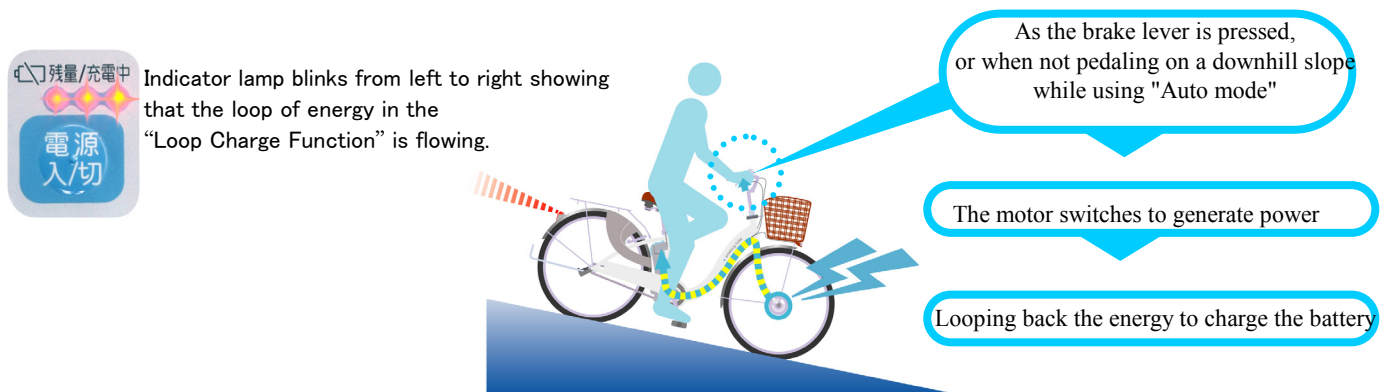
*2: A Cabinet Office regulation to be enforced on December 1, 2008 that revises the drive assist ratio for the motor drive-assisted bicycles that is provided in the road traffic law enforcement regulations.

*3: The "Loop Charge Function" is a generic name of the "Brake Charge" where the motor changes to the dynamo and the battery is auxiliarily charged by a left brake lever operation when the bike slows down on a downhill for example, and the function where the motor brake automatically works while the bike coasts downhill in "Auto Mode" and the battery is auxiliarily charged.

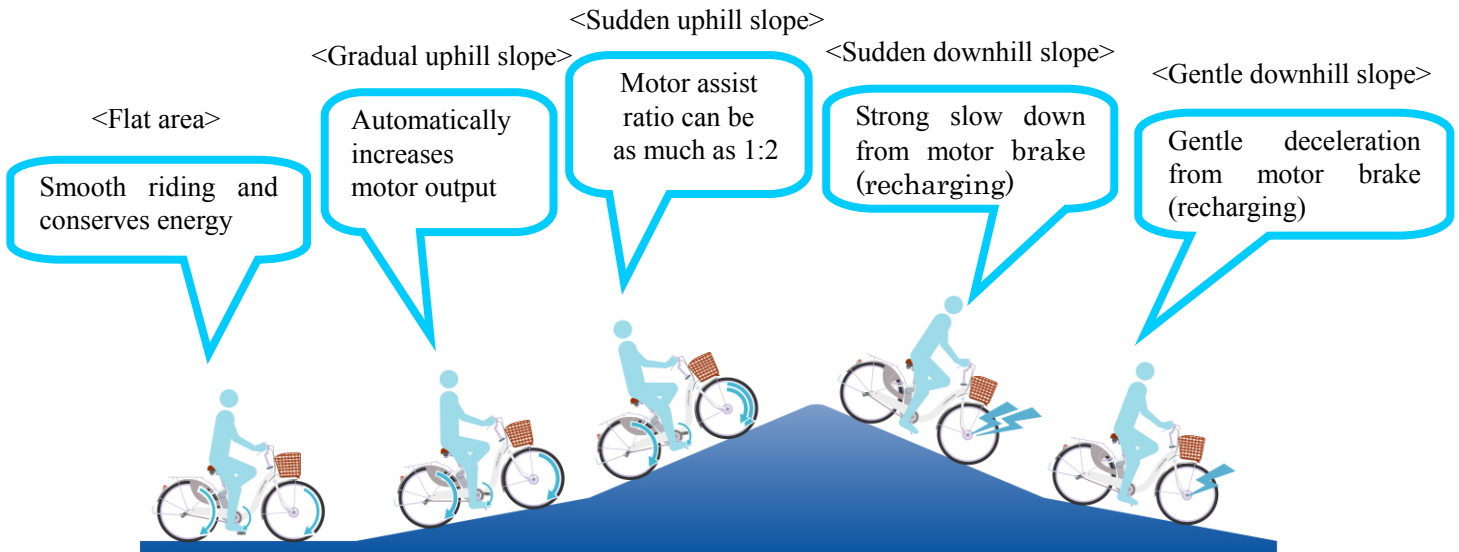
Even with the use of "Loop Charge", the battery needs to be charged daily with a dedicated charger.

