

# REPORT ON OIL ENGINE MACHINERY.

No. 14697

25 JUN 1954

Received at London Office

4b. of writing Report 19 When handed in at Local Office 19 Port of Copenhagen

Survey held at Copenhagen Date, First Survey 16/4/53 Last Survey 20<sup>th</sup> May 1954

Number of Visits 49

on the Single Screw vessel M/V "INGER SKOU" Tons Gross 4,430 Net 2,478

at Copenhagen By whom built A/S Burmeister & Wain Yard No. 715 When built 1954

Engines made at Copenhagen By whom made A/S Burmeister & Wain Engine No. 5233 When made 1954

Boilers made at Copenhagen By whom made A/S Burmeister & Wain Boiler No. 2160 When made 1954

Horse Power 4,000 Owners Ove Skou Port belonging to Copenhagen

Power as per Rule 1,400 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Use for which vessel is intended Open sea service.

ENGINES, &c. — Type of Engines DM.874 VTF-140 Crosshead type Solid injection 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 50 kg/cm<sup>2</sup> Diameter of cylinders 740mm Length of stroke 1400mm No. of cylinders 8 No. of cranks 8

Indicated Pressure 6.5 kg/cm<sup>2</sup> Ahead Firing Order in Cylinders 1-8-3-4-7-2-5-6 Span of bearings, adjacent to the crank, measured from inner edge to inner edge 948 mm Is there a bearing between each crank Yes Revolutions per minute 125

Wheel dia. ✓ Weight ✓ Moment of inertia of flywheel (16lbs. in<sup>2</sup> or Kg. m<sup>2</sup>) 5260 Means of ignition Compr. Kind of fuel used Heavy oil, F.P.

Shaft dia. of journals 475mm Crank pin dia. 520mm Crank webs 1180mm Mid. length breadth 1180mm Thickness parallel to axis 270mm

Central hole 185mm Central hole = 185mm Mid. length thickness 260mm Thickness around eye-hole 295mm

Wheel Shaft, diameter as per Rule 370mm Intermediate Shafts, diameter as per Rule 375mm Thrust Shaft, diameter at collar 407mm

Propeller Shaft, diameter as per Rule 424mm Is the (tube) shaft fitted with a continuous liner Yes

Propeller Shaft, diameter as fitted 430mm Is the (screw) shaft fitted with a continuous liner Yes

Cylinder Liners, thickness in way of bushes as per Rule 20.6mm Thickness between bushes as per Rule 15.5mm Is the after end of the liner made watertight in the propeller boss Yes

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner One length

If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive ✓ If two liners are fitted, is the shaft lapped or protected between the liners ✓ Is an approved Oil Gland or other appliance fitted at the after end of tube shaft No If so, state type ✓

Length of bearing in Stern Bush next to and supporting propeller 1800 mm

Propeller, dia. 5,100mm Pitch 444mm No. of blades 4 Material Bronze whether moveable No Total developed surface 9.76 sq. metres

Moment of inertia of propeller (16lbs. in<sup>2</sup> or Kg. m<sup>2</sup>) 61,300 incl. water Kind of damper, if fitted ✓

Method of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication Forced Thickness of cylinder liners 52mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled

Lagged with non-conducting material Lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine ✓ Cooling Water Pumps, No. 3 Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

Bilge Pumps worked from the Main Engines, No. 2 Diameter Each 20m<sup>3</sup>/h Can one be overhauled while the other is at work Yes

Pumps connected to the Main Bilge Line { No. and size 1 off 150 tons Ballast Pump; 2 off each 20 tons Bilge and Wash DK; 2 off each 20 tons Bilge and Wash DK. How driven Electric motor. Main engine. Electric motor.

