

Report on Steam Turbine Machinery. No. 11.927

Rpt. 4a.

Date of writing Report 1st Nov 85 When handed in at Local Office 10 Nov 85 Port of Havre Received at London Office 16 NOV 1985
 No. in Survey held at Belfort and La Ciotat Date, First Survey 2nd April 1984 Last Survey 4th April (La Ciotat) 1985
 Reg. Book Belfort last 13th Aug 84 (Number of Visits thirteen)

Single 14087 on the Triple Screw Vessel "IPHIGENIA" Tons Gross 12838 Net 7207
 Built at La Ciotat By whom built Chantiers navals de la Ciotat Yard No. 175 When built 1985 H.M.S. 1985
 Engines made at La Ciotat By whom made Forges et Chantiers de la Mediteranee Engine No. 74 When made 1985
 Boilers made at La Ciotat By whom made La Ciotat Boiler No. 10713 1/2 When made 1985
 Shaft Horse Power { Maximum 8250 Owners Societe Shell d'Indochine Port belonging to HAVRE
 Service 1650 MW Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted yes
 M.N. as per Rule 1650 MW Carrying petroleum in bulk
 Trade for which Vessel is intended Carrying petroleum in bulk

STEAM TURBINE ENGINES, &c.—Description of Engines Two sets of Turbo Alternators of 550 Kw each:

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 60 periods per second 550 Kilowatts 450 Volts at 1800 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.
Impulse Blading { No. of rows <u>7</u>				
Reaction Blading { No. of stages <u>1</u>				
Reaction Blading { No. of rows in each stage <u>1</u>				

Shaft Horse Power at each turbine { H.P. 750 I.P. 12000 L.P. 1800 1st reduction wheel 1800 main shaft 1800
 Revolutions per minute, at full power, of each Turbine Shaft { H.P. 1800 I.P. 1800 L.P. 1800

Rotor Shaft diameter at journals { H.P. 60 mm I.P. 104.2016 mm L.P. 65.7982 mm 1st pinion 104.2016 mm 1st reduction wheel 65.7982 mm 2nd pinion 165 mm main wheel 165 mm
 Pitch Circle Diameter { 1st pinion 104.2016 mm 2nd pinion 165 mm 1st reduction wheel 165 mm main wheel 165 mm
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 165 mm 2nd pinion 165 mm 1st reduction wheel 165 mm main wheel 165 mm

Flexible Pinion Shafts, diameter { 1st 75 mm 2nd 75 mm Pinion Shafts, diameter at bearings { 1st 75 mm 2nd 75 mm External 75 mm Internal 75 mm
 Wheel Shafts, diameter at bearings { 1st 140 mm 2nd 140 mm diameter at wheel shroud, { 1st 140 mm 2nd 140 mm Generator Shaft, diameter at bearings 100 mm Propelling Motor Shaft, diameter at bearings 100 mm

Intermediate Shafts, diameter { as per rule 140 mm as fitted 140 mm Thrust Shaft, diameter at collars { as per rule 140 mm as fitted 140 mm
 Tube Shaft, diameter { as per rule 140 mm as fitted 140 mm Screw Shaft, diameter { as per rule 140 mm as fitted 140 mm Is the { tube yes screw no } shaft fitted with a continuous liner { yes }

Bronze Liners, thickness in way of bushes { as per rule 140 mm as fitted 140 mm Thickness between bushes { as per rule 140 mm as fitted 140 mm Is the after end of the liner made watertight in the 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 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 two 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
 shaft yes If so, state type yes Length of Bearing in Stern Bush next to and supporting propeller yes

Propeller, diameter yes Pitch yes No. of Blades yes State whether Moveable yes Total Developed Surface yes square feet yes
 If Single 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 yes

Condenser yes No. of Turbines fitted with astern wheels yes Feed Pumps { No. and size yes How driven yes
 Pumps connected to the Main Bilge Line { No. and size yes How driven yes
 Ballast Pumps, No. and size yes Lubricating Oil Pumps, including Spare Pump, No. and size yes Branch Bilge Suctions, No. and size:—In Engine yes
 and Boiler Rooms yes In Pump Room yes

