

Date of writing report 1.8.57.

Received London

Port NEWCASTLE-ON-TYNE

No.

Survey held at South Shields

In shops 9
No. of visits On vessel 15

20.2.57.

8.7.57.

First date 15.5.57.

Last date

27.7.57.

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name M.S. "SEISTAN" Gross tons 7440

Owners Strick Line Ltd. Managers F.C. Strick & Co. Ltd. Port of Registry

Hull built at South Shields By Messrs. J. Readhead & Sons Ltd. Yard No. 592 Year Month 1957

Main Engines made at Newcastle upon Tyne By Hawthorn Leslie (Engs) Ltd. Eng. No. 4167 When 1957

Gearing made at By

Donkey boilers made at South Shields By Messrs. J. Readhead & Sons Ltd. Blr. Nos. 592 When 1957

Machinery installed at South Shields By Messrs. J. Readhead & Sons Ltd. When 1957

Particulars of restricted service of ship, if limited for classification

Particulars of vegetable or similar cargo oil notation, if required Not required.

Is ship to be classed for navigation in ice? No Is ship intended to carry petroleum in bulk? No

Is refrigerating machinery fitted? Yes If so, is it for cargo purposes? Yes Type of refrigerant Dichlor. Meth.

Is the refrigerating machinery compartment isolated from the propelling machinery space? Yes Is the refrigerated cargo installation intended to be classed? Yes

The following particulars should be given as fully and as clearly as possible. Where the answer is "No" or "None", say so! Ticks and other signs of doubtful meaning are not to be used. Where the wording is not applicable to the installation, a black line may be inserted. If the main engines have been constructed at another port and are covered by a separate report, the particulars given in that report need not be repeated below, but the port and report number should be stated.

No. of main engines 1 No. of propellers 1 Brief description of propulsion system 4 Cyl. S.A. Doxford Opposed Piston Engine (Solid Inject.)

MAIN RECIPROCATING ENGINES. Licence Name and Type No.

No. of cylinders per engine Dia. of cylinders stroke(s) 2 or 4 stroke cycle Single or double acting

Maximum approved BHP per engine 4,400 at RPM of engine and 115 RPM of propeller.

Corresponding MIP (For DA engines give MIP top & bottom) Maximum cylinder pressure Machinery numeral

Are the cylinders arranged in Vee or other special formation? If so, number of crankshafts per engine

TWO STROKE ENGINES. Is the engine of opposed piston type? If so, how are upper pistons connected to crankshaft?

Is the exhaust discharged through ports in the cylinders or through valve(s) in the cylinder covers? No. and type of mechanically driven scavenge pumps or blowers per engine and how driven

No. of exhaust gas driven scavenge blowers per engine Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action?

If a stand-by or emergency pump or blower is fitted, state how driven No. of scavenge air coolers Scavenge air pressure at full power Are scavenge manifold explosion relief valves fitted?

FOUR STROKE ENGINES. Is the engine supercharged? Are the undersides of the pistons arranged as supercharge pumps? No. of exhaust gas driven blowers per engine No. of supercharge air coolers per engine Supercharge air pressure Can engine operate without supercharger?

TWO & FOUR STROKE ENGINES—GENERAL. No. of valves per cylinder: Fuel Inlet Exhaust Starting Safety

Material of cylinder covers Material of piston crowns Is the engine equipped to operate on heavy fuel oil?

Cooling medium for:—Cylinders Pistons Fuel valves Overall diameter of piston rod for double acting engines

Is the rod fitted with a sleeve? Is welded construction employed for: Bedplate? Frames? Entablature? Is the crankcase separated from the

underside of pistons? Is the engine of crosshead or trunk piston type? Total internal volume of crankcase No. and total area of explosion relief

devices Are flame guards or traps fitted to relief devices? Is the crankcase readily accessible? If not, must the engine be removed for

overhaul of bearings, etc? Is the engine secured directly to the tank top or to a built-up seating Directly to the tank top. How is the engine started?

Can the engine be directly reversed? If not, how is reversing obtained?

Has the engine been tested working in the shop? How long at full power?

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 8/8/56 State barred speed range(s), if imposed

for working propeller 46/56 For spare propeller 42/52 8/7/57 Is a governor fitted? Is a torsional vibration damper or detuner fitted to the shafting?

