

Report on Steam Turbine Machinery. No. 4895

Received at London Office
 MONDAY 12 JAN 1959
 TRIESTE
 Reporting Date 2nd December 1958 When handed in at Local Office 19 Port of
 Survey held at Trieste Date, First Survey 11.4.1957 Last Survey 28.11.1958
 (Number of Visits 170.)

on the ~~XXXXXX~~ Single Screw Vessel "ESSO SOUTHAMPTON" Tons (Gross 23457 Net
 Trieste By whom built C.R.D. Adriatico Yard No. 1839 When built 1958-11
 made at Trieste By whom made C.R.D. Adriatico Engine No. 316/317 When made 1958
 made at Glasgow & Trieste By whom made Babcock & Wilcox, C.R.D.A. Boiler No. 2052/2053 When made 1958
 Horse Power Maximum 17,500 Owners Esso Petroleum Co., London Port belonging to London
 per Rule Service 16,000 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes
 for which Vessel is intended Carrying petroleum in bulk.

M TURBINE ENGINES, &c.—Description of Engines Two De Laval type steam turbines D.R. geared to single screwshaft
 Turbines Ahead 2 Direct coupled, single reduction geared to one propelling shaft No. of primary pinions to each set of reduction gearing 2
 Astern 1 double reduction geared
 coupled to Alternating Current Generator phase periods per second rated Kilowatts Volts at revolutions per minute
 Direct Current Generator
 supplying power for driving Propelling Motors, Type
 Kilowatts Volts at revolutions per minute Direct coupled, single or double reduction geared to propelling shafts

BINE	H. P.	I. P.	L. P.	ASTERN.
DING.				
No. of rows	11	-	8	3
No. of stages	11	-	8	2
No. of rows in each stage				

Horse Power at each turbine H.P. 8800 I.P. 8800 L.P. 8800
 Shaft diameter at journals H.P. 150 mm I.P. 165 mm L.P. 165 mm
 Pitch Circle Diameter 289.539 mm 457.167 mm 618.049 mm
 1st pinion 1st reduction wheel 2290.913 mm 4267.081 mm
 2nd pinion main wheel 385 mm 721 mm

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 385 mm 1st reduction wheel 397 mm
 2nd pinion 721 mm main wheel 835 mm
 Pinion Shafts, diameter at bearings External 1st 177.57 mm 2nd 456.54 mm
 Internal 1st 63 mm 2nd 305 mm
 Pinion Shafts, diameter at bearings 1st 304.6 mm 2nd 609.4 mm
 Pinion Shafts, diameter at bearings 1st 276.076 mm 2nd 443.704 mm
 Pinion Shafts, diameter at bearings 1st 595.799 mm 2nd 595.799 mm

Generator Shaft, diameter at bearings 1st 361.08 mm 2nd 368 mm
 Propelling Motor Shaft, diameter at bearings 1st 721.77 mm 2nd 737 mm
 Thrust Shaft, diameter at collars as per rule as appd. 488.8 mm
 Intermediate Shafts, diameter as fitted 537 mm
 Main Shaft, diameter as fitted 626 mm reduced to 565 mm at coupling

Size Liners, thickness in way of bushes as per rule as appd. 32.5 & 32 mm
 Thickness between bushes as fitted 32.5 & 32 mm
 Is the after end of the liner made watertight in the bell 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
 Is 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 no 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

Propeller, diameter 6700 mm Pitch 5715 mm No. of Blades 4 State whether Moveable fixed Total Developed Surface 18.45 square feet
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Is ☒ a Donkey ☐ an Auxiliary Boiler fitted? ☐ no If so, is a report now forwarded? ☐ no
Is the donkey boiler intended to be used for domestic purposes only? ☐ no
Plans. Are approved plans forwarded herewith for Shafting 14.9.56 31.8.56) Glasgow
(If not, state date of approval) 13.3.57 Main Boiler 3.9.56) Auxiliary Boilers
Superheaters 17.10.56 GLS. General Pumping Arrangements 26.6.57 17.10.56) Donkey Boilers
Geared turbines } Have torsional vibration characteristics of system been approved. yes Date of approval 14.11.57
situated aft. } Oil Fuel Burning Arrangements 26.6.57
10/12/58 360U

Has the spare gear required by the Rules been supplied. yes

SPARE GEAR.

