

## Report on Steam Turbine Machinery. No. 109482

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When handed in at Local Office 19<sup>th</sup> Sept 52 Port of Newcastle upon Tyne

Survey held at Walker-on-Tyne Date, First Survey 3<sup>rd</sup> March Last Survey 28<sup>th</sup> August 1952

Book (Number of Visits 14)

on the B.W. 188. — ss 'RUSHWOOD'

at South Shields By whom built J. Readhead & Sons Ltd Yard No. 574 When built 1952

nes made at South Shields By whom made J. Readhead & Sons Ltd Engine No. 574 When made 1952

ns made at Walker-on-Tyne By whom made J. Readhead & Sons Ltd Boiler No. 188 When made 1952

OF TURBINE Horse Power at Full Power 773 Owners WM. FRANK PENNICK & CO. LTD. Port belonging to LONDON

Horse Power as per Rule Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

de for which Vessel is intended OCEAN GOING

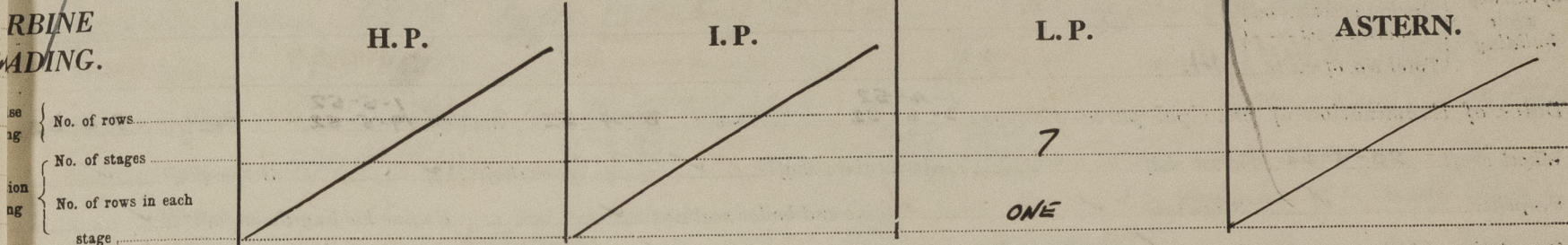
## STEAM TURBINE ENGINES, &amp;c.—Description of Engines Bauer-Wach I.P. Turbine with D.R. Gearings &amp; Hydraulic Coupling

of Turbines Ahead ONE Direct coupled, single reduction geared to ONE propelling shafts. No. of primary pinions to each set of reduction gearing ONE

st coupled to Alternating Current Generator phase periods per second rated Kilowatts Volts at revolutions per minute; Direct Current Generator

upplying power for driving Propelling Motors, Type

d Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.



ft Horse Power at each turbine H.P. — I.P. — L.P. 773

Revolutions per minute, at full power, of each Turbine Shaft H.P. — I.P. — L.P. 3472

or Shaft diameter at journals H.P. — I.P. — L.P. 125 7/8

Pitch Circle Diameter 1st pinion 217.2225 1st reduction wheel 1515.1249 2nd pinion 342.12547 main wheel 1998.4469 265 M.M. FORD. 225 7/8 AFT.

Width of Face 1st reduction wheel 260 7/8 main wheel 600 7/8 1560 M.M. FORD. 360 7/8 AFT.

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 422.5 7/8 main wheel 525 7/8

able Pinion 1st 115 7/8 2nd —

Pinion Shafts, diameter at bearings External 1st 125 7/8 2nd 320 7/8 Internal 1st — 2nd 250 7/8

diameter at bottom of pinion teeth 1st 202.5771 2nd 327.48 7/8

Wheel Shafts, diameter at bearings 1st 250 7/8 AFT. 500 7/8 EXT. 400 7/8 INT.

Generator Shaft, diameter at bearings 1st 1445 7/8 main 1908 7/8

Propelling Motor Shaft, diameter at bearings as per rule 13.64 as fitted 13.98

Thrust Shaft, diameter at collars as per rule 13.64 as fitted 13.98

Intermediate Shafts, diameter as per rule as fitted

Screw Shaft, diameter as per rule as fitted

Is the tube shaft fitted with a continuous liner

Is the after end of the liner made watertight in the

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

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

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

ft If so, state type Length of Bearing in Stern Bush next to and supporting propeller

opeller, diameter Pitch No. of Blades State whether Moveable Total Developed Surface square feet.

Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine No Can the H.P. or I.P. Turbines exhaust direct to the

ndenser No. of Turbines fitted with astern wheels Feed Pumps No. and size How driven

mps connected to the Main Bilge Line No. and size How driven

Lubricating Oil Pumps, including Spare Pump, No. and size 2-9'x8'x18"

Oil Cooler Suctions, connected both to Main Bilge Pumps and Auxiliary In Pump Room

Holds, &c.

ain Water Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room

lges, No. and size Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes

re the Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges

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

re they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Overboard Discharges above or below the deep water

re Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass

vering plate What pipes pass through the bunkers How are they protected

ng. hat pipes pass through the deep tanks Have they been tested as per rule

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

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

aces, or from one compartment to another Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from

ILERS, &c.—(Letter for record) Total Heating Surface of Boilers

Forced Draft fitted No. and Description of Boilers Working Pressure

a Report on Main Boilers now forwarded?



