

4b.

REPORT ON OIL ENGINE MACHINERY.

No. 81627.

13 MAY 1954

Received at London Office

Writing Report H. 5. 1954 When handed in at Local Office H. 5. 1954 Port of GLASGOW
 Survey held at Glasgow Date, First Survey 23rd Aug: 1951 - Last Survey 15th April. 1954
 Number of Visits 94

Single on the Twin Triple Quadruple Screw vessel M.V. "PACIFIC STAR"
 Port Glasgow By whom built W. HAMILTON & CO. LTD. Yard No. 492 When built 1954
 Made at Glasgow By whom made DAVID ROWAN & CO. LTD. Engine No. 1239 When made 1954
 Boilers made at Glasgow By whom made DAVID ROWAN & CO. LTD. Boiler No. 1239 When made 1954
 Horse Power Maximum 6160 Service 5600 Owners BLUE STAR
 As per Rule 1232 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted YES
 for which vessel is intended OPEN SEA SERVICE

Engines, &c. - Type of Engines Rowan Doxford opposed piston 2 or 4 stroke cycle 2 Single or double acting SA.
 Maximum pressure in cylinders 640 lbs/sq. in Diameter of cylinders 670 mm Length of stroke 2320 mm No. of cylinders 5 No. of cranks 15
 Indicated Pressure 88 lbs/sq. in Side rod centres
 Span of bearings (i.e., distance between inner edges of bearings in
 of a crank) 1300 mm Is there a bearing between each crank No Revolutions per minute Maximum 122 Service 116
 Wheel dia. 2499 mm Weight 37 cwt. Moment of inertia of flywheel (lb-in² on kg-cm²) 10.75 Means of ignition Comp. Kind of fuel used H.O.
 " " " " balance wts. (" " " ")

Solid forged Semi built All built dia. of journals as per Rule App. as fitted 520 mm Crank pin dia. 520 mm Crank webs Mid. length breadth 730 mm Thickness parallel to axis 220 mm
 Mid. length thickness 220 mm shrunk Thickness around eyehole 214 mm

Wheel Shaft, diameter as per Rule as fitted 460 mm Intermediate Shafts, diameter as per Rule as fitted 17 1/2" Thrust Shaft, diameter at collars as per Rule as fitted 520 mm

Shaft, diameter as per Rule as fitted 19" Is the (tube screw) shaft fitted with a continuous liner Yes

Liners, thickness in way of bushes as per Rule as fitted 7/8" Thickness between bushes as per Rule as fitted 13/16" Is the after end of the liner made watertight in the
 liner boss Yes If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner

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-
 live Yes If two liners are fitted, is the shaft lapped or protected between the liners Is an approved Oil Gland fitted at the after
 of stern tube No If so, state type

Propeller, dia. 18'3" Pitch 12'3" No. of blades 4 Material Bronze whether moveable No Total developed surface 108.5 sq. feet
 Moment of inertia of propeller including entrained water (lb-in² on kg-cm²) 6.42 Kind of damper, if fitted Bibby detuner

Method of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine Yes Means of
 operation Forced Thickness of cylinder liners 25 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled

lined with non-conducting material lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being sucked
 to the engine Cooling Water Pumps, No. and how driven 6 - Steam driven 2 - Elect. driven Working F.W. 1 Electric

Spare F.W. 1 Steam S.W. 2 Steam Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes
 Pumps worked from the Main Engines, No. and capacity None Can one be overhauled while the other is at work

Is connected to the Main Bilge Line No. and capacity of each 1 @ 100 Ton/hr., 1 @ 170 Ton/hr., 1 @ 120 Tons/hr.
 How driven Steam

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

Oil Pumps, No. and capacity 1 @ 106 T/hr. Power Driven Lubricating Oil Pumps, including spare pump, No. and size 1 - Steam 1 - El. Verteil 60 T/hr.
 Are independent means arranged for circulating water through the Oil Cooler Yes Branch Bilge Suctions

Size: - In machinery spaces 3 1/2" each P.S. Ford Wells, 3 1/2" Aft Well, 2" each P.S. oily bilge In pump rooms Main 4", Ford 2 1/2"
 Suctions, &c. Fore Hold 2 1/2" P.S., 2 1/2" F.P. flat

Bilge Suctions to the engine room bilges, No. and size 5" Aft Well, 3 1/2" oily bilge Ford Stbd., 8" Port Emergency bilge

Are 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

Sea Connections fitted direct on the skin of the Ship Yes Are they fitted with valves or cocks Yes Are they fixed
 entirely 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 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 brass covering plate Yes
 pipes pass through the bunkers None How are they protected

Are the pipes pass through the deep tanks Have they been tested as per Rule

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

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
 or from one compartment to another Yes Is the shaft tunnel watertight Is it fitted with a watertight door worked from

Food vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

Air Compressors, No. - No. of stages - diameters - stroke - driven by -

Primary Air Compressors, No. 2 @ 125 cu ft/min No. of stages 3 diameters 1 1/2", 9 1/2", 2 1/2" stroke 7" driven by Steam

Auxiliary Air Compressors, No. - No. of stages - diameters - stroke - driven by -