State the principal additional spare gear supplied.

SPEED RESTRICTION. See Trieste letter dated 4.12.58 and Head Office reply dated 10/12/58
The main machinery not to be operated continuously between 47 and 55 R.P.M. of the screwshaft
A notice board has been fitted at the control station and the tachometer marked accordingly

The foregoing is a correct description.

Dates of Survey while building During progress of work in shops - - - See separate sheet.
During erection on board vessel - - -
Total No. of visits

Dates of Examination of principal parts—Casings January - May, 1958
Wheel shaft 7.8.58 Thrust shaft 7.8.58 Intermediate shafts 19.6.58 Blading After trial
Fitted Propeller 13.10.58 Stern tube 11.4.58 Engine and boiler seatings 11.4.58 Gearing 21.11.58
Completion of fitting sea connections 11.4.58 Completion of pumping arrangements 21.11.58 Boilers fixed 11.7.58 Engines tried under steam In shop 2.5
Main boiler safety valves adjusted 18.11.58 Thickness of adjusting washers Port: 33 32.8 Supt. 33.8 mm At sea 19.8
Rotor shaft, Material and tensile strength See separate sheet Starbd.: 33.4 34.8 Supt. 32.1 mm
Flexible Pinion Shaft, Material and tensile strength do Identification Mark
Pinion shaft, Material and tensile strength do Identification Mark
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 See separate sheet Identification Mark
Wheel shaft, Material Identification Mark do Thrust shaft, Material Identification Mark
Intermediate shafts, Material Identification Marks do Tube shaft, Material Identification Marks
Screw shaft, Material Identification Marks do Steam Pipes, Material H.T. steel Test pressure 148 kg/c
Date of test Various. August - October 1958 welds X-rayed

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
Full description of Fire Extinguishing Apparatus fitted in machinery spaces fixed CO2 installation. Portable extinguishers, water hoses
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo Steam smothering.
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. no
Is this machinery a duplicate of a previous case. yes If so, state name of vessel. "ESSO WINDSOR" C.R.D.A. Yard N°. 18

General Remarks. (State quality of workmanship, opinions as to class, &c.) The main and auxiliary machinery of this vessel has been constructed under special survey of tested materials in accordance with the Secretary's letters, approved plans and Rule requirements. The materials and workmanship are good. The main and auxiliary machinery has been efficiently installed aboard this vessel and on completion tried at sea under full load conditions with satisfactory results. The machinery of this vessel, in my opinion, is eligible to be classed with the following notations :-

+ LMC - 11,58 Screwshaft CL

2 Steam Turbines D.R. geared to single screwshaft

2 W.T. Boilers 965 PSI (Supt. 935 PSI) H.S. 19,836 sq.ft.

F.D. Fitted for oil fuel F.P. above 150° F. - 11,58

The amount of Entry Fee £ 346.6.0 When applied for
Special £ 295.14.0 19
Donkey Boiler Fee £ : : When received
Travelling Expenses (if any) £ 46.9.0 19

Committee's Minute FRIDAY 13 FEB 1959

Assigned

See Rpt. 1

Engineer Surveyor to Lloyd's Register of Shipping.

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Progress of work in shops:

April.11; May 23; Sept.2; Oct.2,8; Nov.5,12,15,25; Dec.3,14,16,18,19,20,23,27;
Jan.3,14,29,30,31; Feb.5,8,14,11,17,26,27; March.4,7,10,18,21,24,31; April.2,19,
2,28; May.7,9,10,12,21,22,26,28,29; June.4,7,11,12,19,21,28,30; July.1,2,3,4,5,
8,9,11,12,16,18,22,23,24,29,30,31; Aug.1,2,5,6,7,8,25; Sept.16,19,23,26; Oct.1,2,
10,18,21,23,27; Nov.6.-

Total: 94

Erection on board vessel:-

Feb.19,21,26; March.6,10,13,17,24,25; April.2,11,15,14,18,24,28; May. 16,19,23,
30; June.9,12,19,26; July.1,8,11,25,30; Aug.7,8,9,14,27; Sept.2,5,9,10,15,16,17,
19,22,25,29,30; Oct.2,4,7,8,9,10,11,13,18,20,21,24,25,28,29,31; Nov.1,5,7,11,13,
14,17,18,19,20,22,26,27,28.

