

# Report on Steam Turbine Machinery.

No. 135666

Received at London Office

Writing Report **8-7-52** When handed in at Local Office **12-7-52** Port of **LIVERPOOL**  
 Survey held at **Birkenhead** Date, First Survey **26/5/50** Last Survey **13-6-52**  
 on the **Single Deck Tanker "BRITISH CROWN"** (Number of Visits **287**)  
 at **Birkenhead** By whom built **Cammell Laird & Co. Ltd.** Yard No. **1208** When built **1952**  
 Engines made at **Birkenhead** By whom made **Cammell Laird & Co. Ltd.** Engine No. **1208** When made **1952**  
 Boilers made at **Birkenhead** By whom made **Cammell Laird & Co. Ltd.** Boiler No. **1208** When made **1952**  
 Horse Power at Full Power **Summ 12500** Owners **British Tanker Co. Ltd.** Port belonging to **London**  
 Horse Power as per Rule **2750** Is Refrigerating Machinery fitted for cargo purposes **no** Is Electric Light fitted **yes**  
 for which Vessel is intended **Ocean**

## STEAM TURBINE ENGINES, &c.—Description of Engines **Double Reduction Geared Impulse-Reaction Turbines**

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

BINDING.	H. P.		I. P.		L. P.		HP. ASTERN.	
	No. of rows	No. of stages	No. of rows	No. of stages	No. of rows	No. of stages	HP.	LP.
	14						1-2 row wheel.	2-1 row wheel.
						13 Double Flow		
						3 in 1st.		
						1 in 12		

Horse Power at each turbine  
 H.P. **7570, 7130** I.P. **12-3399** L.P. **13-4416**  
 Shaft diameter at journals  
 H.P. **6"** I.P. **8"** L.P. **8"**  
 Pitch Circle Diameter  
 1st pinion **62-3603** 2nd pinion **218455** main wheel **153-9464**

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings  
 1st pinion **20"** 2nd pinion **3-1"** main wheel **3-1"**  
 Pinion Shafts, diameter at bearings  
 1st **10"** 2nd **8 1/2"**  
 Generator Shaft, diameter at bearings **11-719"**  
 Propelling Motor Shaft, diameter at bearings **12-9136"**

Intermediate Shafts, diameter as per rule **18.6"** as fitted **20"**  
 Thrust Shaft, diameter at collars as per rule **20.05"** as fitted **21 1/4"**  
 Shaft, diameter as per rule **21 1/4"** as fitted **22 1/4"**  
 Is the shaft fitted with a continuous liner **yes**

Size of Liners, thickness in way of bushes as per rule **6 1/4"** as fitted **1 1/4"**  
 Thickness between bushes as per rule **1 1/4"** as fitted **1 1/4"**  
 Is the after end of the liner made watertight in the hull 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 the 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 **yes**  
 If so, state type **yes**  
 Length of Bearing in Stern Bush next to and supporting propeller **4'-0 1/2"**

Propeller diameter **21'-0"** Pitch **16.5** No. of Blades **4** State whether Moveable **no** Total Developed Surface **199** square feet.  
 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 sea **yes**  
 No. of Turbines fitted with astern wheels **2** Feed Pumps  
 No. and size **2 @ 195000 H.P. max. 1 @ 60000 H.P.**  
 How driven **Steam turbine driven Steam turbine**

Connections connected to the Main Bilge Line (No. and size **3 @ 140 T/R.**) How driven **Electric Motor**  
 Lubricating Oil Pumps, No. and size **2 @ 80 T/R.**  
 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 1/2", 2 @ 4", 3 @ 2 1/2"**  
**In Pump Rooms 5 FID 2 1/2" AID 4"**

Water Circulating Pump Direct Bilge Suctions, No. and size **2 @ 14"** Independent Power Pump Direct Suctions to the Engine Room  
 No. and size **2 @ 6 1/2"** 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**  
 Are 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 level **yes**  
 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 brassing plate **yes**  
 What pipes pass through the bunkers **none** How are they protected **yes**  
 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 brassing plate **yes**  
 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 brassing plate **yes**

