

DAILY SHIPPING NEWSLETTER 2002 – 108



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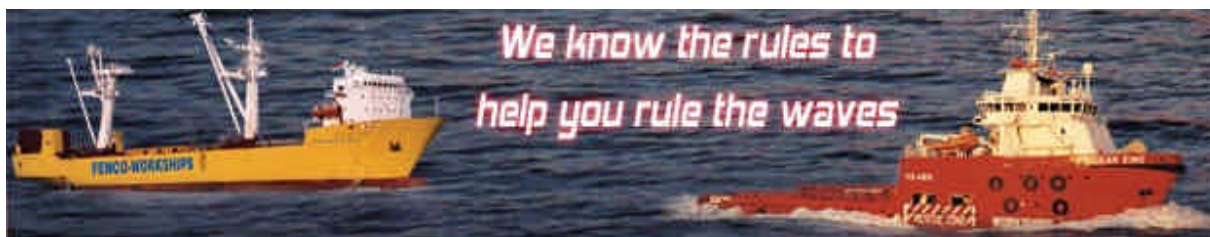
SURF newbuild is bound for West Africa



Marseille based shipowners Surf have taken delivery of their new US\$15m PSV UT755L **Nduva** from the Danish Orskov yard. The owners have indicated the vessel will mobilise to West Africa for a three to five year charter with ExxonMobil Angola.

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Aldoma wins work off Cadiz



The AHTS UT708 **Aldoma**, released last month by charterers EMC, has received a letter of intent from Spanish charterers Repsol, to tow the semi-sub Stena Dee from Invergordon to Spain, and to support the rig for a two-well plus options commitment off Cadiz from early 2003

onwards. (Photo : Piet Sinke ©)

Sable Sea sails south

Secunda's PSV UT706 **Sable Sea**, which has recently been trading the North Sea spot market, has been chartered by TFE Libya to support the Pride North Sea for the one well firm estimated at 60 days. The vessel delivered ex-Aberdeen on 14 November and won't be expected back until the end of January 2003 at the earliest, says Seabrokers.

The **Havila Charisma** and the **Normand Jarl** have also been fixed for this requirement, and will depart the North Sea shortly.

Toisa acquires cable layer Fresnel

Toisa Limited has purchased the French Telecom cable laying vessel **Fresnel** (built 1997 - 15,400 BHP) for a price of Euros 19,250,000 - the vessel has been bid in Mexico, converted to a well testing vessel.



Top : The **TOISA GRYPHON** operating at the Rion Bridge project in Greece – photo : Piet Sinke ©

On opening of the commercial offers the bid range was \$63 million to \$90 million. Official award of contract is unlikely before Christmas though generally the low bidder is the winner. Toisa Limited is also currently in negotiations, with an unnamed buyer to sell its two small sister AHTS (built 1984 -

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4000 BHP) namely the **Toisa Gryphon** and **Toisa Cougar**. OSL says it understands that the deposit has already been paid with the vessels due to deliver during January 2003

More Stirling ships sold

OSL reports that the break up of the Stirling fleet in the North Sea continues, with the PSV **Stirling Aquarius** (1991 - 6600BHP) being sold to Norwegian Investors led by Myklebusthaug Shipping AS. This company is an owner of conventional tonnage and has bought the vessel with a bareboat charter back to Seacor.



In addition, it is rumoured that the AHTS **Stirling Sirius** (1985 - 9180BHP) is China bound having being sold to Huawei.

**Photo left :
STIRLING SIRIUS**

OSL said no prices were reported, however the asking prices were

\$12,000,000 and \$9,000,000 respectively.

CASUALTY REPORTING

Ferry, cargo ship collide in Yangzte

At least eight people drowned and 32 were missing and feared dead after two ships collided in thick fog and one of them capsized on a river in south-western China on Wednesday, state media said.

The official Xinhua news agency said the cause of the collision was being investigated, but the Web site of the People's Daily, the mouthpiece of the Communist Party, blamed it on thick fog.

