

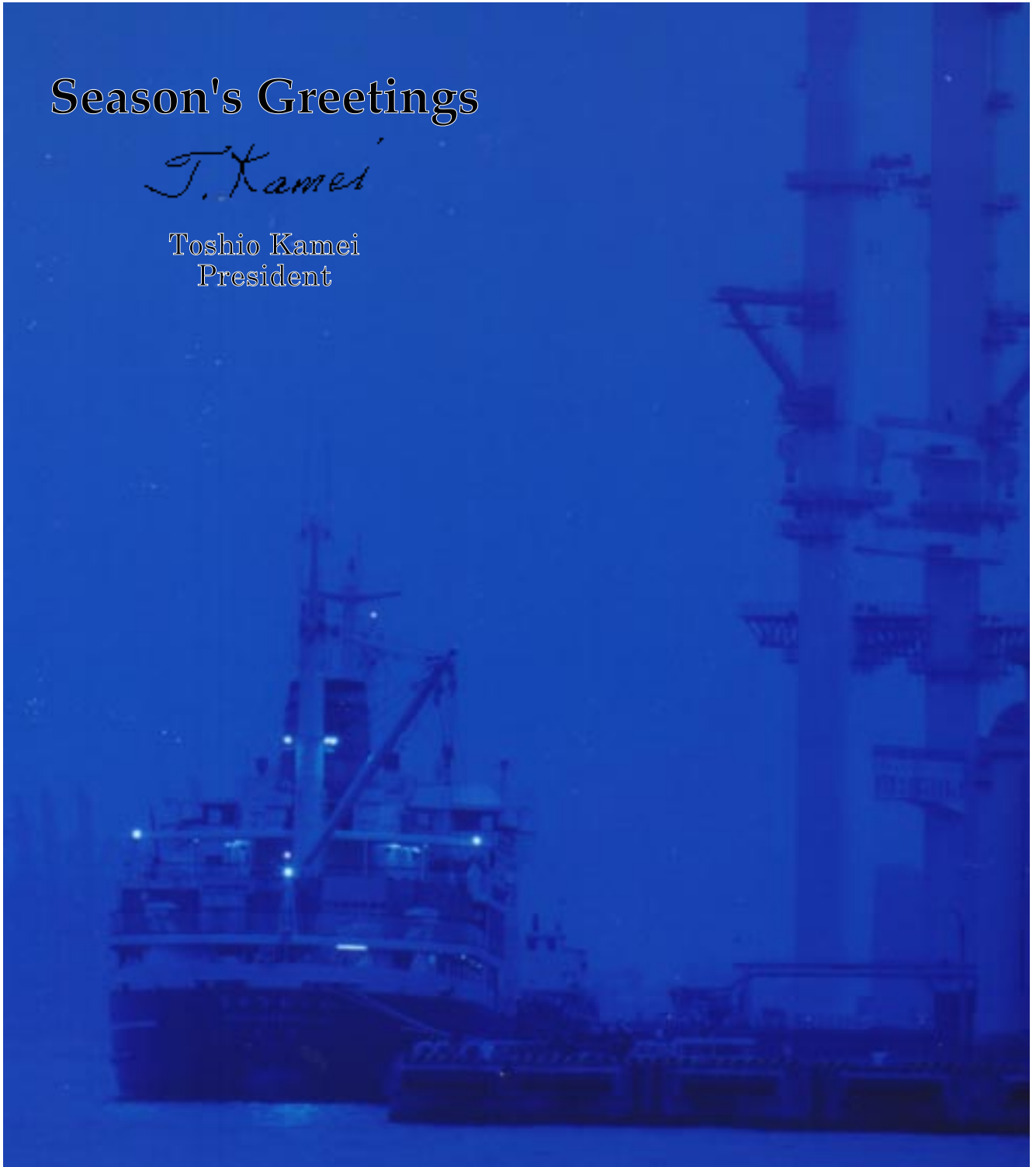
# SEA-Japan

No. 296 Dec. - Jan. 2003

## Season's Greetings

*T. Kamei*

Toshio Kamei  
President



*The photo shows the Hinode Sanbashi (Sunrise Pier) of the Port of Tokyo before dark*



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## MHI completes car/passenger ferry for domestic owner

Mitsubishi Heavy Industries, Ltd. (MHI) has completed the 10,000GT car/passenger ferry, *Ferry Fukuoka 2* (HN: 1087), at its Shimonoseki Shipyard & Machinery Works for the co-owners, Meimon Taiyo Ferry Co., Ltd. and the Corporation for Advanced Transport and Technology (CATT) of Japan.