Is the cooling water led to the bilges No If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements ✓

Ballast Pumps, No. and size 1 off - 150 m<sup>3</sup>/h Power Driven Lubricating Oil Pumps, including spare pump, No. and size 2 off each 260 m<sup>3</sup>/h

Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both main bilge pumps and auxiliary bilge pumps, No. and size:—In machinery spaces 3 off 2 1/2"; 3 off 3"; 1 off 3" to tunnel well; 1 off 2 1/2" to cofferdam In pump room ✓

In holds, &c. N<sup>o</sup> 1 - 1 off 3" P&S; N<sup>o</sup> 2 & 3 - 1 off 3 1/2" P&S; Deep tank - 1 off 2 1/2" P&S; N<sup>o</sup> 4 - 1 off 3" P&S; N<sup>o</sup> 5 - 1 off 3" P&S. ✓

Independent Power Pump Direct Suctions to the engine room bilges, No. and size 2 off 6"; 1 off 4 1/2" ✓

Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes Yes Are the bilge suction pipes in the machinery spaces led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes

Are all Sea Connections fitted direct on the skin of the Ship Yes Are they fitted with valves or cocks Valves & boiler blow down cock Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes Are the overboard discharges above or below the deep water line Below

Are they each fitted with a discharge valve always accessible on the plating of the vessel Yes Are the blow off cocks fitted with a spigot and brass covering plate Yes

What pipes pass through the bunkers None How are they protected ✓

What pipes pass through the deep tanks None Have they been tested as per Rule ✓

Are all pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another Yes Is the shaft tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper deck

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork ✓

Main Air Compressors, No. ✓ No. of stages ✓ diameters ✓ stroke ✓ driven by ✓

Auxiliary Air Compressors, No. 2 off - 4 cyl No. of stages 2 diameters 130mm x 115mm stroke 120mm driven by Elec. motor

Small Auxiliary Air Compressors, No. 1 off No. of stages 2 diameters 115mm x 105mm stroke 100mm driven by thro. clutch

What provision is made for first charging the air receivers Emergency engine is capable of being hand started. A small hand operated compressor is also fitted.

Scavenging Air Pumps, No. 2 off diameter Rotary stroke ✓ driven by Main engine

Auxiliary Engines crank shafts, diameter as per Rule ✓ No. 5234-5-6 Position E. Room, port side, floor level.

Have the auxiliary engines been constructed under special survey Yes Is a report sent herewith Yes

90  
29/7/54

Para  
E 227  
7' edge  
inspection

003581-003590-0192

Lloyd's Register  
Foundation

**AIR RECEIVERS:**—Have they been made under survey. *Yes* State No. of report or certificate. *1222*

Is each receiver, which can be isolated, fitted with a safety valve as per Rule. *2 Fusible plugs fitted*

Can the internal surfaces of the receivers be examined and cleaned. *Yes* Is a drain fitted at the lowest part of each receiver. *Yes*

**Injection Air Receivers, No.** *✓* Cubic capacity of each. *✓* Internal diameter. *✓* thickness. *✓*

Seamless, welded or riveted longitudinal joint. *✓* Material. *✓* Range of tensile strength. *✓* Working pressure. *by Rules*

**Starting Air Receivers, No.** *1* Total cubic capacity. *21 metres<sup>3</sup>* Internal diameter. *1830 mm* thickness. *Shell - 51.1 to 52.4 kg/cm<sup>2</sup> Ends - 30 mm, 33 mm*

Seamless, welded or riveted longitudinal joint. *Riveted* Material. *S.M. Steel* Range of tensile strength. *Ends - 46.8 to 47 kg/cm<sup>2</sup>* Working pressure. *Actual 25 kg/cm<sup>2</sup>*

**IS A DONKEY BOILER FITTED?** *1-off Exhaust gas fired* If so, is a report now forwarded. *Yes*

Is the donkey boiler intended to be used for domestic purposes only. *Yes, and for heating fuel oil.*

**PLANS.** Are approved plans forwarded herewith for shafting. *Yes* Receivers. *✓* Separate fuel tanks. *Yes*

Donkey boilers. *Yes* General pumping arrangements. *Yes* Pumping arrangements in machinery space. *Yes*

Oil fuel burning arrangements. *✓*

Have Torsional Vibration characteristics been approved. *Yes* Date of approval. *20/8/53*

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied. *Yes*

State the principal additional spare gear supplied. *1- Propeller; 1- Propeller Shaft*

AKTIESELSKABET  
BURMEISTER & WAIN'S MASKIN- OG SKIBSBYGGERI

The foregoing is a correct description, *[Signature]* Manufacturer.