Workers recovered eight bodies and rescued seven people after a passenger ferry carrying 47 people was hit from behind by a cargo boat and capsized on the Yangtze river near the city of Chongqing, Xinhua said. Thirty-two people were listed as missing, including 18 primary school teachers on their way to work in the morning and a group of vegetable farmers.

Officials reached by telephone declined to comment

SHIPYARD NEWS

More orders for IHC Caland

IHC Caland in the Netherlands has won several orders recently in the offshore field.

These include a contract from Agip Nigeria for the supply and installation of a CALM buoy export system. The facility will be installed early 2003 on the Okono field, and will be used for the export of crude oil produced from the field FPSOs.

Another contract is for the turnkey supply of an FSO for a major oil company in Nigeria. The unit will be made from the conversion of an existing VLCC and will be installed and commissioned on the field

end 2004. IHC Caland also won an order from TotalFinaElf Nigeria for the operation of the Amenam FSO. This unit is presently being completed in Korea and will be delivered under a turnkey supply contract previously obtained by the Group. Field installation will be early 2003 with the operating contract to commence immediately. Malaysian International Shipping Corporation Berhad (MISC) ordered a turret to be delivered by the end of 2003 and installed on a Petronas FPSO for the production of Lukut field in Malaysia.

Irving Shipbuilding set to deliver Atlantic Kingfisher

Seabrokers reports that Canadian based Atlantic Towing Limited have named their next AHTS UT722L the **Atlantic Kingfisher**. The vessel is being built at Irving Shipbuilding in Halifax and is due to deliver by the end of December, after being launched in early September. This vessel will be the third UT722L in a series of four that Atlantic has commissioned. The final vessel is due for delivery in June next year. The two sister vessels in service are called **Atlantic Hawk** and **Atlantic Eagle**.

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Esvagt acquires Sentinel



OSL reports that Esvagt A/S has purchased the Sentinel designed standby vessels **BUE Gairsay** and **BUE Orkney** (both built 2002) on private terms.

Left : The **BUE Orkney**
Photo : **Kevin Blair ©**

The **BUE Gairsay** to be renamed **Esvagt Kappa** has already delivered and will fly the Danish flag although she will also have UK and

Norwegian standby certification. **BUE Orkney** is to deliver in January 2003.

Secunda sells PSV to Seabulk

OSL reports that Secunda has sold its newbuilding UT755L PSV that is scheduled for delivery January 2003 to Seabulk Offshore for a price in the region of \$17,000,000. The vessel will be renamed **Seabulk Africa**.



Seabulk Offshore have sold the AHT **Seabulk Eagle 2** (1976 - 8600 BHP) ex Maersk Blazer on private terms - the original asking price being close to \$1,000,000.

SURF orders UT721

Surf has ordered a UT721 AHTS from Chantiers Piriou for delivery 2004. The vessel is committed long term in West Africa.

Latest Swire newbuild delivered by Korean yard



Swire Pacific Offshore's newbuild programme continues unabated, reports Seabrokers. Their latest installment is an AHTS UT738 design, which was named **Pacific Rigger**, and delivered on 25th November from INP yard in Ulsan City, Korea.

The owners have indicated the vessel is committed to an unspecified charterer, offshore India.

Torch Offshore acquires Wave Alert; re-names ship Midnight Wrangler

Torch Offshore has entered into an agreement for the purchase of the Wave Alert, a 340-foot cable-laying dynamically positioned (DP-2) vessel, from Global Marine Shipping Limited for approximately \$10.9 million. Torch will rename this addition to its deepwater fleet **Midnight Wrangler**.

Delivery of the **Midnight Wrangler** is expected in March 2003 after the vessel has gone through its required drydock and all cable lay equipment has been removed. At that time, Torch will take possession of the vessel and install a 125t crane. The company expects to use the vessel initially as a deepwater subsea construction vessel.