Total: 76



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"ESSO SOUTHAMPTON"

C.R.D.A. YARD.NO.1839 - TURBINES NOS.316 - 317
on the S.S./M.S.

6.57

P A R T S	MATERIAL	Min.Tensile Strength Kg/mm2	Identification Marks	Port and No. of Certificate
PROPELLER (Fitted)	Main Bronze	44.0 Tons/g"	LR. R2H 4488	Liverpool C.3946
SCREWSHAFT (Fitted)	E.F.S.	47.0	LR.GEN. ✓ SS.6514	Genoa F.25609
INTERMEDIATE SHAFT	E.F.S.	45.3	LR.GEN. ✓ SS.6194	Genoa F.25223
INTERMEDIATE SHAFT	E.F.S.	49.3	LR.GEN. ✓ SS.6195	Genoa F.25224
INTERMEDIATE SHAFT	E.F.S.	48.5	LR.GEN. ✓ SS.6332	Genoa F.25342
THRUST COLLAR	E.F.S.	57.4	LR.MIL. P.109	Milan M.628
T U R B I N E S				
H.P. ROTOR	Mo.Ni. EFS	75.4	LR.NAP. ✓ 3235	Naples 2393
H.P. UPPER & LOWER CASINGS	Cr.Mo. EFS	61.1	LR.GEN. ✓ P.405	Genoa C.14153
H.P. TURBINE SUPPORTS	E.F.S.	59.4	LR.GEN. ✓ P.440	Genoa C.14475
H.P. THRUST		61.1	LR.TRI. ✓ 3183	Trieste 4050/4083
FLEXIBLE COUPLINGS	E.F.S.	93.2 / 74.5	LR.PHL. 8533	Philadelphia 14/11/57
			LR.GEN. P.28/44	Genoa F.26417/26483
L.P. ROTOR	Ni.Mo.V. EFS	79.4	LR.GEN. ✓ SS.5970	Genoa F.24763
L.P. ROTOR DISC	Cr.Mo.Ni.V. EFS	91.4	LR.HNO ✓ KN.330	Hannover F.57/1185
L.P. ROTOR DISC	Cr.Mo.Ni.V. EFS	88.0	LR.HNO ✓ KN.331	Hannover F.57/1185
L.P. ROTOR DISC	Cr.Mo.Ni.V. EFS	87.5	LR.HNO ✓ KN.537	Hannover F.57/1187
L.P. ROTOR DISC	Cr.Mo.Ni.V. EFS	85.5	LR.HNO ✓ KN.538	Hannover F.57/1187
L.P. ROTOR DISC	Cr.Mo.Ni.V. EFS	86.7	LR.HNO ✓ KN.508	Hannover F.57/1186
L.P. ROTOR DISC	Cr.Mo.Ni.V. EFS	95.6	LR.HNO ✓ KN.509	Hannover F.57/1184
L.P. ASTERN DISC	Cr.Mo.Ni.V. EFS	93.0	LR.HNO ✓ KN.587	Hannover F.57/1186
AHD. L.P. UPPER & LOWER CASINGS	E.F.S.	48.0	LR.GEN. ✓ P.400	Genoa C.14478
AST. L.P. UPPER & LOWER CASINGS	E.F.S.	46.4	LR.GEN. ✓ P.413	Genoa C.14479
	E.F.S.	61.7	LR.TRI. ✓ 3216	Trieste 3670
	E.F.S.	59.2	LR.TRI. ✓ 3217	Trieste 3670
L.P. TURBINE CHEST.	E.F.S.	53.7 / 54.9	LR.GEN. P.403/404	Genoa C.14476/7
L.P. TURBINE THRUST			LR.PHL. ✓ 8531	Philadelphia 14/11/57
FLEXIBLE COUPLING	E.F.S.	93.2 / 70.0	LR.GEN. P.27/P.32	Genoa F.26417/26479
COUPLING FLANGE	E.F.S.	57.2	LR.MIL. 26	Milan M.240
L.P. TURBINE SUPPORTS	E.F.S.	49.8	LR.GEN. P.401	Genoa M.2293
L.P. TURBINE SUPPORTS	E.F.S.	48.0	LR.GEN. P.367	Genoa M.2293