*4: As of December 2008 for assist bicycles in Japan for the running mode automatically controlling the optimal recharging rate downhill and the assist "power-up" for uphill.

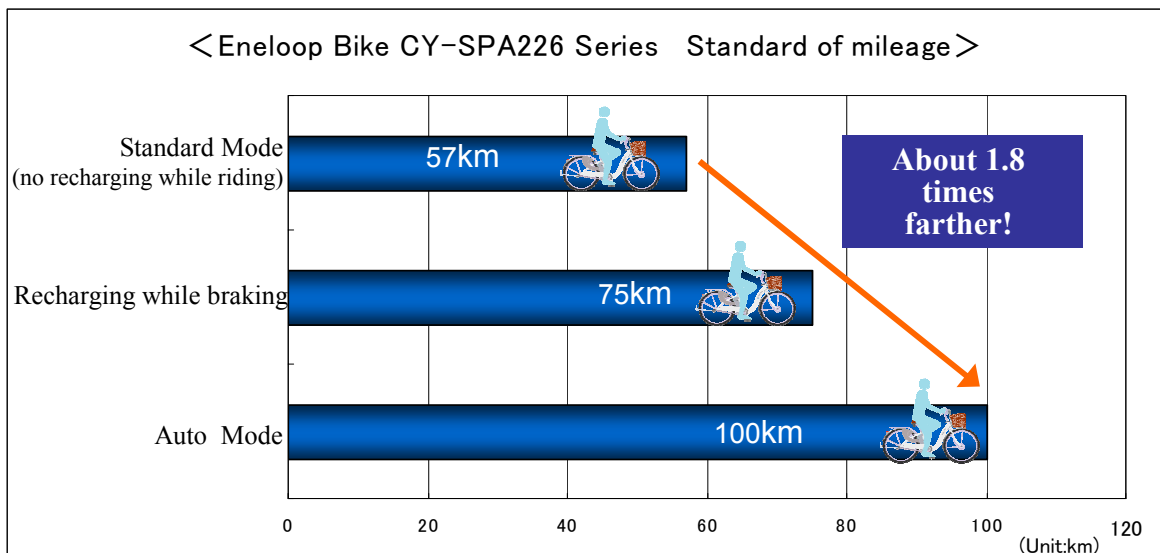
How the "Loop Charge Function" works



Features of “Auto Mode”



- The load on the motor brake on a downhill slope (electrical resistance) will automatically change varying on gradient
- The braking force applied from the motor brakes is auxiliary braking. The rider will make the final determination of the amount of deceleration through the operation of the brake handles.



Riding conditions

* SANYO standard pattern (Standard Mode): Approximately 15 km/h over 1 km of flat ground, approx. 10 km/h on an uphill slope gradient of 2 over 1 km, approx. 15 km/h over 1 km of flag ground, approx. 20 km/h on a downhill slope gradient of 2 over 1 km, approx. 15 km/h over 1 km of flat ground, and repeating the above riding conditions.

(However, when using the motor brake on downhill slopes the speed is approx. 10km/h)

(Gear position: on uphill gradient 2, gear 2; others, gear 3)

*SANYO standard pattern (Auto Mode): Approximately 15 km/h over 1 km of flat ground, approx. 10 km/h on an uphill slope gradient of 2 over 1 km, approx. 15 km/h over 1 km of flag ground, approx. 10 km/h on a downhill slope gradient of 2 over 1 km while the motor brake is applied automatically, (Gear position: on uphill gradient 2, gear 2; others, gear 3)

Course image:

*The numbers used to depict distance are only target estimates. They are not guaranteed distances for a single charge. The distance that can be travelled on a single charge is subject to varying road conditions and the way the bicycle is ridden.

*Testing conditions: new battery, outside temperature of 20°C, no wind, no front or rear lights, carrying a weight of 60kg (including rider and luggage)