Dates of Survey while building

During progress of work in shops - *1953- 16/4, 18/4, 21/10, 30/10, 20/11, 24/11, 25/11, 28/11, 8/12, 9/12, 14/12, 18/12, 29/12, 1954- 4/1, 9/1, 14/1, 15/1, 16/1, 21/1, 22/1, 26/1, 29/1, 3/2, 10/2, 20/2*

During erection on board vessel - *1954- 19/1, 20/1, 21/1, 23/1, 30/1, 4/2, 17/2, 3/3, 9/3, 16/3, 17/3, 24/3, 30/3, 8/4, 22/4, 24/4, 26/4, 27/4, 30/4, 4/5, 7/5, 10/5, 19/5, 20/5*

Total No. of visits. *49*

Dates of examination of principal parts—Cylinders *15/1/54* Covers. *14/1/54* Pistons. *15/1/54* Rods. *29/12/53* Connecting rods *29/12/53*

Crank shaft. *9/12/53* Flywheel shaft. *✓* Thrust shaft. *9/12/53* Intermediate shafts. *15/1/54* Tube shaft. *✓*

Screw shaft. *9/1/54* Propeller. *20/1/54* Stern tube. *20/1/54* Engine seatings. *16/3/54* Engine holding down bolts. *16/3/54*

Completion of fitting sea connections. *20/1/54* Completion of pumping arrangements. *30/4/54* Engines tried under working conditions. *12/5/54*

Crank shaft, material. *Webbs - Cast Steel* Identification mark. *9821-2* Flywheel shaft, material. *✓* Identification mark. *✓*

Journals & pins - *S.M.I. Steel*

Thrust shaft, material. *S.M.I. Steel* Identification mark. *9823* Intermediate shafts, material. *S.M.I. Steel* Identification marks. *9876-7-8-9*

Tube shaft, material. *✓* Identification mark. *✓* Screw shaft, material. *S.M.I. Steel* Identification mark. *9861, 9860*

Identification marks on air receivers. *No. 1222 Lloyds Test 41 kg/cm<sup>2</sup>, W.P. 25 kg/cm<sup>2</sup>; K.L. 4/2/54*

Welded receivers, state Makers' Name. *✓*

Is the flash point of the oil to be used over 150°F. *Yes. Main engines arranged to burn high viscosity fuel.*

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with. *Yes*

Description of fire extinguishing apparatus fitted. *In Eng. room:- 1-45 litres foam; 1-12 litre CO<sub>2</sub>; 8-12 litre foam; A battery of 4 sets of 16-CO<sub>2</sub> bottles each containing 30 lbs of CO<sub>2</sub> for holds can also be used in E.R; Steam smothering in oil-fired donkey blr. compartment*

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo. *Yes* If so, have the requirements of the Rules been complied with. *Yes*

If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with. *✓*

Is this machinery duplicate of a previous case. *No* If so, state name of vessel. *✓*

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *The machinery has been built and installed under Special Survey and in accordance with the Rules, the approved plans, and the Secretary's letters. The material has been tested as required by the Rules, and the workmanship is good. The whole installation has been examined under full power conditions during a sea trial, and found in efficient condition, and is eligible in our opinion to be classed with the Notations  $\pm$  LMC 5, 54; Oil engine; C. 2 D.B's - 100 lbs.*

*Interim certificate issued - copy attached.*

Construction & installation

The amount of Entry Fee ... *Kr. 7,800<sup>00</sup>*

Special Forgings ... *Kr. 1,395<sup>00</sup>*

Pumps & Corders ... *Kr. 800<sup>00</sup>*

Donkey Boiler Fee ... *Kr. 200<sup>00</sup>*

Starting Air Vessel N<sup>o</sup> 1222 ... *Kr. 25<sup>00</sup>*

Travelling Expenses (if any) ... *Kr. 25<sup>00</sup>*

When applied for *24.6.54*

When received *19*

Engineer Surveyor to Lloyd's Register of Shipping. *[Signature]*

Certificates (if required) to be sent to the Surveyors are requested not to write on or below the space for Committee's Minute.

FRIDAY 30 JUL 1954