In Holds, &c. yes Water Circulating Pumps { No. and size yes How driven yes
 Bilges, No. and size yes 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 line 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 brass covering plate yes What pipes pass through the bunkers yes How are they protected yes
 What pipes pass through the deep tanks yes Have they been tested as per rule yes
 Are all Pipes, Cocks, Valves and Pumps in connection with the machinery and all boiler mountings accessible at all times yes
 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 yes Is the Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from yes

BOILERS, &c.—Total Heating Surface of Boilers yes Is Forced Draught fitted yes No. and Description of Boilers yes Working Pressure yes
 Is a Report on Main Boilers now forwarded? yes

Is { a Donkey } Boiler fitted? ☒ If so, is a report now forwarded? ☒
{ 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)
Superheaters? ☒ General Pumping Arrangements? ☒ Oil Fuel Burning Arrangements? ☒
Geared turbines situated aft. Have torsional vibration characteristics of system been approved? ☒ Date of approval? ☒

SPARE GEAR.

Has the spare gear required by the Rules been supplied? ☒

State the principal additional spare gear supplied. (for one turbine)
1 set steam gland packing, 1 set springs in place, 1 tachymeter, 1 governor (complete)
1 oil filter, 10% condenser tubes & 1 set iron plates, 10% oil cooler tubes & 1 set iron plates,
1 set ejector nozzles, 1 set of 6 gauges for steam and oil, 1 wheel and worm screw set
for governor and oil pump drive, 1 set of two gauges for HP & LP lube oil system.
5% of bolts in place for main bearings and Turbine chest.
(for one generator) 1 set bushes holders (for one exciter) 1 set bushes holders & 1 armature complete,
(for one amplifier) 1 set bushes holders & 1 amplifier complete.

The foregoing is a correct description.
Letter provided herewith

for description see manufacture letter 28-3-85 Manufacturer.

Dates of Survey while building
During progress of work in shops - 21-4-54; 22-4-54; 11-8-54; 12-8-54 also via surveyors 10-3-54; 16-6-54; 5-7-54
(after Rpt 10 as stated below)
During erection on board vessel - 5-1-55; 27-1-55; 12-2-55; 23-55; 29-3-55; 7-4-55
Total No. of visits thirteen

Dates of Examination of principal parts - Casings 21-4 & 13-8-54 Rotors 21-4 & 13-8-54 Blading 21-4 & 13-8-54 Gearing 10-3, 16-6, 5-7-54
Wheel shaft 21-4 & 13-8-54 Thrust shaft ☒ Intermediate shafts ☒ Tube shaft ☒ Screw shaft 10-3, 16-6, 5-7-54
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 ☒
Rotor shaft, Material and tensile strength Steel 80.8 kps mpm 2 Identification Mark 1153-1 & 1153-2 RF
Flexible Pinion shaft, Material and tensile strength Steel 96.5 kps mpm 2 Identification Mark 532 & 532 B HJM
Pinion shaft, Material and tensile strength Steel 121.0 & 119.0 kps mpm 2 Identification Mark 543 & 544 HJM
; Chemical analysis ☒

If Pinion Shafts are made of special steel state date of special chemical analyses, physical properties and heat treatment ☒
Identification Mark 928398 HJM

1st Reduction Wheel Shaft, Material and tensile strength Steel 540 HJM Identification Mark 540 HJM
Wheel shaft, Material ☒ Identification Mark 540 HJM 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 ☒

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 ☒
Full description of Fire Extinguishing Apparatus fitted in machinery spaces ☒
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.)
The two geared turbine sets were constructed under special survey in accordance with the Rules and approved plans & the Secretary's letters.
The quality of the workmanship and the materials have been found good.

After completion in shops each turbo was tested, overspeed and emergency trip tests carried out and the turbines, bearings and gearings opened out, have been examined and found satisfactory.

After being erected on board each turbo alternator set was tested under full load and found satisfactory. In my opinion these two geared turbine alternator sets are suitable for a planned vessel.

Building at Belfast £ 72000 When applied for 7-1-55
Donkey Boiler Fee £ 1000 When received 25-2-55
Travelling Expenses (if any) £ 27.890
FRIDAY 25 NOV 1955
Committee's Minute
Assigned See Rpt. 4a

Engineer Surveyor to Lloyd's Register of Shipping.