

REPORT ON OIL ENGINE MACHINERY.

No. 22995

DEC 17 1938

Received at London Office

Date of writing Report 12th Dec. 1938. When handed in at Local Office

Port of

HAMBURG

No. in Survey held at Angsborg and **HAMBURG**
Reg. Book.Date, First Survey 3rd April 1937 Last Survey 5th Decemb. 1938.
Number of Visits Angsborg 123
Hamburg 5476490 on the Single
Triple
Quadruple Screw vessel**INVERILEN**Tons { Gross 9456
Net 5561Built at **HAMBURG**By whom built Deutsche Werft A.G.

Yard No. 204 When built 1938

Engines made at AngsborgBy whom made Maschinenfabrik Augsburg-Hamburg Engine No. 690190 When made 1938Donkey Boilers made at **HAMBURG**By whom made Deutsche Werft A.G.

Boiler No. 683+684 When made 1938

Brake Horse Power 4100

Owners Inver Tankers, LtdPort belonging to Dublin

Nom. Horse Power as per Rule 1000

Is Refrigerating Machinery fitted for cargo purposes noIs Electric Light fitted yesTrade for which vessel is intended 997 Carrying Petroleum in bulk.OIL ENGINES, &c. Type of Engines Heavy oil Makers type K 82u 68/120 2 or 4 stroke cycle 2 Single or double acting singleMaximum pressure in cylinders 45 kg/cm² Diameter of cylinders 680 mm Length of stroke 1200 mm No. of cylinders 8 No. of cranks 8Mean Indicated Pressure 5.6 kg/cm²Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 925 mmIs there a bearing between each crank yesRevolutions per minute 115Flywheel dia. 2100 mmWeight 4380 kgMeans of ignition diesel system Kind of fuel used diesel oilCrank Shaft, { Solid forged
Semi built
All built dia. of journals as per Rule 422 mm
as fitted 460 mmCrank pin dia. 460 mm

Crank Webs

Mid. length breadth 880 mm

shrink

Thickness parallel to axis 285 mmMid. length thickness 285 mmThickness around eyehole 205 mmFlywheel Shaft, diameter as per Rule 422 mm
as fitted 460 mmIntermediate Shafts, diameter as per Rule 338 mm
as fitted 340 mmThrust Shaft, diameter at collars as per Rule 355 mm
as fitted 400 mmTube Shaft, diameter as per Rule —
as fitted —Screw Shaft, diameter as per Rule 372 mm
as fitted 382 mmIs the { tube } shaft fitted with a continuous liner { yes }Bronze Liners, thickness in way of bushes as per Rule 19 mm
as fitted 22 mmThickness between bushes as per Rule 15 mm
as fitted 16 mm

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 —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 the tube

shaft — If so, state type — Length of Bearing in Stern Bush next to and supporting propeller 1700 mmPropeller, dia. 4800 mm Pitch 3720 mm No. of blades four Material bronze whether Moveable no Total Developed Surface 7.616 metres sq. feetMethod of reversing Engines direct Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Means of lubricationforced Thickness of cylinder liners 42 mm Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers cooler cooled or lagged withnon-conducting material yes 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. 4 (2 freshwater p.s. + 2 sea water pumps) the sea suction provided with an efficient strainer which can be cleared within the vessel yesBilge Pumps worked from the Main Engines, No. 1 Diameter 150 mm Stroke 120 mm Can one be overhauled while the other is at work —Pumps connected to the Main Bilge Line { No. and Size 1 Bilge pump 15 m³/h 1 Bilge pump 7.5 m³/h 1 Ballast pump 2.50 m³/h
How driven main engine steam duplex type steam duplex typeIs 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 pumpingarrangements — Ballast Pumps, No. and size 1 Duplex pump 2.50 m³/h Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size { 1 main driven toothed wheel
2 pumps of 38 m³/h
1 steam duplex p.s. 4.5 m³/hAre two independent means arranged for circulating water through the Oil Cooler yes Suctions, connected to both Main Bilge Pumps and Auxiliary BilgePumps, No. and size:—In Machinery Spaces frame 35/36 one of 50 mm, frame 30/31 one of 50 mm for boiler in engine room main Four of 90 mm pIn Holds, &c. frame 46/47 two of 90 mm p, frame 10/11 one of 90 mm p three of 50 mm p In Pump Rooms for stripping pumpsIndependent Power Pump Direct Suctions to the Engine Room Bilges, No. and size one of 127 mm p to bilges, one of 152 mm p to ballast pumpsAre all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes yes Are the Bilge Suctions in the Machinery Spacesled from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges yesAre all Sea Connections fitted direct on the skin of the ship upper fitted on sheets welded to skin of vessel Are they fitted with Valves or Cocks yesAre 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 aboveAre 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 yesWhat pipes pass through the bunkers none How are they protected —What pipes pass through the cargo tanks cargo suction lines Have they been tested as per Rule yesAre 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 mach. aft Is it fitted with a watertight door — worked from —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. two No. of stages two Diameters 265/105 mm Stroke 250 mm Driven by Compound steam engSmall Auxiliary Air Compressors, No. — No. of stages — Diameters — Stroke — Driven by —What provision is made for first Charging the Air Receivers compressors driven by steam enginesScavenging Air Pumps, No. 1 (tandem) Diameter 1380 mm Stroke 850 mm Driven by main engineAuxiliary Engines crank shafts, diameter as per Rule for 2 cyl. 25C. SA. aux. oil engine No. for compound steam eng. driving generators & compressorsas fitted 100 mm (tested by Angsborg Surveyors) Position 75 mm (Makers' Standard Type)Have the Auxiliary Engines been constructed under special survey yes Is a report sent herewith —

