SEA-Japan

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JMU completes 302,000DWT crude oil tanker, GEM NO.2

Japan Marine United Corporation (JMU) delivered the GEM NO.2, a 302,000 DWT crude oil tanker, to GEM NO.2 MARITIME CORPORATION at the Ariake shipyard on January 26, 2017. This is the third vessel of the "G Series" of VLCCs called the G302T.

The principal particulars of the GEM NO.2 have been designed to provide flexibility for worldwide trade by achieving both compact hull form and large deadweight at shallow draft. The vessel features drastically reduced fuel oil consumption together with lower CO_2 emissions compared with existing vessels.

Excellent hull performance was achieved based on various and comprehensive technologies, including advanced lower resistance hull form and optimized energy saving devices of the SSD® (Super Stream Duct®), SURF-BULB® (Rudder Fin with Bulb) and ALV-Fin® (Advanced Low Viscous Resistance Fin). Furthermore, the unique bow shape, called the Ax-Bow®, gives better performance in waves under the laden condition.

The fuel oil consumption was further improved by installing a MAN Diesel & Turbo model G-type electronically controlled marine diesel engine, which complies with the MARPOL NO_x regulation (Tier II), and a high efficiency propeller.

To ensure safety and maintenance, the IMO Performance Standard for Protective Coatings (PSPC) is applied to the cargo oil tanks and ballast water tanks. The vessel is also designed to comply with future environmental rules and regulations by installing the Ballast Water Management System, providing an inventory list of hazardous materials, and other features.

Principal particulars

L (o.a.) x B x D x d:	330.0m x 60m x 29.35m x 21.55m
DWT/GT:	302,783t/156,501
Main engine:	MAN B&W 7G80ME-C9.2 diesel x 1 unit
Speed, service:	15.80kt
Complement:	34
Classification:	ABS/CR

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Sasaki completes 7,500m³ LPG carrier, EPIC BALUAN

Sasaki Shipbuilding Co., Ltd. delivered the EPIC BALUAN (HN: 694), a pressurized-type 7,500m³ LPG carrier, to Epic Baluan Pte. Ltd., the Singaporean owner, on January 10, 2017.

The carrier is the third of three in the 7,500m³ carrier series, which was designed with a pressurized containment tank system consisting of two tanks with total loading capacity of 7,521m³ LPG. With completion of this series, Sasaki has achieved its lineup of major ship types with LPG carrying capacity of 11,000m³, 7,500m³, 5,000m³, and 3,500m³.

To improve the conditions for the ship's crew, the EPIC BALUAN incorporates measures for reducing noise and vibration, which include trial use of a duct silencer and steel plate dampers for air conditioners. Ballast water treatment equipment is installed in the engine room to protect the marine ecosystem, and the carrier is mounted with stern fins for more efficient propulsion.

Sasaki is now tackling development of new hull forms to meet the requirements for reduced load on the environment together with energy saving, as well as introduction of new technologies and superior steel materials for ship safety.

Principal particulars

Ship type:	Liquefied gas carrier (ocean going)
Hull No.:	694
L (o.a.) x L (b.p.) x B x D x d:	113.08m x 106.80m x 19.00m x 9.10m x 6.80m
DWT/GT:	7,182t/6,200
Cargo loading capacity:	7,521m³
Main engine:	Hitachi MAN B&W 6S35MC-6.1 diesel x 1 unit
MCO:	2,750kW
Speed, service:	about 13.50kt
Registry:	Singapore
Classification:	ABS
Delivery:	January 10, 2017

MHI-MME's Marine Engine Division and Kobe Diesel Co. integrated

MITSUBISHI HEAVY INDUSTRIES MARINE MACHINERY & EQUIPMENT CO., LTD.

The Marine Engine Division of Mitsubishi Heavy Industries Marine Machinery & Engine Co., Ltd. (MHI-MME: wholly owned by Mitsubishi Heavy Industries, Ltd. (MHI)) and Kobe Diesel Co., Ltd. were integrated, and Kobe Diesel took over the marine engine business from MHI-MME and was renamed Japan Engine Corporation (J-ENG) on April 1. The new company will continue to undertake the engineering and production of exclusively marine engines aimed at meeting the requirements for the next generation of diesel engines. MHI-MME was also renamed Mitsubishi Heavy Industries Marine Machinery & Equipment Co., Ltd. in accordance with the business restructuring involving the separation of the marine engine business on the same day.

MHI is widely known as the builder of the UE engine, one of the three top brands of large marine two-stroke diesels in the world, and Kobe Diesel is very active in engine manufacture as an licensee of the UE engine. Consequently, the two partners have established a close and strong relationship as the licensor and a licensee over many years. The new company, J-ENG, is intended to establish a business structure for development, designing, manufacture, marketing, and after-delivery service, which can flexibly adapt to changes in the market. Fusion of the two business models is expected to further enhance profitability and mobility, and consolidate the business relationship even more firmly.

