

pt. 4a.

## Report on Steam Turbine Machinery.

No. 80755

Date of writing Report 4.8.1953 When handed in at Local Office 10.4.1953 Port of Glasgow Received at London Office 19 AUG 1953  
No. in Survey held at DUMBARTON Date, First Survey 25.10.51 Last Survey 31.7.1953  
Reg. Book (Number of Visits 11)

on the S.S. GEORGE  
Built at DUMBARTON By whom built W.M. DENNY & BROS LTD Yard No. 1460 Tons Gross 9150 Net 5262  
Engines made at DUMBARTON By whom made W.M. DENNY & BROS LTD Engine No. 1196 When built 1953  
Boilers made at DUMBARTON By whom made W.M. DENNY & BROS LTD Boiler No. 1196 When made 1953  
Horse Power at Full Power 5500 Owners Port belonging to  
Horse Power as per Rule Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted  
made for which Vessel is intended

## STEAM TURBINE ENGINES, &amp;c.—Description of Engines ONE SET OF PARSON'S SINGLE REDUCTION GEARED TURBINES

Ahead 3 Direct coupled, single reduction geared to ONE propelling shaft No. of primary pinions to each set of reduction gearing 3  
Aster 2 double reduction geared  
Direct coupled to Alternating Current Generator phase periods per second  
Direct Current Generator rated Kilowatts Volts at revolutions per minute;  
supplying power for driving Propelling Motors, Type  
rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE		H. P.		I. P.		L. P.		ASTERN.	
LOADING.									
No. of rows	No. of stages	2	—	—	—	3	2		
		4	5	9	—	5			
No. of rows in each stage		12	8	3-2-2-2-1-1-1-1-1	—	2			

Horse Power at each turbine H.P. 1833 I.P. 1833 L.P. 1833  
Revolutions per minute, at full power, of each Turbine Shaft H.P. 1950 I.P. 1950 L.P. 1950  
1st reduction wheel — main shaft 97

Shaft diameter at journals H.P. 6" I.P. 7 1/2" L.P. 7 1/2" Pitch Circle Diameter  
1st pinion 7.713" 1st reduction wheel — 2nd pinion — main wheel 155.755  
Width of Face 1st reduction wheel — main wheel 2 x 19.5"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 16" x 29 1/8" 1st reduction wheel —  
2nd pinion — main wheel 6" x 38 3/8"  
Pinion Shafts, diameter at bearings External 1st 6 1/2" 2nd — diameter at bottom of pinion teeth 1st 7.1364 2nd —

Pinion Shafts, diameter at bearings 1st — 2nd — Generator Shaft, diameter at bearings —  
Main 19" diameter at wheel shroud, main 150.75 Propelling Motor Shaft, diameter at bearings —

Intermediate Shafts, diameter as per rule as approved as fitted 16" Thrust Shaft, diameter at collars as per rule as approved as fitted 16 3/4"

Shaft, diameter as per rule as fitted — Screw Shaft, diameter as per rule as fitted 18" 4 1/4" 18 1/2" 18" Is the tube screw shaft fitted with a continuous liner Yes

Liners, thickness in way of bushes as per rule as approved as fitted 7" aft 15" 18" Thickness between bushes as per rule as fitted 13/16" Is the after end of the liner made watertight in the peller boss Yes

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 Yes  
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 No

If so, state type — Length of Bearing in Stern Bush next to and supporting propeller 72" ✓  
Peller, diameter 18'-0" Pitch 16'-3" No. of Blades 4 State whether Moveable No Total Developed Surface 115 square feet.  
Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes Can the H.P. or I.P. Turbines exhaust direct to the denser Yes

No. of Turbines fitted with astern wheels 2 Feed Pumps No. and size 2 - 60,000 lbs/hr each  
How driven Steam Turbo drive  
Pumps connected to the Main Bilge Line No. and size 1 - 100 Ton/hr 1 - 250 Ton/hr 1 - 75 Ton/hr  
How driven Steam Reciprocating

Last Pumps, No. and size 1 - 250 Ton/hr 1 - 100 Ton/hr Lubricating Oil Pumps, including Spare Pump, No. and size 2 - 9000 GPH each  
Two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected both to Main Bilge Pumps and Auxiliary  
Pumps, No. and size:—In Engine and Boiler Room 2 @ 6" 2 @ 3" 1 @ 1 1/2" In Pump Room —

Folds, &c. 9 @ 3" 2 @ 3 1/2" In Water Circulating Pump Direct Bilge Suctions, No. and size 1 @ 15" Independent Power Pump Direct Suctions to the Engine Room  
No. and size 2 @ 6" Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes

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 Yes  
All Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Yes

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Overboard Discharges above or below the deep water Below 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 What pipes pass through the bunkers None How are they protected —  
What pipes pass through the deep tanks Bilge & Ballast Have they been tested as per rule Yes

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

Boilers, &c.—(Letter for record) Total Heating Surface of Boilers 13034 sq. ft. GENER 6564 sq. ft. SUPER 1570 sq. ft. ECON 1900 sq. ft.  
Forced Draft fitted Yes No. and Description of Boilers 2 - FOSTER WHEELER 'D' TYPE DESIGN Working Pressure 480 lbs/sq. in.  
Report on Main Boilers now forwarded? Yes



Is ☒ a Donkey ☒ an Auxiliary Boiler fitted? YES 2 COCHRAN. If so, is a report now forwarded? YES  
Is the donkey boiler intended to be used for domestic purposes only? DOMESTIC & AUXILIARY MACHINERY  
Plans. Are approved plans forwarded herewith for Shafting. 10-4-51 Main Boilers. 10-4-51 Auxiliary Boilers. 28-12-51 Donkey Boilers. 31-7-52  
(If not, state date of approval)  
Superheaters. 27-11-51 General Pumping Arrangements. 2-7-52 Oil Fuel Burning Arrangements. 31-7-52  
Geared turbines situated aft. Have torsional vibration characteristics of system been approved? YES Date of approval. —

SPARE GEAR.  
Has the spare gear required by the Rules been supplied? YES  
State the principal additional spare gear supplied. ONE SCREW SHAFT, ONE CAST IRON BUILT UP PROPELLER

The foregoing is a correct description.

