

REPORT ON OIL ENGINE MACHINERY.

No. 31608
-5 APR 1935

Received at London Office.

Date of writing Report 1935 When handed in at Local Office 4 APR 1935 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 9 Oct 34 Last Survey 2 Apr 1935
Reg. Book. Number of Visits 54

on the Single Twin Triple Quadruple Screw vessel motor vessel "KINROSS" Tons { Gross 4956
Net 3043.

Built at Sunderland By whom built Wm Dayford & Sons Ltd Yard No. 613 When built 1935

Engines made at Sunderland By whom made Wm Dayford & Sons Ltd Engine No. 613 When made 1935

Donkey Boilers made at Stockton By whom made Stockton Chemical Engg & Rivg Bhs Ltd Boiler No. 608Y When made 1935

Boiler No. 1290 When made 1935

Brake Horse Power 1800 Owners B. J. Sutherland & Co Ltd Port belonging to Newcastle

Nom. Horse Power as per Rule 388 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted Yeo.

Trade for which vessel is intended 20 1/2 8 1/2

OIL ENGINES, &c. Type of Engines Opposed piston airless injection 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 540 lbs/sq in Diameter of cylinders 520 mm Length of stroke Lower 1200 mm No. of cylinders 3 No. of cranks 3 (3 throw)

Mean Indicated Pressure 88 lbs/sq in Length of stroke Upper 880 mm

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 820 mm Is there a bearing between each crank between each

Revolutions per minute 115 Flywheel dia. 1950 mm Weight 49 cwt. Means of ignition Compression Kind of fuel used between each

Crank Shaft, dia. of journals as per Rule 356 mm Crank pin dia. 410 mm Crank Webs as per Rule 286 mm Thickness parallel to axis 230 mm

Flywheel Shaft, diameter as fitted 410 mm Intermediate Shafts, diameter as fitted 305 mm Thrust Shaft, diameter at collars as fitted 410 mm

Tube Shaft, diameter as per Rule 300 mm Screw Shaft, diameter as fitted 314 mm Is the shaft fitted with a continuous liner Yeo.

Bronze Liners, thickness in way of bushes as per Rule 16.4 mm Thickness between bushes as fitted 18 mm Is the after end of the liner made watertight in the propeller boss Yeo.

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

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 Yeo.

If two liners are fitted, is the shaft lapped or protected between the liners Yeo. Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft Yeo.

Propeller, dia. 14'-0" Pitch 10'-6" No. of blades 4 Material Bronze whether Movable no Total Developed Surface 45 sq. feet

Method of reversing Engines Hand lever Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yeo. Means of lubrication Yeo.

Thickness of cylinder liners 20 mm Are the cylinders fitted with safety valves Yeo. Are the exhaust pipes and silencers water cooled or lagged with non-conducting material Yeo.

Cooling Water Pumps, No. 2 1 main Engine driven 1 steam driven Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yeo.

Bilge Pumps worked from the Main Engines, No. 2 Diameter 6" x 6" x 6" Stroke Duplex Can one be overhauled while the other is at work Yeo.

Pumps connected to the Main Bilge Line { No. and Size 2 6" x 6" x 6" Duplex
How driven Steam.

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 Yeo.

Ballast Pumps, No. and size 1 10" x 11" x 10" Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 1 main 80 mm x 520 mm duplex 5 1/2" x 5 1/2" x 6"

Are two independent means arranged for circulating water through the Oil Cooler Yeo. Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces 4 @ 3" in E.R. 1 @ 3" Tunnel Well. In Pump Room Yeo.

In Holds, &c. N°1. 3 1/2" p.r.s. N°2 3 1/2" p.r.s. N°3 3" p.r.s. N°4 3 1/2" p.r.s. Cap Tank 3 1/2" p.r.s.

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2 one 8" one 5"

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yeo. Are the Bilge Suctions in the Machinery Spaces Yeo.

Are all Sea Connections fitted direct on the skin of the ship Yeo. Are they fitted with Valves or Cocks Both.

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plate Yeo. Are the Overboard Discharges above or below the deep water line Bilge & gen. Ser. disch. below

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yeo. Are the Blow Off Cocks fitted with a spigot and brass covering plate Remains above.

What pipes pass through the bunkers none. How are they protected Yeo.

What pipes pass through the deep tanks Forward bilge Suctions Have they been tested as per Rule Yeo.

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yeo.

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 Yeo. Is the Shaft Tunnel watertight Yeo. Is it fitted with a watertight door Yeo. worked from E.R. Top platform

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

Main Air Compressors, No. Two. No. of stages 3 Diameters 10 1/2" x 8 1/2" x 2 1/2" Stroke 6" Driven by Steam 11 1/2" x 6" stroke

Auxiliary Air Compressors, No. none No. of stages Yeo. Diameters Yeo. Stroke Yeo. Driven by Yeo.

Small Auxiliary Air Compressors, No. none No. of stages Yeo. Diameters Yeo. Stroke Yeo. Driven by Yeo.

Scavenging Air Pumps, No. one Diameter 1510 mm Stroke 520 mm Driven by main engine.

