

# REPORT ON STEAM TURBINE MACHINERY.

22 OCT 1941

Received at London Office

4a.

of writing Report

11.10.1941

When handed in at Local Office

19

Port of

in Survey held at

Birkenhead

Date, First Survey

Last Survey

19

Book.

193 on the

T.E.S. "TENAGODUS"

(Number of Visits)

Gross 10142

Net 6134

When built 1944

When made 1944

When made 1944

at Mobile, Ala.

By whom built Alabama D. & S. B. Co.

Yard No.

ines made at Lynn, Mass.

By whom made General Electric Co.

Engine No.

When made 1944

lers made at

By whom made Combustion Engineering Co.

Boiler No.

When made 1944

ft Horse Power at Full Power 6000

Owners Anglo Saxon Petroleum Co. Ltd.

Port belonging to

London

m. Horse Power as per Rule 6600

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

yes

ade for which Vessel is intended

PETROLEUM IN BULK

AM TURBINE ENGINES, &c.—Description of Engines

Turbo-electric drive.

Ahead. One Direct coupled, single reduction geared } to propelling shafts. No. of primary pinions to each set of reduction gearing ✓  
Astern. ✓ double reduction geared }  
coupled to Alternating Current Generator 3 phase 62 periods per second } rated 5400 KVA 2340 Volts at 3415 revolutions per minute;  
Direct Current Generator }  
applying power for driving One Propelling Motors, Type Synchronous. TBM 80.  
4625 KVA 2300 Volts at 90 revolutions per minute. Direct coupled, single or double reduction geared to one propelling shaft.

TURBINE INDIC.	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.
EXPANSION	7 3/8"	34"	2									
Manufacture	1"	34"	1									
"	1 1/4"	34 3/8"	1									
"	1 5/8"	35 1/4"	1									
"	7/8"	42 1/2"	1									
"	1 3/8"	43 1/2"	1									
"	2 5/8"	45 1/2"	1									
"	2 1/2"	47"	1									
"	5 1/2"	49 1/2"	1									
"	9"	56"	1									

ft Horse Power at turbine H.P. 3415 1st reduction wheel ✓  
I.P. ✓ main shaft 90  
L.P. ✓  
or Shaft diameter at journals H.P. 5" AFT Pitch Circle 1st pinion ✓ 1st reduction wheel ✓ Width of 1st reduction wheel ✓  
I.P. 10" FWD Diameter 2nd pinion ✓ main wheel ✓ Face main wheel ✓  
L.P. ✓  
Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion ✓ 1st reduction wheel ✓  
2nd pinion ✓ main wheel ✓  
Pinion Shafts, diameter at bearings External 1st ✓ 2nd ✓ diameter at bottom of pinion teeth 1st ✓  
Internal 1st ✓ 2nd ✓ 2nd ✓  
Pinion Shafts, diameter at bearings 1st ✓ Generator Shaft, diameter at bearings 5" ✓  
main ✓ diameter at wheel shroud, 1st ✓ Propelling Motor Shaft, diameter at bearings 14 1/4" ✓  
as per rule 16.56 Thrust Shaft, diameter at collars as per rule 14.39  
as fitted 16.3 as fitted 14.2  
Screw Shaft, diameter as per rule 18.185 Is the { screw } shaft fitted with a continuous liner { yes  
as fitted 0.858 as fitted 18.3 as fitted 0.643 Is the after end of the liner made watertight in the  
Bronze Liners, thickness in way of bushes as per rule 18 Thickness between bushes as per rule 17.6  
as fitted 18 as fitted 17.6  
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  
If so, state type ✓ Length of Bearing in Stern Bush next to and supporting propeller 4' 3"  
Propeller, diameter 19' 6" Pitch 14' 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 ONE TURBINE ONLY Can the H.P. or I.P. Turbine exhaust direct to the  
Condenser ✓ No. of Turbines fitted with astern wheels NONE Feed Pumps No. and size 2. 200 GPM 1. 130 GPM (10 x 7.24)  
How driven Steam turbine Steam Dist. Simplex  
Pumps connected to the Main Bilge Line No. and size 2. 200 GPM 1. 450 GPM 1. 300 GPM (fwd pump room)  
How driven Electric Steam Dist. Duplex  
Last Pumps, No. and size 1. 300 GPM (fwd pump room) Lubricating Oil Pumps, including Spare Pump, No. and size 2. 60 GPM  
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 1 at 3 1/2" 8 at 3 1/2" (inc. motor well) 4 at 2 1/2" (Blade) In Pump Room  
Holds, &c. BOWSWAIN STORE 2-1 EJECTORS. CHAIN LOCKER 2 EJECTOR. FORD PUMPROOM { ONE 10" x 7" 10" BILGE PUMP STEAM DUPLEX  
2 1/2" SUCTIONS P.S. DRY STORES 2 1/2" P.S. PUMPROOM }  
In Water Circulating Pump Direct Bilge Suctions, No. and size 1 at 18" Independent Power Pump Direct Suctions to the Engine Room  
No. and size 2 at 4" 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 Hat wells  
all Sea Connections fitted direct on the skin of the ship no Are they fitted with Valves or Cocks all valves ✓  
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 line Below ✓  
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 VALVES ✓  
pipes pass through the bunkers NONE How are they protected ✓  
pipes pass through the deep tanks NONE 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 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 spaces, or from one  
apartment to another yes ✓ Is the Shaft Tunnel watertight no Is it fitted with a watertight door no worked from ✓

005328-005332-0249



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

Is Forced Draft fitted yes

No. and Description of Boilers 2. B.W. Type

Working Pressure 46 lb./sq. in.

Is a Report on Main Boilers now forwarded? no

Is a Donkey Boiler fitted? no

If so, is a report now forwarded? yes

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

Plans. Are approved plans forwarded herewith for Shafting? yes

Main Boilers yes

Auxiliary Boilers yes

Donkey Boilers yes

Superheaters yes

General Pumping Arrangements yes

Oil Fuel Burning Arrangements yes

SPARE GEAR.

Has the spare gear required by the Rules been supplied? no

State the principal additional spare gear supplied.

AS PER RULE REQUIREMENTS EXCEPT THERE IS NO SPARE PROPELLER

The foregoing is a correct description,

Manufactured by E.A.M.

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

AMERICAN BUREAU SURVEY

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 fired

Engines tried under steam

Main boiler safety valves adjusted

Thickness of adjusting washers

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

If so, state name of vessel

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

This report is submitted

for the information of the Committee.

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

H. Greenhard  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute LIVERPOOL 21 OCT 1947

Assigned See Minute on Liverpool Mech Rep.



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