Specifically, J-ENG will concentrate on:

- Thorough pursuit of integration synergy through its system of putting together all phases from development to service in a consistent process,
- Restructuring a firm value chain by thoroughgoing cost saving endeavors,
- Developing next-generation engine models beginning with the latest UEC-LSH series, and
- Expansion of the licensing business.

Present and future environmental regulations are more severe, so the developmental and manufacturing basis strengthened by this merger is expected to further facilitate development of differentiation skills based on environment-friendly technology, in which Japan particularly excels.

J-ENG

J-ENG is therefore expected to make even more significant contributions to the benefit of its clients in the shipbuilding and shipping industries and of society in general along with pursuit of ever greater economy. J-ENG intends to achieve global success by supplying Rising Sun marine diesel engines to businesses serving the oceans of the world while offering ever better products to its clients and further strengthening its ties with UE licensees.

First MES EGR marine diesel fitted to product tanker

—Compliant with IMO Tier III NO_x regulations—

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) has built the first unit of its large low-speed diesel engines, which is equipped with a low sulfur fuel-type high-pressure exhaust gas recirculation (high-pressure EGR) system and complies with the Tier III NO_x regulation, to be installed in a product tanker for the first time in Japan. The engine, the MITSUI-MAN B&W 6G60ME-C9-EGRBP, will be installed in two oil product tankers (LR1, one-engine/one-shaft) constructed by Tsuneishi Shipbuilding Co., Ltd.

In the international shipping business, the environmental regulations of the International Maritime Organization (IMO) are being successively tightened. In particular, the IMO's NO_x Tier III regulations, applied to new vessels built after January 1, 2016, require NO_x emissions from large two-stroke marine diesel engines to be limited to 3.4g/kW/h, which corresponds to 80% reduction compared with the NO_x Tier I regulations.

MES has undertaken testing on the ground using test diesel engines installed at a machinery plant of Tamano Works, as well as testing using in-service ships. MES has proceeded with technical development in response to a range of environmental regulations including NO_x reduction technology based on real engine testing.

High-pressure EGR, adopted for the present engine series, is a system for reducing NO_x generation by re-circulating part of the exhaust gas emitted from the engine to the scavenging tube and reducing the combustion temperature. The main parts of the EGR are built into an engine, resulting in a compact equipment structure. Therefore, the system has a lower impact on engine room design among technologies for responding to NO_x regulations.

MES, as the leading Japanese manufacturer of large low-speed diesel engines for ships, promotes technological development not only for NO_x regulations but also for SO_x regulations and CO_2 reduction technology (energy-saving technology). MES has an extensive product lineup including ME-GI (methane and fuel oil), ME-GI-Ethane (ethane and fuel oil), and ME-LGI (methanol, LPG, others and fuel oil) engines which have already been manufactured. Moving forward, MES will provide customers with propulsion systems that are environmentally friendly and highly economical.

Hitz develops marine dual-fuel diesel engine

Hitachi Zosen Corporation (Hitz) has completed development of a two-stroke dual-fuel diesel engine (DF engine) for marine use, and the verification facility for DF engines has also been installed together with a high-pressure fuel gas supply station (FGSS) for testing DF engines at the Ariake Works.

This project has been achieved by collaborative efforts between the Ariake Laboratory, which was established to rapidly conduct R&D work in January 2016, and the Ariake Works, the main manufacturing facility of the company.

Development of the DF engine has been promoted to cope with requirements for reduction in GHG (greenhouse gases) emissions. The DF engine can use natural gas as fuel besides conventional heavy oil. In the international marine transport industry, regulations for environment conservation have become severer. Natural gas, if used as a fuel, will reduce CO_2, NO_x and SO_x by approximately 25%, 15% and zero (2 ppm less), respectively, which will contribute to satisfying the requirements of environmental regulations.

DF test engine overview

The DF engine developed features a special combustion system, in which a small amount of heavy oil is used as a pilot fuel to maintain the pilot burner, and natural gas fuel is jetted under high pressure of 300 bar onto the burner to achieve the combustion cycle. The DF engine verification facility including FGSS for natural gas supply has been completed together with a DF test engine at the Ariake Works. Hitz is now ready for engine verification tests.

The DF test engine has been remodeled from the conventional demonstration diesel engine. Remodeling has mainly been carried out for the upper section of the engine, which includes the gas supply system and fuel injection valves, preparation of an additional control system, and replacement of the engine cover. These modifications satisfy the specifications required for natural gas fuel.