Auxiliary Engines crank shafts, diameter as per Rule Yeo.

AIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule *Yes on discharge from Compressor.*
Can the internal surfaces of the receivers be examined and cleaned *Yes.* Is a drain fitted at the lowest part of each receiver *Yes.*
High Pressure Air Receivers, No. *none.* Cubic capacity of each *✓* Internal diameter *✓* thickness *✓*
Seamless, lap welded or riveted longitudinal joint *✓* Material *✓* Range of tensile strength *✓* Working pressure by Rules *✓*
Starting Air Receivers, No. *Two.* Total cubic capacity *180 cu. ft.* Internal diameter *3'-6"* thickness *1"*
Seamless, lap welded or riveted longitudinal joint *✓* Material *mild steel* Range of tensile strength *28-32.* Working pressure by Rules *603 lbs/sq*
Actual 600 lbs/sq

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 approved plans forwarded herewith for Shafting *Retained for Sister Ship* Receivers *✓* Separate Tanks *Yes.*
Donkey Boilers *Yes* General Pumping Arrangements *Retained for Sister Ship* Oil Fuel Burning Arrangements *Retained for Sister Ship*

SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes.*
State the principal additional spare gear supplied *1 Cast iron Propeller, 1 Propeller Shaft, 2 Front Fuel valves Complete, 2 back fuel valves Complete, 8 Spray plugs, 1 air starting non return valve, 1 Cylinder relief valve Complete, 4 Scavenge pump Suction & delivery valve discs, 1 Fuel pump body Complete with ram, guide, suet. & del. valve chamber & intermediate crosshead, 1 Fuel pump bell crank lever & suction tappets. 1 Roller Chain for Cam shaft drive, 1 Cylinder liner & jacket.*

The foregoing is a correct description,

W. J. Miller

Manufacturer.

Dates of Survey while building { During progress of work in shops - - 1934 Oct 9, 11, 15, 19, 27 Nov 1, 5, 7, 12, 15, 22, 26, 28 Dec 3, 5, 7, 11, 12, 14, 19, 21, 28, 1935 Jan 2, 9, 16, 17, 18, 21, 23, 24, 28, 29, 30, 31 Feb 1, 4, 5, 6, 7, 8, 12, 13, 14, 18, 21, 22, 25, 26, 28 Mar 1, 5, 6, Apr 2
During erection on board vessel - -
Total No. of visits *54.* 7.12.34, 3.1.35 18.1.35 18.1.35 21.1.35

Dates of Examination of principal parts—Cylinders 9/1/35 15/1/35 Covers *✓* Pistons 24.1.35 Rods 24.1.35 Connecting rods 6.2.35
Crank shaft 21.1.35 31/1/35 Flywheel shaft *✓* Thrust shaft 31/1/35 Intermediate shafts 4.2.35 Tube shaft *✓*
Screw shaft 23.1.35 28.1.35 Propeller 23/1/35 28/1/35 Stern tube 23/1/35 Engine seatings *Yank top* Engines holding down bolts 1.3.35
Completion of fitting sea connections 31.1.35 Completion of pumping arrangements 6.3.35 Engines tried under working conditions 2.4.35
Crank shaft, Material *S.M. Ingot Steel* Identification Mark *Nº 468 JSN 18/1/35* Flywheel shaft, Material *✓* Identification Mark *Nº 2327, 2316, 2332*
Thrust shaft, Material *S.M. Ingot Steel* Identification Mark *as crank.* Intermediate shafts, Material *S.M. Ingot Steel* Identification Marks *2314, 2318, 2319*
Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *S.M. Ingot Steel* Identification Mark *2320, 2328 WH 4/2/3*
Nº 2342 WHF 28/1/35

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 *No.* 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 *Not desired.*
Is this machinery duplicate of a previous case *Yes.* If so, state name of vessel *M/V "SUTHERLAND"*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has been built under Special Survey in accordance with the Rules of the Society & the Secretary's letter E 25/4/34. The materials & workmanship are good. The machinery has been securely fitted on board the vessel & tried under full working conditions at sea, including requirements for starting, with satisfactory results.*

The two donkey boilers have also been securely fixed on board the vessel & fitted to burn oil fuel (F.P. above 150°F), Section 20 of the Rules have been complied with, safety valves of boilers adjusted to working pressure & accumulation test carried out satisfactorily.

The machinery is eligible in our opinion to have notation L.M.C. 4.35 oil. eng. T.S. CL. 2DB. 120 lbs/sq.

The amount of Entry Fee .. £ 5 : - : When applied for, *7 APR 1935*
Special *welded construction* ... £ 83 : 4 :
Donkey Boiler Fee ... £ 12 : 12 :
Travelling Expenses (if any) £ : : When received, *8.4.35 9/4*

Committee's Minute *TUE. 9 APR 1935*
Assigned *+ Lmcy 35 Cl. 2 DB 120 lb. oil eng.*
D. J. Fraser & M. Caldwell
Engineer Surveyor to Lloyd's Register of Shipping.