Where positioned? Type No. of main bearings Are main bearings of ball or roller

type? Distance between inner edges of bearings in way of crank(s) Distance between centre lines of side cranks or eccentrics of opposed piston engines

Crankshaft type: Built, semi-built, solid. (State which)

Diameter of journals Diameter of crankpins Centre Breadth of webs at mid-throw Axial thickness of webs

Side Pins Minimum

If shrunk, radial thickness around eyeholes Are dowel pins fitted? Crankshaft material Journals Approved

Webs Tensile strength

Diameter of flywheel Weight Are balance weights fitted? Total weight Radius of gyration

Diameter of flywheel shaft Material Minimum approved tensile strength

Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which)

MAIN GAS TURBINES. Name and Type No.

No. of sets of turbines..... Open or closed cycle..... BHP per set..... at..... RPM of output shaft.....

How is drive transmitted to propeller shaft?.....

ARRANGEMENT OF TURBINES. HP drives..... at..... RPM..... HP gas inlet temperature..... pressure.....

IP drives..... at..... RPM..... IP gas inlet temperature..... pressure.....

LP drives..... at..... RPM..... LP gas inlet temperature..... pressure.....

No. of air compressors per set..... Centrifugal or axial flow type?..... Material of turbine blades..... Material of compressor blades.....

No. of air coolers per set..... No. of heat exchangers per set..... How are turbines started?.....

How is reversing effected?..... Are the turbines operated in conjunction with free piston gas generators?.....

Total No. of free piston gas generators..... Diameter of working pistons..... Diameter of compressor pistons..... No. of double strokes per minute at full power.....

Gas delivery pressure..... Gas delivery temperature..... Have the turbines and attached equipment been tested working in the shop?..... How long at full power?.....

ELECTRIC PROPULSION (Reciprocating engines or gas turbines. Electrical particulars to be reported on Form 4d.)

No. of generators..... kW per generator..... at..... RPM..... AC or DC?..... Position.....

No. of propulsion motors..... SHP per motor..... at..... RPM..... Position.....

How is power obtained for excitation of generators?..... Motors?.....

REDUCTION GEARING (Reciprocating engines or gas turbines. A small line sketch should be attached showing arrangement of gearing.)

Is gearing of single or double helical type?..... If single, position of gear thrust bearing..... Is gearing of epicyclic type?.....

PCD of pinions: First reduction..... Second reduction..... PCD of wheels: First reduction..... Main.....

Material of pinions..... Tensile strength..... Material of wheel rims..... Tensile strength.....

Are gear teeth surface hardened?..... How are teeth finished?..... Diameter of pinion journals..... Wheel shaft journals.....

Are the wheels of welded construction?..... Is gearcase of welded construction?..... Has the wheel/gearcase been heat treated on completion of welding?..... Where is the propeller thrust bearing located?..... Are gear bearings of ball or roller type?.....

CLUTCHES, FLEXIBLE COUPLINGS, ETC. If a clutch or other flexible connection is fitted between engine/turbine and gearing or between engine and line shafting give brief description and, for clutches, state how operated

Can the main engine be used for purposes other than propulsion when declutched?..... If so, what?.....

STRAIGHT SHAFTING. Diameter of thrustshaft..... 500 m.m. Material..... Forged Steel Minimum approved tensile strength..... 28-32Tons/in.

Shaft..... Integral with crank..... Integral with crankshaft..... Diameter of intermediate shaft..... 16" Material..... Ingot Steel

Minimum approved tensile strength..... 28-32Tons/sq. in. Diameter of screwshaft cone at large end..... 17 1/2" Is screwshaft fitted with a continuous liner?..... Yes

Diameter of tube shaft. (If these are separate shafts)..... None Is tube shaft fitted with a continuous liner in way of stern tube..... Thickness of screwshaft liner.....

bearings..... 53/64" Thickness between bearings..... 53/64" Material of screw/tube shaft..... Ingot Steel Minimum approved tensile strength..... 28-32Tons/sq. in.

Is an approved oil gland fitted?..... No If so, state type..... Length of bearing next to and supporting propeller..... 5'-6.1/8"

Material of bearing..... Lignum Vitae In multiple screw vessels is the liner between stern tube and A bracket continuous?..... If not, is the exposed length of shafting between liners readily visible in dry dock?.....

PROPELLER. Diameter of propeller..... 16.25ft. Pitch..... 13.26ft. Built up or solid..... Solid Total developed surface..... 103sq.ft.

No. of blades..... 4 Blade thickness at top of root fillet..... 7.25" (Horiz) Blade material..... Parsons Manganese Bronze Moment of inertia of dry propeller..... 33.22x10⁶ lbs/in.