The ferry is the sister ship of the *Ferry Kyoto 2* completed at the same shipyard in August 2002. These ferries have replaced their predecessors for shuttle service between Osaka and Shin-moji. The ferries feature barrier-free construction for disabled and elderly people, and are the first coastal ships to comply with the traffic barrier-free regulations in Japan. Improved comfortable navigation is provided for the passengers with less vibration and noise propagated from the engine room. The main engine has less exciting force and is bedded on rubber mounts.

Compared with the predecessors, the new ferry consumes less fuel due to various design improvements, e.g., adoption of the bulbous bow and cata-



maran-like stern construction. In particular, a ship operation support system using a computer is provided to maintain the optimal operation timetable and calculate fuel consumption.

This system is linked with GPS to plot ship position on the route. Time lag between time of passage at each plotted position and the timetable is calculated by adding sea conditions such as tides and currents. The calculation results are transmitted to the main engine and CPP controllers for

optimal ship operation, resulting in decreased fuel consumption.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: abt.  
167.0m x 156.0m x 25.60m x 8.0m  
x 6.0m

DWT/GT: 4,500t/10,000t

Main Engine: Pielstick 18PC2-6V diesel x 2 units

Output: 13,500PS

Speed, service: 23.2kt

Delivery: October 2002

Classification: JG

## Sanoyas completes Panamax bulk carrier *Loch Lomond*

Sanoyas Hishino Meisho Corp. has completed the 75,845DWT bulk carrier, *Loch Lomond* (HN: 1201), for Wakoh Panama S.A. at the Mizushima Works and Shipyard.

The *Loch Lomond* is the 11th bulker of the 75,500DWT Panamax type developed by Sanoyas. The carrier has seven cargo holds arranged along the center line. The cargo hold

construction is the typical topside tank and hopper bottom type. The accommodation quarters and the engine room are located in the stern.

The hatch covers are the side rolling type and are driven by hydraulic motors and chains. The main engine is a low speed, super long stroke, 2-cycle diesel engine which rotates a propeller with a larger diameter than the conventional carrier of the same size.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 225.00m  
x 217.00m x 32.26m x 19.30m x

13.994m DWT/GT: 75,845mt/38,850t  
Cargo hold capacity: 89,250m<sup>3</sup>

Main engine: MAN B&W 7S50MC-C  
diesel x 1 unit

MCR: 12,200ps

Speed, service: approx. 14.5kt



## Large membrane type LNG carrier built by MES

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) has completed construction of a 137,100m<sup>3</sup> LNG carrier, *Puteri Delima Satu* (HN: 1506), for Malaysia International Shipping Corporation Berhad at the Chiba Works.

The *Puteri Delima Satu* is the second LNG carrier following the *Puteri Intan Satu* built by Mitsubishi Heavy Industries, Ltd. (MHI: see Sea-Japan No. 295) among six ships ordered from MES and MHI for the Malaysian LNG Project. The ship is the first membrane type constructed by MES.

This experience has broadened MES's LNG carrier construction expertise and business lines. The company has now constructed ten LNG carriers of the MOSS type, another gas containment system. MES will deliver the two remaining ships in March 2004 and March 2005 to the



same ship owner.