Coastline sells newbuild to Mexicans

Coastline has reached agreement to lease sell its newbuilding DP3 vessel building **Enterprise** at Pan United Singapore to Mexico. The vessel will be handed over shortly and will be renamed **Azteca**. The original asking price was in the region of \$35/40 million.

NAVY NEWS HMS NOTTINGHAM



The **SWAN** arrives at Portsmouth with the crippled Nottingham



Several pictures of the damage on the **HMS Nottingham**
(Photo 's via Ad de Kruijf)



Hr Ms Van Speijk loopt averij op

Tijdens een zware storm bij de Azoren is het omhulsel van de onderwater sonar van Hr. Ms. Van Speijk beschadigd en lek geraakt. Door deze averij moet het fregat haar snelheid



aanpassen. Het gevolg is dat de haven van Den Helder pas de 24e december wordt bereikt. Volgens de oorspronkelijke planning zou dit enkele dagen eerder zijn. De Van Speijk, die 25 augustus naar het Caribisch gebied vertrok om Amerikaanse eenheden te vervangen, was al onderweg naar de thuishaven.

De schade aan het schip valt mee en de veiligheid van de bemanning is niet in gevaar geweest. Het kunststof omhulsel van de onderwater sonar heeft waarschijnlijk een barst opgelopen waardoor een geringe lekkage is ontstaan. Achter het kunststoffen omhulsel bevindt zich de waterdichte wand van het schip; die

wand is niet beschadigd. De precieze schade kan niet op volle zee worden beoordeeld maar pas in de haven van Den Helder. Het Nederlandse fregat diende ter vervanging van Amerikaanse eenheden die elders nodig zijn in de internationale strijd tegen het terrorisme. Het fregat wordt voor die taak niet door een Nederlands schip vervangen.

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The MULTRASHIP tug **BARRACUDA** arrived with the former Dutch frigate **DE RUYTER** at the river bound for the breakers at 's Gravendeel.

Photo : Piet Sinke ©

AIRCRAFT / AIRPORT NEWS

Number of cheap European flights doubles

Low-cost airline flights in Europe have more than doubled during the last 12 months as travellers choose no-frills services over traditional airlines because of cheap fares, a survey shows.

Low-cost flights rose 129 per cent within the UK, 119 per cent within Europe, and 121 per cent in the Pacific region, according to a survey by OAG Worldwide, a provider of airline schedule information. No-frills flights between North and South America increased 98 per cent, it found.

'The expansion of the low-cost sector around the globe is unprecedented,' said Lynne Fraser, OAG's marketing director, in a statement. 'The growth is coming from the introduction of new routes as well as additional flights on established routes.'

Full-service carriers have cut some routes and reduced capacity, especially across the Atlantic, following last year's terrorist attacks. No-frills airlines, which do not operate long-haul services, have increased their operations.

The total number of scheduled flights worldwide has increased 5 per cent to 24,544 a week, since December 2001, OAG said. China has seen the largest growth, with flights to and from the country rising 18 per cent, it said.

Cathay to decide on freighter purchase soon

Cathay Pacific Airways may decide as early as next week to buy **six new Airbus A300-600 freighters**, worth as much as US\$708 million, to quadruple capacity at its air cargo unit.

'We'll make a decision very soon,' Cathay Pacific Chairman James Hughes-Hallett said. 'Hopefully before Christmas.' Asia's third-biggest carrier is seeking to expand its Air Hong Kong cargo unit, which carries a fifth of Cathay Pacific's volume.

The cargo carrier, in which Deutsche Post AG's DHL bought a 30 per cent stake in October, wants to add eight more destinations in Asia in the coming 15 months.

BA to axe 21 regional routes

British Airways said it would cut 21 routes from its regional network by March, as Europe's largest airline focuses on winning back business travellers and taking on no-frills airlines.

The company, which had already cut regional routes this year, also said its regional carrier, British Airways CitiExpress, would launch three new routes from London City

Airport in the south-east of London.



The new services will be aimed at the business traveller, traditionally a British Airways stalwart and a category hard hit in the recent economic downturn and post-Sept 11, 2001, fall-off in air travel.

