

Report on Steam Turbine Machinery. No. 7314

ting Report 9.3. 1959 When handed in at Local Office 19 Port of Hamburg Received at London Office 23 MAR 1959
Survey held at Hamburg Date, First Survey - Last Survey see Rpt. 9 19
(Number of Visits -)

on the ~~Single~~ ~~Tank~~ ~~Triple~~ ~~Quadruple~~ Screw Vessel "TINA ONASSIS" Tons (Gross 27853 (Net 16785)
Hamburg By whom built Howaldtswerke AG. Yard No. 885 When built 1953
made at Hamburg By whom made Howaldtswerke AG. Engine No. 350 111 When made 1953
made at Hamburg By whom made Howaldtswerke AG. Boiler No. 1686/87 When made 1953
orse Power (Maximum 17500 ✓ Owners Palmas Transportation Co. Port belonging to Monrovia
per Rule 3500 ✓ Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes
or which Vessel is intended international (oil tanker)

1. TURBINE ENGINES, &c.—Description of Engines HP-and LP-impulse-reaction turbines, DR geared to one shaft
Ahead 2 Direct coupled, single reduction geared to 1 propelling shafts. No. of primary pinions to each set of reduction gearing two
Turbines Astern 1 double reduction geared
coupled to (Alternating Current Generator - phase - periods per second Direct Current Generator rated - Kilowatts - Volts at - revolutions per minute;
plying power for driving - Propelling Motors, Type -
- Kilowatts - Volts at - revolutions per minute. Direct coupled, single or double reduction geared to - propelling shafts.

LINE	H. P.	I. P.	L. P.	ASTERN.
ING.	-	-	-	4
No. of rows	-	-	-	-
No. of stages	19	-	20	-
No. of rows in each stage	1	-	1	-

orse Power at each turbine H.P. 8190 ✓ I.P. - L.P. 10200 ✓
Revolutions per minute, at full power, of each Turbine Shaft H.P. 5350 ✓ 1st reduction wheel 728 ✓ I.P. - main shaft 110 ✓ L.P. 2800 ✓
shaft diameter at journals H.P. 140 mm with 60 mm central hole HP, 281.74 mm HP 2069.22 mm 1st reduction wheel 255 mm X 2 ✓ I.P. - Pitch Circle LP 539.13 mm LP 2070.49 mm Width of Face main wheel 540 mm X 2 ✓ L.P. 260 mm 2nd pinion 638.55 mm main wheel 4219.27 mm 1st pinion 430 mm ✓ 1st reduction wheel 1030 mm ✓ 2nd pinion 1030 mm ✓ main wheel 1350 mm ✓
between centres of pinion and wheel faces and the centre of the adjacent bearings
coupling HP 254 with 228.6 mm central hole
Pinion Shafts, diameter at bearings External HP 160 mm 600 mm 1st HP 272.8 mm Internal LP 230 mm 600 mm diameter at bottom of pinion teeth LP 527.8 mm
diameter LP 353.4 with 321 mm central hole LP 666 mm Generator Shaft, diameter at bearings none 2nd 618.5 mm
shafts, diameter at bearings 1st 600 mm diameter at wheel shroud, main flanged Propelling Motor Shaft, diameter at bearings none
diameter shafts, diameter as per rule as approved Thrust Shaft, diameter at collars as per rule as approved as fitted 580 mm
shaft, diameter as fitted none Screw Shaft, diameter as per rule as approved as fitted 622 (none) Is the screw shaft fitted with a continuous liner yes
Liners, thickness in way of bushes as per rule 26.2 mm Thickness between bushes as per rule 29 mm Is the after end of the liner made watertight in the boss yes If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner one length
er 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 -
ers 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 2172 mm
r, diameter 6750 mm Pitch 5000 mm No. of Blades 5 State whether Moveable solid Total Developed Surface 21.4 square metres
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
r yes No. of Turbines fitted with astern wheels one Feed Pumps (No. and size 3 - 100 m³/h each How driven steam turbines
connected to the Main Bilge Line (No. and size 1 - 23 m³/h 1 - 23 m³/h 1 - 100 m³/h How driven el. driven (in Eng.R.) steam driven (Blr.R.) el. driven (in Eng.R.)
Pumps, No. and size see pump list on Cont. Sheet Lubricating Oil Pumps, including Spare Pump, No. and size 2-140 m³/h, 1-130 m³/h.
Independent means arranged for circulating water through the Oil Cooler yes Branch Bilge Suctions, No. and size: In Engine
r Rooms 2-85 mm (ER p&s), 2-85 mm (Blr.R p&s), 1-61 mm (tunnel well) In Pump Room 2-147 mm (p & s)
Fwd. pump room: 1-122 mm (pump room), 2-122 mm (in hold p & s), Cofferdams: 1-61 mm (Eng.R. Cofferdam)
ater Circulating Pump Direct Bilge Suctions, No. and size 2-413 mm (1 each pump) Direct Bilge Suctions to the Engine and/or Boiler Room
o. and size 1-61 mm (Eng.R.), 1-61 mm (Blr.R.) Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes yes
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
ea Connections fitted direct on the skin of the ship yes Are they fitted with Valves or Cocks. valves
ized 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
ow 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
plate yes What pipes pass through the bunkers none How are they protected -
es pass through the deep tanks none Have they been tested as per rule -
pes, Cocks, Valves and Pumps in connection with the machinery and all boiler mountings accessible at all times. yes
ngement 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
from one compartment to another. yes Is the Shaft Tunnel watertight none Is it fitted with a watertight door - worked from -
RS, &c.—Total Heating Surface of Boilers 24114 sq. ft.
Draught fitted yes No. and Description of Boilers 2-two drum water tube boilers Working Pressure 680 lbs.
rt on Main Boilers now forwarded? yes, attached