J. J. Lush


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"ESSO SOUTHAMPTON"

on the S.S./M.S. C.R.D.A. YARD. NO.1839 - TURBINES NOS. 316 - 317

G E A R I N G

P A R T S	MATERIAL	Min.Tensile Strength Kg/mm2	Identification Marks	Port and No. of Certificate
1ST REDUCTION H.P. PINION	Ni.Cr.Mo.EFS	96.2	LR.NAP. ✓ 3248	Naples 2426
1ST REDUCTION L.P. PINION	Ni.Cr.Mo.EFS	91.0	LR.NAP. ✓ 3236	Naples 2425
H.P. FLEXIBLE COUPLINGS	E.F.S.	93.2	LR.GEN. ✓ P.28	Genoa F.26418
H.P. FLEXIBLE COUPLING	E.F.S.	74.5	LR.GEN. ✓ P.44	Genoa F.26483
L.P. FLEXIBLE COUPLING	E.F.S.	93.2	LR.GEN. ✓ P.27	Genoa F.26417
L.P. FLEXIBLE COUPLING	E.F.S.	70.0	LR.GEN. ✓ P.32	Genoa F.26479
1ST RED.H.P. WHEEL RIM	Mn.V. EFS	64.7	LR.GEN. ✓ SS.6374	Genoa F.25608
1ST RED.H.P. WHEEL SHAFT	E.F.S.	59.2	LR.NAP. ✓ 3009	Naples 2352
1ST RED.H.P. WHEEL DISC	S.M.S.		LR.TRI. S.2798	Trieste 272
1ST RED.H.P. WHEEL HUB.	E.F.S.	49.3	LR.MIL. 501	Milan M.148
1ST RED.H.P. WHEEL NUT.	E.F.S.	45.3	LR.MIL. 545	Milan M.152
1ST RED. L.P. WHEEL RIM	Mn.V. EFS	63.5	LR.GEN. ✓ S.5805	Genoa F.24421
1ST RED. L.P. WHEEL SHAFT	E.F.S.	56.6	LR.NAP. ✓ 3134	Naples 2353
1ST RED. L.P. WHEEL DISCS.	S.M.S.		LR.TRI. 2441/2445	Trieste 152
1ST RED. L.P. WHEEL HUB.	E.F.S.	48.5	LR.GEN. 5496	Genoa F.23664
1ST RED. L.P. WHEEL NUT.	E.F.S.	45.3	LR.MIL. 545	Milan M.152
H.P. QUILL SHAFT	E.F.S.	74.1	LR.NAP. ✓ 3048	Naples 2472
L.P. QUILL SHAFT	E.F.S.	76.7	LR.NAP. ✓ 3047	Naples 2271
2ND RED. H.P. PINION	Ni.Cr.Mo.	91.4	AB 738 +	Genoa AB 578
2ND RED. L.P. PINION	Ni.Cr.Mo.	95.5	AB 739 +	Genoa AB 578
H.P. FLEXIBLE COUPLING	Ni.Cr.Mo.EFS	88.4	LR.GEN. ✓ P.51	Genoa F.25706
H.P. FLEXIBLE COUPLING	E.F.S.	65.0	LR.GEN. P.35	Genoa F.25702
L.P. FLEXIBLE COUPLING	Ni.Cr.Mo.EFS	88.4	LR.GEN. P.51	Genoa F.25706
L.P. FLEXIBLE COUPLING	E.F.S.	65.0	LR.GEN. P.35	Genoa F.25702
MAIN GEAR WHEEL RIM	Mn.V. E.F.S.	61.3	LR.GEN. ✓ SS.5829	Genoa F.24513
MAIN GEAR WHEEL SHAFT	E.F.S.	56/1	LR.MIL. ✓ IL.577	Milan F.1375
MAIN GEAR WHEEL DISCS	S.M.S.		LR.2380/2/4/2378	Genoa 11/0471
MAIN GEAR WHEEL HUB	E.F.S.	45.3	LR.GEN. ✓ SS.5596	Genoa F.23892
MAIN GEAR WHEEL NUTS	E.F.S.	44.1 / 45.8	LR.MIL. 546/7	Milan M.152

+ See Trieste letter 'Eng' dated 1st April 58 and Secretary's letter

'ENG.' dated 16th April 1958 Acceptance of AB tested 2nd reduction pinions approved

after satisfactory check tests.