AIR RECEIVERS:—Have they been made under survey yes State No. of Report or Certificate Certificates of material attached
Is each receiver, which can be isolated, fitted with a safety valve as per Rule yes
Can the internal surfaces of the receivers be examined and cleaned yes, by manhole Is a drain fitted at the lowest part of each receiver yes
Injection Air Receivers, No. - Cubic capacity of each - Internal diameter - thickness -
Seamless, lap welded or riveted longitudinal joint - Material - Range of tensile strength - Working pressure -
Starting Air Receivers, No. two Total cubic capacity each 12 m³ Internal diameter 17.00 mm thickness 2.45 mm
Seamless, lap welded or riveted longitudinal joint riveted Material S-TC-Steel Range of tensile strength ENDPLATE 41/42 Working pressure Actual 25 kg/cm²

IS A DONKEY BOILER FITTED? yes If so, is a report now forwarded? yes
Is the donkey boiler intended to be used for domestic purposes only yes NO (See Inversion)
PLANS. Are approved plans forwarded herewith for Shafting yes 28.7.37 Receivers 13.11.35 Separate Fuel Tanks 27.1.35, 5.2.38
Donkey Boilers 20.5.38, 27.2.36 General Pumping Arrangements 29.11.37, 26.1.38 Pumping Arrangements in Machinery Space 24.1.38, 28.4.38
Oil Fuel Burning Arrangements 17.5.38

SPARE GEAR.

Has the spare gear required by the Rules been supplied yes
State the principal additional spare gear supplied 1 propeller shaft marked: LLOYD'S No. 2037. L.S. 2.4.38.

The foregoing is a correct description.

DEUTSCHE WERFT
AKTIENGESELLSCHAFT

W. Schmid Manufacturer.

Please see Angsburg Rep. No. 2056 dated 16th Sept. 1938.
Dates of Survey while building { During progress of work in shops -- 1938 Jan. 15th, March 8, 11, 18, May 6, 9, 12, 31, June 21, 27, 28, July 8, Aug. 1, 5, 13, 22, 30, 31, Sept. 1, 10, 15, 20, 23, 24, 25, 26, 27, 28, 29, 30, 31.
During erection on board vessel -- 1938 Sept. 19, 22, 26, 28, 30, Oct. 4, 11, 21, 25, 28, 31, Nov. 2, 4, 8, 11, 15, 18, 22, 23, 28 Dec. 1, 5.
Total No. of visits 54

Dates of Examination of principal parts—Cylinders Please Covers see Pistons Angsburg Rods Report Connecting rods dated
Crank shaft Angsburg Flywheel shaft Angsburg Thrust shaft 22.9.38 Intermediate shafts 22.9.38 Tube shaft --
Screw shaft 22.9.38 Propeller 21.9.38 Stern tube 22.9.38 Engine seatings 19.9.38 Engines holding down bolts 2.11.38
Completion of fitting sea connections 28.9.38 Completion of pumping arrangements 15.11.38 Engines tried under working conditions 22.23 Nov. 5th Dec.
Crank shaft, Material S-TC-STEEL Identification Mark 1558 1559 1560 Flywheel shaft, Material S-TC-STEEL Identification Mark 13128 M.B. 21.5.38
Thrust shaft, Material S-TC-STEEL Identification Mark 3471 A.H.B. 10.8.38 Intermediate shafts, Material S-TC-STEEL Identification Marks 13737 M.B. 12.3.38
Tube shaft, Material - Identification Mark - Screw shaft, Material S-TC-STEEL Identification Mark 13736 M.B. 12.3.38
Identification Marks on Air Receivers Yard No. 685 Yard No. 686

No. 1030
LLOYD'S TEST
585 LBS.
W.P. 356 LBS.
H.R. 10.9.38.

No. 1031
LLOYD'S TEST
585 LBS.
W.P. 356 LBS.
H.R. 10.9.38.

Is the flash point of the oil to be used over 150° F. yes
Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with yes
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo - If so, have the requirements of the Rules been complied with -
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 yes If so, state name of vessel INVERLIFEY, INVERDARGLE, INVERSUIR.

General Remarks (State quality of workmanship, opinions as to class, &c. The main heavy oil engine has been built at Angsburg, the auxiliary oil engine at Darmstadt under Special Survey of the Society's Surveyors.
Material and workmanship of this machinery are of good quality and the outfit is ample.

It has been fitted under Special Survey at Hamburg in accordance with the approved plans, the Secretary's letters and otherwise in conformity with the requirements of the Rules.
During the trial trips the machinery has given satisfaction under full working and manoeuvring conditions.

The machinery is eligible in my opinion to be classed with notations in the Register Book of
⊕ LMC 12.38. Oil eng. TS(CCL)

The amount of Entry Fee RM 24:- When applied for, 10.12.1938
Special 1/5 RM 500:- When received, 10.1.1939
Donkey Boiler Fee X 1/5 RM 50:-
STARTING AIR RECEIVERS 168
Travelling Expenses (if any) 22:-

Committee's Minute + Lumb 12.12.38
Assigned 2 D.B. - 180th
1 (W.E.) D.B. - 180th

H. Rohrs
Engineer Surveyor to Lloyd's Register of Shipping.
Lloyd's Register Foundation

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

X See Blue Reports for Blue fees.