

# REPORT ON STEAM TURBINE MACHINERY. No. 19536

Date of writing Report 22-4-1954 When handed in at Local Office 22-4-1954 Port of West Hartlepool Received at London Office 23 APR 1954

No. in Survey held at Hartlepool Reg. Book. Hartlepool Date, First Survey 11<sup>th</sup> Sept., 1952, Last Survey 21<sup>st</sup> April, 1954. (Number of Visits 190)

on the S.S. "MELIKA" Built at Haverton Hill-on-Tees By whom built Furness Shipbuilding Co Yard No. 462 When built 1954  
Engines made at Hartlepool By whom made Richardsons Westgarth (H.P.) Ltd Engine No. 2787 When made 1954  
Boilers made at Hartlepool By whom made Richardsons Westgarth (H.P.) Ltd Boiler No. 2787 When made 1954  
Shaft Horse Power at Full Power 13,750 HP Owners Afran Transport Co NY U.S.A Port belonging to  
Nom. Horse Power as per Rule \_\_\_\_\_ Is Refrigerating Machinery fitted for cargo purposes \_\_\_\_\_ Is Electric Light fitted Yes  
Trade for which Vessel is intended \_\_\_\_\_

## STEAM TURBINE ENGINES, &c.—Description of Engines Double Reduction geared Turbines

No. of Turbines 2 Direct coupled. single reduction geared double reduction geared to ONE propelling shafts. No. of primary pinions to each set of reduction gearing Two

direct coupled to Alternating Current Generator phase periods per second rated Kilowatts Volts at revolutions per minute;  
for supplying power for driving Propelling Motors, Type

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

No. of Rows	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	1.14"	33"	1				Row No					
2ND	1.73	33.62	1				1. 2.29"	34.9"				
3RD	REACTION						3. 2.80"	38.5"				
4TH	1.53	19.35					5. 3.28"	41.3"				
5TH	1.67	19.77					7. 3.72"	44.4"				
6TH	1.85	20.68					9. 4.46"	47.6"				
7TH	2.01	21.60					11. 5.60"	51.3"				
8TH	2.20	22.61					13. 6.51"	55.5"				
9TH	2.52	23.90					15. 9.25"	61.0"				
10TH	2.74	24.92					17. 12.34"	67.3"				
11TH	2.97	25.90										
12TH												
TOTAL Rows	26						TOTAL Rows 17			TOTAL Rows 6		

Shaft Horse Power at each turbine H.P. 6,250 I.P. - L.P. 6,250 Revolutions per minute, at full power, of each Turbine Shaft H.P. 4,350 I.P. - L.P. 3,009

Rotor Shaft diameter at journals H.P. 6" I.P. - L.P. 7.5" Pitch Circle Diameter 1st pinion L.P. 14.7528 1st reduction wheel 63.4159 2nd pinion L.P. 23.1305 main wheel 154.4605 Width of Face 1st reduction wheel 25.3600 main wheel 46.3600

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion H.P. - 12 1st reduction wheel 12 9/16" 2nd pinion H.P. - 7" main wheel 2'-0"

Flexible Pinion Shafts, diameter 1st 8 1/2" Pinion Shafts, diameter at bearings External 1st 15" Internal 1st 10 1/4" 2nd 10 1/4" diameter at bottom of pinion teeth 1st H.P. - 14.6370 MR-19-9693 2nd MR-22-2823

Wheel Shafts, diameter at bearings 1st 10" diameter at wheel shroud, 1st 4-11 3/8 8 1/2" Generator Shaft, diameter at bearings main 12-5 1/2 8 5/8" Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter as per rule 20.12" as fitted 20 1/4" Thrust Shaft, diameter at collars as per rule 21.13" as fitted 21 3/8"

Tube Shaft, diameter as per rule as fitted Screw Shaft, diameter as per rule 21.89" as fitted 22 5/8" Is the shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per rule as fitted 1 1/8" Thickness between bushes as per rule as fitted 1 1/16" Is the after end of the liner made watertight in the propeller boss Yes