For WILLIAM DENNY & EROS., LTD.

E. F. Denny Director

Manufacturer

Dates of Survey while building  
During progress of work in shops - 1951 Oct 25, 1952 May 20, June 19, Sep. 16, Oct 3, 7, 9, 14, 15, 24, 30, Nov 6, 11, 13, 20, 25, 27, Dec 1, 2, 4, 5, 10, 15, 16, 17, 18, 19, 22, 25, 29, 1953 Jan 6, 8, 9, 12, 13, 15, 16, 20, 27, 28, 29, Feb 4, 6, 2, 5, 6, 9, 10, 11, 12, 13, 16, 18, 19, 24, 26, 27, Mar 1, 2, 3, 4, 5, 6, 9, 10, 11, 12, 17, 18, 19, 24, 26, 27, 31, Apr 2, 7, 9, 13, 14, 16, 21, 23, 27, 29, 30, May 4, 5, 7, 11, 12, 14, 18, 19, 21, 26, 28, June 1, 4, 5, 9, 11, 12, 16, 18, 23, 25, 30, July 9, 23, 25, 27, 28, 31.  
During erection on board vessel - 11-12-17-18-19-24-26-27-31-Apr-2-7-9-13-14-16-21-23-27-29-30-May-4-5-7-11-12-14-18-19-21-26-28-June-1-4-5-9-11-12-16-18-23-25-30-July-9-23-25-27-28-31.  
Total No. of visits 111

Dates of Examination of principal parts—Casings 11-11-52 Rotors 24-2-53 Blading 24-2-53 Gearing 5-5-53  
Wheel shaft 5-5-53 Thrust shaft 5-5-53 Intermediate shafts 6-3-53 Tube shaft — Screw shaft 11-3-53  
Propeller 27-3-52 Stern tube 22-2-53 Engine and boiler seatings 1-2-53 Engine holding down bolts 1-6-53  
Completion of fitting sea connections 26-2-53 Completion of pumping arrangements 25-6-53 Boilers fixed 1-6-53 Engines tried under steam 30-6-53  
Main boiler safety valves adjusted DRUM 480 lbs/0" Thickness of adjusting washers P DRUM 5 SEUM 13/32 Sea Trials 27, 28, 7, 5  
Rotor shaft, Material and tensile strength Forged Steel 34-38 Tons Identification Mark 23292-890  
Flexible Pinion Shaft, Material and tensile strength — Identification Mark —  
Pinion shaft, Material and tensile strength 3 1/2% Ni Steel O.H.T. to 40 TT (min) Identification Mark 51116-7x8  
; 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. —

1st Reduction Wheel Shaft, Material and tensile strength — Identification Mark —  
Wheel shaft, Material Mild Steel Identification Mark 23292-50 Thrust shaft, Material Mild Steel Identification Mark 23292-176  
Intermediate shafts, Material Mild Steel Identification Marks 23292 168 15 172 Tube shaft, Material — Identification Marks —  
Screw shaft, Material Mild Steel Identification Marks 23292 167 Spant 166 Steam Pipes, Material S.D. Steel Test pressure 144.0 lbs/0"  
Date of test 10.12.52, 22.12.52, 12.1.53, 19.3.53, 11.6.53 Is an installation fitted for burning oil fuel? YES

Is the flash point of the oil to be used over 150°F? YES Have the requirements of the Rules for the use of oil as fuel been complied with? YES  
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo? in deep tank If so, have the requirements of the Rules been complied with? YES  
If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with. NO  
Is this machinery a duplicate of a previous case? YES If so, state name of vessel SS "MARTABAN"

General Remarks. (State quality of workmanship, opinions as to class, &c.) The machinery has been constructed under Special Survey in accordance with the Rules and approved plans. Materials and workmanship good. Afterwards the machinery has been efficiently installed in the vessel, examined under working conditions and found satisfactory. The fire fighting appliances etc., are fitted in accordance with the Convention and the Rules. The machinery is eligible in my opinion to be classed in the Register Book with the record of + LMC 7.53. and the notation T.S. CI Fitted for oil fuel 7.53. F.P. over 150°F

Machinery Construction  
The amount of Entry Fee ... £ 111 :  
Installation ✓ ... £ 125 :  
Special ... :  
Donkey Boiler Fee ... £ :  
Travelling Expenses (if any) £ :  
When applied for. 18 AUG 1953  
When received. 19

Committee's Minute

Assigned

GLASGOW

18 AUG 1953

+ LMC 7.53.

3 steam turbines SR. geared to sc. shaft.  
2 WT.B. 480 lb. (5 ft. 450 lb.) F.D.  
Fitted for oil fuel 7.53 F.P. above 150°F

Engineer Surveyor to Lloyd's Register of Shipping.



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