Nederlands patrouillevliegtuig voortaan ook boven Afghanistan

De Verenigde Staten hebben verzocht het in de Verenigde Arabische Emiraten gestationeerde Nederlandse P-3C Orion maritieme patrouillevliegtuig ook boven Afgaans grondgebied te mogen inzetten. Reden hiervoor is dat uitsluitend de Nederlandse en Amerikaanse Orions beschikken over een infrarood detectiesysteem waarmee vanaf grote hoogte hoogwaardig beeldmateriaal kan worden gemaakt van de grondsituatie in Afghanistan. De Regering heeft besloten tegemoet te komen aan het Amerikaanse verzoek. Dit schrijft de minister van Defensie H.G.J. Kamp 20 december, mede namens de minister van Buitenlandse Zaken, aan de Voorzitter van de Tweede Kamer.



Links : Een Nederlandse P3-C Orion passeerd het BONGA transport voor de kust van Somalie – **Photo : Kees Pronk (c)**

Aan de inzet van het vliegtuig boven Afghanistan zijn niet meer risico's verbonden dan aan de huidige inzet boven de wateren rond het Arabisch Schiereiland, aangezien het patrouillevliegtuig op grote hoogte vliegt. De taak van het in de wateren rond het Arabisch Schiereiland gestationeerde fregat (momenteel Hr.Ms. Van Nes) blijft onverminderd gericht op het voorkomen van verplaatsingen van verdachte personen of goederen uit Afghanistan en bijdragen aan het beveiligen van de waterwegen rondom het Arabische schiereiland. Ook in 2003 zal gedurende vier maanden een onderzeeboot ter beschikking worden gesteld. Op basis van de verschuivende Amerikaanse prioriteiten is besloten de extra inzet van een fregat in het Caraïbisch Gebied te beëindigen. Het fregat dat als laatste als zodanig

dienst deed, Hr.Ms. Van Speijk, keert volgende week terug in Den Helder. Uiteraard blijft wel een fregat van de marine beschikbaar in de Antillen als zogenoemd stationsschip van de wacht.

Boeing 747-400 series in the NEW KLM livery.



The **PH-BFI** is the first aircraft which is painted in the new KLM colors, seen at Schiphol 19-12-2002 .

Photo : Michael Sloten ©

.... STORY OF THE DAY

New luxury cruise liner from Papenburg.

Meyer Werft Delivers "Norwegian Dawn"



Meyer Werft shipyard delivered the 92,250 GT cruise liner "**Norwegian Dawn**" to Norwegian Cruise Line (Miami, USA) in Eemshaven, Holland.

The "Norwegian Dawn" is the second cruise liner the Papenburg-based Meyer Werft has built for Norwegian Cruise Line (NCL). NCL is a subsidiary of the Asian cruise line operator Star Cruises. "Norwegian Dawn" combines the trendsetting features of NCL's "freestyle cruising

concept" with luxurious outfitting and furnishing meeting state-of-the-art technical demands.

In addition to the new design, this luxury liner offers the passengers a lot of special features and amenities. Around 70% of cabins are outside staterooms and most of these have balconies. With an average of one crew member per stateroom, NCL ensures an outstanding service.

The diesel-electric podded drive, interactive communication devices and a sophisticated stage technology guarantee safety and entertainment according to state-of-the-art technical standards.

Ship Design

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Technical Data

Tonnage 92,250 GT
Length overall 294.13 m
Breadth moulded 32.2 m
Number of decks 15
Draught 8.20 m
Loading capacity 7,500 t
Engine power 58.800 kW
(4 x 14,700 kW)
Propulsive power 39,000 kW=53,000 HP
2x 19,500 kW)
Speed 25 kts

Passengers capacity (double occupancy) 2,224
Number of passenger cabins 1,112
Number of outside cabins (suites included) 759
Number of inside cabins 353

Officers and crew 1,130

Theatre capacity 1,037
Number of restaurants 10
Number of bars/lounges 14

Flag Bahamas



The ship was built under the survey of the Classification Society "Det Norske Veritas" to obtain the class notation ? 1 A 1 "Passenger Ship" ECO CLEAN

The ship was designed in close cooperation with the owners. The design was then optimized using computer calculations and model tests. The sleek lines of the vessel

with its 15 decks as well as the innovative podded drive ensure outstanding manouverability and sea-keeping characteristics as well as low sound and vibration levels.