Are all Pipes, Cocks, Valves and Pumps in connection with the machinery and all boiler mountings accessible at all times **yes**  
 Are arrangements 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 **yes** Is the Shaft Tunnel watertight **yes** Is it fitted with a watertight door **yes** worked from **yes**  
**Boilers, &c.—** (Letter for record **S**) Total Heating Surface of Boilers **17990 sq. ft.** (Boiler **16534**, Superheater **1456**)  
 Forced Draft fitted **yes** No. and Description of Boilers **2 B+W Vertical W.T.** Working Pressure **485 lb. S.F.S.Y.**  
**495 lb. S.F.S.Y.**  
**450 lb. at Turbine.**  
 Report on Main Boilers now forwarded? **yes**

Is <sup>a Donkey</sup> an Auxiliary Boiler fitted? to ✓ 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? Yes Main Boilers 16.3.1950 Auxiliary Boilers ✓ Donkey Boilers ✓  
 (If not, state date of approval)  
 Superheaters Simple General Pumping Arrangements 28.7.50 Oil Fuel Burning Arrangements 31.7.51  
 Geared turbines situated aft. Have torsional vibration characteristics of system been approved? Yes Date of approval 28.11.51

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied? Yes  
 State the principal additional spare gear supplied. See slip  
945477  
LLOYD'S  
JS  
16.3.1950  
G.P.  
8.10.1951

The foregoing is a correct description.

E. Stewart Manager

Dates of Survey while building  
 During progress of work in shops - -  
 During erection on board vessel - - -  
 Total No. of visits

Dates of Examination of principal parts - Casings 29.8.51 Rotors 28.8.51 Blading 28.8.51, 18.9.51 Gearing 22.10.51  
 Wheel shaft 7.9.51 Thrust shaft 28.8.51 Intermediate shafts 18.9.51 Tube shaft ✓ Screw shaft 28.11.51  
 Propeller 8.6.52 Stern tube 27.9.51 Engine and boiler seatings 15.10.51 Engine holding down bolts 21.11.51

Completion of fitting sea connections 16.10.51 Completion of pumping arrangements 12.6.52 Boilers fixed 12.6.52 Engines tried under steam 11.11.51  
 Main boiler safety valves adjusted 12.6.52 Thickness of adjusting washers P. set. A 1/32, S. set. A 1/32  
 Rotor shaft, Material and tensile strength Steel 34-38 T/10 Identification Mark 5661 940  
 Flexible Pinion Shaft, Material and tensile strength Steel 31-35 T/10 Identification Mark 95154 951  
 Pinion shaft, Material and tensile strength 3 1/2 forged steel 40 T/10 Identification Mark 95158 951  
 ; Chemical analysis ✓

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 Steel 32-32 T/10 Identification Mark 95152 951  
 Wheel shaft, Material Steel Identification Mark 1718 B11 Thrust shaft, Material Steel Identification Mark 9455  
 Intermediate shafts, Material Steel Identification Marks 94548, 94549 Tube shaft, Material Steel Identification Marks ✓  
 Screw shaft, Material Steel Identification Marks 94546 Steam Pipes, Material Steel Test pressure 1455+9  
 Date of test 18.10.51 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? Yes 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 examined in special survey in accordance with the approved Plans, the Society's Rules and the Surveyor's letters. The materials and workmanship are good. It has been properly installed and tried under full working conditions with satisfactory results. It is eligible in my opinion, to be classed with the record of L.M.C. 6.52. TS fitted for Oil Fuel 6.52 flash point above 150°F.  
main engine not to be run continuously between 50 and 58 R.P.M. of propeller (London letter ENG 28-11-51)

Certificate (if required) to be sent to

(The Surveyors are requested not to write on or below the space for Committee's Minute.)

By agreement with Builders		When applied for
The amount of Entry Fee	£ - -	30 JUL 1952
Special	£ 447. 0	When received
E. Welding	£ 9. 15	19
Donkey Boiler Fee	£ - -	19
Travelling Expenses (if any)	£ - -	19

Prinning  
 Engineer Surveyor to Lloyd's Register of Shipping.



Committee's Minute LIVERPOOL  
 Assigned + Lmc 6.52  
CL  
WTB.  
Fitted for O.F. 6.52  
F.P. above 150°F.