Principal particulars:

L (o.a.) x L (b.p.) x B x D x d: 276.00m  
x 263.00m x 43.40m x 25.50m x  
11.01m DWT/GT: 76,190t/93,038t  
LNG containment capacity:  
137,100m<sup>3</sup>

Main engine: MHI MS40-2 steam turbine x 1

Output: 26,800kW x 89rpm  
Speed, trial max.: 21.38kt  
Complement: 55  
Classification: LR

## Imabari completes Aframax tanker *Eagle Tacoma*

The *Eagle Tacoma* is the double hull type that complies with the requirements of MARPOL Regulations (13F). The hull consists of 12 cargo tanks and two slop tanks, which are separated by one center and seven transverse bulkheads. The slop tanks also conform with the regulations. These cargo tanks can load three grades of cargo oils. ABS Notation SH is applied to hull construction of the vessel as well.

The vessel has three sets of steam driven cargo oil pumps with a capacity of 2,500m<sup>3</sup>/h x 135mTH. Each cargo tank is provided with a heating system. The vapor emission control

system is provided to prevent air pollution. Two sets of water ballast pumps have a capacity of 1,800m<sup>3</sup>/h x 30mTH, and the ballast tanks are designed to provide accessibility for maintenance.

The main propulsion unit is a B&W marine diesel engine of 2-stroke, single acting, direct reversible cross head type with exhaust turbochargers and reliable machinery for the engine room. Two units of the water tube type auxiliary boilers (380cst/50°C oil) are employed for secure operation in both navigation and cargo handling.

The electrical supply sources are 3 sets of 925KVA (740kW) diesel generators.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d:  
246.80m x  
235.00m x  
42.00m x 21.30m  
x

14.798m (ext.)

DWT/GT:  
107,123MT/

58,166

Cargo tank capacity:  
122,912.227m<sup>3</sup> (100%)

Main engine: Mitsui-MAN B&W  
6S60MC-C x 1 unit

MCR: 13,530 kW x 105.0rpm

NOR: 11,500 kW x 95.5rpm  
(85%MCR)

Boiler: MAC-25B type 25,000kg/h x  
1.57MPa. x 2 units

Exhaust gas economizer: 1,400kg/  
h x 0.6Mpa x 1 unit

Speed, service: 14.75kt

Endurance: abt. 23,400 sea miles

Complement: 27

Class: ABS



## MES completes Newcastle Max type Cape size bulk carrier

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) has delivered the 184,000DWT bulk carrier, *NSS Endeavor* (HN: 1542), to FGL Maritime Panama S. A. of Panama at the Chiba Works. The carrier employs a new hull form called the Newcastle-Max type of the Cape size, which is the maximum beam of 47m allowed to enter

the Port of Newcastle, Australia.

The carrier has extremely wide hatch openings, so cargo handling is very efficient. The ship has nine cargo holds and hatches, and the total cargo hold capacity of 205,630m<sup>3</sup> is larger than that of the conventional Cape size.

The *NSS Endeavor* conforms to the

IACS UR for Bulk Carrier Safety with increased hull strength at flooding by employing the W.T. bulkhead, double bottom, and others. The ballast tanks of the top side and bottom are compartmental to facilitate ballasting and deballasting.

The main engine is a Mitsui MAN B&W 6S70MC diesel engine with a low fuel consumption feature. The accommodation quarters are designed to suppress the vibration level below the general standard level.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 290.00m  
x 280.00m x 47.00m x 24.40m x  
17.95m DWT/GT: 184,887t  
(d=17.95m)/93,199

Main engine: Mitsui MAN B&W  
6S70MC diesel x 1 unit

MCR: 16,860kW x 91rpm

Speed: 14.7kt

Complement: 35

Classification: NK



## IHIMU obtains Class Approvals for SPB LNG cargo containment system of Stainless Steel Material

IHI Marine United Inc. recently announced that it has obtained Approval in Principle for its SPB LNG Cargo Containment System using Stainless Steel (SUS304) material from American Bureau of Shipping (US), Det Norske Veritas (Norway), The Lloyd's Register of Shipping, and The Nippon Kaiji Kyokai (Japan). United States Coast Guard (USCG) Approvals are in process and IHI Marine United Inc. expects to receive it in early December.