If propeller is of special design, state type..... Scimitar Is propeller of reversible pitch type?..... No If so, is it of approved design?.....

State method of control..... Material of spare propeller..... Cast Iron Moment of inertia..... 307,000lbs/ft.

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine..... None Can they be declutched?.....

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate)..... 2, 125cu.ft. free air/min. Steam Engine, Starboard mid engine room. Gls. C.37951.

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate)..... 2 Main, no aux., 150cu.ft.

Ford. end engine room, one centre, one starboard. Sld. C.8565.

How are receivers first charged?..... Compressor Steam Maximum working pressure of starting air system..... 600lbs/sq. in.

accordance with the Rules?..... Yes Has the starting of the main engines been tested and found satisfactory?..... Yes

COOLERS. No. of main engine fresh water coolers..... 1 No. of main engine lubricating oil coolers..... 2

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure..... 3 Heavy Oil Fuel, machinery flat side. 1 Boiler Oil Fuel, machinery flat, starb'd side. 2 Diesel Oil Fuel, machinery flat side.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose)..... 1, Sea Water Circulating; 1, Distilled Water circulating; 1, Lub. Oil Circulating.

INDEPENDENT PUMPS Name below essential pumps, state position and how driven. Give capacity of bilge pumps.	Service for which each pump is connected to be marked thus X														Aux. Cond.
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cooling	Sea	Feed Tanks	Lub. Oil	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling
Ballast & Stand. by S.W. Circg.	X	X	X			X				X					X
Bilge	X	X	X			X				X			X		X
General Service			X			X	X			X			X		
Heavy Oil Fuel Transfer				X								X			
Diesel Oil Fuel Transfer				X								X			
Piston Cooling Oil (2)								X							X
Stand-by Forced Lub. Oil								X						X	
Stand-by D.W. Circg.					X					X					
Boiler Feed						X	X		X						
Aux. Condenser Circg.					X										X
Aux. Condenser Air									X						

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room No.1 Hold 3"P.&S: No.2 Hold 4"P.&S: No.3 Hold (Deep Tank) 2 1/2"P.&S: No.3 Hold 2nd Deck 2 1/2"P.&S: No.4 Hold 3"P.&S: No.5 Hold 3"P.&S: No.5 Hold Aft 2 1/2". Double Bottom Cofferdams:- Frs. 178-180, 2 1/2": Frs. 155-156, 2 1/2" P.&S. Engine & Boiler Rooms 4-3", 1-2", E.R. Cofferdams 2-2 1/2", 2-2" In tunnel 1-2" Drain Hat. 3" Port Mid E.R.

No. and size connected to main bilge line in main engine room Boiler Rooms 4-3", 1-2", E.R. Cofferdams 2-2 1/2", 2-2" In tunnel 1-2" Drain Hat. 3" Port Mid E.R.

In aux. engine room..... Size and position of direct bilge suction in machinery spaces..... 10" Port Mid E.R.

5" Starboard E.R. Size and position of emergency bilge suction in machinery spaces.....

Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side?..... Yes Do the piping arrangements comply with the Rules..... Yes

STEAM & OIL ENGINE AUXILIARIES

Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
Starb'd: Port E.R.	Steam	G.&J.Weir Ltd. Gls. C.37951		Air Compressor.
Starb'd: Starb'd. E.R.	Steam	G.&J.Weir Ltd. Gls. C.37951		Air Compressor.
Starb'd: Centre E.R.	Steam Compound	Clarke, Chapmans Nwc. C.56966		Electric Generator 80 K.W.
Starb'd: Port E.R.	Steam Compound	Clarke, Chapmans Nwc. C.56964		Electric Generator 80 K.W.
Starb'd: Starb'd. E.R.	Steam Compound	Clarke, Chapmans Nwc. C.56955		Electric Generator 80 K.W.

Is electric current used for essential services at sea?..... Yes If so, state the minimum No. and capacity of generators required in order that the ship may operate at sea..... 1 - 80 K.W. Generator Is an electric generator driven by Main Engine?..... No

STEAM INSTALLATION. No. of donkey boilers burning oil fuel..... 2 W.P. 180lbs/sq. in. Type..... Scotch

Position Aft End of Engine Room, Port and Starboard in separate boiler rooms.

