Opt. 4b.

3 - DEC 1955

Report on Oil Engine Machinery.

No. 2083.

Date of writing Report 10th June, 1942. When handed in at Local Office 11th June, 1942. Port of Malmö. Received at London Office 26 JUN 1942

No. in Reg. Book. Survey held at Malmö. Date, First Survey 22nd Nov. 1939. Last Survey 4th June, 1942. Number of Visits 129.

✓ on the ~~Twin~~ Single ~~Triple~~ ~~Quadruple~~ Screw vessel "BRÅLI" Tons Gross / Net

Built at Malmö By whom built Kockums Mek. V. A.-B. Yard No 218 When built

Engines made at Malmö By whom made Kockums Mek. V. A.-B. Engine No 233 When made

Donkey Boilers made at Malmö By whom made Kockums Mek. V. A.-B. Boiler No 986/87 When made

Brake Horse Power 4000 Owners A/S Brill, Oslo Port belonging to Oslo

Nom. Horse Power as per Rule 1167 ✓ Is Refrigerating Machinery fitted for cargo purposes No ✓ Is Electric Light fitted Yes ✓

Trade for which vessel is intended ✓

D. M.

OIL ENGINES, &c. Type of Engines MAN. D62u 69/110 2 or 4 stroke 2 ✓ Single or double acting Double ✓

Maximum pressure in cylinders 50 kgs/cm² ✓ Mean Indicated Pressure 5.5 " " ✓ Diameter of cylinders 600 mm 23 5/8 ✓ Length of stroke 1100 mm 43 5/16 ✓ No. of cylinders 6 ✓ No. of cranks 6 ✓

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 7 860 mm ✓ Is there a bearing between each crank Yes. ✓

Revolutions per minute 116 ✓ Flywheel dia 2093 mm ✓ Weight 5700 kgs. ✓ Means of ignition Direct injt. ✓ Kind of fuel used Heavy oil ✓

Crank Shaft, ~~Solid forged~~ Semi built ~~Built up~~ dia. of journals as per Rule appr. 420 mm ✓ as fitted 420 mm ✓ Crank pin dia 420 mm ✓ Crank Webs Mid. length breadth 700 mm ✓ Mid. length thickness 265 mm ✓ Thickness parallel to axis 265 mm ✓ Shrunk Journal. Thickness around eyehole 200 mm ✓

Flywheel Shaft, diameter as per Rule appr. 420-356 mm as fitted 420-356 mm. Intermediate Shafts, diameter as per Rule appr. 340 mm as fitted 340 mm ✓ Thrust Shaft, diameter at collars as per Rule appr. 360 mm ✓ as fitted 360 mm ✓

Tube Shaft, diameter as per Rule ✓ as fitted ✓ Screw Shaft, diameter as per Rule appr. 380 mm ✓ as fitted 380 mm ✓ Is the ~~Tube~~ screw shaft fitted with a continuous liner Yes ✓

Bronze Liners, thickness in way of bushes as per Rule appr. 20 mm as fitted 20 mm ✓ Thickness between bushes as per Rule appr. 15 mm as fitted 15 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 No ✓ If so, state type ✓ Length of Bearing in Stern Bush next to and supporting propeller 1520 mm ✓

Propeller, dia 5000 mm ✓ Pitch 3700 mm ✓ No. of blades 4 Material Cast iron whether Moveable No Total Developed Surface 87 sq. feet

Method of reversing Engines Direct ✓ Is a governor or other arrangement fitted to prevent racing of the engine when disconnected Yes. ✓ Means of lubrication forced. ✓ Thickness of cylinder liners 41.5 mm ✓ Are the cylinders fitted with safety valves Yes. ✓ Are the exhaust pipes and silencers water cooled or 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 led to the funnel. ✓

Cooling Water Pumps, No. 2 Each of 186 m³/H. 1 of 35 m³/H. for int. engines ✓ Is the sea provided with an efficient strainer which can be cleared within the vessel Yes. ✓

Bilge Pumps worked from the Main Engines, No. ✓ Diameter ✓ Stroke ✓ Can one be overhauled while the other is at work ✓

Pumps connected to the Main Bilge Line: No. and Size 3. 1 of 100 m³/H. 1 of 40 m³/H. 1 of 36 m³/H. ✓ In main pump room: 1-6"×8"×6" of 50 m³/H. In pump room fwd.: 1-6"×8"×6" of 50 m³/H. ✓ How driven 1 steam driven. 2 electric driven. Steam driven. Steam driven. ✓

Is the cooling water led to the bilges Led overboard If so, state what special arrangements are made to deal with the water in addition to the ordinary bilge pumping arrangements ✓ Required by rules 102 tons/hour

Ballast Pumps, No. and size 1-100 m³/H. ✓ Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 2 Each of 150 m³/H. ✓

Are two independent means arranged for circulating water through the Oil Coolers Yes. ✓ Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size In Machinery Spaces 3-3½". 1-2". 2-3½" in after cofferdam. In main pump room: 2-3½" ✓ In Pump Room fwd. 1-3½". ✓ In Hold, &c. 2-3½" in dry cargo hold. 2-3½" in fwd. cofferdam.