Is { a Donkey Boiler fitted? no If so, is a report now forwarded? -
an Auxiliary
Plans. Are approved plans forwarded herewith for Shafting yes Main Boilers yes ~~Donkey Boilers~~ yes Donkey Boilers
(If not, state date of approval)
Superheaters yes General Pumping Arrangements yes Oil Fuel Burning Arrangements yes
Geared turbines situated aft. Have torsional vibration characteristics of system been approved yes Date of approval 3.3.59
290R.

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 6.3.59 Thickness of adjusting washers port Blr. 25.5 + 37.-mm, Spt. 28.1 mm
Rotor shaft, Material and tensile strength Starb. Blr. 25.5 + 24.2 mm, Spt. 26.2 mm Identification Mark
Flexible Pinion Shaft, Material and tensile strength Identification Mark
Pinion shaft, Material and tensile strength Identification Mark

; 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 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 13 Cr. Mo. 44 Test pressure 10

Date of test 2.3.59 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

Full description of Fire Extinguishing Apparatus fitted in machinery spaces see Continuation Sheet

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo oil tanker 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 yes

Is this machinery a duplicate of a previous case no If so, state name of vessel -

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

The machinery of this ship has been built under the Survey of ABS. All important parts have now been

the scantlings checked with the Makers' plans and the materials identified so far as practicable. The

arrangements have also been checked with the Makers' plans and alterations carried out in accordance

Secretary's letters. - The materials and workmanship appear to be good. The machinery has been

under working condition on completion and is eligible in my opinion to be considered for classification

with the notation LMC, without the distinguishing mark #, 2 steam turbines DR geared to 1 screw shaft

17500 SHP, 3500 MN, 2 WT Boilers, HS 24.114 sq.ft., 680 lbs., Spt. 650 lbs., 1 Steam Generator 143 lbs

840°F

The amount of Entry Fee ... £ : : When applied for
Special ... £ : : 19
Donkey Boiler Fee ... £ see Rpt. 9 No. 7313 When received
Travelling Expenses (if any) £ : : 19

Committee's Minute

FRIDAY 10 APR 1959

Assigned

See Rpt. 1.