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner Yes  
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 Yes  
If two liners are fitted, is the shaft lapped or protected between the liners Yes Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft Yes If so, state type Length of Bearing in Stern Bush next to and supporting propeller 7'-6 5/8"

Propeller, diameter 21'-0" Pitch 16'-0" No. of Blades 4 State whether Moveable NO Total Developed Surface 205 square feet.  
If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine YES Can the H.P. or L.P. Turbine exhaust direct to the Condenser YES

No. of Turbines fitted with astern wheels 2 Feed Pumps No. and size How driven

Pumps connected to the Main Bilge Line No. and size How driven  
Ballast Pumps, No. and size \_\_\_\_\_ Lubricating Oil Pumps, including S<sub>1</sub> are Pump, No. and size \_\_\_\_\_

Are 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 \_\_\_\_\_

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

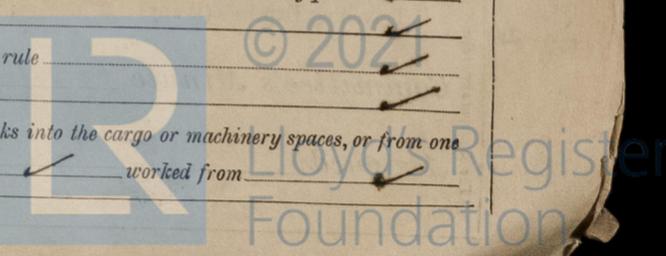
Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes \_\_\_\_\_  
Are the Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges \_\_\_\_\_

Are 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 \_\_\_\_\_  
That pipes pass through the bunkers \_\_\_\_\_ How are they protected \_\_\_\_\_  
That pipes pass through the deep tanks \_\_\_\_\_ Have they been tested as per rule \_\_\_\_\_

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times \_\_\_\_\_  
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 \_\_\_\_\_ Is the Shaft Tunnel watertight \_\_\_\_\_ Is it fitted with a watertight door \_\_\_\_\_ worked from \_\_\_\_\_

014335-014348-0272



BOILER 6,680 SQ FT  
 SUPERHEATER 1,600 SQ FT  
 ECONOMISER 8,385 SQ FT } ONE CASE

BOILERS, &c.—(Letter for record 28-11-51) Total Heating Surface of Boilers

Is Forced Draft fitted YES No. and Description of Boilers 2-FOSTER WHEELER D TYPE MARINE Working Pressure 600 lbs

Is a Report on Main Boilers now forwarded? YES

Is a Donkey Boiler fitted? ✓ If so, is a report now forwarded? ✓

Is the donkey boiler intended to be used for domestic purposes only ✓

Plans. Are approved plans forwarded herewith for Shafting 10-2-53 Main Boilers 28-11-51 Auxiliary Boilers ✓ Donkey Boilers ✓  
 (If not state date of approval) 15-5-53 28-1-54

Superheaters 28-12-51 General Pumping Arrangements ✓ Oil Fuel Burning Arrangements ✓

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes

State the principal additional spare gear supplied Propeller shaft, Bronze Propeller, Pads for each side of Main Thrust, One Turbine Wheel with shaft, One set of Impeller for Turbo Feed pumps, Spare rotor and shaft for each centrifugal pump.

All necessary small spares and Special Tools for the maintenance of the auxiliary machinery, 1 set of bearings, 1 set of Stator coils and 1 set of Slot Insulation for each size of motor fitted, 1 Rotor complete with shaft coupling, 1 set of Stator coils and Slot Insulation, 1 set of bearings for Diesel generators.

For RICHARDSONS WESTGARTH (HARTLEPOOL) LIMITED.