Cabins

"Norwegian Dawn" has a total of 1,112 passenger cabins (353 inside and 759 oceanview cabins). The ship features several cabin categories as well as 36 suites and 107 mini-suites.

Suites

Exquisite suites have been meticulously designed for spaciousness, style, adaptability and comfort. Many of the staterooms are interconnected so families can enjoy togetherness as well as privacy.

The Garden Villa suites offer an unprecedented 5,350 square feet of living space at sea. Positioned high atop the vessel in a private area aft of the main sundeck, each villa

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features sweeping views of the ocean and an impressive assortment of amenities: large dining room, living room, three bedrooms with floor to ceiling windows and luxurious baths with a whirlpool and a separate shower. Outside, the suites feature private rooftop terraces, Jacuzzis, outdoor dining, gardens and secluded relaxation areas.

Owner's Suites, expansive views from a private balcony enhance the beautiful furnishings within. Elegant bedroom separate from the living room. Bathroom with shower and whirlpool tub.

Penthouse Suites feature spacious living room area, private balcony, dining area, separate bedroom. Luxury baths with whirlpool tub and separate shower.

Mini-Suites featuring elegant design and spaciousness. Plush sitting area, private oceanview balcony, luxury bath and shower.

Cabins

Three different types of standard cabins are available on board: inside cabins, outside cabins and oceanview cabins w/balcony. All staterooms feature NCL's new standard in cabins with rich cherry wood finishing, refrigerators, tea and coffee makers and a much larger private bathroom unit containing separate WC, shower and washstand compartments separated by sliding doors, colour TV's, telephones, safes, individual temperature control units and Internet access. There will also be 24 cabins of various types designed for passengers with disabilities.

Total suites/cabins on board:

Garden Villa 2

Owner's Suite 4

Penthouse Suite 30

Mini- Suite 107

Outside Balcony 356

Outside Window 242

Disabled Cabins - outside 18

Disabled Cabins - inside 6

Inside Cabins 347

Public Rooms

"Atrium" (Deck 7-15)

Modern, domed grand atrium, eight decks high, the centre of the ship: reception and purser's area, concierge, four panoramic lifts. The Java Café on deck 7 serves the finest coffees, teas, pastries and cookies. An update on events and presentations can be displayed on a pop up screen on deck 8. The Internet Café on deck 9 features 17 computer terminals with Internet capabilities. Open 24 hours a day. Also offers a computer lecture/training area. The boutiques in the Atrium offer an extensive selection of souvenirs, jewelry, resort wear, accessories, etc.. Majestic atrium view up to the shell-shaped glass dome on deck 15.

"Dawn Club Casino" (Deck 6)

The casino features Blackjack, Mini Baccarat, Roulette, Craps, Dice, Caribbean Stud Poker, Let it Ride, slot machines. VIP card room and casino bar. Free gaming classes, Blackjack and Slot Tournaments.

"Galleria" (Deck 7)

Large department store covering almost 700 square metres; offering an exquisite selection of giftware, fine china and crystal, souvenirs and brand name watches, jewelry and confectionary items.

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Stardust Theatre (Deck 5-7)

Traditional European opera house ambiance, located in the foreship and reaching up three decks, seats 1,037. Offers many of the most famous Broadway shows, musicals and theatre performances. Access to the theatre through arcade walkways.

Dazzles Lounge & Nightclub (Deck 7)

Modern, funky, high-tech style lounge with adjacent nightclub featuring a DJ. Seats 138.