Aluminum alloy and 9%Ni Steel were the approved material for IHI SPB tank system. The new option of the stainless steel material strengthens the competitiveness of this innovative technology having lower tank fabrication cost and dedicated aluminum fabrication facilities are not necessary.

IHI Marine United Inc. delivered the LPG FSO *Escravos LPG FSO*, for

the *Escravos Gas Project* (Phase-I) operated by Nigerian NNPC and ChevronTexaco in 1997. The company is now constructing a FPSO for the Sanha Condensate Project at the Cabinda Block-0 located off Angola. These vessels are built with IHI SPB tank system of low temperature steel.

The features of IHI SPB tank system are outlined:

1. The IHI SPB tank system is not affected by wave-excited sloshing, permitting LNG/LPG handling at any liquid storage level.
2. The upper deck is flat, allowing free arrangement of the necessary installations on the upper deck, and the wind resistance is small.
3. Tough tank construction with superior fatigue strength is achieved by use of plates and webs.
4. Maintenance and inspection are easy since tank is independent and sufficient space are provided be-

tween the vessel inner structure and tank allowing access to this hold space even in the condition tank is filled with LNG at cryogenic temperature.



Appearance of IHI SPB tank

# Mitsubishi new UE Engines make debut

—First New Series 68LSE Model Engine—

Mitsubishi Heavy Industries, Ltd. (MHI) has completed the manufacture of the first new UEC 68LSE Series Model engine under a contract signed in October 2001. The engine will be mounted on a 177,000-ton bulk carrier as its main engine (24,000ps x 95rpm). The bulk carrier is under construction at the Imari Shipyard of Namura Shipbuilding Co. for delivery to K.K. Fuyo Shipping Co. The delivery of the engine is scheduled for January 2003.

The 68LSE engine was selected and designed based on a thoroughgoing study concerning to determine the best engine for the future market demand related to use for Capesize Bulkers, Suezmax Tankers and mid-size container ships that are predicted to be designed for faster speeds and greater carrying capacity in the coming years.

In addition, similar to the UEC-



LSII model, the new engine has been designed for high reliability and high economy (low fuel consumption).

The LSE Engine is based on the concepts: Excellent Reliability, Economy, Easy Maintenance, and Environment-Friendly.

For the purpose of designing the new engine, MHI used high-precision analysis tools developed in house (A cylinder internal combustion simulator, main bearing configuration analyzer, etc.) and a 3D-CAD system that has made it possible to raise the reliability level of the design for the new engine to an even higher level than previous UE Series models.

In addition, for this new main engine, as a product-differentiating technological feature, the latest IT technology has been used to create a unique support system that will help to provide safe and successful voyages. This system is a new and unique main engine diagnostic system developed by MHI called "Doctor Diesel". The system carries out many different diagnostic and monitoring functions that can include the use of cylinder liner temperature monitoring devices. MHI is also putting additional efforts into its post-voyage after-service.

In addition, MHI also has obtained

exclusive rights for Japan for manufacture and sales of SIP (Swirl Injection Principle) equipment that makes it possible to greatly reduce the consumption of cylinder oil. This equipment has been combined with a unique drive system developed in-house by MHI to produce a revolutionary total system for cylinder lubrication injection.

Combined with the new, state-of-the-art, high-performance UEC-LEC Series engine, total cumulative manufacturing output as of business year 2002 is estimated to be 26,000,000 PS (3,300 units) for UEC engines. Working together with sub-licensees, Kobe Diesel Co., Ltd. and Akasaka Diesels, Ltd., etc., MHI plans for continuing expansion of sales.