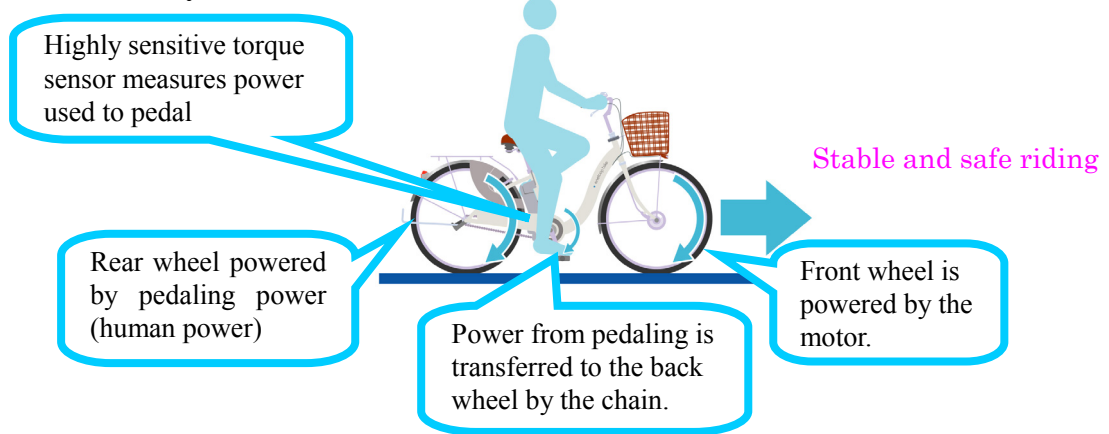
*Travelable distance reduced if tire pressure is different than recommended amount.

*Travelable distance temporarily reduced in winter or when temperatures are low.

3. “Two-wheel Drive System” allows safer, more stable ride

- Increased stability from “Two-wheel Drive” where rear wheel is driven by human pedaling power and the front wheel is driven by motorized power
- Bike transmits assist power via motor power to the front wheel as pedaling power is applied to the rear wheel based on the movement of the chain
- As power is applied to both wheels, it is applied in a balanced manner, providing a natural-feeling, stable and safe ride

Two-wheel Drive System Overview



4. Other Features

Taillight brake lamp promotes safety

- Three high-intensity red LED lights flash on and off when the headlight is in operation
- Taillight LEDs flash faster when rear brake is in operation, drawing attention of those behind

Low frame and low saddle design

- Lower frame and saddle allow easy step-through and mounting
- Seat height is adjustable from 24-inch to 26-inch framing
- Adjustable saddle range of 18cm to provide flexibility for riders regardless of height

‘Kurupita’^{*5} handle lock allows convenient parking

- One-touch operation prevents handle from wobbling when parking

Neatly-designed frame with internal cabling

- Cables for brake, gear, and electric wiring are put into the frames to prevent tangling and to give the bike a finished and neat appearance

Three speeds allow smooth riding

- Bike has three-speed gear for easy shifting by hand depending on road conditions

O-lock for security

- Sturdy lock made of die-cast stainless steel adds more security to prevent theft

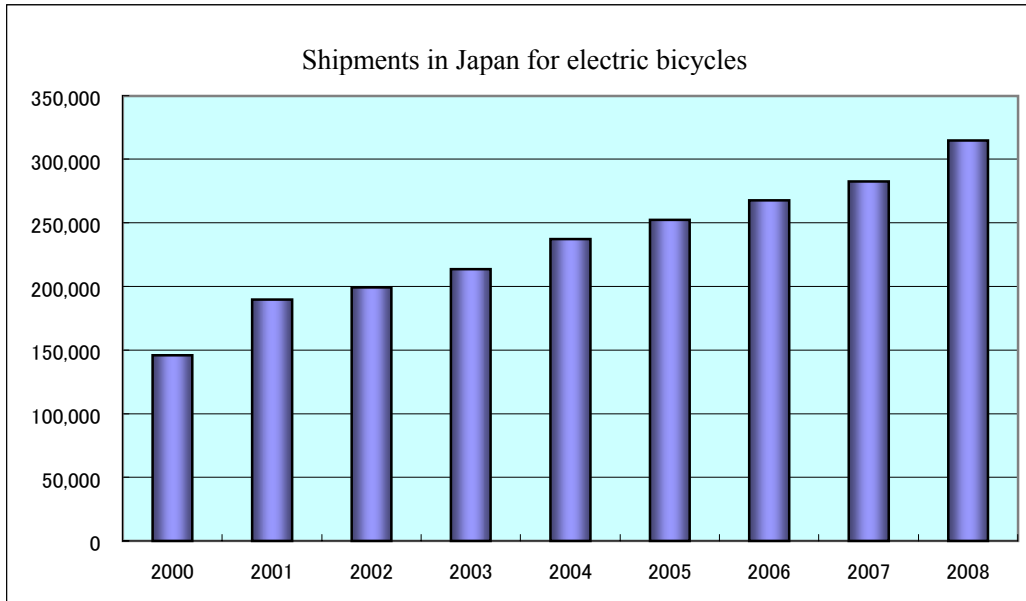
Comfortable saddle for tireless riding

- Shape of the seating surface combined with shock-absorbing elastomer cushion decreases rider fatigue

*5 ‘Kurupita’ is the registered brand of Shimano Co., Ltd.