The FGSS located near the south wharf of the Ariake Works will supply production facilities and the test engine with natural gas fuel. The

Continued on Page 4

Shin Kurushima Dock expands Hull Form Research Laboratory

Shin Kurushima Dockyard Co., Ltd. has completed the project to expand its Hull Form Research Laboratory located in the Onishi Shipyard in Imabari City, Ehime Prefecture by adding a circulating water channel.

The Shin Kurushima's business strategy features construction of various ship types centered on high value-added ships including chemical tankers and car carriers, and meeting this strategic target requires development of diverse new ship types. In addition, under the rules of the Energy Efficient Design Index (EEDI), shipbuilders are required to develop ships satisfying even higher energy efficiency standards. The expansion of the research facility is expected to strengthen the company's R&D basis for satisfying these needs in a timely way.

In 1989, the Hull Form Research Laboratory started operation with two circulating water channels and a manufacturing facility for ship scale models in 1989, with which various types of ships have been developed for the group companies of Shin Kurushima Dockyard. The present expansion project included a new building adjoining the existing hull form lab. The new building incorporates a circulating water channel larger than the existing channels and scale model manufacturing equipment including NC cutting machines.

Hull Form Research Laboratory (new building)

The Hull Form Research Laboratory now has three circulating water channels. The expanded capacity will significantly enhance the hull form development operation, by allowing simultaneous tank tests on multiple hull forms and performance verification tests, while conducting tank tests for development of propellers as well as appendages to the hull to increase energy efficiency. Furthermore, a newly introduced five axis-controllable NC cutting machine is intended to meet the requirements for manufacture of large scale models. Use of larger models can increase the accuracy of tank tests.

Shin Kurushima Dockyard intends to make maximum use of the advantages of these circulating water channels, which towing tanks do not have, such as simplicity of experiments and readily observable flows of water around tested objects, and will work on new hull forms in an even more speedy and timely way than before.

Particulars of new Circulating Water Channel

Water tank type: Vertically circulating type with two impellers
Dimensions (o.a.) : 21m long, 3.5m wide and 7.3m high
Dimensions of observation section: 6m long, 2m wide and 1.35m high
Flow rate generated: 0 to 3.3 m/s

New circulating water channel

Continued from Page 3

FGSS can cope with not only test engine operation but also high-output engine requirements in the future as it is sufficiently expandable. This requirement is also applicable to shop trials of the DF engine prior to shipping.

Considering the prospects of the marine diesel engine business, Hitz says that the company will tackle further decreases in CO_2 emissions for future marine diesel engines through development of new technologies related to more fuel-frugal combustion or efficient waste heat recovery. Moreover, the company will develop a diagnosis system of the operational status of marine diesel engines using IoT (Internet of Things) and apply obtained engine operation data to analyses for preventive maintenance, and expects that these efforts will contribute to highly reliable engine production. This development work will be achieved by collaborative efforts between the Ariake Laboratory and Ariake Works with rich manufacturing expertise.

Sasebo completes 84,700DWT type bulk carrier, ASAHI MARU

Sasebo Heavy Industries Co., Ltd. delivered the ASAHI MARU, a 85,009DWT bulk carrier, to Asahi Shipping Co., Ltd. at its Sasebo Shipyard on March 17, 2017.

This vessel is the 14th member of the post-Panamax type bulk carrier series developed by Sasebo, which is designed with a wide beam and shallow draft and is suitable to carry various cargoes such as grain, ore, coal, and other bulk cargoes.

The propulsion performance has been improved with energy saving devices developed by Sasebo, including the stern fin and rudder bulb, and the electronically controlled main engine reduces fuel oil consumption.

The main engine and generator engine are compliant with Annex VI of the MARPOL 73/78 regulations (Tier II) to reduce NO_x emissions for environmental safety.

A ballast water treatment system is also equipped for protection of the marine environment prior to the enforcement of the International Convention for the Control and Management of Ship's Ballast Water and Sediments.

Principal particulars

L (o.a.) x B (mld) x D (mld) x d (full): 229.00m x 38.00m x 19.10m x 13.49m
DWT/GT: 85,009t/46,982
Main engine: MAN B&W 6S60ME-C8.2 diesel x 1 unit
Speed, service: abt. 14.1kt
Complement: 24
Registry: Japan
Classification: NK
Delivery: March 17, 2017

JSEA participates in NOR-SHIPPING 2017

The 26th NOR-SHIPPING 2017 event (The 26th International Shipping Exhibition) will take place at the Lillestrom Exhibition Centre in Lillestrom for four days from May 30 through June 2. This event is organized by the Norway Trade Fairs (NORGES VAREMESSE) and is sponsored by the Norwegian Shipowners' Association and organizations related to the maritime industry.