UEC68LSE Engine (Main specs)

Number of cylinders:	5-8
Output (kW):	10,050-23,520
Cylinder diameter (mm):	680
Piston stroke (mm):	2,690
Engine output (kW/cyl.):	2,940
Engine output (PS/cyl.):	4,000
(rpm):	95
Net, avg. effective pressure (MPa):	1.90
Fuel consumption ratio at P1	
(g/kWh):	165
(g/PSh):	121

## 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.
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## Grace River

**Owner:** Grace River Shipping S. A.  
**Builder:** Kawasaki Shipbuilding Corporation  
**Hull No.:** 1519  
**Ship type:** LPG carrier  
**L (o.a.) x B x D x d:** 230.00m x 36.00m x 20.70m x 10.767m  
**DWT/GT:** 49,996t/44,673t  
**Main engine:** Kawasaki-MAN B&W 6S70MC MkVI diesel x 1 unit  
**Speed, service:** 17.0kt  
**Classification:** NK  
**Completion:** Oct. 31, 2002



## GALEA

**Owner:** Shell Bermuda (Overseas) Limited  
**Builder:** Mitsubishi Heavy Industries, Ltd.  
**Hull No.:** 2172  
**Ship type:** LNG Carrier  
**L (o.a.) x B x D x d:** 290.00m x 46.00m x 25.50m x 11.00m  
**DWT/GT:** 68,655t / 111,459t  
**Main engine:** Mitsubishi MS32-2  
**Speed, service:** 19.0kt  
**Classification:** LRS  
**Completion:** Sept. 30, 2002



## Taizan

**Owner:** Ocean Link Maritime S. A.  
**Builder:** NKK Corp. (Present Universal Shipbuilding Corp.)  
**Hull No.:** 225  
**Ship type:** VLCC  
**L (o.a.) x B x D x d:** 333.00m x 60.00m x 29.60m x 18.60m



**DWT/GT:** 300,405t/160,084t  
**Main engine:** DU Sulzer 7RTA84T diesel x 1 unit  
**Speed, service:** 15.95kt  
**Classification:** NK  
**Completion:** Sept. 25, 2002

## Lita

**Owner:** Essential Shipping Co., Ltd.  
**Builder:** Namura Shipbuilding Co., Ltd.  
**Hull No.:** 239  
**Ship type:** Tanker  
**L (o.a.) x B x D x d:** 241.03m x 42.00m x 21.20m x 14.923m  
**DWT/GT:** 104,403t/56,573t  
**Main engine:** B&W 6S60MC diesel x 1 unit



**Speed, trial max.:** 15.45kt  
**Classification:** ABS  
**Completion:** Sept. 27, 2002

## Grand Mercury

**Owner:** Dynamic Sunrise Shipping S.A.  
**Builder:** Shin Kurushima Dockyard Co., Ltd.  
**Hull No.:** 5137  
**Ship type:** PCTC



**L (o.a.) x B x D x d:** 199.54m x 32.26m x 14.60m x 9.60m  
**DWT/GT:** 19,121t/58,947t  
**Main engine:** 8UEC60LS x 1 unit  
**Speed, service:** 20.0kt  
**Classification:** KR  
**Completion:** Sept. 24, 2002

## Petropavlovsk

**Owner:** Glefi Shipping XXXI Company Limited  
**Builder:** Tsuneishi Shipbuilding Co., Ltd.  
**Hull No.:** 1231  
**Ship type:** Tanker



**L (o.a.) x B x D x d:** 231.419m x 42.000m x 21.200m x 14.850m  
**DWT/GT:** 106,532t/57,683t  
**Main engine:** M.A.N.-B&W 6S60MC (Mark6) x 1 unit  
**Speed:** 16.21(trial Max.)  
**Classification:** DNV  
**Completion:** Sept. 25, 2002

## Sanko Advance

**Owner:** Advance Tankship Ltd.  
**Builder:** Sasebo Heavy Industries Co., Ltd.  
**Hull No.:** 484  
**Ship type:** Tanker



**L (o.a.) x B x D x d:** 238.94m x 38.00m x 20.00m x 12.19m  
**DWT/GT:** 77,904t/50,199t  
**Main engine:** Mitsui-MAN B&W 6S60MC (Mk VI) diesel x 1 unit  
**Speed, service:** 14.5kt  
**Classification:** ABS  
**Completion:** Oct. 11, 2002