

REPORT ON STEAM TURBINE MACHINERY. No. 97058

Received at London Office JAN 14 1939

17/11/38 Port of NEWCASTLE-ON-TYNE

Date of writing Report

19

When handed in at Local Office

No. in Survey held at Newcastle

Date, First Survey 24 May

Last Survey 21 Oct 1938

Reg. Book.

on the

S.S. TURKISTAN

(Number of Visits 14)

Gross 6935
Net 4228

Built at S. Shields

By whom built J. Readhead & Co

Yard No. 514

When built

Engines made at S. Shields

By whom made dots

Engine No. 514

When made

Boilers made at Newcastle

By whom made Susan Hunter & Wigham

LP Turbine No. 1588

When made 1938

Shaft Horse Power at Full Power 1071

Owners

Port belonging to

Nom. Horse Power as per Rule 179

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

Trade for which Vessel is intended

Open sea

STEAM TURBINE ENGINES, &c.—Description of Engines LP Turbine (Bauer-Wash) with D/R Gearing & hydro coupling in combination with Recip Engine

No. of Turbines Ahead One Direct coupled, single reduction geared to One propelling shaft No. of primary pinions to each set of reduction gearing One

direct coupled to Alternating Current Generator phase periods per second Direct Current Generator rated Kilowatts Volts at revolutions per minute

for 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
BLADING.

	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							70. m	890 m	1.			
2ND							89.	928.	1.			
3RD							108.	966.	1.			
4TH							127.	1004.	1.			
5TH							147.	1044.	1.			
6TH							174.	1098.	1.			
7TH							200.	1150.	1.			
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at the turbine { H.P. ————
I.P. ————
L.P. 1071. } Revolutions per minute, at full power, of each Turbine Shaft { H.P. ————
I.P. ————
L.P. 3360. } 1st reduction wheel 437.
main shaft 81.5.Rotor Shaft diameter at journals { H.P. ————
I.P. ————
L.P. 170 m } Pitch Circle Diameter { 1st pinion 211.7919 m
2nd pinion 404.7328 m } 1st reduction wheel 1629.1687 m
main wheel 2088.9437 m } Width of Face { 1st reduction wheel 280 m
main wheel 580 m }
1st pinion 295 : 255 m 1st reduction wheel 1655 : 370 m
2nd pinion 440 m main wheel 550 mDistance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st 115 m } Pinion Shafts, diameter at bearings External 1st 150 m 2nd 285 m
Internal 1st 150 m 2nd 285 m } diameter at bottom of pinion teeth { 1st 197.1465 m
2nd 383.1886 m }
Flexible Pinion Shafts, diameter { 1st 115 m } Pinion Shafts, diameter at bearings External 1st 150 m 2nd 285 m
Internal 1st 150 m 2nd 285 m } diameter at bottom of pinion teeth { 1st 197.1465 m
2nd 383.1886 m }
1st 260 m AFT
2nd 250 m
Ford 500 m
INT 400 mWheel Shafts, diameter at bearings { 1st 1550 m } Generator Shaft, diameter at bearings { 1st 1550 m }
main 1990 m } Propelling Motor Shaft, diameter at bearings { 1st 1550 m }
as per rule 13.99 m with Recip Eng only
(13.88 m with Combined Set)Intermediate Shafts, diameter as per rule 13.99 m (13.88 m with Combined Set) Thrust Shaft, diameter at collars as per rule 14.7 m
as fitted 15.35 (390 m)Tube Shaft, diameter as per rule ———— Screw Shaft, diameter as per rule ———— Is the { tube } shaft fitted with a continuous liner { }
as fitted ———— as fitted ———— as fitted ————Bronze Liners, thickness in way of bushes as per rule ———— Thickness between bushes as per rule ———— Is the after end of the liner made watertight in the propeller boss { }
as fitted ———— as fitted ———— as fitted ———— If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner { }
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 { }
If 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 { }
shaft { } If so, state type { } Length of Bearing in Stern Bush next to and supporting propeller { }Propeller, diameter { } Pitch { } No. of Blades { } State whether Moveable { } Total Developed Surface { } square feet.
If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine { } Can the H.P. or I.P. Turbine exhaust direct to the { }
Condenser { } No. of Turbines fitted with astern wheels { } Feed Pumps { No. and size { }
How driven { }Pumps connected to the Main Bilge Line { No. and size { }
How driven { } Lubricating Oil Pumps, including Spare 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 { }
Bilges, No. and size { } Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-bones { }
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 { }
What pipes pass through the bunkers { } How are they protected { }
What 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 { }

BOILERS, &c.—(Letter for record)

Total Heating Surface of Boilers

Is Forced Draft fitted

No. and Description of Boilers

Working Pressure

Is a Report on Main Boilers now forwarded?

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 (If not state date of approval)

Thrust Shaft 23/6/37 Main Boilers

Auxiliary Boilers

Donkey Boilers

Superheaters

General Pumping Arrangements

Oil Fuel Burning Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied

State the principal additional spare gear supplied

Yes. One bearing of each size fitted
one set of thrust pads for each thrust bearing
one spring & one set of washers for emergency governor, etc.

The foregoing is a correct description,

G. F. Huxford

Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1938 May 24. June 29. 14. July 7. Aug 3. Sep. 26. }
{ During erection on board vessel --- Oct 4. 12. 13. 14. 18. 19. 21. }
Total No. of visits 14. Included in Rpt 4.

Dates of Examination of principal parts—Casings 26/9/38 Rotors 14/6/38 Blading 14/10/38 Gearing 19/10/38

Wheel shaft 19/10/38 Thrust shaft 19/10/38 Intermediate shafts Tube shaft Screw shaft

Propeller Stern tube Engine and boiler seatings Engine holding down bolts LP Turbine on test bed. 13/10/38

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 Forged Steel 36.8 tons/ft Identification Mark 7605 HAI. 959.

1st Redu Flexible Pinion Shaft, Material and tensile strength 7. Nickel Steel 41.2 " " Identification Mark 7605 HAI. L. 7.

2nd Redu Pinion shaft, Material and tensile strength " " " 46.2 " " Identification Mark 7723 HAI. 5458

1st Reduction Wheel Shaft, Material and tensile strength 7. Steel 32. " " Identification Mark 7605 HAI. 704

Wheel shaft, Material 7. Steel Identification Mark 7604 HAI. 787. Thrust shaft, Material 7 Steel Identification Mark 7604 HAI. 864

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

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 Yes If so, state name of vessel

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

The Machinery has been constructed under special survey in accordance with the Society Rules and approved plan, and the materials & workmanship are good. The LP Turbine & D/R Gearing have been sent to S. Shields to be fitted on board Yard No 514 building by J Readhead & Sons Ltd.

The above machinery has been efficiently installed & fixed in the S.S. Tuckerton, examined under working conditions found satisfactory

J. W. Matthews

The amount of Entry Fee ... £ 17: 18 :
Special ... £ : :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, 17 NOV 1938
When received, 10 DEC 1938

A. Watt

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI 20 JAN 1939

Assigned

See FE machy rpt.



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