

RECEIVED
1946

REPORT ON STEAM TURBINE MACHINERY. No/03730

Date of writing Report 19 30.5.46 Port of NEWCASTLE-ON-TYNE Received at London Office 1 JUN 1946 OCT 19

No. in Survey held at Newcastle on Tyne Date, First Survey (1946) Apr. 16 Last Survey May 27th 1946
Reg. Book. on the STEEL SCREW STEAMER "MALMO" (Number of Visits 7)

Built at WEST HARTLEPOOL By whom built WM GRAY & CO. Yard No. 1191 When built 1946
Engines made at West Hartlepool By whom made Central Max Eng Works Engine No. 1191 When made 1946
B.W. TURBINE See lists attached. By whom made Swan Hunter Wigham Richardson TURBINE No. B.W.160 When made 1946
Boilers made at Newcastle Owners ELLESMANS WILSON LINE Port belonging to HULL
Shaft Horse Power at Full Power 700 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted
Nom. Horse Power as per Rule 167 Trade for which Vessel is intended OCEAN GOING.

STEAM TURBINE ENGINES, &c.—Description of Engines BAUERWACH L.P. TURBINE WITH D.R. GEARING VULCAN COUPLING
No. of Turbines Ahead ONE Direct coupled, single reduction geared } to ONE propelling shafts. No. of primary pinions to each set of reduction gearing ONE
Astern double reduction geared }
Direct coupled to { Alternating Current Generator phase periods per second { rated Kilowatts Volts at revolutions per minute;
Direct Current Generator }
For supplying power for driving Propelling Motors, Type

TURBINE STAGING.	H.P.			I.P.			L.P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1st EXPANSION												
2nd							46	642	1			
3rd							61	672	1			
4th							76	702	1			
5th							92	734	1			
6th							110	770	1			
7th							130	810	1			
8th							150	850	1			
9th												
10th												
11th												
12th												
13th												
14th												
15th												

Shaft Horse Power at each turbine { H.P. I.P. L.P. 700 }
Revolutions per minute, at full power, of each Turbine Shaft { H.P. I.P. L.P. 4720 }
1st reduction wheel 731
main shaft 115
Generator Shaft diameter at journals { H.P. I.P. L.P. 125 }
Pitch Circle Diameter { 1st pinion 206.3614 1st reduction wheel 1330.497 Width of Face { 1st reduction wheel 225
2nd pinion 309.541 main wheel 1911.5518 Face { main wheel 400
227.5 AFT 2nd reduction wheel 882.5 AFT
242.5 FOR 1st reduction wheel 1467.5 FOR
2nd pinion 390 main wheel 480

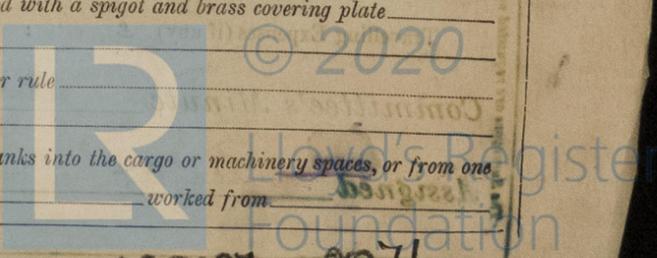
Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 242.5 1st reduction wheel 1467.5
2nd pinion 390 main wheel 480
External 1st 115 2nd 280 diameter at bottom of pinion teeth { 1st 191.716
Internal 2nd 230 diameter at bottom of pinion teeth { 2nd 294.8966
Steel Shafts, diameter at bearings { 1st 190 AFT 1st 1260 Generator Shaft, diameter at bearings
main 440 diameter at wheel shroud, { main 1820 Propelling Motor Shaft, diameter at bearings
Intermediate Shafts, diameter as per rule Thrust Shaft, diameter at collars as per rule 10.72
as fitted as fitted 290 (11.41)

Tube Shaft, diameter as per rule Screw Shaft, diameter as per rule
as fitted as fitted Is the { tube } shaft fitted with a continuous liner {
as fitted as fitted Is the after end of the liner made watertight in the
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
If so, state type Length of Bearing in Stern Bush next to and supporting propeller

Propeller, 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 Can the H.P. or I.P. Turbine exhaust direct to the
Condenser No. of Turbines fitted with astern wheels Feed Pumps { No. and size How driven
Pumps connected to the Main Bilge Line { No. and size How driven
Main Pumps, No. and size Lubricating Oil Pumps, including S₁ are Pump, No. and size Two - 8" x 7" x 18"
Two independent means arranged for circulating water through the Oil Cooler Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge
Pumps, No. and size:—In Engine and Boiler Room In Pump Room
Colds, &c.

Water Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room
No. and size Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes
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
All Sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks
Are 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 line
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 covering plate
How are they protected
How are they protected
Have they been tested as per rule
All Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times
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
Department to another Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from

005089-005097-0071



BOILERS, &c.—(Letter for record) Total Heating Surface of Boilers
 Is Forced Draft fitted No. and Description of Boilers Working Pressure

Is 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 Main Boilers Auxiliary Boilers Donkey Boilers
 (If not state date of approval) *See attached letter from M.V.C. 18.6.46*

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied

State the principal additional spare gear supplied *One bearing for each size fitted*
" set of thrust pads for each thrust bearing
" spring one set of washers for emergency governor
" coupling bolt nut for 1st reduction pinion shaft
" " " " " 2nd " wheel "

SWAN, HUNTER, & WIGHAM RICHARDSON LTD. *P.L. Jones* Manufacture

The foregoing is a correct description,

Dates of Survey *(1946) Apr. 16, 18, 23, 29 May 2, 22, 27*
 (During progress of work in shops --)
 while building (During erection on board vessel ---)
 Total No. of visits *7*

Dates of Examination of principal parts—Casings *18-4-46* Rotors *18-4-46* Blading *18-4-46* Gearing *23-4-46*

Wheel shaft *23-4-46* Thrust shaft *23-4-46* 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 fired Engines tried under steam

Main boiler safety valves adjusted Thickness of adjusting washers

Rotor shaft, Material and tensile strength *O.H. STEEL 38.4 Jms a* Identification Mark *14321 T 57*

1st REDUCTION Flexible Pinion Shaft, Material and tensile strength *O.H. STEEL 48.0 Jms a* Identification Mark *14321 T F 6*

2nd REDUCTION Pinion shaft, Material and tensile strength *O.H. STEEL 48.5 Jms a* Identification Mark *14321 T F 6*

1st Reduction Wheel Shaft, Material and tensile strength *O.H. STEEL 31.4 Jms a* Identification Mark *14321 T 57*

2nd Wheel shaft, Material Identification Mark Thrust shaft, Material *O.H. STEEL* Identification Mark *14321 T 5*

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 If so, state name of vessel

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

This machinery has been constructed under special survey in accordance with rule requirements & approved plans.
Materials & workmanship are good.
This machinery has been sent to Central Marine Eng. Works - West Hartlepool.
This machinery has now been satisfactorily fitted and tried in full working conditions and found satisfactory.
Arthur W. Oxford
West Hartlepool.

The amount of Entry Fee ... £	:	:	When applied for,
Special ... £ 00	:	14	31 MAY 1946
Donkey Boiler Fee ... £	:	:	When received,
Travelling Expenses (if any) £	:	:	19

J. G. Matthews
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 8 NOV 1946**

Assigned *See F.E. Welch. rpt.*