Is { a Donkey } Boiler fitted? ☒ If so, is a report now forwarded? ☒  
{ an Auxiliary }  
Is the donkey boiler intended to be used for domestic purposes only? ☒  
Plans. Are approved plans forwarded herewith for Shafting. <sup>RETAINED</sup> 17-4-51 Main Boilers. ☒ Auxiliary Boilers. ☒ Donkey Boilers. ☒  
(If not, state date of approval)  
Superheaters. ☒ General Pumping Arrangements. ☒ Oil Fuel Burning Arrangements. ☒  
Geared turbines ☒ Have torsional vibration characteristics of system been approved. ☒ Date of approval. ☒  
situated aft.

### SPARE GEAR.

Has the spare gear required by the Rules been supplied? ☒  
State the principal additional spare gear supplied. *One bearing of each size fitted. One set of thrust pads for each thrust bearing. One spring and one set of washers for emergency governor.*

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops - (1952) MAR 3, 25, 28, APR 1, 8, 22, MAY 1, 19, JUNE 9, AUG 12, 15, 20, 24, 28 }  
{ During erection on board vessel - - - }  
Total No. of visits. 14.

Dates of Examination of principal parts—Casings. 1-4-52 3-3-52 Rotors. 8-4-52 Blading. 1-5-52 19-5-52 Gearing. 9-6-52  
Wheel shaft. 20-8-52 Thrust shaft. ☒ Intermediate shafts. ☒ Tube shaft. ☒ Screw shaft. ☒  
Propeller. ☒ Stern tube. ☒ Engine and boiler seatings. ☒ Engine holding down bolts. ☒  
Completion of fitting sea connections. ☒ Completion of pumping arrangements. ☒ Boilers fixed. ☒ Engines tried under steam. 28-8-52  
Main boiler safety valves adjusted. ☒ Thickness of adjusting washers. ☒  
Rotor shaft, Material and tensile strength. O.H. Ingot Steel 36 TONS Identification Mark. 22227. H.A.I. 401  
Pinion Shaft, Material and tensile strength. Nickel Steel 47-51 TONS Identification Mark.  
Pinion shaft, Material and tensile strength. Nickel Steel 43-44.5 TONS Identification Mark. 22227. H.A.I. 402  
; Chemical analysis. As per Rule Requirements

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment. As per Rule Requirements  
1st Reduction Wheel Shaft, Material and tensile strength. O.H. Ingot Steel 30-31 TONS Identification Mark. 22227. H.A.I. 403  
Wheel shaft, Material. O.H. Ingot Steel Identification Mark. 22227. H.A.I. 404 Thrust shaft, Material. O.H. Ingot Steel Identification Mark. 22227. H.A.I. 405  
Intermediate shafts, Material. ☒ Identification Marks. ☒ Tube shaft, Material. ☒ Identification Marks. ☒  
Screw shaft, Material. ☒ Identification Marks. ☒ Steam Pipes, Material. ☒ Test pressure. ☒  
Date of test. ☒ Is an installation fitted for burning oil fuel. ☒  
Is the flash point of the oil to be used over 150°F. ☒ Have the requirements of the Rules for the use of oil as fuel been complied with. ☒  
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 a duplicate of a previous case. No If so, state name of vessel. ☒

General Remarks. (State quality of workmanship, opinions as to class, &c.)

Conc coupling. O.H. Steel 35 TONS/0". 22227. H.A.I. 411.

1st red. gear wheel reins O.H. Steel 32 TONS 22227. H.A.I. 406.

2nd " " " " 31 TONS 22227. H.A.I. 407.

This machinery has been constructed under Special Survey in accordance with the Secretary's Letter, Approved Plans and Rule Requirements.

The material and workmanship is good.

On completion the turbine was tested under steam with speeds up to 4350 RPM. The governor was adjusted to operate at 4200 RPM (Normal 4350 RPM).

The machinery has been despatched to South Shields for installation in Readhead's Engine

N° 574.

### SURVEY OF MACHINERY. NEWCASTLE-ON-TYNE.

This turbine has been satisfactorily installed aboard the S.S. KUSHWOOD.

The amount of Entry Fee ... £ 24 : 0 :  
Special ... £ : :  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ : :  
When applied for. 22 SEP 1952  
When received. 19.

John Walker  
SURVEYOR TO LLOYD'S  
NEWCASTLE-ON-TYNE  
John Tindley & Co.  
Engineers Surveyors to Lloyd's Register of Shipping.



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(The Committee's Minute)

FRI. 19 JUN 1953

Assigned. See F.E. Welch, rpt.