Is a superheater fitted?..... No Are these boilers also heated by exhaust gas?..... 1 only No. of donkey boilers heated by exhaust gas only?..... None W.P. -

Type..... Position..... Can the exhaust heated boilers deliver steam directly to the steam range or do they operate only as economisers in conjunction with oil fired boilers?..... Delivery direct to steam range Port and No. of report on donkey boilers..... Newcastle No. Is steam essential for operation of the ship at sea?..... Yes Are any steam pipes over 3 ins. bore?..... Yes If so, what is their material?..... S.D. Copper For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules?..... Yes No. of oil burning pressure units..... 1 Duplex No. of steam condensers..... 1 No. of Evaporators..... 1

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars)..... Donkin Elec. Steering Gear (47 m.m.)

2 heleshaw pumps.

Have the Rule Requirements for fire extinguishing arrangements been complied with?..... Yes Brief description of arrangements..... Steam smothering 2 - galls

11 - 2 gall Foam, 2 - Sand boxes, 1 - 1 Quart Trichlorethylene Hand Pump.

Has the spare gear required by the Rules been supplied?..... Yes Has all the machinery been tried under full working conditions and found satisfactory?..... Yes Date and duration of full-power sea trials of main engines..... 27.7.57. 6 hrs. Does this machinery installation contain any features of a novel or experimental nature? (Give particulars)..... No

The foregoing description of the main engine and installation is correct and the particulars are as approved for torsional vibration characteristics (Strike out words not applicable).

FOR JOHN READHEAD & SONS LTD.

004833-004841-0078 1/2

GENERAL REMARKS

State if the machinery has been constructed and/or installed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of materials and workmanship and give recommendations for classification, including any special notation to be assigned. Where existing machinery is submitted for classification the circumstances should be explained as fully as possible.

This machinery has been built and installed in accordance with the Society's Rules, approved plans and the Secretary's letters.

The workmanship and materials used are good.

The machinery has been examined under working conditions alongside the Quay and on full power sea trials with satisfactory results and is eligible in our opinion for classification with records + L.M.C. 7/57 and notation D.B.(2) 180lbs/sq.in., T.S.(C.L.), Fitted for Oil Fuel 7/57; F.P. above 150°F.

A notice board has been fitted at the control station stating that:

Main Engine not to be run continuously between 46/56 R.P.M., and the Tachometer marked accordingly.

Main Engine not to be run continuously between 42/52 R.P.M., when the spare C.I. propeller is fitted.

J.W.WALKER.
V.H. LARSEN.

J. W. Walker & Self.
V. H. Larsen.
Engine Surveyor to Lloyd's Register of Shipping.

PARTICULARS OF IDENTIFICATION MARKS ((Including Port of origin) of important Forgings and Castings. (Copies of certificates should be forwarded with report.)

RODS

CRANKSHAFT OR ROTORSHAFT

FLYWHEEL SHAFT

THRUSTSHAFT

~~GEARBOX~~

INTERMEDIATE SHAFTS L.R. 380-387 G.H. J.W.W. 27.5.57.

SCREW ~~SHAFTS~~ Working L.R. 388 G.H: J.W.W. 3.5.57. Spare L.R. 389 G.H: J.W.W. 19.6.57.

PROPELLER ~~BRONZE~~ Bronze. R.I.H. 4212 Lloyds 27.12.56 ATM. Spare C.I. Nwc. Lloyds 3.7.57 V.H.

OTHER IMPORTANT ITEMS

Is the installation a duplicate of a previous case? No

If so, state name of vessel

Date of approval of plans for crankshaft

Straight shafting 27.7.56

Gearing

Clutch

Separate oil fuel tanks 23.1.57.

Pumping arrangements 10.5.57.

Oil fuel arrangements 10.5.57.

Cargo oil pumping arrangements

Air receivers

Donkey boilers 19.4.56.

Dates of examination of principal parts:—

Fitting of stern tube 3.5.57. Fitting of propeller 3.5.57.

Completion of sea connections 15.5.57. Alignment of crankshaft in main bearings 24.6.57

Engine checks & bolts 24.6.57.

Alignment of straight shafting 24.6.57. Testing of pumping arrangements 26.7.

Oil fuel lines 17.6.57; 8.7.57 Donkey boiler supports 21.5.57.

Steering machinery 19.7.57. Windlass 27.7.57.

Date of Committee

FRIDAY 27 SEP 1957

Decision

+ LMC (with T.V. End^L)

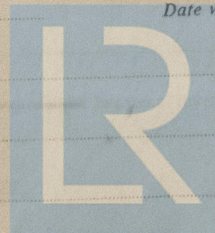
Special Survey Fee

Installation £142. 10. 0.

Donkey Boilers(2) £91. 10. 0.

Expenses

Date when A/c rendered



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