Provision is made for first charging the air receivers Steam driven compressors
 Charging Air Pumps or Blowers, No. One centre How driven Main Engine crankshaft

Have they been made under survey Yes 2 Diesel, 1 Steam Engine Nos. Diesels P 169/70, S 1645727
 Makers name British Polar, Sunderland Forge Position of each in engine room Diesels E.B. from Port side
 d. & Aft. Steam E.R. Platform Port side Ford E.R. Report No. GLS FEN 79436, SLD C 3432

012591-012597-0275

AIR RECEIVERS:—Have they been made under survey Yes ✓ State No. of report or certificate GLS. C 1163

State full details of safety devices Relief Valve and fusible plug on each receiver ✓

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 —

Starting Air Receivers, No. Two ✓ Total cubic capacity 150 ft³ each ✓ Internal diameter 4.6" ✓ thickness 1 1/4" ✓

Seamless, welded or riveted longitudinal joint Welded Material Steel ✓ Range of tensile strength Shell 28/32 Tons ✓ Working pressure 60 ✓

ARE DONKEY BOILERS 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 Yes (If not, state date of approval) Receivers Yes Separate fuel tank —

Donkey boilers Yes General pumping arrangements S/B Pumping arrangements in machinery space 4/6/52

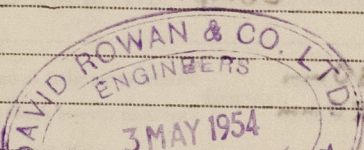
Oil fuel burning arrangements 4/6/52

Have Torsional Vibration characteristics been approved Yes Date and particulars of approval 16/4/52 for a service

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes State if for "short voyages" only of 116 r.p.m. engine not operated continuously

State the principal additional spare gear supplied Spare Gear list attached



Robert Donald for David Rowan & Co. Ltd. Manufacturer.

Dates of Survey while building: During progress of work in shops 1951 Aug. 23-29 Sep. 24-25 Oct. 21-1952 Oct. 14-24 Dec. 22-1953 Jan. 8-21-23 Feb. 5-12-23 Mar. 5-16-23 Apr. 1-30-24

During erection on board vessel 17-24-25 July 2-3-13 Aug. 12-13-18-20-21-24-26-27 Sep. 1-2-3-4-9-10-11-14-15-16-17-19-24-25-29 Oct. 2-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30 Nov. 2-3-5-11 Dec. 3-7-14-15-17-1954 Jan. 9-18-27-28-29 Feb. 1-2-5-10-11-12-13-19-23-26 Mar. 1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30 Apr. 2-6-15

Total No. of visits 94

Dates of examination of principal parts—Cylinders 26/12/52 Covers — Pistons 18/8/52-18/9/53 Rods 15/9/53 Connecting rods 15/9/53

Crank shaft 1/9/53 Flywheel shaft 1/9/53 Thrust shaft 1/9/53 Intermediate shafts 19/8/53 Tube shaft —

Screw shaft 28/8/53 Propeller 15/1/54 Stern tube 11-12/1/54 Engine seatings 20/1/54 Engine holding down bolts 15/3/54

Completion of fitting sea connections 20/1/54 Completion of pumping arrangements 2/4/54 Engines tried under working conditions 15/4/54

Crank shaft, material Steel Identification mark 21765 Flywheel shaft, material Steel Identification mark 21765

Thrust shaft, material Steel Identification mark 21765 Intermediate shafts, material Steel Identification marks 21765

Tube shaft, material — Identification mark — Screw shaft, material Steel Identification mark 21765

Identification marks on air receivers Lloyds 1105 1295, 1296, TP 950 lbs, WP 600 lbs.

HW 16-6-53

Welded receivers, state Makers' Name Cochran & Co. Ltd. Annan. ✓ No. K3029, K3030

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 ✓

Full description of fire extinguishing apparatus fitted in machinery spaces 2-10 gall. froth exting. 8" 2 gall. froth exting. 4 lengths fire

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

What is the special notation desired Carrying Petroleum in bulk ✓

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, Speed restrictions, &c. The machinery has been

constructed, and efficiently installed aboard the Vessel, under Special Survey, and in acco

with the Rules and approved plans, the materials and workmanship being found good.

The machinery was tested under full working conditions and found satisfactory, the weld

structure being examined under load. A notice board has been placed at the control st

stating that the engine is not to be operated continuously between 66 and 78 r.p.m. and the

tachometer marked accordingly.

The machinery is in my opinion eligible to be classed in the Register Book with the

Record + LMC 4.54, with notations 2 DB 180 lbs., C.L., Oil engine (with torsional endorsement)

a suitable entry to be made in the S.R.L

The amount of Entry Fee Const. £234-00

Special Install. £132-00 When applied for 11 MAY 1954

Donkey Boiler Fee... £ : When received 10

Travelling Expenses (if any) £ 2-4-0

Committee's Minute GLASGOW 11 MAY 1954

Assigned + LMC. H. 54. Oil Engine

with torsional endorsement

2 DB. -180 lb.

John MacLeod.

Engineer Surveyor to Lloyd's Register of Shipping

Lloyd's Register Foundation