Mitsui Engineering & Shipbuilding Co., Ltd. (MES) has launched the first commercial marine transport based on Techno Superliner (TSL) technology at MES Tamano Shipyard. The Super Liner Ogasawara, a 14,500GT passenger/cargo ship, is the next generation of high-speed marine transports. The ship will enter service on the Ogasawara route extending for 1,000km between Tokyo and Chichi Jima of the Ogasawara Islands.

The collaborative study on the Techno Superliner between Japanese shipbuilders and the government was started to develop the next generation of high-speed commercial ships capable of navigating open seas in 1989, and ended in 1995. The TSL was selected as a Millennium Project of the government, and Techno-Seaways Inc. was incorporated in June 2002 to order construction of the Super Liner Ogasawara.

This TSL consists of a catamaran type hull made of aluminum alloy, two propulsion units of water jets driven by gas turbines, and four power units to drive eight fans for lifting the ship by air cushioning on the sea surface. Combined use of the water jet propulsion and air cushion systems permit the ship to glide over the sea surface at a speed of 70km/h (nearly 40 knots).

The ship was launched in November 2004, and outfitting of interiors and instruments is now under way at the Tamano Shipyard. Completion is scheduled for end of October this year. The Super Liner Ogasawara is ranked among the largest high-speed aluminum alloy ships worldwide.

Upon completion, the navigation time required for the route will be reduced by nine or ten hours compared with 25 hours at present. This means a considerable increase in the number of voyages a year and it is expected to greatly contribute to improving convenience of the people living in the islands and to increasing the number of tourists.

This project is now proceeding under the guidance of the Ministry of Land, Infrastructure and Transport for the whole project management including ship construction and navigational operation. The development of this project is supported by the Japan Railway Construction, Transport and Technology Agency and the Nippon Foundation.

Principal particulars
Ship's name: Super Liner Ogasawara
Gross tonnage: approx. 14,500 tons
Dimensions: Length (o.a.) 140.0m x Breadth 29.8m x Height 10.5m
Main engine: Gas turbine x 2 sets
Propulsion unit: Water-jet pump x 2 sets
Lift engine: High-speed diesel engine x 4 sets
Max. speed: approx. 39 knots (approx. 72km/hr)
Cruising range: approx. 2,200 km
Passengers: 740 persons (max.)
Cargo loading capacity: 210 metric tons (max.)
Ship owner: Techno-Seaways Inc.
Ship operator: Ogasawara Kaiun Co. Ltd.
Kawasaki delivers LPG carrier, *Rhoud Enouss*, to SONATRACH

Kawasaki Shipbuilding Corporation has delivered *Rhoud Enouss* (HN: 1547), a 59,392m³ capacity LPG carrier, to Rhoud Enouss Transportation Corp., an affiliate shipping company of Sonatrach Petroleum Corporation (SPC) of the UK. SPC also is a subsidiary company of SONATRACH of Algeria. The *Rhoud Enouss* is the second delivery of three LPG carriers ordered by SPC from Kawasaki. Kawasaki had previously constructed four LPG carriers for SPC. Newbuildings of LPG carriers built by Kawasaki now totals 39.

The *Rhoud Enouss* has four cargo tanks of the independent tank type that allows contraction of the tanks due to liquefied cargoes such as NH₃ besides LPG at very low temperatures. The cargo tanks are constructed with special steel durable to the lowest temperature of minus 50°C and insulated with urethane foam.

Reliquefaction units using three-stage compressors, cargo heaters, vaporizers, booster pumps, and aeration fans are also provided to facilitate cargo handling at ports. The engine and cargo section operation is also totally managed by an integrated automation system. Various machinery and valves of both sections can be monitored and controlled at the central control room.

The main engine is the fuel-saving super-long stroke, 2-cycle low-speed Kawasaki-MAN B&W type. The use of an electric-control lubrication system for the main engine also reduces the consumption of lubricant for cylinders. The Kawasaki SEA-ARROW bow is employed to increase propulsion efficiency since it is effective to reduce wave-making resistance.

The wheelhouse is equipped with advanced electronic navigation installations, which are centralized in a ship-shaped arrangement to increase handling accessibility, and contributed to acquiring the NAUT-OC notification. Furthermore, adoption of the tracking control system ensures the more accurate and safe course-keeping.