The foregoing is a correct description,

J. G. Smith Manufacture

Dates of Survey while building	During progress of work in shops --	1952. Sept. 11-24-29. Oct. 16-17-21-27-29. Nov. 4-6-12-19-27. Dec. 2-18-30-31. 1953. Jan. 7. Feb. 3-6-9-12-19-23. March 6-11-17-24-26. April 1-2-8-10-17. May 4-5-7-12-19-28. June 17-18-19-22-25-26-30. July 3-7-8-9-14-16-17-21. Aug. 11-14-17-24-25. Sept. 2-3-7-8-9-10-14-15-17-18-21-23-24-25-30. Oct. 2-7-9-12-13-16-17-23-26-28-29-31. Nov. 1-5-6-7-13-14-15-18-19-21-22-23-28-29-30. Dec. 1-3-4-7-8-9-11-14-17-18-19-21-22-23-28-29-30. 1954. Jan. 4-5-6-7-13-14-15-18-19-21-22-23-28-29-30. Feb. 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26. March 1-2-3-4-5-8-9-11-12-15-16-17-18-19-22-23-24-25-26-28-29-30. April 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. May 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. June 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. July 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. Aug. 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. Sept. 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. Oct. 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. Nov. 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. Dec. 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30.
	During erection on board vessel --	23. Aug. 11-14-17-24-25. Sept. 2-3-7-8-9-10-14-15-17-18-21-23-24-25-30. Oct. 2-7-9-12-13-16-17-23-26-28-29-31. Nov. 1-5-6-7-13-14-15-18-19-21-22-23-28-29-30. Dec. 1-3-4-7-8-9-11-14-17-18-19-21-22-23-28-29-30. 1954. Jan. 4-5-6-7-13-14-15-18-19-21-22-23-28-29-30. Feb. 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. March 1-2-3-4-5-8-9-11-12-15-16-17-18-19-22-23-24-25-26-28-29-30. April 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. May 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. June 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. July 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. Aug. 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. Sept. 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. Oct. 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. Nov. 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30. Dec. 1-2-3-4-5-8-9-10-11-12-15-17-18-19-23-24-25-26-28-29-30.
	Total No. of visits	190.

Dates of Examination of principal parts—Casings H.P. 6-1-54 Rotors H.P. 5-3-54 Blading 5-4-54 Gearing Newcastle No 111137

Wheel shaft Thrust shaft 25-8-53 Intermediate shafts 1-22-1-54 Tube shaft 15-2-54 Screw shaft 28-10-53

Propeller ✓ Stern tube 9-10-53 Engine and boiler seatings ✓ Engine holding down bolts ✓

Completion of fitting sea connections ✓ Completion of pumping arrangements ✓ Boilers fixed ✓ Engines tried under steam ✓

Main boiler safety valves adjusted ✓ Thickness of adjusting washers ✓

Rotor shaft, Material and tensile strength S.M. Acid O.H. Steel 3/4" Dia Identification Mark FRD. 6922 D.P. AFT. 6916 D.P.

Flexible Pinion Shaft, Material and tensile strength See Newcastle Report No 111137 Identification Mark ✓

Pinion shaft, Material and tensile strength as above Identification Mark ✓

1st Reduction Wheel Shaft, Material and tensile strength as above Identification Mark ✓

Wheel shaft, Material Newcastle RPT 111137 Identification Mark ✓ Thrust shaft, Material S.M. Acid O.H. Steel Identification Mark 7170 D.P.

Intermediate shafts, Material S.M. Acid O.H. Steel Identification Marks 1-6883 D.P. 2-7379 T.W.B. 1-6631 D.P. 2-6575 D.P. Tube shaft, Material ✓ Identification Marks ✓

Screw shaft, Material S.M. Acid O.H. Steel Identification Marks 2-6575 D.P. 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.) The machinery of this vessel has been constructed under special survey and in accordance with the approved plans Secretary's letters and the rules of the Society. The materials and workman are good. The machinery has been despatched to Haverton Hill-on-Tees for installation on board the vessel (Ship No 462) This machinery will be in my opinion eligible for notation L.M.C. with date when satisfactory trials have been completed

The amount of Entry Fee ...	£ 198 : 17	When applied for, 22-4-1954
Special WELDING ...	£ 15 : 0	
Donkey Boiler Fee ...	£ :	When received,
Travelling Expenses (if any) ...	£ :	19

H. A. Wilson  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUESDAY 7 - DEC 1954

Assigned See Rpt. 49.