Photo Gallery (Deck 7)

Passengers can purchase photos of the evenings' events.

"Bamboo" - A Taste of Asia (Deck 7)

A Japanese-Thai-Chinese restaurant complex. An elegant adventure into the world of gourmet Asian dining. A world-class experience of the finest Japanese-Thai-Chinese cuisine brings to guests the choice of a sushi and sashimi bar, a teppanyaki room and authentic Asian dishes. Seats 184.

Venetian Main Restaurant (Deck 6)



Classical cuisine. The opulent décor of Venetian is reminiscent of a grand Italian palazzo. Ornate chandeliers, a sweeping staircase and plush furnishings complement the award-winning menu selections. Master chefs create artful six-course feasts. Located on Deck 6, aft, seats 472.

In the middle section of the ship on deck 6 guests can select from more international restaurants: "Aqua", a modern main restaurant. The cool, clean lines of this restaurant create an ambiance of upscale

city dining. "Impressions", Grand French restaurant featuring wall-size reproductions of Impressionist artwork evoking Paris in the 1900s. "Le Bistro", an upscale French restaurant boasting a collection of magnificent original paintings by Monet, Van Gogh, Matisse and Renoir. Traditional and inventive Mediterranean specialties. "Gatsby Champagne Bar", the art deco champagne bar and "Havana Club" offering hand-rolled premium cigars, complement the dining choices on Deck 6.

The Pearly Kings Pub & Blue Lagoon (Deck 7)

A traditional style English pub with heavy leather sofas, dart boards and an English pool table and a large television screen for viewing the latest sporting events. "Blue Lagoon" - a 24 hour, food court-style eatery featuring fast dishes. Located across from the pub.

Health Club - Fitness Centre (Deck 11/12)

Also in the recreation and wellness area, NCL has created a world of options for the guests: a series of wellness programmes including indoor pool, whirlpool, Japanese pool, saunas, steam baths, massage rooms, hair and beauty salons and a fitness centre

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offering state-of-the-art equipment. The reception area features a waterfall descending through its own atrium.

Spinnaker Lounge (Deck 12)



Located in the forward part at the top of the vessel is this panorama lounge styled with a yachting ambiance. Horizontal windows in the floor allow views of the bridge. The height-adjustable stage can also be used as a dance floor. Two adjoining rooms are available for private parties or conferences. Seats 461 persons. Garden Café / Kid's Café (Deck 12)

Extending over a third of a deck and including trademark "action stations" featuring prepared-to-order omelets, waffles, fruit, soups, ethnic specialties and pasta in addition to extensive selections arranged along 130 yards of buffet and counters. Expansive views enhance the beautiful interior decoration. Kids are sure to love the Kid's Café with its kid-sized buffet, chairs and tables.

Meeting Area, Cinema and Library (Deck 12/13)

High-quality furnished meeting room area featuring four individual rooms that can be used together or separately (deck 12). Board Room, main meeting room with full business center support. Cinema screening the latest release movies or video presentations for corporate and incentive groups. The Library located on deck 12 offers a large selection of books and magazines.

T Rex Kid's Center (Deck 13)

Supervised facility for children featuring a play gym, movie theatre with children's movies, computer center, arts and crafts area, sleeping area. Includes the Teen Club, a teenager hangout. Area is a teen center by day featuring a jukebox and exclusive teen disco by night featuring a DJ.

"The Oasis" Pool Area (Deck 12)

Main outdoor pool area. Ambiance is Cote d'Azur beach Riviera with terraced areas featuring sun loungers, tables and chairs and beach umbrellas. Four whirlpools complement the main pool. Sunning areas arranged on several levels. Bimini Bar & Grill located on deck 14. Colourful Bahamian style beach bar offering Caribbean snacks and cocktails. Beautiful view on the entire pool area.

T Rex Kids' Pool Area (Deck 12)

Children's pool area with dinosaur theme, featuring slides and paddling pool. Also has a Jacuzzi.