Principal particulars
- L (o.a.) x L (b.p.) x B x D x d: 204.92m x 200.45m x 32.20m x 20.20m x 12.10m
- DWT/GT: 44,399t/35,306t
- Cargo tank capacity: 59,392m³
- Main engine: Kawasaki-MAN B&W 6S60MC-C diesel x 1 unit
- MCR: 13,560kW x 105rpm
- Speed, service: approx. 17.1kt
- Complement: 30
- Classification: DNV

Toyohashi completes Panamax car carrier, *Pyxis Leader*

Toyohashi Shipbuilding Co., Ltd. has completed construction of the pure car carrier, *Pyxis Leader* for Pyxis Shipholding S. A. of Panama. The *Pyxis Leader* is designed to carry 5,427 units based on the standard car (6,405 units based on RT43L), trucks, complete knock down (CKD) kits and containers. This is the second of the series of car carriers being built continuously at the shipyard at Toyohashi. The vessel has twelve car decks with garage deck including two liftable decks. Car holds above the freeboard deck have two fire compartments. The main engine is a low-speed, long-stroke diesel engine Kobe Diesel-Mitsubishi 8UEC 60LSII. The high performance propeller saves fuel oil consumption.

Principal particulars
- L (o.a.) x L (b.p.) x B x D x d: 199.94m x 190.00m x 32.26m x 34.80m x 10.30m
- GT/DWT: 62,195t/21,466t
- Main engine: Kobe Diesel-Mitsubishi 8UEC 60LSII x 1 unit
- MCR: 15,540 kW (21,129ps) x 104 min⁻¹ (rpm)
- NOR: 13,209 kW (17,960ps) x 98.5 min⁻¹ (rpm)
- Speed, service: 20.0kt (max. trial: 21.82kt)
- Complement: 28
- Classification: NK
Naikai completes 32,000DWT cargo ship, *Ivs Nightjar*

Naikai Shipbuilding Corporation has completed construction of the 32,000DWT general cargoship, *Ivs Nightjar* (HN: 691), for Diamond Island Maritime S. A. at the Setoda Works. The *P&O Nedlloyd Mondriaan* is the first of the series of eight ships to be long-term chartered to the P&O Nedlloyd group, and is deployed under its Europe/Asia service. The *P&O Nedlloyd Mondriaan* is a new generation of postPanamax size container ship and features larger capacity and good stability, installation of common rail electronically-controlled DU-Sulzer 12RT-flex 96C high power engine, superior hull form for efficient speed and good fuel consumption, about 700 reefer container receptacles, lashing bridges for simple and secure lashing of on-deck containers, and integrated bridge system with one-man operation design.

In order to realize good propulsion performance, economical operation and good maneuverability of the ship, IHIMU has designed the ship with its technical/engineering know-how, CFD analysis, 3D-FEM ship model analysis, walk-through simulation and apparatus installation simulation CIM system, Ajisai, which IHIMU originally developed.

Principal particulars

L (o.a.) x B x D x d: 172.90m x 164.90m x 29.40m x 14.00m x 9.00m

DWT/GT: 32,316t/20,283t

Cargo hold capacity: 42,166.9m$^3$ (grain)

Main engine: Hitachi B&W 6S46MC-C diesel x 1 unit

MCR: 6,400kW x 111min$^{-1}$

NCR: 5,440kW x 105min$^{-1}$

Speed, service: 14.2kt

Classification: NK

Completion: Oct. 29, 2004
MES and Aker Kvaerner strengthen joint technical development for NGH

Mitsui Engineering & Shipbuilding Co., Ltd. (MES), a frontier company for the development of natural gas hydrate (NGH) production and transport technology, has agreed a technical tie-up with Natural Gas Hydrate AS, a group company of Aker Kvaerner ASA, a Norwegian heavy industry group.

Natural Gas Hydrate AS was established jointly by Professor Gudmundsson Jon Steinar of the Technical Institute of Norway, who first proposed marine transport of NGH and Aker Kvaerner ASA. The company will specialize in the development of NGH technology.

The agreement concluded this time includes promotion of joint development of NGH technology between Norway and Japan as well as joint working with potential customers for commercialization and technical discussion of NGH.

MES has continued strenuous efforts for technological development to commercialize NGH in collaboration with several organizations with support from the New Energy and Industrial Technology Development Organization (NEDO), the Japan Oil, Gas and Metals National Corporation (JOGMEC), and the Japan Railway Construction, Transport, and Technology Agency (JRTT). The company will increase R&D on NGH from the global perspective viewpoint based on the new agreement.

MES and the Norwegian company will strengthen technological exchange about NGH, prepare for joint presentations to prospective NGH customers, and promote the use of NGH worldwide.

Natural Gas Hydrate AS possesses the proprietary expertise of Dr. Gudmundsson and the R&D resources of the Aker Kvaerner group and is exclusively targeting NGH development. Previously the company carried out a feasibility study on NGH commercialization for a major oil company.

