

## REPORT ON STEAM TURBINE MACHINERY. No. 105406

Date of writing Report 19... When handed in at Local Office 19... Port of **NEWCASTLE-ON-TYNE** Received at London Office 26 NOV 1948  
 No. in Survey held at **South Shields** Date, First Survey 13/9/48 Last Survey 22/10/1948  
 Reg. Book. 77969 on the **S.S. 'TRESUS'** (Number of Visits 24)  
 Built at **Portland, Oregon** By whom built **Kaiser Co. Inc.** Yard No. **98** Tons Gross **10669** Net **6317**  
 Engines made at **Lynn, Mass.** By whom made **G. E. Co.** Engine No. **68244** When built **1944**  
 Boilers made at **U.S.A.** By whom made **Combustion Engine Co.** Boiler No. **9663** When made **1944**  
 Shaft Horse Power at Full Power **6600** Owners **Anglo-Saxon Petroleum Co. Ltd.** Port belonging to **London**  
 Nom. Horse Power as per Rule **1485** Is Refrigerating Machinery fitted for cargo purposes **No.** Is Electric Light fitted **Yes**  
 Trade for which Vessel is intended **Foreign. Petroleum in Bulk.**

## STEAM TURBINE ENGINES, &amp;c.—Description of Engines 10 stage impulse turbine.

No. of Turbines **One** Direct coupled, single reduction geared to propelling shafts. No. of primary pinions to each set of reduction gearing **One**  
 direct coupled to Alternating Current Generator **3** phase **62** periods per second Direct Current Generator rated **5400** Kilowatts **2370** Volts at **3715** revolutions per minute;  
 for supplying power for driving **One** Propelling Motor, Type **3 phase 62 cycle 80 pole revolving field salient pole. Synchronous.**  
 rated **5400** Kilowatts **2370** Volts at **93** revolutions per minute. Direct coupled, single or double reduction geared to **One** propelling shaft.

| TURBINE STAGES | 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  | 16 1/8"           | 33 3/4"          | 2            |                   |                  |              |                   |                  |              |                   |                  |              |
| 2ND            | 1"                | 33 3/4"          | 1            |                   |                  |              |                   |                  |              |                   |                  |              |
| 3RD            | 1 1/4"            | 34 3/8"          | 1            |                   |                  |              |                   |                  |              |                   |                  |              |
| 4TH            | 1 3/8"            | 35 1/8"          | 1            |                   |                  |              |                   |                  |              |                   |                  |              |
| 5TH            | 1 5/8"            | 42 3/8"          | 1            |                   |                  |              |                   |                  |              |                   |                  |              |
| 6TH            | 1 7/8"            | 43 1/2"          | 1            |                   |                  |              |                   |                  |              |                   |                  |              |
| 7TH            | 2 1/8"            | 44 3/4"          | 1            |                   |                  |              |                   |                  |              |                   |                  |              |
| 8TH            | 3 1/8"            | 47 1/8"          | 1            |                   |                  |              |                   |                  |              |                   |                  |              |
| 9TH            | 5 3/8"            | 50 1/8"          | 1            |                   |                  |              |                   |                  |              |                   |                  |              |
| 10TH           | 9 1/8"            | 56 1/8"          | 1            |                   |                  |              |                   |                  |              |                   |                  |              |

Shaft Horse Power at each turbine { H.P. **6600** max. 6000 normal. I.P. **3715** 1st reduction wheel **90** normal main shaft **93** max.  
 { I.P. **3715** 1st reduction wheel **90** normal main shaft **93** max.  
 { I.P. **3715** 1st reduction wheel **90** normal main shaft **93** max.  
 Motor Shaft diameter at journals { H.P. **3715** 1st reduction wheel **90** normal main shaft **93** max.  
 { I.P. **3715** 1st reduction wheel **90** normal main shaft **93** max.  
 { I.P. **3715** 1st reduction wheel **90** normal main shaft **93** max.

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion **✓** 1st reduction wheel **✓** Width of Face { 1st reduction wheel **✓**  
 { 2nd pinion **✓** main wheel **✓** { main wheel **✓**

Flexible Pinion Shafts, diameter { 1st **✓** Pinion Shafts, diameter at bearings External **✓** 1st **✓** 2nd **✓** diameter at bottom of pinion teeth { 1st **✓**  
 { 2nd **✓** Internal **✓** { 2nd **✓**

Wheel Shafts, diameter at bearings { 1st **✓** diameter at wheel shroud, { 1st **✓** Generator Shaft, diameter at bearings **✓**  
 { main **✓** { main **✓** Propelling Motor Shaft, diameter at bearings **17.25"**