Background and Overview

With the encouragement of the current business operating conditions where there is a lack of stability in oil prices and increasing environmental awareness, hybrid, power-assisted bicycles that not only save money and emissions, but also provide a stable, safe and comfortable ride are attracting more attention as a truly eco, both ecological and economical, vehicle. Shipments in Japan of power-assisted bicycles in 2007 were about 283,000 units, nearly double the amount since 2000. Accumulated shipments since 2000 have reached over two million units and the market is expected to continue to expand in the future.



Additionally, the current ratio acceptable by law for power-assisted bicycles is 1:1, which will be changed to 1:2 starting from December 1, 2008, allowing the more powerful assisting bicycles to be treated as normal bicycles under the road traffic regulations.

This change will have a large impact on riders as it will allow a smoother startup than the types available to date and help riders have a more stable uphill ride. Additionally, this can expand the travel range for those without strong legs or high endurance levels.

Specifications

Product No.		CY-SPA226(W)/(L)/(G)/(K)
Wheel diameter (type)		26-inch
Motor		DC brushless motor/Output: 250 W
Transmission		Internal 3-speed
Headlight		Four high-intensity white LEDs (Battery light)
Taillight		Three high-intensity red LEDs (with Brake Lamp Function)
Power-assisted range		0 km/h to 15 km/h: gradually increased, 15 km/h to 24 km/h: gradually reduced
Assist mode (three-way)		Standard/ Power-up/Auto
Travel distance	Riding recommended pattern*	57 km (Not using recharging while riding) 75 km (Using brake recharging only) 100 km (Auto mode)
Battery		Lithium-ion battery 25.9 V-5.7 Ah ^{*5}
Charging time		About 3.5 hours (with dedicated charger)
Power consumption of charger		About 67 W
Power switch		Handlebar panel switch (with auto power-off function)
Brake		Front: Side pull caliper (dual pivot type) Rear: Roller brake
Tire size		26 x 1 3/8-in
Dimensions		Overall length x overall width: 1,850 x 570 (mm), saddle height: 750-930 (mm)
Weight		About 22.8 kg

*6: 25.2-5.7 Ah is the rated value (minimum value) and the representative value is 25.9- 6.0 Ah

Riding conditions

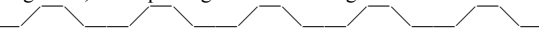
*Testing conditions: new battery, outside temperature of 20°C, no wind, no front or rear lights, carrying a weight of 60kg (including rider and luggage)

*The numbers used to depict distance are only target estimates. They are not guaranteed distances for a single charge. The distance that can be travelled on a single charge is subject to varying road conditions and the way the bicycle is ridden.

*Travelable distance reduced if tire pressure is different than recommended amount.




*Travelable distance temporarily reduced in winter or when temperatures are low.

* SANYO standard pattern (Standard Mode): Approximately 15 km/h over 1 km of flat ground, approx. 10 km/h on an uphill slope gradient of 2 over 1 km, approx. 15 km/h over 1 km of flag ground, approx. 20 km/h on a downhill slope gradient of 2 over 1 km, approx. 15 km/h over 1 km of flat ground, and repeating the above riding conditions.

Course image: 

5 patents pending (24 claims)

Line-up Models Specifications (all comply with latest standards)

Product No.	CY-SPE224 (W)/(L)	CY-SPE226 (W)/(L)/(T)	CY-SPF224 (S)/(L)	CY-SPF226 (S)/(L)/(G)/(P)	CY-SPH227 (K)
MSRP	99,540 yen (tax included)		91,140 yen (tax included)		91,140 yen (tax included)
Wheel base	24	26	24	26	27
Image					
Electric motor	Direct current brushless motor/250W Output				
Transmission	Internal three-speed				
Front light	White LED (Battery light)				
Rear light	Solar tail light		No light, reflector only		
Assist mode (three-way)	Standard/power-up/auto				
Travel distance / Riding recommended pattern	31km (Not using recharging while riding) 42km (Using brake recharging only) 53km (Auto mode)				
Battery	Ni-MH battery 24.0V – 3.1Ah				
Charging time	Approx. 2h15m (when using dedicated charger)				
Charger power consumption	Approx. 57 W				
Power switch	Manual power switch (also equipped with Auto-off function)				
Brakes	Front wheel: Side-pull calipers (dual pivot type) Rear wheel: Roller brakes				
Size of tire	24x1, 3/8	26x1, 3/8	24x1, 3/8	26x1, 3/8	27x1, 3/8
Dimensions length x width (mm)	1750 x 570	1840 x 570	1750 x 570	1840 x 570	1850 x 570
Saddle height (mm)	760~890	775~905	770~905	775~910	775~910
Mass	~21.9kg	~22.5kg	~23.1kg	~23.6kg	~21.5kg