Outline of Natural Gas Hydrate AS

President: Mr. Urdahl Petter
Office: Trondheim, Norway
Shareholders: Aker Kvaerner Engineering & Technology AS: 50%
Professor Gudmundsson Jon Steinar: 50%
Capital: 100,000 NOK
Establishment; August 31, 1999

Imabari completes VLCC, *Toba*, for Toba Shipholding S. A.

Imabari Shipbuilding Co., Ltd. has delivered the 299,980DWT type VLCC, *TOBA* (HN: 8022), to the Owner Toba Shipholding S.A. at the Saijo Works. This VLCC is the second vessel developed by Imabari and designed to meet requirements for economical ship operation and environmental protection. The vessel has been designed to ensure safety and reliability at all stages of structural construction. Then the vessel has acquired the notation PS-DA and PS-FA of the NK.

The cargo compartment of the vessel consists of 15 cargo oil tanks and 2 slop tanks divided by 4 transverse bulkheads and two longitudinal bulkheads, which are protected with double-hull construction in accordance with the requirements of the MARPOL regulation 13F. High-tensile steel is applied to the hull parts where effective reduction of the hull weight is possible according to the classification recommendation. Easy access is considered for maintenance of ballast water tanks. The vessel has three independent main cargo pipe line system, which allow simultaneous loading of three types of cargo oils with three sets of 5,500 m³/h capacity cargo pumps driven by steam turbines. The system is designed to permit each cargo oil pump to take suction from either group of cargo tanks and discharge to the main cargo pipe line system. The cargo oil manifold is de-
Mitsubishi Heavy Industries, Ltd. (MHI) has completed the first electronically controlled marine diesel Mitsubishi UEC Eco-Engine, the 8UEC60LSII-Eco. The Eco-Engine will begin service in a pure car and truck carrier of NYK Line capable of loading 6,400 cars/trucks being built at Shin Kurushima Dockyard (Toyohashi Shipbuilding).

With the electronic control system, higher maneuverability, improved start-up and stable ship operation at lower speeds can be realized, as well as environmental protection and economical efficiency.

The Mitsubishi UEC Eco-Engine has been developed with higher reliability and the latest technologies in response to worldwide regulation trends restricting exhaust gas emission.

Based on the advantages of existing UEC engines, a 15% reduction in nitrogen oxide (NOx) emissions and suppression of generated smoke has been achieved with electronic control system of the fuel injection pumps, exhaust valves, starting air valves, and cylinder lubrication systems. Also, optimal control of the principal systems has achieved improvement in fuel consumption at partial load and lubrication efficiency. As a result, the reliability of the combustion chamber over the full range of operation is improved. By correlation of the timing adjustments between the fuel injection and the exhaust valve open/close, maneuverability at start and low speed are improved.

This marine propulsion engine has various outstanding functions for use in the 21st century. The new engine is named “Eco”, which symbolizes this engine’s characteristic performances of “electronic control”, “ecology”, “economy”, “easy control (better maneuverability)”, and “excellent condition”.

Mitsubishi has been working on electronically controlled UEC diesel engines since 1988 and still plans work on other models such as the UEC-LSII and LSE series.

In response to various market demands, such as tighter environmental regulations, stable navigation, and higher economic efficiency, the company developed the UEC Eco-Engines with original technologies such as the stratified fuel-water injection system, engine diagnosis system (Doctor Diesel), and electronically controlled lubricating system (ECL).

Mitsubishi UEC Eco-Engine
Terms
Model: 8UEC60LSII-Eco

Number of cylinders: Eight
Cylinder bore: 600mm
Piston stroke: 2,300mm
Output/Engine Speed: 16,360kW x 105rpm (P1 rating)

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To our readers

- Please notify us of any change in address by letter or telefax together with the old mailing label to ensure you continue to receive SEA-Japan.
- We welcome your comments about SEA-Japan. Please address all correspondence to the Japan Ship Exporters’ Association (JSEA), or the Japan Ship Centre in London.
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- E-mail: postmaster@jsea.or.jp
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- E-mail: info@jsc.org.uk
- URL: http://www.jsc.org.uk
SSK completes Panamax bulk carrier, *Maritime Anita*

Owner: Leo Ocean, S.A.  
Builder: Sanoyas Hishino Meisho Corp.  
Hull No.: 1221  
Ship type: Bulk carrier  
L (o.a.) x B x D x d: 225.00m x 29.40m x 13.994m  
DWT/GT: 76,737t  
Main engine: MAN B&W 7S50MC-C x 1 unit  
MCR: 9,230kW  
Speed, service: 14.5kt  
Classification: NK  
Completion: Oct. 28, 2004