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size (3) 2-4½" & 1-3½" bilge hose. ✓

Are all the Bilge Suction pipes in Holds and Tunnel fitted with strum boxes Yes. ✓ Are the Bilge Suctions 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 Cocks. ✓

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes. or by lifting a special covers. ✓ Are the Overboard Discharges above or below the deep water line Above. ✓

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 outer covering plate Yes. ✓

Steam pipes pass through the tanks ✓ How are they protected ✓

Suction pipe from after cofferdam ✓ Have they been tested as per Rule Yes. ✓

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 Tunnel ✓ It is fitted with a watertight door ✓ worked from ✓

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

Main Air Compressors, No. None No. of stages ✓ Diameters ✓ Stroke ✓ Driven by ✓

Auxiliary Air Compressors, No. 2 ✓ No. of stages 2 Diameters 110 & 300 mm Stroke 220 mm. Driven by Aux. oil or Donkey engines. ✓

Emergency Auxiliary Air Compressors, No. 1 ✓ No. of stages 2 Size 1.5 m³ atm. air/H. Stroke ✓ Driven by Aux. gas. steam eng. ✓

What provision is made for first Charging the Air Receivers ✓

Emergency Air Pumps, No. 2 Tandem ✓ Diameter 1380 mm. Stroke 850 mm. Main engine. ✓

Auxiliary Engines crank shaft, diameter 140 mm. 155 mm. ✓ Marks: LLOYD'S 8190, 8191 MJ 5.4.40 ✓ 2. Omega each side in ½ Q. ✓

Yes. ✓

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AIR RECEIVERS.—Have they been made under survey? Yes. ✓ State No. of report or Certificate ✓ 3 - FEB 1942

Is each receiver which can be isolated fitted with a safety valve as per Rule? Yes. ✓

Can all internal surfaces of the receivers be examined and cleaned? Yes ✓ Is a cover fitted to each part of each receiver? Yes.

Small start. **Air Receivers.** No. 1. Cubic capacity of each 350 litres. Internal diameter 448 mm. Thickness 20 mm.

Seamless, lap welded or riveted longitudinal joint? Lap welded. Material Steel. Range of tensile strength 39.3 kg. mm². Working pressure 78 kg. cm². Actual 30 " "

Starting Air Receivers. No. 2. Total cubic capacity 12 m³. Internal diameter 1450 mm. Thickness 25 mm.

Seamless, lap welded or riveted longitudinal joint? Riveted. Material Steel. Range of tensile strength Shell: 45.0-49.4 kg. mm² Heads: 43.0-46.3 " " Working pressure 31.7 kg. cm². Actual 30 " "

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? No. ✓

PLANS.—Are the approved plans for steam heating hereunto for Shafting. 3-2-1939 Receivers 25-9-1939 Separate Fuel Tanks In place of oil fuel bunkers.
(If not, state date of approval)

Donkey Boilers 12-12-1938 General Pumping Arrangements 30-8-1940 Pumping Arrangements in Machinery Space 29-3-1939.

Oil Fuel Burning Arrangements 11-3-1940.

SPARE GEAR.

Has the spare gear required by the Rules been supplied? Yes. ✓

State the principal additional spare gear supplied. Main engine - 1 piston complete with piston rod. 5 complete piston rod packing boxes. 10 sets of piston rings. 1 propeller shaft.
Aux. oil engines - 1 cylinder cover. 1 cylinder liner. 1 piston. 3 sets of piston rings.

(Cont. on sheet II.)

SCHUMS
ERKISTA OR AKTIEBOLAG

The foregoing is a correct description.

Manufacturer.

Dates of Survey while building — During progress of work on shops: 24/11. 24/11. 4/12. 1939. 15/1. 7/2. 13/2. 19/2. 24/2. 26/2. 26/2. 3/2. 7/2. 10/2. 17/2. 11/12. 18/12. 1940. 2/1. 3/1. 7/1. 8/1. 13/1. 14/1. 20/1. 21/1. 23/1. 28/1. 29/1. 29/1. 1/2. 3/2. 4/2. 11/2. 12/2. 13/2. 18/2. 19/2. 21/2. 22/2. 26/2. 27/2. 1/3. 3/3. 4/3. 5/3. 6/3. 7/3. 12/3. 13/3. 19/3. 20/3. 21/3. 26/3. 28/3. 7/4. 9/4. 9/4. 15/4. 17/4. 22/4. 23/4. 6/5. 9/5. 14/5. 15/5. 19/5. 24/5. 28/5. 29/5. 6/6. 10/6. 13/6. 18/6. 21/6. 9/7. 11/7. 14/7. 14/7. 15/7. 19/7. 21/7. 24/7. 25/7. 28/7. 31/7. 6/8. 8/8. 11/8. 12/8. 13/8. 14/8. 21/8. 3/9. 4/9. 16/9. 1941.