Stairways

For the passengers' utmost convenience, all three stairways are equipped with four elevators each. Four glass lifts in the Atrium for panoramic view of the centre of the cruise liner.

Engineering, Supply and Disposal

Safety Systems

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"Norwegian Dawn" is divided into seven main fire zones. She complies with the rules of a two-compartment vessel and is designed in accordance with the latest IMO regulations. The vessel is provided with six tenders and 14 lifeboats as well as two fast-rescue boats. In addition, six so-called "marine evacuation systems" have been installed. These rescue chutes allow very fast and safe evacuation in case of emergency.

Propulsion System and Electric Power Supply

Four diesel generators with a 14,700-KW output each are provided for power generation. The MAN B&W type 14V48/60 diesel engines can be operated both with diesel oil and heavy fuel oil. The generators (supplied by ABB) provide a voltage of 11,000 v. The ship is propelled by means of two azipods with an output of 20,000 KW each. Their 360 efficiency provides the vessel with outstanding maneuvering capabilities. The new propulsion system also ensures stable and quiet sea-keeping characteristics and an extremely low vibration level on board.

Integrated Bridge System

"Norwegian Dawn" is equipped with an integrated bridge system type NACOS 65-4 supplied by STN Atlas Marine Electronics. This system includes all components which ensure safe and comfortable navigation even in much-frequented and narrow waters. The main components are two multi pilots which allow the radar screen, the electronic sea chart and important data of the ship to be displayed on one monitor.

All bridge units are fitted with high-resolution colour monitors, making it easier for the navigator to distinguish between the various symbols used.

Stage Equipment

The theatre is provided with a sophisticated stage equipment. The lower machinery consists of a rotary platform. In addition, nine lifts have been installed which can be operated on stage level. The upper machinery comprises a total of 11 rails, three of which serve for the effect illumination, while eight rail systems are provided for the curtains. All systems are computer-controlled and can be operated from various positions.

TV-Plant

"Norwegian Dawn" is fitted with an interactive aerial network applying ATM technique with glass fibre and CAT5 cables allowing the passenger to "create" his own TV programme (Pay-TV, tele-shopping, etc.).



Maneuvering Aids
To ensure optimum maneuverability, the "Norwegian Dawn" is equipped with two azipods (see propulsion system) and three bow thrusters which can all be operated via a joystick. In addition, the vessel can be maneuvered by means of a dynamic

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positioning system (DP system), which keeps the vessel in the given position. The defined position allows, for instance, automatic berthing of the vessel.

Galleys

Catering of both, guests and crew is provided from seven galleys and various pantries and bars. Besides the bakery on deck 3 and the main galley on deck 6, the vessel features a crew galley on deck 5, a Chinese galley on deck 6 as well as a Japanese galley on deck 7 and a so-called Lido galley on deck 12. All food processing areas meet the strict regulations of the American health authority USPH. To ensure food to be quickly stored during lay times of the vessel in the harbour, all stores and cold stores can be accessed by electric powered forklifts.

Water Supply and Discharge

On board of "Norwegian Dawn" up to 2,700,000 l of potable water can be produced per day. The potable water is generated by three evaporators and a reverse osmosis system. Water consumption is reduced, for instance, by collecting condensed water from the air conditioning system and using it in the laundry. The hot water circuit is heated with steam. In addition, potable water can be taken onboard from bunker stations ashore.

Waste Handling System

All waste on board is separated (recyclable and non-recyclable; combustible and not combustible). The waste is either temporarily stored and later disposed of ashore or it is incinerated on board strictly observing the international immission regulations and disposed of later ashore.

Air Conditioning System

The air conditioning system of "Norwegian Dawn" is suitable for worldwide operation and guarantees a constant and comfortable room temperature with outside temperatures between -5 C and 35 C. In all, the 284 air conditioning units on board handle an hourly air volume of abt. 3,070,000 m³.



The Russian Kirov class nuclear powered guided missile cruiser [Petr Velikiy](#) near the Kursk Location
[Photo : Piet Sinke](#) ©