Engineer Surveyor to Lloyd's Register of Shipping



© 2018

Lloyd's Register Foundation

Materials and Identification Marks

I t e m	Material	UTS kg/mm ²	Identification Mark	Remark
HP turbine rotor	Alloy steel	67.2	AB-WU 92 -13.8.52	
LP turbine rotor, fwd. part	Alloy steel	67.2	AB-WU 135 - 12.52	
LP turbine rotor, centre "	Alloy steel	64.5	AB-WU 141 - 11.52	
LP turbine rotor, aft part	Alloy steel	68.6	AB-WU 139 - 12.52	
HP coupling shaft	SAE 4140		AB 605-RFE-HT 83021-11.12.58	Copper Co. Ing. Serial No. 715690 Balto MD (fitted 3-59)
LP coupling shaft	SAE 4140		AB 605-RFE-HT 46- 11.12.58	
HP couplings	SAE 4140		AB 605-RFE-HT 83021-11.12.58	
LP couplings	SAE 4140		AB 605 RFE-HT 46 11.12.58	
HP primary pinion	EN 27	89.2-89.7	Lloyds HNO 988 KN 26.4.57	see Hamburg Rpt. 10 No. 58/S.56 dated 5.3.58
LP primary pinion	EN 27	94.0-95.3	Lloyds Dsf 931 HS 17.12.56	
HP 1st red. wheel rim	EN 8	61.-	Lloyds Dsf 88 HS 8.8.56	
LP 1st red. wheel rim	EN 8	69.8	Lloyds Dsf. 80 KN 6.5.57	
HP second pinion	EN 27	90.3-90.9	Lloyds HNO 923 KN 12.4.57	dated 5.3.58
LP second pinion	EN 27	89.1-89.7	Lloyds HNO 922 KN 12.4.57	
Main wheel rim forward	EN 8	67.5	Lloyds HNO 516 KN 19.7.57	
Main wheel rim aft	EN 8	67.2-67.8	Lloyds Dtm 766 JL 29.8.57	
Fwd. main wheel shaft	SM steel	52.5	AB 68-25- 28.8.52	
Aft main wheel shaft	SM steel	54.5	AB 68-90 27.3.53	
Thrustshaft	SM steel	53.3	AB 68-ES264 8.9.52 Pc 17	
Intermediate shaft	SM steel	48.9	AB 62-8332 20.4.53	
Screw shaft	SM steel	46.6	AB 61-8384 9.4.53	

Other important items

<u>Condensers:</u>	1 main condenser, 2 atmospheric condensers (for LP-steam and cargo pumps)
	2 aux. condensers (1 for each turbo-generator engine)
<u>Steam Generator:</u>	1 steam generator for LP steam supply, heating surface 75 m ² , heating steam in coils 45 kg/cm ² , LP steam in shell 10 kg/cm ² - 143 lbs.
	Stamp: 53 HG-208 AB 628-26 kg/cm ² 16.7.53 (Cert. not available).
<u>Feed Water Heaters:</u>	1st stage feed heater (De Aerator) see AB Cert. 53-ES - 859-653
	2nd stage feed heater see AB Cert. 53-ES - 815-653
	3rd and 4th stage feed heaters see AB Cert. 53-ES - 903-600
<u>Evaporators:</u>	2 evaporators with condensers (Atlas Werke) see AB Cert. 53-BR 4271-600
<u>Compressors:</u>	2-162 m ³ /h for working air system see AB Cert. 53 Es 787 and 788-653, W.P. 9.0 kg/cm ²
	1- 82 m ³ /h for control air system AB Cert. not available, Working Pressure 6.0 kg/cm ²
<u>Air Receivers:</u>	1 working air receiver 3 m ³ capacity, W.P. 8.8 kg/cm ² , Hechtenberg-Düren No. 920
	1 control air receiver 1.5 m ³ capacity, W.P. 6 kg/cm ² , Hechtenberg-Düren No. 921
	both receivers stamped on rivets of Makers' Name plate AB-579, Cert. not available
<u>Steering Gear:</u>	1 electric hydraulic, Maker: Atlaswerke Bremen, Type RH 4 L 50, No. 60 342, built 1953, El. motors, Siemens Schuckert, 440 V. 64 Amps.
	Nos. 307 128 and 307 129, 2 pumps Type JT 300, Nos. 13814 and 13815
<u>Oil Fuel Heaters:</u>	4 of 12.5 m ² heating surface each, see AB Cert. HG 213/53.