The Japan Ship Exporters' Association (JSEA) consisting of 10 Japanese shipbuilders will participate in the exhibition with the financial support of The Nippon Foundation and in cooperation with The Shipbuilders' Association of Japan. JSEA will occupy a 220m^2 exhibition area to showcase Japanese shipbuilding technology. In particular, innovative ship hull forms and newly developed ship designs will be promoted with photographs, liquid crystal display (LCD) systems and 150-inch screens.

The JSEA will hold a lecture given by an international broker and presentations by Japanese exhibitors, which begins at 14:00 on May 31 in Jan Mayen2, Hall A2, The Lillestrom Exhibition Centre. The lecture theme is:

"The Dry Bulk Market - On a recovery track?" by Mr. Bjørn Bodding [Senior Analyst, Clarksons Platou AS]

The JSEA will also hold a reception at the Radisson Blu Scandinavia Hotel in Oslo on May 31 hosted by the Japanese Ambassador to Norway and the President of the JSEA. The reception will start at 19:00, with attendance restricted to only invited guests.

Exhibitors:

Imabari Shipbuilding Co., Ltd.
Japan Marine United Corporation
Kawasaki Heavy Industries, Ltd.
Mitsubishi Heavy Industries, Ltd.
Mitsui Engineering & Shipbuilding Co., Ltd.
Namura Shipbuilding Co., Ltd.
Oshima Shipbuilding Co., Ltd.
Sanoyas Shipbuilding Corporation
Shin Kurushima Dockyard Co., Ltd.
Sumitomo Heavy Industries Marine & Engineering Co., Ltd.

SHINZAN MARU

Owner: Carina Maritime Inc.
Builder: Imabari Shipbuilding Co., Ltd.
Ship type: Ore carrier
L (o.a.) x B x D: 319.95m x 55.00m x 24.30m
DWT/GT: 215,790t/122,694
Main engine: 6G70ME-C9.5 diesel x 1 unit
Speed, service: 14.50kt
Classification: NK
Completion: January 27, 2017

NARUTO STRAIT

Owner: Teamway Shipping Limited
Builder: Namura Shipbuilding Co., Ltd.
Hull No.: 407
Ship type: Bulk carrier
L(o.a.) x B x D x d: 179.96m x 30.00m x 14.05m x 9.80m
DWT/GT: 34,391t/21,538
Main engine: MAN B&W 6S46ME-B8.3 diesel x 1 unit
Speed, service: about 14.0kt
Classification: NK
Complement: 24
Delivery: December 15, 2016

ASIAN MAJESTY

Owner: U-Ming Marine Transport (Singapore) Private Limited
Builder: Oshima Shipbuilding Co., Ltd.
Hull No.: 10804
Ship type: Bulk carrier
L (o.a.) x B x D x d(ext.): 199.98m x 32.26m x 19.00m x 13.359m
DWT/GT: 62,466t/35336
Main engine: Mitsui-MAN B&W 6S50ME-B9.5 diesel x 1 unit
Speed, service: 14.00kt
Registry: Singapore
Classification: DNV GL
Completion: November 28, 2016

IVS SWINLEY FOREST

Owner: IVS BULK 1345 PTE. LTD.
Builder: Sanoyas Shipbuilding Corp.
Hull No.: 1345
Ship type: Bulk carrier
L (o.a.) x B x D x d: 199.99m x 32.24m x 18.38m x 12.868m
DWT/GT: 60,492t/34,157
Cargo hold capacity: 77,067m^3 (Grain)
Main engine: MAN B&W 6G50ME-B9.3 diesel x 1 unit
MCO: 7,740kW
Speed, service: about 14.3kt
Registry: Singapore
Classification: ABS
Delivery: January 10, 2017

NORD KITAN

Owner: Lepta Shipping Co, Ltd.
Builder: Saiki Heavy Industries Co., Ltd., Onomichi Dockyard Co., Ltd.
Hull No.: 675
Ship type: Bulk carrier
L (o.a.) x B x D x d (ext.): 199.90m x 32.26m x 18.60m x 13.00m
DWT/GT: 60,195 /34,808
Main engine: B&W 6S50ME-B9.3 diesel x 1 unit
Speed, service: 14.5kt
Registry: Singapore
Classification: NK
Completion: January 17, 2017

FAIRCHEM TRIUMPH

Owner: Tradewind Navigation S.A.
Builder: Shin Kurushima Dockyard Co., Ltd.
Hull No.: S-5927
Ship type: Chemical tanker
L (o.a.) x B x D: 149.93m x 24.60m x 13.20m
DWT/GT: 22,354t/13,120
Main engine: 6UEC45LSE-1 diesel x 1 unit
Speed, service: 14.35kt
Registry: Panama
Classification: NK
Completion: January 24, 2017