SSK completes Panamax bulk carrier, *Maritime Anita*

Owner: Leo Ocean, S.A.  
Builder: Sanoyas Hishino Meisho Corp.  
Hull No.: 1221  
Ship type: Bulk carrier  
L (o.a.) x B x D x d: 228.87m x 45.00m x 24.40m x 17.955m  
DWT/GT: 177,036t/98,543t  
Main engine: B&W 6S70MC (Mk VI) diesel x 1 unit  
Output: 16,860kW x 91.0rpm  
Speed, trial max.: 17.50kt  
Classification: NK  
Completion: Nov. 9, 2004

Medi Genova

Owner: I. M. A. Lines Co., S. A.  
Builder: The Hakodate Dock Co., Ltd.  
Hull No.: 798  
Ship type: Bulk carrier  
L (o.a.) x B x D x d: 225.00m x 32.60m x 19.30m x 13.994m  
DWT/GT: 75,767t/38,855t  
Main engine: MAN B&W 7S50MC-C diesel x 1 unit  
Speed, service: 14.5kt  
Classification: NK  
Completion: Oct. 28, 2004

Kai-Ei

Owner: Pyxis Maritime S.A./Little Fountain Maritima S.A.  
Builder: IHI Marine United Inc.  
Hull No.: 3173  
Ship type: VLCC  
L (o.a.) x B x D x d: 333.0m x 60.0m x 29.0m x 20.5m  
DWT/GT: 300,562t/159,942t  
Main engine: DU-Sulzer 7RTA84TB x 1 unit  
Output: 27,160kW at 74.0rpm  
Speed, service: 15.7kt  
Classification: NK  
Completion: Sept. 30, 2004

Lowlands Phoenix

Owner: Great Homes Maritime, S. A.  
Builder: Namura Shipbuilding Co., Ltd.  
Hull No.: 253  
Ship type: Pure car truck carrier  
L (o.a.) x B x D x d: abt. 199.99 m x 32.26 m x 36.02 m x 9.5m  
DWT/GT: 14,512t/61,321t  
Car carrying capacity: 6,500 Units  
Main engine: Mitsubishi-UE 7UEC60LS 13,240 kW x 105.0rpm  
Speed, service: abt. 20.0kt  
Classification: DNV  
Completion: Oct. 29, 2004

Torrens

Owner: Wilh. Wilhelmsen ASA Group  
Builder: Mitsubishi Heavy Industries, Ltd.  
Hull No.: 2196  
Ship type: Pure car truck carrier  
L (o.a.) x B x D x d: abt. 199.99 m x 45.00m x 24.40m x 17.955m  
DWT/GT: 177,036t/98,543t  
Main engine: B&W 6S70MC (Mk VI) diesel x 1 unit  
Output: 16,860kW x 91.0rpm  
Speed, trial max.: 17.50kt  
Classification: NK  
Completion: Jan. 7, 2005

Lodestar Forest

Owner: I. M. A. Lines Co., S. A.  
Builder: The Hakodate Dock Co., Ltd.  
Hull No.: 798  
Ship type: Bulk carrier  
L (o.a.) x B x D x d: 225.00m x 29.40m x 13.994m  
DWT/GT: 75,767t/38,855t  
Main engine: MAN B&W 7S50MC-C x 1 set  
MCR: 9,230kW  
Speed, service: 14.5kt  
Classification: NK  
Completion: Oct. 28, 2004

Sasebo Heavy Industries Co., Ltd. (SSK) has delivered *Maritime Anita*, a 76,000DWT Panamax bulk carrier to Four Shrine Corporation. The *Maritime Anita* is the 11th vessel of the 76,000DWT class Panamax bulk carrier series. The vessel has a forecastle deck and meets some new requirements for bulk carrier safety with water ingress detecting system, de-watering system, and reinforcement of deck fitting. The *Maritime Anita* is one of the largest class of Panamax bulk carriers, and the superior hull form with seven cargo holds and seven side rolling type hatches provides a larger capacity of 90,911m³. The main engine uses the latest model of Mitsui-MAN B&W 7S50MC-C with low fuel consumption performance for energy saving.

Principal Particulars:

- **L (o.a.) x L (b.p.) x B x D x d:** 225.00m x 218.00m x 32.20m x 19.80m x 12.20m
- **DWT:** 76,737t
- **Cargo hold capacity:** 90,911m³
- **Main engine:** MAN B&W 7S50MC-C x 1 set
- **MCR:** 9,230kW
- **Speed, service:** 14.5kt
- **Classification:** NK
- **Complement:** 25

*SSK* completes Panamax bulk carrier, *Maritime Anita*