Intermediate Shafts, diameter as per rule **16.56"** Thrust Shaft, diameter at collars as per rule **17.39"**  
 as fitted **16.875"** as fitted **17.5"**

Shaft, diameter as per rule **18.185"** Screw Shaft, diameter as per rule **18.625"** Is the tube screw shaft fitted with a continuous liner **Yes**  
 as fitted **18.625"** as fitted **18.625"**

Linze Liners, thickness in way of bushes as per rule **.858"** Thickness between bushes as per rule **.643** Is the after end of the liner made watertight in the  
 as fitted **1.125"** as fitted **1.062"**

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 **✓**  
 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  
**No.** If so, state type **✓** Length of Bearing in Stern Bush next to and supporting propeller **7' 3"**

Propeller, diameter **19' 6"** Pitch **17' 6"** No. of Blades **4** State whether Moveable **No.** Total Developed Surface **138.3** square feet.  
 Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine **✓** Can the H.P. or L.P. Turbine exhaust direct to the

Condenser **Yes** No. of Turbines fitted with astern wheels **None** Feed Pumps { No. and size **2 Turbo - 200 G.P.M.** **1 - 130 G.P.M.**  
 How driven **Steam** **Steam vertical simplex**

Pumps connected to the Main Bilge Line { No. and size **2 - 200 G.P.M.** **1 - 450 G.P.M.** **1 - 300 G.P.M.** **For pump room.**  
 How driven **Electric** **Steam vertical duplex.**

Last Pumps, No. and size **1 - 300 G.P.M.** **for pump room** Lubricating Oil Pumps, including Spare Pump, No. and size **2 - 60 G.P.M.**  
 Two independent means arranged for circulating water through the Oil Cooler **Yes** Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Pumps, No. and size:—In Engine and Boiler Room **2 - 3" dia. for eff.** **1 - 3" dia. automatic comp.** **6 - 3" dia. 8 - 1 - 3 1/2" dia. Bilge Pump Room** **1 - 4" dia.**  
 Pumps, &c. **1 - 3 1/2" dia. Dry well.** **1 - 3 1/2" dia. Bilge room drain.** **1 - 3" dia. L.O. pump eff.** **1 - 3" dia. propeller motor recess.**

Water Circulating Pump Direct Bilge Suctions, No. and size **1 - 18" dia.** Independent Power Pump Direct Suctions to the Engine Room  
 No. and size **2 - 4" dia.** Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes **Yes.**

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 **Valves.**

Are they fitted 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 line **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.**

Pipes pass through the bunkers **None** How are they protected **✓**  
 Pipes pass through the deep tanks **None** Have they been tested as per rule **✓**

Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times **Yes**  
 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 **Yes** Is the Shaft **W.T. Bulkhead** it fitted with a watertight door **Yes** worked from **Platform.**



BOILERS, &c.—(Letter for record ) Total Heating Surface of Boilers  
Is Forced Draft fitted Yes No. and Description of Boilers 2 - S.M. type Working Pressure 500 lbs  
Is a Report on Main Boilers now forwarded? No. If so, is a report now forwarded? ✓  
Is a Donkey Boiler fitted? ✓  
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) Oil Fuel Burning Arrangements ✓  
Superheaters ✓ General Pumping Arrangements ✓ SPARE GEAR.  
Has the spare gear required by the Rules been supplied Yes  
State the principal additional spare gear supplied

The foregoing is a correct description,

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 Rotors Blading Gearing  
Wheel shaft 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  
Main boiler safety valves adjusted Thickness of adjusting washers Identification Mark  
Rotor shaft, Material and tensile strength Identification Mark  
Flexible Pinion Shaft, Material and tensile strength Identification Mark  
Pinion shaft, Material and tensile strength Identification Mark  
1st Reduction Wheel Shaft, Material and tensile strength Identification Mark  
Wheel shaft, Material Identification Mark Thrust shaft, Material Identification Mark  
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 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 ✓ 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 Yes If so, state name of vessel T 2 Tankers

General Remarks (State quality of workmanship, opinions as to class, &c.)  
The machinery of this vessel has been constructed under the survey of the U.S. Coast Guard and American Bureau of Shipping. Material and workmanship considered good. The scantlings and general arrangements have been checked and found in accordance with plans on board vessel. Machinery examined under working conditions, and found satisfactory, and eligible in my opinion to have records of LMC TSCL  
Fitted for oil fuel 1944. F.P. above 150°F.

The amount of Entry Fee ... £ : : When applied for, 19...  
Special ... £ : : When received, 19...  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ : :  
Committee's Minute  
Assigned See minute on Rpt. 9

FRI. 17 DEC 1946

Edgar White  
Engineer Surveyor to Lloyd's Register of Shipping.