During erection on board vessel: 18/9. 29/9. 1/10. 2/10. 3/10. 6/10. 8/10. 13/10. 14/10. 17/10. 22/10. 27/10. 28/10. 30/10. 1/11. 3/11. 4/11. 6/11. 7/11. 9/11. 10/11. 11/11. 12/11. 14/11. 15/11. 17/11. 24/11. 1/12. 2/12. 3/12. 9/12. 18/12. 1941. 29/1. 26/2. 27/4. 4/6. 1942.

Total No. of visits 120.

Dates of Examination of principal parts—Cylinders (14 visits.) 29/11.1939 - 12/7.1941. Covers (7 visits.) 21/3 - 28/7.1941 Pistons (4 visits.) 19/3 - 15/4.1941. Rods 7/3.1940 1/3.1941 Connecting rods 12/3. 19/5. 11/7.1941.

After trial in shop: Crank shaft 9/7.1941 Flywheel shaft 4/3.1941 Thrust shaft 21/7.1941 Intermediate shafts 16/6.1941 Tube shaft ✓

Screw shaft 21/6.1940 Propeller 27/4.1942 Stern tube 14/4. 13/3.1941 Engine seatings 15/3.1941 Engines holding down bolts 3/10.1941.

Completion of fitting sea connections 13/3.1941 Completion of pumping arrangements 27/4.1942 Engines tried under working conditions

Crank shaft, Material Steel Identification Mark LLOYD'S 5533/4/5 FS 19.6.40 Flywheel shaft, Material Steel Identification Mark B 1602 AS 4.3.41.

Thrust shaft, Material " Identification Mark B 720 AS 21.7.41 Intermediate shafts, Material " Identification Marks B 709 AB 18.6.41.

Spare screw shaft, Material " Identification Mark LLOYD'S 710 SJ 21.6.40 Screw shaft, Material " Identification Mark LLOYD'S 711 SJ. 21.6.40.

Identification Marks on Air Receivers Nos. 87 & 88. Lloyd's Test 44 kg. cm². W.P. 30 kg. cm². AB. 21.2.41.

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? Tankers ✓ 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? No.

Is this machinery duplicate of a previous case? Yes If so, state name of vessel M/T "LISITA" ✓

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) The aux. power mchy. of this vessel consists of two 3-cyl. 4 stroke single acting compressorless heavy oil engines built by Messrs. Burmeister & Wain, Copenhagen. The cylinders are 260 mm. in diam., stroke 360 mm. and R.P.M. = 380. Each eng. is driving an electric generator of 90 K.W. A steam eng. driving generator of 25 K.W. is also installed.
The main and aux. engines of this vessel have been built under special survey in accordance with the Rules & the approved plans. The materials fulfil the Rule requirements and the workmanship is good. The shaftings as per forging reports attached herewith.
The machinery of this vessel is eligible, in our opinion, to be classed in the Reg. Book of this Society with record of ✠ L.M.C. with date when the survey has been completed.
Working pressure of donkey boilers 180 lbs/□".

(96% of total fee has been applied for)

Amount of Extra Fee 1 Hr. 102.60 When applied for 11th June 42.
Special 1 Hr. 2208.87
1 Hr. 107.73 When received
1 Hr. 36.00 19
~~FRI. 17 JUL 1942~~ TUE 21 JUL 1942

A. Barring
Engineer Surveyor to Lloyd's Register of Shipping

See Mno. F.E. 2083

TUES. 23 OCT 1945

+LMC 8.45 Oil Eng.
C.L. 2013 } 18016.
IW.T.D.B. }

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Port of Malmö. Mchy. Continuation of Report No. 2083 dated 11th June. 1942 on the

M/T "BRÅLI" of Oslo.

Additional pumps installed:-

1 sanitary pump of 20 m³/H. Electric driven.
2 " " " 3 " " "
1 cool. water pump (reserve) of 3 m³/H. " "
1 oil transfer " of 30 m³/H. " " .

For donkey boiler:-

2 units of oil fuel pressure pumps.
2 feed pumps Duplex 7½" × 4½" × 7".
1 circ. pump for La Mont boiler. Electric driven.

For main pump room:-

2 cargo oil pumps. Duplex. 20" × 16" × 24".

To complete survey:-

Propeller to be fitted.

The main and auxiliary oil engines and pumps to be tested under full working conditions.

The safety valves of the starting air receivers and of the donkey boiler to be set to the safe working pressure.

It cannot be stated when the survey will be completed.

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